

# Atwood Mobile Products®

## 2007 Training Manuals

***Water Heaters,  
Ranges, Furnaces,  
and Hardware***



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 Atwood®

# Atwood 2007 Training Manuals

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**Warranty / Rate Schedule / Return Goods Program**

**Water Heater Training Manual**

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**Hardware Training Manual**

# Atwood Warranty/Flat Rate Schedule/Return Goods Program

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# Atwood® Water Heater Limited Warranty

Atwood Mobile Products warrants to the original owner and subject to the below mentioned conditions, that this product will be free of defects in material or workmanship for a period of two years from the original date of purchase. Atwood's liability hereunder is limited to the replacement of the product, repair of the product, or replacement of the product with a reconditioned product at the discretion of the manufacturer. This warranty is void if the product has been damaged by accident, unreasonable use, neglect, tampering or other causes not arising from defects in material workmanship. This warranty extends to the original owner of the product only and is subject to the following conditions:

1. For a period of two years from the date of purchase, Atwood will replace the complete water heater if the inner tank leaks due to corrosion. This warranty includes reasonable labor charges required to replace the complete water heater.
2. For two years from the date of purchase, Atwood will repair or replace any part defective in material or workmanship. This warranty includes reasonable labor charges, required to remove and replace the part. Service calls to customer's location are not considered part of these charges and are, therefore, the responsibility of the owner.
3. This warranty does not cover the following items classified as normal maintenance:
  - a. adjustment of gas pressure
  - b. cleaning or replacement of burner orifice
  - c. cleaning or adjustment of burner tube
  - d. cleaning or adjustment of flue
  - e. cleaning or adjustment of pilot and thermocouple
  - f. adjustment of pressure-temperature relief valve
  - g. replacement of thermal cut-off device.
4. **In the event of a warranty claim, the owner must contact, in advance, either an authorized Atwood Service Center or the Atwood Service Department. Warranty claim service must be performed at an authorized Atwood Service Center (a list will be provided at no charge) or as approved by the Consumer Service Department, Atwood Mobile Products, 1120 North Main St., Elkhart, IN 46514 USA. Phone: (866-869-3118).**
5. Return parts (or water heater) must be shipped to Atwood "Prepaid". Credit for shipping costs will be included with the warranty claim. The defective parts (or water heater) become the property of Atwood Mobile Products and must be returned to the Consumer Service Department, Atwood Mobile Products, 6320 Kelly Willis Road, Greenbrier, TN 37073 USA.
6. This warranty applies only if the unit is installed according to the installation instructions provided and complies with local and state codes.
7. The warranty period on replacement parts (or water heater) is the unused portion of the original warranty period or ninety (90) days, whichever is greater.
8. Damage or failure resulting from misuse (including failure to seek proper repair service), misapplication, alterations, water damage, or freezing are the owner's responsibility.
9. Atwood does not assume responsibility for any loss of use of vehicle, loss of time, inconvenience, expense for gasoline, telephone, travel, lodging, loss or damage to personal property or revenues. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.
10. Any implied warranties are limited to two (2) years. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.
11. Replacement parts (components or tanks) purchased outside of the original water heater warranty carry a 90 day warranty. This includes the part at no charge and reasonable labor charges to replace it.

This Atwood heater is designed for use in recreational vehicles for the purpose of heating water as stated in the "data plate" attached to the water heater. Any other use, unless authorized in writing by the Atwood Engineering Department, voids this warranty.

# Atwood® Cooking Appliance Limited Warranty

Atwood Mobile Products warrants to the original owner and subject to the below mentioned conditions, that this product will be free of defects in material or workmanship for a period of two years from the original date of purchase. Atwood's liability hereunder is limited to the replacement of the product, repair of the product, or replacement of the product with a reconditioned product at the discretion of Atwood Mobile Products. This warranty is void if the product has been damaged by accident, unreasonable use, neglect, tampering or other causes not arising from defects in material workmanship. This warranty extends to the original owner of the product only and is subject to the following conditions:

1. For two years from the date of the original purchase Atwood warrants that this product will be free of defects in material and workmanship with the exceptions noted below. This warranty includes reasonable labor charges required to remove and replace the part. Service calls to the customer's location are not considered part of these charges and are therefore the responsibility of the owner.
2. This warranty does not cover the following items classified as normal maintenance and/or customer damage.
  - a. Damage, discoloration or scratches to porcelain enamel or other finishes from improper use and care.
  - b. adjustment of gas pressure
  - c. cleaning or adjustment of any burners
  - d. cleaning or replacement of burner orifices
  - e. cleaning or adjustment of pilot and thermocouple
  - f. damage to glass
  - g. products purchased for commercial or industrial use.
3. **In the event of warranty claim the owner must contact in advance either an authorized Atwood Service Station or the Atwood Service Department. Warranty claim service must be performed at an authorized Atwood Service Station (a list will be provided at no charge) or as approved by the Atwood Service Department Atwood Mobile Products, 1120 North Main St., Elkhart, IN 46514 USA. Phone 866-869-3118.**
4. Return parts must be shipped to Atwood Mobile Products "prepaid". Credit for shipping costs will be included with the warranty claim. The defective parts become the property of Atwood Mobile Products and must be returned to the Consumer Service Department, Atwood Mobile Products, Greenbrier Operations, 6320 Kelly Willis Road, Greenbrier, TN 37073 USA.
5. This warranty applies only if the unit is installed according to the installation instructions provided and complies with local and state codes.
6. The warranty on replacement parts is the unused portion of the original warranty period.
7. Damage or failure resulting from misuse (including failure to seek proper repair service) misapplication, alterations, water damage or freezing are owner's responsibility.
8. Atwood does not assume responsibility for any loss of use of vehicle, loss of time, inconvenience, expense for gasoline, telephone, travel, lodging, loss or damage to personal property or revenues. Some States do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.
9. Any implied warranties are limited to two (2) years. Some States do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. This warranty gives you specific legal rights and you may also have other rights, which may vary, from state to state.
10. Replacement parts purchased outside the original cooking warranty carry a 90 day warranty. This includes the part at no charge and reasonable labor charges to replace it.

This Atwood product is designed for use in recreation vehicles for the purpose as stated in the 'data plate'. Any other use, unless authorized in writing by the Atwood Engineering Department, voids the warranty. Atwood/Wedgewood Vision Products include range/oven, drop-in, slide-in and high pressure stoves.



# Atwood® hydro flame® Furnace Limited Warranty

Atwood Mobile Products warrants to the original owner and subject to the below mentioned conditions, that this product will be free of defects in material or workmanship for a period of two years from the original date of purchase. Atwood's liability hereunder is limited to the replacement of the product, repair of the product, or replacement of the product with a reconditioned product at the discretion of Atwood Mobile Products. This warranty is void if the product has been damaged by accident, unreasonable use, neglect, tampering or other causes not arising from defects in material workmanship. This warranty extends to the original owner of the product only and is subject to the following conditions:

1. For two years from the date of purchase, Atwood will repair or replace any part defective in material or workmanship. This warranty includes reasonable labor charges required to remove and replace the part. Service calls to customer's location are not considered part of these charges and are, therefore, the responsibility of the owner.
2. This warranty does not cover the following items classified as normal maintenance:
  - ADJUSTING - gas pressure, voltage, loose wire connections, and/or thermostat heat anticipator
  - CLEANING - air wheels, burner and/or burner orifice
  - CLEANING OR ADJUSTING - heat chamber, heat ducting, return air opening, and/or exhaust tubes
3. **In the event of a warranty claim, the owner must contact, in advance, either an authorized Atwood Service Center or the Atwood Service Department. Warranty claim service must be performed at an authorized Atwood Service Center (a list will be provided at no charge) or as approved by the Consumer Service Department, Atwood Mobile Products, 1129 North Main Street, Elkhart, IN 46514 USA. Phone: 866-869-3118**
4. **RETURN PARTS MUST BE SHIPPED TO ATWOOD "PREPAID".** Credit for shipping costs will be included with the warranty claim. The defective parts become the property of Atwood Mobile Products and must be returned to the Quality Assurance Dept., Salt Lake City Operations, 1874 South Pioneer Road, Salt Lake City, Utah 84104 USA.
5. This warranty applies only if the unit is installed according to the installation instructions provided and complies with local and state codes.
6. The warranty period on replacement parts is the unused portion of the original warranty period.
7. Damage or failure resulting from misuse (including failure to seek proper repair service), misapplication, alterations, water damage, freezing or not using genuine Atwood parts are the owner's responsibility.
8. Atwood does not assume responsibility for any loss of use of vehicle, loss of time, inconvenience, expense for gasoline, telephone, travel, lodging, loss or damage to personal property or revenues. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.
9. Any implied warranties are limited to (2) two years. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.
10. Replacement parts purchased outside of the original furnace warranty carry a 90 day warranty. This includes the part at no charge and reasonable labor charges to replace it.

This hydro flame furnace is designed for use in recreation vehicles for the purpose of heating air as stated in the "data plate" attached to furnace. Any other use, unless authorized in writing by the Atwood Engineering Department, voids this warranty.

9/03

# Atwood® hydro flame® Furnace Extended Service Contract

## TERMS AND PROVISIONS:

1. Written approval by Atwood must be obtained prior to having any repairs made or parts replaced under these Warranties at other than an Atwood Authorized Service Center. A list can be obtained by calling 1-866-869-3118. Any such unauthorized charges will not be paid by Atwood.
2. Air freight or postage charges shall be borne by party claiming under Warranties. The Original Purchaser shall have the full responsibility of making the furnace or RV available for repair or replacement at Atwood Mobile Products, Salt Lake Operations or at an Atwood Authorized Service Center. Service calls are not covered under the normal two year warranty.
3. Atwood's Authorized Service Centers are neither agents nor employees of Atwood and at all times will be acting as independent contractors with the Original Purchaser. Atwood will reimburse service centers for warranty service rendered on a direct basis only.
4. Repairs, replacement parts and or furnace replacement authorized by Atwood shall be subject to the remainder of the warranty, if any of the aforesaid two year period.

## Exclusions (specifically excluded from the warranties)

1. Incidental or consequential damages.
2. Damaged caused by shipment.
3. Damage resulting from improper installation, misuse, neglect, accident or use in violation of instructions furnished by Atwood Mobile Products.
4. Equipment and parts which have been altered in any way whatsoever without written authorization from Atwood Mobile Products.
5. All repairs and replacement parts not authorized by Atwood Mobile Products.
6. Preventative maintenance.

## Limitations

1. The maximum liability of Atwood Mobile Products in connection with this limited warranty shall not in any event exceed the original price paid for the furnace claimed to be defective or unsuitable.
2. Components manufactured by any supplier other than Atwood Mobile Products shall bear only that warranty made by the manufacturer or supplier of that product.

3/97

# Atwood® Hardware Product Limited Warranty

Atwood Mobile Products warrants to the retail owner and subject to the below mentioned conditions, that this product will be free of defects in material or workmanship for a period of two years from the original date of purchase. Atwood's liability hereunder is limited to the replacement of the product, repair of the product, or replacement of the product with a reconditioned product at the discretion of the manufacturer. This warranty is void if the product has been damaged by accident, unreasonable use, neglect, tampering or other causes not arising from defects in material or workmanship. This warranty extends to the original owner of the product only and is subject to the following conditions:

1. For two (2) years commencing with the date of purchase, Atwood will provide the replacement or repair of any Hardware System found to be defective by Atwood in material or workmanship.
2. Replacement parts purchased outside the original hardware warranty carry a 90 day warranty. This includes the part at no charge and reasonable labor charges to replace it.
3. **In the event of a warranty claim, the original owner must contact the Atwood Consumer Service Department, 1120 North Main, Elkhart, IN 46514 USA. Phone: (866-869-3118). Warranty Claim Service must be performed as approved by the Atwood Consumer Service Department. Warranty replacement hardware systems and components or parts will be furnished freight prepaid labor cost to repair or replace will be limited to the amount of the original purchase price of the systems and components. The replaced warranty products or parts become the property of Atwood Mobile Products and must be returned to the Atwood Consumer Service Department freight prepaid, unless prior arrangements have been made.**
4. This limited warrant is valid only when the product is applied, installed, maintained and operated in accordance with this Atwood Installation Maintenance and Operating Manual. Any deviation from these recommended specifications must be approved in writing by Atwood.
6. ANY IMPLIED WARRANTIES arising by way of State Law, including any implied warranty of merchantability and any implied warranty of fitness for a particular purpose are limited in duration to the term of this Limited Warranty. Atwood makes no further warranty of any nature beyond this Limited Warranty. No person has authority to enlarge, amend or modify this Limited Warranty.

10/07

# Water Heaters

## Flat Rate Schedule

2/9/07

### TIME ALLOWANCE SCHEDULE in hours

Replacement of:	Standard Pilot Model	Electronic Ignition Model
Access Door.....	.30	.30
Circuit Board.....	N/A	.50
Complete Water Heater .....	1.50	1.75 *
Drain Valve or Plug.....	.30	.30 *
Electric On-Off Switch.....	N/A	.50 *
Heating Element.....	1.00*	1.00 *
Inner Tank.....	2.00	2.30
Main Burner.....	.50	.50
Mixing Valve.....	N/A	.50
Wall Switch.....	N/A	.75
Pilot Assembly .....	.50	N/A
Pilot Ignitor Module .....	.50	N/A
Pressure-Temp. Relief Valve .....	.50	.50 *
Relay .....	N/A	.50 *
Solenoid Valve.....	N/A	.50
Spark & Probe Assembly.....	N/A	.50
Thermal Cut Off.....	N/A	.30
Thermostat & E.C.O. ....	N/A	.50 *
Thermostat-electric.....	.50	.50
Thermostat-gas.....	1.00	N/A

\* indicates time allowed for Electric/Marine units

**Note:** Warranty claims must be filed and received within six months from the date of repair.  
 Claims received beyond this time frame will not be considered for warranty payment.

All flat rates include diagnostic time and when applicable, gas leak test.



**Atwood Mobile Products LLC**  
 1120 North Main Street • Elkhart, IN 46514  
**PHONE:** 574•264•2131 **FAX:** 574•262•2550  
**INTERNET:** <http://www.atwoodmobile.com>

# Recreation Vehicle Ranges

## Flat Rate Schedule

11/28/06

### TIME ALLOWANCE SCHEDULE in hours

	RA 33 RA 32	RV 33 RV 32	CV 33 CA 33 CV 32 CA 31	DV-30 DV-20
Complete Unit.....	1.0	1.0	.7	.5
Bifold Cover.....	.2	.2		
Burner Head.....	.3	.3	.3	.3
Burner Head Electrode.....	.3	.3	.3	.3
Burner, Oven.....	.3	.3		
Cover, Manifold.....	.6*	.6*	.4*	.4*
Handle.....	.2	.2		
Hinge, Door.....	.5	.5		
Ignition Module.....	.7	.7	.7	
Ignition Switch.....	.7	.7	.7	
Oven Control (Thermostat).....	1.0*	1.0*		
Oven Door.....	.3	.3		
Maintop.....	.2	.2	.2	.2
Manifold, Pipe.....	.5	.5	.5	.5
Piezo Igniter.....	.5	.5	.5	
Regulator.....	.5*	.5*	.5	.5
Safety Valve/Pilot Assembly.....	.5	.5		
Seal.....	.3	.3		
Spring, Hinge.....	.3	.5		
Trim, Bottom.....	.6*	.6*		
Trim, Maintop, LH/RH.....	.9*	.9*	.6*	
Trim, Vent Top.....	.7*	.7*	.5*	
Valve, Burner.....	.6	.6	.6	.6
All Other Parts.....	.5*	.5*	.5	.5

\* indicates 0.5 hours will be allowed to remove and install the appliance. If two or more parts are replaced on the same appliance during the repair, the R & R allowance to remove the appliance will be applied to only one part.

### NO LABOR IS ALLOWED TO CHANGE KNOBS

Above time allowances include all operations involved in the diagnosis, location and replacement of part. Also, included is the time required to remove and replace any part or assembly that is in the path of a part being replaced and gas leak test when applicable.

**Note:** Warranty claims must be filed and received within six months from the date of repair. Claims received beyond this time frame will not be considered for warranty payment.



# hydro flame™ Furnaces AND Detectors

## Flat Rate Schedule

### TIME ALLOWANCE

11/28/06

### SCHEDULE in hours

	85 IV 1522 & 2334	DC89 III 2540	AC89 III	8012 II	79 II
Complete <b>FURNACE</b> .....	1.00	1.00	1.00	1.00	1.00
Air Box Extension .....				.70	.70
Air Wheel (Circulating) .....	.75	.75	.75	1.00	1.00
Air Wheel (Combustion) .....	1.00	1.00	1.00	1.00	1.00
Blower Housing .....	.50	.50	.50		
Burner .....	.60	.60	.60	.80	.80
Burner Box .....	.70	.70	.70		
Burner Plate .....				.80	.80
Burner Plate Gasket .....				.75	.75
Casing .....	1.00	1.00	1.00	1.50	1.50
Circuit Breaker .....	.40	.40	.40	.80	.80
Combustion Chamber .....	1.50	1.50	1.50	1.50	1.50
Door .....	.70	.70	.70	.30	.30
Draft Cap .....	.30	.30	.30		
Circuit Board .....	.70	.70	.70	.70	.70
Circuit Board Bracket .....	.70	.70	.70	.70	.70
Electrode .....	.60	.60	.60	.70	.70
Exhaust Tube .....				.70	.70
Gasket Comb. Chamber .....	1.50	1.50	1.50		
Gasket Electrode .....	.60	.60	.60	.70	.70
High Tension Lead .....	.50	.50	.50	.50	.50
Limit Switch .....	.90	.90	.90	.60	.60
Manifold Inlet .....	.75	.75	.75		
Manifold Outlet .....	.75	.75	.75	1.00	1.00
Motor .....	1.00	1.00	1.15	1.15	1.15
Motor Bracket .....	1.15	1.15	1.15		
Motor Capacitor .....			.50		
Motor Mounting Wall .....	1.50	1.50	1.50		
Orifice (Burner) .....	.60	.60	.60	.80	.80
Relay .....	.50	.50	.50	.60	.60
Sail Switch .....	.60	.60	.60	1.00	1.00
Thermostat .....	.50	.50	.50	.50	.50
Transformer .....			.60		
Valve .....	.80	.80	.80	1.00	1.00
Valve Bracket .....	.80	.80	.80	1.00	1.00
Valve Coil .....	.70	.70	.70	.50	.50
Wiring Harness .....	1.00	1.00	1.00	1.00	1.00

Complete <b>DETECTORS</b> .....	25
Complete <b>CONVERTER</b> .....	1.00
Breaker Stab Assembly .....	.50
DC Fuse Board .....	.50
Door .....	.25
Neutral/Ground Bars .....	.25

### NOTES:

- 1) If more than one repair is done, minus .40 for each additional repair.
- 2) All flat rates include diagnostic time and when applicable, gas leak test.
- 3) Additional .50 hrs for removal and replacement of door less furnaces (LD models).
- 4) Warranty claims must be filed and received within six months from the date of repair. Claims received beyond this time frame will not be considered for warranty payment.

# Hardware

## Flat Rate Schedule

### TIME ALLOWANCE SCHEDULE in hours

1/24/07

#### BRAKE SYSTEM

Complete Actuator:

Bolt On .....	1.00
Weld On .....	2.00
Master Cylinder .....	1.00
Push Rod Assembly .....	.75
Shock Absorber.....	.50
Shoulder Bolt .....	.50
Release Handle.....	1.00
Stop Spring .....	.50
Foundation Brakes (per axle) .....	1.50
Shoe & Lining (per axle) .....	1.50
Wheel Cylinder (per axle) .....	1.50

#### COUPLER

Complete Coupler:

Bolt On .....	.50
Weld On .....	1.50
Latch (2" or 2 5/16") .....	1.00

#### DURALEG™

Circuit Board .....	.50
Key Pad .....	.50
Complete Jack Leg (per leg) .....	.75

#### 5TH WHEEL LANDING LEG\*

Both Legs** .....	1.50
One (1) Leg** .....	.75
Bevel Gears (per Leg) .....	.75
Cap .....	.25
Gear Box .....	.75
Motor .....	.50
Switch .....	.50

\* Inner ram not available, replace appropriate leg.

\*\* Flat rate pertains to landing gear that are accessible on outside of 5th wheel. If landing gear are buried in belly of 5th wheel, it may require more time.

#### LEVELEGS™

Front Levelegs (per leg) .....	.75
Rear Levelegs (per leg) .....	1.00
Relay Control.....	.75
Key Pad .....	.75

\* rate times include the resetting of the auto sequence.

#### BALL SCREW CAMPER JACK\*

Electric:

Complete Jack .....	.50
Bevel Gears.....	1.50
Brackets .....	.50
Cover Top-Bottom .....	.25
Motor .....	.75
Motor Switch.....	.50
2-Way/4-Way Plug .....	.50
Relay Control Module .....	1.00
Activation Switch .....	.50

Manual:

Complete Jack .....	.50
for each add'l jack add .....	.25
Cover .....	.25
Bevel Gears .....	.75
Brackets .....	.50

#### POWER JACK\*

Complete Jack .....	.50
Cover .....	.25
Lens .....	.25
Light Socket .....	.25
Light Switch .....	.25
Motor .....	.50
Motor Switch.....	.25

#### SIDE WIND JACK\*

Complete Jack:	
Bolt On .....	.50
Weld On .....	.50
Bevel Gears .....	.50
Cover .....	.50
Handle .....	.50

#### STABILIZER JACK\*

Complete Jack .....	.50
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#### TOP WIND JACK\*

Complete Jack:	
Bolt On .....	.50
Weld On .....	1.00
Bearing .....	1.00
Handle .....	.50

**Note:** Warranty claims must be filed and received within six months from the date of repair.  
 Claims received beyond this time frame will not be considered for warranty payment.

**All flat rates include diagnostic time.**

## ATWOOD RETURN GOODS PROGRAM

**WARRANTY RETURNS** - The Warranty Program, Must Return Parts List and approved Flat Rate Schedule; (by product line) provide the framework for Warranty Returns.

**NON- DEFECTIVE RETURNS** - A restocking fee (by product line) will be charged for handling overstock returns or standard stock items ordered incorrectly by the customer. The product must be received in resalable condition. Product that has been specifically designed at the customer's request is non-returnable. Obsolete or out-dated product will not be accepted for credit.

**DEFECTIVE RETURNS** - Within 30 days of sale, defective returns are to be shipped back to the respective manufacturing facility for Problem Cause Analysis (PCA).

**ALL WARRANTY RETURNS** - If the PCA determines Atwood is responsible, full credit will be issued. If the PCA determines the customer is responsible, partial or no credit will be issued at Atwood's discretion.

**SHIPPING DAMAGE** - Once the product has been accepted at your facility, it is the customer's responsibility to file the damage claim with the carrier.

**RETURN PARTS** - Before returning any part to Atwood a Returned Goods Number (RGN) must be obtained by calling Atwood Mobile Product Service Department at 800-825-4328.

**SHIPPING** - If the PCA determines Atwood is responsible for the disposition of a defective and/or warranted part, reasonable shipping charges are reimbursed. All products not shipped via Atwood trucks should be shipped prepaid via UPS Ground when able (unless negotiated at the time the RGN is given). **No collect shipments will be accepted.**

**PACKAGING** - The RGN # must be identified on each container and all packing information. Product returned must be packaged to prevent shipping damage. Full credit will not be issued on product sent back in an open skid or improperly packaged. Additional product boxes are available upon request when applicable. Warranty Claims must be submitted to the correct division.

**MUST RETURN PARTS LIST** - Atwood requires the defective part to be returned with the warranty claims form. Failure to accompany your claim with the part will result in the non-shipment of a replacement part, or the non-processing of the appropriate credit until the part is received by Atwood.

Before returning the part, a RGN (Returned Goods Number) must be obtained by calling the Atwood Service Department at 800-825-4328. This RGN # is required for all products. Without this RGN # appearing on the outside of the shipping carton, the shipment will be refused at our Receiving Department.

### PARTS MUST BE RETURNED TO THE CORRECT DIVISION

#### Jacks, Couplers, 5th Wheel, Leveling, Braking Systems & Excel Type RV Window Assemblies

Atwood Mobile Products  
800 Highway 150 South  
West Union IA 52175

#### Water Heaters, Ranges, Ovens, Slide-ins & Drop-Ins

Atwood Mobile Products  
6320 Kelly Willis Road  
Greenbrier TN 37073

#### Furnace, LP & CO Detectors, Converters & Distribution Panels

Atwood Mobile Products  
Salt Lake City Operations  
1874 South Pioneer Road  
Salt Lake City UT 84104

#### Glass

Spec-Temp  
5406 U.S 24  
Antwerp OH 45813

#### Creation Brand Mfg. Housing Windows & Doors & RV Windows

Atwood Mobile Products  
Plant 1  
53061 Ada Drive  
Elkhart IN 46515

#### Mass Transit Window Assemblies

Lawrenceburg Operations  
2200 Helton Dr.  
Lawrenceburg TN 38464

#### Heavy Truck Window Assemblies

Queretaro MX Operations  
Fracc Ind. San Pedrito  
Santiago de Queretaro  
Queretaro, Mexico C.P. 76148

#### Seating Products & RV Doors

Atwood Mobile Products  
57912 Charlotte Avenue  
Elkhart IN 46517

### MUST RETURN PARTS LIST

#### Hardware

Actuators  
All 5th wheel items  
Couplers  
Foundation brakes  
Jacks  
Levelegs  
Master cylinders  
Power jacks  
Power jack motor  
Shock absorbers

#### Water Heater

Circuit boards  
Complete water heaters  
E.C.O. & thermostat kits  
Electric thermostats  
Gas solenoid valves  
Gas thermostat valves  
Heating elements  
Inner tanks  
Pilot assemblies  
Pressure temperature relief valves  
Spark probe assemblies  
Thermal cut-offs

#### Range, Oven, Slide-In & Drop-In (cook-tops)

12 volt ignition module  
Burners with ignition  
Burner valves  
Complete ranges (by approval only)  
Oven thermostats  
Regulators  
Safety pilot valves

#### Furnace, Detectors, Converters & Distribution Panels

All parts

#### Seating Products & RV Doors

All parts

### FOR EFFICIENT PROCESSING OF CLAIM

1. **CALL** for RGN # 800-825-4328  
West Union WINDOWS - 563-422-5641  
Lawrenceburg WINDOWS - 931-762-2090  
Mexico WINDOWS - 011-52-442-211-7500
2. **COMPLETE** Warranty Service Report form.
3. Clearly **MARK THE PART** with the RGN #.
4. **PACKAGE** defective part, **INCLUDE** the Warranty Service Report.
5. Clearly **MARK THE OUTSIDE OF THE PACKAGE** with the RGN #.
6. **SEND THE PART TO THE CORRECT DIVISION** of Atwood Mobile Products.



**Atwood Mobile Products LLC**

1120 North Main Street • Elkhart, IN 46514

**PHONE:** 574-264-2131 **FAX:** 574-262-2550

**INTERNET:** <http://www.atwoodmobile.com>

EFFECTIVE 2/21/07

# Atwood Water Heaters

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# Atwood LP Gas Water Heaters

PART #	MODEL#	DESCRIPTION
96110	G6A-7	6 GAL. GAS - PILOT
	G6A-7P	6 GAL. GAS - PILOT RELIGHT
96117	GC6AA-8	6 GAL. GAS/ELECTRIC - PILOT
	GC6AA-10E	6 GAL. GAS/ELECTRIC - DSI
96163	GCH6A-10E	6 GAL. GAS/ELECTRIC - HEAT EXCHANGER - DSI
96121	G6A-8E	6 GAL. GAS - DSI
96136	GH6-8E	6 GAL. GAS - HEAT EXCHANGER - DSI
90073	G9-EXT	6 GAL. GAS - DSI - EXOTHERMAL
90071	GE9-EXT	6 GAL. GAS/ELECTRIC - DSI - EXOTHERMAL
90068	GEH9-EXT	6 GAL. GAS/ELECTRIC - HEAT EXCHANGER - DSI - EXOTHERMAL
94180	G10-2	10 GAL GAS - PILOT
94186	GC10A-2	10 GAL GAS/ELECTRIC - PILOT
94191	G10-3E	10 GAL GAS - DSI
	GH10-3E	10 GAL GAS - HEAT EXCHANGER - DSI
94022	GC10A-4E	10 GAL GAS/ELECTRIC - DSI - EXOTHERMAL
94023	GCH10A-4E	10 GAL GAS/ELECTRIC - HEAT EXCHANGER - DSI - EXOTHERMAL
94105	G16-EXT	10 GAL GAS - DSI - EXOTHERMAL
94026	GE16-EXT	10 GAL GAS/ELECTRIC - DSI - EXOTHERMAL
94029	GEH16-EXT	10 GAL GAS/ELECTRIC - HEAT EXCHANGER - DSI - EXOTHERMAL
<b>MARINE WATER HEATERS - 110 VOLT</b>		
	EHM4-SM	4 GAL INTERNAL HEAT EXCHANGER - 150 PSI
	EHM6-SM-FHX	6 GAL INTERNAL HEAT EXCHANGER - SINGLE LOOP - 75 PSI
93891	EHM6-SM-FHX	6 GAL INTERNAL HEAT EXCHANGER - SINGLE LOOP - 150 PSI
	EHM6-SM-FHX-4W	6 GAL INTERNAL HEAT EXCHANGER - SINGLE LOOP - 150 PSI - ANDERSON CONNECTOR
	EHM6-SM-FHX-TC	6 GAL INTERNAL HEAT EXCHANGER - SINGLE LOOP - 150 PSI W/VAC VALVE
94610	EHM6-SM-FHX-SS	6 GAL INTERNAL HEAT EXCHANGER - SINGLE LOOP - 150 PSI - SS
93882	EHM11-SM-FHX	11 GAL INTERNAL HEAT EXCHANGER - SINGLE LOOP - 150 PSI
	EHM11-SM-FHX	11 GAL INTERNAL HEAT EXCHANGER - SINGLE LOOP - 75 PSI
94550	EHM11-SM-FHX-SS	11 GAL INTERNAL HEAT EXCHANGER - SINGLE LOOP - 150 PSI - SS
	EHM11-SM-FHX-4W	11 GAL INTERNAL HEAT EXCHANGER - SINGLE LOOP - 150 PSI - ANDERSON CONNECTOR
	EHP-10-SS	10 GAL INTERNAL HEAT EXCHANGER - FOUR LOOP - 150 PSI - SS
96335	EHP-10	10 GAL INTERNAL HEAT EXCHANGER - FOUR LOOP - 150 PSI
	EHM11-SM-SS-DUAL-HX	11 GAL EXTERNAL & INTERNAL HEAT EXCHANGER - SINGLE LOOP - 150 PSI - SS
94210	EH20	20 GAL INTERNAL HEAT EXCHANGER - TWO LOOP - 150 PSI
94215	E20	20 GAL NO HEAT EXCHANGER - 150 PSI
<b>INTERNATIONAL MARINE WATER HEATERS - 220 VOLT - CE APPROVED</b>		
	EHM4	
94590	EHM6-FHX	6 GAL INTERNAL HEAT EXCHANGER - SINGLE LOOP - 150 PSI
	EHM6-FHX	6 GAL INTERNAL HEAT EXCHANGER - SINGLE LOOP - 75 PSI
94605	EHM6-SS-FHX	6 GAL INTERNAL HEAT EXCHANGER - SINGLE LOOP - 150 PSI - SS
	EHM6-FHX-4W	6 GAL INTERNAL HEAT EXCHANGER - SINGLE LOOP - 150 PSI - ANDERSON CONNECTOR
94555	EHM11-FHX	11 GAL INTERNAL HEAT EXCHANGER - SINGLE LOOP - 150 PSI
	EHM11-FHX	11 GAL INTERNAL HEAT EXCHANGER - SINGLE LOOP - 75 PSI
	EHM11-FHX	11 GAL INTERNAL HEAT EXCHANGER - SINGLE LOOP - 150 PSI
94575	EHM11-SS-FHX	11 GAL INTERNAL HEAT EXCHANGER - SINGLE LOOP - 150 PSI - SS
	EHM11-FHX-4W	11 GAL INTERNAL HEAT EXCHANGER - SINGLE LOOP - 150 PSI - ANDERSON CONNECTOR
94220	EH20	20 GAL INTERNAL HEAT EXCHANGER - TWO LOOP - 150 PSI
94225	E20	20 GAL NO HEAT EXCHANGER - 150 PSI
	E20	20 GAL NO HEAT EXCHANGER - 75 PSI

DSI - DIRECT SPARK IGNITION  
SS - STAINLESS JACKET  
XT - EXOTHERMAL



# Pilot Models



## QUESTIONS

**The following questions should be answered during this portion of the manual:**

- Are the Robertshaw and White Rodgers thermostat gas control valves inter-changeable?
- What is the minimum gas pressure required for proper water heater operation?
- Where on the water heater gas control can gas pressure be tested?
- Can the pilot flame be adjusted?
- What is minimum millivolt output of the thermocouple required for proper gas control operation?
- How can you test a thermocouple?
- How tight should the thermocouple connection be at the gas control?
- What is an E.C.O., where is it located and what is its function?
- What is a proper main burner air shutter adjustment?
- What is the proper control and main burner alignment?
- How can you easily check the calibration of a control?

# Atwood 6 and 10 Gallon Pilot Water Heaters

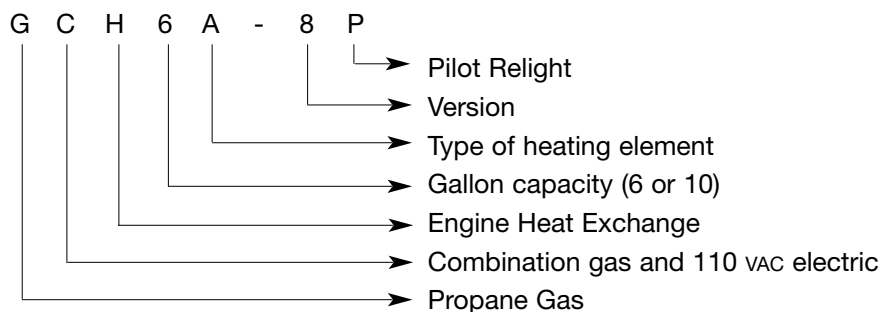
Atwood water heaters are designed and approved for use only in recreation vehicles (travel trailers, 5th wheels, motor homes, etc.). They are offered in two sizes: 6 and 10 gallon capacities.

## TYPE OF GAS IGNITION -

This unit is ignited outside of the trailer by a match, piezo ignitor or other ignition device. The water temperature is adjustable at the thermostat control.

## EXPLANATION OF MODEL NUMBER:

### Pilot Models



**NOTE:** When replacing the element on a combination gas/110 VAC unit, always check the back of the heater for the type of element it has. It will either be a bolt-on or screw-in element. They are not interchangeable.

## FEATURES

- All units operate on propane gas.
- A heat exchange option is available for motor homes. The water heater tank must have factory equipped heat exchange tubes welded on it already. They cannot be added later. A new water heater tank with this option is the only way to obtain this feature.
- Skin mounting allows the water heater to be hooked up with plumbing and electrical before the sidewall is erected.
- The tank has a clad aluminum lining that protects against corrosion and does not need to be replaced on a yearly or more frequent basis unlike an anode rod. A more detailed explanation of cladding is found in the back of this manual.
- 95% of all servicing can be done on the outside of the water heater. 110 VAC heating components are the exception since they are located on the back of the water heater inside the trailer.
- A flush flange is available for all models. This makes the access door flush with the trailer sidewall.
- There are multiple protection features in the form of a pressure-temperature relief valve, a limit switch in the gas thermostat and an externally sealed combustion chamber.
- On combination water heaters, the gas mode and the 110 VAC heating mode can be operated at the same time since each mode has its own thermostat.
- Both the six and ten gallon units have the lightest weight in the industry.
- The Atwood Limited Warranty is for a period of two years.
- There are over 1,000 Service Centers throughout the United States.

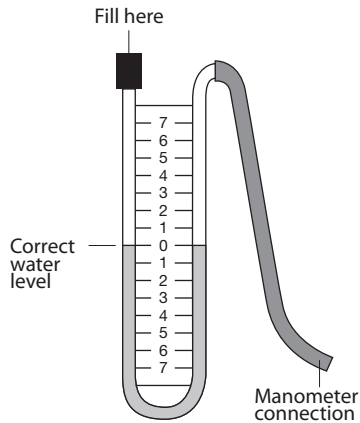
# Recommended Tools and Equipment

**U-Tube Manometer** - This is the most accurate device for measuring gas pressure. If you use a dial-type manometer, it should be calibrated periodically with this type of manometer.

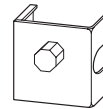
**Thermostat Wrench** - This tool allows for easier and safer removal of the gas thermostat control. An adjustable version for different size controls is available through most RV distributors or you may fabricate one from angle iron. We do not recommend using a pipe wrench because it may damage the control causing it to go out of calibration.

## U-TUBE MANOMETER

with 1/8" pipe nipple



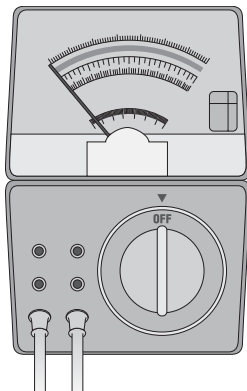
## THERMOSTAT WRENCH



**Multi-meter** - This is the most versatile meter and will test AC voltage and continuity. A continuity test can be used to test for a blown E.C.O. on a gas control.

**Magnet Assembly Thermocouple Tester** - This assembly can be obtained at an electronics or hardware store. This same assembly can also be removed from a Robertshaw control. It will verify if a thermocouple is good. For testing, screw a thermocouple into the tester, heat the thermocouple for 25 seconds and then press the plunger down. If the plunger pops up in less than 25 seconds, the thermocouple is faulty.

## MULTI-METER TO TEST VOLTAGE AND CONTINUITY



## MAGNET ASSEMBLY TO TEST THERMOCOUPLE



**Common Hand Tools** - 1/8" and 1/4" nut drivers, open end wrenches, flat blade and Phillips screw drivers.

**Leak Test Solution** - A solution that bubbles when applied to gas fittings or connections showing when a gas leak is present.

# Gas Thermostat Controls and Pilot Assemblies

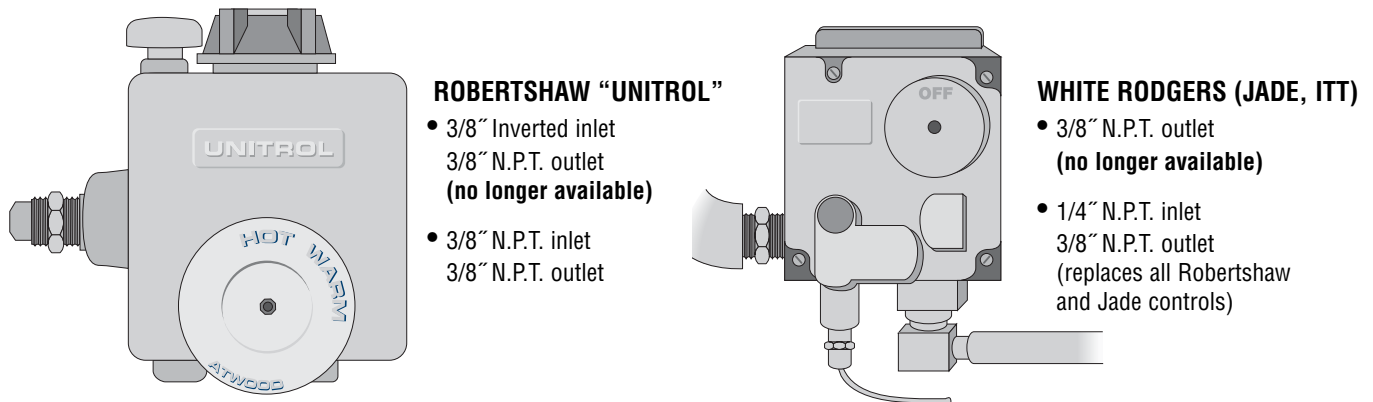
Only two makes of gas controls have been used on our pilot model water heaters. They are the Robertshaw "Unitrol" and White Rodger (formerly Jade or ITT).

The Robertshaw control came in two different sizes of gas inlets: 3/8" inverted flare and 3/8" N.P.T. The inverted inlet control is no longer available. Therefore, the water heater gas line connection will have to be modified to 3/8" N.P.T. in order to use the current Robertshaw control.

The White Rodger control is the valve we are using on all production today. Formerly it had a 3/8" N.P.T. inlet. Now it is only available with a 1/4" inlet. This improvement eliminates the adapter fitting into the control allowing the use of only a single 45 degree elbow (3/8" flare x 1/4" N.P.T.). If you are replacing a current 1/4" inlet model control with a earlier model 3/8" inlet control you may have in stock, the adapter fitting that mates the control and elbow fitting is still available.

Although the controls appear quite different in size, the White Rodger and Robertshaw control are interchangeable. Their manifolds will both line up with the burner tube properly.

Both controls have a port to test gas pressure through the valve. This can be accomplished by removing the cover screw and inserting a 1/8" pipe nipple. After attaching your manometer hose to this fitting, the manometer should register 10" W.C. through the valve while it is operating.



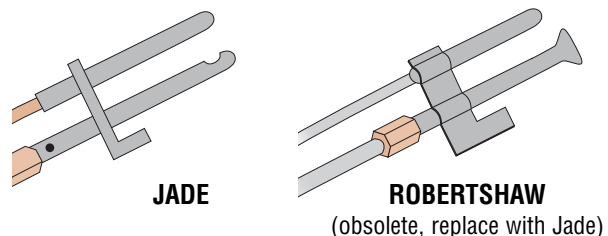
There are two main pilot assemblies that you will encounter in the field.

The first is an earlier model Robertshaw pilot assembly with a 1/4" pilot gas line that mounted on the left side of the main burner.

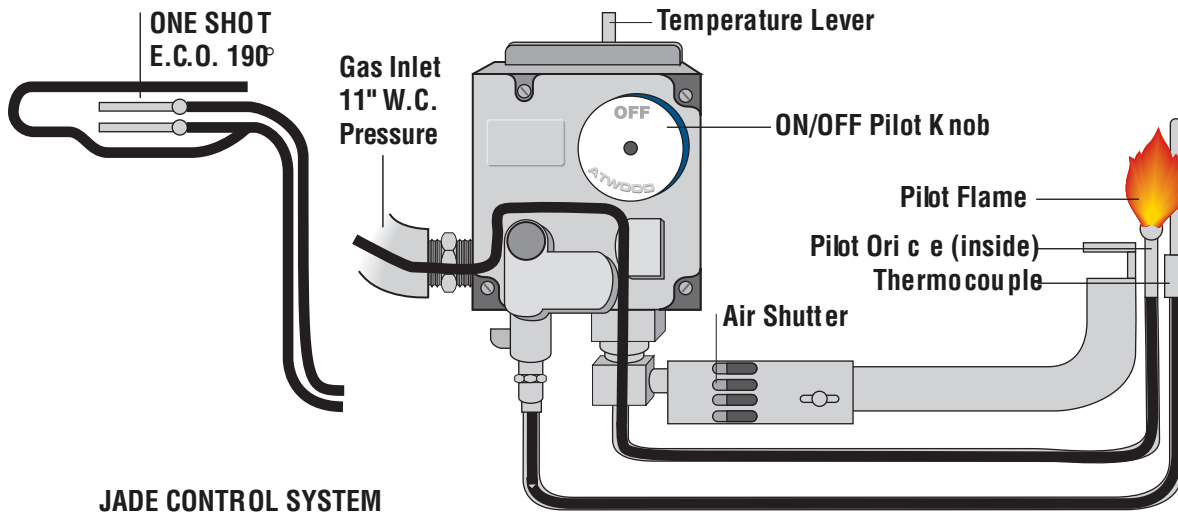
The current pilot is the Jade assembly with a 1/8" pilot gas line and it mounts on the right side of the main burner.

The Robertshaw pilot is no longer available and the Jade pilot must be substituted. When installing a Jade assembly in place of a Robertshaw assembly, if there is not a location on the right side of the main burner to mount the Jade pilot, a new burner that has the proper mounting holes will have to be purchased.

Note: The size of the gas line does not have any affect on the size of the pilot flame. Only the gas pressure and pilot orifice regulate the height of the pilot flame.



# Pilot Sequence of Operation



## PILOT OPERATION

- **Gas Pressure** 11" W.C. to control is necessary. Set with two gas appliances running.
- **Gas Control** supplies gas to pilot orifice when control ON/OFF pilot knob is held at pilot position.
- **Pilot Orifice** meters gas to heat thermocouple. Flame should be high enough to engulf the thermocouple.
- **Thermocouple** generates millivoltage to the gas control's magnet assembly.
- **Magnet** when it receives 12 millivolts or more it allows gas to flow freely to pilot without holding pilot knob.
- **E.C.O.** passes millivolts through the gas control and back to thermocouple. Trips permanently open if water temperature exceeds 190°F.

## MAIN BURNER OPERATION

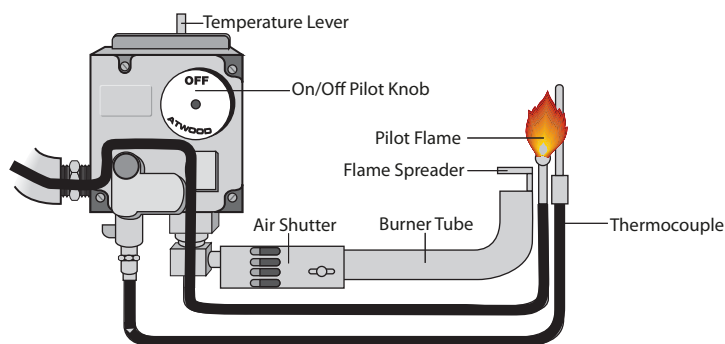
- **Gas Control** supplies gas to main burner when control knob is set to "ON" position and the temperature lever is set to desired temperature after pilot is lit.
- **Main Burner Orifice** meters gas through burner tube.
- **Main Burner** pilot ignites gas when it reaches end of this tube. Flame height adjusted by sliding air shutter. Ideal setting is 1/4 way open (.20"). Flame should be primarily blue with a trace of yellow.
- **Temperature Knob** setting of knob determines burner cycle and water temperature. Temperature range is 70°F - 140°F.



# Pilot and Main Burner

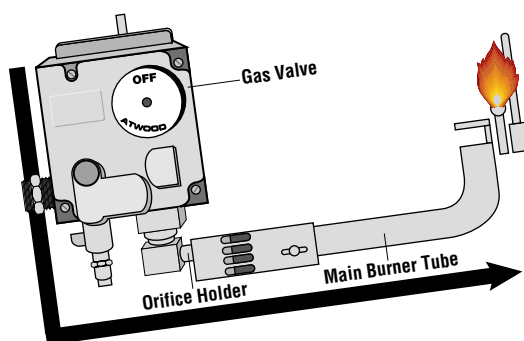
## Pilot Adjustment

Only the gas pressure, gas valve and the pilot orifice regulate the height of the pilot flame. Early model gas controls have a pilot adjustment screw, but this screw has very little effect on the pilot. The pilot adjustment has been removed from the current White Rodgers control. The flame should be high enough to engulf the thermocouple at all times. A pilot flame any larger could blow the E.C.O. in the gas control. This is typically the result of enlarging the pilot orifice hole with a pin or similar item. For further corrective measures, refer to the trouble-shooting guide.



## Main Burner Adjustment

The gas pressure, air shutter and cleanliness of the burner tube and orifice regulate the main burner flame. The main burner flame should be mainly blue with a trace of yellow and fairly quiet. If it is not, adjust the gas pressure to 11" W.C., ensure that the main burner air shutter is 1/4 way open and verify that the main burner flame spreader is square to the end of the main burner. For further corrective measures, refer to the trouble-shooting guide.



(orientation found in pilot water heater)

## Main Burner Alignment

The manifold and main burner should be as perfectly aligned as possible. In other words, the gas valve should be rotated at the same angle as the main burner tube. If it is not, rotate the gas control and/or the orifice holder so that the orifice disperses gas straight down the center of the burner tube. If the valve must be backed off any, check for water leaks at the coupling the control screws into before you operate the water heater.

# Pilot Water Heater

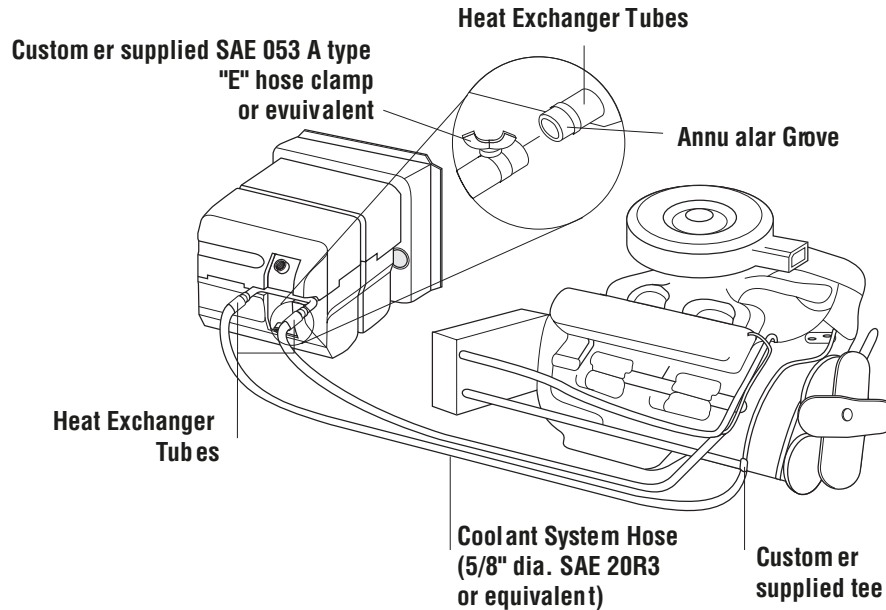
## TROUBLE SHOOTING GUIDE

Effective: 5/26/98

Guides are only intended for use on Atwood® products by service technicians who have successfully completed Atwood® training. This guide should be used in conjunction with the appropriate Instruction Manual provided with the product and any applicable Industry standards. This is not intended to be a complete list. Please direct questions concerning service of Atwood® products to 866-869-3118 before proceeding.

CAUSE	SOLUTION
<b>PILOT OUTAGE</b>	
Gas pressure incorrect	Set pressure to a minimum of 11" W.C. with two or more appliances running
Blocked "U" tube	Remove obstruction
Improper main burner alignment	Re-align main burner and main burner orifice holder and gas valve
Improper air adjustment	Adjust main burner air shutter approximately 1/4 open
Weak thermocouple	Replace thermocouple
Poor pilot flame	Clean or replace pilot orifice
Weak gas control magnet	Replace gas control
Defective E.C.O. in control	Replace gas control and check the pilot flame. It should be high enough to engulf the thermocouple at all times.
<b>PILOT OUTAGE WHEN BUTTON OR KNOB IS RELEASED</b>	
Thermocouple not hot	Hold button or knob for 30 seconds before releasing
Thermocouple loose	Tighten connection at gas control
Weak thermocouple	Replace thermocouple
Weak gas control magnet	Replace gas control
Defective E.C.O. in control	Replace gas control
<b>MAIN BURNER WILL NOT IGNITE</b>	
Blocked main burner orifice	Clean or replace orifice
Main burner flame spreader mis-alignment	Square flame spreader to end of main burner
Blocked main burner	Remove blockage
Improper air adjustment	Adjust main burner air shutter approximately 1/4 open
Blocked "U" tube	Remove blockage
Gas control out of calibration	Replace gas control
<b>ERRATIC MAIN BURNER FLAME</b>	
Improper gas pressure	Set inlet pressure to a minimum of 11" W.C. with two or more appliances running
Improper air adjustment	Adjust main burner air shutter approximately 1/4 open
Partial blockage of main burner	Remove blockage
Partial blockage of main burner orifice	Clean or replace orifice
Flame spreader misaligned	Re-align spreader or replace main burner
Blockage in "U" tube	Remove blockage
Poor gas supply	Replace gas supply
Exhaust grille blocked	Remove blockage
Improper main burner alignment	Re-align main burner, main burner orifice holder and gas valve
<b>SMOKING AND SOOTING</b>	
Gas pressure incorrect	Set pressure to a minimum of 11" W.C. with two or more appliances running
Poor gas supply	Replace gas supply
Improper pilot flame	Clean or replace pilot orifice
Improper air adjustment	Adjust main burner air shutter approximately 1/4 open
Flame spreader mis-aligned	Re-align or replace main burner
Blocked main burner	Remove blockage
Improper main burner alignment	Re-align main burner, main burner orifice holder and gas valve
Blocked "U" tube	Remove blockage
<b>INSUFFICIENT WATER TEMPERATURE</b>	
Temperature selector out of place	Re-set to desired position
Bypass levers improperly positioned	Reposition levers
Improper air adjustment	Adjust main burner air shutter approximately 1/4 way open
Partial main burner blockage	Remove blockage
Improper main burner adjustment	Re-align main burner and main burner orifice holder
Flame spreader mis-aligned	Re-align or replace main burner
Blocked "U" tube	Remove blockage

# Engine Heat Exchange System



The engine heat exchange system allows a motor home to heat the water while traveling. This convenient option allows you to arrive at your destination with hot water. Operating a pilot or electronic water heater on gas while in transit is a dangerous practice.

This system consists of a U-shaped aluminum tube that is attached to the outside of the tank with welds. SAE hoses are attached to both ends of this tube and are spliced into the engine coolant system.

When the engine is running, the hot coolant flows past the tank through this tube and by means of heat transfer through the welds, heating the water. The design of this system will not allow the water to reach a boiling point.

## Aftermarket Heating Elements



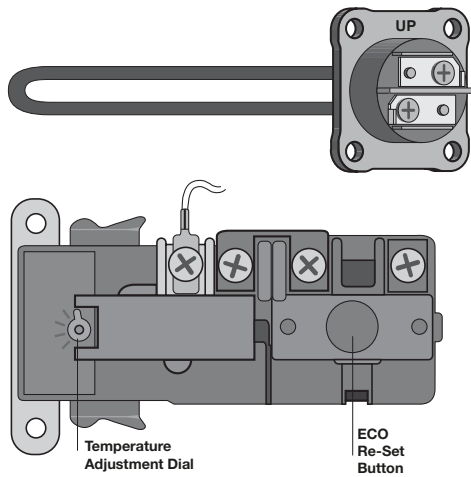
### WARNING EXPLOSION / BURN INJURY

- Aftermarket heating elements can lack critical safety controls.
- Use of these devices can lead to an out of control heating of water tank and a catastrophic wet side explosion.

**YOU DO NOT NEED AN AFTERMARKET HEATING ELEMENT ON AN ATWOOD WATER HEATER. THE USE OF AFTERMARKET HEATING ELEMENT DEVICES MAY ALSO RESULT IN DAMAGE TO COMPONENTS OR WATER HEATER. Atwood's written warranty states - "failure or damage resulting from any alteration to our water heater is the owner's responsibility". ANY ALTERATION, SUCH AS THE ADDITION OF AN AFTERMARKET HEATING ELEMENT DEVICE, WILL VOID THE WARRANTY.**

- Temperatures produced by these heating elements can exceed the 190°F. limit of the ECO on pilot model gas control valves. This gas control valve contains a one-shot ECO. When this ECO blows, the control is completely non-functional and must be replaced. **THIS IS A NON-WARRANTABLE SITUATION.**
- When Aftermarket heating elements are inserted into the drain plug, customers are more prone not to flush their tanks. Not flushing the tank accelerates tank corrosion on both our pilot and electronic ignition water heaters creating a situation where the tank may have to be replaced. **THIS IS A NON-WARRANTABLE SITUATION.**

## BOLT-IN Heating Element, Thermostat & ECO



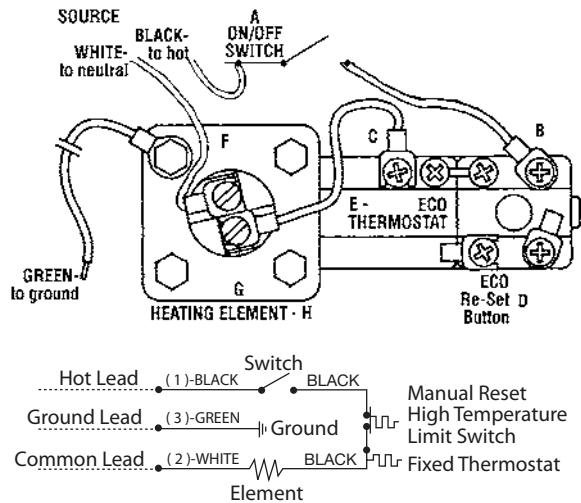
Early model water heaters with 110 VAC heating capacity used a bolt-on heating element and a one piece thermostat/E.C.O..

This 110 VAC system has an adjustable rectangular thermostat that is surface mounted to the inner tank and retained by a steel clip. The temperature settings are HI, MEDIUM, and LOW. If the thermostat is making unobstructed contact with the aluminum tank and it is set to the HI position, it should heat the water to 130° F. It will take longer to heat a tank of water on electric than gas.

The heating element was changed in 1996 from 1500W to 1400W bringing the amperage draw down to 12.7 amps and allowing more cushion for the 15 amp circuit breaker that is normally placed in line. This change adds a few minutes to the heating time.

There are 110 VAC aftermarket conversion kits being offered by distributors in which the heating element is screwed into the tank where the drain plug is located. We do not offer such a kit. Our kit includes the tank with the 110 VAC components already installed in it.

## 110VAC Trouble-Shooting Wiring Schematic



In the case where the 110VAC portion of the water heater is not heating water, the following diagnostic steps and repairs should be investigated:

**Turn POWER OFF to the appliance before removing junction box cover.**

**Perform the following steps with POWER ON to water heater.**

1. Verify switch-A is in ON position.
2. Insure there is 110VAC to the unit (measure voltage across the black and white lead to the appliance with POWER ON). If none, trace wiring back and make appropriate wire repair.

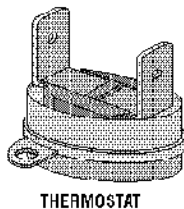
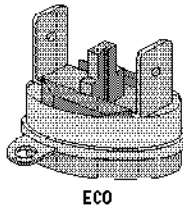
**Perform the following steps with POWER OFF to water heater.**

3. ECO Re-set Button-D should be depressed.
4. Check for continuity between screw-B and screw-C of thermostat. If none, replace thermostat.
5. If water is insufficiently hot, check ECO / Thermostat-E is on high.
6. Verify a good wire connection between thermostat screw-C and heating element screw-G. Correct if necessary.
7. There should be continuity between heating element screw-G and screw-F. If none, element is bad and should be replaced. Do not over-tighten self-tapping screws when installing new element.
8. Check for continuity between element screw-G and flange of element. If there is, element has shorted. Element should be replaced.
9. Verify ground connection.

**NOTE:** Heating element can be operated on an empty tank for a limited period of time before it self-destructs.

# SCREW-IN

## Heating Element, Thermostat & ECO



Current production water heaters with the 110 VAC heating option use a screw-in heating element, a separate pre-set thermostat and a separate ECO.

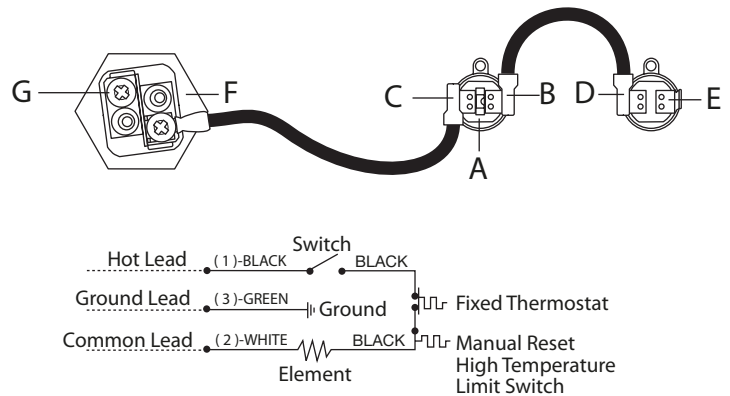
The screw-in heating element is rated at 1400 watts just like the bolt-on element. It is an incalloy element and can be run for a limited amount of time in a dry tank without shorting out.

**CAUTION:** If the heating element is allowed to run with a dry tank, allow the tank to cool down for 2-3 hours before adding water. Adding water before the tank cools sufficiently could collapse the tank.

The thermostat and ECO are pre-set surface-mounted discs. The thermostat is set at 140° F and is the same thermostat used on the gas side of the electronic ignition water heaters. The ECO is a backup thermostat and will trip if the thermostat fails and the water temperature exceeds 170° F.

# 110VAC Trouble-Shooting

## Wiring Schematic



When the 110VAC portion of the water heater is not heating water, the following diagnostic steps and repairs should be investigated:

**Turn POWER OFF to the appliance before removing junction box cover.**

**Perform the following steps with POWER ON to water heater.**

1. Verify switch is in ON position.
2. Insure there is 110VAC to the unit (measure voltage across the black and white lead to the appliance with POWER ON). If none, trace wiring back and make appropriate wire repair.

**Perform the following steps with POWER OFF to water heater.**

3. Manual reset ECO high limit switch-A should be depressed. Check for continuity between TERMINAL B and TERMINAL C of ECO.
4. Check for continuity between TERMINAL D and TERMINAL E of thermostat. If there is none, replace thermostat.
5. If water is insufficiently hot, insure thermostat is flush with tank.
6. Verify a good wire connection between ECO TERMINAL-C and heating element TERMINAL-F. Correct if necessary.
7. Check for continuity between heating element TERMINAL-F and TERMINAL-G. If none, element is bad and should be replaced. Do not over-tighten self-tapping screws when installing new element.
8. There should NOT BE CONTINUITY between element screw-G and flange of element. If there is, element has shorted. Element should be replaced.
9. Verify ground connection.

**NOTE:** Heating element can be operated on an empty tank for a limited period of time before it self destructs.



# Electronic Ignition Models



## QUESTIONS

**The following questions should be answered during this portion of the manual:**

- What is minimum gas pressure for proper water heater operation?
- Where on the gas solenoid valve can gas pressure be tested?
- What is the minimum voltage needed for operation?
- What is the proper wiring hook-up for the water heater circuitry?
- Can the Circuit Board Tester be used on both Fenwal and Channel circuit boards?
- How can the Circuit Board Tester be used to check a "flying lead" circuit board?
- What conditions can cause tracks on the back of the circuit board to blow?
- What is a proper main burner air shutter adjustment?
- What is the function of the thermal cut-off?

# Atwood 6 and 10 Gallon Electronic Ignition Water Heaters

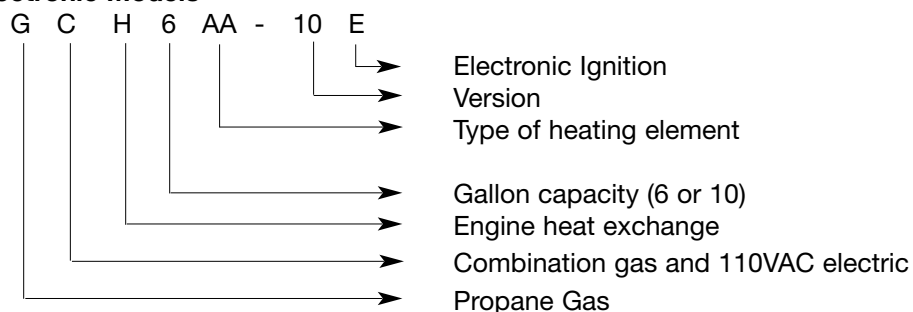
Atwood water heaters are designed and approved for use only in recreation vehicles (travel trailers, 5th wheels, motor homes, etc.). They are offered in two sizes: 6 and 10 gallon capacities.

## TYPE OF GAS IGNITION -

This unit is ignited inside of the trailer by a remote ON/OFF switch. The water temperature is preset at 140° F.

## EXPLANATION OF MODEL NUMBER:

### Electronic Models

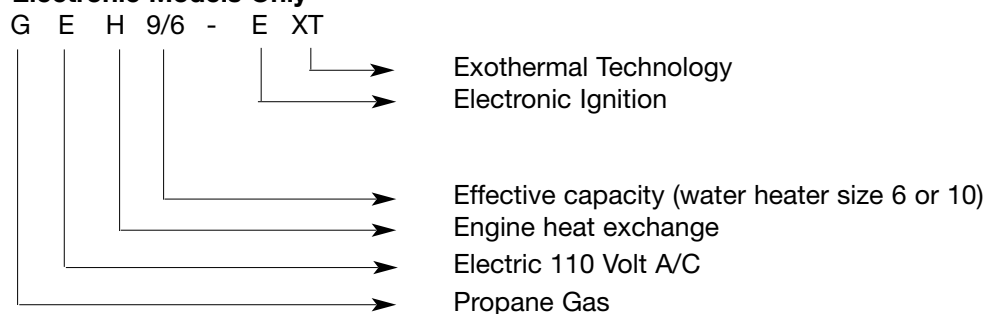


**NOTE:** When replacing the element on a combination gas/110 VAC unit, always check the back of the heater for the type of element it has. It will either be a bolt-on or screw-in element. They are not interchangeable.

## FEATURES

- All units operate on propane gas.
- A pre-set thermostat set for 140° F. An aftermarket retro-fit adjustable thermostat is available and adjustable from 110° to 150° F.
- A heat exchange option is available. The water heater tank must have factory equipped heat exchange tubes welded on it already. They cannot be added later. A new water heater tank with this feature must be installed to use the heat exchanger.
- Skin mounting allows water heater to be hooked up with plumbing & electrical before the sidewall is erected.
- This heater has a comparable, if not superior, anode type protection for the tank. The tank is manufactured with a clad aluminum lining that protects against corrosion but does not need to be replaced yearly as an anode rod. A more detailed explanation of cladding is found in the back of this manual.
- 95% of all servicing is done on the outside of the water heater. 110 VAC heating components are the exception. Since they are located on the back of the water heater inside the trailer.
- A flush flange is available for all models. This makes the access door flush with the sidewall.
- The water heater has protection features that include a pressure-temperature relief valve and a limit switch in the gas thermostat (ECO).
- Both the six and ten gallon units have the lightest weight in the industry.
- The Atwood Limited Warranty is for a period of two years.
- There are over 1,000 Service Centers throughout the United States.

### XT Electronic Models Only



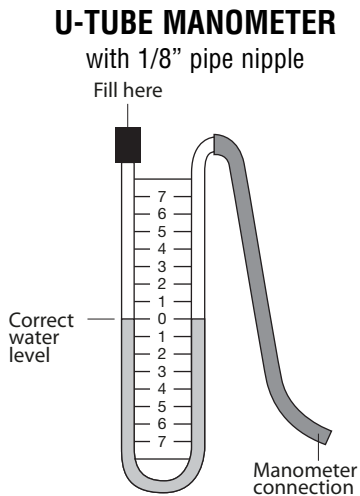
## FEATURES

- Provides 50% more hot water without increasing the size or adding weight using a pre-set thermostat set for 155°F. used exclusively in the XT water heater.
- Pre-configured winterizing capability. The valve, hose, tee and thermostatically-controlled mixing valve, with a check valve and a cold water passage, allows you to isolate and drain the tank and pump antifreeze through the plumbing circuit.

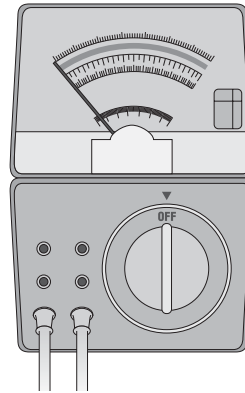
# Recommended Tools and Equipment

**U-Tube Manometer** - This is the most accurate device for measuring gas pressure. If you use a dial-type manometer, calibrated it periodically.

**Multi-meter** - This is the most versatile meter and will test continuity and 12VDC. These tests will allow one to verify voltage problems or faulty components. The entire electronic system can be tested with this meter.

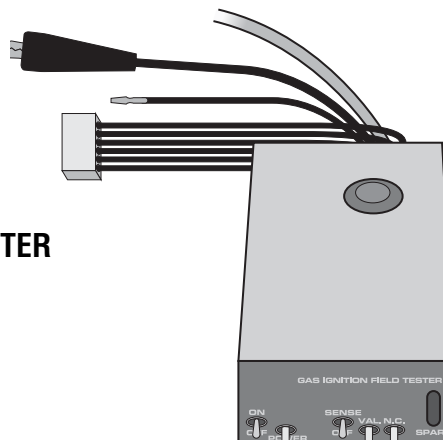


## MULTI-METER TO TEST CONTINUITY & VOLTAGE



**Circuit Board Tester** - The tester is capable of testing any of the circuit boards (Fenwal and Channel models) that we have used on our water heaters. It is a simple table top device that will diagnose the following items on a circuit board: power circuit, sense circuit, spark generation and the lock-out mode. For use on circuit boards with a flying lead connection, splice a wire into the black wire of the tester harness with a 1/4" male terminal on the free end.

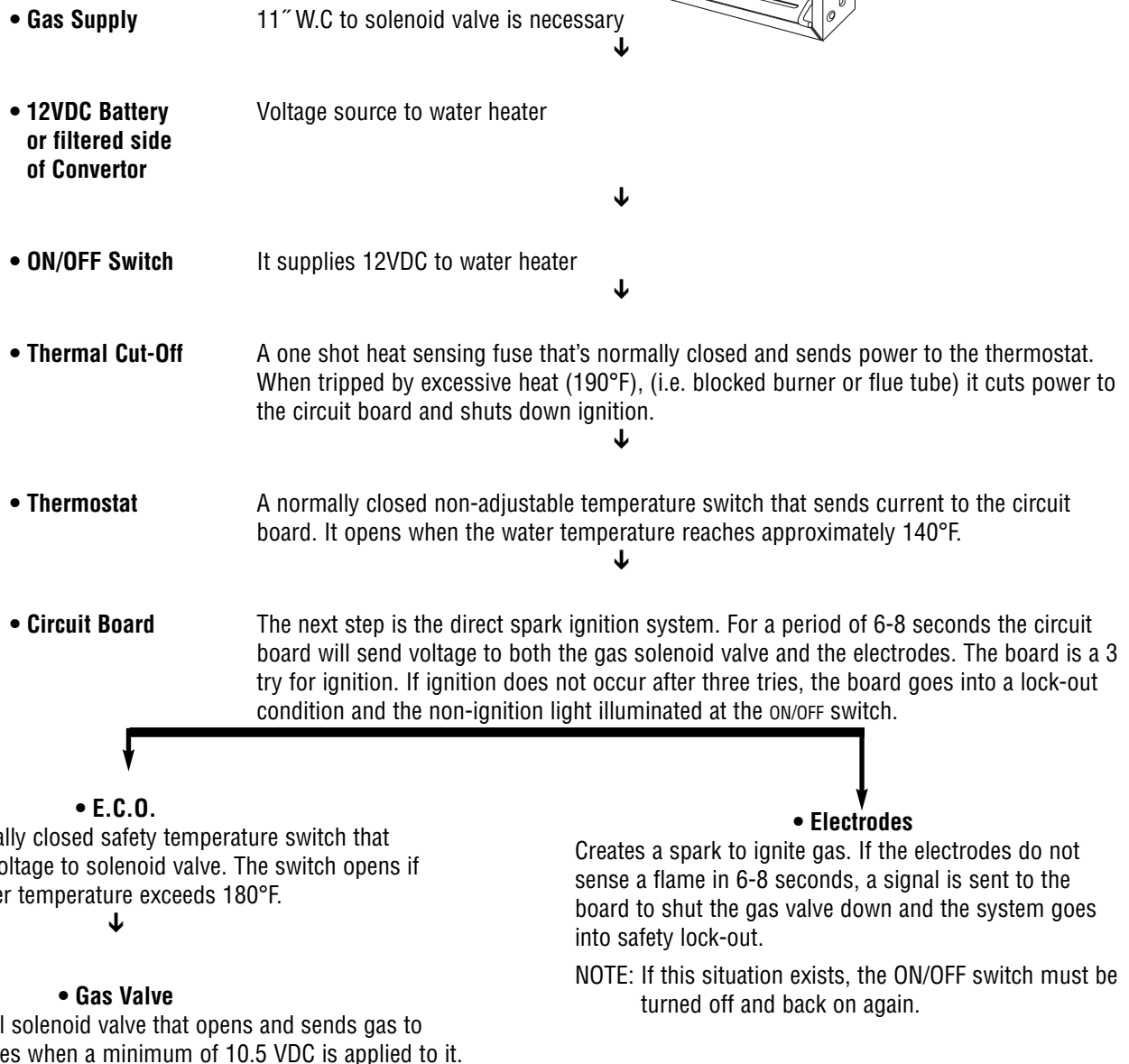
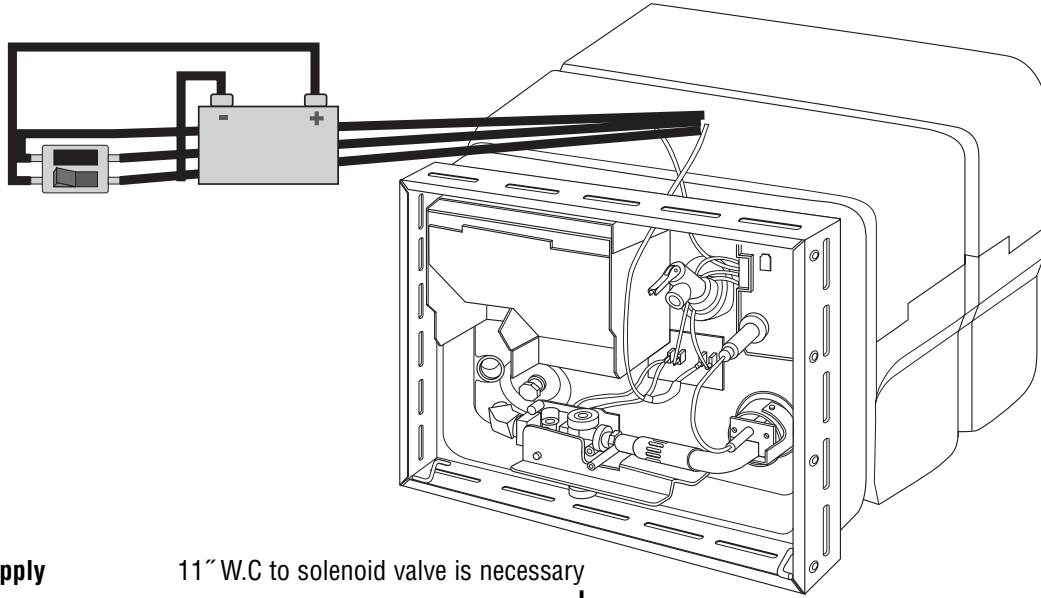
## CIRCUIT BOARD TESTER P/N 32779



**Common Hand Tools** - 1/8" and 1/4" nut drivers, open end wrenches, flat blade and Phillips screw drivers.

**Leak Test Solution** - A solution that bubbles when applied to gas fittings or connections showing where a gas leak is present.

# DSI Sequence of Operation



# Electronic Ignition Water Heater

## TROUBLE SHOOTING GUIDE

Effective: 5/26/98

Guides are only intended for use on Atwood® products by service technicians who have successfully completed Atwood® training. This guide should be used in conjunction with the appropriate Instruction Manual provided with the product and any applicable Industry standards. This is not intended to be a complete list. Please direct questions concerning service of Atwood® products to 866-869-3118 before proceeding.

### CAUSE

### SOLUTION

#### WATER HEATER LOCK OUT - SPARK PRESENT BUT NO GAS

Gas pressure incorrect	Set inlet pressure at a minimum 11" W.C. with two or more gas appliances running
Low voltage	Correct power supply - 10.5 VDC minimum
Blocked main burner tube	Clean burner tube
Blocked main burner orifice	Clean or replace orifice
Loose wires on E.C.O.	Secure wire connections
Loose wire connections on solenoid valve	Secure wire connections
Loose valve wire on wiring harness	Repair wire on edge connector or replace wiring circuit board harness
Defective E.C.O.	Replace E.C.O.
Defective circuit board	Replace circuit board
Defective solenoid valve	Replace coils or solenoid valve
No gas to solenoid valve	Correct gas supply
Dirty connector on circuit board	Clean edge connector

#### WATER HEATER LOCK OUT - GAS PRESENT BUT NO SPARK

High tension lead wire loose	Secure wire connection on circuit board
Electrodes loosely attached to main burner	Secure electrodes to main burner
Improper electrode gapping	Re-position spark gap to 1/8" and into path of flame
Dirty electrodes	Clean electrodes
Wires loose in electrode porcelain	Replace electrodes
Cracked porcelain on electrode	Replace electrodes
Defective circuit board	Replace circuit board

#### WATER HEATER LOCK OUT - GAS AND SPARK PRESENT

Gas pressure incorrect	Set inlet pressure at a minimum 11" W.C. with two or more gas appliances running
Low voltage	Correct power supply - 10.5 VDC minimum
Poor electrical ground	Secure electrical ground
Electrodes out of flame pattern	Re-adjust electrodes
Electrodes sparking to screw fastening burner to flue tube	Adjust electrodes away from screw
Dirty electrodes	Clean electrodes
Partial obstruction in main burner	Clean main burner
Partially obstructed main burner orifice	Clean main burner orifice or replace
Improper air adjustment	Adjust main burner air shutter approximately 1/4 open
Flame spreader on main burner out of adjustment	Adjust flame spreader so that it is square to the end burner tube out of alignment of the main burner
Manifold not aligned with main burner	Re-align solenoid valve with main burner
Partially opening solenoid valve	Replace solenoid valve
Defective circuit board	Replace circuit board

continued



CAUSE	SOLUTION
<b>EXCESSIVE OR INSUFFICIENT WATER TEMPERATURES</b>	
By-pass kit valves not set properly	Place valves in proper position
Thermostat not seated against tank	Reseat thermostat
Defective thermostat	Replace thermostat
<b>ERRATIC BURNER FLAME OR SOOTING</b>	
Low gas pressure	Set inlet pressure at a minimum 11" W.C. with two or more gas appliances running
Poor gas supply	Replace gas supply
Improper air adjustment	Adjust main burner air shutter approximately 1/4 way open. Flame should be mainly blue and quiet.
Poor main burner alignment	Adjust valve and main burner alignment
Misaligned burner flame spreader	Align flame spreader so it is square with end of burner tube.
Blocked burner orifice	Clean orifice. DO NOT enlarge orifice
Obstructed main burner	Clean main burner
Obstructed "U" tube	Clean "U" tube
Obstructed exhaust grille	Remove obstruction
<b>NO SPARK AND NO GAS</b>	
No voltage	Correct power supply - minimum 10.5 VDC
Dirty edge connector on circuit board	Clean edge connector
Defective thermal cut-off	Replace thermal cut-off
Defective ON/OFF switch	Replace switch
Defective circuit board	Replace circuit board
Defective thermostat	Replace thermostat

Effective: 8/21/00

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**1. CHECK ALL OF THE WIRE CONNECTIONS.**

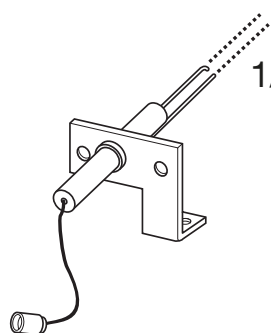
Poor or corroded wire connections cause most of the intermittent problems in water heaters. You should go through and pull all of the wires off any spade connections. Then reconnect them and ensure the connections are tight and corrosion free.

We want to point out two connections often overlooked.

**First, check the (green) ground wire of the circuit board.** This wire screws down under the circuit board mounting screw. If that screw for the board is loose, you may not have a secure ground.

**Second, check the four wire edge connector going into the circuit board.** Remove the circuit board. Take a pencil eraser and clean the marks off the connection of the circuit board. Reconnect the four wire edge connector onto the circuit board and then immediately remove it. Look at the edge connection of the board. You need to see four good scratches in the connection. If you do not see four scratches, then you will need to repair the edge connector or replace the wire harness.

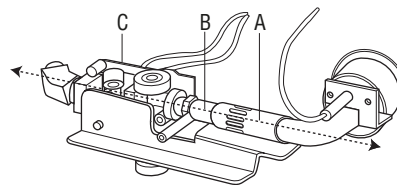
**2. CHECK THE INTEGRITY AND POSITION OF THE SPARK PROBE ASSEMBLY.**



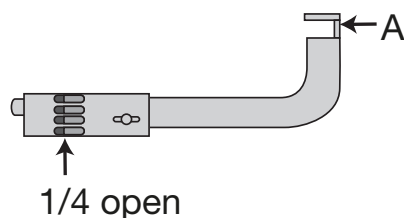
The gap between the sparking probe and the ground probe should be 1/8 inch. The probes should be clean and free of cracks, flaking and corrosion. Position the probes so that they are in the path of the gas flow. Cracks in the ceramic insulator can also be the source of an intermittent problem. To check for cracks insert a fiber washer or any other type of insulation material in the 1/8" gap between the rods. Remove the gas valve from the circuit and turn the unit on. If you see a spark jumping from the ceramic to the ground rod or bracket, replace the spark probe.

**3. CHECK THE ALIGNMENT OF THE MAIN BURNER TO THE ORIFICE.**

Position the main burner tube (A) so that the gas coming out of the orifice (B) is going straight down the middle of the burner tube. If the alignment is off, the gas will bounce down the tube which will alter the gas flow once it reaches the spark. Manually shift the valve (C) with your hands to achieve this alignment.



**4. CHECK THE ALIGNMENT OF THE FLAME SPREADER ON THE BURNER TUBE.**



At the end of the burner tube there is a dime-shaped deflector disk. This disk spreads the flame out for proper heat distribution. Align the flame spreader (A) so that it is parallel to the end of the tube and positioned in the center of the end of the tube. If the flame spreader is out of position, it could divert the gas away from the spark and cause intermittent ignition.

continued

**5. CHECK THE AIR ADJUSTMENT.**

The burner tube has an adjustable air shutter on it at the end where it goes over the orifice. Position the air shutter so that it is 1/4 of the way open. We are looking for a blue flame with small traces of yellow in the flame. If the flame is fairly quiet then it is adjusted correctly.

**6. CHECK THE CLEANLINESS OF THE ORIFICE.**

The orifice is the hex head brass fitting that is screwed onto the brass manifold of the valve. You will have access to this part once the burner has been removed. Remove the brass orifice and clean with isopropyl alcohol. **NEVER** enlarge the size of the orifice.

**7. CHECK FOR OBSTRUCTIONS IN THE MAIN BURNER TUBE.**

The cleanliness of this tube is very important. Spider webs, soot and other debris can accumulate, causing problems with gas flow down the tube. We recommend cleaning the burner tube with a brush and not compressed air. Compressed air may not fully remove the obstruction.

**8. CHECK THE CLEANLINESS OF THE FLUE TUBE.**

The flue tube is the 2-1/2 inch diameter tube that starts at the bottom right corner of the water heater (where the main burner flame enters) and comes out the top left. This tube can become blocked by debris like insect nests or soot. To clean remove the metal flue box in the top left corner of the water heater. To facilitate cleaning unfold a wire hanger, wrap a rag around the end and use this to swab out the tube.

**9. CHECK THE VOLTAGE TO THE VALVE.**

Make sure that the voltage to the gas solenoid valve is between 10.5 and 13.5 volts DC. Voltage drops can occur at almost any component. Turn on another twelve volt appliances when you check the voltage so that you can see how the converter is working with a load. The voltage itself can be intermittent. With linear converters the 12 VDC varies depending on the 115 VAC. If the 115 VAC is high then the 12 VDC will be high, and if the 115 VAC is low then the 12 VDC will be low. If the power to the water heater is connected to the unfiltered side of the converter, move it to the filtered side.

**10. CHECK THE GAS PRESSURE OF THE RV.**

Make sure the gas pressure of the RV is checked with preferably the furnace and the range on to simulate a load. The pressure should be 11 inch water column under load. Besides gas pressure being at the proper level there are other strange things that can happen inside gas lines that cause intermittent problems. We have seen oil build up in a gas line that meant there was good pressure to one appliance but not the correct pressure to another appliance. Moisture could also build up in the gas line that would freeze and partially block the line. Intermittent pressure from the regulator of the bottles is still another area that should be investigated.

**11. INTERMITTENT CIRCUIT BOARD.**

If you have gone through all of the above checks and the intermittent problem is still occurring, only then check the circuit board. Ensure the circuit board is clean and reasonably moisture free before you change it.

There are two major points that should have stood out to you from this list.

First, the majority of intermittent ignition problems on Atwood electronic ignition water heaters can be corrected by cleaning certain components or making simple adjustments.

Second, ignition problems can be found in other components than the circuit board. The circuit board is not the end all solution to ignition problems. This mindset developed a number of years ago with the introduction of the first circuit boards that were not very reliable. We've learned a lot since then. Technology has progressed making today's circuit boards very reliable. The circuit board can only do what the other components of the water heater allow it to do.

## **\*\*POTTED CHANNEL CIRCUIT BOARDS**

Atwood \*\*potted circuit boards can be tested using a multi-meter. This test must be performed with the circuit board removed, and the meter set to the ohms scale. This will check the continuity of all tracks on the harness connection of the board.

**The following steps should be used to test each track.**

A. Cross leads of meter to ensure it is registering continuity.

**B. TO TEST POWER TRACK:**

Place negative lead of the multi-meter to ground (green wire) track of edge connection and positive lead of the multi-meter to top power (brown wire) track of edge connection. If no continuity, board is defective. \*Atwood does not warranty this installation related failure.

**C. TO TEST LAMP TRACK:**

Place negative lead of the multi-meter to ground (green wire) track of edge connection and positive lead of the multi-meter to lamp (blue wire) track of edge connection. If no continuity, this indicates blown lamp track. Circuit board will still fire unit but lamp light will not come on. This is caused by a short in the blue wire between the unit and the switch. Wiring must be corrected before the board is replaced. \*Atwood does not warranty this installation related failure.

**D. TO TEST VALVE TRACK:**

Place negative lead of the multi-meter to ground (green wire) track of edge connection and positive lead of the multi-meter to valve (red wire) track of edge connection. If no continuity, this indicates a blown valve track.

- If the valve wire is shorting under the flue box – Atwood will warranty the board.
- If the E.C.O. terminals are contacting the drawn pan – Atwood will warranty the board only if the inner tank of the water heater was installed flush on the floor of the coach.
- If the inner tank of the water heater does not rest flush against the floor of the coach – \*Atwood does not warranty this installation related failure.

\* Installation related failures on circuit boards are the responsibility of the coach manufacturer.

\*\* Non potted circuit boards can be checked by turning the board over and visually inspecting each track for a burn mark or break in the track itself. A burn mark or broken track indicates the board is blown. Depending on which track is blown determines whether it is covered under Atwood's warranty as stated in section B, C and D.

## **THERMAL CUT-OFF DEVICE**

Current Atwood direct ignition water heaters are equipped with a thermal cut-off device. This device is located on the incoming power wire and is connected to the thermostat. The thermal cut-off is designed to permanently break circuit and shut down the water heater before excessive heat can cause damage due to obstructions in the main burner tube or flue tube caused by spiders or mud wasps. These obstructions can cause the main burner flame to burn outside the main burner tube. When the flame or the heat from the flame contacts the thermal cut-off, the circuit will open.

If there is **no heat damage** to the thermal cut-off, and if it is determined defective, Atwood will cover the replacement of this device under warranty. We will allow .25 hour at your Atwood approved warranty rate. If there is **heat damage** the device performed its safety feature and no warranty labor will be allowed. Any obstructions should be removed, alignment checked and gas pressure taken before a new thermal cut-off is installed.

Note: When replacing a thermal cut-off, also examine the grill in the access door while the door is in the closed position. The wide aluminum band of the grill should be at the bottom. If it is at the top, this condition may trap exhaust heat and possibly also cause thermal cut-off to trip. To correct, remove the grill from the door and snap back in place with the wide aluminum band at the bottom.

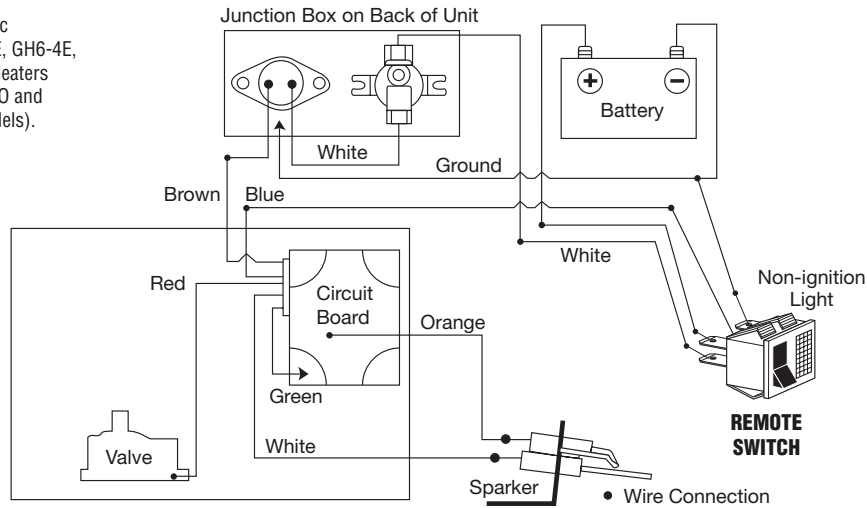
### **THERMOSTAT**

The thermostat on this water heater is pre-set at 140° F. The water heater will cycle off when the water temperature reaches 140° F. and will generally take 20-25 minutes to reach this temperature. It will cycle back on when the water temperature cools down to approximately 115° F. In the latter part of the heating cycle though, it is very common for the pressure-temperature relief valve to weep. Refer to the page covering weeping relief valves to remedy this situation.

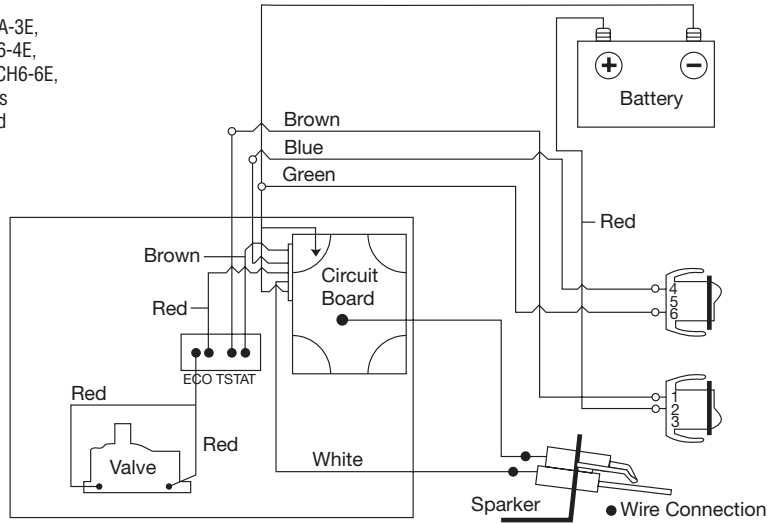
If a customer is dissatisfied with the temperature of the water, first check the water temperature with a cooking thermometer and verifying that the initial cycle is within the time noted above. If not, an adjustable thermostat may be purchased allowing the water temperatures to be adjusted from 110 - 150° F. It fits in place of the original thermostat.

# Water Heater Wiring Schematics

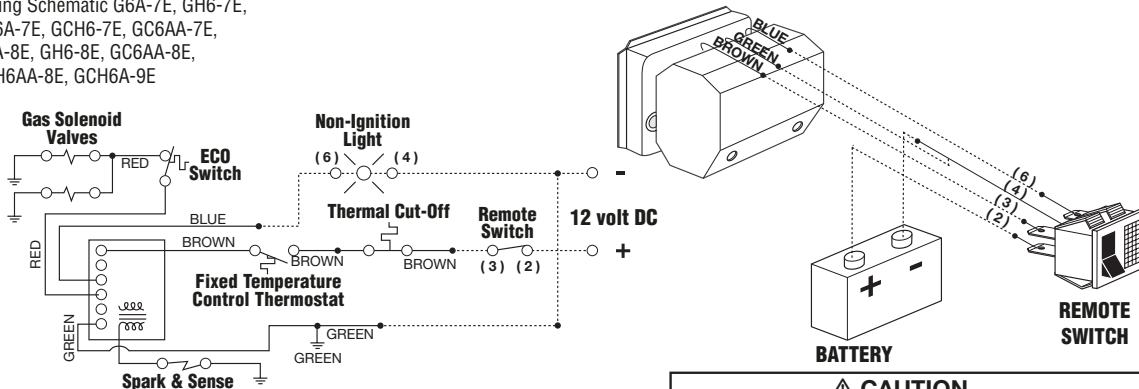
Wiring Schematic  
G6A-2E, G6A-3E, GH6-4E,  
GH6-3E Water Heaters  
(Rear Mount ECO and  
Thermostat Models).



Wiring Schematic G6A-3E,  
G6A-4E, GH6-3E, GH6-4E,  
GCH6-4E, G6A-6E, GCH6-6E,  
GH6-6E Water Heaters  
(Front Mount ECO and  
Thermostat Models).



Wiring Schematic G6A-7E, GH6-7E,  
GC6A-7E, GCH6-7E, GC6AA-7E,  
G6A-8E, GH6-8E, GC6AA-8E,  
GCH6AA-8E, GCH6A-9E

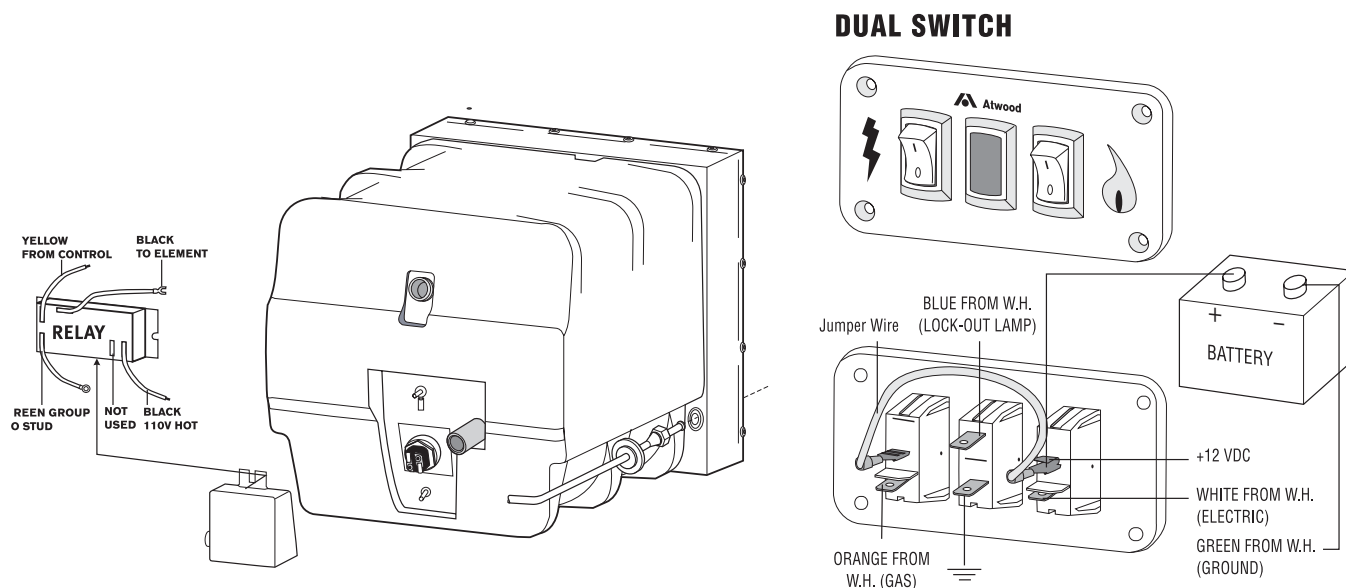


Dotted lines are wired by customer

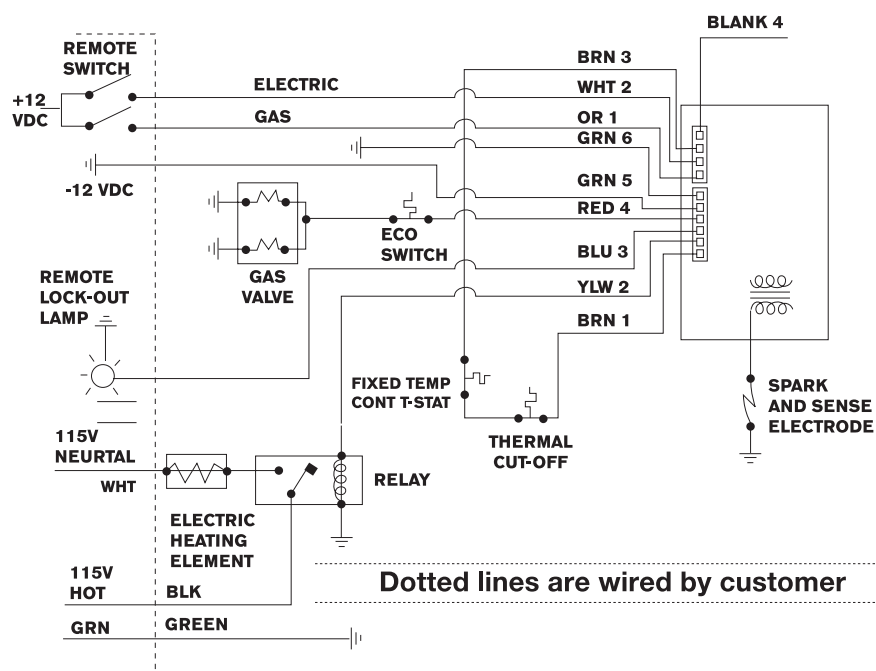
# GC 10A-4E & GC 6A-10E Wiring

In 2003, Atwood created a new gas-electric water heater. These units improve serviceability by moving most of the components for the electric portion of the water heater to the outside except the element and relay, which remain in a junction box in the rear. One module board controls both gas and electric.

When replacing a 3E or 9E to a 4E or 10E some wiring changes are necessary. See the INFORMATION NOTICE that follows.



## WIRING DIAGRAM COMBINATION GAS/ELECTRIC







**Atwood Mobile Products LLC**

1120 North Main Street • Elkhart, IN 46514

PHONE: 574•264•2131 FAX: 574•262•2550

INTERNET: <http://www.atwoodmobile.com>

# INFORMATION NOTICE

## Atwood Water Heater Conversion

GC10A-3E to GC10A-4E

GC6A-9E to GC6A-10E

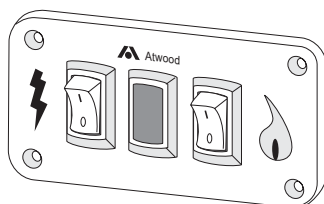
### ENGLISH,

The gas/electric water heater (Models 4-E & 10-E) replaced all previous combination gas/electric water heaters. Models 3-E & 9-E and before operate on DC for the gas side and AC for the electric side.

These older models operate with two separate switches, one DC and one AC. The gas switch has DC voltage coming into the switch and from the switch to the water heater. There is a separate switch used for the electric portion of the water heater. This switch will have AC power coming into the switch and AC going out of the switch to the electric part of the water heater.

**The 3-E and 9-E's are no longer available**, if an entire water heater must be replaced it will be replaced with the new 4-E or 10-E. **There are no changes in the physical dimensions, but a wiring change will be required.**

With the new water heater you will receive a new 12 volt control switch for both gas and electric.



The separate gas and electric switches will be replaced by this (one) combo switch on current production.



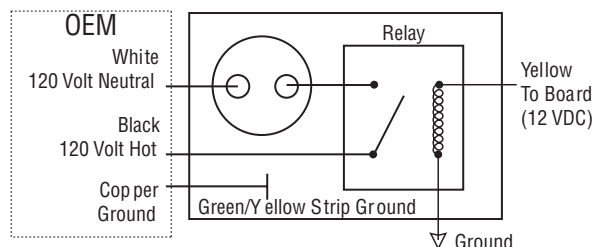
### CAUTION PRODUCT DAMAGE

- Extreme care should be taken with all electrical wiring and professional services retained if necessary.

### WIRING THE REAR OF THE WATER HEATER

The only AC required will be in the rear of the water heater at the relay and the element. See wiring below.

Junction Box 12 VDC/120 VAC



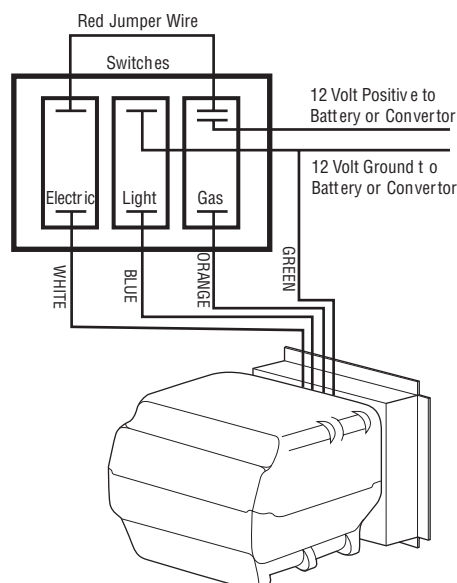
The electric switch and all other AC wiring, with the exception of the power into the back of the water heater, must be eliminated.

### • Switch Conversion Instructions

Effective 1/16/07

### WIRING OF NEW COMBO SWITCH

The new combo switch will be wired, using the picture below.



### LOCATION OF COMBO SWITCH

Find the most convenient location for the new switch. It should be close to the DC voltage source that will control the switch. This may be where the AC switch was originally located. Remember that you will have to connect DC positive and negative into this switch. There will also be four wires from the water heater that must attach to the switch.

If your original system was controlled through a central monitor panel, and you prefer to use this system, you will have to contact the manufacture of the unit for monitor panel wiring instructions.

Location and phone numbers of qualified Service Centers can be found at our website <http://www.atwoodmobile.com> or call 866-869-3118 to have a Service Center List mailed.

# Sequence of Operation GC10A-4E & GC6A-10E

Power In When the wall switch is turned on to either gas, electric or both the power moves from the wall switch to the DSI board through the Molex connector.

1. Gas - When the wall switch (flame) is turned on for gas operation, the orange wire (OR 1) is energized with DC voltage.
2. Electric - When the switch (lightning bolt) is turned on for electric operation the white wire (WHT 2) is energized with DC voltage.

The power moves from the internal board circuits to the brown wire at the (BRN 3) connection.

From this point the power for gas, electric or both moves through the thermostat, thermal cut off and enters the board again at the lower (BRN 1) connection. This completes the circuit to the lower connection on the board.

When the switch for GAS ignition is turned on -

1. Power is sent to the coil on the board. The coil creates a spark for ignition.
2. Power is sent to (RED 4) connection. From this point, power flows through red wire, through the ECO and to the gas valve.

When the switch for ELECTRIC is turned on -

1. Power is sent from the board to the yellow wire (YLW 2). The yellow wire carries DC voltage to the relay in the back of the water heater. The 12 volt energizes the relay which sends the 110 V to the element.

# Quick Diagnostic GC10A-4E & GC6A-10E

Following the sequence of operation:

No power to board through the orange or white wire.

- Test for power into wall switch. If no power, check wiring, fuse, breaker, etc.
- If switch has power but does not work, check to see if switch is wired correctly. If switch is wired correctly, replace switch.

No power out of board at BRN 3.

- Confirm power entering the board at orange (OR1), white (WHT 2) or both with the switch on.
- Check molex connector for proper connection.
- Bad board (replace).

No power at brown (BRN 1), when calling for gas or electric operation.

- Check thermostat for voltage or continuity. Replace if necessary.
- Check thermal cutoff for voltage or continuity. Replace if necessary.
- Confirm molex connector is making contact.

No power through red wire from RED 4.

- Confirm power coming in at brown (BRN 1).
- Confirm molex connector is making contact.
- Bad board (replace).

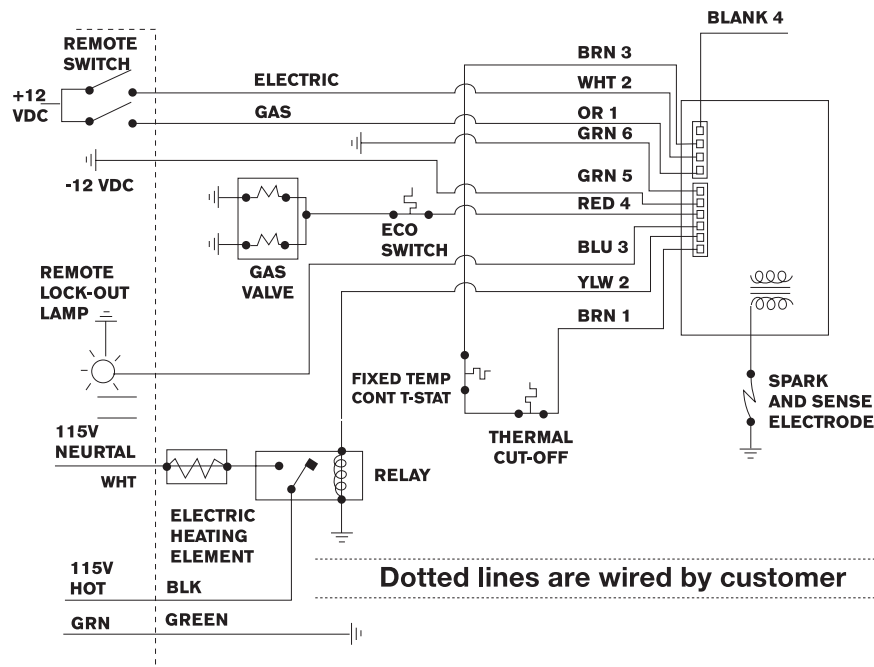
No power through yellow wire (YLW 2) to relay. Electric operation only.

- Confirm continuity from red (RED 4) at Molex connector to Valve Ground. If the ECO or Valve coils are open then the board will not send power to the yellow wire (YLW 2).
- Confirm power coming in the brown wire (BRN 1).
- Confirm molex connector is making contact.
- Bad board (replace).

No power through relay (electric).

- Confirm AC present.
- Confirm DC through yellow wire (YLW 2).
- Check AC into element. No power, replace relay.
- Power into element from relay (no heat), replace element.

## WIRING DIAGRAM COMBINATION GAS/ELECTRIC



# General Information

## QUESTIONS

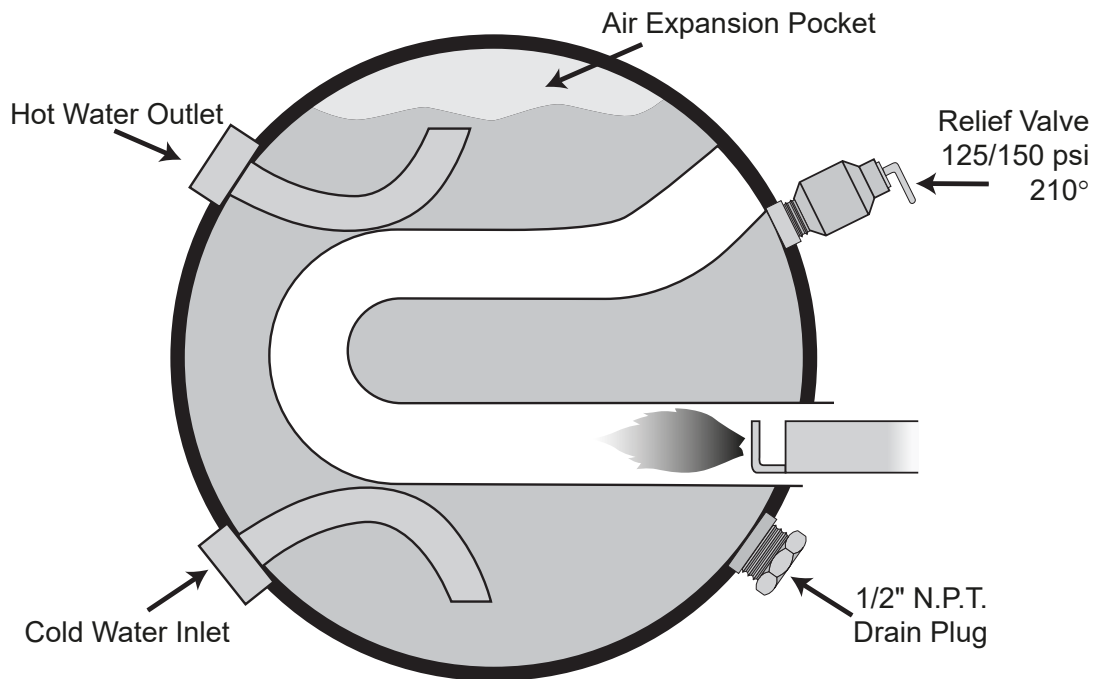
**The following questions should be answered during this portion of the manual:**

- What causes the pressure-temperature relief valve to weep when unit is in heating cycle?
- How can weeping pressure-temperature relief valves be reduced or eliminated?
- What are the proper draining procedures to help reduce lime deposits and extend tank life?
- Will a tank split for any other reason besides freezing?
- What functions do the retaining rings serve when replacing an inner tank?
- What are the most common ways to winterize a tank?

# PRESSURE-TEMPERATURE RELIEF VALVE

Weeping or dripping of a pressure-temperature relief valve while the water heater is running DOES NOT mean it is defective. This is normal expansion of water as it is heated in the closed water system of a recreation vehicle. The Atwood water heater tank is designed with an internal air gap at the top of the tank to reduce the possibility of weeping and dripping. In time, the expanding water will absorb this air. To replace the air follow these steps:

- Step 1:** Turn off water heater
- Step 2:** Turn off incoming water supply
- Step 3:** Open the closest hot water faucet in the coach
- Step 4:** Pull handle of pressure-temperature relief valve straight out and allow water to flow until it stops.
- Step 5:** Allow pressure-temperature relief valve to snap shut, turn on water supply and close faucet.



# WATER HEATER TANK CORROSION

Pinhole leaks from galvanic corrosion may cause the water heater tank to fail.

Microscopic particles of metals (like iron and copper) suspended in water, set up a reaction inside the water heater that is not unlike the principle on which an automotive battery operates. The aluminum tank is the anode and the metals in the water serve as the cathode. Consequently, the aluminum gradually sacrifices itself and aluminum particles are carried away with the water flow.

A white scaly material (aluminum oxide) often is formed around the points where the heaviest action is taking place and heat accelerates the process. Severity of the problem varies considerably in different locales depending on the metal and mineral content of the water. White deposits inside the water heater tank are usually from water impurities that have settled out.

Periodic flushing of the water heater tank under pressure is recommended to slow down this process. For flushing instructions see your owners manual or contact Atwood for a copy of our recommended procedure.

# ATWOOD CLAD TANK

The Atwood water heater tank is constructed of a core of high strength aluminum. The interior of the tank consists of a 15% thickness of type 7072 aluminum (pure aluminum and zinc) that is fused to the core during the rolling process. This material protects the tank from the affects of heavy metals and salts found in waters throughout the country. It is anodic to these heavy metals and acts much like an anode in a steel glass lined tank except it will last much longer. There is also no need to replace an anode on a yearly basis.

Flushing the tank on a regular basis has been found to be helpful in insuring the best performance of your water heater and adding to the useful life of the tank. For flushing instructions see your owners manual or contact Atwood for a copy of our recommended procedures.

## **FLUSHING TO REMOVE UNPLEASANT ODOR**

A rotten egg odor (hydrogen sulfide) may be produced when the electro galvanic action of the cladding material releases hydrogen from the water. If sulfur is present in the water supply the two will combine and produce an unpleasant smell.

1. Turn off main water supply. Drain the water heater tank and reinstall drain plug. Remove the pressure-temperature relief valve. Mix solution of 4 parts white vinegar to two parts water. (For a 10 gallon tank, use 6 gallons vinegar to 3 gallons water). With a funnel, carefully pour solution into tank.
2. Cycle water heater with the above solution, letting it run under normal operation 4-5 times.
3. Remove the drain plug and thoroughly drain all water from the tank. Flush the water heater to remove any sediment. You may flush the tank with air pressure or fresh water. Pressure may be applied through either the inlet or outlet valve on the rear of the tank or through the pressure-temperature relief valve coupling located on the front of the unit.

### **TO FLUSH TANK WITH AIR PRESSURE:**

Insert your air pressure through the pressure-temperature relief valve coupling. With the drain valve open, the air pressure will force the remaining water out of the unit.

### **TO FLUSH TANK WITH WATER PRESSURE:**

Fresh water should be pumped into the tank with either the onboard pump or external water pressure. Continue this flushing process for approximately five minutes, allowing the fresh water to agitate the stagnant water on the bottom of the tank and forcing the deposits through the drain opening.

4. Replace drain plug and pressure-temperature relief valve.
5. Refill tank with fresh water that contains no sulphur.

The Atwood water heater is designed for use in a recreation vehicle. If you use your vehicle frequently or for long periods of time, flushing the water heater several times a year will prolong the life of the storage tank.

## **WINTERIZING (FLUSHING) INSTRUCTIONS**

To insure the best performance of your water heater and add to the life of the tank, periodically drain and flush the water heater tank. Before long term storage or freezing weather drain and flush the tank.

1. Turn off main water supply (the pump or water supply hook up source).
2. Drain water heater tank by removing the drain plug. If the water flows sporadically or trickles instead of a steady stream of water, we recommend the following action; first open the pressure temperature relief valve to allow air into the tank and secondly, take a small gauge wire or coat hanger and poke through the drain opening to eliminate any obstructions.
3. After draining the tank, because of the placement of the drain plug, approximately two quarts of water will remain in the tank. This water contains most of the harmful corrosive particles. To remove these harmful corrosive particles flush the tank with either air or water. Whether using air or water pressure, it may be applied through the inlet or outlet on the rear of the tank or the pressure temperature relief valve. (If using the pressure temperature relief valve the support flange must be removed). The pressure will force out the remaining water and the corrosive particles.  
If you use water pressure, pump fresh water into the tank with the assistance of the on-board pump or use external water for 90 seconds to allow the fresh water to agitate the stagnant water on the bottom of the tank and force deposits through the drain opening. Continue repeating adding water and draining until the particles have been cleared from the water remaining in the tank.
4. Replace the drain plug and close the pressure temperature relief valve. The approximately two quarts of water remaining in the tank after draining will not cause damage to the tank should freezing occur.

# Water Heater Terminology

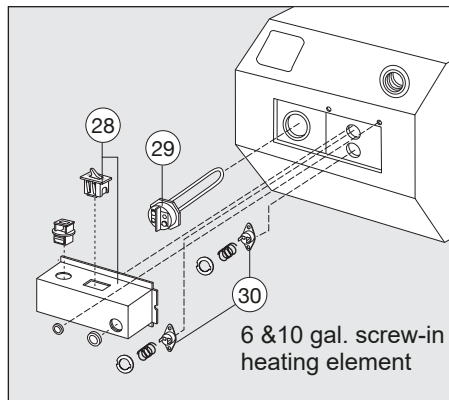
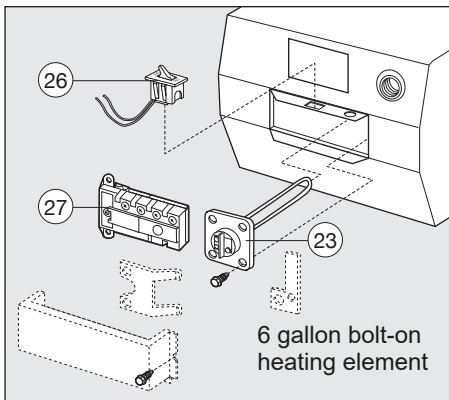
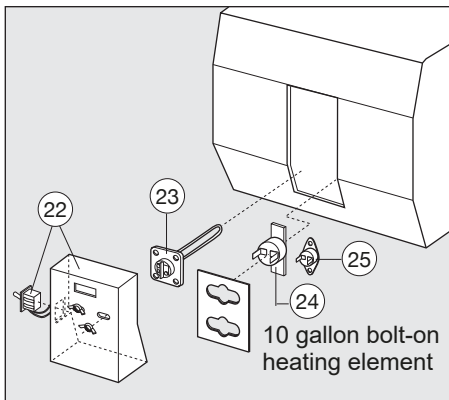
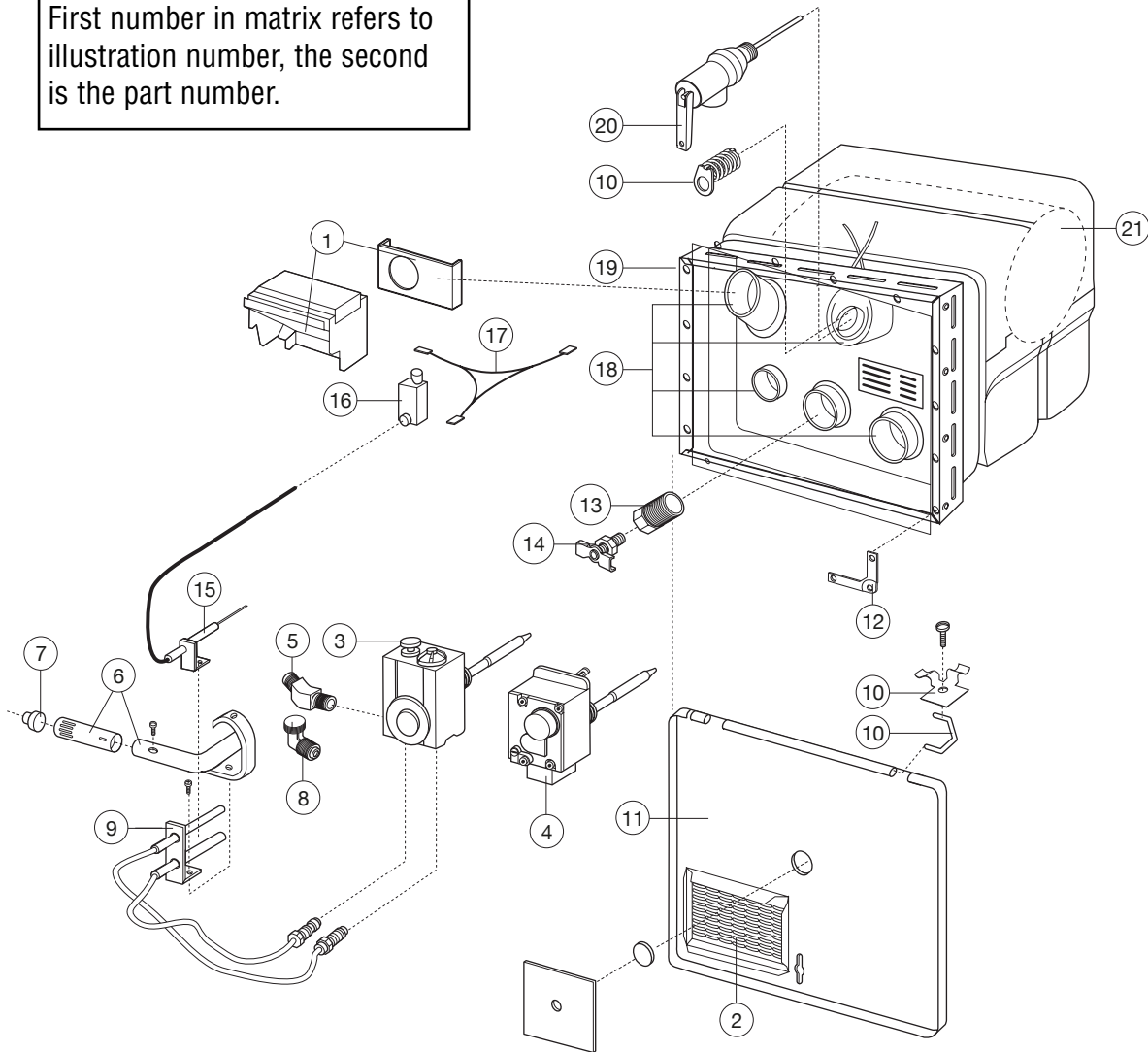
Terminology	Definition	Terminology	Definition
<b>Access Door</b>	hinged cover on outside of water heater	<b>Main Burner</b>	a gas and air mixing tube
<b>By Pass Kit</b>	a combination of hoses and valves that can aid in the winterization of the water heater	<b>Main Burner Air Shutter</b>	the slotted sleeve on tube that allows for gas and air adjustment
<b>CSA</b>	Canadian Standards Association	<b>Main Burner Orifice</b>	a precision drilled fitting that regulates the BTU's of combustion
<b>Calibration</b>	the condition determining whether the thermostat is registering temperatures properly	<b>Mixing Valve</b>	mixes hot and cold water to a fixed temperature 130°F.
<b>Cam-Loc Fastener</b>	a door securing device	<b>N.P.T. (Nat'l Pipe Thread)</b>	a plumbing measurement standard
<b>Circuit Board</b>	an electronic panel that controls the spark, solenoid valve and senses the main burner flame	<b>Pilot Assembly</b>	A gas tube, orifice & thermocouple
<b>Drawn Pan</b>	metal pan attached to the water heater tank and fastened to coach sidewall to isolate combustion to outside of coach	<b>Pilot Orifice</b>	a precision drilled thimble shaped component that meters gas flow to pilot.
<b>DSI</b>	direct spark ignition a.k.a. electronic ignition	<b>Pilot Relight Ignition Module</b>	12 volt electronic panel that provides spark ignition and flame sense to maintain pilot flame
<b>E.C.O. (energy cut off)</b>	high temperature re-set shut off device	<b>Pressure-Temperature Relief Valve</b>	a pressure and temperature safety device used on water heating vessels.
<b>Electrolysis</b>	electro chemical corrosive process that can cause pinholes in tanks	<b>Ring and Gasket</b>	retaining fiber & metal rings that secure combustion pan to tank
<b>Fenwal Tester</b>	a diagnostic circuit board analyzer	<b>Sight Glass</b>	burner flame viewing port on access door
<b>Flame Spreader</b>	a round deflective piece found at the combustion end of main burner.	<b>Spark Probe Assembly</b>	a spark electrode & flame sensing
<b>Flue Box</b>	a chamber that separates air intake and exhaust	<b>Thermal Cut-Off</b>	heat sensing diode that cuts power to circuit board if a flame backs out of the burner tube or flue tube normally caused by an obstruction in these areas
<b>Flue Tube</b>	combustion and water heating surface area on inside of tank	<b>Thermostat (gas)</b>	a temperature sensitive device for turning on and off the flow of gas (T-stat)
<b>Flying Lead</b>	flame sensing wire that is sometimes found hard wired to circuit board	<b>Thermostat (120 volt AC)</b>	a surface mount temperature sensitive device that turns on/off heating element
<b>Front of Water Heater</b>	access door side of water heater	<b>Thermostat (12 Volt DC)</b>	a surface mount temperature sensitive device that turns on/off the voltage to the circuit board
<b>Gas Solenoid Valve</b>	a 12 volt DC device that turns on or off the flow of gas	<b>Thermocouple</b>	a device, when heated, generates millivolts of electricity
<b>Immersion Element</b>	an AC electrical heating coil that is immersed directly into water	<b>UL</b>	Underwriters Laboratories
<b>Inverted Flare</b>	type of connection using double flare fitting and tube nut	<b>"U" Tube</b>	also referred to as a flue tube on some water heater models
<b>Inner Tank</b>	patented, designed vessel for heating water	<b>Winterization</b>	process of preparing a water heater for cold winter storage



# Pilot Water Heater

## 6-10 Gallon

First number in matrix refers to illustration number, the second is the part number.



# Pilot Water Heaters

## REPLACEMENT PART REFERENCE January 2007

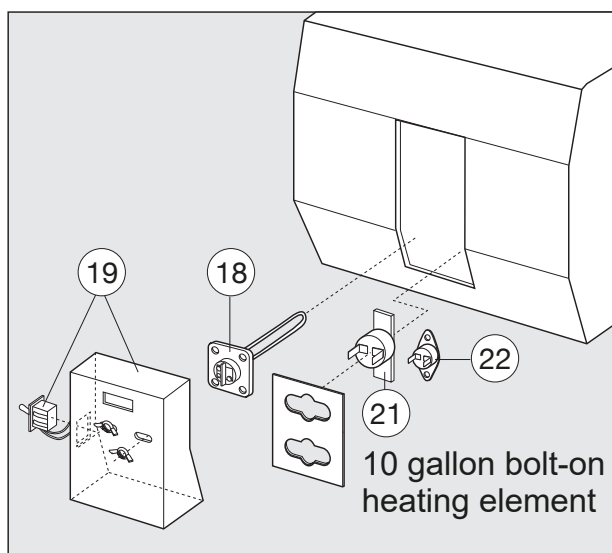
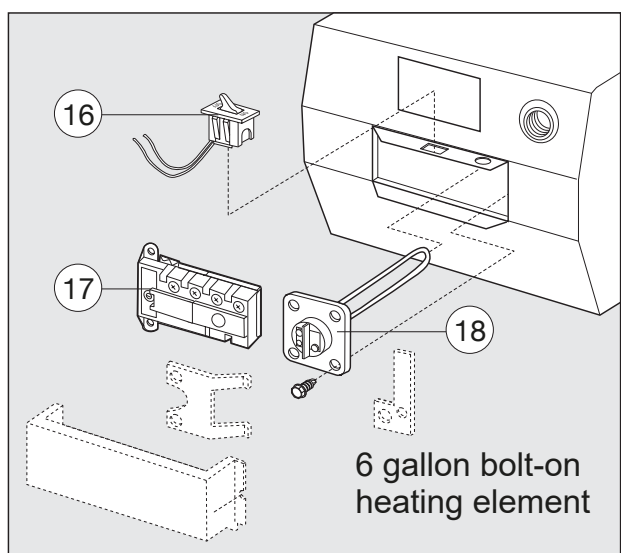
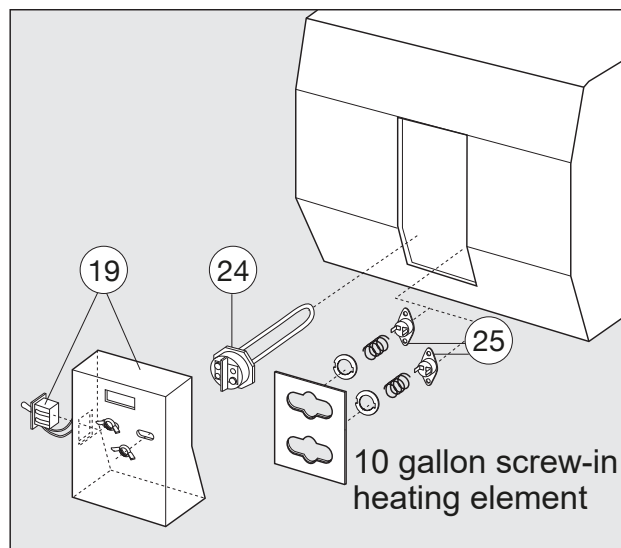
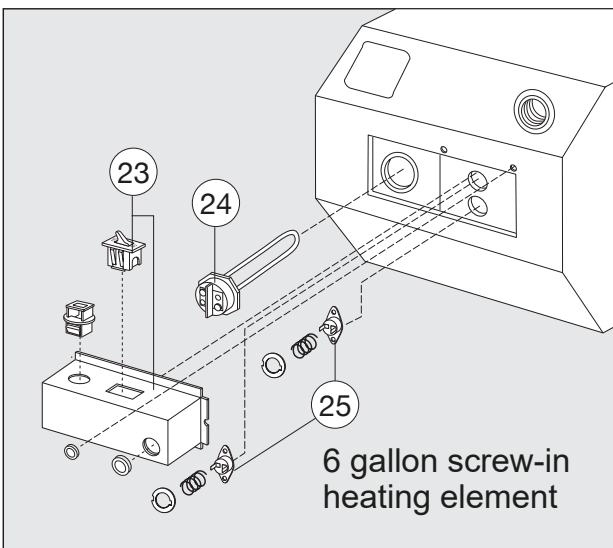
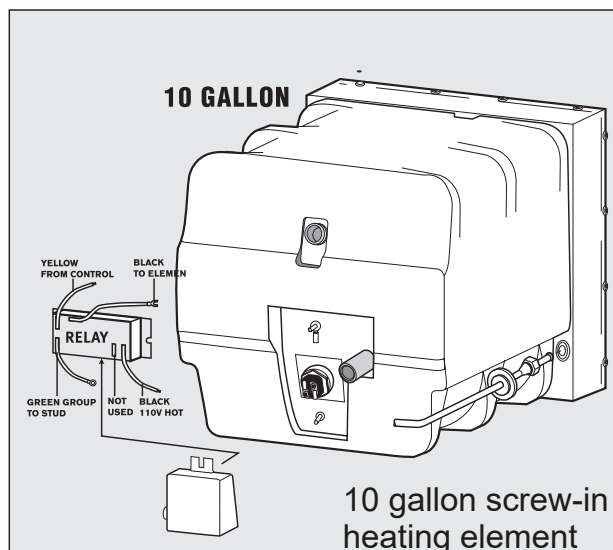
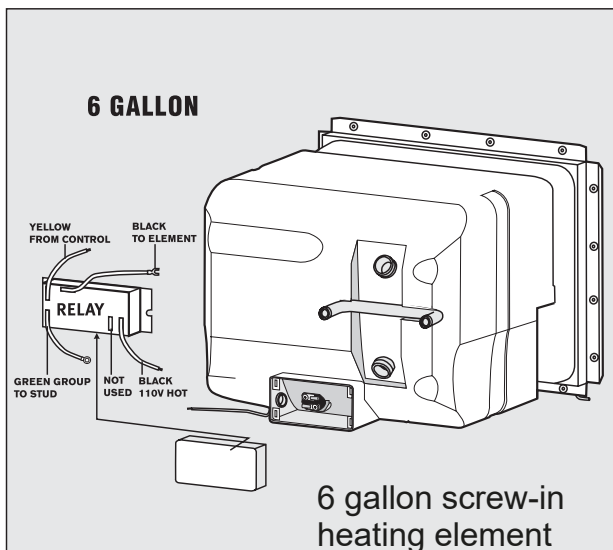
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N/S	93212	Pilot Relight Kit - battery operated Retrofits on all pilot model water heaters											
N/S	92973	Inverted Flare Adapter)	X	X			X						
N/S	92610	Gas Line Grommet	X	X	X	X	X	X	X	X	X	X	X
N/S	91285	Jade Orifice fits 91603 Pilot	X	X	X	X			X	X	X	X	
1	90960	Flue Box & Gasket	X	X	X	X	X	X	X	X	X	X	X
2	92640	Grille, New Style in Door	X	X	X	X	X		X	X	X	X	X
3	91602	Robertshaw Thermostat (WSL) (3/8" NPT inlet, 3/8" NPT outlet)	X	X	X	X	X	X	X	X	X	X	X
4	91601	White Rodger thermostat (1/4" NPT inlet, 3/8" NPT outlet)	X	X	X	X	X	X	X	X	X	X	X
5	91044	45° Elbow 3/8" x 3/8" - OLD					X	X					X
	91347	Elbow - 1/4" x 3/8" inlet - NEW	X	X	X	X							X
6	92615	Main Burner 6 Gallon	X	X	X	X		X					
	93221	Main Burner 10 Gallon							X	X	X	X	
7	92742	Main Burner Orifice (6 Gal.)	X	X	X	X							
	93914	Main Burner Orifice (10 Gal.)						X	X	X			
8	91441	90° Elbow 3/8" x 3/8"							X	X	X	X	
	92741	Main Burner Orifice Elbow -outlet	X	X	X	X							X
9	91603	Jade Pilot	X	X	X	X	X	X	X	X	X	X	X
10	91858	Door Hardware Kit	X	X	X	X	X		X	X	X	X	X
11	91514	Access Door (6 Gallon) Colonial White	X	X	X	X	X						X
	93993	Access Door (10 Gal.)							X	X	X	X	
12	91928	Set of 4 Corner Brackets	X	X	X	X	X	X	X	X	X	X	X
13	91857	Drain Plug 1/2"	<i>Measure drain coupling</i>										
14	92698	Petcock Drain Valve 1/8" (WSL)	<i>Measure drain coupling</i>										
15	93804	Piezo Electrode - hard-wired		X		X	X			X	X	X	
16	93801	Ignition Module - hard-wired		X			X					X	
17	93803	Piezo Wiring Harness - hard-wired		X			X					X	
18	96010	Ring & Gasket Kit for service tank	X	X	X	X	X						X
19	91796	Drawn Pan 6 Gallon Pilot	X	X	X	X	X						X
	93935	Drawn Pan 10 Gallon Pilot							X	X	X	X	
20	91604	Pressure Temperature Relief Valve 1/2"	X	X	X	X	X	X	X	X	X	X	X
20	90028	Pressure Temperature Relief Valve 3/4"		X			X						
21	92220	Styrofoam tank cover - bottom 6 gal	X	X	X	X	X						X
	92221	Styrofoam tank cover - top 6 gal	X	X	X	X	X						X
21	91238	Styrofoam tank cover - bottom 10 gal					X	X	X	X	X	X	
	91239	Styrofoam tank cover - top 10 gal					X	X	X	X	X	X	
22	91182	110VAC On/Off Switch & Jct Box (10 Gal.)								X			
23	91580	110 VAC Element (Bolt-on)	X								X		

# Pilot Water Heaters

## REPLACEMENT PART REFERENCE January 2007

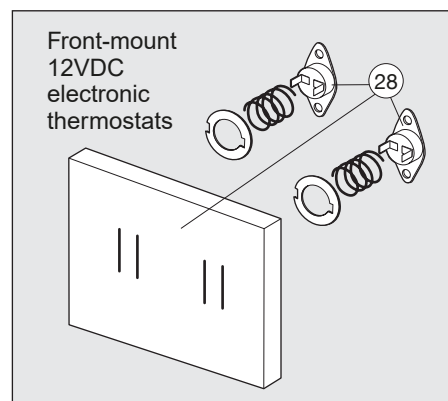
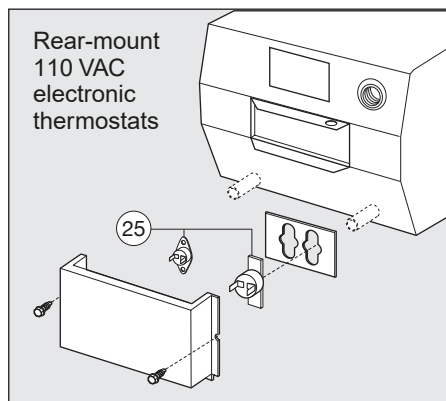
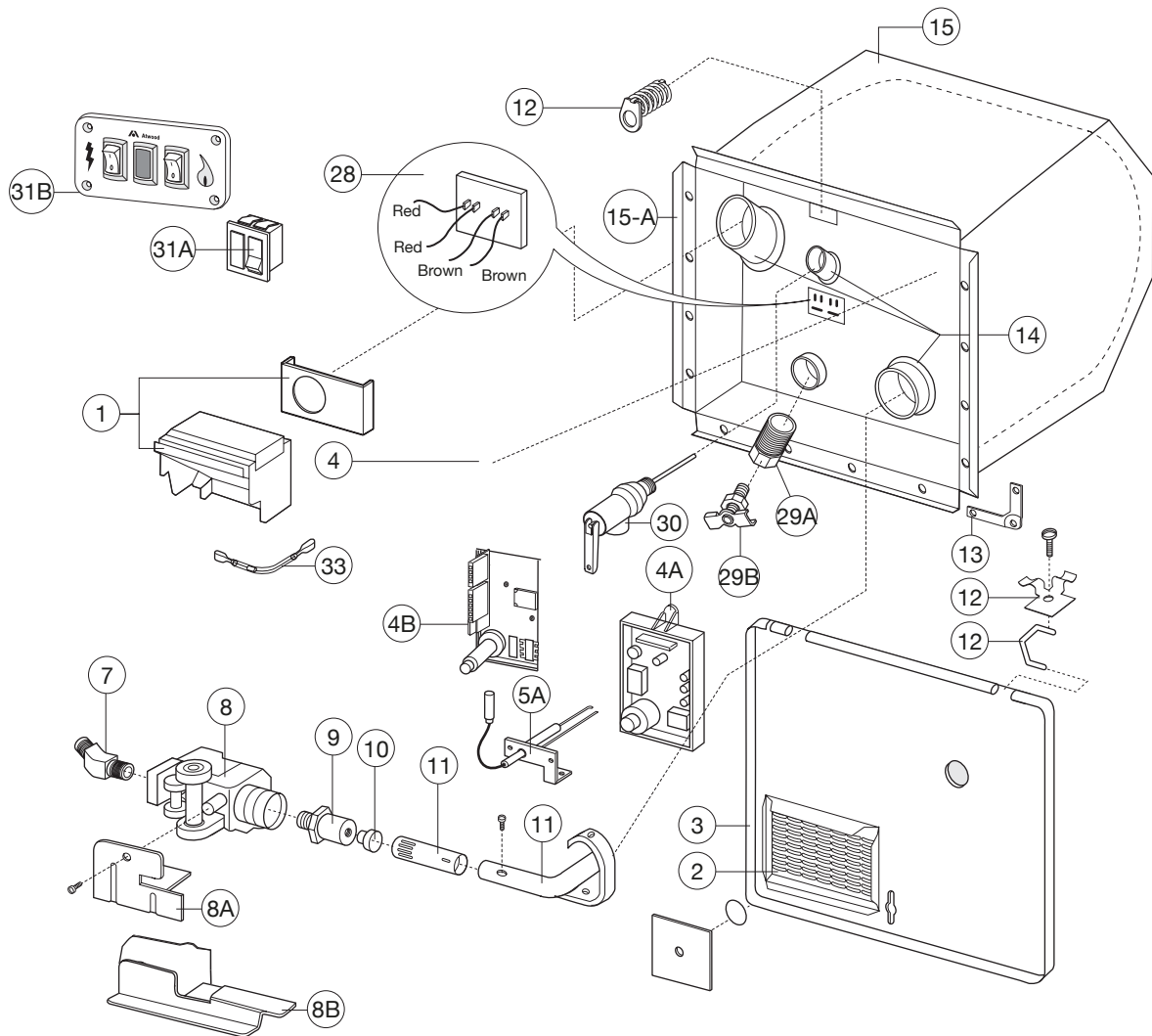
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24	92942	110VAC E.C.O. Switch (NLA)								X	X	X		
25	92943	110VAC 140° Thermostat								X	X	X		
26	91092	110VAC On/Off Rocker Switch (6 Gal.)	X			X	X							
	91089	110VAC On/Off Rocker Switch (10 Gal.)								X	X	X		
27	91853	110 VAC Thermostat (Rectangle) (NLA)	X									X		
28	91116	110VAC On/Off Switch & Jct Box (6 Gal.)					X							
29	92249	110 VAC Element/Gasket (screw-in)	X			X	X			X	X	X		
30	91873	Thermostat/E.C.O. 110 VAC	X			X	X			X	X	X		
N/S	91591	Conversion to Pilot 6 gallon 110VAC		X										
N/S	91596	Conversion to Pilot 10 gallon 110VAC										X	X	

# Electric Side Combination Water Heaters



# Electronic Water Heater

## 6-10 Gallon



First number in matrix refers to illustration number, the second is the part number.

# Electronic Water Heaters

## REPLACEMENT PART REFERENCE January 2007

a			GCH6-4E, GCH6-6E, GCH6-7E, GC6A-7E	GH6-6E, GH6-7E, GH6-8E	G6A-6E, G6A-7E, G6A-8E	GCH6A-7E, GCH6A-8E, GCH6A-9E	GC6AA-7E, GC6AA-8E, GC6AA-9E	GCH10A-2E, GCH10A-3E, GC10A-2E, GC10A-3E	G10-1E, GH10-1E	G610-3E, GH610-3E	G10-2E G10-3E	GC10-1E, GC10-2E	GH10-2E, GH10-3E	G6A-2E, GH6-3E	G6A-3E, GH6-3E, GH6-4E, G6A-4E	GCH6A-10E, GC6AA-10E	GC10A-4E, GCH10A-4E
	91470	130° Front Mount thermostat (not shown)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	93105	Adjustable Thermostat (retrofits front-mount thermostats) (not shown)	X	X	X	X	X	X	X	X	X	X	X			X	X
	92610	Gas Line Grommet (not shown)	X	X	X	X	X	X	X	X	X	X	X			X	X
1	90960	Flue Box and Gasket	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	92640	Grille, New Style in Door	X	X	X	X	X	X	X		X	X	X			X	X
2	90002	Extended Grille	X	X	X	X	X	X	X		X	X	X			X	X
3	91514	Access Door (6 Gal.) Colonial White	X	X	X	X	X							X	X	X	
3	93993	Access Door (10 Gal.)						X	X	X	X	X	X				X
NS	91420	Potted Circuit Board (post electrode connection)	<b>No Longer Available (Use 91504)</b>														
4A	93865	Potted Circuit Board (Spade Electrode Connection)	X	X	X	X	X	X	X	X	X	X	X	X	X		
4B	93851	Potted Circuit Board - Combo														X	X
5	91606	Electrode (Remote Sense) WSL	<b>No Longer Available (Use 91504)</b>														
5A	93868	Electrode (Local Sense)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6	93189	Wiring Harness	X	X	X	X	X	X	X	X	X	X	X	X	X		
6	93191	Wiring Harness Combo														X	X
7	91044	45° Elbow 3/8"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8	93870	White Rodger Valve (6 & 10 Gal.)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8A	93243	Gas Valve Bracket - (6 Gal.) (Use with 93870)	X	X	X	X	X							X	X	X	
	93862	Gas Valve Bracket - (10 Gal.) (Use with 93870)									X	X	X	X	X		X
8B	94787	Gas Valve Bracket - 1 piece				X	X	X			X		X	X		X	X
9	91563	Orifice Holder	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10	92742	Orifice - Main Burner/6 Gallon	X	X	X	X	X									X	
10	93914	Orifice - Main Burner/10 Gallon						X	X	X	X	X					X
11	91638	Main Burner 6 Gallon	X	X	X	X	X									X	
11	96206	Main Burner 10 Gallon					X	X		X	X	X	X				X
12	91858	Door Hardware Kit	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
13	91928	Set of 4 Corner Brackets	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
14	96010	Ring & Gasket Kit for service tank	X	X	X	X	X	X	X		X	X	X	X	X	X	X
15	92220	Styrofoam tank cover - bottom	X	X	X	X	X								X	X	
	92221	Styrofoam tank cover - top	X	X	X	X	X								X	X	
	91238	Styrofoam tank cover - bottom						X	X	X	X	X	X	X			X
	91239	Styrofoam tank cover - top						X	X	X	X	X	X	X			X
15-A	91802	Drawn Pan (Electronic 6 Gallon)	X	X	X	X	X									X	
15-A	93871	Drawn Pan (Electronic 10 Gal.)					X	X	X	X	X	X					X



# Electronic Water Heaters

## REPLACEMENT PART REFERENCE January 2007

			GCH6-4E, GCH6-6E, GCH6-7E, GC6A-7E	GH6-6E, GH6-7E, GH6-8E	G6A-6E, G6A-7E, G6A-8E	GCH6A-7E, GCH6A-8E, GCH6A-9E	GC6AA-7E, GC6AA-8E, GC6AA-9E	GCH10A-2E, GCH10A-3E, GC10A-2E, GC10A-3E	G10-1E, GH10-1E	G610-3E, GH610-3E	G10-2E G10-3E	GC10-1E, GC10-2E	GH10-2E, GH10-3E	G6A-2E, GH6-3E	G6A-3E, GH6-3E, GH6-4E, G6A-4E	GCH6A-10E, GC6AA-10E	GC10A-4E, GCH10A-4E
16	91092	110VAC on/off Switch (6 Gal.)	X			X	X										
16	91089	110VAC On/Off Switch (10 Gal.)						X				X					
17	91853	110 VAC Thermostat (Rect) <b>NLA</b>	X					X			X						
18	91580	110 VAC Element (Bolt-on)	X								X						
19	91182	110VAC On/Off Switch & Jct Box						X					X				
21	92942	110VAC E.C.O.										X					
22	92943	110VAC 140° Thermostat										X					
23	91116	110VAC On/Off Switch & Jct Box				X	X										
24	92249	110VAC Elmnt/Gskt (screw-in) Kit	X		X	X	X	X							X	X	X
25	91873	Thermostat/E.C.O. 110 VAC	X			X	X	X									
28	91447	Front Mount E.C.O./thermostat	X	X	X	X	X	X	X	X	X	X	X		X	X	X
29A	91857	Drain Plug Kit 1/2"	X	X	X	X	X	X	X	X		X	X	X	X	X	X
29B	92698	Petcock Drain Valve 1/8" <b>WSL</b>									X						
30	91604	Pressure Relief Valve - 1/2"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
30	90028	Pressure Relief Valve - 3/4"		X	X						X		X			X	X
31A	91859	Switch 12 VDC-White	X	X	X	X	X	X	X		X	X	X	X	X		
31A	91959	Switch 12 VDC-Black	X	X	X	X	X	X	X		X	X	X	X	X		
31B	91230	Switch 12 VDC-White Combo														X	X
33	93866	Thermal Cut-off	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
N/S	90145	Fuse, Mini 2AMP	X	X	X	X	X	X			X	X	X			X	X
N/S	93849	Relay														X	X
N/S	91222	Junction Box 110V - 6 gal														X	
N/S	91224	Junction Box 110V - 10 gal															X
N/S	91223	Junction Box Cover for 6 gal															
N/S	94231	Recessed Flange - 10 gal															
N/S	94514	Recessed Flange - 6 gal															



**Atwood Mobile Products LLC**

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PHONE: 574•264•2131 FAX: 574•262•2550

INTERNET: <http://www.atwoodmobile.com>



## XT WATER HEATER MPD 92690

**REPLACEMENT VALVE KIT**

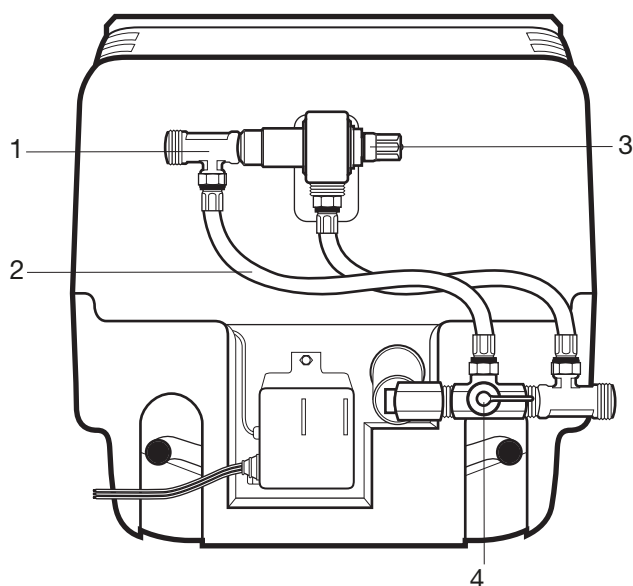
**10 GALLON**

**PATENT PENDING**

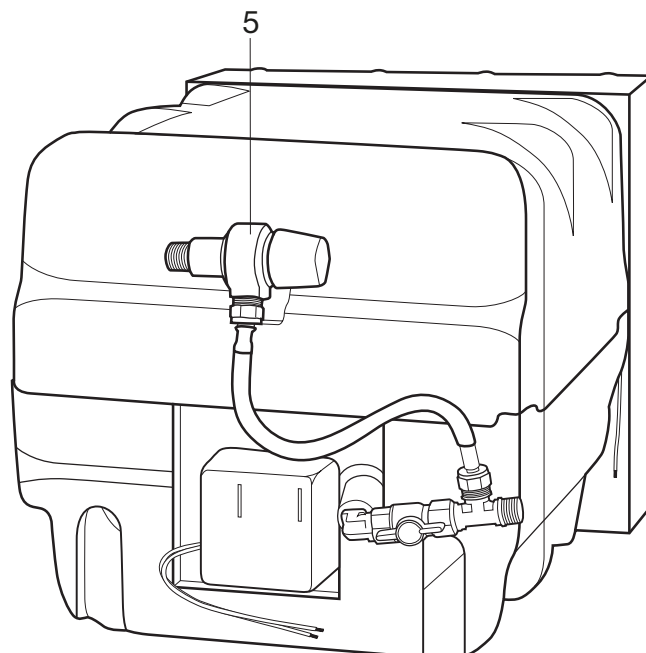
**ENGLISH, FRANCAIS** (et Canada)

**•Installation**

Effective 8/25/05



**10 GALLON TE**  
2004-2005

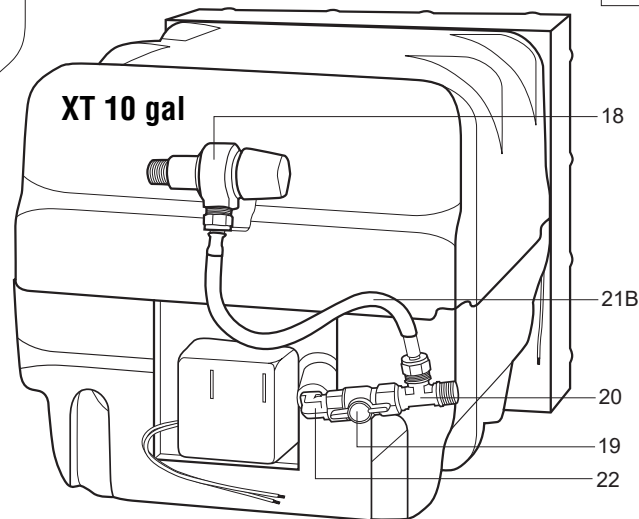
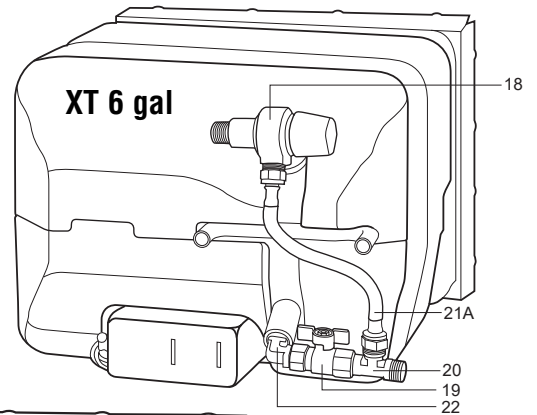
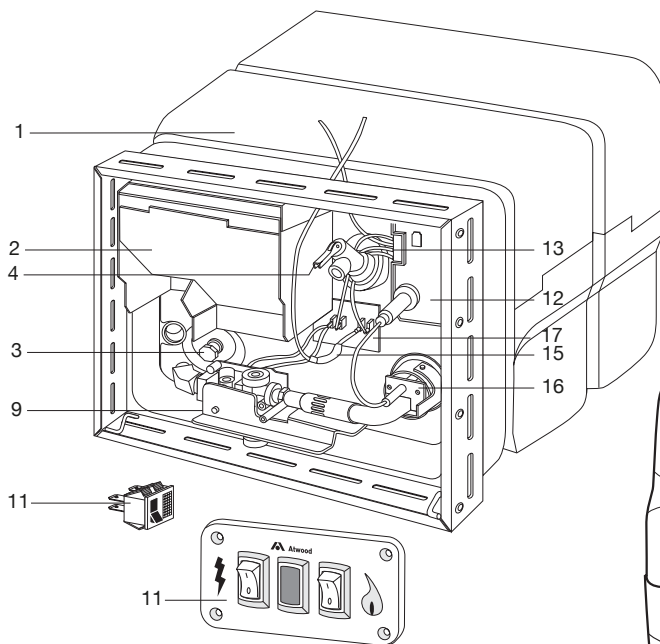


**10 GALLON XT**  
NEW FOR 2005-2006

1. Remove water lines (1), flexible hoses (2), mixing valve (3) and inlet plumbing components (4).
2. Install new mixing valve (5) with teflon tape. Use three wraps and pipe thread sealer to leading threads and install to minimum 35 ft/lbs.
3. Install male/male 90 degree fitting with a minimum of three wraps of teflon tape, stopping at approximately 1 o'clock on last turn.
4. Assemble tee to ball valve using a minimum of three wraps of teflon tape.
5. Install valve/tee assembly to elbow using a minimum of three wraps of teflon tape.
6. Finish turn on completed elbow/valve/tee assembly to horizontal position.
7. Adjust tee and valve so valve handle operates and tee is pointing branch thread upward.
8. Install flexible hose following instructions on hose tag.
9. Reconnect water lines. Apply Valve Position Sticker on back near valve.
10. Pressurize system to maximum 50 psi and check all connections for leaks with leak detecting solution.

# XT WATER HEATER PART IDENTIFICATION

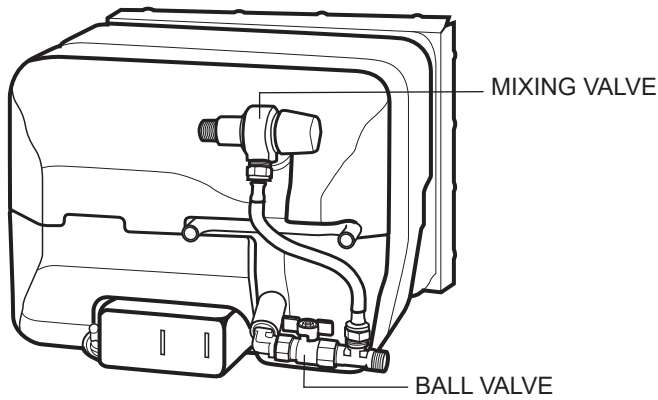
SPARK IGNITION  
HEAT EXCHANGE  
COMBINATION GAS/ELECTRIC



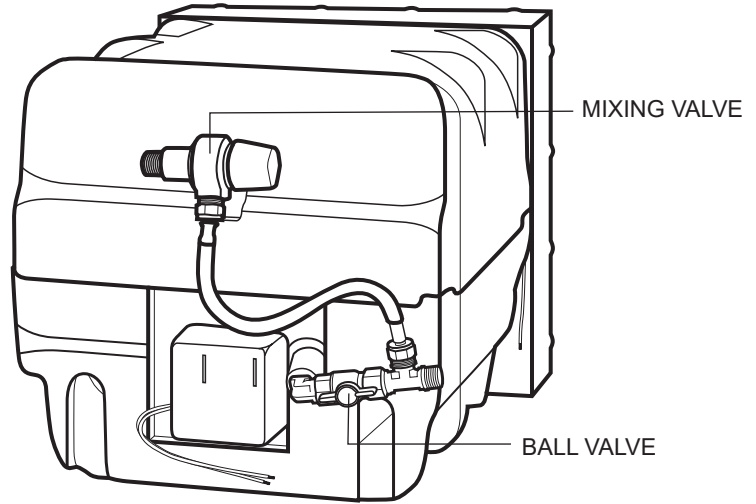
- \* All tanks includes styrofoam jacket =
- x Order by model
- ✓ order by color

ITEM	6 GALLON	10 GALLON	SPARK IGNITION	
REFERENCE	22 LITRES	38 LITRES	ALLUMAGE PAR ÉTINCELLE	
1	x	x	*Tank	*Réservoir
2	90960	90960	Flue Box Assembly	Boîtier du conduit
3	91857	91857	Drain Plug	Bouchon de vidange
4A	91604	91604	Pressure-Temperature Relief Valve 1/2" NPT	Soupape de décharge de type
4B	90028	90028	Pressure-Temperature Relief Valve 3/4" NPT	Soupape de décharge de type
9	93870	93870	Solenoid Valve	Électrovanne
11	91959	91959	Black on-Off Switch	Interrupteur Marche/Arrêt noir
	91859	91859	White On-Off Switch	Interrupteur Marche/Arrêt blanc
	91230	91230	Dual Switch	
12	93851	93851	Circuit Board	Circuit imprimé
13	93191	93191	Wiring Harness	Faisceau électrique
15	93866	93866	Thermal Cut Off	Coupure thermique
16	93868	93868	Spark Probe	Détecteur d'étincelle
17	91547	91547	ECO/T-STAT (kit)	Thermostat
			HEAT EXCHANGE	ÉCHANGE DE CHALEUR
1		x	*Tank	*Réservoir
			COMBINATION GAS/ELECTRIC	GAZ - ÉLECTRICITÉ COMBINÉS
1	x	x	*Tank	*Réservoir
NS	92249	92249	Heating Element & Gasket	Élément de chauffe et joint
NS	93849	93849	Relay	Relais
18	90029	90029	Mixing Valve	
19	90030	90030	Ball Valve	
20	90031	90032	Tee	
21A	90032		9" Hose (6 gallon)	
21B		90033	12" Hose (10 gallon)	
22	90034	90034	Elbow	
		92690	10 Gal Replacement Valve Kit	

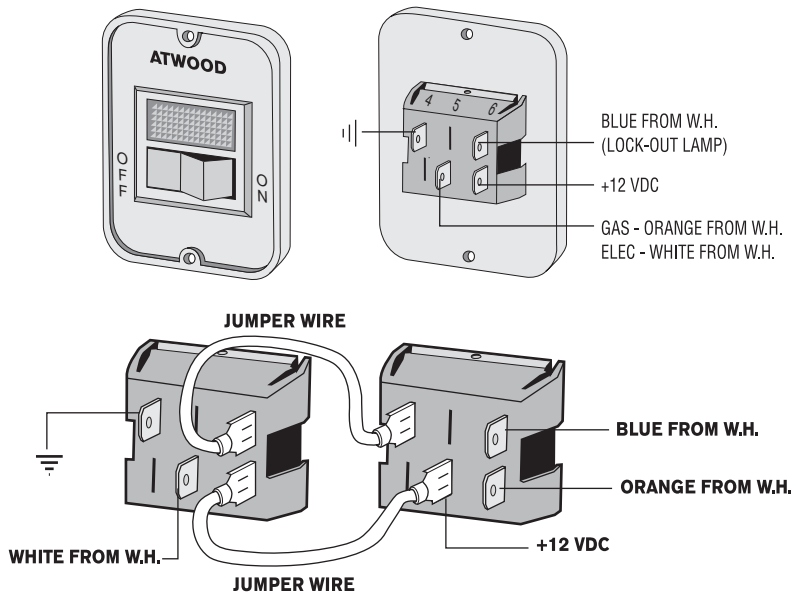
## 9 6 GALLON



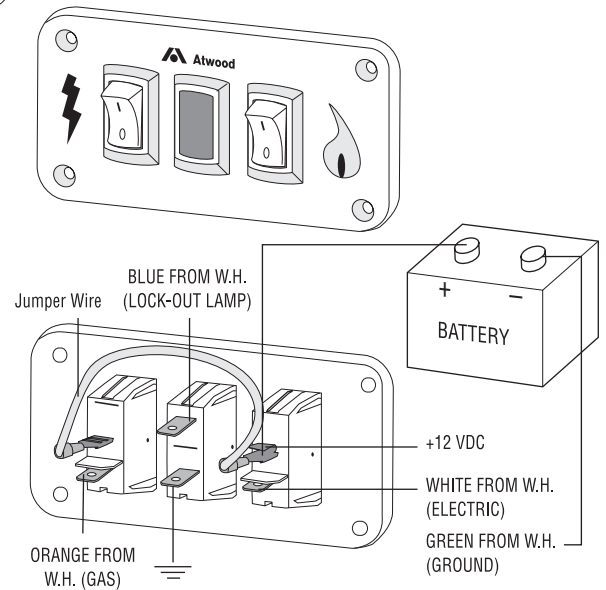
## 10 GALLON



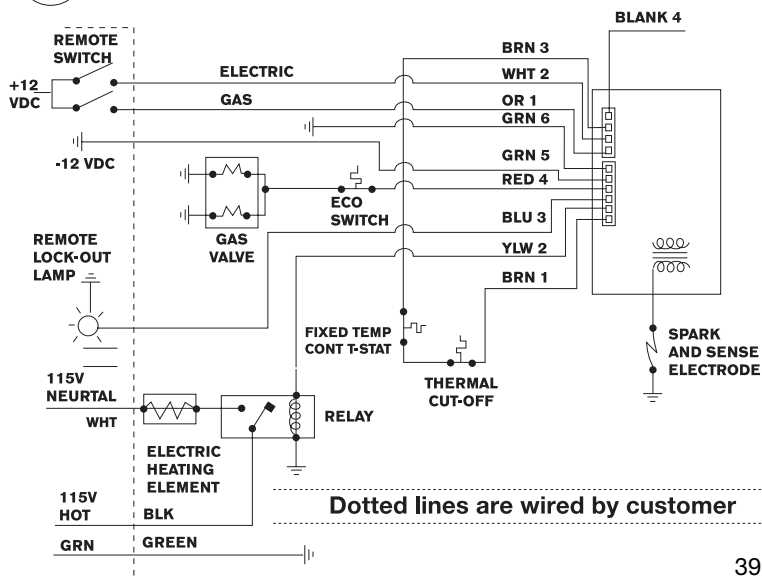
## 10 SINGLE SWITCH



## 11 DUAL SWITCH

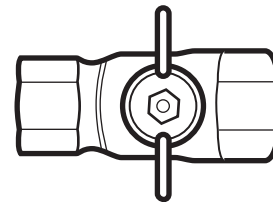


## 12 WIRING DIAGRAM COMBINATION GAS/ELECTRIC

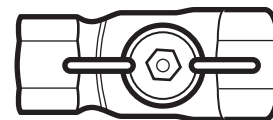


## 13

### WINTERIZED



### IN USE



# SERVICE TANK KIT PART NUMBERS

**REPLACEMENT PART REFERENCE**  
**February 2007**

MODELS	91411	91412	91591	91592	91593	91596	91641	91642	93950	93952	93953	94205	91059	91053	91060	91028
<b>GAS</b>																
G6A-2, G6A-3, G6A-6, G6A-7		•														
G10-1, G10-2												•				
<b>GAS PILOT-RELIGHT</b>																
G6A-6P, G6A-7P		•														
GC6AA-7P, GC6AA-8P			•													
<b>GAS/PILOT RELIGHT COMBINATION</b>																
GC10-2P						•										
G10-1P, G10-2P												•				
GC10A-2P, GC10A-3P						•										
<b>GAS &amp; ELECTRONIC IGNITION</b>																
GH10-1E, GH10-2E, GH10-3E										•						
G10-1E, G10-2E, G10-3E, G16-EXT									•							
G6A-4E, G6A-6E, G6A-7E, G6A-8E, G9-EXT							•									
GH6-4E, GH6-6E, GH6-7E, GH6-8E								•								
<b>GAS/ELECTRIC &amp; ELECTRONIC IGNITION</b>																
GCH6-4E, GCH6-6E, GCH6-7E				•												
GC6A-7E					•											
GCH10A-4E, GEH16-EXT																•
GCH10A-1E, GCH10A-2E, GCH10A-3E											•					
GC10A-4E, GE16-EXT															•	
GC10A-1E, GC10A-2E, GC10A-3E											•					
GC10-1E, GC10-2E											•					
GCH10-2E											•					
<b>GAS/ELECTRIC COMBINATION</b>																
GC6A-3, GC6A-6, GC6A-7, GC6AA-7, GC6AA-8			•													
GCH6A-7E, GCH6A-8E, GCH6A-9E				•												
GCH6A-10E, GEH9-EXT														•		
GC6AA-7E, GC6AA-8E, GC6AA-9E					•											
GC6AA-10E, GE9-EXT													•			
GC10-1, GC10-2						•										
GC10A-2, GC10A-3						•										
<b>HEAT EXCHANGE</b>																
GH6-3, GH6-6, GH6-7	•															

## NO REPLACEMENT TANK FOR G6A-3E

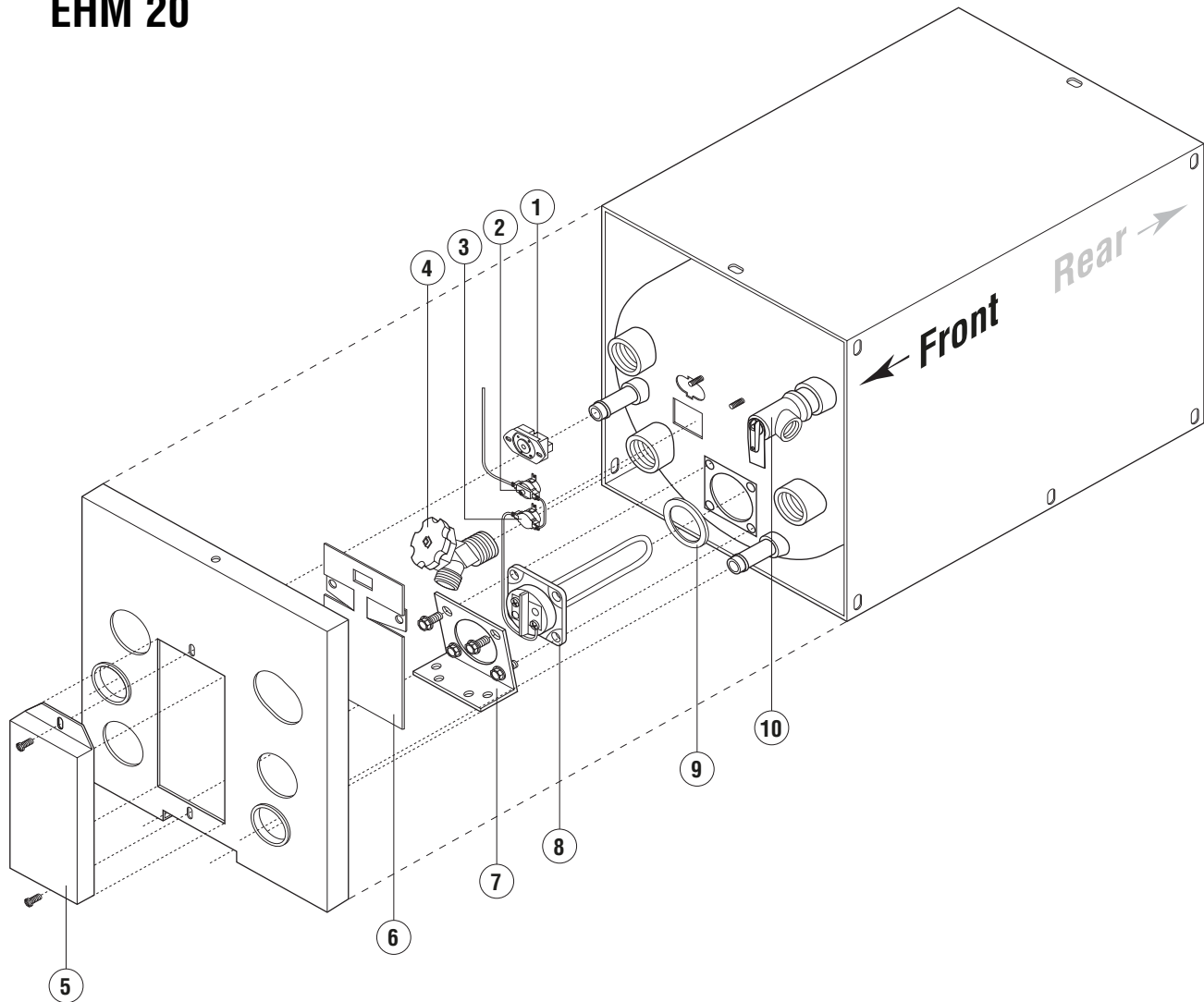
### INNER TANK INCLUDES THE FOLLOWING:

- All tanks include the insulation jacket, rings and gaskets.
- On all combination gas/110VAC tanks, in addition to the items mentioned above, they will also come equipped with the 110VAC heating components attached (junction box, thermostat, ECO and heating element).
- Current combination gas/110VAC models have the thermostat and ECO located on the front side and are not installed on replacement tanks.

**EHM 4-SM  
EHM 6-SM  
EHM 11-SM  
EHM 20**

# **ELECTRIC WATER HEATER**

**ALL MARINE WATER HEATER CAPACITIES**



ITEM	PART #	DESCRIPTION
1/2/3	90037	Thermostat Kit, with ECO, plate, wires (110V)
	90041	Thermostat Kit, with ECO, plate, wires (220V)
4	93403	Drain Valve 3/4"
5	90045	Access Cover (NEW STYLE)
6	92236	Insulator
7	91498	Front & Rear Mounting Bracket (4 & 6 gal)
	91499	Front & Rear Mounting Bracket (11 & 20 gal)
8	91580	Heating Element (110V) and gasket
	91581	Heating Element (220V) and gasket
9	92679	Gasket Heating Element (110V)
	91098	Gasket Heating Element (220V)
10	91604	Relief Valve (150 psi) 1/2" - NPT
	92655	Relief Valve (75 psi) 1/2" - NPT
	90028	Relief Valve (150 psi) 3/4" - NPT
	92647	Relief Valve (75 psi) 3/4" - NPT
N/S	91459	Thermostat for Solenoid Valve (EHP10)
N/S	91782	Solenoid Valve (EHP10)
N/S	91781	Water Valves (EHP10)



# Range

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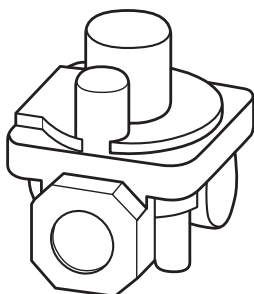
### Atwood & Wedgewood Ranges, Slide-In's, and Drop-In's

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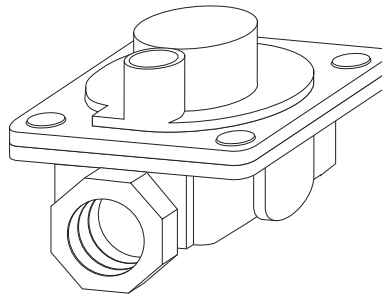
## After reviewing this manual, you should be able to answer the following questions:

- Are the Harper Wyman and Robertshaw valves, burners and manifolds interchangeable?
- Can a Wedgwood range/oven be converted from LP to natural gas?
- What is the difference between the standby pilot and heater pilot?
- What are the three functions of the oven thermostat?
- What is the function of the oven safety valve?
- What is the difference between High BTU and High Pressure?
- How do you adjust the flame on the top burner and what should the flame look like after that adjustment?
- What is the temperature tolerance range on the oven thermostat?
- What is recommended to clean the oven with?
- How long is it recommended to preheat the oven before placing food in it?
- How many inches should the edge of a pan be from any oven surface?
- After the thermostat is turned to the desired temperature, approximately how long should it take for the oven burner to come on?
- Will the oven burner cycle 'on' and 'off' in the broil mode?
- Can piezo ignition be added to a match lit range?

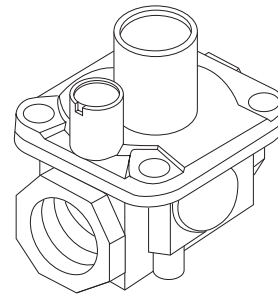
## Regulators



**Oara**



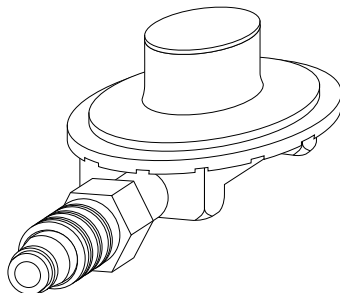
**Maxitrol**



**Harper Wyman**

### Standard Pressure Regulator

- Used on all of our standard drop-ins, cooktops and ranges
- Regulate pressure at 10" W.C.



### High Pressure Regulator

- Product Serial # begins with HP.
- Pressure is 16 psi
- Special cooking appliances designated for outdoor use only

# Model Number Identification

## NARROW DOOR - OLD WEDGEWOOD - Range, Cooktop & Slide-In

R 17 3 6 - A B P

- TOP BURNER IGNITION
  - P = Piezo
- DOOR COLOR
  - A = almond, B = black, G = black glass, S = stainless, W = black glass w/window, 1 = white steel door, 2 = white glass, 3 = white glass w/window
- TOP COLOR
  - A = almond, B = black, S = stainless, W = white
- GRATE STYLE OR OUTPUT
  - 0 = round, 5 = designer, 6 = high output, 7 = Harper Wyman manifold & burner top linear valves & high output, 8 = high output Harper Wyman top burner & oven gas system
- NUMBER OF BURNERS
  - 2, 3, 4
- OVEN HEIGHT
  - 17", 21"
- TYPE OF APPLIANCE
  - C = cooktop, R = range

## WIDE DOOR - OLD WEDGEWOOD - Range, Cooktop and Slide-In

RW 21 3 0 - A B P

- TOP BURNER IGNITION
  - P = Piezo
- DOOR COLOR
  - A = almond, B = black, G = black glass, 1 = white steel door, 2 = white glass,
- TOP COLOR
  - A = almond, B = black, W = white
- REVISION NUMBER
  - 0 = original version, 1 = First version
- NUMBER OF BURNERS
  - 3
- OVEN HEIGHT
  - 17", 21"
- TYPE OF APPLIANCE
  - RW = Wedgewood w/wide door range, CW = Wedgewood cooktop

## OLD WEDGEWOOD - Drop-In Cooktop

D- 2 5 HP

- SPECIAL FEATURE
  - HP = high performance, ST = stainless top & taupe frame, SV = stainless top on Volkswagen, SG = stainless top & gray frame
- GRATE STYLE
  - 0 = round, 5 = designer, 6 = high output
- NUMBER OF BURNERS
  - 2, 3, 4
- TYPE OF APPLIANCE
  - D = drop-in

## ATWOOD (DV)- OLD ATWOOD (DA) Drop-In Cooktop with Open Burners

DV - 2 0 B S E

- TOP BURNER IGNITION
  - E = Electronic Ignition
- BURNER
  - S = sealed, P = porcelain
- TOP
  - B = black, W = white, S = stainless, C = chrome
- REVISION
  - 0 1 2 revision
- NUMBER OF BURNERS
  - 2, 3
- TYPE OF APPLIANCE
  - DV = Sealed Burner, DA = Atwood drop-in

## WEDGEWOOD VISION - Range, Cooktop & Slide-In

RV21 3 3 - B B P X N R UPS

- UPS = Shippable by UPS
- R = Returnable package
- N = Flush control panel
- X = Extended gas tube
- TOP BURNER IGNITION
  - P = Rotary Piezo, E = Electronic
- DOOR COLOR
  - B = black, G = black glass, S = stainless, 1 = white, 2 = white glass, 3 = white panel/handle, 4 = stainless panel/white handle
- TOP COLOR
  - B = black, W = white, Q = bisque, S = stainless,
- REVISION NUMBER
  - 1 = original version, 2 = effective 8/1/01, 3 = white panel/white handle
- NUMBER OF BURNERS
  - 3
- OVEN HEIGHT
  - 17", 21"
- TYPE OF APPLIANCE
  - RV = Wedgewood Vision, CV = Wedgewood Vision cooktop

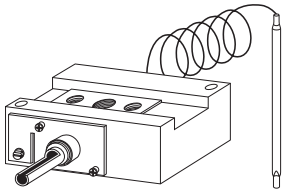
## ATWOOD - Range (Oven & Cooktop w/Sealed Burners) & Slide In

RA21 3 3 - B B E

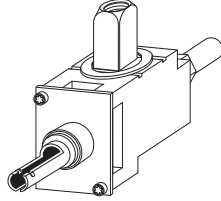
- TOP BURNER IGNITION
  - P = Rotary Piezo, E = Electronic
- DOOR COLOR
  - B = black, S = stainless, 2 = white glass
- TOP COLOR
  - B = black, W = white
- REVISION NUMBER
  - 0 = original version, 1, 2, 3
- NUMBER OF BURNERS
  - 3
- OVEN HEIGHT
  - 17", 21"
- TYPE OF APPLIANCE
  - RA = Atwood range, CA = Atwood cooktop

# Range & Oven Gas Components

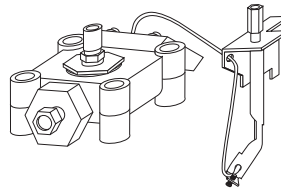
## Robertshaw



Oven Control /  
Thermostat



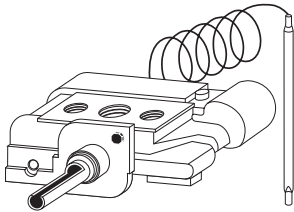
Burner Valve



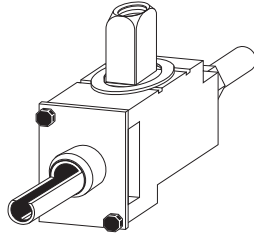
Safety Pilot Valve

- The top burner components mounted on a silver square manifold.
- Ranges in the serial number sequence WT30000 through W840000 used either this system or the Harper Wyman System.
- On a Robertshaw system the following exists:
  - a. the face of the oven control says R.C.C. (Robertshaw Control Company)
  - b. the lowest temperature on oven knob is 170°
  - c. the face plate of oven control and burner valves have silver torx head screws.

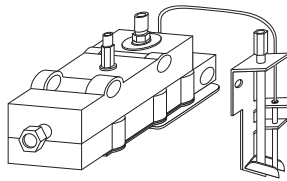
## Harper Wyman



Oven Control /  
Thermostat



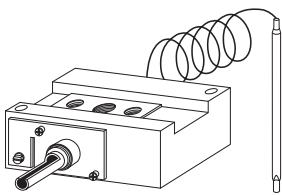
Maxi Burner Valve



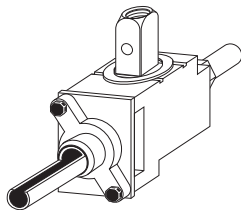
Safety Pilot Valve

- The top burner components mounted on a silver square manifold.
- Ranges in the serial number sequence WT30000 through W840000 used either this system or the Robertshaw System.
- On a Harper Wyman the following pertains:
  - a. the face of the oven control says H.W. (Harper Wyman)
  - b. the lowest temperature on oven knob is 140°
  - c. the face plate screws on the burner and oven valves are black and have octagonal heads.

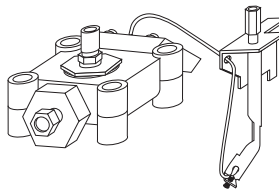
## Combination - Harper Wyman/Robertshaw



Robertshaw Oven  
Control / Thermostat



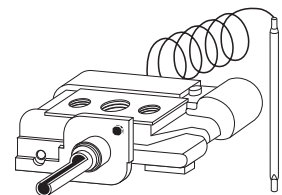
Harper Wyman Mini  
Burner Valve



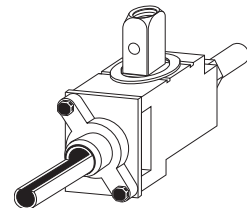
Robertshaw Safety  
Pilot Valve

- Products whose model number is R or C \_\_\_7-\_\_\_ have combined system (R2137-A).
- Top burner system is Harper Wyman
- Lowest temperature on oven knob is 170°
- Oven control system is Robertshaw

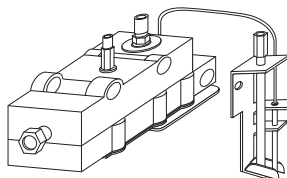
## Harper Wyman



Harper Wyman Oven  
Control / Thermostat



Harper Wyman Mini  
Burner Valve

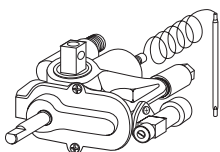


Safety Pilot Valve

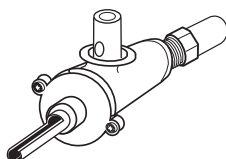
- Ranges whose model number is R \_\_\_8- 32 have a complete Harper Wyman range valve system
- Cooktops whose model number is C \_\_\_8- 32 to current model have a complete Harper Wyman valve system
- Top burners are Harper Wyman and linear.
- Lowest temperature on oven knob is 170°
- Oven control and safety pilot valve are also Harper Wyman.

## Copreci

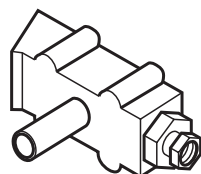
- Mercury free.



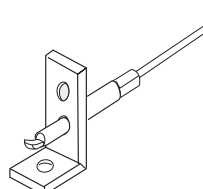
Copreci Oven  
Thermostat



Burner Valve



Orifice Block



Pilot Assembly

- Ranges whose model number is R \_\_\_3 have a Copreci oven thermostat with Mueller burner valves for the stove top.
- Lowest temperature on oven knob is 300°
- Slide-ins whose model number is C\_3 have Mueller burner valves.
- Pilot assembly is White Rodgers

# Model 33 Sequence of Operation

**Standard Pressure Regulator** - this valve receives up to 13" W.C. gas pressure from LP bottles, and reduces it 10" W.C. for the manifold.



**Manifold** - a continually pressurized pipe distributing gas to top burner valves and oven valve.



**Oven Thermostat (Copreci)** - supplies gas to the oven pilot, main burner and regulates the oven temperature.



**Pilot Assembly** - the pilot looks exactly like the water heater pilot, but there are some differences (bend and thermocouple hole size). They are not interchangeable.

The operator holds the magnet in initially by pushing the knob at the pilot/push/hold rotation.

The pilot needs to be lit manually and held in for about 5 seconds.



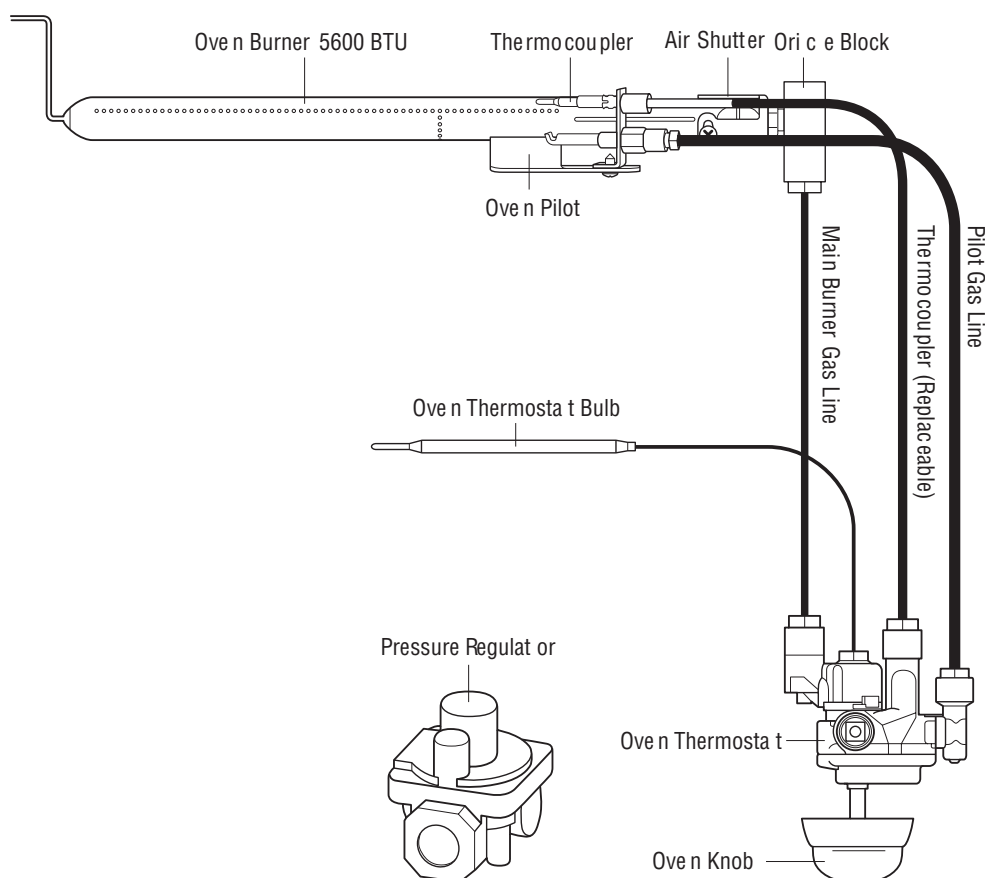
**Oven Thermostat** - senses oven temperature by means of a thermal bulb (no mercury) located in the upper rear of the oven. The oven control knob is set to the desired temperature calling for heat; the fluid expands in the bulb, opens a seat in the thermostat and supplies gas to the orifice block. The block contains the orifice for the main burner. Gas enters the burner to be ignited from the pilot.



**Oven Burner** - the oven burner remains **on** once the oven is turned on. The **size** of the flame is changed (higher or lower) by the thermostat depending on the set temperature and whether the capillary has been satisfied.

NOTE: Safety valve will remain open as long as the thermal couple senses the pilot flame.

## Component Identification



# Sequence of Operation - Prior to Model 33

**Standard Pressure Regulator** - this valve receives up to 13" W.C. pressure gas from LP bottles, and reduces it to 10" W.C. for the manifold.



**Manifold** - a continually pressurized pipe distributing gas to top burner valves and oven valve.



**Oven Thermostat** - supplies gas to the oven pilot, the safety pilot valve, and regulates the oven temperature.



## PILOT ASSEMBLY

**Standby Pilot** - with the oven knob placed in the pilot position, the oven valve will supply gas to the pilot assembly. This standby pilot will stay lit until the oven knob is turned to the OFF position. It also supplies the gas for the heater pilot.



**Heater Pilot** - on initial start-up, when the oven thermostat knob is turned to the desired temperature, the volume of gas increases from the thermostat and the smaller standby pilot increases to a larger heater pilot flame. This higher pilot flame heats the thermocouple thereby opening the safety pilot valve to allow gas to flow to the oven burner. The heater pilot thereafter only comes on when the thermostat calls for heat.



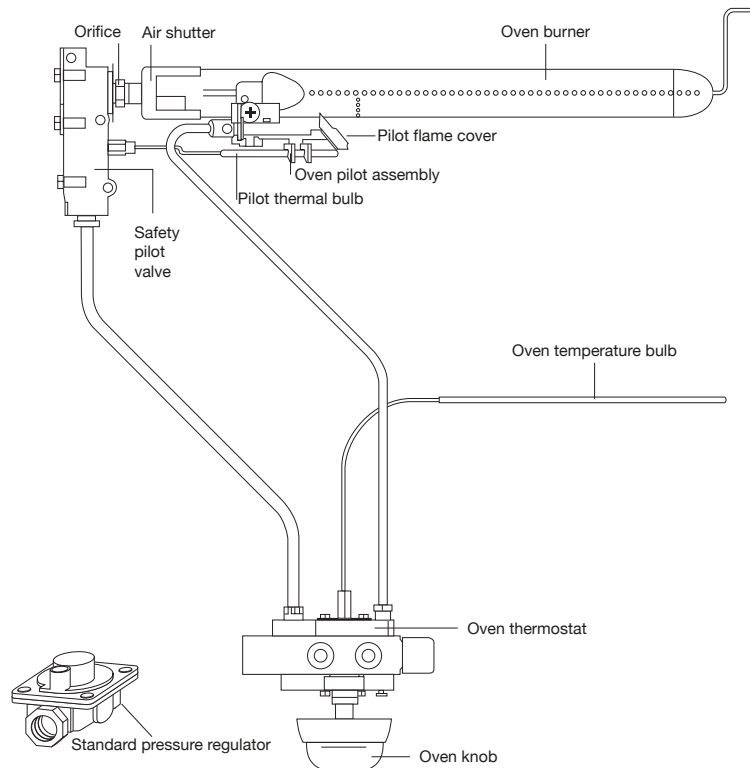
**Safety Pilot Valve** - controls the gas flow to the oven burner. The valve is operated by a thermal bulb located over the heater pilot. When this bulb is heated, it opens the safety pilot valve which then supplies gas to the oven burner.



**Oven Thermostat** - senses oven temperature by means of a thermal bulb located in the top of the oven. The oven control knob is set to the desired temperature calling for heat, the fluid expands in this bulb, opens a seat in the thermostat and supplies gas to the safety pilot for the higher heater pilot. This heater pilot initiates the process for starting the oven burner as described above. When the oven temperature is satisfied, the fluid in this bulb decreases which closes a seat in the oven valve and throttles the pilot size down to the standby pilot mode thereby shutting the oven burner OFF. This cycle will continue until the range is turned off.

- The temperature tolerance of the thermostat is  $\pm 25^{\circ}\text{F}$ .
- The oven burner will come on approximately 1-1/2 minutes from a cold start and 10 seconds from a hot start.
- The oven burner may cycle during the broil mode.

## Component Identification



# Cooking Appliance

## TROUBLE SHOOTING GUIDE

Effective: 12/15/06

Guides are only intended for use on Atwood® products by service technicians who have successfully completed Atwood® training. This guide should be used in conjunction with the appropriate Instruction Manual provided with the product and any applicable Industry Standards. This is not intended to be a complete list. Please direct questions concerning service of Atwood® products to 866-869-3118 before proceeding.

CAUSE	SOLUTION
<b>RANGE PILOT WON'T LIGHT OR STAY LIT</b>	
Insufficient gas pressure	1. Check for gas leaks and have regulator checked by qualified LP gas technician
	2. Check gas supply
	3. Set pressure to 11" W.C. with two or more gas appliances running
Supply valve closed	Turn valve on
Blocked pilot orifice, or blocked flash tubes	Clean pilot orifice with toothpick; clean flash tubes
Pilot flame cover out of position,	Reposition pilot flame cover, and/or remove carbon and/or coated with carbon build up.
<b>BURNER(S) WON'T LIGHT OR STAY LIT</b>	
Insufficient gas pressure	Check for gas leaks, have regulator checked by qualified LP gas technician
Incorrect air/gas mixture	Adjust air shutter if applicable
Blocked orifice	Clean with toothpick
<b>BURNER LIGHTS, BUT FLAME IS TOO SMALL</b>	
Improper gas pressure	Check for gas leaks, have regulator checked by qualified LP gas technician
Improper air/gas mixture	Adjust air shutter if applicable
Problem burner valve	Replace burner valve
Blocked orifice	Clean with toothpick
<b>BURNER FLAME LIFTS OFF BURNER HEAD</b>	
Gas pressure too high	Have regulator check by a qualified LP gas technician
<b>OVEN BURNER LIGHTS, BUT FLAME REMAINS VERY SMALL AND OVEN HEATS VERY SLOWLY</b>	
Improper gas pressure	Check for gas leaks, have regulator checked by qualified LP gas technician
Blocked orifice	Clean with alcohol and cotton swab
<b>OVEN BURNER FLAME LIFTS OFF BURNER AND OVEN CYCLES TOO FREQUENTLY</b>	
Gas pressure too high	Have regulator checked by qualified LP gas technician, or improper gas mixture
<b>OVEN COOKS UNEVENLY AND/OR FOOD BURNS ON THE BOTTOM</b>	
Poor oven ventilation	Oven too full for proper circulation - must have 1" clearance in all directions. Ventilation holes in oven bottom (shelf above burner) are covered. Check the top vent (on back of range) it must be clear of all insulation, etc.
Problem thermostat	Replace thermostat.
Oven not preheated	Oven must be preheated at least 10 minutes.
Thermo bulb out of position	Thermobulb must be in clip on back of oven - pans cannot touch thermo bulb.



OVEN PILOT OUTAGE

Safety Thermal Bulb out of position	Re-position the safety thermal bulb.
Problem thermostat	Replace thermostat
Blocked oven vent	Remove obstruction from vent
Incorrect oven burner gas/air mixture	Readjust air

YELLOW FLAME TIPS

Improper gas-air mixture	Adjust air shutter if applicable
Low gas pressure	Check gas supply
	Check for leaks and have the regulator checked
	Set pressure to 11" water column
RA Ranges and Cooktops	
Improper orifice to burner alignment	Realign burner head and orifice tube assembly
	Replace orifice

Operation and Trouble Shooting Guide - 33 Series

TO LIGHT THE PILOT

Turn the oven knob to the pilot position and push in.  
Hold in for at least 5 seconds until pilot is well established.

PILOT WILL NOT COME ON

Check to see if the gas is turned on.  
Is there gas in the tanks?  
Check for blockage of the orifice, pilot assembly, or pilot line.  
Check for kinks in the pilot line.

PILOT WILL NOT STAY ON

Hold oven knob, pilot position, for up to 30 seconds.  
Check gas supply.  
Confirm that thermocouple is fully inserted into the thermocouple holder.  
Pilot flame out of position. Pilot flame is not engulfing thermocouple. Pilot assembly needs to be adjusted so that pilot flame is engulfing thermocouple.  
Test thermocouple.  
Thermostat knob is bottoming out on manifold cover (face plate). If knob can not fully engage, the magnet in the thermostat will not be established. Move manifold out further beyond face plate.

THERMOSTAT CALIBRATION

The ideal temperature variance is 25 degrees (plus or minus). This means that if the thermostat is set at 350 degrees, the temperature will range between 325 and 375. If the temperature exceeds 50 degrees, plus or minus, check for a kinked capillary tube.

Identification of Older Wedgewood Systems

Robertshaw Gas System - Regular Ovens and Cooktop

Models: Serial #'s begin with a W and consist of 6 digits.  
(example W840000).

Robertshaw Gas System - High BTU 3 burner Range and

Cooktop Models: Serial #'s begin with a SB and consist of 4 to 9 digits.

PART DIFFERENCES FOR ALL HIGH BTU RANGES AND MAINTOPS-

- Same oven control, regulator, safety-pilot & oven burner as regular ovens & cooktops.
- Earlier models used 2-52123 burner valves on rear burners.
- Manifolds, top burners and maintops are different from standard ranges.

You can identify the system by one of the following:

1. Look at the oven control face plate (behind the knob)  
H.W. = Harper Wyman  
R.C.C. = Robertshaw Control Co.
2. By looking at the first temperature on the oven knob  
140 degrees = Harper Wyman system  
170 degrees = Robertshaw system
3. Manifold (shape and color)

Both Robertshaw and Harper Wyman use a dull grey square manifold pipe.

 **WARNING**  
PERSONAL INJURY & PROPERTY DAMAGE

• Copreci, Robertshaw and Harper Wyman gas systems are not interchangeable.

## HARPER WYMAN SYSTEMS EARLY WEDGEWOOD MODELS WITH OLDER SYSTEMS

**Between the years of 1991 to 1993** our gas systems were divided between Harper Wyman and Robertshaw. The serial numbers that involve a Harper Wyman and Robertshaw system would be in serial number series W73000 to W839999. The burner maintops and all cosmetic parts are the same. The gas system will be the only difference.

**DURING 1978 TO 1980** we used all black square manifolds with the above burner valve, but we used a different oven control/thermostat 3902262 which did not offer a constant burning pilot in oven. They light the pilot on LOW TEMP AND THEN MOVE TO DESIRED TEMPERATURE. When done cooking they simply turn to off. The pilot had to light each time they got ready to use the oven. This control is NO LONGER AVAILABLE, however, you can sub it with the following:

**51095** - - -Oven control/thermostat looks just like the 3902262 but, this will have a pilot on position where they don't have to light pilot before each use. This control when subbing for the 3902262 must change the oven knob to 51059 (also, known as 52286) even though the controls look alike, the knobs must be changed to provide correct substitution.

Rest of the gas system is as follow:

**51096** - - -Burner Valve NO LONGER AVAILABLE (same as 51224)

**51063** - - -Safety Valve (same as 51177)

**51062** - - -Regulator (same as 52154)

All these parts are still available, no substitutes

**DURING 1981 TO 1983** we used the black square manifold systems, along with a different Harper Wyman system, different from the one in 1991 to 1993.

**DURING THE MIDDLE YEARS 1960'S TO 1972** Wedgewood used a gas system that used a black round manifold, with the oven control mounting to the front of the stove and does not mount to a manifold. This system is no longer available and no substitutions are available for that system. Part numbers and listed, Johnstone Supply Co. was the supplier. The obsolete part numbers were as follow:

Serial numbers on these ranges would start with the letters C, E, F, and consist of 5 to 6 digits.

Atwood will not be able to supply any parts.

During the Wedgewood years the part numbers consisted of 7 digits. When Atwood took over they needed the part numbers to consist of 5 digits only. Wedgewood took existing part numbers and dropped the 390 keeping the last four digits and added a 5 to the front (example: 3902281 became 52281).

**DURING THE YEARS OF 1972 TO 1978** the following systems were used. We've noted the replacements for these no longer available controls. Serial numbers started with a J, K, G, H and consisted of 5 to 6 digits;

**3901183** Oven control mounted to a black square manifold this control used two screws to mount it and the screws went completely through the oven control. NO LONGER AVAILABLE.

**USE:** 51095 Oven control/thermostat (old 52281) looks different, takes shorter screws for mounting. MUST CHANGE KNOB FOR 51095 TO WORK. Order oven knob #51059, (old 52286) It is designed for the calibration of the control.

**3901175** Oven control mounted to a black square manifold. This control installs the same as above, however, it had 3 ports on back; one for center gas pilot. NO LONGER AVAILABLE.

**USE:** 51095 Oven control/thermostat (old 52281). It looks different, and will DISCONTINUE the center pilot between burners on top. To continue this feature you need to purchase new manifold pipe with ON and OFF valve for center pilot. Knob also needs to be replaced with 51059 (old 52286)

**3901184** Oven control mounted to a black square manifold for eye level ranges only. NO LONGER AVAILABLE FOR SUBSTITUTE

**3901224** Burner valve used with above controls same as 51224 or use blister pack number 51096. Still available from Atwood. They only mount to BLACK SQUARE MANIFOLDS.

**DROP-INS** - Wedgewood also, makes drop-in models (D20, D25, D30, D35). We have used this system approximately from the **END OF 1992 TO 1995**, however, February and March of 1995 we changed one burner valve on D30, D35 models. The front burner has been changed to a Hi BTU burner 6500 BTU valve on both burners for models D20 and D25.

Burner valves that are regular 5200 BTU have a black face plate, 6500 BTU valves have a gold face plate.

Maintops are ordered by Model number and color.

Before Atwood purchased Wedgewood in 1986 the model numbers were different. Below is a cross reference chart.

WEDGEWOOD	ATWOOD	DISCONTINUED		
T212	C30	T312	C35	D20
T214	C40	T314	C45	D20
T2122	R1730	T3122	R1735	D25
T2130	R1740	T3130	R1745	D25
T2150	R2140	T3150	R2145	D35
T2142				D25SV
				D25ST
				S=25WHP

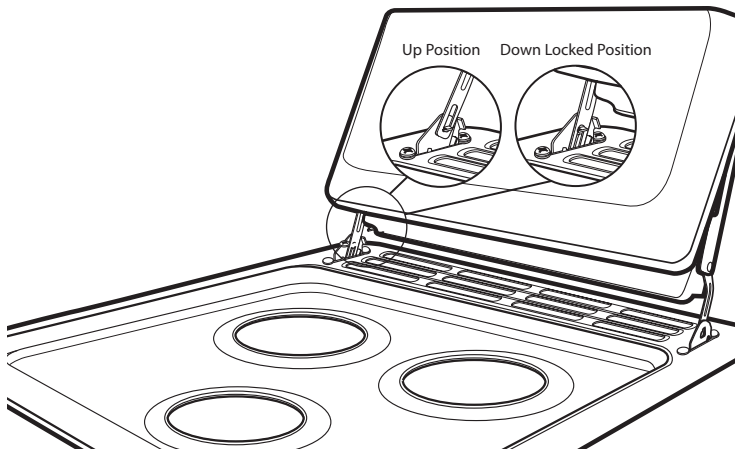
If you have a Wedgewood Model number you can use the parts list for Atwood model numbers for cosmetic parts. Depending on the age of the range, the gas system may not be the same. Gas system parts are ordered by either Model or Serial number.

Wedgewood Models numbers discontinued are as follow:

W7102	T2172LL	W2172C
W7103	W2172LL	C7200
		C7300

# Cooking Appliance Terminology

Terminology	Definition	Terminology	Definition
<b>Burner Electrode</b>	The spark source to light top burners with piezo/12 VDC electronic ignition. Replaceable for 33 range series.	<b>Piezo Igniter</b>	An electro-mechanical device that can be used to ignite a top burner.
<b>Calibration</b>	The condition that determines whether the thermostat is registering temperatures properly.	<b>Pilot Orifice</b>	A precision drilled thimble shaped component that meters gas flow to the pilot.
<b>CSA</b>	American National Standard for Recreation Vehicle Cooking Gas Appliances	<b>Regulator</b>	Device that reduces the high pressure from the LP bottles to a lower pressure for the appliances.
<b>Electronic Ignition</b>	12v DC module activated by switch to ignite top burners.	<b>Sealed Burner</b>	A burner head attached directly to the porcelain main top which prevents spilling to the burner box.
<b>Heater Pilot</b>	An extension of the standby pilot that opens the oven safety valve, on older ranges, to enable gas to flow to the oven burner.	<b>Standby Pilot</b>	The oven pilot that burns constantly and provides the base for the heater pilot.
<b>Main Burner Orifice</b>	A precision drilled thimble shaped component that meters gas flow to the main burner.	<b>Thermal Bulb</b>	The bulb located in the oven and connected to the thermostat that contains thermal fluid and causes the thermostat to close and open based on the set cooking temperature.
<b>Manifold</b>	The constantly pressurized tube or pipe that supplies gas to the burner valves.	<b>Thermocouple</b>	Senses pilot flame for the oven and controls safety valve and thermostat.
<b>Oven Safety Valve</b>	The valve, on older ranges, that controls the gas flow to the main burner.	<b>Yellow Tipping</b>	A burner flame with excessive yellow tipping can be caused by improper gas/air mixture. Caused by improper alignment or restriction of orifice and venturi tube.
<b>Oven Thermostat</b>	It is the component that regulates the temperature of the oven at the desired cooking temperature and supplies gas for both the standby and heater pilots.		



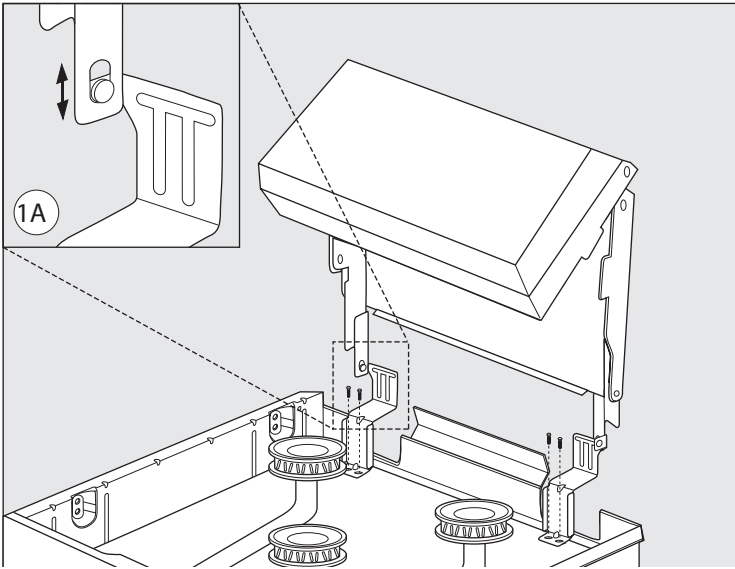
## Model 33 Bi-fold Cover use with **SLOTTED TOPS**

MODEL NUMBER	DESCRIPTION	P/N #
BFC2-B	black, single	54106
BFC2-W	white, single	54107
BFC2-S	stainless, single	54102

(Applicable after serial number G10020000) Start date 10-2-06

**HINGE REPLACEMENT KIT**  
includes left and right hinges

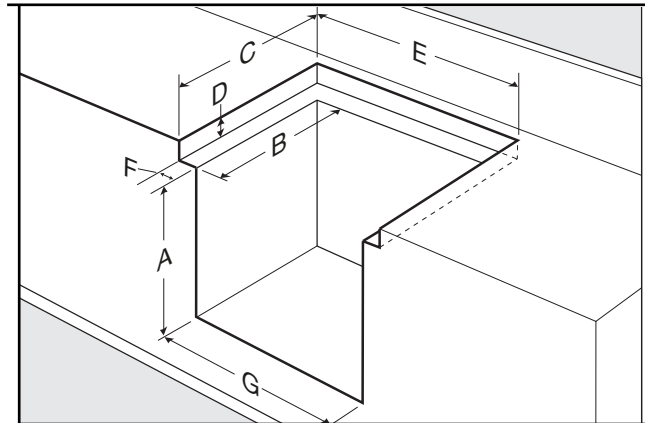
51031



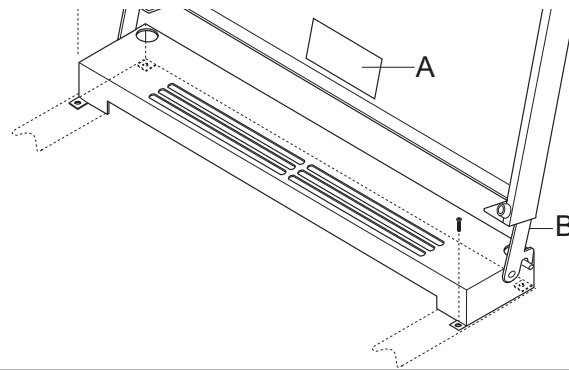
## Bi-fold Cover use with **UNSLOTTED TOPS**

MODEL NUMBER	DESCRIPTION	P/N #
BFC1-B	black, single	56417
BFC1-W	white, single	56418
BFC1-S	stainless, single	55895
BFC9-B	black, single	56399
BFC9-W	white, single	56398

(Applicable before serial number G10020000)



## Recessed Bi-fold Cover



### COUNTER CUT OUT DIMENSIONS - RECESSED

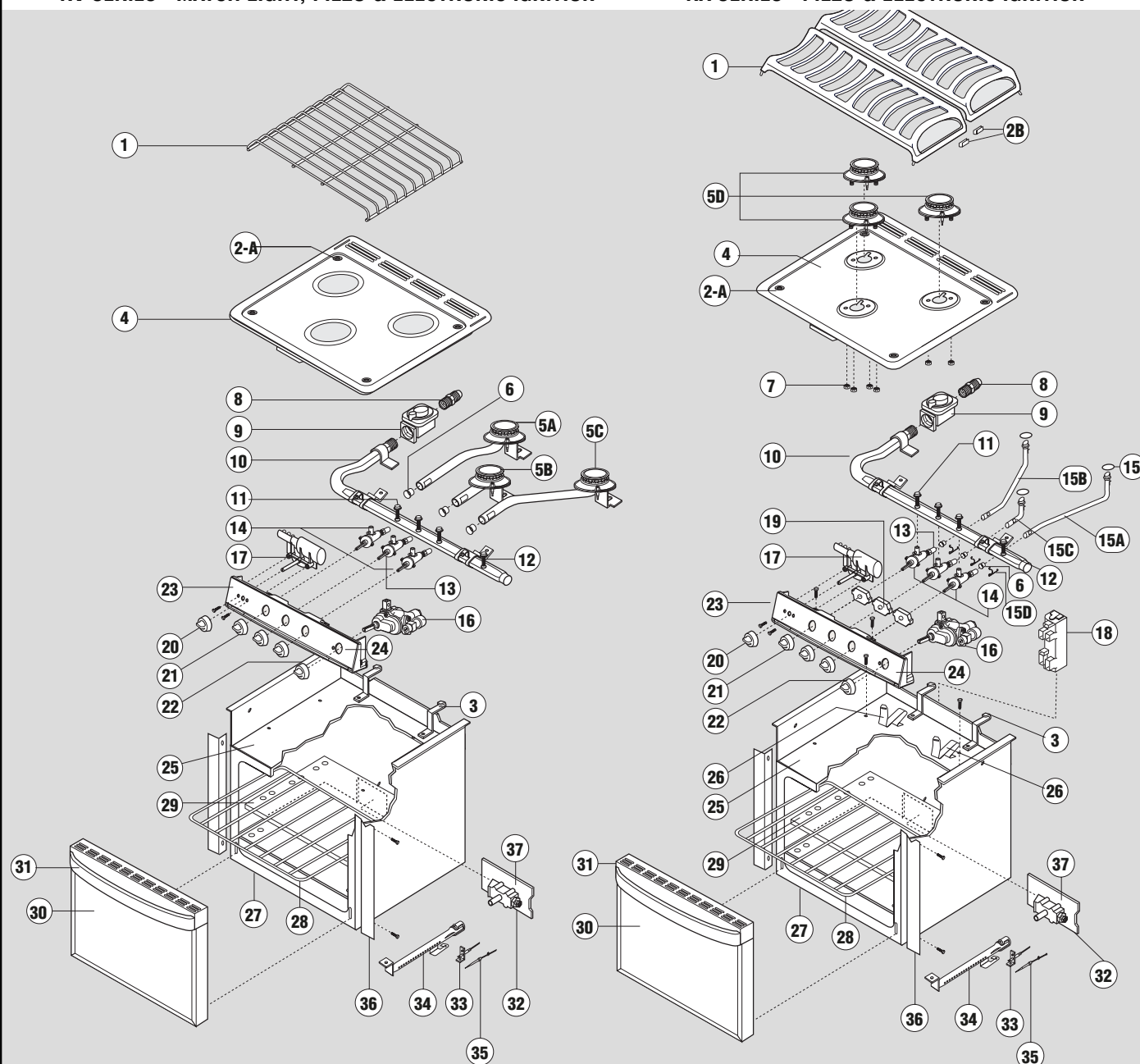
			R OVEN				C													
LAMINATE MATERIAL	MPD PART #		17"		21"		SLIDE-IN													
			A		A		A		B		C		D		E		F		G	
IN	MM		IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM		
1/4	6	56397	17	432	21	533	3	76	18.5	470	20.5	521	2.31	59	24.63	625	2.19	56	20.25	514
1/32	.8	56391	17	432	21	533	3	76	18.5	470	20.5	521	1.84	47	24.63	625	2.19	56	20.25	514
			RV & RA OVEN				CV & CA													
LAMINATE MATERIAL	MPD PART #		17"		21"		SLIDE-IN													
			A		A		A		B		C		D		E		F		G	
IN	MM		IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
1/4	6	56397	16	406	20	508	3	76	17.75	451	19.75	502	2.31	59	24.63	625	2.19	56	20.25	514
1/32	.8	56391	6	406	20	508	3	76	17.75	451	19.75	502	1.84	47	24.63	625	2.19	56	20.25	514

# MODEL 33 - WEDGEWOOD (RV / CV) - ATWOOD (RA / CA)

## Range & Slide-In Parts Identification

RV SERIES - MATCH LIGHT, PIEZO & ELECTRONIC IGNITION

RA SERIES - PIEZO & ELECTRONIC IGNITION



ITEM	DESCRIPTION	WEDGEWOOD		ATWOOD	
		RV		RA	
		1733	2133	1733	2133
30	Door assembly includes handle - black steel	51977	51983	51977	51983
30	Door assembly includes handle - white steel	51978	51984	51978	51984
30	Door assembly includes handle - white glass	51981	51987	51982	51988
30	Door assembly includes handle - black glass	51980	51986	51980	51986
30	Door assembly includes handle - stainless steel	51958	51992	51958	51992
30	Door assembly white handle - white steel	51957		51957	
	DOOR-Glass Insert - Sm BLACK	51881		51881	
	DOOR-Glass Insert - Lg BLACK		51882		51882
	DOOR-Glass Insert - Sm WHITE	51883		51883	
	DOOR-Glass Insert - Lg WHITE		51884		51884
31	Oven Door Handle - black	51124	51124	51124	51124
	Oven Door Handle - white	51126	51126	51126	51126



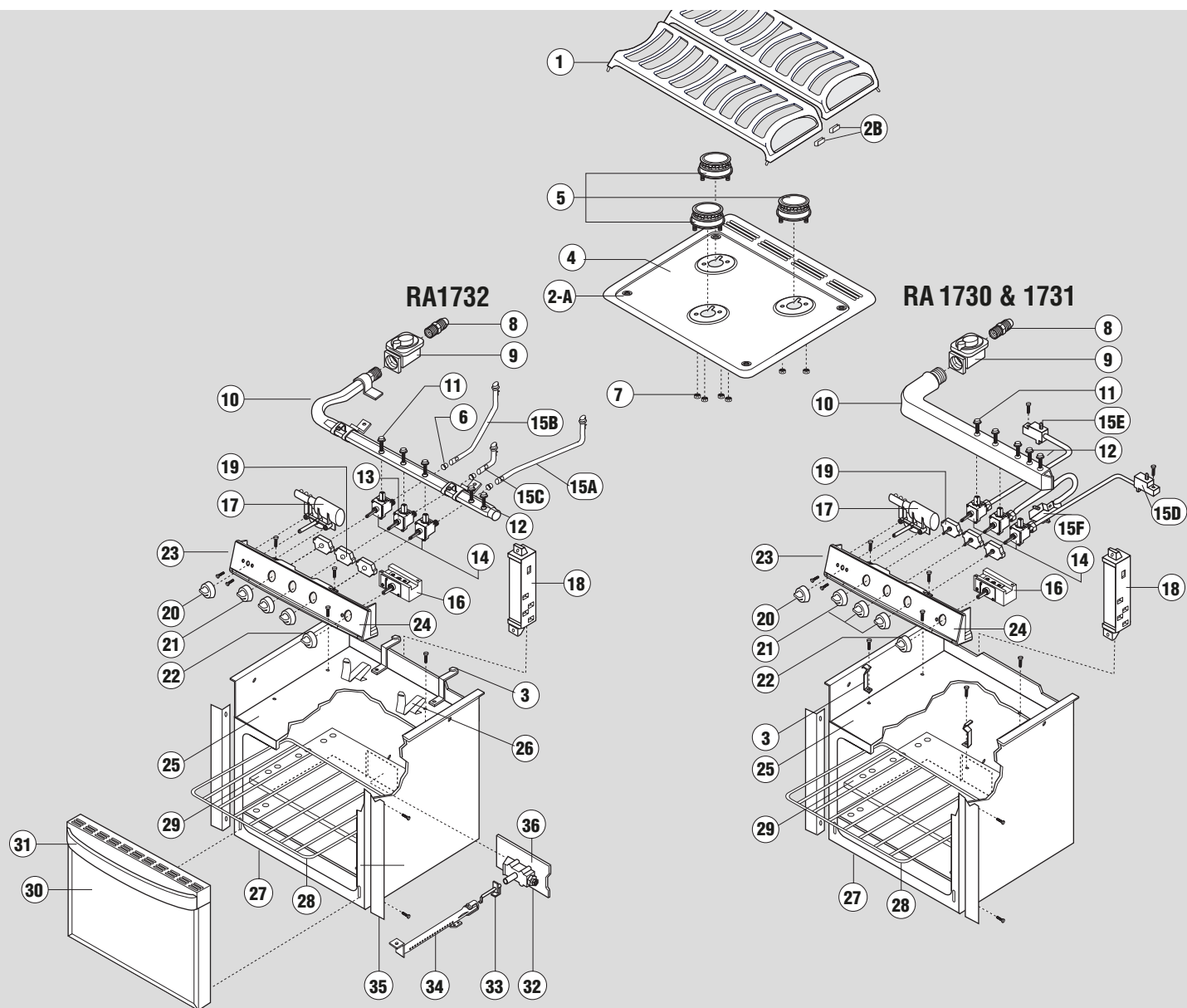
ITEM	DESCRIPTION	WEDGEWOOD			ATWOOD		
		RV		CV	RA		CA
		1733	2133	33	1733	2133	33
1	Grate - black	56272	56272	56272	57190❖	57190❖	57190❖
2A	Grommet (4) ❖	53009	53009	53009	53009	53009	53009
2B	Sealed Grate U-Channel (4) ❖				57194	57194	57194
3	Top Spring Clip (2) ❖	51035	51035	51035	51035	51035	51035
4	Range Top Assy - white	52007	52007	52007	57300	57300	57300
	Range Top Assy - black	52008	52008	52008	57299	57299	57299
	Range Top Assy - bisque OBS - USE BLACK OR WHITE						
	Range Top Assy - stainless steel	56742	56742	56742	57305	57305	57305
5A	Burner, Piezo - left rear	57205	57205	57205			
5A	Burner, Matchlit - left rear	57206	57206	57206			
5B	Burner, Piezo - center front	57201	57201	57201			
5B	Burner, Matchlit - center front	57202	57202	57202			
5C	Burner, Piezo - right rear	57203	57203	57203			
5C	Burner, Matchlit - right rear	57204	57204	57204			
5D	Burner, Piezo/Electronic Ignition				57276	57276	57276
6	Bushing - Burner (3) ❖	53011	53011	53011	53011	53011	53011
7	Hex Nut (2) ❖				51004	51004	51004
8	Brass Fitting	52294	52294	52294	52294	52294	52294
9	Pressure Regulator	51062	51062	51062	51062	51062	51062
10	3-Burner Manifold (AFTER SERIAL # F11040784) (Dbl D)	57217	57217	57216	57217	57217	57216
	3-Burner Manifold (BEFORE SERIAL # F11040783)	57270	57270	57268	57270	57270	57268
11	Bolt-Valve (3) ❖	57278	57278	57278	57278	57278	57278
12	Bolt - Oven Thermostat	57266	57266		57266	57266	
13	Valve, Burner-Mini 9000 BTU (AFTER SERIAL # F11030969) (GREEN)	57218	57218		57218	57218	
	Valve, Burner-Mini 9000 BTU (BEFORE SERIAL # F11030968)	57252	57252		57252	57252	
	Valve, Burner-Mini 9000 BTU (AFTER SERIAL # F11040784) (GREEN)			57218			57218
	Valve, Burner-Mini 9000 BTU (BEFORE SERIAL # F11040783)			57252			57252
14	Valve, Burner-Mini 6500 BTU (AFTER SERIAL # F11030969) (YELLOW)	57213	57213		57213	57213	
	Valve, Burner-Mini 6500 BTU (BEFORE SERIAL # F11030968)	57251	57251		57251	57251	
	Valve, Burner-Mini 6500 BTU (AFTER SERIAL # F11040784) (YELLOW)			57213			57213
	Valve, Burner-Mini 6500 BTU (BEFORE SERIAL # F11040783)			57251			57251
15	Burner Gasket Kit (INCLUDES 3)				50140	50140	50140
15A	Burner Tube - right rear				57110	57110	57110
15B	Burner Tube - left rear				57108	57108	57108
15C	Burner Tube - center front				57109	57109	57109
15D	Burner Clip, wire (3) ❖				57198	57198	57198
16	Thermostat, oven control	57294	57294		57294	57294	
17	Piezo Igniter	56096	56096	56096	56096	56096	56096
18	12V Ignition Module	57277	57277	57277	57277	57277	57277
19	Valve Ignition Switch	57262	57262	57262	57262	57262	57262
20	Piezo Knob -black	51344	51344	51344	51344	51344	51344
	Piezo Knob -white	53223	53223	53223	53223	53223	53223
21	Burner Knob - black (3) ❖	56148	56148	56148	56148	56148	56148
	Burner Knob - white (3) ❖	53221	53221	53221	53221	53221	53221
22	Oven Thermostat Knob - black	57258	57258		57258	57258	
	Oven Thermostat Knob - white	57291	57291		57291	57291	
23	Control Panel Assy- w/o Label	*	*	*	*	*	*
24	Control Panel Label	*	*	*	*	*	*
25	Burner Box	51687	51687	51687	51687	51687	51687
26	Burner Spring Clips (3) ❖				57095	57095	57095
27	Oven Can	51969	51970		51969	51970	
28	Oven rack	51069	51069		51069	51069	
29	Oven shelf	51670	51670		51670	51670	
32	Orifice Block	57271	57271		57271	57271	
33	Pilot Assembly	57247	57247		57247	57247	
34	Burner, oven	57275	57275		57275	57275	
35	Thermocouple	57274	57274		57274	57274	
36	Oven Can Trim	51975	51976		51975	51976	
37	Orifice Block Plate	57310	57310		57310	57310	
N/S	Wiring Harness - Electronic Ignition Switches				57262	57262	57262
	Wiring Lead - Electronic Ignition Electrodes				57261	57261	57261
	Wiring Lead - Electronic Ignition Ground				57260	57260	57260
N/S	Wiring Lead - Piezo (3) ❖	57264	57264	57264	57264	57264	57264
N/S	Burner Electrode (3) ❖	54800	54800	54800	54800	54800	54800
N/S	Hinge Assembly	51972	51991		51972	51991	
N/S	KIT - Door Seal	51060	51061		51060	51061	
N/S	KIT - Gas Tube Supply Oven	57273	57272		57273	57272	
N/S	Nylon Edge Guard (4) ❖	53218	53218	53218			
N/S	Thermal bulb clip	51364	51364		51364	51364	
N/S	Towel Bar			53205			53205

N/S Not shown in illustration    OBS - Obsolete    ❖ Order quantity needed    ⌘ While supplies last    \* Order by model, color and style

# RA CA (30-31-32) SERIES RANGE & SLIDE-IN

## Range & Slide-In Parts Identification

### Piezo and Electronic Ignition



30 DOOR CHART	RA-1732	RA-1731	RA-1730	RA-2132	RA-2131	RA-2130
BLACK PANEL/BLACK HANDLE	51977	51977		51983	51983	
WHITE PANEL/BLACK HANDLE	51978	51978		51984	51984	
WHITE GLASS-WHITE FRAME/BLACK HANDLE	51982	51982		51988	51988	
BLACK GLASS-BLACK FRAME/BLACK HANDLE	51980	51980		51986	51986	
WHITE GLASS-BLACK FRAME/BLACK HANDLE	51981	51981		51987	51987	
STAINLESS PANEL/WHITE HANDLE	51951	51951				
DOOR-Glass Insert - Sm BLACK	51881	51881	51881			
DOOR-Glass Insert - Lg BLACK				51882	51882	
DOOR-Glass Insert - Sm WHITE	51883	51883	51883			
DOOR-Glass Insert - Lg WHITE				51884	51884	
DOOR-Panel						
Sm BLACK new solid door style no trim	51581	51581	51581+			
Lg BLACK new solid door style no trim				51583	51583	51583+
Sm WHITE new solid door style no trim	51582	51582	51582+			
Lg WHITE new solid door style no trim			51584+	51584	51584	
Sm STAINLESS new solid door style no trim	51578	51578				

+ New door panel replaces old panel plus frame.



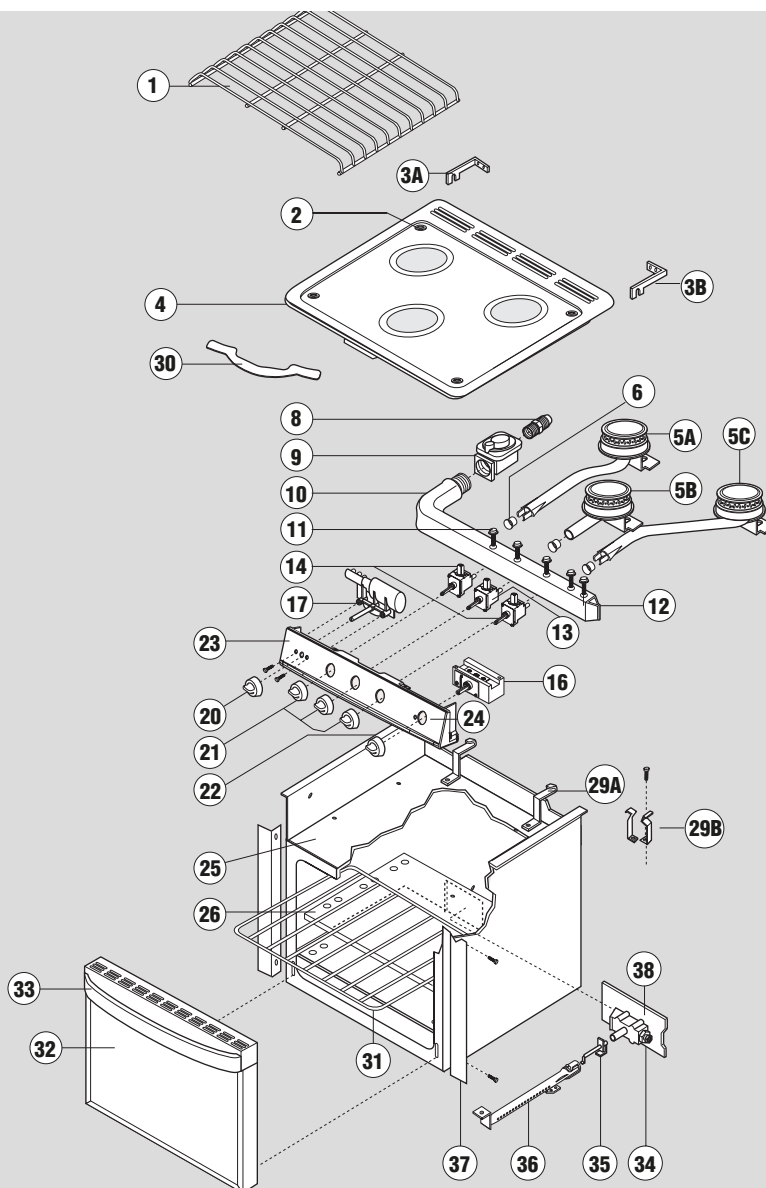
# ATWOOD - Oven & Slide-In Cooktop Parts Identification

ITEM	DESCRIPTION	RA-1732	RA-1731	RA-1730	RA-2132	RA-2131	RA-2130	CA-31	CA-30
1	Grate - BLACK (2) ❖	57190	53443	53443	57190	53443	53443	57190	53443
2A	Grommet (4) ❖	53009			53009			53009	
2B	Sealed Grate U-Channel (4) ❖	57194			57194			57194	
3	Top Spring Clip (2) ❖	51035	51111	51111	51035	51111	51111	51035	
4	Range Top Assy - WHITE	57114	52634OBS	52634OBS	57114	52634OBS	52634OBS	57114	52634OBS
	Range Top Assy - BLACK	57113	52633OBS	52633OBS	57113	52633OBS	52633OBS	57113	52633OBS
5	Burner, Piezo/Electronic Ignition (3) ❖	57180	56207	56207	57180	56207	56207	57180	56207
	Burner, Piezo/Electronic Ignition BLACK (3) ❖		56325☞	56325☞		56325☞			56325☞
6	Bushing - Burner (3) ❖	53011			53011			53011	
7	Hex Nut (6 ) ❖	51004	51004	51004	51004	51004	51004	51004	51004
8	Brass Fitting	52294	52294	52294	52294	52294	52294	52294	52294
9	Pressure Regulator	51062	51062	51062	51062	51062	51062	51062	51062
10	3-Burner Manifold old <b>OBS</b>								
	3-Burner Manifold - round	53198☞	53198☞	53198☞	53198☞	53198☞	53199	53199	53199
11	Bolt - Valve (3) ❖	53207	56088	56088	53207	56088	56088	53207	
12	Bolt - Oven Thermostat (3) ❖	53208	52125☞	52125☞	53208	52125☞	52125☞		
13	Valve, Burner - Mini 9000 BTU (1) ❖	53201			53201			53201	
14	Valve, Burner - Mini 6500 BTU (2) ❖	53200			53200			53200	
15A	Burner Tube Assy -RR	57110			57110			57110	
15B	Burner Tube Assy - LR	57108			57108			57108	
15C	Burner Tube Assy - CF	57109			57109			57109	
15D	Valve, Orifice Tube Assy-Mini 6500 - RR rd mfd		53206	53206		53206	53206		53206
15E	Valve, Orifice Tube Assy-Mini 6500 - LR rd mfd		53203	53203		53203	53203		53203
15F	Valve, Orifice Tube Assy-Mini 9000 - CF rd mfd		53202	53202		53202	53202		53202
16	Thermostat, oven control	56116	56116	56116	56116	56116	56116		
17	Piezo Igniter	56096	56096	56096	56096	56096	56096	56096	56096
18	12V Ignition Module	56162	56162	56162	56162	56162	56162	56162	56162
19	Valve Ignition Switch	56163	56163	56163	56163	56163	56163	56163	56163
20	Piezo Knob -BLACK	51344	51344	51344	51344	51344	51344	51344	51344
20	Piezo Knob -WHITE	53223	53223		53223			53223	
21	Burner Knob - BLACK (3) ❖	56148	56148	56148	56148	56148	56148	56148	56148
21	Burner Knob - WHITE (3) ❖	53221	53221	53221	53221	53221	53221	53221	53221
22	Oven Thermostat Knob - BLACK	53907	53907	53907	53907	53907	53907		
22	Oven Thermostat Knob - WHITE	53222	53222	53222	53222	53222	53222		
23	Control Panel - black	52621	52621	52621	52621	52621	52621	52621	52621
	Control Panel -Electric-white	52606	52606	52606	52606	52606	52606		
24	LABEL - Piezo - black	56177	56177	56177	56177	56177	56177	56179	56179
	LABEL - Piezo - white	56181	56181	56181	56181	56181	56181	56183	56183
	LABEL - Electric-black	56176	56176	56178	56176	56176	56178	56178	56178
	LABEL - Electric-white	56180	56180	56182	56180	56180	56182	56182	56182
N/S	Wiring Harness - Electronic Ignition Switches	56164	56164	56164	56164	56164	56164	56164	56164
	Wiring Harness - Electronic Ignition Electrodes	56165	56165	56165	56165	56165	56165	56165	56165
	Wiring Harness - Electronic Ignition Ground	56184	56184	56184	56184	56184	56184	56184	56184
	Wiring Lead - Piezo	56061	56061	56061	56061	56061	56061	56061	56061
25	Burner Box	51687	51687	51684	51687	51687	51684	51687	51684
26	Burner Clips (3) ❖	57107			57107			57107	
27	Oven Can	51969	51969	51902	51970	51970	51901		
28	Oven rack	51069	51069	51069	51069	51069	51069		
29	Oven shelf	51670	51670	51670	51670	51670	51670		
30	DOOR asmbly - see DOOR CHART (left)								
31	Oven Door Handle - BLACK	51124	51124	51124	51124	51124	51124		
31	Oven Door Handle - WHITE	51126	51126	51126	51126	51126	51126		
32	Safety Valve	56120	56120	56120	56120	56120	56120		
33	Pilot Assembly	56121	56121	56121	56121	56121	56121		
34	Burner, oven	56123	56123	56123	56123	56123	56123		
35	Oven Can Trim	51975	51975	51975	51976	51976	51976		
36	Safety Valve Plate	56139	56139	56139	56139	56139	56139		
N/S	KIT - Door Seal	51060	51060	51060	51060	51061	51061		
N/S	KIT - Gas Tube Kit	51067	51067	51067	51068	51068	51068		
N/S	Door Spring - 17" (2) ❖			51404☞					
N/S	Door Spring - 21" (2) ❖						51405		
N/S	Hinge Assy (2) ❖	51972	51972		51991	51991			
N/S	Towel Bar							53205	53205
N/S	Thermal Bulb Clip	51364	51364	51364	51364	51364	51364		

N/S Not shown in illustration    OBS - Obsolete    ❖ Order quantity needed    ☞ While supplies last

# RV CV (30-31-32) SERIES RANGE & SLIDE-IN

## Range & Slide-In Parts Identification



### WEDGEWOOD VISION - Oven DOOR Parts Identification

ITEM	DESCRIPTION	RV-1732	RV-1731	RV-2132	RV-2131
32	DOOR asmbly w/handle - BLACK STEEL-BLACK PANEL/BLACK HANDLE	51977	51977	51983	51983
	DOOR asmbly w/handle - WHITE STEEL-WHITE PANEL/BLACK HANDLE	51978	51978	51984	51984
	DOOR asmbly w/handle - BLACK GLASS-BLACK FRAME/BLACK HANDLE	51980	51980	51986	51986
	DOOR asmbly w/handle - WHITE GLASS-BLACK FRAME/BLACK HANDLE	51981	51981	51987	51987
	DOOR asmbly w/handle - WHITE GLASS-WHITE FRAME/BLACK HANDLE	51982		51988	
	DOOR asmbly w/handle - WHITE STEEL-WHITE PANEL/WHITE HANDLE	51957			
	DOOR asmbly w/handle - ?-STAINLESS ?/BLACK HANDLE	51958			
	DOOR-Glass Insert - Sm BLACK	51881	51881		
	DOOR-Glass Insert - Lg BLACK			51882	51882
	DOOR-Glass Insert - Sm WHITE	51883	51883		
	DOOR-Glass Insert - Lg WHITE			51884	51884
	DOOR-Panel - Sm BLACK new solid door style no frame	51581	51581+		
	DOOR-Panel - Lg BLACK new solid door style no frame			51583	51583+
	DOOR-Panel - Sm WHITE new solid door style no frame	51582	51582+		
	DOOR-Panel - Lg WHITE new solid door style no frame			51584	51584+
	DOOR-Panel - Sm STAINLESS new solid door style no frame	51578			
33	Oven Door Handle - BLACK	51124	51124	51124	51124
33	Oven Door Handle - WHITE	51126		51126	

+ New door panel replaces old panel plus frame.

## WEDGEWOOD VISION - Range & Slide-In Parts Identification

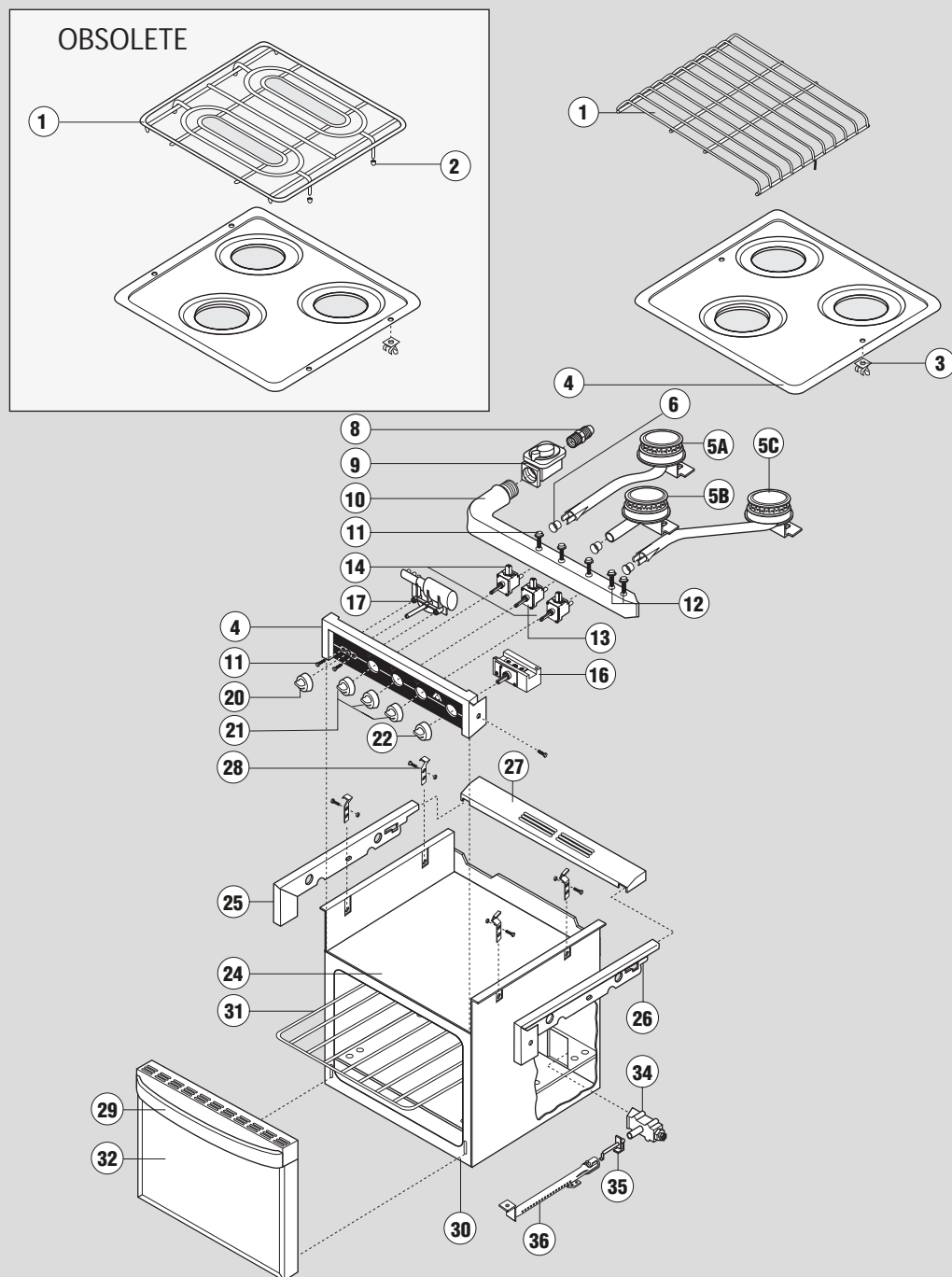
ITEM	DESCRIPTION	RV-1732	RV-1731	RV-2132	RV-2131	CV-32	CV-30
1	Grate - BLACK	56272	56722	56272	56272	56272	56272
2	Grommet (4) ❖	53009	53009	53009	53009	53009	53009
3A	Top Bracket - left		51131		51131		51131
3B	Top Bracket - right		51130		51130		51130
4	Range Top Assy - WHITE	52007	52635	52007	52635	52007	52685
	Range Top Assy - BLACK	52008	52636	52008	52636	52008	52636
	Range Top Assy - BISQUE OBS - USE BLACK OR WHITE						
	Range Top Assy - STAINLESS STEEL	56742		56742		56742	
5-A	Burner, Piezo - LR	56156	56156	56156	56156	56156	56156
5-A	Burner, Matchlit - LR	56159	56159	56159	56159	56159	56159
5-B	Burner, Piezo - CF	56155	56155	56155	56155	56155	56155
5-B	Burner, Matchlit - CF	56158	56158	56158	56158	56158	56158
5-C	Burner, Piezo - RR	56154	56154	56154	56154	56154	56154
5-C	Burner, Matchlit - RR	56157	56157	56157	56157	56157	56157
6	Bushing - Burner (3) ❖	53011	53011	53011	53011	53011	53011
8	Brass Fitting	52294	52294	52294	52294	52294	52294
9	Pressure Regulator	51062	51062	51062	51062	51062	51062
10	3-Burner Manifold	50158	50158	50158	50158	50159	50159
NS	3-Burner Manifold - round	53198		53198		53199	53199
11	Bolt - Valve (3) ❖	56088	56088	56088	56088	56088	56088
12	Bolt - Oven Thermostat (2) ❖	56125	56125	56125	56125		
13	Valve, Burner-Mini 9000 BTU (1) NLA						
14	Valve, Burner-Mini 6500 BTU (2) NLA						
NS	Valve, Burner-Mini 9000 BTU (1) ❖	53201	53201	53201	53201	53201	53201
NS	Valve, Burner-Mini 6500 BTU (2) ❖	53200	53200	53200	53200	53200	53200
16	Thermostat, oven control	56116	56116	56116	56116		
17	Piezo Igniter	56096	56096	56096	56096	56096	56096
20	Piezo Knob -BLACK	51344	51344	51344	51344	51344	51344
20	Piezo Knob -WHITE	53223		53223			
21	Burner Knob - BLACK (3) ❖	56148	56148	56148	56148	56148	56148
21	Burner Knob - WHITE (3) ❖	53221		53221			
22	Oven Thermostat Knob - BLACK	53097	53097	53097	53097		
22	Oven Thermostat Knob - WHITE	53222		53222			
23	Control Panel Assy - BLACK	52621	52621	52621	52621	52621	52621
	Control Panel Assy - WHITE	52606	52606	52606	52606	52606	52606
24	LABEL - Piezo - BLACK	56219	56219	56219	56219	56223	56223
	LABEL - Piezo - WHITE	56224	56224	56224	56224		
	LABEL - Matchlit - BLACK	56218	56218	56218	56218	56220	56220
25	Burner Box	51687	51687	51687	51687	51687	51687
26	Oven shelf	51670		51670			
27	Oven Can	51969	51969	51970	51970		
29A	Rear Top Clip (2) ❖	51035		51035		51035	
29B	Clip Spring (4) ❖		51111		51111		51111
30	Top Hold Down Clip		53057		53057		53057
31	Oven rack	51069	51069	51069	51069		
34	Safety Valve	56120	56120	56120	56120		
35	Pilot Assembly	56121	56121	56121	56121		
36	Burner, oven	56123	56123	56123	56123		
37	Oven Can Trim	51975	51975	51976	51976		
38	Safety Valve Plate	56139	56139	56139	56139		
N/S	Wiring Lead - Piezo (3) ❖	56097	56097	56097	56907	56097	56907
N/S	KIT - Door Seal	51060	51060	51061	51061		
N/S	KIT - Gas Tube Kit	51067	51067	51068	51068		
N/S	Hinge Assy (2) ❖	51972	51972	51991	51991		
N/S	Nylon Edge Guard (4) ❖	53218	53218	53218	53218	53218	53218
N/S	Thermal Bulb Clip	51364	51364	51364	51364		
N/S	Towel Bar					53205	53205

**N/S** Not shown in illustration    **OBS** - Obsolete    ❖ Order quantity needed    ⌘ While supplies last

# WEDGEWOOD (RW / CW) MODEL 30 & 31

## Range & Slide-In Parts Identification

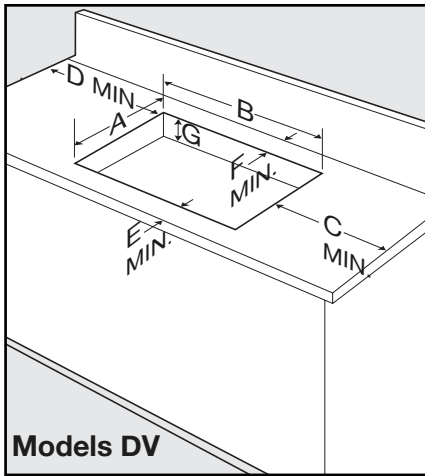
Match Light & Piezo



## WEDGEWOOD -Oven & Slide-In Cooktop Parts Identification

	WEDGEWOOD - DESCRIPTION	RW-1731	RW-1730	RW-2131	RW-2130	CW-30
1	Grate (2 hole) - BLACK	56271	56271	56271	56271	56271
2	Grate Boot (4) ❖	53008	53008	53008	53008	53008
3	Grate Clip (2) ❖	56150	56150	56150	56150	56150
4	Range Top (2 hole) - WHITE	53584	53584	53584	53584	53584
	Range Top (2 hole) - BLACK	53583	53583	53583	53583	53583
	Range Top (2 hole) - ALMOND OBS - USE BLACK OR WHITE					
5-A	Burner, Piezo - left rear OBS	56066	56066	56066	56066	56066
5-A	Burner, Matchlit - left rear OBS ⌘	56069	56069	56069	56069	56069
5-B	Burner, Piezo - center front OBS ⌘	56068	56068	56068	56068	56068
5-B	Burner, Matchlit - center front OBS ⌘	56071	56071	56071	56071	56071
5-C	Burner, Piezo - right rear OBS	56067	56067	56067	56067	56067
5-C	Burner, Matchlit - right rear OBS ⌘	56070	56070	56070	56070	56070
6	Bushing - Burner (3) ❖	53011	53011	53011	53011	53011
8	Brass Fitting	52294	52294	52294	52294	52294
9	Pressure Regulator	51062	51062	51062	51062	51062
10	3-Burner Manifold	56160	56160	56160	56160	56072
11	Bolt Valve (3) ❖	56088	56088	56088	56088	56088
12	Bolt - Oven Thermostat (2) ❖	56125	56125	56125	56125	
13	Valve, Burner-Mini 9000 BTU (1) ❖	53201	53201	53201	53201	53201
14	Valve, Burner-Mini 6500 BTU (2) ❖	53200	53200	53200	53200	53200
16	Thermostat, oven control	56116	56116	56116	56116	
17	Piezo Igniter	56096	56096	56096	56096	56096
20	KNOB - Piezo -BLACK	51344	51344	51344	51344	51344
21	KNOB - Burner - BLACK (3) ❖	56148	56148	56148	56148	56148
22	KNOB - Oven Thermostat - BLACK	53097	53097	53097	53097	
24	Burner Box OBS	51684	51684	51685	51684	51684
??	Manifold Cover OBS	53110	53110	53110	53110	53110
	LABEL - without Piezo OBS ⌘	56101	56101	56101	56101	56104
	LABEL - with Piezo OBS ⌘	56103	56103	56103	56103	56102
25	TRIM - Left hand - BLACK OBS ⌘	53133	53133	53133	53133	53133
26	TRIM - Right hand - BLACK OBS ⌘	53134	53134	53134	53134	53134
27	TRIM - Vent - BLACK OBS	53525	53525	53525	53525	53525
28	Top Retaining Clip (4) ❖	51410	51410	51410	51410	51410
29	Oven Door Handle - BLACK	51124	51124	51124	51124	
30	Oven Can	51969	51902 OBS	51970	51901 OBS	
31	Oven rack	51069	51069	51069	51069	
32	DOOR assembly includes handle - BLACK steel	51977	51873 OBS	51983	51871 OBS	
	DOOR assembly includes handle - WHITE steel	51978	51850 OBS	51984	51850 OBS	
	DOOR assembly includes handle - ALMOND steel OBS	51979	51894	51985	51893	
	DOOR assembly includes handle - WHITE glass			51987		
	DOOR assembly includes handle - BLACK glass	51980	51872	51986	51870 OBS	
	DOOR -Glass Insert - Sm BLACK	51881	51881			
	DOOR -Glass Insert - Lg BLACK			51882	51882	
	DOOR -Glass Insert - Sm WHITE	51883	51883			
	DOOR -Glass Insert - Lg WHITE			51884	51884	
	DOOR -Panel - Sm BLACK NLA USE 51581	51885	51885			
	DOOR -Panel - Lg BLACK NLA USE 51583			51886	51886	
	DOOR -Panel - Sm WHITE NLA USE 51582	51887	51887			
	DOOR -Panel - Lg WHITE NLA USE 51584			51888	51888	
34	Safety Valve	56120	56120	56120	56120	
35	Pilot Assembly	56121	56121	56121	56121	
36	Burner, oven	56123	56123	56123	56123	
37	TRIM - Oven Can	51975		51976		
N/S	Enamel Door Liner	51989	51808 OBS	51990	51807 OBS	
N/S	Wiring Lead - Piezo	56097	56097	56097	56097	56097
N/S	KIT - Door Seal	51061	51060	51061	51061	
N/S	KIT - Gas Tube Kit (no fittings available)	51067	51067	51068	51068	
N/S	Towel Bar					53205

N/S Not shown in illustration    OBS - Obsolete    ❖ Order quantity needed    ⌘ While supplies last

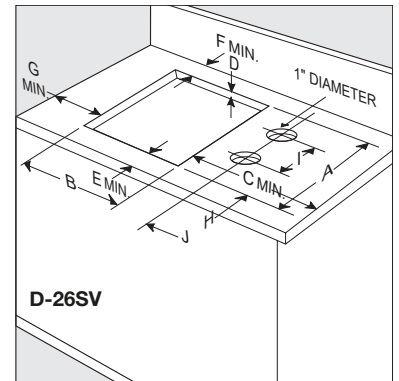
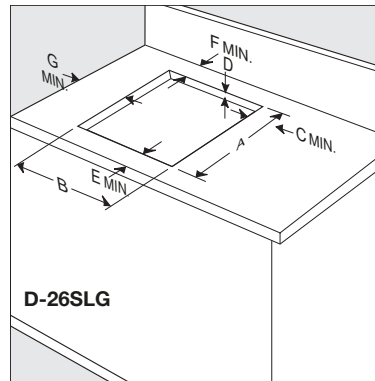
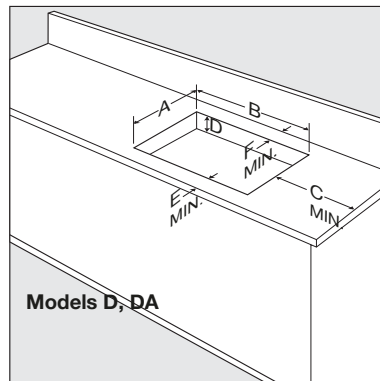


## CABINET & COUNTER CUT OUT CHART

CUT OUT DIMENSIONS in inches	A	B	C	D	E
DV Models - 2 Burners	11-1/2	16-1/4	3-3/8 ♦	2-5/8 ♦	1-1/2 ♦
DV Models - 3 Burners	15	19	2 ♦	3-1/16 ♦	3 ♦
	F	G			
DV Models - 2 Burners	3-3/4 ♦	2-13/16 ▶			
DV Models - 3 Burners	4-1/2 ♦	2-13/16 ▶			

♦ Minimum dimension    ▶ Overall depth of drop-in

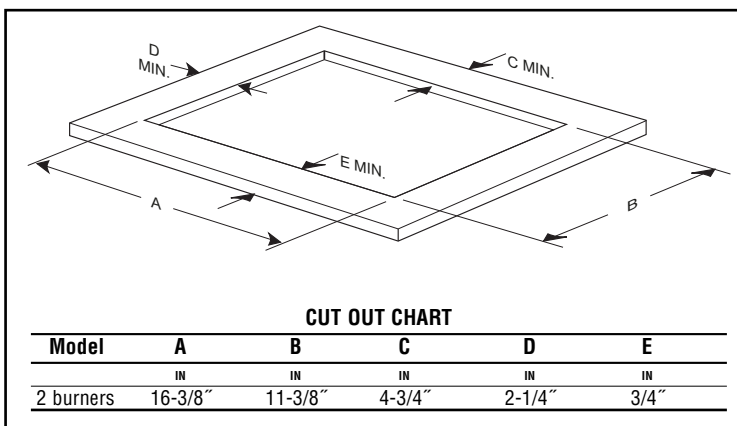
## CABINET & COUNTER CUT OUT CHART



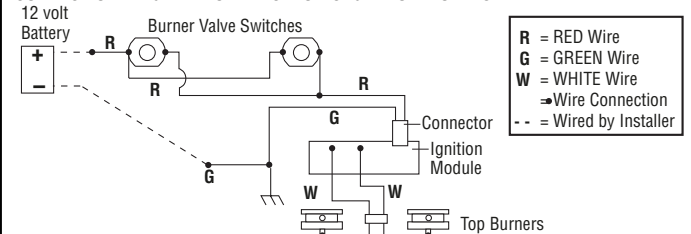
CUT OUT DIMENSIONS	A	B	C	D	E	F	G	H	I	J
D, DA Models - 2 Burners	11-5/8"	16-3/8"	2-1/4" ♦	3-1/8" ▶	3/4" ♦	4-3/4" ♦				
D, DA Models - 3 Burners	16-1/16"	19-3/16"	2-1/2" ♦	3-1/8" ▶	2-3/8" ♦	4" ♦				
D-26SLG	19"	14-1/8"	5/8" ♦	4-1/2" ▶	3/4" ♦	2-3/4" ♦	3"			
D-26SV	11-5/8"	16-3/8"	4-3/8" ♦	3-1/8" ▶	1" ♦	1-1/8" ♦	4-1/4"	3-1/4"	4-3/4"	2-1/4"

♦ Minimum dimension    ▶ Overall depth of cooktop

## 2- Burner LP Gas High Pressure Stove

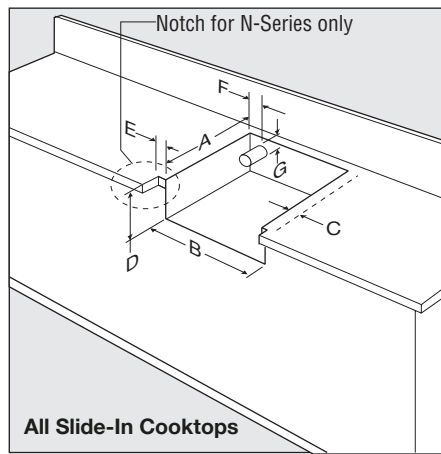
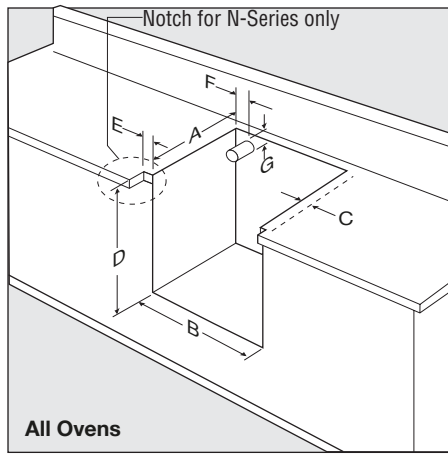


### CONNECTION DIAGRAM FOR ELECTRONIC IGNITION MODELS

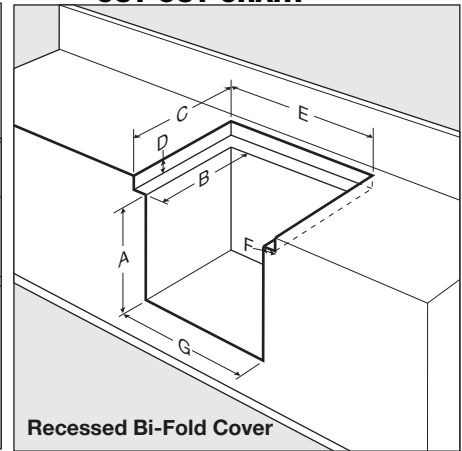




## CABINET & COUNTER CUT OUT CHART



## RECESSED BI-FOLD COVER CUT OUT CHART



### CABINET & COUNTER CUT OUT CHART - TABLEAU DE DECOUPE DES ELEMENTS ET DU COMPTOIR

CUT OUT DIMENSIONS DIMENSIONS DE LA DECOUPE	A	B	C (RV/CV)	D (RA/CA)	E	F	G
17" RV & RA Ranges Série RV et RA 17"	17.75"	20.25"	1.13"	2.13"	16"	0"	1.75"
	451MM	514MM	29MM†	54MM†	406MM	0MM	45MM
21" RV & RA Ranges Série RV et RA 21"	17.75"	20.25"	1.13"	2.13"	20"	0"	1.75"
	451MM	514MM	29MM†	54MM†	508MM	0MM	45MM
Slide-In CV & CA Série CV et CA à encastrément	17.75"	20.25"	1.13"	2.13"	3"	0"	1.75"
	451MM	514MM	29MM†	54MM†	76MM	0MM	45MM
17" RV & RA-N Series Série RV 43cm RV et RA-N	17.75"	20.25"	1.13"	2.13"	16"	7/16"	1.5"
	451MM	514MM	29MM†	54MM†	406MM	11MM	38MM
21" RV & RA-N Series Série RV 53cm RV et RA-N	17.75"	20.25"	1.13"	2.13"	20"	7/16"	1.5"
	451MM	514MM	29MM†	54MM†	508MM	11MM	38MM
Slide-In CV & CA-N Series Série CV à encastrément CV et CA-N	17.75"	20.25"	1.13"	2.13"	3"	7/16"	1.5"
	451MM	514MM	29MM†	54MM†	76MM	11MM	38MM

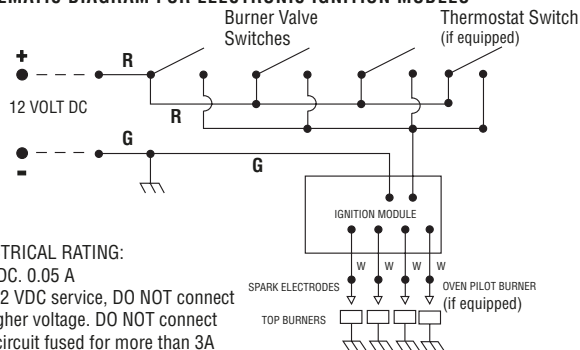
† Minimum clearance to combustible materials. (typical two (2) sides and back)  
 \* The overall unit depth for CA models with Electronic Ignition is 18-1/4" from cabinet face to back wall of cutout below counter.  
 † Éloignement minimum des matériaux combustibles. (Typiquement sur les deux côtés et à l'arrière)  
 \* La profondeur totale des modèles CA à allumage électronique est de (464 mm). Ces dimensions sont celle de la découpe entre la façade de l'élément de cuisine et la paroi arrière du comptoir.

NOTE: Maximum countertop overhang = 3/4" NOTE: rebord maximum du comptoir = 19 mm

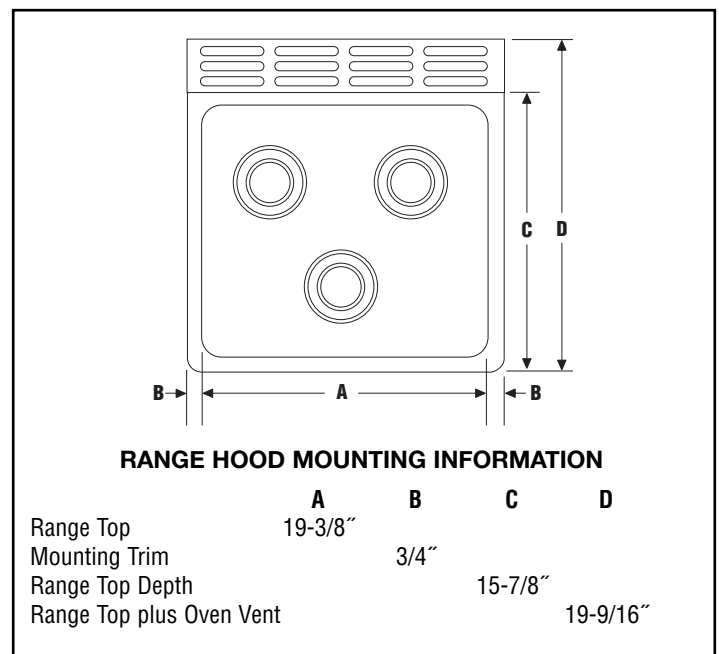
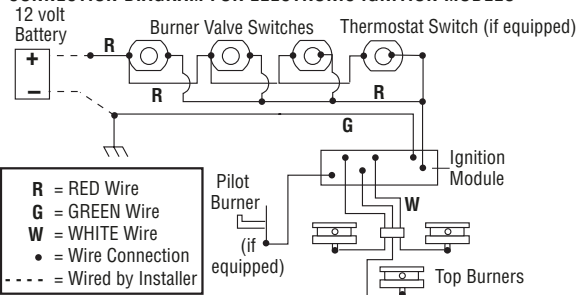
### RECESSED BI-FOLD COVER - COUVERCLE PLIANT EN DEUX PARTIES ENCASTRÉ

LAMINATE MATERIAL MATÉRIAU STRATIFIÉ	MPD PART #	RV & RA OVEN			CUT OUT DIMENSIONS - DIMENSIONS DE LA DECOUPE					
		17"	21"	CV & CA SLIDE-IN						
		A	A	A	B	C	D	E	F	G
1/4"	56397	16.0"	20.0"	3.0"	17.75"	20.0"	2.31"	24.5"	2.13"	20.25"
6 mm		406 mm	508 mm	76 mm	451 mm	508 mm	59 mm	622 mm	54 mm	514 mm
1/32"	56391	16.0"	20.0"	3.0"	17.75"	20.0"	1.84"	24.5"	2.13"	20.25"
.8 mm		406 mm	508 mm	76 mm	451 mm	508 mm	47 mm	622 mm	54 mm	514 mm

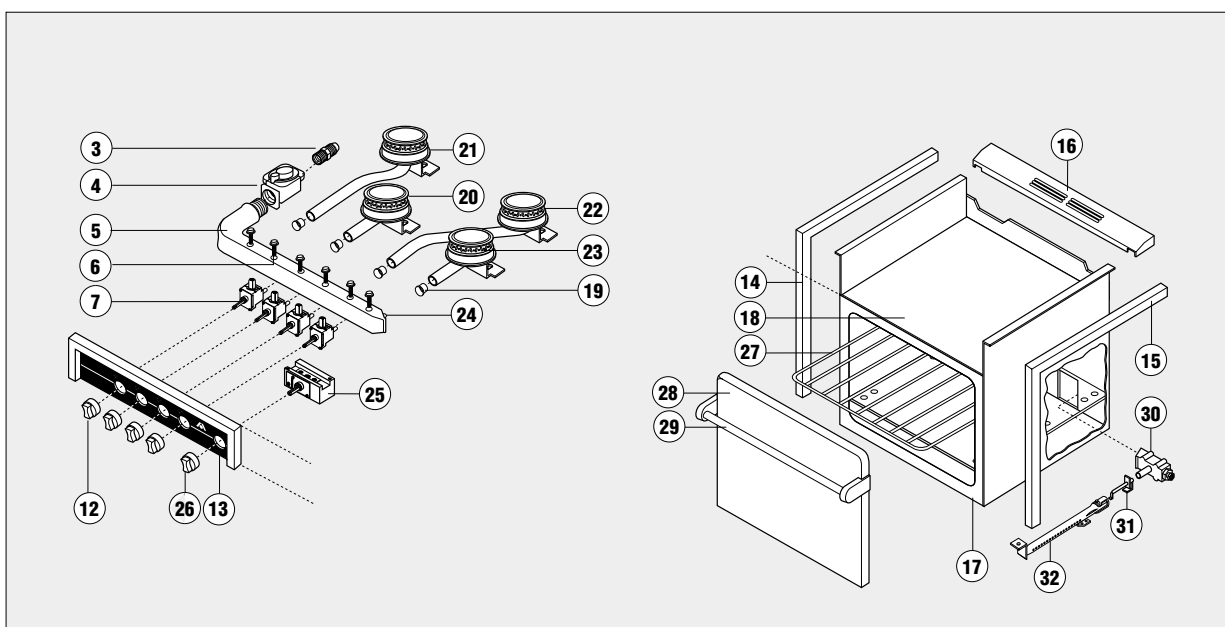
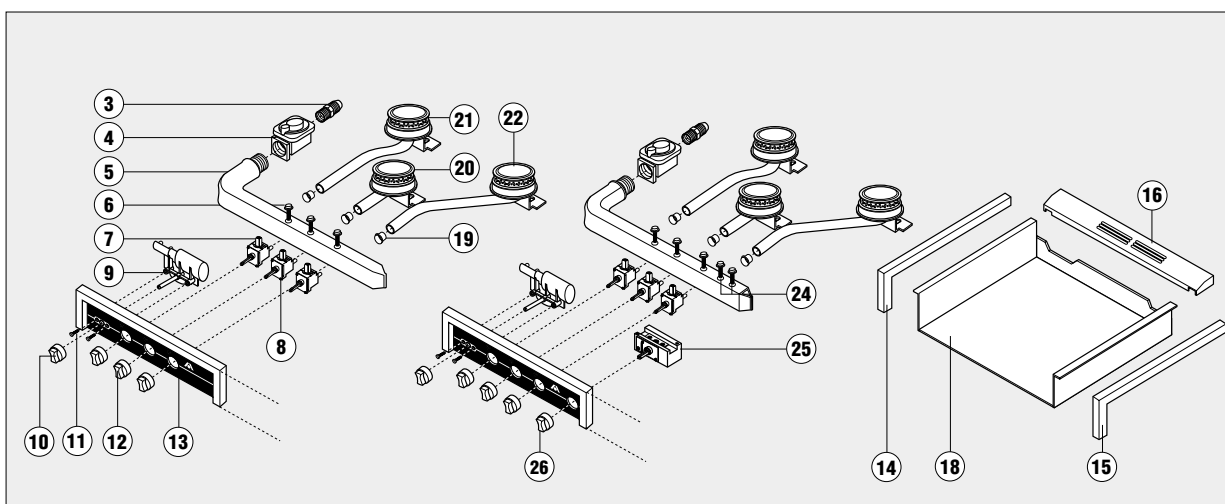
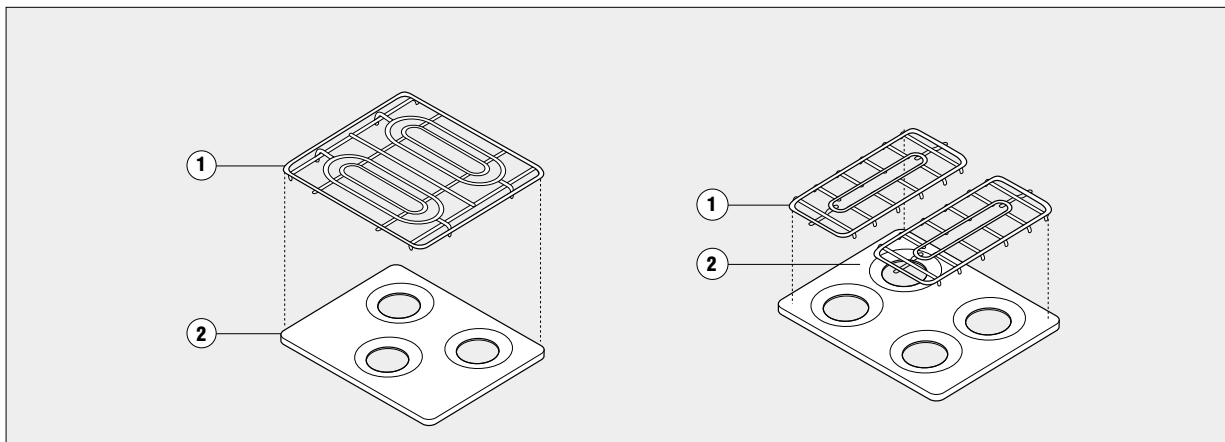
### SCHEMATIC DIAGRAM FOR ELECTRONIC IGNITION MODELS



### CONNECTION DIAGRAM FOR ELECTRONIC IGNITION MODELS







# WEDGEWOOD - Oven & Slide-In Cooktop Part Reference

ITEM	C-37	C-38	R-1737	R-1738	R-1746	R-2137	R-2138	R-2146	DESCRIPTION
1	56271	56271	56271		53007 (2)		56271	53007 (2)	Grate (1-piece)
2	53582	53582	53582	53582		53582	53582		*Range, Top (2 hole) ALMOND
2	53583	53583	53583	53583			53583		*Range, Top (2 hole) BLACK
2	53584	53584	53584	53584	53584	53584	53584		*Range, Top (2 hole) WHITE
3	52294	52294	52294	52294	52294	52294	52294	52294	Fitting, Brass
4	51062	51062	51062	51062	51062	51062	51062	51062	Pressure Regulator
5	56072	56072	56160	56160		56160			3-Burner Manifold
6	56088	56088	56088	56088	56091	56088	56088	56091	Valve thru Bolt
	53200	53200	53200	53200		53200	53200		Valve, Burner-MINI 6500 BTU (2)
8	53201	53201	53201	53201		53201	53201		Valve, Burner-MINI 9000 BTU (1)
9	56096	56096	56096	56096		56096	56096		Piezo Igniter
10	51344	51344	51344	51344		51344	51344		Piezo Knob
11	51337	51337	51337	51337		51337	51337		#10 x 3/8" Screw (2)
12	56148	56148	56148	56148	51056 (2)	56148	56148	51056 (2)	Knob, burner
N/S	56097	56097	56097	56097		56097	56097		Wire Assembly (3)
13	56106	56106	56108	56108	56115	56108	56108	56115	Control Panel Assembly Matchlit
	56105	56105	56107	56107	56115	56107	56107	56115	Control Panel Assy w/ piezo
14	53019	53019	53021	53021	53021	53023	53023	53023	Trim, left hand top & side (blk)
15	53020	53020	53022	53022	53022	53024	53024	53024	Trim, right hand top & side (blk)
16	53525	53525	53525	53525	53525	53525	53525	53525	Trim, vent (black)
17			53526	53526	53526	53526	53526	53526	Trim, bottom (black)
18	51685	51685	51684	51684	51684	51684	51684	51684	Burner Box
19	53011	53011	53011	53011	53011	53011	53011	53011	Burner Bushing
20	56071	56071	56071	56071		56071	56071		Burner, ctr (hi output) Matchlit
	56068	56068	56068	56068		56068	56068		Burner, ctr (hi output) w/Electrode
					56257			56257	Burner, left front
21	56069	56069	56069	56069	56259	56069	56069	56259	Burner, left rear Matchlit
	56066	56066	56066	56066		56066	56066		Burner, left rear w/ electrode
22	56070	56070	56070	56070	56260	56070	56070	56260	Burner, right rear Matchlit
	56067	56067	56067	56067		56067	56067		Burner, right rear w/ electrode
23					56258			56258	Burner, right front
24			52120	56125	56125	52120	56125	56125	Screw, Thermostat (2)
25			NA	56116		NA	56116		Thermostat, oven control
26			53001	56171		53001	56171		Knob, oven thermostat
27			51069	51069	51069	51069	51069	51069	Oven rack
						NO LONGER AVAILABLE			Door assembly
						NO LONGER AVAILABLE			Enamel door liner w/window
						NO LONGER AVAILABLE			Enamel door liner
						NO LONGER AVAILABLE			Solid door panel
N/S						NO LONGER AVAILABLE			Insert, black glass
						NO LONGER AVAILABLE			Insert, black glass w/window
N/S			51421	51421	51421	51421	51421	51421	Window, inner assembly
29			51112	51112	51112	51112	51112	51112	Oven Door Handle
30				56120	56120		56120	56120	Safety Valve
31			51065	56121	56121	51065	56121	56121	Pilot Assembly
			51063			51063			Pilot Assembly-MSV valve
32			52018	56123	56123	52018	56123	56123	Burner, oven
N/S			51060	51060	51060	51061	51061	51061	KIT - Door Seal
N/S		51071	51071	51071	51071	51071	51071	51071	KIT-Designer Acc.
N/S			51067	51068	51067	51068	51068	51068	KIT - Gas Tube Kit
N/S	56150	56150	56150	56150	50005	56150	56150	50005	Grate Clip (2)
N/S	53008	53008	53008	53008	53008	53008	53008	53008	Grate Boots
N/S	51129		51128	51127		51128	51127		◆Knob Kits

\*When replacing top you MUST replace grate

◆When replacing Burner Knobs use Knob Kit

**Wedgewood - Range & Cooktops**  
**PART REFERENCE**  
**JANUARY 2007**

**AAGrates**

	R-1730	R-1735	R-1736	R-2136	R-2140	R-2145	C-30	C-35	C-36	C-40	C-45
51007 Tension	X				X		X			X	
53006 Top, single		X						X			
53007 Designer, Dual ⌘		⌘			⌘	⌘		⌘		⌘	⌘
53050 Top (2)	No longer available (use 56271)										
56271 Hi BTU one piece (1) 2 hole			X	X					X		

**Flash Tubes**

51089 Top Lighter Kit	No longer available										
51216 Flash Tube (long) Piezo ❖	❖	❖			❖	❖	❖	❖		❖	❖
51245 Flash Tube ❖			❖	❖					❖		
51088 Top Lighter Kit	No longer available										
51089 Top Lighter Kit	No longer available										

**Burner**

51235 Burner, RIGHT REAR	No longer available										
51243 Burner, RIGHT REAR	No longer available										
53070 Burner, RIGHT REAR	No longer available										
51233 Burner, RIGHT FRONT	No longer available										
51241 Burner, RIGHT FRONT	No longer available										
51233 Burner, CENTER FRONT	No longer available										
51234 Burner, LEFT REAR	No longer available										
51242 Burner, LEFT REAR	No longer available										
53068 Burner, LEFT REAR	No longer available										
51232 Burner, LEFT FRONT	No longer available A										
51240 Burner, LEFT FRONT	No longer available										
51244 Burner, CENTER FRONT	No longer available										
53069 Burner, CENTER (high output)			X	X							
52018 Burner, OVEN ⌘	⌘	⌘	⌘	⌘	⌘	⌘					

**Air Shutter**

51208 Air Shutter	51062 Pressure Regulator Kit	X	X	X	X	X		X	X		X
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**Manifold - Robertshaw**

52125 3 burner manifold	No longer available										
52126 3 burner manifold, silver square R.S.	No longer available										
53049 3 burner manifold, silver square R.S.	No longer available										
52284 4 burner manifold, black square R.S.	No longer available										

**Burner Valves**

51096 valve	No longer available										
52123 valve	No longer available										

**Supply Valves**

51066 Top Pilot Valve Kit ❖		❖				❖		❖		❖	❖
52282 Top Lighter ❖											
53014 Rear Valve			X	X			X				
53047 High Output Valve ❖			❖	❖			❖				

❖ NLA - No longer available      ⌘ While supplies last

**Wedgewood - Range & Cooktops**  
**PART REFERENCE**  
**JANUARY 2007**

	R-1730	R-1735	R-1736	R-2136	R-2140	R-2145	C-30	C-35	C-36	C-40	C-45
<b>Safety Valve</b>											
51063 Safety Valve Kit	No longer available										
51177 Safety Valve	No longer available										
<b>High Output Spark Igniter Assembly</b>											
53078 High Output Spark Igniter Assembly	No longer available										
<b>Piezo</b>											
52279 Piezo Push Button ❖		❖	❖	❖		❖	❖	❖		❖	❖
<b>Thermostat</b>											
51095 Oven control (fits black square manifold)	No longer available										
52122 Oven control (fits grey manifold)	No longer available										
<b>Trim</b>											
53021 Left Hand, top & side - black	No longer available										
53023 Left Hand, top & side - black	No longer available										
53523 Left Hand, top & side - black	No longer available										
53022 Right Hand, top & side - black	No longer available										
53024 Right Hand, top & side - black	No longer available										
53524 Right Hand, top & side	No longer available										
53025 Vent, black ❖	❖	❖		❖	❖	❖					
53525 Vent, black ❖			❖								
53526 Bottom, black - ⌘	⌘	⌘	⌘	⌘	⌘	⌘					
53668 Bottom	No longer available										
<b>Manifold Cover</b>											
53072 Manifold Cover, black	No longer available										
53553 Manifold Cover, black	No longer available										
53556 Manifold Cover, black	No longer available										
<b>Burner Box</b>											
51684 Burner Box ❖	❖	❖	❖	❖	❖	❖					
51685 Burner Box ❖									❖	❖	❖
<b>Oven Rack</b>											
51069 Oven Rack	X	X	X	X	X	X					
<b>Shelf</b>											
51657 Oven Bottom	No longer available										
<b>Pilot Assembly</b>											
51065 Oven ❖	❖	❖	❖	❖	❖	❖					
52242 Oven	No longer available										
<b>Knobs</b>											
51056 Burner - package of 2	X	X	X	X	X	X		X	X	X	X
51057 Thermostat Knob ❖	❖	❖	❖	❖	❖	❖					
<b>Kits</b>											
51076 3-Burner Igniter Kit	No longer available										
51077 4-Burner Igniter Kit	No longer available										
51067 Gas Tube Kit - 17"	X	X									
51068 Gas Tube Kit - 21"					X	X					
<b>Grate Boots &amp; Clips</b>											
53160 Grate Boots & Clips ❖			❖	❖					❖		

❖ NLA - No longer available

⌘ While supplies last

# Wedgewood - Range & Cooktops

## PART REFERENCE

JANUARY 2007

### Door & Door Parts

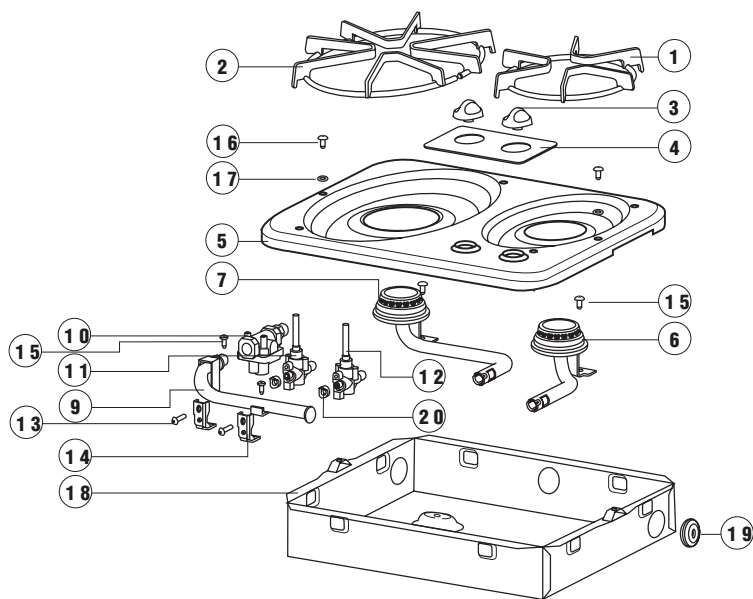
	R-1730	R-1735	R-1736	R-2136	R-2140	R-2145	C-30	C-35	C-36	C-40	C-45
51112 Handle, solid doors	No longer available										
53087 Handle, black glass doors	No longer available										
53605 Enamel door liner w/window	No longer available										
53611 Enamel door liner w/window	No longer available										
53612 Enamel door liner	No longer available										
53655 Solid door handle	No longer available										
53663 Solid door handle	No longer available										
53425 Insert, black glass ❖	❖	❖	❖								
53426 Insert, black glass ❖				❖	❖	❖					
53445 Insert black glass w/window	No longer available										
53446 Insert black glass w/window	No longer available										
51421 Window, inner assembly ❖			❖	❖	❖	❖					
51060 Door seal, sides	X	X	X								
51061 Door seal, sides				X	X	X					

### Range Tops

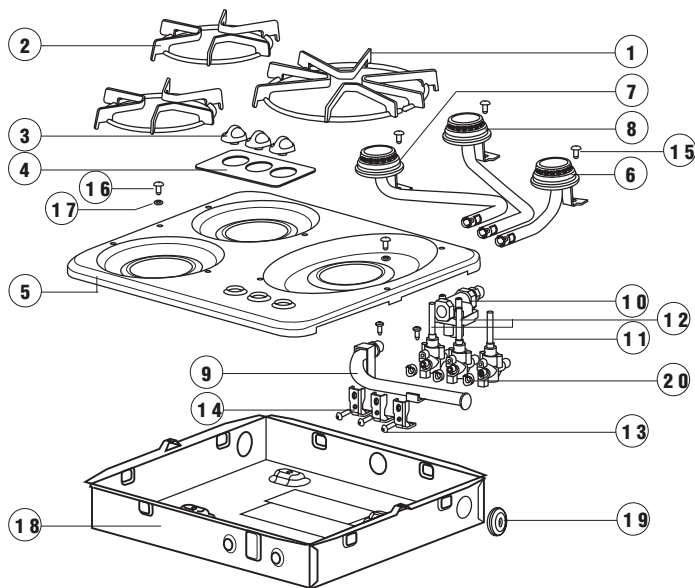
*53582 Top - ALMOND	No longer available										
*53583 Top - BLACK 2 hole	X		X	X					X		
*53584 Top - WHITE 2 hole	X		X	X					X		

\* When replacing top you must also replace grate.

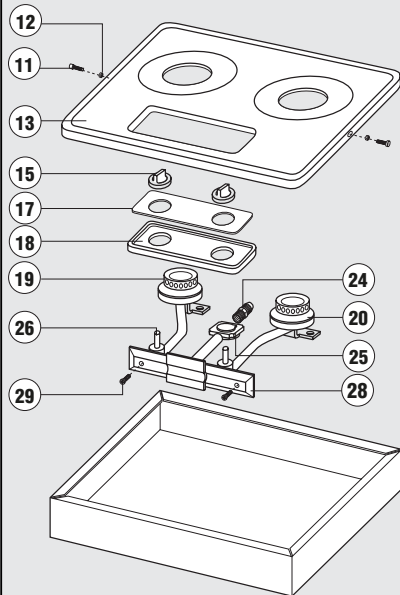
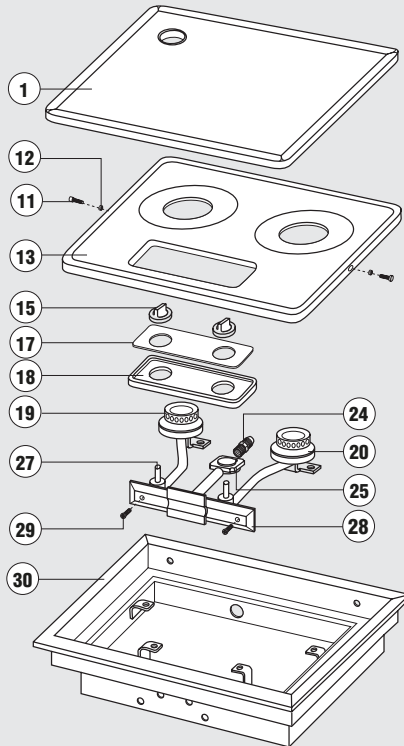
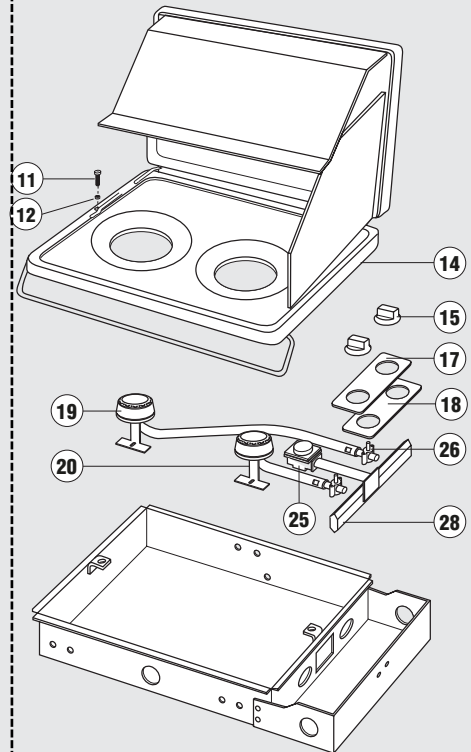
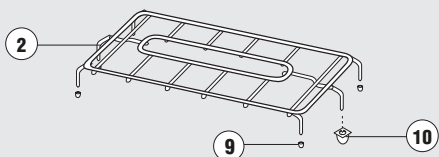
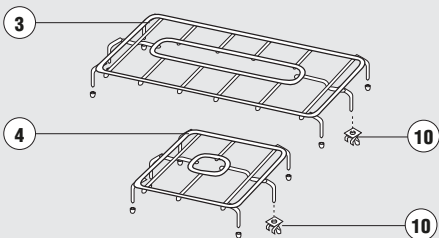
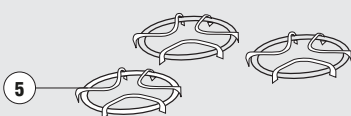
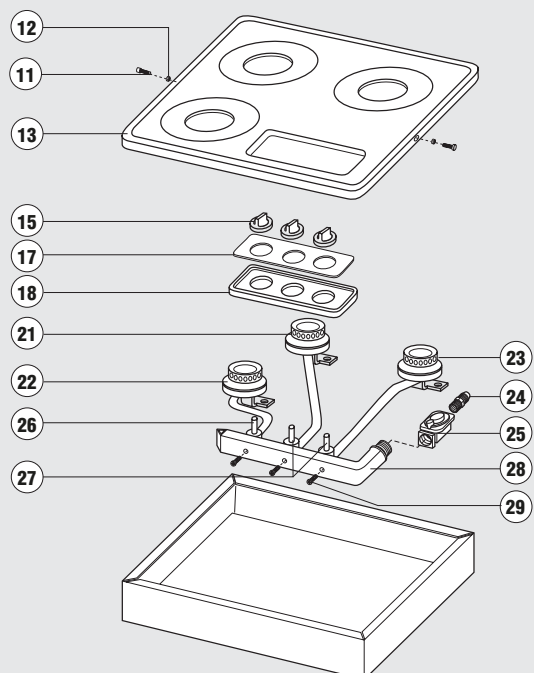
## DV 20



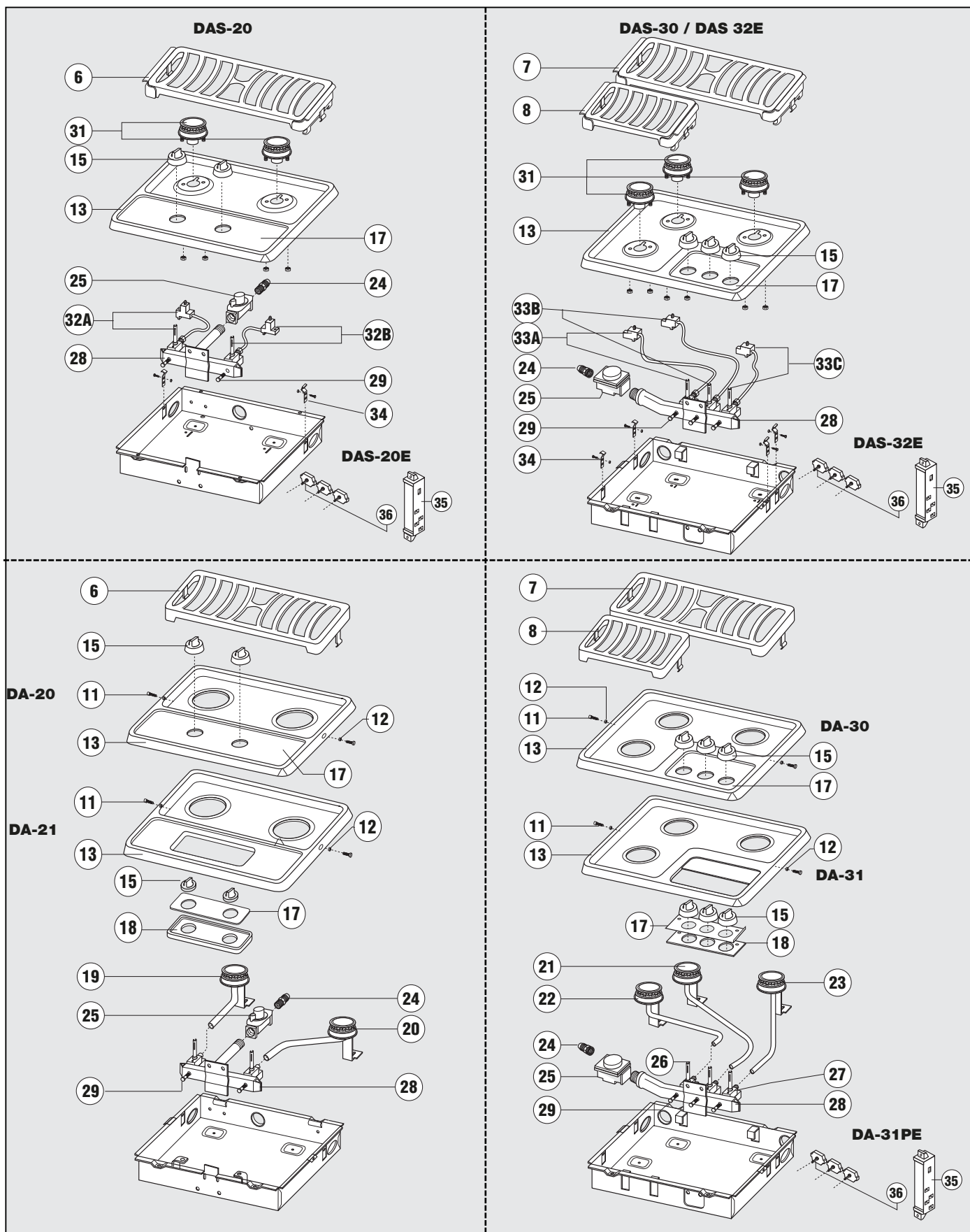
## DV 30



ITEM	DESCRIPTION	DV20	DV30
1	Round Grate	56378	56378 (2)
2	Oval Grate	56379	56379
3	Burner Knob	56380 (2)	56380 (3)
4	Label	56388	56491
5	Top - WHITE	57118	57115
	Top - BLACK	57119	57116
	Top - STAINLESS STEEL	57099	57102
6	Right Burner	56385	56483
7	Left Front Burner	56384	56482
8	Left Rear Burner	NA	56481
9	Manifold Pipe	56383	56478
10	Regulator	51062	51062
11	Valve 7200 Btu/h	56468	56468
12	Valve 5200 Btu/h	56469	56469 (2)
13	Screw-Valve	56480 (2)	56480 (3)
14	Valve Bracket	56479 (2)	56479 (3)
15	Screw-Burner	51325 (4)	51325 (5)
16	Screw-Top	56377 (2)	56377 (2)
17	Nylon Washer	52434 (2)	52434 (2)
18	Burner Box	56498	56476
19	Inlet Pipe Grommet	92610	92610
20	Gasket, Valve	56366 (2)	56366 (3)

**D-21 / D-26**

**D-26 SG**

**D-26 SV**

**D-21 / D-26 D-26 SV D-26SG**

**D-36**

**D-21 / D-31**

**D-31 / D-36**






Drop-in Cooktops <b>PART REFERENCE</b> <b>JANUARY 2007</b>		D-21 / D-26	D-26SV	D-26SG	D-31 / D-36	DA-20	DA-21	DA-30	DA-31	DA-31PE	DAS-20 / DAS-20E	DAS-30	DAS-32E
<b>Item</b>	<b>Burner</b>												
19	<b>56073</b> Burner, LEFT	X		X									
19	<b>56075</b> Burner, LEFT		X										
19	<b>56212</b> Burner, LEFT					X	X						
32A	<b>56302</b> Burner, LEFT (VALVE/TUBE ASSEMBLY) OBS ⌘										X		
20	<b>56074</b> Burner, RIGHT	X		X									
20	<b>56076</b> Burner, RIGHT		X										
20	<b>56213</b> Burner, RIGHT					X	X						
32B	<b>56303</b> Burner, RIGHT (VALVE/TUBE ASSEMBLY) OBS ⌘										X		
21	<b>56083</b> Burner, LEFT REAR				X								
21	<b>56215</b> Burner, LEFT REAR							X	X				
21	<b>56234</b> Burner, LEFT REAR									X			
32A	<b>56304</b> Burner, LEFT (VALVE/TUBE ASSEMBLY) OBS ⌘										X		
22	<b>56214</b> Burner, LEFT FRONT							X	X				
22	<b>56082</b> Burner, LEFT FRONT				X								
22	<b>56235</b> Burner, LEFT FRONT									X			
31	<b>56305</b> Burner, LEFT OBS ⌘										X		
23	<b>56084</b> Burner, RIGHT REAR				X								
23	<b>56216</b> Burner, RIGHT REAR							X	X				
23	<b>56233</b> Burner, RIGHT REAR									X			
31	<b>56306</b> Burner, RIGHT REAR (VALVE/TUBE ASSEMBLY)										X		
31	<b>56307</b> Burner, SEALED (PLAIN)										X	X	X
31	<b>56208</b> Burner, SEALED (BLACK)										X	X	X
31	<b>56207</b> Burner, ELECTRONIC IGNITION (PLAIN)										X	X	X
31	<b>56325</b> Burner, ELECTRONIC IGNITION (BLACK) OBS USE 56207										X	X	X
	<b>Control Panel Label</b>												
17	<b>52539</b> Black label	X											
17	<b>52437</b> Black label		X										
17	<b>51454</b> Black label			X									
17	<b>52540</b> Black label				X								
17	<b>56346</b> Black label					X							
17	<b>57700</b> Black label						X						
17	<b>56347</b> Black label							X					
17	<b>57051</b> Black label (Before S.N. B0220)								X				
17	<b>53126</b> Black label (After S.N. B0200)								X				
17	<b>57050</b> Black label (Before S.N. B0200)									X			
17	<b>53126</b> Black label (After S.N. B0200)									X			
17	<b>56350</b> Black label <b>56348</b> White label										X		
17	<b>56351</b> Black label <b>56349</b> White label											X	
17	<b>57052</b> Black label												X
	<b>Cover</b>												
	<b>56204</b> Cover OBS			X									
	<b>56205</b> Frame			X									
13	<b>51443</b> Cooktop & Cover Asbly OBS			X									
	<b>Electronic Ignition</b>												
35	<b>56162</b> 12V Ignition Module									X	X		X
36	<b>56184</b> Ground Lead									X			X
36	<b>56165</b> Electrode Lead									X	X		X
	<b>Fitting, Brass</b>												
24	<b>52294</b> Fitting, Brass	X	X	X	X	X	X	X	X	X	X	X	X
2,5	<b>51007</b> Medallion Grate	(2)			(3)								

Drop-in Cooktops <b>PART REFERENCE</b> <b>JANUARY 2007</b>		D-21 / D-26	D-26SV	D-26SG	D-31 / D-36	DA-20	DA-21	DA-30	DA-31	DA-31PE	DAS-20 / DAS-20E	DAS-30	DAS-32E
Item	Grates												
2	<b>53304</b> Designer Grate	X	X	X									
3	<b>53303</b> Designer Grate, Rear				X								
4	<b>53302</b> Designer Grate, Front				X								
6	<b>53436</b> Stamped Steel Grate					X	X						
7	<b>53437</b> Stamped Steel Grate, Rear OPEN							X	X	X			
8	<b>53438</b> Stamped Steel Grate, Front OPEN							X	X	X			
6	<b>53439</b> Stamped Steel Grate OBS										X		
7	<b>53441</b> Stamped Steel Grate, Rear SEALED OBS											X	X
8	<b>53442</b> Stamped Steel Grate, Front SEALED OBS											X	X
	<b>Grate Boots &amp; Clips</b>												
10	<b>53301</b> Grate Clips	(2)	(2)	(2)	(4)								
	<b>51410</b> Grate Top Clip N/S									(4)	(2)	(4)	(4)
	<b>53008</b> Grate Boot	(4)	(4)	(4)	(8)								
	<b>Knobs</b>												
15	<b>53000</b> Burner Knob	(2)	(2)	(2)	(3)								
15	<b>56129</b> Burner Knob					(2)	(2)	(3)	(3)	(3)	(2)	(3)	(3)
	<b>Manifold</b>												
18	<b>52523</b> Manifold Cover	X		X					X	X			
18	<b>52524</b> Manifold Cover OBS				X								
18	<b>52516</b> Manifold Cover						X						
28	<b>56079</b> Manifold Pipe OBS ⌘	X	X	X		X	X				X		
28	<b>50160</b> Manifold Pipe OBS ⌘							X	X	X		X	X
	<b>Misc.</b>												
	<b>52016</b> Thumb screw					X	X	X	X			X	
	<b>52537</b> Thumb screw	X	X	X	X								
	<b>52434</b> Nylon Washer (2)	X	X	X	X	X	X	X	X			X	
	<b>Pressure Regulator</b>												
25	<b>51062</b> Pressure Regulator	X	X	X	X	X	X	X	X	X	X	X	X
	<b>Top, Cook</b>												
	Almond top ORDER BY COLOR NLA												
13	Black top ORDER BY COLOR												
13	White top ORDER BY COLOR												
	<b>Valve</b>												
	<b>53124</b> 6500 Linear Valve after SNA B020									(1)			
	<b>53114</b> 5200 Linear Valve after SN B020									(2)			
27	<b>56090</b> Valve, Burner-6500 BTU	(2)	(2)		(1)		(2)		(1)	(1)			
27	<b>56300</b> Valve, Burner-6500 BTU			(2)		(2)		(1)					
27	<b>56089</b> Valve, Burner-5200 BTU			(2)	(2)			(2)	(2)	(2)			
27	<b>56301</b> Valve, Burner-5200 BTU							(2)					
36	<b>56145</b> Valve Ignition Switch									(3)	(2)		
36	<b>57055</b> Valve Ignition Switch												(3)
	<b>Valve thru Bolt</b>												
29	<b>56091</b> Valve thru Bolt	(2)	(2)	(2)	(3)	(2)	(2)	(3)	(3)	(3)	(2)	(3)	(3)
	<b>Wire Harness</b>												
	<b>56164</b> Wire Harness									X	X		X
	<b>Valve Tube Assembly</b>												
32A	<b>56302</b> Left OBS ⌘										X		
32B	<b>56303</b> Right OBS ⌘										X		
33A	<b>56305</b> Left front OBS ⌘											X	
33B	<b>56304</b> Left rear OBS ⌘											X	
33C	<b>56306</b> Right rear OBS ⌘											X	
33A	<b>56309</b> Left front												X
33B	<b>56308</b> Left rear												X
	OBS - Obsolete ⌘ While supplies last												

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# Recommended Tools and Equipment

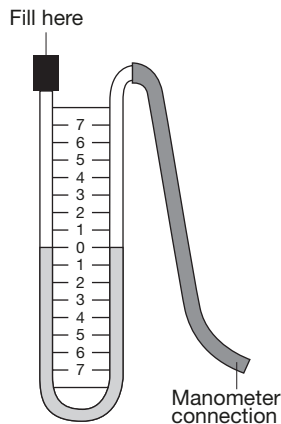
**U-Tube Manometer** - This is the most accurate device for measuring gas pressure. If you use a dial-type manometer, it should be calibrated periodically with this type of manometer.

**Slack Tube Manometer** - A more portable U-Tube Manometer.

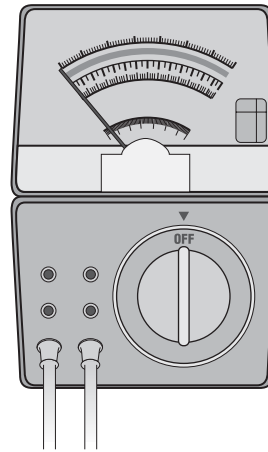
**Multi-meter** - This is the most effective meter capable of reading voltage, amperage and continuity. A test light cannot give you specific enough information to trouble-shoot a furnace properly.

## U-TUBE MANOMETER

with 1/8" pipe nipple

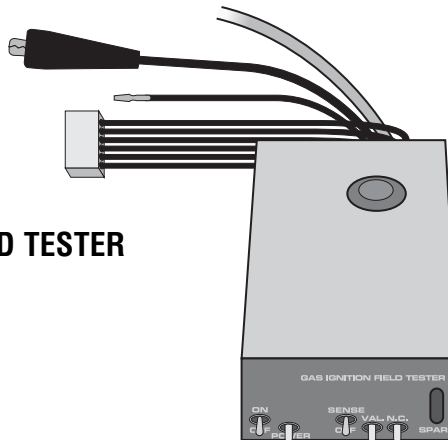


## VOLT OHM-AMP METER



**Circuit Board Tester - P/N 32779** - This is a table top device that will test all furnace circuit boards. It will specifically test the following board functions: power, spark, lamp, sense and valve. It will test Fenwal and Channel circuit boards.

## CIRCUIT BOARD TESTER



**Air Speed Indicator** - This hand held device will let you determine air flow out of a heat register. It will help you isolate restricted ducting.

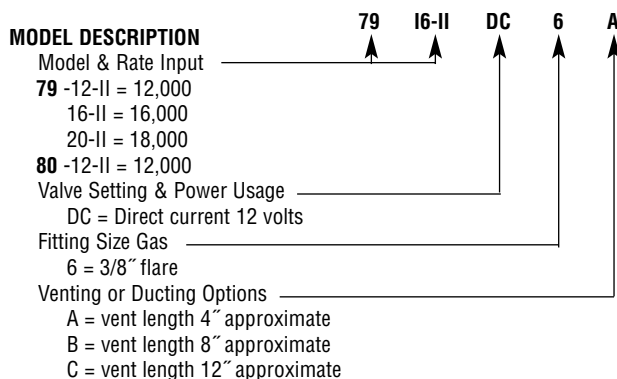
**Incline Manometer** - This meter measures the static pressure of the furnace cavity. It provides an x-ray of the total heating system. It will indicate if all of the heat being produced by the furnace is being sufficiently distributed out to the heat registers.

**Long-handled Allen Wrenches (9/64" and 1/8")** - These two wrenches are necessary to remove the blower wheel and the combustion wheel.

**Common Hand Tools** - 1/4" nut drivers, open end wrenches, flat blade and Phillips screw drivers.

**Leak Test Solution** - A solution that bubbles when applied to gas fittings or connections showing where a gas leak is present.

# 79 / 80 Series Model Identification



**Applications** - This unit is typically installed in tent campers, truck campers and small travel trailers due to its small size and lower BTU capacities. It is sometimes used in larger trailers or motor homes for smaller zone heating.

**Heat Outlets** - This furnace is usually set up as a front discharge unit. However, it does have a 4" duct outlet on either side of its casing for soft ducting to remote outlets. To determine the most efficient ducting configuration, refer to **Minimum Ducting Configuration**.

**Directional Air Box Insert** - If you need to direct heat to the front or rear of a camper and you cannot use soft ducting and registers, an optional diverter plate with 55 degree louvers can be added to the front exhaust box.

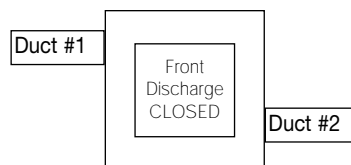
**Serviceability** - Practically all of the components of this furnace are accessible by removing the front grille. Therefore, the furnace does not need to be removed for most repairs. The only components that are not accessible without removing the furnace are the blower motor, sail switch and blower and combustion wheels.

**Power Consumption** - The 79 series furnace draws only 3.4 amps. However, there is an 8012 series furnace that has a heating capacity of 12,000 BTU's and only draws 1.8 amps. This furnace is ideal for dry camping.

## MINIMUM DUCTING CONFIGURATION

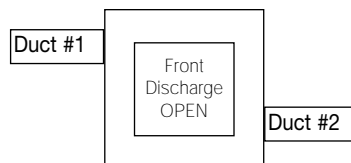
### 7912-II 7916-II 7920-II - SIDE DISCHARGE UNITS -

Provides the most air flow and heat to remote heat outlets. The duct runs need to be as short and straight as possible for optimal heating.



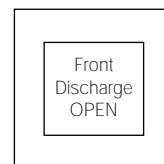
### 7912-II 7916-II 7920-II - SIDE DISCHARGE UNITS - with front discharge-

The majority of the heat discharges out the front. A minimal amount of heat will pass through the side ducts. These duct runs need to be as short as possible. An optional air diverter with 55° angle vanes can be added to front discharge opening to direct heat fore or aft in the trailer.



### 8012-II 7912-II 7916-II 7920-II - FRONT DISCHARGE UNITS - no ducts allowed on 8012-II

The heat discharges only through the front. The optional air diverter noted above can be added to front discharge opening to direct heat for or aft in the trailer.



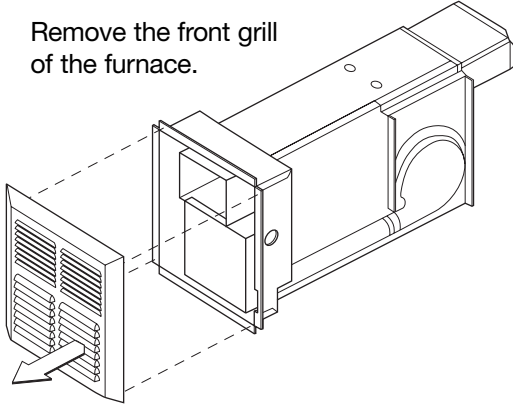
## RETURN AIR REQUIREMENTS

Return air is provided through the front door grill - approximately 33 square inches (213cm²). If the furnace is installed at zero clearance, an additional 16 square inches (103cm²) of return air must be provided to the blower wheel side of the furnace.

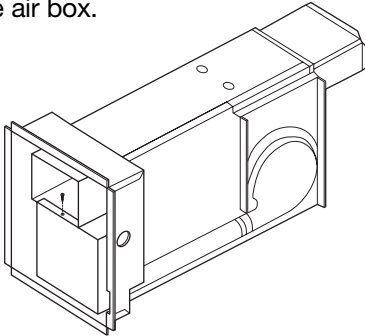
## 79-II Directional Air Box Insert (PN 36959)

An air discharge diverter is now available for all 79 series furnaces. This insert has fins that are set at a 55 degree angle. This will allow you to direct the heat fore or aft in the camper easier.

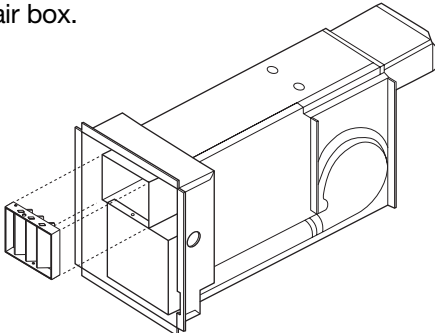
1. Remove the front grill of the furnace.



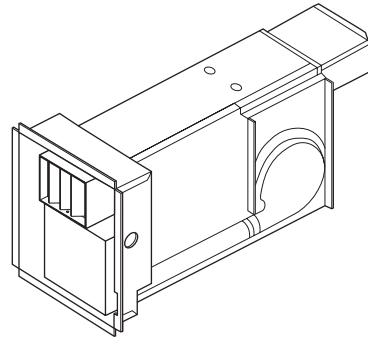
2. Follow the shutdown procedure instructions affixed to the furnace.
3. Remove the sheet metal screw that holds the circuit board plate to the air box. Retain to fasten the Air Box Insert to the bottom of the air box.



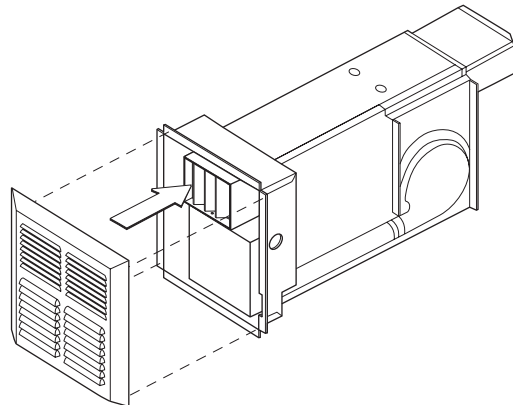
4. Install the Air Box Insert into the air box paying particular attention to the direction where you would like the warm air diverted. Make sure the two holes in the Air Box Insert line up with the existing holes in the air box.



5. Fasten the Air Box Insert to the top of the air box using a 1/4" long #6 sheet metal screw. Fasten the bottom of the Air Box Insert and the circuit board plate to the bottom of the air box using the screw removed in step 3.

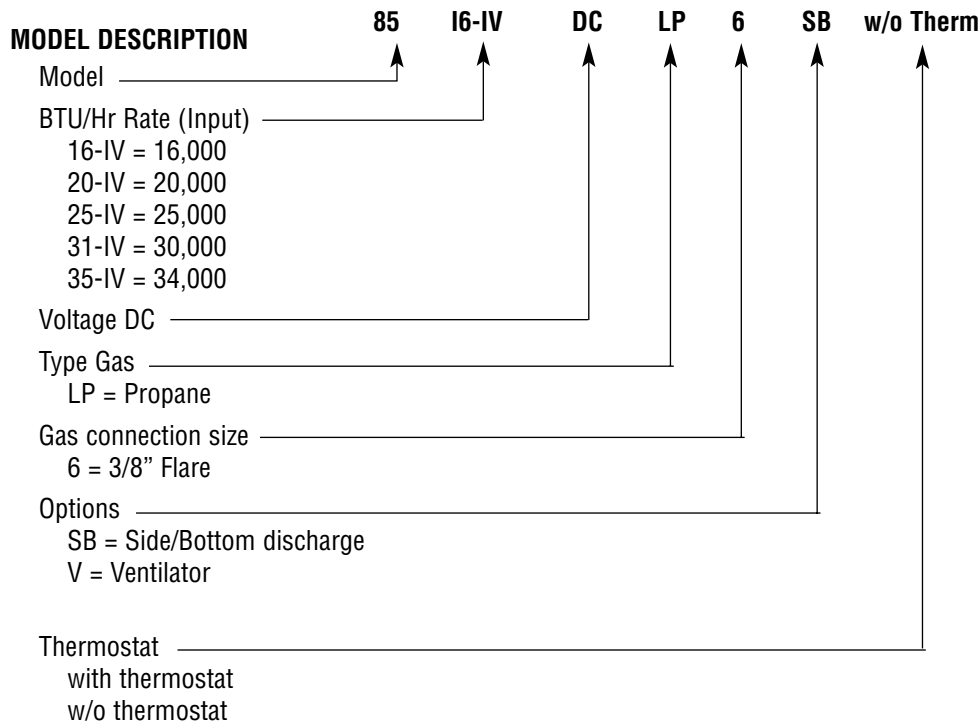


6. Follow the lighting instructions to place the furnace in operation.
7. Replace the front grill on the furnace.





# 85 Series Model Identification



NOTE: The new 85-IV series furnace, through some design changes is quieter than the previous 85 series. It incorporates some plastic components in the blower housing area to accomplish this. These components are not retro-fittable to other 85 series furnaces.

**Applications** - This unit is typically installed in travel trailers, 5th wheels and motor homes.

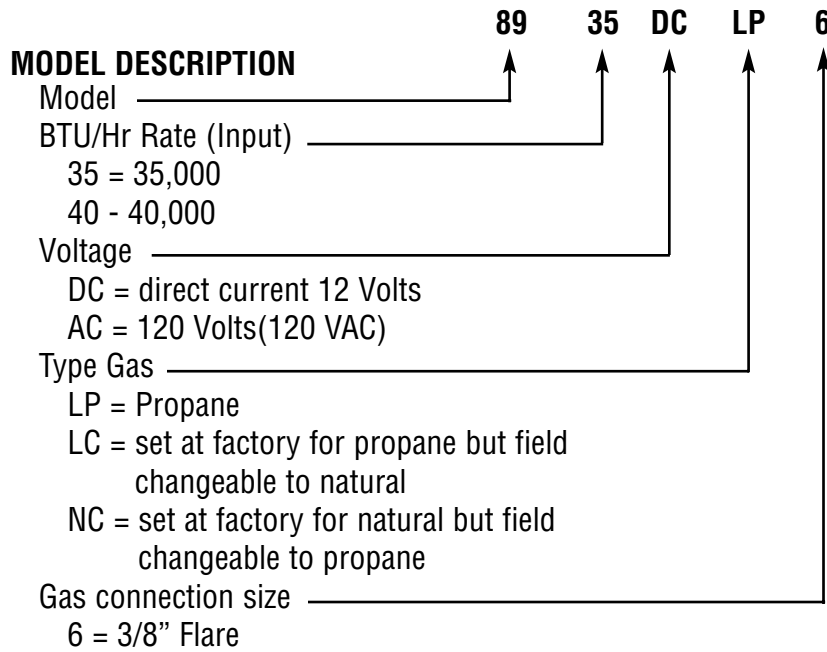
**Installation** - This series of furnace can be installed either vertically or horizontally. If installed vertically, the exhaust port must be located at the bottom. Extra care must also be given in sealing this type of installation. Consult the installation manual for details.

**Heat Outlets** - This furnace can be bottom discharged to a hard duct system, soft ducted out the back to a discharge plate into a hard duct system or completely soft ducted from a combination of the seven outlets located on both sides and back of the furnace. Refer to the installation manual for the ducting requirements of the specific model of furnace.

**Serviceability** - This entire furnace is serviceable without removing it from the RV. Therefore, there is no need to bench test it. All components are accessible by merely opening the access door. We strongly recommend trouble-shooting the furnace while it is installed in the RV.

**Power Consumption** - This furnace is designed to draw between 4.6 and 9.8 amps depending on the model of the furnace. Refer to the furnace specification decal when trouble-shooting its electrical system.

# 89 Series Model Identification



**Applications** - This unit is typically installed in large travel trailers, 5th wheels, motor homes and park model trailers.

**Installation** - The 89 series furnace must only be installed horizontally.

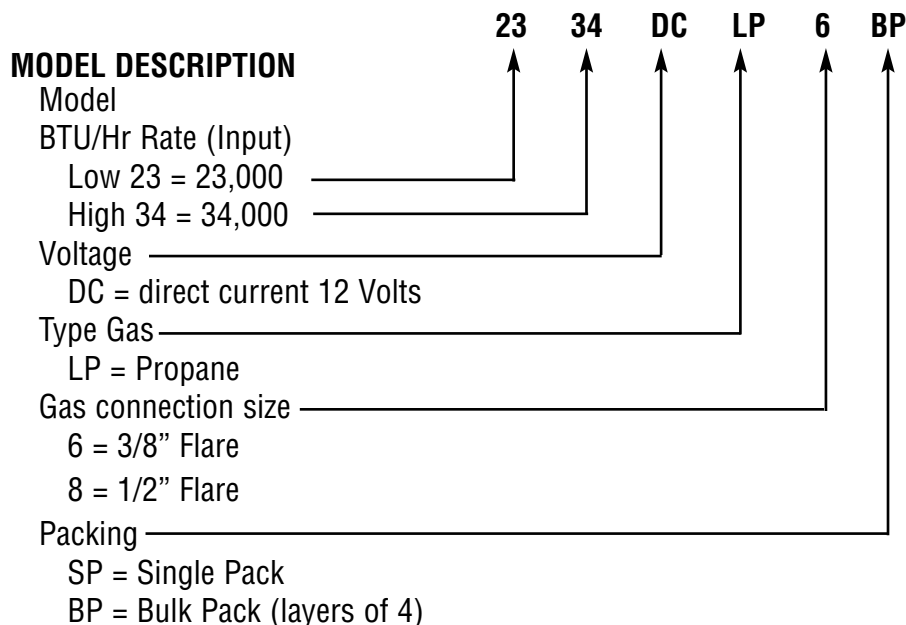
**Options** - As the chart above indicates, this furnace can be purchased to operate on 12VDC or 120VAC with LP gas or Natural gas. Natural gas option is only available on AC models.

**Heat Outlets** - This furnace can be bottom discharged to a hard duct system, soft ducted into a hard duct system or completely soft ducted from a combination of the six outlets located on both sides and back of the furnace. Refer to the installation manual for the ducting requirements of the specific model of furnace.

**Serviceability** - This entire furnace is serviceable without removing it from the RV. All components are accessible by merely opening the access door. We strongly recommend trouble-shooting the furnace while it is installed in the RV.

**Power Consumption** - The DC version of this furnace is designed to draw approximately 12.5 amps. This is important when trouble-shooting the motor of this furnace.

# 2-stage Model Identification

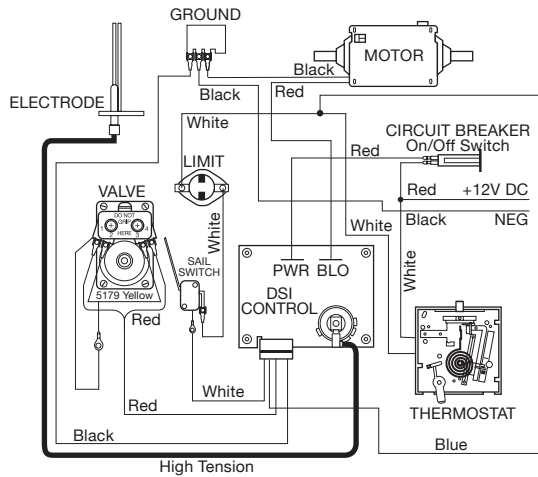


## Wiring Diagram for 7900-II / 8000-II

## IMPORTANT

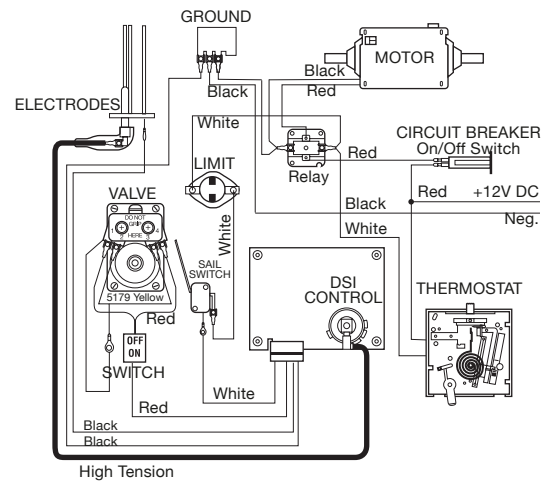
If any original wire has to be replaced, it must be replaced with type 105° C or its equivalent.

### With Blower Control Ignition Board

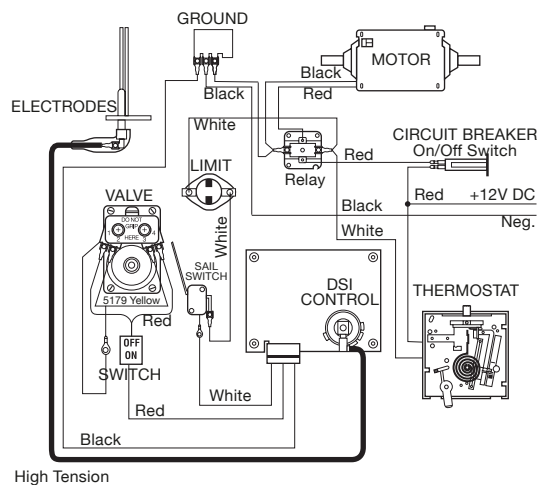


**NOTE:** The ON/OFF switch, located in line with the gas valve, is not used when a combination circuit breaker and ON/OFF switch is used.

## REMOTE Sense Wiring

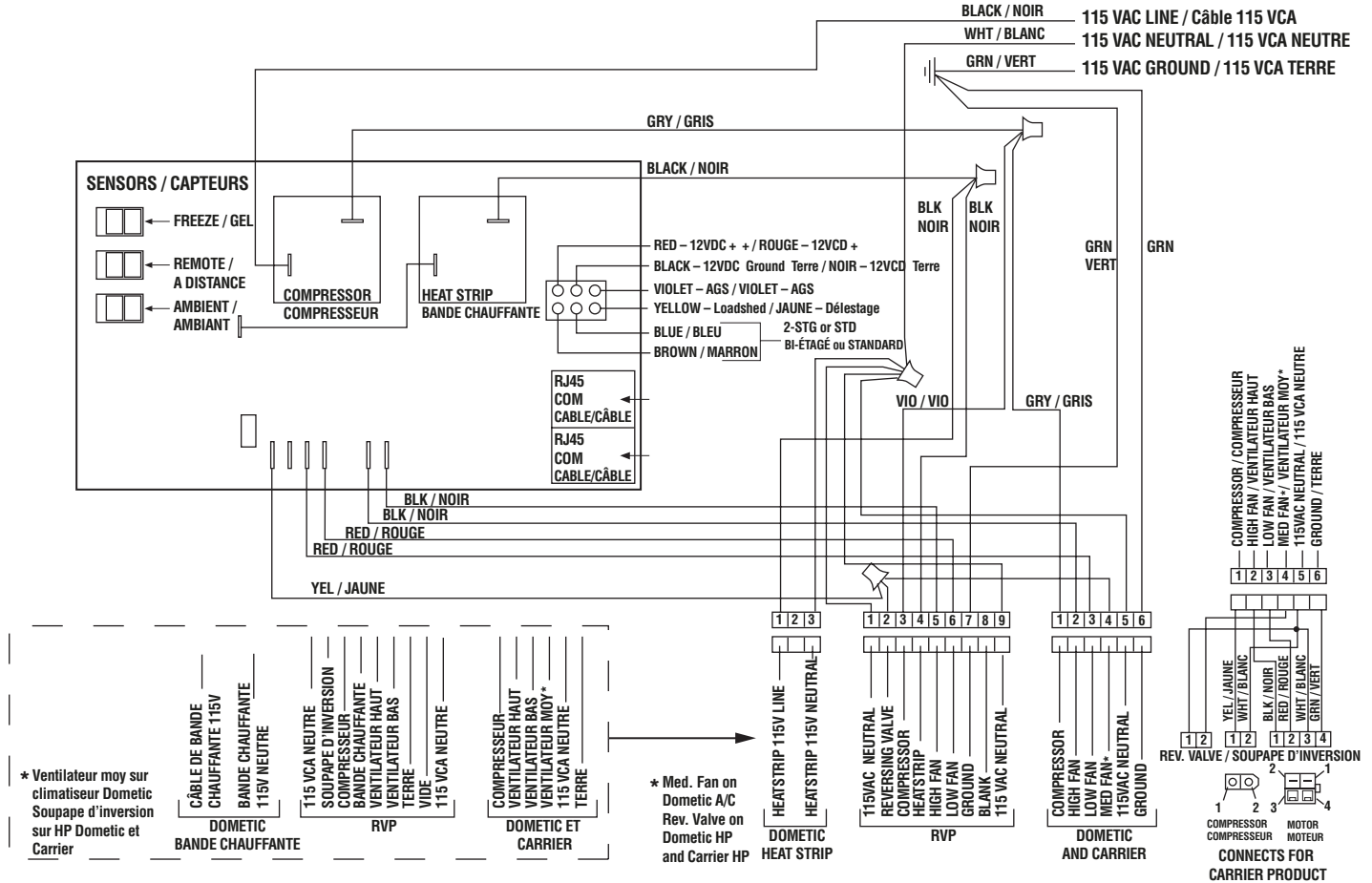


## LOCAL Sense Wiring



**NOTE:** The ON/OFF switch, located in line with the gas valve, is not used when a combination circuit breaker and ON/OFF switch is used.

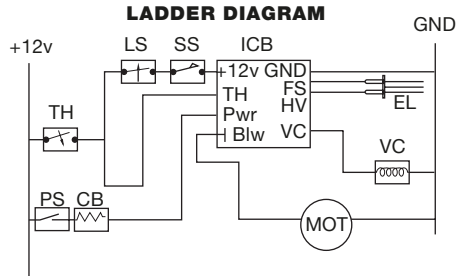
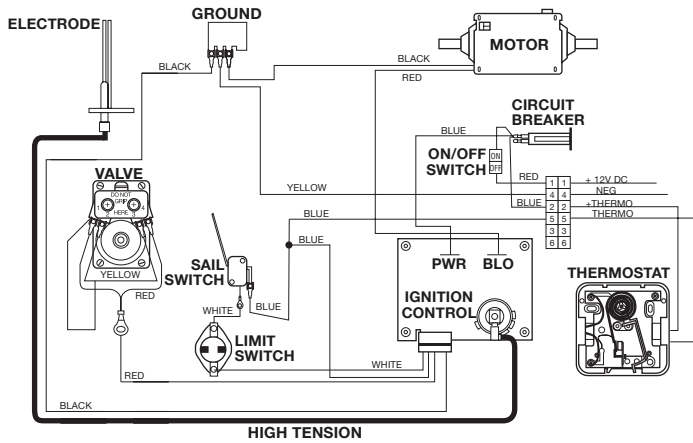
# Wiring Diagram ACCS Atwood Comfort Control System



# 85 Series Wiring Diagrams

**IMPORTANT:** If any original wire has to be replaced, it must be replaced with type 105° C or its equivalent. Terminal Block on 85 Models only.

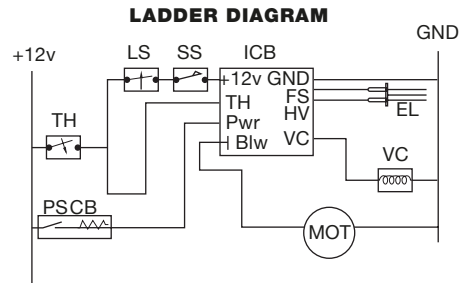
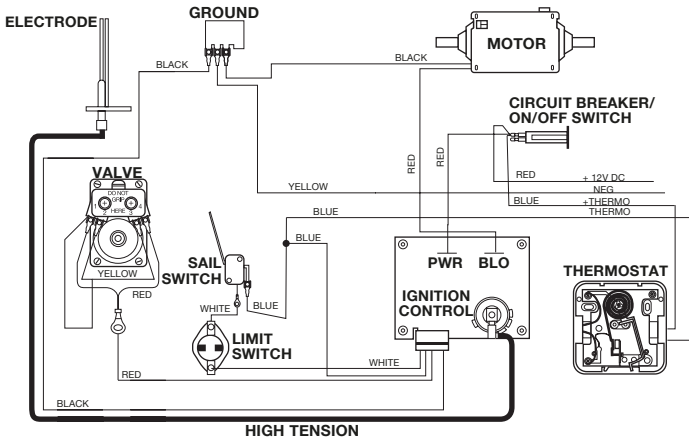
WITH DOOR and Blower Control Ignition Board



CB = Circuit Breaker  
GND = Ground  
GV = Gas Valve  
HV = High Voltage  
EL = Electrode  
MOT = Blower Motor  
SS = Sail Switch  
TH = Thermostat  
LS = Limit Switch  
TR = Thermo Relay  
VC = Valve Control  
PS = Power Switch

NOTE: In some installations, the Power Switch (PS) may control the air conditioning system thermostat function.

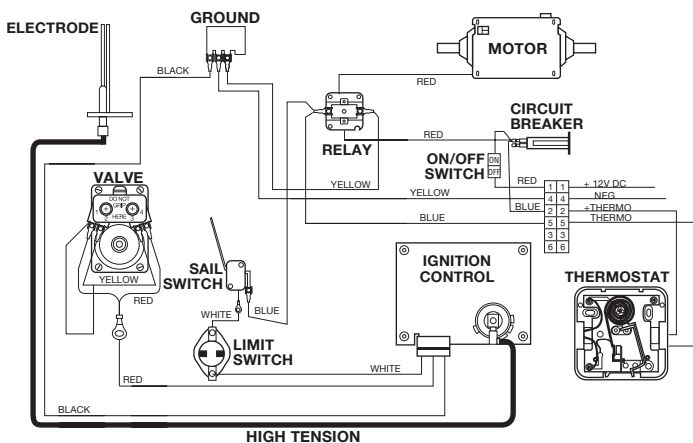
WITHOUT DOOR, but with Blower Control Ignition Board



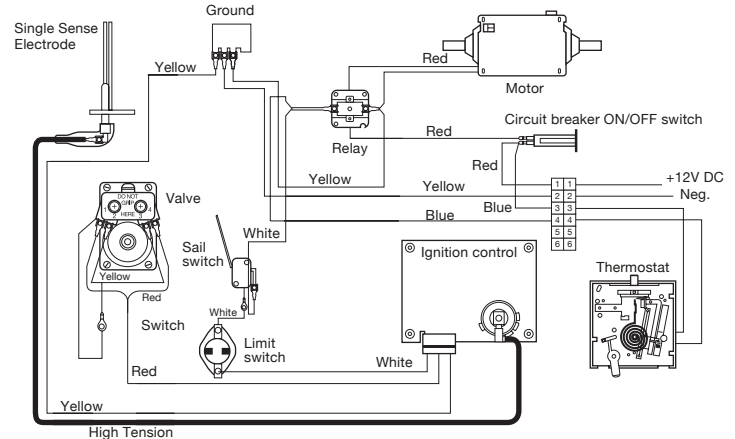
GND = Ground  
GV = Gas Valve  
HV = High Voltage  
EL = Electrode  
MOT = Blower Motor  
SS = Sail Switch  
TH = Thermostat  
LS = Limit Switch  
TR = Thermo Relay  
VC = Valve Control  
PSCB = Power Switch/  
Circuit Breaker

NOTE: In some installations, the Power Switch (PS) may control the air conditioning system thermostat function.

85-IV Local Sense



85-III Local Sense

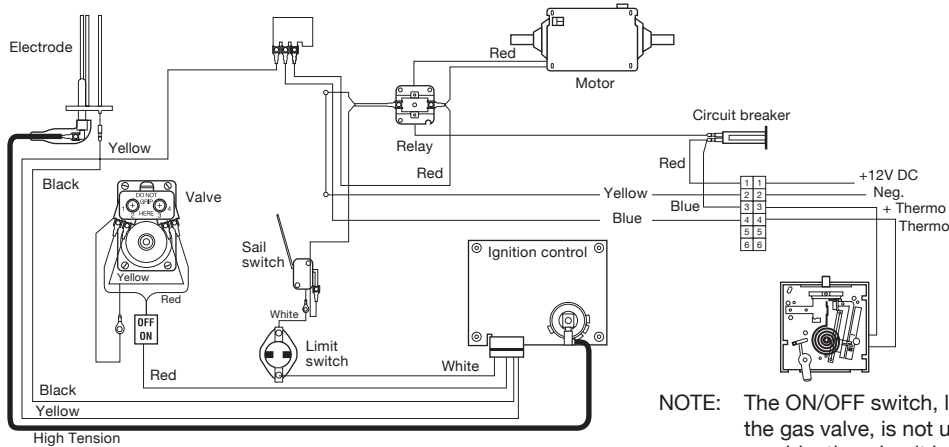


# 85 Series Wiring Diagrams

## IMPORTANT

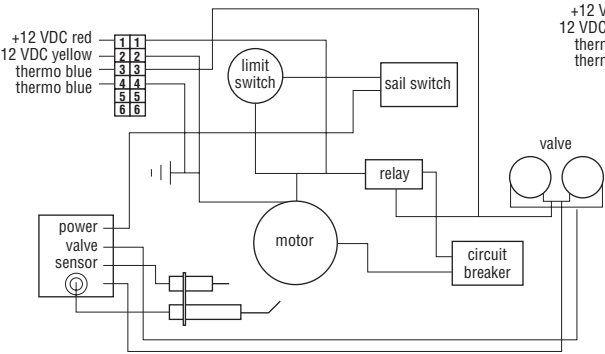
If any original wire has to be replaced, it must be replaced with type 105° C or its equivalent.

### 85-III Remote Sense

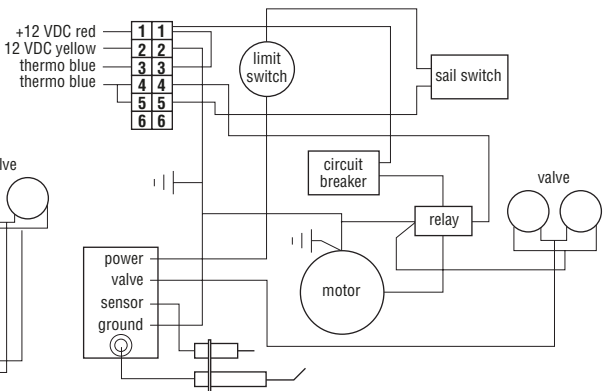


NOTE: The ON/OFF switch, located in line with the gas valve, is not used when a combination circuit breaker and ON/OFF switch is used.

### 85-I

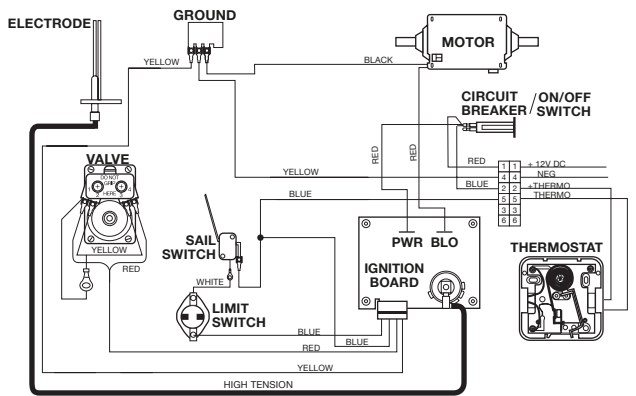


### 85-II



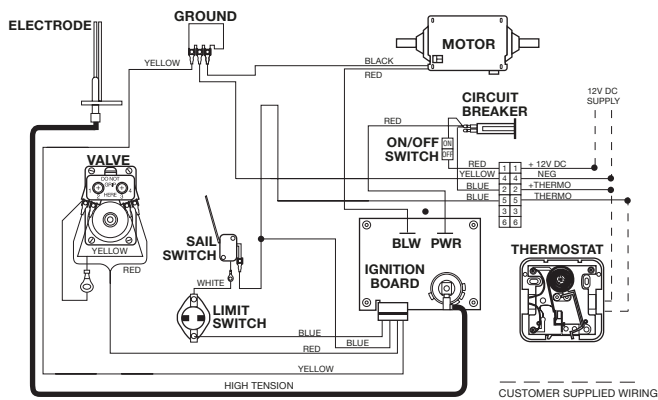
# Wiring Diagram for 8900-III

## DC Wiring Diagram WITHOUT DOOR



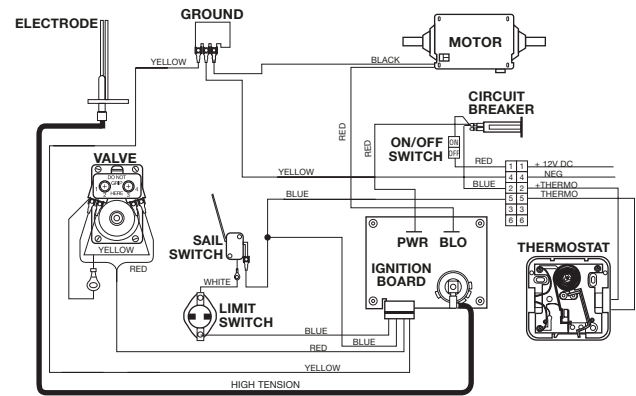
DIAGNOSTIC CHART	
FAULT	LED INDICATION
Internal Circuit Board Failure	Steady on, no flashing
Limit switch/Airflow problems	1 flash with 3-second pause
Flame Sense Fault	2 flashes with 3-second pause
Ignition Lockout Fault	3 flashes with 3-second pause

## DC Wiring Diagram

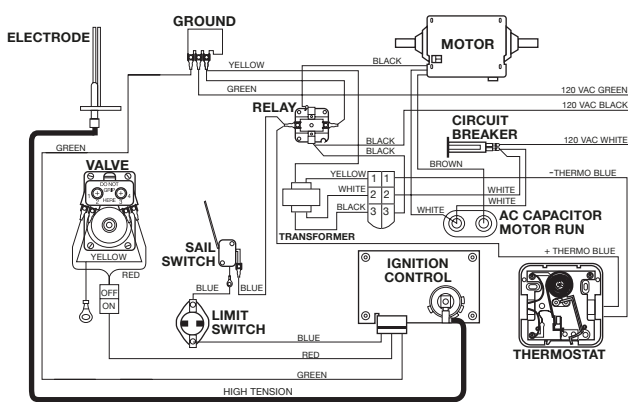


**IMPORTANT:** If any original wire has to be replaced, it must be replaced with type 105 C or its equivalent.  
Terminal Block on 85 Models only.

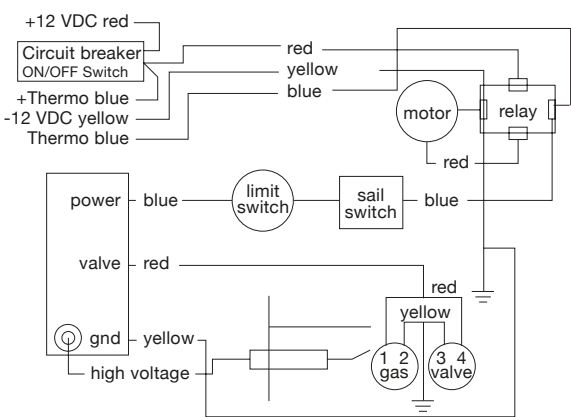
## DC Wiring Diagram WITH DOOR



## AC Wiring Diagram WITH DOOR

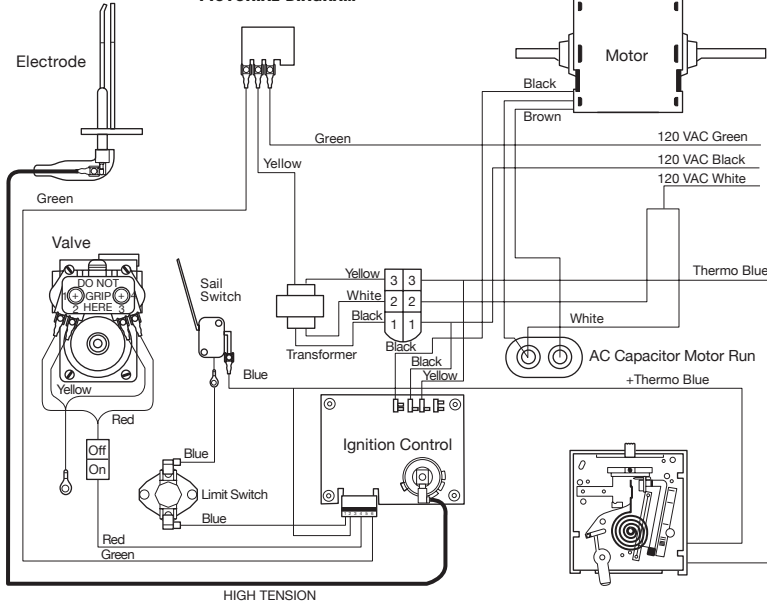


## DC Wiring Diagram



**Supply Leads**  
(+) 12 volt DC to (+) 12 volt DC (red wire)  
(-) 12 volt D to (-) 12 volt DC (yellow wire)  
thermostat to thermostat (blue wires)

## AC Wiring Diagram





# Wiring Diagram for 2-Stage Furnace

## DIAGNOSTIC CHART

A diagnostic LED is located inside the exterior access cover on the outside edge of the horizontal (2) stage control board. The following graph defines the codes.

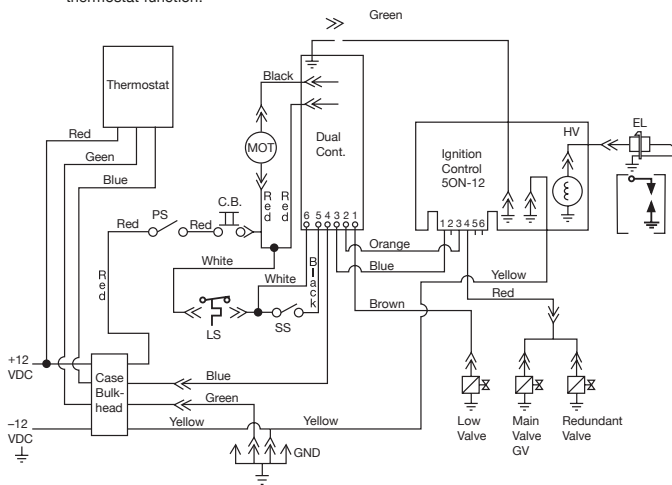
**An Excalibur 2-Stage furnace must use an Atwood Digital Thermostat.**

## Two Stage Furnace Models 1522 & 2334

### WITH DOOR AND WITHOUT DOOR

CB = Circuit Breaker  
GND = Ground  
GV = Gas Valve  
HV = High Voltage  
EL = Electrode

NOTE: The Power Switch (PS) does not control the air conditioning system thermostat function.



## 2-Stage Furnace Diagnostics

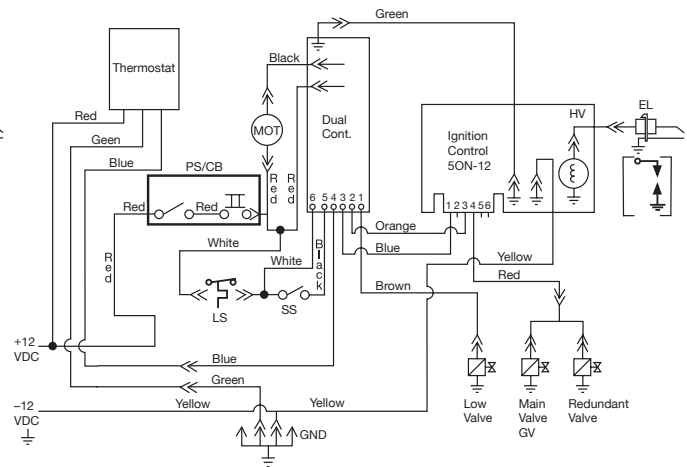
NUMBER OF LED FLASHES	DIAGNOSTIC INFORMATION	LOCKOUT
1	Low Input voltage	SOFT
2	Ignition Failure	SOFT
3	Open High Limit	SOFT
4	Stuck Sail Switch	HARD
5	Module Fault	HARD

NOTE: A SOFT lockout is a condition that is timed and will make additional attempts to correct the problem. A HARD lockout requires reset of the thermostat or turning the power switch off then back on.

GND = Ground  
GV = Gas Valve  
HV = High Voltage  
EL = Electrode

MOT = Blower Motor  
SS = Sail Switch  
LS = Limit Switch  
PS/CB = Power Switch/  
Circuit Breaker

NOTE: The Power Switch (PS) does not control the air conditioning system thermostat function.



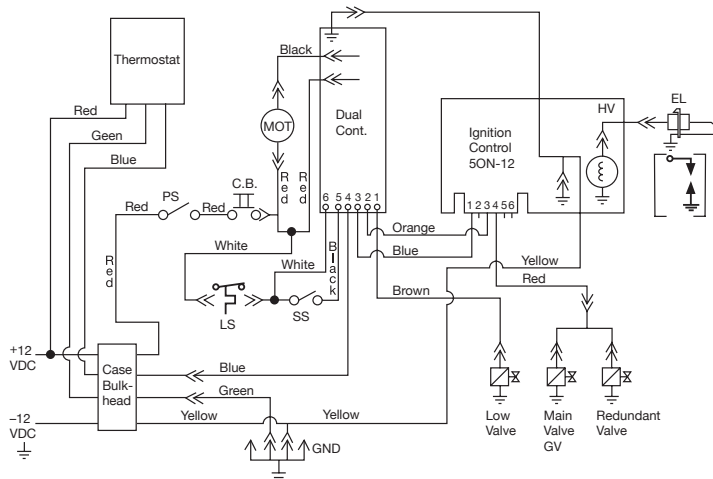
## Two Stage Furnace Model 2540

### WITH DOOR AND WITHOUT DOOR

CB = Circuit Breaker  
GND = Ground  
GV = Gas Valve  
HV = High Voltage  
EL = Electrode

MOT = Blower Motor  
SS = Sail Switch  
LS = Limit Switch  
PS = Power Switch

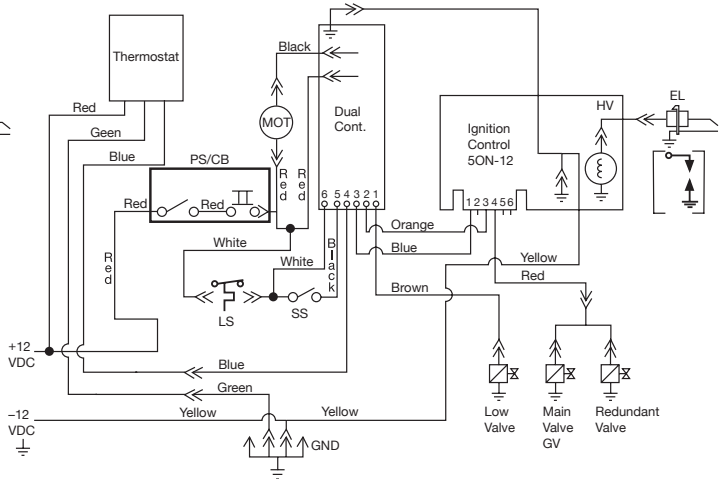
NOTE: The Power Switch (PS) does not control the air conditioning system thermostat function.



GND = Ground  
GV = Gas Valve  
HV = High Voltage  
EL = Electrode

MOT = Blower Motor  
SS = Sail Switch  
LS = Limit Switch  
PS/CB = Power Switch/  
Circuit Breaker

NOTE: The Power Switch (PS) does not control the air conditioning system thermostat function.



# Sequence of Operation - DC Models

The ON/OFF switch allows power to pass to the circuit breaker and the thermostat.



The thermostat controls the operating circuit to the furnace by reacting to room temperature. When room temperature is below the thermostat set point, the contact closes to allow current to flow to the circuit board.



The circuit breaker limits amperage draw of motor.



The relay on the circuit board allows current to pass to the motor by closing a switch within the relay. The 12v+ signal from the thermostat actuates the relay circuit. The motor will start the blower running immediately.



Current flows to the motor to operate the blower. One end of the motor shaft is for the circulating air wheel and the other side is for the combustion air wheel.



Circulating air blows against the sail switch and closes the contacts, completing the circuit. The sail switch is a safety device that insures air flow before ignition.



The limit switch is a safety device that protects the furnace from over heating. The contacts in the limit switch open at a given temperature setting, shutting off power to the electronic ignition system that controls the gas valve.



As power is applied to the circuit board, the system does the following:

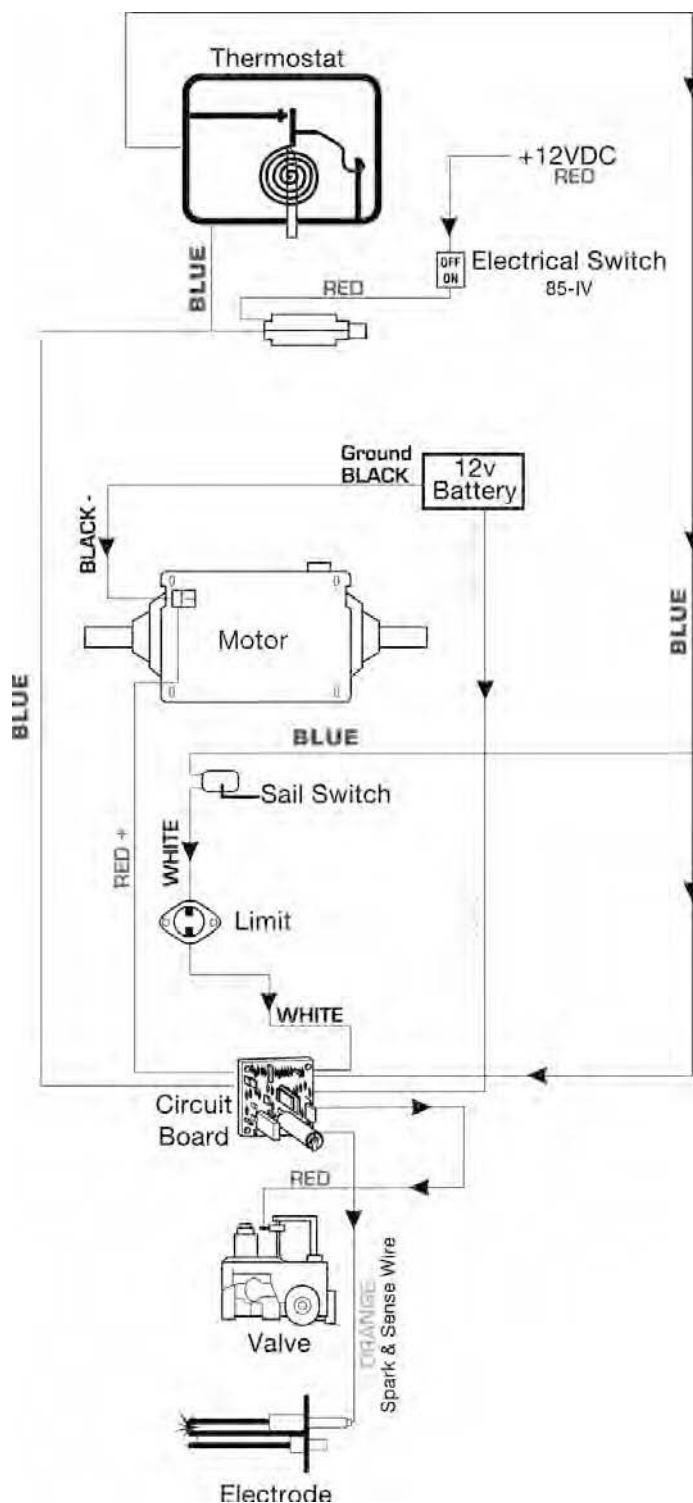
1. A timing circuit allows the blower to purge the chamber (15-17 seconds)
2. The board supplies current to the gas valve and causes it to open. A manual electrical switch is provided and must be in the "ON" position for current to reach the valve.
3. As the valve opens, the board sends a high voltage spark to the electrode at the burner. The board detects the presence of a flame. If the flame is not sensed after approximately six seconds, the board will lock out (three try for ignition, one hour lockout and then three retry), shutting off power to the valve.
4. If the system does not ignite and the thermostat remains closed after three tries the blower will shut off.



When the thermostat senses the desired room air temperature, the contacts open, removing power from the ignition system and shutting off the gas valve. The blower runs until the heater in the relay cools and opens the circuit, shutting off current to the motor.

**⚠ WARNING**  
**FURNACE PRODUCES HIGH TEMPERATURE**

- Locate furnace out of traffic and away from furniture and draperies.
- Do not touch or put combustibles near appliance. Hot surface temperature may occur.
- Supervise young children in the same room as the furnace.
- Do not place clothing or flammable materials on or near the furnace.



# Sequence of Operation - DC Models (Standard One-Stage)

The ON/OFF switch allows power to pass to the circuit breaker and the thermostat.



The thermostat controls the operating circuit to the furnace by reacting to room temperature. When room temperature is below the thermostat set point, the contact closes to allow current to flow to the relay.



The circuit breaker limits amperage draw of motor.



The relay allows current to pass to the motor by closing a switch within the relay. Voltage from the thermostat activates the relay to turn the fan on. This takes 1-25 seconds. The Relay is now part of the Ignition Board on all DC products.



Current flows to the motor to operate the blower. One end of the motor shaft is for the circulating air wheel and the other side is for the combustion air wheel.



Circulating air blows against the sail switch and closes the contacts, completing the circuit. The sail switch is a safety device that insures air flow before ignition.



The limit switch is a safety device that protects the furnace from over heating. The contacts in the limit switch open at a given temperature setting, shutting off power to the electronic ignition system that controls the gas valve.




As power is applied to the circuit board, the system does the following:

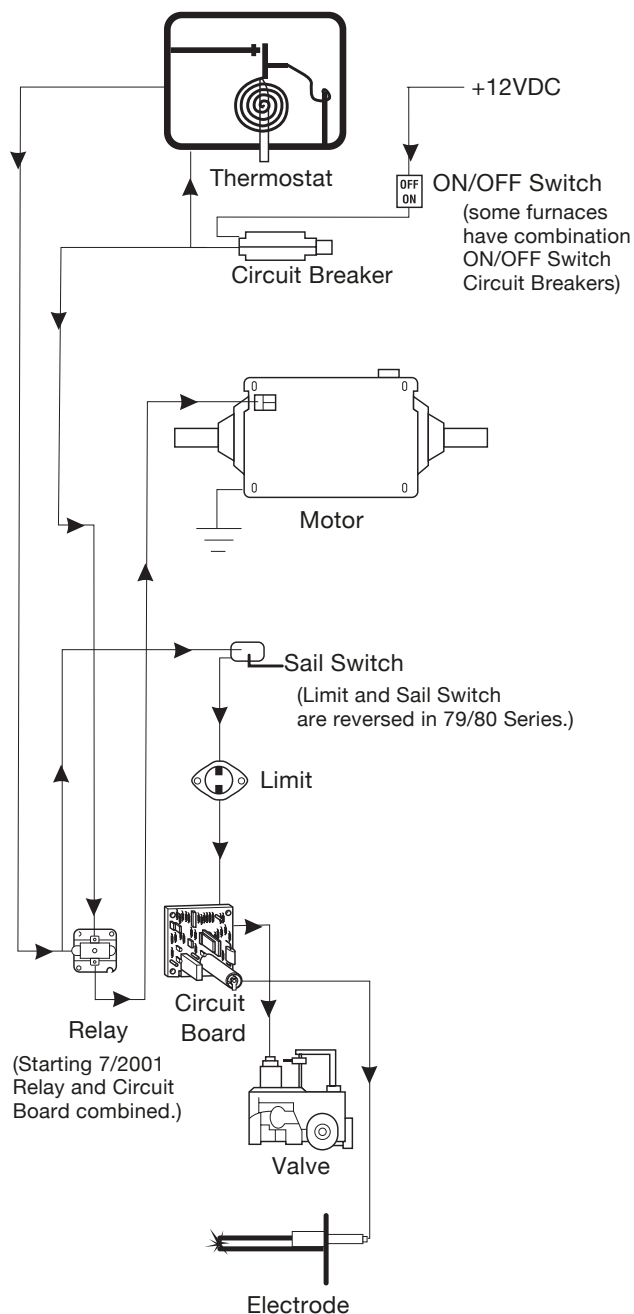
1. A timing circuit allows the blower to purge the chamber (15-17 seconds)
2. The board supplies current to the gas valve and causes it to open.
3. As the valve opens, the board sends a high voltage spark to the electrode at the burner. The board detects the presence of a flame. If the flame is not sensed after approximately six seconds, the board will lock out (three try for ignition, one hour lockout and then three retry), shutting off power to the valve.
4. If the system does not ignite and the thermostat remains closed, the blower will remain on until the thermostat is reset manually.



When the thermostat senses the desired room air temperature, the contacts open, removing power from the ignition system and shutting off the gas valve. The blower runs until the relay opens the circuit, shutting off current to the motor.


**WARNING**  
**FURNACE PRODUCES HIGH TEMPERATURE**

- Locate furnace out of traffic and away from furniture and draperies.
- Do not touch or put combustibles near appliance. Hot surface temperature may occur.
- Supervise young children in the same room as the furnace.
- Do not place clothing or flammable materials on or near the furnace.



# Sequence of Operation Pilot Models

The thermostat controls the operating circuit to the furnace by reacting to room temperature to open and close a set of contact points which allows current to flow to the relay.



The relay receives the current and allows current to pass through to the circuit breaker by closing a switch within the relay. This is done by a heater coil within the relay which actuates a bi-metal disc closing the relay circuit.



The circuit breaker is placed in line to monitor the Amp draw of the motor. It is an overload and safety protector for the motor.



The current then flows to the motor and allows the blower to operate. One end of the motor shaft drives the circulating air wheel and the other end of the motor shaft drives the combustion air wheel that delivers the required air to the burner for combustion.



As the circulating air wheel comes up to speed, it blows against the sail switch completing the circuit. The sail switch is placed into the system as a safety to prove there is adequate air for combustion.



The limit switch is an in line safety device which protects the furnace from any over heating conditions. The contacts in the limit switch open at a given temperature setting, shutting off power to the valve.



The next section of operation is controlled by the valve and pilot. Once the power is applied to the valve, the following steps are:

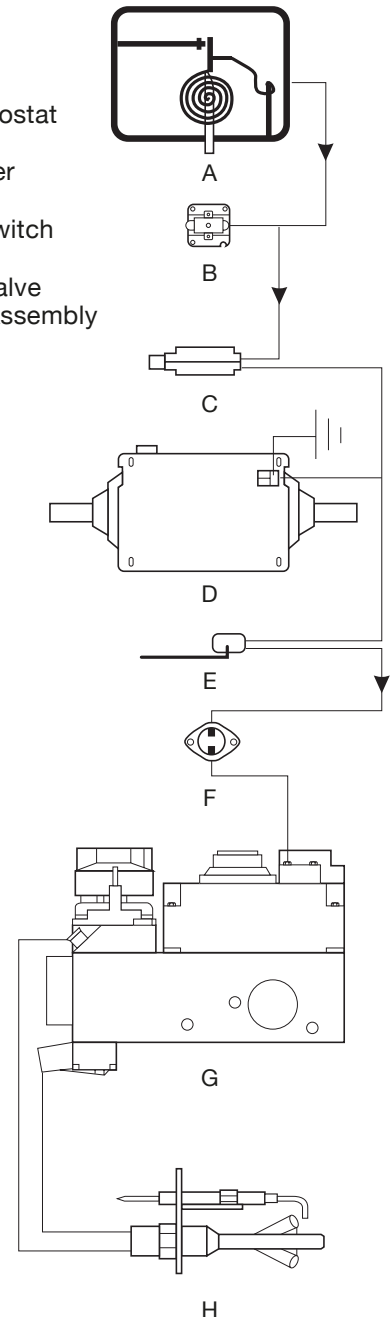
1. Set gas valve knob to the pilot setting to light the pilot.
  - a. light pilot.
2. Set gas valve knob to the ON position for burner operation.
3. While ON stand by, if the pilot goes out and the thermostat closes, the blower will come on, but the valve will remain closed. At this time, the pilot must be relit for burner operation.

Note: The blower will remain running until the thermostat contact opens.



As the thermostat senses the room air temperature, the contacts will open removing power from the valve which will shut off the gas. The blower will remain on until the heater coil within the relay cools and the relay opens and stops the current flow to the motor.

- A - Thermostat
- B - Relay
- C - Breaker
- D - Motor
- E - Sail Switch
- F - Limit
- G - Gas Valve
- H - Pilot Assembly



# Sequence of Operation - AC Models

## Operating Circuitry 24 VAC

The transformer receives 120 VAC which it converts to 24 VAC for the operating circuitry.



The thermostat controls the operating circuit to the furnace by reacting to room temperature. When room temperature is below the thermostat set point, the contacts close to allow current to flow to the relay. The relay receives 24 VAC and energizes a heater coil within the relay. This activates a bimetal disc which closes the relay circuit. This takes 17-20 seconds.



Once the relay circuit is closed, 120 VAC flows to the motor and allows the blower to run. One end of the motor is for the circulating air wheel and the other end is for the combustion air wheel.



Circulating air blows against the sail switch and closes the contacts, completing the circuit. The sail switch is a safety device that insures air flow before ignition.



The limit switch is a safety device that protects the furnace from overheating. The contacts in the limit switch open at a given temperature setting, shutting off power to the electronic ignition system that controls the gas valve.

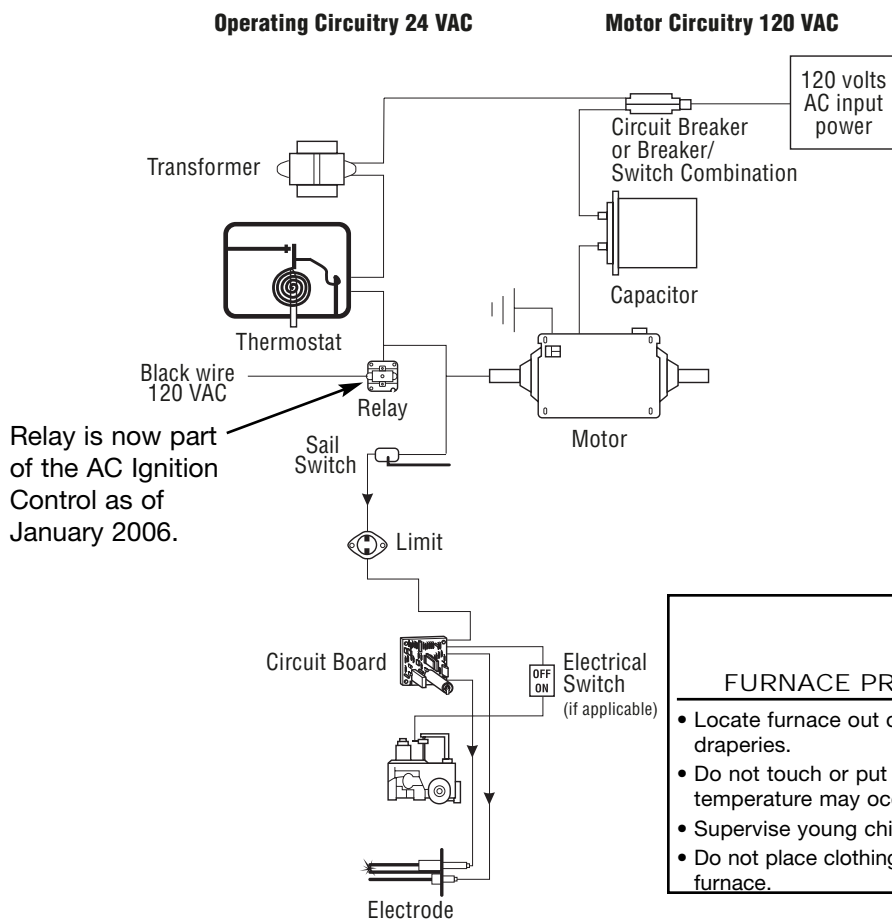


As power is applied to the electronic ignition circuit board, the system does the following:

1. A timing circuit allows the blower to purge the chamber (15-17 seconds).
2. The board supplies current to the gas valve and causes it to open. There is an electrical switch in line to the valve to allow power to be manually shut off to the valve. This switch must be on for the furnace to operate. (Switch may be separate or combined with circuit breaker).
3. As the valve opens, the board sends a high voltage spark to the electrode at the burner. The board detects the presence of a flame, if the flame is not sensed after seven seconds, the board will lock out, shutting off power to the valve.
4. If the system does not ignite and the thermostat remains closed, the blower will remain on until the thermostat is reset manually.



When the thermostat senses the desired room air temperature, the contacts open removing power from the ignition system and shutting off the gas valve. The blower runs until the heater in the relay cools and opens the circuit, shutting off current to the motor.



**⚠ WARNING**  
**FURNACE PRODUCES HIGH TEMPERATURE**

- Locate furnace out of traffic and away from furniture and draperies.
- Do not touch or put combustibles near appliance. Hot surface temperature may occur.
- Supervise young children in the same room as the furnace.
- Do not place clothing or flammable materials on or near the furnace.

# Sequence of Operation - DC Models

## 2-Stage Excalibur™ Furnace ONLY

The digital thermostat controls the operating circuit to the furnace by reacting to room temperature. When the room temperature is below the thermostat set point by 2°F a heat demand signal will be sent to the controller module (see MPD 38463).



The ON/OFF switch is an agency safety power shut off to the furnace ignition and gas valve systems.



The circuit breaker limits amperage draw of the motor.



Current flows to the controller module and during the first seconds the micro-processor confirms inputs and verifies correct operation of safety redundancies. This module will perform the following diagnostic checks of the system.

- a. Sail Switch is open
- b. Internal Microprocessor faults
- c. Voltage inputs
- d. Ignition
- e. Open Limit Switch

In the event of a failure an LED on the controller module will flash a code. See chart.



The motor receives current from the controller module and will run at high speed or low speed depending on the demand signal the digital thermostat sends to the controller module. One end of the motor shaft is for the circulating air wheel and the other end is for the combustion air wheel.



Circulating air blows against the sail switch and closes the contacts, completing the circuit. The sail switch is a safety device that insures air flow before ignition.

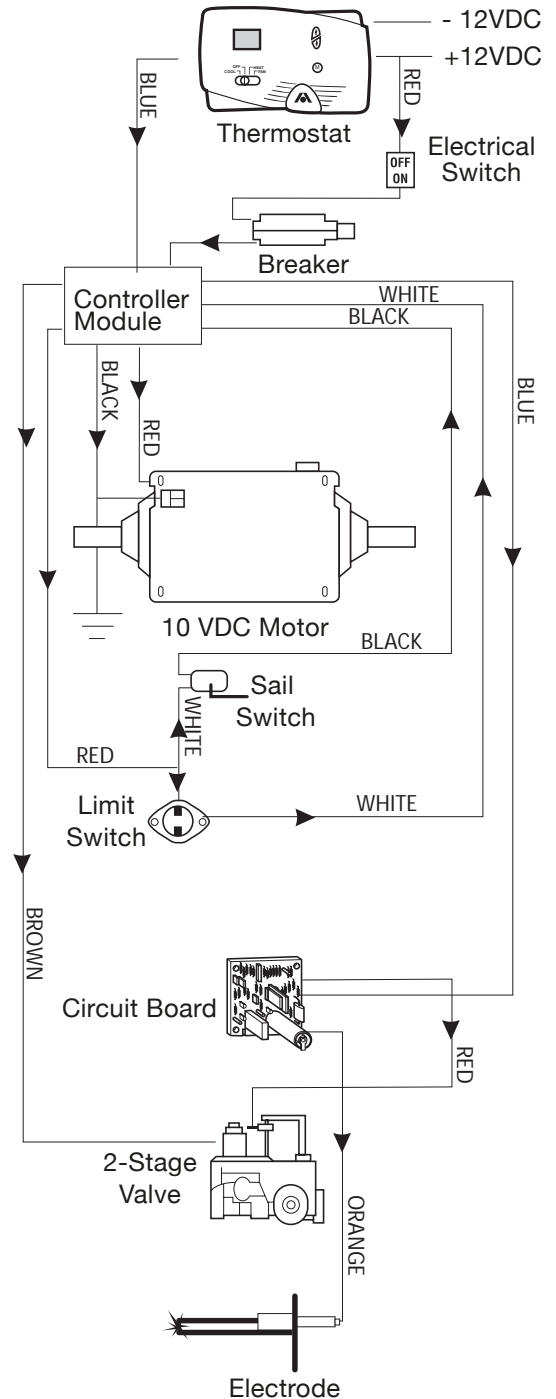


The limit switch is a safety device that protects the furnace from over heating. the contacts in the limit switch open at a given temperature setting, shutting off power. This activates the open limit switch diagnostics and makes the LED on the controller module to flash and shuts down the gas valve. See chart.



As power is applied to the circuit board, the system does the following:

- a. timing circuits allows the blower to purge the heat chamber for 15 seconds.
- b. current is supplied to the gas valve and causes it to open to high burn. (The controller module activates the low burn operation on the valve.)
- c. as the valve opens, the ignition module sends a high voltage spark to the electrode at the burner. The ignition module detects the presence of a flame. If the flame is not sensed after 7 seconds of sparking a signal is sent to the controller module that there is no ignition and shuts off the valve. After another 25 second purge, it will try again. After a third try, the controller will go into "soft" lockout, timing for one hour and the diagnostic LED will flash a code, see chart. After the timed hour, the controller will initiate (3) more tries for ignition. If there is no ignition, the timing sequence begins again.
- d. If the system does not ignite and the thermostat is still calling for a heat demand, the blower will run for 90 seconds as a post purge then shut off.



When the thermostat senses the desired room air temperature, a signal is sent to the controller module to shut down operation of the gas valve and run the blower for 90 seconds as a post purge of heat from the furnace heat chamber.



# Annual Preventative Maintenance Inspection

The following preventive maintenance and safety checks should be performed by a qualified RV technician once a year, or more, depending on the use of the furnace. Failure to properly maintain the furnace may void the furnace warranty and can result in unsafe furnace operation. Preventive maintenance is not covered under warranty.

**AIR WHEEL** - The air wheel should be clean and clear of obstructions. Starting the furnace with something in the blower will damage the wheel, making replacement necessary.

**BURNER** - The Burner requires no adjustments, but should be inspected annually. Burners should be cleaned with a wire brush to remove debris and corrosion build up.

**COMBUSTION CHAMBER** - Check the air intake and flue areas of the furnace for internal obstructions, such as wasp or bird nests. The life of the combustion chamber is a function of the amount of time that the furnace has operated. Therefore, it is essential to inspect the chamber for cracks and holes. Have the chamber replaced if it has any cracks or holes - this condition is not field repairable. Chamber should be cleaned if obstructions are present, by removing the chamber and flushing the unit out with water.

**CONTROL COMPARTMENT** - Clean the control compartment to remove dirt and lint.

**DUCTING** - The heat ducts should be clean and clear of obstructions. Check for proper duct connection. Any ducts disconnected from the furnace or outlets must be reattached.

**GAS PRESSURE** - Using a U-tube water manometer, with the furnace and all of the gas appliances operating, the pressure should be 11" W.C. (27mbar). Improper gas pressure can cause the furnace to work inconsistently and create unbalanced combustion.

**GAS SUPPLY SYSTEM** - Perform a pressure-drop test according to current ANSI standards, to insure that there are no gas leaks.

**GASKETS** - Inspect all gaskets for tight seals. Do not reuse gaskets - always replace with new.

**GENERAL** - Check that the physical support of the furnace is sound and without sagging, cracks, gaps, etc.

**MOTOR** - The motor is lubricated and permanently sealed. It requires no oiling. Brushes and armatures are not replaceable.

**RETURN AIR** - The return air passage should be clean and clear of obstructions and meet the minimum square inches as specified in the installation instructions. Make sure combustibles are not stored in the furnace compartment. Filters are not recommended at these air passages.

**VENTING** - After checking and clearing, if necessary, the draft cap assembly must have the proper overlap between the exhaust tube and the furnace chamber tube. Any air leakage at these joints may cause improper combustion. Draft cap assembly must overlap no less than 1-1/4" (32mm), and be positioned against the door screen for proper function.

**VOLTAGE** - Voltage should be between 10.5 and 13.5 VDC at the furnace during operation. The power at the furnace needs to be checked with each of the following power sources when applicable: generator, battery, and converter. Low voltage can cause the furnace to overheat and cycle. High voltage can cause unbalanced combustion, and excessive motor wear. Note: To increase motor life the furnace should be wired directly to the battery.

**WIRE CONNECTIONS** - Check the furnace for loose or disconnected wires.



## WARNING

### CRITICAL INSTALLATION CRITERIA

- Do not install the furnace on material that restricts return air, such as carpet, or any soft material, such as vinyl.
- Do not install furnace where clearance to combustibles cannot be maintained.
- Do not modify the furnace in any way.
- Do not alter the furnace for a positive grounding system.
- Do not HI-POT this furnace unless the electronic ignition system (circuit board) has been disconnected.
- Do not use a battery charger to supply power to DC model furnace even when testing.
- Do not use 120 volt AC current with DC models.
- Do not use the furnace cabinet area as a storage compartment.
- Do not vent this furnace with a venting system serving any other appliance.
- Do not vent this furnace to an outside enclosed porch area.
- Do not use for temporary heating of buildings or structures under construction.
- Locate the furnace in an area that will not be blocked by snow.
- Protect building materials from degrading from flue gas exhaust.
- Protect furnace electrical components from water.
- Do not use closeable registers when minimum ducting cannot be maintained.
- Wire furnace direct to battery when possible.
- Use a minimum of 22 gauge wire for the thermostat.
- Use a minimum of 18 gauge wire to the furnace from power supply.
- Follow wiring color code exactly.
- Hold both fittings with a wrench when tightening gas connection.
- Always meet or exceed minimum duct requirements.
- Always meet minimum return air requirements.
- Isolate return air passage from range compartment.



## WARNING

- Installation, repairs and preventative maintenance should be done by a qualified service person only.
- The furnace should be inspected before use and at least annually by a qualified service person.
- Frequent cleaning may be required due to excessive lint from carpeting, bedding material, pet hair, etc. It is imperative that control compartments, burners and circulating air passageways of the furnace be kept clean.
- Label all wires prior to disconnection when servicing. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.



## WARNING

### CARBON MONOXIDE POISONING

- Furnace must be installed and vented to these instructions.
- Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage.
- Improper installation location may cause furnace to produce negative pressure, affecting combustion air or venting of other appliances.

For assistance or additional information, consult a qualified installer, service agency or gas supplier.







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INTERNET: <http://www.atwoodmobile.com>



LITERATURE NUMBER **MPD 31492**

**hydro flame™**

**Model 1H2C**  
**Digital Thermostat**

**FOR STANDARD FURNACES**  
**& A/C SYSTEMS**

**ENGLISH, FRANCAIS (et Canada)**

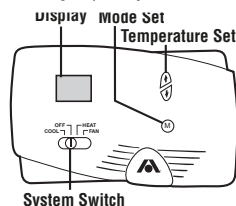
**•Installation •Operation**

Effective 9/21/04

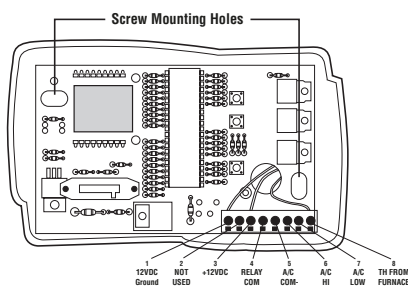
**THIS THERMOSTAT HAS BEEN DESIGNED TO OPERATE STANDARD AIR CONDITIONING UNITS IN CONJUNCTION WITH A RV FURNACE.**

## SPECIFICATIONS

Operating Voltage ..... 9VDC to 18VDC  
Current Consumption at 12VDC ..... 100mA  
Operating Temp. .... -40F to +185F  
Room Temp. Range ..... +55F to +90F  
Room Temp. Display Range ..... +35F to +99F  
Thermostat Accuracy ..... +/- 1F  
Switching Capability A/C ..... up to 24 VAC (max. 2 AMPS)



\*Note: Move jumper to positions 3 and 4 for RVP Unit. Discard jumper for Dometic®.



SLIDE SWITCH				SCROLL ORDER OF DISPLAYED MODES		OPERATION
LEFT		RIGHT				
COOL	OFF	HEAT	FAN			<b>Furnace Operation</b>
		●		HI		Furnace cycles to satisfy set point.
COOL	OFF	HEAT	FAN			<b>Air Conditioner Operation</b>
●				AU		Air conditioner automatically switches compressor and high and low speed fan when cycling to satisfy set point.
●				HI		Air conditioner compressor and high speed fan cycle to satisfy set point.
●				LO		Air conditioner compressor and low speed fan cycle to satisfy set point.
COOL	OFF	HEAT	FAN			<b>Fan Operation</b>
		●		HI		Air conditioner fan runs at high speed to circulate air.
		●		LO		Air conditioner fan runs at low speed to circulate air.
COOL	OFF	HEAT	FAN			<b>Off</b>
	●			OF		No operation occurs.

## WIRING REQUIREMENTS FOR ATWOOD THERMOSTAT

### THERMOSTAT INSTALLATION

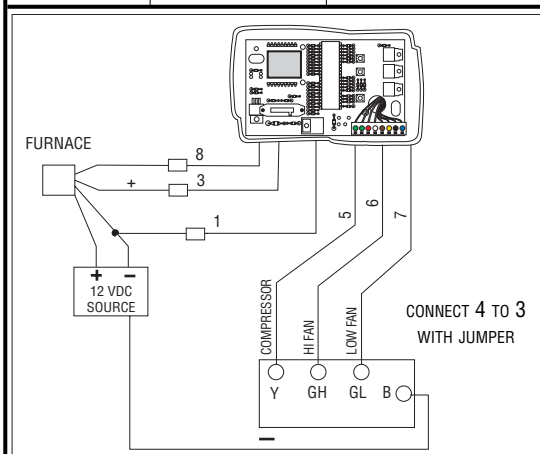
Thermostat is very sensitive. **HANDLE WITH CARE AT ALL TIMES.**

Locate thermostat 48" to 54" above floor on an INTERIOR wall. Pick a dry area where air circulation is good. EXTERIOR wall location must have a 3/4" spacer between thermostat and exterior wall.

1. Be sure all electrical power has been disconnected from the air conditioner, furnace and the power supply.
2. Do not install the thermostat where there are unusual heating conditions: such as direct sunlight, heat producing appliances (television, radio, wall lamp, etc.) or a furnace or air conditioner supply register.
3. **ATTACHING THE WALL THERMOSTAT.** Separate the thermostat body from the sub-base by gently squeezing the top and bottom, connecting wiring per requirements. Attach thermostat sub-base to the wall at desired mounting location.

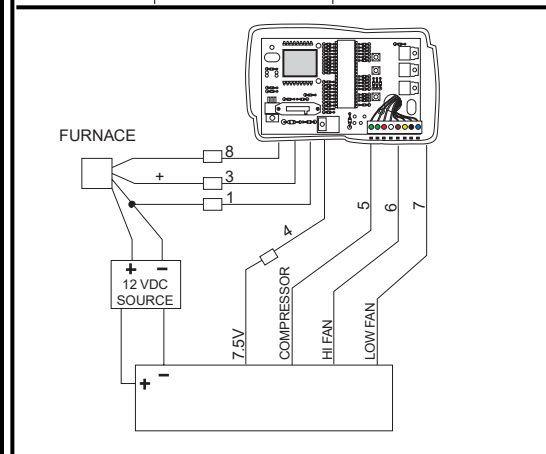
#### 12 VDC ANALOG A/C SYSTEMS (RVP®)

THERMOSTAT TERMINAL # (L-R)	WIRE FROM FURNACE FUNCTION	WIRE FROM A/C FUNCTION
1	-12vdc ground	
2	not used	not used
3 & 4	+12vdc	
5		Compressor
6		High Fan
7		Low Fan
8	Furnace Control	



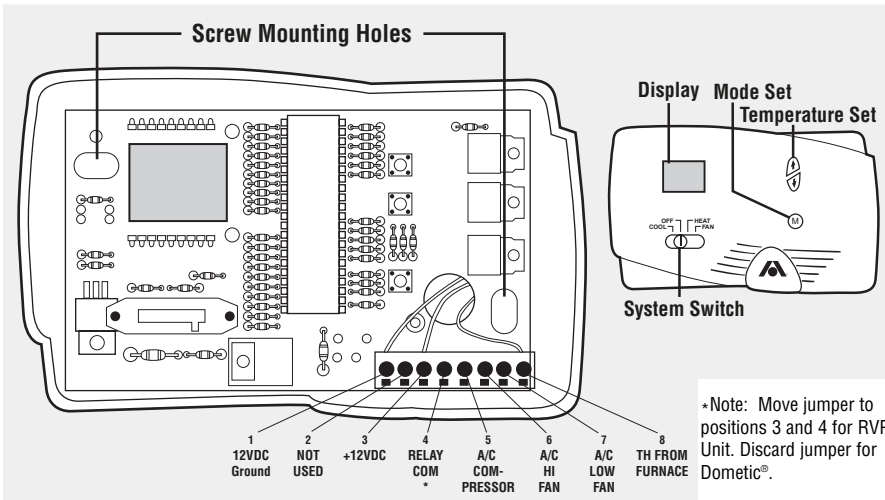
#### 7.5 VDC ANALOG A/C SYSTEMS (DOMETIC®)

THERMOSTAT TERMINAL # (L-R)	WIRE FROM FURNACE FUNCTION	WIRE FROM A/C FUNCTION
1	-12vdc ground	
4		7.5 vdc
3	+12vdc	
5		Compressor
6		High Fan
7		Low Fan
8	Furnace Control	





THIS THERMOSTAT HAS BEEN DESIGNED TO OPERATE STANDARD AIR CONDITIONING UNITS IN CONJUNCTION WITH AN EXCALIBUR 2-STAGE FURNACE.



### THERMOSTAT INSTALLATION

Thermostat is very sensitive. **HANDLE WITH CARE AT ALL TIMES.**  
 Locate thermostat 48" to 54" above floor on an **INTERIOR** wall. Pick a dry area where air circulation is good. **EXTERIOR** wall location must have a 3/4" spacer between thermostat and exterior wall.

1. Be sure all electrical power has been disconnected from the air conditioner, furnace and the power supply.
2. Do not install the thermostat where there are unusual heating conditions: such as direct sunlight, heat producing appliances (television, radio, wall lamp, etc.) or a furnace or air conditioner supply register.
3. **ATTACHING THE WALL THERMOSTAT.** Separate the thermostat body from the sub-base by gently squeezing the top and bottom. Pull wires through access hole in base plate. Attach thermostat sub-base to the wall at the desired mounting location. Mount the sub-base to the wall before connecting the wires.

System Slide Switch				SCROLL ORDER OF DISPLAYED MODES				OPERATION			
LEFT		RIGHT		Scroll Order of Displayed Modes				<b>Furnace Operation</b>			
COOL	OFF	HEAT	FAN	Scroll Order of Displayed Modes				<b>Furnace Operation</b>			
		•		AU				Furnace automatically switches between high and low BTU valve and high and low speed fan when cycling to satisfy set point.			
		•		HI				Furnace high BTU valve and high speed furnace fan cycle to satisfy set point.			
		•		LO				Furnace low BTU valve and low speed furnace fan cycle to satisfy set point.			
		•				HF		Furnace fan runs at high speed to circulate air. Air conditioner fan does not run.			
		•				LF		Furnace fan runs at low speed to circulate air. Air conditioner fan does not run.			
COOL	OFF	HEAT	FAN	Scroll Order of Displayed Modes				<b>Air Conditioner Operation</b>			
•				AU				Air conditioner automatically switches compressor and high and low speed fan when cycling to satisfy set point.			
•				HI				Air conditioner compressor and high speed fan operate to satisfy set point.			
•				LO				Air conditioner compressor and low speed fan operate to satisfy set point.			
•						HF		Air conditioner fan runs at high speed to circulate air. Furnace fan does not run.			
•						LF		Air conditioner fan runs at low speed to circulate air. Furnace fan does not run.			
COOL	OFF	HEAT	FAN	Scroll Order of Displayed Modes				<b>Fan Operation</b>			
			•	HI				Air conditioner fan and furnace fan run at high speed to circulate air.			
			•	LO				Air conditioner fan and furnace fan run at low speed to circulate air.			
COOL	OFF	HEAT	FAN	Scroll Order of Displayed Modes				<b>Off</b>			
	•			OF				No operation occurs.			

### Specifications

Operating Voltage ..... 9VDC to 18VDC  
 Power Consumption ..... 100mA  
 Operating Temperature ..... -40F to +185F

Room Temperature Range ..... +55F to +90F  
 Room Temperature Display Range .. +35F to +99F  
 Thermostat Accuracy ..... +/- 1F

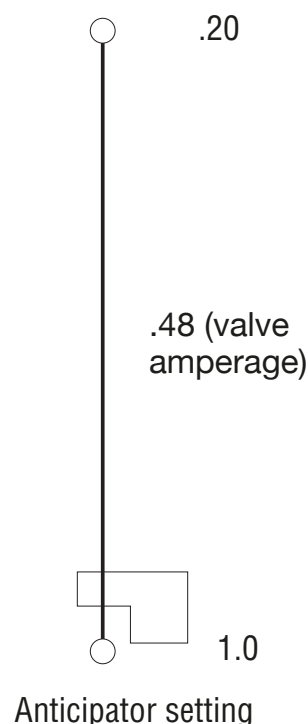
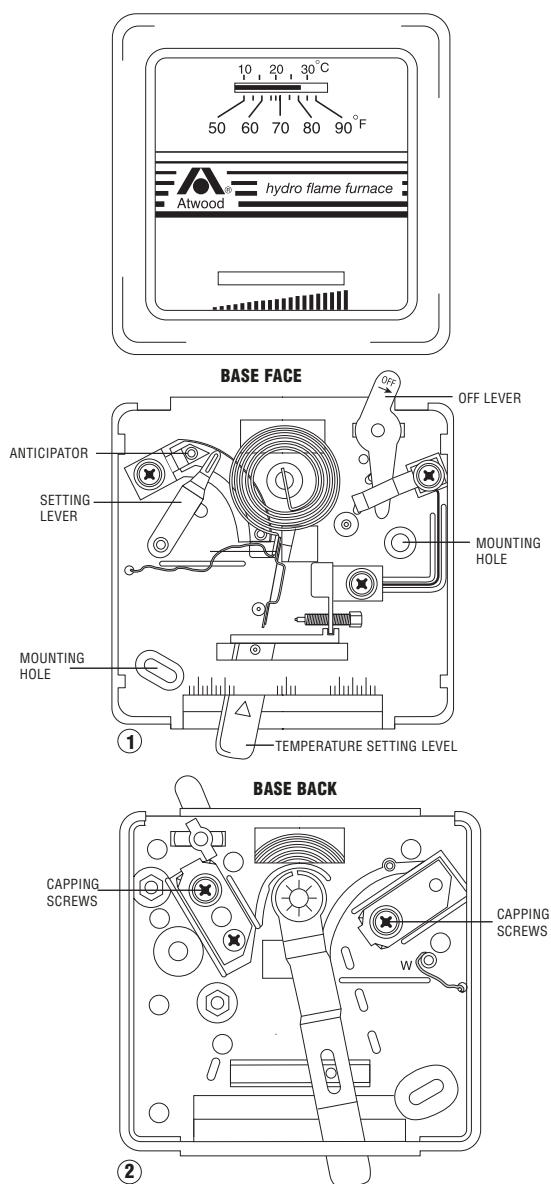
# Mechanical Thermostat - HEAT ONLY

## WHAT IS A THERMOSTAT?

- It is an ON/OFF switch controlled by a bi-metal coil which opens and closes an electrical contact by sensing changes in the ambient temperature.
- With its contacts close, it supplies power to the time delay relay which in turn closes a contact that sends power to the blower motor.
- Normally, the thermostat contacts are closed if the blower is running.

- The hydro flame thermostat is equipped with a heat anticipator which allows one to adjust the length of the heating cycles. A furnace should cycle 5-6 times an hour.
- a. The anticipator is set at 1.0 on all hydro flame thermostats. If you want to shorten the heating cycle, move anticipator to a lower amp setting. You should not set lower than .48 which is the amperage rating of the gas valve. Setting any lower could burn out the anticipator wire.

Note: Heat anticipator adjustments are not covered under warranty.



Heat/cool thermostats are being used in conjunction with air conditioners and our furnace. The warranty, installation instructions and diagnostic information is provided by the manufacturer of the thermostat. However, if you need to isolate a furnace problem or a dual thermostat problem, bypass the furnace wires at the thermostat. If the furnace ignites and heats, you have a thermostat problem. If the furnace does not run, the problem is in the furnace, and you should consult the trouble shooting guides in the back of this manual.

## THERMOSTAT LOCATION

- It should be on an inside wall 48"-54" above the floor on an inside wall.
- It should not be near areas of extreme heat or cold.
- It should not be located directly across from a heat duct.
- If installed on an outside wall, a 3/4" spacer must be used behind legs of thermostat. This will allow the thermostat to sense the air temperature and not the temperature of the wall.
- A minimum of 22 gauge wire should be used to connect the thermostat to the furnace. We recommend 18 gauge stranded wire.



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## *hydro flame* Thermostat **TROUBLE SHOOTING GUIDE**

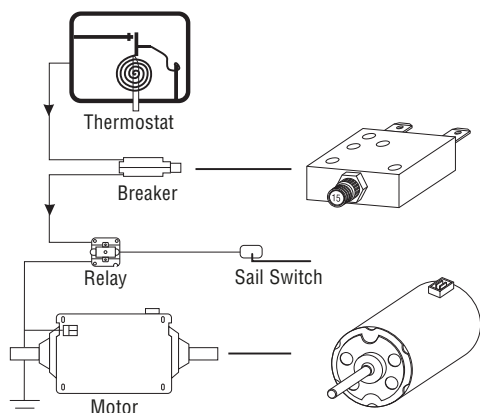
Effective: 8/10/98

Guides are only intended for use on Atwood® products by service technicians who have successfully completed Atwood® training. This guide should be used in conjunction with the appropriate Instruction Manual provided with the product and any applicable Industry Standards. This is not intended to be a complete list. Please direct questions concerning service of Atwood® products to 866-869-3118 option 5 before proceeding.

CAUSE	SOLUTION
<b>BLOWER DOES NOT RUN</b>	
Temperature selector out of place -----	Re-set to desired position
Thermostat wires broken or disconnected -----	Not covered under warranty.
Heat anticipator burned out -----	Dead short (not covered under warranty). Repair short and then replace thermostat. Faulty relay drawing more than 1 amp. Replace relay and thermostat. Covered under warranty.
No continuity through thermostat with contacts closed and switch on. -----	Replace thermostat.
Continuity through thermostat with contacts closed and switch on. -----	<ul style="list-style-type: none"><li>• Check and reestablish power to thermostat</li><li>• Reset tripped circuit breaker.</li><li>• Correct poor ground.</li><li>• Correct any loose wires.</li><li>• Replace defective relay.</li><li>• Replace defective motor.</li></ul>
<b>FURNACE DOES NOT CYCLE PROPERLY</b>	
Furnace cycles too quickly -----	Move anticipator to a higher amp setting to lengthen cycle. NOT covered under warranty. Thermostat located too close to a heat duct. Move thermostat or duct outlet. NOT covered under warranty.
High temperature variance -----	Move anticipator to a lower amp setting to shorten cycle. NOT covered under warranty.

**Note:** When the anticipator is set properly and the heating system has operated for a few hours, the furnace should cycle 5-6 time per hour.

## Circuit Breaker & Motor



The circuit breaker is actually a re-settable heat sensitive device designed to protect the blower motor. In a furnace, this heat evidences itself in the form of an amp draw. Therefore, since there are different size motors, there are different amperage ratings on circuit breakers. When replacing a breaker, do so with similar amperage rated breaker.

The breakers used on our furnaces are externally mounted and are of a slow blow style. This means that due to their location on our furnaces, the heat of the furnace cannot affect their operation. Likewise, short amperage spikes will not cause them to trip either. The motor will have to produce an excessive and prolonged amperage draw to trip it.

When a circuit breaker trips, it does so because a problem exists. After re-setting it, voltage and amperage draws should be taken to determine where the problem is. These readings will determine if you have a power source, breaker or motor problem.

On our 79 and 85 series furnaces we have two different types of breakers. The earlier 79 and 85 models and all 89 models used a rectangular slow blow breaker as pictured. Its sole purpose was to protect the motor. On late model 79 and 85 models we started using a finger-size combination breaker and on/off switch. Code required us to be able to shut the gas off at the appliance when servicing it. This switch accomplishes this by shutting off power to the blower motor, which in turn prevents the gas ignition system from coming on. Current production no longer uses a small rectangular ON/OFF switch combination.

Therefore, it is not only important to use the same amperage rated breaker, but also the same style of breaker.

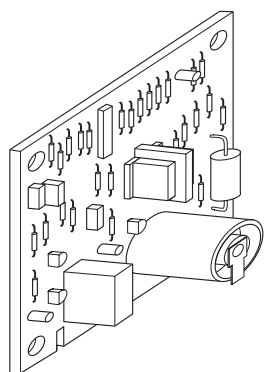
As stated earlier, there are different size motors as well. They are different because they must be compatible with the various BTU capacities. Each BTU of furnace requires a specific motor RPM in order for proper ignition and

combustion to take place.

Since it is very important that the proper motor be used for a specific model of furnace, you must identify if you have the correct motor. To help identify a motor, a 'PF' number is embossed in the metal housing of the motor. If you look at the parts reference in the back of this manual, not only are the proper hydro flame part numbers for the motor needed on a specific furnace noted, but the corresponding 'PF' number is also shown.

A new motor has been introduced into all of the 85 and 89 series DC furnaces. This new motor design is hard-wired. As a result the brushes are longer and should increase motor life considerably. As a result, the motor kit will now contain a motor mount bracket, the motor and installation instructions and will add a little more time to the installation process. However, these are the only motors that will be available as replacements in the field.

## Circuit Boards



The circuit board has three functions: create a spark, open the gas valve and lock-out when one of the prior two functions do not occur during the ignition cycle. As long as the circuit board is receiving the minimum micro-amps from the electrode assembly, it will not lock out. It has a 15 second ignition delay as well. This delay allows the furnace to purge any unburned gas in the combustion chamber before ignition occurs.

We have two basic types of circuit boards. The board we currently use is a micro-processor board. It is a three trial ignition board and operates in conjunction with a single or local sense electrode (an electrode that has only one probe that both sparks and senses).

Various versions of the 12VDC analog board have been used. The part numbers of those boards are noted below. Fortunately, the local sense micro-processor board is the only one you will have to stock for replacement on a 12VDC furnace. Plastic spacers will be provided with the board so that it can be mounted on metal surfaces that you may encounter sometimes on various models of our furnace. The only other circuit board that you will have to stock is the AC version.

.....FENWAL, Relay on board with blower control retrofit kit .....	31501
.....FENWAL, Relay on board (NLA) .....	36716
.....CHANNEL, 2-Stage ignition board .....	34696
.....CHANNEL, 2-Stage motor control board .....	34109
.....FENWAL, Relay on board with blower control AC kit .....	37515

# Relay

ALL CURRENT PRODUCTION MODELS USE THE RELAY ON THE CIRCUIT BOARD

This component is commonly referred to as a time delay relay. **The same relay is used on the 7900, 8500 and 8900 series furnaces.**

**FUNCTION** - The relay has one primary function.

- to purge the plenum of heat and the chamber of any unburned gases after each heating cycle.

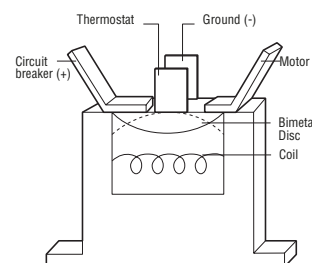
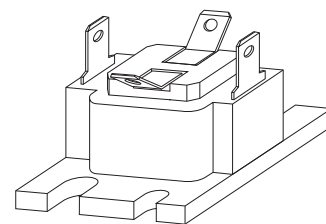
**OPERATION** - The motor voltage path of relay is normally open. There should always be voltage from the circuit breaker to the relay terminal of the circuit breaker. There should always be continuity between the thermostat terminal connection and ground terminal connection or the relay.

Only when the thermostat contacts are closed is voltage supplied to the

thermostat terminal of the relay. This voltage heats a coil in the relay body. In approximately 20 seconds this heated coil causes a bimetal disc to close. Voltage now passes through the relay and on to the motor, which in turn should allow the furnace to ignite and start a heating cycle.

When a heating cycle is complete, the contacts of the thermostat open and voltage ceases to the heater coil of the relay. In approximately 45 - 90 seconds, the heater coil cools down, the bi-metal disc opens and voltage ceases to the motor as well.

**AMP Draw** - The relay should draw no more than 1 amp. If the relay should draw more than 1 amp, it will burn out the anticipator.



## Sail Switch

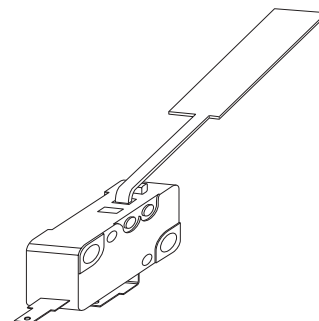
The sail switch is an air proving device. It is a safety component that will not let ignition occur until it sees 75% of the motor's rpm's. It insures that the combustion wheel is rotating fast enough so that there is a proper air and gas mixture for smooth ignition.

There are different size sail switches. The noticeable difference is the size of the paddle on the switch. Each switch is matched to the size of motor it must respond to.

NOTE: All 85-IV use the same sail switch.

When the paddle of the switch is depressed, there should be continuity through the switch. If a sail switch needs to be replaced, it should be replaced with the exact same size. If a larger switch than the original is used, it will probably not close when the motor reaches 75% of its rpm's and therefore keep ignition from occurring.

The most common problems with these switches are bent paddles, loose wire connections or an obstruction between the paddle and switch contact.



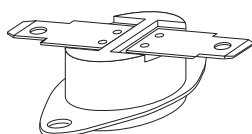
## Limit Switch

The limit switch is a very important safety device on a furnace. The function of a limit switch is to protect the furnace from overheating. These switches come in a variety of temperature ratings and are located at critical locations above the heat chamber on the various models of furnaces. Therefore, it is very important that when one of these switches is replaced, you do so with the properly rated switch.

Failure to do so could cause an unsafe condition with the heating system. When in doubt as to whether you are using the proper limit switch for a furnace, look at the temperature at the base of the switch and match it to the temperature and related switch noted below.

Part Number 36205 is a thermal cut-off and was a specific safety component used on some 89-II furnaces. It was located above the chamber and tripped in the event of a burn through chamber.

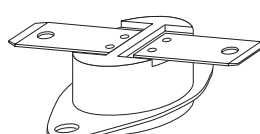
79-II, 89-II, 89-III, 2540  
Part # 37021 (was 34781)  
3/16" / 3/16" terminals



Markings  
on Switch

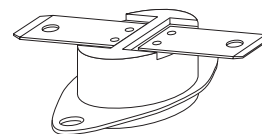
L77 or L170  
(170°F)

85-II, 89-I  
Part # 35132  
1/4" terminals



L54  
(130°F)

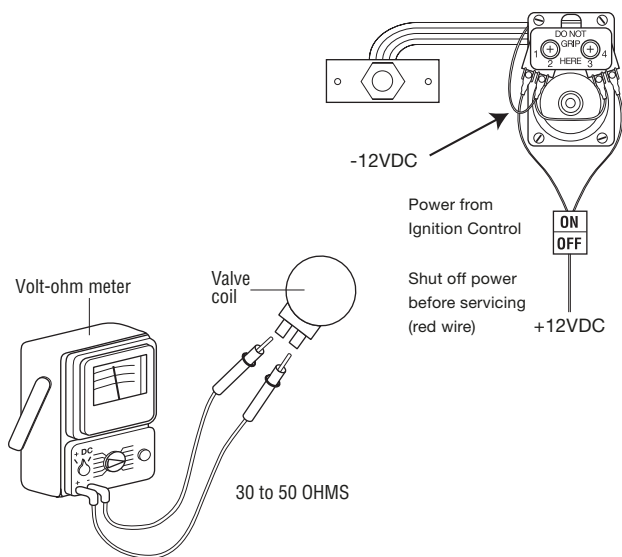
85-III, 85-IV, 1522, 2334  
Part # 37022 (was 36176)  
1/4" terminals



L190  
(190°F)



## Dual Solenoid Gas Valve



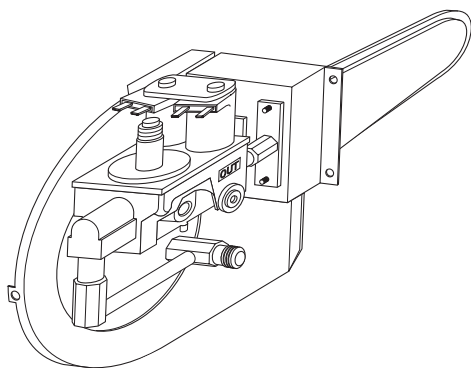
We use a White Rodgers dual solenoid gas valve on all of our furnaces. The valve requires a minimum of 10.5VDC in order to open and when open, should draw no more than .48 amps.

Later model furnaces have an ON/OFF switch on the wire to the gas valve. This replaces the manual shut-off that was used on earlier model furnaces. You can now electrically shut off the gas to the valve with this switch before servicing the furnace.

When these valves become inoperative, it is typically one or both of the coils that fail. In order to determine which coil is at fault, you need to conduct a continuity test on both leads of each coil. The resistance on a good coil will be 30-50 ohms. If the resistance is not in this range the coil is defective and must be replaced.

The coils on this valve are wired in parallel. Therefore, when replacing the wires on these coils, it is important that they be attached per the diagram. The red 12VDC supply wires must be attached to terminals 1 and 4 and the ground wires must be attached to terminal 2 and 3. If the coils are mistakenly wired in series and there is a marginal supply voltage, there will be a voltage drop from coil to coil and the valve will not open.

## Burner Head, Electrode and Valve Assembly



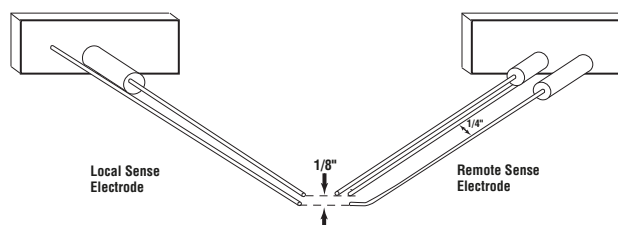
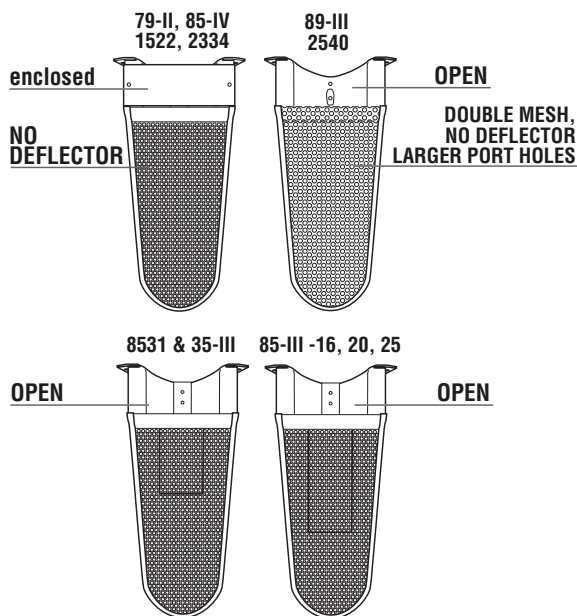
The burner head, electrode and gas valve on the late model 79 series furnace are individually accessible. However, to service these same components on the late model 85 and 89 series, remove the complete assembly.

The different models and/or BTU ranges of furnaces use different burner heads. These burners differ by the size of the top gas port holes or the deflector that runs through the throat of the burner. If the wrong one is used, it may cause an ignition, sooting or flame sense problem.

When an electrode assembly is installed on a furnace, they will already be in a fixed and predetermined position above the burner. The only adjustment that you may need to do is on the sparking and ground electrode points. This gap should be 1/8". However, when the porcelain on an electrode assembly becomes cracked, it will not function properly and will have to be replaced. When doing so, use the proper electrode assembly for the model of furnace being serviced.

There are only two versions of the solenoid valve available for the models of furnaces noted above. These two valves are identical except for the gas inlet porting on them (side or front). As stated earlier in this manual though, the coils are what usually breakdown but they are easily replaceable.

The different models and/or BTU ranges of furnaces use different burner heads. These burners differ by the size of the top gas port holes or the deflector that runs through the throat of the burner. If the wrong one is used, it may cause an ignition, sooting or flame sense problem.





# The 4 Always

Remember that you are working on a heating system and not just a furnace. A majority of furnace problems lie outside of the product itself. Therefore, when trouble-shooting a furnace problem, always check the following items before testing or replacing components.

## #1 - GAS PRESSURE

The gas pressure should be set at a minimum of 11" W.C. with a minimum of 50% and ideally 100% of the gas fired appliances operating. You should test this pressure with a U-tube Manometer only. If you choose to use a dial-type manometer, calibrate it often with a U-tube manometer.

## #2 - VOLTAGE

Voltage to the furnace should be between 10.5 and 13.5 VDC during operation with the interior lights ON and OFF. This check should be made with the battery, converter or generator when applicable. Use a digital or analog multi-meter when taking voltage readings. Do not use a test light. It does not provide enough useful information for proper diagnosis.

## #3 - DUCTING

Always make sure that the furnace has at least the minimum number of ducts (not including closeable outlets) called out in the installation instructions. Check for proper duct connections at the furnace and heat registers, collapsed ducts and holes in the ducting. The duct runs must be as straight and tight as possible. The heat ducts must also be clean and clear of obstructions.

## #4 - RETURN AIR

The return air passage should meet the minimum square inches as specified for the particular model of furnace in the installation instructions. This air passage should also be clean and clear of obstructions. Do not put air filters in this passage way. Also make sure that combustibles are not stored in the furnace compartment.

# #1 - Gas Pressure

A furnace is a consumer's friend when the outside temperature gets colder. Unfortunately though, cold is an enemy of LP gas. The BTU capacity of LP per volume decreases as the outside temperature gets colder. Therefore, based on how full the LP tanks are, the ambient temperature outside and how many BTU's the furnace is, there may not be enough gas to sustain ignition on the furnace.

Using the charts below, let's say that a 40,000 BTU furnace won't fire up, and we also know that the 65 lb. LP bottle on the RV is 40% full and it is 0 degrees F. outside. One's first thought might be that the burner or valve is bad. However, if

we use the chart, the vaporization capacity of the tank in these conditions is only 38,500 BTU's. The furnace is not going to perform very well because there is insufficient BTU capacity in the tank.

If you were to put an insulated fire resistant blanket over the tanks and a 75 watt light bulb under that, you would probably raise the temperature of the bottles 10-20 degrees and almost double the BTU capacity of the tank. This in turn would allow the furnace to operate properly. So keep in mind that a furnace problem is not always a component problem.

**20 lb. Bottle (\*30 lb. bottle multiply X 1.40)**

% Full	+20°	0°	-5°	-10°	-15°
60%	36,000	18,000	12,750	8,500	4,250
50%	32,400	16,200	12,150	8,100	4,050
40%	28,800	14,400	11,400	7,600	3,800
30%	25,200	12,600	10,450	7,300	3,150
20%	21,600	10,800	8,100	5,400	2,700
10%	16,200	8,100	6,075	4,050	2,025

**65 lb. Under Mtd. LP Gas Tank BTU available at**

% Full	+20°	0°	-5°	-10°	-15°
60%	95,600	47,800	36,000	23,900	12,100
50%	86,000	43,000	32,250	21,500	11,750
40%	77,000	38,500	29,250	19,250	9,625
30%	68,000	34,000	25,500	17,000	8,500
20%	58,000	29,000	21,750	14,500	7,250
10%	43,200	21,600	16,200	10,800	5,400

## #2 - Voltage

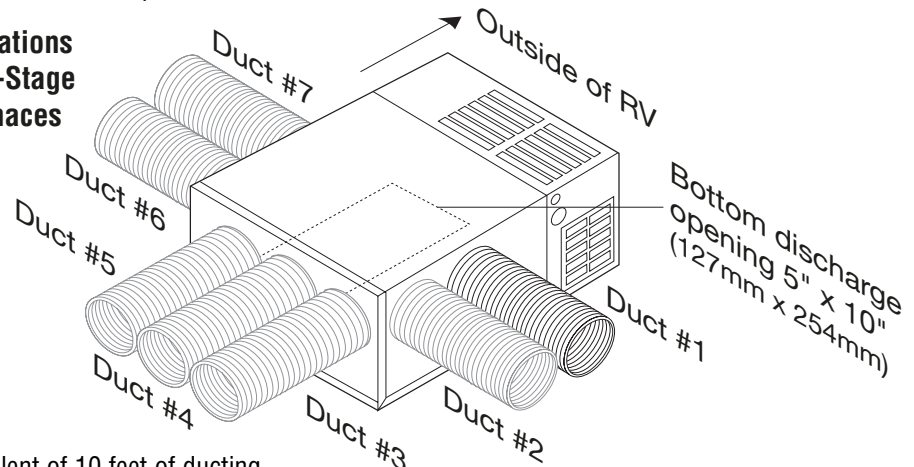
See **4 Always** previous page.

## #3 - Minimum Ducting Requirements

The various BTU sizes of 85, 89 and 2-stage series furnaces require a minimum number of square inches of heat ducting. The most common size of soft ducting is 4" diameter. Therefore, since a 4" duct is equal to 12 square inches, we can call out the minimum number of ducts needed for the models of furnaces noted below.

Furnace Model	Minimum Ducting	Minimum Ducts
8516, 8520	24 sq. in.	2
8525, 8531	36 sq. in.	3
8535, 8935, 8940, 1522, 2334, 2540	48 sq. in.	4

**Ducting Locations  
85, 89 and 2-Stage  
Series Furnaces**



### CAUTION - Ducting Installation

#### 4" Flexible Hose

- each 90° bend adds the equivalent of 10 feet of ducting
- ducting should be securely attached to furnace
- each run should be as straight and short as possible

#### 2" Flexible Hose

- 2 - 2" duct runs do not equal one 4" duct. A 2" duct is only 3 sq/inches
- 2" duct adapters are available
- 2" ducts are ideally suited for bathroom and holding tank compartments

#### Closeable Outlets

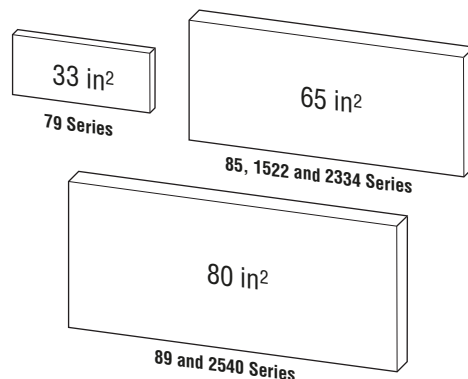
- a closeable outlet does not contribute to the minimum of total outlets recommended for a furnace.

#### Bottom Discharge

- furnace must be completely sealed to floor and plenum with a bottom discharge gasket, with no air gaps.
- if furnace is installed in middle of run, the main duct run must be a minimum of 24 sq/inches.
- if furnace is installed at the end of the run, the main duct must be 48 sq/inches.

## #4 - Return Air

This return air requirement can be met in a couple of ways.



- The return air grille mounted on an inside wall of the trailer, exposed to the cabinet area of the furnace is the most common mounting used on the 85, 89 and 2-Stage Series furnaces.
- Another option is to provide openings at various locations in the furnace cabinet area capable of drawing air from inside the trailer (ie. rowtered holes at bases of sofas or walls, etc.).

The total square inches of openings must meet minimum requirements.

Do not place any types of air filters in front of or behind the return air door. Blocking this area will substantially decrease the return air causing - less air delivery to the heat registers - short cycle of the furnace - limiting of the furnace.

We recommend electrical air filters that can be placed anywhere in the open living area of the recreation vehicle. They can be purchased in most hardware stores.

# Quick Diagnostics For 2 Stage Furnaces

**Tools Required: Multimeter**

**All tests performed at Control Board.**

**Wire color codes:**

## **WHITE:**

With the ON/OFF Switch turned on, there will always be DC power at the white connection. The thermostat can be turned on or off. If there is no power at this location, check the ON/OFF Switch. If the Switch is in the on position, check to confirm that the Limit Switch is closed. If not, replace the Limit Switch. If the Limit Switch is closed, check to confirm DC coming into red wire into furnace. Correct problem, fuse, or disconnected red wire.

## **BLACK:**

Black wire comes from the Sail Switch. There will be no power at this location unless furnace blower is operating. If the blower is running at least 6 volts and there is no reading on the black connection, replace Sail Switch.

## **BLUE: 1**

Power from the Thermostat. The Thermostat provides power to the furnace as a signal rather than typical, straight DC voltage. With the meter attached to the blue wire, you will see varying voltages displayed, rather than one solid reading like you will see with our standard furnace. If no reading, the Thermostat is probably defective. Before the Thermostat is replaced, check all wiring.

## **BLUE: 2**

Power from Control Board, to the Ignition Board.

Reading at the blue 2 is straight DC voltage. There is no reading at this location when the Thermostat is in the fan only mode. When the Thermostat is turned to heat mode, you will see a reading at blue 2. If there is no power on blue 2 when the thermostat is in heat mode, replace the Control Board.

## **ORANGE:**

Ignore

## **BROWN:**

Power from Control Board to third coil on Valve, high heat only. During low heat mode there will be no reading at the brown wire connection. When the mode is changed to high heat there will be a solid voltage reading at this location. If no reading during high heat, replace Control Board.

## FURNACE -Electronic Ignition Model

### TROUBLE SHOOTING GUIDE

Effective: 8/10/98

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CAUSE	SOLUTION
<b>BURNER FAILS TO IGNITE AND - BLOWER FAILS TO RUN</b>	
No electrical power to the furnace -----	Reconnect or replace power source.*
Thermostat defective -----	Replace thermostat
Thermostat wires broken or shorted -----	Replace wire or wires*
Current overload protector device -----	Reset circuit breaker. Check amp draw from motor
Defective or tripped (circuit breaker). -----	According to furnace's specifications.
Blower relay defective -----	Replace relay
Wire off motor -----	Reconnect wire
Wire off relay -----	Reconnect wire
Improper ground -----	Clean and secure grounds*
Blower motor defective -----	Replace motor
<b>BLOWER RUNS - BUT FAILS TO IGNITE</b>	
Low Voltage/High Voltage -----	Correct Power Supply*
Gas pressure incorrect -----	Set pressure to a minimum of 11" W.C. with all appliances running. (Replace regulator if not obtainable).*
Furnace grounding wires not secure -----	Clean and secure grounds established*
Air intake restricted -----	Clean air intake.*
12 volt polarity reversed -----	Correct polarity*
Motor running slow -----	Check voltage first. If 12 VDC while running, replace motor.
Exhaust blocked -----	Clean exhaust.*
Combustion air wheel loose -----	Reposition and tighten.
Sail switch defective or wire off -----	Reconnect wire or replace.
Limit switch defective or wire off -----	Reconnect wire or replace.
Edge connector on circuit board dirty -----	Clean with pencil eraser*
Circuit Board defective -----	Clean plug contacts. If still defective, replace. (check on board tester when possible).
Gas valve defective -----	Replace valve or valve coil, depending on problem encountered.
Main burner orifice blocked -----	Clean main burner orifice or replace.
High tension lead wire defective -----	Replace wire
Electrode out of adjustment -----	Adjust electrode (take care not to damage porcelain).
Electrode defective -----	Replace
Obstructed burner head -----	Clean burner head*
<b>BURNER IGNITES BUT IGNITION SYSTEM "LOCKS OUT" AND TURNS BURNER OFF</b>	
Low gas pressure -----	Set pressure to a minimum of 11" W.C. with all appliances running. Replace regulator if not obtainable.*
Exhaust blocked -----	Clean exhaust.*
Combustion air wheel loose -----	Reposition wheel and tighten
Electrodes out of adjustment -----	Adjust electrode according to furnace specifications.
Electrode defective -----	Replace electrode.
Circuit Board defective -----	Clean plug contacts. If still defective, replace. (Check on board tester when possible).
Flame sensor wire between electrode -----	Replace wire
and circuit board defective -----	
Air leakage at gaskets -----	Replace gasket
Defective heat exchanger -----	Replace heat exchanger

\*indicates NOT covered under warranty.

continued backside

CAUSE	SOLUTION
<b>SOOTING (caused by lazy yellow flame)</b>	
Low gas pressure	*Set pressure to a minimum of 11" W.C. with all appliances running. Replace regulator if not obtainable.
Low voltage	Correct power supply*
Air leakage at gaskets	Replace gaskets
Combustion wheel installed backwards or loose	Reposition wheel and tighten.
Blockage in heating chamber or burner head	Clean or replace
Faulty motor	Replace motor
Wrong vent kit or draft cap	Replace with correct vent kit or draft cap
<b>FAN RUNS CONTINUOUSLY WITH THERMOSTAT "OFF"</b>	
Defective thermostat	Replace thermostat
Shorted thermostat leads	*Replace wire or wires
Defective relay	Replace relay
<b>LIMITING = BURNER CYCLING ON AND OFF - BLOWER RUNS CONSTANTLY WITH THERMOSTAT ON</b>	
Restricted or insufficient discharge ducting	a. Ducting must meet furnace's minimum requirements.* b. No excess ducting or unnecessary bends.* c. All closeable registers must be fully open and unrestricted.*
Furnace over fired	Set gas pressure to a minimum of 11" W.C. with all appliances running replace regulator, if not obtainable. Also, check main burner orifice, it must comply with furnace's specifications.*
Restricted return air supply	Make sure return air meets furnace minimum requirements.*
Defective limit switch	Replace limit switch
<b>BLOWER SHUTS OFF AT SAME TIME BURNER SHUTS OFF</b>	
Wired wrong	*Correct wiring
Faulty relay	Replace relay.
<b>BLOWER VIBRATES OR IS NOISY</b>	
Motor mount loose	Tighten motor mounting bracket a. Ducting must meet furnace's minimum requirements* b. No excess ducting or unnecessary bends.* c. All closeable registers must be fully open and unrestricted.
Damaged blower wheel	Replace blower wheel.
Motor shaft bent	Replace motor
<b>INSUFFICIENT HEAT</b>	
Furnace under fired	1. Set gas pressure to 11" W.C. with all appliances running, replace regulator if not obtainable. Also, check main burner orifice, it must comply with furnace's specifications. 2. Check ducting and return air according to furnaces specifications.*
Furnace improperly sized for coach/or conditions	Replace furnace with proper size.

## FURNACE - Pilot Model

### TROUBLE SHOOTING GUIDE

Effective: 8/10/98

Guides are only intended for use on Atwood® products by service technicians who have successfully completed Atwood® training. This guide should be used in conjunction with the appropriate Instruction Manual provided with the product and any applicable Industry Standards. This is not intended to be a complete list. Please direct questions concerning service of Atwood® products to 866-869-3118 before proceeding.

CAUSE	SOLUTION
<b>BURNER FAILS TO IGNITE AND - BLOWER FAILS TO RUN</b>	
No electrical power to the furnace	Reconnect or replace power source.*
Current overload protector device	Reset circuit breaker. Check amp draw from motor defective or tripped (circuit breaker).according to furnace's specifications.
Thermostat defective	Replace thermostat.
Thermostat wires broken	Replace wire or wires.
Thermostat located in high area	Relocate thermostat.
Blower motor defective	Replace motor.
Blower relay defective	Replace relay.
Wire off motor	Reconnect wire.*
Wire off relay	Reconnect wire.*
Improper ground	Clean and secure grounds.*
<b>BLOWER RUNS - BUT FAILS TO IGNITE</b>	
Low Voltage/High Voltage	Correct power supply.*
12 volt polarity reversed	Correct polarity.*
Furnace grounding wires not secure	Clean and secure grounds established*
Gas valve defective	Replace valve or valve coil, depending on problem encountered.
Gas pressure incorrect	*Set pressure to a minimum of 11" W.C. with all appliances running. (Replace regulator if not obtainable).
Limit switch defective or wire off	Reconnect wire or replace.
Sail switch defective or wire off	Reconnect wire or replace.
Burner orifice blocked	Clean main burner orifice or replace.
Combustion air wheel loose	Reposition and tighten.
Burner head adjustment	Reposition and tighten. Adjust burner according to furnace specifications.
Exhaust blocked	Clean exhaust.*
Air intake restricted	Clean air intake.*
Broken or loose wire	Replace or tighten*
Motor running slow	Check voltage first. If 12 VDC while running, replace motor.*
Pilot orifice plugged	Clean or replace orifice
Thermocouple defective	Replace thermocouple
Pilot assembly defective	Replace pilot assembly
<b>BURNER CYCLING ON AND OFF - BLOWER RUNS CONTINUOUSLY WITH THERMOSTAT "ON"</b>	
Restricted return air supply	Make sure return air meets furnace's minimum requirements.
Restricted discharge duct system	a. Make sure ducting meets furnace's minimum requirements.* b. Make sure there is no excess ducting or unnecessary bends.* c. Make sure any closeable registers are fully open and unrestricted.
Defective limit switch	Replace limit switch.*
Furnace over fired	Set gas pressure to a minimum of 11" WC with all appliances running. Replace regulator if not obtainable. Also, check main burner orifice, it must comply with furnace's specifications.

\*indicates NOT covered under warranty.

CAUSE	SOLUTION
<b>BLOWER SHUTS OFF AT SAME TIME BURNER SHUTS OFF</b>	
Faulty relay -----	Replace relay
Thermostat wired wrong -----	Correct wiring*
<b>BURNER FAILS TO IGNITE AND - BLOWER FAILS TO RUN</b>	
No electrical power to the furnace -----	Reconnect or replace power source.*
<b>BLOWER VIBRATES OR IS NOISY</b>	
Damaged blower wheel -----	Replace blower wheel.
Motor shaft bent -----	Replace motor
Loose motor -----	Tighten motor mounting bracket.
Restricted discharge duct system -----	a. Make sure ducting meets furnace's minimum requirements.*
	b. Make sure there is no excess ducting or unnecessary bends.*
	c. Make sure any closable registers are fully open and unrestricted.*
<b>PILOT FAILS TO IGNITE OR STAY LIT</b>	
Plugged pilot orifice -----	Clean or replace pilot orifice.
Electrode out of adjustment -----	Adjust electrode to furnace's specifications.
Pilot tube defective -----	Replace tube.
Piezo sparker defective -----	Replace sparker
Defective thermocouple -----	Replace thermocouple.
Defective valve -----	Replace valve.
Vent kit not sealed -----	Seal vent where it meets with the furnace.*
MICA window missing -----	Replace MICA
Combustion air hose plugged or collapsed -----	Replace combustion hose
Water in propane -----	Add alcohol to the propane bottles.*
Burner plate gasket or pilot gasket not sealed -----	Replace gaskets
<b>LAZY FLAME (yellow)</b>	
High gas pressure -----	*Set pressure to a minimum of 11" W.C. with all appliances running. Replace regulator if not obtainable.
Burner out of adjustment -----	Adjust burner according to furnace specification.
Combustion wheel installed backwards or loose -----	Reposition wheel and tighten.
Air leakage at gaskets -----	Replace gaskets
Low voltage -----	Correct power supply*
<b>FAN RUNS CONTINUOUSLY WITH THERMOSTAT "OFF"</b>	
Shorted thermostat leads -----	Replace wire or wires.
Defective relay -----	Replace relay
Defective thermostat -----	Replace thermostat
<b>INSUFFICIENT HEAT</b>	
Furnace under fired -----	1. Set gas pressure to 11" W.C. with all appliances running, replace regulator if not obtainable. Also, check main burner orifice, it must comply with furnace's specifications.*
	2. Check ducting and return air according to furnaces specifications.
Furnace limiting -----	Check ducting and return air. It must comply with furnace's specifications.*

\*indicates NOT covered under warranty.



# Furnace Technology

Terminology	Definition	Terminology	Definition
<b>AC Motor</b>	A Motor operating on 120 volts A.C.	<b>Fan Switch</b>	A normally open switch that closes at a set temperature allowing power flow to the motor, and allows the motor to run after the burner shuts down to cool down the combustion chamber.
<b>Adjustable Register</b>	A heat outlet capable of being opened and closed.	<b>Field Electrical Hook Up</b>	The Wiring Harness that connects the furnace to the coach wiring.
<b>Air Speed Indicators</b>	(Velometer) A tool used to measure the velocity of air movement from a duct outlet.	<b>Flair Fitting</b>	Brass fitting used to connect the furnace to the gas supply.
<b>Ambient Air Temp.</b>	Current room air temperature.	<b>Flash Back</b>	A condition when the flame burns on the inside of the burner.
<b>Amp Draw</b>	The amount of current required to run a given component.	<b>Flex Ducting</b>	A round, collapsible, wire reinforced product used to deliver the heated air from the furnace to the living area.
<b>Burn Off</b>	The time it takes for the furnace Combustion Chamber to burn off all the oils and lubes used in production.	<b>Forced Combustion</b>	A type of combustion when a second air wheel is used to force air into the burner to increase the air to gas mixture.
<b>Burner</b>	The component in the furnace where combustion occurs creating the main source of heat within the Combustion Chamber.	<b>Gas Pressure</b>	The amount of gas being supplied to the furnace, measured in column inches.
<b>Burner Flame Lift Off</b>	When the flame lifts off the Burner.	<b>Gas Valve</b>	A mechanical device by which the flow of gas is started or stopped by an electrical signal.
<b>Candling</b>	A small flame at the Main Burner Orifice when the Valve is in a closed position.	<b>Gravity Combustion</b>	A type of combustion using no other source but gravity to supply combustion air for the proper air to gas mixture at the burner.
<b>Circuit Breaker</b>	A normally closed switch that automatically interrupts an electrical circuit under abnormal AMP loads.	<b>Hard Ducting</b>	(See Floor Ducting)
<b>Circulating Air</b>	Air drawn into the furnace by the Main Air Wheel then heated and forced out the heat outlets.	<b>Heat Anticipator</b>	Component of a Thermostat that can be adjusted to increase or decrease the length of the heating cycle.
<b>Combustion Air</b>	Air supplied to the Burner specifically for combustion.	<b>Heating Element</b>	(See Combustion Chamber)
<b>Combustion Chamber</b>	The component where combustion occurs and transfers heat to circulating air.	<b>High Tension Lead Wire</b>	The wire carrying the high tension spark from Circuit Board to Electrode.
<b>Converter</b>	Component that is used to change 120 VAC to 12 VDC. Available in linear, pharo-resonant and switching styles.	<b>Incline Manometer</b>	Tool used to measure Static Pressure of the furnace plenum.
<b>Cycling</b>	The normal on and off operation of the furnace controlled by the thermostat.	<b>Junction Box</b>	A box inside or outside of the furnace where electrical connections are made.
<b>DC Motor</b>	Motor operating on 12 VDC.	<b>Limit Switch</b>	A normally closed switch that opens at a set temperature which does not allow the furnace to over heat.
<b>Circuit Board</b>	A Circuit Board in the furnace controlling the ignition sequence and proves a flame has been established.	<b>Limiting</b>	A condition caused by over-heating the Limit Switch The burner turns on and off during a heating cycle.
<b>Electrode</b>	Both a conductor establishing an electrical spark at the Burner to ignite the air to gas mixture, and a sensor to signal the circuit board the flame is established.		

Terminology	Definition	Terminology	Definition
<b>Loud Ignition</b>	A condition where the air to gas mixture is off and the burner lights with a loud noise.	<b>Sooting</b>	A black powder that builds up around the Burner in the Combustion Chamber normally caused by an improper air to gas mixture.
<b>Main Burner Orifice</b>	The Orifice regulating the amount of gas delivered to the Burner.	<b>Start Capacitor</b>	A device giving an electrical boost to start an A/C motor.
<b>Manifold</b>	The tube delivering gas from the Gas Valve to the Main Burner Orifice.	<b>Static Pressure</b>	Amount of pressure inside the Furnace Plenum or Duct caused by the ability to dispel air out the duct outlets.
<b>Manual Reset Switch</b>	A Limit Switch manually reset after reaching it's set temperature.	<b>Thermocouple</b>	Safety device used to generate an electrical signal sent to the Gas Valve to hold the Pilot Flame on.
<b>MicroAmps:</b>	Amps sent back to the Circuit Board to establish a flame is present.	<b>Thermopile</b>	Safety device much like a Thermocouple. It gives a much higher electrical output, also used to open the Main Valve with a Thermostat.
<b>Millivolts</b>	Voltage created by a Thermocouple or Thermopile.	<b>Thermostat</b>	Device used with the Furnace to regulate the room air temperature.
<b>Multi-Try Circuit Board</b>	Circuit Board providing 2 or 3 trials for ignition.	<b>Time Delay Relay</b>	A normally open Relay. When activated closes, sending power to the Blower Motor. When deactivated allows Blower to run for a period of time to cool the Combustion Chamber.
<b>OEM</b>	A manufacture of recreational vehicle, "Original Equipment Manufacture".	<b>Transformer</b>	Device reducing 120 VAC to 24 VAC.
<b>Pig Tail</b>	(see Field Electrical Hook Up)	<b>U-Tube</b>	Tool measuring gas pressure in inches of water.
<b>Pilot Light Assembly</b>	An assembly used to light the burner.	<b>VOM</b>	Meter reading voltages and OHMs resistance.
<b>Plenum</b>	The metal box enclosing the Combustion Chamber directing the heated air to the duct outlets.	<b>Valve Coil</b>	Electromagnetic Coil on the Gas Valve holding and releasing a plunger to start and stop the flow of gas.
<b>Power Supply</b>	A source of electrical power, usually a converter, inverter or battery.		
<b>Primary Air</b>	A portion of the combustion air mixing directly in the Burner at the Main Burner Orifice.		
<b>Resonating</b>	A whining noise created by a Burner with an improper air to gas mixture.		
<b>Return Air</b>	Air pulled into the furnace, heated, force through duct outlets back to the living area.		
<b>Safety Lockout</b>	Circuit Board not sensing a flame, cutting power to the Gas Valve.		
<b>Sail Switch</b>	Air prover switch that will engage when the Blower Motor reaches 75% of the rated RPM.		
<b>Secondary Air</b>	Combustion Air that helps complete the combustion after the Burner is on.		
<b>Sensor Wire</b>	Wire carrying an electrical signal from the Electrode back to the Circuit Board on a remote sense system.		
<b>Slope Gauge</b>	(see Incline Manometer)		



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**MPD 32072**

**hydro flame™**

**7900-II / 8000-II**

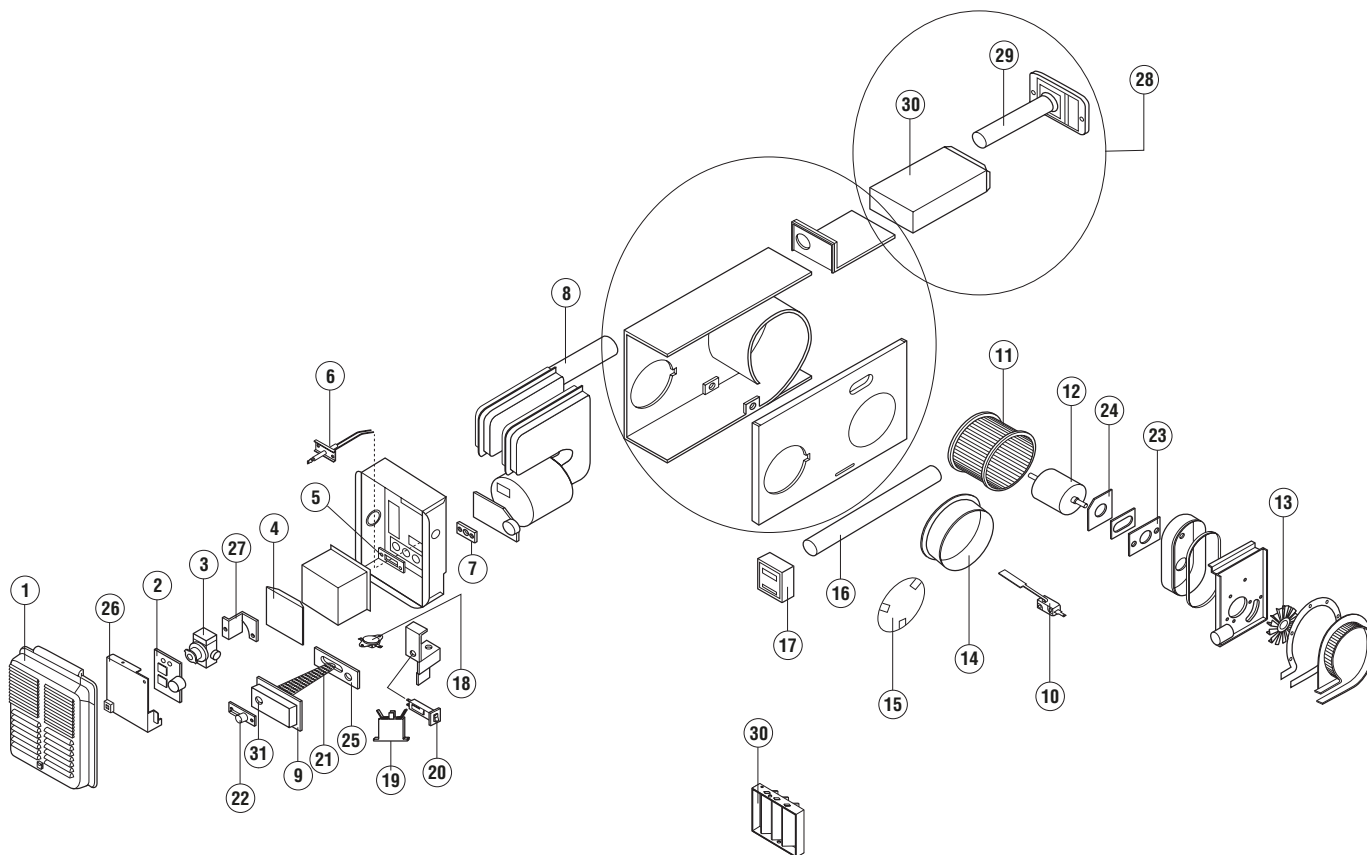
**Series Furnace**

**Technical Installation Manual**

**ENGLISH, FRANCAIS (et Canada)**

**•Installation**

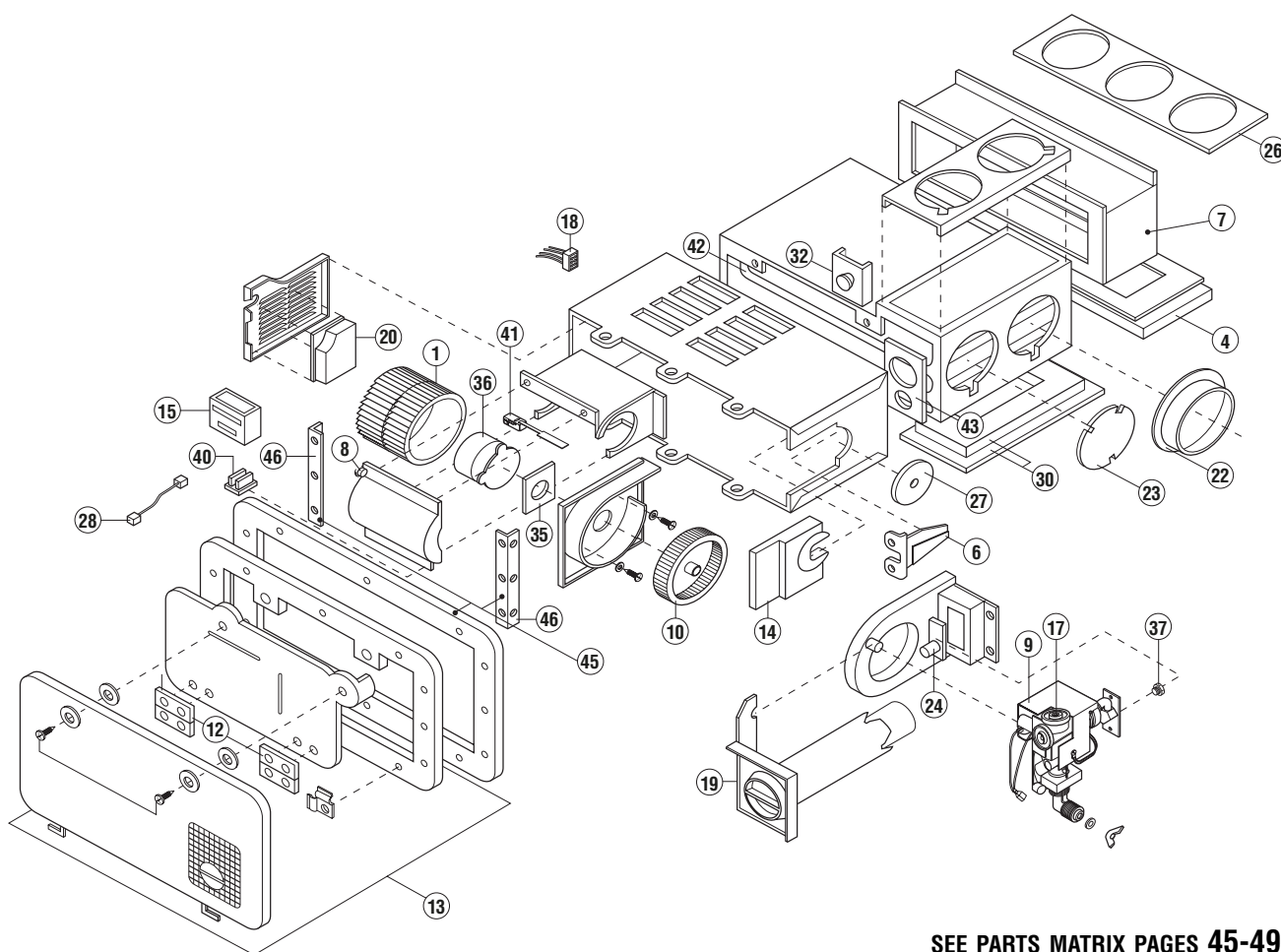
Effective 5/19/06



Item #	Description of Parts				
1	Front Door	10	Sail Switch (80-II)	21	Burner Head
2	Electronic Ignition Board	11	Blower Wheel (79-II)	22	Manifold
3	Valve	11	Blower Wheel (80-II)	23	Motor Gasket
4	Front Discharge Cover Plate	12	Motor (79-II)	24	Motor Spacer
5	Electrode Cover Plate	12	Motor (80-II)	25	Small Burner Air Baffle - SPECIFY RATE
6	Electrode	13	Combustion Wheel	25	Large Burner Air Baffle - SPECIFY RATE
7	Electrode Gasket	14	Duct Adapter	26	Electronic Ignition Mounting Plate
8	Heat Exchanger	15	Duct Cover Plate	27	Valve Bracket
9	Burner Plate Gasket	16	Air Hose	28	Vent Kit Specify Length
10	Sail Switch (79-II)	17	Thermostat -SPECIFY COLOR	29	Exhaust Tube Assembly - SPECIFY LENGTH & MATERIAL
		18	Limit Switch (L-170)	30	Air Box Assembly - SPECIFY LENGTH
		19	Relay	31	Orifice - SPECIFY RATE
		20	On/Off Circuit Breaker		



October 1997



**SEE PARTS MATRIX PAGES 45-49**  
**Atwood Furnace Installation Parts**

**Drawing**

#	Description of Parts	8516	8520	8525	8531	8535
1	Blower Wheel					
4	Asmby, Plate & Gasket					
6	Burner Asmby					
7	Casing Extension Box					
8	Circuit Breaker					
9	Replacement Coil					
10	Combustion Wheel					
12	Door Hinges					
13	Door Asmby	◆	◆	◆	◆	◆
14	Slide Plate					
15	Thermostat					
17	Valve					
18	Wiring Harness					
19	Draft Cap Asmby					
20	Electronic Ignition Board (05-30)					
22	Duct Adapters					
23	Duct Cover Plate					

**Drawing**

#	Description of Parts	8516	8520	8525	8531	8535
24	Electrode					
25	Electrode Gasket					
26	Flex Adapter Plate Asmby					
27	Gas Inlet Plug					
28	High Tension Lead					
30	Bottom Plenum Plate					
32	Limit Switch					
35	Motor Gasket					
36	Motor Kit					
37	Orifice					
40	Relay					
41	Sail Switch					
42	Element Asmby					
43	Exhaust Wall Gasket					
45	Recess Pan Asmby	◆	◆	◆	◆	◆

◆ Order by Color



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**LITERATURE NUMBER MPD 33179**

**hydro flame™**

**8500-IV Series Furnace**

**MODELS 8516, 8520, 8525,**

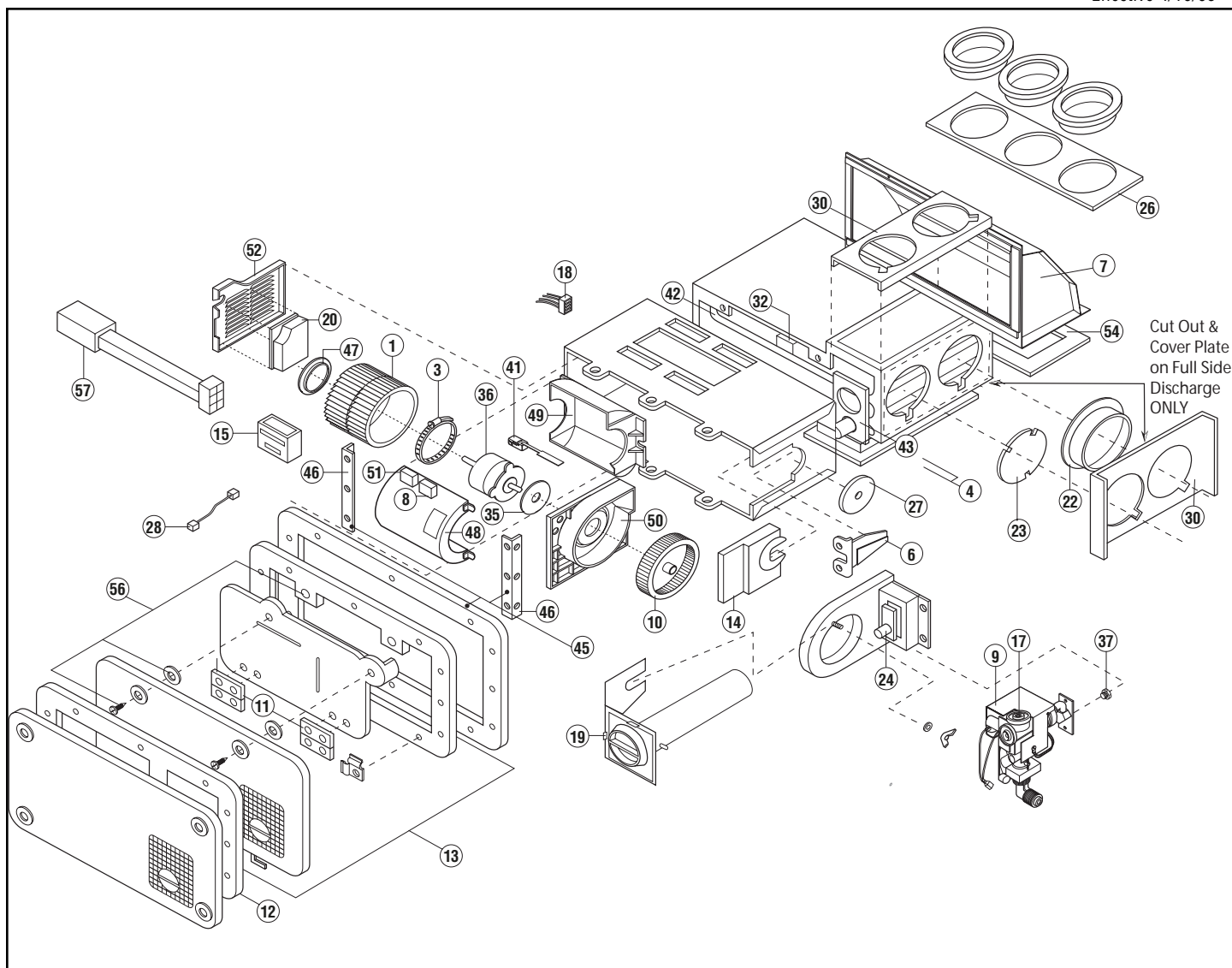
**8531, 8535**

**Technical Installation Manual**

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**•Installation •Maintenance**

Effective 4/10/06



DRAWING #	DESCRIPTION				
1	Blower Wheel	18	Field Wiring Harness	42	Element Assembly - specify model
3	Motor Clamp	19	Draft Cap Assembly - Specify model	43	Exhaust Wall Gasket
4	Gasket/Plenum Plate Kit- Top & Bottom	20	Electronic Ignition Board	45	Recess Pan Assembly-SPECIFY COLOR
6	Burner Assembly	22	Duct Adapters	46	Mounting Bracket
7	Extension Box	23	Duct Cover Plate	47	Venturi
8	ON/OFF Switch	24	Electrode	48	Blower Housing Back
9	Replacement Coil	26	Flex Adapter Plate Assembly Kit	49	Blower Housing
10	Combustion Wheel	27	Gas Inlet Plug	50	Motor/Combustion Wall
11	Door Hinges	28	High Tension Lead	51	Circuit Breaker
12	Door, Standard ORDER BY COLOR	30	Top/Bottom/Side Cover	52	Control Board Mounting Bracket
13	Door, Deluxe -SPECIFY COLOR	32	Limit Switch	54	Plenum Plate, Extension Boot
14	Slide Plate	35	Motor Gasket	56	Door Fastener Kit
15	Thermostat - specify color	36	Motor - specify rate	57	Double Housing Field Harness
17	Valve	37	Orifice - specify rate	N/S	High Voltage Lead - noise suppression
		41	Sail Switch		





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**LITERATURE NUMBER MPD 31472**

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**8500-IV-LD Series Furnace**

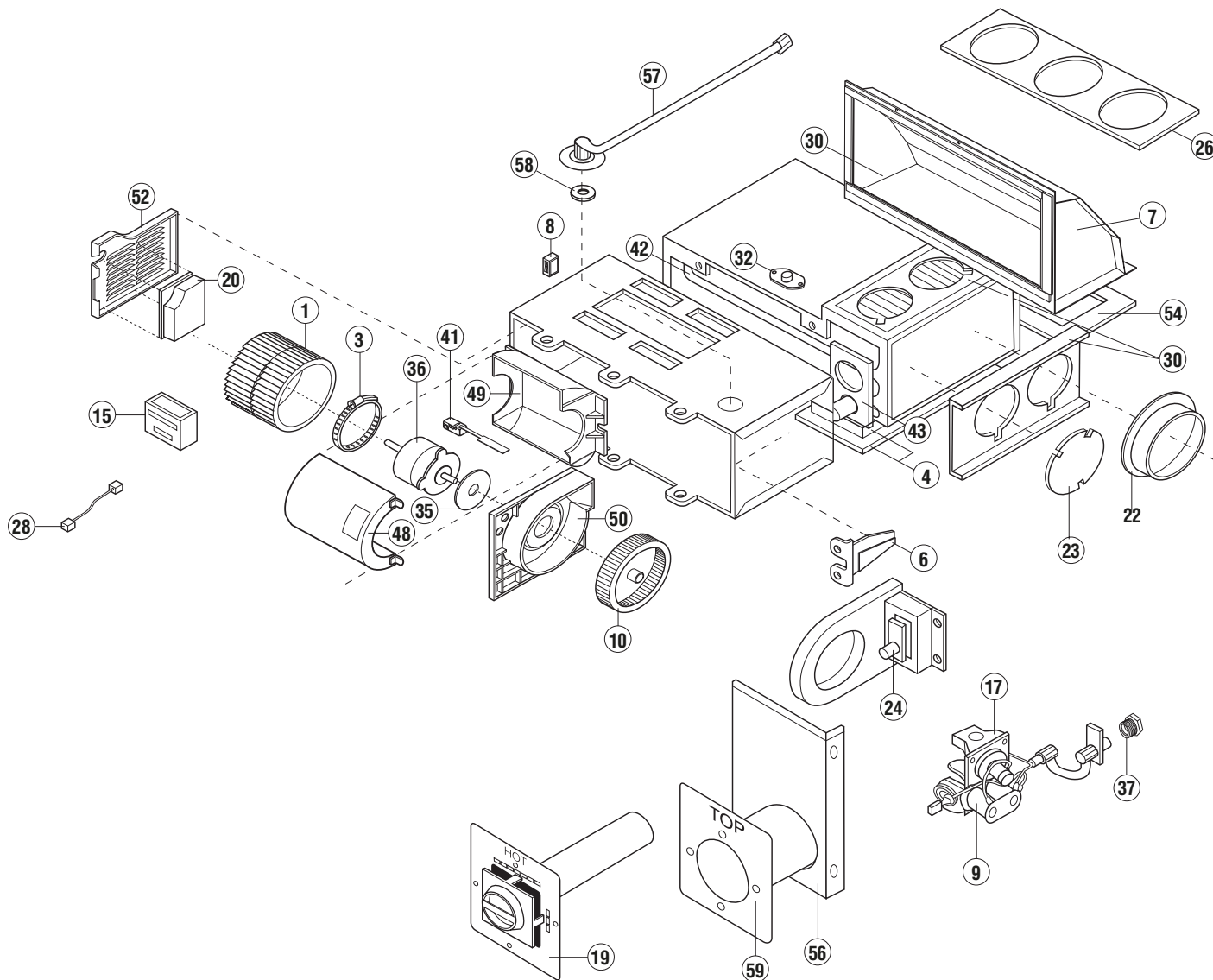
**MODELS 8516, 8520,  
8525, 8531, 8535**

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**•Installation •Maintenance**

Effective 9/14/04



DRAWING #	DESCRIPTION				
1	Blower Wheel	19	Vent Assembly - Specify Model	41	Sail Switch
3	Motor Clamp	20	Electronic Ignition Board	42	Element Assembly - specify model
4	Gasket & Plenum Plate Kit	22	Duct Adapters	43	Exhaust Wall Gasket
6	Burner Assembly	23	Duct Cover Plate	48	Blower Housing Back
7	Extension Box	24	Electrode	49	Blower Housing
8	ON/OFF Switch / Circuit Breaker - Specify Model	26	Flex Adapter Plate Assembly Kit	50	Motor/Combustion Wall
9	Replacement Coil	28	High Tension Lead Cover	52	Control Board Mounting Bracket
10	Combustion Wheel	30	Top/Bottom/Side Plate	54	Plenum Plate Extension Box Assembly
15	Thermostat - specify color	32	Limit Switch	56	Combustion Cover (specify)
17	Valve	35	Motor Gasket	57	Extended Manifold
		36	Motor - specify rate	58	Gas Line Gasket
		37	Orifice - specify rate	59	Vent Ring







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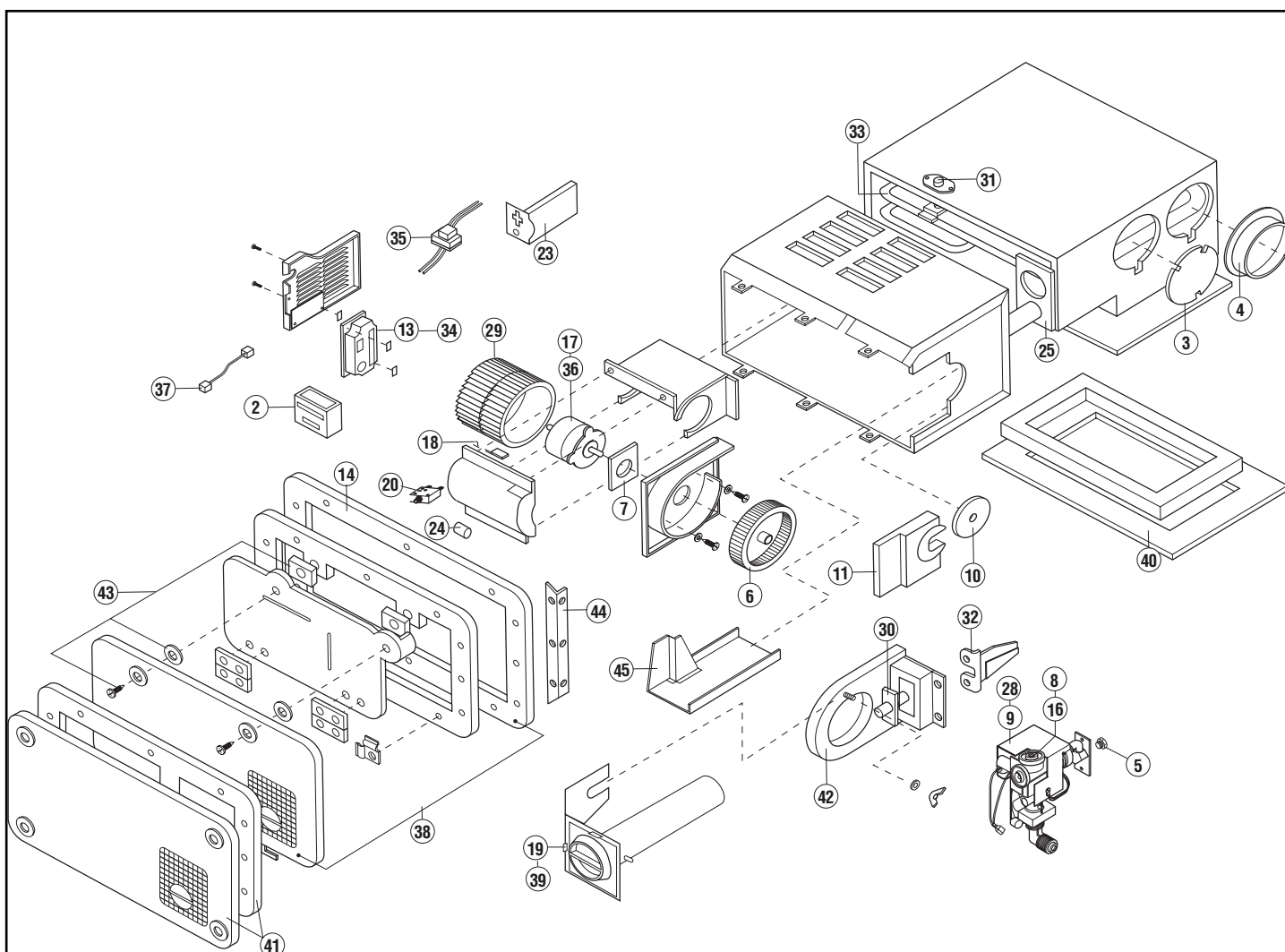
**8900-III Series Furnace**  
MODELS 8935, 8940

**Technical Installation Manual**

**ENGLISH, FRANCAIS (et Canada)**

**•Installation**

Effective 11/27/06



**DRAWING # DESCRIPTION OF PARTS**

1 Relay	16 Valve AC	35 Transformer Assembly AC
2 Thermostat - specify color	17 Motor DC	36 Motor AC
3 Duct Cover Plate	18 Sail Switch	37 High Voltage Wire
4 Duct Adapter	19 Draft Cap Assembly DC/AC35	38 Deluxe Door & Bezel Assembly (MUST ORDER BY COLOR)
5 Orifice — SPECIFY GAS & BTU	20 Circuit Breaker DC	39 Draft Cap Assembly AC/DC 40
6 Combustion Wheel	23 Junction Box Asmbly AC	40 Gasket & Plate Assembly
7 Motor Gasket	24 Motor Capacitor AC	41 Standard Door & Bezel Assembly (MUST ORDER BY COLOR)
8 Valve DC	25 Element Exhaust Wall Gasket	42 Combustion Cover
9 Valve Repl Coil DC	28 Valve Replacement Coil AC	43 Door Fastener Kit
10 Gas Inlet Plug	29 Blower Wheel	44 Recess Pan Bracket
11 Slide Plate	30 Electrode	45 Rain Shield
13 Electronic Ignition Board DC Kit	31 Limit Switch	46 Vertical Gasket& Plate Assembly
14 Recessed Pan (MUST ORDER BY COLOR)	32 Burner Assembly	
	33 Element Assembly	
	34 Electronic Ignition Board AC Kit	







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**8900-III-LD Series Furnace**

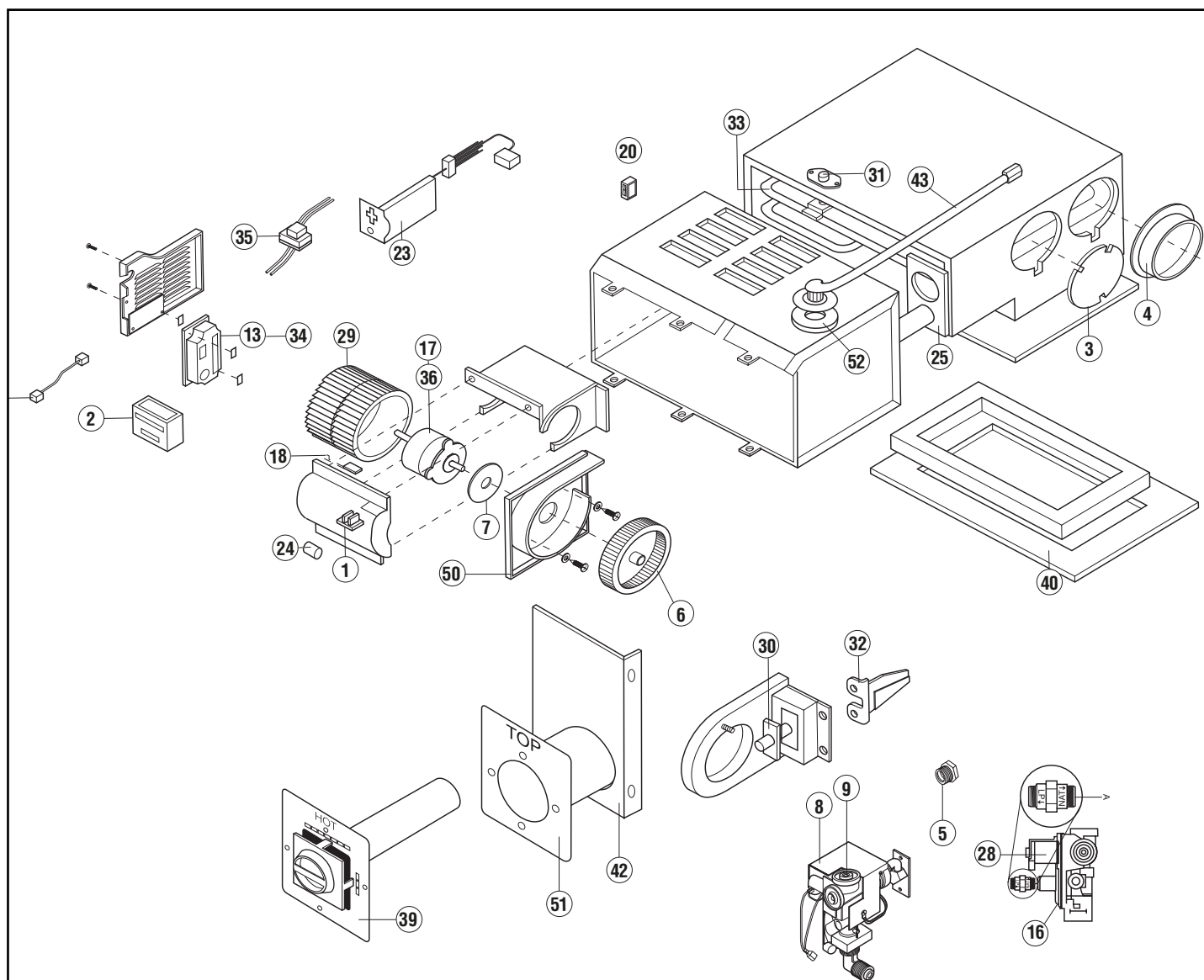
**MODELS 8935, 8940**

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**ENGLISH, FRANCAIS** (et Canada)

**•Installation**

Effective 11/27/06



DRAWING #	DESCRIPTION OF PARTS	18	Sail Switch	35	Transformer Assembly AC
2	Thermostat - specify color	20	Circuit Breaker DC	36	Motor AC
3	Duct Cover Plate	23	Junction Box Asmby AC	37	High Voltage Wire
4	Duct Adapter	24	Motor Capacitor AC	39	Vent Assembly (specify model) 35/40
5	Orifice — SPECIFY GAS & BTU	25	Element Exhaust Wall Gasket	40	Gasket & Plate Assembly
6	Combustion Wheel	28	Valve Replacement Coil AC	42	Combustion Cover
7	Motor Gasket	29	Blower Wheel	43	Extended Manifold (specify)
8	Valve DC	30	Electrode	50	Motor Wall - Specify Model
9	Valve Repl Coil DC	31	Limit Switch	51	Vent Ring
13	Electronic Ignition Board DC Kit	32	Burner Assembly	52	Gas Line Gasket
16	Valve AC	33	Element Assembly		
17	Motor DC	34	Electronic Ignition Board AC Kit		



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**LITERATURE NUMBER MPD 33939**

**hydro flame™**

**8500-IV**

**2 Stage Series Furnace**

**MODELS 1522, 2334**

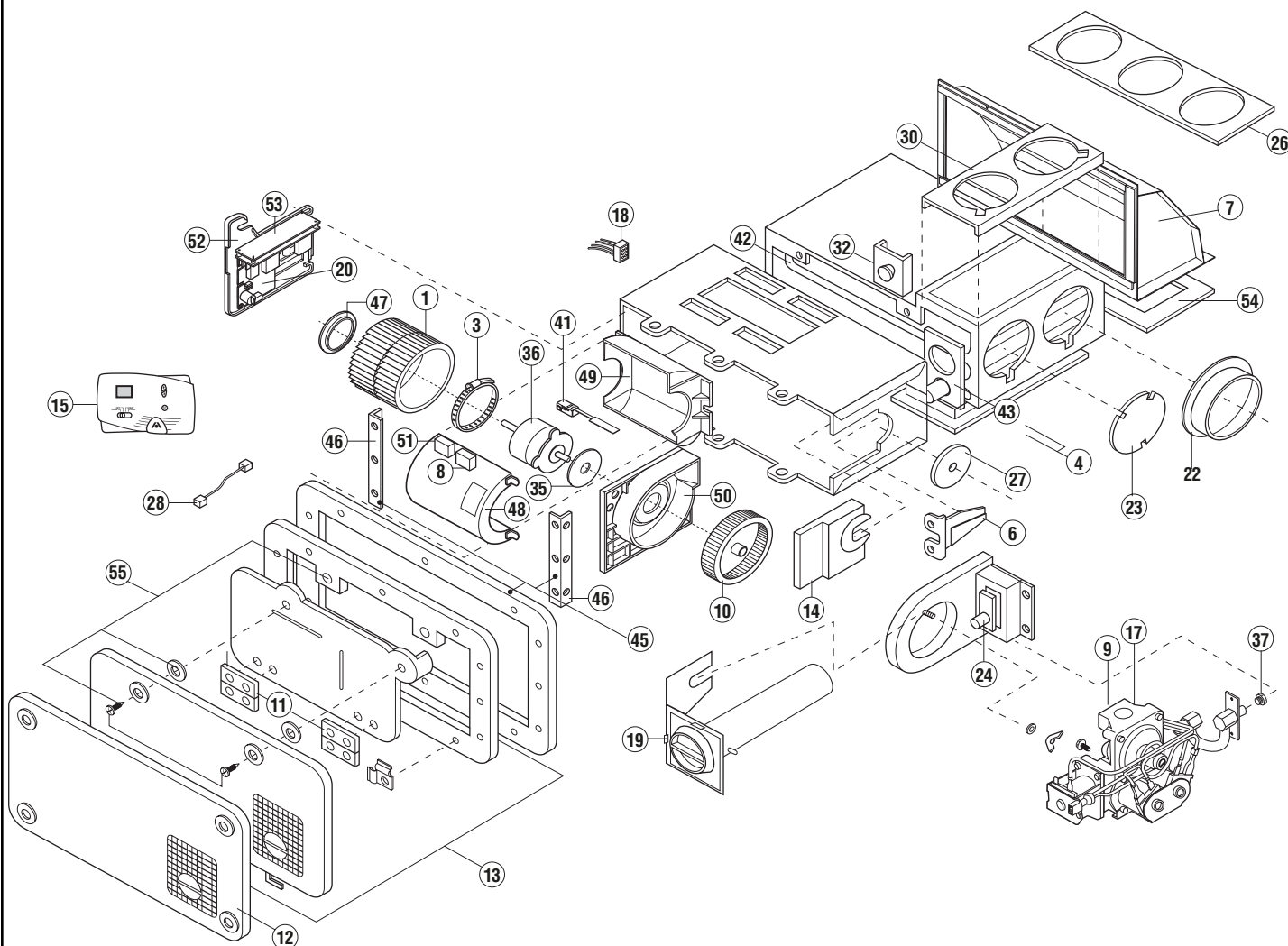
**Technical Installation Manual**

Patent No US 6,464,000 Other Patents Pending

**ENGLISH, FRANCAIS (et Canada)**

**•Installation •Maintenance**

Effective 9/1/03



DRAWING #	DESCRIPTION				
1	Blower Wheel	18	Field Wiring Harness	42	Element Assembly - Specify Model
3	Motor Clamp	19	Draft Cap Assembly	43	Exhaust Wall Gasket
4	Gasket & Plenum Plate Kit	20	Electronic Ignition Board	45	Recess Pan Assembly-SPECIFY COLOR
6	Burner Assembly	22	Duct Adapters	46	Mounting Bracket
7	Extension Box	23	Duct Cover Plate	47	Venturi
8	ON/OFF Switch	24	Electrode	48	Blower Housing Back
9	Mounting Bracket Valve	26	Flex Adapter Plate Assembly Kit	49	Blower Housing
10	Combustion Wheel	27	Gas Inlet Plug/Seal	50	Motor/Combustion Wall
11	Door Hinges	28	High Tension Lead	51	Circuit Breaker
12	Door, Standard ORDER BY COLOR	30	Top/Bottom/Side Cover Plate	52	Control Board Mounting Bracket
13	Door, Deluxe -SPECIFY COLOR	32	Limit Switch	53	Speed Control Board
14	Slide Plate	35	Motor Gasket	54	Adapter Plate
15	Dual Thermostat	36	10 VDC Motor - Specify Model	55	Door Fastener Kit
17	Valves - (1522 = ORANGE) (2334 = WHITE)	37	Orifices - (1522 = #54) (2334 = #51)	NS	High Tension Lead Noise Suppression
		41	Sail Switch		



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**LITERATURE NUMBER MPD 31473**

**hydro flame™**

**8500-IV-LD**

**2 Stage Series Furnace**

**MODELS 1522, 2334**

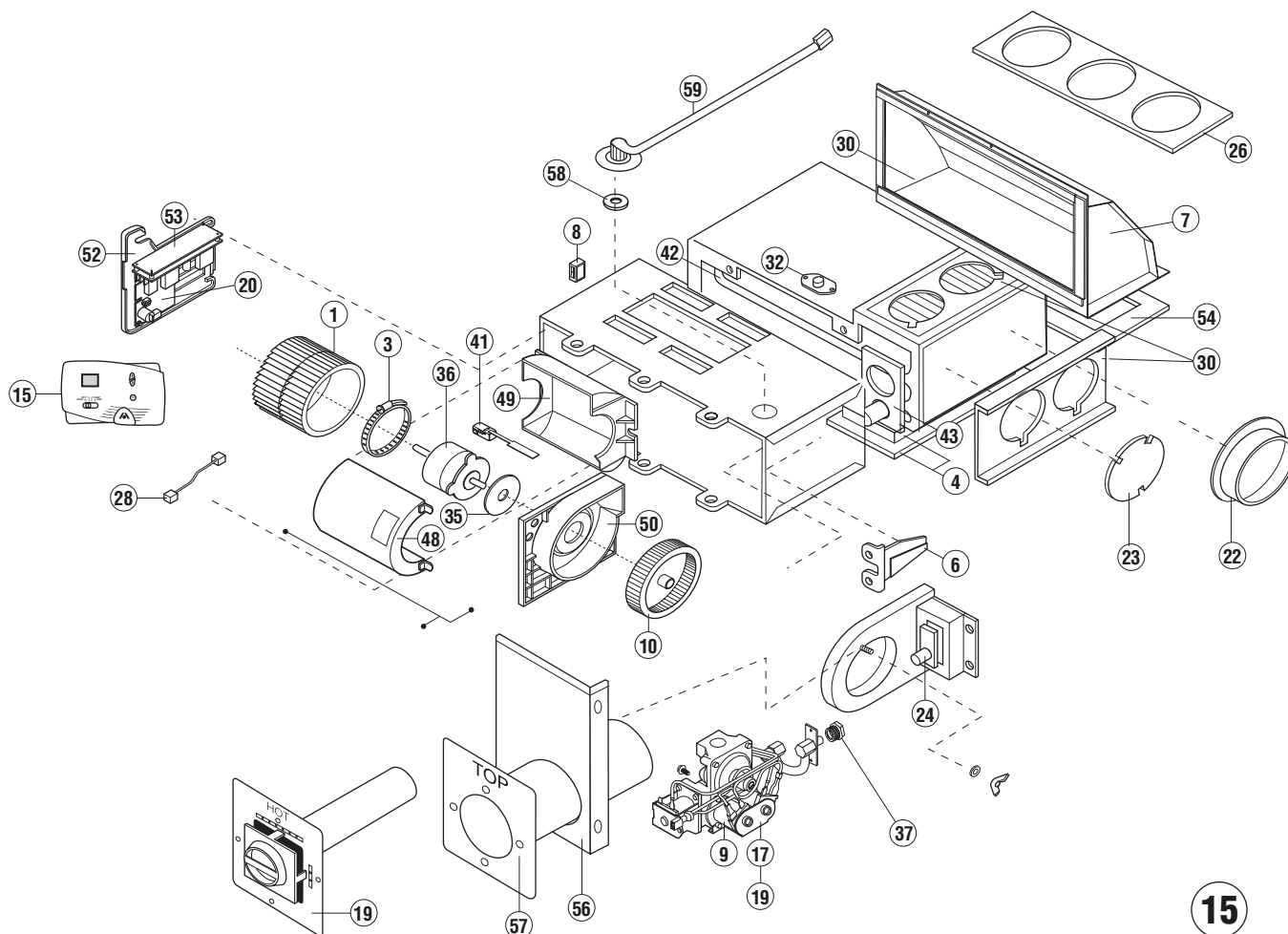
**Technical Installation Manual**

**Patent No US 6,464,000. 6,719,207. Other Patents Pending**

**ENGLISH, FRANCAIS (et Canada)**

**•Installation •Maintenance**

Effective 9/13/04



**15**

DRAWING #	DESCRIPTION		
1	Blower Wheel	20	Electronic Ignition Board
3	Motor Clamp	22	Duct Adapters
4	Gasket & Plenum Plate Kit	23	Duct Cover Plate
6	Burner Assembly	24	Electrode
7	Extension Box	26	Flex Adapter Plate Assembly Kit
8	ON/OFF Switch C/B - Specify Model	28	High Tension Lead
9	Valve Coil Replacement	30	Top/Bottom/Side Side Cover Plate
10	Combustion Wheel	32	Limit Switch
15	Dual Thermostat	35	Motor Gasket
17	Valves - (1522 ORANGE) (2334 = WHITE)	36	Motor - Specify Model
19	Vent Assy - Specify Models	37	Orifices - (1522 = #54) (2334 = #51)
		41	Sail Switch
		42	Element Assembly - Specify Model
		43	Exhaust Wall Gasket
		48	Blower Housing Back
		49	Blower Housing
		50	Motor/Combustion Wall
		52	Control Board Mounting Bracket
		53	Motor Speed Control Board
		54	Adapter Plate
		56	Combustion Cover
		57	Vent Ring
		58	Gas Line Gasket
		59	Gas Line Manifold



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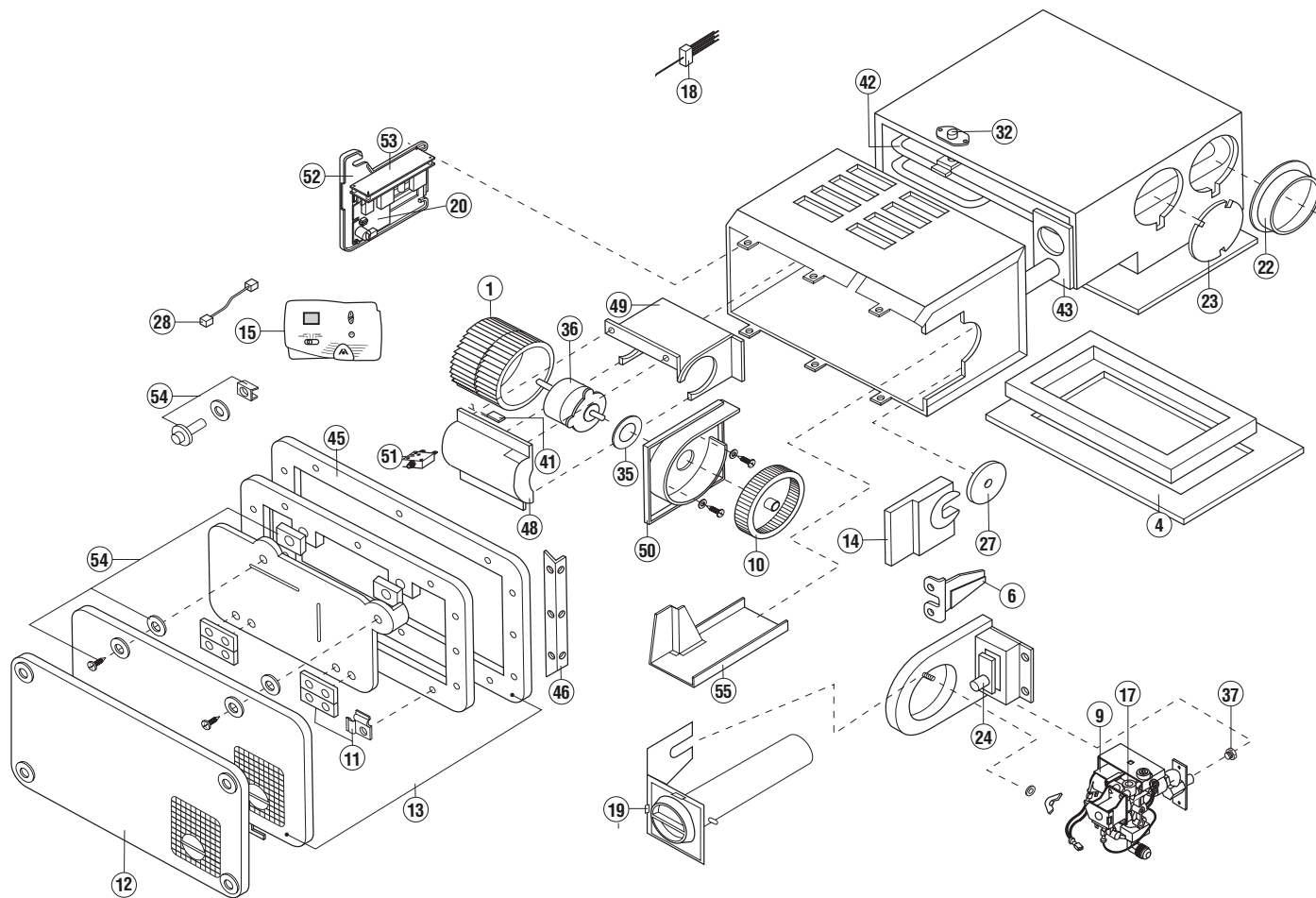
**LITERATURE NUMBER MPD 32044**  
**hydro flame™**

**8900-III**  
**2 Stage Series Furnace**  
**MODEL 2540**

**TECHNICAL INSTALLATION MANUAL**  
PATENT 6,719,207. OTHER PATENTS PENDING

**ENGLISH, FRANCAIS (et Canada)**

**•Installation**  
Effective 11/27/06



DRAWING #	DESCRIPTION		
1	Blower Wheel	19	Draft Cap Assembly
4	Gasket & Plenum Plate Kit	20	Electronic Ignition Board
6	Burner Assembly	22	Duct Adapters
9	Mounting Bracket Valve	23	Duct Cover Plate
10	Combustion Wheel	24	Electrode
11	Door Hinges	27	Gas Inlet Plug
12	Door, Standard ORDER BY COLOR	28	High Tension Lead
13	Door, Deluxe -SPECIFY COLOR	32	Limit Switch
14	Slide Plate	35	Motor Gasket
15	Dual Thermostat	36	10 VDC Motor
17	Valve	37	Orifice - #49
18	Field Wiring Harness	41	Sail Switch
		42	Element Assembly
		43	Exhaust Wall Gasket
		45	Recess Pan Assembly-SPECIFY COLOR
		46	Mounting Bracket
		48	Blower Housing Back
		49	Blower Housing
		50	Motor/Combustion Wall
		51	Circuit Breaker / Switch
		52	Control Board Mounting Bracket
		53	Speed Control Board
		54	Door Fastener Kit
		55	Rain Shield
		NS	High Voltage Lead Noise Suppression



**Atwood Mobile Products LLC**  
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**LITERATURE NUMBER MPD 32045**  
**hydro flame™**  
**8900-III-LD**  
**2 Stage Series Furnace**

**MODEL 2540**

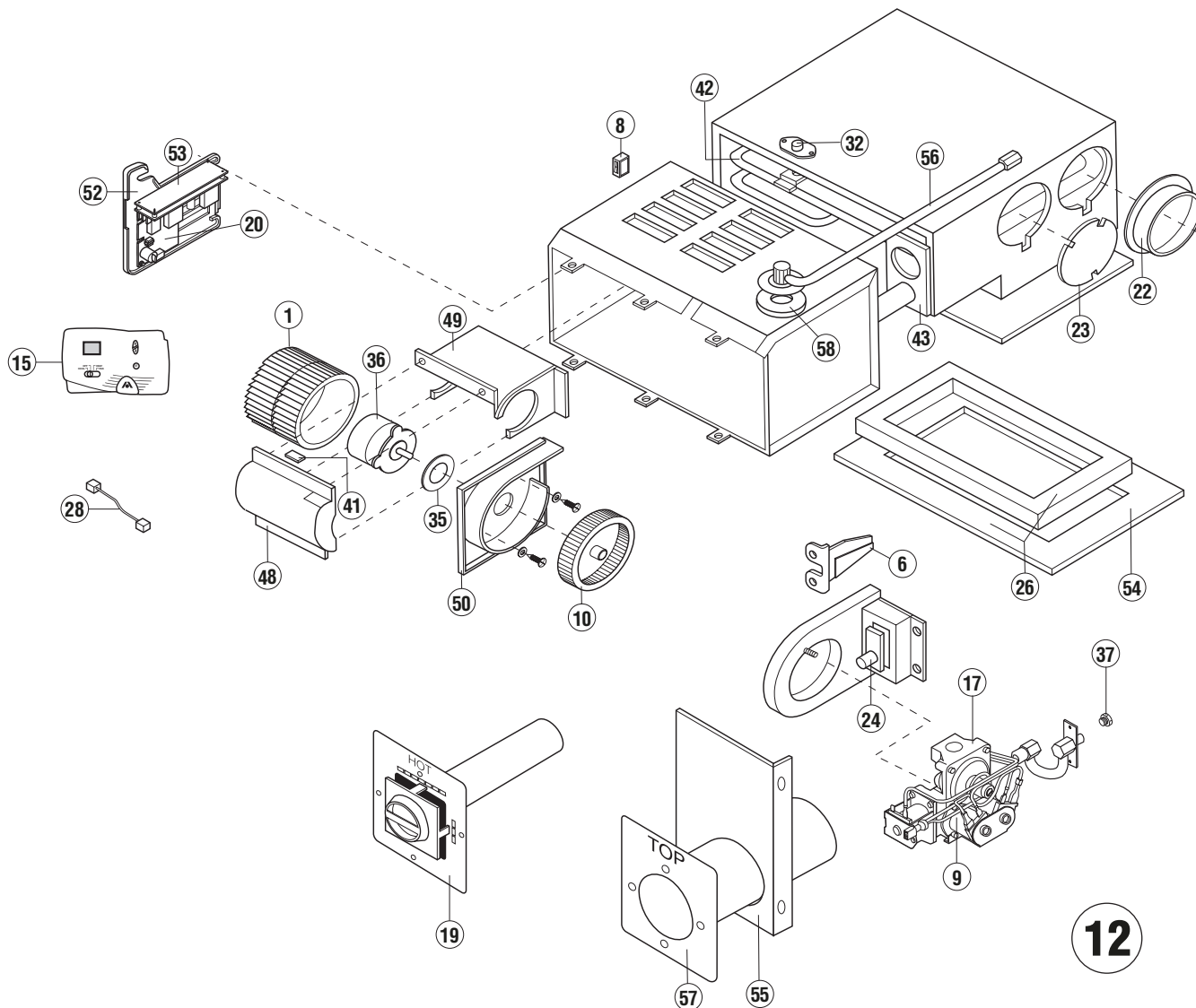
**Technical Installation Manual**

Patent No US 6,464,000. 6,719,207. Other Patents Pending

**ENGLISH, FRANCAIS (et Canada)**

**•Installation**

Effective 11/27/06



**12**

DRAWING #	DESCRIPTION				
1	Blower Wheel	23	Duct Cover Plate	48	Blower Housing Back
6	Burner Assembly	24	Electrode	49	Blower Housing
8	ON/OFF Switch / Circuit Breaker	26	Adapter Plate Assembly	50	Motor/Combustion Wall
9	Valve Coil Replacement (DC)	28	High Tension Lead	52	Control Board Mounting Bracket
10	Combustion Wheel	32	Limit Switch	53	Motor Speed Control Board
15	Dual Thermostat	35	Motor Gasket	54	Adapter Plate
17	Valve	36	Motor	55	Burner Access Cover (specify)
19	Vent Assembly	37	Orifice - #49	56	Extended Manifold
20	Electronic Ignition Board	41	Sail Switch	57	Vent Ring
22	Duct Adapters	42	Element Assembly	58	Gas Line Gasket
		43	Exhaust Wall Gasket		



*hydro flame* **Furnace**  
**REPLACEMENT PART REFERENCE**  
**JANUARY 2007**

\*NLA - No longer available      ⌘ While supplies last

**Blowers Wheels & Covers**

	85-IV 16	85-IV 20	85-IV 25	85-IV 31	85-IV 35	1522 2-stage	2334 2-stage
<b>37605</b> Blower cover - back (outside)	X	X	X	X	X	X	X
<b>37606</b> Blower cover - front (inside)	X	X	X	X	X	X	X
<b>37607</b> Blower Venturi Ring ❖ (NOT REQUIRED)	X	X	X	X	X	X	X
<b>33126</b> Blower Wheel Kit	X	X	X	X	X	X	X

**Burner**

<b>36043</b> Burner Head	X	X	X	X	X	X	X
<b>35491</b> Burner Head							

**Burner Orifices**

<b>31257</b> #56 16,000 BTU	X						
<b>31265</b> 1.25MM 18,000 BTU		X					
<b>31267</b> #54 22,000 BTU						X	
<b>37580</b> 1.45MM 25,000 BTU			X				
<b>31280</b> #52 31,000 BTU				X			
<b>32285</b> #51 35,000 BTU					X		X
<b>34004</b> Burner Orifice 42 (Nat)							

**Circuit Board**

<b>34109</b> Controller Module Motor Speed						X	X
<b>34543</b> Controller Module Bracket (NEED 34541)						X	X
<b>31501</b> Ignition Board Retrofit Kit (w/fan control)	X	X	X	X	X		
<b>34541</b> Ignition Board bracket	X	X	X	X	X	X	X
<b>34696</b> Ignition Module						X	X
<b>38224</b> Ignition Module with Motor Control ⌘							

**Circuit Breakers**

<b>33780</b> 7 AMP kit (with door)	X	X					
<b>33752</b> 10 AMP (with door)			X	X			
<b>33782</b> 15 AMP kit (with door)					X	X	X
<b>34011</b> 7 AMP (without door circuit breaker/on/off)	X	X					
<b>34012</b> 10 AMP (without door circuit breaker/on/off)			X	X			
<b>34013</b> 15 AMP (without door circuit breaker/on/off)					X	X	
<b>34015</b> 20 AMP (without door circuit breaker/on/off)							X

**Combustion**

<b>37084</b> Combustion Air Restrictor 1-1/4"	X					X	
<b>33128</b> Combustion Wheel Kit	X	X	X	X	X	X	X

**Draft Cap**

<b>37620</b> Draft Cap (5/8" Baffle) (before S/N 1260456)	X	X					
<b>37619</b> Draft Cap (3/8" Baffle) (before S/N 1260456)			X	X	X		
<b>38141</b> Draft Cap (3/8" Baffle).(after S/N 1260455)			X	X	X	X	X
<b>38139</b> Draft Cap (5/8" Baffle).(after S/N 1260455)	X	X					

**Electrodes**

<b>37057</b> Electrode	X	X	X	X	X	X	X
<b>34570</b> Electrode for LD's	X	X	X	X	X	X	X

**Gaskets**

<b>38261</b> Exhaust Box Gasket ❖							
<b>32926</b> Exhaust Wall Gasket (before S/N 1260456)	X	X	X	X	X		
<b>37956</b> Exhaust Wall Gasket (after S/N 1260455)	X	X	X	X	X	X	X
<b>38286</b> Exhaust Tube Gasket ❖							
<b>37600</b> Motor Gasket	X	X	X	X	X	X	X

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**Heating Elements**

<b>37960</b> Htg Element Kit* 16, 20 (before S/N 1260456)	X	X						
<b>37961</b> Htg Element Kit* 25 (before S/N 1260456)			X					
<b>37962</b> Htg Element Kit* 31, 35 (before S/N 1260456)				X	X			
<b>38282</b> Htg Element ❖								X

\*Kit includes draft cap & element gasket

**Switches**

<b>37022</b> Limit Switch 190°	X	X	X	X	X	X	X	X
<b>36121</b> ON/OFF Rocker Switch	X	X	X	X	X	X	X	
<b>38279</b> Pressure Switch ⌘								X
<b>36680</b> Sail Switch	X	X	X	X	X	X	X	

**Motor**

<b>34039</b> Capacitor								X
<b>38223</b> Motor AC ❖								X
<b>37696</b> Motor PF 20076Q	X	X						
<b>37697</b> Motor PF 23199Q			X	X				
<b>37698</b> Motor PF 26157Q					X			
<b>37964</b> Motor PF 26170Q (2-STAGE)							X	
<b>38554</b> Motor PF 23211Q (2-STAGE)						X		
<b>37646</b> Motor Clamp	X	X	X	X	X	X	X	
<b>37602</b> Motor Lock Bracket					X		X	
<b>37603</b> Motor Lock Bracket			X	X		X		
<b>37604</b> Motor Lock Bracket	X	X						
<b>37801</b> Motor Mounting Wall Kit	X	X	X	X	X	X	X	

**Relay**

<b>31017</b> Klixon Relay	X	X	X	X	X			
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**Thermostats**

<b>38453</b> Thermostat (white) Heat only HFH-2000	X	X	X	X	X			
<b>38452</b> Thermostat (brown) Heat only HFH-2000	X	X	X	X	X			
<b>38535</b> Thermostat, Digital, 2-Stage 2H2C						X	X	
<b>38555</b> Thermostat, Digital, Single Stage 1H2C	X	X	X	X	X			
<b>38291</b> Thermostat ⌘								X

**Valves**

<b>37383</b> Valve, W/R 25M16V-711	X	X	X	X	X			
<b>37384</b> Valve W/R 25M18-711								X
<b>37973</b> 2-Stage Valve W/R 25M05V-701							X	
<b>38564</b> 2-Stage Valve W/R 25M05V-702						X		
<b>37613</b> Valve Bracket	X	X	X	X	X			
<b>33475</b> White Rodgers Coil	X	X	X	X	X	X	X	

**Wires**

<b>37987</b> Field Plug Assembly						X	X	
<b>36290</b> Field Plug Assembly	X	X	X	X	X			
<b>36327</b> Field Plug Assy Special (Holiday Rambler)	X	X	X	X	X			
<b>37419</b> High Tension Wire	X	X	X	X	X	X	X	X
<b>34571</b> High Tension Lead (LD's ONLY)	X	X	X	X	X			
<b>37773</b> Shielded High Tension Wire (optional)	X	X	X	X	X			



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**Miscellaneous**

	85-IV 16	85-IV 20	85-IV 25	85-IV 31	85-IV 35	1522 2-stage	2334 2-stage	R-25
<b>37844</b> Air Intake Tube ❖								<b>X</b>
<b>32882</b> Door Screen	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	
<b>31474</b> Duct Adapter 4"	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	
<b>36688</b> Duct Adapter 2"	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	
<b>31361</b> Duct Cover Plate 4"	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	
<b>37410</b> Gas Inlet Plug	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	
<b>37411</b> Slide Plate	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	
<b>38248</b> Transformer ❖								<b>X</b>
<b>REPLACEMENT COMPONENTS FOR LD FURNACES ONLY</b>								
<b>37383</b> Valve	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>			
<b>38564</b> Valve 2 STAGE						<b>X</b>		
<b>37973</b> Valve 2 STAGE							<b>X</b>	
<b>34422</b> Vent Assembly				<b>X</b>	<b>X</b>			
<b>34423</b> Vent Assembly	<b>X</b>	<b>X</b>						
<b>34421</b> Burner Access Panel/Combustion Cover	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	
<b>34530</b> Extended Manifold - RIGHT ANGLE INLET	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	
<b>34406</b> Extended Manifold - STRAIGHT	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	
<b>34645</b> Gas Line Gasket	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	
<b>34410</b> Intake Air Adapter	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	
<b>34570</b> Electrode	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	

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**Blower**

<b>33580</b> Blower Cover				X	X	X			
<b>34014</b> Blower Cover BACK (OUTSIDE)							X	X	X
<b>35881</b> Blower Wheel STEEL	X	X							
<b>33431</b> Blower Wheel STEEL			X						
<b>34099</b> Blower Wheel PLASTIC <b>USE 34550</b>							X	X	X
<b>34550</b> Blower Wheel STEEL							X	X	X
<b>33126</b> Blower Wheel and Clamp				X	X	X			

**Burner**

<b>36043</b> Burner	X	X	X						
<b>32811</b> Burner						X			
<b>33842</b> Burner				X	X				
<b>35491</b> Burner							X	X	X
<b>36147</b> Secondary Air Baffle 7920 & 7916 (after S/N 0651157) ⌘		X							
<b>36438</b> Secondary Air Baffle 7916 (before S/N 0651156)		X							
<b>36258</b> Secondary Air Baffle	X		X						

**Burner Orifices**

<b>31257</b> #56 16,000 BTU		X		X					
<b>31265</b> 1.25 MM 18,000 BTU		X		X					
<b>36218</b> #60 12,000 BTU (before S/N 0651156) ⌘									
<b>37389</b> #62 12,000 BTU (after S/N 0651155)	X		X						
<b>31267</b> #54 25,000 BTU					X				
<b>31280</b> #52 31,000 BTU						X			
<b>32285</b> #51 35,000 BTU						X	X	X	
<b>34004</b> #49 40,000 BTU							X	X	X
<b>34092</b> #30 40,000 BTU NAT.								X	
<b>34093</b> #32 35,000 BTU NAT.								X	

**Circuit Board**

<b>34109</b> Controller Module									X
<b>34543</b> Controller Module Bracket (NEED 34541)									X
<b>37515</b> Ignition Board Kit (AC)								X	
<b>31501</b> Ignition Board Retrofit Kit (with fan control)	X	X	X	X	X	X	X		
<b>34541</b> Ignition Bracket				X	X	X	X	X	X
<b>34696</b> Ignition Module									X
<b>36119</b> Ign. Plate Metal ❖	X	X	X						
<b>37951</b> Ign. Plate Plastic	X	X	X						

**Circuit Breakers**

<b>34007</b> Breaker RESET/OFF SWITCH	X	X	X	X				X	
<b>35791</b> Breaker 5 AMP ON/OFF SWITCH	X	X	X	X				X	
<b>33780</b> Breaker Kit 7 AMP				X	X				
<b>33590</b> Breaker 10 AMP					X	X			
<b>33781</b> Breaker Kit 10 AMP - POP UP					X	X			
<b>33782</b> Breaker Kit 15 AMP - POP UP						X	X		
<b>38507</b> Breaker 20 AMP - POP UP									X
<b>34015</b> Breaker 20 AMP - ROCKER SWITCH						X		X	

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**Combustion**

<b>35892</b> Combustion Air Hose	X	X	X						
<b>33128</b> Combustion Wheel Kit (PLASTIC)				X	X	X	X	X	X
<b>33124</b> Combustion Wheel Kit	X	X	X						

**Door**

<b>37912</b> Fastener 1/4 Turn Nylatch	X	X	X						
<b>36644</b> Access Grill (Screw-In) ❖									
<b>37520</b> Door Assy (1/4 turn fastener)	X	X	X						
<b>37864</b> Access Grill (1/4 turn Arctic White) <b>No Longer Available</b>									
<b>37760</b> Receptacle - Clip on	X	X	X						
<b>31145</b> Roller Door Catch ❖	X	X	X						

**Draft Cap**

<b>37619</b> Draft Cap Assy Adjustable ❖			X	X	X				
<b>38141</b> Draft Cap 3/8" baffle					X	X	8940	8940	X
<b>38139</b> Draft Cap 5/8" baffle				X			8935	8935	

**Electrodes**

<b>37517</b> Electrode - single sense	X	X	X						
<b>37057</b> Electrode - single sense							X	X	X
<b>36998</b> Electrode - dual sense	X	X	X						
<b>36999</b> Electrode - dual sense				X	X	X			
<b>36997</b> Electrode - dual sense							X	X	
<b>37079</b> Electrode Cover Plate (Single Sense)	X	X	X						
<b>36044</b> Electrode Cover Plate (Dual Sense) ⌘	X	X	X						

**Gaskets**

<b>35890</b> Burner Plate Gasket (use 2)	X	X	X						
<b>32172</b> Electrode Gasket Dual Sense	X	X	X	X	X	X	X	X	X
<b>37100</b> Electrode Gasket Single Sense	X	X	X	X	X	X	X	X	X
<b>34053</b> Element Wall Gasket (before SN1259907)							X	X	X
<b>37956</b> Element Wall Gasket (after SN1259906)							X	X	X
<b>32926</b> Heating Element Gasket				X	X	X			
<b>32841</b> Motor Gasket				X	X	X			
<b>37661</b> Motor Gasket	X	X	X						
<b>37713</b> Motor Gasket							X	X	X

**Heating Element**

<b>35903</b> Heating Element	X	X	X						
<b>37960</b> Heating Element Kit* 16, 20,				X					
<b>37961</b> Heating Element Kit* 25					X				
<b>37962</b> Heating Element Kit* 31, 35						X			
<b>34976</b> Heating Element							X	X	X
*Kit includes draft cap & element gasket									

**Manifolds**

<b>33565</b> Inlet Manifold (before S/N 0654748)				X	X	X			
<b>37392</b> Outlet Manifold (after S/N 0654747)				X	X	X			
<b>36376</b> Inlet Manifold (before S/N 0657716) ❖							X	X	X
<b>37392</b> Outlet Manifold (after S/N 0657715)							X	X	X
<b>37391</b> Outlet Manifold (after S/N 0651155)	X	X	X						

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	7912-II	7900-II 16 & 20	8012-II	85-III 16-20	85-III 25	85-III 31-35	89-III DC	89-III AC	2540 2-Stage
<b>33566</b> Outlet Manifold (before S/N 0654748)				X	X	X			
<b>35936</b> Outlet Manifold ✧	X	X	X						
<b>31043</b> Brass Inlet Fitting (MALE ELBOW) Use with Part #'s <b>37392/37391</b>	X	X	X	X	X	X	X	X	X
<b>32173</b> Brass Inlet Elbow (before S/N 0654748)				X	X	X			
<b>Motor</b>									
<b>32031</b> Motor AC								X	
<b>34039</b> Motor Capacitor AC								X	
<b>36122</b> Motor PF20066Q			X						
<b>31036</b> Motor PF20040Q	X	X							
<b>37964</b> Motor PF26170Q 2 STAGE									X
<b>37360</b> Motor Bracket Kit				X	X	X			
<b>35879</b> Motor Bracket	X	X	X						
<b>37359</b> Motor Kit PF20076Q				X					
<b>37358</b> Motor Kit PF23190Q					X				
<b>37357</b> Motor Kit PF26157Q						X	X		
<b>Relay</b>									
<b>31017</b> Klixon Relay	X	X	X	X	X	X	X	X	
<b>Switches</b>									
<b>37021</b> Limit Switch L77 / 170°	X	X	X				X	X	X
<b>37022</b> Limit Switch L190°				X	X	X			
<b>36121</b> ON-OFF Switch (ROCKER)	X	X	X	X	X	X	X	X	X
<b>36133</b> Sail Switch	X	X							
<b>36134</b> Sail Switch			X						
<b>36680</b> Sail Switch				X			X	X	X
<b>35054</b> Sail Switch					X				
<b>35050</b> Sail Switch						X			
<b>36040</b> Sail Switch Bracket	X	X	X						
<b>Thermostats</b>									
<b>38452</b> Thermostat (brown) Heat Only HFH-2000	X	X	X	X	X	X	X	X	
<b>38453</b> Thermostat (white) Heat Only HFH 2000	X	X	X	X	X	X	X	X	
<b>38535</b> Thermostat, Digital, 2 Stage 2H2C									X
<b>38555</b> Thermostat, Digital, Single Stage 1H2C	X	X	X	X	X	X	X	X	
<b>Valve</b>									
<b>36035</b> White Rodgers 25M16-503 Side Port (before S/N 0651156) ✧	X	X	X						
<b>37383</b> White Rodgers Side Outlet (after S/N 0651155) 25M16V-711	X	X	X						
<b>33475</b> White Rodgers Coil (DC)	X	X	X	X	X	X	X	X	X
<b>36036</b> White Rodgers Valve Bracket ⌘ (Use with Part #'s 36035)	X	X	X						
<b>37390</b> White Rodgers Valve Bracket (Use with Part #'s 37383)	X	X	X						
<b>33337</b> White Rodgers (before S/N 0654748-85 series) 25M16V-701 (before S/N 0657716-89 series)			X	X	X	X			
<b>37383</b> White Rodgers Side Outlet (After Serial #0654747) 25M16V-711				X	X	X			

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	7912-II	7900-II 16 & 20	8012-II	85-III 16-20	85-III 25	85-III 31-35	89-III DC	89-III AC	2540 2-Stage
<b>33586</b> White Rodgers Valve Bracket (Use with Part # 33337)				X	X	X	X		
<b>37426</b> White Rodgers Valve Bracket (Use with Part # 37383)				X	X	X	X		
<b>37383</b> White Rodgers Valve (DC) (After S/N 0657715)						X			
<b>34006</b> White Rodgers Valve (AC) (Before S/N 0657716) 25M18V-701							X		
<b>37384</b> White Rodgers Valve (AC) (After S/N 0657715) 25M18V-711							X		
<b>34515</b> White Rodgers Coil (AC)								X	
<b>37973</b> 2-Stage Gas Valve W/R 25M05V-701									X
<b>Vent Kit</b>									
<b>35955</b> 79A-II 4 inch	X	X	X						
<b>35956</b> 79B-II 8 inch	X	X	X						
<b>35957</b> 79C-II 12 inch	X	X	X						
<b>Wires</b>									
<b>37987</b> Field Plug Assembly									X
<b>36290</b> Field Plug Assembly				X	X	X			
<b>34116</b> High Tension Lead	X	X	X						
<b>35193</b> High Tension Lead (before S/N 0654748)				X	X	X			
<b>37419</b> High Tension Lead (after S/N 0654747)				X	X	X			
<b>35193</b> High Tension Lead (before S/N 0657716)							X	X	
<b>37419</b> High Tension Lead (after S/N 0657715))							X	X	X
<b>36180</b> Wiring Harness Complete (internal)				X	X	X			
<b>34325</b> Wiring Harness Complete DC		X					X		
<b>37443</b> Wiring Harness Complete AC								X	
<b>Miscellaneous</b>									
<b>35121</b> 24 VAC Transformer								X	
<b>36412</b> Casing Assembly	X	X							
<b>35912</b> Control Box	X	X	X						
<b>37431</b> Control Box							X	X	X
<b>36959</b> Directional Air Box Insert	X	X	X						
<b>31474</b> Duct Adapter 4"	X	X	X	X	X	X	X	X	X
<b>36688</b> Duct Adapter 2"	X	X	X	X	X	X	X	X	X
<b>31361</b> Duct Cover Plate	X	X	X	X	X	X	X	X	X
<b>33567</b> Gas Inlet Plug (Before S/N 0654748)				X	X	X			
<b>37410</b> Gas Inlet Plug (After S/N 0654747)				X	X	X			
<b>33567</b> Gas Inlet Plug (Before S/N 0657716)							X	X	X
<b>37410</b> Gas Inlet Plug (After S/N 0657715)							X	X	X
<b>33729</b> Slide Plate (Before S/N 0654748)				X	X	X			
<b>37411</b> Slide Plate (After S/N 0654747)				X	X	X			
<b>33729</b> Slide Plate (Before S/N 0657716)							X	X	
<b>37442</b> Slide Plate (After S/N 0657715)							X	X	X

*hydro flame* **Furnace**  
**REPLACEMENT PART REFERENCE**  
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❖ NLA - No longer available      ⚠ While supplies last

	85-II 16-20	85-II 25	85-II 31-35	89-I DC	89-I AC	89-II DC	89-II AC	FA 79D	FA79P	HF 80D	HF 80P
<b>Blower</b>											
33580 Blower Cover	X	X	X								
33431 Blower Wheel								X	X	X	X
33618 Blower Wheel		X	X								
33619 Blower Wheel ❖	X										
34550 Blower Wheel STEEL				X	X	X	X				
<b>Burner</b>											
32149 Burner ❖											
32811 Burner			X								
33842 Burner	X	X									
38548 Burner				X	X						
35491 Burner						X	X				
<b>Burner Orifice</b>											
31268 #59 12,000 BTU ❖								X	X	X	X
31257 #56 16,000 BTU	X							X	X		
31265 1.25 MM 20,000 BTU								X	X		
31267 #54 25,000 BTU		X									
31280 #52 31 & 32,000 BTU			X								
32285 #51 35,000 BTU			X	X	X	X	X				
34004 #49 40,000 BTU				X	X	X	X				
34093 #32 35,000 BTU NAT				X	X	X	X				
34092 #30 40,000 BTU NAT				X	X	X	X				
<b>Circuit Board</b>											
34541 Ignition Board Bracket	X	X	X	X	X	X	X				
37515 Ignition Board Kit (AC)					X		X				
31501 Ignition Board Kit (DC)	X	X	X	X		X		X		X	
<b>Circuit Breaker</b>											
31028 Breaker 5 AMP	X				X		X	X	X	X	X
33780 Breaker 7 AMP KIT		X									
33590 Breaker 10 AMP			X								
33784 Breaker 15 AMP KIT				X		X					
<b>Combustion</b>											
31881 Combustion Air Hose ❖								X	X	X	X
33124 Combustion Wheel Kit								X	X	X	X
33128 Combustion Wheel Kit	X	X	X	X	X	X	X				
<b>Door</b>											
33753 Deluxe Door 01 White	X	X	X	X	X	X	X				
33754 Deluxe Door 02 Colonial White	X	X	X	X	X	X	X				
33756 Deluxe Door 04 White	X	X	X	X	X	X	X				
33763 Deluxe Door 11 White	X	X	X	X	X	X	X				
35001 Deluxe Door 18 Gray	X	X	X	X	X	X	X				
35057 Deluxe Door 20 Gray	X	X	X	X	X	X	X				
35101 Deluxe Door 22 White	X	X	X	X	X	X	X				
35102 Deluxe Door 23 White	X	X	X	X	X	X	X				

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**REPLACEMENT PART REFERENCE**  
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	85-II 16-20	85-II 25	85-II 31-35	89-I DC	89-I AC	89-II DC	89-II AC	FA 79D	FA79P	HF 80D	HF 80P
<b>33853</b> Recess Pan 01 White	X	X	X	X	X	X	X				
<b>33854</b> Recess Pan 02 Colonial White	X	X	X	X	X	X	X				
<b>33856</b> Recess Pan 04 White	X	X	X	X	X	X	X				
<b>33863</b> Recess Pan 11 White	X	X	X	X	X	X	X				
<b>35063</b> Recess Pan 12 Grey	X	X	X	X	X	X	X				
<b>35104</b> Recess Pan 22 White	X	X	X	X	X	X	X				
<b>35105</b> Recess Pan 23 White	X	X	X	X	X	X	X				
<b>33847</b> Door Catch Screw Type (set)	X	X	X	X	X	X	X				
<b>33620</b> Door Hinge - inner (ORDER 2 PER DOOR)	X	X	X	X	X	X	X				
<b>31145</b> Roller Door Catch ❖								X	X	X	X
<b>Draft Cap</b>											
<b>37890</b> Draft Cap Assembly -				X	X	X	X				
<b>37619</b> Draft Cap Assembly ❖	X	X	X								
<b>Electrodes</b>											
<b>33234</b> Electrode								X		X	
<b>36999</b> Electrode	X	X	X								
<b>38548</b> Electrode				X	X						
<b>36997</b> Electrode						X	X				
<b>36998</b> Electrode								X		X	
<b>Exhaust Tube Extensions</b>											
<b>31680</b> 79/80A (0" - 3-1/2") NLA								X	X	X	X
<b>Gaskets</b>											
<b>34551</b> Bottom Discharge Gasket				X	X	X	X				
<b>34553</b> Bottom Discharge Gasket	X	X	X								
<b>31842</b> Burner Plate Gasket									X		X
<b>31843</b> Burner Plate Gasket								X		X	
<b>33485</b> Combustion Gasket Set								X	X	X	X
<b>32172</b> Electrode Gasket	X	X	X	X	X	X	X	X		X	
<b>32926</b> Exhaust Wall Gasket	X	X	X								
<b>34053</b> Exhaust Wall Gasket				X	X	X	X				
<b>32841</b> Motor Gasket	X	X	X	X	X	X	X				
<b>Heating Elements</b>											
<b>34976</b> Heating Element				X	X	X	X				
<b>37960</b> Heating Element Kit*	X										
<b>37961</b> Heating Element Kit*		X									
<b>37962</b> Heating Element Kit*			X								
*Kit includes draft cap & element gasket											
<b>Motor</b>											
<b>34039</b> Motor Capacitor AC					X		X				
<b>32031</b> Motor 7162-2839E AC					X		X				
<b>31035</b> Motor PF2041Q										X	X
<b>31036</b> Motor PF2040Q								X	X		
<b>32774</b> Motor PF23175Q		X									
<b>33219</b> Motor PF20068Q	X										
<b>33589</b> Motor PF23144Q			X								
<b>37360</b> Motor Bracket kit	X	X	X								
<b>37357</b> Motor Kit				X		X					



*hydro flame* **Furnace**  
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**Pilot**

	85-II 16-20	85-II 25	85-II 31-35	89-I DC	89-I AC	89-II DC	89-II AC	FA 79D	FA79P	HF 80D	HF 80P
<b>32466</b> 1/4 x 7 Pilot Tube w/ fittings									X		X
<b>33830</b> Jade Orifice .008									X		X
<b>31307</b> Jade Thermal Couple 14"									X		X
<b>31299</b> Jade Pilot Assembly J721013CLP									X		X
<b>36038</b> Piezo Igniter Kit								X	X	X	X

**Relay**

<b>31017</b> Klixon Relay	X	X	X	X	X	X	X	X	X	X	X
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**Switches**

<b>31023</b> Limit Switch L170								X	X	X	X
<b>35132</b> Limit 130 Switch	X	X	X	X	X						
<b>37021</b> Limit Switch L77-C						X	X				
<b>35047</b> Sail Switch ❖								X	X	X	X
<b>35050</b> Sail Switch			X								
<b>36680</b> Sail Switch	X			X	X	X	X				
<b>35054</b> Sail Switch		X									
<b>36205</b> Thermal Cut-Off 8900-II						X	X				

**Thermostat**

<b>38452</b> Thermostat (brown) heat only	X	X	X	X	X	X	X	X	X	X	X
<b>38453</b> Thermostat (white) heat only	X	X	X	X	X	X	X	X	X	X	X

**Valve**

<b>33716</b> ITT Valve Retrofit Kit (pilot)									X		X
<b>33796</b> ITT/FEN Valve Retrofit Kit (Electronic Ignition)								X		X	
<b>32697</b> Robertshaw Valve 7000 ERLC-LP									X		X
<b>33337</b> White Rodgers Valve 25M16-701 (DC)	X	X	X	X		X		X		X	
<b>33475</b> White Rodgers Coil (DC)	X	X	X	X		X		X		X	
<b>34006</b> White Rodgers Valve 25M18-701 (AC)					X		X				
<b>34515</b> White Rodgers Coil (AC)					X		X				

**Wires**

<b>31090</b> High Tension Lead ❖											
<b>33661</b> High Tension Lead ❖											
<b>35193</b> High Tension Lead				X	X	X	X				
<b>35235</b> Wiring Harness Blower AC ❖					X						

**Miscellaneous**

<b>35121</b> 24 VAC Transformer					X		X				
<b>31361</b> Duct Cover Plate	X	X	X	X	X	X	X	X	X	X	X
<b>31474</b> Duct Adapter	X	X	X	X	X	X	X	X	X	X	X
<b>33567</b> Gas Inlet Plug	X	X	X	X	X	X	X				
<b>33729</b> Slide Plate	X	X	X	X	X	X	X				

*hydro flame* **Furnace**  
**REPLACEMENT PART REFERENCE**  
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❖ NLA - No longer available      ⌘ While supplies last

	85-1 16-20	85-1 25	85-1 31-35	DC82 25-32	DC82 35-41	AC 82	FA 76D	FA 78 25-32	FA 72D	FA 72P
<b>Blower</b>										
31135 Blower Wheel ❖									X	X
31139 Blower Wheel				X	X	X		X		
32775 Blower Wheel ❖		X	X							
32776 Blower Wheel	X									
<b>Burner</b>										
32002 Burner ❖					X	X				
32112 Burner ⌘				X				X		
32811 Burner	X	X	X							
<b>Burner Orifice</b>										
31270 #66 Orifice									X	X
31268 #59 Orifice ❖							X			
31257 #56 16,000 BTU	X									
31265 1.25mm 18,000 BTU	X									
31267 #54 25,000 BTU		X		X				X		
31280 #52 31 & 32,000 BTU			X	X				X		
32285 #51 35,000 BTU			X		X	X			X	
31256 #50 41,000 BTU					X	X				
32284 #40 35,000 BTU NAT						X				
32238 #36 41,000 BTU NAT ⌘						X				
<b>Circuit Breaker</b>										
31028 Breaker 5 AMP	X					X	X		X	X
33780 Breaker 7 AMP		X								
33590 Breaker 10 AMP			X	X	X					
<b>Circuit Board</b>										
31501 Ignition Board Kit (DC)	X	X	X	X	X		X	X	X	
37515 Ignition Board Kit (AC)						X				
<b>Combustion</b>										
33124 Combustion Wheel Kit	X	X					X			
31138 Combustion Wheel ❖					X	X				
37107 Combustion Wheel ❖			X							
<b>Electrodes</b>										
33234 Electrode							X			
33235 Electrode				X	X	X		X		
33625 Electrode Kit	X	X	X							
36999 Electrode Only	X	X	X							
<b>Gaskets</b>										
34551 Bottom Discharge Gasket				X	X	X		X		
34553 Bottom Discharge Gasket	X	X	X							
31838 Burner Plate Gasket									X	X
32762 Burner Plate Gasket				X	X	X		X		
33485 Combustion Gasket Set							X			
32172 Electronic Ignition Electrode Gasket	X	X	X	X	X	X	X	X	X	
32926 Element Gasket	X	X	X							
31841 Manifold Gasket				X	X	X		X		
32841 Motor Gasket	X	X	X							
<b>Heating Elements</b>										
32118 Heating Element Assembly				X				X		
32119 Heating Element Assembly					X	X				

*hydro flame* **Furnace**  
**REPLACEMENT PART REFERENCE**  
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❖ NLA - No longer available      ⌘ While supplies last

**Motor**

	85-1 16-20	85-1 25	85-1 31-35	DC82 25-32	DC82 35-41	AC 82	FA 76D	FA 78 25-32	FA 72D	FA 72P
<b>31039</b> Motor JA25065N (AC)						X				
<b>31036</b> Motor PF2040Q							X			
<b>31037</b> Motor PE2423Q									X	X
<b>31038</b> Motor PE2627Q								X		
<b>32330</b> Motor PF23129Q				X	X					
<b>32774</b> Motor PF23175Q		X	X							
<b>33219</b> Motor PF2055Q	X									
<b>37360</b> Motor Bracket	X	X	X							

**Pilot**

<b>31292</b> ITT Pilot Assembly 26C1762 ⌘										X
<b>33829</b> ITT TV Orifice .010 ❖				X	X			X		
<b>32417</b> ITT TV Orifice .008										X
<b>31299</b> Jade Pilot Assembly J72C2426CL				X	X			X		
<b>32416</b> Jade Orifice .010 ❖				X	X			X		
<b>31307</b> Jade Thermocouple 14"										X
<b>32480</b> Jade Thermocouple 18"				X	X			X		

**Relay**

<b>31017</b> Klixon Relay	X	X	X	X	X	X	X	X		
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**Switch**

<b>31023</b> Limit 170 Switch							X		X	X
<b>31025</b> Limit 190 Switch w/plate				X	X	X		X		
<b>32927</b> Limit 190 Switch	X	X	X							
<b>35282</b> Sail Switch	X	X	X							
<b>33697</b> Sail Switch ❖				X	X	X		X		

**Thermostat**

<b>38452</b> Thermostat (brown) heat only	X	X	X	X	X	X	X	X	X	X
<b>38453</b> Thermostat (white) heat only	X	X	X	X	X	X	X	X	X	X

**Valves**

<b>33717</b> ITT Valve Retrofit Kit (pilot) ❖										X
<b>33688</b> ITT/FEN Valve Retrofit Kit (DSI)				X	X		X	X		
<b>33797</b> ITT/FEN Valve Retrofit Kit (DSI)							X			
<b>33806</b> ITT/FEN Valve Retrofit Kit (DSI)									X	
<b>36728</b> Johnson Valve Retrofit Kit (DSI) (AC)						X				
<b>33475</b> White Rodgers Coil	X	X	X	X	X		X			
<b>33337</b> White Rodgers Valve 25M16-701	X	X	X	X						

**Wire**

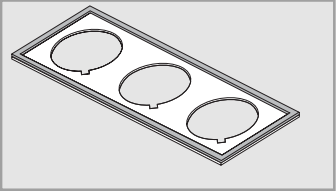
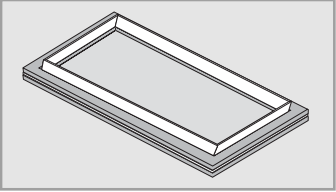
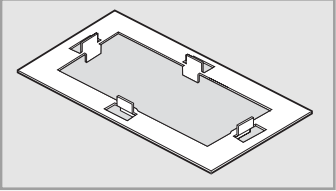
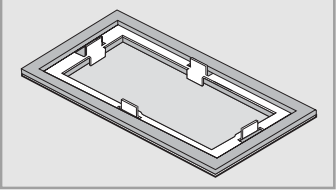
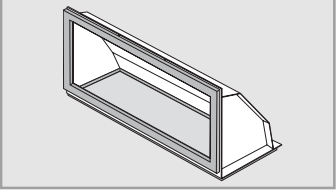
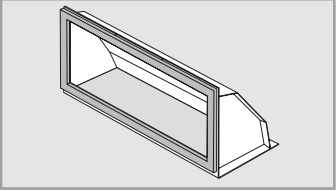
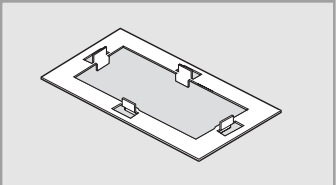
<b>32139</b> Field Hookup				X	X			X		
<b>32140</b> Field Hookup						X				

**Miscellaneous**

<b>32475</b> 12 VDC Converter						X			X	X
<b>33784</b> 24 VAC Transformer						X				
<b>31831</b> Door Interior ❖				X	X	X				
<b>33774</b> Door Catch Assemblies ❖										
<b>31474</b> Duct Adapter	X	X	X	X	X	X		X		
<b>31361</b> Duct Cover Plate	X	X	X	X	X	X	X	X		
<b>32137</b> Exhaust Tube Ext. 82F ❖				X	X	X		X		
<b>32133</b> Vent Shell (only) 82BE ❖				X	X	X		X		
<b>32134</b> Vent Shell (only) 82AD ❖				X	X	X		X		

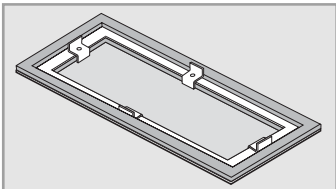
# Atwood Furnace Installation Parts

## Series 85 and 2-Stage Furnaces

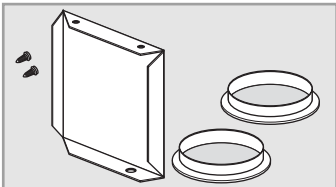
Part #	Appearance	Description
<b>34438</b>		Floor plate and (3) adapters for 4" ducts to rear of furnace.
<b>36278</b>		Adapter plate for bottom discharge - with foam seals on both sides.
<b>36277</b>		Adapter plate for bottom discharge - no seals but with alignment tabs. Use with gasket 34551.
<b>37745</b>		Adapter plate for bottom discharge - same as 36277 except includes foam seals on both sides.
<b>37878</b>		Extension plenum, rear discharge to floor duct with two seals.
<b>33150</b>		Extension plenum, rear discharge to floor duct with one seal.
<b>37868</b>		Adapter plate for bottom discharge - from extension plenum. No seals but with alignment tabs. Use with extension plenum 33150 or 37878.

# Atwood Furnace Installation Parts

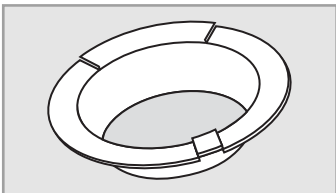
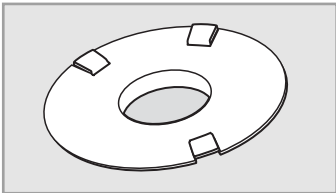
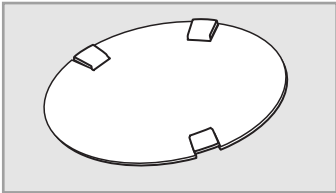
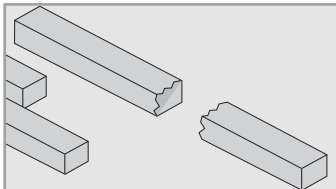
## Series 89 and 2-Stage Furnaces

Part #	Appearance	Description
36897		Adapter plate for bottom discharge - has alignment tabs and foam seals on both sides.

## Series 79 and 80 Furnaces

Part #	Appearance	Description
37452		Field Kit, side discharge

## All Atwood Furnaces

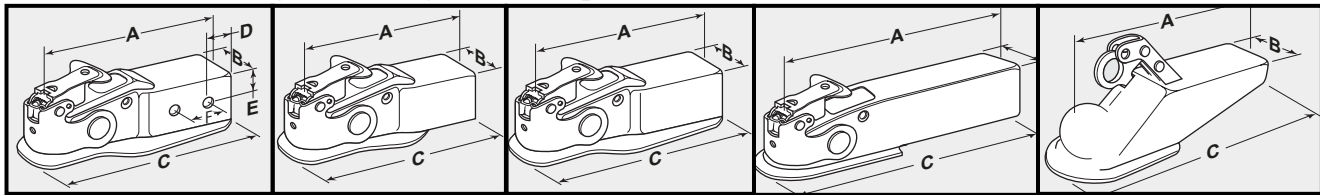
Part #	Appearance	Description
31474		Duct adapter - 4"
36688		Duct adapter - 2"
31361		Cover plate - 4"
34553		Foam tape seal 29" x 1/2"
34689		Foam tape seal 32" x 1/2" (used with 36277)
		Foam tape seal 42" x 1/2"

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The data presented in this publication is obtained from the most reliable sources, and is believed to be accurate as of the date of publication. Responsibility for typographical errors or omission of data cannot be assumed by the publishers. Data is subject to change without notice.

# Atwood Straight Tongue Couplers



80051, 80055, 80056

82311, 82315

80060

80186, 80082, 80083

80131

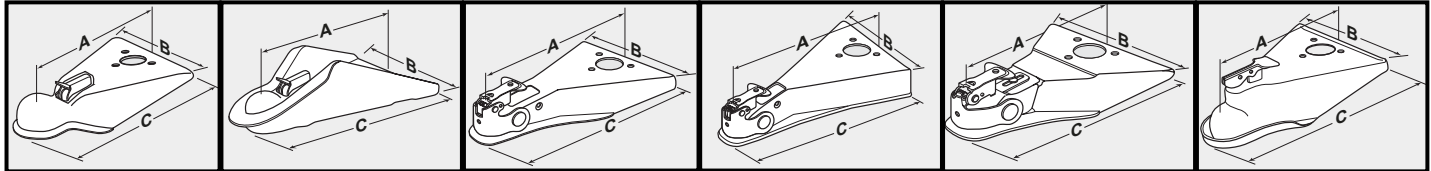
## STRAIGHT TONGUE COUPLER SELECTION GUIDE

Part No.	Description	LATCH KIT	Rated Cap. lbs.	S.A.E Class	A		B*		C		D		E		F	
					in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
80051	2" ball, 3" channel, bolt-on painted	15775	3,500	2	9 3/8	238	3	76	11	279	7/8	22	3/4	19	3	76
80055	2" ball, 3" channel, bolt-on zinc-plated	15775	3,500	2	9 3/8	238	3	76	11	279	7/8	22	3/4	19	3	76
80056	2" ball, weld-between, 3" channel unpainted, zinc plated latch	15775	3,500	2	9 3/8	238	3	76	11	279	7/8	22	3/4	19	3	76
82311	2" ball, weld-between, painted	15775	3,500	2	7 5/8	194	3	76	9 1/4	235	—	—	—	—	—	—
82315	2" ball, weld-between, unpainted, zinc plated latch	15775	3,500	2	7 5/8	194	3	76	9 1/4	235	—	—	—	—	—	—
80060	2" ball, 3" channel, painted	15775	5,000	3	9 3/8	238	3	76	11	279	—	—	—	—	—	—
80082	2" ball, 2" channel, painted	15775	5,000	3	9 1/2	241	2	51	11	279	—	—	—	—	—	—
80083	2" ball, 2" channel unpainted, zinc plated latch & clamp	15775	5,000	3	9 1/2	241	2	51	11	279	—	—	—	—	—	—
80186	2" ball, 2" channel, painted	15775	6,000	3	9 1/2	241	2	51	11	279	—	—	—	—	—	—
80131	2 5/16" ball, 3" channel, painted	07532	8,500	4	12	305	3 1/8	79	14	356	—	—	—	—	—	—

\* B dimension is the inside dimension relating to channel size

# Atwood A-Frame Couplers

Thumb Latch Release Ball Clamp —————> Wrap-Around Yoke Style Latch —————> Classic Marvel Flip Latch Style



81911, 81912,  
81915, 81916

82680\*\*

80072, 84176,  
84800

84035

80101

88007, 88010,  
88555, 88600,  
88000, 88005

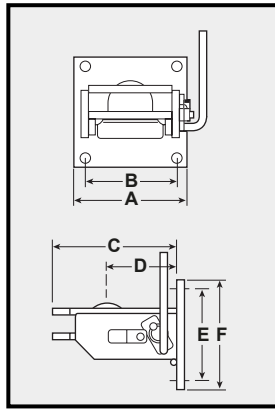
## A-FRAME COUPLER SELECTION GUIDE

\* Various aspects of design, including the latch handle design, are registered as a trademark of Atwood Industries, Inc.

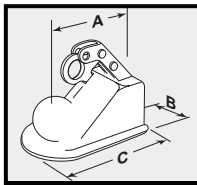
Part No.	Description	LATCH KIT	Rated Capacity lbs.	Class	A		B		C	
					in.	mm	in.	mm	in.	mm
80072	2" ball, painted, weld-on, yoke style	15775	5,000	S.A.E. 3	12 3/8	314	9 1/4	235	14	356
84176	2" ball, unpainted, weld-on, yoke style zinc latch	15775	5,000	S.A.E. 3	12 3/8	314	9 1/4	235	14	356
84035	2" ball, painted, weld-on, yoke style	15775	5,000	S.A.E. 3	13 3/8	340	10 3/8	264	14 7/8	378
84800	2" ball, painted, weld-on, yoke style	15775	6,000	S.A.E. 3	12 3/8	314	9 1/4	235	14	356
88555	2" ball, painted, weld-on, thumb latch style	88051	8,000	S.A.E. 4	9 7/8	251	9 3/4	248	11 7/8	302
88600	2" ball, unpainted, weld-on, thumb-flip latch style	88051	8,000	S.A.E. 4	9 7/8	251	9 3/4	248	11 7/8	302
80101	2 5/16" ball, painted, weld-on, yoke style	15774	8,500	S.A.E. 4	12	305	10	254	14	356
88007	2 5/16" ball, painted, weld-on, flip latch style	88061	10,000	S.A.E. 4	10 7/8	276	10 3/8	264	13	330
88010	2 5/16" ball, unpainted, weld-on, flip latch style	88061	10,000	S.A.E. 4	10 7/8	276	10 3/8	264	13	330
81911	2 5/16" ball, painted, weld-on, thumb latch style	NA	10,000	S.A.E. 4	11	279	10 7/8	276	12 3/4	324
81915	2 5/16" ball, unpainted, weld-on, thumb latch style	NA	10,000	S.A.E. 4	11	279	10 7/8	276	12 3/4	324
81912	2 5/16" ball, painted, weld-on, thumb latch style	NA	13,000	S.A.E. 4	11	279	10 5/8	270	12 3/4	324
81916	2 5/16" ball, painted, weld-on, thumb latch style w/plate	NA	15,000	S.A.E. 4	11	279	10 5/8	270	12 3/4	324
82680	2 5/16" ball, painted, weld-on, thumb latch style	NA	13,000	S.A.E. 4	11	279	10 5/8	270	13 1/8	333
88000	2" ball, OBSOLETE - OLD STYLE MARVEL	88050	** Top plate 82740 is packed with 82680 coupler. 82681 coupler is the same as 82680 except it is packed without a support plate. Top plate 22375 can also be used with 82680 or 82681 coupler if a Top Mount A-Frame Jack (5,000 lbs. max) is used in this application.							
88005	2 5/16" ball, OBSOLETE - OLD STYLE MARVEL	88060								



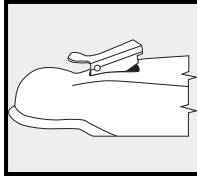
# Atwood Specialty Couplers



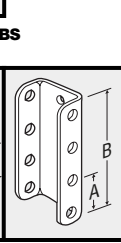
Flat Nose Coupler - **75074**



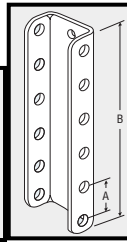
Adjustable - **80290 OBS**



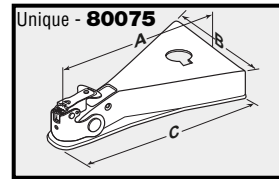
Adjustable - **81906\***



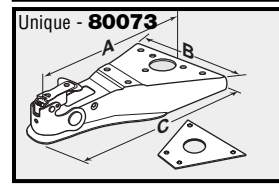
**80355**



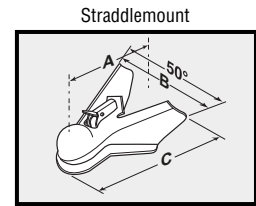
**80308**



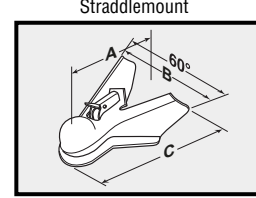
Unique - **80075**



Unique - **80073**



**83461 — 50° Coupler**  
**83462 — 50° Coupler**  
**84140 — 50° Coupler**



**83549 — 60° Coupler**  
**83551 — 60° Coupler**  
**84060 — 60° Coupler**

## SPECIALTY COUPLER SELECTION GUIDE

Part No.	Description	LATCH KIT	Rated Cap. lbs.	S.A.E. Class	A		B		C		D		E		F	
					in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
<b>80073</b>	2" ball, galvanized, bolt-on, yoke style	<b>15775</b>	5,000	3	12 <sup>3</sup> / <sub>8</sub>	314	9 <sup>1</sup> / <sub>4</sub>	235	14	356	—	—	—	—	—	—
<b>80075</b>	2" ball, rack jack mount, painted, yoke style latch	<b>15775</b>	5,000	3	13 <sup>3</sup> / <sub>8</sub>	340	10 <sup>3</sup> / <sub>8</sub>	264	14 <sup>7</sup> / <sub>8</sub>	378	—	—	—	—	—	—
<b>OBS 80285</b>	4 hole bracket for adj. coupler	—	12,000	—	2	51	7.5	191					—	—	—	—
<b>80355</b>	4 hole bracket for adj. coupler	—	15,000	—	2	51	9.34	237.2					—	—	—	—
<b>80308</b>	6 hole bracket for adj. coupler	—	15,000	—	2	51	13.34	338.8					—	—	—	—
<b>81906</b>	2 <sup>5</sup> / <sub>16</sub> " ball, adj. coupler w/o brkt	<b>07532</b>	15,000	—	7.25	184	2.8	76	9.25	235	—	—	—	—	—	—
<b>OBS 80290</b>	2 <sup>5</sup> / <sub>16</sub> " ball, adj. coupler weld on	<b>07532</b>	12,000	—	7	178	3	76	9	229	—	—	—	—	—	—
<b>75074</b>	flat nose coupler, painted	—	25,000	—	6	152	4 <sup>1</sup> / <sub>2</sub>	114	6 <sup>3</sup> / <sub>4</sub>	171	3 <sup>3</sup> / <sub>4</sub>	95	4 <sup>1</sup> / <sub>2</sub>	114	6	152
<b>OBS 80281</b>	2 <sup>5</sup> / <sub>16</sub> " ball, adj. coupler w/o brkt	<b>07532</b>	12,000	—	7	178	3	76	9	229	—	—	—	—	—	—
<b>Mobile home only — 2<sup>5</sup>/<sub>16</sub>" ball, straddlemount — thumb latch</b>																
<b>83461</b>	coupler 50°, painted	<b>NA</b>	32,000	—	8	203	6 <sup>7</sup> / <sub>8</sub>	175	9 <sup>7</sup> / <sub>8</sub>	251	—	—	—	—	—	—
<b>83551</b>	coupler 60°, painted	<b>NA</b>	32,000	—	8	203	7 <sup>7</sup> / <sub>8</sub>	200	9 <sup>7</sup> / <sub>8</sub>	251	—	—	—	—	—	—
<b>84140</b>	coupler 50°, painted	<b>NA</b>	40,000	—	8	203	6 <sup>7</sup> / <sub>8</sub>	175	9 <sup>7</sup> / <sub>8</sub>	251	—	—	—	—	—	—
<b>84060</b>	coupler 60°, unpainted	<b>NA</b>	40,000	—	8	203	7 <sup>7</sup> / <sub>8</sub>	200	9 <sup>7</sup> / <sub>8</sub>	251	—	—	—	—	—	—
<b>83462</b>	coupler 50°, unpainted	<b>NA</b>	44,000	—	8	203	7 <sup>7</sup> / <sub>8</sub>	200	9 <sup>7</sup> / <sub>8</sub>	251	—	—	—	—	—	—
<b>83549</b>	coupler 60°, unpainted	<b>NA</b>	44,000	—	8	203	6 <sup>7</sup> / <sub>8</sub>	175	9 <sup>7</sup> / <sub>8</sub>	251	—	—	—	—	—	—

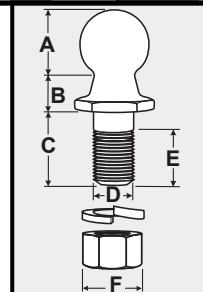
# Atwood Hitch Balls

## HITCH BALL SELECTION GUIDE

Part No.	Description	Rated Capacity lbs.	A		B		C		D		E		F	
			in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
<b>84137</b>	2 <sup>5</sup> / <sub>16</sub> " forged hitch ball	40,000	2 <sup>1</sup> / <sub>8</sub>	54	1 <sup>1</sup> / <sub>4</sub>	32	2 <sup>1</sup> / <sub>2</sub>	64	1 <sup>3</sup> / <sub>8</sub>	35	1 <sup>3</sup> / <sub>4</sub>	45	2 <sup>1</sup> / <sub>8</sub>	54
<b>80212</b>	2 <sup>5</sup> / <sub>16</sub> " forged hitch ball	13,000	2	51	1 <sup>1</sup> / <sub>4</sub>	32	2 <sup>1</sup> / <sub>2</sub>	64	1 <sup>3</sup> / <sub>8</sub>	35	2	51	2 <sup>1</sup> / <sub>8</sub>	54
<b>80202</b>	2" hitch ball	8,500	1 <sup>9</sup> / <sub>16</sub>	40	1 <sup>3</sup> / <sub>16</sub>	30	2 <sup>1</sup> / <sub>4</sub>	57	1 <sup>3</sup> / <sub>8</sub>	35	1 <sup>5</sup> / <sub>8</sub>	41	2 <sup>1</sup> / <sub>8</sub>	54
<b>82551</b>	2" forged hitch ball	6,000	1 <sup>3</sup> / <sub>4</sub>	45	1 <sup>3</sup> / <sub>8</sub>	35	2	51	1	25	1 <sup>1</sup> / <sub>2</sub>	38	1 <sup>1</sup> / <sub>2</sub>	38
<b>80201</b>	2" forged hitch ball	5,000	1 <sup>3</sup> / <sub>4</sub>	45	1 <sup>3</sup> / <sub>8</sub>	35	2	51	1	25	1 <sup>1</sup> / <sub>2</sub>	38	1 <sup>1</sup> / <sub>2</sub>	38

Each Atwood hitch ball comes complete with a lock washer and hex nut for quick, secure installation, and meets all applicable S.A.E. and D.O.T. standards.

- The hitch ball should always be checked for correct size.
- Match coupler and check for wear and roundness.
- Always replace hitch ball and coupler if components are damaged or loose.





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**LITERATURE NUMBER MPD 87297**

## LATCH REPLACEMENT

**ENGLISH, FRANÇAIS (et Canada)**

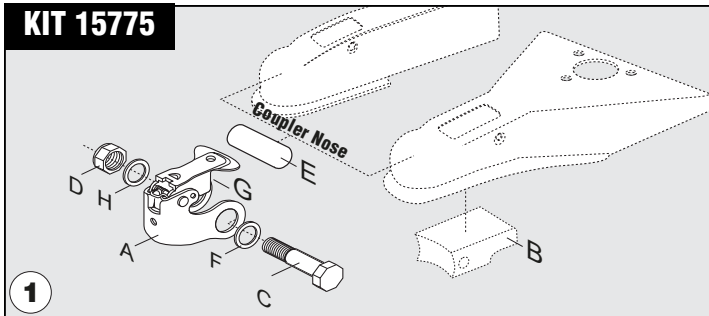
**•Installation •Operation •Maintenance**

Effective 10/10/06

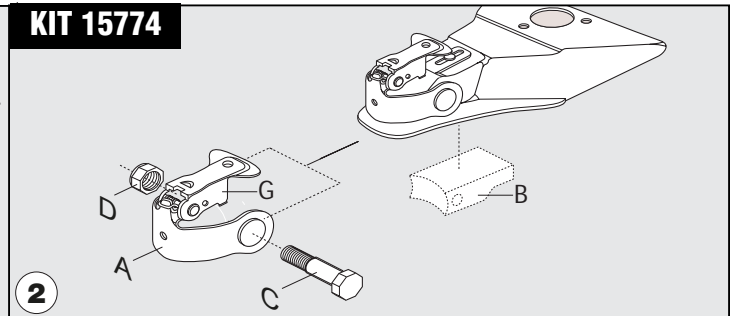
### 2" Yoke Style Coupler

### 2-5/16" Yoke Style Coupler

#### KIT 15775



#### KIT 15774



**For complete coupler instructions consult MPD 87984.**



#### WARNING

##### PERSONAL INJURY/PRODUCT DAMAGE

- Replace couplers that are worn or damaged, or not operating freely.



#### WARNING

##### PRODUCT DAMAGE

- Coupler must be disengaged from hitch ball.
- Latch must be in closed position for repairs.

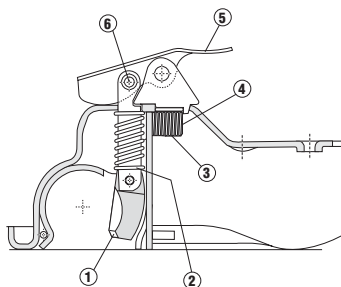
#### TO TAKE APART

1. Grind off staked end of pin (FIG 1 & 2-C) that goes through nose of coupler.
2. Slide pin out side of coupler.
3. Remove ball clamp (FIG 1 & 2-B) from under side of coupler nose.
4. Remove latch and yoke assembly from top of coupler nose.
5. Discard old parts. **DO NOT REUSE!**

#### INSTALLATION PROCEDURE

1. Place latch and yoke assembly (FIG 1 & 2) over coupler nose and align holes on yoke assembly with holes on sides of coupler nose and hold in place.
2. Place ball clamp (FIG 1-B & 2-B) inside nose of coupler and align its holes with holes in yoke assembly and holes in sides of coupler nose.
3. **For 2" coupler -**
  - a. Place insert sleeve (FIG 1-E) into ball clamp (FIG 1-B) and install under coupler nose.
  - b. Place washer (FIG 1-F) on bolt (FIG 1-C).
  - c. Align the hole in the latch yoke assembly (FIG 1 A) and insert sleeve/ball clamp assembly (FIG 1 B & E) with the hole in the coupler nose. Then install bolt assembly (FIG 1 C & F) through both sides of coupler nose.
  - d. Place other washer (FIG 1-H) and nut (FIG 1-D) on exposed threaded portion of bolt and torque nut to 15 ft. lbs.
3. **For 2-5/16" coupler -**
  - a. Place ball clamp (FIG 2-B) under coupler nose.
  - b. Align the hole in the latch and yoke assembly (FIG 2-A & G) and ball clamp (FIG 2-B) with the hole in the coupler nose. Install the hole in the coupler nose followed by the bolt (FIG 2-C).
4. Check coupler for proper latching on a proper diameter ball. Insert ball, close coupler. The two legs of the latch handle (FIG 1 & 2-G) MUST fit snugly into the mating 2 slots on top of the coupler.

#### "Marvel"



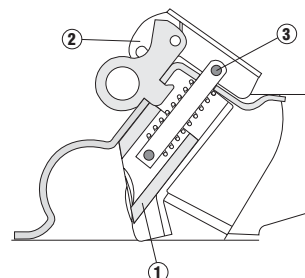
#### COUPLER REPAIR KITS 88060/88050

1. Lock and shoe assembly
2. Coupler spring
5. Handle
6. Roll pin

#### COUPLER REPAIR KITS 88061/88051

1. Lock and shoe assembly
2. Coupler spring
3. Retainer spring
4. Spring retainer
5. Handle
6. Roll pin

#### "John Deere"



#### COUPLER REPAIR KIT 07532

1. Plunger, link spring assembly
2. Cam and handle assembly
3. Rivet

# Yoke Style Coupler

## TROUBLE SHOOTING GUIDE

Effective: 8/21/06

Guides are only intended for use on Atwood® products by service technicians who have successfully completed Atwood® training. This guide should be used in conjunction with the appropriate Instruction Manual provided with the product and any applicable Industry Standards. This is not intended to be a complete list. Please direct questions concerning service of Atwood® products to 866-869-3118 before proceeding.



### WARNING

PERSONAL INJURY AND/OR PRODUCT DAMAGE

- If any of the following conditions develop, the trailer must not be used until proper corrective action is taken.

### CONDITION WITH SOLUTIONS

#### Chucking or Clatter

Lack of ball lubrication	Lubricate with conventional automotive grease or commercial lubricant made for hitch balls
Loose hitch ball	Inspect hitch ball and tighten
Hitch ball worn or too small	Replace ball
Worn ball clamp	Replace coupler
Worn ball socket	Replace coupler
Multi-piece ball	Replace with one piece ball

#### Release Handle Does Not Close Easily

Oversize ball	Check ball size
Ball not fully inserted into ball socket	Check for proper ball size. Check to see if jack is fully retracted. Insure release handle is open when inserting ball.
Broken release handle spring	Replace release handle and yoke assembly

Obstruction in ball socket	Clean ball socket
Seized ball clamp	Lubricate clamp with SAE 30 oil or replace coupler.

### CONSUMER MAINTENANCE CHECKLIST

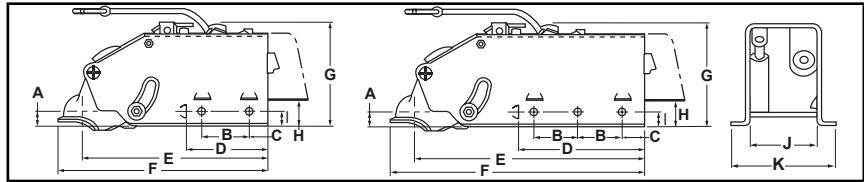
- **MONTHLY CLEAN AND GREASE.**  
If the ball socket or ball clamp show any signs of unusual wear or deformation, the entire coupler should be replaced. The ball clamp is not replaceable.
- **REGULARLY CHECK THE HITCH AND BALL FOR WEAR.**  
All mounting hardware on the hitch should be tight and any worn bolts, washers or nuts should be replaced. The ball should not show any signs of unusual wear or scoring. If this is present, the ball should be replaced and the coupler socket should be checked for dirt or obstructions and a film of grease applied to the socket.
- **REGULARLY OIL ALL SLIDING PARTS OF THE COUPLER WITH S.A.E. 30 OIL.**  
The primary parts this pertains to are the bolt that the ball clamp and yoke latch swivel on and the thumb latch.
- **REGULARLY INSPECT THE COUPLER WELDS.**  
Look closely for hairline cracks and if any are visible, grind the weld off and re-weld according to the instructions provided in the product IOM. If the coupler is bolted to the frame, inspect the mounting bolts. Tighten them or replace if necessary.
- **REGULARLY INSPECT THE COUPLER BODY FOR ANY CRACKS OR DEFORMITIES.**  
If any exist, do not attempt to weld the cracks or straighten the body. Replace the coupler.
- **REGULARLY CHECK THE LATCH MECHANISM MOVES FREELY.**  
If it does not, remove any obstructions. If the spring in the mechanism is damaged, replace the entire yoke latch.

## Surge System Terminology

TERMINOLOGY	DEFINITION	TERMINOLOGY	DEFINITION
<b>Backing Plate</b>	the round thin machined plate of the foundation brake that attaches to the axle flange and to which all the brake components are attached.	<b>Lock-out Lever</b>	the device on the actuator that inactivates the brake so that the trailer can be backed up.
<b>Ball Clamp</b>	the device in the ball socket that retains the hitch ball.	<b>Master Cylinder</b>	the reservoir housed in the actuator that contains and supplies all of the brake fluid to the surge system.
<b>Ball Socket</b>	the nose casting of the actuator that receives the hitch ball.	<b>Piston</b>	the inside workings of the master cylinder and wheel cylinder that pump hydraulic fluid.
<b>Bleeder Nut</b>	the threaded nut on the wheel cylinder casting used in bleeding the brake system.	<b>Push Rod</b>	the heavy coiled rod that engages the inlet of the master cylinder.
<b>Bleeding Brakes</b>	the process in which the air is purged from the hydraulic system.	<b>Release Handle</b>	the thumb latching mechanism on the top of the actuator that opens and closes the ball clamp.
<b>Boot</b>	the protective external rubber seal of the wheel cylinder and master cylinder.	<b>Shock Absorber</b>	the gas filled piston in the actuator that smooths out the braking motion.
<b>Brake Line</b>	typically 3/16" steel tubing that transfers hydraulic fluid from the actuator to the foundation brakes.	<b>Shoulder Bolt</b>	the bolt that links the ball socket, shock absorber and push rod.
<b>Brake Shoe</b>	the steel web and attached asbestos lining that produce the friction against the drum for braking.	<b>Surge Brake Actuator</b>	the entire brake housing and its components that are attached to the tongue of the trailer.
<b>Break-away Device</b>	the actuator device connected to the tow vehicle that immediately locks up the brake system, should the tow vehicle and trailer become disconnected in transit.	<b>Surge Brake System</b>	a hydraulic self-contained system of components that require forward motion of the trailer for braking.
<b>Chucking</b>	the term used to describe the condition of a jerky braking motion.	<b>Uni-Servo Brakes</b>	indicates that there is braking only in the forward motion of trailer. The pistons on the trailer brakes face forward.
<b>Hold Down Springs</b>	the springs that retains the shoes to the backing plate of the foundation brake.	<b>Wheel Cylinder</b>	the casting on the foundation brake that transfers hydraulic pressure from the master cylinder to the brake shoes.

# Atwood Surge Brake Actuators

## Surge Brake Actuator Selection Guide



Part No.	Description	Rated Capacity lbs.	Class	Tongue Load (max.)		A	B	C	D	E	F	G	H	I	J	K
82543	2" ball, painted	6,000	S.A.E. 4	900 lbs.	in.	7/8	3	1 1/8	5 1/8	11 9/16	13 3/16	6 5/8	1 11/16	11/16	3 1/16	4 5/8
					mm	22	76	29	130	294	335	168	43	17	78	117
83153*	2" ball, painted, zinc plated latch	6,000	S.A.E. 4	900 lbs.	in.	7/8	3	1 1/8	5 1/8	11 9/16	13 3/16	6 5/8	1 11/16	11/16	3 1/16	4 5/8
					mm	22	76	29	130	294	335	168	43	17	78	117
84132	2" ball, zinc plated	6,000	S.A.E. 4	900 lbs.	in.	7/8	3	1 1/8	5 1/8	11 9/16	13 3/16	6 5/8	1 11/16	11/16	3 1/16	4 5/8
					mm	22	76	29	130	294	335	168	43	17	78	117
84133*	2" ball, zinc plated, zinc plated latch	6,000	S.A.E. 4	900 lbs.	in.	7/8	3	1 1/8	5 1/8	11 9/16	13 3/16	6 5/8	1 11/16	11/16	3 1/16	4 5/8
					mm	22	76	29	130	294	335	168	43	17	78	117
88730	2" ball, zinc plated* for disc brakes	6,000	S.A.E. 4	900 lbs.	in.	7/8	3	1 1/8	5 1/8	11 9/16	13 3/16	6 5/8	1 11/16	11/16	3 1/16	4 5/8
					mm	22	76	29	130	294	335	168	43	17	78	117
88740	2" ball, painted for disc brakes	6,000	S.A.E. 4	900 lbs.	in.	7/8	3	1 1/8	5 1/8	11 9/16	13 3/16	6 5/8	1 11/16	11/16	3 1/16	4 5/8
					mm	22	76	29	130	294	335	168	43	17	78	117
83000	2" ball, painted, weld-on only	8,000	S.A.E. 4	1,000 lbs.	in.	7/8	3	1 1/8	8 1/8	14 9/16	16 3/16	6 5/8	1 11/16	—	3 1/16	4 5/8
					mm	22	76	29	206	370	411	168	43	—	78	117
83005	2" ball, painted, bolt-on	8,000	S.A.E. 4	1,000 lbs.	in.	7/8	3	1 1/8	8 1/8	14 9/16	16 3/16	6 3/4	1 13/16	11/16	3 1/16	4 5/8
					mm	22	76	29	206	370	411	171	46	17	78	117
83010	2" ball, zinc-plated, bolt-on	8,000	S.A.E. 4	1,000 lbs.	in.	7/8	3	1 1/8	8 1/8	14 9/16	16 3/16	6 3/4	1 13/16	11/16	3 1/16	4 5/8
					mm	22	76	29	206	370	411	171	46	17	78	117
80366	2" ball, zinc plated* bolt-on for disc brakes	8,000	S.A.E. 4	1,000 lbs.	in.	7/8	3	1 1/8	8 1/8	14 9/16	16 3/16	6 5/8	1 11/16	—	3 1/16	4 5/8
					mm	22	76	29	206	370	411	168	43	—	78	117
80360	2" ball, painted*, weld-on for disc brakes	8,000	S.A.E. 4	1,000 lbs.	in.	7/8	3	1 1/8	8 1/8	14 9/16	16 3/16	6 5/8	1 11/16	—	3 1/16	4 5/8
					mm	22	76	29	206	370	411	168	43	—	78	117

\* Bulk pack — all others are in individual cartons. \*\*8,000 lb. weld on actuators do not have holes for bolt attachment (weld on ONLY).

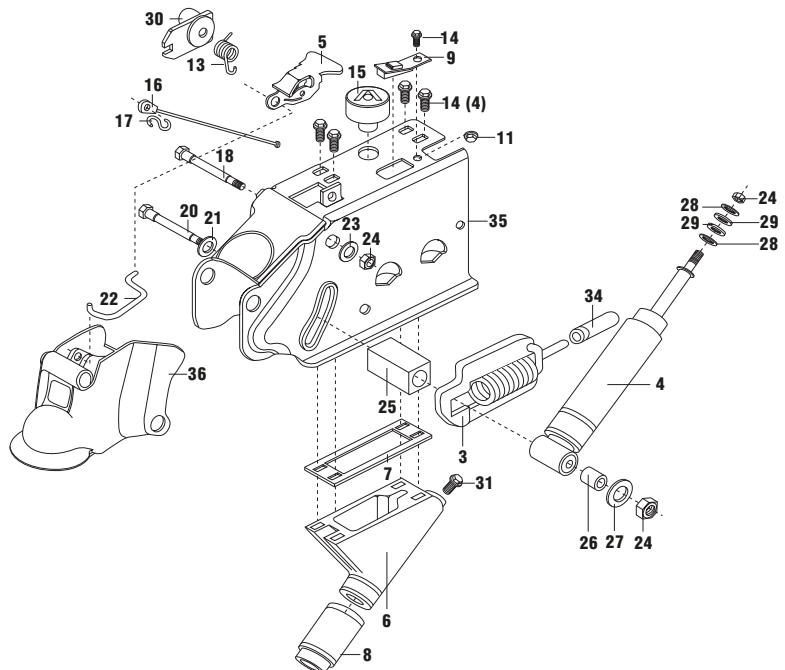
\* Compatible with Kodiak® and Reliable® Disc Brake Systems

## Hydraulic Brake Actuators

**TO ORDER:** All kits available for field replacement are numbered. Parts illustrated but not numbered are not available for replacement. Contact the Service Department for further information.

**NOTE:** Save all attaching hardware when disassembling.

KIT #	DESCRIPTION	REPLACEMENT KIT INCLUDES
85830	SHOCK ABSORBER	4, 24-2 EA. 28-2 EA. 29-2 EA.
87478	CAP	15
85842	SHOULDER BOLT	20, 21, 24-2 EA., 25, 26, 27
85844	RELEASE HANDLE	5, 13, 18, 22, 24-3 EA., 30
85849	STOP & SPRING ASSEMBLY	9, 11, 14, 24
85852	PUSH ROD ASSEMBLY	3, 7, 11, 14-5 EA., 16, 17, 24-2 EA., 34, 8, 9
84258	BOOT	8
80777	ORIFICE-DISC BRAKE APPLICATIONS ONLY	31
85837	MASTER CYLINDER-PUSH ROD KIT DRUM BRAKE APPLICATION	3, 6, 7, 8, 9, 11, 14-5 EA., 16, 17, 24-2 EA. 34
85841	MASTER CYLINDER DRUM BRAKE APPLICATION	6, 7, 14-4 EA. MUST ORDER 84258 SEPARATELY
85838	MASTER CYLINDER-PUSH ROD KIT DISC BRAKE APPLICATION	3, 6, 7, 8, 9, 11, 14-5 EA., 16, 17, 24-2 EA. 34, 15
85840	MASTER CYLINDER DISC BRAKE APPLICATION	6, 7, 14-4 EA. MUST ORDER 84258 SEPARATELY
80376	SOLENOID KIT (DISC ONLY)	CYLINDER, GASKET, SCREW BACK UP SOLENOID ASSEMBLY
85271	6,000 LB DRUM BRAKE HOUSING KIT	7, 35, 36
85309	6,000 LB HOUSING KIT - DISC BRAKES	7, 35, 36

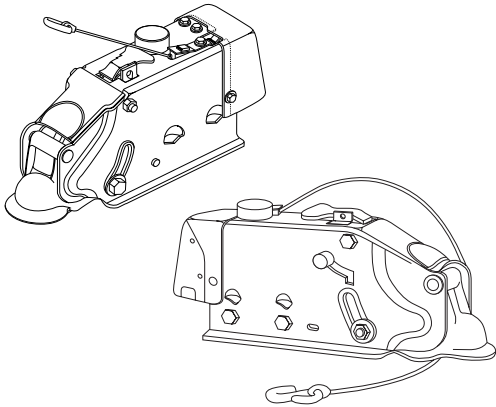


# Surge Brake Actuators

## 6000 & 8000 LB RATING DRUM AND DISC

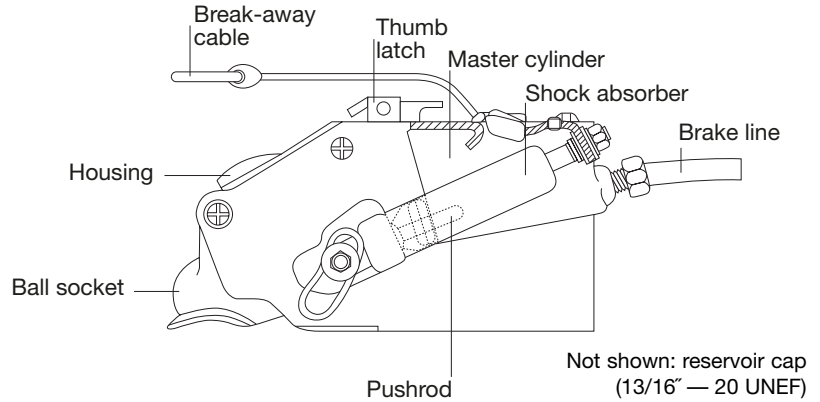
- Fits 3" channel, 2" ball
- Stamped ball clamp
- High gain braking
- Painted or zinc-plated
- Serviceability
- Bolt-on or weld-on
- Simple thumb latch
- Brake lock-out lever
- Break-away cable
- Equalizer hitch compatible
- Disc actuators are available with electric back-up solenoid.

## 6000 & 8000 LB SPECIFICATIONS



- 4 S.A.E. rating
- **6000 LB. ACTUATOR** - 900 lb. static Max. tongue load
- **8000 LB. ACTUATOR** - 1000 lb. static Max. tongue load
- Stamped channel width
- 2" Ball socket size
- Electro-deposited black paint or zinc plated corrosion protection
- 200 - 1200 psi (650 psi avg.) hydraulic pressure
- 20 lb Shipping weight

## IDENTIFICATION



## SEQUENCE OF OPERATION:

Tow vehicle applies brakes



Ball socket pivots



Pushrod engages piston of master cylinder and shock absorber compresses providing some resistance



Master cylinder forces fluid through brake line

## HIGH GAIN BRAKING

The Atwood actuator separates itself from the competition in its 'high gain' braking capability. The following information will help you understand this 'high gain' concept.

$$A = 2\text{--}1/2"$$

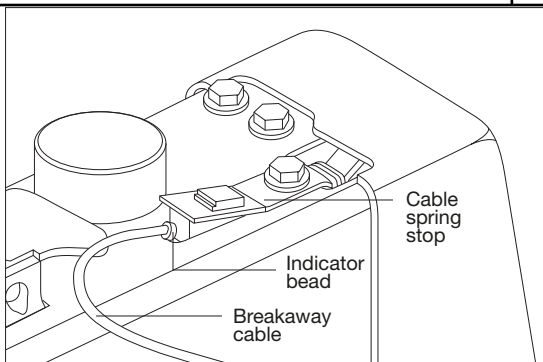
$$A \text{ divided by } C = \text{ratio} = 1.11 \text{ to } 1.00$$

$$B' \text{ to } B^2 = 2\text{--}1/4"$$

$$C = \text{movement of } B1 \text{ as ball moves backward } (B2) = 2\text{--}1/4"$$

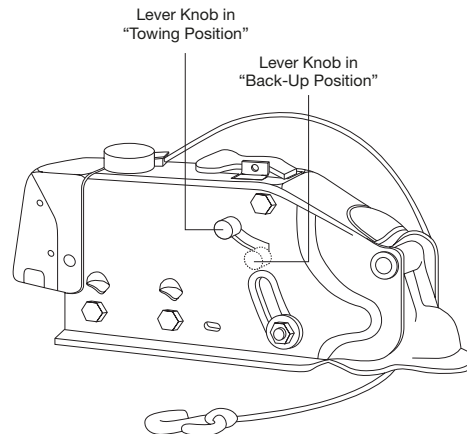
"High Gain" means that more force goes into master cylinder than applied at ball. As ball moves backwards, "C" becomes smaller and "A" stays the same. Ratio becomes larger, thus high gain in force.

Competitor actuators are linear and therefore have a 1:1 ratio.



## BREAK-AWAY CABLE

- The break-away cable is not replaceable as just a cable. It is only available with the push rod attached to it.
- The cable must be attached to the tow vehicle as near to center as possible. This will ensure that the cable will properly engage if the tow vehicle and trailer should separate in transit.
- DO NOT use the cable as a parking brake.
- If breakaway cable is activated, it is important that it be positioned properly before actuator is used again. The cable should be re-inserted into the actuator so that the indicator bead on the cable rests against the cable spring stop on the top of the actuator.



## LOCK OUT LEVER

- The lock-out lever cannot be added to an actuator not equipped with this device.
- NEVER alter the actuator such that the lock-out lever cannot move freely.



# Surge Brakes

## TROUBLE SHOOTING GUIDE

Guides are only intended for use on Atwood® products by service technicians who have successfully completed Atwood® training. This guide should be used in conjunction with the appropriate Instruction Manual provided with the product and any applicable Industry Standards. This is not intended to be a complete list. Please direct questions concerning service of Atwood® products to 866-869-3118 before proceeding.



### WARNING

#### PERSONAL INJURY AND/OR PRODUCT DAMAGE

- If any of the following conditions develop, the trailer must not be used until proper corrective action is taken.

#### CONDITION WITH SOLUTION

##### Squeaking, Clatter or Chucking

Lack of hitch ball lubrication	Lubricate with conventional automotive grease or commercial lubricant made for hitch balls
Binding linkage & pivots on the brake actuator	Oil linkage & pivots on brake actuator
Loose hitch	Inspect hitch & tighten
Actuator loose on trailer frame	Inspect brake actuator & tighten
Hitch ball worn or too small	Replace
Overheated brakes	Replace wheel bearing
Broken brake drum(s)	Replace brake drum(s) & check brake shoes
Low brake fluid level	Fill & bleed brakes, per IOM instructions
Worn out shock absorber	Replace
Partial application of breakaway cable	Fully release breakaway cable
Brakes improperly adjusted	Check brakes for adjustments per IOM
Broken brake return spring	Replace return spring
Seized actuator master cylinder	Replace/rebuild actuator master cylinder
Worn out brake shoes	Replace brake shoes & check brake drums
Leaky wheel cylinder	Replace/rebuild wheel cylinders & replace brake shoes. Clean drums & other hardware

##### Release Handle Does Not Close Easily

Oversized ball	Check ball size
Ball not fully inserted into socket	Check for proper ball size. Check to see if tongue jack is fully retracted. Hold release handle open when inserting ball.
Foreign material in actuator socket	Clean and lubricate

##### Brake Overheating, Side Pull, Brakes Do Not Operate, Poor Brake Performance

Only one brake is applying	Check brake adjustment, per IOM
Leaking wheel cylinder	Check and replace wheel cylinder and bleed brakes, per IOM instructions.
Seized wheel cylinder piston	Check and rebuild/replace wheel cylinder and bleed system, per IOM instructions.
Foreign material in brake unit	Clean thoroughly
Low hydraulic fluid level	Fill & bleed brakes, per IOM instructions
A bent shoulder bolt	Replace
A bend push rod in the	Replace shock absorber shock absorber
A damaged socket assembly	Replace actuator
Broken/pinched brake lines	Replace
Brake actuator frame damaged	Replace actuator
Worn brake shoe(s)	Replace brake shoe(s)

##### Towing Vehicle Shaking Back and Forth

Worn vehicle suspension	Replace shock absorber
Hitch not secure	Tighten all bolts and nuts
Under-sized hitch ball	Ball should be 2" machined/forged type

##### Adjusting 7" & 10" Brakes

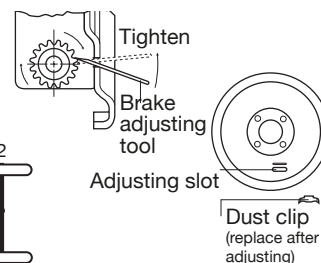
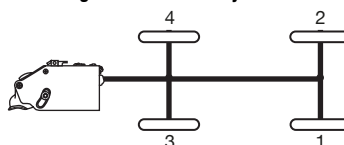
Trailer brakes should be adjusted after the first 1,000 miles of use and at least every 2,000 miles of use thereafter. In addition, trailer brakes should also be inspected for excessive wear, replace lining if necessary and adjusted at the beginning of each season or yearly. Wheel bearings and seals should be inspected and packed at this time.

Effective: 8/22/06

Raise one trailer wheel at a time, chock opposite wheel to prevent trailer from rolling. Remove dust clip from adjusting slot at lower part of back side of brake assembly and insert brake adjusting tool. Adjust brake shoes out until wheels will not turn by moving end of adjusting tool toward top of brake. When this condition is felt, by rotating wheel, back-off (loosening) adjustment until wheel will just turn freely.

- 7" single axle 10 notches
- 7" tandem axle 5 notches
- 10" single axle 8/10 notches
- 10" tandem axle 4/5 notches

#### Bleeding the Brake System



- Bleeding the brake system at the actuator using a power bleeder or a manual rod/hitch ball bleeder.
- On single axle trailers, bleed the brake that is furthest from the main hydraulic line first. This means that you would bleed brake 3 first on a single axle trailer and brake 1 first on a dual axle trailer with brakes on both axles.
- Use DOT 3 or 4 brake fluid.
- Synthetic silicone based brake fluid is not recommended. It has low water tolerance and decreases braking performance.

Check: • all hydraulic fittings are secure  
 • fill and bleed brake system as follows:

1. Remove master cylinder filler cap and fill reservoir with DOT type 3 or 4 automotive brake fluid.
2. Check all hydraulic line fittings & connections to make sure they are leak free.
3. At brake assembly, connect a bleeder hose to bleeder fitting on wheel cylinder and submerge free end in a container with brake fluid. DO NOT reuse brake fluid.

NOTE: Use power bleeder or bar with 2" diameter hitch ball attached (FIG 9). Do not use breakaway cable for purpose of bleeding brake system. If a power bleeder is used air pressure 35 PSI is most effective.

NOTE: Bleed brakes on rear most axle furthest from the actuator first.

4. Loosen bleeder fitting at top of brake assembly.
5. Apply actuator (see FIG 9) and tighten bleeder fitting. Return actuator to forward position. Again, loosen bleeder valve one turn and apply actuator. Repeat this procedure until fluid expelled from bleeder hose is free of air bubbles. It is helpful to lower the trailer tongue to promote air bubble movement in the brake tubing. It is also helpful to tap gently along the brake tubing during brake bleeding to keep air bubbles from sticking to the inside of the brake tubing. During this procedure, master cylinder reservoir fluid level must be maintained at no less than 1/2 full and no more than 1/2" from top of reservoir.
6. When no air bubbles are visible, close bleeder valve securely and remove bleeder hose.
7. Repeat STEP 1-6 for remaining brake, then brakes on forward axle.
8. If installation is tandem axle with brakes on both axle, repeat bleeding procedure on rear axle brakes for second time to assure positive purging of all air in system.
9. After bleeding has been completed, re-check fluid level in master cylinder.

**IMPORTANT: do NOT use brake fluid drained from brake system in refilling master cylinder. Brake fluid can be contaminated from the system.**

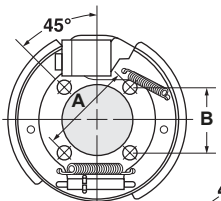
# Atwood Foundation Brakes

## Foundation Brake Selection Guide

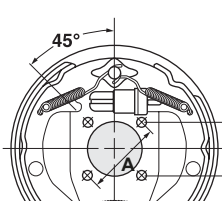
Part No.	Description	Wheel-Hub Drum Group +	A		B		Pack
			in.	mm	in.	mm	
7" BRAKES							
85740	7" x 1 <sup>3</sup> / <sub>4</sub> " left and right hand, painted	1,800*	4 B.C.	102	3	76	Box
84181	7" x 1 <sup>3</sup> / <sub>4</sub> " left hand, painted	1,800*	4 B.C.	102	3	76	Bulk
84186	7" x 1 <sup>3</sup> / <sub>4</sub> " right hand, painted	1,800*	4 B.C.	102	3	76	Bulk
10" BRAKES							
85735	10" x 2 <sup>1</sup> / <sub>4</sub> " left and right hand, painted	3,500	4 B.C.	102	3	76	Box
83562	10" x 2 <sup>1</sup> / <sub>4</sub> " right hand, painted	3,500	4 B.C.	102	3	76	Bulk
83572	10" x 2 <sup>1</sup> / <sub>4</sub> " left hand, painted	3,500	4 B.C.	102	3	76	Bulk
84195**	10" x 2 <sup>1</sup> / <sub>4</sub> " left and right hand, zinc, dichromate coated	3,500	4 B.C.	102	3	76	Box
84260	10" x 2 <sup>1</sup> / <sub>4</sub> " left hand, zinc plated, dichromate coated	3,500	4 B.C.	102	3	76	Bulk
84265	10" x 2 <sup>1</sup> / <sub>4</sub> " right hand, zinc plated, dichromate coated	3,500	4 B.C.	102	3	76	Bulk
12" BRAKES							
83958	12" x 2 <sup>1</sup> / <sub>4</sub> " right hand, painted black	6,000	3.88 B.C.	98	—	—	Bulk
83959	12" x 2 <sup>1</sup> / <sub>4</sub> " left hand, painted black	6,000	3.88 B.C.	98	—	—	Bulk
83960	12" x 2 <sup>1</sup> / <sub>4</sub> " right hand, corrosion resistant silver	6,000	3.88 B.C.	98	—	—	Bulk
83961	12" x 2 <sup>1</sup> / <sub>4</sub> " left hand, corrosion resistant silver	6,000	3.88 B.C.	98	—	—	Bulk

• 2,500 lbs. axle capacity when used with an integral cast hub and drum.    \*\*Packed in retail box.

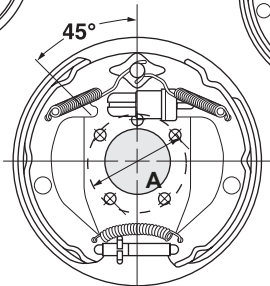
**7" Brake**  
85740, 84181, 84186



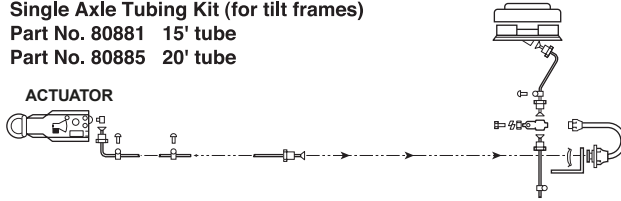
**10" Brake**  
85735, 83572, 84195, 84260, 84265



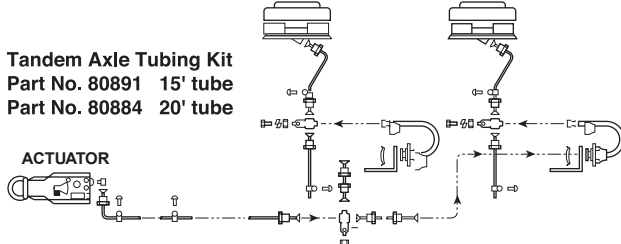
**12" Brake**  
83958, 83959, 83960, 83961



**Single Axle Tubing Kit (for tilt frames)**  
Part No. 80881 15' tube  
Part No. 80885 20' tube



**Tandem Axle Tubing Kit**  
Part No. 80891 15' tube  
Part No. 80884 20' tube

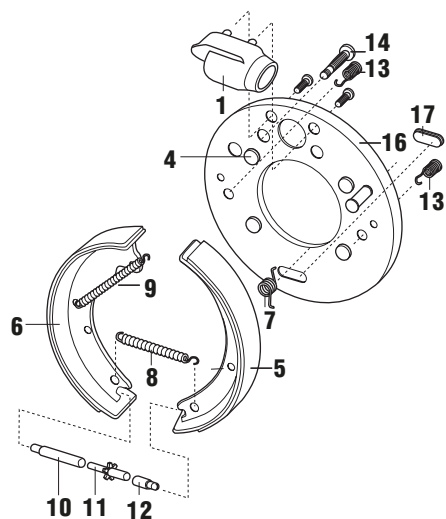


**Note:**  
Part No. 80910 for trailers with torsion springs



# Atwood Uni-Servo Brakes

## 7" BRAKES



84210

### NEW STYLE Wheel Cylinder Kit (one axle only)

- 1 (1) WHEEL CYLINDER, R.H.
- 1A (1) WHEEL CYLINDER, L.H..
- 15 (4) 5/16" - 18 x 3/4" CAP SCREW
- 14 (2) 5/16" - 18 FLAT HEAD SCREW

19861

### Shoe & Lining Kit (one axle)

- 5 (2) PRIMARY SHOES WITH LINING
- 6 (2) SECONDARY SHOES WITH LINING

23400

### Spring Kit (one axle)

- 8 (2) ADJUSTING SCREW SPRINGS
- 9 (2) SECONDARY RETRACTOR SPRINGS
- 7 (1) TORSION SPRING R.H.
- 7A (1) TORSION SPRING L.H.
- 13 (4) SHOE HOLD DOWN SPRINGS

18191

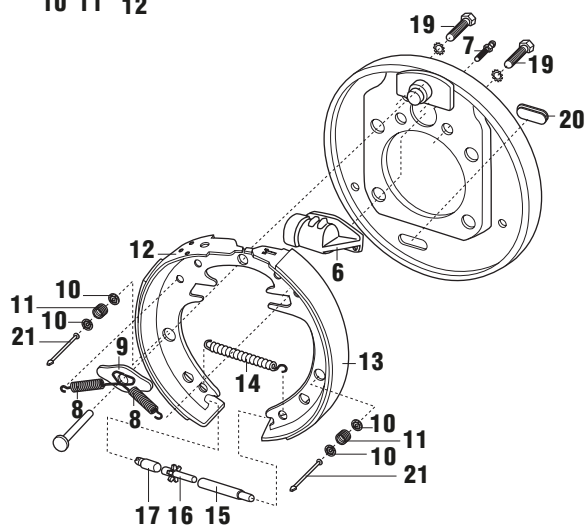
### Dust Clip

23401

### Adjusting Screw, Pivot Socket & Nut Assembly

- 10 (1) NUT
- 12 (1) PIVOT SOCKET
- 11 (1) ADJUSTING SCREW

## 10" BRAKES



21669

### Wheel Cylinder Replacement Kit (1 axle)

- 6 (1) WHEEL CYLINDER, R.H.
- 6 (1) WHEEL CYLINDER, L.H.
- 19 (4) 5/16" - 8 x 1/2" MOUNTING SCREWS

19862

### Brake Shoe and Lining Kit (1 axle)

- 12 (2) PRIMARY SHOES WITH LINING
- 13 (2) SECONDARY SHOES WITH LINING

23385

### Brake Shoe Spring & Hold Down Kit (1 axle)

- 8 (4) PRIMARY AND SECONDARY RETRACTOR SPRINGS

- 14 (2) ADJUSTING SCREW SPRINGS
- 21 (4) SHOE HOLD DOWN PINS
- 11 (4) SHOE HOLD DOWN SPRINGS
- 10 (8) SHOE HOLD DOWN WASHERS

18499

### (2) Shoe Guide Plate

23401

### Adjusting Screw, Pivot Socket & Nut Assembly

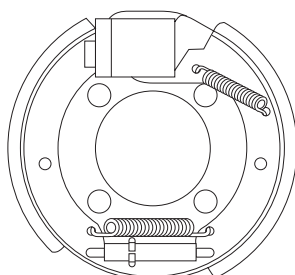
- 15 & (1) NUT AND SCREW
- 16 (1) PIVOT SOCKET
- 17 (1) PIVOT SOCKET

18191

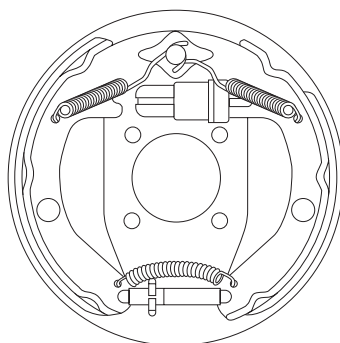
### (2) Dust Clip

- 7 (2) Bleeder Nut - not available separately

# Foundation Brakes



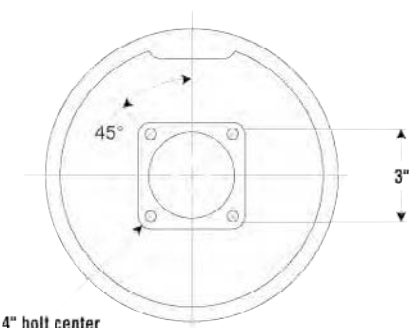
7" Foundation Brake



10" Foundation Brake

## FEATURES

- These are uni-servo brakes. The piston must face forward on the trailer.
- These are not self-adjusting brakes. Brake shoes must be adjusted using a brake adjustment tool on the star wheel of the adjusting screw. This adjustment is covered later in this manual.
- All components are replaceable except the backing plate. If the backing plate is damaged, the entire brake cluster must be replaced.
- These brakes are interchangeable with the major brands of hydraulic brakes you find in the marketplace.
- Our brakes are not convertible to electric or electric over hydraulic.



## SPECIFICATIONS

Axle capacity  
Corrosion protection

## 7 INCH

1800 lbs.\*  
electro-deposited  
black paint

## 10 INCH

3500 lbs.  
electro-deposited  
black paint or zinc-  
dichromate with  
stainless springs  
10" x 2-1/4"

Dimensions 7" x 1-3/4"

\*Rated capacity is increased to 2500 lb. axle capacity when used with an integral cast iron hub and drum.

## SEQUENCE OF OPERATION:

Fluid from master cylinder enters the wheel cylinder



Piston of wheel cylinder extends and forces shoe to drum



Primary shoe engages drum

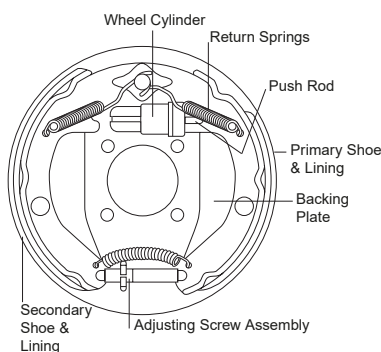


Secondary shoe engages drum

Piston should face forward on trailer axle. It is acceptable for piston to face downward but not recommended. NEVER position brake so that piston points upward.

The old wheel cylinder is not replaceable with the new style. The cut-out in the cylinder casting is different from old to new style brake. Refer to schematic on page 62.

The packing plates are not replaceable due to liability reasons. The entire brake cluster must be replaced in this situation.

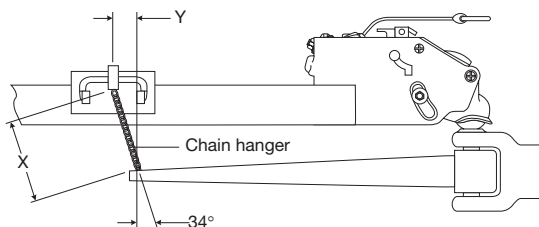


## EQUALIZER HITCH & SWAY CONTROL

An equalizer hitch may be used with the surge brake actuator. However, the following criteria must be closely followed. Failure to do so may reduce or prevent trailer braking.

X" (Chain length)	Y" (Chain Hanger Mfg. location)
6-1/2"	3-5/8"
7-1/2"	4-3/16"
9"	5"
12-1/2"	5-7/8"

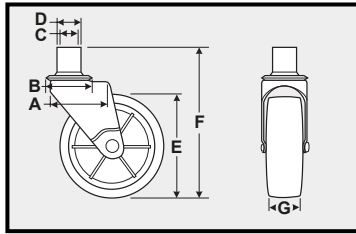
NOTE: There is NOT a sway control available that is compatible with the Atwood surge actuator. The sway controls that are available prevent safe and sufficient braking with our actuator.



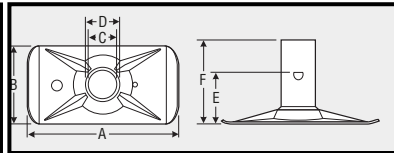
## PROPER TOWING CHECKLIST

- ✓ Inspect the brake fittings for leaks.
- ✓ Adjusted the brakes every 2000 miles (page 8).
- ✓ Lubricated all mechanical moving parts.
- ✓ Inspect the breakaway cable for any kinks.
- ✓ Verify that a one-piece 2" ball is being used and that it doesn't have any chips, dirt or hairline cracks.
- ✓ Securely attached the safety chains to the trailer and tow vehicle.
- ✓ For proper braking, the trailer should set level when attached to the tow vehicle to produce a positive tongue load.
- ✓ Use DOT 3 brake fluid in the master cylinder and fill it between 1/2 full to 1/2" from the top of the cylinder reservoir.

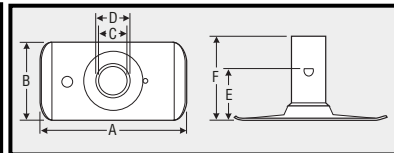
# Atwood Casters and Feet



**80259, 80552, 84036**



**82650, 82660**



**80260, 80261**

## CASTERS AND FEET SELECTION GUIDE

SUPPORT CAPACITY DEFINITION: The support capacity is the maximum vertical load the jack can support.

\* If jack is used with caster then the system capacity will be rated at 1,000 lb (the load carrying capacity of the caster).

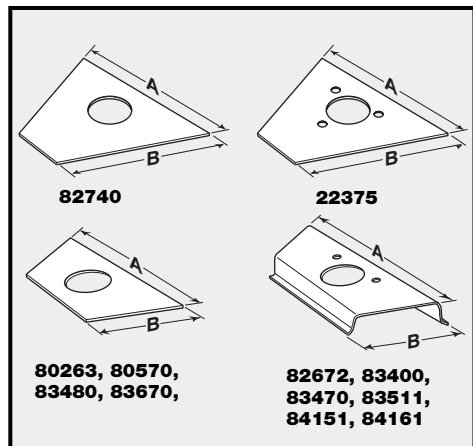
Part No.	Description	Support Capacity lbs.	Fits Jack RAM Sizes	A		B		C = I.D.		D = O.D.		E		F		G	
				in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
<b>80203</b>	Duraplas caster, zinc plated	1,000	1 3/4" O.D.	3 3/8	86	2	51	1 3/4	44	2	51	6	152	9	229	2	51
<b>80259</b>	Duraplas caster	1,000	1 3/4" O.D.	3 3/8	86	2	51	1 3/4	44	2	51	6	152	9	229	2	51
<b>80552</b>	Duraplas caster	1,000	2" O.D.	3 3/8	86	2	51	2	51	2 1/4	57	6	152	9	229	2	51
<b>84036</b>	Duraplas caster, painted, pin-on	1,000	2" O.D.	3 3/8	86	2	51	2	44	2 1/4	57	6	152	9	229	2	51
<b>80260</b>	Steel foot	1,000	1 3/4" O.D.	5 3/8	137	4	102	1 3/4	44	2	51	2 1/8	54	—	—	—	—
<b>80261</b>	Steel foot w/extension	1,000	1 3/4" O.D.	5 3/8	137	4	102	1 3/4	44	2	51	7 3/4	197	—	—	—	—
<b>82650</b>	Steel foot	6,000	2" O.D.	8	203	4 3/4	121	2	51	2 1/4	57	2 5/8	67	—	—	—	—
<b>82660</b>	Steel foot w/extension	6,000	2" O.D.	8	203	4 3/4	121	2	51	2 1/4	57	5 1/2	140	8 1/8	206	—	—
<b>80521</b>	Duraplas caster, OBSOLETE	1,000	1 5/8" O.D.	3 3/8	86	2	51	1 5/8	42	1 7/8	48	6	152	9	229	1 1/2	38
<b>83300</b>	Duraplas caster, OBSOLETE	1,000	1 5/8" O.D.	3 3/8	86	2	51	1 5/8	42	1 5/8	42	6	152	9	229	2	51
<b>82655</b>	Steel foot, OBSOLETE	1,000	1 5/8" O.D.	5 3/8	137	4	102	1 5/8	42	1 5/8	42	2 1/8	54	—	—	—	—
<b>82665</b>	Steel foot w/extension, OBSOLETE	1,000	1 5/8" O.D.	5 3/8	137	4	102	1 5/8	42	1 5/8	42	7 3/4	197	—	—	—	—

**Note: When a jack is used in conjunction with a caster, the caster limits the capacity of the jack caster system to 1,000 pounds.**

## Atwood Support Plates

### SUPPORT PLATES SELECTION GUIDE

Part No.	Description	Rated Capacity lbs.	A		B		Hole Diameter	
			in.	mm	in.	mm	in.	mm
<b>83480</b>	Top Support Plate	—	6	152	3 1/2	89	2.30	58
<b>83670</b>	Support Plate	—	8 3/4	222	3 1/2	89	2.28	58
<b>80263</b>	Bottom Support Plate	1,000	8 3/4	222	3 1/2	89	2.05	52
<b>80570</b>	Bottom Support Plate	—	8 3/4	222	3 1/2	89	2.23	57
<b>82740</b>	Top Support Plate	—	10 1/8	257	7 3/8	187	2.32	59
<b>22375</b>	Top Support Plate	5,000	10 1/8	257	7 3/8	187	2.32	59
<b>83400</b>	Bottom Support Plate	6,000	10 1/4	260	3 3/8	86	2.32	59
<b>83470</b>	Bottom Support Plate	6,000	7 3/4	197	3 3/8	86	2.32	59
<b>83511</b>	Bottom Support Plate	8,000	7 3/4	197	3 3/8	86	2.32	59
<b>82672</b>	Bottom Support Plate	8,000	10 1/4	260	3 3/8	86	2.32	59
<b>84151</b>	Bottom Support Plate	11,000	7 3/4	197	3 3/8	86	2.32	59
<b>84161</b>	Bottom Support Plate	11,000	10 1/4	260	3 3/8	86	2.32	59



## SideWind and Top Wind Jack Features

### SIDEWIND VS TOPWIND

Topwind and sidewind jacks are available. The topwind jack has the handle attached directly to the screw that protrudes through the top of the outer jack ram. The sidewind jack has a metal cap on the top of the outer jack ram. The handle comes out of the side of the top of the jack and pins to a vertical bevel gear located in the head of the jack.

### FRAME ATTACHMENT

Jacks can attach to the frame of a trailer or apparatus in a several ways.

- Jacks with no brackets can be welded directly to the frame.
- An A-frame jack with a triangular flange attached allows the jack to be bolted to an A-frame coupler (additional support plates **must** be used).
- A U-bolt jack using two U-bolts wrapped around the jack allows for more flexibility where the jack can be mounted on the trailer frame.
- Snap ring swivel jacks are used primarily in the marine market. This jack attaches to a weld-on or bolt-on receiver bracket on the trailer and the jack attaches to it. The jack is to be swiveled parallel to the ground when the trailer is in tow.
- We have a line of tubular swivel jacks that are popular with the agricultural

market. A tube welded to the trailer frame mates with a tube mounted on the jack, allowing the jack to be swiveled parallel with the ground when the implement is in tow.

### TRAVEL

Travel refers to the length that the inner ram of the jack can be extended from a fully retracted to a fully extended position. The travel on the sidewind and topwind jacks range from 8" - 15".

### RATED CAPACITY

All Atwood jacks are dynamically rated opposed to statically rated. Dynamic capacity refers to the working capacity or maximum load that the jack can support for casting and easy lifting of a fully loaded trailer. The static or support capacity is the maximum vertical load that the jack can support. The weight ratings of our jacks are from 500 - 11,000 lbs.

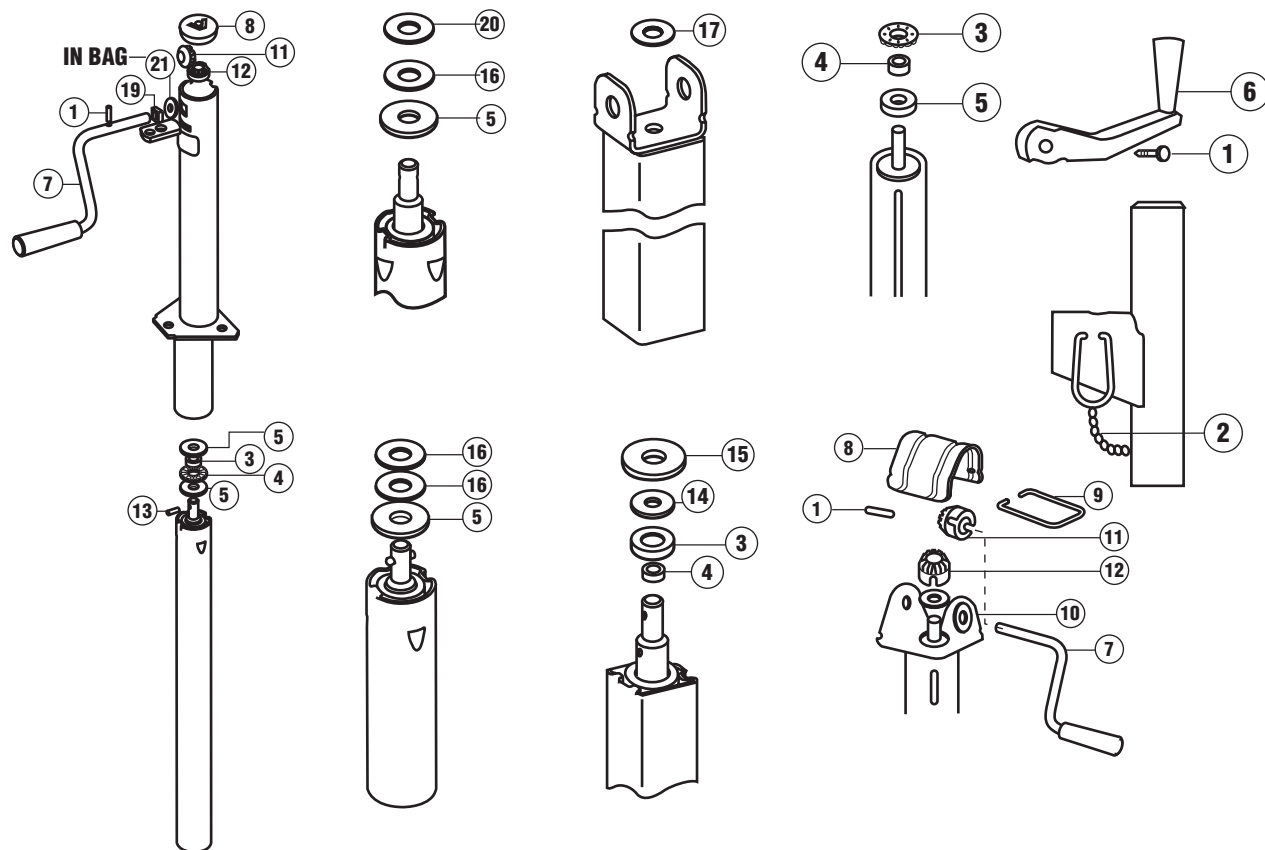
### FINISH

Most of our jacks are electro-statically painted with black enamel. Therefore, it can be used as is since it exceeds the A.S.T.M. 96 hour salt spray test. This paint process provides a very good prime coat.

### ACCESSORY ATTACHMENT

Both casters and feet are available for our screw jacks.

# Jack Replacement Kits



GEAR KITS					
ITEM#	DESCRIPTION	81410	25524	81480	
11/12	Bevel Gear, 15 Tooth		2		
11	Bevel Gear, 12 Tooth	1		1	
12	Bevel Gear, 16 Tooth			1	
12	Bevel Gear, 16 Tooth	1			
1	Roll Pin 1.25 x .15	1	1	1	
13	Roll Pin .81 x .23	1	1	1	
NS	IOM (not shown)	1	1	1	

BEARING & THRUST WASHER KITS						
ITEM#	DESCRIPTION	81415	81416	81417	81418	81419
3	Thrust Bearing		1	1		1
5	Thrust Bearing Washer	1	2	2	1	
14	Support Washer					1
15	Cap Washer					1
16	Thrust Washer				2	
17	Clutch Thrust Washer					1
4	Felt Sleeve	1	1			1

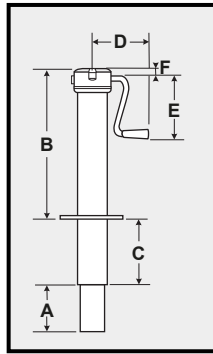
HANDLE KITS					
ITEM#	DESCRIPTION	82700	25526	83401	
6	Handle	1			
7	Handle		1	1	
1	Rivet .88 x .24	1			
1	Roll Pin 1.25 x .15		1		
10	Metal Bushing		1		
NS	IOM (not shown)	1			

CAP KITS					
ITEM#	DESCRIPTION	25525	84120	80456	80457
8	Metal Cover	1	1		
8	Plastic Cap, Large			1	
8	Plastic Cap, Small				1
9	Retaining Clip	1		1	
NS	IOM (not shown)	1	1		

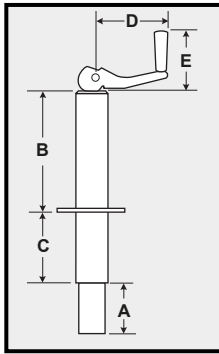
MISCELLANEOUS ITEMS		
ITEM#	DESCRIPTION	
2	5/8" Pin, Chain & Clip	85411
2	7/8" Pin & Chain	85719

REPAIR KITS					
ITEM#	DESCRIPTION	80454	80455	80465	
8	Small Cap	1			
8	Large Cap		1	1	
12	Bevel Gear, 12 tooth	1			
11	Bevel Gear, 12 tooth	1			
11/12	Bevel Gear, 15 tooth		2	2	
7	Handle Assembly	1	1	1	
18	Thrust Plate	1	1	1	
4	Thrust Bearing	1		1	
3	Felt Sleeve	1		1	
5	Thrust Brg Washer	2	1	2	
16	Plastic Brg Washer	1	1		
21	Flat Washer		1	1	
20	Washer, 16 GA	1			
19	Bushing	1			
13	Plain Pin	1			
1	Drive Pin	1			
13	Roll Pin		1	1	
1	Grove Pin		1	1	
NS	IOM (not shown)	1	1	1	

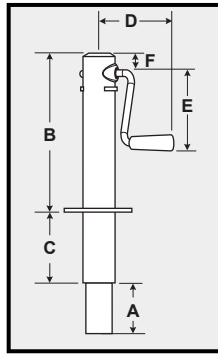
# Atwood A-Frame Jacks



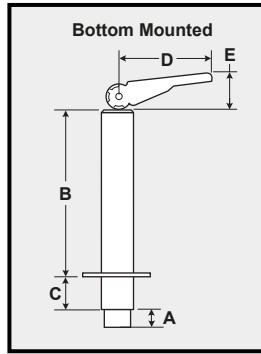
**84033**



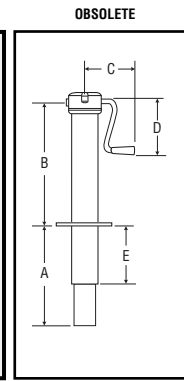
**80009, 80016,  
80022, 80156,  
80391, 80401,  
80402, 80405,  
80406, 84034**



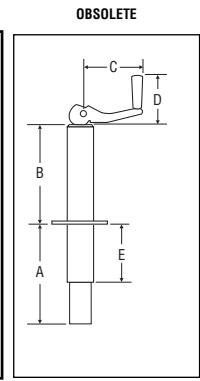
**80000, 80160,  
80265, 87510**



**82642, 82721,  
83391, 84146**



**80340,  
80341,  
81041,  
84223**



**80250,  
83270,  
83275,  
84155**

## A-FRAME JACK SELECTION GUIDE

Part No.	Finish	Support Capacity lbs.	WIND		A				B		C		D		E		F		Outer Diameter	
					retracted		extended													
			Top	Side	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	Inner ram	housing
84033	Paint, fast-travel for pin-on caster (c)	750		•	2.1	53	16.1	409	18.2	462	4.0	102	6.4	163	6.0	152	1.0	25	2.00	2.20
80016	Zinc Plated (c)	1,000	•		1.6	41	13.7	348	13.3	338	3.8	97	5.8	147	5.3	135	—	—	1.77	2.00
80156	Zinc Plated (c)	1,000	•		2.1	53	17.3	439	15.5	394	4.5	114	5.8	147	5.3	135	—	—	1.77	2.00
80009	Paint (c)	1,000	•		2.6	66	17.7	450	13.6	345	6.0	152	5.8	147	5.3	135	—	—	1.77	2.00
80022	Zinc Plated (c)	1,000	•		2.6	66	17.7	450	13.6	345	6.0	152	5.8	147	5.3	135	—	—	1.77	2.00
80000	Paint (c)	1,000		•	3.0	76	18.4	467	15.7	399	6.0	152	6.3	160	6.0	152	1.3	33	1.77	2.00
80160	Galvanized (c)	1,000		•	3.0	76	18.4	467	15.7	399	6.0	152	6.3	160	6.0	152	1.3	33	1.77	2.00
80265	Paint (c)	1,000		•	3.0	76	18.4	467	17.2	437	4.5	114	6.3	160	6.0	152	1.3	33	1.77	2.00
80405	Painted (c, e)	2,000*	•		2.0	51	17.1	434	10.2	259	7.0	178	5.8	147	5.3	135	—	—	2.00	2.20
80406	Zinc Plated (c,e)	2,000*	•		2.0	51	17.1	434	10.2	259	7.0	178	5.8	147	5.3	135	—	—	2.00	2.20
84034	Paint pin-on caster (c)	2,000*	•		2.051	17.1	434	16.2	411	4.0	102	5.8	147	5.3	135	—	—	2.00	2.20	
80401	Paint (c)	2,000*	•		2.0	51	17.1	434	13.2	335	7.0	178	5.8	147	5.3	135	—	—	2.00	2.20
80402	Paint pin-on caster (c)	2,000*	•		2.0	51	17.1	434	13.2	335	7.0	178	5.8	147	5.3	135	—	—	2.00	2.20
87510	Paint (c)	2,000*		•	1.4	36	15.4	391	16.5	419	7.0	178	7.1	180	7.5	191	1.7	43	2.00	2.20
80391	Paint (a, d)	5,000	•		1.4	36	15.5	394	10.7	272	9.5	241	5.8	147	5.3	135	—	—	2.00	2.20
83391	Paint (a,d)	6,000	•		0.3	8	10.9	277	15.0	381	2.2	56	9.2	234	1.6	41	—	—	2.00	2.20
82642	Paint (a,d)	8,000	•		1.3	33	11.6	295	15.9	404	0.6	15	9.2	234	1.6	41	—	—	2.00	2.25
82721	Paint (a,b,d)	8,000	•		1.5	38	16.3	414	19.5	495	1.0	25	9.2	234	1.6	41	—	—	2.00	2.25
84146	Paint (a,d)	11,000	•		0.3	8	10.6	269	16.9	429	0.6	15	9.2	234	1.6	41	—	—	2.00	2.25
80250	Painted (c) OBSOLETE	1,000	•		85/8	218	233/4	603	135/8	345	63/8	162	51/4	133	6	152			15/8	17/8
80340	Painted (c) OBSOLETE	1,000		•	85/8	218	24	610	143/4	375	65/8	168	65/8	168	6	152			15/8	17/8
80341	Galvanized (c) OBSOLETE	1,000		•	85/8	218	24	610	143/4	375	65/8	168	65/8	168	6	152			15/8	17/8
81041	Painted (c) OBSOLETE	2,000*		•	91/8	232	231/8	587	141/4	361	65/8	168	65/8	168	7	178			2	21/4
83270	Zinc Plated (c) OBSOLETE	1,000	•		51/2	138	175/8	446	131/8	334	63/8	162	51/2	140	33/4	95			15/8	17/8
83271	Zinc Plated (c) OBSOLETE	1,000	•		51/2	138	175/8	446	131/8	334	63/8	162	51/2	140	61/4	159			15/8	17/8
83275	Painted (c) OBSOLETE	1,000	•		6	152	181/8	460	13	331	63/8	162	51/2	140	33/4	95			15/8	17/8
84155	Zinc Plated (c) OBSOLETE	1,000	•		61/2	163	185/8	471	121/8	309	63/8	162	51/4	133	43/4	121			15/8	17/8
84223	Painted (c) OBSOLETE	2,000		•	81/2	216	191/8	486	11	279	63/8	162	65/8	168	71/2	190			2	21/4

### SUPPORT CAPACITY DEFINITION:

The support capacity is the maximum vertical load the jack can support.

\*If jack is used with caster then the system capacity will be rated at 1,000 lb (the load carrying capacity of the caster).

(a) Designed for Mobile Home application

(b) Double wall ram

(c) Caster/Foot must be ordered separately

(d) Bottom mounted jack requires special bottom mounted attachment plate.

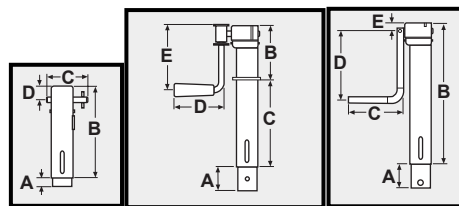
# Atwood A-Frame Jacks - CONTINUED

## A-FRAME JACK REPAIR KITS

Part No.	Handle	Handle & Rivet	Gear	Thrust Bearing	Repair	Cap	Caster	Short Foot	Long Foot
84033	25526	x	81410	81416	x	84120	80552	82650	82660
80016	82700	x	x	81416	x	x	80203	80260	80261
80156	82700	x	x	81416	x	x	80203	80260	80261
80009	82700	x	x	81416	x	x	80259	80260	80261
80022	82700	x	x	81416	x	x	80203	80260	80261
80000	x	x	x	x	80454*	80457	80259	80260	80261
80160	x	x	x	x	80454*	80457	80203	80260	80261
80265	x	x	x	x	80454*	80457	80259	80260	80261
84034	82700	x	x	81416	x	x	80552	82650	82660
80401	82700	x	x	81416	x	x	80552	82650	82660
80402	82700	x	x	81416	x	x	84036	x	x
87510	x	x	x	x	80465*	80456	80552	82650	82660
80391	82700	x	x	81417	x	x	x	x	x
83391	N/A	85806/85656	x	81417	x	x	80552	82650	82660
82642	N/A	87139/85656	x	81417	x	x	80552	82650	82660
82721	N/A	87139/85656	x	81417	x	x	80552	82650	82660
84146	N/A	87108/85656	x	81417	x	x	80552	82650	82660
80250	82700	x	25524	81416	x	x	NLA	82655	82665
80340	25526	x	25524	81416	x	25525	NLA	82655	82665
80341	25526	x	81410	81418x2	x	25525	NLA	82655	82665
81041	25526	x	x	81416	x	84120	80552	82650	82660
83270	82700	x	x	81418	x	x	NLA	82655	82665
83271	82700	x	x	81418	x	x	NLA	82655	82665
83275	82700	x	x	81418	x	x	NLA	82655	82665
84155	82700	x	x	81418	x	x	NLA	82655	82665
84223	25526	x	81410	81418	x	84120	80552	82650	82660

\* Includes handle

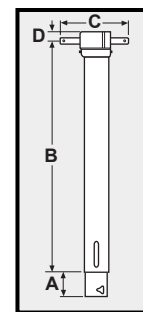
## Atwood Specialty Jacks



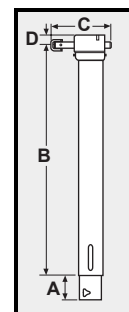
80150

80109, 80123

80117



80096, 81459



80134

80325-OBS

80315-OBS

## SPECIALTY JACK SELECTION GUIDE

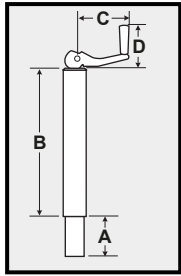
Part No.	Description	Support Capacity lbs.	Side Wind	A				B		C		D		E		Outer Diameter	
				retracted		extended											
				in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	inner ram	housing
80134	Universal drive	500	●	1.9	48	15.6	396	18.6	472	4.9	125	0.8	20	—	—	1.77	2.00
80096	Shaft drive	1,000	●	1.9	48	15.6	396	18.6	472	5.6	142	0.8	20	—	—	1.77	2.00
80117	Pin on handle	1,000	●	1.9	48	10.2	259	13.0	330	4.8	122	6.0	152	0.8	20	1.77	2.00
80109	Swivel handle	1,000	●	1.9	48	9.9	251	5.98	152	7.0	178	4.7	119	6.0	152	1.77	2.00
80123	Swivel handle	1,000	●	1.9	48	9.9	251	7.04	179	5.9	150	4.7	119	6.0	152	1.77	2.00
80150	Shaft drive	1,000	●	0.7	18	4.9	124	8.54	217	3.6	91	1.3	33	—	—	1.77	2.00
81459	Shaft drive	2,000	●	2.3	58	16.3	414	21.6	549	5.6	142	0.8	20	—	—	2.00	2.26
80315	Universal drive - OBSOLETE	500	●	1.9	48	15.6	396	18.6	472	4.9	125	0.8	20	—	—	1.62	1.87
80325	Shaft drive - OBSOLETE	1,000	●	1.9	48	15.6	396	18.6	472	5.6	142	0.8	20	—	—	1.62	1.87

SUPPORT CAPACITY DEFINITION: The support capacity is the maximum vertical load the jack can support.

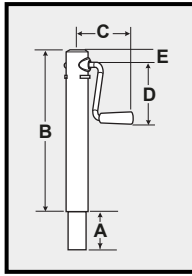
## SPECIALTY JACK REPAIR KITS

Part No.	Handle & Pin	Gear	Bearing	Repair	Cap	Caster	Short Foot	Long Foot
80134	x	25524	81418	x	25525	80259	80260	80261
80096	x	25524	81418	x	25525	80259	80260	80261
80117	80317/17931	25524	81418	x	25525	x	x	x
80109	87362/17931	25524	81418	x	25525	x	x	x
80123	87362/17931	25524	81418	x	25525	x	x	x
80150	x	x	x	80455	80457	x	x	x
81459	x	81410	81518	x	84120	80552	82650	82660
80315	x	25524	81418	x	25525	NLA	82655	82665
80325	x	25524	81418	x	25525	NLA	82655	82665

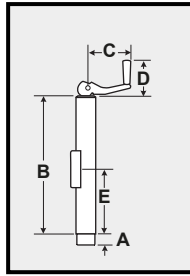
# Jack Screws



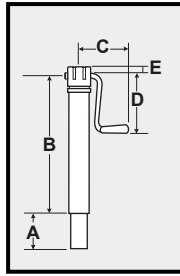
**80029, 80036,  
80167, 80177,  
80188, 80380**



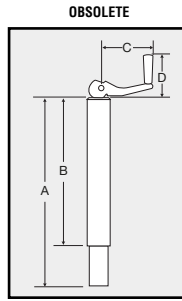
**80126, 80172**



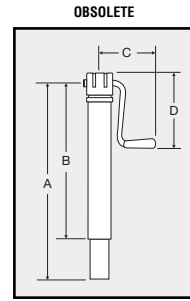
**82522**



**81141**



**80220, 80230,  
80239, 80240,  
81310**



**80311, 80321**

## SUPPORT CAPACITY DEFINITION:

The support capacity is the maximum vertical load the jack can support.

\*If jack is used with caster then the system capacity will be rated at 1,000 lb (the load carrying capacity of the caster).

## JACK SCREW SELECTION GUIDE

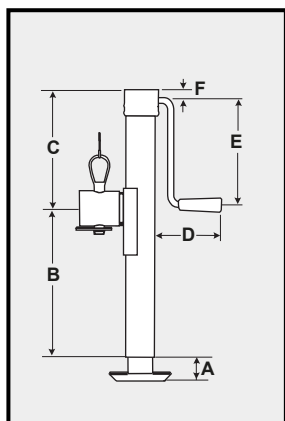
Part No.	Finish	Support Capacity	WIND		A				B		C		D		E		Outer Diameter	
					retracted		extended											
					Top	Side	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
80188	Unpainted	1,000	●		2.0	51	10.5	267	11.0	279	5.8	147	5.3	135	—	—	1.8	2.0
80167	Paint	1,000	●		2.1	53	16.0	406	19.7	500	5.8	147	5.3	135	—	—	1.8	2.0
80177	Paint	1,000	●		2.0	51	10.4	264	11.0	279	5.8	147	5.3	135	—	—	1.8	2.0
80029	Zinc	1,000	●		1.6	41	13.2	335	17.0	432	5.8	147	5.3	135	—	—	1.8	2.0
80036	Paint	1,000	●		2.1	53	13.7	348	17.0	432	5.8	147	5.3	135	—	—	1.8	2.0
80126	Paint	1,000		●	2.3	58	16.0	406	19.5	495	6.3	160	6.0	152	1.3	33	1.8	2.0
80172	Paint	1,000		●	2.2	56	10.5	267	13.1	333	6.3	160	6.0	152	1.3	33	1.8	2.0
82522	Unpainted	2,000	●		1.0	25	11.0	279	14.2	361	5.8	147	5.3	135	6.7	170	2.0	2.2
81141	Paint	2,000*		●	2.3	58	16.3	414	21.7	551	6.4	163	6.0	152	1.0	25	2.0	2.2
80380	Unpainted	5,000	●		1.4	36	15.5	394	20.3	516	5.8	147	5.3	135	—	—	2.0	2.2
80220	Painted-OBSOLETE	1,000	●		21 3/4	553	35 5/8	905	19 5/8	499	6 3/8	161	5 1/4	133			1 5/8	17/8
80230	Painted-OBSOLETE	1,000	●		19	483	30 3/4	780	17	431	6 3/8	161	5 1/4	133			1 5/8	17/8
80239	Painted-OBSOLETE	1,000	●		13	330	21 1/2	545	12 3/8	314	6 3/8	161	5 1/4	133			1 5/8	17/8
80240	Painted-OBSOLETE	1,000	●		13	330	21 1/2	545	11	280	6 3/8	161	5 1/4	133			1 5/8	17/8
80311	Painted-OBSOLETE	1,000		●	20 3/8	519	34 1/8	867	18 5/8	472	6 5/8	167	6 5/8	167			1 5/8	17/8
80321	Painted-OBSOLETE	1,000		●	14	355	22 1/4	566	12 1/8	310	6 5/8	167	6 5/8	167			1 5/8	17/8
81310	Painted-OBSOLETE	1,000	●		18 5/8	472	30 3/4	780	17	431	6 3/8	161	5 1/4	133			1 5/8	17/8

## JACK SCREW REPAIR KITS

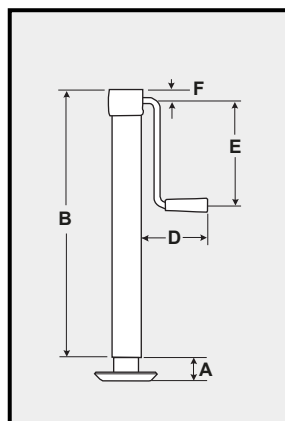
Part No.	Handle	Gear	Bearing	Repair	Cap	Caster	Short Foot	Long Foot
80188	82700	x	81416	x	x	80259	80260	80261
80167	82700	x	81416	x	x	80259	80260	80261
80177	82700	x	81416	x	x	80259	80260	80261
80029	82700	x	81418	x	x	80259	80260	80261
80036	82700	x	81418	x	x	80259	80260	80261
80126	x	x	x	80454	80457	80259	80260	80261
80172	x	x	x	80454	80457	80259	80260	80261
82522	82700	x	81416	x	x	x	x	x
81141	25526	81480	81416	x	84120	80552	82650	82660
80380	82700	x	81417	x	x	80552	82650	82660
80220	82700	x	81416	x	x	NLA	82655	82665
80230	82700	x	81418	x	x	NLA	82655	82665
80239	82700	x	81416	x	x	NLA	82655	82665
80240	82700	x	81416	x	x	NLA	82655	82665
80311	25526	25524	81418	x	25525	NLA	82655	82665
80321	25526	25524	81418	x	25525	NLA	82655	82665
81310	82700	x	81418	x	x	NLA	82655	82665



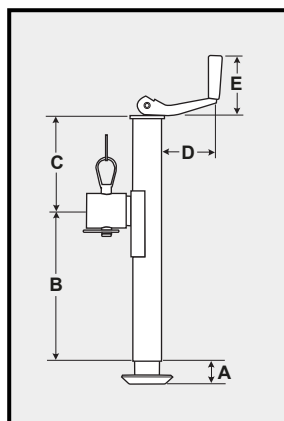
# Atwood Square Tube Jacks



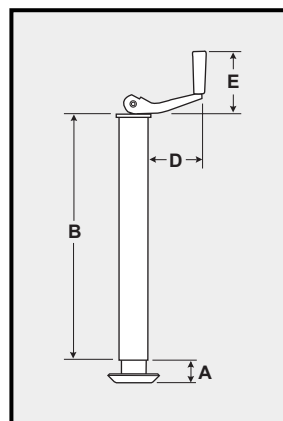
80407



80408



80409



80410

**SUPPORT CAPACITY DEFINITION:**  
The support capacity is the maximum vertical load the jack can support.

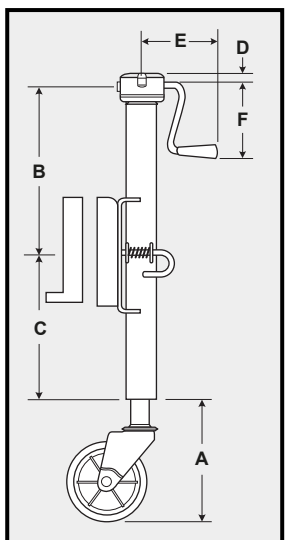
## SQUARE TUBE JACK SELECTION GUIDE

Part No.	Description	Support Capacity lbs.	WIND		A				B		C		D		E		F		Outer Dimension	
					retracted		extended													
			Top	Side	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	Inner ram	housing
80407	With tube swivel bracket	3,500		●	1	25.4	16	406	14.38	365	10.25	260	5.8	147	9.0	229	1.0	25.4	2.25	2.5
80408	Without bracket	3,500		●	1	25.4	16	406	24.63	627	—	—	5.8	147	9.0	229	1.0	25.4	2.25	2.5
80409	With tube swivel bracket	5,000	●		1	25.4	17	432	14.38	365	8.25	210	5.0	127	5.5	140	—	—	2.25	2.5
80410	Without bracket	5,000	●		1	25.4	17	432	22.63	575	—	—	5.0	127	5.5	140	—	—	2.25	2.5

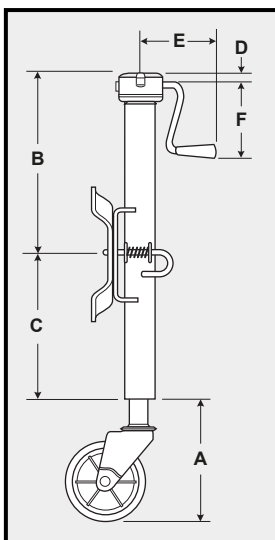
## SQUARE TUBE JACK REPAIR KITS

Part No.	Handle & Pin	Handle	Gear	Thrust Bearing	Cap	Pin & Chain
80407	83401/70229	x	75029	81419	71416	85719
80408	83401/70229	x	75029	81419	71416	x
80409	x	82700	x	81415	x	85719
80410	x	82700	x	81415	x	x

# Atwood Bolt Swivel Jacks



84025, 84026 OBS



84015, 84020

## FEATURES

**SPECIFICATIONS**  
Working Capacity  
Supporting Capacity  
Finish  
Travel (extension)  
Frame Brackets

**Screw and Nut**  
**Locking Mechanism**  
**Bevel Gears**

**STANDARD**  
500 lbs., 1000 lb.  
800 lbs., 1000 lb.  
Zinc Plated  
8" - 14"  
weld-on, bolt on  
adjustable bolt-on  
8 pitch  
1/2" dia. single pin  
15 and 15 tooth (500 lbs.)  
15 and 15 tooth (1000 lb.)

**PRO TOW**  
750 lbs.  
1000 lb.  
Zinc Plated  
11-1/2"  
weld-on  
adjustable bolt-on  
6 pitch  
1/2" dia. single pin  
15 and 15 tooth (750 lbs.)

## BOLT SWIVEL JACK REPAIR KITS

Part No.	Handle	Gear	Thrust Bearing	Cap
84015	25526	25524	81416	84120
84020	25526	25524	81416	84120
84025	25526	25524	81416	84120
84026	25526	25524	81416	84120

\* Packed individually in retail carton.

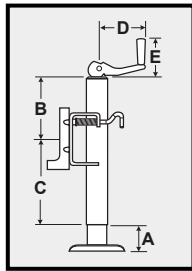
**CAPACITY DEFINITION:** The working, or work, capacity is the maximum load that the jack can support for castoring and easy lifting of a fully loaded trailer.  
The supporting, or support, capacity is the maximum vertical load that the jack can support.

## BOLT SWIVEL JACKS SELECTION GUIDE

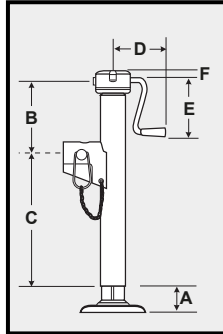
The supporting, or support, capacity is the maximum vertical load that the joint can support.																		
Part No.	Finish	Work Capacity lbs.	Support Capacity lbs.	Side Wind	A				B		C		D		E		F	
					retracted		extended											
					in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
84015	Zinc plated, bolt on bracket	750	1000	●	7.1	180	18.6	472	16.9	429	6.1	155	1.0	25	6.4	163	6.0	152
84020	Zinc plated, bolt on bracket	750	1000	●	7.1	180	18.6	472	16.9	429	6.1	155	1.0	25	6.4	163	6.0	152
84025	Zinc plated, weld-on bracket	750	1000	●	7.1	180	18.6	472	16.9	429	6.1	155	1.0	25	6.4	163	6.0	152
84026	Paint, weld-on bracket	750	1000	●	7.1	180	18.6	472	16.9	429	6.1	155	1.0	25	6.4	163	6.0	152

OBS

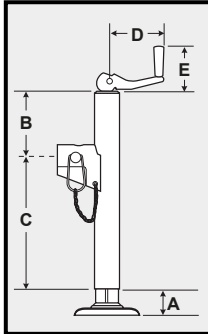
# Atwood Implement Swivel Jacks



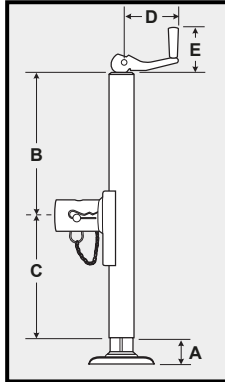
**80518**



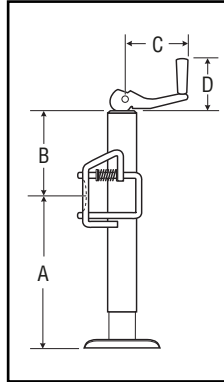
**82332, 82333**



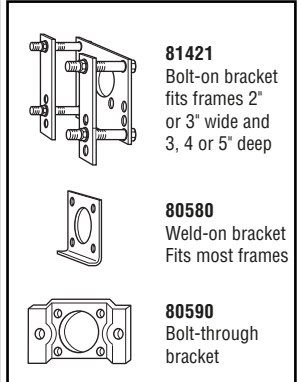
**80459, 81264,  
81353, 82340**



**82471**



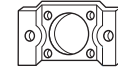
**80273, 80294,  
80452, 80453**



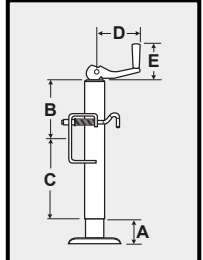
**81421**  
Bolt-on bracket  
fits frames 2"  
or 3" wide and  
3, 4 or 5" deep



**80580**  
Weld-on bracket  
Fits most frames

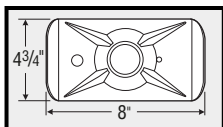


**80590**  
Bolt-through  
bracket

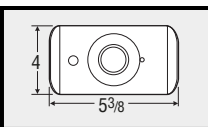


**80519, 80522,  
80523**

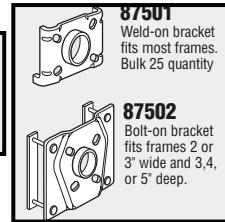
## NON-REPLACEABLE WELDED FOOT



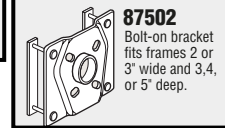
**Large Foot**



**Small Foot**



**87501**  
Weld-on bracket  
fits most frames.  
Bulk 25 quantity



**87502**  
Bolt-on bracket  
fits frames 2 or  
3" wide and 3, 4,  
or 5" deep.

## SUPPORT CAPACITY DEFINITION:

The maximum vertical load that the jack can support.  
\*If jack is used with caster then the system capacity will be  
rated at 1,000 lb (the load carrying capacity of the caster).

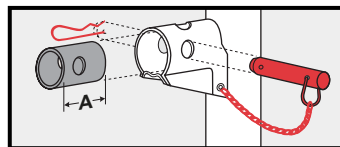
## IMPLEMENT SWIVEL JACK SELECTION GUIDE

Part No.	Painted housing, zinc plated ram and foot	Support Capacity lbs.	Top Wind	Side Wind	A				B		C		D		E		F	
					retracted		extended		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
					in.	mm	in.	mm										
Tubular Swivel Jack																		
80459	Jack only, order bracket 81271	2,000	●		1.3	33	11.3	287	3.8	97	10.4	264	5.8	147	5.3	135	—	—
81264	Jack only, order bracket 81271	2,000	●		3.2	81	18.3	465	14.3	363	11.0	275	5.8	147	5.3	135	—	—
81353	Jack only, order bracket 81271	2,000	●		1.3	33	15.8	401	6.1	155	13.6	345	5.8	147	5.3	135	—	—
82340	Jack only, order bracket 81271	2,000	●		3.2	81	18.3	465	12.2	310	10.0	254	5.8	147	5.3	135	—	—
82332	Jack only, order bracket 81271	2,000		●	0.9	23	10.9	277	4.8	122	10.7	272	6.8	173	6.4	163	1.0	25
82333	Jack only, order bracket 81271	2,000		●	3.1	79	17.3	439	13.3	338	10.9	277	6.8	173	6.4	163	1.0	25
82471	Jack only, order bracket 82500	5,000	●		0.4	10	15.1	384	14.5	368	10.6	269	5.8	147	5.3	135	—	—
Retaining Ring Swivel Jack																		
80522	w/o bracket, Lrg. foot	1,000	●		1.7	43	16.9	429	6.0	152	13.2	335	5.8	147	5.3	135	—	—
80523	w/o bracket, Lrg. foot	1,000	●		1.2	30	11.3	287	3.3	84	10.5	267	5.8	147	5.3	135	—	—
80518	w/ weld-on bracket, Sml. foot	2,000	●		0.9	23	11.0	279	3.4	86	10.7	272	5.8	147	5.3	135	—	—
80519	w/o bracket, Sml. foot	2,000	●		0.9	23	11.0	279	3.4	86	10.7	272	5.8	147	5.3	135	—	—
OBSOLETE																		
80273	Painted w/ zinc ram & foot	1,000	●		115/8	296	213/4	553	33/8	85	63/8	162	51/2	140	—	—		
80294	Painted w/ zinc ram & foot	1,000	●		147/8	379	30	762	6	152	63/8	162	51/2	140	—	—		
80452	Painted w/ zinc ram & foot	2,000	●		115/8	296	213/4	553	33/8	85	63/8	162	51/2	140	—	—		
80453	Painted**	2,000	●		115/8	296	213/4	553	33/8	85	63/8	162	51/2	140	—	—		

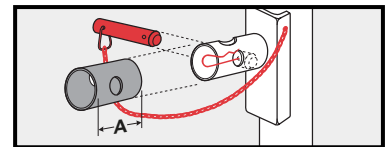
## IMPLEMENT SWIVEL JACK REPAIR KITS

Part No.	Handle	Gear	Bearing	Cap	Pin & Chain
<b>80459</b>	82700	x	81416	x	85411
<b>81264</b>	82700	x	81416	x	85411
<b>81353</b>	82700	x	81416	x	85411
<b>82340</b>	82700	x	81416	x	85411
<b>82332</b>	25526	81410	81416	84120	85411
<b>82333</b>	25526	81410	81416	84120	85411
<b>82471</b>	82700	x	81417	x	85719
<b>80522</b>	82700	x	81416	x	x
<b>80523</b>	82700	x	81416	x	x
<b>80518</b>	82700	x	81416	x	x
<b>80519</b>	82700	x	81416	x	x
<b>80273</b>	82700	x	81416	x	x
<b>80294</b>	82700	x	81416	x	x
<b>80452</b>	82700	x	81416	x	x
<b>80453</b>	82700	x	81416	x	x

All Atwood Swivel Jacks must use Atwood Mounting Brackets.



**81271 Tubular Mount Bracket Only**



**82500 Tubular Mount Bracket Only**

**85411 Pin and Lanyard Kit**

**86493 Pin and Lanyard Kit**

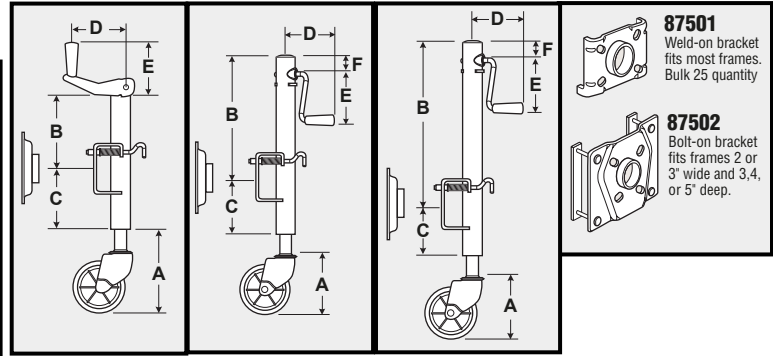
## TUBULAR MOUNT BRACKETS

Part No.	Description	A		I.D.		O.D.		PIN SIZE	
		in.	mm	in.	mm	in.	mm	in.	mm
<b>81271</b>	Unpainted, female, weld-on receiver bracket for 2,000 lb. tubular mount jacks	2.5	64	—	—	2	51	.63	16
<b>82500</b>	Unpainted, female, weld-on receiver bracket for 5,000 lb. tubular mount jacks	3.5	89	2.5	64	3	76	.88	22

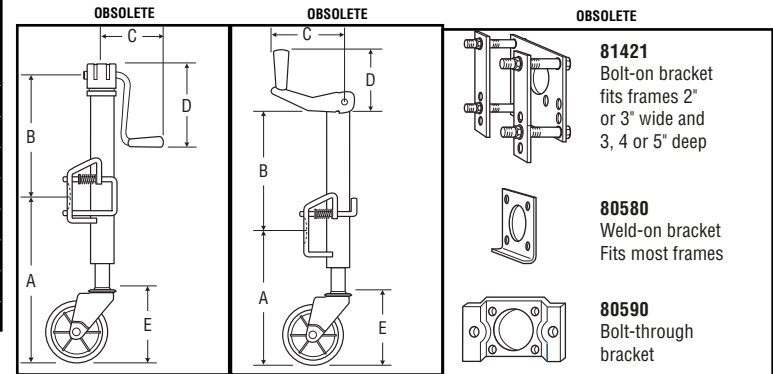
# Atwood Retaining Ring Swivel Jacks

## RETAINING RING & DOUBLE LOCK PIN SWIVEL JACK REPAIR KITS

Part No.	Handle	Gear	Bearing	Repair	Cap
80041	82700	x	81416	x	x
80042	82700	x	81416	x	x
80043	82700	x	81416	x	x
80149	x	x	x	80454	80457
80132	x	x	x	80454	80455
87535	x	x	x	80454	80457
80179	x	x	x	80465	80456
80124	x	x	x	80465	80456
80057	x	x	x	80465	80456
87761	x	x	x	80455	80456
87743	x	x	x	80455	80456
87690	x	x	x	80455	80456
80302	82700	x	81416	x	x
81413	25526	25524	81418	x	25525
83171	25526	25524	81416	x	84120
84200	25526	25524	81418	x	25525
84205	25526	25524	81416	x	84120
84250	25526	25524	81416	x	84120
84255	25526	25524	81418	x	25525
84290	82700	x	81416	x	x
80373	25526	25524	81418	x	25525



80041\*, 80042, 80043 80132, 80149\*, 87535, 87690, 87743, 87761\* 80124, 80057, 80179\*



81413, 83171, 84200, 84205, 84250, 84255 80302, 84290

## RETAINING RING SWIVEL JACKS WITH CASTER SELECTION GUIDE

Part No.	Description	Work Capacity lbs	Support Capacity lbs.	Top Wind	Side Wind	A				B		C		D		E		F	
						retracted		extended											
						in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
80041	Retail package w/ appropriate bracket	500	800	•		7.4	188	15.9	404	6.1	155	5.3	135	5.8	147	5.3	135	—	—
80042	Bulk w/ bolt-on bracket	500	800	•		7.4	188	15.9	404	6.1	155	5.3	135	5.8	147	5.3	135	—	—
80043	Bulk, no bracket	500	800	•		7.4	188	15.9	404	6.1	155	5.3	135	5.8	147	5.3	135	—	—
80149	Retail package w/ appropriate bracket	500	800		•	7.8	198	18.1	460	8.7	221	5.8	147	6.3	160	6.8	173	1.3	33
80132	Bulk w/ bolt-on bracket	500	800		•	7.8	198	18.1	460	8.7	221	5.8	147	6.3	160	6.8	173	1.3	33
87535	Bulk, no bracket	500	800		•	7.8	198	18.1	460	8.7	221	5.8	147	6.3	160	6.8	173	1.3	33
80179	Retail package w/ appropriate bracket	1,000	1,000		•	7.3	185	21.4	544	17.4	442	4.0	102	6.3	160	6.8	173	1.7	43
80124	Bulk w/ bolt-on bracket	1,000	1,000		•	7.3	185	21.4	544	17.4	442	4.0	102	6.3	160	6.8	173	1.7	43
80057	Bulk, no bracket	1,000	1,000		•	7.3	185	21.4	544	17.4	442	4.0	102	6.3	160	6.8	173	1.7	43
87761	Retail package w/ appropriate bracket	1,000	1,200		•	7.2	183	17	432	11.7	297	5.8	147	6.3	160	6.8	173	1.7	43
87743	Bulk w/ bolt-on bracket	1,000	1,200		•	7.2	183	17	432	11.7	297	5.8	147	6.3	160	6.8	173	1.7	43
87690	Bulk, no bracket	1,000	1,200		•	7.2	183	17	432	11.7	297	5.8	147	6.3	160	6.8	173	1.7	43
80302	Zinc plated, with caster	500	800	•		12 7/8	327	21 3/8	543	6	152	6 3/8	162	5 1/2	140	6 3/4	172	OBSOLETE	
81413	Zinc plated, w/ caster	500	800		•	12 7/8	327	23	584	9 5/8	244	6 5/8	168	6 5/8	168	6 3/4	172	OBSOLETE	
83171	Zinc plated, w/ caster	1,000	1,000		•	11 1/4	286	25 3/8	644	15 5/8	398	6 5/8	168	6 5/8	168	6 3/4	172	OBSOLETE	
84200	Zinc plated, w/ caster*	500	800		•	12 7/8	327	23	584	9 5/8	244	6 5/8	168	6 5/8	168	6 3/4	172	OBSOLETE	
84205	Zinc plated, w/ caster*	1,000	1,000		•	11 1/4	286	25 3/8	644	15 5/8	398	6 5/8	168	6 5/8	168	6 3/4	172	OBSOLETE	
84250	Zinc plated, w/ caster	1,000	1,000		•	11 1/4	286	25 3/8	644	15 5/8	398	6 5/8	168	6 5/8	168	6 3/4	172	OBSOLETE	
84255	Zinc plated, w/ caster	500	800		•	12 7/8	327	23	584	9 5/8	244	6 5/8	168	6 5/8	168	6 3/4	172	OBSOLETE	
84290	Zinc plated, w/ caster*	500	800	•		12 7/8	327	21 3/8	543	6	152	6 3/8	162	5 1/2	140	6 3/4	172	OBSOLETE	

**Note: All Atwood retaining ring swivel jacks must use Atwood mounting brackets.**

CAPACITY DEFINITION: The working, or work, capacity is the maximum load that the jack can support for casting and easy lifting of a fully loaded trailer. The supporting, or support, capacity is the maximum vertical load that the jack can support.

## Manual Tongue Jacks

### TROUBLE SHOOTING GUIDE

Effective: 7/9/98

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#### WARNING

##### PERSONAL INJURY AND/OR PRODUCT DAMAGE

- If any of the following conditions develop, the trailer must not be used until proper corrective action is taken.

#### CONDITION WITH SOLUTIONS

##### Handle Turns and Jack Leg Does Not Move

Stripped bevel gears ..... Replace gears  
 Gear pin missing ..... Replace pin  
 Stripped acme nut ..... Replace jack

#### Difficult to Crank

Too much tongue weight ..... Verify weight and determine if adequate rated jack has been used  
 Jack mounted at angle ..... Reinstall jack perfectly vertical  
 Dry gears ..... Grease gears  
 Dirt in gears ..... Clean and grease gears  
 Worn ball socket ..... Replace coupler  
 Broken teeth on bevel gears ..... Replace gears  
 Binding thrust bearing ..... Replace bearing  
 Stripped acme nut ..... Replace jack  
 Worn worm gear ..... Replace jack  
 Bent inner ram ..... Replace jack

#### Jack Leg Seizes

Stripped acme nut ..... Replace jack  
 Stripped worm gear ..... Replace jack  
 Obstruction in gears ..... Clean and grease gears  
 Bent inner ram ..... Replace jack

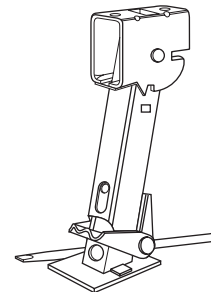
## Atwood Stabilizer Jacks

### STABILIZER JACK SELECTION GUIDE

Model No.	Part No.	Painted	Work capacity	Support capacity	Retracted		Extended	
					in.	cm	in.	cm
Single Jack—standard	82301	●	650lbs	1,000lbs	11.5	29.21	17.75	45.09
Single Jack—long	82297	●	650lbs	1,000lbs	15.5	39.37	21.75	55.25
Single Jack—standard	82306		650lbs	1,000lbs	11.5	29.21	17.75	45.09
Single Jack—standard	82307*	●	650lbs	1,000lbs	11.5	29.21	17.75	45.09
Set of 2 Jacks	82302	(2) of #82301 and (1) #80480 jack rod						
Set of 2 Jacks	82298	(2) of #82297 and (1) #80480 jack rod						
Jack Rod	80480	Individual Jack Rod						

\* with u-bolt and welded bracket

Pull on the leg until the tab disengages from the slot.  
 Swing the leg down and snap into position.



## Atwood Telescoping Stabilizers

### TELESCOPING STABILIZER SELECTION GUIDE

Part No.	Description	Retracted		Extended		Maximum Vertical Load	Weight
		in.	mm	in.	mm		
480920	2" Outer Tube	20	508	26	660	3,000	5
82215	2 1/2" Outer Tube	30	762	45	1143	6,000	14

Weld the outer housing to a structural attachment point on the trailer.



# Power Jack

## TROUBLE SHOOTING GUIDE

Effective: 9/11/06

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### WARNING

#### PERSONAL INJURY AND/OR PRODUCT DAMAGE

- If any of the following conditions develop, the trailer must not be used until proper corrective action is taken.

### CONDITION WITH SOLUTIONS

#### MOTOR WILL NOT OPERATE

No or low voltage .....	Check battery & electrical connections. Must have minimum of 10 VDC
Jack flange not making good contact to provide adequate ground with coupler surface .....	Clean paint or dirt from coupler frame
Blown fuse .....	Replace with 30 amp AWG fuse
Loose wires on ON/OFF switch .....	Secure wire connections
ON/OFF switch faulty .....	Replace switch
Motor faulty .....	Replace motor

#### POOR GROUND

WHEN BUTTON IS PRESSED ON JACK -

Jack doesn't operate .....	Inspect motor mounting bolt for Loctite®.
Jack operates only partially up or down .....	If Loctite® found, replace with new 1/4-20 x 3" screw and two lock washers. If bolt unavailable, clean present bolt and hole with wire buffing wheel. Inspect bolt
Jack runs intermittently .....	

#### MOTOR CLUTCH ENGAGES

Normal if jack leg is at fully retracted or extended position .....	None, but let go of switch when you hear the clutch
Worn worm gear .....	Replace jack ram
Dirty inner ram tube .....	Clean ram tube and coat with light coat of silicon spray
Bent inner ram .....	Replace inner ram
Clutch faulty .....	Replace motor
Jack at angle .....	Secure mounting bolts and ensure a support plate is used.
Excessive tongue weights .....	Determine if jack is adequate for tongue weight.

#### UTILITY LIGHT DOES NOT WORK

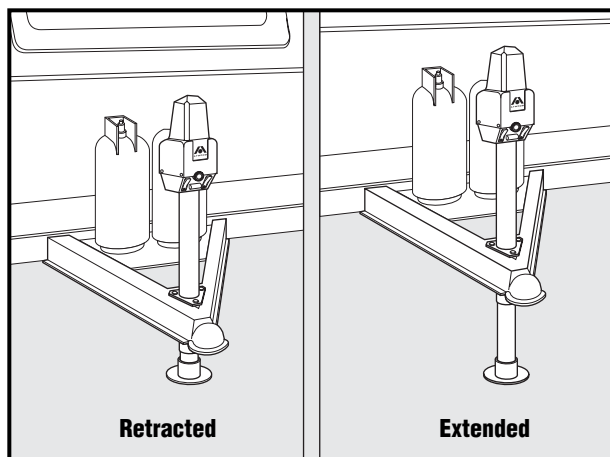
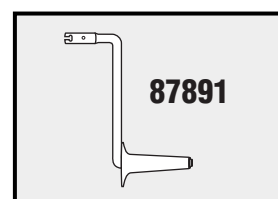
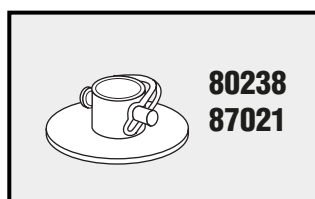
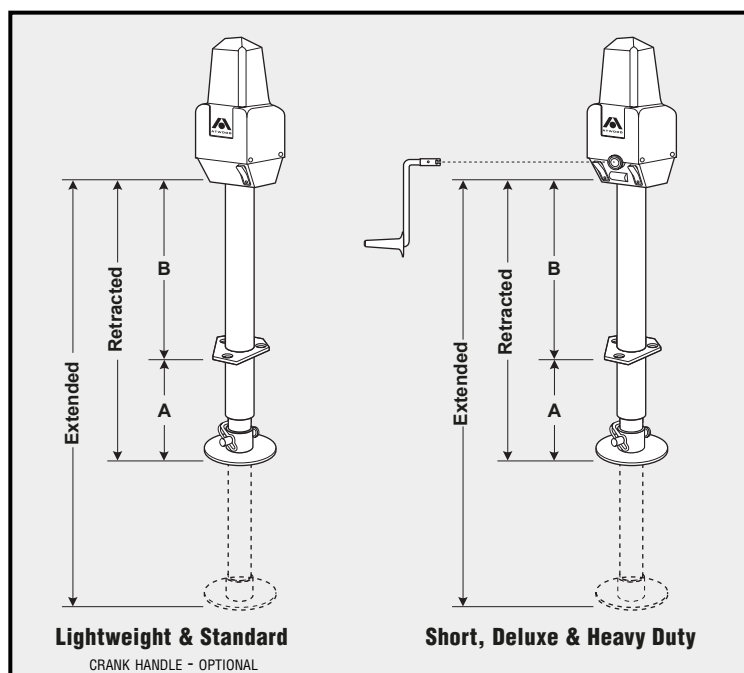
Loose wires on the ON/OFF switch .....	Secure wire connection
Bad light bulb .....	Replace bulb

#### AMP DRAW

Range of motor .....	8-45 amps
----------------------	-----------

**IMPORTANT CAUTION - If equalizer bars are attached to the tow vehicle and the trailer while operating the power tongue jack, you may experience the motor clutching the moment the jack sees load.** This will occur because you are lifting both the tongue of the trailer and the rear of the tow vehicle. The 1500 lb. and 2500 lb. acme screw jacks cannot lift this excessive weight. To overcome this excessive weight, you should upgrade to the 3500 lb. power jack. The ball screw mechanism utilized in this jack should allow you to lift this load.

# Atwood Power & Marine Power Jacks

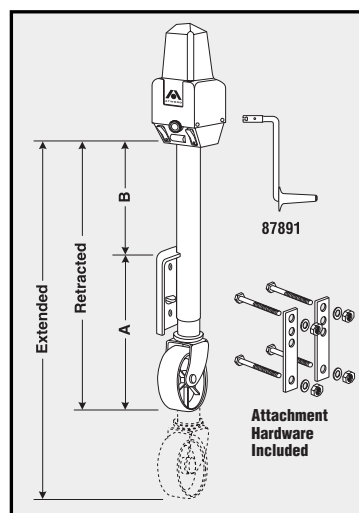


## POWER JACK SELECTION GUIDE

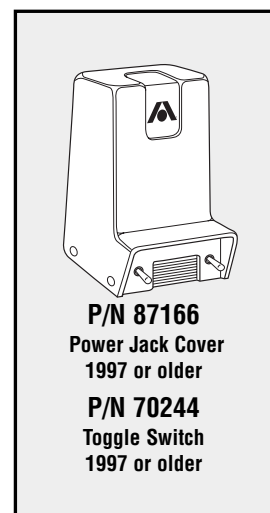
POWER JACK													
Part No.	Description	Rate of Travel	A		B		Retracted		Extended		Capacity		Coupler Ball Size
			in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kg	
80236	Lightweight Power Jack	10" per minute	10 1/8	257.2	14 3/4	374.7	24 7/8	631.8	39 1/4	997	1,500	680	2
80511	Standard Power Jack	10" per minute	10 1/8	257.2	14 3/4	374.7	24 7/8	631.8	39 1/4	997	2,500	1134	2 5/16
80515	Deluxe Power Jack	10" per minute	10 1/8	257.2	14 3/4	374.7	24 7/8	631.8	39 1/4	997	2,500	1134	2 5/16
80530	Heavy Duty Power Jack	15" per minute	10 1/8	257.2	14 3/4	374.7	24 7/8	631.8	39 1/4	997	3,500	1588	2 5/16
80509	Short Jack	10" per minute	10	254.0	9 7/8	251.0	19 7/8	505.0	31 5/16	795	2,500	1134	2 5/16
80524	Marine Jack	10" per minute	14 3/4	374.7	10 1/8	257.2	24 7/8	631.8	39 1/4	997	1,000	1134	2 5/16

## SHIPPING SPECIFICATIONS—POWER JACKS

Product	Shipping Wt.		Carton Length		Carton Width		Carton Depth	
	lbs.	kg	in.	mm	in.	mm	in.	mm
Lightweight—boxed	27	12.2	37	940	8	203	8	203
Standard Jack—boxed	27	12.2	37	940	8	203	8	203
Deluxe Jack—boxed	27	12.2	37	940	8	203	8	203
Heavy Duty—boxed	29	13.2	37	940	8	203	8	203
Short—boxed	27	12.2	37	940	8	203	8	203
Marine—boxed	30	13.6	37	940	8	203	8	203
Foot	1	.45						
Handle	2	.91						



**Marine Power Jack**





## REPLACEMENT SERVICE PARTS / PIÈCES DÉTACHÉES

ITEM ARTICLE	LIGHT WT LÉGER	STANDARD STANDARD	SHORT NORMAL	DELUXE DE LUXE	HEAVY DUTY LOURD	MARINE MARIN	DESCRIPTION DESCRIPTION
1	87571	87571	87595	87595	87595	87595	Upper Cover Couvercle supérieur
2	87060	87060	87057	87057	87057	87057	Cover Screw Vis du couvercle
3	87055	87055	87942	87942	87942	87942	Motor Ground Screw / Vis
4	86111	86111	86111	86111	86111	86111	Lock Washer Rondelle de blocage
5	75367	75367	75625	75625	75625	75625	Motor and Terminals Moteur et bornes
6	N/A	N/A	87916	87916	87916	87916	Cover Tube Tube du couvercle
7	N/A	N/A	87108	87108	87108	87108	Bevel Gear Kit Pignon conique
8	N/A	N/A	88002	88002	88002	88002	Gear Housing Cover Couvercle de la boîte de vitesse
9	N/A	N/A	70298	70298	71132	70298	Drive Pin Goupille d'entraînement
10	N/A	N/A	87941	87941	87941	87941	Drive Shaft Arbre d'entraînement
11	87573	87573	87597	87597	87597	87597	Lower Cover Couvercle inférieur
12	N/A	N/A	87585	87585	87585	87585	Wire & Light Bulb* Ampoule électrique*
13	N/A	N/A	87591	87591	87591	87591	Lens / Lentille
14	87035	87035	87035	87035	87035	87035	Hole Plug Bouchon de l'orifice
15	80237	80512	87489	87500	87559	N/A	Jack Hsing & Ram Asy 16" trvl Enveloppe du vérin et corps du cric à course de 16 po
16	N/A	N/A	87847	87847	87847	87847	Washer Support Support de rondelle
17	70229	70229	70667	70667	70667	70667	Pin / Tige
18	87568	87568	87598	87598	87598	87598	Ground Wire Fil de terre
19	N/A	N/A	87586	87586	87586	87586	Light Switch Commutateur d'éclairage
20	87570	87570	87570	87570	87570	87570	Motor Switch Commutateur du moteur
21	87327	87327	87327	87327	87327	87327	Strain Relief Bushing Bague de bride de cordon
22	N/A	N/A	87599	87599	87599	87599	Jumper Wire & Fuse Fil de connexion et fusible
23	N/A	N/A	N/A	N/A	N/A	N/A	Fuse▲ / Fusibles▲
24	87176	87176	87176	87176	87176	87176	Mounting Bolt / Boulon
25	87891	87891	87891	87891	87891	87891	Manual Drive Handle Manette de commande manuelle
26	70269	70269	70269	70269	N/A	70269	Cotter Pin Goupille fendue
27	80238	87021	87021	87021	87021	--	Round Foot Pad Coupelle ronde
28	87709	87709	87709	87709	70215	87709	Clevis Pin Axe de chape
29	87077	87077	N/A	N/A	NA	N/A	Hex Drive Nut Écrou de commande hexagonal
30	87569	87569	N/A	N/A	N/A	N/A	Fuse Wire Fil du fusible
31						87150	Bracket / Patte
32						84037	Caster / Roue pivotante

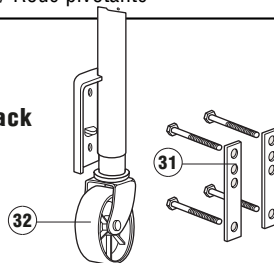
\*912 type T5 12 candle power

\*912 type T5 12 candelas

▲Buss Type AGC-30 amp fuse

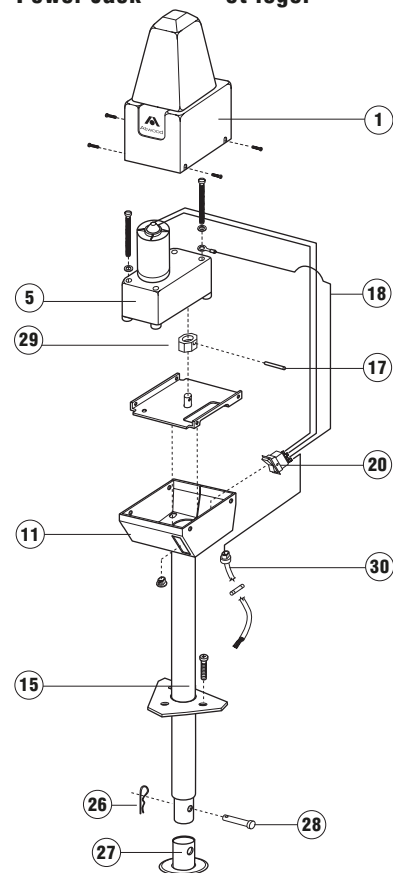
▲Buss type AGC-30 à fusible

### Marine Power Jack



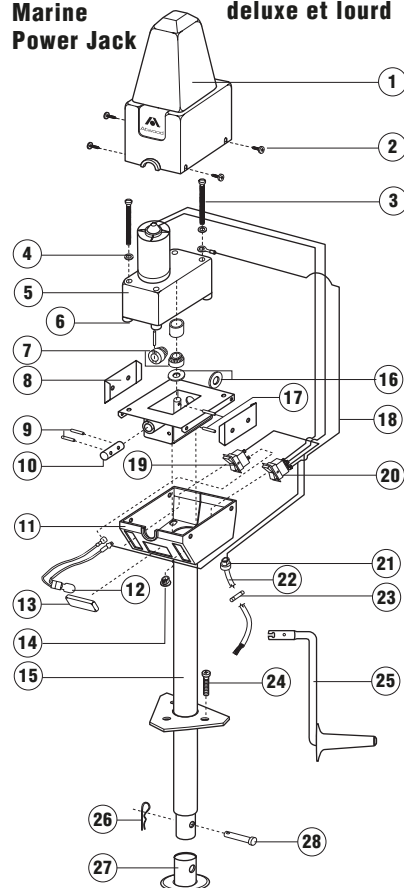
### Standard & Lightweight Power Jack

### Cric électrique service normal et léger



### Short, Deluxe, Heavy Duty & Marine Power Jack

### Cric électrique service court, deluxe et lourd





# DuraLeg Center Mount Jack

## Atwood DuraLeg® Selection Guide

Atwood DuraLeg					
Part Number	Description	Leg Capacity		Leg Weight	
		lbs	Kg	lbs	Kg
66038	DuraLeg, single switched	10,000	4,536	85	39.0
66369	DuraLeg, single 2-speed	10,000	4,536	85	39.0
66370	DuraLeg, dual 2-speed	10,000	4,536	160	72.6



### MAINTENANCE

1. Internal part of DuraLeg are permanently lubricated at the factory and do not require any further lubrication.
2. If it is not possible to get DuraLeg to operate freely, replace DuraLeg.
3. At least once each usage season fully extend jacks and clean dirt and grime from outside of inner tube. Coat entire outside of inner tube with silicone spray lubricant. This will protect the finish of the inner tube and provide lubrication between the jack's tubes. Clean dirt and grime from outer housing.
4. Apply a good automotive polish or wax to the outer tube of the jacks to maintain the appearance.

### Manual Override

To Manually Extend or Retract jack, use a 1/2" socket on Drive nut on end of motor (fig 12).

Note: It takes 500 revolutions of nut to extend/retract leveler one (1") inch.

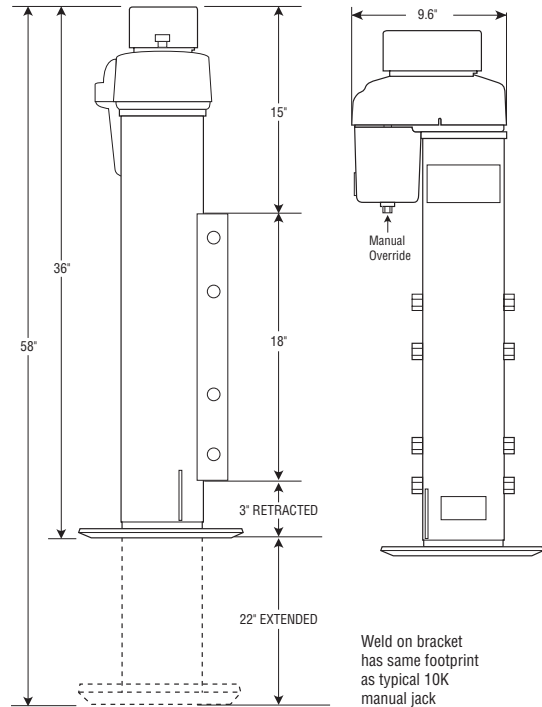
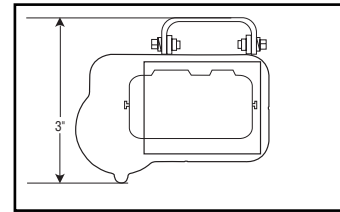
**⚠ CAUTION**  
**PERSONAL INJURY/PRODUCT DAMAGE**

- Battery operated drills, 9.6V to 18V, are powerful. Hold drill with both hands to protect your wrist. Keep loose clothing and body parts away from drill as the reaction torque from the drill may cause it to kick back.
- Refer to your drill manufacturer's operation manual.
- Use a battery operated drill/drive to rotate nut counter clockwise (looking from bottom end of nut FIG 12) to extend jack.

### SYSTEM PROTECTION FEATURES:

#### Low Voltage Protection

Low Battery indicator lights indicates voltage drop below 10.5 volts. Charge battery or connect trailer to tow vehicle. Turn system off then back on to clear low battery. If system "times out" and shuts off automatically, just turning it back on will clear low battery indicator.

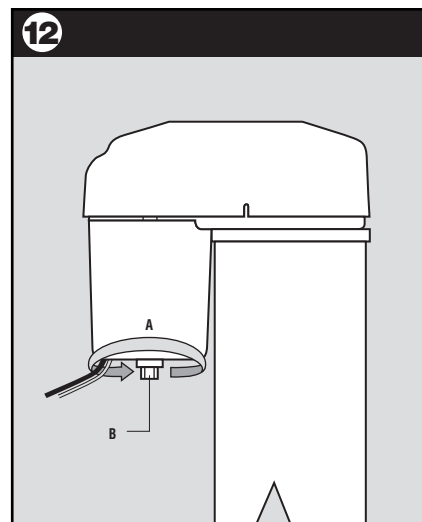


### TIP:

If the storage battery of the trailer is charged by the tow vehicle; it will improve the performance of the jack under very heavy loads if the tow vehicle wiring harness is connected and the tow vehicle is running. This is not required but may improve the performance in some cases.

**⚠ WARNING**  
**PERSONAL INJURY**

- The tow vehicle must be in park and the emergency brake set when making vehicle hook up and operating the jack.



For complete DuraLeg operating instructions please see Literature Number MPD 66199

# Remote Control Electric Ball Screw Camper Jacks

## TROUBLE SHOOTING GUIDE

Effective: 9/11/06

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### WARNING

#### PERSONAL INJURY AND/OR PRODUCT DAMAGE

- If any of the following conditions develop, the trailer must not be used until proper corrective action is taken.

#### CONDITION WITH SOLUTIONS

##### REMOTE WORKS INTERMITTENTLY

Low voltage .....	Recharge the camper battery.
Antennae out of alignment .....	Straighten the antennae. Arrange so they are perpendicular to the sides of the relay module.
Small energy drains .....	Turn appliances and electronic equipment off, not just in sleep mode.
Interference from other RF devices .....	Move other radio frequency devices such as cell phones, key fobs, or TV remote control, away from the camper. These can interfere with the proper operation of the remote control system.
Weak signal .....	Walk around outside the camper, while operating the remote, to determine the best position for operation.

##### LIGHT ON ACTIVATION SWITCH DOES NOT TURN OFF

Relay module operation .....	Turn on the activation switch. Now turn it off. If the light does not go out, replace the relay module.
------------------------------	---

##### ONE OR MORE JACKS DO NOT OPERATE

Jack cord not plugged in .....	Verify that each jack cord is securely plugged into the outside of the camper.
Wiring .....	Check wiring between relay module and jack are correct & wires are not crossed.

Low voltage .....	Using a digital voltmeter, verify there is at least 12 volts present and the polarity changes between "extend" and "retract".
Module operation .....	If there is no output voltage, replace the relay module. Check operation of electric jack and its wiring before connecting it to the new relay module - shorted jack will damage the relay module if connected and turned on.
Shorted wiring or jack .....	If there is voltage on the output of the relay module, the problem is in the wiring or the electric jack.

##### NOTHING HAPPENS

Remote control battery dead .....	Replace the 9V battery in the hand held remote control.
Unmatched dip switch settings .....	Compare the dip switch settings on the relay module to those of the hand held remote control. If different, make them the same settings.
Relay module operation .....	Replace the relay module and see if the system operates.
Remote control operation .....	Replace the remote control and see if the system operates.
Cable .....	Obtain a known good cable from another Atwood remote control system and install the cable between the relay module and the activation switch.

##### NOTHING HAPPENS WHEN I PRESS "ALL JACKS", BUT I HEAR A CLICKING SOUND

Low voltage .....	Recharge the camper battery.
Battery connections .....	Check the battery connections.

##### ONE OR MORE JACKS, BUT NOT ALL, CANNOT BE CONTROLLED BY THE HAND HELD REMOTE

Crossed wires .....	Verify that the output wiring is correct.
Jack operation .....	Verify, using the hand crank, that the electric jacks work properly.
Module operation .....	If the two above are correct, replace the relay module.

##### AMP DRAW

No load .....	Do not exceed 8 amps while extending or retracting jacks.
With load .....	Less than 25 amp draw to lift 2,200 lbs at 12 VDC.

# Atwood Truck Camper Jacks

## Truck Camper Jack Selection Guide

Model	Part No.	Pure (Arctic) White	New White	8' or shorter campers (1500 lbs. or less)	campers exceeding 8' length
REMOTE CONTROL JACKS (set of four (4) jacks only)					
Electric Ball Screw	80491	●		●	●
Electric Ball Screw	80492		●	●	●
Heavy Duty Ball Screw	80411		●	●	●
Heavy Duty Ball Screw	80417	●		●	●
JACKS (set of four (4) jacks only)					
Electric Ball Screw	80488	●		●	●
Electric Ball Screw	80489		●	●	●
Heavy Duty Ball Screw	80412	●		●	●
Manual Ball Screw	84371	●		●	●
Manual Ball Screw	84376		●	●	●
Acme Screw	84241		●	●	
Acme Screw	84246	●		●	
HARDWARE/BRACKET KITS for wide front, narrow rear with lower clamps for rear jacks					
Electric Ball Screw	85930		●	●	●
Electric Ball Screw	85964	●		●	●
Manual Ball Screw	85925		●	●	●
Manual Ball Screw	85927	●		●	●
Acme Screw	85966		●	●	
Acme Screw	85967	●		●	
HARDWARE/BRACKET KITS for wide front, wide rear with lower clamps					
Electric Ball Screw	85981		●	●	●
Electric Ball Screw	85983	●		●	●
Remote Electric	85984	●		●	●
Remote Electric	85985		●	●	●
Manual Ball Screw	85979		●	●	●
Manual Ball Screw	85982	●		●	●
HARDWARE/BRACKET KITS for wide front, wide rear without lower clamps					
Acme Screw	85969		●	●	
Acme Screw	85970	●		●	
HARDWARE/BRACKET KITS for narrow front, narrow rear with lower clamps					
Electric Ball Screw	85972	●		●	
Manual Ball Screw	85974	●		●	
SWING-OUT KITS for use with dual-wheel pick-ups					
All Pickup Jacks	85428		●		
All Pickup Jacks	85473	●			
RETROFIT KITS (Zinc plated ONLY) Retrofits onto existing Atwood jacks					
Electric Ball Screw	87357				
Remote Electric	87329				
REPLACEMENT PARTS - REMOTE CONTROL & ELECTRIC CMPR JCK					
Wireless Remote Control Kit	85441				
Handheld Wireless Remote	85442				
14' Phone Cable	85453				
Relay Controller	85439				
Activation Switch	85440				
Male Plug-Electric Cmpr Jck	87034				

## Wireless Remote Control Kit—85441

The Remote Control Kit consists of the micro-processor unit with antennae, activation wall switch, cable connecting the unit to the wall switch, and handheld remote control.

**Obsolete Wired Remote kits - 85449, 85451, 85444**

No replacement parts available.

Must replace complete control kit with MPD 85441.



## TO ORDER JACKS, KITS AND REPLACEMENT PARTS -

### 1. DETERMINE TYPE OF JACK

Hand Cranked Acme Manual Ball Screw  
Electric Switched Remote Control

### SEE SELECTION GUIDE ON LEFT

2. **COLOR CHOICE** ..... New White or Pure White

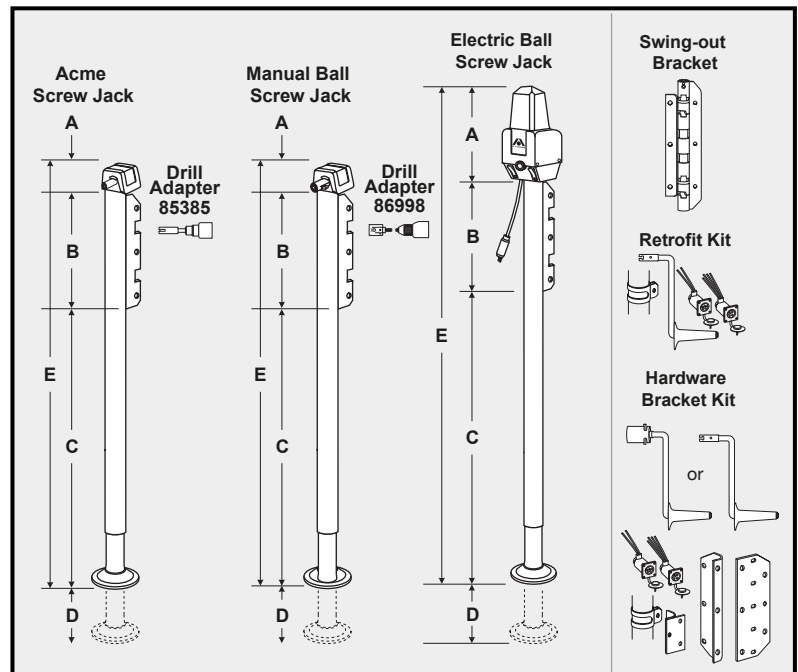
3. **REMOTE CONTROL** ..... Order kit separately

4. **BRACKET KITS** ..... Wide Front / Wide Rear

GVWR < 1500 lbs. (ONLY) ..... Order Narrow Fronts / Narrow Rears  
Interference in the camper rear

(generator or water heater compartment) .. Order Wide Fronts / Narrow Rears

Truck with Dual Rear Wheels ..... Order Swingout Bracket Kits



## Dimensions

Model	A		B		C		D		E	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
Electric	11	279	13	330	32	813	33.5	851	56	1422
Manual	3	76	13	330	32	813	33.5	851	48	1219
Acme	3	76	13	330	32.5	826	27.5	699	48.5	1232

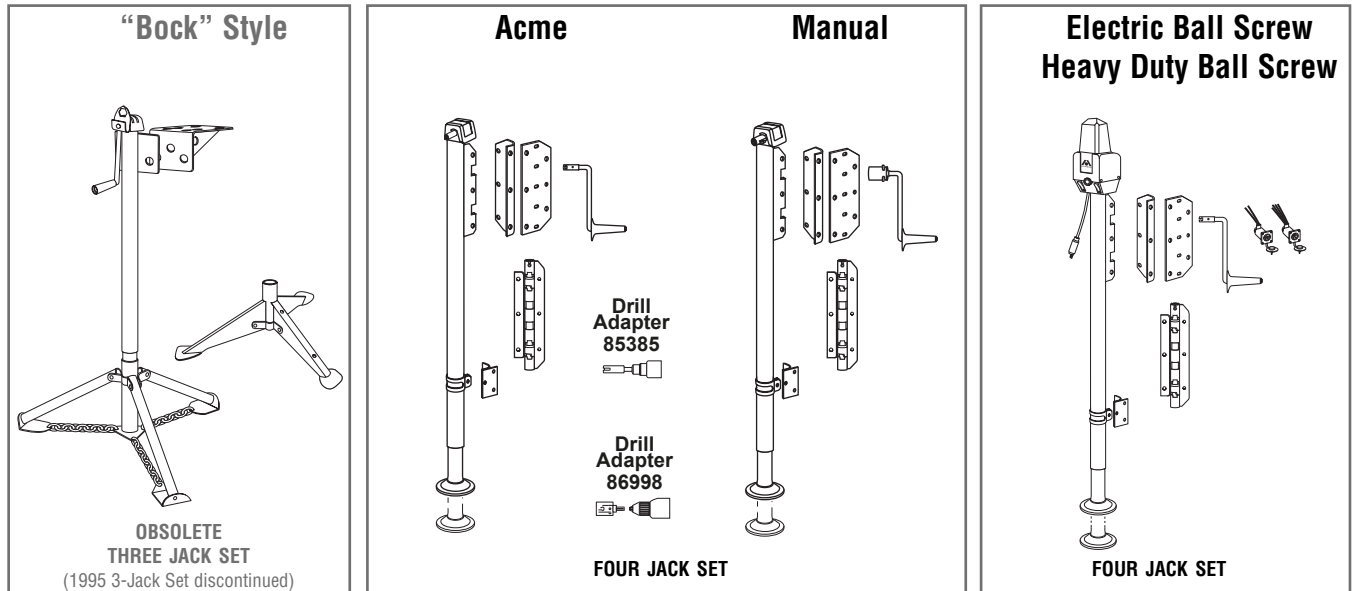
\* Includes mounting brackets as specified, required bolts, washers and nuts, handle, wiring receptacles and installation/operation instructions.

Hardware/Bracket Kits (required) include mounting brackets, required bolts, washers and nuts, handle and installation/operation instructions, plus wire receptacles for the Electric Ball Screw Jack.

The Swing-Out Kit, to accommodate dual-wheel pick-ups, must be used in conjunction with a Hardware/Bracket Kit.

Retrofit Kit includes lower zinc clamp, wiring receptacles, required bolts, washers and nuts, handle and installation/operation instructions.

# TRUCK CAMPER JACKS



SPECIFICATIONS	BOCK (OBS)			BALL SCREW*		ELECTRIC*			
	LIGHT-WT	STANDARD	HEAVY	ACME	MANUAL	REGULAR		REMOTE CONTROL	
						REGULAR	HEAVY DUTY	REGULAR	HEAVY DUTY
Max. Camper Weight (lbs)				2,250 (4)	3,900 (4)	3,900 (4)	5,000 (4)	3,900 (4)	5,000 (4)
Individual Jack Rating (lbs)	1000	1000	2000	1,250	2,200	2,200	2,800	2,000	2,800
Tripod	Stamped	Chained	Chained						
Drill Adapter				85385	86998				
Travel (extension in inches)	22	22	22	27.5	29.5	29.5	29.5	29.5	29.5
Bevel Gear Teeth	15 & 15	15 & 15	12 & 16	15 & 15	15 & 15	12 & 16	12 & 16	12 & 16	12 & 16
* Individual jack may see up to 60% of camper weight N/N = Narrow Narrow USE ONLY IF GVWR<1500 LBS. WF/NR = Wide Front Narrow Rear						MOTOR AMP DRAW			
						Single leg, no load			
						Single leg, X <2000 lbs			
						All legs, 2500 lbs			
						7 amps			
						19 amps			
						40 amps			

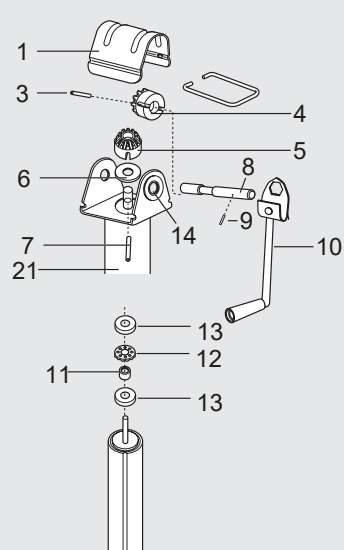
## Shipping Specifications

Product	Shipping Wt.		Carton Length		Carton Width		Carton Depth	
	lbs.	kg	in.	cm	in.	cm	in.	cm
Remote Control (set of 4)	145	65.8	62	157.5	32	81.3	8	20.3
Electric Jack (set of 4)	145	65.8	62	157.5	32	81.3	8	20.3
Manual Jack (set of 4)	108	49.1	55	139.7	18	45.7	8	20.3
Acme Jack (set of 4)	78	35.5	54	137.2	16	40.6	8	20.3
Hardware/bracket kits	20	9.1	22	55.9	12	30.5	3	7.6
Swing-out kits	15	6.8	15	38.1	8	20.3	3	7.6
Wireless Remote kit	2							

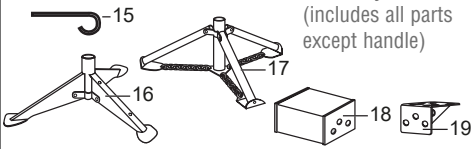
## INDIVIDUALLY BOXED Truck Camper Jacks

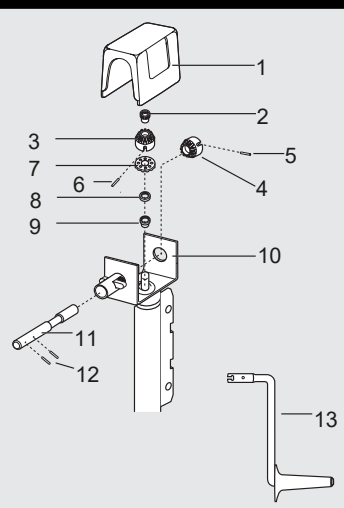
ELECTRICAL	SHIPPING WEIGHT	Switched Pure white	Switched New White	Switched Colonial White	Heavy Duty Switched Pure White	Remote Pure White	Remote New White	Heavy Duty Remote Pure White	Heavy Duty Remote New White
Set of 4	145 lbs	80488	80489	80487 - OBS	80412	80491	80492	80417	80411
Driver Front	37 lbs	80470	80466	80461 - OBS	80440	80473	80469	80443	80444
Passenger Front	37 lbs	80471	80467	80462 - OBS	80442	80471	80467	80442	80445
Driver Rear	37 lbs	80472	80468	80463 - OBS	80441	80471	80467	80442	80445
Passenger Rear	37 lbs	80473	80469	80464 - OBS	80443	80473	80469	80443	80444

MANUAL	SHIPPING WEIGHT	Ball Screw Pure white	Ball Screw New White	Ball Screw Colonial White	Acme Pure White	Acme New White	Acme Colonial White	SHIPPING WEIGHT
Set of 4	108 lbs	84371	84376	84351 - OBS	84246	84241	84298 - OBS	78 lbs
Driver Front	27 lbs	81443	81439	81435 - OBS	81456	81452	81488 - OBS	20 lbs
Passenger Front	27 lbs	81444	81440	81436 - OBS	81455	81451	81447 - OBS	20 lbs
Driver Rear	27 lbs	81445	81441	81437 - OBS	81458	81454	81450 - OBS	20 lbs
Passenger Rear	27 lbs	81446	81442	81438 - OBS	81457	81453	81449 - OBS	20 lbs




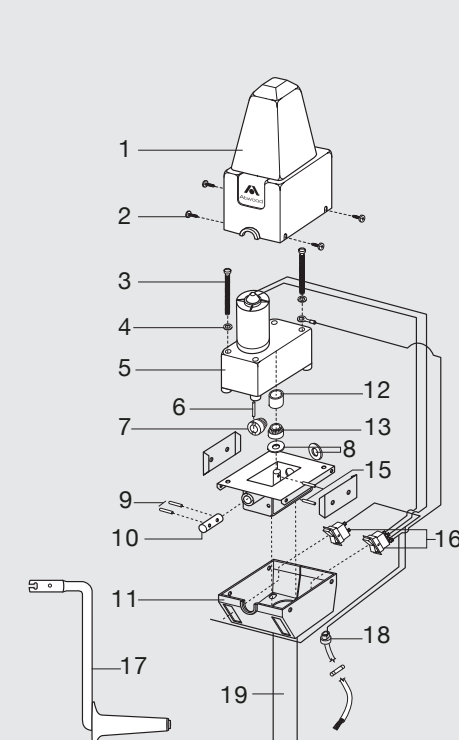
OBSOLETE - "BOCK" STYLE CAMPER JACK - REPLACEMENT PARTS							
ITEM #	LIGHT & STANDARD	HEAVY DUTY	DESCRIPTION	ITEM #	LIGHT & STANDARD	HEAVY DUTY	DESCRIPTION
1	25525	84120	Cover Kit	18	87318	87318	Dual Wheel Jack
			COVER				Ext. Brkt. Kit
			COVER CLIP				(2 brackets + hrdwr)
	25524	81480	Bevel Gear Kit	19	87293	87293	Mounting Bracket-Standard
3, 7			GEAR PINS	N/S	87281	87281	Mounting Bracket Hardware Kit
4, 5			BEVEL GEARS				BOLT 5/8" x 1"
6	23721		Thrust Washer				BRACKET NUT 5/8"
8	87189	87193	Shaft				Inner & Outer Ram Assembly
9	71132	71132	Crank Pin				(includes all parts except handle)
10	87258	87258	Crank				
11		25503	Felt Washer	N/S	81071	81020	
12		25504	Bearing				
13	25500	25500	Thrust Washer				
14	21693	21693	Bushing				
15	87258	87257	Carrier Ring				
16	87272		Tripod-stamped				
17	87264	87283	Tripod-chained.				





ACME & MANUAL BALL SCREW JACK - REPLACEMENT PARTS							
ITEM #	ACME	MANUAL BALL SCREW	DESCRIPTION	ITEM #	ACME	MANUAL BALL SCREW	DESCRIPTION
1	85171	85171	Cover-pure white	8	87846	87846	Spacer
	85172	85172	Cover-new white	9	70224	70224	Bushing, nylon
3,4,5,6		85387	Bevel Gear Kit (2 gears, 2 pins)	10	21693	21693	Bushings
2		87853	Knurled Nut	11	87378	87232	Drive Shaft
3	85706		Bevel Gear	12	70298	70298	Drive Pin
4	71138		Bevel Gear	13	87891	87030	Handle
5	71132		Gear Pin	BELOW	85385	86998	Drill Adapter
6	70229		Gear Pin	N/S	86470		Bearing
7	25504	25504	Thrust Bearing				





ELECTRIC & HEAVY DUTY BALL SCREW JACK - REPLACEMENT PARTS					
ITEM #	PART #	DESCRIPTION UPPER COVERS	ITEM #	PART #	DESCRIPTION LOWER COVERS
1	87595	New White	11	87594	New White FRONT DS
	87663	Pure White		87684	New White FRONT PS
2	87057	Cover Screws		87665	Pure White FRONT DS
3	87942	Screw		87682	Pure White FRONT PS
4	86111	Lock Washer	12	87916	Cover Tube
5	75625	Motor	17	87891	Handle
6,7, & 13,15	87108	Bevel Gear Kit (2 gears, 2 pins)	18	87326	Strain Relief Bushing
16	87570	Motor Switch			
8	87847	Washer			
N/S	87912	Nylon Bushing			
9	70298	Driver Pin			
10	87941	Drive Shaft			

Standard Jack only-Lower Assembly for Electric (NOT AVAILABLE FOR HEAVY DUTY)

19 80460 Pure White

19 80449 New White

**IN 1994 THE MOUNTING SYSTEM CHANGED -**

The ring mounting with a one piece bracket changed to a strap mounting with two brackets.

NOTE: DS = Driver Side  
PS = Passenger Side



**Atwood Mobile Products LLC**

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INTERNET: <http://www.atwoodmobile.com>

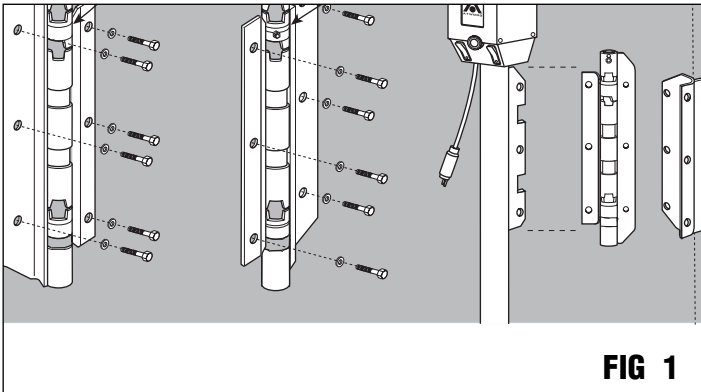
**LITERATURE NUMBER MPD 87904**

## SWING OUT BRACKET

### ENGLISH

**Use with Atwood Acme and Ball Screw Truck Camper Jacks when additional width between the two front jacks is required to clear the fenders on dual wheel trucks.** Due to the variety of camper sizes and truck trims, please verify that these swingout brackets provide enough clearance for driver comfort during loading and unloading.

**For complete Acme and Ball Screw truck camper instructions consult MPD 87903.**



**FIG 1**

**MPD 85428 - New White**

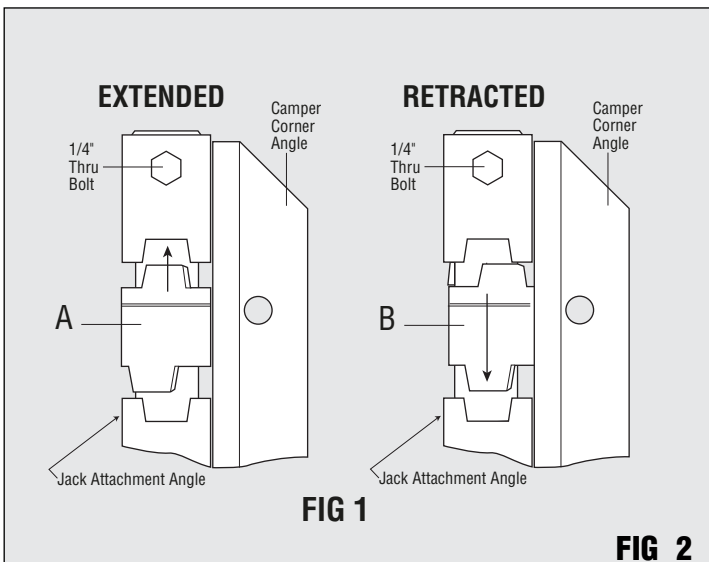
**MPD 85473 - Pure White**

**Swing Out Bracket Kit contains -**

- 1 Driver Side brkt.** Note the single grooved bushings (FIG 1-A).
- 1 Passenger Side brkt.** Note the double grooved bushings (FIG 1-B).
- 6 Nuts and bolts**
- 12 Washers**

### INSTALLATION

- The end with the 1/4" thru-bolt must be at the top of the bracket during installation (FIG 2-A).
- The angle bracket welded to the bushing with the thru-bolt attaches to the bracket already on the camper corner (FIG 1-C / 2-B).
- Use three-3/8" x 1-1/2" long Grade 5 bolts and washers to attach each bracket. Torque bolts to between 15-20 ft. lbs (FIG 1-D).



**FIG 1**

**FIG 2**

### •Installation •Operation •Maintenance

Effective 10/26/04

- Attach jack to other angle bracket with three 3/8" x 1-1/2" long Grade 5 bolts and washers. Torque bolts to between 15-20 ft. lbs (FIG 1-D).

**NOTE:** For Acme and Manual Ball Screw Jacks switch the front jacks from driver side to passenger side and vice versa to allow the crank handle to operate.



### WARNING

#### PERSONAL INJURY & PRODUCT DAMAGE

- Position swing out brackets properly. In the **Extended Position** - 90° outward to the side of camper (FIG 3-A) and in the **Retracted Position** - 60° inward to the side of camper (FIG 3-B).
- Jack bracket must be in retracted position when traveling on roadway (FIG 3-B).

### OPERATION

#### Extended Position -

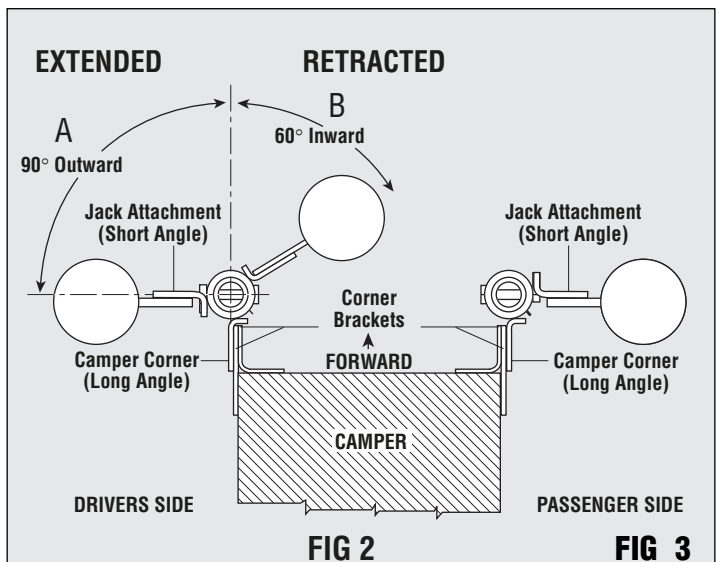
- Lift jack and swing outward from camper body to clear truck's dual wheel fenders. When jack is in the extended position, be sure the bracket attached to the jack (FIG 2-D) rides up into the notch in the camper corner angle bracket attached to the camper (FIG 2-D). This must be done visually prior to loading jack.

#### Retracted Position -

- After the jack is retracted, lift the jack and rotate it forward (inward) so when released, the bracket attached to the jack rides down into the notch in the camper corner angle (FIG 2-E).

### MAINTENANCE

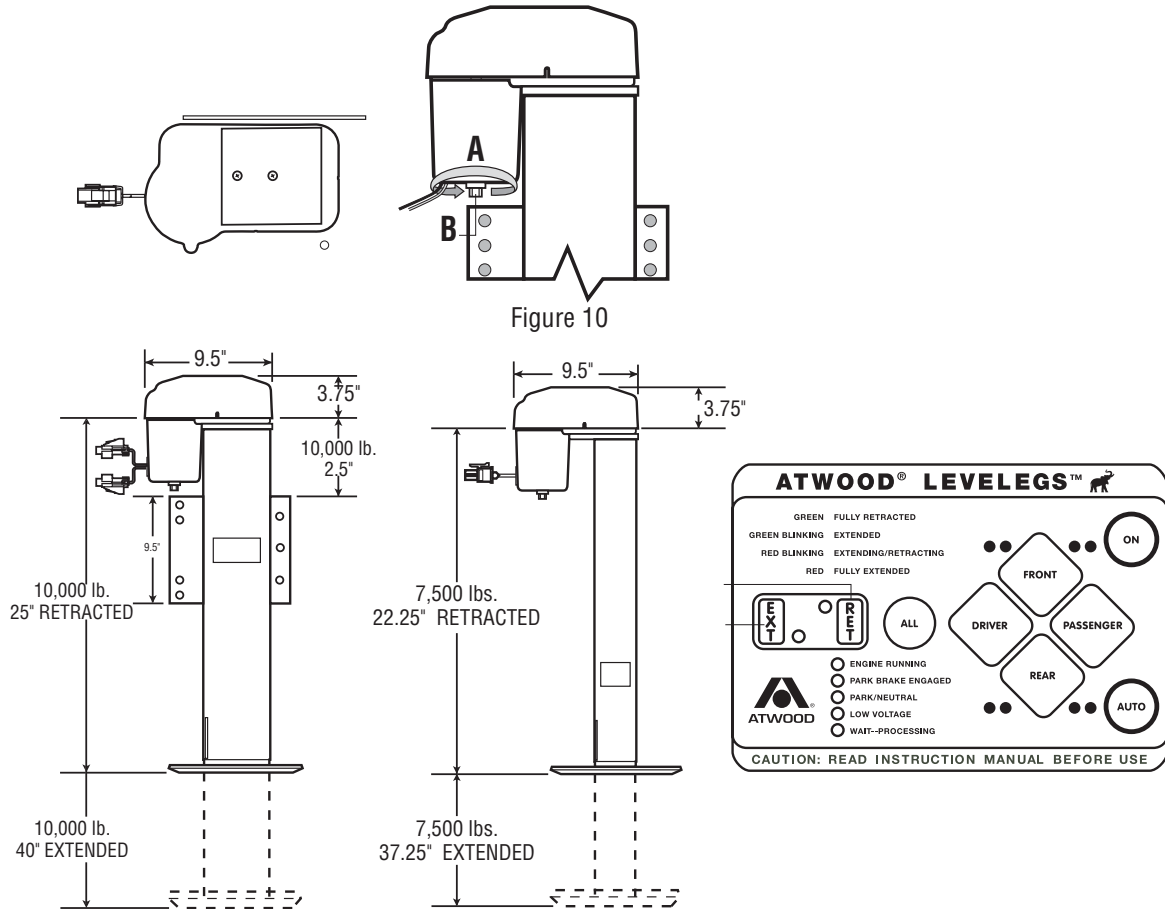
- Spray entire bracket with silicon spray lubricant at least once each camping season. Wipe off excess.



**FIG 2**

**FIG 3**

# Atwood Levellegs®



## Atwood Levellegs Selection Guide

Atwood Levellegs					
Part Number	Description	Capacity		Weight	
		lbs	Kg	lbs	Kg
66302	7.5K 13" travel	7,500	3,409	32	14
66280	7.5K 15" travel	7,500	3,409	34	15
66375	10K 13" travel	10,000			
66070	10K 15" travel	10,000		54	25
Control Kits					
66276	Workhorse® Auto Position				
66272	Ford® Auto Position				
66387	5th Wheel - Auto Position				
85480	5th Wheel - 4 motor remote control				



**CONTROL PAD LED INDICATORS**

The control pad LED's indicate the following when illuminated:

DESCRIPTION	COLOR
Vehicle Engine running (ignition switch is in the ON position) (MOTORHOME ONLY)	green
Park Brake engaged (MOTORHOME ONLY)	green
Park engaged (MOTORHOME ONLY)	green
Low Voltage (less than 13 VDC present at controller)	red
ON/OFF (referencing power to control box)	green
Extend/Retract Mode	green
Leveler positions	
Fully Retracted	solid green
Extended	green blinking
Extending/Retracting	red blinking
Fully Extended	solid red

**Atwood®****Atwood Mobile Products LLC**

1120 North Main Street • Elkhart, IN 46514

PHONE: 574•264•2131 FAX: 574•262•2550

INTERNET: <http://www.atwoodmobile.com>LITERATURE NUMBER **MPD 66346****LEVELEGS™ SYSTEM****MANUALLY DUMP THE AIR BAGS**

Effective 9/15/05

**For Atwood® LEVELEGS™ SYSTEM**

Atwood Levellegs™ Levelers are intended for use on recreation vehicle motorhomes and trailers.

**TO MANUALLY DUMP THE AIR BAGS**

- a. Engine must be running.
- b. Transmission must be OUT of Park/Neutral.
- c. Parking brake must NOT be engaged.
- d. Atwood Levellegs keypad is NOT on. Lights inside the ON switch are not lit.
- e. Press the FRONT + REAR + ALL buttons to dump air from air bags. (Note: Air dump feature does need to be enabled for this feature to work.)
- f. Air bags dump in approximately 20 seconds and air bags refill 60 seconds from the start of the air dump.

For complete LEVELEGS™ SYSTEM instructions consult MPD 66166.

Effective: 1/22/07

Guides are only intended for use on Atwood® products by service technicians who have successfully completed Atwood® training. This guide should be used in conjunction with the appropriate Instruction Manual provided with the product and any applicable Industry Standards. This is not intended to be a complete list. Please direct questions concerning service of Atwood® products to 866-869-3118 before proceeding.



### WARNING PERSONAL INJURY AND/OR PRODUCT DAMAGE

- If any of the following conditions develop, the RV must not be used until proper corrective action is taken.

### CAUSE WITH SOLUTIONS

#### SCROLLING LIGHTS ON KEYPAD

- Communication between keypad and control board lost.  
 Check wiring between keypad and control board.

#### JACK CONTINUES TO CLUTCH AND WILL NOT TURN OFF

- Short jack extension followed by jack retraction.  
 Put system in error mode by disconnecting one jack from power and pressing RET and ALL. Reconnect jack to power. Manually extend individual jacks for 10 seconds by holding down the EXT key and the two jack keys that make up the camper corner of that jack. Listen to insure all jacks move when manually activated. Press RET and ALL to retract all jacks.

#### RED AND GREEN LIGHTS COME ON FOR A SPECIFIC JACK LOCATION

- Loss of power to jack
  1. Manually extend individual jack by holding down the EXT key and the two jack keys that make up the camper corner of that jack. Listen to insure all jacks move when manually activated. Press RET and ALL to retract all jacks.
  2. If jacks do not move, inspect wiring at jacks and at control board to insure proper connection.

#### KEY PAD WILL NOT TURN ON

- No power to key pad
  1. Insure vehicle engine is running, transmission is in 'PARK' and park brake is set.
  2. Check wiring between keypad and control board.

#### JACKS WILL NOT MOVE

- No power to jacks
  1. Insure vehicle engine is running, transmission is in park and park brake is set.
  2. If emergency stop was activated by pressing any keypad button, press 'RET' and 'ALL' to reset legs.

#### AUTO POSITION DOES NOT LEVEL THE COACH

- The last position in memory was not level. Leveler System always returns to position in memory.
  1. The control board must be mounted horizontally, on a solid fixed surface and can not be more than 10 degrees out of level.
  2. Manually set coach to desired position and program position into memory, following the steps in the IOM.

#### PANEL LIGHTS BLINK "ON" AND "OFF"

- An Auto Position is not set  
 Set the Auto Position, referring to the IOM.

#### TRANSMISSION LIGHT WILL NOT COME ON

- Chassis wiring fuse problem.  
 Check fuse on chassis fuse box.

The following error modes are built into your system to detect problems.

#### FALSE RET (FULL RETRACTION) ERROR MODE

- For extensions greater than 20 seconds, if the retraction time for any leveler is less than the extension time (indicating premature clutching prior to full retraction), the following occurs:

1. Warning alarm will sound.
  2. Power is removed from the control box disabling normal operations. (This is done to encourage operator to do a visual inspection of levelers prior to further leveling operations.)
  3. The red and green LED's for the particular leveler will blink on and off to indicate the system is in an error mode.
- To proceed,
    1. Press "ON". This will shut the warning alarm off.
    2. Visually inspect the leveler.
    3. If it is required, activate levelers to correct problem.  
 Simultaneously press the EXTEND or RETRACT mode switch along with the adjacent two (2) leveler switches common to the lit LED's. In error mode, any leveler can be activated in this manner.
    4. Complete an ALL RETRACT operation and system is now out of error mode and ready for normal operations.

#### NO CURRENT ERROR MODE

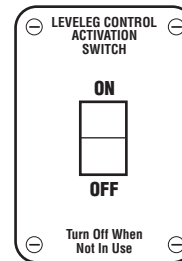
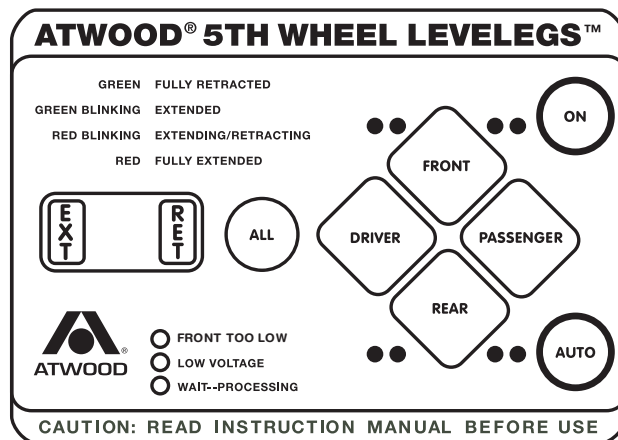
- During any operation if no current is detected from leveler after leveler is activated, the following occurs:
  1. Warning alarm will sound.
  2. Power is removed from the control box disabling normal operations.
  3. The red and green LED's for that leveler will blink on and off to indicate the system is in an error mode.
- To proceed,
  1. Press "ON". This will shut the warning alarm off.
  2. Simultaneously hold down all four direction buttons and the "All" button. This resets the timers so controls will detect the next clutch.
  3. Press "RET" and "ALL" buttons. The system is now out of error mode and ready for normal operations.
 If step 3 does not fix the problem, individual levelers can be retracted by simultaneously pressing the "RET" button and the adjacent two (2) leveler buttons common to the leveler requiring retraction.

#### LEVELER CONTINUES TO "CLUTCH"


- To proceed,
  1. Press "ON". This will shut the warning alarm off.
  2. Simultaneously hold down all four direction buttons and the "All" button. This resets the timers so controls will detect the next clutch.
  3. Press "RET" and "ALL" buttons. The system is now out of error mode and ready for normal operations.

#### TROUBLE SHOOT SEQUENCE

1. Disconnect power to one jack by unplugging jack quick connect at jack motor.
2. Turn power on at keyboard.
3. Press "RET" and "ALL" buttons together to put system in error.
4. The buzzer should sound on the keypad and the jack lights should be blinking red and green.
5. Turn keypad off by pressing the ON button.
6. Reconnect power to disconnected jack.
7. Turn keypad on by pressing ON button.
8. Hold down the EXT button and the DRIVER and REAR buttons together for 10 seconds to run the passenger rear jack down.
9. Hold down the EXT button and the PASS and REAR buttons together for 10 seconds to run the passenger rear jack down.
10. Hold down the EXT button and the DRIVER and FRONT buttons together for 10 seconds to run the passenger front jack down.
11. Hold down the EXT button and the PASS and FRONT buttons together for 10 seconds to run the passenger front jack down.
12. Visually inspect to see that all jacks moved and went down a few inches.
13. Press release the RET and ALL buttons together to bring the jacks up.
14. All jacks will come up to full retraction and stop after a few clutches of the motor.



10/9/06 MPD 70335


**ATWOOD® 5TH WHEEL LEVELERS**

Unhooking From Tow Vehicle and Leveling RV		Hooking Up To Tow Vehicle Retraction of Levelers	
1. Park on solid ground without obstructions. Chock wheel and warn persons to stand clear of RV.		1. Retract slide rooms and warn all persons to stand clear of RV	
2. Do not extend slideouts until RV is leveled.		2. Switch Activation Switch ON.	
3. Switch Activation Switch ON.		3. Turn on Key Pad	<b>ON</b>
4. Turn on Key Pad	<b>ON</b>	4. Auto retract the rear levelers	<b>RET/ALL/REAR</b>
5. Auto extend Landing Gear (Front Legs)	<b>EXT/ALL/FRONT</b>	5. Set King Pin height (per hitch mfg.'s recommendations) for proper hitch connection	<b>EXT/FRONT RET/FRONT</b>
6. Set preferred King Pin height for unhooking hitch	<b>EXT/FRONT RET/FRONT</b>	6. Position tow vehicle, connect hitch and connect trailer wiring harness	
7. Detach Tow Vehicle from RV and move to safe distance.		7. Auto retract Landing Gear (front legs) once safely hitched.	<b>RET/ALL FRONT</b>
8. Auto extend rear levelers and level RV.	<b>AUTO</b>	8. Turn unit off and Activation Switch OFF	<b>ON</b>
9. Once RV is level, turn unit off and Activation Switch OFF.	<b>ON</b>	9. Remove chocks from wheels before towing.	

**CAUTION: READ INSTRUCTION MANUAL 66385 BEFORE USE**

## SYSTEM PROTECTION FEATURES

### Automatic Retract

- Anytime the engine is on, if the vehicle brake is depressed and transmission is taken out of park, the levelers will fully retract automatically.
- During auto retraction, an alarm will sound and all LEDs will blink on and off.

### Nine Cycle Maximum

- The controls will shut off for 15 minutes any time nine (9) full retractions occur in less than 30 minutes.
- When this occurs, all four system status lights blink off and on.
- This sequence can be over ruled by turning the ignition off, then back on.

### Low Voltage Protection

- If the voltage falls below 10.5 VDC, leveler operation will cease and the low voltage LED will flash.
- Controls will be inoperable until battery voltage climbs above 13 VDC, at which time leveling functions will resume.

### Manual Override

- To Manually Extend or Retract Leveler, use a 1/2" socket on Drive Nut on end of motor (FIG 10-A). Rotate nut counter clockwise (looking from bottom end of nut [FIG 10-B]) to extend leveler.

NOTE: It takes 500 revolutions of nut to extend/retract leveler 1".



CAUTION

### PERSONAL INJURY/PRODUCT DAMAGE

- Battery operated drills, 9.6V to 18V, are powerful. Hold drill with both hands to protect your wrist. Keep loose clothing and body parts away from drill as the reaction torque from the drill may cause it to kick back.
- Refer to your drill manufacturer's operation manual.
- Do not over extend or over retract levelers. Each leveler has built in stops. Excessive force applied against the stops will cause damage.
- When manually overriding the leveler do not use pneumatic tools to operate any leveler. They can over-extend or over-retract the leveler.
- If the motor will not extend/retract the leveler and the motor is making a ratcheting sound (clutch slipping), do not use the manual override. Immediately contact an Atwood Service Center and have leveler replaced. Do not use the leveler until replaced.

**EMERGENCY STOP ANY LEVELER ACTIVITY  
PRESS ANY BUTTON ON KEY PAD**

## 5th Wheel Landing Gear Selection Guide

Landing Gear includes handle.

LANDING GEAR										
P/N	P/N Boxed*	Description	Screw Type	Leg Capacity		System Capacity		Version		Rate of Travel
				lbs.	kg.	lbs.	kg.	Electric	Manual	
75384	75333	Heavy-duty*	Acme	3,000	1364	6,000	2727		●	4.0 in/min
75399		2 Motor Heavy Duty	Acme	3,000	1364	6,000	2727	●		4.0 in/min
75326	75362	Super-Duty*	Ball Screw	4,000	1818	8,000	3636	●		6.2 in/min
75331		Direct Drive, 2 MOTOR, INLINE	Ball Screw	4,000	1818	8,000	3636	●		6.2 in/min

\* Shipped without a motor. If  
(1) motor is needed, order 75391.  
If (2) motors are needed, order 75366

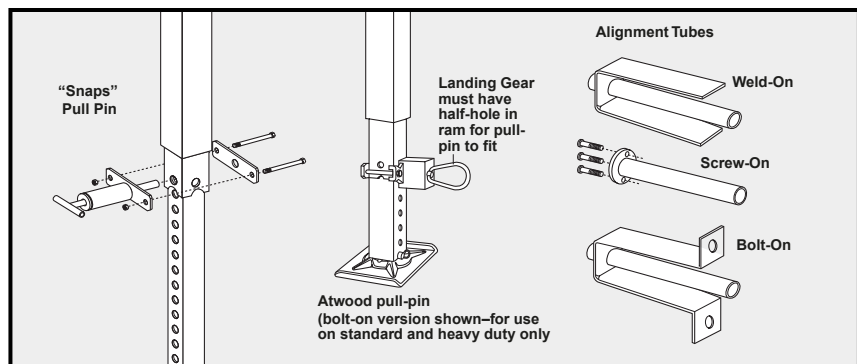
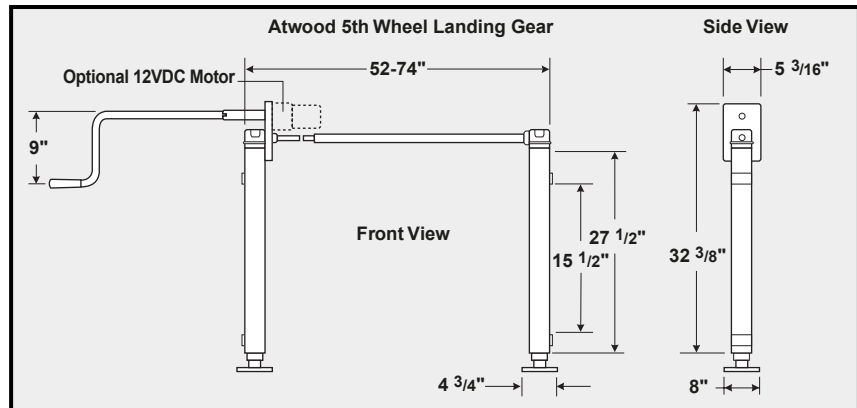
LEG CAPACITY DEFINITION: The leg capacity is the maximum vertical load the leg can support.

SYSTEM CAPACITY DEFINITION: The system capacity is the maximum vertical load both legs and motor (if included) can support.

## Accessories

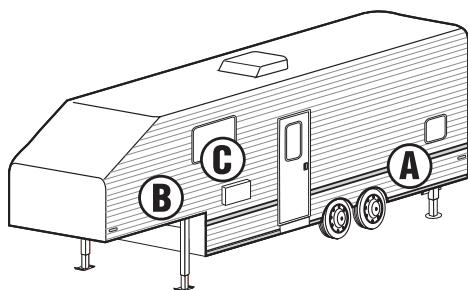
MOTORS	
Composite	Description
75391*	Single Motor Kit w/regular switch panel
75366	Two Motor Kit w/87701 Dual Motor Switch Panel
75367	Single Motor Kit no switch
75388	Single Motor Replacement Kit for Super Duty
75387	Single Motor Kit w/teeny switch panel
75406	6000 lb Motor and Switch
70334	Single Motor Kit - Direct Drive
HANDLE	
70920	Handle, One-piece 18"
70983	Handle, One-piece 26"
OPTIONAL PULL PIN	
70045	"Snaps" pull-pin, pair, bolt-on for use only with Super Duty legs
75360	Bolt-on, pair of pull-pins
ALIGNMENT TUBES	
75521	Alignment Tube, 21 3/4", screw-on
75529	Alignment Tube, 17 1/2", screw-on
75522	Alignment Tube, 2", screw-on
70542	Alignment Tube, 9 1/2", weld-on
70557	Alignment Tube, 7 1/2", bolt-on for use w/composite gear box
SWITCH PANEL	
87701	Switch Panel for 2 motor sets
GEAR BOX REPLACEMENT KIT	
70177	Service Kit for Heavy Duty
70180	Service Kit for Standard Duty

\* UL Listed Marine Ignition Protected



CAPACITY DO NOT EXCEED THESE CAPACITIES		
<b>Standard Duty - OBSOLETE</b>		
Manual ▼	1,000 lbs. per leg,	2,000 lbs. system
Manual ▼▼	2,000 lbs. per leg,	4,000 lbs. system
Electric ⚡	2,000 lbs. per leg,	4,000 lbs. system
<b>Heavy-Duty</b>		
Manual ▼▼	3,000 lbs. per leg,	6,000 lbs. system
Electric ⚡	2,500 lbs. per leg,	5,000 lbs. system
Electric ⚡⚡	3,000 lbs. per leg,	6,000 lbs. system
<b>Super-Duty</b>		
Electric ⚡⚡	4,000 lbs. per leg,	8,000 lbs. system
<b>Direct Drive</b>		
Electric ⚡⚡	4,000 lbs. per leg,	8,000 lbs. system
▼ without gear box      ⚡ single motor		
▼▼ with gear box      ⚡⚡ dual motor		

# Atwood 5th Wheel Leveling Systems



## Selection Guide

Part Number	Description	Leg Capacity		System Capacity	
		lbs	Kg	lbs	Kg
ATWOOD LEVELLEGS (individual)					
66302	7.5K Levelleg	7,500	3,410	15,000	6,820
LANDING GEAR (sets of 2)					
75399	2 Motor H.D. Ldg. Gear	3,000	1,364	6,000	2727
75326	2 Motor Super Duty	4,000	1,818	8,000	3636
75331	2 Motor Direct Drive, Inline	4,000	1,818	8,000	3636
CONTROLLERS					
87701	Dual Switch Panel	Controls Front Only			
85476	Remote Control - 2 Motor	Controls Front Only			
85480	Remote Control - 4 Motor	Controls All Four Legs			

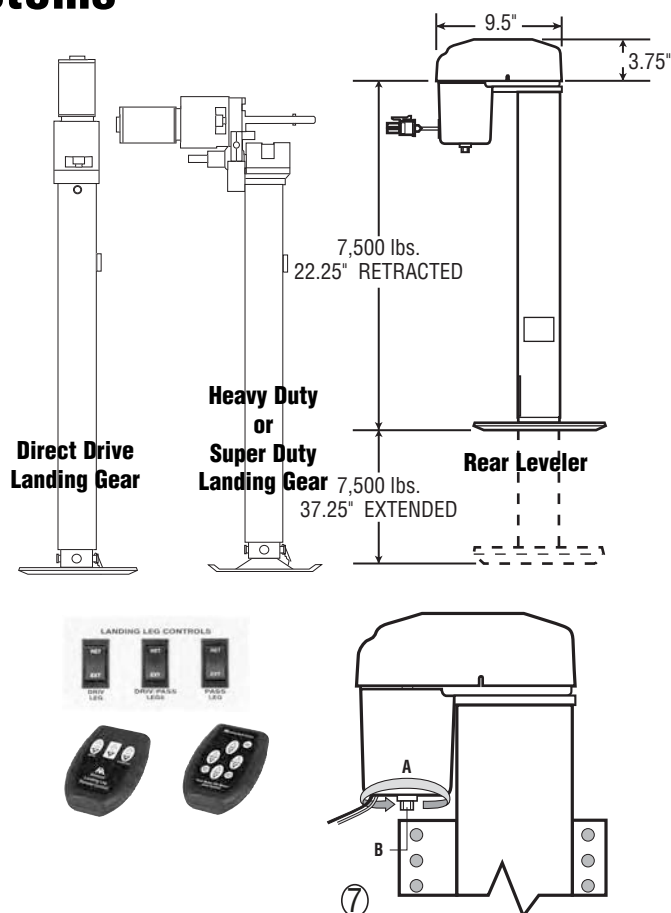
## MAINTENANCE

- Before use, inspect drop tube and inner ram tube. Replace if bent or damaged.
  - ONCE EACH YEAR:**
    - Extend landing legs as far as possible, clean drop tube and inner ram tube. Coat exposed surface of tubes with silicone spray lubricant.
    - Coat inside of handle alignment tube with silicone spray lubricant.
    - Oil shaft bushing in gear box and leg gear heads with SAE 30 oil.
    - Lubricate gears in gear box and landing leg gear heads with extreme pressure grease.
  - For Electric Drive Motor Landing Legs, twice each year, check wiring connections at battery. Clean terminals with a solution of baking soda and water. Cover with a thin coat of grease.
- NOTE: Electric Drive Motor is lubricated at factory and requires no further lubrication.
- The Electric Drive Motor Landing Leg system is protected by a 30 amp fuse. If replacement is necessary, replace only with a Buss Type AGC-30 fuse or equivalent, available in automotive supply stores.
  - The 3:1 gear box is not reparable. Do not take it apart. If you have a problem with the gear box, replace it.

## TROUBLESHOOTING

If all or any of the jacks or landing legs fail to operate:

- Check whether the 12VDC battery is fully charged. You may need to recharge it.
- Check that the camper jack cords are securely plugged into the exterior sockets. You may need to pull a plug out and replug it.
- If the motor will not extend/retract the jack and the motor is making a ratcheting sound (clutch slipping), do not use the manual override. Immediately contact an Atwood Service Center and have jack replaced. Do not use the jack until replaced.
- Assure the activation switch is turned on. The LED on the switch pad should be lit.



- Hold the hand-held remote vertically with the keypad facing you and have the remote between you and the camper.
- Check that you are within 20 feet of the camper.
- Replace the 9V battery
- Check that the battery terminals are clean and have no corrosion.
- Be sure the dip switch code for the remote and the power relay module are set for the same code.
- Look to see if other radio frequency devices such as an automobile key fob, cellular phone, TV remote control, are operating within range of your remote. These devices will make the jacks pause. Lift your finger from the button on the remote and re-press the button.

If the jacks keep running, push the activation switch and the light on the switch will go out. This will shut the power off to the jacks. If not, unplug the jack(s) from its (their) exterior socket(s).

## Rear Leveler Operation

- To Manually Extend or Retract Leveler, use a 1/2" socket on Drive Nut on end of motor (FIG 7-A). Rotate nut counter clockwise (looking from bottom end of nut [FIG 7-B]) to extend leveler.

NOTE: It takes 500 revolutions of nut to extend/retract leveler 1".



### CAUTION

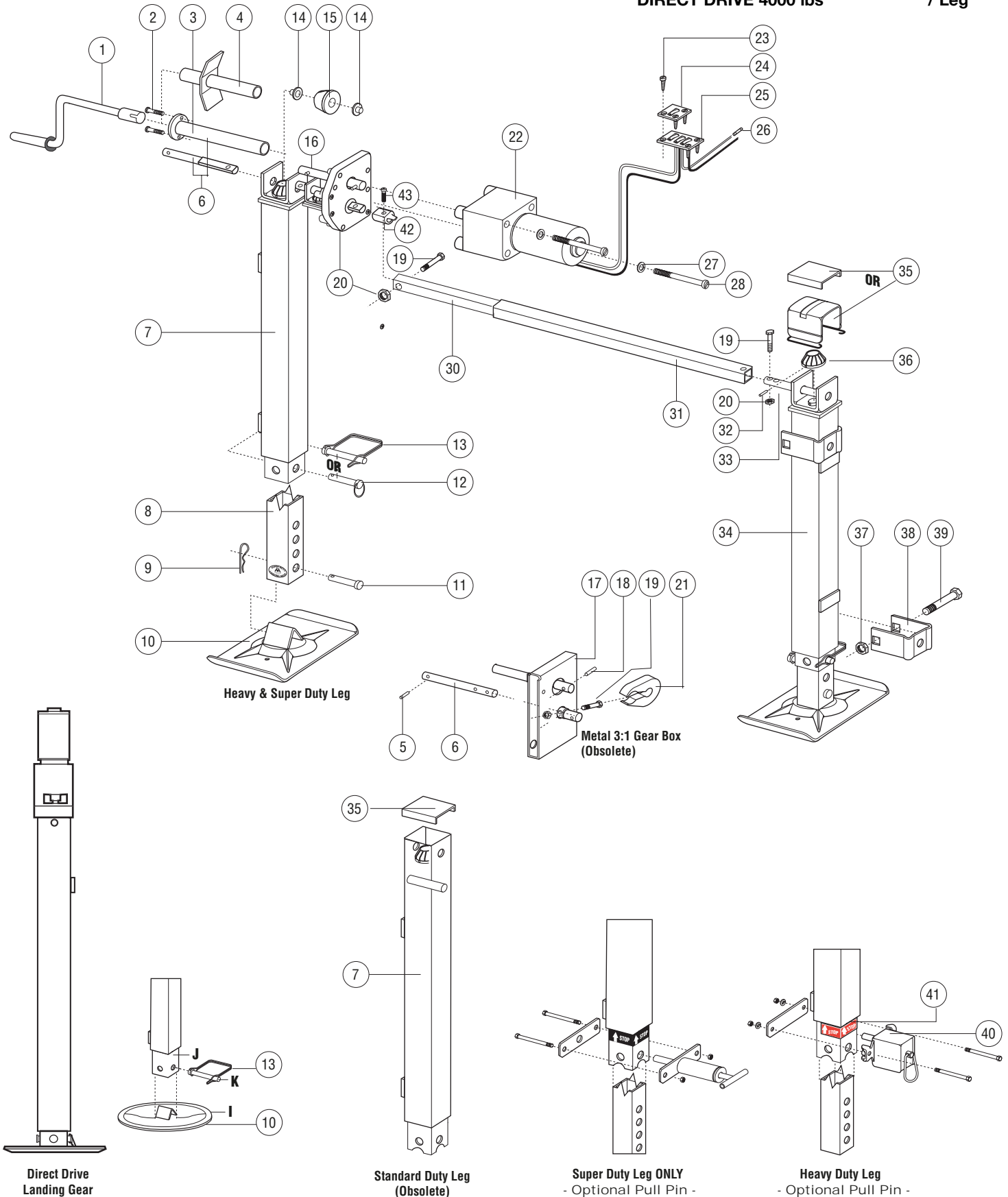
#### PERSONAL INJURY/PRODUCT DAMAGE

- Battery operated drills, 9.6V to 18V, are powerful. Hold drill with both hands to protect your wrist. Keep loose clothing and body parts away from drill as the reaction torque from the drill may cause it to kick back.
- Refer to your drill manufacturer's operation manual.

For complete operating instructions of Landing Legs and Rear Levelers, please see literature numbers MPD 71125 and MPD 87920.

# 5th Wheel Landing Legs

STANDARD DUTY 2000 lbs / Landing Leg  
 HEAVY DUTY 3000 lbs / Landing Leg  
 SUPER DUTY 4000 lbs / Landing Leg  
 DIRECT DRIVE 4000 lbs / Leg





PART IDENTIFICATION					
ITEM	PART NUMBERS				DESCRIPTION
	STANDARD	HEAVY	SUPER	DIRECT	
				87891	Crank Handle / Manivelle
1	70920	70920	70920	N/A	Crank Handle Assembly / Manivelle, 41 cm
	70983	70983	70983	N/A	Crank Handle Assembly / Manivelle, 58 cm
2	70328	70328	70328	70328	Sheet Metal Screw / Vis à tôle
3	75521	75521	75521	75521	Alignment Tube, 21-3/4" / Tube d'alignement, 55cm
	75529	75529	75529	75529	Alignment Tube, 17-1/2" / Tube d'alignement, 44.5cm
4	70542	70542	70542	70542	Alignment Tube, 9-1/2" / Tube d'alignement, 24 cm
	70557	70557	70557	70557	Alignment Tube, 7-1/2" / Tube d'alignement, 19 cm
5	71132	70229	70229	N/A	Gear Drive Pin / Broche d'entraînement de réducteur
6	75062	75061	75061	87941	Driver D-Shaft - new / Arbre primaire - NOUVEAU
6	70105	70757	70757	N/A	Driver Shaft - old / Arbre primaire - ANCIEN
7	*71486	*71488	71470	71528	Driver Leg, 15-1/2" between mtg. stops - new Béquille primaire, 39,4 cm entre butées de montage - NOUVEAU
7	*71424	*71417	71435	N/A	Driver Leg, 15-1/2" between mtg. stops - old Béquille primaire, 39,4 cm entre butées de montage - ANCIEN
8	70004	70004	70216	N/A	Drop Tube / Tube télescopique
9	70269	70269	70269	N/A	Bridge Pin / Goupille
10	70008	70008	70008	70271	Foot Pad / Patin
11	70325	70325	70325	N/A	Clevis Pin / Broche à épaulement
12	N/S	N/S	70215	N/A	Ball Detent Pin / Broche à bille
13	87186	87186	N/S	87186	Lock Pin / Broche de verrouillage
14	21693	21693	21693	N/A	Bushing / Coussinet
15/36	75030	75029	N/A	75029	Bevel Gear Kit/ Pignon de renvoi
16	70754	70754	70754	N/A	Crank Shaft / Arbre d'entraînement (OBSOLETE)
17	71320	71320	71320	N/A	Metal 3:1 Gear Box / Réducteur 3/1 métal
	75054	75054	75054	N/A	Plastic 3:1 Gear Box / Réducteur 3/1 plastique
18	70358	70358	70358	N/A	Motor Drive Pin / Broche d'entraînement moteur
19	70815	70815	70815	N/A	Screw, 1/4"x1.28" / Vis, 1/4" x 4,2 cm
20	70816	70816	70816	N/A	Lock Nut, 1/4" / Écrou-frein, 1/4"
21	71436	71436	71436	N/A	Gear Box Hub Cover for metal 3:1 gear box only Couvercle de moyeu de réducteur – réducteur métal 3/1 seulement
22	75367	75367	75367	70334	Motor Assembly / Moteur complet
23	70243	70243	70243	70243	Sheet Metal Screw / Vis à tôle
24	70254	70254	70254	70254	Switch DPDT / Commutateur bipolaire bidirectionnel
	70259	70259	70259	70259	Small Switch DPDT/Petit commutateur bipolaire bidirectionnel
	70266	70266	70266	70266	Ignition Protected Switch DPDT /Commutateur bipolaire bidirectionnel antidéflagrant
25	87701	87701	87701	87701	Three Switch Panel / Panneau à trois commutateurs
26	N/A	N/A	N/A	N/A	Fuse, 30 amp / Fusible 30 A, Buss-type ACC
27	86111	86111	86111	86111	Lock Washer / Rondelle-frein
28	70246	70246	70246	87942	Bolt, Motor Mounting 1/4" x 3-1/2" / Boulon de fixation moteur, 1/4" x 9 cm
30	70840	70840	N/A	N/A	Cross Shaft End tube, 3/4" sq. / Embout d'arbre creux intermédiaire, carré 19 mm
31	70841	70841	N/A	N/A	Cross Shaft Tube, 1" sq. / Arbre creux intermédiaire, carré 25 mm
32	70667	70666	70666	N/A	Machine Pin / Broche mécanique
33	71139	70817	N/A	N/A	Driven Shaft / Arbre secondaire
34	71425	*71415	N/A	N/A	Driven Leg, 15-1/2" between mtg. stops Béquille secondaire, 39,4 cm entre butées de montage
35	71145	71416	71416	88002	Gear Case Cover / Couvercle de réducteur
37	24527	24527	24527	24527	Lock Nut / Écrou-frein
38	70284	70284	70284	70284	Mounting Bracket / Étrier de fixation
39	70329	70329	70329	70329	Mounting Bracket Bolt / Vis d'étrier de fixation
40	N/A	75360	70045	N/A	Pull Pin OPTIONAL / Broche de traction
41	70220	70220	70220	N/A	STOP Label / Étiquette STOP
42	75059	75059	75059	N/A	Collar / collier
43	75045	75045	75045	N/A	Screw / Vis
N/S	86997	86997	86997	85385	Drill Adapter / Adaptateur pour perceuse
N/S	70180	70177	N/A	N/A	Service Kit - includes 3:1 Gear Box and Drive Shaft

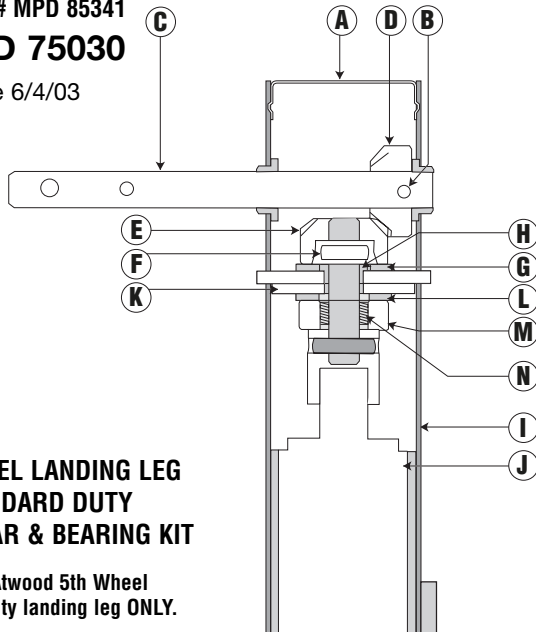
- The manual Standard and Heavy Duty landing legs include the cross shaft. Order the optional motor kit, #75391, to convert them to electric jacks.
- For independently operated legs, the Heavy Duty can be ordered in a two-motor version.
- N/A Not available
- \* These part numbers vary on non-standard sets. When ordering replacement parts, know the overall length and dimension between mounting stops if any.
- Les béquilles manuelles « Service Normal » et « Service lourd » comprennent un arbre intermédiaire. Commander le kit de moteur en option n° 75391 pour les convertir en béquilles électriques.
- Il est possible de commander les béquilles pour « Service lourd » en version à deux moteurs pour commander chaque béquille indépendamment.
- N/A Non disponible
- \* Ces numéros de pièce sont différents sur les ensembles non standard. Pour commander des pièces de rechange, veiller à connaître la longueur totale et la distance entre les butées de fixation, le cas échéant.



LITERATURE # MPD 85341

## KIT MPD 75030

Effective 6/4/03



### 5TH WHEEL LANDING LEG STANDARD DUTY BEVEL GEAR & BEARING KIT

Use on Atwood 5th Wheel  
Standard Duty landing leg ONLY.

Remove 5th Wheel Landing Leg per instruction manual MPD 71125 and camper manufacturer instructions.

1. Remove Jack Cover (A).
2. Punch out Drive Pin (B).
3. Remove Drive Shaft (C), Bevel Gears (D) & (E), Machine Pin (F), Spacer Washer (G) and Nylon Brushing (H).
4. Lift Outer Housing (I) from Inner Ram (J).

5. From the top of the Inner Ram, remove Spreader Washer (K), Thrust Bearing (M) and Felt Sleeve (N).

6. Reassemble jack with the new components (B,D-H, K-N) following steps opposite to the disassembly steps.

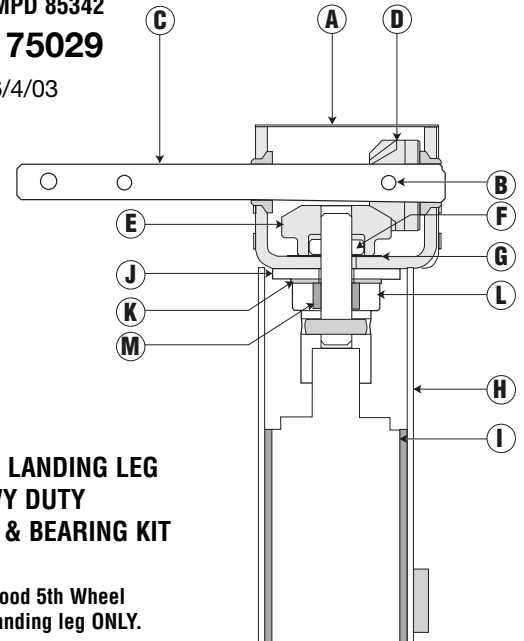
Install 5th Wheel Landing Leg per Instruction Manual MPD 71125 and camper manufacturer instructions.

For complete 5th Wheel Landing Leg instructions, consult MPD 71125.

LITERATURE # MPD 85342

## KIT MPD 75029

Effective 6/4/03



### 5TH WHEEL LANDING LEG HEAVY DUTY BEVEL GEAR & BEARING KIT

Use on Atwood 5th Wheel  
Heavy Duty landing leg ONLY.

Remove 5th Wheel Landing Leg per Instruction Manual MPD 71125 and camper manufacturer instructions.

1. Remove Jack Cover (A).
2. Punch out Drive Pin (B).
3. Remove Drive Shaft (C), Bevel Gears (D) & (E), Machine Pin (F) and Thrust Washer (G).
4. Lift Outer Housing (H) from Inner Ram (I).

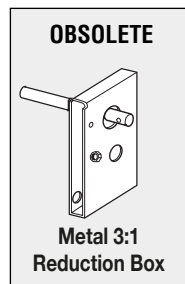
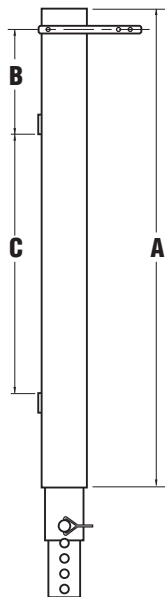
5. From the top of the Inner Ram, remove Cap (J), Support Washer (K), Thrust Bearing (L) and Felt Sleeve (M).

6. Reassemble jack with the new components (items B,D-G, J-M) following steps opposite to the disassembly steps.

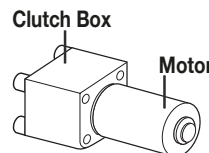
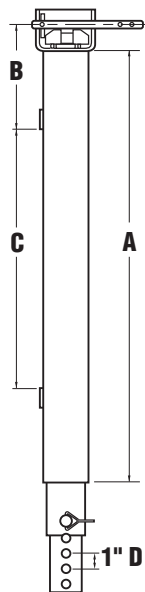
Install 5th Wheel Landing Leg per Instruction Manual MPD 71125 and camper manufacturer instructions.

For complete 5th Wheel Landing Leg instructions, consult MPD 71125.

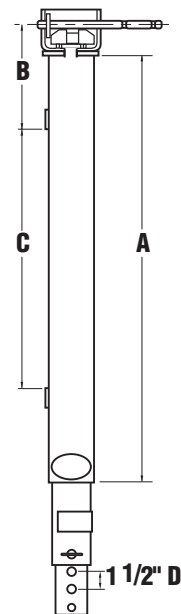
### STANDARD DUTY (15/15) (OBS)



### HEAVY DUTY (12/16)



### SUPER DUTY (12/16)



1. Are the legs driven manually, with a single motor, or dual motors?
2. Is the motor gear box black plastic or gray metal?
3. If the legs are driven manually or with a single motor, do you need the Driver (leader or master) leg or Driven (follower or slave) leg?
4. If you need the Driver leg, does the leg utilize a plastic 3:1 gear reduction box or metal 3:1 gear reduction box?
5. Count the number of teeth on each bevel gear on top of the leg. If the tooth count is 12 on one gear and 16 on the other and the system utilizes

- a motor for each leg, then also measure the distance between the hole centers in the drop tube (see letter "D" on drawing).
6. Measure the total length of the outer housing tube (see letter "A" on drawing).
7. Measure from the center of the drive shaft to the bottom of the upper stop (see letter "B" on drawing).
8. Measure the distance between the stop tabs (see letter "C" on drawing).



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**MPD 70300**

## 3:1 GEAR BOX REPLACEMENT

**METAL GEAR BOX REPLACED BY COMPOSITE GEAR BOX  
5TH WHEEL LANDING LEGS**

### ENGLISH

• **Service Kit**

Effective 4/11/00

#### SAFETY ALERT SYMBOLS

Safety Symbols alerting you to potential personal safety hazards. Obey all safety messages following these symbols.



**WARNING**

avoid possible  
injury or death



**CAUTION**

avoid possible  
injury and/or property damage

**FOR COMPLETE LANDING LEGS INSTRUCTIONS CONSULT MPD 71125.**

For your safety read all instructions before operating landing legs.

NOTE: Atwood 5th Wheel Landing Legs are intended for use on recreational vehicle 5th wheel-type trailers only.

#### LANDING LEG CAPACITY

##### Standard Duty

Manual ▼	1,000 lbs. per leg, 2,000 lbs. system
Manual ▼▼	2,000 lbs. per leg, 4,000 lbs. system
Electric ⚡	2,000 lbs. per leg, 4,000 lbs. system

##### Heavy-Duty

Manual ▼▼	3,000 lbs. per leg, 6,000 lbs. system
Electric ⚡	2,500 lbs. per leg, 5,000 lbs. system
Electric ⚡⚡	3,000 lbs. per leg, 6,000 lbs. system

##### Super-Duty

Electric ⚡⚡	4,000 lbs. per leg, 8,000 lbs. system
▼ without gear box	⚡ single motor
▼▼ with gear box	⚡⚡ dual motor

**DO NOT EXCEED THIS CAPACITY**



**WARNING**

**TRAILER CAN MOVE OR COLLAPSE**

- Never exceed the rated capacity of 5th Wheel Landing Leg.
- **LANDING LEGS ARE NOT DESIGNED TO BE USED AS TRAILER JACKS.** Do not use the landings legs to lift the trailer during tire changes, axle work or trailer servicing (the trailer weight will exceed the capacity of the landing legs). The landing legs are designed to stabilize a portion of the trailer's weight. Support the front end of the trailer with structural stands rated for the GVWR of the trailer.
- The pin between the ram and drop tube should be the same diameter as the adjustment hole in the drop tube. Otherwise premature wear on drop tube and ram can occur.

#### DETERMINE LANDING LEG TYPE

**STANDARD DUTY** = A leg with a flat top (FIG 1-A).

**HEAVY DUTY** = A leg with a rounded top (FIG 1-A), with 1" between the centers of the holes in the drop tube (FIG 1-B).

**SUPER DUTY** = A leg with a rounded top, with 1-1/2" between the centers of the holes in the drop tube.

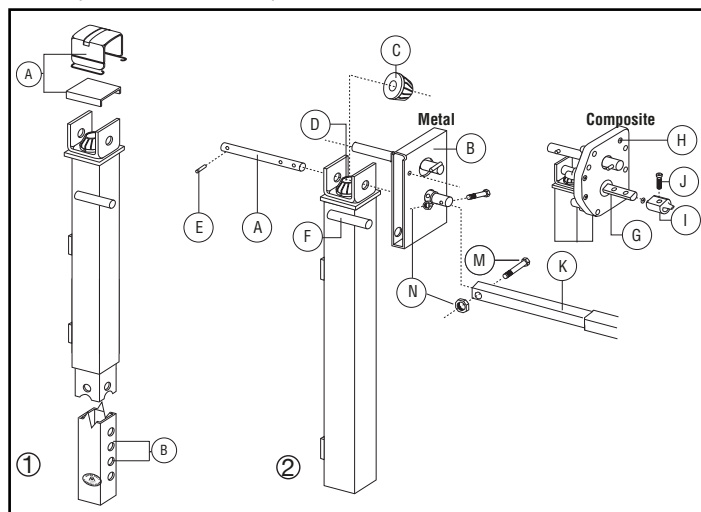
**THE DRIVE SHAFTS ARE DIFFERENT.** Check your kit. If you have a Standard Duty leg set, the new drive shaft should be silver. For Heavy or Super Duty, the drive shaft is gold.

#### REMOVAL PROCEDURE

1. Rotate the drive shaft (FIG 2-A) on the driver leg to fully retract the landing leg. Remove the motor (if there is one). Remove the old gear box (FIG 2-B) from the drive shaft.
2. Pop the cap (FIG 1-A) off the top of the leg.
3. Locate the vertical (FIG 2-C) and horizontal (FIG 2-D) bevel gears at the top of the leg.
4. Using a hammer and punch, drive out the pin (FIG 2-E) under the vertical bevel gear that holds it to the drive shaft.
5. Pull out the old drive shaft (FIG 2-A).
6. Cut or grind the mounting lug (FIG 2-F) off of the driver leg. Be careful not to burn through the housing if you use a welding torch. Grind the remaining weld flat to provide a smooth surface on the landing leg face. Paint bare metal with black paint.

#### INSTALLATION PROCEDURE

1. Slip the new D-drive shaft (FIG 2-G) through hole on the stop tab face of the leg housing. Then slip the D-shaft through the vertical bevel gear (FIG 2-C) and through the second hole in the leg housing.
2. Drive the new pin (FIG 2-E) back under the vertical bevel gear, attaching it to the drive shaft.
3. Reattach the cap (FIG 1-A) to the top of the leg.
4. Slip the new composite 3:1 gear box (FIG 2-H) over the D-shaft of the driver leg.
5. Slip the collar (FIG 2-I) over the D-shaft of the driver leg and fasten it with the screw (FIG 2-J). The extruded part of the collar goes into the cross shaft (if there is one).
6. Assemble the cross shaft, if used, (FIG 2-K), by placing undrilled end of 3/4" square tube into open end of 1" square tube.
7. Re-attach landing leg to frame. Fully retract before attaching cross shaft. Fasten drilled end of 3/4" square tube to end of shaft through gear box with 1/4" x 1-1/8" long screw (FIG 2-M) and lock nut (FIG 2-N). Bolt end of 1" square tube to shaft of driven leg with 1/4" x 1-1/8" long screw and lock nut. To prevent rattle between tubes, tack weld 1" square tube to 3/4" square tube.



# Atwood® 12 VDC Motor & Kits



## Motor Kit Selection Guide\*

	MOTOR								SWITCH & WIRING HARNESS			
Kit No.	Long Legged	Short Legged	3" diameter	Height				Shipping Weight	70254 Single	70259 Narrow Single	70266 Ignition Protected	87701 Dual Motor
				Overall		Leg						
				in.	mm	in.	mm					
75366 †	2	—	—	8 15/16	227	3/4	19	5.75 lbs.	—	—	—	1
75367 †	1	—	—	8 15/16	227	3/4	19	5.75 lbs.	—	—	—	—
75387 †	1	—	—	8 15/16	227	3/4	19	5.75 lbs.	—	1	—	—
75388 † with Warning Label **	1	—	—	8 15/16	227	3/4	19	5.75 lbs.	1	—	—	—
75391 †	1	—	—	8 15/16	227	3/4	19	5.75 lbs.	1	—	—	—
75406 †	—	—	1	8 15/16	227	3/4	19	5.75 lbs.	1	—	—	—
75407 †	1	—	—	8 15/16	227	3/4	19	5.75 lbs.	—	—	1	—
75409 †	—	—	1	8 15/16	227	3/4	19	5.75 lbs.	—	—	—	—
75625	—	1	—	8 7/16	214	1/8	3	5.75 lbs.	—	—	—	—
70334 n/s	—		—						—	—	—	—

\*Note: All kits also include mounting hardware and instruction manual.

† Long-legged motor for Landing Legs & Power Jacks

△ Short-legged motor for Ball Screw Jacks & Power Jacks

Remote Control Selection Guide			Remote	Relay Control	Switch
85476	Remote Control - 2 Motor	Controls Front Only	85488	85490	85489
85480	Remote Control - 4 Motor	Controls All Four Legs	85492	85491	85489
85487	Remote Control - 1 Motor	Controls One Motor	85494	85493	--

## Motor Operating Characteristics

Load Condition	Min RPM	Torque (in-lbs.)	Max AMP
No Load	116	0	8
Operating Load	75	140	30
Clutch Slip	N/A	180 min. / 300 max.	45

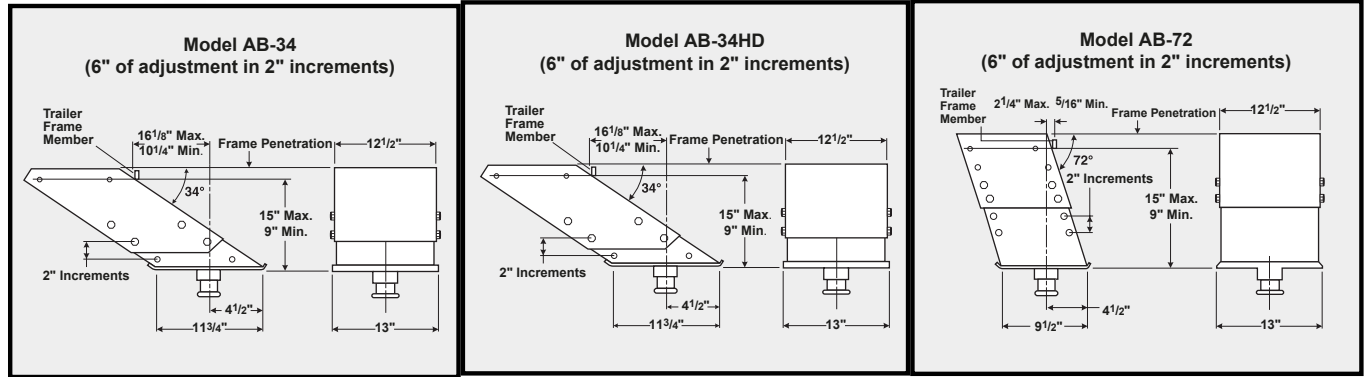
\* ULL listed Marine Ignition Protected

# Atwood 5th Wheel RV Pin Boxes

## 5th Wheel King Pin Box Selection Guide



Model No.	Part No.	Description	Angle	Capacity
AB-34	75700	Adjustable height	34°	10,000 lbs. SAE/CSA
AB-34HD	75705	Adjustable height, heavy duty	34°	18,000 lbs. SAE/CSA
AB-72	75690	Adjustable height	72°	18,000 lbs. SAE/CSA
	71251	Inner Sleeve	72°	Fits AB 72
	71275	Inner Sleeve	34°	Fits AB 34



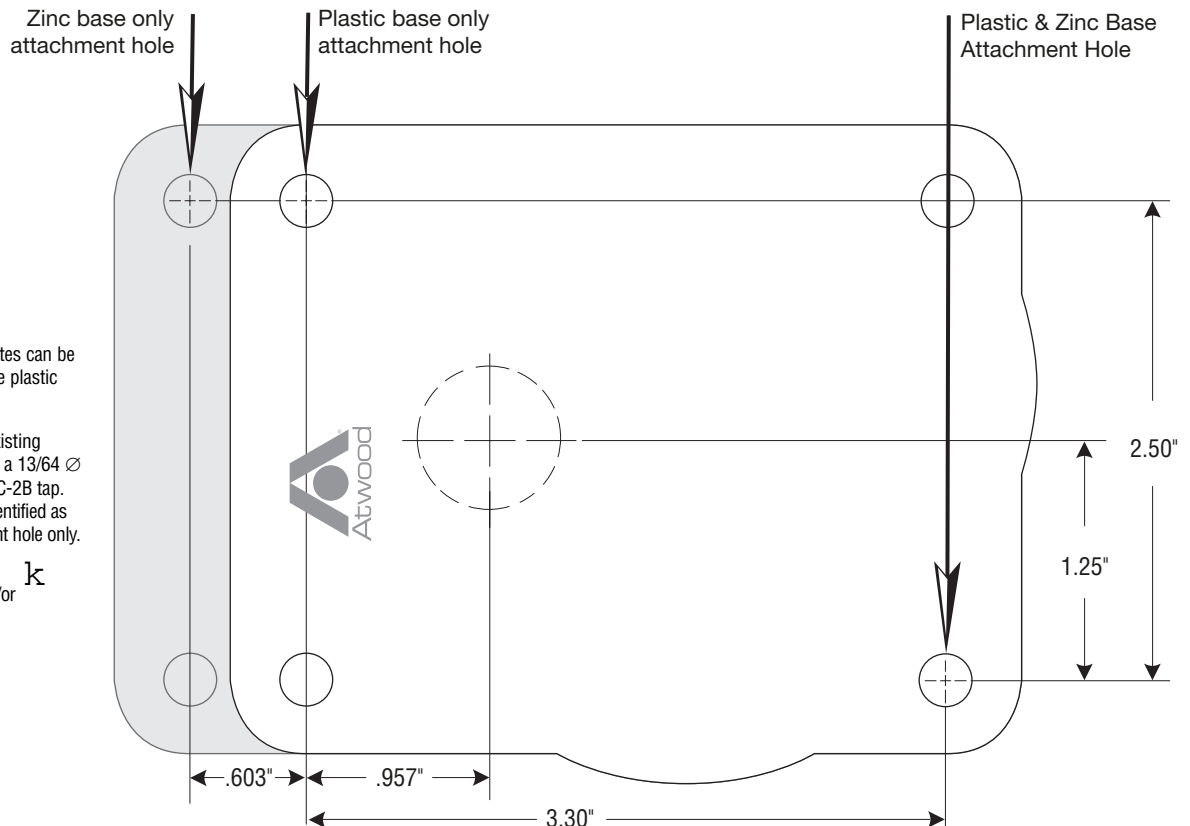
## MOTOR TEMPLATE

**NOTE:** Avoid loading motor to clutch slip.  
Excessive loading to clutch slip will cause clutch to wear out, decreasing the operating characteristics of the motor. Limit clutch slip to a maximum of only 1 to 2 seconds.

**NOTE:**  
Motor attachment plates can be modified to accept the plastic base motors.

To do, drill and tap existing attachment plate with a 13/64  $\varnothing$  drill and a 1/4-20 UNC-2B tap. At the hole location identified as plastic base attachment hole only.

Use full scale layout  $k$  for measurements and/or template.

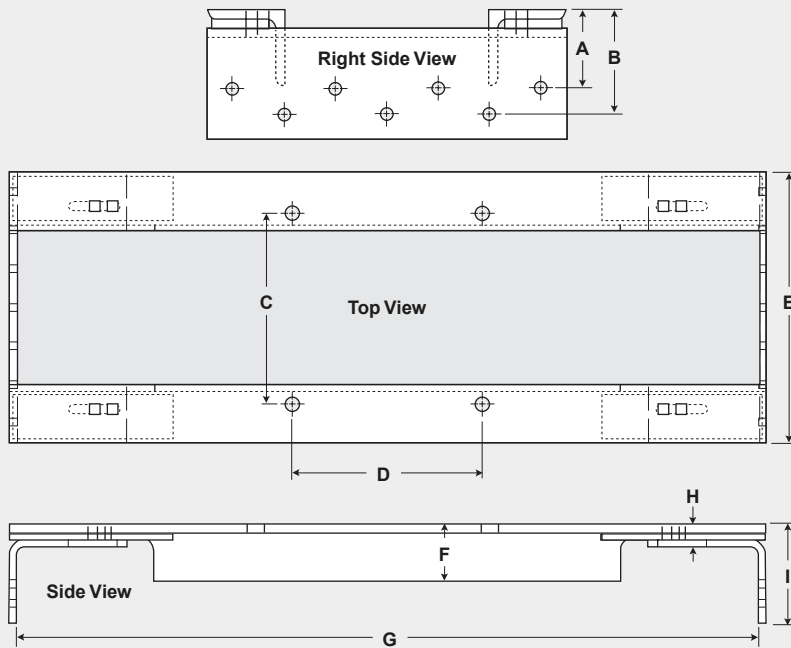


# Atwood Folding Hitch Ball & Installation Kit

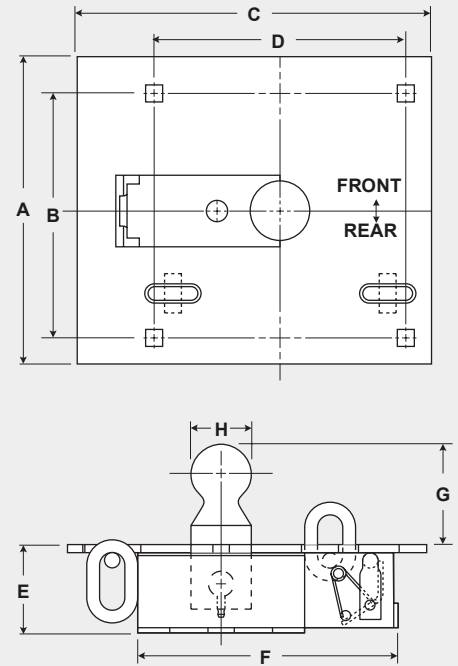


ADAPTABLE FOR RETRACTABLE KING PIN USE 75133

## Installation Kit



## Folding Hitch Ball

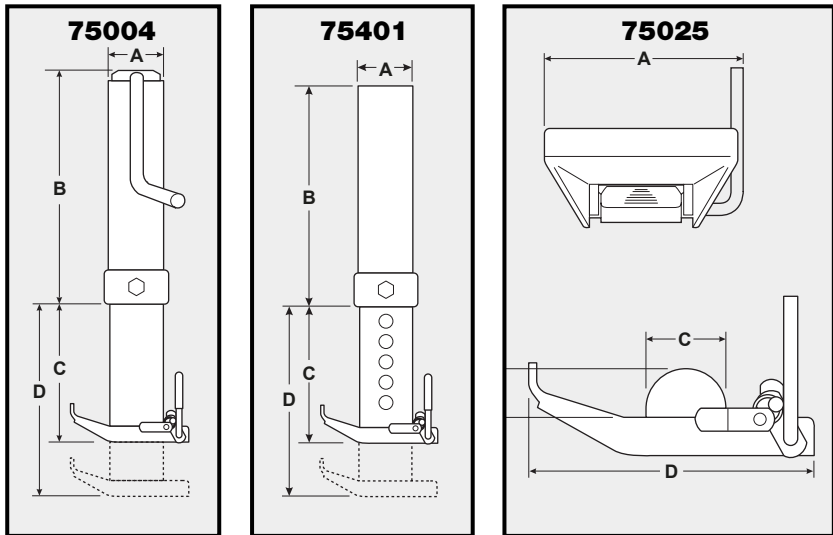


## Folding Hitch Ball & Installation Kit Selection Guides

INSTALLATION KIT											
Part No.	Description	25,000 lbs G.V.W.R.	Dimensions								
				A	B	C	D	E	F	G	H
70362	1988-1999 GM 2500 Series Old Style	•	in.	31/8	4 1/8	9 7/8	9 7/8	14	3	40 – 42 1/2	11/8
			mm	79	105	251	251	356	76	1,016 – 1,080	29

FOLDING HITCH BALL										
Part No.	Description	25,000 lbs G.V.W.R.	Dimensions							
				A	B	C	D	E	F	H
75063	without safety chain attachments	•	in.	12	9 7/8	14	9 7/8	3 1/2	10 1/4	2 5/16
			mm	305	251	356	251	89	260	59
75064	with safety chain attachments <i>as shown</i>	•	in.	12	9 7/8	14	9 7/8	3 1/2	10 1/4	2 5/16
			mm	305	251	356	251	89	260	59

# Atwood Gooseneck Coupler Systems



## Gooseneck Coupler Selection Guide

Part No.	Description	Rated Capacity lbs.	A		B		C		D	
			in.	mm	in.	mm	in.	mm	in.	mm
75025	Gooseneck Coupler	25,000	8 1/4	210	17/8	48	2 7/8	73	9 3/8	238

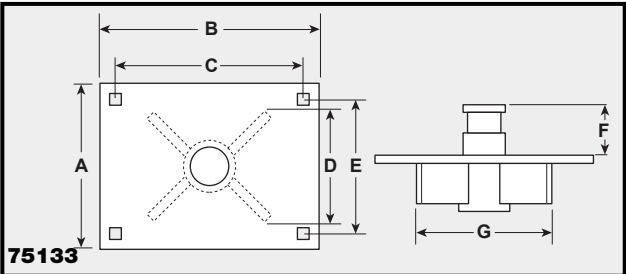
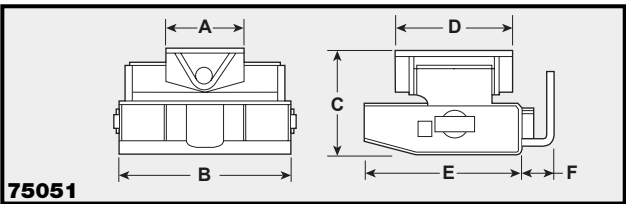
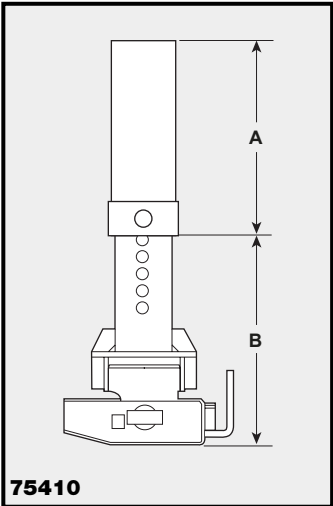
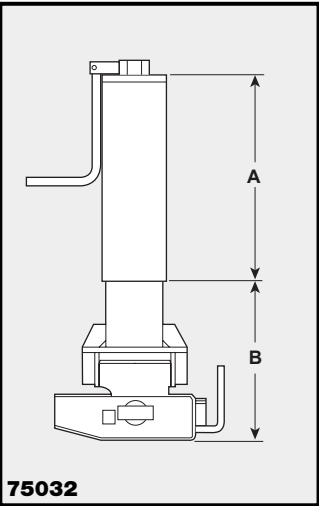
Part No.	Description	Rated Capacity lbs.	A		B		C		D	
			in.	mm	in.	mm	retracted	mm	extended	mm
75004	Gooseneck Coupler w/screw adjustable stem	25,000	5	127.0	24 5/8	625.5	3 5/8	92	13 5/8	346
75401	Gooseneck Coupler w/cross bolt drop stem	25,000	5	127.0	24 1/8	612.8	3 5/8	92	13 5/8	346

# Atwood 5th Wheel Hitches

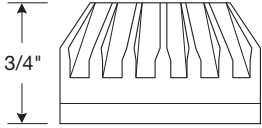
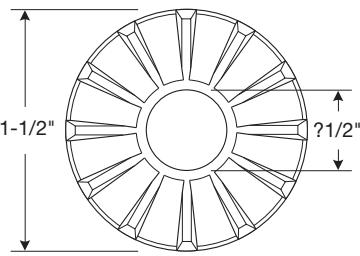
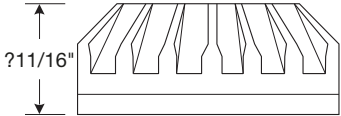
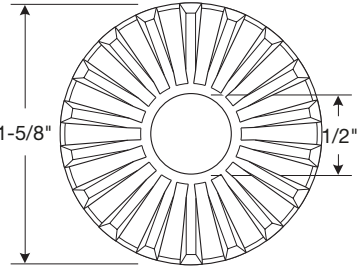
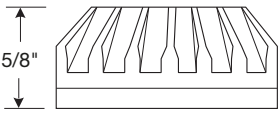
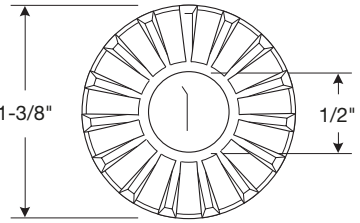
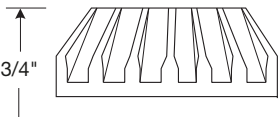
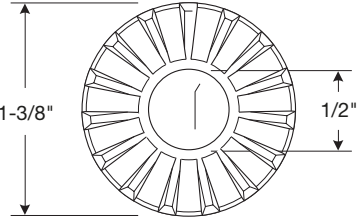
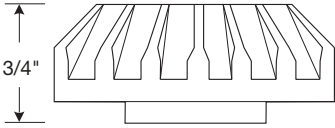
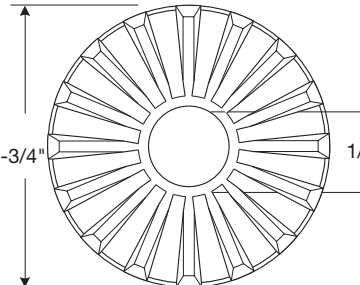
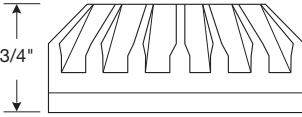
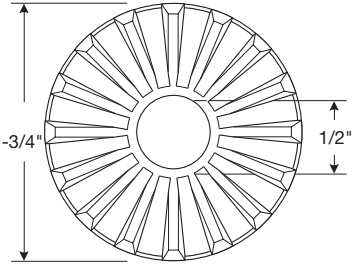
## Mini 5th Wheel Hitches and Retractable King Pin Selection Guides

Part No.	Description	Rated Capacity lbs.	A		B		C		D		E		F		G	
			in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
75051	Dual Axis Mini 5th Wheel Hitch	32,000	6	152	13	330	10	254	9	229	12 1/4	311	2 5/8	67	—	—
75133	Retractable King Pin	32,000	12	305	17	432	15	381	7 1/4	184	10	254	3 3/8	86	7 1/4	184

Part No.	Description	Rated Capacity lbs.	A		B			
			in.	mm	retracted		extended	
75032	Dual Axis Mini 5th Wheel Hitch, adjustable stem	32,000	24 3/4	629	12 1/8	308	22 1/8	562
75410	Dual Axis Mini 5th Wheel Hitch with drop stem	32,000	24 1/4	616	12 1/8	308	22 1/8	562

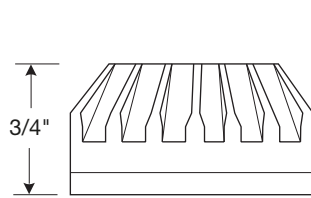


# Atwood Bevel Gears

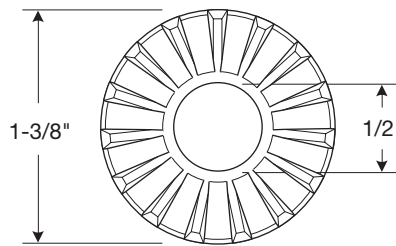
 <p><b>70227</b></p>		<ul style="list-style-type: none"> <li>• Qty 1 - 'B' or Heavy Duty 5th Wheel Gear Kit 75029</li> <li>• Qty 1 - 2000 lb. Sidewind Jack Gear Kit 81480</li> <li>• Qty 1 -Electric BSCJ Gear Kit 87108</li> </ul> <p>Number of teeth = 12 Slot in bottom = full width</p>
 <p><b>70306</b></p>		<ul style="list-style-type: none"> <li>• Qty 2 - A' 5th Wheel Jack Gear Kit 71258</li> </ul> <p>Number of teeth = 18 Slot in bottom = full width</p>
 <p><b>71138</b></p>		<ul style="list-style-type: none"> <li>• Qty 1 - 'C' or Standard Duty 5th Wheel Gear Kit 75030</li> <li>• Qty 1 - Manual BSCJ Gear Kit 85387</li> <li>• Qty 1 - Acme Screw 4-Post Camper Jack (Order by individual gear 71138)</li> </ul> <p>Number of teeth = 15 Slot in bottom = full width</p>
 <p><b>85706</b></p>		<ul style="list-style-type: none"> <li>• Qty 2 - 1000 lb SideWind Jack Gear Kit 25524</li> <li>• Qty 1 - "C" or Standard Duty 5th Wheel Jack Kit 75030</li> <li>• Qty 1 -Acme Screw 4-Post Camper Jack (Order by individual gear 85706)</li> </ul> <p>Number of teeth = 15 Slot in bottom = 7/8" long</p>
 <p><b>85707</b></p>		<ul style="list-style-type: none"> <li>• Qty 1 - 'B' or Heavy Duty 5th Wheel Gear Kit 75029</li> <li>• Qty 1 -Electric BSCJ Gear Kit 87108</li> </ul> <p>Number of teeth = 16 Slot in bottom = 7/8" long</p>
 <p><b>87650</b></p>		<ul style="list-style-type: none"> <li>• Qty 1 - 2000 lb. Sidewind Jack Gear Kit 81480</li> </ul> <p>Number of teeth = 16 Slot in bottom = 7/8" long and full width</p>



# Atwood Bevel Gears



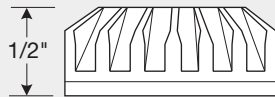
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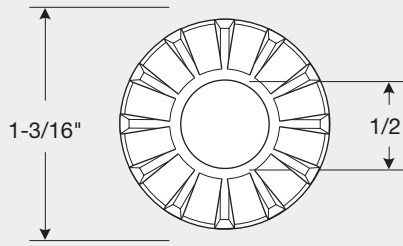
- Qty 1 -Manual BSCJ Kit 85387

Number of teeth = 15

Slot in bottom = 7/8" long and full width



**88647**



- Qty 1 -Marvel/Dayton Walther 2-1/4" Jack Gear Kit 88230 (OBSOLETE)

Number of teeth = 12

Keyed hole in gear

## GEAR PART NUMBERS

KIT P/N	GEAR KIT DESCRIPTION	70227	70306	71138	85706	85707	87650	87939
25524	Jack Screw				2			
71258	5th Wheel		2					
75029	HD 5th Wheel - Sq Tube Jack	1				1		
75030	Standard Duty 5th Wheel			1	1			
81480	2000 lb Sidewind - Jack Screw	1					1	
85387	Manual Ball Screw Camper Jack			1				1
87108	Electric Ball Screw Camper Jack	1				1		

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Over the years of running a mobile RV repair service, having a dedicated place to access service manuals for all the different appliances and components found on RVs was something that I always had a desire to create.

I hope this resource makes your RV repairs easier, as it has mine, but please be careful and follow proper safety practices when attempting to repair your own RV.

If in doubt, please consult with a professional RV technician!



DARREN KOEPP - OWNER, MY RV WORKS, INC.

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