

OPERATOR'S AND PARTS MANUAL

August 2005

AllmandTM
MAXI-HEAT[®] SERIES

MODEL MH-1000

OHV 600

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MAXI-HEAT[®] SERIES

For Parts and Updates visit Allmand on the Web at www.allmand.com

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Note: Call out item numbers are continuous through each section of the parts manual.

RECORDS

Serial Number: _____

Model Number: _____

Engine Type: _____

Engine Serial Number: _____

Accessories: _____

INSPECTION CHECK LIST

PREPARING THE MAXI-HEAT FOR DELIVERY OR RENTAL

The Allmand Maxi-Heat® requires service as well as proper operation in order to provide the performance and safety for which it was designed. Never deliver or put a machine into service with known defects or missing instructions or decals. Always instruct the customer in the proper operation and safety procedures as described in the operator's manual. Always provide the manual with the equipment for proper and safe operation.

Check List:

- Visually inspect the equipment to ensure that all instructions and decals are in place and legible.
- Check the hitch assembly and safety tow chains.
- Check the jack to make sure it operates properly.
- Inspect the tires to ensure good condition and proper inflation.
- Check lug nuts and torque to 80-90 ft. lbs. Lug nuts should be retorqued after first 100 mi of towing.
- Check the ground rod cable and the ground lug. Make sure they are clean, undamaged and functional.
- Make sure the battery is fully charged and the terminals are tight and clean. Ensure the electrolyte is at the correct level.
- Check the service intervals for oil filters, fuel filter, air cleaner and engine oil (see operator's manual).
- Check the oil, fuel and coolant levels.
- Start engine and turn heaters on to ensure proper operation.
- Check to make sure the operator's manual is with the equipment.

NOTE: See operator's manual for scheduled maintenance intervals.



SAFETY WARNING!

NEVER ALLOW ANYONE TO OPERATE THE EQUIPMENT WITHOUT PROPER TRAINING.

ALWAYS READ THE INSTRUCTIONS FIRST.

INTRODUCTION

This manual provides the information necessary for the safe operation and maintenance of the **Allmand Maxi-Heat®**.

Specific operating details and specifications are contained in this publication to familiarize the operator and maintenance person with the correct and safe procedures necessary to maintain and operate this equipment.

Take time to read this book thoroughly. If you are uncertain about any of the information contained in this manual, contact your dealer for clarification before operation of the machine.

SAFETY SYMBOLS

The purpose of the **SAFETY INFORMATION SYMBOL** shown below is to attract your special attention to safety-related information contained in the text.



SAFETY WARNING!

FAILURE TO UNDERSTAND AND COMPLY WITH SAFETY RELATED INFORMATION AND INSTRUCTIONS MAY RESULT IN INJURY TO THE OPERATOR OR OTHERS. IF YOU DO NOT UNDERSTAND ANY PART OF THIS INFORMATION CONTACT YOUR DEALER FOR CLARIFICATION PRIOR TO OPERATING EQUIPMENT.

NOTE: The word **NOTE** is used to bring your attention to supplementary information in relation to various aspects of proper operation and maintenance.

***NOTE:** Keep this manual accessible during operation to provide convenient reference.*

***NOTE:** Any reference in this manual to LEFT or RIGHT shall be determined by looking at the trailer from the REAR.*

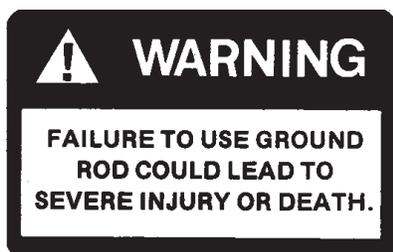
SAFETY DECALS



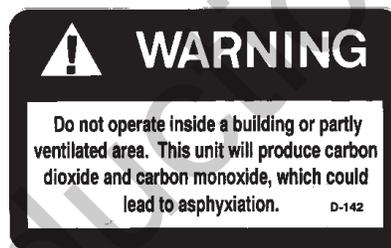
SAFETY WARNING!

ALWAYS REPLACE ANY SAFETY AND INSTRUCTION DECALS THAT BECOME DAMAGED, PAINTED, OR OTHERWISE ILLEGIBLE.

Refer to these representations of the safety warning decals used on the Maxi-Heat to insure correct ordering if replacing becomes necessary.



PART NO. 090023
Inside Rear Door



PART NO. 090042
Inside Rear Door



PART NO. 090108
Left Side of Trailer



PART NO. 090143
Inside Rear Door



PART NO. 090120
Left Side of Trailer

#1 DIESEL
ONLY

PART NO. 090122
Right Side of Trailer

GROUNDING
LUG

PART NO. 090133
Left Side of Trailer

HEATER OPERATING INSTRUCTIONS

CAUTION

1. Do not start heater when excess oil has accumulated in chamber.
2. Do not fill tank while unit is operating.
3. Do not shut off by disconnecting supply cord.
4. Do not use gasoline, crankcase oil or heavier than No. 2 furnace oil.

HEATER STARTING

NOTE: Circuit breakers for heaters must be switched to the ON position.

NOTE: Allow engine to come to full R.P.M. and warm up before starting heaters. With engine operating, turn toggle switch to manual position.

IF HEATER FAILS TO START

1. Press manual reset button on burner relay.
2. Check fuel level.
3. Check fuel filter and suction tubing.
4. Check nozzle assemble.

HEATER SHUTDOWN

CAUTION: Before turning the engine off, the heaters must be switched to the off position which allows the fans to complete a cool down cycle for the heat exchanger.

1. Flip heater switches to OFF position.

CAUTION: Firing will stop but fan will automatically continue to cycle until unit cools down.

ENGINE SHUTDOWN

1. Flip toggle switch to OFF position.

D-107

PART NO. 09007
Inside Rear Door

ENGINE STARTING PROCEDURES

BEFORE STARTING:

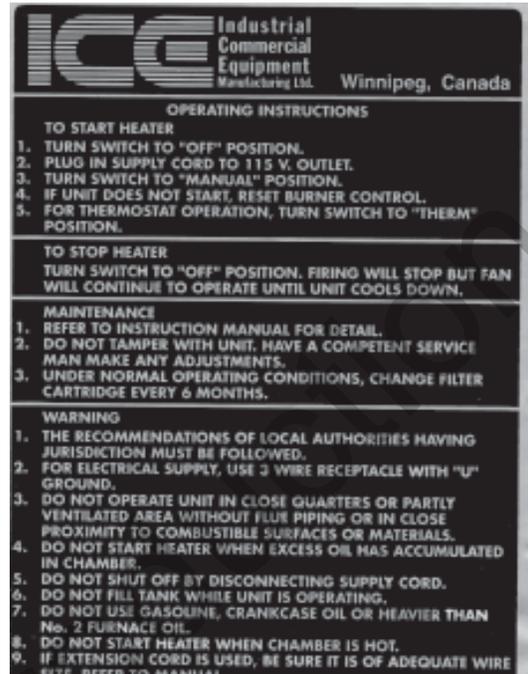
1. Fill the engine with the specified grade and quantity of lubricating oil.
2. Ensure there is an adequate supply of fuel and that the fuel system is primed.
3. Ensure that the air cleaner is firmly attached and air joints are properly sealed. Air cleaner element, part #340036, should be checked and replaced if necessary.
4. Ensure batteries are filled to correct level, charged and have clean connections.

STARTING ENGINE:

1. Heater switches must be in the OFF position.
2. Open door for heater outlets.
NOTE: Engine will not start with heater outlet door closed.
3. Turn switch to PREHEAT position, hold until the glow plug lamp goes out.
4. Turn switch to START position until engine starts. Release key as soon as engine starts.
5. If engine fails to start, repeat cycle.

D-304

PART NO. 090304
Inside Rear Door



HEATER OPERATING INSTRUCTIONS Inside Rear Door

CAUTION

DO NOT DISCONNECT SUPPLY CORD OR POWER SUPPLY WHILE FAN IS OPERATING.

TO STOP UNIT TURN SWITCH TO "OFF" POSITION. FIRING WILL STOP BUT FAN WILL CONTINUE TO OPERATE UNTIL UNIT COOLS DOWN.

BEFORE OPERATING: READ INSTRUCTIONS ON NAMEPLATE.

ATTENTION

NE PAS DÉCONNECTER LE FIL ÉLECTRIQUE OU LA SOURCE D'ÉNERGIE PENDANT QUE LE VENTILATEUR EST EN MARCHÉ.

POUR INTERROMPRE LE FONCTIONNEMENT TOURNER L'INTERRUPTEUR À LA POSITION "OFF". LA CHALEUR S'ARRÊTERA MAIS LE VENTILATEUR CONTINUERA DE FONCTIONNER JUSQU' À CE QUE L'UNITÉ SOIT REFROIDIE.

AVANT DE VOUS SERVIR DE CET APPAREIL RENSEIGNEZ VOUS SUR LA MANIÈRE DE LE FAIRE MARCHER.

FAN SHUTDOWN INSTRUCTIONS Inside Rear Door

MAXI-HEAT® SETUP PROCEDURE

The Frost Fighter heater units need to be set up for each operation and tuned to operate efficiently depending on the altitude of intended use. As you go up in elevation, the air gets thinner. As the air gets thinner the ability to burn or consume a certain amount of fuel is diminished. When you move the machine to a different elevation you may need to change the nozzle size and air settings to get a clean efficient burn. The nozzle size is determined by the number of gallons per hour number (GPH). A number is stamped on the nozzle indicating the amount of fuel that the nozzle will deliver to the burning chamber. For higher elevations, selecting a nozzle that delivers less fuel allows you to make the air mixture adjustments needed to burn all of the fuel with less air (thinner air).

Test Equipment:

Bacharach Oil Burner Smoke Tester – is used to determine the amount of soot in the exhaust gasses. This can indicate the level of combustion being achieved. It is recommended that the Smoke Tester be used for tuning the Maxi Heat Frost Fighters.

Instructions for setting up the Maxi Heat at elevations above sea level.

1. Install fuel pressure gages (if not equipped).
2. Set Fuel Pressure to 140 PSI
3. Head Setting at #6.
4. Shutter Setting – Full open. #10 Setting.
 - Fine adjustment – very little change in air mixture results when changing the settings from 1 to 10.
5. Band Setting - ½ open. — #5 Setting
 - Starting at 50% open allows adjustment in both directions during tuning.
6. Install nozzle size that gives a medium to good burn (2 or 3) on True-Spot Smoke Tester
 - While the fuel pressure is maintained at 140 PSI, Head Setting at #6, and Shutter and Band Settings are at the #10 and #5 settings, test nozzles until you have a nozzle that gives satisfactory initial smoke tester readings.
 - Example:
 1. Initial startup with settings as noted above (Fuel 140 PSI, Shutter #10, Band #5) gives a smoke reading between 6 & 9 (heavy smoke on test strip with visible smoke coming from the stack and possibly a rumbling sound coming from the burner.
 2. Smoke indicates too much fuel or not enough air. (fuel not being totally burned)

Action:

1. Turn off switch and let the Frost Fighter cool down.
2. Shut off the power to the Frost Fighter.
3. Remove Fuel Rail, and determine the nozzle rating in GPH (gallons per hour) e.g. 3.
4. Select a nozzle that has an output lower than 3. (Read the following suggestions for selecting a nozzle size and depending on the initial startup and smoke test readings you can make an informed decision on which nozzle to select.
 - For heavy smoke and a rumbling sound you may select a 2.5 GPH nozzle for the next test.
 - For heavy smoke and no rumbling, you may want to select a 2.75 GPH nozzle for the next test.
5. Install nozzle,

MAXI-HEAT® SETUP PROCEDURE

6. Check igniter tips for correct location for the unit you are setting up. Adjust if necessary. (see owners manual)
For the OHV 600:
 - 5/32 apart
 - ¼" above center of nozzle
 - 1/8" in front of nozzle
7. Re-install the fuel rail, hook up fuel lines etc.
8. Restart the heater and check the flue gas for smoke using the True-Spot Smoke Tester.
9. If you get a smoke test reading in the 2 to 3 range you will be ready to fine tune the burner to achieve a #1 or possibly a 0 on the smoke scale. If you still have heavy smoke, you may have to go down another nozzle size to be able to get the burner to burn efficiently.

Fine Tuning the Frost Fighter Burners

1. Use the True-Spot Smoke Tester to determine where you are on the Smoke Scale.
2. To reduce the amount of smoke, open the band 1 or 2 numbers and recheck with the True-Spot Smoke Tester.
3. Make further adjustments if necessary to achieve the lowest number you can on the Smoke Scale.
4. Tighten the air band and shutter-securing screws to prevent them from moving after you have made the adjustments.

SPECIFICATIONS AND SERIAL NUMBERING LOCATION

DIMENSIONS

Height:	6'
Length:	16'
Width:	6' 8"

WEIGHT

Empty:	3,500 lbs.
With Fuel:	4,651 lbs.

ENGINE/GENERATOR

ISUZU 3CD1 Diesel Engine

Starting:	12V Electric 8D Battery
Oil sump capacity:	6.7 qts (6.3 L)
Low Oil Pressure Shutdown:	Solenoid actuated fuel rack instant shutdown
Generator:	8kw Newage

FUEL SYSTEM

Fuel Requirements:	No.1 fuel oil
Fuel Capacity:	191.1 Gallons
Fuel Consumption:	
Engine: ISUZU 3CD1	0.5 gal/hour (1.9L/hr)
Heaters, ea.: 500,000 BTU	3.0 gal/hour

HEATERS

Two (2) I.C.E. Frost Fighter OHV 600
500,000 BTU each,
60° solid nozzle
Each standard heater includes one (1) 16 in. heated air outlet, which connects easily to the ducting. Limit to 45 feet of 16" ducting.
Heated Air Output: 3,000 CFM per heater w/o duct.

Temperature Rise: 180° with duct creating
0.5 in. static pressure

Operating Time: 1,000,000 BTU- More than 24 hours without refueling

SERIAL NUMBER LOCATION

ISUZU 3CD1 Diesel Engine
TRAILER: Plate attached to right rear corner of frame

ISUZU ENGINE: Plate attached to top of valve cover

GENERATOR: Serial tag located on decal on the left side of Newage generator (side nearest fuel tank)

FUEL AND LUBRICATING OIL

The temperatures mentioned in the table are the ambient temperatures at the time the engine is started. However, if the running ambient temperatures are much higher than the starting temperatures, a compromise must be struck and a higher viscosity oil used (provided starting is satisfactory). Multigrade oils overcome the problem provided they have a suitable specification.

NOTE: In testing this engine at the factory, the manufacturer uses an oil for moderate and low temperatures. This oil is specially formulated to assist in the break-in period, and the manufacturer would like this oil to be left in the engine for the first 50 hours. Additional information on fuel and lubrication specifications can be found in the Engine Instruction Manual.

FUEL AND LUBRICATING OIL REQUIREMENTS					
OIL VISCOSITY					FUEL
TEMPERATURE ON STARTING	°C	°F	MONOGRADE	MULTIGRADE	USA SPECIFICATIONS ASTM D-975-77
BELOW	-15	5	5W	5W/20	#1 DIESEL FUEL
BETWEEN AND	-15 4	5 39	10W	10W/30	#1 DIESEL FUEL
BETWEEN AND	4 30	39 86	20/20W	15W/40	#1 DIESEL FUEL
ABOVE	30	86	30	20W40	#1 DIESEL FUEL

STARTING PROCEDURES

BEFORE STARTING:

- 1.Fill the engine with the specified grade and quantity of lubricating oil to correct level (check dipstick).
- 2.Ensure there is an adequate supply of fuel.
- 3.Ensure that the air cleaner is firmly attached and air joints are properly sealed. Air cleaner element should be checked and replaced if necessary.

STARTING ENGINE

- 1.Heater switches must be in OFF position.
- 2.Open door for heater outlets.

NOTE: Engine will not start with heater outlet door closed.

- 3.Turn the key switch to the **PREHEAT** position,hold until the glow indicator light goes out, then release switch.
- 4.Turn the key switch to the **START** position and the engine should start. Release the key immediately when the engine starts. If engine fails to start it may be necessary to cycle the glow plugs again.

NOTE: If engine fails to start, see engine operators handbook for cold start procedures.

NOTE: The low engine oil pressure shutdown solenoid is activated by an oil pressure switch, therefore it will take several seconds of engine cranking to build oil pressure in the switch before fuel will be allowed to the engine.

OPERATING INSTRUCTIONS

- 1.Do not start heater when excess oil has accumulated in chamber.
- 2.Do not fill fuel tank while unit is operating.
- 3.Do not shut off by disconnecting supply cord.
- 4.Do not use gasoline, crankcase oil or heavier than No. 1 Diesel fuel.

HEATER STARTING:

NOTE: Circuit breakers for heaters must be switched to the ON position.

NOTE. Allow engine to come to full RPM and warm up before starting heaters.

- 1.With engine operating, turn toggle switch at heater to manual position.

IF HEATER FAILS TO START:

- 1.Press and hold manual reset button on burner relay for 30 seconds.
- 2.Check fuel level.
3. Check fuel filter and suction tubing.
4. Check nozzle assembly.



SAFETY WARNING!

BEFORE TURNING THE ENGINE OFF, THE HEATERS MUST BE SWITCHED TO THE POSITION WHICH ALLOWS THE FANS TO COMPLETE A COOL DOWN CYCLE FOR THE HEAT EXCHANGER

TO STOP HEATER:

Flip switch to "OFF" position

SAFETY WARNING!

BURNERS WILL STOP BUT THE FAN WILL AUTOMATICALLY CONTINUE TO CYCLE UNTIL THE UNIT COOLS DOWN

ENGINE SHUTDOWN:

1. Shut heater off. Allow time for the fans to turn off.
2. Turn ignition switch to "OFF" position.

MAINTENANCE AND TOWING INSTRUCTIONS

NOTE: DO NOT TAMPER WITH UNIT. HAVE A COMPETENT SERVICEMAN MAKE ANY ADJUSTMENTS.

NOTE: Before moving guards out of position insure power cord is disconnected.



SAFETY WARNING!

FAN COULD CYCLE ON AUTOMATICALLY

High Limit Switch:

The limit switch should be checked every heating season to insure the burner will shut down if temperature exceeds 220° F

*This can be done by restricting the air flow through the unit. After tests are complete, remove restrictors as ducts must be open for proper operation.

Fan Switch:

The adjustable fan switch will turn on the fan when the engine temperature is at 90°F and off at 60°F. If the fan fails to stop when the heat exchanger has cooled, replace switch.

Fuel Filter:

Replace element every six months of normal usage.

Flame Detector:

The flame detector is located in the burner housing below the transformer. Periodically clean cell detector face with a soft nonabrasive cloth.

Burner:

The electrode spacing must be checked and adjusted, if necessary, after every nozzle change. Nozzles should be replaced annually or sooner if burner cannot be set up to operate properly. Nozzle size is dependent on altitude of operation. Nozzle size and type are marked on the rating plate.

Motors:

No lubrication is necessary since the bearings are the sealed type.

Fuel System:

Do not store unit containing fuel oil for long periods.

NOTE: Service intervals have been established for operation under normal conditions. Where equipment is operated under severe conditions (very dusty, extreme cold, etc.) affected items should be serviced more frequently. For detailed information see the Engine Instruction Manual for OHV 600 Installation-Operating Maintenance instructions.

CLEANING PROCEDURE

The unit should be cleaned periodically as follows:

1. Remove front cap.
2. Remove cover panel (jacket to front).
3. Remove fan thermostat cover on outer jacket (on the nearest burner). Loosen the thermostat and remove from the jacket. Remove high limit thermostat.
4. Slide heat exchanger out of jacket and place front face down on floor.
5. Access for combustion chamber and heat exchanger cleaning is obtained through the burner head opening and by removing the heat exchanger cap ring(s).

TOWING INSTRUCTIONS

Before towing the Maxi-Heat, the trailer should be inspected visually to assure that the following operations have been completed:

1. Hitch is securely attached to towing vehicle (safety chain secured).
2. Front jack retracted.
3. Ducting removed from heaters and stored.
4. Doors are closed and secure.
5. Check for adequate tire pressure.
6. Taillights are connected and operating.
7. Remove ground rod from earth and secure in trailer.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
<p>The heater smokes when firing and/or there is a rapid build-up of soot in the chamber and on the flame detector. As a result the heater may prematurely lock out or in the worst case have a fire in the combustion chamber.</p>	<p>Incorrect nozzle size for operating altitude or burners have not been adjusted for operating altitude.</p>	<p>Replace nozzle with correct size for operating altitude or adjust and tune burners for operating altitude</p>
	<p>Faulty or fouled nozzle will hamper the efficient burn of the oil and may cause an accumulation of excess fuel in the bottom of the heat exchanger cavity. The oil residue will continue to burn after the heater shuts down and soot will then "burn back" into the controls area.</p>	<p>Replace the nozzle</p>
	<p>Electrodes out of alignment. The electrode holder has an adjustment screw that is used to center the electrode in the center of the cone. Should the screw loosen and the electrode be off center, the oil, when firing, may strike the side of the blast tube and then accumulate in the bottom of the heater resulting in a "burn back" condition.</p>	<p>Check the alignment of the electrodes in the end cone and adjust as necessary</p> <div style="text-align: center;"> <p style="font-size: small;">ELECTRODE ADJUSTMENTS FOR OHV #600</p> <p style="font-size: x-small;">1/4" ABOVE NOZZLE CENTER</p> <p style="font-size: x-small;">5/32" GAP</p> <p style="font-size: x-small;">1/8" IN FRONT OF NOZZLE</p> </div>
	<p>Improper setting of the air band assembly. The air band assembly should be set with approximately 3/4 of the slot area open; an opening less than that may cause a sooty burn as a result of choking off the required combustion air. The band is set at the factory; however it may loosen in shipment or on the jobsite</p>	<p>Check the air band adjustment and tighten the retaining screw</p>
	<p>Use of No. 2 Diesel fuel</p>	<p>Use up remaining No. 2 diesel or blend with No. 1 diesel. Clean cad cell flame detector before putting back into service.</p>

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
The heater starts up briefly and then locks out requiring manual reset at the oil primary control.	Faulty or fouled cad cell flame detector.	Remove and clean the cad cell. If the problem continues, replace the cad cell element.
The heater fails to start.	Check to see that the ON-OFF switch is in the ON position and that there is adequate power (120V 60 HZ) to the unit.	Turn switch on and/or check the electrical circuit capacity. The OHV 600 requires a 30 AMP circuit.
	Low fuel available. Either the unit has not been fueled or the fuel feed is blocked.	Check fuel level. Replace fuel filter if clogged. Replace or clean fuel hoses.
	Nozzle assembly misaligned.	Check that the electrode assembly and gap set in accordance to operating instructions.
	Burner fuse failure.	Replace fuse
	High limit switch failed in the open position	Replace the high limit switch
Fan motor fails to operate.	Failed fan motor	Replace fan motor
	Fan cycling thermostat failed in the open position.	Replace thermostat

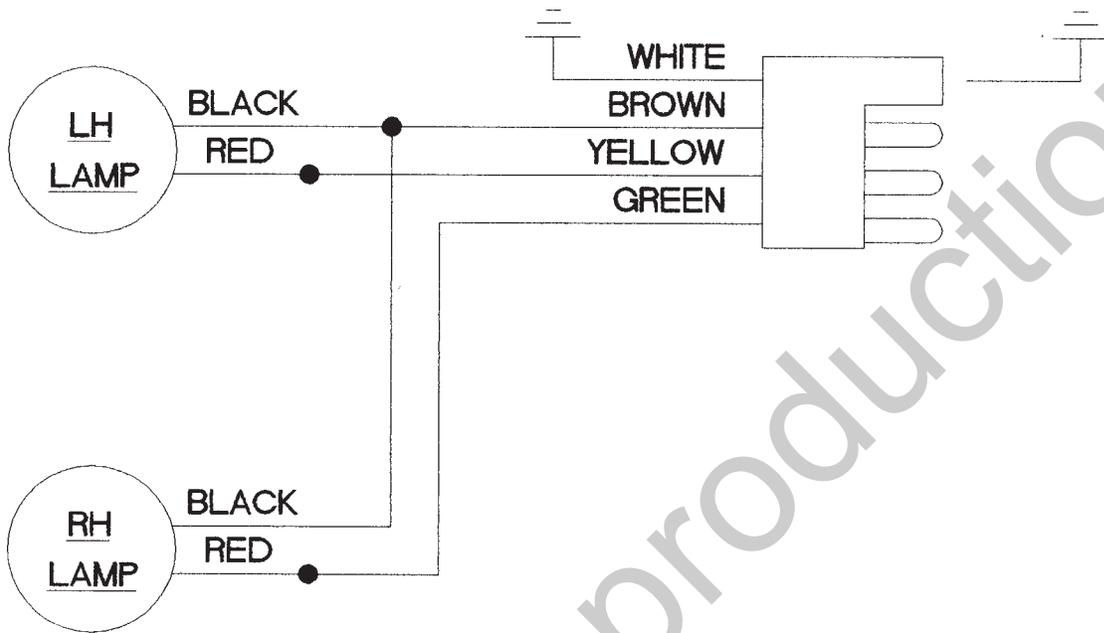
TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Burner will not start	Check the fuse	Replace
	Check the high limit switch	Replace
	Check the manual reset button on the oil burner motor.	Reset if tripped (press and hold for 30 seconds to reset)
	Check to insure no light is reflected to the sensor	Clean cad cell
	Check the sensor	Replace
Delayed Ignition	Check for proper electrode setting	See previous page for electrode setting
	Check the isolators for cracks or for a conducting coat of soot or oil. Cracks sometimes occur under the electrode bracket, causing a short circuit.	Clean and replace isolators
	Check to see that the air shutter is not open too far.	Close shutter slightly
	Check to insure that pump pressure is properly set.	Adjust pressure to 140 psi if required
	Check Fuel Filter	Replace if dirty
	Check Nozzle	Replace nozzle
Smoky Fire	Check the burner fan blade	Clean if dirty
	Check combustion chamber for cracks or burn out.	Replace chamber
	Check nozzle. If clogged it could produce an off-center fire	Clean nozzle
	Check center leg on nozzle assembly to insure nozzle is centered in the 4" tube	Adjust if required
	Check for a loose nozzle	Tighten nozzle

TROUBLESHOOTING

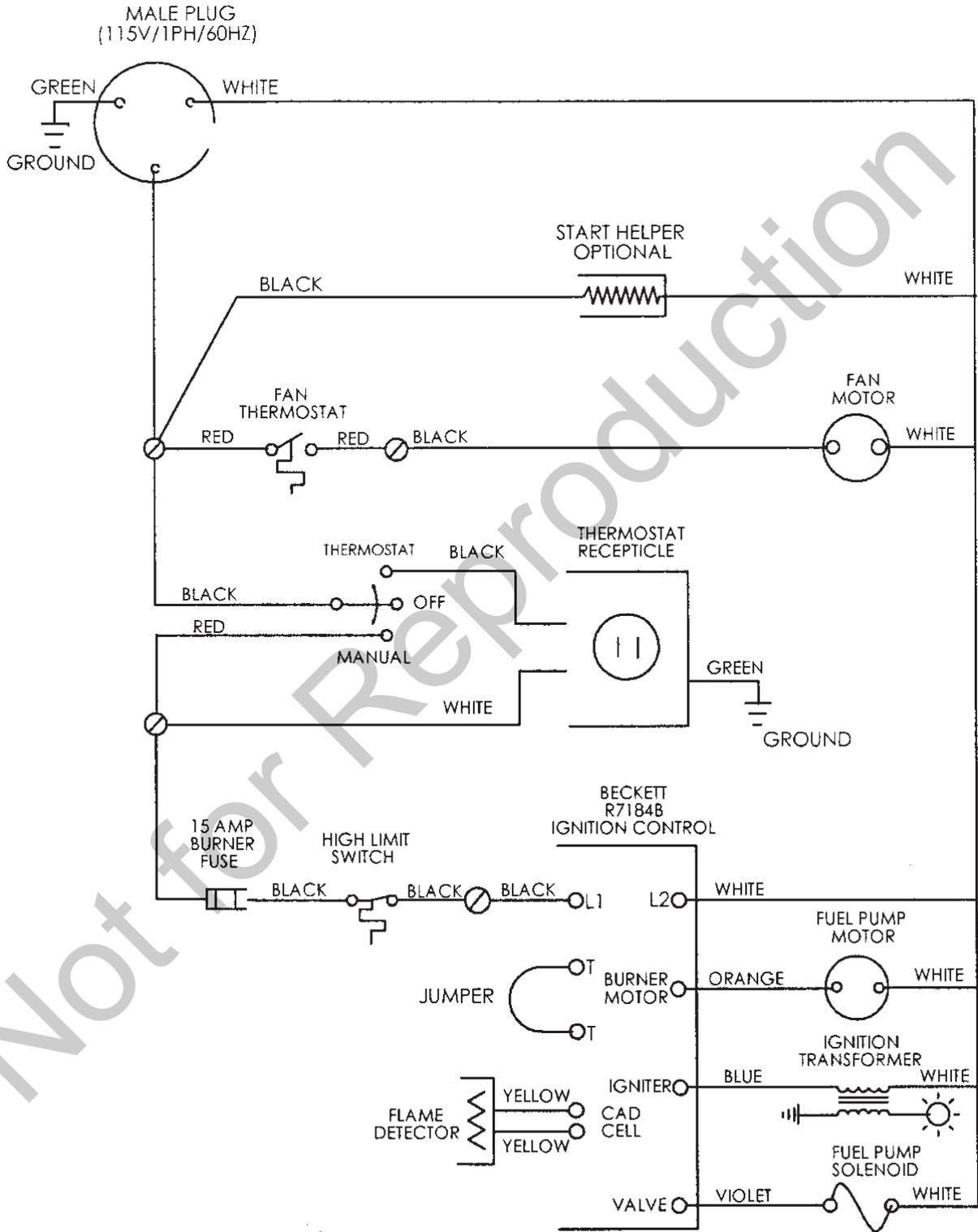
PROBLEM	POSSIBLE CAUSE	SOLUTION
Burner starts up then locks out at the relay	Check and clean sensor	Replace if problem reoccurs
	Check yellow wires between the sensor and relay	Replace sensor if problem reoccurs
	Check fan switch	Replace if problem reoccurs
	Check motor to see if power is getting to the motor	Replace motor if problem reoccurs
Main fan will not come on, unit shuts down on high limit	Check air flow to insure both ducts are in place and clear	Clear obstructions
	Check pump pressure; unit could be over-firing	Adjust pressure if required
	Check to insure that proper nozzle is installed	Check manufacturer's nozzle specifications
	Check high limit switch.	Change high limit switch
Accumulation of oil in the combustion chamber	The unit has been reset a number of times without ignition	Tilt the unit up at the burner end to let the excess oil drain out of the secondary chamber. Allow unit to drain for 15-20 minutes or until all oil has drained out. Open electrical box and jumper fan switch so that the burner and fan start together. There will be smoky fire a few minutes until the excess oil that has sprayed on the walls of the combustion chamber has burned off. When unit has stabilized and the burner is set up to operate properly, shut off the switch. Let the fan cool down the chamber and stop. Remove the jumper across the fan switch and close the electrical panel. The unit should operate normally. If not, refer to the DELAYED IGNITION section of the troubleshooting guide.

TAILLIGHT WIRING SCHEMATIC

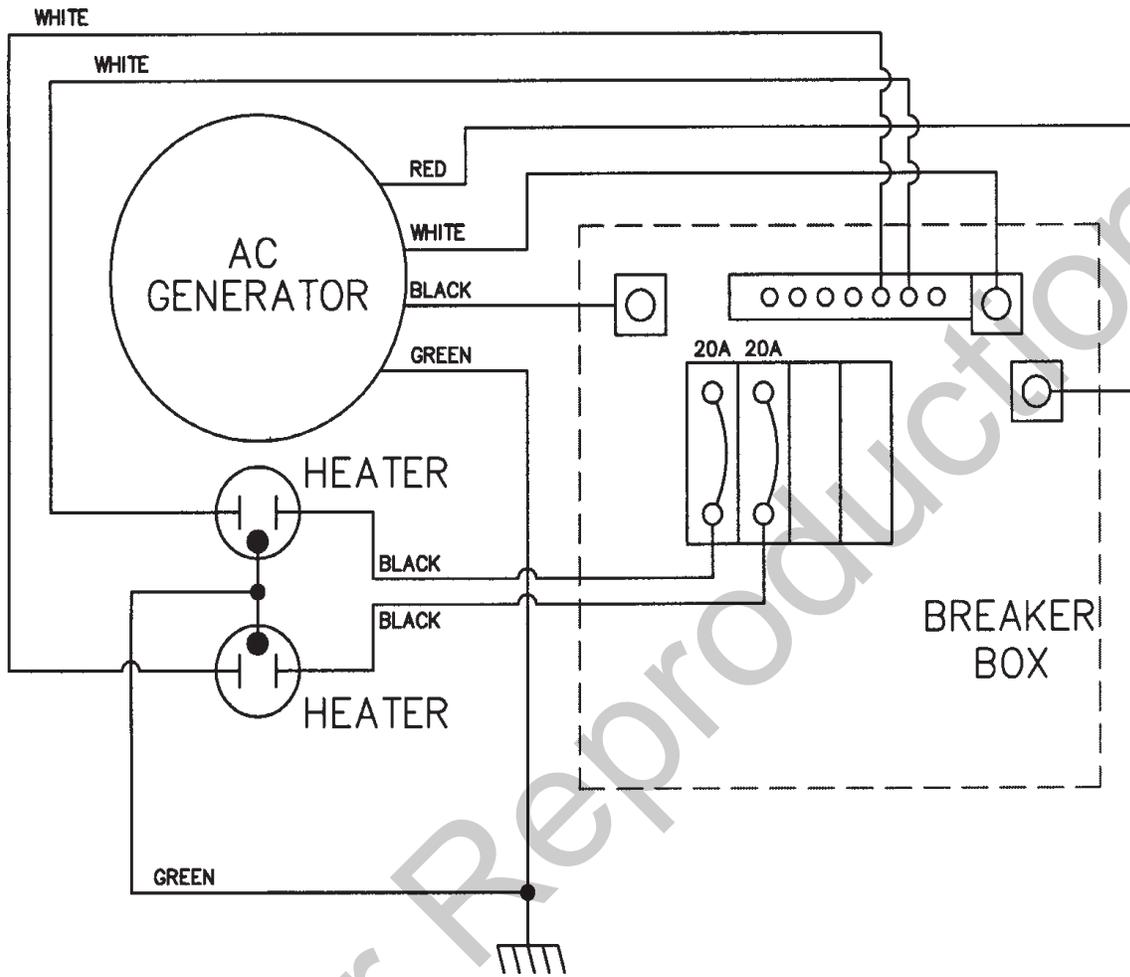


MAXI-HEAT® ELECTRICAL SCHEMATIC

Honeywell Control

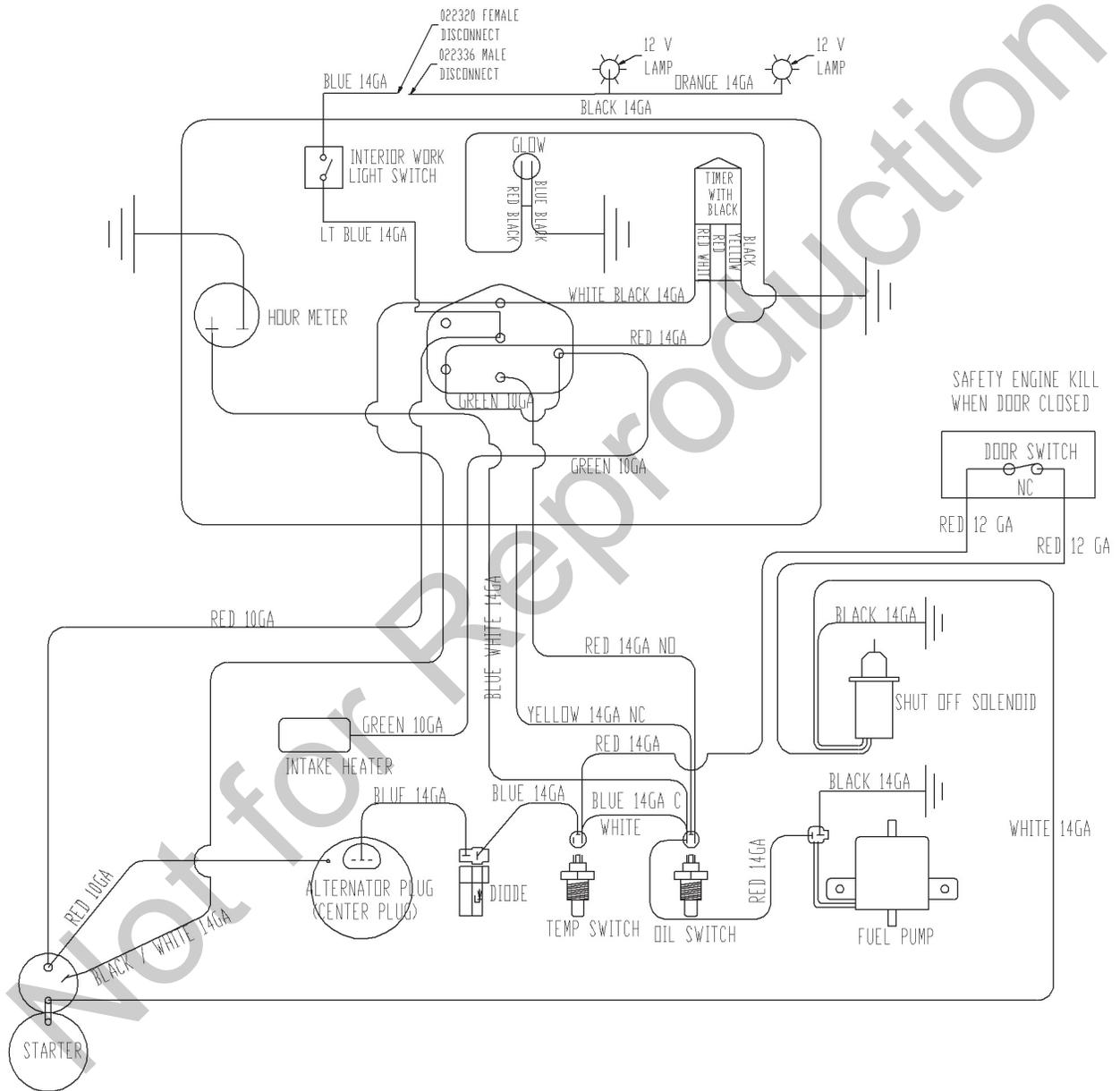


CONTROL BOX AND GEN SET WIRING



ENGINE WIRING SCHEMATIC

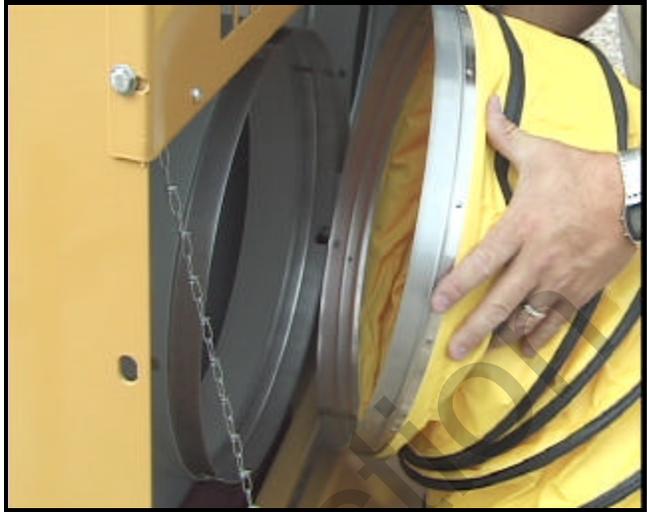
ISUZU 3CD1 ENGINE



MAXI-HEAT® DUCTWORK INSTALLATION OPTIONS



Illustration of lock pin and arrow on 16" slip lock connector (pn848974) for duct installation



Duct ready for installation on heater using 16" Slip-Lock Connectors (pn 848974)



16" screw clamp (pn848176) used here to attach duct (pn848172)



16" over-center band clamp (pn848174) used here to attach duct (pn848172)



Connecting Band (pn848976) for connecting multiple hose lengths



Duct (pn848172) installed on connecting band (pn848976) with 16" screw clamp (pn848176)

Installation Instructions for Installing the Slip-Lock Duct Connectors (PN #848974)

Heater Section – Inner Ring

1. Line up the receiver section (ring with slots) inside the heater flange and slide it in to where the small rounded ridge (approximate center of connector ring) is just inside the outer edge of the heater flange. This leaves $11/16$ " of this inner ring exposed and will allow the compartment door to close freely. Note: Make sure that this alignment remains constant all the way around the outer edge of the flange.
2. Mark the locations of the (3) $3/16$ " holes and remove the receiver section from the heater flange. Using a center punch, make a dimple in the center of each mark and drill each hole out using a $3/16$ " drill bit.
3. Re-install the receiver section into the heater flange and connect it (large head inside heater flange) using a pop-rivet gun and (3) $3/16$ " pop-rivets.

Duct-Work Section – Outer Ring

1. Slide the end-cuff of the ducting over the larger outer ridge and stop when the cuff makes contact with the small inner ridge (approximate center of connector ring). This leaves 1" of the outer ring exposed. Note: Make sure that this alignment remains constant all the way around the outer ring.
2. Using a scratch awl, poke a hole through the ducting at the location of each of the (3) $3/16$ " holes and attach the ducting (large head on outside of duct-work) to the outer ring using a pop rivet gun and (3) $3/16$ " pop rivets
3. Take the 16" screw clamp (PN #848176) and install it right over the top of the (3) $3/16$ " rivets on the outer ring and tighten down securely on the ducting. Note: Make sure that this alignment remains constant all the way around the outer ring before tightening.
4. Your ductwork is now ready to be connected to the heater unit.



Not for Reproduction

PARTS MANUAL

AUGUST 2006

AllmandTM

MAXI-HEAT® SERIES

MODEL MH 1000

Beginning with Serial Number 0001MXH07

OHV 600

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HOLDREGE, NE 68949

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FAX: 308/995-5887

PARTS FAX: 308/995-4883

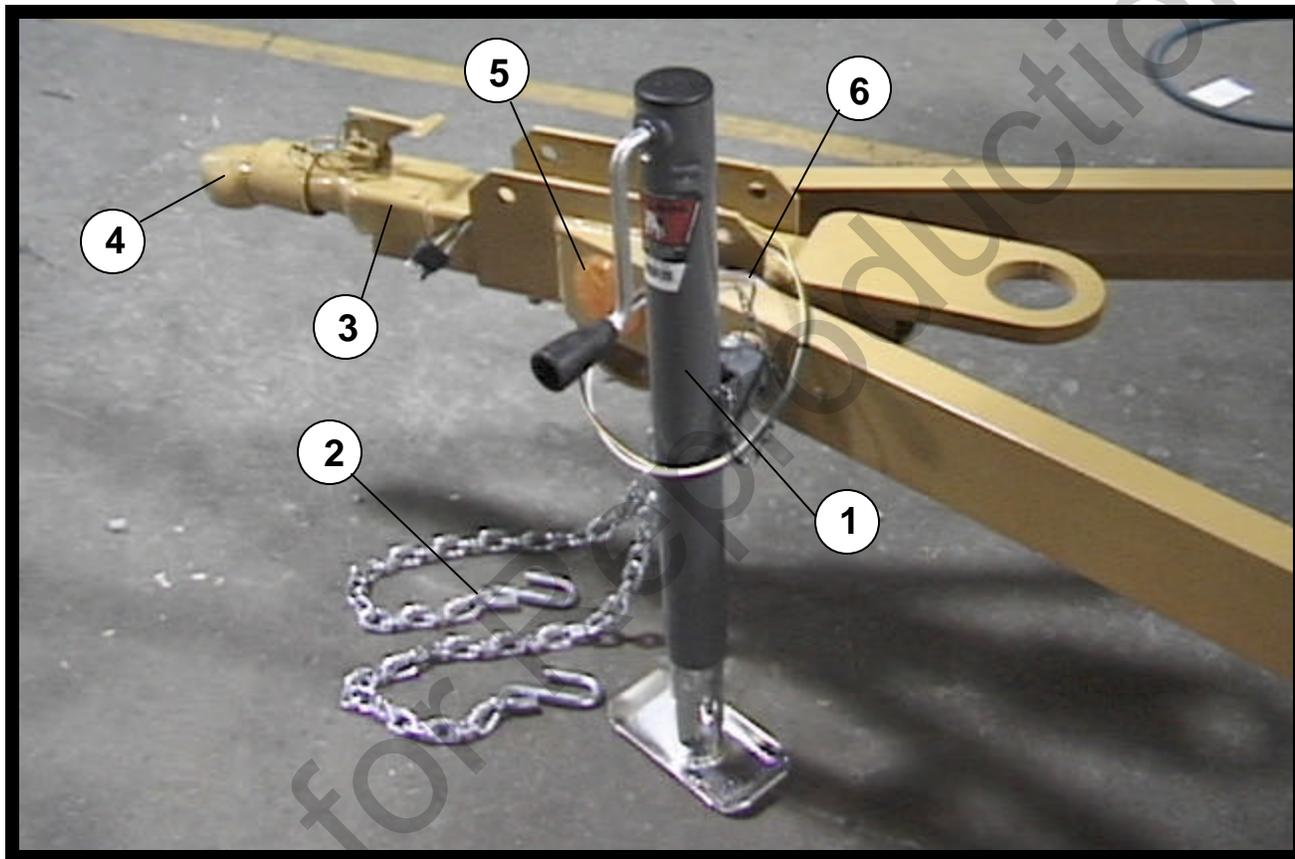
AllmandTM

MAXI-HEAT® SERIES

For Parts and Updates visit Allmand on the Web at www.allmand.com

TRAILER ASSEMBLY PARTS AND ACCESSORIES

A-1A



TRAILER ASSEMBLY PARTS AND ACCESSORIES

A-1B

REF#	PART#	DESCRIPTION
1	330011	JACK SIDE CRANK
2	049036	SAFETY CHAIN KIT (2 KITS REQUIRED)
3	330016*	REVERSIBLE HITCH ASSEMBLY
4	330018*	BULLDOG HITCH ONLY
NS	330019	BULLDOG HITCH REPAIR KIT
5	330039	REFLECTOR, AMBER (2 REQUIRED)
6	330013	REPLACEMENT LOCK PIN
NS	650236	PLASTIC JACK CAP

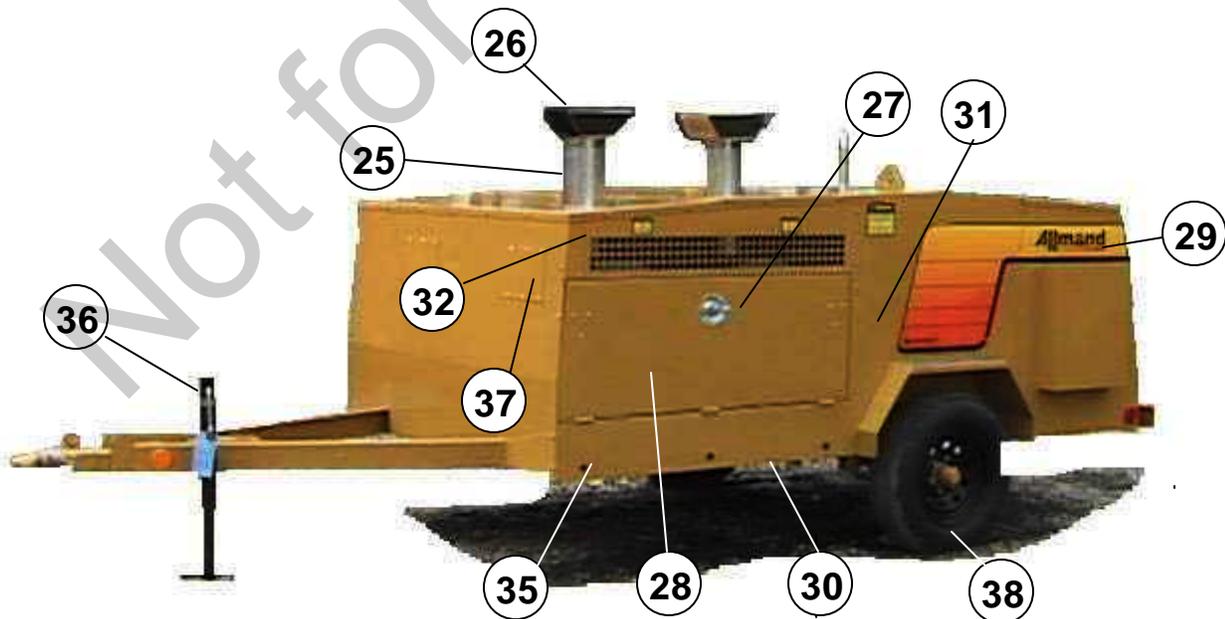
LEGEND: NS = Not Shown
** = Purchase Locally

* Use these codes to designate color needed:

06-Allmand Gold
P-Primer Only

TRAILER ASSEMBLY PARTS AND ACCESSORIES

A-2A



TRAILER ASSEMBLY PARTS AND ACCESSORIES

A-2B

REF#	PART#	DESCRIPTION
NS	830030*	ROOF PANEL 2
12	849055*	ROOF PANEL 2 (AFTER 0104MXH06)
13	848403*	ROOF PANEL - REAR ISUZU
14	848610*	ROOF PANEL - CENTER ISUZU
NS	830025*	ROOF PANEL - FRONT
15	849054*	ROOF PANEL - FRONT (AFTER 0104MXH06)
16	848282*	SIDE DOOR ASSEMBLY - RIGHT
17	800229*	SIDEPANEL - RIGHT REAR ISUZU
18	830075*	SIDE REAR PANEL - RIGHT
19	830060*	SIDE FRONT PANEL - RIGHT
NS	830070*	SIDE TOP PANEL - RIGHT
20	849056*	SIDE TOP PANEL - RIGHT (AFTER 0104MXH06)
21	848383*	SIDE BOTTOM PANEL - RIGHT
22	830130*	REAR BUMPER
NS	466084*	REAR BUMPER SPACER, 2 REQ'D
23	650129	TAILLIGHT, 2 REQ'D
NS	849053	TAILLIGHT/INTERLOCK WIRE HARNESS
24	330037	REFLECTOR, RED (2 REQUIRED)
NS	330039	REFLECTOR, AMBER (2 REQUIRED)
25	840080	6" X 18" CHIMNEY
26	848001	CHIMNEY RAIN CAP
NS	840090	CHIMNEY VENT GRAB
27	330045	DOOR LATCH ASSEMBLY (INTERCHANGEABLE)
28	848283*	SIDE DOOR ASSEMBLY - LEFT (19 1/2" H)
29	800230*	SIDE PANEL - LEFT REAR ISUZU
NS	848412	MANUAL STORAGE BOX
30	830091*	SIDE BOTTOM PANEL - LEFT
31	830086*	REAR SIDE PANEL - LEFT
32	849057*	TOP HEADER - LEFT (AFTER 0104MXH06)
NS	830081	TOP HEADER - LEFT
33	848284*	REAR DOOR ASSEMBLY
34	800231*	AIR INTAKE COVER ISUZU
35	330041	DOOR STOP BUMPER
36	330011	JACK SIDE CRANK
37	848810*	FRONT ACCESS PANEL (AFTER 0001MXH07)
NS	848162*	FRONT ACCESS PANEL (0001MXH06 THRU 0216MXH06)
38	830006A	WHEEL AND TIRE ASSY 15" X 6" 6-HOLE
NS	830006	WHEEL ONLY 15" X 6" 6-HOLE
NS	830004	TIRE ONLY ST225/75R15BD

LEGEND: NS = Not Shown

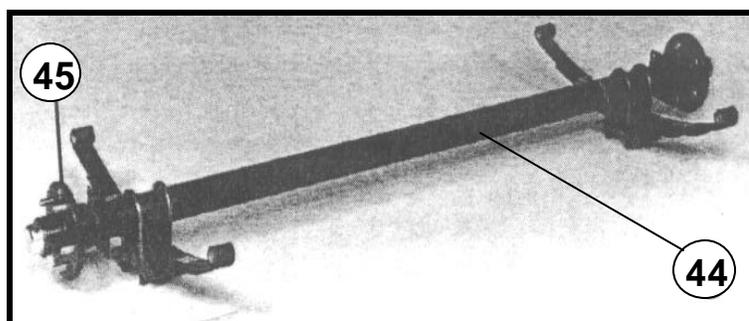
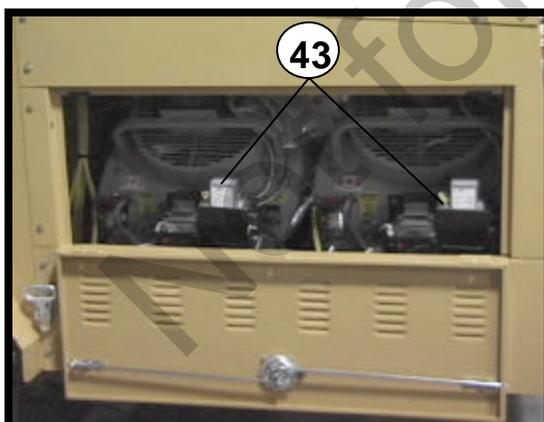
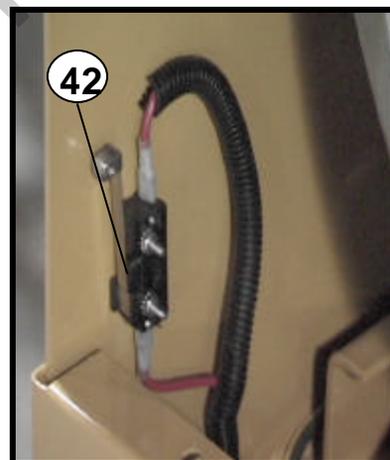
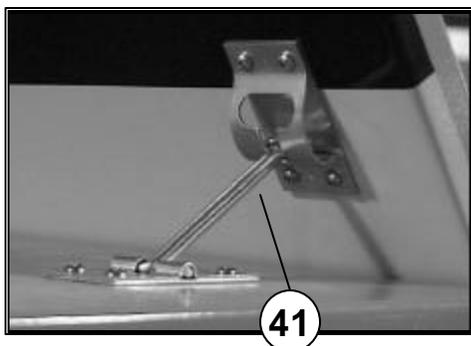
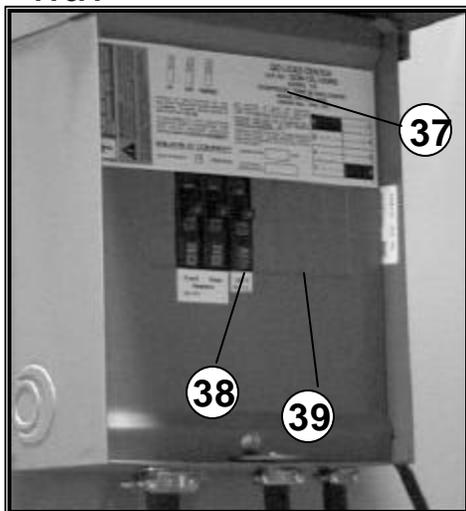
** = Purchase Locally

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06-Allmand Gold
P-Primer Only

TRAILER ASSEMBLY PARTS AND ACCESSORIES

A-3A



TRAILER ASSEMBLY PARTS AND ACCESSORIES

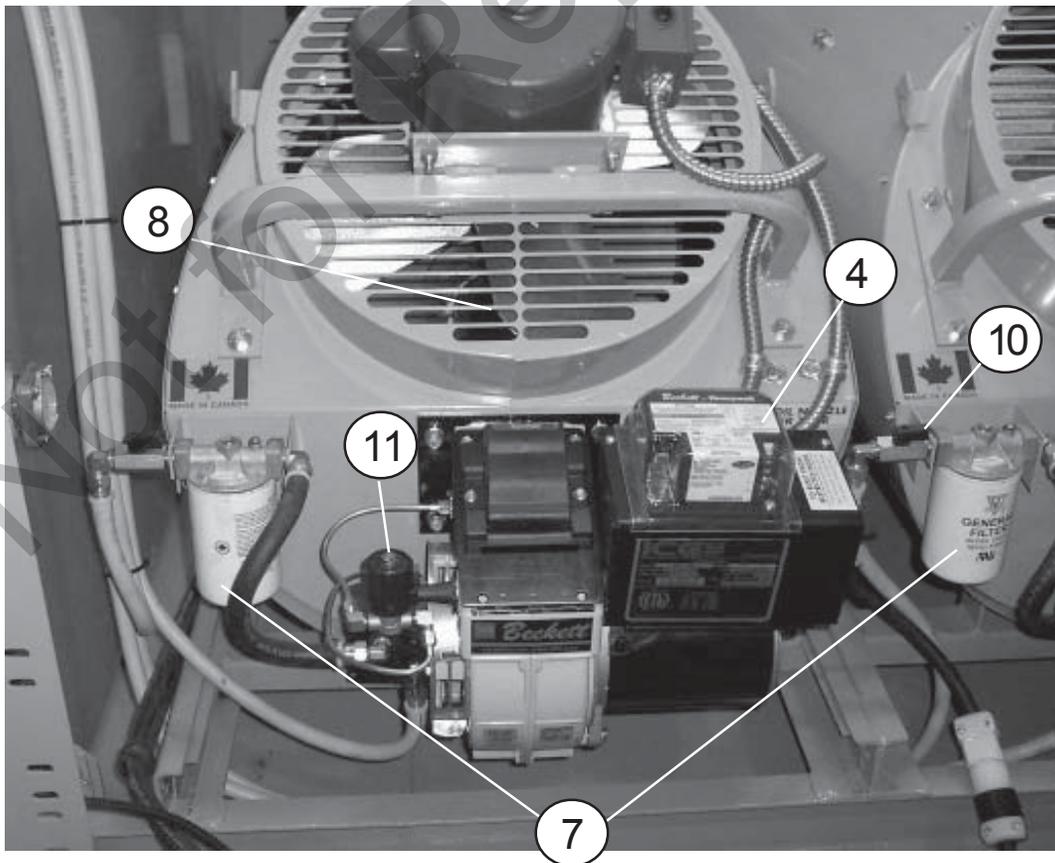
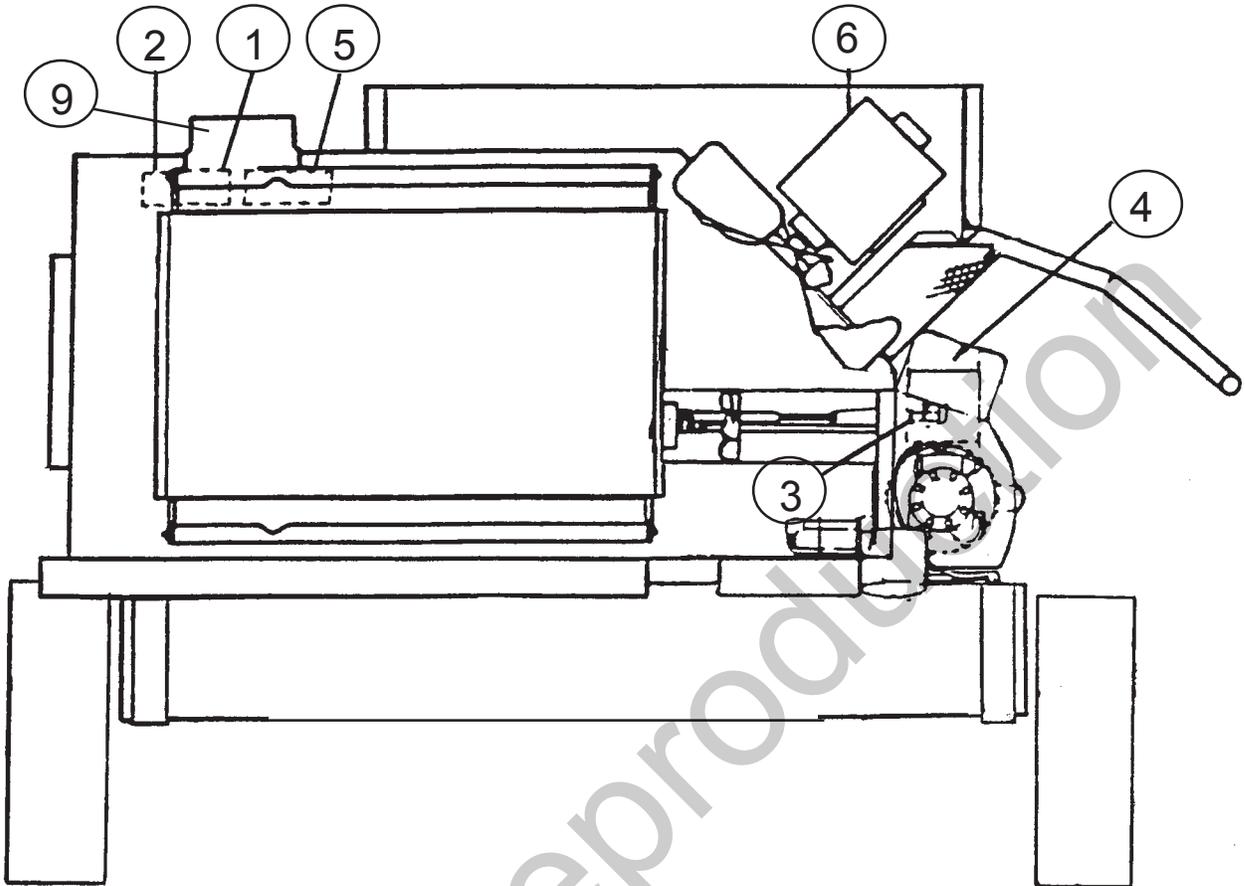
A-3B

REF#	PART#	DESCRIPTION
37	330055	OUTLET BOX ONLY
NS	330057	OUTLET BOX RUBBER MOUNT
38	330065	CIRCUIT BREAKER SP, 20 AMP
39	330067	CIRCUIT BREAKER SP, 30 AMP (2 REQ'D)
40	352151	INTERIOR LAMP FIXTURE (HEATER COMPARTMENT)
40A	352151	INTERIOR LAMP FIXTURE (ENGINE COMPARTMENT)
41	830155	POSITIVE DOOR HOLDER
42	830165	INTERLOCK SAFETY SWITCH
43	849005	FROST FIGHTER HEATER (2 REQ'D)
NS	830145	POWER CABLE, REAR HEATER
NS	830140	POWER CABLE, FRONT HEATER
NS	800260	FRONT HEATER FUEL SUPPLY LINE, 081017, 81"
NS	800261	FRONT HEATER FUEL RETURN LINE, 081017, 86"
NS	800258	REAR HEATER FUEL SUPPLY LINE, 081017, 42"
NS	800259	REAR HEATER FUEL RETURN LINE, 081017, 49"
NS	847301	REMOTE THERMOSTAT
44	830002	AXLE/SPRING/HUB ASSEMBLY
45	830003	HUB/BEARING ASSEMBLY FOR 830002

LEGEND: NS = Not Shown
** = Purchase Locally

HEATER ASSEMBLY PARTS AND ACCESSORIES

B-1A



HEATER ASSEMBLY PARTS AND ACCESSORIES

B-1B

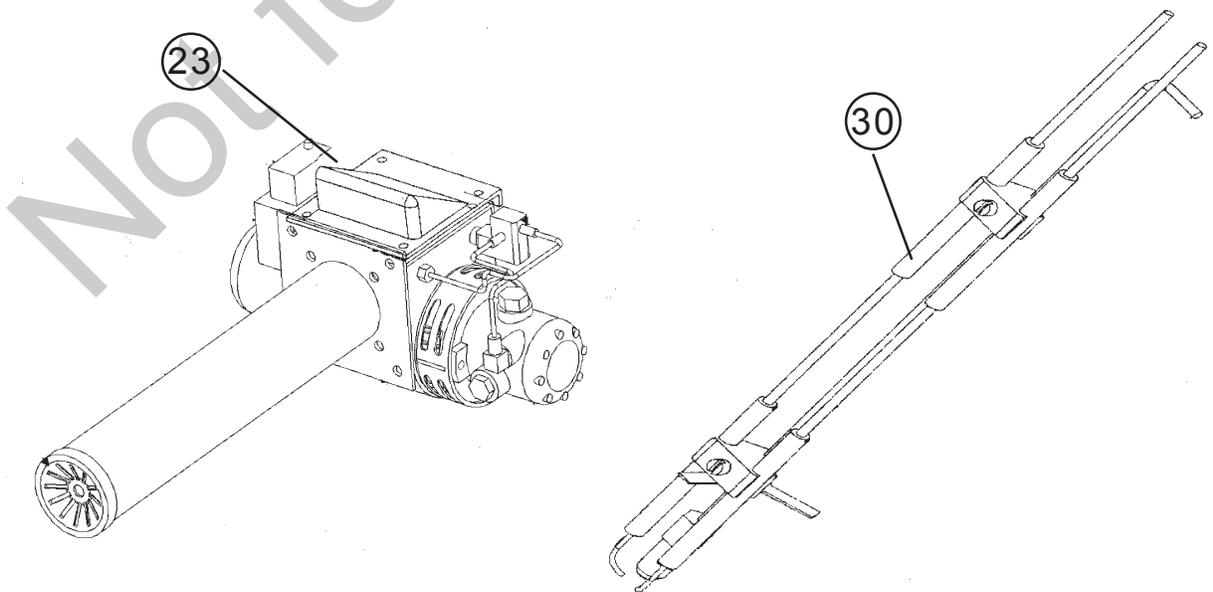
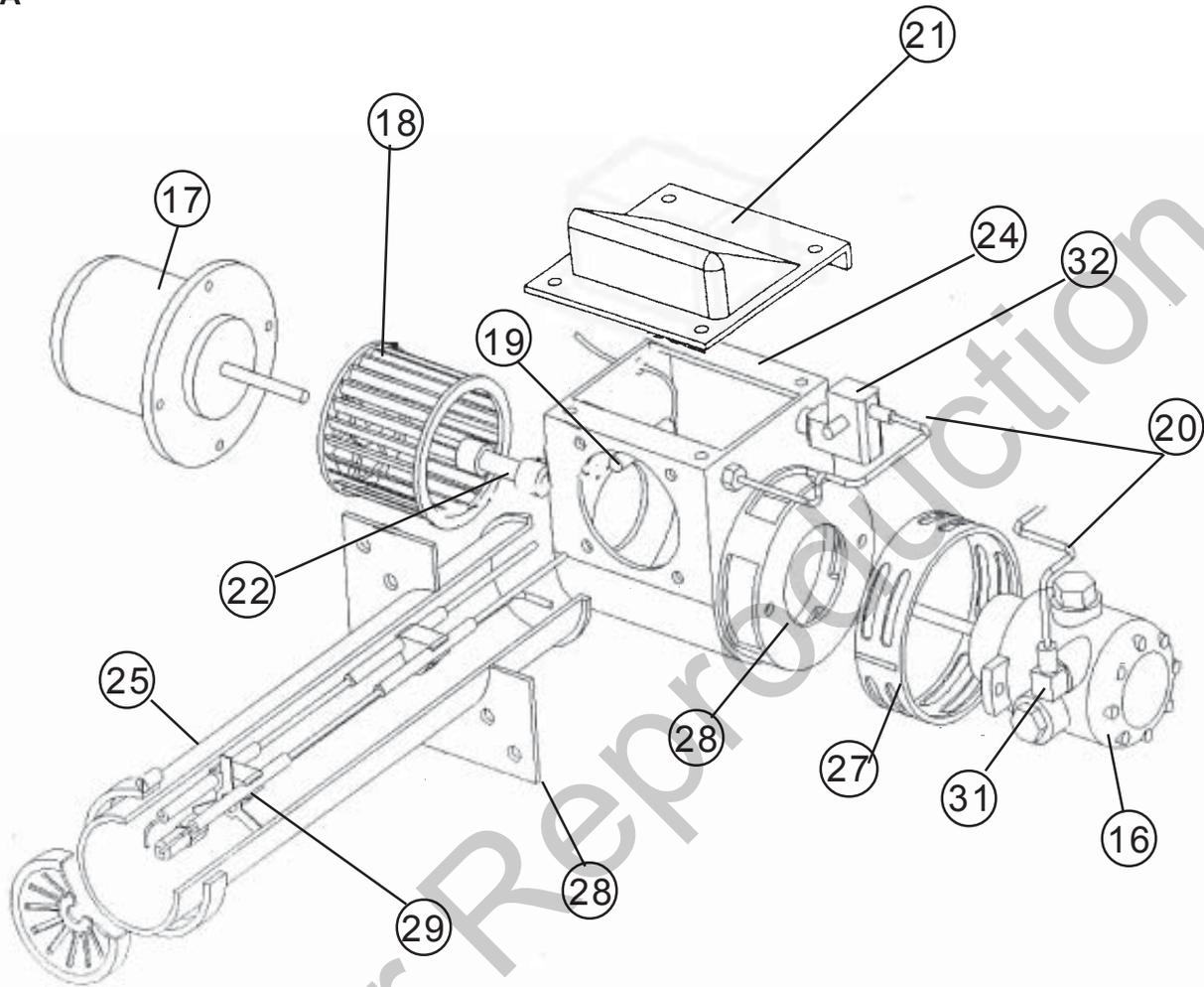
REF#	PART#	DESCRIPTION
NS	849005	OHV600 HEATER ASSEMBLY
1	848110A	HIGH SENSOR
2	848112	HIGH SWITCH COVER
3	848154B	CAD CELL FLAME DETECTOR
NS	848160	TOGGLE SWITCH
NS	848165	SWITCH RECEPTACLE
4	848185A	OIL PUMP PRIMARY CONTROL
NS	849011	STAINLESS STEEL HEAT EXCHANGER ASSEMBLY
5	848201	FAN SWITCH
NS	848220	TEMPERATURE FEELER
NS	848111B	ADJUSTABLE FAN SWITCH
NS	848171	ADJUSTABLE TEMPERATURE FEELER SWITCH
6	848202	FAN MOTOR, 1 HP
NS	848214	FUSE HOLDER
NS	848215	FUSE, 15 AMP
NS	848972	ADAPTER NIPPLE FOR FUEL SHUTOFF
7	848164A	SPIN ON FUEL FILTER
NS	848132A	SPIN ON FUEL FILTER AND FILTER HEAD ASSEMBLY
NS	848133A	MOUNTING BRACKET FOR 848132A
8	848803	FAN MOTOR SCREEN
9	848113	FLUE COLLAR
10	848971	FUEL SHUTOFF VALVE
11	848320	COMBU VALVE
NS	800377	FUEL PRESSURE GAUGE ONLY
NS	849003	FAN MOTOR CAPACITOR (540 - 648 uf)

LEGEND: NS = Not Shown

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HEATER ASSEMBLY PARTS AND ACCESSORIES

B-2A



HEATER PARTS AND ACCESSORIES

B-2B

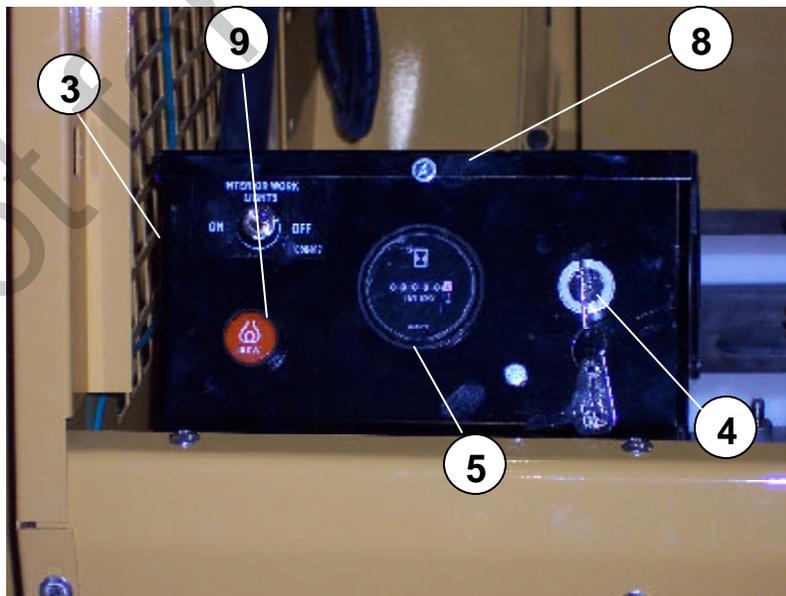
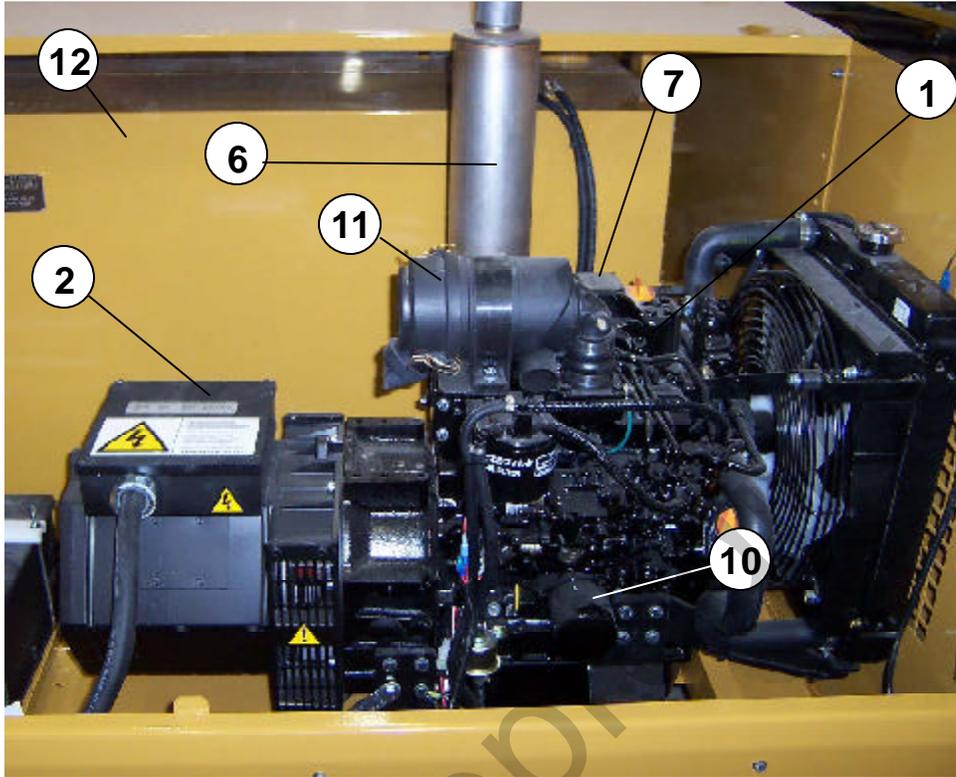
REF#	PART#	DESCRIPTION
16	848139B	"A" FUEL PUMP
17	848140	BURNER MOTOR, 1/3 HP
18	849006	BURNER FAN
19	848154B	CAD CELL FLAME DETECTOR
20	848152	OIL DELIVERY TUBE (2 USED)
21	848138B	BECKETT TRANSFORMER/IGNITOR
22	848187	FLEX COUPLING 2 3/4" long (1/4" and 1/2" dia. ends)
23	830289	BURNER ASSEMBLY
24	848250	HOUSING
25	849008	BLAST TUBE, 15 15/16"
26	848252	MOUNTING FLANGE
27	849007	AIR BAND ASSEMBLY
28	848254B	AIR SHUTTER HOUSING
29	849010	ELECTRODE INSULATOR KIT
30	849009	ELECTRODE ASSEMBLY WITH END CONE
31	848281	90° FLARE ELBOW
32	848320	COMBU VALVE
NS	848290	NOZZLE, 2.25 GPH
NS	848290A	NOZZLE, 2, 0 GPH
NS	848290B	NOZZLE, 2.5 GPH
NS	848290C	NOZZLE, 2.75 OPH
NS	848291	NOZZLE, 3.0 GPH
NS	848291A	NOZZLE, 3.5 GPH

LEGEND: NS = Not Shown

** = Purchase Locally

ENGINE ASSEMBLY PARTS AND ACCESSORIES

C-1A



ENGINE ASSEMBLY PARTS AND ACCESSORIES

REF#	PART#	DESCRIPTION	C-1B
1	848982	ISUZU 3CD ENGINE ONLY	
2	848969	GENERATOR ONLY NEWAGE	
NS	848980	RECTIFIER BRIDGE ISUZU NEWAGE	
3	***	INSTRUMENT PANEL ASSEMBLY, ISUZU	
4	922004	IGNITION SWITCH ISUZU WITHOUT TUMBLER OR KEYS	
NS	922005	IGNITION TUMBLER WITH 2 KEYS	
NS	921441	IGNITION KEY ONLY ISUZU	
5	340014	HOUR METER.	
NS	310122	CORD CONNECTOR, 3/4"	
NS	800243	NYLON BATTERY HOLD DOWN, 2 REQ'D	
NS	433507	BATTERY HOLD DOWN J-BOLT	
6	849013	MUFFLER, ISUZU 3CD	
NS	849014	ISUZU 3CD MUFFLER GASKET	
7	@@@	AIR INTAKE HOSE FOR ISUZU AIR CLEANER	
8	101071	ISUZU CONTROL BOX COVER	
9	22-000328	GLOW LIGHT INDICATOR	
10	22-000309	OIL FILTER ISUZU	
11	650262	AIR CLEANER ASSEMBLY	
NS	650290	AIR FILTER ELEMENT ISUZU	
NS	340105	GROUND STRAP	
12	800244*	FUEL TANK, 200 GALLON	
NS	800250	FUEL PICKUP TUBE (7/16 X 32.5") Qty 4 required	
NS	800252	FUEL PICKUP TUBE (7/16 X 33") Qty 2 required	
NS	840042	FUEL TANK CAP	
NS	22-000315	GLOW PLUG TIMER	
NS	650423	RELAY ASSEMBLY	
NS	848308	GENERATOR MOUNT PLATE NEWAGE PERKINS	
NS	22-000310	FUEL FILTER ISUZU	
NS	027025	BATTERY CABLE 2 GA 48"	
NS	713098	BATTERY CABLE 2GA 36"	
NS	848986	3CD ENGINE BLOCK HEATER	
NS	22-000326	OIL PRESSURE SWITCH	
NS	22-000325	TEMPERATURE SWITCH	
NS	22-000316	STOP SOLENOID	
NS	22-000329	O-RING STOP SOLENOID	
NS	22-000317	FUEL PUMP	
NS	22-000324	ALTERNATOR DIODE	

LEGEND: NS = Not Shown

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*** = Call Allmand for Information

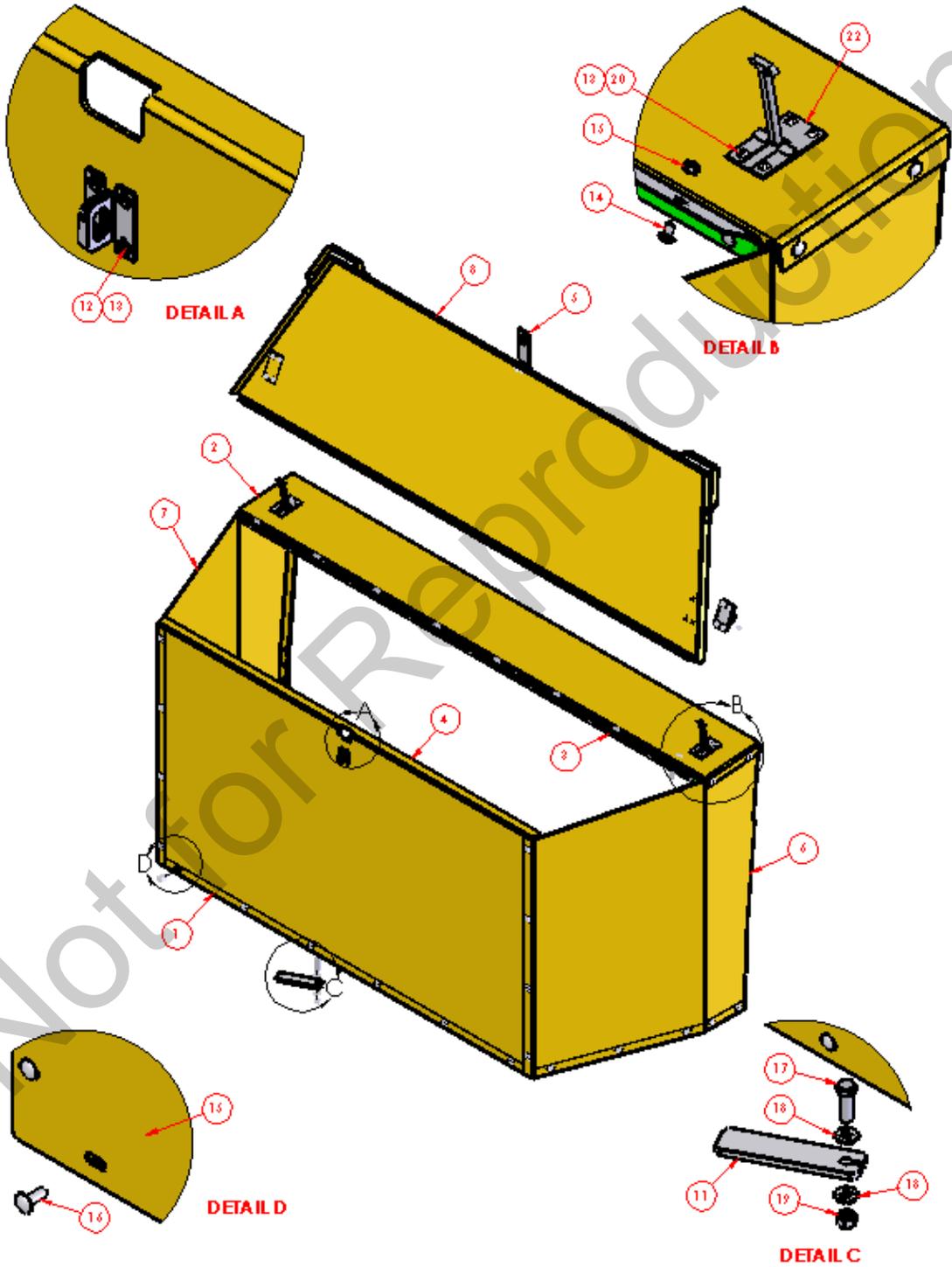
@@@ = See Local Isuzu Dealer

* Use these codes to designate color needed:

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P-Primer Only

OPTIONAL PARTS AND ACCESSORIES

D-1A



OPTIONAL PARTS AND ACCESSORIES

D-1B

NO.	QTY.	PART NO.	DESCRIPTION
1	1	848121	PNL BOTTOM
2	1	848125	PNL TOP
3	1	848129	HINGE
4	1	848122	PNL FRONT
5	1	830232	HASP
6	1	848124	PNL SDE LF
7	1	848123	PNL SIDE RT
8	1	848128	LID WELDED
9	4	848954	MOUNT PLATE
10	7	041026	10-24 X 3/4 SL-FHMS
11	23	044019	10-24 NYLOCK NUT
12	17	053005	1/4-20 X 1/2 RHSSNBOLT
13	45	044021	1/4-20 KEPS NUT
14	28	053006	1/4-20 X 3/4 RHSSN BOLT
15	4	046115	3/8-16 X 1 1/4 HHCS
16	8	047016	3/8 SAE FLAT WASHER
17	4	044038	3/8-16 NYLOCK NUT
18	16	041021	10-24 X 1/2 RHMS
19	2	660170	DOOR HOLDER

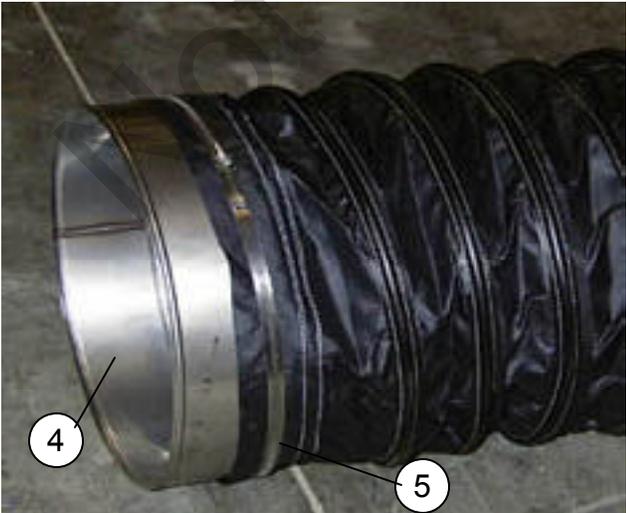
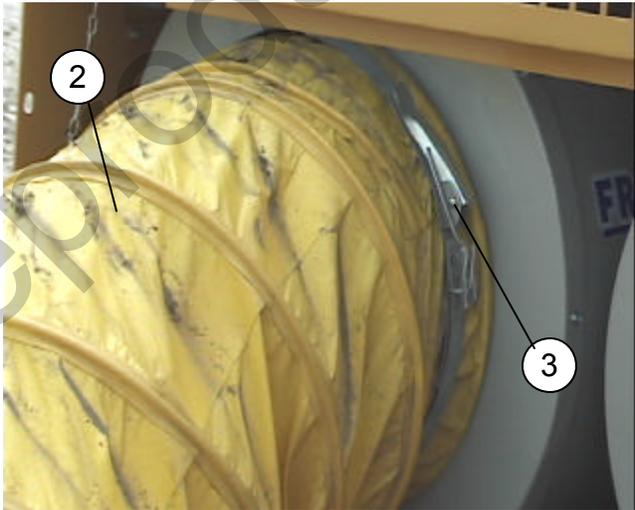
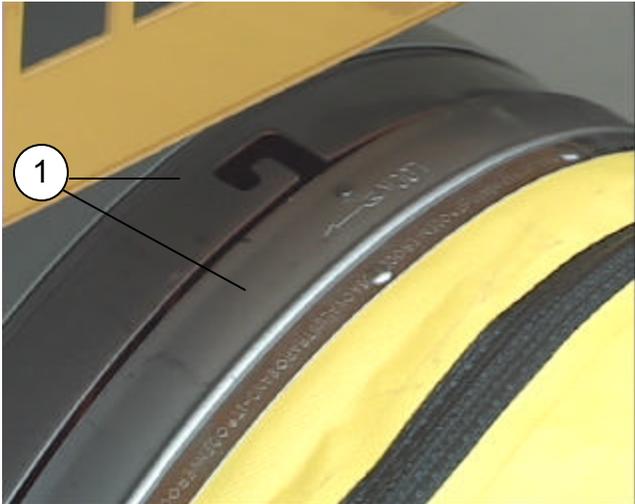
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OPTIONAL PARTS AND ACCESSORIES

D-2A



OPTIONAL PARTS AND ACCESSORIES

D-2B

REF#	PART#	DESCRIPTION
1	848974	16" SLIP LOCK CONNECTOR
2	848172	HEATER DUCT 16" X 20'
NS	848173	HEATER DUCT 12" X 24'
3	848174	16" OVER CENTER BAND CLAMP
NS	848175	12" OVER CENTER BAND CLAMP
4	848976	16" CONNECTING BAND
5	848176	16" SCREW CLAMP
NS	848177	12" SCREW CLAMP

LEGEND: NS = Not Shown

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Not for Reproduction

DECALS

E-1A

PART#	QTY	DESCRIPTION
848981	1	MAXI-HEAT DECAL SET, COMPLETE (INCLUDES ALL OF THE DECALS LISTED BELOW)
848970	1	MAXI-HEAT STRIPE DECAL SET, COMPLETE
090108	2	DECAL - HOT, DO NOT TOUCH
830175	2	GRIPTAPE, FENDER
090120	1	DECAL - 40' DUCT ONLY
090122	1	DECAL - DIESEL ONLY
090023	1	DECAL - WARNING, FAILURE TO USE
090113	1	DECAL - FUEL AND LUBE
090107	1	DECAL - HEATER OPERATING INSTRUCTIONS
090304	1	DECAL - ENGINE START PROCEDURE
090142	1	DECAL - DO NOT OPERATE INSIDE
090143	1	DECAL- DO NOT OPERATE
090180	1	DECAL - WARNING, NOZZLE SIZE
090179	1	DECAL-PROPOSITION 65 DIESEL
090133	1	DECAL-GROUND LUG
090367	1	DECAL-BURNER TUNING
090212	1	DECAL-OPERATORS MANUAL

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LIMITED WARRANTY

ALLMAND MAXI-HEAT® LIMITED WARRANTY UNITED STATES and U.S. TERRITORIES

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED INCLUDING WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR PURPOSE, AND ANY EXCEPTIONS ARE DESCRIBED IN THE PUBLISHED LIMITED WARRANTY ADDENDUM, AVAILABLE UPON REQUEST.

COMPONENTS, SUB-ASSEMBLIES, AND DEVICES MANUFACTURED BY OTHER MANUFACTURERS ARE NOT COVERED BY THIS WARRANTY. ALL WARRANTY INFORMATION FROM SUCH OTHER MANUFACTURERS IS PROVIDED WITHIN OR ACCOMPANY THESE GOODS.

Subject to the foregoing, the manufacturer, Allmand Bros. Inc., hereby warrants all equipment manufactured by Allmand Bros. Inc. to be free from defects in material and workmanship for a period of (1) year after delivery to the original purchaser. Additionally, Allmand Bros. Inc. hereby warrants all replacement parts supplied by Allmand Bros. Inc. to be free from defects in material and workmanship for a period of 90 days after date of invoice. Delivery shall be deemed for the purposes of this warranty to have occurred no later than five days following the date of sale agreement or invoice unless the purchase agreement or invoice specifically states a later delivery date in which case such delivery date shall control. The original purchaser shall be deemed to be a person who places the goods or products in actual use, and any person holding such goods solely for wholesale or retail sale purposes shall not constitute an original purchaser. PROVIDED, any leasing of these goods or other use beyond normal demonstration of same shall be deemed to be in use by an original purchaser and all warranty periods shall commence at the time of such use. During the warranty period any defective goods or parts hereof shall be repaired or replaced at manufacturer's discretion. In the event it is necessary to return such goods or parts to the factory, all transportation charges shall be prepaid. The manufacturer shall in no event pay mileage expenses, but will warrant outbound ground freight.

The obligations of the manufacturer is solely to repair or replace defective goods or parts or to refund the cost of the same if it is determined by the manufacturer that repair or replacement will not return the goods to proper working order or utility. **THE REMEDIES SET FORTH HEREIN ARE EXCLUSIVE AND MANUFACTURER SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES. THE OBLIGATIONS OF THE MANUFACTURER HEREUNDER SHALL IN NO WAY EXCEED THE PRICE OF THE EQUIPMENT OR PART UPON WHICH SUCH LIABILITY IS BASED.**

The warranty shall not extend to tires, lamps, batteries, or parts that have been altered, changed, damaged, or improperly installed, repaired, operated or maintained. Provided, this exclusion shall not apply to installations, repairs or other work done at the manufacturer's plant or under direct manufacturer's supervision. The Operator's Manual, to the extent covered therein, is deemed to set forth the proper procedures for operation, repair, installation, and maintenance of these goods.

No representative, dealer or distributor of the company is authorized to make any changes or exceptions to this warranty unless expressly authorized in writing from the manufacturer. All warranty claims must be filed within forty-five (45) days of the failure.

ALLMAND BROS. INC., 1502 W 4TH AVENUE, P.O.BOX 888, HOLDREGE, NE 68949 (308) 995-4495

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