



Owners Manual

Model RMP 104



**Congratulations on your purchase of the RigMaster Auxiliary Power Unit.**

RigMaster is a totally self contained, stand-alone AC generator, Air Conditioner and Heater System. The only items that are shared with your Truck Systems are fuel and battery supply. The RigMaster unit also trickle charges the Truck batteries while in operation.

Superior design and performance have been incorporated into this product to give you trouble-free, economical operation. We are confident you will be satisfied with your new RigMaster Auxiliary Power Unit.

The following pages contain design features, principles of operation, preventative maintenance procedures and trouble shooting guides. Please review it carefully prior to starting and operating your RigMaster Unit.

Should you have any questions or concerns please contact you're nearest authorized RigMaster Power Dealer, or RigMaster Power Corporation Product Support Group at:

**1-888-208-3101**

(For technical support only)

## TABLE OF CONTENTS

- Principals of Operation:
  - Heater (Pg 4)
  - Air Conditioner (Pg 6)
  - 110 Volt Generator (Pg 7)
  - Pre-Start Inspection (Pg 8)
- Control Panel Description and Operating Procedures (Pg 9)
- Error Message Listing (Pg 15)
- Fuel System Description and Bleeding Procedures (Pg 16)
- Preventative Maintenance Schedules (Pg 19)
- Consumable Parts Cross Reference List (Pg 20)
- Normal Maintenance and Adjustments Instructions (Pg 41)
  - Oil Change Instructions (Pg 21)
  - Generator Belt Removal/Adjustment (Pg 22)
  - Compressor Belt Removal/Adjustment (Pg 23)
  - Fan Belt Removal/Adjustments (Pg 24)
  - Breaker Reset Instructions (Pg 25)
- Main Components and Part Locations (Pg 26)
- Cleaning Instructions (Pg 27)
- Trouble Shooting Guide (Pg 30)
- Installation (Pg 38)
- Warranty (Pg 39)
  - RigMaster Limited Warranty (Pg 40)
  - 12 Month Warranty Coverage (Pg 40)
  - Warranty Obligations (Pg 40)
  - Disclaimer Of Other Warranties (Pg 40)
  - Maintenance (Pg 40)
  - Installation (Pg 41)
  - Warranty Voided Or Terminated (Pg 41)
  - Exclusions For Limited Warranty (Pg 41)
  - Limitation Of Remedies (Pg 41)
  - Indemnity (Pg 41)
  - Transfer Of Warranty (Pg 42)
  - Customer Assistance Procedure (Pg 43)

Maintenance Record (Pg 44)

Notes (Pg 47)

## HEATER, AIR CONDITIONER, 110V GENERATOR

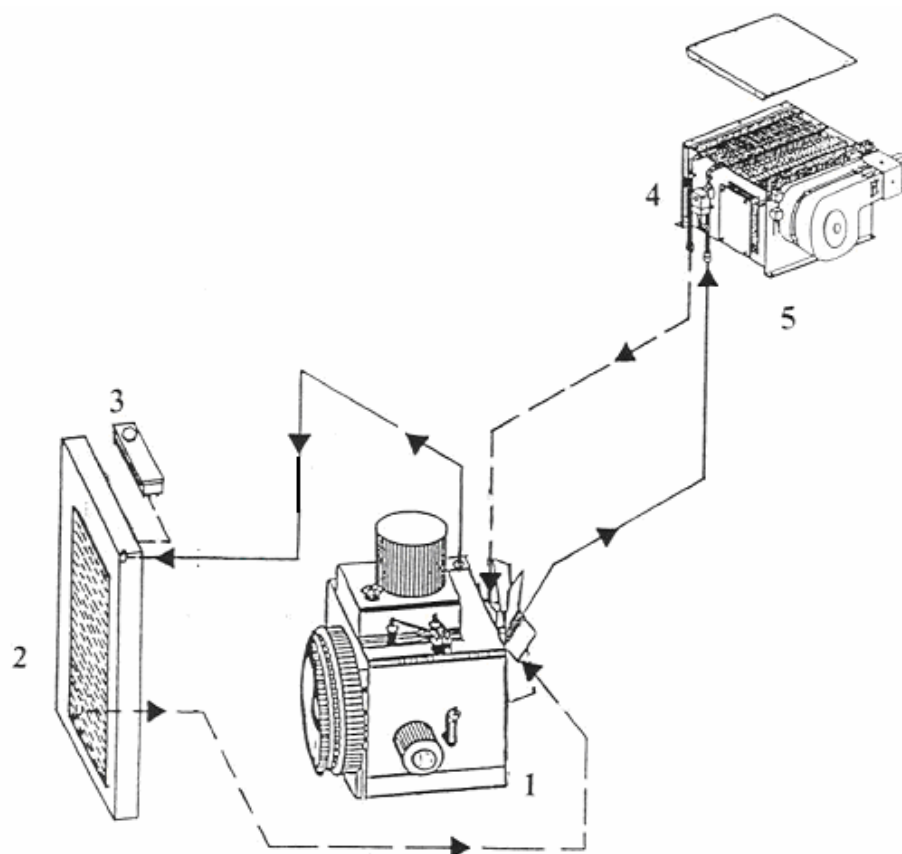
### HEATER

The RigMaster heating system is fully automatic. A constant comfort zone is maintained with the temperature selector (see Climate Control Operation - Page 10). The bunk heating system has a capacity of 12,000 BTU's. This is a complete stand alone system that is not integrated into the vehicle's cooling system. When heat is selected, and the RigMaster is in operation, the hot coolant flows through the heater core (installed under the bunk see Figure 1).

The heater/air conditioner blower motor (fan) circulates the cab air through the heater core pushing warm air into the bunk area. The coolant is then re-circulated back to the RigMaster Unit.

**NOTE:** PLUGGING IN THE BLOCK HEATER PLACES A LOAD OF APPROXIMATELY 1,500 WATTS ON THE ENGINE, THIS LOAD ENABLES THE ENGINE TO HEAT THE COOLANT.

This system is designed to maximize the bunk heating efficiency.



HEATER - FIGURE 1

**Legend:**

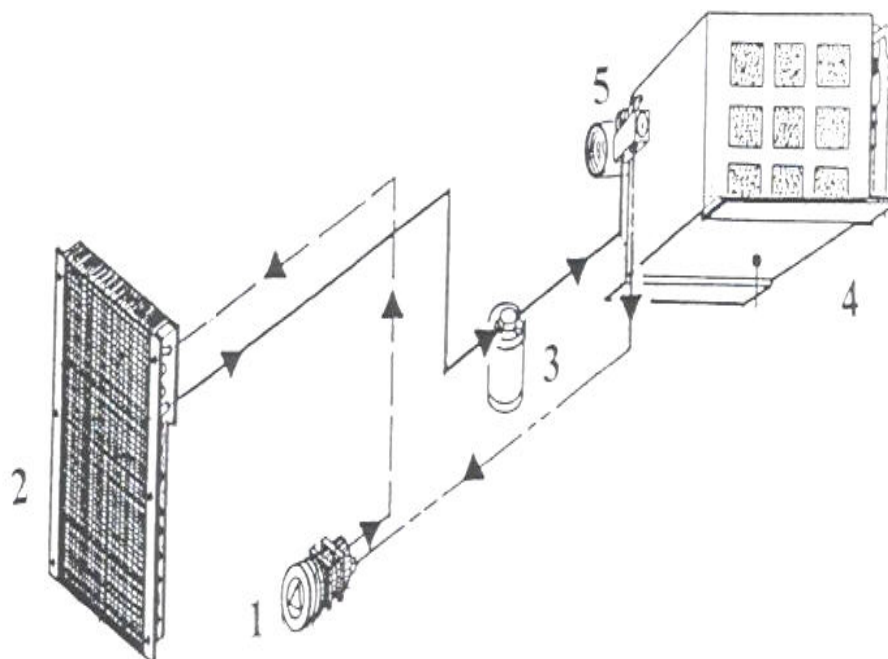
- Hot Coolant Supply
- Cold Coolant System
- 1) Engine
- 2) Radiator
- 3) Fill/Expansion Reservoir
- 4) Flow Control Valve
- 5) Heater/Air Conditioner Unit

## AIR CONDITIONER

The RigMaster air conditioner is fully automatic. A constant comfort zone is maintained with the temperature selector setting (see Climate Control Operation - Page 9). The RigMaster air conditioner is a R134A system that is not integrated into the vehicle's existing air conditioning system.

**WARNING:** ONLY CERTIFIED AIR CONDITIONING TECHNICIANS SHOULD SERVICE THE AIR CONDITIONER.

The compressor within the RigMaster unit pumps the refrigerant gas through the condenser that dissipates the heat and changes the refrigerant from a gas to a liquid. the liquid refrigerant passes through a filter (receiver dryer), and then through the evaporator core located in the bunk heater/air conditioner unit. The heater/air conditioner blower motor (fan) then activates and cool, dry air is then forced into the bunk area.



**AIR CONDITIONER - FIGURE 2**

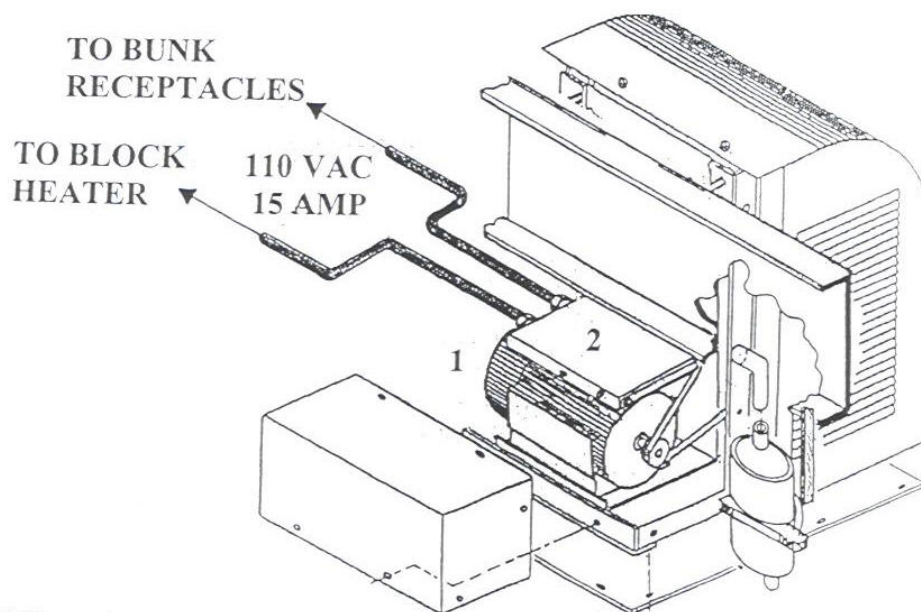
### **Legend:**

---- High Pressure Gas  
—— High Pressure Liquid  
- - - Low Pressure Gas

1) Refrigerant Compressor  
2) Condenser  
3) Receiver Dryer  
4) Heater / Air Conditioner Unit  
5) Expansion Valve

## 110-VOLT GENERATOR

The 4kw heavy-duty generator is located at the rear of the RigMaster unit and is belt driven at 3600 RPM. The generator has two (2) factory supplied cords. One (1) block heater cord (complete with a plug), allows the generator to be plugged into the vehicle's block heater. This ensures that the vehicle's main engine will be warm when starting in cold weather. This provides a load on the RigMaster engine that allows the unit to run more efficiently and prolong the RigMaster's service life. The block heater connection uses one (1) - 15 AMP breaker. It is recommended that the RigMaster remain plugged into the vehicle's block heater throughout the winter months and unplugged for the spring and summer months. A second 15 AMP supply of 110V power is supplied for the owner/operator convenience. A multiple outlet cord is supplied and can be installed in the bunk area of the vehicle to provide power for 110V appliances.



### Legend:

- 1) 4KW VAC Generator
- 2) Connection Box c/w two (2) 15 AMP Breakers: one (1) for the Block Heater; and one (1) for the Bunk Cord.

## GENERATOR - FIGURE 3

**NOTE:** Each 15 Amp Breaker has a capacity of 1800 Watts

## **PRE-START INSPECTION**

### WITH THE RIGMASTER TURNED OFF

- 1) Remove the cover.
- 2) Visually inspect the unit for evidence of oil or coolant leakage.
- 3) Check the oil and add oil if necessary.
- 4) Check the tension and wear of all belts.
- 5) Check the mounting bolts and tighten if necessary.
- 6) Check for broken, corroded, or loose connectors and/or wires.
- 7) Check the physical condition and tightness of all hoses and hose clamps.
- 8) Replace and secure the cover.



## CONTROL PANEL OPERATING PROCEDURES



CONTROL PANEL-FIGURE 4

- 1 The LCD module display is used to prompt the user through each operating mode. The display will back light when the user touches any key and will turn off if not used for 30 seconds. If the status light is glowing red the LCD will display an error message directing you to the problem. Please refer to the Error Message Listing for further information.
- 2 The STATUS light indicates when the cabin controller is active or an error message. While the RigMaster is running the status light will glow green to indicate the system is operating smoothly. The status light will glow red if the system experiences any problems.
- 3 The POWER key controls whether the module is active. Pushing the Power key will turn on the LCD backlight and activate the menu display.
- 4 The MODE key is used to activate the different operational modes.  
**NOTE:** Pressing the mode button will back you out of a menu mode but does not save the information inputted when entering operational data.  
  
Pressing the select button will save the information inputted when entering operational data.
- 5 The arrow keys are used to locate the desired data and/or adjust those values.
- 6 The SELECT key enters the data and advances the program to the next menu step.  
  
**NOTE:** Pressing the select button will save the information inputted when entering operational data.

## OPERATION OF THE CABIN CONTROLLER

### To Turn Power On

When the power switch is activated the LCD display will light and show the day of the week and time on the top line and the system status (on/off) as well as the temperature setting on the bottom line.

If there is no activity on the RigMaster Unit and the auxiliary engine is not running, the unit will enter low power mode. In low power mode the LCD shows the day of the week and date on the top line and the time and total hours of operation on the bottom line. The status LED is turned off. All non critical functions of the system are turned off. Press the power switch to exit low power mode.

### Clock & Date Set Up

Press MODE to return to menu without saving.

It is necessary to enter and date programming mode if the module has never been programmed or a different time zone is required.

Press MODE key.

Press UP or DOWN arrow keys to find Set Time/Date mode on the display.

Press SELECT

Press UP or DOWN arrow to find Set Time

Press SELECT: *Clock hour* will start flashing.

Press UP or DOWN arrow to adjust *Clock hour* as required.

Press SELECT: *Clock hour* will stop flashing and *Clock minutes* will start flashing.

Press UP or DOWN arrow to adjust *Clock minutes* as required.

Press SELECT: *Clock minutes* will stop flashing and *am/pm* will start flashing.

Press UP or DOWN arrow to change as required.

Press SELECT to save settings and return to menu

### To Set Date

Press MODE key.

Press UP or DOWN arrow keys to find Set Time/Date mode on the display.

Press SELECT

Press UP or DOWN arrow keys to find Set Date mode.

Press SELECT: *Month* will start flashing.

Press UP or DOWN arrow keys to find the correct month.

Press SELECT: *Month* will stop flashing and *calendar date* will start flashing.

Press UP or DOWN arrow keys until correct date appears.

Press SELECT to save settings and return to menu.

Press MODE to return to menu without saving.

## To Set Day

Press MODE key.

Press UP or DOWN arrow keys to find Set Time/Day/Date mode on the display.

Press SELECT

Press UP or DOWN arrow keys to find Set Day mode.

Press SELECT

Press UP or DOWN arrow keys to find the correct day of the week.

Press MODE to return to menu without saving.

Press SELECT to save settings and return to menu.

Press MODE twice to back out of the menu, then press the POWER button to check the date and time. The correct time and date should now be displayed on the bottom line of the LCD.

## Engine Start

Press MODE key.

Press UP or DOWN arrow to find Start/Stop System mode on the display.

Press SELECT

The words Start System will display on the screen for 5 seconds.

The control panel will display the status of the operation as it occurs: after SELECT is pressed the words Glow Plug and a countdown will display on the screen. (The countdown will start at 15, the default value; this value is programmable in 4 different temperature ranges using the hardware and software options menu). Once the countdown is complete the display will read Cranking as the RigMaster starts up. Once started the control will display Engine Running for 5 seconds and then return to status screen. (Pressing SELECT again will return the display to the status screen immediately.)

## Engine Stop

Press MODE key.

Press UP or DOWN arrow to find Start/Stop System mode on the display.

Press SELECT

The words Stop System will display on the screen for 5 seconds.

The screen will initially display Engine Running and then change to Engine Stopped once the operation is complete. The control will return to the status screen when SELECT is pressed or after 5 seconds.

## Temperature Control

Press MODE key.

Press UP or DOWN keys to find the Set Temperature mode on the display.

Press SELECT

Press UP or DOWN keys to find your temperature preference.

**NOTE:** Temperature control ranges from 65°F to 85°F

Press SELECT to save settings and return to menu.

The system will remember the last set temperature when the RigMaster is turned on.

Press MODE to return to menu without saving.

## Fan Speed Control

Press MODE key.

Press UP or DOWN keys to find the Set Fan Speed mode on the display.

Press SELECT

Press UP or DOWN keys to locate automatic on, automatic off, off, low, medium or high.

Press MODE to return to menu without saving.

Press SELECT to save settings and return to menu.

**NOTE:** If the power was disconnected from the power module the system will remember the fan speed setting.

The air conditioning/heating will start when the fan speed is set. To stop air conditioning/heating the fan speed must be set to OFF. If the system was stopped by another method the air conditioning/heating will start immediately when the system is restarted.

## Set Alarm Clock

Press UP or DOWN arrow to change as required.

Press SELECT

Press UP or DOWN arrow to turn Alarm clock on/off.

Press MODE to return to menu without saving.

Press SELECT to save settings and return to menu. Press MODE key.

Press UP or DOWN arrow keys to locate Set Alarm Clock mode on the display.

Press SELECT key: Alarm Clock hour will start flashing.

Press UP or DOWN arrow to adjust Alarm Clock hour as required.

Press SELECT: Alarm Clock hour will stop flashing and Alarm Clock minutes will start flashing.

Press UP or DOWN arrow to adjust Alarm Clock minutes as required.

Press SELECT: Alarm Clock minutes will stop flashing and am/pm will start flashing.

The Alarm symbol ‘\*’ will appear on the screen to indicate that the alarm is on.

When the alarm clock goes off pressing the SELECT button will cancel the alarm and remove the alarm symbol from the screen.

Note: If the alarm is not turned off manually it will ring for 1 minute and then “snooze” for 4 minutes before sounding again.

## **AUTOSTART CONTROL OPTION**

(purchased separately)

### **Auto Start Option Features**

**Auto Start Time and Date Programming** –allows you to program the Auto-start to the exact date and time you need your RigMaster to start automatically up to 7 days in advance. If you are setting the time and date auto start feature to heat or cool the bunk you must make sure your fan speed and temperature settings are programmed. E.g. Fan speed set to high, med, low, automatic on, automatic off, and the temperature is set to desired temperature.

**NOTE:** If your RigMaster is running on another auto start program, e.g. temperature auto start or low battery auto start program and surpasses the time and date set for auto start then the unit will not start on this program. There is a 3 hour maximum run time on this program.

If you are setting the Auto-start Temp to heat the bunk, the unit will start at 6 degrees below the set temperature and run until set temperature is reached, then shut off.

If you are setting the Auto-start Temp to cool the bunk, the unit will start at 6 degrees above the set temperature and run until set temperature is reached, then shut off.

**Automatic Temperature Control Start Up/Shut Down**-will start and stop the RigMaster to regulate the temperature giving you further fuel savings on extended absences from the cab.Great for pets.

**NOTE:** Fan speed has to be set to **low, medium, high, automatic off, or automatic on** before the engine will shut down when using the auto start feature. The engine will not shut down if the fan setting is set to off.

**Low Battery Start Up**-automatically starts up the RigMaster to charge the truck batteries if they get below 12 volts  $\pm$  0.2 volts. **Note:** The engine will shut down after 20 minutes of charging. The engine will restart if the batteries are still below 12 volts  $\pm$  0.2 volts.

**NOTE:** Once the Auto-start feature has been programmed into your RigMaster this feature overrides and replaces the Low-Battery Alarm feature unless this feature is set to off.

**NOTE:** Once the Rigmaster starts on low battery auto start, it will not operate any system other than the engine, charging system, and the generator ( which provides 110 power to the bunk and block heater) regardless of fan speed and temperature settings.

**NOTE:** The auto start feature will need to be reset if any buttons are touched on the control panel after the first start up on any of the auto start programs.

### **Program Auto Start Code**

When you purchase the AutoStart Feature you will be provided with a 4 character code which is a series of numbers and/or digits that must be first be programmed in through your control panel before the feature can be used.

Ensure the RigMaster is in low power mode. **OFF**

Press and hold the MODE and SELECT at the same time for 5 seconds.

Press UP or DOWN to locate the first character in the code

Press SELECT to enter the information

Continue entering the code in the above manner until all four characters have been selected.

**NOTE:** The controller will tell you at this time if the code has been accepted.

Press SELECT to return to the main menu.

### **Set Auto Start Timer**

Press MODE key.

Press UP or DOWN keys to locate the Set Autostart mode on the display.

Press SELECT: Set Time Autostart will appear on the screen

Press SELECT: AutoStart Day will start flashing.

Press UP or DOWN arrow to adjust AutoStart Day as required.

Press SELECT: AutoStart day will stop flashing AutoStart hour will start flashing.

Press UP or DOWN keys to adjust AutoStart hour as required.

Press SELECT

Continue to set the AutoStart Minutes and am/pm as you would set the clock.

Press SELECT after each entry.

Press UP or DOWN to locate On/Off.

Press MODE to return to menu without saving.

Press SELECT to save settings and then press the MODE key to back out of the system.

Once you have programmed the Auto Start Timer a '#' symbol will appear on the screen to show that the Auto Start has been engaged.

### **Set Auto-Temperature Start-Up**

Press MODE key.

Press UP or DOWN keys to locate the Set Autostart mode on the display.

Press SELECT: Set Time Autostart will appear on the screen

Press UP or DOWN arrow keys to locate Set Temperature Autostart

Press SELECT

Press UP or DOWN arrow keys to turn On/Off auto temperature start up.

Press MODE to return to menu without saving.

Press SELECT to save settings and return to menu.

### **Set Low Battery Auto Start-Up**

Press MODE key.

Press UP or DOWN keys to locate the Set Autostart mode on the display.

Press SELECT: Set Time Autostart will appear on the screen

Press UP or DOWN arrow keys to locate Set Low Battery Autostart

Press SELECT

Press UP or DOWN arrow keys to turn On/Off low battery auto start up.

Press MODE to return to menu without saving.

Press SELECT to save settings and return to menu.

Once turned on, low battery auto start will engage when the battery voltage level is low.

**NOTE:** If the batteries are detected below 12 volts  $\pm$  0.2 volts the engine will start & run for a max time of 20 minutes.

# **ERROR MESSAGES LISTING**

Error Code	Displayed Error	Description
1	Safety Cover Open	Safety cover of RigMaster unit is open. Auxiliary engine will not start or run until the cover is closed.
2	Oil Pressure Low	Alarm, low oil pressure. Auxiliary engine would start but will not continue running unless oil pressure becomes normal with 60 seconds of engine start.
3	Battery Voltage Low	Alarm, low battery voltage-start system immediately.
4	Engine Run Failure	Engine started but did not run properly. Manual start attempts can occur.
5	Engine Overheated	Engine will not run until temperature becomes normal.
6	Electrical Problem	Engine will not start until the system is powered down and the problem has been fixed.
7	Engine Start Failure	Engine did not start. Automatic start is disabled until operator presses select button.
8	No Communication Error	Communication between control panel and power module is lost. Engine will not start or run until communication is re-established.
9	Main Engine Running	Truck main engine is running. RigMaster unit will not run if the main engine is already running.
10	Maximum Run Time Shutdown	The engine was shut down since the maximum run time has been exceeded.
11	Check Power Module Fuse	Very low battery voltage detected, check and replace the fuse if required.
12	Battery Charging Failure	Battery voltage still low 2 minutes after cranking. Auto and manual starts can occur.
13	Battery Discharged	Alarm, system will enter low power mode. Auto and manual starts cannot occur.
14	Check External Temperature Sensor	External temperature sensor disconnected from the power module.
15	External Temp Disable Limit	Engine shut down since the external temperature is outside the programmed range.
16	Invalid Power Module Version	Incompatible versions of the power module and the cabin module.
17	Power Up	Displayed when the power module is starting up.

## FUEL SYSTEM

The RigMaster incorporates a low/high pressure system. In order to prevent the vehicle engine from drawing the fuel from the RigMaster's fuel supply line, an in-line check valve is mounted at the point of connection on the vehicle's suction fitting and the RigMaster unit.

The RigMaster fuel supply line is connected to the Perkins engine feed pump, which in turn supplies fuel to the filter/sediment bowl assembly and then in turn to the injection pump.

**NOTE:** THIS TYPE OF FUEL SYSTEM DOES NOT DE-AIRATE ITSELF.

All air must be bled from all of the hoses and components. There are air bleed screws located in the fuel filter head assembly and on the inlet fitting of the injection pump.

## BLEEDING PROCEDURES

### LOW PRESSURE SYSTEM

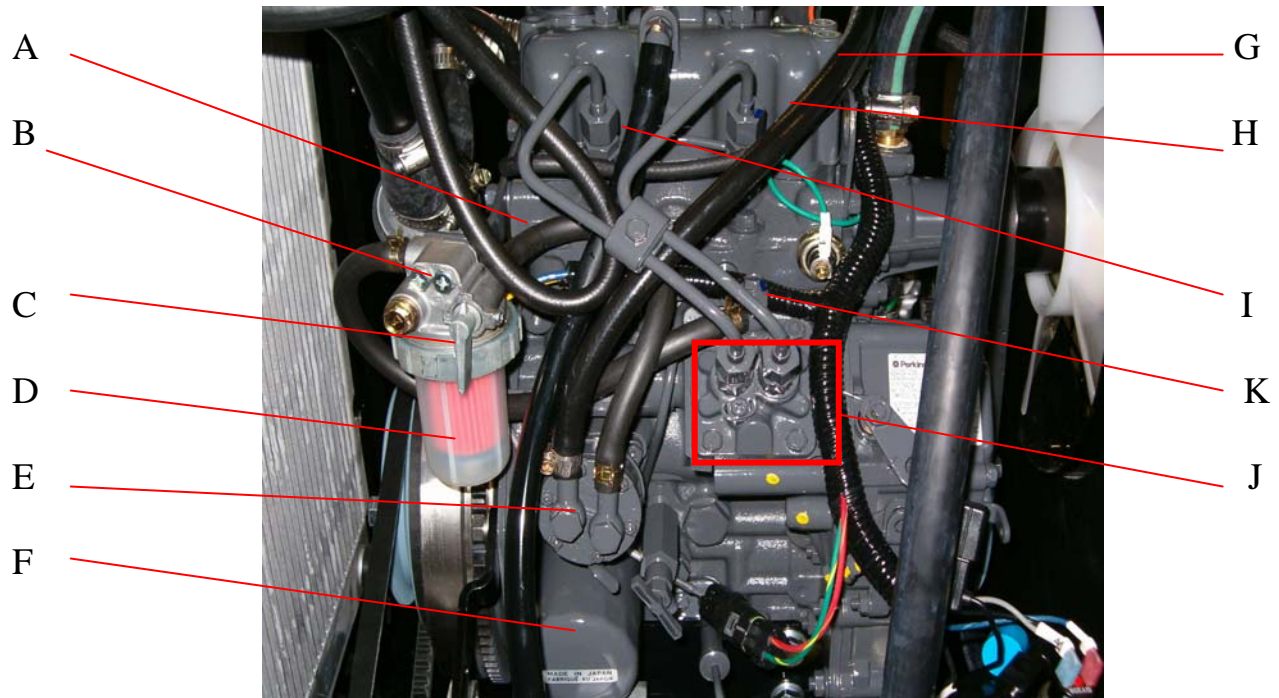
**NOTE:** THE LOW PRESSURE SYSTEM MUST BE COMPLETELY FREE OF AIR BEFORE THE HIGH PRESSURE SYSTEM CAN BE BLED PROPERLY.

- a) Position a container or shop wiper under the fuel sediment bowl in order to contain any spillage of fuel.
- b) Using a Philips screwdriver, loosen the right hand bleed screw located in the fuel filter head (Location B).
- c) Prime the fuel system using the manual primer pump lever located on the fuel feed pump (Location F).
- d) Continue to pump until the sediment bowl is full and clear flow of fuel is present at the bleed screw.
- e) Tighten the bleed screw in the fuel filter head (Location B).
- f) Loosen the air bleed screw on the inlet to the injection pump (Location K).
- g) Operate the manual primer pump lever until a clear stream of fuel is present from the bleed screw (Location K). Ensure that that fuel bowl (Location D) is
- h) free of air.
- i) Carefully tighten the bleed screw.

### CAUTION

DO NOT OVER-TIGHTEN THIS BLEED SCREW AS DAMAGE MAY RESULT





**FUEL SYTEM - FIGURE 5**

**Legend:**

- A) Filter Feed Hose
- B) Air Bleed Screw (Filter Housing)
- C) Shut-Off Valve
- D) Fuel Filter Element and Fuel Bowl
- E) Fuel Supply Pump - Feed Pump
- F) Manual Primer Pump Lever (Fuel Supply Pump)
- G) Fuel Supply Hose
- H) Fuel Return Hose (Injector Bleed-off)
- I) Fuel Injector Nozzles
- J) Fuel Injection Pump
- K) Air Bleed Screw (Injection Pump)
- L) Injector Pump Feed Line

## **BLEEDING PROCEDURES**

### **HIGH PRESSURE SYSTEM** (see Figure 5)

**NOTE:** THE LOW PRESSURE SYSTEM MUST BE COMPLETELY FREE OF AIR BEFORE THE HIGH PRESSURE SYSTEM CAN BE BLED PROPERLY.

**NOTE:** IT IS RECOMMENDED THAT A SECOND PERSON ASSIST IN THE PERFORMANCE OF STEPS #1, #2, #3, #6 AND #7. NEVER DISABLE OR BY-PASS THE SAFETY DEVICE.

- 1) Have a helper hold down the safety cover switch located on the unit.
- 2) Loosen both high-pressure line nuts located at the injectors (Location I).
- 3) Start system using method described on Page 11.

**NOTE:** This procedure is meant only to remove air bubbles. Unit will not start with nuts loosened.

- 4) If the air bubbles are still present after 30 seconds of cranking, re-start with nuts loose.
- 5) Tighten the left injector line nut (Location I).
- 6) If the unit fails to start, Repeat steps 1 thru 5
- 7) As a final measure, it is recommended to bleed the fuel system with the engine running.
- 8) Slowly loosen one injector nut (left nut first -Location I) at a time and retighten quickly when engine speed drops. This will remove any remaining air. Be sure to tighten the first injector nut (left nut) before continuing to the next injector nut (right nut).

## **PREVENTATIVE MAINTENANCE**

Maintenance schedules listed below are for **NORMAL** road conditions and the specific hour intervals must be adhered to. For **SEVERE** conditions perform the scheduled maintenance(s) earlier.

SCHEDULED INTERVALS EVERY							MAINTENANCE ITEMS
50 hrs.	200 hrs.	400 hrs.	600 hrs.	800 hrs.	1000 hrs.	1600 hrs.	
•							Check coolant level. Top up with premixed coolant only.
				•			Check concentration of coolant.
						•	Renew coolant, (fill slowly, ensure correct quantity is used).
•							Check engine lubricating oil level.
	•						Renew engine lubricating oil, (fill slowly, ensure right quantity is used - 1.8 ltr. / 1.7 qt.).
	•						Renew engine oil filter.
			•				Renew fuel filter element.
	•						Check tension of drive belts.
	•						Check drive belts for wear.
			•				Renew drive belts.
		•					Check and clean heater/AC unit filter
				•			Remove LHS louver panel and Clean - blow out Condenser and Radiator (dry) with pressurized air.
		•					Wash out internal engine compartment, condenser, the air in-take RHS panel and the LHS exhaust panel.
			•				Check electrical systems.
			•				Check all nuts/bolts for tightness.
					•		Check injectors for performance.
		•					Renew air filter element / Standard filter.
					•		Renew air filter element / Long Life filter.
•	•	•	•	•	•	•	Check for and correct any leaks or engine damage.

**NOTE:** THESE PREVENTATIVE MAINTENANCE PERIODS APPLY TO AVERAGE CONDITIONS OF OPERATION. IF NECESSARY USE SHORTER INTERVALS.

**Note:** The first oil change should be performed after 50 hours of service and 200 hour intervals there after.

## **CONSUMABLE PARTS - CROSS REFERENCE LIST**

### **OIL FILTER**

<b><u>BRAND</u></b>	<b><u>PART No.</u></b>
Wix	51396
Perkins	140516250
AC Delco	PF1233
K-Mart Motorvator	K014477
Fram	PH4386
Baldwin	B37

### **AIR FILTER**

<b><u>BRAND</u></b>	<b><u>PART No.</u></b>
RigMaster/Mann	00-C1140
<b><u>ASSEMBLY</u></b>	
RigMaster	103002

### **FUEL FILTER**

<b><u>BRAND</u></b>	<b><u>PART No.</u></b>
Perkins	130366040
NAPA	3262
Wix	33262
Fram	C7516
Baldwin	PF937
AC Delco	GF771

### **FAN BELT**

<b><u>BRAND</u></b>	<b><u>PART No.</u></b>
RigMaster/Gates	10A0815
Dayco	54439
Goodyear	15320
Cummins	70757
Dunlop	V546
Mobil	15320

### **COMPRESSOR DRIVE BELT**

<b><u>BRAND</u></b>	<b><u>PART No.</u></b>
RigMaster/Gates	13A0875
Dayco	51009

### **GENERATOR DRIVE BELT**

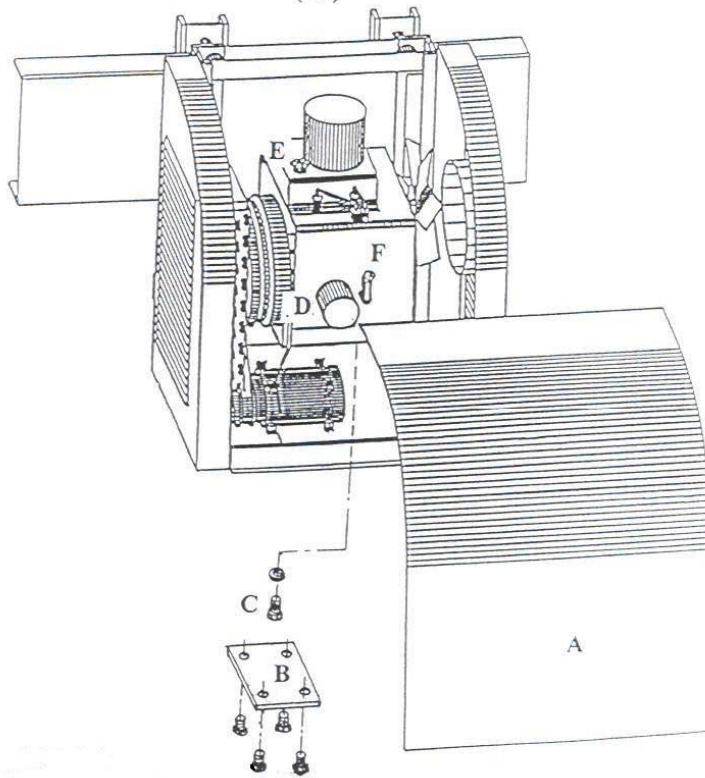
<b><u>BRAND</u></b>	<b><u>PART No.</u></b>
RigMaster	RP8-006
Gates (special)	3V420

### **GLOW PLUGS**

<b><u>BRAND</u></b>	<b><u>PART No.</u></b>
Perkins	185366060
RigMaster	RP12-078
NGK	Y-107-V

### **RECEIVER-DRIER**

<b><u>BRAND</u></b>	<b><u>PART No.</u></b>
RigMaster	RP9-027
Four Seasons	34334
Everco (UAP)	A78239



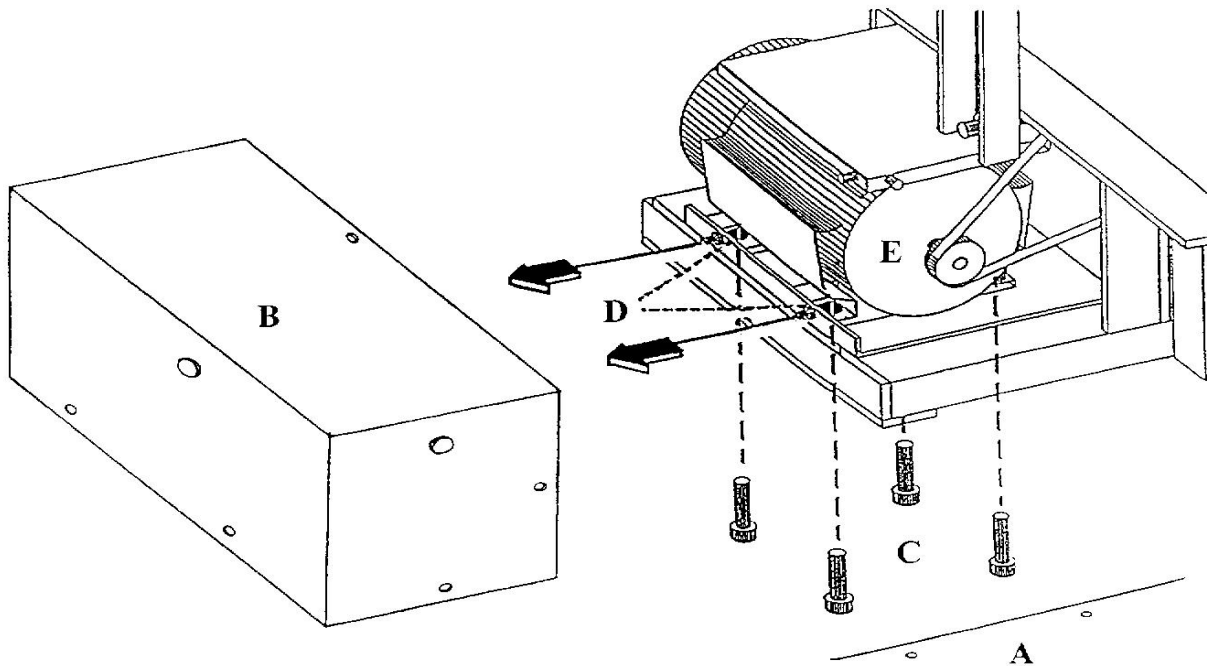
**OIL CHANGE - FIGURE 6**

**PROCEDURE:**

- 1) Remove Front Cover (A).
- 2) Remove Drain Plug Access Cover (B).
- 3) Remove Drain Plug (C).
- 4) Remove Oil Filter (D).
- 5) Install New Oil Filter.
- 6) Inspect Drain Plug Gasket and replace if needed
- 7) Install and Tighten Drain Plug.
- 8) Refill Engine with 1.8 liters (1.7 qts.) of New Engine Oil (E)\*\*
- 9) Check Oil Level with Dipstick (F).
- 10) Run RigMaster.
- 11) Recheck the Oil Level and Add Oil if necessary.

**\*\*NOTE:** Use only good quality lubricating oil which meets (and not exceeds) any of the following specifications - API CC/CD/CE/CF/CF-4/CG-4 - ACEA E1/E2/E3

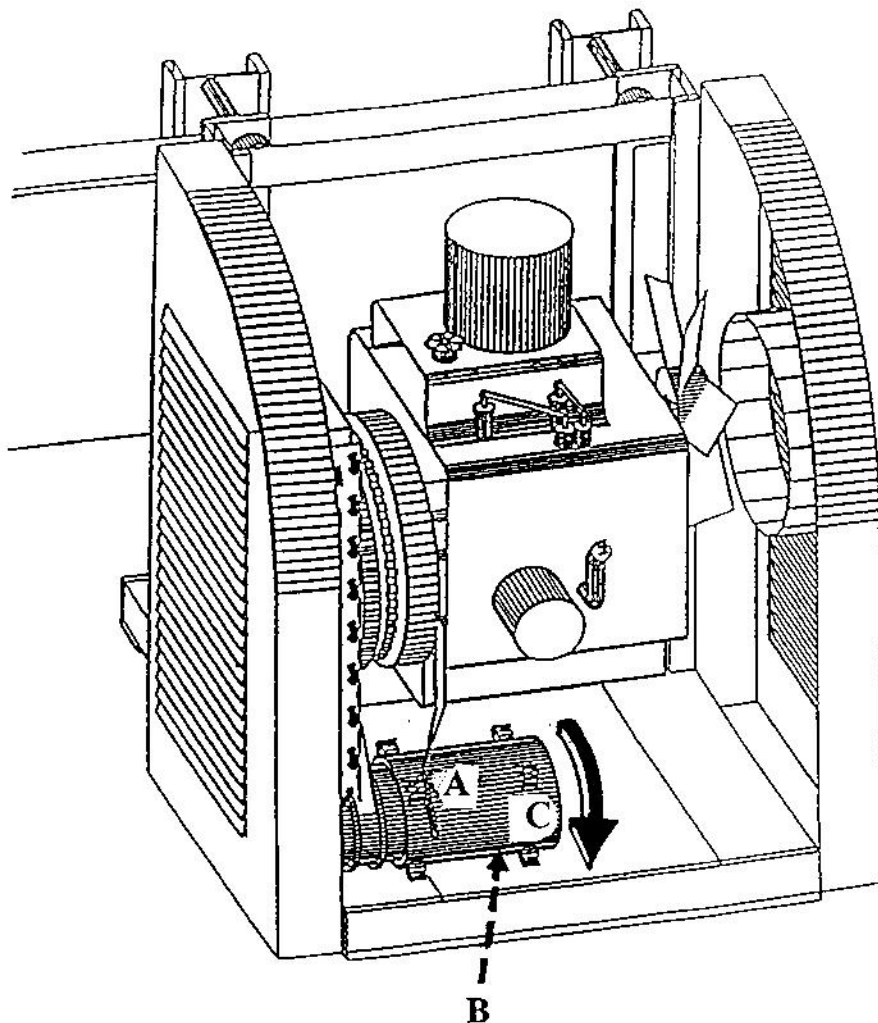
Recommended Viscosity Grades: 10W30 & 15W40 are most commonly used.



### **GENERATOR BELT REMOVAL / ADJUSTMENT - FIGURE 7**

#### **PROCEDURE:**

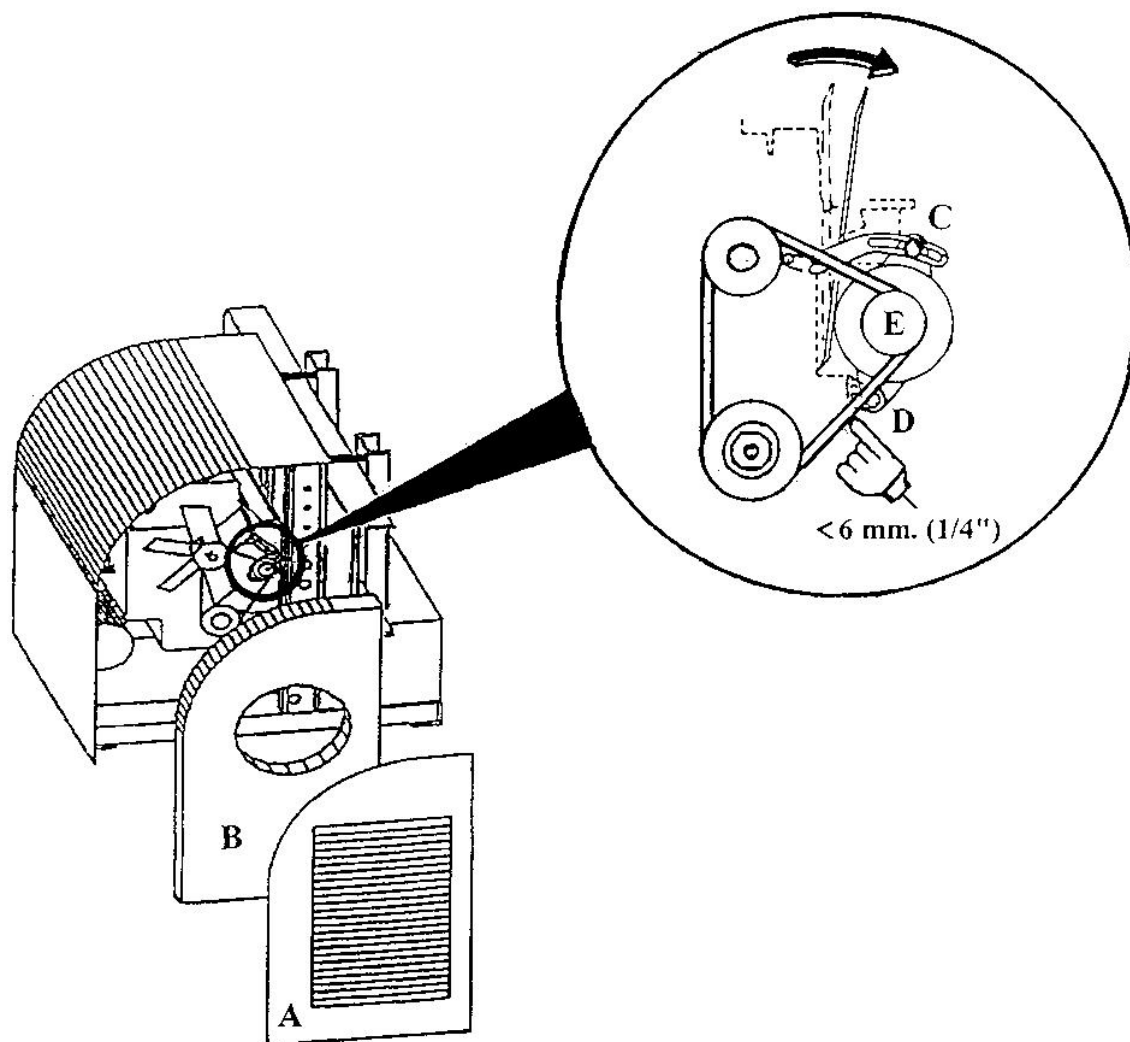
- 1) Remove Bottom Panel (A).
- 2) Remove Generator Cover (B).
- 3) To Replace the Generator Belt, First - Loosen and Remove the Compressor Belt (see Figure 8 for details).
- 4) LOOSEN, but DO NOT REMOVE, the four (4) Generator Mounting Bolts (C).
- 5) Using the Two Eye Bolts (D), Gently pull the Generator (E) outward and evenly in the direction of the Arrows until the Belt Deflection is Less than 12 mm.(1/2").
- 6) Tighten the four Generator Bolts (C), replace and adjust the Compressor Belt (see Figure 8 for details).
- 7) Replace the Generator Cover (B) and the Bottom Panel (A).



**COMPRESSOR BELT REMOVAL / ADJUSTMENT - FIGURE 8**

**PROCEDURE:**

- 1) Remove the Front Cover.
- 2) Loosen the Adjustment Bolt (A) and the Pivot Bolt (B).
- 3) Rotate the Compressor (C) in the direction of the Arrow until the Belt Deflection is Less than 6 mm. (1/4").
- 4) When the Belt is sufficiently tight, tighten the Adjustment Bolt (A), and then tighten the Pivot Bolt (B).

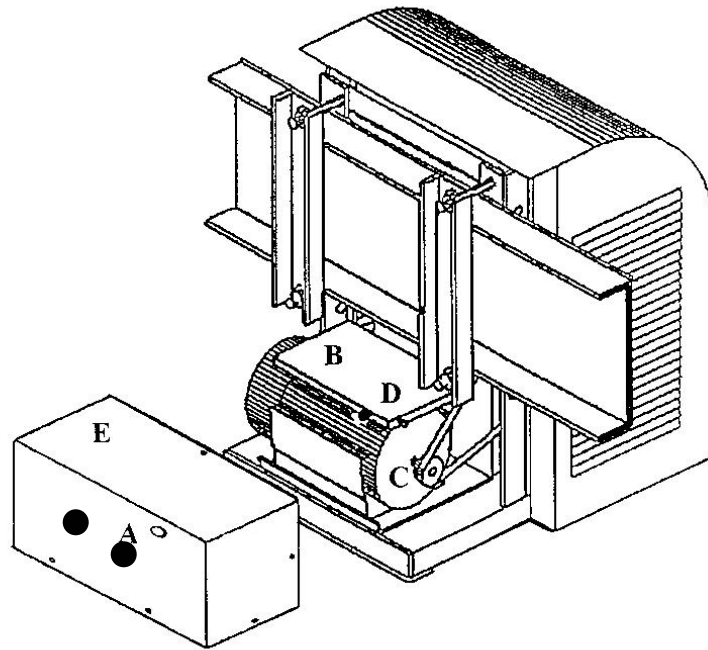


**FAN BELT REMOVAL / ADJUSTMENT - FIGURE 9**

**PROCEDURE:**

- 1) Remove the Right Hand Louver Panel (A) and the Right Hand Side Panel (B).
- 2) Loosen, but DO NOT REMOVE, the Adjustment Bolt (C) and the Pivot Bolt (D).
- 3) To Remove the Fan Belt, slide the Alternator Pulley (E) outward towards the front of the unit. Replace the Fan Belt.
- 4) To Adjust the Fan Belt, slide the Alternator Pulley (E) in the direction of the Arrow (inward) until the Belt Deflection is less than 6 mm. (1/4").
- 5) When the Fan Belt is tight, tighten the Adjustment Bolt (C) and the Pivot Bolt (D).





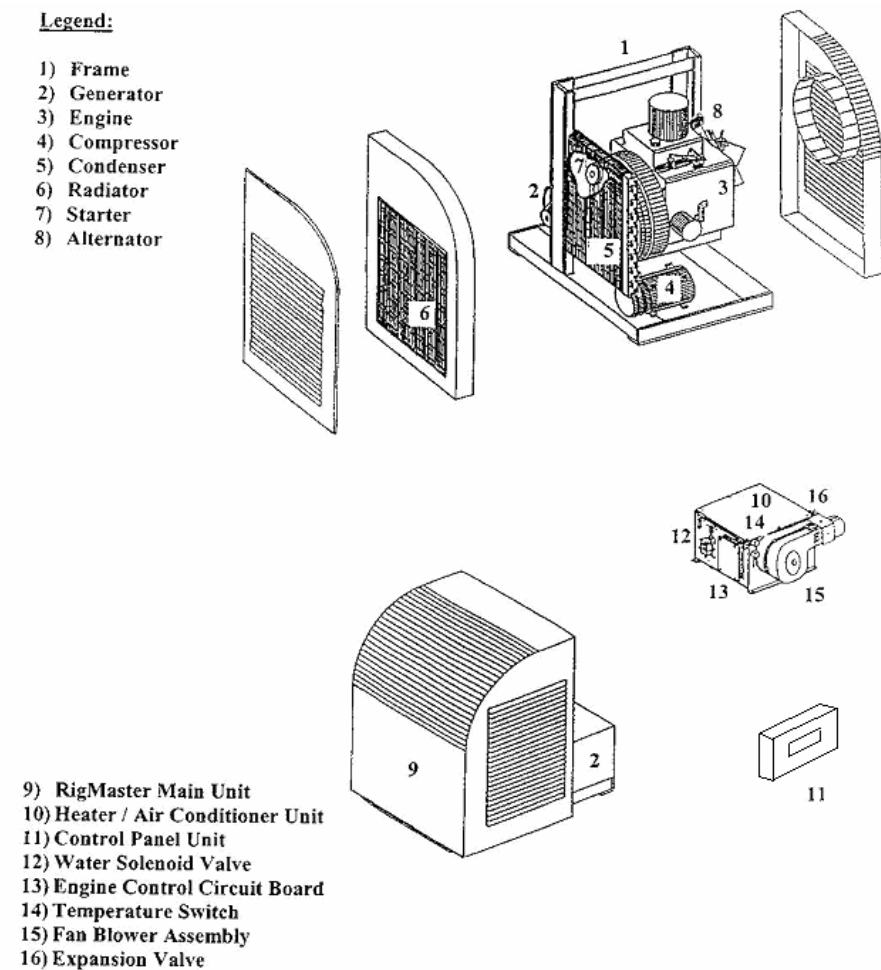
### **RESETTING THE 15 AMP BREAKERS - FIGURE 10**

**NOTE:** The cover is shown removed for clarity purposes only.

**WARNING:** CORRECT THE ELECTRICAL OVERLOAD PRIOR TO THE RESETTING OF EITHER BREAKER.

### **PROCEDURE:**

- 1) Remove the Rubber Plugs (A) from the Generator Cover (E) using a flat head screwdriver.
- 2) Locate the Breakers (D) located on the front of the Electrical Connection Box (B) mounted on top of the Generator (C).
- 3) Insert the screwdriver and depress the Buttons (D), which protrudes from the Electrical Connection Box (B) to reset the breakers.



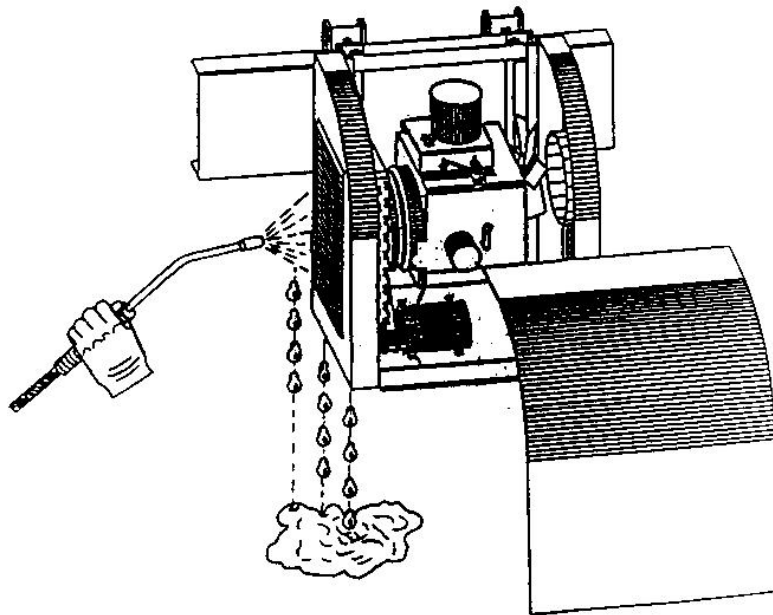
**MAIN COMPONENTS AND PART LOCATIONS - FIGURE 11**

## **CLEANING INSTRUCTIONS**

The RigMaster Auxiliary Power Unit should be periodically inspected and any accumulation of road contaminants (such as: paper; plastic; dirt; oil; etc.) must be removed. Three main components, as outlined below, must be kept clean and free of contaminants and/or debris. Refer to Figure 11 for location of components.

### **MAIN UNIT GENERAL CLEANING (See Figure 12)**

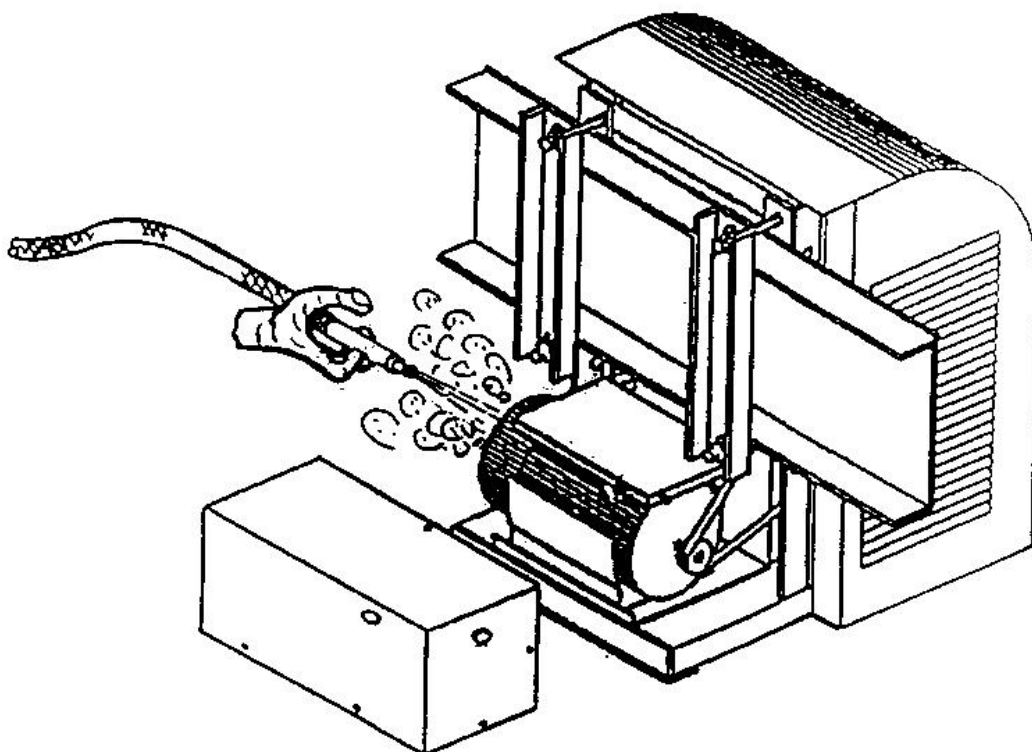
- a) Using a power spray wand, wash down the exterior of the main unit especially all louver panels (air intake / exhaust openings).
- b) Remove the front cover and wash down the interior of the main unit, holding the spray wand no closer than twelve inches (12") away from any component.
- c) Replace the front cover, properly seating cover and secure cover latches. allow main unit to drip dry prior to starting.



**MAIN UNIT - FIGURE 12**

**GENERATOR CLEANING (See Figure 13)**

- a) Remove the Generator Cover and inspect for any accumulation of dirt or oil especially at the generator air inlet and outlet openings.
- b) Using a compressed air line and nozzle, blow out the generator compartment.
- c) Using a clean cloth, soak up any oil or other liquids.
- d) Replace the Generator Cover and secure.

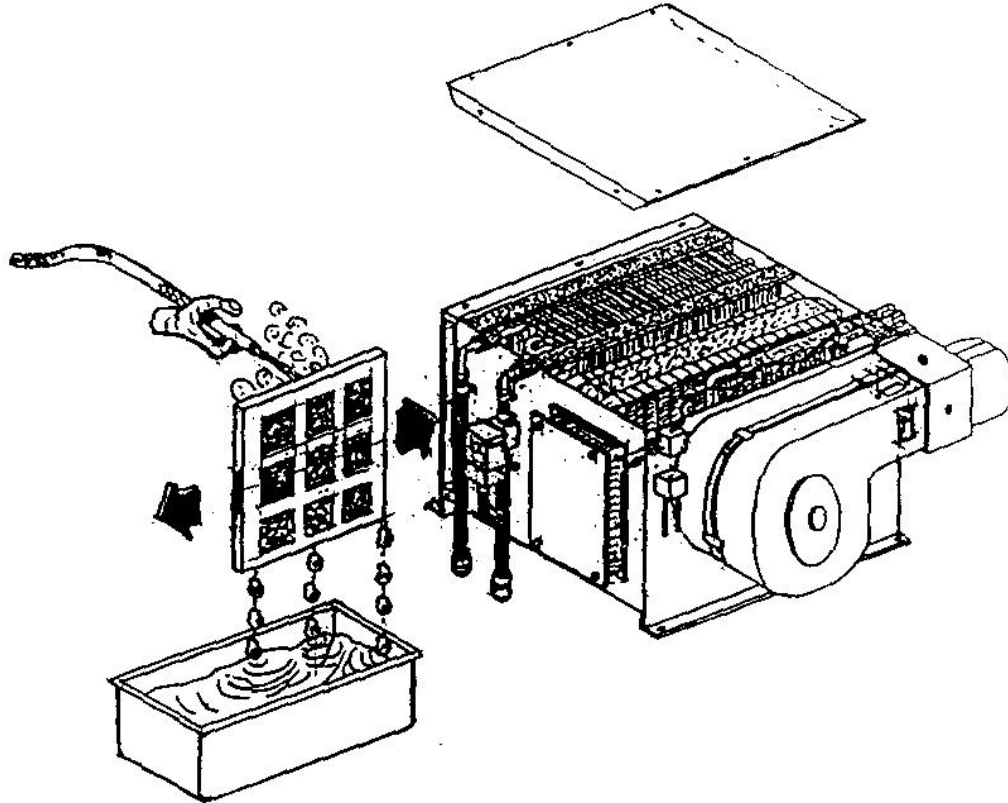


**GENERATOR - FIGURE 13**

## **CLEANING INSTRUCTIONS**

### **HEATER / AIR CONDITIONING UNIT (See Figure 14)**

- a) Pull (slide) the removable air filter out of the Heater / Air Conditioning Unit.
- b) Wash the air filter using soapy water or blow clean with compressed air.
- c) Re-insert the (dry) air filter into the slide portion and push the air filter all the way into the Heater / Air Conditioner Unit.



**HEATER / AIR CONDITIONER UNIT - FIGURE 14**

**TROUBLESHOOTING**

**ENGINE**

SYMPTOM	PROBABLE CAUSE	REMEDY/COMMENT
Engine does not crank	<ol style="list-style-type: none"> <li>1. Starter relay</li> <li>2. Starter motor faulty</li> <li>3. Broken engine ground strap</li> <li>4. Battery connections loose</li> <li>5. Low battery voltage</li> </ol>	<ol style="list-style-type: none"> <li>1. Check for power at relay during starting sequence</li> <li>2. Check for power at starter solenoid</li> <li>3. Replace strap</li> <li>4. Tighten connections</li> <li>5. Charge batteries</li> </ol>
Engine cranks but does not start	<ol style="list-style-type: none"> <li>1. Air filter</li> <li>2. Speed sensor</li> <li>3. Glow plug or Glow plug relay</li> <li>4. Fuel</li> <li>5. Run solenoid not operating</li> <li>6. Governor assembly (spring)</li> <li>7. Clogged filter</li> <li>8. Faulty wiring</li> </ol>	<ol style="list-style-type: none"> <li>1. Check air filter</li> <li>2. Check resistance &amp; gap</li> <li>3. Check for power @ the glow plug relay.</li> <li>4. Check fuel</li> <li>5. Check 12v at run solenoid</li> <li>6. See Perkins manual</li> </ol>
Engine hard to start	<ol style="list-style-type: none"> <li>1. Air filter clogged</li> <li>2. Fuel</li> <li>3. Glow plugs</li> <li>4. Air filter clogged</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace air filter</li> <li>2. Check fuel</li> <li>3. Check for power @ the glow plug relay</li> <li>4. Replace or Tighten connectors</li> </ol>

SYMPTOM	PROBABLE CAUSE	REMEDY/COMMENT
Engine Cranks Slowly	<ol style="list-style-type: none"> <li>1. Damaged / corroded battery connections</li> <li>2. Faulty starter</li> <li>3. Faulty A/C Compressor</li> <li>4. Faulty generator</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace or clean the battery connections</li> <li>2. Check connections at the starter</li> <li>3. Compressor seized</li> <li>4. Generator seized</li> </ol>
Engine Starts & Stalls	<ol style="list-style-type: none"> <li>1. Speed sensor</li> <li>2. Clogged fuel filter</li> <li>3. Excessive load on the motor; generator,a/c compressor</li> <li>4. Damaged or loose wiring connections</li> </ol>	<ol style="list-style-type: none"> <li>1. Check speed sensor Gap: 0.025", Ohms: 625 +/- 75</li> <li>2. Replace filter</li> <li>3. Unplug the block heater when using the a/c compressor</li> <li>4. Inspect wiring connection &amp; connectors</li> </ol>
Engine Shuts Down	<ol style="list-style-type: none"> <li>1. Clogged air filter</li> <li>2. Clogged fuel filter</li> <li>3. Blown fuses</li> <li>4. Damaged or loose wiring</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace air filter</li> <li>2. Replace fuel filter</li> <li>3. Replace fuse</li> <li>4. Inspect condition of wiring and wiring connections</li> </ol>
White or blue smoke	<ol style="list-style-type: none"> <li>1. Excess engine oil</li> <li>2. Coolant in combustion chamber</li> </ol>	<ol style="list-style-type: none"> <li>1. Inspect &amp; correct oil level</li> <li>2. Check for blown head gasket</li> </ol>
Dark grey/black smoke	<p>Over loading Clogged air filter</p>	<ol style="list-style-type: none"> <li>1.Unplug 110 volt appliances &amp; block heater</li> <li>2.Check air filter assembly</li> </ol>

SYMPTOM	PROBABLE CAUSE	REMEDY/COMMENT
Engine runs rough	<ol style="list-style-type: none"> <li>1. Air filter clogged</li> <li>2. Fuel filter clogged</li> <li>3. Fuel leak</li> <li>4. Worn/contaminated fuel injectors</li> <li>5. Engine in poor condition</li> </ol>	<ol style="list-style-type: none"> <li>1. Check air filter assembly</li> <li>2. Replace fuel filter</li> <li>3. Inspect all hoses &amp; clamps</li> <li>4. Inspect Injectors</li> <li>5. Replace or rebuild the engine</li> </ol>
Loss of engine oil	<ol style="list-style-type: none"> <li>1. Oil seals leaking</li> <li>2. Leaking drain plug</li> <li>3. Pinched or clogged breather tube</li> <li>4. Engine worn or in poor condition</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace crankshaft seals (seals leaking is do to having too much oil in the system)</li> <li>2. Replace oil pan plug gasket</li> <li>3. Repair or replace the tube</li> <li>4. Replace or rebuild the engine</li> </ol>



**CHARGING SYSTEM**

SYMPTOM	PROBABLE CAUSE	REMEDY/COMMENT
Batteries not charging	<ol style="list-style-type: none"> <li>1. Damaged or loose battery connections</li> <li>2. Faulty alternator</li> <li>3. Battery in poor condition</li> </ol>	<ol style="list-style-type: none"> <li>1. Inspect wiring</li> <li>2. Replace alternator</li> <li>3. Test batteries</li> </ol>
Batteries overcharging	<ol style="list-style-type: none"> <li>1. Faulty Alternator</li> </ol>	<ol style="list-style-type: none"> <li>1. Check Alternator output</li> </ol>

**FUEL**

SYMPTOM	PROBABLE CAUSE	
Fuel odor/leak	<ol style="list-style-type: none"><li>1. Loose fuel fittings</li><li>2. Damaged fuel line or fuel filter bowl</li><li>3. Fuel injection pump leak</li></ol>	

**COOLING SYSTEM**

<b>SYMPTOM</b>	<b>PROBABLE CAUSE</b>	<b>REMEDY/COMMENT</b>
Engine overheating	<ol style="list-style-type: none"> <li>1. Coolant level low</li> <li>2. Engine fan belts loose</li> <li>3. Radiator fins blocked (external)</li> <li>4. Elec fan</li> <li>5. Faulty engine thermostat</li> <li>6. Faulty by-pass valve</li> <li>7. Overloading the engine</li> </ol>	<ol style="list-style-type: none"> <li>1. Add coolant</li> <li>2. Tighten or replace</li> <li>3. Clean radiator fins</li> <li>4. The elec fan only engages when the compressor clutch engages.</li> <li>5. Clean the radiator</li> <li>6. Replace the by-pass thermostat valve</li> <li>7. Reduce 110v load (eg. Block heater)</li> </ol>
Engine overcooling	<ol style="list-style-type: none"> <li>1. Block heater not plugged in &amp; working</li> <li>2. Faulty by-pass valve</li> <li>3. Faulty thermostat</li> </ol>	<ol style="list-style-type: none"> <li>1. Plug in block heater</li> <li>2. Check the by-pass valve</li> <li>3. Check the thermostat</li> </ol>
Coolant loss	<ol style="list-style-type: none"> <li>1. Coolant system over filled</li> <li>2. External coolant leak</li> <li>3. Internal coolant leak</li> <li>4. Blown head gasket</li> </ol>	<ol style="list-style-type: none"> <li>1. Check coolant level regularly</li> <li>2. Check coolant hoses from RigMaster to the HVAC system</li> <li>3. Check internal coolant hoses inside the engine compartment</li> <li>4. Replace the head gasket Note: the cylinder head should be machined</li> </ol>
Poor circulation	<ol style="list-style-type: none"> <li>1. Water pump not operating properly</li> <li>2. Cooling system restricted</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the belt tension</li> <li>2. Check for kinks in the coolant hoses</li> </ol>

### HVAC

SYMPTOM	PROBABLE CAUSE	REMEDY/COMMENT
Poor air flow	<ol style="list-style-type: none"> <li>1. HVac filter clogged</li> <li>2. HVac air intake obstructed eg. Cloths or plastic bag</li> <li>3. Excessive duct hose</li> <li>4. Poor placement of vent</li> <li>5. Faulty blower motor</li> <li>6. Ducted through trucks ventilation system</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean filter</li> <li>2. Remove obstruction &amp; tell the drive to keep the filter clear</li> <li>3. Reduce the hose by extending the hose to maximum length</li> <li>4. Relocate the vent</li> <li>5. Check for power &amp; ground</li> <li>6. See install manual for ducking the vents</li> </ol>
Little or no hot air	<ol style="list-style-type: none"> <li>1. Engine overcooling</li> <li>2. Water valve Faulty</li> <li>3. Airlock in coolant or low in coolant</li> <li>4. Faulty coolant by-pass valve</li> <li>5. Cooling system blocked</li> </ol>	<ol style="list-style-type: none"> <li>1. Main engine block heater not plugged in</li> <li>2. Check water valve operation</li> <li>3. Bleed system &amp; fill coolant</li> <li>4. Replace the by-pass valve</li> <li>5. Flush complete cooling system</li> </ol>
Little or no cold air	<ol style="list-style-type: none"> <li>1. Compressor not working</li> <li>2. Compressor drive belt loose or damaged</li> <li>3. Condenser or radiator fins blocked</li> <li>4. A/C system leak</li> <li>5. Elec fan not operating</li> <li>6. Evaporator core frozen</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the compressor clutch fuse</li> <li>2. Tighten or replace the drive belts</li> <li>3. Clean radiator/condenser using compressed air</li> <li>4. Check pressures using gages</li> <li>5. Check the fuse</li> <li>6. Check the temperature switch &amp; the location of the probe (see section 6.3)</li> </ol>

**[110 VOLT] ELECTRICAL SYSTEMS**

SYMPTOM	PROBABLE CAUSE	REMEDY/COMMENT
No power to receptacles (Bunk and block heater)	<ol style="list-style-type: none"> <li>1. Breakers tripped</li> <li>2. Generator drive belt loose or damaged</li> <li>3. Wiring damaged</li> <li>4. Internal damage to generator</li> </ol>	<ol style="list-style-type: none"> <li>1. Reset the breakers.</li> <li>2. Check the belt</li> <li>3. Check all connections</li> <li>4. Check the generator out put (61 Hertz with no load)</li> </ol>
Generator continually trips	<ol style="list-style-type: none"> <li>1. Circuit overloaded (15A or 1800 W max)</li> <li>2. Short circuit</li> </ol>	<ol style="list-style-type: none"> <li>1. Check power rating of appliances</li> </ol>

## **INSTALLATION**

It is the responsibility of the installer and the owner to ensure that all RigMaster APU components are correctly installed and are in proper working order at time of installation.

### **NOTE**

THE ORIGINAL EQUIPMENT MANUFACTURER IS NOT RESPONSIBLE FOR ANY FAILED COMPONENT(S) THAT ARE A RESULT OF IMPROPER INSTALLATION OR THE INSTALLATION ITSELF.



# Authorized Dealer Warranty Handbook

**Effective March 1, 2004**

***Contents:***

RigMaster Power® Warranty  
Warranty Policy  
Perkins Warranty

## **RIGMASTER LIMITED WARRANTY**

This limited warranty applies to the RigMaster® Auxiliary Power unit ("APU") which consists of the following components:

- 1) The generator set
- 2) The generator set control panel
- 3) The combination heater/air conditioner unit
- 4) The muffler

## **12 MONTH WARRANTY COVERAGE**

RigMaster Power Corp. warrants that, under normal service and use, the RigMaster® ("APU") will be free from defects in material and workmanship for twelve (12) months from the date of purchase, subject to all terms and conditions, limitations and provisions of this limited warranty. This limited warranty is governed by the laws of the Province of Ontario, Canada, and any claims or disputes arising out of this limited warranty shall be governed by the laws of the Province of Ontario, Canada.

## **WARRANTY OBLIGATION**

During the warranty period, RigMaster Power Corp. will repair or replace, at its option, the RigMaster® APU components, which consist of the generator, the control panel, or the combination heater/air conditioner. Repair or replacement will be completed at any authorized dealer or company owned facility, upon presentation of proof of purchase and determination by International Power Systems Inc. or its authorized dealer that a component is defective or has failed under normal service and use, at no charge to the owner of the RigMaster® APU, within the first twelve (12) months from the date of purchase.

## **DISCLAIMER OF OTHER WARRANTIES**

RigMaster Power Corp. INCLUDING ITS AGENTS AND AUTHORIZED DEALERS, MAKES NO OTHER WARRANTIES AND EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. No person, firm, or representative is authorized to assume any obligation or make any warranty on behalf of International Power systems Inc. other than the limited warranty as stated herein.

## **MAINTENANCE**

The RigMaster® owner's manual lists all maintenance functions required to validate this limited warranty. **PLEASE NOTE THAT FAILED COMPONENTS DUE TO POOR OR IMPROPER MAINTENANCE WILL NOT BE COVERED BY THIS LIMITED WARRANTY.** Where a dispute arises regarding proper maintenance, the manufacturer reserves the right to request proof in the form of receipts for maintenance, and any other records of service to establish that proper maintenance has been performed, as per the maintenance manual.



## **INSTALLATION**

In order to validate your RigMaster warranty, the unit must be either installed by an authorized RigMaster dealer or must be inspected and certified by an authorized RigMaster dealer within 30 days of install. Cost to certify is at the owner's expense and written proof must be provided. For units not installed by an authorized dealer the warranty, if validated, will be from the date of purchase, not the date of certification. It is the responsibility of the installer and the owner to ensure that all RigMaster® APU components are in proper working order at the time of installation. The manufacturer is not responsible for failed components that are a result of improper installation.

## **WARRANTY VOIDED OR TERMINATED**

Any modification to the RigMaster® without the written authorization or the manufacturer will void this limited warranty. Repair, replacement, or maintenance, using other than approved parts, will be cause to terminate this limited warranty.

## **EXCLUSIONS FOR LIMITED WARRANTY**

The costs of normal maintenance such as, but not limited to tune-ups, adjustments, and inspections, tightening of clamps, fasteners, hoses, the replacement of belts, fuel, air, oil and water filters are excluded from this limited warranty.

## **LIMITATION OF REMEDIES**

The remedy of repair or replacement as set forth herein is the sole exclusive remedy available to the purchaser or user of the RigMaster®. International Power Systems Inc. disclaims and shall not be liable or responsible to the owner or user of the RigMaster® APU or any other person for incidental, consequential, direct, indirect, special or general damages of any kind arising out of or in any way related to the use of the RigMaster® APU including, but not limited to towing charges, accident repairs, road calls, traveling expenses, loss of revenue profits, loss of truck use or damage to persons or property. No claim of any kind asserted against RigMaster® APU, whether asserted under legal theories of negligence, strict liability, warranty, or any other common law or statutory basis, shall be greater in amount than the purchase price of the RigMaster® with respect to which damages are claimed.

## **INDEMNITY**

The user and owner of the RigMaster® APU agree to indemnify and hold International Power Systems Inc. harmless from any and all claims, expenses, suits or liability of any nature whatsoever asserted against International Power Systems Inc. arising out of or in any way related to negligence on the part of the user or owner of the RigMaster® APU

### ***TRANSFER OF WARRANTY***

Where the vehicle with the RigMaster® APU has been sold by the first owner to a second owner and the RigMaster® has not been removed, this limited warranty is transferable from the original owner to a second owner with whatever portion of the twelve (12) month limited warranty that remains from the date of sale to the first owner.

Where the RigMaster® APU has been removed from the vehicle in which it was originally installed, and sold by the first owner to a second, re-installation is required to be completed by an authorized dealer in order to validate the remaining portion of this limited warranty.

Where the original owner transfers the RigMaster® to a new vehicle, the installation must be completed by an authorized dealer to validate whatever is remaining of this limited warranty.



### ***Customer Assistance Procedure***

To obtain warranty repairs you must request the needed repairs within the warranty period from An authorized RigMaster dealer.

A reasonable time must be allowed to perform the warranty repair after taken the unit to an authorized dealer location. Repairs will be performed during normal business hours.

To ensure your complete satisfaction the following procedures must be followed in the event You have a problem.

1- Contact the nearest (most convenient) RigMaster dealer to schedule a warranty service appointment. Prior to contact have the following information available

- Unit serial number
- Hour meter reading
- In service (Purchase) date
- Nature of problem

2- Deliver unit to dealer for service. Upon completion of repairs review and sign the dealer work order, keeping a copy for reference.

3- Frequently, customer concerns are a result of a breakdown in communications and can be quickly resolved at the dealer level.

4- if you are still not satisfied, present the entire matter in writing to:

**RigMaster Warranty Administration  
11 Diesel Drive  
Toronto, Ontario  
Canada, M8W-4Z7  
Fax: (416) 259-6715**

**CALIFORNIA  
Proposition 65 Warning  
Diesel engine exhaust and some of its constituents are known by the  
State of California to cause cancer, birth defects and other reproductive harm.**

[illegible]

[illegible]

## MAINTENANCE RECORD

[illegible]

[illegible]