

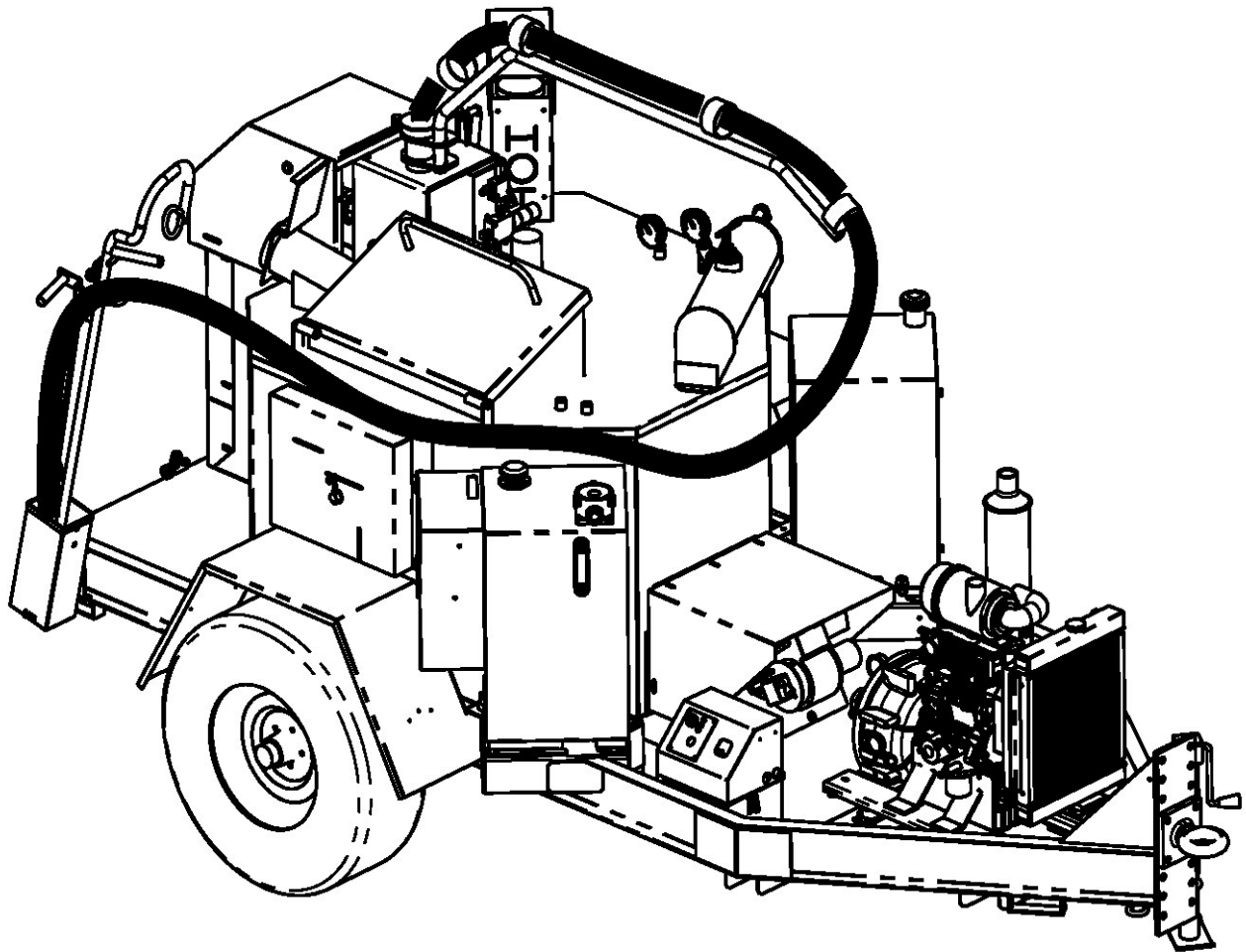


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*Melter Applicator*

# MATRIX<sup>TM</sup> 1500

*Owner/Operator Manual*



2601 Niagara Lane – Plymouth, MN 55447 – (800) 328-3874 – Fax (763) 557-1971  
PN 161251

Last Modified 1/12/12

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For compressor information see manual PN 161384

## Shipping Papers and Information

A packet containing IMPORTANT INFORMATION has been enclosed with your Melter. This packet contains:

- 1) Operation Instructions
- 2) Parts List
- 3) Warranty Information
- 4) Manufacturer's Documents
  - a) Engine
  - b) Material Pump
  - c) Burner (Diesel only)
  - d) Parts/ Wiring Manual

**IMPORTANT:** This manual contains the basic information required to operate, maintain and repair the CIMLINE Melter you have purchased. The use of this manual insures accurate adjustments, operation and proper lubrication of your equipment. Please keep it handy.

Any parts orders or service problems relating to CIMLINE equipment should be directed to the CIMLINE Parts Department at either (763) 557-1982 or (800) 328-3874. When ordering parts, please have the following information available.

Serial Number: \_\_\_\_\_

Model Number: \_\_\_\_\_

Engine Model (H.P.): \_\_\_\_\_

Engine Manufacturer: \_\_\_\_\_

Pump Number: \_\_\_\_\_

Replacement Part Number(s): \_\_\_\_\_

## Safety Notes

**PLEASE READ AND UNDERSTAND ENTIRE OPERATORS MANUAL  
BEFORE PROCEEDING**

**WARNING: Protective clothing must be worn. Refer to ANSI Regulations:**



- 1) Wear gloves with wristlets.
- 2) Wear long sleeve shirt with sleeves rolled down and cuffs buttoned.
- 3) Wear a face shield.
- 4) Load Melter from ground level.
- 5) Keep material door closed at all times except when adding material.
- 6) Never stand on any part of the machine.
- 7) Do not pull, twist, stretch or kink the material hose.
- 8) Do not operate without safety cover on hose.
- 9) Do not touch exhaust stacks or mufflers.
- 10) Wear heavy leather boots or shoes.
- 11) Wear long pants with no cuffs.

**WARNING: Do not over fill the melting tank. For best results, add only as much material as required for the job or a maximum of 75% of tank capacity. (Model 1500-112 gallons.)**



**WARNING: On a new Melter applicator or a unit that has been idle for some time, slowly raise the oil temperature to 250° F and hold there for approximately 20 to 30 minutes. This will help get rid of any condensation that may be in the oil chamber.**



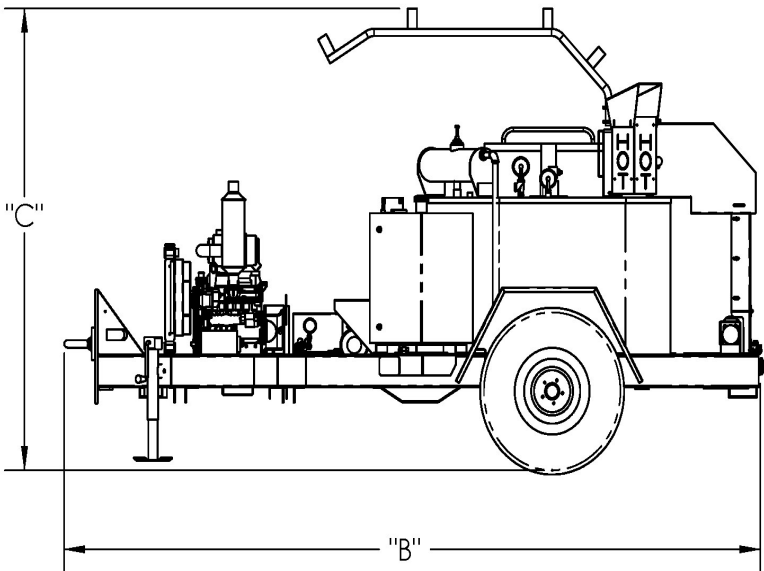
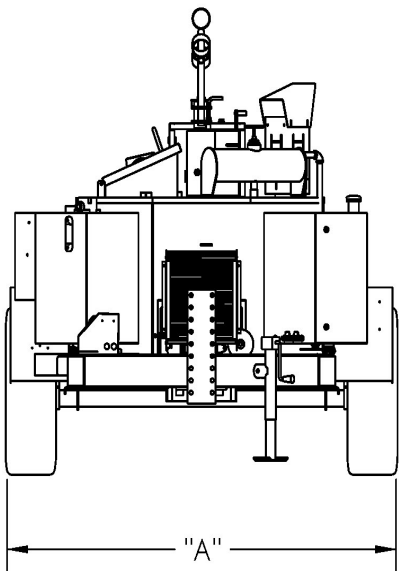
**WARNING: Never leave machine unattended while it is running.**





# Dimensions & Weights

| Model Number | "A" in/cm | "B" in/cm | "C" in/cm | Weight lbs/Kg (empty) |
|--------------|-----------|-----------|-----------|-----------------------|
| 1500         | 83.5/212  | 158/402   | 89.5/227  | 3925/1780             |



## Controls and Their Functions 6

**NOTE:** This general outline will only familiarize you with the machine. Read through the entire manual before putting this machine into operation.

- 1) **Access Port:** The sealing wand is placed in here when not in use. This allows operator to continue circulating material through the hose to prevent material from cooling and freezing up.
- 2) **Loading Door** Place the material on safety door to load the melting tank.
- 3) **Oil Temperature Gauge:** Monitors the heat transfer oil temperature.
- 4) **Material Temperature Gauge:** Monitors the heat of the material in the tank.
- 5) **Pressure Valve:** This valve controls the flow rate of the material being pumped to the hose and sealing wand by changing the pressure setting. (Turning the valve clockwise will increase the pressure which in turn will increase the flow). During sealing operations, this valve alone can be used to regulate flow.
- 6) **Agitation Drive Control Switch:** Flip this toggle switch to the forward-off-reverse function.
- 7) **Pressure Gauge:** This gauge measures the pressure required to turn the agitator. By observing this gauge, the operator can tell if the agitator is rotating.
- 8) **Pump Drive Control Switch:** Flip this toggle switch to the forward-off-reverse function.
- 9) **Temperature Control Box:** This control allows the operator to set the desired oil and material temperatures. The setting will be maintained automatically.
- 10) **Wand Holder:** On models with the electrically heated hose, the wand is placed into this holder..
- 11) **PSI Gauge:** This gauge will tell you the amount of pressure in the hydraulic system.
- 12) **Ignition:** This will allow you to start the engine. (This must be turned on to allow the machine to start.
- 13) **Pump Access Cover and Catch Tray:** Open this door to access the pump packings and the catch tray.
- 14) **Temperature Gauge:** This allows you to view the temperature of the cabinet. If this temp. gets above 400 deg. F open the pump door.

# Operating Sequence

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**NOTE:** This step by step procedure is only an outline.  
Refer to the page(s) indicated for complete instructions.

## **PROCEDURE:**

|  | <b>PAGE</b> |
|--|-------------|
| 1) Place wand in return port                                       | 6           |
| 2) Switch pump and agitator toggle switch to the forward position. | 9           |
| 3) Start engine per engine operating instructions.                 | 8           |
| 4) Add material, typically 2-3 biscuits if tank is empty.          | 11          |
| 5) Adjust flow to sealing wand.                                    | 11          |
| 6) Remove Wand and start sealing.                                  | 11          |

Once the oil temperature reaches 325deg F, the agitator will start rotating.  
Once the Material temperature reaches 350 Deg F, the material pump will start.

At the end of the Day

- |   |   |
|---|---|
| 1) Return Wand to Access Port and pin trigger   | 6 |
| 2) Switch the material toggle switch to the reverse operation and allow to run 2 min. |   |
| 3) Turn engine off and remove key.  |   |
| 4) Lock hose boom in tow position.  |   |
| 5) Always secure sealing wand, sealing hose and hose boom before towing the Melter.   |   |

**NOTE:** When leaving reheatable material in tank, allow the agitator to run until the oil and material temperatures are the same.

## Starting the Engine

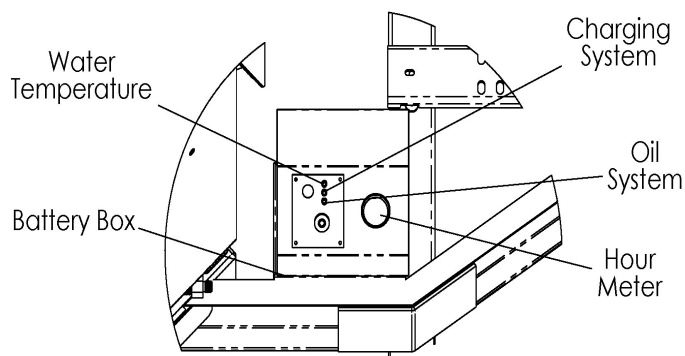
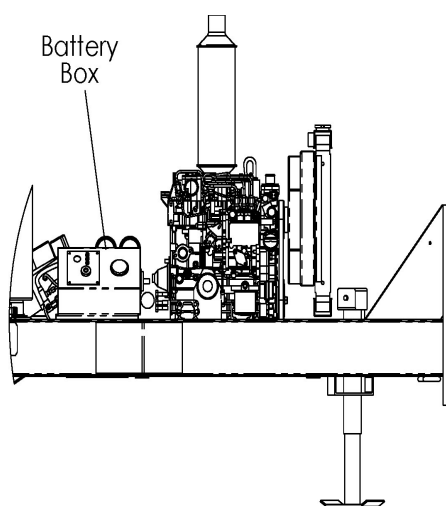
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**NOTE:** Read the engine instruction manual before starting.  
Engine RPM is factory set and fixed at 3000 RPM.

### *Diesel Engine:*

Your Isuzu Diesel Powered Melter is equipped with an electronic shut-down system. If the system detects excessive water temperature, low alternator output, or low oil pressure, the engine will automatically shut down. The indicator light that remains on indicates the malfunction. An integral digital hour meter records engine run time,

The engine must be running before igniting the burner. The burner will only operate if the ignition key is turned on. **DO NOT** turn on burner without engine running.



## Automatic Temperature Control Setting

**NOTE:** On diesel units, the engine must be running before activating temperature control. The automatic temperature control system monitors the heat transfer oil temperature and material temperature.

- 1) Set the oil controller (A) to 550° F (288° C) (See Setting Temperature Controllers, pg. 10)
- 2) Set the material controller (B) to the recommended material working temperature which is typically listed on the material container.
- 3) Turn switch (H) on to activate the heated hose.

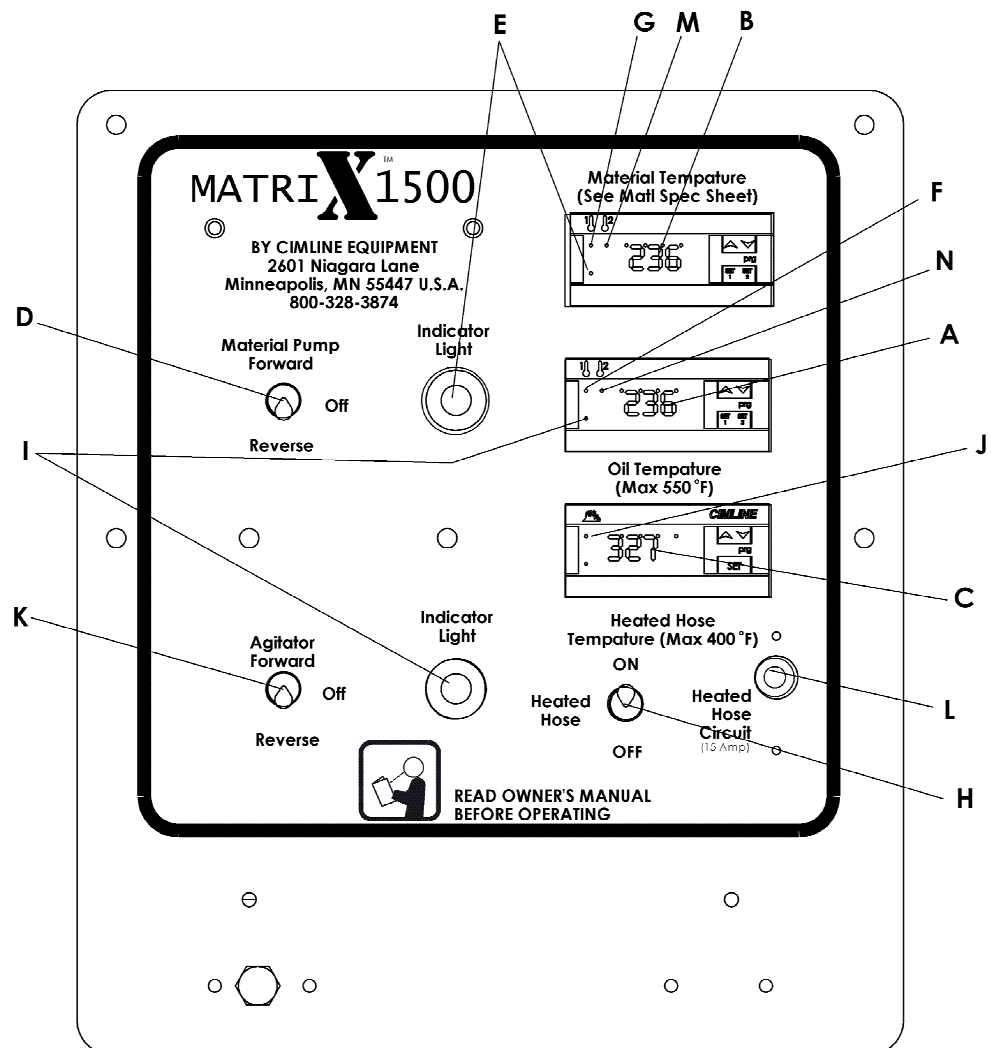
*(Continued on page 9)*

- 4) Set the heated hose controller (C) to 350°. Light (J) will be on when the controller is calling the generator to activate.
- 5) Turn rocker switches (D) and (K) to the forward position.

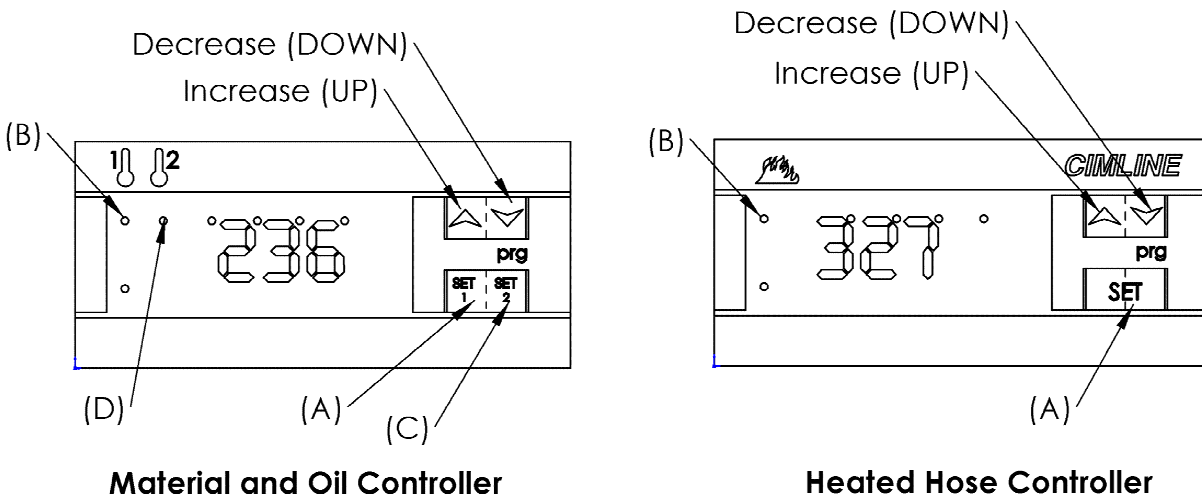
When lights (G) and (F) are on, the burner has been activated.

Light (E) will only be on when the material temperature is above 350°. (this signals the material pump to come on).

Light (I) will only be on when the oil temperature is above 325°. (this signals the agitator to come on).



## Setting Temperature Controllers



To change temperature of the material, oil or heated hose, use the (A) button. To change the temperature on when the material pump or agitator engages, use the (C) button.

- 1) Press and hold set button (A) for 5 sec. Light (B) will turn on while in the setting mode.
- 2) Press "UP" or "DOWN" button until desired temp is shown.
- 3) Press set button (A) , light (B) will turn off and the readout will display actual temperature.
- 4) Indicator light (B) will remain on anytime the burner is running.

NOTE: Press set button (A) at anytime to display the setpoint temperature.

For safety, the high limit settings are locked in at the factory to prevent overheating. The settings are:

Oil Controller- 550° F (288° C)  
 Material Controller- 450° F (232° C)  
 Heated Hose Controller- 400° F (218° C)

These settings can be field adjusted for specific applications.  
**Consult the factory for instructions.**



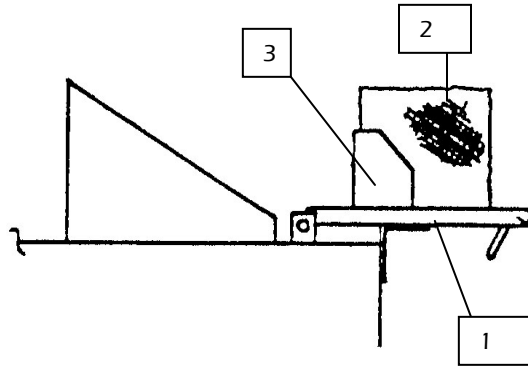
**"PFo" indicates broken or absent probe.**  
**"PFc" indicates short circuited probe.**

# Material Loading Procedure

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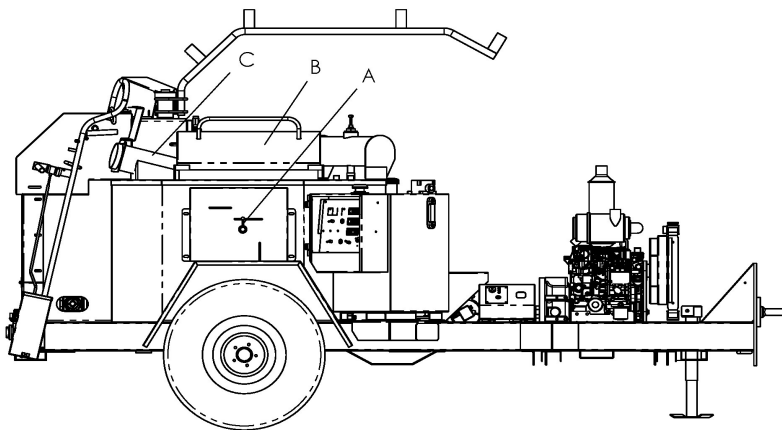
## Loading Empty Tank

- 1) All material must be clean. Keep all foreign matter out of melting tank.
- 2) Open the material door (1) and place slab or biscuit (2) on the open door against the holder (3).
- 3) Push door to the closed position.  
**DO NOT DROP MATERIAL INTO THE MELTER WITH DOOR OPEN.**



## Sealing Procedure

- 1) Turn flow control valve (A) counter clockwise until valve bottoms out.
- 2) With wand in access port (B) and the trigger pinned, open loading (C) door and increase flow valve (A) until the desired flow has been achieved.
- 3) Close loading door (C) and unpin wand trigger.
- 4) Pull wand from access port and proceed to joint or crack to be filled.
- 5) Place the sealing tip into the joint, press trigger and begin sealing by dragging tip through the joint.
- 6) If the flow rate is incorrect, repeat steps 1 through 5.
- 7) As you approach the end of the joint, depress the trigger to avoid access spillage.
- 8) To avoid material freezing in the hose, always return the wand to the access port and pin the trigger to allow material to circulate through the hose.



# Material System Cleanout

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**NOTE: The material loading doors and wand access port must be closed at all times.**

## **REVERSE FLOW CLEANOUT METHOD (Diagram 13)**

- 1) To clean out the machine at the end of the day, return the wand to the access port (B) and pin trigger. Go to the Run the pump in reverse for 2 - 3 minutes.
- 2) Go to the control box and flip the pump toggle switch to the reverse mode (see page 9). Run the pump in reverse for 2 - 3 minutes.
- 3) Turn off engine (see page 8).
- 4) Return pump toggle to the forward operation.
- 5) Unpin and remove wand from access port and place in wand holder.

## **FLUSHING NON-REHEATABLE MATERIALS (must have optional draincock)**

- 1) Pump the material tank as low as possible and open draincock to empty tank.
- 2) Add 5 to 10 gallons of recommended flushing solvent to tank through the access port.
- 3) Place the wand into access port and open wand valve.
- 4) Circulate the solvent approximately 5 to 10 minutes.
- 5) Pump the solvent through the wand into a container and dispose of it according to EPA guidelines.
- 6) Add another 5 to 10 gallons of material and circulate for 5 minutes.
- 7) Pump this 5 to 10 gallons into empty containers and reuse it for the first purge next time the unit is used.

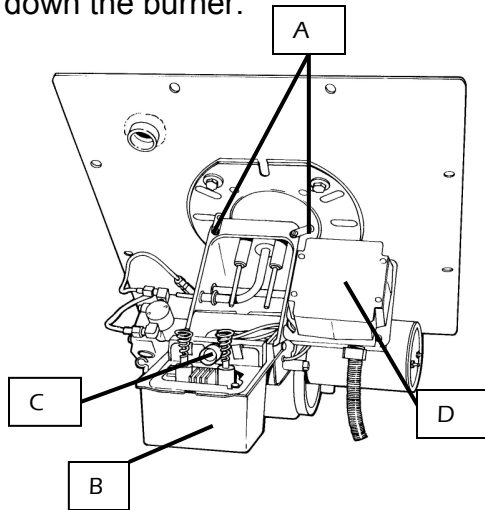


# Electric Eye and Fuse Inspection

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## **Diesel Burner - Electric Eye Inspection**

The diesel burner is equipped with an electronic eye which detects the presence of a flame. If the eye does not detect a flame after ignition, it will shut down the burner.



Periodically this eye will get covered with soot or dirt from the burner. If your burner lights and then shuts down immediately, you can normally expect the problem to be a dirty electric eye. To clean the eye, simply loosen the two retaining clip screws (A) and rotate the clips which hold the hinged spark box (B) to the burner. Gently wipe the eye (C) with a soft cloth and reattach the spark box.

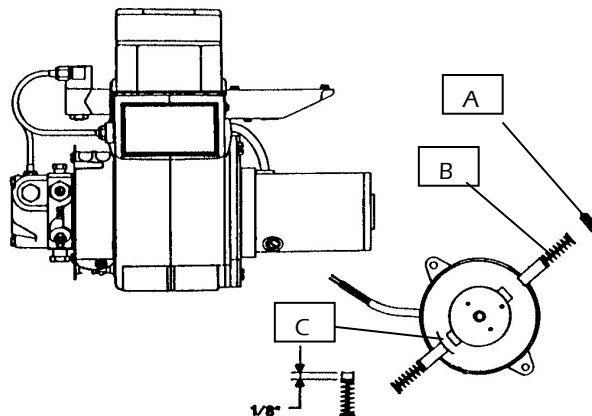
After cleaning the eye, if the burner will not stay ignited after initial firing, check fuse located inside the primary control box. You can open the box by loosening the two screws (D) and removing the box.

## **Burner Motor Brush Inspection**

Due to the high current draw of the burner motor, it is advised to inspect the brushes for excessive wear every 100 hours of operation. If the brushes are worn out completely it will stop the motor and typically damage or destroy the ignition transformer assembly.

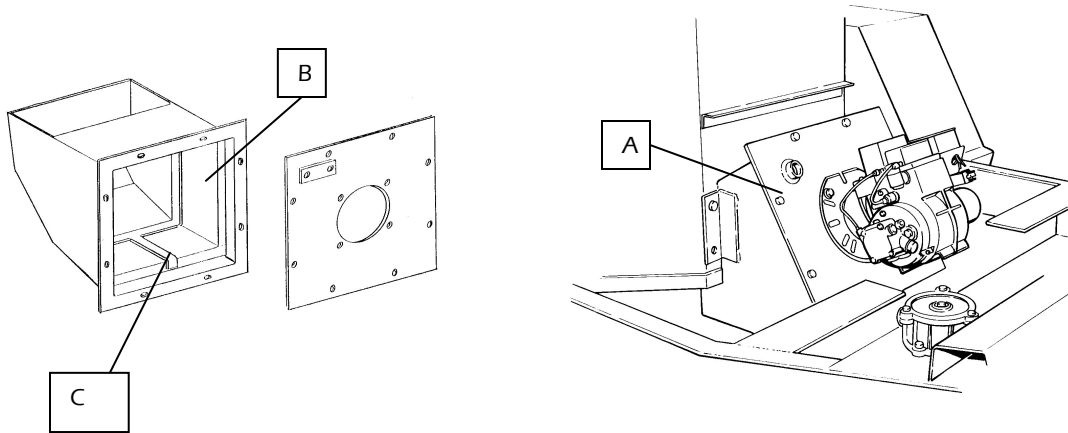
The brushes can be inspected and installed in a matter of minutes as follows:

- 1) Remove the brush caps (A) with a standard straight slot screw driver.
- 2) Remove the brushes (B) and inspect. If there is less than 1/8" of brush remaining, replace it immediately. If not, reinstall existing brush.
- 3) Be sure the radius (C) of the brush follows the curvature of the motor as shown below.
- 4) When the brushes are worn close to 1/8", check frequently to avoid failure.



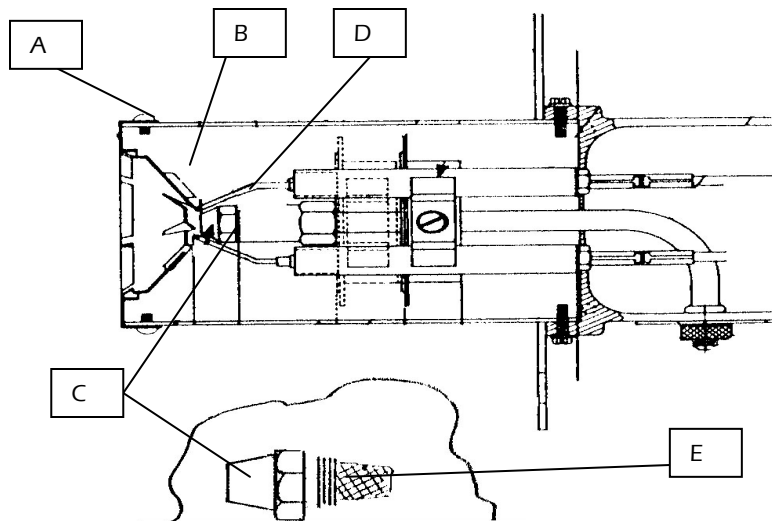
## Chamber Lining Inspection

After each 200 hours of operation, the chamber lining should be inspected. Remove (8) burner mount securing bolts (A) and pull out burner and mount. Inspect lining (B) for excessive cracking. Also check the condition of retainer (C). Lining cracks are acceptable as long as they are not large enough to allow flame to contact the combustion chamber walls.



## Burner Nozzle Replacement

During operation, oil is forced through the burner nozzle at 140 PSI to permit the fuel to be atomized for easy ignition. The nozzle orifice has normal wear due to this high pressure. Due to the high wear, it is recommended that the nozzle be replaced at least once per operating season. To replace the nozzle, remove the burner from chamber. Remove the two screws which secure the burner head (A) to the air tube (B). Carefully insert a 5/8" deep well socket over the nozzle (C) and turn it counter-clockwise to remove. Be very careful not to bend the electrodes (D) while performing this task. When installing the new nozzle, **do not** touch the filter portion (E) of the nozzle. The filter is so fine that oil from your skin can clog the filter.



## Adjusting Replacement Burner

The excess air adjustments on the Beckett ADC burner are essential to prevent the potential damage to the burner and the burner combustion chamber. Excess air is required to insure that the carbon and hydrogen are supplied with enough oxygen to burn completely.

If there is not enough excess air, the unit will smoke inside the combustion chamber and eventually lead to unburned fuel residue left in the chamber. The function of the combustion chamber is to reflect and retain heat to insure that all the atomized oil is burned.

Even a slight amount of soot can decrease the effectiveness of the chamber. It is estimated that 1/8" of soot is equivalent to approximately a 1" thick fiberglass sheet.

With too little excess air, eventually the unburned fuel accumulates into the lining material. Eventually it will burn even when the burner is turned off. The heat generated by this flame will vent out through the burner and can cause internal damage to the burner. Typically it will damage the plastic coupling which operates the fuel pump and it can also damage the primary control unit. Other common problems include blackening and even distorting the optic eye.

The burner is factory set with the air band (B) at the wide open position and the air shutter (D) adjusted typically between the 8 and 10 setting. Decreasing the excess air settings can lead to the chamber fires as outlined above.

To adjust excess air flow into the burner: (Diagram 14, Page 16)

- 1) Loosen screw (A) and rotate air band (B) to the wide open position, then tighten screws.
- 2) Loosen 2 screws (C) and rotate the air shutter (D) until the pointer arrow (E) points to the number 8 setting.
- 3) Start the burner and allow it to run for about 10 minutes.
- 4) Loosen the view port retaining bolt (F) and swing cover (G) out of the way as shown.
- 5) While observing the flame through the view port, decrease the air shutter (D) by rotating it until the flame tip appears slightly smoky, then increase the air until the flame clears up. The arrow (E) should be in the vicinity of 7 - 10. Tighten two screws (C).
- 6) Close and secure view port.

## Adjusting Fuel Pump Pressure

The fuel pressure is factory set @ 140 PSI. As the pump wears, it may require adjustment as follows:

- 1) If your unit is not already equipped with a fuel pressure gauge, remove plug (H) and insert a 0-200 psi gauge.
- 2) With the pump running, loosen jam nut (J) and turn screw (K) clockwise to increase the pressure, CCW to decrease pressure.
- 3) Hold the screw (K) with a screwdriver while tightening jam nut (J).

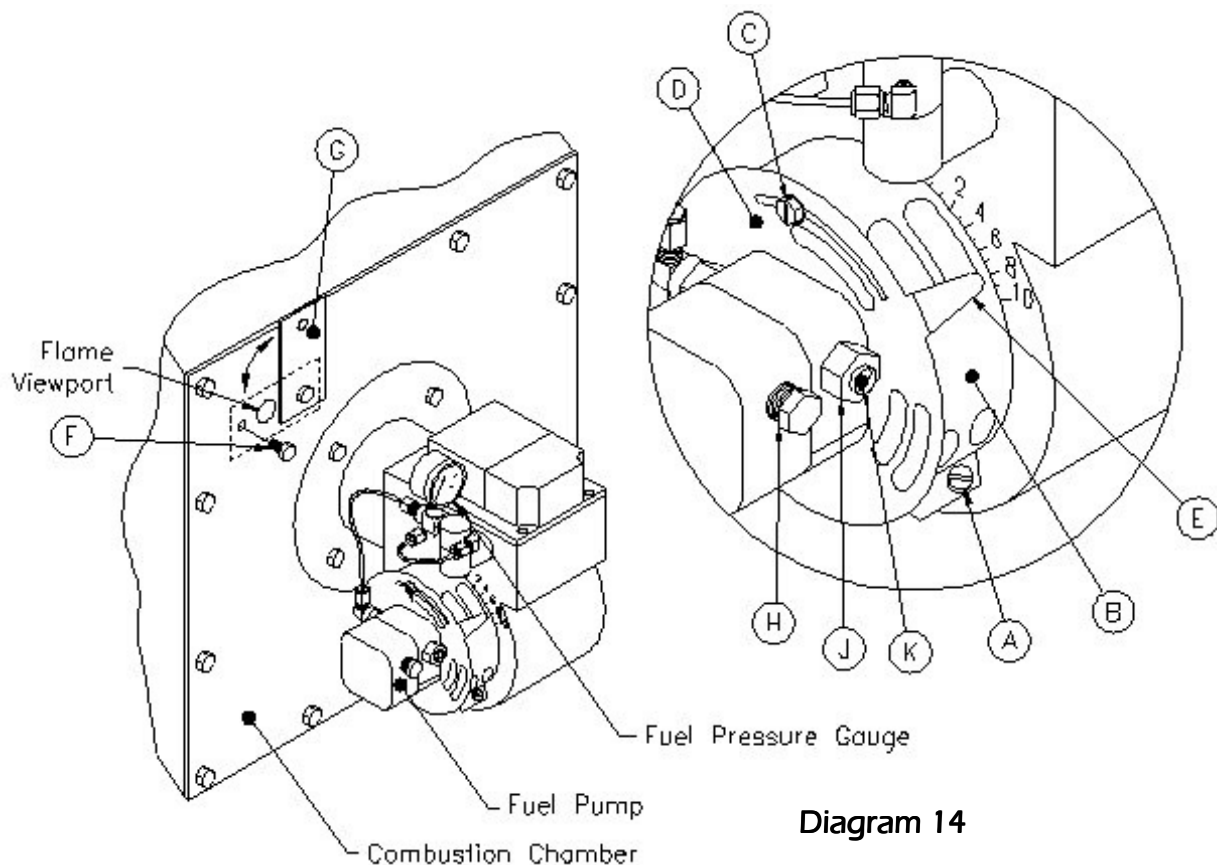


Diagram 14





## ***Maintenance***

**Engine:** The operation and life of the engine depends on you and your operator. Do not start engine until the engine precheck is complete. The engine precheck consists of checking the oil, the fuel level, the hydraulic oil level and the air filter. Basic engine maintenance is shown in Table 1 on page 34. For more detailed information please refer to the Engine Operator Maintenance Manual and Warranty provided with your Melter applicator.

**NOTE:** When breaking in a new Melter, we recommend running the engine for one hour with no load prior to actual use on the job.

**Air cleaner:** Due to the dusty conditions that can be created by road work, it is essential to check the engine air cleaner element daily. Remove element and shake out the accumulated dust and dirt. Wipe out dirt from inside cover and from housing. Check engine manual for washing instructions. We recommend stocking replacement filters.

**Lubrication:** The Melter should be greased according to table 1 on page 20 of this manual.

Diesel Units: Use of high quality detergent oil of API (American Petroleum Institute) service class CC or CD grade. Select the viscosity based on the air temperature at the time of operation. Check your engine manual for other recommendations.

**Burner:** There are several items that need to be inspected periodically on the burners. These items include the burner motor brushes, the nozzle, electrode and head position, chamber lining and the 4 electric eye. Inspect according to table 1 on page 20. There is a section on how to perform each of these operations in this manual, check the index on pages 2 & 3 to locate the appropriate section.

## Maintenance

| Maintenance Operation  | Daily | 25 Hrs | 100 Hrs | 200 Hrs |  | Yearly |
|--|-------|--------|---------|---------|--|--------|
| Check fuel level (add if low)                                  | ◆     |        |         |         |  |        |
| Check engine and heat transfer oil (add if low)                | ◆     |        |         |         |  |        |
| Check hydraulic oil (add if low)                               | ◆     |        |         |         |  |        |
| Check engine air cleaner                                       | ◆     |        |         |         |  |        |
| Inspect pre-cleaner (clean if dirty)                           | ◆     |        |         |         |  |        |
| Cleanout material system                                       | ◆     |        |         |         |  |        |
| Inspect sealing hose and cover                                 | ◆     |        |         |         |  |        |
| Inspect sealing hose connections                               | ◆     |        |         |         |  |        |
| Blow oil cooler on the air compressor option                   | ◆     |        |         |         |  |        |
| Inspect and clean cooling system (Diesel units only)           |       | ◆      |         |         |  |        |
| Inspect material pump packing (adjust if leaking is excessive) |       | ◆      |         |         |  |        |
| Change engine oil and oil filter                               |       |        |         | Diesel  |  |        |
| Service air cleaner element                                    |       |        | ◆       |         |  |        |
| Inspect burner motor brushes (replace if worn out)             |       |        | ◆       |         |  |        |
| Inspect burner nozzle, electrode & head pos. (adjust if nec.)  |       |        | ◆       |         |  |        |
| Grease agitator bearing block (load adapter)                   |       |        |         | ◆       |  |        |
| Inspect fuel filter (replace if dirty)                         |       |        |         | ◆       |  |        |
| Inspect Diesel burner electric eye (clean if dirty)            |       |        |         | ◆       |  |        |
| Grease wheel bearings  |       |        |         | ◆       |  |        |
| Inspect chamber lining (replace if excessive cracking)         |       |        |         |         |  | ◆      |
| Inspect starting motor   |       |        |         |         |  | ◆      |
| Replace hydraulic oil  |       |        |         |         |  | ◆      |
| Replace hydraulic return filter                                |       |        |         |         |  | ◆      |
| Replace hydraulic suction strainer                             |       |        |         |         |  | ◆      |
| Replace burner nozzle  |       |        |         |         |  | ◆      |
| Change heat transfer oil                                       |       |        |         |         |  | ◆      |
| Change Diesel fuel filter                                      |       |        |         |         |  | ◆      |
| Flush radiator and replace fluid (Diesel units only)           |       |        |         |         |  | ◆      |



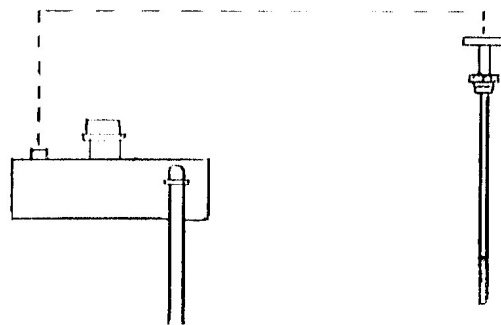
## Fluid & Components Specifications

|                                    | <b>Model 1500</b>               |
|------------------------------------|---------------------------------|
| Hydraulic Reserve Capacity         | 25 Gallons                      |
| Hydraulic Oil Type*                | Conoco MV32 or equiv            |
| Diesel Fuel Capacity               | 25 Gallons                      |
| Diesel Fuel Type                   | ASTM D975 No.2D                 |
| Heat Transfer Oil Capacity         | 22 Gallons                      |
| Heat Transfer Oil Type             | See Specifications on next page |
| Agitation Drive Relief Setting     | 1100 PSI                        |
| Material Pump Drive Relief Setting | 1500 PSI                        |
| Material Pump Displacement         | * Gal/Rev.                      |

**WARNING:** Only the oil specified or equal may be used in this system.  
(Always check your local and state regulations before disposal).

**NOTE:** A dipstick (A) is provided for checking oil level when cold.

\*This is a petroleum based product, it can be mixed with other petroleum based hydraulic oils such as Dextron III or common straight weight oils. We recommend that you do not mix oil brands. Mixing any oils (engine oil, transmission fluid, etc.) adversely affects each manufacturers formula.



## Heat Transfer Oil Specifications

### ISO Grade 68 Heat transfer Oil Specification

There are many different types of Heat Transfer Oils on the international market-place. It is critical that you use the proper oil to prevent poor performance, oil flashing, or auto-ignition. To conform to most government bids and to supply a readily available product, CIMLINE typically uses brands manufactured by Conoco or Phil-

|                     |                 |
|---------------------|-----------------|
| ISO VG#             | 68              |
| Pour Point - F      | 10° F (12° C)   |
| Flash Point - F     | 485° F (252° C) |
| Lbs/Gallon          | 7.27            |
| Viscosity CsT @ 40C | 62              |

#### IMPORTANT NOTICE!!

The ISO Grade is just a viscosity index (ability to flow/thickness). An ISO Grade 68 oil can be an engine oil, hydraulic oil, etc. The manufacturer uses different additives to make the oil conform to different applications. **YOU MUST CLARIFY** with the supplier that the oil is to be used in a heat transfer system to avoid any potential problems. Oil is also available from CIMLINE in 5 and 30 Gallon containers for ship-out.

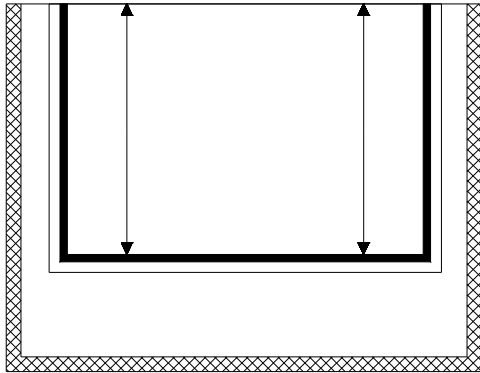
**NOTE:** CIMLINE Melter/Applicators include an expansion tank that cools the oil that is exposed to the outside air. When the oil heats up and expands, it flows into the expansion tank. The tank is cooler since it is not oil jacketed and is surrounded by outside airflow. The only exposure the hot oil has to the atmosphere is through a 3/4" vent/overflow pipe. This is done so the oil in the tank can run higher than the flash point. Only the lower temperature oil fumes are exposed to the atmosphere.

**FLASH POINT** - Test in which an open container of oil can be heated until an open flame will flash when passed over the fumes.

**FIRE POINT** - Same test as the flash point except the oil is heated until the gasses will start a fire.

**AUTO IGNITION POINT** - The point at which fumes will burst into flame when exposed to air.

## Material Tank Capacity



| Material Depth | Model 1500<br>1570 Cubic Inches* |
|----------------|----------------------------------|
| 2"             | 13.6                             |
| 4"             | 26.32                            |
| 6"             | 39.48                            |
| 8"             | 52.64                            |
| 10"            | 65.80                            |
| 12"            | 78.96                            |
| 14"            | 92.12                            |
| 16"            | 105.58                           |
| 18"            | 118.44                           |
| 20"            | 131.60                           |
| 22"            | 144.76                           |

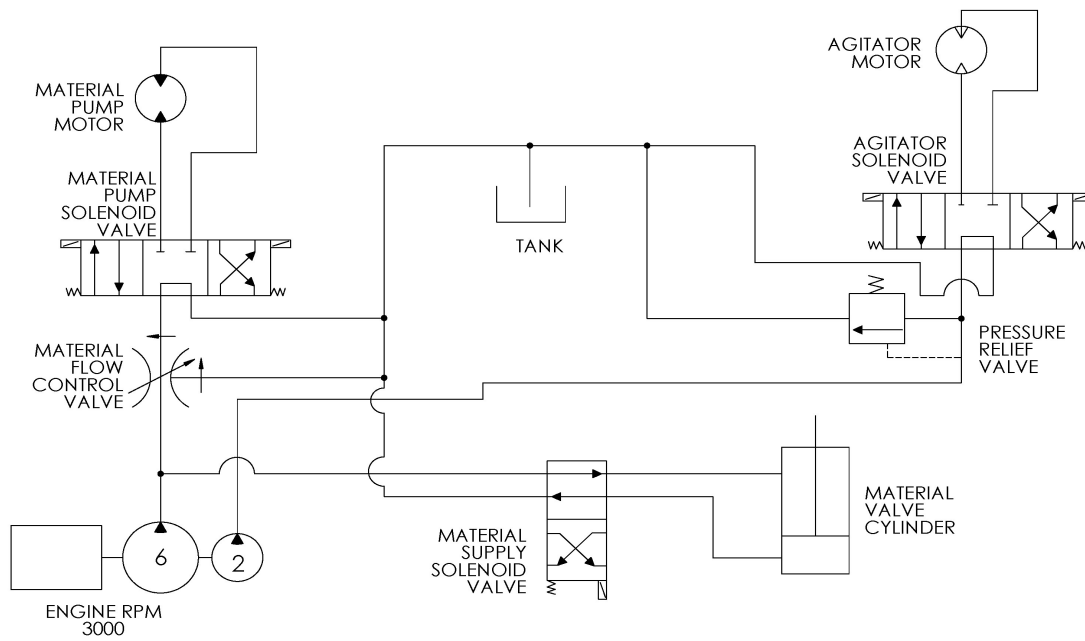
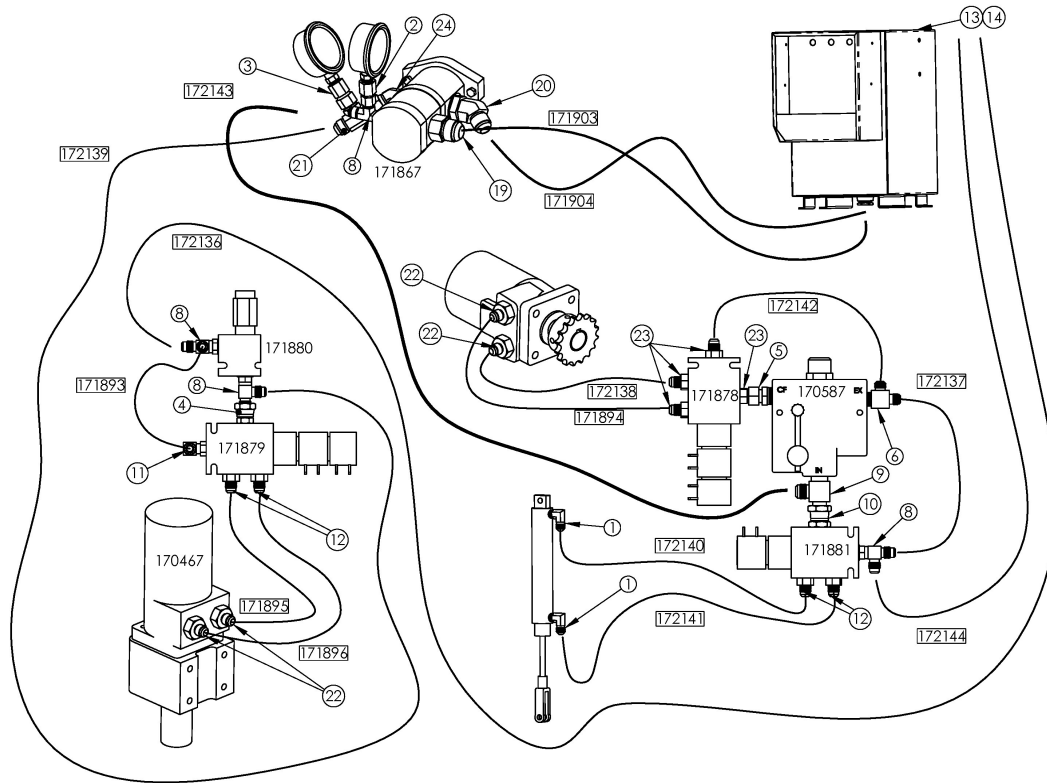
## Trouble Shooting

| PROBLEM   | CAUSE   | SOLUTION  |
|---|---|---|
| Material recirculates but will not flow through sealing wand. | Sealing hose froze up.  | Remove wand and place hose in cabinet to melt material.                                   |
|   | Sealing wand froze up.  | Heat wand and melt material.  |
|   | Sealing hose valve not completely open.   | Open valve to the full "on" position.   |
|   | Wand trigger not engaging   | Check wand switch to see if power is going through.                                       |
| Material heat up time slow.                                   | Burner orifice clogged.   | Remove orifice and clean.   |
|   | Hot oil pump worn.  | Replace or rebuild pump.  |
|   | Heat transfer oil is worn out.  | Check oil level. Replace if necessary.  |
| During sealing operation, material stops flowing.             | Wand valve left in "off" position too long before returning to access port for recirculation. | Place hose in cabinet to melt material. Refer to heating a plugged hose on page.          |
|   | Too many biscuits added at one time causing cold material to enter pump.                      | Heat hose and plumbing system. Reverse pump momentarily to force cold material into tank. |
|   | Material temperature too low.   | Check control box settings.   |

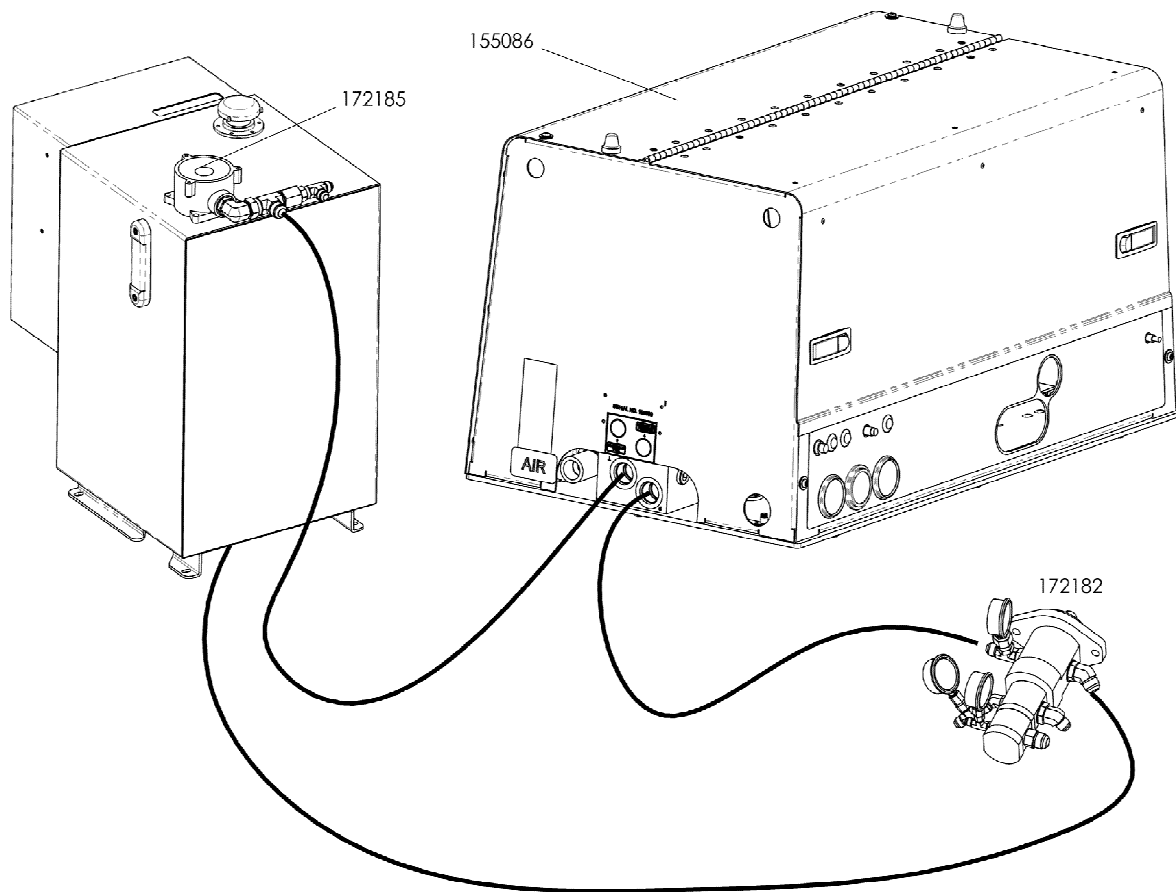
## Trouble Shooting

| PROBLEM   | CAUSE  | SOLUTION   |
|---|--|--|
| Burner will not ignite.                           | Fuse burned out.                                   | Check fuse.  |
|   | Burner relay inoperative.                          | Check for 12 VDC at relay.                                     |
|   | Primary control fuse.                              | Check fuse.  |
|   | Thermocouple(s) inoperative.                       | Replace thermocouple(s).                                       |
| Agitator will not rotate.                         | Sealant material not hot enough.                   | Allow material to heat longer.                                 |
|   | Too many biscuits added at one time.               | Continue heat up and reverse agitation to break biscuits free. |
|   | Low hydraulic oil level.                           | Check oil level.   |
|   | Worn agitator motor.                               | Replace motor.   |
|   | Controller temp set to low                         | Call CIMLINE for new controller peramiters                     |
|   | Bad solenoid Valve                                 | Replace solenoid   |
| Material pump will not rotate.                    | Sealant material not hot enough.                   | Allow material to heat longer.                                 |
|   | Too much material left in lines.                   | Heat plumbing and valves to melt material.                     |
|   | Low hydraulic level.                               | Check oil level.   |
|   | Foreign object lodged in line.                     | Remove foreign object.   |
|   | Pump damaged.                                      | Repair or replace pump.  |
|   | Controller temp set to low                         | Call CIMLINE for new controller peramiters                     |
|   | Bad solenoid Valve                                 | Replace solenoid   |
| Material pump rotates but does not pump material. | Pump worn or damaged.                              | Repair or replace pump.  |
|   | Pump rotating in wrong direction.                  | Check rotation.  |
|   | Pump inlet line plugged.                           | Check material filter and lines.                               |
|   | Too much material left in lines from previous use. | Heat plumbing and valves.                                      |

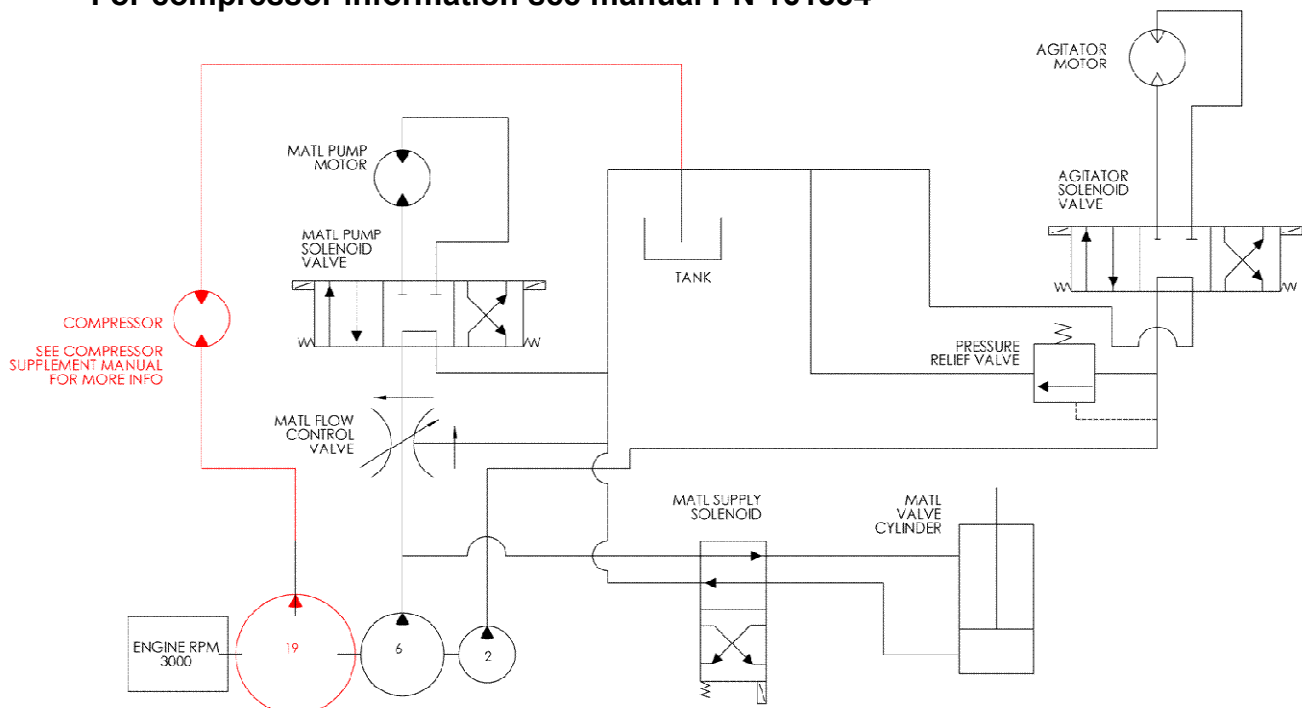
# Hydraulic Schematic (w/o Compressor)



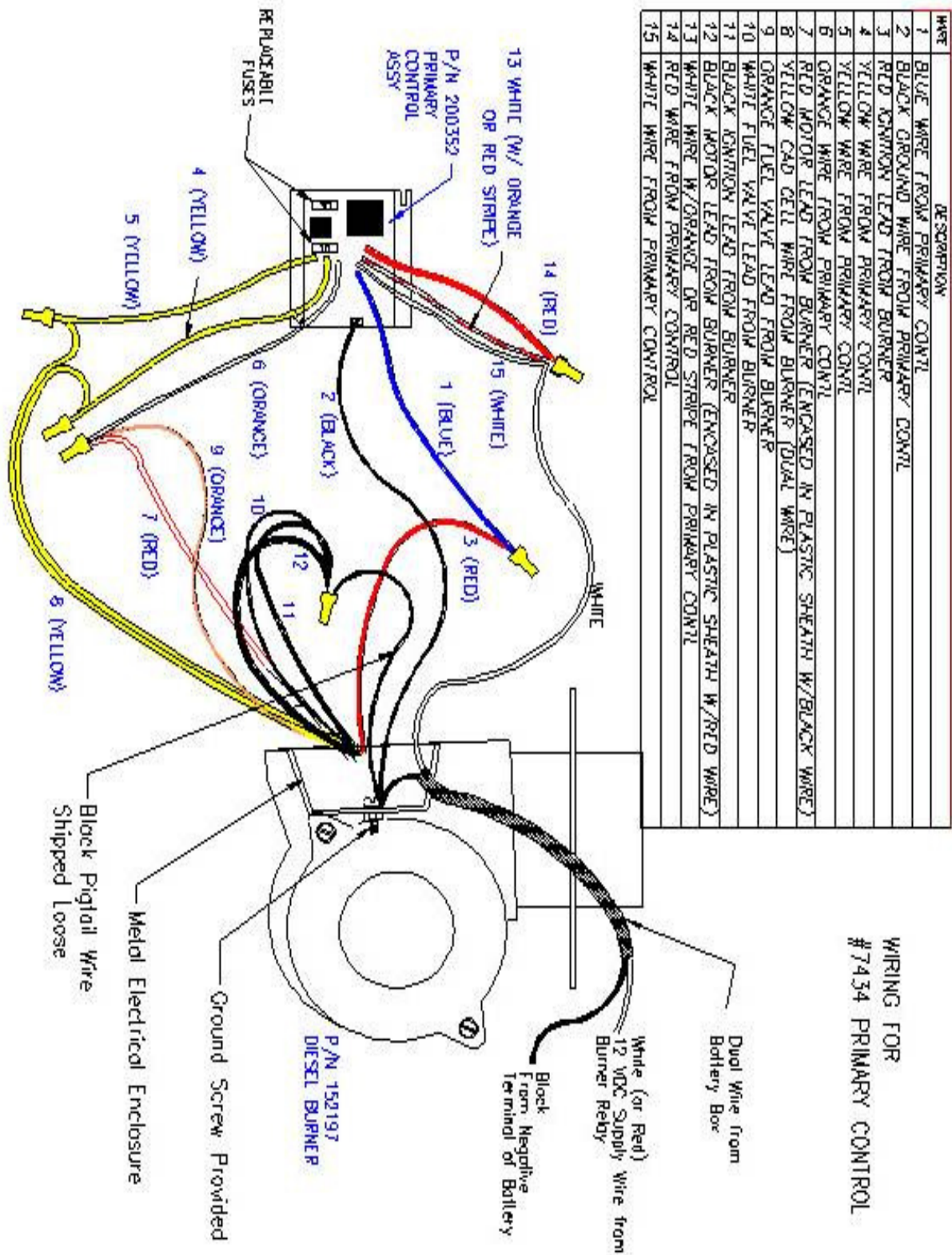
## Hydraulic Schematic (With Compressor)



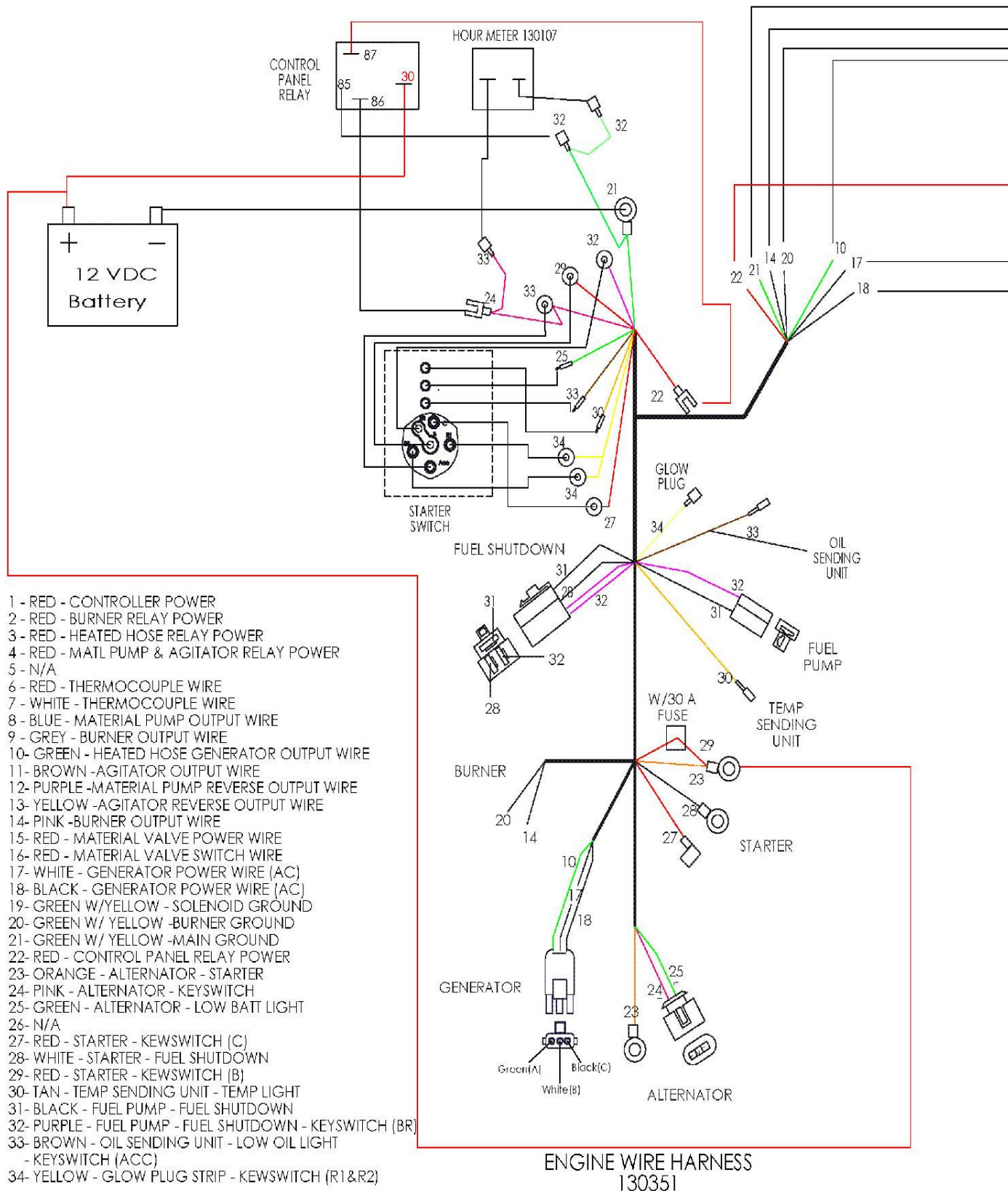
For compressor information see manual PN 161384



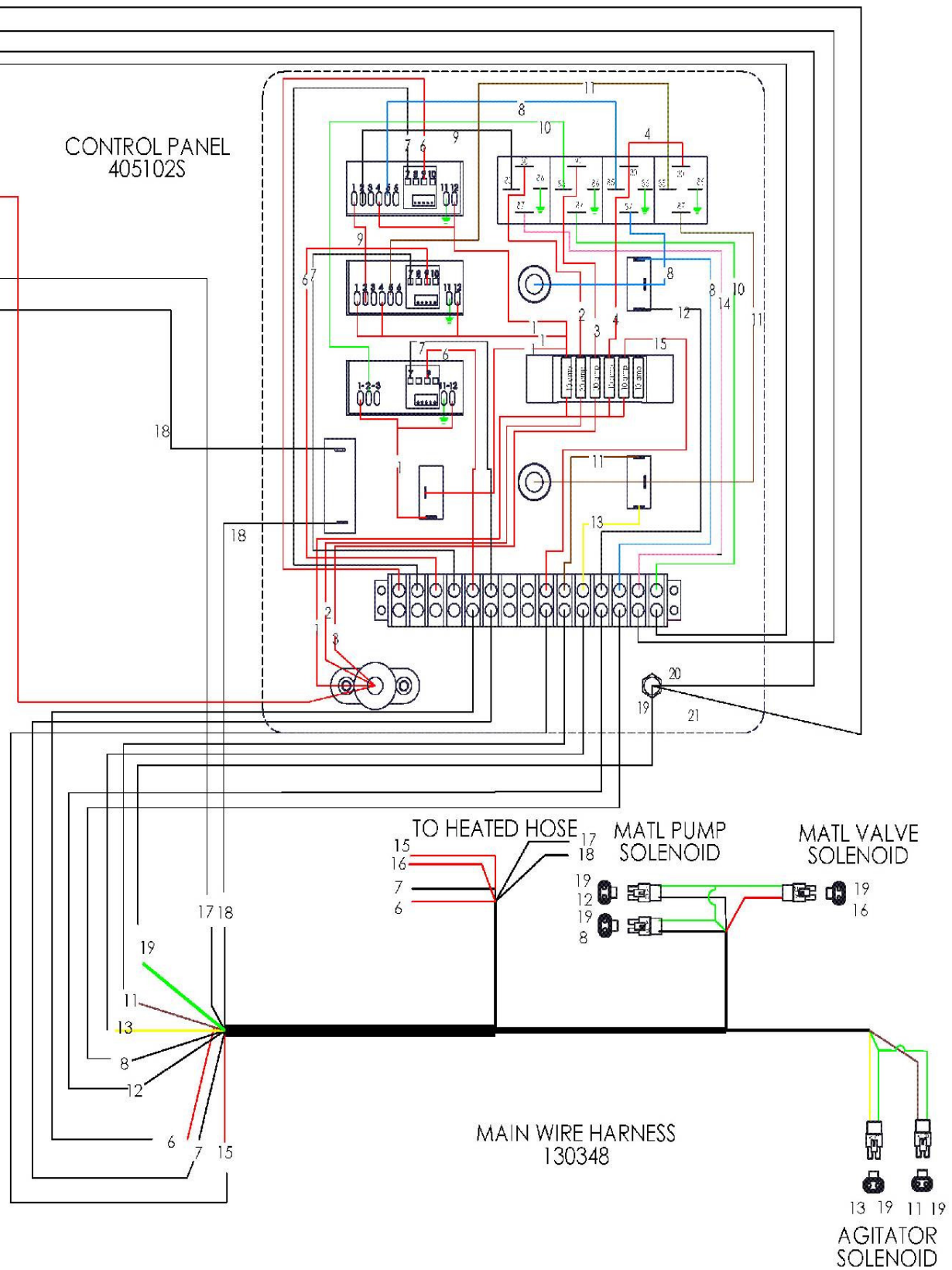
# Primary Control



## Wiring Diagrams

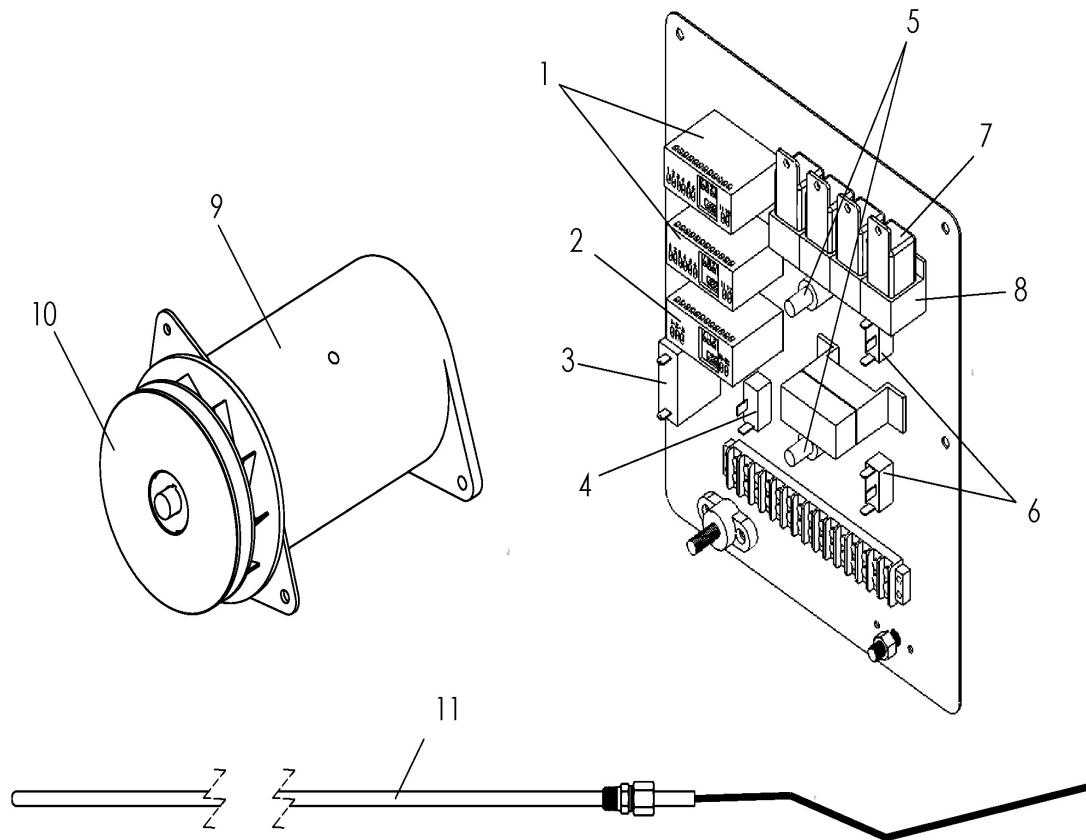






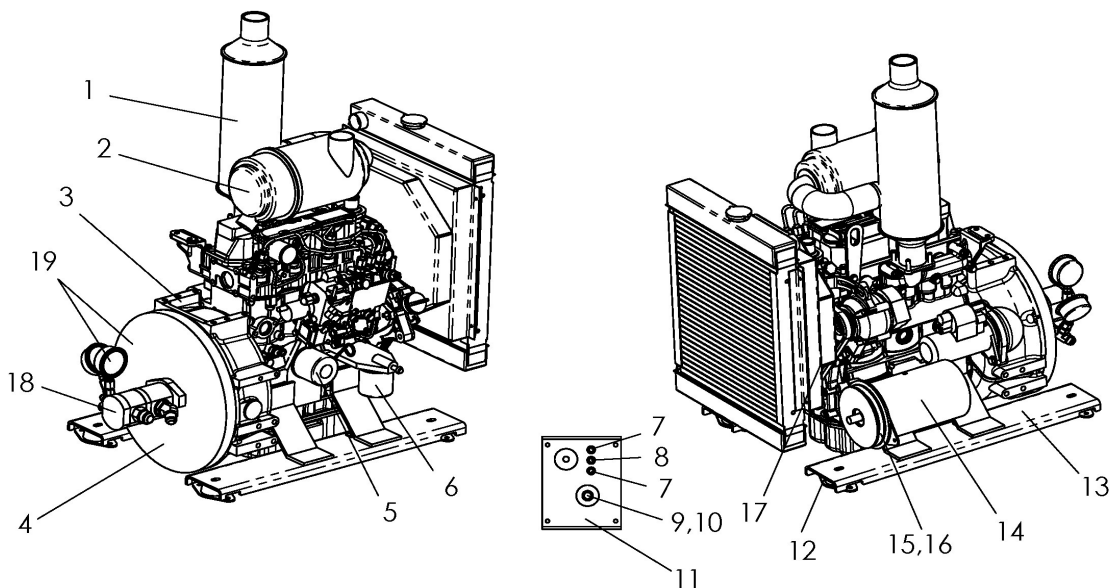
## Electrical Components

| Item | Part # | Description                             |
|------|--------|---|
| 1    | 130350 | Controller, Digital (2 Req'd)           |
| 2    | 200482 | Controller, Digital                     |
| 3    | 130355 | Circuit Breaker, 15 Amp                 |
| 4    | 130122 | Toggle Switch                           |
| 5    | 152625 | Pilot Light, Green                      |
| 6    | 130227 | Toggle Switch Spdt                      |
| 7    | 130113 | Relay, 30 Amp 12 Volt DC                |
| 8    | 130342 | Relay Mount - Dual Heated Hose          |
| 9    | 406140 | Generator Assy Kit                      |
| 10   | 422264 | Pulley, Generator                       |
| 11   | 130097 | Thermocouple                            |
|      | 200549 | Oil Controller Programming Chip         |
|      | 200548 | Material Controller Programming Chip    |
|      | 200547 | Heated Hose Controller Programming Chip |

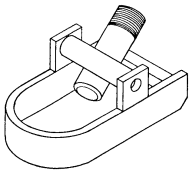


## Diesel Engine Components

| Item | Part # | Description                        | Item  | Part # | Description                                |
|------|--------|------------------------------------|---|--------|--|
| 1    |        | Muffler                            | 14  | 406140 | Generator                                  |
| 2    | 111111 | Air Filter Element (Both Engine    | 15  | 422264 | Pulley, Generator                          |
|      | 111157 | Air Cleaner Assy (Both Engine      | 16  | 110036 | Belt, A31 (Non Compressor Model)           |
| 3    | 111384 | Engine (Non Compressor Model)      |   | 111665 | Belt, A33 (Compressor Model)               |
|      | 111579 | Engine (Compressor Model)          | 17  |        | Pulley, Engine                             |
| 5    | 111337 | Oil Filter (Non Compressor Model)  | 18  | 171876 | Twin Hydraulic Pump (Non Compressor Model) |
|      | 111339 | Oil Filter (Compressor Model)      |   | 172282 | Tripple Hydraulic Pump (Compressor Model)  |
| 6    | 111457 | Fuel Filter (Non Compressor Model) | 19  | 171597 | Pressure Gauge                             |
|      | 111340 | Fuel Filter (Compressor Model)     | 20  | 111475 | Gasket Set                                 |
| 7    | 110963 | Pilot Light - Red                  | 21  | 111476 | Water Pump                                 |
| 8    | 110964 | Pilot Light - Amber                | 22  | 111477 | Water Pump Gasket                          |
| 9    | 110959 | Ignition Switch                    | 23  | 111478 | Thermostat                                 |
| 10   | 152846 | Ignition Key                       | 24  | 111479 | Engine Fan Belt                            |
| 11   |        | Igniton Assy                       | 25  | 111480 | Alternator                                 |
| 12   | 152047 | Rubber Isolator                    | 26  | 111481 | Starter                                    |
| 13   | 422167 | Engine Mount Plate                 | Engine Filter Kits include Items 2, 5 and 6 and Hydraulic Return Element and Burner Diesel Filter |        |  |
|      |        |                                    |   | 406599 | Engine Filter Kit (Non Compressor          |
|      |        |                                    |   | 407434 | Engine Filter Kit (Compressor Model)       |

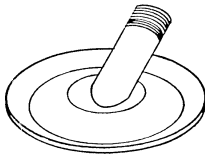


## Sealing Attachments



PIVOTING SHOE / 403137

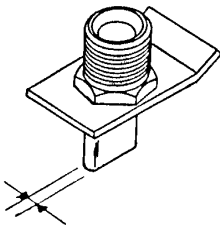
- \* 2.5" wide band
- \* 3/4" NPT inlet
- \* Open shoe design for clear visibility of material
- \* Pivoting inlet tube maintains contact with the road.



SEALING DISC 3.5" / 403162

SEALING DISC 2.5" / 404528

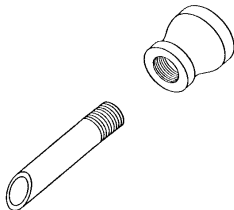
- \* 2" or 3" wide band
- \* 3/4" NPT inlet
- \* 3/8" OD orifice
- \* 4 1/2" OD plate
- \* Uniform band provided by disc shape



1/8" SEALING TIP / 403164

1/4" SEALING TIP / 403163

- \* Available in 1/8" and 1/4"
- \* 3/4" NPT inlet
- \* Skid plate to reduce operator fatigue
- \* Tip may be shortened or angled on field for specific applications

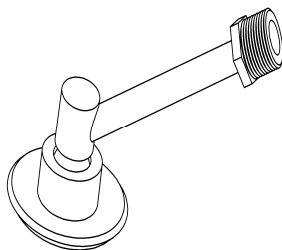


3/8" SEALING TUBE / 416968

3/4" X 3/8" REDUCER / 120567

- \* 3/8 NPT X 3 1/2" long tube
- \* Angled tip
- \* May be flattened in field for different applications
- \* 3/4" NPT inlet

**120567 Reducer Required**



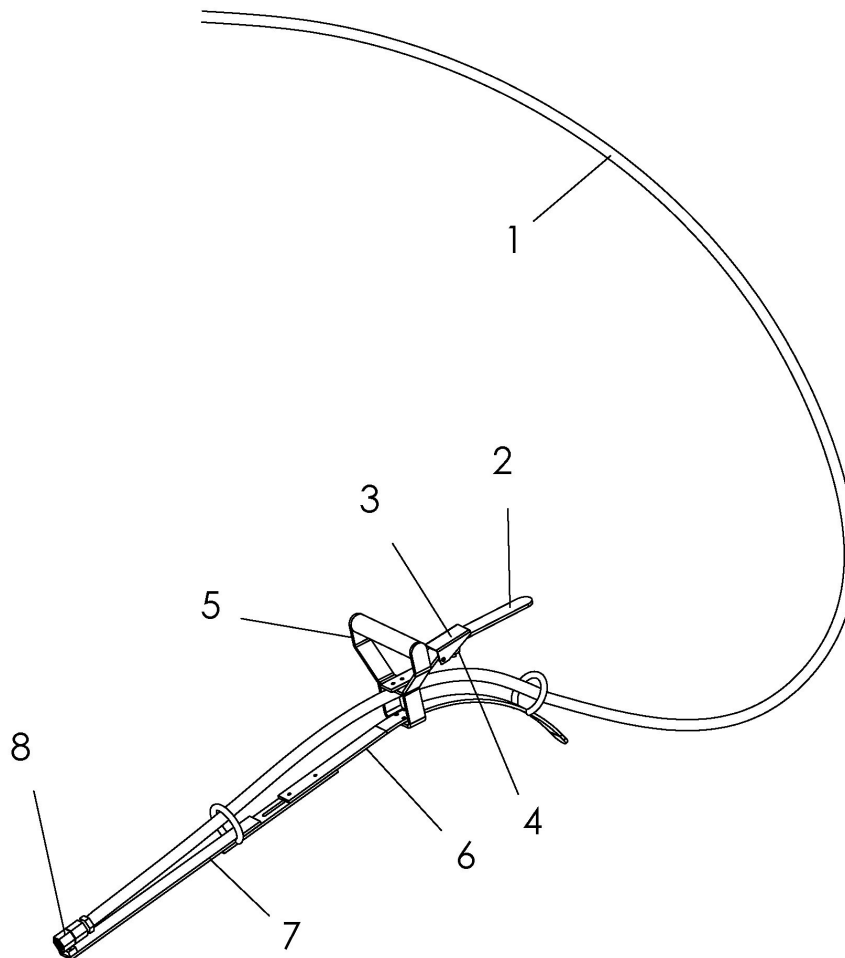
SWIVEL TIP 4" / 407233

SWIVEL TIP 2.5" / 407232

- \* 2" or 3 1/2" wide band
- \* 3/4" NPT inlet
- \* 3/8" OD orifice
- \* 3 1/8" OD plate
- \* Uniform band provided by disc shape
- \* Pivoting Shoe

## Sealing Hose Accessories (Remote Control)

| Item | Part # | Description                        |
|------|--------|------------------------------------|
| 1    | 200526 | Heated Hose Replacemnet Kit        |
|      | 406821 | Trigger Wire Repair Kit            |
| 2    | 404302 | Trigger Weldment                   |
| 3    | 420105 | Trigger                            |
| 4    | 130323 | Switch                             |
| 5    | 404301 | Handle Weldment                    |
| 6    | 404304 | Wand Front Weldment                |
| 7    | 404303 | Wand, Back Weldment                |
| 8    | 404300 | Swivel Weldment                    |
| 9    | 404293 | Wand Assembly (includes Items 2-8) |

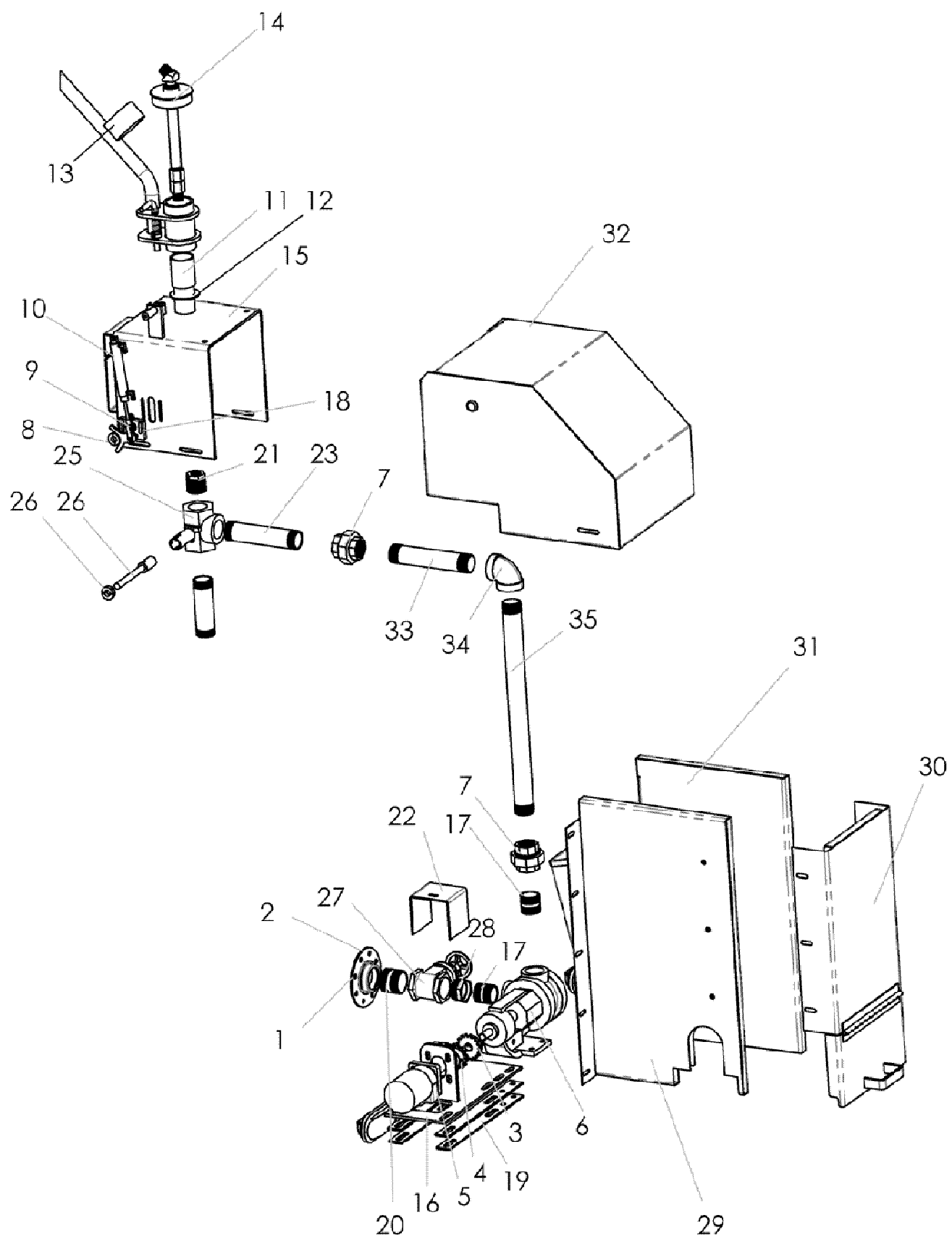


## Plumbing System Parts List

| Item | Part # | Description               |
|------|--------|---------------------------|
| 1    | 152127 | Outlet Gasket - 3"        |
| 2    | 405112 | Flange Weld               |
| 3    | 110055 | Sprocket 40B16 x .75      |
| 4    | 110927 | Sprocket CPLG 1" 16 Tooth |
| 5    | 171905 | Motor, Pump Drive         |
| 6    | 111581 | Pump                      |
| 7    | 120083 | Pipe Union                |
| 8    | 404294 | Ear Weldment              |
| 9    | 130155 | Clevis Kit .25-28 x .25   |
| 10   | 171144 | Cylinder, 1 x 3 Brass     |
| 11   | 111390 | Bushing, Bronze           |
| 12   | 111389 | Bushing, Thrust           |
| 13   | 405115 | Boom Matrix               |
| 14   | 407575 | Drip Cap                  |
| 15   | 405114 | Plumbing Cover, Front     |
| 16   | 406641 | Pump Plate                |
| 17   | 120018 | 1.5 Close Nipple          |
| 18   | 404426 | Bearing Block Assy        |
| 19   | 425160 | Pump Shim                 |
| 20   | 120396 | 2.0 Close Nipple          |
| 21   | 120673 | Fitting Adapter           |
| 22   | 416858 | Coupling Cover            |
| 23   | 120353 | 1.5 Pipe Nipple           |
| 24   | 110159 | Chain Coupler             |
| 25   | 405154 | Flow Diverter w/Coupler   |
| 26   | 422329 | Diverter Shaft            |
| 27   | 120497 | 2" Gate Valve             |
| 28   | 120043 | Pipe Bushing              |
| 29   | 406185 | LH Cab Wall               |
| 30   | 406187 | Back Cab Wall             |
| 31   | 406186 | RH Cab Wall               |
| 32   | 406188 | Top Cab Cap               |
| 33   | 120024 | 1.5 Pipe Nipple           |
| 34   | 120055 | 1.5 Pipe Elbow            |
| 35   | 120879 | 1.5 Pipe Nipple           |
|      |        |                           |
|      |        |                           |
|      |        |                           |

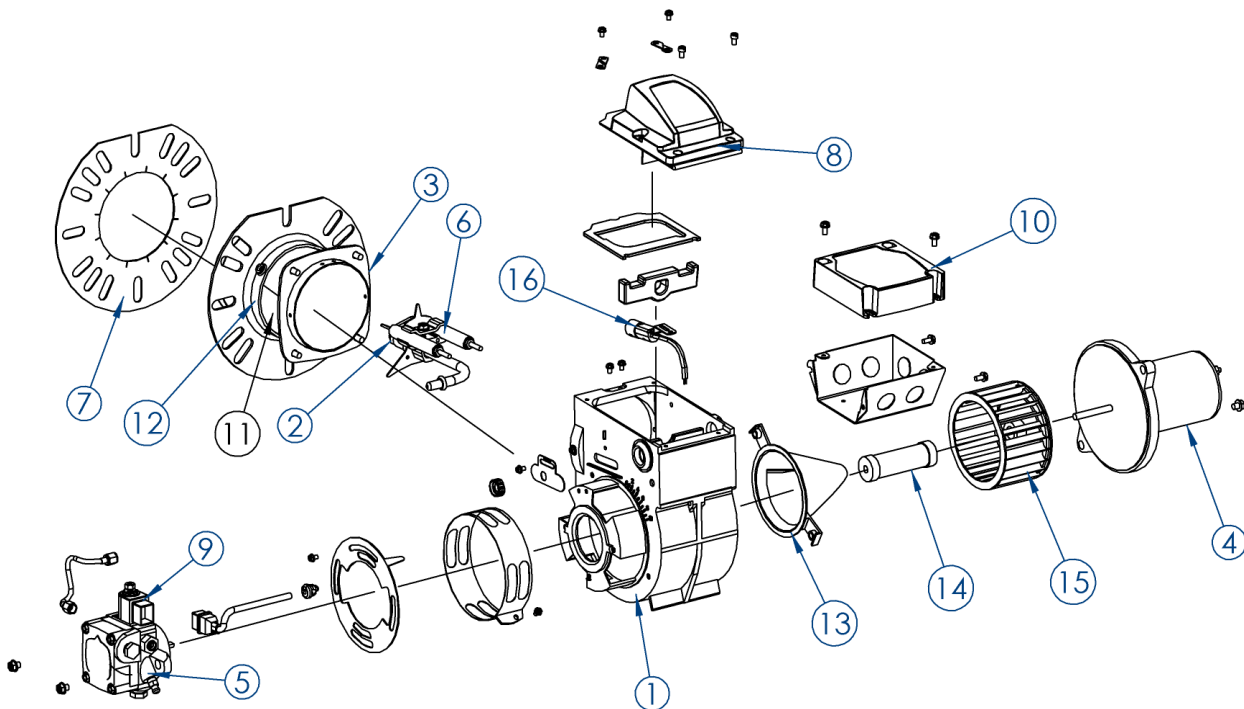
# Plumbing System Parts List

35



## Oil Burner Parts List

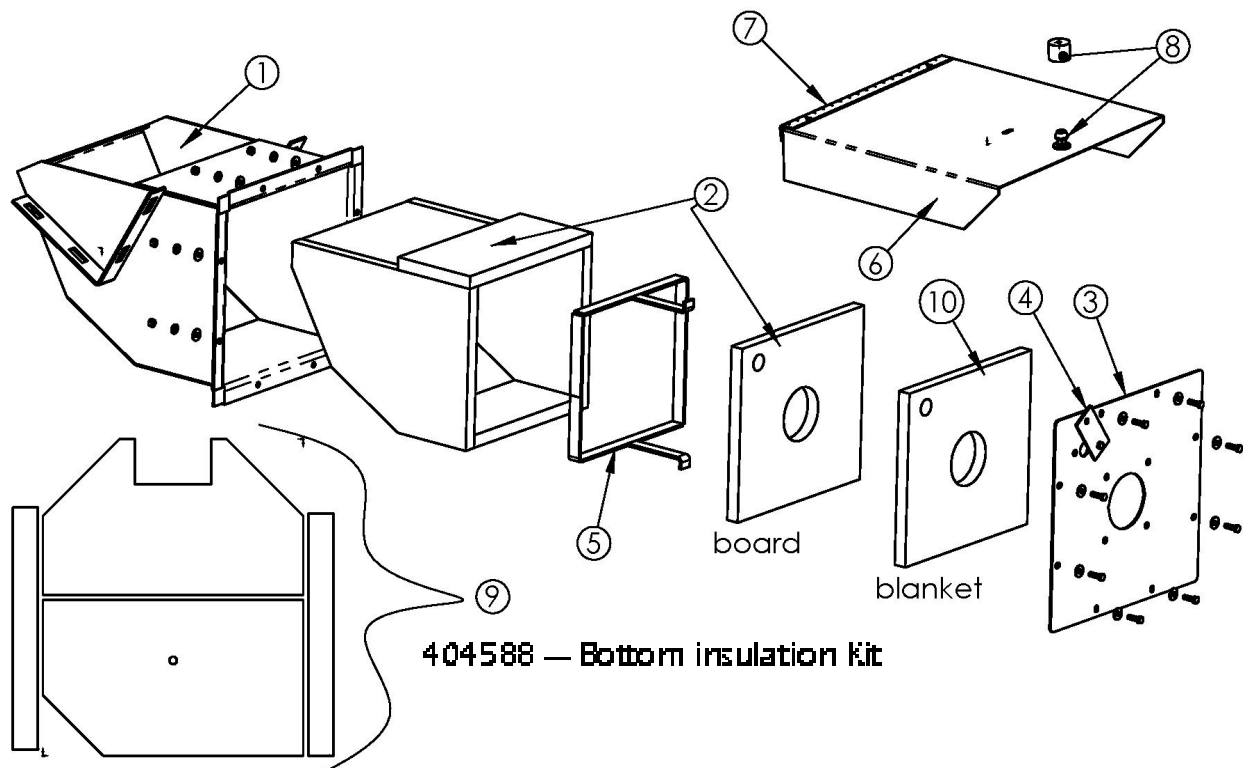
| Item | Part # | Description                   |
|------|--------|-------------------------------|
| 1    | 152197 | Matrix Oil Burner, Complete   |
| 2    | 152305 | Nozzle, 1.75 GPH x 90B Matirx |
| 3    | 153505 | Square Plate , Gasket         |
| 4    | 152191 | Motor, Oil Burner             |
| 5    | 155001 | Pump, Oil                     |
| 6    | 152106 | Electrode Rod/Ins Assy        |
| 7    | 152128 | Gasket, Burner Flange         |
| 8    | 152173 | Ignition Transformer Assy.    |
| 9    | 152200 | Oil Valve                     |
| 10   | 200352 | Primary Control assy          |
| 11   | 120443 | Air Tube                      |
| 12   | 120466 | Burner Head Tube, Matrix      |
| 13   | 152398 | Air Inlet Guide               |
| 14   | 152399 | Coupling                      |
| 15   | 152466 | Blower Wheel                  |
| 16   | 152105 | Electric Eye Assy             |
| *    | 130166 | Fuel Pressure Gauge           |
|      |        | * Not Shown                   |





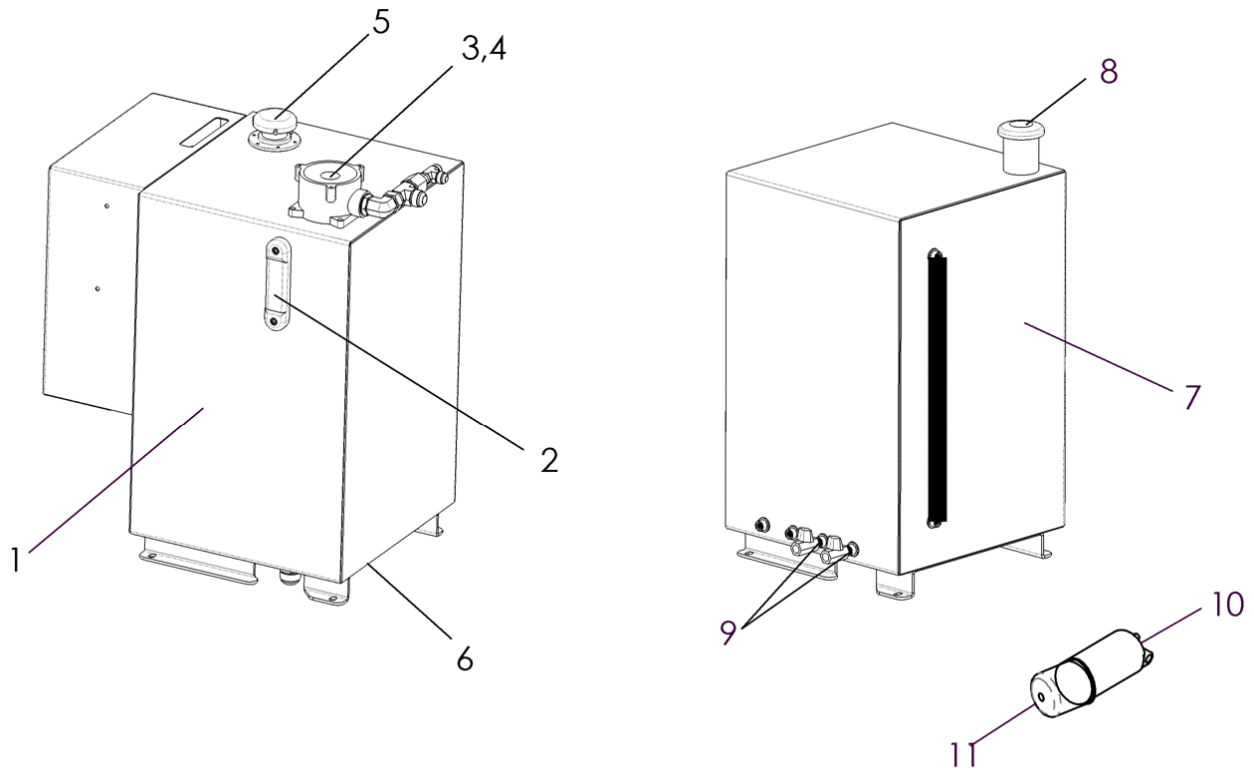
## Combustion Chamber Parts List

| Item | Part #  | Description                                   |
|------|---------|---|
| 1    | 402893  | Combustion Chamber Skin                       |
| 2    | 403400  | Chamber Lining Kit (board)                    |
| 3    | 402898  | Burner Mount                                  |
| 4    | 417041S | Inspection Cover                              |
| 5    | 402923  | Lining Retainer                               |
| 6    | 420210S | Burner Cover                                  |
| 7    | 420296S | Burner Hinge                                  |
| 8    | 153502  | Door Holder                                   |
| 9    | 404588  | Bottom Insulation Kit Matrix (Blanket)        |
| 10   | 152487  | Blanket Insulation                            |
|      | 404518  | Heat Chamber Assy Includes 1, 2, 3, 4, 5 & 10 |



## Hydraulic & Fuel Tank Components

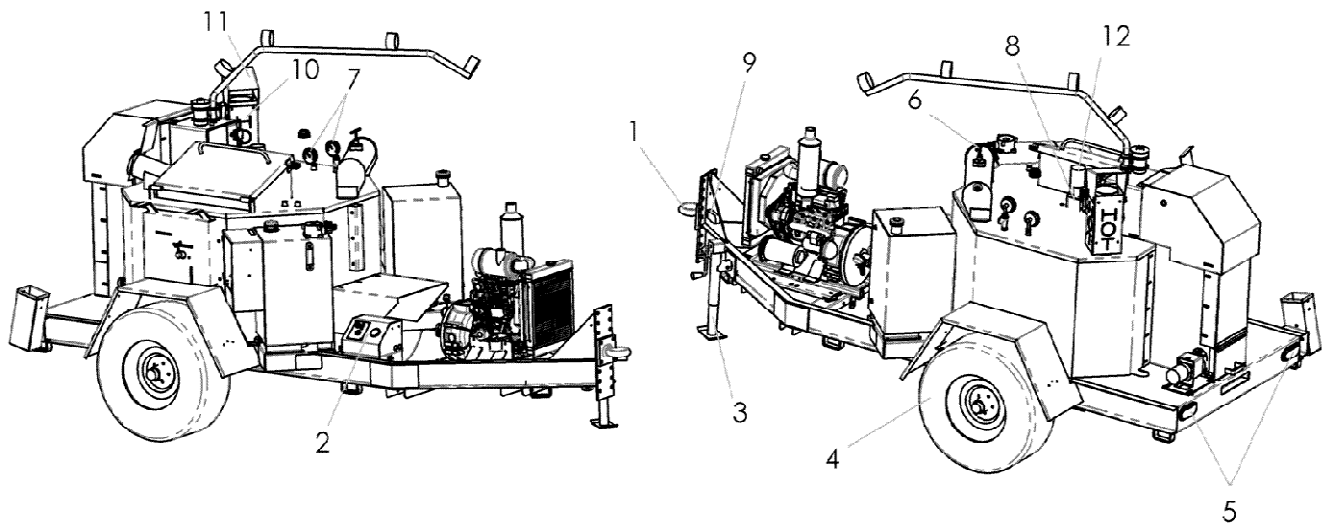
| Item | Part # | Description                                |
|------|--------|--|
| 1    | 405110 | Hydraulic Reservoir                        |
| 2    | 171631 | Sight Gauge, 5:                            |
| 3    | 171884 | Return Filter (Non Compressor Models)      |
|      | 172185 | Return Filter (Compressor Models)          |
| *    | 153136 | Gasket, Oil Filter (Non Compressor Models) |
| *    | 170625 | Seal Kit (Non Compressor Models)           |
| 4    | 170407 | Filter Element (Non Compressor Models)     |
|      | 172333 | Filter Element (Compressor Model)          |
| 5    | 152044 | Filler Cap Assy                            |
| 6    | 172186 | Suction Filter                             |
| 7    | 405111 | Fuel Tank                                  |
| 8    | 152124 | Gas Tank Cap                               |
| 9    | 120743 | .25" Ball Valve                            |
| 10   | 170208 | Filter Mount                               |
| 11   | 170169 | Filter                                     |
|      |        | <b>* Not Shown</b>                         |



## Misc Parts

| Item | Part # | Description                     |
|------|--------|---------------------------------|
| 1    | 140333 | Pintle Hitch, 2 1/2"            |
| *    | 403135 | Pintle Hitch, 3"                |
| *    | 403271 | Ball Hitch, 2"                  |
| *    | 402954 | Ball Hitch, 2 5/16"             |
| 2    | 150212 | Battery, 12 V-M                 |
| 3    | 140330 | Jack, 5000 lb                   |
| 4    | 140382 | Radial Tire Assy                |
| 5    | 130359 | Tail Light                      |
| 6    | 402890 | Dipstick                        |
| 7    | 130130 | Thermometer, 24"                |
| 8    | 170449 | Load Adapter                    |
| 9    | 130050 | Breakaway Switch                |
| *    | 153638 | Breakaway Switch Cable          |
| 10   | 422157 | Heat Shield                     |
| 11   | 422156 | Deflector Plate                 |
| 12   | 170467 | Agitator Motor                  |
| *    | 403910 | Heat Transfer Oil - 5 Gal Pail  |
| *    | 152842 | Heat Transfer Oil - 30 Gal Drum |

\* Not Shown





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