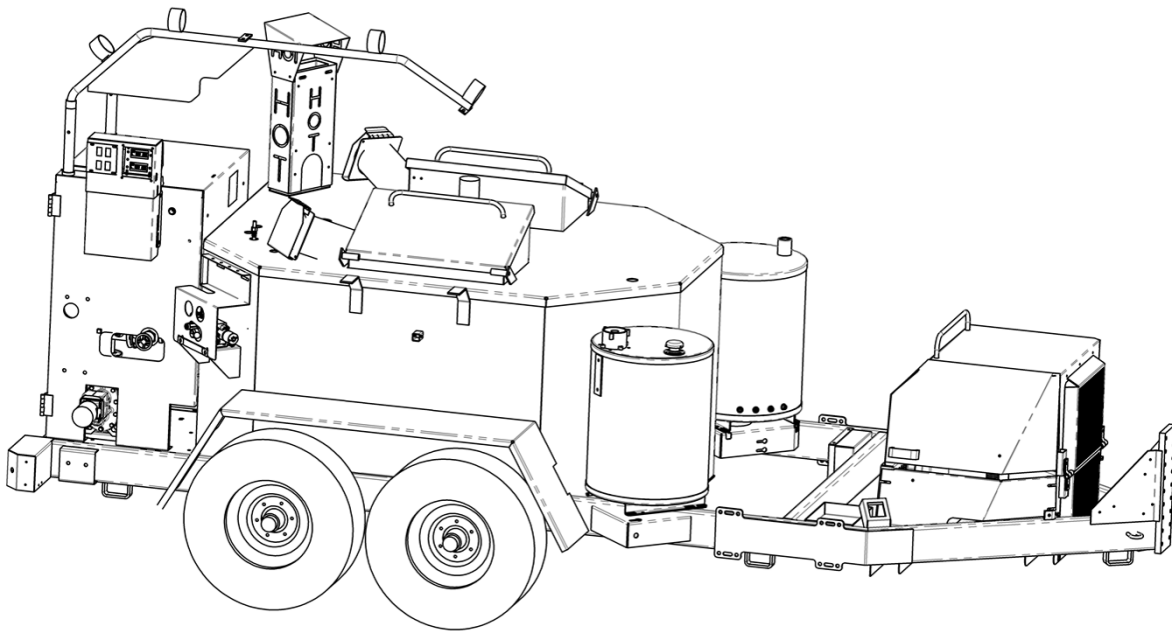




*Melter Applicator*

# ***Magma 410***

*Owner/Operator Manual*



2601 Niagara Lane · Plymouth, MN 55447 · (763) 557-1982 · (877) 841-0848 · Fax (763) 557-1971  
Part # 161462

Revised 3/4/16

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## 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)

**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.

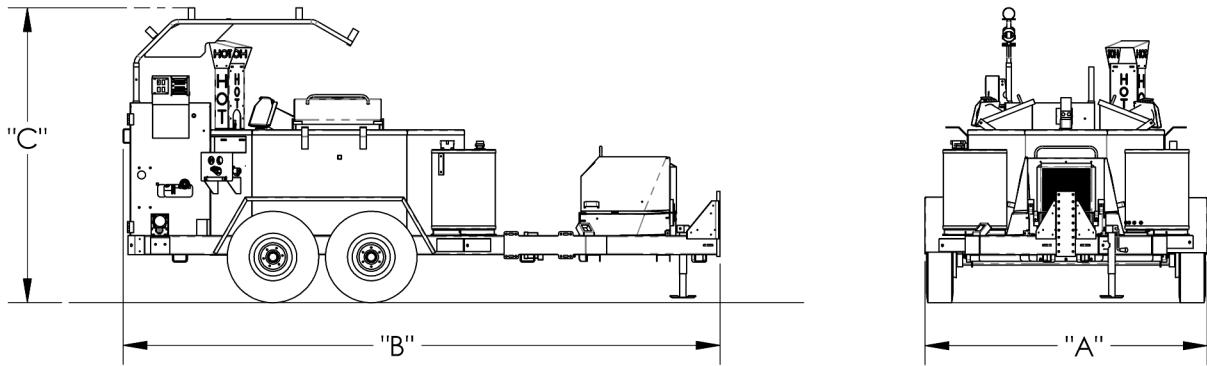
**WARNING: Do not over fill the melting tank. For best results, add only as much material as required for the job or a maximum of 75% of tank capacity. (Model 410 - 308 gallons).**

**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.**

# Weights and Dimensions

Model Number	"A" in/cm	"B" in/cm	"C" in/cm	Weight lbs/kg (empty)
410	89/226	188/478	93/236	5420/2458
Weights are without options				

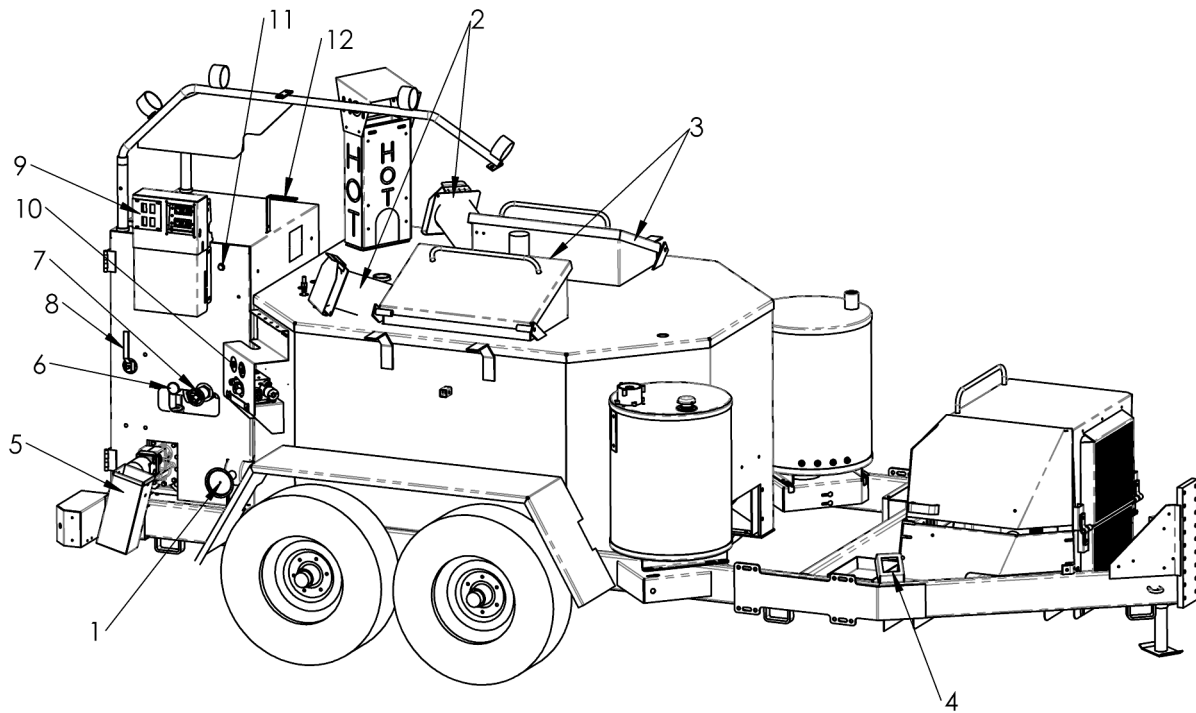


# Controls and Their Functions

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

- 1) **Tank Outlet Valve:** Allows melted material from the tank to flow into the pumping system.
- 2) **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.
- 3) **Loading Doors:** Place the material on safety door to load the melting tank.
- 4) **Micropanel ignition Switch:** Use the key to turn the engine on and off.
- 5) **Wand Holder:** On models with the electrically heated hose, the wand is placed into this holder.
- 6) **Material Temperature Gauge:** Reads material temperature as it pumps through plumbing system.
- 7) **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.
- 8) **Sealing Hose Valve:** Opening this valve will allow the material being pumped to flow through the hose and sealing wand. The valve should be in the full "on" position during operation to prevent flow restriction.
- 9) **Control Panel:** The main control panel is used to control the direction of the material pump and agitator, and you can also monitor the temperature of the material and heat transfer oil.
- 10) **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.
- 11) **Cabinet Temperature Gauge:** Indicates the temperature inside the cabinet. Do not exceed 320° F (160° C).
- 12) **Thermal Regulating Gate:** Lift lever to open gate which will direct hot air to cabinet to heat pump and plumbing.

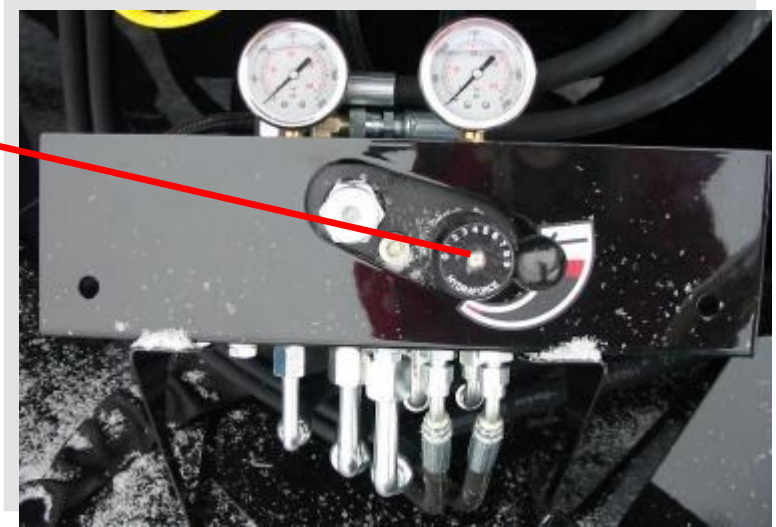
# Controls and Their Functions



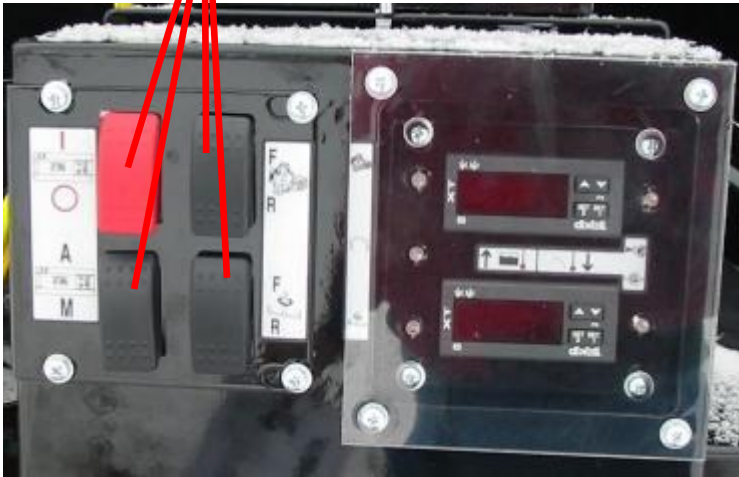
# Start up

## 1. SETUP:

A) Set Flow control to "9"



B) Set all control switches to up



## 2. START ENGINE:

A) Turn key on engine control to "1"

B) Heat glow plugs 3-5 seconds.

C) Turn key to "2"

D) Release when engine starts

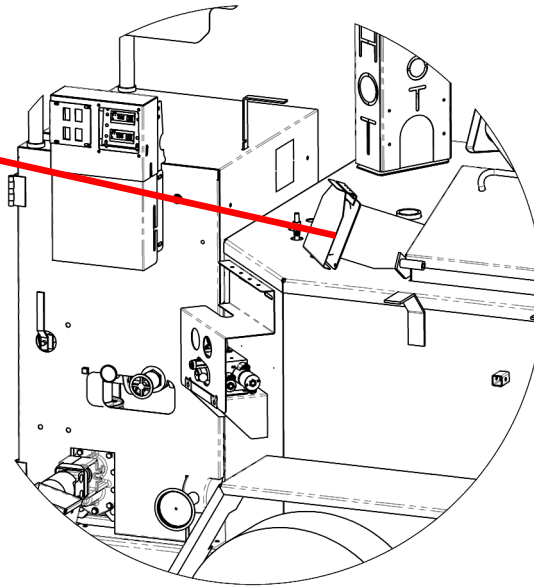




## 3. WAND

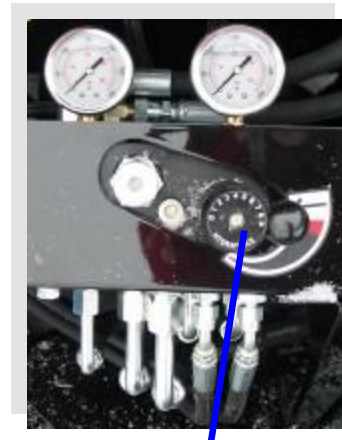
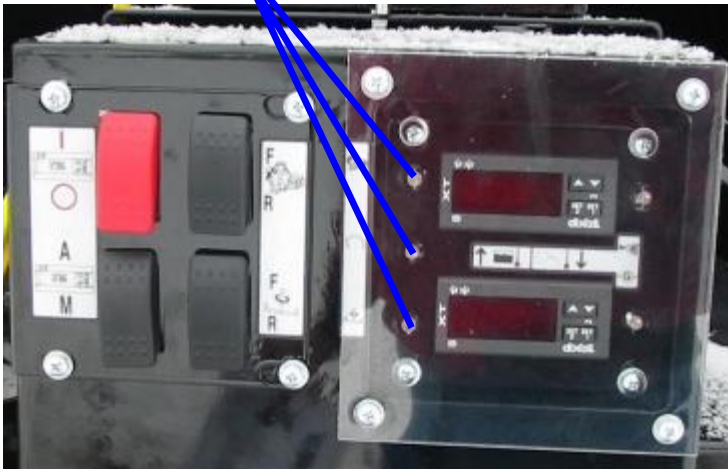
A) Unlock Boom

B) Place wand in port.

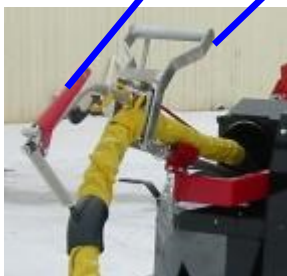


## 4. Ready for Work

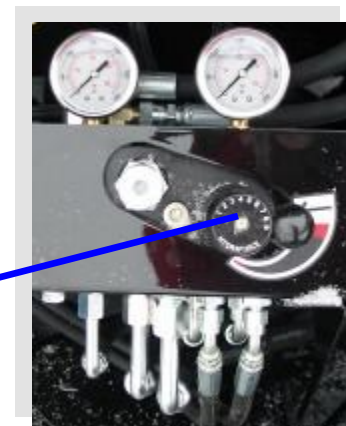
When all 3 GREEN lights are on:



A) Set Flow to "0"



B) Pin Wand trigger and set handle forward



C) Set Flow to desired level

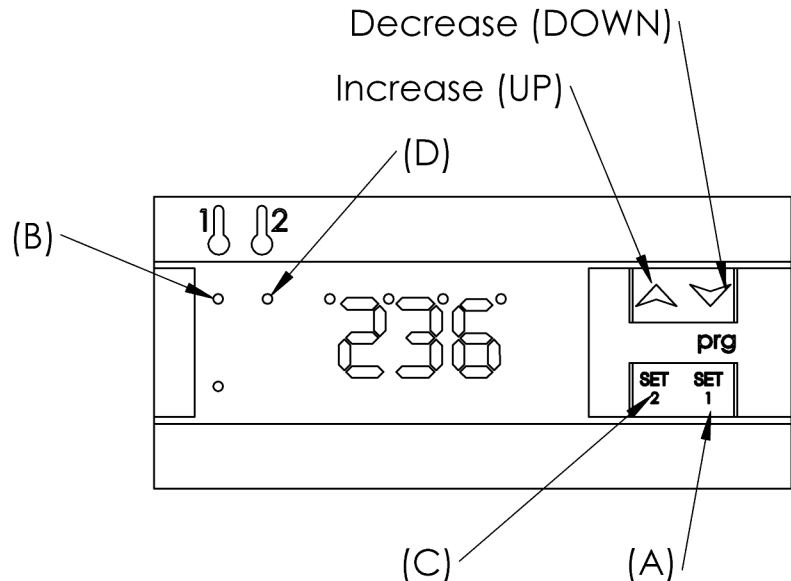
D) Start Sealing

## Automatic Temperature Control Setting

The control system on your CIMLINE Magma melter has been factory set to run the most common types of materials. These materials have an application temperature of 380 deg F.

With some materials, it may be needed to change the controller to achieve the appropriate application temperature. To achieve this, unscrew the clear plastic shield in the control box and alter the material controller by following the directions below.

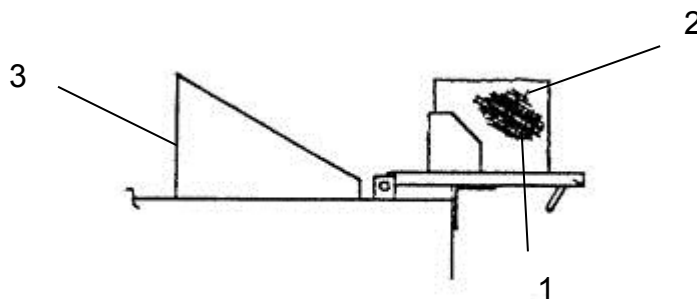
- 1) Press and hold set button (A) for 5 sec. Light (B) will turn on while in the setting mode.
- 2) Press "UP" or "DOWN" button until desired temp is shown.
- 3) Press set button (A), light (B) will turn off and the readout will display actual temperature.
- 4) Indicator light (B) will remain on anytime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



## Loading Empty Tank

**All material must be clean. Keep all foreign matter out of melting tank.**

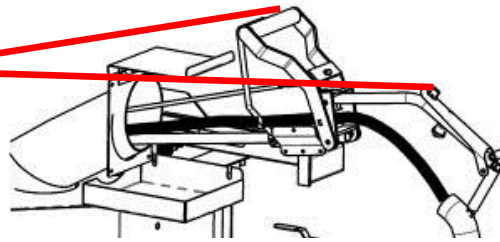
- 1) Open the material door (1) and place slab or biscuit (2) on the open door against the holder (3).
- 2) Push door to the closed position. **DO NOT DROP MATERIAL INTO THE MELTER WITH DOOR OPEN.**



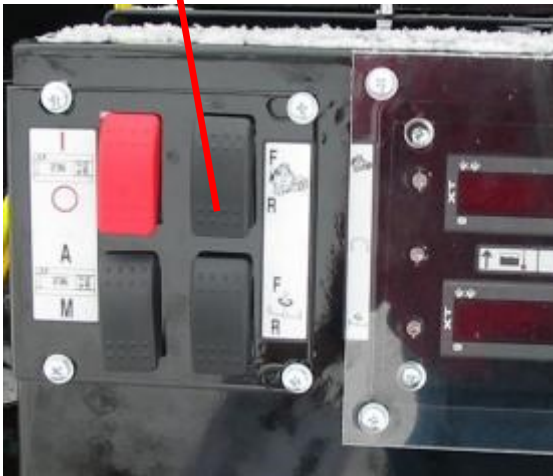
# Cleanout Procedure

## 1. SETUP:

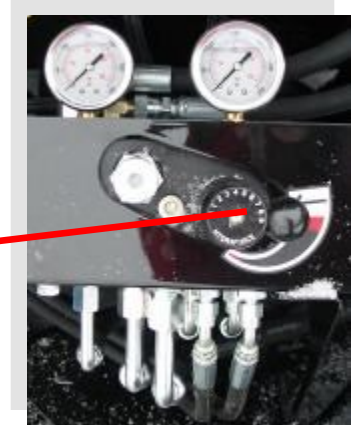
- A) Place wand in port.
- B) Pin wand trigger and set handle forward.



- C) Set pump control switch to reverse (R).



- D) Set flow to "9"



## Hose Clean-out:

Let pump run in reverse for 2 minutes.

## Pump Clean-out:

Unpin wand trigger.  
Continue running pump in reverse for 2 minutes.

## Shut down:

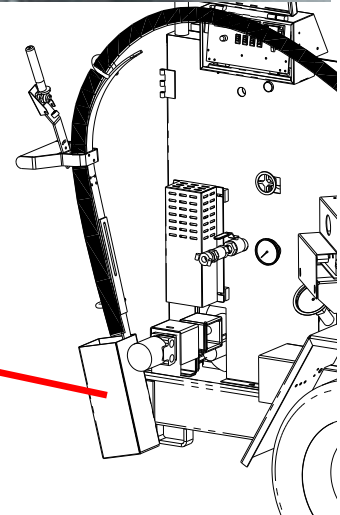
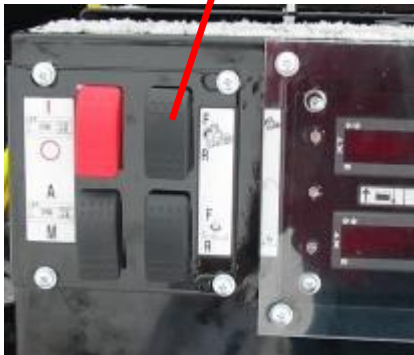
Shut Engine off by turning key to "0"

Set all control switches up.



Move Boom to travel position and lock.

Store wand



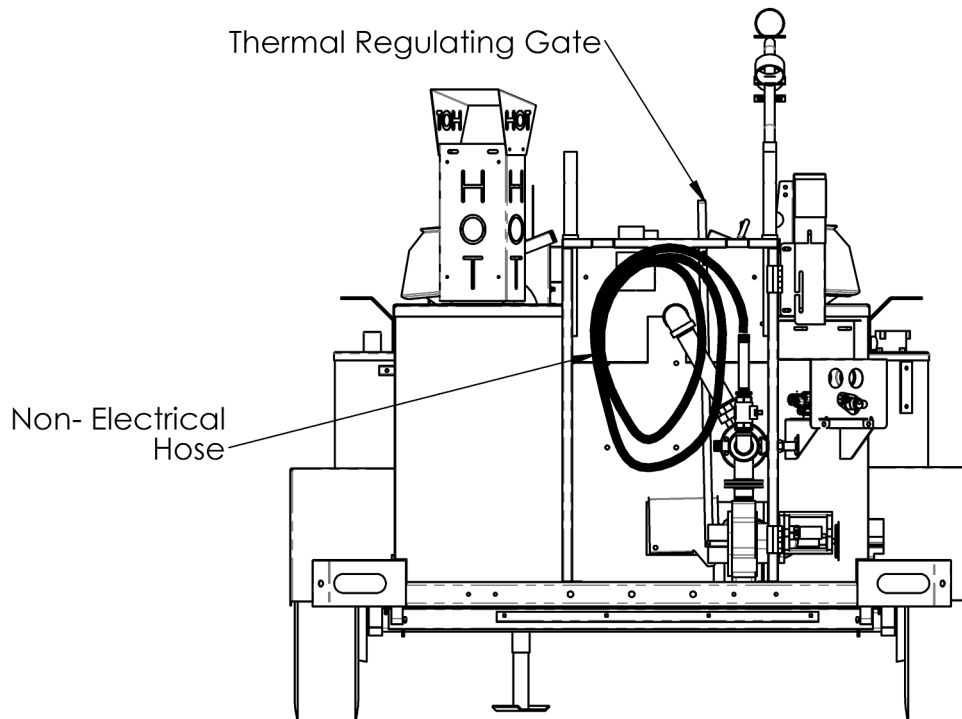
## Cleanout Procedure (Non-Electric Hose)

Regardless of how you store your hose, the residue tends to settle at the bottom of the coils overnight. Each day when the unit is started, the hose must be coiled up and placed in the cabinet during the preheating process, as shown in the picture below. Unless the hose was cleaned with compressed air, you will probably have enough material remaining in the hose to require this procedure.

**NOTE: Once the Melter is up to operating temperature, the burner typically does not cycle often enough to get the cabinet to the required temperature to unplug the hose.**

On cold and windy days, it is very important to maintain material flow through the hose at all times. This requires keeping the material up to temperature and returning the wand to the access port anytime the wand will be shut off for more than 30 seconds to a minute. If the hose plugs during sealing operations, one of the following procedures should be followed:

- 1) **Immediately** remove the sealing tip (if you are using one) and insert the wand into the access port. With the sealing hose valve and the wand valve both wide open, turn the pressure valve clockwise to increase the pressure supplied to the hose. Do this until the engine almost stalls. If this does not work, proceed to another method.



# Cleanout Procedure (Non-Electric Hose)

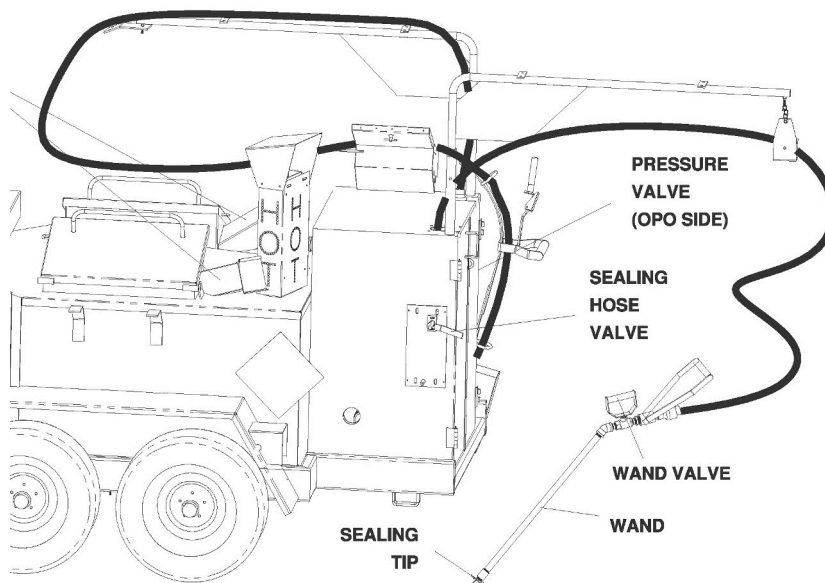
**NOTE:** Immediately coil the hose inside the cabinet.

- 2) If the unit is not full of material, add material to lower the tank temperature enough so the control box will fire the burner. Keep adding material until the cabinet temperature is high enough to unplug the hose.

**NOTE:** Be sure to open the thermal regulating gate to the full open position.  
On propane units, be sure the stack diverter is closed.

- 3) If the unit is full, it may be necessary to open up the loading door and allow the material to cool down. Turn the temperature control setting to 250° F (121°C). Allow the material to cool down enough so that the burner will have to run for a period of time long enough to heat the hose sufficiently. The actual time required will vary depending on how much material and what type of material is left in the hose. Thermal regulating gate must be wide open. On propane units, the stack diverter must be closed.
- 4) If the unit is clogged and the above two procedures are not possible, it may be necessary to use a back up hose. The clogged hose can then be connected and unplugged the next time you start up with a cold material tank.

The above situations illustrate the importance of properly cleaning the hose after use. It also shows the importance of returning the hose to the access port during times between use to keep the material flowing freely through the hose.



## 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. The 150/230/410 M/A has the option of (2) different engines. The Isuzu 22.8 H.P. and 40.3 diesel units. For more detailed information please refer to the Engine Operator Maintenance Manual and Warranty provided with your Melter applicator.

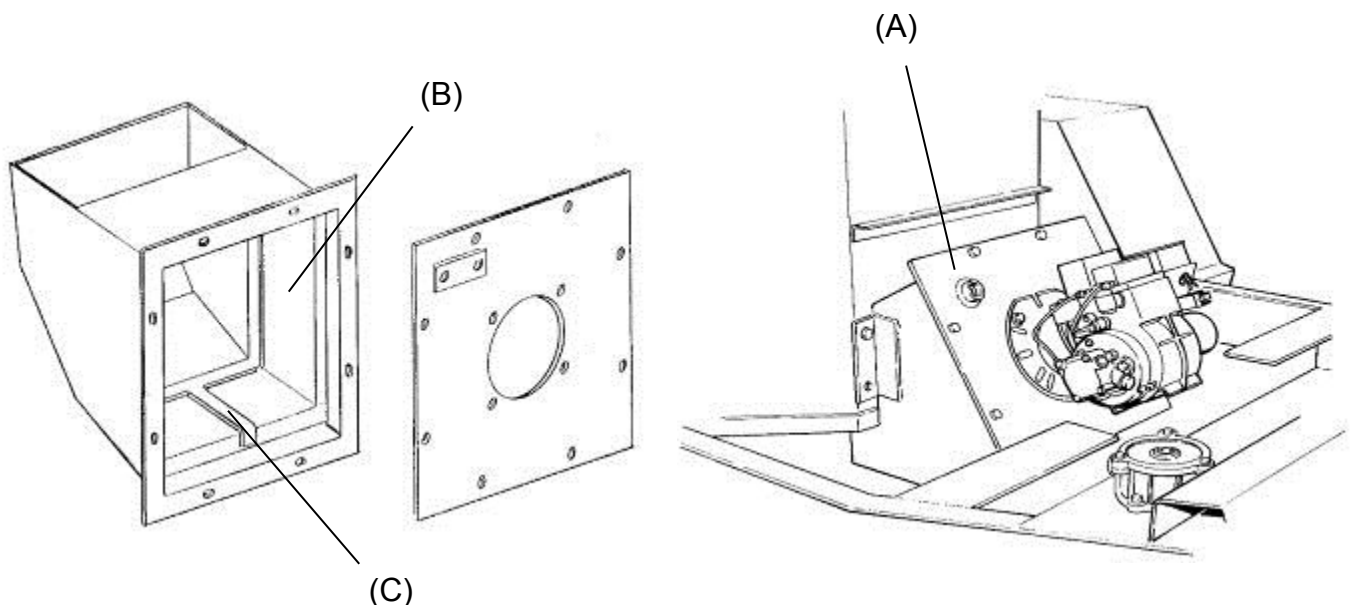
**NOTE:** When breaking in a new Melter, we recommend running the engine for one hour with no load prior to actual use on the job.

**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.

**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 nozzle, electrode and head position, chamber lining (see below) and the electric eye. Please refer to the burner manual on how to perform each of these operations in this manual..

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.



## Maintenance

Maintenance Operation	Daily	25 Hrs	100 Hrs	200 Hrs	1000 Hrs	Yearly
Check fuel level (add if low)	X					
Check engine and heat transfer oil (add if low)	X					
Check hydraulic oil (add if low)	X					
Check engine air cleaner	X					
Inspect pre-cleaner	X					
Cleanout material system	X					
Inspect sealing hose and cover	X					
Inspect sealing hose connection	X					
Drain condensation from air compressor option	X					
Blow oil cooler on the air compressor option	X					
Inspect and clean cooling system (Diesel units only)		X				
Inspect material pump packing (adjust if leaking is excessive)		X				
Check oil level on air compressor option		X				
Service air cleaner element			X			
Inspect spark plugs and breaker pts. (Propane units only)			X			
Inspect burner motor brushes (replace if worn out)			X			
Inspect burner nozzle, electrode & head pos. (adjust if nec.)			X			
Change engine oil and oil filter				X		
Grease agitator bearing block (load adapter)				X		
Inspect fuel filter (replace if dirty)				X		
Inspect Diesel burner electric eye (clean if dirty)				X		
Grease wheel bearings				X		
Inspect chamber lining (replace if excessive cracking)				X		
Change oil on compressor option					X	
Change air inlet filter on compressor option					X	
Inspect starting motor						X
Replace hydraulic oil						X
Replace hydraulic return filter						X
Replace hydraulic suction strainer						X
Replace burner nozzle						X
Change heat transfer oil						X
Change Diesel fuel filter						X
Flush radiator and replace fluid (Diesel units only)						X
Replace separator on air compressor						X

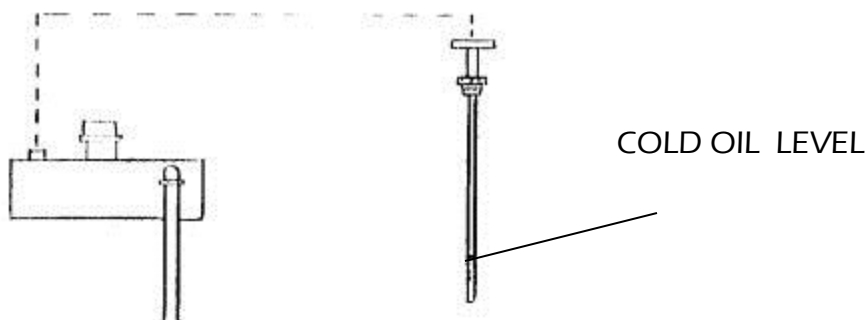
# Fluid and Components Specifications

	Model 150	Model 230	Model 410
Hydraulic Reserve Capacity	30 Gallons		
Hydraulic Oil Type	Conoco MV32 or equiv		
Diesel Fuel Capacity	30 Gallons		
Diesel Fuel Type	ASTM D975 No.2		
Heat Transfer Oil Capacity	21 Gal.	26 Gal.	36 Gal.
Heat Transfer Oil Type	See Specs. On next page.		
Agitation Drive Relief Setting	1100	800	800
Material Pump Drive Relief Setting	800		
Material Pump Displacement	.11 Gal/Rev		
Material Pump Maximum Output Pressure	125 PSI		

**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 marketplace. 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 Phillips 66 that meet the ISO Grade 68 Heat Transfer Oil specifications listed. To insure maximum safety and performance, we recommend you purchase your oil through CIMLINE.

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.

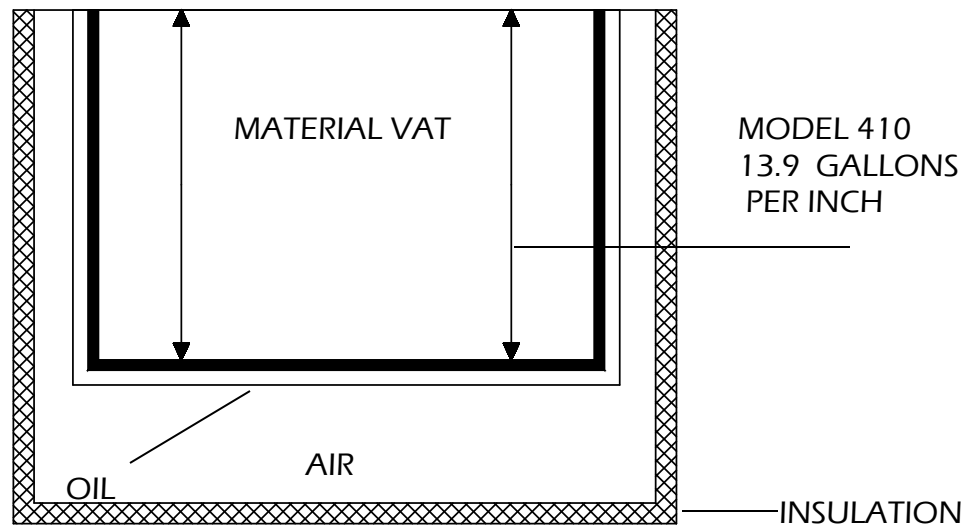
**FLASH POINT** - Test in which an open container of oil is heated until an open flame will flash when passed over the fumes.

**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 CAPACITY (Tank cutaway)



Material Depth	Model 410 3210 Cubic Inches
2"	27.79
4"	55.58
6"	83.38
8"	111.17
10"	138.96
12"	166.75
14"	194.55
16"	222.34
18"	250.13
20"	277.92
22"	305.71
24"	333.5
26"	361.3
28"	389.09

Gallons of material is found by first dividing the tank volume by 231 (# of cubic inches per gallon of liquid), and then multiplying that number by the number of inches of material in the tank. For example, 1052 divided by 231 = 4.55. 4.55 x 2" of material = 9.11.

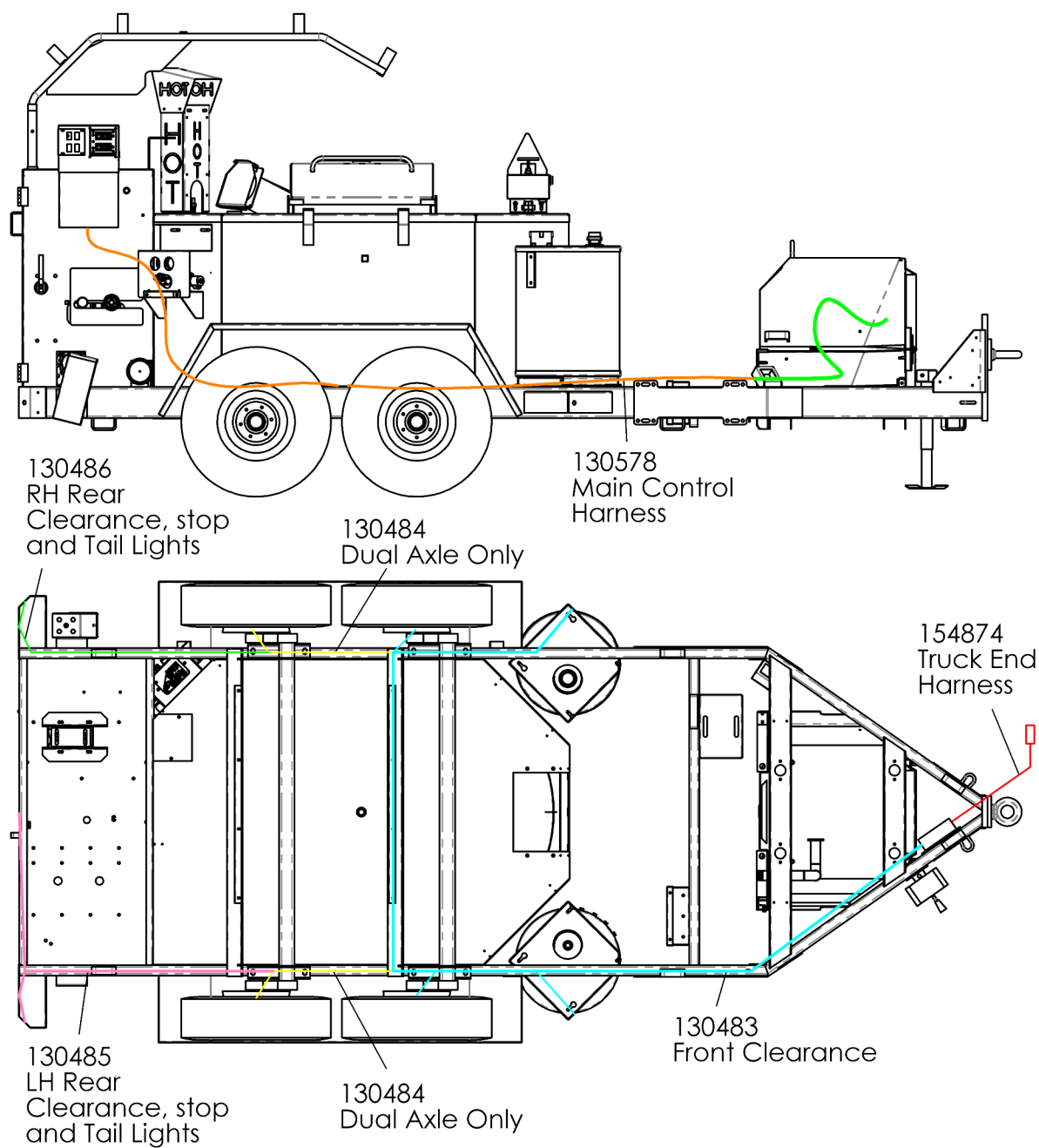
\* Volume of tank in cubic inches for each inch of material.

# Trouble Shooting Guide

Problem	Cause	Solution
Burner will not ignite	Fuse burned out.	Check fuse
	Burner relay inoperative.	Check for 12VDC at relay.
	Primary control fuse.	Check fuse
	Thermocouple(s) inoperative	Replace thermocouple(s)
Agitator will not rotate	Fuse burned out.	Check fuse
	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
Material pump will not rotate	Fuse burned out.	Check fuse
	Sealant material not hot enough.	Allow material to heat longer
	Too much material left in lines	Heat plumbing and valve to melt material
	Low hydraulic level	Check oil level
	Foreign object lodged in line	Remove foreign object
	Pump damaged	Repair or replace pump
Material pump rotates but does not pump material	Pump worn or damaged	Repair or replace pump
	Pump rotating in wrong direction	Reverse pump switch
	Pump inlet line plugged	Check matl tank grid and lines for ob-
	Too much material left in lines	Heat plumbing and valve to melt material
Material heat up time slow	Burner orifice clogged	Remove orifice and clean
	Heat transfer oil is worn out	Check oil level. Replace if necessary
	Too much old material on tank walls	Clean material tank
Material recirculates but will not flow through sealing wand.	Sealing hose valve not completely closing or worn out	Realign valve or replace
	Actuator not turning valve	Check Fuse
		Check trigger switch
		Broken or disconnected wire in the elec-

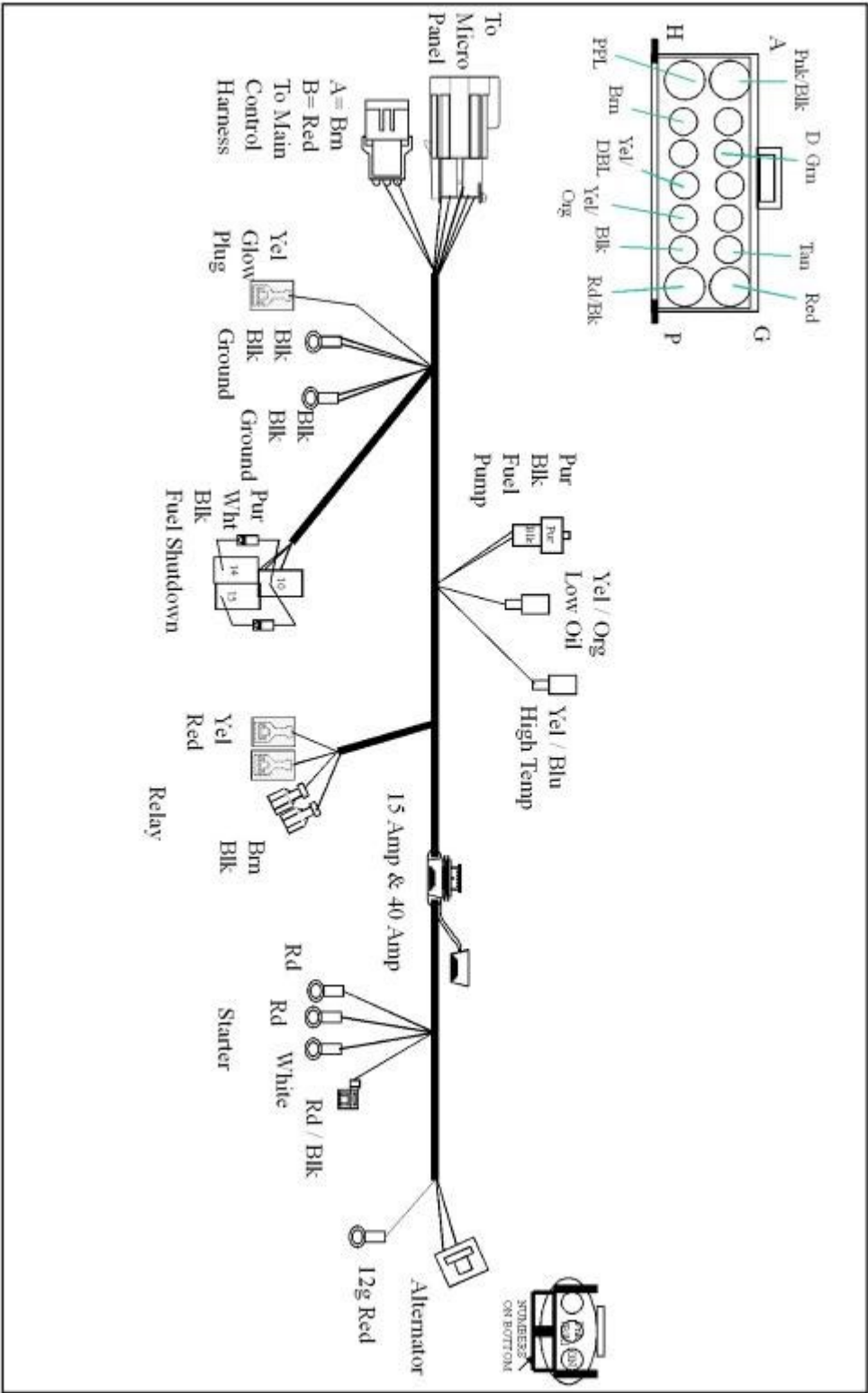
## **Parts Section**

# Complete Wiring Diagram



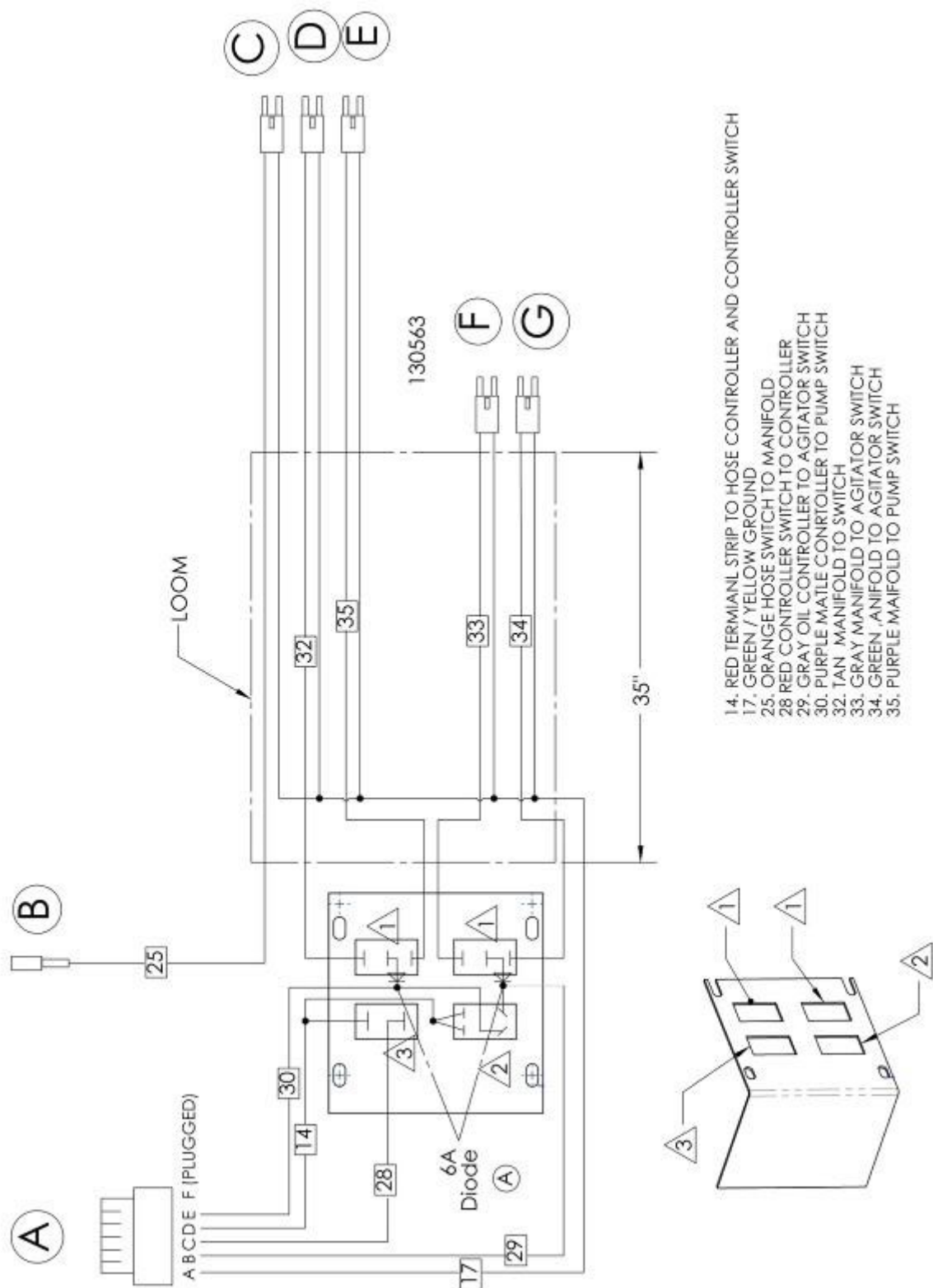
# Wiring Diagrams

Engine Harness



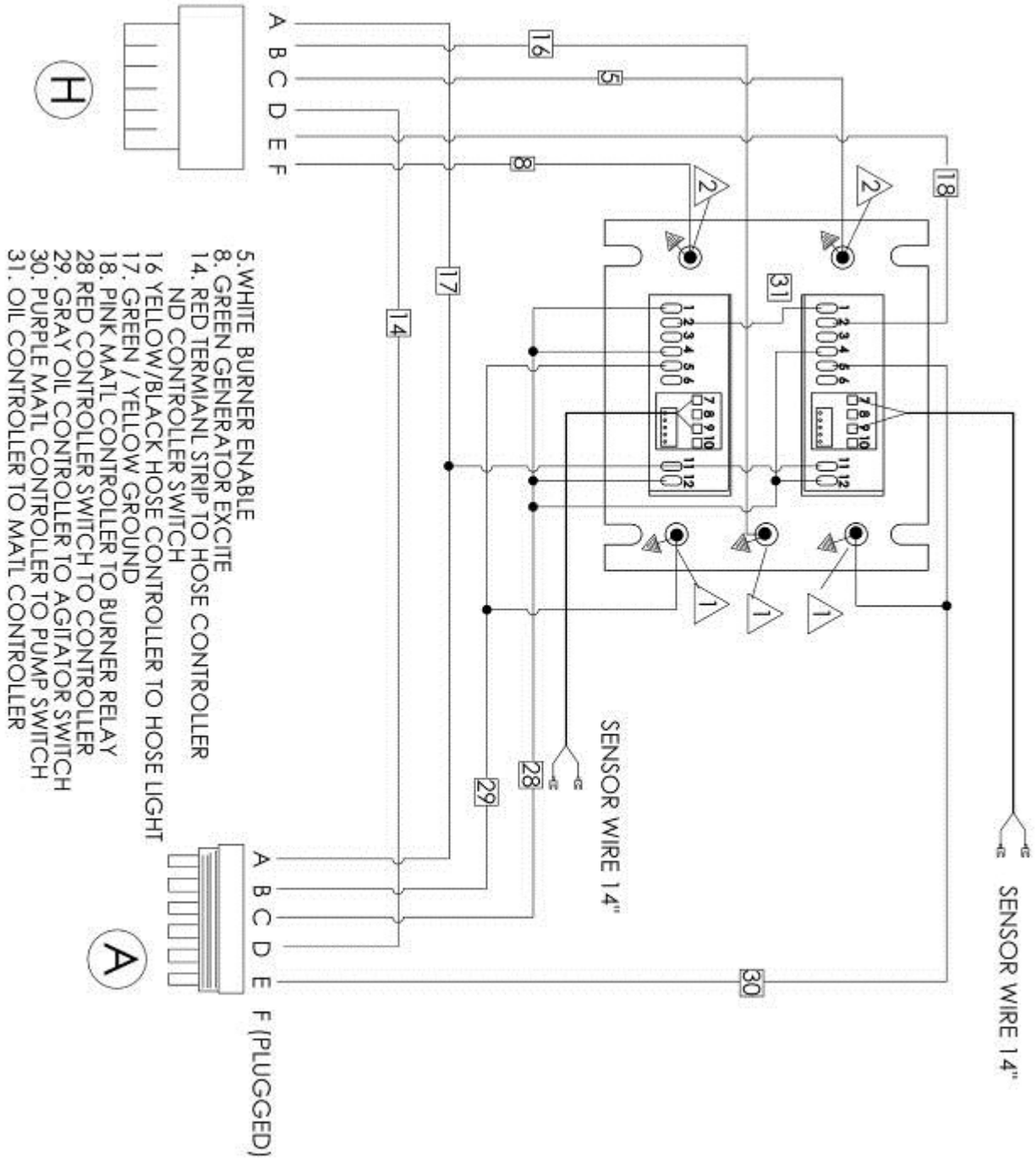
# Wiring Diagram

## Switch Plate



# Wiring Diagrams

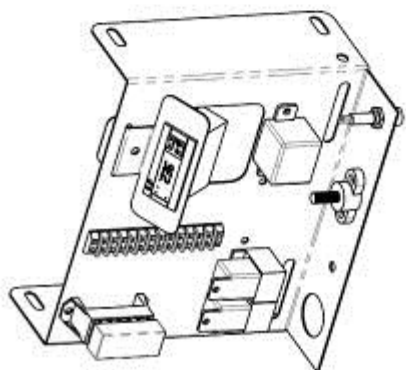
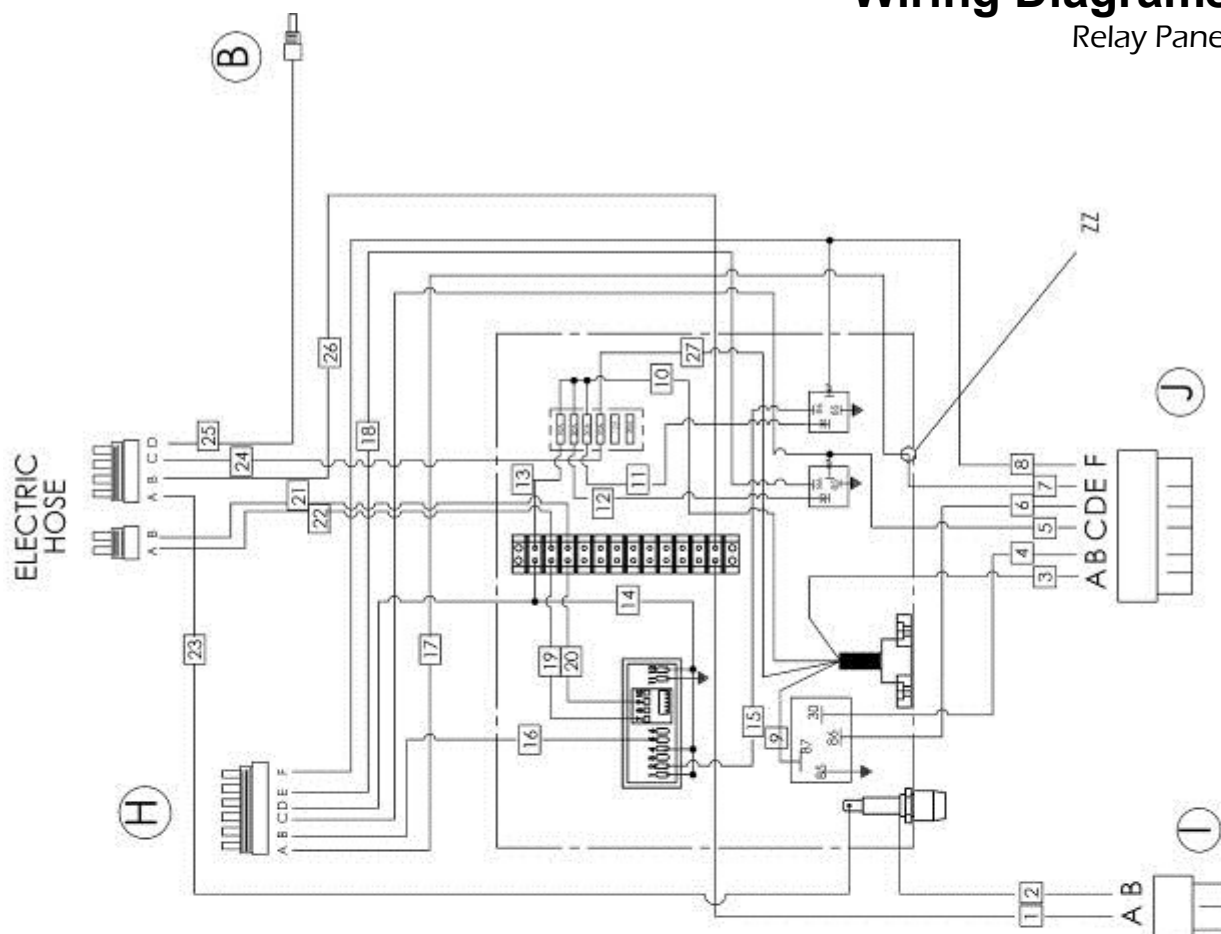
## Temperature Control Panel





# Wiring Diagrams

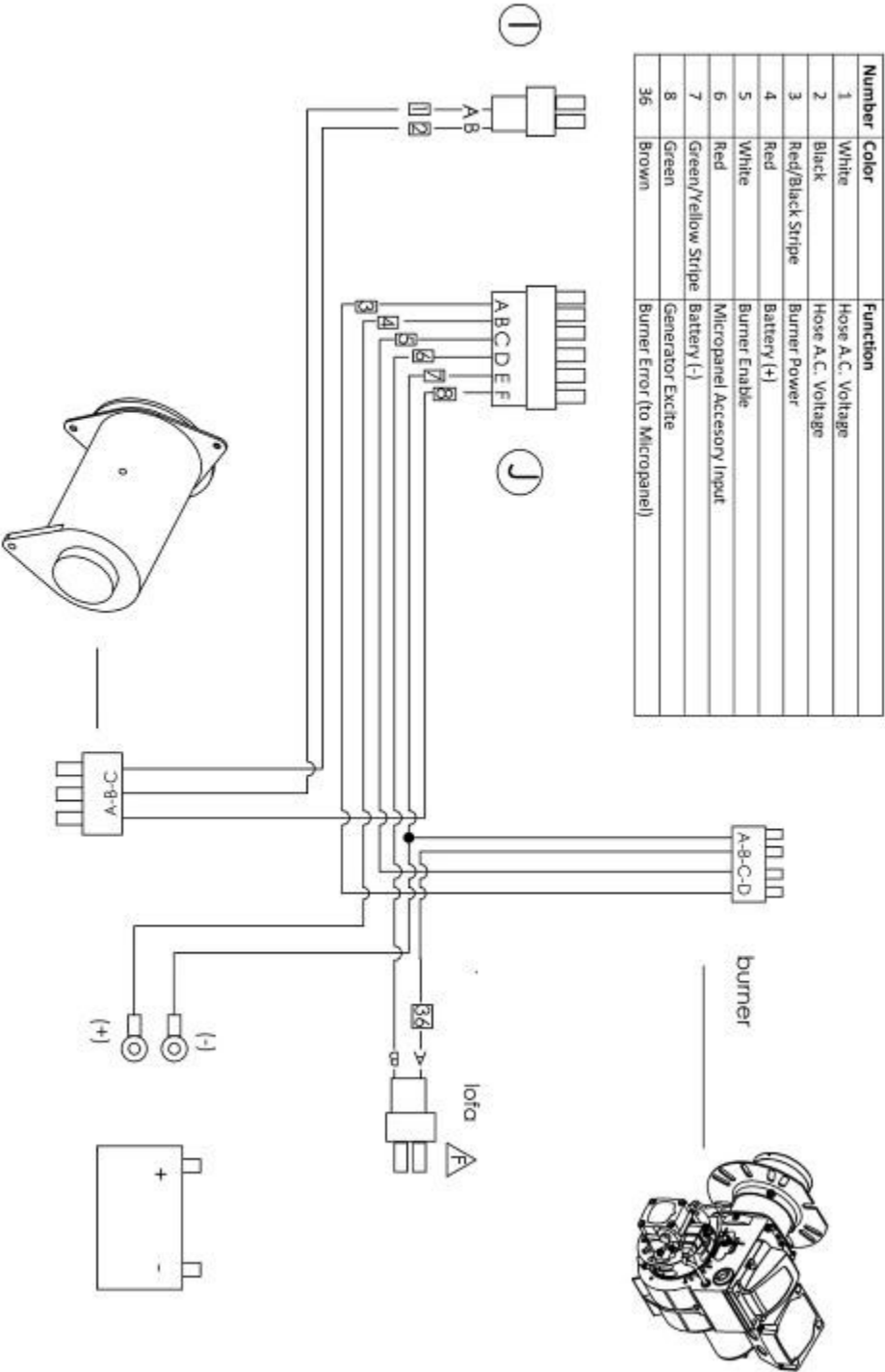
## Relay Panel



1. WHITE HOSE A.C.
  2. BLACK HOSE A.C.
  3. **RED /BLACK STRIPE BURNER POWER (14 GA AWG)**
  4. **RED BATTERY POSITIVE (12 ga awg)**
  5. WHITE BURNER ENABLE
  6. RED LOFA KEY SWITCH ACCESSORY INPUT
  7. **GREEN/YELLOW STRIPE GROUND (12 GA AWG)**
  8. GREEN GENERATOR EXCITE
  9. **RED ACCS. RELAY OUT (12 GA AWG)**
  10. RED POS BATTERY LUG TO FUSE
  11. RED FUSE TO HOSE RELAY
  12. RED FUSE TO BURNER RELAY
  13. RED FUSE TO TERMINAL STRIP
  14. RED TERMINAL STRIP TO HOSE CONTROLLER AND CONTROLLER SWITCH
  15. YELLOW HOSE CONTROLLER TO RELAY
  16. YELLOW/BLACK HOSE CONTROLLER TO HOSE LIGHT
  17. GREEN / YELLOW GROUND
  18. PINK MATL. CONTROLLER TO BURNER RELAY
  19. WHITE SENSOR WIRE CONTROLLER TO TERMINAL STRIP
  20. RED SENSOR WIRE CONTROLLER TO TERMINAL STRIP
  21. WHITE SENSOR WIRE TERMINAL STRIP TO HOSE
  22. RED SENSOR WIRE TERMINAL STRIP TO HOSE
  23. BLACK HOSE A.C.
  24. ORANGE FUSE TO HOSE ACC.
  25. ORANGE HOSE SWITCH TO MANIFOLD
  26. WHITE HOSE A.C.
  27. ORANGE DC LUG TO FUSE
- ⬇ = GROUND ALL TO GROUNDING LUG (ZZ)  
 ⬇ ALL GROUNDS GREEN W/ YELLOW STRIPE

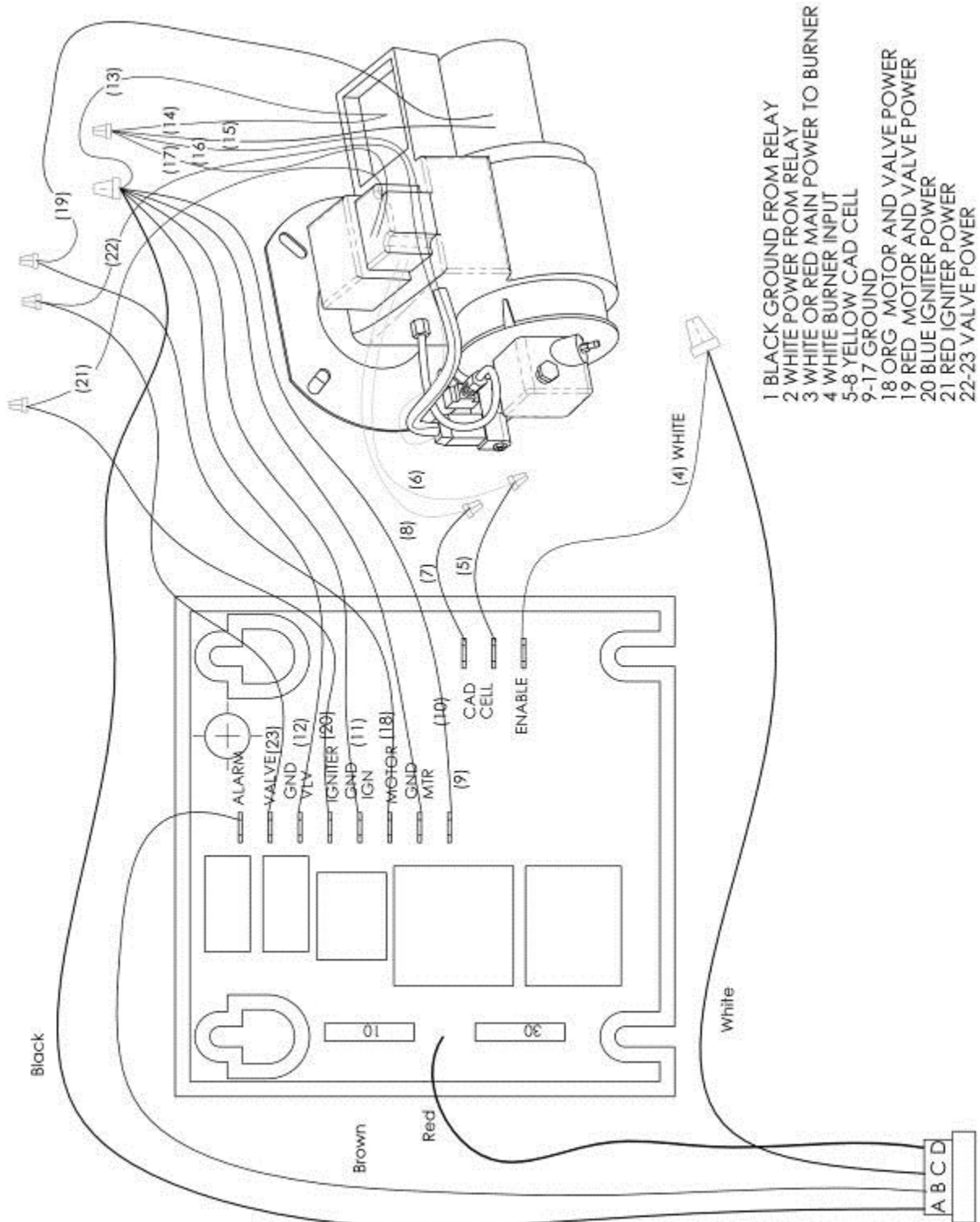
# Wiring Diagrams

Main Supply Harness



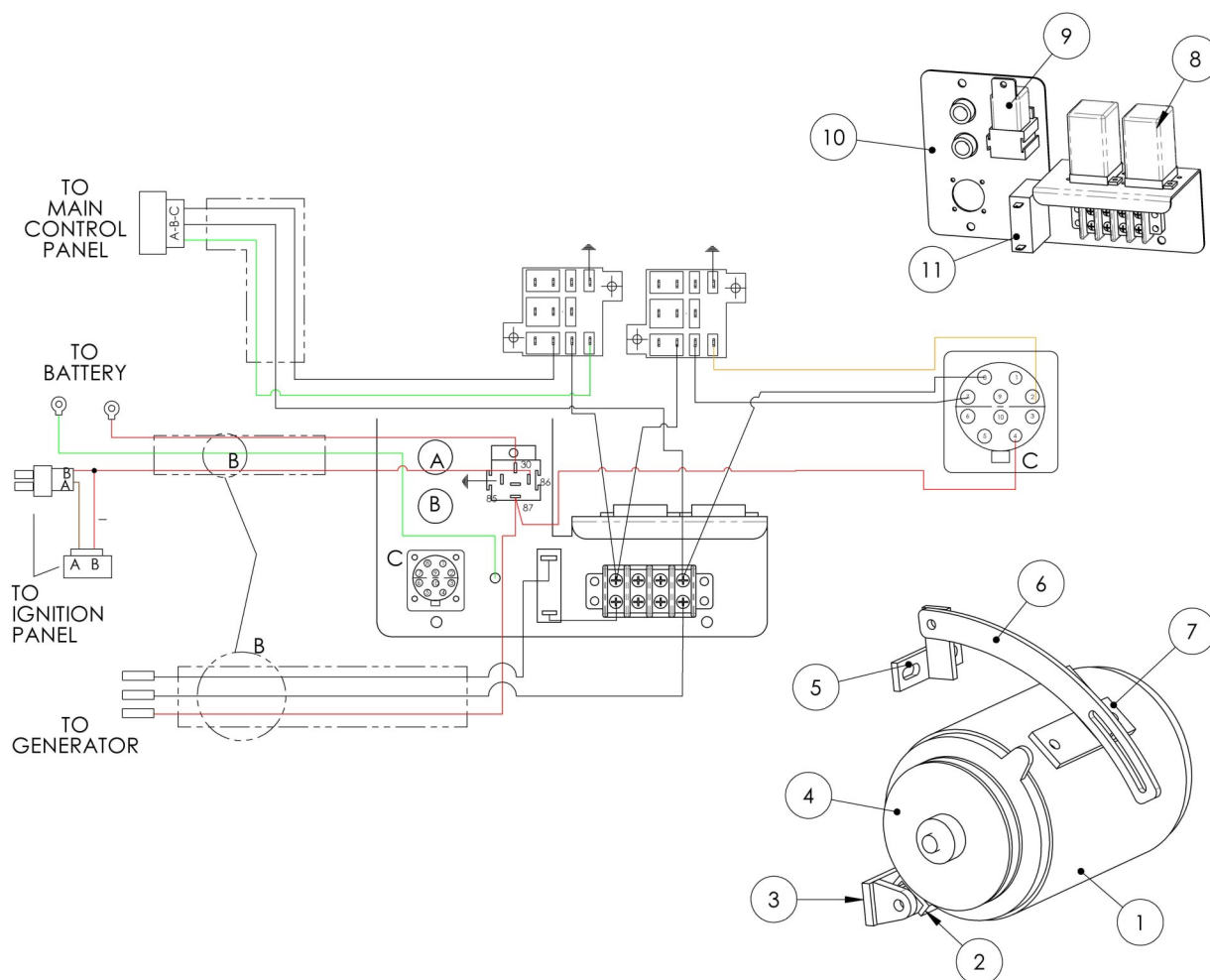
# Wiring Diagrams

Burner



# Wiring Diagrams

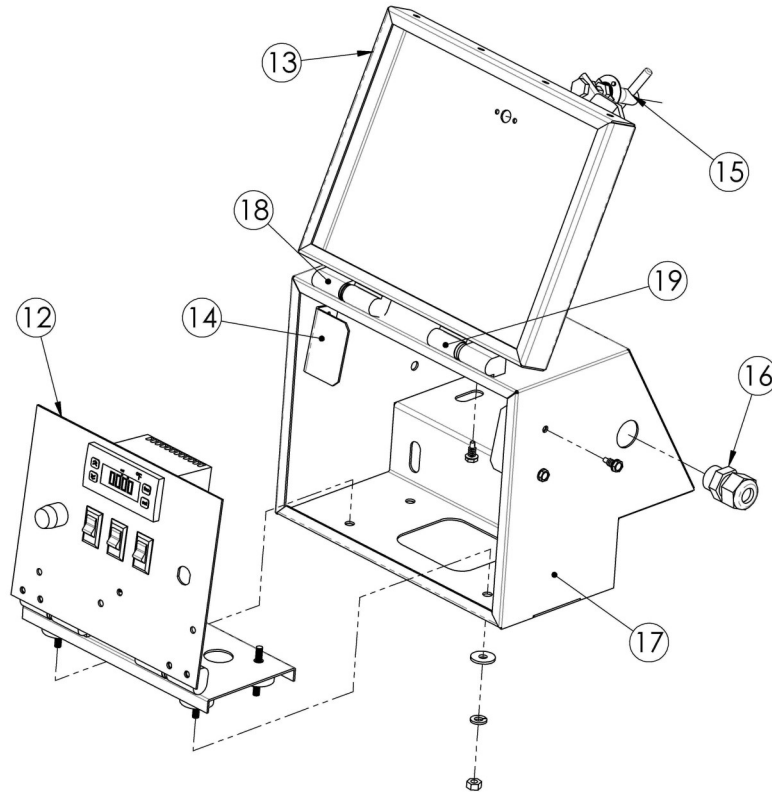
Dual Heater Hose Relay Panel



Item	Part #	Description	Item	Part #	Description
1	130385	Generator	11	130370	Circuit Breaker
2	405268	Gen Mount Weld	12	404811s	Temp Control Panel
3	405928	Gen Mount Weld (engine side)	13	421400	Control Box Lid
4	111744	Pulley	14	420314	Door Stop
5	405269	Top Gen Tightener Weld	15	153814	Latch
6	420979	Plate - Adjustment Bracket	16	152754	Strain Relief
7	405270	Btm Gen Tightener Weld	17	404810	Control Box
8	130340	Hose Relay	18	152817	Hinge
9	130113	Relay	19	152813	Hinge
10	130614s	Relay Panel Assy		110974	Belt (not Shown)

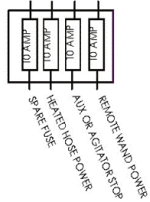
# Wiring Diagrams

## Dual Heated Hose Control Panel

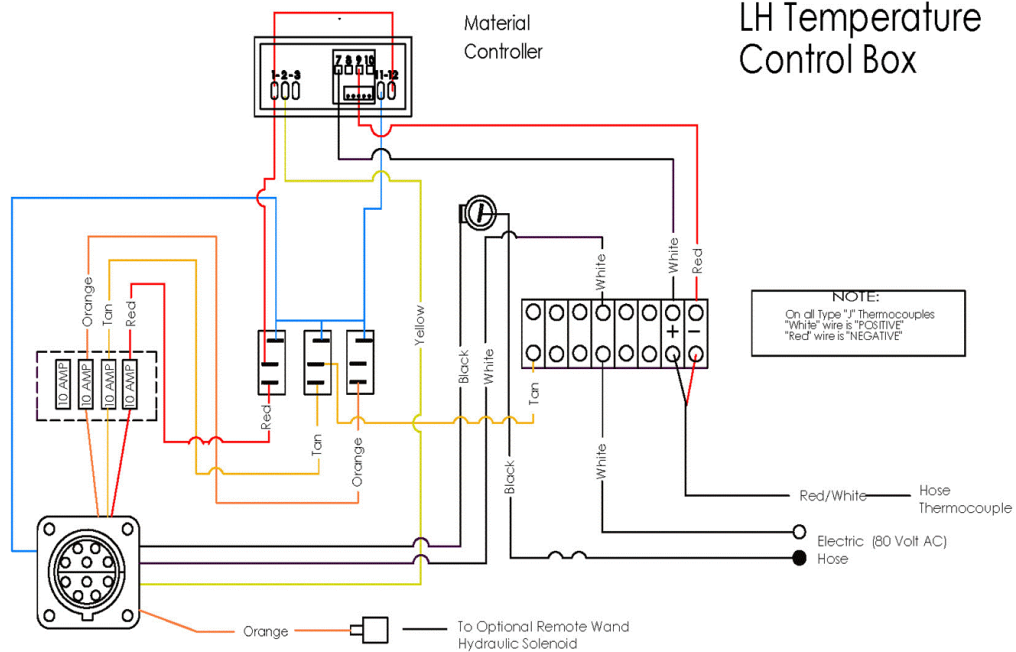
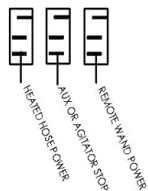


FUSE HOLDER FOR  
ABC 15 AMP AC FUSE  
(Ceramic Fuse)  
FOR 80 VOLT HOSE

ATC FUSE PANEL  
DETAIL

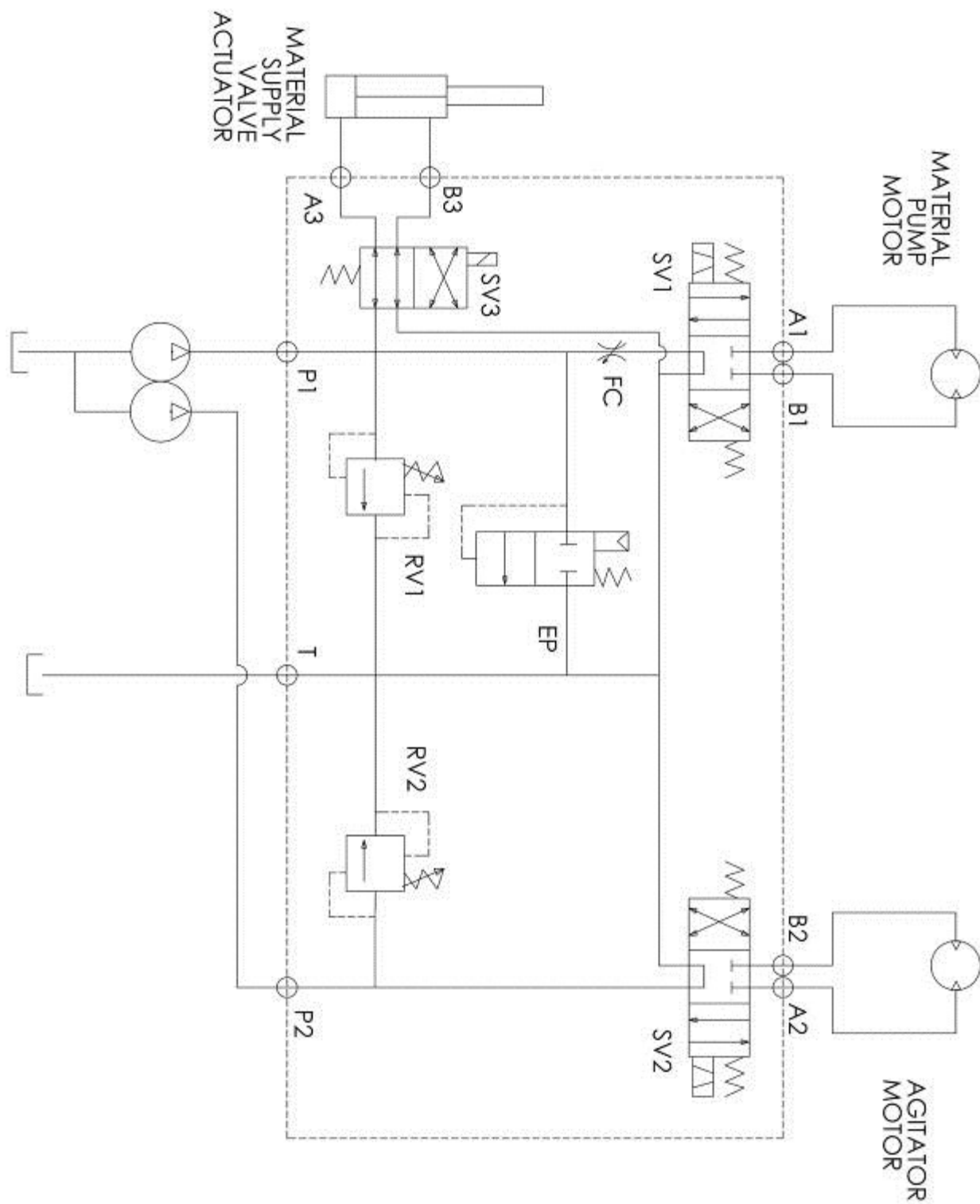


SWITCH DETAIL



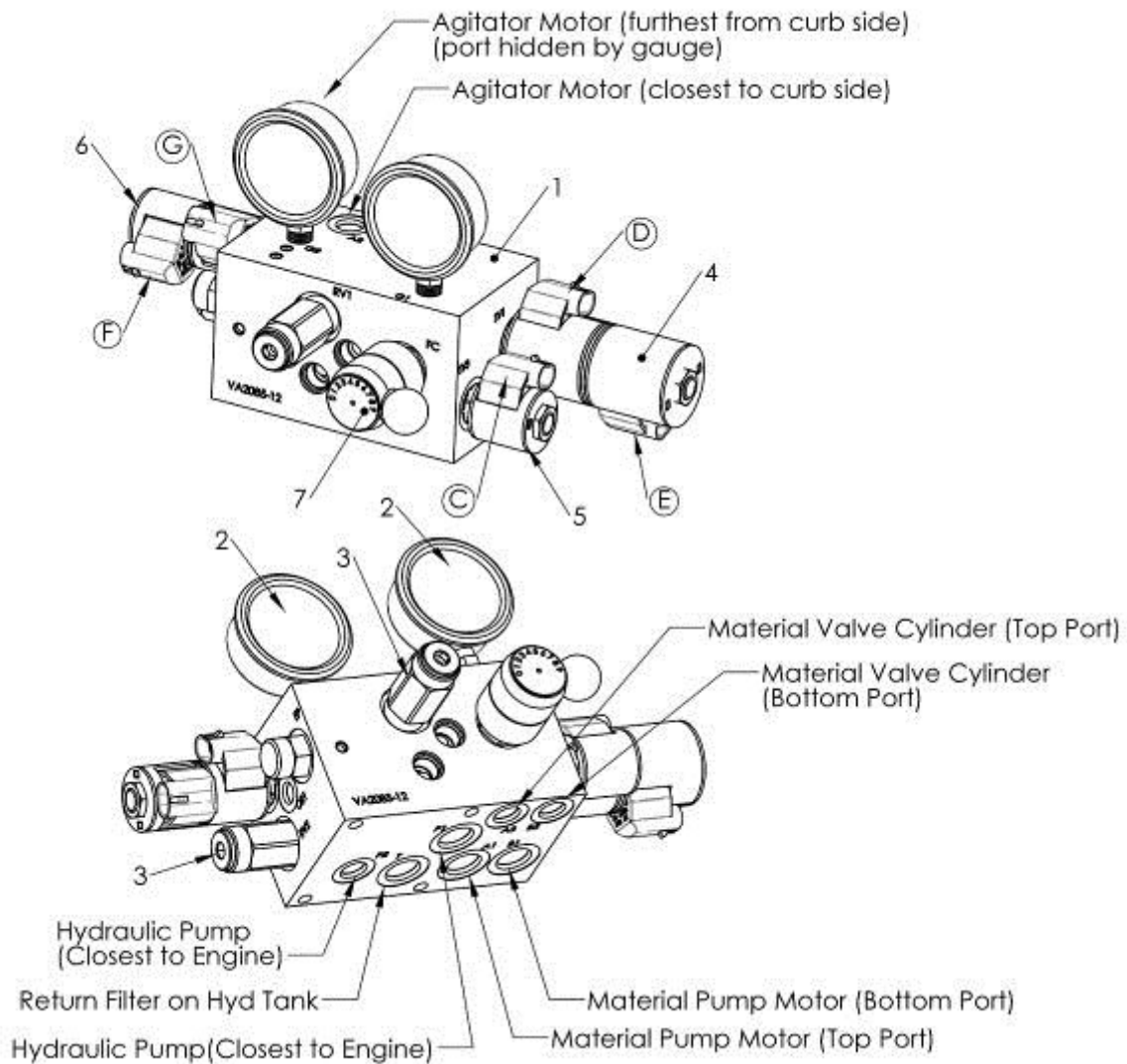
# Hydraulic Schematic

For Compressor Hydraulics, see Supplement manual



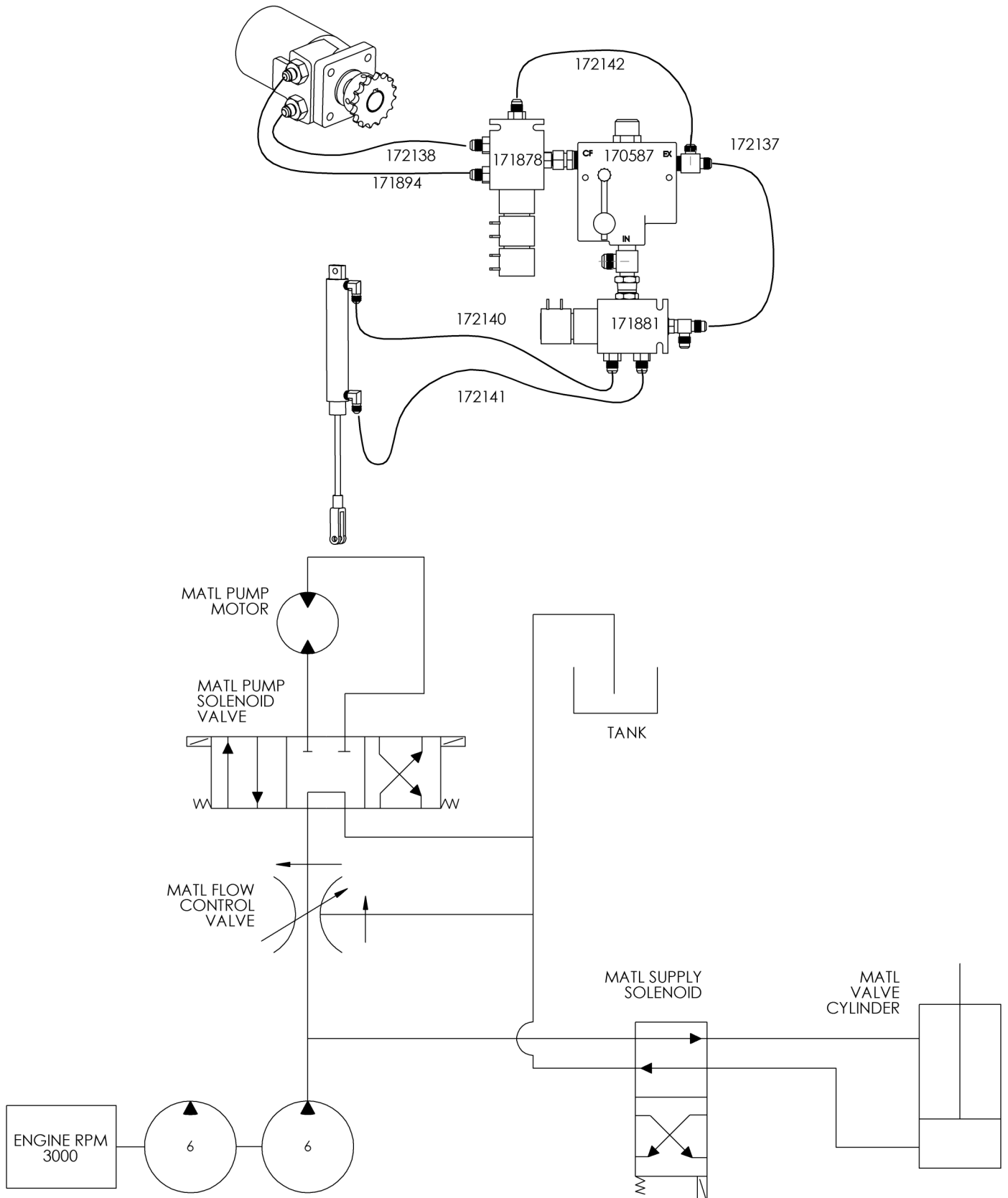
# Hydraulic Manifold Components

Item	Part #	Description
1	172371	Hyd. Manifold
2	171597	Gauge
3		Relief Valve
4		Spool and Coil Kit for Matl Pump
5		Spool and Coil Kit for TFC
6		Spool and Coil Kit for Agitator
7		Rotary Flow Control



# Hydraulic Schematic - Dual Pump Option

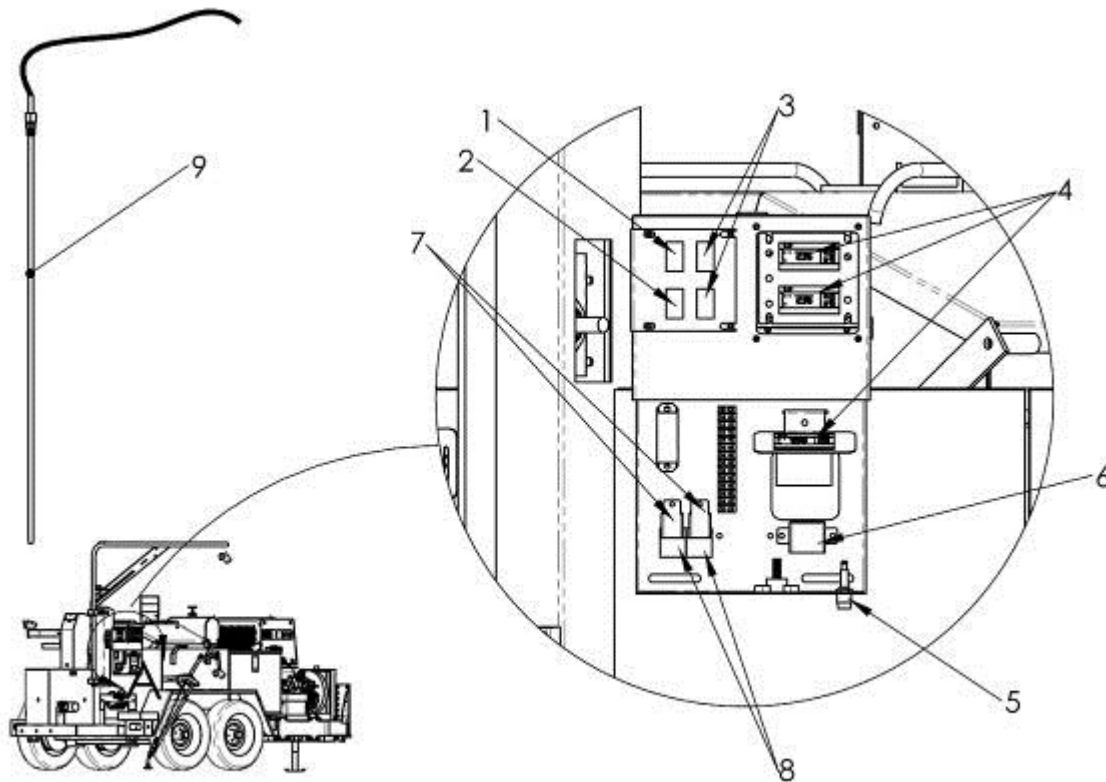
For Compressor Hydraulics, see Supplement manual





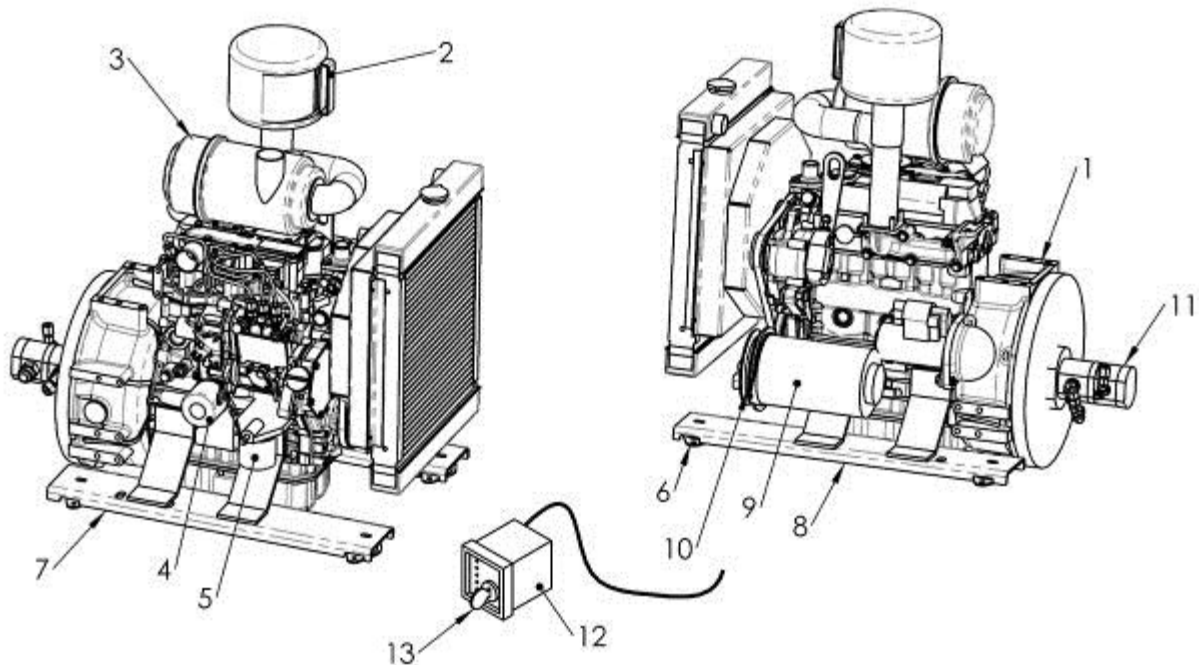
# Electrical Components

Item	Part #	Description
1		Controller Switch
		Switch Cover
2		Auto/Manual Switch
		Switch Cover
3		Fwd/Rev Switch
		Switch Cover
4	130350	Temperature Controller
	200548	Matl Program Key
	200549	Heat Transfer Oil Program Key
		Heated Hose Program Key
5	152119	Fuse Holder
	130505	Fuse 18A
6	130222	Relay
7	130113	Relay
8	153870	Relay Socket
9	130097	Heat transfer Oil Thermocouple
	153621	Material Thermocouple (not Shown)



# Engine Components

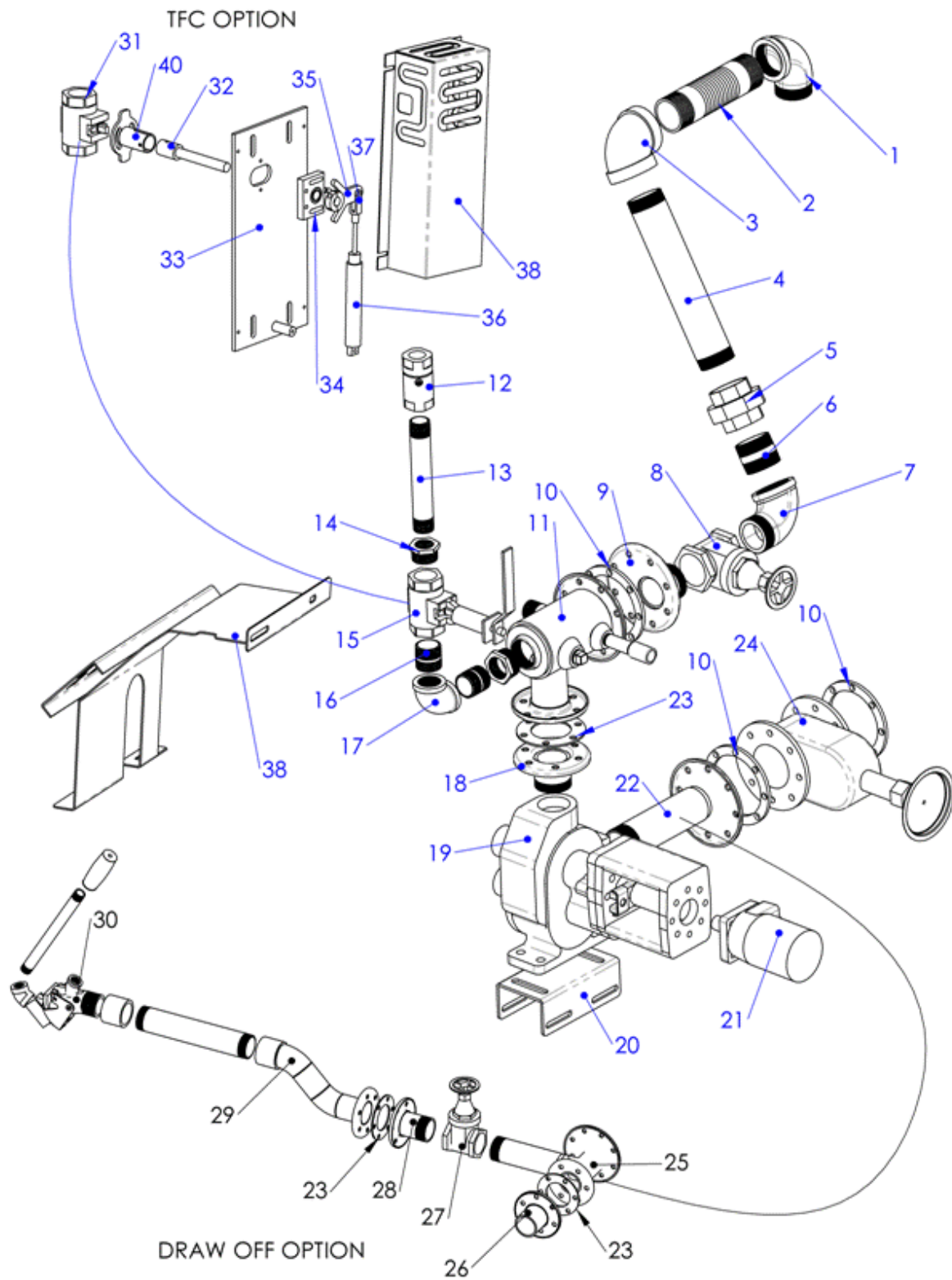
Item	Part #	Description
1	111726	Engine (Non-Compressor)
	111727	Engine (Compressor)
2	153619	Exhaust
3	111111	Air Filter Element
	111157	Air Cleaner Assy
4	111337	Oil Filter (Non-compressor Engine)
	111339	Oil Filter (Compressor Engine)
5	111457	Fuel Filter (Non-compressor Engine)
	111340	Fuel Filter (Compressor Engine)
6	152047	Rubber Isolator
7	422167	Engine Mount (RH)
8	425244	Engine Mount (LH)
9	406016	Generator with Pulley
10	110036	Belt A-31 (Non-Compressor Engine)
	111665	Belt A-33 (Compressor Engine)
11	171876	Twin Hydraulic Pump (Non-Compressor Engine)
	172282	Triple Hydraulic Pump (Compressor Engine)
12	111108	Micro Panel
13		Key
Not shown	406599	Filter Kit for Non-Compressor Engine
	407434	Filter Kit For Compressor Engine
	407537	Filter Kit For Compressor



# Material Plumbing Components

Item	Part #	Description	Item	Part #	Description
1	120620	Street Elbow	20	422053	Pump Plate
2	120488	Flex Hose	21	170469	Hydraulic Pump w/Drive Motor
3	120598	Elbow	22	405065	Outlet Adapter
4	120599	2" Pipe	23	152126	2" Gasket
5	120611	Pipe Union	24	120498	Gate Valve
6	120396	Pipe Nipple	25	402895	Outlet Tee
7	120620	Street Elbow	26	405064	Flange Adapter
8	120875	Pressure Valve	27	120875	Gate Valve
9	406162	Offset Flange Weld	28	403045	Flange Adapter
10	152127	3" Gasket	29	403909	Offset Pipe
11	405952	Material Manifold	30	404842	Spigot w/Handle
12	152280	Swivel	31	154985	Ball Valve w/Adapter
13	120909	Pipe Nipple	32	425696	Valve Adapter Rod
14	120903	Pipe Bushing	33	407344	Bearing Plate
15	120902	Ball Valve w/Extension	34	404426	Bearing Mount
	154985	Ball Valve w/o Extension	35	404294	Ear Weldment
16	120911	Pipe Nipple	36	171144	Actuator Cylinder, Brass
17	120409	Pipe Elbow	37	130155	Clevi Kit
18	405574	Pipe Flange	38	420108S	Guard
19	120803	20 GPM Pump	39	405227S	Material Pump Cover
			40	407633H	Valve Adapter
				120541	Pump Packing Kit (20 & 30 GPM)

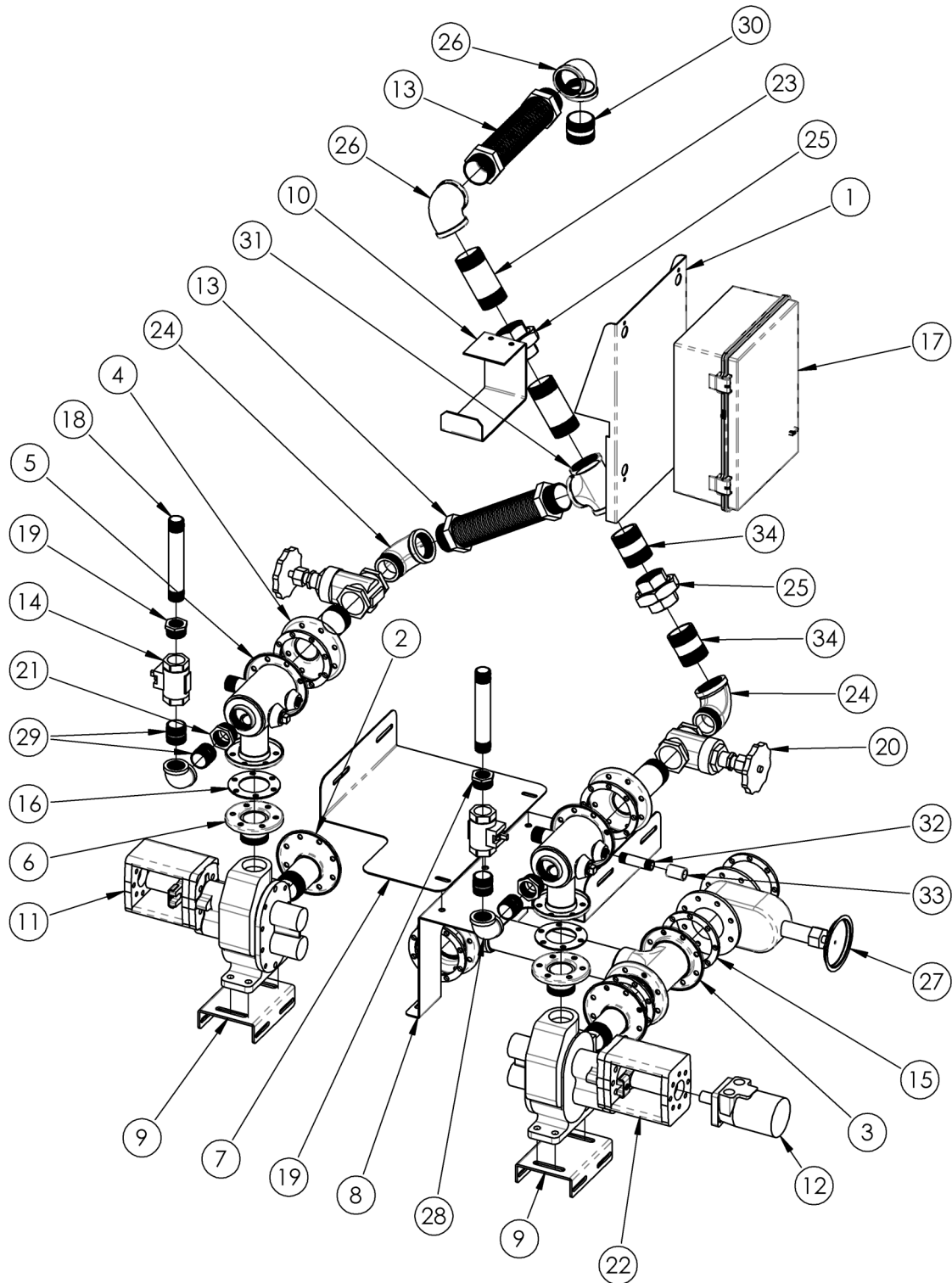
# Material Plumbing Components



## Material Plumbing Components - Dual Pump Option

ITEM	PART NO.	DESCRIPTION	QTY.
1	409033	COPNTROLLER PLATE SUB-WELD	1
2	408990	OUTLET ADAPTER WELD	2
3	408989	OUTLET TEE WELD	1
4	408988	OFFSET FLANGE WELD 410 DUAL PUMP	2
5	405952	PLUMBING MANIFOLD 2006	2
6	405574	FLANGE WELD 2.25	2
7	429648RED	PLATE-LH HEAT DEFLECTOR-RED	1
8	429647RED	PLATE-RH HEAT DEFLECTOR-RED	1
9	422053	PLATE - PUMP	2
10	416747	HOSE MOUNT-CABINET	1
11	200619	MATERIAL PUMP LH DRIVE	1
12	170469	MOTOR - PUMP DRIVE	1
13	155147	2" NPT FLEX HOSE	2
14	154985	1-1/4 HD BALL VALVE	2
15	152127	PLATE - OUTLET	6
16	152126	FLANGE GASKET 2"	2
17	130831	GEN 5 CONTROL PANEL	1
18	120909	PIPE-NIPPLE-1 X 8	2
19	120903	PIPE-BUSHING-HEX-1.25 X 1-GALV	2
20	120875	2" GATE VALVE SS	2
21	120773	BUSHING- HEX 1.5 X 1.25	2
22	120757	PUMP 20 GPM	1
23	120622	PIPE-NIPPLE-2.0 X 5.0	2
24	120620	2" STREET ELBOW	2
25	120611	2" PIPE UNION	2
26	120598	PIPE-ELBOW-90° 2.0	2
27	120498	GATE VALVE 3"	1
28	120409	PIPE-ELBOW-90° 1.25	2
29	120408	PIPE-NIPPLE-CLOSE-1.25	4
30	120396	2" CLOSE NIPPLE	1
31	120395	PIPE-TEE-2.0	1
32	120251	PIPE-NIPPLE-.50 X 3.0	1
33	120047	PIPE-COUPLING-.50 BLK CPL	1
34	120029	PIPE-NIPPLE-2 X 3	2

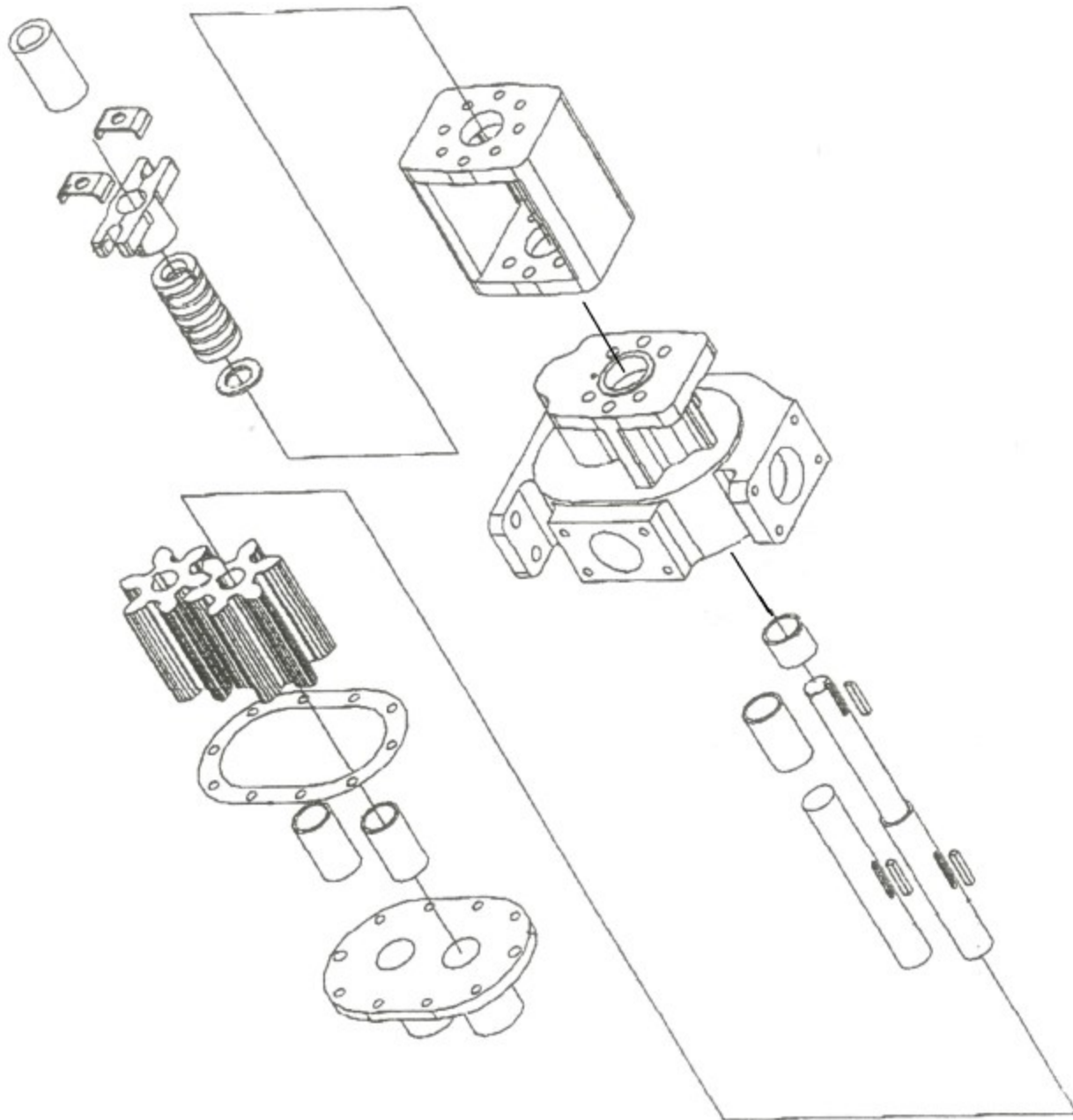
# Material Plumbing Components - Dual Pump Option



# Material Pump Parts List

(For Reference Only—We do not stock rebuild parts)

120803 (20 GPM) & 154151 (30 GPM)



# Material Pump Parts List

(For Reference Only—We do not stock rebuild parts)

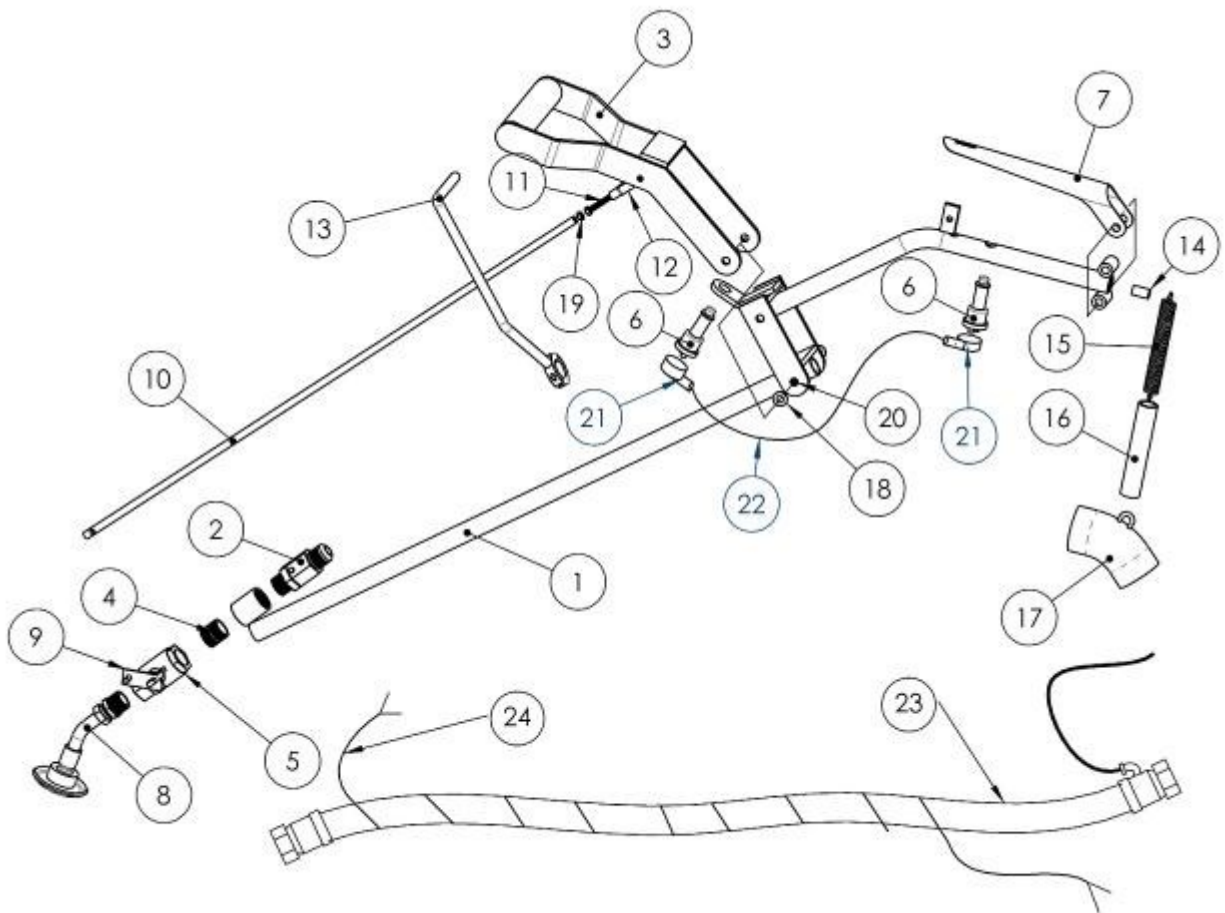
## 14. PARTS LIST

2. Ball Bearing	25. Relief Valve Cap, Gasket	E. Hex Head Cap Screw, Seal Retainer to Backplate
3. Retaining Ring, Bearing Cage	26. Adjusting Screw	F. Locknut
6. Backplate A. Standard B. Jacketed	27. Nut, Lock and Seal	G. Square Head Bolt
7. Bearing, Short	28. Spring Guide	H. Pipe Plug, Backplate
8. Bearing, Long	29. Spring	J. Dowel Pin
9. Seal Retainer	30. Poppet	K. Washer Head Cap Screw, Endplates to Case
10. Triple Lip Seal	31. Adapter	L. Hex Head Cap Screw, Endplates to Case
11. Mechanical Seal	32. Drive Shaft	M. Hex Head Cap Screw, Flange Nut, Flange
12. Retaining Ring, Mechanical Seal	33. Idler Shaft	S. Pipe Plug, Faceplate
13. Packing Gland Clip	34. Drive Gear	T. Anti-rotation Pin
14. Packing Gland	35. Idler Gear	AJ. Drive Screw
15. Spring Clip	36. Retaining Ring, Gear (H) A. Backplate End B. Faceplate End	AK. Ball Handle, Double Setting Relief Valve only
16. Packing Ring	57. Expansion Washer	AL. Stud, Double Setting Relief Valve only
17. Lantern Ring (Not Shown)	58. Cam, Double Setting Relief Valve only	AM. Self Locking Nut, Double Setting Relief Valve only
18. Packing Washer	59. Operating Piston, Double Setting Relief Valve only	AN. Hex Head Cap Screw, Double Setting Relief Valve only
19. Case A. ANSI Flanged – Straight Through B. Threaded Port – Right Angle C. Flanged – Right Angle D. Flanged – Straight Through E. Flanged – Footless (22 SB only)	60. Locator Ring	AP. O-Ring, Double Setting Relief Valve only
20. Case Gasket	WRN2 Warning Plate, RV Style Relief Valve	
21. Flange	WRN3 Warning Plate, RV Style Relief Valve	
22. Flange Gasket	WRN4 Warning Plate, RV Style Relief Valve	<b>Type MBH Hydraulic Drive Bracket Assembly only</b>
23. Faceplate A. Plain B. RV Style Relief Valve C. Jacketed RV Style Relief Valve D. BV Style Bi-Directional Relief Valve	WRN5 Warning Plate, BV Style Relief Valve	61. Bracket
24. Relief Valve Cap	A. Drive Key	62. Rigid Coupling
	B. Key, Gear	63. Retaining Ring
	D. Lube Fitting	64. Socket Head Cap Screw



## Sealing Hose & Wand

Item	Part #	DESCRIPTION	Item	Part #	DESCRIPTION
1	407863	Wand Sub weld	13	407872	Support Handle
2	170635	Live Swivel	14	426987	Spacer
3	407862	Handle Weld	15	155297	Spring
4	120412	Pipe Nipple	16	427116	Spring Guard
5	120560	Ball Valve	17	155272	Metal Sleeve
6	130323	Switch (qty 2)	18	111725	Brass Washer
7	427557	Handle Weld	19	100207	Hex Nut
8	407232	2.5" Swivel Disk	20	100169	Lock Nut
9	403905	Valve Lever Weld	21	130224	Boot
10	427358	Engagement Rod	22	130580	Harness
11	416863	Control Rod	23	407084	Heated Hose Kit
12	130155	Clevis	24	406821	TFC Repair Kit



# Sealing Wand Attachments



PIVOTING SHOE / 403137

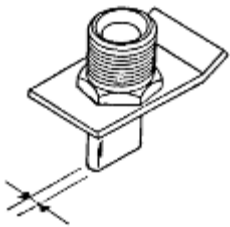
- \* 2.5" wide band
- \* 3/4" NPT inlet
- \* Open shoe design for clear visibility of material
- \* Pivoting inlet tube maintains contact with the road.



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 / 403164Z

1/4" SEALING TIP / 403163Z

- \* 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

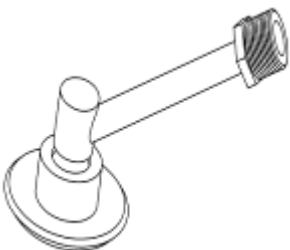


3/8" SEALING TUBE / 416968

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**



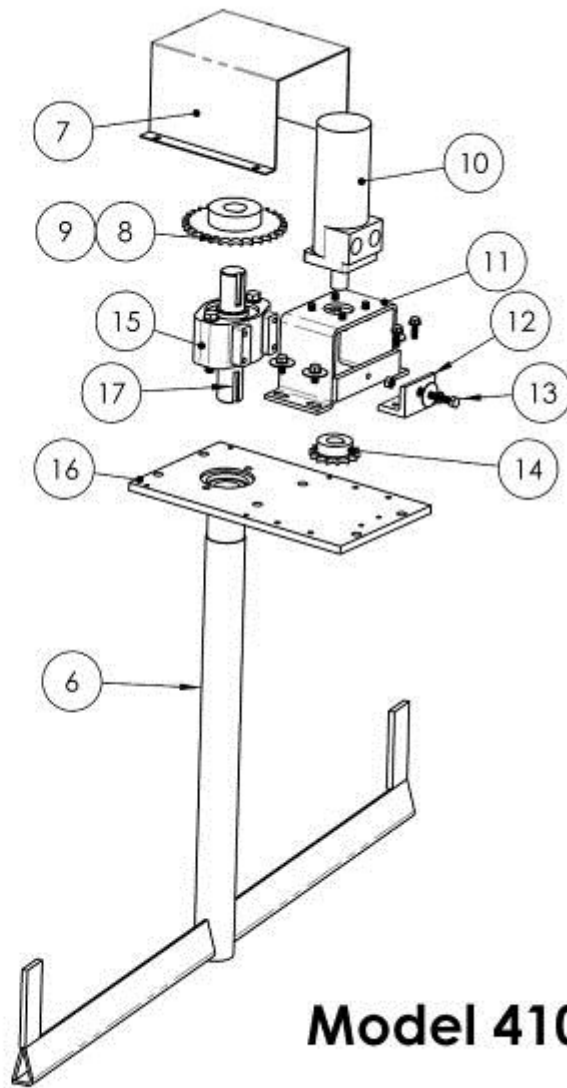
SWIVEL TIP 4" / 407233

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

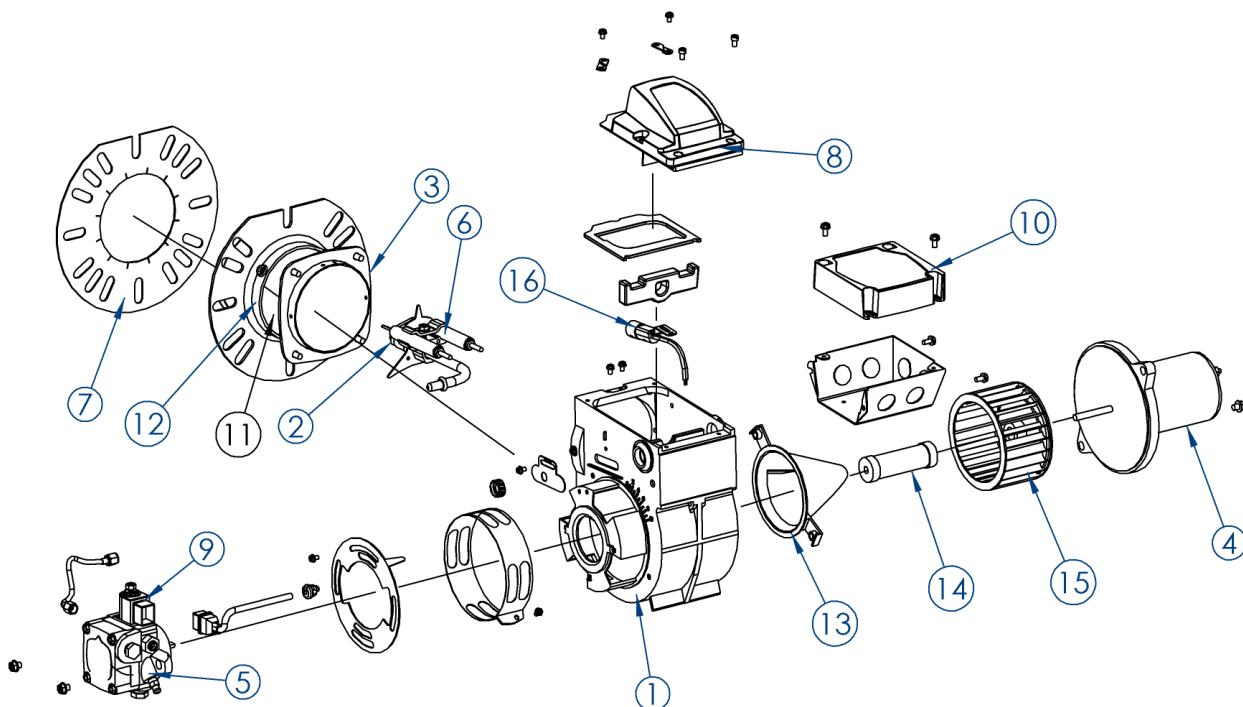
# Agitation System Parts List

Item	P/N	Description	Item	P/N	Description
6	404325	Agitator - 410	11	404327	Agitator Motor Mount - 410
7	420170S	Cover	12	420171	Adjustment Angle
8	110488	Chain	13	100295	3/8 x 3 Full Thread Bolt
9	111087	Sprocket - 50BS30 x 1.50	14	111088	Sprocket - 50BS14 x 1
10	170602	Motor, Agitation - 410	15	171173	Load Adapter
	171081	Seal Kit For 170602	16	420169	Motor Mount Plate
			17	110294	3/8 x 2 Key



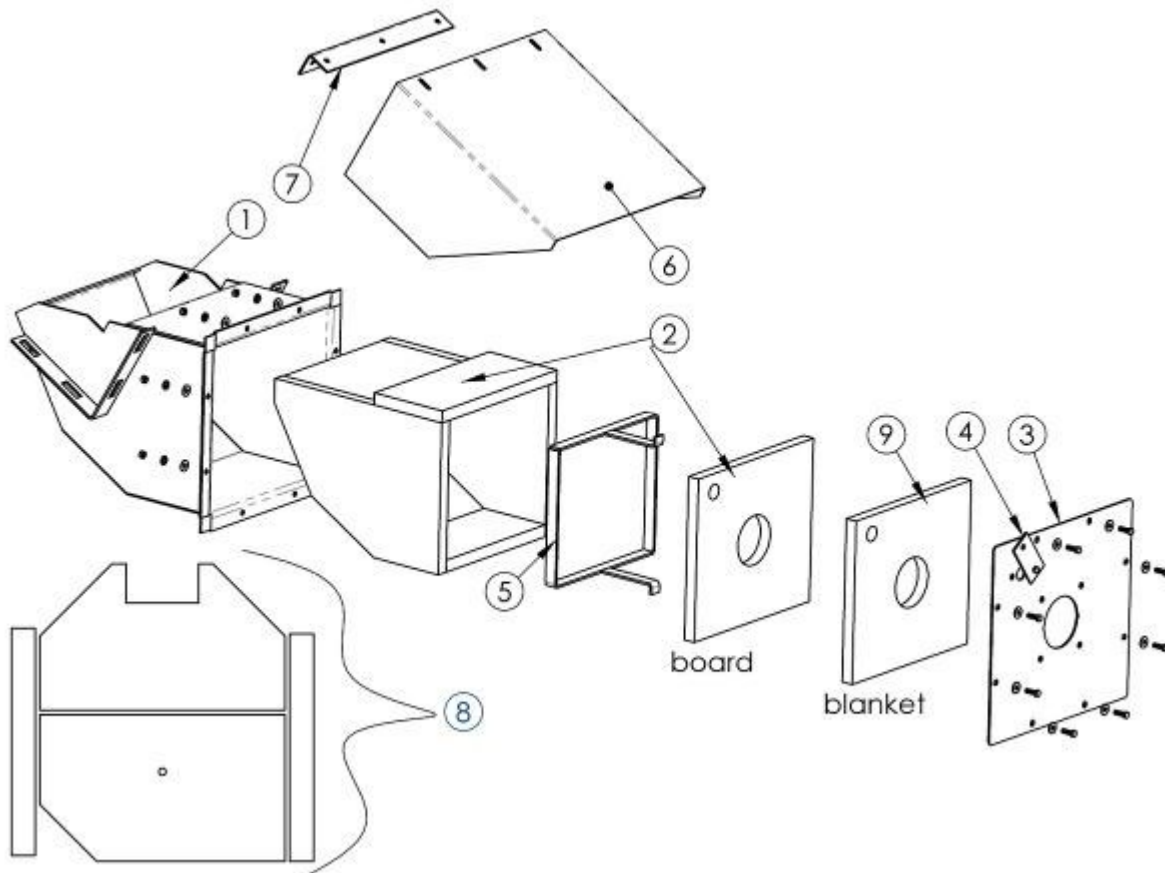
# Oil Burner Parts List

Item	Part #	Description
1	404388	410 Oil Burner, Complete
2	153445	Nozzle, 2.25 GPH x 90B Model 410
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	153446	Burner Head 410
13	152398	Air Inlet Guide
14	152399	Coupling
15	152466	Blower Wheel
16	152105	Electric Eye Assy
*	130166	Fuel Pressure Gauge
		* Not Shown



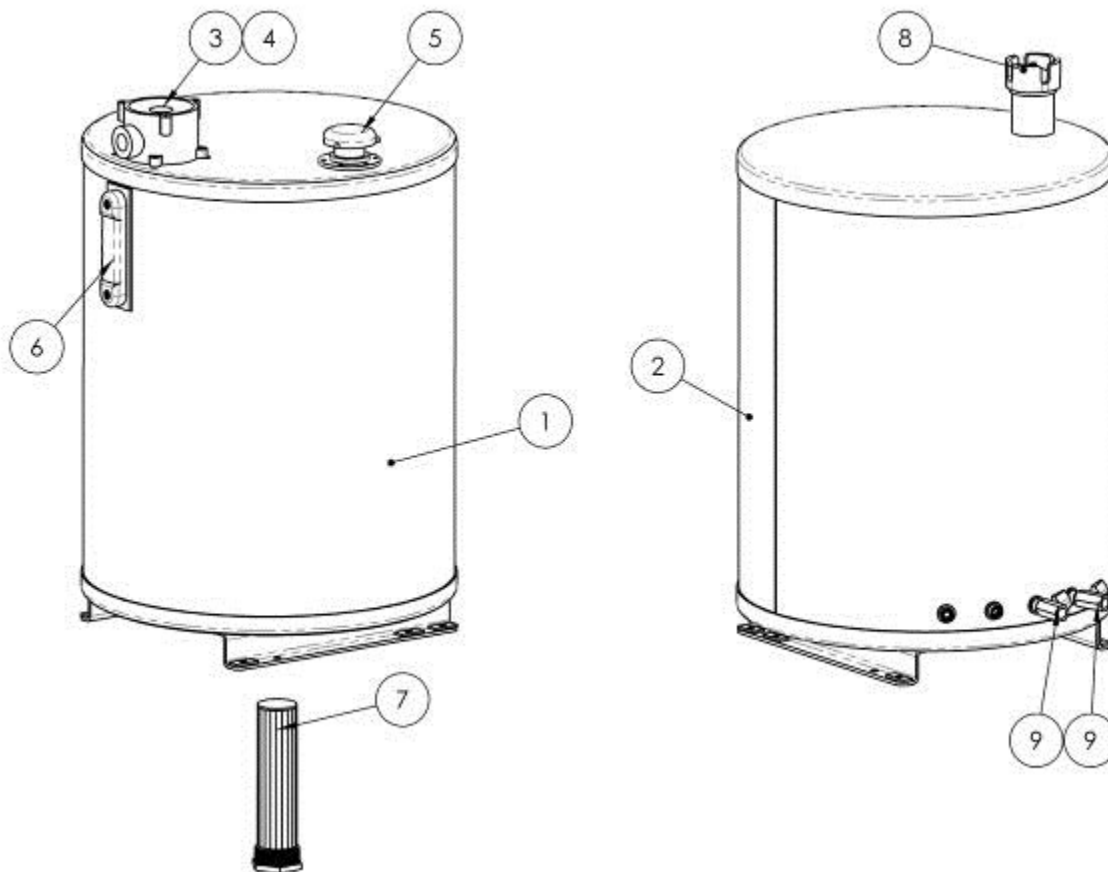
## Combustion Chamber Parts List and Tank Insulation

Item	Part #	Description
1	402893	Combustion Chamber Skin
2	403400	Chamber Lining Kit (board)
3	402898	Burner Mount
4	417041	Inspection Cover
5	402923	Lining Retainer
6	424534	Burner Cover
7	406252	Burner Hinge
8	153417	Bottom Insulation Kit 410 (Blanket)
9	152487	Blanket
	404518	Heat Chamber Assy (Items 1-5, and 9)



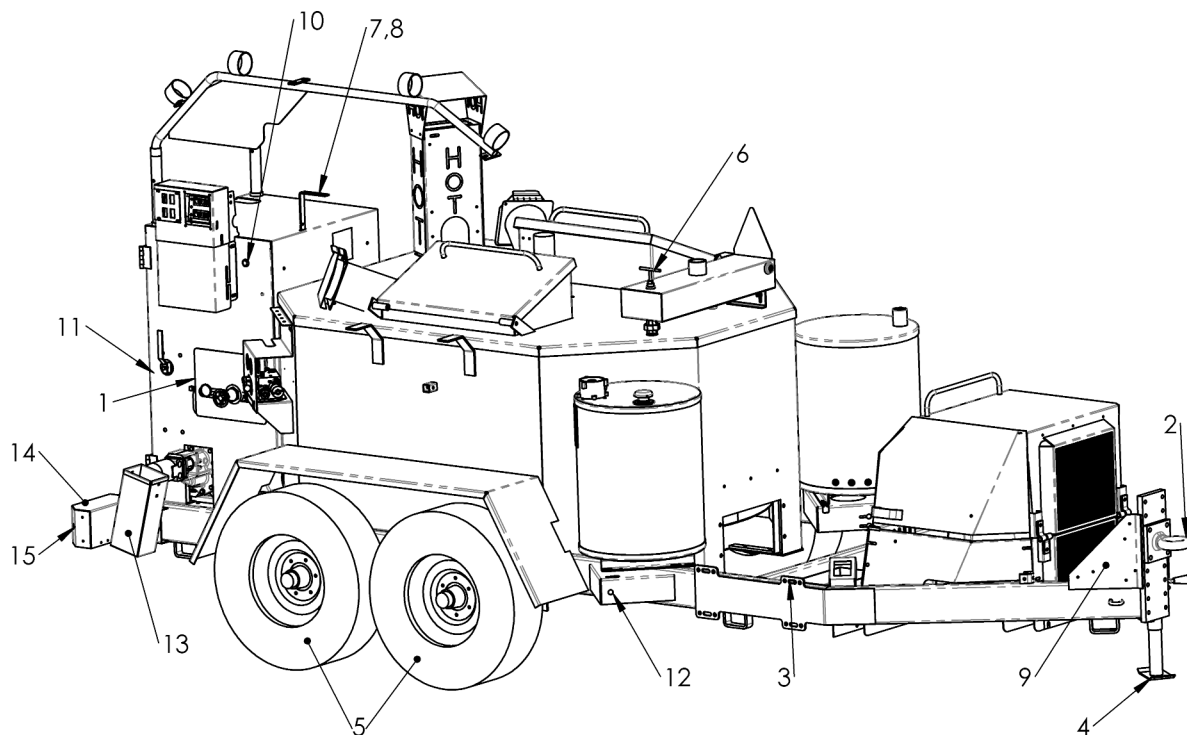
# Hydraulic Reservoir and Diesel Tank Components

Item	Part #	Description
1	172372	Hydraulic Tank
2	172373	Diesel Tank
3	172127	Return Filter Assy (Non-Compressor)
	172185	Return Filter Assy (Compressor)
4	170407	Element - Return Filter (Non-Compressor)
		Element - Return Filter (Compressor)
5	152044	Filler Cap Assy
6	171631	Sight Gauge
7	172186	Suction Strainer
8	155396	Fuel Gauge/Cap
9	120743	Fuel Shut-off Valve



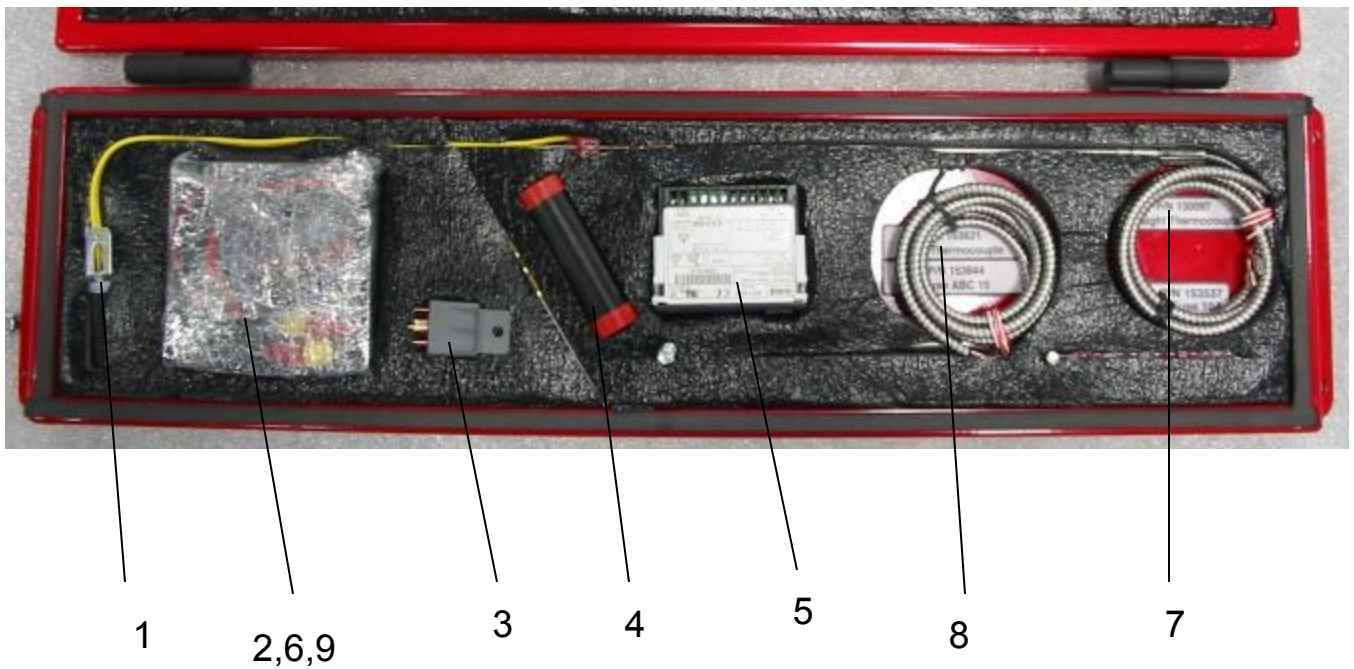
# Miscellaneous Parts

Item	Part #	Description
1	161325	Label
2	140333	Pintle Hitch, 2 1/2"
	403135	Pintle Hitch, 3"
	403271	Ball Hitch, 2" (110 only)
	402954	Ball Hitch, 2 5/16"
3	150212	Battery, 12 V-M
4	140330	Jack - 5000 lb.
5	140381	Radial Tire R15 (410 only)
6	404341	Dipstick/Cap Assy
7	422512	Gate Lever
8	152038	Handle Grip
9	130050	Breakaway Switch
*	153638	Cable For Breakaway Switch
10	130020	Thermometer 4" Stem
11	416714	Gate
12	130375	Amber Clearance Light
13	403907	Wand Holder
14	150656	Stop & Tail Light w/License Light
15	130374	Red Clearance Light
*	403910	Heat Transfer Oil - 5 Gallon Pail
*	152842	Heat Transfer Oil - 30 Gallon Drum
*	154731	Heat Transfer Oil - 55 Gallon Drum
*	160931	Instruction Video
		* Not Shown



## Spare Parts Kit Option

Item	Part #	Description
1	152105	Electric Eye
2	200352	Primary Control
3	130113	Relay (Heated Hose & Burner)
4	152399	Coupling
5	200482	Controller
6	153537	Fuse 10 Amp (Qty 5)
7	130097	Thermocouple (Oil)
8	153621	Thermocouple (Pump)
9	153644	Fuse ABC 15
	404695	Complete Spare Parts Kit







## Notes





**2601 Niagara Lane · Plymouth, MN 55447 · (763) 557-1982 · (800) 328-3874 · Fax (763) 557-1971**