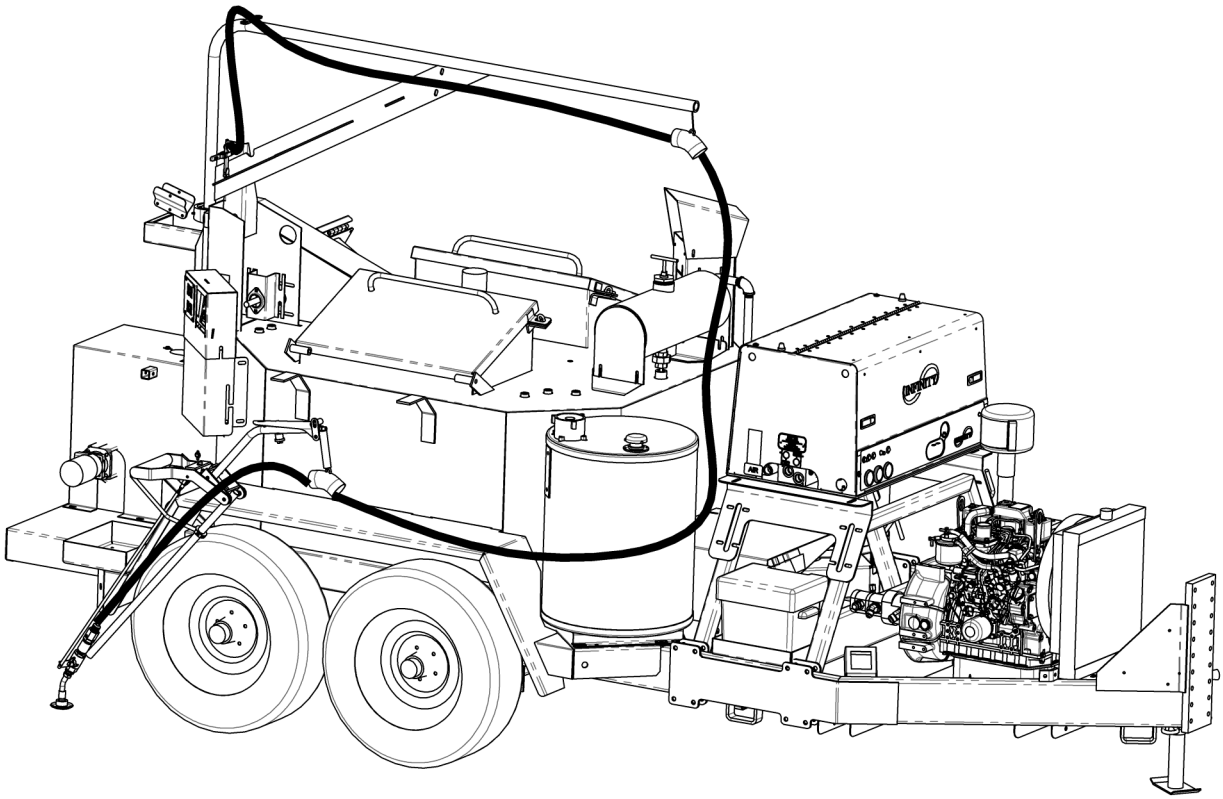
CIMLINE

Melter Applicator

Magma 150, & 230

Owner/Operator Manual



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Part # 161439 *Revised 2/27/15*

Table of Contents

Parts Section

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.

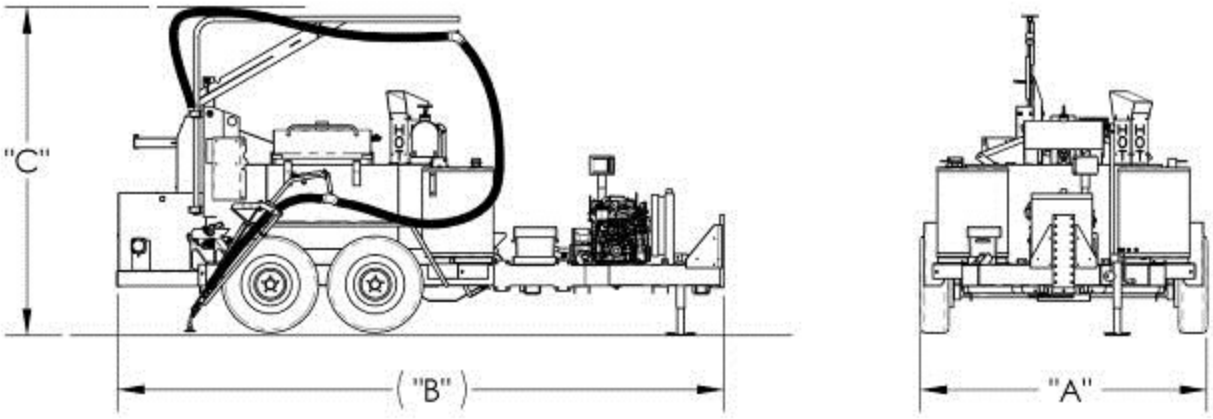
WARNING: Do not over fill the melting tank. For best results, add only as much material as required for the job or a maximum of 75% of tank capacity. (Model 150 - 113 gallons, Model 230 - 168 gallons & Model 410 - 308 gallons).

WARNING: On a new Melter applicator or a unit that has been idle for some time, slowly raise the oil temperature to 250º 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)	
150	84/214	156/396	95/242	4000/1814	
230	81/206	171/435	90/229	4700/2132	
Model 230 shown			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) **Pump Maintenance Valve:** Allows the melted material to not leave the tank to allow maintenance work on 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 Door (1 on Model 150):** Place the material on safety door to load the melting tank.

4) **Oil Temperature Gauge:** Monitors the heat transfer oil temperature.

5) **Material Temperature Gauge (optional):** This gauge shows the temperature of material inside the melting tank. This gauge is for reference before pumping starts. Once pumping begins, material controller will be an exact reading of material passing through the system. (Not shown)

6) **Micropanel ignition Switch:** Use the key to turn the engine on and off.

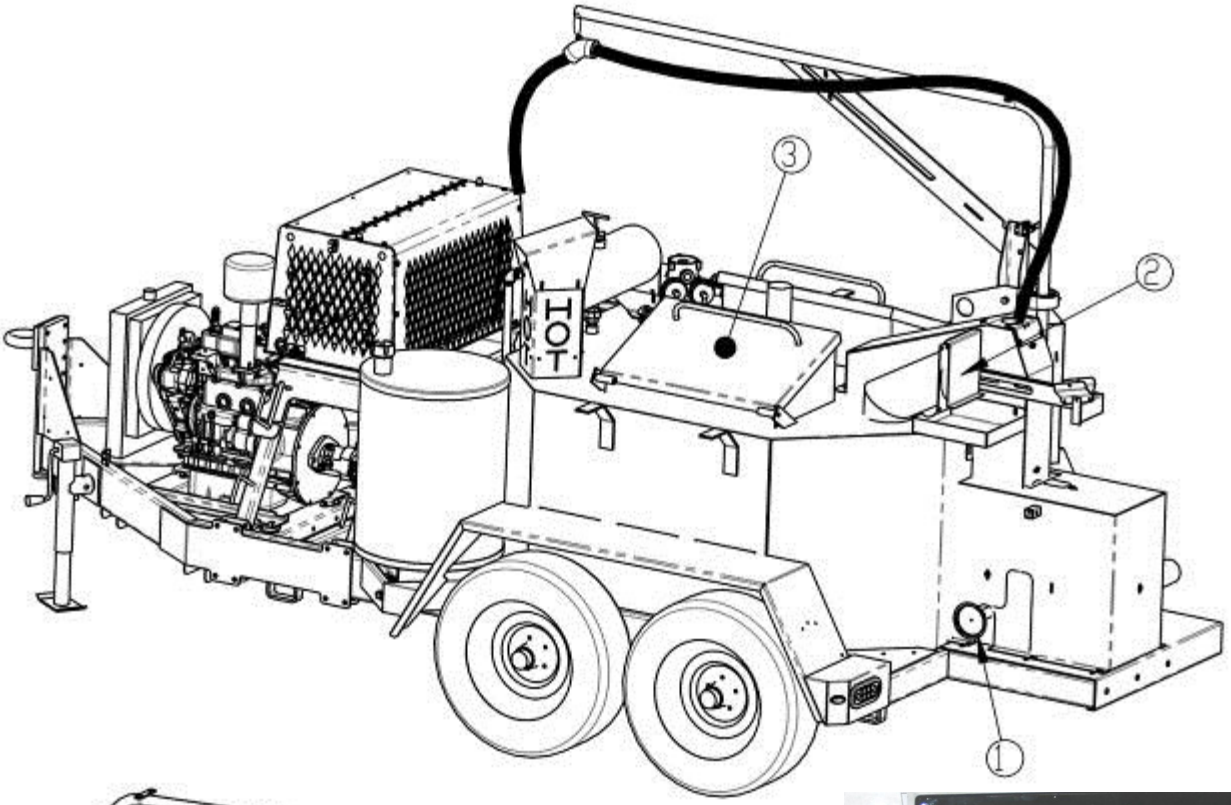
7) **Pressure Gauge:** This gauge measures the pressure required to turn the agitator and the material pump.

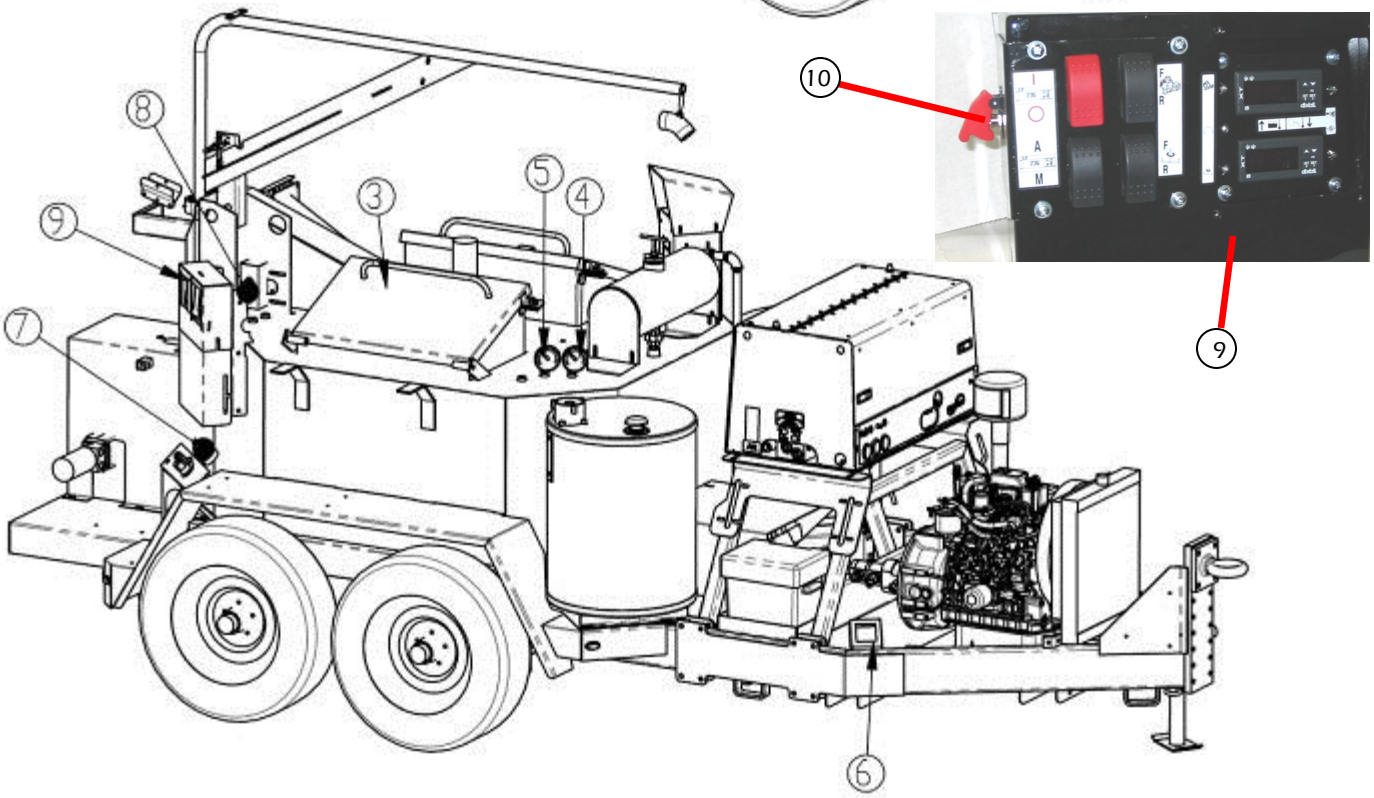
8) **Sealing Hose Valve:** This valve stops the material recirculating back into the material tank causing it to go out of the wand.

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) **Low Flow Override Switch:** The Switch is engaged when in the up position. When engaged this switch takes the signal from the wand switch and then tells the material pump to engage. This function should only be used when material is coming out at a rate higher than desired.
Caution: Failure to disengage this switch when not crack sealing could result in the material becoming solidified in the plumbing.

Controls and Their Functions

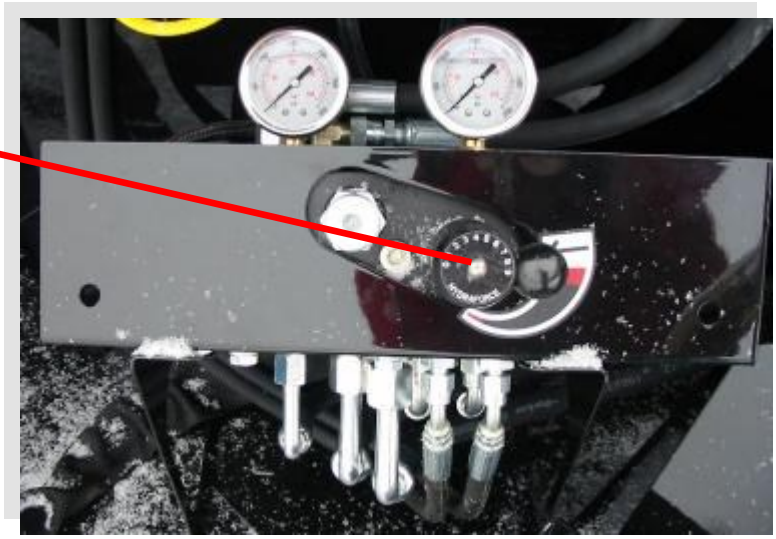




Start up

1. SETUP:

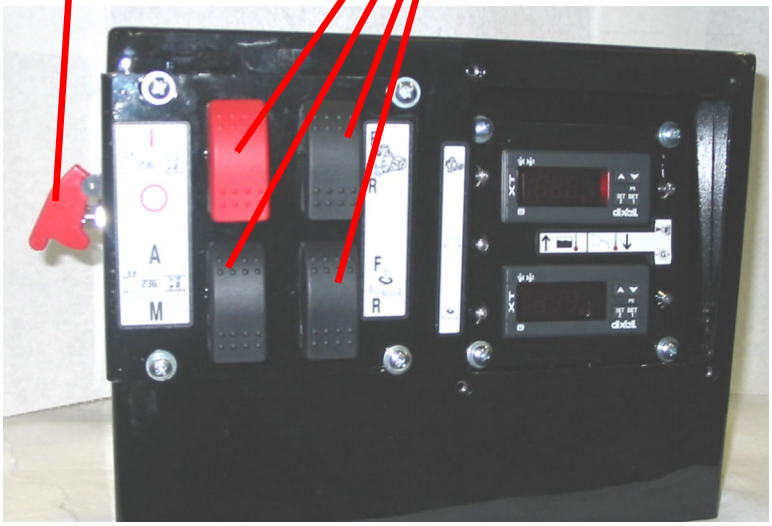
A) Set Flow control to “9”



Make sure pump maintenance valve is fully open Counter-Clockwise (Item “1” from page 7).

B) Set all control switches to up

C) Set switch with switch guard down.



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.

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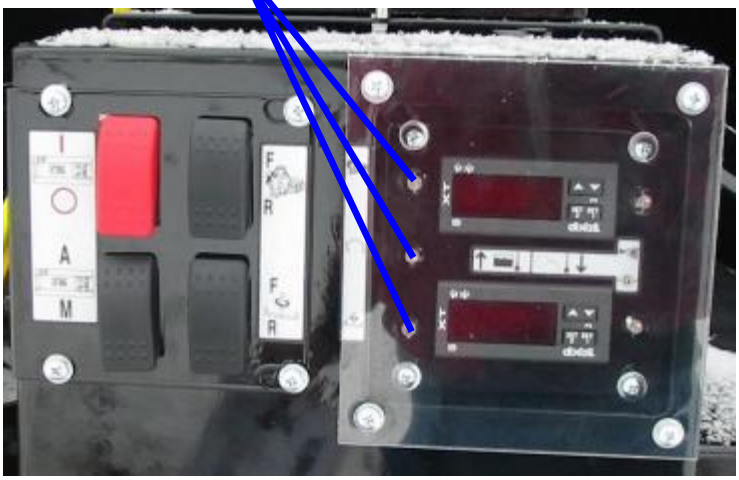
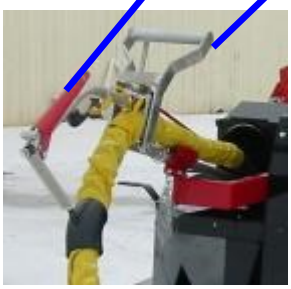
4. Ready for Work

When all 3 GREEN lights are on:



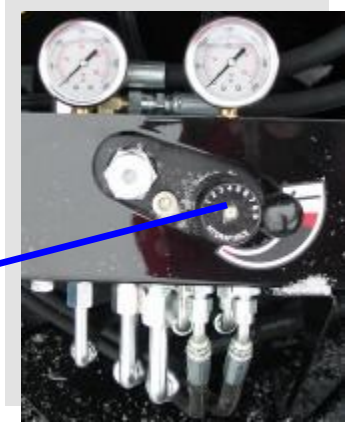
A) Set Flow to “0”

B) Pin Wand trigger and set handle forward



C) Set Flow to desired level

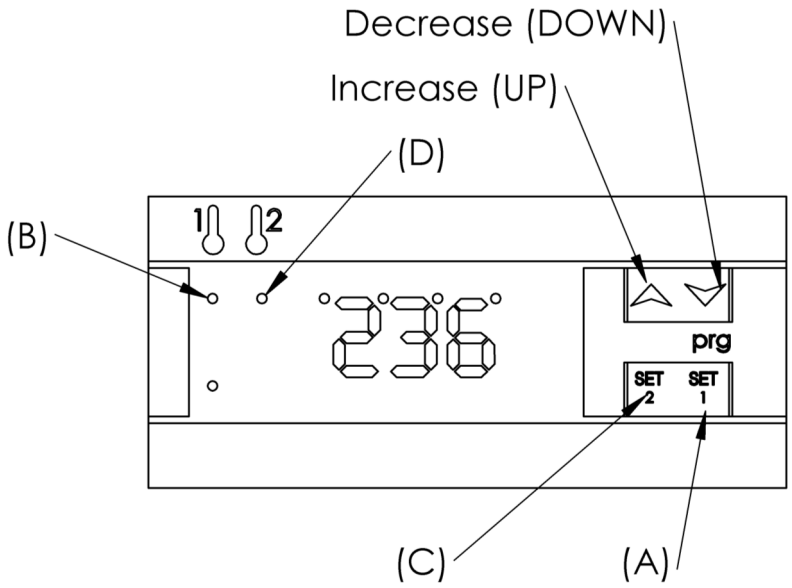
D) Start Sealing



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.

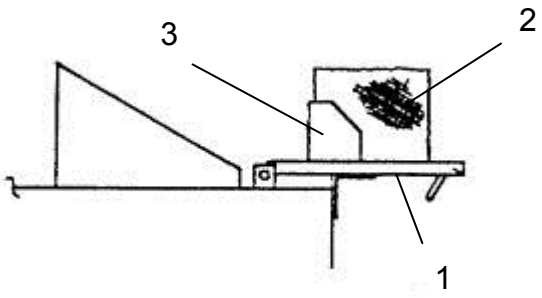
4) Indicator light (B) will remain on anytime the burner is running.

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

Contact material supplier for information on how to flush out non-reheatable materials.

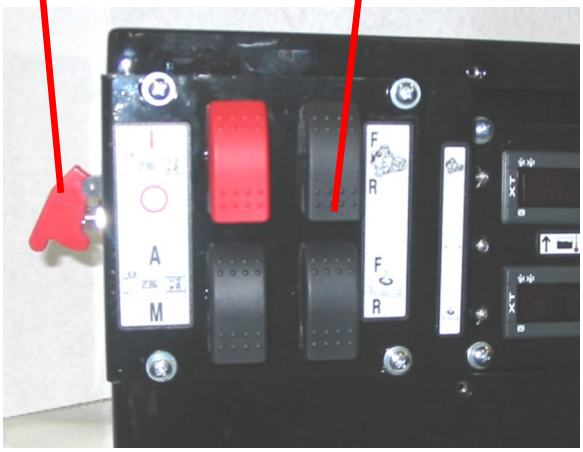
1. SETUP:

A) Place wand in port.

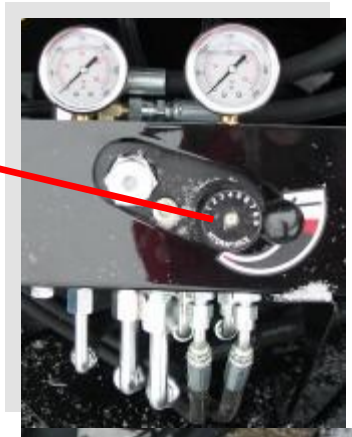
B) Pin wand trigger and set handle forward.

C) Place toggle switch with guard in down position.

D) 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:

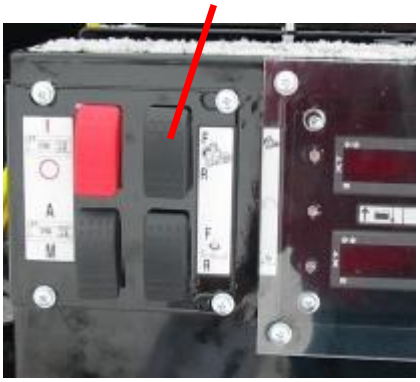
Unpin wand trigger.

Continue running pump in reverse for 2 minutes.

Shut down:

Shut Engine off by turning key to “0”

Set all control switches up (leave toggle switch with guard in down position).

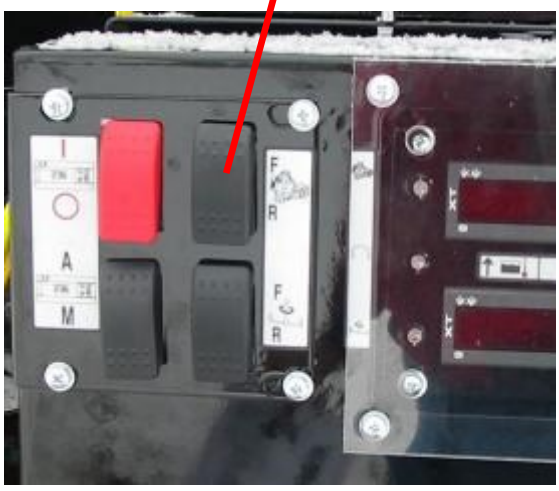


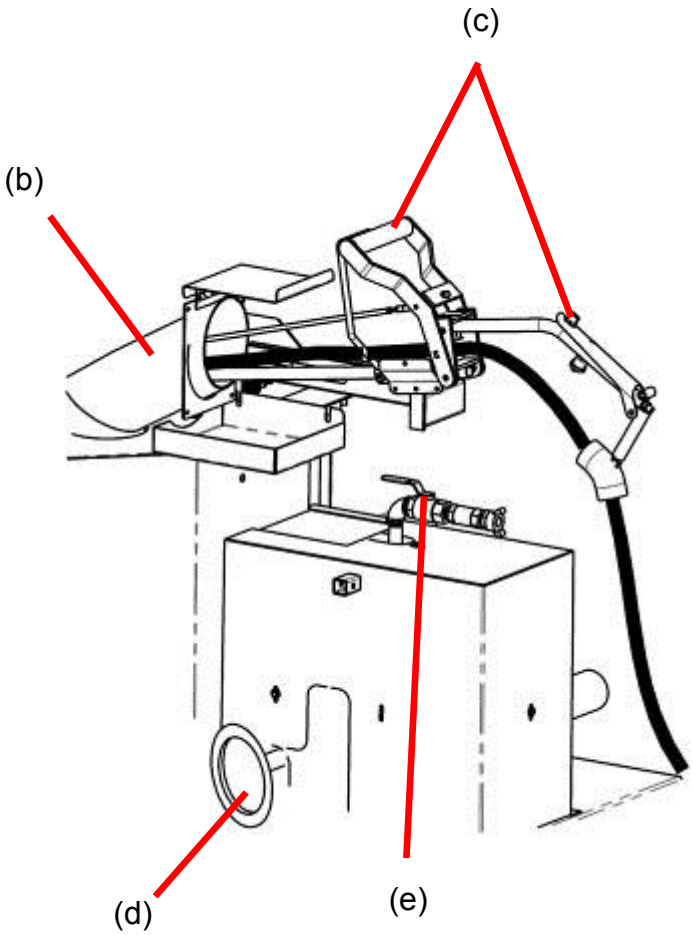
Move Boom to travel position and **<u>lock</u>**.

Store wand

Cleanout Procedure (Optional Air Cleanout)

1. Place material pump in neutral (a)
2. Remove sealing tip and return wand to access port (b).
3. Pin wand trigger and set handle forward (c).
4. Close tank maintenance valve (d).
5. Connect air hose and open air cleanout valve (e).
6. Allow air to blow freely through sealing hose.
7. Move wand handle back and let air blow into tank (c).
8. Open Tank outlet valve momentarily, then close (d).
9. Shut air hose off at compressor, close air cleanout valve and disconnect hose (e).
10. Turn Key off and proceed with normal machine shut-down.





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 Melter Applicator 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.

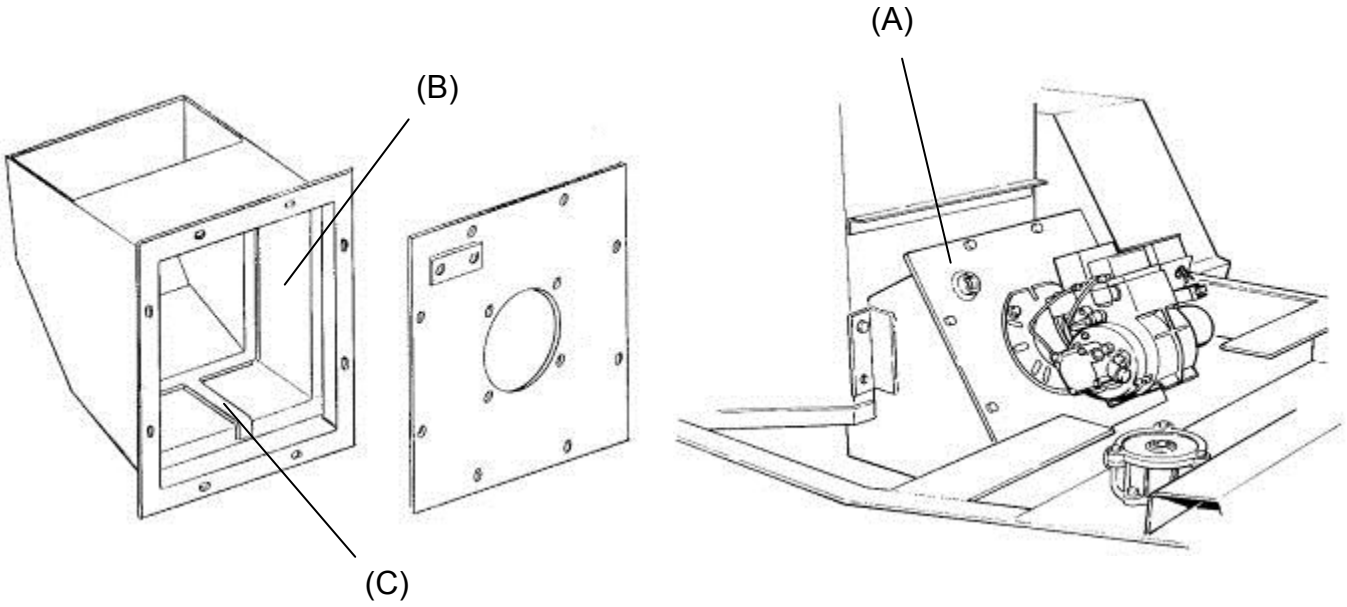
NOTE: When breaking in a new Melter, we recommend running the engine for one hour with no load prior to actual use on the job.

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.

Fuel: 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 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

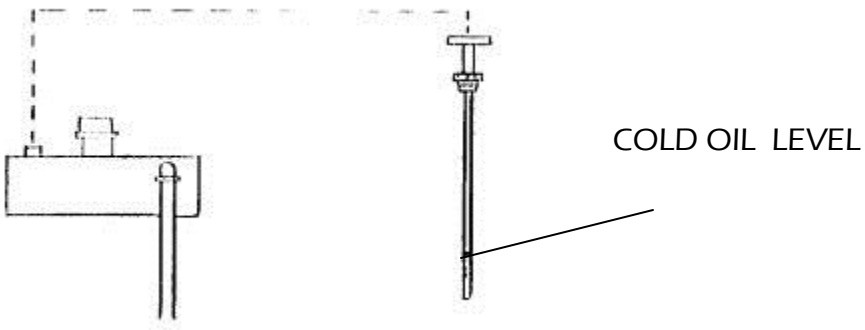
Fluid and Components Specifications

	Model 150	Model 230	
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.	.
Heat Transfer Oil Type	See Specs. On next page.		
Agitation Drive Relief Setting	1100	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	10º F (12º C)
Flash Point - F	485º F (252º 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 and 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.

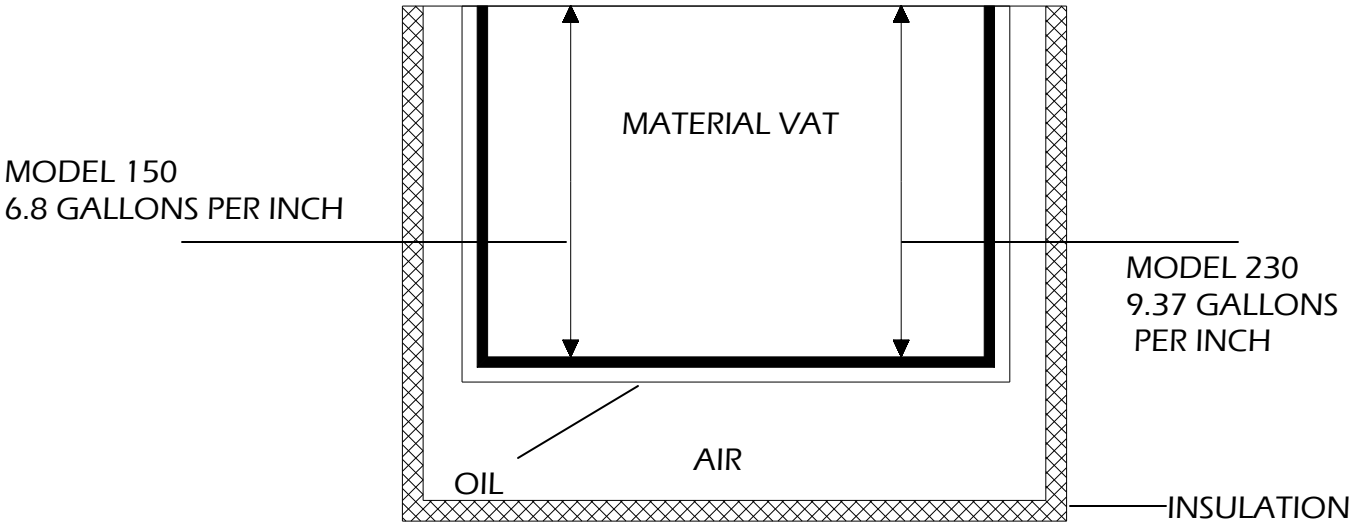
FIRE POINT - Same test as the flash point except the oil is heated until the gasses will start a fire.

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 150 1570 Cubic Inches	Model 230 2165 Cubic Inches	
2"	13.6	18.74	
4"	27.18	37.48	
6"	40.78	56.22	
8"	54.37	76.96	
10"	67.96	93.7	
12"	81.56	112.44	
14"	95.15	131.18	
16"	108.74	149.92	
18"	122.34	168.66	
20"	135.93	187.4	
22"	149.52	204.14	
24"		224.88	
26"			
28"			

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.

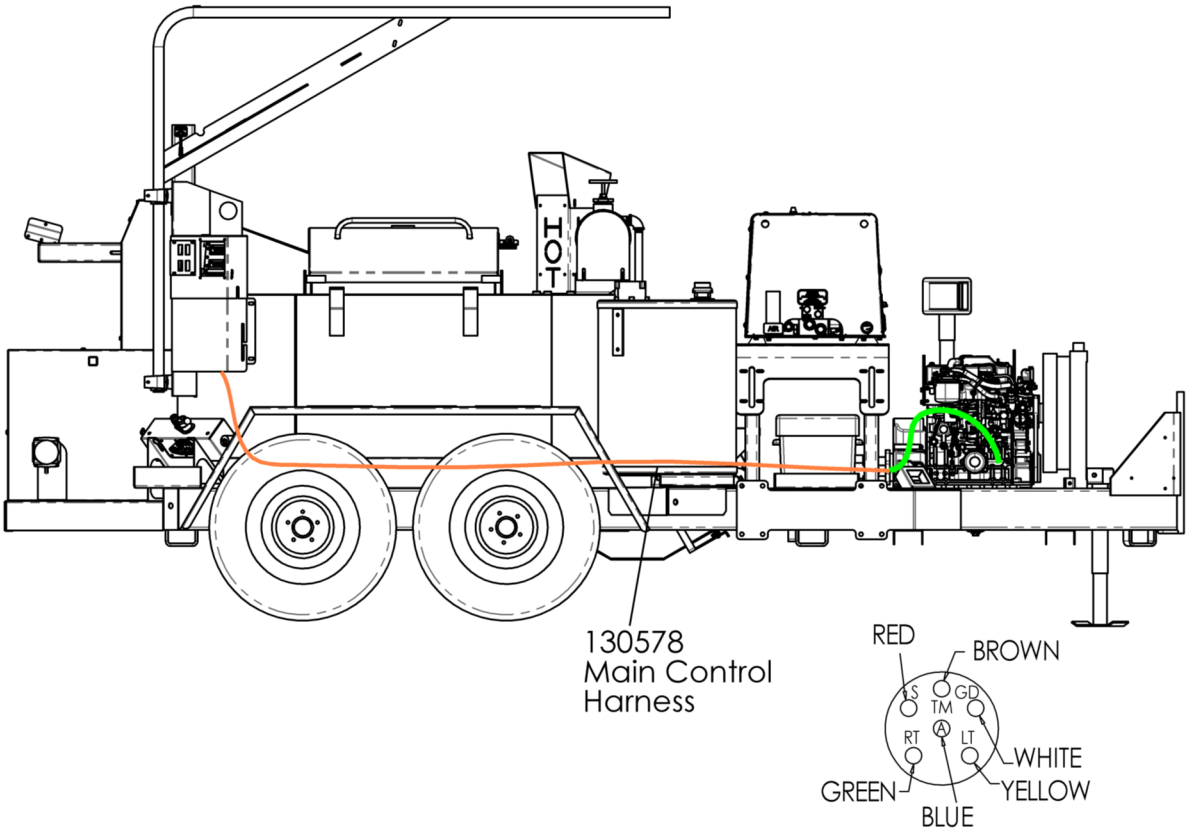
***** Volume of tank in cubic inches for each inch of material.

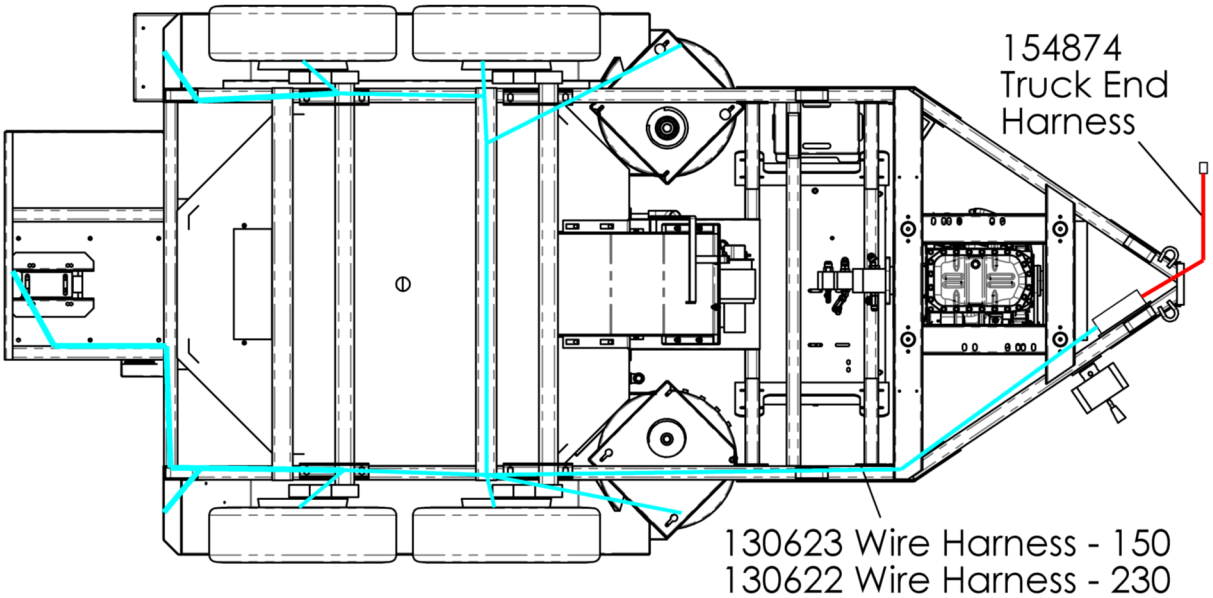
Trouble Shooting Guide

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 obstruction
	Too much material left in lines from previous use.	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 electric hose or at the switch

Parts Section

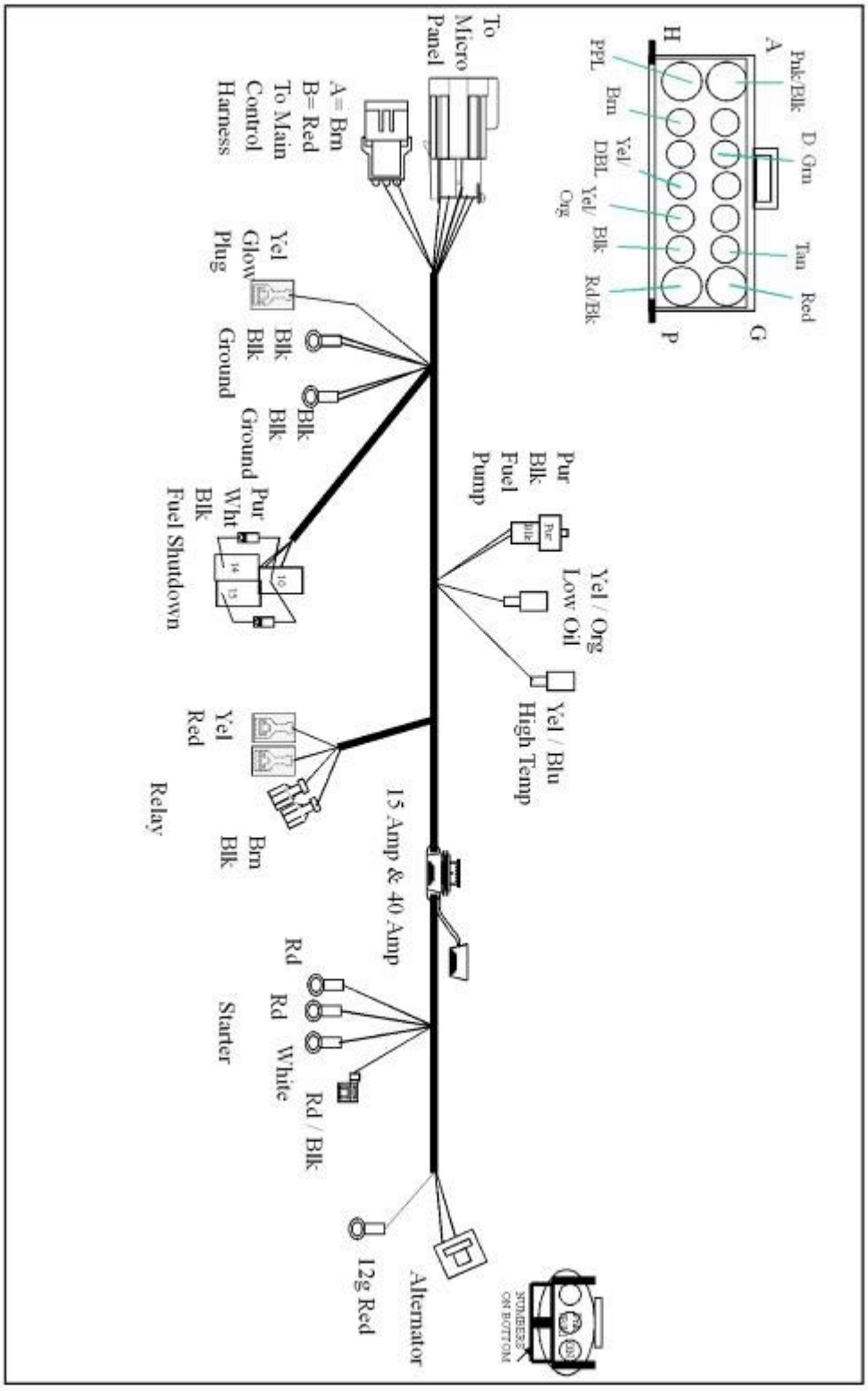
Complete Wiring Diagram





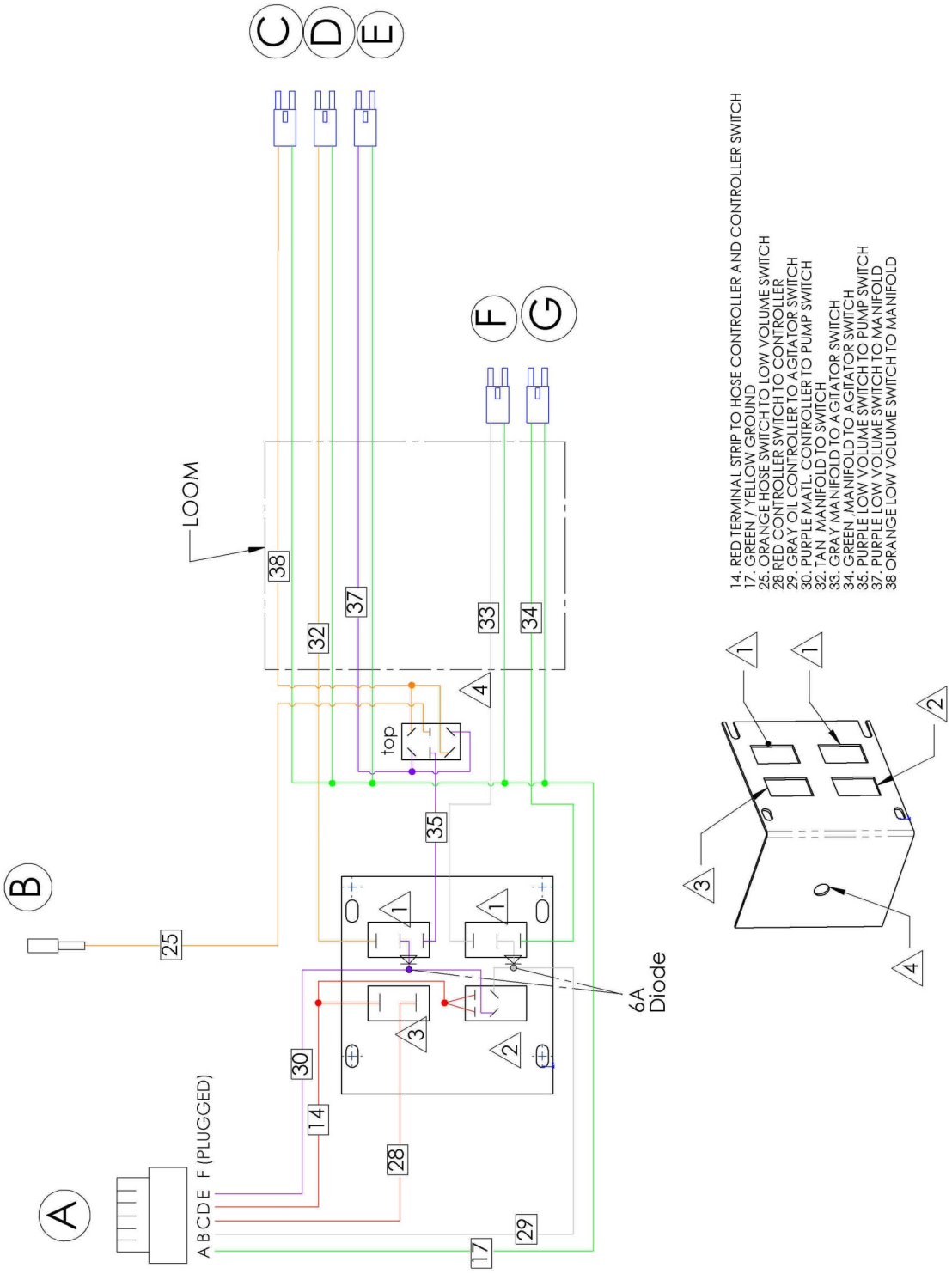
Wiring Diagrams

Engine Harness



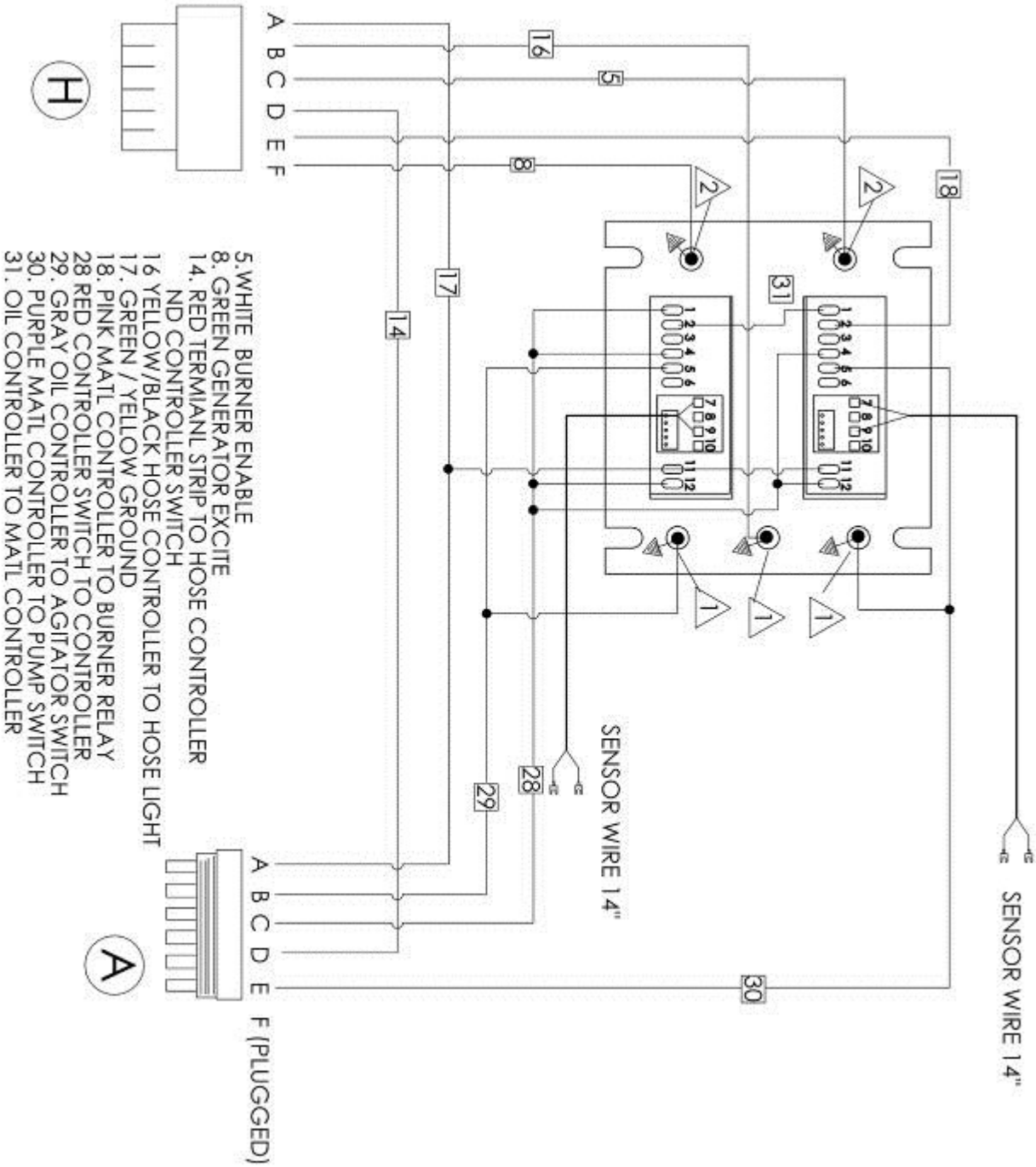
Wiring Diagram

Switch Plate



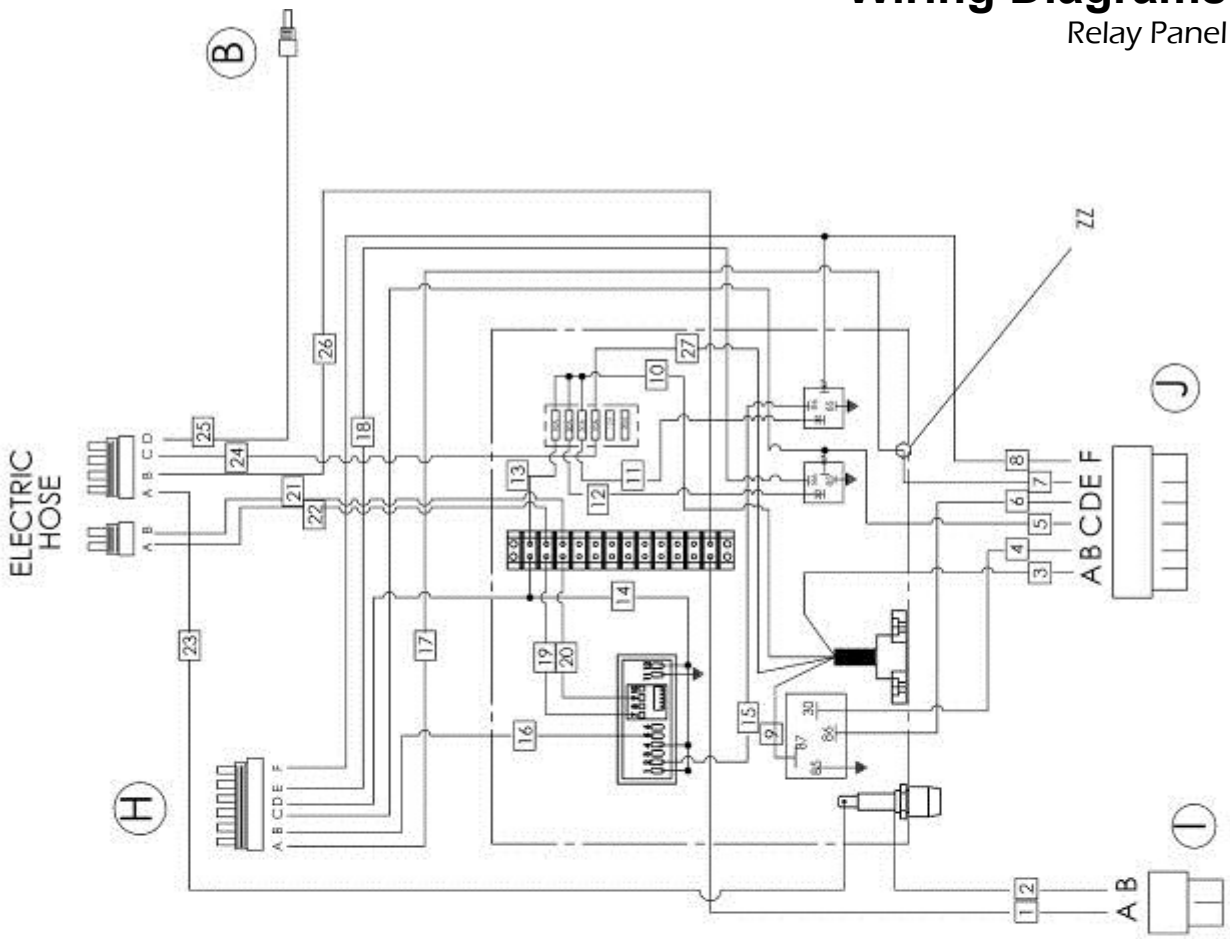
Wiring Diagrams

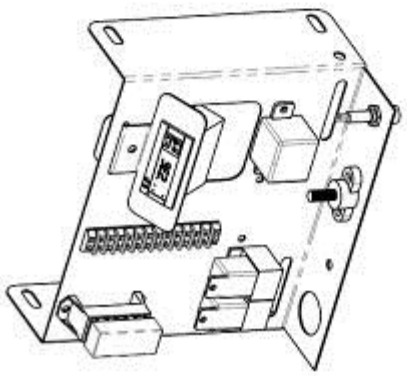
Temperature Control Panel



Wiring Diagrams

Relay Panel





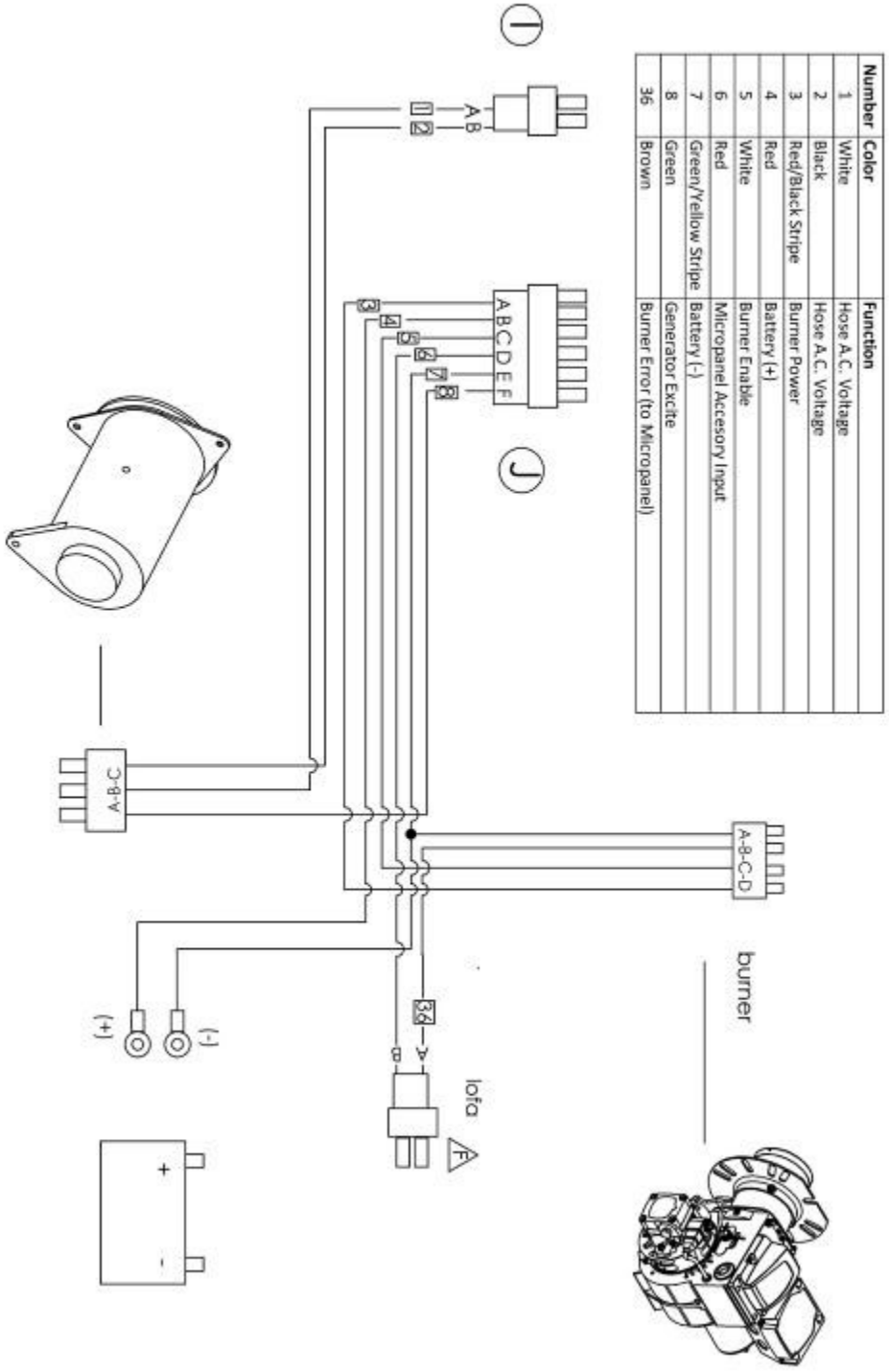
1. WHITE HOSE A.C.
2. BLACK HOSE A.C.
3. **RED /BLACK STRIPE BURNER POWER (14 GA AWG)**
4. **RED BATTERY POSITIVE (12 ga awg)**
5. WHITE BURNER ENABLE
6. RED LOFA KEY SWITCH ACCESORY INPUT
7. **GREEN/YELLOW STRIPE GROUND (12 GA AWG)**
8. GREEN GENERATOR EXCITE
9. **RED ACCS. RELAY OUT (12 GA AWG)**
10. RED POS BATTERY LUG TO FUSE
11. RED FUSE TO HOSE RELAY
12. REDFUSE TO BURNER RELAY
13. RED FUSE TO TERMINAL STRIP
14. RED TERMIANL 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 AC
27. ORANGE DC LUG TO FUSE

⏚ = GROUND ALL TO GROUNDING LUG (ZZ)
▼ ALL GROUNDS GREEN W/ YELLOW STRIPE

Wiring Diagrams

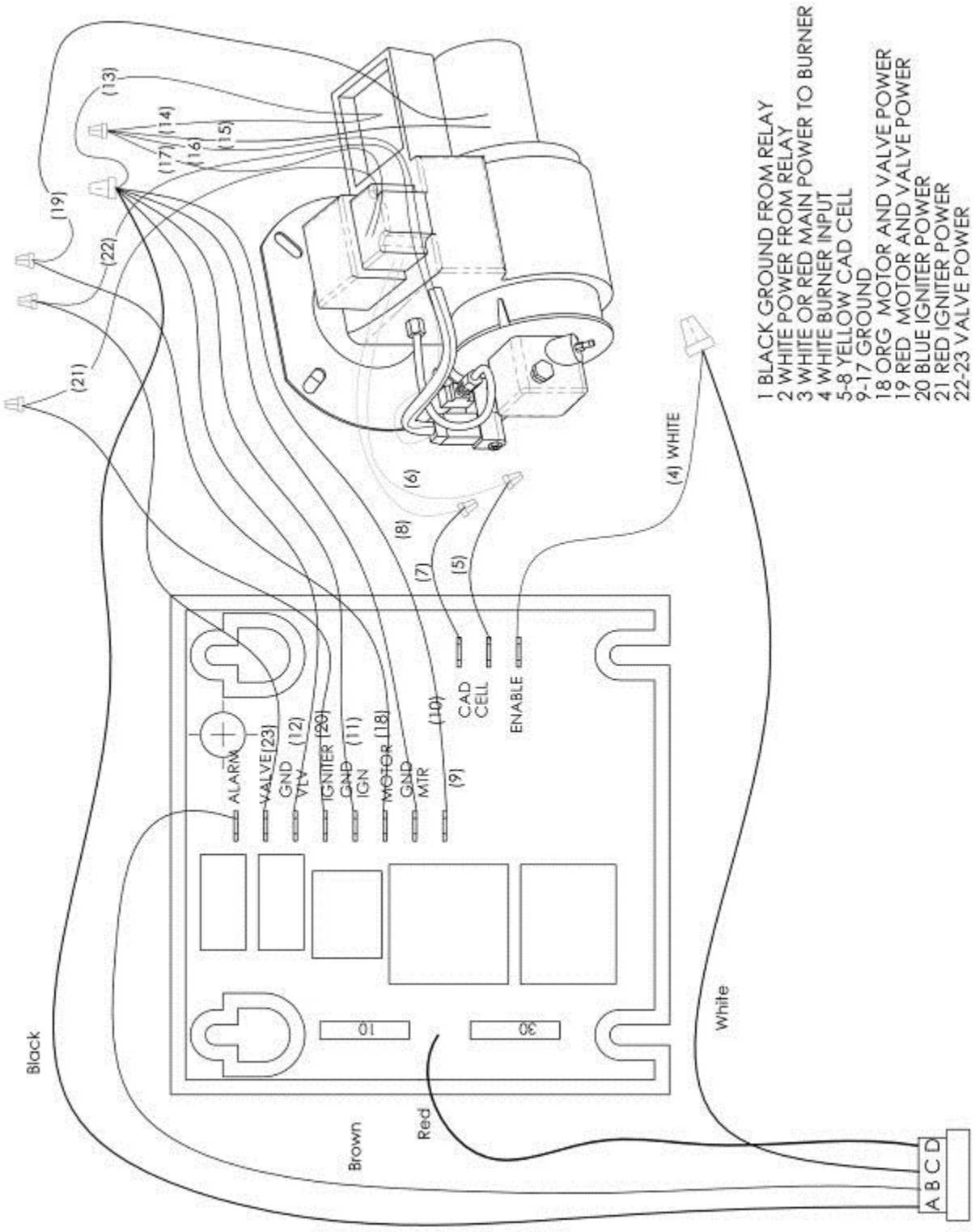
Main Supply Harness

Number	Color	Function
1	White	Hose A.C. Voltage
2	Black	Hose A.C. Voltage
3	Red/Black Stripe	Burner Power
4	Red	Battery (+)
5	White	Burner Enable
6	Red	Micropanel Accesory Input
7	Green/Yellow Stripe	Battery (-)
8	Green	Generator Excite
36	Brown	Burner Error (to Micropanel)



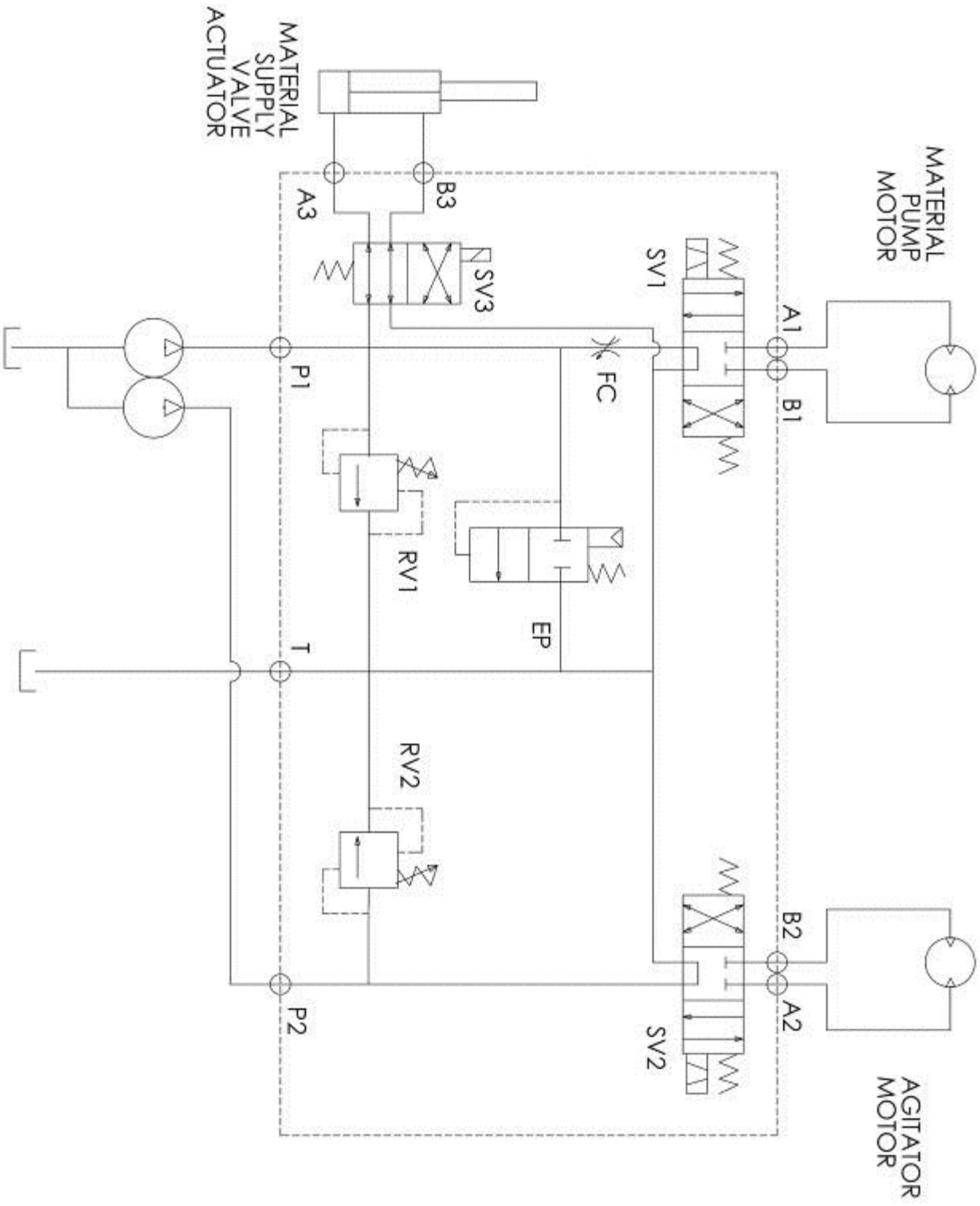
Wiring Diagrams

Burner



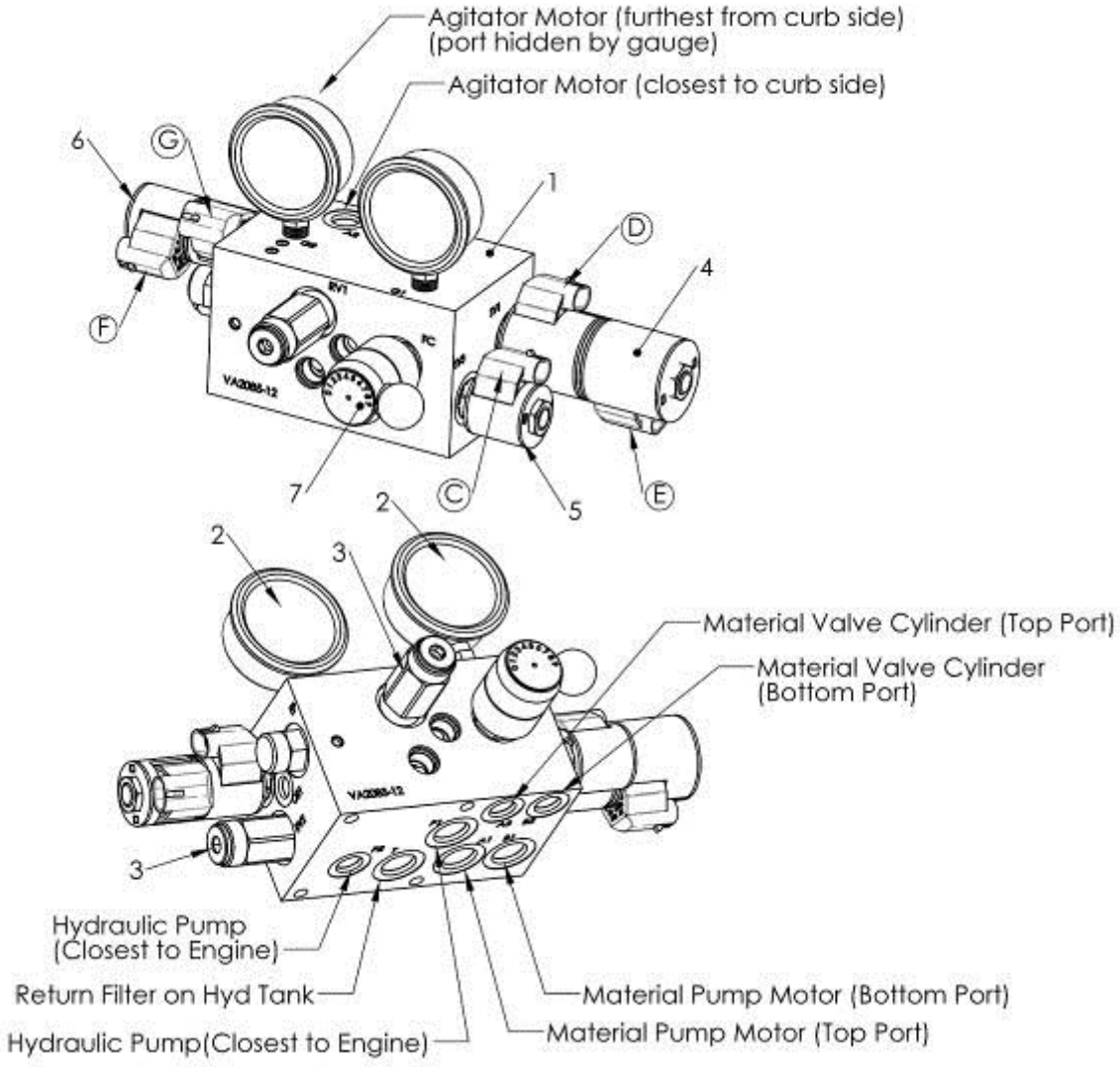
Hydraulic Schematic

For Compressor Hydraulics, see Supplement manual



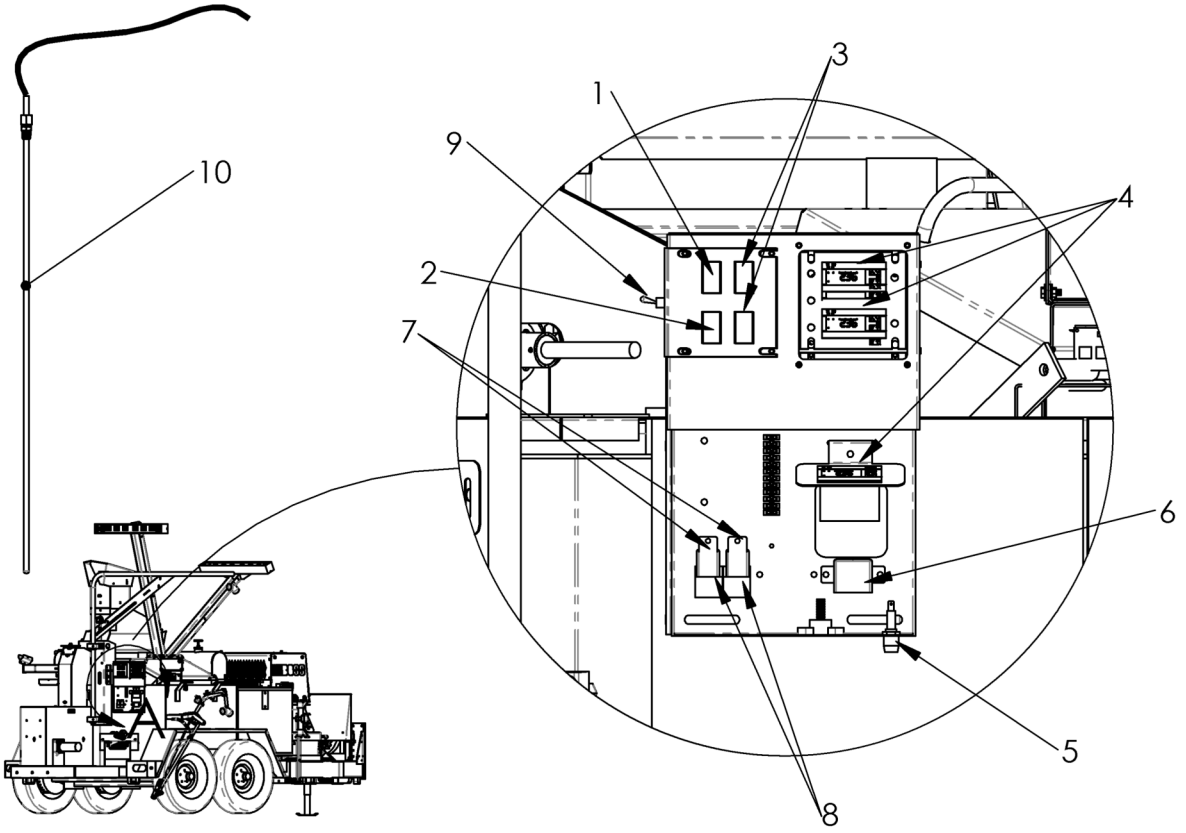
Hydraulic Manifold Components

Item	Part #	Description
1	172371	Hyd. Manifold
2	171597	Guage
3	172587	Relief Valve (Set at 800 PSI)
4	172226	Spool and Coil Kit for Matl Pump
	172224	Spool for Matl Pump
	172225	Coil for Matl Pump (2 req'd)
5	172589	Spool and Coil Kit for TFC
	172557	Spool for TFC
	172585	Coil for TFC
6	172583	Spool and Coil Kit for Agitator
	172584	Spool for Agitator
	172585	Coil for Agitator (2 Req'd)
7	172563	Rotary Flow Control



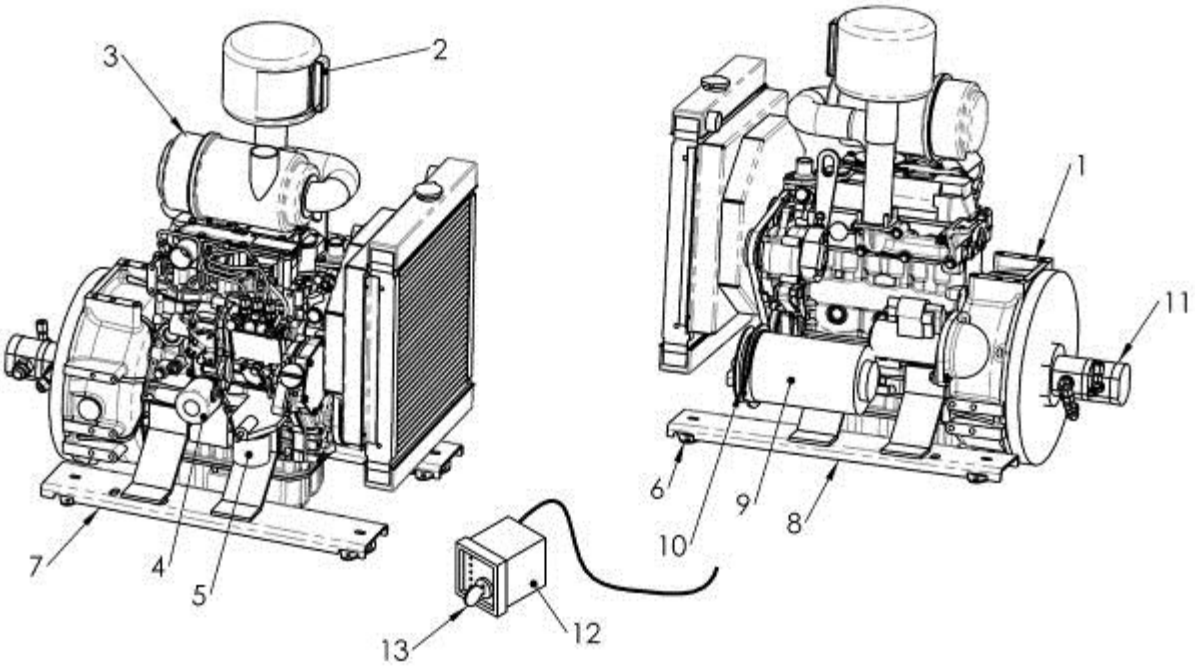
Electrical Components

Item	Part #	Description	Item	Part #	Description
1	130815	Controller Switch	5	152119	Fuse Holder
	130482	Switch Cover		130505	Fuse 18A
2	130788	Auto/Manual Switch	6	130222	Relay
	130814	Switch Cover	7	130113	Relay
3	130481	Fwd/Rev Switch	8	153870	Relay Socket
	130814	Switch Cover	9	130782	Low Flow Switch
4	200596	Transfer Oil Temperature Controller (F)		130783	Switch Guard
	200597	Material Temperature Controller (F)	10	130097	Heat transfer Oil/Material Thermocou
	200598	Heated Hose Temperature Controller (F)		130624	Yellow LED Light (qty 2)
	200599	Transfer Oil Temperature Controller (Celsius)		130625	Green LED Light (qty 3)
	200600	Material Temperature Controller (Celsius)			
	200601	Heated Hose Temperature Controller (Celsius)			
	200587	Matl Program Key			
	200588	Heat Transfer Oil Program Key			
		Heated Hose Program Key			



Engine Components

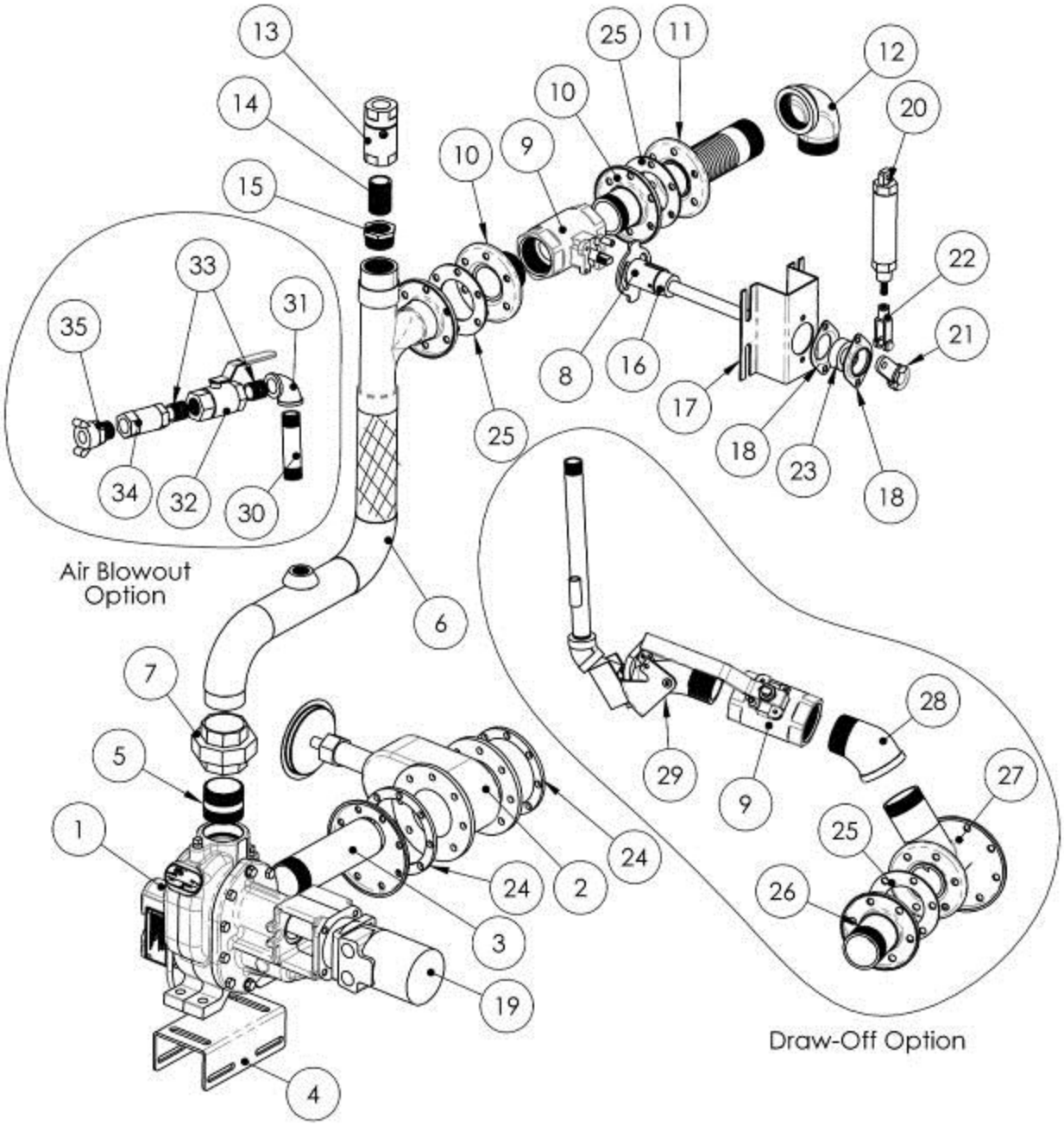
Item	Part #	Description	Item	Part #	Description
1	111726	Engine (Non-Compressor)	6	152047	Rubber Isolator
	111727	Engine (Compressor)	7	422167	Engine Mount (RH)
	111479	Fan Belt (Non-Compressor)	8	425244	Engine Mount (LH)
	111372	Fan Belt (Compressor)	9	406139	Generator with Pulley
2	153619	Exhaust	10	110036	Belt A-31 (Non-Compressor Engine)
3	111111	Air Filter Element		111665	Belt A-33 (Compressor Engine)
	111780	Air Cleaner Assy	11	171876	Twin Hydraulic Pump (Non-Compressor Engine)
	111781	End Cap		172282	Triple Hydraulic Pump (Compressor Engine)
4	111337	Oil Filter (Non-compressor Engine)	12	111108	Micro Panel
	111339	Oil Filter (Compressor Engine)	13		Key
5	111457	Fuel Filter (Non-compressor Engine)	Not shown	406599	Filter Kit for Non-Compressor Engine
	111340	Fuel Filter (Compressor Engine)		407434	Filter Kit For Compressor Engine
				407537	Filter Kit For Compressor



Material Plumbing Components

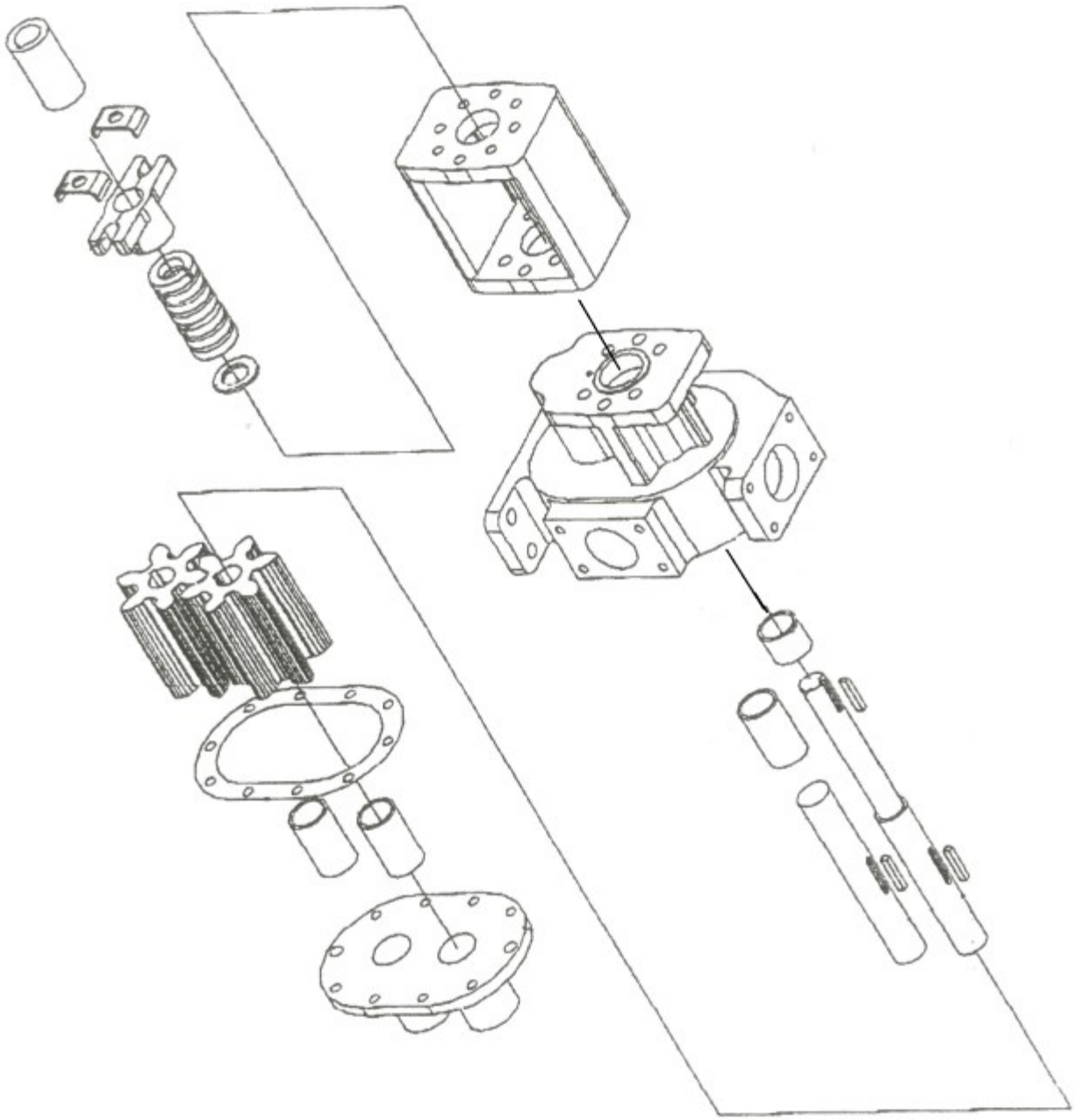
Item	Part #	Description	Item	Part #	Description
1	120803	Material Pump	19	170602	Motor
2	120498	Gate Valve	20	172395	Cylinder
3	405065	Outlet Adapter	21	407870	Ear Weld
4	422053	Pump Plate	22	130581	Clevis
5	120396	Pipe Nipple	23	110500	Bearing
6	155330	Tee Weld	24	152127	3" Gasket (Qty 2)
7	120611	Pipe Union	25	152126	2" Gasket (Qty 2)
8	407838H	Coupling Weldment	26	403045	Flange Adapter
9	120932	Ball Valve	27	407906	Tee Weldment
10	407868	Flange Weld	28	120621	Pipe Elbow
11	155375	Flex Tube	29	404842	Spigot
12	120877	Street Elbow	30	120398	Pipe Nipple
13	152280	Swivel	31	120053	Pipe Elbow
14	120407	Pipe Nipple	32	120448	Ball Valve
15	120774	Pipe Bushing	33	120412	Pipe Nipple
16	155331	Rod Adapter	34	120475	Check Valve
17	427174	Bearing Plate	35	120437	Air Connector
18	110501	Bearing Flange			

Material Plumbing Components



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

3. Retaining Ring, Bearing Cage

6. Backplate
   A. Standard
   B. Jacketed

7. Bearing, Short

8. Bearing, Long

9. Seal Retainer

10. Triple Lip Seal

11. Mechanical Seal

12. Retaining Ring, Mechanical Seal

13. Packing Gland Clip

14. Packing Gland

15. Spring Clip

16. Packing Ring

17. Lantern Ring (Not Shown)

18. Packing Washer

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)

20. Case Gasket

21. Flange

22. Flange Gasket

23. Faceplate
A. Plain
B. RV Style Relief Valve
C. Jacketed RV Style Relief Valve
D. BV Style Bi-Directional Relief Valve

24. Relief Valve Cap

25. Relief Valve Cap, Gasket

26. Adjusting Screw

27. Nut, Lock and Seal

28. Spring Guide

29. Spring

30. Poppet

31. Adapter

32. Drive Shaft

33. Idler Shaft

34. Drive Gear

35. Idler Gear

36. Retaining Ring, Gear (H)
A. Backplate End
B. Faceplate End

57. Expansion Washer

58. Cam, Double Setting Relief Valve only

59. Operating Piston, Double Setting Relief Valve only

60. Locator Ring

WRN2 Warning Plate, RV Style Relief Valve

WRN3 Warning Plate, RV Style Relief Valve

WRN4 Warning Plate, RV Style Relief Valve

WRN5 Warning Plate, BV Style Relief Valve

A. Drive Key

B. Key, Gear

D. Lube Fitting

E. Hex Head Cap Screw, Seal Retainer to Backplate

F. Locknut

G. Square Head Bolt

H. Pipe Plug, Backplate

J. Dowel Pin

K. Washer Head Cap Screw, Endplates to Case

L. Hex Head Cap Screw, Endplates to Case

M. Hex Head Cap Screw, Flange Nut, Flange

S. Pipe Plug, Faceplate

T. Anti-rotation Pin

AJ. Drive Screw

AK. Ball Handle, Double Setting Relief Valve only

AL. Stud, Double Setting Relief Valve only

AM. Self Locking Nut, Double Setting Relief Valve only

AN. Hex Head Cap Screw, Double Setting Relief Valve only

AP. O-Ring, Double Setting Relief Valve only

Type MBH Hydraulic Drive Bracket Assembly only

61. Bracket

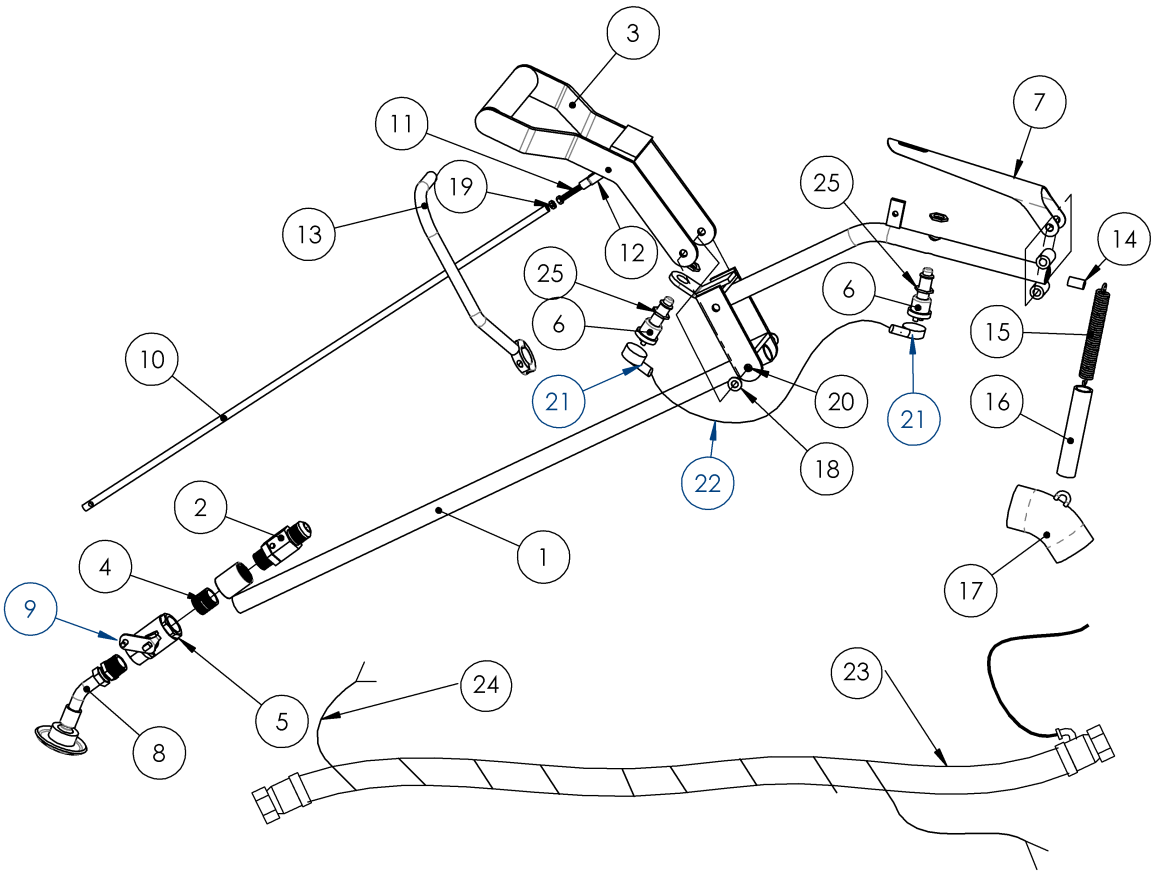
62. Rigid Coupling

63. Retaining Ring

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	200526	Heated Hose Kit
12	130155	Clevis	24	406821	TFC Repair Kit
			25	130324	Jam nut



Sealing Wand Attachments

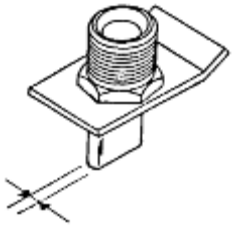
PIVOTING SHOE / 403137

* 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

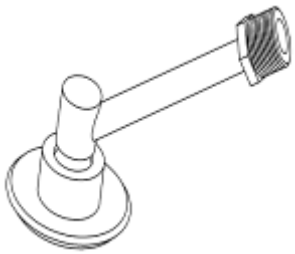
* Available in 1/8" and 1/4"
* 3/4" NPT inlet
* Skid plate to reduce operator fatigue
* Tip may be shortened or angled on field for specific applications

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

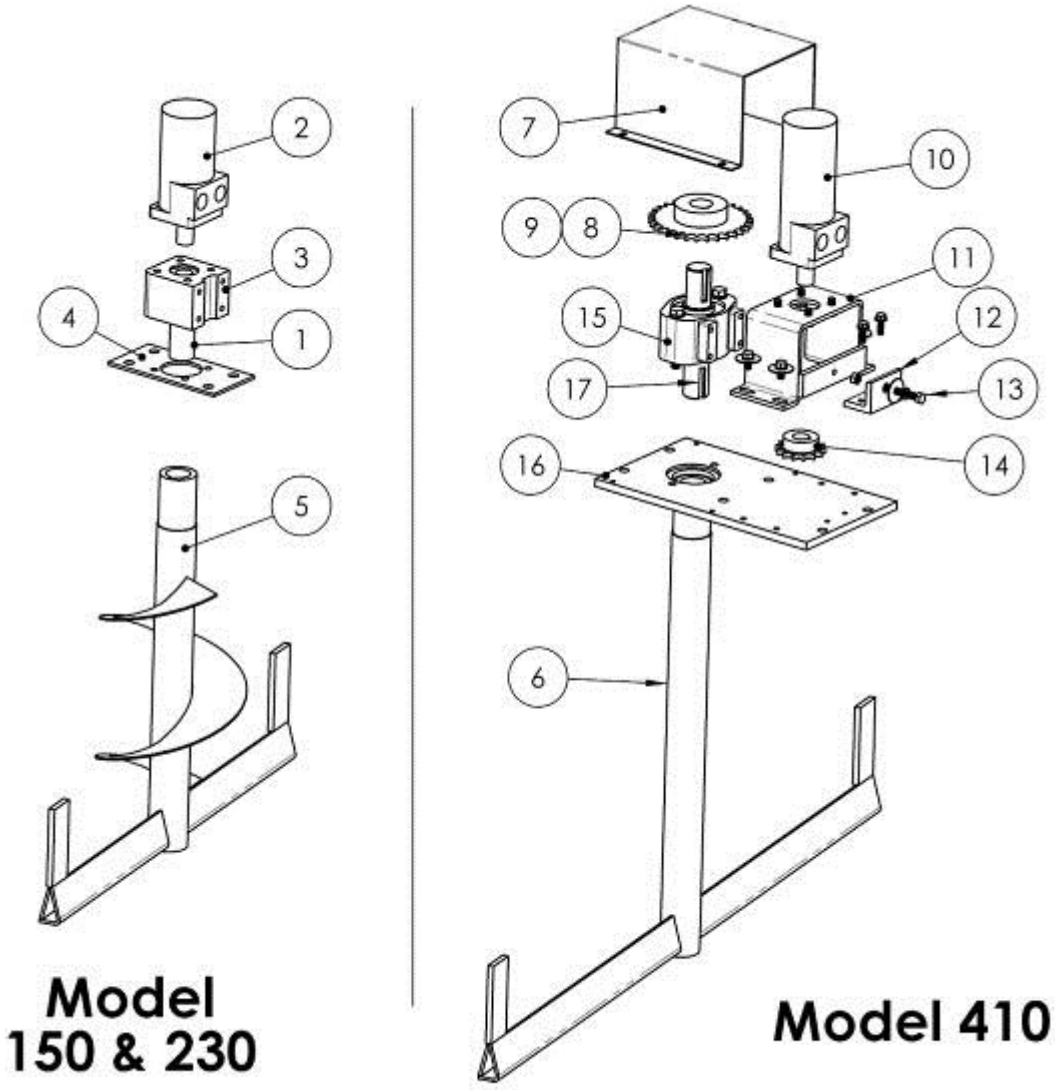
SWIVEL TIP 2.5″ / 407232

* 2" or 3 ½" wide band
* 3/4" NPT inlet
* 3/8" OD orifice
* 3 1/8" OD plate
* Uniform band provided by disc shape

*Pivoting Shoe

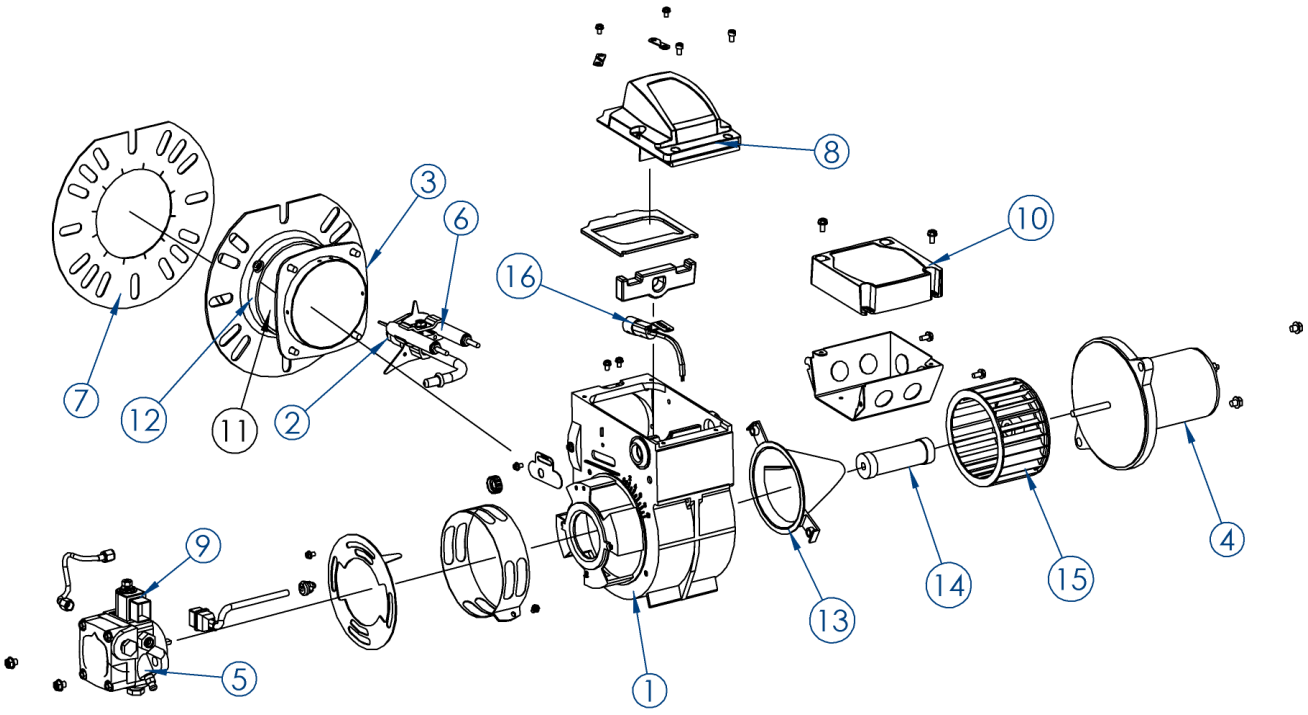
Agitation System Parts List

Item	P/N	Description	Item	P/N	Description
1	110294	Key 3/8 x 2	8	110488	Chain
2	170467	Motor, Agitation - 150	9	111087	Sprocket - 50BS30 x 1.50
2	170602	Motor, Agitation - 230	10	170602	Motor, Agitation - 410
	153772	Viton Seal Kit for 170602 & 170467		171081	Seal Kit For 170602
*	153135	Agitator Mount Gasket	11	404327	Agitator Motor Mount - 410
3	170449	Load Adapter M	12	420171	Adjustment Angle
4	416670	Agitator Motor Mount - 110 & 230	13	100295	3/8 x 3 Full Thread Bolt
5	405107	Agitator - 150	14	111088	Sprocket - 50BS14 x 1
5	403557	Agitator - 230	15	171173	Load Adapter
6	404325	Agitator - 410	16	420169	Motor Mount Plate
7	420170S	Cover	17	110294	3/8 x 2 Key



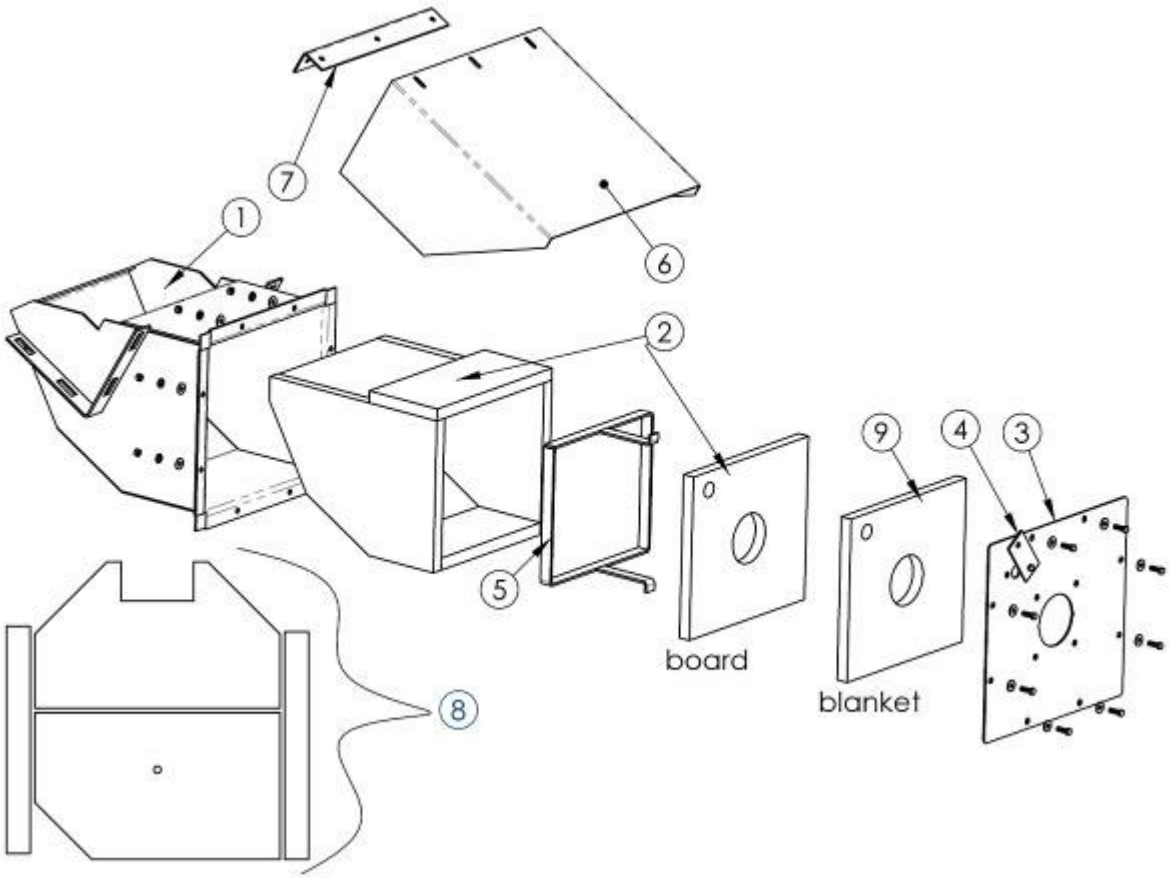
Oil Burner Parts List

Item	Part #	Description
1	152197	150 Oil Burner, Complete
	404428	230 Oil Burner, Complete
	404388	410 Oil Burner, Complete
2	152305	Nozzle, 1.75 GPH x 90B Model 150
	152204	Nozzle, 2.0 GPH x 90B Model 230
	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	120466	Burner Head Tube, 110&230
	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



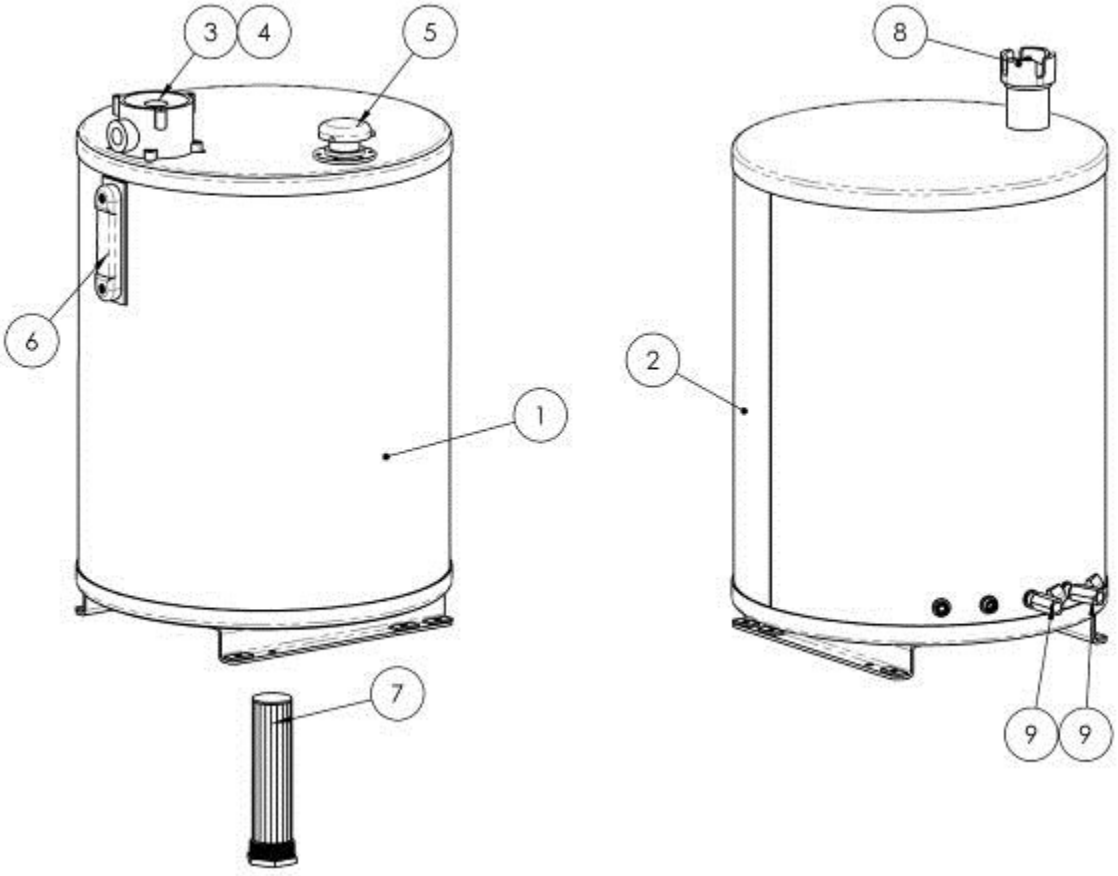
Combustion Chamber Parts List and Tank Insulation

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	155401	Bottom Insulation Kit 150 & 230 (Blanket)
	153417	Bottom Insulation Kit 410 (Blanket)
9	152487	Blanket
	404518	Heat Chamber Assy (Items 1-5, and 9)



Hydraulic Reservoir and Diesel Tank Components

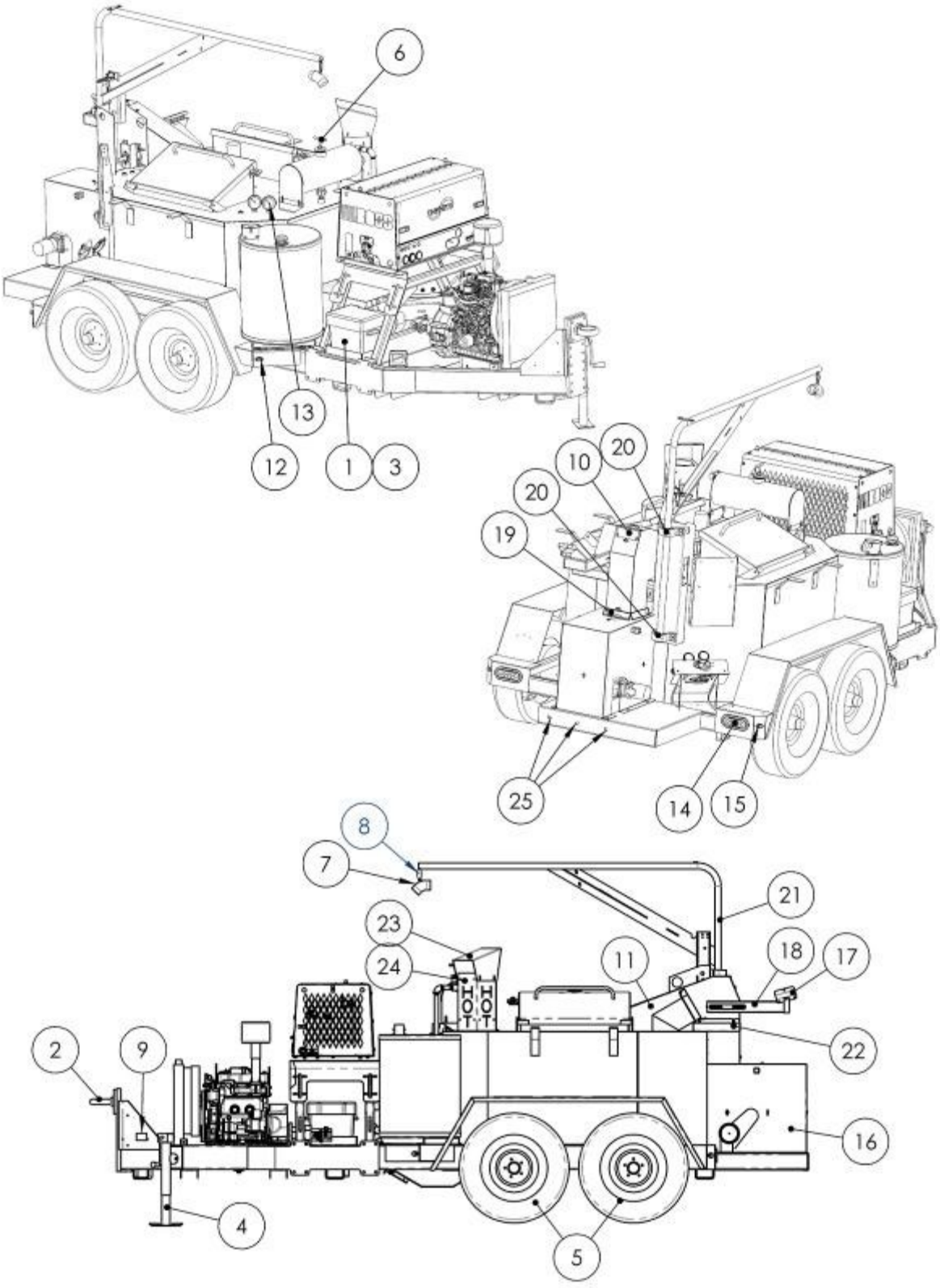
Item	Part #	Description
1	172372	Hydraulic Tank
2	172373	Diesel Tank
3	172127	Return Filter Assy (Non-Compressor)
	172185	Return Filter Assy (Compressor)
4	170407	Element - Return Filter (Non-Compressor)
	172333	Element - Return Filter (Compressor)
5	152044	Filler Cap Assy
6	171631	Sight Gauge
7	172186	Suction Strainer
8	155396	Fuel Gauge/Cap
9	120743	Fuel Shut-off Valve



Miscellaneous Parts

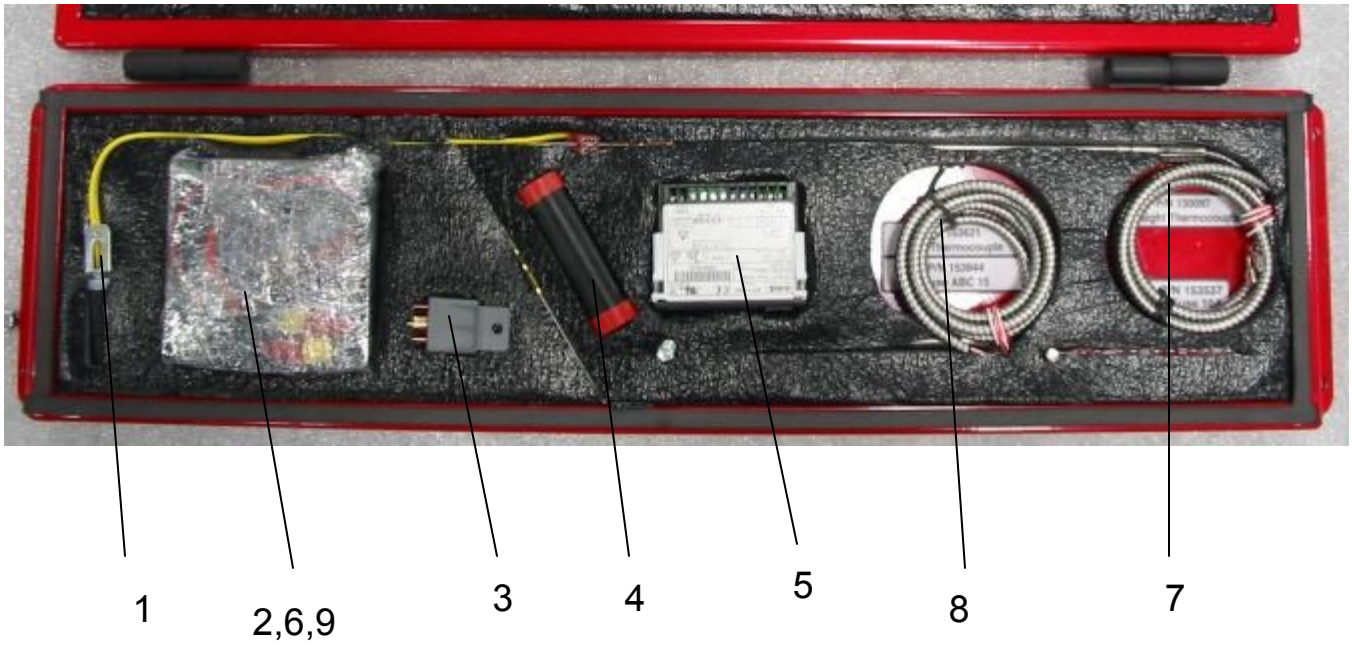
Item	Part #	Description
1	172289	Battery Box
2	140333	Pintle Hitch, 2 1/2"
	403135	Pintle Hitch, 3"
	403271	Ball Hitch, 2" (150 only)
	402954	Ball Hitch, 2 5/16"
3	150212	Battery, 12 V-M
4	140330	Jack - 5000 lb.
5	140546	Radial Tire Assy. (150 only)
	140381	Radial Tire R15 (410 only)
	140282	Tire / Wheel Assy. (230 only)
	140468	Stud (230 only)
6	404341	Dipstick/Cap Assy
7	155272	Sleeve
8	155449	Hanger
9	130050	Breakaway Switch
*	153638	Cable For Breakaway Switch
10	427414	Hose Access Plate
11	407830	Material Valve Box
12	130375	Amber Clearance Light
13	130130	Thermometer, 24"
14	130403	Stop & Tail Light
15	130374	Red Clearance Light
16	407829	Pump Box
17	427423	Wand Plate
18	407885	Wand Holder
19	407871	Flange
20	111716	Bearing
21	407847	Boom
22	427420	Drip Box
23	422156	Deflector
24	422157	Offset
25	130402	Clearance Light
*	403910	Heat Transfer Oil - 5 Gallon Pail
*	152842	Heat Transfer Oil - 30 Gallon Drum
*	154731	Heat Transfer Oil - 55 Gallon Drum
		* Not Shown

Miscellaneous Parts



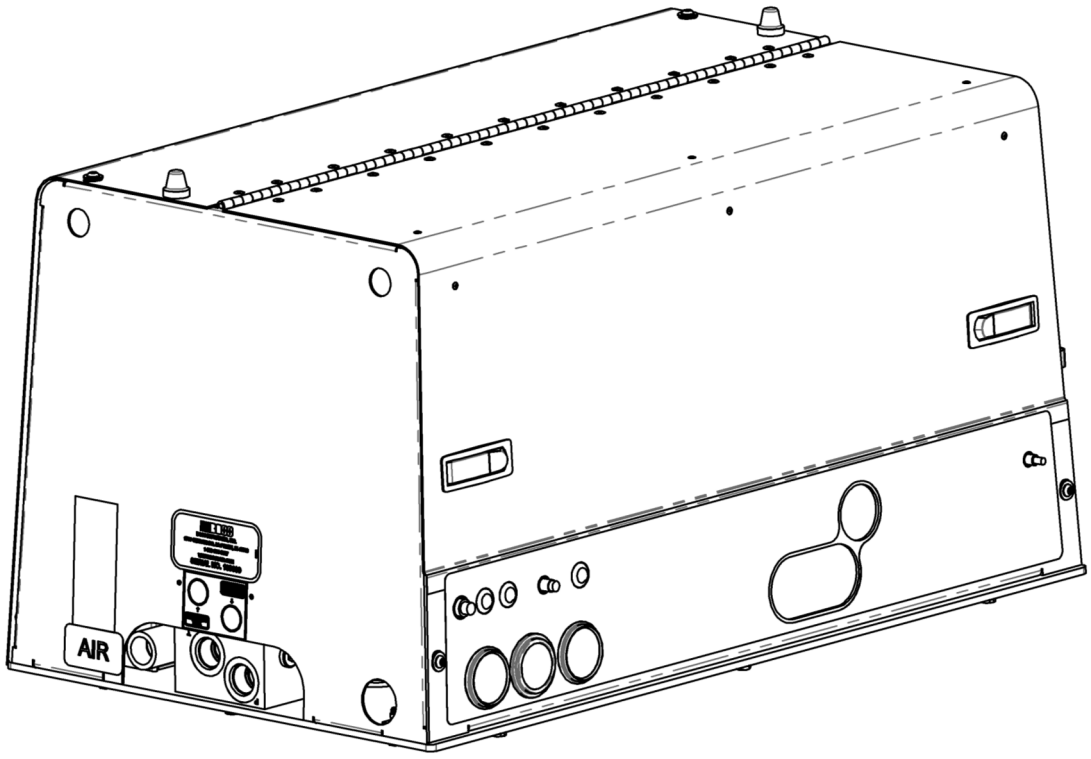
Spare Parts Kit Option

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	



Compressor Option

Item	Part #	Description
1	155086	Compressor
2	155161	Oil Filter
3	155162	Air Filter
4	155163	Spin on Coalescer



NOTES

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