



SUPER SHOT 125 DIESEL MELTER ALL MODELS

MANUAL 26631

REV. 0



**Super Shot 125 Diesel Melter
PN 43600**




**Super Shot 125 Diesel Melter
with Air Compressor
PN 43800**



**Super Shot 125 Diesel Melter
with 70 CFM Compressor
PN 45500**



**Super Shot 125 Diesel Melter
Compressor/Router Carrier
(125 DCRC)
PN 44400**

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<h2>Chapter 1 Introduction</h2>		Rev: 0	Effective Date: 02-01-2012

1.1. About This Manual

This manual is supplied with each new Crafcro Super Shot 125 Diesel Melter. The manual assists your machine operators in the proper use of the melter applicator and provides information about the machine's mechanical functions. This manual contains information for each of the following Super Shot 125 Diesel Melter machine models:

- Super Shot 125 Diesel Melter 43600
- Super Shot 125 Diesel Melter with Air Compressor 43800
- Super Shot 125 Diesel Melter with 70 CFM Air Compressor 45500
- Super Shot 125 Diesel Compressor/Router Carrier (125 DCRC) 44400

Your Crafcro Super Shot 125 Diesel Melter is specially made to give excellent service and save maintenance expense. However, as with all specially engineered equipment, you get best results at minimum costs if you:


- Operate your machine as instructed in this manual.
- Maintain your machine regularly as stated in this manual.

WARNING


California Proposition 65 Warning

Engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm. Always use care to avoid breathing engine exhaust. Failure to comply could result in death or serious injury.



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2.1. Safety Precautions

2.1.1 General Safety

- Crafcro, Inc. assumes no liability for an accident or injury incurred through improper use of the machine.
- Read this manual thoroughly before operating the machine.
- Obey all CAUTION and WARNING signs posted on the machine.
- Make sure an operator fully knows how to operate the machine before using the machine.

2.1.2 Personal Safety

- The high operating temperatures of this machine and the sealant it contains requires that protective clothing, gloves, hard-soled shoes, and safety glasses or a face shield be worn at all times by operators of the machine.
- Prevent water from going into any part of the machine. If there is indication of water in the heat transfer oil system, warm heating oil to 250-300°F for 2 to 3 hours.
- Bodily contact with hot sealant or heat transfer oil can cause severe burns.
- If the mixer is not stopped before adding solid material, hot material can get on an operator's body and cause severe burns.
- Keep hands, feet, and clothing away from all moving parts.

2.1.3 Equipment or Operational Safety

- Do not operate the machine in buildings or work areas that do not have sufficient airflow.
- Shut-down the burner and the engine before refilling the diesel tank.
- Stop the mixer before adding solid material to the sealant tank. Lift the lid, place the material on the lid and close the lid. Restart the mixer.
- Always keep a correctly maintained fire extinguisher near the machine and know how to use it.
- DO NOT heat the transfer oil to a temperature of more than 525°F.
- DO NOT put too much heat transfer oil in the reservoir. The expansion of oil while it heats up can cause overflow. With the machine on level ground, check the oil each day before starting the burner. Add oil to the top mark on the dipstick if required (at 70°F). Use only recommended heat transfer oil. Change the oil after 500 hours of machine operation, or one year, whichever occurs first.
- Follow the operating instructions for starting and shutting down the burner. Instructions are mounted on the control box on the machine.
- Calibrate the temperature control operation after each 50 hours of machine operation. Refer to Chapter 6, Maintenance Instructions.
- Replace any hoses which show signs of wear, fraying or splitting.

Chapter 2 Safety

- Make sure all fittings and joints are tight and do not leak each time the machine is used.
- Do not leave the machine unattended while the burner is lit.
- Tighten all bolts and screws after every 100 hours of machine operation.

2.2. Safety Symbols and Notices

Important safety symbols and notices are marked on the machine and in this manual. Failure to comply could result in equipment damage, operational malfunction, serious injury, or death. Please read and comply with all symbols and notices. The table below includes the most commonly used symbols and notices.

Table 2.1. Safety Symbols and Notices












Symbol	Item	Remarks
WARNING	Warning	Refers to possible bodily injury or death.
CAUTION	Caution	Refers to possible equipment damage or operational malfunction.
	Severe Burn Hazard	Hot material can cause severe burns.
	Protective Shoes	Wear hard-soled work shoes.
	Protective Gloves	Wear heat resistant gloves.
	Protective Face or Eye Wear	Wear face shield or safety glasses.
	Body Crush Hazard	Do not stand between trailer and hitch when hooking melter to truck.

Table 2.1. Safety Symbols and Notices (Continued)

Symbol	Item	Remarks
	Crush Hazard	Keep feet and legs clear.
	Pinch Hazard	Keep hands and feet clear.
	Exhaust Hazard	Avoid breathing engine exhaust.
	Read Manual	Read and understand operator and safety manuals before operating machine.

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3.1. Limited Warranty

Crafco, Inc., through its authorized distributor, will replace for the original purchaser free of charge any parts found upon examination by the factory at Chandler, Arizona, to be defective in material or workmanship. This warranty is for a period within 60 days of purchase date, but excludes engine or components, tires, and battery as these items are subject to warranties issued by their manufacturers.


After 60 days, Crafco, Inc., warrants structural parts, excluding heating system, hydraulic components, material pump and hoses, hot oil pump, applicator valves, and electrical components for a period of (1) one year from date of delivery. Crafco, Inc., shall not be liable for parts that have been damaged by accident, alteration, abuse, improper lubrication/maintenance, normal wear, or other cause beyond our control.

The warranty provided herein extends only to the repair and/or replacement of those components on the equipment covered above and does not cover labor costs. The warranty does not extend to incidental or consequential damages incurred as a result of any defect covered by this warranty.

All transportation and labor costs incurred by the purchaser in submitting or repairing covered components must be borne by the purchaser. Crafco, Inc. specifically disavows any other representation, warranty, or liability related to the condition or use of the product.

CAUTION

Use of replacement parts other than genuine Crafco parts may impair the safety or reliability of your equipment and nullifies any warranty.

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3.2. Warranty Claim Instructions

Please follow the instructions stated below when calling in a warranty claim. Failure to follow these procedures may be cause to void the warranty.

1. Call your local CrafcO Distributor. If you do not know who your local distributor is, call a CrafcO Customer Service Representative, (Toll Free 1-800-528-8242) for name, location, and telephone number.
2. On contacting the distributor, be prepared to identify the machine type, model number, and serial number, also, the date of purchase if available.
3. Should the cause of the malfunction be a defective part, the distributor will advise you of the procedure to follow for a replacement.
4. The warranty is valid only for parts, which have been supplied or recommended by CrafcO, Inc.

If you have any additional questions regarding warranty repairs and parts, please do not hesitate to call toll free 1-800-528-8242.

CrafcO, Inc.
25527 South Arizona Avenue
Chandler, AZ 85248
480-655-8333
Toll Free 800-528-8242



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Chapter 4 Machine Specifications

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4.1. Machine Specifications

Table 4.1. Machine Specifications by Part Number


Specification	PN 43600	PN 43800	PN 45500	PN 44400
Vat capacity	133 gallons			
Melt capacity	1000 lbs. per hour			
Heat transfer oil required	34 gallons at 70°F			
Tank construction	Double boiler type			
Tank opening size	14" x 18"			
Maximum heat input	250,000 BTUs			
Burner and temperature control	Diesel-forced air thermostatic control			
Engine Isuzu diesel	Twin cylinder Model 3CB1 25.4 BHP @ 3,600 RPM	Three cylinder Model 3CE1 33.3 BHP @ 3,000 RPM	Three cylinder Model 3CD1TK 41.6 BHP @ 3,000 RPM	Three cylinder Model 3CE1 33.3 BHP @ 3,000 RPM
Hydraulic drive mechanism	All hydraulic with infinite speed on mixer and material pump.			
Mixer	Full sweep mixer with two horizontal paddles vertical risers.			
Axle	Single 5,200 lb. torsional	Dual 3,500 lb. torsional		
Tires	Qty 2 ST225/75R15 Load Range D	Qty 4 ST205/75R-14/8 Load Range C		
Dry weight, approximate	2,800 lbs	4,020 lbs		
Diesel tank capacity	26 gallons	32 gallons		
Hydraulic tank capacity	26 gallons	32 gallons		
Air compressor	N/A	53.8 CFM rated @ 100 PSI Air Pressure Setting	70.0 CFM rated @ 100 PSI Air Pressure Setting	53.8 CFM rated @ 100 PSI Air Pressure Setting

Legend:

PN 43600: Super Shot 125 Diesel Melter
 PN 43800: Super Shot 125 Diesel Melter with Air Compressor
 PN 45500: Super Shot 125 Diesel Melter with 70 CFM Air Compressor
 PN 44400: Super Shot 125 Diesel Compressor/Router Carrier (125 DCRC)

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5.1. Starting the Machine


5.1.1 Introduction

The CrafcO Super Shot 125 Diesel Melter was developed to melt CrafcO sealants. However, it works well with most road asphalt and federal specification crack or joint sealants.

Note: DO NOT attempt to operate the machine without using these and all other instructions.

5.1.2 Preparing the Machine for Start Up

Table 5.1. Preparing the Machine for Start Up

Step	Action
1	Fill the fuel tank with diesel fuel. Note: Use No. 1 diesel fuel in cold weather and No. 2 diesel fuel in warm weather.
2	Check the oil level in the engine crankcase. (Refer to the manufacturer's instructions for the engine.)
3	Check the hydraulic fluid level while at a temperature of 70°F. Add fluid if necessary.
4	With the machine on a level surface, check the heat transfer oil level while at a temperature of 70°F. The oil should be at the full mark on the dipstick. DO NOT overfill or spillage may occur when the oil is heated and expands.
5	Make sure all toggle switches are turned "OFF" and all temperature control dials are set to their minimum settings.
6	PN 43800, 45500, and 44400: Check the oil in the air compressor. (Refer to the manufacturer's instructions for the compressor.)
	<p style="text-align: center;">WARNING</p> <p>The safe operation of this machine is the operator's responsibility. Use extreme care when operating this machine; safety is the result of being careful and paying attention to details. Remember the diesel flame is approximately 2,200°F. Some exposed parts of the machine reach 500°F, the sealant 400°F, and the hydraulic fluid 200°F.</p> <p>Always put on protective clothing, gloves, hard-soled shoes, and safety glasses or a face shield. Be sure that all joints and fittings are tight and leak proof. Immediately replace any hose, which shows any signs of wear, fraying, or splitting. Tighten all bolts, nuts, and screws every 100 hours.</p>

Chapter 5 Operating Instructions

5.1.3 Starting the Burner

Table 5.2. Starting the Burner

Step	Action
1	Fully open the damper.
2	Start the engine. (Refer to the manufacturer's instructions for the engine.)
3	Turn the "POWER" toggle switch on the control box to the "ON" position.
4	Set the heat transfer oil temperature at 500°F.
5	Set the material temperature to the manufacturer's recommended temperature.
	CAUTION
	If the burner does not ignite the first time, turn the "POWER" toggle switch to the "OFF" position. Turn the toggle switch to "ON" again; the burner should ignite. If the burner still does not ignite, refer to Section 7 , "Document No:" on page RightTroubleshooting, to determine the malfunction.
	Important: The solid material in the tank melts first around the walls and bottom of the tank. The material temperature sensor is located by the wall, therefore, it is possible that at the beginning of the melting process the indicated temperature reaches operating value, but the material closer to the center of the tank is still solid. This is normal, and when the heated hose is ready for operation, most of the material in the tank will be melted and heated to the proper application temperature.
6	Allow the heat transfer oil to continue to heat.
7	When the sealant material reaches 275°F, engage the mixer by turning the toggle switch at the hydraulic control panel to "FORWARD." If the mixer does not move, allow the material to heat longer. Note: The mixer speed is preset at the factory and cannot be adjusted. The mixer cannot be engaged until the material reaches 275°F.
	CAUTION
	Jamming the mixer can cause the hydraulic oil to overheat and damage the machine.
8	The hose automatically turns "ON" when the material temperature reaches 275°F. (Refer to Section 5.1.5, The Heated Hose.)
9	Adjust the temperature dial to 380°F or the manufacturers recommended temperature. Note: The hose reaches operating temperature in approximately 30 minutes.
10	After the hose reaches the temperature set point, the light in the control box marked "HEATED HOSE" turns off.


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Table 5.2. Starting the Burner (Continued)

Step	Action
11	Reduce the temperature to approximately 360°F. Note: We recommend that you run the hose at the suggested temperature setting. Important: The hose must reach 325°F before dispensing can take place. If the hose does not dispense when the trigger is activated, allow the material to heat longer. If the hose still does not dispense, shut the machine down and locate and remove the plug in the line.
	<p style="text-align: center;">CAUTION</p> <ul style="list-style-type: none"> DO NOT twist or kink the hose. Avoid sharp bends and continuous twisting by maintaining a minimum 10-inch bend radius. DO NOT use a setting on the hose controller of more than 400°F. DO NOT move or bend the hose when cold; it can cause damage to the hose. DO NOT leave the hose cycling for longer than 30 minutes without dispensing material; coking can occur and permanently damage the hose. DO NOT remove the hose from the boom during operation or kinking will occur. <p>Important: It is strongly recommended that the hose be stored in the hose hanger (locked position) when not in use or when in transit. This will help prevent twisting or kinking.</p>

5.1.4 Air Compressor: PN 43800, 45500, and 44400

Three machine models in the Super Shot 125 series include an air compressor unit which is designed to assist in the cleaning of debris from cracks and joints.

- Always use approved high pressure air hoses with properly installed fittings which are not frayed or worn.
- A cold air lance is supplied.
- Consult Crafco, or your hot air lance manufacturer for the appropriately sized hot air lance to use on the following machine models:
 - For PN 43800 and PN 44400, a 53.8 CFM @ 100 PSI compressor
 - For PN 45500, a 70.0 CFM @ 100 PSI compressor
- The engine RPM is set by the factory for maximum air compressor performance.
- If the compressor is not needed, turn off the toggle switch in the control box (labeled compressor).
- The compressor is operated hydraulically and runs continuously. When air is not being discharged, the compressor automatically reduces the air output to a minimum.
- There is an intentional air leak at the air muffler that provides lubrication of the compressor.
- Do not replace the air muffler with aftermarket parts as damage will occur to the compressor.

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5.1.5 About the Heated Hose, Wand, and Valve

The Heated Hose

The heated hose supplied with the machine is Teflon-lined with steel over braid. It has a heating element, which runs the length of the hose to heat the material within the hose. The hose is covered with high temperature, durable rubber.

The Wand


The wand has an aluminum tube to protect both the wand and the operator. The pistol grip actuator is equipped with an electric switch which, when depressed, sends a signal to actuate the pump. The wand is equipped with a trigger lock to prevent accidental pump actuation when it is not pumping material. The trigger must be in the "LOCKED" position at all times except when intentionally pumping material.

The Valve

The wand has a disposable duckbill valve on the end, which shuts off the flow of material when the pump is turned off and prevents excessive dripping of material. This valve also directs the material into a stream for easy application into the crack. Other sealing tips are available. Refer to your local distributor for options.

5.1.6 Dispensing the Material

Table 5.3. Dispensing the Material

Step	Action
	<p style="text-align: center; background-color: #FFD700;">WARNING</p> <p>Put on protective clothing, gloves, hard-soled shoes, and face shield or safety glasses when operating or filling this machine. Read the entire manual before operating the machine.</p> <p>Never point the wand at any part of the body or at any other person. Hot materials can cause severe burns.</p> <p>Important: Some difficulty may be encountered when starting up on cold days. Although the wand is designed to heat the material all the way down to the tip, on cold days you can place the tip of the wand into the shoebox to facilitate material melting in the valve. Insert the wand tip for only a short time before proceeding.</p>
1	Allow the material to reach 380°F and the hose to reach 380°F; or proper operating temperatures.
2	Turn the pump speed control to the lowest setting by turning the speed control knob fully clockwise.


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Table 5.3. Dispensing the Material (Continued)


Step	Action
3	With the wand tip inserted in the shoebox on top of the melter, depress the trigger on the wand and slowly increase the pump speed by turning the speed control knob counterclockwise until the pump motor starts to turn and material flows from the tip of the duckbill valve.
4	Adjust the pump speed to the desired rate of flow.
5	Dispense the material as required. Note: The rate of flow can be varied while the pump is running by rotating the control knob.


5.1.7 About the Active Screen Pump Protection

The pump is completely encircled by a protective screen. The screen prevents anything larger than 1/2 inch (1.27 cm) in size to pass from the sealant tank into the pump suction port. The screen continuously rotates 360 degrees around the pump whenever the sealant agitator is engaged. The active screen protects the pump from foreign object damage and self cleans as it rotates around the sealant pump and suction port.

5.1.8 Loading Material Into the Sealant Tank

Table 5.4. Loading Material Into the Sealant Tank

Step	Action
	WARNING
	Following this procedure prevents hot material from getting on operators and causing severe burns.
1	To load material into the sealant tank first open the lid. Note: The mixer stops when the lid is opened to load solid material into the sealant tank.
2	Place the solid material on the lid then close the lid.
3	Continue adding solid material at intervals to allow the mixer to rotate without jamming. Note: If blocks of solid material are added too quickly, jamming results and slows down the melting process.

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5.1.9 Shutting Down and Cleaning Out the Machine

Table 5.5. Shutting Down and Cleaning Out the Machine

Step	Action
	CAUTION
	When shutting down the machine for the day, CrafcO recommends leaving the melter about half full with material. This will give a fairly rapid heat up rate in the morning, but allows enough material to start dispensing right away when the material becomes molten.
1	Leaving the hose in the boom, swing the boom clockwise towards the front of the machine and lock the boom into position with the latch provided.
	CAUTION
	DO NOT kink or twist the hose or permanent damage may result.
2	Place the wand in the wand holder and lock the wand into position with the latch provided.
3	Reverse the pump for approximately 30 seconds.
4	Turn the mixer toggle switch to the "CENTER" position.
5	Turn the "POWER" switch to the "OFF" position.
6	Stop the engine by turning the key to the "OFF" position.

5.1.10 Storing the Machine

Store the machine in an area where moisture cannot enter the heating system such as hot oil, controls, etc. Extended down time can cause moisture build up in the heating oil tank.

If there is any evidence that moisture has collected in the heat transfer oil, warm the heat transfer fluid to 300°F for two to three hours to evaporate the moisture.

5.1.11 Operating the Electric Hose

Table 5.6. Operating the Electric Hose

Step	Action
	CAUTION
	Twisting and kinking of the electric hose (used on LF, BAX, SS60, SS125, and SS250 Melter) causes the hose to fail; the electric heating wires are shorted out to the metal hose cover and the hose stops heating. This type of failure is not covered under the CrafcO warranty.
1	Set the hose temperature at 380°, or manufacturer recommended operating temperature.



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Table 5.6. Operating the Electric Hose (Continued)

Step	Action
2	Allow the hose to be turned on and heating for a minimum of 30 minutes.
3	Make sure the hose swivel between the hose and the wand moves freely. Note: Do not twist or bend the hose over sharp edges such as the edge of the frame or tank. CrafcO, Inc. recommends you do not work directly under the boom, this may cause damage to the hose.
4	Follow all machine instructions in this manual.


5.1.12 Storing the Hose for Transport

Table 5.7. Storing the Hose for Transport

Step	Action
1	Leave the hose in the boom, swing the boom clockwise towards the front of the machine and lock the boom into position with the latch provided.
2	Place the wand in the wand holder and lock the wand into position with the latch provided.
	CAUTION
	Hose damage occurs if: <ul style="list-style-type: none">– The hose is bent or moved when cold.– The hose is twisted or bent at a sharp radius.– The hose is moved before being heated a minimum of 30 minutes and set at 380°F.– The operator crosses over or under the hose causing the wires between the hose and wand connection to twist or wrap up.– The swivel is cold and is not flexible which can cause the hose to twist.– The wiring between the hose and the wand is pulled, stressed, or used to support the wand.

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6.1. Engine

Refer to the manufacturer's operating and maintenance instructions for the engine.

6.2. Hydraulic System

- Check hydraulic fluid daily.
- Change the hydraulic filter every 250 hours of machine operation.
- Change the hydraulic fluid every 500 hours of machine operation.

6.3. Heat Transfer Oil

- Check the oil level at the start of every day.
- Change the oil every 500 hours of machine operation.

6.4. Wheel Bearings

Pack the wheel bearings every 24,000 miles or every two years, whichever comes first. Use a good grade of bearing grease.

6.5. Lug Nuts

Torque all nuts/bolts before first road use and after each wheel removal. Check and torque after the first 10 miles, 25 miles, and again at 50 miles. Check periodically thereafter.

Torque in stages as follows:

- First stage 20-25 foot-pound (ft-lb)
- Second stage 50-60 ft-lb
- Third stage 90-120 ft-lb

Tighten bolts and nuts in the sequence shown in [Figure 6-1](#).

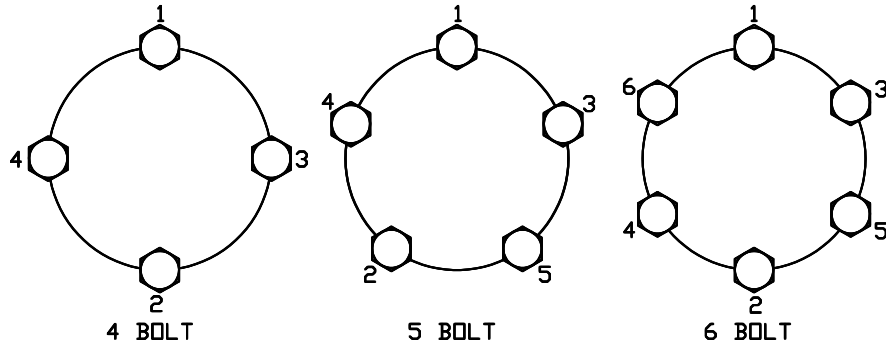


Figure 6-1. Tightening Sequence

6.6. Brakes

Check the brakes daily.

6.7. Tongue Jack

Lubricate the tongue jack, using a good grade of bearing grease.

6.8. Mixer Bearing

Lubricate the mixer bearing every 50 hours with a good quality, high temperature grease.

6.9. Temperature Control Calibration

Check the control knob calibration weekly. Calibrate by aligning the line on the control knob with the calibration line on the scale plate. (See [Figure 6-2](#))

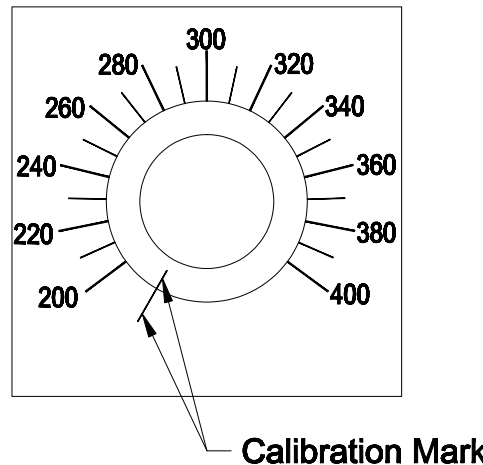


Figure 6-2. Temperature Control Calibration



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6.10. Maintenance Chart

Table 6.1. Maintenance Chart

Possible Cause	Procedure	Hours			
		8	50	250	500
Engine check oil level	Refer to the manufacturer's instructions for the engine.	X			
Other engine maintenance	Refer to the manufacturer's operating and maintenance instructions for the engine.				
Heat transfer oil	Check.	X			
Heat transfer oil	Change.				X
Hydraulic oil filter	Change.			X	
Hydraulic oil	Check oil.	X			
Hydraulic oil	Change oil.				X
Burner	Check burner box insulation.				X
	Clean CAD cell.				X
	Check electrodes.				X
	Check nozzle pressure.				X
Wheel bearings	Clean and re-pack using a good grade of bearing grease.	Every 24,000 miles or every two years.			
Tongue jack	Grease using a good grade of bearing grease.	Once a year.			
Air Compressor	Refer to the manufacturer's instructions for the compressor.				

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6.11. Service Instructions


Table 6.2. Service Instructions

Step	Action
1	Do a general inspection of your machine at least once a week.
2	Replace all worn or damaged parts. Note: Keep regular replacement items in stock for emergency repairs to prevent costly downtime.
3	Make any necessary adjustments and tighten all loose nuts or screws.
4	Watch for leaks. Tighten fittings or repair as necessary.
5	Clean the external surfaces of the machine at regular intervals. Note: Refer to the sealant manufacturer's instructions for recommendations.
6	Follow the recommended maintenance per Table 6.1. Maintenance Chart .

6.12. Recommended Fluids and Lubricants

Table 6.3. Recommended Fluids and Lubricants

Application	Recommended	Full Point	Crafco Part No.
Engine oil	Refer to Isuzu owners manual.	3 Qts	PN 43600
		6.7 Qts	PN 43800, 45500, and 44400
Diesel	#1 cold climate #2 warm climate	24 Gals	PN 43600
		32 Gals	PN 43800, 45500, and 44400
Hydraulic oil	Shell AW Hydraulic 46	24 Gals	PN 43600
		32 Gals	PN 43800, 45500, and 44400
Heat transfer oil	Shell Turbo T 68 (Group II)	34 Gals	All models
Air compressor	Refer to Compressor manual		PN 43800, 45500, and 44400
Legend: PN 43600: Super Shot 125 Diesel Melter PN 43800: Super Shot 125 Diesel Melter with Air Compressor PN 45500: Super Shot 125 Diesel Melter with 70 CFM Air Compressor PN 44400: Super Shot 125 Diesel Compressor/Router Carrier (125 DCRC)			

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6.13. Applicable Brands of Heat Transfer Oil

Table 6.4. Applicable Brands of Heat Transfer Oil


Manufacturer	Product Name	Crafco Heat Transfer Fluid
Chevron	Heat Transfer Oil Grade 46	Shell Turbo T 68 (Group II)
Citgo	Hytherm Oil 46	Shell Turbo T 68 (Group II)
Conoco	Hydroclear Heat Transfer Oil	Shell Turbo T 68 (Group II)
Fina	Vulcan Heat Transfer Oil 46	Shell Turbo T 68 (Group II)
Lubrication Engineers	Heat Transfer Oil	Shell Turbo T 68 (Group II)
Exxon Mobil	Caloria HT 43	Shell Turbo T 68 (Group II)
Mobil	Mobiltherm 43	Shell Turbo T 68 (Group II)
Mobil	Mobiltherm 603	Shell Turbo T 68 (Group II)
Phillips 66	Heat Transfer Oil #3	Shell Turbo T 68 (Group II)
Phillips 66	Magnus Oil 68	Shell Turbo T 68 (Group II)

CAUTION

The heat transfer oil in this machine is a grade that has been tested and recommended by Crafco, Inc. Using a grade of oil not specifically recommended by Crafco, Inc., is cause for warranties to be voided. All oils subjected to high temperatures deteriorate with time and lose many of their characteristics. Tests conducted by Crafco, Inc. have determined that for best results and safety, the heat transfer oil in this machine must be drained and replaced with Crafco, Inc. recommended oil after five hundred (500) hours of machine operation or one (1) year, whichever occurs first.

6.13.1 Typical Heat Transfer Oil Specifications

ISO	68
Flash Point, COC	445°F
Viscosity @ 100°F-SUS	325
Viscosity @ 210°F-SUS	50
Viscosity Index	95-100
Pour Point	0°F
Carbon Residue	1%

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6.14. Super Shot Pump Replacement

Table 6.5. Super Shot Pump Replacement




Step	Action
1	Bring the melter to temperature as preparation to drain the sealant tank.
2	Remove the pipe cap located at the rear of the machine and drain the sealant tank.
	<p>WARNING</p> <p>The material in the sealant tank is extremely hot. Bodily contact with hot sealant can cause severe burns.</p> <p>The high operating temperatures of this machine and the sealant it contains require that protective clothing, gloves, hard-soled shoes, and safety glasses or a face shield be worn at all times by operators of the machine.</p>
3	Remove both guards from the motor mount to access the chain and the sprockets.
4	Rotate the agitator until the connecting link is accessible.
5	Disassemble the connecting link and remove the drive chain.
6	Loosen the set screw in the lower coupling half located between the hydraulic motor and the material pump drive shaft.
7	Remove the four (4) hydraulic hoses and put caps on all the ports. Note: Mark the hoses for ease of replacement.
8	Remove the four (4) bolts holding the motor mount on top of the melter. (See Figure 6-3)
9	Lift off the motor mount and set aside.
10	Remove the two (2) bolts holding the agitator shaft bearing. Note: Do not remove the bearing from the agitator shaft.
11	When the unit has cooled sufficiently, remove the six (6) bolts holding the paddles on top of the screen.
12	Remove the paddles from the tank.
13	Remove the pump drive shaft from the center of the agitator shaft, next lift the agitator shaft and screen assembly as high as possible and insert a screw driver into the shaft hole. Note: This will support the assembly while removing the pump from the tank.

Table 6.5. Super Shot Pump Replacement (Continued)

Step	Action
14	Remove the six (6) bolts attaching the pump to the tank.
15	Lift the pump from the sealant tank.
WARNING	
 	Crush Hazard. The pump weighs approximately 90 pounds. Take precautions not to drop the pump on any part of your body or pinch any part of your body between the pump and another object.
16	Clean any sealant from the top of the pump mounting plate and clean the shaft holes. (See Figure 6-3)
CAUTION	
	Premature pump wear results if the pump mounting plate and bolt holes are not properly cleaned.

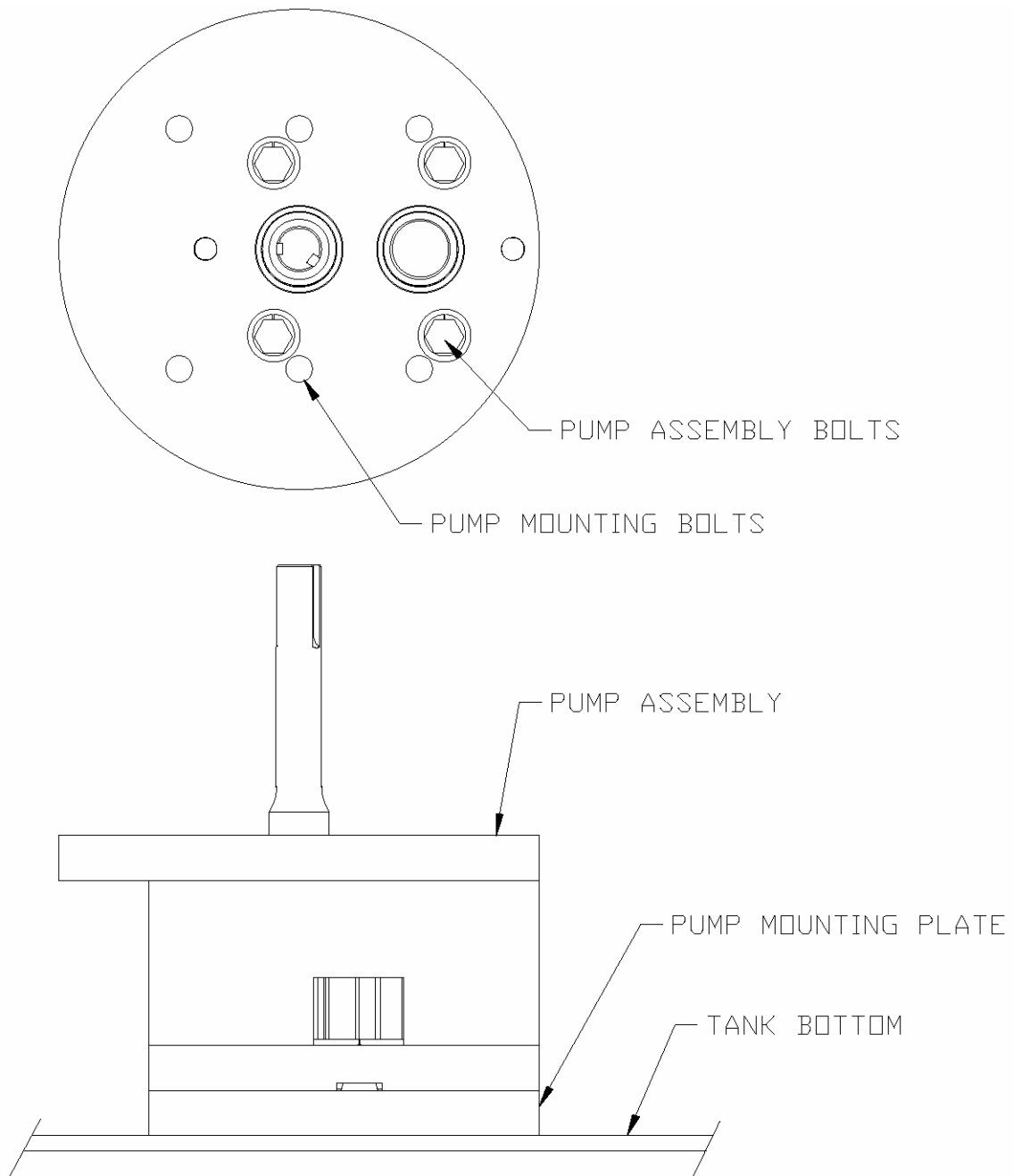


Figure 6-3. Super Shot Pump Replacement



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7.1. Burner Troubleshooting

7.1.1 Symptom: Burner Will Not Ignite

Table 7.1. Basic Visual Troubleshooting

Step	Possible Cause	If . . .
1	Start Troubleshooting at the control box. Is the Isuzu engine running?	<ul style="list-style-type: none"> • Yes, go to Step 2. • No, start the Isuzu engine. <p>NOTE: You can Troubleshoot the burner without the Isuzu engine running, but you must hook a battery charger to the battery and turn the ignition key to the "ON" position.</p>
2	Is the "POWER" toggle switch in the "ON" position?	<ul style="list-style-type: none"> • Yes, go to Step 3. • No, turn the toggle switch to the "ON" position.
3	Are both the Material and Hot Oil temperature dials set to proper operating temperatures?	<ul style="list-style-type: none"> • Yes, go to Step 4. • No, set the Material according to the type of sealant you are using and the Hot Oil 100°F above the Material set point.
4	Are both the Material and Hot Oil temperature displays reading a three digit positive number?	<ul style="list-style-type: none"> • Yes, go to Step 5. • No, go to Table 7.2. Electrical Troubleshooting, Step 2a.
5	Is the red "Burner" light "ON"?	<ul style="list-style-type: none"> • Yes, go to Step 6. • No, go to Table 7.2. Electrical Troubleshooting, Step 4.
6	Is the diesel tank full?	<ul style="list-style-type: none"> • Yes, go to Step 7. • No, fill your tank or make sure you have enough fuel for the day.
7	Did you run the diesel tank low on fuel or empty?	<ul style="list-style-type: none"> • Yes, you need to bleed your burner, go to Table 7.6. Bleeding the Diesel Burner. • No, go to Step 8.
8	Is there smoke coming out of the exhaust stack?	<ul style="list-style-type: none"> • Yes go to Table 7.7. Smoke Coming Out of the Exhaust Stack. • No, go to Step 9.

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Table 7.1. Basic Visual Troubleshooting (Continued)

Step	Possible Cause	If . . .
9	Is your burner working properly, but it seems like it takes a lot longer to reach operating temperature?	<ul style="list-style-type: none"> • Yes, go to Table 7.8. Sealant is Heating Slowly. • No, call Crafco, Inc. and speak to a customer service technician.

Table 7.2. Electrical Troubleshooting

Step	Possible Cause	If . . .
1	Is the "POWER" toggle switch in the "ON" position and the ignition key in the "ON" position?	<ul style="list-style-type: none"> • Yes, go to Step 1a. • No, turn the main power switch to the "ON" position and the ignition key is in the "ON" position.
1a	Is the output voltage at the "POWER" toggle switch 12 Vdc? (Refer to the Figure 7-1. Diesel Burner Schematic .) (Check both the red and orange wires.)	<ul style="list-style-type: none"> • Yes on both, go to Step 2. • No, see below. • No on both orange and red wires go to Step 1b. • No on orange and Yes on red replace "POWER" toggle switch.
1b	Is the circuit breaker tripped?	<ul style="list-style-type: none"> • Yes, reset the circuit breaker by pushing in the button which has popped out. • No, go to Step 1c.
1c	Is the output voltage at the circuit breaker 12 Vdc? (check both red wires).	<ul style="list-style-type: none"> • Yes on both, go to Step 2. • No, see below. • No on the red wire between the circuit breaker and the power toggle switch and Yes on the red wire between the circuit breaker and the ignition switch, replace the circuit breaker. • No on the red wire between the circuit breaker and the ignition switch "ACC" go to Step 1d.
1d	Is the output voltage at the ignition switch "ACC" 12 Vdc?	<ul style="list-style-type: none"> • Yes, check for broken wires or poor wire crimp at the circuit breaker. • No, check output voltage 12 Vdc at the ignition switch "B" terminal (large blue wire), go to Step 1e.



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Table 7.2. Electrical Troubleshooting (Continued)

Step	Possible Cause	If . . .
1e	Is the output voltage 12 Vdc at the ignition switch "B" terminal large blue wire?	<ul style="list-style-type: none"> • Yes, replace ignition switch. • No, call Crafco, Inc. and speak to customer service technician.
2	Are both the material and hot oil readouts displaying a three digit number?	<ul style="list-style-type: none"> • Yes, go to Step 3. • No, go to Step 2a.
2a	Is the voltage 12 Vdc between the power and the ground on the PAKSTAT for which the display is not reading (material check terminals #8 and #9). (Hot oil check terminals #3 and #5.)	<ul style="list-style-type: none"> • Yes, go to Step 2b. • No, check for broken wires or poor wire crimp on the power and the ground. • Still No, replace PAKSTAT.
2b	Does the readout display a -1?	<ul style="list-style-type: none"> • Yes, check the RTD sensor for water or condensation under the cap or corrosion causing a short. • No, go to Step 2c.
2c	Does the readout display a 1?	<ul style="list-style-type: none"> • Yes, this means there is a break in the two wires between the RTD sensor and the PAKSTAT. Start at the sensor and work your way back to the control box, checking for broken wires. • No, go to Step 2d.
2d	Is the readout display blank? (Take note of the direction the red stripe on the ribbon cable is pointing before you move it.)	<ul style="list-style-type: none"> • Yes, move the ribbon cable which is plugged into the back of the readout which is blank to a readout next to it. If the readout displays a three digit number, the blank readout is bad and needs to be replaced. If the readout remains blank, go to Step 2e.
2e	Readout is still blank	<ul style="list-style-type: none"> • Use the hose ribbon cable to go between both the first blank readout and the PAKSTAT for that readout. If the readout displays a three digit number, the original ribbon cable is bad and needs to be replaced. If the readout is still blank, the PAKSTAT is bad and needs to be replaced.

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Table 7.2. Electrical Troubleshooting (Continued)

Step	Possible Cause	If . . .
3	Is there 12 Vdc between the Hot Oil PAKSTAT terminal #3 orange wire and terminal #5 black ground wire?	<ul style="list-style-type: none"> • Yes, go to Step 4. • No, check for broken wires or poor wire crimp on the #3 and #5. • Still No, replace the Hot Oil PAKSTAT.
4	Is there 12 Vdc between the Hot Oil PAKSTAT terminal #6 gray wire and terminal #5 black ground wire?	<ul style="list-style-type: none"> • Yes, go to Step 5. • No, go to Step 4a.
4a	Is there 12 Vdc between the Material PAKSTAT terminal #4 gray wire and terminal #8 black ground wire?	<ul style="list-style-type: none"> • Yes, go to Step 4b. • No, go to Step 4c.
4b	Is there any broken wires or poor wire crimp between the Material PAKSTAT terminal #4 gray and Hot Oil PAKSTAT terminal #6 gray? (Also check the terminal block where this gray wire passes through.)	<ul style="list-style-type: none"> • Yes, repair the damage and then repeat Step 4. • No, call CrafcO, Inc. and speak to customer service technician.
4c	Is there 12 Vdc between the Material PAKSTAT terminal #3 orange wire and terminal #8 black ground wire?	<ul style="list-style-type: none"> • Yes, check Material PAKSTAT terminal #4 for a broken wire or poor wire crimp. then recheck for 12 Vdc between Material PAKSTAT terminal #4 gray wire and #8 black ground wire. • If still No, replace Material PAKSTAT. • No, go to Step 4d.
4d	Is there 12 Vdc between the Material PAKSTAT terminal #9 orange wire and terminal #8 black ground wire?	<ul style="list-style-type: none"> • Yes, then you should have 12 Vdc on Material PAKSTAT terminal #3, check for a broken wire or poor wire crimp. • No, go to Step 4e.
4e	Is there any broken wires or poor wire crimp between the Material PAKSTAT terminal #9 orange wire, terminal #3 orange wire, terminal #8 black ground wire and Hot Oil PAKSTAT terminal #3 orange? (Also check the terminal block where this orange wire passes through.)	<ul style="list-style-type: none"> • Yes, repair the damage and then repeat Step 4a. • No, call CrafcO, Inc. and speak to customer service technician.

Table 7.2. Electrical Troubleshooting (Continued)

Step	Possible Cause	If . . .
5	Is there 12 Vdc between Hot Oil PAKSTAT terminal #7 gray wire and terminal #5 black ground?	<ul style="list-style-type: none"> • Yes, go to Step 6. • No, check for a broken wire or poor wire crimp on Hot Oil PAKSTAT terminal #7 and repeat Step 5. • Still No, then replace Hot Oil PAKSTAT.
6	Is there 12 Vdc between the frame solenoid post green wire and red wire and the black ground wire? (The frame solenoid can be located next to the burner.)	<ul style="list-style-type: none"> • Yes, go to Step 7. • No, go to Step 6a.
6a	Is there any broken wires or poor wire crimp between the frame solenoid post green wire and red wire, black ground wire or on the Hot Oil PAKSTAT terminal #7 gray wire? (Also check the terminal block where this green wire passes through and becomes a gray wire inside the control box.)	<ul style="list-style-type: none"> • Yes, repair the damage and then repeat Step 6. • No, call Crafco, Inc. and speak to customer service technician.
7	Is there 12 Vdc between the frame solenoid side post going toward the burner large red wire and the black ground wire?	<ul style="list-style-type: none"> • Yes, go to Step 8. • No, go to Step 7a.
7a	Is there 12 Vdc between the frame solenoid side post going toward the battery red wire and the black ground wire?	<ul style="list-style-type: none"> • Yes, replace the frame solenoid. • No, go to Step 7b.
7b	Is there 12 Vdc between the circuit breaker post going toward the frame solenoid red wire and the battery tray black ground cable? (Circuit breaker is located under the battery tray.)	<ul style="list-style-type: none"> • Yes, check between these two points for a broken wire or poor wire crimp. • No, go to Step 7c.
7c	Is there 12 Vdc between the circuit breaker post going toward the battery red wire and the battery tray black ground cable?	<ul style="list-style-type: none"> • Yes, wait 15 seconds and repeat Step 7b. • Still No, on Step 7b replace the circuit breaker. • No, go to Step 7d.
7d	Is there 12 Vdc between the battery small red wire and the battery post negative?	<ul style="list-style-type: none"> • Yes, check between these two points for a broken wire or poor wire crimp. • No, go to Step 7e.

Table 7.2. Electrical Troubleshooting (Continued)

Step	Possible Cause	If . . .
7e	Is there 12 Vdc between the battery post positive and the battery post negative?	<ul style="list-style-type: none"> • Yes, check between small red wire and the circuit breaker for a broken wire or poor wire crimp. • No, replace the battery.
8	Remove the six pin plug from the burner. Is there 12 Vdc between the red wire and black ground wire?	<ul style="list-style-type: none"> • Yes, go to Step 9. • No, check for a broken wire or poor wire crimp on both wires.
9	Is there 12 Vdc between the white wire and the black ground wire?	<ul style="list-style-type: none"> • Yes, go to Step 10. • No, check for a broken wire or poor wire crimp on the white wire.
10	Plug the six pin plug back onto the burner, loosen the two screws holding the DC Controller in place and set it to the side with all the wires connected. Is there 12 Vdc between the red wire and black ground wire inside the gang box?	<ul style="list-style-type: none"> • Yes, go to Step 11. • No, check for a broken wire or poor wire crimp on both wires.
11	Is there 12 Vdc between the white wire and black ground wire inside the gang box?	<ul style="list-style-type: none"> • Yes, go to Step 12. • No, check for a broken wire or poor wire crimp on the white wire.
12	Remove the six pin plug from the burner, remove the wire nuts between the two white wires, two red wires and the two black ground wires, then reconnect these six wires white to white, red to red and black to black, reconnect the burner plug. Is there 12 Vdc between the red wire and the black ground wire? (Checking the underside of the wire nuts.)	<ul style="list-style-type: none"> • Yes, go to Step 13. • No, call Crafco, Inc. and speak to a customer service technician
13	Is there 12 Vdc between the white wire and the black ground wire? (Checking the underside of the wire nuts.)	<ul style="list-style-type: none"> • Yes, go to Table 7.3. Testing the DC Controller. • No, call Crafco, Inc. and speak to a customer service technician.



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Table 7.3. Testing the DC Controller

Step	Bench Test DC Controller
1	Remove all wire nuts attaching the DC Controller to the burner.
2	Attach the black ground wire to the negative battery post.
3	Attach the red wire to the positive battery post.
4	Attach the white (Enable) wire to the positive battery post to start the test. (Genesis II Controllers will have a 15-second delay.) <ul style="list-style-type: none">• Orange (Blower Motor) wire should have 12 Vdc (all the time).• Blue (Igniter) wire should have 12 Vdc.• Purple (Fuel Solenoid) wire should have 12 Vdc (after the delay).
5	Twist the yellow wires together (once voltage registers) on the orange, blue and purple wires. <ul style="list-style-type: none">• Orange (Blower Motor) wire should maintain 12 Vdc.• Blue (Igniter) wire should lose voltage after 15 seconds.• Purple (Fuel Solenoid) wire should maintain 12 Vdc.
6	If any of the above test fails, replace the DC Controller.

Table 7.4. Burner Troubleshooting

Step	Burner Troubleshooting
1	Remove cord set.
2	Check the ohms between the terminals.
3	If the reading is between 15-25 ohms the coil is good.
4	If the reading is outside the above range or the meter indicates an open circuit, replace the fuel solenoid.


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Table 7.5. Ignition Coil Troubleshooting

Step	Ignition Coil Test
1	Make sure the burner is off.
2	Check resistance between each of the springs and the ground (exposed metal on the burner).
3	The meter should read less than 2000 ohms. (Take note of the readings, you will use them in Step 5.)
4	Check resistance between both springs. (Take note of the reading, you will use it in Step 5.)
5	The igniter should be replaced if: <ul style="list-style-type: none"> • The difference between the two spring to ground resistance readings is greater than 20%. • Or the spring-to-spring resistance does not read approximately twice the spring to ground.

Table 7.6. Bleeding the Diesel Burner

Step	Bleeding the Diesel Burner
1	Place an oil pan under the machine in front of the burner.
2	Using a 3/8" wrench, loosen the bleeder valve on the fuel pump. (Refer to Figure 7-3. Diesel Burner Air Settings.)
3	Turn the ignition key to the "ON" position, then turn the power toggle switch to the "ON" position. Fuel should flow out of the bleeder valve. You want the fuel to be clear from any air bubbles, this may require you to turn the ignition key "OFF" and "ON" a couple of times.
4	Allow burner to cycle itself off 30 seconds.
5	Tighten the bleeder valve.



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Table 7.7. Smoke Coming Out of the Exhaust Stack

Step	Smoke Coming Out of the Exhaust Stack
1	White smoke indicates that there is too much air being forced through the burner. Loosen the Air Shutter screw and rotate the Air Shutter clockwise to increase air and counter clockwise to reduce air. Refer to Figure 7-3. Diesel Burner Air Settings , for the proper air settings and diagram.
2	Black smoke indicates that there is too much fuel being forced through the burner nozzle or there is not enough air being forced through the burner. First check the air settings, then move to the electrode assembly.
3	Using a 7/16" wrench, remove the copper fuel line nut attached to the nozzle line. (Refer to Figure 7-2. Diesel Burner Electrode Adjustment .) Next remove the locking nut for the nozzle tube. Then loosen the locking tabs on the ignition coil and open the ignition coil. Remove the nozzle line assembly.
4	Using Figure 7-2. Diesel Burner Electrode Adjustment , make sure the electrodes are in the correct position. Loosen the clamp holding the electrodes in place so they can be adjusted. Inspect the porcelain ceramic insulator for any cracks. Also check the tip of each of the electrodes to make sure they still have a sharp point and are not rounded off.
5	If it has been longer than 500 hours since the last time the burner nozzle was replaced, Crafco recommends replacing the burner nozzle at this time.
6	Reassemble the burner, using the reverse order in Step 3 .
7	Remove the burner assembly by removing the four (4) 3/8" nuts holding the burner to the burner box.
8	Using an inspection mirror, make sure the insulation inside the burner box is not soaked with diesel fuel.
9	If the insulation is soaked with diesel fuel, you will need to remove the front face of the burner box and replace the insulation.
10	Reassemble the burner box and burner.

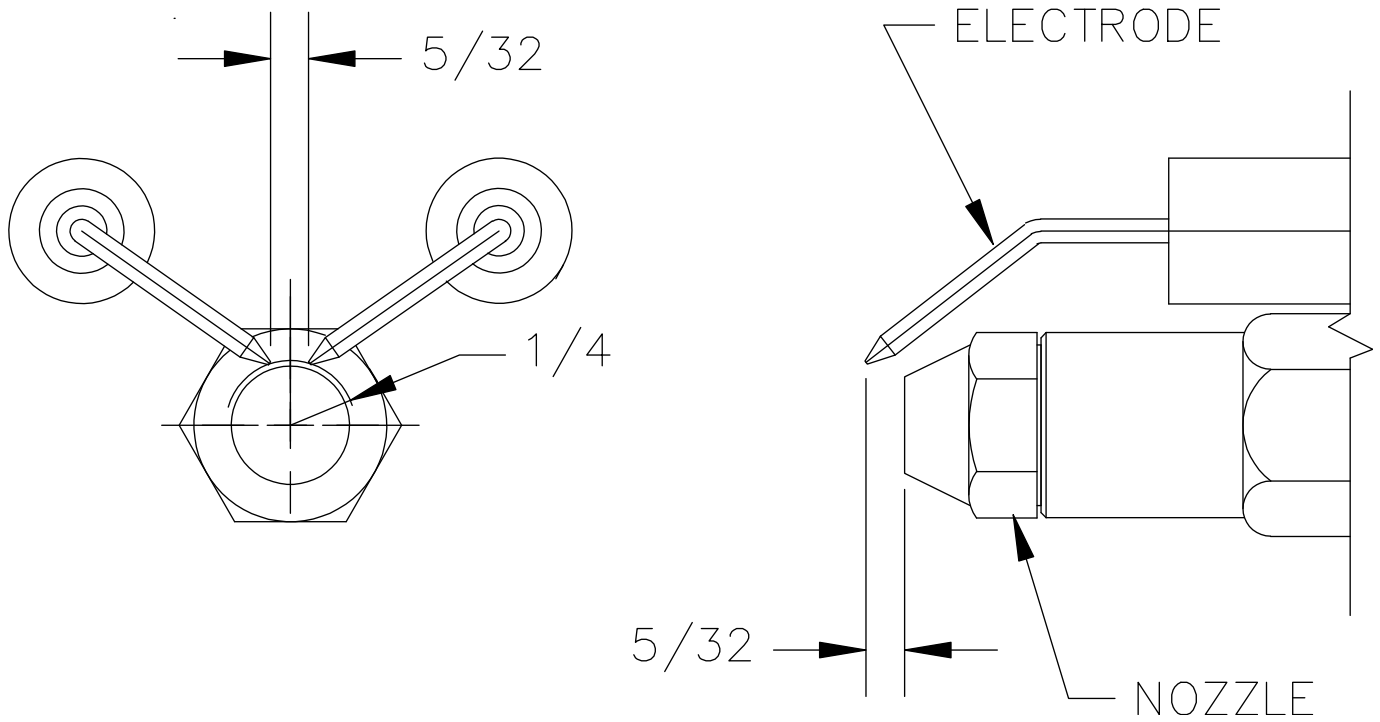


Figure 7-2. Diesel Burner Electrode Adjustment

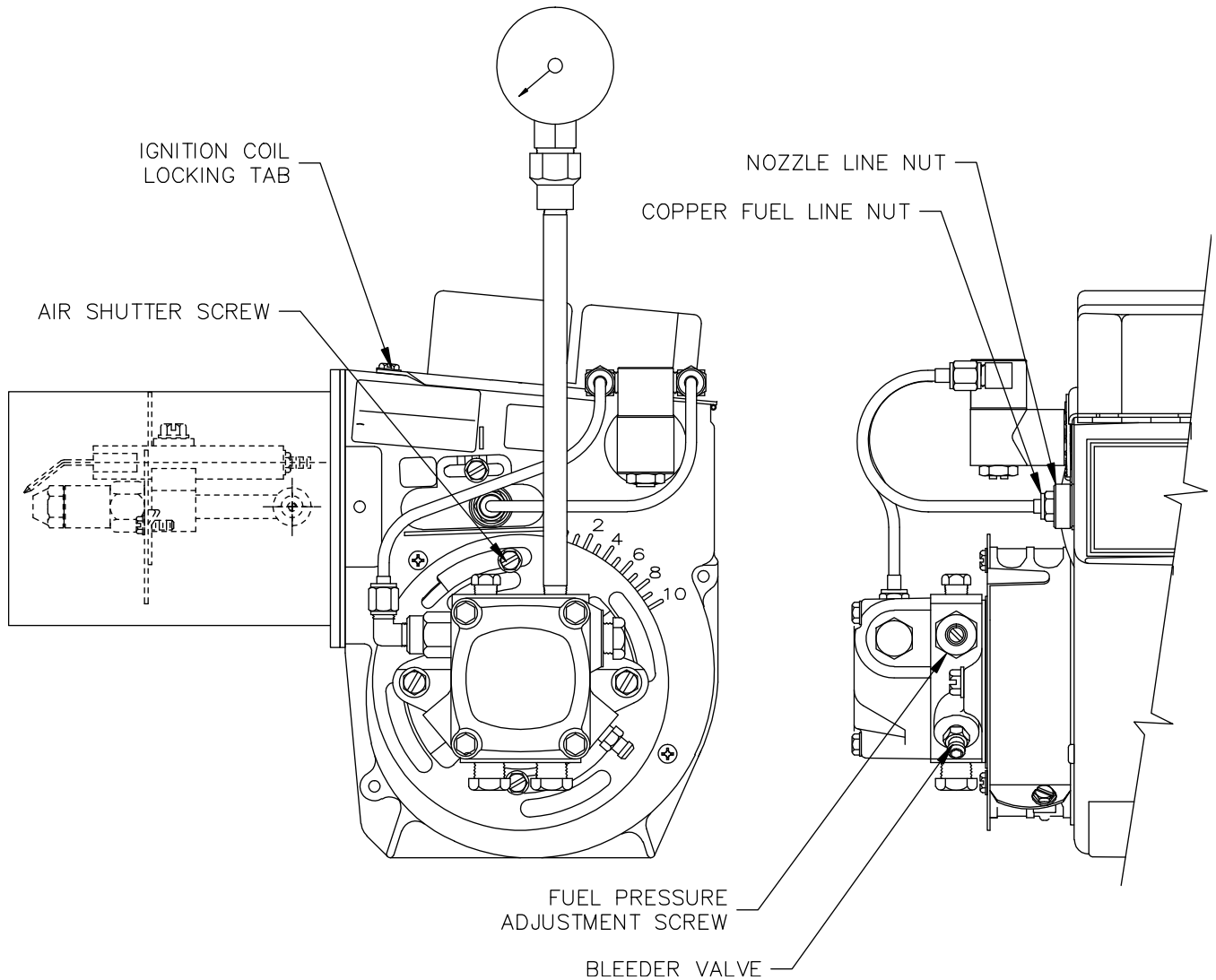


Figure 7-3. Diesel Burner Air Settings


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Table 7.8. Sealant is Heating Slowly

Step	Sealant is Heating Slowly
1	With the material level half or less, open the loading lid and inspect the inside edge of the material tank. Check if there is a build up of old, dried out and hardened material along the top half of the material tank.
2	If this is the case you will need to drain out (use up) the rest of the material inside the tank. When the tank is empty, use an air chisel to remove this built up material. Remove as much as possible all around the tank including the roof of the material tank. Remove all the old sealant chunks from the bottom of the material tank. This should be done every 500 hours or as conditions require.
3	Check your level of the heat transfer oil, the mark on the dipstick is for 70°F.
4	Check your records of the last service replacement of the heat transfer oil. If it has been longer than 500 hours, or one year, you need to change your oil.
5	Many of Crafco, Inc. service centers can perform these service steps for you if you can not. Call your local service center to find out if they can.

Chapter 7 Troubleshooting

7.2. Agitator Troubleshooting

7.2.1 Symptom: Mixer Does Not Rotate

Table 7.9. Basic Visual Troubleshooting

Step	Possible Cause	If . . .
1	Start Troubleshooting at the control box. Is the Material Temperature Display at or above 275°F?	<ul style="list-style-type: none"> • Yes, go to Step 2. • No, continue to allow the machine to heat. (Make sure the Material dial and the Hot Oil dial are set at operating temperatures.)
2	Is the red "Mixer" light "ON"?	<ul style="list-style-type: none"> • Yes, go to Step 3. • No, go to Table 7.10. Electrical Troubleshooting.
3	Is the loading door closed?	<ul style="list-style-type: none"> • Yes, go to Step 4. • No, shut the loading door.
4	Move to the rear of the melter. Is the "Mixer" toggle switch in the "Forward" position?	<ul style="list-style-type: none"> • Yes, go to Step 5. • No, move the toggle switch to the forward position.
5	Move and hold the "Mixer" toggle switch to the "Reverse" position. Is the agitator moving?	<ul style="list-style-type: none"> • Yes, hold the toggle switch for 15 seconds and then move the "Mixer" toggle switch to the "Forward" position. Go to Step 6. • No, go to Table 7.10. Electrical Troubleshooting.
6	Open the Material loading door. Is there more than three (3) unmelted blocks in the tank?	<ul style="list-style-type: none"> • Yes, this can cause the agitator to jam. Use the mixer toggle switch to move the agitator forward and backward until the material melts enough to allow forward movement without jamming. Crafco, Inc. recommends you add one to two blocks every three to four minutes during dispensing of product. • No, go to Table 7.10. Electrical Troubleshooting.
7	Is the hydraulic fluid level near the center of the sight gauge?	<ul style="list-style-type: none"> • Yes, go to Table 7.10. Electrical Troubleshooting. • No, fill oil to the center of the sight gauge.

Table 7.10. Electrical Troubleshooting

Step	Possible Cause	If . . .
1	Is the Material Temperature at or above 275°F ± 10°F?	<ul style="list-style-type: none"> • Yes go to Step 2. • No, continue to allow the machine to heat.
2	Is there 12 Vdc between the Material PAKSTAT terminal #2 pink wire and terminal #8 black ground wire? (Refer to Figure 7-4. Agitator Circuit Schematic.)	<ul style="list-style-type: none"> • Yes, go to Step 3. • No, go to Step 2a.
2a	Is there 12 Vdc between the Material PAKSTAT terminal #1 orange wire and terminal #8 black ground wire?	<ul style="list-style-type: none"> • Yes, check for a broken wire or poor wire crimp on the terminal #2 pink wire and recheck for 12 Vdc. (If still no voltage, replace the Material PAKSTAT.) • No, go to Step 2b.
2b	Is there 12 Vdc between the Material PAKSTAT terminal #9 orange wire and terminal #8 black ground wire?	<ul style="list-style-type: none"> • Yes, check for a broken wire or poor wire crimp on terminal #1 orange wire. (If you have 12 Vdc on terminal #9 orange then you must have 12 Vdc on terminal #1 orange wire, they are the same wire.) • No, If this is the case you would have had a burner issue.
3	Is there 12 Vdc between the lid switch red wire and a near by ground source? (Check both red wires on the bottom of the lid switch with the lid closed.)	<ul style="list-style-type: none"> • Yes, on both red wires go to Step 3a. • Yes, on only one red wire when the lid is closed. readjust the lid switch so that the lid completely depresses the switch, then recheck for 12 Vdc. If the same result happens, replace the lid switch. • No, check for a broken wire or poor wire crimp between the lid switch and the control box red wire labeled red-lid.
3a	Remove the cover over the hydraulic manifold. Is there 12 Vdc between the "Mixer" toggle switch center post red wire and din plug (4) blue ground wires? (Mixer toggle switch is located at the rear of the machine near the boom support.)	<ul style="list-style-type: none"> • Yes, go to Step 3b. • No, check for a broken wire or poor wire crimp between the "Mixer" toggle switch and the lid switch.

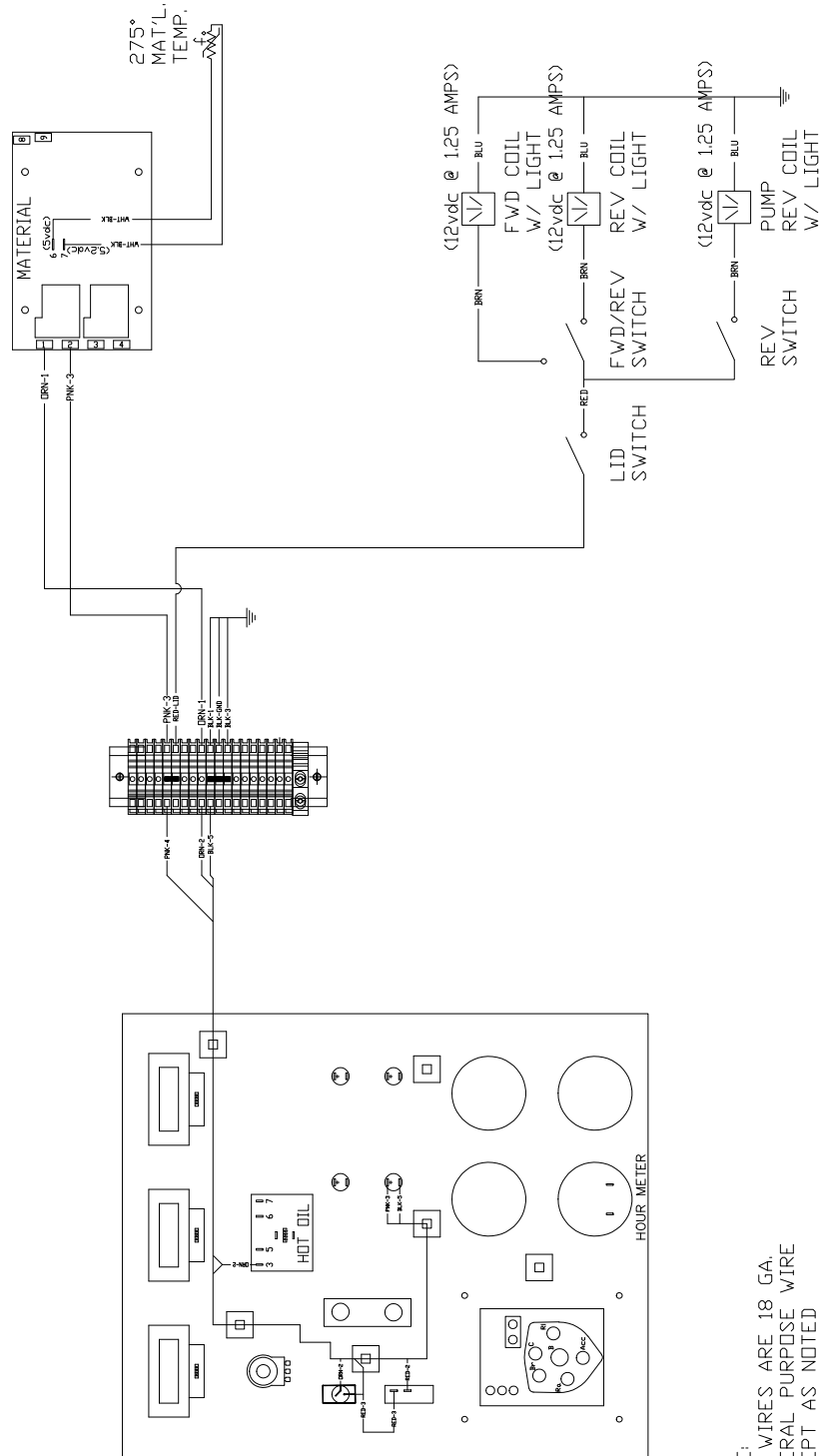
Chapter 7 Troubleshooting

Table 7.10. Electrical Troubleshooting (Continued)

Step	Possible Cause	If . . .
3b	Is there 12 Vdc between the "Mixer" toggle switch bottom post brown wire and the din plug (4) blue ground wires? (With the "Mixer" toggle switch in the "Forward" position.)	<ul style="list-style-type: none"> • Yes, go to Step 3c. • No, replace the "Mixer" toggle switch.
3c	Is the amber light "ON" when the "Mixer" is in the "Forward" position? (Looking down at the top of the hydraulic valve, Agitator forward is the din plug upper right-hand corner. Refer to Figure 7-6. Din Plug Layout.)	<ul style="list-style-type: none"> • Yes, go to Step 3d. • No, replace the din plug.
3d	Unscrew the din plug center screw so you can pull the din plug up about 1/4" in order to check for voltage. Is there 12 Vdc from side post to side post?	<ul style="list-style-type: none"> • Yes, the electrical system for the agitator is working properly, go to Table 7.10. Electrical Troubleshooting. • No, recheck the amber light, if the light comes "ON" and you do not have 12 Vdc then replace the din plug.
4	Forward agitation works but Reverse does not	<ul style="list-style-type: none"> • Yes, go to Step 4a.
4a	Remove the cover over the hydraulic manifold. Is there 12 Vdc between the "Mixer" toggle switch top post brown wire and the din plug (4) blue ground wires? (With the "Mixer" toggle switch in the "Reverse" position.)	<ul style="list-style-type: none"> • Yes, go to Step 3c. • No, replace the "Mixer" toggle switch.
4b	Is the amber light "ON" when the "Mixer" is in the "Reverse" position? (Looking down at the top of the hydraulic valve, Agitator reverse is the din plug upper left-hand corner, Refer to Figure 7-6. Din Plug Layout.)	<ul style="list-style-type: none"> • Yes, go to Step 3d. • No, replace the din plug.
4c	Unscrew the din plug center screw so you can pull the din plug up about 1/4", so you can check for voltage. Is there 12 Vdc from side post to side post?	<ul style="list-style-type: none"> • Yes, the electrical system for the agitator is working properly, go to Table 7.11. Hydraulic Troubleshooting. • No, recheck the amber light, if the light comes "ON" and you do not have 12 Vdc then replace the din plug.

Table 7.11. Hydraulic Troubleshooting

Step	Possible Cause	If . . .
1	Does the coil magnetize when the din plug amber light is "ON"?	<ul style="list-style-type: none"> • Yes, go to Step 2. • No, remove the din plug, then remove the coil by unscrewing the nut on the end of the coil. With the coil removed, re-attach the din and place a metal screw driver in the center of the coil and move it toward the side of the coil to see if the coil is magnetic. If it is not, recheck the din plug is plugged into the coil and the amber light is "ON". If still not magnetic, replace the coil.
2	Is the relief pressure set correctly? (Refer to Figure 7-5. Hydraulic Schematic , for pressure settings.)	<ul style="list-style-type: none"> • Yes, go to Step 3. • No, first turn "OFF" the Isuzu engine, then remove one of the two hydraulic hoses going to the agitator hydraulic motor, cap off the fitting on the motor and use a 3,000 PSI gauge with the proper JIC fitting, attach it to the hose. Start the Isuzu engine, turn "ON" the main power in the control box, move the "Mixer" toggle switch to the "Forward" position and read the pressure gauge. If the pressure needs to be adjusted use the pressure relief valve labeled "RVA", loosen the jam nut and adjust the pressure with the allen screw at the end of the relief. Turn clockwise to increase pressure and counter clockwise to reduce pressure, then tighten the jam nut to lock the pressure. Next turn "OFF" the Isuzu engine, remove the cap, pressure gauge and reattach the hose.
3	Is the hydraulic flow correct from the hydraulic pump?	<ul style="list-style-type: none"> • Yes, call Crafco, Inc. and speak to a customer service technician you should have been able to find the problem. • No, call a local hydraulic shop to see if they can run a hydraulic pump flow test, using the information in Figure 7-5. Hydraulic Schematic.



AGITATOR CIRCUIT

Figure 7-4. Agitator Circuit Schematic

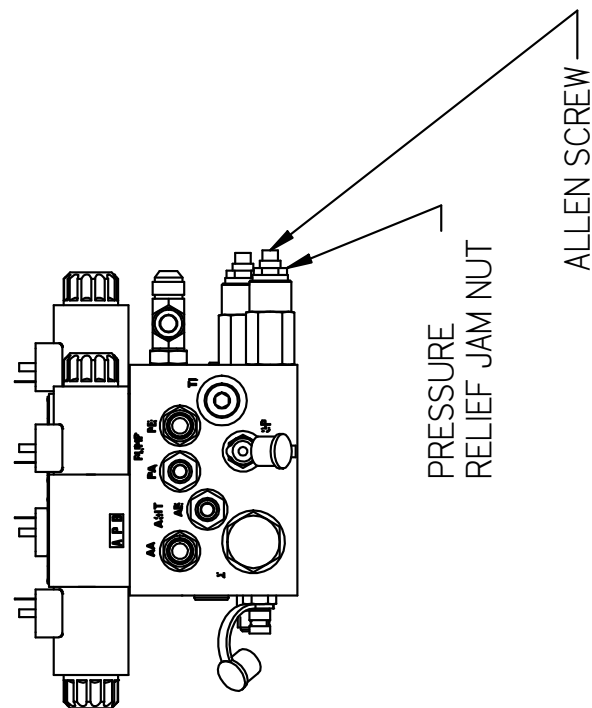
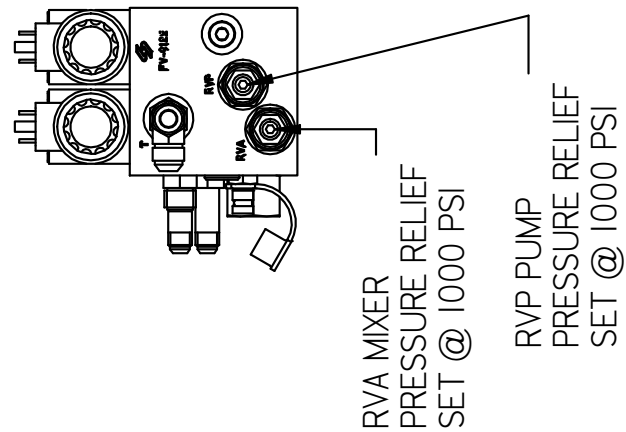


Figure 7-5. Hydraulic Schematic

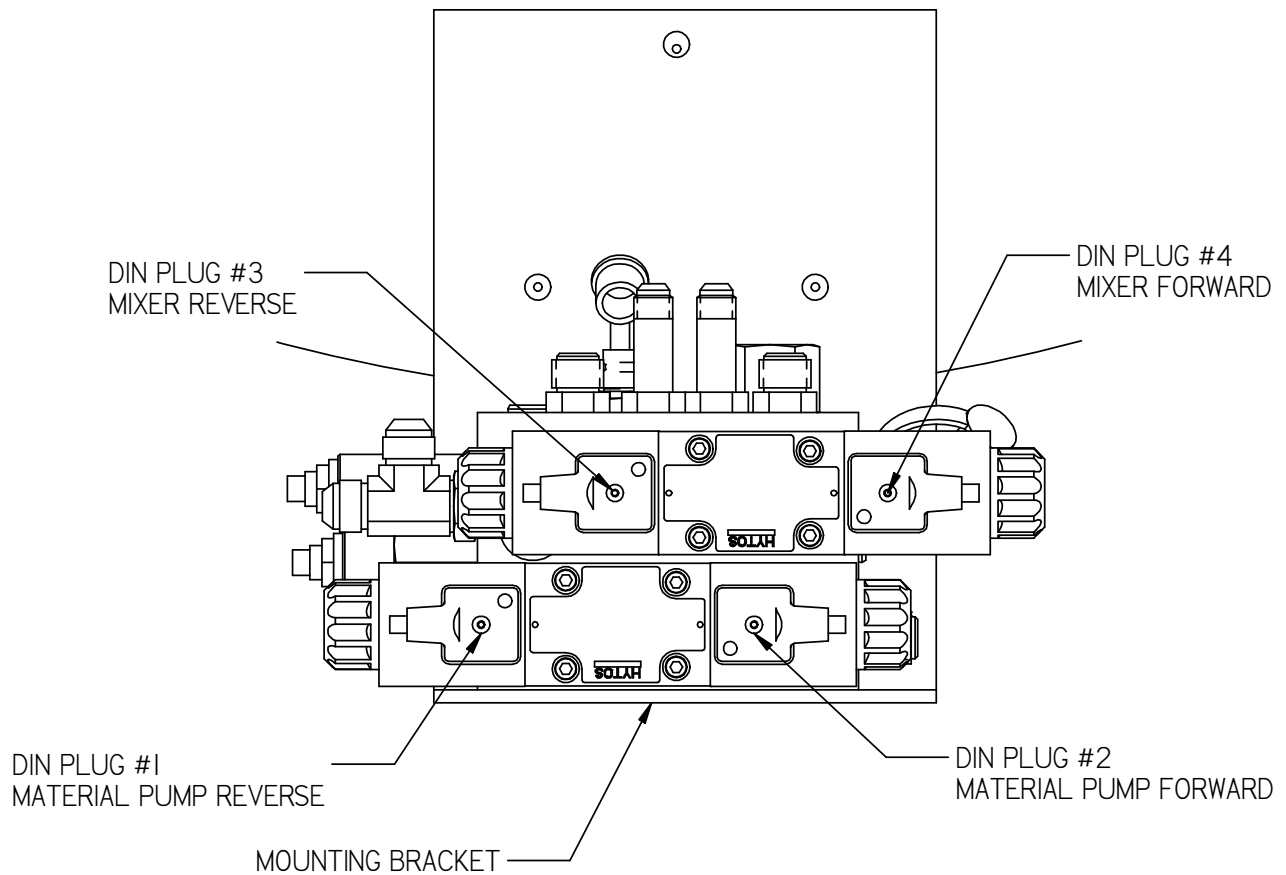



Figure 7-6. Din Plug Layout

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7.3. Hose Troubleshooting

7.3.1 Symptom: Hose Does Not Heat

Table 7.12. Basic Visual Troubleshooting

Step	Possible Cause	If . . .
1	Start Troubleshooting at the control box. Is the Material Temperature Display at or above 275°F?	<ul style="list-style-type: none"> • Yes, go to Step 2. • No, continue to allow the machine to heat. (Make sure the Material dial and the Hot Oil dial are set at operating temperatures.)
2	Is the red "HEATED HOSE" light "ON"?	<ul style="list-style-type: none"> • Yes, go to Electrical Troubleshooting Step 3. • No, allow the machine to heat to 285°F before moving to the Electrical Troubleshooting Table 7.13.

Table 7.13. Electrical Troubleshooting

Step	Possible Cause	If . . .
1	Is the temperature of the material readout at or above 275°F?	<ul style="list-style-type: none"> • Yes, go to Step 2. • No, allow the material to continue heating.
2	Is the "HEATED HOSE" light illuminated on the front panel?	<ul style="list-style-type: none"> • Yes, go to Step 3. • No, check for a tripped circuit breaker in the front panel and go to Step 2a.
2a	Is the circuit breaker tripped?	<ul style="list-style-type: none"> • Yes, reset the circuit breaker by pushing in the button which has popped out. • No, open the front panel and check terminal #2 (pink wire) on the material PAKSTAT for a 12 Vdc output voltage and go to Step 2b (Refer to Figure 7-7. Hose Circuit Schematic.)
2b	Is the output voltage of terminal #2 (pink wire material PAKSTAT) 12 Vdc?	<ul style="list-style-type: none"> • Yes, go to Step 2d. • No, check terminal #1 (orange wire) on the material PAKSTAT for 12 Vdc output voltage and go to Step 2c.
2c	Is the output voltage of terminal #1 (orange wire material PAKSTAT) 12 Vdc?	<ul style="list-style-type: none"> • Yes, replace material PAKSTAT, the relay is bad. • No, your burner would not be working.

Chapter 7 Troubleshooting

Table 7.13. Electrical Troubleshooting (Continued)

Step	Possible Cause	If . . .
2d	Is the output voltage of terminal #9 (pink wire hose PAKSTAT) 12 Vdc?	<ul style="list-style-type: none"> • Yes, go to Step 2e. • No, check the (pink wire) between hose PAKSTAT #3 and the terminal block for a broken wire or poor wire crimp.
2e	Is the output voltage of terminal #3 (pink wire hose PAKSTAT) 12 Vdc?	<ul style="list-style-type: none"> • Yes, go to Step 2f. • No, check the (pink wire) between material #2 and hose #9 for a broken wire or poor wire crimp. (If you have 12 Vdc on #2 you should have 12 Vdc on #9 they are the same wire.)
2f	Is the output voltage of terminal #4 (blue wire hose PAKSTAT) 12 Vdc?	<ul style="list-style-type: none"> • Yes, go to Step 3. • No, replace hose PAKSTAT, the relay is bad.
3	Does the "BAT" terminal on the generator have an input voltage of 12 Vdc?	<ul style="list-style-type: none"> • Yes, go to Step 4. • No, check the terminal block (blue wire) in the control box for an output voltage of 12 Vdc.
4	Do the black, white and green wires on the generator have an output voltage of 24 Vac? Note: Inside the junction box check between black and white, black and green, and white and green. Make sure the engine is running during this test.	<ul style="list-style-type: none"> • Yes, go to Step 5. • No, stop the engine, tighten the belt, restart the engine and recheck voltage output. • No, replace the generator.
5	Is the current supply 30 A (cold) or 20 A to 22 A (hot) at the three (3) heating element wires (blue) in the junction box? Note: Always use a clamp-on amp meter to perform this test.	<ul style="list-style-type: none"> • Yes, the hose should be operating properly. • No, go to Step 6.
6	Check for electrical continuity in the hose from one end to the other, disconnect the three heating element wires (blue) from the terminal strip inside the junction box and disconnect the hose and wand five-pin plug. (Refer to the Figure 7-8. Junction Box Wiring .) Note: Check each letter "D", "E" and "A" with all three (blue) wires from the junction box one at a time.	<ul style="list-style-type: none"> • Yes, go to Step 7. • No, either there was no continuity from one letter to the other end of the hose or there was more than one wire with continuity to the other end of the hose. The hose needs to be replaced. (Contact Crafco, Inc. to send back your hose for repair.)


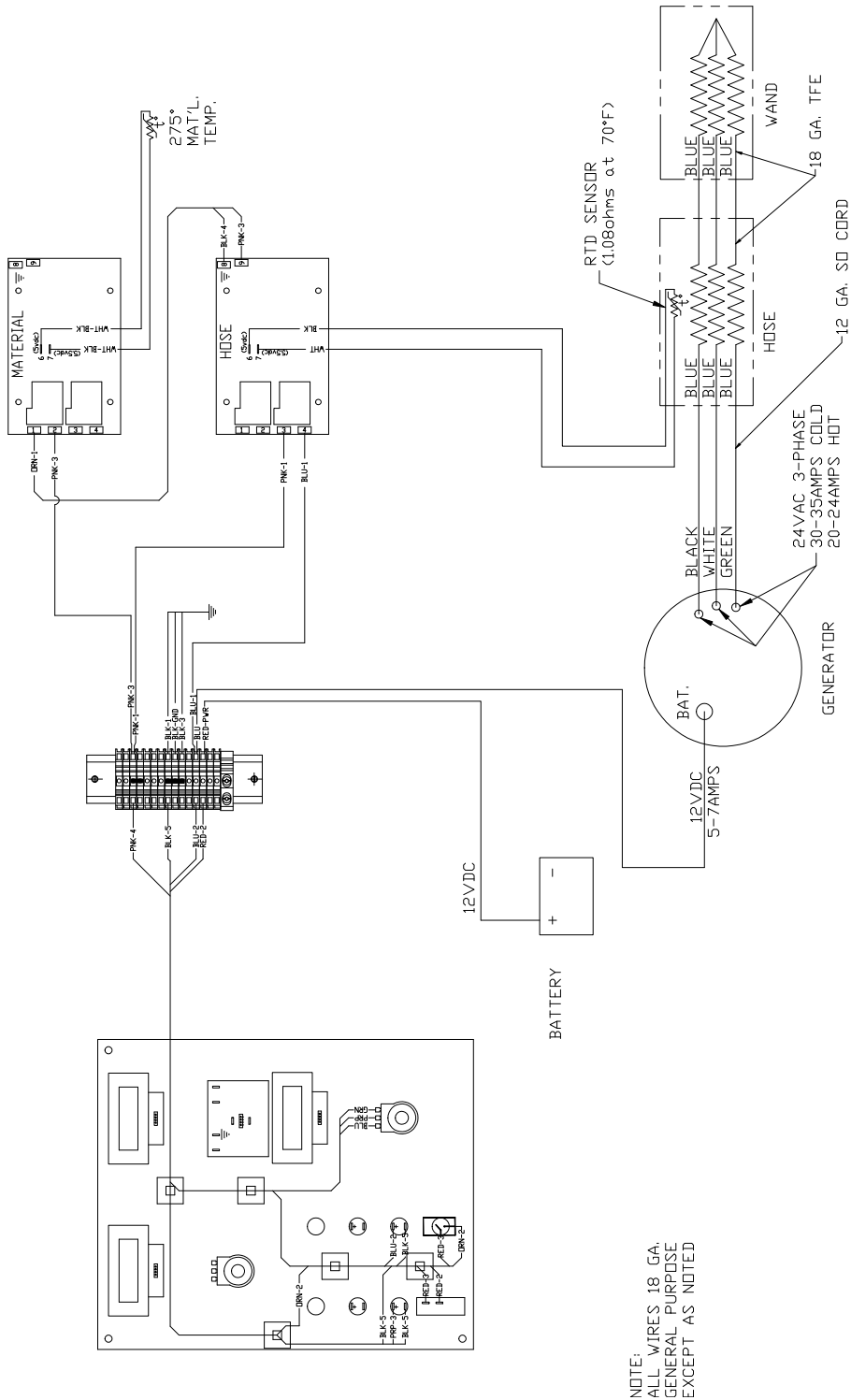
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Table 7.13. Electrical Troubleshooting (Continued)

Step	Possible Cause	If . . .
7	Check the RTD sensor in the hose against the digital readout in the control box. Disconnect the black and white wires from the terminal strip in the junction box and test for ohms. (Refer to Table 7.14. RTD Sensor Ohms vs. Temperature.)	<ul style="list-style-type: none"> • Yes, the readout matches the table, go to Step 8. • No, replace the hose, the sensor is bad. (Contact Crafcro, Inc. to send back your hose for repair.)
8	Check for electrical continuity in the wand. Check the wand plug letter "D", "E" and "A", all three should have continuity to each other.	<ul style="list-style-type: none"> • Yes, go to Step 9. • No, replace the wand. (Contact Crafcro, Inc. to send back your wand for repair.)
9	You may have confused one of the tests above.	<ul style="list-style-type: none"> • Call Crafcro, Inc. customer service to have a technician go over the tests above, you should have found the problem.



HOSE CIRCUIT

Figure 7-7. Hose Circuit Schematic

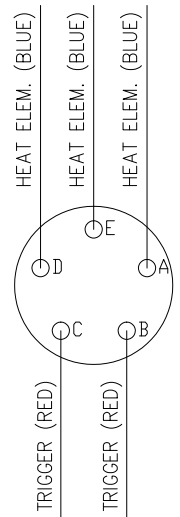
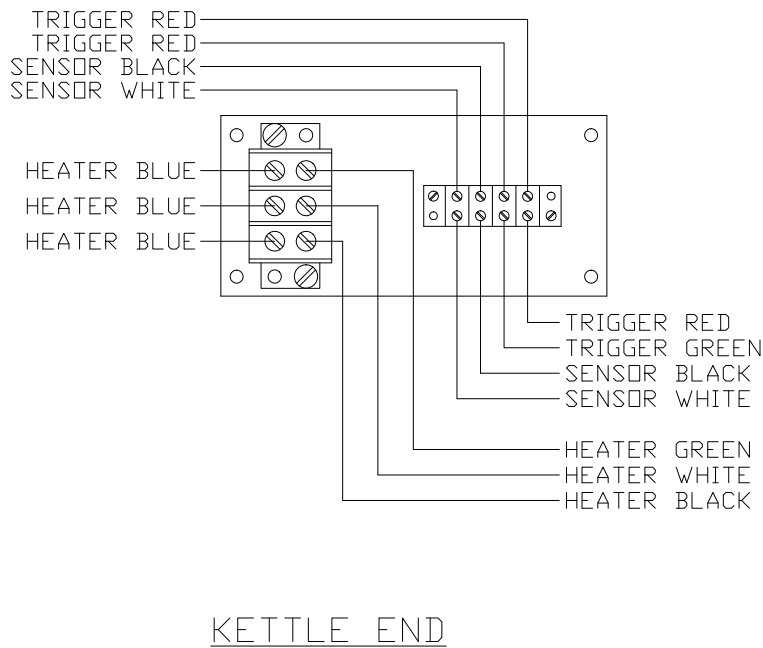


Figure 7-8. Junction Box Wiring

7.4. RTD Sensor Ohms vs. Temperature

Table 7.14 below shows what the ohm reading would be for a given temperature. The following are the instructions for using the table.

1. Measure the resistance (ohms) of the sensor in question with an ohm meter.
2. Find the reading in the chart (columns 0 through 9).
3. Follow the row to the left and get the temperature, in 10°F increments, then follow the column up to get the 1°F increment. (For example, 1391 Ohms = 215°F.)

Table 7.14. RTD Sensor Ohms vs. Temperature

°F	0	1	2	3	4	5	6	7	8	9
0	930.3	932.5	934.7	936.9	939.1	941.3	943.4	945.6	947.8	950.0
10	952.2	954.3	956.5	958.7	960.9	963.0	965.2	967.4	969.6	971.8
20	973.9	976.1	978.3	980.5	982.6	984.8	987.0	989.1	991.3	993.5
30	995.7	997.8	1000.0	1002.2	1004.3	1006.5	1008.7	1010.9	1013.0	1015.2
40	1017.4	1019.5	1021.7	1023.9	1026.0	1028.2	1030.4	1032.5	1034.7	1036.9
50	1039.0	1041.2	1043.4	1045.5	1047.7	1049.8	1052.0	1054.2	1056.3	1058.5
60	1060.7	1062.8	1065.0	1067.1	1069.3	1071.5	1073.6	1075.8	1077.9	1080.1
70	1082.2	1084.4	1086.6	1088.7	1090.9	1093.0	1095.2	1097.3	1099.5	1101.6
80	1103.8	1106.0	1108.1	1110.3	1112.4	1114.6	1116.7	1118.9	1121.0	1123.2
90	1125.3	1127.5	1129.6	1131.8	1133.9	1136.1	1138.2	1140.4	1142.5	1144.7
100	1146.8	1149.0	1151.1	1153.2	1155.4	1157.5	1159.7	1161.8	1164.0	1166.1
110	1168.3	1170.4	1172.5	1174.7	1176.9	1179.0	1181.1	1183.3	1185.4	1187.5
120	1189.7	1191.8	1194.0	1196.1	1198.2	1200.4	1202.5	1204.6	1206.8	1208.9
130	1211.0	1213.2	1215.3	1217.5	1219.6	1221.7	1223.9	1226.0	1228.1	1230.3
140	1232.4	1234.5	1236.7	1238.9	1240.9	1243.0	1245.2	1247.3	1249.4	1251.6
150	1253.7	1255.8	1258.0	1260.1	1262.2	1264.3	1266.5	1268.6	1270.7	1272.8
160	1275.0	1277.1	1279.2	1281.3	1283.5	1285.6	1287.7	1289.8	1292.0	1294.1
170	1296.2	1298.3	1300.4	1302.6	1304.7	1306.8	1308.9	1311.0	1313.2	1315.3
180	1317.4	1319.5	1321.6	1323.8	1325.9	1328.0	1330.1	1332.2	1334.3	1336.5
190	1338.6	1340.7	1342.8	1344.9	1347.0	1349.1	1351.2	1353.4	1355.5	1357.6
200	1359.7	1361.8	1363.9	1366.0	1368.1	1370.2	1372.4	1374.5	1376.6	1378.7
210	1380.8	1382.9	1385.0	1387.1	1389.2	1391.3	1393.4	1395.5	1397.6	1399.7
220	1401.8	1403.9	1406.0	1408.1	1410.3	1412.4	1414.5	1416.6	1418.7	1420.8
230	1422.9	1425.0	1427.1	1429.2	1431.3	1433.4	1435.5	1437.6	1439.6	1441.7
240	1443.8	1445.9	1448.0	1450.1	1452.2	1454.3	1456.4	1458.5	1460.6	1462.7
250	1464.8	1466.9	1469.0	1471.1	1473.2	1475.3	1477.3	1479.4	1481.5	1483.6
260	1485.7	1487.8	1489.9	1492.0	1494.1	1496.1	1498.2	1500.3	1502.4	1504.5



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Table 7.14. RTD Sensor Ohms vs. Temperature (Continued)

°F	0	1	2	3	4	5	6	7	8	9
270	1506.6	1508.7	1510.8	1512.8	1514.9	1517.0	1519.1	1521.2	1523.3	1525.3
280	1527.4	1529.5	1531.6	1533.7	1535.7	1537.8	1539.9	1542.0	1544.1	1546.1
290	1548.2	1550.3	1552.4	1554.5	1556.5	1558.6	1560.7	1562.8	1564.8	1566.9
300	1569.0	1571.1	1573.1	1575.2	1577.3	1579.4	1581.4	1583.5	1585.6	1587.7
310	1589.7	1591.8	1593.9	1595.9	1598.0	1600.1	1602.2	1604.2	1606.3	1608.4
320	1610.4	1612.5	1614.6	1616.6	1618.7	1620.8	1622.8	1624.9	1627.0	1629.0
330	1631.1	1633.2	1635.2	1637.3	1639.3	1641.4	1643.5	1645.5	1647.6	1649.7
340	1651.7	1653.8	1655.8	1657.9	1660.0	1662.0	1664.1	1666.1	1668.2	1670.2
350	1672.3	1674.4	1676.4	1678.5	1680.5	1682.6	1684.6	1686.7	1688.7	1690.8
360	1692.9	1694.9	1697.0	1699.0	1701.1	1703.1	1705.2	1707.2	1709.3	1711.3
370	1713.4	1715.4	1717.5	1719.5	1721.6	1723.6	1725.7	1727.7	1729.8	1731.8
380	1733.9	1735.9	1737.9	1740.0	1742.0	1744.1	1746.1	1748.2	1750.2	1752.3
390	1754.3	1756.3	1758.4	1760.4	1762.5	1764.5	1766.6	1768.6	1770.6	1772.7
400	1774.7	1776.8	1778.8	1780.8	1782.9	1784.9	1786.9	1789.0	1791.0	1793.1
410	1795.1	1797.1	1799.2	1801.2	1803.2	1805.3	1807.3	1809.3	1811.4	1813.4
420	1815.4	1817.5	1819.5	1821.5	1823.6	1825.6	1827.6	1829.6	1831.7	1833.7
430	1835.7	1837.8	1839.8	1841.8	1843.8	1845.9	1847.9	1849.9	1851.9	1854.0
440	1856.0	1858.0	1860.0	1862.1	1864.1	1866.1	1868.1	1870.2	1872.2	1874.2
450	1876.2	1878.2	1880.3	1882.3	1884.3	1886.3	1888.3	1890.4	1892.4	1894.4
460	1896.4	1898.4	1900.5	1902.5	1904.5	1906.5	1908.5	1910.5	1912.6	1914.6
470	1916.6	1918.6	1920.6	1922.6	1924.6	1926.6	1928.7	1930.7	1932.7	1934.7
480	1936.7	1938.7	1940.7	1942.7	1944.7	1946.8	1948.8	1950.8	1952.8	1954.8
490	1956.8	1958.8	1960.8	1962.8	1964.8	1966.8	1968.8	1970.8	1972.8	1974.8
500	1976.8	1978.8	1980.8	1982.9	1984.9	1986.9	1988.9	1990.9	1992.9	1994.9
510	1996.9	1998.9	2000.9	2002.9	2004.9	2006.9	2008.8	2010.8	2012.8	2014.8
520	2016.8	2018.8	2020.8	2022.8	2024.8	2026.8	2028.8	2030.8	2032.8	2034.8
530	2036.8	2038.8	2040.8	2042.8	2044.7	2046.7	2048.7	2050.7	2052.7	2054.7
540	2056.7	2058.7	2060.7	2062.7	2064.6	2066.6	2068.6	2070.6	2072.6	2074.6
550	2076.6	2078.5	2080.5	2082.5	2084.5	2086.5	2088.5	2090.4	2092.4	2094.4

7.5. Pump Troubleshooting

7.5.1 Symptom: Material Does Not Dispense When the Pump is Activated

Table 7.15. Basic Visual Troubleshooting

Step	Possible Cause	If . . .
1	Start Troubleshooting at the control box. Is the Hose Temperature Display at or above 325°F?	<ul style="list-style-type: none"> • Yes, go to Step 2. • No, continue to allow the machine to heat. (Make sure the Hose dial is set at the operating temperature.)
2	Is the red "Pump" light "ON"?	<ul style="list-style-type: none"> • Yes, go to Step 3. • No, allow the hose to continue to heat.
3	With the wand in the shoebox, pull the wand trigger and look at the material pump shaft chain coupler. Is it spinning clockwise? (Remove the chain guard if necessary.)	<ul style="list-style-type: none"> • Yes, go to Step 5. • No, adjust the material flow control to increase the flow. • No, go to Step 4.
4	Inside the control box and under the front panel, find the relay cube for the pump. It is found near the middle, left-hand side of the box. It is a clear yellow cube with a green button facing the top of the control box. When you press this button, material should dispense from the wand, so be careful. Does the material pump shaft coupler turn when you press the green button?	<ul style="list-style-type: none"> • Yes, this tells you that everything from the cube relay to the hydraulic manifold is working properly, your issue is inside the hose and wand. Go to Table 7.16. Electrical Troubleshooting, Steps 1 through 5 to find the problem. • No, go to Step 5.
5	Is the hydraulic fluid level near the center of the sight gauge?	<ul style="list-style-type: none"> • Yes, go to Table 7.16. Electrical Troubleshooting. • No, fill oil to the center of the sight gauge.

Table 7.16. Electrical Troubleshooting

Step	Possible Cause	If . . .
1	Is the Material Temperature at or above 275°F?	<ul style="list-style-type: none"> • Yes go to Step 2. • No, continue to allow the machine to heat.
2	Is there 12 Vdc between the Hose PAKSTAT terminal #2 purple wire and terminal #8 black ground wire? (Refer to the pump circuit schematic Figure 7-9. Pump Schematic.)	<ul style="list-style-type: none"> • Yes, go to Step 3. • No, go to Step 2a.
2a	Is there 12 Vdc between the Hose PAKSTAT terminal #1 pink wire and terminal #8 black ground wire?	<ul style="list-style-type: none"> • Yes, check for a broken wire or poor wire crimp on the terminal #2 purple wire and recheck for 12 Vdc. (If still no voltage replace the Material PAKSTAT.) • No, go to Step 2b.
2b	Is there 12 Vdc between the Hose PAKSTAT terminal #9 pink wire and terminal #8 black ground wire?	<ul style="list-style-type: none"> • Yes, check for a broken wire or poor wire crimp on terminal #1 pink wire. (If you have 12 Vdc on terminal #9 pink then you must have 12 Vdc on terminal #1 pink wire; they are the same wire.) • No, If this is the case you would have had a hose heating issue.
3	Is there 12 Vdc between the terminal block purple wire and the terminal black ground wire.	<ul style="list-style-type: none"> • Yes, go to Step 4. • No, check for a broken wire or poor wire crimp between the Hose PAKSTAT terminal #2 purple wire and the terminal block purple wire.
4	Move to the junction box at the rear of the machine and open the cover. Is there 12 Vdc between the trigger red wire coming from the control box and a near by ground source?	<ul style="list-style-type: none"> • Yes, go to Step 4a. • No, check for a broken wire or poor wire crimp between the junction box and the control box red wire labeled red-trig.
4a	Is there 12 Vdc between the trigger red wire going toward the hose (just above where you checked in Step 4) and a near by ground source?	<ul style="list-style-type: none"> • Yes go to Step 4b. • No, check for a broken wire or poor wire crimp on the red trigger going toward the hose.

Chapter 7 Troubleshooting

Table 7.16. Electrical Troubleshooting (Continued)

Step	Possible Cause	If . . .
4b	Is there 12 Vdc between the trigger red wire going toward the hose and a near by ground source? (Make sure the wand trigger is pulled during this Step.)	<ul style="list-style-type: none"> • Yes, go to Step 4c. • No, go to Step 5.
4c	Is there 12 Vdc between the trigger green wire coming from the control box and a near by ground source? (Make sure the wand trigger is pulled during this Step.)	<ul style="list-style-type: none"> • Yes, go to Step 6. • No, check for a broken wire or poor wire crimp on the green trigger wire going to the control box.
5	Disconnected the five pin connector between the hose and wand. Refer to Figure 7-8. Junction Box Wiring . Is there continuity on the wand connector between red trigger "C" post and red trigger "B" post while the wand trigger is pulled?	<ul style="list-style-type: none"> • Yes, go to Step 5a. • No, call Crafc, Inc. and request an RA # so you can send your wand back for repair.
5a	Disconnect the two red trigger wires in the junction box going toward the hose. Move the wand end of the hose next to the junction box. Is there continuity on the hose connector "C" socket and only one red trigger in the junction box? (Check both red trigger wires in the junction box one at a time.)	<ul style="list-style-type: none"> • Yes, go to Step 5b. • No, recheck the hose connector "C" socket to the other red trigger wire in the junction box. (You want to see continuity between only one red trigger wire and the "C" socket.) • Still no or continuity to both red trigger wire, then call Crafc, Inc. and request an RA# so you can send your hose back for repair.
5b	Is there continuity on the hose connector "B" socket and red trigger in the junction box?	<ul style="list-style-type: none"> • Yes, call Crafc, Inc. and speak to a service technician, you should have found the problem. • No, recheck the hose connector "B" socket to the other red trigger wire in the junction box. (You want to see continuity between only one red trigger wire and the "B" socket.) • Still no or continuity to both red trigger wire, then call Crafc, Inc. and request an RA# so you can send your hose back for repair.

Table 7.16. Electrical Troubleshooting (Continued)

Step	Possible Cause	If . . .
6	Move back to the control box. Is there 12 Vdc between the pump relay base #14 terminal green trigger wire and the #13 terminal black ground wire, when the trigger is pulled?	<ul style="list-style-type: none"> • Yes, go to Step 7. • No, check for a broken wire or loose wire at the relay base on both the green trigger wire and the two black ground wires. Also check for any damage to the green trigger wire from the junction box to the control box.
7	Is there 12 Vdc between the pump relay base #12 terminal red wire and the #13 terminal black ground wire?	<ul style="list-style-type: none"> • Yes, go to Step 8. • No, go to Step 7a.
7a	Is there 12 Vdc between the terminal block red black wire and the pump relay base #13 terminal black ground wire?	<ul style="list-style-type: none"> • Yes, check a broken wire or loose wire at the pump relay base #12 terminal. • No, go to Step 7b.
7b	Is there 12 Vdc between the terminal block red wire (across to the left of the terminal block red black wire) and the pump relay base #13 terminal black ground wire?	<ul style="list-style-type: none"> • Yes, check for a loose wire in the terminal block. If you have power on one side you should have it on the other. If still the case after checking, then replace the terminal block. • No, go to Step 7c.
7c	Is there 12 Vdc between the circuit breaker bottom post red wire and the pump relay base #13 terminal black ground wire?	<ul style="list-style-type: none"> • Yes, check for a broken wire or loose wire at the circuit breaker and at the terminal block red wire. • No, if this is the case you would have had problems with the burner working. Call CrafcO, Inc. and speak to a service technician.
8	Is there 12 Vdc between the pump relay base #8 terminal blue pump wire and the #13 terminal black ground wire?	<ul style="list-style-type: none"> • Yes, go to Step 9. • No, replace the pump relay cube.
9	Move to the rear of the machine. Remove the cover over the hydraulic manifold. Is the amber light "ON" when the wand trigger is pulled? (Looking down at the top of the hydraulic valve, Pump forward is the din plug lower right-hand corner, Refer to Figure 7-6. Din Plug Layout.)	<ul style="list-style-type: none"> • Yes, go to Step 9c. • No, go to Step 9a.

Table 7.16. Electrical Troubleshooting (Continued)

Step	Possible Cause	If . . .
9a	Follow the brown wire "Forward Pump" din plug to where the insulated spade connection is to the blue pump wire coming from the control box. Are these two wires still connected?	<ul style="list-style-type: none"> • Yes, go to Step 9b. • No, connect these two wires.
9b	Disconnect these two wires. Is there 12 Vdc between the blue pump wire and the blue (4) wire ground connection for the din plugs?	<ul style="list-style-type: none"> • Yes, check for a broken wire or poor wire crimp along the brown "Forward Pump" din plug. • No, check for a broken wire or poor wire crimp along the blue pump wire.
9c	Unscrew the din plug center screw so you can pull the din plug up about 1/4", so you can check for voltage. Is there 12 Vdc from side post to side post, when the wand trigger is pulled?	<ul style="list-style-type: none"> • Yes, the electrical system for the agitator is working properly, go to Table 7.16 Hydraulic Troubleshooting. • No, recheck the amber light, if the light comes "ON" and you do not have 12 Vdc then replace the din plug.
10	Does the hydraulic pump shaft coupler turn counter clock wise, when you hold the "Pump" toggle switch in the "Reverse" position?	<ul style="list-style-type: none"> • Yes, this feature is working properly. • No, go to Step 10a.
10a	Is the amber light "ON" when you hold the "Pump" toggle switch in the "Reverse" position? (Looking down at the top of the hydraulic valve, Pump reverse is the din plug lower left-hand corner, Refer to Figure 7-6. Din Plug Layout.)	<ul style="list-style-type: none"> • Yes, go to Step 10e. • No, go to Step 10b.
10b	Is there 12 Vdc between the "Pump" toggle switch bottom post brown wire and the blue (4) wires ground din plug, when the toggle switch is in the "Reverse" position? (Refer to Figure 7-4. Agitator Circuit Schematic.)	<ul style="list-style-type: none"> • Yes, go to Step 10e. • No, go to Step 10c.
10c	Is there 12 Vdc between the "Pump" toggle switch center post red wire and the blue (4) wires ground din plug?	<ul style="list-style-type: none"> • Yes, replace the toggle switch. • No, go to Step 10d.

Chapter 7 Troubleshooting

Table 7.16. Electrical Troubleshooting (Continued)

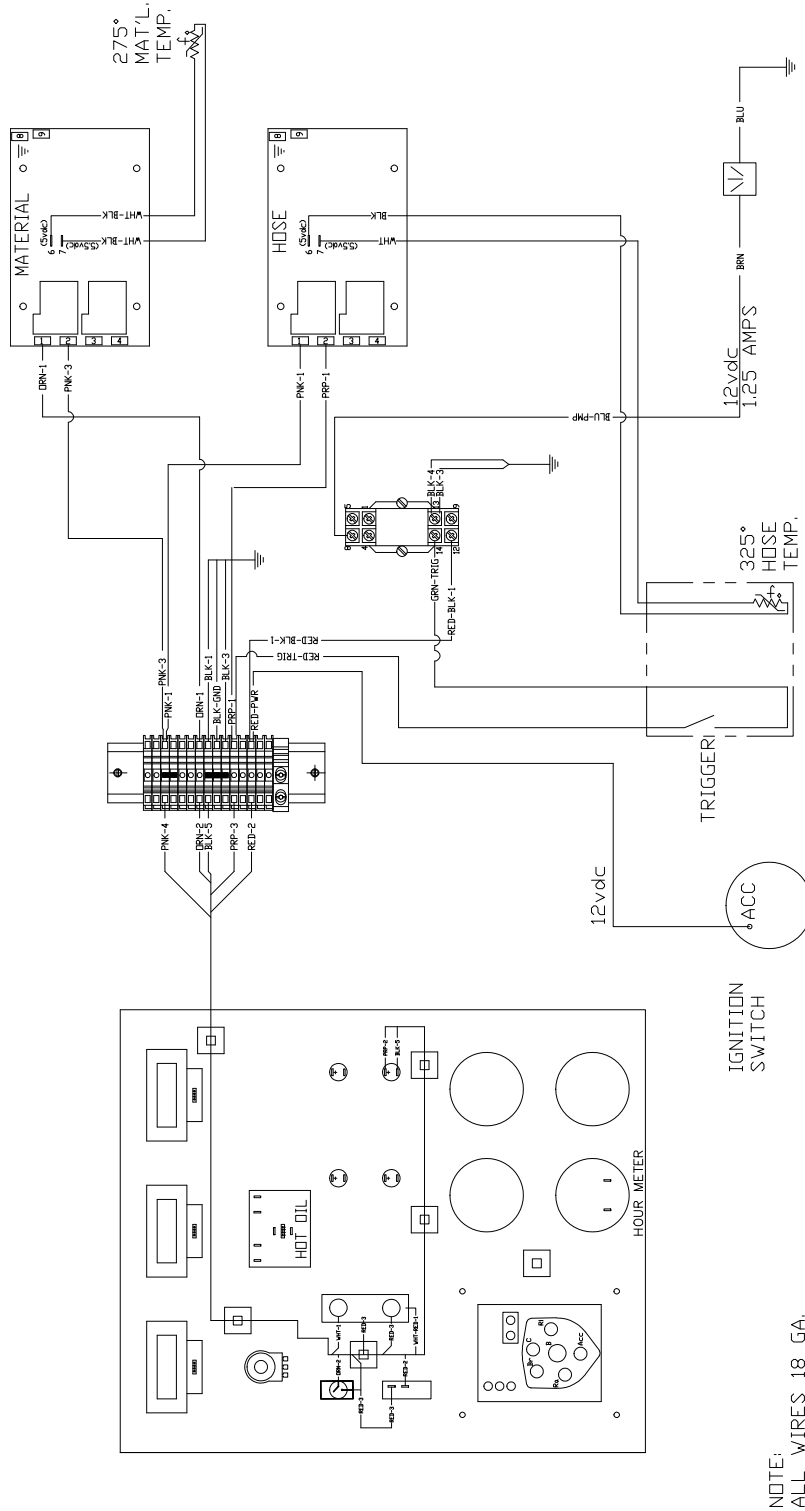
Step	Possible Cause	If . . .
10d	Is there 12 Vdc between the "Mixer" toggle switch center post red wire and the blue (4) wires ground din plug?	<ul style="list-style-type: none"> • Yes, check for a broken wire or poor wire crimp on the red wire between the "Mixer" toggle switch and the "Pump" toggle switch. • No, if this is the case you would have had an agitator problem. Call Crafco, Inc. and speak to a service technician.
10e	Unscrew the din plug center screw so you can pull the din plug up about 1/4", so you can check for voltage. Is there 12 Vdc from side post to side post, when the wand trigger is pulled?	<ul style="list-style-type: none"> • Yes, the electrical system for the agitator is working properly, go to Table 7.16 Hydraulic Troubleshooting. • No, recheck the amber light, if the light comes "ON" and you do not have 12 Vdc then replace the din plug.

Table 7.17. Hydraulic Troubleshooting

Step	Possible Cause	If . . .
1	Does the coil magnetize when the din plug amber light is "ON"?	<ul style="list-style-type: none"> • Yes, go to Step 2. • No, remove the din plug, then remove the coil by unscrewing the nut on the end of the coil. With the coil removed reattach the din plug and place a metal screw driver in the center of the coil and move it toward the side of the coil to see if the coil is magnetic. If it is not, recheck the din plug is plugged into the coil and the amber light is "ON". If still not magnetic replace the coil.


Table 7.17. Hydraulic Troubleshooting

Step	Possible Cause	If . . .
2	Is the relief pressure set correctly? (Refer to Figure 7-5. Hydraulic Schematic , for pressure settings.)	<ul style="list-style-type: none"> • Yes, go to Step 3. • No, first turn "OFF" the Isuzu engine, then remove one of the two hydraulic hoses going to the pump hydraulic motor, cap off the fitting on the motor and use a 3,000 PSI gauge with the proper JIC fitting, attach it to the hose. Start the Isuzu engine, turn "ON" the main power in the control box, pull the wand trigger and read the pressure gauge. If the pressure needs to be adjusted use the pressure relief valve labeled "RVP", loosen the jam nut and adjust the pressure with the allen screw at the end of the relief. Turn clockwise to increase pressure and counter clockwise to reduce pressure, then tighten the jam nut to lock the pressure. Next turn "OFF" the Isuzu engine, remove the cap, pressure gauge and reattach the hose.
3	Is the hydraulic flow correct from the hydraulic pump?	<ul style="list-style-type: none"> • Yes, call CrafcO, Inc. and speak to a service technician you should have been able to find the problem. • No, call a local hydraulic shop to see if they can run a hydraulic pump flow test, using the information in Figure 7-5. Hydraulic Schematic.



PUMP CIRCUIT

Figure 7-9. Pump Schematic

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8.1. About the Illustrated Parts List

The Illustrated Parts List (IPL) is designed to help technical service or maintenance personnel correctly identify orderable replacement parts.

The figure and tables titles reference the part number (PN) to which they apply. The PNs for each of the Super Shot 125 Diesel Melter machine models are as follows:

- Super Shot 125 Diesel Melter PN 43600
- Super Shot 125 Diesel Melter with Air Compressor PN 43800
- Super Shot 125 Diesel Melter with 70 CFM Air Compressor PN 45500
- Super Shot 125 Diesel Compressor/Router Carrier (125 DCRC) PN 44400

Illustrations are designed to show general shape and size of a part and the relationship that part has to other parts. Actual size and shape of parts or components may differ or vary from the actual part or component.

8.1.1 Ordering Crafco Parts

Crafco distributors and Crafco Pavement Preservation Supply Centers are strategically located throughout the United States. Parts can be ordered from your local Crafco distributor or directly from Crafco, Inc. if a distributor is not available in your area.

When ordering parts, give the following information:

- Part number
- Machine model
- Serial number

Write, call, or FAX Crafco, Inc. at the following:

Crafco, Inc. Headquarters
420 N Roosevelt Ave.
Chandler AZ 85226-2601
Phone: (602) 276-0406
Toll Free: (800) 528-8242
Fax: (480) 961-0513

Visit our website at www.crafco.com.

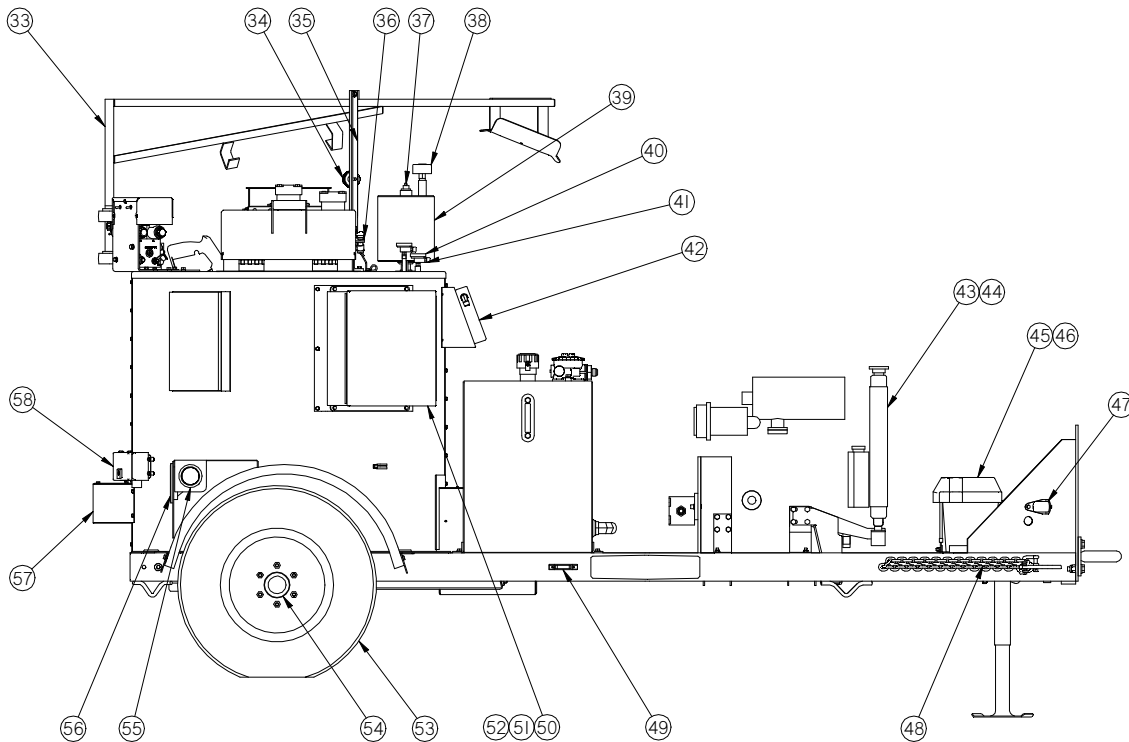
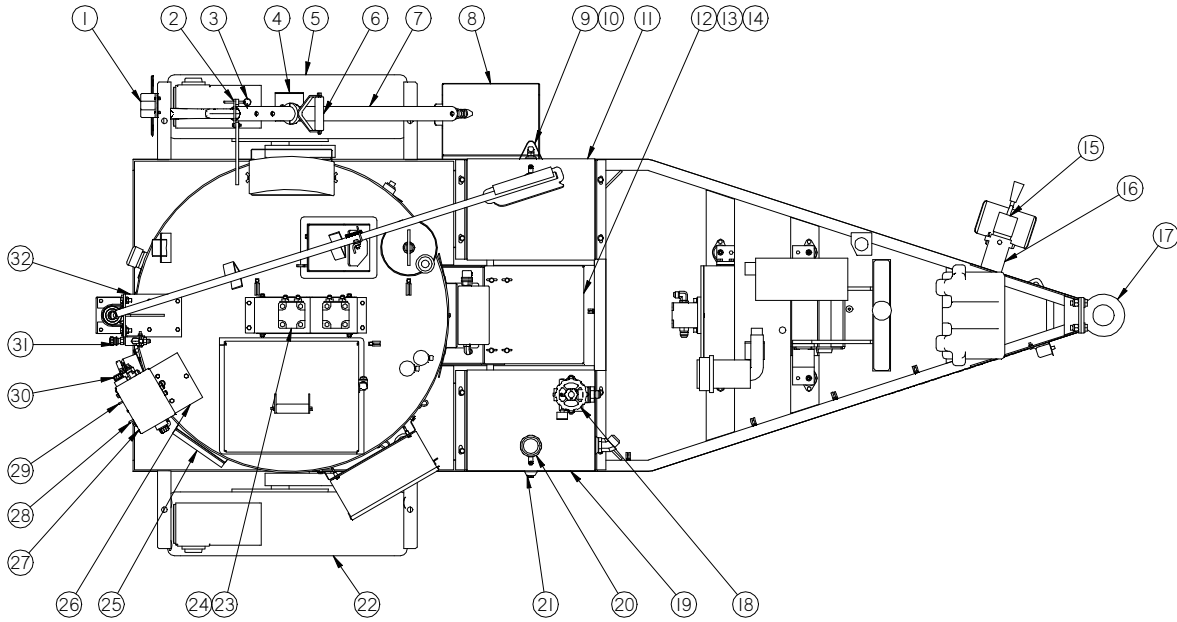


Figure 8.1-1 Super Shot 125 Melter: PN 43600



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Table 8.1-1 Super Shot 125 Melter: PN 43600

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
8.1-1	1	44797	LED LICENSE PLATE LAMP	1
	2	45559	LOCKING ARM, WAND SUPPORT	1
	3	26104	1/4 X 2.5 GRIP QUICK RELEASE PIN	1
	4	45562	HOSE GUIDE	1
	5	44778	DRIVER SIDE FENDER ASSEMBLY	1
	6	43768	WAND HANDLE	1
	7	51730	ELECTRIC HEATED WAND ASSEMBLY 48"	1
	8	43624	DRIP PAN ASSEMBLY	1
	9	44817	FITTING, SIGHT GAUGE ELBOW	2
	10	44818	TUBING, FUEL SIGN GAUGE	1
	11	43594	DIESEL FUEL TANK ASSEMBLY	1
	12	43114	COVER, BURNER	1
	13	41891	14 VOLT BURNER	1
	14	39602	SOLENOID	1
	15	23082	TONGUE JACK	1
	16	23095	SWIVEL BUSHING	1
	17	20014	3" PINTLE HITCH	OPT.
	18	45430	HYDRAULIC FILTER ASSEMBLY	1
	18a	45438	HYDRAULIC FILTER ELEMENT	-
	18b	45440	O-RING, HYDRAULIC FILTER	-
	18c	45441	GASKET, HYDRAULIC FILTER	-
	18d	45437	GAUGE, HYDRAULIC FILTER	-
	19	43595	HYDRAULIC TANK ASSEMBLY	1
	20	43579	FILLER BREATHER	1
	21	45415	HYDRAULIC SIGHT GAUGE	1
	22	44779	PASSENGER SIDE FENDER ASSEMBLY	1
	23	44832	PUMP / AGITATOR MOTOR ASSEMBLY	1
	24	43727	CHAIN GUARD ASSEMBLY	2
	25	25289	RECORD BOX	1
	26	44891	BRACKET, HYDRAULIC VALVE	1
27	44882	COVER, HYDRAULIC VALVE	1	
28	51678	TOGGLE SWITCH AGITATOR	1	
29	32513	TOGGLE SWITCH PUMP REVERSE	1	
30	45420	HYDRAULIC VALVE ASSEMBLY	1	



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Table 8.1-1 Super Shot 125 Melter: PN 43600 (Continued)

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
8.1-1	31	46060	FLOW CONTROL VALVE	1
	32	45549	BOOM BASE	1
	33	45550	HOSE BOOM	1
	34	46306	KNOB, THREADED BOOM, LOCK	1
	35	45575	BOOM LATCHING ASSEMBLY	1
	36	39608	LID SWITCH	1
	37	43673	DIP STICK, HEAT TRANSFER OIL	1
	38	26025	AIR BREATHER, HEAT TRANSFER OIL	1
	39	43355	OVERFLOW TANK	1
	40	43465	RTD SENSOR	2
	41	51065	CORD GRIP, RTD SENSOR	2
	42	45541	HYDRAULIC COOLER, SMALL	1
	43	45745	23 HP ENGINE ASSEMBLY	1
	44	29399	ISOMOUNT (ENGINE TO FRAME NOT SHOWN)	4
	45	24002	BATTERY BOX	1
	46	24000	12V BATTERY	1
	47	23117	BREAKAWAY SWITCH	1
	48	20130	48" SAFETY CHAIN	2
	49	32365	YELLOW LED CLEARANCE MARKER	2
	50	45525	CONTROL BOX ASSEMBLY	1
	51	24076	HOUR METER	1
	52	41948	KEY AND TUMBLER	1
	53	44342	TIRE AND WHEEL ASSEMBLY	2
	54	43535	TORSIONAL AXLE ASSEMBLY	1
	55	32364	2 1/2" RED LED SIDE MARKER	2
	56	32363	4" RED LED STOP, TURN AND TAIL LIGHT	2
	57	43821	HEAT GUARD	1
	58	44027	JUNCTION BOX ASSEMBLY	1
	59	51734	18' ELECTRIC HEATED HOSE (NOT SHOWN)	1
	60	27170	3/8" ROUND SEALING TIP	OPT.
	61	27171	1/2" ROUND SEALING TIP	OPT.
	62	27173	3/4" SEALING SHOE	OPT.
	63	27146	1/4" ELONGATED SEALING TIP	OPT.
	64	43672	MOUNT, STROBE LIGHT	OPT.


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Table 8.1-1 Super Shot 125 Melter: PN 43600 (Continued)

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
8.1-1	65	24095	STROBE LIGHT	OPT.
	66	50720	WEATHER TIGHT BOOT (NOT SHOWN)	2
	67	27146	1/4" ELONGATED SEALING TIP	OPT.
	68	31512	30 AMP CIRCUIT BREAKER (NOT SHOWN)	1
	69	24190	OVERNIGHT HEATER ROD	OPT.
	70	43540	SPARE TIRE WITH MOUNT	OPT.
	71	51756	DUCKBILL TIP (NOT SHOWN)	1
	72	27162R	3" DISK WITH RESISTOR	OPT.
	73	27163R	4" DISK WITH RESISTER	OPT.

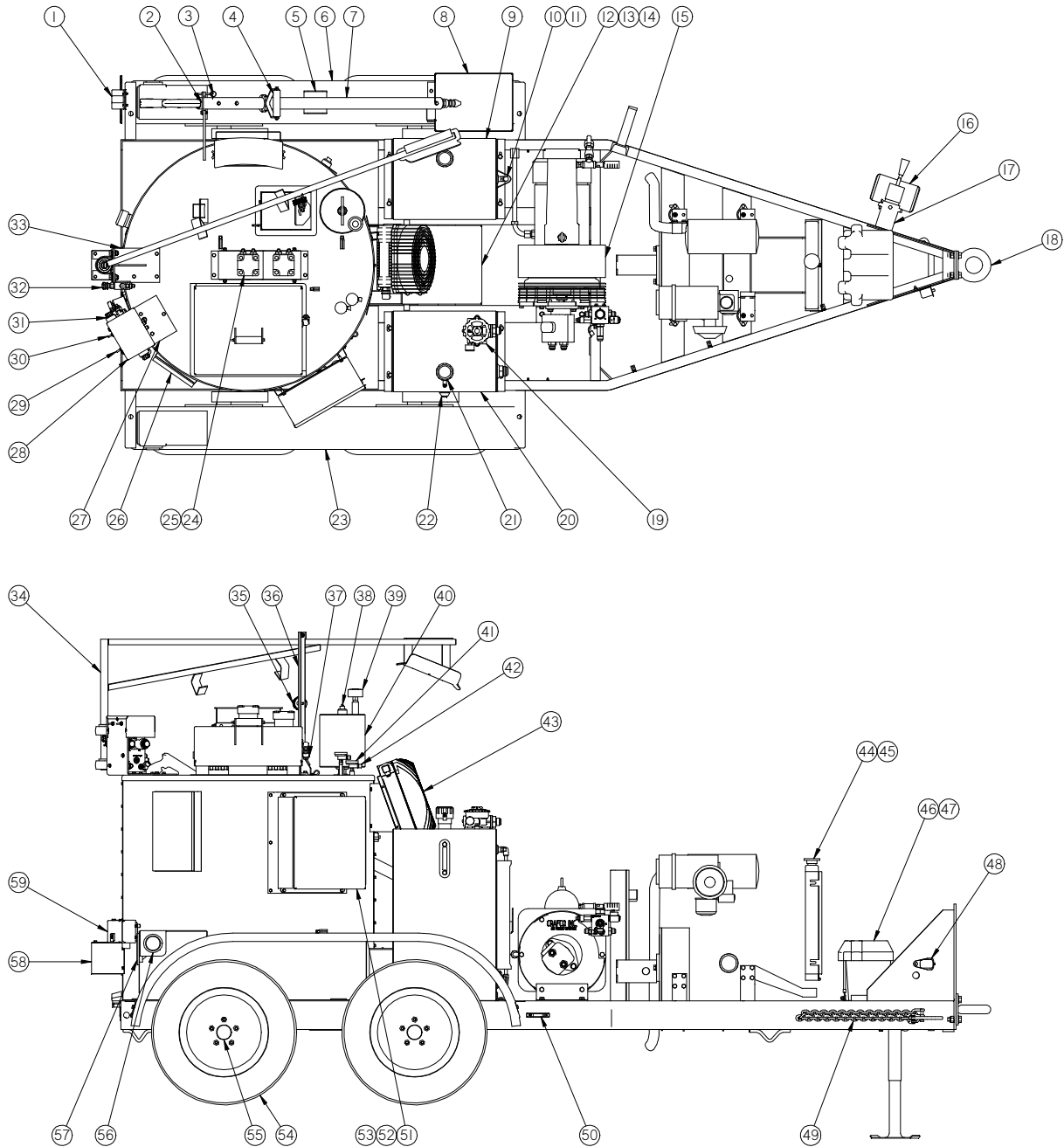


Figure 8.1-2 Super Shot 125 Diesel Melter with Air Compressor: PN 43800



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Table 8.1-2 Super Shot 125 Diesel Melter with Air Compressor: PN 43800

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
8.1-2	1	44797	LED LICENSE PLATE LAMP	1
	2	45559	LOCKING ARM, WAND SUPPORT	1
	3	26104	1/4 X 2.5 GRIP QUICK RELEASE PIN	1
	4	43768	WAND HANDLE	1
	5	45562	HOSE GUIDE	1
	6	44780	DRIVER SIDE FENDER ASSEMBLY	1
	7	51730	ELECTRIC HEATED WAND ASSEMBLY 48"	1
	8	43842	DRIP PAN ASSEMBLY	1
	9	43592	DIESEL FUEL TANK ASSEMBLY	1
	10	44818	TUBING, FUEL SIGHT GAUGE	1
	11	44817	FITTING, SIGHT GAUGE ELBOW	2
	12	43114	COVER, BURNER	1
	13	41891	14 BOLT BURNER	1
	14	39602	SOLENOID	1
	15	45345	COMPRESSOR ASSEMBLY	1
	16	23082	TONGUE JACK	1
	17	23095	SWIVEL BUSHING	1
	18	20014	3" PINTLE HITCH	OPT.
	19	45430	HYDRAULIC FILTER ASSEMBLY	1
	19a	45438	HYDRAULIC FILTER ELEMENT	-
	19b	45440	O-RING, HYDRAULIC FILTER	-
	19c	45441	GASKET, HYDRAULIC FILTER	-
	19d	45437	GAUGE, HYDRAULIC FILTER	-
	20	43590	HYDRAULIC TANK ASSEMBLY	1
	21	43579	FILLER BREATHER	2
	22	45415	HYDRAULIC SIGHT GAUGE	1
	23	44781	PASSENGER SIDE FENDER ASSEMBLY	1
	24	44832	PUMP / AGITATOR MOTOR ASSEMBLY	1
	25	43727	CHAIN GUARD ASSEMBLY	2
	26	25289	RECORD BOX	1
27	44891	BRACKET, HYDRAULIC VALVE	1	
28	44882	COVER, HYDRAULIC VALVE	1	
29	51678	TOGGLE SWITCH AGITATOR	1	
30	32513	TOGGLE SWITCH PUMP REVERSE	1	



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Table 8.1-2 Super Shot 125 Diesel Melter with Air Compressor: PN 43800 (Continued)

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
	31	45420	HYDRAULIC VALVE ASSEMBLY	1
	32	46060	FLOW CONTROL VALVE	1
	33	45549	BOOM BASE	1
	34	45550	HOSE BOOM	1
	35	46306	KNOB, THREADED BOOM, LOCK	1
	36	45575	BOOM LATCHING ASSEMBLY	1
	37	39608	LID SWITCH	1
	38	43673	DIP STICK, HEAT TRANSFER OIL	1
	39	26025	AIR BREATHER, HEAT TRANSFER OIL	1
	40	43355	OVERFLOW TANK	1
	41	43465	RTD SENSOR	2
	42	51065	CORD GRIP, RTD SENSOR	2
	43	45762	HYDRAULIC COOLER, LARGE	1
	44	45380	37 HP ENGINE ASSEMBLY	1
	45	29399	ISOMOUNT (ENGINE TO FRAME NOT SHOWN)	4
	46	24002	BATTERY BOX	1
	47	24000	12V BATTERY	1
	48	23117	BREAKAWAY SWITCH	1
	49	20130	48" SAFETY CHAIN	2
	50	32365	YELLOW LED CLEARANCE MARKER	2
	51	45525	CONTROL BOX ASSEMBLY	1
	52	24076	HOUR METER	1
	53	41948	KEY AND TUMBLER	1
	54	44341	TIRE AND WHEEL ASSEMBLY	4
	55	43616	TORSIONAL AXLE ASSEMBLY	2
	56	32364	2 1/2" RED LED SIDE MARKER	2
	57	32363	4" RED LED STOP, TURN AND TAIL LIGHT	2
	58	43821	HEAT GUARD	1
	59	44027	JUNCTION BOX ASSEMBLY	1
	60	51734	18' ELECTRIC HEATED HOSE (NOT SHOWN)	1
	61	27170	3/8" ROUND SEALING TIP	OPT.
	62	27171	1/2" ROUND SEALING TIP	OPT.
	63	27173	3/4" SEALING SHOE	OPT.
	64	27146	1/4" ELONGATED SEALING TIP	OPT.


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Table 8.1-2 Super Shot 125 Diesel Melter with Air Compressor: PN 43800 (Continued)

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
	65	43672	MOUNT, STROBE LIGHT	OPT.
	66	24095	STROBE LIGHT	OPT.
	67	50720	WEATHER TIGHT BOOT (NOT SHOWN)	2
	68	27146	1/4" ELONGATED SEALING TIP	OPT.
	69	31512	30 AMP CIRCUIT BREAKER (NOT SHOWN)	1
	70	24190	OVERNIGHT HEATER ROD	OPT.
	71	43520	SPARE TIRE WITH MOUNT	OPT.
	72	51756	DUCKBILL TIP (NOT SHOWN)	1
	73	27162R	3" DISK WITH RESTRICTOR	OPT.
	74	27163R	4" DISK WITH RESTRICTOR	OPT.

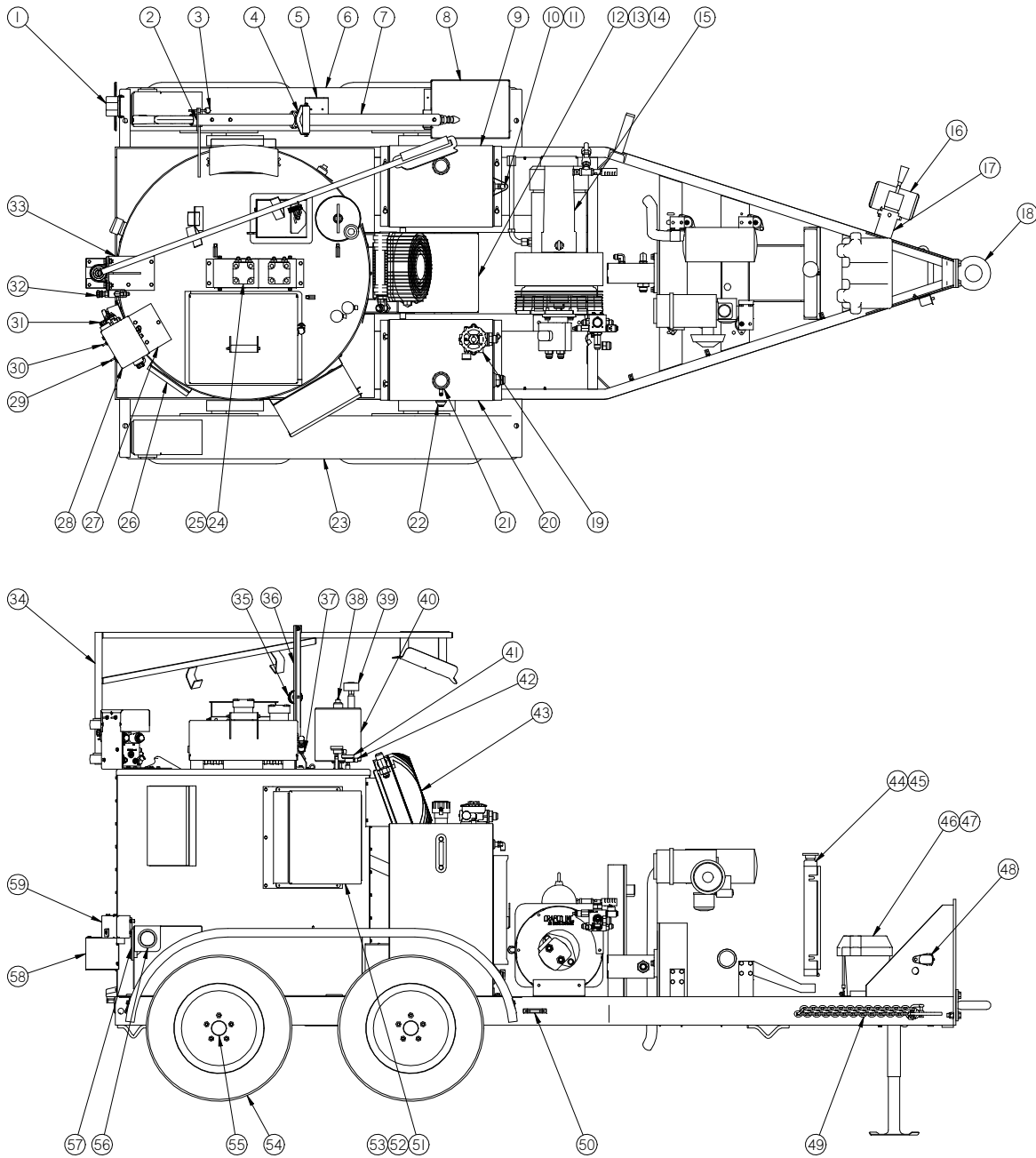


Figure 8.1-3 Super Shot 125 Diesel Melter with 70 CFM Compressor: PN 45500



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Table 8.1-3 Super Shot 125 Diesel Melter with 70 CFM Compressor: PN 45500

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
8.1-3	1	44797	LED LICENSE PLATE LAMP	1
	2	45559	LOCKING ARM, WAND SUPPORT	1
	3	26104	1/4 X 2.5 GRIP QUICK RELEASE PIN	1
	4	43768	WAND HANDLE	1
	5	45562	HOSE GUIDE	1
	6	44780	DRIVER SIDE FENDER ASSEMBLY	1
	7	51730	ELECTRIC HEATED WAND ASSEMBLY 48"	1
	8	43842	DRIP PAN ASSEMBLY	1
	9	43592	DIESEL FUEL TANK ASSEMBLY	1
	10	44818	TUBING, FUEL SIGHT GAUGE	1
	11	44817	FITTING, SIGHT GAUGE ELBOW	2
	12	43114	COVER, BURNER	1
	13	41891	14 VOLT BURNER	1
	14	39602	SOLENOID	1
	15	453435	COMPRESSOR ASSEMBLY	1
	16	23082	TONGUE JACK	1
	17	23095	SWIVEL BUSHING	1
	18	20014	3" PINTLE HITCH	OPT.
	19	45430	HYDRAULIC FILTER ASSEMBLY	1
	19a	45438	HYDRAULIC FILTER ELEMENT	-
	19b	45440	O-RING, HYDRAULIC FILTER	-
	19c	45441	GASKET, HYDRAULIC FILTER	-
	19d	45437	GAUGE, HYDRAULIC FILTER	-
	20	43590	HYDRAULIC TANK ASSEMBLY	1
	21	43579	FILLER BREATHER	2
	22	45415	HYDRAULIC SIGHT GAUGE	1
	23	44781	PASSENGER SIDE FENDER ASSEMBLY	1
	24	44832	PUMP / AGITATOR MOTOR ASSEMBLY	1
	25	43727	CHAIN GUARD ASSEMBLY	2
	26	25289	RECORD BOX	1
27	44891	BRACKET, HYDRAULIC VALVE	1	
28	44882	COVER, HYDRAULIC VALVE	1	
29	51678	TOGGLE SWITCH AGITATOR	1	
30	32513	TOGGLE SWITCH PUMP REVERSE	1	



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Table 8.1-3 Super Shot 125 Diesel Melter with 70 CFM Compressor: PN 45500 (Continued)

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
	31	45420	HYDRAULIC VALVE ASSEMBLY	1
	32	46060	FLOW CONTROL VALVE	1
	33	45549	BOOM BASE	1
	34	45550	HOSE BOOM	1
	35	46306	KNOB, THREADED BOOM, LOCK	1
	36	45575	BOOM LATCHING ASSEMBLY	1
	37	39608	LID SWITCH	1
	38	43673	DIP STICK, HEAT TRANSFER OIL	1
	39	26025	AIR BREATHER, HEAT TRANSFER OIL	1
	40	43355	OVERFLOW TANK	1
	41	43465	RTD SENSOR	2
	42	51065	CORD GRIP, RTD SENSOR	2
	43	45762	HYDRAULIC COOLER, LARGE	1
	44	45332	41 HP ENGINE ASSEMBLY	1
	45	29399	ISOMOUNT (ENGINE TO FRAME NOT SHOWN)	4
	46	24002	BATTERY BOX	1
	47	24000	12V BATTERY	1
	48	23117	BREAKAWAY SWITCH	1
	49	20130	48" SAFETY CHAIN	2
	50	32365	YELLOW LED CLEARANCE MARKER	2
	51	45526	CONTROL BOX ASSEMBLY	1
	52	24076	HOUR METER	1
	53	41948	KEY AND TUMBLER	1
	54	44341	TIRE AND WHEEL ASSEMBLY	4
	55	43616	TORSIONAL AXLE ASSEMBLY	2
	56	32364	2 1/2" RED LED SIDE MARKER	2
	57	32363	4" RED LED STOP, TURN AND TAIL LIGHT	2
	58	43821	HEAT GUARD	1
	59	44027	JUNCTION BOX ASSEMBLY	1
	60	51734	18' ELECTRIC HEATED HOSE (NOT SHOWN)	1
	61	27170	3/8" ROUND SEALING TIP	OPT.
	62	27171	1/2" ROUND SEALING TIP	OPT.
	63	27173	3/4" SEALING SHOE	OPT.
	64	27146	1/4" ELONGATED SEALING TIP	OPT.



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Table 8.1-3 Super Shot 125 Diesel Melter with 70 CFM Compressor: PN 45500 (Continued)

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
	65	43672	MOUNT, STROBE LIGHT	OPT.
	66	24095	STROBE LIGHT	OPT.
	67	50720	WEATHER TIGHT BOOT (NOT SHOWN)	2
	68	27146	1/4" ELONGATED SEALING TIP	OPT.
	69	31512	30 AMP CIRCUIT BREAKER (NOT SHOWN)	1
	70	24190	OVERNIGHT HEATER ROD	OPT.
	71	43520	SPARE TIRE WITH MOUNT	OPT.
	72	51756	DUCKBILL TIP (NOT SHOWN)	1
	73	27162R	3" DISK WITH RESTRICTOR	OPT.
	74	27163R	4" DISK WITH RESTRICTOR	OPT.

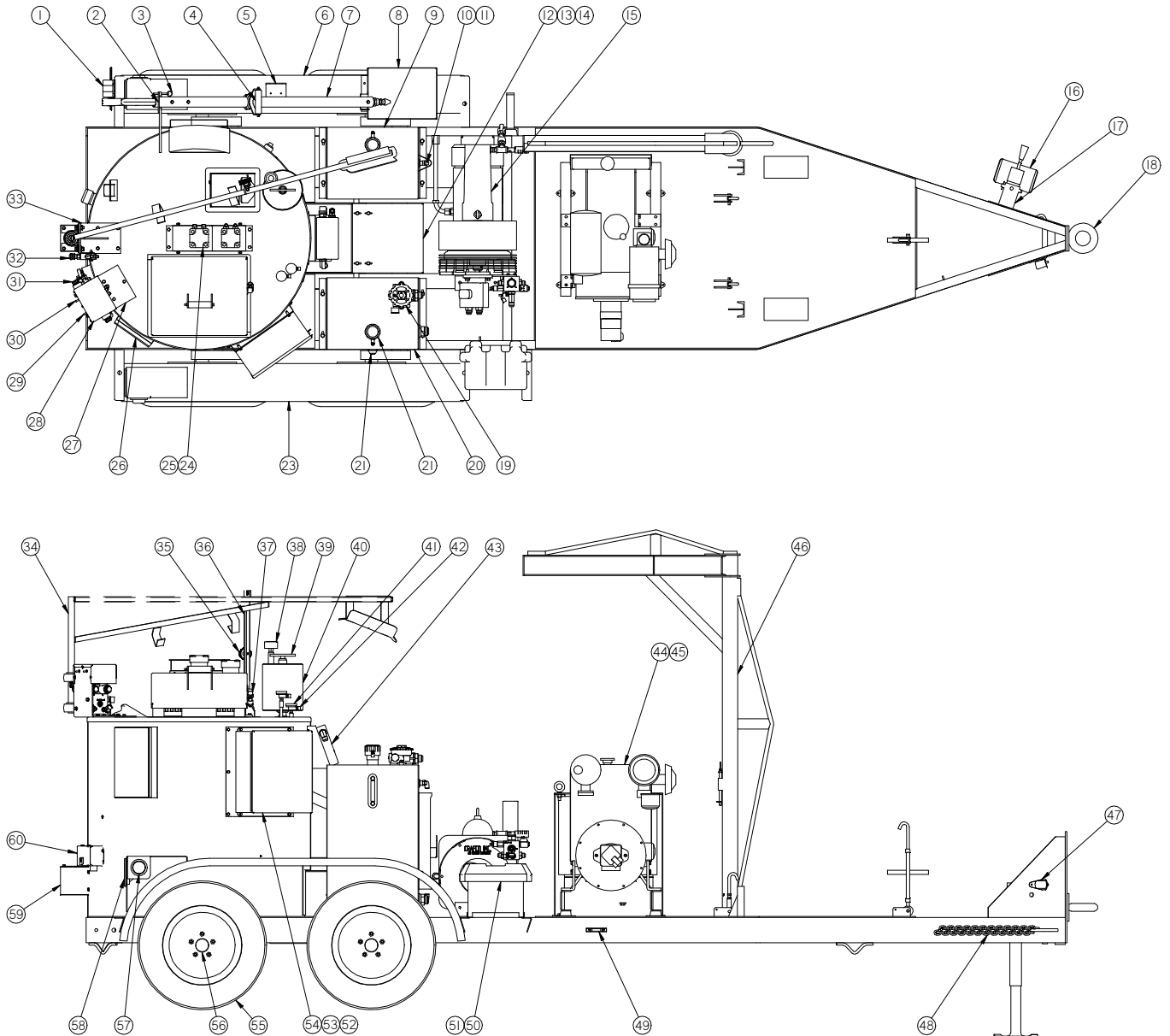


Figure 8.1-4 Super Shot 125 DCRC: PN 44400



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Table 8.1-4 Super Shot 125 DCRC: PN 44400

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
8.1-4	1	44797	LED LICENSE PLATE LAMP	1
	2	45559	LOCKING ARM, WAND SUPPORT	1
	3	26104	1/4 X 2.5 GRIP QUICK RELEASE PIN	1
	4	43768	WAND HANDLE	1
	5	45562	HOSE GUIDE	1
	6	44780	DRIVER SIDE FENDER ASSEMBLY	1
	7	51730	ELECTRIC HEATED WAND ASSEMBLY 48"	1
	8	43842	DRIP PAN ASSEMBLY	1
	9	43592	DIESEL FUEL TANK ASSEMBLY	1
	10	44818	TUBING, FUEL SIGHT GAUGE	1
	11	44817	FITTING, SIGHT GAUGE ELBOW	2
	12	43114	COVER, BURNER	1
	13	41891	14 VOLT BURNER	1
	14	39602	SOLENOID	1
	15	45345	COMPRESSOR ASSEMBLY	1
	16	23082	TONGUE JACK	1
	17	23095	SWIVEL BUSHING	1
	18	20014	3" PINTLE HITCH	OPT.
	19	45430	HYDRAULIC FILTER ASSEMBLY	1
	19a	45438	HYDRAULIC FILTER ELEMENT	-
	19b	45440	O-RING, HYDRAULIC FILTER	-
	19c	45441	GASKET, HYDRAULIC FILTER	-
	19d	45437	GAUGE, HYDRAULIC FILTER	-
	20	43590	HYDRAULIC TANK ASSEMBLY	1
	21	43579	FILLER BREATHER	2
	22	45415	HYDRAULIC SIGHT GAUGE	1
	23	44781	PASSENGER SIDE FENDER ASSEMBLY	1
	24	44832	PUMP / AGITATOR MOTOR ASSEMBLY	1
	25	43727	CHAIN GUARD ASSEMBLY	2
	26	25289	RECORD BOX	1
27	44891	BRACKET, HYDRAULIC VALVE	1	
28	44882	COVER, HYDRAULIC VALVE	1	
29	51678	TOGGLE SWITCH AGITATOR	1	
30	32513	TOGGLE SWITCH PUMP REVERSE	1	



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Table 8.1-4 Super Shot 125 DCRC: PN 44400 (Continued)

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
	31	45420	HYDRAULIC VALVE ASSEMBLY	1
	32	46060	FLOW CONTROL VALVE	1
	33	45549	BOOM BASE	1
	34	45550	HOSE BOOM	1
	35	46306	KNOB, THREADED BOOM, LOCK	1
	36	45575	BOOM LATCHING ASSEMBLY	1
	37	39608	LID SWITCH	1
	38	26025	AIR BREATHER, HEAT TRANSFER OIL	1
	39	43673	DIP STICK, HEAT TRANSFER OIL	1
	40	43355	OVERFLOW TANK	1
	41	43465	RTD SENSOR	2
	42	51065	CORD GRIP, RTD SENSOR	2
	43	45541	HYDRAULIC COOLER, SMALL	1
	44	45332	37 HP ENGINE ASSEMBLY	1
	45	29399	ISOMOUNT (ENGINE TO FRAME NOT SHOWN)	4
	46	44450	PIVOTAL CRANE ASSEMBLY	1
	47	23117	BREAKAWAY SWITCH	1
	48	20130	48" SAFETY CHAIN	2
	49	32365	YELLOW LED CLEARANCE MARKER	2
	50	24002	BATTERY BOX	1
	51	24000	12V BATTERY	1
	52	45525	CONTROL BOX ASSEMBLY	1
	53	24076	HOUR METER	1
	54	41948	KEY AND TUMBLER	1
	55	44341	TIRE AND WHEEL ASSEMBLY	4
	56	43616	TORSIONAL AXLE ASSEMBLY	2
	57	32364	2 1/2" RED LED SIDE MARKER	2
	58	32363	4" RED LED STOP, TURN AND TAIL LIGHT	2
	59	43821	HEAT GUARD	1
	60	44027	JUNCTION BOX ASSEMBLY	1
	61	51734	18' ELECTRIC HEATED HOSE (NOT SHOWN)	1
	62	27170	3/8" ROUND SEALING TIP	OPT.
	63	27171	1/2" ROUND SEALING TIP	OPT.
	64	27173	3/4" SEALING SHOE	OPT.



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Table 8.1-4 Super Shot 125 DCRC: PN 44400 (Continued)

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
	65	27146	1/4" ELONGATED SEALING TIP	OPT.
	66	43672	MOUNT, STROBE LIGHT	OPT.
	67	24095	STROBE LIGHT	OPT.
	68	50720	WEATHER TIGHT BOOT (NOT SHOWN)	2
	69	27146	1/4" ELONGATED SEALING TIP	OPT.
	70	31512	30 AMP CIRCUIT BREAKER (NOT SHOWN)	1
	71	24190	OVERNIGHT HEATER ROD	OPT.
	72	43520	SPARE TIRE WITH MOUNT	OPT.
	73	51756	DUCKBILL TIP (NOT SHOWN)	1
	74	27162R	3" DISK WITH RESTRICTOR	OPT.
	75	27163R	4" DISK WITH RESTRICTOR	OPT.

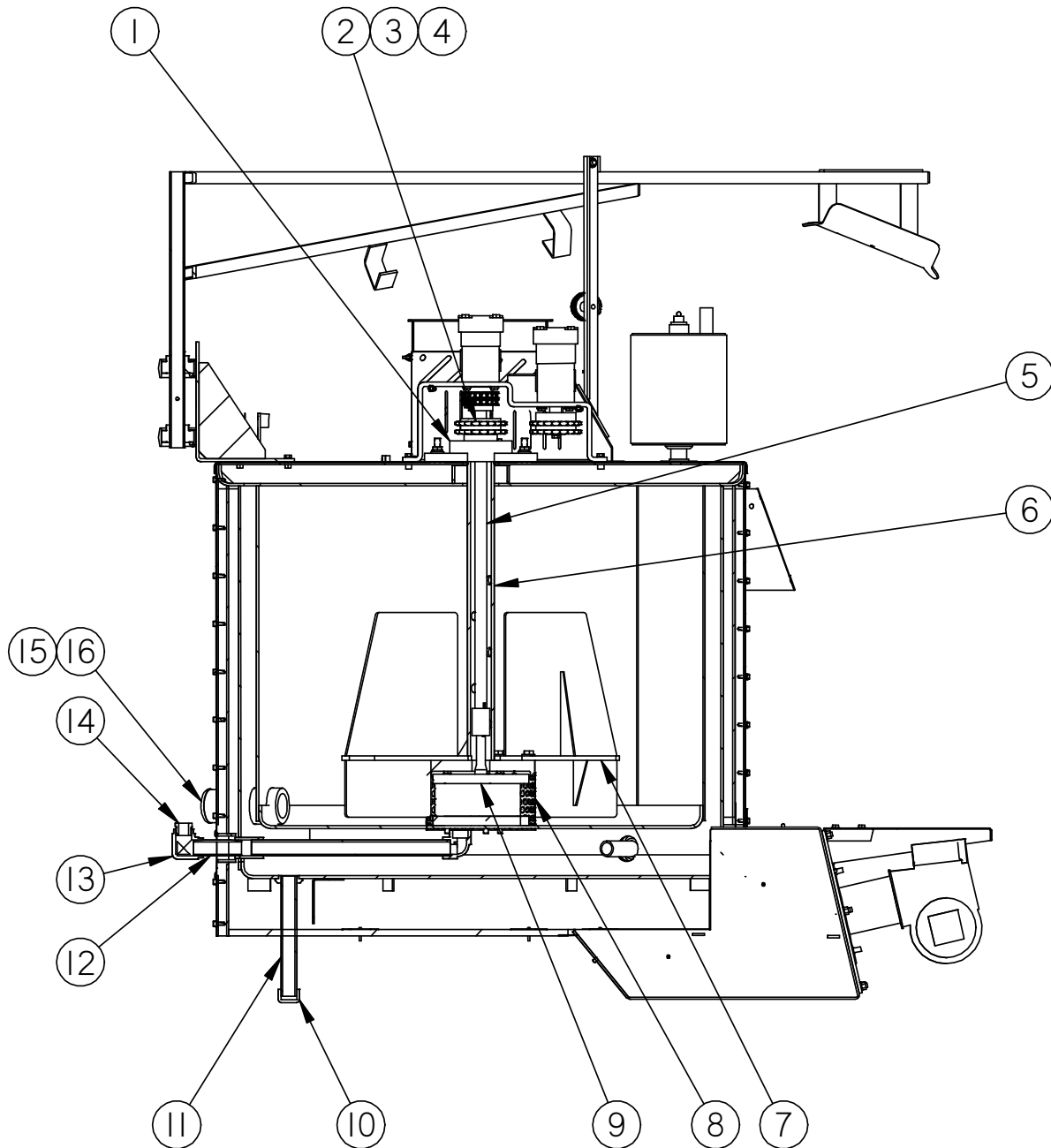


Figure 8.2 Tank Assembly: All Models



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Table 8.2 Tank Assembly: All Models

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
8.2	1	43760	BEARING, FLANGED	1
	2	43321	CHAIN DRIVE	1
	3	44163	KEY, SPROCKET	1
	4	44165	SPROCKET DRIVEN	1
	5	43641	SHAFT, DRIVE PUMP	1
	6	43753	SHAFT AGITATOR	1
	7	43649	PADDLE AGITATOR	2
	8	43655	SCREEN PUMP	1
	9	44850	PUMP, MATERIAL	1
	10	28270	1" PIPE CAP	1
	11	28132	1" X 10" LG. PIPE NIPPLE	1
	12	28039	1" X 4" LG. PIPE NIPPLE	1
	13	28210	1" PIPE ELBOW	1
	14	28351	1" X 3/4" REDUCER BUSHING	1
	15	28046	2" X 4" LG. PIPE NIPPLE	1
	16	28273	2" PIPE CAP	1

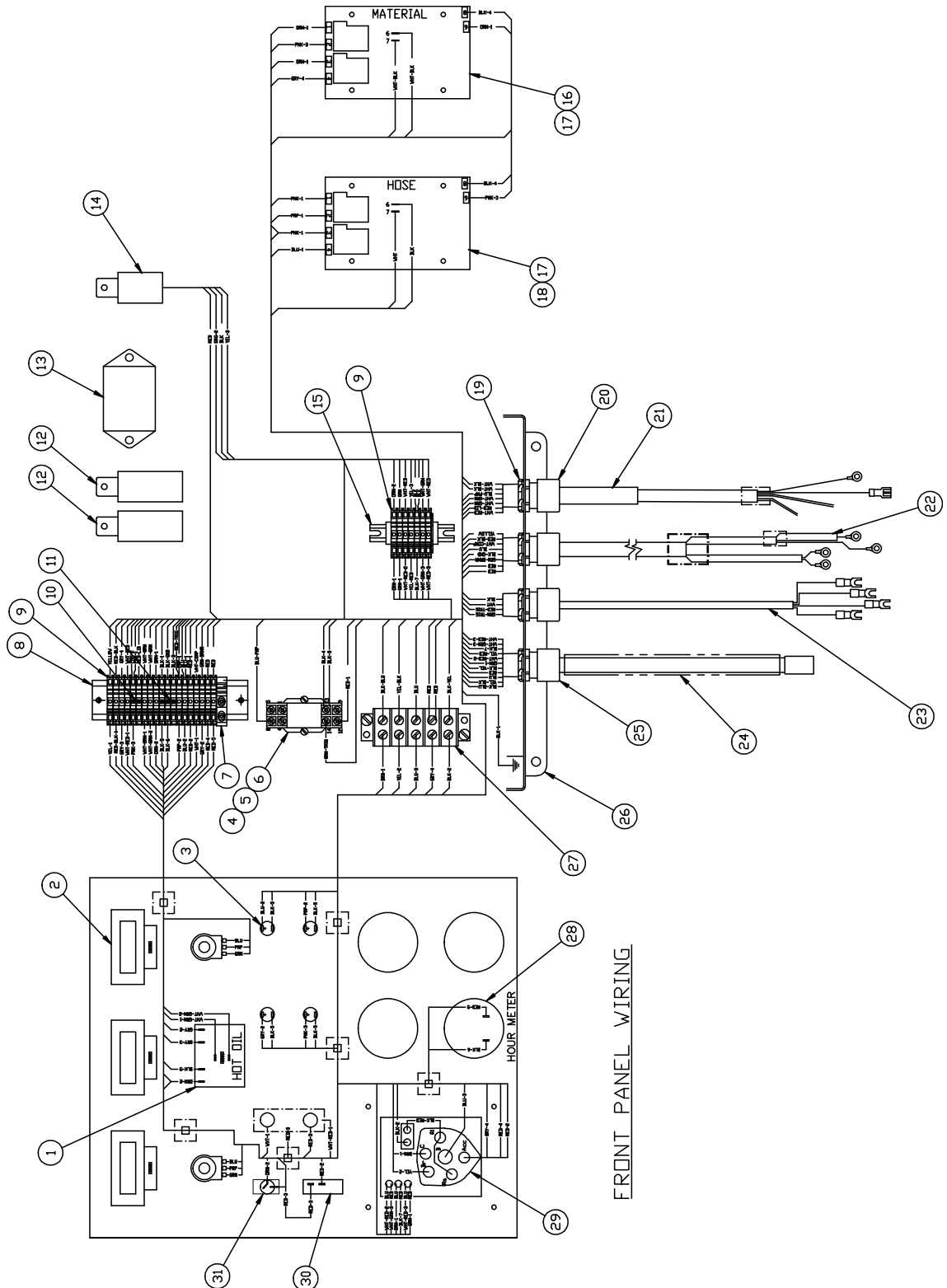


Figure 8.3-1 Control Box Assembly: All Models



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Table 8.3-1 Control Box Assembly: All Models

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
8.3-1	1	43391	TEMPERATURE CONTROLLER, 150°-550°	1
	2	50251	DIGITAL READOUT	3
	3	51651	LIGHT, 12VDC	4
	4	51662	SOCKET RELAY	1
	5	51661	RELAY	1
	6	51663	HOLD DOWN SPRING	1
	7	51802	END BRACKET	1
	8	51803	MOUNTING RAIL	2
	9	51800	FEED THROUGH TERMINAL	25
	10	51801	2-POLE JUMPER	1
	11	51804	3-POLE JUMPER	1
	12	44979	RELAY STARTER	2
	13	44980	TIMER	1
	14	51673	RELAY, NORMALLY CLOSED	
	15	44993	MOUNTING RAIL 2 3/4"	1
	16	51672	TEMPERATURE CONTROLLER, 400° / 275°	1
	17	51670	SPACER, PAK-STAT	8
	18	51691	TEMPERATURE CONTROLLER, 400° / 325°	1
	19	50280	1/2" CONDUIT NUT	4
	20	24021	CORD CONNECTOR 1/2"	3
	21	44983	CABLE ASSY. SENSOR	1
	22	44984	CABLE ASSY. POWER	1
	23	44985	CABLE ASSY. TRIGGER/SENSOR	1
	24	44978	WIRING HARNESS	1
	25	24024	1" CORD GRIP	1
	26	45595	ENCLOSURE (NOT SHOWN)	1
	27	44994	TERMINAL BLOCK (5 POLE)	1
	28	24076	HOUR METER	1
	29	41994	IGNITION SWITCH	1
	30	51665	CIRCUIT BREAKER, 15 AMP	1
	31	50719	TOGGLE SWITCH	1
	32	50593	KNOB (NOT SHOWN)	3
	33	51684	RIBBON CABLE, 36" (NOT SHOWN)	2
	34	51698	RIBBON CABLE, 5" (NOT SHOWN)	1

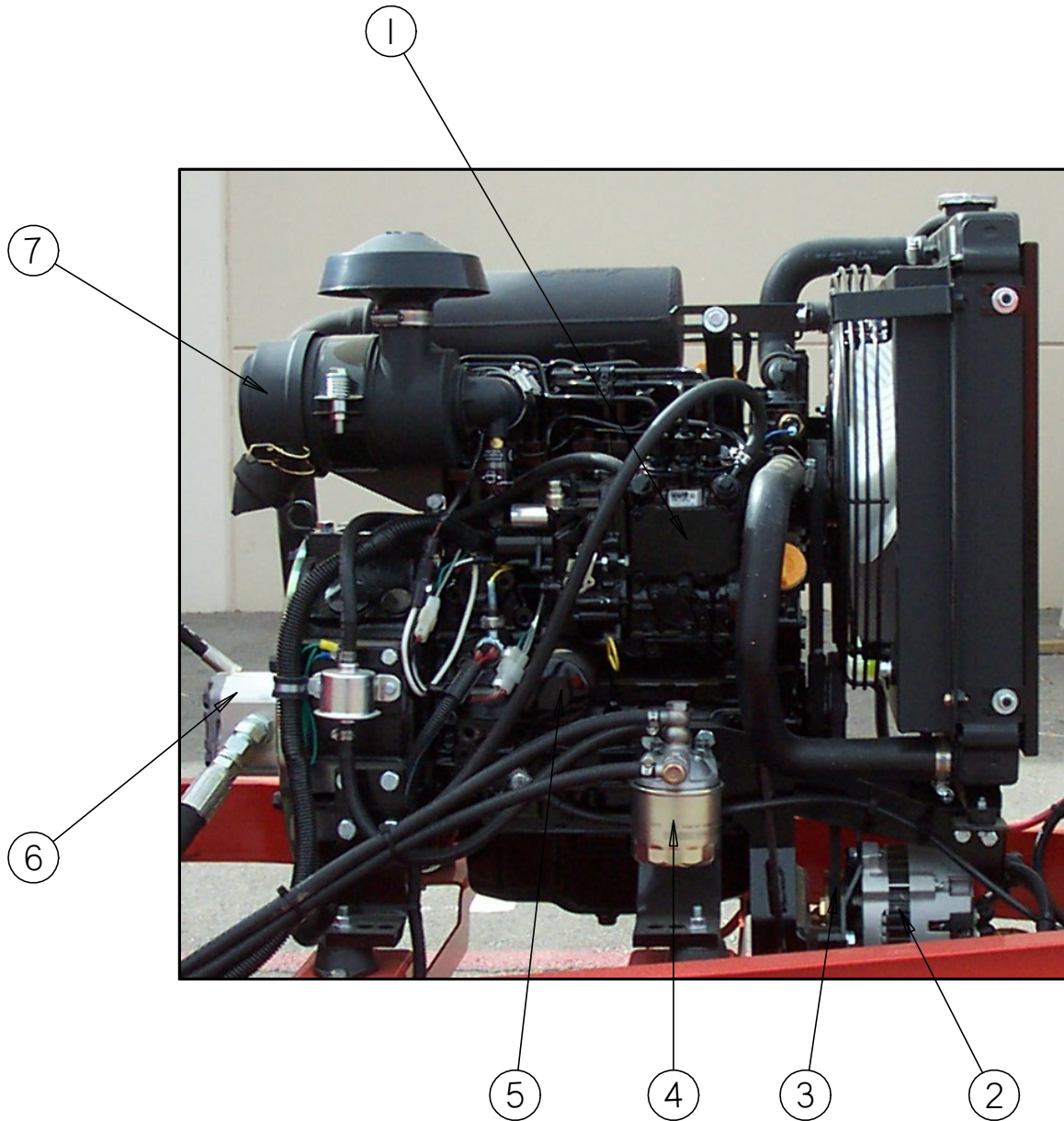


Figure 8.4-1 Engine Assembly: PN 43600



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Table 8.4-1 Engine Assembly: PN 43600

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
8.4-1	1	45745	ENGINE, 23 HP	1
	2	43612	GENERATOR, 24VAC	1
	3	45748	DRIVE BELT, GENERATOR	1
	4	41867	FUEL FILTER	1
	5	45389	OIL FILTER	1
	6	45402	HYDRAULIC PUMP	1
	7	45391	AIR FILTER ELEMENT	1

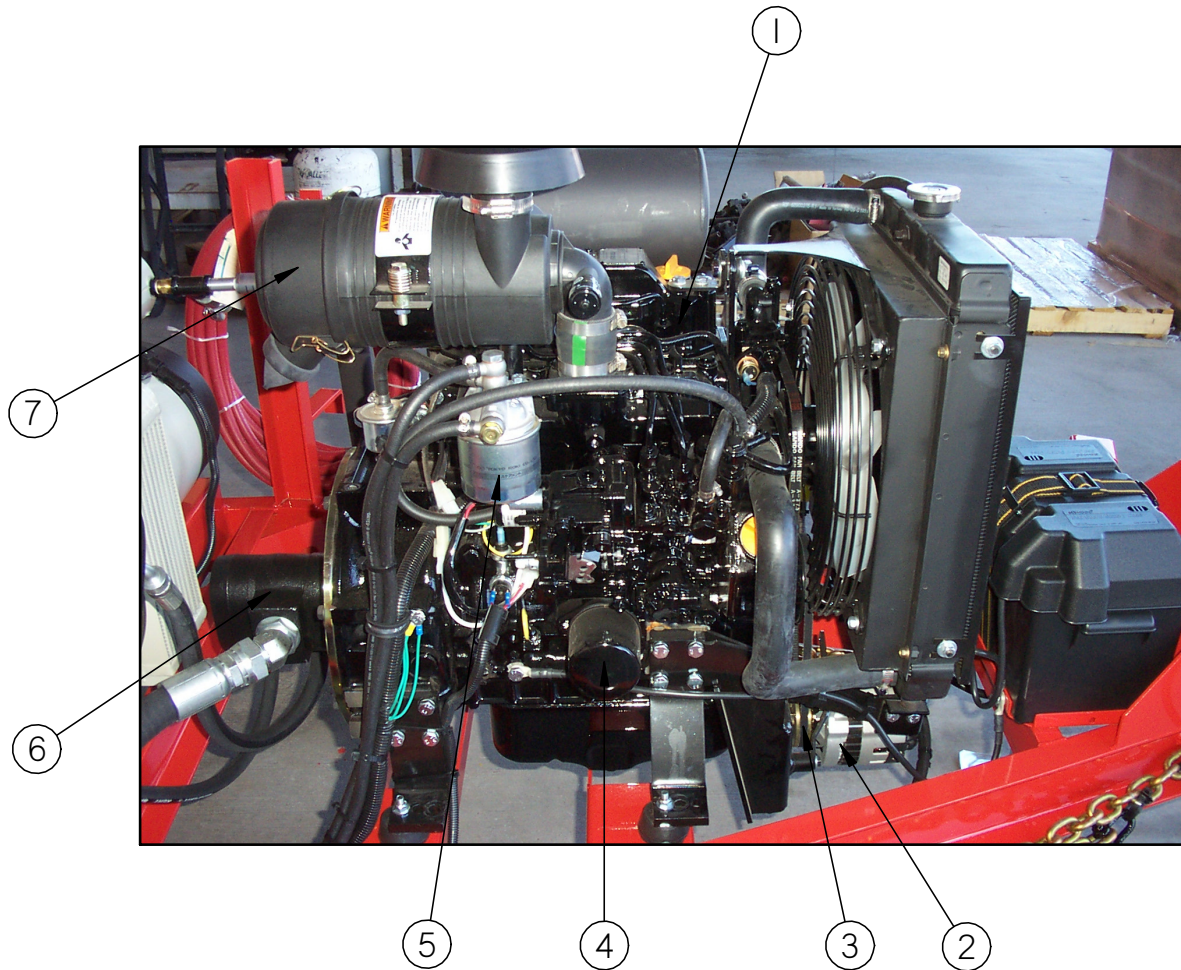


Figure 8.4-2 Engine Assembly: PN 43800, 44400



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Table 8.4-2 Engine Assembly: PN 43800, 44400

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
8.4-2	1	45380	ENGINE, 37 HP	1
	2	43612	GENERATOR, 24VAC	1
	3	45748	DRIVE BELT, GENERATOR	1
	4	41867	FUEL FILTER	1
	5	45381	OIL FILTER	1
	6	45401	HYDRAULIC PUMP	1
	7	45382	AIR FILTER ELEMENT	1

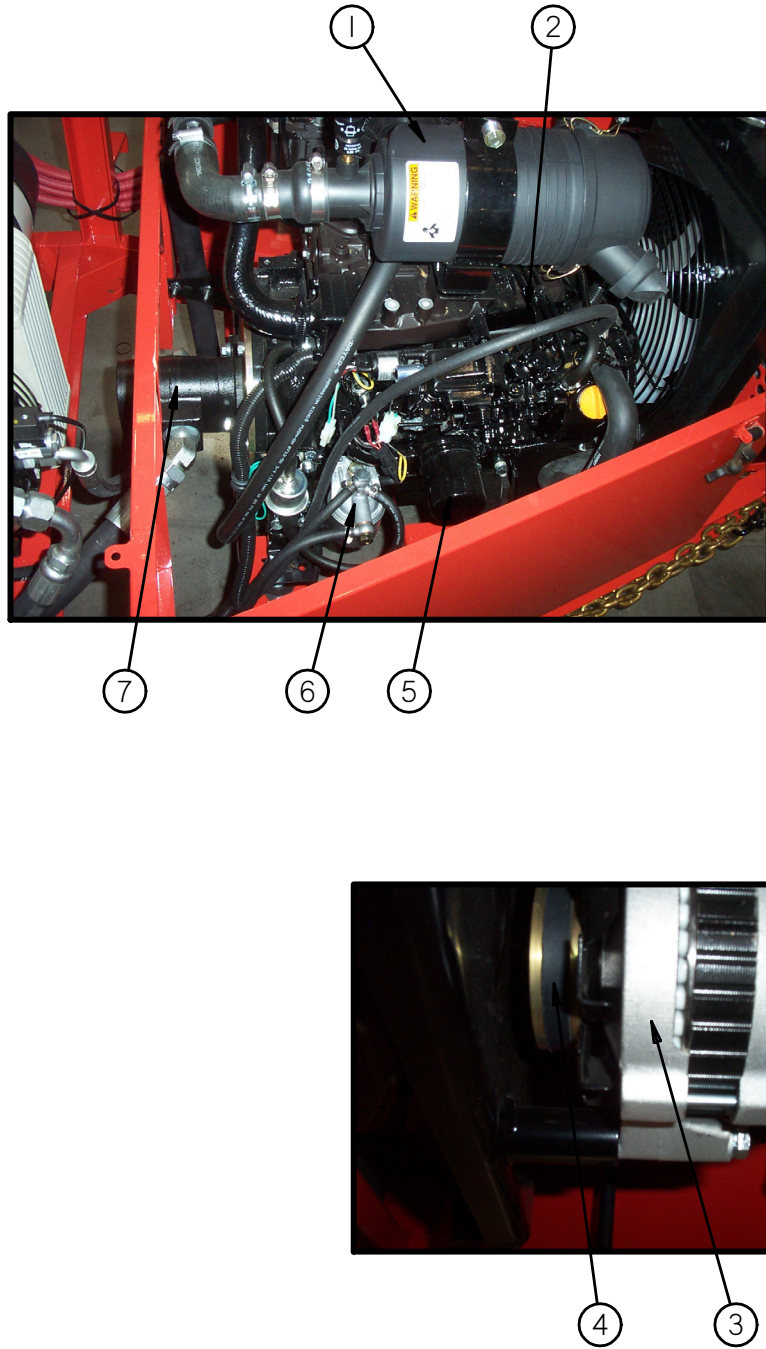


Figure 8.4-3 Engine Assembly: PN 45500



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Table 8.4-3 Engine Assembly: PN 45500

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
8.4-3	1	45348	AIR FILTER ELEMENT	1
	2	45332	ENGINE, 41.6 HP	1
	3	43612	GENERATOR, 24VAC	1
	4	45748	DRIVE BELT, GENERATOR	1
	5	43851	OIL FILTER	1
	6	41867	FUEL FILTER	1
	7	45403	HYDRAULIC PUMP	1

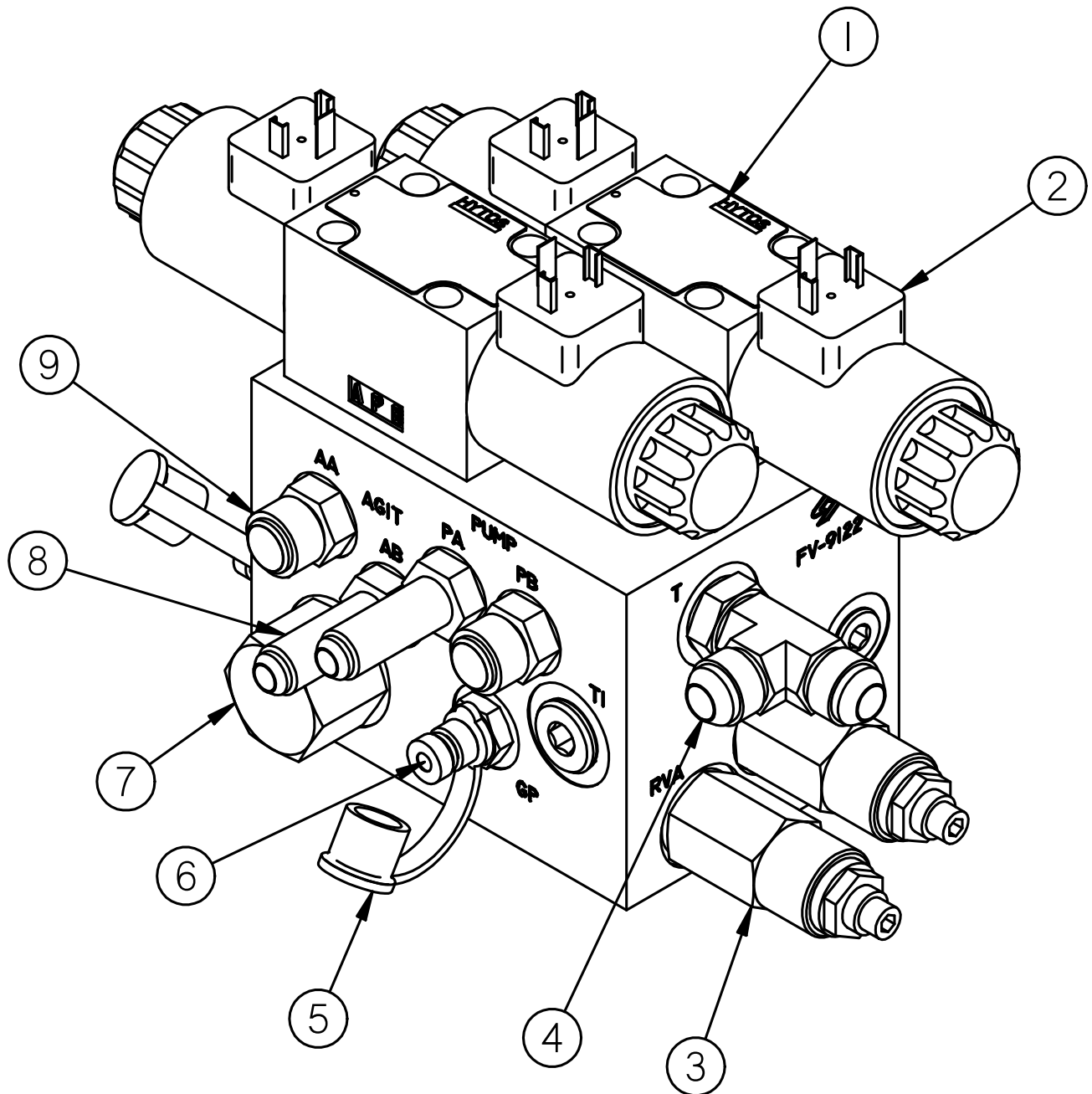


Figure 8.5 Hydraulic Control Valve: All Models



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Table 8.5 Hydraulic Control Valve: All Models

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
8.5	1	45418	VALVE, DIRECTIONAL	2
	2	45419	COIL, DIRECTIONAL VALVE	4
	3	45417	VALVE, RELIEF	2
	4	29897	FITTING, #8 ORB X #8 MALE JIC STR	1
	5	45413	CAP, DUST	2
	6	45414	FITTING, TEST POINT	2
	7	45416	FLOW CONTROL, PRIORITY	1
	8	40308	FITTING, #6 ORB X #6 MALE JIC STR.	2
	9	29919	FITTING, #6 ORB X #8 MALE JIC STR.	2

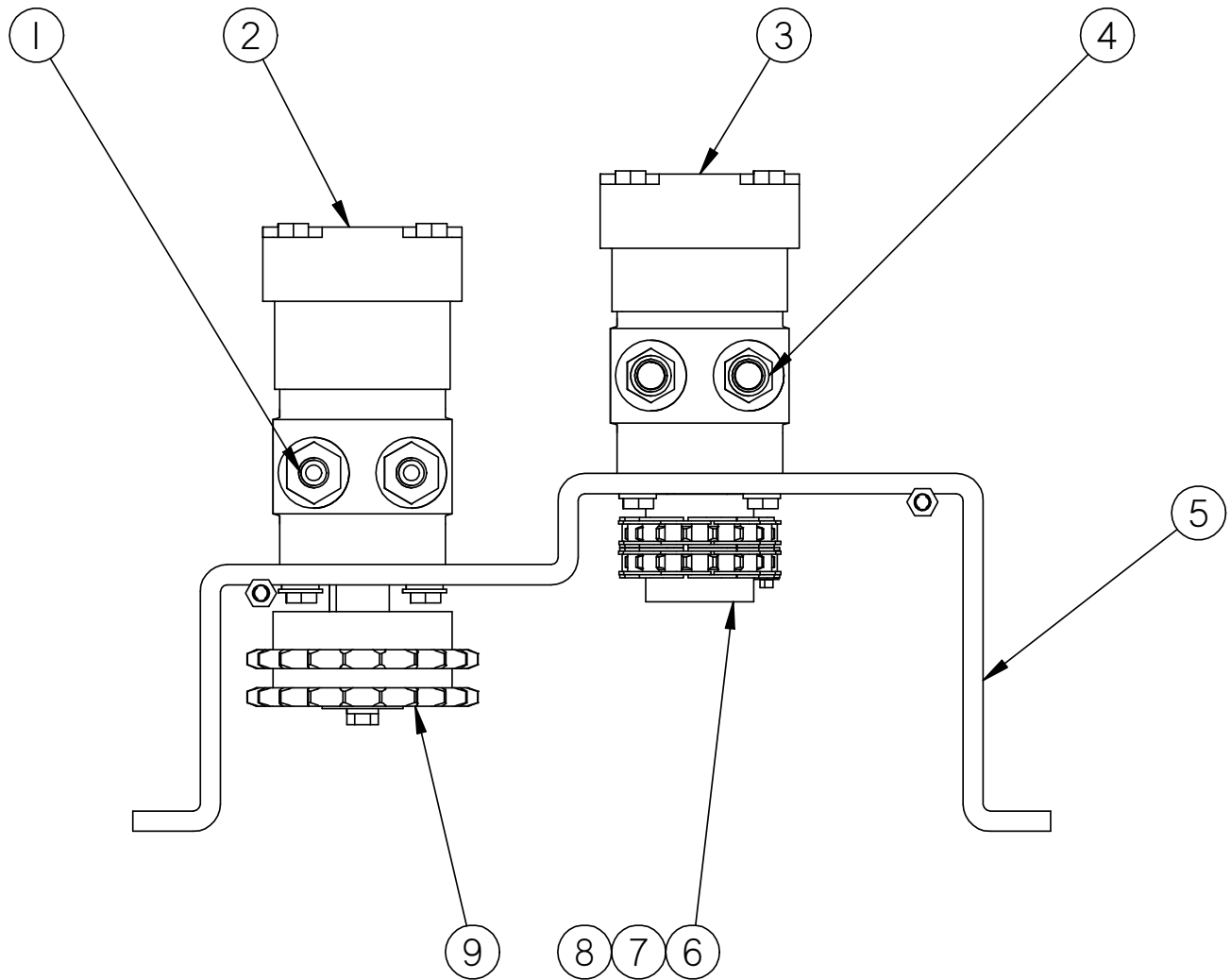


Figure 8.6 Pump / Agitator Motor Assembly: All Models



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Table 8.6 Pump / Agitator Motor Assembly: All Models

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
8.6	1	22029	3/8" TUBE X 5/8" O-RING ADAPTOR	2
	2	22027	HYDRAULIC MOTOR AGITATOR	1
	3	44809	HYDRAULIC MOTOR PUMP	1
	4	29913	1/2" TUBE X 5/8" O-RING ADAPTER	2
	5	43345	MOUNTING BRACKET MOTORS	1
	6	26002	SPROCKET CHAIN COUPLING	2
	7	26016	CHAIN COUPLING	1
	8	26030	CONNECTING LINK CHAIN	1
	9	43323	SPROCKET AGITATOR DRIVE	1

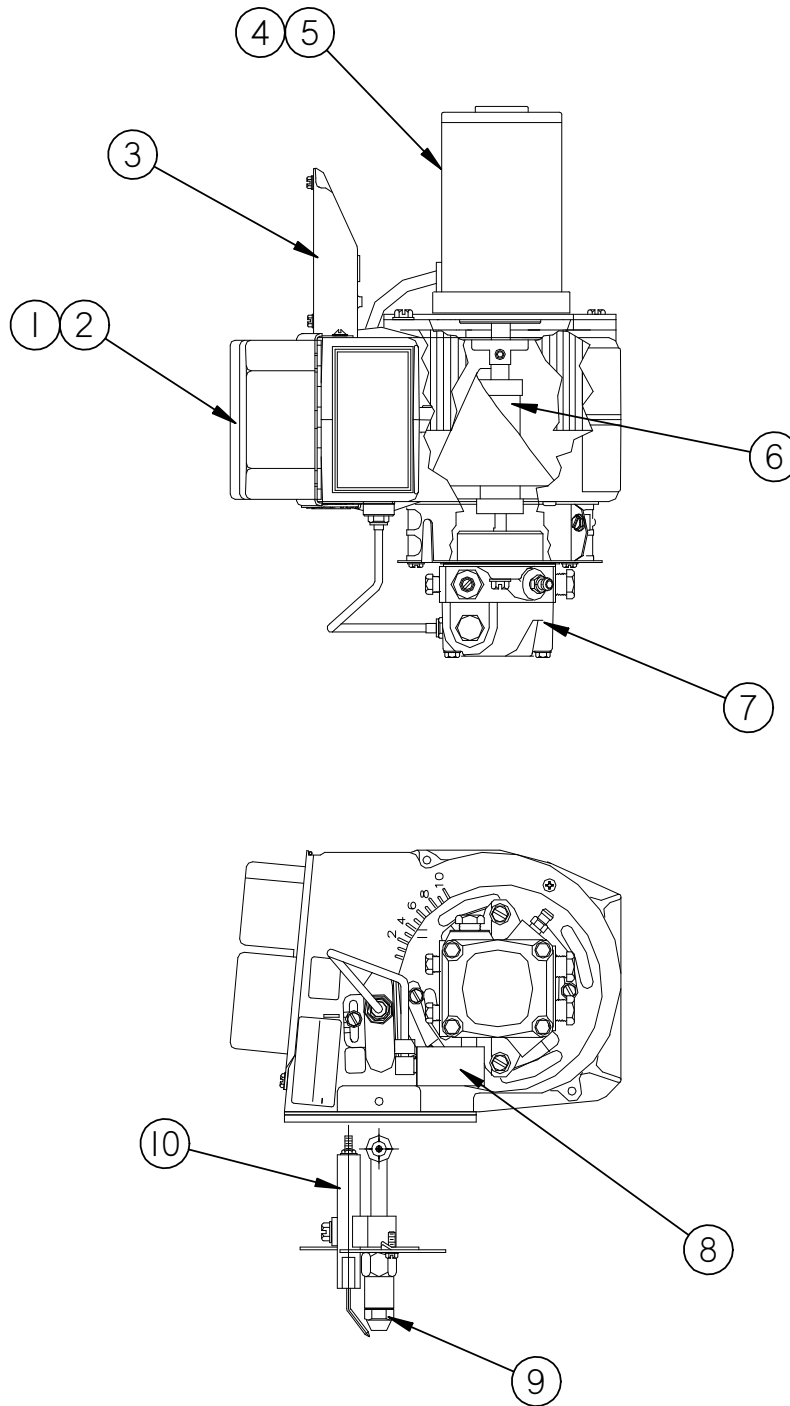


Figure 8.7 Diesel Burner: All Models



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Table 8.7 Diesel Burner: All Models

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
8.7	1	41949	IGNITION TRANSFORMER	1
	2	41870	CAD EYE (NOT SHOWN)	1
	3	42335	DC CONTROLLER	1
	4	41890	BLOWER MOTOR	1
	5	41934	BRUSH KIT FOR BLOWER (BEFORE 2002)	1
	6	41970	COUPLING FUEL PUMP	1
	7	41892	PUMP FUEL	1
	8	41888	SOLENOID FUEL	1
	9	41883	BURNER NOZZLE (ALL SS125 MODELS)	1
	10	41993	ELECTRODE	1

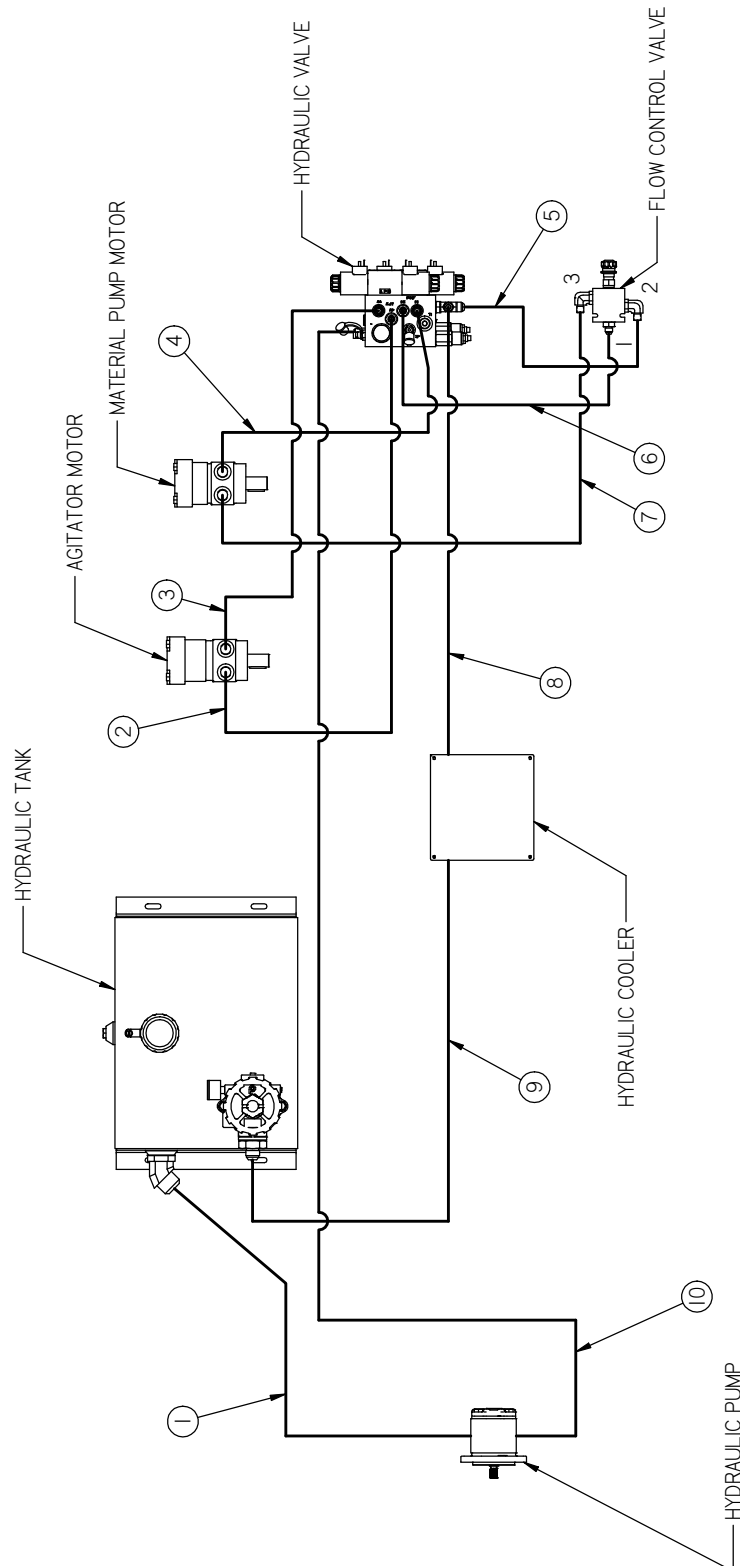


Figure 8.8-1 Hydraulic Diagram: PN 43600

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Table 8.8-1 Hydraulic Diagram: PN 43600

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
8.8-1	1	HYDRAULIC RESERVOIR TO HYDRAULIC PUMP SUCTION PORT		
		29898	1 1/4" O-RING X 1 1/4" TUBE 45° FITTING	REF
		12G4H 12G-16FJX 12G-12FJX 20	HYDRAULIC HOSE	1
		29802	3/4" O-RING X 3/4" TUBE 45° FITTING	REF
	2	AGITATOR MOTOR TO HYDRAULIC VALVE "AB" PORT		
		22029	5/8" O-RING X 3/8" TUBE FITTING	REF
		6M3K 6G-6FJX 6G-6FJX90L 36	HYDRAULIC HOSE	1
		40311	3/8" O-RING X 3/8" TUBE FITTING	REF
	3	HYDRAULIC VALVE "AA" PORT TO AGITATOR MOTOR		
		29919	3/8" O-RING X 1/2" TUBE FITTING	REF
		6M3K 6G-8FJX 6G-6FJX90S 34	HYDRAULIC HOSE	1
		22029	5/8" O-RING X 3/8" TUBE FITTING	REF
	4	HYDRAULIC VALVE "PB" PORT TO MATERIAL PUMP MOTOR		
		29919	3/8" O-RING X 1/2" TUBE FITTING	REF
		8M3K 8G-8FJX 8G-8FJX90S 28	HYDRAULIC HOSE	1
		29913	5/8" O-RING X 1/2" TUBE FITTING	REF
	5	FLOW CONTROL VALVE "2" TO HYDRAULIC VALVE "T" PORT		
		29896	1/2" O-RING X 1/2" TUBE ELBOW	REF
		8M3K 8G-8FJX 8G-8FJX90S 22	HYDRAULIC HOSE	1
		29932	1/2" O-RING X 1/2" RUN TEE	REF
	6	FLOW CONTROL VALVE "1" TO HYDRAULIC VALVE "PA" PORT		
		29998	1/2" O-RING X 1/2" TUBE FITTING	REF
		8M3K 8G-8FJX 8G-6FJX 16	HYDRAULIC HOSE	1
		40311	3/8" O-RING X 3/8" TUBE FITTING	REF
7	FLOW CONTROL VALVE "3" TO MATERIAL PUMP MOTOR			
	29896	1/2" O-RING X 1/2" TUBE ELBOW	REF	
	8M3K 8G-8FJX 8G-8FJX90L 30	HYDRAULIC HOSE	1	
	29913	5/8" O-RING X 1/2" TUBE FITTING	REF	



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Table 8.8-1 Hydraulic Diagram: PN 43600 (Continued)

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
	8	HYDRAULIC VALVE "T" PORT TO HYDRAULIC COOLER		
		29932	1/2" O-RING X 1/2" RUN TEE	REF
		8M3K 8G-8FJX 8G-12FJX 60	HYDRAULIC HOSE	1
		29916	3/4" O-RING X 3/4" TUBE ELBOW	REF
	9	HYDRAULIC COOLER TO HYDRAULIC FILTER RETURN		
		29916	3/4" O-RING X 3/4" TUBE ELBOW	REF
		12M3K 12G-12FJX 12G-12FJX90S 38	HYDRAULIC HOSE	1
		29929	1" O-RING X 3/4" TUBE FITTING	REF
	10	HYDRAULIC PUMP PRESSURE PORT TO HYDRAULIC VALVE "P" PORT		
		29862	5/8" O-RING X 5/8" TUBE ELBOW	REF
		8M3K 8G-10FJX 8G-8FJX90L 110	HYDRAULIC HOSE	1
		29897	1/2" O-RING X 1/2" TUBE FITTING	REF

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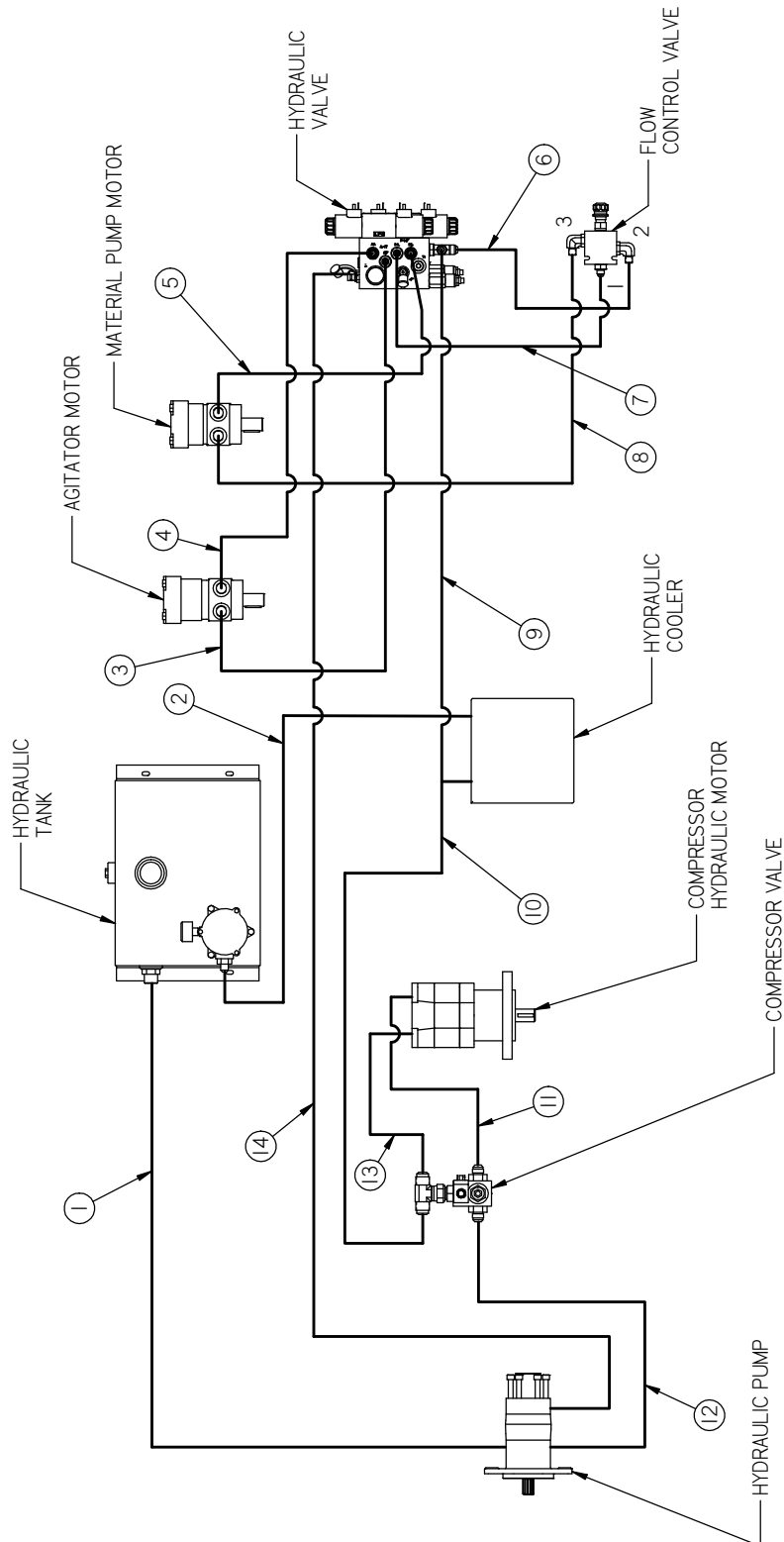


Figure 8.8-2 Hydraulic Diagram: PN 43800, 45500



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Table 8.8-2 Hydraulic Diagram: PN 43800, 45500

FIG.	ITEM	PART NO.	DESCRIPTION	QTY	
8.8-2	1	HYDRAULIC RESERVOIR TO HYDRAULIC PUMP SUCTION PORT			
		29885	1 1/4" O-RING X 1 1/4" TUBE FITTING	REF	
		20GMVPLUS 20G-20FJX 20G-20FJX 30	HYDRAULIC HOSE	1	
			29888	1 1/4" O-RING X 1 1/4" TUBE 45° FITTING	REF
	2	HYDRAULIC COOLER CURBSIDE TO HYDRAULIC RETURN FILTER			
		29824	1" O-RING X 1" TUBE ELBOW	REF	
		16M3K 16G-16FJX90S 16G-16FJX 32	HYDRAULIC HOSE	1	
			29818	1 1/4" O-RING X 1" TUBE FITTING	REF
	3	AGITATOR MOTOR TO HYDRAULIC VALVE "AB" PORT			
		22029	5/8" O-RING X 3/8" TUBE FITTING	REF	
		6M3K 6G-6FJX 6G-6FJX90L 36	HYDRAULIC HOSE	1	
			40311	3/8" O-RING X 3/8" TUBE FITTING	REF
	4	HYDRAULIC VALVE "AA" PORT TO AGITATOR MOTOR			
		29919	3/8" O-RING X 1/2" TUBE FITTING	REF	
		6M3K 6G-8FJX 6G-6FJX90S 34	HYDRAULIC HOSE	1	
			22029	5/8" O-RING X 3/8" TUBE FITTING	REF
	5	HYDRAULIC VALVE "PB" PORT TO MATERIAL PUMP MOTOR			
		29919	3/8" O-RING X 1/2" TUBE FITTING	REF	
		8M3K 8G-8FJX 8G-8FJX90S 28	HYDRAULIC HOSE	1	
			29913	5/8" O-RING X 1/2" TUBE FITTING	REF
	6	FLOW CONTROL VALVE "2" TO HYDRAULIC VALVE "T" PORT			
		29896	1/2" O-RING X 1/2" TUBE ELBOW	REF	
		8M3K 8G-8FJX 8G-8FJX90S 22	HYDRAULIC HOSE	1	
			29932	1/2" O-RING X 1/2" RUN TEE	REF
7	FLOW CONTROL VALVE "1" TO HYDRAULIC VALVE "PA" PORT				
	29897	1/2" O-RING X 1/2" TUBE FITTING	REF		
	8M3K 8G-8FJX 8G-6FJX 16	HYDRAULIC HOSE	1		
		40311	3/8" O-RING X 3/8" TUBE FITTING	REF	

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Table 8.8-2 Hydraulic Diagram: PN 43800, 45500 (Continued)

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
	8	FLOW CONTROL VALVE "3" TO MATERIAL PUMP MOTOR		
		29896	1/2" O-RING X 1/2" TUBE FITTING	REF
		8M3K 8G-8FJX 8G-8FJX90L 30	HYDRAULIC HOSE	1
		29913	5/8" O-RING X 1/2" TUBE FITTING	REF
	9	HYDRAULIC VALVE "T" PORT TO HYDRAULIC COOLER ROADSIDE		
		29896	1/2" O-RING X 1/2" TUBE FITTING	REF
		8M3K 8G-8FJX 8G-12FJX 63	HYDRAULIC HOSE	1
		27692	1" FEMALE TUBE X 3/4 MALE TUBE	1
		29977	1" O-RING BRANCH TEE	REF
	10	COMPRESSOR VALVE "2" PORT TO HYDRAULIC COOLER ROADSIDE		
		29900	3/4" O-RING RUN TEE	REF
		27693	3/4" TUBE TO 1" TUBE ADAPTOR	REF
		16M3K 16G-16FJX90S 16G-16FJX 66	HYDRAULIC HOSE	1
		29977	1" O-RING BRANCH TEE	REF
	11	COMPRESSOR VALVE "1" PORT TO COMPRESSOR MOTOR		
		29821	3/4" O-RING X 5/8" TUBE FITTING	REF
		10M3K 10G-12FJX 10G-10FJX90S 23	HYDRAULIC HOSE	1
		29819	3/4" O-RING X 3/4" TUBE FITTING	REF
	12	HYDRAULIC PUMP PRESSURE FRONT PORT TO COMPRESSOR VALVE "1" PORT		
		29916	3/4" O-RING X 3/4" TUBE ELBOW	REF
		10M3K 10G-12FJX 10G-10FJX90S 28	HYDRAULIC HOSE	1
		29821	3/4" O-RING X 5/8" TUBE FITTING	REF
	13	COMPRESSOR MOTOR TO COMPRESSOR VALVE "2" PORT		
		29819	3/4" O-RING X 3/4" TUBE FITTING	REF
		12M3K 12G-12FJX 12G-12FJX 23	HYDRAULIC HOSE	1
		29900	3/4" O-RING X 3/4" RUN TEE	REF
	14	HYDRAULIC PRESSURE REAR PORT TO HYDRAULIC VALVE "P" PORT		
		29842	3/4" O-RING X 5/8" TUBE FITTING	REF
		8M3K 8G-8FJX90L 8G-10FJX 144	HYDRAULIC HOSE	1
		29897	1/2" O-RING X 1/2" TUBE FITTING	REF

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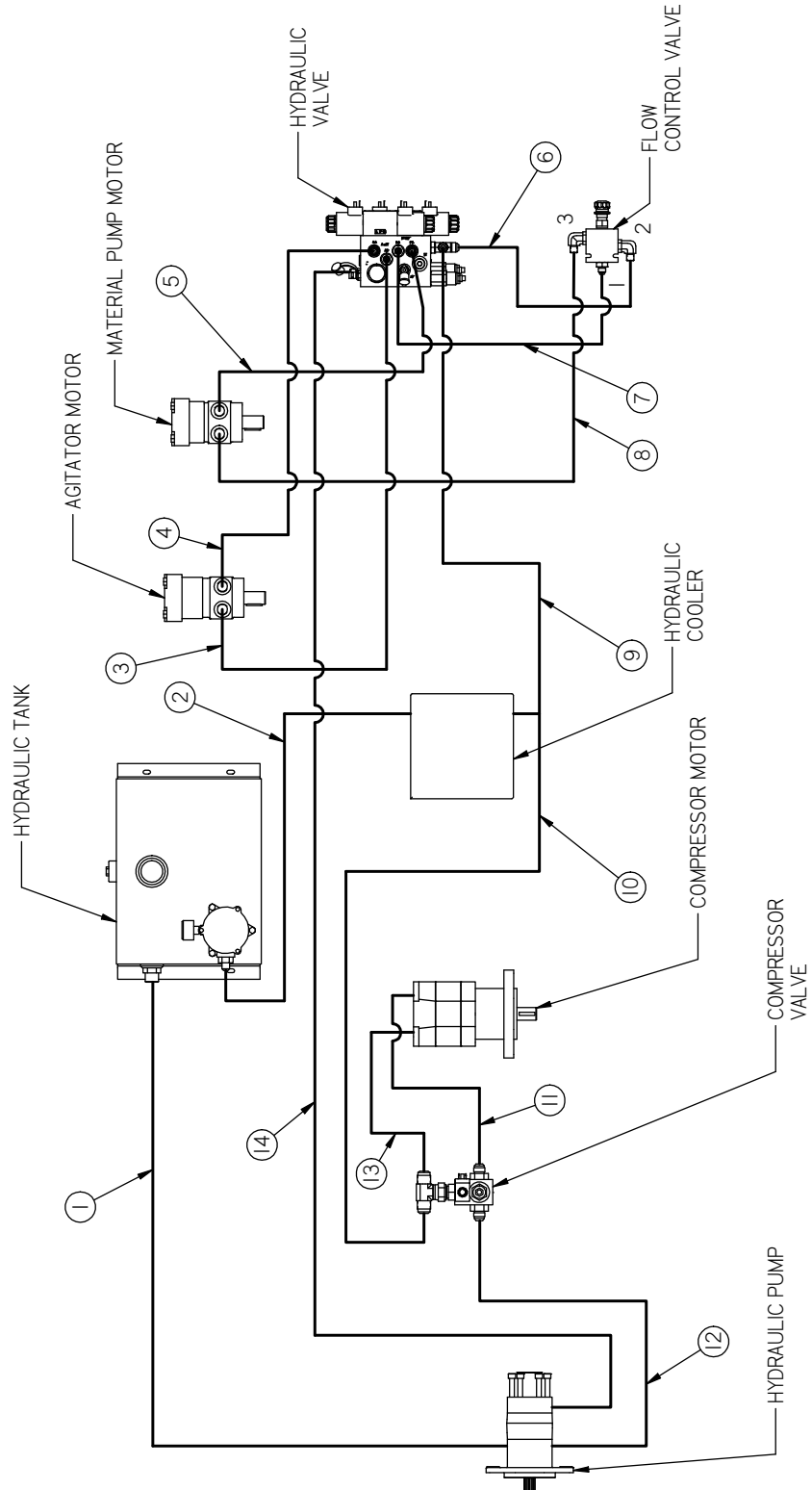


Figure 8.8-3 Hydraulic Diagram: PN 44400

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Table 8.8-3 Hydraulic Diagram: PN 44400

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
8.8-3	1	HYDRAULIC RESERVOIR TO HYDRAULIC PUMP SUCTION PORT		
		29888	1 1/4" O-RING X 1 1/4" TUBE 45° FITTING	REF
		20 GMVPLUS 20G-20FJX 20G-20FJX90S 55	HYDRAULIC HOSE	1
		29885	1 1/4" O-RING X 1 1/4" TUBE FITTING	REF
	2	HYDRAULIC COOLER CURBSIDE TO HYDRAULIC RETURN FILTER		
		29916	3/4" O-RING X 3/4" TUBE ELBOW	REF
		12M3K 12G-12FJX 12G-12FJX90S 36	HYDRAULIC HOSE	1
		29991	1 1/4" O-RING X 3/4" TUBE FITTING	REF
	3	AGITATOR MOTOR TO HYDRAULIC VALVE "AB" PORT		
		22029	5/8" O-RING X 3/8" TUBE FITTING	REF
		6M3K 6G-6FJX 6G-6FJX90L 36	HYDRAULIC HOSE	1
		40311	3/8" O-RING X 3/8" TUBE FITTING	REF
	4	HYDRAULIC VALVE "AA" PORT TO AGITATOR MOTOR		
		29919	3/8" O-RING X 1/2" TUBE FITTING	REF
		6M3K 6G-8FJX 6G-6FJX90S 28	HYDRAULIC HOSE	1
	22029	5/8" O-RING X 3/8" TUBE FITTING	REF	
5	HYDRAULIC VALVE "PB" PORT TO MATERIAL PUMP MOTOR			
	29919	3/8" O-RING X 1/2" TUBE FITTING	REF	
	6M3K 6G-8FJX 6G-6FJX90S 28	HYDRAULIC HOSE	1	
	29913	5/8" O-RING X 1/2" TUBE FITTING	REF	
6	FLOW CONTROL VALVE "2" TO HYDRAULIC VALVE "T" PORT			
	29896	1/2" O-RING X 1/2" TUBE ELBOW	REF	
	8M3K 8G-8FJX 8G-8FJX90S 22	HYDRAULIC HOSE	1	
	29932	1/2" O-RING x 1/2" RUN TEE	REF	
7	FLOW CONTROL VALVE "1" TO HYDRAULIC VALVE "PA" PORT			
	29897	1/2" O-RING X 1/2" TUBE FITTING	REF	
	8M3K 8G-8FJX 8G-6FJX 16	HYDRAULIC HOSE	1	
	40311	3/8" O-RING X 3/8" TUBE FITTING	REF	

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Table 8.8-3 Hydraulic Diagram: PN 44400 (Continued)

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
	8	FLOW CONTROL VALVE "3" TO MATERIAL PUMP MOTOR		
		29896	1/2" O-RING X 1/2" TUBE FITTING	REF
		8M3K 8G-8FJX 8G-8FJX90L 30	HYDRAULIC HOSE	1
		29913	5/8" O-RING X 1/2" TUBE	REF
	9	HYDRAULIC VALVE "T" PORT TO HYDRAULIC COOLER ROADSIDE		
		29896	1/2" O-RING X 1/2" TUBE FITTING	REF
		8M3K 8G-8FJX 8G-12FJX 61	HYDRAULIC HOSE	1
		27692	1" FEMALE TUBE X 3/4 MALE TUBE	1
		29977	1" O-RING BRANCH TEE	REF
	10	COMPRESSOR VALVE "2" PORT TO HYDRAULIC COOLER ROADSIDE		
		29900	3/4" O-RING RUN TEE	REF
		27693	3/4" TUBE TO 1" TUBE ADAPTOR	REF
		16M3K 16G-16FJX90S 16G-16FJX 66	HYDRAULIC HOSE	1
		29977	1" O-RING X 1" RUN TEE	REF
	11	COMPRESSOR VALVE "1" PORT TO COMPRESSOR MOTOR		
		29821	3/4" O-RING X 5/8" TUBE FITTING	REF
		10M3K 10G-12FJX 10G-10FJX90S 23	HYDRAULIC HOSE	1
		29819	3/4" O-RING X 3/4" TUBE FITTING	REF
	12	HYDRAULIC PUMP PRESSURE FRONT PORT TO COMPRESSOR VALVE "1" PORT		
		29916	3/4" O-RING X 3/4" TUBE ELBOW	REF
		10M3K 10G-12FJX 10G-10FJX90S 30	HYDRAULIC HOSE	1
		29821	3/4" O-RING X 5/8" TUBE FITTING	REF
	13	COMPRESSOR MOTOR TO COMPRESSOR VALVE "2" PORT		
		29819	3/4" O-RING X 3/4" TUBE FITTING	REF
		12M3K 12G-12FJX 12G-12FJX 23	HYDRAULIC HOSE	1
		29900	3/4" O-RING X 3/4" RUN TEE	REF
	14	HYDRAULIC PRESSURE REAR PORT TO HYDRAULIC VALVE "P" PORT		
		29842	3/4" O-RING X 5/8" TUBE FITTING	REF
		8M3K 8G-8FJX90L 8G-10FJX 148	HYDRAULIC HOSE	1
		29897	1/2" O-RING X 1/2" TUBE FITTING	REF

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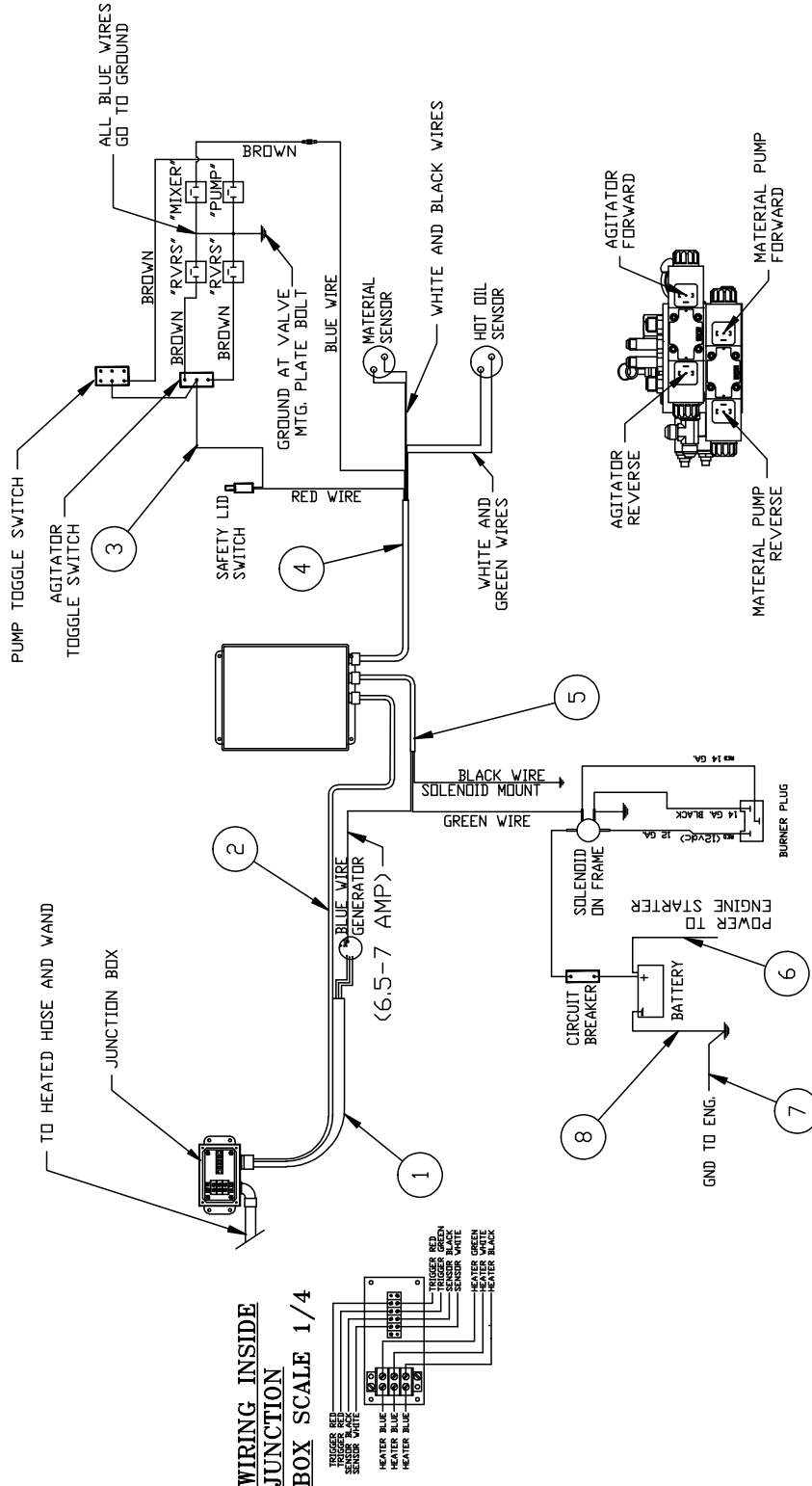


Figure 8.9-1 Electrical Cables: PN 43600


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Table 8.9-1 Electrical Cables: PN 43600

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
8.9-1	1	43901	HOSE CABLE ASSEMBLY	1
	2	44985	TRIGGER/SENSOR CABLE ASSEMBLY	1
	3	43921	CABLE ASSEMBLY HYDRAULIC VALVE	1
	4	44983	SENSOR CABLE ASSEMBLY	1
	5	44984	POWER CABLE ASSEMBLY	1
	6	24015	BATTERY CABLE, 38" POSITIVE TO ENGINE	1
	7	27174	BATTERY CABLE, 30" ENGINE GROUND	1
	8	24010	BATTERY CABLE, 12" GROUND	1

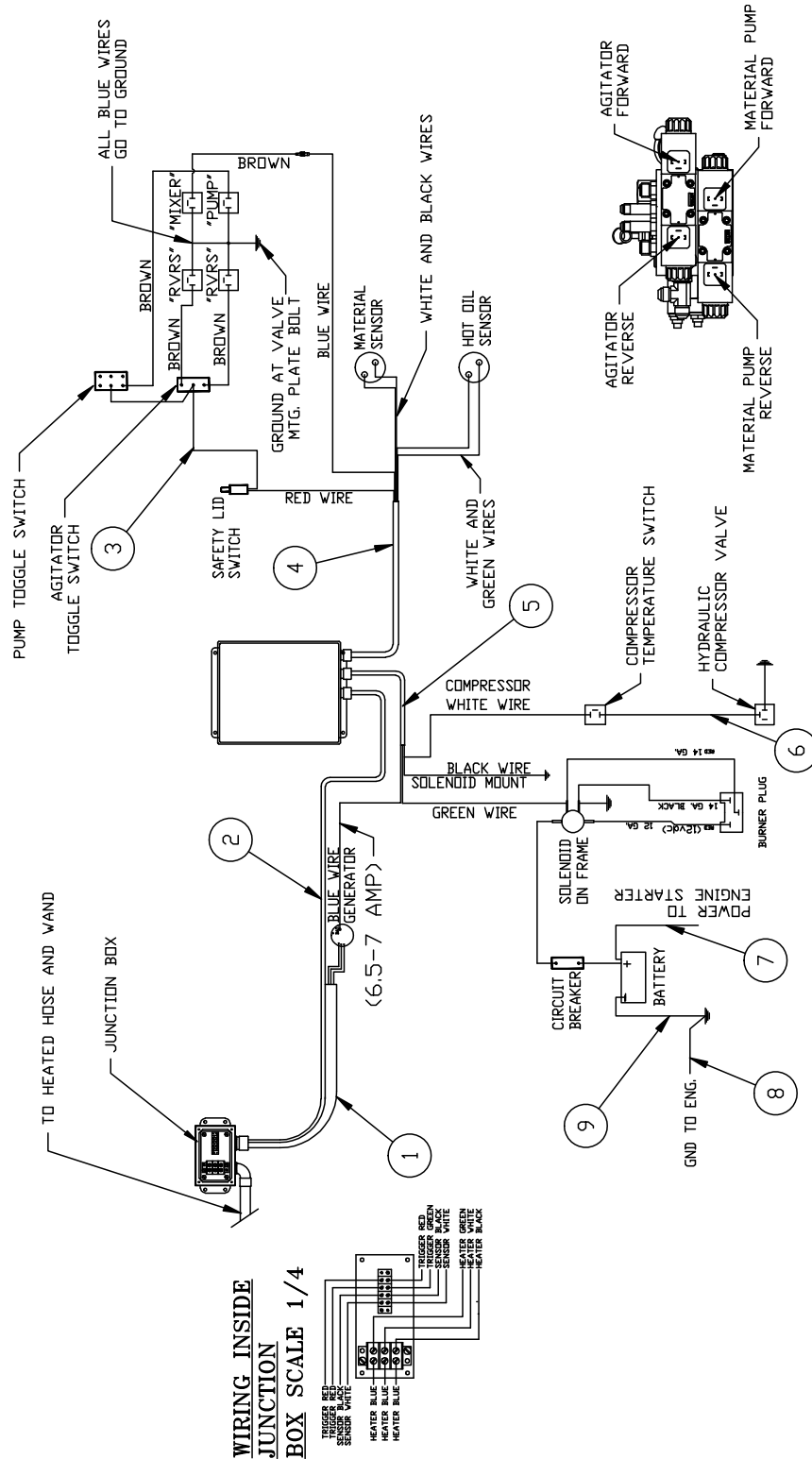


Figure 8.9-2 Electrical Cables: PN 43800, 45500



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Table 8.9-2 Electrical Cables: PN 43800, 45500

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
8.9-2	1	43902	HOSE CABLE ASSEMBLY	1
	2	44985	TRIGGER/SENSOR CABLE ASSEMBLY	1
	3	43921	CABLE ASSEMBLY HYDRAULIC VALVE	1
	4	44983	SENSOR CABLE ASSEMBLY	1
	5	44984	POWER CABLE ASSEMBLY	1
	6	43886	COMPRESSOR CABLE ASSEMBLY	1
	7	24015	BATTERY CABLE, 38" POSITIVE TO ENGINE	1
	8	27174	BATTERY CABLE, 30" ENGINE GROUND	1
	9	32602	BATTERY CABLE, 20" GROUND	1



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Table 8.9-3 Electrical Cables: PN 44400

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
8.9-3	1	43908	HOSE CABLE ASSEMBLY	1
	2	44985	TRIGGER/SENSOR CABLE ASSEMBLY	1
	3	43921	CABLE ASSEMBLY HYDRAULIC VALVE	1
	4	44983	SENSOR CABLE ASSEMBLY	1
	5	44984	POWER CABLE ASSEMBLY	1
	6	43886	COMPRESSOR CABLE ASSEMBLY	1
	7	24015	BATTERY CABLE, 38" POSITIVE TO ENGINE	1
	8	27174	BATTERY CABLE, 30" ENGINE GROUND	1
	9	32602	BATTERY CABLE, 20" GROUND	1

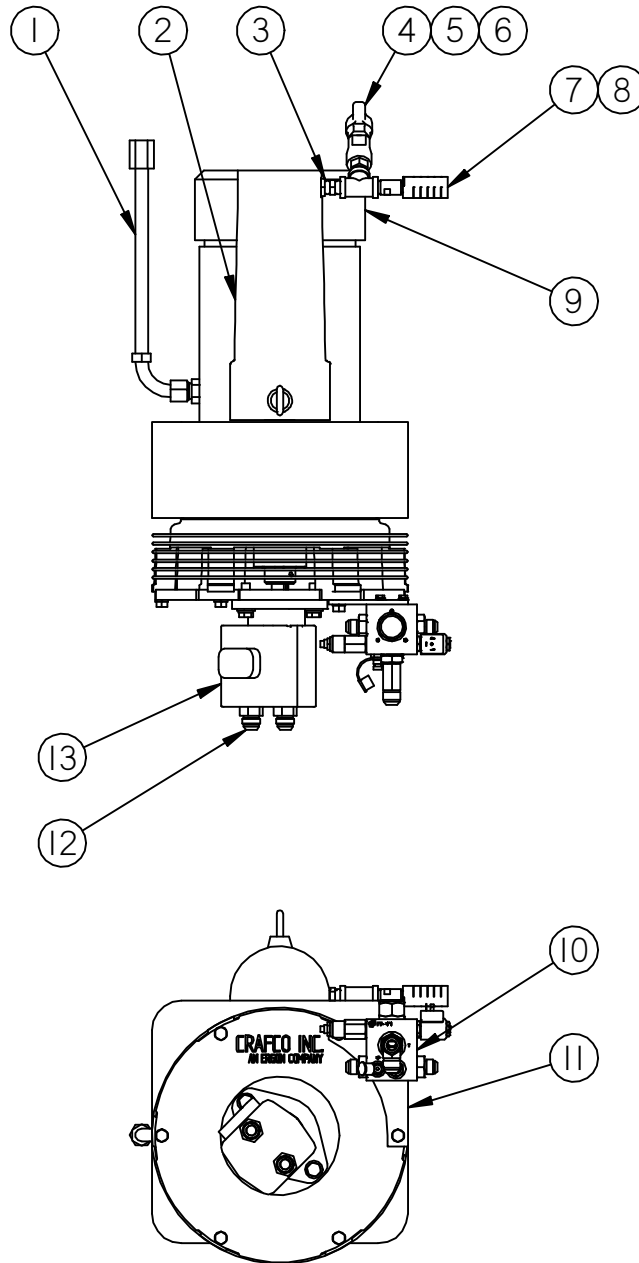


Figure 8.10-1 Air Compressor Assembly: PN 43800, 44400, 45500



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Table 8.10-1 Air Compressor Assembly: PN 43800, 44400, 45500

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
8.10-1	1	45324	ELBOW, SIGHT GAUGE	1
	2	45320	COMPRESSOR, ROTARY AIR	1
	3	51405	NIPPLE, 1/2" NPT HEX	1
	4	28253	TEE, 1/2" NPT	1
	5	42702	SWIVEL, 1/2" NPT	1
	6	42643	1/2" NPT AIR HOSE FITTING	1
	7	50267	MUFFLER	1
	8	45564	AIR MUFFLER NIPPLE W/ RESTRICTOR	1
	9	45323	FILTER ELEMENT (NOT SHOWN)	1
	10	45425	VALVE, HYDRAULIC COMPRESSOR	1
	11	45327	HYDRAULIC VALVE MOUNT	1
	12	29819	ADAPTER, 3/4" STR. THRD. O-RING	2
	13	43874	HYDRAULIC MOTOR	1

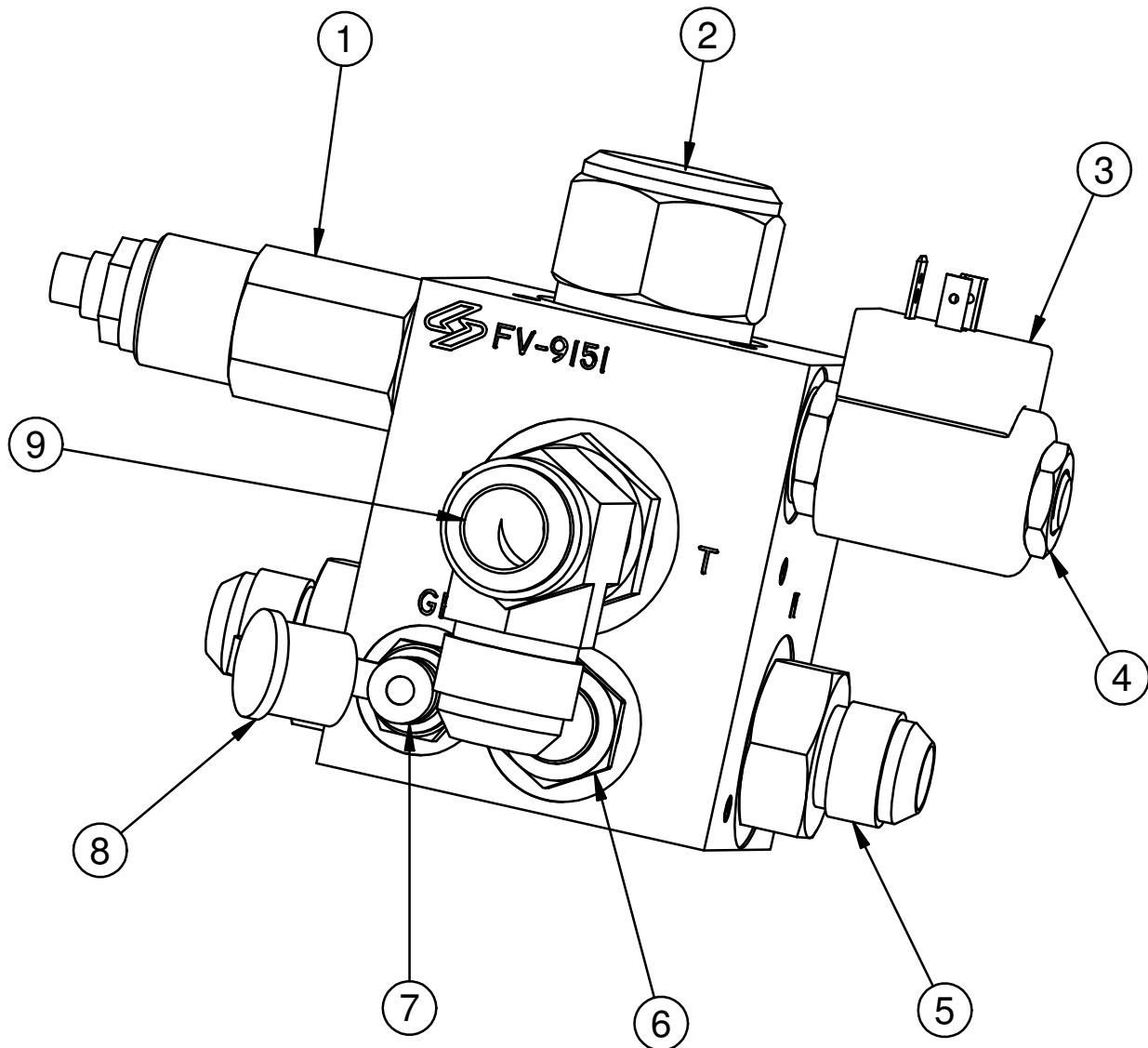


Figure 8.11 Compressor Valve Assembly: PN 43800, 44400, 45500



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Table 8.11 Compressor Valve Assembly: PN 43800, 44400, 45500

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
8.11	1	45417	VALVE, RELIEF	1
	2	45429	VALVE, LOGIC RELIEF	1
	3	45426	COIL, SOLENOID VALVE	1
	4	45424	VALVE, SOLENOID	1
	5	29821	FITTING, #12 ORB X #10 MALE JIC STR.	2
	6	45436	FLOW CONTROL, PRESSURE COMP.	1
	7	45414	FITTING, TEST POINT	1
	8	45413	CAP, DUST	1
	9	29932	FITTING, #12 ORB X #12 JIC RUN TEE	1

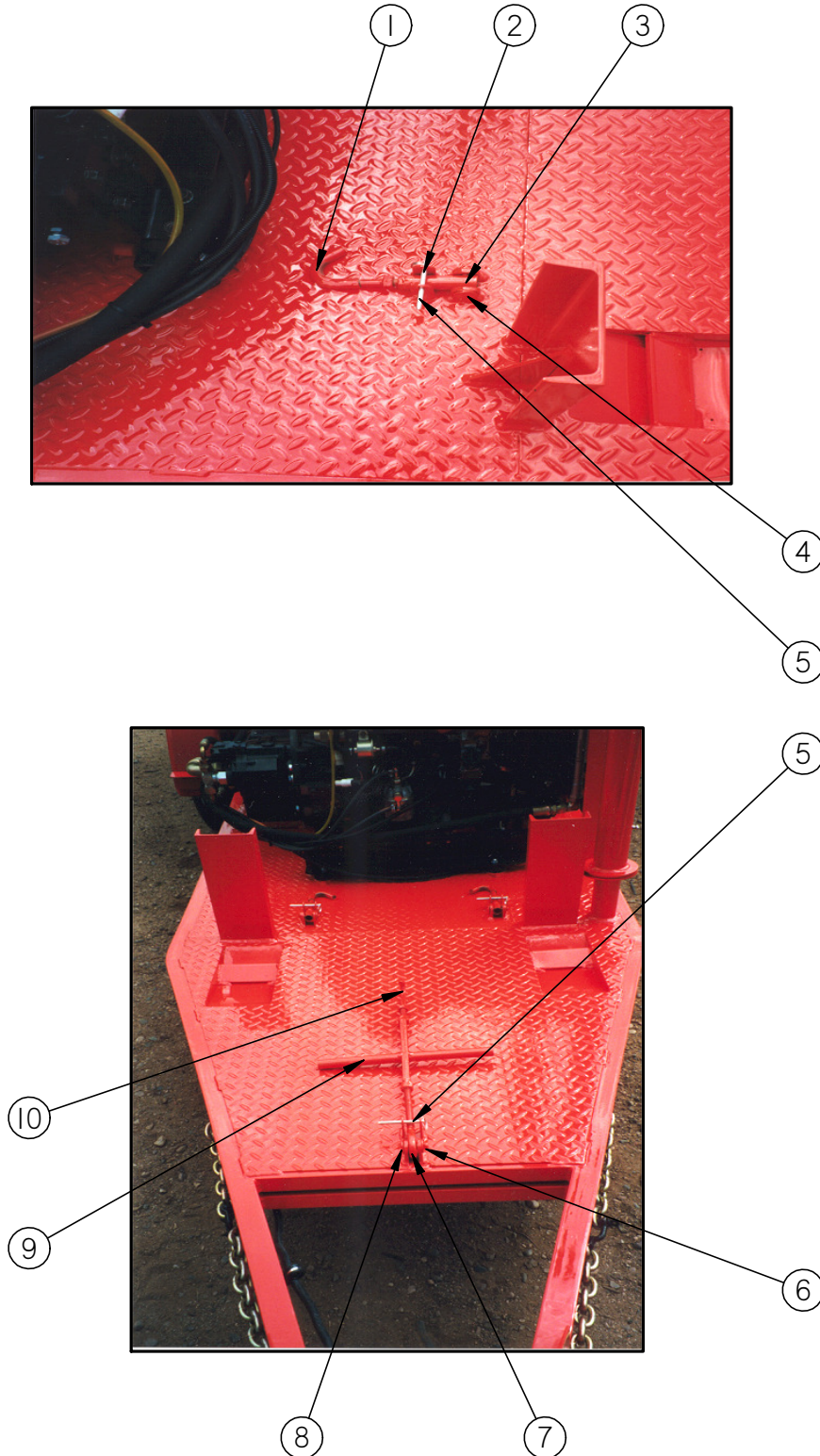


Figure 8.12 Router Tie Downs: PN 44400



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Table 8.12 Router Tie Downs: PN 44400

FIG.	ITEM	PART NO.	DESCRIPTION	QTY
8.12	1	44456	FRONT PIVOT HOOK TUBE ASSEMBLY	2
	2	29638	3/32" X 1 1/4" COTTER PIN	3
	3	44438	ROUTER TIE DOWN BRACKET	4
	4	44443	TIE DOWN PIN FRONT SIDE	2
	5	26104	QUICK PIN	3
	6	44437	ROUTER HANDLE SIDE TIE DOWN MOUNTING BRACKET	2
	7	44442	TIE DOWN HANDLE SIDE PIN	1
	8	44443	TIE DOWN PIN FRONT SIDE	2
	9	44458	10" TURNBUCKLE	1
	10	44457	1/2" X 6" J-BOLT	1

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