



## Patcher II

PART MANUAL - 26429

Rev. B



Revised: 06/13

# PATCHER II

## Part Number 56700



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# PATCHER II

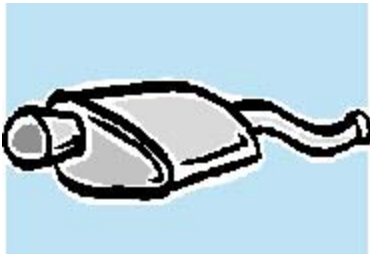
This manual is furnished with each new **CRAFCO Patcher II**. The manual will help your machine operators learn to run the mixer properly and understand its mechanical functions for trouble-free operation.

Your **CRAFCO Patcher II** is designed to give excellent service and save maintenance expense. However, as with all specifically engineered equipment, you can get best results at minimum costs if:

1. You operate your machine as instructed in this manual, and
2. Maintain your machine regularly as stated in this manual.



**WARNING:** The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Operate in well ventilated area only. Engine exhaust is deadly.



## SAFETY PRECAUTIONS

- High operating temperatures of product and machine require protective clothing, long sleeve shirt, long pants/coveralls, hat or hard hat (if required) and flame resistant gloves be worn by operator.
- Always wear eye protection (goggles or faceshield) when operating hot compressed air lance, air gas lance and when applying material. Faceshield is to be worn when adding material to the Patcher II Mixer.



- Observe all **CAUTION AND WARNING** signs posted on machine.



- Avoid the entrance of water into any part of the machine. Water will displace heat transfer oil or melted material when it reaches operating temperatures which could be hazardous to personnel surrounding the machine.
- Avoid bodily contact with hot Polypatch material or heat transfer oil; serious burns may result.
- Read the Operator Manual thoroughly before operating machine.
- Make sure operator is familiar with machine operation.
- Do not operate in closed building or confined areas.
- Shut-down burner and engine prior to refilling diesel tank.
- Hot material could splash and cause serious burns while adding it to the tank. Make sure to place material on the door, and use the door to add material so door closes as material is dropped into the tank.
- Keep hands, feet, and clothing away from all moving parts.
- Always keep a fire extinguisher near the unit. Maintain extinguisher properly and be familiar with its use.
- **Do not** exceed 525°F. for heat transfer oil temperature.



- **Do not** overfill heat transfer oil level. Expansion of oil during heat up could cause overflow. Check oil each day before starting burner, add oil to touch bottom of dipstick if required (at 70°F.) **Use only recommended heat transfer oil and change after 500 hours of operation or one year, whichever occurs first.**

# SAFETY PRECAUTIONS

- Replace any hoses which show signs of wear, fraying, or splitting. Be sure all fittings and joints are tight and leak-proof.
- Precaution is the best insurance against accidents.
- The Patcher II Melter should not be left unattended with the burner lit.
- Tighten all bolts and screws after every 100 hours of operation.
- Crafc0, Inc. assumes no liability for an accident or injury incurred through improper use of the Patcher II.





## Patcher II 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, and electrical components for a period of one (1) 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 incurred by the purchaser.

Crafco, Inc. specifically disavows any other representation, warranty, or liability related to the condition or use of the product.



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

# 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 Crafcro Distributor. If you do not know who your local distributor is, call a Crafcro Customer Service Representative, (toll free 1-800-528-8242) for name, location, and telephone number.
2. When 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 Crafcro, Inc.

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

CRAFECO, INC.  
25527 SOUTH ARIZONA AVENUE  
CHANDLER, AZ 85248  
480-655-8333  
Toll Free - 1-800-528-8242

# SPECIFICATIONS

Vat Capacity.....	200 gallons
Heat Transfer Oil Required.....	24 gallons at 70°F.
Tank Construction.....	Double boiler type
Tank Opening Size (2).....	14.25" x 17.88" (each)
Burner & Temperature Control.....	Automatic - Digital readout. Hot oil and material. Auto flame shutdown.
Engine - Isuzu	3 Cylinder
Model - Diesel Fueled.....	23.5 HP @ 3600 rpm
Drive Mechanism.....	All hydraulic with infinite forward and reverse action.
Mixer.....	Horizontal shaft with 4 sweep paddles
Dry Weight Machine.....	Approximately 4,800 lbs.

# PATCHER II

## OPERATING INSTRUCTIONS

### INTRODUCTION

The Crafcro Patcher II was developed to melt TechCrete and Polypatch materials.

**DO NOT** operate machine without following these instructions:

1. Fill propane tank.
2. Check engine crankcase oil level (refer to Engine Operator Manual).
3. Check hydraulic fluid level, at ambient temperature. Add fluid if necessary to bring to correct level.
4. Check heat transfer oil level (see Fig. 4). At 70°F., the oil should touch the end of the dipstick. **DO NOT** overfill or spillage may occur when oil is heated and expands. **NEVER REMOVE DIPSTICK WHEN OIL IS HOT.**
5. The rear discharge gate should be in the closed position and the burner switch "OFF." (see Fig. 2)
6. Fill engine tank with diesel fuel - **DO NOT FILL ENGINE FUEL TANK WHEN BURNER IS LIT (see Fig. 7).**
7. Lubricate mixer bearings weekly (see Fig. 1).
8. Place the mixer control valve switch in the off position (see Fig. 3).

# OPERATING INSTRUCTIONS

## MACHINE START UP

1. Fully open the damper vent.
2. Set temperature dials to "OFF".
3. Start the engine. To start the engine, insert the key into the control panel. Turn the key to the preheater first position. Let it warm up a few minutes, then start engine. Warning lights should turn "ON". Turn the key to the second position. The engine should start. Release key when engine is running. Leave at idle for a few minutes. Move throttle lever to set the engine at desired speed (see Fig. 5). Make sure mixer control valve switch is in the neutral position.
4. Set the temperature dials to desired temperature. Hot oil temperature should not exceed 525 deg.F and the material 410 deg. F. (see fig 6).
5. Turn toggle switch "POWER SWITCH ON" (see Fig. 6).



### CAUTION

If burner does not ignite the first time, turn toggle switch "OFF." Turn toggle switch "ON." Burner should ignite. If burner still does not ignite, determine cause of malfunction (see Trouble Shooting Guide, page 29).

6. Allow the heating oil to continue to heat. Place material in the mixer and heat. Start the mixer as soon as possible to break up the bags. When loading solid material into the mixer tank the mixer will stop when lifting the lid, add material and close the lid again to start the mixer. Following this procedure will prevent the hot material from splashing and causing serious burns to personnel. Turn the mixer control switch to clockwise. Adjust the mixer speed by using the flow control valve.
7. Temperature readout on burner control box indicates material temperature. When material reaches correct application temperature, material may be drawn off as desired. Discharge gate is opened by moving handle down.

Remove excess TechCrete & Polypatch material from chute with scraping tool.



**CAUTION:** Be sure discharge gate is completely closed after each draw off. Lock handle with safety chain if machine is transported (see Fig. 2).

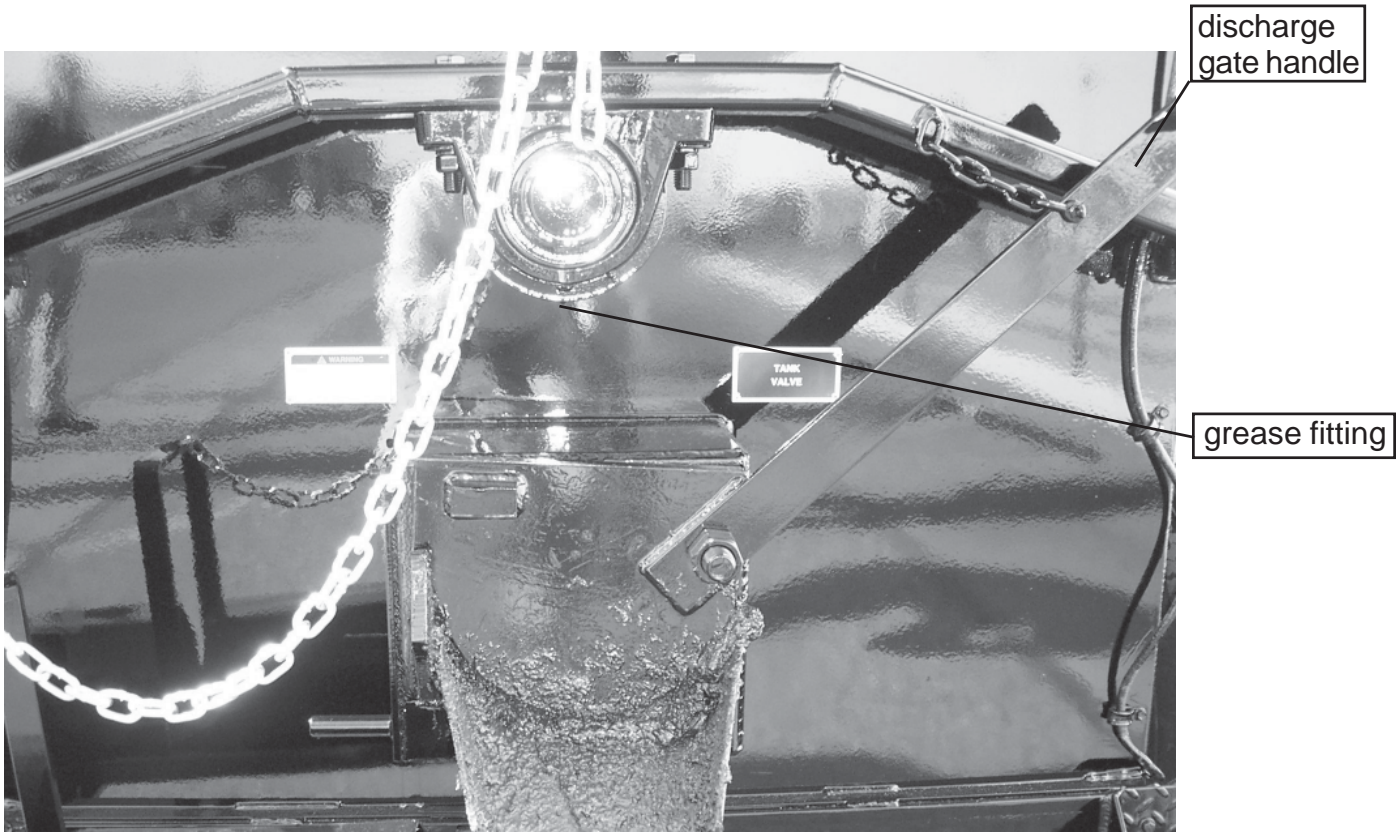


Fig. 1

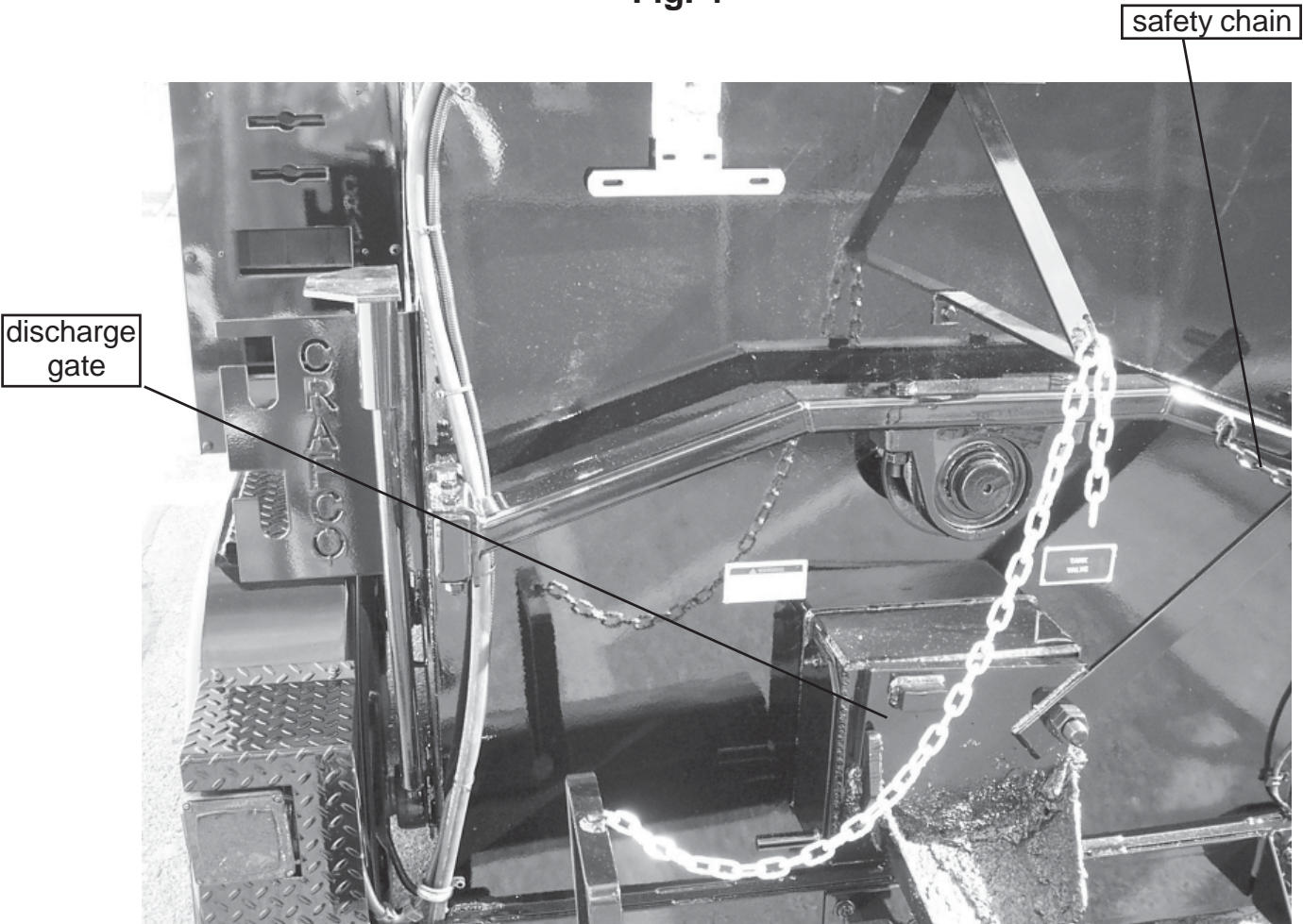


Fig. 2

burner control switch

mixer control switch



Fig. 3

heat transfer oil dipstick

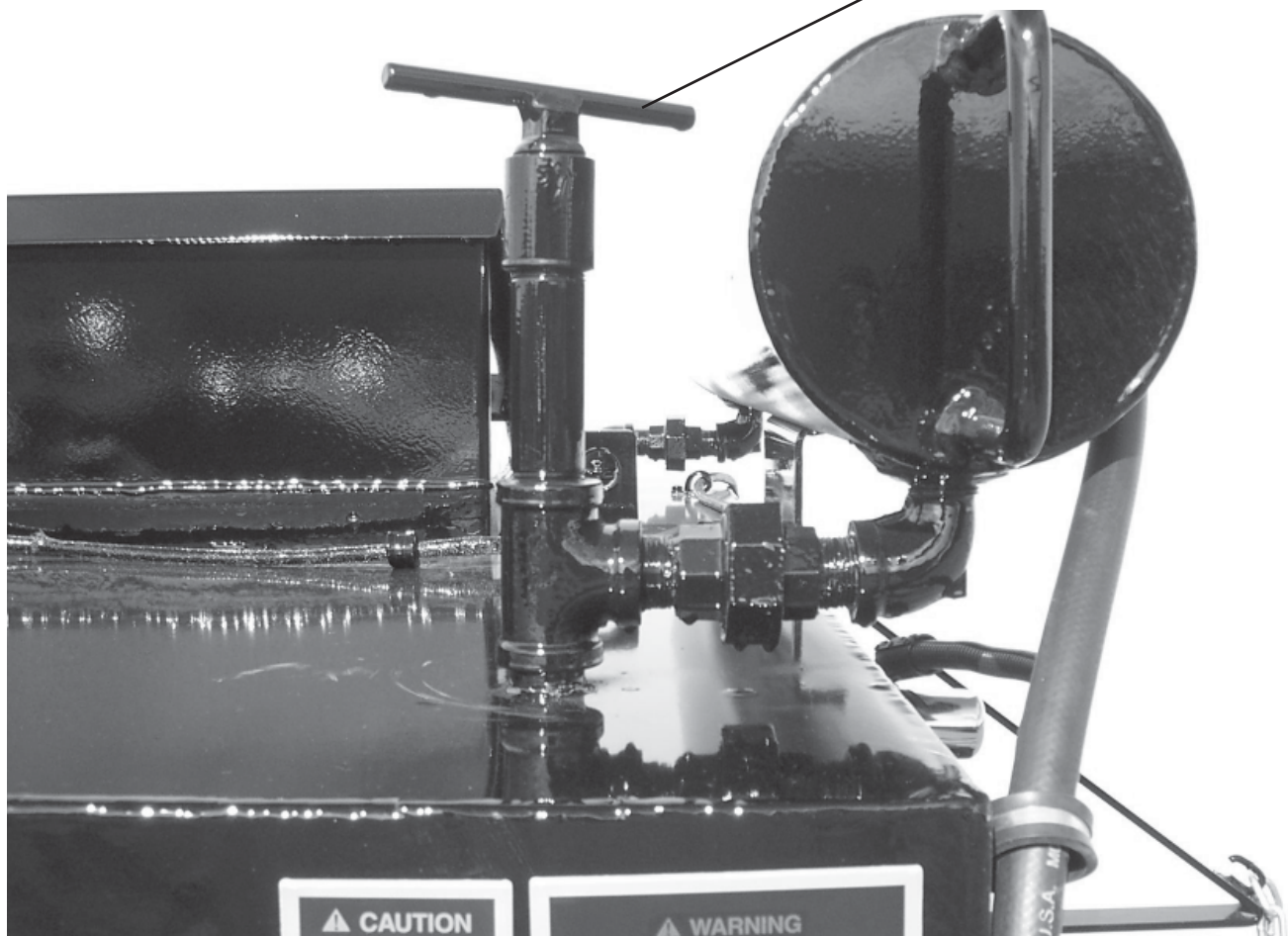


Fig. 4

# Patcher II

throttle lever

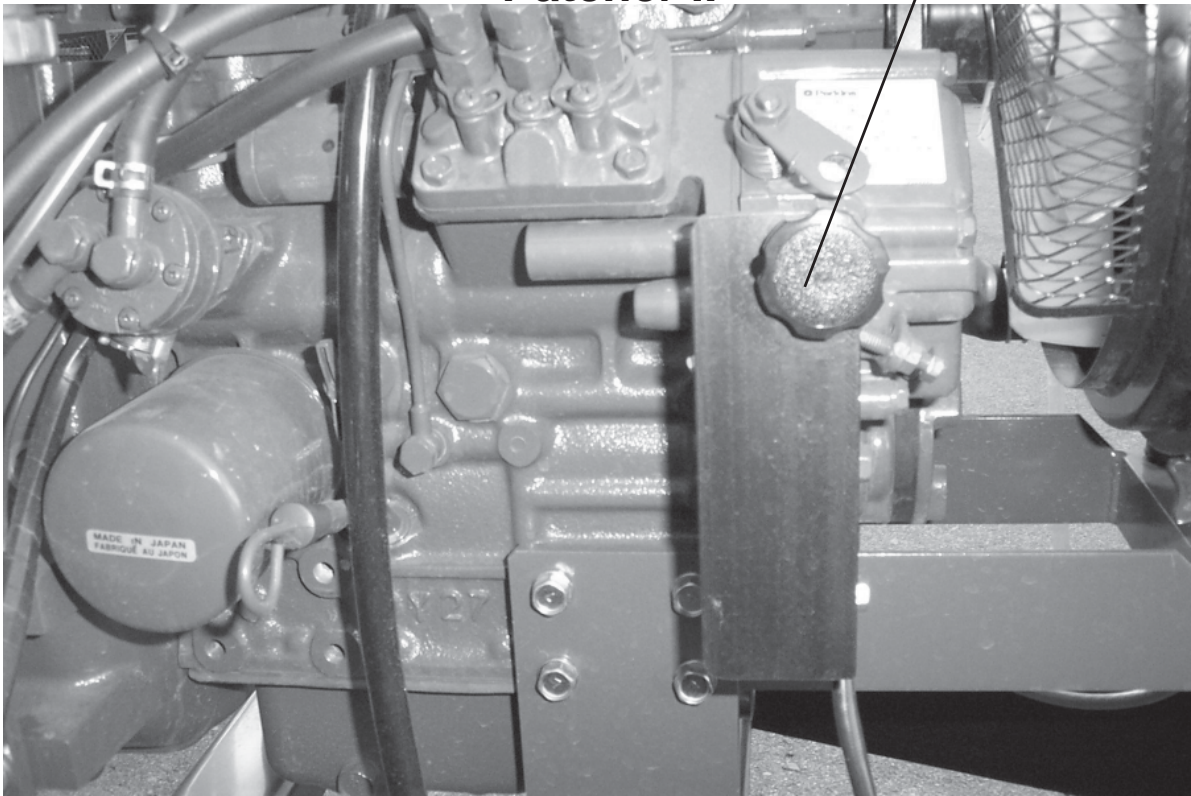


Fig. 5

temperature dials

burner control switch



Fig. 6



hydraulic fluid tank

engine fuel tank



**Fig. 7**

## SHUTDOWN PROCEDURE

1. Turn burner toggle switch to “OFF.”
2. Return mixer hydraulic control switch to “OFF” position.
3. Idle down the engine with the throttle lever and turn off key. (See Fig. 5)

## STORING MACHINE

The Patcher II should be stored with the trailer tongue in an elevated position. This will allow the moisture condensation to settle to the bottom rear of the heat transfer oil tank, above the drain plug. After extended periods of time, the water can be drained by removing the plug and replacing it when all water is displaced.



If there is any suspicion that moisture is still present after draining, warm heat transfer oil to 300 deg. F for 2 or 3 hours to evaporate any moisture.

# INSTRUCTION FOR ORDERING PARTS FOR THE PATCHER II

Parts may 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:

1. Part Number of the machine.
2. Machine Model Number.
3. Serial Number from the Name Plate.

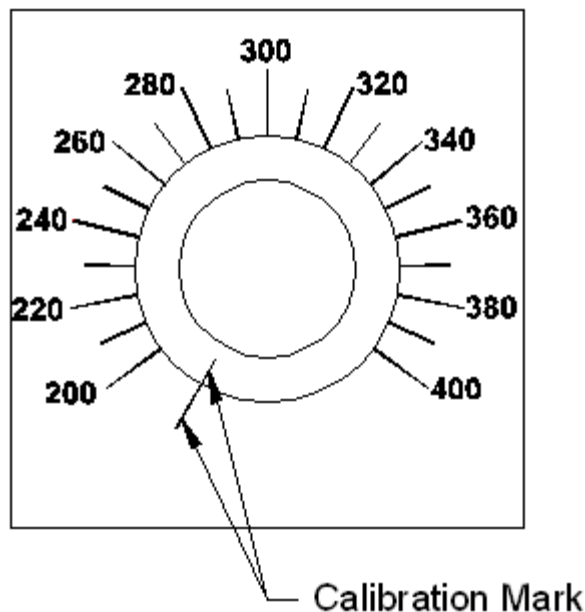
Write, telephone, or fax:

CRAFCO, INC.  
25527 SOUTH ARIZONA AVENUE  
CHANDLER, AZ. 85248  
480-655-8333  
480-655-171 FAX NUMBER  
Toll Free : 1-800-528-8242  
www.crafco.com.  
sales@crafco.com

## TEMPERATURE CONTROL CALIBRATION

### TEMPERATURE CONTROL CALIBRATION

Check control knob calibration weekly. Calibrate by aligning the line on the control knob with the calibration line on the scale plate (see below).





**CAUTION:**

Extreme care must be used when operating this equipment. Safety is the result of being careful and paying attention to details. Remember the diesel flame is about 2200°F. Certain exposed parts of this machine, when operating, reach 500°F.; the sealant as high as 400°F. and the hydraulic oil may reach 200°F. Always wear protective clothing and eye protection. Be sure that all joints and fittings are tight and leakproof. Immediately replace any hose which shows any signs of wear, fraying or splitting. Tighten all bolts on all flanges after 100 hours. Tighten ALL bolts, nuts and screws every 250 hours.

## **LOADING THE MACHINE**

When loading solid material into the sealant tank, the lid needs to be opened, then the material placed on the lid and the lid closed again. Following this procedure will prevent the hot material from splashing and causing serious burns to personnel. The material lid is equipped with a switch that will automatically stop the mixer while the lid is open. The mixer needs to be stopped while loading material to prevent any spashing or jamming of the mixer.

## SERVICE INSTRUCTIONS

1. Conduct a general inspection of your machine at least once a week. Replace all worn or damaged parts, make any necessary adjustments and tighten all loose nuts or screws.



2. Keep regular replacement items in stock for emergency repairs, to avoid costly “down” time. Refer to general maintenance items.
3. Watch for leaks - tighten packing on mixer shaft if necessary.
4. Clean machine externally periodically. Check with material manufacturer for recommendation.
5. Follow “Recommended Maintenance Procedures” per Maintenance Chart, page 23-24.

## OVERNIGHT HEATERS

Overnight heaters may be used to maintain an overnight hot oil temperature of approximately 200-250°F (93.3°C).

Attach each heater to a 120 volt outlet using power cords sufficient for 1500 watts. Use separate cord for each heater and make sure receptacles are rated for 1500 watts. It is advisable to use a separate fused circuit for each heater. Disconnect heaters when using machine burner system.

# MAINTENANCE INSTRUCTIONS

## **ENGINE:**

See Engine Owners Manual for operating and maintenance instructions.



## **HYDRAULIC SYSTEM:**

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

## **HEAT TRANSFER OIL:**

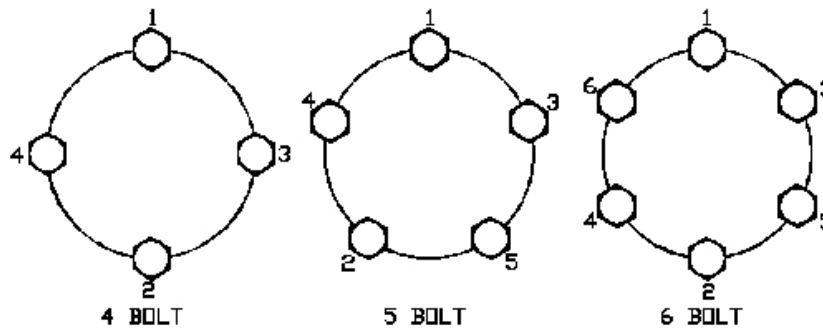
Check oil level every 8 hours of operation. Change oil every 500 hours of operation.

## **WHEEL BEARINGS:**

Repack wheel bearings every 24,000 miles or every two years, using a good grade of bearing grease.

## **LUG NUTS:**

Wheel nuts/bolts should be torqued before first road use and after each wheel removal. Check and retorqued after the first 10 miles, 25 miles, and again at 50 miles. Check periodically thereafter. Torque in stages. First stage 20-25 ft. lbs., 2nd stage 50-60 ft. lbs., 3rd stage 90-120 ft. lbs.



## **BRAKES:**

Check brakes daily. Refer to DEXTER AXLE Operation Maintenance Service Manual located in the manual box.

## **TONGUE JACK:**

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

# MAINTENANCE CHART

LOCATION	PROCEDURE	HOURS			
		Daily	50	250	500
Engine check oil level.	Check daily.	*			
Other Engine Maintenance	See Isuzu Operating and Maintenance Instructions.				
Battery	Check water level weekly.				
Heat Transfer Oil	Check (every 8 hours)		*		
	Change	After 500 hours or 1 year.			
Hydraulic Oil Return Line Filter	First change (100 hours)			*	
	Subsequent changes (250 hours)			*	
Hydraulic Oil	Check oil (daily).	*			
	Change oil (every 500 hours).				*
	For proper oil, see recommended fluids & lubricants.				
Burner	Check burner box insulation.				*
	Clean cad cell.				*
	Check electrodes.				*
	Check blower brushes.				*
	Check nozzle pressure.				*
Wheel Bearings	Clean & repack - using good grade of bearing grease.	Every 24,000 miles or every two years.			
Tongue Jack	Grease, using good grade of bearing grease.	Once a year.			

# MAINTENANCE CHART

LOCATION		PROCEDURE		HOURS			
				8	40	250	500
Mixer Shaft Packing	Tighten when hot at 40 hour interval. Do not overtighten.		*				
Mixer shaft Bearings	Grease using good grade of bearing grease.		*				



# RECOMMENDED FLUIDS & LUBRICANTS

APPLICATION	RECOMMENDED	FULL POINT
Engine oil	Refer to Isuzu owners manual.	3 Qts.
Diesel	#1 Cold climate #2 Warm climate	24 Gals.
Hydraulic oil	Rondo HD-68 Texaco	14 Gals.
Heat transfer oil	Regal R&O 68	24 Gals.

The following is a list of suitable Heat Transfer Oils to be used in CrafcO equipment.

<u>PRODUCER</u>	<u>PRODUCT NAME</u>	<u>PRODUCT NO.</u>
Texaco	Regal	R & O 68
Gulf	Harmony	68
Shell	Thermia	"C"
Exxon	Terestic	68
Phillips	Magnus	68
Chevron USA	Heat Transfer Oil #1	
Conoco	Dectol R&O	68
Union Oil	Turbine Oil	68

## TYPICAL SPECIFICATIONS

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



### **WARNING**

The Heat Transfer Oil in this machine is a grade that has been tested and recommended by CRAFCO, Inc. The addition of any grade of oil not specifically recommended by CRAFCO, Inc. shall be cause for the voidance of all warranties.

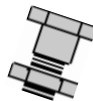
All oils subjected to high temperatures deteriorate with time and lose many of their characteristics. Tests conducted by CRAFCO, Inc. have determined that for best results and safety, the Heat Transfer Oil in this machine must be drained and replaced with recommended oil after five hundred (500) hours of operation or one (1) year, whichever occurs first.

## GENERAL MAINTENANCE ITEMS

PART NUMBER	QTY.	DESCRIPTION
42172	1	ENGINE, 23.5 HP
32226	1	PACKING, MIXER SHAFT
43397	1	PAKSTAT MATERIAL HOSE 12V
43391	1	PAKSTAT W/ DIGITAL READOUT
45389	-	OIL FILTER
41867	-	FUEL FILTER
45391	-	AIR FILTER ELEMENT
45438	-	HYD. FILTER ELEMENT

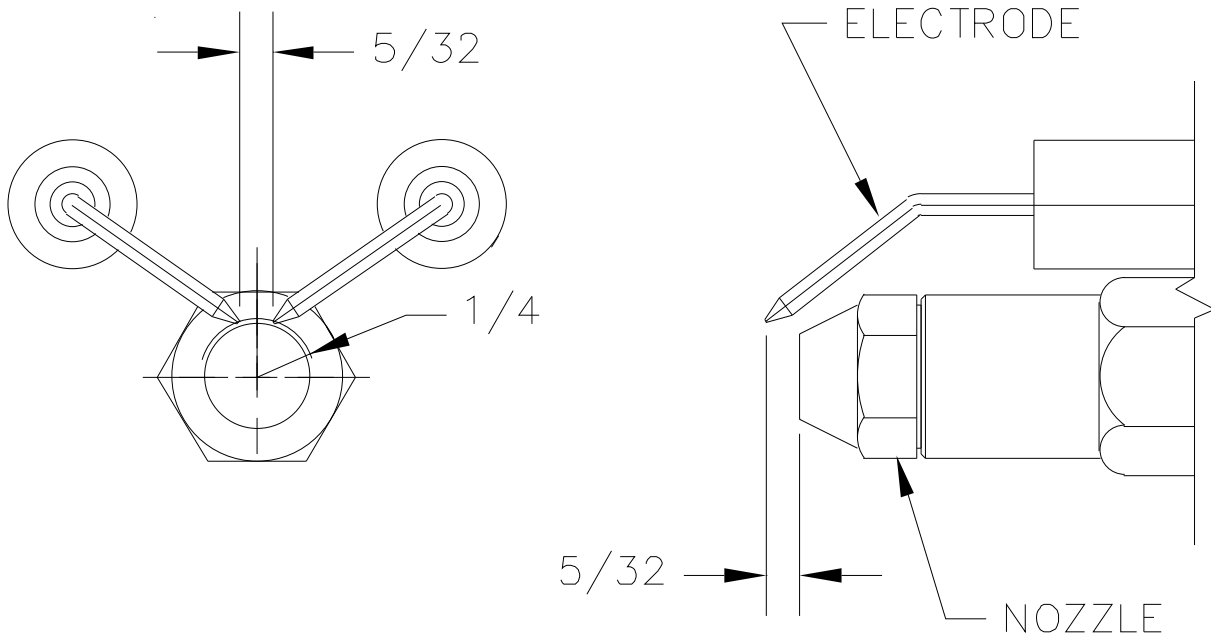
## SERVICE INSTRUCTIONS

1. Conduct a general inspection of your machine at least once a week. Replace all worn or damaged parts, make any necessary adjustments and tighten all loose nuts or screws.



2. Keep regular replacement items in stock for emergency repairs, to avoid costly “down” time. Refer to General Maintenance Items.
3. Watch for leaks - tighten packing on shafts as necessary.
4. Clean machine externally periodically. Check with sealant manufacturer for recommendation.
5. Follow recommended maintenance procedures on maintenance chart.

## DIESEL BURNER ELECTRODE ADJUSTMENTS



## DIESEL BURNER SETTINGS

Air Shutter = 8  
Air Band = 0  
Fuel Pressure = 140 PSI  
Adjustment Plate = 3

# TROUBLE SHOOTING GUIDE

PROBLEM	CAUSE	REMEDY
Mixer will not rotate .	Sealant temperature too low.	Continue to heat material.
	Too many blocks placed at one time .	Continue to heat material & try reversing mixer.
	Inadequate hydraulic flow/pressure.	Check hydraulic fluid level. Reset pressure/check flow if necessary.
Slow heat up of sealant.	Build up of coked or crystallized material on inside of material tank.	Allow machine to cool. Remove deposits and flush with solvent.
	Bumer not operating .	See Burner Trouble Shooting Guide.
	Low heating oil level.	Make sure fluid level is correct.
	Low heating oil temperature.	Set at recommended temperature .
	Heating oil old or has crystallized.	Replace it as recommended every 500 hours.
Mixer will not rotate	Mixer toggle switch turned off.	Turn on toggle switch.
.	Flow control set at zero.	turn control knob counter clockwise.
	Tank lids not fully closed .	Close lid to engage lid switch.
	Bad wire connection	Find and repair
	Bad control valve	Replace valve
	Hydraulic cartridge failure	Remove and replace
	hydraulic coil failure	Remove and replace

# BURNER TROUBLE SHOOTING

## BURNER WILL NOT IGNITE

**Step 1:** Check for 12 volts at "POWER" toggle switch.

**No:** Engine key "OFF"  
Toggle switch "OFF"  
Blown fuse  
Broken wire

**YES:** 12 volts at terminal #4 on "MATERIAL" Pak-Stat

**NO:** Bad Pak-Stat  
Faulty sensor

**YES:** Check for 12 volts at terminal #7 on "OIL" Pak-Stat

**NO:** Bad Pak-Stat  
Faulty sensor

**YES:** Check for 12 volts at solenoid (frame).

**NO:** Bad solenoid  
Bad connection at battery  
Faulty circuit breaker  
Broken or loose wire

**YES:** Faulty DC Controller, poor ground / loose wire  
Faulty or dirty flame  
Faulty igniter transformer, cracked electrode (ceramic)  
Incorrect igniter gap  
Faulty fuel solenoid  
Bleed fuel pump / check fuel pump coupling  
Fuse under DC Controller  
Blower motor relay  
Faulty blower motor  
Faulty 12 volt battery



## BURNER LIGHTS BUT SHUTS DOWN AFTER 15 SEC.

Faulty flame eye  
Broken, loose flame eye sensor wires, receptacle  
Faulty DC Controller

## BURNER LIGHTS BUT WILL NOT RELIGHT

Bad connection at battery  
Broken or loose wires  
Faulty DC Controller  
Faulty 12 volt battery

## EXCESSIVE SMOKE FROM BURNER EXHAUST

Air vent incorrectly set - set at 7  
Blower motor not turning at correct speed  
Faulty 12 volt battery

# TECHCRETE PLACEMENT

Prior to the material application you will need to move the equipment to the work area. The items needed are:

1. Compressor
2. Saw to cut out repair area
3. Pneumatic hammer
4. Broom and shovels to clean up area
5. Broom or sweeper (if required to remove FOD)
6. Patcher II machine, material, and application tools
7. Dressing stone
8. Heat lance
9. Primer
10. "Hudson" sprayer for the primer
11. Paint brushes
12. Small paint cans
13. Rags
14. 1 or 2 gallons of water (to speed up cooling process if required)
15. Gloves, heavy welder gloves and standard leather gloves
16. Cloth duct tape
17. Reference materials

## APPLICATION STEPS

1. Locate area to be repaired.
2. Mark the areas to be cut out. Make sure you cut out enough of the pavement to remove all cracking around the patch area. If the repair area extends to both sides of a joint, the repair area must be a minimum of 4" on each side of the joint.
3. Cut with either a wet or dry saw. The saw should cut a minimum of 1-1/2" to 2" deep.
4. Remove the remaining material with a chipping or jack hammer to a minimum depth of 1-1/2 to 2".
5. After the repair area has all the loose material removed, use the hot air lance to clean and dry the pavement.
6. Take note on the amount of new material you will need to patch the area.
7. Apply tape 1/4" from the edge of the prepared area.
8. Prime the area with the TechCrete Primer using the "Hudson" sprayer or paint brushes. If spraying the primer on repair areas, you may need to do some touch-up with a paint brush. When touching up, you want to cover any missed spots and spread any pooled primer. Allow the primer to set up which takes about 10-12 minutes. **DO NOT DRY WITH A TORCH.**

# APPLICATION OF THE TECHCRETE PRODUCT

During the time you have been preparing the patch areas you should have calculated the amount of material needed for the repairs.

Place bags of material in the mixer and heat. Start the agitator as soon as possible to break up the bags. The heat up time is usually within 60-90 minutes. Care should be taken not to overheat the material. If material temperature is too high, lower the burner material temperature control and/or open the lid.

1. Have the tools needed for the repair heating in the heated tool box.
2. Heat the discharge gate.
3. Remove at least two pails of product and pour back into the melter. This will insure a good flow of material when you start the application.
4. Apply the first lift of material to the repair. Apply adequate material so you get material within 1" of surface.
5. Allow the material to cool for a period of time allowing air bubbles to move to the surface of the product. The bubbles are generated from uncured primer, air, or moisture. When the bubbles stop rising to the surface (usually within 15-20 minutes), flash surface with hand torch to "pop" bubbles.
6. Apply the next level and float surface of the material with the hot irons. Seal the edges of the repair by pulling liquid to the edge, then remove the duct tape. The main portion of the material will self level, but you may need to do some smoothing with the hot iron to insure a level surface.
7. Allow this material to cool similar to the first lift - you may not experience as many bubbles this time but some may appear. When they do, flash them with the torch.
8. Dry the aggregate dressing prior to placing on TechCrete material as wet or damp dressing will not adhere. Smooth the aggregate dressing material over the patched area with your gloved hand. This will insure coverage of the whole surface of the TechCrete.

If you applied the aggregate dressing material too soon the bubbles will continue to rise to the surface and pop leaving a pock marked surface. If this occurs, adjust your timing to allow more bubbles to break the surface.

9. Shut down the melter and clean up the repaired area. If the cooling time of the material needs to be shortened, broadcast some water over the surface.
10. Sweep excess aggregate dressing material from the surface of the repair and finish clean up.

# APPLICATION OF THE POLYPATCH MATERIAL

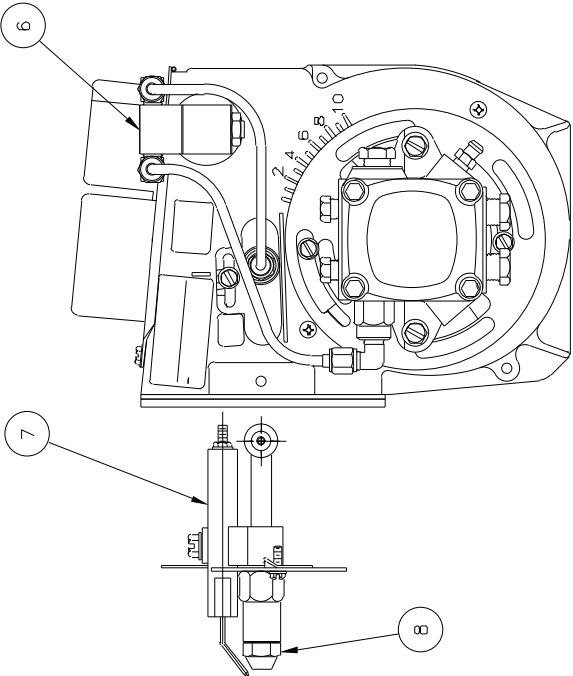
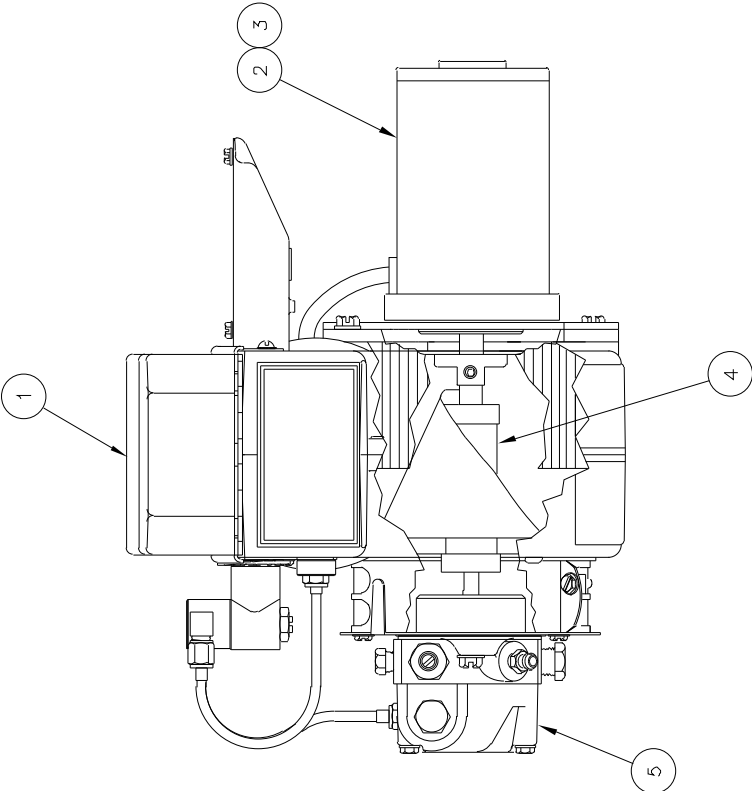
## APPLYING THE MATERIAL

**NOTE:** Hot materials can cause severe burns. Wear protective clothing, gloves, hard-soled shoes, and face shield or safety glasses when operating or filling the equipment. Read entire manual before operating.

1. Have the tools needed for the repair heating in the heated tool box.
2. When material is mixing freely and the correct application temperature (375° F.-410° F.) is reached, heat the discharge gate and inside the chute area through the access door.
3. Place a pail below the chute and open discharge gate by removing safety chain (1) and lowering discharge gate handle (2) (see Fig. 1).
4. Remove at least two pails of product and pour back into the melter. This will insure a good flow of material when you start the application.
5. Position machine over desired work area and remove locking pin (1) in applicator chute (2) (see Fig. 2). Removing locking pin enables the chute to rotate approximately 180° for easy access to the work area.
6. With chute positioned over work area, slowly open discharge gate by lowering the gate handle and applying material as needed. If material fails to flow from the discharge gate, use the hand torch supplied with applicator to heat valve and plumbing until material begins to flow. When the proper amount of material has been applied to the work area, firmly raise the discharge gate handle to stop material flow. If the gate doesn't close fully, you may need to heat the gate face and chute opening to melt any cooled material that is blocking it.
7. Continue to monitor material (1) (see Fig. 3) for proper application temperature and adjust hot oil temperature as needed. **Hot Liquid Material Causes Severe Burns!**
8. **If you are filling a large area we recommend adding material a few blocks at a time as you work, to keep material temperatures at the proper application temperature. By failing to do so, the material will cool and create unnecessary down time as the machine heats back up to application temperature.**
9. **When transporting machine long distances with hot material in tank, always close and lock the discharge gate. This will prevent product from spilling out while transporting. Also, when transporting unit with hot material in the tank, the mixer should be engaged until material temperature cools to 250° F or material separation will occur. Never leave burner turned on when transporting machine.**



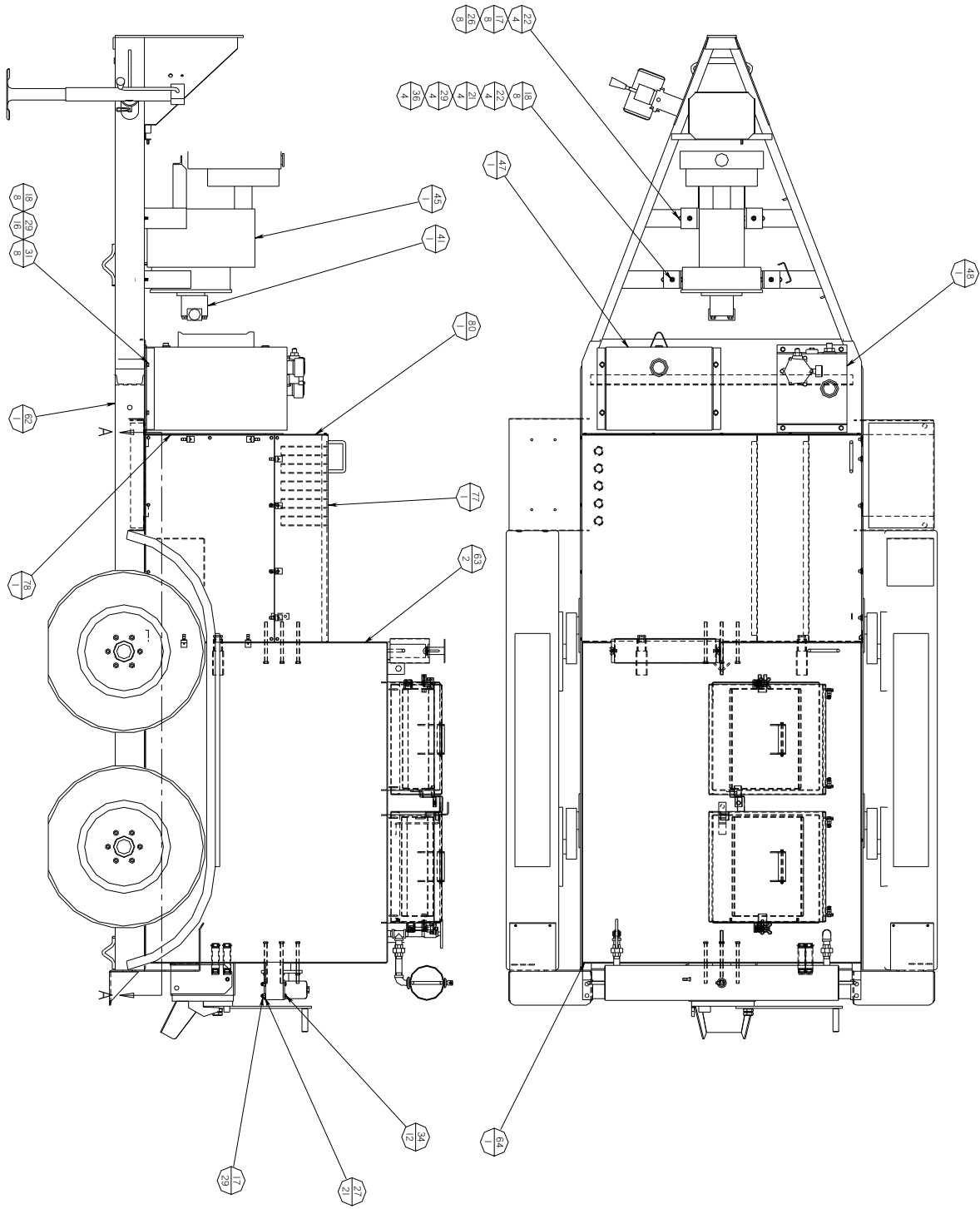
# DIESEL BURNER



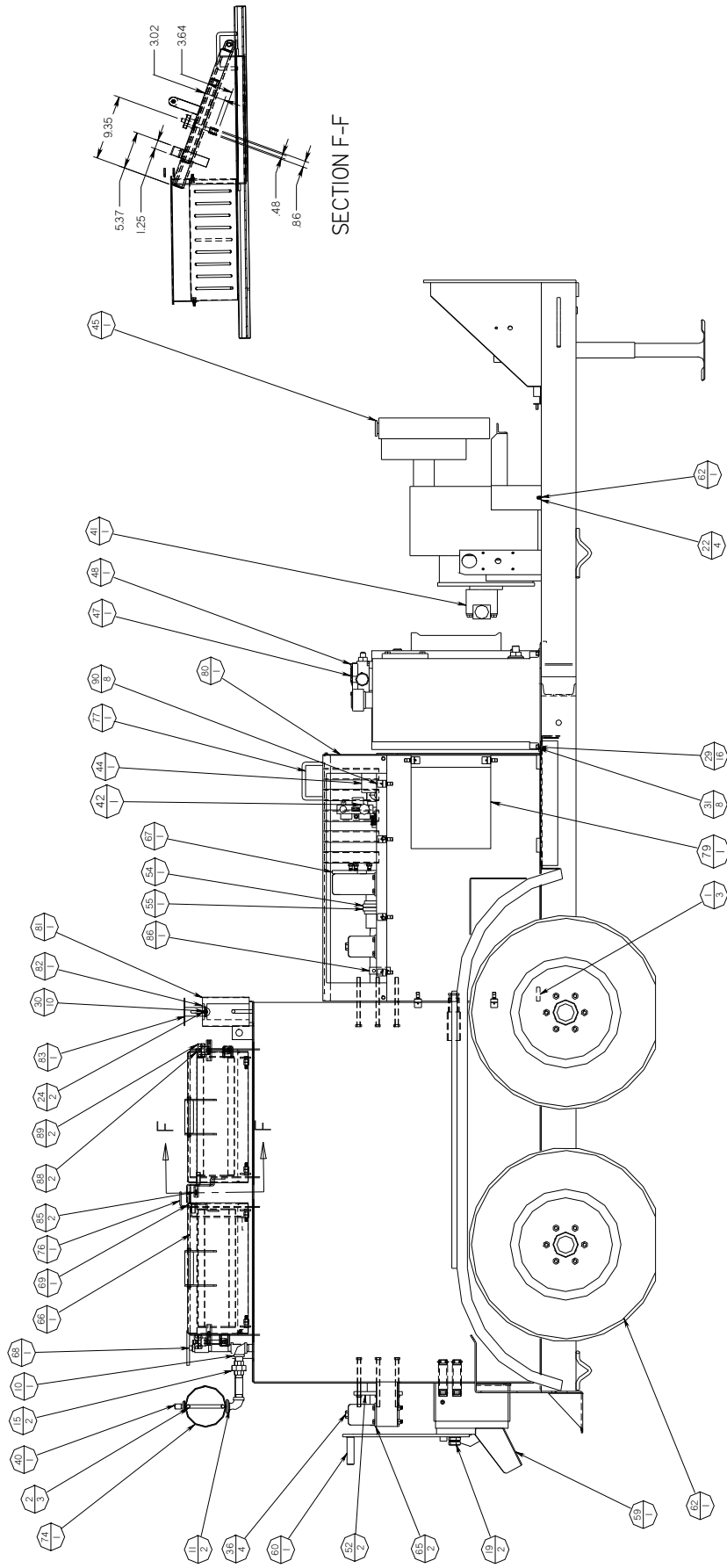
## DIESEL BURNER PARTS LIST

<b>NUMBER</b>	<b>PART NUMBER</b>	<b>QTY</b>	<b>DESCRIPTION</b>
1	41949	1	IGNITION TRANSFORMER
2	41890	1	BLOWER MOTOR
3	41934	1	BRUSH KIT - MOTOR
4	41970	1	COUPLING - FUEL PUMP
5	41979	1	FUEL PUMP
6	41888	1	FUEL SOLENOID
7	41993	1	ELECTRODE KIT
8	41881	1	BURNER NOZZLE
9	41870	1	CAD EYE (NOT SHOWN)
10	42335	1	DC CONTROLLER (NOT SHOWN)

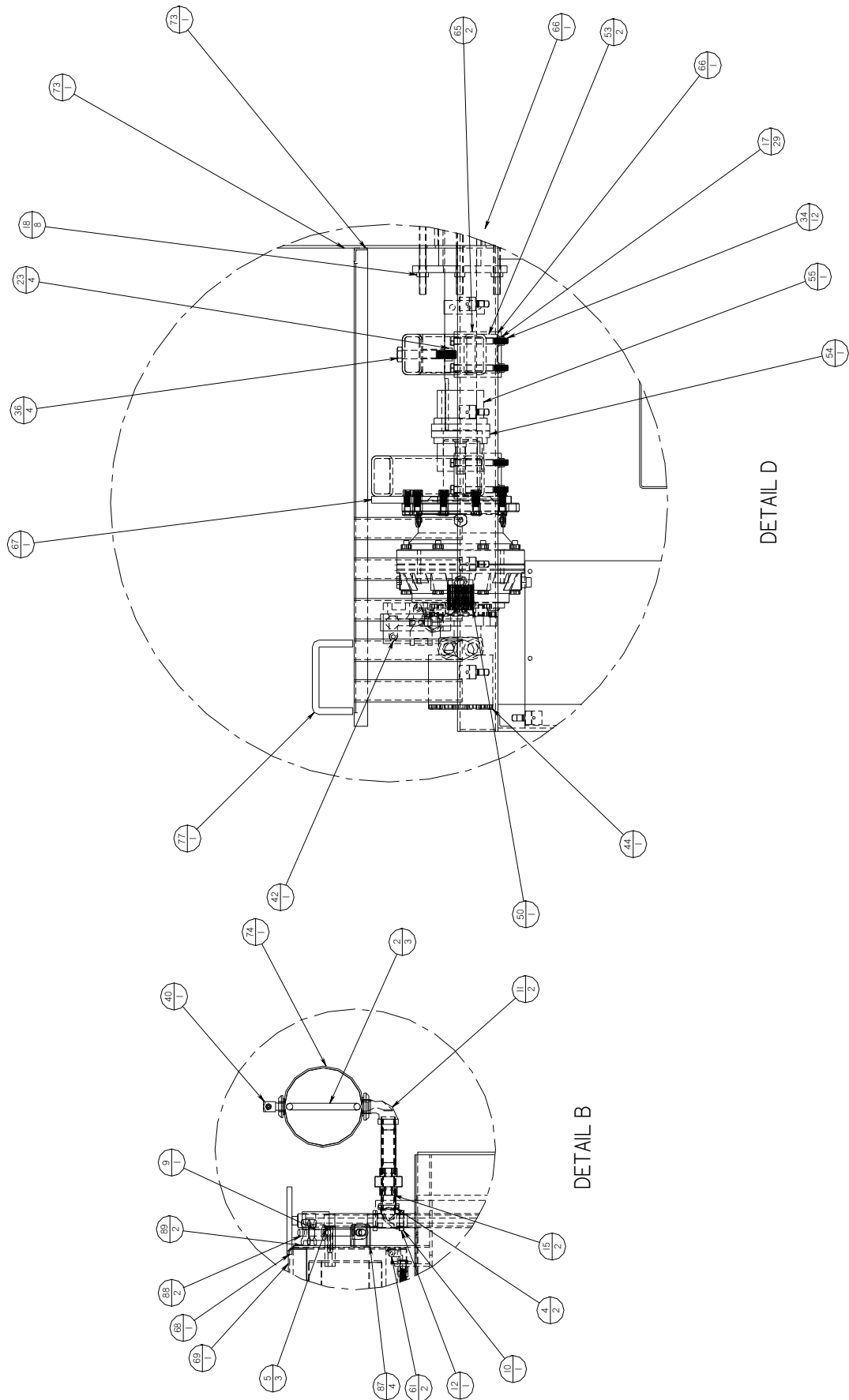
# Patcher II



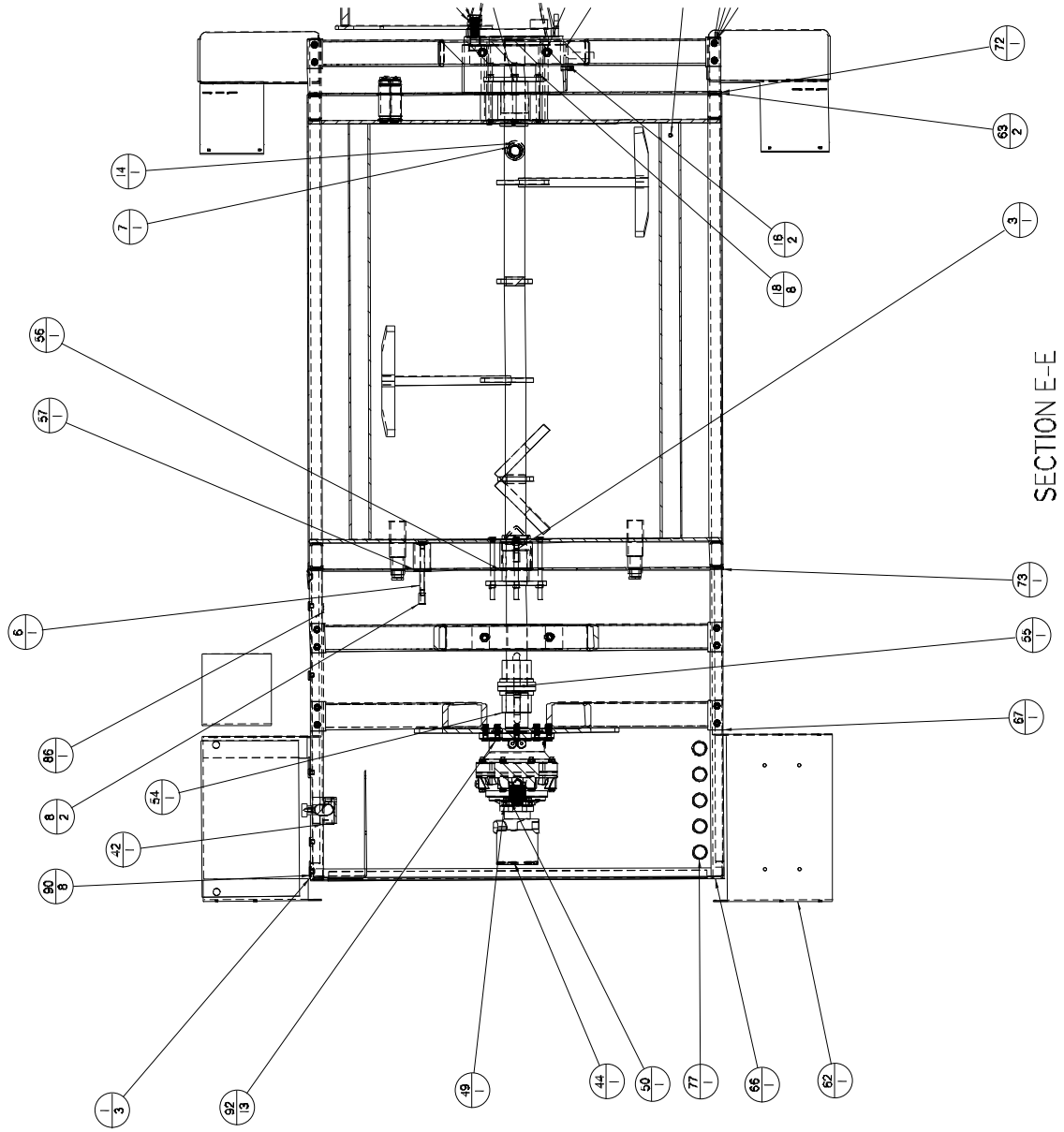
# Patcher II



# Patcher II



# Patcher II



## Patcher II

NUMBER	PART NUMBER	QTY	DESCRIPTION
1	-----	-	-----
2	21292	3	HANDLE
3	28001	1	1/4" CLOSE NIPPLE
4	28004	2	3/4" CLOSE NIPPLE
5	28038	3	3/4" X 4" NIPPLE
6	28068	1	1/4" X 6" NIPPLE
7	28101	1	1" X 8" NIPPLE
8	28176	2	1/4" COUPLING
9	28179	1	3/4" COUPLING
10	28209	1	3/4" PIPE ELBOW
11	28239	2	3/4" ELBOW
12	28254	1	3/4" PIPE TEE
13	28268	2	1/2" PIPE CAP
14	28270	1	1" PIPE CAP
15	28329	2	3/4" PIPE UNION
16	28502	2	3/8" HX HD NUT
17	28503	29	7/16" HX HD NUT
18	28504	8	1/2" HX HD NUT
19	28520	2	1" HX HD NUT
20	28525	8	5/16 ESNA LOCK NUT
21	28526	8	3/8" ESNA LOCK NUT
22	28538	4	3/8" UPSET HX NUT
23	28541	4	5/8 UPSET HX NUT
24	28619	2	5/16 WING NUT
25	28634	4	3/8" FLAT WASHER

## Patcher II

NUMBER	PART NUMBER	QTY	DESCRIPTION
26	28641	4	WASHER, 3/8 FLAT
27	28648	21	7/16 LOCK WASHER
28	28671	8	WASHER, 5/16 FLAT
29	28672	16	WASHER, 3/8 FLAT
30	28716	10	BOLT, 5/16-18 X 1 HX HD
31	28731	8	BOLT, 3/8-16 X 1 HX HD
32	28732	1	BOLT, 3/8-16 X 1 1/4 HX HD
33	28736	4	BOLT, 3/8-16 X 2 1/2 HX HD
34	28745	12	BOLT, 7/16-14 X 4 HX HD
35	-	-	-----
36	28782	4	BOLT, 5/8-11 X 4 HX HD
37	28817	1	BOLT, 1-8 X 4 HX HD
38	28985	33	SCREW, 1/4 X 3/4 SELF TAPPING
39	29399	4	ISOMOUNT
40	29845	1	1/4 NPT X 7/16 JIC ELBOW
41	41193	1	HYDRAULIC PUMP
42	41573	1	FLOW DIVIDER
43	46380	1	BURNER ASSEMBLY
44	42573	1	MIXER MOTOR
45	42172	1	ENGINE, ISUZU 23.5 HP
46	43110	1	ANGLED BURNER BOX ASSEMBLY
47	43594	1	TANK, 32 GALLON DIESEL
48	44030	1	14 GAL. HYDRAULIC TANK
49	56203	1	6 TO 1 GEARBOX
50	56244	1	ADAPTER COUPLING-GBX TO HYD MOTOR



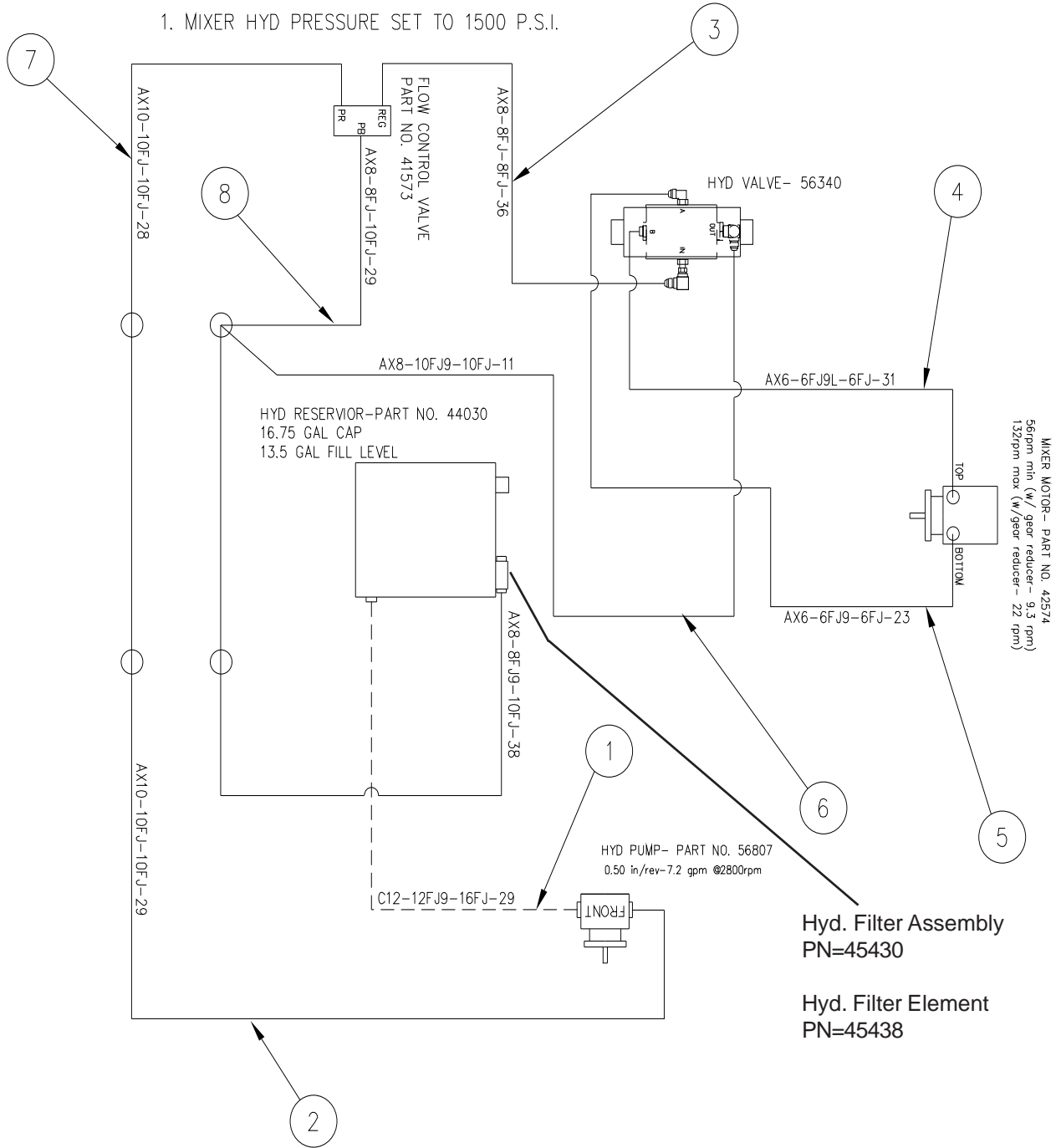
## Patcher II

NUMBER	PART NUMBER	QTY	DESCRIPTION
51	56270	1	EXHAUST DUCT ASSEMBLY
52	56290	2	PACKING GLAND ASSEMBLY
53	56293	2	BEARING, PILLOW BLOCK
54	56333	1	COUPLING HALF- MIXER SHAFT
55	56334	1	COUPLING HALF- GEAR BOX
56	56335	1	PIPE SPACER- TERMOCOUPLE
57	56337	1	PIPE SPACER- TERMOCOUPLE
58	56350	1	TORCH ACCESS DOOR ASSEMBLY
59	56352	1	INSULATION BOX WELD ASSEMBLY
60	56359	1	DOOR SWING GATE ASSEMBLY
61	56367	2	HINGE TAB
62	56705	1	POLYPATCH TRAILER ASSEMBLY
63	56711	2	SHEET, SIDE COVER
64	56712	2	SHEET, TOP COVER
65	56717	2	BEARING SUPPORT ASSEMBLY
66	56725	1	200 GAL POLYPATCH TANK ASSY
67	56726	1	ASSEMBLY, GEAR BOX MOUNTING
68	56744	1	HOT OIL DIPSTICK ASSEMBLY
69	56756	1	REAR ANGLED TANK LID ASSEMBLY
70	56757	1	REAR INSULATION STRIP
71	56758	2	FRONT INSULATION STRIP
72	56759	1	SHEET, REAR BULKHEAD COVER
73	56760	1	COVER, FRONT TANK
74	56774	1	OVERFLOW TANK ASSEMBLY
75	56777	4	TAB, GRID SUPPORT
76	56778	1	GRID ASSEMBLY

## Patcher II

NUMBER	PART NUMBER	QTY	DESCRIPTION
77	56780	1	HOOD ASSEMBLY
78	56784	1	SHEET, LH SIDE COVER (BOLT ON)
79	56785	1	SHEET, RH SIDE COVER (BOLT ON)
80	56786	1	SHEET, FRONT COVER (BOLT ON)
81	56793	1	SHEET, VENT FRONT GUARD
82	56794	1	SHEET, VENT REAR COVER
83	56797	1	VENT COVER ASSEMBLY
84	56803	1	LID ASSEMBLY TANK OPENING- FRONT
85	56805	1	SWITCH BRACKET- LID SWITCH
86	56806	1	BRACKET, WHIP HOSE MOUNTING
87	56814	4	PLATE, LID PIVOT BRACKET
88	56815	2	FEMALE THREADED ROD END
89	56816	2	CAST IRON KNOBS
90	56817	8	SNAP-TIGHT FASTENERS
91	56826	8	PACKING GLAND BOLT
92	28748	13	7/16" X 1 1/2" HX HD BOLT

# Patcher II HYDRAULIC DIAGRAM-26568



## Patcher II

### HYDRAULIC PARTS -26568

1. HYDRAULIC RESERVOIR TO HYDRAULIC PUMP (SUCTION)		
1	29901	#12 JIC X #16 MALE PIPE STRAIGHT ADAPTER
1	C12-12FJ9-16FJ9-29	SUCTION HOSE
1	29916	#12 TUBE X #12 O-RING ELBOW
1	29820	CONNECTOR C-5315 X 16
2. HYDRAULIC PUMP TO BULKHEAD TO FLOW CONTROL VALVE "PB"		
1	29828	#10 O-RING X #16 JIC ELBOW
1	AX10-10FJ-10FJ-28	HYDRAULIC HOSE
4	29805	TUBE BULKHEAD CONNECTOR
1	AX10-10FJ-10FJ-28	HYDRAULIC HOSE
1	29821	CONNECT C5315 X 16
4	29807	BULKHEAD LOCKNUT 7/8-14
1	29811	TEE, 5/8" WITH SWIVEL
3 FLOW CONTROL VALVE TO HYDRAULIC VALVE INLET		
1	AX8-8FJ-8FJ-36	HYDRAULIC HOSE
1	29868	1/2" TUBE X 5/8" O-RING ELBOW
2	29845	1/2" TUBE X 1/2 NPT ELBOW
4. HYDRAULIC VALVE "B" PORT TO HYDRAULIC MOTOR TOP PORT		
2	29828	#10 O-RING X #6 JIC ELBOW
1	AX6-6FJ9L-6FJ-31	HYDRAULIC HOSE
2	22029	5/8" O-RING X 3/8" TUBE FITTING
5. HYDRAULIC VALVE "A" PORT TO HYDRAULIC MOTOR BOTTOM PORT		
1	29828	#10 O-RING X #6 JIC ELBOW
1	AX6-6FJ9-6FJ-31	HYDRAULIC HOSE
1	22029	5/8" O-RING X 3/8" TUBE FITTING

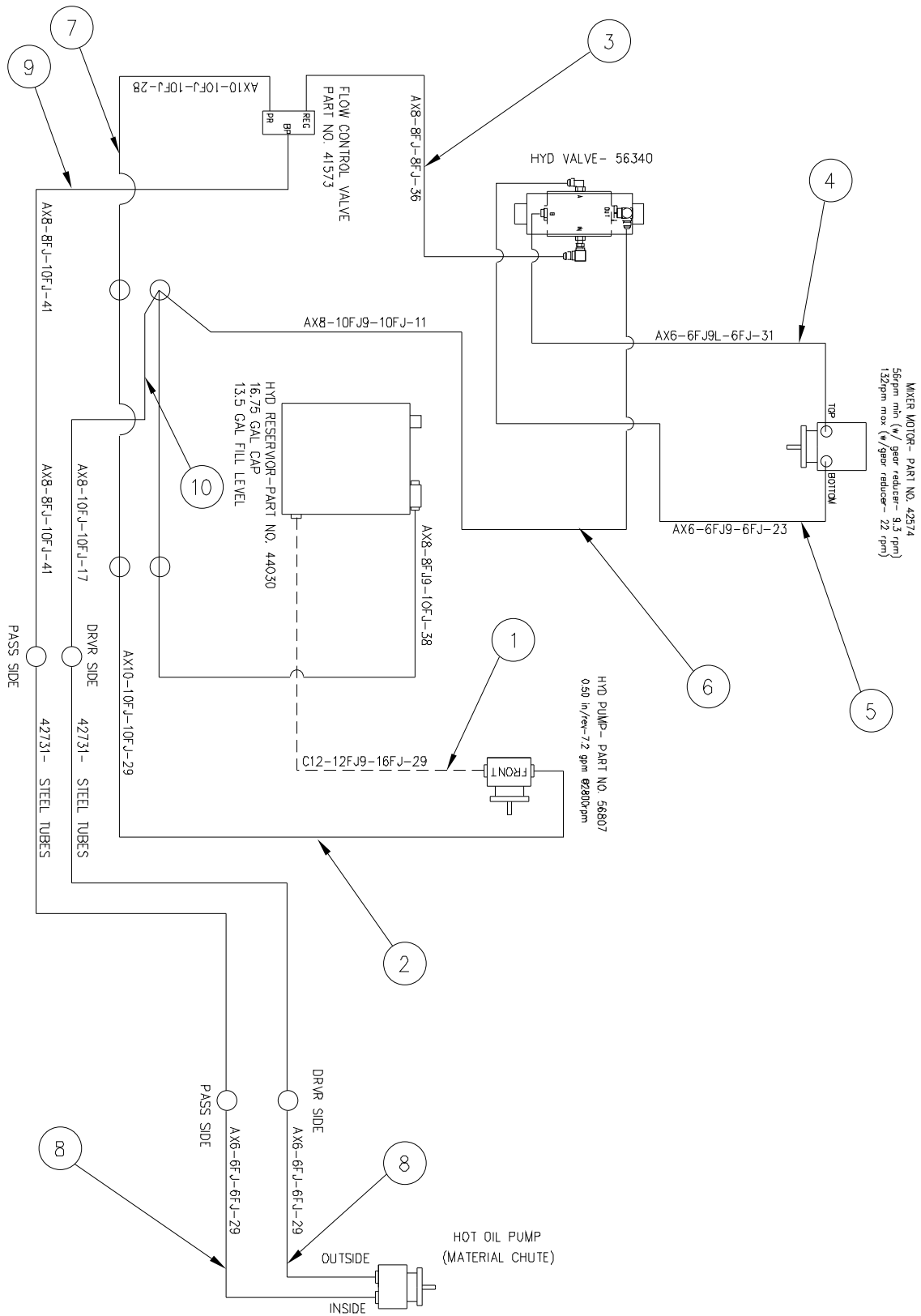
## Patcher II

### HYDRAULIC PARTS -26568

6. HYDRAULIC VALVE OUTLET TO BULKHEAD TO RESERVOIR		
1	29812	CONNECTOR 5/8 TUBE X O-RING
1	AX8-10FJ9-10FJ-11	HYDRAULIC HOSE
7. FLOW CONTROL VALVE "PR" TO BULKHEAD FITTING		
1	29813	5/8" TUBE X 3/4" NPT ELBOW
1	AX10-10FJ-10FJ-28	HYDRAULIC HOSE
2	28348	3/4" X 1/2" HEX HEAD PIPE BUSHING
8. FLOW CONTROL VALVE "PB" TO BULKHEAD FITTING		
1	AX8-8FJ-10FJ-29	HYDRAULIC HOSE

# Patcher II

## HOT OIL CHUTE HYDRAULIC DIAGRAM-26569



## Patcher II

### HOT OIL CHUTE HYDRAULIC PARTS -26569

1. HYDRAULIC RESERVOIR TO HYDRAULIC PUMP (SUCTION)		
1	29901	#12 JIC X #16 MALE PIPE STRAIGHT ADAPTER
1	C12-12FJ9-16FJ9-29	SUCTION HOSE
1	29916	#12 TUBE X #12 O-RING ELBOW
1	29820	CONNECTOR C-5315 X 16
2. HYDRAULIC PUMP TO BULKHEAD TO FLOW CONTROL VALVE "PB"		
1	29828	#10 O-RING X #16 JIC ELBOW
1	AX10-10FJ-10FJ-28	HYDRAULIC HOSE
4	29805	TUBE BULKHEAD CONNECTOR
1	AX10-10FJ-10FJ-28	HYDRAULIC HOSE
1	29821	CONNECT C5315 X 16
4	29807	BULKHEAD LOCKNUT 7/8-14
1	29811	TEE, 5/8" WITH SWIVEL
3. FLOW CONTROL VALVE TO HYDRAULIC VALVE INLET		
1	AX8-8FJ-8FJ-36	HYDRAULIC HOSE
1	29868	1/2" TUBE X 5/8" O-RING ELBOW
2	29845	1/2" TUBE X 1/2 NPT ELBOW
4. HYDRAULIC VALVE "B" PORT TO HYDRAULIC MOTOR TOP PORT		
2	29828	#10 O-RING X #6 JIC ELBOW
1	AX6-6FJ9L-6FJ-31	HYDRAULIC HOSE
2	22029	5/8" O-RING X 3/8" TUBE FITTING
5. HYDRAULIC VALVE "A" PORT TO HYDRAULIC MOTOR BOTTOM PORT		
1	29828	#10 O-RING X #6 JIC ELBOW
1	AX6-6FJ9-6FJ-31	HYDRAULIC HOSE
1	22029	5/8" O-RING X 3/8" TUBE FITTING

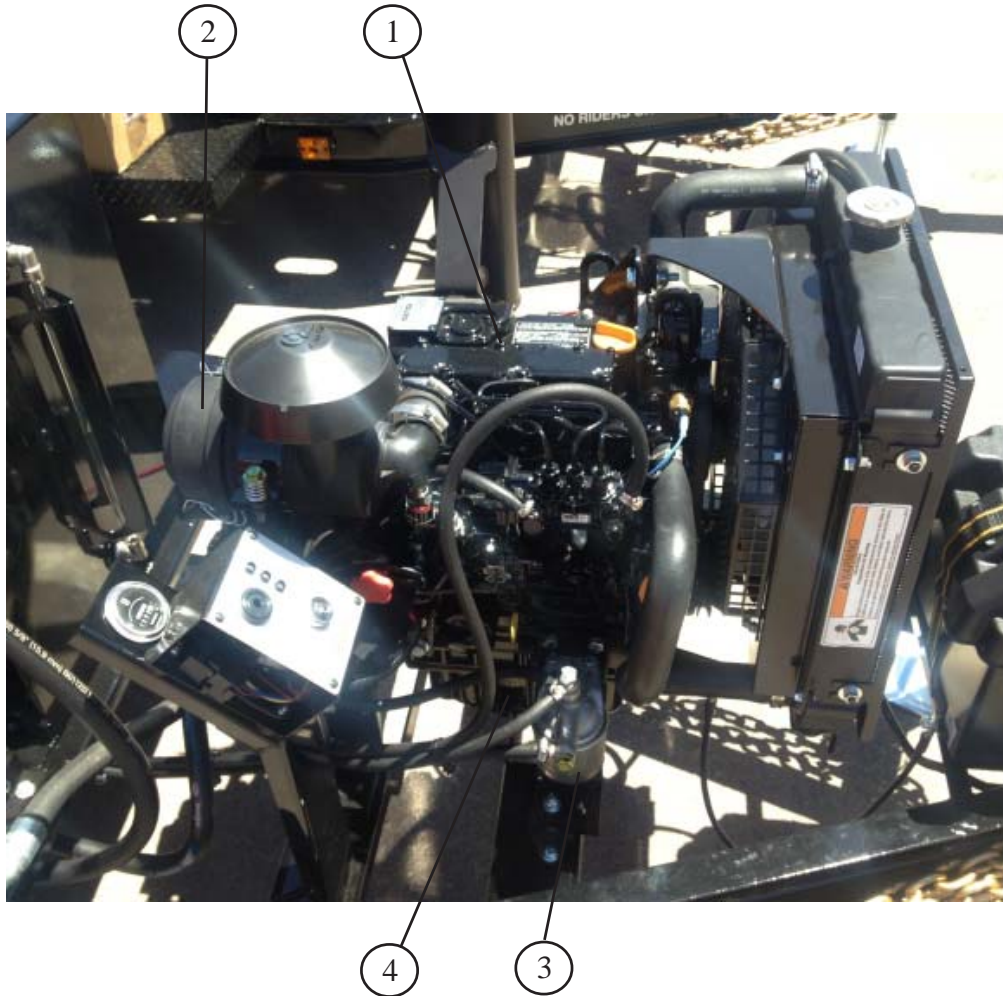
## Patcher II

### HOT OIL CHUTE HYDRAULIC PARTS -26569

<b>6. HYDRAULIC VALVE OUTLET TO BULKHEAD TO RESERVOIR</b>		
1	29812	CONNECTOR 5/8 TUBE X O-RING
1	AX8-10FJ9-10FJ-11	1/2 X 11" HYDRAULIC HOSE
<b>7. FLOW CONTROL VALVE "PR" TO BULKHEAD FITTING</b>		
1	29813	90° ELBOW ADAPTER
1	AX10-10FJ-10FJ-28	5/8 X 28 HYDRAULIC HOSE
2	28348	3/4 X 1/2 HEX HEAD PIPE BUSHING
<b>8. HOT OIL PUMP (MATERIAL CHUTE)</b>		
2	AX6-6FJ-6FJ-29	3/8 X 29" HYDRAULIC HOSE
4	29807	BULKHEAD NUT
4	29836	BULKHEAD FITTING
2	42731	STEEL TUBE
<b>9. "PB" FLOW CONTROL VALVE TO HOT OIL PUMP BULKHEAD</b>		
1	AX8-8FJ-10FJ-41	1/2 X 41" HYDRAULIC HOSE
<b>10. BULKHEAD FITTING FOR HYD VALVE TO HOT OIL PUMP BULKHEAD</b>		
1	AX8-10FJ-10FJ-17	1/2 X 17 HYDRAULIC HOSE

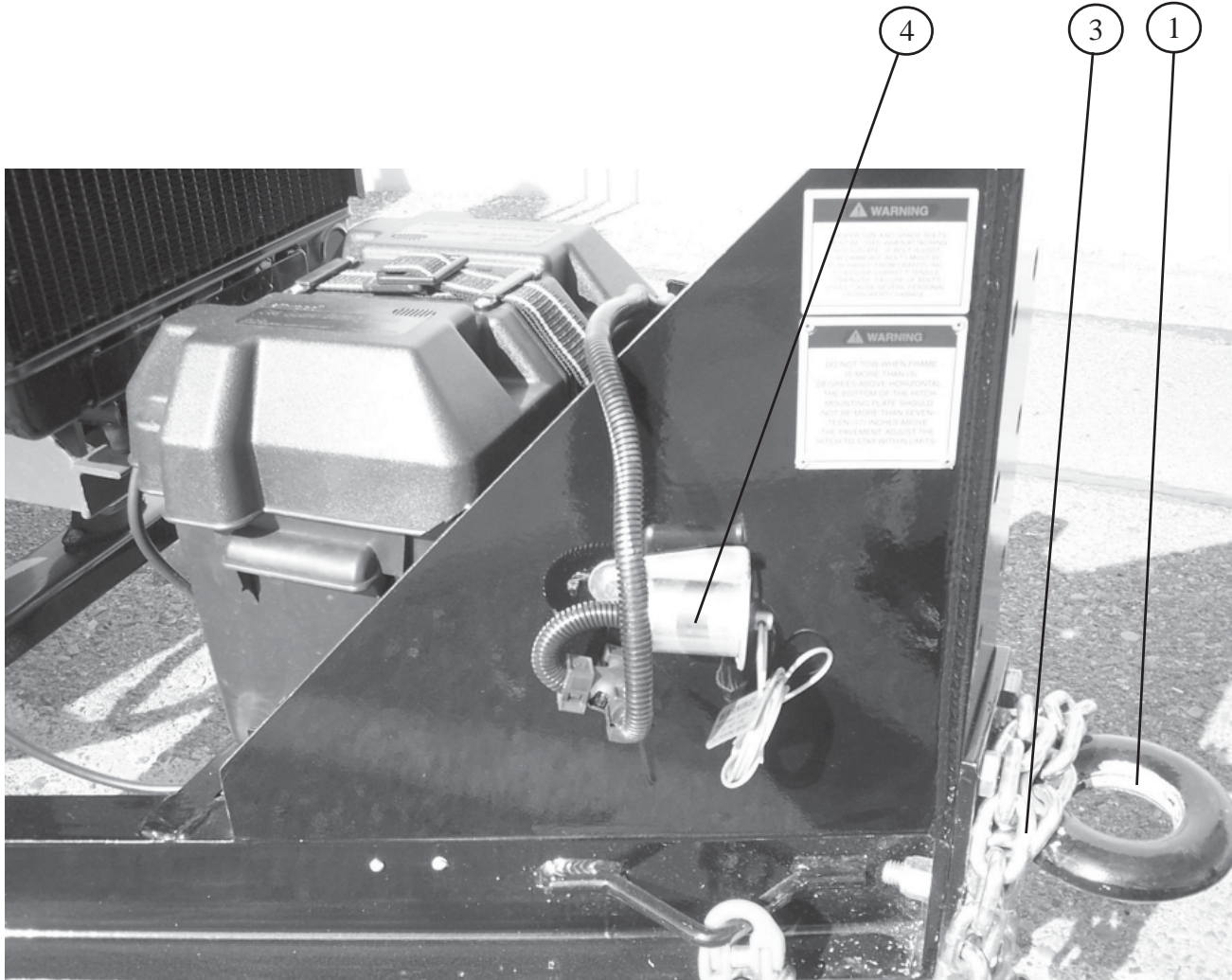


## ENGINE-ISUZU 20 H.P. 3CA1



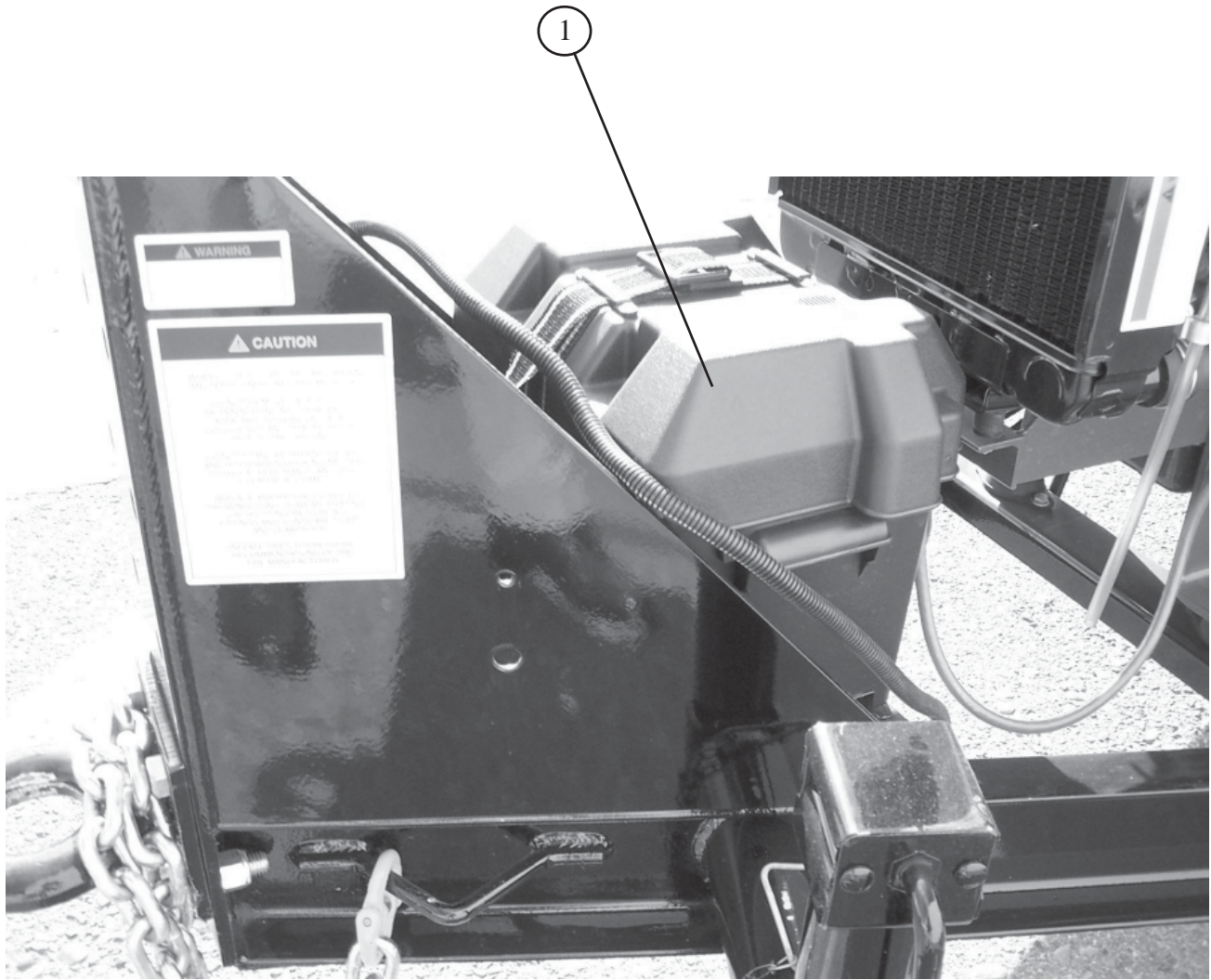
NUMBER	PART NUMBER	QTY	DESCRIPTION
1	42172	1	ISUZU 20 HP 3CA1 ENGINE
--	42050	1	ENGINE COVER OPTION
--	26476	1	OPERATOR MANUAL ISUZU 3CA1 ENGINE
--	26477	1	PARTS MANUAL ISUZU 3CA1 ENGINE
--	26478	1	SERVICE MANUAL ISUZU 3CA1 ENGINE
2	45391	1	AIR FILTER ISUZU 3CB/3CA ENGINE
3	41867	1	FUEL FILTER ISUZU 3CA1 ENGINE
4	45389	1	OIL FILTER ISUZU 3CA1 ENGINE

# BREAKAWAY SWITCH



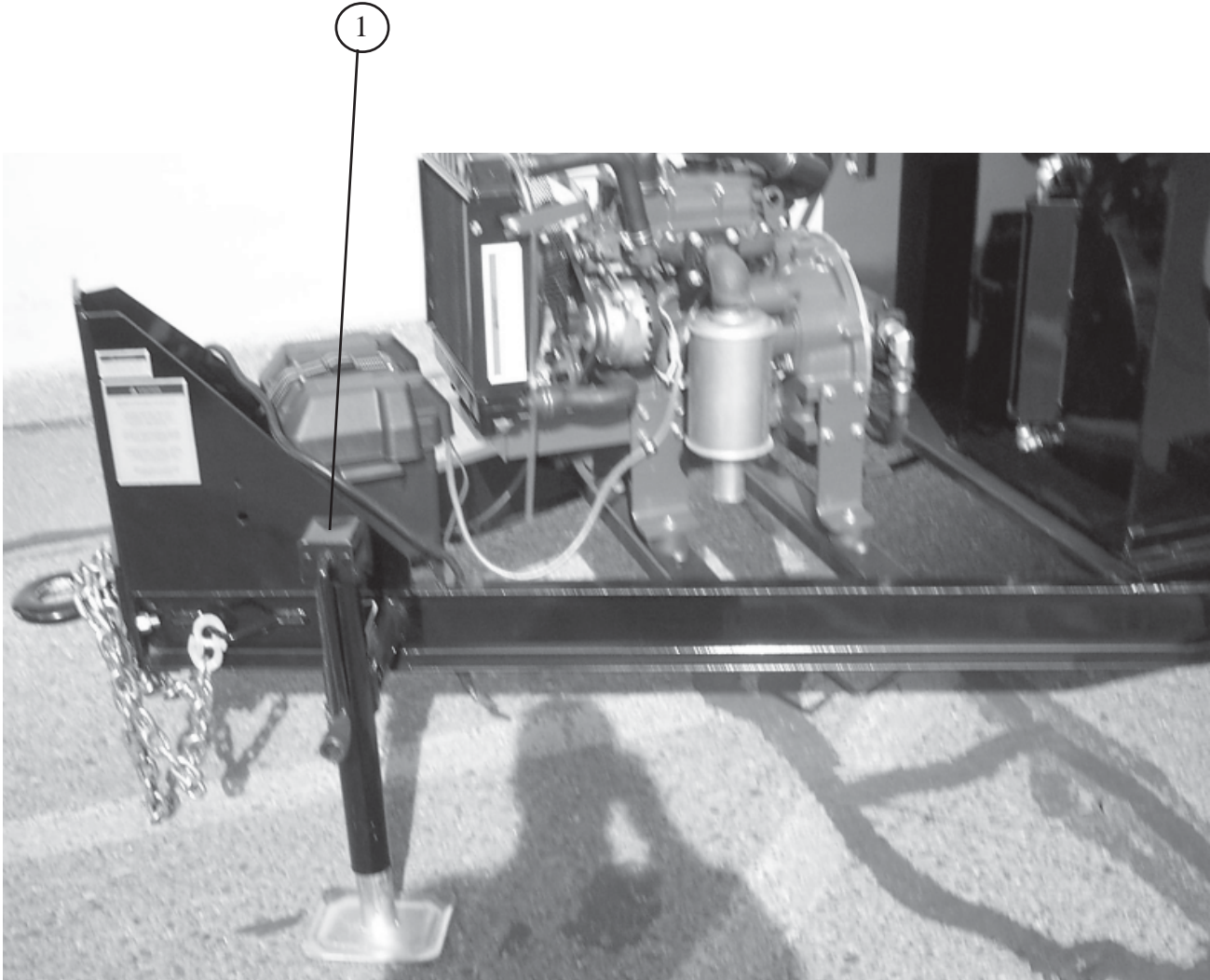
NUMBER	PART NUMBER	QTY	DESCRIPTION
1	20016	1	2-1/2" PINTLE
2	20014	1	3" PINTLE- OPTION -NOT SHOWN
3	20130	2	48" X 3/8" CHAINS
4	23117	1	BREAKAWAY SWITCH UNIT

# BATTERY & BATTERY BOX



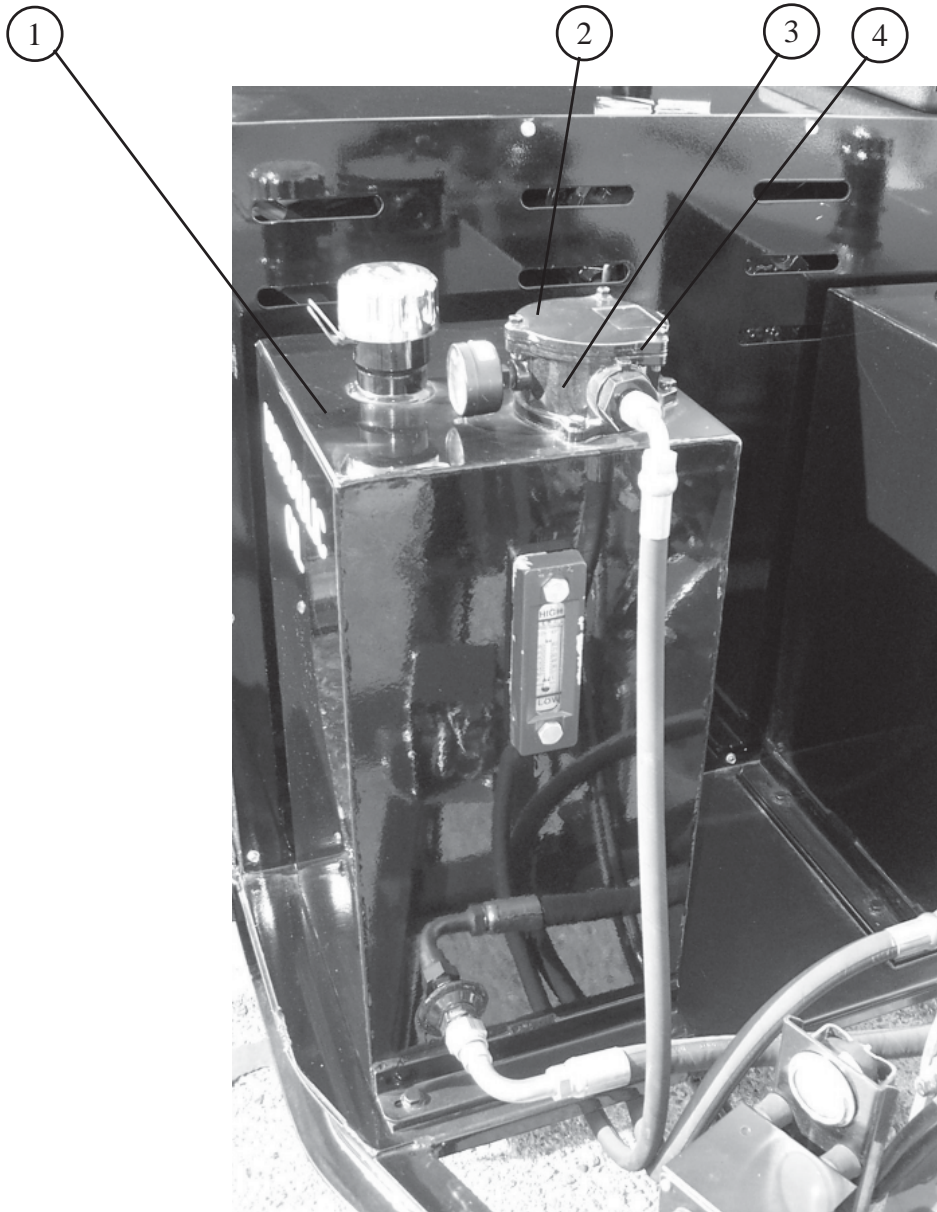
NUMBER	PART NUMBER	QTY	DESCRIPTION
1	24002	1	BATTERY BOX
2	24000	1	BATTERY- HIDDEN IN BATTERY BOX

# JACK STAND



NUMBER	PART NUMBER	QTY	DESCRIPTION
1	23082	1	7000 LBS TONGUE JACK 15"

# HYDRAULIC OIL TANK



NO.	PART NUMBER	QTY	DESCRIPTION
1	44030	1	HYDRAULIC OIL TANK ASSEMBLY
2	44063	1	O-RING, (UNDER HOUSING COVER)
3	45438	1	HYDRAULIC FILTER ELEMENT (INSIDE HOUSING)
4	45430	1	HYDRAULIC FILTER ASSEMBLY

# CONTROL BOX

1



NUMBER	PART NUMBER	QTY	DESCRIPTION
1	56715	1	ASSEMBLY CONTROL BOX

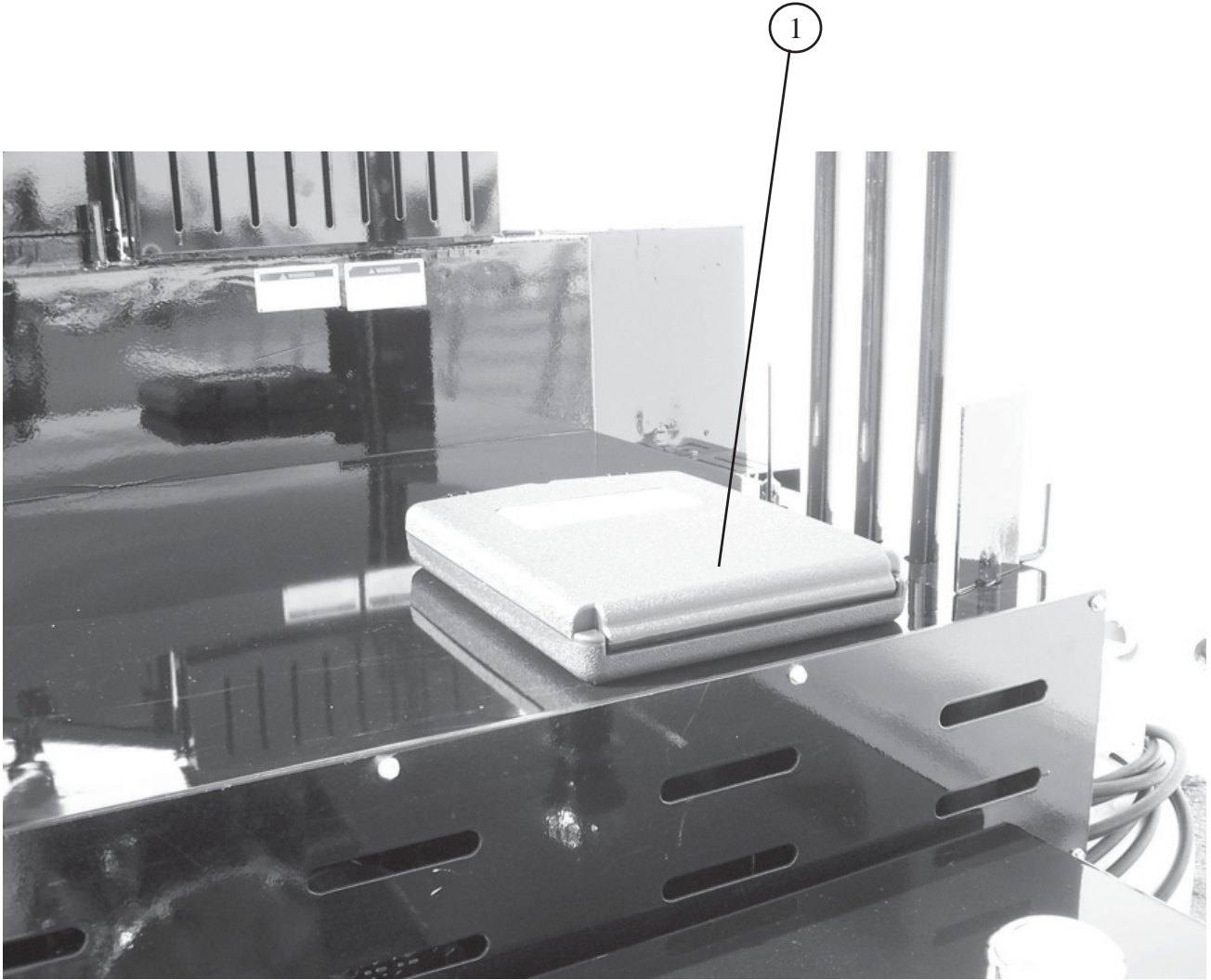
# CONTROL BOX

1



NUMBER	PART NUMBER	QTY	DESCRIPTION
1	56715	1	ASSEMBLY CONTROL BOX

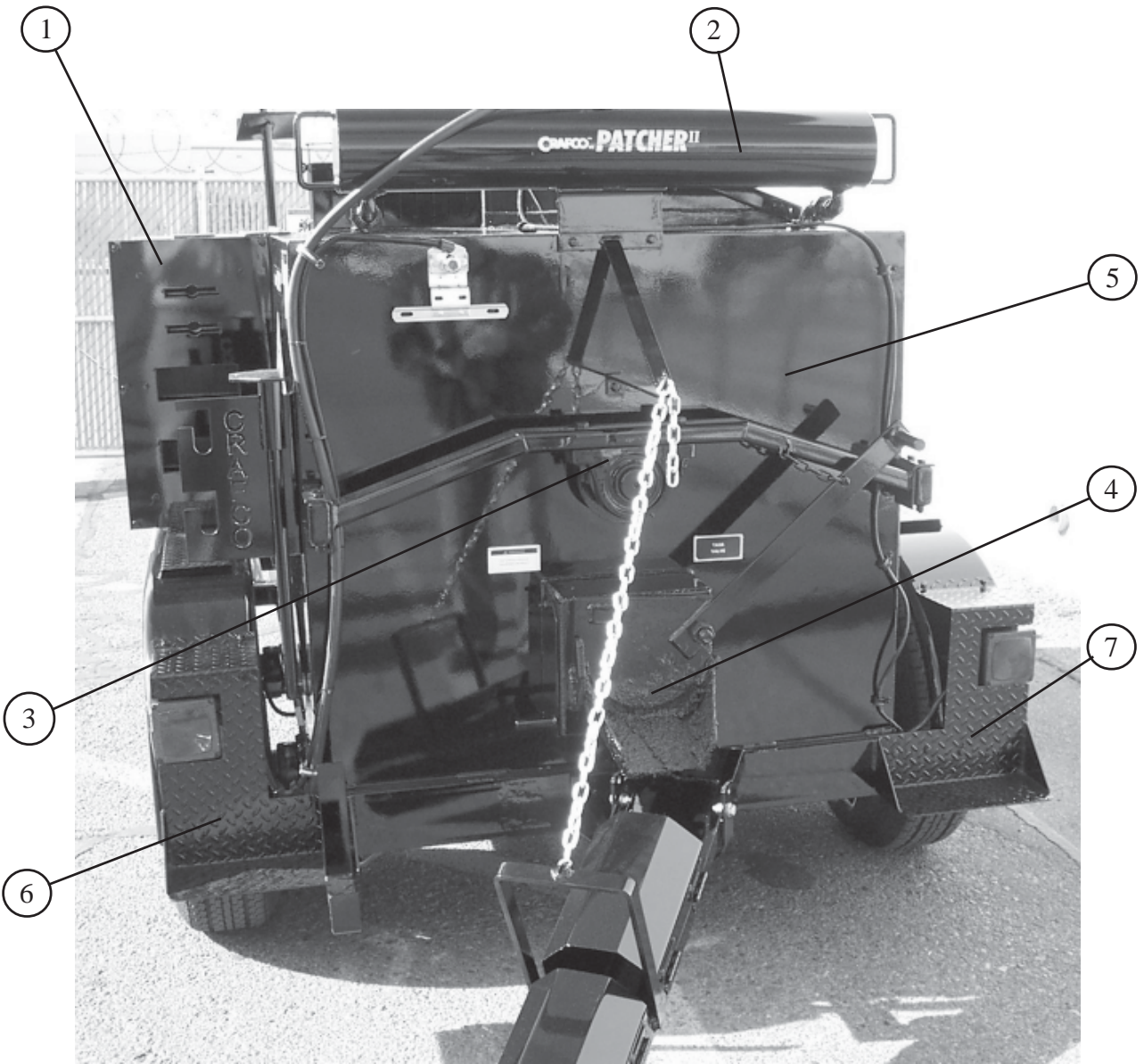
# RECORD BOX



NUMBER	PART NUMBER	QTY	DESCRIPTION
1	25289	1	MODEL 550 RECORD BOX



## REAR OF MACHINE



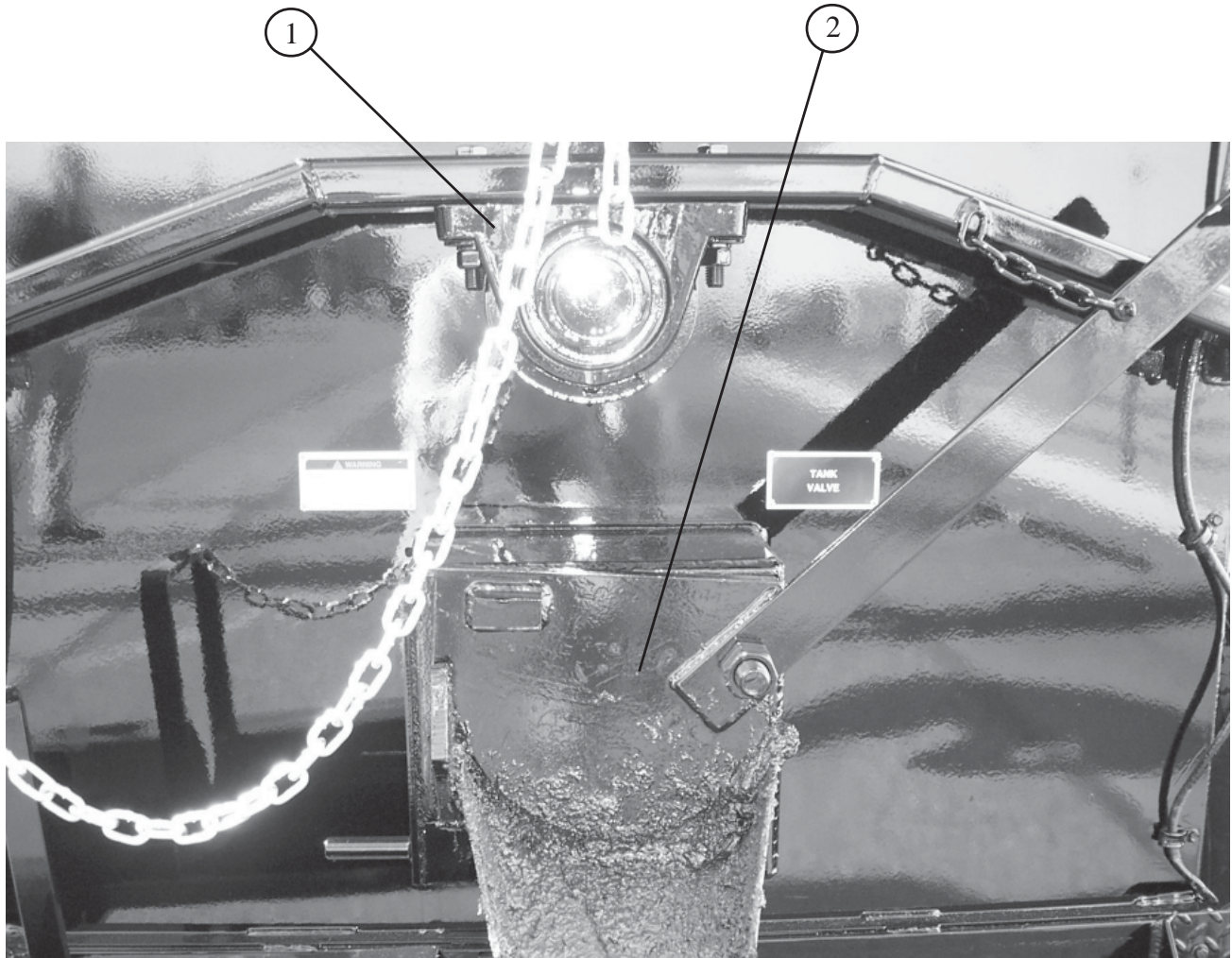
NUMBER	PART NUMBER	QTY	DESCRIPTION
1	32215	1	TECHCRETE TOOL HEAT BOX
2	56774	1	OVERFLOW TANK ASSEMBLY
3	56293	2	BEARING MAIN SHAFT
4	56359	1	DOOR SWING GATE ASSEMBLY
5	56759	1	SHEET, REAR BULKHEAD COVER
6	56708	1	STEP DRIVER'S SIDE FORMED
7	56706	1	STEP PASSENGER SIDE FORMED

# REAR OF MACHINE



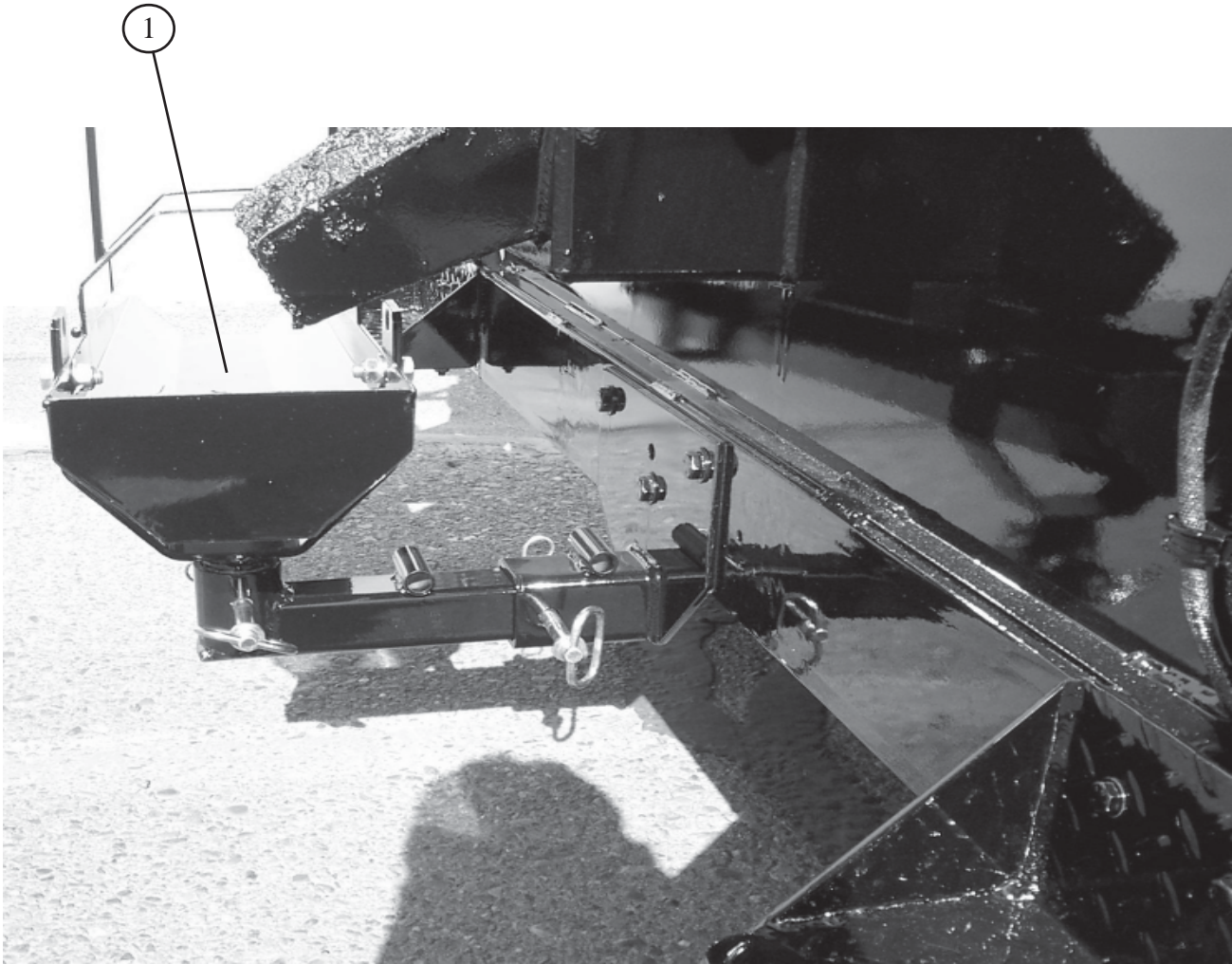
NUMBER	PART NUMBER	QTY	DESCRIPTION
1	24022	1	TAILLIGHT -RIGHT SIDE
2	24023	1	TAILLIGHT-LEFT SIDE
3	26099	1	LICENSE PLATE HOLDER

## REAR OF MACHINE



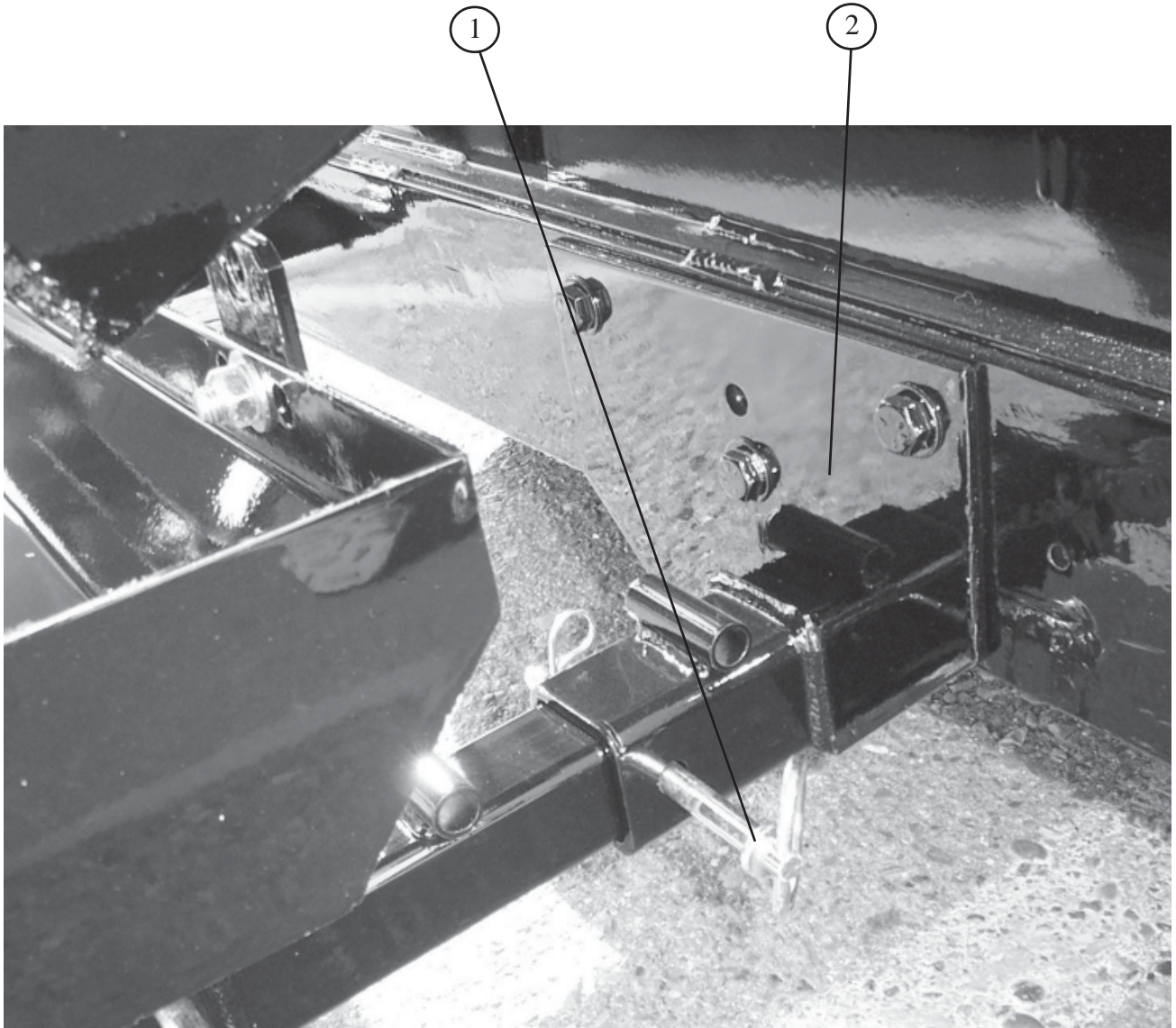
NUMBER	PART NUMBER	QTY	DESCRIPTION
1	56293	2	BEARING MAIN SHAFT
2	56359	1	DOOR SWING GATE ASSEMBLY

## MATERIAL TROUGH-OPTION



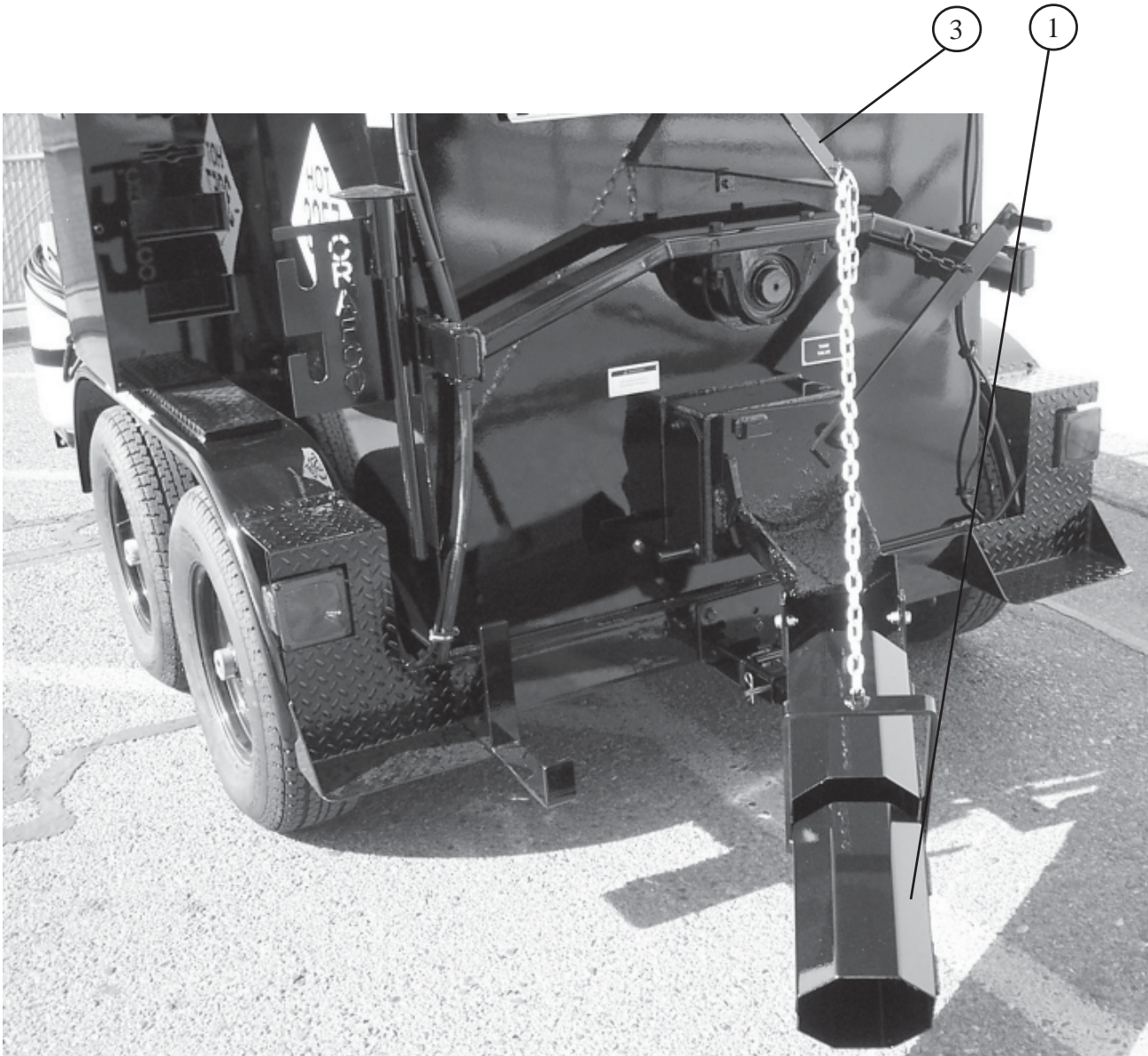
NUMBER	PART NUMBER	QTY	DESCRIPTION
1	56825	1	MATERIAL TROUGH ASSEMBLY KIT
2	56830	2	HEATED MATERIAL TROUGH ASSY. KIT

# MATERIAL TROUGH-OPTION



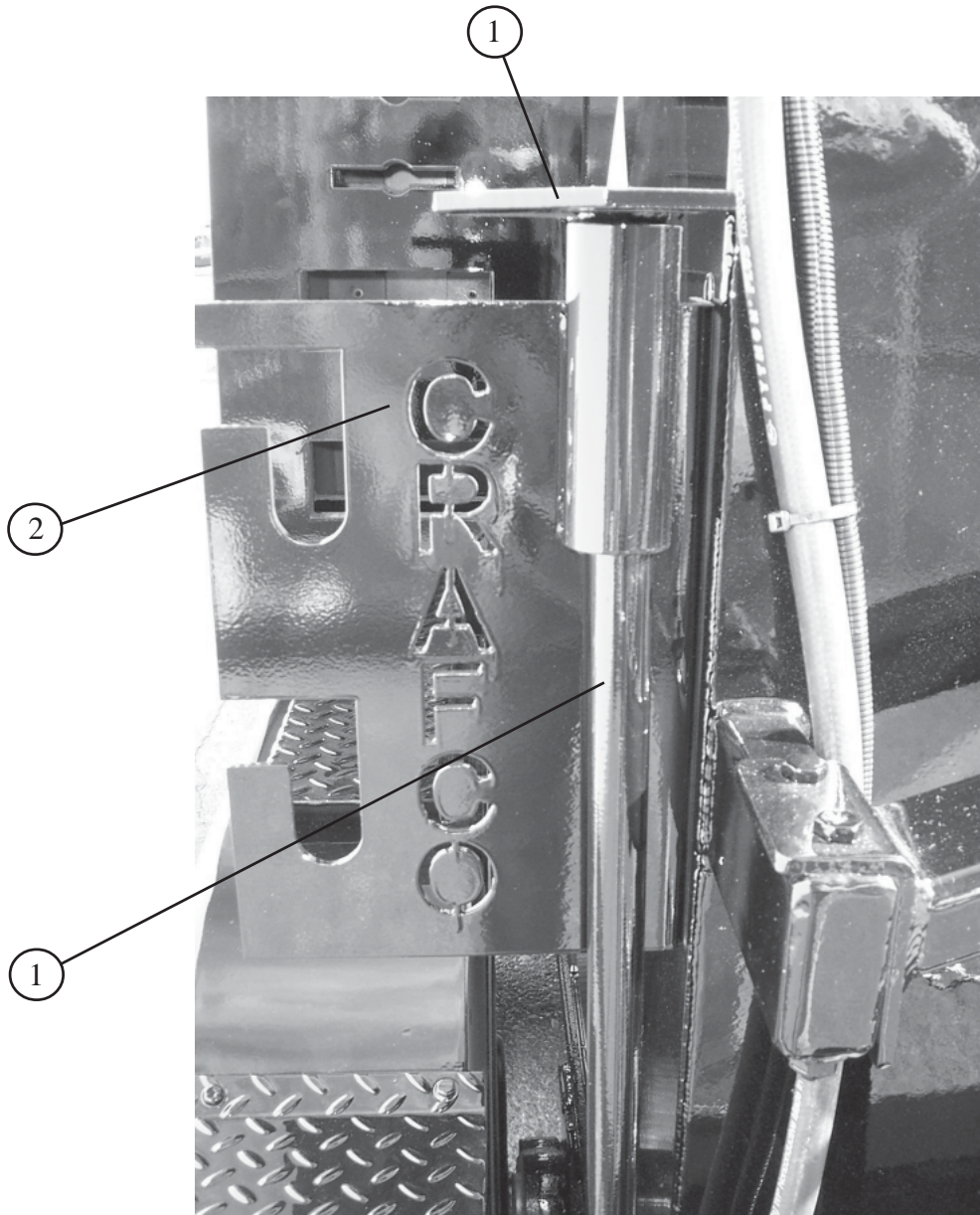
NUMBER	PART NUMBER	QTY	DESCRIPTION
1	44462	1	HITCH PIN
2	56812	1	EXTENDED MOUNT BASE PLATE ASSEMBLY

## MATERIAL TROUGH - OPTION



NUMBER	PART NUMBER	QTY	DESCRIPTION
1	56825	1	MATERIAL TROUGH ASSEMBLY KIT
-	56830	1	HEATED MATERIAL TROUGH ASSEMBLY KIT
3	56811	1	TROUGH CHAIN BRACKET

# MATERIAL TROUGH CLEAN OUT TOOL



NUMBER	PART NUMBER	QTY	DESCRIPTION
1	32239	1	MATERIAL TROUGH SCOOP ASSEMBLY
2	32274	1	OUTER TOOL BOX TOOL HOLDER

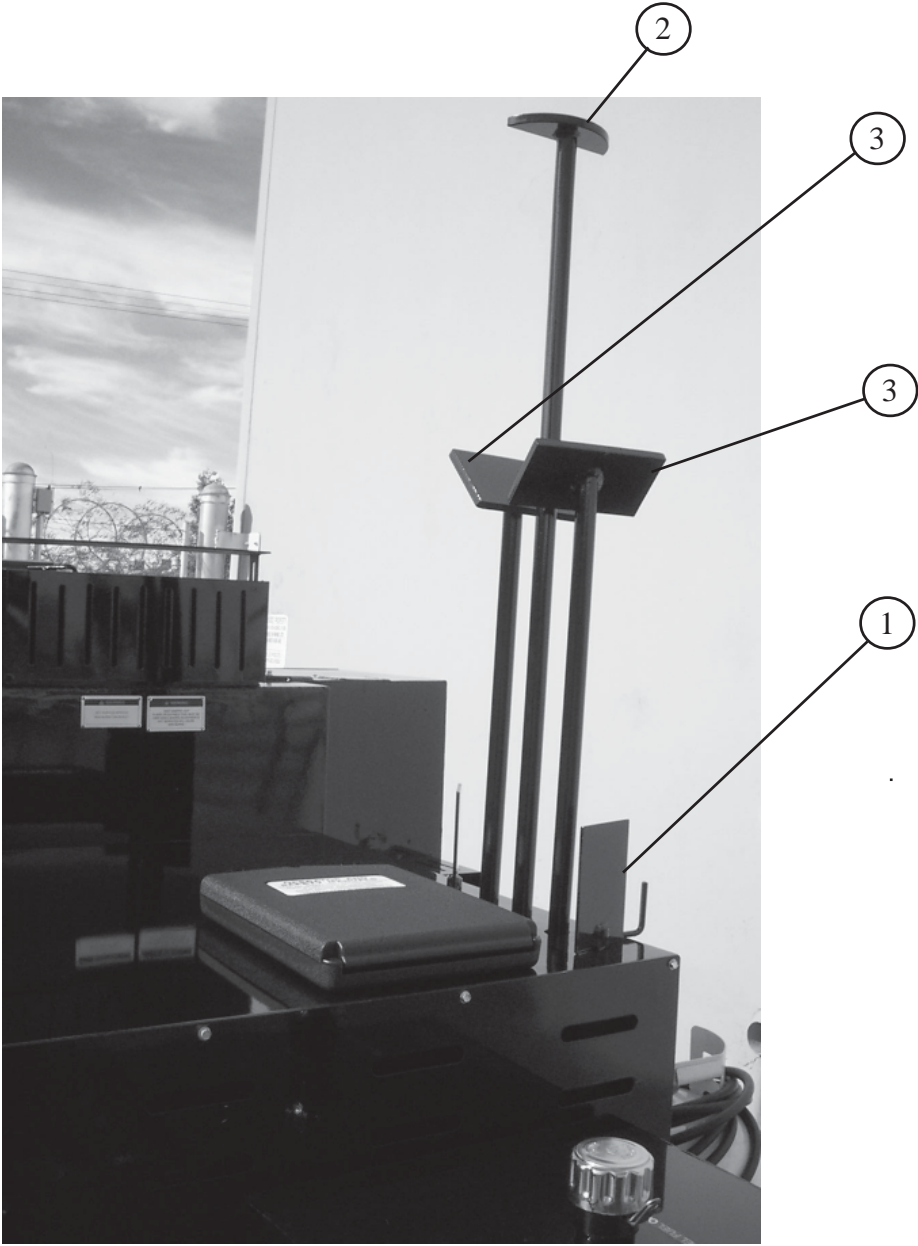
# TIRES, FENDER, LARGE DECAL



NUMBER	PART NUMBER	QTY	DESCRIPTION
1	44342	4	TIRE WITH BLACK RIM ST225/75
2	42718	2	FENDER ASSEMBLY
3	56703	1	PLATE, P.S. FRONT STEP
4	56702	1	PLATE, P.S. FRONT FENDER STEP
5	56824	1	DECAL PATCHER II - LARGE PASS. SIDE

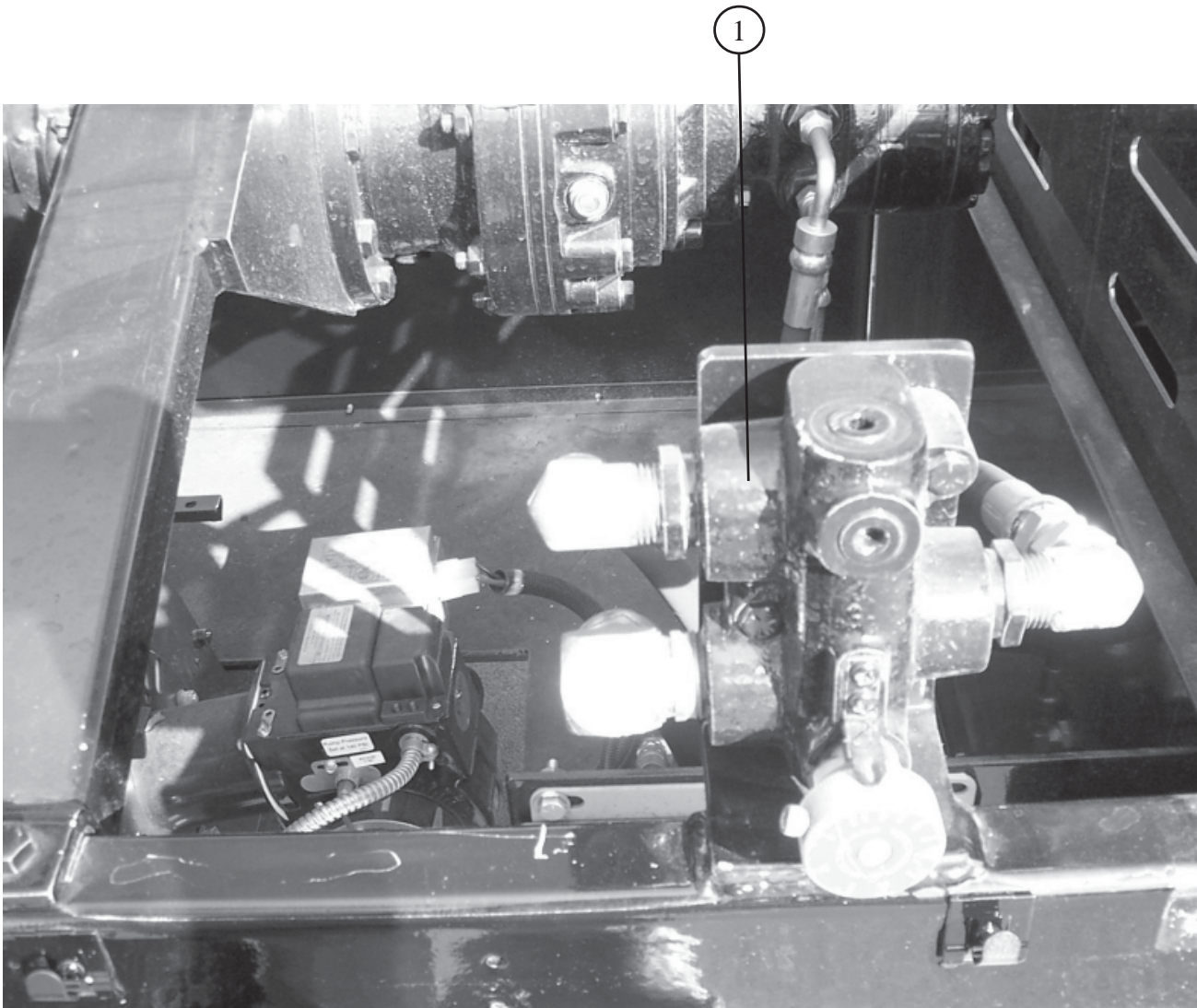


# MATERIAL TOOLS



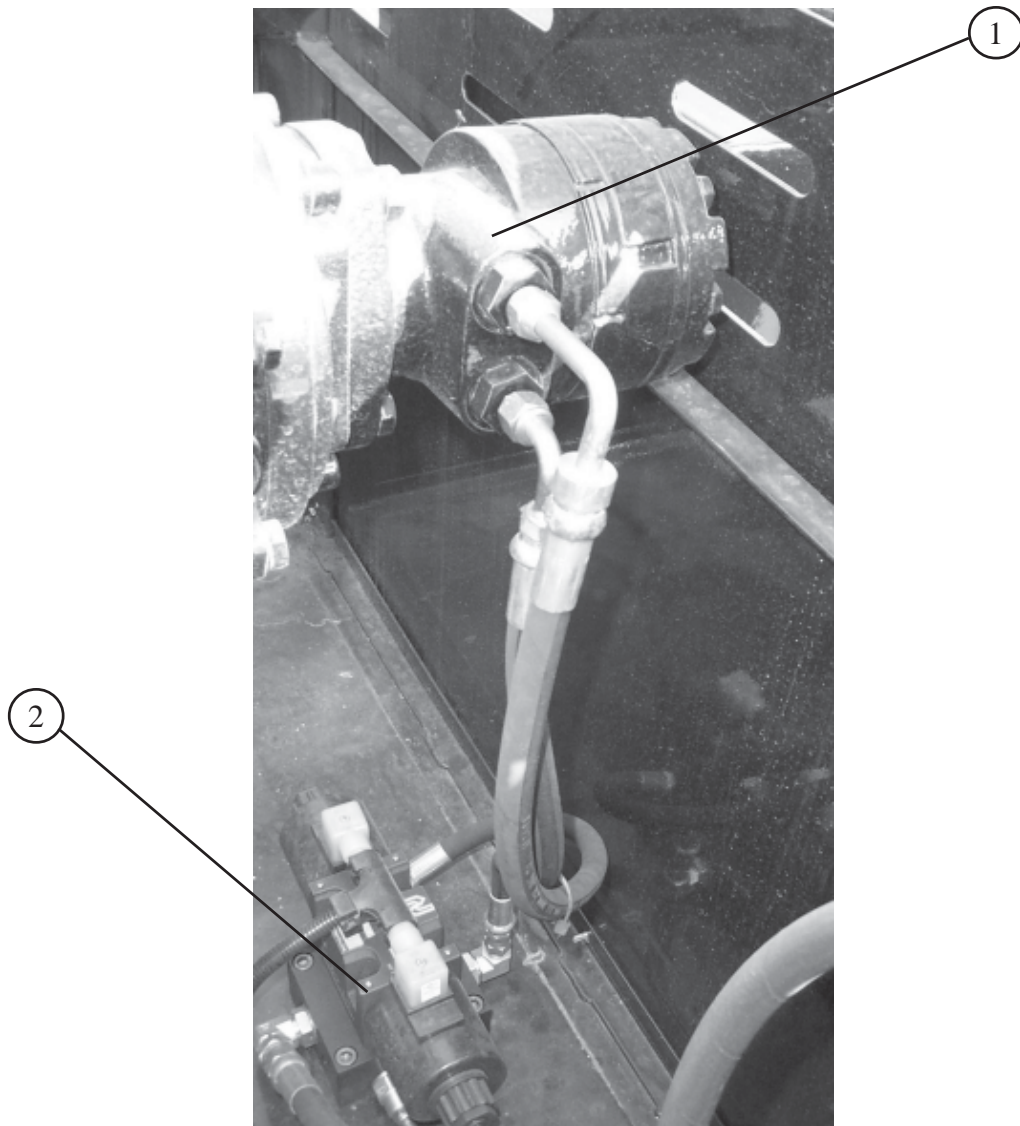
NUMBER	PART NUMBER	QTY	DESCRIPTION
1	32246	1	SCOOP HANDLE ASSEMBLY
2	32258	1	TANK SCRAPER ASSEMBLY
3	32243	2	TECHCRE TE IRONING WAND ASSEMBLY

# HYDRAULIC CONTROL VALVE



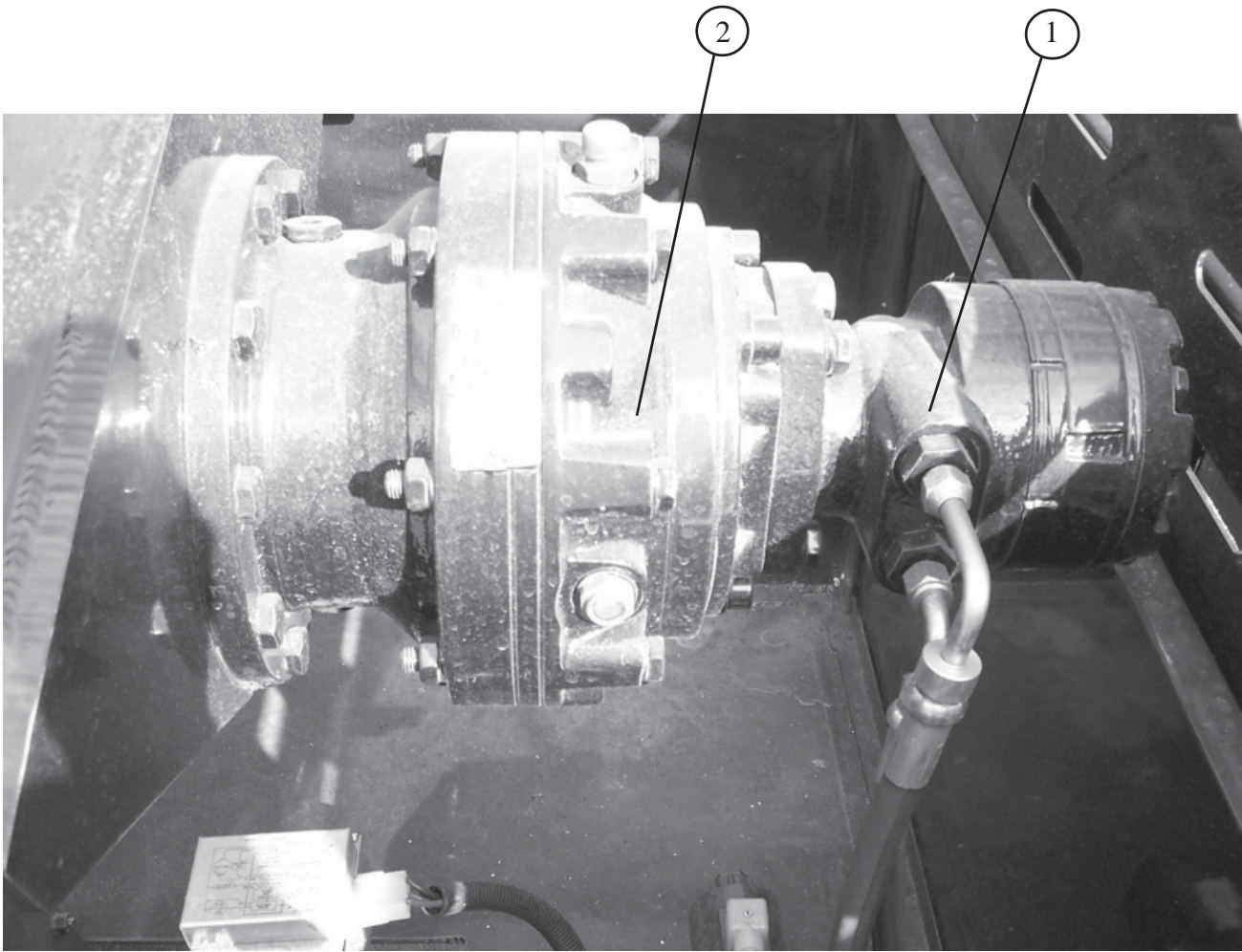
NUMBER	PART NUMBER	QTY	DESCRIPTION
1	41573	1	FLOW CONTROL HYDRAULIC VALVE

# HYDRAULIC MOTOR



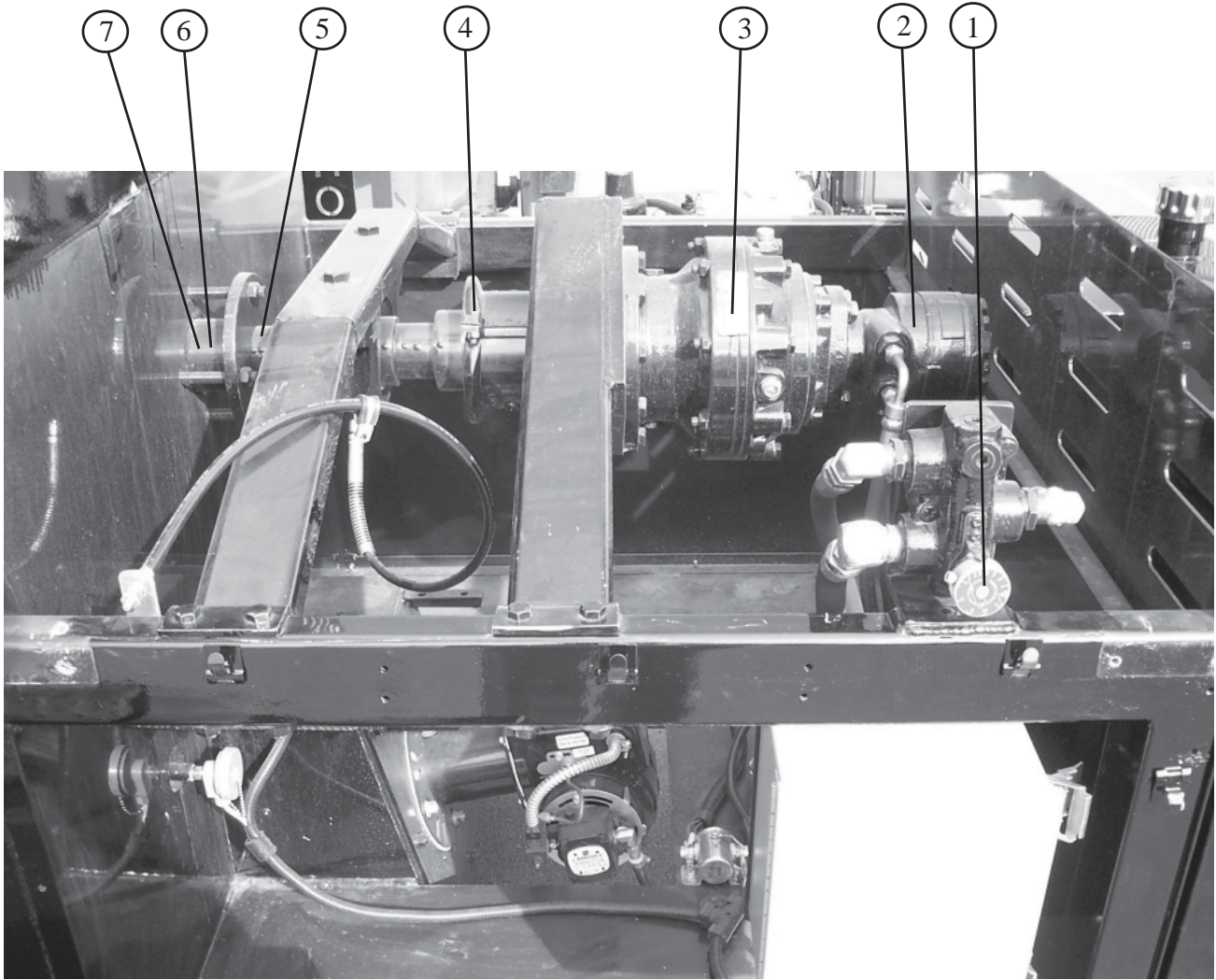
NUMBER	PART NUMBER	QTY	DESCRIPTION
1	56340	1	HYDRAULIC CONTROL VALVE
2	42574	1	MXER MOTOR

# GEAR BOX



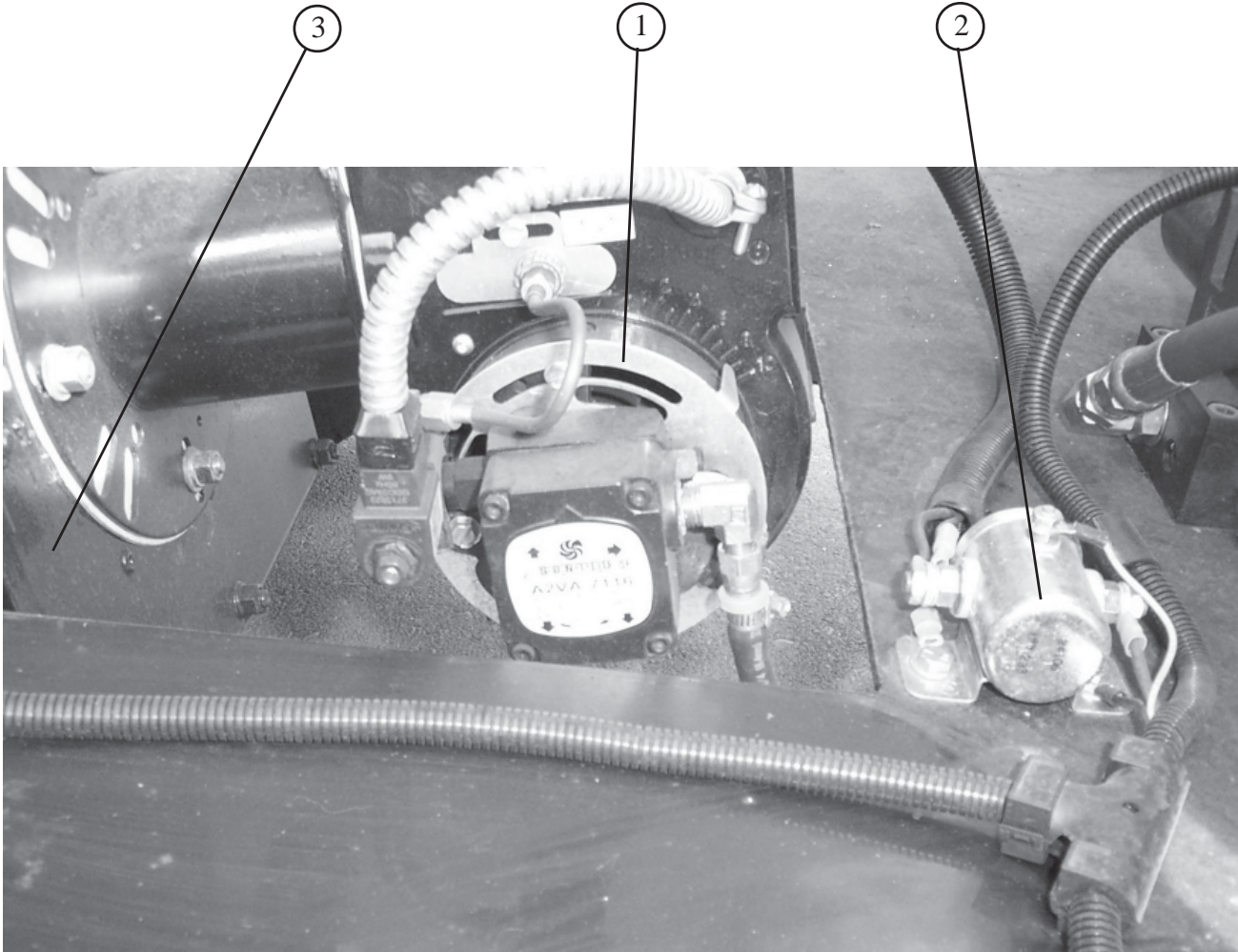
NUMBER	PART NUMBER	QTY	DESCRIPTION
1	42574	1	MXER MOTOR
2	56203	1	6 TO 1 GEAR BOX ASSEMBLY

# DRIVE SYSTEM



NUMBER	PART NUMBER	QTY	DESCRIPTION
1	41573	1	FLOW CONTROL VALVE
2	42574	1	MIXER MOTOR
3	56203	1	6 TO 1 GEAR BOX ASSEMBLY
4	56334	1	COUPLING COMPLETE
5	56251	1	MIXER MAIN SHAFT
6	56290	1	PACKING GLAND ASSEMBLY
7	32226	1	PACKING GLAND

# BURNER

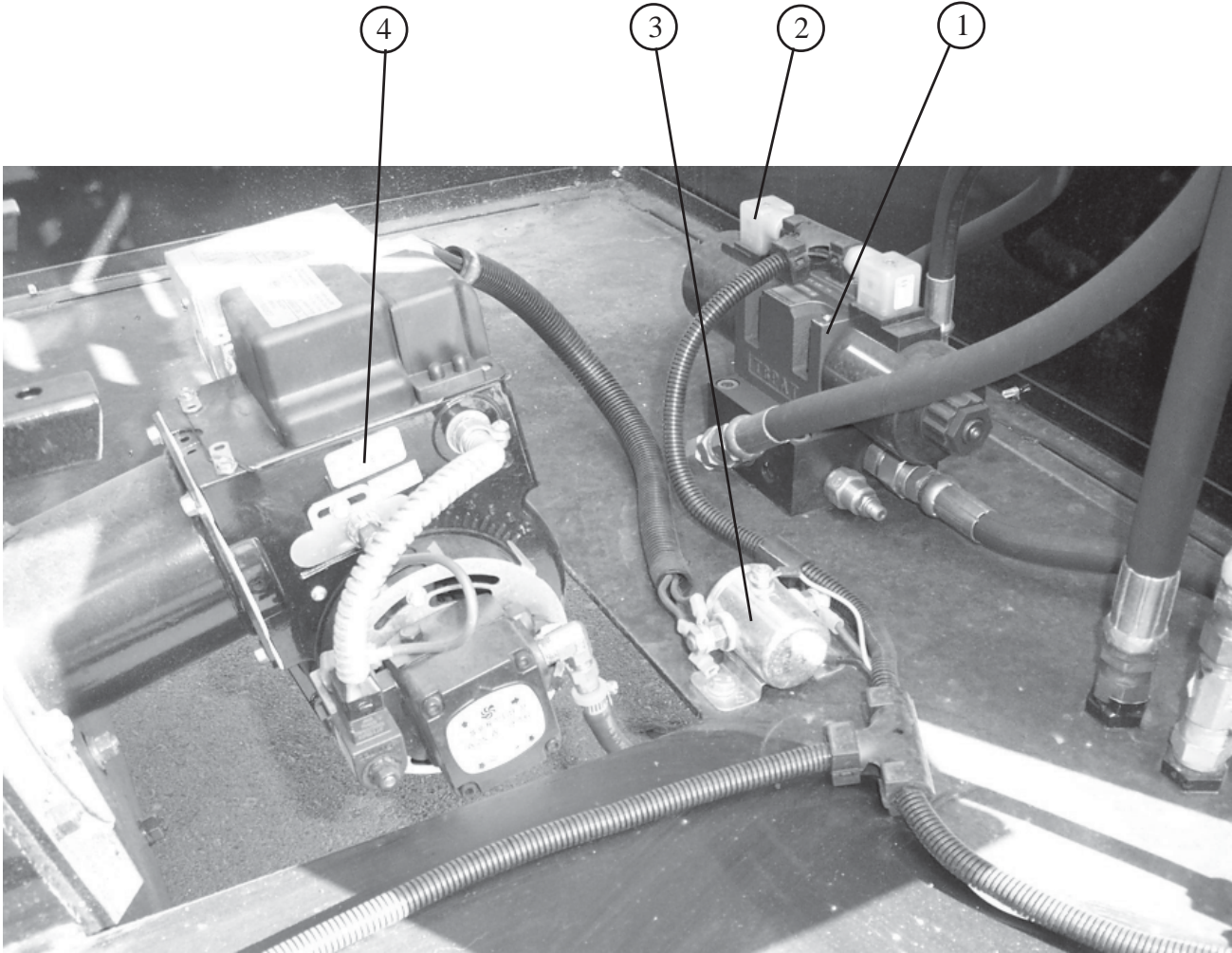


NUMBER	PART NUMBER	QTY	DESCRIPTION
1	46380	1	BURNER ASSEMBLY
2	39602	1	SOLENOID
3	43110	1	ANGLED DIESEL BURNER BOX

REF. SEE PAGE 34 FOR PARTS LIST FOR BURNER.



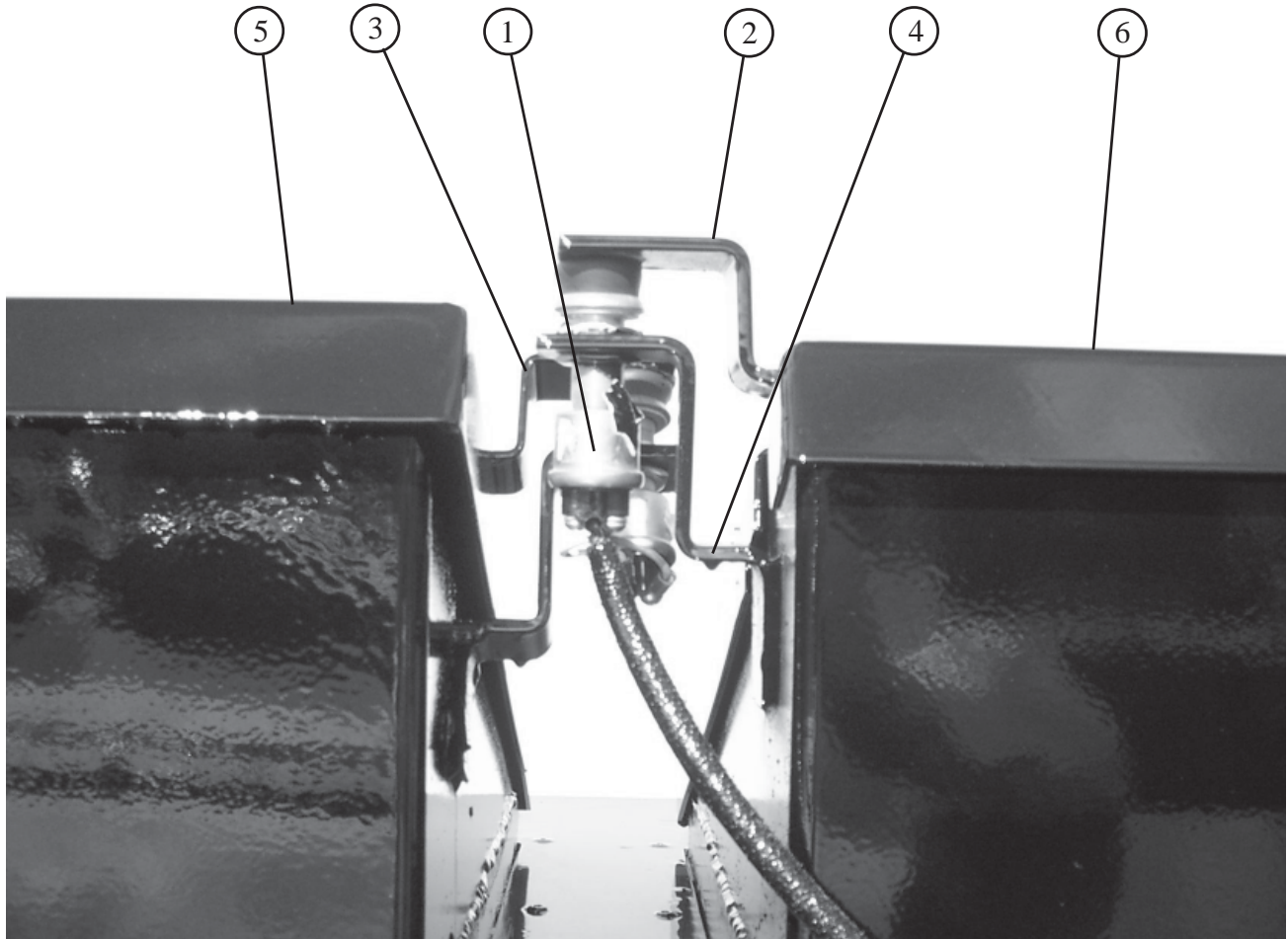
# HYDRAULIC CONTROL VALVE



NUMBER	PART NUMBER	QTY	DESCRIPTION
1	56340	1	HYDRAULIC CONTROL VALVE
2	45376	2	DIN PLUG, 12 VDC
3	39602	1	SOLENOID
4	46380	1	BURNER ASSEMBLY

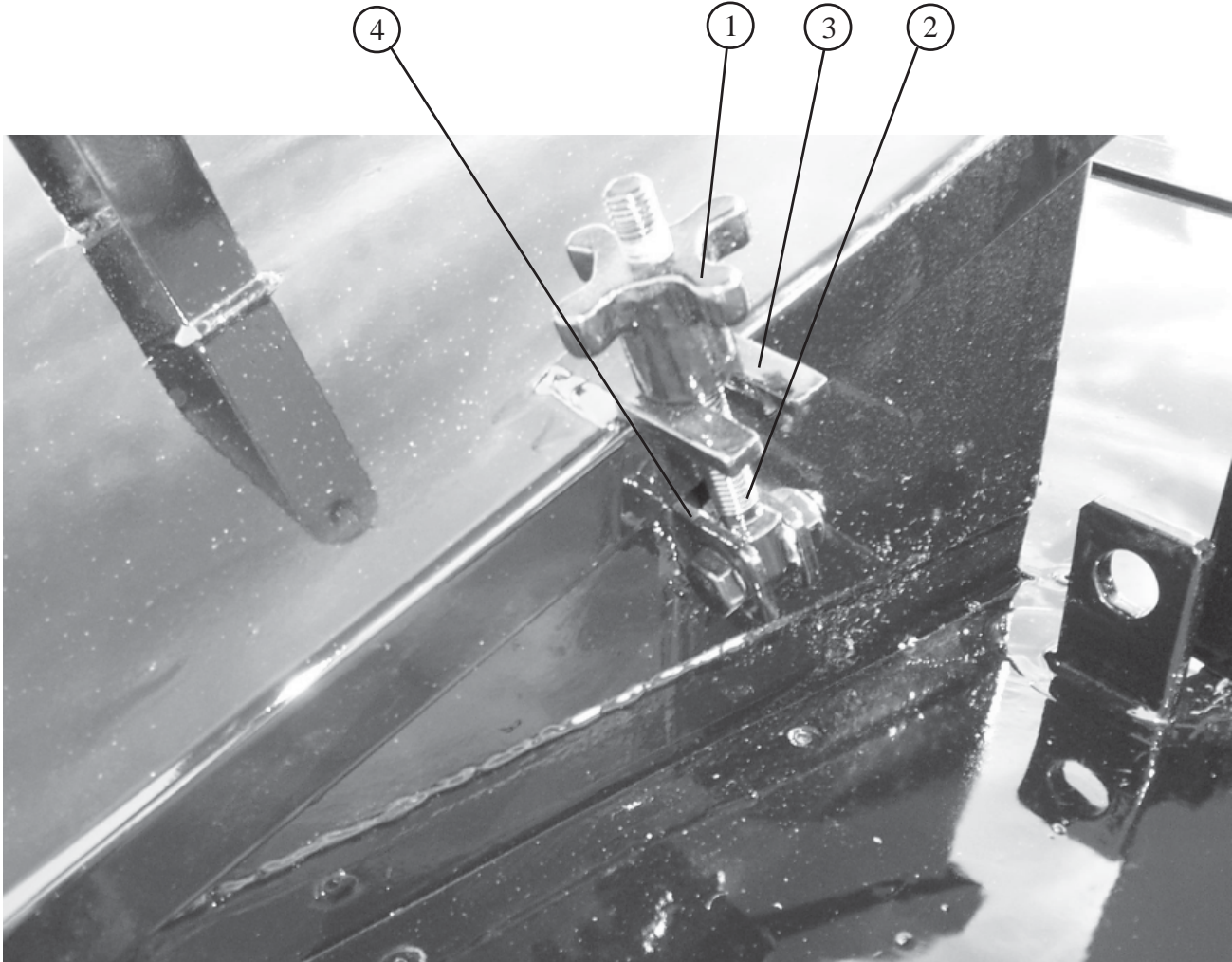


## LID SWITCHES



NUMBER	PART NUMBER	QTY	DESCRIPTION
1	39608	2	AUTO STOP SWITCH
2	56779	1	LID SWITCH BRACKET
3	56804	1	SWITCH BRACKET-LID
4	56805	2	SWITCH BRACKET-LID
5	56803	1	LID OPENING-TANK OPENING
6	56756	1	MODIFIED TANK LID

## LID HOLD DOWN BRACKET



NUMBER	PART NUMBER	QTY	DESCRIPTION
1	56816	2	CAST IRON KNOB
2	56815	2	FEMALE THREADED ROD END
3	56813	2	TAB , LID HOLD DOWN
4	56814	4	PLATE, LID PIVOT BRACKET

# DIESEL TANK



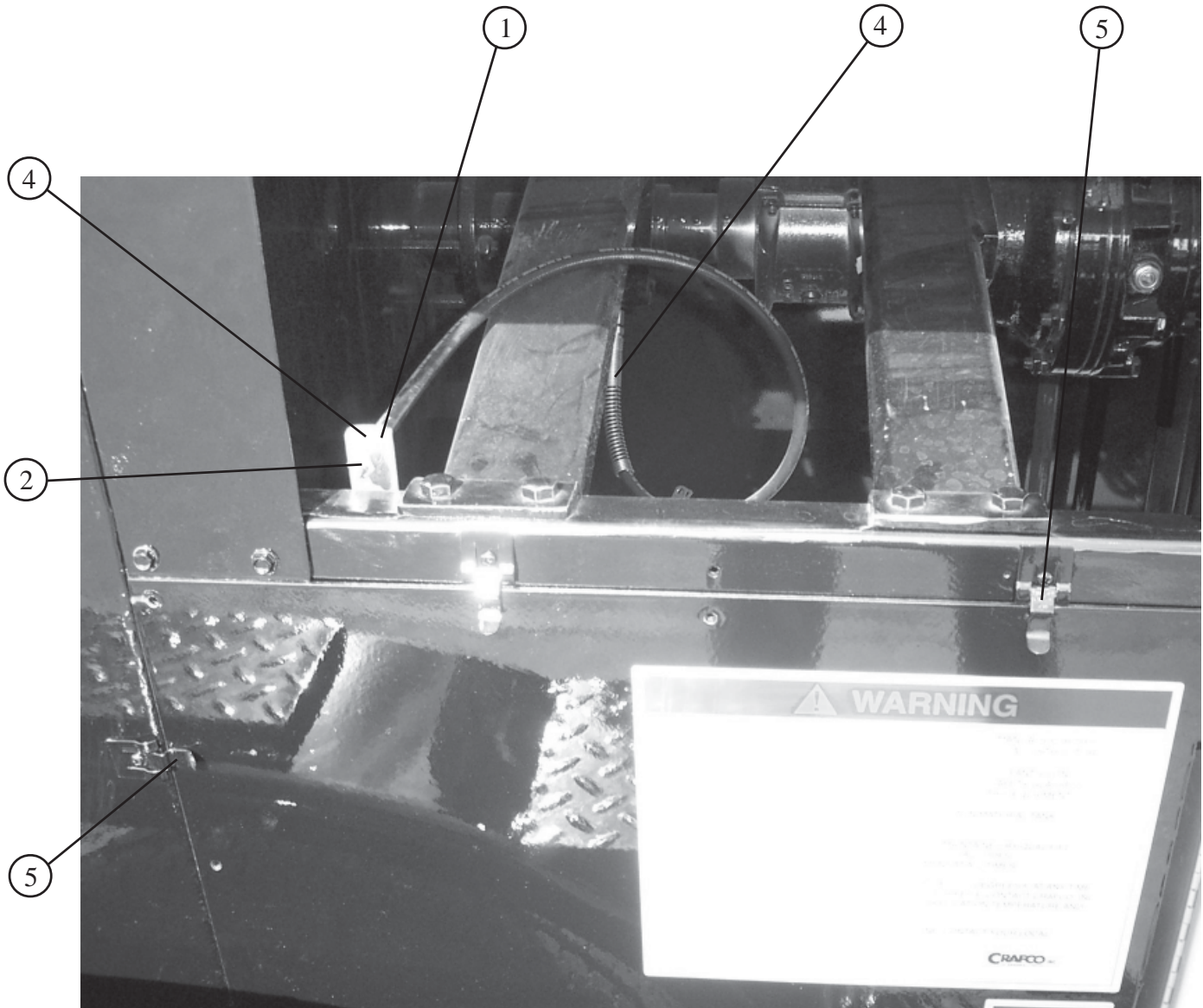
NUMBER	PART NUMBER	QTY	DESCRIPTION
1	43594	1	26 GALLON DIESEL TANK ASSEMBLY

# PROPANE TANK & HEAT TOOL BOX-OPTION



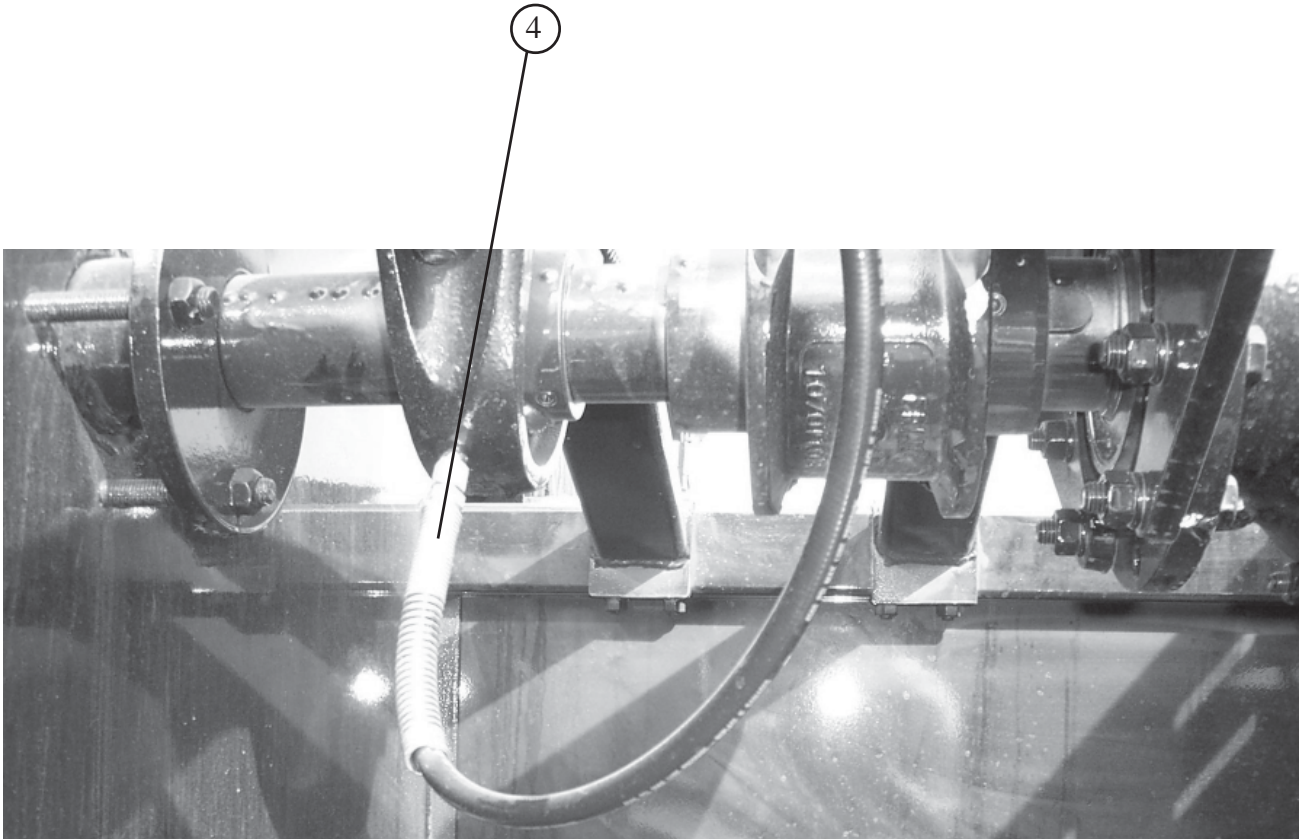
NUMBER	PART NUMBER	QTY	DESCRIPTION
1	32310	1	HEATED TOOL BOX - DIESEL FIRED
2	46380	1	BURNER ASSEMBLY

# WHIP HOSE TO GREASE BEARING



NUMBER	PART NUMBER	QTY	DESCRIPTION
1	56806	1	BRACKET, WHIP HOSE MOUNTING
2	56802	2	20024 ADAPTER
3	56801	1	5505 KS FITTING
4	56800	1	5861 WHIP HOSE 36" LONG
5	56817	6	SNAP TIGHT FASTENERS

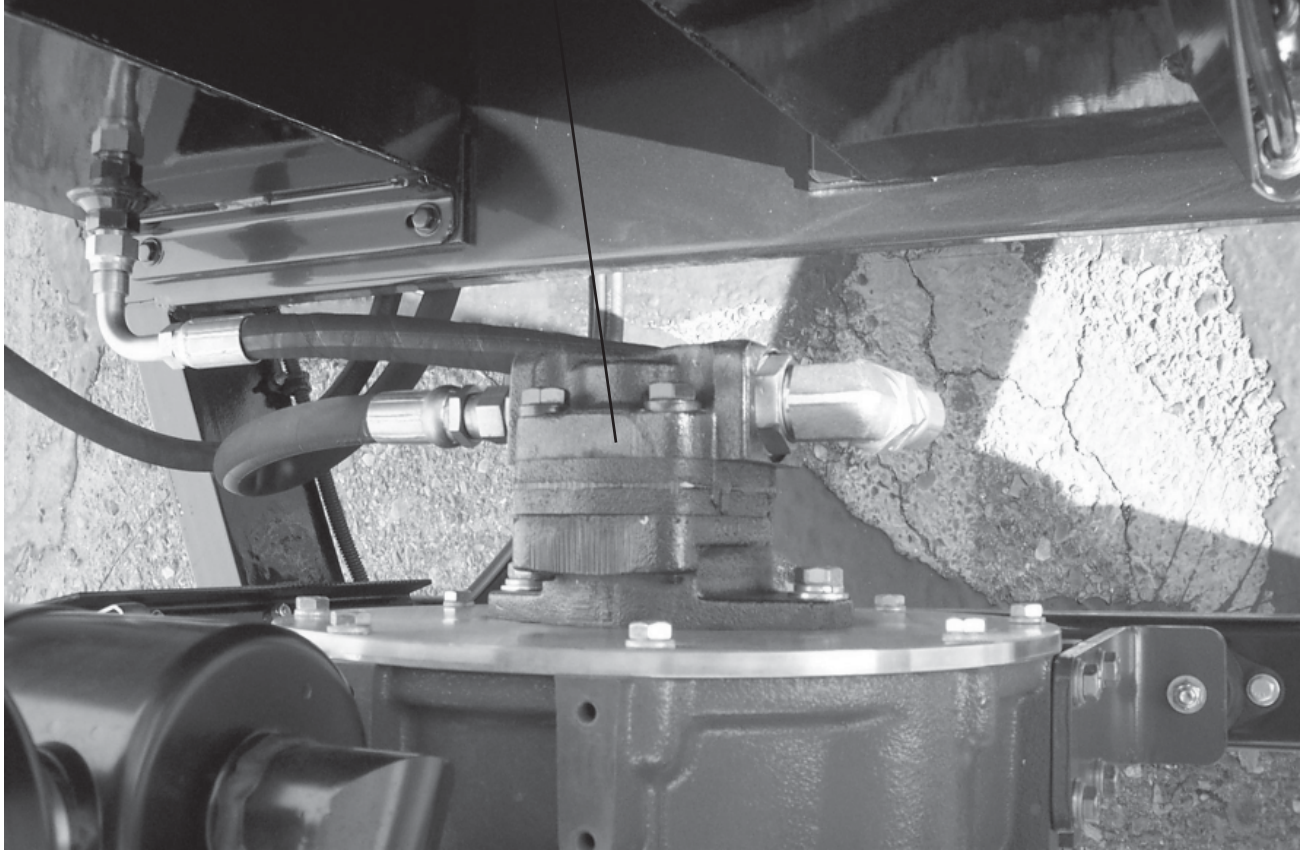
# WHIP HOSE TO GREASE BEARING



NUMBER	PART NUMBER	QTY	DESCRIPTION
1	56806	1	BRACKET, WHIP HOSE MOUNTING
2	56802	2	20024 ADAPTER
3	56801	1	5505 KS FITTING
4	56800	1	5861 WHIP HOSE 36" LONG

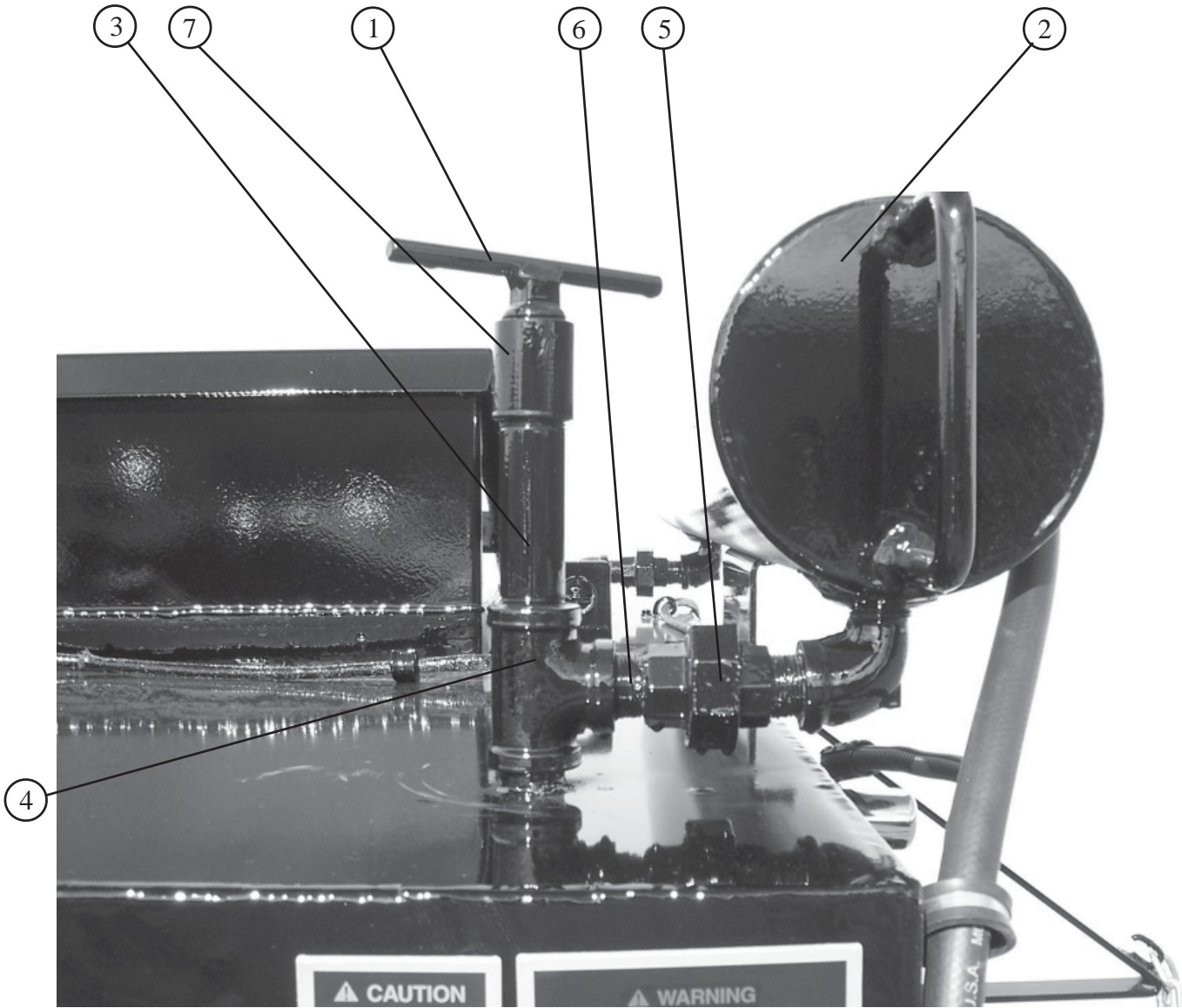
# HYDRAULIC PUMP ON ENGINE

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NUMBER	PART NUMBER	QTY	DESCRIPTION
1	56807	1	HYDRAULIC PUMP

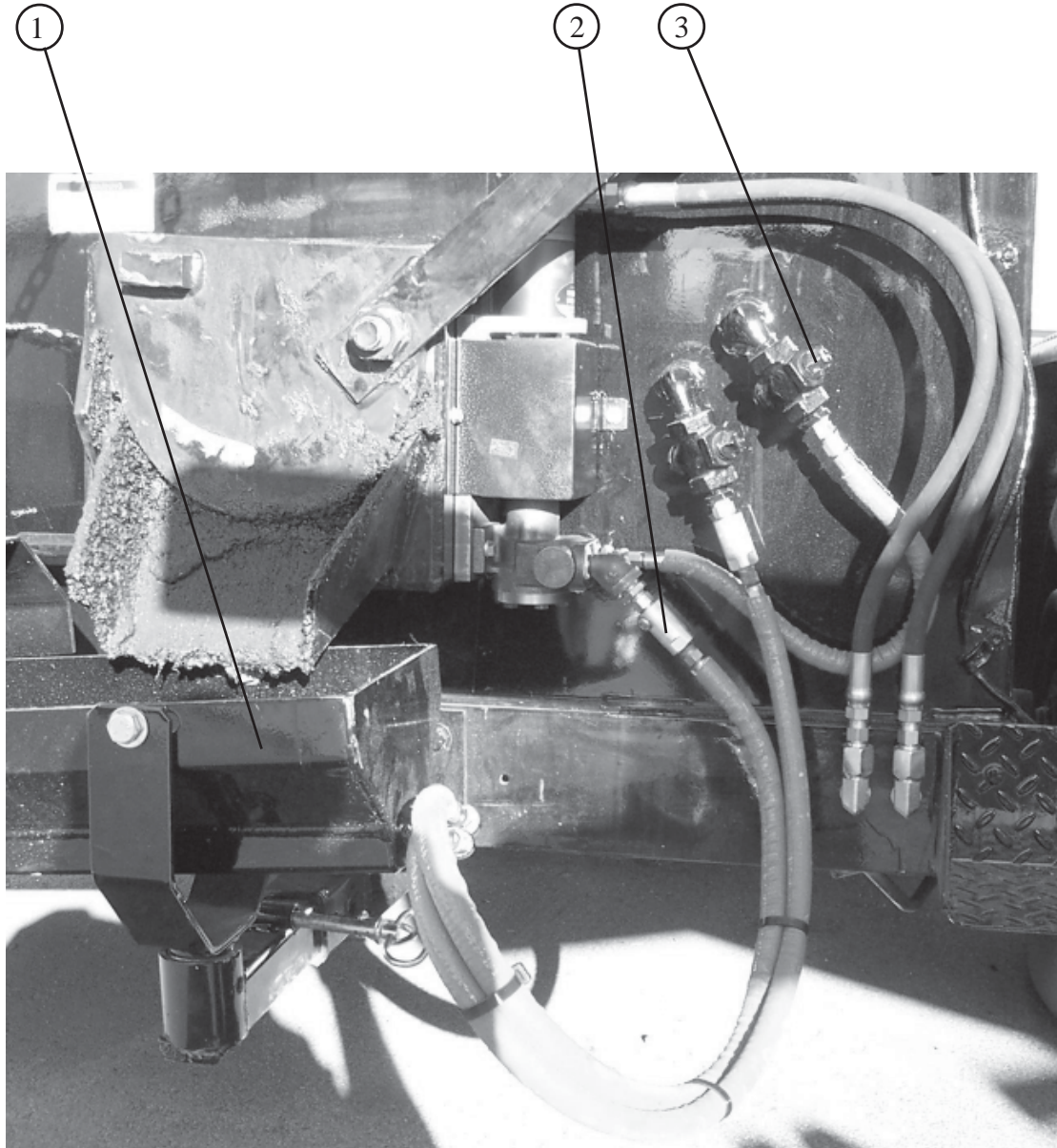
# EXPANSION TANK



NUMBER	PART NUMBER	QTY	DESCRIPTION
1	56744	1	HOT OIL DIPSTICK ASSEMBLY
2	56774	1	ASSEMBLY, OVERFLOW TANK
3	28038	1	PIPE NIPPLE 3/4" X 4"
4	28254	1	PIPE TEE 3/4" STANDARD BLACK
5	28329	1	3/4" PIPE UNION
6	28004	1	CLOSE NIPPLE XH BLACK 3/4"
7	28179	1	PIPE COUPLING 3/4"

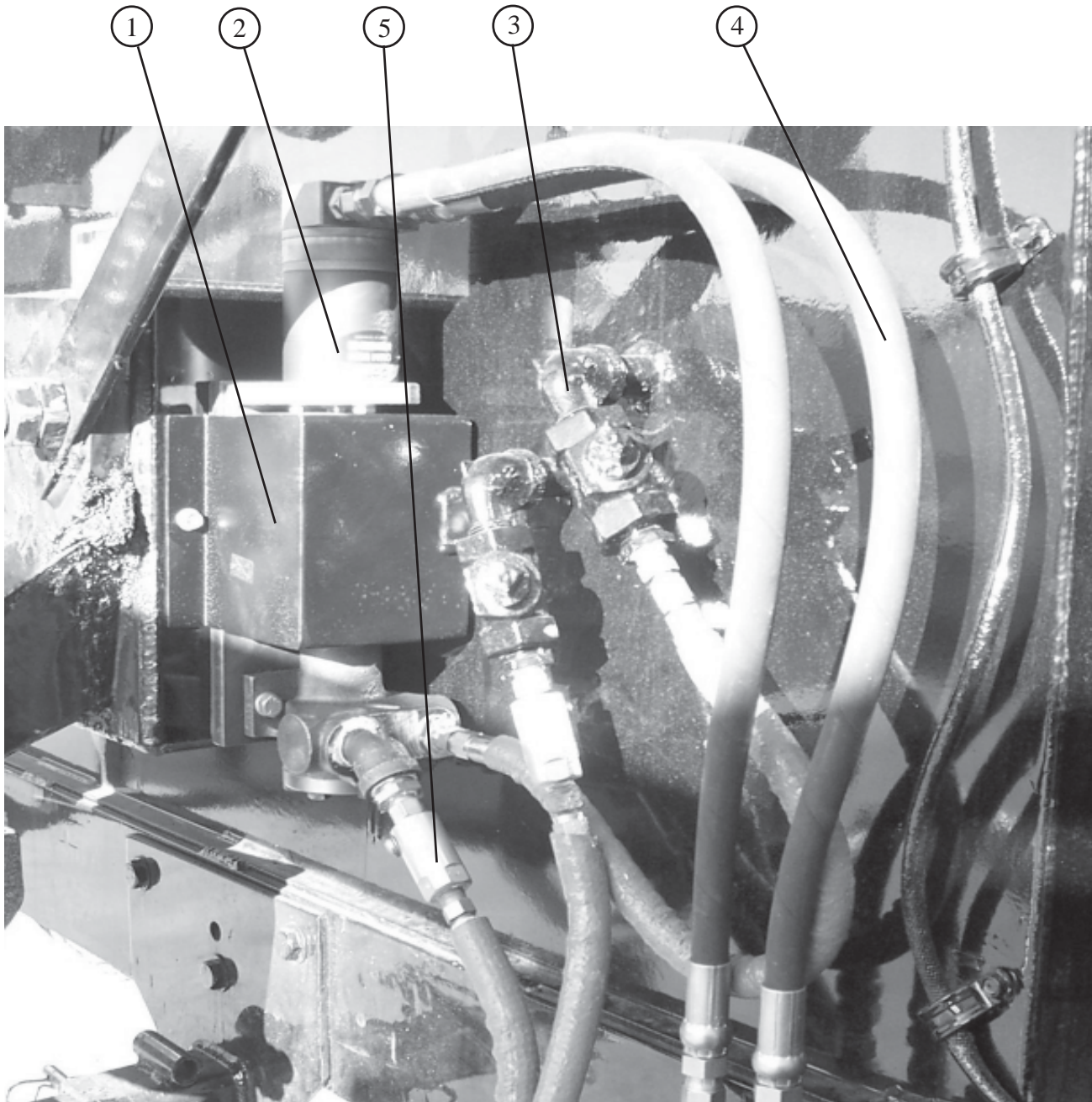


# HOT OIL MATERIAL CHUTE KIT- OPTION- 56830



<b>NUMBER</b>	<b>PART NUMBER</b>	<b>QTY</b>	<b>DESCRIPTION</b>
1	44740	1	MATERIAL TROUGH ASSEMBLY HEATED
2	56832	2	600 DEGREE 1/4" SWIVEL
3	41271	2	VALVE, HOT OIL SHUT OFF

## HOT OIL MATERIAL CHUTE KIT- OPTION



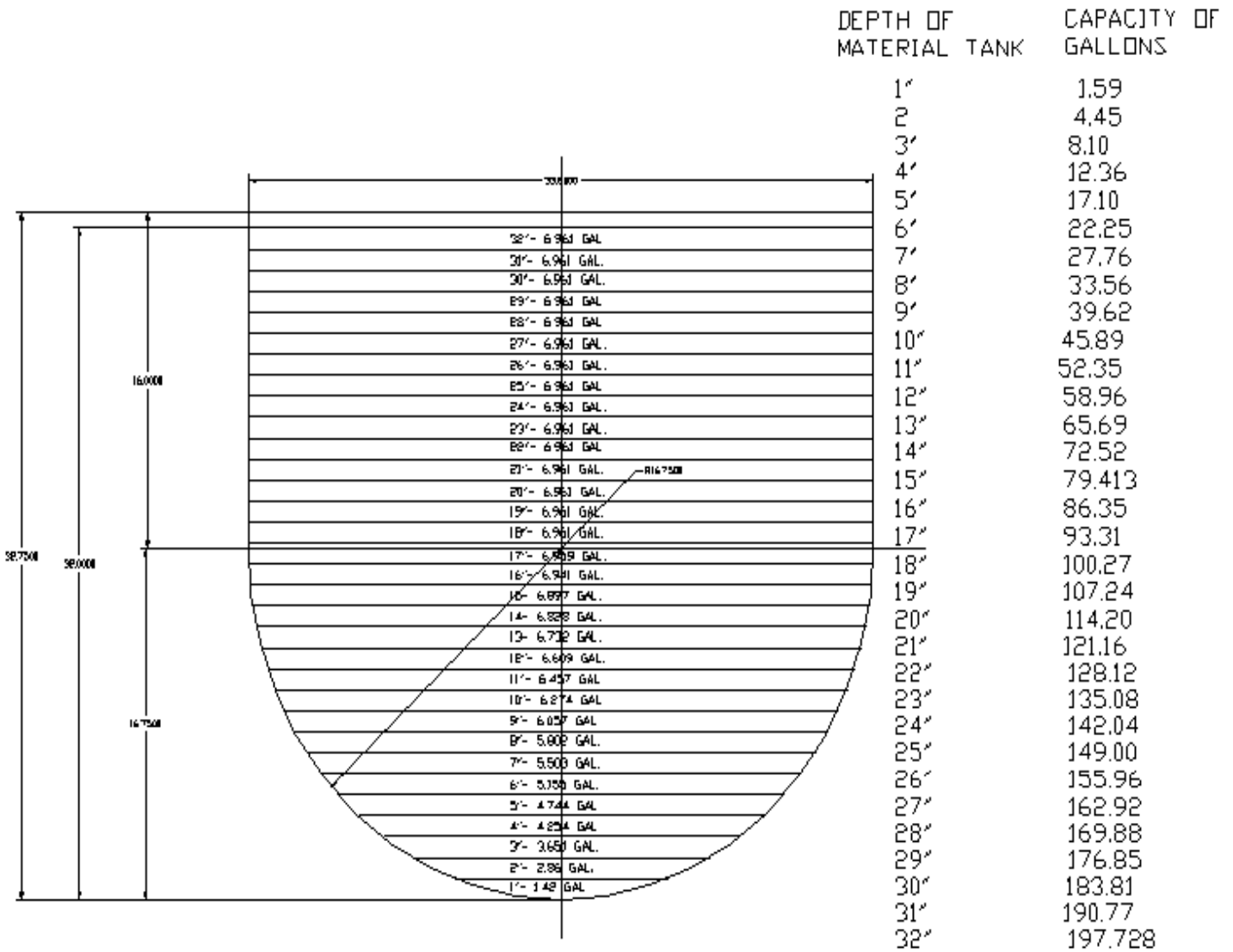
NUMBER	PART NUMBER	QTY	DESCRIPTION
1	56831	1	GUARD , HOT OIL PUMP-HEATED CHUTE
2	41696	1	HOT OIL PUMP AND MOTOR ASSEMBLY
3	28238	2	1/2" STREET ELBOW
4	-----	2	AX6-6FJ-6FJ-29 HYD. HOSE ASSEMBLY
5	56832	2	600 DEGREE 1/4" SWIVEL FITTING

## HOT OIL MATERIAL CHUTE KIT- OPTION

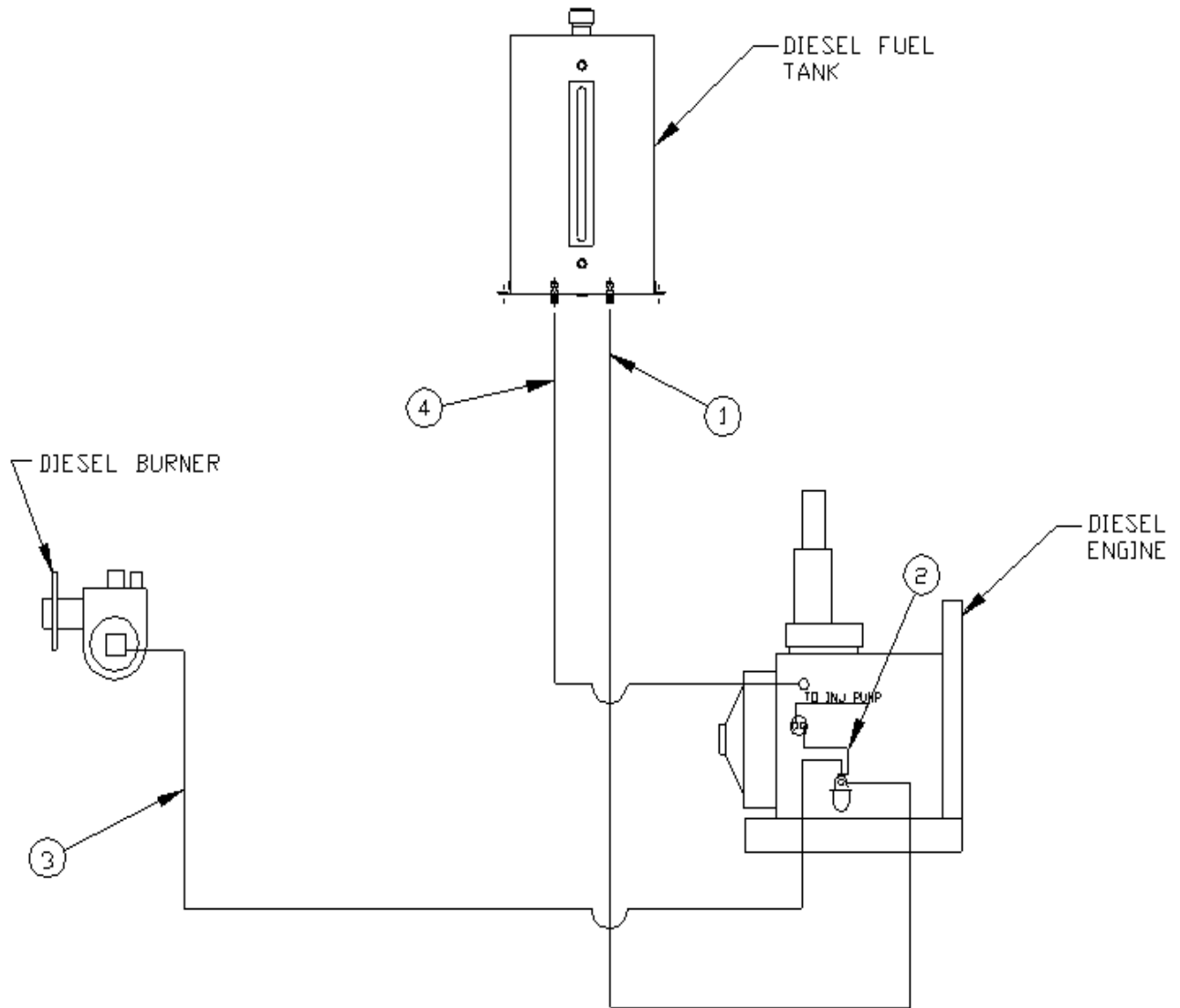


NUMBER	PART NUMBER	QTY	DESCRIPTION
1	44757	2	1/4" X 36" TEFLON HOSE
2	44758	1	1/4" X 18" TEFLON HOSE- NOT SHOWN

# PATCHER II MATERIAL DEPTH TANK CAPACITY



# DIESEL BURNER SCHEMATIC FUEL LINE



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