CRAFCO® INC
AN ERGON COMPANY

OPERATING AND SERVICE MANUAL
MODEL: MAGNUM SPRAY INJECTION PATCHER

PART MANUAL - 91285
Rev. “K”

Fill in appropriate fields that apply to this machine.

Machine S/N: _____
1st Hose S/N:_____
2nd Hose S/N: _____
1st Pump S/N:_____
2nd Pump S/N: _____
Engine S/N: _____
Compressor S/N: _____
Gear Box S/N (Patcher): _____
Blower S/N (Magnum): _____

CRAFCO MAGNUM SPRAY INJECTION PATCHER
PART NUMBER 91000 - 250 GAL.

REVISED: REV. K 06/14 BLOWER AIR FILTER HOUSING AND ELEMENT CHANGE

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CRAFCO MAGNUM SPRAY INJECTION PATCHER

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

Your **CRAFCO MAGNUM SPRAY INJECTION PATCHER** 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.

CRAFCO SPRAY INJECTION PATCHER LIMITED WARRANTY

Crafco, Inc., through Crafco or one of it's affiliated 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 one year from in-service date, but excludes engine or components, tires, and battery as these items are subject to warranties issued by their manufacturers.

Crafco, Inc., warrants structural parts, blower and coupling, boom arm, emulsion heating system, and air-feed system, (excluding nozzle and rubber discharge hose and auger and housing tube on Magnum models) for a period of (1) one year from date of delivery. Excluded from this warranty are normal wear items i.e., hoses, belts, filters, and lubricants.

Crafco, Inc., shall not be liable for parts that have been damaged by accident, alteration, abuse, improper lubrication/maintenance, normal wear, or other causes 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.

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

Crafco, Inc., warrants parts and machinery purchased through Crafco or one of it's affiliated distributors for one year from purchased or inservice date **. If a parts fail to function within the first year of purchase, a return authorization number (RA) must be obtained. If the part was purchased through Crafo, Inc., please contact the Crafco returns department at Returns@Crafco.com for a RA number or if purchased through a Crafco distributor please contact your distributor. Note: if the part has a serial number associated with it, for example; a machine or electric hose or wand, this must be furnished when requesting the RA number. The customer will be emailed or faxed a RA form with all insrtuctions to return the item to Crafco, Inc. If the part is found to be within the one year warranty period and has not been abused or modified, a credit will be issued to the customers account or credit card. The customer may request the part be replaced instead of a credit, if desired.

** Wear items are not covered under Crafco, Inc. limited warranty. A wear item is defined as but not limited to: material pumps, sealing tips, tires, belts, filters etc.
Note: All engine warranties are covered through the engine manufacturer. If you need information for a distributor in your area please contact us and we will direct you to the closest engine distributor.

**** All parts returned are tested and evaluated. If the part has been modifed in anyway without prior consent from Crafco, Inc. representative, warranty is void.

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 serial number, model number, engine model, engine manufacturer, and 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.

For Warranty:
Crafco, Inc.
25527 South Arizona Avenue, Chandler, AZ 85248
Phone: (480) 655-8333 or (800) 528-8242
Fax: (480) 655-1712

For all other inquiries:
Crafco, Inc.
420 North Roosevelt Avenue, Chandler, AZ 85226
Phone: (602) 276-0406 or (800) 528-8242
Fax: (480) 961-0513
CustomerService@crafco.com

SAFETY PRECAUTIONS

• All operators must be thoroughly trained.

• High operating temperatures of machine require protective clothing and gloves be worn by operator.

• Wear gloves while operating equipment.

• Always wear eye and ear protection.

• Always wear proper protective clothing.

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

• Read Operator Manual thoroughly before operating machine.

• Make sure operator is familiar with machine operation.

• Do not operate in closed building or confined areas. (Example: due to exhaust fumes)

• Shut-down engine prior to refilling diesel 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.

• Temperature control is for over night heater only. Operation temperature can not be adjusted.

• 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 Crafco Magnum should not be left unattended while running.

•Tighten all bolts and screws after every 100 hours of operation.

•CRAFCO, Inc. assumes no liability for an accident or injury incurred through improper use of the machine.

•Check and maintain correct tire pressure, check tires weekly. Check axles weekly

•Check machine throughly for any signs of improper wear.

•Crafco, Inc. recommends that the purchasers or users of the merchandise or products frequently and consistently undertake inspections and protective measures with respect to the use and application of the product and merchandise.

SAFETY PRECAUTIONS continued

•Do not disassemble any valve while under pressure.

•Hose assemblies to service should be inspected frequently for leakage, kinking, corrosion, abrasion or any other signs of wear damage.

•A good place to begin preventive maintenance is with a periodic drive inspection as a normal part of your maintenance rounds. Look and listen for any unusual vibration or sound while observing the guarded drive in operation. A well designed and maintained drive will operate smoothly and quietly.

•Caution: Do not fill the emulsion storage tank more then 2/3's full. The emulsion will expand after the emulsion is heated up. Starting at the bottom of the lid opening, fill the emulsion about 12" down from the bottom of the lid opening. If you over fill the emulsion storage tank, you can damage the slide gate, compressor, and other vital componets of the machine. If you over fill your emulsion storage tank you will void the warranty.

CAUTIONS

1. **NEVER OPERATE MACHINE WITHOUT ALL GUARDS IN PLACE.**

2. **DO NOT OPEN HATCH LID ON EMULSION TANK (90640), DIESEL FLUSH TANK FILL PORT (90860), OR EMULSION TANK REAR VALVE ASSEMBLY (90628) AS ALL OF THESE TANKS ARE UNDER PRESSURE! TO RELIEVE PRESSURE, USE THE EMULSION TANK TOP VALVE ASSEMBLY (90629). OPEN BRONZE BALL VALVE - 1/2" (29214). TO RELIEVE PRESSURE ON DIESEL FLUSH TANK, OPEN 2" BRASS BALL VALVE (29281). GAUGE (29961) SHOULD READ "0" BEFORE OPENING ANY TANK.**

3. **Do not plug in emulsion tank heater (91799) unless emulsion is above the heating element enclosure inside the tank. This requires a minimum of 60 gallons in the tank.**

4. **Keep emulsion tank airtight when not in use.**

5. **Do not allow emulsion to freeze. (Store in dry area.)**

6. **Do not put hands, feet, etc. near truck auger tailgate (91196).**

7. **Do not fill flush tank (90860) more than 2/3 full.**

8. **Do not point the nozzle (91100) at another person.**

9. **Do not operate near an open flame.**

10. **Do not use any type of flame to unclog the emulsion hose or spray ring if they should become clogged.**

11. **When applying material out the nozzle (91100), protective eye glasses and protective clothing should be worn.**

12. **Do not operate diesel engine above 2200 RPM MAX.**

13. **Do not touch the silencer as it can become very hot while the CRAFCO MAGNUM is operating.**

14. **Hose should not be kinked or run over by any equipment. Hose should not be stored outdoors due to potential damage from the elements, which may shorten hose life.**

15. **Hydraulic hose assemblies that are worn or damaged should be removed from service and replaced immediately.**

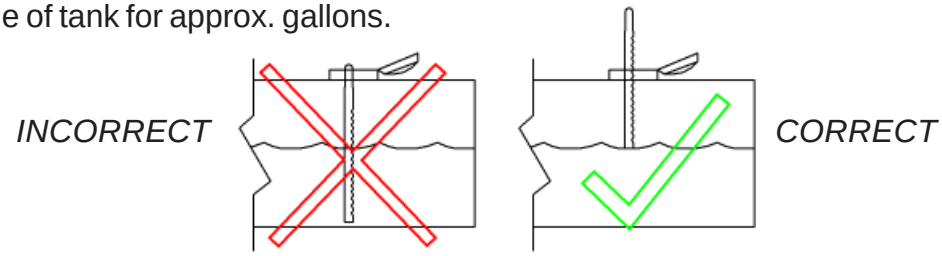
CRAFCO MAGNUM SPRAY INJECTION PATCHER OPERATING PROCEDURES

PREPARING FOR OPERATION

Emulsion - The emulsion tank should be filled with an asphalt emulsion suitable for the climate and condition in which the unit will be operating. Commonly this is an RS 2 or a CRS 2. *(Note: All emulsions are not compatible. When changing emulsion brand or type, you should completely empty and flush out the tank before the new emulsion is added.)*
Proper operation temperature for the emulsion is 160^{O}F (+/- 10^{O}F). If the emulsion is below this temperature the unit must be plugged into a 110 volt outlet. *(Optional 220 Volt wiring is available)* The thermostat should be set at 160^{O}F. The electric heating elements are designed to gently heat the emulsion at a rate of 10^{O}F per hour (at 110V). If the emulsion temperature is low it will take several hours to get the emulsion to operation temperature. Plugging the unit in overnight is recommended.

(Never allow emulsion to freeze or heat emulsion above 190^{O}F.)

Emulsion Level -The Magnum comes with a dipstick that can be used to check the level. The dipstick is only meant to measure from the top of the emulsion to the lip of the lid. Do not submerge the dipstick into the emulsion. Just barely touch it to the top of the emulsion, take note of the notch, then wipe the dip stick clean so it won't stick in the holder. Compare notch to gauge on side of tank for approx. gallons.



Stone - A -3/8" crushed washed aggregate is the most common and versatile stone to use in patching operations. Smaller stone (1/4") can be used and may improve results when skin patching. Larger stone (1/2") can be used to improve results when patching larger holes or repairing shoulders.

Solvent - Fill the solvent tank with diesel fuel or another solvent that has been recommended by the emulsion supplier.

Connect Tailgate Hydraulics- With the engine off, disconnect the hydraulic lines from the machine and connect them to the tailgate. Make sure the fittings are clean. Be sure to connect the black quick connect fitting to the corresponding black male fitting, otherwise the tailgate auger will run backwards. IMPORTANT! Always have the tailgate hydraulic lines connected either in the stored position or to the tailgate, this will prevent undue strain on the hydraulic system.

Stone Suggestion- Each day, before operating the unit, raise the dump body on the truck and rinse the stone with water. Allow the water to drain for several minutes. This will greatly reduce the dust developed during the patching operation and will improve the adhesion of the emulsion to the stone.

CRAFCO MAGNUM SPRAY INJECTION PATCHER OPERATING PROCEDURES

START UP

1. Pressurize the emulsion tank.

a. Remove the boom from the holder and remove the nozzle from the **Flush Box**.
b. Make sure all pressure relief valves on the tanks are closed.
c. With the nozzle pointed at the ground, start the engine by holding in the red Murphy Switch and turning the key. Once engine is running, release Murphy Switch and allow to run for several minutes. The compressor runs when the engine is running and will automatically start building pressure in the emulsion tank. Allow the pressure to build until the pressure reaches a minimum of 90 PSI.

2. Charge the auger with stone.

a. Set the center auger flow control at 2 turns out from closed and the truck auger control at 1 turn out from closed.
b. With the engine running at an idle, turn ON the “STONE” switch at the operator control panel.
c. Stone will quickly start to shoot out of the nozzle. Run the unit for 45 to 90 seconds until stone is flowing smoothly with no surging then shut OFF the “STONE” switch.
d. Shut off the engine, place the boom back in the transport support, and place the nozzle in the “FLUSH BOX”.

3. Set the auger feed for operation.

a. **SKIN PATCHING** - Center auger at 2 turns out from closed - Truck auger at 1 turn out from closed.
b. **POT HOLE PATCHING** - Center auger at 2 turns out from closed - Truck auger at 1 turn out from closed..
c. **SHOULDER REPAIRS** - Center auger at 3 turns out from closed - Truck auger at 1.5 turns out from closed.

These settings may be adjusted to meet the operators comfort level. As you make adjustments the augers should be synchronized to keep the flow of material into the hopper above the top of the auger and auger tube. About half full in the hopper is correct. Overfilling the hopper can jam the auger. There is no perfect setting. Its all based on how much rock the operator needs to do the patch. Changes in rock size, shape, engine RPM and valve flow will all contribute to varying the flow of rock.

CRAFCO MAGNUM SPRAY INJECTION PATCHER OPERATING PROCEDURES

START UP continued

4. Purge the solvent from the emulsion lines.

a. Locate the EMULSION TANK VALVE at the rear of the emulsion tank.
b. With the nozzle positioned in the flush box and the engine off, turn the EMULSION TANK VALVE to the position marked EMULSION ON.
c. Slowly open the ASPHALT VALVE at the OPERATOR CONTROL PANEL approximately 1/4 open. Solvent will begin to flow from the nozzle for about 10 to 15 seconds, then emulsion will start to flow. When you see the black emulsion start to flow, quickly close the ASPHALT VALVE, as now the solvent will be purged.

5. Patching

a. Remove the boom from the transport supports and position the nozzle over the area to be repaired.
b. Start the engine.
c. Adjust the throttle up to 2000 RPM.
d. Lower the nozzle to about 12" from the ground and blow all dust, dirt and standing water away for the repair area.
e. Reduce the engine RPMs to:

- Skin Patching - 900 to 1000 RPM
- Holes - 1100 to 1200 RPM
- Shoulder Repairs 1300 to 1500 RPM

(With variables in stone, equipment and operator you may find that your unit works better at slightly higher RPM. These settings are our recommended settings for 3/8" stone. Each operator can adjust to their comfort level. We suggest with 1/2" stone increase by 100 RPM and with 1/4" stone decrease slightly.)

f. Raise the nozzle to 24" to 30" from the pavement (*Knee High*) and slowly open the ASPHALT VALVE approximately 1/4 open.
g. Tack the repair area with emulsion. *(Coating the entire area including 6" past the edge of the repair is best. Highly distressed areas and damp areas require heavier tack application for good long lasting repairs.)*

CRAFCO MAGNUM SPRAY INJECTION PATCHER OPERATING PROCEDURES

PATCHING

h. With the emulsion running, turn on the STONE SWITCH. Stone will immediately start shooting from the nozzle. *(If stone surges you may need to increase the engine RPM or the stone feed to the auger & tailgate.)(Increase the tailgate flow to keep the auger tube inside the hopper covered to prevent air flowing back into the hopper.)*

i. Continuously move the nozzle over the repair, building your repair from the bottom up. *(If you hold the nozzle still, material will build up and you will not achieve a smooth repair.)*

j. When your stone and emulsion flow are adjusted properly, as the stone builds on the pavement, you should see that less than 10% of the stone looks uncoated . If an excess of emulsion appears, reduce the emulsion flow. If the stone appears undercoated increase the emulsion flow. *(Emulsion is the glue. To get a long-lasting repair, make sure you have enough emulsion.)*

k. When the repair is at the desired level, close the ASPHALT VALVE. Dry stone will continue to flow from the nozzle. Lightly cover the entire repair with dry stone to complete the repair.

l. Shut off STONE SWITCH. *(Stone continues to flow for about 10 seconds after the switch is off.)*

m. Move the nozzle away from the repair area.

n. Lower the engine RPM.

(TIP: With a push broom clean up any overspray of material by sweeping it back onto the repair area.)

6. Move to the next repair area.

(Never travel without properly stowing boom in the transport supports and locking into position. NEVER place the nozzle in the flush box with the engine running.)

CRAFCO MAGNUM SPRAY INJECTION PATCHER OPERATING PROCEDURES

SHUT DOWN

1. Asphalt Line Flush

A. Shut down the engine
B. Stow boom in transport supports and place the nozzle in the FLUSH BOX.
C. Turn the FLUSH VALVE to Flush Only.
D. Open the ASPHALT VALVE and allow emulsion to flow into the FLUSH BOX until solvent replaces the emulsion coming out of the nozzle.
E. Shut off ASPHALT VALVE.
F. Turn the FLUSH VALVE to Off.

2. Auger Flush

A. Set the tailgate auger control to closed and the center auger control to 2 turns out.
B. Remove the nozzle from the flush box.
C. Start the engine and set the RPM at 1200.
D. Turn on the rock switch.
E. Rock will flow from the nozzle. Allow rock to flow until most of the rock is purged from the auger and the hopper, 2 to 3 minutes.
F. Shut off the rock switch.
G. Shut down the engine.
H. Stow the boom and the nozzle and lock in position for transport.

Stone can also be purged by opening the gate below the hopper, reversing the auger and feeding the stone back towards the trailer tongue. This method allows you to capture the stone in pails rather than depositing on the roadside.

REVERSING AUGERS

If the augers ever get jammed (no rock flow and hydraulic pressure is around 1800psi +) then you will need to reverse the affected auger to continue operation. To reverse the auger:

1. While running, turn off ASPHALT VALVE.
2. Turn the STONE SWITCH to “REV” position.
3. While the STONE SWITCH is in “REV” position, hold the coresponding auger switch to the “ON” position. It will only reverse the auger while holding the switch.

CRAFCO MAGNUM SPRAY INJECTION PATCHER OPERATING PROCEDURES

CLEAN OUT INSTRUCTIONS

ASPHALT EMULSION LINE

The emulsion line (29619) should be flushed preferably with a non-flammable citrus based asphalt solvent or diesel fuel, when the time between repairs exceeds 20 minutes, and at the end of every day. To flush the line: Turn valve (90628) to flush and open valve (91700). Flush into flush box (91200). Flush only when engine is turned off. If the emulsion line ever becomes clogged do not attempt to unclog by applying any type of open flame to the emulsion line. No open flame should be used to clean any part of the Magnum equipment.

If some asphalt emulsion is spilled on the machine it can be wiped off immediately with diesel fuel or asphalt solvent.

If asphalt emulsion has accumulated on the machine or hoses you should spray them with your asphalt cleaner, let soak approximately 3 minutes and wash off with water or steam. This shoud be done weekly.

AGGREGATE FEED SYSTEM

The aggregate hopper (91130) should be cleaned of fines by dropping the trap door on the bottom of the hopper daily. The entire aggregate feed assembly should be rinsed with water for 10 minutes daily with the engine operating at 1,500 RPM and the center screw (92692) turning at approximately 35 RPM and the truck auger (91196) off. This will thoroughly clean the unit of any fines and assure smooth operation to maintain the Magnum high output.

AIR CLEANERS (BLOWER AND ENGINE)

1. Replace the filter only when the restriction level has reached the maximum recommended by the engine or equipment manufacturer (See Page 19).

2. Empty dust cap. Dust cap should be dumped when 1/3 full. When reinstalling dust cap, be sure it seals 360^{o} around the air cleaner body. Check the vacuator valve to see that it is not inverted, damaged or plugged. If it is damaged, replace it immediately (91727).

CRAFCO MAGNUM SPRAY INJECTION PATCHER
OPERATING PROCEDURES

OPERATOR BOOM HEIGHT
SPRING CYLINDER
ADJUSTMENT INSTRUCTIONS

For proper operation of the operator boom, the nozzle needs to be able to float in a constant position above the ground for best results. There are adjustable spring cylinders that control the tension on the boom. There is adjustment available because over time the springs may start to stretch, as well as different operating conditions might require a different tension. Correct adjustment allows the operator to be able to raise and lower the boom, and it will also hold its height without input from the operator.

ADJUSTING SPRING CYLINDERS

To adjust the cylinders tension, there are adjustment nuts on the end of the cylinder. Turn the adjustment nuts to the right to increase tension, and to the left to decrease tension. Usually, all that is needed is an adjustment to the top cylinder. If not enough tension is available, you can decrease the tension on the upper cylinder, and increase tension on the 2 lower cylinders. In the event that a more extreme adjustment is needed, the upper cylinder can also be adjusted by changing the mounting bolt position on the cylinder. There are 5 positions available.

CRAFCO MAGNUM SPRAY INJECTION PATCHER

SPECIFICATIONS

Engine (John Deere) (92270)	Maximum 2200 R.P.M.
Air Pump (Blower)(60151)	2475-2887 R.P.M.
Air Pump (Blower)(60151)	Positive Displacement
Hydraulic Pump (90800)	Maximum 2200 R.P.M.
Hydraulic Fluid (Shell AW Hydraulic 46)	22 Gallon Capacity
Diesel Flush Tank (90860)	30 Gallon Capacity
Diesel Fuel Tank (92671)	22 Gallon Capacity
Emulsion Tank (90640)	250 Gallon Capacity
Emulsion Temperature	160°F. - 175°F.
Operating Temperature Range	Above 0°F.
Hydraulic Pressure (running with load)	600-1000 P.S.I.
Hydraulic Maximum Relief Pressure	1850 P.S.I.
Center Auger (92692)	39 +/- 10 R.P.M.
Truck Auger	31 +/- 6 R.P.M.

LUBRICATING AND MAINTENANCE INSTRUCTIONS

1. Engine - refer to separate manual in packet (John Deere Maintenance Manual). The manual is located in the manual box.

2. Blower - refer to separate manual in packet (Tuthill Blower Manual). The manual is located in the manual box.

3. Compressor - check separate manual in packet (John Deere Maintenance Manual). The manual is located in the manual box.

4. Lubricate the bearings at each end of the truck auger tailgate and the bearings on the center auger under the aggregate hopper approximately every 75 hours. See page 63 and page 77 for locations.

5. Check hydraulic oil level every day.

6. Check and tighten all bolts periodically, including axles (approximately 100 hours).

7. Remove and clean hydraulic oil filter in first 30 hours and then every 100 hours. Replace return line filter the first 30 hours then every 100 hours.

8. Lubricate bearings every 100 hours for boom. Boom has two bearings, an upper and a lower. Grease lightly.

9. Grease the bearing stub support shaft assembly on the back of the bell housing.

COMMON MAINTENANCE PARTS

PAGE NO.	PART NUMBER	QTY	DESCRIPTION
51	91047	1	ENGINE AIR FILTER
49	50109	1	AIR COMPRESSOR FILTER
52	92262	1	BLOWER AIR FILTER **MACHINES BUILT BEFORE JULY 2014, USE 91035**
44	91044	1	ENGINE OIL FILTER
30	43871	1	HYDRAULIC FILTER
44	91042	1	FUEL FILTER MOUNTED ON ENGINE
68	91872	1	OPTIONAL EXTERNAL FUEL FILTER
46	91409	3	BLOWER DRIVE BELTS (3VX300)
51	91043	1	ENGINE SERPENTINE BELT
76	92692	1	AUGER ASSEMBLY
76	91265	1	NYLON WEAR SPACER FOR AUGER
25	91220	1	3" BOXED 45 DEG ELBOW
62	90621	1	8" ENCLOSURE O-RING (EMULSION TANK LID)

TROUBLE SHOOTING

IF NO EMULSION IS PRESENT

CHECK THE FOLLOWING:

1. Is the emulsion tank empty? To find out, relieve tank pressure first, then open the pressurized lid on emulsion tank.
2. Is the emulsion line valve closed? To find out, the line is located at the rear of the machine on the tank.
3. Is the PSI low in the emulsion tank? Check the PSI gauge located in the middle of the emulsion tank. If the air compressor turns off and you don't have enough pressure, you can adjust the regulator on the engine air compressor.

Nozzle Spray Ring

Air Pressure Regulator

4. Is the nozzle spray ring plugged? Remove the nozzle and clean.
5. Is the hose from the emulsion tank to the nozzle plugged? Start engine to allow heating, and turn the diesel flush on. Do not attempt to unplug the emulsion hose by applying an open flame to the emulsion hose or spray ring. The system is equipped with a heating system so no extra heat is needed.
6. Is the emulsion cold? Check the emulsion temperature gauge on the emulsion tank. Check to be sure the thermostat and the heating element are working.
7. Has the emulsion separated and become lumpy? Check the emulsion by placing a rod to the bottom to check for "bubble-gum-like" asphalt residue on the bottom. If the emulsion is separated, drain the tank and flush with the diesel fuel.

HYDRAULIC SYSTEM MALFUNCTION

CHECK THE FOLLOWING:

1. Check the oil in the hydraulic reservoir located on the driver's side of the machine.
2. Check the hydraulic pump bolted to air compressor on John Deere engine. If needed, crack the hydraulic hose slightly to see if the fluid is pumping.
3. Check the stone switches for loose wires.
4. Check the solenoid for all loose wires. (To check, hold hand on solenoid and energize switch, you should be able to feel the impulse in the valve. You should also be able to see the LED lights on the valve plugs. They should light when activated. They are dim, so they will be hard to see in direct sunlight.)
5. Check for hydraulic system overload (PSI over 1850 on hydraulic gauge) located in engine control panel.
   A. Check the augers in the tailgate. If too much stone is piled on top of the augers the weight of the stone may cause the augers to stop turning or if dirty wet stone sits in the augers overnight, it may harden thereby preventing the augers from

turning. If either of these conditions exist, be sure to turn off the engine, then remove stone from the top of the augers (top of the auger should be visible) and loosen any packing or buildup under the augers.

B. Check the tailgate feeder aggregate chute. If stone is not free falling it will wedge at the top and create undue strain on the hydraulic system. Turn off the engine, raise the dump bed to lower the chute, or remove the obstruction from the chute as required. Return the truck bed to the appropriate height so stone cannot "sit" on the chute. Stone needs to fall off the chute for correct operation.

C. Reverse the augers if they are jammed. See page 16.

MOTOR WILL NOT START

CHECK THE FOLLOWING:

1. Make sure to push and hold the Red Murphy Switch below the key, before turning the key to crank over engine. Once the engine has started, release the Red Murphy Switch.
2. Make sure there is fuel in the tank, and you have purged the fuel line of air using the primer.

If this doesn't solve your problem, refer to the John Deere Engine Manual located in the manual box.

AGGREGATE NOT COMING THROUGH HOSE

CHECK THE FOLLOWING:

1. Is the aggregate hopper empty?
2. Is the hopper grate closed and activating the safety switch?
   a. Is the safety switch operating correctly? Check the continuity to test it.

3. Is the aggregate stone flowing down the dump body into the tailgate auger? Check the tailgate auger.
4. Check the hydraulic system.
5. Check the engine R.P.M. - 2,200 MAX.
6. Is the aggregate hose plugged? Angle front section of hose and nozzle down and shake hose. If hose is still plugged, remove the hose from the air flow pipe, angle down and shake hose, then reattach hose to air flow pipe. If hose is still plugged, flush out with large amounts of water as described in Aggregate Feed System (page 17).
7. Is the nozzle plugged? Remove the nozzle and clean.
8. Check the 6" airlock to see if the airlock has become plugged with aggregate.
9. Check the aggregate hose at the airlock to see if the aggregate is wedged.

CRAFCO MAGNUM SPRAY INJECTION PATCHER

MATERIAL SPECIFICATIONS

Below are general specifications for the materials used in Magnum. The materials are very common. This is not a complete list, as a variety of materials can be used and manufacturer trade names vary by locality. Please call if we can assist in anyway.

STONE

General description: 3/8" or 1/4" preferably washed angular crushed stone. Round river rock also acceptable, crushed preferred.

GENERAL SIEVE ANALYSIS

100%	1/2 inch
90 - 100%	3/8 inch
20 - 100%	3/16 inch (#4 screen)
5 - 30%	1/8 inch (#8 screen)
0 - 10%	1/16 inch (#16 screen)

EMULSION

General description: Rapid setting asphalt emulsion, commonly referred to as RSII, CRSII and sometimes CMSII. Other trade names are used in some areas. Rapid setting high floats are also acceptable, and are preferable in cold weather (less than 32^{O}F.) operation.

SPECIFICATIONS

	Min.	Max.
Viscosity, Saybolt Furol @ 122 degrees F. (50^{O}C.), s	75	400
Settlement, 5-Day, %		5
Storage Stability, Test, 24-h, %		1
Demulsibility, 35 ml, 60	40	
Sieve test, %		0.10
Residue by distillation, %	63	
Penetration, 77^{O}F. (25^{O}C.)	100	
Ductility, 77^{O}F. (25^{O}C.), 5	40	
Solubility in trichloroethylene, %	97.5	

WIRING CODE FOR TAIL LIGHTS AND BRAKES

GD (Ground) - Black
LT (Left Turn) - Red
RT (Right Turn) - Green
S (Brakes) - White
TM (Running Lights) - Brown

CRAFCO MAGNUM SPRAY INJECTION PATCHER

TENSIONING V-BELT DRIVES INSTRUCTIONS

GENERAL RULES OF TENSIONING

Ideal tension is the lowest tension at which the belt will not slip under peak load conditions.

Check tension frequently during the first 24 - 48 hours of operation.

Over tensioning shortens belt and bearing life.

Keep belts free from foreign material which may cause slip.

Make V-drive inspection on a periodic basis. Tension when slipping.

Never apply belt dressing as this will damage the belt and cause early failure.

SPECIFIC RULES FOR TENSIONING

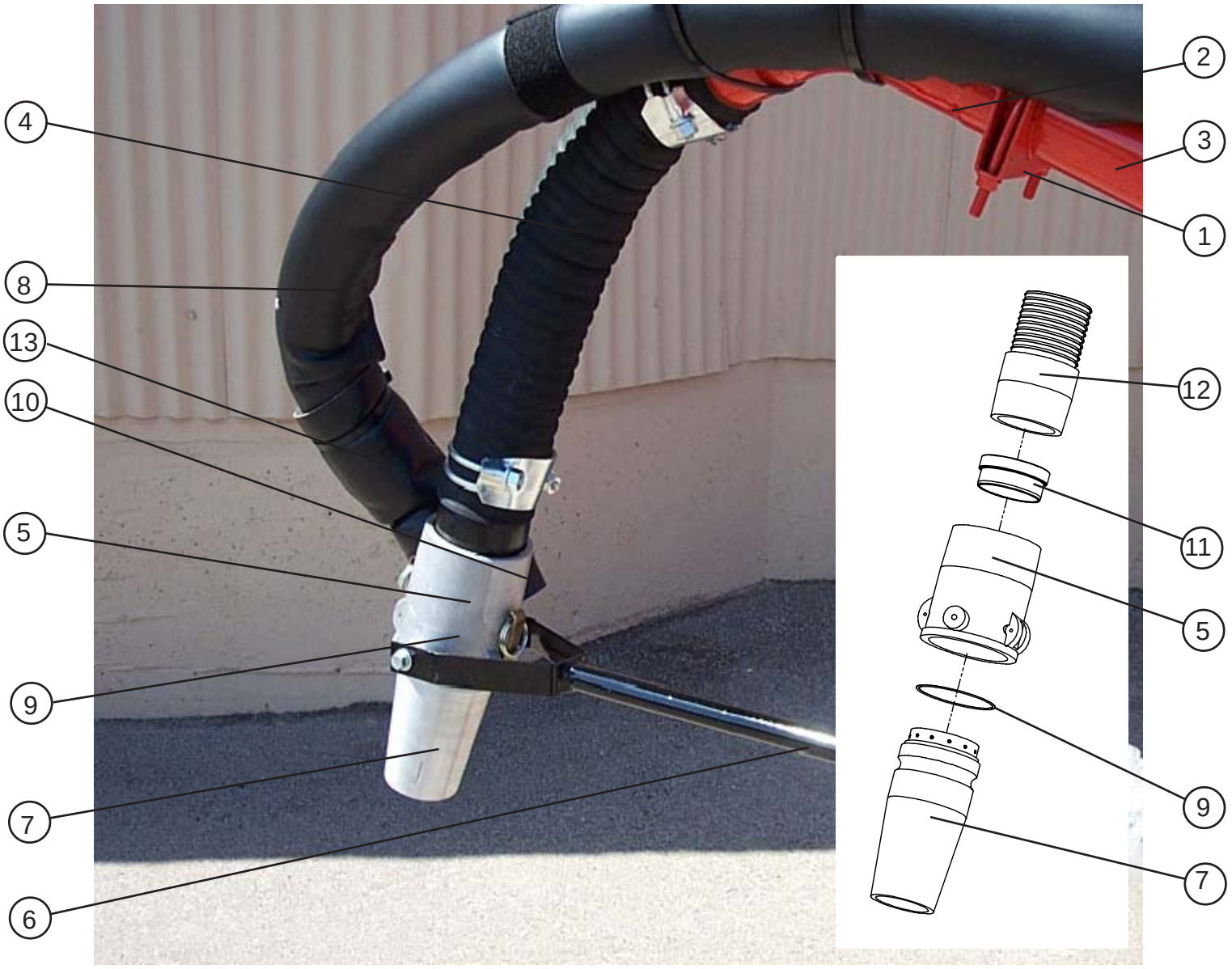
To check for proper belt tightness you must measure the force required to achieve the desired deflection at the center of the belt span, midway between the two pulleys. Below are the minimum and maximum forces permissible to achieve the desired deflection. This should be checked after the first 24 hours, 48 hours and weekly thereafter.

Belt	Drive	Desired Deflection	Force to Achieve Deflection - Min.	Force to Achieve Deflection - Max.
91409	Blower	.156”	7.1#	10.5#

MAINTENANCE GUIDE OF THE V-BELT DRIVES

TYPE OF MAINTENANCE	WHEN TO DO	WHAT TO DO
Check for sheave groove wear.	Initial inspection - 8 hours. Second inspection - 24 hours. Third inspection - 100 hours. Periodically thereafter.	Check for belt riding in the groove. In multiple groove drives, belt ride should be uniform, not more than 1/16" above or below top of sheave groove. Check groove wear area for wear. Side wall of groove should be straight, not dished out. Bottom of groove should show no signs of belt contact.
Check for sheave runout.	Initial inspection - 8 hours. Second inspection - 24 hours. Third inspection - 100 hours. Periodically thereafter.	Check sheave by eye for runout. If runout is excessive, it can easily be seen by visual inspection. If runout is noticeable, check sheave for source of problem and correct.
Inspect for heat build-up and proper ventilation.	Initial inspection - 8 hours. Second inspection - 24 hours. Third inspection - 100 hours. Periodically thereafter.	Check belts for heat. Ambient temperatures should not exceed 140^{O}F. Contact temperatures should not exceed 180 ^{O}F. Make sure drives are properly ventilated.
Clean belts and sheave grooves.	Initial inspection - 8 hours. Second inspection - 24 hours. Third inspection - 100 hours. Periodically thereafter.	Inspect belts for contaminates, such as oil or grease. Wipe belts clean with detergent and water. Inspect sheave grooves for buildup of such material and remove, if necessary.
Check belt tension.	Initial inspection - 8 hours. Second inspection - 24 hours. Third inspection - 100 hours. Periodically thereafter.	Check belt tension using Browning belt tension checker. Tension to recommendations shown in current catalogs.
Check sheave alignment.	Initial inspection - 8 hours. Second inspection - 24 hours. Third inspection - 100 hours. Periodically thereafter.	Check alignment with straight edge, string or machinist level. Correct alignment to as near perfect as possible.
Mismatched belt check.	Initial inspection - 8 hours. Second inspection - 24 hours. Third inspection - 100 hours. Periodically thereafter.	Check belt sag on slack side of drive. All belts should have a slight bow. If this bow is not uniform with all belts, replace entire set with a matched set.
Check for worn belts.	Initial inspection - 8 hours. Second inspection - 24 hours. Third inspection - 100 hours. Periodically thereafter.	Check wear surfaces of belt for excessive wear. If belts have a slick, glazed look, belts are slipping. Check drive capacity and belt tension. Never replace only one belt in a used set, as used belts will elongate. Replace entire set if replacement is necessary.
Check sheave setscrews and/or bushing capscrews.	Initial inspection - 8 hours. Second inspection - 24 hours. Third inspection - 100 hours. Periodically thereafter.	Check all setscrews and/or capscrews for looseness. Retighten to recommended torque, if necessary.

OPERATOR BOOM, 45 DEGREE ELBOW/BOOM NOZZLE

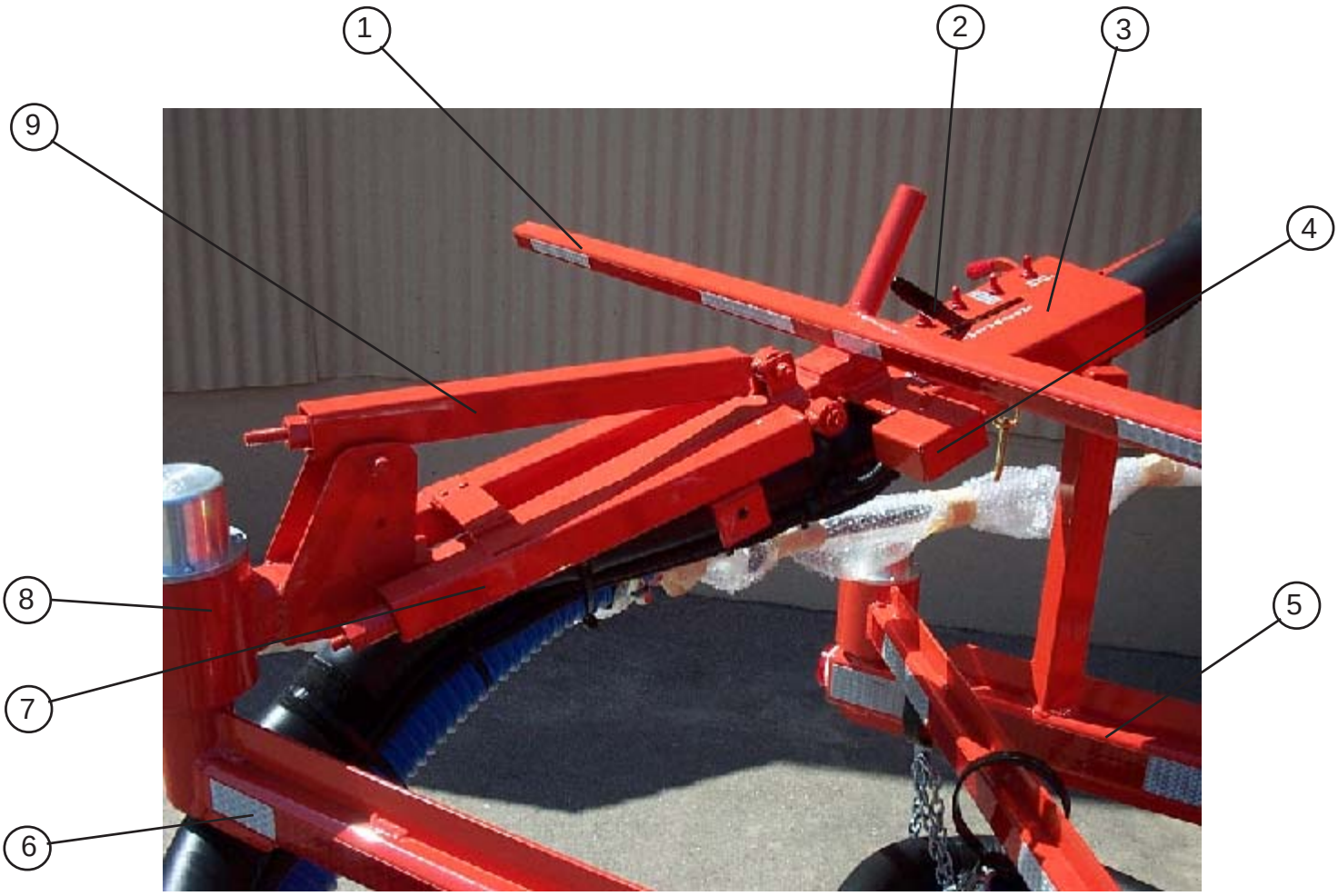


NUMBER	PART NUMBER	QTY	DESCRIPTION
1	25951	1	3" U-BOLT MUFFLER CLAMP
2	91220	1	3" BOXED 45 DEG. ELBOW
3	91073	1	3" PIPE WELD ASSSEMBLY
4	91155	1	HOSE 3" X 24" GUM RUBBER LINED
5	91103	1	3" ALUMINUM NOZZLE HOUSING
6	91162	1	NOZZLE POSITION HANDLE
7	91100	1	NOZZLE WITH SPARY RING ATTACHED
8	91207	1	EMULSION LINE COVER 110" (PART OF 90325)
9	91009	1	3" O-RING
10	90301	1	EMULSION WATER RETURN BUTTON "U"
11	91356	1	INSERT, NOZZLE
12	91344	1	NIPPLE/HSE COMBO "KING"
13	90307	1	EMULSION COVER "U" SHAPE WATER LINE

REAR COMPONENTS OF THE MAGNUM OPERATOR BOOM AND AGGREGATE HOSE

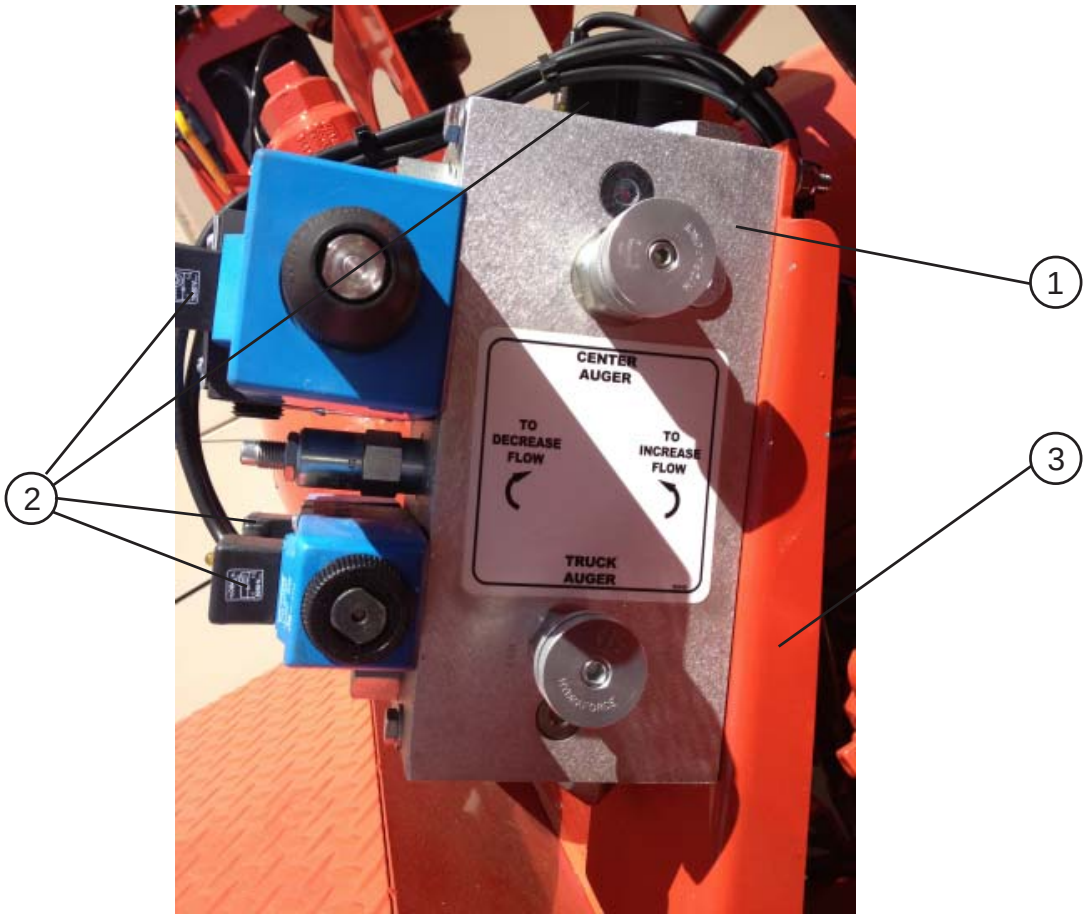
NUMBER	PART NUMBER	QTY	DESCRIPTION
1	91032	1	ENGINE PANEL ASSY WITH ENGINE
2	91700	1	EMULSION REGULATION VALVE ASSEMBLY
3	91158	1	AGGREGATE HOSE 3" x 17'
4	91755	1	4 1/2" ID AGGREGATE PIPE HANGER
5	91162	1	NOZZLE POSITION HANDLE
6	90325	1	BOOM HOSE AND HEATING HOSE ASSM.
7	32319	1	CENTER RED LIGHT

OPERATOR BOOM, REAR CONTROL CONSOLE



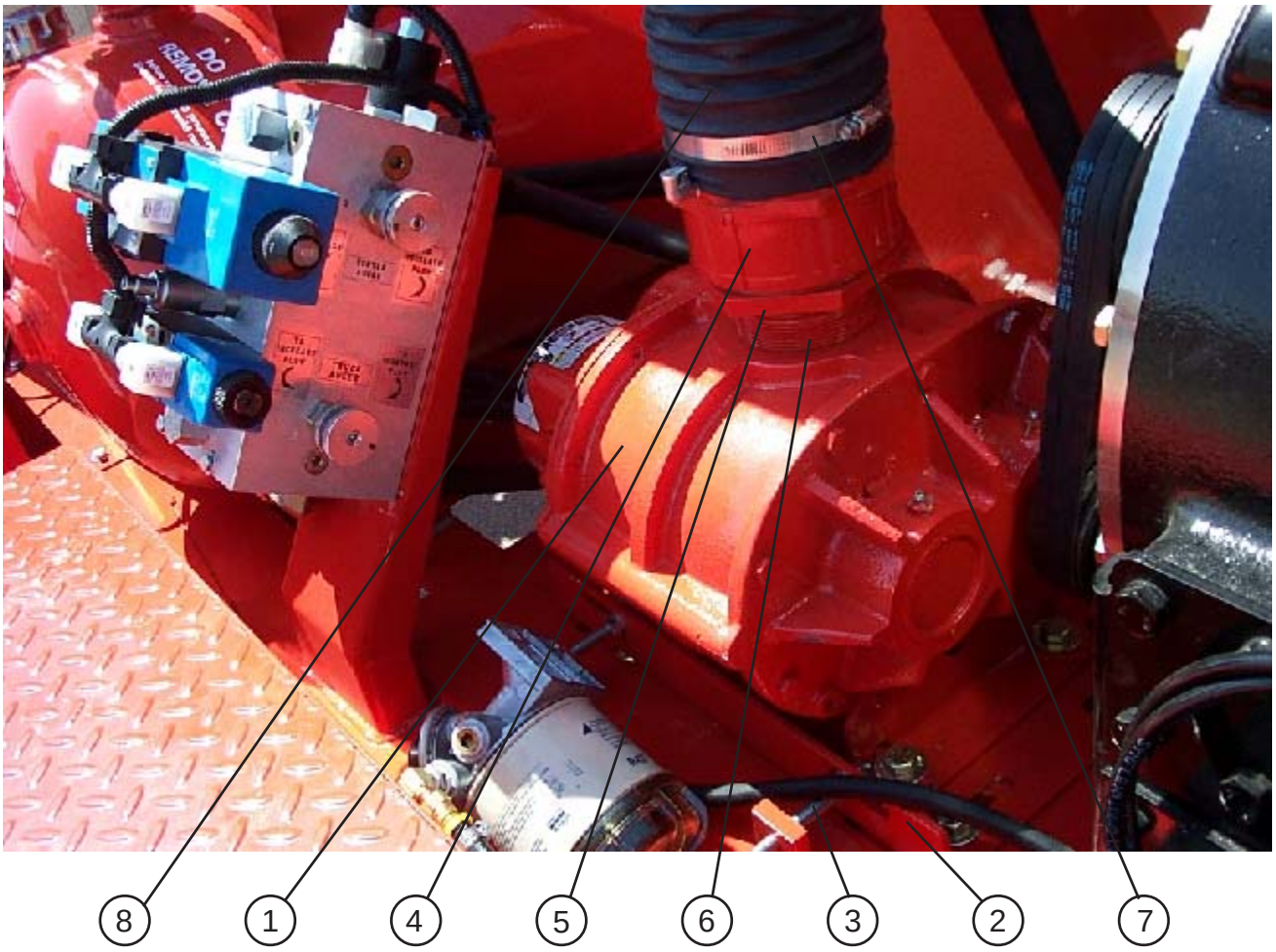
NUMBER	PART NUMBER	QTY	DESCRIPTION
1	91396	1	HANDLE ASSEMBLY
2	91700	1	EMULSION REGULATION VALVE ASSEMBLY
3	91230	1	COMPLETE ASSEMBLY CONTROL BOX
4	91046	1	THROTTLE CABLE
4a	91021K	1	OPTIONAL ELECTRIC THROTTLE CONTROL
5	91310	1	BOOM MOUNT SECTION/FRAME - MAGNUM
6	91545	1	BOOM SECTION 2ND COMPLETE
7	91357	1	SPRING CYLINDER COMPLETE R.H.
8	91320	1	BEARG/RACE WELD BUSHING PIVOT ARM
9	91365	1	UPPER SPRING CYLINDER COMPLETE

DUAL HYDRAULIC CONTROL VALVE



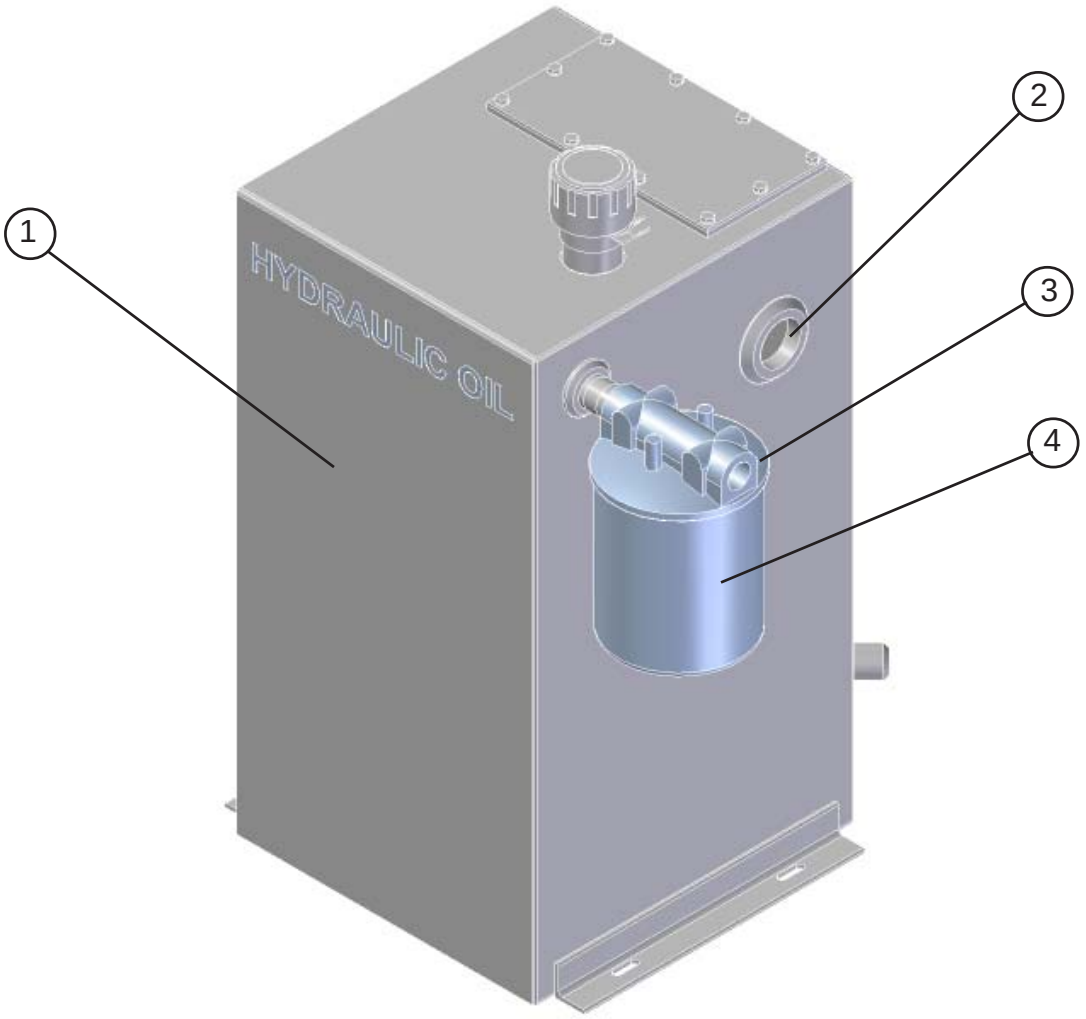
NO.	PART NUMBER	QTY	DESCRIPTION
1	92350	1	HYDRAULIC CONTROL VALVE ASSEMBLY
2	45376	5	DIN PLUG
3	92631	1	HYDRAULIC CONTROL VALVE MOUNTING PLATE

ROTARY AIR BLOWER - COMPONENTS



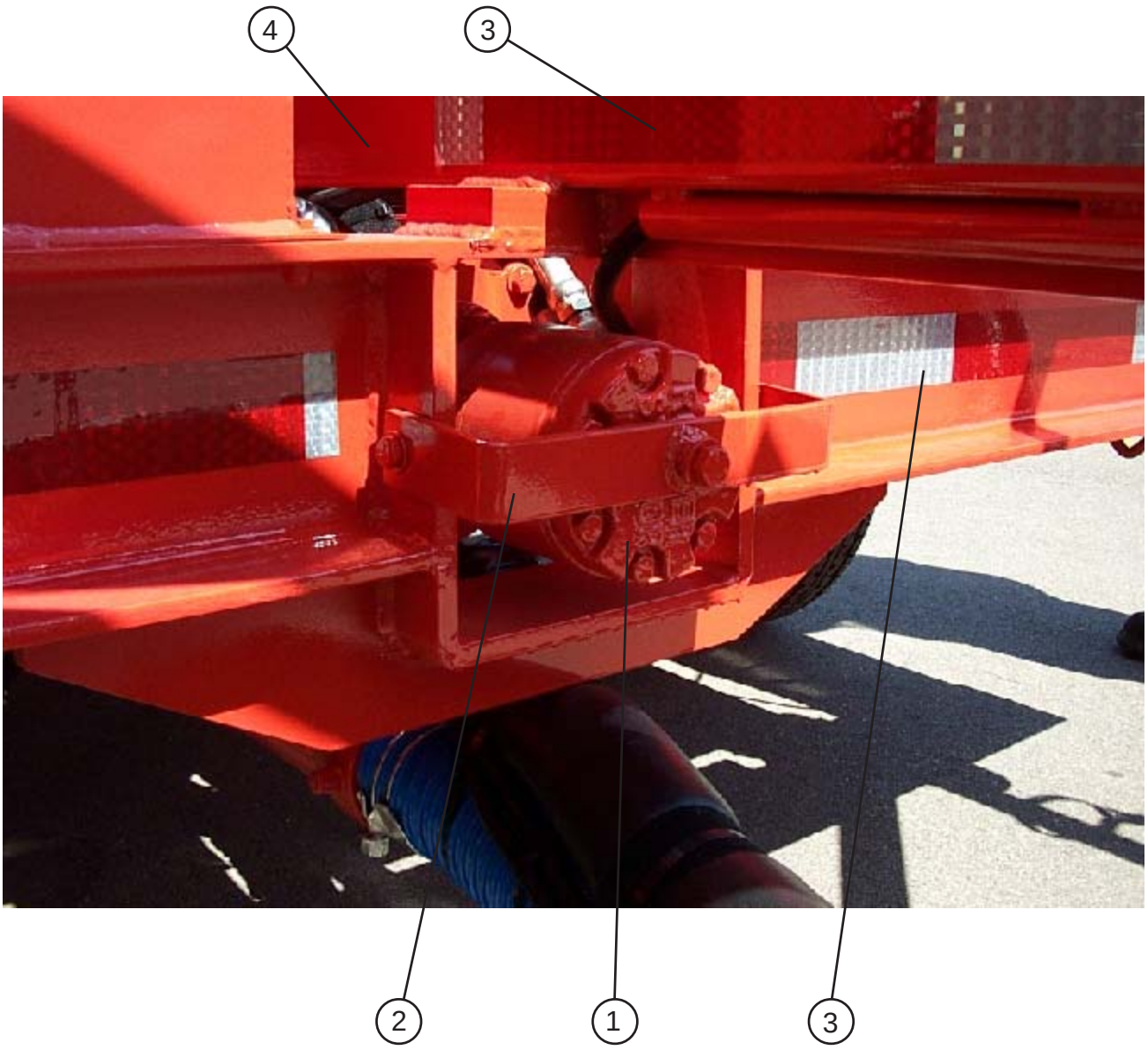
NUMBER	PART NUMBER	QTY	DESCRIPTION
1	60151	1	BLOWER
2	91330	1	BLOWER SLIDE PLATE
3	90858	1	3/8" - 16 X 4" ALL THREAD BOLT
4	90520	1	6" X 5" BLOWER/AIR CLEANER ADAPTOR
5	28364	1	4" X 3" REDUCER BUSHING
6	28010	1	3" CLOSED NIPPLE
7	91843	1	6" WORN - DRIVE HOSE CLAMP
8	91235	1	RUBBER CONNECTION HOSE TO BLOWER

HYDRAULIC TANK - COMPONENTS



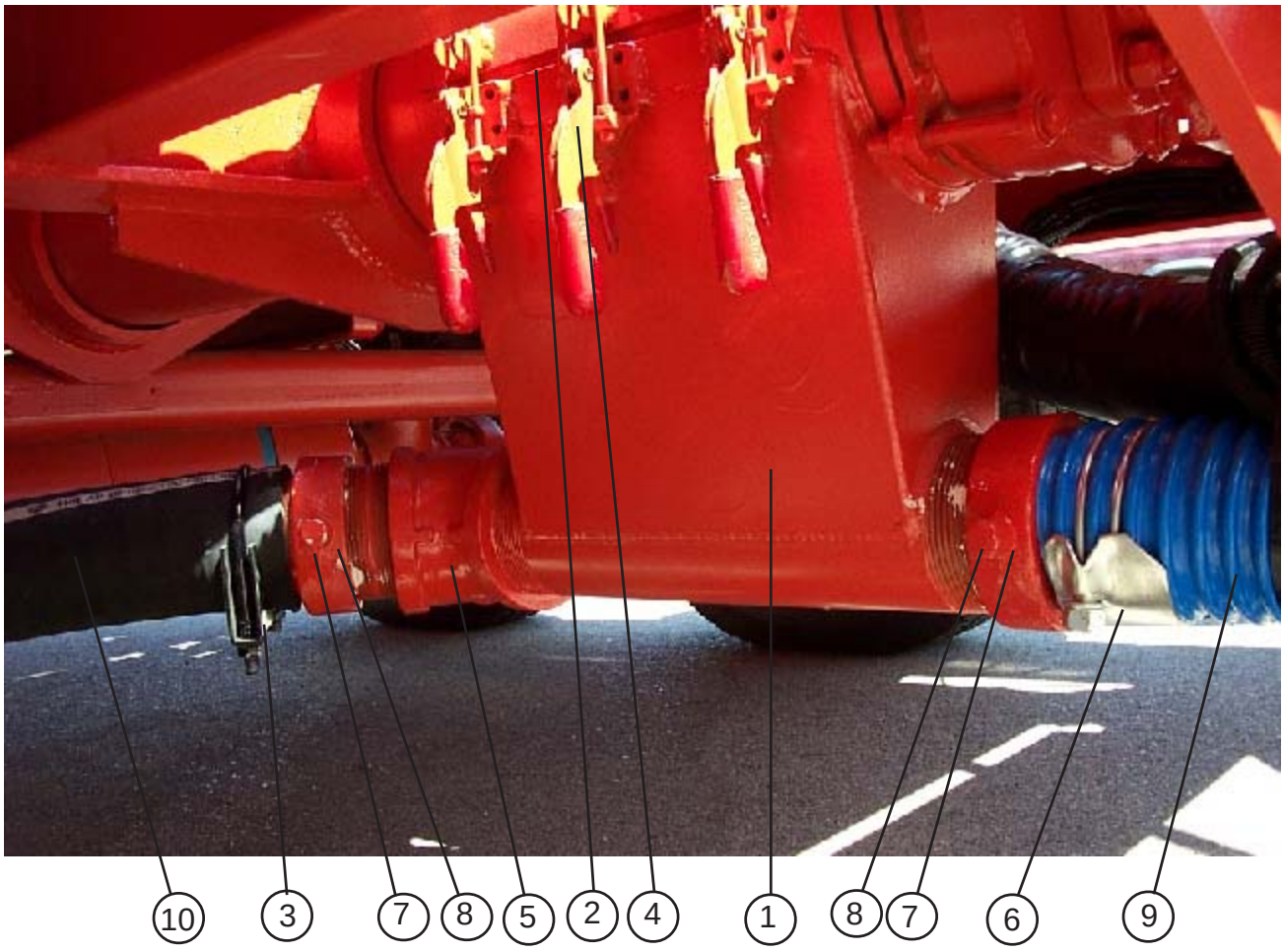
NUMBER	PART NUMBER	QTY	DESCRIPTION
1	92657	1	HYDRAULIC TANK - COMPLETE ASSEMBLY
2	90564	1	2" ROUND HYDRAULIC LEVEL SIGHT GAUGE
3	43872	1	HYDRAULIC OIL FILTER ASSEMBLY
4	43871	1	HYDRAULIC OIL FILTER ELEMENT
-	90565	1	HYDRAULIC SUCTION FILTER (INSIDE TANK)

AGGREGATE FEED SYSTEM, CENTER AUGER, REAR HYDRAULIC MOTOR



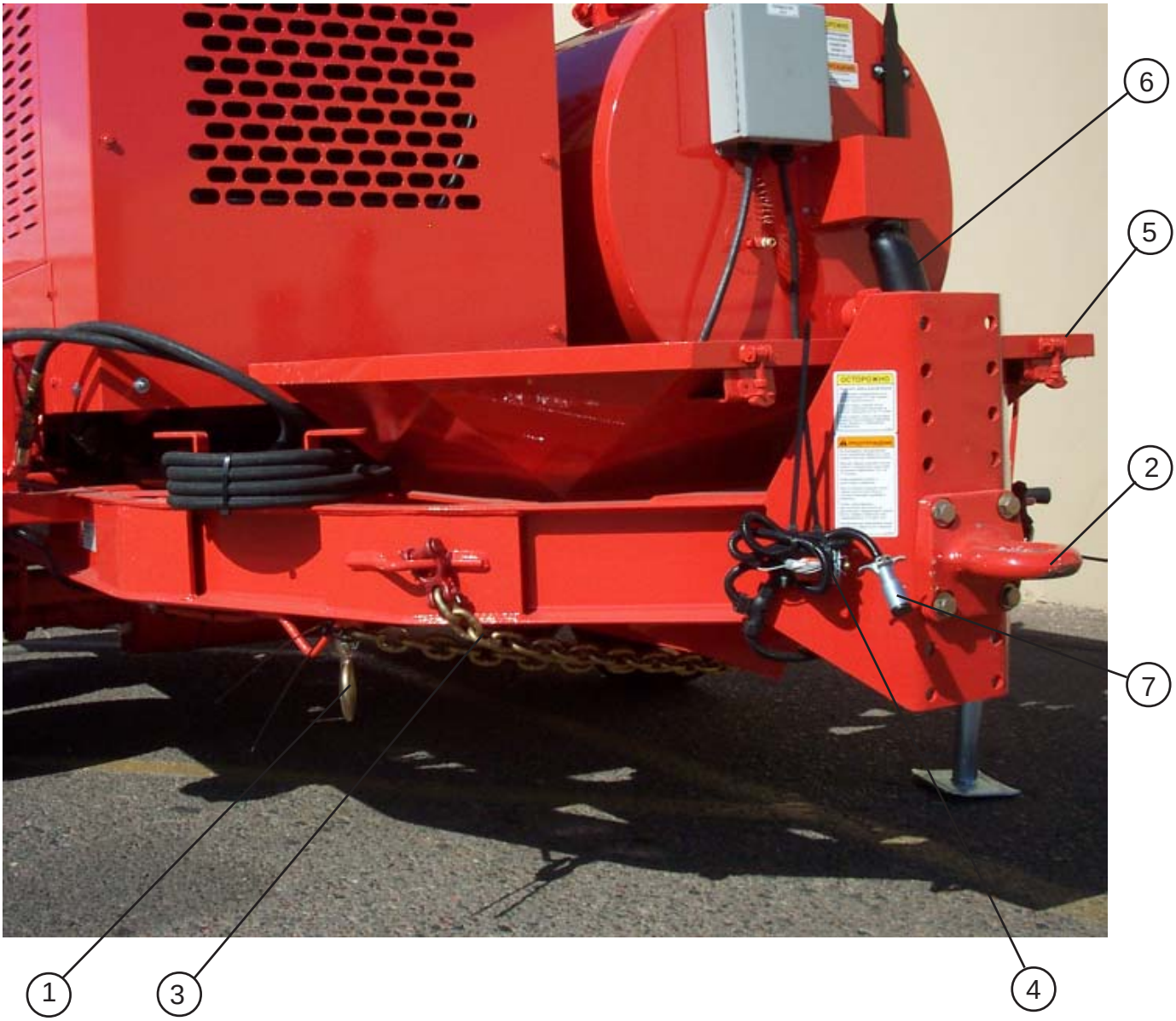
NUMBER	PART NUMBER	QTY	DESCRIPTION
1	91122	1	HYDRAULIC MOTOR
2	91106	1	HYDRAULIC MOTOR KEEPING BRACKET
3	90539	1	2" REFLECTIVE TAPE
4	91310	1	BOOM MOUNTING SECTION

AGGREGATE FEED SYSTEM,
AIRLOCK SYSTEM - BELOW FRAME



NUMBER	PART NUMBER	QTY	DESCRIPTION
1	91165	1	6" AIRLOCK COMPLETE
2	91057	1	AIR LOCK GASKET
3	25952	1	3 - 1/2" U BOLT MUFFLER CLAMP
4	90606	3	PULL CLAMP 700#
5	28200	1	3" 45 DEGREE THREADED ELBOW
6	91855	1	HOSE CLAMP 3" TIGER
7	90554	2	PIN PLUG - 3" FEMALE LUG COUPLER
8	91559	2	LUG COUPLER GASKET
9	91157	1	3" BULK AGGRAGATE HOSE - BLUE
10	91338	1	3" WILDCAT HOSE x 28" LONG

FRONT VIEW OF MAGNUM - ENGINE COVER, JACK, AGGREGATE HOPPER, HITCH , CHAINS



NO.	PART NUMBER	QTY	DESCRIPTION
1	91781	1	3/8" SAFETY CHAIN HOOK
2	91850	1	2-1/2" ID EYE DROP FORGED STEEL DRAWBAR
3	90881	2	3/8" TRANSPORT CHAIN ASSY
4	23117	1	BREAKAWAY SWITCH UNIT
5	91130	1	AGGREGATE HOPPER
6	91207	1	EMULSION INSULATION HOSE COVER
7	24074	1	6-WIRE TRAILER CONNECTOR

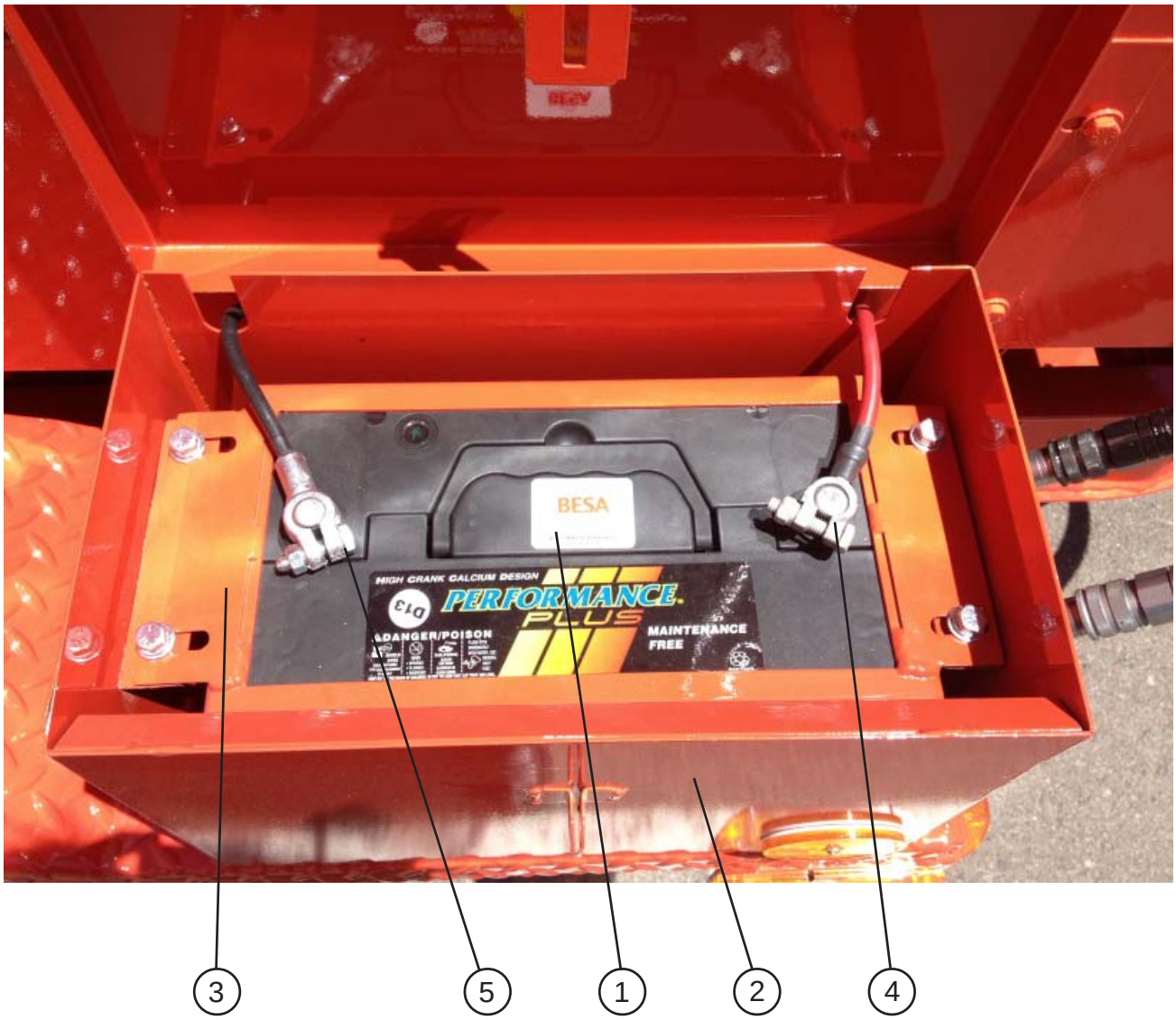
FRONT VIEW OF MAGNUM - SIGNAL HORN, HOPPER SAFETY SWITCH

NO.	PART NUMBER	QTY	DESCRIPTION
1	91645	1	BACK-UP ALARM HEAVY DUTY (SIGNAL HORN)
2	91133	1	HOPPER SAFETY SWITCH
3	91799	1	EMULSION TANK HEATER
4	91581	1	3/4" STRAIN RELIEF
5	23082	1	7,000# TONGUE JACK 15"

REAR PASSENGER SIDE VIEW OF MAGNUM - DIESEL FLUSH TANK, FUEL TANK

NO.	PART NUMBER	QTY	DESCRIPTION
1	90640	1	250 GALLON EMULSION TANK WITH INSULATION
2	90703	1	2" PIPE PLUG WITH PSI RELIEF HOLE
3	29281	1	2" BRASS BALL VALVE
4	90860	1	30 GALLON FLUSH TANK
5	91815	1	1/4" DRAIN PET COCK
6	92671	1	FUEL TANK COMPLETE
7	43579	1	PRESSURE FILLER BREATHER CAP
8	92664	1	FUEL LEVEL GAUGE 15"
9	92657	1	HYD TANK ASSY COMPLETE
10	91271	1	AIR CLEANER MOUNTING BRACKET

BATTERY BOX



NO.	PART NUMBER	QTY	DESCRIPTION
1	24001	1	1000 C.C.A. BATTERY
2	90200	1	BATTERY LOCK BOX ASSEMBLY
3	90215	1	BATTERY HOLD DOWN FRAME
4	90905	1	BATTERY CABLE 93" LONG
5	32602	1	20" CRESCENT BATTERY CABLE

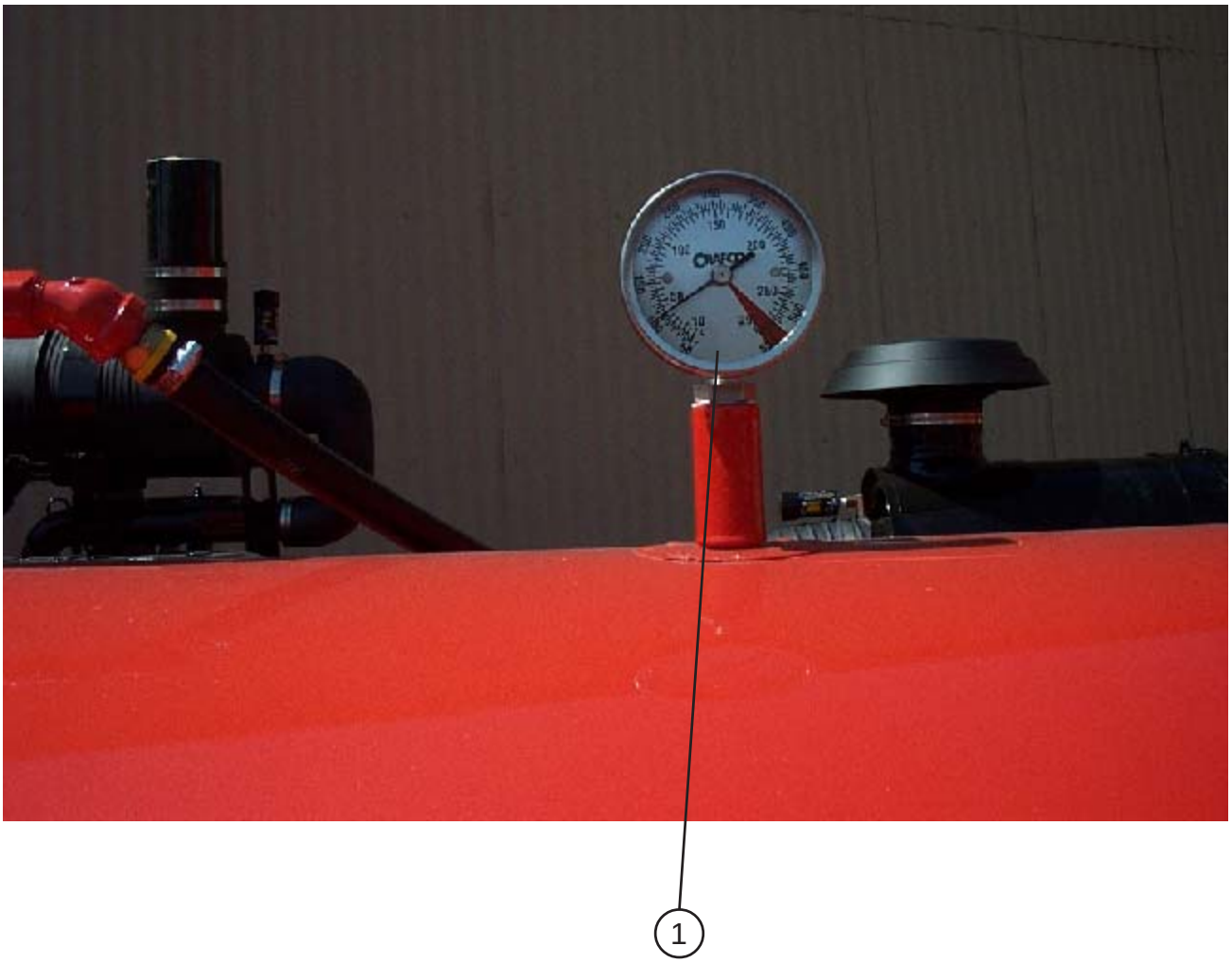
CRACK FILLING ATTACHMENT - OPTION

NO.	PART NUMBER	QTY	DESCRIPTION
1	91530	1	DEEP NOZZLE STORAGE AND BOX
2	90780	1	CRACK FILLING ATTACHMENT (OPTION)
3	90782	1	TACK WAND COMPLETE ASSEMBLY
4	90772	1	TACK WAND GRIP HANDLE ASSEMBLY
5	91825	1	QUICK COUPLER 1/4" MPT X 1/4" FM AIR
6	90777	1	TACK WAND SUPPLY HOSE STOW REEL
7	90771	1	TANK WAND SUPPLY HOSE 25 FT

EMULSION TANK, TOP VALVE ASSEMBLY

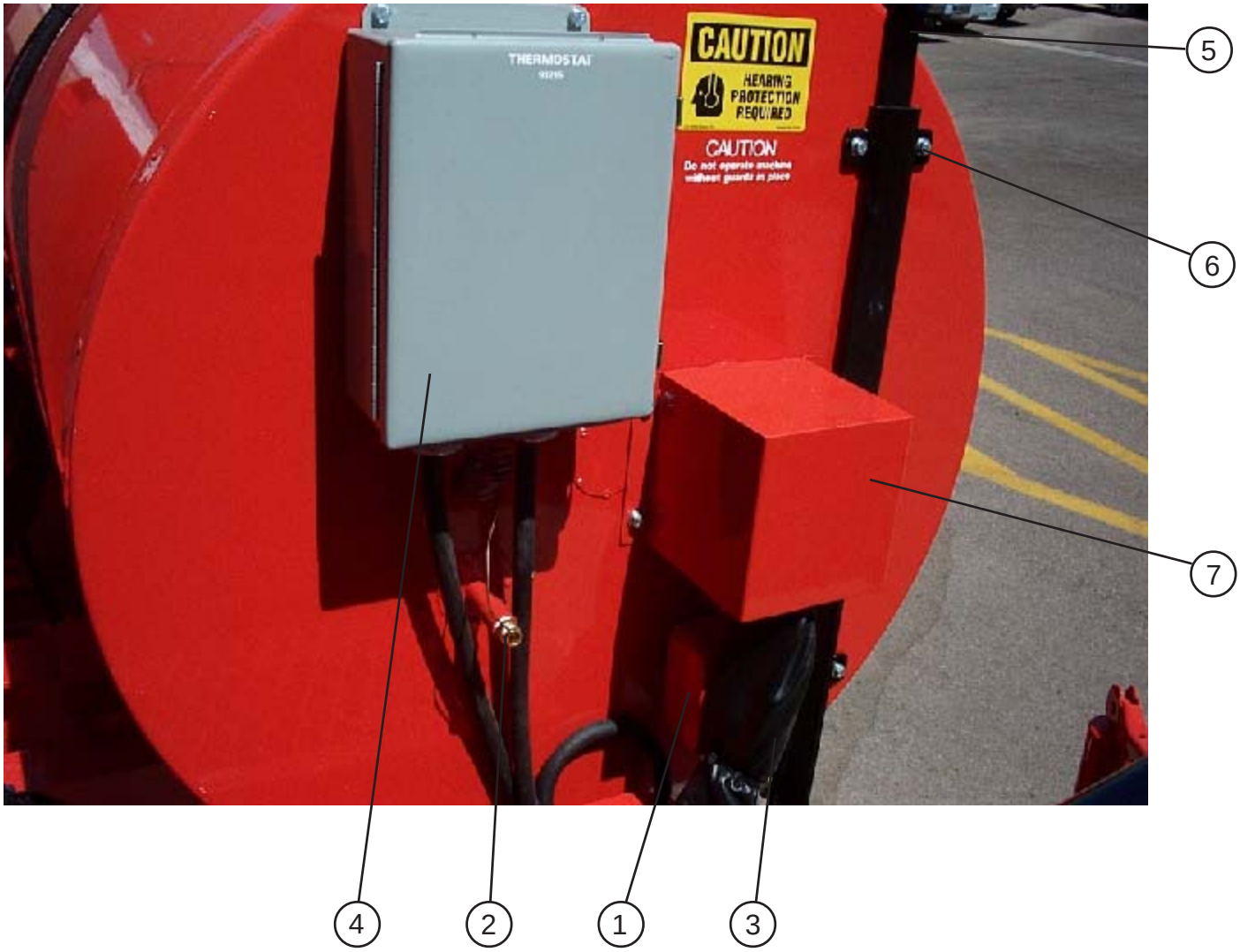
NUMBER	PART NUMBER	QTY	DESCRIPTION
1	90629	1	EMULSION TANK TOP VALVE ASSEMBLY
2	29961	1	PRESURE GAUGE
3	91135	1	1/4" PIPE "PIG TAIL"
4	42629	1	SAFETY VALVE
5	90861	1	1/2" CHECK VALVE
6	90640	1	250 GAL. EMULSION TANK WITH INSULATION
7	29214	1	BRONZE BALL VALVE - 1/2"

EMULSION TANK TEMPERATURE GAUGE



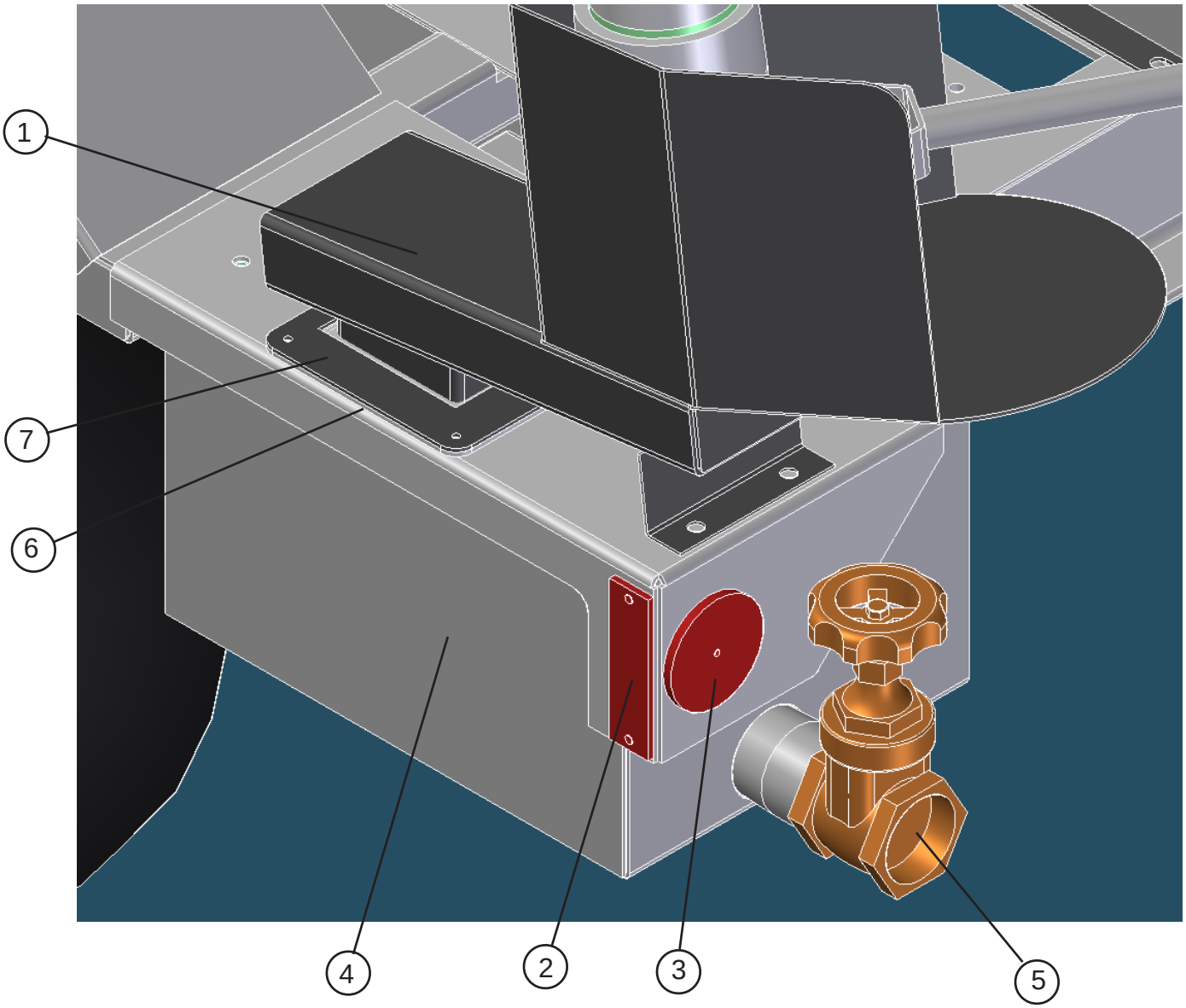
NO.	PART NUMBER	QTY	DESCRIPTION
1	41243	1	24" TEMP GAUGE, BOTTOM MOUNT

FRONT VIEW OF EMULSION TANK AND COMPONENTS



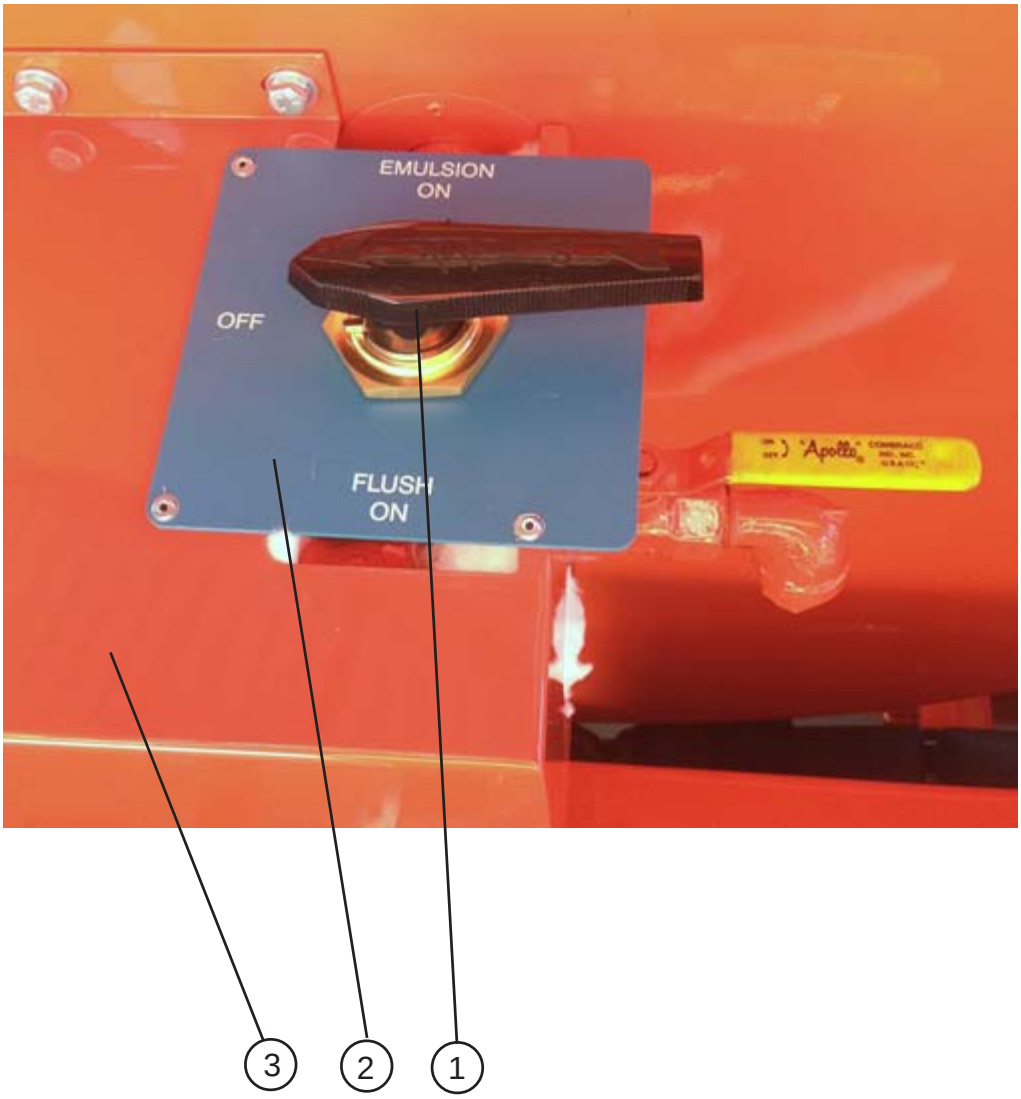
NO.	PART NUMBER	QTY	DESCRIPTION
1	91799	1	EMULSION TANK HEATER
2	25203	1	STUFFING BOX
3	91207	1	EMULSION INSULATION HOSE COVER
4	91095	1	THERMOSTAT BOX ASSEMBLY
5	91830	1	EMULSION TANK GAUGE DIPSTICK
6	90235	1	DIPSTICK HEIGHT GAUGE HOLDER
7	90790	1	EMULSION TANK HEAT SHIELD ASSY

REAR DRIVER'S SIDE -
FLUSH OUT BOX AND TROUGH OF MACHINE



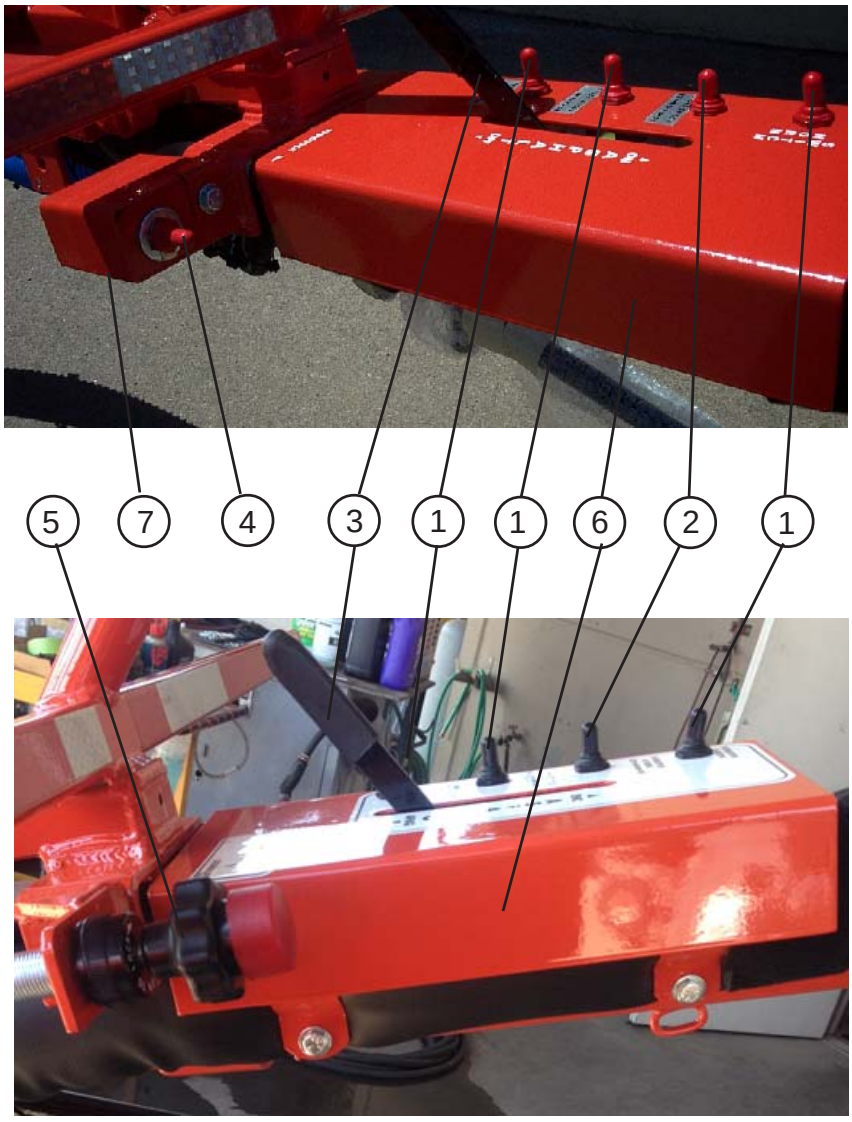
NO.	PART NUMBER	QTY	DESCRIPTION
1	92315	1	REAR EMULSION FLUSH TROUGH
2	91299	2	SQUARE RED REFLECTOR
3	90549	2	3" REFLEX REFLECTOR
4	91200	1	FLUSH OUT BOX
5	29270	1	BRONZE GATE VALVE - 2"
6	91267	1	BOTTOM FLANGE GASKET - TROUGH
7	91259	1	BOTTOM FLANGE GASKET COVER - TROUGH

EMULSION TANK REAR VALVE ASSEMBLY



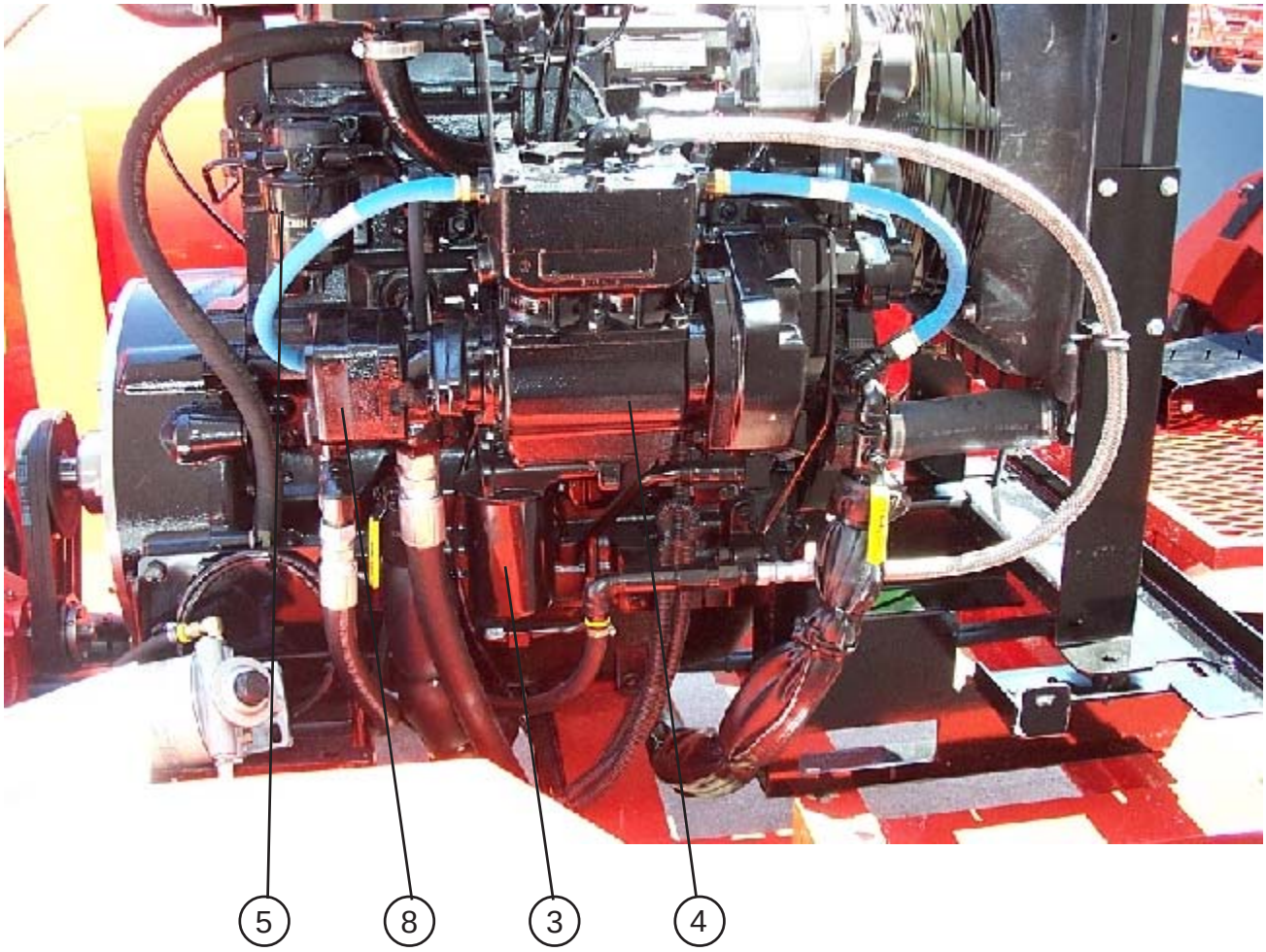
NO.	PART NUMBER	QTY	DESCRIPTION
1	90628	1	EMULSION TANK REAR VALVE ASSEMBLY
2	90569	1	VALVE POSITION INDICATOR PLATE
3	92693	1	EMULSION TANK INSULATION BOX

CONTROL CONSOLE PANEL



NO.	PART NUMBER	QTY	DESCRIPTION
1	32521	3	TOGGLE SWITCH - SPDT MOMENTARY
2	32522	1	TOGGLE SWITCH - DPDT ON-OFF-ON
3	91700	1	EMULSION REGULATION VALVE ASSEMBLY
4	32524	1	ELECTRIC THROTTLE SWITCH (OPTIONAL)
5	91046	1	MANUAL THROTTLE CONTROL (STANDARD)
6	91230	1	CONTROL PANEL ASSEMBLY
7	90212	1	THROTTLE SWITCH COVER (OPTIONAL)

ENGINE AND ENGINE COVER/COMPONENTS

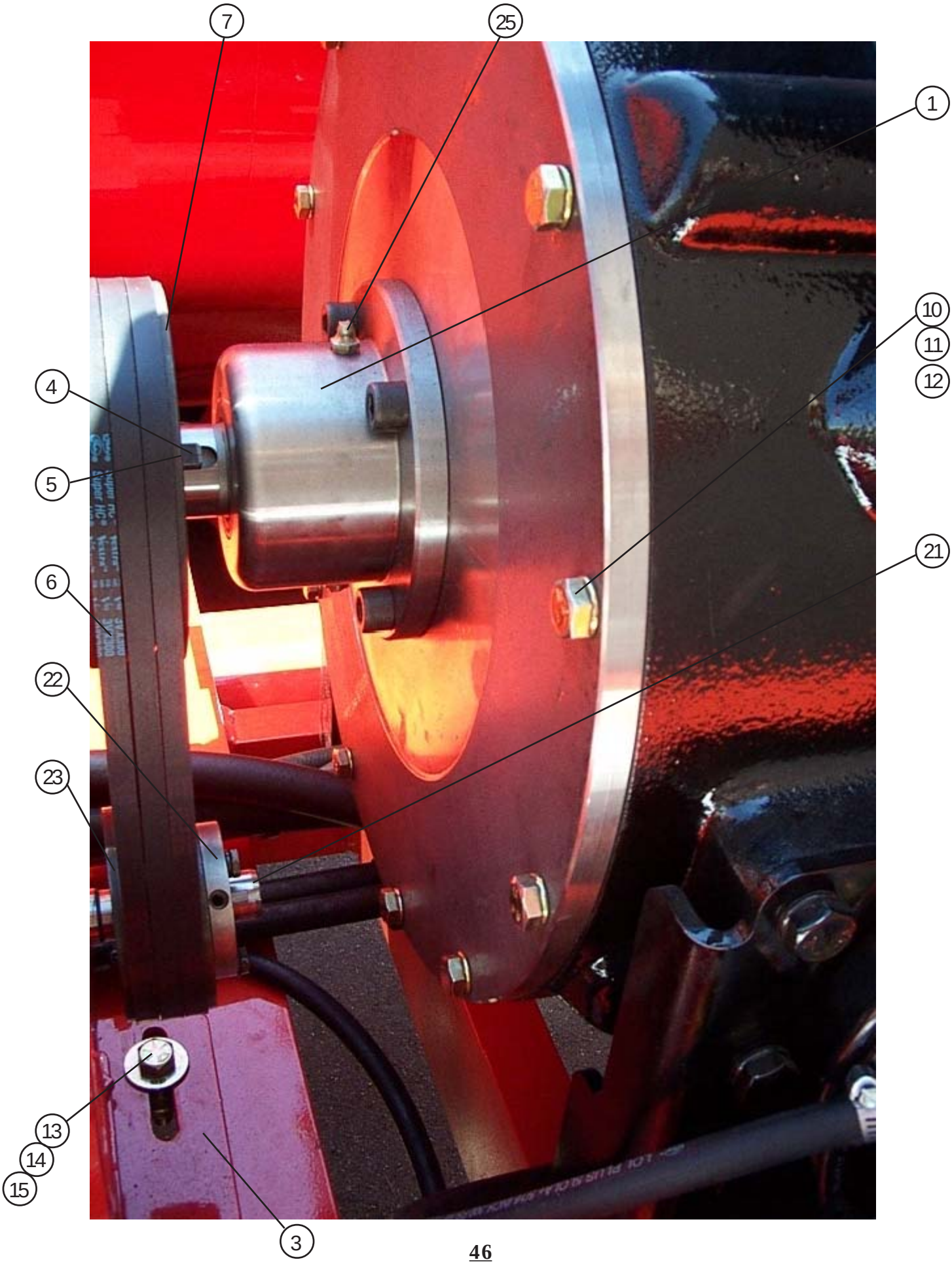


NUMBER	PART NUMBER	QTY	DESCRIPTION
1	91048	1	MUFFLER EXHAUST JOHN DEERE (NOT SHOWN)
3	91044	1	OIL FILTER - ENGINE
4	92270	1	ENGINE (JOHN DEERE 4045 WITH COVER AND COMPRESSOR)
5	91042	1	ENGINE FUEL FILTER
6	91031	1	INLET HOOD - LARGE BLOWER AIR CLEANER (NOT SHOWN)
7	91029	1	INLET HOOD - SMALL AIR CLEANER (NOT SHOWN)
8	90800	1	HYDRAULIC PUMP JOHN DEERE ENGINE WITH COMPRESSOR
9	91727	1	RUBBER CHECK VALVE - AIR CLEANER (NOT SHOWN)

THERMOSTAT BOX AND COMPONENTS

NUMBER	PART NUMBER	QTY	DESCRIPTION
1	91095	1	THERMOSTAT BOX ASSEMBLY
2	91215	1	THERMOSTAT
3	90542	1	LIGHT

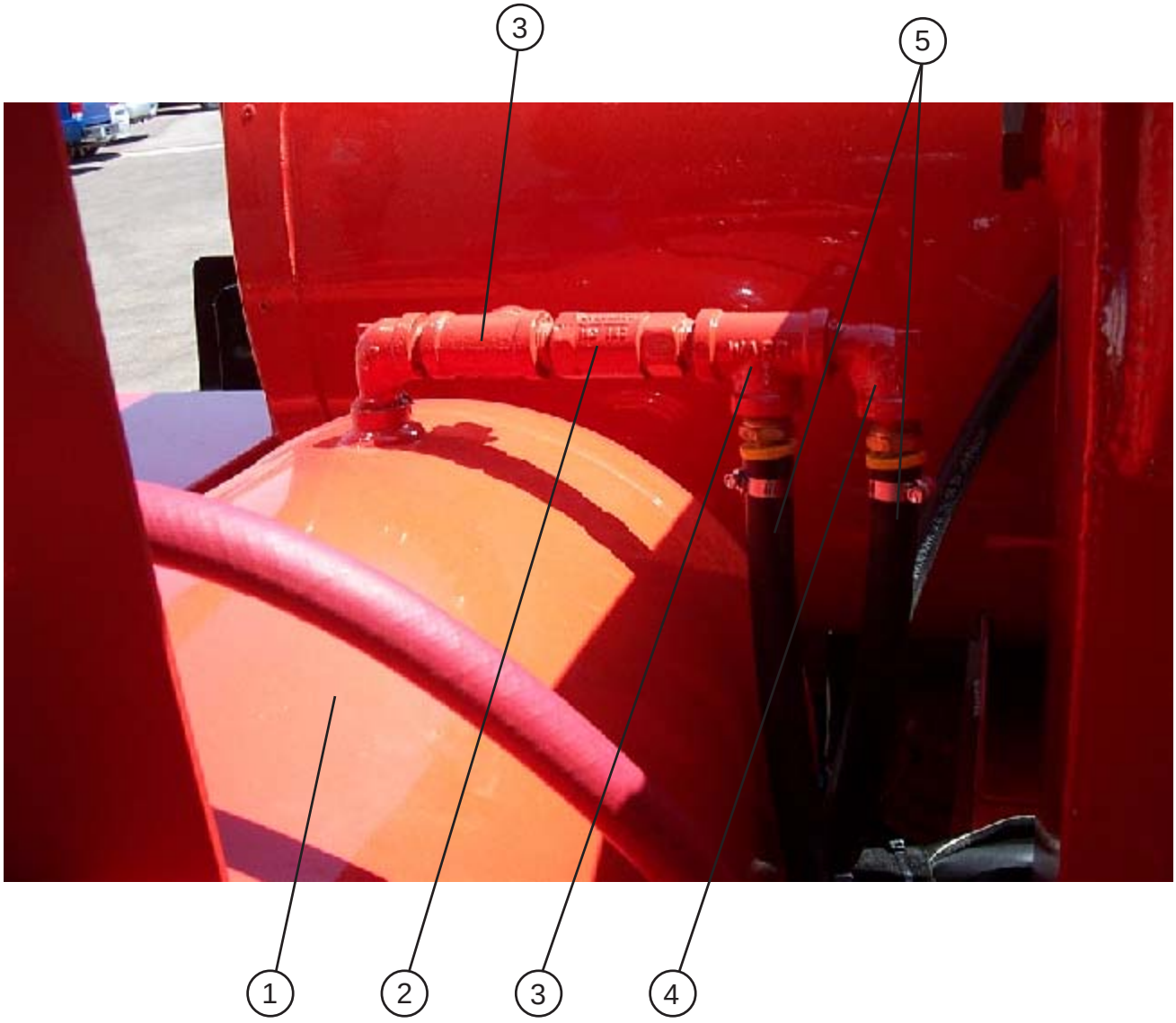
DRIVE TRAIN SYSTEM - ENGINE TO BLOWER/BELT DRIVE



DRIVE TRAIN SYSTEM - ENGINE TO BLOWER/BELT DRIVE

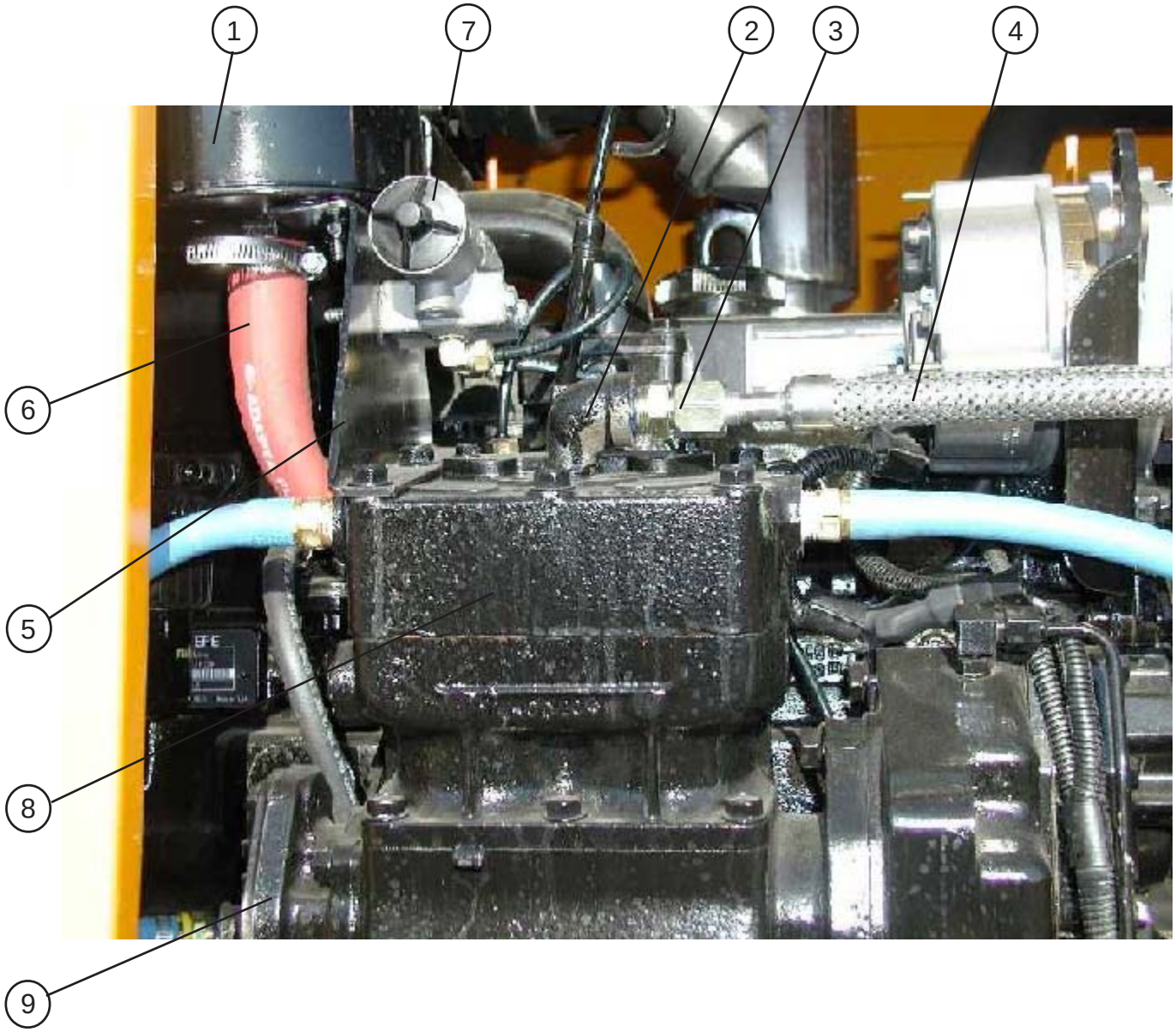
NUMBER	PART NUMBER	QTY	DESCRIPTION
1	91335	1	BEARING SUPPORT STUB SHAFT
2	60151	1	POSITIVE DISPLACEMENT ROTARY AIR BLOWER (NOT SHOWN)
3	91330	1	BLOWER SLIDE PLATE - MAGNUM
4	91409	1	SDS 1-1/2" BUSHING WITH 3/8"
5	91326	1	ENGINE SHAFT KEY 3/8" - HARDENED
6	91409	3	3V X 300 SUPER HC V-BELT
7	92304	1	3/3V 6.0" QD-SDS SHEAVE
8	60335	0.02	OIL-ROTARY AIR BLOWER (NOT SHOWN)
9	27953	8	3/8"-16 NC X 1" GR8 HEX HEAD (NOT SHOWN)
10	28641	20	3/8" FLAT HARDENED WASHER
11	28658	20	3/8" LOCK WASHER GRADE 8
12	27955	12	3/8"-16NC X 1-1/4" GR8 HEX HEAD
13	28528	8	1/2"-13 ESNA LOCK-NUT
14	28659	8	1/2" LOCK WASHER GRADE 8
15	29026	8	1/2"-13 X 1-1/2" GR8 BOLT
16	90858	2	3/8"-16 X 4" FULL THREAD BOLT (NOT SHOWN)
17	28526	2	3/8"-16 ESNA LOCK NUT (NOT SHOWN)
18	27986	2	3/8" FLAT WASHER GRADE 8 (NOT SHOWN)
19	27964	2	3/8"-16NC GRADE 8 NUT (NOT SHOWN)
20	90827	8	BLOWER MOUNTING TAB
21	91065	1	BLOWER KEY - 1/4"
22	92306	1	7/8" SH BUSHING
23	92302	1	3/3V 3.65" QD-SH SHEAVE
24	91327	1	BLOWER KEY - 3/16" X 1-7/" (NOT SHOWN)
25	--------	2	GREASE - HERE

DIESEL FLUSH TANK



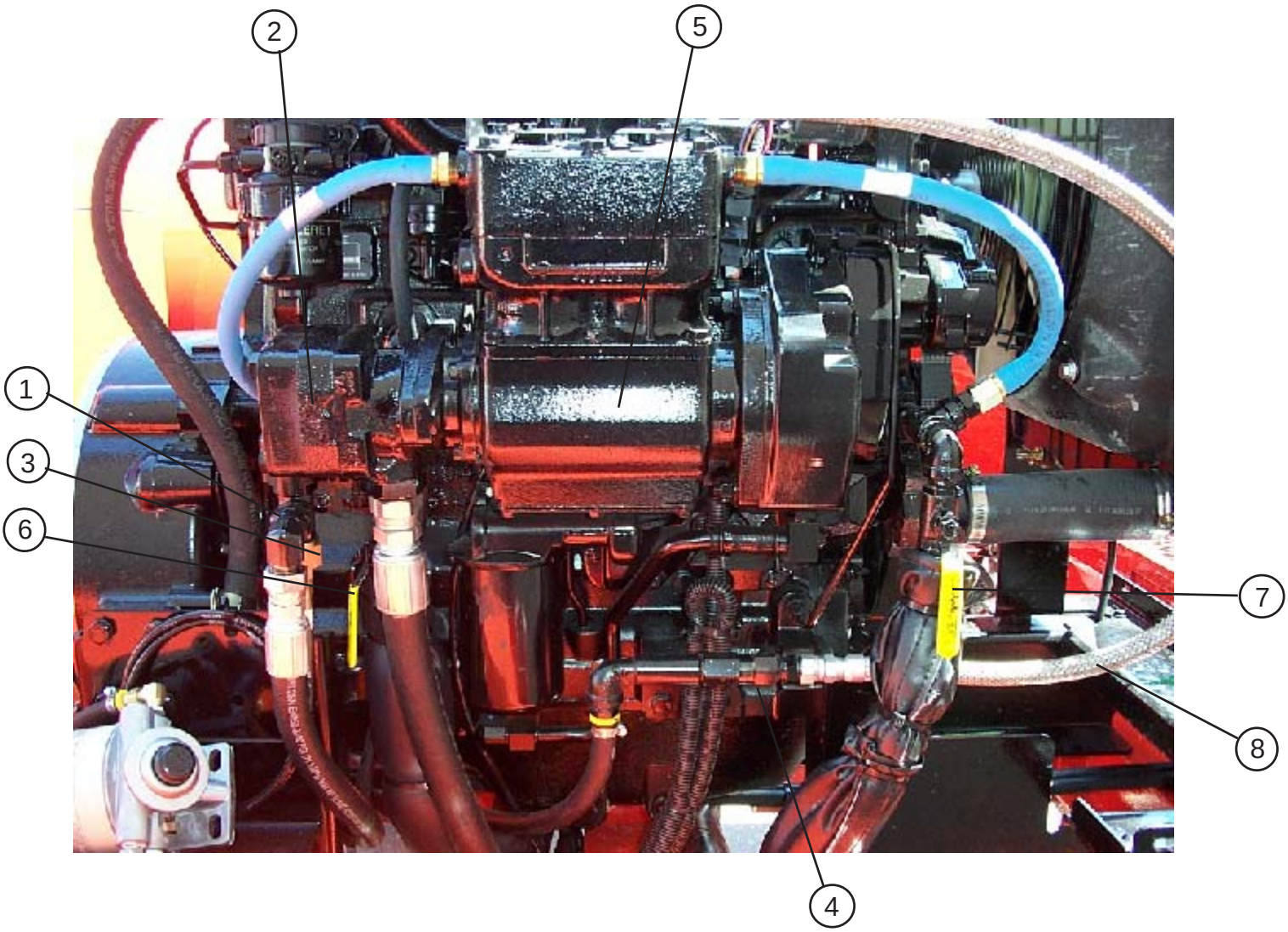
NUMBER	PART NUMBER	QTY	DESCRIPTION
1	90860	1	DIESEL FLUSH TANK ASSEMBLY
2	90861	1	1/2" CHECK VALVE
3	28253	1	1/2" PIPE TEE
4	28238	1	1/2" STREET ELBOW
5	29596	1	HOSE - 1/2" PUSH-ON-BLACK

ENGINE AIR COMPRESSOR AND COMPRESSOR GOVERNOR



NUMBER	PART NUMBER	QTY	DESCRIPTION
1	50109	1	AIR COMPRESSOR FILTER
2	28238	1	1/2" STREET ELBOW
3	29844	1	1/2" MPT X 1/2" 37° ADAPTER
4	41403	1	1/2" STAINLESS STEEL LINE
5	90890	1	BRACKET
6	90891	1	INTAKE AIR COMPRESSOR HOSE
7	90899K	1	GOVERNOR - COMPRESSOR UNLOADING
8	91022	1	ENGINE - BOLT ON AIR COMPRESSOR
9	90800	1	HYDRAULIC MOTOR

HYDRAULIC SYSTEM



NO.	PART NUMBER	QTY	DESCRIPTION
1	90794	1	HYDRAULIC PUMP FITTING ASSEMBLY
2	90800	1	HYDRAULIC PUMP JD W/COMPRESSOR
3	27694	1	3/4 INT JIC EXT STRAIGHT CONNECTOR
4	90895	1	ON-BOARD COMPRESSOR CHECK VALVE (90893)
5	91022	1	13 CFM COMPRESSOR JD BOLT-ON
6	90529	1	RETURN WATER HEATING VALVE ASSEMBLY
7	90530	1	WATER PUMP OUTLET VALVE ASSEMBLY
8	41403	1	1/2" STAINLESS STEEL LINE

JOHN DEERE ENGINE COMPONENTS

NO.	PART NUMBER	QTY	DESCRIPTION
1	91795	1	AIR FILTER RESTRICTION INDICATOR
2	91047	1	REPLACEMENT ENGINE AIR FILTER
3	91048	1	EXHAUST SYSTEM
4	91727	1	VACTUATOR VALVE - AIR FILTER
5	91043	1	ENGINE SERPENTINE BELT
-	26491	1	JOHN DEERE SERVICE MANUAL W/ CD

MAGNUM BLOWER AIR CLEANER

NO.	PART NUMBER	QTY	DESCRIPTION
1	92261	1	AIR CLEANER HOUSING COMPLETE **UNITS BUILT BEFORE JULY 2014 USE 91045**
2	92262	1	AIR CLEANER- AIR FILTER ELEMENT **UNITS BUILT BEFORE JULY 2014 USE 91035**
3	91031	1	INLET HOOD - LRG BLOWER AIR CLEANER
4	91795	1	AIR FILTER RESTRICTION INDICATOR
5	91708	1	AIR CLEANER MOUNTING RING CLAMP
6	91235	1	RUBBER CONNECTOR HOSE - BLOWER
7	91843	1	6" WORM DRIVE HOSE CLAMP
8	91727	1	VACTUATOR VALVE - AIR CLEANER

MAGNUM BLOWER AIR CLEANER

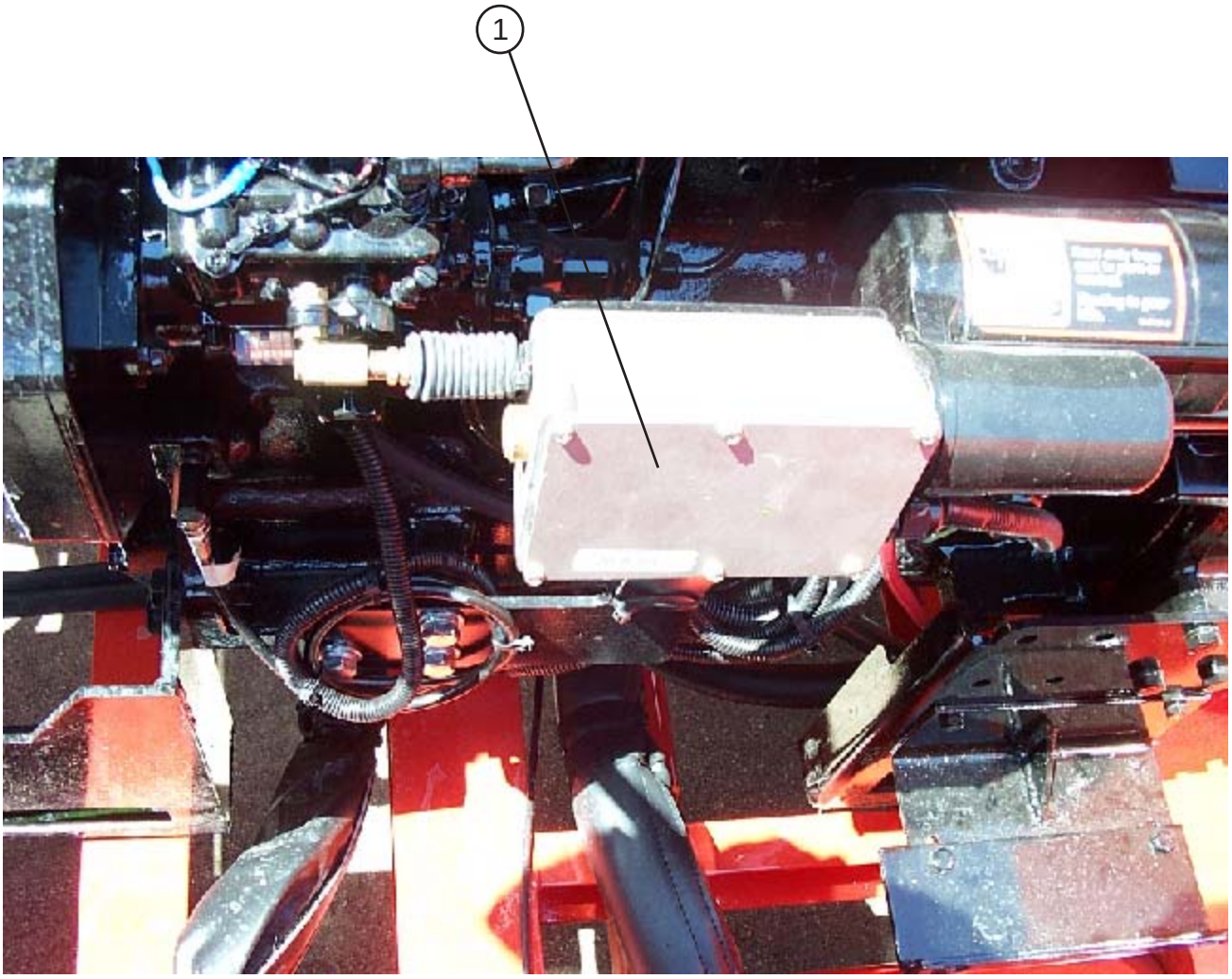
NO.	PART NUMBER	QTY	DESCRIPTION
1	92262	1	AIR CLEANER- AIR FILTER ELEMENT **UNITS BUILT BEFORE JULY 2014 USE 91035**

DECAL-TOWING OF THE SPRAY INJECTION PATCHER

NUMBER	PART NUMBER	QTY	DESCRIPTION
1	90290	1	DECAL-TOWING SPRAY INJECTION PATCHER

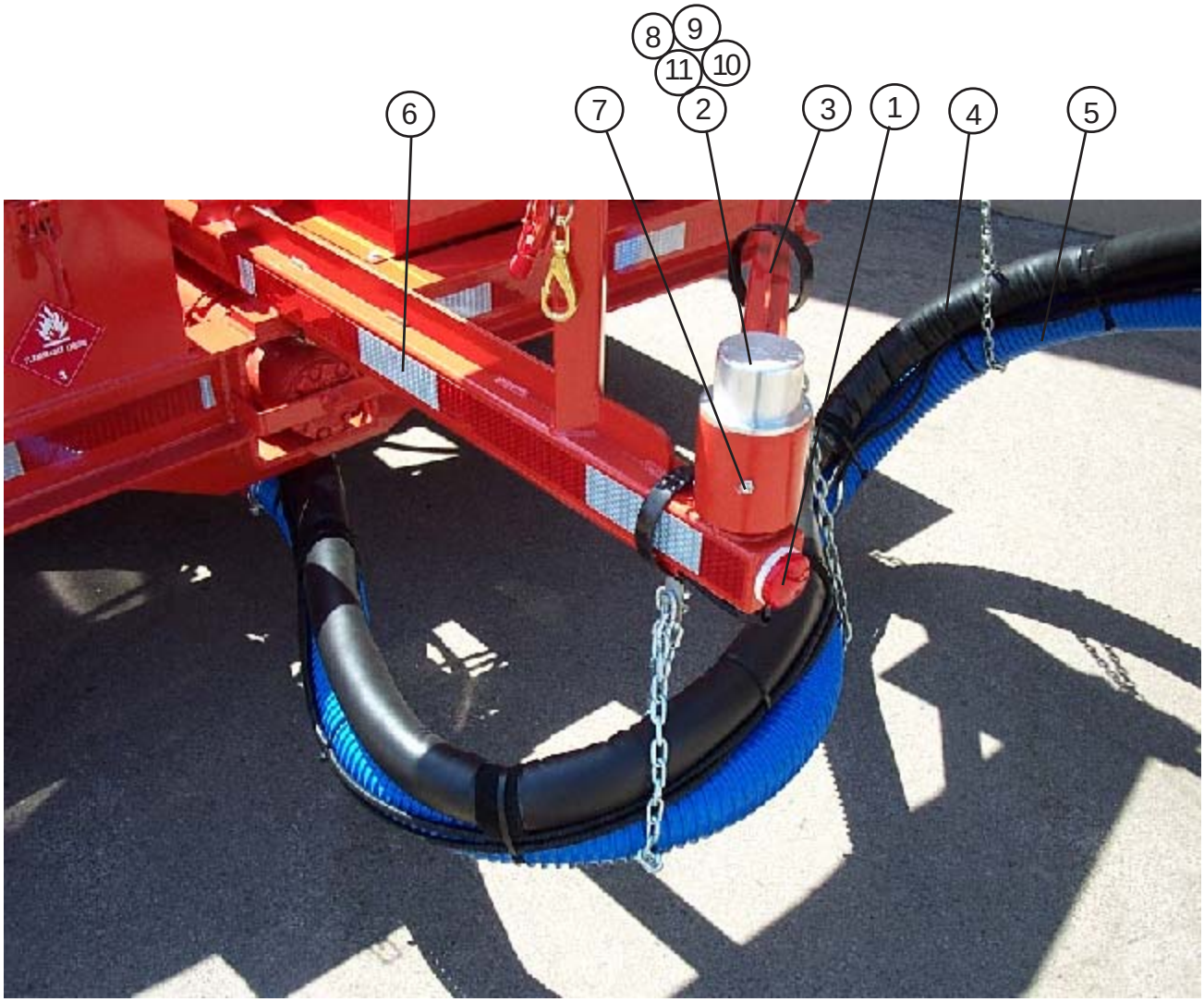
ELECTRIC THROTTLE-REMOTE CONTROL/ACTUATOR

PLEASE NOTE: THIS IS OPTIONAL



NUMBER	PART NUMBER	QTY	DESCRIPTION
1	91021K	1	ELECTRIC REMOTE CONTROL/ACTUATOR

OPERATOR BOOM AND HOSE



NO.	PART NUMBER	QTY	DESCRIPTION
1	32319	1	CENTER RED LIGHT
2	90661	2	3" I.D. BEARING COVER
3	91535	1	1ST BOOM SECTION (SHORT)
4	90304	1	EMULSION LINE COVER 15'-5" MAGNUM
5	91157	13'-3"	3" BULK-AGGREGATE HOSE-BLUE
6	91310	1	BOOM MOUNTING SECTION
7	32026	3	1/8NPT GREASE ZERK FITTING
8	90577	2	LARGE TAPER BEARING RACE
9	90576	1	LARGE TAPER BEARING
10	91722	1	LARGE HEX CASTLE NUT
11	90581	1	LARGE OIL SEAL

TAIL LIGHT AND LICENSE BRACKET

NO.	PART NUMBER	QTY	DESCRIPTION
1	32317	4	TAIL LIGHT
2	44797	1	LICENSE LIGHT
3	32371	1	RED CLEARANCE LIGHT
4	26099	1	LICENSE BRACKET
5	91216K	1	STROBE LIGHT KIT (OPTIONAL)
6	90624	1	ARROW BOARD (OPTIONAL)

JOHN DEERE ENGINE CONTROL PANEL

SEE PAGE 59 FOR PARTS LIST

JOHN DEERE ENGINE CONTROL PANEL

NUMBER	PART NUMBER	QTY	DESCRIPTION
1	51695	1	CIRCUIT BREAKER 30 AMPS
2	50238	1	JUMPER
3	51694	1	CIRCUIT BREAKER 5 AMPS
4	91764	1	TEMPERATURE SWITCH GAUGE
5	91822	1	AMP METER
6	90537	1	SWITCH KEY
7	91854	1	TACHOMETER WITH HOUR METER
8	91780	1	HOUR METER
9	91837	1	COOLANT PRESSURE SWITCH GAUGE
10	91758	1	MAGNETIC SWITCH (RED MURPHY)
11	91846	1	ENCLOSURE ASSEMBLY
12	91847	1	BACK PANEL
13	91869	1	OIL PRESSURE SWITCH GAUGE
14	91177	1	FUSE HOLDER
15	91032	1	CONTROL PANEL- PURCHASED COMPLETE
16	90453	1	2" 0-3000 HYD PRESSURE GAUGE

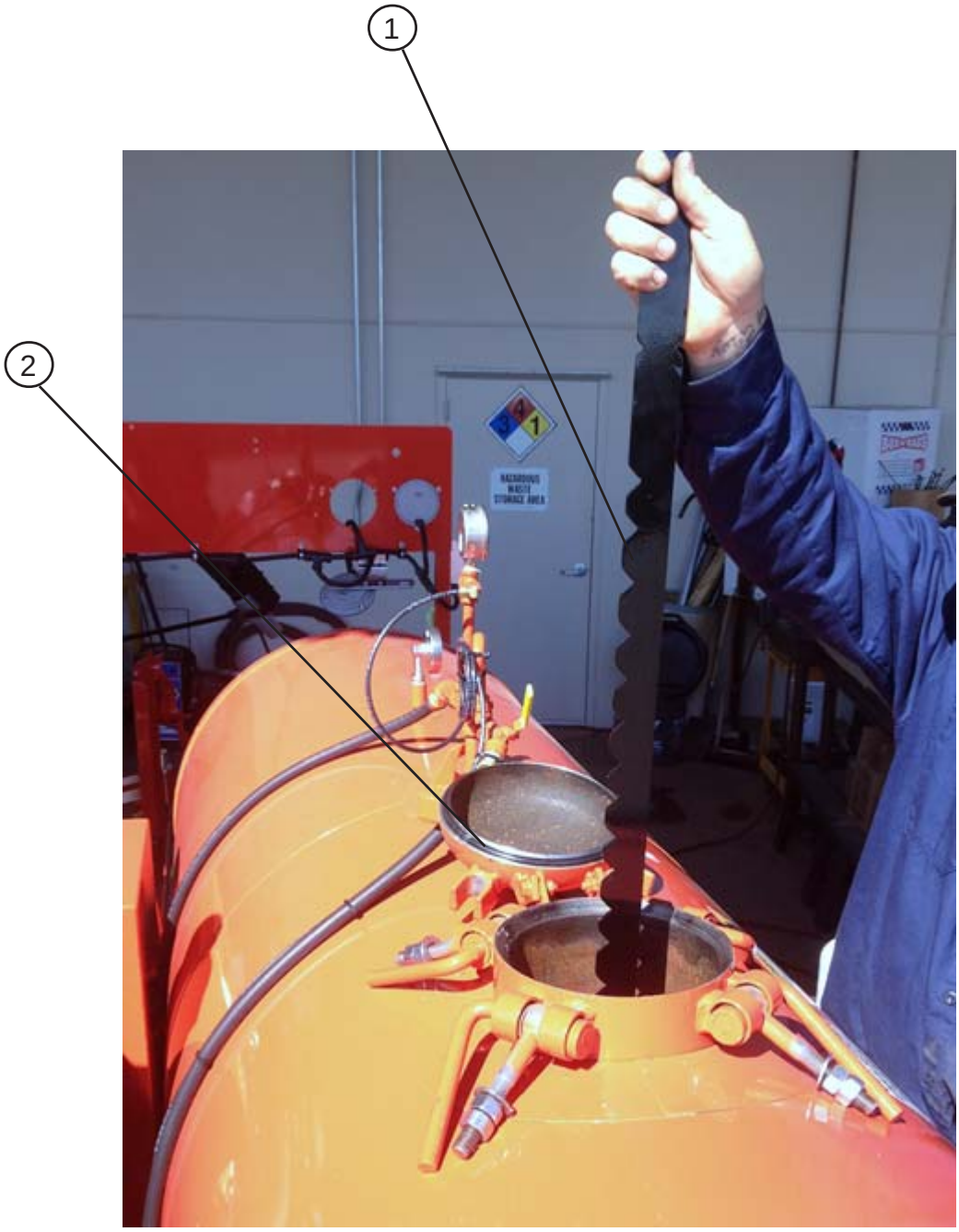
ARROWBOARD CONTROLLER PROTECTION BOX (OPTION)

NUMBER	PART NUMBER	QTY	DESCRIPTION
1	91032	1	ENGINE CONTROL PANEL - PURCHASED
2	90395	1	ARROWBOARD CONTROLLER PROTECTION BOX
3	90626	1	ARROWBOARD CONTROL BOX - REPLACEMENT BOX

ARROWBOARD & CONTROL BOX ASSEMBLY (OPTION)

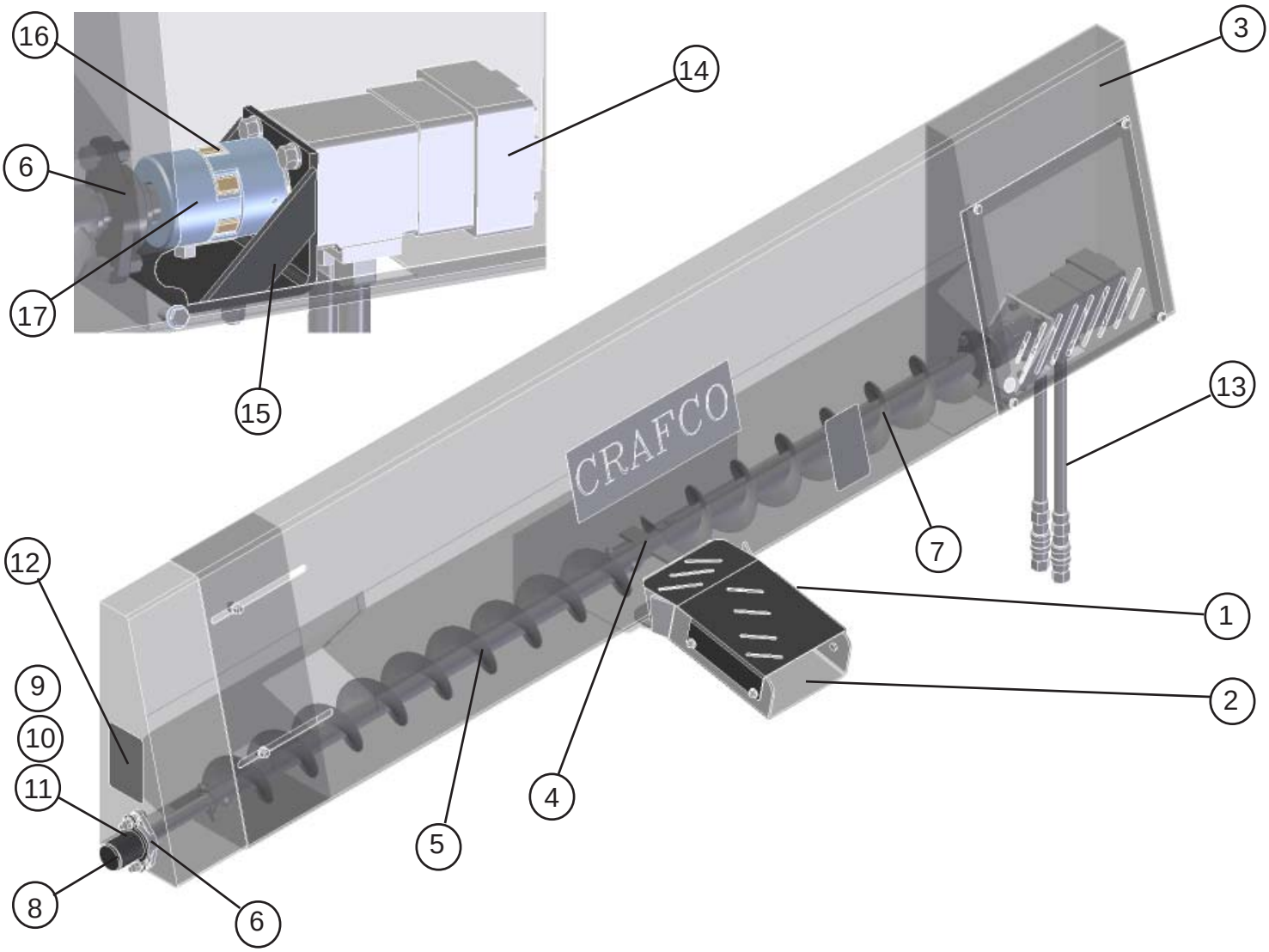
NUMBER	PART NUMBER	QTY	DESCRIPTION
1	90624	1	ARROW BOARD & CONTROL BOX ASSY.

EMULSION TANK GAUGE



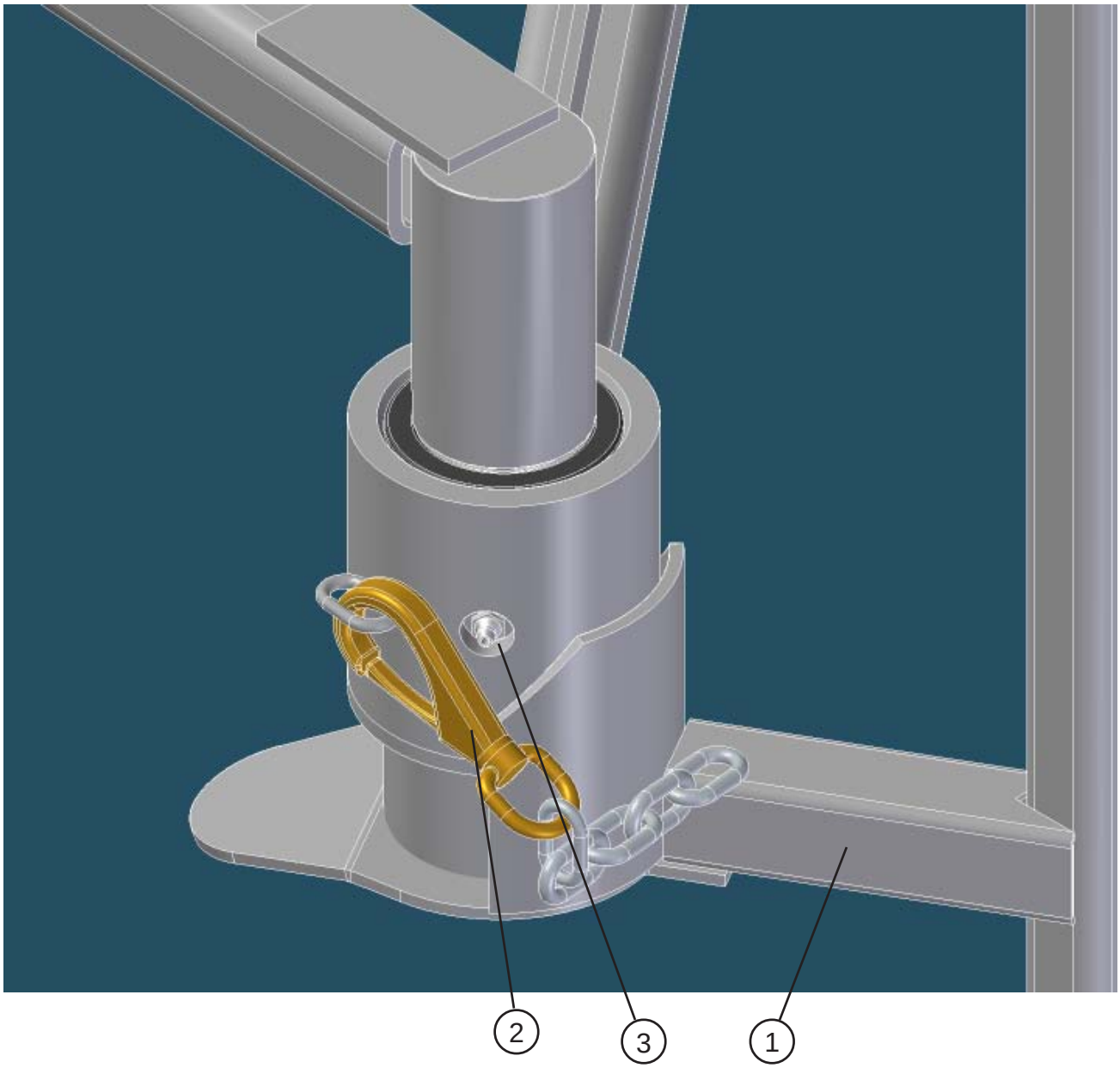
NO.	PART NUMBER	QTY	DESCRIPTION
1	91830	1	EMULSION TANK GAUGE DIPSTICK
2	90621	1	8" ENCLOSURE O-RING (FOR EMULSION TANK LID)

HYDRAULIC TAILGATE ASSEMBLY (91196K)



NO.	PART NUMBER	QTY	DESCRIPTION
1	90752	1	ROCK CHUTE COVER
2	90650	1	SHORT ROCK CHUTE
3	91196	1	TRUCK AUGER TAILGATE ASSY
4	90613	1	SCREW AUGER SHAFT WITH PADDLES
5	90614	1	LONG SCREW AUGER
6	90578	2	TRUCK AUGER BEARING 2-BOLT FLANGE
7	90611	1	SHORT SCREW AUGER
8	90399	1	TAILGATE COVER ASSY
9	28672	2	3/8 FLAT WASHER
10	28502	2	3/8-16 NC HEX NUT
11	28734	2	3/8-16 X 1-3/4 HEX HEAD BOLT
12	90288	2	DECAL, WARNING NO OPERATION W/O GUARDS
13	XXXXX	2	AX8-8MP-8MP-12 HOSE
14	41102	1	HYDRAULIC MOTOR
15	91428	1	TAILGATE HYD BRKT ASSY
16	90601	1	SPIDER INSERT
17	90602	2	1/2" HYDRAULIC MOTOR COUPLER

REAR BOOM SADDLE



NO.	PART NUMBER	QTY	DESCRIPTION
1	92683	1	BOOM SADDLE JOINT HOLDER
2	91648	1	BOOM STOW SAFETY CHAIN
3	32026	1	1/8 NPT GREASE ZERK

SPRING ARM ASSEMBLY

NO.	PART NUMBER	QTY	DESCRIPTION
1	91357	1	SPRING CYLINDER ASSEMBLY R.H.
2	91360	1	SPRING CYLINDER ASSEMBLY L.H.
3	91365	1	UPPER SPRING CYLINDER ASSEMBLY

CONTROL CONSOLE

NO.	PART NUMBER	QTY	DESCRIPTION
1	32521	3	TOGGLE SWITCH - SPDT MOMENTARY
2	32522	1	TOGGLE SWITCH - DPDT/ON-OFF-ON
3	32527	4	TOGGLE SWITCH BOOT

CLEARANCE LIGHT

NO.	PART NUMBER	QTY	DESCRIPTION
1	32314	4	CLEARANCE LIGHT
2	90547	4	3" ROUND AMBER REFLECTOR

OPTIONAL EXTERNAL WATER/FUEL SEPARATOR

NO.	PART NUMBER	QTY	DESCRIPTION
1	90420	1	WATER/FUEL SEPERATOR J.D. ENGINE 4045T
2	91872	1	FILTER REPLACEMENT ELEMENT

8 FOOT QUICK FLUSH HOSE-OPTION

NUMBER	PART NUMBER	QTY	DESCRIPTION
1	90225	1	8 FOOT QUICK FLUSH HOSE-OPTION

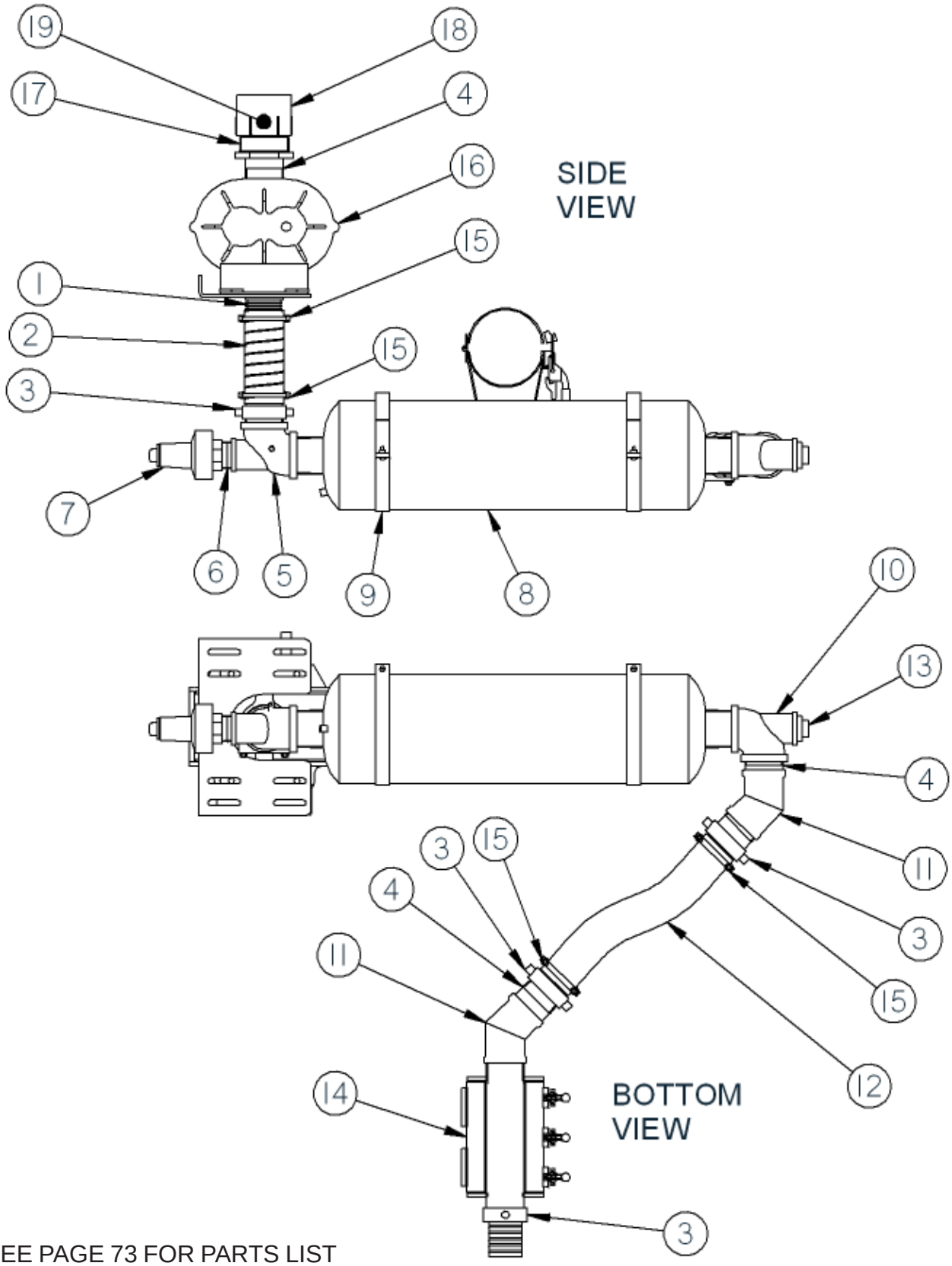
MANUAL BOX

NUMBER	PART NUMBER	QTY	DESCRIPTION
1	25289	1	MODEL 550 MANUAL BOX
2	91285	1	MAGNUM PARTS MANUAL (NOT SHOWN)

EMULSION TANK DRAIN VALVE ASSEMBLY

NO.	PART NUMBER	QTY	DESCRIPTION
1	28060	1	NIPPLE 2" (5" LONG)
2	28198	1	2" - 45 DEG ELBOW IRON PIPE
3	28008	1	CLOSE NIPPLE 2"
4	29270	1	BRONZE GATE VALVE - 2"
5	28136	1	2" NIPPLE X 9" LONG THREAD BOTH ENDS

MAGNUM AIR DISCHARGE PLUMBING CIRCUIT
PART NUMBERS

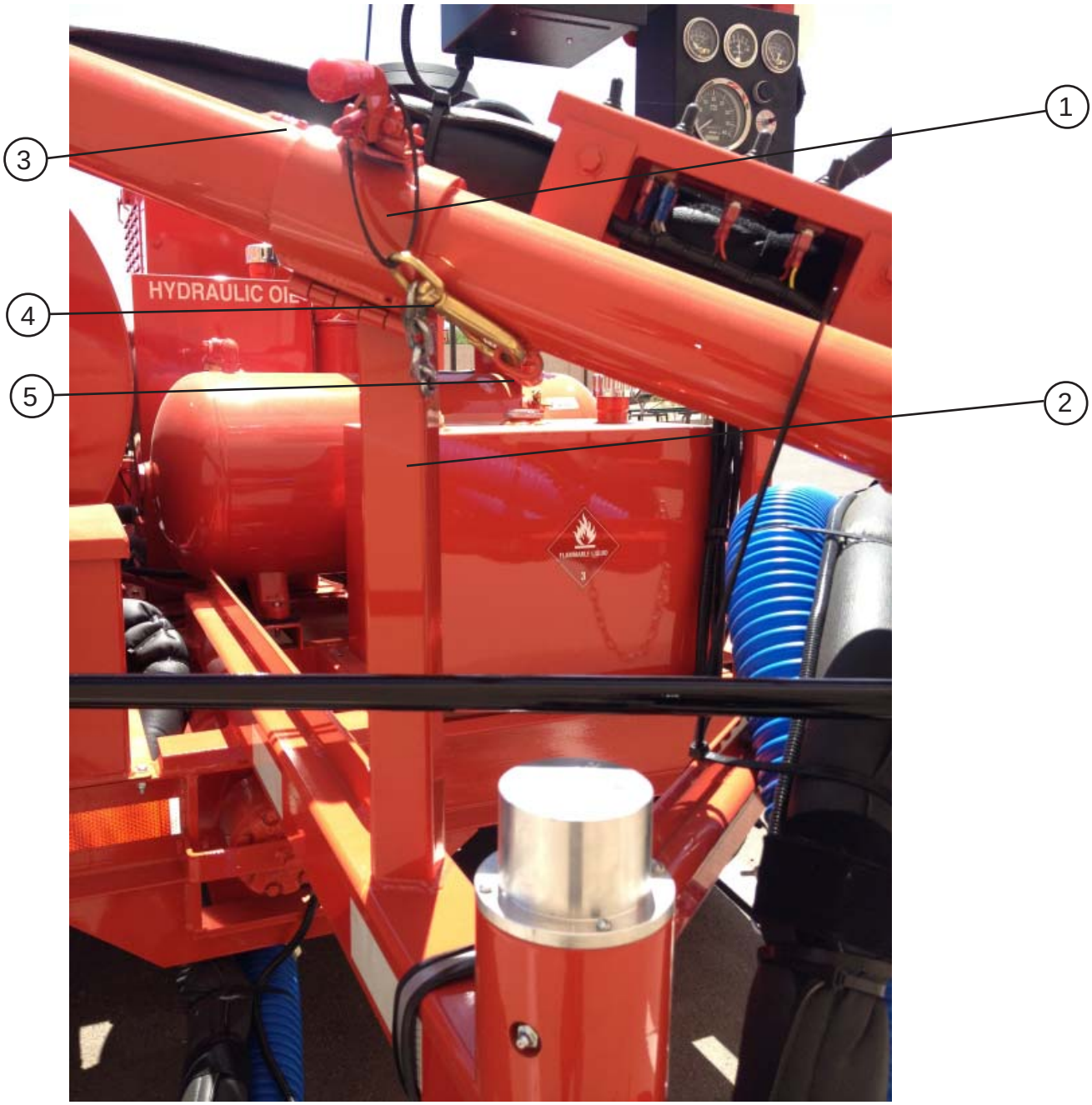


SEE PAGE 73 FOR PARTS LIST

MAGNUM AIR DISCHARGE PLUMBING CIRCUIT
PART NUMBERS

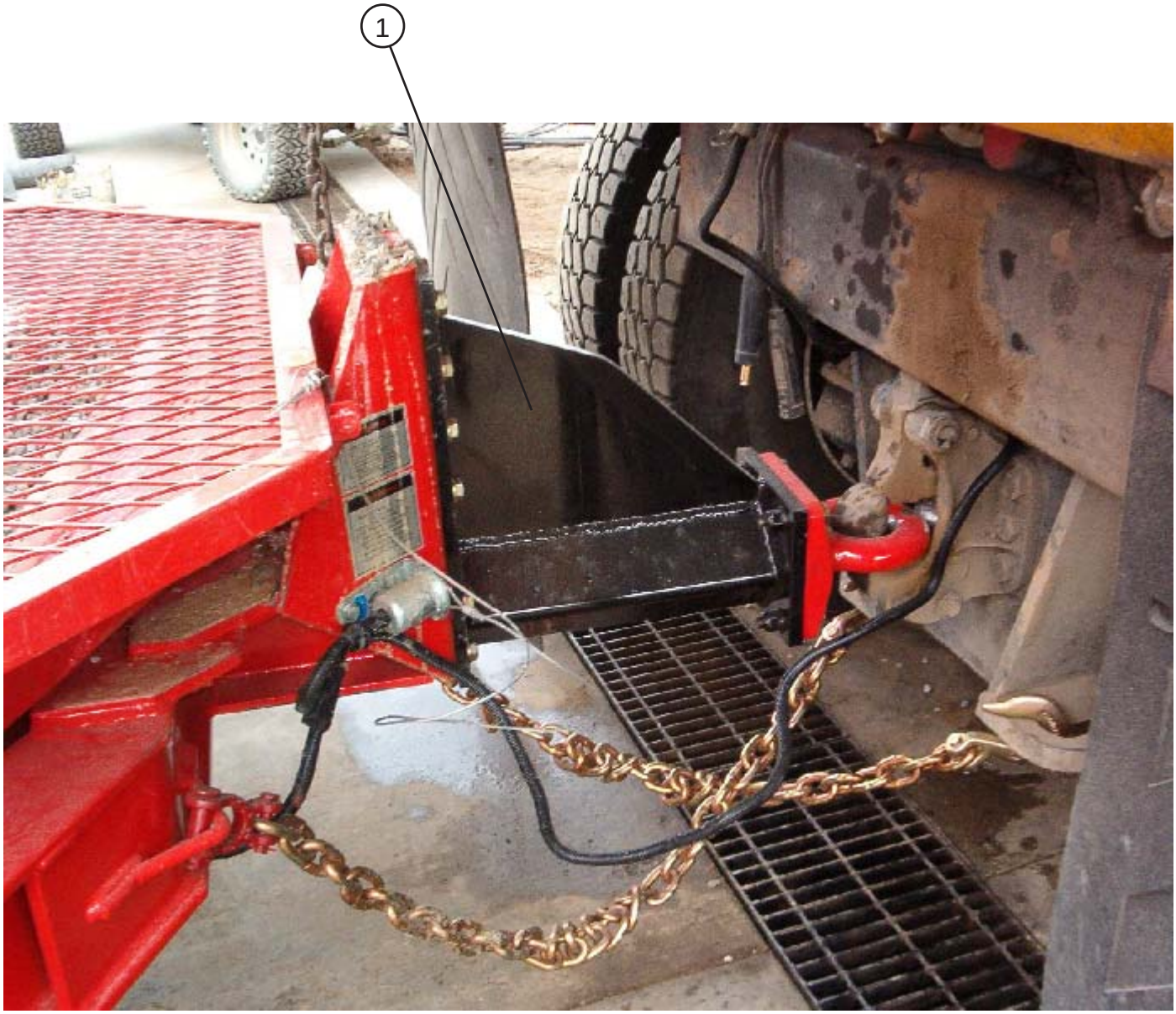
NO.	PART NUMBER	QTY	DESCRIPTION
1	91344	1	3" NIPPLE/HOSE COMBO KING
2	91339	1	3" WILDCAT HOSE X 8-1/2" LG
3	90554	4	PIN PLUG / 3" FEMALE COUPLER
4	28010	5	3" CLOSED NIPPLE
5	91668	1	3" X 2" X 3" BLACK MI TEE-DRILLED
6	28008	1	CLOSED NIPPLE 2"
7	91661	1	BLOWER PRESS RELIEF VALVE - 10 PSI
8	92691	1	CHAMBER ABSORPTION SILENCER
9	91708	2	MOUNTING RING CLAMP
10	28259	1	3" X 2" X 3" BLACK MI TEE
11	28200	2	3" 45 DEG. THREADED ELBOW
12	91338	1	3" WILDCAT HOSE X 28" LG
13	28288	1	PIPE PLUG 2"
14	91165	1	6" AIRLOCK COMPLETE
15	25952	4	3-1/2" U-BOLT MUFFLER CLAMP
16	60151	1	MAGNUM BLOWER
17	28364	1	4" X 3" REDUCING BUSHING
18	91332	1	4" SCH 40 FEMALE PVC ADAPTOR DRILLED
19	90754	1	ELBOW OIL - HOLE COVER

MAGNUM AGGREGATE BOOM CLAMP ASSEMBLY
PART NUMBERS



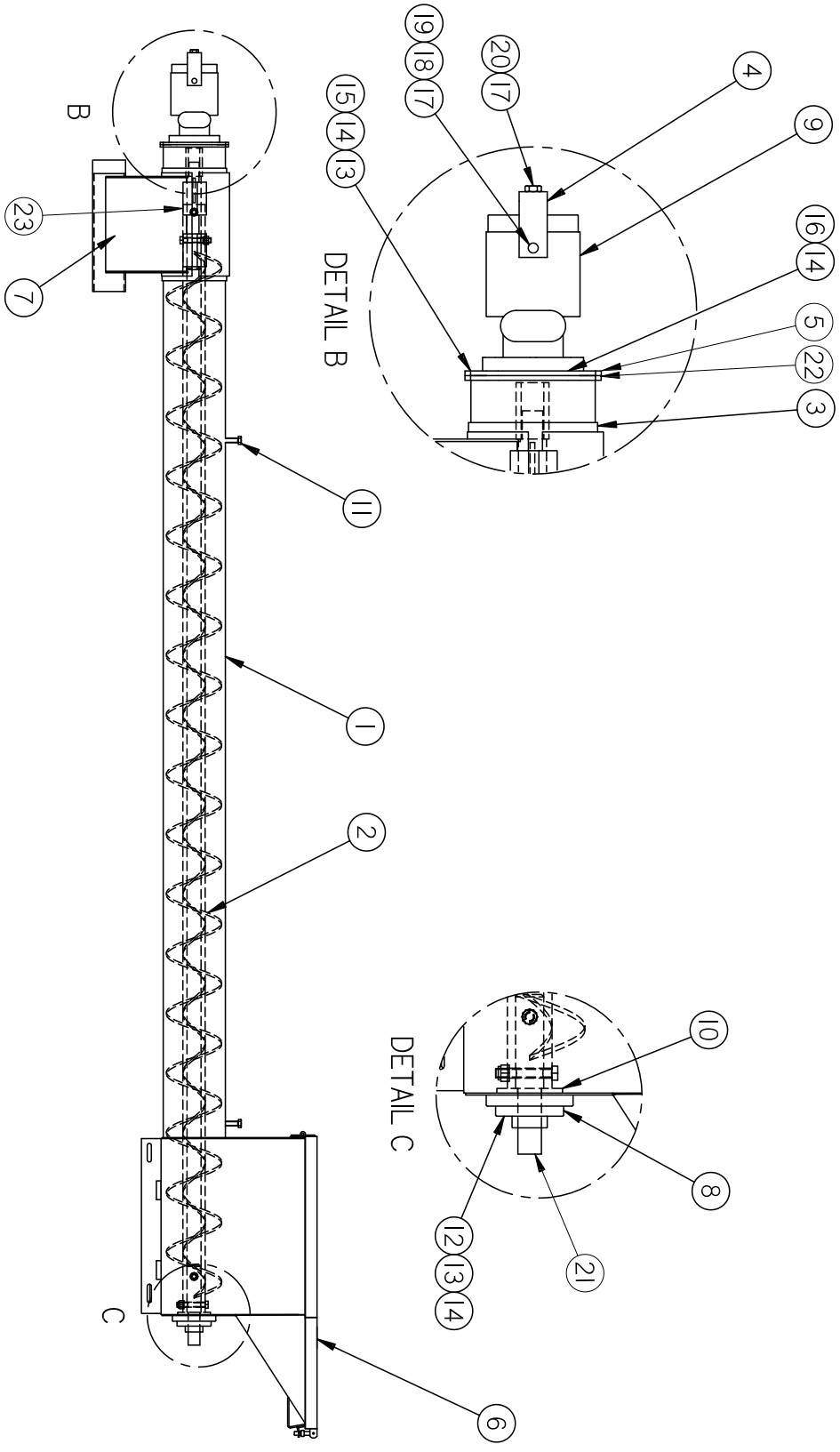
NO.	PART NUMBER	QTY	DESCRIPTION
1	91312	1	AGGREGATE BOOM CLAMP ASSEMBLY
2	91310	1	BOOM MOUNT SECTION/FRAME
3	37032	1	1/4" x 1 1/8" KEY
4	91648	1	BOOM STOW SAFETY CHAIN
5	43897	1	3/16" CHAIN, 1 LINK

HITCH EXTENSION



NUMBER	PART NUMBER	QTY	DESCRIPTION
1	90887	1	24" HITCH EXTENSION ASSEMBLY SPECIAL- 19" OFFSET

MAGNUM 6” AGGREGATE SCREW FEED ASSEMBLY
PART NUMBERS

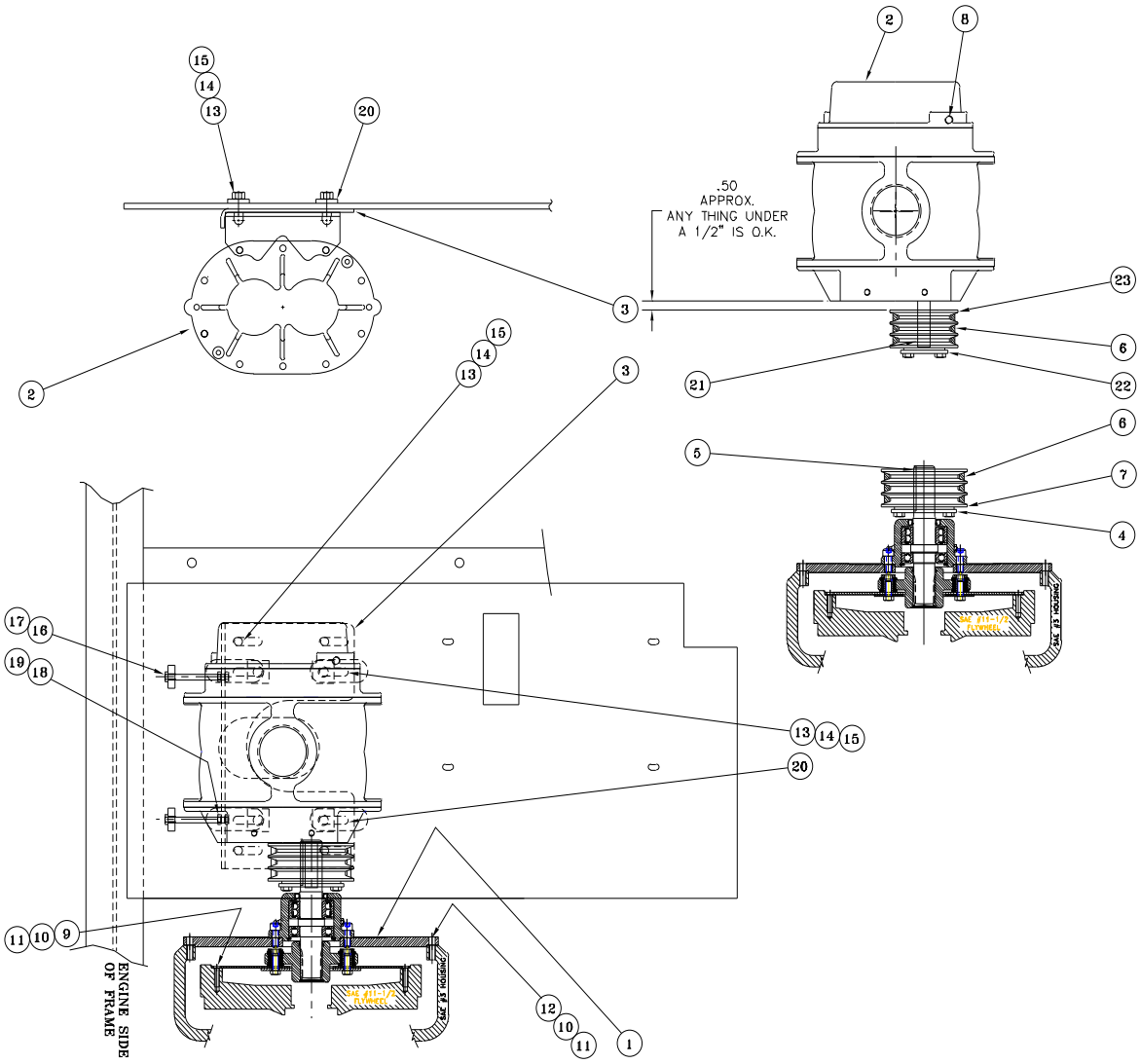


SEE PAGE 77 FOR PARTS LIST

MAGNUM 6” AGGREGATE SCREW FEED ASSEMBLY PART NUMBERS

NO.	PART NUMBER	QTY	DESCRIPTION
1	92638	1	6" MAGNUM AGGREGATE SCREW FEED PIPE
2	92692	1	AUGER ASSEMBLY
3	91057	1	AIR LOCK GASKET
4	91106	1	HYDRAULIC MOTOR KEEPING BRACKET
5	91127	1	FACE PLATE
6	91130	1	AGGREGATE HOPPER (MAGNUM)
7	91165	1	6" AIR LOCK COMPLETE
8	91131	1	1-1/4" HOPPER BEARING
9	91122	1	HYDRAULIC MOTOR
10	91265	1	ANTI-FRICTION NYLON WASHER
11	28762	2	1/2" X 1-1/2" HEX HEAD BOLT
12	27953	4	3/8" X 1" GR8 HEX HEAD BOLT
13	28634	8	3/8" FLAT WASHER
14	28526	12	3/8"-16 ESNA LOCK NUT
15	28733	4	3/8"-16 X 1-1/2" HEX HEAD BOLT
16	28732	4	3/8"-16 X 1-1/4" HEX HEAD BOLT
17	28764	3	1/2"-13 X 2" HEX HEAD BOLT
18	28528	2	1/2"-13 ESNA LOCK NUT
19	28674	4	1/2" FLAT WASHER
20	28504	1	1/2"-13 HEX NUT STEEL
21	91192	1	AUGER IDLER SHAFT 6"
22	91153	1	MOUNTING RING GASKET
23	92633	1	DRIVE SHAFT ASSEMBLY

MAGNUM - ENGINE TO BLOWER DRIVE BELT SYSTEM
3 BELT SYSTEM

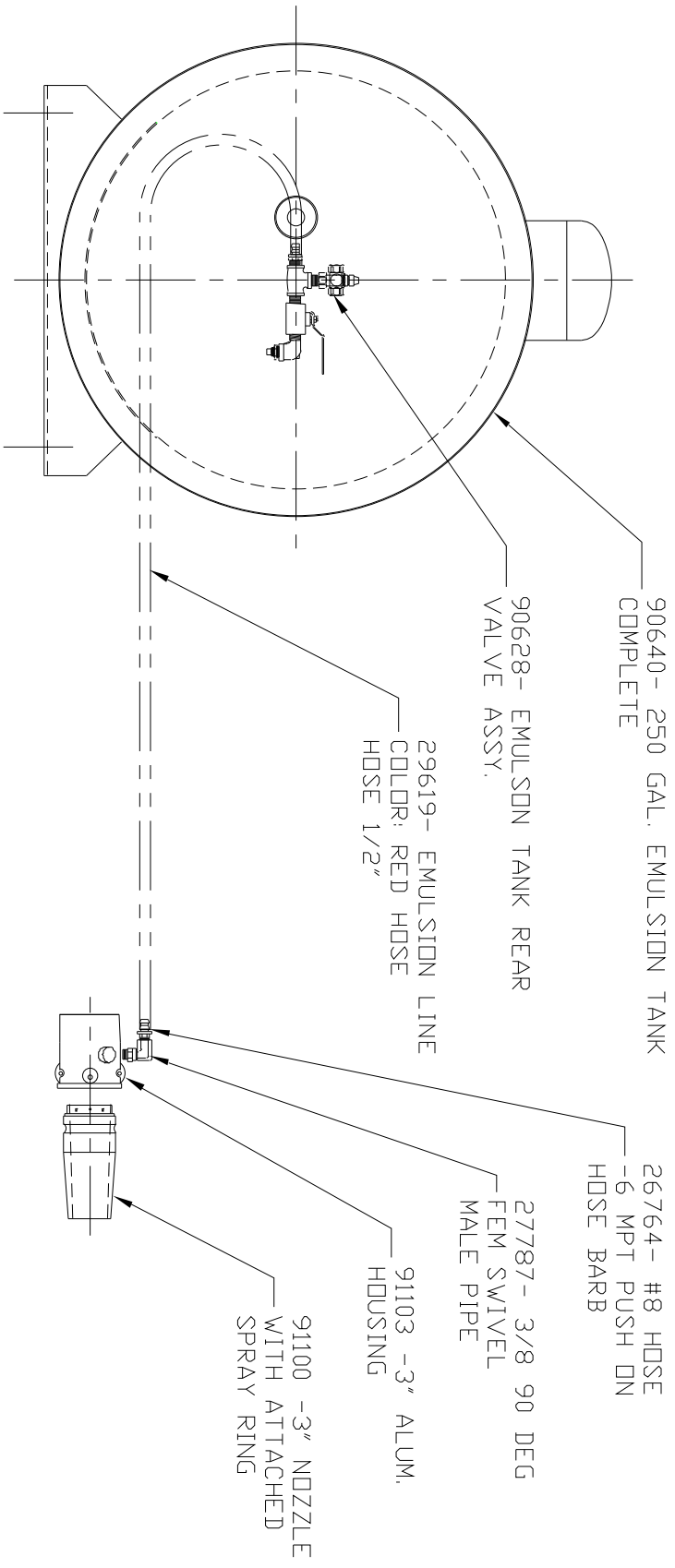


SEE PAGE 79 FOR PARTS LIST

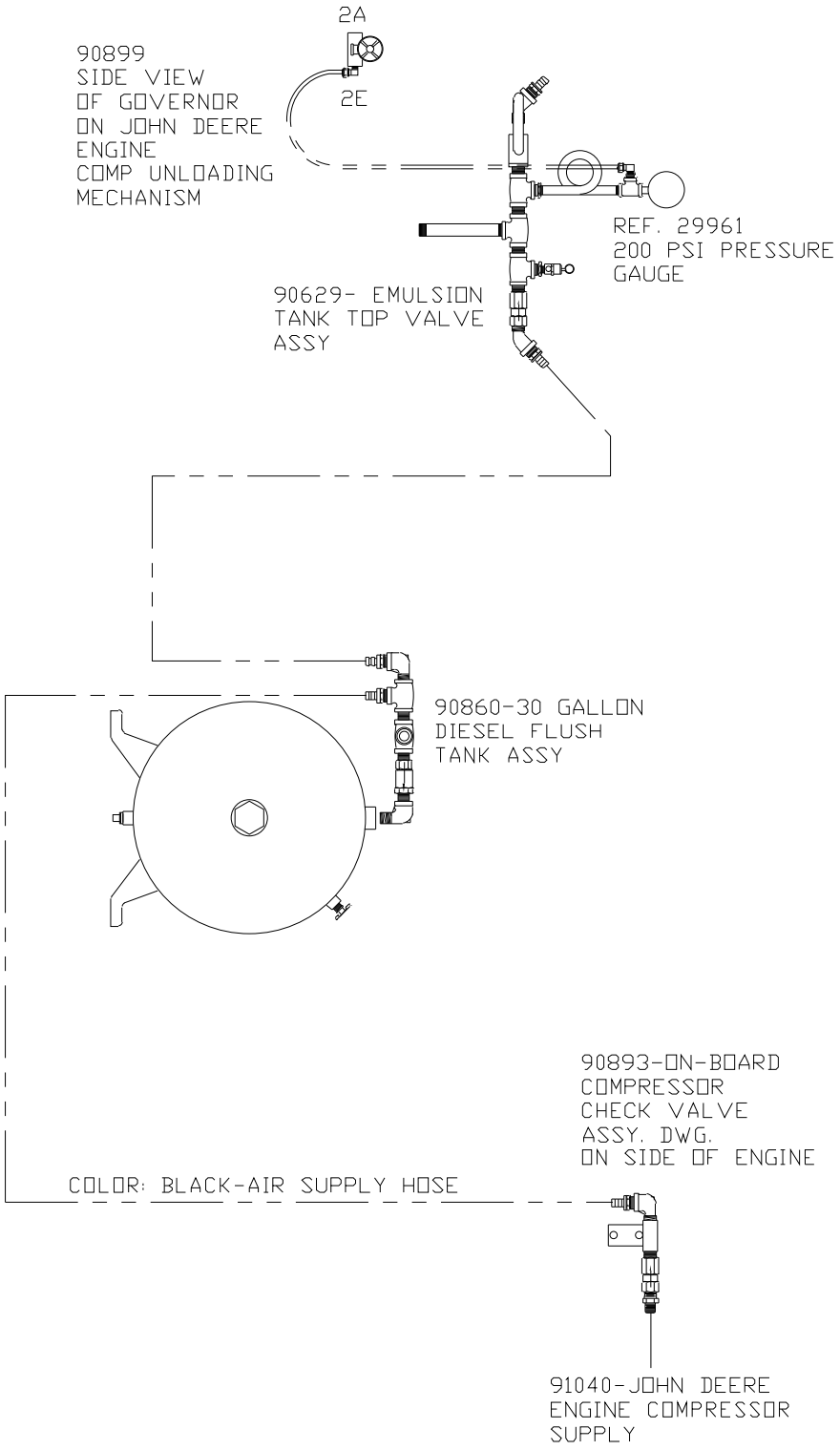
MAGNUM - ENGINE TO BLOWER DRIVE BELT SYSTEM
3 BELT SYSTEM

NUMBER	PART NUMBER	QTY	DESCRIPTION
1	91335	1	BEARING SUPPORT STUB SHAFT
2	60151	1	POSITIVE DISPLACEMENT ROTARY
3	91330	1	BLOWER SLIDE PLATE - MAGNUM
4	91409	1	SDS 1-1/2" BUSHING WITH 3/8"
5	91326	1	ENGINE SHAFT KEY 3/8" - HARDENED
6	91409	3	3V X 300 SUPER HC V-BELT
7	92304	1	3/3V 6.0" QD-SDS SHEAVE
8	60335	0.02	OIL-ROTARY AIR BLOWER, SYNTHETIC
9	27953	8	3/8"-16 NC X 1" GR8 HEX HEAD
10	28641	20	3/8" FLAT HARDENED WASHER
11	28658	20	3/8" LOCK WASHER GRADE 8
12	27955	12	3/8"-16NC X 1-1/4" GR8 HEX HEAD
13	28528	8	1/2"-13 ESNA LOCK-NUT
14	28659	8	1/2" LOCK WASHER GRADE 8
15	29026	8	1/2"-13 X 1-1/2" GR8 BOLT
16	90858	2	3/8"-16 X 4" FULL THREAD BOLT
17	28526	2	3/8"-16 ESNA LOCK NUT
18	27986	2	3/8" FLAT WASHER GRADE 8
19	27964	2	3/8"-16NC GRADE 8 NUT
20	90827	8	BLOWER MOUNTING TAB
21	91065	1	BLOWER KEY - 1/4"
22	92306	1	7/8" SH BUSHING
23	92302	1	3/3V 3.65" QD-SH SHEAVE
24	91327	1	BLOWER KEY - 3/16" X 1-7/8"

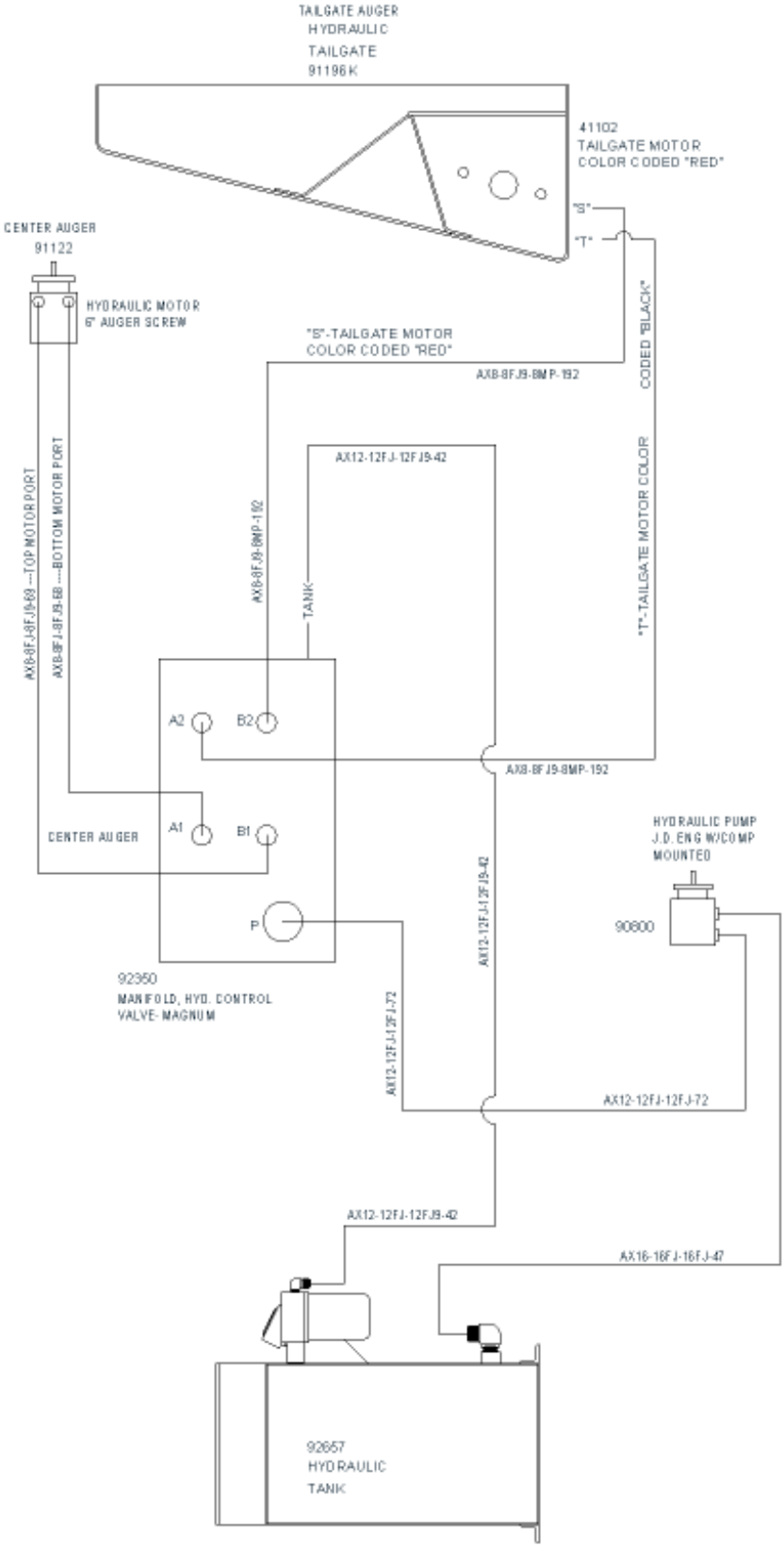
MAGNUM EMULSION SUPPLY LINE ROUTING
PART NUMBER - 91264



MAGNUM AIR LINE SUPPLY LINE ROUTING
PART NUMBER - 91266



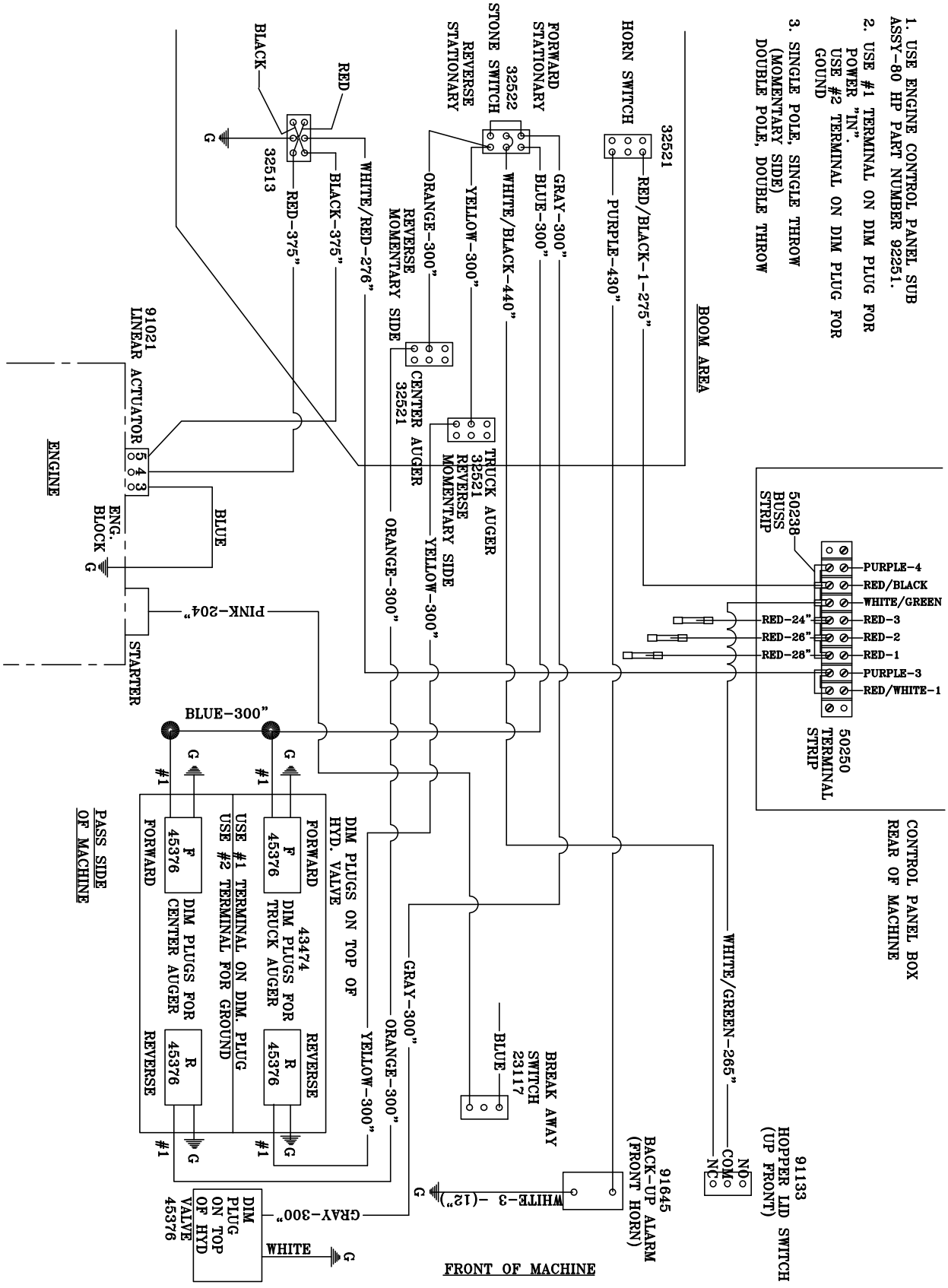
MAGNUM HYDRAULIC SCHEMATIC
PART NUMBER - 92352



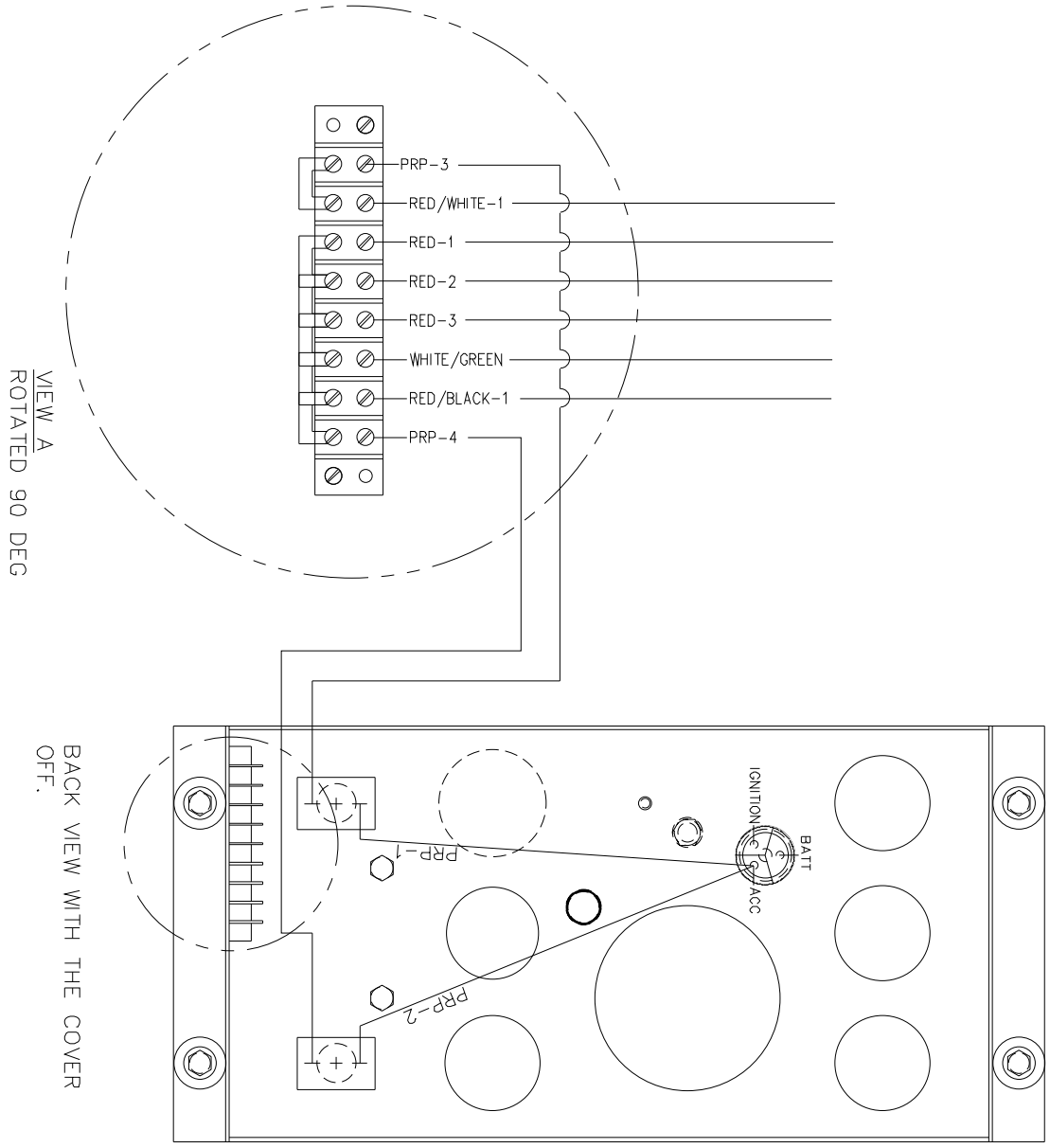
"HYDRAULIC SCHEMATIC MANIFOLD CONTROL VALVE"

HYD. PUMP TO TURNS CLOCKWISE
HYD. PRESSURE 1500 PSI @ 1500 RPMS.
HYD. PUMP FLOW 22.0 GPM @ 2200 RPMS.

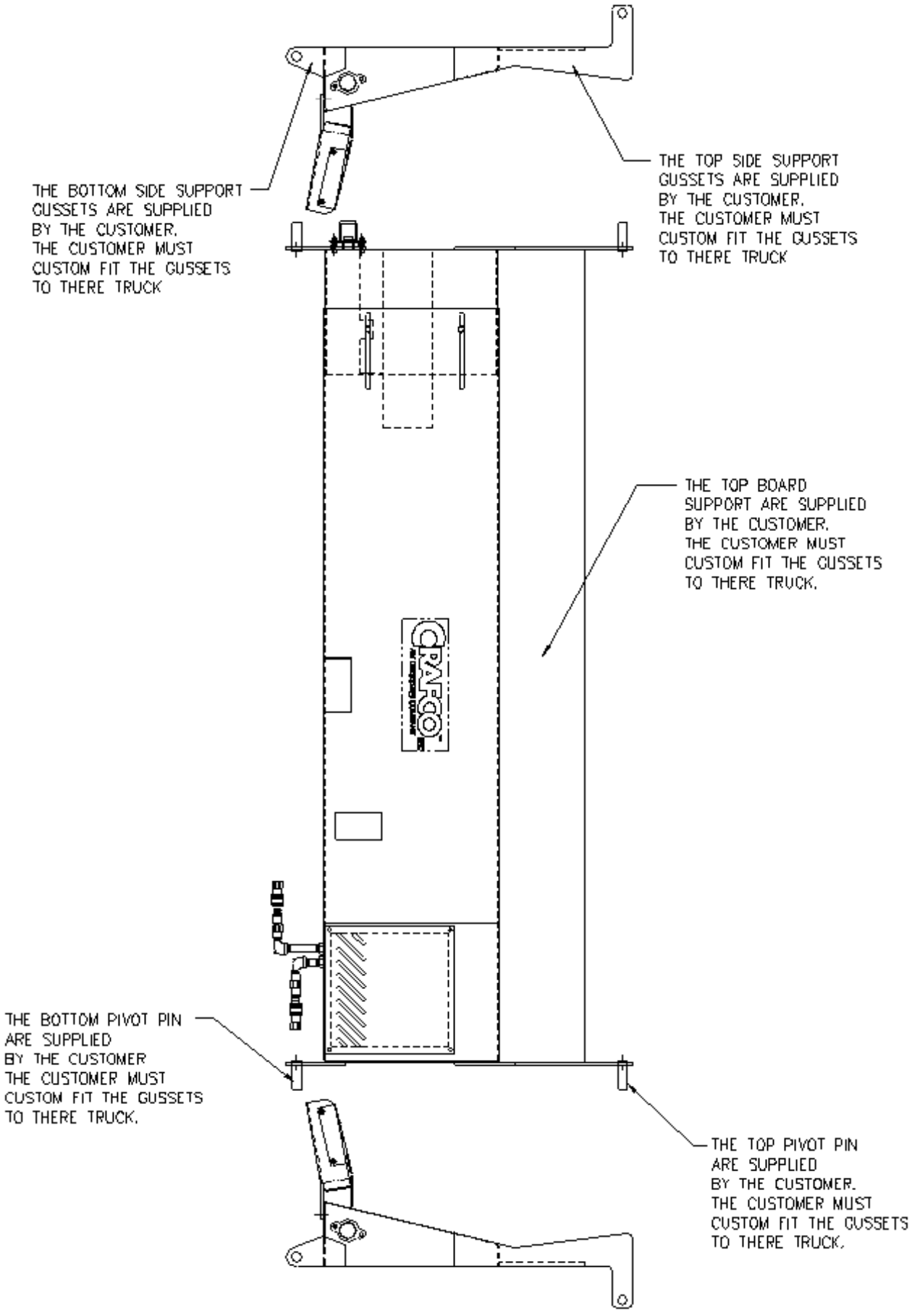
MAGNUM WIRING SCHEMATIC - JOHN DEERE ENGINE
PART NUMBER - 92353



MAGNUM ENGINE CONTROL PANEL SUBASSEMBLY - 80 HP
PART NUMBER - 92251



STANDARD DUMP TRUCK AND STANDARD CRAFCO HYDRAULIC TAILGATE



STANDARD DUMP TRUCK WITH STANDARD TAILGATE

NUMBER	DESCRIPTION
1	DUMP TRUCK TOP PIVOT PIN (EXISTING TRUCK PARTS)
2	DUMP TRUCK BOTTOM PIVOT PIN (EXISTING TRUCK PARTS)
3	EXISITING DUMP TRUCK DOOR (EXISTING TRUCK PARTS)

SIDEVIEW OF CRAFCO TAILGATE INSTALLED

NUMBER	PART NUMBER	DESCRIPTION
1	-	SUPPLIED BY THE CUSTOMER; THE TOP SIDE SUPPORT GUSSETS
2	-	SUPPLIED BY THE CUSTOMER; BOTTOM PIVOT PIN
3	91196K	PURCHASED CRAFCO TAILGATE

TOP SIDE SUPPORT, BOTTOM SIDE SUPPORT, TOP BOARD INSTALLED BY CUSTOMER TO CRAFCO TAILGATE

NUMBER	DESCRIPTION
1	TOP SIDE GUSSET
2	TOP PIVOT PIN
3	TOP BOARD
4	TAILGATE SUPPLIED BY CRAFCO, INC.
5	BOTTOM PIVOT PIN
6	BOTTOM SIDE GUSSET