

BI632505
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Operation and Maintenance Manual

SU488 L Scoop

128VAC Machines

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2 **Your safety**

If hydraulic hose couplers are difficult to disconnect or cannot be disconnected, the hydraulic line may still be pressurized. Be sure to depressurize the line before disconnecting couplers.

Secure the connectors of the hydraulic elements only with the proper coupling clamps. Always fasten the clamps completely and with both sides. Never use nails, wire or similar materials for securing.

After finishing repair work, check all connectors and connections for leaks before pressurizing the system again.

permissible hoses

Use only hydraulic hoses approved for the prevailing pressures.

Do not use any hydraulic hoses with damaged connectors or worn o-rings.

Replace hydraulic hoses only with hoses of the same or a higher quality.

Observe the date of manufacture stamped on the hydraulic hoses. Never use hydraulic hoses which are more than 2 years old, even if they have no visible signs of damage.

Never try to hold a jumping hydraulic hose. Depressurize the line in question immediately.

Never try to repair damaged hydraulic hoses.

Replace hydraulic hoses at the first suspicion of damage.

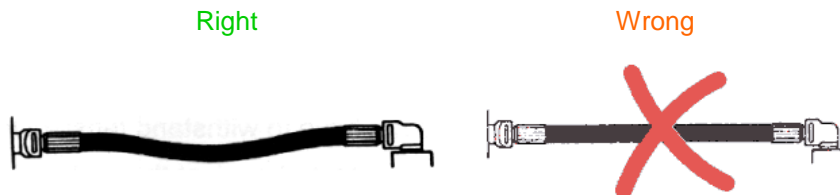
laying hydraulic hoses

Lay the hydraulic hoses properly behind the brackets and clamps provided for them.

Always lay hydraulic hoses so they:

- always have a little slack.

Fig. 1: Laying hydraulic hoses, slack



4 **Installation**

Operation

This chapter contains important information on the operation and maintenance of the machine. Read this chapter carefully and thoroughly. In particular, observe the safety instructions in chapter 2 “Your safety”.

How to operate the SU488 L

DANGER!

Incorrect operation of the machine is often the cause of very serious accidents. Operate the unit only after being sufficiently trained on the machine and reading and understanding this operating manual. Should anything be unclear, please contact your immediate supervisor.

Who is allowed to operate the SU488 L?

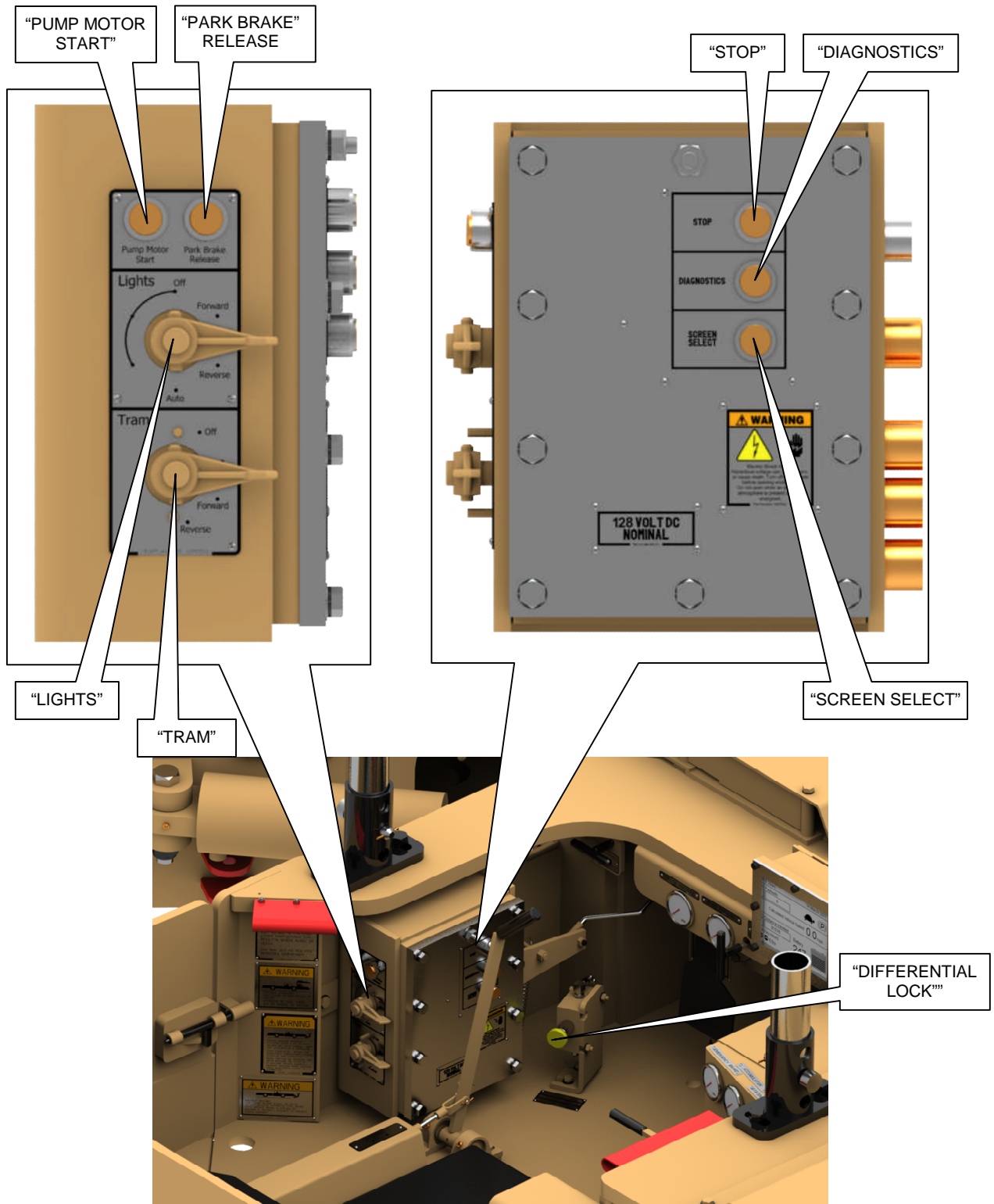
This machine is only allowed to be operated by persons with adequate knowledge of the complete machine. This includes:

- what safety devices are installed on the machine,
- where these safety devices are located, and
- how these safety devices are to be operated.

When can operation be started?

Operation must not be started until the safe condition and proper function of the complete machine has been checked and the daily maintenance operations have been carried out.

Fig. 17: Control Station



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Towing a disabled machine

WARNING!

It is not possible within the scope of this guide to anticipate all possible arrangements for towing a disabled vehicle. All possible precautions must be taken to protect the operators and all personnel around either vehicle from being injured by the towing vehicle, the towing device used (cables, bars, etc.), or the towing vehicle (scoop, tractor, etc.). The towing vehicle must be strong and heavy enough to maintain control of both vehicles through all bottom conditions that may be encountered. Safety chains or other safety devices must be used in case of failure of the primary towing device. Both operators must be alert at all times to prevent either unit from running away during towing. The vehicle to be towed must be securely coupled to the towing vehicle before the brakes are released on the disabled unit. The operator of the towing vehicle must be in place in the towing vehicle with the brakes applied before the brakes of the disabled vehicle are released.

1. Couple the towing vehicle securely to the disabled vehicle.
2. Close the valve to tank circuit that is on the hand pump to isolate the park brake solenoid from the circuit.
3. Begin pumping the hand pump. The building pressure moves the shuttle valve and allows the park brake system to be pressurized.
4. The park brake should be released when the "EMERGENCY BRAKE" pressure gauge reads 138 bar (2,000 psi).

CAUTION!

For long distance towing, disconnect and remove front and rear drive lines.

WARNING!

At no time during towing should anyone ride in or on the vehicle being towed or stand in between the towing vehicle and the disabled vehicle.

5. Begin towing the vehicle.
6. Once the destination is reached, stop both vehicles and set the parking brake on the disabled vehicle before removing the towing devices. The disabled vehicle should be chocked in both directions at all four wheels for additional stability. The brake is set by turning the valve handle on the hand pump to "NORMAL RE-APPLY".

WARNING!

Failure to set the parking brake on the disabled vehicle before removing the towing device could allow the disabled vehicle to roll away uncontrolled.

Critical torque values

Torque values are expressed in lubricated values.

Table 1: Critical torque values

Location	Bolt size	Grade	Lubricated
Steering cylinder pins	2" x 7.5"	8	460
Tire-Wheel mounting nuts	3/4-16 x 2 1/2"	8	300
Drive motor-to-gear case mounting bolts	3/4" NC X 2-3/4"	5	282 (382 m-n)

Lubricants, fluids and capacities

Table 2: Lubricants, fluids and capacities

Location	Specification	Approximate capacity	Notes
Hydraulic oil tank	Spec. 100-1	40 gal (151.5 l)	1
Gear box (reducer)	Spec. 100-6	As Required	
Lubrication points	Spec. 100-3	As Required	3
Axle housing	John Deere Hy-Gard Oil	As Required	2
Planetary differential	John Deere Hy-Gard Oil	As Required (each wheel end)	2
Wet disc brakes	Spec. 100-12	As Required	2

Notes:

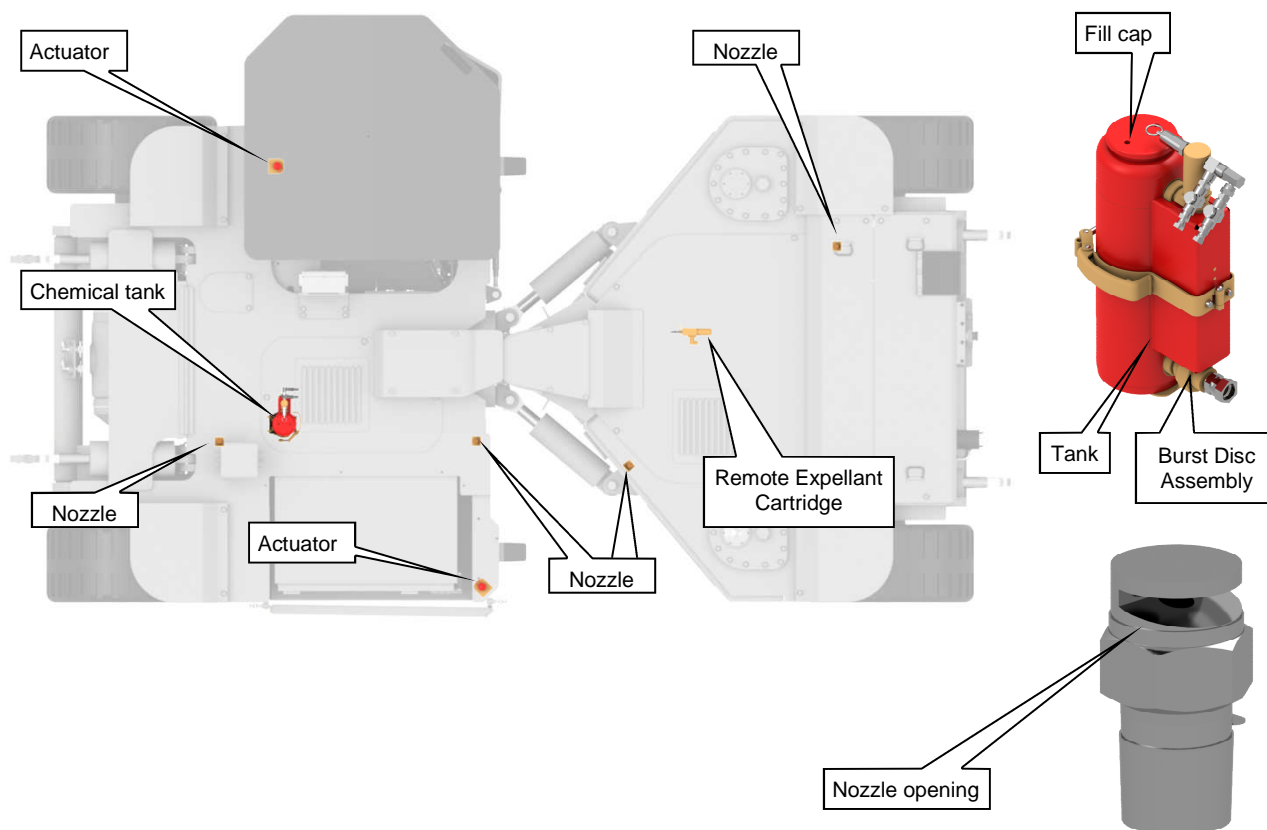
1. With ejector blade completely retracted.
2. The axle housing, brake cooling sumps, and planetary wheel end assemblies do not have a common oil source. Each assembly must be filled separately. Make sure the level and fill hole in the planetary wheel end cover is in the proper position. Rotate the wheel end as required to bring the fill hole to either the 3 o'clock or 9 o'clock position. When filling the axle housing and planetary wheel ends, allow enough time for the lubricant to fill the various cavities and around component parts in each assembly. Continue adding oil into each assembly until the required oil level is reached.
3. Pump grease into fitting until old grease can be observed coming out of component.
4. When bleeding brakes, bleed both ports at the same time.

fire suppression system

Check the fire suppression system (Fig. 49).

- ☞ Inspect the hoses, fittings, and nozzles and replace any found damaged.
- ☞ Check the extinguisher tank for signs of damage or corrosion. The extinguisher tank is located in the middle section of the machine.
- ☞ Check the nozzle openings. The slot should be packed with silicone grease. If the nozzles are open or need to be repacked, the lines should be checked for blockage and blown clear before repacking them with clean silicone grease.
- ☞ Remove the fill cap.
- ☞ Check that the extinguisher is filled with free flowing Ansul multi-purpose A, B, C dry chemical to a level not more than 3 inches (75 mm) from the bottom of the fill opening.
- ☞ Replace the fill cap, hand tight.
- ☞ Disconnect discharge connection union of tank output and inspect burst disc assembly. Replace if damaged to insure proper operation of material discharge.

Fig. 49: Fire suppression system



Adjustment procedures

The following procedure is for the initial start-up and pressure adjustments of the machine.

1. Insure that the suction port of the pump has been purged of any trapped air by loosening the suction port adapter until oil is present at that point then secure the adapter.
2. Insure that the pump case is full of oil by disconnecting the case drain hose and examining the case drain port for the presence of oil. If oil is not present at the case drain port, it should be filled manually. Once the case is full, secure the case drain connection to the pump.
3. Loosen the compensator adjustment on the pump (Fig. 59) and turn counterclockwise several turns prior to start up to insure that high pressure spikes are avoided during the initial pump operation.
4. The pump circuit control module (Fig. 60) is factory set at 3,500 psi (241 bar). With the pump compensator backed off, this setting will be satisfactory.
5. Install a pressure gauge in the gauge port of the pump circuit control module to monitor system pressure adjustments and to check for correct pump rotation.
6. Preset the brake cooling manifold as follows (as applicable; not required with the John Deere Axle option):
 - a. Loosen the jam nut on the relief setting and turn the adjustment stem out (counterclockwise) all the way. Secure the jam nut.
 - b. Loosen the jam nuts on the flow control valves and turn the adjustments all the way (clockwise) to close them off; then open each flow control 1½ turns (CCW) and secure the jam nuts.
8. Minimize all pressure reducing valve settings.
9. Insure that the jet fill or power fill tank system controls are closed.
10. Insure that the motor cutback switch cable is disconnected.
11. Bump (turn on then off) the pump two or three times to verify proper pump rotation (pressure should build at the gauge port of the pump circuit control module).
12. After the pump rotation is verified, the pump may be started and allowed to run continuously.
13. Read the system pressure on the gauge installed. Turn the pump compensator adjustment (Fig. 59) in (clockwise) until 2,400 psi (165 bar) is achieved and stable. Continue turning the compensator in (clockwise) to confirm the adjustment for the pump circuit control module (target is 3,500 psi (241 bar)).

Troubleshooting

Table 4 (continued): Hydraulic system (general) troubleshooting

Trouble, symptom or cause	Probable cause	Test, check and/or remedy
overheating of system (continued)	<ul style="list-style-type: none"> ☞ Improper air circulation around reservoir. ☞ System relief valve set too high or too low. ☞ System controls open or bypassed 	<ul style="list-style-type: none"> ☞ Check to see if the area around the reservoir is clear. ☞ Reset the relief valve to specifications. ☞ Inspect auxiliary system controls
foreign matter sources in the circuit	<ul style="list-style-type: none"> ☞ Sealing compound (pipe dope, Teflon tape). ☞ Burrs inside piping components. ☞ Tag ends of packing coming loose. ☞ Lines left unprotected and dirty, repaired components. ☞ Repair parts not properly protected while stored. 	<ul style="list-style-type: none"> ☞ Clean or replace seals. ☞ Disassemble piping components and remove any burrs. ☞ Remove old packing and replace with new. ☞ Drain and replace oil. ☞ Clean parts thoroughly before installation.
accumulator charging cycle repeats frequently when accumulator is not normally being discharged in service	<ul style="list-style-type: none"> ☞ Leaking accumulator lines or fittings. ☞ Accumulator gas charge too low. ☞ Accumulator gas charge too high. ☞ Line to accumulator plugged. 	<ul style="list-style-type: none"> ☞ Check lines and fittings for leaks and correct. ☞ Check accumulator gas charge. ☞ Check accumulator. ☞ Replace line.
accumulator starts to charge but doesn't reach high limit	<ul style="list-style-type: none"> ☞ No oil or low oil in tank. ☞ Defective or worn pump (pump doesn't deliver full flow or pressure). ☞ Defective system relief valve (valve leaking or has low setting so full flow and pressure are not available). ☞ Defective dump valve ☞ Defective charging valve. 	<ul style="list-style-type: none"> ☞ Check oil level. ☞ Check pump pressure and flow. ☞ Check relief valve. ☞ Inspect dump valve ☞ Replace valve.

Technical data

This chapter contains the most important technical data on the SU488 L. Further data can be found in the spare parts lists. At the end of this chapter you will find information on the bolt tightening torques, HFA fluids, greases, etc. Read this chapter through carefully and pay particular attention in particular to the safety instructions.



The technical data listed in this chapter is for stock machines only. Customer specials may not be listed.

SU488 L

Technical data sheet

general

- Length
 - with bucket: approx. 28' 8"
- Overall width
 - with bucket: approx. 9'7"
- Wheelbase: approx. 12' 2"
- Weight
 - empty less battery: approx. 28,000 lbs
 - with battery: approx. 42,200 lbs
- Battery height from ground:
 - with battery and 35X15-15 tires approx. 36.5"
- Ground clearance (no axle spacers):
 - with 35X15-15 tires approx. 11"
- Minimum adjustable cab height (from ground):
 - with 35X15-15 tires approx. 3' 6"
- Main frame height (from ground):
 - with 35X15-15 tires approx. 2' 6.75"
- Load per axle.....
 - 30% front axle
 - 70% rear axle
- Maximum grade..... 12%

performance

- Inside turning radius approx. 11' 11"
- Outside turning radius: approx. 23' 3"
- Steering articulation: 80 degrees total
- Tram speed: 4-5 mph
- Lift capacity: approx. 10 tons at 40"
from bucket pivot pin

Permissible media
Table 18: Extreme pressure gear oils (Spec. 100-2)

	Supplier	Brand name
1	Amoco Oil Company	Amoco Permagear EP 460
2	Gulf Oil	EP Lubricant HD 460
3	Mobil Oil Corporation	Mobil Gear 634 Mobil Gear 636
4	Chevron U.S.A.	Chevron Gear Compound EP ISO 460
5	Sun Oil Company	Sunep 460
6	Unocal 76	Extra Duty NL Gear Lube 7 EP Extra Duty NL Gear Lube 8 EP
7	Shell Oil Company	Shell Omala 680
8	Century Lubricating Oils, Inc.	Hulbest EP-7 Powergear 460
9	Texaco Lubricants Company	Meropa 680
10	Exxon	Spartan EP 460
11	Pennzoil	Super Maxol EP 460 Gear Lube Super Maxol EP 460 Gear Lube
12	Lubricating Engineers	608 Almosal Vari-Purpose Gear Lubricant
13	Conoco Inc.	Gear oil 460
14	Hydrotex	933 Industrial Gear Lubricant
15	Phillips	All Purpose Gear Oil 85W-90 5EP
16	Miners Oil	Gear Oil EP460

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