Technical Manual

MAJOR HAZARDS

AREA WHERE HAZARD CAN OCCUR	HAZARD WHAT CAN HAPPEN IF PRECAUTIONS AND SAFEGUARDS ARE NOT OBEYED	SAFEGUARDS HOW TO AVOID THE HAZARD
ENTIRE MACHINE	Movement of machine can run over or crush body parts between machine and other objects and cause irreparable injury or death.	Keep all people out of Hazard Zone (page 16). Use extreme caution when moving machine. The machine should be properly shutdown (see page 23) before the operator leaves the operator's compartment.
OPERATOR'S AREA	Operation of machine with head, arms, or hands outside of operator's compartment could cause irreparable injury or death if body parts strike or are crushed between machine and outside objects.	Keep head, arms, hands, inside operator's compartment at all times. Keep the machine's protective canopy securely in place at all times.
BUCKET	Ejector blade being returned could cause irreparable injury or death if body parts or persons are crushed between ejector blade and the the back of the bucket.	Keep all hands, arms, legs, feet and persons out from between the ejector blade and the back of the bucket. The machine must be properly shutdown for service (see page 23).
CENTER SECTION (ARTICULATION POINT)	Machine could be steered crushing persons, hands, feet, or legs in the articulation area.	Keep all persons, hands, feet, legs, out of articulation area and off the top and out from under the machine. Machine should be properly shutdown (page 23) before servicing. The machine must also be blocked under the battery end, bucket, and center section. The steering lock must be installed when working in or around the center section.
UNDERNEATH DURING SERVICE	Machine raised for service could fall and crush persons or body parts underneath.	If machine must be raised for service, it must be securely blocked so that all wheels may safely turn (see maintenance page 37).

WARNING

THE CIRCUIT BREAKER DE-ENERGIZES THE ELECTRICAL CONTROLLER AND MOTORS. HOWEVER, ELECTRICAL POWER IS STILL PRESENT INSIDE THE CONNECTION BOX TO THE CIRCUIT BREAKER. IF THE CIRCUIT BREAKER INSIDE THE CONNECTION BOX REQUIRES SERVICE, THE BATTERY PLUGS MUST BE DISCONNECTED FROM THE BATTERIES.

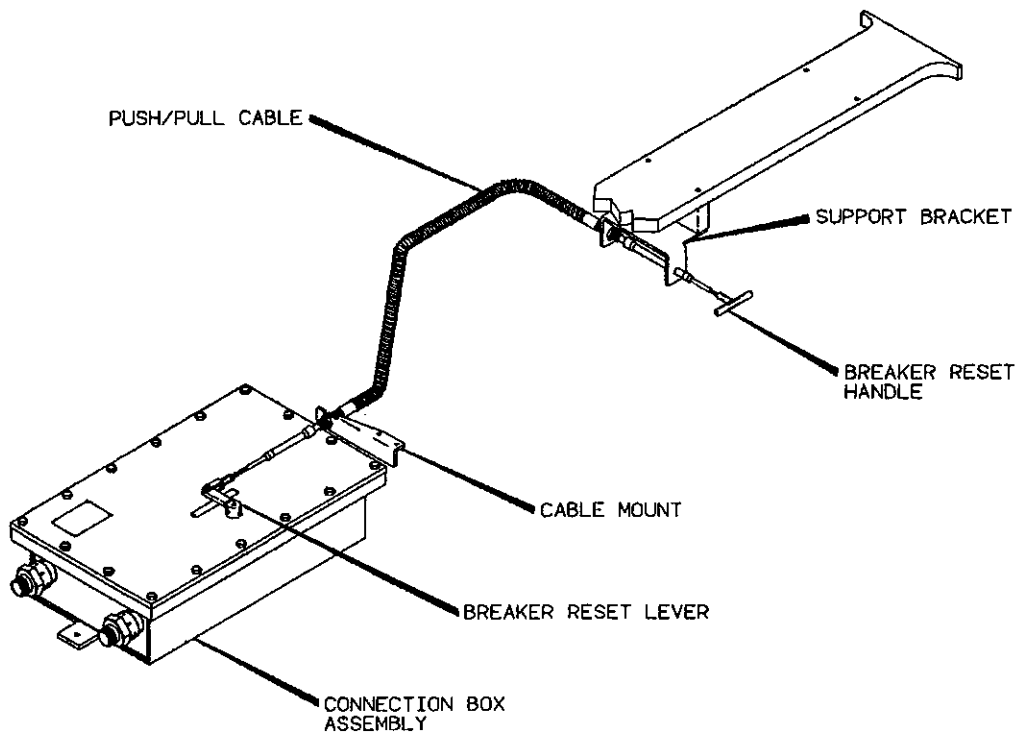
The circuit breaker is not intended as an "ON-OFF" switch for normal operation. Except in an emergency, the UN-A-TRAC should be SHUTDOWN by first moving the master switch to the "OFF" position and then moving the circuit breaker to the "OFF" position.

WARNING

THE CIRCUIT BREAKER SHOULD BE IN THE "OFF" POSITION AND THE PARKING BRAKE SET BEFORE THE OPERATOR LEAVES THE OPERATOR'S SEAT. IN AN EMERGENCY, THE OPERATOR CAN STOP THE UN-A-TRAC BY STRIKING THE TAPE SWITCH WHICH TRIPS THE CIRCUIT BREAKER. THE UNIT CAN ALSO BE STOPPED BY MOVING THE CIRCUIT BREAKER LEVER TO THE "OFF" POSITION.

WARNING

ALL ELECTRICAL SWITCHES IN THE OPERATOR'S COMPARTMENT MUST BE IN THE "OFF" POSITION BEFORE MOVING THE CIRCUIT BREAKER LEVER TO THE "ON" POSITION.



BREAKER RESET ASSEMBLY
FIGURE 5

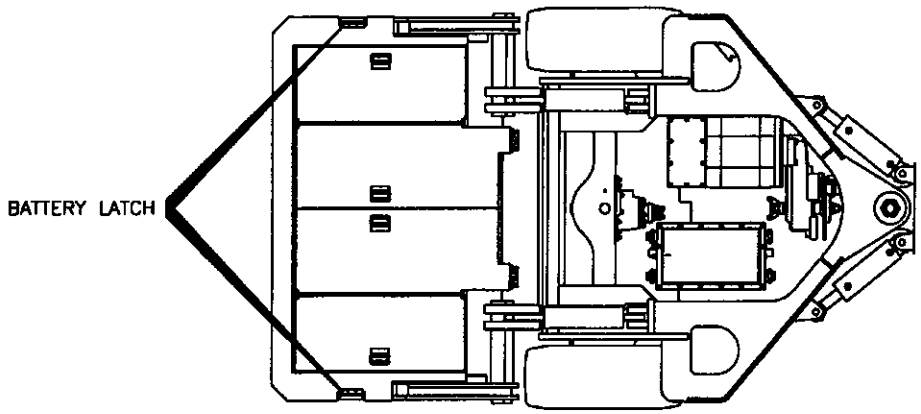


FIGURE 20

3. Lower the battery completely to the surface by pushing the "BATTERY" change control lever away from the operator. The bottom of the battery should touch the surface (Figure 21).

WARNING

NEVER ATTEMPT TO DISCONNECT A HYDRAULIC HOSE FROM THE BATTERY LIFTING CYLINDERS WHILE THE BATTERY IS IN THE UP POSITION. THIS COULD CAUSE THE BATTERY TO FALL AND COULD RESULT IN SERIOUS INJURY.

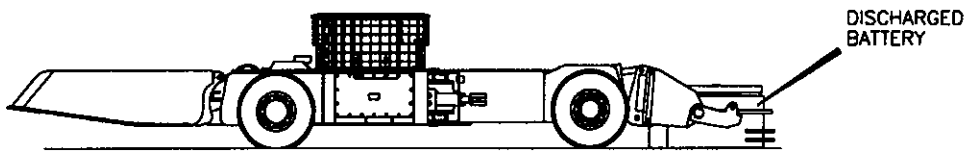


FIGURE 21

4. After the battery is fully lowered, shutdown-the UN-A-TRAC (see Shutdown Procedure page 23).

5. After shutting down the UN-A-TRAC, disconnect the discharged battery (Figure 26, page 35):

   A. Unlock and remove the padlock at the battery connector .
   B. Grasp the threaded lock ring and rotate it counterclockwise (CCW) until the threads are disengaged and it is free to slide away from the locking lug; the lock ring is designed to move freely but to not come off the plug.
   C. Grasp the plug and pull it out until the plug is completely disconnected from the receptacle; the plug is made to fit very tightly inside the battery receptacle and-should not be driven out of the receptacle, dropped, or handled roughly; if the plug (or receptacle) is damaged, it will not fit together properly.
   D. Install the cap which is secured to eac receptacle on the battery by a small chain; this cap is placed over the threaded receptacle and rotated in a clockwise (CW) direction until hand tight and until a padlock will fit into the locking lug; the padlocks all use the same key.

6. Connect the jumper cable:

   A. Connect the receptacle end of the jumper cable to the plug coming out of the connection box on the UN-A-TRAC (Figure 22).

For maintenance procedures and tests that DO NOT require the controller to be energized, these precautions include:

A. Before removing the controller cover, remove power from the system by unplugging the battery.
B. When the cover is removed, the LED located in the center of the logic unit (see Figure 33) should indicate that the capacitors are discharged before working inside the controller. To insure that the capacitors are discharged, connect an insulated 100-ohm, 10-watt resistor between the center buss bar and the outer buss bar of the capacitor bank and hold for 30 seconds. Repeat for both (2) capacitor banks.
C. Use insulated gloves and tools where possible.
D. All connections must be tight and care must be taken to prevent bolts, nuts, washers and other small metal fasteners from being dropped or lost inside the controller. These lost fasteners could cause electrical shorts inside the controller.

For procedures that DO require that the controller be energized while the cover is off:

A. At no time should you reach inside the controller while it is energized. If it becomes necessary to make adjustments or to replace parts inside the controller, the machine circuit breaker must be turned to the "OFF" position and the capacitor banks discharged (see above.) Once the circuit breaker is in the "OFF" position and the capacitor banks discharged, adjustments or parts replacements can be made.
B. Use insulated gloves and tools where possible.

C. All connections must be tight and care must be taken to prevent bolts, nuts, washers and other small metal fasteners from being dropped or lost inside the controller. These lost fasteners could cause electrical shorts inside the controller.

WARNING

EXTREME CAUTION MUST BE OBSERVED WHEN WORKING INSIDE THE ELECTRICAL CONTROLLER TO PREVENT ELECTRICAL SHOCK. YOU MUST FOLLOW THE SAFETY PROCEDURES LISTED AT THE FIRST OF THIS SECTION (PAGE 42).

WARNING

DO NOT ATTEMPT TO PERFORM THE FOLLOWING TEST WITH THE UNIT ON THE GROUND. DURING THESE TESTS THE WHEELS COULD POSSIBLY TURN, CAUSING THE UNIT TO MOVE.

5. Verify the proper operation of the SCR fail-safe circuit inside the electrical controller.

A. Raise the UN-A-TRAC off the ground and securely block underneath so that the drive wheels are free to turn.
B. With the machine circuit breaker in the "OFF" position, bypass the controller cover interlock (limit) switch (Figure 29) by taping the button down with electrical tape.
C. With the machine circuit breaker in the "OFF" position, disconnect the GATE lead to SCR-3 (Figure 30).
D. Return the machine circuit breaker to the "ON" position.
E. Release the park brake (see Figure 4).
F. Place the master switch in the "FORWARD" or "REVERSE" position and slightly depress the speed switch foot pedal.

EVERY THREE MONTHS

1. Check (and adjust if necessary) the main Hydraulic System pressure (Figure 41):

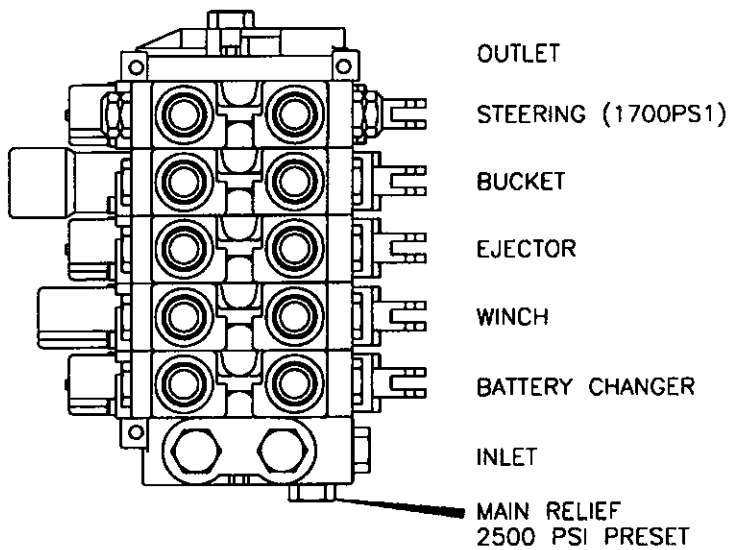
WARNING

BEFORE MOVING THE "EJECTOR" CONTROL LEVER, ALWAYS CHECK TO MAKE SURE NO ONE HAS ANY PART OF HIS BODY BETWEEN THE EJECTOR BLADE AND THE BACK OF THE BUCKET.

A. Pull the "EJECTOR" lever toward the operator until the ejector blade has completely returned to the back of the bucket.
B. Continue to hold the "EJECTOR" lever pulled toward the operator and read the pressure indicated by the "SYSTEM PRESSURE" gauge (Figure 6).
C. Normal hydraulic system pressure is set at the factory at 2250 PSI. If the pressure indicated on the "SYSTEM PRESSURE" gauge is not 2250 PSI, adjust per hydraulic schematic.

CAUTION

DO NOT ADJUST THE HYDRAULIC SYSTEM PRESSURE TO MORE THAN 2250 PSI.



HYDRAULIC VALVE BANK
FIGURE 41

NOTE:
The 488-6 is equipped with two relief valves.

1. The relief valve at the pump is to be set at 2250 PSI.
2. The back-up relief in the valve bank is to be set at 2500 PSI.

TROUBLE, SYMPTOM OR CONDITION	PROBABLE CAUSE	TEST, CHECK AND/OR REMEDY
SEAL LEAK (Continued)	8. Worn or faulty bearing.	8. Replace faulty bearing.
	9. Reversed rotation.	9. Check pump motor wiring.
	10. Plugged or restricted suction line or suction strainer.	10. Clean by removing the plugged area.
	11. Plugged reservoir filter breather.	11. Clean reservoir. Clean breather.
	12. Oil viscosity too high or operating temperature too low.	12. Replace with recommended oil.
	13. Air leak in suction line or fittings.	13. Replace lines or fittings if badly worn.
	14. Loose or worn pump parts.	14. Replace worn pump parts.
	15. Air leak at pump shaft seal.	15. Replace pump shaft seals.
	16. Oil level too low and drawing air in through inlet pipe opening.	16. Check oil level.
	17. Air bubbles in intake oil.	17. Check oil level and tighten any loose fittings.
	18. Pump housing bolts loose or not properly torqued.	18. Tighten the housing bolts, and re-torque bolts.
PUMP FAILURE TO DELIVER OIL	1. Low oil level in reservoir.	1. Check oil level.
	2. Oil intake hose suction strainer plugged.	2. Clean or replace strainer.
	3. Air leak in suction line and preventing priming.	3. Tighten or replace suction lines.
	4. Pump shaft turning too slowly.	4. Gears are worn and need replacing.
	5. Oil viscosity too high.	5. Replace with recommended oil.
	6. Wrong shaft rotation.	6. Check pump motor wiring.
	7. Pump shaft or parts broken.	7. Replace shaft or broken parts.
	8. Dirt in pump.	8. Clean pump.