

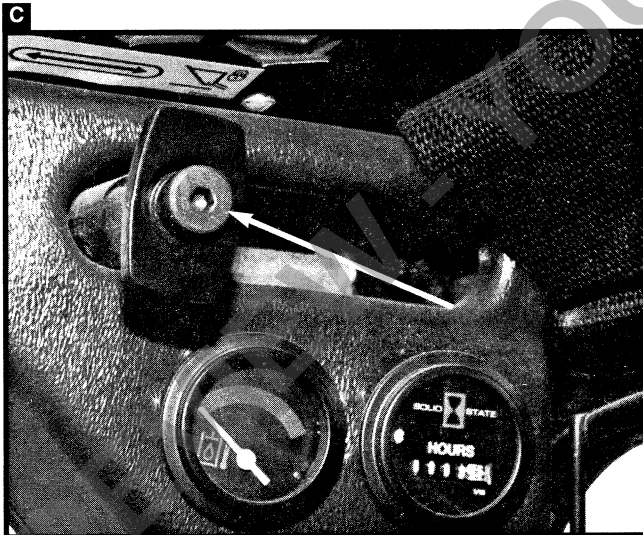
SAFETY EQUIPMENT

LIFT ARM STOPS

There are two lift arm stops located in the upper front corners of the ROPS. The stops are designed with adequate strength so if they are left extended, accidentally powering the lift arm up or down will not cause damage. However, if repeatedly abused, the pins will bend, damaging the pin mounting area of the ROPS.

To Remove:

1. With the lift arm lowered, remove the red plastic cover from the stop handle in the operator's area.
2. Using a 5/16" hex wrench, unscrew the retaining bolt which extends through the spring and knob into the lock pin [C].

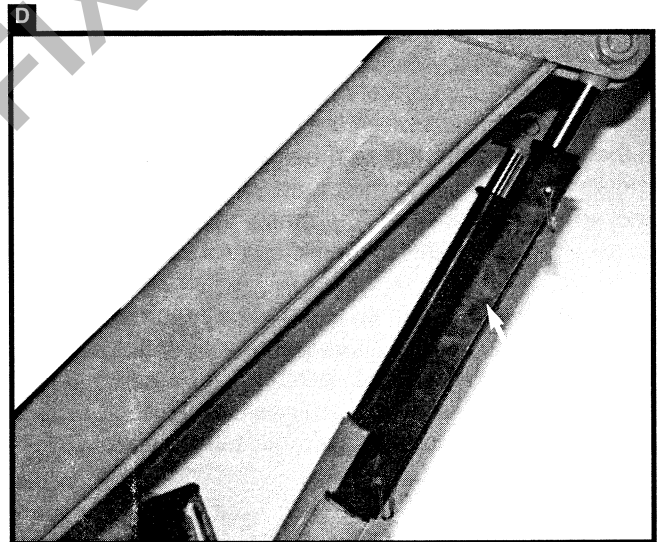


3. Remove the pin from the ROPS

4. If there has been damage to the ROPS - the complete structure must be replaced. P/N 190-32663.

Reverse the order of removal for installation. Apply red loctite and torque hex screw to 31 ft. lbs. (42 Nm).

Lift Cylinder Stops (P/N 490-23325) are available for use when the ROPS is removed and the Lift Arm needs to be raised for service [D].



GENERAL SPECIFICATIONS

MODEL 2040

ENGINE SPECIFICATIONS

Make:	Yanmar
Model:	4TNE84
Displacement:	121.74 CID (1995 cc)
Horse Power:	40 HP (29.8 kW)
Torque	92 ft. lb. @ 1600 rpm
Max. RPM high- No Load:	2900 RPM
Low Idle Speed:	1200 RPM
Fuel Injection:	Direct
Number of Cylinders:	4
Bore and Stroke:	3.31" x 3.54" (84 x 90)
Injection Timing:	17° BTDC
Valve Clearance:	0.00984" (0.25 mm)
Cooling Medium:	Liquid
Lubrication:	Pressure System w/ Filter
Electrical System:	12 V Neg. Ground
Alternator:	40 Amp
Battery (Group Class):	31
(Cold Crank Rating):	625 CCA
Fuel Shut off:	Electric Solenoid
Air Cleaner:	Dual Element, Replaceable Dry Cartridge
Engine Gradability:	30° (intermittent) 25° (continuous)

FLUID CAPACITIES

Cooling System:	6.5 qts. (6.5 L)
Fuel Tank:	14.3 gal (64 L)
Engine Oil w/ filter:	6 qt. (5.7 L)
(Oil Spec.):	Class CG-4 15W-40
Chain Case: (each)	4.5 gal (17 L)
(Oil Spec.):	Hydraulic Oil ISO 46
Hydraulic Reservoir	11.5 (43.5 L)
(Oil Spec.):	Hydraulic Oil ISO 46

HYDRAULIC SYSTEM

Pressure Relief Setting:	2500 PSI (172 Bar)
Control Valve Make/ Model:	Gresen V17
Spool Sections:	3 Spool, Open Center
Pump Make:	Eaton
Pump Type:	Gear
Pump Output:	17 GPM (64 Lm)

TRANSMISSION and FINAL DRIVES

Type:	Hydrostatic
Make:	Vickers Variable Piston
System Relief Pressure:	4000 PSI (276 Bar)
Charge Pressure Relief:	150 PSI (10.3 Bar)
Drive Motors (type):	Geroller
Make:	Eaton
Model:	4000 Series
Final Drive Chains	
Reduction from motors:	60 HK
Reduction to axles:	80 HK
Travel Speed:	0-7 MPH (0-11.2 Km/hr)
Steering Control:	T-Bar (Dual Lever)
Axle Type:	Forged
Diameter:	2.625" (66.7 mm)

HYDRAULIC CYLINDERS

	LIFT in(mm)	TILT in(mm)
Number:	2	2
Cylinder Type:	Double Acting	Double Acting
Bore Diameter:	2.5" (63.5)	3.0" (76.2)
Rod Diameter:	1.5" (38.1)	1.25" (31.8)
Stroke:	28.375" (721)	11.375" (289)

OPERATING SPECIFICATIONS

Load Rating (SAE):	1300 lb. (590 kg)
Tipping Load (SAE):	2600 lb. (1591 kg)
Breakout (Lift):	3000 lb. (1905 kg)
(Tilt):	4000 lb. (2721 kg)
Raising Time:	4.2 seconds
Lowering Time:	3.0 seconds
Dumping Time:	0.8 seconds
Roll back Time:	2.0 seconds
Operating Weight:	5300 lb. (2404 kg)
Weight Distribution:	
Rear:	70%
Front:	30%
Shipping Weight (w/bucket):	5125 lb. (2352 kg)
Braking System:	Hydrostatic
Parking Brake:	Mechanical with hydraulic release

GENERAL INFORMATION

MAINTENANCE CHART

RECOMMENDED INTERVALS FOR NORMAL OPERATING CONDITIONS

MAXIMUM HOURLY INTERVAL					COMPONENTS	SERVICE REQUIRED	CAPACITY OR MEASUREMENT
10	100	200	500	1000 or year			
■					Air Cleaner Indicator	Empty Dust Cap	Clean or replace as needed
■					Cooling System	Check Coolant Level	6.5 quarts
■					Engine Crankcase	Check Oil Level	Between marks on Dipstick
■					Lubricate Grease Loader Pivot Pins	Fittings	
■					Loader Hydraulic System	Check fluid Level	Between marks on sight gauge when cold
■					General Conditions	Safety Devices; Loose, Missing or Damaged Parts	
		■			Belt	Tighten to Proper Deflection	
	■				Radiator and Oil Cooler	Clean Fins	
	■				Tires	Check Air Pressure	Inflate to correct pressure
			■		Battery	Clean Terminals and Battery Top	
△	■				Wheel Lug Nuts	Check	Torque to 120 ft. lb.
		■			Spark Arrestor Muffler	Remove Plug and Clean Out	Run engine 1 minute
□		■			Engine Oil and Filter	Change Oil and Filter	6.5 quarts
□			■		Hydraulic Filters	Replace Elements	
□			■		Drive Chains	Tighten to Proper Deflection Check Fluid Level	
			■		Liquid Cooled Engine	Flush cooling System	6.5 quarts
				■	Hydraulic Reservoir	Drain and Refill	11.5 gallons
□				■	Chain Cases	Drain and Refill	4.5 gallons each
			■		Fuel Filters	Change Filters	
			■		Diesel Injection Nozzles	Check Injection Pressure and Spray Pattern	
■					Fuel Filter	Check for Water in Bowl	Drain as needed

NOTE: Hourly interval must be decreased under very hot, cold, dusty or corrosive conditions.
ALWAYS USE MUSTANG APPROVED FILTERS.

- Perform the initial time at 50 hours, then at "■" intervals.
- △ Perform the initial time at 4 hours then at "■" intervals.

GENERAL INFORMATION

STANDARD TORQUE VALUE SPECIFICATIONS

NOTE: Some fasteners have torque specifications other than those shown below. Use this chart only for unspecified torques.

Torque value listed for both unplated and hex-head capscrews.

Screw Dia. Thread Pitch	Plain Head S.A.E. Grade 2 Foot- Pounds	3 Radial Dashes S.A.E. Grade 5 Foot- Pounds	6 Radial Dashes S.A.E. Grade 8 Foot- Pounds
1/4 - 20	5	8	12
1/4 - 28	6	10	14
5/16 - 18	11	17	24
5/16 - 24	13	19	27
3/8 - 16	18	31	44
3/8 - 24	20	35	49
7/16 - 14	28	49	70
7/16 - 20	30	55	78
1/2 - 13	39	75	105
1/2 - 20	41	85	120
9/16 - 12	51	110	155
9/16 - 18	55	120	170
5/8 - 11	83	150	210
5/8 - 18	95	170	240
3/4 - 10	105	270	375
3/4 - 16	115	295	420
7/8 - 9	160	395	605
7/8 - 14	175	435	675
1" - 8	235	590	
1" - 14	250	660	

HYDRAULIC SYSTEM

PRESSURE AND FLOW CHECK

Pressure Check:

Note: On units without auxiliary hydraulics, gauges must be connected at the plugged auxiliary port on the control valve. Use a screwdriver to activate the control.

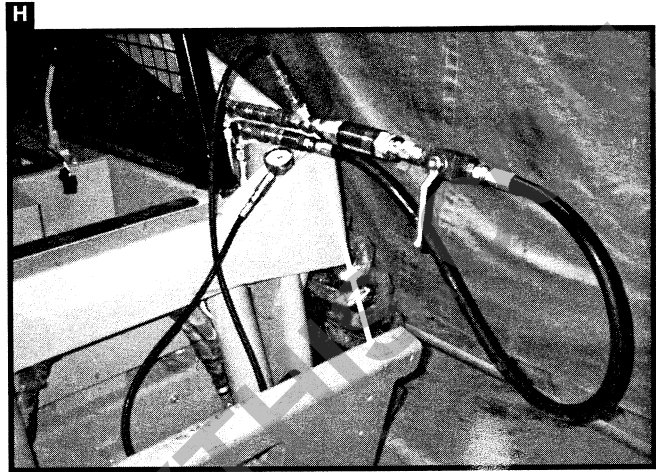
1. Connect a 0-3000 PSI (206 Bar) gauge to one of the (optional) auxiliary couplers on the machine.
2. Switch the mode switch to red (unlocked) and depress brake switch to leave park brake locked.
3. Start engine and run at full throttle. Warm up oil by running hydraulic system over relief for 5 minutes.
4. Activate auxiliary control to pressurize gauge. Note maximum reading.
5. Pressure should be 2450-2550 PSI (169-175.6 bar).

If pressure is less than specified, perform flow and pressure test to determine pump efficiency before replacing relief cartridge.

Pump Flow Pressure Check:

NOTE: To test available power in the auxiliary hydraulic circuit. Use an inline flow meter with a pressure gauge installed on inlet side and a flow restrictor valve at outlet of the meter.

1. Connect hoses and couplers to the flow meter. Attach to the auxiliary circuit [H].
2. Switch mode switch to red and brake switch to red (brakes locked).
3. Start engine and run at full RPM (2900).
4. Read flow with meter restrictor fully open.
5. Turn valve to apply flow restriction until pressure gauge reads 2250 PSI (155 bar).
6. Read flow at pressure with oil warm [120° F (49° C)]. Flow at 2250 PSI (155 Bar) should be within 90% of no load flow.

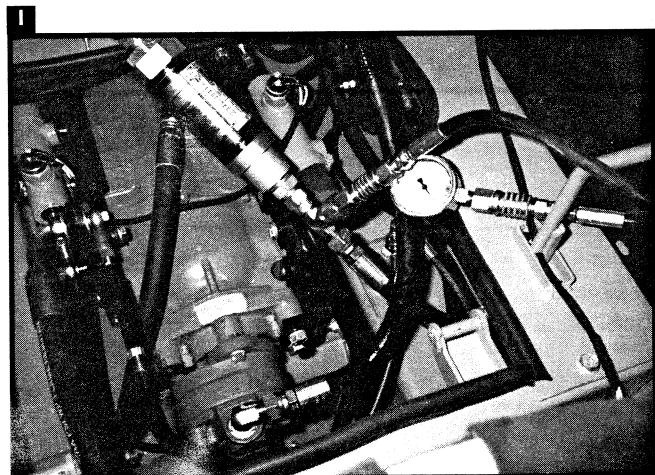


To Test the Gear Pump:

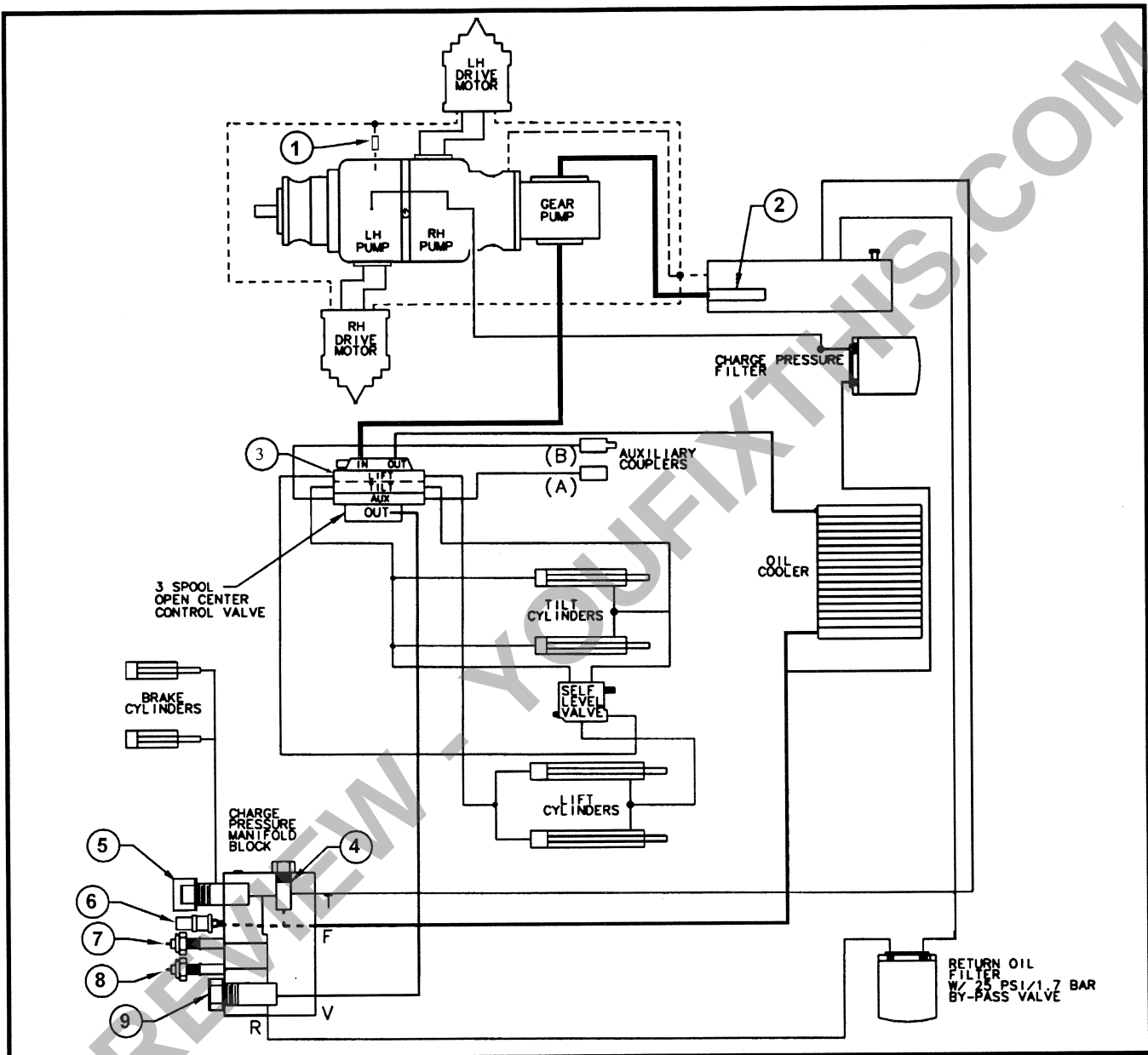
NOTE: This test will determine if loss of power at the auxiliary circuit is caused by a worn pump or faulty control valve.

1. Install a 0-3000 psi (206 bar) pressure gauge and a flow meter WITHOUT a restrictor valve in line between the gear pump and control valve.
2. Run engine at 2900 RPM and activate auxiliary hydraulics to open main relief of control valve [I].
3. Read flow at gear pump. Minimum flow = 14.5 GPM (54.6 l/min) at 2500 psi (172 bar) at 2750 RPM

If flow is below minimum specifications, gear pump requires repair or replacement.



HYDRAULIC SYSTEM FLOW DIAGRAM



- 1 - Shuttle Valve Flow Control
- 2 - 100 Mesh Strainer
- 3 - Main Relief: 2040: (2500 PSI - 172 bar) 2050: (3000 PSI - 207 bar)
- 4 - Charge Pressure Restrictor Relief 2040: (97 PSI - 6.69 bar) 2050: (80 PSI - 15.52 bar)
- 5 - Brake Solenoid Valve
- 6 - Hydraulic Temperature Switch
- 7 - Hydraulic Temperature Sender
- 8 - Charge Pressure Switch
- 9 - Pressure Relief

SAFETY EQUIPMENT

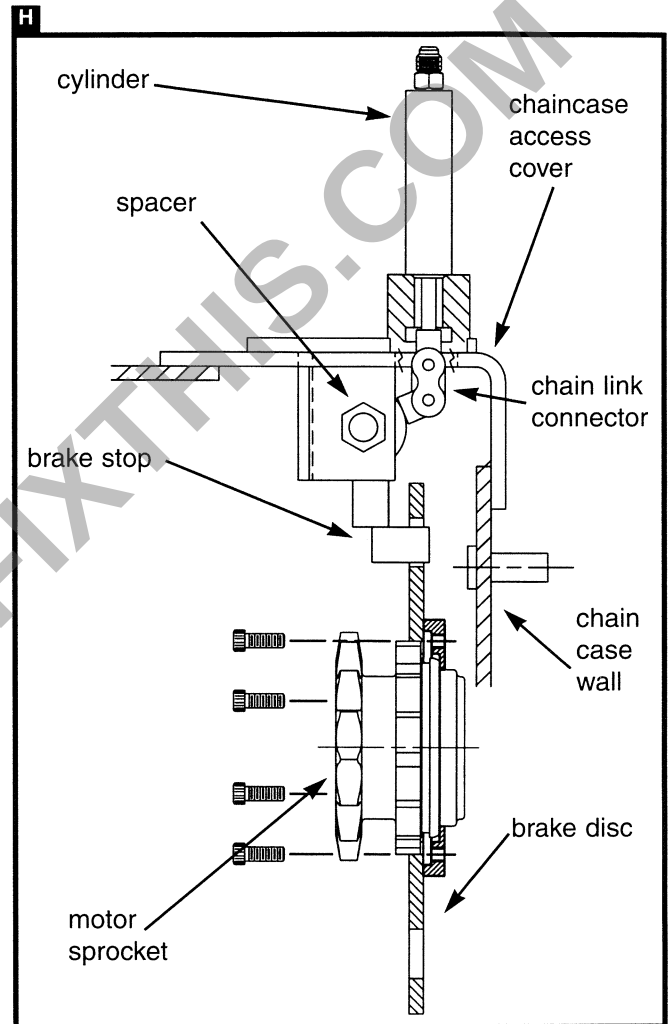
PARKING BRAKE ASSEMBLY

SERVICE AND REPAIR

CONTINUED

Assembly:

1. Assemble brake cylinder to cover. Use Locktite 272.
2. Assemble rod end using Locktite 277 to the brake cylinder.
3. Install the spacer inside of the brake stop.
4. Install brake stop and spacer in the chaincase access cover.
5. Assemble 1/2" bolt, washers, and nut to weldment.
6. Install chain link connector between rod end and brake stop.
7. (2040) Replace chaincase access cover on machine.
(2050) Install brake assembly to the chaincase with brake stop on the outboard side of the brake disc.
8. Reinstall hoses and fittings on the top of the brake cylinder.



BRAKE DISC REMOVAL AND INSTALLATION

Removal: Model 2040

1. Remove the top chaincase access cover and brake assembly.
2. Remove the chain case outer side access panel.
3. Rotate drive motor to access the connection link of the primary chain through the side cover on the outer wall.
4. Disconnect the primary chain.
5. Remove the allen head machine screws securing the disc to the motor sprocket and remove the brake disc.

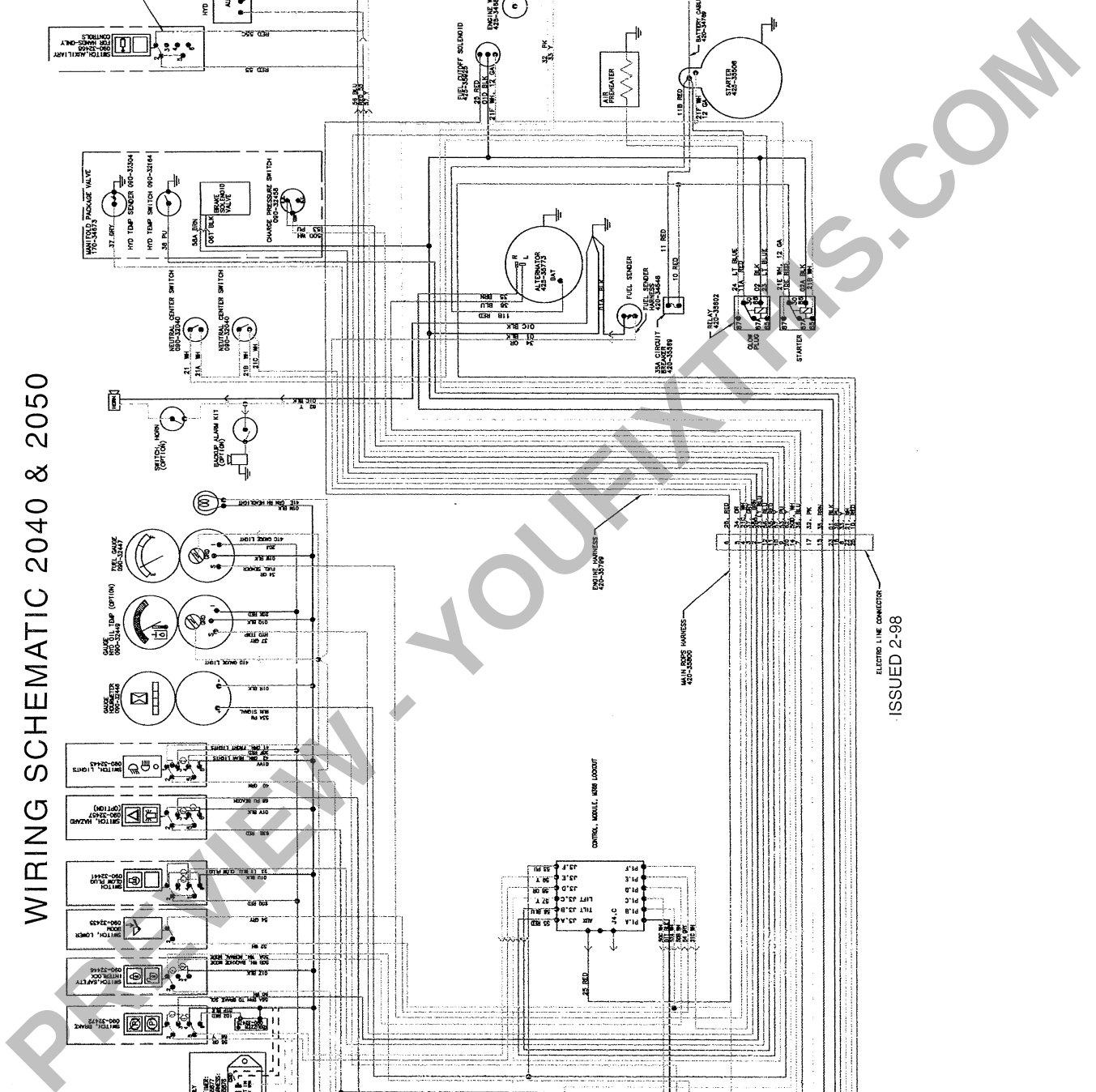
Installation: Model 2040

1. Install brake disc on drive motor sprocket and secure with five (5) Allen head machine screws. **Use Locktite 242 or equivalent and tighten to 8 ft. lbs.**
2. Reconnect primary drive, using a new connector link.
3. Reinstall brake assembly using instructions above.

WIRING SCHEMATIC 2040 & 2050

WIRING SCHEMATIC 2040 & 2050

ISSUED 2-98

[illegible]

SAFETY EQUIPMENT

SAFETY INTERLOCKS

Explanation

The hydraulic control valve has spool locks to hold the spools in neutral position unless certain conditions are met.

CAUTION! The Control Valve Spool Locks are not meant to prevent movement of the Lift Arm when people are under it. **ALWAYS USE THE LIFT ARM STOP FOR THIS PURPOSE.**

A mode switch in the instrument panel of the ROPS is used to change the system from normal operation (operator in the seat) to remote auxiliary allowing the operator to use a backhoe or hand held hydraulic tool without sitting in the seat.

Electromagnetic solenoids on the lift, tilt, and auxiliary hydraulic controls will unlock to allow valve spool function when the operator is sitting in the seat, has the seat belt fastened, engine is running, and the mode switch is green (locked) mode. All four (4) of these criteria must be met to operate the hydraulic control valve.

To operate a backhoe or any other attachment utilizing auxiliary hydraulics when the operator is outside the cab, the mode switch must be switched to the red (unlocked) position. This unlocks only the auxiliary hydraulics valve spool.

To Test The System For Proper Operation:

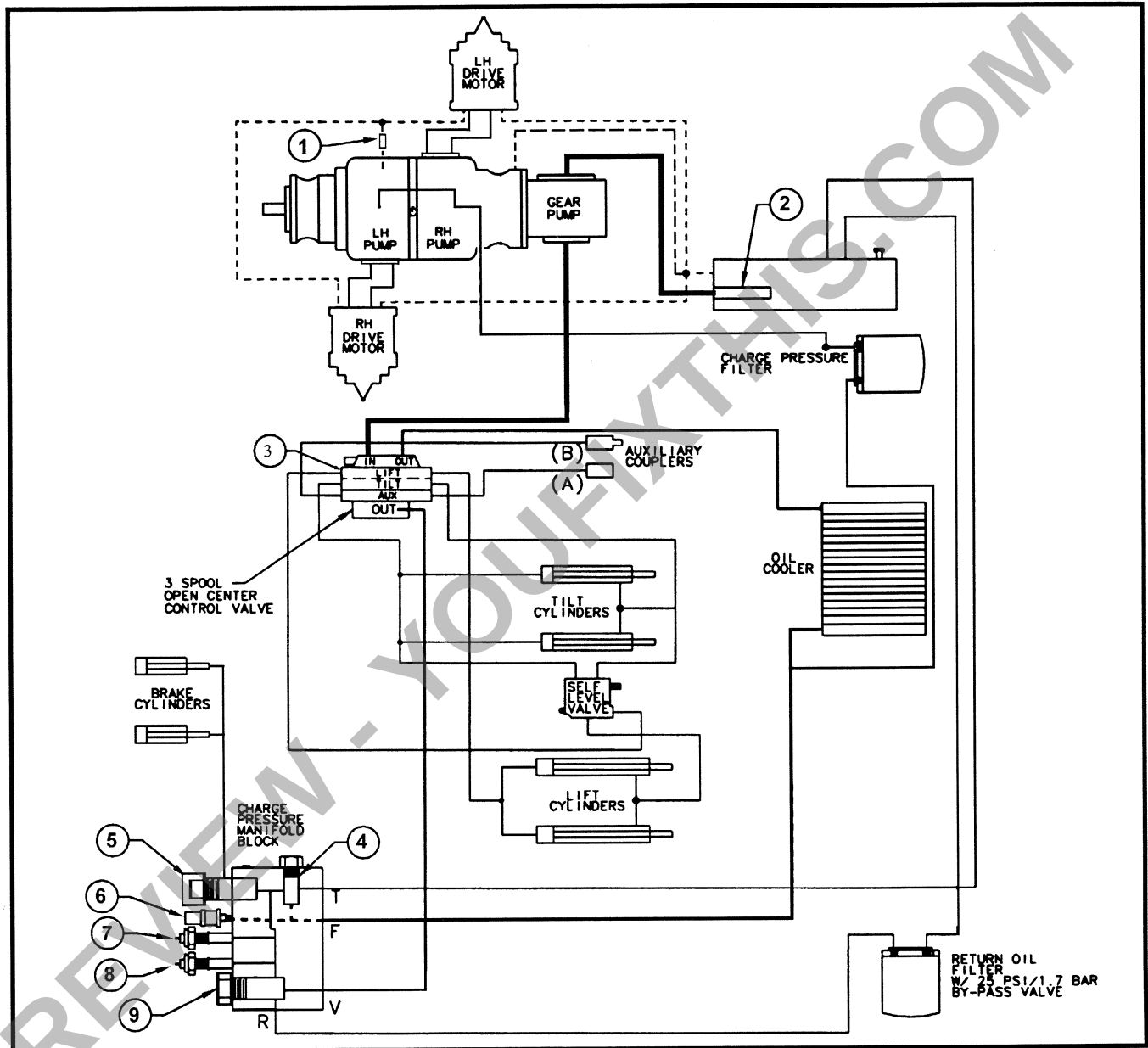
1. Sit in the seat and fasten the seat belt.
2. Attempt to move the lift, tilt, and auxiliary controls.
3. Set the mode switch to green (locked) position and start engine.
Result - All three (3) controls should unlock and operate.
4. Switch the mode switch to the red (unlocked) position.
Result - The lift and tilt controls should lock in the neutral position. The auxiliary control should remain functional.
5. Change mode switch to green (locked) for normal operation, then unfasten the seat belt.
Result - The lift, tilt, and auxiliary controls should lock and the engine should shut off. There are no adjustments to the spool lock. Any results different from those listed in the above tests indicate repair of the spool lock or electrical circuit is required. If the spool lock solenoid does not unlock when voltage is applied or fails to lock when voltage is shut off, replacement of the solenoid is required.

For more extensive troubleshooting and repairs of the electrical circuit refer to the electrical system section of this manual starting on page 8-1.

HYDROSTATIC DRIVE SYSTEM

FLOW DIAGRAM

2040 & 2050



- 1 - Shuttle Valve Flow Control
- 2 - 100 Mesh Strainer
- 3 - Main Relief: 2040: (2500 PSI - 172 bar) 2050: (3000 PSI - 207 bar)
- 4 - Charge Pressure Restrictor Relief 2040: (97 PSI - 6.69 bar) 2050: (80 PSI - 15.52 bar)
- 5 - Brake Solenoid Valve
- 6 - Hydraulic Temperature Switch
- 7 - Hydraulic Temperature Sender
- 8 - Charge Pressure Switch
- 9 - Pressure Relief

SERIAL NUMBER SYSTEM

The serial number of a product is very important when ordering repair parts or looking for service information. The purpose of a serial number is to identify an individual machine. The serial number must also be understood to eliminate confusion and assure the correct parts are ordered and proper service procedures are followed.

The 2040/2050 serial number system consists of eleven digits.
It can be broken down as follows:

(example = Model 2040 S/N SF96M000136)

S	F	96	M	000136
Skid	H	Year	Month	
Steer		of	of	
<u>Loader</u>	<u>Model</u>	<u>Manufacture</u>	<u>Build</u>	<u>Sequence #</u>
	2040 - F	96 = 1996	A = Jan. G = July	
	2050 - G	97 = 1997	B = Feb. H = Aug.	
			C = Mar. J = Sept.	
			D = Apr. K = Oct.	
			E = May L = Nov.	
			F = June M = Dec.	

Per ISO Recommendations the letter "I" is not used in the serial number system.

Please forward this information to any department involved in repairs, service, and parts ordering for Mustang Skid Steer Loaders.

HYDROSTATIC DRIVE SYSTEM

HYDROSTATIC SYSTEM CHECKS

Charge Pressure Check:

The charge pressure system supplies oil to the piston pumps to replace oil lost through the case drain. Oil supply into the piston pumps from the charge pressure system is greater than the case drain flow out of the piston pumps and drive motors. This creates pressure which prevents cavitation and freewheeling and provides lubrication of the internal components. Oil for the charge pressure system is taken from the return oil of the hydraulic control valve. Return oil from the control valve is plumbed through a manifold block where the oil flow is partially restricted by a relief valve diverting a portion of the oil for charge pressure. To prevent over pressure of the charge system, a second relief valve is installed in the manifold block. Refer to Manifold Block Function and Service in this section for more detail.

Charge pressure specifications are with warm oil and engine at full RPM. Read pressure with pumps in neutral and again with pumps under load (brakes locked and pump partially stroked).

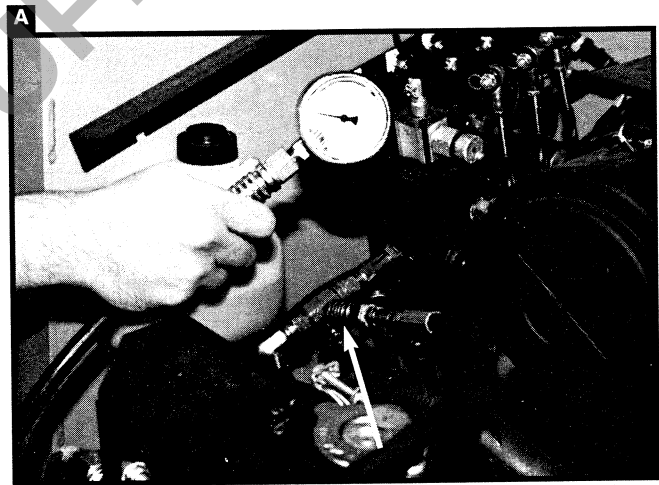
1. Block the machine off the ground to prevent the machine from accidentally moving.
2. Raise the seat for access to the hydrostatic pump.
3. Install a 0-500 PSI (0-34.5 bar) pressure gauge into the charge pressure line between the control valve and the top of the oil cooler. A 7/8 in. (#10) JIC swivel run tee will work best for gauge connection. Reference P/N 230-32255 [A].
4. Press the mode switch to red (unlocked) to run the engine and press brake switch to amber to leave brakes locked.
5. Start engine and run at full RPM.
6. Read pressure with steering controls in neutral and again with both pumps stroked forward and backward. Also read pressure stroking each pump individually.

Normal charge pressure should be 130-150 PSI (8.9- 10.3 bar). Minimum is 100 PSI (6.8 bar).

A slight drop in pressure is normal when a load is put on the pump. Pressure with pump loaded should be equal between pumps within 5 PSI (0.3 bar).

A lower charge pressure reading in the suspect pump indicates worn components and a case drain test should be performed.

Low pressure in neutral indicates low oil supply or charge pressure relief valve failure. Refer to Manifold Block Function and Service for testing.



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