1-1. CAPACITIES.

- Fuel Tank - 26 U.S. Gallons (98.41 L).
- Hydraulic Oil Tank - 55 U.S. Gallons (208.18

■ **Engine - Deutz F3L912.**

- Oil Capacity - 9.5 quarts (8.99 L) w/Filter, 8.5 quarts (8.04 L) w/o Filter.
- Low RPM 1800.

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INDEX NO.	COMPONENT	NUMBER/TYPE LUBE POINTS	LUBE & METHOD	INTERVAL (HOURS)
1	Wheel Drive Hub	Fill Plug - 1/2 Full	EPGL - SAE 90	***50/2000
2	Steer Spindles - 4WS	2 Grease Fittings	MPG - Pressure Gun	100
3	Steer Cylinder - 4WS	2 Grease Fittings	MPG - Pressure Gun	100
4	Tie Rod - 4WS	2 Grease Fittings	MPG - Pressure Gun	100

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(4). If no repairs are necessary or when repairs have been made, carefully reconnect hydraulic hoses to the appropriate ports.

(5). If used, remove boom prop from beneath boom, activate hydraulic system and run cylinder through one complete cycle to check for leaks.

c. Cylinders With Dual Counterbalance Valves.

- Platform Slave Level Cylinder, Lockout Cylinder and Extend-A-Reach Level Cylinder.

⚠ IMPORTANT

OPERATE ALL FUNCTIONS FROM GROUND CONTROL STATION ONLY.

(1). Using all applicable safety precautions, activate hydraulic system.

(2). When working on the platform slave level cylinder, stroke platform slave level cylinder forward until platform sits at a 45° angle.

(3). Shut down hydraulic system and allow machine to sit for 10-15 minutes. If machine is equipped with a bang-bang or proportional control valves, turn IGNITION SWITCH to ON, move control switch or lever for applicable cylinder in each direction, then turn IGNITION SWITCH to OFF. If machine is equipped with hydraulic control valves, move control lever for applicable cylinder in each direction. This is done to relieve pressure in the hydraulic lines. Carefully remove hydraulic hoses from appropriate cylinder port block.

(4). There will be initial weeping of hydraulic fluid which can be caught in a suitable container. After the initial discharge, there should not be any further leakage from the ports. If leakage continues at a rate of 6-8 drops per minute or more, the counterbalance valve is defective and must be replaced.

(5). To check piston seals, carefully remove the counterbalance valve from the retract port. After initial discharge there should not be any further leakage from the ports. If leakage occurs at a rate of 6-8 drops per minute or more, the piston seals are defective and must be replaced.

(6). If no repairs are necessary or when repairs have been made, replace counterbalance valve and carefully connect hydraulic hoses to cylinder port block.

(7). If used, remove lifting device from upright or remove prop from below boom, activate hydraulic system and run cylinder through one complete cycle to check for leaks.

2-9. CYLINDER REPAIR.

Note

The following are general procedures that apply to all of the cylinders on this machine. Procedures that apply to a specific cylinder will be so noted.

a. Disassembly.

⚠ IMPORTANT

DISASSEMBLY OF THE CYLINDER SHOULD BE PERFORMED ON A CLEAN WORK SURFACE IN A DIRT FREE WORK AREA.

(1). Connect a suitable auxiliary hydraulic power source to the cylinder port block fitting.

⚠ WARNING

DO NOT FULLY EXTEND CYLINDER TO THE END OF STROKE. RETRACT CYLINDER SLIGHTLY TO AVOID TRAPPING PRESSURE.

(2). Operate the hydraulic power source and extend the cylinder. Shut down and disconnect the power source. Adequately support the cylinder rod, if applicable.

⚠ WARNING

CYLINDERS WITH DOUBLE HOLDING VALVES. BEFORE REMOVING HOLDING VALVES CRACK BLEEDERS TO RELEASE PRESSURE.

(3). If applicable, remove the cartridge-type holding valve and fittings from the cylinder port block. Discard o-rings.

Note

Procedure step (4) applies only to the Model 70H Telescope Cylinder.

(4). Remove the nuts which attach each cylinder rod support block pull rod and withdraw the rods from the forward end of the telescope cylinder.

(5). Place the cylinder barrel into a suitable holding fixture. Tap around outside of cylinder head retainer with a suitable hammer to shatter loctite.

(6). Using a suitable spanner wrench, loosen the cylinder head retainer, if applicable, and/or cylinder head gland, and remove from cylinder barrel.

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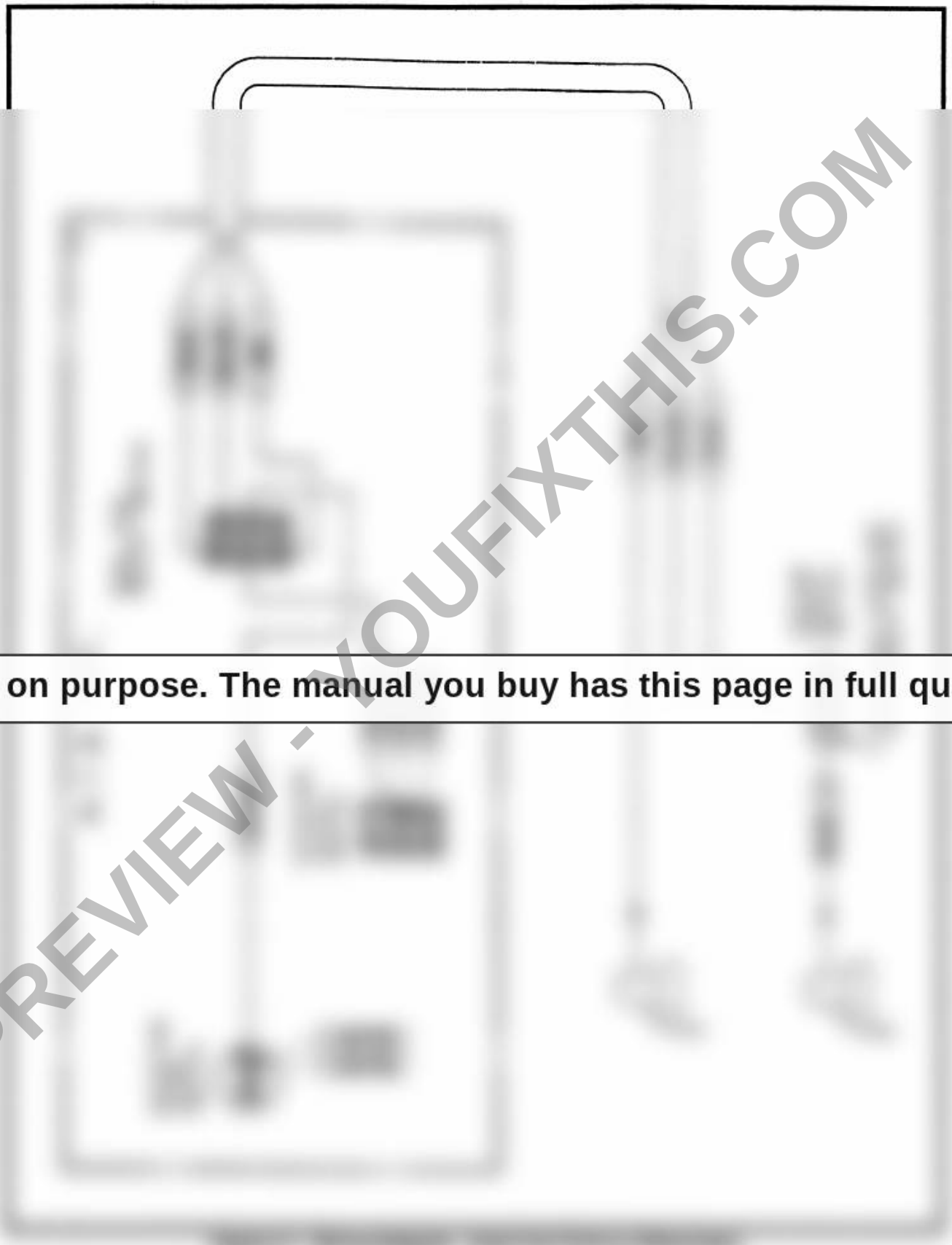
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Table 3-1. Platform Assembly Troubleshooting.

TROUBLE	PROBABLE CAUSE	REMEDY
Platform Leveling System.		
Automatic leveling inoperative.	Hydraulic system oil low.	Replenish oil as necessary.
	Dual check valves dirty/inoperative.	Clean or replace as necessary.
	Restricted or broken hydraulic line or fitting on slave cylinder or lift cylinder.	Clean, repair, or replace line or fitting.
	Spit valve(s) leaking.	Clean, repair, or replace spit valve(s).
	Worn seal(s) in slave level or lift cylinder.	Replace seal(s).
	Counterbalance valves in slave cylinder defective.	Replace counterbalance valve.
	Slave level or lift cylinder not functioning properly.	Repair or replace cylinder.
Platform will not maintain level attitude.	Counterbalance valve on slave leveling cylinder improperly adjusted or not functioning properly.	Replace valve.
	Worn seal(s) in slave level or lift cylinder.	Replace seal(s).
	Damaged slave level or lift cylinder.	Repair or replace cylinder.
No response to platform leveling controls.	Level control inoperative.	Repair or replace control valve.
	Hydraulic system oil low.	Replenish oil as necessary.
	System orifice plugged/dirty.	Clean orifice.
	Restricted or broken hydraulic line or fitting.	Clean, repair, or replace line or fitting.
	Control valve not functioning properly.	Repair or replace valve.
	No electric to dump or control valve.	See proper wiring diagram.
	Slave cylinder not functioning properly.	Repair or replace pump.
Platform will not adjust "up" to level.	Hydraulic pump not functioning properly.	Repair or replace pump.
	Restricted or broken hydraulic line or fitting.	Clean, repair, or replace line or fitting.
	Slave cylinder not functioning properly.	Repair or replace cylinder.
	Electrical failure.	See proper wiring diagram.
	Orifice plugged.	Clean orifice.
Platform will not adjust "down" to level.	See: Platform will not adjust "up" to level.	

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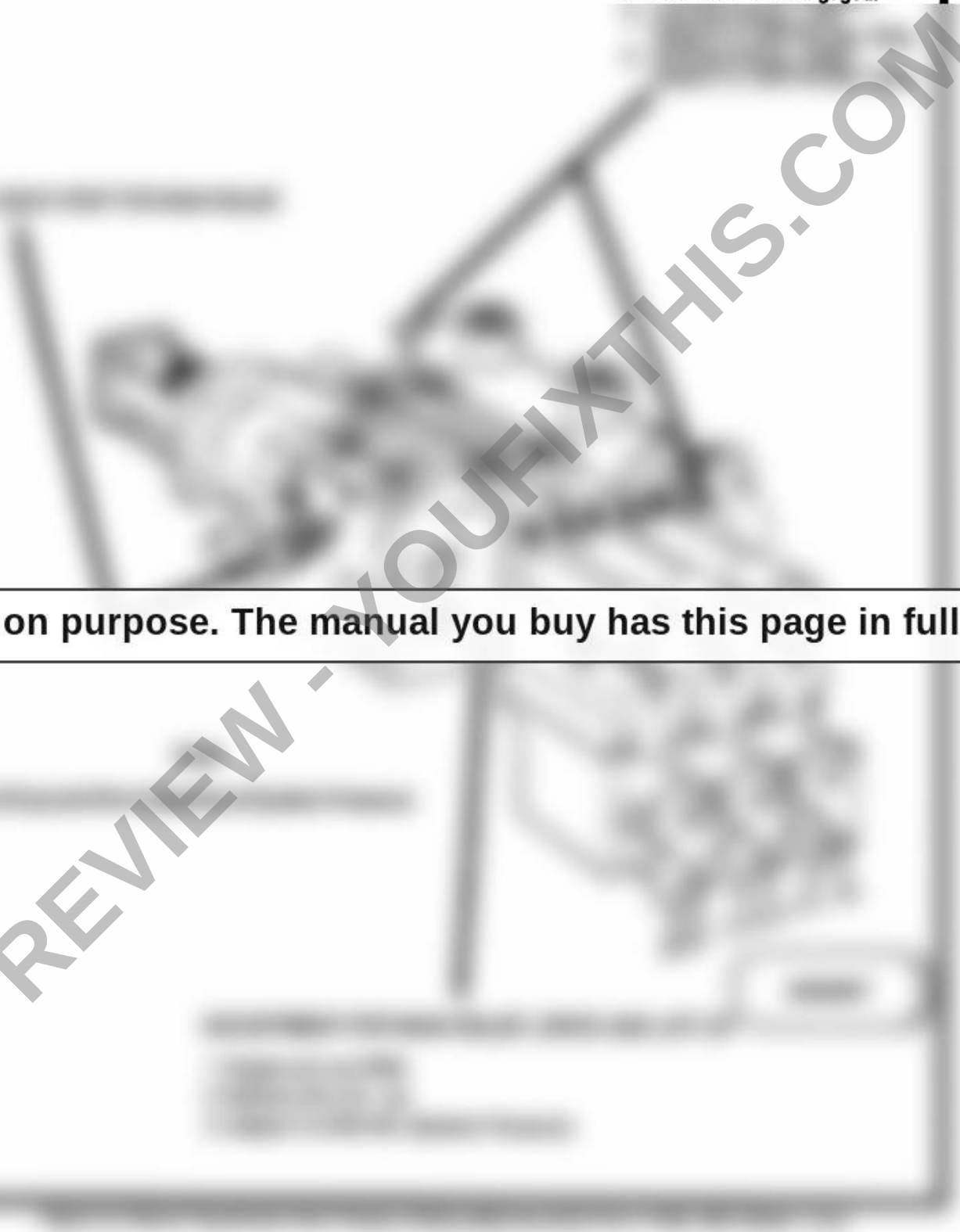
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ADJUSTMENT FOR SWING

1. Place Gauge At Swing Motor.
2. Engine At Low RPM.
3. Turntable Lock Engaged.



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SUBJECT - SECTION, PARAGRAPH **PAGE NO.**

INTRODUCTION - MAINTENANCE SAFETY PRECAUTIONS . . . . . a
LIST OF ILLUSTRATIONS AND TABLES ii

SECTION 1 — SPECIFICATIONS
1-1. Capacities 1-1
1-2. Component Data 1-1
1-3. Performance Data 1-3
1-4. Torque Requirements 1-4
1-5. Lubrication 1-4
1-6. Pressure Setting 1-8
1-7. Cylinder Specifications 1-9
1-8. Boom Tape 1-9
1-9. Major Component Weights 1-10
1-10. Critical Stability Weights 1-10
1-11. Relay/Circuit Breakers 1-10
1-12. Serial Number Location 1-11

SECTION 2 — PROCEDURES
2-1. General 2-1
2-2. Servicing and Maintenance Guidelines 2-1
2-3. Lubrication Information 2-2
2-4. Cylinders - Theory of Operation 2-3
2-5. Valves - Theory of Operation 2-3
2-6. Boom Chains 2-4
2-7. Wear Pads 2-7
2-8. Cylinder Checking Procedure 2-7
2-9. Cylinder Repair 2-9
2-10. Cylinder Removal and Installation 2-13
2-11. Telescope Cylinder Eccentric Bushing 2-14
2-12. Boom Maintenance 2-15
2-13. Tilt Alarm Switch 2-19
2-14. Horizontal Cutoff Switch Adjustment Procedure 2-20
2-15. Governor Checks and Adeco Adjustment 2-20
2-16. Throttle Checks and Precision Governor Adjustments 2-22
2-17. Throttle Checks and Adjustments Deutz Engine 2-23
2-18. Pressure Setting Procedures 2-27
2-19. Racine Proportional Air Gap Adjustment 2-47
2-20. Swing Bearing 2-48
2-21. Torque Hub (Machines Built Prior to Mid 1991) 2-52
2-22. Torque Hub 2WD/4WD 2-56
2-23. Swing Drive Brake, Mico (Machines Built Prior to May 1992) 2-60
2-24. Drive Brake, Mico (Machines Built Prior to May 1992) 2-62
2-25. Swing Drive Brake, Ausco (Machines Built Prior to May 1992) 2-64
2-26. Drive Brake, Ausco (Machines Built Prior to May 1992) 2-66
2-27. Drive Brake, Mico (Machines Built From May 1992 to Present) 2-68
2-28. Swing Drive Brake, Mico (Machines Built From May 1992 to Present) 2-70
2-29. Controllers 2-72
2-30. Oscillating Axle Bleeding Procedure 2-72
2-31. Oscillating Axle Lockout Test 2-73
2-32. Basket Rotator Brake 2-74
2-33. Free Wheeling Option 2-74
2-34. Spark Arrestor Mufflers 2-74
2-35. Footswitch Adjustment 2-74
2-36. Hydraulic Pump W/Hayes Pump Drive Coupling Lubrication 2-74
2-37. Dual Fuel System 2-75
2-38. Preventive Maintenance and Inspection Schedule 2-76

SECTION 3 — TROUBLESHOOTING
3-1. General 3-1
3-2. Troubleshooting Information 3-1
3-3. Hydraulic Circuit Checks 3-1

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FIGURE NO.	TITLE	PAGE NO.
1-1.	Torque Chart	1-5
1-2.	Lubrication Chart	1-6
1-3.	Relay Wiring	1-11
1-4.	Serial Number Location	1-11
2-1.	Typical Three Section Boom Assembly	2-5
2-2.	Boom Positioning and Support - Cylinder Repair	2-8
2-3.	Poly Pak Seal Installation	2-11
2-4.	Telescope Cylinder Eccentric Bushing	2-14
2-5.	Governor Adjustment, LSG-423 with Adeco	2-21
2-6.	Adeco Adjustment, LSG-423	2-22
2-7.	Precision Governor Adjustment, LSG-423	2-24
2-8.	Adeco Actuator Adjustment, F3L912	2-26
2-9.	Racine Proportional Valve Pressure Setting Procedures (Machines Built Prior to Mid 1987)	2-28
2-10.	Vickers Pressure Setting Procedures (Machines Built Prior to 1989 with Accessory Valve)	2-30
2-11.	Solenoid Valve Pressure Setting Procedures (Machines Built Prior to May 1992 with Steer Wheel)	2-34
2-12.	Pressure and Flow Setting Procedures (Machines Built Prior to May 1992 with Steer Wheel)	2-35
2-13.	Vickers Proportional Pressure Setting Procedures	2-36
2-14.	Vickers All Hydraulic Pressure Setting Procedures	2-40
2-15.	Solenoid Valve Pressure Setting Procedures	2-44
2-16.	Solenoid Valve Pressure Setting Procedures 4 W/S	2-45
2-17.	Pressure and Speed Setting Procedures - Extend-A-Reach (Model 60H+6)	2-46
2-18.	Racine Proportional Air Gap Adjustment (Machines Built Prior to Mid 1987)	2-47
2-19.	Swing Bearing Tolerance Boom Placement	2-48
2-20.	Swing Bearing Tolerance Measuring Point	2-49
2-21.	Swing Bearing Bolt Torquing Sequence	2-51
2-22.	Torque Hub Assembly (Machines Built Prior to Mid 1991)	2-54
2-23.	Torque Hub Assembly 2WD/4WD	2-57
2-24.	Torque Hub Carrier Timing	2-59
2-25.	Swing Brake Assembly - Mico (Machines Built Prior to May 1992)	2-61
2-26.	Drive Brake Assembly - Mico (Machines Built Prior to May 1992)	2-63
2-27.	Swing Brake Assembly -Ausco (Machines Built Prior to May 1992)	2-65
2-28.	Drive Brake Assembly - Ausco (Machines Built Prior to May 1992)	2-67
2-29.	Drive Brake Assembly - Mico (Machines Built From May 1992 to Present)	2-69
2-30.	Swing Brake Assembly - Mico (Machines Built From May 1992 to Present)	2-71
2-31.	Basket Rotator Brake	2-74
3-1.	Wiring Diagram - Dual Fuel (Ford and Wisconsin)	3-18
3-2.	Wiring Diagram - 110V Generator (Ford)	3-19
3-3.	Wiring Diagram - 110V Generator (Deutz)	3-20
3-4.	Wiring Diagram - Platform Console (w/ All Hydraulic Controls)	3-21
3-5.	Wiring Diagram - Platform Console (Standard Controls)	3-22
3-6.	Wiring Diagram - Precision Governor	3-24
3-7.	Wiring Diagram - Ford Engine	3-26
3-8.	Wiring Diagram - Deutz, Wisconsin Engine	3-28
3-9.	Wiring Diagram - Deutz Engine Hyd. Controls	3-30

TABLE NO.	TITLE	PAGE NO.
1-1.	Hydraulic Oil	1-4
1-2.	Lubrication Specifications	1-8
1-3.	Cylinder Specifications	1-9
1-4.	Major Components Weights	1-10
1-5.	Critical Stability Weights	1-10
2-1.	Chain Stretch Tolerances	2-7
2-2.	Cylinder Piston Nut Torque Specifications	2-12
2-3.	Holding Valve Torque Specifications	2-13
2-4.	Preventive Maintenance and Inspection Schedule	2-77
3-1.	Platform Assembly Troubleshooting	3-2
3-2.	Boom Assembly Troubleshooting	3-3
3-3.	Turntable Assembly Troubleshooting	3-7
3-4.	Chassis Assembly Troubleshooting	3-8
3-5.	Hydraulic System Troubleshooting	3-13
3-6.	Electrical System Troubleshooting	3-15

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(7). Attach a suitable pulling device to the cylinder rod port block end or cylinder rod end, as applicable.

⚠ IMPORTANT

EXTREME CARE SHOULD BE TAKEN WHEN REMOVING THE CYLINDER ROD, HEAD, AND PISTON. AVOID PULLING THE ROD OFF-CENTER, WHICH COULD CAUSE DAMAGE TO THE PISTON AND CYLINDER BARREL SURFACES.

(8). With the barrel clamped securely, apply pressure to the rod pulling device and carefully withdraw the complete rod assembly from the cylinder barrel.

(9). Using suitable protection, clamp the cylinder rod in a vise or similar holding fixture as close to the piston as possible.

(10). Remove the set screw (s), if applicable, and nut which attach the piston to the rod, and remove the piston. Discard self-locking set screws.

(11). Remove the piston rings.

(12). Remove and discard the piston o-rings, seal rings, and backup rings.

(13). Remove the set screw, if applicable, piston spacer, and wear ring, if applicable, from the rod.

(14). Remove the rod from the holding fixture. Remove the cylinder head gland and retainer, if applicable. Discard the o-rings, back-up rings, rod seals, and wiper seals.

b. Cleaning and Inspection.

(1). Clean all parts thoroughly in an approved cleaning solvent.

(2). Inspect the cylinder rod for scoring, tapering, ovality, or other damage. If necessary, dress rod with Scotch Brite or equivalent. Replace rod if necessary.

(3). Inspect threaded portion of rod for excessive damage. Dress threads as necessary.

(4). Inspect inner surface of cylinder barrel tube for scoring or other damage. Check inside diameter for tapering or ovality. Replace if necessary.

(5). Inspect threaded portion of barrel for damage. Dress threads as necessary.

(6). Inspect piston surface for damage and scoring and for distortion. Dress piston surface or replace piston as necessary.

(7). Inspect seal and o-ring grooves in piston for burrs and sharp edges. Dress applicable surfaces as necessary.

(8). Inspect cylinder head inside diameter for scoring or other damage and for ovality and tapering. Replace as necessary.

(9). Inspect seal and o-ring grooves in head for burrs and sharp edges. Dress applicable surfaces as necessary.

(10). If applicable, inspect cylinder head retainer or end cap for surface or thread damage. Repair or replace as necessary.

(11). Inspect cylinder head outside diameter for scoring or other damage and ovality and tapering. Replace as necessary.

(12). If applicable, inspect thread ring for scoring or other damage. Dress threads or applicable surfaces as necessary.

(13). If applicable, inspect seal grooves in thread ring for burrs and sharp edges. Dress applicable surfaces as necessary.

(14). If applicable, inspect rod and barrel bushings for signs of correct lubrication and excessive wear. Replace as necessary.

(15). Inspect travel limiting collar or spacer for burrs and sharp edges. If necessary, dress inside diameter surface with Scotch Brite or equivalent.

(16). If applicable, inspect port block fittings and holding valve. Replace as necessary.

Note

Procedure step (17) applies only to the Model 70H Telescope Cylinder.

(17). On the telescope cylinder only, inspect the cylinder rod support block and wear ring inside diameter for scoring or other damage. Repair or replace as necessary.

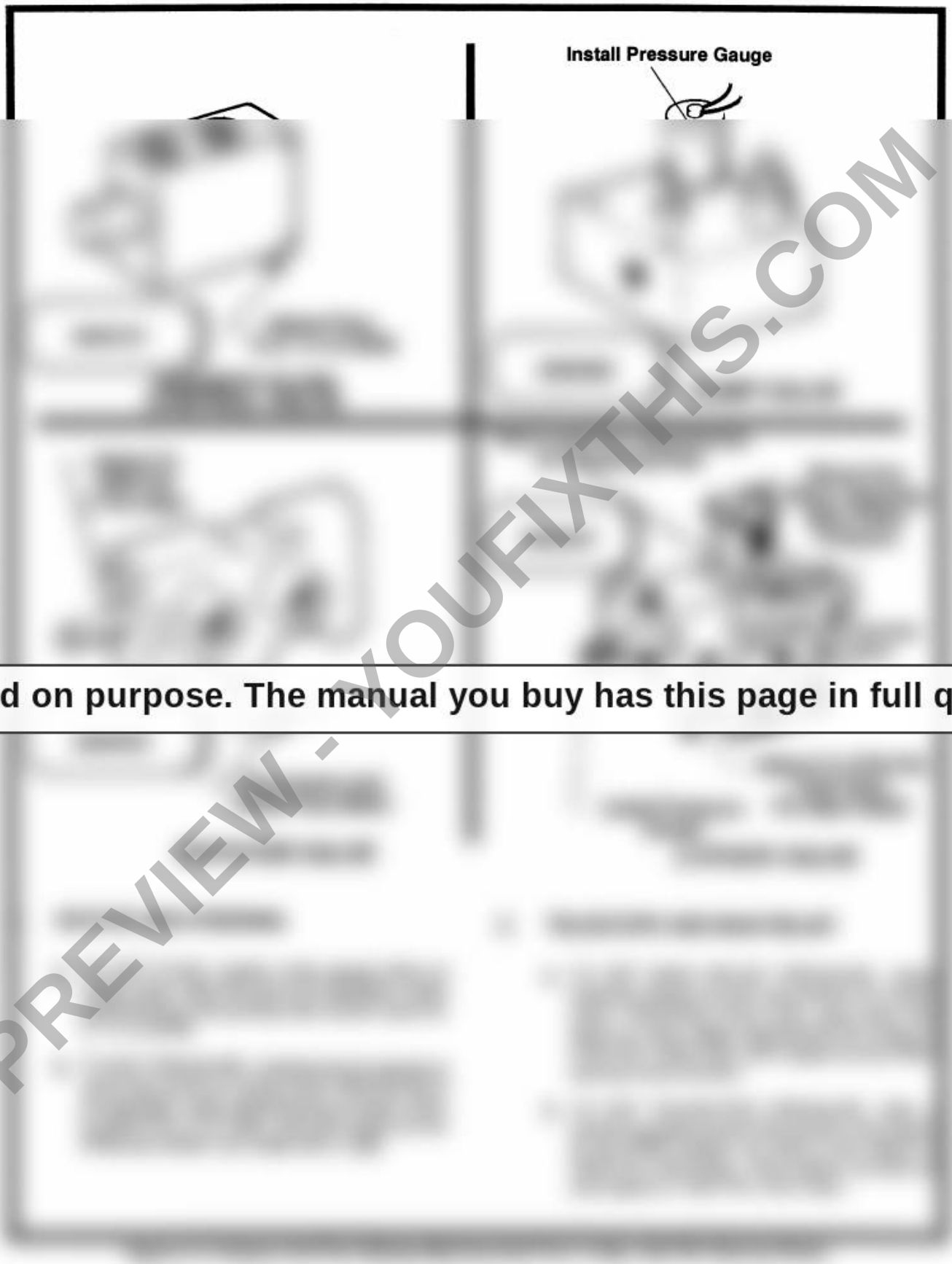
(18). Inspect the oil ports for blockage or the presence of dirt or other foreign material. Repair as necessary.

(19). If applicable, inspect piston rings for cracks or other damage. Replace as necessary.

Note

Steps (20) through (23) apply to the Telescope Cylinder only.

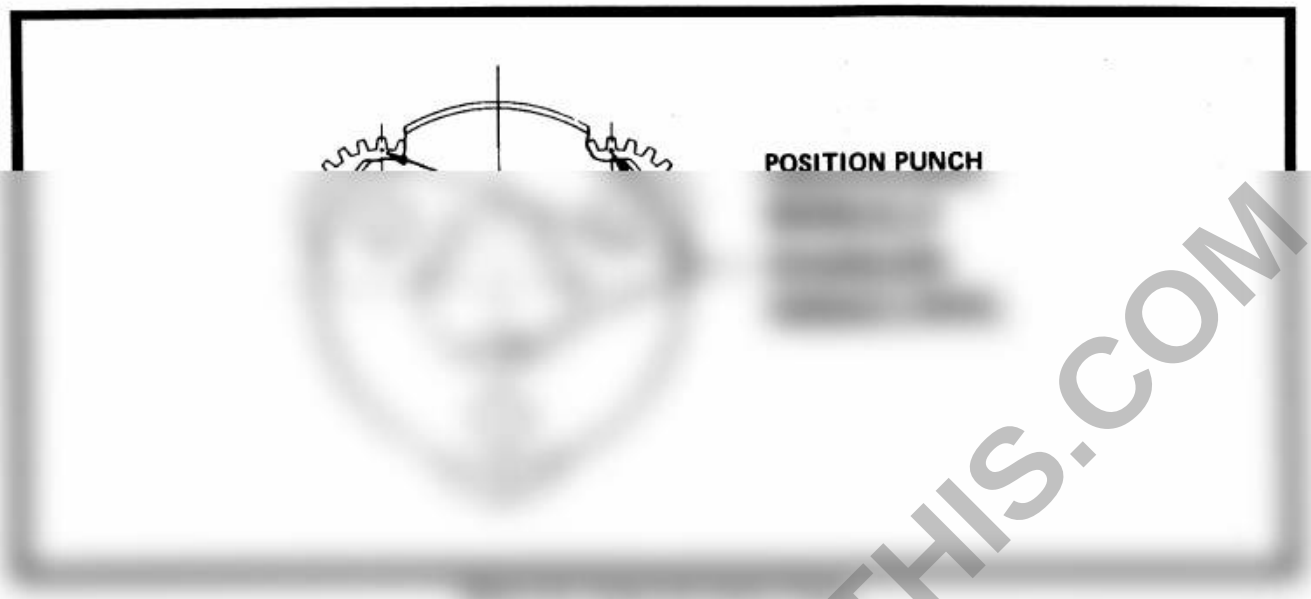
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TROUBLE	PROBABLE CAUSE	REMEDY
Boom will swing in only one direction.	Restricted or broken hydraulic line on fitting.	Clean, repair, or replace line or fitting.
	Control valve not functioning properly.	Repair or replace valve.
	Foreign objects wedged between swing motor pinion and swing gear.	Remove objects, check for damage, and repair or replace component (s) as required.
	Swing control lever not functioning.	Repair or replace swing control lever.
	Brake shuttle valve defective.	Replace shuttle valve.
Boom swings erratically in either direction.	Hydraulic system oil low.	Replenish oil as necessary.
	Lack of lubricant on swing gear or speed reducer pinion.	Lubricate as required. (See Lubrication Chart.)
	Swing motor not functioning properly.	Repair or replace swing control lever.
	Worn or broken teeth on swing gear or swing motor pinion.	Replace gear(s) as required.
	Swing brake not functioning properly.	Repair or replace swing brake.
	Restrictor valves plugged.	Clean or replace restrictor valve.

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