
TC29DA, TC33DA REPAIR MANUAL COMPLETE CONTENTS

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The following pages are the collation of the contents pages from each section and chapter of the TC29DA, TC33DA Repair manual. Complete Repair part # 87057407.

The sections used through out all New Holland product Repair manuals may not be used for each product. Each Repair manual will be made up of one or several books. Each book will be labeled as to which sections are in the overall Repair manual and which sections are in each book.

The sections listed above are the sections utilized for the TC29DA, TC33DA Tractors.

SAFETY

PRECAUTIONARY STATEMENTS

A careful operator is the best operator. Most accidents can be avoided by observing certain precautions. To help prevent accidents, read the following precautions before operating this equipment. Equipment should be operated only by those who are responsible and instructed to do so.

Carefully review the procedures given in this manual with all operators. It is important that all operators be familiar with and follow safety precautions.

THE TRACTOR

1. Read the Operator's Manual carefully before using the tractor. Lack of operating knowledge can lead to accidents.
2. Use an approved roll bar and seat belt for safe operation. Overturning a tractor without a roll bar can result in death or injury. If your tractor is not equipped with a roll bar and seat belt, see your New Holland Dealer.
3. Always use the seat belt. The only instance when the seat belt should not be used is if the roll bar has been removed from the tractor.
4. If a front end loader is to be installed, always use a FOPS (Falling Object Protective Structure) canopy to avoid injury from falling objects.
5. Use the handholds and step plates when getting on and off the tractor to prevent falls. Keep steps and platform cleared of mud and debris.
6. Do not permit anyone but the operator to ride on the tractor. There is no safe place for extra riders.
7. Keep all safety decals clean of dirt and grime, and replace all missing, illegible, or damaged safety decals. See the list of decals in the Decal section of this manual.
3. Keep the tractor and equipment, particularly brakes and steering, maintained in a reliable and satisfactory condition to ensure your safety and comply with legal requirements.
4. Keep open flame or cold weather starting aids away from the battery to prevent fires or explosions. Use jumper cables according to instructions to prevent sparks which could cause explosion.
5. Stop the engine before performing any service on the tractor.
6. Escaping hydraulic/diesel fluid under pressure can penetrate the skin causing serious injury. If fluid is injected into the skin, obtain medical attention immediately or gangrene may result.
 - DO NOT use your hand to check for leaks. Use a piece of cardboard or paper to search for leaks.
 - Stop the engine and relieve pressure before connecting or disconnecting lines.
 - Tighten all connections before starting the engine or pressurizing lines.
7. Do not modify or permit anyone else to modify or alter this tractor or any of its components or functions without first consulting a New Holland Dealer.

SERVICING THE TRACTOR

1. The cooling system operates under pressure which is controlled by the radiator cap. It is dangerous to remove the cap while the system is hot. Always turn the cap slowly to the first stop and allow pressure to escape before removing the cap entirely.
2. Keep any type of open flame away from the tractor and do not smoke while refueling. Wait for the engine to cool before refueling.
8. The fuel oil in the injection system is under high pressure and can penetrate the skin. Unqualified persons should not remove or attempt to adjust a pump, injector, nozzle, or any other part of the fuel injection system. Failure to follow these instructions can result in serious injury.
9. Continuous long-term contact with used engine oil may cause skin cancer. Avoid prolonged contact with used engine oil. Wash skin promptly with soap and water.

SPECIFICATIONS

	Model TC29DA— Hydrostatic/Gear	Model TC33DA— Hydrostatic/Gear
ENGINE		
Type	Diesel	Diesel
Engine Gross Horsepower	21.6 kw (29)	24.6 kw (33)
Cylinders	3	3
Bore	84 mm (3.31")	84 mm (3.31")
Stroke	80 mm (3.15")	90 mm (3.54")
Displacement	1.33 L (81.2 cu. in.)	1.50 L (91.3 cu. in.)
Compression Ratio	22.7:1	22.2:1
Firing Order	1-2-3	1-2-3
Low Idle Speed	1000 RPM	1000 RPM
Maximum Speed:		
High Idle	3040 RPM	3040 RPM
Rated	2800 RPM	2800 RPM
Valve Clearance (Cold):		
Intake	0.20 mm (0.008")	0.20 mm (0.008")
Exhaust	0.20 mm (0.008")	0.20 mm (0.008")
CAPACITIES		
Fuel Tank	27.6 liters/ 7.3 U.S. gals.	27.6 liters/ 7.3 U.S. gals.
Cooling System	4.0 liters/ 4.2 U.S. qts.	4.0 liters/ 4.2 U.S. qts.
Engine Crankcase:		
With Filter	4.0 liters/ 4.2 U.S. qts.	4.0 liters/ 4.2 U.S. qts.
Rear Axle & Transmission (Includes Hydraulics)		
Gear	32.5 liters/ 8.6 U.S. gals.	32.5 liters/ 8.6 U.S. gals.
HST	33.3 liters/ 8.8 U.S. gals.	33.3 liters/ 8.8 U.S. gals.
Power Steering	1.6 liters/ 1.7 U.S. qts.	1.6 liters/ 1.7 U.S. qts.
Front Axle Final Reduction	0.8 liters/ 0.85 U.S. qts.	0.8 liters/ 0.85 U.S. qts.
Differential Gear Case	1.4 liters/ 1.5 U.S. qts.	1.4 liters/ 1.5 U.S. qts.

MINIMUM HARDWARE TIGHTENING TORQUES

IN FOOT POUNDS (NEWTON-METERS) FOR NORMAL ASSEMBLY APPLICATIONS

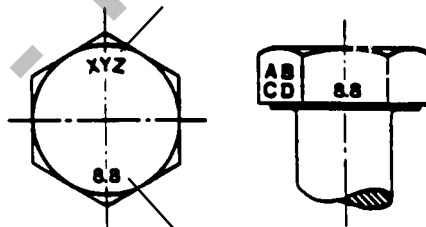
METRIC HARDWARE AND LOCKNUTS

NOMINAL SIZE	CLASS 5.8		CLASS 8.8		CLASS 10.9		LOCKNUT CL.8 W/CL8.8 BOLT
	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr	
M4	15* (1.7)	19* (2.2)	23* (2.6)	30* (3.4)	33* (3.7)	42* (4.8)	16* (1.8)
M6	51* (5.8)	67* (7.6)	79* (8.9)	102* (12)	115* (13)	150* (17)	56* (6.3)
M8	124* (14)	159* (18)	195* (22)	248* (28)	274* (31)	354* (40)	133* (15)
M10	21 (28)	27 (36)	32 (43)	41 (56)	45 (61)	58 (79)	22 (30)
M12	36 (49)	46 (63)	55 (75)	72 (97)	79 (107)	102 (138)	39 (53)
M16	89 (121)	117 (158)	137 (186)	177 (240)	196 (266)	254 (344)	97 (131)
M20	175 (237)	226 (307)	277 (375)	358 (485)	383 (519)	495 (671)	195 (265)
M24	303 (411)	392 (531)	478 (648)	619 (839)	662 (897)	855 (1160)	338 (458)

NOTE: Torque values shown with * are inch pounds.

IDENTIFICATION HEX CAP SCREW AND CARRIAGE BOLTS CLASSES 5.6 AND UP

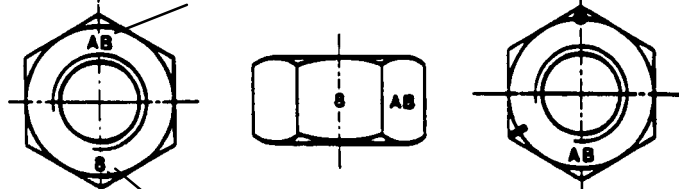
MANUFACTURER'S IDENTIFICATION



PROPERTY CLASS

HEX NUTS AND LOCKNUTS CLASSES 05 AND UP

MANUFACTURER'S IDENTIFICATION



PROPERTY CLASS

CLOCK MARKING

TROUBLESHOOTING

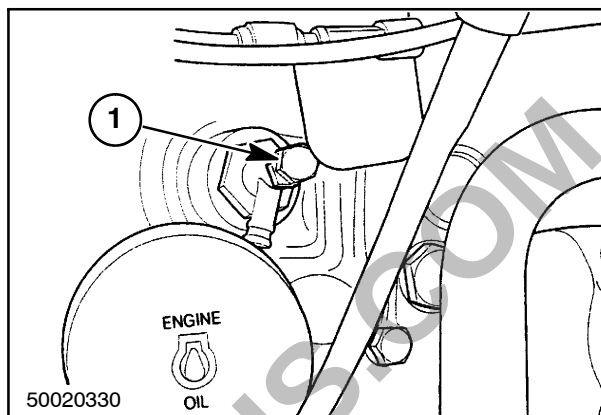
PROBLEM	POSSIBLE CAUSE	CORRECTION
Engine does not develop full power	Clogged air cleaner	Inspect and replace air cleaner if necessary
	Fuel line obstructed	Check for crimped fuel line. Inspect fuel filter for cleanliness
	Improper injection timing	Repair/ replace components as required
	Improper nozzle injection pressure and angle	Check injection timing Inspect for proper injection pressure and angle
	Low cylinder compression	Check engine compression
	Insufficient fuel injection	Repair at authorized shop
	Improper valve lash adjustment	Adjust valves to correct tolerances
	Burned, worn or sticking valves	Inspect and replace as necessary
	Blown head gasket	Replace head gasket
	Worn or sticking piston rings	Overhaul as necessary
	Faulty engine stop solenoid	Replace stop solenoid
Low oil pressure	Engine oil level low	Fill to proper level
	Wrong grade of oil	Replace with correct grade oil
	Clogged oil pump filter	Change oil and filter
	Faulty oil pressure relief valve	Replace relief valve
	Worn oil pump drive shaft gears, or broken oil pipe	Inspect oil system and components. Replace defective components
	Excessive main or connecting rod bearing clearances	Replace bearings or shaft if necessary
	Oil pump axial clearance not properly set	Check pump clearance and shim as needed to proper tolerance
Engine will not stop	Faulty engine stop solenoid	Replace the stop solenoid
	Faulty starter switch	Replace starter switch
Low cylinder compression	Burned, worn or sticking valves	Replace valves
	Bent valve stem	Replace valves
	Broken or weak valve spring	Replace valve spring
	Blown cylinder head gasket	Replace head gasket
	Worn or sticking piston rings	Replace piston rings
	Scored piston	Replace piston
Poor engine idling	Improper injection timing	Correct the injection timing
	Air in injection pump	Purge air from the system
	Improper governor adjustment	Adjust the governor

OVERHAUL

ENGINE

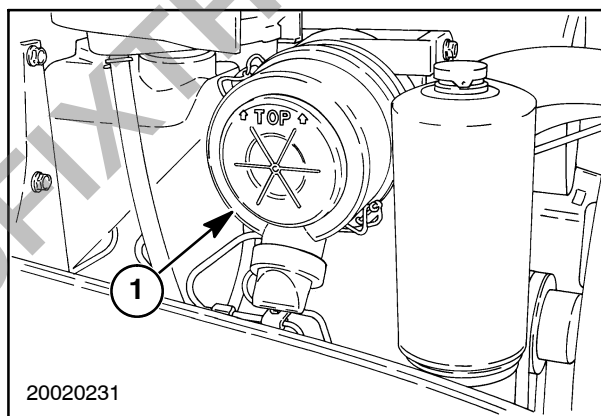
Preparation

1. Turn coolant tap bolt, 1, counterclockwise to drain fluid. Remove the radiator assembly. See "Radiator Removal", discussed later in this section.



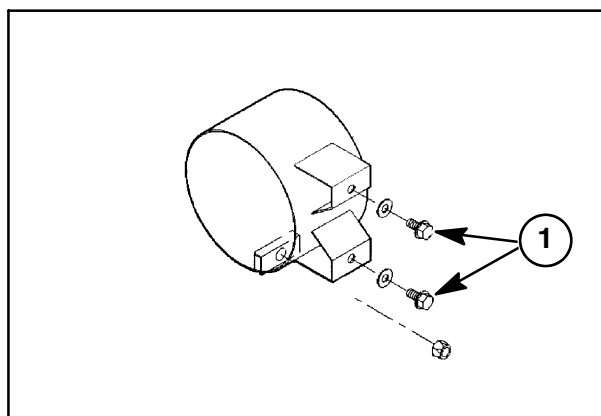
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2. Remove the air cleaner assembly, 1, along with the air cleaner hoses.



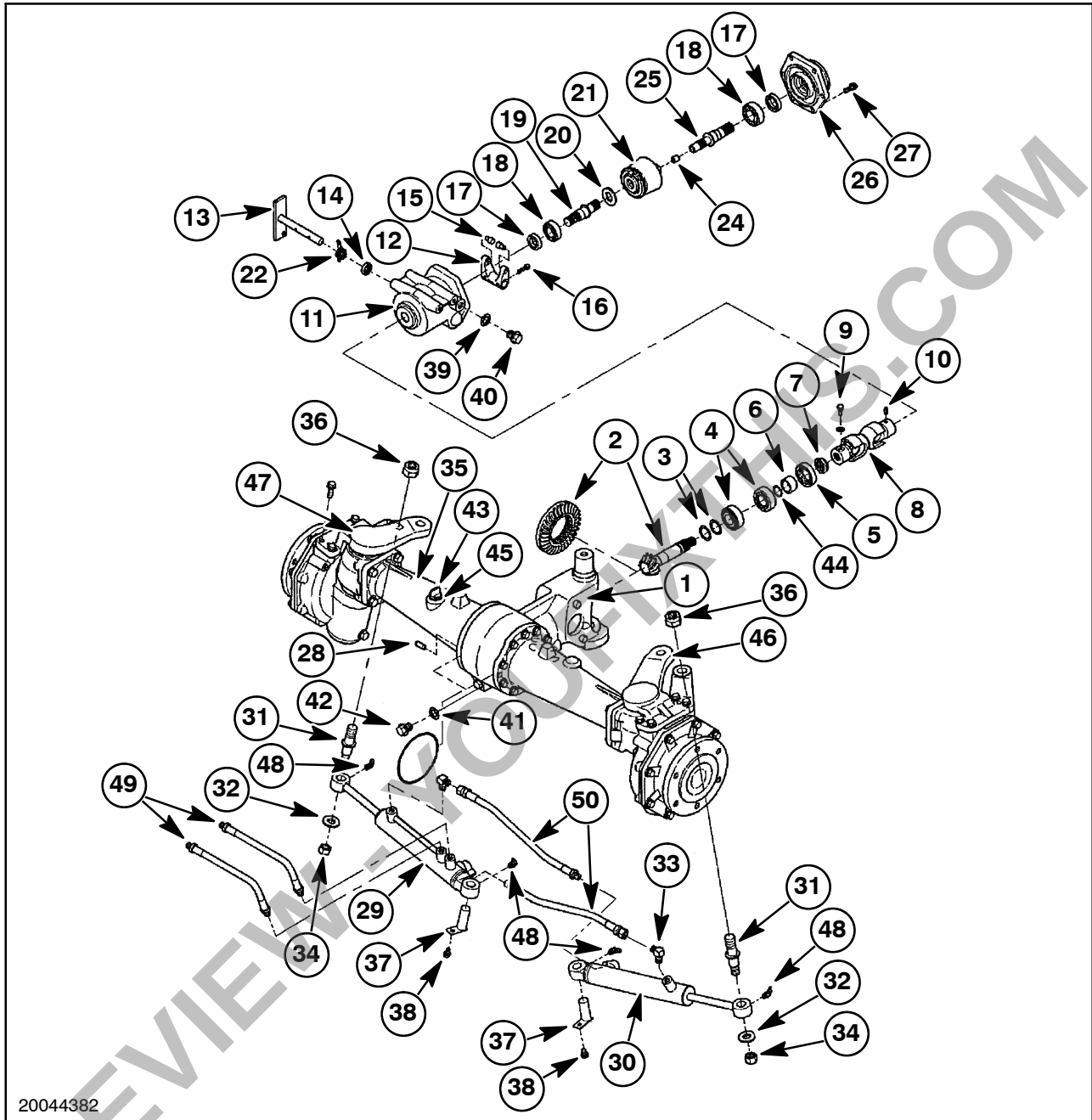
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3. Remove bolts, 1, for final removal of air cleaner assembly.



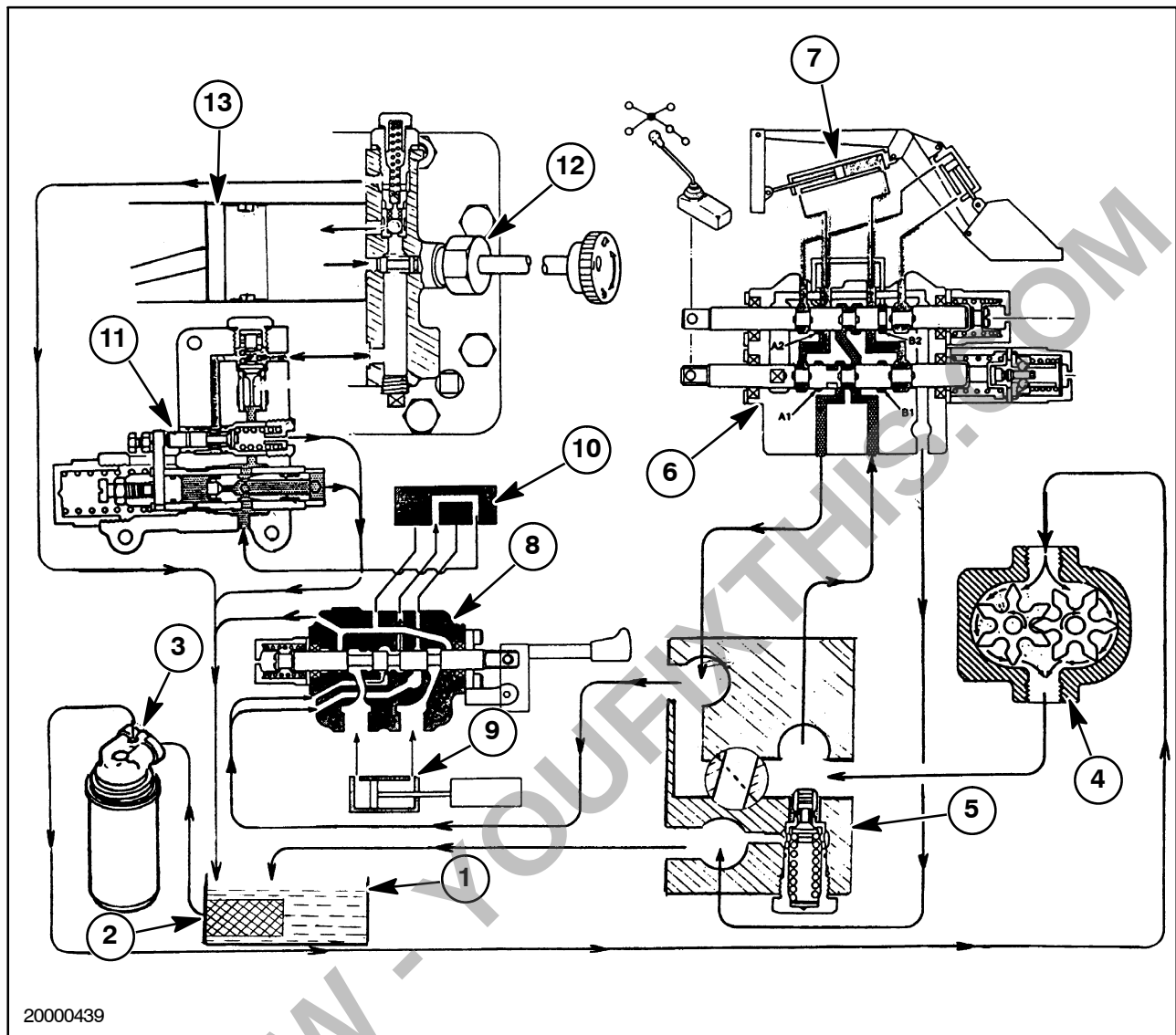
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SUPERSTEER AXLE COMPONENTS



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- | | | | |
|---------------------------|------------------------------|----------------------------|-------------------|
| 1. Casing Assembly | 14. Oil Seal | 27. Bolt M8 x 25 | 39. Seal Washer |
| 2. Drive Pinion Assembly | 15. Block | 28. Pin | 40. Plug |
| 3. Shim | 16. Bolt M6 x 25 Socket Head | 29. R.H. Cylinder Assembly | 41. Seal Washer |
| 4. Tapered Roller Bearing | 17. Oil Seal | 30. L.H. Cylinder Assembly | 42. Plug |
| 5. Oil Seal | 18. Ball Bearing | 31. Pin | 43. Dipstick |
| 6. Collar | 19. Drive Shaft | 32. Spacer | 44. O ring |
| 7. Nut | 20. Thrust Washer | 33. Adapter | 45. Seal Washer |
| 8. Joint | 21. Clutch Assembly | 34. Nut | 46. L.H. Arm |
| 9. Bolt | 22. Thrust Washer | 35. Shaft Housing | 47. R.H. Arm |
| 10. Grease Nipple | 23. Thrust Washer | 36. Nut | 48. Grease Nipple |
| 11. Casing | 24. Bushing | 37. Pin | 49. Hose, 500 mm |
| 12. Shifter Fork | 25. Shaft | 38. Bolt M8 x 12 | 50. Hose, 420 mm |
| 13. Shift Arm | 26. Seal Cover | | |



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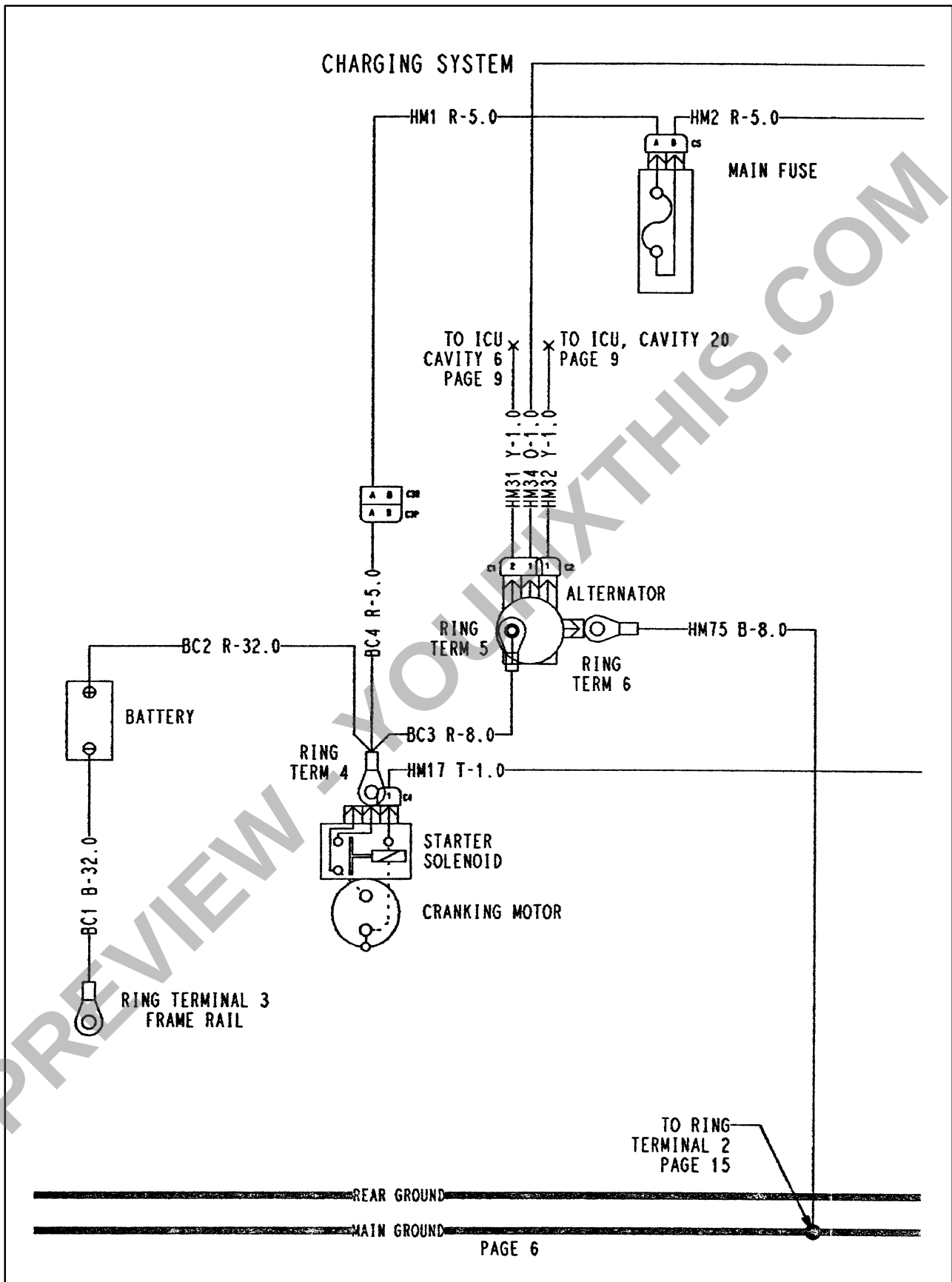
Hydraulic Flow Diagram/Component Description

- | | |
|------------------------------------|--|
| 1. Hydraulic Fluid Reservoir | 8. Rear Single Spool Remote Valve |
| 2. Sump Screen Filter | 9. Rear Remote Lift Cylinder |
| 3. Hydraulic Fluid Filter | 10. Rear Remote Endcap (Attached to HPL Valve) |
| 4. Hydraulic Pump | 11. HPL Valve (Control Valve) |
| 5. Relief/Diverter Valve | 12. Flow Valve |
| 6. Front Double Spool Remote Valve | 13. 3 Point Hitch Lift Piston |
| 7. Front Boom Lift Cylinder | |

FLUID FLOW

Flow Priority

This diagram shows hydraulic oil flow priority within the tractor's hydraulic system.



SECTION 10 - ENGINE

BOOK 1 - 87057408

Chapter 1 - Engine Systems (Continued)

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	Inspection and Replacement	39
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	Assembly	40
	Cylinder Block	40
	Inspection	40

INTERNATIONAL SYMBOLS

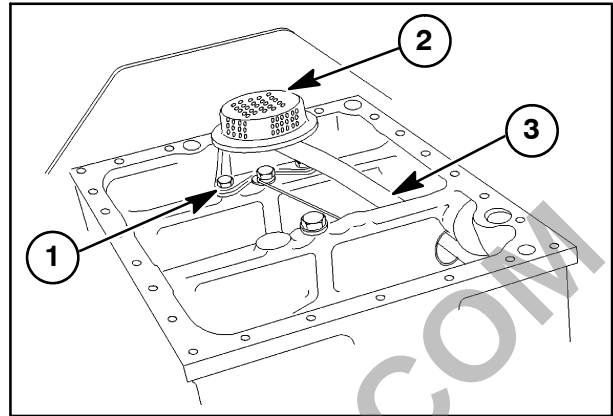
As a guide to the operation of your tractor, various universal symbols have been utilized on the instruments, controls, switches, and fuse box. The symbols are shown below with an indication of their meaning.

	Thermostart starting aid		Radio		P.T.O.		Position Control
	Alternator charge		Keep alive memory		Transmission in neutral		Draft Control
	Fuel level		Turn signals		Creeper gears		Accessory socket
	Automatic Fuel shut-off		Turn signals -one trailer		Slow or low setting		Implement socket
	Engine speed (rev/min x 100)		Turn signals -two trailers		Fast or high setting		%age slip
	Hours recorded		Front wind-screen wash/wipe		Ground speed		Hitch raise (rear)
	Engine oil pressure		Rear wind-screen wash/wipe		Differential lock		Hitch lower (rear)
	Engine coolant temperature		Heater temperature control		Rear axle oil temperature		Hitch height limit (rear)
	Coolant level		Heater fan		Transmission oil pressure		Hitch height limit (front)
	Tractor lights		Air conditioner		FWD engaged		Hitch disabled
	Headlamp main beam		Air filter blocked		FWD disengaged		Hydraulic and transmission filters
	Headlamp dipped beam		Parking brake		Warning!		Remote valve extend
	Work lamps		Brake fluid level		Hazard warning lights		Remote valve retract
	Stop lamps		Trailer brake		Variable control		Remote valve float
	Horn		Roof beacon		Pressurized! Open carefully		Malfunction! See Operator's Manual
			Warning! Corrosive substance				Malfunction! (alternative symbol) See Operator's Manual

OIL SUCTION PIPE AND STRAINER

Removal

1. Remove the two retaining bolts, 1.
2. Remove the oil strainer, 2, and rotate the oil suction pipe, 3, out of its bore. Remove from the front side of the block.

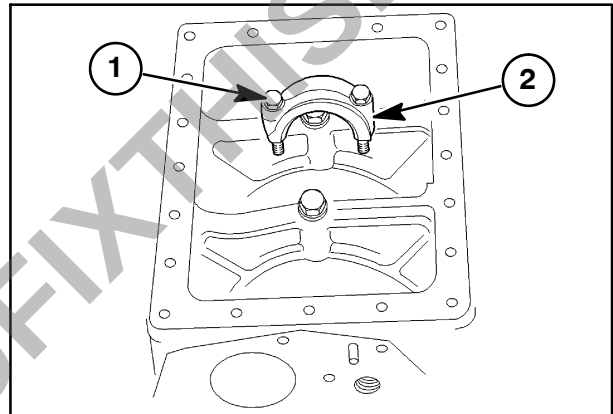


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CONNECTING RODS, BEARINGS, PISTONS AND RINGS

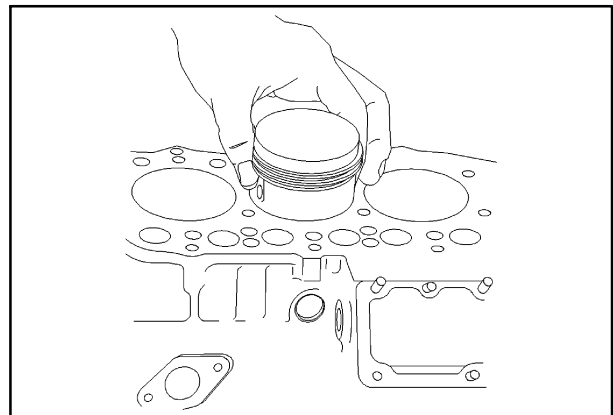
Removal

1. Remove the two bolts, 1, retaining the connecting rod caps, 2.
2. Remove the connecting rod caps and lower half of connecting rod bearing.
3. If necessary, remove any ridge from the top of the cylinder bores using a suitable ridge reamer.



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4. Push the piston and connecting rod out of the cylinder block.
5. Replace the connecting rod cap to the piston assembly it was removed from. Keep together in cylinder sequence.



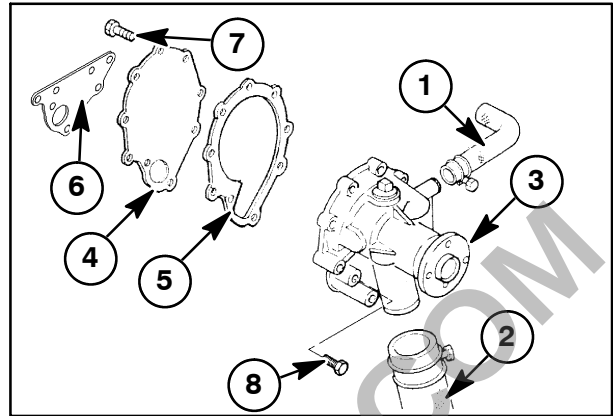
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Inspection and Repair

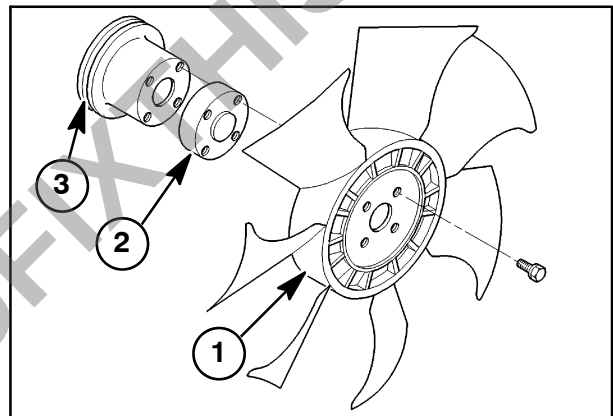
Inspect the water pump for indications of coolant leakage from around the pump shaft. If coolant leakage is evident, or if the water pump is noisy when running, replace the water pump.

Installation

1. Install the water pump mounting plate, 4, and new gasket, 5.
2. Install the water pump, 3, and new gasket, 6, and tighten the retaining bolts, 7 and 8.
3. Install the bypass hose, 1, and lower radiator hose, 2, on the water pump and tighten the hose clamps.
4. Install the pulley, 3, fan holder, 2, and cooling fan, 1, and tighten the attaching bolts.

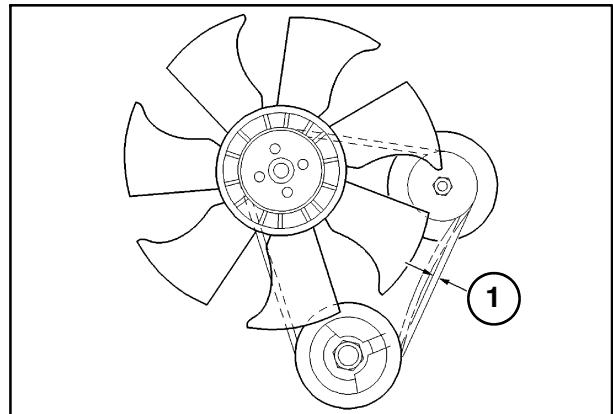


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5. Install the drive pulley and adjust the alternator drive belt tension to obtain a deflection, 1, of 5 - 10 mm when 5 kg (11 lbs.) is applied between the pulleys and tighten the alternator mounting bolts.
6. Install the radiator assembly. See "Radiator Installation" discussed earlier in this section.



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SPECIFICATIONS

	MODEL TC29DA HST	MODEL TC33DA HST	MODEL TC29DA - 9 x 3 TC33DA - 9 x 3
ITEM	SINGLE CLUTCH	SINGLE CLUTCH	DOUBLE CLUTCH
No. of Clutch Plates	1 (2 Facings)	1 (2 Facings)	2 (4 Facings)
Facing: Outside Diameter	215 mm (8.46")	225 mm (8.86")	215 mm (8.46") 225 mm (9.86") Trans 215 mm (8.46") PTO > TC33DA
Inside Diameter	130 mm (5.12")	150 mm (5.90")	150 mm (5.90")
Thickness	3.2 mm (0.1259")	3.2 mm (0.1259")	3.2 mm (0.1259")
Height of Release Lever	54 +/- 0.6 mm (2.3" +/- 0.0197")	35.5 +/- 1.0 mm (1.40" +/- 0.04")	96.5 +/- 0.7 mm (3.80" +/- 0.276")
Clearance Between Driveshaft and Clutch Disc	0.50 - 0.1 mm (0.0078 - 0.0039")	0.50 - 1.00 mm (0.0078 - 0.0137")	0.050 - 0.1 mm (0.0028 - 0.11")
Allowable Clearance Limit	0.6 mm (0.0236")	0.6 mm (0.0236")	0.25 mm (0.0098")
Clearance Between Driveshaft and Clutch Disc in the Rotational Direction	0.050 - 0.1 mm (0.0019 - 0.0039")	0.2 - 0.35 mm (0.0019 - 0.0039")	0.050-0.1 mm (0.0019 - 0.0039")
Allowable Clearance Limit	0.25 mm (0.0098")	0.8 mm (0.0098")	0.25 mm (0.0098")
Clearance Between Retainer and Hub	0.025 - 0.1 mm (0.009 - 0.0039")	0.025 - 0.1 mm (0.009 - 0.0039")	0.025 - 0.1 mm (0.009 - 0.0039")
Allowable Clearance Limit	0.8 mm (0.0314")	0.8 mm (0.0314")	0.8 mm (0.0314")
Length of Release Hub Return Spring	1.28" (32.5 mm)	1.28" (32.5 mm)	1.28" (32.5 mm)
Thickness of Clutch Disc	8.6 mm (0.34")	8.0 mm (0.315")	8.1 mm (0.32") Main and PTO
Allowable Limit	7.2 mm (0.28")	7.2 mm (0.28")	7.2 mm (0.28")
Depth of Clutch Rivets	1.2 mm (0.0472")	1.2 mm (0.0472")	1.2 mm (0.0472")
Allowable Limits	0.3 mm (0.012")	0.3 mm (0.012")	0.3 mm (0.012")
Height of Release Lever from Flywheel Surface	54 mm (2.13")	35.5 mm (1.40")	96.5 mm (3.80"*)
Allowable Limit	53.2 - 54.8 mm (2.09 - 2.16")	34.5 - 36.5 mm (1.36 - 1.44")	35.8 - 37.2 mm (3.77 - 3.83")
Deflection of Clutch Disc	Max. 1.0 mm (0.039")	Max. 1.0 mm (0.039")	Max. 1.0 mm (0.039")
Standard Clutch Pedal Free-Play	19 - 30 mm (0.79 - 1.18")	19 - 30 mm (0.79 - 1.18")	19 - 30 mm (0.79 - 1.18")
Flywheel Surfacing Maximum Limit	1.27 mm (0.050")	1.27 mm (0.050")	1.27 mm (0.050")

INSPECTION

1. Wash all components using a suitable cleaning solvent and dry air.
2. Inspect all bearings for excess wear, score marks, discoloration from overheating, or other damage. Rotate the bearings by hand and check for roughness while slowly rotating the inner and outer races.
3. Lubricate all bearings with a clean lubricant, AMBRA MULTI G134 or equivalent, before installation.
4. Inspect the transmission case for pitting, cracks, worn bearing bores, or other damage.
5. Check the detent springs for wear, chipped or weak spring tension.
6. Inspect the detent balls for pitting, excess wear, or other damage.
7. Inspect the shift rail detent grooves for excess wear.
8. Inspect the clearance between the shifter rod and its housing bearing. Clearance should be 0.03 - 0.1 mm (0.001 - 0.004"). The maximum wear limit is 0.3 mm (0.0118").
9. Inspect all gears for excess wear, chipped teeth, or other damage. Check the gear backlash by inserting the mating assemblies into the casing and using a feeler gauge. Gear backlash should be between 0.4 - 0.16 mm (0.016 - 0.006"), with a maximum wear limit of 0.6 mm (0.0236").
10. Inspect the shift forks for excess wear, bending, or other damage. Check the clearance between the shifter fork and slide gear. The clearance should be between 0.2 - 0.4 mm (0.008 - 0.016"), and the maximum wear limit of 1.0 mm (0.0394").

ASSEMBLY

Preparation

1. Lubricate all parts thoroughly with clean transmission fluid, AMBRA MULTI G134 or equivalent, prior to assembly.
2. Install new gaskets and seals during assembly.

DIFFERENTIAL

Inspection

1. Wash all parts in a suitable solvent and air dry.
2. Using a telescoping gauge and micrometer, measure the pinion gear bore and the pinion shaft and determine the gear to shaft clearance. Replace the gear and/or shaft if the clearance exceeds 0.25 mm (0.01").
3. Measure the differential to side gear thrust washer thickness. Replace the thrust washers if the thickness is less than 0.9 mm (0.0354").

NOTE: If the thrust washers are replaced, recheck the side gear to pinion gear backlash during assembly. Refer to backlash check made during disassembly.

4. Inspect all gear teeth for excess wear or damage. Replace gears if teeth wear is excessive.

FRONT AXLE AND DIFFERENTIAL

Assembly

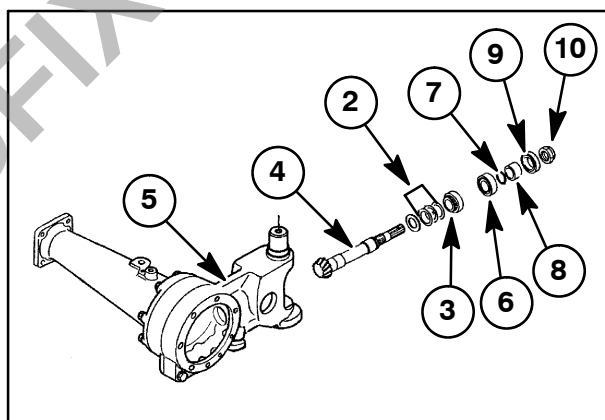
1. Install the shims, 2, and front pinion bearing, 3, on the drive pinion, 4, on the differential housing, 5.

NOTE: Shim sizes are 0.1 mm (0.004 ") and 0.2 mm (0.008 ").

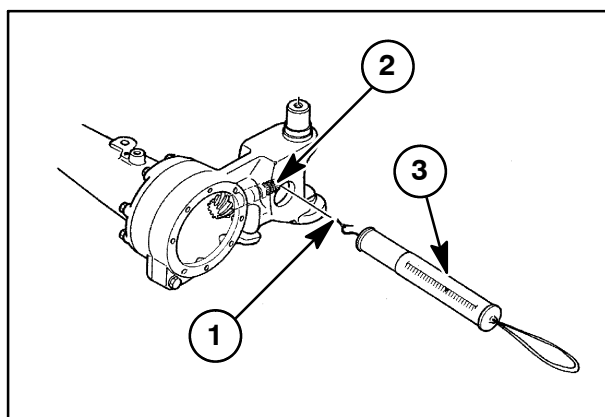
2. Insert the pinion in place in the differential housing, 5.
3. Install the outer bearing, 6, on the pinion shaft in the differential housing.
4. Install O ring, 7, collar, 8, on the shaft. Using a suitable driver install oil seal, 9.
5. Install the pinion locknut, 10, and tighten to obtain the correct bearing preload as follows:

Wrap a strong cord, 1, around the pinion shaft, 2. Using a pull scale, 3, measure the pounds pull to rotate the pinion shaft.

Tighten or loosen the locknut as necessary to obtain a preload of 12.5 - 15.6 kg (27.6 - 34.4 lbs.) pull.

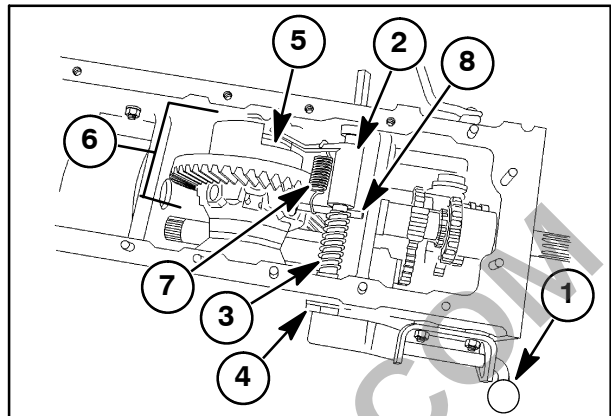


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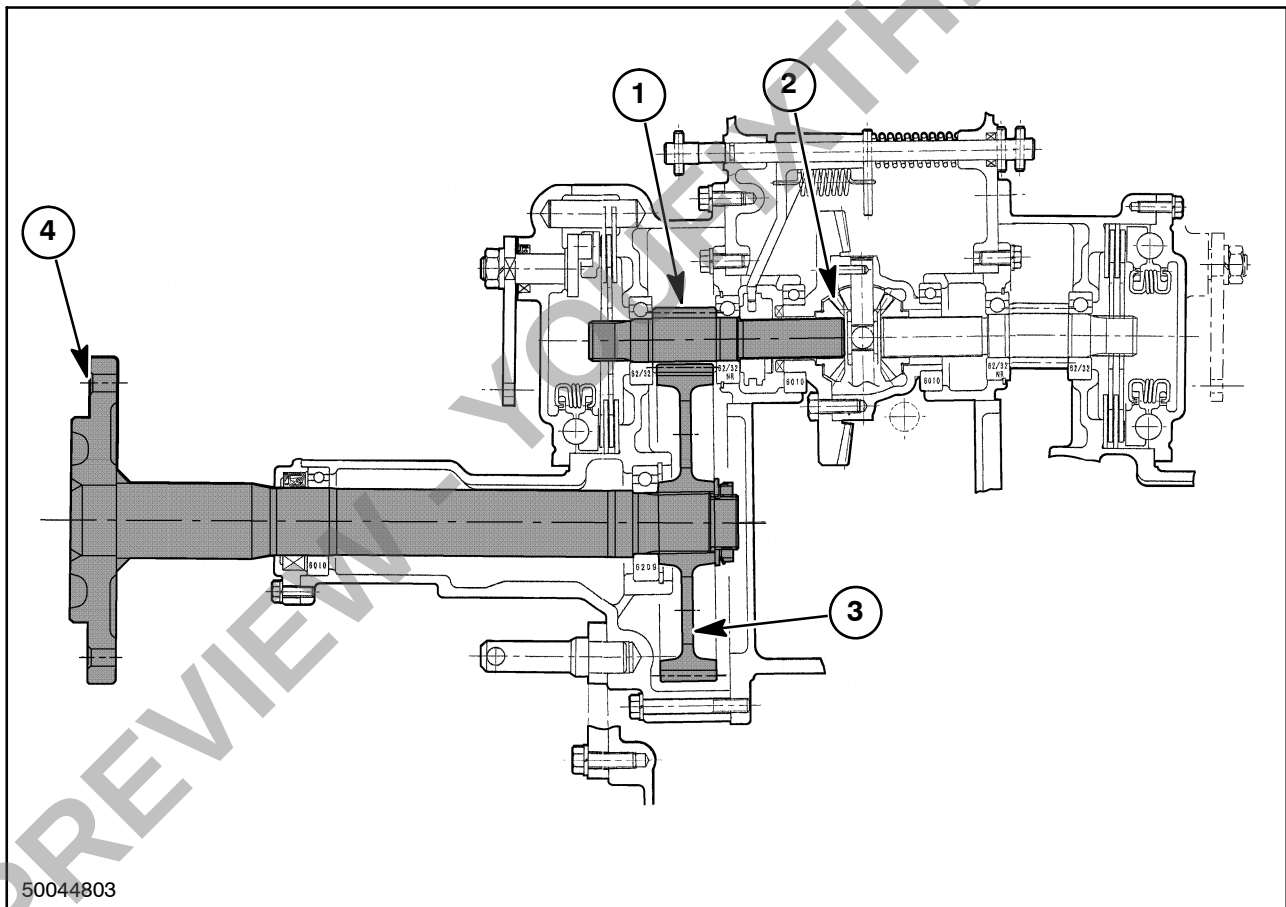
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5. Slide differential lock shaft, 4, into differential assembly, 6, while installing fork, 2, into clutch, 5, spring, 7, roll pin, 8, and return spring, 3. Install oil seal and O ring into housing then secure shaft with spring pins on outside of housing to differential lock pedals, 1.



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DESCRIPTION OF OPERATION - REAR AXLE



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The final drive pinion gear/shaft assemblies (11T), 1, are splined to the side gears, 2, and are meshed with the final reduction drive gear (65T), 3. As the final drive pinions rotate with the differential assembly, power is delivered to the final drive gears and rear axles, 4.

NEUTRAL VALVE

Disassembly

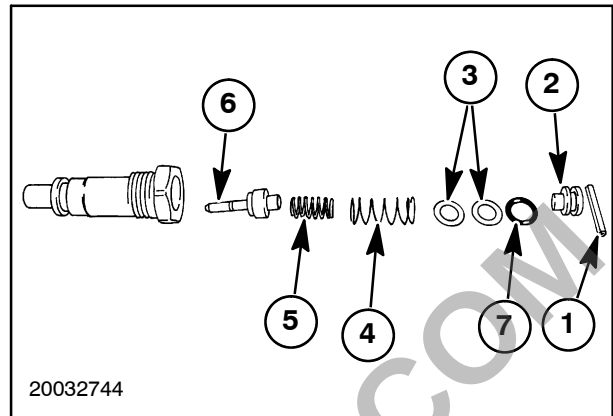
1. The neutral valves can be disassembled if needed. Drive roll pin, 1, from valve body, remove end cap, 2, shims, 3, outer spring, 4, inner spring, 5, and valve poppet, 6. O ring, 7, can be replaced on end cap if needed.

Inspection

2. Check valve body for damage to the poppet seat or for contamination. Insert poppet into valve body and check for binding during poppet travel in valve bore.

Assembly

3. To reassemble, insert poppet, 6, inner spring, 5, outer spring, 4, shims, 3, end cap with O ring, 2. While pushing end cap into valve body drive roll pin, 1, into valve body.



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CHARGE PUMP RELIEF VALVE

The charge pump relief valve, 1, functions to maintain approximately 5.2 - 6.6 bar (75 - 95 psi) of pressure in the oil supply system to the piston pump at all times. Excess oil not required by the piston pump is returned to the sump via the charge pump relief valve.

Disassembly

Remove the spring and valve, 1, from the hydrostatic motor side of the port block, 2.

Inspection

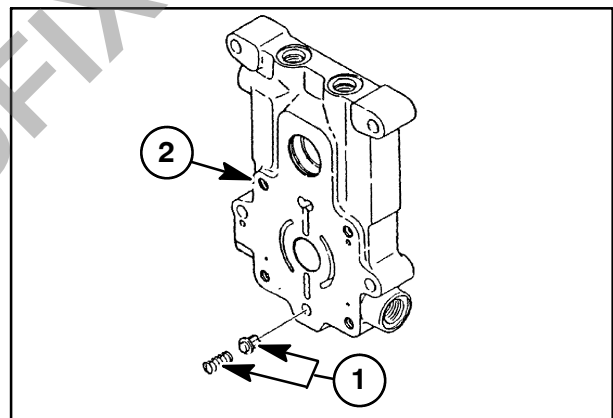
1. Inspect the valve seat for excess wear or scoring. Check the valve in the bore for a sticking or binding condition.
2. Inspect the valve spring for wear or damage.

NOTE: If damage is observed, replace the valve and spring as a kit assembly.

Assembly

Install the valve and spring, 1, in the motor side of the port block, 2.

NOTE: Use petroleum jelly to retain spring to motor housing during assembly. Do not use grease.



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OVERHAUL

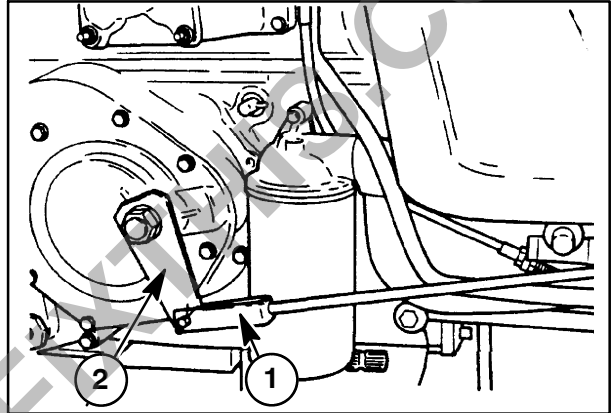
Op. 33 120

BRAKES

Removal

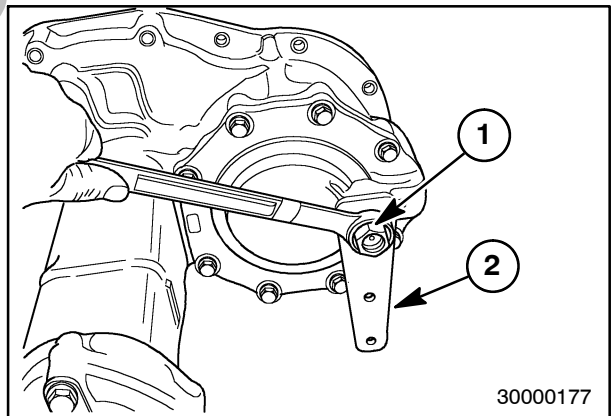
NOTE: The brakes may be serviced with the axle case attached to the differential housing, but if final pinion service is required, the axle case must be removed from the differential housing.

1. Disconnect the brake rod clevis, 1, from the brake arm, 2.



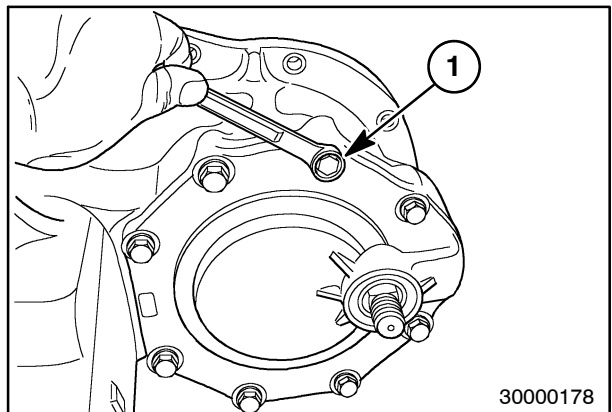
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2. Loosen and remove the retaining nut, 1, on the brake lever, 2. Remove the brake lever, 2, from the brake cam.

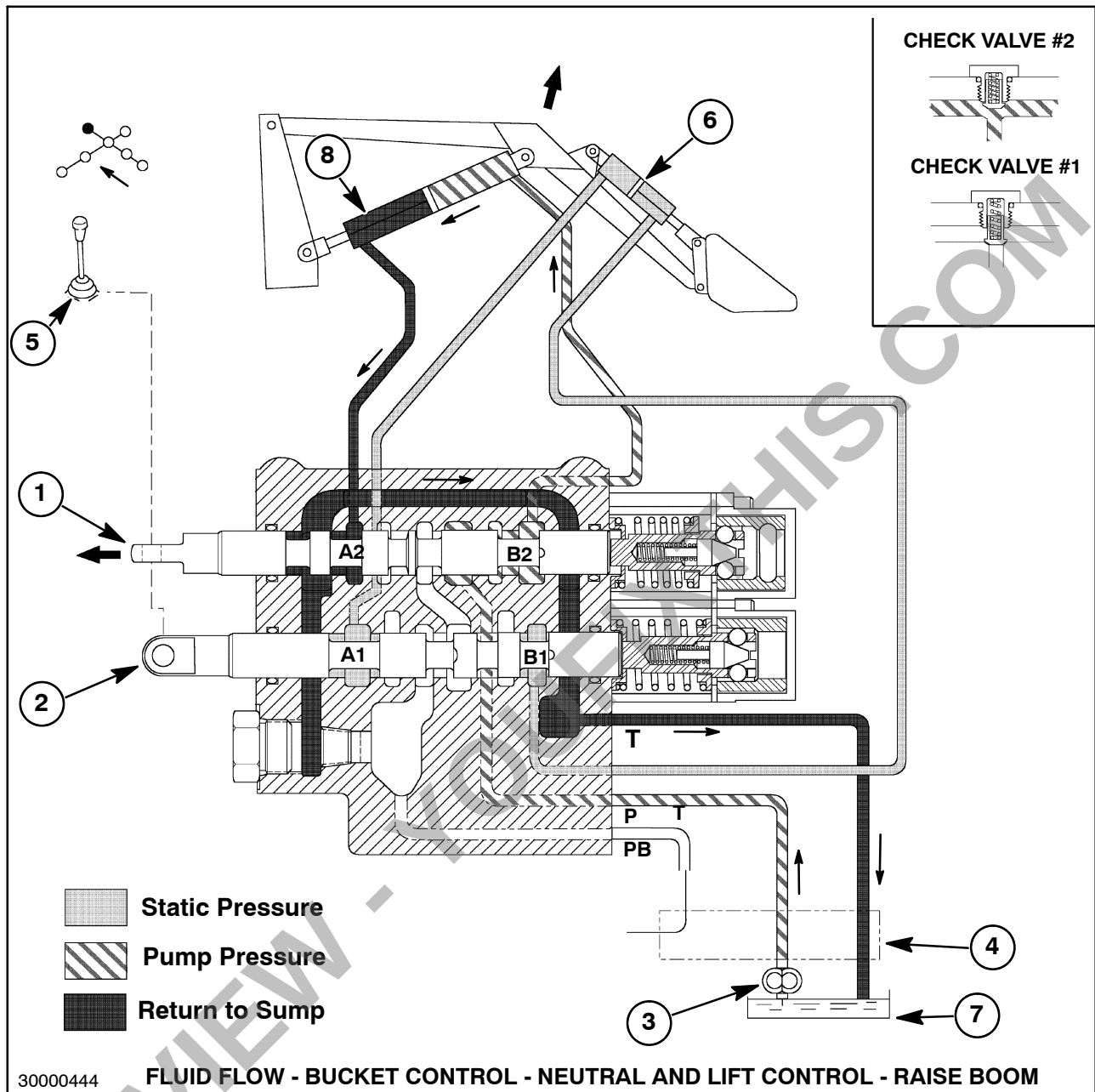


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3. Loosen and remove the brake cover retaining bolts, 1.



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Op. 35 184

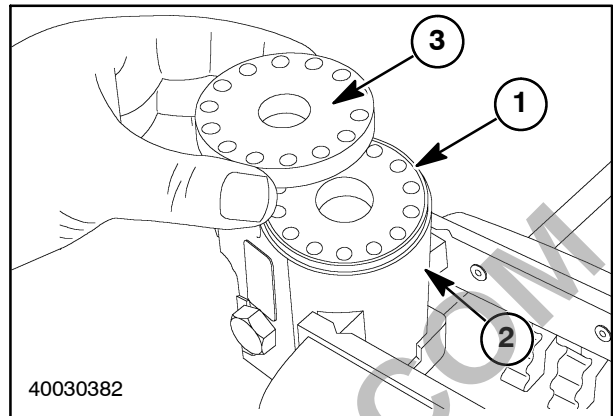
**Bucket Control - Neutral and Lift
Control - Raising - Front (double spool)
Remote Control System**

When the control lever, 5, is moved to the raising position, the lift control valve spool, 1, is moved outward. Fluid flows from the hydraulic pump, 3, opens check valve #2, and is directed through passage "B2". Fluid is then directed to the piston side of the lift control cylinder, 8. The hydraulic fluid on the rod side of the lift cylinder flows out of the cylinder to the "A2" passage. The fluid then exits the valve body

through the "T" port, to the diverter valve manifold, 4, and then to the hydraulic fluid reservoir, 7. This allows the implement boom to raise.

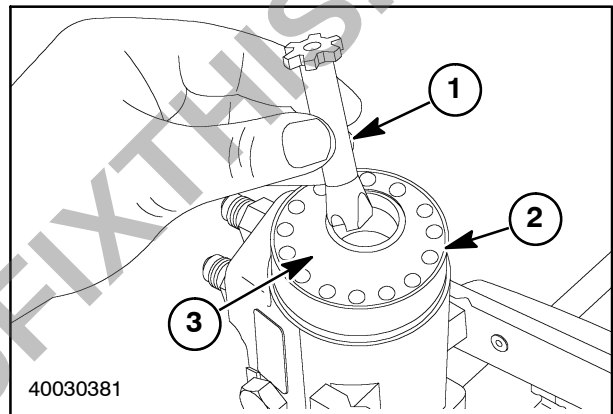
Since the bucket control spool, 2, remains in the neutral position, the bucket control cylinder remains in a fixed position.

17. Lubricate a new O ring, 1, with petroleum jelly and install in the groove of the housing, 2.
18. Install the wear plate, 3, onto the housing. Be sure to align the holes as well as the paint marks made during disassembly.



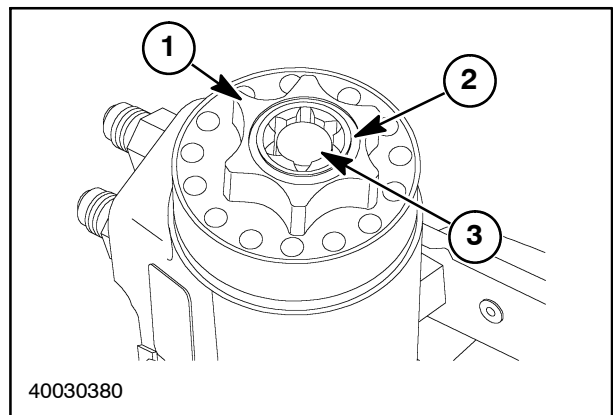
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19. Install the drive shaft, 1. Be sure to engage the slot in the drive shaft with the pin.
20. Lubricate a new O ring, 2, with petroleum jelly and install in the groove of the wear plate, 3.



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21. Install the rotor, 1, on the drive shaft.
22. Lubricate a new O ring, 2, with petroleum jelly and install in the groove on the rotor.
23. Install the spacer, 3.

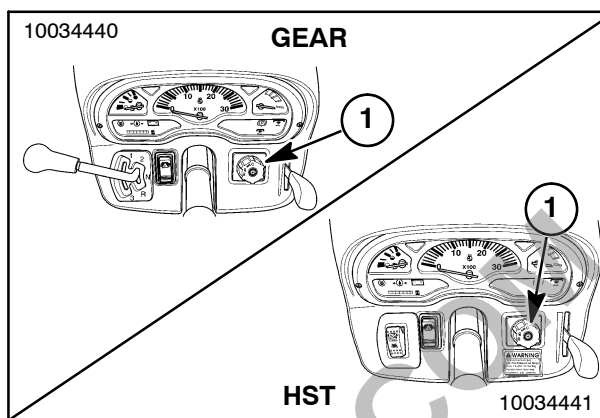


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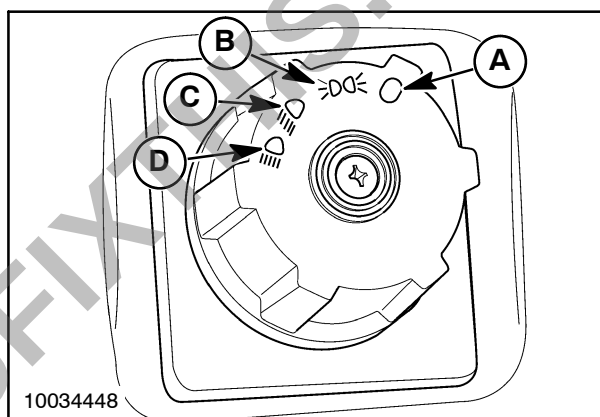
LIGHT SWITCH**Description**

The light switch, 1, is located on the right side of the dash panel. This is a rotary type switch that has four positions: (rotating clockwise from "OFF" position)

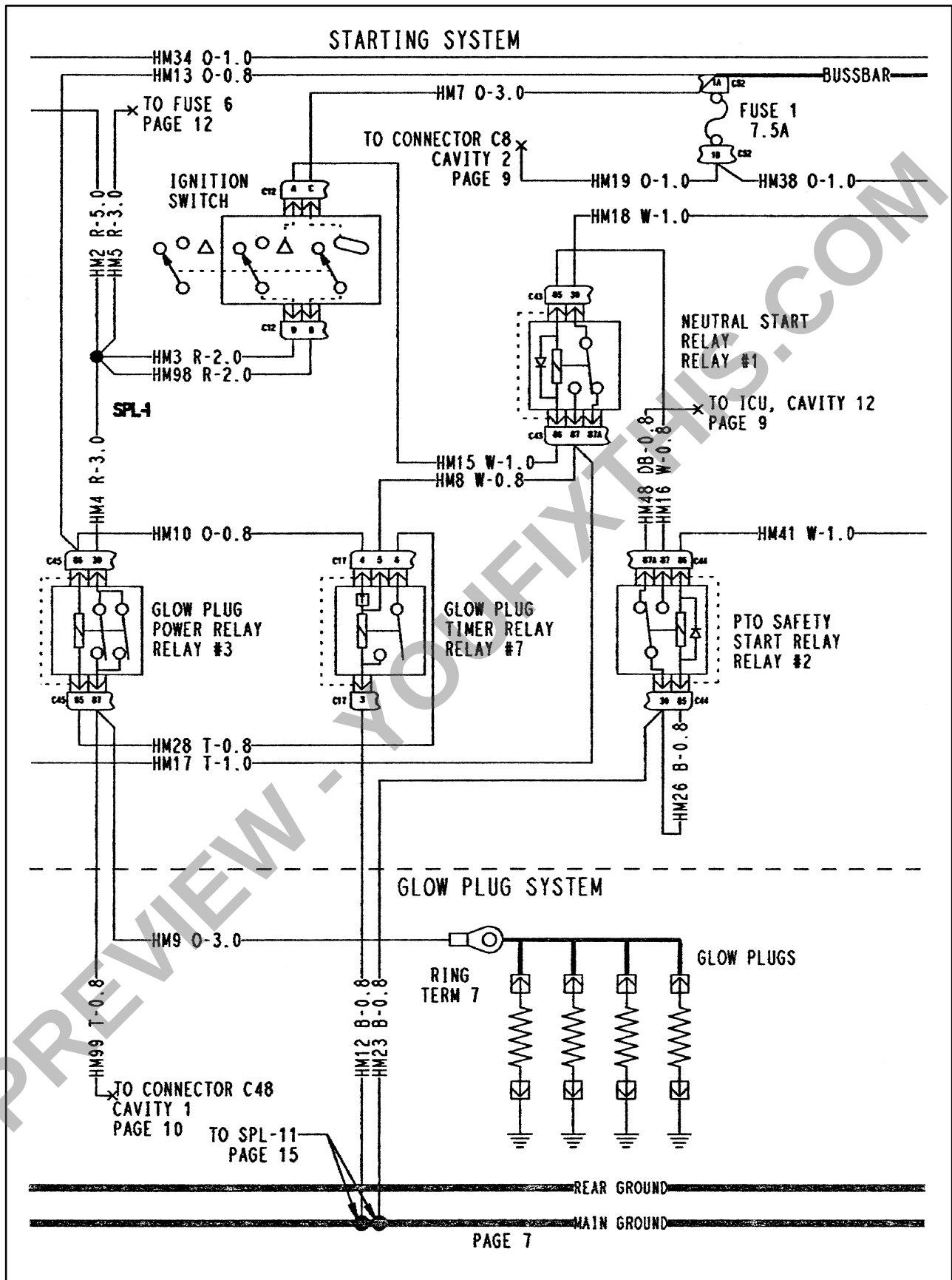
- A. Off
- B. Instrument panel and Taillights
- C. Work lights, Instrument panel and Taillights
- D. Road lights, Work lights, Instrument panel and Taillights (A blue high beam indicator light will illuminate in the instrument panel when the road and work lights are illuminated)

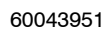


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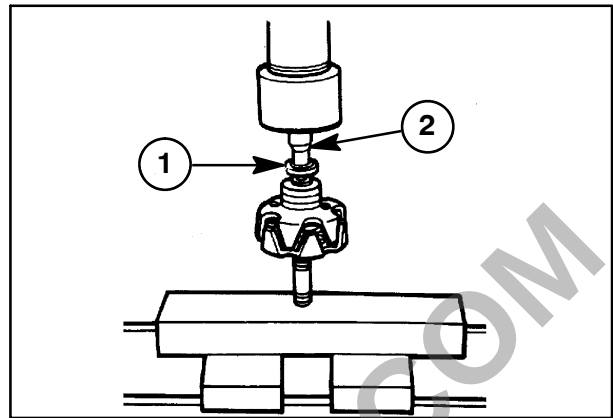


Assembly (See Figure 24)

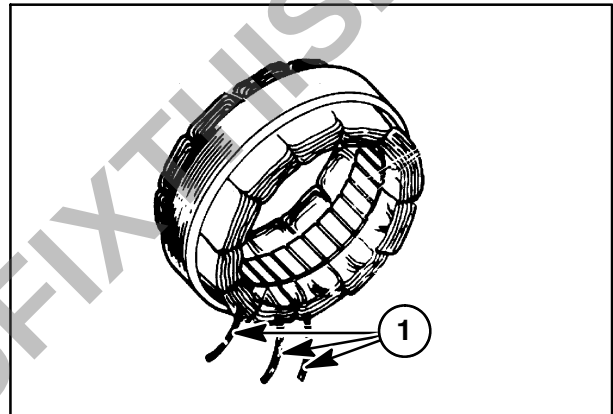
Assembly of the alternator generally follows the disassembly procedure in reverse with the exception of the following:

1. If the rotor shaft bearings were removed, install the bearings, 1, using a suitable driver, 2, that contacts the bearing inner race only.
2. Solder the stator wire leads, 1, to the rectifier observing the following requirements:
 - a. Clean the stator wire leads and rectifier terminals.
 - b. Form a firm wire connection between the wire and the terminals.
 - c. Preheat the soldering iron and solder the wires using a resin core solder. Hold the rectifier terminal with a needle nose plier just below the joint while soldering. The plier will absorb the heat from the soldering operation and protects the rectifier.
 - d. After soldering, quickly cool the connection with a dampened cloth.
3. Push the brushes, 1, into the brush holders to compress the spring, 3, and insert a wire, 2, to hold them in the raised position. Install the rotor and remove the wire.

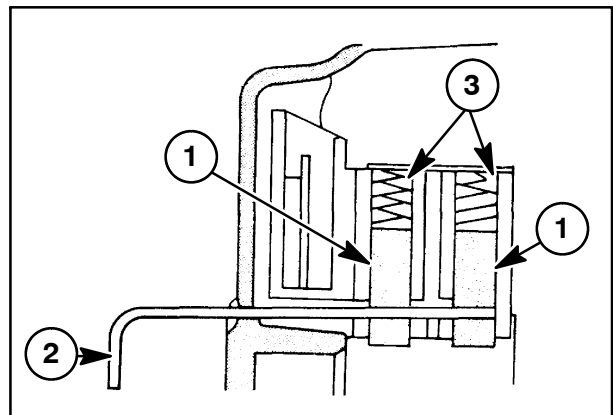
NOTE: Since the rear bearing and rear bracket fitting is tight, heat the bearing box in the rear bracket to 122 - 140 °F (50 - 60 °C) before installing rotor.



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