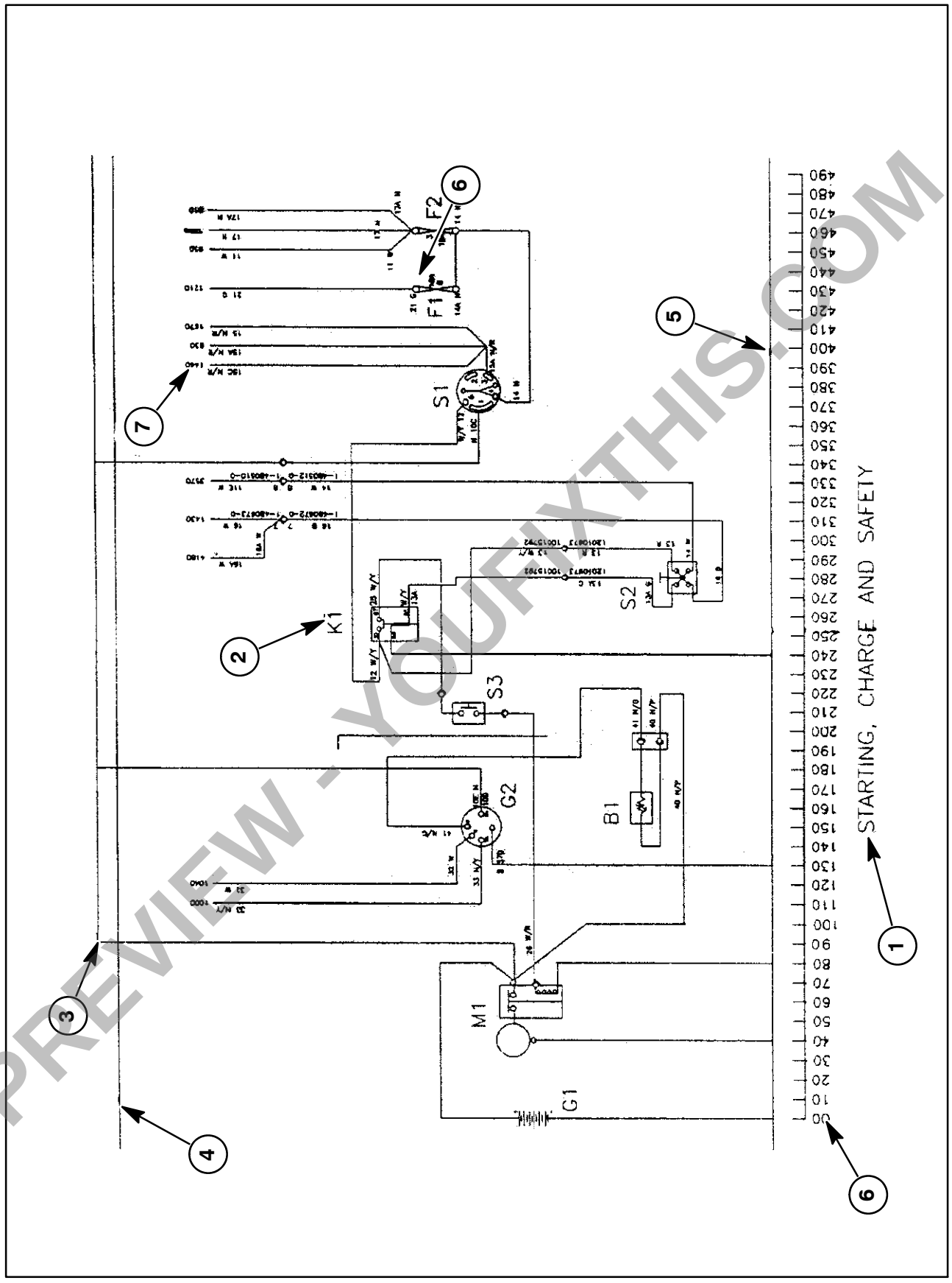
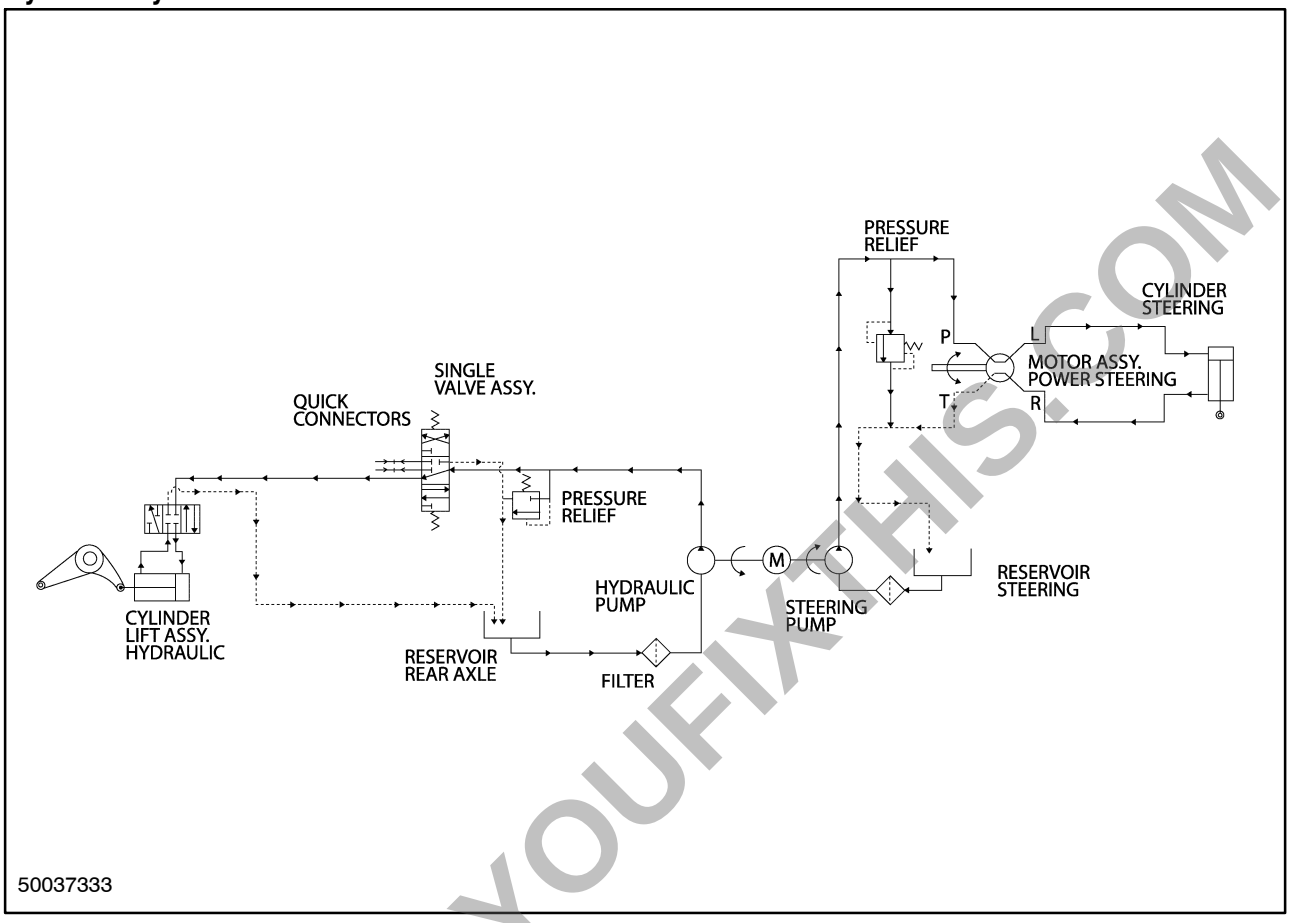


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Hydraulic System with One Remote Valve Installed



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MINIMUM HARDWARE TIGHTENING TORQUES

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

INCH HARDWARE AND LOCKNUTS

NOMINAL SIZE	SAE GRADE 2		SAE GRADE 5		SAE GRADE 8		LOCKNUTS		NOMINAL SIZE
	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	GR.B w/GR5 BOLT	GR.C w/GR8 BOLT	
1/4	55* (6.2)	72* (8.1)	86* (9.7)	112* (13)	121* (14)	157* (18)	61* (6.9)	86* (9.8)	1/4
5/16	115* (13)	149* (17)	178* (20)	229* (26)	250* (28)	324* (37)	125* (14)	176* (20)	5/16
3/8	17 (23)	22 (30)	26 (35)	34 (46)	37 (50)	48 (65)	19 (26)	26 (35)	3/8
7/16	27 (37)	35 (47)	42 (57)	54 (73)	59 (80)	77 (104)	30 (41)	42 (57)	7/16
1/2	42 (57)	54 (73)	64 (87)	83 (113)	91 (123)	117 (159)	45 (61)	64 (88)	1/2
9/16	60 (81)	77 (104)	92 (125)	120 (163)	130 (176)	169 (229)	65 (88)	92 (125)	9/16
5/8	83 (112)	107 (145)	128 (174)	165 (224)	180 (244)	233 (316)	90 (122)	127 (172)	5/8
3/4	146 (198)	189 (256)	226 (306)	293 (397)	319 (432)	413 (560)	160 (217)	226 (306)	3/4
7/8	142 (193)	183 (248)	365 (495)	473 (641)	515 (698)	667 (904)	258 (350)	364 (494)	7/8
1	213 (289)	275 (373)	547 (742)	708 (960)	773 (1048)	1000 (1356)	386 (523)	545 (739)	1

NOTE: Torque values shown with * are inch pounds.

IDENTIFICATION
CAP SCREWS AND CARRIAGE BOLTS



SAE GRADE 2



SAE GRADE 5



SAE GRADE 8



REGULAR NUTS



SAE GRADE 5 HEX NUTS



SAE GRADE 8 HEX NUTS

LOCKNUTS



GRADE IDENTIFICATION

GRADE A NO NOTCHES

GRADE B ONE CIRCUMFERENTIAL NOTCH

GRADE C TWO CIRCUMFERENTIAL NOTCHES



GRADE IDENTIFICATION

GRADE A NO MARKS

GRADE B THREE MARKS

GRADE C SIX MARKS

MARKS NEED NOT BE LOCATED AT CORNERS



GRADE A NO MARK
GRADE B LETTER B
GRADE C LETTER C

GRADE IDENTIFICATION

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ENGINE REMOVAL

⚠ DANGER ⚠

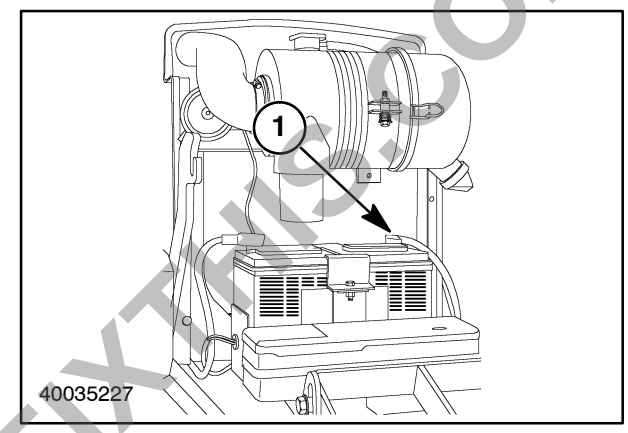
Lift and handle all heavy parts using suitable lifting equipment.
Ensure to support load by means of suitable slings and hooks.
Ensure no-one is standing in the vicinity of the load to when lifting.

⚠ CAUTION ⚠

Always use suitable tools to align holes in parts. NEVER USE YOUR FINGERS OR HANDS.

Before removing engine:

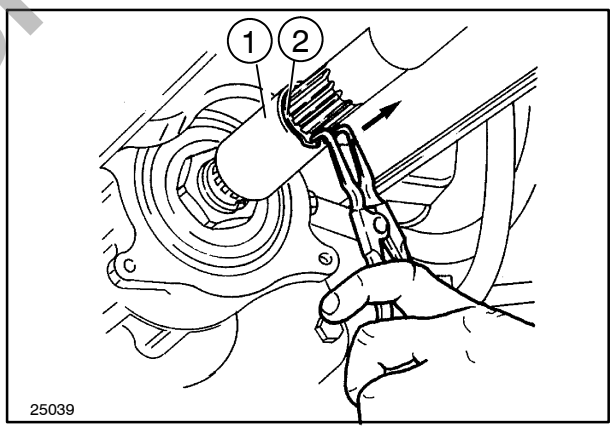
- Disconnect the negative lead (1), from the battery.
- Drain oil from the transmission/gearbox.
- Drain liquid from cooling system.



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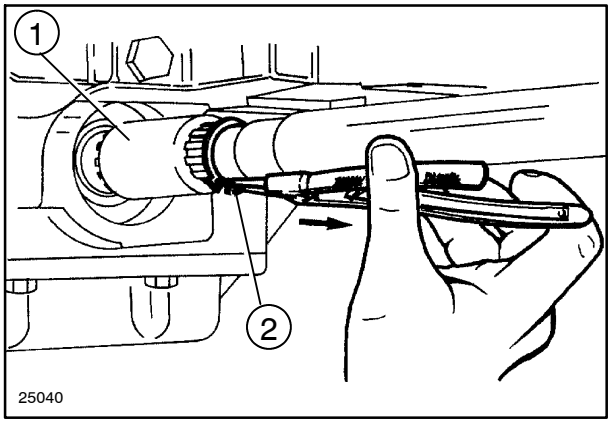
On FWD Models:

1. Remove the circlip (2), and slide the sleeve (1) in the direction shown by the arrow until free of the splines on the front axle.



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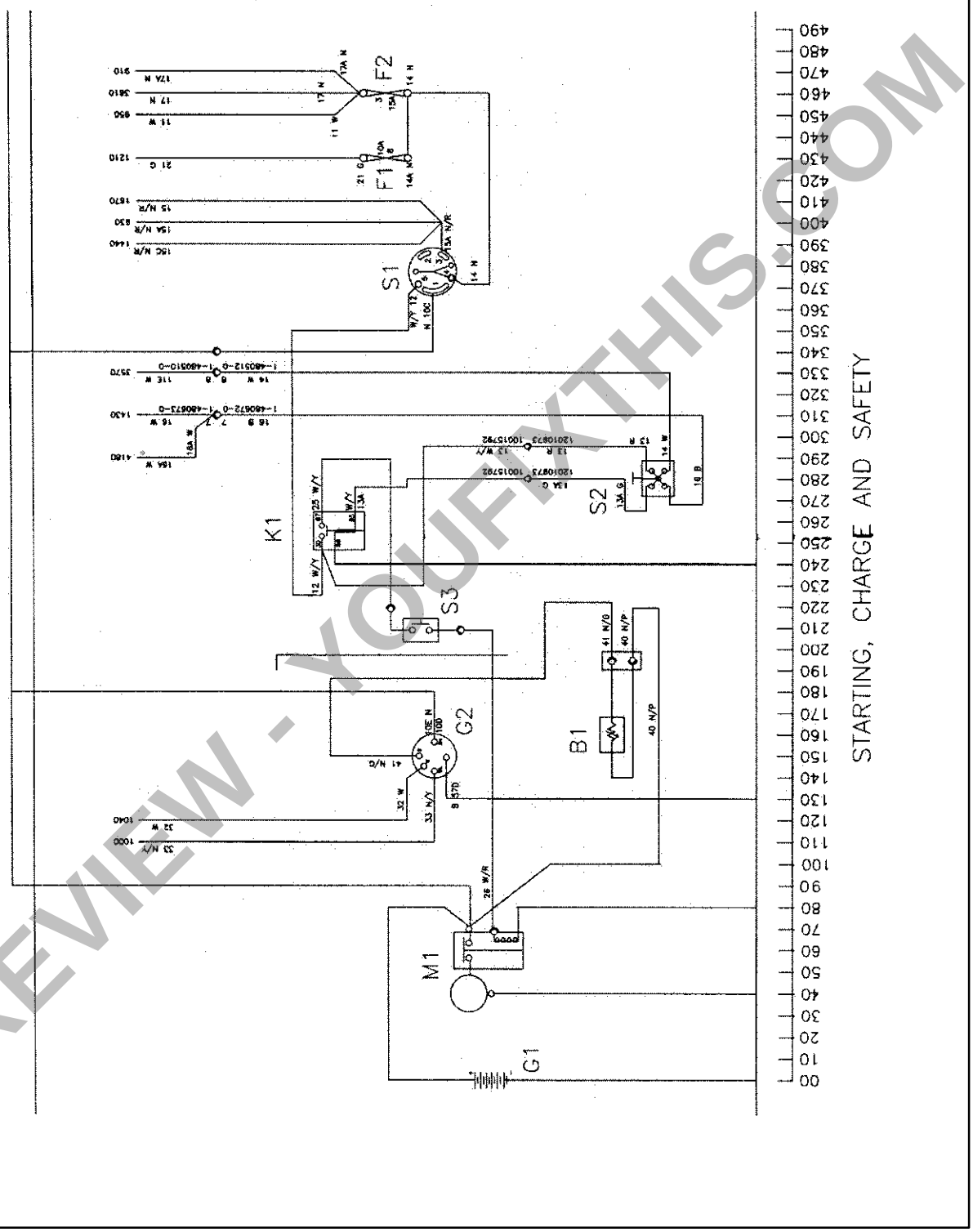
2. Remove the circlip (2) and slide the sleeve (1) in the direction shown by the arrow until it is free of the spines on the drive shaft.



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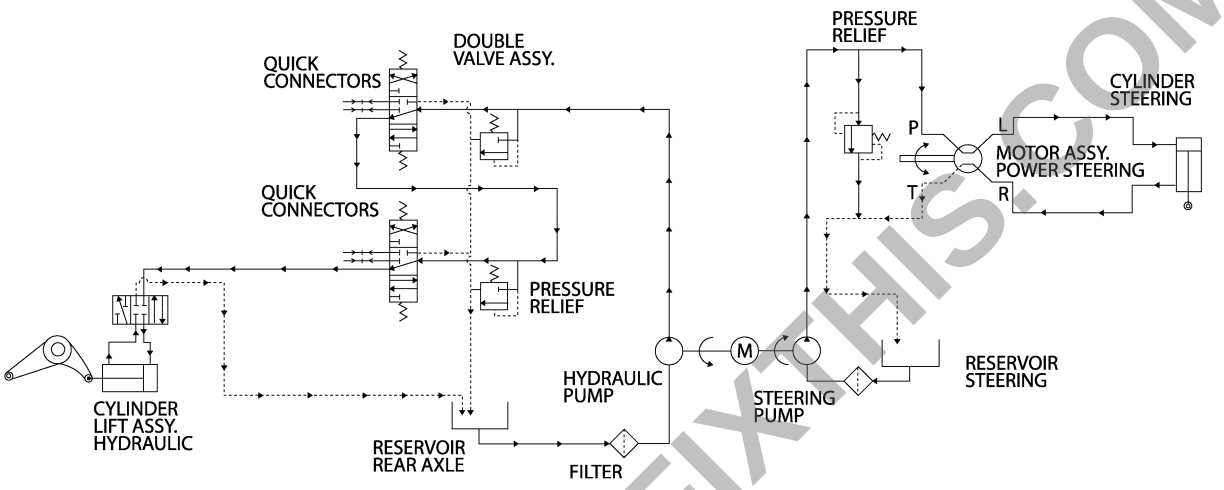


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Hydraulic System with Two Remote Valves Installed



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MINIMUM HARDWARE TIGHTENING TORQUES

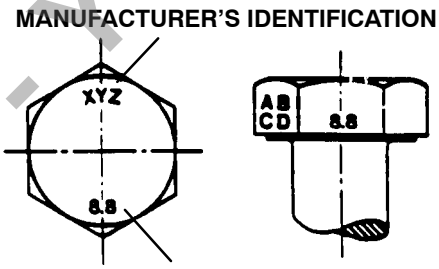
IN FOOT POUNDS (NEWTON-METERS) FOR NORMAL ASSEMBLY APPLICATIONS

METRIC HARDWARE AND LOCKNUTS

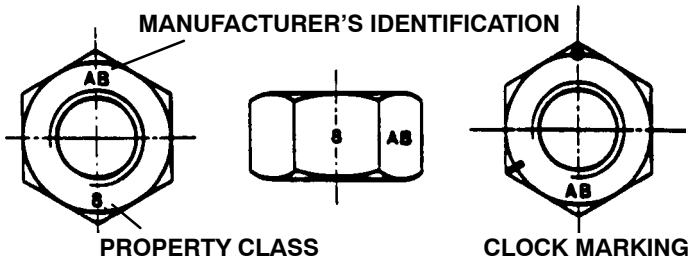
NOMINAL SIZE	CLASS 5.8		CLASS 8.8		CLASS 10.9		LOCKNUT CL.8 W/CL8.8 BOLT
	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr	
M4	15* (1.7)	19* (2.2)	23* (2.6)	30* (3.4)	33* (3.7)	42* (4.8)	16* (1.8)
M6	51* (5.8)	67* (7.6)	79* (8.9)	102* (12)	115* (13)	150* (17)	56* (6.3)
M8	124* (14)	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



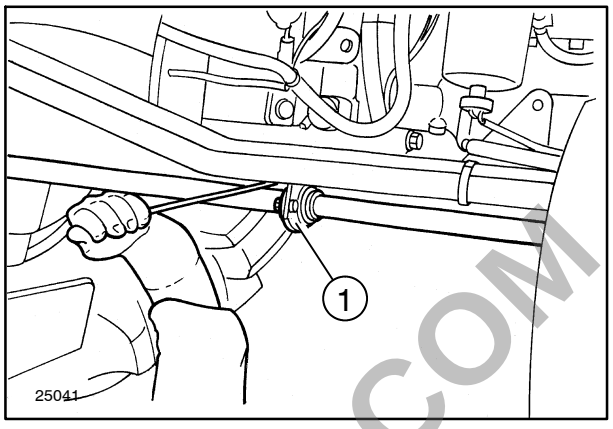
HEX NUTS AND LOCKNUTS
CLASSES 05 AND UP



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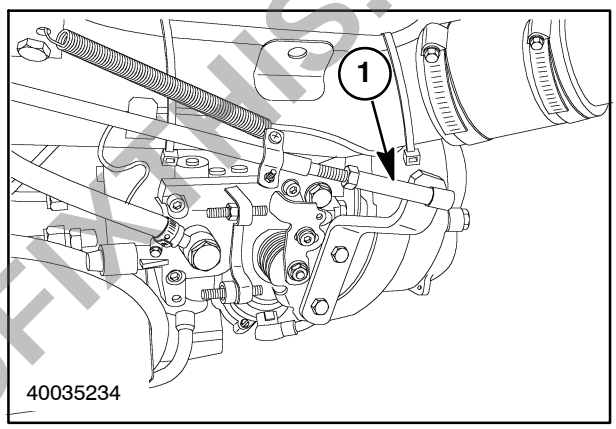
3. Remove the retaining bolts from the central drive shaft support (1) and remove the shaft complete with support.



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Splitting the tractor

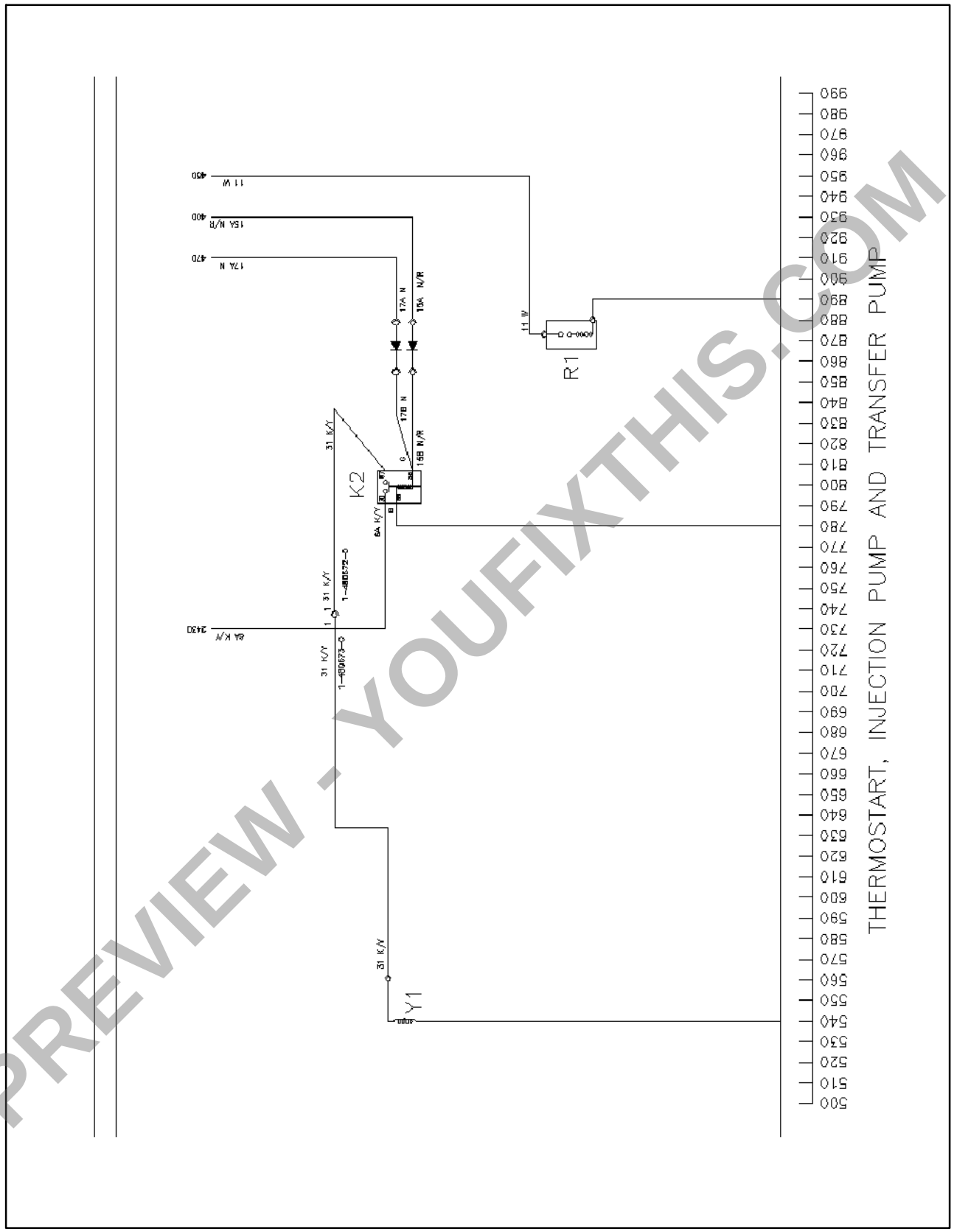
1. Disconnect the negative battery lead if not previously done.
2. Place wedges between the front axle and the front axle carries to prevent the assembly from tilting.
3. Disconnect the tractor electrical harnesses.
4. Remove the exhaust pipe and right and left middle hood sections.
5. Remove the steering lines tubes.
6. Remove the suction line from the hydraulic reservoir and cap the reservoir port.
7. Remove the throttle linkage (1) from the injection pump and from the mounting point under rear hood.
8. Disconnect the fuel delivery line from the primer pump and the return line from the tee.
9. Remove bolts holding “Fire Wall” to engine.
10. Remove the hydraulic lift suction and delivery lines from the hydraulic pump.
11. If there is a horizontal exhaust, disconnect or remove exhaust line and muffler.
12. On four-wheel drive tractors, disconnect and drop the front axle driveshaft.
13. Place a hydraulic stand under the clutch transmission case and attach lifting tackle to the engine.
14. Unbolt the engine from the transmission case.
15. Using a crane, separate the engine from the rest of the tractor.



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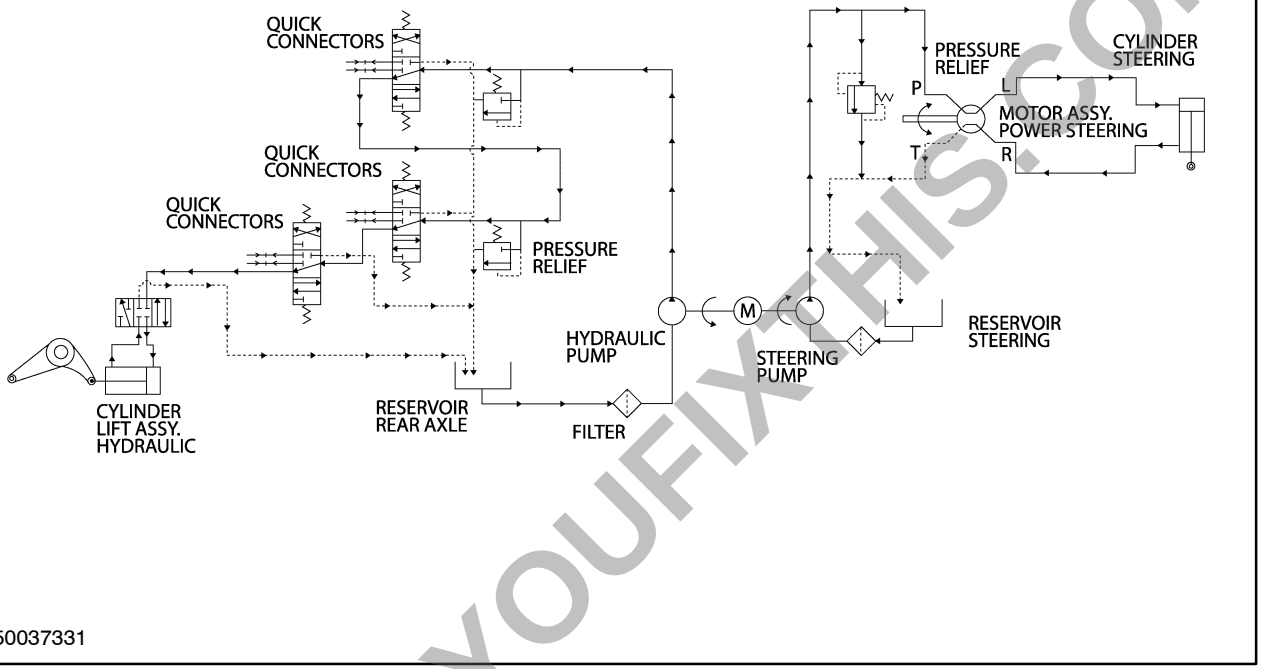


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Hydraulic System with Three Remote Valves Installed



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TIGHTENING TORQUE DATA

PART	Thread size	Tightening torque		
		N·m	kgm	ft. lbs.
Crankshaft hub retaining nut	M 30 x 1.5	294	30	217
Fan and alternator pulley bolts	M 10 x 1.25	55	5.6	40.5
Additional counterweight retaining bolts	M 12 x 1.25	110	11.2	81
Inlet manifold retaining bolts	M 8	25	2.6	19
Alternator and belt tension adjustment nut	M 10 x 1.25	55	5.6	40.5
Coolant pump retaining bolts	M 10 x 1.25	55	5.6	40.5
Nuts for injector mounting studs	M 8	25 **(*)**	2.6 **(*)**	19
Rocker cover nuts	M 8	15	1.5	11
Rocker shaft pedestal bolts	M 8	25	2.6	19
Oil pump and pump cover retaining bolts	M 8	25	2.6	19
Timing gear case and cover bolts	M 8	25	2.6	19
Intermediate flanged journal bolts	M 10 x 1.25	55	5.6	40.5
Camshaft thrust plate retaining bolts	M 8	35	3.6	26
Rear crankcase cover bolts	M 8	25	2.6	19
Tappet adjuster locknuts	M 8	22	2.2	16
Exhaust manifold retaining bolts	M 8	25	2.6	19
Injection pump mounting bolts	M 8	25	2.6	19
Sump pan retaining bolts to - inner rear timing cover and gear case - cylinder block and flywheel case	 M 10 X 1.25 M 10 X 1.25	 39 to 49 49 to 59	 4 to 5 5 to 6	 29 to 36 36 to 44

(*) Tighten nuts in two stages.

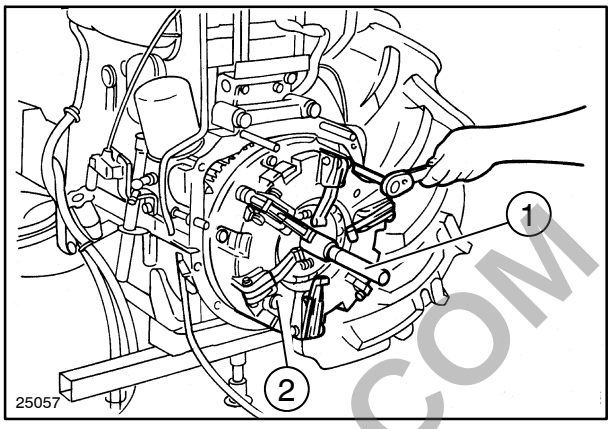
ANGULAR TORQUE DATA

PART	Thread size	Preliminary torque			Angle
		N·m	kgm	ft. lbs.	
Cylinder head bolts	M 12 x 1.25	70	7.1	52	$90^o + 90^o$
Main bearing cap bolts	M 14 x 1.5	80	8.2	59	90^o
Big-end rod cap bolts	M 11 x 1.5	40	4.1	30	60^o
Flywheel mounting bolts	M 12 x 1.25	40	4.1	30	60^o

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16. Insert centralizer tool (1) **380000612** in the clutch center hole. Unscrew the six bolts securing the clutch to the flywheel and remove complete clutch assembly.



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ENGINE REINSTALLATION

To re-install the engine, proceed as follows:

- Attach the three hooks of an adjustable lifting chain to three eye bolts on the engine. Raise the engine from the platform and position it in front of the front axle support. Join the two units using the four securing bolts.
- Move a rolling jack under the engine sump.
- Drive wedge blocks between front axle carrier casting and front axle housing.
- Attach the top radiator hose to the thermostat housing and secure with adjustable hose clamps.
- Connect the bottom radiator hose to the coolant pump and secure at both ends with adjustable hose clamps.
- Install the hydraulic pumps.
- Detach the lifting chain from the engine.
- Connect the rigid pipe from the air cleaner to the inlet manifold and secure with the relative clamp.
- Reconnect all electrical leads: thermostarter glow plug, coolant temperature sensor, air filter clogging sensor, horn, front axle support ground, engine stop on injection pump, leads to the alternator and relay, oil pressure sensor, and starter motor. Secure all leads with plastic ties.
- Install the clutch using tool **380000612**. Fix clutch to the engine flywheel using the six retaining bolts.
- Attach the adjustable lifting chain to the eyebolts on the engine.
- Place wooden wedges under the rear wheels, check that the handbrake is fully on and that the fixed and moving stands are firmly in place.
- The next operation will require 2 or 3 operatives. Position the engine/front axle unit up to the clutch housing, pushing the front wheels and accompanying the unit with the hoist. Be careful at this stage not to damage the rigid hydraulic oil pipes. Make sure that no electrical leads are trapped between the two units.
- Next, turn the cooling fan to rotate the clutch disc so it engages with the two shafts of the PTO and transmission.
- Replace and tighten all the bolts securing the engine to the clutch housing.
- Lower the stands under the engine sump and the clutch housing.
- Connect the injector leak-off pipe. Connect the pipes to the glowplug and to the fuel water separator filter.
- Install the fuel filter mounting to the engine. Connect the two semi-rigid pipes to the mounting.
- Connect the power steering at control valve oil supply and return pipes.
- Connect the hydraulic oil suction pipe to the pump.

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WARNING

All maintenance and repair work described in this manual must be performed exclusively by NEW HOLLAND service technicians in strict accordance with the instructions given and using any specific tools necessary.

WARNING

Anyone who performs the operations described herein without strictly following the instructions is personally responsible for resulting injury or damage to property.

WARNING

The Manufacturer and all organizations belonging to the Manufacturer's distribution network, including but not restricted to national, regional or local distributors, will accept no responsibility for personal injury or damage to property caused by abnormal function of parts and/or components not approved by the Manufacturer, including those used for maintenance and/or repair of the product manufactured or marketed by the Manufacturer. In any case, the product manufactured or marketed by the Manufacturer is covered by no guarantee of any kind against personal injury or damage to property caused by abnormal function of parts and/or components not approved by the Manufacturer.

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SECTION 18 - CLUTCHES

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Chapter 1 - Clutches

CONTENTS

Section	Description	Page
	Specifications	2
	Clutch Assembly Removal/Installation	3
	Clutch Overhaul	5
	Transmission Clutch Pedal Free-Travel and Adjustment	7
	Adjusting PTO Clutch Linkage	7

SECTION 21 - FRONT TRANSMISSION

BOOK 1 - 87042098

Chapter 1 - Front Transmission

CONTENTS

Section	Description	Page
	Specifications	2
	Transmission Removal and Installation	7
	Inspecting the Transmission	13
	Assembling the Transmission	13

SECTION 23 - FOUR WHEEL DRIVE (FWD) TRANSFER BOX

BOOK 1 - 87042098

Chapter 1 - Four Wheel Drive (FWD) Transfer Box

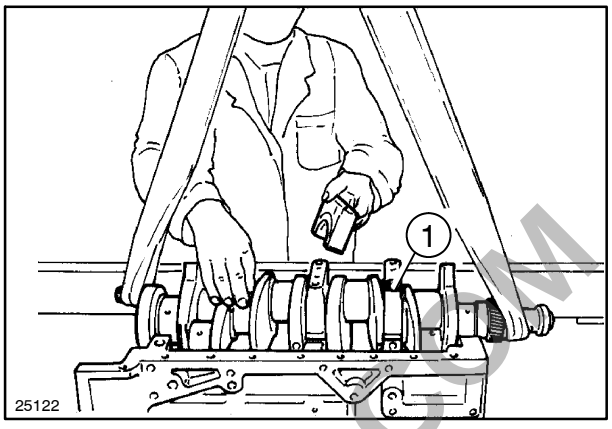
CONTENTS

Section	Description	Page
	Transfer Box and Axle Shaft	2

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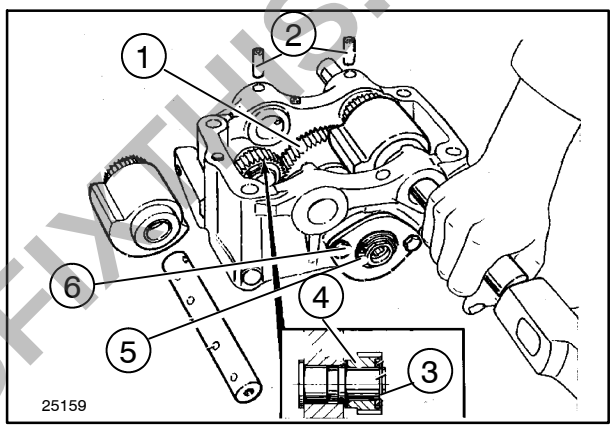
58. Unscrew the main bearing cap bolts (1) and remove the main bearing caps with relative bearing shells, and recover the thrust washers located on the penultimate main bearing as shown in the figure.
59. Lift the crankshaft clear of the crankcase using a hoist and nylon sling. Recover the bearing shells, thrust washers and tappets.
60. Unscrew retaining bolts and remove the rear crankcase housing and gasket.



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NOTE: *The following instructions on dismantling of the rotating counterweight dynamic balancer only apply to 4-cylinder models (TT75).*

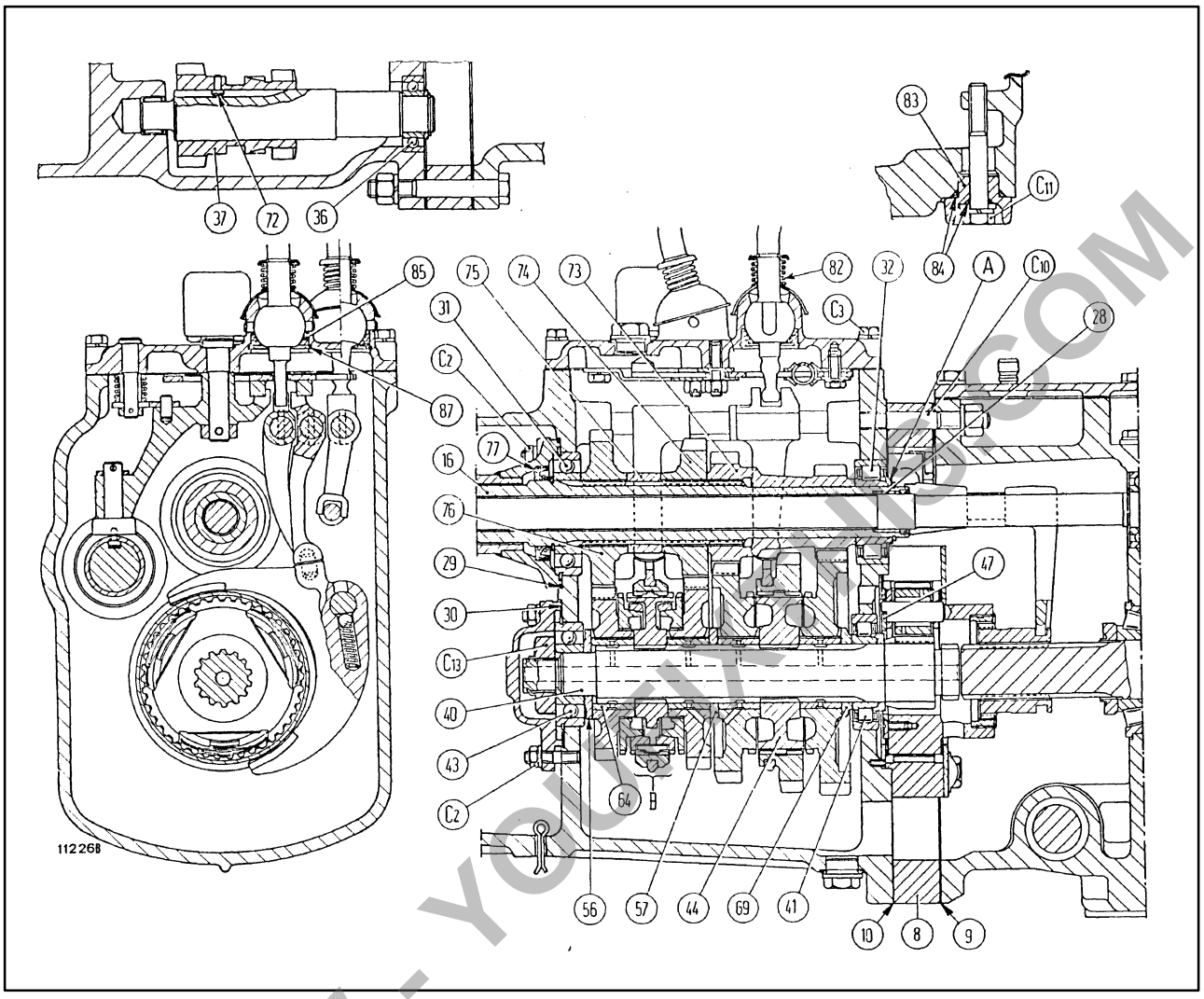
61. Remove the lubricating oil pipe (3).
62. Remove circlip (18).
63. Remove circlip (25) and cover (23) with relative O-ring seal (24).
64. Withdraw gear (22) from sump.
65. Remove circlip (2), gear (26) and the two thrust washers (1).
66. Inspect shaft (27). If it shows signs of scoring or wear it must be replaced.
67. Withdraw spring pins (8) and dismantle the counterweight shafts using a suitable drift.
68. Remove the counterweight drive gear (1) Fig. 61 by removing the circlip (5) and the carrier retaining bolts (6).
69. Remove circlip (3) and intermediate gear (4).



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1

Eight-Speed Transmission Longitudinal and Cross Sections

a. Reverse gear drive shaft section
c. Detail of lift pump intake tube end retention
A. Drive gear end play adjustment ring
B. 3rd and 4th gear synchromesh
C_2. Shaft bearing cover retaining nuts
C_3. Top cover capscrews
C_{10}. Screws for securing transmission housing to clutch housing
C_{11}. Lift pump intake tube end capscrews
C_{13}. Driven gear shaft locknut
8. Spacer
9 and 10. Seals
16. Drive gear shaft
28. PTO shaft bushing
29 and 30. Seals
31. Ball bearing
32. Roller bearing
36. Ball bearing
37. Reverse drive gear
40. Driven shaft
41. Roller bearing
43. Roller bearing
44. 1st and 2nd gear engagement fixed sleeve
47. Range selector driven gear dowel retaining ring
56. Front thrust washer
57. Middle thrust washer
64. Driven gears support bushings
69. Rear thrust washer
72. Gear (37) retaining pin
73. 1st and 2nd drive gear
74. 3rd drive gear
75. Drive gear spacer
76. 4th drive gear
77. Seal
82. Hand lever retaining spring
83. End of lift pump intake tube
84. O ring
85 and 87. Hand lever joint seal and retaining ring.

NOTE: *On installation, fit new seals (9 and 10) after thoroughly cleaning and degreasing the surfaces.*

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REMOTE CONTROL VALVES

Simple Self-centering
The simple self-centering valve operates within extend, retract and neutral positions. After releasing the control lever, the self-centering valve springs back to neutral, and the cylinder remains in the position selected.

Simple Self-centering Float
The simple self-centering valve with float operates within extend, retract, neutral and float positions. Remote valves with float setting capabilities contain a mechanical detent, which holds the control lever engaged in position until the operator returns the lever to the neutral position.

Detent with Auto-release and Float
The detent with auto-release and float remote valve operates within extend, retract, neutral and float positions. Remote valves with automatic release contain a mechanical detent, which holds the control lever in the extended or retracted position. The automatic release mechanism returns the control lever to neutral when the cylinder reaches the end of travel. For a single-acting valve, the automatic release mechanism only works in the raise position. Remote valves with float setting capabilities contain a mechanical detent, which holds the control lever engaged in position until the operator returns the lever to the neutral position.

REMOTE VALVE CONTROL LEVERS

The remote control lever (1) on the right-hand side of the operator's seat provides for mechanical control of the valve. With more than one valve installed, color markings on the control levers correspond with colors of the remote valve couplings for quick identification. Depending on the type of remote valve installed, the control lever functions within three or four positions as follows:

Lifting – Pulling the lever rearward extends the corresponding cylinder to lift or raise the implement.

Neutral – Pushing the lever forward returns the valve to the neutral position and the deactivated cylinder stops moving the implement. Rear remote valves, incorporating the detent-releasing feature, will automatically return the valve to the neutral position when the cylinder reaches the end of the stroke.

Lowering – Pushing the lever forward past the neutral position retracts the cylinder and the implement lowers.

Float – Pushing the lever full forward past the lowering position selects the float function. This position allows the cylinder to extend and retract freely, which permits the implement to follow the contour of the ground.

TABLE 4 - CONTROL LEVER POSITIONS

Operation Performed	Control Lever Position	Description
Lifting	Full Rearward	Lifts the Implement
Lowering	Forward	Lowers the Implement
Neutral	In-between Rearward and Forward	Stops Lifting or Lowering
Float (where installed)	Full Forward Beyond Lowering	Implement Follows Terrain Under Own Weight

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The electrical system incorporates various components, which provide for the operation, regulation and protection of the electrical system. The standard electrical configuration will contain all, or several of the following components:

- Instrument Panel
- Key-Start Ignition Switch
- Lights/Horn Switch
- Power Take Off (PTO) Safety Switch
- Start Inhibitor Switch
- Thermostart Switch
- Air Filter Restriction Sensor
- Brake Switch
- Turn Signal Switch
- Work Lamp Switch
- Warning Flasher Switch
- Warning Flasher Unit
- Engine Oil Pressure Switch
- Engine Coolant Temperature Sender
- Fuel Tank Sender
- Fuse Box
- Relays/Diodes
- Battery Temperature Sensor
- Seat Presence Switch
- Hand Brake Switch
- Fuel Shut-off Solenoid
- 7-Pole External Socket

WIRE HARNESSES

The wire harnesses form an electrical circuit, which directs power to the components of the electrical system by location. The harnesses attach with connectors, and route from the front of the tractor to the rear, and up the fenders. Each harness removes independently of one another to facilitate maintenance.

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