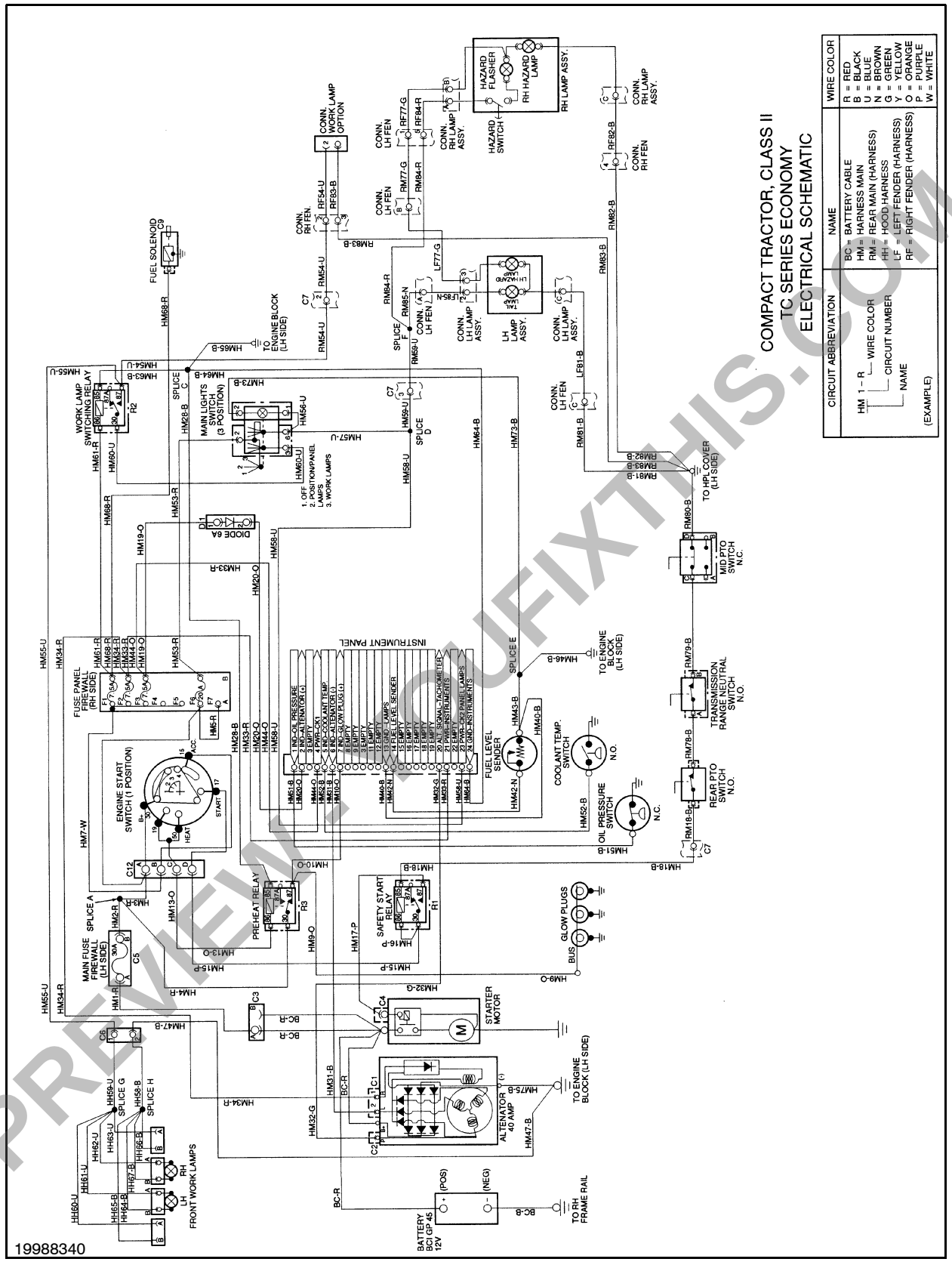


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MINIMUM HARDWARE TIGHTENING TORQUES

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

INCH HARDWARE AND LOCKNUTS

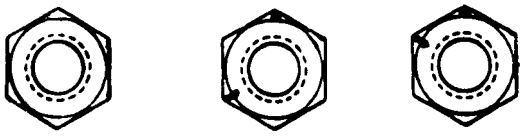
NOMINAL SIZE	SAE GRADE 2		SAE GRADE 5		SAE GRADE 8		LOCKNUTS		NOMINAL SIZE
	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	GR.B w/GR5 BOLT	GR.C w/GR8 BOLT	
1/4	55* (6.2)	72* (8.1)	86* (9.7)	112* (13)	121* (14)	157* (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

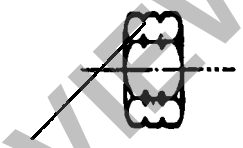


SAE GRADE 2 SAE GRADE 5 SAE GRADE 8



REGULAR NUTS SAE GRADE 5 HEX NUTS SAE GRADE 8 HEX NUTS

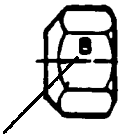
LOCKNUTS



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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LUBRICATION AND MAINTENANCE CHART
NEW HOLLAND TC25, TC29, TC33 — TWO-WHEEL DRIVE

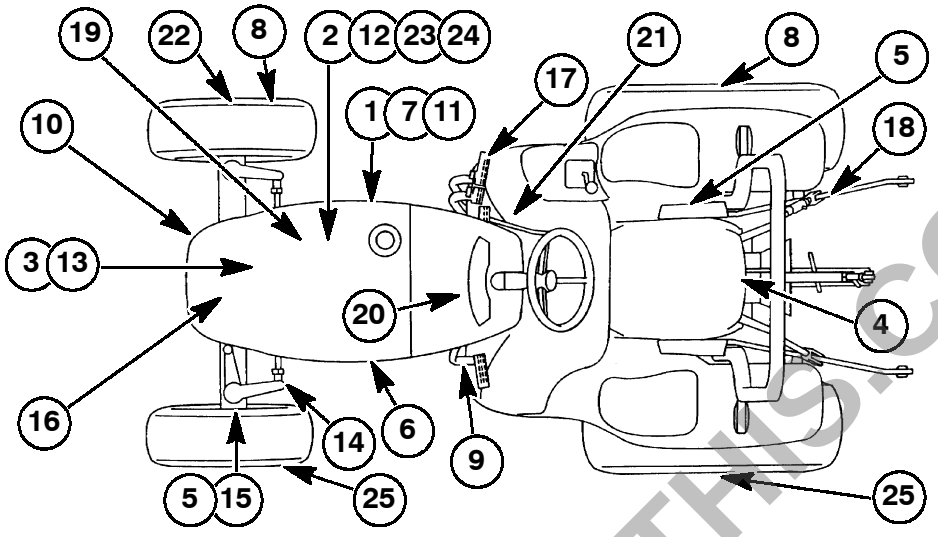


Figure 3-1

NO.	LUBRICATION & MAINTENANCE ITEMS	CHECK	CLEAN	LUBE	CHANGE	ADJUST	SERVICE INTER-VALS
1	Engine Oil Level	X					Every 10 Hours or Daily
2	Air Cleaner	X					
3	Radiator Coolant	X					
4	Transmission Oil Level	X					
5	Hydraulic Filter				X		First 50 Hours
6	H.S.T. Filter				X		
1, 7	Engine Oil & Filter				X		
8	Tire Pressure	X					
11	Fuel Filter				X		
25	Wheel Bolt Torque	X					
—	All Fluid Levels	X					
8	Tires	X					Every 50 Hours
9	Clutch Pedal	X		X		X	
10	Battery	X					
12	Power Steering Oil Level	X					
13	Fan Belt	X					
	Lubrication Fittings:						
14	Steering Linkage			X			
15	Front Wheel Spindles (2)			X			
16	Pivot Shaft			X			
17	Brake Pedal			X			
18	3-Point Linkage			X			
19	Power Steering Cylinder			X			
20	Pedal Shaft			X			
21	H.S.T. Pedal Pivot			X			

NO.	LUBRICATION & MAINTENANCE ITEMS	CHECK	CLEAN	LUBE	CHANGE	ADJUST	SERVICE INTER-VALS
1, 7	Engine Oil & Filter				X		Every 100 Hours
2	Air Cleaner Element		X				
11	Fuel Filter		X				
8	Brake					X	Every 200 Hours
11	Fuel Filter Element				X		
13	Fan Belt					X	
25	Wheel Bolt Torque	X					
4	Transmission Oil				X		Every 300 Hours
5	Hydraulic Filter				X		
6	H.S. T. Filter				X		
11	Power Steering Oil				X		Every 600 Hours *Refer to Repair Manual
22	Front Wheel Bearings			X			
23*	Fuel Injectors	X					
24*	Valve Clearance	X					
2	Air Cleaner Element				X		Seasonal
3	Radiator Coolant				X		
2	Safety Air Filter Element				X		Every Third Primary Element Change or Every **1000** Hours, Whichever Comes First

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SECTION 4
SPECIFICATIONS

	Model TC25—Gear	Model TC29—Gear	Model TC33—Gear
ENGINE			
Type	Diesel	Diesel	Diesel
Engine Gross Horsepower	18.7 kw (25)	21.6 kw (29)	24.6 kw (33)
Cylinders	3	3	3
Bore	84 mm (3.31″)	84 mm (3.31″)	84 mm (3.31″)
Stroke	80 mm (3.15″)	80 mm (3.15″)	90 mm (3.54″)
Displacement	1.33 L (81.2 cu. in.)	1.33 L (81.2 cu. in.)	1.496 L (91.3 cu. in.)
Compression Ratio	22.7:1	22.7:1	22.2:1
Firing Order	1-2-3	1-2-3	1-2-3
Low Idle Speed	1000 RPM	1000 RPM	1000 RPM
Maximum Speed:			
High Idle	2840 RPM	3040 RPM	3040 RPM
Rated	2600 RPM	2800 RPM	2800 RPM
Valve Clearance (Cold):			
Intake	0.20 mm (0.008″)	0.20 mm (0.008″)	0.20 mm (0.008″)
Exhaust	0.20 mm (0.008″)	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.	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	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	4.0 liters/ 4.2 U.S. qts
Rear Axle & Transmission (Includes Hydraulics)	32.6 liters/ 8.6 U.S. gals.	32.6 liters/ 8.6 U.S. gals.	32.6 liters/ 8.6 U.S. gals.
Power Steering	1.6 liters/ 1.7 U.S. qts.	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.	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.	1.4 liters/ 1.5 U.S. qts.

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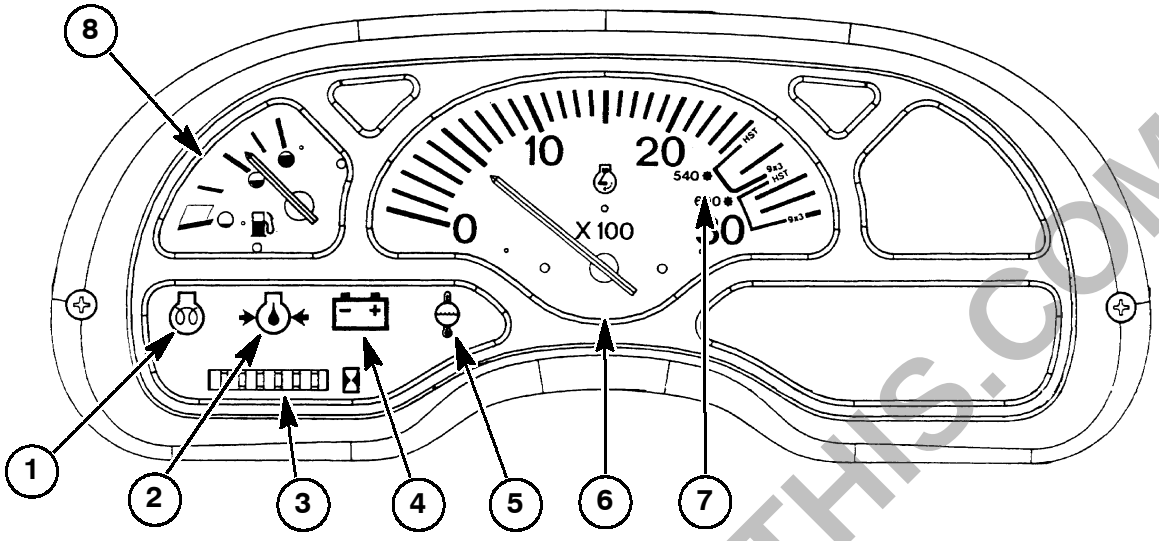


Figure 2-5

INSTRUMENT PANEL

1. **Cold Starting Indicator Light**— Illuminates when the key switch is turned to the “HEAT” position. It remains lit when the key is held in position, during which time the glow plugs are heating the precombustion chambers.
2. **Engine Oil Pressure Warning Light**—Illuminates with the key switch in the “ON” or “HEAT” positions and remains lit for a short period of time after the engine is started. The light indicates oil pressure only and goes out when sufficient oil pressure is present at the oil sender. If the bulb becomes lit during operation, stop the tractor engine immediately and investigate the cause.
3. **Proof Meter**—Records the hours and portions of hours that your tractor has been operated, regardless of engine RPM. Use the proof meter as a guide to determine hourly service and maintenance intervals.
4. **Battery Charge Warning Light**—Illuminates when the key switch is in the “ON” or “HEAT” positions and goes out when the engine is started. If this bulb becomes lit during operation, it indicates that the charging system is not operating normally. As the battery can become fully discharged under these conditions, the problem should be investigated as soon as possible.
5. **Temperature Light**—Indicates coolant temperature. This light illuminates when engine coolant temperature rises above normal operating temperature to a level which could cause damage and the key switch is in the “ON” position. Stop the tractor engine immediately and investigate the cause.
6. **Tachometer**—Registers engine RPM (Revolutions Per Minute). The gauge is marked in increments of 100 and will return to zero when the engine is not running.
7. **Rear/ Optional Mid PTO Speed**- Determined by the position of the needle on the tachometer. The tachometer is marked to indicate 540 PTO RPM and 600 PTO RPM. If the needle registers at the 600 mark, this indicates a dangerous overspeed condition, and engine RPM should be reduced immediately.
8. **Fuel Gauge**—Indicates the amount of diesel fuel remaining in the tank. The gauge is activated when the key switch is in the “ON” or “HEAT” positions. It will register empty with the key switch in the “STOP” position.

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THROTTLE CONTROLS

The hand throttle, 1, is located on the right-hand side of the console. Push the throttle forward to increase engine RPM. Pull the throttle rearward to decrease engine RPM.

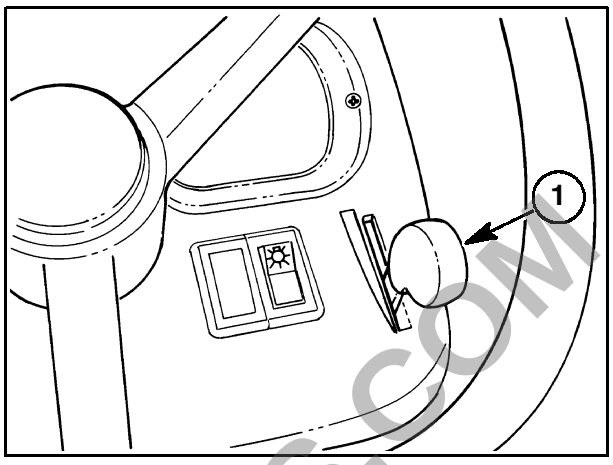


Figure 2-10

The foot throttle, 1, (gear models only) is located on the right-hand foot platform. Push the pedal to increase engine RPM. Decrease the pressure applied to the pedal to decrease engine RPM. Because the pedal is spring loaded, it will return to idle when no pressure is applied.

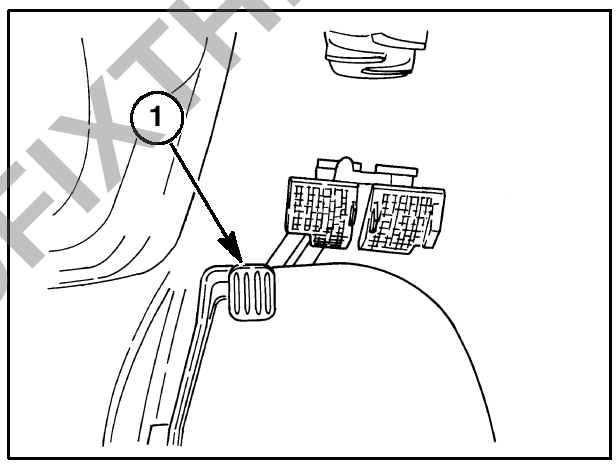


Figure 2-11

FUEL SHUTOFF VALVE

The fuel shutoff valve, 1, is found in the fuel line on top of the fuel filter. The fuel filter is located on the right-hand side of the engine.

To open the fuel shutoff valve, move the handle until it points straight up and down. To close the valve, move the handle to the horizontal position. Always close the fuel shutoff valve when servicing any part of the fuel system.

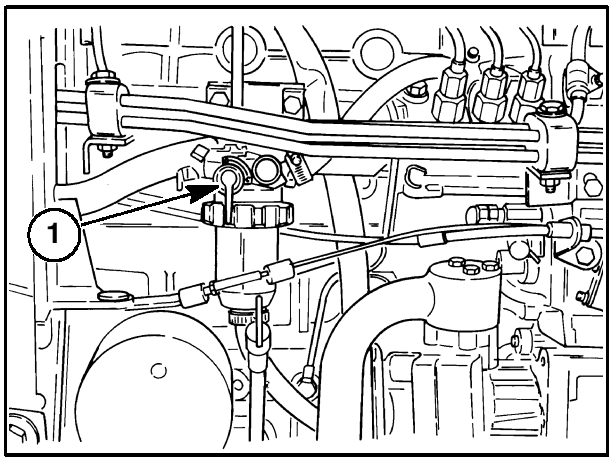


Figure 2-12

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FUEL AND LUBRICANT SERVICE PROCEDURES

ENGINE

Checking the Engine Oil Level

NOTE: Check the engine oil level daily or after every 10 hours of operation.

1. After the engine has been stopped for a period of time and with the tractor standing level, check the oil level using the dipstick.

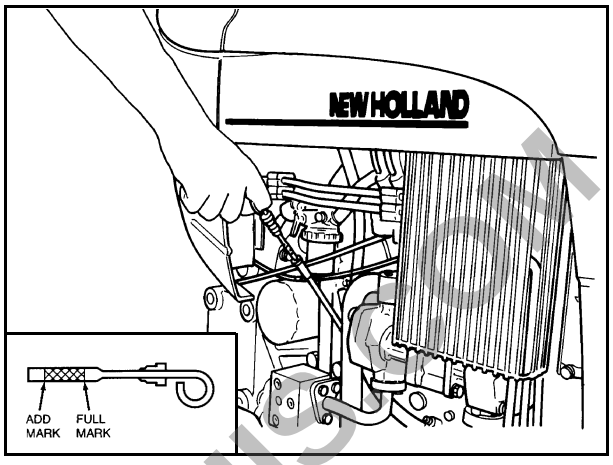


Figure 3-4

2. If the oil level is low, remove the filler cap, 1, and add oil through the filler hole. Add enough oil so that the level registers between the two marks on the dipstick. Do not overfill.

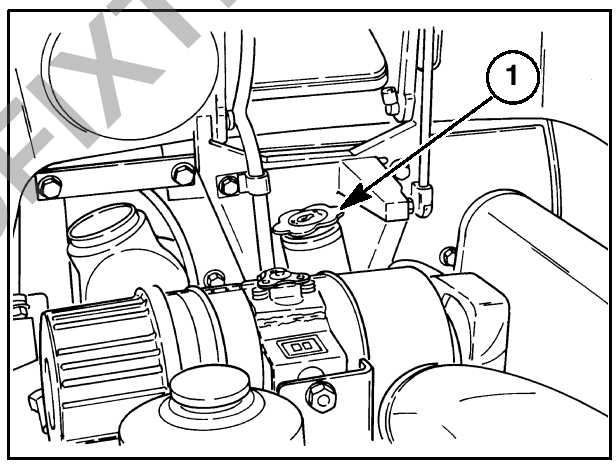


Figure 3-5

Changing the Engine Oil

NOTE: Change the engine oil and filter after the first 50 hours of operation, then every 100 hours thereafter. If the tractor is operated for extended periods of time at maximum rated power and speed, or under other types of continuous, severe operating conditions, the engine oil and filter should be changed at 70 hour intervals following the initial oil change.

To change the engine oil:

1. Place a suitable container beneath the drain opening to catch the used oil. With the tractor engine off but at normal operating temperature, remove the drain plug, 1. Reinstall the plug after all of the oil has been drained.

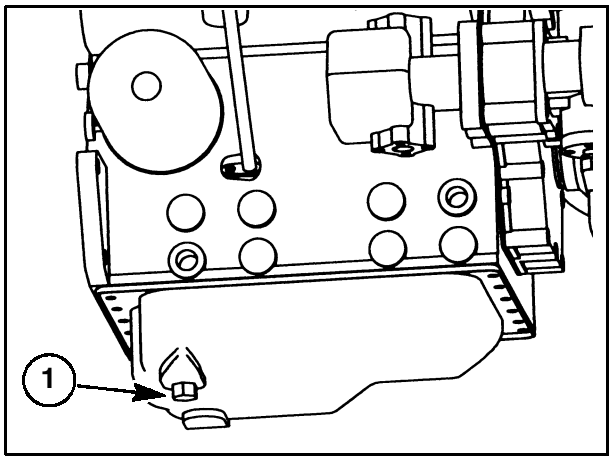


Figure 3-6

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MINIMUM HARDWARE TIGHTENING TORQUES

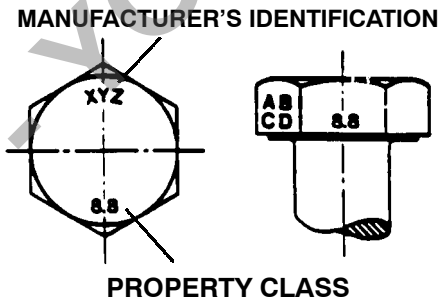
IN FOOT POUNDS (NEWTON-METERS) FOR NORMAL ASSEMBLY APPLICATIONS

METRIC HARDWARE AND LOCKNUTS

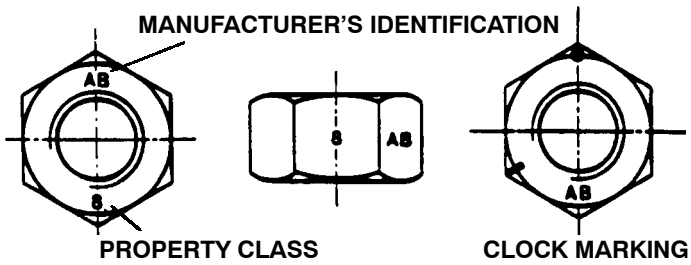
NOMINAL SIZE	CLASS 5.8		CLASS 8.8		CLASS 10.9		LOCKNUT CL.8 W/CL8.8 BOLT
	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr	
M4	15* (1.7)	19* (2.2)	23* (2.6)	30* (3.4)	33* (3.7)	42* (4.8)	16* (1.8)
M6	51* (5.8)	67* (7.6)	79* (8.9)	102* (12)	115* (13)	150* (17)	56* (6.3)
M8	124* (14)	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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LUBRICATION AND MAINTENANCE CHART
NEW HOLLAND TC25, TC29, TC33 — FRONT-WHEEL DRIVE

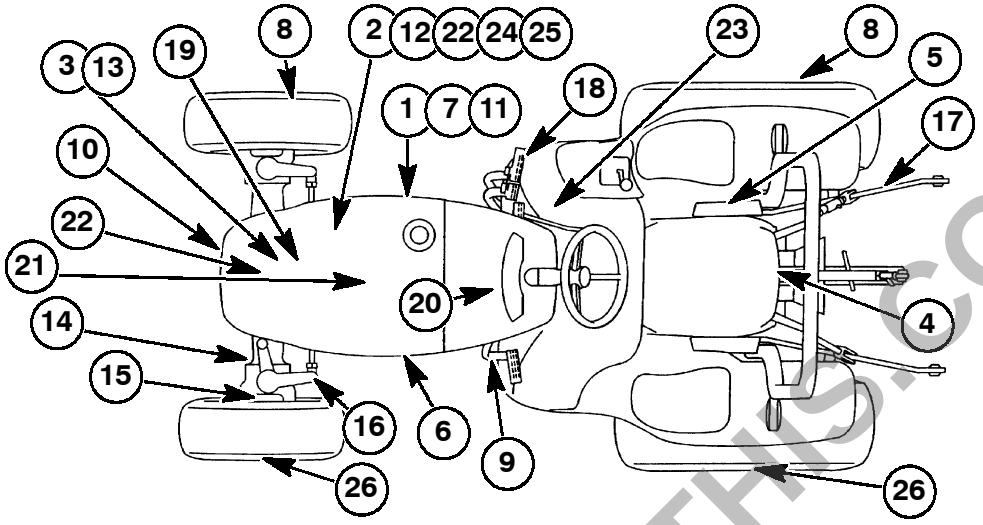


Figure 3-2

NO.	LUBRICATION & MAINTENANCE ITEMS	CHECK	CLEAN	LUBE	CHANGE	ADJUST	SERVICE INTER-VALS
1	Engine Oil Level	X					Every 10 Hours or Daily
2	Air Cleaner	X					
3	Radiator Coolant	X					
4	Transmission Oil Level	X					
5	Hydraulic Filter				X		First 50 Hours
6	H.S.T. Filter				X		
1, 7	Engine Oil & Filter				X		
8	Tire Pressure	X					
11	Fuel Filter				X		
26	Wheel Bolt Torque	X					
—	All Fluid Levels	X					
8	Tires	X					Every 50 Hours
9	Clutch Pedal	X		X		X	
10	Battery	X					
12	Power Steering Oil Level	X					
13	Fan Belt	X					
14	Front Axle Oil Level	X					
15	Final Reduction Gear Cases Oil Level	X					
	Lubrication Fittings:						
16	Steering Linkage			X			
17	3-Point Linkage			X			
18	Brake Pedal			X			
19	Power Steering Cylinder			X			
20	Pedal Shaft			X			
21	Drive Cover Shaft			X			
22	Pivot Shaft			X			
23	H.S.T. Pedal Pivot			X			

NO.	LUBRICATION & MAINTENANCE ITEMS	CHECK	CLEAN	LUBE	CHANGE	ADJUST	SERVICE INTER-VALS
1, 7	Engine Oil & Filter				X		Every 100 Hours
2	Air Cleaner Element		X				
11	Fuel Filter		X				
8	Brake					X	Every 200 Hours
11	Fuel Filter Element				X		
13	Fan Belt					X	
26	Wheel Bolt Torque	X					
4	Transmission Oil				X		Every 300 Hours
5	Hydraulic Filter				X		
6	H.S. T. Filter				X		
14	Front Axle Oil				X		
15	Final Reduction Gear Cases Oil				X		
12	Power Steering Oil				X		Every 600 Hours *Refer to Repair Manual
24*	Fuel Injector	X				X	
25*	Valve Clearance	X				X	
2	Air Cleaner Element				X		Seasonal
3	Radiator Coolant				X		
2	Safety Air Filter Element				X		Every 3rd Primary Element Change or Every **1000** Hours, Whichever Comes First

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	Model TC25—Gear	Model TC29—Gear	Model TC33—Gear
COOLING SYSTEM			
Type	Pressurized Liquid with Recirculating Bypass	Pressurized Liquid with Recirculating Bypass	Pressurized Liquid with Recirculating Bypass
Water Pump:			
Type	Centrifugal	Centrifugal	Centrifugal
Drive	V-Belt	V-Belt	V-Belt
Belt Deflection	10 mm-15 mm (7/16″-9/16″) when 9-11 kg (20-25 lbs.) thumb pressure is applied midway between belt pulleys	10 mm-15 mm (7/16″-9/16″) when 9-11 kg (20-25 lbs.) thumb pressure is applied midway between belt pulleys	10 mm-15 mm (7/16″-9/16″) when 9-11 kg (20-25 lbs.) thumb pressure is applied midway between belt pulleys
Fan Diameter	340 mm (13.4″)	340 mm (13.4″)	340 mm (13.4″)
Thermostat:			
Start to Open	71°C (160°F)	71°C (160°F)	71°C (160°F)
Fully Open	85°C (185°F)	85°C (185°F)	85°C (185°F)
Radiator Cap	0.9 bar (13 PSI)	0.9 bar (13 PSI)	0.9 bar (13 PSI)
ELECTRICAL SYSTEM			
Alternator	12-volt, Heavy Duty, 40 amps	12-volt, Heavy Duty, 40 amps	12-volt, Heavy Duty, 40 amps
Battery	12-volt, w/ negative ground, 420 cca	12-volt, w/ negative ground, 420 cca	12-volt, w/ negative ground, 420 cca
Starting Motor	Solenoid Pre-Engaged Reduction	Solenoid Pre-Engaged Reduction	Solenoid Pre-Engaged Reduction
FUEL SYSTEM			
Fuel Type	Diesel	Diesel	Diesel
Type of Fuel to Use if Above 40°F	No. 2-Diesel, Cetane Rating: Minimum 40	No. 2-Diesel, Cetane Rating: Minimum 40	No. 2-Diesel, Cetane Rating: Minimum 40
Type of Fuel to Use if Below 40°F	No. 1-Diesel, Cetane Rating: Minimum 40	No. 1-Diesel, Cetane Rating: Minimum 40	No. 1-Diesel, Cetane Rating: Minimum 40
Injection Pump:			
Type	In-Line	In-Line	In-Line
Timing	21° BTDC	21° BTDC	21° BTDC

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KEY SWITCH

The key switch is located on the right-hand side of the console just below the hand throttle. Turning the key right to the “ON” position activates the warning lights and instruments. The pre-heat system is activated when the key is turned further to the right to the “HEAT” position, and the engine starts when the key is **PUSHED** in, 1, and turned to the extreme right. The key spring returns to the “ON” position when released.

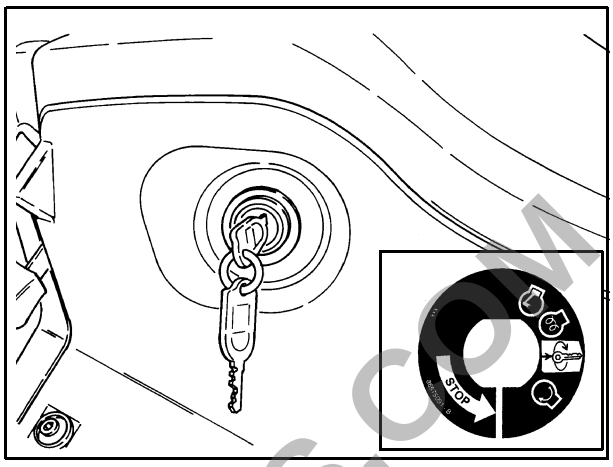


Figure 2-6

PRE-HEATING THE SYSTEM

Your tractor has a diesel engine. Before starting a cold engine, the precombustion chambers must be heated.

To pre-heat the engine, turn the key switch to the “HEAT” position and hold the key in this position for approximately 10 seconds. The glow plugs heat the precombustion chambers during this time, and the engine will start.

NOTE: When ambient temperatures are colder, a longer pre-heat time is necessary. Even after the cold start indicator light has gone out, the glow plugs will continue to heat if the key is held in the “HEAT” position.

WARNING: DO NOT USE ETHER WITH THE GLOW PLUG STARTING AID.

NOTE: A coolant immersion heater is available as a dealer installed option. This heater allows for easier starting in temperatures below 0°F (-17.7°C) by warming the engine coolant.

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BRAKE CONTROLS

Brake Pedals

The right brake pedal controls the braking action of the right rear wheel. The left brake pedal controls the left rear wheel brake.

Depress both pedals, 1, simultaneously to stop the tractor. To assist in making sharp turns at slow speed, depress the right or left brake pedal as required.

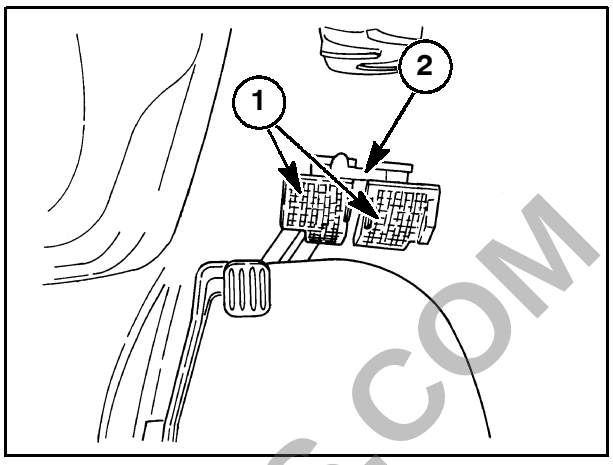


Figure 2-13

WARNING: WHEN OPERATING THE TRACTOR AT HIGH SPEEDS, NEVER ATTEMPT TO MAKE SHARP TURNS BY USING THE BRAKES.

Brake Pedal Lock

The brake pedal lock, 2, is used to secure the brake pedals together. Lock the pedals together, as shown in the illustration at right, whenever the tractor is operated at high speeds or when the tractor is used on the highway.

Parking Brake Control

The parking brake is used to lock the brake pedals in the applied position. Use the parking brake whenever the tractor is parked or when the operator is out of the seat.

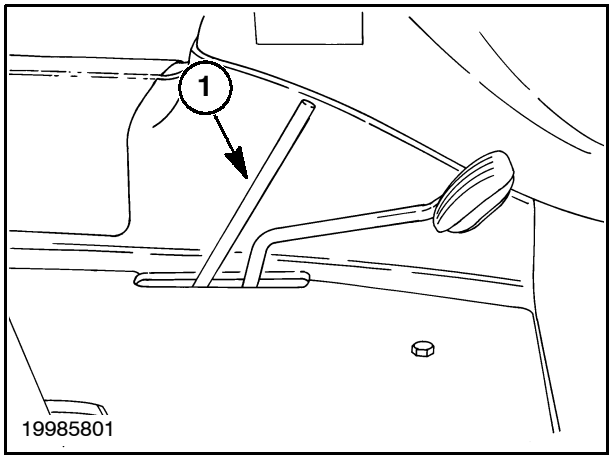


Figure 2-14

To apply the parking brake:

1. Lock the brake pedals together using the brake pedal lock.
2. Depress both brake pedals.
3. Push forward on the park brake handle, 1, and both brake pedals will remain in the applied position.

To release the parking brake:

1. Depress the brake pedals to release the retainer.
2. Unlock the brake pedals if operating conditions require independent rear wheel braking action.

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