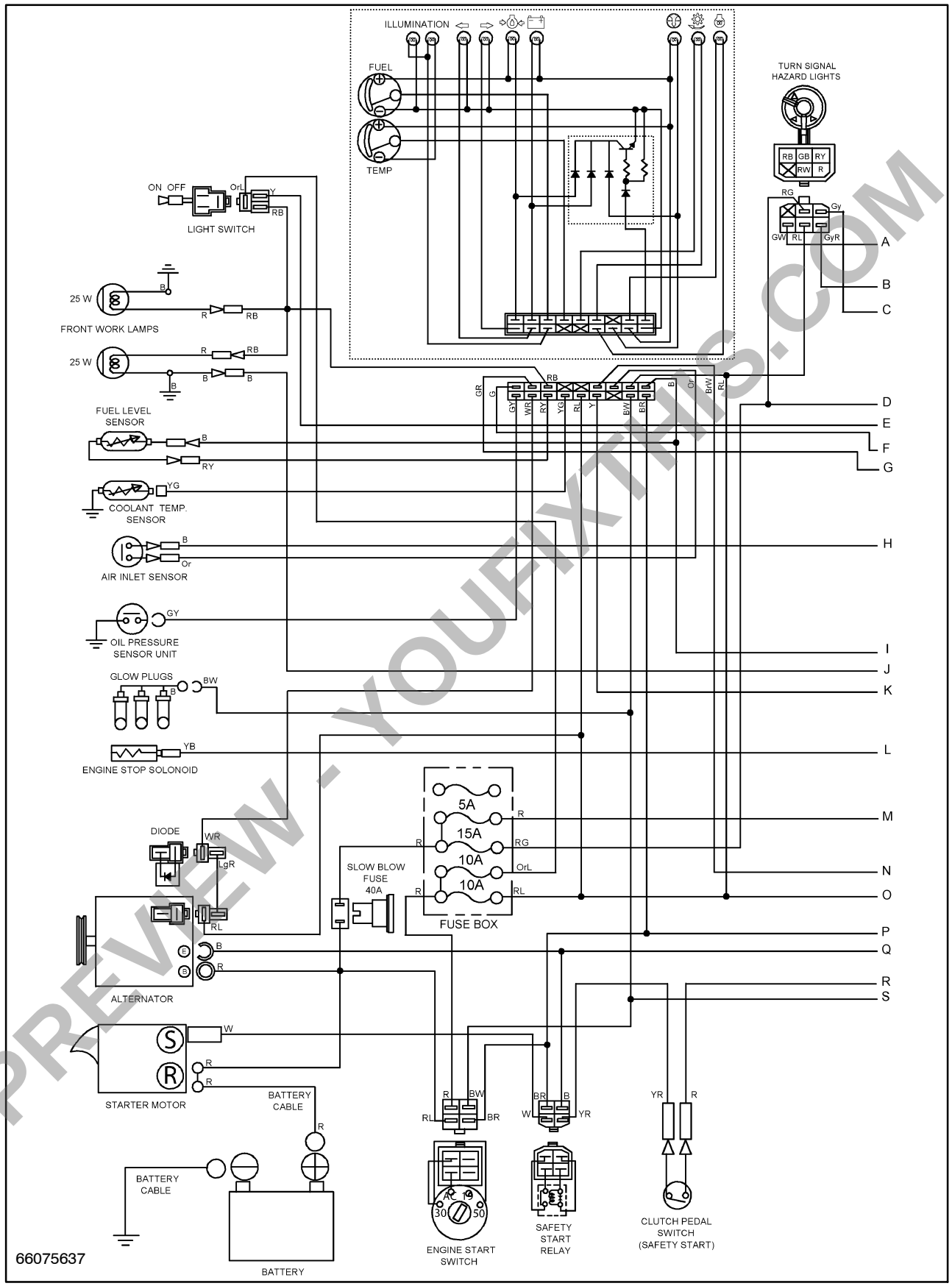


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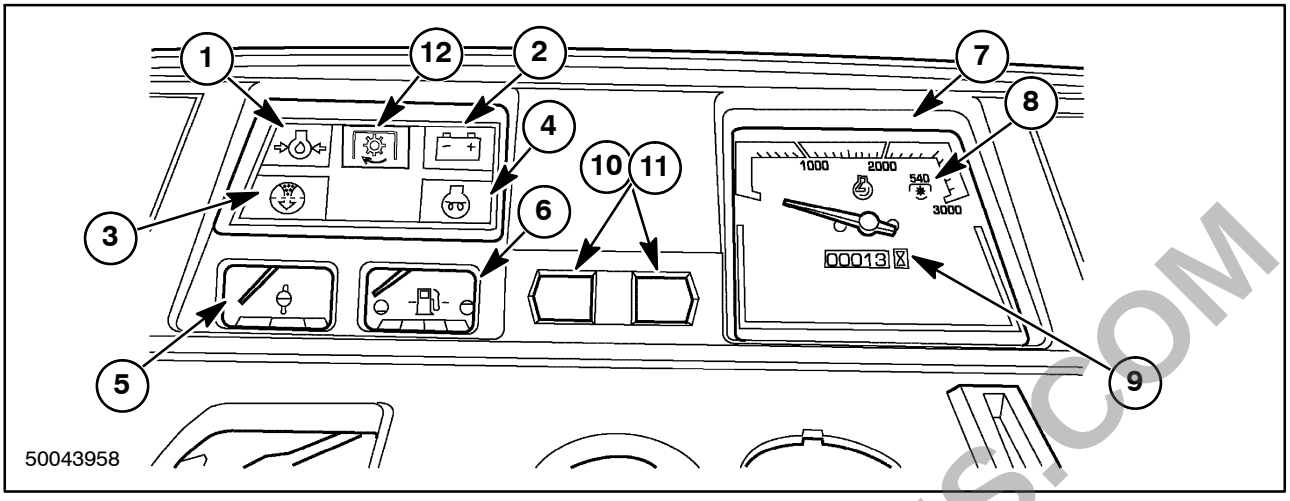
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SECTION 4
SPECIFICATIONS

	Model T1510
ENGINE	
Type	Diesel
Engine Gross Horsepower	22.4 kw (30.0 HP)
Cylinders	3
Bore	84 mm (3.31 in)
Stroke	90 mm (3.54 in)
Displacement	1.496 L (91.3 cu-in)
Compression Ratio	22.2:1
Firing Order	1-2-3
Low Idle Speed	950/1050 RPM
Maximum Speed:	
High Idle	2825 RPM
Rated	2600 RPM
Valve Clearance (Cold):	
Intake	0.20 mm (0.008 in)
Exhaust	0.20 mm (0.008 in)
CAPACITIES	
Fuel Tank	27.0 liters/ 7.1 U.S. gals
Cooling System	4.0 liters/ 4.2 U.S. qts
Engine Crankcase:	
With Filter	4.0 liters/ 4.2 U.S. qts
Rear Axle & Transmission (Includes Hydraulics)	
9x3 (Gear)	32.5 liters/ 8.6 gals
HST	30.5 liters/ 8.1 gals
Front Axle Final Reduction	0.8 liters/ 0.85 U.S. qts
Differential Gear Case	1.4 liters/ 1.5 U.S. qts

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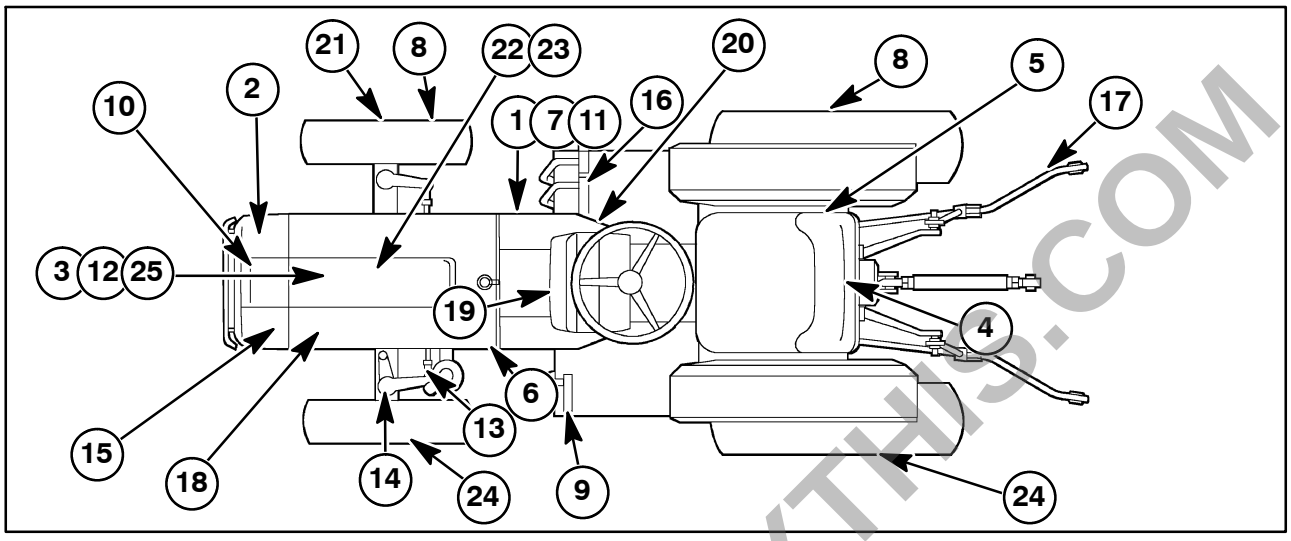
INSTRUMENT PANEL

1. **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 illuminates during operation of tractor, stop the tractor engine immediately and investigate the cause.
2. **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 illuminated during tractor operation, it indicates that the charging system is not working properly. As the battery can become fully discharged under these conditions, the problem should be investigated immediately.
3. **Air Cleaner Restriction Warning Light** – Illuminates when the engine air filter needs to be cleaned or replaced. The engine has to be running and the key switch is in the “ON” position for the light to illuminate. The warning light monitors the engine intake air flow and when approximately 20 inches of vacuum is obtained, the indicator light will illuminate.
4. **Cold Starting Indicator Light** – Illuminates when the key switch is turned to the “HEAT” position. It remains lit for approximately six seconds, when the key is held in the “HEAT” position , during which time the glow plugs are heating the precombustion chambers of the engine cylinder head.
5. **Temperature Gauge** – Indicates engine coolant temperature. It is activated when the key switch to the “ON” or “HEAT” positions. The gauge will register cold with the key switch in the “OFF” position. If the need registers in the white range of the gauge, this indicates a normal operating temperature. If the needle moves to the red portion of the gauge, this indicates an overheated condition. Stop the tractor engine immediately and investigate the cause.
6. **Fuel Gauge** - Indicates the amount of diesel fuel remaining in the tractor fuel 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 “OFF” position.
7. **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
8. **PTO Speed Indicator** – Determined by the position of the needle on the tachometer. The tachometer is marked to indicate 540 PTO RPM. If the needle registers above the 540 RPM mark, this indicates a dangerous over speed condition, and the engine RPM should be reduced immediately.
9. **Proof Meter** – Records the hours and portions of hours that your tractor has been operated. Use the proof meter as a guide to determine hourly service and maintenance intervals. NOTE: Registration of hours and portions of hours your tractor has operated, will be based on an average engine speed of 1867 RPM. Engine speeds below 1867 RPM, accumulate hours at a slower rate than clock hours. Engine speeds above 1867 RPM, accumulate hours at a faster rate than clock hours.
10. **Hazard Flasher Warning Lights** – Operate when the flasher switch is turned on, regardless of the key switch position. Use the flasher warning lights and the SMV emblem when traveling on public roads, day or night.
11. **Flasher Turn Lights** – Operate when the turn signal switch is activated. Rotate the switch counterclockwise for right turns, the right arrow will flash. Rotate the switch clockwise for left turns, the left arrow will flash. The key switch has to be in the “RUN” position.
12. **PTO “ON” Indicator Light** - The PTO indicator light will illuminate amber when either the rear or mid PTO is engaged and the key switch is in the “ACC/RUN” position.

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LUBRICATION AND MAINTENANCE CHART
TWO-WHEEL DRIVE



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					
25	Radiator Prescreen		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		
24	Wheel Bolt Torque	X					
—	All Fluid Levels	X					
8	Tires	X					Every 50 Hours
9	Clutch Pedal	X		X		X	
10	Battery	X		X			
12	Fan Belt	X					
	Lubrication Fittings:						
13	Steering Linkage			X			
14	Front Wheel Spindles (2)			X			
15	Pivot Shaft			X			
16	Brake Pedal			X			
17	3-Point Linkage			X			
18	Power Steering Cylinder			X			
19	Pedal Shaft			X			
20	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		
12	Fan Belt					X	
24	Wheel Bolt Torque	X					
4	Transmission Oil				X		Every 300 Hours
5	Hydraulic Filter				X		
6	H.S. T. Filter				X		
21	Front Wheel Bearings			X			Every 600 Hours *Refer to Repair Manual
22	Fuel Injectors	X					
23	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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MINIMUM HARDWARE TIGHTENING TORQUES

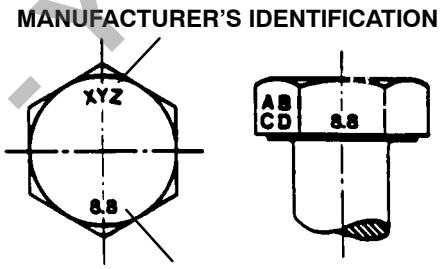
IN NEWTON-METERS (FOOT POUNDS) FOR NORMAL ASSEMBLY APPLICATIONS

METRIC NON-FLANGED HARDWARE AND LOCKNUTS

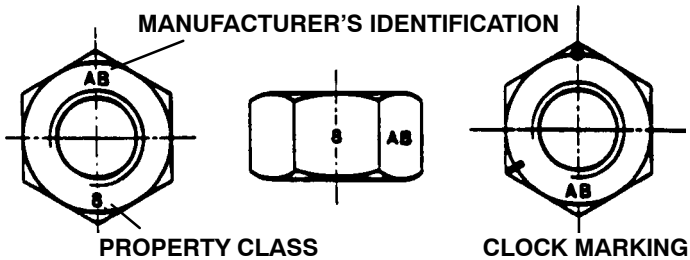
NOMINAL SIZE	CLASS 5.8		CLASS 8.8		CLASS 10.9		LOCKNUT CL.8 W/CL8.8 BOLT
	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr	
M4	1.7 (15)*	2.2 (19)*	2.6 (23)*	3.4 (30)*	3.7 (33)*	4.8 (42)*	2.3 (20)*
M6	5.8 (51)*	7.6 (67)*	8.9 (79)*	12 (102)*	13 (115)*	17 (150)*	7.8 (69)*
M8	14 (124)*	18 (159)*	22 (195)*	28 (248)*	31 (274)*	40 (354)*	19 (169)*
M10	28 (21)	36 (27)	43 (32)	56 (41)	61 (45)	79 (58)	38 (28)
M12	49 (36)	63 (46)	75 (55)	97 (72)	107 (79)	138 (102)	66 (49)
M16	121 (89)	158 (117)	186 (137)	240 (177)	266 (196)	344 (254)	164 (121)
M20	237 (175)	307 (226)	375 (277)	485 (358)	519 (383)	671 (495)	330 (243)
M24	411 (303)	531 (392)	648 (478)	839 (619)	897 (662)	1160 (855)	572 (422)

NOTE: Torque values shown with * are inch pounds.

IDENTIFICATION
HEX CAP SCREW AND CARRIAGE BOLTS
CLASSES 5.6 AND UP



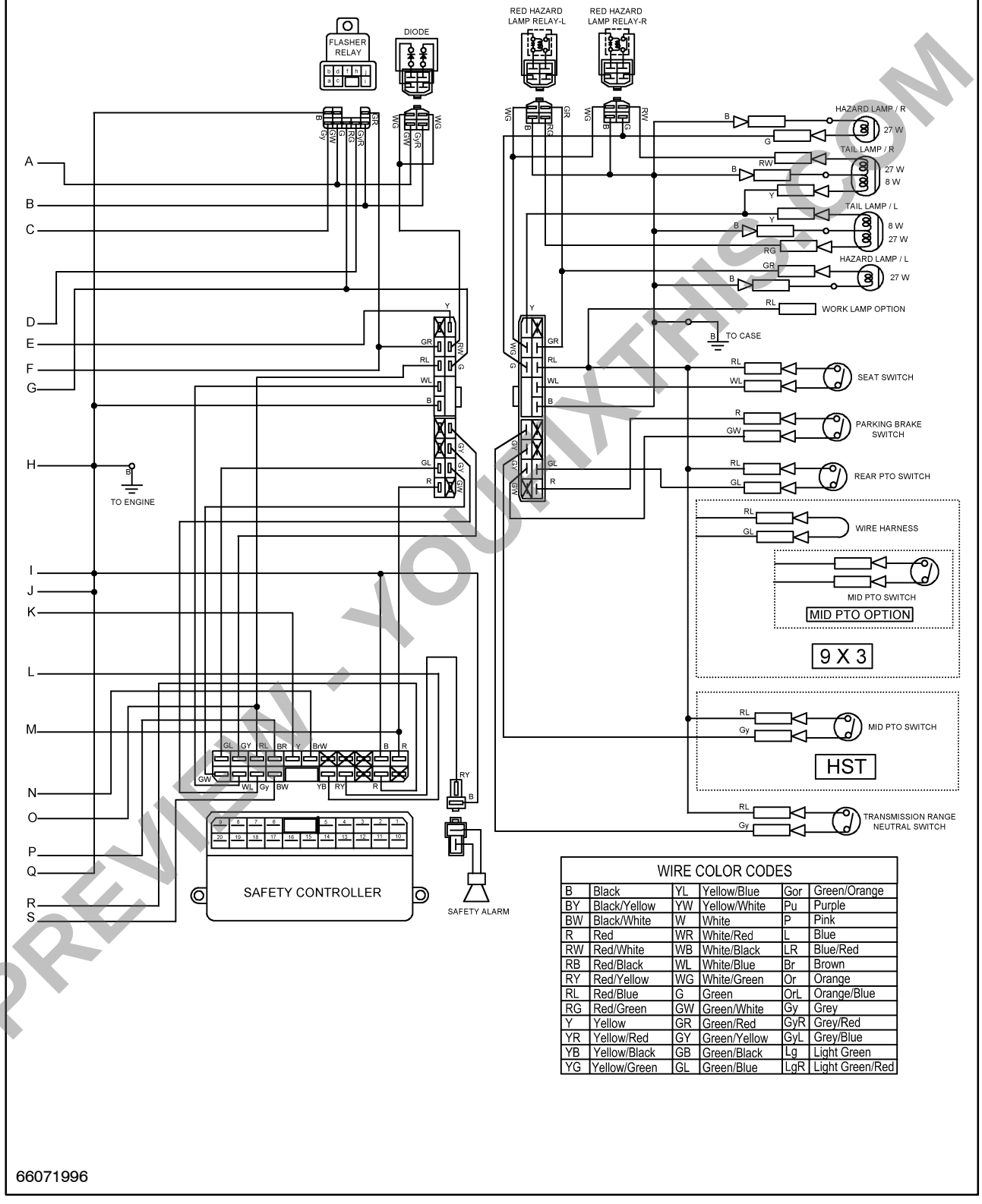
HEX NUTS AND LOCKNUTS
CLASSES 05 AND UP



86529681 REV F 5.1

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WIRE COLOR CODES					
B	Black	YL	Yellow/Blue	Gor	Green/Orange
BY	Black/Yellow	YW	Yellow/White	Pu	Purple
BW	Black/White	W	White	P	Pink
R	Red	WR	White/Red	L	Blue
RW	Red/White	WB	White/Black	LR	Blue/Red
RB	Red/Black	WL	White/Blue	Br	Brown
RY	Red/Yellow	WG	White/Green	Or	Orange
RL	Red/Blue	G	Green	OrL	Orange/Blue
RG	Red/Green	GW	Green/White	Gy	Grey
Y	Yellow	GR	Green/Red	GyR	Grey/Red
YR	Yellow/Red	GY	Green/Yellow	GyL	Grey/Blue
YB	Yellow/Black	GB	Green/Black	Lg	Light Green
YG	Yellow/Green	GL	Green/Blue	LgR	Light Green/Red

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	Model T1510
COOLING SYSTEM	
Type	Pressurized Liquid with Recirculating Bypass
Water Pump:	
Type	Centrifugal
Drive	V-Belt
Belt Deflection	5-10 mm (0.20-0.40 in) when 5 kg (11 lb) thumb pressure is applied midway between belt pulleys
Fan Diameter	340 mm (13.4 in
Thermostat:	
Start to Open	82°C (180°F)
Fully Open	95°C (203°F)
Radiator Cap	0.9 bar (13 PSI)
ELECTRICAL SYSTEM	
Alternator	12-volt, Heavy Duty, 40 amps
Battery	12-volt, w/negative ground, 420 cca BCI Group 24
Starting Motor	Solenoid Pre-Engaged Reduction
FUEL SYSTEM	
Fuel Type	Diesel
Type of Fuel to Use if Above 40°F	No. 2-Diesel, Cetane Rating: Minimum 40
Type of Fuel to Use if Below 40°F	No. 1-Diesel, Cetane Rating: Minimum 40
Injection Pump:	
Type	In-Line
Timing	21° BTDC

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STARTING THE ENGINE

The key switch allows activation of the starter motor and fuel delivery only when:

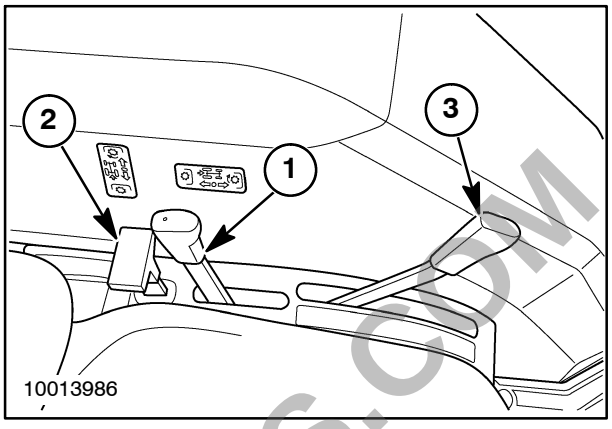
1. The rear, 1, and mid PTO, 2, (if equipped) lever(s) are in the “OFF” position.
2. The range lever, 3, is in the “NEUTRAL” position.
3. Depress clutch pedal, 4.

NOTE: *The tractor can be started with the operator out of the seat and the park brake NOT applied. However, an alarm will sound indicating that the operator needs to either apply the park brake or sit in the seat.*

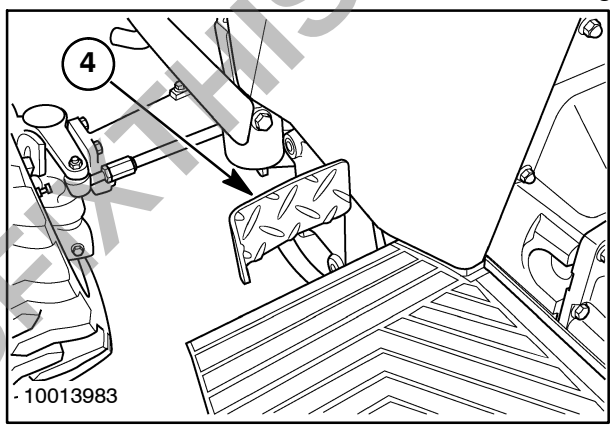
Always use safe practices when starting your tractor. Turn the key to the extreme right. Position the hand throttle forward so that it is one-fourth to one-third open.

⚠ WARNING ⚠

Always sit in the operator’s seat when starting the tractor. Never attempt to start the engine while standing beside the tractor.



8

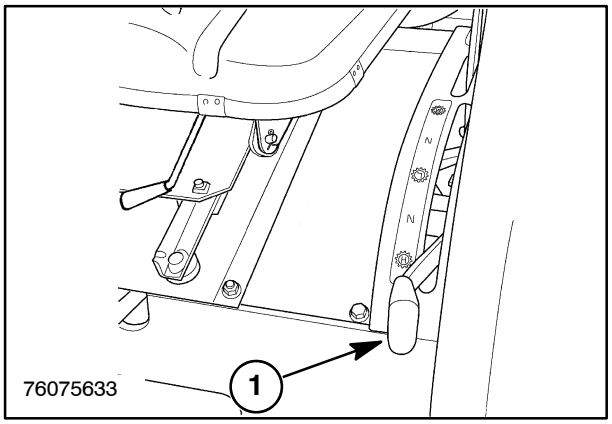


9

IMPORTANT: *Do not engage the starting motor continuously for more than 30 seconds. Doing so may cause starting motor failure.*

The engine will shut off in approximately two seconds if the operator leaves the seat without the range lever in the neutral position.

NOTE: *The range lever, 1, must be in the “NEUTRAL” position to allow the operator to leave the seat, when the tractor engine is in operation. If the “REAR PTO” is in the “ON” position, the engine will remain operating. If the “MID PTO” is in the “ON” position, the engine will shut off in approximately two seconds.*



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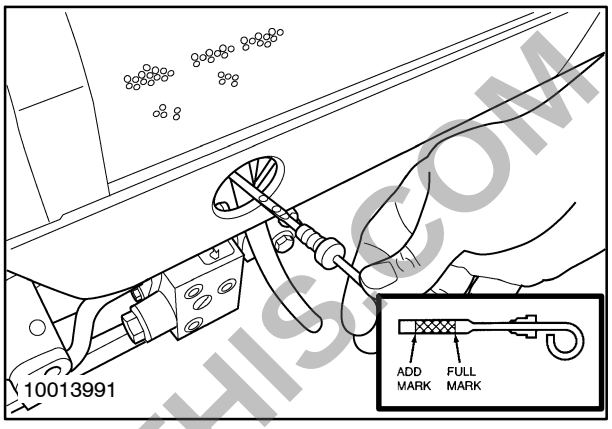
FUEL AND LUBRICANT SERVICE PROCEDURES

ENGINE

Checking the Engine Oil Level

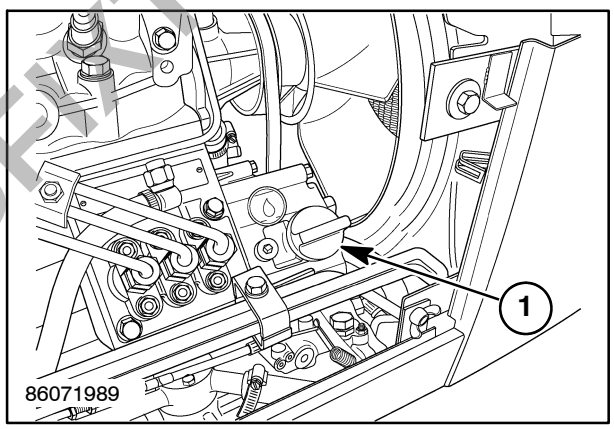
NOTE: *Check the engine oil level daily or after every 10 hours of operation.*

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.



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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.



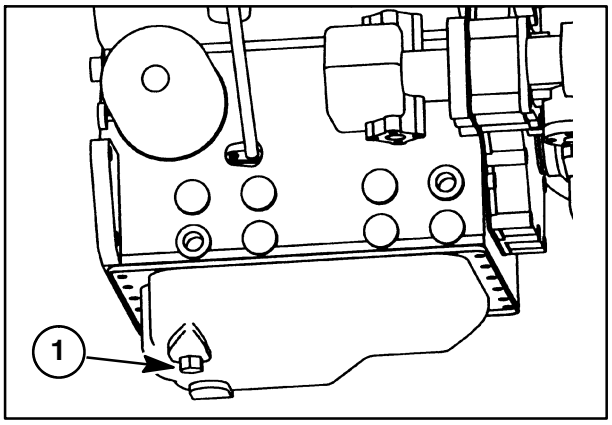
5

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.



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MINIMUM HARDWARE TIGHTENING TORQUES

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

INCH NON-FLANGED 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	6.2 (55)*	8.1 (72)*	9.7 (86)*	13 (112)*	14 (121)*	18 (157)*	8.5 (75)*	12.2 (109)*	1/4
5/16	13 (115)*	17 (149)*	20 (178)*	26 (229)*	28 (250)*	37 (324)*	17.5 (155)*	25 (220)*	5/16
3/8	23 (17)	30 (22)	35 (26)	46 (34)	50 (37)	65 (48)	31 (23)	44 (33)	3/8
7/16	37 (27)	47 (35)	57 (42)	73 (54)	80 (59)	104 (77)	50 (37)	71 (53)	7/16
1/2	57 (42)	73 (54)	87 (64)	113 (83)	123 (91)	159 (117)	76 (56)	108 (80)	1/2
9/16	81 (60)	104 (77)	125 (92)	163 (120)	176 (130)	229 (169)	111 (82)	156 (115)	9/16
5/8	112 (83)	145 (107)	174 (128)	224 (165)	244 (180)	316 (233)	153 (113)	215 (159)	5/8
3/4	198 (146)	256 (189)	306 (226)	397 (293)	432 (319)	560 (413)	271 (200)	383 (282)	3/4
7/8	193 (142)	248 (183)	495 (365)	641 (473)	698 (515)	904 (667)	437 (323)	617 (455)	7/8
1	289 (213)	373 (275)	742 (547)	960 (708)	1048 (773)	1356 (1000)	654 (483)	924 (681)	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

86529681 REV F 5.2

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	Model T1510
CLUTCH	
Type	225 mm (8.86 in) - Transmission 9 x 3 (2WD) & HST 215 mm (8.46 in) - PTO (9 x 3) (FWD) Transmission Dry Disc, Organic Face
Pedal Free-Travel	19 - 30 mm (3/4 - 1-3/16 in)
BRAKES	
Type	Wet Disc
Disc (2 per side)	155 mm x 123 mm Diameter (6.1 in x 4.84 in
STEERING	
Type	Power
Turns Lock-to-Lock:	
2WD	3.36/2.66
FWD	2.98/2.36
Front Wheel Toe-In	0 - 5 mm (0 - 13/64 in)
Turning Radius w/o Brakes:	
2WD	2640 mm (104 in)
FWD	2946 mm (116 in)
POWER TAKE-OFF	
Type	Transmission, single clutch - HST Live, dual clutch - 9x3
Shaft:	
Rear PTO	35 mm (1-3/8 in)
Mid PTO	25.4 mm (1 in)
Engine Speed for 540 RPM Rear PTO Operation	2449 RPM - 9x3 Transmission 2462 RPM - HST Transmission
Horsepower PTO Observed	19.0 kw (25.5 HP) - 9x3 Transmission 17.9 kw (24.0 HP) - HST Transmission
Engine Speed for 2000 RPM Optional Mid PTO Operation	2330 RPM - 9x3 Transmission 2342 RPM - HST Transmission
HYDRAULIC LIFT SYSTEM	
Type	Open Center
Pump Type	Gear
Pump Capacity	23.3 lpm (6.2 U.S. gpm)
System Relief Valve Setting	145 bar (2133 PSI)

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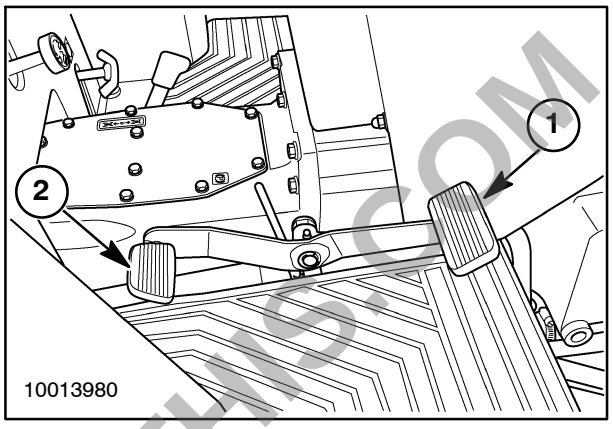
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HYDROSTATIC TRANSMISSION (H.S.T.) MODEL

H.S.T. FOOT PEDAL

The ground speed of tractors equipped with a hydrostatic transmission is continuously variable, from zero to full rated speed in each range. Speed is controlled by the H.S.T. rocker pedal located on the right-hand foot platform.

For forward travel, depress the forward pad, 1, on the pedal until the desired ground speed is reached. For reverse travel, depress the rear pad, 2, on the pedal. Unless the H.S.T. speed control lever is in the "LOCK" position, the transmission returns to neutral and the tractor stops when the pedal is released.



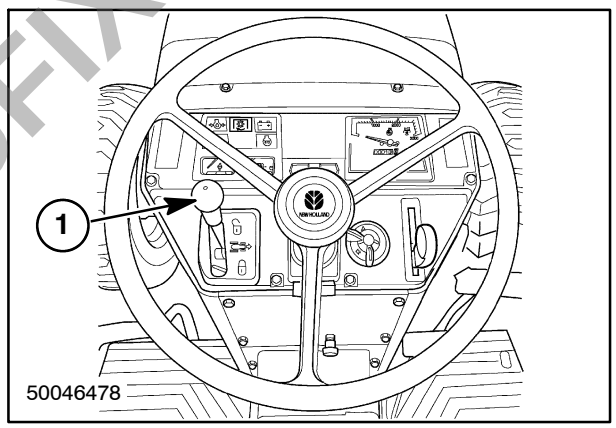
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H.S.T. SPEED CONTROL LEVER (Optional)

The H.S.T. speed control lever,1, is located on the left-hand side of the console. It is used to maintain a constant forward speed. The speed control will not set the speed during operation in the reverse mode.

When the desired travel speed is reached, pull the lever rearward into the" **LOCK"** position. To cancel the speed setting or to stop the tractor, push the lever forward into the "**UNLOCK "**position.

Independent brake application is possible with the speed control lever in the "**LOCK**" position, but when applying both brakes together, be sure to disengage the clutch.



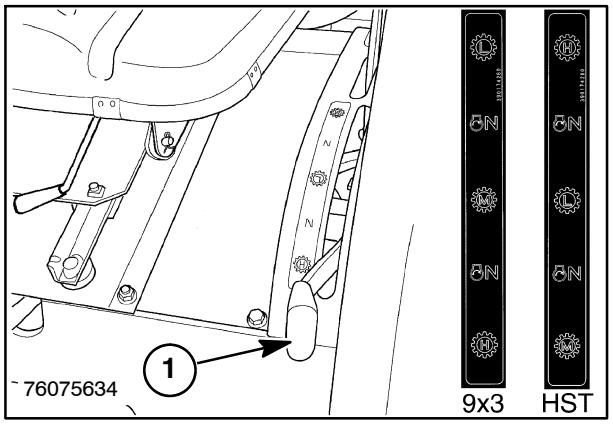
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⚠ CAUTION ⚠

To avoid personal injury and maintain optimum control of the tractor, do not use the speed control at high speeds or when roading the tractor.

TRANSMISSION RANGE LEVER

The range lever, 1, is located on the left of the seat. It has three ranges and two neutral positions. The lever must be in one of the neutral positions to activate the safety start system and allow the engine to start.



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