

Changing the Fuel Filter

NOTE: Change the diesel fuel filter after the first 50 hours of operation, then following every 200 operating hours thereafter.

1. Close the shutoff valve (the handle should be pointing to the “C” position).
2. Remove the sediment bowl by rotating the retaining nut, 1.
3. Open the fuel shutoff valve, 2, to drain any remaining water from the tank.
4. Discard the old element, 3, and install a new element.
5. Inspect the O rings, 4 and 5, and replace if necessary.
6. Install and securely tighten the sediment bowl.
7. Open the fuel shutoff valve (the handle should be pointing to the “O” position), 2, so fuel will flow to the filter.
8. Bleed the fuel filter and injection pump as described below in “Bleeding the Fuel System.”

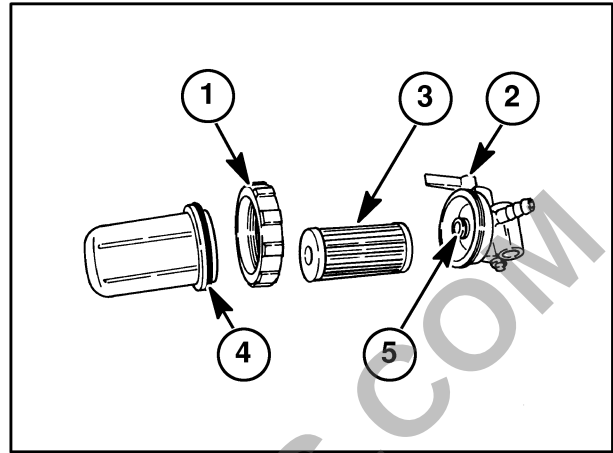


Figure 3-8

Bleeding Air From the Fuel System

Bleed the fuel system if:

- it has been drained.
- a new filter element has been installed.
- the tractor has run out of fuel.
- the lines leading to or from the filter have been disconnected.
- the injection pump has been removed and reinstalled.

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



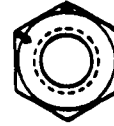
SAE GRADE 8



REGULAR NUTS



SAE GRADE 5
HEX NUTS



SAE GRADE 8
HEX NUTS

LOCKNUTS

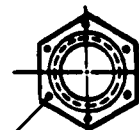


GRADE IDENTIFICATION

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 IDENTIFICATION

GRADE A NO MARK

GRADE B LETTER B

GRADE C LETTER C

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.

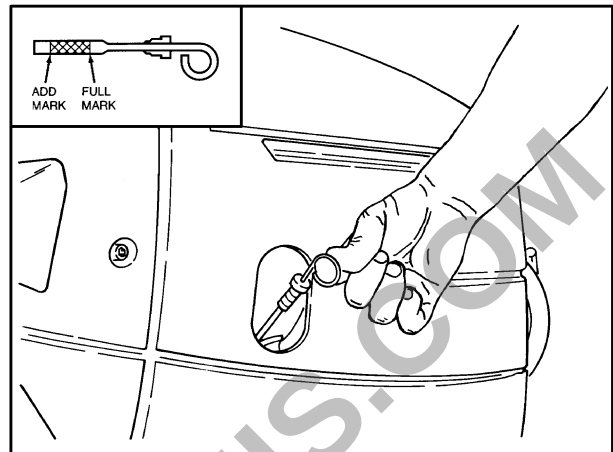


Figure 3-3

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.

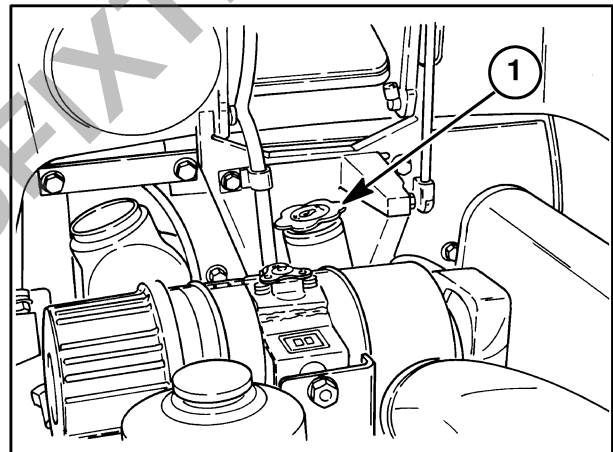


Figure 3-4

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.

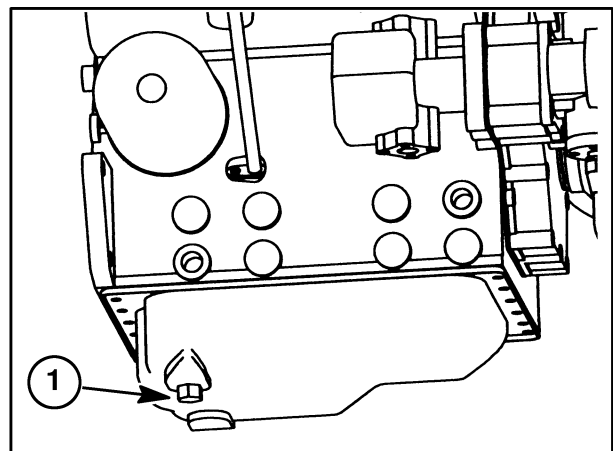


Figure 3-5

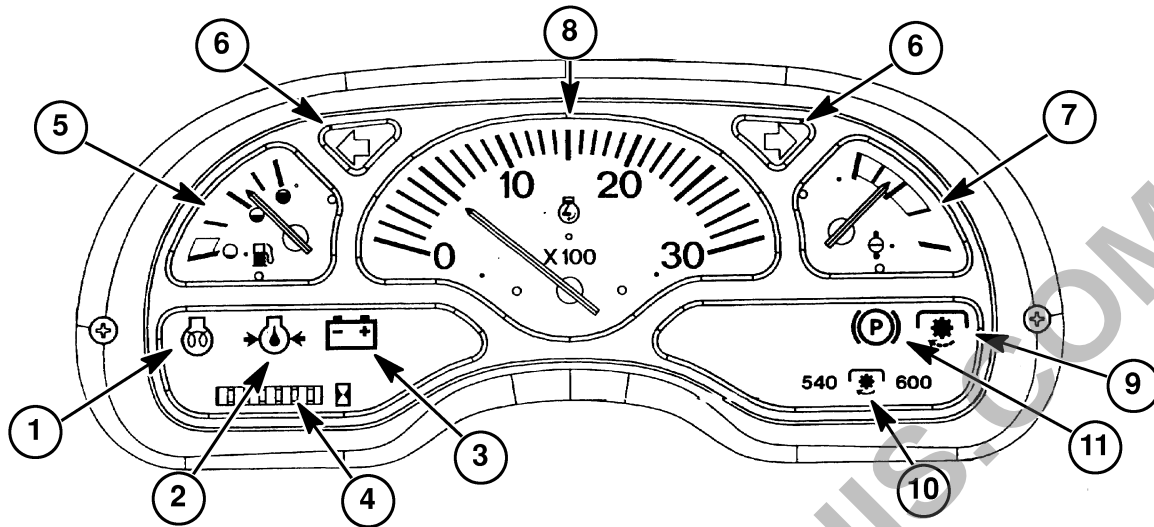


Figure 2-7

INSTRUMENT PANEL

1. **Cold Starting Indicator Light**— Illuminates when the key switch is turned to the "HEAT" position. It remains lit for approximately four seconds 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. **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.
4. **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.
5. **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.
6. **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.
7. **Temperature Gauge**—Indicates coolant temperature. It is activated when the key switch is turned to the "ON" or "HEAT" positions. The gauge will register cold with the key switch in the "STOP" position. If the needle registers in the green 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.
8. **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.
9. **PTO On Indicator**—When either the rear or mid PTO is engaged, the indicator will be illuminated amber with key in the "HEAT," "START" or "ON" positions.
10. **Rear/Mid PTO Speed**—Indicated by illumination of an green or red light. When the rear PTO is turning at 540 RPM or the mid PTO is turning at 2000 RPM, the green PTO indicator will light. When the rear PTO is turning at 600 RPM or above or the mid PTO is turning above 2000 RPM, the red PTO indicator will illuminate, indicating an over speed and warning the operator of danger.
11. **Parking Brake Light**—Illuminates if the parking brake is engaged when the key switch is turned from the "OFF" position.

SECTION 4

SPECIFICATIONS

	Model DX25— Hydrostatic	Model DX29— Hydrostatic	Model DX33— Hydrostatic
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.)	1.50 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)	33.3 liters/ 8.8 U.S. gals.	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.	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.

LUBRICATION AND MAINTENANCE CHART CASE IH DX25, DX29, DX33 — FRONT-WHEEL DRIVE

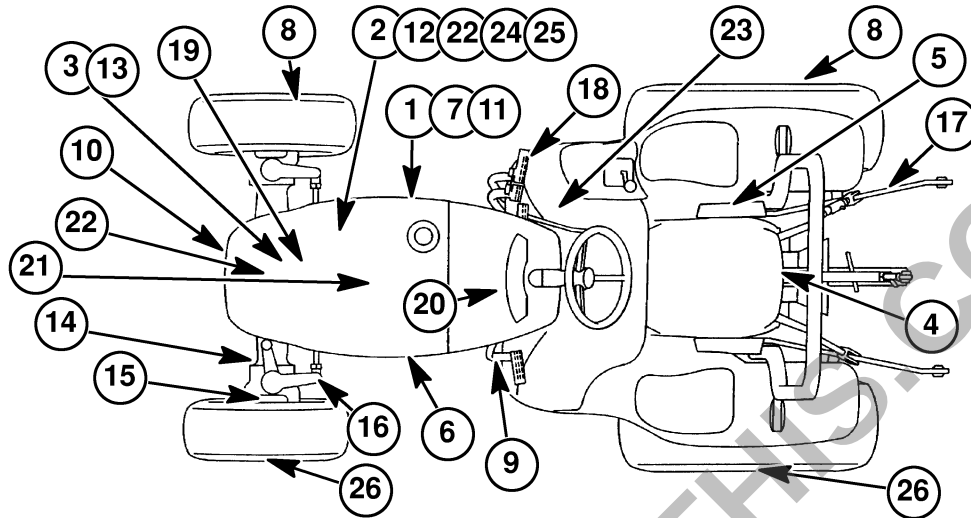


Figure 3-1

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

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

FRONT-WHEEL DRIVE

The front-wheel drive option is controlled by a lever, 1, located on the left-hand control pod.

To engage front-wheel drive, depress the clutch pedal fully and move the lever completely forward. To disengage front-wheel drive, depress the clutch pedal and move the lever fully rearward.

IMPORTANT: Use front-wheel drive when additional traction is required while operating on loose soil, in wet, slippery conditions, or on slopes. For normal operation on firm soil, level hard surfaces, or when roading the unit at high speeds, disengage the front-wheel drive to maximize tire and driveline life and to economize on fuel.

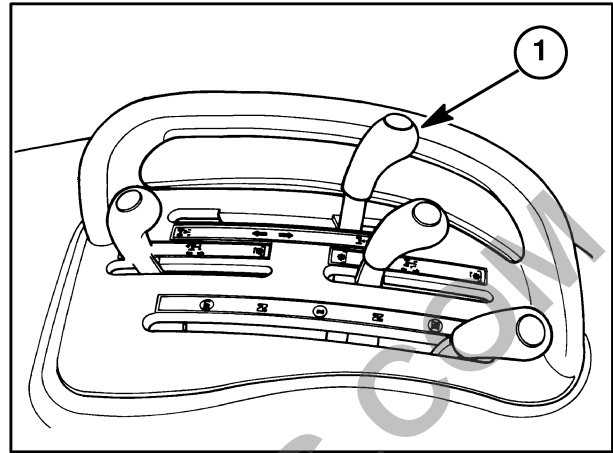


Figure 2-16

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 switch is in the "LOCK" position, the transmission returns to neutral and the tractor stops when the pedal is released.

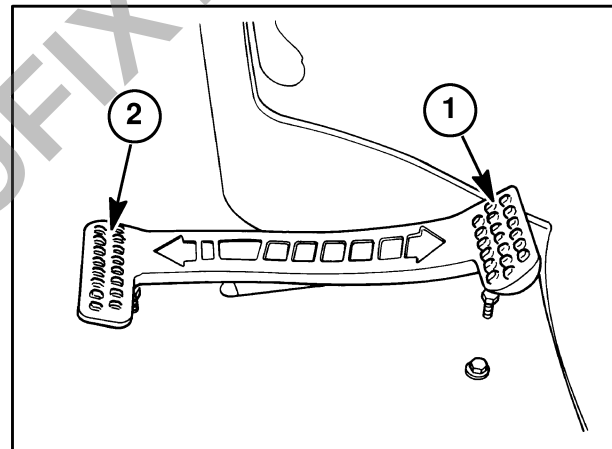


Figure 2-17

H.S.T. RANGE LEVER

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

To select the desired operating range, the H.S.T. pedal must be in the neutral position and the clutch pedal depressed.

IMPORTANT: Never attempt to engage or disengage the range lever when the tractor is in motion.

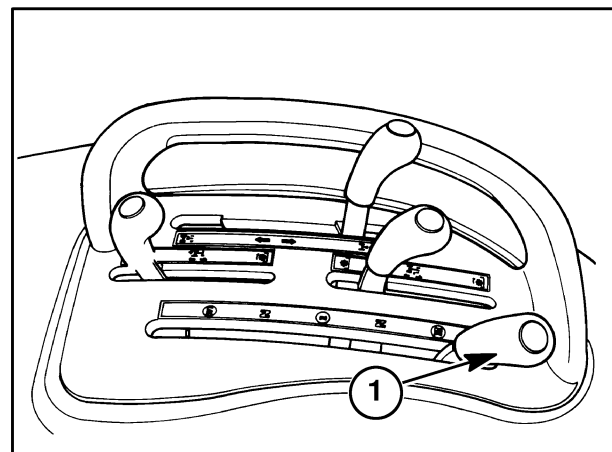


Figure 2-18

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.



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, Figure 2-15, 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.

To apply the parking brake:

1. Lock the brake pedals together using the brake pedal lock.
2. Depress both brake pedals.
3. Pull up on the "T" 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.

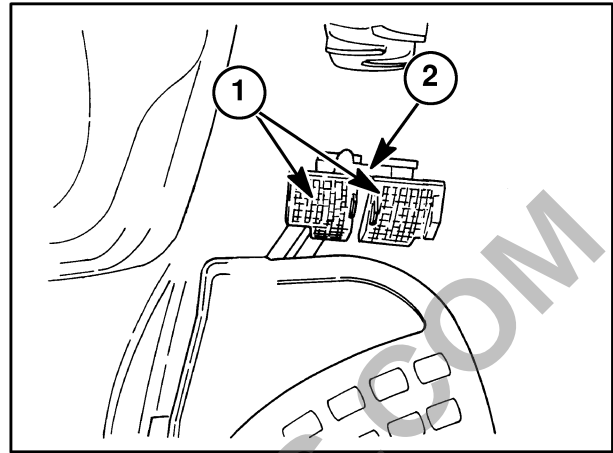


Figure 2-14

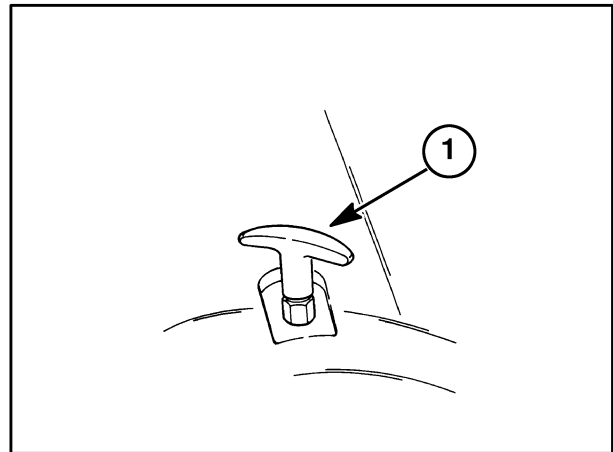


Figure 2-15

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