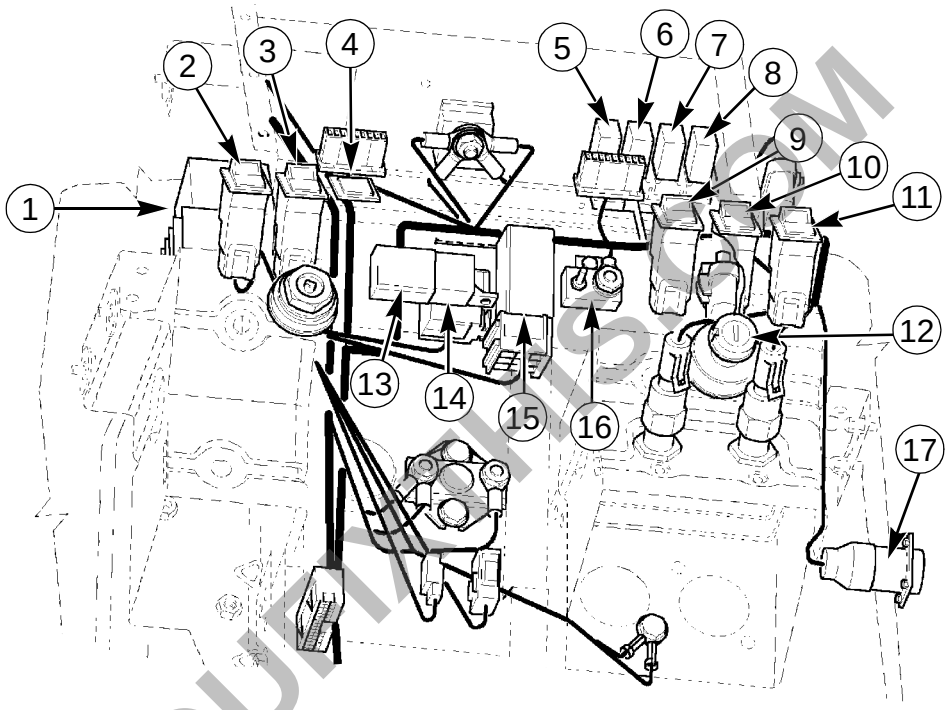
RELAYS

Relays under Instrument Panel



1. **FUSE BLOCK**
2. COLD START SWITCH
3. WORK LAMP SWITCH
4. REAR FOG LAMP SWITCH
5. **LOWER WORK LIGHT RELAY**
6. **CAB ROOF WORK LIGHT RELAY**
7. **ACCESSORY POWER RELAY**
8. **HEADLAMP RELAY**
9. HAZARD WARNING SWITCH
10. ROTATING BEACON SWITCH
11. HEADLAMP CHANGE OVER SWITCH
12. KEY SWITCH
13. **CAB POWER RELAY**
14. **HEADLAMP DIPPER RELAY**
15. **FLASHER RELAY**
16. **BLOWER MOTOR CIRCUIT RELAY**
17. 3 PIN ACCESSORY POWER

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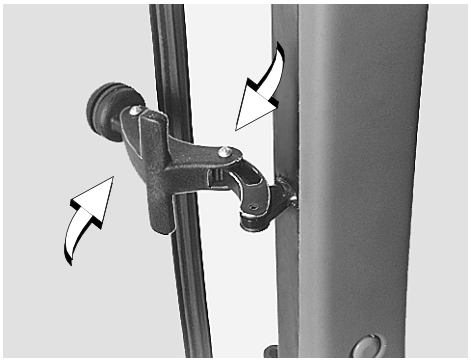
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ADDITIONAL CAB FEATURES

Cab Side Windows



DD95M220

Push the window arm rearward and then push the arm out until the window stops.

Opening Windshield (If Equipped)



DP96H290

Release catches, (one each side) and push the bottom outward.

IMPORTANT: *DO NOT open the windshield when using a front loader.*

Cab Rear Window



DD95M217

Ventilation - The lever in the slot (as shown).

Emergency Exit - window fully open.

Sun Visor



DP96J366

Pull down or push up as required.

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SPECIFICATIONS

DIESEL ENGINE

Type
MX100 to MX135 ..... 6T-590 Six Cylinder Four Stroke Cycle, Turbocharged
MX150 to MX170 ..... 6TA-590 Six Cylinder Four Stroke Cycle, Turbocharged
Firing Order 1-5-3-6-2-4
Piston Displacement ..... 5.88 Litres (359 cu inch)
Engine High Idle Speed, Without Load ..... 2425 rpm (+/- 25rpm)
Rated Engine Speed ..... 2200 rpm
Engine Low Idle Speed ..... 1000 rpm (+/- 50 rpm)
Rocker Arm-to-Valve Clearance, Cold (Exhaust) ..... 0.5 mm (0.02 inch)
(Intake) ..... 0.25 mm (0.01 inch)

IMPORTANT: *Rocker Arm-to-Valve Clearance adjustment must be made when the engine is not running.*

Air Intake System

Type ..... Dry Type Air Induction System, Two Stage Filter System with Service Indicator on instrument cluster

Engine Cooling System

System Type ..... Pressure System, Thermostat Controlled Bypass, and Impeller Type Pump
Radiator ..... Heavy Duty, Fin and Tube Type
Thermostat Operation ..... Starts to Open at Approximately 83°C (180°F) Fully Open at 95°C (203°F)
Radiator Cap Pressure ..... 103 kPa (15 psi)
Fan Drive ..... Viscous

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REGULAR SERVICE INTERVALS

SERVICE HOURS	SERVICE POINTS	SEE PAGE	SERVICE REQUIRED				
			GREASE	DRAIN	CHECK	CLEAN	CHANGE
10	Front Wheel Nuts	220			X		
	Rear Wheel Nuts	230			X		
	Fuel Level	209			X		
	Engine Oil Level	260			X		
	Transmission/Hydraulic Oil Level	261			X		
	Coolant Recovery Reservoir Level	260			X		
	Front PTO oil Level	262			X		
	Pneumatic Trailer Brake Reservoir	262		X			
	General Tractor Inspection (See Note 1)	-			X		
50	Air Pressure in Tires	199			X		
	Fuel Water Trap - Fuel Filter	268		X			
	2WD Front Axle Grease Points	263	X				
	MFD Front Axle Grease Points	265	X				
	Independent Front Suspension Grease Points	266					
	Engine Air Filter Dust Valve	268			X		
	Radiator and Coolers	269				X	
	Cab Air Recirculation Filter	270				X	
100	Rear Three Point Linkage	271	X				
	Front Three Point Linkage	272	X				
	Cab Air Intake Filter	273				X	
300	Front PTO Oil - (See Notes 6 and 7)	276					X
	Auto Hitch Locking Latches - (See Notes 2 and 6)	276	X				
	Axle Diff. and Planetary Oil - (See Note 5)	277			X		
	Compressor Belt	282			X		
	Fan and Alternator Belt	283			X		
	Battery(s)	280			X		
	Trailer Hitch, Bolt Torques - (See Notes 2 and 6)	278			X		
	Trailer Hitch, Moving parts - (See Notes 2 and 6)	278	X				
	Drawbar Bolt Torques - (See Note 6)	279			X		
	Engine Oil and Oil Filter	284					X

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PTO Control Module Error Code Retrieval

PTO system error codes are stored in the memory of the PTO module for various control system error conditions. A maximum of ten error codes may be stored in memory. A repeating error is stored only once unless separated by a different error(s). To access error codes from the PTO control module do the following:

STEP 1

Put key switch in the OFF position.

STEP 2

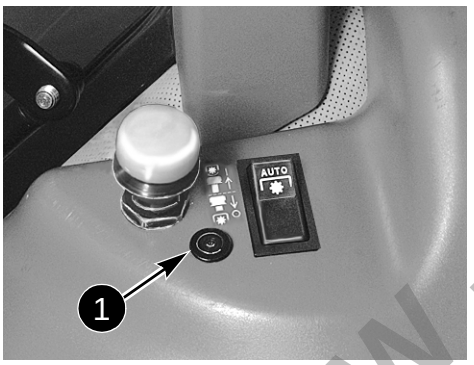
Stand up clear of the seat, DO NOT LEAN ON THE SEAT.

STEP 3

Engage the PTO, (see Step 1 on page 122 for complete instructions).

STEP 4

Turn the key switch to the ON position, DO NOT START THE ENGINE.



DD99B124

An error code is a 2 digit number. Each digit of an error code number is indicated by a series of flashes from the PTO LAMP (1).

TO IDENTIFY ERROR CODE: Count the number of rapid flashes separated by a 2 second pause. The most recent code will be indicated first if there is more than one.

The first series of flashes represent the first digit of the error code, the second series of flashes represent the second digit of the error code.

Example:

FLASH, FLASH = **2**

Then a 2 Second Pause.

FLASH, FLASH, FLASH, FLASH = **4**

Then a 5 Second Pause.

The sequence above represents error code **24**.

If the PTO ON/OFF switch is NOT moved, the same error code will be repeated after the 5 second pause.

If the PTO ON/OFF switch is moved from the ON position to the OFF position and then back to the ON position the next error code will be displayed.

IMPORTANT: *DO NOT move the PTO ON/OFF switch rapidly from ON to OFF as this may erase error codes.*

Report all error codes to your dealer.

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Setting The Front Wheel Toe-In (Cont'd)

Adjustment

2WD ..... 2 to 6 mm

MFD ..... 0 to 3 mm

INDEPENDENT FRONT SUSPENSION .....4 to 8 mm (TOE-OUT)*

***NOTE:** *For Independent Front Suspension the TOE-OUT measurement must be taken with the axle fully lowered. This gives a neutral (zero) toe-in value when the suspended axle is raised to the mid position of the total axle range.*

- Adjust the length of each tie rod, by the same amount, as required.
- Make sure the tyres do not contact the steering cylinder when on full lock.

WARNING: *Before carrying out any servicing on tractors equipped with Independent Front Suspension make sure the keyswitch is in the OFF position, the suspension mode switch is in the OFF position and the axle is fully lowered to the bottom mechanical stop. Failure to do this may result in serious injury.*
M753

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OPERATING INSTRUCTIONS

BEFORE STARTING THE ENGINE

IMPORTANT: *An OPERATOR PRESENCE SAFETY SWITCH is fitted in the FORWARD-NEUTRAL-REVERSE (F-N-R) circuit, activated by the operator sitting on the seat. See OPERATING THE TRANSMISSION on Page 68 of this manual.*

WARNING: *ONLY operate the tractor when sitting on the seat. DO NOT try to bypass the OPERATOR PRESENCE SAFETY SWITCH, for example, by putting heavy objects on the seat. This can result in serious injury or death.* M519

WARNING: *Before starting the engine, be sure all operating controls are in neutral and the park brake is engaged. This will eliminate accidental movement of the machine or start up of power driven equipment.* M106E

WARNING: *Never start the engine in a closed building. Proper ventilation is required under all circumstances.* M142A

Do the following checks before starting the tractor for the first time. .

1. Make sure all persons that operate or do maintenance on the tractor understand that clean fuel is important.
2. Check all lubrication fittings.
3. Check the oil levels in the engine crankcase and transmission.
4. Check the water level in the batteries (if battery is not maintenance - free).
5. Check that the fuel tank is filled with clean fuel of the specifications given in this manual. Clean around the fuel tank cap before you remove the cap.
6. Check the fuel system, cooling system and engine oil pan for leaks.
7. Check that the alternator and compressor belts are adjusted correctly.
8. Remove any water or sediment from the fuel primary filter.
9. Check the air pressure of the tyres.
10. If your tractor has a power takeoff, make sure the safety guard is installed and in good condition.
11. Check the coolant level in the coolant recovery bottle and radiator. Add water and ethylene glycol coolant as needed.

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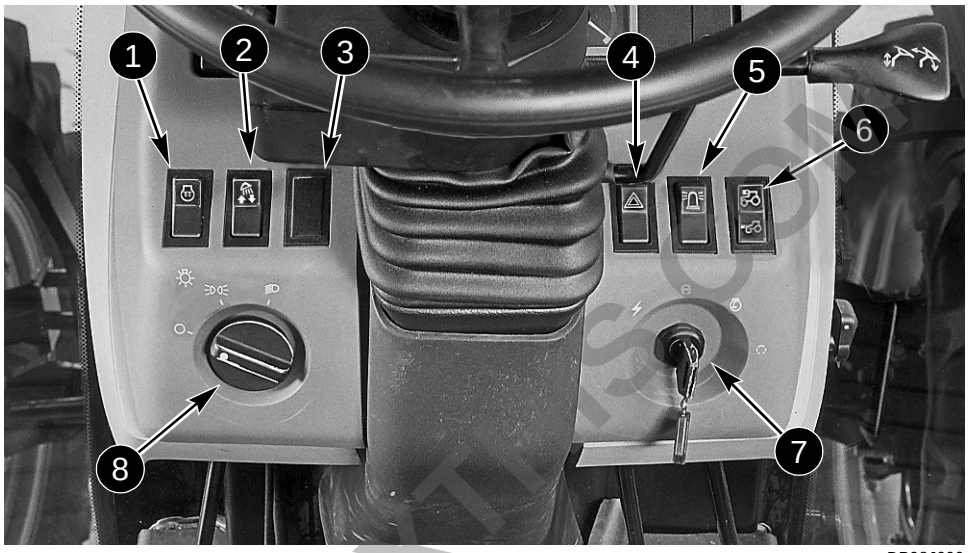
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OPERATING CONTROLS

Instrument Panel



DP98J006

1. THERMOSTART (COLD START) SWITCH (If Equipped) See page 65 for instructions.

2. WORK LIGHTS - Three position rocker switch. The lights will operate as follows:

   First Position - OFF.

   Second Position - The lower front and rear work lights are ON. The worklight indicator lamp on the instrument cluster will illuminate.

   Third Position - The lower and upper, front and rear, work lights are ON. The lamp in the rocker switch will be illuminated to indicate the upper worklights are now ON. (The instrument cluster indicator lamp continues to illuminate to confirm the lower worklights are ON).

3. REAR FOG LIGHT (If Equipped)

4. HAZARD WARNING SIGNAL SWITCH

5. ROTATING BEACON SWITCH (If Equipped)

6. UPPER HEAD LAMPS SWITCH (If Equipped with Front Hitch) - With head lamp switch in third position press the front of the switch down, upper head lamps will illuminate and main head lamps will go off.

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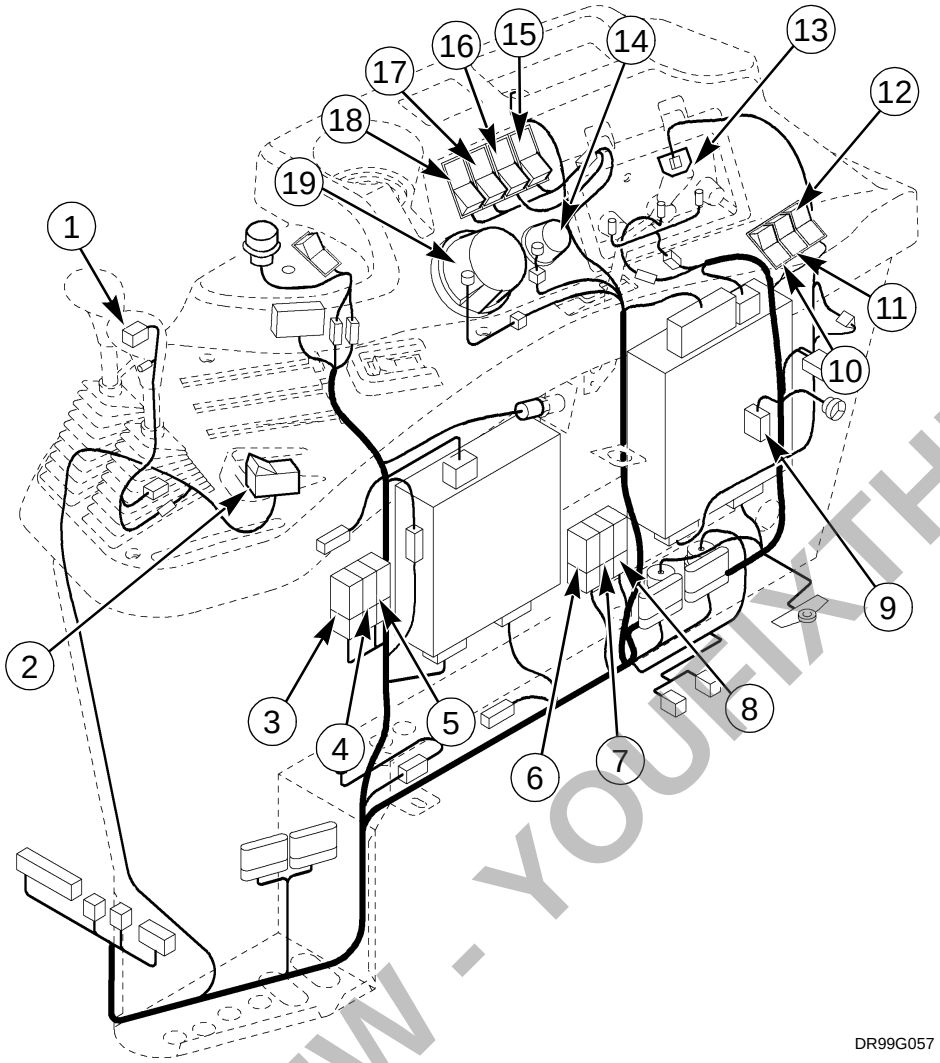
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Relays under R/H Side Console



1. POWERSHIFT SWITCH
2. HITCH UP/DOWN SWITCH
3. **POWERSHIFT RELAY S2 SOLENOID**
4. **POWERSHIFT RELAY S1 SOLENOID**
5. **MFD RELAY**
6. **RIGHT BRAKE RELAY**
7. **LEFT BRAKE RELAY**
8. **FRONT PTO RELAY (IF EQUIPPED)**
9. AFS CONNECTOR
10. SUSPENSION ON/OFF SWITCH
11. SUSPENSION OVERRIDE SWITCH
12. RIDE CONTROL SWITCH
13. HITCH RESPOSE CONTROLS
14. HITCH LOAD CONTROL
15. WHEEL SLIP LIMIT SWITCH
16. FRONT PTO SWITCH
17. MFD SWITCH
18. DIFF LOCK SWITCH
19. HITCH POSITION CONTROL

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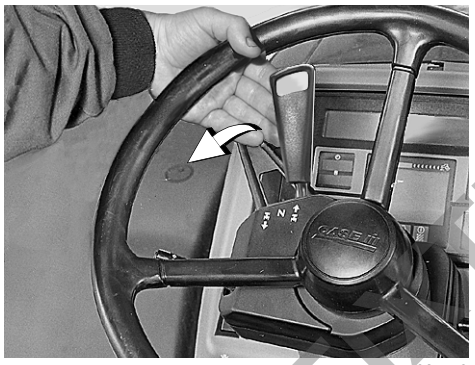
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PARKING THE TRACTOR

Stationary Tractor Operation (Engine Running)

Before doing any PTO and/or HYDRAULIC operation do the following:

STEP 1



DR98J150

Stop the tractor and put the Forward/ Neutral/Reverse lever in NEUTRAL position.

STEP 2



DP96J337

If equipped with synchromesh transmission, put the range and speed levers in the NEUTRAL position. If equipped with powershift transmission, put the range lever in the NEUTRAL position.

Stopping The Engine

- Carry out steps 1 and 2 in opposite column.

STEP 3



DR99B071

Disengage the PTO if in operation.

STEP 4



DP96J347

Move the throttle lever fully rearward to the low idle position for three to five minutes to decrease the temperature of the engine and turbocharger, before stopping the engine.

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Engine Lubrication System

Oil Pressure ..... 296 to 372 kPa (43 to 54 psi)
with Engine Warm and Operating at 2200 rpm

Oil Filter (1) ..... Full Flow, Turn on Type
Bypass Valve in Oil Cooler Cover

Oil Cooler ..... Cooled by Engine Coolant

Engine Fuel System

Fuel Injection Pump Type,
MX100 and MX110 ..... Bosch A/RSV without Aneroid

MX120 to MX170 ..... Bosch A /RSV with Aneroid

Fuel Pump Static Timing ..... 14 Degrees Cam Angle Before (TDC)
Top Dead Center of No. 1 Cylinder

Fuel Injectors ..... Case J929490

Fuel Primer Pump ..... Camshaft Driven, Plunger Type

Governor ..... Mechanical, Centrifugal, Part of Fuel Injection Pump

Fuel Filter ..... Full Flow, Turn on Type

Water Trap ..... Bottom of Fuel Filter

Drain for Fuel Tank ..... Located in Bottom Rear of Tank

Fuel Tank Capacity
MX100 to MX135 ..... 265 Litres (58.3 UK Gallons)
MX150 and MX170 ..... 347 Litres (76.3 UK Gallons)

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SERVICE HOURS	SERVICE POINTS	SEE PAGE	SERVICE REQUIRED				
			GREASE	DRAIN	CHECK	CLEAN	CHANGE
600	Engine Fuel Filter	286					X
	Operator Presence Switch Function	292			X		
	Auto Hitch Lift Rod Adjustment (See Notes 2 and 6)	290			X		
1200	Engine Air Intake System	293			X		
	Engine Primary Air Filter (See Notes 2 and 4)	294					X
	Engine Secondary Air Filter	294					X
	Transmission/Hydraulic Oil	297					X
	Transmission/Hydraulic System Breather	300					X
	Transmission/Hydraulic Oil Filter (See Note 5)	297					X
	Transmission/Hydraulic Oil Strainer	300				X	
	In-Line Fuel Filter	301					X
	Axle Planetaries and Differential Oil (See Note 5)	304					X
	Fuel Injectors	301				X	
	Cab Intake Air Filter (See Note 3)	305					X
	Cooling System Anti-Freeze (yearly before winter)	308			X		
	Door Locks and Hinges	-	X				
	Engine Valve Clearances	293			X		
2400	Coolant	307					X

NOTE 1: *Check the tractor for leaks, rubbing hoses, loose bolts and trash build up. Repair all leaks, hoses and tighten loose bolts before op=eration.*

NOTE 2: *Check for wear and function.*

NOTE 3: *In dusty conditions the cab filter will require more frequent cleaning.*

NOTE 4: *Also clean the filter element whenever the service monitor illuminates.*

NOTE 5: *Change at first 300 hours.*

NOTE 6: *If equipped.*

NOTE 7: *After 300 PTO operating hours.*

NOTE 8: *In severe operating conditions, grease daily.*

NOTE 9: *After any wheel adjustment, check after 30 minutes, then every 10 hours until torques stabilize.*

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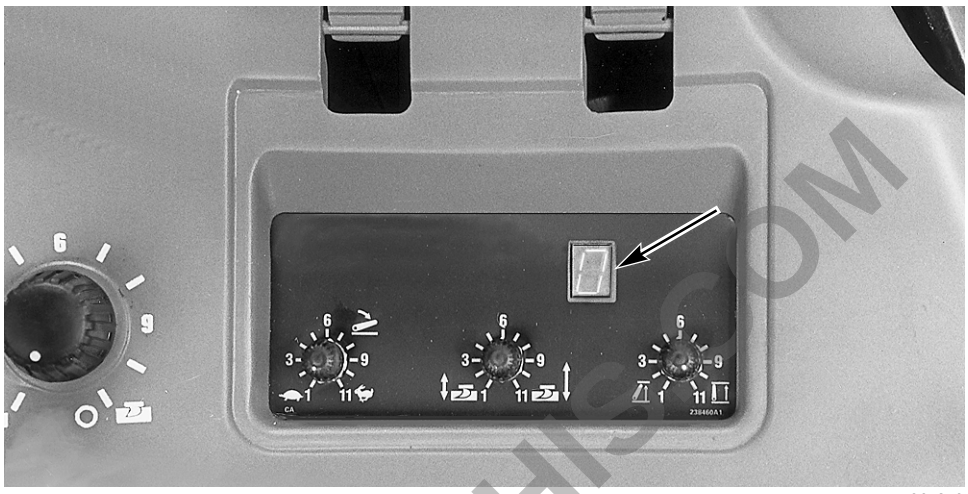
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REAR THREE POINT HITCH DIAGNOSTIC DISPLAY



DP96J340

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The Hitch Diagnostic display tells the operator the condition of the electronic load control system by a diagnostic code.

When power is applied to the electronic load control system, the figure “8” is displayed for 1 to 2 seconds for a display check. If any segment of the display is not illuminated, see your dealer.



DI95K036

Hitch Diagnostic Codes



DI95K037

The “0” code indicates SYSTEMS NORMAL

SYSTEMS NORMAL means that the electrical and electronic parts of the hitch system are functioning normally. This display does not tell the operator if the controls are not adjusted correctly or if there is an hydraulic problem. If the display code is “0” and the hitch performance is reduced from what it had been, contact your dealer.

NOTE: *The DOT after the zero indicates that the tractor is not moving. When the tractor moves a minimum of 0.8 km/h (0.5 mph) the DOT should disappear. If the Dot does not disappear, contact your dealer.*

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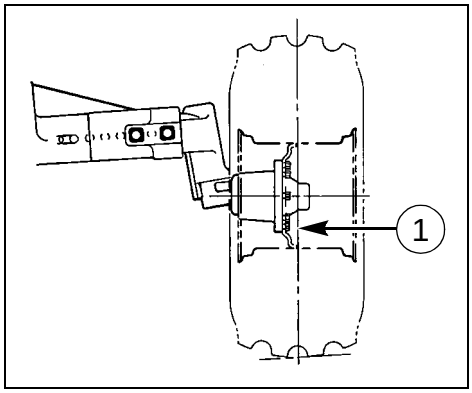
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FRONT WHEEL BOLT TORQUES

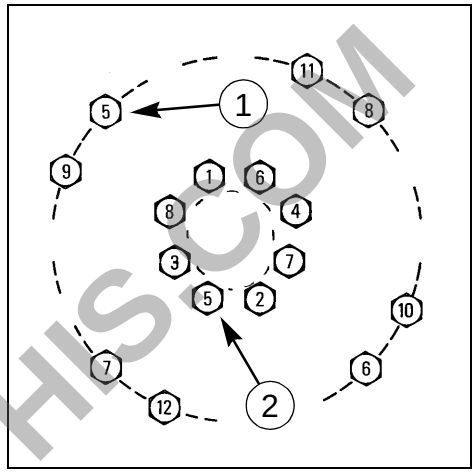
Two Wheel Drive (2WD)



342L9

Tighten the wheel to hub mounting bolts (1) to a torque of 190 to 217 Nm (140 to 160 lb ft).

Mechanical Front Drive (MFD)



5100166

Tighten the center disc to rim nuts (1) to a torque of 280 to 310 Nm (206 to 229 ft lb) in the numbered sequence shown. The center disc must fit flush against the rim lugs when assembled.

Tighten the center disc to axle hub nuts (2) to a torque of 300 to 350 Nm (221 to 258 ft lb) for NEW nuts and 400 to 450 Nm (295 to 332 ft lb) for USED nuts in the numbered sequence shown.

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NORMAL STARTING PROCEDURE

WARNING: *On electrically operated MFD tractors, the MFD clutch is spring loaded into engagement and relies on hydraulic pressure for disengagement. A failure in the MFD hydraulic system will therefore automatically engage the MFD even though the MFD switch is in the disengaged position. This is a built in safety feature. DO NOT operate MFD tractor transmissions with the rear wheels off the ground or removed, UNLESS THE FRONT WHEELS ARE ALSO JACKED UP CLEAR OF THE GROUND OR THE FRONT AXLE DRIVE SHAFT IS DISCONNECTED. Failure to do this can result in the tractor being pulled off the rear supports by the front axle.* M291

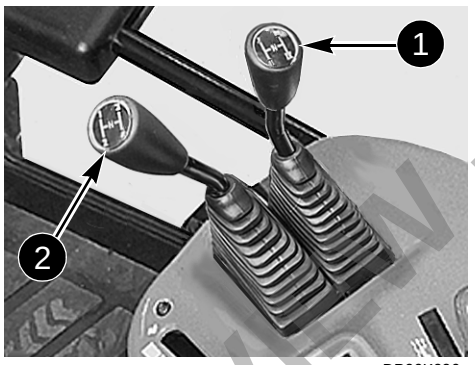
WARNING: *Operate controls only when seated in the Operators seat.* M137A

IMPORTANT: *Operate the engine at idle speed for a few minutes to make sure that enough lubricant reaches the turbocharger bearings and engine parts before operating the engine at rated speed.*

STEP 1

Turn on the master disconnect switch, (If equipped).

STEP 2



DP96K096

If equipped with SYNCHROMESH TRANSMISSION, put the range lever (1) and the speed lever (2) into the NEUTRAL position.

STEP 2 (continued)



DP96J337

If equipped with POWERSHIFT TRANSMISSION, put the range lever into the NEUTRAL position.

Continued ....

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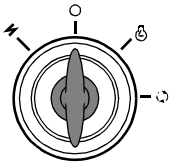
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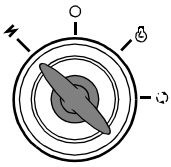
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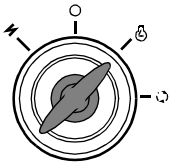
7. KEY SWITCH - The key switch has four positions as follows:



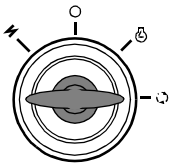
Off Position - Turn from On/Run position counter clockwise to stop the tractor. The key can only be removed from this position.



Accessory Position - The radio can be operated in this position and some of the cluster displays, also used for programming the digital instrument cluster.



On/Run Position - All bar graphs, digital displays, warning and indicator lamps will be turned on for approximately 3.5 seconds. This position is also used for dynamic calibration of rear tyre size and true ground speed sensor, if equipped.



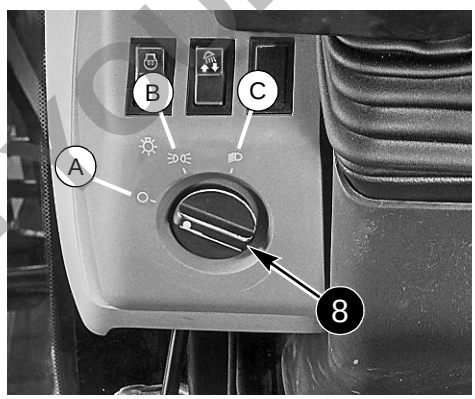
Start Position - Turn the key fully clockwise against spring pressure will energise the starter motor in addition to the circuits already mentioned above.

8. HEAD LAMP SWITCH - This is a three position switch. The lamps will operate as follows:

A. First Position - All lamps OFF.

B. Second Position - Front position lamps, tail lamps, license plate lamps and the side console illumination lamp will illuminate. Also analog cluster illumination lamps will be ON.

C. Third Position - Front side lamps, tail lamps, license plate lamps, the side console illumination lamp and main head lamps will illuminate.



DP97C136

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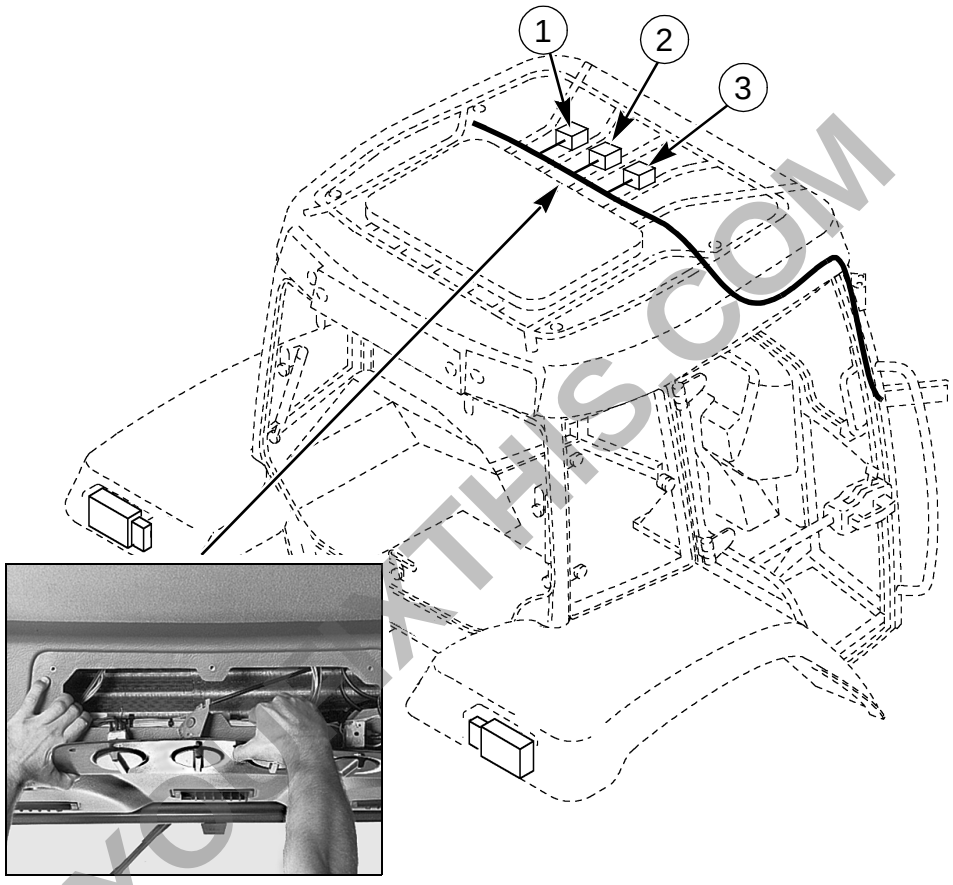
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Relays In Front Headliner



DI97K102 & RP96H331

1. **AIR CONDITIONING RELAY**
2. **LEFT HAND BLOWER RELAY**
3. **RIGHT HAND BLOWER RELAY**

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FIELD OPERATION

TRANSMISSION CREEPER OPERATION (If Equipped)

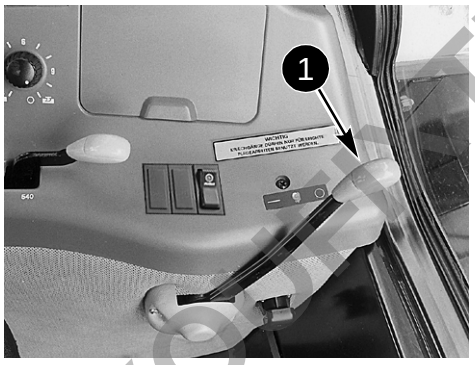
Transmission creeper speeds can be used for PTO type harvesting operations or other applications where slower ground speeds are desired.

To operate in creeper use the following procedure.

STEP 1

Put all transmission levers in NEUTRAL and start the engine.

STEP 2



DR99G160

Push the clutch pedal fully down and move the creeper lever (1) positively FORWARD to the engaged position.

STEP 3

Keep the clutch pedal fully down and select required range, See speed charts in Specification section.

NOTE: *Ranges 3 and 4 should not be used with high draft loads. Using creep with high draft loads will cause gear damage.*

STEP 4

Select powershift speed 1.

STEP 5

Select FORWARD or REVERSE.

STEP 6

Disengage the park brake and release the clutch pedal slowly. The tractor will start moving.

Adjust engine speed to obtain required travel speed.

STEP 7

Change transmission gear/speed as in normal transmission operation.

Push the clutch pedal fully down to change range.

To disengage the creeper, reduce the engine speed to slow idle, push the clutch pedal fully down and move the creeper lever positively REARWARD to the disengaged position.

NOTE: *A small amount of gear clash may occur when engaging and disengaging creep speeds. Engagement effort will be high, especially when changing from creep to direct drive when the oil is cold.*

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