

CONTROLS AND INSTRUMENTATION

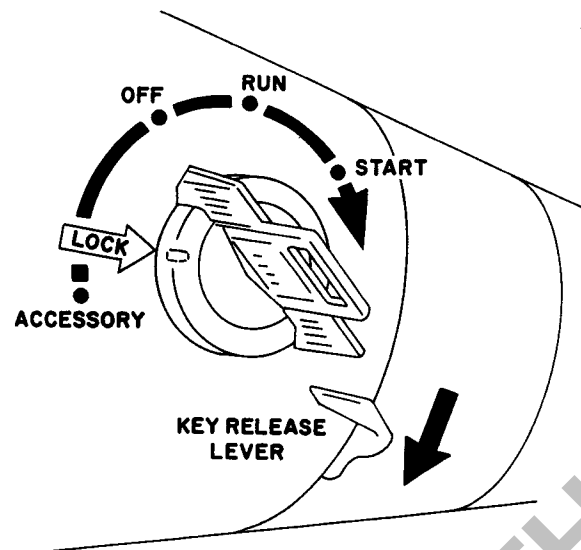


FIGURE 1-8

IMPORTANT: The following section locates, identifies and briefly describes the functions of all cab controls. All operators should familiarize themselves with control location and function prior to machine operation. Failure to do so may result in unsafe operation of the machine and possible injury or death to operators and bystanders.

STEERING COLUMN CONTROLS

Figure 1-8

Keyswitch/Anti-Theft Lock: The keyswitch has five positions.

Accessory: Electrical accessories can be used when the engine is not running. Push key IN and turn key towards you.

Off-Lock: Normal parked position locks the electrical system and steering wheel. The key cannot be removed or returned to lock without pressing down the key release lever.

Off: Engine and electrical functions remain OFF without locking the steering wheel.

Run: Turns the electrical system ON and is normal operating position.

Start: Cranks engine. Release key to return to Run position.

SECTION 2

OPERATION



CAUTION: DO NOT OPERATE THE TRACTOR IN A CLOSED BUILDING.

BEFORE STARTING THE ENGINE, BE SURE ALL OPERATING CONTROLS ARE IN NEUTRAL OR OFF AND THE PARKBRAKE IS ENGAGED.

OPERATE ALL CONTROLS ONLY FROM THE OPERATOR'S SEAT.

STOP THE ENGINE BEFORE SERVICING THE TRACTOR.

KEEP ALL SHIELDS IN PLACE.

USE HANDHOLDS AND STEPS WHEN MOUNTING AND DISMOUNTING THE TRACTOR.

USE ARTICULATION LOCK IN STATIONARY APPLICATIONS AND SERVICING. DO NOT USE WHEN THE TRACTOR IS MOVING.

ON HIGHWAYS, SIGNAL BEFORE STOPPING, TURNING OR SLOWING DOWN THE TRACTOR.

USE PROPER SAFETY DEVICES TO WARN OF SLOW-MOVING VEHICLE WHEN DRIVING ON PUBLIC ROADS. CHECK WITH LOCAL AUTHORITIES CONCERNING HIGHWAY TRAVEL.

ENGINE BREAK-IN

The Cummins® engine used in VERSATILE tractors has been run on a dynamometer before installation but not enough to be considered broken in.

1. Do not operate the engine at more than $\frac{3}{4}$ load for the first 24 hours of operation. Full load should only be held for short intervals during the next 24 hours of operation.
2. Check oil level every 8 to 10 hours for the first 100 hours of operation.
3. Follow recommendations outlined in the Cummins manual supplied with your tractor.

BREAK-IN PERIOD

The first 50 hours of operation are the most critical for insuring long and dependable tractor life. Do the following:

1. Review the tractor predelivery checklist with your dealer. Be sure all applicable items on the sheet have been checked.
2. Check all fluid levels and be sure all systems are filled with the right fluids for your operating conditions.
3. Check the engine, transmission and hydraulic oil levels hourly during the first 10 hours of operation.
4. Inspect the tractor for leaks hourly during the first 10 hours of operation.
5. Torque the tie rods and wheel bolts after the first hour of operation and every 50 hours thereafter. Torque the tie rods to 220 ft. lbs. (300 N·m), jam nuts to 150 ft. lbs. (200 N·m), and wheel bolts to 325 ft. lbs. (440 N·m).
6. Operate the engine at $\frac{3}{4}$ load as much as possible ($\frac{3}{4}$ load is approximately one gear lower than would be normally used to pull a matched load).
7. Do not operate the engine at idle speed or maximum horsepower for more than 5 minutes at a time.
8. Check the frame pivot pin, drag link and steering cylinder cap screw torques after the first 10 hours of operation. Torque to 130 ft. lbs. (175 N·m).
9. Change the differential and planetary gear oil after the first 50 hours of operation.
10. Check all oil levels daily for the first 50 hours of operation.
11. Change the engine oil and filters after the first 50 hours of operation.
12. Change the hydraulic return filters and transmission oil filter after the first 50 hours of operation.

SECTION 3

LUBRICATION AND MAINTENANCE

Service intervals recommended in this manual are based on operation under average farming conditions. When operating the tractor in severe heat, cold, dust or humidity or severe duty, service the tractor more frequently.

LUBRICATION AND MAINTENANCE SCHEDULE

Figures 3-1 through 3-9

LEGEND:

A/R: As required HRS: Hours YR: Year LUB: Type of Lubricant
NO OF PTS: Number of points (of each item) to lubricate

	A/R	10 HRS.	50 HRS.	250 HRS. (6 MOS.)	500 HRS.	1 YR.	LUB.	NO. OF PTS.
Air-conditioner and drain traps - Check	... X							
Axle/planetary oil level - Check			X	X	X	X	C	6
Axle/planetary oil level - Change ¹			X		X	X	C	6
Batteries - Check				X	X	X		
Belt tension - Check		X	X	X	X	X		
Brake fluid level - Check			X	X	X	X	D	
Brake pads condition - Check				X	X	X		
Cab filter element - Check		X	X	X	X			
Cab filter element - Clean			X	X	X	X		
Cab air filter element - Replace						X		
Clutch release bearing and carrier bearing - Grease			X	X	X	X	F	2
Clutch cross shaft - Grease			X	X	X	X	E	2
Decelerator adjustment - Check	... X							
Door and window hinge pins - Lube						X	E	5
Drag link pivot bearings - Grease			X	X	X	X	E	4
Engine air intake connections - Check			X	X	X	X		
Engine air filter outer element - Clean	... X							
Engine air filter outer element - Replace	... X					X		
Engine air filter inner element - Replace	... X					X		
Engine coolant level - Check		X	X	X	X	X		
Engine coolant - Change						X		

1. Change oil after the first 50 hours of operation and every 500 hours or yearly (whichever comes first) thereafter. For row crop axle, add 2 oz. (60 ml) limited slip additive for every gallon of oil.
2. Change filters after the first 50 hours of operation and every 250 hours or 6 months (whichever comes first) thereafter.
3. Torque wheel bolts after the first hour and first 10 hours of operation and every 250 hours of operation.
4. Change oil first 50 hours and every 500 hours or yearly, whichever comes first.

SECTION 4

TROUBLESHOOTING

12 X 3 POWERSHIFT (846) ERROR CODES

The following list of error codes are shown on the gear display of the tractor if a fault is present. Listed with the error codes are their possible causes, effects and the corrective measures required.

If the cause of the error code cannot be corrected by the measures suggested, consult your Ford New Holland dealer.

NOTE: Repairs and adjustments to the powershift control system require special service tools and procedures to be performed by qualified technicians only, consult your Ford New Holland dealer.

ERROR CODE: P

CAUSE:

Power supply to controller is less than 9V.
Poor wiring connections.

RESPONSE:

Display error code and transmission goes to neutral.

EFFECT:

Display error code and transmission remains in neutral until defect is corrected.

TO CLEAR CODE:

Restore voltage to system. Repair circuit.
(Consult dealer.)

ERROR CODE: PP

CAUSE:

Input voltage fallen below 10.4 volts for 0.1 seconds or more.

RESPONSE:

Display error code and transmission goes to neutral.

EFFECT:

Display error code and transmission remains in neutral until defect is corrected.

TO CLEAR CODE:

Restore voltage to system. Repair circuit.
(Consult dealer.)

ERROR CODE: ≡

CAUSE:

Open or short in clutch solenoid or wiring.

RESPONSE:

Displays error code in display last digit with number of defective solenoid in right digit (Solenoid 10 is shown as "0"). If more than one solenoid is defective, only will be displayed.

EFFECT:

Continuous display of error code and transmission remains in neutral.

TO CLEAR CODE:

Repair solenoid wiring circuit. Replace defective solenoid(s). (Consult dealer.)

SECTION 5

SPECIFICATIONS

Blurred on purpose. The manual you buy has this page in full quality.

SAFETY

National Safety Council statistics indicate many people die or suffer serious injury each year as a result of farm accidents.

Don't become a statistic or victim.

Carefully review the procedures given in this manual with all operators ANNUALLY. It is important that all operator's be familiar with, AND FOLLOW, safety precautions.

Operating instructions must be given to everyone using the tractor before operation and at least once yearly thereafter in compliance with OSHA Regulation 1928.57 (United States).

GENERAL SAFETY

1. Never let an unqualified or untrained driver operate the tractor.
2. Keep a fire extinguisher with ABC rating in the cab. Maintain it and be familiar with its use.
3. Never carry passengers.
4. Never operate the tractor in a closed building. Provide adequate ventilation. Engine exhaust fumes are poisonous and can kill.
5. Always keep sleeves, jackets or other clothing relatively tight and belted. Loose clothing may catch in moving parts and result in personal injury or death.
6. Provide a first-aid kit in the cab for use in case of accident.
7. Never jump from the tractor. There is a danger of catching clothing on protruding parts.
8. Use steps and handholds when mounting and dismounting the tractor or for servicing components too high to reach from the ground.
9. Fasten your seat belt before starting the engine.
10. Safety devices are intended to protect operators from injury or death. Under no circumstances should they be disabled or removed.
11. To provide a better view, certain photos and illustrations show a safety shield removed. It is important that a machine never be operated in this way. Keep all shields in place.

OPERATING SAFETY

1. Always operate the tractor controls sitting in the operator's seat.
2. Lock the seat in position and buckle your seat belt before operating the tractor.
3. Always start the tractor with the transmission in neutral and the other operating controls either in the OFF or neutral position.
4. Always wait until all warning lights and the audio alarm go out before putting the tractor in gear.
5. Never oil, grease or adjust the tractor while it is running. Do not leave the engine running while the tractor or drawn equipment is being adjusted, repaired or cleaned.
6. Be sure the parkbrake is set when the tractor is stopped. The tractor can freewheel even when in gear.
7. Avoid abrupt turns, starts or stops, especially at high speeds.
8. Keep all safety shields in place when operating the tractor.
9. Do not operate the tractor when you are tired, sick or impaired.
10. Never operate the tractor in confined areas. Visibility next to the tractor is reduced. Injury to bystanders or damage to the tractor or equipment may result.
11. Do not start the engine by shorting across the starter terminals. The engine can start and the machine can move when the starting safety switch is bypassed.

SAFE OPERATION IN ROUGH TERRAIN

1. Drive the tractor slowly on hillsides and curves to eliminate the danger of tipping. Avoid slopes which are too steep for safe operation. Avoid sharp uphill turns.
2. Always drive slowly over rough ground. Drive at speeds slow enough to insure your safety.
3. When driving out of a ditch, gully or up a steep hillside, engage the clutch slowly. Avoid sharp uphill turns.
4. When descending steep grades, select a sufficiently low gear to maintain control with minimum braking.

FORD NEW HOLLAND WARRANTY DETAIL

The warranty period will begin on date of original retail sale or date of original use, whichever is earlier.

- The obligation of Company to the purchaser under this warranty is limited to the repair or replacement of defective parts by an authorized Ford New Holland dealer and will be done free of charge for both parts and labor using genuine Ford New Holland replacement parts. Repair or replacement in accordance with this warranty shall constitute fulfillment of all liabilities of Company and the Selling Dealer in respect to such Products.
- Repairs or replacements will be performed by the Selling Dealer, following delivery of the Product by the purchaser to the Dealer's place of business. When the purchaser has moved a long distance from the Selling Dealer, or the Selling Dealer is no longer in business, any Ford New Holland dealer authorized to sell and service the described Products may perform the repair at its dealership.
- The Selling Dealer shall review these warranty provisions with the purchaser prior to retail sale, secure his acknowledgement of delivery of this warranty and record the date of original retail sale or date of original use.

WHAT IS NOT COVERED BY THE WARRANTY?

This warranty shall NOT apply under the following conditions:

- (i) With respect to vendor warranty items such as Cummins and Caterpillar engines, or tires, tubes, and attachments which shall be warranted by their manufacturer, or local representative thereof.
- (ii) If the unit has been subject to misapplication, abuse, misuse, negligence of proper maintenance or other negligence, fire or other accident.
- (iii) If parts or attachments other than those made or marketed by Ford New Holland, Inc. or Ford New Holland Canada Ltd., have been used in connection with the unit, and in the sole judgment of Company such use affects its performance, stability or reliability.
- (iv) If the unit has been altered or repaired outside of a Ford New Holland dealership in a manner which, in the sole judgment of Company, affects its performance, stability or reliability.
- (v) Batteries are covered by a separate pro rata adjustment warranty. The pro-rata plan covers the battery fully for the basic product warranty period as indicated, with any remaining warranty pro-rated according to the months of service.
- (vi) The customer shall be responsible for payment of dealer travel time to the machine or to deliver the machine to the dealer's service shop for repair. Ford New Holland warranty does not cover travel time.
- (vii) With the exception of special Owner Protection Programs, the Company shall have no liability for used equipment sold beyond the specified coverage period.
- (viii) No warranty shall apply to damage resulting from accident or damage caused by environment (such as exposure to corrosive material). The Company shall not be responsible for rental equipment used to replace the equipment being repaired.
- (ix) This warranty shall NOT apply to normal maintenance services (such as tune-ups, fuel injection system cleaning or wheel brake and clutch adjustments), to normal replacement of service items (such as filters and brake or clutch linings), or to normal deterioration due to use or exposure (such as belts and exterior finish). Ford New Holland shall not be responsible for normal replacement parts such as cutting knives, chains, belts, clutches, filters, oil, or other parts which are worn out, unless they are determined to be defective in material or workmanship.
- (x) This warranty shall NOT apply to any Ford New Holland Product which is retailed or distributed by anyone other than Ford New Holland, Inc. or Ford New Holland Canada Ltd., through its authorized dealer. This warranty shall NOT apply to any Product which is normally operated outside of the United States, and/or Canada.

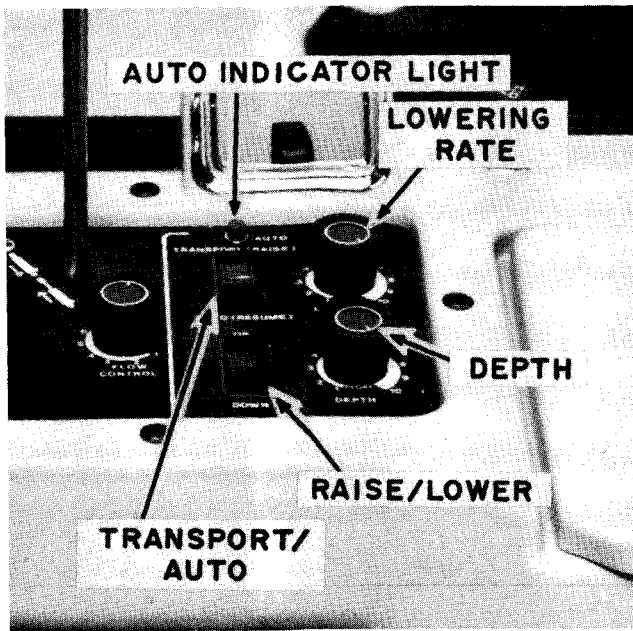


FIGURE 1-21

THREE-POINT HITCH CONTROLS (Option)

Figure 1-21

Auto: Indicator light comes on when hitch is in automatic mode.

Depth: Use the depth control knob to set implement working depth for use in the automatic mode. Turn the knob clockwise to raise and counterclockwise to lower. Turning the knob fully counterclockwise will set depth control to FLOAT so the hitch follows ground contours. As the knob is turned, a detent position will be felt indicating the float position.

Lowering Rate: Controls hitch lowering rate in relation to implement weight. Turn the knob clockwise to increase lowering rate; counterclockwise to decrease lowering rate. The raise rate is adjusted with a flow control on the implement hydraulic valve.

Transport/Auto: Pressing AUTO (RESUME) will put the hitch into automatic mode. The hitch will automatically adjust depth to the position as defined by the operator with the DEPTH control knob. The position is maintained automatically. Pressing TRANSPORT (RAISE) will raise the three-point hitch to the highest position for transport or turning corners. Pressing AUTO (RESUME) will return the three-point hitch to the present depth even if the hitch has been set with the UP/DOWN switch.

Up/Down Switch: Overrides the automatic system. Press UP to raise and DOWN to lower



FIGURE 1-22

the hitch. Release the switch when the desired position is reached. Push the switch momentarily to fine adjust the hitch position.

CEILING PANEL CONTROLS

Figures 1-22 and 1-23

Wiper/Washer Switch: Positions: OFF, LOW, HIGH, PUSH for WASHER.

Fan Switch: Positions: OFF, LOW, HITCH, PURGE.

Rear Wiper Switch: Positions: ON/OFF.

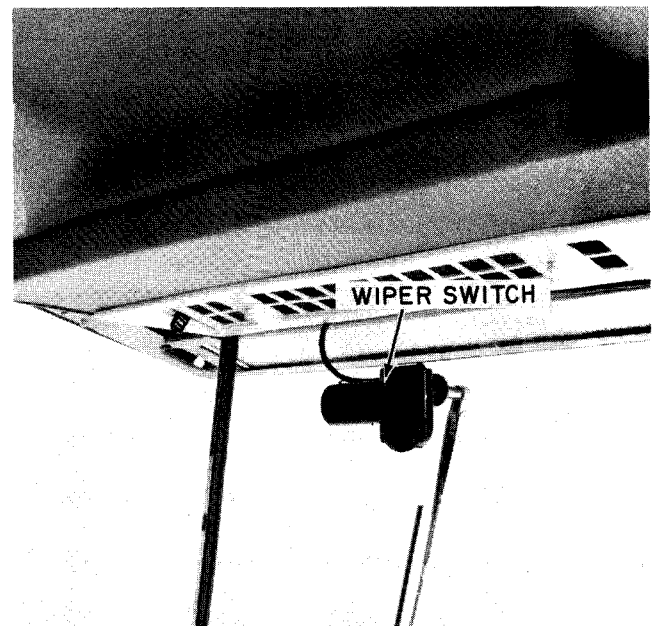


FIGURE 1-23

OPERATIONAL NOTES

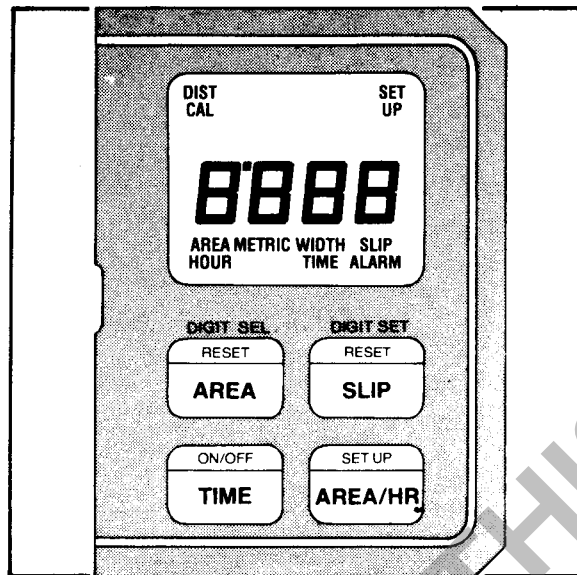


FIGURE 2-33

SYSTEM CHECKS

Figure 2-33

- The monitor features a self check which displays briefly all messages as shown when the key start switch is switched on.
- The display then advances to OPERATE mode and time display.
- If the battery has been disconnected, the time display will show "Err" and the "TIME" message will flash. (Programming and calibrating will have to be executed starting at STEP 1 in the programming calibration section.)

ALARM CANCEL

The time of day alarm can be cancelled by touching switch D. The alarm is otherwise active for five minutes.

ZERO AREA COUNTER

The area reading can be set to zero by holding down switch C for at least 5 seconds.

After setting "AREA" to zero, be sure "UP" message is displayed with the implement up. Use switch C to synchronize the "UP" message with the implement position, if required.

LUBRICATION AND MAINTENANCE

	A/R	10 HRS.	50 HRS.	250 HRS. (6 MOS.)	500 HRS.	1 YR.	LUB.	NO. OF PTS.
Engine coolant precharge element- Replace A/R with coolant						X		
Engine DCA service filter - Replace				X	X	X		
Engine fuel filter - Replace				X	X	X		
Engine oil level - Check		X	X	X	X	X	A	
Engine oil - Change				X	X	X	A	
Engine oil filters - Replace ²				X	X	X	A	
Frame pivots - Grease			X	X	X	X	E	2
Gearshift lever - Grease					X	X	1	
Hydraulic oil level - Check			X	X	X		B	
Hydraulic filters - Replace ²			X		X	X		
Hydraulic tank condensation - Drain				X	X	X		
Hydraulic suction screen - Wash or Replace					X	X		
Hydraulic oil - Change					X	X	E	
Parkbrake - Adjust	... X							
Powershift filter - Replace ⁴			X		X	X		
Radiator and grill - Clean		X	X	X	X	X		
Starting fluid canister - Service	... X					X		1
Steady bearing, driveline - Grease			X	X	X	X	E	1
Steering cylinder pivots - Grease			X	X	X	X	E	4
Three-point hitch - Lube		X	X	X	X	X	E	14
Transmission oil level - Check			X	X	X		B	
Transmission oil - Change ⁴					X	X	B	
Transmission suction screen - Wash					X	X	B	
Transmission filter - Replace ⁴			X		X	X		
U-joints, driveline - Grease			X	X	X	X	E	11
Wheel and axle bolts - Torque ³	... X			X	X	X		

1. Change oil after the first 50 hours of operation and every 500 hours or yearly (whichever comes first) thereafter. For row crop axle, add 2 oz. (60 ml) limited slip additive for every gallon of oil.
2. Change filters after the first 50 hours of operation and every 250 hours or 6 months (whichever comes first) thereafter.
3. Torque wheel bolts after the first hour and first 10 hours of operation and every 250 hours of operation.
4. Change oil first 50 hours and every 500 hours or yearly, whichever comes first.

FIGURE 3-1

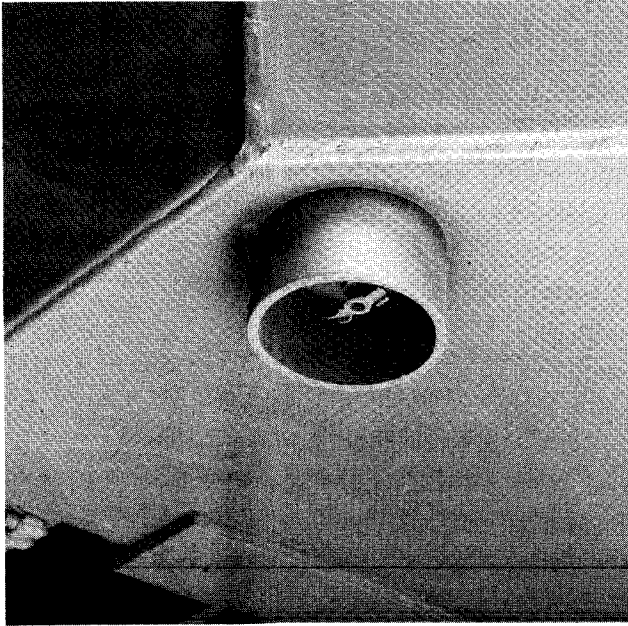


FIGURE 3-48



FIGURE 3-49

Open the fuel tank drain valves periodically, Figure 3-48, and drain any accumulated water. Catch the fuel in a container.

Priming or Tractor Run Out of Fuel

If the tractor has been standing unused for six months, it may be necessary to prime the fuel system.

1. Remove the fuel filter and fill with **CLEAN FILTERED FUEL**.

***IMPORTANT:** Fuel poured directly into the filter will not be cleaned by the filter and go directly into the fuel pump. Be sure that the fuel is clean.*

2. Remove the suction line from the fuel injection pump and squirt **CLEAN FILTERED FUEL** onto the gears inside the pump.
3. Fill the suction line with fuel and install to the fuel pump.
4. Check and fill the fuel tanks.

5. Start the engine. If the engine does not start, remove the fuel filter and fill with clean filtered fuel.

6. Start the engine. If the engine does not start, consult your Ford New Holland dealer.

HYDRAULIC SYSTEM

Maintenance

NOTE: If a three-point hitch is attached, check the oil level with the hitch cylinders in the lowest position.

Check the hydraulic oil every 50 hours. A drain plug is located on the oil reservoir bottom, Figure 3-49. The filler is on the right side of the tractor beside the engine. Drain the condensation from the tank bottom at 250 hour intervals and top up the oil level. Change the hydraulic oil and filters every 500 hours or annually whichever occurs first.

ERROR CODE: E**CAUSE:**

Engine speed sensor pulses missing due to poor sensor alignment. Defective sensor, sensor out of adjustment or sensor dirty.

RESPONSE:

Display E Code and continue normal operation.

EFFECT:

Flash E alternately with gear number. Continues normal operation assuming engine speed at 2100 RPM which may cause rougher shifts.

TO CLEAR CODE:

Adjust or clean sensor, replace sensor (consult dealer).

ERROR CODE: T**CAUSE:**

Ground speed sensor signal too low. Sensor pulses missing due to defective sensor adjustment.

RESPONSE:

Display error code.

EFFECT:

Flash error code alternately with "N" (neutral). Depress clutch pedal and move direction control switch to neutral and return to forward or reverse to engage 1st gear. Automatic gear selection based on ground and engine speed disallowed. Displays Error Code T alternating with Gear number.

TO CLEAR CODE:

Adjust or clean sensor. Replace sensor.

ERROR CODE: C**CAUSE:**

Clutch pedal travel not sensed or out of range.

Clutch cable not adjusted correctly.

RESPONSE:

Displays C Error Code

EFFECT:

1) C Error Code & 1st Gear selection only, if Top Pedal Switch will not close on start-up. Bottom pedal switch remains operational.

2) C Error Code and any Gear may be selected, if Bottom Pedal Switch will not open with clutch pedal depression. Top pedal switch remains operational.

No clutch feathering will be available.

TO CLEAR CODE:

Adjust clutch pedal cable. Check pedal switches (consult dealer).

NOTE: The C Error Code will appear only on start-up. If a fault occurs in operation, it will not appear until restarted.

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