STARTING THE ENGINE

IMPORTANT: *Never push or tow the tractor to start the engine. Doing so may overstress the drivetrain.*

Before starting the engine, carry out the following:

- Sit in the driver's seat.
- Buckle seat belt.
- Ensure the parking brake is applied.
- **8 x 8 Power Reversing Transmission:** Place the gearshift lever, range lever and the power reversing lever in "NEUTRAL". Ensure the P.T.O. lever is disengaged.
- **8 x 2 Constant Mesh Transmission:** Place both the gearshift and the range lever in "NEUTRAL". Ensure the P.T.O. lever is disengaged.
- Ensure that both the loader where fitted and any mounted equipment are positioned on the ground.

WARNING: *Check the area beneath the equipment to ensure that no injury or damage will be caused when the equipment is lowered.*

NOTE: *Safety start switches prevent operation of the starting motor unless: the gearshift, range and P.T.O. levers 8 x 8 transmission; the range and P.T.O. lever 8 x 2 transmission are in the neutral (N) position.*

In warm weather or when the engine is hot:

- Open the hand throttle halfway and turn the key-start/stop switch fully clockwise to position (4), Figure 5, operate the starting motor for a maximum of 60 seconds or until the engie starts then release the key.
- Return the throttle to the idle position and check that all the warning lights extinguish and gauge readings are normal.

In cold weather with the engine cold:

- When starting a cold engine at temperatures below 40°F (4°C) open the throttle fully and turn the key-start/stop switch to position (3). Depress the Thermostart rocker switch and hold for 15 seconds, then turn the key-start/stop switch fully clockwise to position (4) while still depressing the thermostart switch. Crank the engine until it starts but do not operate the starting motor for more than 60 seconds.
- If the engine fails to start, repeat the procedure, operating the Thermostart for 15 seconds, and the starting motor and thermostart for up to 60 seconds. If the engine fails to start allow the battery to recover for 4-5 minutes then repeat the procedure.
- When the engine starts, return the throttle to the idle position and check that all warning lights extinguish and gauge readings are normal.

COOLANT IMMERSION HEATER (where fitted)

This dealer installed accessory consists of a heating element fitted into one of the core plug apertures on the right-hand side of the engine block. The heater operates on 115 volts A.C. and provides easier starting down to -20°F. (-29°C)

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LUBRICATION AND MAINTENANCE CHART

The numbers in the second column refer to the operations and illustrations contained in the following pages of this section.

Service Interval	Operation No.	Maintenance Operation	Check	Clean	Lube	Adjust	Change	Drain	Wash
As Required	4	Engine oil level	X			X			
	5	Radiator coolant level	X			X			
	6	Hydraulic system oil level	X			X			
	7	Radiators and oil coolers		X					
	8	Pre-Cleaner		X					
When the Warning Light Illuminates	9	Air cleaner		X					
Every 50 Hours	10	Water/sediment separator and filter						X	
	11	Front and rear wheel nuts	X			X			
	12	Battery electrolyte level	X			X			
	13	Tires	X			X			
	14/15	Clutch pedal free play	X			X			
	16	Front axle pivot (two wheel drive)			X				
	17/18	Front axle trunnion (front wheel drive)			X				
	19	Steering tie rod and cylinder (two wheel drive)			X				
	20	Front axle spindles (two wheel drive)			X				
	21	Steering swivel bearing and steering cylinder (front wheel drive)			X				
	22	Brake pedal pivot			X				
	23	Clutch pedal pivot			X				
	24	Differential lock pedal pivot			X				
	25	Hydraulic lift linkage			X				
	26	Drive shaft and guard (front wheel drive)		X	X				
	27	Loader grease fittings (where fitted)			X				
	28	Front axle hub oil level (front wheel drive)	X			X			
	29	Front axle differential oil level (front wheel drive)	X			X			
	30	Front axle breather (front wheel drive)		X					
	31/32	Rear axle oil level	X			X			
	33	Hydraulic system breather (Loader where fitted)		X					
Every 300 Hours	34/35*	Engine oil and filter					X		
	36	Hydrostatic steering oil level	X			X			
	37	Dry air cleaner							X
	38	Fan belts	X			X			
	39/40	Transmission oil level	X			X			
	41	Hydraulic oil filter (Tractor)					X		
	42	Hydraulic system breather (Loader where fitted)					X		
	43/44	Hydraulic oil filter (Loader where fitted)					X		
Every 600 Hours	45	Dry air cleaner					X		
	46/47	Valve tappet clearance	X			X			
	48	Front wheel bearings (two wheel drive)		X	X	X			
	49/50	Hydrostatic steering oil and filter					X		
	51	Transmission oil filter (8 x 8 Transmission)					X		
	52/53	Fuel filter					X		
	54/59	Fuel injectors					X		
Every 1200 Hours or Annually	60	Hydraulic system oil and filter (Loader where fitted)					X		
	61/62	Front axle differential oil (front wheel drive)					X		
	63	Front axle hub oil (front wheel drive)					X		
	64/65	Rear axle oil					X		
	66/67	Transmission oil					X		
	68	Hydraulic pump drive shaft grease fittings (Loader where fitted)			X				
	69	Dry air cleaner inner element					X		
Every 1200** Hours or 2 years	70/72	Engine coolant					X		
General Maintenance	73	Footbrake adjustment	X			X			
	74	Handbrake adjustment	X			X			
	75/76	Front wheel toe-in	X			X			
	77	Steering stop adjustment	X			X			
	78	Alternator charging system							
	79	Hydraulic Hose and tubing							
	80/83	Bulb replacement					X		
	84/85	Fuse/direction indicator/relay replacement					X		
	86	Tractor storage	X	X	X	X	X	X	X
	87	Preparing tractor after storage	X	X	X	X	X	X	X
	88	Tire inflation							

* Oil change interval will be reduced if diesel fuel has a high sulphur content. See page 13.
** Frequency depends on antifreeze in use (See "Specifications" Section E).

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SPECIFICATIONS

ENGINE		FORD 250C	FORD 260C
No. of cylinders		3	3
Bore	in (mm)	4.4 (111.8)	4.4 (111.8)
Stoke	in (mm)	4.2 (106.7)	4.4 (111.8)
Displacement	in^3 (cm^3)	192 (3147)	201 (3294)
Compression Ratio		16.3:1	16.3:1
Firing Order		1.2.3	1.2.3
Idle Speed (rpm)		600-850	
Rated Speed	rev/min	2200	
Maximum 'no-load' speed	rev/min	2350-2400	
Tappet clearance (cold)			
Intake	in (mm)	0.014-0.016 (0.36-0.42)	
Exhaust	in (mm)	0.017-0.019 (0.43-0.48)	

CLUTCH		
Pedal free travel	in (mm)	1.1-1.6 (28-41)
Plate diameter	in (mm)	13 (330)

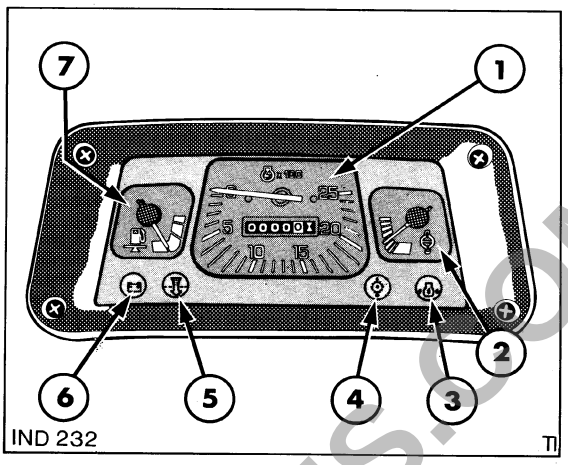
ELECTRICAL EQUIPMENT	
Alternator	12v 55amp
Regulator (with battery sensor)	Separate from alternator
Starter Motor	Positive engagement, solenoid operated

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INSTRUMENT PANEL

The following text describes the function of the various warning lights and gauges on your tractor. See Figure 1 to locate these features on your tractor.



1. Instrument Panel

1. Proofmeter
2. Engine coolant temperature gauge
3. Engine oil pressure warning light
4. Transmission oil temperature warning light (8 x 8 Transmisson)
5. Air cleaner restriction warning light
6. Alternator warning light
7. Fuel gauge

Proofmeter

Indicates engine revolutions per minute. Use the proofmeter in conjunction with the gearshift decal to determine the tractor ground speed.

The proofmeter also registers the hours and portions of hours the tractor has operated, based on an average speed of 2055 rev/min. Engine speeds below 2055 rev/min accumulate hours at a slower rate than clock hours. Engine speeds above 2055 rev/min accumulate hours at a faster rate than clock hours. The hours recorded should be used as a guide to determine hourly service intervals. (See Section D of this Manual).

Engine Coolant Temperature Gauge

Indicates the temperature of the engine coolant. If the needle enters the red sector while the engine is running, stop the engine and investigate the cause.

NOTE: *When the key-start switch is turned off the gauge needle assumes a random position.*

Engine Oil Pressure Warning Light

Indicates low oil pressure and should extinguish immediately after the engine starts.

IMPORTANT: *If the light comes on while the engine is running, stop the engine and investigate the cause.*

Power Reversing Transmission Warning Light (Where fitted)

The power reversing transmission warning light indicates overheating of the oil in the transmission. Do not operate the transmission if the light comes on. Place the transmission in neutral, check that the oil level is correct, and run the engine at 1000–1200 rev/min. until the warning light goes out.

Air Cleaner Restriction Warning Light

Will illuminate when the air cleaner requires servicing. If the light illuminates while the engine is running, stop the engine and service the air cleaner, as described in Section D.

NOTE: *When the key-start is turned to "ON", the light will illuminate to indicate that the lamp is functioning. The light will extinguish with the engine running and the air cleaner functioning correctly.*

The air cleaner warning light is connected into the oil pressure warning light circuit. In the event of low oil pressure both the air cleaner and oil pressure warning lights will be illuminated.

Alternator Warning Light

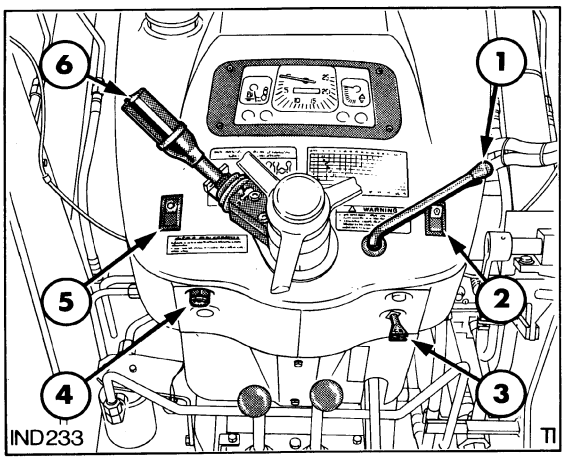
Indicates the battery is not being charged and should extinguish when the engine speed is increased above idle.

Fuel Gauge

Indicates the level of fuel in the tank and is only operative with the key-start in the "ON" position.

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2. Hand Controls and Switches

1. Hand throttle
2. Thermostart switch
3. Tractor lights switch
4. Key-start/stop switch
5. Torque convertor lock-up warning light (8 x 8 Transmission only)
6. Power-reversing lever (8 x 8 Transmission only)

The fuel filler is situated on the left-hand side of the hood, immediately in front of the instrument panel.

NOTE: *When the key-start switch is turned off, the gauge needle assumes a random position and may well indicate a fuel level in excess of the true level.*

HAND CONTROLS AND SWITCHES

The following text describes the function of the various switches and hand controls on your tractor. See Figure 2 to locate these features on your tractor.

Hand Throttle Lever

Pull the lever rearwards to progressively increase engine speed.

Thermostart Switch

The rocker switch is of the spring loaded return type, depress and hold the front of the switch to activate the thermostart. The thermostart should be used in conjunction with the key-start/stop switch for starting in temperatures below 40°F (4°C), see "KEY-START/STOP SWITCH" in this section for the correct operating procedure.

Tractor Light Switch

The tractor light switch, which is of the push-pull type, is located at position (3), Figure 2. The switch has three positions:

Fully in – lights "OFF"
Intermediate – rear, instrument, hazard warning lights and accessories.
Fully out – rear, instrument and headlights "ON".

NOTE: *The hazard warning lights will only operate with the main lights switch on.*

Key-Start/Stop Switch

Actuates the starting motor and stops the engine, see "KEY-START/STOP SWITCH" in this section for the correct operating procedure.

Torque Converter Lock-up Indicator Light (8 x 8 Transmission only)

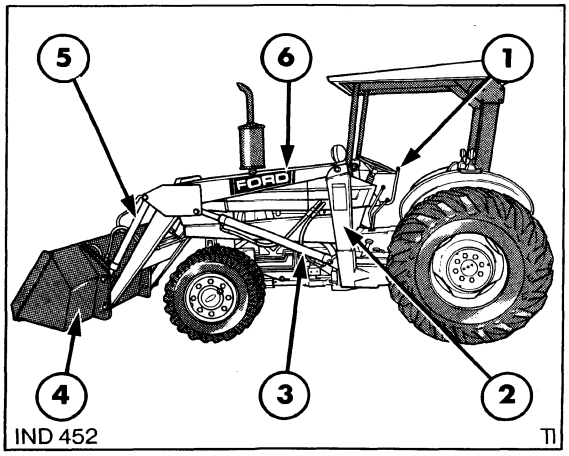
Will illuminate when the button on the power reversing lever is depressed and released to engage the torque converter lock-up mode in forward travel, see "TRANSMISSION" in this section for the correct operating procedure. When the button is depressed and released again the torque converter lock-up will disengage and the warning light extinguish.

Power-Reversing Lever (8 x 8 Transmission only)

The power-reversing lever is mounted on the steering column. The lever is used to select forward or reverse travel in conjunction with the main gearshift lever, for the correct operating procedure see "TRANSMISSION" in this section.

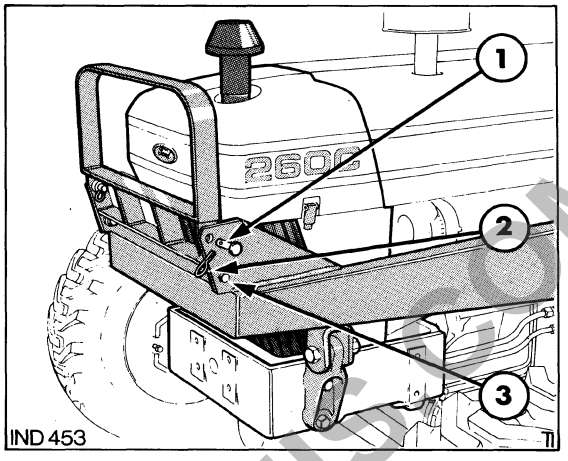
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1. Series 744 Loader

1. Control Lever
2. Loader Frame
3. Lift Cylinder
4. Loader Bucket
5. Bucket Cylinder
6. Lift Arm



2. Front Grille Guard

1. Clevis Pin
2. Spring Clip
3. Lower Retaining Bolt

GENERAL INFORMATION

This section of the manual contains information pertaining to the Series 744 Loaders; additional information may also be found in Series 744 Loader Operator's Manual.

The loader is identified by component number 18-121, Series 744 2800lbs loader with direct bucket linkage and "float" position control valve.

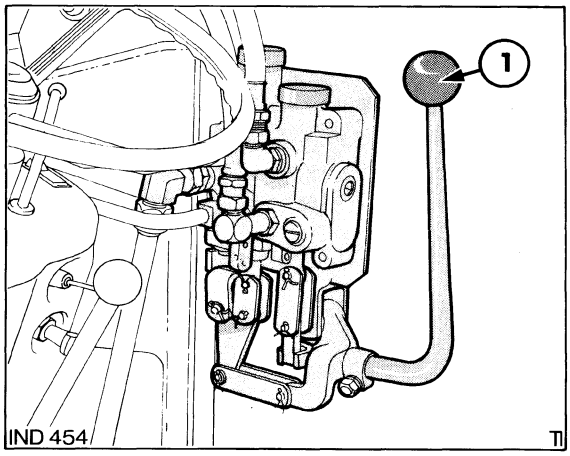
To aid servicing the tractor when the loader is installed, the front grille guard pivots forward to allow the front hood to swing up into the raised position.

To accomplish this, remove the two spring clips retaining the clevis pins. Loosen the two lower retaining bolts then pivot the grille guard forward and downwards. The tractor front hood and grille can now be removed as described in Section D.

LOADER CONTROL LEVER

A single loader control lever, Figure 3, controls the lowering and raising of the loader lift arms, and the rollback and dumping of the bucket. In addition to these movements a "float" position may also be obtained.

The "float" position enables the loader lift arms and bucket to follow the contour of the ground and is obtained by moving the loader control lever fully forward into the detent position. The lever will remain in the "float" position until it is moved manually towards neutral.



3. Loader Control Lever

1. Control lever

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TOWING THE TRACTOR

WARNING: *For safe operation, towing the tractor at speeds in excess of 5 miles/h (8 km/h), is not recommended. Also for safety reasons, never attempt to start the engine by towing.*

If it is necessary to tow the tractor an operator must be in the seat to steer the unit. Prior to towing perform the following:

1. Check the power steering system oil level to be sure the oil reservoir is full. Add oil if necessary.

2. Verify that manual steering can be accomplished.

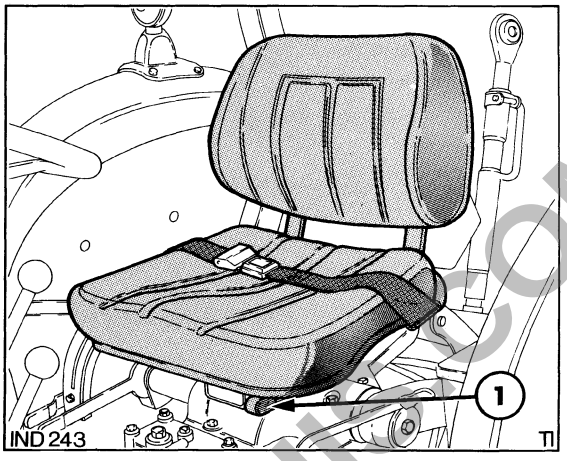
3. • **8 x 8 Power Reversing Transmission:** Place the transmission gearshift lever in NEUTRAL, the range lever in HIGH RANGE and the power reversing lever in NEUTRAL.

   • **8 x 2 Constant Mesh Transmission:** Place both the gearshift lever and the range lever in NEUTRAL.

4. Place the front wheel drive control lever in the disengaged position.

5. Ensure the P.T.O. lever is in NEUTRAL.

WARNING: *If the tractor engine is not running the steering effort is greatly increased.*



15. Deluxe Seat

1. Adjustment lever

SEAT ADJUSTMENT

The seat can be adjusted forward or backward by moving the adjustment lever (1), Figure 15.

SEAT BELT

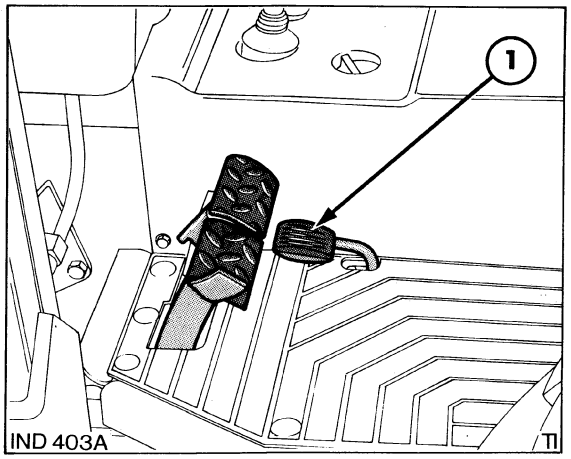
To lengthen the belt, tip the buckle away from the belt and pull on the buckle. With the belt fastened around you, pull the free end of the belt until it is snug fit.

The belt may be sponged with clean soapy water. Do not use solvents, bleach or dye on the belt as these chemicals will weaken the webbing.

Replace the belt when it shows signs of fraying, damage or general wear.

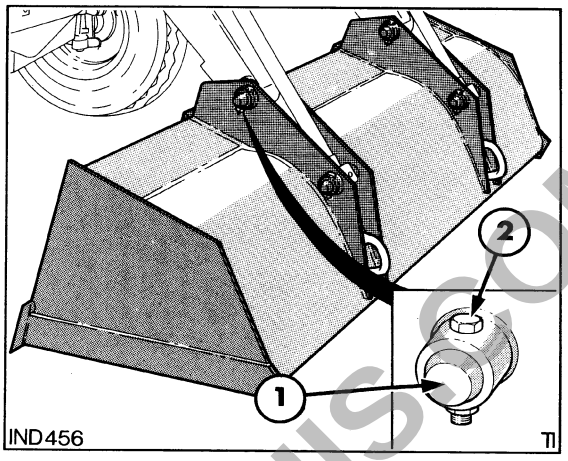
WARNING: *Tractors equipped with ROPS (roll over protective structure) are also fitted with a seat belt. Always use the seat belt with the ROPS installed. Do not use a seat belt if the tractor is not equipped with ROPS.*

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6. Transmission Dump Switch (8 x 8 Transmission only)

1. Pedal



7. Loader Bucket Installation

1. Pivot Pin 2. Retaining bolt

The transmission dump switch feature allows full engine power to be available for operating the loader hydraulics. It is recommended that the foot pedal is used to disengage the transmission at the point of bucket rollback and lift to increase loader productivity and when dumping to speed cycle time.

IMPORTANT: *To avoid possible damage to the transmission hydraulic clutches never use the dump switch control for inching the tractor forward. Inching the tractor forward with the dump switch will cause the clutches to slip excessively and overheat.*

LOADER BUCKET INSTALLATION

WARNING: *When it is necessary to remove pins from the loader that require a hammer and drift use only a brass hammer and brass drift and wear safety glasses.*

1. Position the tractor and bucket on a flat surface.

2. Position the bucket, Figure 7, on its upper and lower lips.

3. Examine the bushings in the loader arms above the bucket, then position the loader over the bucket and lower the arms into alignment with the lower pivot points on the bucket. Install the pivot pins and pin retaining bolts.

4. Raise the loader arms above the bucket, then position the loader over the bucket and lower the arms into alignment with the lower pivot points on the bucket. Install the pivot pins and pin retaining bolts.

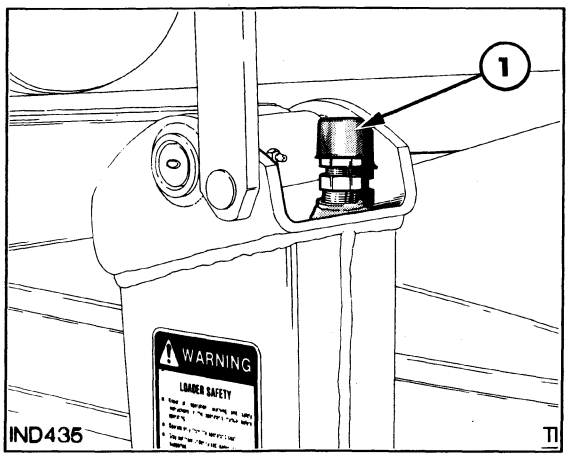
5. Extend the bucket cylinder rods until they align with the upper bucket pivot points. Make sure the lubrication fittings are in the up position. Install the pivot pins and pin retaining bolts.

6. Lubricate the attaching points.

NOTE: *If the bucket is to be removed, fully retract the bucket cylinder rods before removing the lift arm-bucket pivot pins. The rods may catch on the lift arms and be damaged if retracted after removal of the lift arm-bucket pivot pins.*

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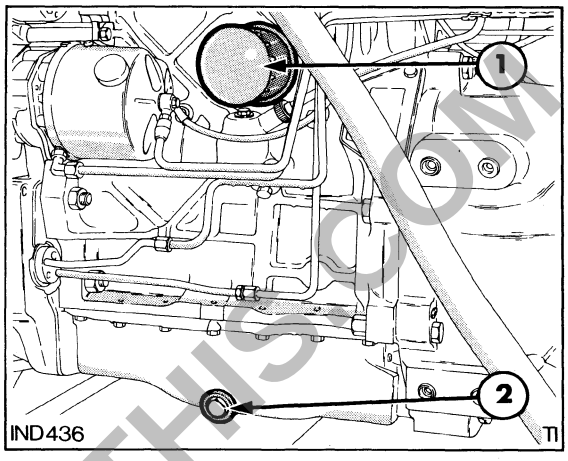
50 HOUR SERVICE (continued)



33. Hydraulic System Breather

Remove the cover from the breather filler plug assembly (1) then remove and wash the filter in a suitable solvent. Dry with compressed air and re-assemble.

EVERY 300 HOURS Carry out the preceding checks plus the following:



34 Engine Oil and Filter

Warm the engine to operating temperature. Stop the engine, remove the drain plug (2) and catch the oil in a suitable container. Unscrew and discard the oil filter (1). Clean the face of the block and install a new filter "hand tight". Do not over-tighten the filter.

ENGINE OIL CHANGE PERIOD

The following text and illustrations depict the recommended engine oil and filter change period.

However, locally available diesel fuel may have a higher sulphur content, in which case the oil change period should be adjusted as follows:

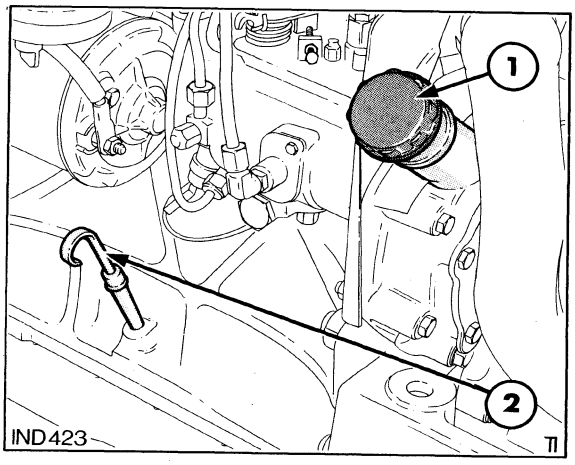
Diesel fuel sulphur content below 0.5% – normal oil change period applies.

Diesel fuel sulphur content between 0.5 and 1.0% – reduce oil change period to half the normal.

Diesel fuel sulphur content between 1.0 and 1.3% – reduce oil change period to one quarter the normal.

The use of diesel fuel with a sulphur content above 1.3% is not recommended.

SEE SECTION E FOR OIL CAPACITY AND GRADE



35. Refill the engine with clean oil through the filler tube (1). Run the engine for a few minutes to circulate the oil. Allow the oil to drain back to the sump for a short period before checking the level with the dipstick (2).

NOTE: *Engines operating in temperatures below 10°F (–12°C) should have the oil changed after every 150 hours of operation. Under these conditions the engine oil filter need only be changed at the 300 hour service as described above.*

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COOLING SYSTEM

		ALL MODELS
Type		Pressurized Recirculating By-pass
Fan and alternator belt deflection	in (mm)	0.50-0.75 (13-19)
Thermostat:		
Start to Open at	°C (°F)	82 (180)
Fully Open at	°C (°F)	95 (203)
Pressure Cap	lbf.in² (bar)	10 (0.7)

Ford Antifreeze, to Specification ESEM97B-18C should be used in a 50% solution and changed every 24 months. Where this antifreeze cannot be obtained, the chosen anti-freeze should be of a low silicate type with a silicate content less than 0.1%. See important information on page 5 and page 24 of Section D concerning topping up the cooling system and the use of chemical inhibitor Part No. FW-15 (Ford Specification ESN-M99B169-A).

NOTE: *In order to reduce deposits and corrosion, water in the cooling system should not exceed the following limits:*

Total hardness	*Chloride*	*Sulphates*
300 parts per million	*100 parts per million*	*100 parts per million*

POWER TAKE OFF

Type		Independent PTO with separate transmission and PTO clutches
PTO clutch type		Multi-Wet Plate
Plate diameter	in (mm)	5.25 (133)
No. of friction plates		7
Engine speed for 540 rpm PTO Speed		
8 x 2 Transmission		1800
8 x 8 Tranmission		1850

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LOADER OPERATION

IMPORTANT: *Do not operate the loader without the bucket installed. Operation of the loader without the bucket installed can result in the bucket links catching under the loader arms, causing damage to the cylinders and linkage.*

Before putting the loader into operation it is necessary to add additional counterweight to the rear of the tractor for safe operation.

To obtain sufficient counterbalance for loader operation on the Ford 250C and 260C, weight can be installed on the unit in the form of a weight box, rear tire liquid ballast, rear wheel weights or a combination of the above.

Add weight to the rear of the tractor as indicated in Section A, Tractor Weighting.

Suggested operating techniques for loader operation are outlined in this section. Practice the lever movements as you operate the loader to increase operating efficiency.

IMPORTANT: *Before operating in temperatures below 30°F (–1°C) operate the engine for approximately 15 minutes at speeds below 1200 rev/min to warm the oil to the normal operating temperature.*

Operating the loader with the engine running at a comfortable productive speed will reduce bucket spillage and unnecessary component strain.

To fill the bucket from a stock pile, set the bucket in the level position and lower the arms with the control lever in the full forward "float" position. As the loader enters the pile, ease the control lever rearwards and to the left to lift and roll back the bucket. As the bucket leaves the pile depress the transmission dump switch to divert full engine power to the loader hydraulic pump.

Lift and rollback of the bucket will increase efficiency as a level bucket throughout the lifting cycle resists bucket lift and increases breakaway effort.

NOTE: *Do not be concerned if the bucket is not completely filled during each pass. Maximum productivity is determined by the amount of material loaded in a given period of time. Time is lost if two or more attempts are made to fill the bucket on each pass.*

Fully roll back the bucket and lift the loader arms then release the transmission dump switch. Keep the loaded bucket as low as possible, especially when operating on a slope or over rough ground.

WARNING: *When operating on a hill or slope and when transporting the load, keep the bucket as low as possible. This keeps the bucket center of gravity (CG) as low as possible, giving maximum stability.*

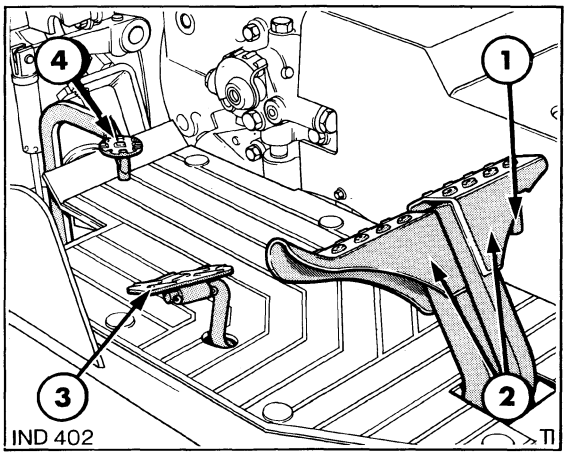
Raise the loader high enough to clear any obstruction prior to dumping the load.

After the bucket is dumped, back away while lowering and levelling the bucket.

During hard surface operation, place the control lever in "float" (full forward held by the detent), and keep the bucket level. This will permit the bucket to "float" on the contour of the working surface. If hydraulic down pressure is exerted, the bucket will wear faster than normal.

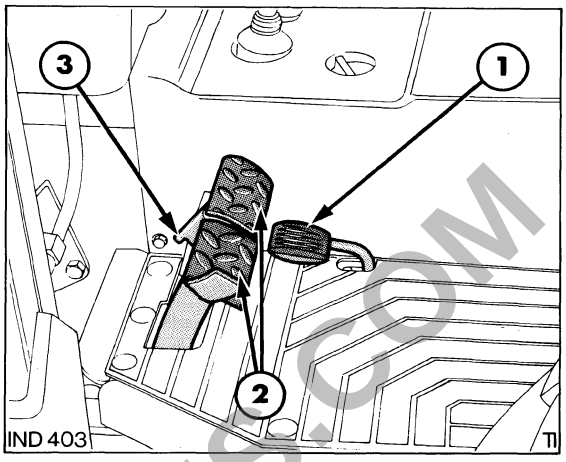
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5. Foot Controls – Right-hand Side

1. Brake pedal latch (8 x 2 Transmission)
2. Brake pedals (8 x 2 Transmission)
3. Foot throttle
4. Differential lock pedal



6. Foot Controls – Left-hand side (8 x 8 Transmission)

1. Transmission disconnect pedal
2. Brake pedals
3. Brake pedal latch

FOOT CONTROLS

Refer to Figures 5 to 7.

Footbrakes

The footbrakes, installed on the right side for 8 x 2 transmission and left side for 8 x 8 transmission, may be operated independently, to aid turning in confined spaces, or together for normal stopping. When operating in the field it is advised that the brake pedals be unlocked.

WARNING: *Always lock the brakes together when travelling on the highway. To lock the brakes together slide the bolt across to engage the hole in the right-hand brake pedal for the 8 x 2 transmission, or rotate the latch in a counter-clockwise direction to engage the slot in the left-hand pedal for the 8 x 8 transmission.*

Foot Throttle

The foot throttle may be used independently of the hand throttle to control the speed of the tractor and is recommended for use on the public highway.

IMPORTANT: *When it is required to use the foot throttle, set the hand throttle to the idle position.*

Differential Lock

In conditions inducing wheel slip, hold down the differential lock pedal until the lock is felt to engage. The lock will automatically disengage when traction at the rear wheels equalizes. If a rear wheel spins at speed, reduce the engine speed to idle before engaging the differential lock.

WARNING: *Never use the differential lock at speeds above 5 miles/h (8 Km/h) or when turning the tractor. When engaged, the lock will prevent the tractor turning.*

Transmission Disconnect Control

The power reversing transmission is equipped with a disconnect control, Figure 6. When activated it will interrupt (stop) the power flow to the rear wheels. The control is a pedal located on the tractor left side step plate and can be activated by the operator's left foot, for operating instructions see "TRANSMISSIONS" in this section.

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