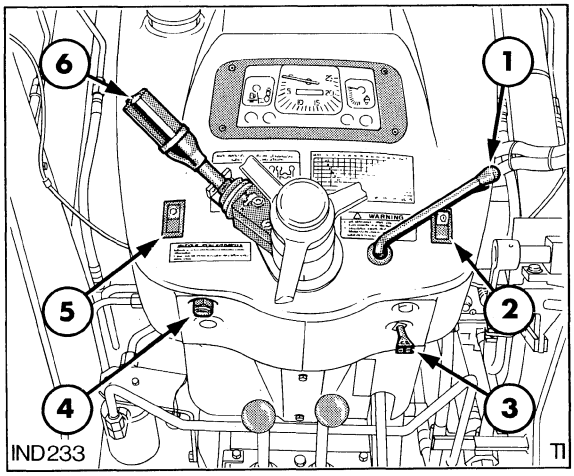


2. Hand Controls and Switches

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

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 switch 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 Lights Switch

The tractor lights 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 Warning Light (8 × 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 × 8 and 4 × 4 transmissions)

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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STARTING THE ENGINE

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

Before starting the engine, carry out the following:

- Sit in the driver's seat.
- Ensure the parking brake is applied.
- **4 × 4 Power Reversing Transmission:** Ensure that both the power reversing lever and the gearshift lever are in "NEUTRAL".
- **8 × 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.
- **6 × 4 Non-Synchromesh Transmission:** Place both the gearshift lever and the range lever in "NEUTRAL". Ensure the P.T.O. lever is disengaged.
- Ensure that both the loader 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 lever 4 × 4 transmission; the gearshift, range and P.T.O. levers 8 × 8 transmission; the range and P.T.O. lever 6 × 4 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 engine starts then allow the key to return to position (3).
- 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 4°C (40°F) 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 foregoing 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 (−29°C) −20°F.

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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	3/4	Engine oil level	X			X			
	5	Radiator coolant level	X			X			
	6	Hydraulic system oil level	X			X			
	7	Radiators and oil coolers		X					
When the Warning Light Illuminates	8	Air cleaner		X					
Every 50 Hours	9	Water/sediment separator and filter						X	
	10	Battery electrolyte level	X			X			
	11	Clutch pedal free play	X			X			
	12	Tires	X			X			
	13	Front and rear wheel nuts	X			X			
	14	Front axle pivot (two wheel drive)			X				
	15/16	Front axle trunion (front wheel drive)			X				
	17	Steering tie rod and cylinder (two wheel drive)			X				
	18	Front axle spindles (two wheel drive)			X				
	19	Steering swivel bearing and steering cylinder (front wheel drive)			X				
	20	Brake pedal pivot			X				
	21	Clutch pedal pivot			X				
	22	Differential lock pedal pivot			X				
	23	Hydraulic lift linkage			X				
	24	Clutch release bearing			X				
	25	Loader grease fittings			X				
	26	Front axle hub oil level (front wheel drive)	X			X			
	27	Front axle differential oil level (front wheel drive)	X			X			
	28	Front axle breather (front wheel drive)		X					
	29	Drive shaft and guard (front wheel drive)		X	X				
	30	Hydraulic system breather (Loader)		X					
	31/33	Rear axle oil level	X			X			
Every 300 Hours	34/35*	Engine oil and filter (all models)					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 system breather (Loader)					X		
	42/43	Hydraulic oil filter (Loader)					X		
	44	Hydraulic oil filter (Tractor)					X		
Every 600 Hours	45	Front wheel bearings (two wheel drive)		X	X	X			
	46	Dry air cleaner					X		
	47/48	Valve tappet clearance	X			X			
	49/50	Hydrostatic steering oil and filter					X		
	51	Transmission oil filter					X		
	52/53	Fuel filter					X		
	54/59	Fuel injectors					X		
Every 1200 Hours or Annually	60/62	Hydraulic system oil and filter					X		
	63/64	Front axle differential oil (front wheel drive)					X		
	65	Front axle hub oil (front wheel drive)					X		
	66/67	Rear axle oil					X		
	68/69	Transmission oil					X		
	70	Hydraulic pump drive shaft grease fittings			X				
	71	Dry air cleaner inner element					X		
Every 1200 ** **Hours or 2 years**	72/74	Engine Coolant					X		

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SPECIFICATIONS

ENGINE	FORD 345C	FORD 445C	FORD 545C

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BRAKES	ALL MODELS
Type	Wet disc

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SAFETY PRECAUTIONS

A careful operator is the best operator. Most accidents can be avoided by observing certain precautions. To help prevent accidents read and take the following precautions before operating the tractor. Equipment should be operated only by those who are responsible and instructed to do so.

THE TRACTOR

1. Read the Operator's Manual carefully before using the tractor. Lack of operating knowledge can lead to accidents.

2. Ensure any attached equipment or accessories are correctly installed, are approved for use with the tractor, do not overload the tractor and are operated and maintained in accordance with the instructions issued by the equipment or accessory manufacturer.

3. Use an approved ROPS and seat belt for safe operation. Overturning a tractor without a ROPS can result in death or injury.

4. Always use the seat belt with the ROPS.

5. Use the handholds and step plates when getting on and off the tractor to prevent falls. Keep steps and platform clear of mud and debris.

6. Do not permit anyone but the operator to ride on the tractor there is no safe place for extra riders.

7. Remember that your tractor, if abused or incorrectly used can be dangerous and become a hazard both to the operator and bystanders. Do not overload or operate with attached equipment which is unsafe, not designed for the particular task or is poorly maintained.

8. Replace all missing, illegible, or damaged safety decals.

9. Keep safety decals clean of dirt and grime.

SERVICING THE TRACTOR

1. The cooling system operates under pressure which is controlled by the radiator cap. It is dangerous to remove the cap while the system is hot. Always turn the cap slowly to the first stop and allow the pressure to escape before removing the cap entirely.

2. Do not smoke while refuelling the tractor. Keep any type of open flame away. Wait for the engine to cool before refuelling.

3. Keep the tractor and equipment, particularly brakes and steering, maintained in a reliable and satisfactory condition to ensure your safety and comply with legal requirements.

4. To prevent fires or explosions keep open flames away from battery or cold weather starting aids. To prevent sparks which could cause explosion, use booster cables according to instructions in this manual.

5. Stop the engine, apply the handbrake and lower the loader and backhoe to the ground before performing any service on the tractor.

6. Escaping hydraulic/diesel fluid under pressure can penetrate the skin causing serious injury.

   - **DO NOT** use your hand to check for leaks. Use a piece of cardboard or paper to search for leaks.
   - Stop the engine and relieve pressure before connecting or disconnecting lines.
   - Tighten all connections before starting the engine or pressurizing lines.
   - If fluid is injected into the skin obtain medical attention immediately or gangrene may result.

7. Do not modify or alter or permit anyone else to modify or alter this tractor or any of its components or any tractor function without first consulting your Dealer.

8. The fuel oil in the injection system is under high pressure and can penetrate the skin. Unqualified persons should not remove or attempt to adjust a pump, injector, nozzle or any other part of the fuel injection system. Failure to follow these instructions can result in serious injury.

9. Continuous long term contact with used engine oil may cause skin cancer. Avoid prolonged contact with used engine oil. Wash skin promptly with soap and water.

10. Never allow anyone to stand or work under or reach through the loader lift arms when the loader is raised, unless the loader cylinders are blocked in the extended position using a suitable support.

11. Never attempt to repair or tighten hoses under pressure.

12. Always check pivot pins, snap rings and main attaching bolts daily.

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

14. Do not lubricate or make mechanical adjustments while the unit is in motion or when the engine is running. However, if minor engine adjustments must be made, apply the parking brake, securely block the wheels, and use extreme caution. Be certain that the loader is fully lowered or supported so that it cannot fall.

15. Always wear safety goggles when servicing or repairing the machine.

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2. This warranty shall **NOT** apply to normal maintenance services (such as tune-ups, fuel injection system cleaning and 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).
3. This warranty shall **NOT** apply to any Commercial Product which is 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 Commercial Product which is normally operated outside of the United States and/or Canada.

LIMITATIONS, INCLUDING DISCLAIMER OF IMPLIED WARRANTIES AND CONSEQUENTIAL DAMAGES

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Ford New Holland Inc. or Ford New Holland Canada Ltd., does not authorize any person to create for it any other obligation or liability in connection with these commercial products. TO THE EXTENT ALLOWED BY LAW, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS APPLICABLE TO THIS COMMERCIAL PRODUCT IS LIMITED TO THE STATED DURATION OF THIS WRITTEN WARRANTY. NEITHER COMPANY NOR THE SELLING DEALER SHALL BE LIABLE FOR LOSS OF THE USE OF THE COMMERCIAL PRODUCT, LOSS OF TIME, INCONVENIENCE, COMMERCIAL LOSS OR CONSEQUENTIAL DAMAGES.

Some states do not allow limitations on how long an implied warranty will last or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

The remedy of repair or replacement of a defective part during the warranty period herein specified shall be the purchaser's exclusive remedy.

RIGHT TO MAKE DESIGN CHANGES

The Company reserves the right to make changes in the design and other changes in its products at any time and from time to time without notice and without incurring any obligation with respect to any product previously ordered from it, sold or shipped by it.

EXTENDED SERVICE PLAN (ESP)

The optional extended service plan has been explained to me and I :

☐ accept and have signed the completed registration form

☐ decline the extended service plan

PROTECTIVE EQUIPMENT

Rollover protective structure (ROPS) and seat belts are provided as standard equipment on all Ford brand agricultural (except orchard and vineyard) and industrial tractors and we strongly recommend their use. Customers who elect to remove or not use this equipment do so at their own risk.

- I acknowledge the existence of OSHA regulations pertaining to ROPS. _____
- A PTO master shield has been furnished with delivery of the machine. _____
- The correct Operator's Manual has been furnished. _____
- Safety precautions were explained to me by the selling dealer. _____

ACKNOWLEDGEMENT

The blank spaces under "Protective Equipment" have been filled in and are correct and I acknowledge that I have read and I accept this Warranty and Limitation of Liability.

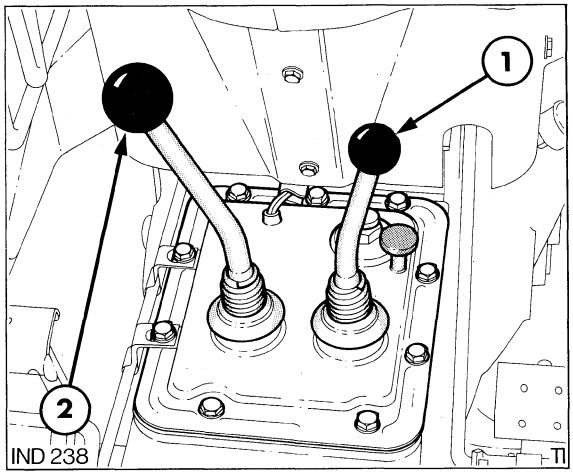
Purchaser _____ Model _____

SIGNATURE

Date _____ Serial No. _____

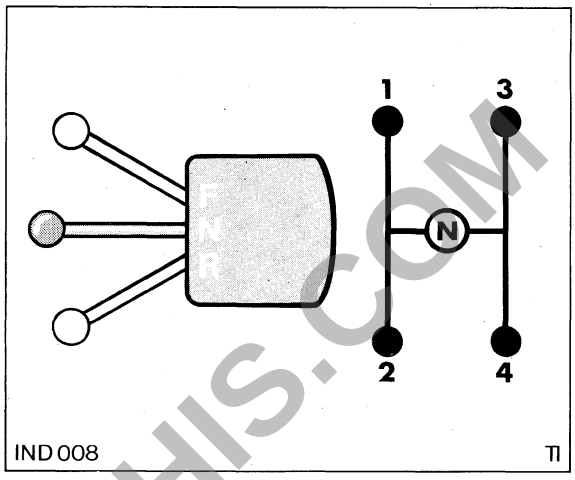
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10. Transmission Shift Levers – 6 × 4 Transmission

1. Range lever
2. Gearshift lever



11. Gearshift Pattern – 4 × 4 Transmission

6 × 4 Non-synchromesh Transmission

The gearshift levers, Figure 10, are used to select the required transmission gears. The left gearshift lever is used to select either of the 3 forward and 2 reverse gears. The right-hand lever is used to select the high (H) or low (L) range which has the effect of doubling the number of gears available. Stop the tractor and fully depress the clutch before moving either of the levers. See Figure 9 for the gearshift positions.

NOTE: *A neutral start switch prevents operation of the starting motor unless the range lever is in the neutral (N) position.*

A decal showing the gearshift pattern and approximate road speeds is affixed to the instrument console. For more accurate road speed information, see 'ROAD SPEEDS' in Section E.

WARNING: *To prevent inadvertent tractor movement, avoid accidental contact with the gearshift levers. Always stop the engine, firmly apply the parking brake and place* ***both*** *gearshift levers in neutral before dismounting.*

Power Reversing Transmissions

A torque converter is used to connect the engine to the transmissions and a column mounted power reversing lever enables shifts between forward and reverse travel.

Both transmissions enable upward and downward gear changes on the move. A transmission disconnect feature is provided by a foot operated pedal located just forward of the tractor left-hand side step plate. The pedal is easily activated by the left foot. See also Section B 'LOADER CONTROLS AND OPERATION'.

4 × 4 Synchronized Power Reversing Transmission

The single gearshift lever is used to select any one of the four gears. The power reversing lever mounted on the steering column is used to start the tractor in motion and reverse the direction of travel. Figure 11 shows the gearshift pattern for the 4 × 4 power reversing transmission.

WARNING: *Always apply the parking brake whenever the tractor is parked as the tractor is free to roll even though the transmission gearshift lever and power reversing lever may be "In Gear".*

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HYDRAULIC LIFT AND P.T.O. CONTROLS AND OPERATION

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The following pages in this section detail the location and function of the hydraulic lift and power take-off on your tractor. Before attempting to operate the tractor study this section carefully and ensure you are thoroughly familiar with all aspects of operation if you are in doubt about any aspect of operation of the tractor, consult your Dealer.

WARNING: *Study Safety Precautions before operating the Hydraulic Lift or PTO Controls.*

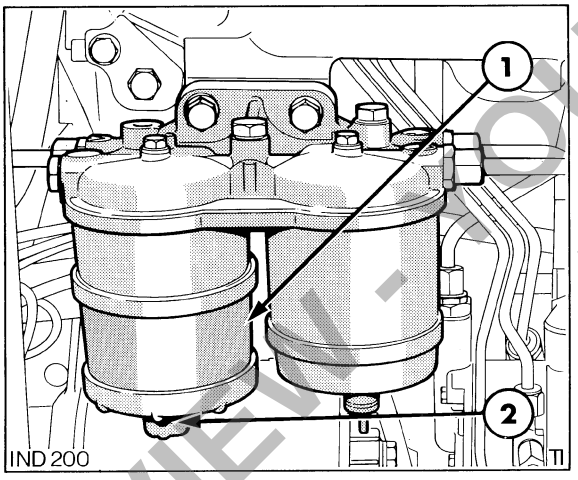
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SERVICING THE DRY AIR CLEANER (continued)

Clean the inside of the air cleaner casing using a damp, lint-free cloth on a probe, taking care not to damage the inner element. Re-install the outer element ensuring that the rubber seal on the end is not loose or damaged.

IMPORTANT: *The outer element must be washed after five dry cleanings or at the 300 hour service whichever occurs first.*

EVERY 50 HOURS Carry out the preceding checks plus the following:



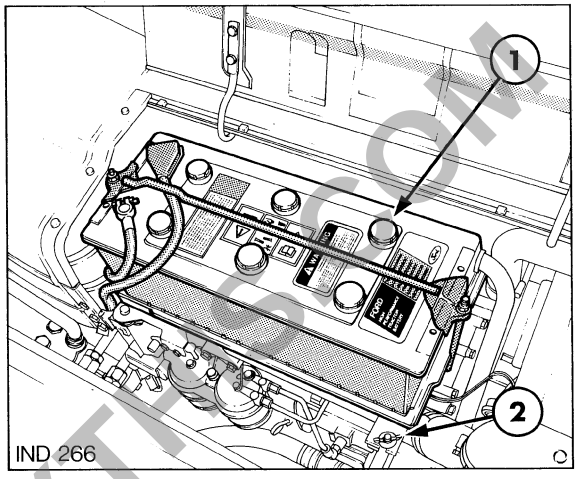
9. Water/Sediment Separator and Filter

If water or sediment can be seen in the glass bowl (1), turn the drain plug (2) counter-clockwise and allow the contaminated fuel to drain away.

Re-tighten the plug and bleed the injection system as outlined in operation 57.

NOTE: *This operation should be carried out more frequently in high condensation conditions. It is good practice to fill the fuel tank at the end of each working day, thereby reducing overnight condensation to a minimum.*

50 HOUR SERVICE (continued)



10. Battery Electrolyte Level

The battery is mounted on a hinged tray which may be swung outward for improved accessibility after loosening the wing nut clamp (2).

WARNING: *The battery contains a sulphuric acid electrolyte which can cause severe burns and produce explosive gases. Avoid contact with the skin, eyes or clothing. Do not take internally. Treatment is as follows:*

Skin – flush with cold water.

Eyes – flush with cold water for 15 minutes and get prompt medical attention.

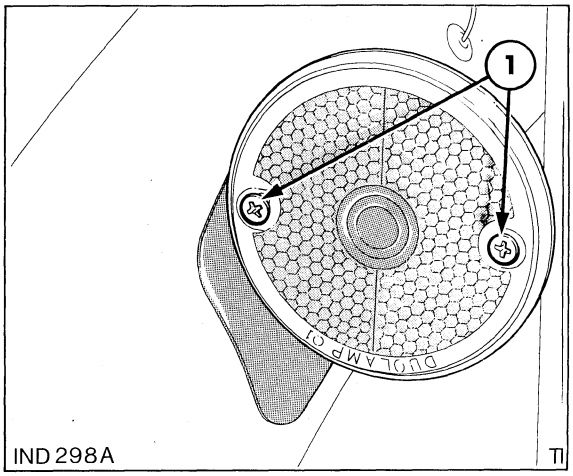
Internal – drink large quantities of water or milk followed by milk of magnesia, beaten eggs or vegetable oil. Call a doctor immediately.

Do not use a open flame to check the electrolyte level. Keep sparks, flames and cigarettes away. Do not produce sparks with cable clamps when charging the battery or starting the tractor engine with a slave battery.

Wear eye protection when working near batteries. Ventilate when charging or using in an enclosed space. Ensure vent plugs are correctly installed and tight.

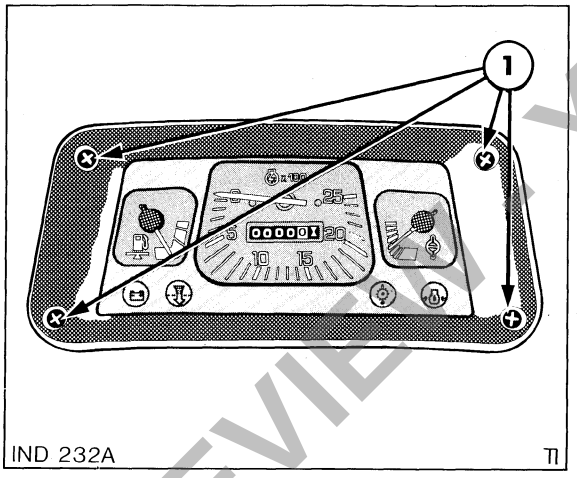
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GENERAL MAINTENANCE (continued)



89. Tail Lamp Bulb Replacement

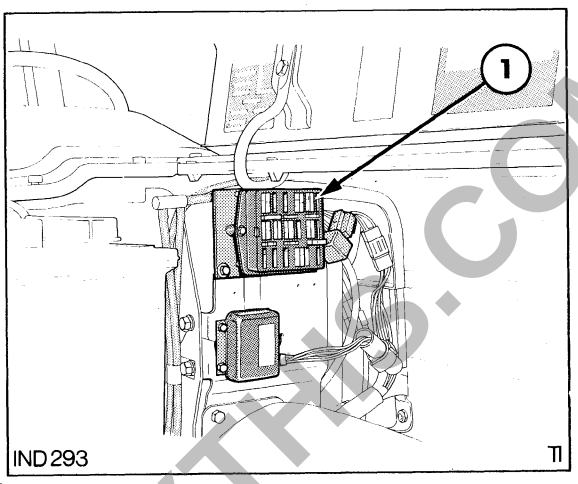
Remove the lens cover by withdrawing the two securing screws (1). Removal of the bulbs is identical to operation 88.



90. Instrument Panel Bulb Replacement

The warning and panel light bulbs are removable from the rear of the instrument panel. To gain access, remove the four securing screws (1) and withdraw the instrument panel. Disconnect the proofmeter drive cable, if necessary.

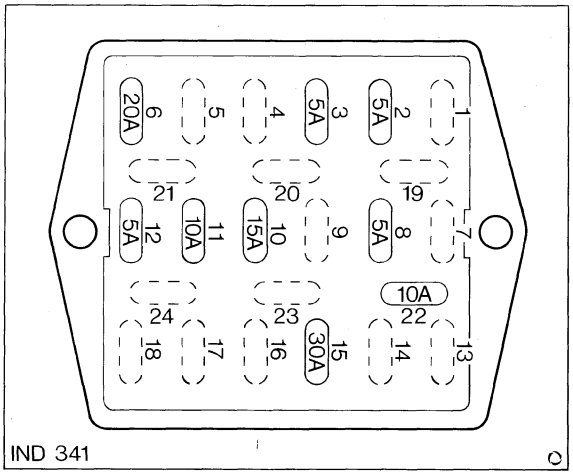
Remove the bulb holder then remove the bulb which has a bayonet cap by pressing in slightly and rotating approximately 20° counter-clockwise. Re-assemble in the reverse order.



91. Fuse Replacement

The fuse box is located on the fuel tank support, behind the battery. To gain access to the fuse box, open the hood panel, loosen the battery wing nut clamp and swing the battery tray out.

To gain access to the fuses, remove the securing screws and take off the fuse cover.



92. There is provision for 24 fuses although only 8 are fitted. The fuses are numbered and reference to the diagram and following table will permit rapid identification of the circuits they protect.

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