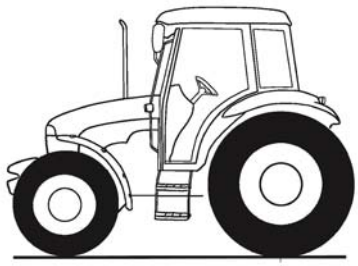


NEW HOLLAND

TD 60D
TD 70D
TD 80D
TD 90D
TD 95D

OPERATOR'S MANUAL

NEW HOLLAND

SECTION SUMMARY

Electro-magnetic Interference (EMC)

This tractor complies strictly with the European Regulations on electro-magnetic emissions. However, interference may arise as a result of add-on equipment which may not necessarily meet the required standards. As such interference can result in serious malfunction of the unit and/or create unsafe situations, you must observe the following:

- Ensure that each piece of non-New Holland equipment fitted to the tractor bears the CE mark.

- The maximum power of emission equipment (radio, telephones, etc.) must not exceed the limits imposed by the national authorities of the country where you use the tractor.
- The electro-magnetic field generated by the add-on system should not exceed 24 V/m at any time and at any location in the proximity of electronic components.

Failure to comply with these rules will render the New Holland warranty null and void.

CONTENTS

SECTION 1

GENERAL INFORMATION AND SAFETY

TO THE OWNER

GENERAL

This Manual has been prepared to assist you in the correct procedure for running-in, driving and operating and for the maintenance of your new tractor. Read this Manual carefully. Your tractor is intended for use in normal and customary agricultural applications.

If at any time you require advice concerning your tractor, do not hesitate to contact your New Holland dealer. He has factory trained personnel, genuine manufacturers' parts and the necessary equipment to carry out all your service requirements.

Your tractor has been designed and built to give maximum performance, economy and ease of operation under a wide variety of operating conditions. Prior to delivery, the tractor was carefully inspected, both at the factory and by your dealer to ensure that it reaches you in optimum condition. To maintain this condition and ensure trouble-free operation, it is important that the routine services, as specified in Section 4 of this Manual, are carried out at the recommended intervals.

CLEANING THE TRACTOR

Your tractor is a state-of-the-art machine with sophisticated controls. This should be borne in mind when cleaning the tractor, particularly if using a high pressure washer. Even though every precaution has been taken to safeguard electrical components and connections, the pressure generated by some of these machines is such that complete protection against water ingress cannot be guaranteed.

When using a high pressure washer, do not stand too close to the tractor and avoid directing the jet at electronic components, electrical connections, breathers, seals, filler caps, etc. Never direct a cold water jet at a hot engine or exhaust.

SAFETY

Pages 1-6 to 1-11 inclusive list the precautions to be observed to ensure your safety and the safety of others. Read the safety precautions and follow the advice offered **before** operating the tractor.

FIRST 50 HOUR SERVICE

In Section 9, at the back of this Manual, you will find the 50-hour service reports.

After you have operated the tractor for 50 hours, take your tractor, together with this Manual, to your dealer. He will then perform the factory recommended 50-hour service and complete the service report sheets (pages 9-1 and 9-3). The first sheet (page 9-1) is the dealer's copy and should be removed by the dealer after the service has been carried out. The second sheet (page 9-3) is your copy of the service performed. **Ensure that you and the dealer sign both copies.**

SERVICE PARTS

It should be pointed out that genuine parts have been examined and approved by the Company. The installation and/or use of 'non-genuine' products could have negative effects upon the design characteristics of your tractor and thereby affect it's safety. The Company is not liable for any damage caused by the use of 'non-genuine' parts and accessories. Only genuine replacement parts should be used. The use of non-genuine parts may invalidate legal approvals associated with this product.

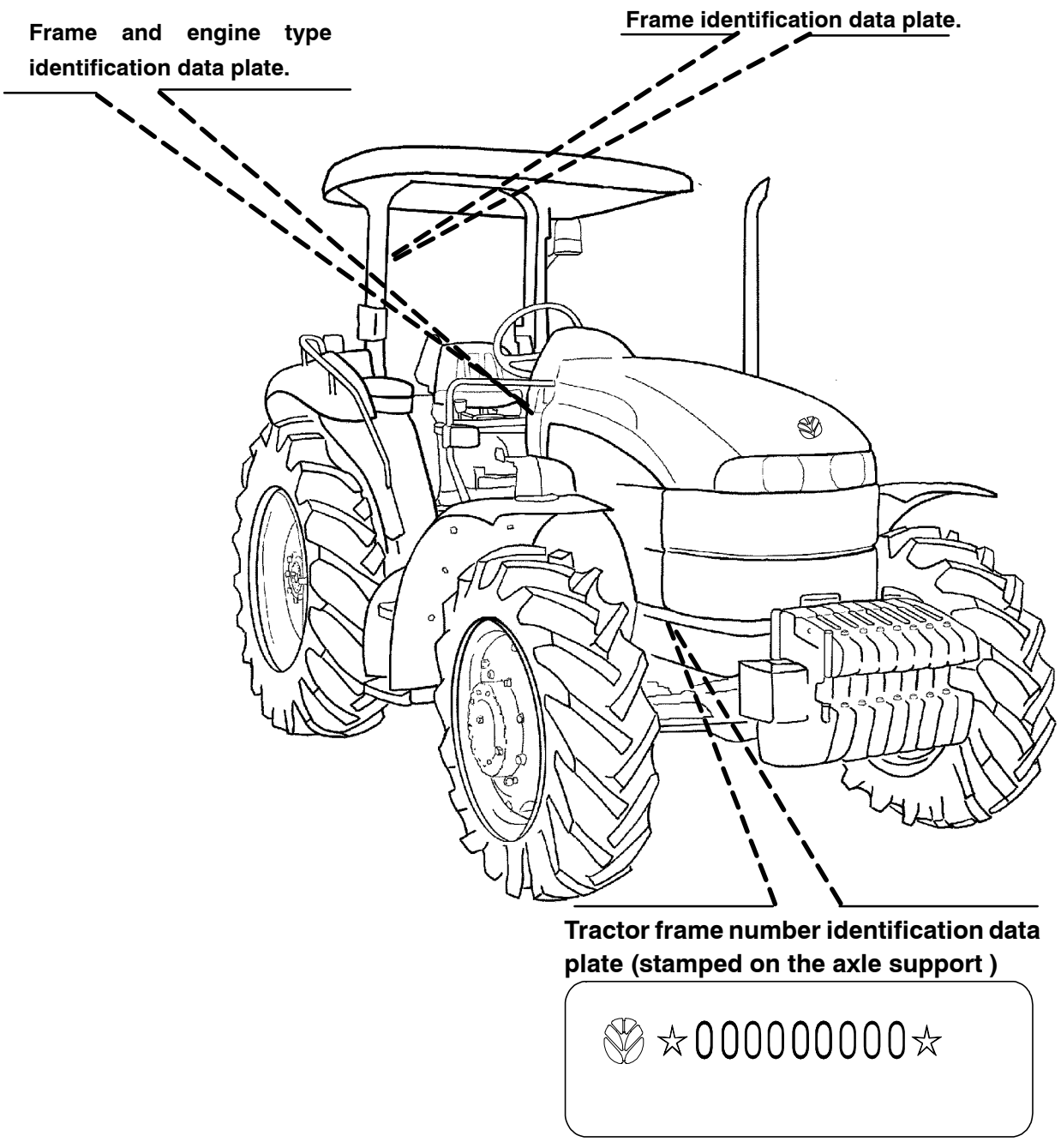
It is prohibited to carry out any modifications to the tractor unless specifically authorised, in writing, by the After Sales Service department of the Company.

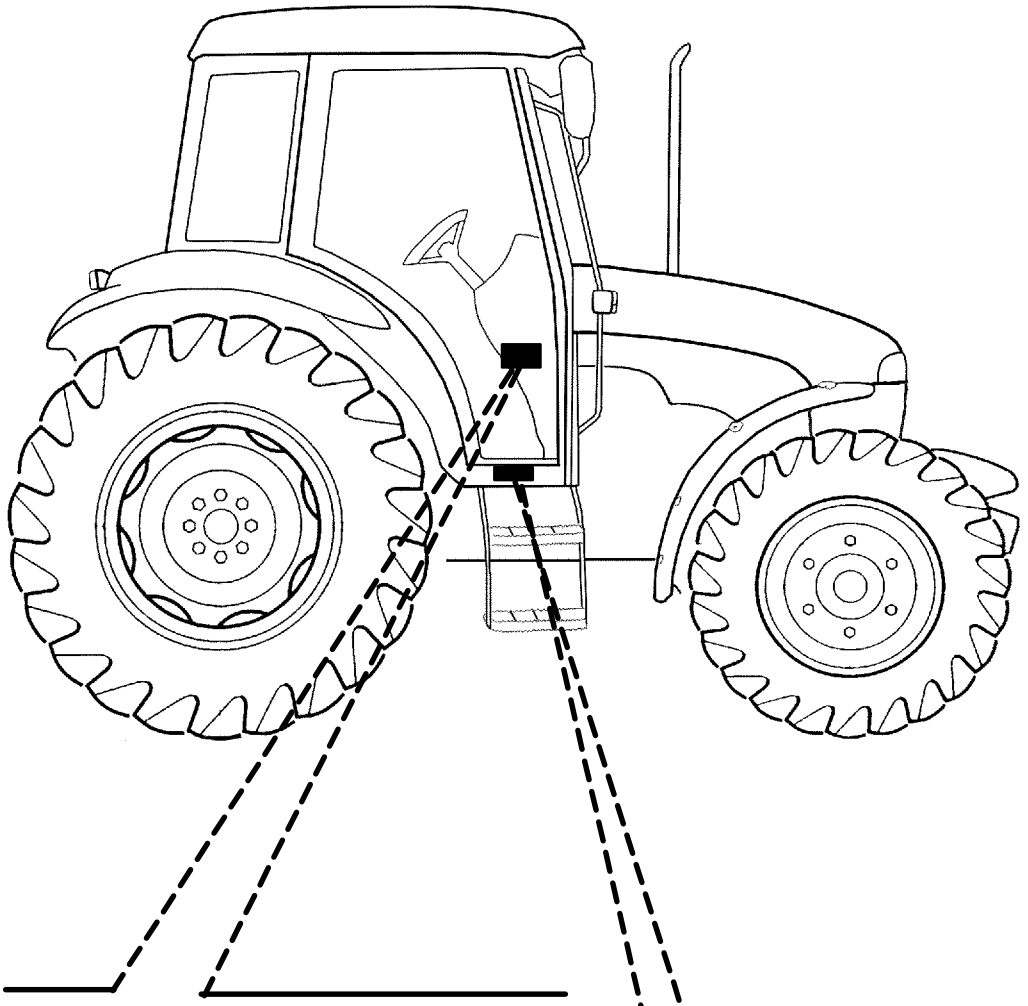
WARRANTY

Your tractor is warranted according to legal rights in your country and the contractual agreement with the selling dealer. No warranty shall, however, apply if the tractor has not been used, adjusted and maintained according to the instructions given in the Operator's Manual.

TRACTOR IDENTIFICATION

Serial numbers identify the tractor and its main components. The identification data must be supplied by the dealer for requests for spare parts or service operations. Identification data is of fundamental importance in the event of theft of the tractor. The location of the various identification data is shown below.

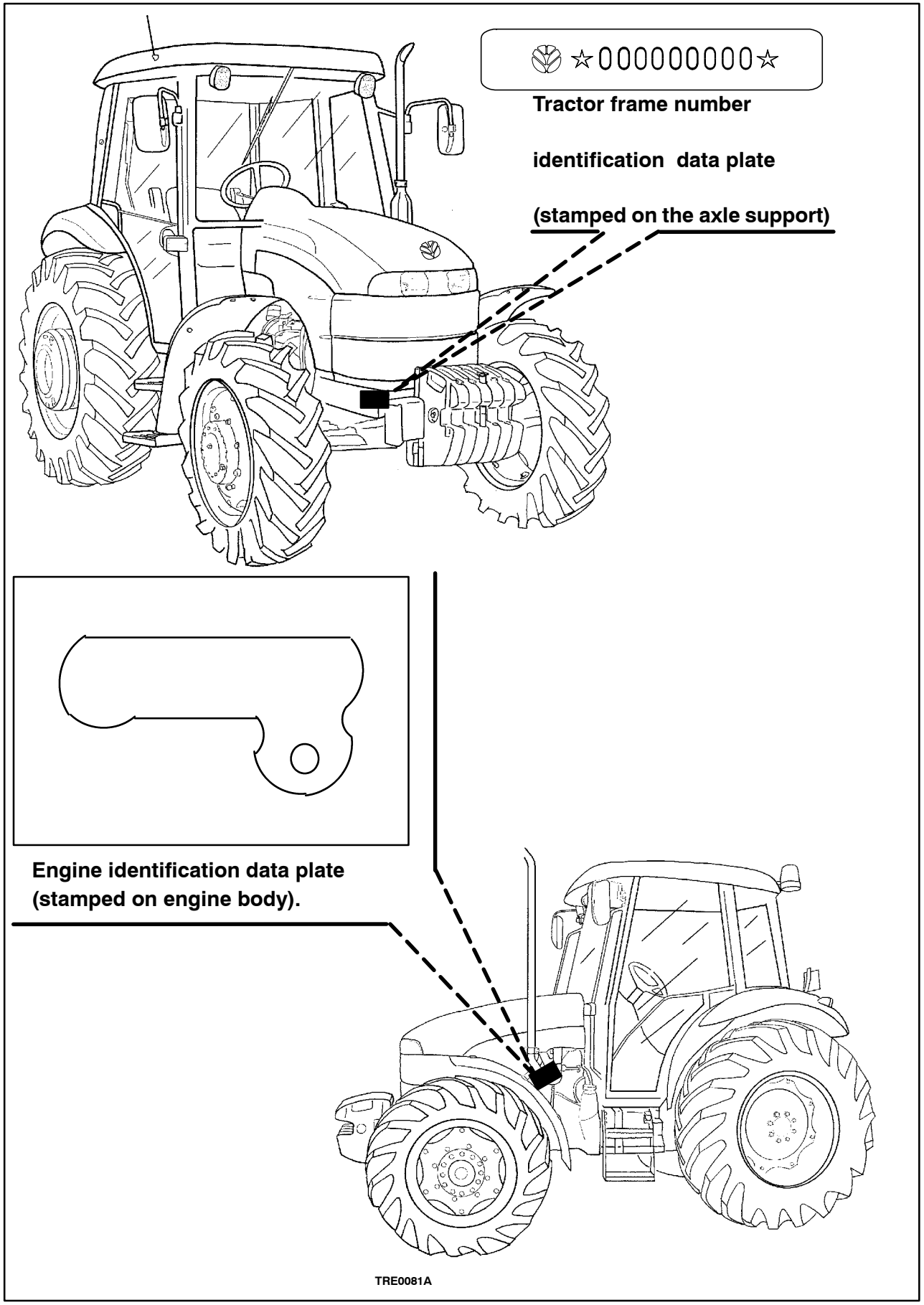




Frame and engine type identification data plate (inside the cab).

Cab identification data plate.

TRE0061A


☆000000000☆
Tractor frame number
identification data plate
(stamped on the axle support)
Engine identification data plate
(stamped on engine body).
TRE0081A

ECOLOGY AND THE ENVIRONMENT

Soil, air and water are vital factors of agriculture and life in general. Where legislation does not yet rule the treatment of some of the substances which are required by advanced technology, common sense should govern the use and disposal of products of a chemical and petrochemical nature.

The following are recommendations which may be of assistance:

- Become acquainted with and ensure that you understand the relative legislation applicable to your country.
- Where no legislation exists, obtain information from suppliers of oils, filters, batteries, fuels, antifreeze, cleaning agents, etc., with regard to their effect on man and nature and how to safely store, use and dispose of these substances. Agricultural consultants will, in many cases, be able to help you as well.

HELPFUL HINTS

1. Avoid filling tanks using unsuitable containers or inappropriate pressurised fuel delivery systems which may cause considerable spillage.
2. In general, avoid skin contact with all fuels, oils, acids, solvents, etc. Most of them contain substances which can be harmful to your health.
3. Modern oils contain additives. Do not burn contaminated fuels and/or waste oils in ordinary heating systems.
4. Avoid spillage when draining off used engine coolant mixtures, engine, gearbox and hydraulic oils, brake fluids, etc. Do not mix drained brake fluids or fuels with lubricants. Store them safely until they can be disposed of in a proper way to comply with local legislation and available resources.
5. Modern coolant mixtures, i.e. antifreeze and other additives, should be replaced every two years. They should not be allowed to get into the soil but should be collected and disposed of safely.
6. Do not open the air-conditioning system yourself. It contains gases which should not be released into the atmosphere. Your dealer or air conditioning specialist has a special extractor for this purpose and will have to recharge the system anyway.
7. Repair any leaks or defects in the engine cooling or hydraulic system immediately.
8. Do not increase the pressure in a pressurised circuit as this may lead to the components exploding.
9. Protect hoses during welding as penetrating weld splatter may burn a hole or weaken them, causing the loss of oils, coolant, etc.

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** driving, operating or servicing the tractor. Equipment should be operated only by those who are responsible and instructed to do so.

PRECAUTIONARY STATEMENTS

Throughout this Manual you will see text, preceded by the words **NOTE, ATTENTION, IMPORTANT, CAUTION, WARNING** or **DANGER**. Such text has the following significance:

MACHINE SAFETY

NOTE: *This text stresses a correct operating technique or procedure.*

ATTENTION: *This text warns the operator of potential machine damage if a certain procedure is not followed.*

IMPORTANT: *This text informs the reader of something that he needs to know to prevent minor machine damage if a certain procedure is not followed.*

PERSONAL SAFETY

⚠ CAUTION ⚠

The word **CAUTION** is used where a safe behavioural practice, according to operating and maintenance instructions and common safety practices will protect the operator and others from accident involvement.

⚠ WARNING ⚠

The word **WARNING** denotes a potential or hidden hazard which could possibly cause serious injury. It is used to warn operators and others to exercise due care and attention to avoid a surprise accident with machinery.

⚠ DANGER ⚠

The word **DANGER** denotes a forbidden practice in connection with a serious hazard.

Failure to follow the **CAUTION, WARNING** and **DANGER** instructions may result in serious bodily injury or even death.

THE TRACTOR

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

2. Only allow properly trained and qualified persons to operate the tractor.

3. To prevent falls, use the handrails and step plates when getting on and off the tractor. Keep steps and platform clear of mud and debris.

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

5. Keep safety decals free of dirt or grime.

6. Do not permit anyone but the operator to ride on the tractor unless a passenger seat is fitted. There is no safe place for extra passengers otherwise.

7. Keep children away from the tractor and farm machinery at all times.

8. Do not modify or alter or permit anyone else to modify or alter the tractor or any of its components or any tractor function without first consulting your dealer.

9. Install all guards before starting the engine or operating the tractor.

DRIVING THE TRACTOR

1. Always sit in the driver's seat while starting or driving the tractor.

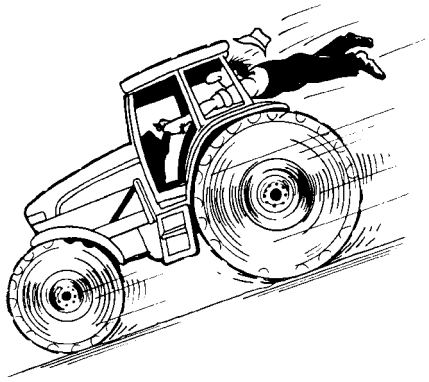
2. When driving on public roads, have consideration for other road users. Pull in to the side of the road occasionally to allow any following traffic to pass. Do not exceed the legal speed limit set in your country for agricultural tractors.

3. Use a rotating beacon when driving on public roads to indicate that the vehicle is slow moving and is a possible hazard.

4. Dip the tractor lights when meeting a vehicle at night. Make sure the lights are adjusted to prevent blinding the driver of an oncoming vehicle.

5. Reduce speed before turning or applying the brakes. Brake both wheels simultaneously when making an emergency stop. Ensure that both brake pedals are locked together when travelling at road speeds or when on public roads to ensure correct operation of trailer brakes, balanced operation of the tractor brakes and four wheel braking (4WD tractors only).

6. Use extreme caution and avoid hard application of the tractor brakes when towing heavy loads at road speeds.



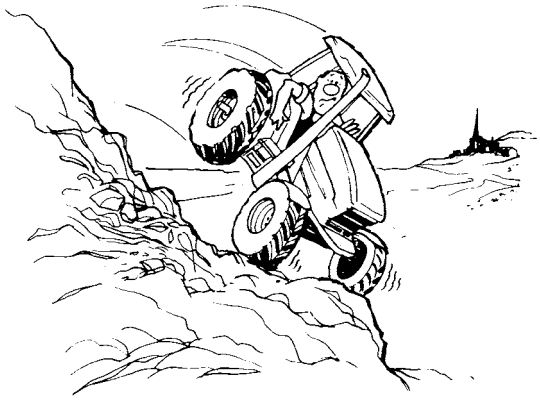
7. Keep the tractor in the same gear when going downhill as would be used when going uphill. Do not coast or freewheel down hills.

8. For safe operation any towed vehicle whose total weight exceeds that of the towing tractor must be equipped with a braking system that complies with the legal requirements of that country.

9. Never apply the differential lock when turning. When engaged, the differential lock will prevent the tractor from turning.

10. Always check overhead clearance, especially when transporting the tractor. Watch where you are going, especially at row ends, on roads and around trees and low overhanging obstacles.

11. To avoid overturns, drive the tractor with care and at speeds compatible with safety, especially when operating over rough ground, when crossing ditches or slopes and when turning corners.



12. Use extreme caution when operating on steep slopes.

13. If the tractor becomes stuck or the tyres are frozen to the ground, reverse the tractor out to prevent overturning.

OPERATING THE TRACTOR

1. Apply the parking brake, place the P.T.O. control in the 'OFF' position, the lift control lever in the down position, the remote control valve levers in the neutral position and the transmission levers in neutral before starting the tractor.

2. Do not start the engine or operate controls (other than externally located hydraulic lift or P.T.O. switches, if fitted) while standing beside the tractor. Always sit in the tractor seat when starting the engine or operating the controls.

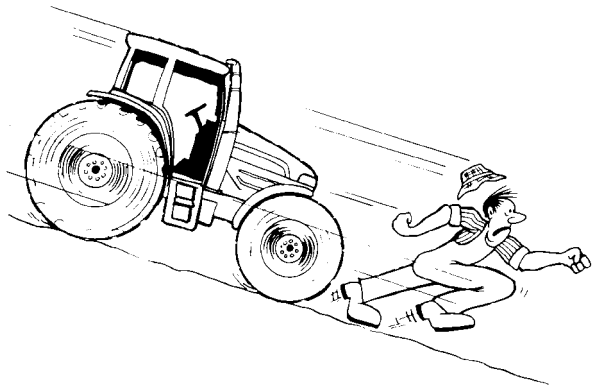
3. Do not bypass the transmission and P.T.O. neutral start switches. Consult your authorised dealer if your neutral start controls malfunction. Use jump leads only in the recommended manner. Improper use can result in a tractor runaway.

4. Avoid accidental contact with the gear shift levers while the engine is running. Unexpected tractor movement can result from such contact.

5. Do not get off the tractor while it is in motion.

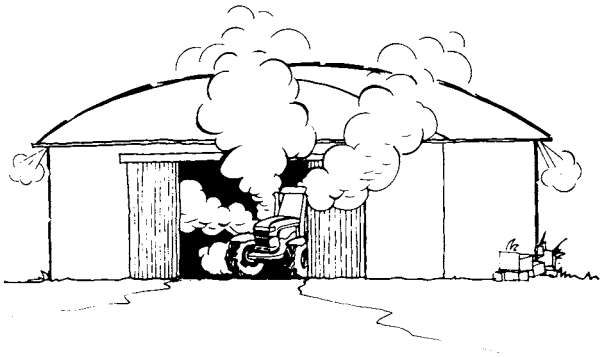
6. If the power steering or engine ceases operating, stop the tractor immediately as the tractor will be more difficult to control.

7. Before leaving the tractor, park the tractor on level ground, apply the parking brake, lower attached implements to the ground, disengage the P.T.O. and stop the engine.



8. Do not park the tractor on a steep incline.

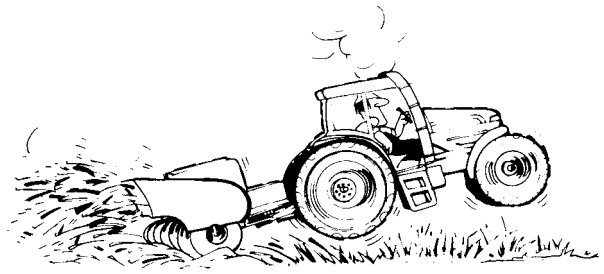
9. The cab is designed to provide the minimum noise level at the operator's ears and meets or exceeds applicable standards in this respect. However, noise (sound pressure level) in the workplace can exceed 85 dB(A) when working between buildings or in confined spaces, with cab windows open. Therefore, it is recommended that operators wear suitable ear protectors when operating in high noise level conditions.



10. Do not run the tractor engine in an enclosed building without adequate ventilation. Exhaust fumes are toxic and can cause death.

11. Pull only from the pick-up hitch, swinging drawbar or the lower link drawbar in the lowered position. Use only a drawbar pin that locks in place. Pulling from the tractor rear axle or any point above the axle may cause the tractor to overturn.

12. Always select Position Control when attaching equipment and when transporting equipment. Be sure hydraulic couplers are properly mounted and will disconnect safely in case of accidental detachment of the implement.



13. If the front end of the tractor tends to rise when heavy implements are attached to the three-point hitch, install front end or front wheel weights. Do not operate the tractor with a light front end.

14. Engage the clutch slowly when driving out of a ditch, gully or up a steep hillside. Disengage the clutch promptly if the front wheels rise off the ground.

15. 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.

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

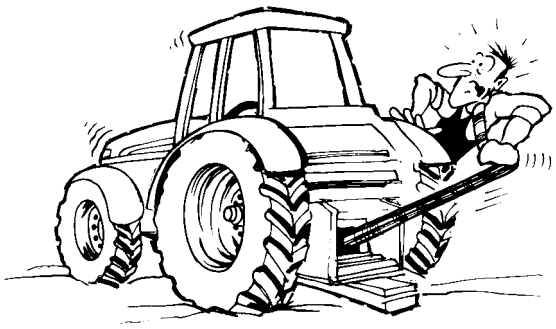
17. Do not leave equipment in the raised position when the vehicle is stopped or unattended.

18. Do not drive equipment near open fires.

19. Always wear a protective mask when working with toxic spray chemicals. Follow the directions on the chemical container.

OPERATING THE P.T.O.

1. When operating PTO- driven equipment, shut off the engine, switch off the PTO and wait until the PTO stops before getting off the tractor and disconnecting the equipment.



2. Do not wear loose clothing when operating the power take-off or especially when near rotating equipment.

3. When operating stationary PTO-driven equipment, always apply the tractor parking brake and block the rear wheels front and back.

4. To avoid injury, do not clean, adjust, unclog or service PTO driven equipment when the tractor engine is running. Ensure that the PTO is switched off.

5. Make sure the PTO guard is in position at all times and always replace the PTO cap when the PTO is not in use.

SERVICING THE TRACTOR

1. The cooling system operates under pressure which is controlled by the expansion tank 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. Never remove the cap from the top of the radiator unless the expansion tank pressure cap has first been removed.

2. Do not smoke while refuelling the tractor. Keep any type of open flame away.

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 fire or explosion, keep open flames away from battery or cold weather starting aids. To prevent sparks which could cause explosion, use jumper cables according to instructions.

5. Do not attempt to service the air conditioning system. It is possible to be severely frost bitten or injured by escaping refrigerant. Special equipment and instruments are required to service the air conditioning system. See your authorised dealer for service.

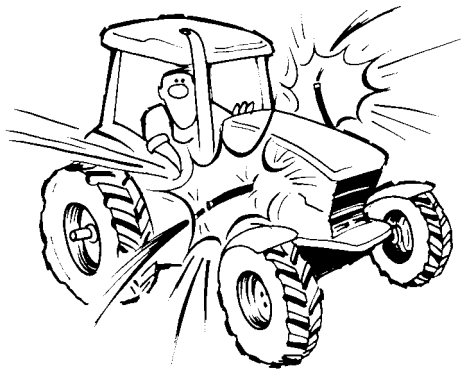
6. Stop the engine before performing any service on the tractor.

7. Hydraulic fluid and fuel oil in the injection system operate under high pressure. Escaping hydraulic fluid or fuel oil under pressure can penetrate the skin causing serious injury.

   Unqualified persons should not remove or attempt to adjust a pump, injector, nozzle or any other part of the fuel injection or hydraulic systems. Failure to follow these instructions can result in 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 pressurising lines.

   - If fluid is injected into the skin obtain medical attention immediately or gangrene may result.

8. Do not modify or alter or permit anyone else to modify or alter the tractor or any of its components or any tractor function without first consulting an authorised dealer.

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. Keep equipment clean and properly maintained.

11. Dispose of all drained fluids and removed filters properly.

12. Tractor wheels are very heavy. Handle with care and ensure, when stored, that they can not topple and cause injury.

DIESEL FUEL

1. Under no circumstances should gasoline, alcohol or blended fuels be added to diesel fuel. These combinations can create an increased fire or explosive hazard. In a closed container such as a fuel tank these blends are more explosive than pure gasoline. Do not use these blends.

2. Never remove the fuel cap or refuel with the engine running or hot.

3. Do not smoke while refuelling the tractor or when standing near fuel. Keep any type of open flame away.

4. Maintain control of the fuel filler pipe nozzle when filling the tank.

5. Do not fill the fuel tank to capacity. Fill only to the bottom of the filler neck to allow room for expansion.

6. Wipe up spilled fuel immediately.

7. Always tighten the fuel tank cap securely.

8. If the original fuel tank cap is lost, replace it with an approved cap. A non-approved cap may not be safe.

9. Never use fuel for cleaning purposes.

10. Arrange fuel purchases so that summer grade fuels are not held over and used in the winter.

SAFETY CAB

Your tractor is equipped with a safety cab which must be maintained in a serviceable condition. Be careful when driving through doorways or working in confined spaces with low headroom.

1. Do not modify, drill, weld or alter the safety cab in any way. Doing so could render you liable to legal prosecution in some countries.

2. Never attempt to straighten or weld any part of the main frame or retaining brackets which have suffered damage. By doing so you may weaken the structure and endanger your safety.

3. Do not secure any parts on the main frame or attach your safety cab with other than the special high tensile bolts and nuts specified.

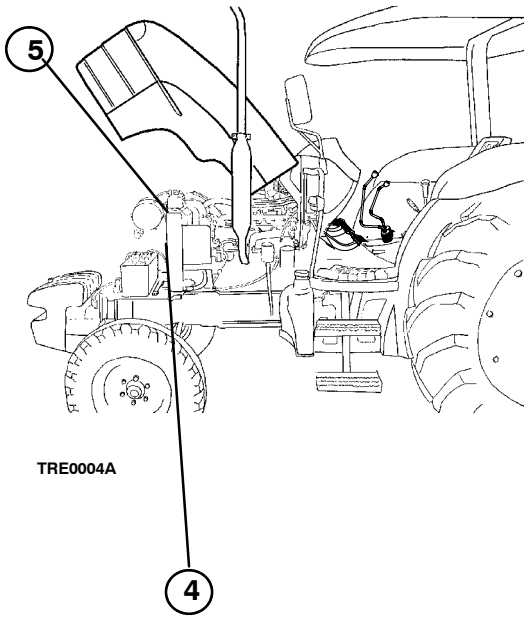
4. Never attach chains or ropes to the cab or main frame for pulling purposes.

5. Never take unnecessary risks even though your safety cab affords you the maximum protection possible.

WHENEVER YOU SEE THIS SYMBOL ⚠ IT MEANS: ATTENTION!
BECOME ALERT! YOUR SAFETY IS INVOLVED!

SAFETY DECALS

The decals reproduced on the following pages were installed on your tractor in the positions indicated in the drawings below. They are intended for your safety and for those working with you. Please take this Manual and walk around your tractor, noting the location of the decals and their significance. Review the decals and operating instructions detailed in this Manual with the machine operators. Keep the decals clean and legible. If they become damaged or illegible, obtain replacements from your authorised dealer.



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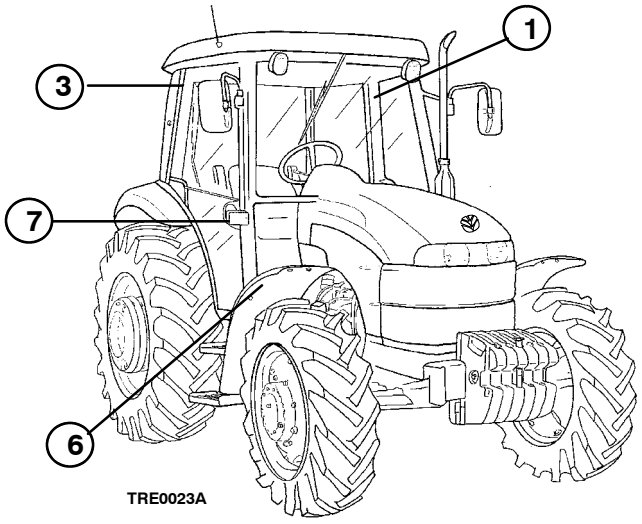
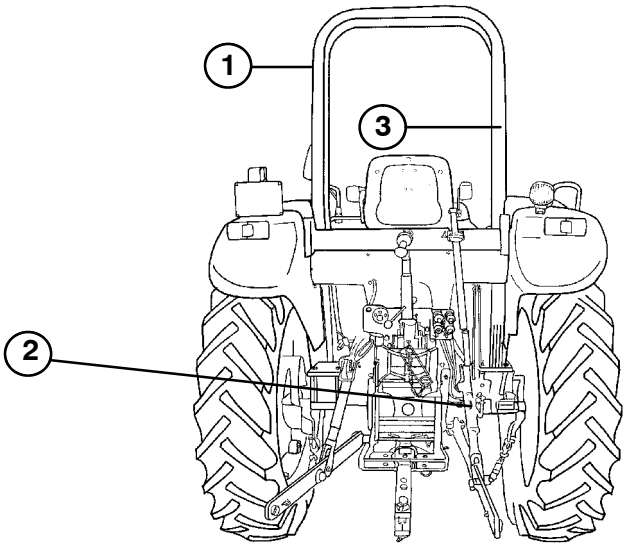


TRE0023A



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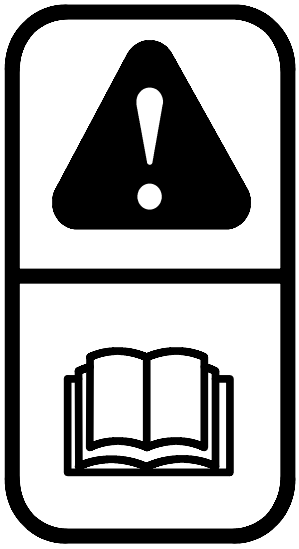
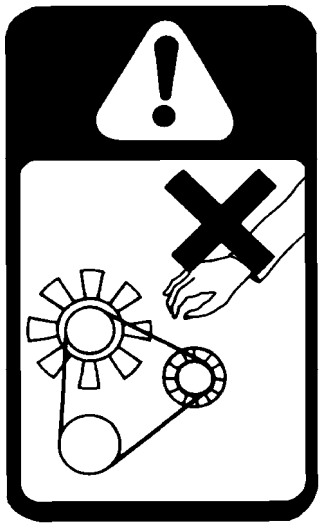


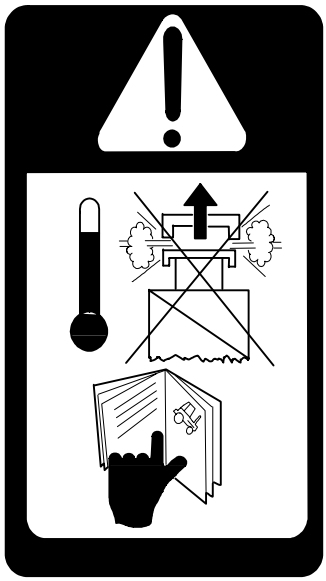
1. Location: On the left-hand upright of ROPS and inside the cab and also on the filter drier under the bonnet.
Non-compliance with the instructions provided in this manual can lead to serious injury to the operator or bystanders.
Read the instructions on pages 1-6 to 1-11 inclusive.

2. Location: On the right-hand lift rod
GENERAL WARNING: Observe and respect the indications on the safety decals when this symbol is present.

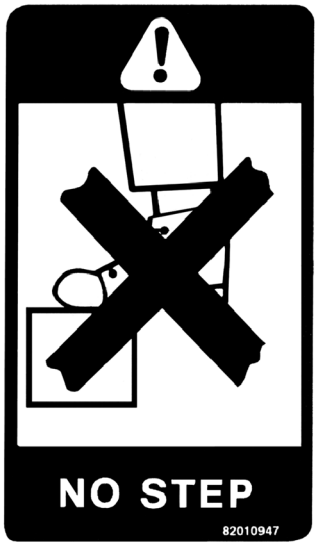
3. Location: On the right-hand upright of ROPS and inside the cab.
If the tractor should overturn, hold the steering wheel tightly. Do not attempt to jump out of the cab.



4. Location: Left and right-hand sides of the radiator.
To avoid serious injury, keep hands and clothing away from the rotating fan, belts and any other rotating parts.



5. Location: Left and right-hand side of the radiator.
WARNING: Pressurised cooling system. Allow to cool then remove cap carefully. Use a cloth to slowly unscrew the cap and release the pressure before completely removing the cap.



6. Location: Tool box lid.

7. Location: Front of transmission console (less cab tractors only) - all countries.
Do not grasp the transmission levers when mounting the tractor. Use only the hand holds provided.

7. Location: Front of transmission console (tractors with cab only) - all countries.
Do not grasp the transmission levers when mounting the tractor. Use only the hand holds provided.

INTERNATIONAL SYMBOLS

As a guide to the operation of your tractor, various universal symbols have been utilised on the instruments, controls, switches, and fuse box. The symbols are shown below with an indication of their meaning.


Thermostart starting aid


Alternator charge


Fuel level


Automatic fuel shut-off


Engine speed (rev/min x 100)


Hours recorded


Engine oil pressure


Engine coolant temperature


Coolant level


Tractor lights


Headlamp main beam


Headlamp dipped beam


Work lamps

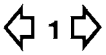

Stop lamps


Horn

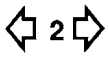

Radio

KAM
Keep alive memory


Turn signals



Turn signals –one trailer



Turn signals –two trailers


Front wind-screen wash/wipe


Rear windscreen wash/wipe


Heater temperature control


Heater fan


Air conditioner


Air filter blocked


Parking brake


Brake fluid level


Trailer brake


Roof beacon


Warning! Corrosive substance


P.T.O.

N
Transmission in neutral


Creeper gears


Slow or low setting


Fast or high setting


Ground speed


Differential lock


Rear axle oil temperature


Transmission oil pressure


FWD engaged


FWD disengaged

Warning!

Hazard warning lights

Variable control

Pressurised! Open carefully

Position Control

Draft Control

Accessory socket

Implement socket

% slippage

Hitch raise (rear)

Hitch lower (rear)

Hitch height limit (rear)

Hitch height limit (front)

Hitch dis-abled

Hydraulic and transmission filters

Remote valve extend

Remote valve retract

Remote valve float

Malfunction! See Operator's Manual

Malfunction! (alternative symbol)

TRACTOR NOISE LEVEL INFORMATION SHEET

In compliance with **DPR no. 212 enclosure 8 section II** incorporating directive **77/311/EEC**, the noise levels for tractors fitted with tyres covered by the Use and Maintenance Manual are as specified below.

TRACTORS WITH ROLL BARS 2/4WD

Model	Maximum noise level at steering wheel dB (A)	
	30 km/h (19 mph)	40 km/h (25 mph)
TD60D	85	
TD70D	85	
TD80D	86	
TD90D	85	
TD95D	84	

TRACTORS WITH CABS 2/4WD

Model	Maximum noise level at steering wheel with cab doors and windows closed	
	dB (A)	
	30 km/h (19 mph)	40 km/h (25 mph)
TD60D	80	
TD70D	80	
TD80D	80	
TD90D	80	
TD95D	80	

TRACTORS WITH CABS 2/4WD

Model	Maximum noise level at steering wheel with cab doors and windows open	
	dB (A)	
	30 km/h (19 mph)	40 km/h (25 mph)
TD60D	83	
TD70D	80	
TD80D	82	
TD90D	83	
TD95D	84	

WARNING – If the noise level during continuous use reaches or exceeds **85 dB (A)**, the user must adopt suitable precautions.

SECTION 2

CONTROLS, INSTRUMENTS AND OPERATION

INTRODUCTION

This Operator's Manual has been produced to provide the user with practical information, documents and instructions about the correct procedure for running in, driving, operating and maintaining the new tractor.

The Manual is subdivided into 10 sections. The main index is at the end of the Manual (Section 10).

Read and refer to this Manual carefully, and always keep it in a convenient place so that you can refer to it whenever necessary.

If you should at any time need information and advice about using your tractor, please contact your authorised dealer.

The dealer can provide skilled personnel, genuine spare parts and the necessary equipment to carry out your service requirements.

All the data provided in this Manual is subject to product modifications. Weights and measures are to be considered approximate figures and the illustrations do not necessarily show tractors with standard fittings.

For precise information on specific tractor models and versions, please contact your authorised dealer.

The Company is engaged in a continuous process of product development and improvement and therefore reserves the right to change the specifications, components and prices of the product itself at any time, without prior notice.

In this Manual, the "left-hand" and "right-hand" parts of the tractor are as seen from the driver's seat, facing forward.

The necessary precautions to guarantee the personal safety of the operator and others are listed and described under the heading 'WORKING SAFELY' at the beginning of the Manual. Read and follow the information provided BEFORE using the tractor.

SAFETY COVERS AND GUARDS

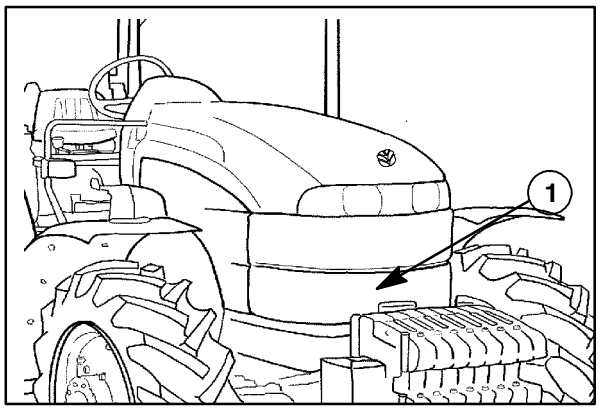
The tractor is fitted with covers and guards for the personal safety of the operator and other people when working.

⚠ CAUTION ⚠

Before starting the engine or using the tractor, always check that all safety covers and guards are correctly fitted.

BONNET (HOOD) - Fig. 1

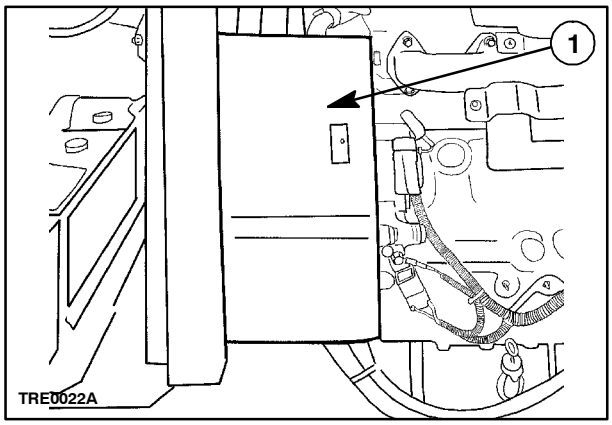
The hood (1) covers the engine's moving parts.
It must be closed before the engine is started and the tractor is used.



1

FAN GUARD - Fig. 2

Both sides of the fan have guards (1). The guard shown protects the left-hand side of the fan.

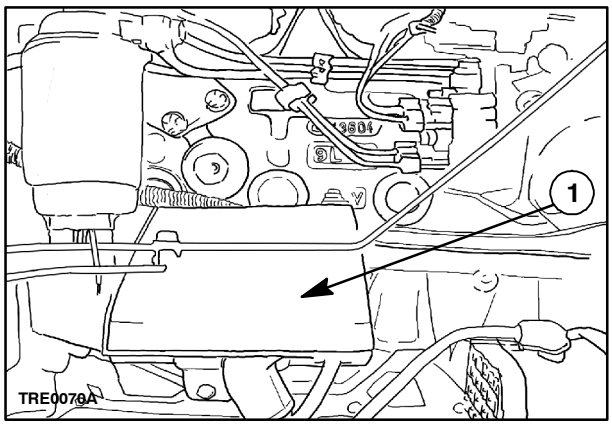


2

STARTER MOTOR COVER - Fig. 3

The cover (1) protects the electro-magnetic contacts of the starter motor from accidental contact. It must always be in place when the batteries are connected to the electrical system.

The cover also protects the battery from possible damage and the electrical connections from possible accidental contact.



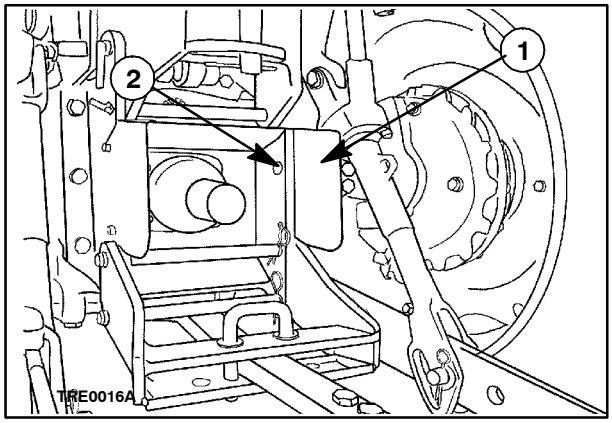
3

TRACTOR POWER TAKE-OFF GUARD - Fig. 4

The guard (1) covers the power take-off shaft.
To facilitate shaft replacement, loosen screws (2) and remove the guard.

⚠ CAUTION ⚠

The guard must never be removed when the tractor is being used and must never be modified.



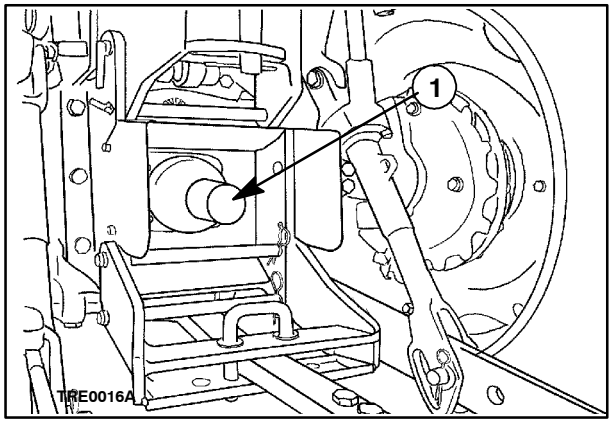
4

POWER TAKE-OFF SHAFT SAFETY CAP - Fig. 5

The cap (1) must always be fitted on the power take-off shaft when it is not connected to an implement.
Replace it correctly when the power take-off is not in use.

⚠ CAUTION ⚠

Check that all guards and covers are correctly fitted before using the tractor.



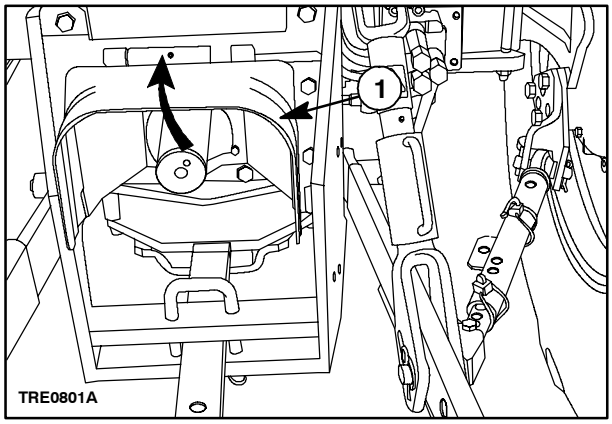
5

PIVOTING POWER TAKE-OFF GUARD - Fig. 6

The guard (**1**) protects the power take-off shaft.

NOTE: *To facilitate connection of the tractor transmission shaft / implement, lift the guard (**1**). Once connected, return the guard to the safety position.*

⚠ ***CAUTION:*** *The guard must never be removed when the tractor is being used and must never be modified.*



6

CONTROLS AND INSTRUMENTS - POSITION AND FUNCTION

The position and function of the controls and instruments on your tractor are described in the following pages.

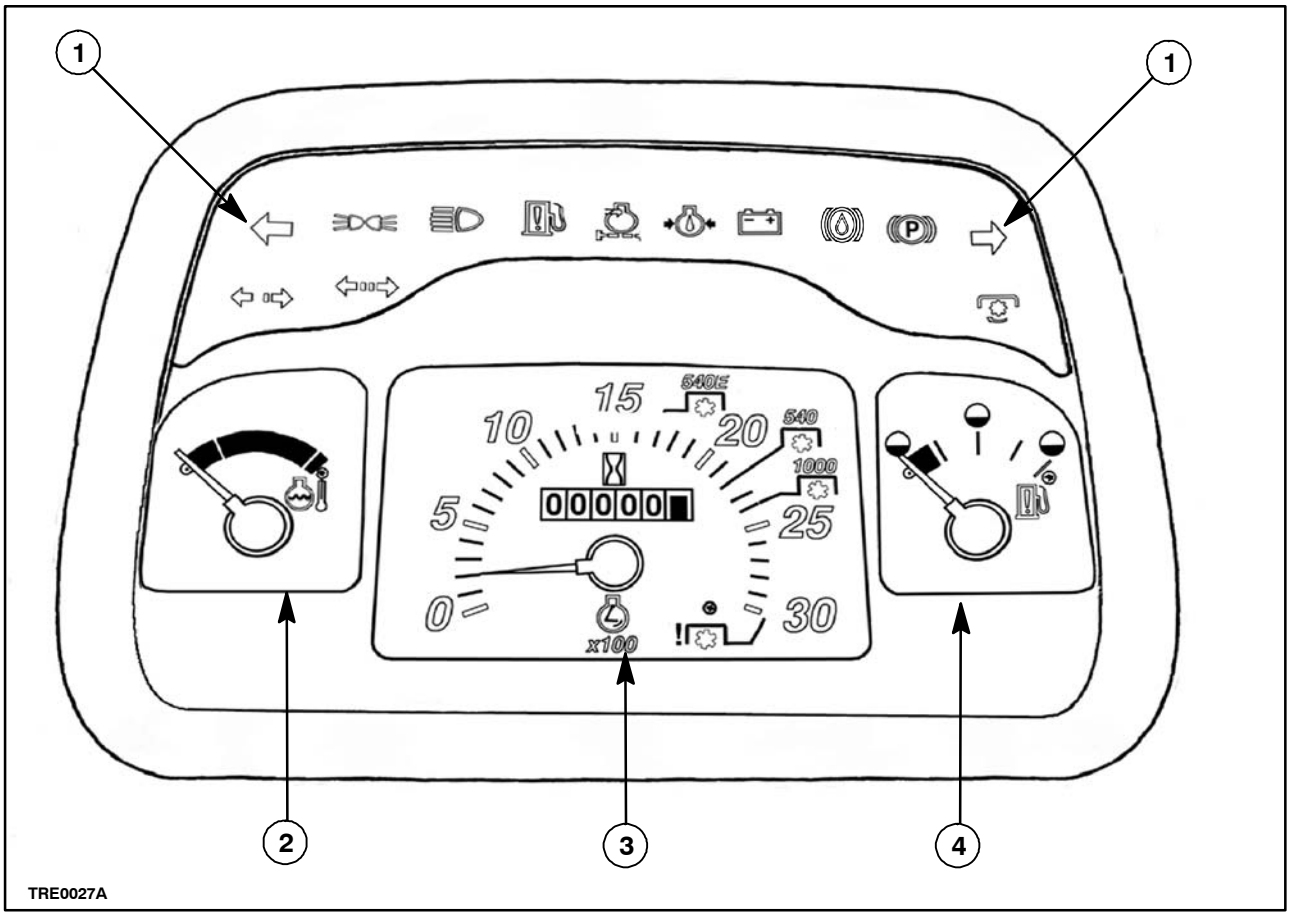
The controls have been sub-divided into groups and are described as follows:

- Instrument panel and console controls
- Instrument console (rear hood) controls
- Operating controls, right-hand side.
- Operating controls, left-hand side.
- Foot pedal and foot plate controls.
- Cab controls.

⚠ CAUTION ⚠

Do not use the tractor if you are not fully acquainted with the position and operation of all the tractor controls.

INSTRUMENT PANEL



7

1. **Warning and indicator lights**

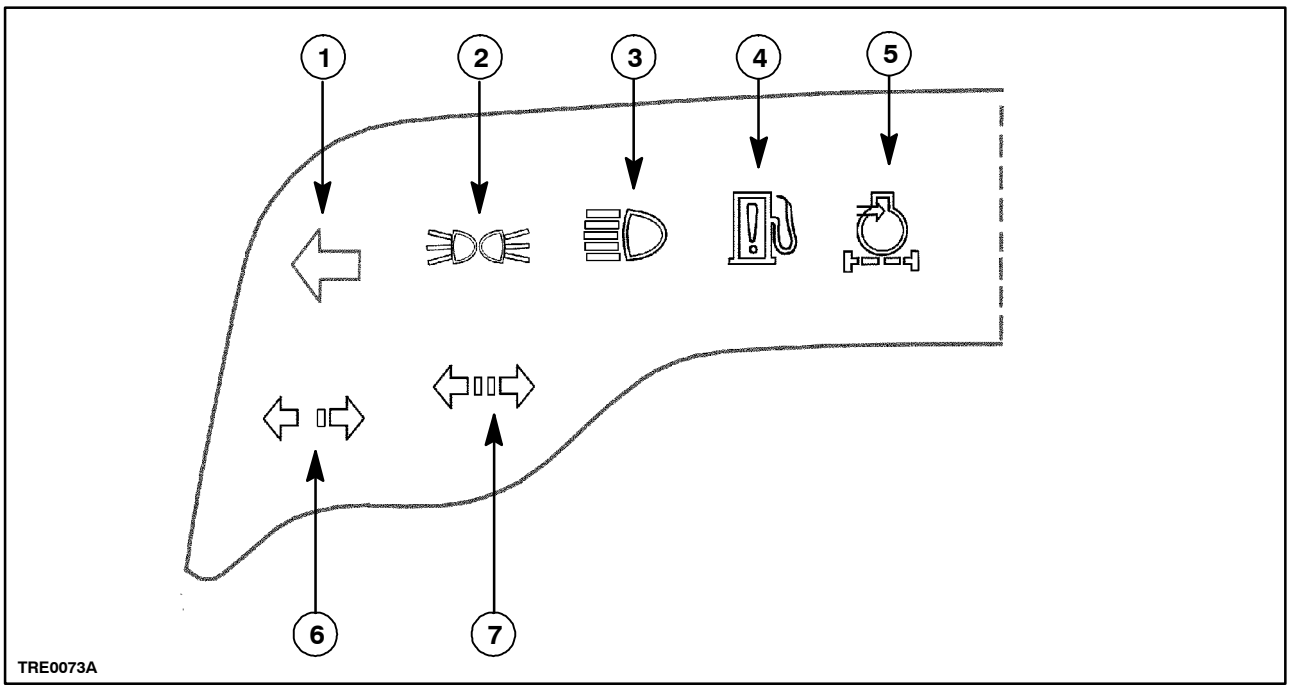
These lights illuminate to indicate a particular operation or to attract your attention.

2. **Engine coolant temperature gauge**

3. **Proofmeter / tachometer**

Hourmeter, engine speed counter, tachometer.

4. **Fuel gauge**



8

1. Tractor left turn indicator (green)

Flashes in unison with the tractor left turn indicators.

2. Side lights indicator (green)

Lights up when the side lights are switched on.

3. Main beam indicator (blue)

The light illuminates when the headlights are on main beam.

4. Water in fuel indicator (green)

The light illuminates to indicate that the fuel in the filter bowl is clogged. Clean the filter, as described in section 4, operation 8.

5. Dry air filter clogged warning light (yellow)

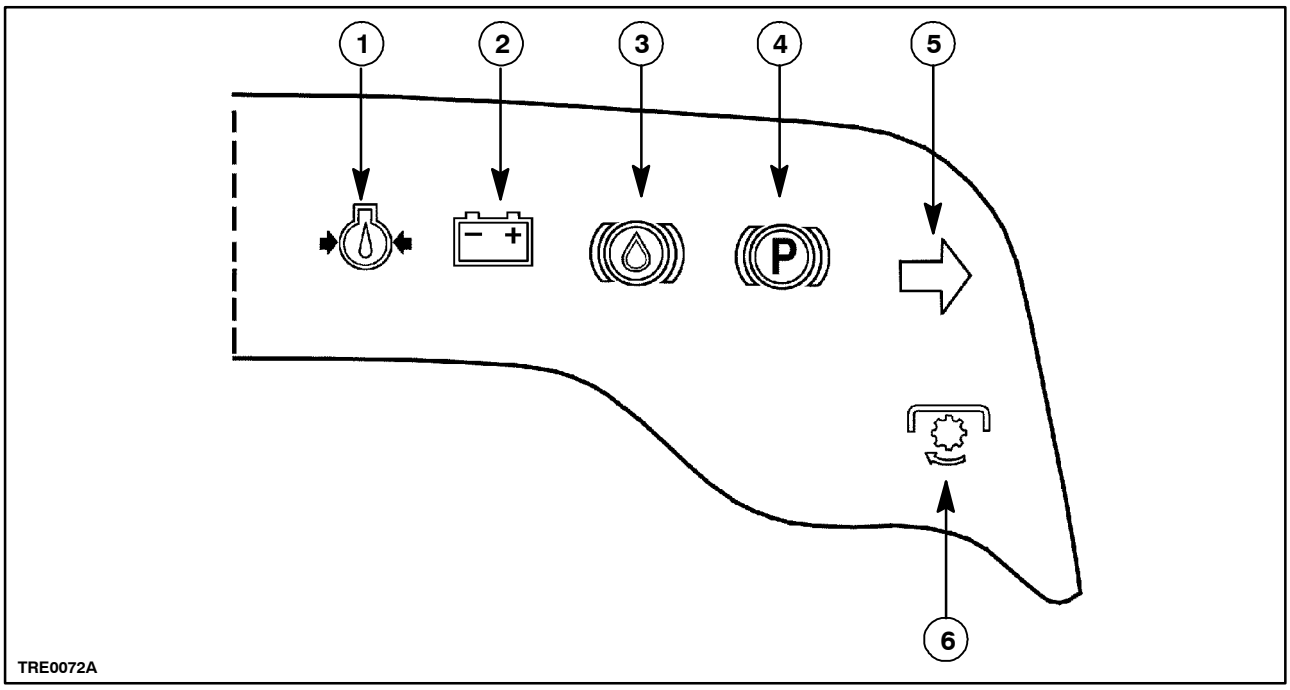
The light comes on when the air filter cartridge is partially or totally clogged. Clean the filter, as described in section 4, operation 6.

6. First trailer turn indicator lights (green)

Flashes in unison with the tractor turn indicators, if connected.

7. Second trailer turn indicator lights (green)

Flashes in unison with the tractor turn indicators, if connected.



9

1. Low engine pressure indicator (red)

The light should go out a few seconds after the engine is started.
If it stays on when the engine is running, switch off the engine and look for the cause of the problem. If the light remains on, particularly when the tractor is moving, contact your dealer. When the engine is warmed up and running at minimum speeds, with the tractor stationary, the light may illuminate, even if no faults are present.

2. Battery charging system malfunction light (red)

It should go out once the engine starts.

3. Low front brake fluid level indicator.

Comes on when the fluid drops below “MIN” level. Check periodically that the light is working properly. With the ignition key in the first position, press the lid on the brake fluid reservoir; the indicator should light up.

4. Handbrake ON light (red)

With the ignition key turned on, the light comes on when the handbrake is applied.

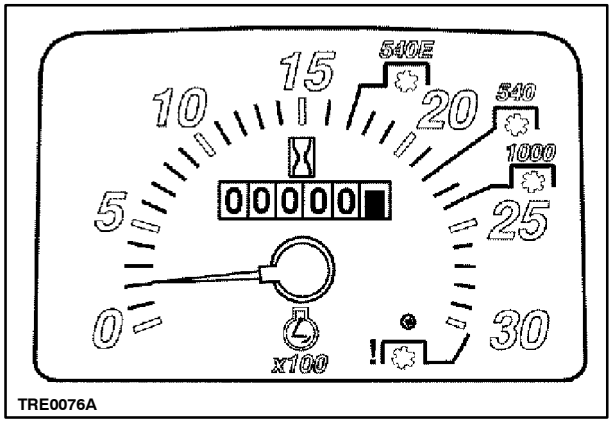
5. Tractor right turn indicator (green)

Flashes in unison with the tractor right turn indicators.

6. Not used on this tractor range.

1. Proofmeter / tachometer - Fig. 10

This shows engine speed and total time to a maximum of six digits. The figures on the black background show total working hours and those on the red background (extreme right) tenths of an hour. The green and blue sectors show the engine rev/min reached at standard power take-off speeds of 540, 540E and 1000 rev/min.

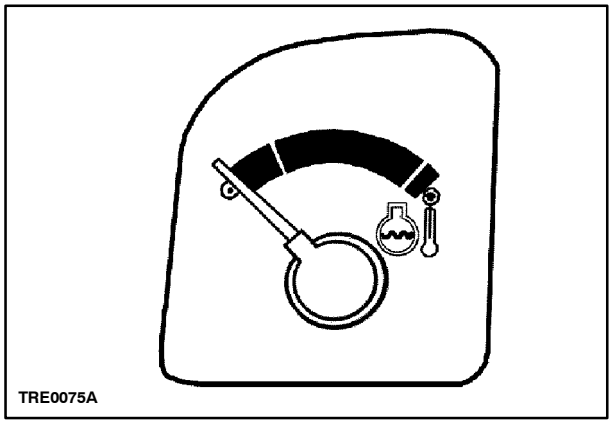


10

2. Engine coolant temperature gauge - Fig. 11

- Green area = normal temperature.
- White area = temperature too low.
- Red area = engine overheating

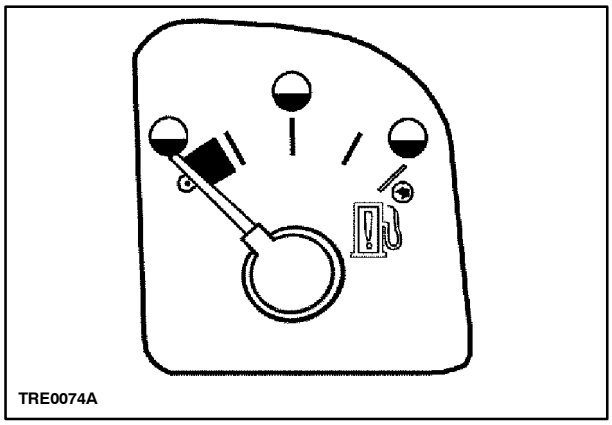
In this case, slow the engine to minimum revs (do not stop it) and, if the light stays on, have the cooling system checked.



11

3. Fuel gauge - Fig. 12

It shows the fuel level in the tank.
When the tank is full, the needle is at the extreme right.
When the fuel level falls below $^1/_4$, the needle moves into the red area.



12

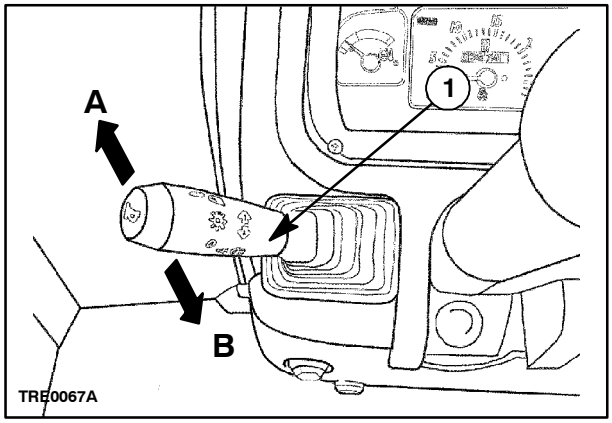
MULTI-FUNCTION CONTROL

The multi-function stalk controls the lights, horn, turn indicators and headlight flasher and is also used to switch from dipped to main beam front headlights.

Direction indicators

To indicate a right turn, push the stalk (1), fig. 13, forward to position **A**.

To indicate a left turn, pull the stalk (1), fig. 13, back to position **B**.



13

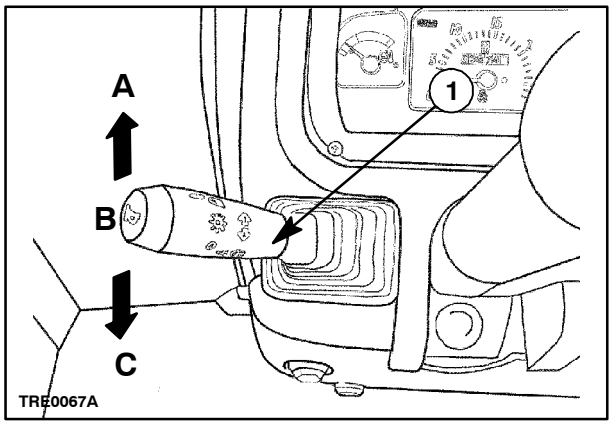
Flashing front headlights

With the lights off or on, move the stalk up to position **A** fig. 14 to flash the main beam headlights. When the stalk is released, it automatically returns to its original position.

NOTE: The stalk switch (1) fig. 14 will only operate with ignition key in position **B** fig. 1, page 3-3.

Side lights

With the stalk (1) fig. 14 in position **B**, rotate the outer end of the stalk so that the indicator (1) fig. 15 aligns with symbol (2), the side lights 'on' symbol.



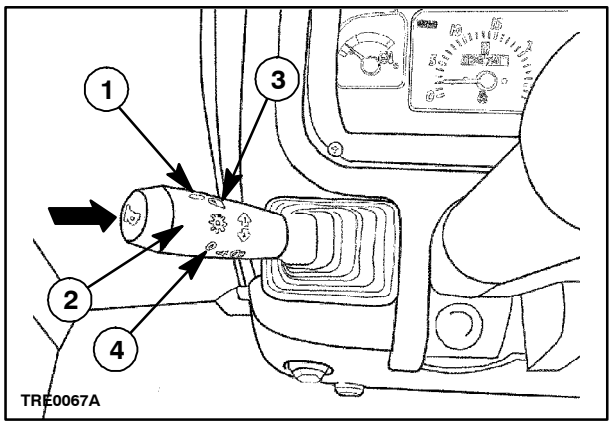
14

Dipped headlights

With the stalk (1) fig. 14 in position **B**, rotate the outer end of the stalk so that the indicator (1) fig. 15 aligns with symbol (3), the headlights 'on' symbol.

Main beam headlights

With the indicator (1) fig. 15 aligned with symbol (3), the headlights 'on' symbol, move the stalk down to position **C**, as shown in fig. 14. The main beam warning light on the instrument panel will illuminate with the main beam headlights.



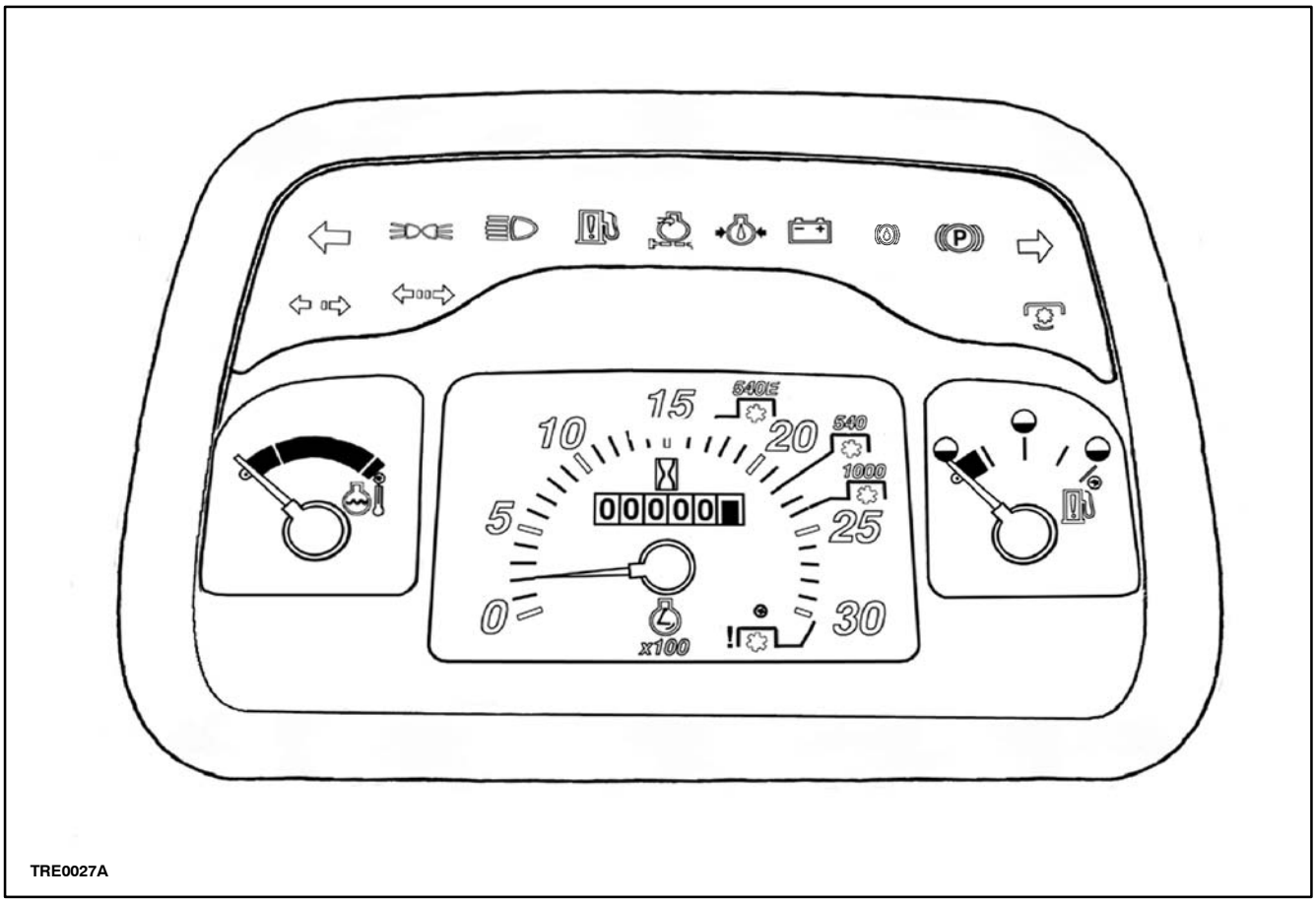
15

Horn

Press the end of control (2) on the stem as shown by the arrow in fig. 15.

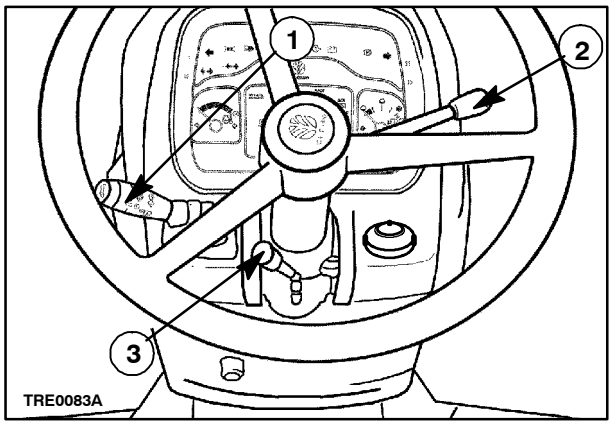
NOTE: When the indicator (1) fig. 15 is aligned with symbol (4) all the lights are off. Only the direction indicators and the horn are still functional.

INSTRUMENT PANEL AND CONSOLE CONTROLS



16

INSTRUMENT CONSOLE CONTROLS - Fig. 17



17

1. Lights control lever

The lever operates external lights, horn and the direction indicators.

2. Hand throttle lever

- Pushed fully forward; min. engine speed
- Pulled fully backward; max. engine speed

3. Steering wheel position lever

Push lever (3) to release the steering wheel lock. Move the steering wheel up or down to find the best position for comfortable and safe driving. Pull the lever to lock the steering wheel in the required position.

INSTRUMENT CONSOLE CONTROLS

IGNITION KEY - Fig. 18

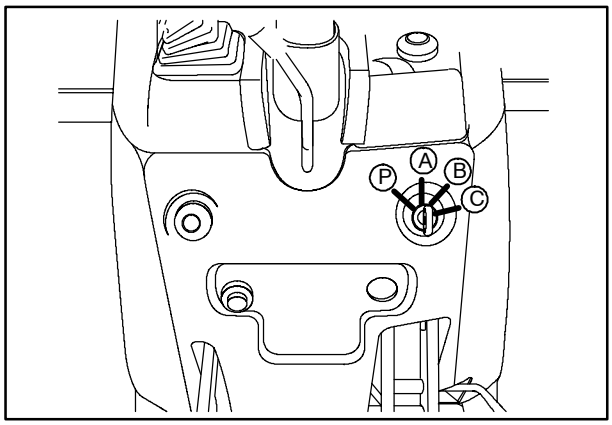
To operate the four key functions, turn the key (1), fig. 19, through the following positions:

A. No power to circuits (key can be removed). Engine stopped: automatic activation of fuel injection cut-off.

B. Engine start presetting: operation of panel lights and instruments. Power supplied to various circuits.

C. Starting the engine: when released, the key returns automatically to position (B).

P. Parking lights on: instrument panel lighted (key removable)



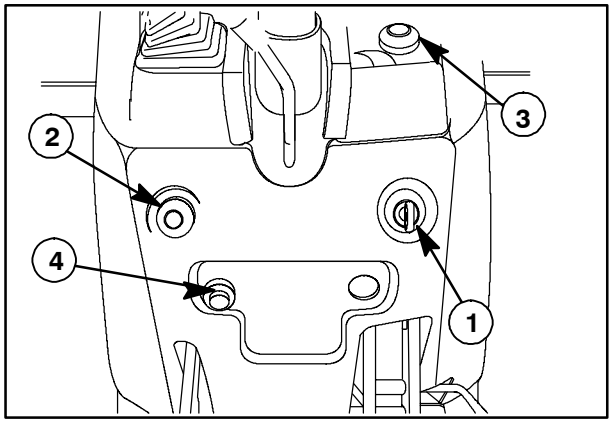
18

CONSOLE CONTROLS - Fig. 19

2- Thermostart.

3- Hazard warning light switch.

4- Cigarette lighter.

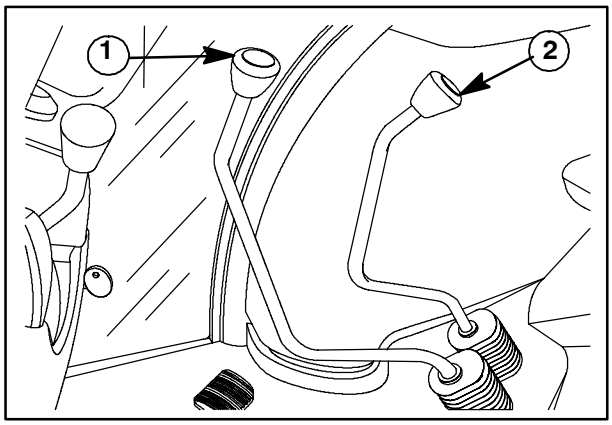


19

RIGHT-HAND SIDE OPERATING CONTROLS

Fig. 20

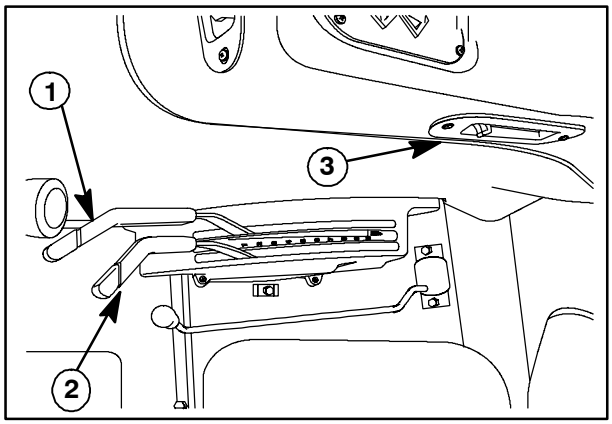
1. Main shift lever
2. Range lever



20

Fig. 21

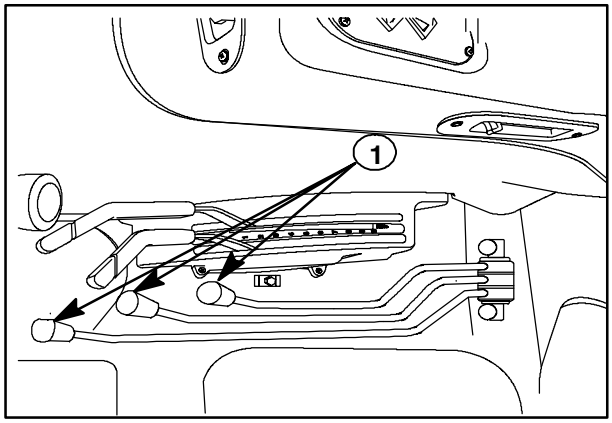
1. Hydraulic lift operating (position control) lever
2. Hydraulic lift operating (draft control) lever
3. Fast hydraulic lift up/down control (Lift-O-Matic™).



21

Fig. 22

1. Remote control valve levers



22

LEFT-HAND SIDE OPERATING CONTROLS

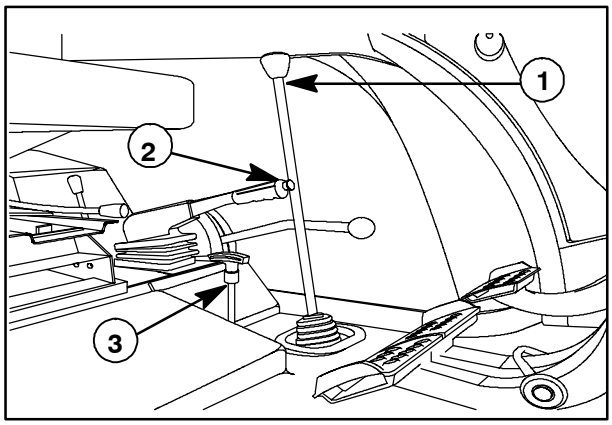
Fig. 23

1. Shuttle lever
2. Handbrake lever (with push button release)

- up = brake on;
- down (horizontal) = brake off.

3. Mechanically controlled four-wheel drive lever

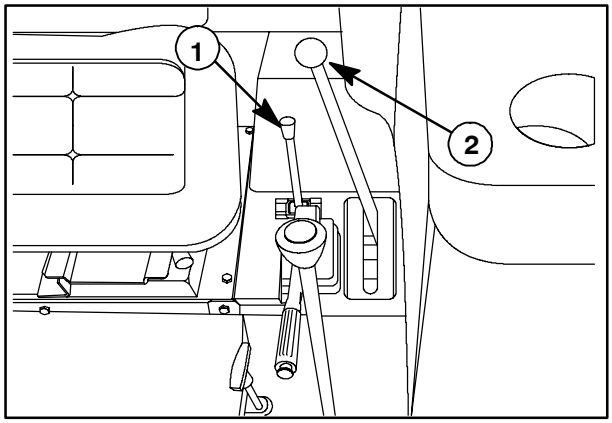
- pulled upwards: engaged
- pushed downwards: disengaged



23

Fig. 24

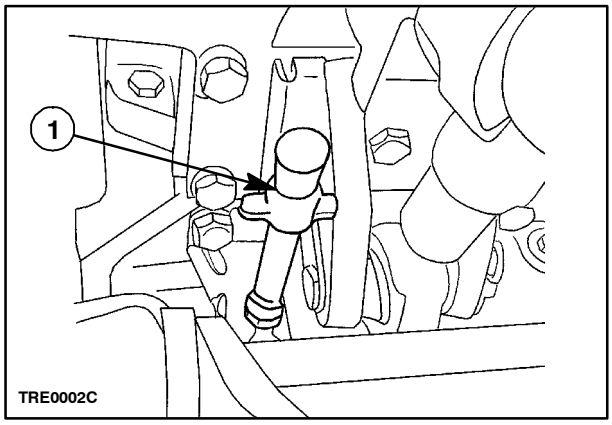
1. Standard power take-off operation selector lever
2. Power take-off engagement lever



24

Fig. 25

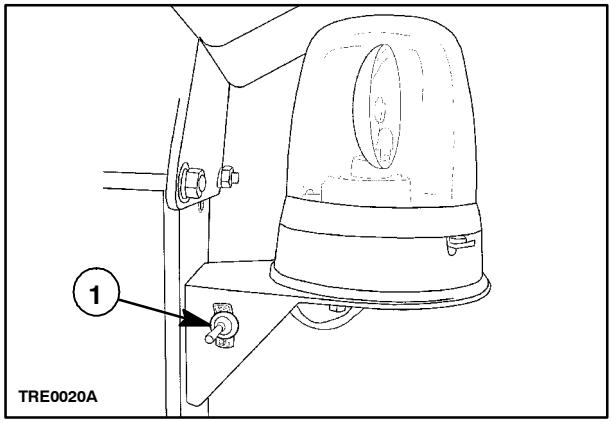
1. Power take-off speed selector lever



25

ROTATING BEACON - Fig. 26

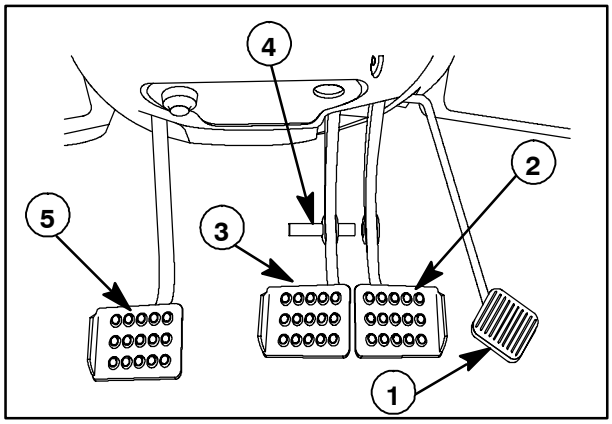
1. Beacon on/off switch (less cab models)



26

PEDAL CONTROLS - Fig. 27

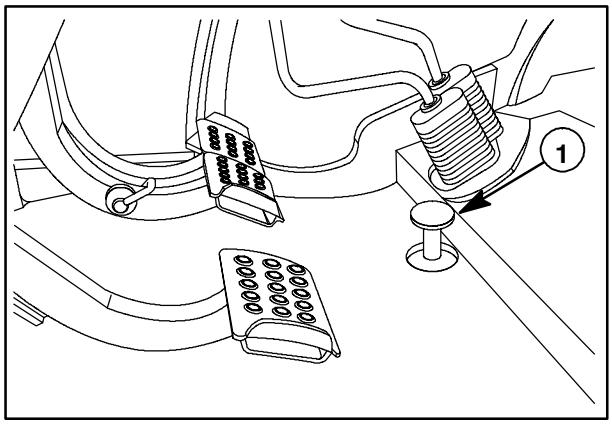
1. Foot throttle.
2. Right brake control pedal.
3. Left brake control pedal.
4. Brake pedal lock pin.
5. Transmission clutch pedal.



27

Fig. 28

1. Rear mechanical differential lock

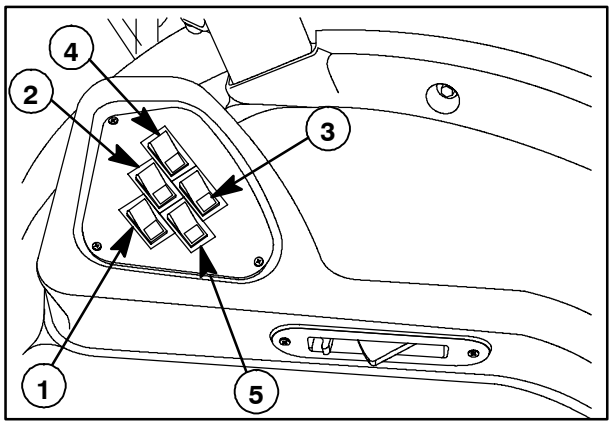


28

CAB CONTROLS

RIGHT-HAND MUDGUARD CONTROLS - Fig. 29

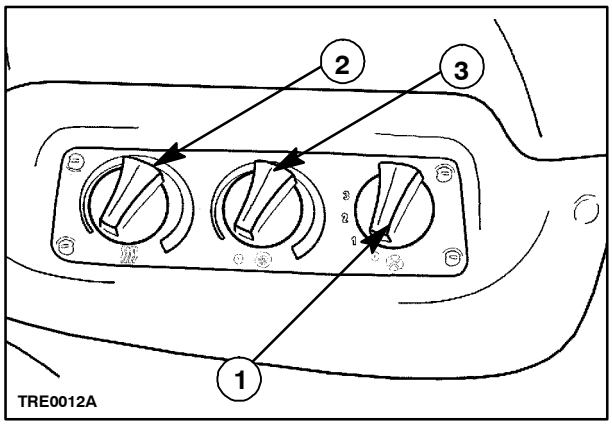
1. Windscreen washer switch
2. Windscreen wiper switch
3. Rear work lights switch
4. Front work lights switch
5. Roof beacon switch (with cab)



29

HEATING AND AIR-CONDITIONING CONTROLS - Fig. 30

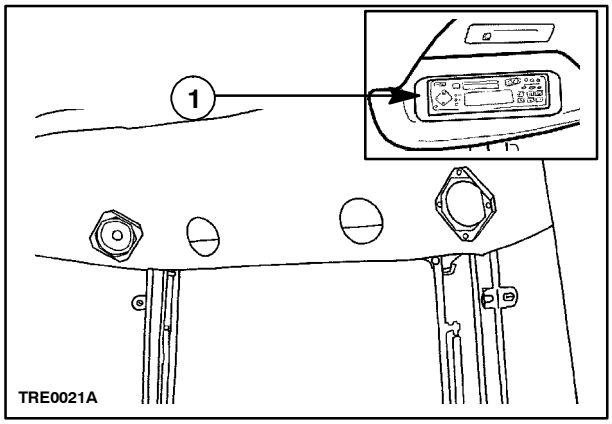
1. Heater/air-conditioner fan speed control
2. Heat temperature control
3. Air-conditioning temperature control



30

RADIO/CASSETTE PLAYER (OPTIONAL) - Fig. 31

1. Radio / Cassette player



31

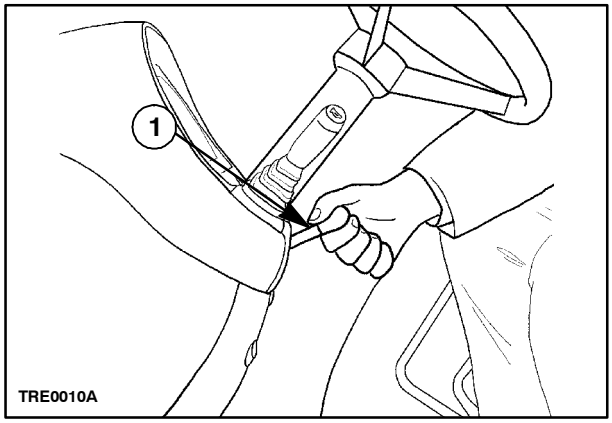
STEERING COLUMN ADJUSTMENT - Fig. 32

The steering is fitted with a lever for tilt adjustment. To adjust the steering wheel, use lever (1) fig. 32.

When adjusted satisfactorily, lock the lever by pushing it upwards.

1. Steering wheel tilt adjustment

- Lever down, steering column released;
- Lever up, steering column locked in position.



32

SEATS

Even under difficult conditions, adjust your seat for safe driving. To avoid danger, follow the instructions below:

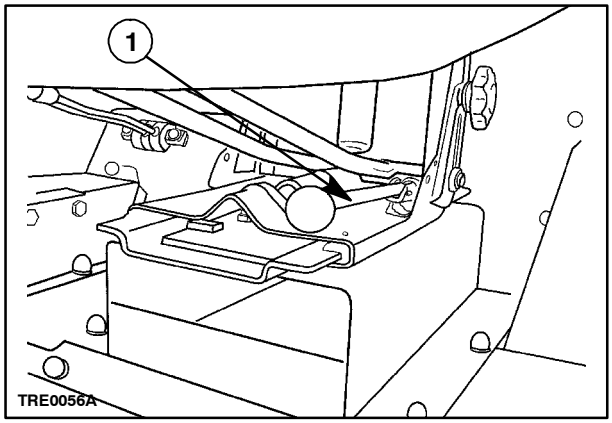
- do not adjust the seat when the tractor is moving;
- the driver's seat must be fitted and repaired by specialist personnel only.
- check periodically that the securing screws are tight and that the adjustment controls are working properly to ensure safety and stability when working.

Standard seat - Fig. 33

The driver's seat has adjusters for its suspension, height and distance from the controls.

You can therefore select the most suitable position for driving, and even change it while working.

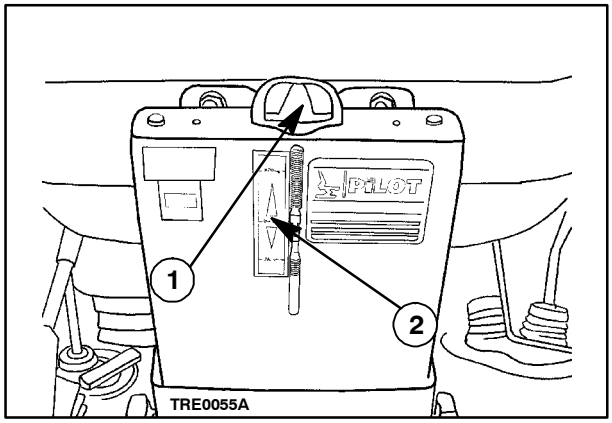
- To move the seat forward or back, pull the lever (1) sideways.
- After moving the seat, release the lever, ensuring that the seat is locked in the chosen position.



33

SEAT SUSPENSION ADJUSTMENT - Fig. 34

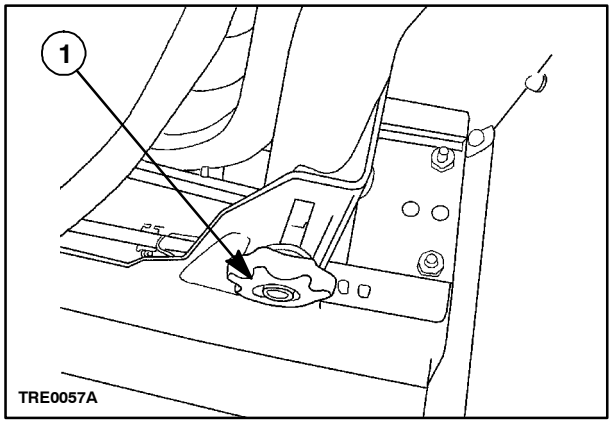
For correct adjustment, turn knob (1) clockwise or counter-clockwise until, with the driver seated, the indicator aligns with the centre of the arrows (2).



34

SEAT HEIGHT ADJUSTMENT - Fig. 35

To raise the seat, loosen knobs (1) (one on each side) and position the seat at the most suitable height. Tighten the knobs after adjustment.



35

SEAT (OPTIONAL) - Fig. 36

Adjustment of distance from controls

From the driver's seat, pull lever (2) sideways and move the seat forwards or backwards.

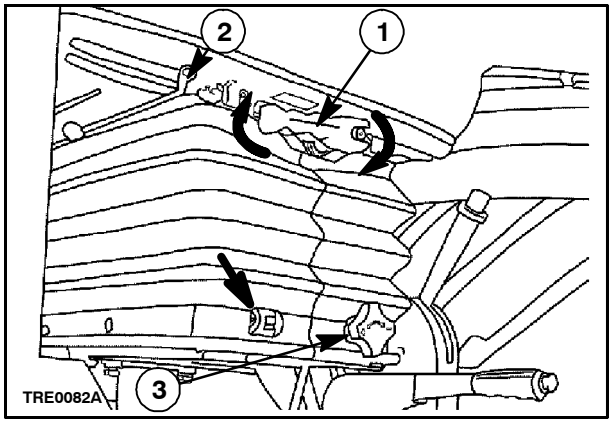
After moving the seat, release the lever and check that the seat is locked in the correct position.

Seat height adjustment

To raise or lower the seat, turn the handle (1) clockwise or counter-clockwise, as shown in the illustration.

Seat suspension adjustment

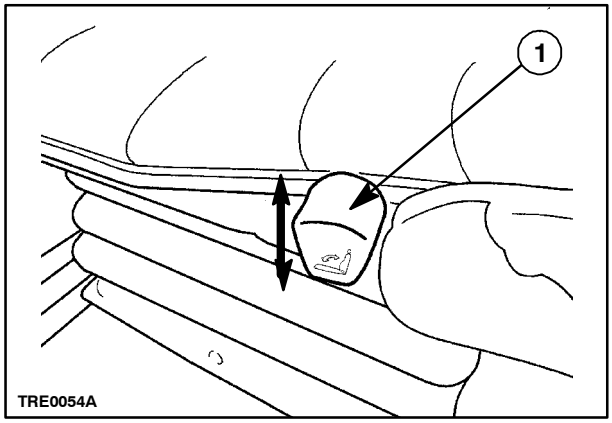
For correct suspension adjustment, turn knob (3) clockwise or counter-clockwise until your weight appears in the port indicated by the arrow in the illustration.



36

Seat backrest adjustment - Fig. 37

Push the lever (1) down to adjust the backrest. Release the lever to lock the backrest in the selected position.



37

SEAT BELT (OPTIONAL)

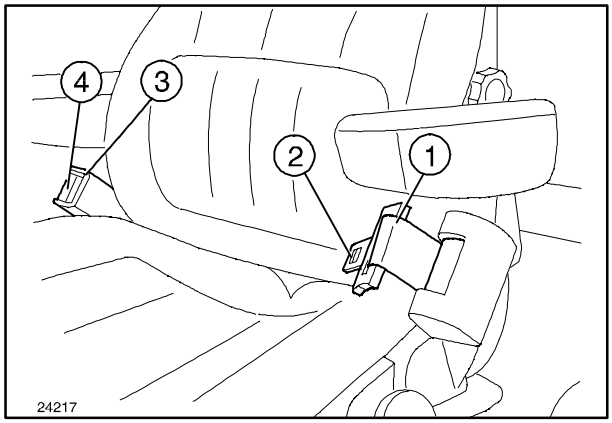
The belt with inertia-reel device for De-Luxe seats and for air-sprung seats is available.

INERTIA-REEL SEAT BELT - Fig. 38

To fasten belt (1) pull it from the inertia-reel device and insert tongue (2) into slot (3).

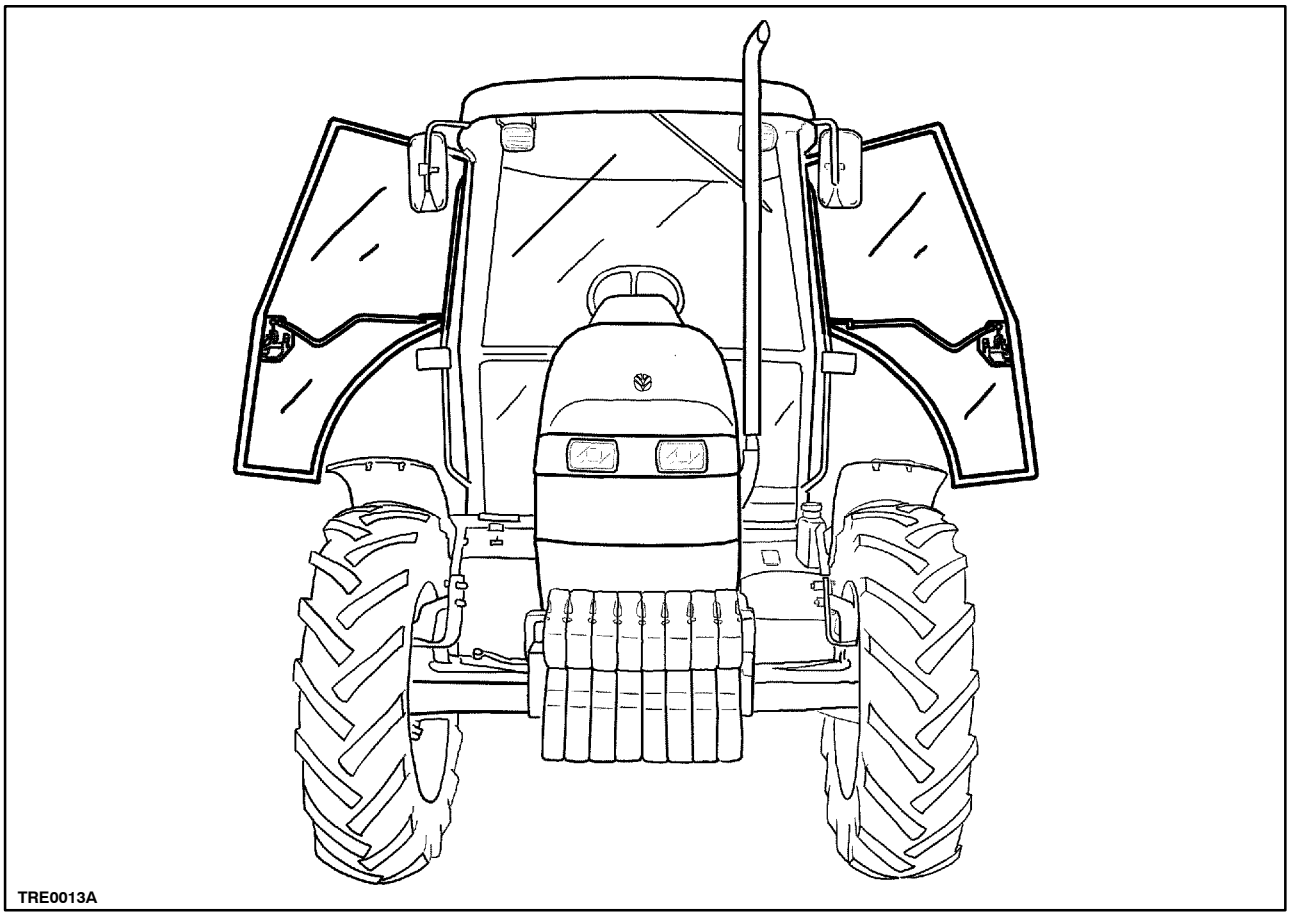
NOTE: The belt adjusts automatically to the driver's body.

To unfasten it, press and then release button (4). The belt reels in automatically.



38

CAB



39

This section of the Manual deals only with the use of the heated and ventilated cab.

⚠ ATTENTION ⚠

The cab is an integral part of the Structure of the Tractor.

The cab structure must in no way be modified

It is therefore prohibited to drill, weld or anyhow connect any device to it that would impair its intended operation.

Any damage due to accident, fire, theft or corrosion to the original structure could make it inefficient and lessen its safety.

It is therefore necessary for specialized personnel to evaluate the damage and, if necessary, have the damaged parts replaced**.**

All the internal parts, such as the operator's seat, including any seat belts, must be carefully checked and must show no sign of any damage whatsoever.

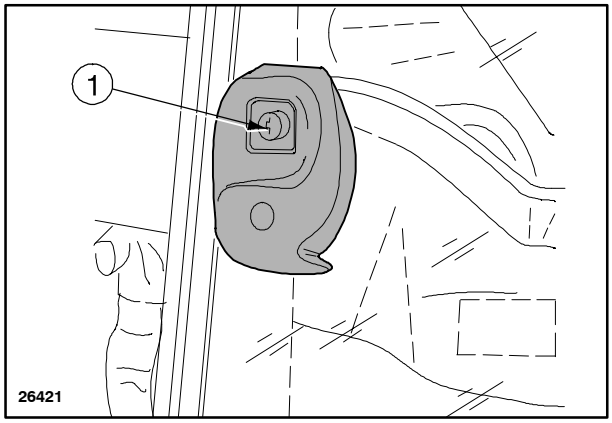
- The cab must be replaced in the event of overturning.
- All the internal parts, such as the operator's seat, including any seat belts, must be carefully checked and must show no sign of any damage whatsoever.
- All damaged parts must be replaced.

IN THE EVENT OF OVERTURNING, DO NOT ATTEMPT TO REPAIR, WELD OR STRAIGHTEN THE CAB, contact your Dealer's specialized personnel instead

DOORS

Opening the door from outside - Fig. 40

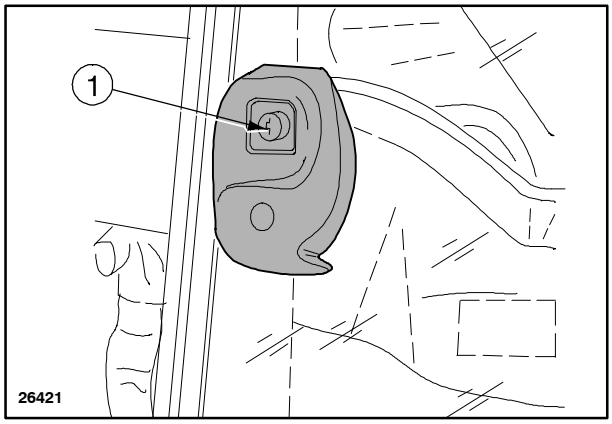
With the door unlocked, press button (1) and pull the door towards you.



40

Locking the door from outside - Fig. 41

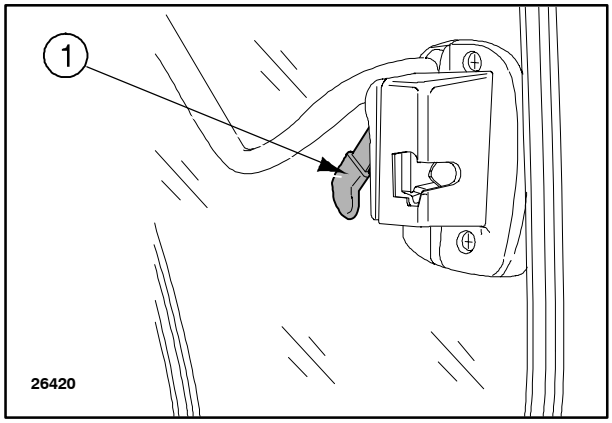
The doors both have locks, which can be locked with a key, and the cab can therefore be closed from either the left or the right hand side.



41

Opening the door from the inside - Fig. 42

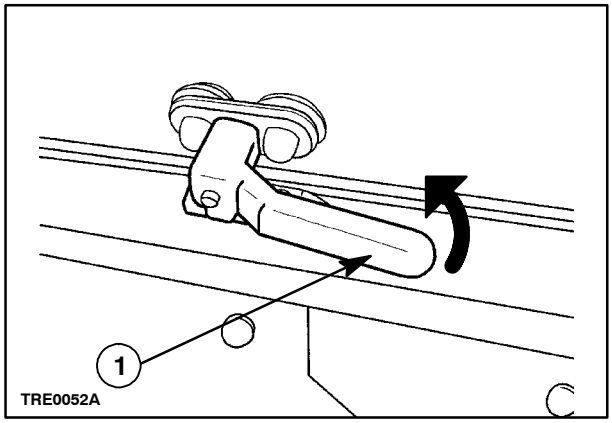
Pull lever (1) upwards.



42

REAR WINDOW - Fig. 43

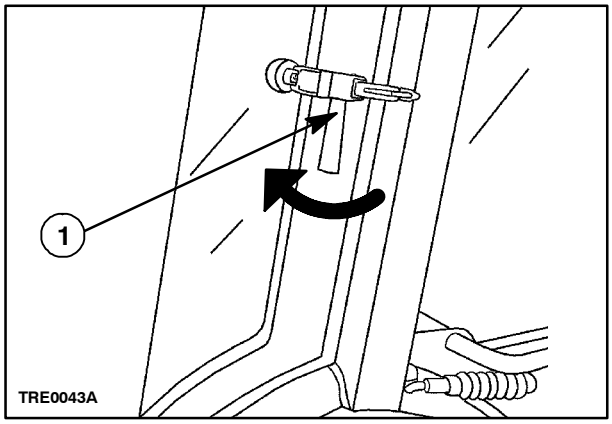
To open, pull handle (1) upwards and push forward. The window is held open by gas struts. Alternatively, the window can be held slightly open by locating the tang on the lever (**1**) in the slot provided in the lower frame.



43

SIDE WINDOWS - Fig. 44

To open side window, first pull handle (1) towards you and then push forward, to secure the window in the open position, as shown.

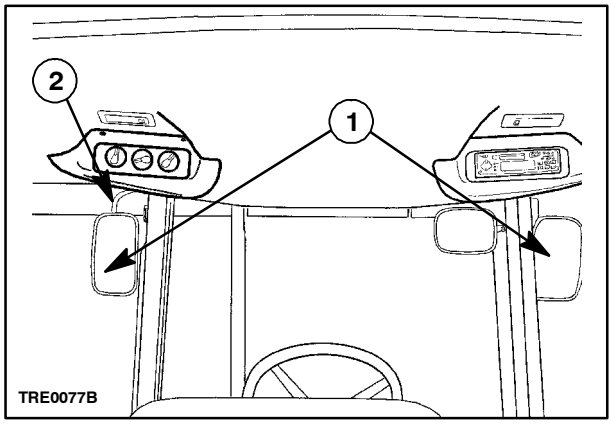


44

EXTERNAL REAR VIEW MIRROR - Fig. 45

To adjust the mirror (1), turn the support arm (2) to adjust the angle of vision.

NOTE: The mirror (1) can be adjusted to any required angle.

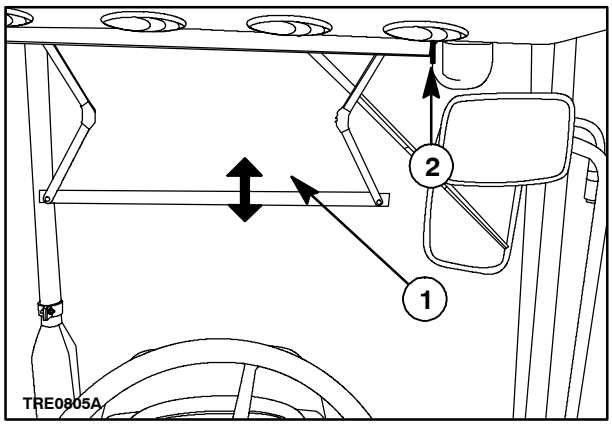


45

SUN VISOR (1) - Fig. 46

To use the sun visor, pull downwards as shown by the arrow in the illustration.

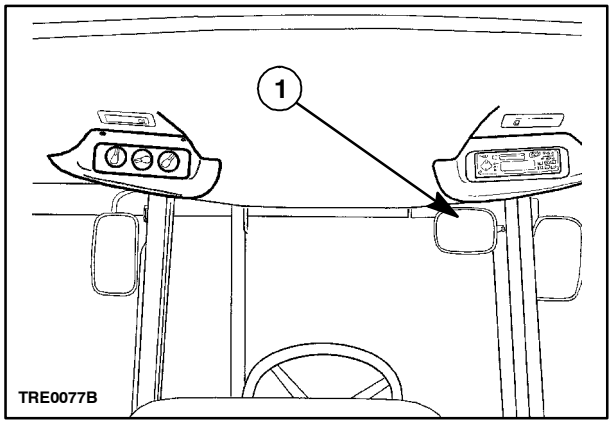
Push the visor up, when not required by pressing the button (**2**).



46

INTERNAL REAR VIEW MIRROR - Fig. 47

The mirror can be adjusted by rotating it on its support bracket.



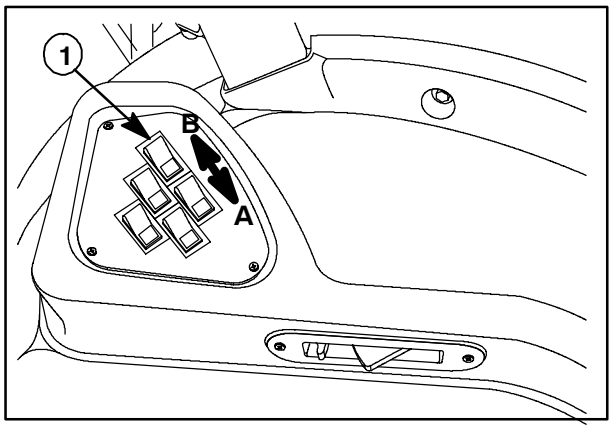
47

FRONT WORK LIGHTS - Fig. 48

1. Front work lights ON/OFF rocker switch.

Position A: OFF

Position B: ON



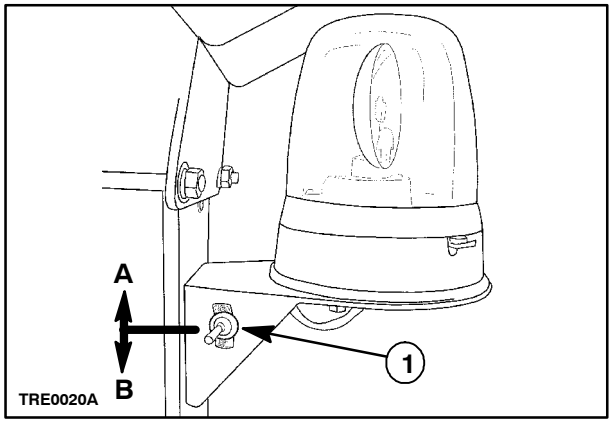
48

BEACON LAMP (WITHOUT CAB) (OPTIONAL)- Fig. 49

1. Beacon lamp ON/OFF rocker switch.

Position A: ON

Position B: OFF



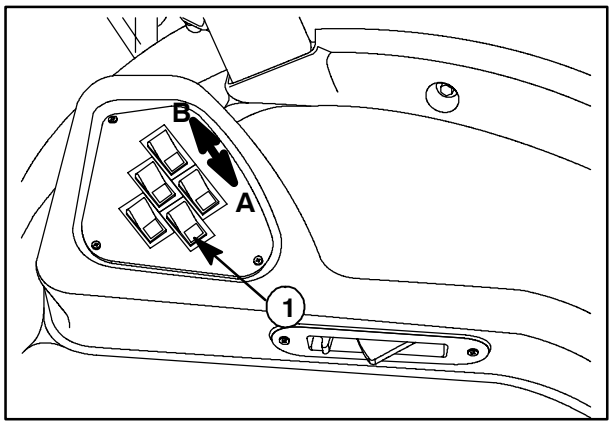
49

BEACON LAMP (WITH CAB) (OPTIONAL)- Fig. 50

1. Beacon lamp ON/OFF rocker switch.

Position A: OFF

Position B: ON



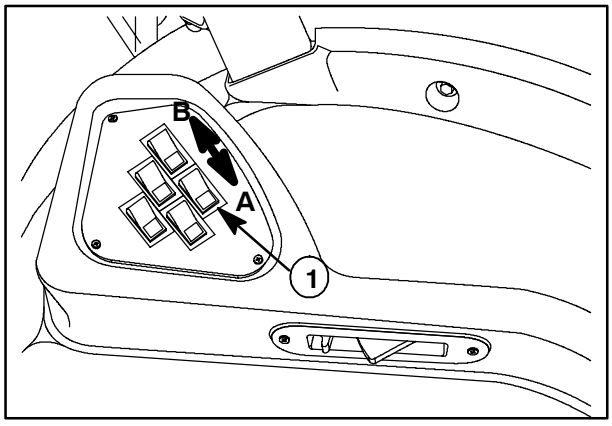
50

REAR WORKING LIGHTS - Fig. 51

1. Rear working lights ON/OFF rocker switch.

Position A: OFF

Position B: ON



51

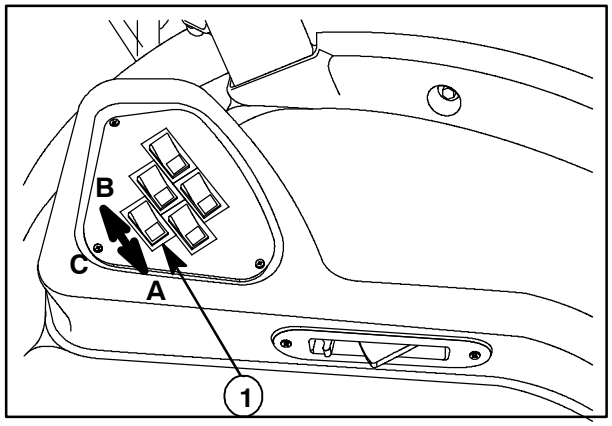
FRONT WINDSCREEN WASHER - Fig. 52

1. Front windscreen washer rocker switch.

Position B: ON

(The switch is spring-loaded. For continuous washing, hold the switch down)

Position A: OFF



52

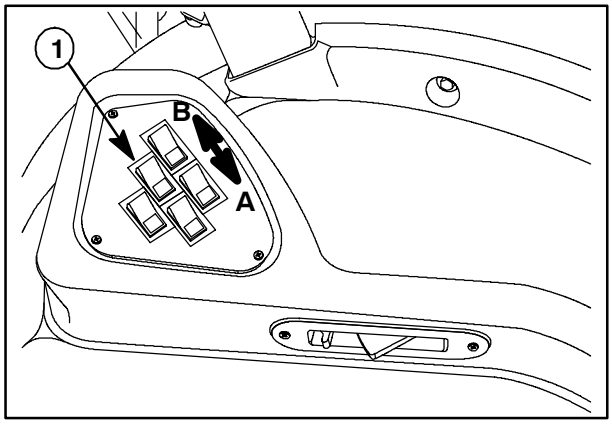
FRONT WINDSCREEN WIPER - Fig. 53

1. Front windscreen wiper switch.

Position A: OFF

Central position: ON-STANDARD SPEED

Position B: FAST SPEED



53

REAR WINDSCREEN WASHER-WIPER Fig. 54 (OPTIONAL)

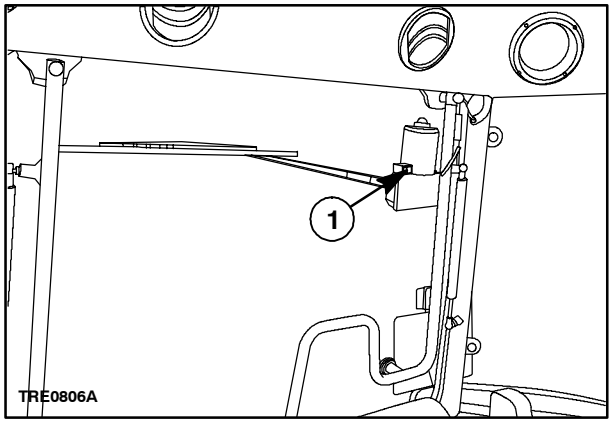
To operate the rear windscreen wiper press the switch (1) Fig. 54.

Washer switch (1) Fig. 52. has 3 positions:

Position B: FRONT WASHER OPERATES

Position C: OFF

Position A: REAR WASHER OPERATES



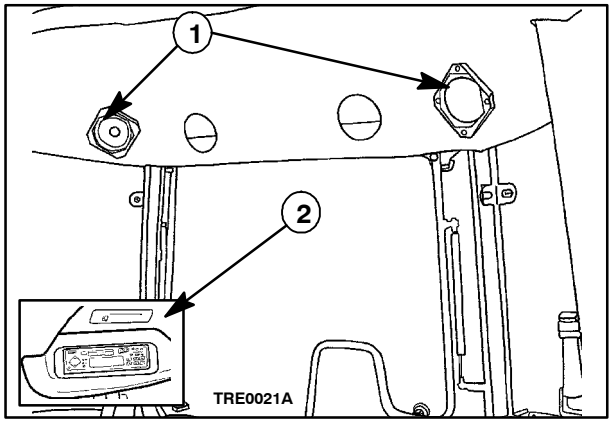
54

RADIO / CASSETTE PLAYER - Fig. 55 (OPTIONAL)

To add to driver comfort, the cab can be equipped ready for radio installation.

The equipment comprises:

- two stereo speakers (1);
- housing (2) for the radio;
- aerial and the relative connections.

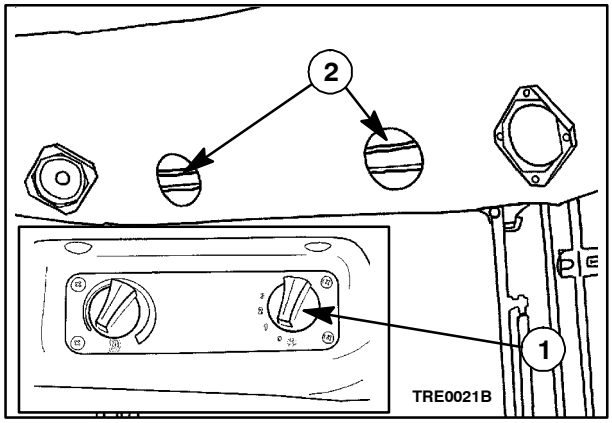


55

VENTILATION - Fig. 56

Actuate the ventilation with switch (**1**) and direct the air flow by adjusting the rear swivel vents (**2**) and the front swivel vents (**3**) fig. 58.

When the electric fan is operating, and with the doors and windows closed, air can only enter the cab via the filters mounted either side of the roof. Consequently, the pressure inside the cab is higher than that outside, which will help reduce the amount of unwanted dust and other pollutants that might enter the cab.

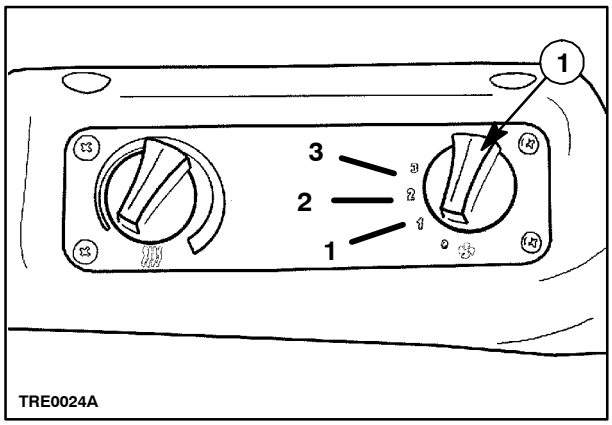


56

ELECTRIC FAN - Fig. 57

The electric fan switch (**1**) figs. 56 and 57 will only operate when the ignition key (fig 17) is in position **B** page 2-11. The switch, shown in the **off** position, has three further settings:

1. Low speed.
2. Medium speed.
3. High speed.



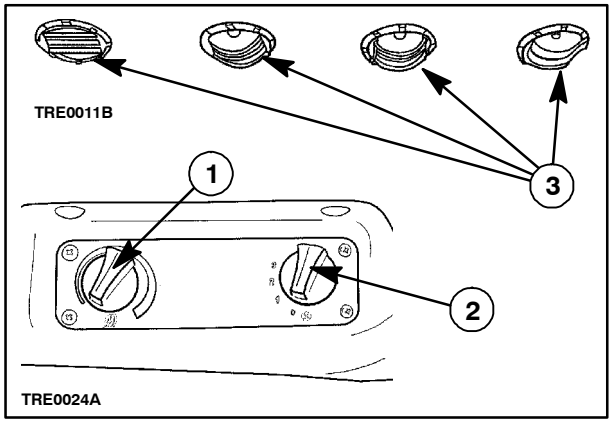
57

HEATING - Fig. 58

Adjust the air temperature using control (**1**) to reduce or increase the circulation of coolant from the engine. With the electric fan control (**2**) you can change the volume of air entering the cab through front vents (**3**) and the rear vents (**2**) fig. 56.

To adjust the air temperature use the control knob (**1**).

Turn the control to the left (counter-clockwise) to reduce the temperature of the air circulating in the cab.



58

Temperature control knob

- Fully counter-clockwise = minimum temperature.
- Fully clockwise = maximum temperature.

AIR FILTERS

⚠ ATTENTION ⚠

Remember that the cab air filters do not generally protect against pesticides. Total protection against these substances can therefore only be ensured by taking the necessary precautions according to the properties of individual products. The cab air filter is designed to remove dust from the air but may not exclude chemical vapour. Follow the chemical manufacturer's directions regarding protection from hazardous chemicals.

⚠ ATTENTION ⚠

For greater safety you can fit active carbon filters, which provide greater protection against the harmful effects of pesticides.
However, using these filters does not exempt anyone from not observing the personal precautions recommended for using each single product.
These filters should only be fitted when working with pesticides and replaced with the normal paper filters at the end of work.
Do not use these filters during other work, as they will quickly become clogged with dust.
When replacing the active carbon filters at the end of spraying work, return them to the original packaging, making sure they are carefully sealed.
If the instructions on the package are observed, the filters last for approximately 60 hours of work.
They must, however, be replaced each year.
If, when working with pesticides, toxic odours are noted, stop work immediately and check the condition of the filters, replacing them if necessary.
These filters must never be washed or cleaned with compressed air.
Discarded filters must not be thrown away. Take old filters to authorised collection points.

⚠ ATTENTION ⚠

Active carbon air filters do not provide total protection against pesticides in general.

These specific filters only reduce the harmful effects of these products.

Consequently, use of these filters does not release you from the obligation to observe the recommended safety regulations for the individual products.

CAB AIR CONDITIONING SYSTEM

This section of the Manual describes the operation and use of the Supercomfort cab, which is fitted with an air conditioning system.

This system, in addition to ensuring optimum temperatures inside the cab, reduces the air humidity, which might otherwise be a nuisance to the operator, compromising tractor handling safety.

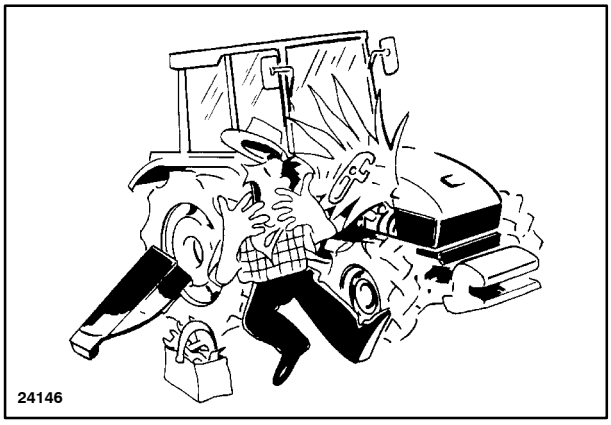
The cab is also fitted with windows, which reduce the effects of the sun beams inside the cab – something which, in hot weather, creates particularly unpleasant conditions for the operator.

SAFETY RULES

The air conditioning system is safe and can be used continuously without any risk. However, it is important to observe a few simple precautions, listed below, to avoid any risk of accident.

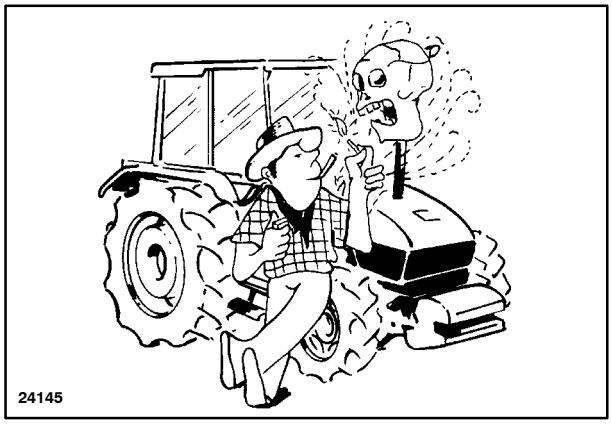
- We recommend that you should never personally attempt to adjust the system; any work should instead be carried out by the highly experienced Company service network.

- Never allow naked flames near the air conditioning system. If the refrigerant is leaking, a lethal gas –***phosgene***– could be produced.



59

- The oil and refrigerant mixture is pressurised inside the air conditioning system. The loosening of any connections or handling of tubing is therefore strictly forbidden. For the same reason, never unscrew the compressor oil level inspection cap for any reason.



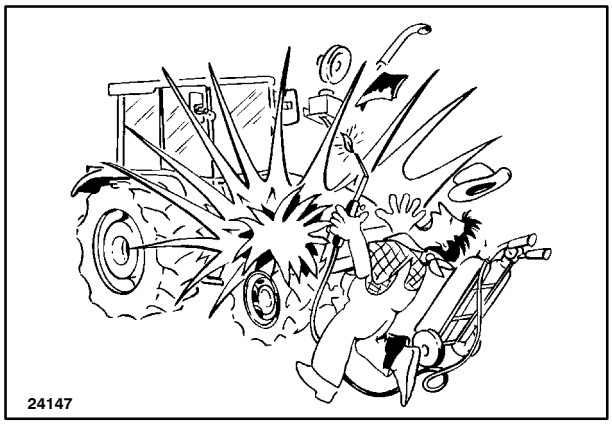
60

- The refrigerant can freeze the skin and especially the eyes, and also cause permanent serious injuries.
  If an accident should occur, proceed as follows:

- if refrigerant splashes into the eyes, wash immediately with a few drops of mineral oil, then continue to wash thoroughly with a solution of boric acid and water (one teaspoon of acid in $^1/_4$ of a cup of water) and consult a doctor immediately;

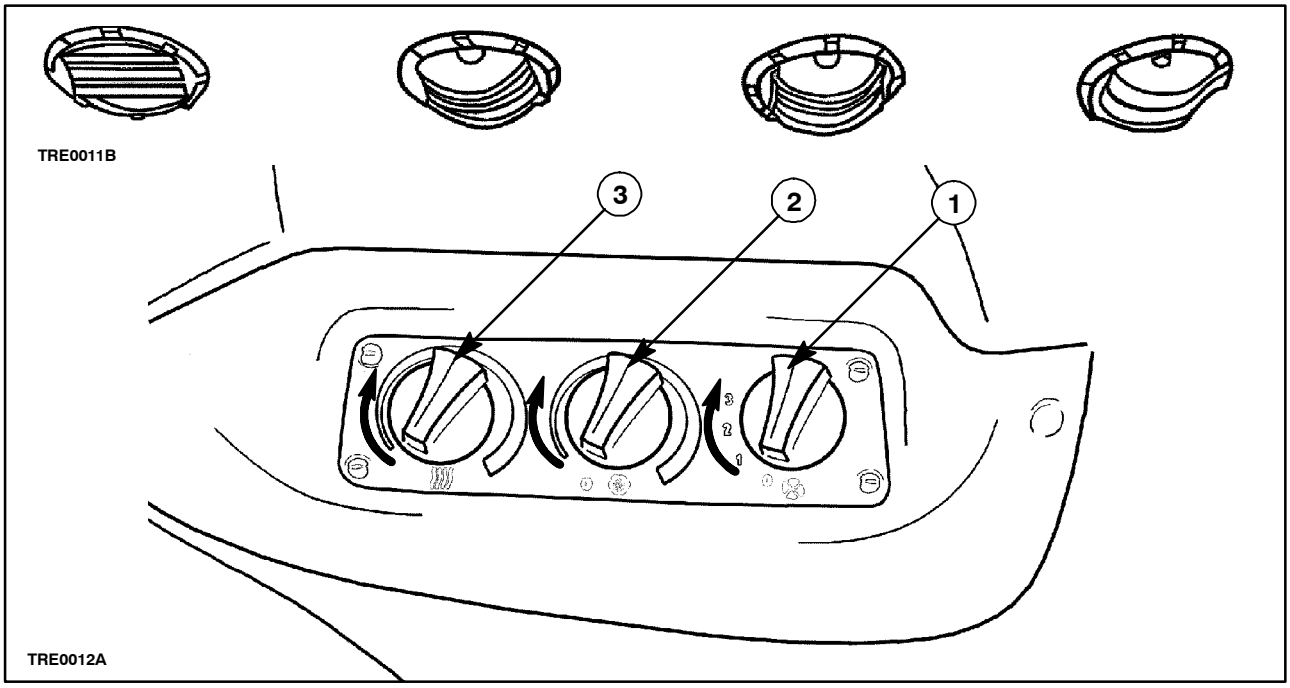
- the freezing caused by the refrigerant can be treated by gradually unfreezing the damaged area with cold water and then apply an oily cream.
  Consult a doctor promptly.

- Do not let the air conditioning system approach any heat source too closely in order to prevent any risk of explosion.



61

CAB AIR CONDITIONING SYSTEM



62

AIR CONDITIONING AND TEMPERATURE CONTROL - Fig 60

Air conditioner control (2)

The system operates with the ignition key switched on.

With the fan control (1) in positions **1** - **2** or **3**, turn the control (2) to switch on the air conditioner.

Heater control (3)

With control (3) in the fully counter-clockwise position the heater is turned off.

Three-speed electric fan control (1)

The fan operates with the ignition key in the starting position.

1. **Low speed.**
2. **Medium speed.**
3. **High speed.**

NOTE: For cab pressurisation see the heading **Ventilation** on page 2-25 in this section.

AIR CONDITIONING SYSTEM - INSTRUCTIONS FOR USE

The air conditioning system provides dehumidified cool air or dehumidified hot air.
It is operated as follows:

⚠ CAUTION ⚠

When the engine is not running the air conditioner will not work because the compressor is driven by the engine.

STARTING

With the engine running and the electric fan on, turn the control knob (**2**) fig 62 to start the air conditioning system.

⚠ CAUTION ⚠

Always switch the electric fan on before the air conditioning.
The air conditioning cannot work when the electric fan is off.

⚠ CAUTION ⚠

If the air conditioner has been out of use for more than 30 days, run the engine at idle speed for at least 3 minutes after switching on the air conditioner.

After for a few minutes, the inspection glass on the top of the dryer filter should be clear and not contain any bubbles. If this is not the case, stop the system and contact your dealer.

⚠ CAUTION ⚠

Before starting the engine, check that the air conditioning is off.

ADJUSTMENT

NOTE: When working in a very dusty environment, the cab pressure may have to be increased, by increasing fan speed to prevent dust from entering the cab. Doors and windows should be kept closed.

Under certain conditions, it may be desirable to operate both the air conditioner and heater together, e.g. to demist the windscreen and side windows on a cold morning. (The air conditioner, as well as cooling, also removes humidity from the cab air). Run the engine to normal operating temperature, turn the heater control (3) fig. 62 and fan control (1) to the maximum settings (fully clockwise). Adjust the swivelling air vents to direct the airflows, as required.

To restore the temperature in the cab after a prolonged halt in the sun, start the tractor, switch on the air conditioning and after about a minute open the rear window to let the hot air escape.

STOPPING

Before stopping the engine, always switch off the air conditioning system by turning the knob (2) fig. 62 and moving fan control (1) to the off position.

REGULAR INSPECTIONS

At least once every three months :

- remove any foreign matter from the condenser and evaporator fins;
- check the tension of the compressor belt;
- run the engine at 1500 rpm speed and check the dryer filter inspection glass: it should be transparent and not contain any air bubbles or white liquid;
- check the condition of the tubing, connections and mounting of brackets;
- check that the discharge pipes are working properly and remove any condensation from the evaporator;
- check that the pulley and compressor retaining screws and nuts are correctly tightened.

MAINTENANCE

During long periods of inactivity, run the air conditioning system for a few minutes every month to circulate the oil in the system and keep the seals in good condition.

Run the system only when the engine is warm and the temperature inside the cab has reached 20°C.

ANNUAL MAINTENANCE

At the beginning of the working season, have the following operations carried out by your authorised dealer:

- check the oil level in the compressor, fill-up if necessary;
- check the sealing on the system with a leakage detector, fill-up with HFC 134a gas, or:
- replace the dryer filter, only if absolutely necessary;
- a functional check of the overall system.

GENERAL CAB MAINTENANCE (ALL MODELS)

After completing external cab maintenance, carry out the following inspections :

1. Check from time to time that there is no leftover water in areas covered with mats or padding.
2. Protect the hinges and locks on the doors and opening windows with lubricants and water-repellents.
3. Use suitable detergents or, if necessary, sulphuric ether to clean the windows.
4. Remove the windscreen wiper blade and sprinkle talc on the rubber.
5. Leave the doors or side windows partially open.

SPECIFICATIONS

Refrigerant HFC134a

- Quantity . . . . . 1.6 kg

Compressor . . . . . SANDEN SD 7H15

- Capacity . . . . . 155 cc/rev
- Oil type . . . . . SANDEN PAG SP-20
- Oil quantity 185 cc

Cooling capacity at 22° C - 49° C (75° F - 120° F) ambient temperature :.....3873 kcal/h (Actual capacity dependent on system control operator setting)

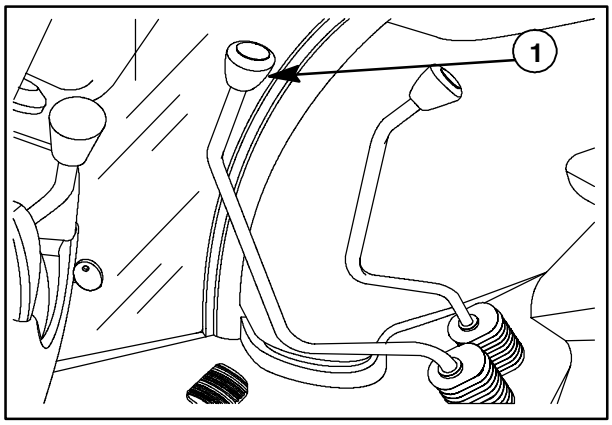
Airflow with electric fan on speed 3 . . . 8.3 m^3/min

TRANSMISSION WITH RANGE GEAR - 30 km/h (19 mph)

(12 FORWARD GEARS + 4 REVERSE GEARS - SYNCROMESH) (NOT AVAILABLE IN ALL MARKETS)

⚠ CAUTION ⚠

With the engine running and with just one gear lever in neutral, the tractor could be started accidentally if the lever is knocked, with consequent accident risk. To prevent this happening, move both levers fig. 63 to neutral, lower any attached equipment and stop the engine before leaving the tractor.



63

The transmission and range gears are controlled by two separate levers.

The main shift lever (1) fig. 63 selects four gear ratios (**1**, **2**, **3**, **4**).

The range lever (1) fig. 64 provides three forward gear ranges and one reverse range **R** for each gear ratio.

There are **twelve** forward and **four** reverse gears.

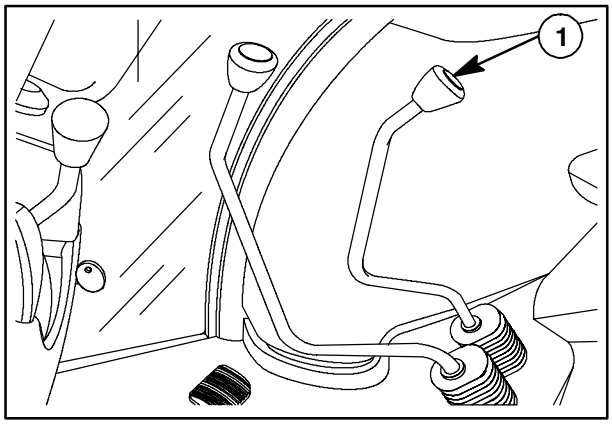
To change from a medium gear to a lower or higher one, stop the tractor, move the range lever to the right and shift it forward for lower gears or backward for higher gears.

To engage reverse **R**, stop the tractor and move the range lever to the left and then shift back.

To change from one speed to another in the same range, shift the main shift lever after releasing the clutch. (The tractor does not have to be halted as the gears are Synchro-engaged).

Range lever positions - Fig. 64

- I = low
- II = medium
- III = high
- R = reverse



64

SPEEDS AT MAXIMUM POWER

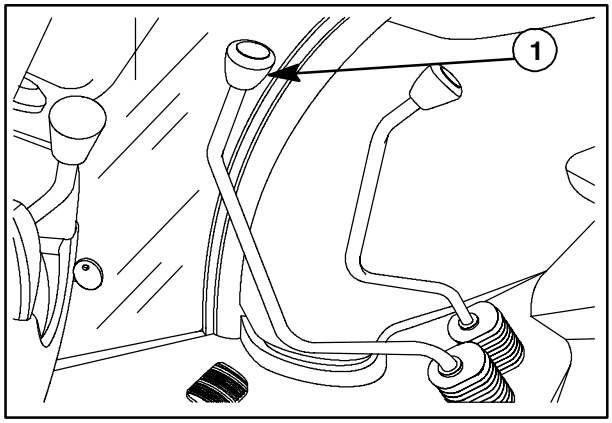
Transmission and range gear 30 km/h (19 mph) version
(12 forward gears + 4 reverse gears - Synchromesh)

RANGE	GEAR	REAR TYRES km/h (mph)		
		TD 60D 14.9-28 (RI:640)	TD 70D 14.9-30 (RI:665)	TD 80D 16.9-30 (RI:695)
I 	1	1.6 (1.0)	1.7 (1.1)	1.7 (1.1)
	2	2.5 (1.6)	2.6 (1.6)	2.5 (1.6)
	3	3.1 (1.9)	3.2 (2.0)	3.1 (1.9)
	4	4.9 (3.0)	5.1 (3.2)	5.0 (3.1)
II 	1	3.8 (2.4)	4.0 (2.5)	3.9 (2.4)
	2	5.9 (3.7)	6.1 (3.8)	5.9 (3.7)
	3	7.2 (4.5)	7.5 (4.7)	7.3 (4.5)
	4	11.5 (7.2)	12.0 (7.5)	11.6 (7.2)
III 	1	9.0 (5.6)	9.4 (5.8)	9.1 (5.7)
	2	13.9 (8.6)	14.5 (9.0)	14.0 (8.7)
	3	17.1 (10.6)	17.7 (11.0)	17.1 (10.6)
	4	27.1 (16.8)	28.2 (17.5)	27.3 (17.0)
R 	1	4.2 (2.6)	4.4 (2.7)	4.3 (2.7)
	2	6.5 (4.0)	6.8 (4.2)	6.6 (4.1)
	3	8.0 (5.0)	8.3 (5.2)	8.1 (5.0)
	4	12.8 (8.0)	13.3 (8.3)	12.8 (8.0)

TRANSMISSION WITH RANGE GEAR AND SHUTTLE - 30 km/h (19 mp/h)
(12 FORWARD GEARS + 12 REVERSE GEARS - SYNCHRO SHUTTLE)

⚠ CAUTION ⚠

With the engine running and with just one gear lever in neutral, the tractor could be started accidentally if the lever is knocked, with consequent accident risk. To prevent this happening, move both levers (fig. 65) to neutral, lower any attached equipment and stop the engine before leaving the tractor.



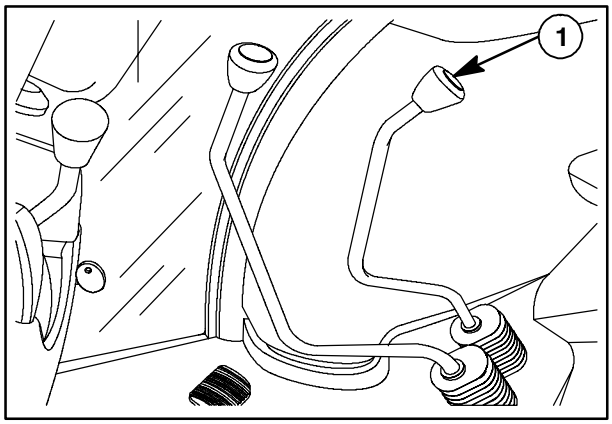
65

The transmission, range gear and shuttle are independently controlled by three levers.

The main shift lever (1) fig. 65 selects four speed ratios (**1**, **2**, **3, 4**).

The range lever (1) fig. 66 provides three forward ranges:

- I = low
- II = medium
- III = high



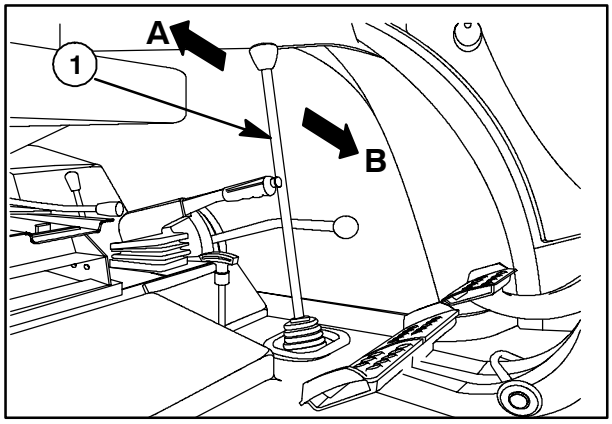
66

There are **twelve** forward and **twelve** reverse gears.

To change from a medium gear to a lower or higher one, stop the tractor, move the range lever to the right and shift it forward for lower gears or backward for higher gears.

To change from one speed to another in the same range (including reverse), shift the main shift lever after disengaging the clutch (the tractor does not have to be halted as the gears are Synchro-engaged).

To reverse the direction of travel, slow the tractor almost to a halt, move the shuttle lever (1) fig. 67 rearward, to position (**A**) to obtain reverse gears or forward (**B**) to disengage the shuttle and obtain forward gears. (The tractor does not have to be halted as the gears are Synchro-engaged).



67

SPEED AT MAXIMUM POWER

Shuttle transmission 30 km/h (19 mph) version (12 forward gears + 12 reverse gears - Synchro Shuttle)

 **Forward gears**

RANGE	GEAR	REAR TYRES km/h (mph)				
		TD 60D 14.9-28	TD 70D 14.9-30	TD 80D 16.9-30	TD 90D 18.4-30	TD 95D 18.4-34
I	1	1.6 (1.0)	1.7 (1.1)	1.7 (1.1)	1.7 (1.1)	1.8 (1.1)
	2	2.5 (1.6)	2.6 (1.6)	2.5 (1.6)	2.6 (1.6)	2.6 (1.6)
	3	3.4 (2.1)	3.6 (2.2)	3.5 (2.2)	3.6 (2.2)	3.8 (2.4)
	4	4.9 (3.1)	5.1 (3.2)	5.0 (3.1)	5.1 (3.2)	5.4 (3.4)
II	1	3.8 (2.4)	4.0 (2.5)	3.9 (2.4)	4.0 (2.5)	4.2 (2.6)
	2	5.9 (3.7)	6.1 (3.8)	5.9 (3.7)	6.2 (3.9)	6.1 (3.8)
	3	8.0 (5.0)	8.4 (5.2)	8.1 (5.0)	8.4 (5.2)	8.8 (5.5)
	4	11.5 (7.2)	12.0 (7.5)	11.6 (7.2)	12.0 (7.5)	12.6 (7.8)
III	1	9.0 (5.6)	9.4 (5.9)	9.1 (5.7)	9.4 (5.9)	9.9 (6.2)
	2	13.9 (8.7)	14.5 (9.0)	14.0 (8.7)	14.5 (9.0)	14.4 (9.0)
	3	18.9 (11.8)	19.7 (12.2)	19.0 (11.8)	19.7 (12.2)	20.8 (12.9)
	4	27.1 (16.9)	28.3 (17.6)	27.3 (17.0)	28.3 (17.6)	29.8 (18.5)

 **Reverse gears**

RANGE	GEAR	REAR TYRES km/h (mph)				
		TD 60D 14.9-28	TD 70D 14.9-30	TD 80D 16.9-30	TD 90D 18.4-30	TD 95D 18.4-34
I	1	1.6 (1.0)	1.7 (1.1)	1.7 (1.1)	1.8 (1.1)	1.8 (1.1)
	2	2.5 (1.6)	2.6 (1.6)	2.5 (1.6)	2.6 (1.6)	2.6 (1.6)
	3	3.4 (2.1)	3.6 (2.2)	3.5 (2.2)	3.6 (2.2)	3.8 (2.4)
	4	4.9 (3.1)	5.1 (3.2)	5.0 (3.1)	5.1 (3.2)	5.4 (3.4)
II	1	3.8 (2.4)	4.0 (2.5)	3.9 (2.4)	4.0 (2.5)	4.2 (2.6)
	2	5.9 (3.7)	6.1 (3.8)	5.9 (3.7)	6.2 (3.9)	6.1 (3.8)
	3	8.0 (5.0)	8.4 (5.2)	8.1 (5.0)	8.4 (5.2)	8.8 (5.5)
	4	11.5 (7.2)	12.0 (7.5)	11.6 (7.2)	12.0 (7.5)	12.6 (7.8)
III	1	9.0 (5.6)	9.4 (5.9)	9.1 (5.7)	9.4 (5.9)	9.9 (6.2)
	2	13.9 (8.7)	14.5 (9.0)	14.0 (8.7)	14.5 (9.0)	14.4 (9.0)
	3	19.0 (11.8)	19.8 (12.3)	19.1 (11.8)	19.8 (12.3)	20.9 (13.0)
	4	27.2 (16.9)	28.4 (17.6)	27.4 (17.0)	28.4 (17.6)	29.9 (18.6)

SPEED AT MAXIMUM POWER

Shuttle transmission 40 km/h (25 mph) version (12 forward gears + 12 reverse gears - Synchro Shuttle)

 **Forward gears**

RANGE	GEAR	REAR TYRES km/h (mph)				
		TD 60D 14.9-28	TD 70D 14.9-30	TD 80D 16.9-30	TD 90D 18.4-30	TD 95D 18.4-34
I	1	2.0 (1.2)	2.1 (1.3)	2.0 (1.2)	2.1 (1.3)	2.2 (1.4)
	2	3.1 (1.9)	3.2 (2.0)	3.1 (1.9)	3.2 (2.0)	3.2 (2.0)
	3	4.2 (2.6)	4.4 (2.7)	4.2 (2.6)	4.4 (2.7)	4.6 (2.9)
	4	6.0 (3.7)	6.3 (3.9)	6.1 (3.8)	6.3 (3.9)	6.6 (4.1)
II	1	4.7 (2.9)	4.9 (3.0)	4.7 (2.9)	4.9 (3.0)	5.1 (3.2)
	2	7.2 (4.5)	7.5 (4.7)	7.3 (4.6)	7.5 (4.7)	7.5 (4.7)
	3	9.8 (6.1)	10.2 (6.4)	9.9 (6.1)	10.2 (6.4)	10.8 (6.7)
	4	14.1 (8.8)	14.6 (9.1)	14.2 (8.8)	14.7 (9.1)	15.5 (9.6)
III	1	11.1 (6.9)	11.5 (7.1)	11.1 (6.9)	11.5 (7.1)	12.1 (7.5)
	2	17.0 (10.6)	17.7 (11.0)	17.1 (10.6)	17.7 (11.0)	17.6 (10.9)
	3	23.2 (14.4)	24.1 (14.9)	23.3 (14.5)	24.1 (15.0)	25.4 (15.8)
	4	33.2 (20.6)	34.5 (21.4)	33.3 (20.7)	34.5 (21.5)	36.4 (22.6)

 **Reverse gears**

RANGE	GEAR	REAR TYRES km/h (mph)				
		TD 60D 14.9-28	TD 70D 14.9-30	TD 80D 16.9-30	TD 90D 18.4-30	TD 95D 18.4-34
I	1	2.0 (1.2)	2.1 (1.3)	2.0 (1.2)	2.1 (1.3)	2.2 (1.4)
	2	3.1 (1.9)	3.2 (2.0)	3.1 (1.9)	3.2 (2.0)	3.2 (2.0)
	3	4.2 (2.6)	4.4 (2.7)	4.2 (2.6)	4.4 (2.7)	4.6 (2.9)
	4	6.0 (3.7)	6.3 (3.9)	6.1 (3.8)	6.3 (3.9)	6.6 (4.1)
II	1	4.7 (2.9)	4.9 (3.0)	4.7 (2.9)	4.9 (3.0)	5.1 (3.2)
	2	7.2 (4.5)	7.5 (4.7)	7.3 (4.6)	7.5 (4.7)	7.5 (4.7)
	3	9.8 (6.1)	10.2 (6.4)	9.9 (6.1)	10.2 (6.4)	10.8 (6.7)
	4	14.1 (8.8)	14.6 (9.1)	14.2 (8.8)	14.7 (9.1)	15.5 (9.6)
III	1	11.1 (6.9)	11.5 (7.1)	11.1 (6.9)	11.5 (7.1)	12.1 (7.5)
	2	17.1 (10.6)	17.8 (11.0)	17.2 (10.7)	17.8 (11.0)	17.7 (11.0)
	3	23.3 (14.5)	24.2 (15.0)	23.4 (14.5)	24.2 (15.0)	25.5 (15.8)
	4	33.3 (20.7)	34.6 (21.5)	33.4 (20.8)	34.6 (21.5)	36.5 (22.7)

TRANSMISSION WITH CREEPER AND SHUTTLE - 30 km/h (19 mph)

(20 FORWARD GEARS + 12 REVERSE GEARS - SYNCHRO SHUTTLE)

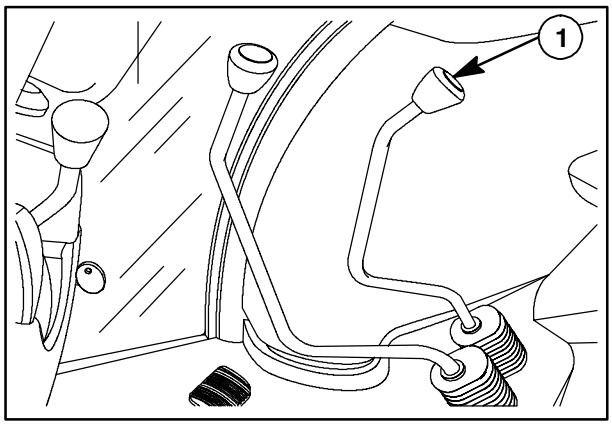
⚠ CAUTION ⚠

With the engine running and with just one gear lever in neutral, the tractor could be started accidentally if the lever is knocked, with consequent accident risk. To prevent this happening, move both levers (fig. 68) to neutral, lower any attached equipment and stop the engine before leaving the tractor.

The main shift, range gear (1) fig. 68 and shuttle levers are identical in operation to the shuttle transmission described on page 2-33.

An additional creeper lever (1) fig. 69 is used to select the creeper gear which is effective in the low and medium ranges to provide 8 additional forward speeds. The creeper operates only in low (**I**) fig. 68 and medium (**II**) ranges.

There is a mechanical interlock preventing creeper lever (1) fig. 69 engagement in position **C** with the range lever (1) fig. 68 in position (**III**) (high range) and vice versa.



68

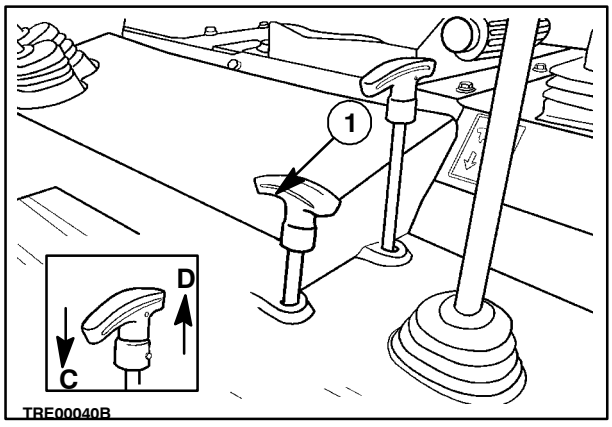
CREEPER LEVER - Fig. 69

By moving the lever upwards to position **D** or downwards to position **C**, the creeper lever (1) fig. 69 selects between normal gears and creeper gears.

Combined use of the two levers (1) figs. 68 and 69 provides 20 forward and 12 reverse gears.

Creeper lever positions

- Lever **1** downwards (position **C**) = creeper gear engaged and effective in low or medium ranges.
- Lever **1** upwards (position **D**) = creeper gear disengaged, allowing selection of low, medium or high ranges.



69

⚠ WARNING ⚠

Before engaging the creeper, lever (1) fig 69 in position **C**, ensure that the range lever (1) fig. 68 is not in position (**III**).

SPEED AT MAXIMUM POWER

Creeper transmission 30 km/h (19 mph) version
(20 forward gears + 12 reverse gears - Synchro Shuttle)

 **Forward gears**

RANGE	GEAR	REAR TYRES km/h (mph)				
		TD 60D 14.9-28	TD 70D 14.9-30	TD 80D 16.9-30	TD 90D 18.4-30	TD 95D 18.4-34
	1	0.3 (0.2)	0.3 (0.2)	0.3 (0.2)	0.3 (0.2)	0.3 (0.2)
	2	0.5 (0.3)	0.5 (0.3)	0.5 (0.3)	0.5 (0.3)	0.5 (0.3)
	3	0.6 (0.4)	0.6 (0.4)	0.6 (0.4)	0.6 (0.4)	0.7 (0.4)
	4	0.9 (0.6)	0.9 (0.6)	0.9 (0.6)	0.9 (0.6)	1.0 (0.6)
	1	0.7 (0.4)	0.7 (0.4)	0.7 (0.4)	0.7 (0.4)	0.8 (0.4)
	2	1.1 (0.7)	1.1 (0.7)	1.1 (0.7)	1.1 (0.7)	1.2 (0.6)
	3	1.5 (0.9)	1.5 (0.9)	1.5 (0.9)	1.5 (0.9)	1.6 (0.9)
	4	2.1 (1.3)	2.2 (1.4)	2.1 (1.3)	2.2 (1.4)	2.3 (1.4)
I	1	1.6 (1.0)	1.7 (1.1)	1.7 (1.1)	1.7 (1.1)	1.8 (1.1)
	2	2.5 (1.6)	2.6 (1.6)	2.5 (1.6)	2.6 (1.6)	2.8 (1.7)
	3	3.4 (2.1)	3.6 (2.2)	3.5 (2.2)	3.6 (2.2)	3.8 (2.4)
	4	4.9 (3.1)	5.1 (3.2)	5.0 (3.1)	5.1 (3.2)	5.4 (3.4)
II	1	3.8 (2.4)	4.0 (2.5)	3.9 (2.6)	4.0 (2.5)	4.2 (2.6)
	2	5.9 (3.7)	6.1 (3.8)	5.9 (3.7)	6.2 (3.9)	6.5 (4.0)
	3	8.0 (5.0)	8.4 (5.2)	8.1 (5.0)	8.4 (5.2)	8.8 (5.5)
	4	11.5 (7.2)	12.0 (7.5)	11.6 (7.2)	12.0 (7.5)	12.6 (7.8)
III	1	9.0 (5.6)	9.4 (5.8)	9.1 (5.7)	9.4 (5.8)	9.9 (6.2)
	2	13.9 (8.7)	14.5 (9.0)	14.0 (8.7)	14.5 (9.0)	15.3 (9.5)
	3	18.9 (11.8)	19.7 (12.2)	19.0 (11.8)	19.7 (12.2)	20.8 (12.9)
	4	27.1(16.9)	28.2 (17.5)	27.3 (17.0)	28.3 (17.6)	29.8 (18.5)

 **Reverse gears**

RANGE	GEAR	REAR TYRES km/h (mph)				
		TD 60D 14.9-28	TD 70D 14.9-30	TD 80D 16.9-30	TD 90D 18.4-30	TD 95D 18.4-34
I	1	1.5 (0.9)	1.6 (1.0)	1.6 (1.0)	1.6 (1.0)	1.7 (1.1)
	2	2.4 (1.5)	2.5 (1.6)	2.4 (1.5)	2.5 (1.6)	2.7 (1.7)
	3	3.2 (2.0)	3.4 (2.1)	3.3 (2.1)	3.4 (2.1)	3.6 (2.2)
	4	4.7 (2.9)	4.9 (3.1)	4.8 (2.9)	4.9 (3.0)	5.1 (3.2)
II	1	3.6 (2.3)	3.8 (2.4)	3.7 (2.3)	3.8 (2.4)	4.0 (2.5)
	2	5.6 (3.5)	5.8 (3.6)	5.6 (3.5)	5.9 (3.7)	6.2 (3.8)
	3	7.6 (4.7)	8.0 (5.0)	7.7 (4.8)	8.0 (5.0)	8.4 (5.2)
	4	10.9 (6.8)	11.4 (7.1)	11.0 (6.9)	11.4 (7.1)	12.0 (7.5)
III	1	8.6 (5.3)	8.9 (5.6)	8.7 (5.4)	8.9 (5.6)	9.4 (5.8)
	2	13.2 (8.2)	13.8 (8.6)	13.3 (8.3)	13.8 (8.6)	14.5 (9.0)
	3	18.0 (11.2)	18.7(11.6)	18.1 (11.2)	18.7 (11.6)	19.8 (12.3)
	4	25.8 (16.0)	26.8(16.7)	25.9 (16.1)	26.9 (16.7)	28.3 (17.6)

SPEED AT MAXIMUM POWER

Creeper transmission 40 km/h (25 mph) version
(20 forward gears + 12 reverse gears - Synchro Shuttle)

 **Forward gears**

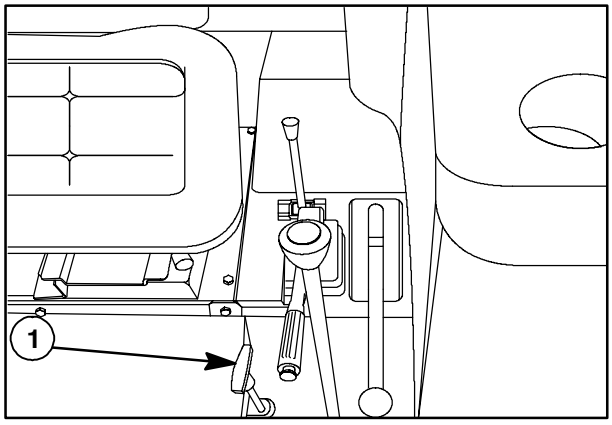
RANGE	GEAR	REAR TYRES km/h (mph)				
		TD 60D 14.9-28	TD 70D 14.9-30	TD 80D 16.9-30	TD 90D 18.4-30	TD 95D 18.4-34
	1	0.4 (0.2)	0.4 (0.2)	0.4 (0.2)	0.4 (0.2)	0.4 (0.2)
	2	0.6 (0.4)	0.6 (0.4)	0.6 (0.4)	0.6 (0.4)	0.6 (0.4)
	3	0.8 (0.5)	0.8 (0.5)	0.8 (0.5)	0.8 (0.5)	0.8 (0.5)
	4	1.1 (0.7)	1.1 (0.7)	1.1 (0.7)	1.1 (0.7)	1.2 (0.7)
	1	0.8 (0.5)	0.9 (0.5)	0.9 (0.5)	0.9 (0.5)	0.9 (0.5)
	2	1.3 (0.8)	1.4 (0.9)	1.3 (0.8)	1.4 (0.9)	1.4 (0.9)
	3	1.8 (1.1)	1.9 (1.1)	1.8 (1.1)	1.9 (1.1)	2.0 (1.2)
	4	2.6 (1.6)	2.7 (1.6)	2.6 (1.6)	2.7 (1.6)	2.8 (1.7)
I	1	2.0 (1.2)	2.1 (1.1)	2.0 (1.2)	2.1 (1.1)	2.2 (1.4)
	2	3.1 (1.9)	3.2 (2.0)	3.1 (1.9)	3.2 (2.0)	3.4 (2.1)
	3	4.2 (2.6)	4.4 (2.7)	4.2 (2.6)	4.4 (2.7)	4.6 (2.9)
	4	6.0 (3.7)	6.3 (3.9)	6.1 (3.8)	6.3 (3.9)	6.6 (4.1)
II	1	4.7 (2.9)	4.9 (3.0)	4.7 (2.9)	4.9 (3.0)	5.1 (3.2)
	2	7.2 (4.5)	7.5 (4.7)	7.3 (4.5)	7.5 (4.7)	7.9 (4.9)
	3	9.8 (6.1)	10.2 (6.3)	9.9 (6.1)	10.2 (6.3)	10.8 (6.7)
	4	14.1 (8.8)	14.6 (9.1)	14.2 (8.8)	14.7 (9.1)	15.5 (9.6)
III	1	11.1 (6.9)	11.5 (7.1)	11.1 (6.9)	11.5 (7.1)	12.1 (7.5)
	2	17.0 (10.6)	17.7 (11.0)	17.1 (10.6)	17.7 (11.0)	18.7 (11.6)
	3	23.2(14.4)	24.1 (14.9)	23.3 (14.5)	24.1 (14.9)	25.4 (15.8)
	4	33.2 (20.6)	34.5 (21.4)	33.3 (20.7)	34.5 (21.4)	36.4 (22.6)

 **Reverse gears**

RANGE	GEAR	REAR TYRES km/h (mph)				
		TD 60D 14.9-28	TD 70D 14.9-30	TD 80D 16.9-30	TD 90D 18.4-30	TD 95D 18.4-34
I	1	1.9 (1.2)	2.0 (1.2)	1.9 (1.2)	2.0 (1.2)	2.1 (1.3)
	2	3.0 (1.8)	3.0 (1.9)	3.0 (1.8)	3.0 (1.9)	3.2 (2.0)
	3	4.0 (2.5)	4.2 (2.6)	4.0 (2.5)	4.2 (2.6)	4.4 (2.7)
	4	5.7 (3.5)	6.0 (3.7)	5.8 (3.6)	6.0 (3.7)	6.3 (3.9)
II	1	4.5 (2.8)	4.7 (2.9)	4.5 (2.8)	4.7 (2.9)	4.9 (3.0)
	2	6.8 (4.3)	7.1 (4.4)	6.9 (4.3)	7.1 (4.4)	7.5 (4.7)
	3	9.3 (5.8)	9.7 (6.0)	9.4 (5.8)	9.7 (6.0)	10.3 (6.4)
	4	13.4 (8.3)	13.9 (8.6)	13.5 (8.4)	14.0 (8.7)	14.7 (9.2)
III	1	10.6 (6.6)	10.9 (6.8)	10.6 (6.6)	10.9 (6.8)	11.5 (7.1)
	2	16.2 (10.0)	16.8 (10.5)	16.3 (10.1)	16.8 (10.5)	17.8 (11.0)
	3	22.0 (13.7)	22.9 (14.2)	22.1 (13.8)	22.9 (14.2)	24.1 (15.0)
	4	31.5 (19.6)	32.8 (20.4)	31.6 (19.7)	32.8 (20.4)	34.6 (21.5)

MECHANICALLY CONTROLLED FOUR-WHEEL DRIVE

USING FOUR-WHEEL DRIVE



70

Front-wheel drive can increase the tractor's grip on the surface; the benefits of this are particularly noticeable when working on uneven, muddy or slippery surfaces, on ploughed ground or in difficult conditions.

Front-wheel drive engagement / disengagement is carried out by means of lever (1) fig. 68 when the tractor moving slowly and preferably at the low speeds of the engine.

Avoid carrying out this operation under stress. If the maneouvre proves to be difficult with the tractor moving in a straight line, keeping the lever in engaged position, slightly turn the steering wheel in both directions until the control mechanism engaged.

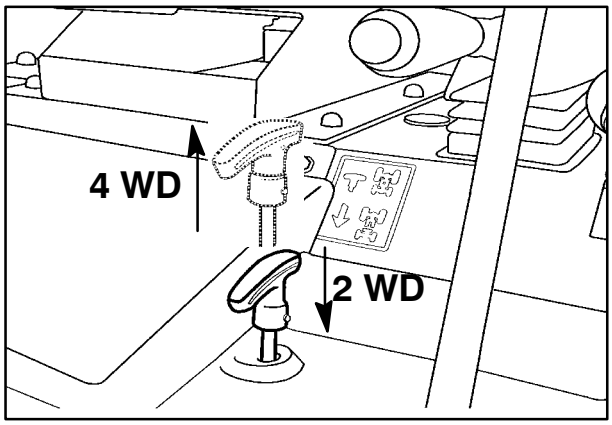
⚠ CAUTION ⚠

Do not use front wheel drive on hard surfaces to prevent premature wear to the front tyres. Abnormal tyre wear can also be caused by incorrect tyre pressures.

To engage front-wheel drive pull the lever (1) fig. 70 upwards fig. 71

In this position, the front-wheel drive will stay permanently on.

To disengage it, push the lever downwards fig. 71



71

MECHANICALLY CONTROLLED DIFFERENTIAL LOCK

DIFFERENTIAL LOCK CONTROL - fig. 70

The differential allows the drive wheels to rotate at different speeds when the tractor is turning.

The differential has a locking device, controlled by a foot pedal (1) fig. 72**.** It is advisable to lock the differential in the following situations:

- in ploughed fields, to prevent the wheel which is out of the furrow from slipping.

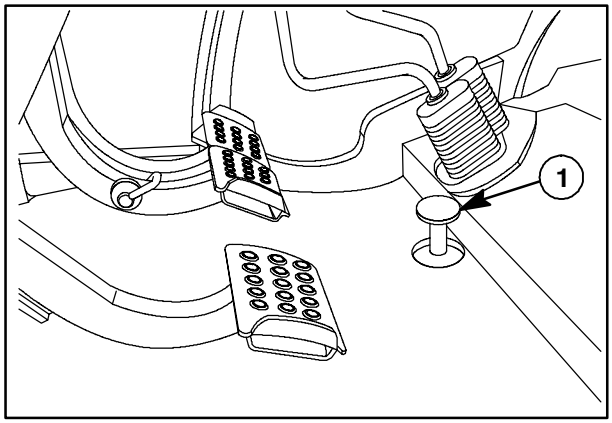
- if one of the drive wheels is on uneven, muddy or slippy ground, and tends to skid.

To lock the differential, reduce tractor speed and press pedal (1) fig. 72. The differential will remain locked.

Press one of the brake pedals (**1**) to release the lock fig. 73.

⚠ CAUTION ⚠

Do not keep the differential locked unnecessarily as this wastes power and can cause damaging stresses in the transmission system, tyre wear and steering problems.



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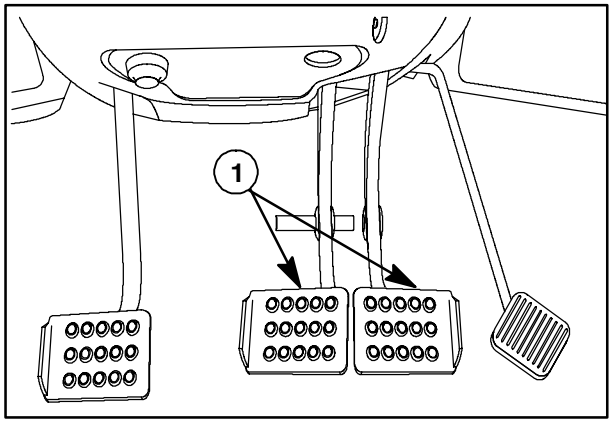
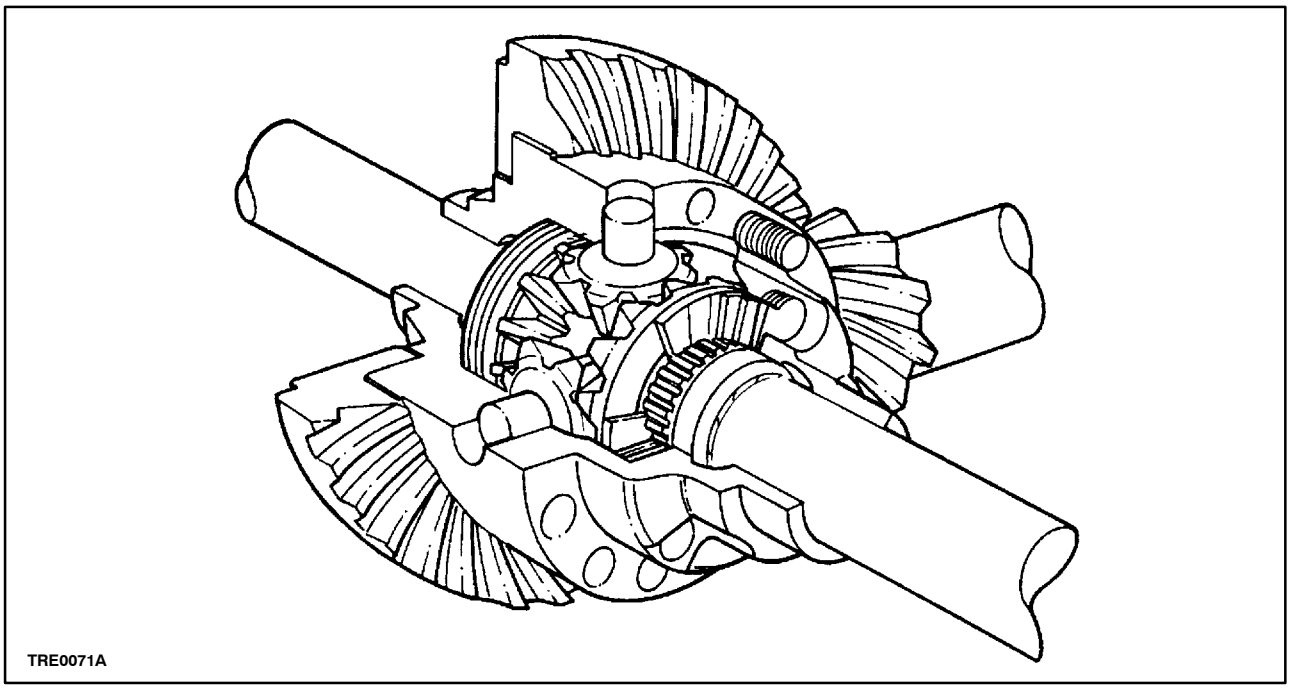


73

LIM-SLIP DIFFERENTIAL LOCK (OPTIONAL)



74

The limited slip differential lock (LIM-SLIP) is a two planetery pinion type, complete with two multi-disc clutch blocks fitted between the planetery pinions and the differential box.

This differential lock device is totally automatic, requires no manual operation and notably reduces (without completely eliminating) wheel slipping that may result fom tractor grip loss.

The difference in revolutions between the planetary pinions and the differential box, when a wheel begins to slip as a result of grip loss, is obstructed by the clutch blocks that are compressed by axial thrust from the torque transmitted to the planetary pinions by the bevel gear pairs, by means of the teeth on the two planetary pinions.

The torque may differ according to the condition of te ground, thereby proportionally varying the axial thrust on the clutch blocks, consolidating the planetary pinions with the differential box which results in the axle being able to successfully overcome the difficult ground conditions.

TOWING THE TRACTOR

TOWING THE TRACTOR

NOTE: The tractor must only be towed for short distances, for example from inside a building to the outside. It must never be towed for long distances on the road in heavy traffic.

NOTE: For transport purposes, haul the tractor with all four wheels on a flat bed trailer or truck.

Use a strong chain when towing the tractor. Tow the tractor from the rear using only the drawbar, rear tow hitch or the three-point hitch.
Tow the tractor from the front using the tow pin on the front support.
Have an operator to steer and brake the tractor.

To avoid damaging the transmission or other components that turn but are not lubricated during towing, observe the following:

1. Only tow for short distances.
2. Keep the speed below 8 km/h (5 mph).
3. If possible, run the engine to provide lubrication and power steering.

WARNING

Never use ropes or cables to tow the tractor. If a cable or rope breaks or slips, it may cause serious injury.
When using a chain, connect the hook with the open end upwards so that in the event of the hook slipping, it will drop down instead of flying up.

CAUTION

Do not tow the tractor faster than 8 km/h (5 mph). Steering is much slower and steering wheel effort is much greater without the engine running.

LOADING THE TRACTOR ONTO A TRANSPORTER

TRANSPORTING THE TRACTOR

Load the tractor complete with all four wheels onto the vehicle or trailer platform.

Secure the tractor on the transporter with suitable chains.

Use the towing hook fitted on the front of the tractor for this purpose.

Use the towbar or its supports for the rear hitch point on the tractor.

WARNING

Do not hook or connect chains around the front axle transmission shaft, the power steering cylinders, the front axle itself or other parts of the tractor which could be damaged either by the chains or excessive strain.

WARNING

On models TD 70D, TD 90 D and TD 95D cover the silencer outlet to prevent the turbocharger from turning in the wind and damaging the bearings.
The turbocharger turbine must be prevented from rotating freely with the engine off, as the shaft bearings will not be lubricated.

CHECKS BEFORE USING THE TRACTOR

Before using the tractor, check that you are familiar with the position and function of all the tractor controls.

Ensure that the maintenance and lubrication operations described in Section 3 of this Manual are fully carried out.

After daily maintenance, carry out a visual inspection of the outside of the tractor, paying particular attention to the following points :

1. Signs of cracking on the fan belt.

2. Accumulation of dirt around the engine.

3. Signs of leaks or damaged components connected to pressure tubes, sleeves and connectors.

4. Damaged tyres.

5. Loose fasteners.

6. Accumulation of dirt on, or leaks from, the hydraulic pump and connected parts.

Always carry out any necessary repairs before using the tractor again.

NOTES

SECTION 3

FIELD OPERATION

BEFORE USING THE TRACTOR

Read this section of the Operator's Manual carefully before using the tractor. This is particularly important if the tractor is to be used correctly as it contains all the information required on the layout and use of the tractor controls.

Even if you already have experience in using other makes of tractor, this section of the Manual especially must be studied carefully and thoroughly.

After reading this section in full, ensure that you are fully familiar with the layout and use of the controls. Ensure too that you know the specifications of the tractors in question.

Never start the engine and tractor if you have not already familiarised yourself with all the controls.

Finding out once the tractor is moving may be too late.

If you have any doubts about any functional aspect of the tractor, contact your dealer.

Particular attention needs to be paid to the tractor's running-in period, to obtain the best operating reliability and service life for which it is designed and built.

With regard to the reliability and service life of your tractor, study section 4 carefully.

Section 4 contains details of all the lubrication and general maintenance operations to be carried out on the tractor.

Tractor data and specifications are noted in Section 8.

OPERATION

⚠ CAUTION ⚠

Before starting the engine and moving the tractor, follow the instructions written below.

- Do not start or operate the tractor in an enclosed area.
- Before starting the engine, check that all controls are in neutral.
- All controls must be actuated only from the driver's seat.
- Stop the engine before carrying out any service or maintenance operations on the tractor.
- Use the steps provided for entering and leaving the tractor.
- Keep the guards properly fitted.
- When moving on the roads, signal your intention to stop, turn or slow down.
- Use the appropriate warning devices to indicate a slow-moving vehicle.

STARTING THE ENGINE

a. If the tractor has not been used for some time, or if started up for the first time at a low surrounding temperature, actuate the fuel pump starting lever around twenty times.

b. Ensure that both gear levers are in neutral position.

c. Move the throttle lever to around the half way position.

d. Turn the ignition key to position **C**, fig. 1. Release the key as soon as the engine starts.

HOW TO START AND STOP

STARTING IN A LOW EXTERNAL TEMPERATURE

⚠ WARNING ⚠

When the external temperature is low and the engine is cold, cover the radiator before starting so that the engine coolant can quickly reach operating temperature.
Then remove the cover. Note the following warnings:

— Any single engine starting attempt should not last longer than 15 seconds. If, however, the engine fires but does not start, repeat up to a maximum time of 30 seconds.

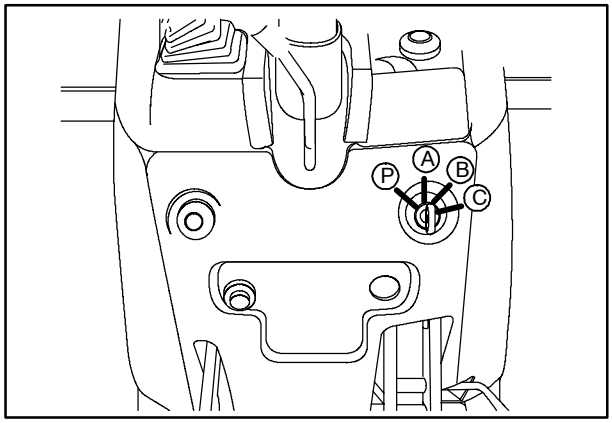
— Wait at least one minute between attempts to start the engine.

— It is advisable not to make more than six attempts to start the engine to avoid excessive battery run-down.

STARTING WITH THERMOSTART

Start as follows:

- carry out the operations **a, b, c** as previously described.
- turn the ignition key to position **B** (**1**) fig. 1.
- activate the thermostart by pressing switch (2) fig. 2 and keep it pressed for 25 seconds.
- move the ignition key to position (**C**) while continuing to hold down switch (**2**) fig. 2 until the engine starts.
- when the engine starts, release both the key and the thermostart switch. If, after two or three attempts, the engine has not started and you notice black smoke coming from the exhaust, start the engine without using the thermostart.



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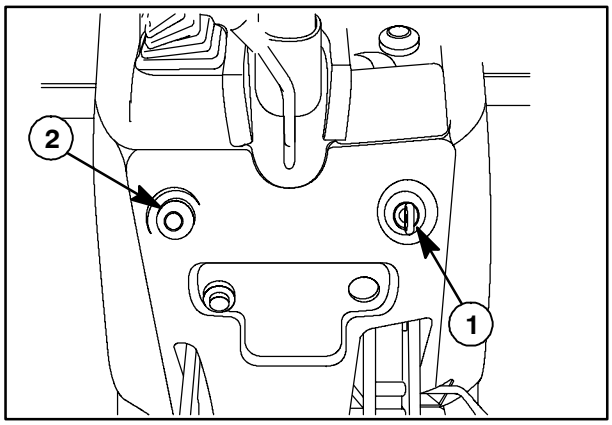


2

CAUTION

When starting the engine after the tractor has been out of use for some time, avoid using the hydraulic system immediately, as all the moving parts need to be lubricated properly before they are subjected to full load, especially when the external temperature approaches 0°C. Run the engine at 1300 –1500 speed for around 5 minutes to bring the oil in the rear transmission up to working temperature.

CAUTION

Before accelerating or starting TD 70D, TD 90D and TD 95D turbocharged tractor models, let the engine idle at 1000 speed for 30 seconds to ensure that the turbocharger is fully lubricated.

CAUTION

If one of the warning lights illuminates to signal a fault, stop the engine and investigate the problem.
If the warning light continues to signal a fault, have the machine checked by your authorised dealer.

CAUTION

To prevent separation of the paraffin components in the diesel fuel, when the external temperature falls below freezing – leading to a reduction in fluidity and consequent fuel supply problems (especially when starting the engine), **use only Winter grade diesel or mix the diesel with a proprietary cold weather additive** in the proportions stated on the container.
Winter additive must be mixed with the diesel fuel before there is any sign of paraffin separation; adding it later will have no effect on an engine if the cold has already caused the engine to stop running or prevent it being started.
Put the additive in the tank first, followed by the diesel fuel.
The additive will ensure that there is an optimum fuel supply to the engine without reducing performance, even when the external temperature drops below -20°C.

STARTING THE TRACTOR

- Press the clutch pedal and move the main gear lever and creeper lever to the desired settings (see pages 2–31, 2–33 and 2–36).
- Accelerate the engine as necessary.
- Release the handbrake lever and engage the clutch, releasing the pedal slowly.

WARNING

To extend the service life of the tyres and the transmission components, it is advisable not to use the tractor continuously at full power when working at speeds of less than 7 km/h (4.35 mph), particularly when the tractor is excessively ballasted.
It is not advisable to ballast the tractor too heavily when towing heavy loads and travelling at low speeds. Follow the instructions given in this chapter on ballast and hitch components.

STOPPING THE TRACTOR

- Reduce engine speed.
- Depress the transmission clutch pedal and brake.

With the tractor stationary, move the main shift and range gear levers to neutral, release the clutch pedal and engage the handbrake.

STOPPING THE ENGINE

CAUTION

On models TD 70D, TD 90D and TD 95D, before stopping the engine, let it idle at 1000 speed for at least three minutes.

- Turn the ignition key to the STOP position (**A**) fig. 1.

POWER TAKE-OFF

GENERAL INSTRUCTIONS

The power take-off fitted on your tractor is used to transfer power from the engine directly to the implement. It can be controlled directly from the engine, or by the tractor's transmission drive gears.

All tractors are fitted as standard with a power take-off at 540 rev/min.

The power take-off comes in 3 versions :

- standard single-speed - 540 rev/min;
- optional two-speed - 540/750 (540E) rev/min;
- optional two speed - 540/1000 rev/min.

⚠ CAUTION ⚠

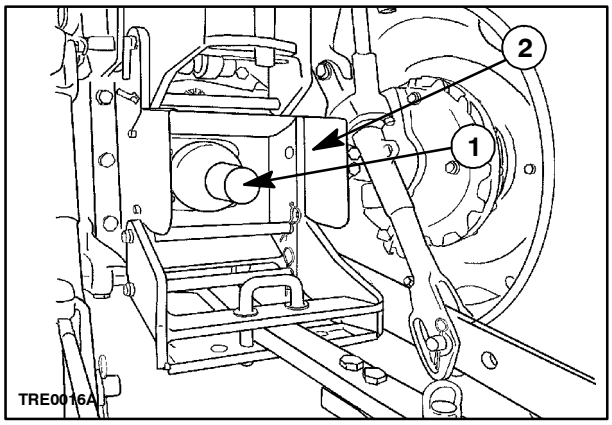
When the power take-off is not being used or when, with an implement connected to the power take-off shaft, it has been switched off by means of the selection lever, ensure that the control lever or the control knob are disengaged. When the power take-off is not connected to an implement, keep the control handle in the disengaged position.

⚠ CAUTION ⚠

When you are not using the power take-off and particularly when changing from one speed to another, always check that the shaft fitted on the tractor is the right one for the speed selected.
When using any implement requiring a speed of 540 rev/min, never select 1000 rev/min, and vice versa.

⚠ DANGER ⚠

Never stand on the guard (2) fig. 3 when the power take-off is operating.



3

When not using the power take-off, always keep safety cover (1) fig. 3 fitted over the splined output shaft.

⚠ CAUTION ⚠

Before operating any implement driven by the power take-off, check that the safety clutch (if fitted) on the machine transmission shaft is working properly, i.e.: it slips if overloaded.

⚠ CAUTION ⚠

Never operate any implement connected to the power take-off at a higher speed than that specified.

⚠ DANGER ⚠

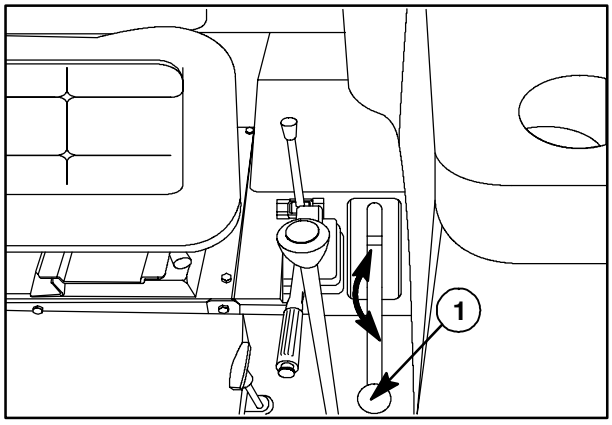
Always check that the plastic guards on the drive shaft are in perfect condition.

⚠ DANGER ⚠

Always shut off the engine when working on an implement connected to the power take-off.

POWER TAKE-OFF OPERATION

INDEPENDENT POWER TAKE-OFF - Figs. 4 and 5



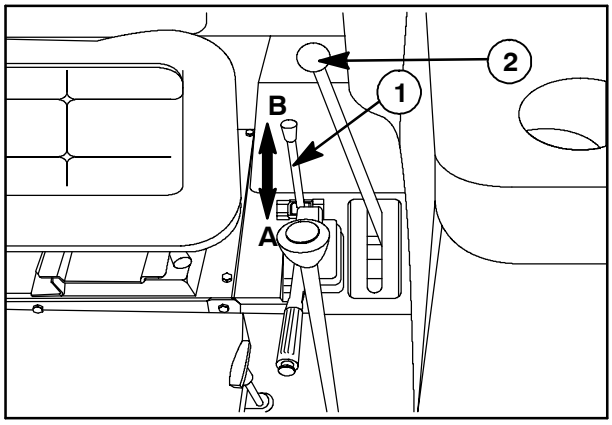
4

To operate the power take-off, proceed as follows:

- disengage the power take-off clutch by moving the lever (1) fig. 4 to the **DOWN** position;
- move operation selector lever (1) fig. 5 rearward to position **B**;
- engage the clutch slowly by moving lever (2) fig. 5 to the **UP** position so as to start the splined output shaft turning.

In this case, operation is totally independent of the tractor ground speed, and you can therefore:

- stop the tractor without stopping the power take-off;
- stop the power take-off without stopping the tractor (by disengaging the power take-off clutch).



5

The shaft rotates clockwise, as seen from the rear of the tractor.

To disengage the power take-off, move the clutch control lever (1) fig. 4 to the **DOWN** position.

⚠ WARNING ⚠

When the power take-off is not in use, with an implement connected, the selector lever (1) fig. 5 should be in NEUTRAL position and the clutch control lever (1) fig. 4 should be in the disengaged position (DOWN).

⚠ DANGER ⚠

Always check that the plastic guards on the drive shaft are in perfect condition.

⚠ IMPORTANT ⚠

To prolong release bearing life RAISE the PTO clutch control lever (1), fig. 4, and move the selection lever (1) fig. 5 to the NEUTRAL position when the PTO will not be used for long periods of time .

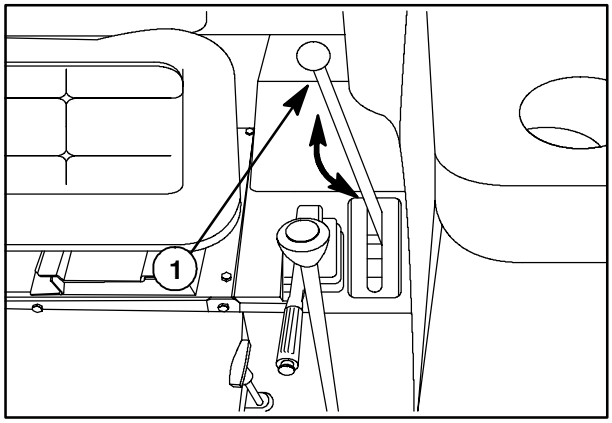
SINGLE LEVER POWER TAKE-OFF - (OPTIONAL) (NOT AVAILABLE FOR ALL MARKETS) Figs. 6 and 7

To operate the power take-off, proceed as follows:

- disengage the power take-off clutch by moving the lever (1) fig. 6 to the **UP** position;
- engage the clutch slowly by moving lever (1) fig. 7 to **DOWN** position so as to start the splined output shaft turning.

In this case, operation is totally independent of the tractor ground speed, and you can therefore:

- stop the tractor without stopping the power take-off;
- stop the power take-off without stopping the tractor (by disengaging the power take-off clutch).



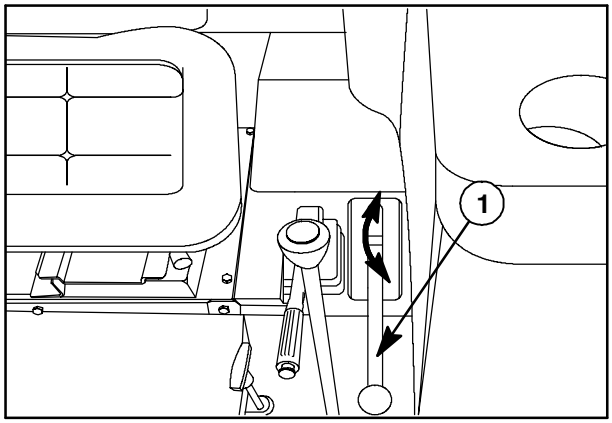
6

The shaft rotates clockwise, as seen from the rear of the tractor.

To disengage the power take-off, move the clutch control lever (1) fig. 6 to the **UP** position.

⚠ WARNING ⚠

When the power take-off is not in use, the clutch control lever (1) fig. 6 should be in the disengaged position **(UP)**.



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⚠ DANGER ⚠

Always check that the plastic guards on the drive shaft are in perfect condition.

⚠ IMPORTANT ⚠

To prolong bearing life RAISE the PTO clutch control lever (1), fig. 6, when the PTO will not be used.

GROUND SPEED POWER TAKE-OFF (OPTIONAL) - FIGS. 8 AND 9

Proceed as follows to operate the power take-off:

- move the clutch control lever (1) fig. 8 to the **DOWN** position;
- fully depress the clutch pedal;
- after a few seconds, move the selector lever (1) fig. 9 forward to position **A** and release the clutch pedal.

In this case, the power take-off receives power directly from the transmission. When the tractor is stationary, ground speed power take-off does not turn. Reverse the direction of rotation of the output shaft by moving from forward gear to reverse.

⚠ CAUTION ⚠

Do not engage the ground speed power take-off when the tractor is moving.
When using a trailer with a drive axle, it is advised to select the 1000 rev/min power take-off.

In any gear, the number of revolutions of the splined output shaft **for one revolution of the rear wheels is as follows:**

540 rev/min power take-off:

- TD 60D and TD 70D models

30 km/h (19 mph)	8.2
4WD 40 km/h (25 mph)	6.73

- TD 80D, TD 90D and TD 95D models

30 km/h (19 mph)	8.9
4WD 40 km/h (25 mph)	7.25

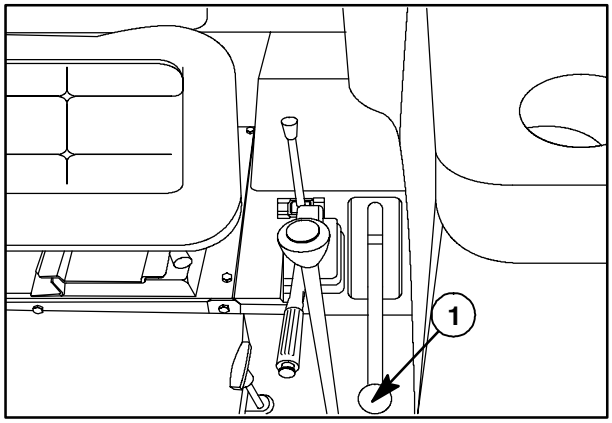
750 (540E) rev/min power take-off:

- TD 60D and TD 70D models

30 km/h (19 mph)	10.51
4WD 40 km/h (25 mph)	8.59

- TD 80D, TD 90D and TD 95D models

30 km/h (19 mph)	11.4
4WD 40 km/h (25 mph)	9.36



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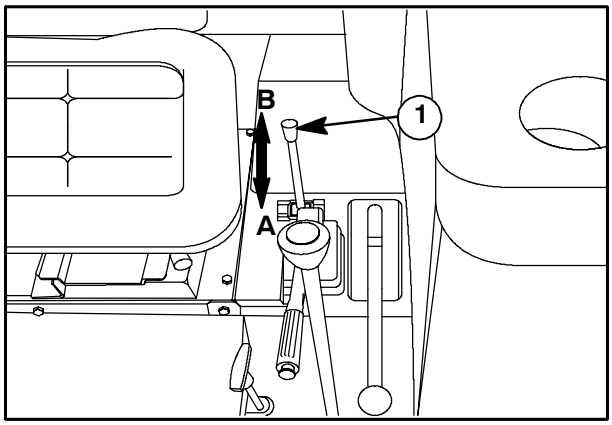

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⚠ WARNING ⚠

When the power take-off is not in use, with an implement connected, the selector lever (1) fig. 9 should be in NEUTRAL position and the clutch control lever (1) fig. 8 should be in the disengaged position (DOWN).

1000 rev/min power take-off:

- TD 60D and TD 70D models

30 km/h (19 mph)	14.1
4WD 40 km/h (25 mph)	11.51

- TD 80D, TD 90D and TD 95D models

30 km/h (19 mph)	15.3
4WD 40 km/h (25 mph)	12.4

POWER TAKE-OFF SPEED

540 rev/min power take-off

The 540 rev/min power take-off is equipped with a six-splined $1^3/_8$ in. output shaft (1) fig. 10 (standard).

540/750 rev/min power take-off

This version is available as an option.
The six-splined output shaft (1) fig. 3 is $1^3/_8$ in. in diameter, the same as for 540 rev/min power take-off.

To obtain a speed of 540 or 750 rev/min, use the speed selector lever (**1**) fig. 12.

540/750/1000 rev/min power take-off

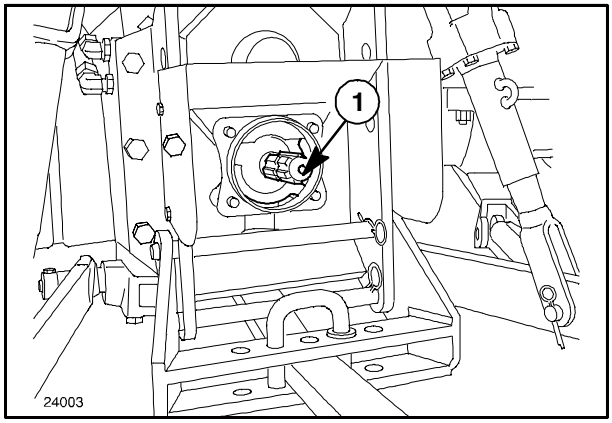
It has two interchangeable output shafts (**2**) fig. 9: one $1^3/_8$ in. diameter with six splines for speeds of 540 and 750 rev/min and one $1^3/_8$ in. diameter with twenty-one splines for speeds of 1000 rev/min. To change the output shaft, remove the bolts (**1**) fig. 11 for power take-off.

⚠ CAUTION ⚠

Use the power take-off at 1000 rev/min only after fitting the appropriate $1^3/_8$ in. diameter, 21-splined output shaft from the accessories kit.

Power take-off speeds:

- 540 rev/min with engine at: 2199 rpm
- 614 rev/min with engine at: 2500 rpm
- 750 rev/min with engine at: 2380 rpm
- 787 rev/min with engine at: 2500 rpm
- 540E rev/min with engine at: 1715 rpm
- 1000 rev/min with engine at: 2380 rpm
- 1050 rev/min with engine at: 2500 rpm



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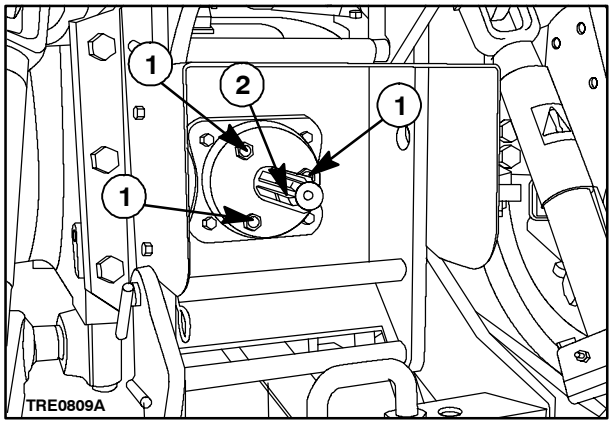


11

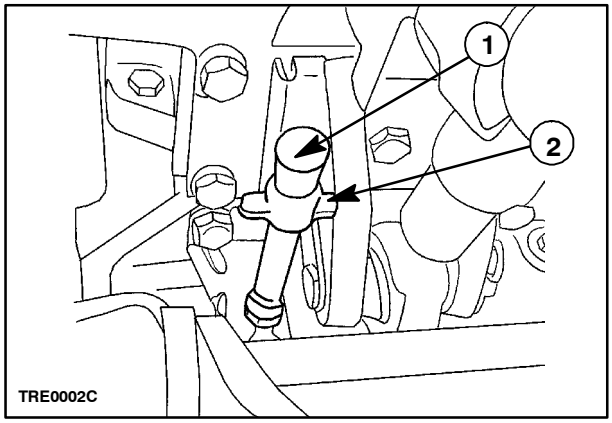
NOTE: With the power take-off speed selector lever set to 750 rev/min, 540 rev/min can also be obtained on the output shaft with the engine at 1715 rev/min.

POWER TAKE-OFF SPEED SELECTION

To select power take-off speeds, proceed as described below:

- lift the spring-loaded collar (2) fig. 12 upward;

- position the lever (1) fig. 12 to the required speed, as indicated by the decal at the base of the lever. Release the spring-loaded collar.



12

2-SPEED POWER TAKE-OFF (OPTIONAL)

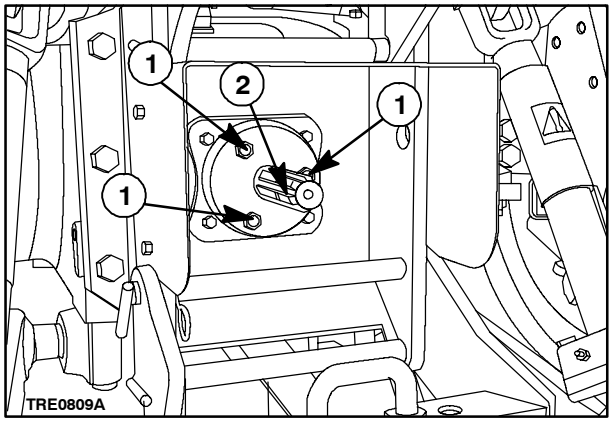
For 540/1000 rev/min versions an interchangeable PTO shaft is supplied.

The speed can be selected simply by replacing splined output shaft (2) fig. 13.

To replace splined output shaft fig. 13 remove the bolts (1) and fit the $1^3/_8$ in. diameter six-splined shaft for a speed of 540 rev/min, or the $1^3/_8$ in. diameter 21-splined shaft for a speed of 1000 rev/min.

⚠ CAUTION ⚠

Use the power take-off at 1000 rev/min only after fitting the appropriate $1^3/_8$ in. 21-splined output shaft from the accessories kit.



13

TD 60D, TD 70D and TD 80D MODELS

TRACTOR SPEED IN km/h WITH POWER TAKE-OFF RUNNING AT STANDARD SPEEDS

Transmission and range gear 30 km/h (19 mph) version in forward gear (12 forward gears + 4 reverse gears)

 **Power take-off at 540 rev/min, with engine at 2199 rev/min.**

RANGE	GEAR	REAR TYRES km/h (mph)		
		TD 60D 14.9-28	TD 70D 14.9-30	TD 80D 16.9-30
		540 rev/min		
I	1	1.4 (0.9)	1.5 (0.9)	1.5 (0.9)
	2	2.2 (1.4)	2.3 (1.4)	2.2 (1.4)
	3	3.0 (1.9)	3.2 (2.0)	3.0 (1.9)
	4	4.3 (2.7)	4.5 (2.8)	4.4 (2.7)
II	1	3.4 (2.1)	3.5 (2.2)	3.4 (2.1)
	2	5.2 (3.2)	5.4 (3.4)	5.2 (3.2)
	3	7.1 (4.4)	7.4 (4.6)	7.1 (4.4)
	4	10.1 (6.3)	10.5 (6.5)	10.2 (6.3)
III	1	8.0 (5.0)	8.3 (5.2)	8.0 (5.0)
	2	12.3 (7.6)	12.7 (7.9)	12.3 (7.6)
	3	16.7 (10.4)	17.3 (10.8)	16.8 (10.4)
	4	23.9 (14.9)	24.8 (15.4)	24.0 (14.9)
R	1	3.7 (2.3)	3.9 (2.4)	3.8 (2.4)
	2	5.8 (3.6)	6.0 (3.7)	5.8 (3.6)
	3	7.8 (4.8)	8.1 (5.0)	7.9 (4.9)
	4	11.2 (7.0)	11.7 (7.3)	11.3 (7.0)

 **Power take-off at 750/1000 rev/min, with engine at 2380 rev/min.**

RANGE	GEAR	REAR TYRES km/h (mph)		
		TD 60D 14.9-28	TD 70D 14.9-30	TD 80D 16.9-30
		750/1000 rev/min		
I	1	1.6 (1.0)	1.6 (1.0)	1.6 (1.0)
	2	2.4 (1.5)	2.5 (1.6)	2.4 (1.5)
	3	3.3 (2.1)	3.4 (2.1)	3.3 (2.1)
	4	4.7 (2.9)	4.9 (3.1)	4.7 (2.9)
II	1	3.7 (2.3)	3.8 (2.4)	3.7 (2.3)
	2	5.6 (3.5)	5.9 (3.7)	5.7 (3.5)
	3	7.7 (4.8)	8.0 (5.0)	7.7 (4.8)
	4	11.0 (6.8)	11.4 (7.1)	11.0 (6.8)
III	1	8.6 (5.3)	8.9 (5.5)	8.6 (5.3)
	2	13.3 (8.3)	13.8 (8.6)	13.3 (8.3)
	3	18.0 (11.2)	18.7 (11.6)	18.1 (11.2)
	4	25.8 (16.0)	26.8 (16.7)	26.0 (16.2)
R	1	4.0 (2.5)	4.2 (2.6)	4.1 (2.5)
	2	6.2 (3.9)	6.5 (4.0)	6.3 (3.9)
	3	8.5 (5.3)	8.8 (5.5)	8.5 (5.3)
	4	12.1 (7.5)	12.6 (7.8)	12.2 (7.6)

TD 60D, TD 70D, TD 80D, TD 90D and TD 95D MODELS

TRACTOR SPEED IN km/h WITH POWER TAKE-OFF RUNNING AT STANDARD SPEEDS

Transmission and range gear 30 km/h (19 mph) version in forward gear (12 forward gears + 12 reverse gears - synchro command)

 **Power take-off at 540 rev/min, with engine at 2199 rev/min.**

RANGE	GEAR	REAR TYRES km/h (mph)				
		TD 60D 14.9-28	TD 70D 14.9-30	TD 80D 16.9-30	TD 90D 18.4-30	TD 95D 18.4.34
		540 rev/min				
I	1	1.4 (0.9)	1.5 (0.9)	1.5 (0.9)	1.5 (0.9)	1.6 (1.0)
	2	2.2 (1.4)	2.3 (1.4)	2.2 (1.4)	2.3 (1.4)	2.3 (1.4)
	3	3.0 (1.9)	3.2 (2.0)	3.0 (1.9)	3.2 (2.0)	3.3 (2.1)
	4	4.3 (2.7)	4.5 (2.8)	4.4 (2.7)	4.5 (2.8)	4.8 (3.0)
II	1	3.4 (2.1)	3.5 (2.2)	3.4 (2.1)	3.5 (2.2)	3.7 (2.3)
	2	5.2 (3.2)	5.4 (3.4)	5.2 (3.2)	5.4 (3.4)	5.4 (3.4)
	3	7.1 (4.4)	7.4 (4.6)	7.1 (4.4)	7.4 (4.6)	7.8 (4.9)
	4	10.1 (6.3)	10.5 (6.5)	10.2 (6.3)	10.6 (6.6)	11.1 (6.9)
III	1	8.0 (5.0)	8.3 (5.2)	8.0 (5.0)	8.3 (5.2)	8.7 (5.4)
	2	12.3 (7.7)	12.7 (7.9)	12.3 (7.7)	12.8 (8.0)	12.7 (7.9)
	3	16.7 (10.4)	17.3 (10.8)	16.8 (10.4)	17.4 (10.8)	18.3 (11.4)
	4	23.9 (14.9)	24.8 (15.4)	24.0 (14.9)	24.9 (15.5)	26.2 (16.3)

 **Power take-off at 750/1000 rev/min, with engine at 2380 rev/min.**

RANGE	GEAR	REAR TYRES km/h (mph)				
		TD 60D 14.9-28	TD 70D 14.9-30	TD 80D 16.9-30	TD 90D 18.4-30	TD 95D 18.4.34
		750/1000 rev/min				
I	1	1.6 (1.0)	1.6 (1.0)	1.6 (1.0)	1.6 (1.0)	1.7 (1.1)
	2	2.4 (1.5)	2.5 (1.6)	2.4 (1.5)	2.5 (1.6)	2.5 (1.6)
	3	3.3 (2.1)	3.4 (2.1)	3.3 (2.1)	3.4 (2.1)	3.6 (2.2)
	4	4.7 (2.9)	4.9 (3.1)	4.7 (2.9)	4.9 (3.1)	5.2 (3.2)
II	1	3.7 (2.3)	3.8 (2.4)	3.7 (2.3)	3.8 (2.4)	4.0 (2.5)
	2	5.6 (3.5)	5.9 (3.7)	5.7 (3.5)	5.9 (3.7)	5.8 (3.6)
	3	7.7 (4.8)	8.0 (5.0)	7.7 (4.8)	8.0 (5.0)	8.4 (5.2)
	4	11.0 (6.8)	11.4 (7.1)	11.0 (6.8)	11.4 (7.1)	12.0 (7.5)
III	1	8.6 (5.3)	8.9 (5.5)	8.6 (5.3)	9.0 (5.6)	9.4 (5.8)
	2	13.3 (8.3)	13.8 (8.6)	13.3 (8.3)	13.8 (8.6)	13.7 (8.5)
	3	18.0 (11.2)	18.7 (11.6)	18.1 (11.3)	18.8 (11.7)	19.8 (12.3)
	4	25.8 (16.0)	26.8 (16.7)	26.0 (16.2)	26.9 (16.7)	28.3 (17.6)

TD 60D, TD 70D, TD 80D, TD 90D and TD 95D MODELS

TRACTOR SPEED IN km/h WITH POWER TAKE-OFF RUNNING AT STANDARD SPEEDS

Transmission and range gear 40 km/h (25 mph) version in forward gear
(12 forward gears + 12 reverse gears - synchro command)

 **Power take-off at 540 rev/min, with engine at 2199 rev/min.**

RANGE	GEAR	REAR TYRES km/h (mph)				
		TD 60D 14.9-28	TD 70D 14.9-30	TD 80D 16.9-30	TD 90D 18.4-30	TD 95D 18.4.34
		540 rev/min				
I	1	1.8 (1.1)	1.8 (1.1)	1.8 (1.1)	1.8 (1.1)	1.9 (1.2)
	2	2.7 (1.7)	2.8 (1.7)	2.7 (1.7)	2.8 (1.7)	2.8 (1.7)
	3	3.7 (2.3)	3.9 (2.4)	3.7 (2.3)	3.9 (2.4)	4.1 (2.6)
	4	5.3 (3.3)	5.5 (3.4)	5.3 (3.3)	5.5 (3.4)	5.8 (3.6)
II	1	4.1 (2.6)	4.3 (2.7)	4.2 (2.6)	4.3 (2.7)	4.5 (2.8)
	2	6.4 (4.0)	6.6 (4.1)	6.4 (4.0)	6.6 (4.1)	6.6 (4.1)
	3	8.7 (5.4)	9.0 (5.6)	8.7 (5.4)	9.0 (5.6)	9.5 (5.9)
	4	12.4 (7.7)	12.9 (8.0)	12.5 (7.8)	12.9 (8.0)	13.6 (8.5)
III	1	9.7 (6.0)	10.1 (6.3)	9.8 (6.1)	10.1 (6.3)	10.7 (6.7)
	2	15.0 (9.3)	15.6 (9.7)	15.1 (9.4)	15.6 (9.7)	15.5 (9.6)
	3	20.4 (12.7)	21.2 (13.2)	20.5 (12.7)	21.2 (13.2)	22.4 (13.9)
	4	29.2 (18.1)	30.3 (18.8)	29.3 (18.2)	30.4 (18.9)	32.0 (19.9)

 **Power take-off at 750/1000 rev/min, with engine at 2380 rev/min.**

RANGE	GEAR	REAR TYRES km/h (mph)				
		TD 60D 14.9-28	TD 70D 14.9-30	TD 80D 16.9-30	TD 90D 18.4-30	TD 95D 18.4.34
		750/1000 rev/min				
I	1	1.9 (1.2)	2.0 (1.2)	1.9 (1.2)	2.0 (1.2)	2.1 (1.3)
	2	2.9 (1.8)	3.1 (1.9)	3.0 (1.9)	3.1 (1.9)	3.1 (1.9)
	3	4.0 (2.5)	4.2 (2.6)	4.0 (2.5)	4.2 (2.6)	4.4 (2.7)
	4	5.7 (3.5)	6.0 (3.7)	5.8 (3.6)	6.0 (3.7)	6.3 (3.9)
II	1	4.5 (2.8)	4.6 (2.9)	4.5 (2.8)	4.7 (2.9)	4.9 (3.0)
	2	6.9 (4.3)	7.2 (4.5)	6.9 (4.3)	7.2 (4.5)	7.1 (4.4)
	3	9.4 (5.8)	9.7 (6.0)	9.4 (5.8)	9.7 (6.0)	10.3 (6.4)
	4	13.4 (8.3)	13.9 (8.6)	13.5 (8.4)	14.0 (8.7)	14.7 (9.1)
III	1	10.5 (6.5)	10.9 (6.8)	10.6 (6.6)	11.0 (6.8)	11.5 (7.1)
	2	16.2 (10.1)	16.8 (10.4)	16.3 (10.1)	16.9 (10.5)	16.8 (10.4)
	3	22.0 (13.7)	22.9 (14.2)	22.1 (13.7)	22.9 (14.2)	24.2 (15.0)
	4	31.6 (19.6)	32.8 (20.4)	31.7 (19.7)	32.9 (20.4)	34.6 (21.5)

TD 60D, TD 70D, TD 80D, TD 90D and TD 95D MODELS TRACTOR SPEED IN km/h WITH POWER TAKE-OFF RUNNING AT STANDARD SPEEDS

Creeper transmission 30 km/h (19 mph) version
(20 forward gears + 12 reverse gears - Synchro Shuttle)

 **Forward gears**

RANGE	GEAR	REAR TYRES km/h (mph)				
		TD 60D 14.9-28	TD 70D 14.9-30	TD 80D 16.9-30	TD 90D 18.4-30	TD 95D 18.4-34
		540 rev/min				
	1	0.3 (0.2)	0.3 (0.2)	0.3 (0.2)	0.3 (0.2)	0.3 (0.2)
	2	0.4 (0.2)	0.4 (0.2)	0.4 (0.2)	0.4 (0.2)	0.4 (0.2)
	3	0.5 (0.3)	0.6 (0.4)	0.6 (0.4)	0.6 (0.4)	0.6 (0.4)
	4	0.8 (0.5)	0.8 (0.5)	0.8 (0.5)	0.8 (0.5)	0.8 (0.5)
	1	0.6 (0.4)	0.6 (0.4)	0.6 (0.4)	0.6 (0.4)	0.7 (0.4)
	2	0.9 (0.6)	1.0 (0.6)	0.9 (0.6)	1.0 (0.6)	1.0 (0.6)
	3	1.3 (0.8)	1.3 (0.8)	1.3 (0.8)	1.3 (0.8)	1.4 (0.9)
	4	1.8 (1.1)	1.9 (1.2)	1.8 (1.1)	1.9 (1.2)	2.0 (1.2)
I	1	1.4 (0.9)	1.5 (0.9)	1.5 (0.9)	1.5 (0.9)	1.6 (1.0)
	2	2.2 (1.4)	2.3 (1.4)	2.2 (1.4)	2.3 (1.4)	2.3 (1.4)
	3	3.0 (1.9)	3.2 (2.0)	3.0 (1.9)	3.2 (2.0)	3.3 (2.1)
	4	4.3 (2.7)	4.5 (2.8)	4.4 (2.7)	4.5 (2.8)	4.8 (3.0)
II	1	3.4 (2.1)	3.5 (2.2)	3.4 (2.1)	3.5 (2.2)	3.7 (2.3)
	2	5.2 (3.2)	5.4 (3.4)	5.2 (3.2)	5.4 (3.4)	5.4 (3.4)
	3	7.1 (4.4)	7.4 (4.6)	7.1 (4.4)	7.4 (4.6)	7.8 (4.9)
	4	10.1 (6.3)	10.5 (6.5)	10.2 (6.3)	10.6 (6.6)	11.1 (6.9)
III	1	8.0 (5.0)	8.3 (5.2)	8.0 (5.0)	8.3 (5.2)	8.7 (5.4)
	2	12.3 (7.6)	12.7 (7.9)	12.3 (7.6)	12.8 (8.0)	12.7 (7.9)
	3	16.7 (10.4)	17.3 (10.8)	16.8 (10.4)	17.4 (10.8)	18.3 (11.4)
	4	23.0 (14.3)	24.8 (15.4)	24.0 (14.9)	24.9 (15.5)	26.2 (16.3)

 **Reverse gears**

RANGE	GEAR	REAR TYRES km/h (mph)				
		TD 60D 14.9-28	TD 70D 14.9-30	TD 80D 16.9-30	TD 90D 18.4-30	TD 95D 18.4-34
		540 rev/min				
I	1	1.4 (0.9)	1.4 (0.9)	1.4 (0.9)	1.4 (0.9)	1.5 (0.9)
	2	2.1 (1.3)	2.2 (1.4)	2.1 (1.3)	2.2 (1.4)	2.2 (1.4)
	3	2.9 (1.8)	3.0 (1.9)	2.9 (1.8)	3.0 (1.9)	3.2 (2.0)
	4	4.1 (2.5)	4.3 (2.7)	4.1 (2.5)	4.3 (2.7)	4.5 (2.8)
II	1	3.2 (2.0)	3.3 (2.1)	3.2 (2.0)	3.3 (2.1)	3.5 (2.2)
	2	4.9 (3.0)	5.1 (3.2)	5.0 (3.1)	5.1 (3.2)	5.1 (3.2)
	3	6.7 (4.2)	7.0 (4.4)	6.8 (4.2)	7.0 (4.4)	7.4 (4.6)
	4	9.6 (6.0)	10.0 (6.2)	9.7 (6.0)	10.0 (6.2)	10.6 (6.6)
III	1	7.6 (4.7)	7.9 (4.9)	7.6 (4.7)	7.9 (4.9)	8.3 (5.2)
	2	11.6 (7.2)	12.1 (7.5)	11.7 (7.3)	12.1 (7.5)	12.1 (7.5)
	3	15.8 (9.8)	16.5 (10.3)	15.9 (9.9)	16.5 (10.3)	17.4 (10.8)
	4	22.7 (14.1)	23.6 (14.7)	22.8 (14.2)	23.6 (14.7)	24.9 (15.5)

TD 60D, TD 70D, TD 80D, TD 90D and TD 95D MODELS TRACTOR SPEED IN km/h WITH POWER TAKE-OFF RUNNING AT STANDARD SPEEDS (continued)

Creeper transmission 30 km/h (19 mph) version
(20 forward gears + 12 reverse gears - Synchro Shuttle)

 **Forward gears**

RANGE	GEAR	REAR TYRES km/h (mph)				
		TD 60D 14.9-28	TD 70D 14.9-30	TD 80D 16.9-30	TD 90D 18.4-30	TD 95D 18.4-34
		750/1000 rev/min				
	1	0.3 (0.2)	0.3 (0.2)	0.3 (0.2)	0.3 (0.2)	0.3 (0.2)
	2	0.4 (0.2)	0.5 (0.3)	0.4 (0.2)	0.5 (0.3)	0.5 (0.3)
	3	0.6 (0.4)	0.6 (0.4)	0.6 (0.4)	0.6 (0.4)	0.7 (0.4)
	4	0.9 (0.6)	0.9 (0.6)	0.9 (0.6)	0.9 (0.6)	0.9 (0.6)
	1	0.7 (0.4)	0.7 (0.4)	0.7 (0.4)	0.7 (0.4)	0.7 (0.4)
	2	1.0 (0.6)	1.1 (0.7)	1.0 (0.6)	1.1 (0.7)	1.1 (0.7)
	3	1.4 (0.9)	1.4 (0.9)	1.4 (0.9)	1.4 (0.9)	1.5 (0.9)
	4	2.0 (1.2)	2.1 (1.3)	2.0 (1.2)	2.1 (1.3)	2.2 (1.4)
I	1	1.6 (1.0)	1.6 (1.0)	1.6 (1.0)	1.6 (1.0)	1.7 (1.1)
	2	2.4 (1.5)	2.5 (1.6)	2.4 (1.5)	2.5 (1.6)	2.5 (1.6)
	3	3.3 (2.1)	3.4 (2.1)	3.3 (2.1)	3.4 (2.1)	3.6 (2.2)
	4	4.7 (2.9)	4.9 (3.0)	4.7 (2.9)	4.9 (3.0)	5.2 (3.2)
II	1	3.7 (2.3)	3.8 (2.4)	3.7 (2.3)	3.8 (2.4)	4.0 (2.5)
	2	5.6 (3.5)	5.9 (3.7)	5.7 (3.5)	5.9 (3.7)	5.8 (3.6)
	3	7.7 (4.8)	8.0 (5.0)	7.7 (4.8)	8.0 (5.0)	8.4 (5.2)
	4	11.0 (6.8)	11.4 (7.1)	11.0 (6.8)	11.4 (7.1)	12.0 (7.5)
III	1	8.6 (5.3)	8.9 (5.5)	8.6 (5.3)	9.0 (5.6)	9.4 (5.8)
	2	13.3 (8.3)	13.8 (8.6)	13.3 (8.3)	13.8 (8.6)	13.7 (8.5)
	3	18.0 (11.2)	18.7 (11.6)	18.1 (11.2)	18.8 (11.7)	19.8 (12.3)
	4	25.8 (16.0)	26.8 (16.7)	26.0 (16.2)	26.9 (16.7)	28.3 (17.6)

 **Reverse gears**

RANGE	GEAR	REAR TYRES km/h (mph)				
		TD 60D 14.9-28	TD 70D 14.9-30	TD 80D 16.9-30	TD 90D 18.4-30	TD 95D 18.4-34
		750/1000 rev/min				
I	1	1.5 (0.9)	1.5 (0.9)	1.5 (0.9)	1.5 (0.9)	1.6 (1.0)
	2	2.3 (1.4)	2.4 (1.5)	2.3 (1.4)	2.4 (1.5)	2.4 (1.5)
	3	3.1 (1.9)	3.2 (2.0)	3.1 (1.9)	3.2 (2.0)	3.4 (2.1)
	4	4.5 (2.8)	4.6 (2.9)	4.5 (2.8)	4.6 (2.9)	4.9 (3.0)
II	1	3.5 (2.2)	3.6 (2.2)	3.5 (5.4)	3.6 (2.2)	3.8 (6.1)
	2	5.4 (3.4)	5.6 (3.5)	5.4 (3.4)	5.6 (3.5)	5.5 (3.4)
	3	7.3 (4.5)	7.6 (4.7)	7.3 (4.5)	7.6 (4.7)	8.0 (5.0)
	4	10.4 (6.5)	10.8 (6.7)	10.5 (6.5)	10.9 (6.8)	11.4 (7.1)
III	1	8.2 (5.1)	8.5 (5.3)	8.2 (5.1)	8.5 (5.3)	9.0 (5.6)
	2	12.6 (7.8)	13.1 (8.1)	12.7 (7.9)	13.1 (8.1)	13.0 (8.1)
	3	17.1 (10.6)	17.8 (11.1)	17.2 (10.7)	17.8 (11.1)	18.8 (11.7)
	4	24.5 (15.2)	25.5 (15.8)	24.7 (15.3)	25.5 (15.8)	26.9 (16.7)

TD 60D, TD 70D, TD 80D, TD 90D and TD 95D MODELS TRACTOR SPEED IN km/h WITH POWER TAKE-OFF RUNNING AT STANDARD SPEEDS

Creeper transmission 40 km/h (25 mph) version (20 forward gears + 12 reverse gears - Synchro Shuttle)

 **Forward gears**

RANGE	GEAR	REAR TYRES km/h (mph)				
		TD 60D 14.9-28	TD 70D 14.9-30	TD 80D 16.9-30	TD 90D 18.4-30	TD 95D 18.4-34
		540 rev/min				
	1	0.3 (0.2)	0.3 (0.2)	0.3 (0.2)	0.3 (0.2)	0.4 (0.2)
	2	0.5 (0.3)	0.5 (0.3)	0.5 (0.3)	0.5 (0.3)	0.5 (0.3)
	3	0.7 (0.4)	0.7 (0.4)	0.7 (0.4)	0.7 (0.4)	0.7 (0.4)
	4	1.0 (0.6)	1.0 (0.6)	1.0 (0.6)	1.0 (0.6)	1.1 (0.7)
	1	0.7 (0.4)	0.8 (0.5)	0.8 (0.5)	0.8 (0.5)	0.8 (0.5)
	2	1.2 (0.7)	1.2 (0.7)	1.2 (0.7)	1.2 (0.7)	1.2 (0.7)
	3	1.6 (1.0)	1.6 (1.0)	1.6 (1.0)	1.6 (1.0)	1.7 (1.1)
	4	2.2 (1.4)	2.3 (1.4)	2.3 (1.4)	2.3 (1.4)	2.5 (1.6)
I	1	1.8 (1.1)	1.8 (1.1)	1.8 (1.1)	1.8 (1.1)	1.9 (1.2)
	2	2.7 (1.7)	2.8 (1.7)	2.7 (1.7)	2.8 (1.7)	2.8 (1.7)
	3	3.7 (2.3)	3.9 (2.4)	3.7 (2.3)	3.9 (2.4)	4.1 (2.6)
	4	5.3 (3.3)	5.5 (3.4)	5.3 (3.3)	5.5 (3.4)	5.8 (3.6)
II	1	4.1 (2.5)	4.3 (2.7)	4.2 (2.6)	4.3 (2.7)	4.5 (2.8)
	2	6.4 (4.0)	6.6 (4.1)	6.4 (4.0)	6.6 (4.1)	6.6 (4.1)
	3	8.7 (5.4)	9.0 (5.6)	8.7 (5.4)	9.0 (5.6)	9.5 (5.9)
	4	12.4 (7.7)	12.9 (8.0)	12.5 (7.8)	12.9 (8.0)	13.6 (8.5)
III	1	9.7 (6.0)	10.1 (6.3)	9.8 (6.1)	10.1 (6.3)	10.7 (6.7)
	2	15.0 (9.3)	15.6 (9.7)	15.1 (9.4)	15.6 (9.7)	15.5 (9.6)
	3	20.4 (12.7)	21.2 (13.2)	20.5 (12.7)	21.2 (13.2)	22.4 (13.9)
	4	29.2 (18.1)	30.3 (18.8)	29.3 (18.2)	30.4 (18.9)	32.0 (19.9)

 **Reverse gears**

RANGE	GEAR	REAR TYRES km/h (mph)				
		TD 60D 14.9-28	TD 70D 14.9-30	TD 80D 16.9-30	TD 90D 18.4-30	TD 95D 18.4-34
		540 rev/min				
I	1	1.7 (1.1)	1.7 (1.1)	1.7 (1.1)	1.7 (1.1)	1.8 (1.1)
	2	2.6 (1.6)	2.7 (1.7)	2.6 (1.6)	2.7 (1.7)	2.7 (1.7)
	3	3.5 (2.2)	3.7 (2.3)	3.5 (2.2)	3.7 (2.3)	3.9 (2.4)
	4	5.0 (3.1)	5.2 (3.2)	5.1 (3.2)	5.2 (3.2)	5.5 (3.4)
II	1	3.9 (2.4)	4.1 (2.5)	3.9 (2.4)	4.1 (2.5)	4.3 (2.7)
	2	6.0 (3.7)	6.3 (3.9)	6.1 (3.8)	6.3 (3.9)	6.3 (3.9)
	3	8.2 (5.1)	8.5 (5.3)	8.3 (5.2)	8.6 (5.3)	9.0 (5.6)
	4	11.8 (7.3)	12.2 (7.6)	11.8 (7.3)	12.3 (7.6)	12.9 (8.0)
III	1	9.2 (5.7)	9.6 (6.0)	9.3 (5.8)	9.6 (6.0)	10.1 (6.3)
	2	14.2 (8.8)	14.8 (9.2)	14.3 (8.9)	14.8 (9.2)	14.7 (9.1)
	3	19.4 (12.1)	20.1 (12.5)	19.5 (12.1)	20.2 (12.6)	21.2 (13.2)
	4	27.7(17.2)	28.8 (17.9)	27.9 (17.3)	28.9 (18.0)	30.4 (18.9)

TD 60D, TD 70D, TD 80D, TD 90D and TD 95D MODELS TRACTOR SPEED IN km/h WITH POWER TAKE-OFF RUNNING AT STANDARD SPEEDS

Creeper transmission 40 km/h (25 mph) version (20 forward gears + 12 reverse gears - Synchro Shuttle)

 **Forward gears**

RANGE	GEAR	REAR TYRES km/h (mph)				
		TD 60D 14.9-28	TD 70D 14.9-30	TD 80D 16.9-30	TD 90D 18.4-30	TD 95D 18.4-34
		750/1000 rev/min				
	1	0.3 (0.2)	0.4 (0.2)	0.3 (0.2)	0.4 (0.2	0.4 (0.2)
	2	0.5 (0.3)	0.6 (0.4)	0.5 (0.3)	0.6 (0.4)	0.6 (0.4)
	3	0.7 (0.4)	0.8 (0.5)	0.7 (0.4)	0.8 (0.5)	0.8 (0.5)
	4	1.0 (0.6)	1.1 (0.7)	1.0 (0.6)	1.1 (0.7)	1.1 (0.7)
	1	0.8 (0.5)	0.8 (0.5)	0.8 (0.5)	0.8 (0.5)	0.9 (0.6)
	2	1.2 (0.7)	1.3 (0.8)	1.3 (0.8)	1.3 (0.8)	1.3 (0.8)
	3	1.7 (1.1)	1.8 (1.1)	1.7 (1.1)	1.8 (1.1)	1.9 (1.2)
	4	2.4 (1.5)	2.5 (1.6)	2.4 (1.5)	2.5 (1.6)	2.7 (1.7)
I	1	1.9 (1.2)	2.0 (1.2)	1.9 (1.2)	2.0 (1.2)	2.1 (1.3)
	2	2.9 (1.8)	3.1 (1.9)	3.0 (1.9)	3.1 (1.9)	3.1 (1.9)
	3	4.0 (2.5)	4.2 (2.6)	4.0 (2.5)	4.2 (2.6)	4.4 (2.7)
	4	5.7 (3.5)	6.0 (3.7)	5.8 (3.6)	6.0 (3.7)	6.3 (3.9)
II	1	4.5 (2.8)	4.6 (2.9)	4.5 (2.8)	4.7 (2.9)	4.9 (3.0)
	2	6.9 (4.3)	7.2 (4.5)	6.9 (4.3)	7.2 (4.5)	7.1 (4.4)
	3	9.4 (5.8)	9.7 (6.0)	9.4 (5.8)	9.7 (6.0)	10.3 (6.4)
	4	13.4 (8.3)	13.9 (8.6)	13.5 (8.4)	14.0 (8.7)	14.7 (9.1)
III	1	10.5 (6.5)	10.9 (6.8)	10.6 (6.6)	11.0 (6.8)	11.5 (7.1)
	2	16.2 (10.1)	16.8 (10.4)	16.3 (10.1)	16.9 (10.5)	16.8 (10.4)
	3	22.0 (13.7)	22.9 (14.2)	22.1 (13.7)	22.9 (14.2)	24.2 (15.0)
	4	31.6 (19.6)	32.8 (20.4)	31.7 (19.7)	32.9 (34.6)	34.6 (21.5)

 **Reverse gears**

RANGE	GEAR	REAR TYRES km/h (mph)				
		TD 60D 14.9-28	TD 70D 14.9-30	TD 80D 16.9-30	TD 90D 18.4-30	TD 95D 18.4-34
		750/1000 rev/min				
I	1	1.8 (1.1)	1.9 (1.2)	1.8 (1.1)	1.9 (1.2)	2.0 (1.2)
	2	2.8 (1.7)	2.9 (1.8)	2.8 (1.7)	2.9 (1.8)	2.9 (1.8)
	3	3.8 (2.4)	4.0 (2.5)	3.8 (2.4)	4.0 (2.5)	4.2 (2.6)
	4	5.5 (3.4)	5.7 (3.5)	5.5 (3.4)	5.7 (3.5)	6.0 (3.7)
II	1	4.2 (2.6)	4.4 (2.7)	4.3 (2.7)	4.4 (2.7)	4.7 (2.9)
	2	6.5 (4.0)	6.8 (4.2)	6.6 (4.1)	6.8 (4.2)	6.8 (4.2)
	3	8.9 (5.5)	9.2 (5.7)	8.9 (5.5)	9.3 (5.8)	9.8 (6.1)
	4	12.7 (7.9)	13.2 (8.2)	12.8 (8.0)	13.3 (8.3)	14.0 (8.7)
III	1	10.0 (6.2)	10.4 (6.5)	10.0 (6.2)	10.4 (6.5)	11.0 (6.8)
	2	15.4 (9.6)	16.0 (9.9)	15.5 (9.6)	16.0 (9.9)	15.9 (9.9)
	3	20.9 (13.0)	21.8 (13.6)	21.0 (13.0)	21.8 (13.6)	23.0 (14.3)
	4	30.0 (18.6)	31.2 (19.4)	30.1 (18.7)	31.2 (19.4)	32.9 (20.4)

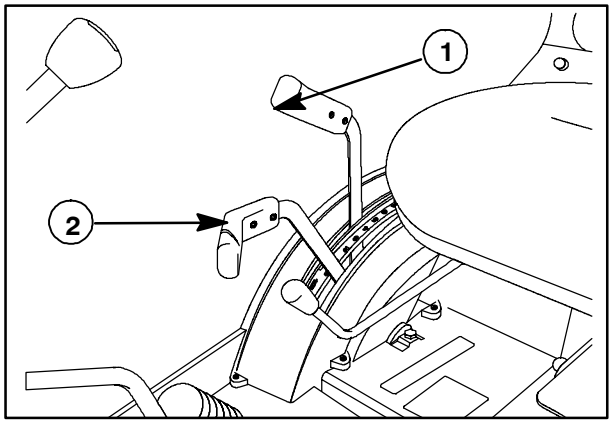
HYDRAULIC LIFT

The hydraulic lift circuit uses transmission lubrication oil which is supplied by a gear pump driven by the engine shaft by means of the engine timing gears.

This lift, which can sense the forces on the lower link arms via a torsion bar, enables the following operations to be performed:

- position control;
- draft control;
- float;
- mixed control.

With the combined use of levers (1) and (2) fig. 14, the user can select and operate the most suitable mode for the implement and conditions in hand.



14

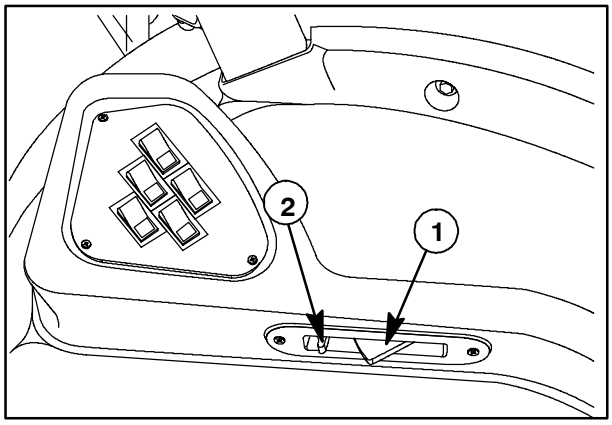
Lift-O-Matic™ Control switch for fully raising and lowering the lift arms - Fig. 15- 16

1. Down switch

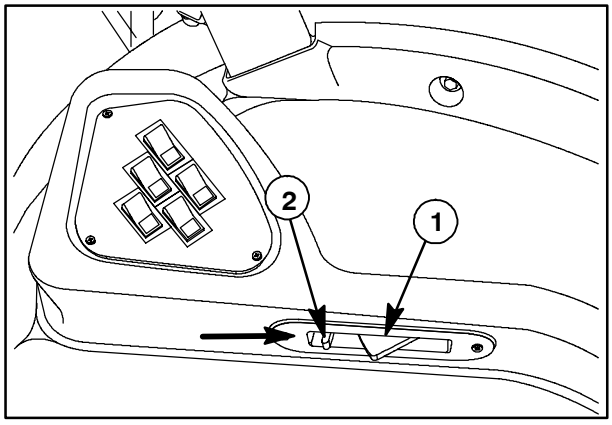
2. Up switch

To lower the implement, press switch (1) fig. 15 fully down and the link arms will descend to the limit previously set using the position control lever (1) fig. 14.

To raise the implement, move the latch (2) fig. 16 back, in the direction of the arrow, to release the switch (1) from its catch. The link arms will raise to full height.



15



16

⚠ CAUTION ⚠

When working with mounted implements which are connected to the power take-off, extend the lift rods to their maximum length to avoid damaging the PTO shaft when lifting using the Lift-O-Matic™.

EXTERNAL LIFT LEVER - Fig. 17

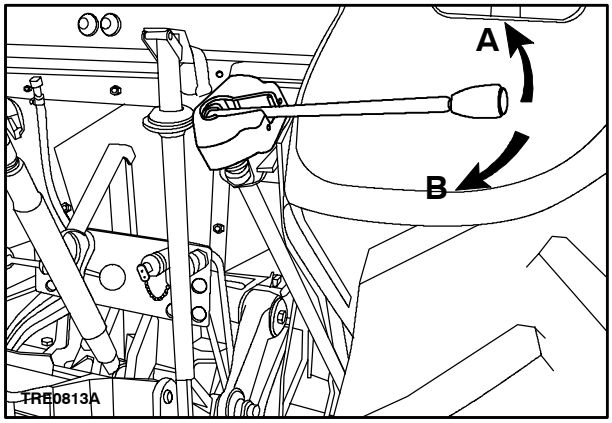
For operations controlled from ground level use the external control lever (**1**) fig. 17, lifting the lever from its housing.

- move the lever in the direction of arrow **A** to lower the link arms;
- move in direction fo arrow **B** to raise the link arms.

CAUTION: *before leaving the tractor seat to operate the external control lever (**1**), check that:*

- *the parking brake is applied;*
- *the gear shift and range levers are in neutral;*
- *the PTO is disengaged;*
- *the engine is running at idle speed;*
- *the draft control lever (2) fig. 18 is fully forward.*

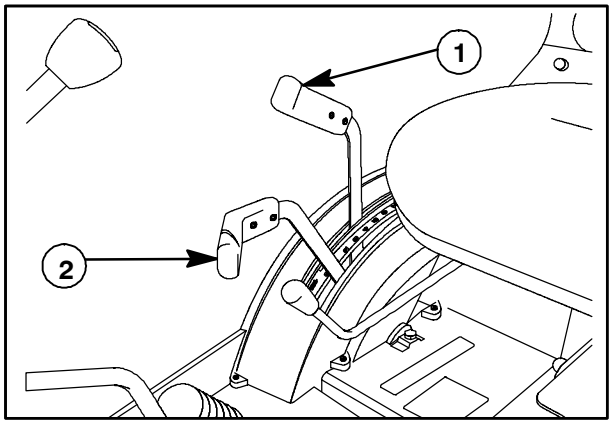
DANGER**:** *when using lever **1**, ensure no-one is within the operating range of the implement connected to the lift. Never stand between the implement and the rear of the tractor.*



17

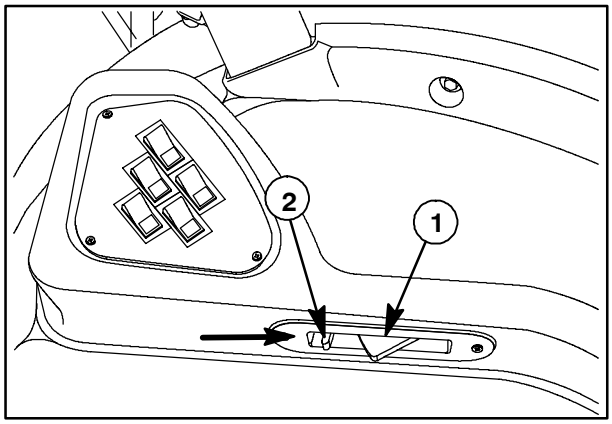
POSITION CONTROL

- Move draft control lever (2) fig. 18 fully forward.
- Set the position of the implement, either in or above the ground, by moving the position control lever (1) fig. 18 forward to lower and rearwards to raise. The movement of the implement will be proportional to the movement of the lever.



18

- Press latch (2) fig. 19 in the direction of the arrow to raise the implement at the headland. Fully press switch (1) fig. 19 on the Lift-O-Matic™, to lower the implement, when required, without having to use the lift control lever.

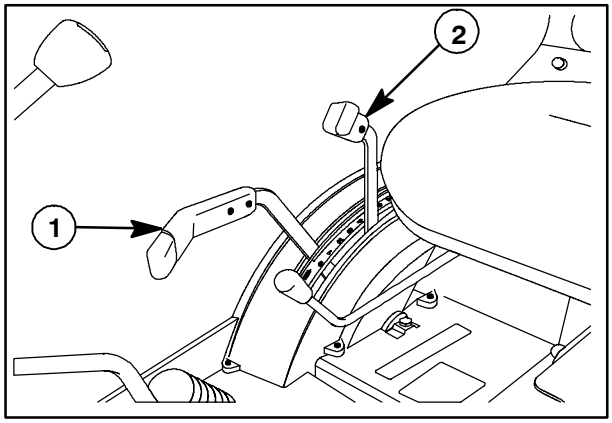


19

DRAFT CONTROL

- Move position control lever (1) fig. 20 fully forward.

- Set the desired implement depth in the ground by gradually moving the draft control lever (2) fig. 20 forward. Forward movement of the lever will increase implement depth and rearward movement will reduce the depth. Changes in draft loading are sensed through the lower link arms. The hydraulic system responds by raising or lowering the implement to restore the original draft setting.

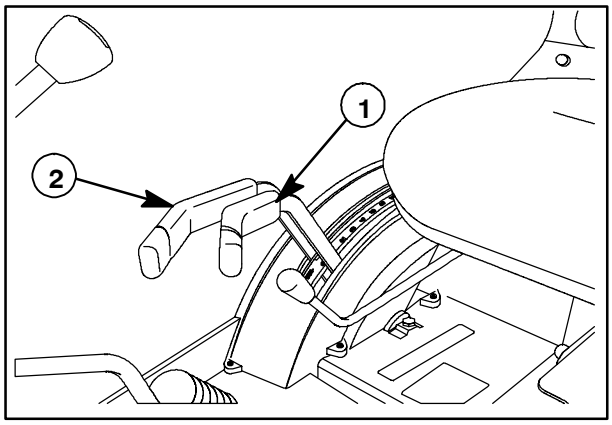


20

FLOAT OPERATION

- To operate the lift in float mode, i.e. to enable the link arms to float freely, move both levers (1) and (2) fig. 21 fully forward.

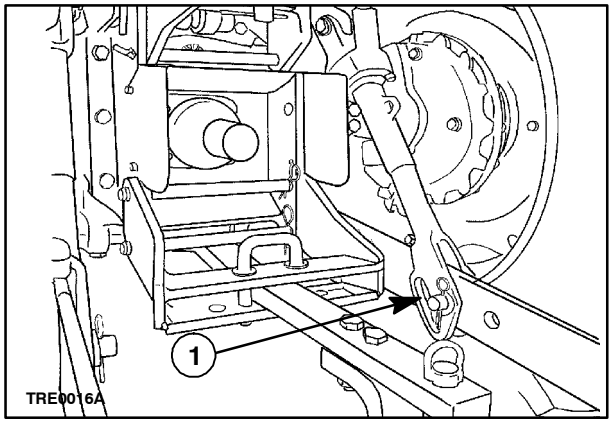
- Always use the Lift-O-Matic™ controls (1) and (2) fig. 15 to raise and lower implements at the headland.



21

⚠ WARNING ⚠

When working in float mode, with an implement connected to the power take-off and using the lift, to avoid damaging the universal joint:
The lift rods must be connected to the lower arms by inserting the pins in the slots (1) fig. 22, thereby allowing free movement of the implement.



22

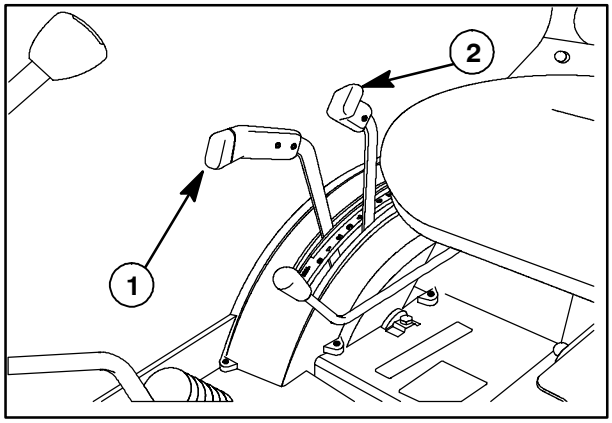
MIXED CONTROL

- Set the desired implement depth in the ground and find the working depth required, as described for draft control.

- When the implement is set at the desired depth, gradually move the position control lever (1) fig. 23, until the link arms start to raise.
  The lift operates in draft control, but at the same time prevents the implement, if soil with less resistance is encountered, from going too deep. This avoids the risk of bringing soil, which is unsuitable for crop-growing, to the surface.

- To lift and lower the implement in and out of work at the headland, always use switches (1) and (2) fig. 19.

NOTE: Do not use levers (1) and (2) fig. 21 to raise and lower implements as this will change the previously set operating conditions. Use only Lift-O-Matic™ controls (1) and (2) fig. 19 at the headland.

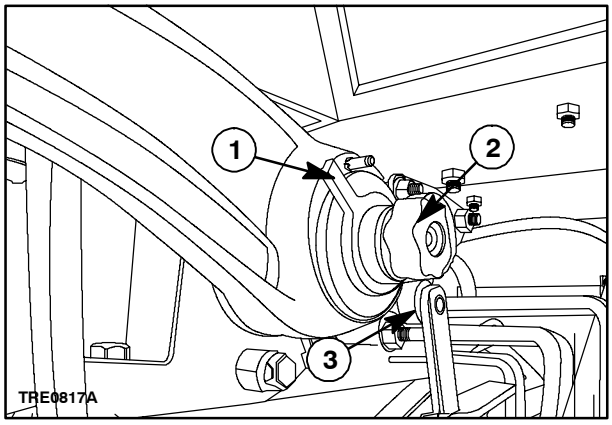


23

LINK UPPER LIMIT ADJUSTMENT- Fig. 24

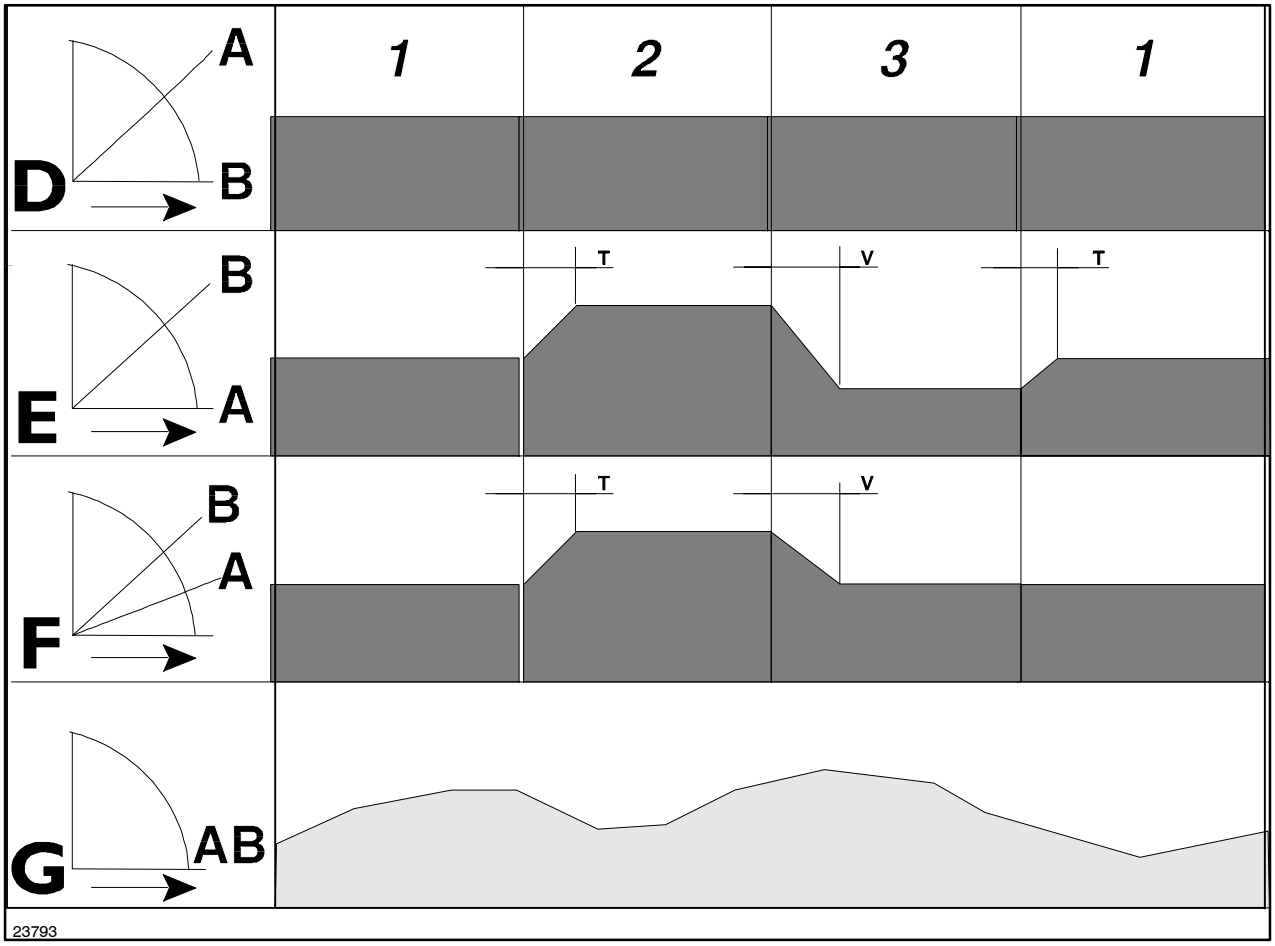
Adjust the lift link travel as follows:

1. connect the implement to the lift arm swivel bushings;
2. increase engine speed to 1200 ± 1500 rev/min;
3. press the Lift-O-Matic push button (**1**) fig. 19 to the fully lowered position;
4. move levers (**1**) and (**2**) fig. 23 fully forward;
5. using the position control lever, raise the implement to the required height;
6. switch off the engine;
7. slacken knob (**2**) fig. 24 and turn the quadrant (**1**) fig. 24 until it touches the roller (**3**) fig. 24;
8. on completion of the adjustments, lock the quadrant (**1**) by tightening the knob (**2**).



24

HYDRAULIC LIFT - CONDITIONS OF USE



25

A Position control lever.

B Draft control lever.

D Position control operation.

E Draft control operation.

F Mixed control.

G Float function.

1 Medium consistency soil.

2 Sticky soil.

3 Loose soil.

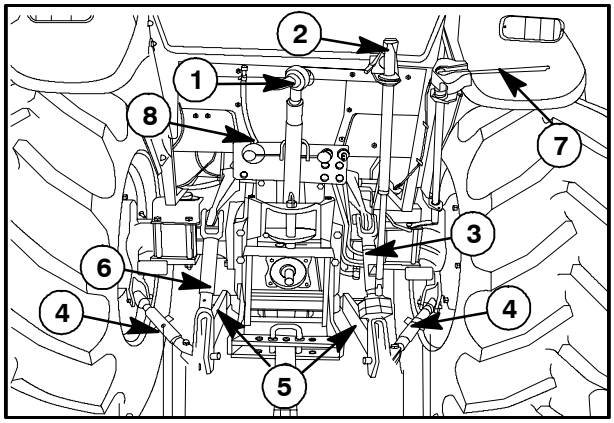
T Constant action time.

V Constant descent speed.

THREE - POINT LINKAGE

(CATEGORY II)

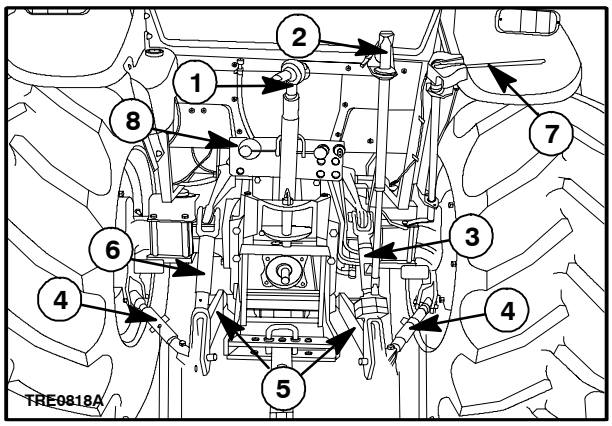
Tractors without cabs - Fig. 26



26

1. Adjustable length top link.
2. Right-hand lift rod adjuster, with return spring.
3. Right-hand lift rod.
4. Telescopic lateral stabilisers.
5. Lower links.
6. Left-hand lift rod.
7. External lift lever.
8. Top link attachment bracket.

Tractors with cabs - Fig. 27



27

1. Adjustable length top link.
2. Right-hand lift rod adjuster, with return spring.
3. Right-hand lift rod.
4. Telescopic lateral stabilisers.
5. Lower links.
6. Left-hand lift rod.
7. External lift lever.
8. Top link attachment bracket.

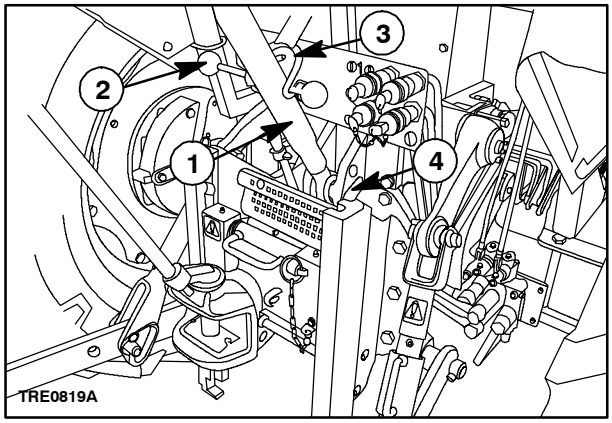
Adjustable top link - Fig. 28

The top link (1) can be connected to the attachment bracket via one of two holes. Select the most suitable hole for attaching the implement.

Use the upper hole for maximum lift capacity and the greatest implement to cab clearance. Use the lower hole for the best ground penetration.

To adjust the top link, rotate the sleeve using the tommy bar (2). Top link length must not exceed 870 mm (34.25 in).

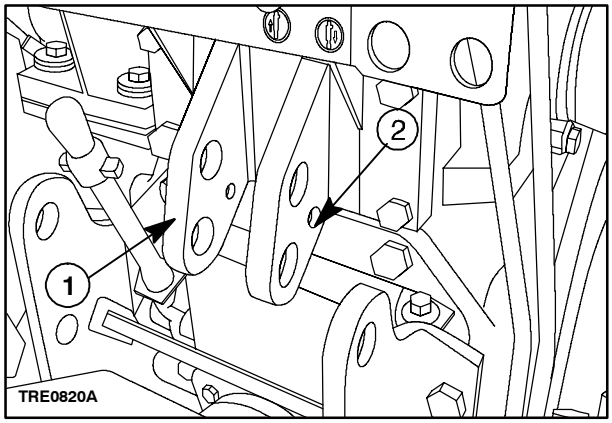
The top link can be removed or held by catch (3) when it is not in use.



28

Top link attachment bracket - Fig. 29

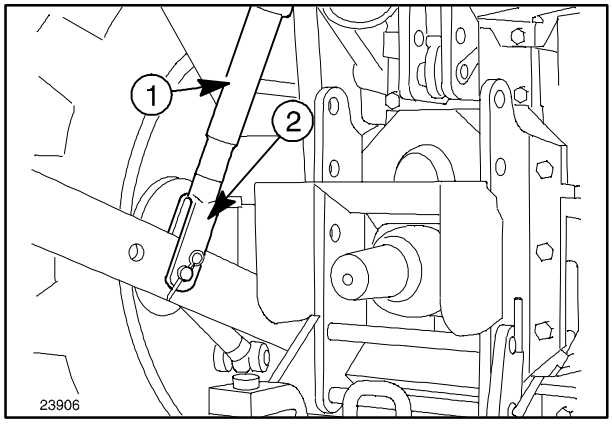
NOTE: When the top link retaining pin (4) fig. 28 is inserted, ensure that the safety tang on the end of the retaining pin is in the smaller hole (2) fig. 29.



29

Left-hand lift rod - Fig. 30

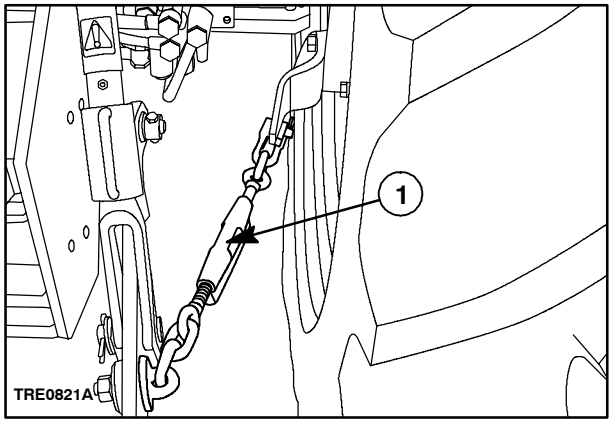
Adjust the length of lift rod (1) by tightening or unscrewing the lower end (2). Adjust the rod length as necessary so that the implement can be set in its working position parallel to the ground.



30

Chain type stabilisers - Fig. 31

Rotate the sleeve (1) to adjust the stabiliser length.

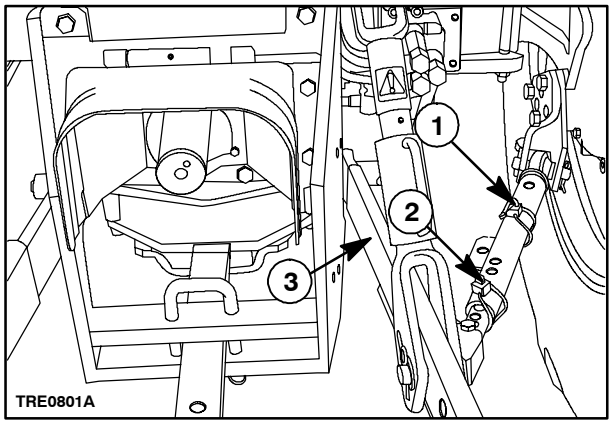


31

Telescopic stabilisers - Fig. 32- 33

To adjust the stabiliser length, proceed as follows:

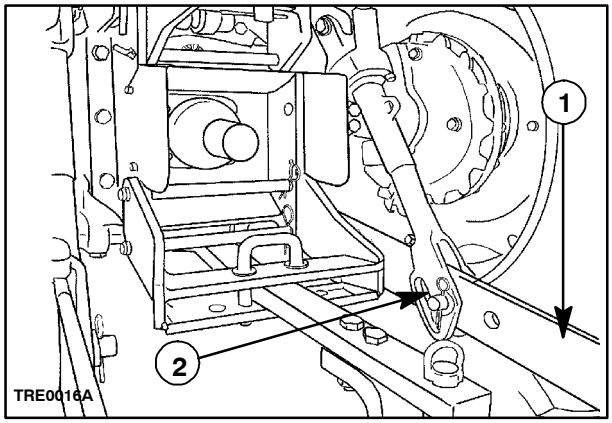
- remove pin (1) to allow free lateral swing of the arms (3);
- adjust the opening of the arms (3) by positioning the pin (2) in one of the free holes on the sleeve.



32

NOTE: *Adjust the lateral stabiliser struts, fig. 32, so that the lateral movement of the lower links (1) fig. 33, does not exceed 120 mm (4.72 in) each side.*

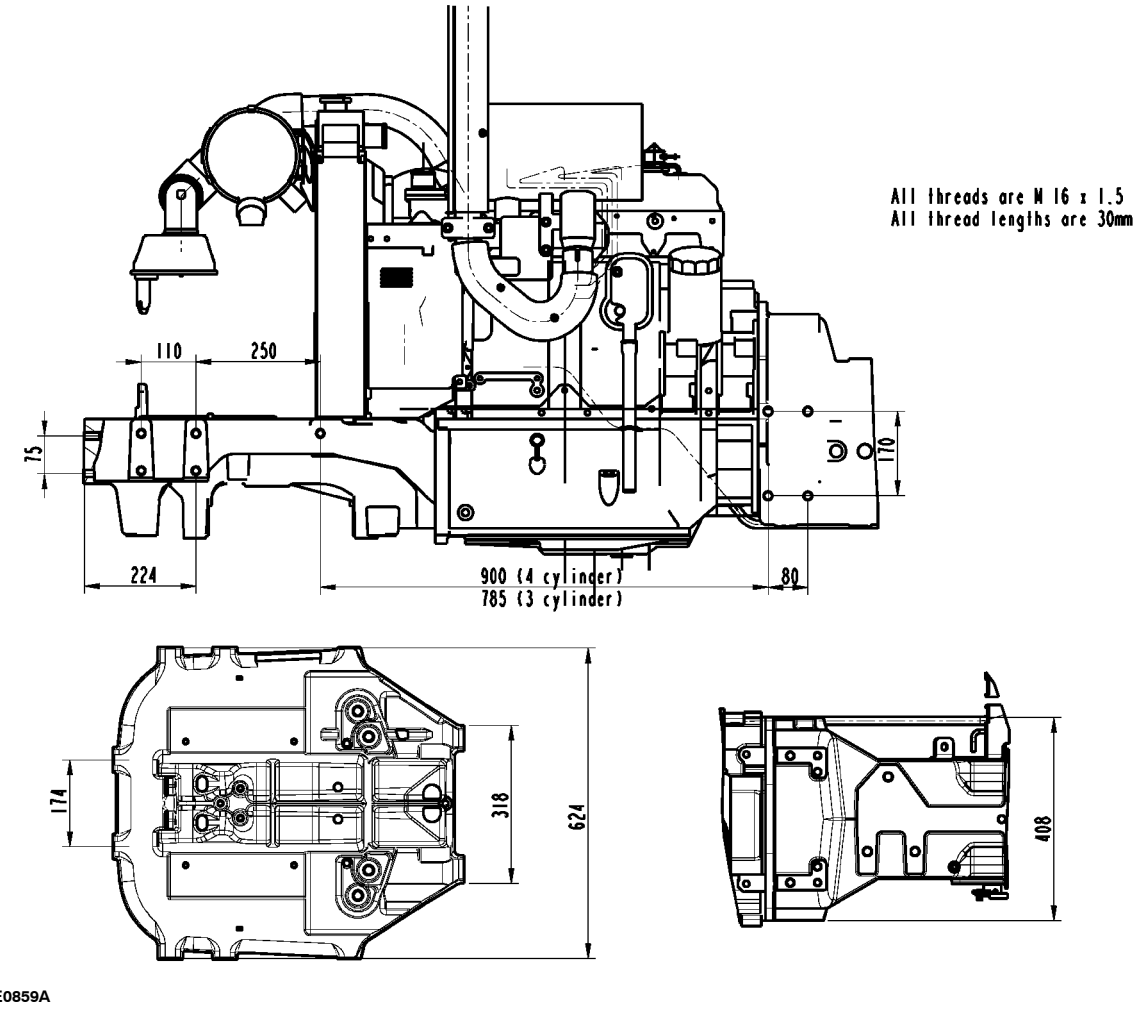
NOTE: *Limited free movement of the lower links (1) fig. 33 can be obtained by connecting the retaining pins through the slots (2) fig. 33. This is particularly useful when working with wide implements (harrows, cultivators, etc.).*



33

EQUIPMENT MOUNTING POINTS

TD 60D, TD 70D, TD 80D and TD 90D Models



34

Both sides of the tractor are equipped with threaded holes for connecting implements and auxiliary equipment.

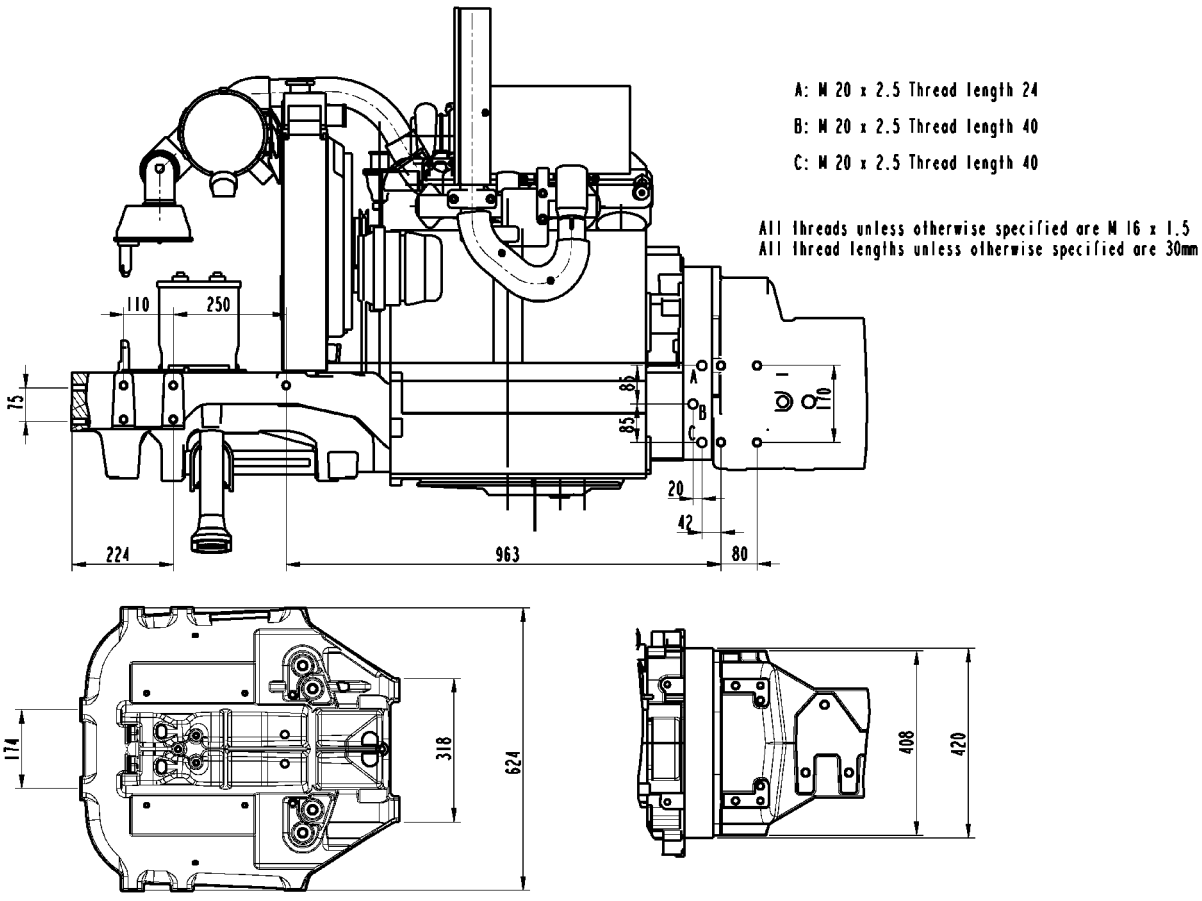
The figure shows the free fixing holes on the left-hand side of the tractor, which are identical and symmetrical to the fixing holes on the right-hand side.

NOTE: *Use exclusively the holes specified in fig. 34 when mounting auxiliary equipment. .*

The use of different holes for auxiliary applications automatically exonerates New Holland from all liability in relation to damage vehicle or injury to persons, resulting from failure to observe the relative regulations.

EQUIPMENT MOUNTING POINTS

TD 95D Model



35

Both sides of the tractor are equipped with threaded holes for connecting implements and auxiliary equipment.

The figure shows the free fixing holes on the left-hand side of the tractor, which are identical and symmetrical to the fixing holes on the right-hand side.

NOTE: *Use exclusively the holes specified in fig. 35 when mounting auxiliary equipment. .*

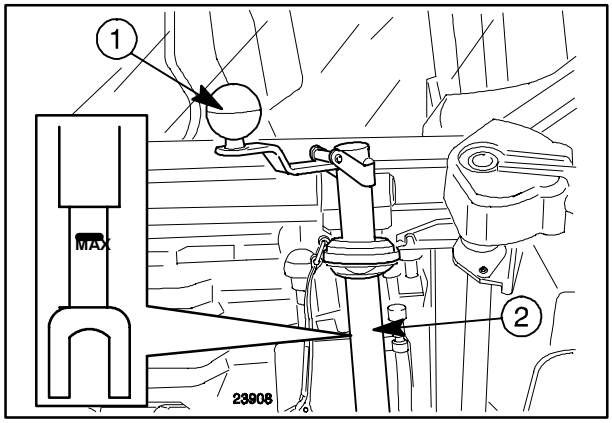
The use of different holes for auxiliary applications automatically exonerates New Holland from all liability in relation to damage vehicle or injury to persons, resulting from failure to observe the relative regulations.

Right-hand vertical lift rod adjustment (on-board adjustment) - Fig. 36

The right-hand vertical lift rod (2) can be adjusted using knob (1) fig. 36 which can also be operated from the driving seat.

⚠ WARNING ⚠

When extending the length of the right hand lift rod do not increase length beyond the MAX mark.
The weight of the implement could forcibly pull the sleeve (2) fig. 36 from the rod.
The length limit is shown by the **MAX** mark that corresponds with the maximum extension point on the rod.

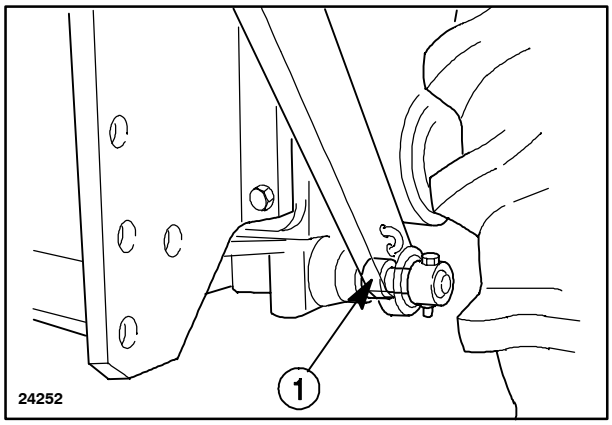


36

LOWER LINK ATTACHMENT

For light work - Fig. 37

When operating the tractor in draft or mixed control, install the lower links (5) figs. 26 and 27 with the spacers (1) fig. 37 fitted to the inner face of the lower links. This will provide greater lift sensitivity when working with light equipment or light draft loads.



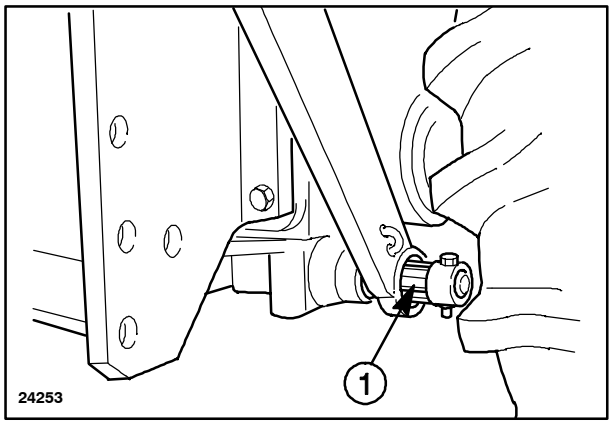
37

For normal and heavy work - Fig. 38

When operating the tractor in draft or mixed control, fit the spacers (1) fig. 38 to the outer face of the lower links for normal or heavy work.

This position, which reduces lift sensitivity, is recommended for medium to heavy implements or draft loads.

The figures illustrate the most suitable positions for the above operations.



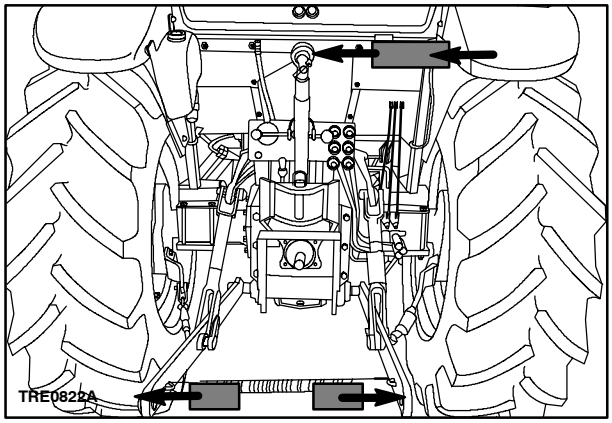
38

Conversion Category I to Category II - Fig. 39

To allow both Cat I and Cat II categories equipment to be used, the three-point linkage has:

- one 7.4 inches (19 cm) inside diameter bushing (**1**) for Cat I implements, to be inserted in the spherical bushing at the end of the top link;
- a series of 8.6 inches (22 cm) inside diameter bushings (**2**) for Cat I implements, to be inserted in the spherical bushings at the ends of the lower lift arms.

For Cat II equipment given values are namely 10 inches (25.4 cm) and 11 inches (28 cm) approximately.



39

REMOTE CONTROL VALVES

QUICK-FIT COUPLERS - Fig. 40

One, two or three control valves (which use the same oil circuit as the hydraulic lift), can be fitted to your tractor for remote control of single-acting and double-acting cylinders.

Each valve has two slide lock type female $^1/_2$ in. couplers which can be connected with pressurised male couplers. You can thus connect the control cylinder lines with two hands.

⚠ WARNING ⚠

The couplers have no breakaway capability with the hoses in them.

Valves and their colours are shown at Figures: 40 and 43.

Valve no:	Colour
1.	Green
2.	Blue
3.	Brown

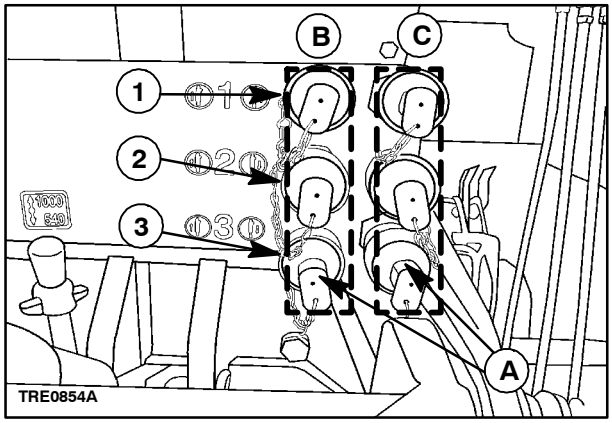
Remote outlets shown in Fig. 40 on left side (line B) is used to retract the cylinder, on right side (line A) is used to extend the cylinder.

Before fitting and releasing the hoses, first slide the collar of female couplers, but only after first:

- switching off the engine;
- lowering any implements connected to the lift;
- thoroughly cleaning the two parts to be connected.

⚠ WARNING ⚠

When not using the female couplers, protect them with plastic caps (A) fig. 40.



40

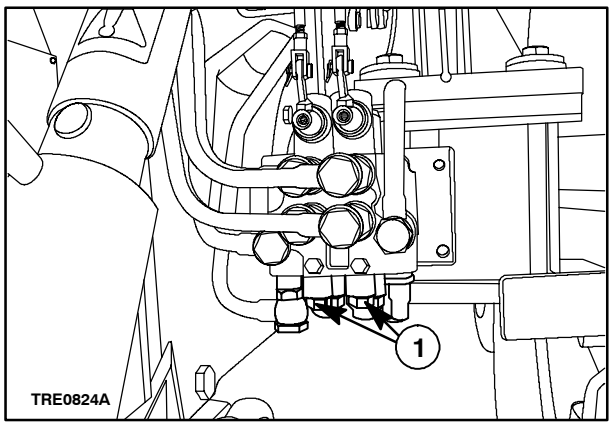
SINGLE-ACTING/DOUBLE-ACTING SWITCHING - Fig. 41

To switch the control valves to:

- **Single-acting**, slacken screw (1) fig. 41 near to the valve control lever pivot until it stops.
- **Double-acting**, fully tighten (1) fig. 41.

When using single acting, in order to accelerate the identification of the coupler to which the implement is to be connected, actuate the valve lever and observe the two lines to which the couplers are connected: the line carrying the oil should move.

For greater safety, check that the line to which the implement connected using single acting is on the valve body that connected furthest from the change over screw.



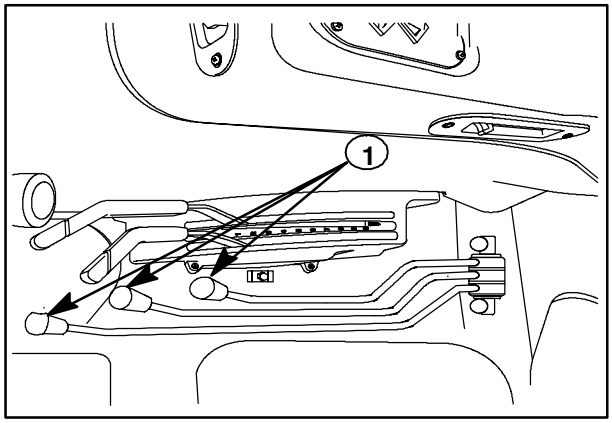
41

1, 2, 3. Valve control levers for single-acting or double-acting cylinders - Fig. 42

These levers can be used in two positions or in the central neutral position:

— forward = down;

— back = up.



42

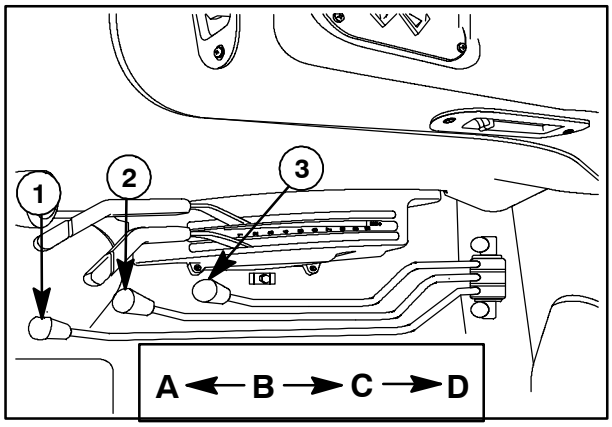
VALVES WITH FLOAT SETTING (OPTIONAL)

Your tractor can be fitted with valves with a float setting for implements requiring this function.

To select the float setting, push the relevant valve lever fully forward, past the first detent.

A mechanical detent will keep the lever engaged in the float setting.

To release the control lever from the float setting, simply pull it up into its rest position.



43

CONTROL VALVE LEVERS FOR SINGLE OR DOUBLE-ACTING CYLINDERS WITH KICK-OUT (not for all markets) - Fig. 43

All positions are available on fig. 43 for kick-out applications.

- position **A** = lever (1) back (lower implement);
- position **C** = lever (1) forward (raise implement);

Neutral position **B** and position **D** are the same as explained previously.

Valves with the kick-out feature, the lever will automatically return to neutral position (B) when the hydraulic cylinder has reached the end of its stroke.

Valves with the kick-out feature, are factory adjusted to a pressure of 120(+10/-0) bar.

When a single acting valve is used, the automatic release mechanism works only when lifting.

NOTE: A detent will hold the lever in the selected raise or lower position until the remote cylinder reaches the end of the stroke when the control lever will automatically return to neutral. Alternatively, the lever may be returned to neutral manually. The lever will not return automatically from the float position.

NOTE: When the valve is used as single acting, the automatic release mechanism works only when lifting.

CONTROL VALVE LEVERS FOR SINGLE OR DOUBLE-ACTING CYLINDERS-Fig. 43

There are four possible positions :

- position **A** = lever (1) back (raise implement);
- position **B** = neutral position;
- position **C** = lever (1) forward (lower implement);
- position **D** = lever (1) fully forward in float setting. In this position the cylinder can extend or retract freely, allowing the implement to follow the land contours (not for all markets). Lever remains in position that used.

***CAUTION**: leaks of pressurised hydraulic fluid can penetrate the skin and cause severe injuries:*

- ***Never** use your hands to locate a leak - use cardboard or paper.*
- *Switch off the engine and bleed the pressure before connecting or disconnecting pressurised lines.*
- *Tighten all connectors before starting the engine or pressurising the hydraulic system.*

If fluid penetrates the skin, seek medical assistance immediately to prevent serious injury.

WHEEL TRACK ADJUSTMENT

FRONT WHEEL TRACKS 2WD

To adjust the front wheel track, proceed as follows:

- raise the front of the tractor using a jack positioned in the middle of the axle;
- release the sliding ends after removing the retaining bolts and nuts (1) and (2) fig. 44, two on each side
  (tightening torque: 220 Nm - 22.5 kgm);
- adjust the length of the steering rods connecting the two wheels by removing the locking screws (3) fig. 46 (tightening torque: 39 Nm - 4 kgm);
- this provides seven possible wheel tracks, as illustrated in fig. 47.

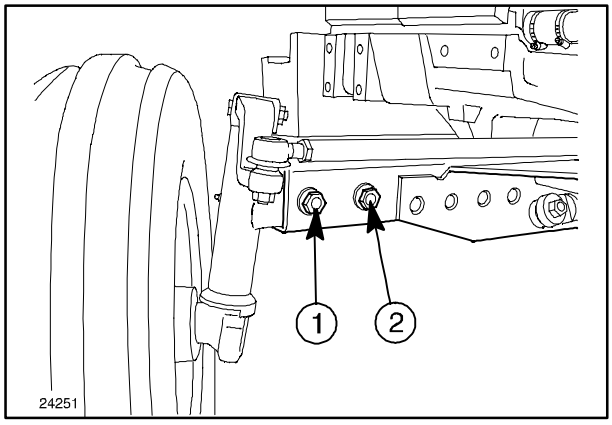
A further larger track width (maximum track) can be obtained by reversing the wheels on their hubs. Only use this maximum track where absolutely necessary.

The tightening torque of the wheel to hub locknuts is 115 Nm (11.7 kgm).

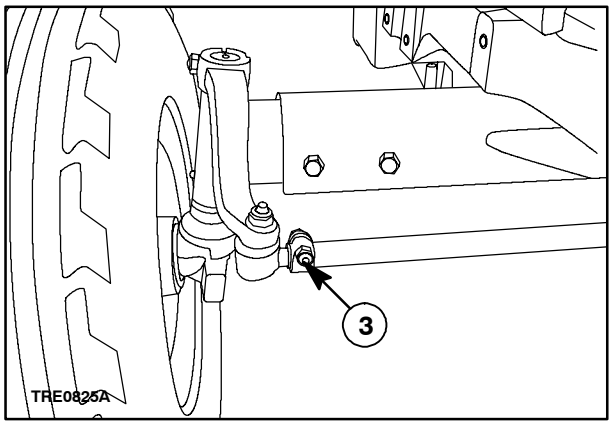
⚠ WARNING ⚠

If the tractor has hydrostatic steering, proceed as described above for the left-hand wheel. For the right-hand wheel, however, after releasing the sliding end of the axle, you must change the hydraulic cylinder's internal angle, as appropriate, in the following way:

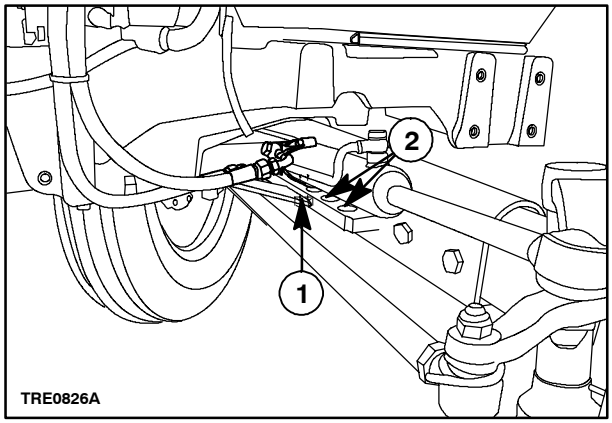
- slacken the cylinder hose connectors;
- keep screw (3) fig. 45 loosened;
- insert angle adjuster pin (1) fig. 46 in one of the corresponding holes (2) fig. 46.
- tighten the pin
  (tightening torque: 294 Nm - 30 kgm)
- tighten screw (3) fig. 46
  (tightening torque: 39 Nm – 4 kgm).
- check that the hoses are not twisted and tighten the connectors.



44

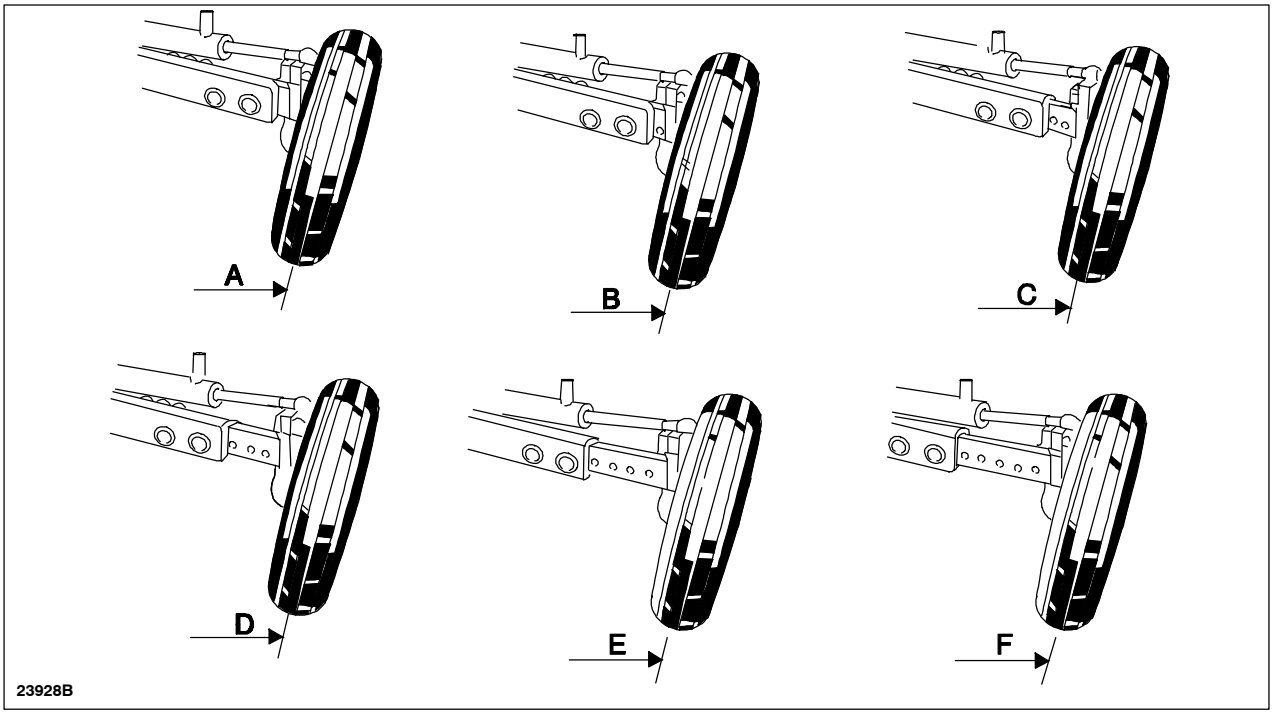


45



46

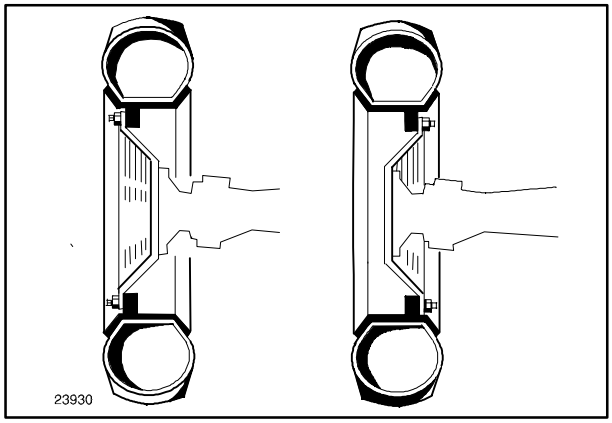
Illustration of front wheel tracks, 2-wheel drive



47

Model	Tyre dimensions	Standard wheel track mm (in)	Wheel tracks mm (in)					
			A	B	C	D	E	F
TD 60D **TD 70D**	6.00-16 7.50-16	1500 (59)	1400 (55)	1500 (59)	1600 (63)	1700 (67)	1800 (71)	1900 (75)
TD 80D **TD 90D** **TD 95D**	7.50 - 16 7.50 - 18 7.50 - 18	1510 (59)	1410 (56)	1510 (59)	1610 (63)	1710 (67)	1810 (71)	1910 (75)

WHEEL TRACK ADJUSTMENT FRONT WHEEL TRACKS, 4-WHEEL DRIVE AND REAR WHEEL TRACKS, 2 AND 4-WHEEL DRIVE



48

The front wheels can be fitted with the concave surface of the disc facing inwards or outwards (see fig. 48).

Tracks of different sizes can be obtained using both these disc positions, as illustrated in figs. 49 and 50.

When adjusting the wheel track, ensure that the points of the tyre treads are still facing the direction of forward travel, indicated by an arrow on the tyre walls.

Always check that the front and rear wheels are symmetrically aligned in relation to the tractor's longitudinal axis.

Front wheels 4WD

The tightening torque of the hub disc locknuts is 255 Nm - 26 kgm (187.98 lb.ft), and the torque of the rim disc locknuts is 216 Nm - 22 kgm (159.06 lb.ft).

Rear wheels 2/4WD

The tightening torque of the hub disc locknuts is 255 Nm - 26 kgm (187.98 lb.ft), and that for the rim disc locknuts is 245 Nm - 25 kgm (180.75 lb.ft).

Always check that the front and rear wheels are symmetrically aligned relative to the tractor's longitudinal axis.

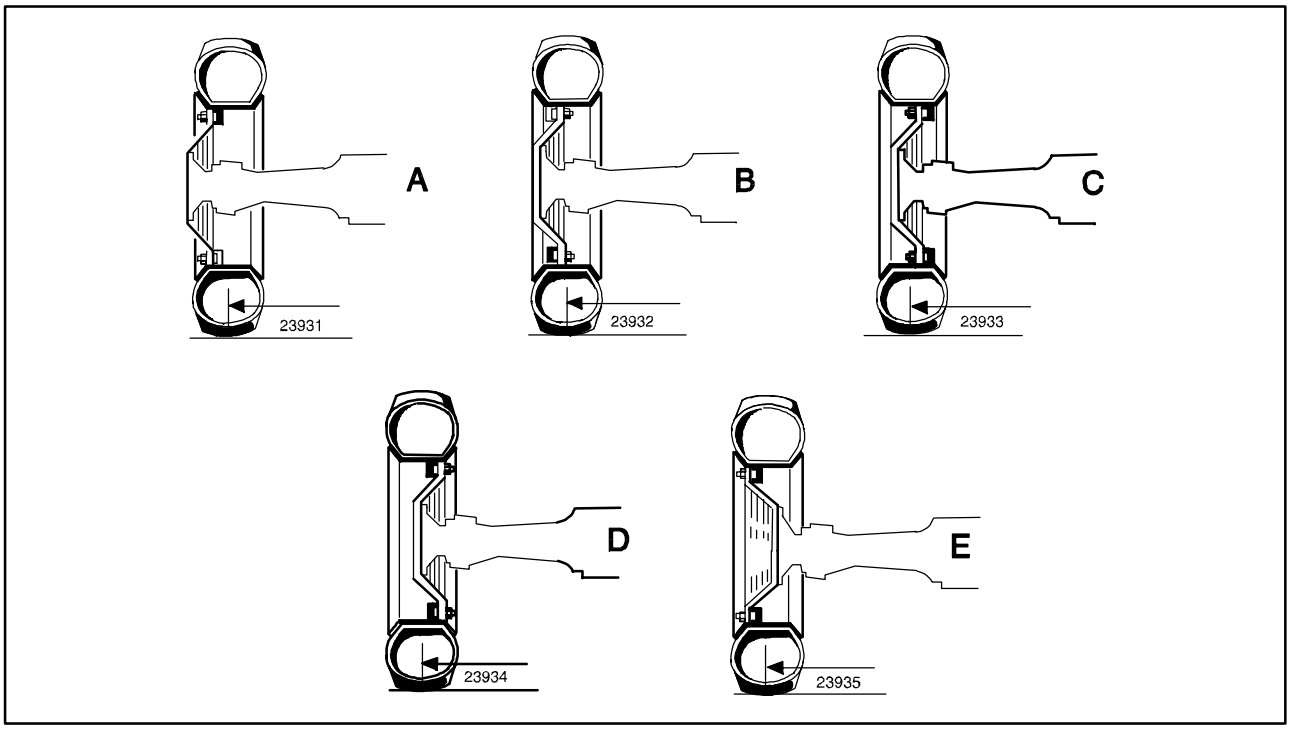
⚠ WARNING ⚠

Select the appropriate rear track before changing the front one.

⚠ DANGER ⚠

When removing the wheels, proceed with extreme caution, use suitable means to lift the tractor and specified equipment to move heavy parts.

WHEEL TRACK DIAGRAM FRONT 4WD

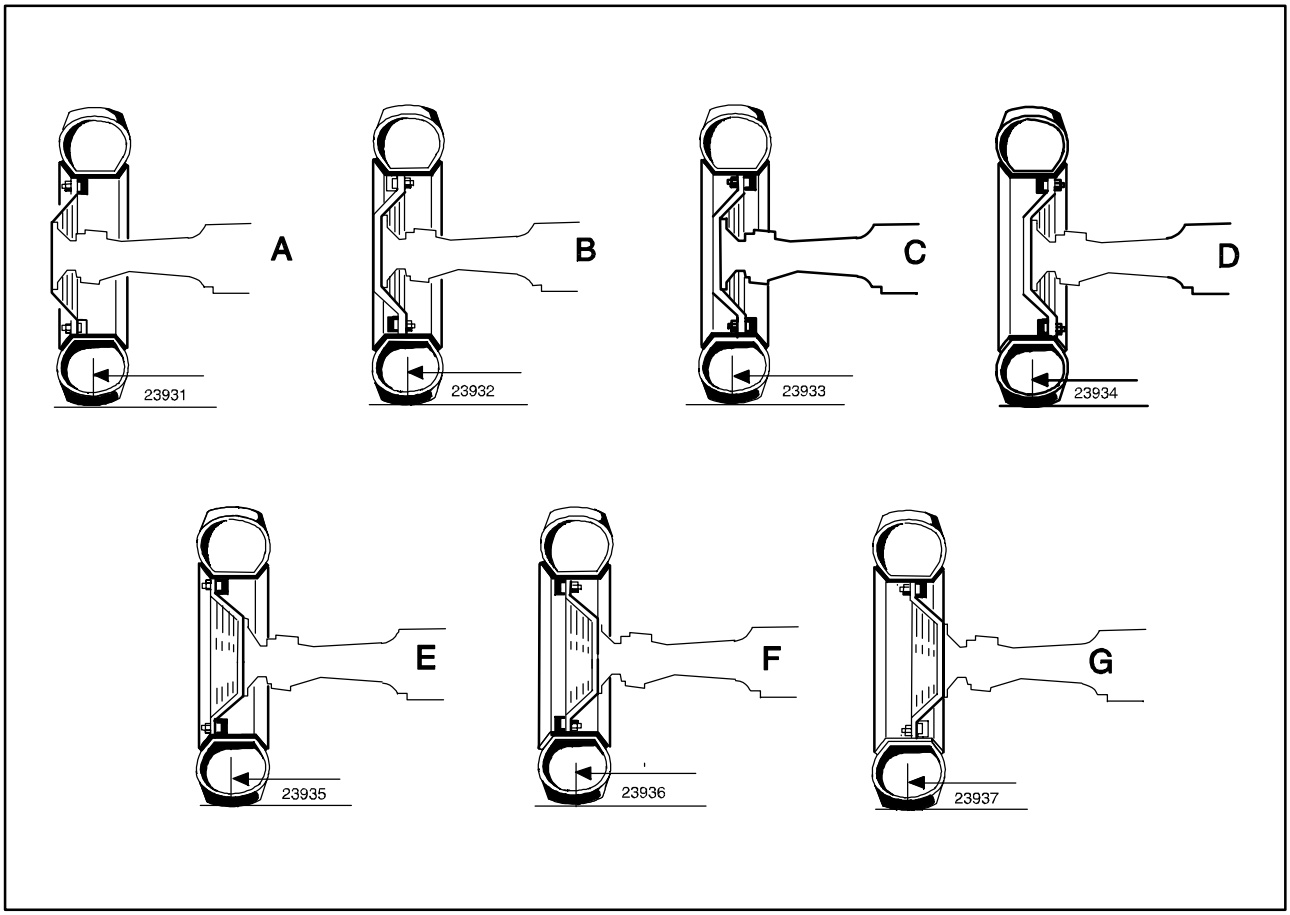


49

Model	Tyre dimensions	Standard wheel track mm (in)	Wheel tracks mm (in)				
			A	B	C	D	E
TD 60D **TD 70D**	11.2-20 9.50-24	1450 (57)	1450 (57)	1550 (61)	1650 (65)	1750 (69)	1880 (74)
TD 80D **TD 90D**	11.2-24 12.4-24	1550 (61)	1550 (61)	1650 (65)	1750 (69)	1850 (73)	1980 (78)
TD 95D	13.6-24 14.9-24	1650 (65)	-	1650 (65)	1750 (69)	1850 (73)	1980 (78)

NOTE: Under the EC regulations, the maximum permissible overall width for tractors equipped with standard tail-lights is 2150 mm. With wheels set at maximum track width, the maximum overall width obtainable is 2315 mm for machines with ROPS, and 2510 mm for machines with cab. If these wider settings are adopted, the tail-lights must be mounted to special extendible arms (available on request) so that they can be adjusted to indicate the overall width of the tractor.

WHEEL TRACK DIAGRAM REAR 2WD / 4WD



50

Model	Tyre dimensions	Standard wheel track mm (in)	Wheel tracks mm (in)						
			A	B	C	D	E	F	G
TD 60D TD 70D	14.9 - 28 14.9 - 30 16.9 - 30	1425 (56)	1425 (56)	1525 (60)	1625 (64)	1725 (68)	1825 (72)	1925 (76)	-
TD 80D TD 90D	13.6 - 38 16.9 - 34 18.4 - 30	1420 (56)	1420 (56)	1520 (59)	1620 (64)	1720 (67)	1820 (72)	1920 (75)	2020 (80)
TD 95D	16.9 - 34 18.4 - 30 18.4 - 34	1525 (60)	-	1525 (60)	1625 (64)	1725 (68)	1825 (72)	1925 (76)	2025 (80)

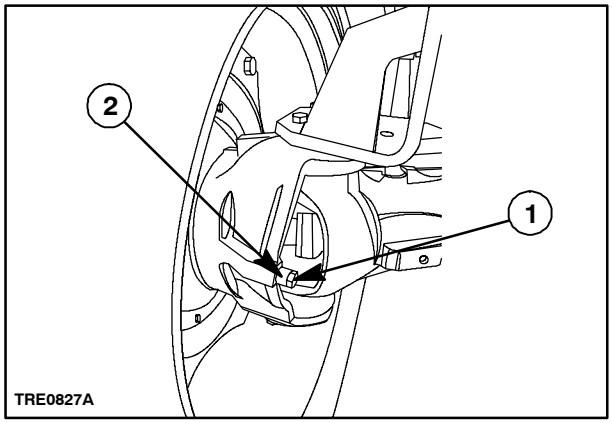
STEERING ANGLE ADJUSTMENT

When using the narrowest tracks, the tyres may touch the tractor with the wheels on full lock and when the front axle is at maximum pivot position – for example, in deep ploughing when enter and exit the furrows.

To avoid this problem, the axle has a steering stop screw and a spacer which can be adjusted so as to obtain the optimum steering angle for each wheel track.

Turning angle can be adjusted between 40° - 45° and 50° by removing screw (1) and spacer (2) fig. 51, on the front axle of all models.

According to tire size and track width, adjustment possibilities are shown at table below:



51

Tyre Size	Track Width (mm)	Steering Angle (°)	Positions*
11.2R-28	1560	40	A
	1671	50	C
12.4R-24	1562	40	A
	1674	50	C
13.6R-24	1674	45	B
	1760	50	C
360/70R-24	1624	50	C

***** Position A: Both screw and spacer installed.

***** Position B: Only screw installed, without spacer.

***** Position C: Both screw and spacer removed.

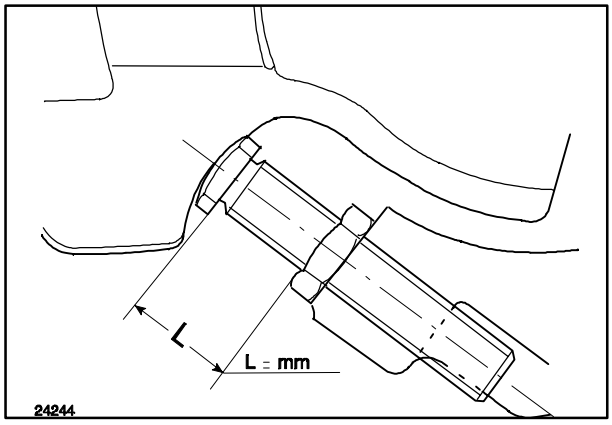
STEERING ANGLE ADJUSTMENT (Models with 2nd steering cylinder)

When using the narrowest tracks, the tyres may touch the tractor with the wheels on full lock and when the front axle is at maximum pivot position – for example, in deep ploughing when enter and exit the furrows.

To avoid this problem, the axle has a steering stop screw which can be adjusted so as to obtain the optimum steering angle for each wheel track.

To adjust the steering angle, refer to figs. 52 and 53 and proceed as follows :

- Turn the wheels;
- Slacken the locknut (2) and adjust the projection of stop screw (1) as shown;
- After adjustment, secure the stop screw (1) with the locknut (2).

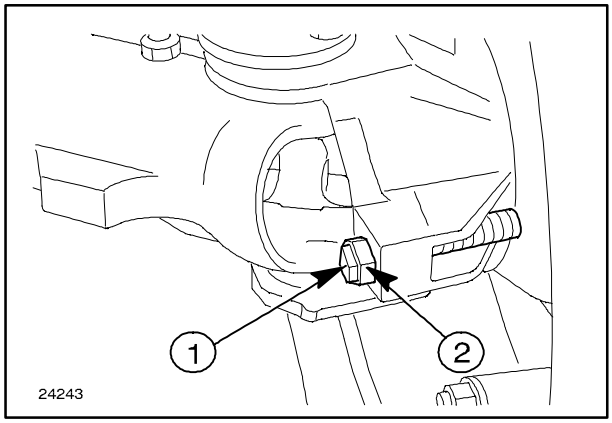


52

NOTE: Subsequent to adjustment of the steering angle make sure that, with the wheels at full lock, there is at least 20 mm (0.8 in) clearance between the tractor fairing and the tyre (or the mudguard, if fitted).

Refer to table below for optimum steering angles :

Steering angles (°)	TD 60D, TD 70D, TD 80D models	TD 90D, TD 95D models
	L (mm)	
25	57	63
30	47	53
35	37	42
40	28	32
45	19	21
50	9	11
55	0	0



53

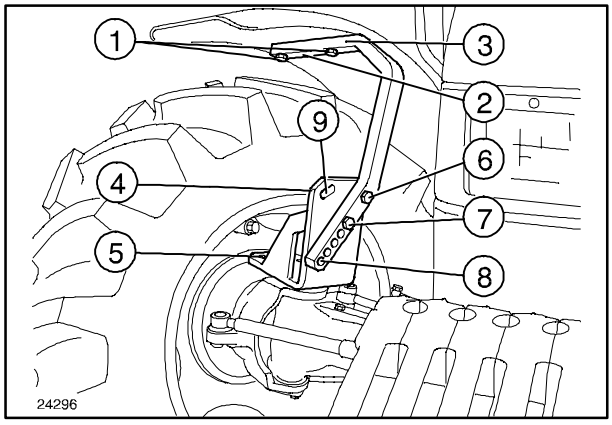
FRONT MUDGUARDS 4WD - Fig. 54 (optional)

The following adjustments can be made to the front mudguards, to suit the tyres and track setting:

Horizontal adjustment :
- loosen screws (1) and attach to holes (2) on support bracket (3). Alternatively, relocate the bolts (5) securing the base (4) to the front axle.

Vertical adjustment :
- loosen screws (6) and (7) and adjust the height, attaching the mudguard to the holes (8).

Rotation :
- loosen screw (7), remove screw (6) and insert in one of the two slots (9).



54

TYRES

USE, MAINTENANCE AND REPLACEMENT

- When changing tyres, select suitable tyres for the actual tractor use, taking account of the recommended combinations on pages 3-43 and 3-44.

- Do not exceed the permitted load shown on the tyres themselves.

- Do not exceed the speeds shown on the tyres, as in addition to overheating, this causes premature wear of the tyres.

- Do not fit used tyres where their previous use is unknown.
  Ask your authorised dealer or a tyre specialist for advice.

- After fitting tyres, check that the wheel nuts for tightness after **100 km** (60 miles) or **3 hours** in operation.
  Thereafter, check that they are tight on a regular basis.

- Do not stand tyres on hydrocarbons (oil, diesel, grease, etc.).

- The tyres fitted on your tractor must be checked periodically, paying particular attention to:

  - the tread, which should wear uniformly;

  - the walls, which must not have cracks, bulges or abrasions.

- Have the tyres checked by a specialist if one or more of the problems previously explained should occur.

- Consult an expert if a tyre is subject to violent shocks even if there are no visible signs of damage.

- Tyres age even if little used or not used at all. Cracks on the walls, sometimes accompanied by bulges, are a sign of ageing.

- Tyres fitted on tractors which are not used for extended periods tend to age more rapidly than those used more often. In this event, it is advisable to raise the tractor from the ground and protect the tyres from direct sunlight.

⚠ WARNING ⚠

Tyres must be changed by skilled personnel who have the right equipment and technical knowledge. If tyres are replaced by unskilled personnel, serious physical injuries can result, serious damage to the tyres can be caused and the actual wheel rim can be distorted..

LOADING INFORMATION

The loading index (LI) is a numerical index indicating the maximum permissible load on the tyre for the speed indicated by the relevant speed code in the conditions specified by the tyre manufacturer.

Loading index per wheel											
LI	*kg*	*lbs*	***LI***	*kg*	*lbs*	***LI***	*kg*	*lbs*	***LI***	*kg*	*lbs*
100	800	1768	**120**	1400	3094	**140**	2500	5525	**160**	4500	9945
101	825	1823	**121**	1450	3204	**141**	2575	5691	**161**	4625	10221
102	850	1878	**122**	1500	3315	**142**	2650	5856	**162**	4750	10497
103	875	1934	**123**	1550	3425	**143**	2725	6022	**163**	4875	10774
104	900	1989	**124**	1600	3536	**144**	2800	6188	**164**	5000	11050
105	925	2045	**125**	1650	3646	**145**	2900	6409	**165**	5150	11381
106	950	2099	**126**	1700	3757	**146**	3000	6630	**166**	5300	11731
107	975	2155	**127**	1750	3867	**147**	3075	6796	**167**	5450	12044
108	1.000	2210	**128**	1800	3978	**148**	3150	6961	**168**	5600	12376
109	1.030	2276	**129**	1850	4088	**149**	3250	7182	**169**	5800	12818
110	1.060	2343	**130**	1900	4199	**150**	3350	7403	**170**	6000	13260
111	1.090	2409	**131**	1950	4309	**151**	3450	7624	**171**	6150	13591
112	1.120	2475	**132**	2000	4420	**152**	3550	7842	**172**	6300	13923
113	1.150	2541	**133**	2060	4553	**153**	3650	8066	**173**	6500	14365
114	1.180	2608	**134**	2120	4685	**154**	3750	8287	**174**	6700	14807
115	1.215	2685	**135**	2180	4818	**155**	3875	8564	**175**	6900	15249
116	1.250	2762	**136**	2240	4950	**156**	4000	8840	**176**	7100	15691
117	1.285	2840	**137**	2300	5083	**157**	4125	9116	**177**	7300	16133
118	1.320	2917	**138**	2360	5216	**158**	4250	9392	**178**	7500	16575
119	1.360	3006	**139**	2430	5370	**159**	4375	9669	**179**	7750	17127

SPEED CODE

The speed code indicates the speed at which the tyre can transport a load corresponding to its loading index in the conditions specified by the manufacturer:

Speed code		
SYMBOL	***km/h***	***mph***
A1	5	3
A2	10	6
A3	15	9
A4	20	12
A5	25	16
A6	30	19
A7	35	22
A8	40	25
B	50	31
C	60	37
D	65	40

⚠ WARNING ⚠

Respecting the limits in the tables will ensure that the tyres both perform well and are long-lasting. Overloading tyres substantially reduces their service life.

NOTE: The values in these tables are also marked on the walls of the tyres themselves.

TYRE DATA AND PRESSURES

FRONT WHEELS 2WD (X)= AVAILABLE (NA) = NOT AVAILABLE

Tyres	Ply rating (PR)	Rim size	Model				
	8		TD60D	TD70D	TD80D	TD90D	TD95D
6.00-16	X	4.00E-16	X	X	NA	NA	NA
7.50-16	X	5.50E-16	X	X	X	NA	NA
7.50-18	X	5.50E-18	NA	NA	X	X	X
7.50-20	X	5.50E-20	NA	NA	NA	X	X
9.00-16	X	W8-16	NA	NA	X	X	X
10.00-16	X	W8-16	X	X	X	X	X

FRONT TYRES 4WD MODELS

Tyres	Rim size	Speed code	Loading index	Max. pressure bar (Psi)	TD60D	TD70D	TD80D	TD90D	TD95D
11.2R-20	W9-20	A8	116	1.4 (20.3)	X	X	NA	NA	NA
11.2R-24	W10-24	A8	119	1.4 (20.3)	X	X	X	NA	NA
12.4R-20	11X20	A8	116	1.4 (20.3)	X	X	NA	NA	NA
360/70R-20	11X20	A8	120	1.6 (23.2)	X	X	NA	NA	NA
13.6R-24	W12-24	A8	121	1.6 (23.2)	NA	NA	X	X	X
360/70R-24	W10-24	A8	122	1.6 (23.2)	NA	NA	X	X	X
320/70R-24	W10X24	A8	116	1.4 (20.3)	NA	NA	X	NA	NA
12.4R-24	W10-24	A8	119	1.6 (23.2)	NA	NA	X	X	X

REAR TYRES 2/4WD

Tyres	Rim size	Speed code	Max. pressure bar (Psi)	Model				
				TD60D	TD70D	TD80D	TD90D	TD95D
14.9R-28	W13-28	A8	1.6 (23.2)	X	X	NA	NA	NA
14.9R-30	W13-30	A8	1.6 (23.2)	X	X	X	NA	NA
12.4R-36	W11-36	A8	1.6 (23.2)	X	X	NA	NA	NA
13.6R-36	W11-36	A8	1.6 (23.2)	NA	NA	X	NA	NA
16.9R-28	W15-28	A8	1.6 (23.2)	X	X	NA	NA	NA
16.9R-30	DWW15L-30	A8	1.6 (23.2)	X	X	X	NA	NA
480/70R-30	DWW15L-30	A8	1.6 (23.2)	NA	NA	X	NA	NA
420/70R-30	DWW13-30	A8	1.6 (23.2)	X	X	NA	NA	NA
18.4R-30	DWW15L-30	A8	1.6 (23.2)	NA	NA	X	X	X
13.6R-38	DWW12-38	A8	1.6 (23.2)	NA	NA	X	X	X
16.9R-34	DWW15L-34	A8	1.6 (23.2)	NA	NA	X	X	X
480/70R-34		A8	1.6 (23.2)	NA	NA	NA	X	X
18.4R-34		A8	1.6 (23.2)	NA	NA	NA	NA	X

TYRE COMBINATIONS

RECOMMENDED COMBINATIONS 2WD

(X) = AVAILABLE (NA) = NOT AVAILABLE

Front tyres	Rear tyres	Model				
		TD60D	TD70D	TD80D	TD90D	TD95D
6.00-16	14.9R-28	X	X	NA	NA	NA
7.50-16	14.9R-28	X	X	NA	NA	NA
7.50-16	12.4R-36	X	X	NA	NA	NA
7.50-16	14.9R-30	X	X	X	NA	NA
7.50-16	16.9R-28	X	X	NA	NA	NA
7.50-16	16.9R-30	X	X	X	NA	NA
7.50-16	420/70R-30	X	X	NA	NA	NA
7.50-18	13.6R-36	NA	NA	X	NA	NA
7.50-18	18.4R-30	NA	NA	X	X	X
7.50-18	480/70R-30	NA	NA	X	NA	NA
7.50-18	13.6R-38	NA	NA	X	X	X
9.00-16	16.9R-34	NA	NA	X	X	X
7.50-20	480/70R-34	NA	NA	NA	X	X
9.00-16	480/70R-34	NA	NA	NA	X	X
7.50-20	18.4R-34	NA	NA	NA	NA	X
9.00-16	18.4R-34	NA	NA	NA	NA	X

RECOMMENDED COMBINATIONS 4WD

(X) = AVAILABLE (NA) = NOT AVAILABLE

Front tyres	Rear tyres	Model				
		TD60D	TD70D	TD80D	TD90D	TD95D
11.2R-20	14.9R-28	X	X	NA	NA	NA
11.2R-24	12.4R-36	X	X	NA	NA	NA
12.4R-20	16.9R-28	X	X	NA	NA	NA
11.2R-24	16.9R-30	X	X	X	NA	NA
360/70R-20	420/70R-30	X	X	NA	NA	NA
12.4R-24	18.4R-30	NA	NA	X	X	X
360/70R-24	18.4R-30	NA	NA	X	X	X
320/70R-24	480/70R-30	NA	NA	X	NA	NA
12.4R-24	13.6R-38	NA	NA	X	X	X
13.6R-24	16.9R-34	NA	NA	X	X	X
360/70R24	480/70R34	NA	NA	NA	X	X
12.4R-20	14.9R-30	X	X	NA	NA	NA
12.4R-24	13.6R-36	NA	NA	X	NA	NA
13.6R-24	18.4R-34	NA	NA	NA	NA	X

TYRE PRESSURES FOR FOUR-WHEEL DRIVE MODELS

NOTE - pressures are expressed in bar (Psi)

TD 60D AND TD 70D MODELS

Tyre combinations		Tyre pressures 30/40 km/h (19/25 mph)	
Front	Rear	GOOD YEAR	
		Front	Rear
11.2R-20	14.9R-28	1.4(20.3)	1.4(20.3)
11.2R-24	12.4R-36	1.5(21.8)	1.4(20.3)
12.4R-20	14.9R-30	1.4(20.3)	1.4(20.3)
12.4R-20	16.9R-28	1.4(20.3)	1.4(20.3)
11.2R-24	16.9R-30	1.5(21.8)	1.4(20.3)
360/70R20	420/70R30	1.4(20.3)	1.2(17.4)

TD 80D MODEL

Tyre combinations		Tyre pressures 30/40 km/h (19/25 mph)	
Front	Rear	GOOD YEAR	
		Front	Rear
11.2R-24	16.9R-30	1.5 (21.8)	1.4 (20.3)
12.4R-24	13.6R-36	1.4 (20.3)	1.5 (21.8)
12.4R-24	18.4R-30	1.4 (20.3)	1.4 (20.3)
360/70R24	18.4R-30	1.4 (20.3)	1.4 (20.3)
320/70R24	480/70R30	1.2 (17.4)	1.2 (17.4)
12.4R-24	13.6R-38	1.4 (20.3)	1.4 (20.3)
13.6R-24	16.9R-34	1.2 (17.4)	1.6 (23.2)

TYRE PRESSURES FOR FOUR-WHEEL DRIVE MODELS

NOTE - pressures are expressed in bar (Psi)

TD 90D MODEL

Tyre combinations		Tyre pressures 30/40 km/h (19/25 mph)	
Front	Rear	GOOD YEAR	
		Front	Rear
360/70R24	18.4R-30	1.4 (20.3)	1.2 (17.4)
12.4R-24	13.6R-38	1.4 (20.3)	1.4 (20.3)
12.4R-24	18.4R-30	1.4 (20.3)	1.4 (20.3)
13.6R-24	16.9R-34	1.5 (21.8)	1.5 (21.8)
360/70R24	480/70R34	1.2 (17.4)	1.4 (20.3)

TD 95D MODEL

Tyre combinations		Tyre pressures 30/40 km/h (19/25 mph)	
Front	Rear	GOOD YEAR	
		Front	Rear
12.4R-24	18.4R-30	1.4 (20.3)	1.4 (20.3)
360/70R24	18.4R-30	1.4 (20.3)	1.4 (20.3)
12.4R-24	13.6R-38	1.2 (17.4)	1.6 (23.2)
360/70R24	480/70R34	1.2 (17.4)	1.4 (20.3)
14.9R-24	18.4R-34	1.4 (20.3)	1.4 (20.3)
13.6R-24	16.9R-34	1.5 (21.8)	1.5 (21.8)

TYRES (NOT AVAILABLE ON ALL MARKETS)

(X) = AVAILABLE (NA) = NOT AVAILABLE

FRONT TYRES 2WD

Tyres	Ply Rating	Model				
		TD60D	TD70D	TD80D	TD90D	TD95D
9.5L–15 F2	6	X	X	X	NA	NA
10.00–16 F2	8	NA	NA	X	X	X

FRONT TYRES 4WD

Tyres	Ply Rating	Model				
		TD60D	TD70D	TD80D	TD90D	TD95D
8.3–24	6	X	X	NA	NA	NA
11.2–24	6	X	X	X	NA	NA
12.4–24	6	NA	NA	X	X	X
13.6 –24	8	NA	NA	NA	X	NA
14.9–24	8	NA	NA	NA	NA	X

TYRE COMBINATIONS (NOT AVAILABLE ON ALL MARKETS)

(X) = AVAILABLE (NA) = NOT AVAILABLE

RECOMMENDED COMBINATIONS 2WD

Front tyres	Rear tyres	Model				
		TD60D	TD70D	TD80D	TD80D	TD95D
9.5L-15 F2	14.9-28	X	X	NA	NA	NA
	16.9-30	X	X	X	NA	NA
10.00-16 F2	18.4-30	NA	NA	X	X	X
	18.4-34	NA	NA	NA	NA	X
	16.9-34	NA	NA	NA	X	NA

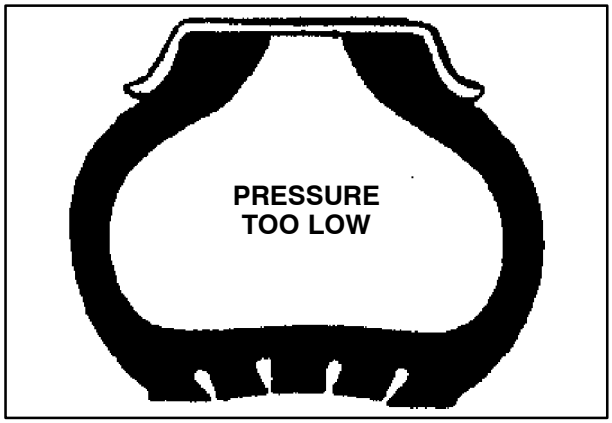
RECOMMENDED COMBINATIONS 4WD

Front tyres	Rear tyres	Model				
		TD60D	TD70D	TD80D	TD90D	TD95D
8.3-24	14.9-28	X	X	NA	NA	NA
11.2R-24	16.9-30	X	X	X	NA	NA
12.4 R-24	18.4-30	NA	NA	X	X	X
14.9-24	18.4-34	NA	NA	NA	NA	X
13.6-24	16.9-34	NA	NA	NA	X	NA

TYRE PRESSURES

For safe use of tyres with a long service, it is extremely important to observe the following instructions.

- Ensure the correct pressures for each axle and for the tyre type.



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- Ensure tyre pressures are not lower than the correct values, to prevent overheating of the tyres, which can lead to:
  - tyre wear;
  - beading wear;
  - internal damage;
  - irregular wear and short service life.

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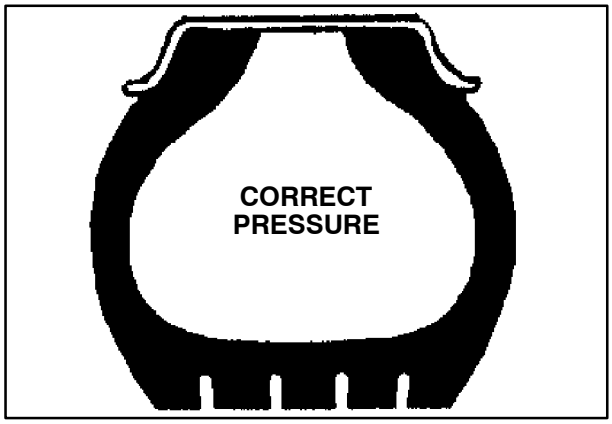
- Do not over-inflate the tyres as this can make them more susceptible to damage in the event of impact and, in extreme conditions, the tyre rim can be deformed or the tyre can burst.
- At least once every two weeks, check the tyre pressures, especially when liquid ballast is used. Tyre pressures should be checked only when the tyres are cold, as pressures rise during use, as a result of the tyres heating up.
  Tyres can be assumed to be cold if they have not been used for at least one hour, or have not covered more than two to three kilometres.
  Never reduce tyre pressures when the tyres are hot.
- When you check tyre pressures, never leave any part of the body in the path of the valve mechanism or cap.



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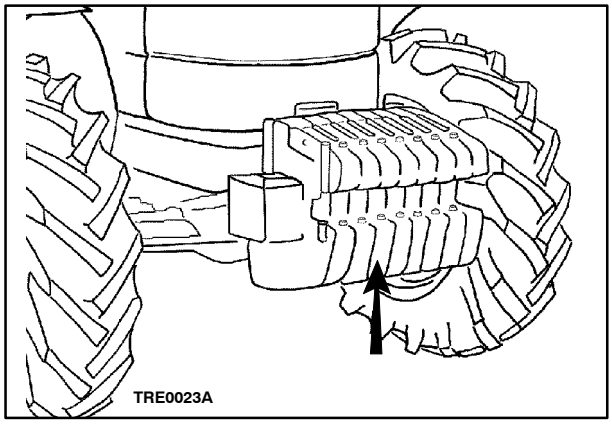
BALLASTING

CAST IRON BALLASTING

If your tractor requires high traction power, the drive wheels may slip due to insufficient grip on the ground, causing loss of power and speed, increased fuel consumption and premature tyre wear. We therefore advise fitting cast-iron rings as ballast on the drive wheels, or ballasting wheels with cast-iron discs or water as described on page 3-53 and 3-54. When using very long and heavy implements which could affect the longitudinal stability of the tractor, ballast the front axle by fitting the appropriate cast-iron counterweights.



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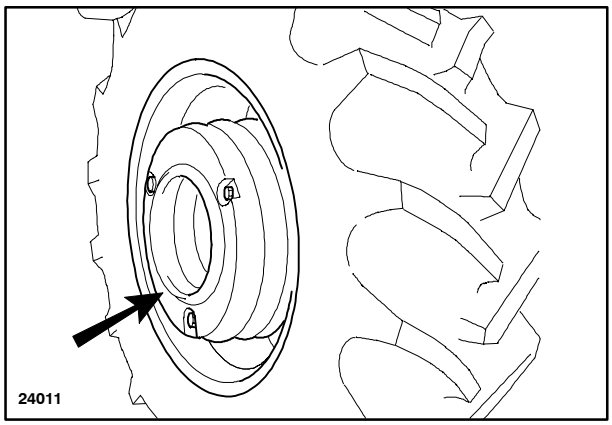
Front end weights - Fig. 58

4, 6, 8 or **10** cast-iron counterweights with handles, each weighing **40 kg** (88 lbs) and support bracket weighing **80 kg** (176 lbs), for a total of **240 kg** (528 lbs), **320 kg** (705 lbs), **400 kg** (880 lbs) or **480 kg** (1058 lbs).

Rear wheel weights - Fig. 59

4 or **6** cast-iron rings, each weighing **50 kg** (110 lbs), for a total of **200 kg** (440 lbs) or **300 kg** (660 lbs).



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LIQUID BALLASTING

CONNECTORS FOR FILLING UP AND DRAINING WATER - Fig. 60

1. Connector for filling up water.

2. Water drainage tube.

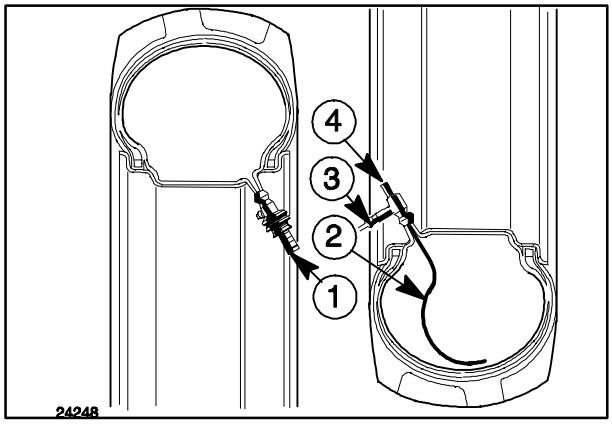
3. Air line attachment.

4. Water drainage tube.

Water can be used to ballast the rear tyres if there is no danger of freezing.

⚠ CAUTION ⚠

Water pressure filled-up must never exceed 4 bar (kg/cm^2).



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HOW TO FILL-UP THE TYRES WITH WATER:

- raise the wheel off the ground and move the tyre valve to its highest position;
- slacken the valve inner and wait for the tyre to deflate;
- lower the wheel until the tyre is around 30% flat to prevent the weight of the water damaging the inner tube;
- screw connector NEW HOLLAND No. **291885** onto the valve seat and fit the water tube to connector (1) remembering to disconnect it when the tyre starts to swell in order to let air out;
- when water escapes from connector (1) the tyre is 75% full.
  If you wish to fill-up less water, or achieve a lower weight, position the wheel so that the valve is lower;
- remove connector (1), tighten up the tyre valve and inflate with air to the specified pressure.

HOW TO DRAIN WATER FROM THE TYRES:

- raise the wheel off the ground and move the tyre valve to its lowest position;
- unscrew the valve seal and drain the water;
- screw connector NEW HOLLAND No. **291886** onto the valve seat, tubes (2) and (4) will come into contact with the inner tube;
- fill-up pressurised air through attachment (3), the remaining water will escape through tubes (2) and (4);
- remove the connector and replace it with the valve seal, then inflate the tyre to the specified pressure.

Front tyres 4WD

Tyres	Water (1)	
	kg (litres)	lbs
12.4R-20	120	265
11.2-24	90	199
12.4-24	115	254
360/70R-24	100	220
360/70R-20	90	199
11.2-28	100	220
13.6-24	120	265
380/70R-24	130	287
320/70R-24	70	154
420/70R-24	166	366
14.9-24	150	331

(1) The quantities of water for each tyre shown in the table may differ depending on the tyre manufacturer.

Rear tyres 4WD

Tyres	Water (1)	
	kg (litres)	lbs
14.9-30	205	452
12.4-36	150	331
13.6-36	180	397
16.9-30	250	551
420/70R-30	200	441
480/70R-30	255	562
18.4-30	320	705
13.6-38	190	419
16.9-34	280	617
480/70R-34	285	628
18.4-34	360	794

(1) The quantities of water for each tyre shown in the table may differ depending on the tyre manufacturer.

FILLING WITH WATER

The quantity of water required for each tyre is only approximate.

FILLING TYRES WITH ANTIFREEZE SOLUTIONS

To prevent freezing water damaging the tyres, use a solution of neutralised calcium chloride (in flakes) instead of pure water.

Prepare the solution by filling the water required into a container and adding the calcium chloride a little at a time, stirring continuously.

The quantities of water and chloride required to make sufficient antifreeze solution to fill each tyre to 75% are shown in the tables on the next page.

⚠ DANGER ⚠

Always add the calcium chloride flakes to the water. Pouring water into chloride can be dangerous.

⚠ CAUTION ⚠

You are advised to contact your tractor tyre manufacturer's specialist to ensure that you fill the tyres correctly.

FILLING FRONT TYRES WITH ANTIFREEZE SOLUTION, FOUR-WHEEL DRIVE MODELS

The figures given in the table below are for information only as they may vary depending on the type of tyres used.
You are therefore advised to contact your local tyre specialist.

TYRE DIMENSIONS	Minimum temperatures									
	-5°C (23°F)		-10°C (14°F)		-15°C (5°F)		-20°C (-4°F)		-25°C (-13°F)	
	Water kg (litres) (lbs)	Calcium chloride kg (lbs)	Water kg (litres) (lbs)	Calcium chloride kg (lbs)	Water kg (litres) (lbs)	Calcium chloride kg (lbs)	Water kg (litres) (lbs)	Calcium chloride kg (lbs)	Water kg (litres) (lbs)	Calcium chloride kg (lbs)
12.4R-20	82 (181)	9 (20)	78 (172)	16 (35)	76 (168)	21 (46)	75 (165)	26 (57)	73 (161)	29 (64)
11.2-24	86 (190)	10 (22)	83 (183)	17 (37)	87 (192)	22 (48)	79 (174)	27 (59)	77 (170)	31 (68)
12.4-24	110 (243)	12 (27)	106 (234)	22 (48)	104 (230)	28 (62)	101 (223)	34 (75)	100 (221)	39 (86)
320/70R-20	67 (148)	8 (18)	64 (141)	13 (28)	63 (139)	18 (39)	61 (134)	21 (46)	60 (132)	24 (53)
360/70R-24	96 (212)	11 (24)	92 (203)	19 (42)	90 (199)	25 (55)	88 (194)	30 (66)	86 (190)	34 (75)
360/70R-20	86 (190)	10 (22)	82 (181)	17 (38)	81 (179)	22 (48)	79 (174)	27 (59)	77 (170)	31 (68)
11.2-28	96 (213)	11 (24)	92 (203)	19 (42)	90 (199)	25 (55)	88 (194)	30 (66)	86 (190)	34 (75)
13.6-24	115 (254)	13 (29)	110 (243)	23 (51)	108 (238)	30 (66)	106 (234)	41 (90)	103 (227)	41 (90)
380/70R-24	125 (276)	14 (31)	120 (265)	25 (55)	117 (258)	32 (70)	114 (252)	39 (86)	112 (247)	44 (97)
420/70R-24	159 (352)	18 (40)	152 (335)	31 (68)	149 (329)	41 (90)	146 (322)	49 (108)	142 (313)	56 (123)
14.9-24	144 (318)	16 (35)	138 (304)	28 (62)	135 (298)	37 (81)	132 (291)	45 (99)	129 (285)	51 (112)

FILLING REAR TYRES WITH ANTIFREEZE SOLUTION, TWO AND FOUR-WHEEL DRIVE MODELS

The figures given in the table below are for information only as they may vary depending on the type of tyres used.
You are therefore advised to contact your local tyre specialist.

TYRE DIMENSIONS	Minimum temperatures									
	-5ºC (23ºF)		-10ºC (14ºF)		-15ºC (5ºF)		-20ºC (-4ºF)		-25ºC (-13ºF)	
	Water kg (litres) (lbs)	Calcium chloride kg (lbs)	Water kg (litres) (lbs)	Calcium chloride kg (lbs)	Water kg (litres) (lbs)	Calcium chloride kg (lbs)	Water kg (litres) (lbs)	Calcium chloride kg (lbs)	Water kg (litres) (lbs)	Calcium chloride kg (lbs)
14.9-28	173 (381)	20 (44)	164 (362)	34 (75)	162 (357)	45 (99)	158 (348)	54 (119)	155 (342)	61 (135)
14.9-30	197 (434)	23 (51)	189 (417)	39 (86)	185 (408)	52 (115)	180 (397)	62 (137)	176 (388)	70 (154)
12.4-36	144 (318)	16 (35)	138 (304)	28 (62)	135 (298)	37 (82)	132 (291)	45 (99)	129 (284)	51 (112)
13.6-36	173 (381)	20 (44)	166 (366)	34 (75)	162 (357)	45 (99)	158 (348)	54 (119)	155 (342)	61 (135)
16.9-30	240 (529)	28 (62)	230 (507)	48 (106)	225 (496)	63 (139)	220 (485)	75 (165)	215 (474)	85 (187)
420/70R-30	192 (423)	22 (49)	184 (406)	38 (84)	180 (397)	50 (110)	176 (388)	60 (132)	172 (379)	68 (150)
480/70R-30	245 (540)	28 (62)	235 (518)	48 (106)	162 (357)	48 (230)	230 (507)	77 (170)	224 (494)	87 (192)
18.4-30	307 (677)	35 (77)	294 (648)	61 (135)	288 (635)	80 (176)	282 (622)	96 (212)	275 (606)	109 (240)
13.6-38	182 (401)	21 (46)	175 (386)	36 (79)	171 (377)	48 (106)	167 (368)	57 (126)	163 (359)	65 (143)
16.9-34	269 (593)	31 (68)	258 (569)	53 (117)	252 (556)	70 (154)	246 (542)	84 (185)	241 (531)	95 (209)
480/70R-34	274 (604)	31 (68)	262 (578)	54 (119)	257 (567)	71 (157)	251 (553)	86 (190)	245 (540)	97 (214)
18.4-34	345 (761)	39 (86)	331 (730)	68 (150)	324 (714)	90 (198)	316 (697)	108 (238)	309 (681)	122 (269)

MAXIMUM PERMITTED WEIGHT

Correct static weight distribution guarantees maximum tractor efficiency and productivity, and extends the service life of tractor components.

⚠ CAUTION ⚠

The total weight of the tractor, including all types of ballast and the weight of the implements carried, must not exceed the limits given in the table below.

Working with the tractor fitted with excessive ballast can cause:

- reduction in available power to operate the implement connected and reduced productivity as a consequence;
- increased fuel consumption;
- excessive compacting of the soil;
- damaging overload of the transmission components with a consequent increase in running costs.

When using the tractor in the field, it is extremely important to have the maximum power available for using implements; therefore avoid losing power through excessive ballast.

Maximum permissible weights on axles without limitations

Model	Maximum permissible axle weight		
	Front axle 2WD kg (lbs)	Front axle 4WD kg (lbs)	Rear axle kg (lbs)
TD 60D	2400* (5291)	2650* (5842)	4000 (8819)
TD 70D	2400* (5291)	2650* (5842)	4000 (8819)
TD 80D	2500* (5512)	2800* (6173)	4150 (9149)
TD 90D	2500* (5512)	2900* (6393)	4150 (9149)
TD 95D	2600* (5732)	3000* (6614)	4250 (9370)

(*) at max speed and max track.

The admissible static rear axle weights given are for tractors with ballast including equipment carried raised from the ground.

Maximum permissible weights on axles with limitations

Model	Maximum permissible axle weight		
	Front axle 2WD kg (lbs)	Front axle 4WD kg (lbs)	Rear axle kg (lbs)
TD 60D	3000* (6614)	3500** (7716)	3500 (7716)
TD 70D	3000* (6614)	3500** (7716)	3500 (7716)
TD 80D	3000* (6614)	4000** (8819)	4000 (8819)
TD 90D	3000* (6614)	4000** (8819)	4000 (8819)
TD 95D	3000* (6614)	4000** (8819)	4000 (8819)

(*) for low speed (10 km/h) and at min track.

(**) for low speed (10 km/h) and at medium track; (use with front loader, not permitted on road).

⚠ WARNING ⚠

Do not use ballast systems other than those indicated.
Do not ballast the tractor unnecessarily; not only is it superfluous, it can also damage the tractor.

⚠ WARNING ⚠

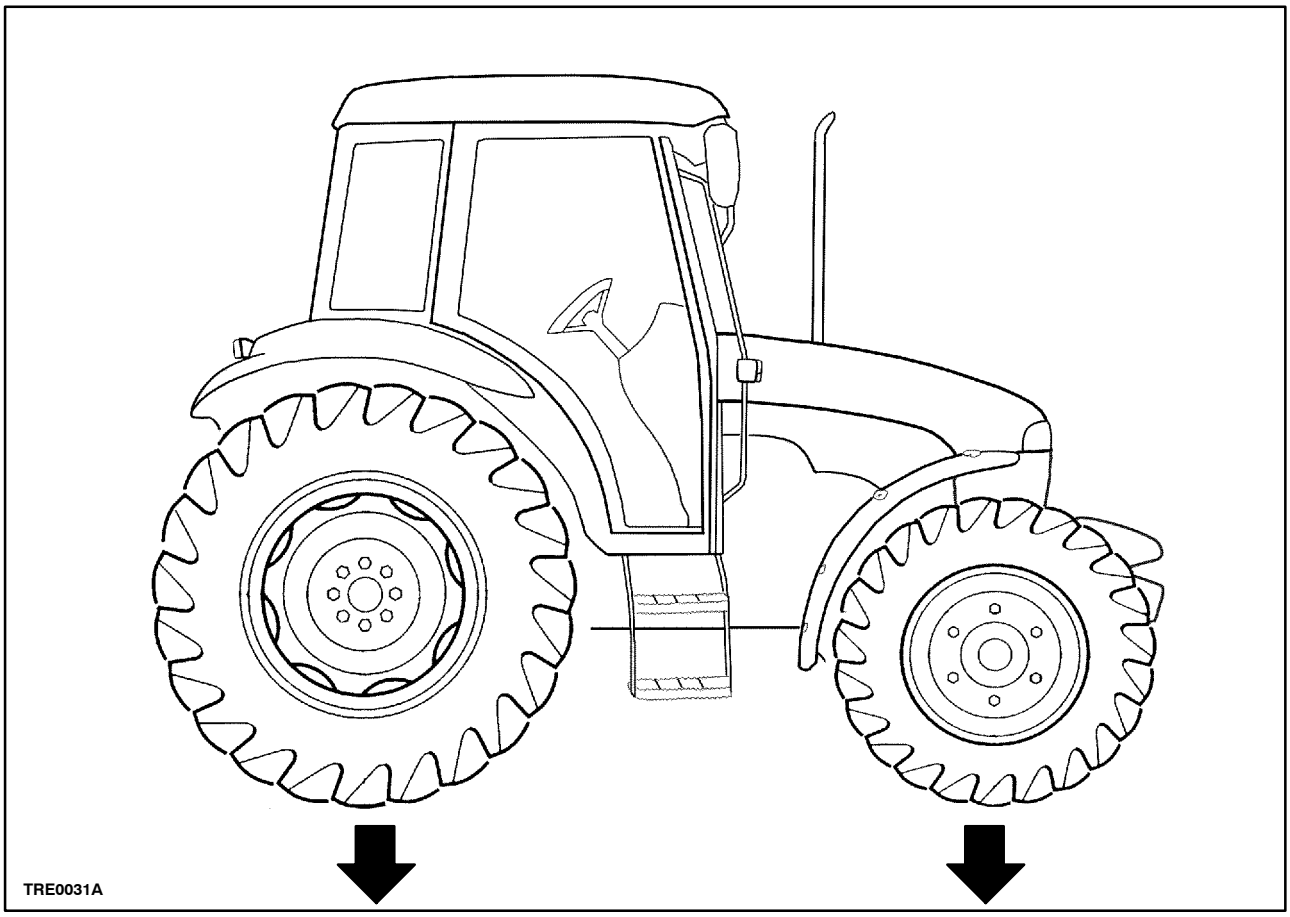
With mounted implements fitted to the rear of the tractor, it is a good idea to fit a minimum **20%** extra weight on the front axle.

STATIC WEIGHT DISTRIBUTION ON THE TRACTOR - Fig. 61

Add or remove ballast from the tractor once it is fully equipped, until a balanced static weight distribution is achieved for the implement actually used, taking care not to exceed the maximum operating weights given on page 3-55.

The weight distribution percentages given for the four-wheel drive models are ***indicative only*** and relate to the total weight of the fully equipped tractor complete with ballast.

FOUR WHEEL DRIVE MODELS



61

REAR AXLE
60%

FRONT AXLE
40%

SECTION 4

LUBRICATION AND MAINTENANCE

INTRODUCTION

This section gives full details of the maintenance procedures required to keep your tractor in optimal working conditions. The lubrication and maintenance table on pages 4–5 and 4–6 can be used for rapid reference for this purpose. All operations are numbered to facilitate use.

In addition to the normal maintenance operations listed, the following parts must be checked during flexible maintenance or during the first 50 hours of operation:

- Wheel nut tightness;
- Oil levels in hub and front axle casing - four–wheel drive only.

⚠ WARNING ⚠

Park the tractor on level ground and, where possible, ensure all hydraulic cylinders are fully extended before checking oil levels.

SAFETY PRECAUTIONS

Read and follow all the safety precautions listed in “Tractor maintenance”, in section 1.

NOTE: Dispose of any filters and liquids used in an appropriate and with respect to the environment.

⚠ CAUTION ⚠

Do not carry out any inspections, lubrication, maintenance or adjustments on the tractor with the engine running.

HOW TO PREVENT CONTAMINATION OF THE SYSTEM

To avoid contamination when changing oil, filters, etc., always clean the area around the fill points, inspection and drain plugs, dipsticks and filters.

Before connecting external cylinders, make sure that the oil inside is clean, that it has not deteriorated after prolonged storage and that it is of the type specified. To prevent dirt entering, clean the lubricating fittings before lubrication. Clean excess lubricant from the fittings after lubrication.

MAINTENANCE INTERVALS

The intervals suggested in the lubrication and maintenance table are those to be followed under normal working conditions.

Intervals should be in line with working and environmental conditions. The intervals should be shortened in adverse working conditions (wet, mud, sand, high dust levels).

LUBRICATION AND MAINTENANCE TABLES - Pages 4-5 and 4-6

The tables list the intervals at which routine checks, lubrication, maintenance and/or adjustments should be carried out. Use the table as a quick reference guide when carrying out maintenance on the tractor. The operations follow the order in the table.

RUNNING-IN PERIOD

During the running–in period (approximately 50 hours of work), in addition to carrying out the operations indicated in section 9 – ‘First 50 Hours Service’, we recommend the following:

- Run the engine for a few minutes at low speeds and let it idle after every cold start;
- Do not let the engine run at minimum speeds for a long time;
- Do not use the tractor continuously for heavy work;
- Follow the above recommendations after replacement of major parts.

⚠ CAUTION ⚠

After the first 50 hours of work, replace the oil in the sump (operation no. 27) together with the relevant filter (operation no. 31) and the oil filter cartridge for the hydraulic lift (operation no. 30).

⚠ CAUTION ⚠

Carry out the operations illustrated in this section at the specified intervals to ensure that your tractor functions properly. Remember, however, to carry out inspections and adjustments as and when experience and common sense dictates, (frequency can vary depending on working and environmental conditions).

TRACTOR REFUELLING

⚠ CAUTION ⚠

When using diesel fuel, pay attention to the following: Do not smoke when near diesel fuel. Under no circumstances must petrol, alcohol, or a mixture of diesel or alcohol be added to the diesel, as it increases the risk of fire or explosion considerably. In a closed container, such as a jerry can, they are more explosive than pure petrol. Do not use these mixtures. Furthermore, a mixture of diesel and alcohol is not recommended as it does not lubricate the fuel injection system adequately. Clean the area around the filler cap and keep it clean. Fill the tank at the end of every day to reduce overnight condensation. Never remove the cap or add fuel when the engine is running. While the tank is being filled, keep control of the filler nozzle. Do not fill the tank completely. Leave room for an expansion. If the filler cap is lost, replace it with a genuine cap and screw it on tight. Mop up any fuel spillage immediately.

FUEL SPECIFICATIONS

The quality of fuel used is an important factor for the engine's subsequent performance and satisfactory service life. Fuel must be clean, properly refined and must not corrode the fuel system parts. Ensure that good quality fuel is used from a reliable source.

FUEL STORAGE

Take all necessary precautions to ensure that stored fuel is not contaminated by dirt, water or any other substance.

- Store fuel in black iron drums, not zinc drums as the zinc coating reacts with the fuel and forms compounds which contaminate the injection pump and injectors.
- Protect the storage drums from direct sunlight and tilt them slightly so that sediment inside can be removed through a suitable drainage point.
- To facilitate removal of damp and sediment, fit a drainage plug at the lowest point on the opposite end to the outlet pipe.
- If the fuel is not filtered from the storage drum, use a funnel with a fine mesh filter when pouring the fuel into the tractor tank.
- Organise your fuel purchases so that summer fuel is not kept for too long and then used in winter.

REFUELLING

Before refuelling, clean the area around the tank fill point to prevent foreign matter entering the tank. After refuelling replace the cap and tighten it fully.

NOTE: The fuel tank holds 92 litres (24.3 U.S. gal.)

NOTE: If the fuel tank cap should be lost or damaged, replace it with a genuine replacement part.

MISCELLANEOUS CHECKS

Check the following components regularly and, if any faults are detected, contact your dealer and replace the damaged parts as necessary:

- Steering linkage ball joints: check that there is no play in the ball joints and that the conical ends are securely in place; also check that no grease is escaping from the protective covers to the ball joints and that the covers themselves are in good condition and not cracked;

- Hydrostatic steering cylinder lines: the lines must not show any signs of crimping, cracking or swelling of the external sheath and likewise there must be no traces of oil between the pipe and the connector;

- Handbrake lever: check that the ratchet locks securely.

WARNING LIGHTS

Your tractor is fitted with warning lights to inform you of the operational condition of your tractor. Some of these signal faults which should be corrected immediately, e.g.: engine oil level, brake fluid level, coolant level, windscreen wash liquid, air filter clogging, etc.

FUEL INJECTION PUMP

During the warranty period, any work carried out on the injection pump must be carried out exclusively by your local dealer. If the seal on the fuel pump is removed, the Company cannot be held responsible under the terms of the warranty.

ENVIRONMENTAL CONSIDERATIONS

When it is necessary to refill the fuel tank, or top up or change the oil, always place a container under the component to collect any spillage. The products used are pollutants and we must therefore prevent them from contaminating the environment in which we live.

ENGINE COOLING SYSTEM

It is advisable to replace the coolant every two years or 1200 hours of service, whichever occurs first.

RADIATOR

If the cooling circuit is to work properly, it is important that the radiator fins are not clogged.
Clean them regularly, even several times a day if the environment in which you are working is particularly dusty.

TYRES

Always fit and remove tyres in perfectly clean conditions. Avoid working in soil. To help when fitting or removing tyres, never use grease as a lubricant. Use a soap and water solution instead.
When fitting a new or used tyre, inflate it to 3.5 bar (kg/cm^2) (50 Psi) to ensure the correct positioning of the bead. Then inflate the tyre to its service pressure.

TYRE PRESSURES

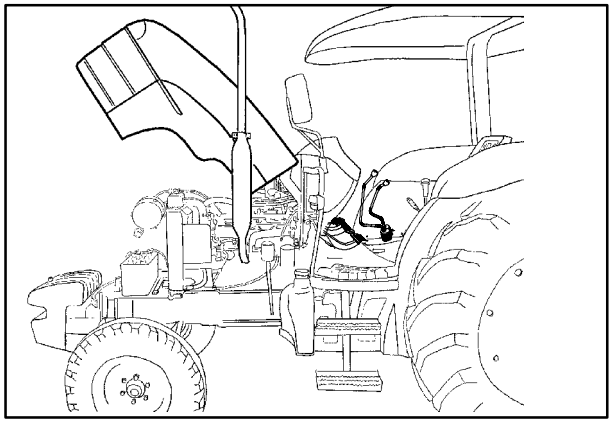
Tyre pressures are given in section 3. Remember that the values given may differ depending on the following factors: tyres different from those fitted by the manufacturer, tractor ballast type, different conditions of use, etc. The tyre manufacturer should be able to provide information concerning the most suitable pressures.

Do not forget to check the tyre working pressures regularly. The frequency of such inspection will vary depending on operational and climatic conditions.

ACCESS FOR INSPECTION AND MAINTENANCE

INTRODUCTION

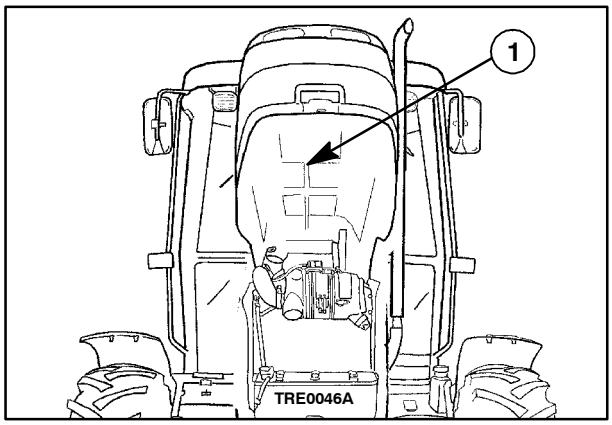
To access the engine components and carry out inspection, lubrication and maintenance operations, the bonnet (hood) must be opened.
The following instructions describe the procedure to be followed.



1

BONNET (HOOD)

The bonnet is hinged at the rear to allow easy and safe access to the various engine components.
One gas strut (1) fig. 2 holds the engine bonnet in one of the two possible positions.

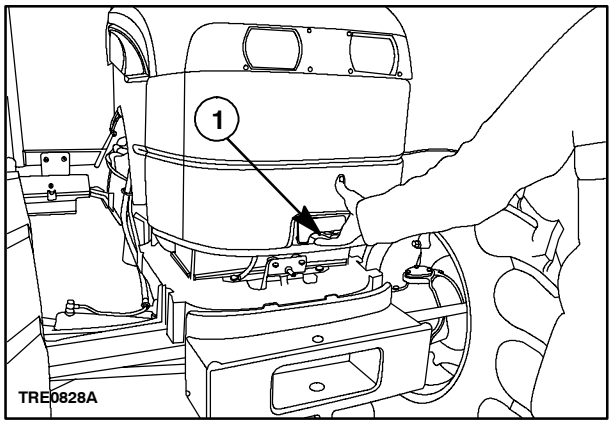


2

OPENING THE BONNET (HOOD)

Pull the lever upwards (1) fig. 3, lift from the front, and allow the bonnet to raise. The gas strut (1) fig. 2 will maintain the bonnet in the raised position.

NOTE: To close the bonnet, simply pull it down and press the top lightly to ensure it engages.



3

LUBRICATION AND MAINTENANCE TABLE

The numbers in the second column are with reference to the operations and illustrations in the following pages of this section.

Hours of work	Operation number	Maintenance operation	Functional check	Top up	Clean	Grease	Adjust	Replace	Page
Flexible maintenance	1	Engine clutch					●		4-7
	2	Brake pedal					●		4-7
	3	Fan belt					●		4-8
	4	Air conditioner compressor belt					●		4-8
	5	Outlet valve, dry air filter			●				4-9
With warning light ON	6	Main cartridge, dry air filter			●				4-9
	7	Brake fluid reservoir	●	●					4-10
	8	Fuel sedimenter (condensation drain)			●				4-10
Every 10 hours	9	Engine oil	●	●					4-10
	10	Battery	●	●					4-11
	11	Hydrostatic steering reservoir	●	●					4-12
	12	Radiator expansion tank	●	●					4-12
	13	Windscreen washer bottle	●	●					4-12
	14	Cab air filter			●				4-13
	15	Air conditioner condenser			●				4-13
	16	Cab air-conditioning system	●						4-14
	17	Oil bath air cleaner	●	●	●				4-15
Every 50 hours	18	Hydraulic lift and linkage				●			4-16
	19	Steering cylinders 4WD				●			4-16
	20	Front axle rear pivot 4WD				●			4-16
	21	Front axle front pivot 4WD				●			4-17
	22	Steering cylinder 2WD				●			4-17
	23	Right hand stub axle 2WD				●			4-17
	24	Left-hand stub axle 2WD				●			4-18
	25	Front axle pivot 2WD				●			4-18
	26	Fuel filter (condensation drain)			●				4-18

Hours of work	Operation number	Maintenance operations	Functional check	Top up	Clean	Grease	Adjust	Replace	Page
Every 300 hours	27	Engine oil						●	4-19
	28	Fuel filter						●	4-19
	29	Fuel pump filter			●				4-19
	30	Oil filter, hydraulic lift						●	4-20
	31	Engine oil filter						●	4-20
	32	Oil filter, hydrostatic steering (separate tank)						●	4-20
	33	Final reduction gears		●					4-21
	34	Dry air filter (external cartridge)			●				4-21
	35	Rear transmission and hydraulic lift	●	●					4-21
	36	Front axle housing 4WD	●	●					4-22
	37	Handbrake	●				●		4-22
	38	Front axle reduction hubs 4WD	●	●					4-23
	39	Front wheels 2WD				●			4-23
	40	Front axle swivel bearings 4WD				●			4-23
	41	Oil bath air cleaner						●	4-24
Every 600 hours	42	Fuel sedimenter						●	4-24
Every 900 hours	43	Engine valves	●				●		4-24
Every 1200 hours or annually	44	Cab air filter						●	4-25
	45	Dry air filter (cartridges: internal and external)						●	4-25
	46	Fuel tank			●				4-25
	47	Hydrostatic steering oil (independent tank)						●	4-26
	48	Drive shaft sleeve for 4WD front axle connection	●					●	4-26
Every 1200 hours or every 2 years	49	Injectors	●				●		4-27
	50	Front axle housing oil, 4WD						●	4-27
	51	Front axle final drive hubs oil, 4WD						●	4-27
	52	Engine cooling system			●			●	4-28
	53	Transmission and hydraulic oil						●	4-30
	54	Final reduction oil						●	4-30
General maintenance	Bleeding the fuel system								4-31
	Bleeding the hydraulic brake system								4-31
	Electrical system								4-33
	Bodywork maintenance								4-40
	Lubrication capacities and specifications								4-41

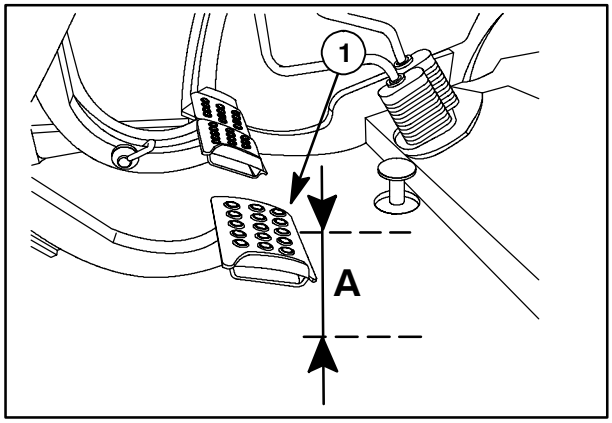
FLEXIBLE MAINTENANCE

OPERATION 1

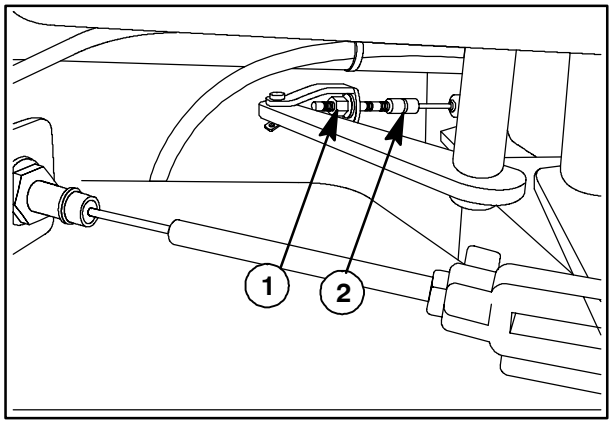
CLUTCH ADJUSTMENT - Figs. 1 and 2

If the clutch pedal position is uncomfortable (too high) or it will not reach its upper rest position (to prevent the clutch slipping) check that distance **A**, on clutch pedal (1) fig. 1 is 35-40 mm (1.4-1.6 in) if not, adjust the pedal as follows:

- Release lock nuts (1) fig. 2 and turn hexagon sleeve (2) anti-clockwise;
- Check that distance **A** corresponds with the value given above;
- Tighten lock nuts (1) fig. 2;
- Re-check that the pedal travel is as specified.



1



2

⚠ CAUTION ⚠

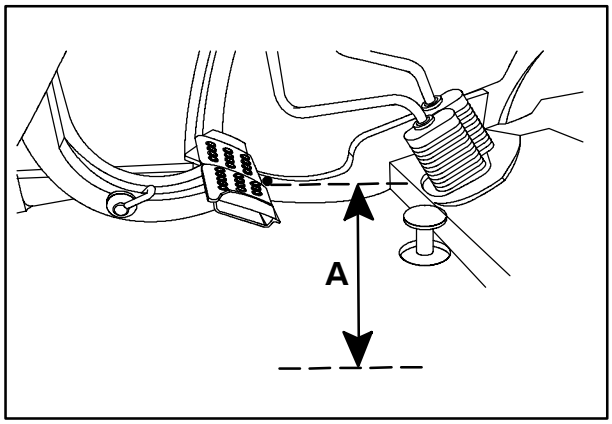
The distance must be measured from the pedal centre as shown in fig. 1.

OPERATION 2

BRAKE PEDAL ADJUSTMENT - Fig. 3- 4

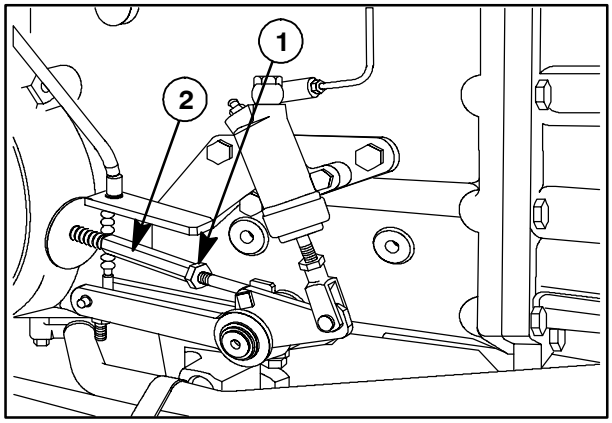
Adjusting height of service brake pedals

- With the brake pedals connected to their respective forks and the pedal connecting pin released, check pedal adjustment.
- Check that pedal free travel (A) is the same for each pedal and does not exceeds 80 mm.



3

- If adjustment is required, fully release the handbrake (lever down). Slacken the lock nuts (1) and turn the hexagon sleeves (2) until brake pedal free travel is 5 mm. Finally, tighten the lock nuts (1).



4

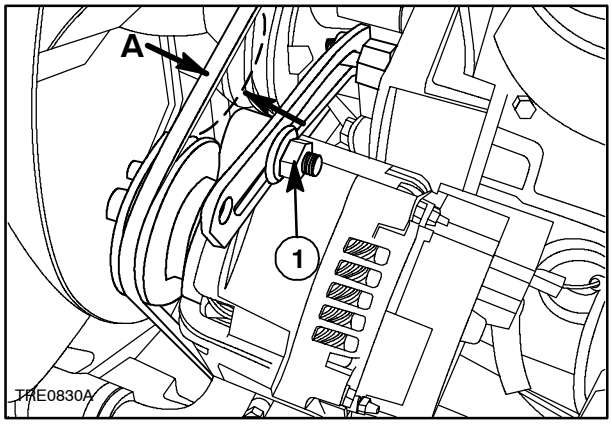
OPERATION 3

FAN BELT (ALL VERSIONS WITHOUT AIR-CONDITIONING) - Fig. 5

Check that tension (**A**) at the centre of the belt run, as shown in the figure, is 10-11 mm (0.39-0.43 in) with an applied load of 78-98 N (8-10 kg or 17.7-22.1 lbs).

To adjust, slacken screw (1) and reset the tension to the values indicated above.

NOTE: If the belt is cracked or frequent adjustment is necessary, it needs to be replaced.



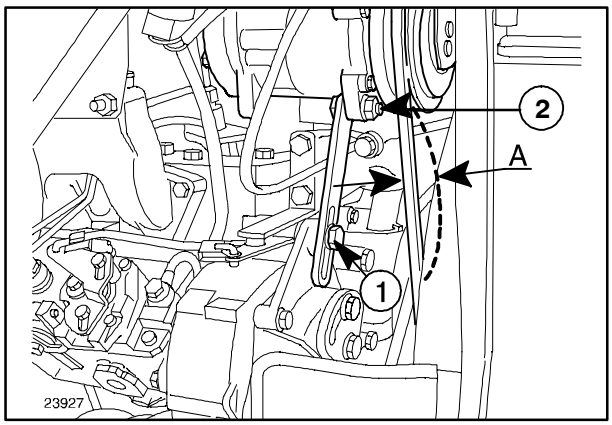
5

OPERATION 4

COMPRESSOR BELT - Fig. 6

Check that tension (**A**) of the belt shown in the figure, is 12-13 mm (0.47-0.51 in) with a load of 78-98 N (8-10 kg or 17.7-22.1 lbs), measured in the centre of the belt run, as illustrated in the figure.
To adjust, slacken screw(1) and adjust belt tensioner (2).

NOTE: If the belt is cracked or frequent adjustment is necessary, it needs to be replaced.

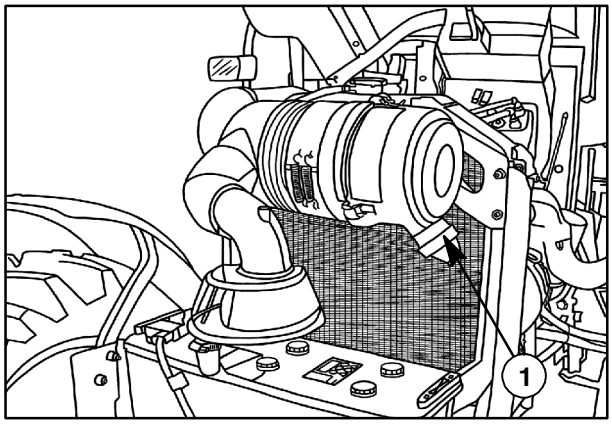


6

OPERATION 5

AIR FILTER VALVE - Fig. 7

Check if the outlet valve (1) is clogged by squeezing the rubber end cap to allow accumulated dust to escape.

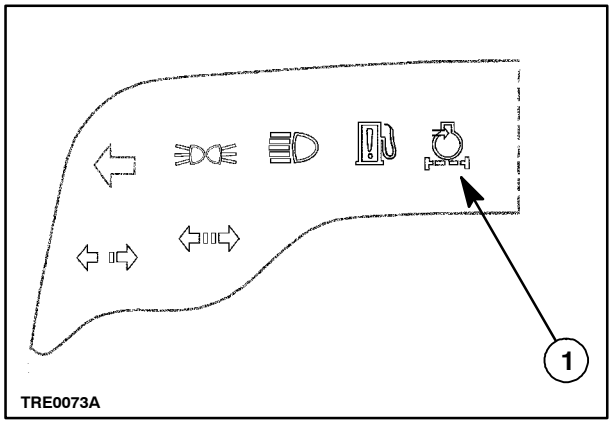


7

WHEN THE WARNING LIGHT IS ON

DRY AIR FILTER MAINTENANCE - Fig. 8

NOTE: Always take corrective action, as follows in Operation 6, when the red indicator light (1) illuminates, indicating that the airflow through the filter is restricted.
Replace the external element every year, or when pin holes appear (visible by placing a light inside). Do not clean the **internal** safety element (by blowing or washing) but replace annually or whenever the external element is replaced.



8

OPERATION 6

MAIN DRY AIR FILTER CARTRIDGE - Fig. 9

When the red indicator light in the instrument panel illuminates, remove the cover, extract the outer element (1) and clean as follows:

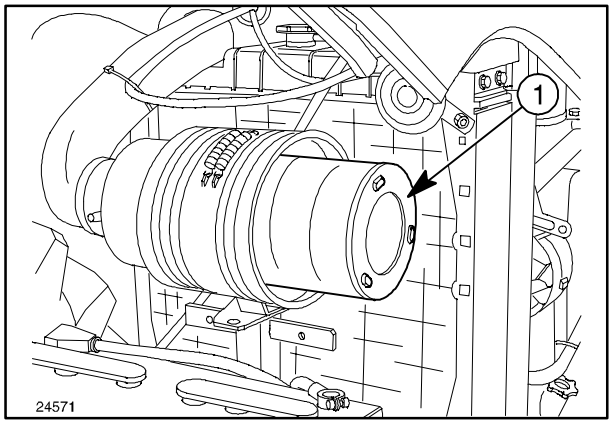
- with a jet of compressed air at less than 5.9 bar (6 kg/cm^2) (85 Psi), insert the air line nozzle inside the element and blow dust from the inside through the element to the outside;

or

- with water and non-foaming detergent, rinse with a water jet at less than 2.9 bar (3 kg/cm^2) (42 Psi) and dry with dry air at a temperature of less than 50°C. Do not re-install the element unless it is perfectly dry. A damp air cleaner element will rupture when the engine is started.

Never clean the element by tapping it on a hard surface. Instead, tap it on the palm of your hand.

Clean the whole of the inside of the container carefully with a damp cloth.
Do not disturb the inner safety element.

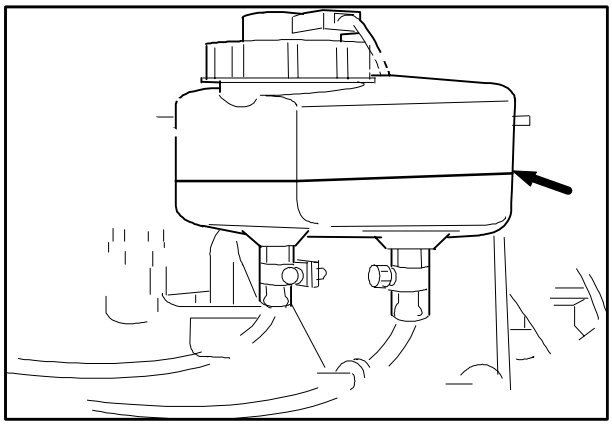


9

OPERATION 7

BRAKE FLUID LEVEL - Fig. 10

Check that the fluid level is not below the indicator arrow on the reservoir. Top up as necessary.

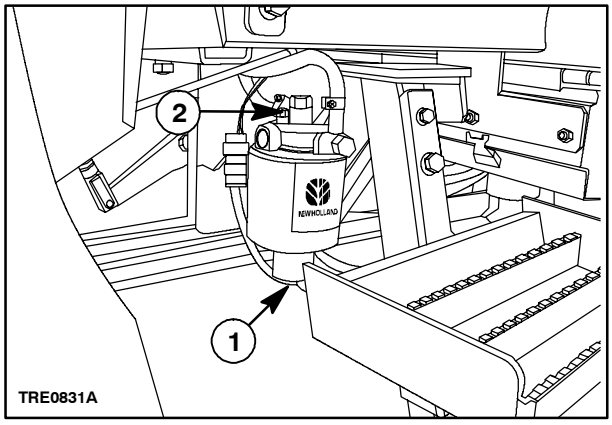


10

OPERATION 8

FUEL SEDIMENTER - Fig. 11

With the reservoir completely full, partially unscrew the drain plug (1) until all the water is drained off. To ensure complete discharge, also unscrew the bleed screw (2). Tighten screw (1) when the fuel coming out no longer contains air bubbles, then tighten screw (2).



11

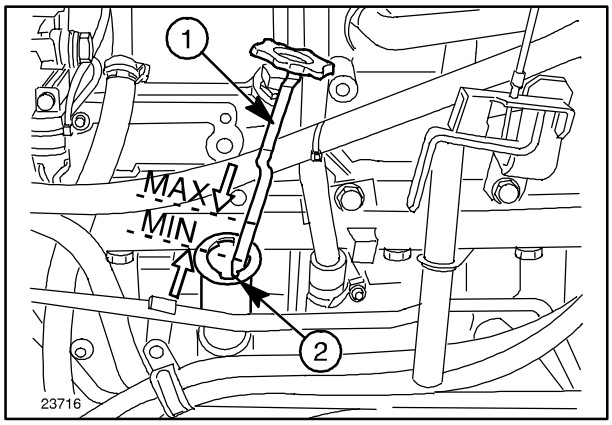
EVERY 10 HOURS

OPERATION 9

ENGINE OIL LEVEL - Fig. 12 and 13

Check the level with the tractor on a level surface with the engine switched off. Allow at least five minutes for the oil to settle in the sump:

- Remove dipstick (1) fig. 12**,** clean it with a cloth and replace it in its hole.
- Remove the dipstick again and check that the oil level is between the "**MIN** and **MAX**" marks.
- If necessary, add oil through fill points (2) fig. 12 or (1) fig. 13 until the correct level is reached.

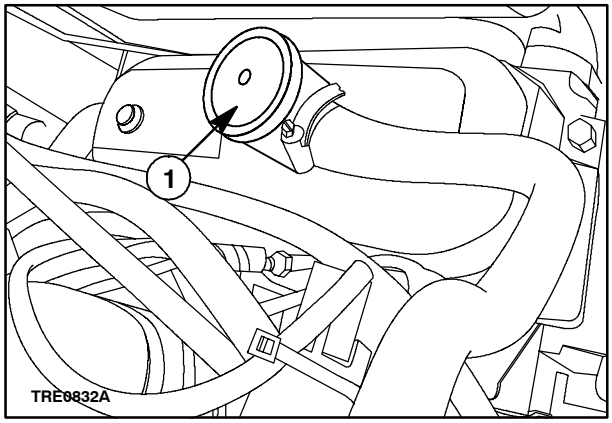


12

NOTE: A red warning light on the panel shows when the oil level is low.

⚠ WARNING ⚠

Never run the engine when the oil level is below the "**MIN**" mark.

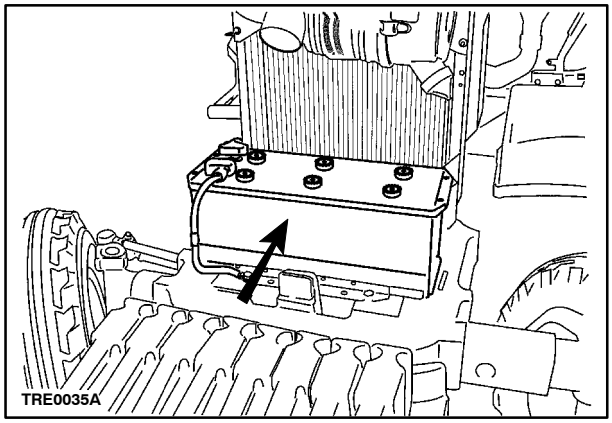


13

OPERATION 10

BATTERY CAPACITY 105 Ah. - Fig. 14

NOTE: *The 105 Ah capacity battery is located within the front axle support.*
To access the battery, lift the bonnet as described on page 4-4 of this section.



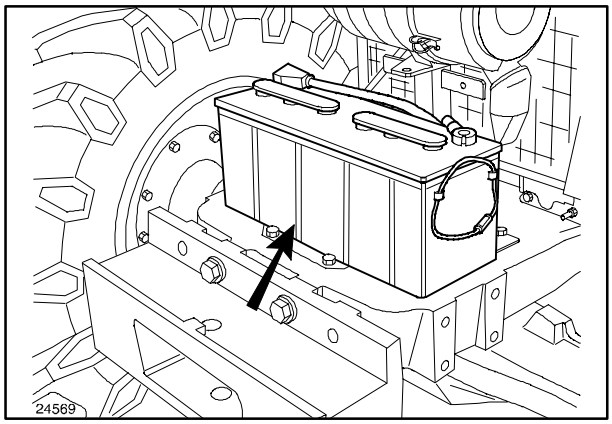
14

BATTERY CAPACITY 120 Ah - Fig. 15

NOTE: *The 120 Ah capacity battery is located on top of the front axle support.*
To access the battery, lift the bonnet as described on page 4-4 of this section.

The electrolyte level must be checked with the engine shut off, the tractor on a level surface and the battery cold.

If the battery needs to be topped up frequently or tends to run down, have the electrical system checked by your dealer.

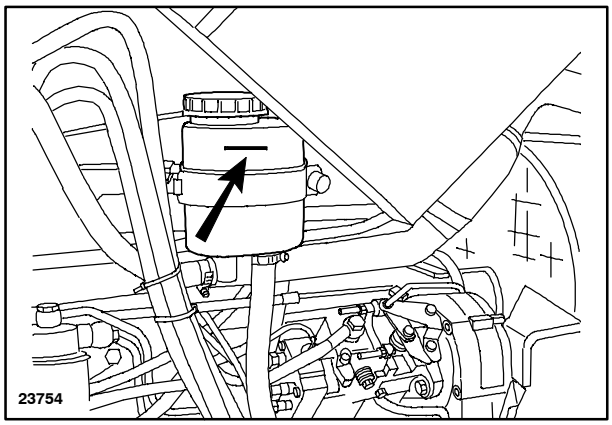


15

OPERATION 11

HYDROSTATIC STEERING RESERVOIR - Fig. 16

Check the oil level and top up as necessary.

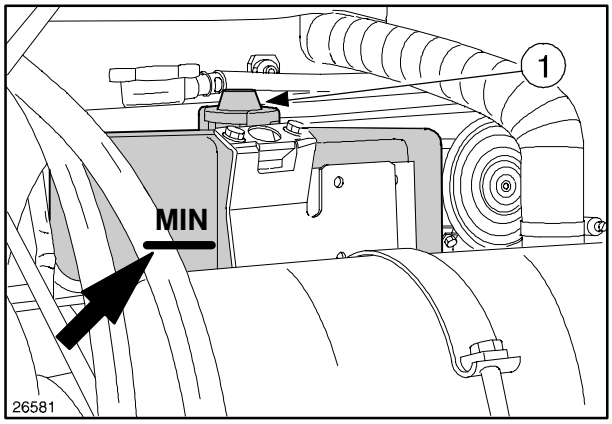


16

OPERATION 12

RADIATOR EXPANSION TANK - Fig. 17

The level must always be above the **"MIN"** mark shown in the figure.
If necessary top up through the fill point (1).



17

OPERATION 13

WINDSCREEN WASHER BOTTLE - Fig. 18

To add liquid to the windscreen washer bottle:

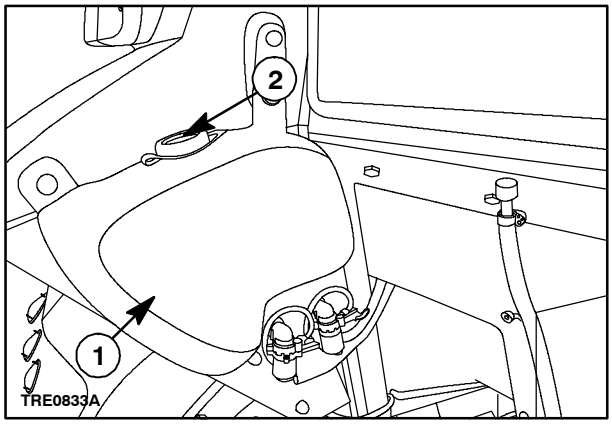
5. Remove the filler cap (1);

6. Add washer fluid to fill the bottle (2);

7. Replace the cap.

⚠ WARNING ⚠

In winter use water mixed with an antifreeze product.



18

OPERATION 14

CAB AIR FILTER - Fig. 19 - 20

Unscrew the cover (4) retaining knobs (1), extract the element (2) and clean:

- by tapping gently on a flat surface with the outward-facing part downwards;

or

- with a jet of compressed air at less than 6.9 bar (7 kg/cm^2) (100 Psi);

or

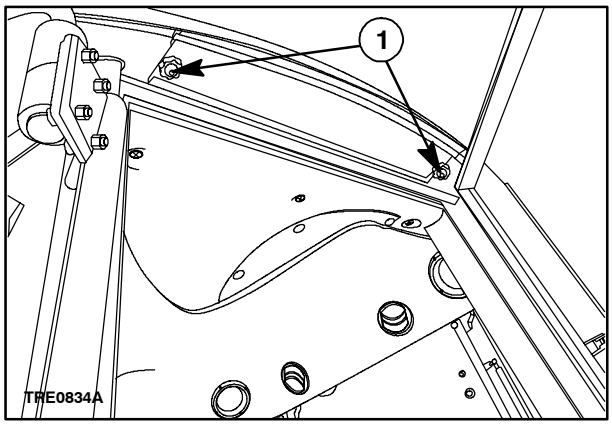
- by immersing the filters in a solution of water and non-foaming detergent for 15 minutes;

or

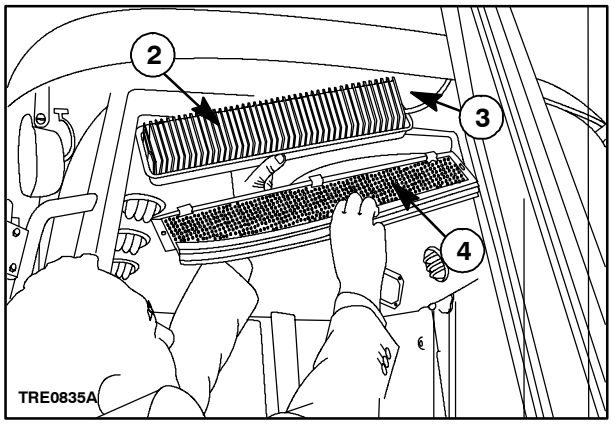
- rinsing with a jet of water at less than 2.7 bar (2.8 kg/cm^2) (39 Psi) and drying with dry, non-compressed air.

Do not re-install the elements until they are thoroughly dry. A damp air filter will rupture when the heater/air conditioner is operated.

Clean filter seats (3) with a cloth. When refitting the elements, the arrow on the label must face the inside of the cab.



19

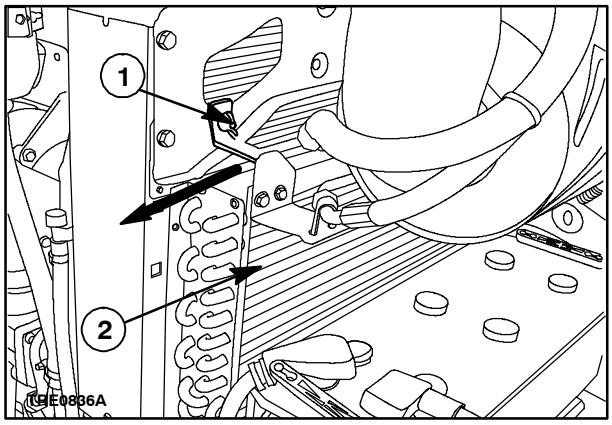


20

OPERATION 15

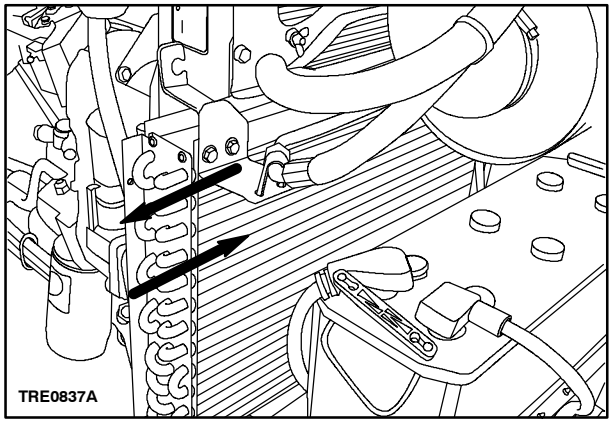
AIR CONDITIONER CONDENSER - Fig. 21- 22

Slacken the retaining screw (1) on the condenser (2). Slide the condenser sideways, in the direction of the arrow and clean off any dirt accumulated between the cooling fins. Check that they are not deformed and, if necessary, restore them to proper working condition.



21

Slide the condenser back to its working position and tighten the retaining screw (1).



22

OPERATION 16

CAB AIR CONDITIONING SYSTEM - Figs. 23 and 24

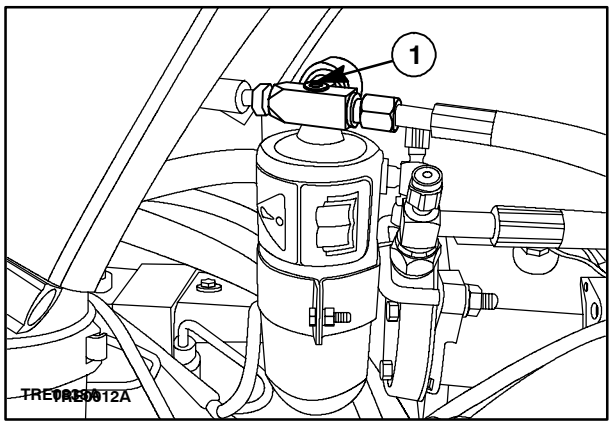
At the start of a period of use, check that the filter is working properly as follows:

- Turn the knob (3) fig. 24 clockwise to switch on the air-conditioning;
- Turn the temperature control knob (2) fig. 24 fully anti-clockwise;
- Turn the electric fan control (1) fig. 24 to the low-speed, first setting;
- Place a thermometer next to the vents (arrowed in the fig. 24) and check that the temperature measured is around 15° C less than the external temperature.

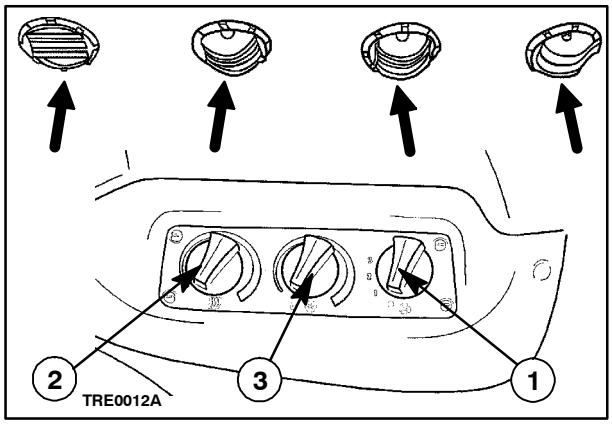
or

- Check, with the air-conditioning on, that inspection glass (1) fig. 23, on top of the filter, is transparent; if white liquid or air bubbles can be seen, the filter needs to be replaced.

NOTE: The filter must always be replaced when work is carried out on the air-conditioning system. Also, take this opportunity to check the oil level in the compressor.



23



24

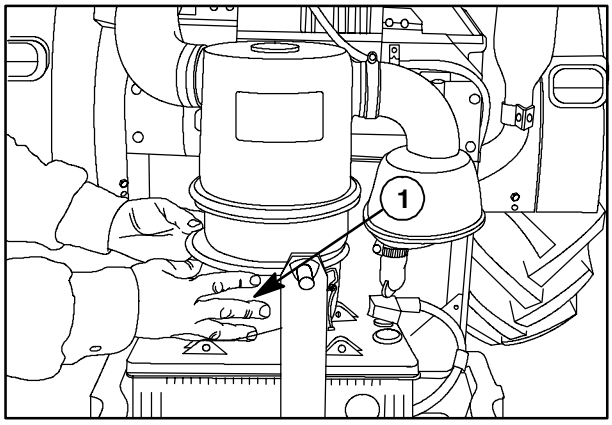
OPERATION 17 (NOT AVAILABLE FOR ALL MARKETS & ALL MODELS)

OIL BATH AIR CLEANER - Fig. 25

After the engine has been stopped for at least 15 minutes, remove the bowl (1) from the oil bath air cleaner and check the oil level inside. The oil level should be up to or slightly above the level line stamped into the reservoir bowl.

If there is an accumulation of dirt in the filter bowl approaching 1 cm or more, clean the bowl and refill with fresh oil. Also clean inside the air cleaner casing during every cleaning operation.

NOTE: Be aware that dirt in the oil will raise the oil level in the air cleaner bowl.



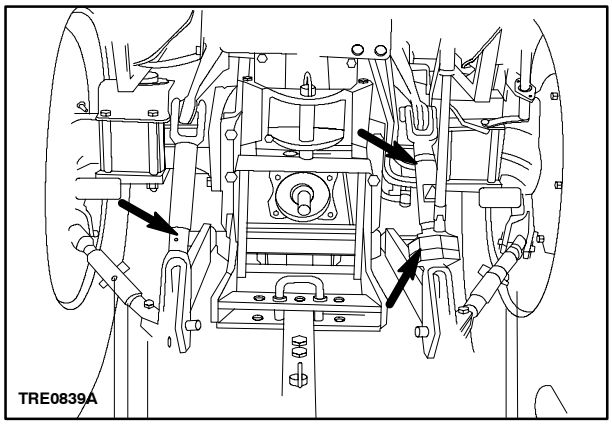
25

EVERY 50 HOURS

OPERATION 18

HYDRAULIC LIFT AND LINKAGE - Fig. 26

Using a grease gun, pump AMBRA GR9 grease into the three grease points shown.

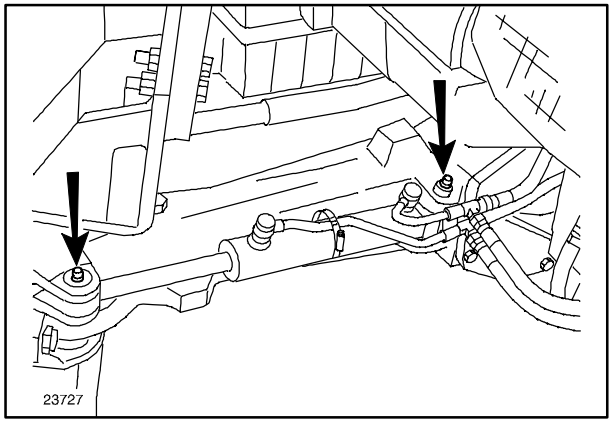


26

OPERATION 19

STEERING CYLINDERS 4WD - Fig. 27

Using a grease gun, pump AMBRA GR9 grease into the two lubrication fittings shown.

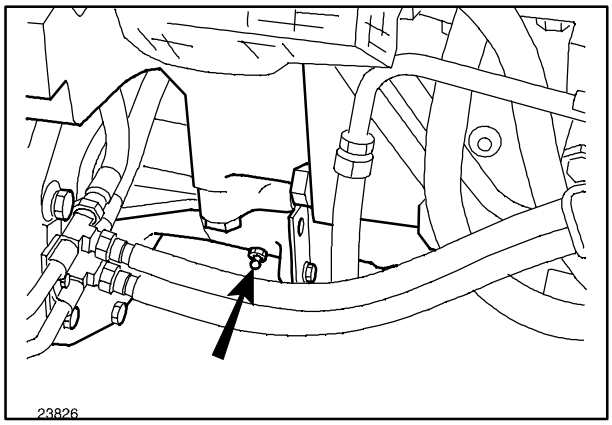


27

OPERATION 20

FRONT AXLE REAR PIVOT 4WD - Fig. 28

Using a grease gun, pump AMBRA GR9 grease into the lubrication fitting shown.

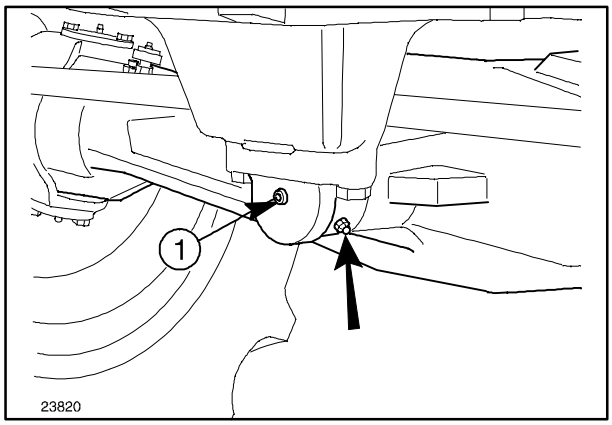


28

OPERATION 21

FRONT AXLE FRONT PIVOT 4WD - Fig. 29

Using a grease gun, pump AMBRA GR9 grease into the lubrication fitting (arrowed) until grease escapes through outlet (1).

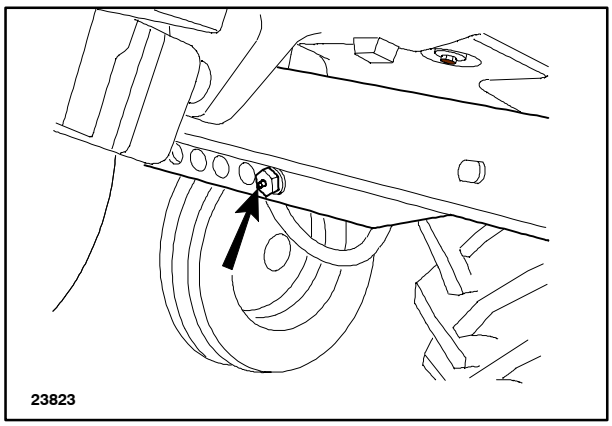


29

OPERATION 22

STEERING CYLINDER 2WD - Fig. 30 and 31

Using a grease gun, pump AMBRA GR9 grease into the lubrication fitting shown.

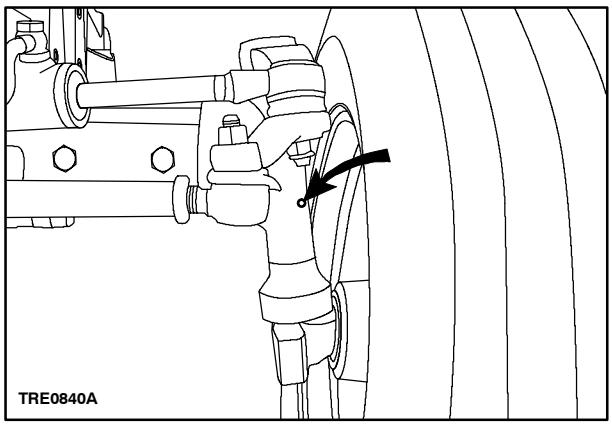


30

OPERATION 23

RIGHT-HAND STUB AXLE 2WD - Fig. 31

Using a grease gun, pump AMBRA GR9 grease into the lubrication fittings shown.

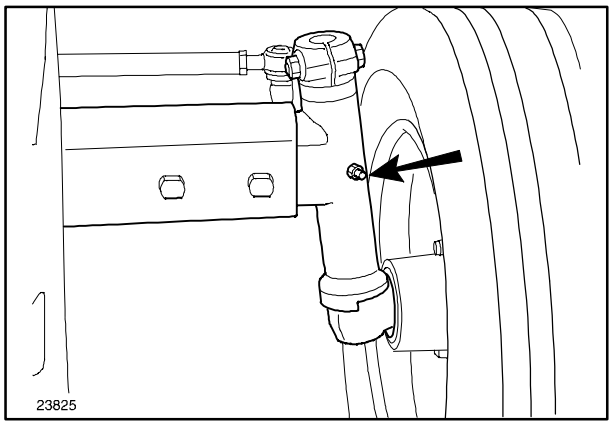


31

OPERATION 24

LEFT-HAND STUB AXLE 2WD - Fig. 32

Using a grease gun, pump AMBRA GR9 grease into the lubrication fitting shown.

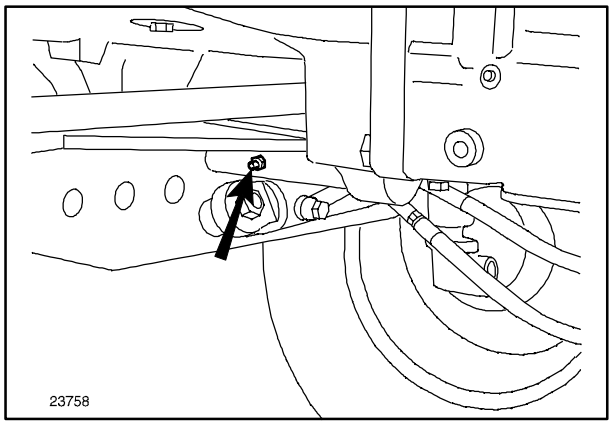


32

OPERATION 25

FRONT AXLE PIVOT 2WD - Fig. 33

Using a grease gun, pump AMBRA GR9 grease into the lubrication fitting shown.

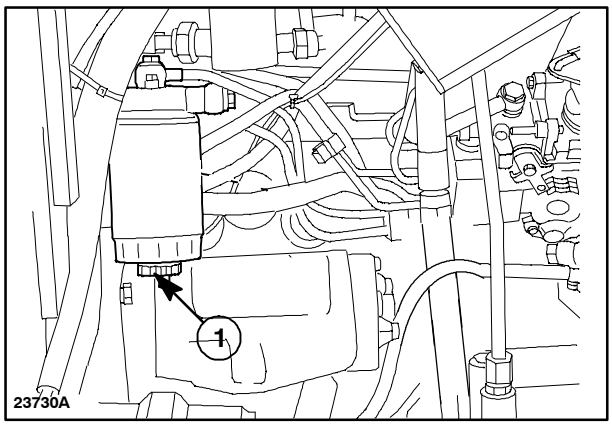


33

OPERATION 26

FUEL FILTER - Fig. 34

Loosen the drain plug (1) approximately $^{3}/_{4}$ of a turn, then operate the fuel pump primer lever to force condensed water and sediment from the filter. When only clean fuel drains from the filter, tighten the drain plug.



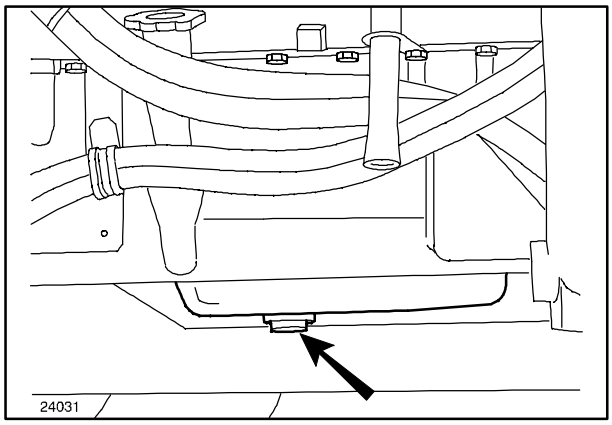
34

EVERY 300 HOURS OF WORK

OPERATION 27

ENGINE OIL - Fig. 35

Drain off all the oil via the sump plug shown and refill with fresh oil using fill points (2) fig. 12 or (1) fig. 13 page 4-11.

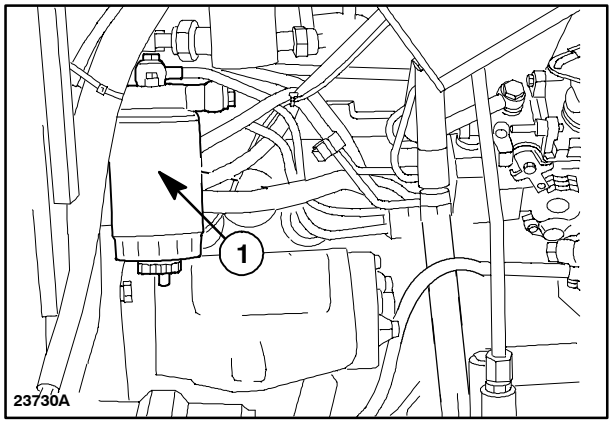


35

OPERATION 28

FUEL FILTER - Fig. 36

Unscrew and remove the filter cartridge (1). Install a new filter cartridge.
Bleed air from the fuel system as described on page 4-31 in this section.

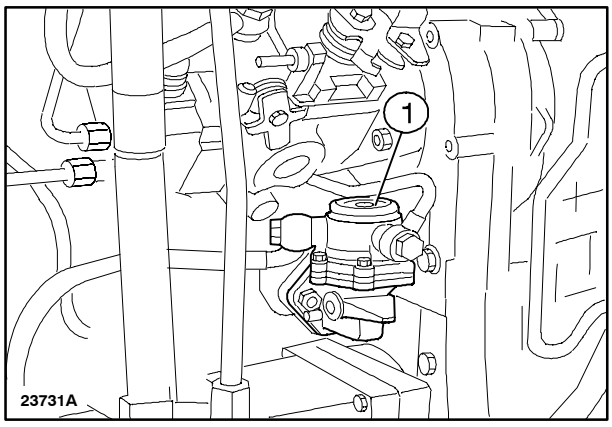


36

OPERATION 29

FUEL PUMP FILTER - Fig. 37

Remove cover (1) and clean the internal filter screen.

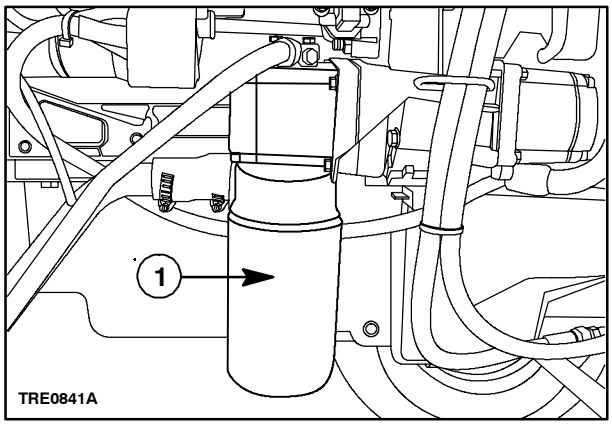


37

OPERATION 30

HYDRAULIC LIFT OIL FILTER - Fig. 38

Unscrew and remove the filter (1). Oil the rubber seal then screw on and tighten the cartridge $^3/_4$ of a turn by hand. Top up the oil with fresh oil. (see operation. no.35 page 4-21).

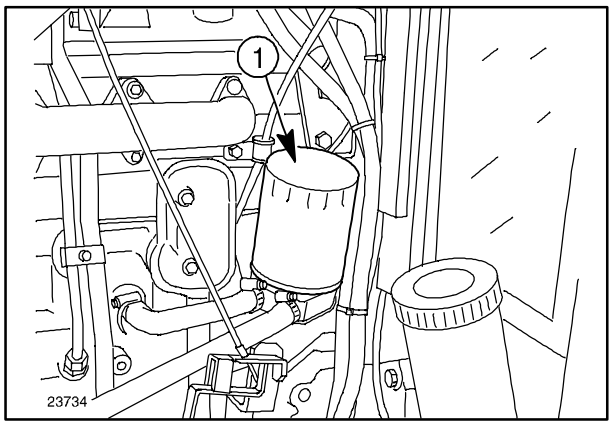


38

OPERATION 31

ENGINE OIL FILTER - Fig. 39

Unscrew and remove the filter (1). Oil the rubber seal then screw on and tighten the cartridge $^3/_4$ of a turn by hand. Top up the oil with fresh oil. (see operation no. 9 fig. 12 and 13).



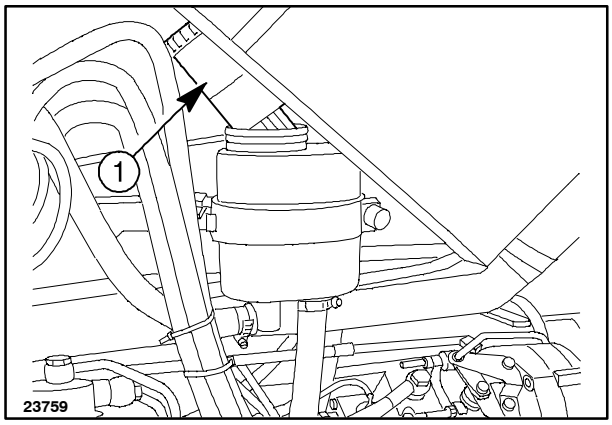
39

OPERATION 32

HYDROSTATIC STEERING - Fig. 40

Remove the filter (1) (press downwards and move sideways) and wash the filter, together with the filler cap in mineral oil.

NOTE: *For oil grades, see the lubrication charts beginning on pages 4-41.*



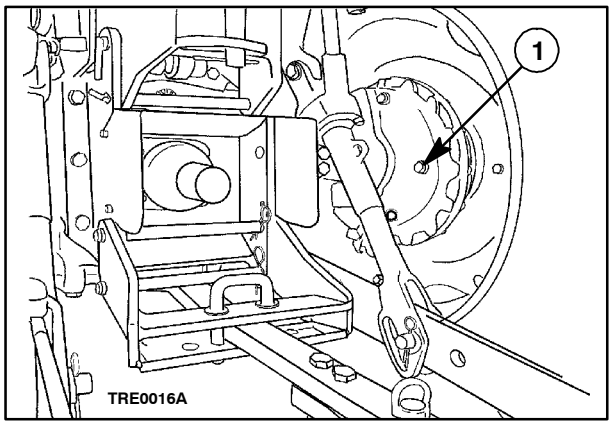
40

OPERATION 33

FINAL REDUCTION GEARS - Fig. 41

Check the oil level as follows :

- Park the tractor on a level surface.
- Remove the plug (1). Some oil should flow out of the plug hole. If necessary, top up via same plug hole until the oil overflows.

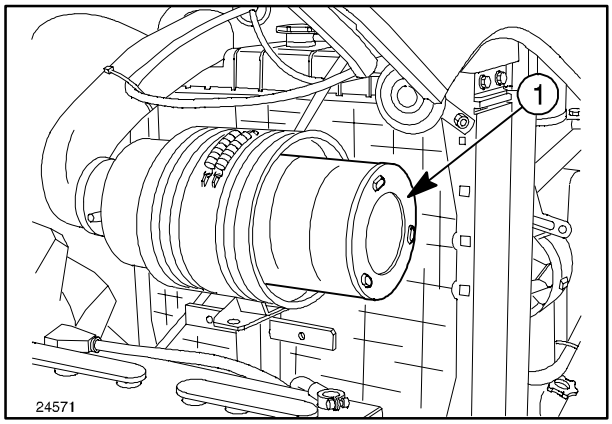


41

OPERATION 34

DRY AIR FILTER, EXTERNAL CARTRIDGE - Fig. 42

Remove the cover, take out external cartridge (1) and clean as described in operation 9, on page 4-9 of this section.



42

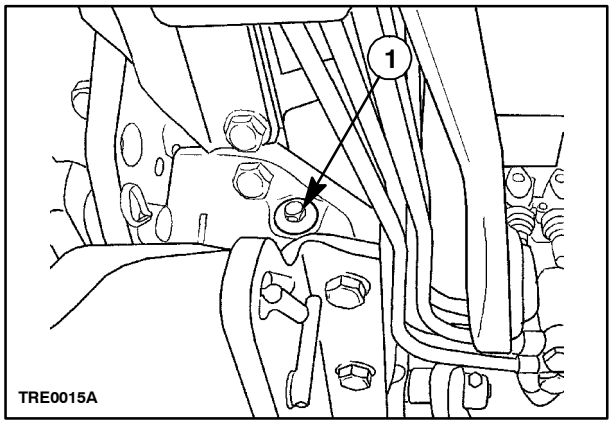
OPERATION 35

TRANSMISSION AND HYDRAULIC LIFT - Fig. 43

With the tractor on a level surface, the engine shut off and the hydraulic lift linkage fully lowered, check that the oil level reaches the "**MAX**" mark on the combined filler plug / dipstick (1).

If necessary, add oil through the fill point and replace the plug.

NOTE: *For oil grades, see the lubrication charts beginning on pages 4-41.*



43

OPERATION 36

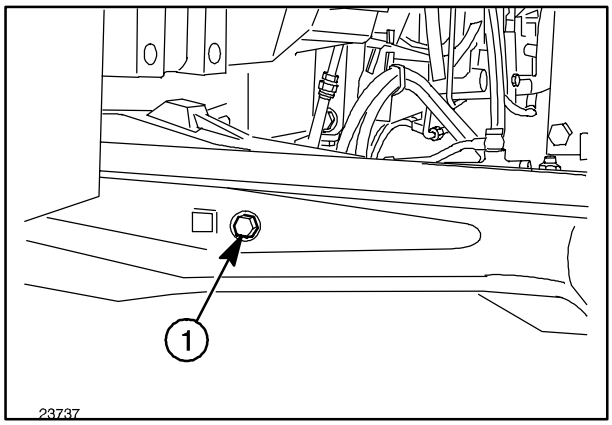
FRONT AXLE HOUSING 4WD - Fig. 44

Check the oil level as follows:

- Park the tractor on a level surface;
- Remove the plug (1). Some oil should flow out of the plug hole.

If necessary, top up via plug hole (1) until the oil overflows.

NOTE: *For oil grades, see the lubrication charts beginning on pages 4-41.*

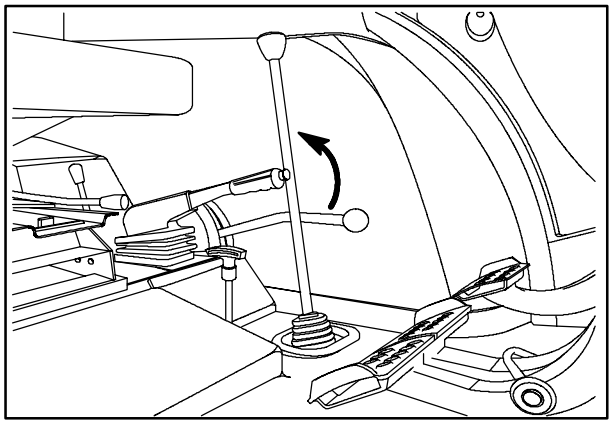


44

OPERATION 37

HANDBRAKE - Fig. 45 - 46

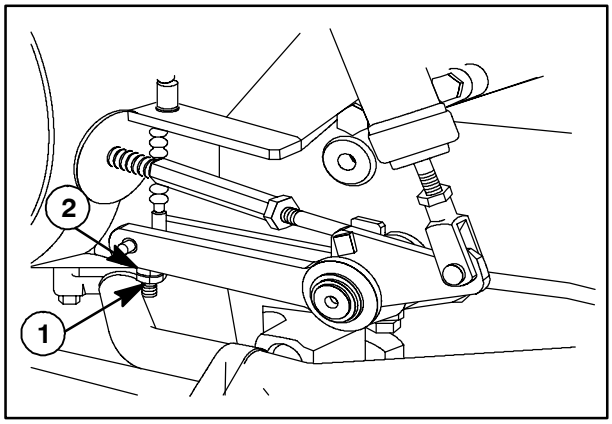
The handbrake lever must be adjusted whenever work is carried out on the unit or when the lever does not engage with the third notch of the sector gear when the handbrake is applied.



45

For all models (2WD and 4WD) (Fig. 46) proceed as follows:

- Slacken the lock nut (1)
- Tighten or slacken the adjusting screw (2) until the lever is engaged with the third notch, when the handbrake is applied.
- Tighten the lock nut (1).



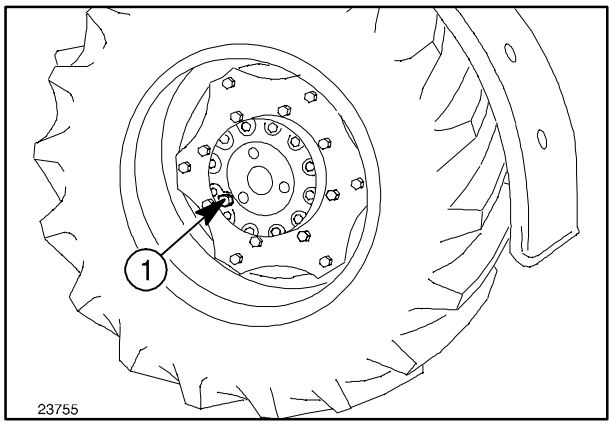
46

OPERATION 38

FRONT AXLE REDUCTION HUBS 4WD - Fig. 47

Check the oil level by rotating the wheel until the plug (1) is at the horizontal position. If oil does not overflow when the plug is removed, top up through the opening and replace the plug.

NOTE: *For oil grades, see the lubrication charts beginning on pages 4-41.*

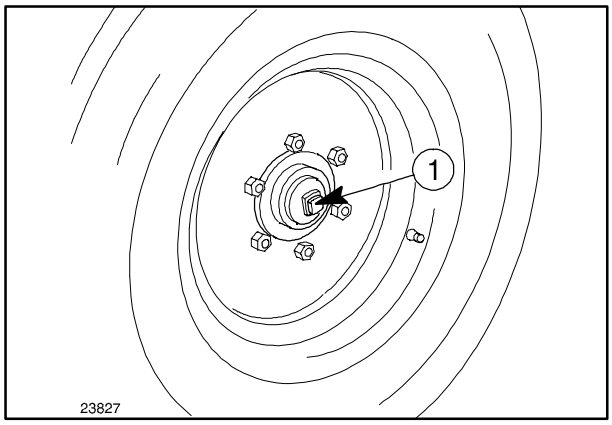


47

OPERATION 39

FRONT WHEELS 2WD - Fig. 48

Remove covers (1) from both hubs. Fill them with AMBRA GR9 grease and replace.

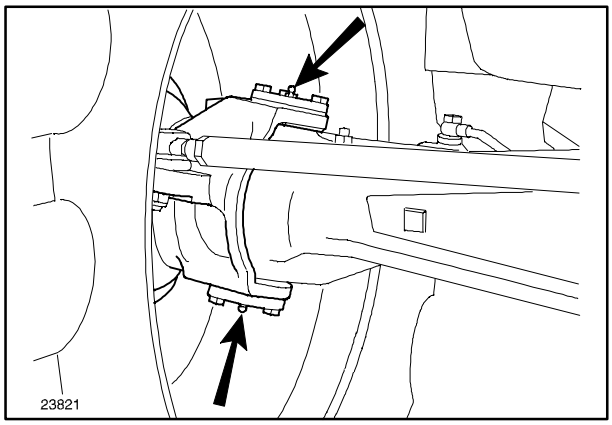


48

OPERATION 40

FRONT AXLE SWIVEL BEARINGS 4WD - Fig. 49

At least twice a year, pump AMBRA GR9 grease into the two lubrication fittings shown (two on each side).

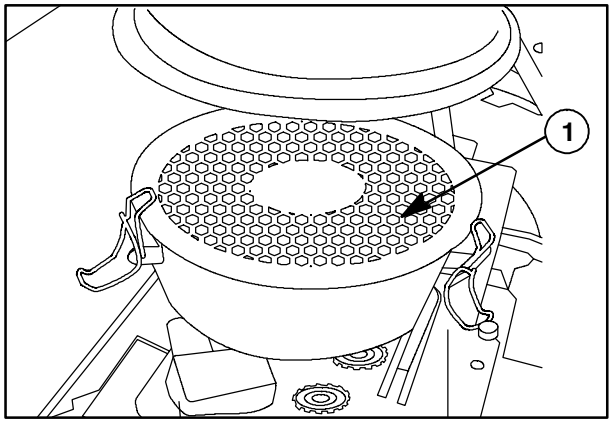


49

OPERATION 41
(NOT AVAILABLE FOR ALL MARKETS & ALL MODELS)

OIL BATH AIR CLEANER - Fig. 50

Remove the filter parts and wash them with kerosene (paraffin). After cleaning and drying, refill with fresh engine oil up to the level line stamped into the side of the bowl. Re-install the bowl assembly.



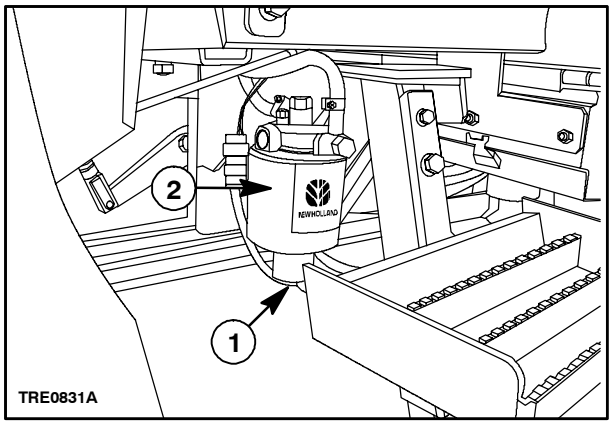
50

EVERY 600 HOURS OF WORK

OPERATION 42

FUEL SEDIMENTER- Fig. 51

Unscrew the drain plug (1) fig. 51. Turn the sedimenter element (2) completely to remove. Replace the fuel sedimenter with new one. Install the drain plug and tighten it carefully .



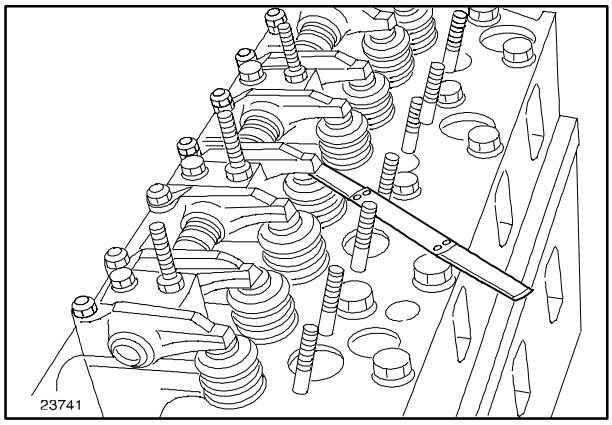
51

EVERY 900 HOURS OF WORK

OPERATION 43

ENGINE VALVES - Fig. 52

Contact your dealer to check the clearance between the valves and the rocker arms (0.35 ± 0.05 mm; 0.012 ± 0.002 inches).
The inspection must be carried out when the engine is cold.



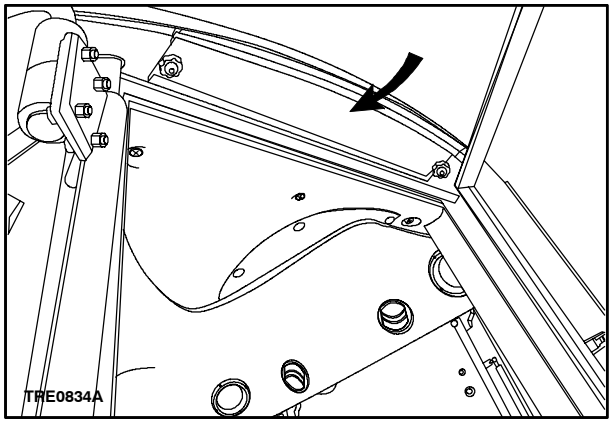
52

EVERY 1200 HOURS OF WORK

OPERATION 44

CAB AIR FILTER - Fig. 53

Remove the grill shown, on left side, and replace the filter element.



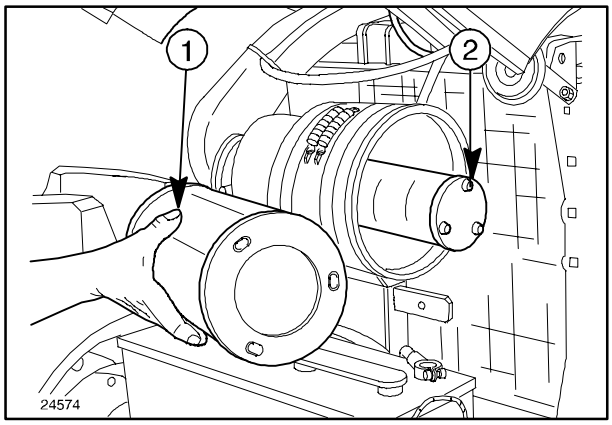
53

OPERATION 45

DRY AIR FILTER - Fig. 54

Remove the outer element (1), together with the inner safety element (2).

Clean the inside of the casing with a damp, lint-free cloth and install two new filters.



54

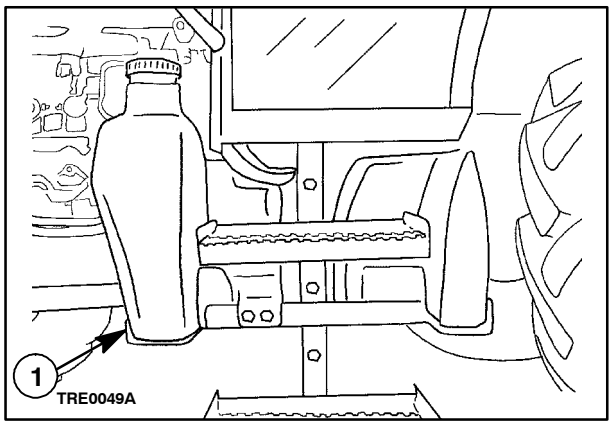
OPERATION 46

FUEL TANK - Fig. 55

With the tractor on a level surface and the engine off, drain the fuel as described below:

- Place a container under the tank;
- Remove plug (1) and drain the fuel to remove any impurities in the tank.

Refill the tank with clean fuel and bleed the system as described on page 4-31 in this section.



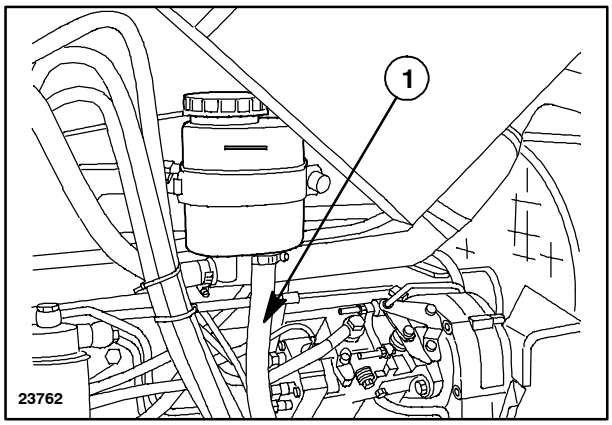
55

OPERATION 47

DRAINING THE HYDROSTATIC STEERING OIL - Fig. 56

Place a container under the reservoir, remove tube (1) and drain the oil.
Refit the tube and clean the internal filter before filling with new oil.

NOTE: *For oil grades, see the lubrication charts beginning on pages 4-41.*



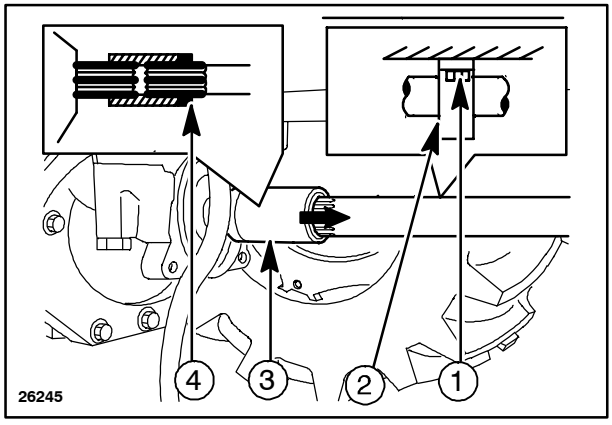
56

OPERATION 48

DRIVE SHAFT SLEEVE FOR 4WD FRONT AXLE CONNECTION - Fig. 57

Check as follows:

- Disassemble the front axle drive shaft guard;
- Loosen screws (1), to disconnect the support (**2**) from the drive housing;
- Remove circlip (4);
- Move the sleeve (3) as shown by the arrow, lower the drive shaft until the sleeve can be removed and check that the inner groove does not show signs of excessive wear.



57

⚠ WARNING ⚠

If the sleeve inner groove should prove excessively worn, refer to your dealer for a possible replacement.

EVERY 1200 HOURS OR EVERY 2 YEARS

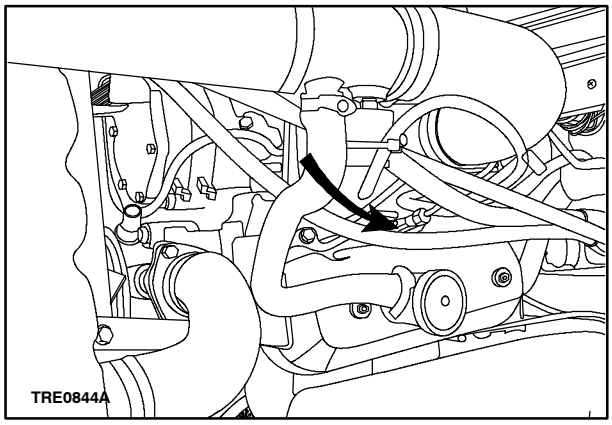
OPERATION 49

INJECTORS - Fig. 58

Have your dealer check the pressure settings (see page 8-6). To remove the injectors from the engine, detach the lines and remove the connectors.

NOTE: Before loosening or disconnecting any part of the injection system, thoroughly clean the area in which you are going to work.

NOTE: Cover all injector lines and apertures to prevent any dirt ingress.



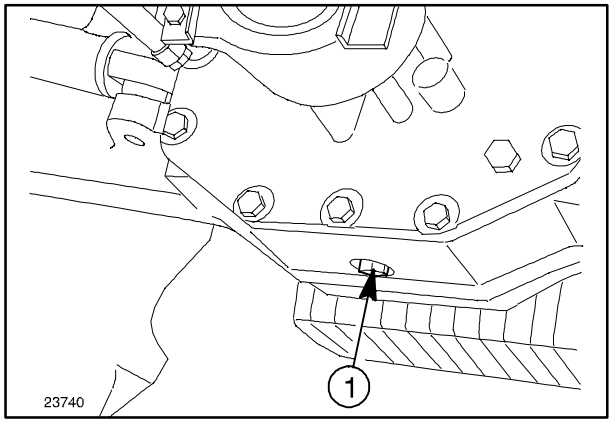
58

OPERATION 50

FRONT AXLE HOUSING - 4WD - Fig. 59

Place a container under the axle housing, unscrew plug (1), let all the oil drain out. Refill with new oil through the filler/level plug hole (1) fig 44.

NOTE: *For oil grades, see the lubrication charts beginning on pages 4-41.*



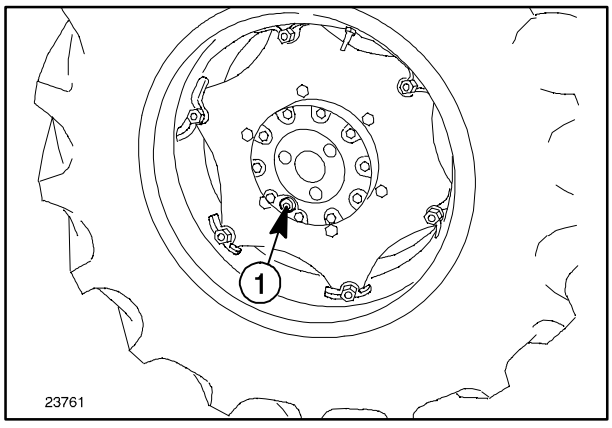
59

OPERATION 51

DRAINING THE OIL FROM THE FRONT AXLE FINAL DRIVES - 4WD - Fig. 60

Position plug (1) to its lowest point, place a container under the plug hole and drain the oil.
Rotate the wheel so that the plug hole is in a horizontal position and fill with new oil.

NOTE: *For oil grades, see the lubrication charts beginning on pages 4-41.*



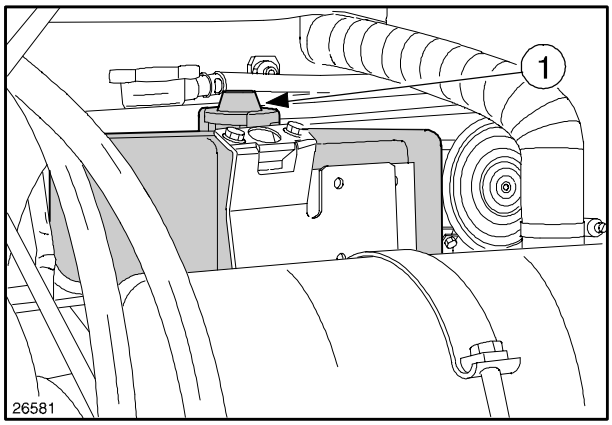
60

OPERATION 52

ENGINE COOLING SYSTEM - Figs. 61, 62 and 63

The system uses a mixture of ***AMBRA AGRIFLU*** and water. This liquid has anti-oxidant, anti-corrosive, anti-foaming and anti-crusting properties. It is also non-freezing down to temperatures of:

Degrees (°C)	-8	-15	-25	-30
% in volume of **AMBRA AGRIFLU** to water	20	30	40	50



61

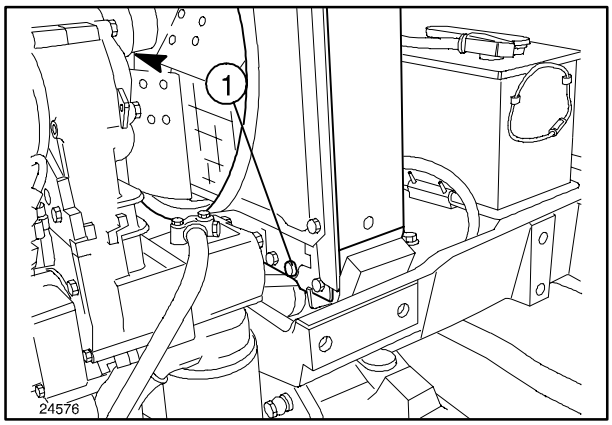
Your tractor is supplied with the cooling system filled with an Ambra Agriflu solution appropriate to your climatic conditions. This will guarantee the system down to the temperature shown on the plate attached to the bonnet.

This mixture will protect the cooling system for a period of ***2 years*** provided that during this time the tractor has not been used for more than ***1200 hours*** in total. Flush the system and replace the anti-freeze mixture when either of these limits have been reached.

In emergencies, to prevent overheating, fill the system by pouring water into the radiator opening (1) fig. 63.

⚠ WARNING ⚠

Repair any damage and top up the mixture as soon as possible, referring to the table above.



62

FLUSHING THE SYSTEM (MODELS WITHOUT CABS)

Flush at least every **1200 service** hours or every **2 years**, and whenever changing the anti-freeze in the system.

Proceed as follows:

- Remove the expansion tank cap (1) fig. 61. Remove the radiator plug (1) fig. 62 and drain the water while the engine is hot;

⚠ CAUTION ⚠

The engine must be switched off when draining the water.

- Once the engine has cooled, fill the radiator with a filtered solution of Solvay soda and water at a ratio of ***250 grams*** (8.8 oz.) of soda to ***10 litres*** (2.20 Imp gal. - 2.70 US gal.) of water;

- Run the tractor for approximately one hour and then drain the flushing solution;

- Wait for the engine to cool down, then circulate pure water by pouring it into the radiator and allowing it to drain from radiator drain plug (1) fig. 62.

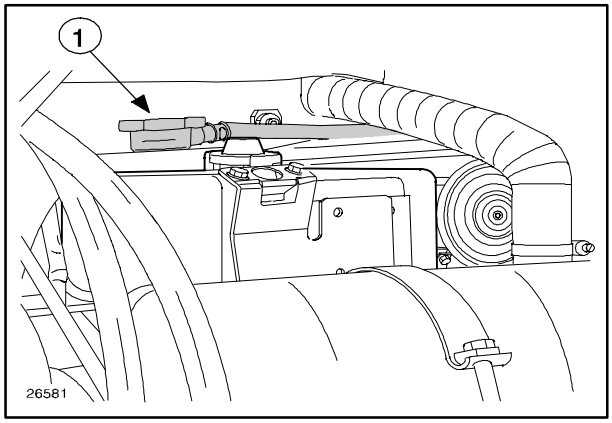
- Replace the radiator plug, fill with water, run the engine for a few minutes and drain the system;

- Leave the engine to cool and top up to the normal level.

THERMOSTAT

There is a thermostat in the cooling circuit to prevent the water circulating in the radiator until the water reaches a high enough temperature to allow the engine to operate correctly (approximately 85°C).

If you think the thermostat may not be working properly, remove it and have it checked by your dealer.



63

FLUSHING THE HEATING SYSTEM (MODELS WITH CAB)

The heating system uses fluid from the engine cooling system drawn off between the engine and the radiator.

Flush the cooling system as described for models without cab, bearing in mind that the heating system can be completely drained by turning temperature adjustment control (1) fig. 64 to the vertical position **A**.

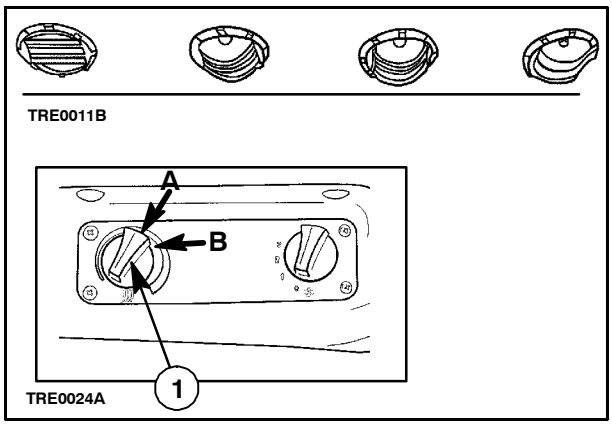
Fill the engine cooling system and cab heating system as follows:

- fill the radiator with a mixture of ***AMBRA AGRIFLU*** and water and fit the radiator filler cap;

- Turn heating control (1) to red, (horizontal position **B**), start the engine and run it for approx. 5 to 10 minutes. (This operation is necessary to warm the coolant in the engine cooling system);

- Remove the upper radiator cap, turn the heating control (1) to a vertical position and run the engine at maximum power for around five minutes;

- Fill the radiator with the engine running at high speeds until it is completely full, and fit the cap.



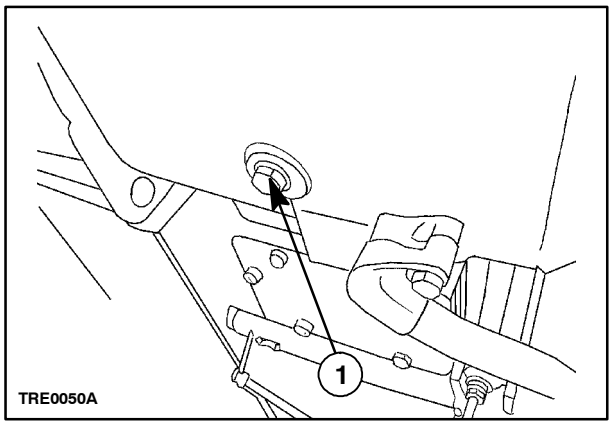
64

OPERATION 53

TRANSMISSION AND HYDRAULIC LIFT OIL - Figs. 65 and 66

Transmission housing

Place a container under the left side of the housing, close to the fuel tank, and drain the oil via the plug hole (1) fig. 65.



65

Final drive, 4-wheel drive

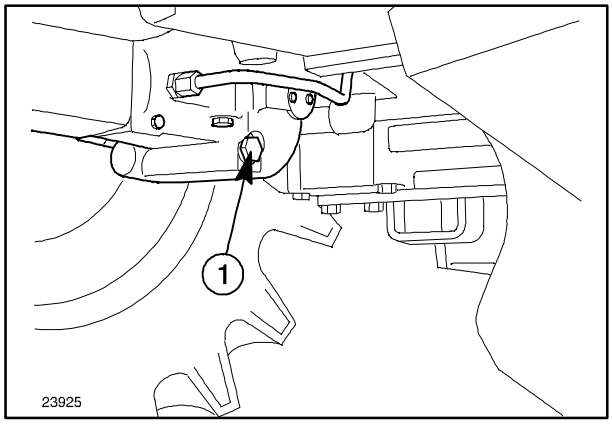
Place a container under the final drive housing and drain oil via plug hole (1) fig. 66.

Oil filters

Replace the hydraulic lift oil filter cartridge (operation 30) and hydrostatic steering and auxiliary systems filter (operation 32).

When you have drained the oil, replace and tighten the plugs and fill with new oil via fill point (1) operation 35.

NOTE: *For oil grades, see the lubrication charts beginning on pages 4-41.*



66

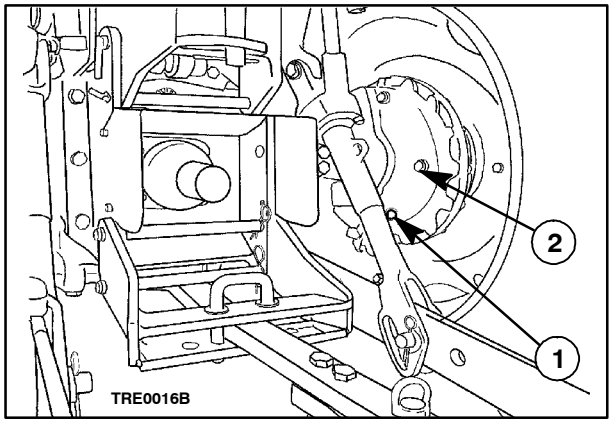
OPERATION 54

FINAL REDUCTION OIL - Fig. 67

Place a container under the final housing and drain oil via hole (1) fig. 67.

When you have drained the oil, replace and tighten the plugs and fill with new oil via fill point (2) fig. 41.

NOTE: *For oil quantity, see the lubrication charts beginning on pages 4-41.*



67

GENERAL MAINTENANCE

BLEEDING THE FUEL SYSTEM

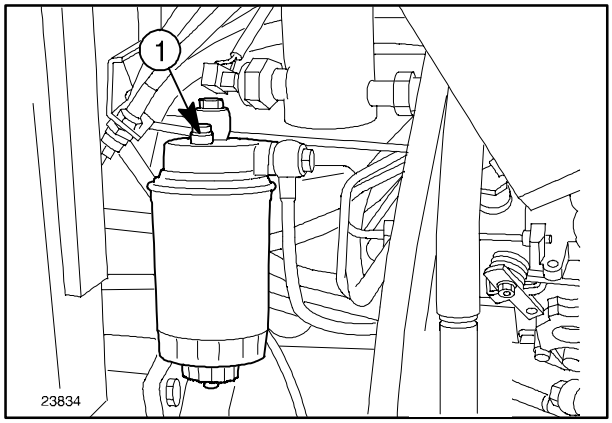
Bleeding procedure - Figs. 68 and 69

During long periods when the tractor is not used, when the filter and fuel lines are removed or when there is no fuel in the tractor, air may enter the fuel system.

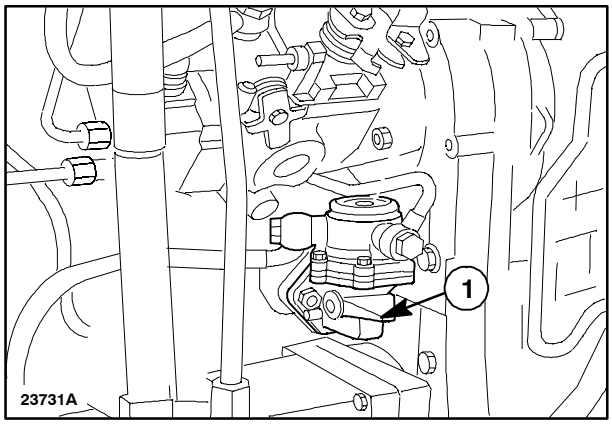
The presence of air makes it difficult to start the engine and it therefore needs to be bled as follows when the fuel tank is refilled:

1. Unscrew the bleed plug (1) fig. 68 by approximately two turns.
2. Actuate lever (1) fig. 69 until fuel without air bubbles spurts from the bleed hole.
3. Tighten plug (1) fig. 68.
4. After tightening the bleed plug (1) fig. 68, actuate lever (1) fig 69 a few times.
5. Turn the ignition key to position **C**, as shown in Section 2, fig. 18, page 2-11. As soon as the engine starts, release the key.

NOTE: *Your engine is fitted with a rotary injection pump, whose internal components must be protected from rusting if not used for over a month. Therefore, before stopping the tractor, mix* ***PROT 10 W/M oil*** *with the fuel in the tank in a proportion of 10% and run the engine for approximately half an hour.*



68



69

BLEEDING THE HYDRAULIC BRAKE SYSTEM

Bleeding procedure - Figs. 70 to 73

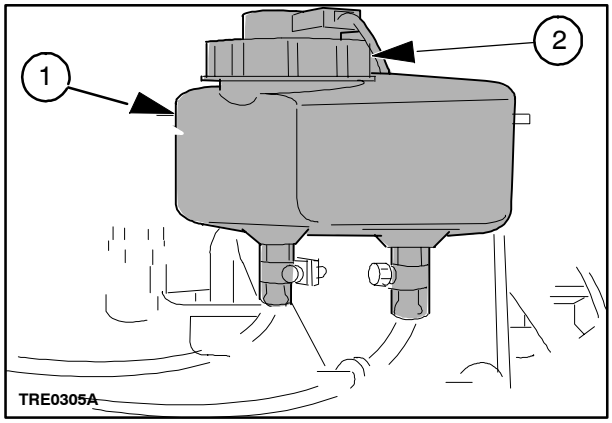
Whenever work is carried out on the front brake hydraulic system, the air must be bled from the system.

Proceed as follows.

1. Thoroughly clean the external parts of the unit around the hydraulic fluid tank cap (2) fig. 70 and the bleed screws (1-2) fig. 71.

2. Make sure that the hydraulic fluid in the tank (1) 70 is maintained up to the full mark both before and during the bleeding operations.

NOTE: Filter all drained oil before reusing.

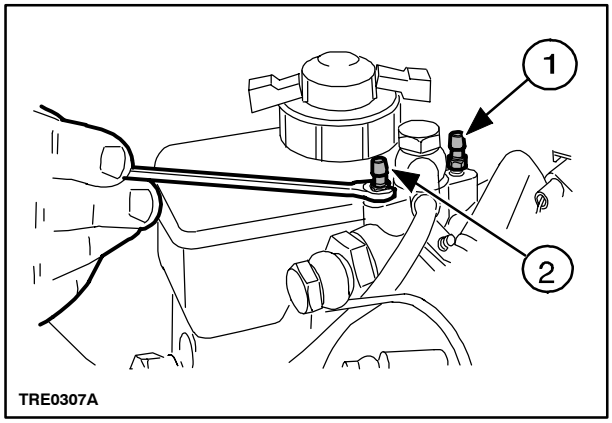


70

3. Depress the LH brake pedal, **slowly and to the end of its travel**, so that the oil is placed under pressure.

4. Keeping the pedal depressed, undo the bleed screw (1) fig. 71 by half a turn and allow the oil mixed with air bubbles to flow out.

5. Retighten the screw (1) fig. 71 and repeat the above operations until the oil that comes out is free of air bubbles.

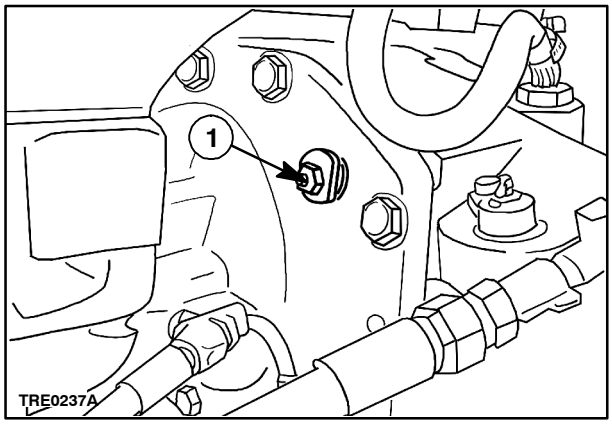


71

6. Depress the LH brake pedal again to place the circuit under pressure. This occurs when the travel of the pedal returns to normal.

7. Repeat the above operations for the RH brake pedal by tightening or loosing bleed screw (2) fig. 71.

8. Depress the **LH** and **RH** brake pedal, slowly and to the end of the travel, so that the fluid is placed under pressure.

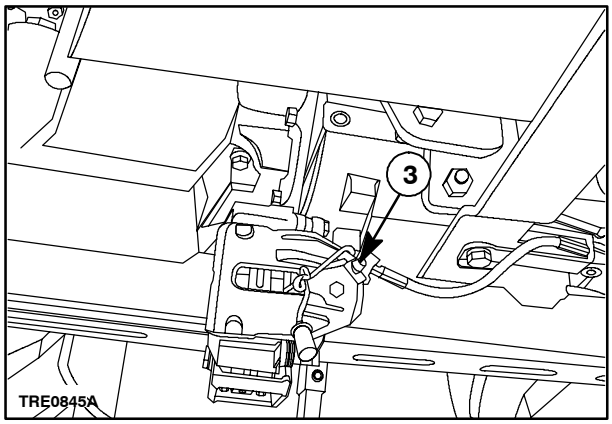


72

9. Keeping the pedals depressed, loosen the bleed screw (1) fig. 72 and (3) fig. 73 (optional for TD 60 and TD 70 models) by half a turn and allow the fluid mixed with air bubbles to flow out.

10. Retighten the screw (1) fig. 72 and (3) fig. 73 (optional for TD 60 and TD 70 models) and repeat the above operations until the fluid that comes out is free of air bubbles.

11. When the operation has been completed, replenish the fluid in the tank (1, fig. 70).



73

ELECTRICAL SYSTEM

BATTERY - Fig. 74

The tractors are fitted with maintenance-free batteries.

Keep the top part clean and dry.
Check that the level of electrolyte reaches the top mark and never falls below the lower mark.
If necessary lift covers (**1**) and add distilled water.

⚠ CAUTION ⚠

Never top up the battery with SULPHURIC ACID.

Never use rapid "boost" battery chargers to recharge the battery.

Check the charge with a digital voltmeter in the following way:

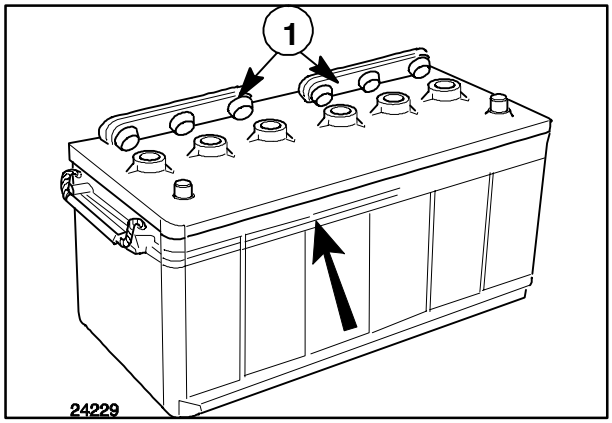
- connect the voltmeter to the battery's two terminals, matching the terminal symbols (negative to negative and positive to positive) and read the value from the instrument;

- compare the figure with the values in the table below to establish the charge in the battery.

Voltage (V)	Charge level (%)
12.66	100
12.45	75
12.30	50
12.00	25

If the voltage is around 12.30 V or lower, immediately recharge the battery with a current equivalent to ***1/10*** of the capacity in ***Ah*** a ***50 Ah*** battery is to be charged at ***5 Amp***).

NOTE: If the battery frequently needs to be topped up or if it should tend to run down, have the electrical system of your tractor checked by your dealer.



74

⚠ CAUTION ⚠

Before recharging the battery, always disconnect the cables. The battery should be removed from its location and recharged at a safe distance from the tractor.

⚠ DANGER ⚠

When recharging the battery, keep the premises well ventilated and keep naked flames or cigarettes well away.

NOTE: Batteries and storage batteries contain components that may be damaging to the environment if incorrectly disposed of after use. The manufacturer strongly advises that all "dry" batteries, used in electrical or electronic systems, are returned to your authorised dealer. The dealer will dispose of (or recycle) the batteries correctly. This procedure is a legal requirement in certain countries.

NOTE: If it is necessary to replace the old battery with a new one proceed as follows:

- First disconnect the lead end marked with a negative sign (-), then the lead end with the positive sign (+);

- Fit the new battery in the correct position. Do not over-tighten the retaining screws;

- Clean the lead ends and connect them to the battery terminals, ensuring that the negative terminal (-) is connected last;

- Fully tighten the lead ends on the terminals and smear them with petroleum jelly.

ADVICE ON STARTING THE ENGINE WITH A FLAT BATTERY OR NO BATTERY

To prevent damage to the alternator and its incorporated voltage regulator follow the procedure below:

When ***the tractor battery is partially discharged***, and an auxiliary battery has to be used to start the engine, connect the auxiliary battery to the tractor battery ensuring that ***the terminal symbols match*** (positive to positive and negative to negative). Connect the positive lead first followed by the negative lead.

Start the engine using the key start switch. When the engine starts, allow it to run at idle speed, turn on all electrical equipment (lights, etc.). This will help protect the alternator from possible damage due to extreme load changes. Now disconnect the auxiliary battery leads. Remove the negative lead first, followed by the positive lead.

If you have to start the engine with ***a totally flat battery*** or where the tractor ***does not have a battery*** remember that:

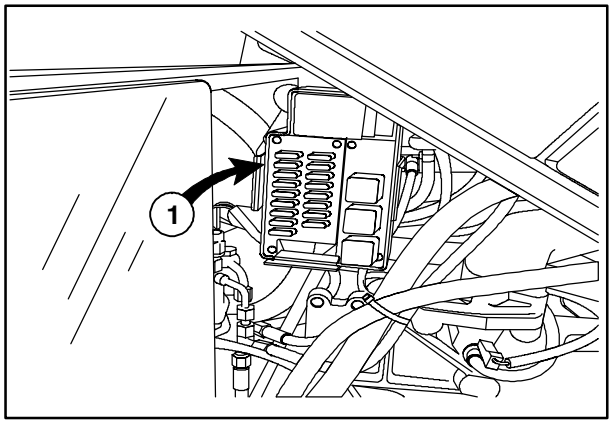
- ***it is not possible*** to start the tractor by towing as the electro-magnetically operated injection pump cut-off will prevent the engine from starting;
- ***it is however necessary*** to connect a 12 V auxiliary battery capable of starting the tractor

Under normal conditions, the engine must never be run unless plug ***D***+, terminal ***B***+ and the condenser are disconnected from the alternator.

When recharging the tractor battery, it must be removed from the tractor to avoid possible damage to the alternator and related circuits. Observe the rule relating to lead connection (positive to positive and negative to negative).

MAIN FUSE AND RELAY BOX-Fig. 75

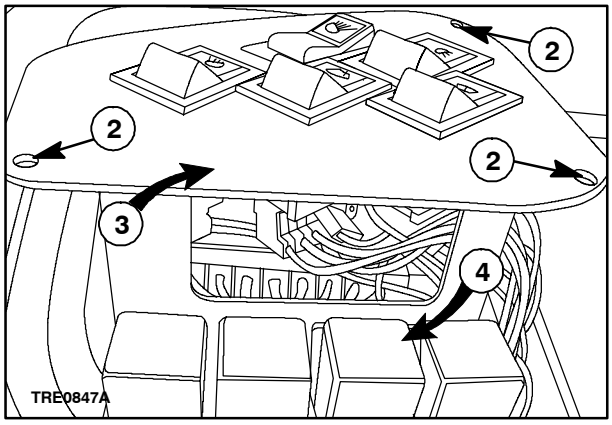
On all models, the fuse box (1) is located on the right-hand side of the engine compartment under the bonnet.



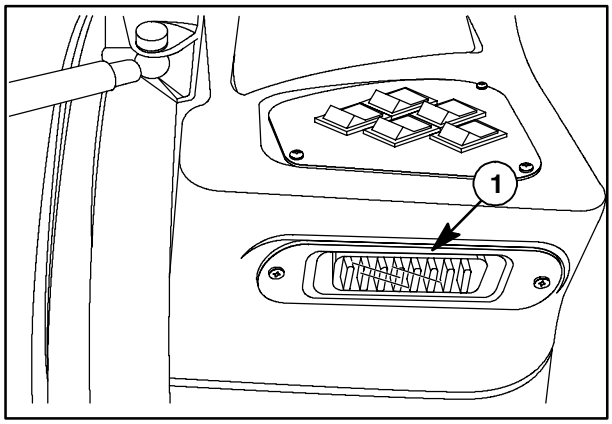
75

FUSES AND RELAYS (Inside cab) Fig. 76- 77

On tractors fitted with a cab, the fuses (1) and relays (4) are located inside the cab, beneath the right-hand console. To access the fuses and relays, remove the screws (2) and take off the cover (3).

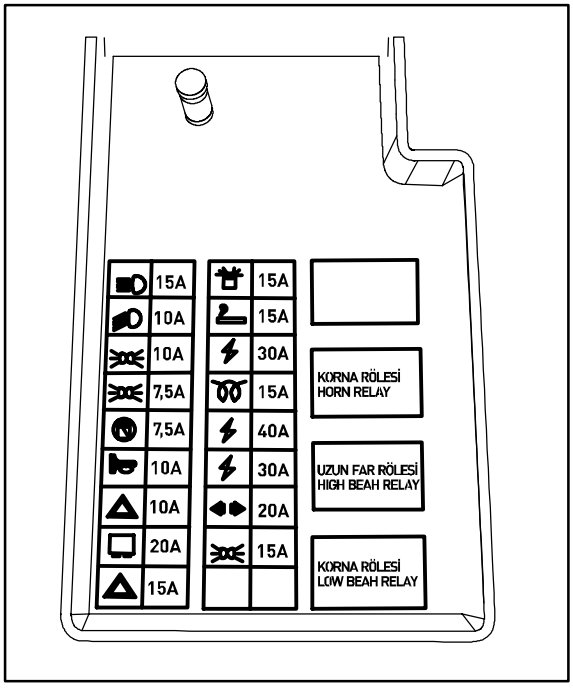


76



77

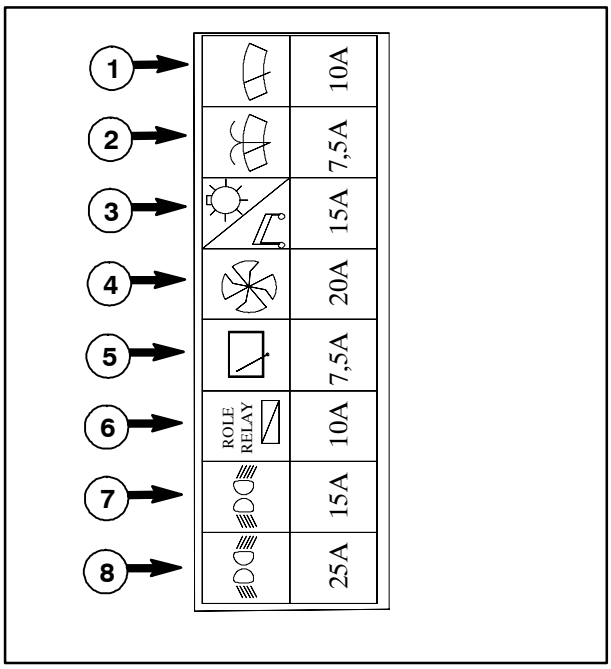
FUSES AND RELAYS MAIN BOX



78

Fuses	*PROTECTED CIRCUITS*	*Amps*
1	Main beam headlights	15
2	Dipped beam headlights	10
3	Front right and rear left side lights	10
4	Front left and rear right side lights	7,5
5	Engine shut-down solenoid	7.5
6	Instruments, turn signal switch, horn	10
7	Hazard warning switch, fuel sedimentor	10
8	Relays	20
9	Hazard warning switch	15
10	Beacon lamp, (radio, interior lamps- with cab models)	15
11	Cigarette lighter	15
12	Power for cab (with cab models)	30
13	Thermostart	15
14	Power socket (with cab models)	40
15	Power for cab (with cab models)	30
16	Turn signal switch	20
17	Brake lights	15
I	Dipped beam relay	-
II	Main beam relay	-
III	Horn relay	-
IV	Brake relay	-

FUSES AND RELAY BOX (INSIDE CAB) FIG- 79 - 80

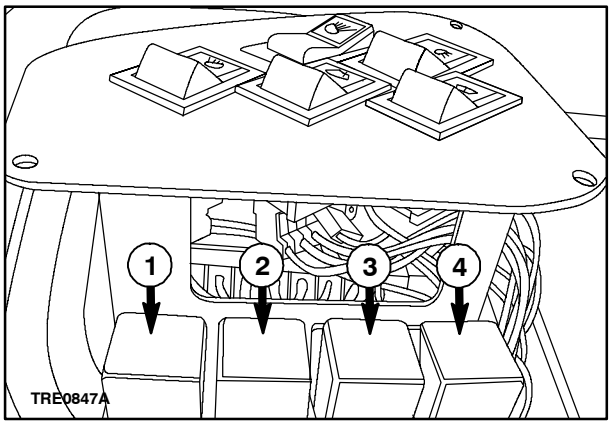


79

Fuses and protected circuits are listed below:

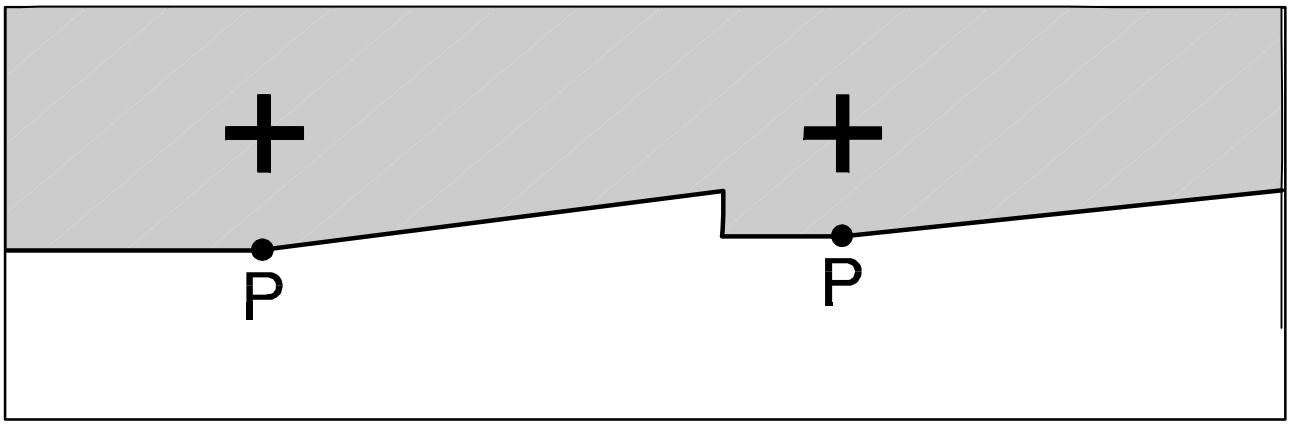
Fuses	PROTECTED CIRCUITS	Amps
1.	Front wiper	10
2.	Washer	7.5
3.	Beacon lamp, interior lamps, radio	15
4.	Heater/Air Conditioning	20
5.	Rear wiper	7.5
6.	Working lamps switches	10
7.	Front working lamps	15
8.	Rear working lamps	25

Relays and related circuits are listed below:



80

Relays	CIRCUITS
1.	Front work lights
2.	Rear work lights
3.	Power supply
4.	Power supply



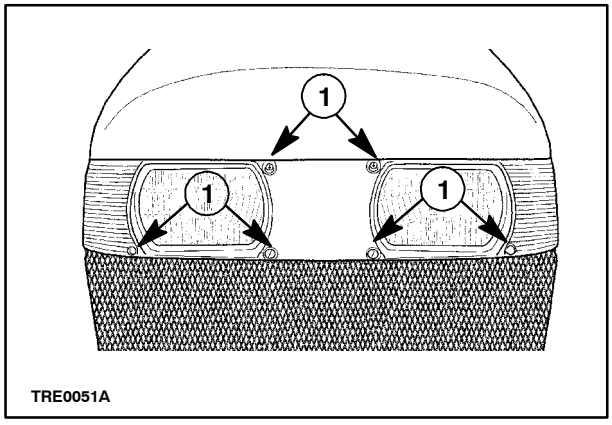
81

FRONT HEADLIGHT ADJUSTMENT - Figs. 81 and 82

Adjust the headlights as follows:

- Unload the tractor and inflate the tyres to the specified pressure on level ground in front of - if possible - a shaded white wall.
- Mark two crosses on the wall corresponding to the middle of the headlamps.
- Reverse the tractor about 5 m. and switch on the main beam headlights.
- Points **P - P** should be **5 cm** below the crosses.
- — To adjust the light beams, turn the screws (1) to deflect the beams horizontally or vertically.

Replace bulbs which have blown by bulbs of the same power (55/60 W).



82

NOTE: Under the EC regulations, the maximum permissible overall width for tractors equipped with standard tail-lights is 2150 mm. With wheels set at maximum track width, the maximum overall width obtainable is 2315 mm for machines with ROPS, and 2510 mm for machines with cab. If these wider settings are adopted, the tail-lights must be mounted to special extendible arms (available on request) so that they can be adjusted to indicate the overall width of the tractor.

REPLACING THE FRONT HEADLIGHT BULBS - Fig. 83

⚠ WARNING ⚠

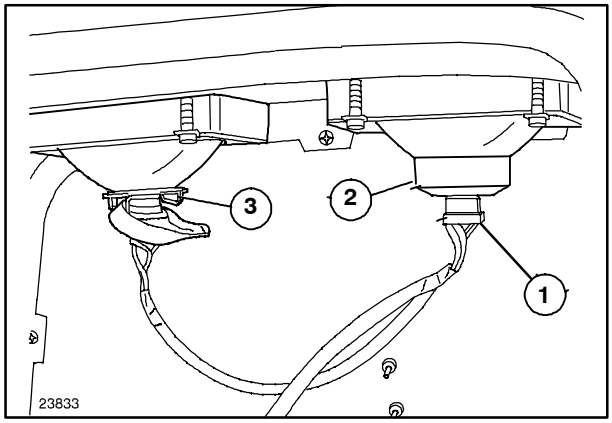
When handling halogen bulbs never touch the bulb. Touch only the metal part.

If the bulb comes into contact with your fingers, it will reduce the intensity of the light emitted and adversely affect service life. In the event of contact, clean the bulb with a cloth soaked in alcohol and leave to dry.

Replace blown bulbs as follows:

1. Unscrew the connector (1);
2. Remove the rubber protector (2);
3. Unclip the retaining spring (3) and unscrew the bulb anti-clockwise.

Replace the old bulb with another halogen one of the same power (55/60 W).



83

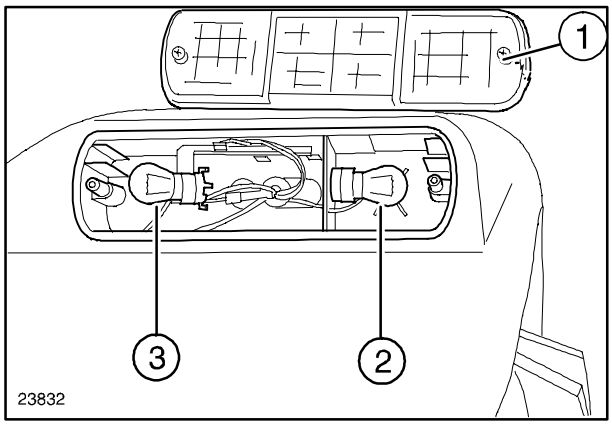
REPLACING THE REAR SIDE, STOP AND INDICATOR LIGHT BULBS - Fig. 84

Remove the transparent cover (1), press the defective bulb in, twist a $^1/_4$ turn anti-clockwise and remove it. Replace it with a bulb of the same power:

(2) Indicator light - 21 W;

(3) Brake lights and side lights - double filament, 21 W / 5 W.

NOTE: The transparent amber cover must be fitted over the outer edge of the mudguard.



84

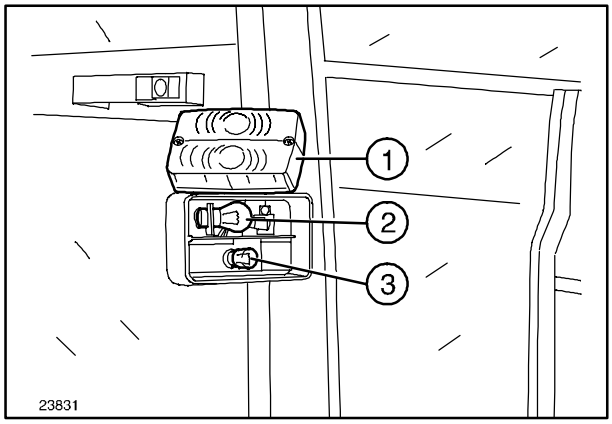
REPLACING THE FRONT SIDE, STOP AND INDICATOR LIGHT BULBS - Fig. 85

Remove the transparent cover (1), press the defective bulb in, twist a $^1/_4$ turn anti-clockwise and remove it. Replace it with a bulb of the same power:

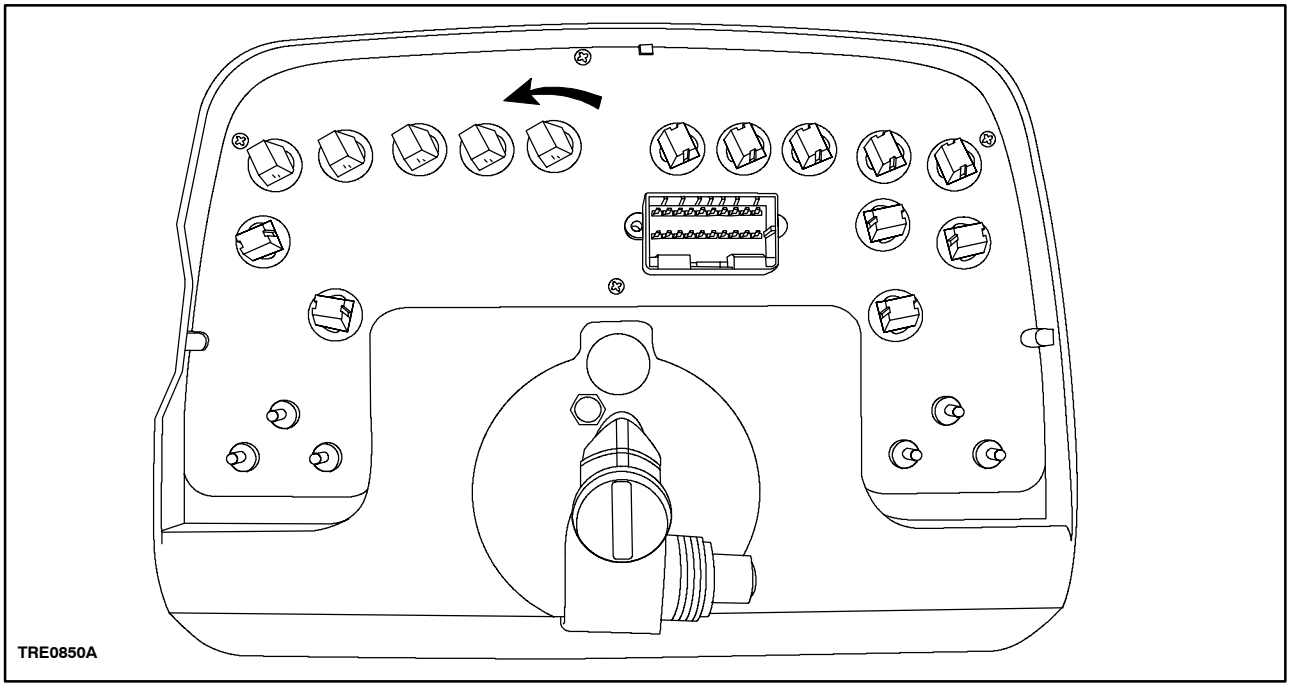
(2) Indicator light - 21W;

(3) Side lights - 5W.

NOTE: The transparent cover must be fitted with the amber section above the clear section.



85

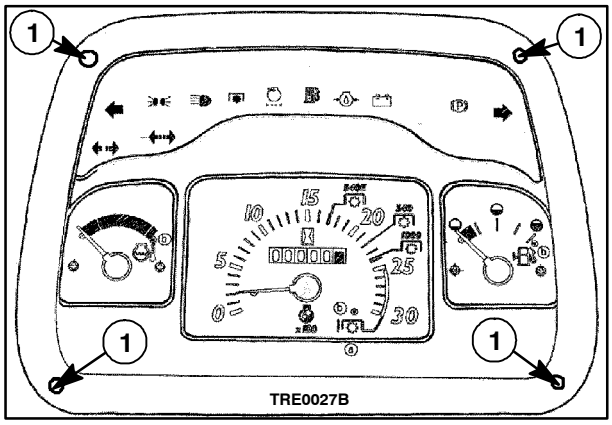


86

REPLACING THE WARNING LIGHTS IN THE INSTRUMENT PANEL

Replace warning / indicator bulbs as follows:

- Unscrew the four screws (1) fig. 87;
- Remove the instrument panel from its seat and disconnect terminal (1) fig. 88 from the tachometer;
- Disconnect connector (2) fig. 88 and remove the instrument;
- Unscrew the defective bulb, fig. 86, anti-clockwise by $^1/_4$ of a turn, remove and replace with a bulb of the same power.
- Alternator charge indicator – 3 W;
- All other bulbs – 2 W.



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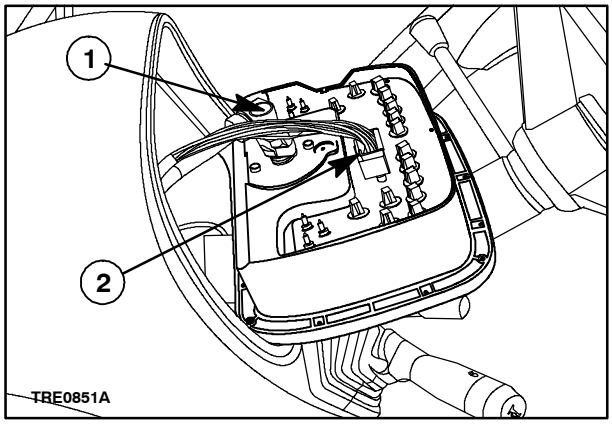

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RECOMMENDATIONS FOR BODYWORK MAINTENANCE

Protection against atmospheric agents

Over the years, the Company has introduced a series of measures to protect the tractor from the deterioration and corrosion which can be caused by various external elements, such as those listed below:

- salinity and humidity in the atmosphere;
- atmospheric pollution (industrial areas);
- abrasive action of solid substances;
- using tractor in the presence of aggressive chemical and/or organic substances;
- physical damage such as dents, abrasions or deep scratches.

The technical response to these problems was:

- highly corrosion-resistant zinc plating;
- paint systems and paints which help the tractor resist corrosion and abrasion;
- application of suitable hardened plastic-coatings to points which are particularly exposed to corrosion (edges, projections and sheet-metal welded joints);

Unfortunately, external agents act in various ways depending on environmental conditions and tractor use; if the user takes enough care, however, his tractor can be maintained in substantially better condition.

The following information is provided to help achieve this aim.

BODYWORK AND CAB

Where there are abrasions or deep scratches, which expose the underlying metal, they need to be retouched immediately with genuine products as follows:

- rub down the area thoroughly;
- apply the primer;
- leave to dry and then rub down lightly;
- apply the paint;
- lastly, polish.

The paint can normally be maintained by washing at intervals which vary depending on the conditions of use and the environment. In areas prone to atmospheric pollution and in coastal areas, wash more frequently, whereas if organic or chemical substances are present, wash ***immediately*** after the tractor is used. Use a low-pressure water spray, sponge down with a solution of 2 to 4% shampoo in water, rinsing the sponge frequently, rinse the tractor thoroughly and dry it, if possible, with an air jet.

Avoid washing the tractor after it has been standing in the sun and when the engine is still hot in order to protect the shine on the paint.

It is good practice to protect the paint by polishing it with specialised products (silicone waxes) from time to time and, when the paint starts to dull, you can use wax polish which has a slight abrasive action.

CAB MAINTENANCE

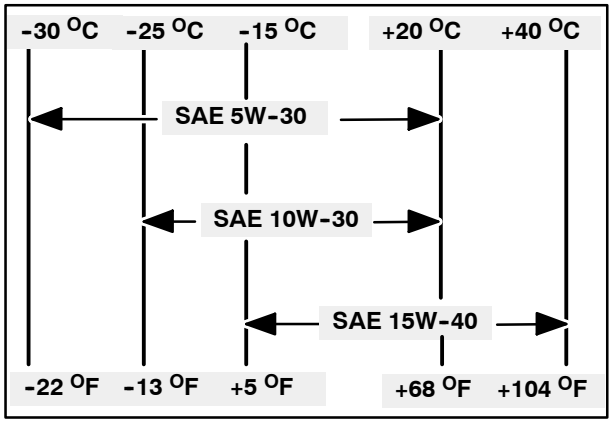
After carrying out the external maintenance of the cab, proceed as follows:

1. Periodically check that no water remains in areas covered with mats or padding.
2. Protect the hinges and locks on the doors and opening windows with lubricants and water-repellents.
3. Use suitable detergents or, if necessary, sulphuric ether to clean the windows.
4. Remove the windscreen wiper blade and sprinkle the rubber with talc.
5. Leave the door or a window partially open.

LUBRICANT CAPACITIES AND SPECIFICATIONS

COMPONENT TO BE FILLED OR TOPPED UP	QUANTITY			NEW HOLLAND RECOMMENDED PRODUCTS	INTERNATIONAL SPECIFICATION
	litres/dm^3	US gal	IMP gal		
Cooling system:					
models TD60, TD70	12	3.2	2.64	Water & liquid **AMBRA AGRIFLU 50% + 50%** (NH 900 A)	-
models TD80, TD90, TD95	14	3.7	3.08		
with cab:					
models TD60, TD70	14	3.7	3.1		
models TD80, TD90, TD95	16	4.2	3.5		
Windscreen washer bottle	2	0.53	0.44	Water & cleaning liquid	-
Fuel tank.....	92	24.3	20.2	Decanted and filtered diesel fuel	-
Engine sump:					
without filter :				**AMBRA Supergold SAE 15W - 40** (NH 330G) **AMBRA Supergold SAE 10W - 30**.. (NH 324G)	API CF-4/SG CCMC D4 MIL-L-2104E
TD60 and TD70.....	7.6	1.98	1.67		
TD80, TD90andTD95.....	10.5	2.77	2.31		
with filter :					
TD60 and TD70 HP models	8.3	2.19	1.83		
TD80, TD90 andTD95models.....	11.2	2.96	2.46		
Brake control circuit	0.4	0.1	0.09	**AMBRA BRAKE LHM** Oil (NH 610 A)	ISO 7308
Hydrostatic steering circuit	2.0	0.5	0.44	Oil **AMBRA MULTI G** (NH 410B)	API GL4 ISO 32/46 SAE 10W-30
Front axle:					
- axle housing:					
models TD60, TD70	4.5	1.2	0.99		
models TD80, TD90, TD95	7.0	1.8	1.54		
- final drives (each):					
models TD60, TD70	0.8	0.2	0.18		
models TD80, TD90, TD95	1.25	0.3	0.28		
Rear transmission (bevel drive and brakes), gearbox, hydraulic lift and PTO					
models TD60,TD70, TD80, TD90, TD95	46	12.15	10.12		
- with synchro-reverser:					
models TD60, TD70, TD80, TD90, TD95	46	12.15	10.12		
Rear final drives (each)					
models TD60, TD70	3.9	1.03	0.86		
models TD80, TD90 and TD95 ..	5.3	1.40	1.17		
Front wheel hubs	-	-	-	Grease **AMBRA GR9** (NH 710A)	NLGI 2
Grease fittings	-	-	-		

Refer to the chart on the right when selecting the oil grade for your tractor engine.



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NOTE: In areas where prolonged periods of extreme temperatures are encountered, local lubricant practices are acceptable; such as the use of SAE 5W in extreme low temperatures or SAE 50 in extreme high temperatures.

Sulphur in Fuel

The engine oil change period is shown in Operation 27 on page 4–19. However, locally available fuel may have a high sulphur content, in which case the engine oil change period should be adjusted as follows:

Sulphur Content %	Oil Change Period
less than 0.5	normal
0.5 to 1.0	half the normal
above 1.0	one quarter normal

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

SECTION 5

FAULT FINDING

LOCATING AND IDENTIFYING PROBLEMS

INTRODUCTION

The following information is intended to help in the identification and correction of any tractor faults or malfunctions.

PROBLEM CODES – AREAS AFFECTED		
The following information lists problems which could arise, the reasons for them and appropriate corrective action. The areas affected are dealt with in the following order:		
Engine	Hydraulic System	Brakes
Electrical system	Hydraulic lift	Cab

ENGINE

PROBLEM	POSSIBLE CAUSE	SOLUTION
The engine will not start or is difficult to start.	Incorrect starting procedure.	See starting procedure.
	Fuel level low or empty.	Check fuel level.
	Air in fuel system.	Bleed fuel system.
	Engine oil viscosity not right.	Use oil of right viscosity.
	Fuel not suitable for ambient temperature.	Use correct type of fuel for temperature conditions.
	Fuel system contaminated.	Clean system.
	Fuel filter clogged.	Replace filter element.
	Fuel injector fault.	Contact your dealer.
The engine does not run properly and/or cuts out.	Fuel system contaminated.	Clean system.
	Fuel injector fault.	Contact your dealer.
Engine does not reach maximum power.	Engine overload.	Change to lower gear or reduce load.
	Air filter clogged.	Carry out maintenance on air filter.
	Incorrect fuel type.	Use the right fuel.
	Low engine operating temperature.	Check thermostat.
	Fuel injector fault.	Have your dealer check the injectors.
	Implement incorrectly set.	See equipment manual.

ENGINE

PROBLEM	POSSIBLE CAUSE	SOLUTION
Engine does not reach maximum power (cont.).	Valve clearance wrong.	Check and adjust.
	Idling speed too low.	Contact your dealer.
Abnormal engine knocking.	Oil level low.	Top up oil.
	Oil pressure low.	Contact your dealer.
Low engine operating temperature.	Thermostat malfunction.	Replace thermostat.
Oil pressure low.	Oil level low.	Add oil as required.
	Oil grade or viscosity wrong.	Drain and refill with oil of correct grade and viscosity.
Excessive oil consumption.	Oil level too high.	Reduce oil level.
	Oil viscosity wrong.	Use oil of correct viscosity.
	Oil leaking.	Repair leaks.
	Breather pipe filter clogged.	Replace breather pipe filter.
Engine overheating.	Radiator core clogged.	Clean.
	Engine overload.	Change to lower gear or reduce load.
	Engine oil level low.	Top up oil level.
	Coolant level low.	Top up fluid level in expansion tank; check system for leaks.
	Radiator cap defective.	Replace cap.
	Fan belt slipping or worn.	Check tensioning device; replace belt if worn.

ENGINE

PROBLEM	POSSIBLE CAUSE	SOLUTION
Engine overheating.	Cooling system clogged.	Flush cooling system.
	Thermostat malfunction.	Check thermostat.
	Hoses leaking.	Tighten hose connectors.
	Temperature indicator or gauge malfunction.	Contact your dealer.
Excessive fuel consumption.	Wrong fuel type.	Use right fuel type.
	Air filter dirty or clogged.	Carry out maintenance on air filter.
	Engine overload.	Change to lower gear or reduce load.
	Valve clearance wrong.	Check and adjust.
	Equipment wrongly adjusted.	Refer to equipment manual for correct operation.
	Engine temperature too low.	Check thermostat.
	Too much ballast.	Adjust ballast to correct weight.
	Fuel injection nozzles clogged.	Have your dealer service the injectors.

ELECTRICAL SYSTEM

PROBLEM	POSSIBLE CAUSE	SOLUTION
The electrical system does not work.	Battery terminals loose or corroded.	Clean and tighten terminals.
	Sulphated battery.	Check that battery charge is at least 12.6 volts; check electrolyte level and specific gravity.
Low starter motor speed and difficulty in starting engine.	Connections loose or corroded.	Clean and tighten loose connections.
	Battery.	Check that battery charge is at least 12.6 volts; check electrolyte level and specific gravity.
	Engine oil viscosity wrong.	Use oil of viscosity specified for temperature conditions.
Starter motor does not work.	Gear lever engaged.	Move gear lever to neutral.
	Connections loose or corroded.	Clean and tighten loose connections.
	Battery totally flat.	Charge or replace battery.
Battery charge light stays on when engine is running.	Engine idling speed is low.	Increase idling speed.
	Alternator belt loose.	Check belt tensioning device.
	Battery fault.	Check that battery charge is at least 12.6 volts; check electrolyte level and specific gravity.
	Alternator fault.	Have the alternator checked by your dealer.
	Fault with the electrical system	Have the alternator checked by your dealer or an authorised workshop.
Battery not charging.	Terminals loose or corroded.	Clean and tighten terminals.
	Battery.	Check that battery charge is at least 12.6 volts; check electrolyte level and specific gravity.
	Belt loose or worn.	Check belt tensioning device. If necessary, replace the belt.
The battery charge light flashes to indicate excessive charge voltage.	Alternator fault.	Have the alternator checked by your dealer.
	Fault with the electrical system	Have the alternator checked by your dealer or an authorised workshop.

HYDRAULIC SYSTEM

PROBLEM	POSSIBLE CAUSE	SOLUTION
The hydraulic system is not working properly.	Oil level low.	Top up system.
	Hydraulic filter clogged.	Replace hydraulic filter.
	Hydraulic system fault.	Contact your dealer.
Hydraulic fluid overheating.	Fluid level too high or too low.	Top up fluid level.
	Fluid filter element clogged.	Replace filter.
	Incorrect flow regulation.	Set to lower capacity.
Hoses not joined together properly.	Wrong male seals.	Replace seals with standard ISO $^{1}/_{2}$ in. connectors available from your dealer.
Automatic control valve pin release mechanism triggered too soon.	Automatic release pressure incorrectly set.	Adjust automatic release pressure setting.
Remote control does not work.	Hoses not connected correctly.	Connect hoses correctly.
	Check oil flow in half seals.	Actuate control levers; if problems persist, replace male half seals.
	System overload.	Reduce load or use a suitable cylinder.

HYDRAULIC LIFT AND 3-POINT EQUIPMENT COUPLING

PROBLEM	POSSIBLE CAUSE	SOLUTION
The linkage does not move when the control lever is actuated.	Linkage cylinder tubes not connected correctly.	Connect linkage cylinder tubes correctly.
	Linkage overload.	Reduce load.
Linkage does not lift fully.	Link arm top limiter incorrectly set.	Adjust link arm top limiter.
The linkage lowers slowly.	Lowering speed control incorrectly set.	Have valves checked.
The hydraulic lift operates slowly in draft control.	Mixed control incorrectly set.	Adjust mixed control.
	Lowering speed too slow.	Have valves checked.
	Implement not working properly.	Adjust implement settings.
The hydraulic lift operates too fast in draft control.	Mixed control incorrectly set.	Have valves checked.

BRAKES

PROBLEM	POSSIBLE CAUSE	SOLUTION
Pedals soft when engine off.	Air in braking system.	Contact your dealer.
Pedal depresses fully with engine off.	Brake piston seals leaking.	Contact your dealer.
	Brake discs worn.	Contact dealer.
	Brake release leaking.	Contact dealer.
	Brake valve(s) leaking.	Contact dealer.
Excessive pedal travel or resistance with engine running.	Brake valve(s) leaking.	Contact your dealer.
	Air in braking system.	Contact dealer.
	Brake piston seals leaking.	Contact dealer.
	Brake pipes leaking.	Contact dealer.

CAB

PROBLEM	POSSIBLE CAUSE	SOLUTION
Dust in cab.	Filter seal ineffective.	Check condition of filter seal.
	Filter clogged.	Clean or replace filter.
	Filter defective.	Replace filter.
	Excessive ventilation.	Close off ventilation.
Inadequate air circulation.	Filter clogged or air circulation filter clogged.	Clean or replace filter(s).
	Heater or humidifier radiator core clogged.	Contact your dealer.
Air-conditioning not cooling properly.	Condenser clogged.	Clean the radiator, oil exchanger and condenser.
	Refrigerant low.	Check the glass port to see if there are any bubbles visible. Contact your dealer.
	Compressor belt slips or is damaged.	Check the automatic belt-tensioning device and condition of the belt.
	Heating on.	Turn the heater temperature control fully anti-clockwise for maximum cooling.

SECTION 6

VEHICLE STORAGE

The following text is given for your information and guidance. For further information concerning long term storage of your tractor, please consult your authorised dealer.

TRACTOR STORAGE

Before storing the tractor for an extended period, the following precautions should be taken:

- Clean the tractor.
- Drain the engine and transmission/rear axle and refill with clean oil.
- Drain the fuel tank(s) and pour approximately two gallons of special calibrating fuel into the tank. Run the engine for at least 10 minutes to ensure complete distribution of the calibrating fuel throughout the injection system. See the next item before running the engine.
- Check the radiator coolant level. If the coolant is within 200 hours of the next change, drain, flush and refill the system. See operation 52 in section 4. Run the engine for one hour to disperse the coolant throughout the system.
- Lubricate all grease fittings.
- Using the tractor hydraulic system in Position Control, raise the lift linkage and support the lift arms in the raised position.
- Lightly coat all exposed hydraulic piston rods with petroleum jelly, e.g., power steering cylinder rams, lift assist rams, spool valves, etc.
- Remove the batteries and store in a warm, dry atmosphere. Recharge periodically.
- Raise the tractor and place supports under the axles to take the weight off the tyres.
- Cover the exhaust pipe opening.

PREPARATION FOR USE AFTER STORAGE

After extended storage, prepare the tractor for further use, as follows:

- Inflate the tyres to the correct pressure and lower the tractor to the ground.
- Refill the fuel tank(s).
- Check the radiator coolant level.
- Check all oil levels.
- Install fully charged batteries.
- Remove the exhaust pipe covering.
- Start the engine and check that all instruments and controls are functioning correctly. Using the tractor hydraulic system in Position Control, fully raise the lift linkage and remove the supports.
- Drive the tractor without a load to ensure that it is operating satisfactorily.

NOTES

SECTION 7

ACCESSORIES

This section of the Manual describes the function and operation of features that are available for your tractor as dealer installed accessories. Unless otherwise stated, these features may also be available as factory fitted options.

Maintenance requirements for these features will be found in Section 4 – Lubrication and Maintenance.

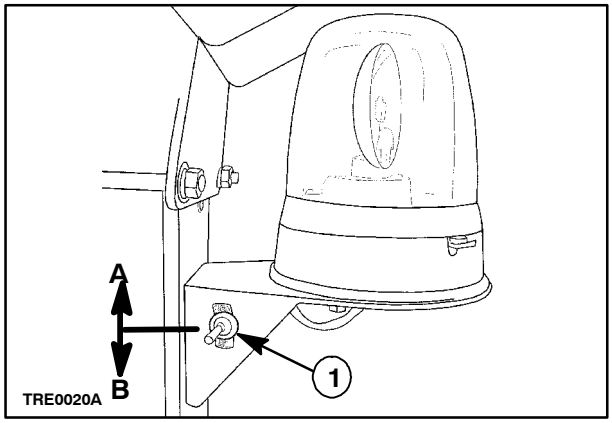
This subjects covered in this section are shown on the right. A comprehensive Index is provided at the end of this book.

BEACON LAMP (WITHOUT CAB)- Fig. 1

1. Beacon lamp ON/OFF button.

Position A: ON

Position B: OFF



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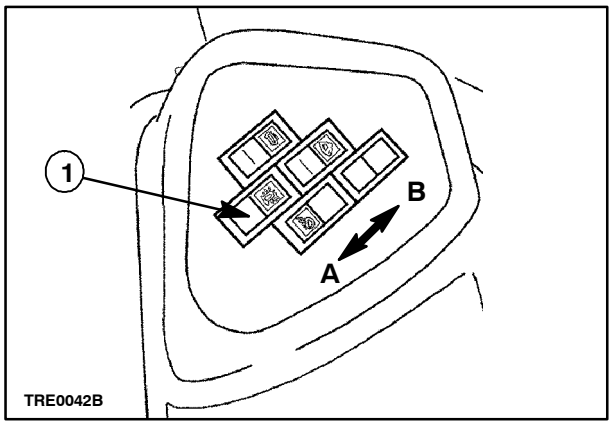
BEACON LAMP (WITH CAB)- Fig. 2

1. Beacon lamp ON/OFF button.

Position A: ON

Position B: OFF



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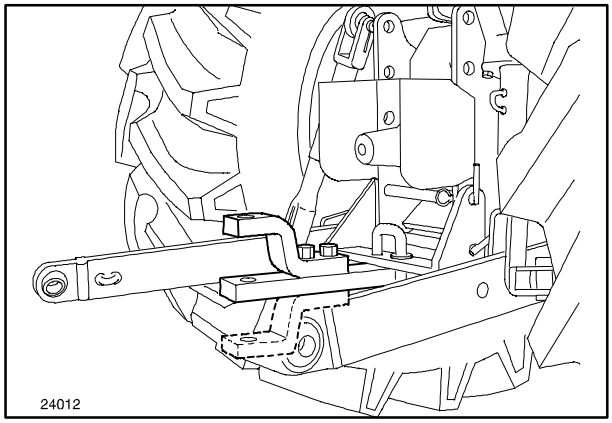
SWINGING DRAWBAR - Figs. 3 and 4



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Use the swinging drawbar for implements, agricultural machinery and trailers with two axles.

Do not, on the other hand, use it for single-axle trailers as they apply excessive weight to the bar, which will risk tipping the tractor.

The wide horizontal trajectory of the bar is extremely useful for implements and machines requiring lateral freedom of movement, such as balers.

This equipment can be supplied:

- with suitable brackets to fit either a rigid towing hook or a Rockinger hitch;
- with a bracket designed to fit only to a towbar.

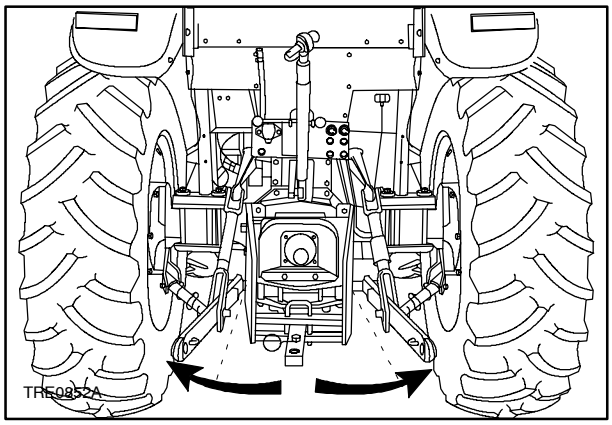
The following adjustments can be made to the bar:

- height adjustment, by turning the fork to face upward or downward fig. 3;
- prevention of lateral swing by inserting limiter fork (**1**) fig. 4.

⚠ CAUTION ⚠

The towing equipment should be selected on the basis of the type of trailer or implement to be towed and should comply with current legislation.

- *The ease of handling and driving safety of the tractor depends on correct towing adjustment.*
- *A towing device fitted high up increases towing capacity but also means that the tractor has a tendency to tip back. Therefore ensure that the trailer shaft is not at too great an upward angle.*
- *When using four-wheel drive, the towing bracket should be in its lower position with the shaft almost horizontal.*
- *Avoid towing excessively heavy trailers or loads.*
- *Do not start suddenly as this considerably increases the risk of tipping backwards.*
- *Always brake the trailer first and then the tractor.*



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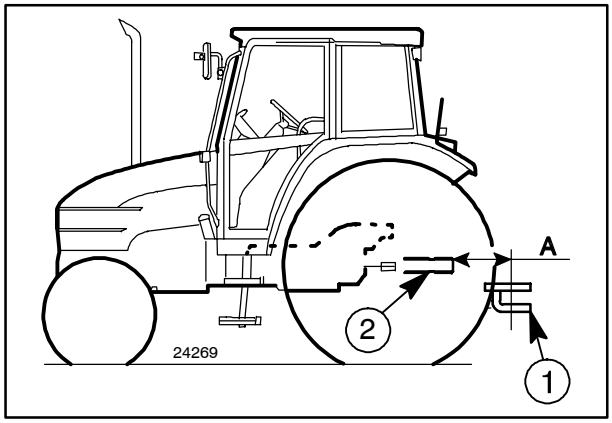
By carrying out the adjustments previously described, the distance **A** of fork (**1**) on the swinging draw-bar will be between 297 mm (11.69 in) minimum and 455 mm (17.9 in) maximum from the power take-off shaft (**2**).

To connect implements to the power take-off correctly, fit the towing bracket facing downwards fig. 3.



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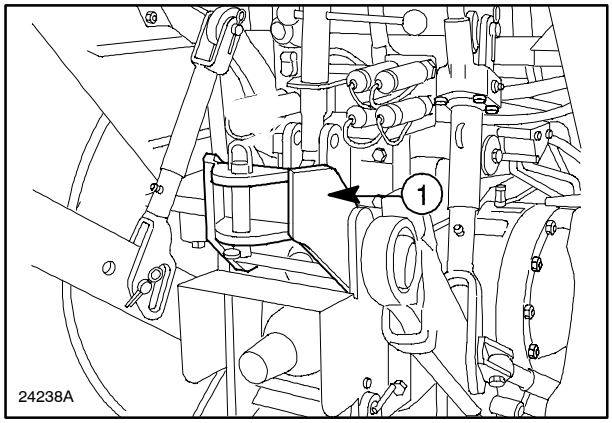
HEIGHT ADJUSTABLE RIGID HITCH - Figs. 6 and 7

With rigid hitch (**1**) fig. 6 all types of trailer can be towed, even those with only one axle.

The hitch can be set both above and below the power take-off, with a total of six positions.

It can also be fitted with the towbar.

Fix the hitch to holes (**2**) fig. 7 using pins (**1**) fig. 7



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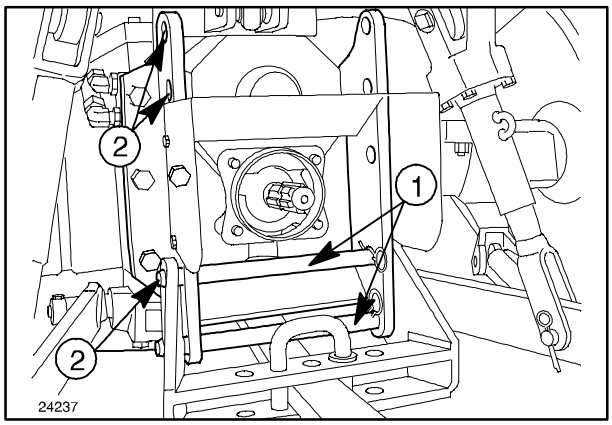

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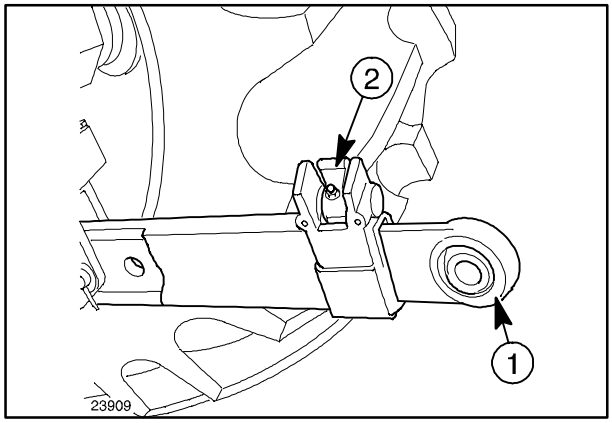
⚠ WARNING ⚠

Use the front towing fork for possible emergency trailer manoeuvres or for towing the tractor.

Lower link arms with telescopic ends (optional) - Fig. 8

To adjust, proceed as follows:

- release the sliding ends (1) by turning retaining blocks (2) inwards;
- extract the ends (1) fig. 8 and connect to the implement;
- reverse the tractor: the telescopic ends slot into their respective seatings and the retaining blocks (2) snap shut automatically.



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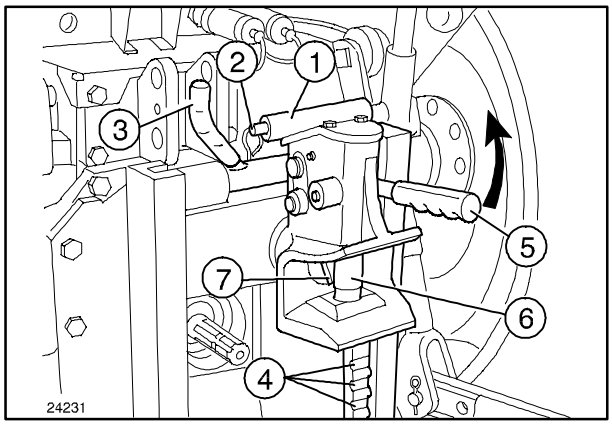
C CATEGORY HITCH (OPTIONAL) - Fig. 9

This device is height-adjustable and can be fitted with the towbar.
To adjust, proceed as follows:

- with the right hand, grasp handle (**1**) and press button (**2**);
- with the left hand, pull handle (**3**) down to a horizontal position to release the hitch and position it at the desired height;
- a few seconds before you reach the desired height, press button (**2**) again, and push handle (**3**) into a vertical position to allow the hitch to fit firmly into one of the notches (**4**).

⚠ CAUTION ⚠

do not hitch the trailer with the hitch resting free on the power take-off or on the lower check pins. The hitch must always be firmly secured in the notches.



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To hitch the trailer, proceed as follows:

- push handle (**5**) upwards into a vertical position to raise hitching pin (**6**);
- get into the tractor, engage reverse gear, and move back until lever (**7**) is engaged by the trailer towing eye and hitching pin (**6**) is automatically dropped into position;

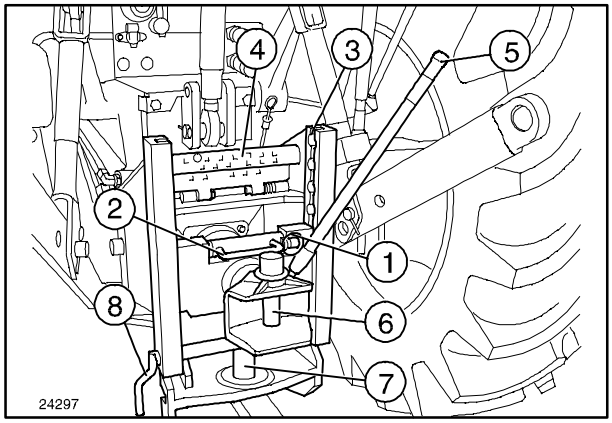
When this has been done, lever (**5**) should be in a horizontal position, and pin (**6**) inserted in the trailer towing eye.

C CATEGORY HITCH (OPTIONAL)- Fig. 10

This device is height-adjustable and can be fitted with the towbar.
To adjust, proceed as follows:

- unscrew safety pin (**1**);
- pull handle (**2**) upwards and position the hitch at the desired height;
- fix it in one of the notches (**3**) by pushing handle (**2**) down;
- reinsert the safety pin and pull guard (**4**) down.

to remove hitching pin (**6**), pull rod (**5**) upwards and unscrew.



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HITCH FOR SEMI-TRAILERS (OPTIONAL)- Fig. 10

Supplied together with the towing bar.

Semi-trailers are hitched to pin (**7**) fixed on the towing bar bracket.

⚠ WARNING ⚠

*after hitching the trailer to the pin, do no forget to fit safety pin (**8**).*

OPERATION OF AUTOMATIC PICK-UP HITCH (not available in all markets)

This system makes it possible to tow trailers, implements and agricultural machinery with a ring type drawbar. All hitching and unhitching operations can be performed without leaving the driving seat.

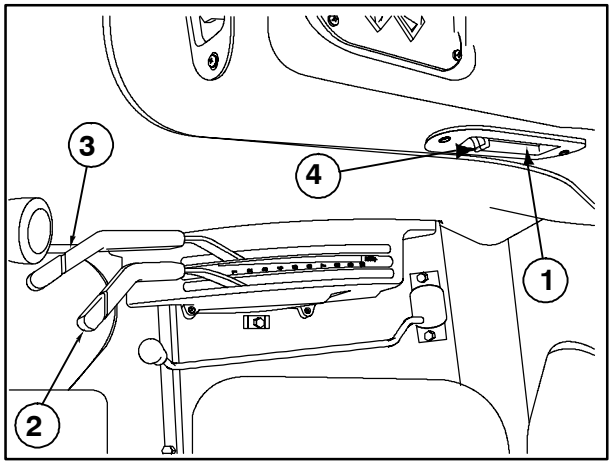
Hitching

To lower the hook and couple the implement, proceed as follows:

- remaining seated in the driving seat, move the position control lever (**3**) fig. 11 fully rearward and draft control lever (**2**) fig. 11 fully forward.
- press the Lift-O-Matic™ button (**1**) fig. 11;
- pull and hold the release lever (**1**) fig. 12 upwards to disengage the locking hooks, at the same time gradually move the position control lever (**3**) fig. 11 forward until the hitch hook has lowered;
- release the lever (**1**) fig. 12;
- reverse the tractor and align the hitch hook under the trailer drawbar ring;
- raise the hook by moving the position control lever (**3**) fig. 11 slowly rearward; the hook will engage the ring and the implement will be automatically hitched as confirmed by the audible click made by locking hooks (**1**) and (**4**) fig. 13 on the pins (**2**) and (**3**);
- when the implement is hitched, move the position control lever (**3**) fig. 11 slightly forward so that the weight of the hitch is supported by the locking hooks (**1**) and (**4**) fig. 13;
- press the Lift-O-Matic™ button (**4**) fig. 11 to prevent inadvertent lowering of the hitch if the lever (**3**) fig. 11 is moved accidentally.

⚠ CAUTION ⚠

Before moving, check that the hooks (1) and (4) fig. 13 are correctly locked on the pins (2) and (3).



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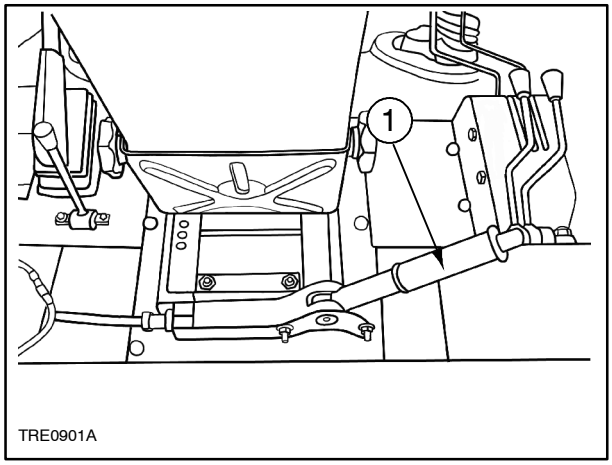

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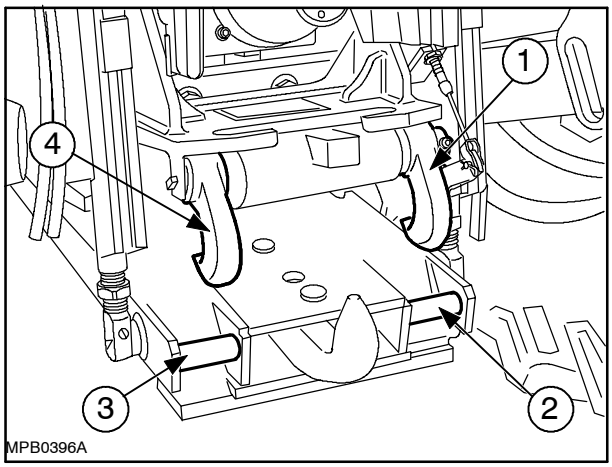


13

Unhitching

To unhitch the trailer or implement, proceed as follows:

- position the tractor on flat, level ground;
- press the Lift - O - Matic™ button (**1**) fig. 11;
- move position control lever (**3**) fig. 11 fully rearward to take the weight off the locking hooks (**1**) and (**4**) fig. 13;
- pull release lever (**1**) fig. 12 upward and gradually move the position control lever (**3**) fig. 11 forward to lower the hitch hook and implement to the ground.

- move tractor forward away from drawbar ring.

- raise the hitch and lock into position before continuing with work.

To change from hitch hook mode to drawbar, proceed as follows:

- remove drawbar **(1)** fig. 15 from its holder;
- lower the pick-up hitch as previously described;
- remove securing pins (**2**) and (**3**) fig. 14;
- extract the hook (**4**) fig. 14, and refit the bar (**1**) fig. 15, reinserting the pins in their holes.
- place hook in the storage holder.

In drawbar mode it is possible to have two different distances from the PTO, by inserting the pins in holes (**1**) and (**5**) or (**2**) and (**3**) fig. 14.

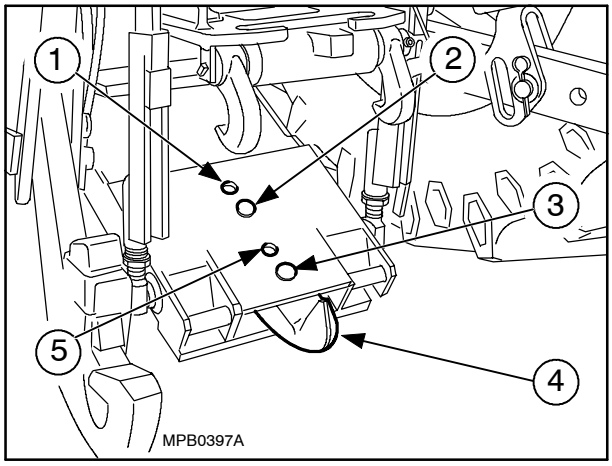
When towing equipment exerting high static downward loads, such as two-wheeled trailers etc., always use the close-coupled drawbar position.

⚠ WARNING ⚠

Never raise or lower the pick-up hitch when in drawbar mode with a trailer attached.

⚠ CAUTION ⚠

When supporting equipment on the drawbar or pick-up hitch, ensure that the total weight on the rear axle does not exceed the maximum static downward load and rear tyre load capacity .



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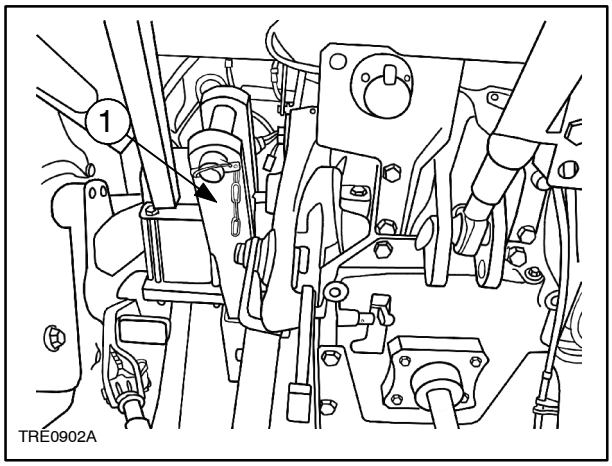


15

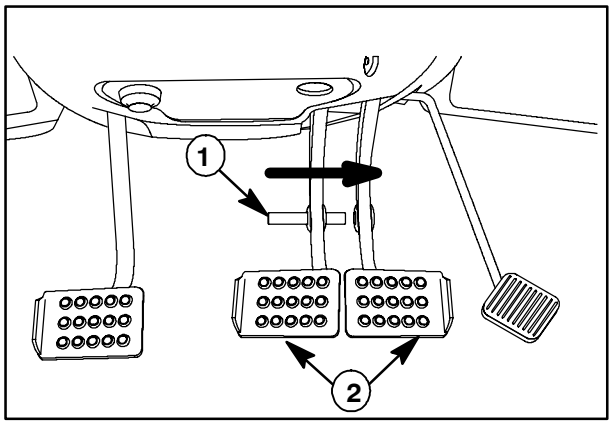
HYDRAULIC TRAILER BRAKE
(not available on all markets)

⚠ CAUTION ⚠

To use the hydraulic trailer braking system correctly, follow the instructions below. In addition to the correct operation of the braking system, following these instructions will help you avoid dangerous situations which can cause injuries or damage to property.

⚠ DANGER ⚠

To brake both the tractor and the trailer simultaneously, always connect the pedals together with the locking pin (**1**) fig. 16, as required when driving on roads.



16

The remote control valve for trailer hydraulic braking is controlled by the tractor brakes hydrostatic circuit oil, when pressurised by the relevant control pedals (**2**). The trailer braking function uses the same oil as the hydraulic lift circuit.

TRACTOR-TRAILER COUPLING

First hitch the trailer to the tractor towing bracket and then, with the engine shut off, connect the trailer brake line to coupler (**1**) fig. 17 on the tractor.

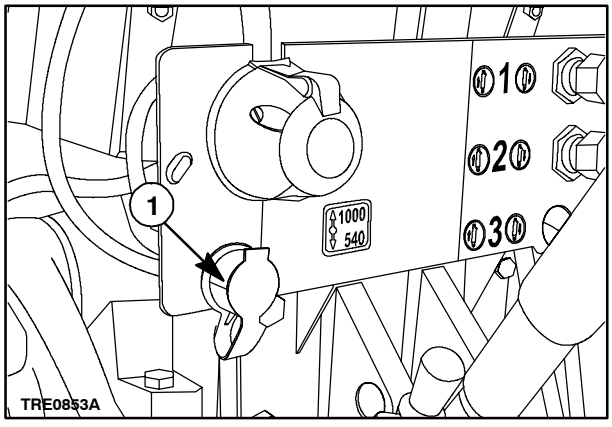
⚠ CAUTION ⚠

Before connecting the trailer, check that the handbrake is applied and the tractor is in gear.

STARTING THE TRACTOR

Start the engine and press the brake pedals to reduce the time taken to release the trailer brake.

.



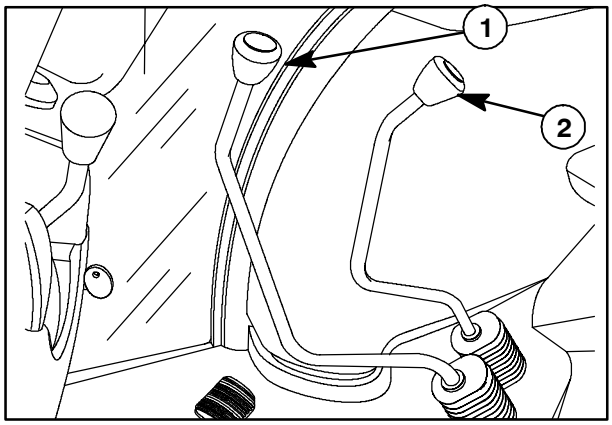
17

STOPPING THE TRACTOR

When the tractor is stopped with a trailer connected and the engine running, move the gear shift lever (**1**) and range lever (**2**) fig. 18 to neutral. At this point, pull handbrake lever (**1**) fig. 19 to engage the trailer parking brake.

⚠ DANGER ⚠

When the tractor is stationary, apply the handbrake lever and wait for at least **10 seconds** before switching off the engine to ensure that the trailer parking brake is engaged.



18

UNHITCHING A TRAILER FROM THE TRACTOR

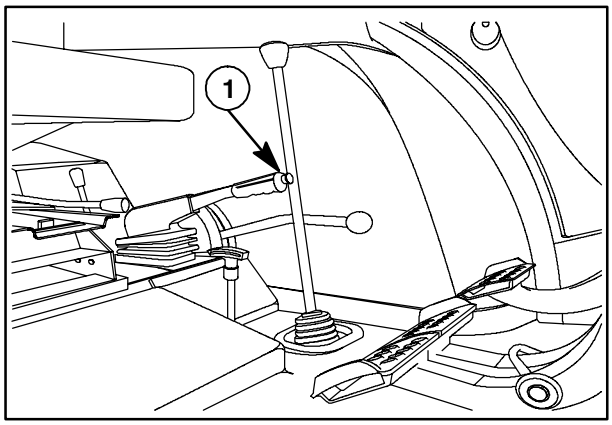
To disconnect the trailer from your tractor, proceed as follows:

- stop the tractor as previously described;
- switch off the engine, as described above;
- disconnect the trailer brake line from the tractor coupler.

If the trailer is on a slope, place chocks behind the wheels for greater safety.

⚠ CAUTION ⚠

If there should be any marked irregularity in the operation of the braking system, contact your authorised dealer immediately to have the problem put right.



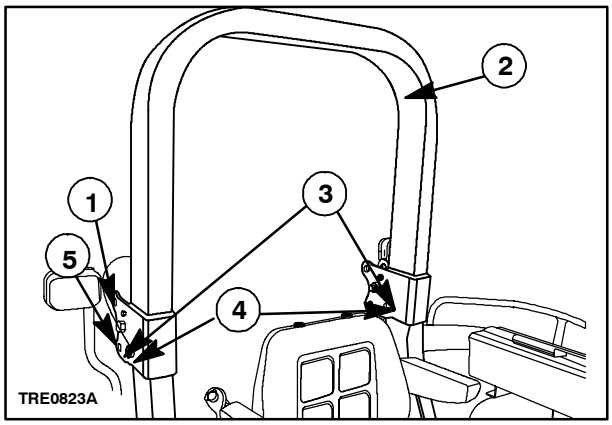
19

FOLDING ROLL BAR

The roll bar (optional) is of the folding type and can be folded backwards when working in areas with limited headroom.

To lower the roll bar, proceed as follows:

- release securing pins (3) and extract the locking pins (4) on both sides fig. 20;
- fold the roll bar (2) fig. 20, backwards;
- align holes (1) and (5), and insert the pins (4) to secure the roll bar in the lowered position.



20

⚠ WARNING ⚠

When not working in areas with limited headroom, always work with the roll bar raised, as shown in the figure.

⚠ CAUTION ⚠

If used incorrectly, the tractor may overturn.

The roll bar may only be lowered when working in areas with limited headroom.

With the roll bar lowered the driver is unprotected, therefore it is essential that the roll bar is raised after working in areas with limited headroom.

When the roll bar is raised, always use the seat belt.

Do not use the seat belt when the roll bar is lowered.

⚠ CAUTION ⚠

Do not attach chains or cables to the roll bar as this may cause the tractor to tip backwards.

Only tow using the specific devices provided on the tractor.

⚠ ATTENTION ⚠

The roll bar (SAFETY DEVICE IN THE EVENT OF OVERTURNING) is an integral part of the Structure of the Tractor

The structure of the roll bar must in no way be modified .

It is therefore prohibited to drill, weld or anyhow connect any device to this safety member that would impair its intended operation.

Any damage due to accident, fire, theft or corrosion to the original structure could make it inefficient and lessen its safety.

It is therefore necessary for specialized personnel to evaluate the damage and, if necessary, have the damaged parts replaced

- The roll bar must be replaced in the event of overturning.
- All the safety parts, such as the operator's seat, including any seat belts, must be carefully checked and must show no sign of any damage whatsoever.
- All damaged parts must be replaced.

IN THE EVENT OF OVERTURNING, DO NOT ATTEMPT TO REPAIR, WELD OR STRAIGHTEN THE ROLL BAR, contact your Dealer's specialized personnel instead

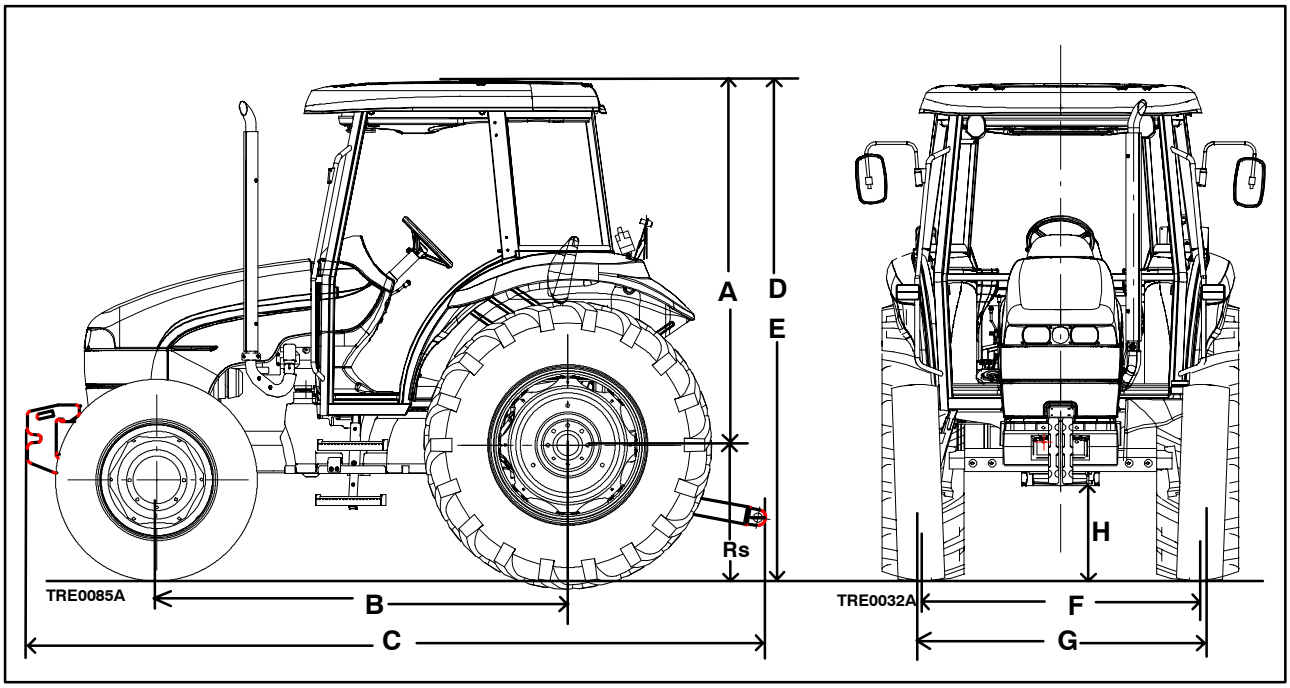
NOTES

SECTION 8
SPECIFICATIONS

The specifications on the following pages are given for your information and guidance. For further information concerning the tractor, please consult your authorised dealer.

DIMENSIONS OF 2WD MODELS WITH STANDARD TYRES

Tyre Combinations	TD 60D	TD 70D	TD 80D	TD 90D	TD 95D
FRONT	7.50-16	7.50-16	7.50-16	7.50-18	7.50-18
REAR	14.9/13-30	14.9/13-30	16.9/14-30	18.4/15-30	18.4/15-34

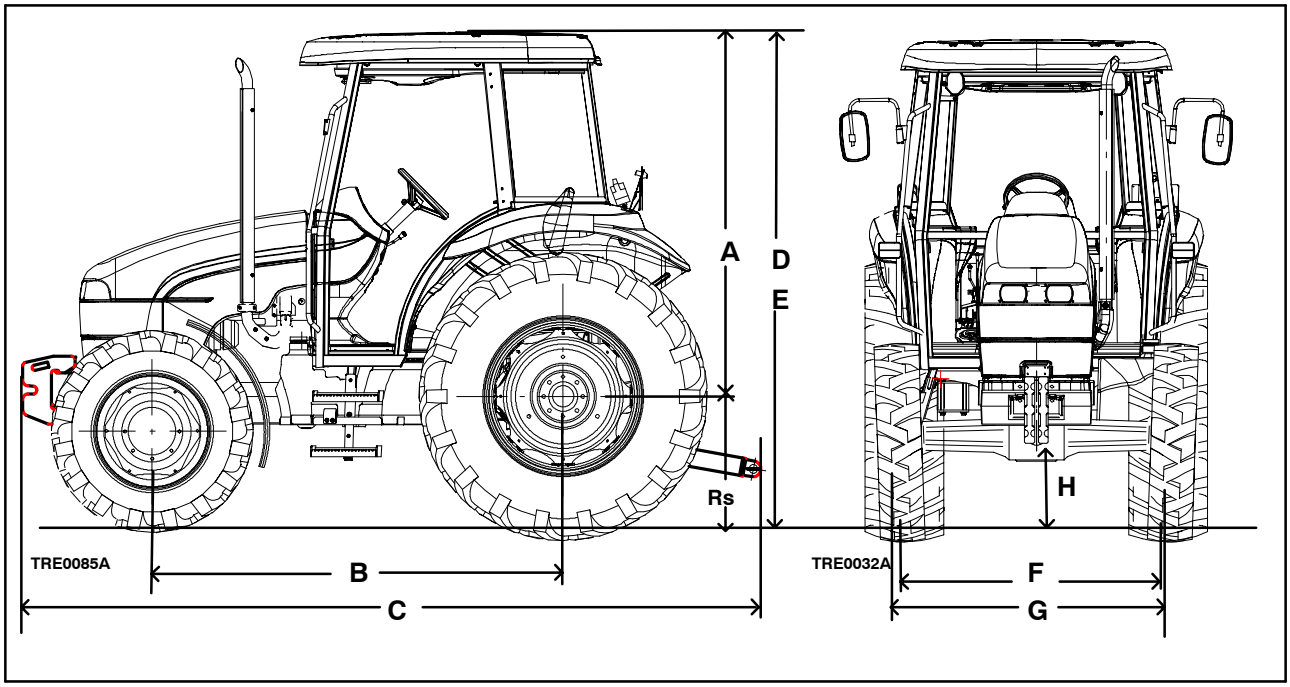


1

Dimensions mm (in)		TD 60D	TD 70D	TD 80D	TD 90D	TD 95D
Tyre radius under load (Rs)		665 (26.13)	665 (26.13)	695 (27.31)	720 (28.30)	770 (30.30)
A	Cab	1878 (73.81)				
	ROPS	1896 (74.51)				
B		2175 (85.48)	2175 (85.48)	2305 (90.59)	2305 (90.59)	2388 (93.85)
C		3918 (153.98)	3918 (153.98)	4032 (158.46)	4032 (158.46)	4115 (161.72)
D (Cab)		$A_{cab} + R_s$				
E (ROPS)		$A_{rops} + R_s$				
F (front)		1400-1900 (55-75)			1410 -1910 (56-75)	
G (rear)		1425-1925 (56-76)		1420-2025 (56-80)		
H		275 (10.83)	275 (10.83)	285 (11.22)	346 (13.62)	390 (15.35)

DIMENSIONS OF 4WD MODELS WITH STANDARD TYRES

Tyre Combinations	TD 60D	TD 70D	TD 80D	TD 90D	TD 95D
FRONT	9.50-24	9.50-24	11.2-24	12.4-24	12.4-24
REAR	14.9/13-30	14.9/13-30	16.9/14-30	18.4/15-30	18.4/15-34



2

Dimensions mm (in)		TD 60D	TD 70D	TD 80D	TD 90D	TD 95D
Tyre radius under load (Rs)		665 (26.13)	665 (26.13)	695 (27.31)	720 (28.30)	770 (30.30)
A	Cab	1878 (73.81)				
	ROPS	1896 (74.51)				
B		2119 (83.28)	2119 (83.28)	2249 (88.39)	2249 (88.39)	2332 (91.65)
C		3862 (151.78)	3862 (151.78)	3976 (156.26)	3976 (156.26)	4059 (159.52)
D (Cab)		$A_{cab} + R_s$				
E (ROPS)		$A_{rops} + R_s$				
F (front)		1450-1880 (57-74)		1550-1980 (61-78)		
G (rear)		1425-1925 (56-76)		1420-2025 (56-80)		
H		265 (10.43)	265 (10.43)	292 (11.50)	333 (13.11)	375 (14.76)

WEIGHTS (kg)

MODELS	Front support	Front end weights	Rear wheel weights	TOTAL
TD 60D	80	4x40: 160	4x50:200	440
TD 70D	80	4x40: 160	4x50:200	440
TD 80D	80	6x40: 240	6x50: 300	620
TD 90D	80	8x40: 320	6x50: 300	700
TD 95D	80	10x40: 400	6x50: 300	780

TRACTOR WEIGHT WITH ROPS

MODELS	without weights		with weights	
	2WD	**4WD**	**2WD**	**4WD**
TD 60D	2650	2920	3090	3360
TD 70D	2650	2920	3090	3360
TD 80D	2940	3420	3560	4040
TD 90D	2940	3420	3640	4120
TD 95D	3150	3580	3930	4360

TRACTOR WEIGHT WITH CAB

MODELS	without weights		with weights	
	2WD	**4WD**	**2WD**	**4WD**
TD 60D	2840	3080	3280	3520
TD 70D	2840	3080	3280	3520
TD 80D	3170	3600	3790	4220
TD 90D	3170	3600	3870	4300
TD 95D	3340	3770	4120	4550

ENGINE SPECIFICATION

Model	TD 60D	TD 70D	TD 80D	TD 90D	TD 95D
Engine type	IVECO or TTF				
	8035.05D.939	8035.25C.939	8045.05R.939	8045.25.939	8045.25L.939
BOSCH Injection pump	4-stroke diesel, direct injection				
- for IVECO engine	L976	L977	L985	L982	L952
- for TTF engine	L-1068-1	L-1068-2	L-1068-3	L-1068-4	L-1068
Naturally aspirated	YES	NO	YES	NO	
Turbocharged	NO	MITSUBISHI -GARRET	NO	MITSUBISHI-GARRET	
Number of cylinders	3		4		
Bore and stroke mm (in)	104 x 115 (4.1 x 4.5)	104 x 115 (4.1 x 4.5)	104 x 115 (4.1 x 4.5)	104 x 115 (4.1 x 4.5)	104 x 115 (4.1 x 4.5)
Total displacement ... cm^3 (cubic in)	2931 178.85	2931 178.85	3908 238.47	3908 238.47	3908 238.47
Compression ratio	18±0.5:1				
Engine max. power 2000/25 EC IVECO:					
kW/rev/min	43.4/2500	50,7/2500	58.8/2500	65.5/2500	69.1/2500
HP(CV)/rev/min	59.0/2500	69.0/2500	80.0/2500	89.0/2500	94.0/2500
Engine max. power ECE R120 (ISO 14396) TTF:					
kW/rev/min	43.5/2500	50.7/2500	58.8/2500	65.5/2500	72.0/2500
HP(CV)/rev/min	59.0/2500	69.0/2500	80.0/2500	89.0/2500	98.0/2500
Maximum torque Nm / rev/min					
IVECO:	206 / 1500	255 / 1500	274 / 1500	317 / 1500	346 / 1500
TTF:	205 / 1500	260 / 1500	270 / 1500	340 / 1500	360 / 1500
Dynamic equalizer with counter-rotating weights	N/A		YES		

TIMING

With overhead valves	Timing data
Inlet :	
- start before TDC	12°
- end after BDC	31°
Exhaust :	
- start before TDC	50°
- end after BDC	16°
Valve clearance, engine cold :	
- inlet and exhaust ..... mm (in)	0.30 ± 0.05 (0.0118 ± 0.002)

FUEL SYSTEM

Double-diaphragm fuel pump on injection pump supply line.

Rotary injection pump with centrifugal speed governor operating at all speeds and incorporating automatic advance BOSCH VE-type.

Fuel filtration :

- mesh filter in the fuel pump;
- replaceable cartridge filter in the injection pump feed line with water separator.

Fuel sediment filter (optional).

Double cartridge dry air filter, with centrifugal pre-filter and automatic dust extractor.
Optional : air filter with self-cleaning device (Donaspin).

MODEL	TD 60D	TD 70D	TD 80D	TD 90D	TD 95D
Engine injection pump, number of orifices :	3		4		
Before TDC of cylinder No. 1 on compression stroke (°) :	4±0.5	0±0.5	4±0.5	1±0.5	0±0.5

Injectors :	3 cyl.	4 cyl.
- firing order :	1-2-3	1-3-4-2
- number of injection nozzles :	5	
- calibration : bar ..... (Psi) ..... kg/cm^2	260-272 (3770 to 3945) 265-277	

LUBRICATION

Pressurised, by gear pump. Oil filtration : pressurised through pump intake mesh and replacable cartridge filter on engine intake.
Lubrication pressure with engine hot and at max. speed

On TD60D, TD70D, TD80D and TD90D models:
- IVECO engine ..... 2.9 - 3.9 bar (42.06 - 56.57 Psi) (3 - 4 kg/cm^2);
- TTF engine ..... 2.5 - 3.5 bar (36.26 - 50.76 Psi) (2.55 - 3.57 kg/cm^2).

On TD95D model:
- IVECO engine ..... 5.0-6.0 bar (72.534-87.0408 Psi) (5.1-6.1 kg/cm^2);
- TTF engine ..... 4.0-5.0 bar (58.02-72.52 Psi) (4.08-5.99 kg/cm^2).

Engine oil cooled by a heat exchanger using engine coolant (On TD95D engine).

COOLING SYSTEM

Water, pressurised circulation by centrifugal pump.

Radiator with 3 lines of vertical copper pipes for TD 60D, TD 70D, TD 80D and TD 90D models, or 4 lines of vertical copper pipes for TD 95D model.

Cooling fan fitted on same shaft as water pump.

Water circulation from engine to radiator thermostatically controlled.

TRANSMISSION

Clutch

Dry double-plate, with separate controls : pedal operation for gearbox and hand lever for power take-off.

Disk material and diameter (inches):

MODELS		TD 60D	TD 70D	TD 80D	TD 90D	TD 95D
Engine	Organic	11”		-		-
	Cerametallic	-		11”		12”
PTO	Organic	11”				12”

GEARS

Permanently engaged helical mesh with 4 gear ratios.

Full syncromesh for all gears.

Range gear cascade connection with three forward gear ranges and one reverse gear range.

Speed	Gearbox	Model
30 km/h	12x4	Opt.
	12x12	Std.
	20x12	Opt.
40 km/h	12x12	Opt.
	20x12	Opt.

REAR TRANSMISSION

Bevel-gear ratio	30 km/h - 2WD	30 km/h - 4WD	40 km/h - 4WD
	9/43	9/43	11/43

Differential with pedal controlled locking device and automatic release.

Final drive : Pinion - gear type

POWER TAKE-OFF (PTO)

Fully independent, in three versions : 540 rpm; 540, 750 and 1000 rev/min; (540 and 1000 rev/min not for all markets). With engine running at :

PTO (rev/min)	Engine (rev/min)
540	2200
750 (540 Economy)	2380 (1715)
1000	2380

Ground speed PTO (see page 3-8).

Manual control : clutch control lever, take-off engage lever and speed selector lever.

Direction of rotation, viewed from rear of tractor : clockwise.

HYDRAULIC LIFT

Operates in the following modes :

- draft control;
- position control;
- mixed control;
- float mode.

Draft control is through the link arms by means of a torsion bar.

The link-arms are raised and lowered using a pushbutton-operated device **Lift-O-Matic™**.

Oil supply is from the transmission by gear pump operated directly by the engine :

type ..... C 31

- pump speed with engine at maximum power (rev/min): 2328
- corresponding nominal flow: dm^3/min / l/min (US. gal/min): 40.1 (10.8)
- corresponding nominal flow (Mega Flow Pump*): dm^3/min / l/min (US. gal/min): 51.7 (13.6)
- pressure relief valve calibration : bar (Psi) 190 (2755)

(kg/cm^2) 194

* Optional

Maximum lift capacity

With lift rods located in rear holes of horizontal arms and upper hole of top link attachment bracket :

Model	TD 60D	TD 70D	TD 80D	TD 90D	TD 95D
at link ends of horizontal arms (kg)	3000		3565		
with center of gravity at 610 mm (24 in) from link ends (kg)	2260		2700		

THREE-POINT LINKAGE

Category I and Category II three-point linkage device.

Stabilizer device :

- telescopic stabilizers (standard).

Single or double-acting rear remote control valves: up to three, one with float and automatic release.

FRONT AXLE

Central pivoting, telescopic, inverted "U" structure.

Track adjustment : by extending the axle.

FRONT WHEELS 2WD

Rims with integral steel wheel discs.

FRONT WHEELS 4WD

Wheels in two parts : steel wheel disc and rim.
Track adjustment : by interchanging rims to discs and to wheel hubs.

REAR WHEELS

Wheels in two parts : steel wheel disc and rim.
Track adjustment : by interchanging rims to discs and to wheel hubs.

NOTE: Tyre specifications are shown on pages between 3-41 and 3-54.

STEERING

Hydrostatic control, independent circuit.

Metalic cartridge oil filter, fitted in oil reservoir.

Gear pump operated directly by the engine :

- pump type : C25*RP
- pump speed with engine at max. power : rev/min 2328
- corresponding flow : dm^3/min / l/min (gal/min) 26.5 (5.8)
- pressure relief valve calibration :

..... All 2WD models: 100 bar (1450 Psi, 102 kg/cm^2)
..... All 4WD models: 125 bar (1813 Psi, 127 kg/cm^2)

- minimum turning radius, two-wheel drive models : without brakes

..... TD 60D, TD 70D models : 3.8 m (12.5 ft)
..... TD 80D, TD 90D and TD 95D models : 3.9 m (12.8 ft)

4WD FRONT AXLE

Central pivoting axle and co-axial transmission shaft on the longitudinal axis of the tractor. No universal joints on transmission shaft. Differential with two planetary pinions.

Bevel gear pair ratios :

- model TD 60D and TD 70D : 9/38
- model TD 80D, TD 90D and TD 95D : 9/39

Minimum turning radius (m):

	TD 60D, TD 70D	TD 80D, TD 90D, TD 95D
4WD engaged		
brake assisted	3.6	4.1
without brakes	5.3	5.6
4WD disengaged		
brake assisted	4.2	4.5
without brakes	4.9	5.1

BRAKES

Rear service brakes

Oil-immersed disc brakes, fitted on differential axle shafts.
Mechanically operated with independent hydraulic circuits for right and left-hand brakes, operated by separate pedals.
Pedals are connected for simultaneous braking when driving on roads.

Front service brakes

Disc brake, hydrostatically controlled (not available at all markets), mounted on front final drive.
Pedals are connected for simultaneous braking.

Parking brake on transmission

Disk brake, fully independent, mounted beneath gearbox and connected to pinion shaft. Mechanically operated by hand lever.

BODYWORK AND DRIVING POSITION

- **With ROPS**

Platform, instrument console and mudguards form a single, modular structure, suspended on 4 rubber blocks.
Pre-lined sheet metal mudguards with partially shaped galvanised layer.
Mounting structure for roll bar.
Fuel tank located on left-hand side under the platform.
Hood hinged at rear and held open by gas strut.

- **With Cab**

Mudguards and cab form a single integrated structure. Fuel tank located on left-hand side under the cab module.
Hood hinged at rear and held open by gas strut.

Seat

Padded, with parallelogram suspension, adjustable springing and position.

TOWING DEVICES

- Rear swinging drawbar.
- Rear height-adjustable rigid hook.
- Front pull-type hook.

ELECTRICAL SYSTEM

Voltage

12 V

Alternator

- 65 A for models TD60D, DT70D, TD80D and TD90D. 85A for model TD95D.
- Max. power with engine running at 2500 rpm – approximately; 540W
- Integral electronic voltage regulator.

Battery

105 Ah (w/o cab) and 120 Ah (w/cab).

Starter motor

2.5 kW for TD 60D and TD 70D models

3.5 kW for TD 80D, TD 90D and TD 95D models.

Lights

Two asymmetrical front headlamps using 55 W bulbs (white or yellow).

Two front light clusters including :

- side lights (5 W bulb) with white transparent cover;
- direction indicator (21 W bulb) with amber transparent cover.

Two rear light clusters including :

- side lights (5 W bulb) with red transparent cover;
- direction indicator (21 W bulb) with amber transparent cover;
- brake (stop) light (21 W bulb) with red transparent cover;
- number plate light, 5 W.

Red rear reflectors.

Instruments and accessories

- Multi-function instrument panel
- 7-pin DIN power socket
- Thermostart
- Flashing hazard warning light indicator for tractor and trailer.
- Work lamps (55 W bulb)
- Beacon 55 W.

NOTE: Under the EC regulations, the maximum permissible overall width for tractors equipped with standard tail-lights is 2150 mm. With wheels set at maximum track width, the maximum overall width obtainable is 2315 mm for machines with ROPS, and 2510 mm for machines with cab. If these wider settings are adopted, the tail-lights must be mounted to special extendible arms (available on request) so that they can be adjusted to indicate the overall width of the tractor.

NOTES

INSPECTIONS AND/OR OPERATIONS TO BE CARRIED OUT - Dealer's Copy

NON FUNCTIONAL INSPECTIONS/OPERATIONS

1. Tyre pressures and condition ☐
2. Air filter cartridge and hoses ☐
3. Cooling system hoses ☐
4. Specific gravity and level of coolant (specific gravity 1,071 to 1,083 at 16° C) ☐
5. Replace fuel filter, clean sediment filter and purge air from fuel system ☐
6. Drive belts for cooling fan, alternator and air conditioning compressor ☐
7. Change engine oil and filter ☐
8. Change hydraulic oil filter ☐
9. Check oil level in rear transmission housing ☐
10. Grease all lubrication fittings and lubricate joints ☐
11. Tighten wheel disc nuts ☐
12. Tighten wheel rim nuts ☐
13. Tighten bolts on front ballast ☐
14. Front wheel toe-in and steering stops ☐
15. Battery leads and relative fittings ☐
16. Windscreen wiper, washer bottle level ☐
17. Cab air filter clean ☐
18. Seat operation ☐
19. Exhaust pipe mounting 40 Nm (4,1 kgm) (29.7 ft.lbs) ☐

OPERATIONAL INSPECTIONS

1. Lights and internal instrumentation ☐
2. Oil and liquid leaks ☐
3. Maximum and minimum idling speeds and engine cut-off ☐
4. Power take-off and brakes ☐
5. Hydraulic system:
   - Draft control working ☐
   - Position control working ☐
   - Auxiliary control valves ☐
   - Control valves intake ☐
   - System pressure ☐

FUNCTIONAL INSPECTIONS

1. Engine, accelerator and speed governor ☐
2. Gearbox ☐
3. Steering operates correctly ☐
4. Differential lock and 4WD engage/disengage ☐
5. Brake operation ☐
6. Optional equipment and accessories ☐

INSPECTIONS OF SAFETY EQUIPMENT

1. Safety belts (optional) ☐
2. Torque cab mounting nuts ☐
3. Power take-off electrical safety devices engaged ☐
4. Handbrake operation and adjustment ☐
5. Safety guards and covers ☐

Inspections and operations carried out

Tractor model ..... **Serial No.:** .....

Customer's signature	**Date**	**Dealer's signature**	**Date**

INSPECTIONS AND/OR OPERATIONS TO BE CARRIED OUT - Owner's Copy

NON FUNCTIONAL INSPECTIONS/OPERATIONS

1. Tyre pressures and condition ☐
2. Air filter cartridge and hoses ☐
3. Cooling system hoses ☐
4. Specific gravity and level of coolant (specific gravity 1,071 to 1,083 at 16° C) ☐
5. Replace fuel filter, clean sediment filter and purge air from fuel system ☐
6. Drive belts for cooling fan, alternator and air conditioning compressor ☐
7. Change engine oil and filter ☐
8. Change hydraulic oil filter ☐
9. Check oil level in rear transmission housing ☐
10. Grease all lubrication fittings and lubricate joints ☐
11. Tighten wheel disc nuts ☐
12. Tighten wheel rim nuts ☐
13. Tighten bolts on front ballast ☐
14. Front wheel toe-in and steering stops ☐
15. Battery leads and relative fittings ☐
16. Windscreen wiper, washer bottle level ☐
17. Cab air filter clean ☐
18. Seat operation ☐
19. Exhaust pipe mounting 40 Nm (4,1 kgm) (29.7 ft.lbs) ☐

OPERATIONAL INSPECTIONS

1. Lights and internal instrumentation ☐
2. Oil and liquid leaks ☐
3. Maximum and minimum idling speeds and engine cut-off ☐
4. Power take-off and brakes ☐
5. Hydraulic system:
   - Draft control working ☐
   - Position control working ☐
   - Auxiliary control valves ☐
   - Control valves intake ☐
   - System pressure ☐

FUNCTIONAL INSPECTIONS

1. Engine, accelerator and speed governor ☐
2. Gearbox ☐
3. Steering operates correctly ☐
4. Differential lock and 4WD engage/disengage ☐
5. Brake operation ☐
6. Optional equipment and accessories ☐

INSPECTIONS OF SAFETY EQUIPMENT

1. Safety belts (optional) ☐
2. Torque cab mounting nuts ☐
3. Power take-off electrical safety devices engaged ☐
4. Handbrake operation and adjustment ☐
5. Safety guards and covers ☐

Inspections and operations carried out

Tractor model ..... **Serial No.:** .....

Customer's signature	**Date**	**Dealer's signature**	**Date**

SECTION 10

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Product Support - Technical Information
Print No. **87592264**- 2nd Edition-01- 2007

PRINTED IN TURKEY

NEW HOLLAND constantly improves its product range and, therefore, reserve the right to modify products whenever necessary, without any obligation to apply these improvements and modifications to vehicles that were previously sold.

All information included in this Manual is subject to eventual product variations. Dimensions and weights are provided with approximate values and the tractor fittings shown in the illustrations may not correspond with standard models. Precise data and information on models and fittings are available at your NEW HOLLAND dealer.