

Tractor Manuals Scotland

**Tractors
45-66
45-66 DT**

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OPERATOR'S MANUAL



NEW HOLLAND

Fiatagri. One exclusive vocation: Agriculture

The Fiatagri brand name stands today for the most complete and exhaustive line of agricultural machinery products on the market.

FIATAGRI sums up all the image and prestige of the trademarks representing it out in the field: FIAT tractors, Laverda combine harvesters, Hesston hay and forage harvesting machines and Braud multi-purpose trailed and self-propelled grape harvesters.

That is why Fiatagri, with the most complete and advanced full-line in Europe, is a real specialist, responsible for the design, engineering, manufacturing and marketing of all of its product lines.

Being part of the FIAT Group, it avails itself of the accompanying resources and scale economies to achieve always further results in product development.

Experience, tradition and constant innovation are the major features which have made possible for the Fiatagri products to become undisputed, foreline protagonists on the world scene, as witnessed by the high-standing image and preference accorded by farmers everywhere.

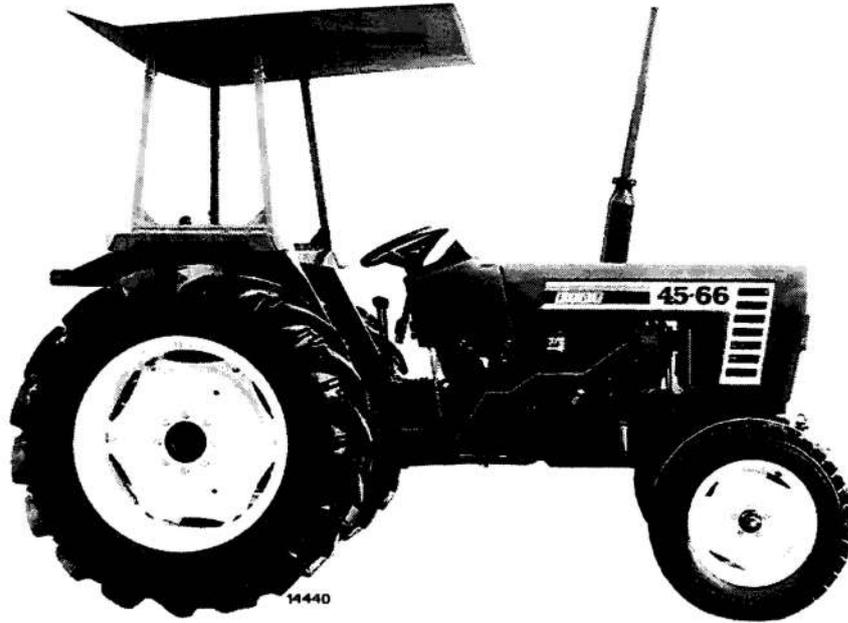


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FIAT

45-66

OPERATION - MAINTENANCE - SPECIFICATIONS



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Spares and after-sales service always close at hand

When you buy a Fiatagri agricultural machine, you also get something that does not catch the eye, but may well prove its worth in the future, namely the company's large and efficient after-sales and spares organization. At the San Matteo (Modena) spares center, a highly modern installation with 32,000 m² under roof and equipped with electronic

handling and retrieval systems, a total of 21 million spare parts of more than 220,000 different items are held in store. The Center can handle up to 6,000 orders per day.

The superior quality of its original spare parts — added to Fiatagri's efficient organization and fast service — is the quality that ensures that a Fiatagri agricultural machine never loses its value as time goes by.



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 **FIATAGRI** 3



Service

*An extended network of **FIATAGRI** Authorized Dealers, equipped with all necessary means to perform any repair and overhaul work, is at your disposal.*

Turn to these shops in full confidence. You will benefit from the assistance and know-how of skilled servicemen.

FIATAGRI's experience is at your service to help you solve any problem related to tractor operation, care and use.

Spare Parts

Use genuine FIATAGRI parts only.

Failure to do this will:

- *Cost you more.*
- *Not result in complete satisfaction.*
- *Seriously risk improper functioning of the tractor.*

Original spares are sold by the FIATAGRI Sales and Service Organization.

In all orders be sure to quote (see page 7):

- *Tractor Model and Frame Number.*
- *Engine Type and Number.*
- *The Part No. of the spare needed (listed in the Spare Parts Catalogue).*

Maintenance

45-66 tractors were designed with the owner in mind and an effort has been made to simplify maintenance. The purpose of this manual is to familiarize the operator with the operation and regular servicing of the tractor.

Remember that the time spent on maintenance extends the life of your tractor.

Pay particular attention to the instructions covering fuel filtering, air cleaner maintenance and lubrication: remember that badly filtered fuel results in injection system deterioration and irregular air cleaner maintenance leads to premature engine wear, and reckon that a tractor oil change every 200 hours is equivalent to a truck oil change every 8,000 to 9,000 km.

Panelling and cab maintenance

Weathering Protection

FIATAGRI has long since introduced a number of provisions aimed at improving tractor protection against deterioration and corrosion phenomena resulting from various external factors, some of which are listed below:

- Atmospheric salinity and humidity.
- Air pollution (industrial areas).
- Abrasive action by solid particles.
- Use of machine in conditions where organic and/or chemical aggressive agents are present.
- Physical damages such as dents, abrasions and deep scoring marks.

The technical remedies adopted were:

- Use of high corrosion resistant steel panellings.
- Painting systems and products selected to make the tractor meet particular corrosion and abrasion resistance requirements.
- Application of adequate hardening plastic protective coatings in all areas known to be more easily exposed to corrosion factors (sheet metal edges, welded overlaps and joints).

- Application of specific waxy products as protectants for tractor outdoor storage.

But unfortunately, the weathering agents react differently in relation to the varying environmental and owner use conditions: for this reason, if you devote adequate care to your machine you can contribute in a determinant way to the preservation of the tractor.

The following pointers were laid down with this basic concept in mind:

Panelling and Cab

When abrasions or deep scoring marks baring the metal underneath are present, immediate remedial action is necessary by paintwork touchups using genuine products, as follows:

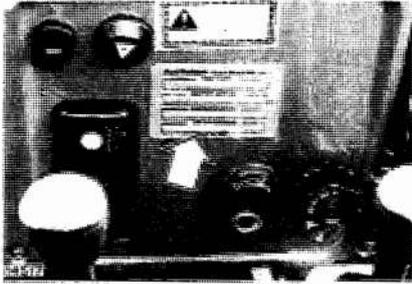
- Sand area involved accurately.
- Apply primer.
- Allow to flashoff and sand again, this time lightly.
- Apply paint.
- Polish to restore original gloss.

Hose down equipment regularly in relation to work conditions and environment. Wash more frequently in seaside and heavily polluted areas, and **immediately** after exposure to organic materials or chemicals.

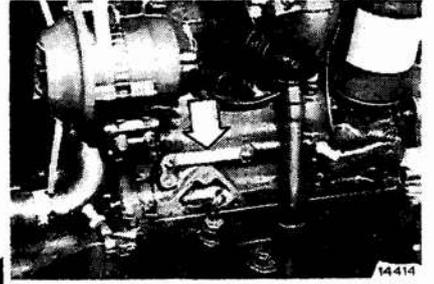
Use low pressure water hose, sponge down with light detergent solution (2 to 4% in water). Rinse sponge frequently, rinse equipment thoroughly and dry with compressed air, if possible.

Do not wash equipment after prolonged exposure to sunlight or immediately after stopping engine. Allow parts to be washed to cool down, otherwise paintwork gloss will be adversely affected. To preserve gloss, apply a light coat of silicone wax occasionally. Apply polish to remove traffic film.

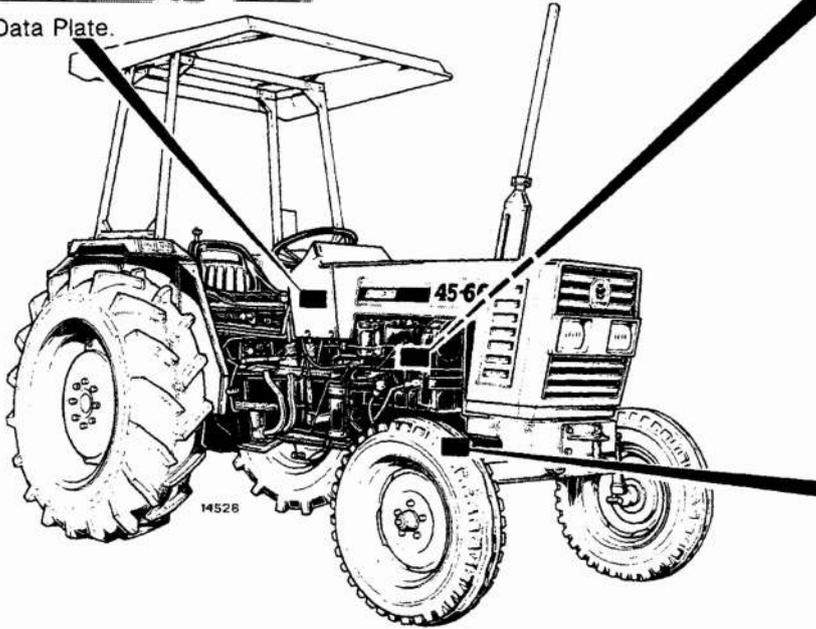
Identification Data



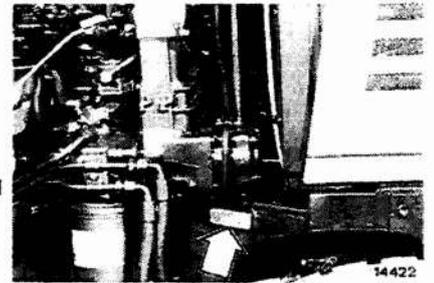
Tractor Data Plate.



Engine Type and Number.



Frame Type and Number.



Safety Precautions

THIS SYMBOL IS YOUR SAFETY ALERT SIGN

It means:



**«ATTENTION - DANGER
YOUR SAFETY IS INVOLVED»**



Read and heed all safety instructions carrying the signal words **WARNING** and **DANGER**.

GENERAL

■ You tractor was designed with safety very much in mind. However, there is no real substitute for caution and attention in preventing accidents. Once an accident has happened it is too late to think about what you should have done.

■ Remember that your tractor has been designed exclusively for agricultural use. Any other application must first be authorized by the manufacturer.

■ Read this manual thoroughly before attempting to start, operate, service or refuel the tractor. A few minutes reading will save time and trouble later.

■ Read and heed all machine-mounted safety decals before refueling or servicing the machine and replace any missing decals.

■ Tractor should be operated only by responsible persons suitably trained and duly authorized.

■ Keep a first aid kit handy.

■ Do not work with loose garments that could get caught in moving parts. Check that all rotating parts connected to the PTO shaft are properly protected.



- Do not attempt to increase max. engine rpm by altering injection pump governor setting.

- Do not alter relief valve setting of hydraulic systems (power steering, hydraulic lift, remote control valves, etc.).

- Do not operate tractor if you feel unwell. Stop working rather than risk an accident.

- Always use steps and grab handles when getting in or out of the cab.

- Ensure that ROPS frame or cab is correctly fitted to tractor. Check that fasteners are not loose and that the frame is not damaged in any way. Do not drill, cut, weld or modify the frame.

TRACTOR STARTING

- Prior to starting the engine check that parking brake is on and gear and PTO levers are in neutral, even if your tractor is fitted with a start inhibiting device. Never bypass start inhibitor switch. Consult trained service personnel if start inhibitor is not operating properly.

- Make sure that all implements are fully lowered before starting.

- Ensure that all guards and protective devices are correctly installed before starting the tractor (ROPS frame or cab, hood side panels, PTO guard, front axle drive shaft guard etc.).

- Do not attempt to start or maneuver the tractor unless sitting in operator's seat.

- Ensure that there are no persons or obstacles within range before starting the tractor.



- Do not run engine in closed building without adequate ventilation as exhaust fumes are dangerous.

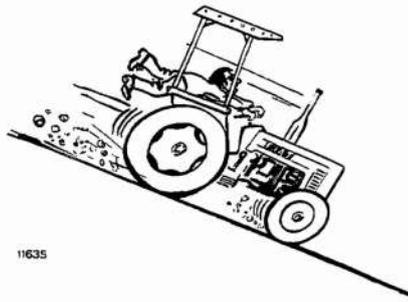


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OPERATION

■ Select the track setting most suited to the work in hand, keeping tractor stability in mind.

■ Engage clutch pedal gradually: abrupt engagement, particularly uphill or under pull, could cause tractor to pitch dangerously. Immediately disengage clutch if front end comes off the ground.



■ Do not coast downhill in neutral or with clutch disengaged.

■ When the tractor is moving, its operator should always be sitting in the operator's seat.

■ Do not get on or off a moving tractor.

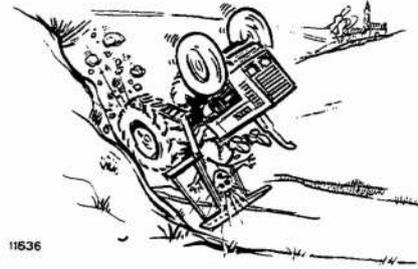
■ Always depress the brake pedal gently.

■ Do not corner at high speed.

■ Always operate the tractor at a safe speed for the type of ground being worked. Reduce speed on slopes and curves to prevent roll-over.

■ When working on sloping ground, do not drive too fast, particularly when turning.

■ Use extreme caution when operating with the wheels near the edge of a slope.





■ Unless your tractor is fitted with a regulation passenger seat, never carry passengers, even inside the cab.

■ Respect the highway code during on-road manoeuvres.

■ Do not ride the brake and clutch pedals.

■ Latch brake pedals during on-road transfer; otherwise dangerous skidding may occur when braking. Do not overwork brakes: downshift to slow tractor.

TOWING

■ Adjust the towing attachment correctly to maintain tractor stability. See note on page 33.

■ Drive slowly when towing heavy trailers or wheeled implements.

■ Trailers should not be towed unless equipped with an independent braking system.

■ Always use drawbar when towing heavy loads. Do not pull from 3-point hitch links as tractor could pitch.

■ When towing, do not negotiate bends with the differential lock in, otherwise you may not be able to steer the tractor.



USE OF IMPLEMENTS AND FARM MACHINES

■ Always use implements or machinery rated for use with your tractor. Never use machinery designed for more powerful tractors.

■ Do not negotiate tight bends with the PTO under heavy load as this could damage the drive shaft universal joints.

■ Never stand between tractor and implement while the tractor is being backed up.

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■ Never operate a PTO driven implement without first ensuring that no one is on or near the machine. Check that all rotating parts connected to the PTO shaft are adequately protected.

■ Install rear weights when using front lifting equipment.

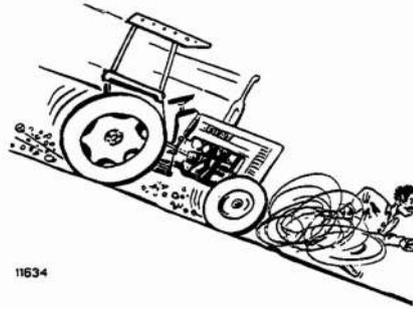
TRACTOR STOPPING

■ Never leave equipment in the raised position with the tractor stationary.

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■ Return gear lever to neutral, disengage PTO, apply parking brake, stop the engine and engage a gear before leaving the tractor seat. Always remove starter switch key before leaving tractor unattended.

■ Park tractor on level ground if possible, engage a gear and apply parking brake. On gradients, apply parking brake and first gear uphill and reverse gear downhill. For greater safety, use the optional chock, especially with a trailer on tow.



MAINTENANCE

■ Allow engine to cool down before removing radiator cap; with engine shut off, slowly turn cap to release pressure before removing cap completely.

■ Disconnect the battery ground lead before starting any work on the electrical system.

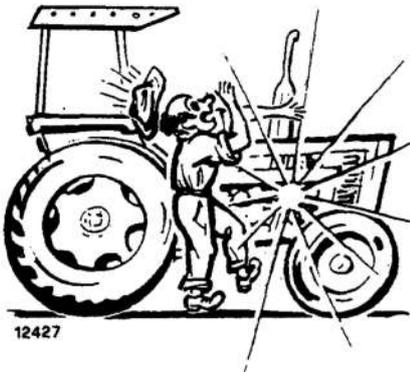
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CAUTION

Some of the illustrations in this manual have been taken from photographs of prototypes. Standard production tractors may differ in some details.

■ Ensure that hydraulic system is not under pressure before disconnecting lines.

■ Hydraulic oil escaping under pressure could cause serious personal injury. When tracing oil leaks wear protective shields, goggles and gloves.



■ Before attempting to inspect, clean, adjust, repair or service the tractor or coupled implement in any way, ensure that the engine is shut off, transmission in neutral, brakes are applied, PTO is disengaged and all moving parts are stationary.

■ Work on tires should be carried out by experienced personnel using proper equipment. Incorrect tire installation can cause serious accidents. If in doubt, turn to qualified personnel for help.

⚠ WARNING ⚠

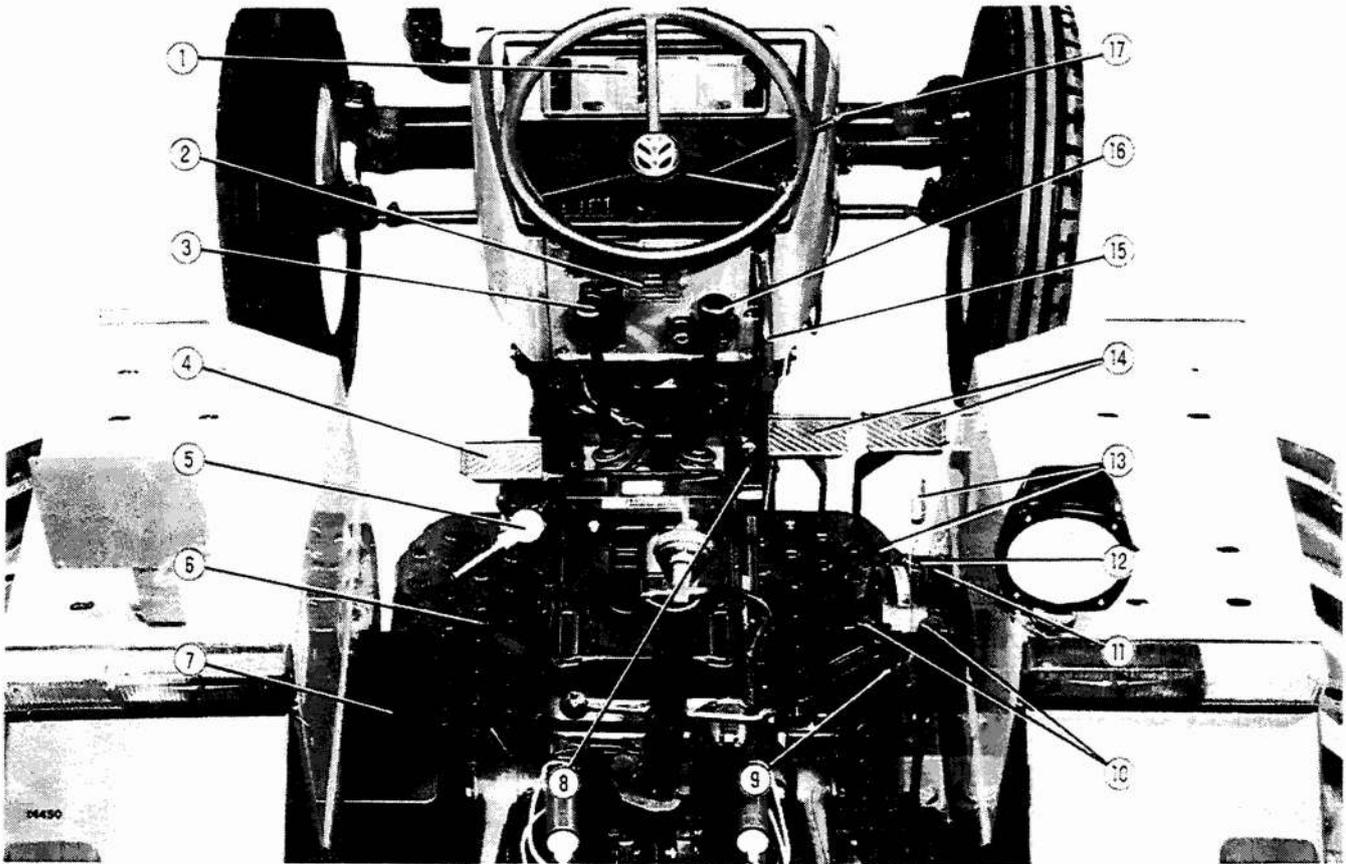
In some of the photographs in this manual panels or covers have been removed for illustrative purposes. Never operate tractor without these panels or with shields removed.

■ Do not fill tank completely when tractor is to be operated in strong sunlight, as fuel could expand and escape. Any escaping fuel should be wiped off immediately.

■ Tractor fuel may be dangerous. Never refuel with tractor in motion, near an open flame with a warm engine or when smoking.

■ Always keep a fire extinguisher within reach.





CONTROLS AND INSTRUMENTS

1. **Instrument Panel**(see page 16).

2. **Control Board** (see page 18).

3. **Splitter Control Lever** (see page 19).

4. **Master Clutch Pedal.**

5. **Seat Ride Control lever** (see page 39).

6. **PTO Control Lever** (see page 23).

7. **Tool Box.**

8. **Parking Brake Lever** (with release button):

- Up = Applied
- Down = Released

IMPORTANT

Depress lever button to release parking brake lever 8.

9. Differential Lock Pedal.

The differential is provided with a pedal-operated lock.

It is recommended that this lock be used in the following cases:

- In plowing, to prevent slipping of wheel outside the furrow.
- When one of the driving wheels tends to "spin" on adverse, muddy or slippery ground.

To lock: first slow down tractor, then depress pedal fully.

The differential lock will stay IN until the wheels find equal adhesion; should the lock not release automatically, brake one of the wheels rapidly and strongly.

To release lock while plowing, brake the wheel outside the furrow.

CAUTION

Do not keep differential locked if unnecessary: this would only cause waste of power, harmful stressing of drive line components, tire wear and steering difficulties.

10. **Remote Control Valve Levers** (see page 40).

11. **Lift-O-Matic** (see page 27).

12. **Accelerator Pedal.**

13. **Lift Controls** (see page 27).

14. **Brake Pedals.**

15. **P.T.O. Clutch Lever** (see page 23).

16. **Gear Lever** (see page 19).

17. **Hand Throttle.**

Instrument Panel



Battery charge indicator (red).

Should go off upon starting the engine.



Parking brake indicator (red).



Low engine oil pressure indicator (red).

Should go off soon after starting the engine.

If the light fails to extinguish itself stop the engine and trace the fault. When the engine is idling warm, the light may come on although this is not evidence of malfunction.



Not used.



Water temperature gauge.

- Green = Normal.
- White = Low.
- Red = High.

In case of overheating, return the engine to idle (do not stop) and if the trouble persists, inspect the cooling system.

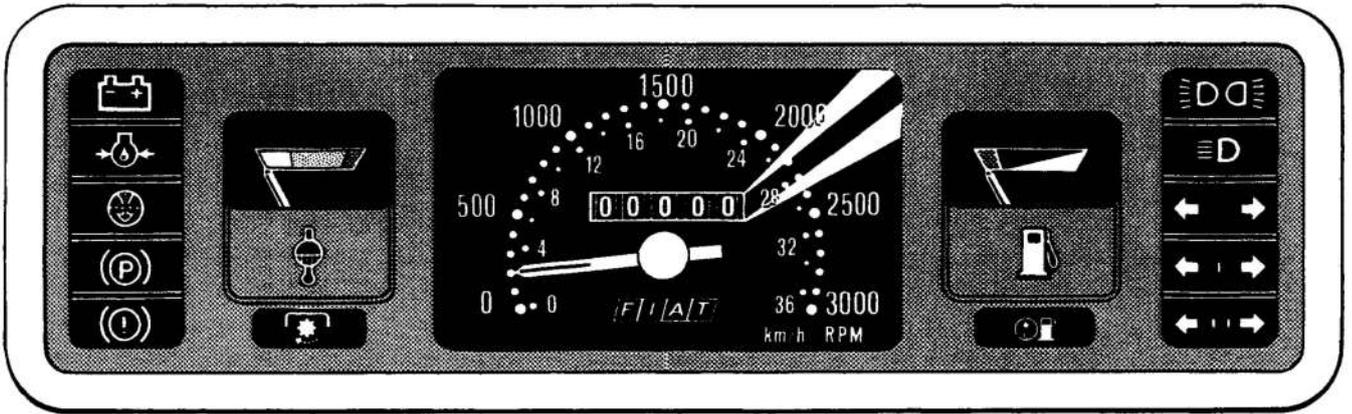


Dry air cleaner restriction indicator (red).

IMPORTANT

During running, keep an eye on the indicators and instruments. In case of abnormal operation stop the tractor without delay and remedy as necessary.

Tractor meter (central instrument). Tachometer, speedometer, hourmeter and 5-digit totalizer. Black background digits indicate working hours and red background digit (last to right) 10ths of an hour. Green and red sectors on hourmeter indicate engine rpm for 540 and 1000 rpm PTO respectively.



13906



Fuel Gauge.

- Needle to right - Full tank.
- Needle to left (red sector) - Less than ¼ full.



Parking Lights Indicator (green).



Tractor Turn Signal Indicator (green).



High Beams Indicator (blue).



First Trailer Turn Signal Indicator (green).



Not used.

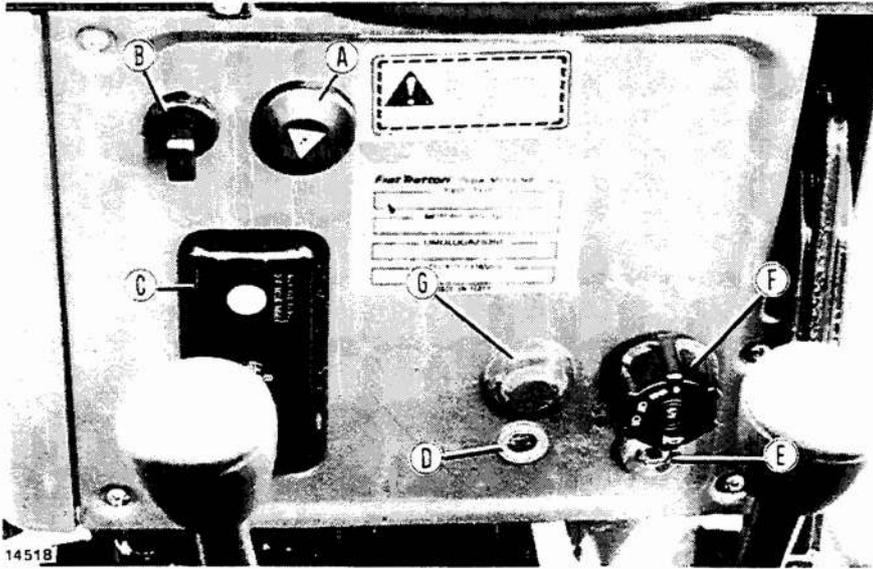


Not used.



Second Trailer Turn Signal Indicator (green).

Control Board



A. Hazard Warning Control and Indicator. Always live even with key removed from starter switch **E**. Press to activate and press again to switch off.

C. Fuse Box (see page 51).

D. Power Point (single pole).

B. Turn Signal Light Switch (switch **E** to 1, see page 20).

E. Starter Switch (see page 20).

F. Lighting Switch and Horn Push-button (switch **E** to 1, see page 20).

	OFF.
	Parking.
	Low Beams.
	High Beams.
	In-Horn

G. Thermostarter or Start-pilot Control (see page 21).

Transmission and Splitter

WARNING

With engine running and only one transmission lever in neutral, accidental shifting of that lever could result in tractor starting and consequent risk of accidents. Always move both levers to neutral and stop engine before leaving tractor.

Transmission and splitter are controlled by two separate levers.

Transmission provides four gear ratios (1, 2, 3, 4).

Splitter provides three forward ranges:

- I = Low
- II = Normal
- III = High

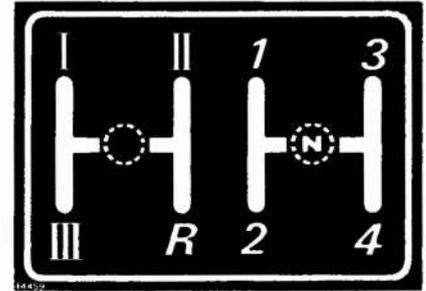
and one reverse (R) for each gear ratio.

Thus **twelve** forward and **four** reverse speeds are available.

To change gear range stop the tractor, push the splitter lever to the left and move it forward for low and back for high.

To select reverse **R**, stop the tractor and move splitter lever down and to the right.

To change up and down in the same range (reverse included) press the master clutch pedal and shift the gear lever. Tractor need not be stopped, as all gears are synchromesh.



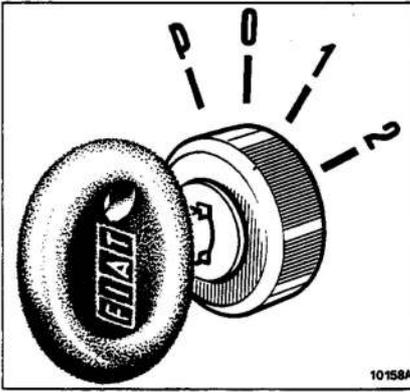
Splitter Lever Positions

I Low.

II Normal.

III High.

R Reverse.



Starter Switch

- 0. OFF. (key removable).
Engine stopping - Automatic fuel supply shut-off.
- 1. ON.
Engine starting circuit energized - Indicators and instruments operative - Various user circuits energized.
- 2. Starting (when released key springs back to position 1).
- P. Parking lights, instrument lights (key removable).

⚠ WARNING ⚠

- Never start or run tractor indoors.
- Ensure all controls are in neutral position before starting.
- Operate controls from operator's seat only.
- Shut off engine before carrying out any service or maintenance operations.
- Use steps and grab handles for getting on and off the tractor.
- Ensure that guards are correctly mounted.
- When driving on the road, always signal when stopping, turning or reducing speed.
- Use appropriate slow moving vehicle signs when operating on public roads.

ENGINE STARTING

- a. After extended inactivity or when starting in cold weather, prime fuel pump through 20 strokes and run engine for 5 to 10 seconds with injection pump with fuel shut off.
- b. Declutch to de-activate starter inhibitor switch.
- c. Move throttle lever to mid-stroke.
- d. Turn starter switch key to position 2 and release as soon as engine fires.

Starting and Stopping

IMPORTANT

Prior to starting in cold weather cover radiator to warm up coolant quickly. Subsequently, remove covering.

Also note the following points:

— Do not attempt repeated engine starts for more than 15 seconds unless the engine shows a tendency to start, in which case attempts may be protracted to 30 seconds.

— Wait at least one minute between attempts.

— To preserve battery charge, do not make more than six attempts.

STARTING IN COLD WEATHER

Thermostarter Tractors

— Carry out operations **a, b** and **c**, page 20.

— Turn starter switch to position **1**.

— Press thermostarter button **G** (see page 18) and hold for 10 to 15 seconds.

— Turn starter switch to position **2** holding button depressed for a further 10 to 15 seconds.

— After firing, release both starter switch and button. If after two or three attempts engine fails to start and black smoke is exhausted, try again with the thermostarter off.

Start-Pilot Tractors

Start-Pilot is activated only upon energizing starter.

— Carry out operations **a, b** and **c** page 20.

— Turn starter switch to position **2**.

— Press Start-Pilot button, (see page 18).

— After firing release both the starter switch and the button.

 **WARNING** 

Use the start-pilot only when strictly necessary (below -15°C). With start-pilot activated, engine starting should occur at first attempt. If engine fails to start, do not insist, but turn to service network.

CAUTION

To extend the life of tires and power train components it is recommended not to use tractor continuously at full power when working at speeds below 7KPH (4.3 MPH), particularly if machine is excessively ballasted. It is also not recommended to ballast the tractor more than specified for towing very heavy loads at low speeds. To this end, abide by the instructions provided under the sections on ballasting and drawbar.

STARTING THE TRACTOR

- Press the master clutch pedal and shift transmission and splitter control levers to engage the desired gear (see page 19).
- Increase engine speed.
- Release the parking brake and slowly release the clutch pedal.

STOPPING THE TRACTOR

- Reduce engine speed.
 - Press the master clutch pedal and apply brake.
- When the tractor comes to rest, return the gear and splitter levers to neutral, release the clutch pedal and apply parking brake.

STOPPING THE ENGINE

- Turn starter switch to position 0.
- When the engine comes to rest return the starter switch to position **P** if the parking lights are to be left on.

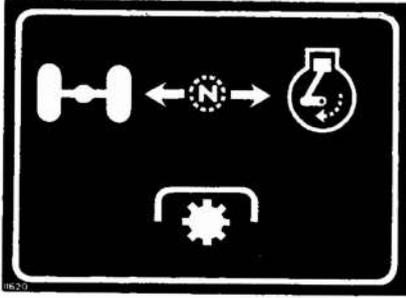
 **WARNING** 

To prevent Diesel fuel from waxing in freezing weather, with loss of fluidity and consequent supply difficulties, mix fuel with **FIAT «Diesel Mix»** antifreeze (or similar product) as directed on container.

FIAT «Diesel Mix» must be added before fuel waxes, as late additions would not be effective. Pour antifreeze into tank and then add fuel.

FIAT «Diesel Mix» ensures optimum fuel supply without reducing performance even at temperatures below -20°C .

Power Take-Off



Standard P.T.O. applied (lever A forward).



P.T.O. released (lever A in neutral).



Relative ground speed P.T.O. applied (lever A back).

Standard P.T.O. may be utilized with a standing or moving tractor.

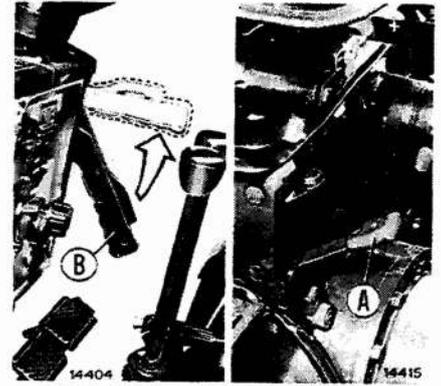
P.T.O. operation is **independent** of tractor motion. Therefore, you may:

— Stop tractor without stopping P.T.O.; simply press master clutch pedal.

— Stop P.T.O. without stopping tractor; simply disengage P.T.O. clutch.

To activate P.T.O. proceed as follows:

— Disengage P.T.O. clutch through lever **B**.



P.T.O. clutch control lever:

— Down = Clutch applied
— Up = Clutch released

— Wait a few seconds and move lever **A** forward.

— Gently lower lever **B** to engage P.T.O. clutch.

Splined end direction of rotation: clockwise when seen from rear of tractor.

	
2200	540
2500	614
2380	1000
2500	1050

11614

 Engine Speed

 P.T.O. Speed

CAUTION

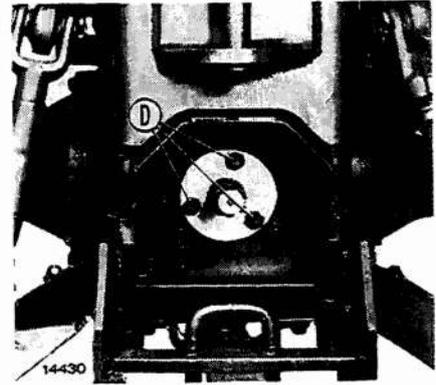
To disengage P.T.O. clutch pull lever **B** back to stop. To engage clutch press button and lower lever.

**540 RPM
POWER TAKE-OFF**

6-spline extension is 1% in diameter. Standard 540 rpm is obtained at 2,200 engine rpm.

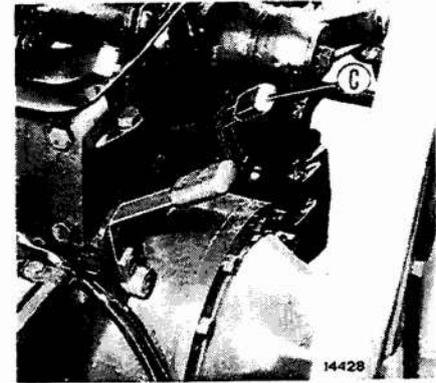
⚠ DANGER ⚠

Prior to starting work on P.T.O. driven implement, disengage the associated clutch (lever **B**) and set control **A** to P.T.O. out position or stop the engine.



⚠ WARNING ⚠

Before operating the P.T.O. actuated implement, check that the implement drive shaft mounted safety clutch is operating efficiently, i.e. slips under overload. At governed speed (2,500 rpm) P.T.O. speed is 614 rpm.



**540 AND 1000 RPM
POWER TAKE-OFF (optional)**

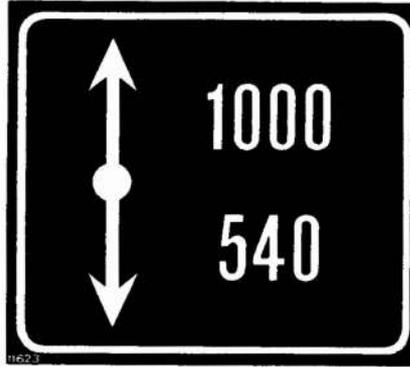
There are two splined extensions which may be fastened to the shaft by means of nuts **D**, page 24 (tightening torque 162 N · m, 16.5 kgm or 110 ft.lb.).

For the 540 rpm P.T.O., use 1½ in 6-spline extension, pull out lever **C**, page 24, and run engine at 2,200 rpm.

At governed speed (2,500 rpm) P.T.O. speed is 614 rpm.

For 1,000 rpm speed, use 21-spline 1½ in extension, push in lever **C**, page 24, and run engine at 2,380 rpm.

At governed speed (2,500 rpm) P.T.O. speed is 1,050 rpm.



P.T.O. selector plate (C, page 24).

**RELATIVE
GROUND SPEED P.T.O.**

This is mainly used with driving axle trailers.

Tire size and trailer reduction ratios must be chosen according to ground speed P.T.O. rpm.

This P.T.O. is transmission driven. When tractor is not moving; ground speed P.T.O. does not rotate; upon drive reversals direction of rotation is reversed.

Splined extension speed is **7.4 turns** (540 rpm P.T.O) or **12.6 turns** (1000 rpm P.T.O.) to each rear wheel revolution.

To operate pull back lever **A** page 23.

⚠ WARNING ⚠

21-spline 1½ in 1,000 P.T.O. extension will be found in the tool box.

⚠ WARNING ⚠

When not using P.T.O. or when P.T.O. has been engaged through lever **A** with implement coupled, move lever **B** down to engage P.T.O. clutch.

Always move lever **A** (page 23) to neutral and protect P.T.O. splined shaft with associated cover when not connected to implement.

CAUTION

Do not activate ground speed P.T.O. when tractor is in motion. When towing driving axle trailers select 1000 rpm P.T.O.

Hydraulic Lift

A. Variospeed (sensitivity control lever).

4-position lever is used to vary sensitivity when working with draft and combined draft and position control.

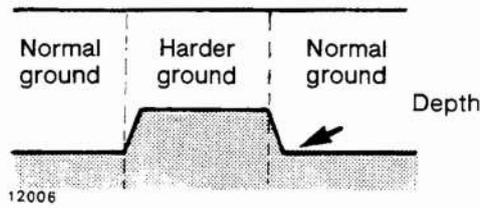
— Up (+) = Longer reaction times (low sensitivity)

— Down (-) = Shorter reaction times (high sensitivity)

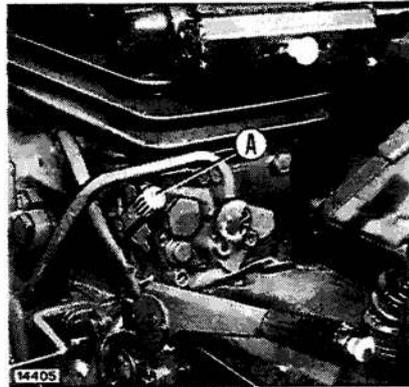
With low sensitivity, implement weight is transferred to rear wheels more slowly, thus increasing traction considerably.

Moreover, slower reaction times eliminate jolts.

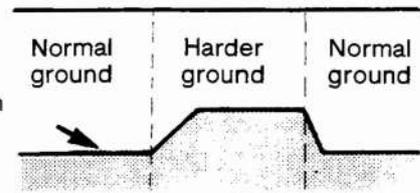
VARIOSPEED LEVER DOWN (-)



Lift employs the axle lubricating oil, fluid pressure being obtained by means of a valve gear driven hydraulic pump.



VARIOSPEED LEVER UP (+)



Lift senses the load on the lower links through the sensing bar and performs the following functions:

- Position control.
- Draft control.
- Float.
- Combined draft and position control.

Combined operation of control levers **B** and **C**, enables the operator to select the mode of operation most suited to the work in hand.

Consult Guide to Lift Operation (page 29) for selecting type of operation in relation to type of implement used.

POSITION CONTROL

— Move draft control lever **C**, fully forward.

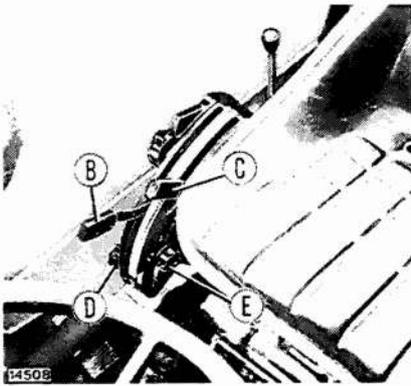
— Set implement position below or above ground by moving lever **B** forward to lower and backward to lift. Implement movement will be proportional to lever travel.

B. Position Control Lever.

C. Draft Control Lever.

D. Stop for Lever B.

E. Stop for Lever C.



— To raise and lower implement at the beginning and end of each pass, actuate Lift-O-Matic only.

DRAFT CONTROL

— Move position control lever **B** fully forward.

— Move lever **C** progressively forward to bring the implement to the desired depth. Implement depth will be proportional to draft as determined by ground consistency. In this condition the lift keeps the tractive effort steady automatically.

— To raise implement at the end of each pass simply actuate Lift-O-Matic.

⚠ WARNING ⚠

When using Lift-O-Matic controlled mounted implements connected to PTO, adjust lifting rods to max. length to prevent drive shaft damage.

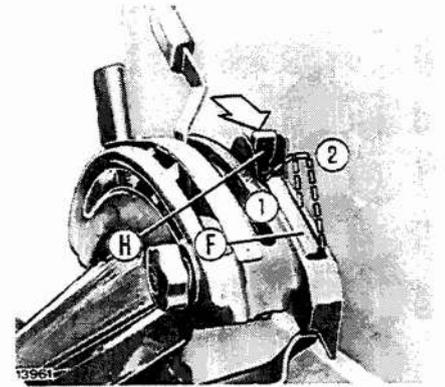
F. Lift-O-Matic (link raising/lowering button).

1. Links down.

2. Links up.

To raise implement quickly without altering the position of levers **B** and **C** pull back control **H** as shown.

Control **F** is released in the process and the implement will raise fully. To restore working position press control **F**.

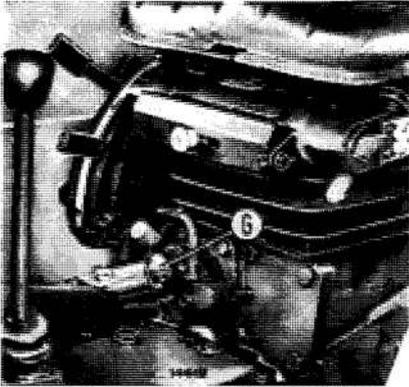


G. Response control knob

- + = Increase (clockwise)
- = Decrease (counterclockwise).

IMPORTANT

*When driving on road with implements attached, back off knob **G** and keep lever **B** (page 27) up to lock implements in desired position.*



FLOAT

- Move levers **B** and **C** fully forward to enable links to swing free along full stroke.
- Raise and lower the implement at the end of each pass and the start of the next, operating Lift-O-Matic (page 27) only.

CAUTION

*Do not use levers **B** and **C** to raise and lower implement.*

COMBINED DRAFT AND POSITION CONTROL

- Sink the implement to the desired depth as described for draft control.
- When the implement stabilizes at the desired depth, progressively move position control lever **B** back until the lift arms tend to rise.

Lift operates in draft control but at the same time prevents the implement from sinking excessively in the event of a decrease in soil resistance, which could cause unsuitable soil to be brought to the surface.

- To raise and lower the implement at the start and end of each pass, move Lift-O-Matic (page 27) only.

Guide to Lift Operation

The following information is for guidance only, as working technique and implement and ground characteristics may necessitate solutions the best guide to which is practical experience.

MACHINE OR IMPLEMENT	Top Link Mounting Holes (*)	Operation	Gauge wheels	Check chains	REMARKS
					
Moldboard Plows: — Single-, double-, and treble-furrow (oneway or two-way) — Four- and five-furrow Disc Plows: — Two-disc — Three-disc — Four-disc	1-2	Draft or combined	No	Not taut	Adjust chains so that max. lateral displacement of implement is 50 to 60 mm or 2-2½ in max. When implement is up lateral displacement should not be excessive.
Harrows, blade, tooth or disc Sub-soilers Ditchers	1-2	Draft control	No	Not taut	
Cultivators	1-2	Draft control	Yes/No	Not taut	
Weeders, Ridgers, etc.	1-2	{ Float Draft	Yes No	Taut Not taut	
Carried Seed Drills and Manure Spreaders	1-2	Position control	Yer/No	Taut	
Grader Blades, Augers, Scrapers, Manure Forks, Rear Mounted Transport Boxes, etc. Mower Bars (side and rear mounted), Hay Rakes and Tedders, etc.	1-2	Position control	No	Taut	
Front Loaders, Dump Trailers, Hydraulically Controlled Towed implements	—	—	—	—	
Tractor driven without implements	—	—	—	Taut	Remote control valves needed.
To facilitate implement attachment	—	—	—	Not taut	

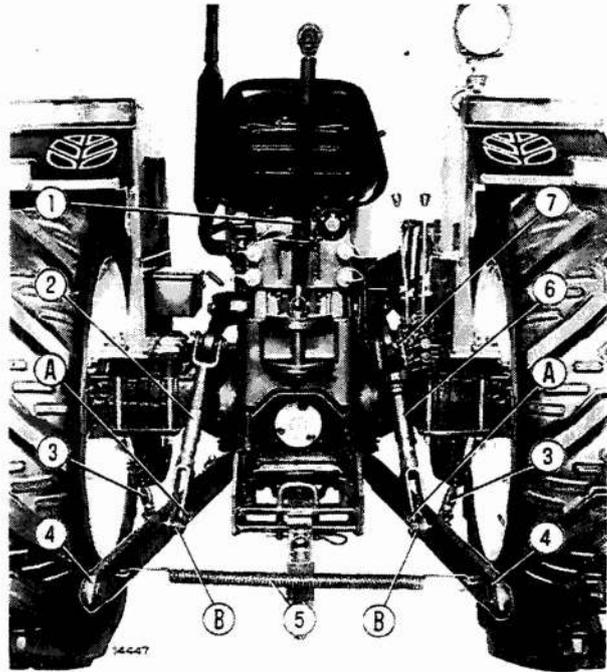
(*) Mounting hole selection depends on height of implement.

Lower link stroke:

- Lifting rods fully out and connected to holes **A** 720 mm or 29 in
- Lifting rods fully out and connected to holes **B** 620 mm or 25 in

Maximum lift capacity with lower links horizontal throughout stroke (lifting rods connected to holes **B** and top link **1** at top hole on support):

- At lower link swivel bushings 2,120 kg (4,675 lb)
- Center of gravity 610 mm or 24 in from swivel bushings 1,630 kg (3,594 lb)
- Center of gravity 970 mm or 38.5 in from swivel bushings 1,420 kg (3,131 lb)



A. Front lifting rod mounting holes.

B. Rear lifting rod mounting holes.

1. Adjustable top link. 2. Left lifting rod. 3. Check chains (implement coupled). 4. Lower links. 5. Check spring (for transfer without implement). 6. Right lifting rod. 7. Levelling box handle with spring.

Implement Attachment (Category 1 or 2 implements)

Adjustable Top Link 1

May be connected to its supporting bracket using two holes. Use the more suitable for the height of the implement in hand.

Left Lifting Rod 2

Adjust length by screwing in or backing off lower end.

Adjustable Check Chains 3

Adjust the length by screwing in or backing off adjuster as shown in figure.

For guidance on link adjustment see "Guide to Lift Operation" page 29.

Right Lifting Rod 6

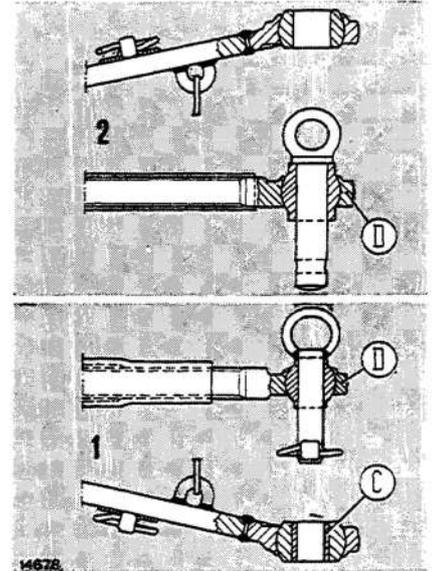
Adjust through handle 7 (page 30) which may be reached from operator's seat.

NOTE

To permit use of either category 1 or 2 implements, the attachment device is supplied with:

— One set of reducing adapters **C** for ends of lower links 22 mm or 0.866 in I.D. for category 1 implements.

— Two rear ends **D** for top link provided with swivel bushings 19 mm or 0.75 in I.D. for category 1 implements and 25.5 mm or 1.004 in for category 2 implements.



LOWER LINK POSITIONS

To obtain increased lift sensitivity while working with light implements in draft or combined draft and position control, install lower links 4 (page 30) with spacers 1 on inside of lower links. For medium to heavy duty applications, assemble spacers 1 on out-

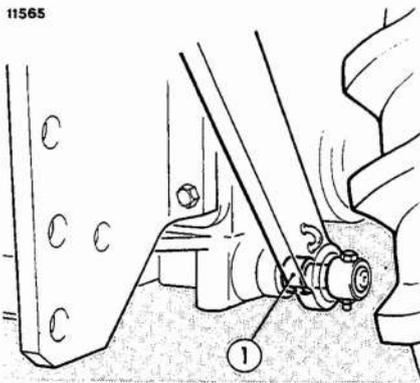
side of lower links.

This position decreases lift sensitivity for jobs requiring more tractive effort.

Figures below show correct position for both types of application.

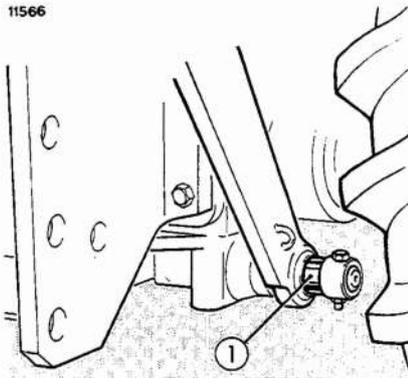
Light Applications.

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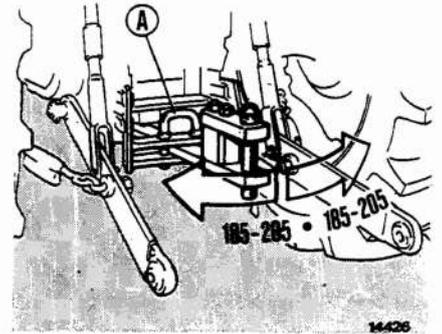
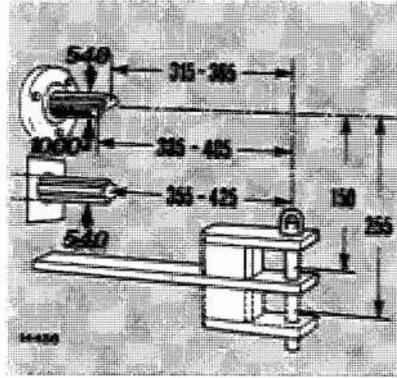


Medium to Heavy Duty Applications.

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Towing Attachments



⚠ WARNING ⚠

■ Towing device should be selected according to type of trailer or implement to be towed and in compliance with local regulations.

■ Tractor driveability and safety depend to a great extent on correct adjustment of towing device.

■ A high tow hook increases towing capacity but may result in dangerous pitching. Thus, keep towing point as low as possible.

■ When using front wheel drive, hitch trailer low so as to keep tow point as near as possible to the horizontal.

■ Avoid towing excessively heavy loads or trailers.

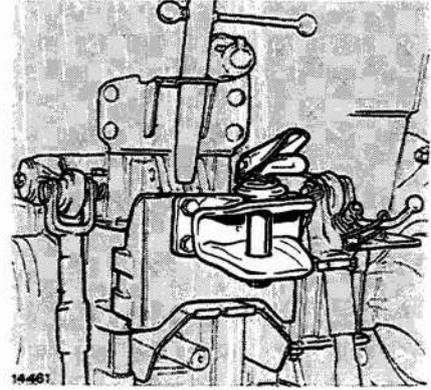
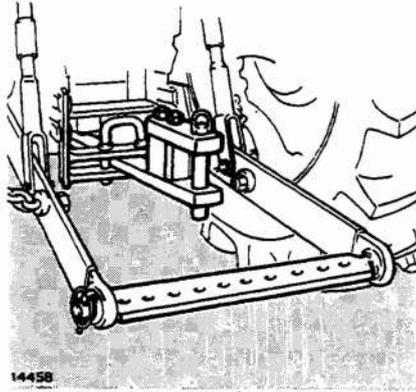
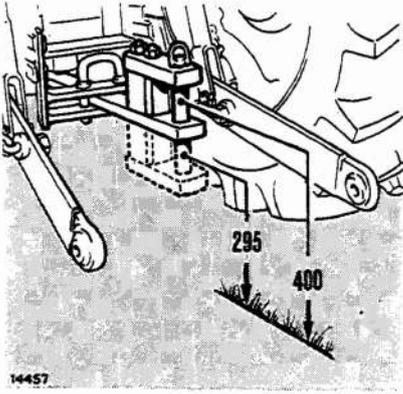
■ Always start off smoothly to prevent pitching.

■ Brake trailer first, and then tractor.

SWINGING DRAWBAR

Use swinging drawbar to tow agricultural implements and two-axle trailers, but not single-axle trailers because load on drawbar could result in tractor pitching.

Available adjustment is extremely useful in case of equipment such as balers, requiring considerable lateral freedom of movement.



Swinging drawbar is available with:

- Brackets for attachment of conventional and Rockinger type hooks.
- Towbar frame only.

Swinging drawbar may be adjusted for height by overturning drawbar to position fork uppermost.

Also, lateral swing may be suppressed by intersting U-pin A (page 33).

Drawbar fork positions with respect to P.T.O. shaft obtainable by imple-

menting the foregoing adjustments are shown on page 33. To correctly couple implements to P.T.O. ensure that towbar fork faces downward.

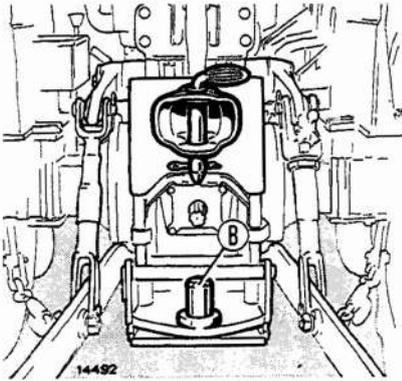
DRILLED CROSSMEMBER

Use for towing implements and agricultural machines, even if P.T.O. activated, which do not involve excessive weight on crossmember, to avoid risk of pitching.

ROCKINGER JAW HOOK

Jaw hook incorporates a safety-type automatic hitch and lock-up device.

This device may be adjusted for height and fitted together with the swinging drawbar.

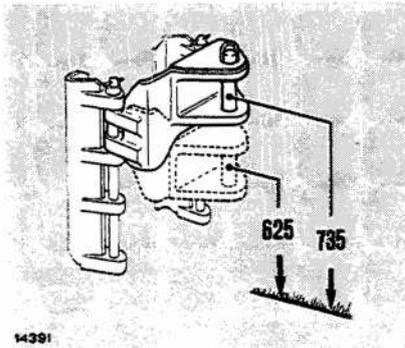


**SINGLE AXLE TRAILER
TOW HOOK**

Provided together with drawbar.
Hitch single trailers to pin **B** on
drawbar support.

IMPORTANT

*A pull hook is provided for emergen-
cy trailer towing operations or to tow
tractor.*

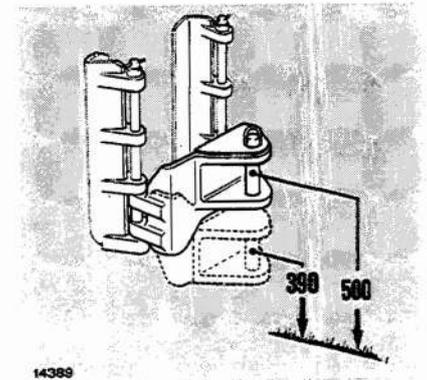
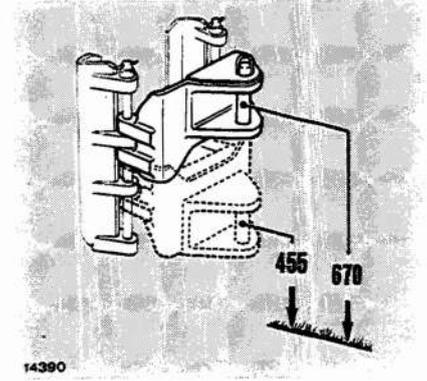


**ADJUSTABLE
TOW HOOK**

This type of hook is suitable for tow-
ing all types of trailers including
single-axle trailers.

It may be adjusted for height both
above and below P.T.O., adjustment
positions being eight.

This hook may be fitted simultane-
ously with swinging drawbar.



Hydraulically-controlled tow hook



This special hook permits towing of implements, agricultural machines and trailers provided with eye couplings. Additionally, any hitching/unhitching operation can be done from the Operator's seat.

- Still by the lift position control lever, raise the hook: hitching will take place automatically and will be signalled by a loud click when catches **B** snap into locked position.

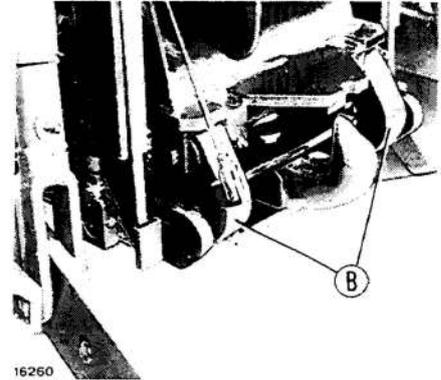
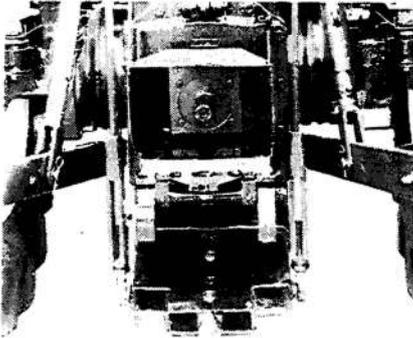
WARNING

*Before moving away with the tractor check that catches **B** have snapped into locked position.*

TRAILER HITCHING

Proceed as follows:

- Backup tractor into correct position with respect to trailer or implement.
- Set lift unit mode selector to position control, shifting the draft control lever to forward stroke end.
- Push forward release lever **A** shown in illustration and use the position control lever to lower the hook down to the desired position.
- Release lever **A**.



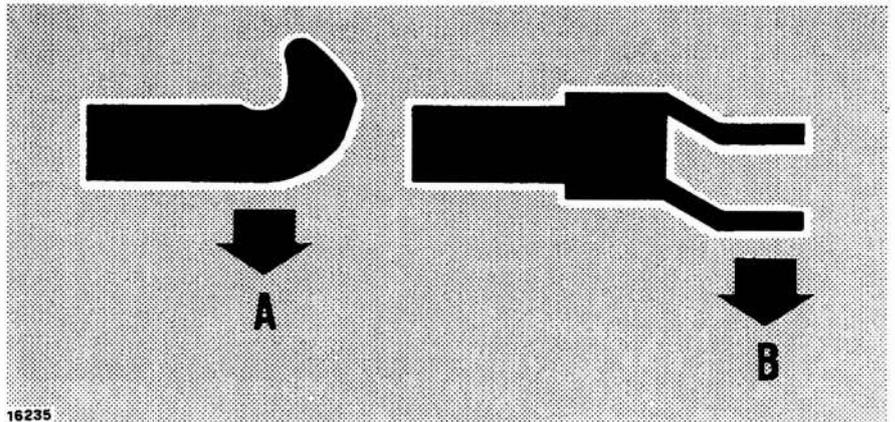
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TRAILER UNHITCHING

Proceed as follows:

- Place tractor on the level, making sure the trailer or implement are well stable.
- Set lift unit mode selector to position control, shifting the draft control lever to forward stroke end.
- Push forward release lever **A** (page 36) and lower the hook by the position control lever
- Release lever **A**.



MAXIMUM PERMISSIBLE VERTICAL STATIC LOAD ON TOWING DEVICE

- A.** Max. permissible vertical static load on tow hook.
- B.** Max. permissible vertical static load on drawbar.

When hitching the tractor to a trailer or implement, the following points should be kept in mind:

- Never exceed the maximum vertical load specified as permissible.
- Do not allow the load on rear axle to be less than 20% of the total operating weight as otherwise tractor handling may be prejudiced.
- The load on rear axle shall never be allowed to exceed the maximum permissible axle or each rear tire load ratings.

To this end, you should consult the

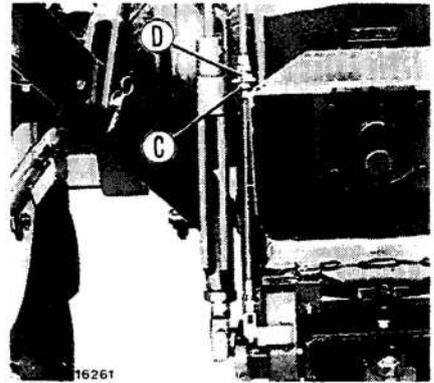
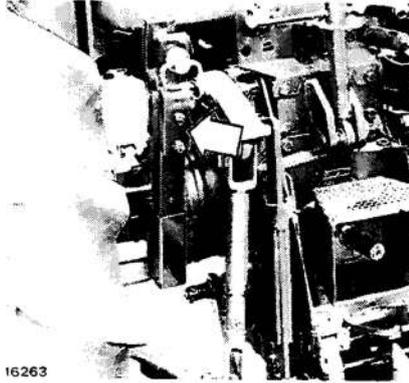
following maximum load rating data specified for tires and axle, including the operating weights by models.

Tire load ratings refer to tractors in working order, fully replenished, and at travel speeds not exceeding 30 kph (13.5 mph).

- A.** Maximum vertical static load allowed on tow hook 2000 kg (4400 lb)
- B.** Maximum static vertical load allowed on drawbar 800 kg (1760 lb)

MAXIMUM PERMISSIBLE LOAD RATINGS FOR EACH TIRE

Tire sizes	Oly rating	Load on each wheel	
		kg	lb
12.4/11-28	6/8	1275	2805
12.4/11-32	6/8	1355	2980
13.6/12-28	6/8	1430	3146



MAX PERMISSIBLE AXLE LOADS

— Rear axle:	kg	lb
.....	2200	4840
— Tractor total operating weights:		
.....	2700	5940

When tractor is equipped with both the tow hok and drawbar, its LH side final drive case is provided with a

recess, as shown, to stow away the part not in use.

Should unhitching prove difficult owing to the excessive length of the cable controlling catches **B** (page 36) as a result of overstretching or misadjustment, this condition may be corrected by the screw provided for this purpose and proceeding as follows:

- Release jam nut **C**.
- Screw in or out nut **D** as required to obtain the correct adjustment.
- Lock the jam nut.

⚠ WARNING ⚠

Avoid excessive shortening of the control cable as this may cause the undesired release of catches **B**.

Seat Adjustment

Operator's seat is adjustable for reach and suspension ride.

Moreover, the seat may be adjusted during operation.

For maximum safety ride should not be too soft, especially on rough ground.

A. Suspension ride adjustment

Pull out black knob of lever **A** and rotate toward (-) or (+) to reduce or increase spring load, thereby increasing or reducing seat suspension softness.

After positioning, release knob and adjust ride as follows:

— With knob on (+), move lever in both directions to reduce softness of ride; pointer **B** will move toward (+) on the associated plate.

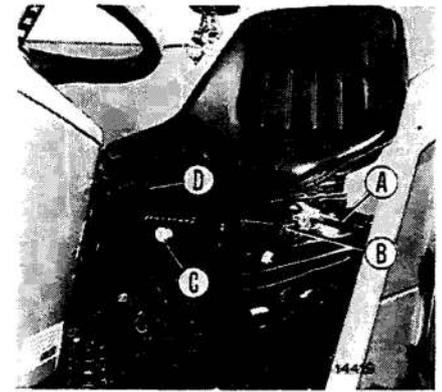
— With knob on (-), move lever in both directions to increase softness of ride; pointer **B** will move toward (-) on plate.

C. Seat height adjustment knob

Seven different position are available.

Adjust height using knob **C** from operator's seat as follows:

— Knob **C** in central position (O): intermediate height.

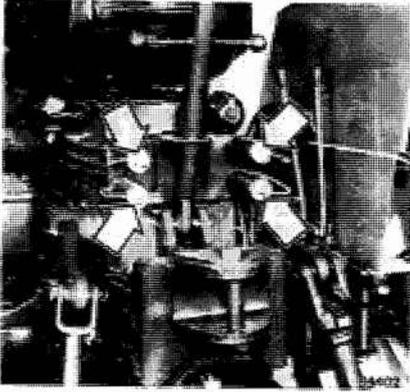


— Move knob **C** leftward (+1, +2, +3) to raise seat in the three available positions.

— Move knob **C** rightward (-1, -2, -3) to lower seat in the three available positions.

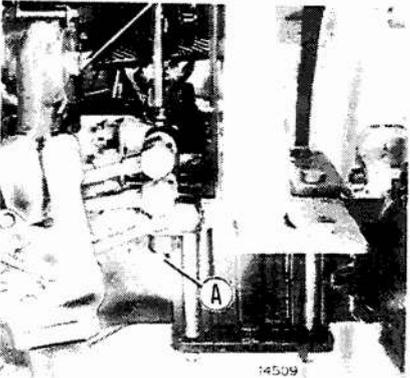
D. Reach adjustment lever.

To move seat backward and forward, turn lever **D** sideways and then release, ensuring that lever engages the desired locking slot.



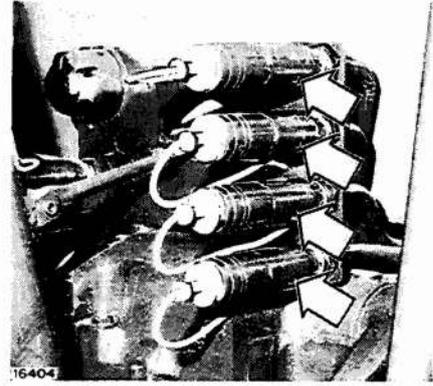
Remote Control Valves

Your tractor may be equipped with two remote control valves employing hydraulic lift oil to remotely control single- or double-acting cylinders.



Each control valve is provided with two quick-disconnect push-pull $\frac{1}{2}$ in female half-couplings suitable for connection to push in type male half-couplings available on request as optionals.

Auxiliary cylinder lines may be connected single handed.



CAUTION

On Tractors fitted with FASTER couplings make sure that the holes shown above are not obstructed.

Push to connect and pull to disconnect from sockets after:

- Stopping engine.
- Lowering any implements connected to lift.
- Thoroughly cleaning half-couplings.

Remote control valves can be either single or double-acting. To change to:

- **Single acting** - back off screw **A**, fully.
- **Double acting** - fully tighten screw **A**.

The half-coupling to which implement should be connected when using single-acting valve, is the one whose line fitting is furthest from the change-over screw.

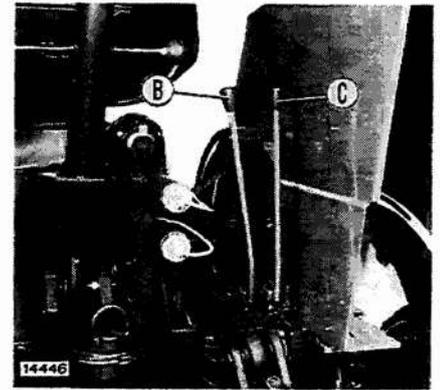
IMPORTANT

When not in use, coupling sockets should be protected by means of the plastic caps provided.

Valves with float control

Your tractor may be equipped with remote control valves for float position.

To select float function, push lever of valve concerned forward past the first stop and up to second stop.



B and C. Single-and double-acting cylinder valve control levers.

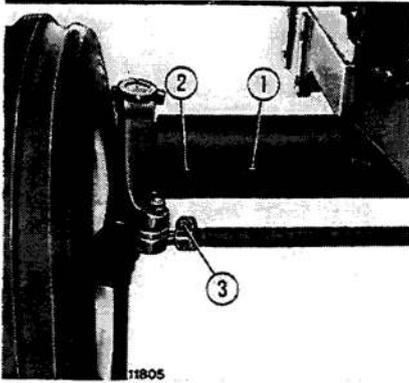
Lever positions are as follows:

- Forward = Lower.
- Back = Raise.

IMPORTANT

When released, all levers spring back to rest position, locking implement in the set position.

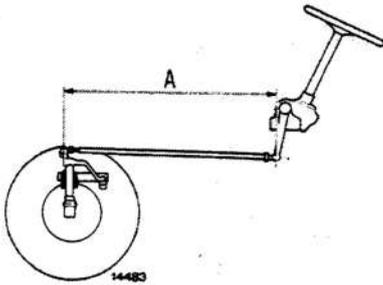
Track Adjustment



FRONT

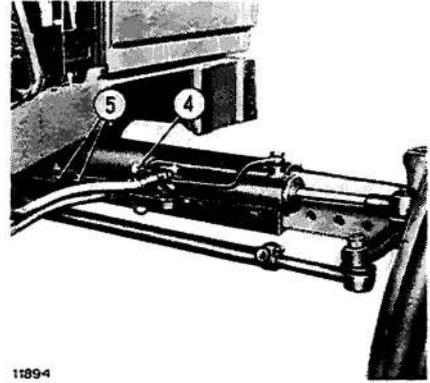
To adjust, proceed as follows:

- Raise front end of tractor applying jack to underside of axle beam.
- Unclamp the two beam extensions by removing clamp bolts 1 and 2 (torqued at 220 N.m, 22.5 kgm or 163 ft.lb).
- Remove clamps bolt 3 (torqued at 39 N.m, 4 kgm or 29 ft.lb) and adjust track rod length.
- Adjust track to one of six settings (1300 mm or 4 ft 3 in, 1400 mm or 4 ft 7 in, 1500 mm or 4 ft 11 in, 1600 mm or 5 ft 3 in, 1700 mm or 5 ft 7 in, 1800 mm or 5 ft 11 in)



1870 mm or 6 ft 2 in maximum track width is obtainable by inverting wheel position on hub.

Maximum track should only be used where strictly necessary.



Wheel nuts are torqued at 147 N.m, 30 kgm or 108 ft lb.

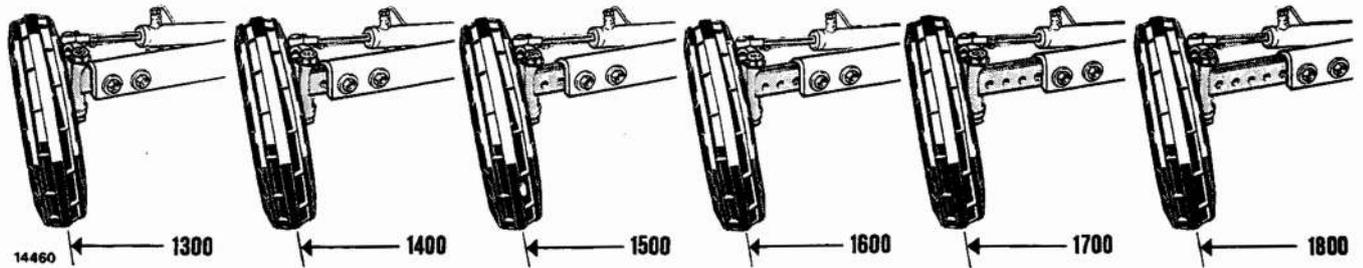
NOTE: For front tread adjustment on DT version turn to page 65.

NOTE

For optimum steering angle adjust drag link length A as follows:

- 1052 mm (42 in) for 1300 to 1600 mm settings.
- 1080 mm (43 in) for 1700 and 1800 settings.

FRONT TRACK



IMPORTANT

Power steering version: Left wheel: proceed as outlined above. Right wheel: unclamp the sliding end, and alter inner cylinder pivot position as follows:

- Slacken cylinder hose fittings.
- Move pivot 4 into one of plastic plugged holes 5.
- Tighten pivot nut to 294 N·m - 30 kgm - 216 ft lb.
- Check that hoses are not twisted and tighten fittings.

REAR

Rear wheel disc may be installed with dish facing either inward or outward.

For each position track varies as shown on page 44.

Depending on tire size, minimum rear tracks are:

12.4/11-28	1200 mm or 3ft 11in
13.6/12-28	1290 mm or 4ft 7in
12.4/11-32	1290 mm or 4ft 7in

When changing rear track, ensure that arrow moulded on tire faces in the direction of forward travel.

Ensure that the front and rear wheels are symmetrical with respect to the tractor centerline.

IMPORTANT

Select the most suitable rear track first, and then the front track.

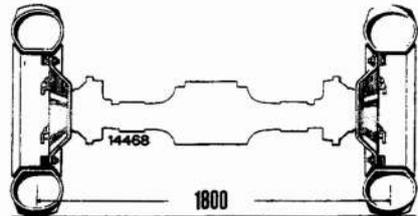
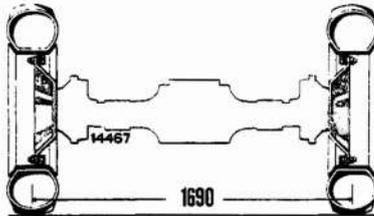
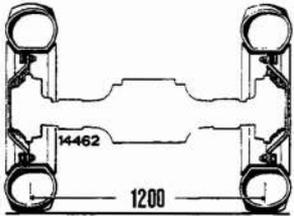
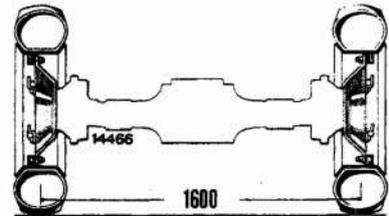
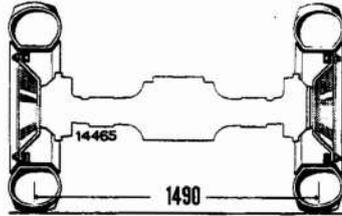
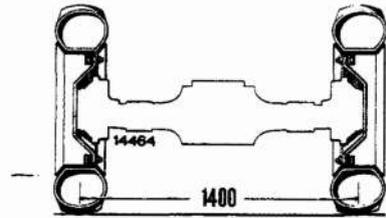
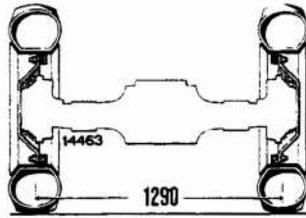


When removing rear wheels proceed with utmost care, using a suitable hoist for the heavier wheels.

REAR TRACKS

TORQUE DATA:

- Wheel disc to hub screws: 255 Nm - 26 kgm or 188 ft lb
- Wheel disc to rim screws: 235 Nm - 25 kgm or 180 ft lb



Ballasting

Where extra drawbar pull is required and it is found necessary to increase adhesion on rear wheels, add cast iron weights, or water ballast rear wheels as directed on page 46.

This will prevent wheel slip caused by insufficient adhesion and consequent loss of power and speed, increased fuel consumption and premature tire wear.

When using long and heavy implements which may adversely affect tractor stability, install cast iron plates on front axle.

⚠ WARNING ⚠

*Tractor operating weight without implement and with ballasting (metal or liquid) must not exceed **2700 kg** or **5940 lb** for both standard and DT versions.*

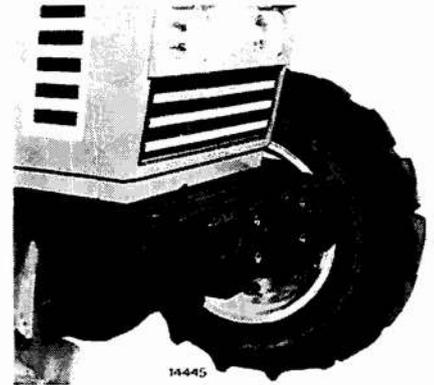
REAR WHEELS

Cast iron rings (2 or 4) weighing 50 kg (110 lb) each, for a total of 100 kg or 200 kg (220 or 441 lb).



FRONT AXLE

3 cast iron plates weighing 30 kg or 66 lb each, for a total of 90 kg (or 198 lb).



Tractor Manuals Scotland

WATER BALLASTING

To ballast rear tires water may be pumped into inner tubes.

To fill

— Raise wheel clear of ground and position inflation valve uppermost.

— Unscrew valve plunger and allow tire to deflate.

— Lower wheel to obtain a 30% tire deflection and prevent damage due to water weight.

— Apply Fiat fitting No. 291885 to valve seat and connect hose to inlet **A**. When tire inflates remove connection to expel air.

— Stop filling when tire is $\frac{3}{4}$ full, i.e. when water flows from tube **A** less than maximum ballasting is desired, turn the wheel to position the valve lower down.

— Remove fitting **A**, install valve plunger and inflate to the specified pressure rating.



Water pressure must not be over 4 bar (kg/cm²) or 58 psi.

The weight of water with $\frac{3}{4}$ full tire is given below.

Tire size	Water capacity	
	Liters	Imp. Gals
12.4/11-28	115	25
13.6/12-28	160	35
12.4/11-32	132	29

To Drain

— Raise wheel and position inflation valve lowermost.

— Unscrew valve plunger and allow water to drain.

— Apply FIAT fitting No. 291886 to valve seat and bring tube **B** in contact with tire inner tube.

— Admit air pressure through inlet **C**; any residual water will be expelled through tube **D**.

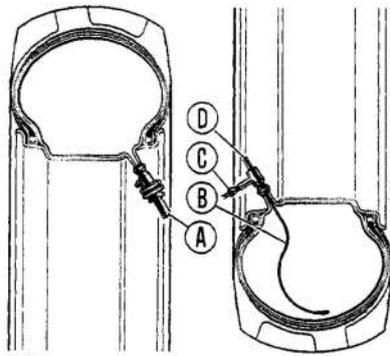
— Remove fitting, install valve plunger and inflate tire to the specified pressure.

CAUTION

Do not use ballasting systems other than those indicated. Do not ballast the tractor unless strictly necessary. Where not needed ballasting may be dangerous.

Water connection (Supplied by tire manufacturers).

- A. Water fitting.
- B. and D. Vent tube.
- C. Water inlet.



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TIRE FROST PRECAUTIONS

A suitable anti-freeze solution must be used to provide protection against frost. A solution of water and neutral calcium chloride is recommended. Prepare the solution by filling a clean container with the necessary amount of water and pouring the calcium chloride slowly, stirring continuously.

Approximate quantities of water and calcium chloride for $\frac{3}{4}$ filling each tire with anti-freeze are given below.



DANGER

Never add water to calcium chloride.

Min. Temp. °C	TIRE SIZES											
	12.4/11-28				13.6/12-28				12.4/11-32			
	Calcium chloride		Water		Calcium chloride		Water		Calcium chloride		Water	
	kg	lb	liters	gals	kg	lb	liters	gals	kg	lb	liters	gals
- 5°	13	28½	110	24	16	35	140	31	14	31	126	28
- 10°	22	48½	106	23	28	62	134	29½	25	55	121	26¾
-15°	29	64	103	22½	37	81	131	29	33	73	118	26
-20°	34	75	101	22	44	97	128	28	40	88	116	25¾
-25°	39	86	99	21¾	50	110	125	27½	45	99	113	25

MAINTENANCE

Fuel System Bleeding

CAV PUMP ENGINE

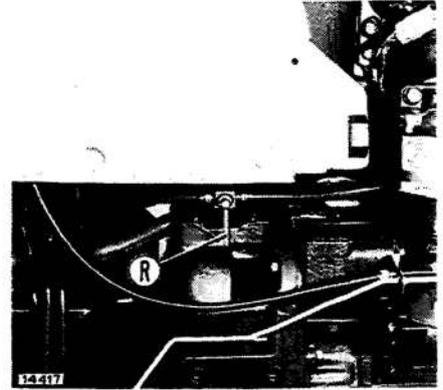
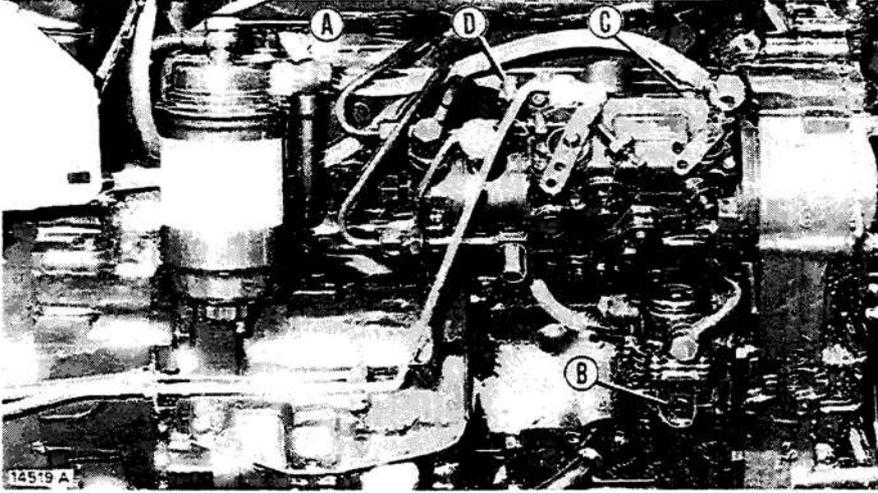
1. Back off plug **A** through two turns and pump lever **B** until fuel flowing from plug orifice is free from air bubbles. Retighten plug.
2. Back off screw **C** and the inner screw of **D** through two turns, ful-

ly slacken three injector connections and crank engine through starter until fuel flowing from fuel lines is free from air bubbles. Retighten the inner screw of **D** and injector connections but not screw **C**.

3. Start engine and retighten screw **C** when fuel flowing through it is free from air bubbles.

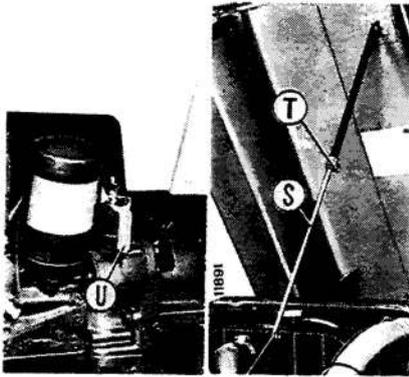
Air may enter fuel lines after tractor has been out of commission for some time, during filter removal and line disconnection, or if fuel tank is allowed to become empty.

Air in fuel system makes for difficult engine starting and should be eliminated with a full tank and cock **R** open.



IMPORTANT

Your tractor is equipped with a distributor type fuel injection pump whose internal parts should be protected against rust whenever tractor is to remain out of commission for over a month. Accordingly, before stopping tractor add 10% of **oliofiat PROT 10 W/M** oil to existing fuel in tank and operate engine for half an hour.

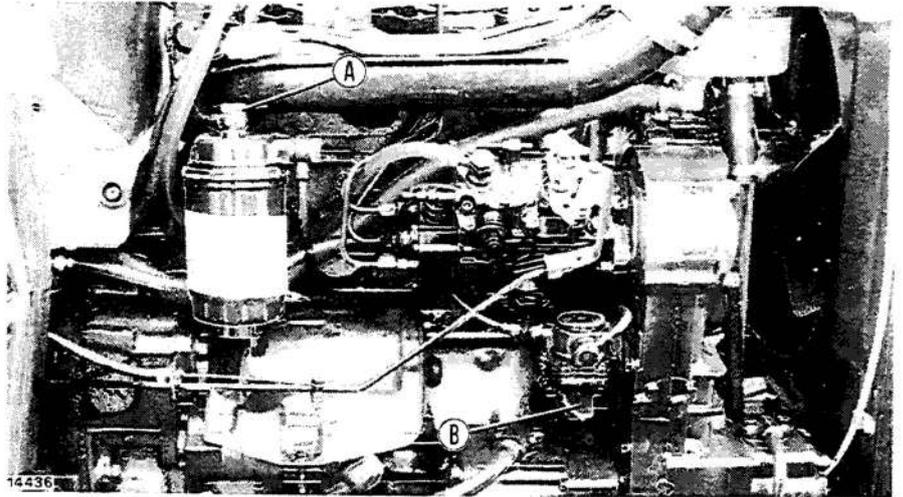


To gain access to engine, push lever **U** outward and tilt hood forward as shown.

A telescopic prop **S** will hold hood in tilted position. To release depress button **T**.

BOSCH PUMP ENGINE

1. Back off plug **A** through two turns and pump lever **B** until fuel flowing from orifice in plug is free from air bubbles. Retighten plug **A**.
2. After retightening plug pump lever **B** a few strokes.



Electrical System

STARTING ENGINE WITH FLAT BATTERY OR WITHOUT BATTERY

To maintain alternator and regulator efficiency note the points below.

■ When tractor battery is partially discharged and engine starting requires the use of an auxiliary battery, connect the latter to the tractor battery matching terminals of the same sign, i.e. positive with positive and negative with negative. The same applies when the battery is recharged by means of an external source.

■ If the battery is completely flat or has been removed from the tractor bear in mind that:

— The engine cannot be started by towing the tractor since the solenoid-operated fuel shut-off device would be activated, thus inhibiting engine starting.

— Engine can be started using an auxiliary battery after disconnecting single flat pin **D+**, terminal **B+** and capacitor from alternator. However, as soon as auxiliary battery is removed engine will stop as engine shut-off solenoid will cease to be energized.

— Engine should not be started with the single flat pin **D+**, terminal **B+** and capacitor connected to alternator.

— Engine should be started with an appropriate 12 V battery which should then be replaced with battery fitted in production (12 V, 88 Ah capacity).

■ Normally engine should not be run with single flat pin **D+**, terminal **B+** and capacitor disconnected from alternator.

BATTERY

90 Ah or 100 Ah sealed maintenance-free battery.

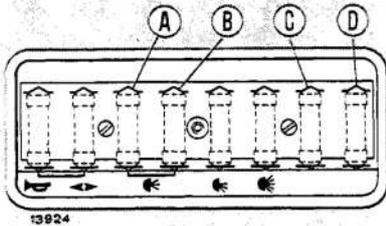
To check state of charge connect digital voltmeter to battery poles, positive with positive and negative with negative, and compare readings referring to table below. The same table is provided on back of instrument.

Voltage (V)	State of charge
12.60	Full
12.40	3/4
12.20	Half
12.00	Almost flat

If voltage is below 12.20 V recharge battery.

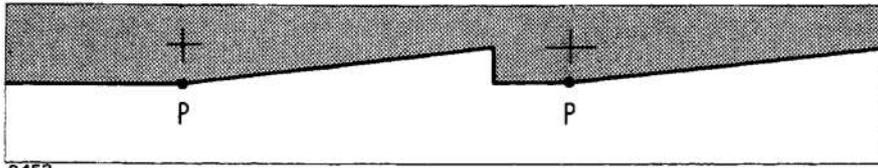
FUSES

Before replacing a blown fuse trace and rectify the fault.



Fuse	PROTECTED CIRCUITS	A
	Engine shut solenoid.	8
	Horn, turn signal and stop lights (tractor and trailers) and indicators, water temperature gauge, fuel gauge, dry air cleaner restriction indicator, battery charge indicator, low engine oil pressure indicator, parking brake indicator and sending unit.	
A 	Front right and rear left parking lights, left trailer parking light, parking lights indicator, cab work lights.	8
B 	Front left and rear right parking lights, right trailer parking light, rear work light and gauge light.	8
	Low beams	8
	High beams and indicator.	8
C	Hazard warning lights and indicator, single pole power point.	16
D	Thermostarter or start pilot	16

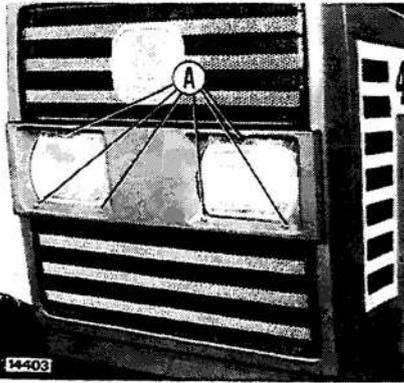
HEADLAMP ALIGNMENT



8453

IMPORTANT

Beam pattern shown applies to R.H. traffic countries. A reversed beam pattern should be obtained for tractors operating in L.H. traffic countries.



14403

Check headlamp alignment and adjust if necessary, adopting the following procedure:

- Check that tire inflation pressures are as specified and place unladen tractor on level ground in front of a bright wall.
- Draw two crosses on wall corresponding to the headlamp centers.
- Back tractor 5 meters or 16 ft from wall and switch on low beams.
- Reference points **P-P** should lie **5 cm** or 2 in below cross marks on wall.
- To adjust, turn screws in holes **A**, as necessary.

Maintenance Schedule (45-66)

Numbers correspond to those of operations listed in the Servicing Chart (inside back cover).

◇ ADJUSTMENTS

- 4. Master clutch - pedal free travel 25 mm (1 in).
- 15. Brakes - pedal free travel = 35 mm (1.37 in).
- 11. Parking brake control.
- 14. Fan belt - deflection 10 to 11 mm or ½ in applying a 78 to 98 N, 8 to 10 kg or 18 to 22 lb load.
- 7. Master clutch - outer release lever pin free travel 4,5 mm (0.18 in).
- 40. Service and parking brakes (see ops. 15 and 10).

- 42. Engine valves - Clearance 0.25 mm or 0.010 in, intake and 0.35 mm or 0.014 in exhaust.
- 46. Fuel injectors - Release pressure 230 to 238 bar, (235 to 243 kg/cm² or 3,335 to 3,524 psi).
- 45. Starter.

△ LEVEL CHECKS

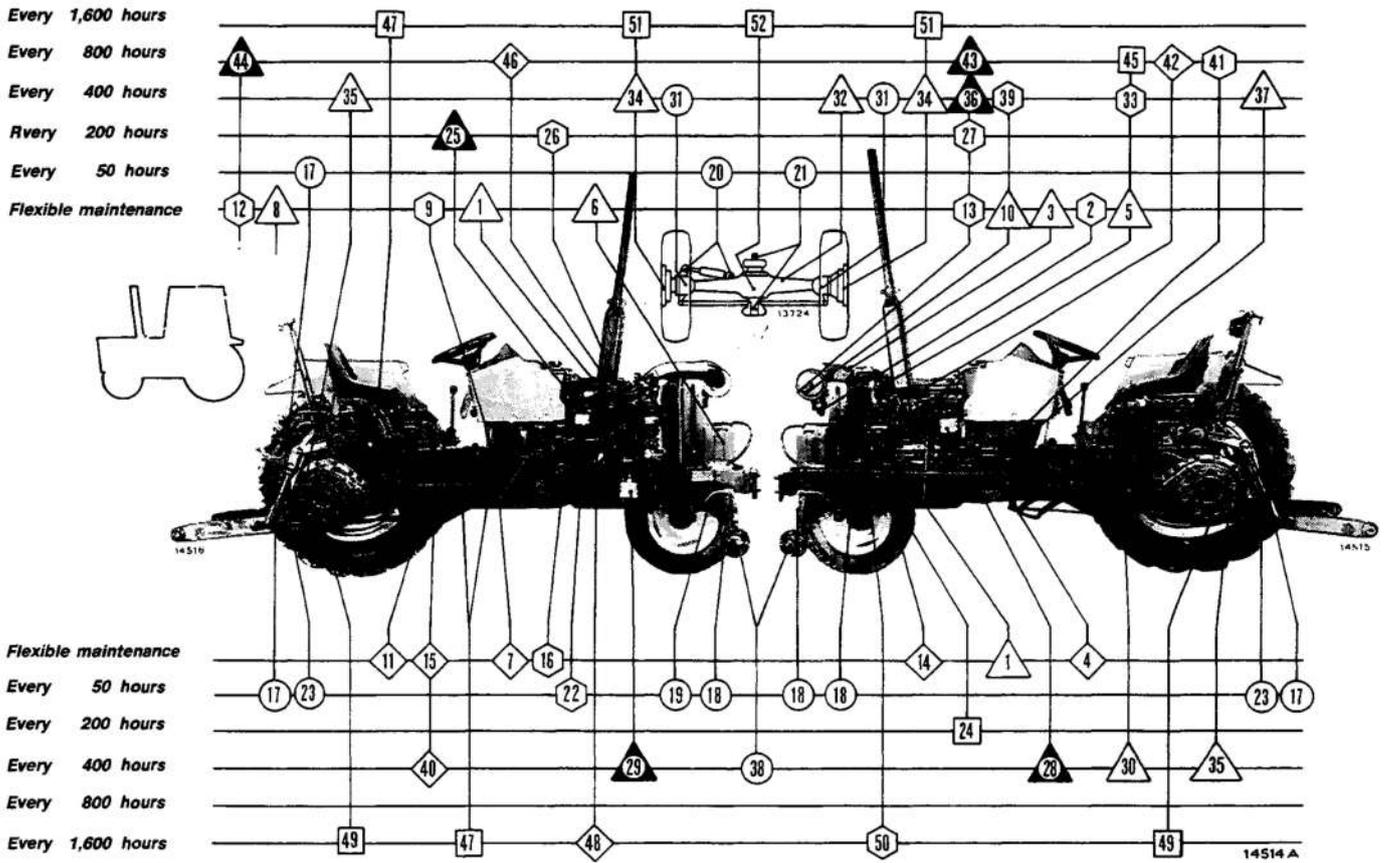
- 1. Engine sump.
- 3. Radiator.
- 5. Power steering fluid reservoir.
- 6. Battery (see page 50).
- 8. Windshield washer.
- 10. Oil-bath air cleaner.
- 30. Drive housing and lift.
- 32. Front wheel drive (DT).
- 34. Front final drive (DT).

- 35. Final drives.
- 37. Steering unit.

○ GREASING POINTS (grassofiat TUTELA G 9)

- 17. Lift and 3-point linkage (3 off).
- 18. Steering and axle pivot (4 off - 3 off on power steering version).
- 19. Power steering (1 off).
- 20. DT steering (2 off).
- 21. Front axle pivot (DT) (2 off).
- 23. Hydraulically-controlled tow hook (2 off).
- 31. King pins (DT) (4 off).
- 38. Front wheel hubs.

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CLEANING

- 2. Cleaner dust ejector.
- 9. Drive housing vent.
- 12. Cab air filter.
- 13. Dry cleaner outer element.
- 18. Fuel sedimenter filter.
- 22. First fuel filter condensate drain.
- 27. Oil bath air cleaner lower element.
- 28. Fuel pump filter.
- 33. Power steering reservoir filter.
- 39. Oil bath air cleaner - all parts.
- 41. Fuel tank.
- 50. Engine cooling system (see page 56).

FILTER CHANGE

- 25. Fuel filter.
- 26. Engine oil filter.
- 29. Lift oil filter.
- 36. Dry cleaner inner cartridge.
- 43. Dry cleaner inner and outer cartridge.
- 44. Cab air filter.

FLUID CHANGE

- 24. Engine oil.
- 45. Power steering fluid.
- 47. Drive housing and lift oil.
- 49. Final drives oil.
- 51. Front final drive oil (DT).
- 52. Front axle oil (DT).

FIAT RECOMMENDED FLUID	OPERATION
oliofiat AMBRA SUPER	1-10-24-27-28-39
oliofiat TUTELA MULTI F	5-29-30-32-34-35-37-45-47 49-51-52
«PARAFLU 11» and water (see page 53)	3-50

Cooling System

Your coolant is a mixture of water and FIAT **PARAFLU 11** antifreeze incorporating oxidation, corrosion, foam and scale control properties.

Mixture strengths of 20, 30, 40 and 50% give protection down to -8° , -15° , -25° and -35°C respectively.

Mixture strength and corresponding temperature are indicated on a plate attached to body.

Your coolant is effective for a period of **two years** or **1,600 hours**, after which time the system should be drained, flushed and refilled with fresh coolant.

In exceptional circumstances system may be topped up with water through the expansion tank filler (see Servicing Chart, Operation No. 3). After topping up, run engine for a little while to ensure that water mixes with existing liquid.

IMPORTANT

System should be checked as soon as possible for malfunction, subsequently restoring correct strength of anti-freeze mixture.

SYSTEM FLUSHING

(See Servicing Chart, Operation 50)

Every 1,600 hours and before using anti-freeze, flush cooling system as follows:

— Remove radiator cap and drain water with a warm engine.

— Allow engine to cool down and fill system with a filtered water and soda solution (250 grams or 9 oz of soda to every 10 liters or 2¼ gallons of water).

— Operate tractor for 1 hour and drain flushing solution.

— Allow engine to cool down and flush system with running water inserting hose in radiator and leaving hose plug open.

— Tighten radiator hose plug, refill with water, run engine for a few minutes and drain system.

— Allow engine to cool down and refill to correct level.



Water should be drained with engine stopped.

THERMOSTAT

Cooling system comprises a thermostat preventing water from flowing through radiator until coolant has warmed up (85°C approx.).

If thermostat malfunction is suspected, remove and inspect.

This operation should be entrusted to competent personnel.

SPECIFICATIONS

WEIGHTS

Operating weight with 5.50-16 and 12.4/11-28 tires, lift with implement attachment . . . **1810 kg or (3982 lb)**
 — As above with front weights (3 plates) and 4 rings on rear wheels
 **2100 kg (4620 lb)**

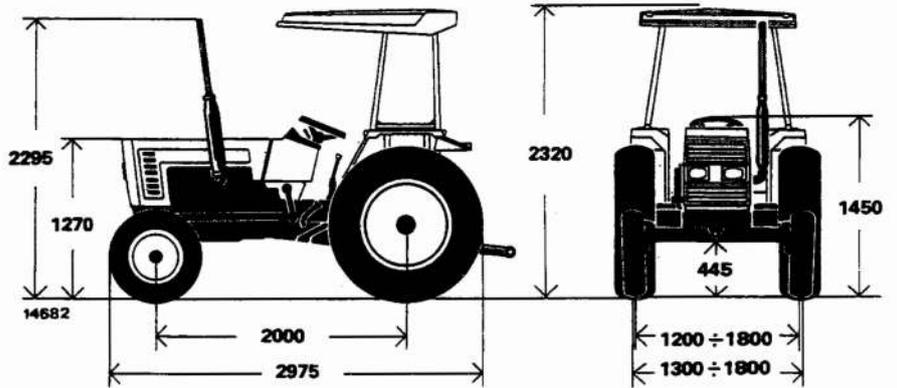
SPEEDS

Speeds given are at governed engine speed.

Gear	Rear tires					
	12.4/11-28		13.6/12-28		12.4/11-32	
	kph	mph	kph	mph	kph	mph
1st Low	1.3	0.81	1.3	0.81	1.4	0.99
2nd »	2.1	1.30	2.1	1.30	2.2	1.37
3rd »	2.6	1.61	2.7	1.68	2.8	1.74
4th »	4.2	2.61	4.4	2.73	4.5	2.80
1st Normal	3.3	2.05	3.5	2.17	3.6	2.24
2nd »	5.3	3.29	5.5	3.42	5.8	3.60
3rd »	6.8	4.22	7.1	4.41	7.3	4.53
4th »	10.8	6.71	11.2	6.96	11.7	7.27
1st High	8.5	5.28	8.9	5.53	9.3	5.78
2nd »	13.6	8.45	14.2	8.82	14.7	9.13
3rd »	17.3	10.75	18.0	11.16	18.7	11.62
4th »	27.5	17.07	28.7	17.83	29.9	18.58
1st Reverse	3.5	2.17	3.7	2.30	3.8	2.36
2nd »	5.6	3.48	5.9	3.66	6.1	3.79
3rd »	7.2	4.47	7.5	4.66	7.8	4.85
4th »	11.4	7.08	11.9	7.40	12.4	7.71

DIMENSIONS

Front size 5.50 - 16 and rear tire size 12.4/11-28.



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ENGINE		Valve Gear		CAV pump	DPS
Fiat code				— Code	
— BOSCH Pump	8035.06.220	Valves	Overhead	— Type	Distributor
— CAV Pump	8035.06.320	Intake opens	3° B.T.D.C.	— Governor	Centrifugal, all-speed
Type	Diesel, 4-stroke, direct injection	Intake closes	23° A.B.D.C.	— Advance device	Automatic
No. of cylinders	3	Exhaust opens	48°30' B.B.D.C.	BOSCH pump	
Bore and stroke	100x115 mm 3.93x4.52 in	Exhaust closes	6° A.T.D.C.	— Code	VE 3/11 F1250 L
Displacement	2,710 cc	Valve clearance (for timing checks)	0.45 mm or 0.18 in	— Type	Distributor
Compression ratio	17 to 1	Valve clearance, normal (warm or cold)		— Governor	Centrifugal, all-speed
Max. output DGM/DIN	33.1 kW (45 metric HP)	— Intake	0.25 mm or 0.010 in	— Advance device	Automatic
Full load speed	2500 rpm	— Exhaust	0.35 mm or 0.014 in	Fuel filters	
Full torque speed	1500 rpm	Fuel System		— Lift pump	Gauze
		Lift pump	Double diaphragm, injection pump driven	— Injection pump	Cartridge, in line, water separator
				Air cleaner	Dry double cartridge or oil bath
				Pre-cleaner	Centrifugal, self-cleaning

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Attachment Linkage
 Side sway limitation
 Remote control valves

Category 1 or 2
 3-point
 Check chains

Single or double-acting (up to 2).

Tire matching (to keep tractor horizontal).

Front		Rear
5.50-16	to	12.4/11-28
6.00-16	to	13.6/12-28
6.50-16	to	12.4/11-32
7.50-16	to	12.4/11-32

PARKING/EMERGENCY BRAKE

Type Control
 Mechanical Manual lever, acting on service brake

FRONT AXLE

Type
 Track settings

Inverted U, telescoping, center-pivoting
 6

STEERING

Wheel Type
 Turning radius (brakes off)

Central
 Ball recirculation or hydrostatic with separate circuit (page 61)
 3.5 m (12 ft 6 in)

BODY AND OPERATOR'S COMPARTMENT

Construction
 Fenders
 ROPS frame
 Fuel tank

Tilttable integral hood
 Wrap-around
 Provision for Mounted ahead of operator's seat

FRONT WHEELS

Integral rim discs, pressed steel.

Tire size	Rim size
5.50-16 pr 6	4.00 E-16"
6.00-16 pr 6/8	4.00 E-16"
6.00-16 pr 8	4.00 E-16"
7.50-16 pr 6/8	5.50 F-16"

REAR WHEELS

Separate disc and rim
 Track settings
 Tire size

7
 Rim size
 12.4/11-28 pr 6/8 W10-28"
 13.6511-28 pr 6/8 W12-28"
 12.4/11-32 pr 6/8 W11-32"

SERVICE BRAKE

Type
 Control
 Roading

Disc, oil bath, axle shaft mounted
 Mechanical, separate pedals
 Latched pedals

Seat

Suspension
 Reach
 Ride
 Height

Parallelogram and hydraulic damper
 Adjustable
 Adjustable
 Adjustable

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TOWING ATTACHMENTS

Crossmember	Drilled
Drawbar	Swinging
Rear hook	Adjustable for height
Rear hook	Rockinger
Rear hook	Lemoine
Tow hook	Single axle trailer
Front hook	Pull type

ELECTRICAL SYSTEM (12 V)

Alternator

Rated output	400W at governed engine rpm
Voltage regulator	Electronic, integral

Battery

Type	12 V
Capacity	90 or 100 Ah maintenance free sealed type

Starter

Output	2.5 kW
Operation	Solenoid

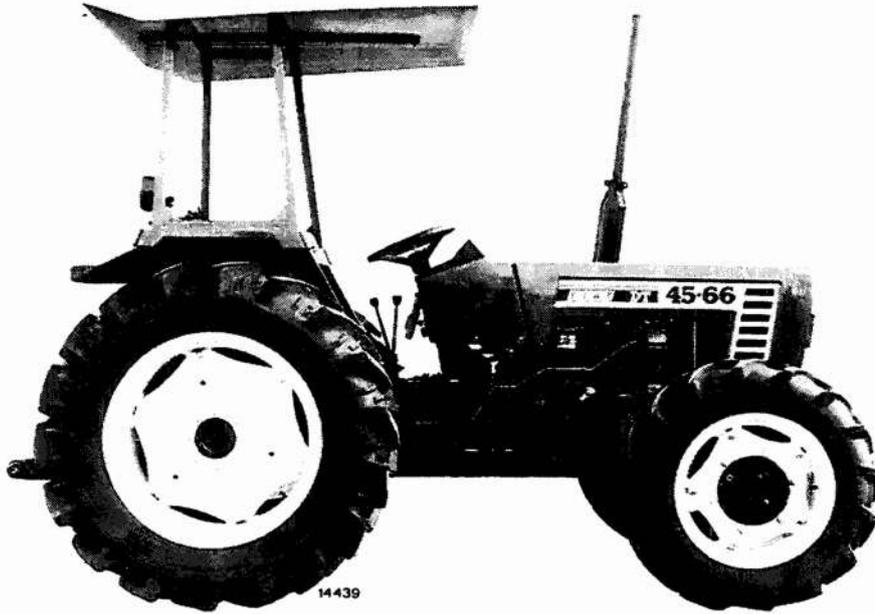
Bulbs

Headlamps	45/40W, asymmetric, white or yellow
Front parking	5 W, white
Front turn signal	21 W, amber
Rear parking	5 W, red
Rear turn signal	21 W, amber
Stop	21 W, red
Number plate	5W
Reflectors	Red

Instruments and Accessories

Panel gauge	Multi-function (see page 16)
Power point	DIN, 7-pole
Power point	Single-pole
Cold start	Thermostarter or start-pilot
Hazard warning	Tractor and trailer
Rear work light	35 W

45-66 DT FOUR WHEEL DRIVE



FOREWORD

This section contains front wheel drive operating instructions, and specifications which are different from those of basic model 45-66 twelve-speed and twenty-speed versions.

For all information not contained in this section turn to the main text and Servicing Chart.

Specifications

For information not contained in this section see page 54

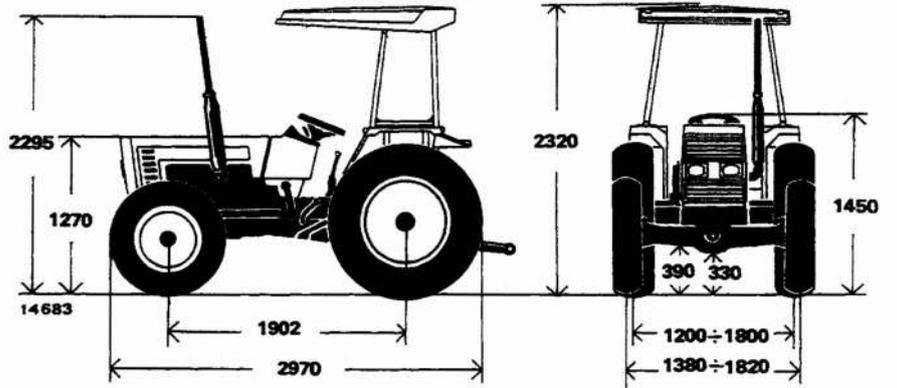
DIMENSIONS

Front tires 7.50-20 and rear 12.4/11-28

TRACTOR WEIGHT

— Operating weight with 7.50-20 and 12.4/11-28 tires, hydraulic lift with implement attachment, swinging drawbar, tow hook and ROPS frame **2030 kg (or 4466 lb)**

— As above, with front weights (3 plates) and 4 rings on rear wheels **2320 kg (or 5104 lb)**



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FRONT WHEEL DRIVE

Axle Type	Center pivoting
Shaft and joints	Co-axial, on tractor longitudinal centerline
Drive shaft	Unjointed
Differential	Two-pinion
Bevel gear ratio	11/38
Final drives	Planetary
Transfer	Spur gears, transm. mounted

Front wheels

Separate rim and pressed steel disc

Track settings Eight

Tire size	Rim size
7.50-20 pr 6	W6-20"
9.50-20 pr 8	W8-20"
8.3-24 pr 8	W8-24"

Tire matching (to keep tractor horizontal)

7.50-20	to	12.4/11-28
9.50-20	to	13.6/12-28
8-3-24	to	12.4/11-32

STEERING

Wheel	Central
Type	Ball recirculation or hydrostatic with independent circuit

Fluid filter Metal cartridge, in oil reservoir

Pump Gear, engine driven

Type FIAT C18

Pump speed 2328 rpm at engine governed speed

Corresponding pump output

19 liter/min (4.18 GPM)

Relief valve setting
- 2-wheel drive

80 bar (82 kg/cm² or 1,189 psi)

- 4-wheel drive

100 bar (102 kg/cm² or 1,479 psi)

Turning radius:

Brakes off

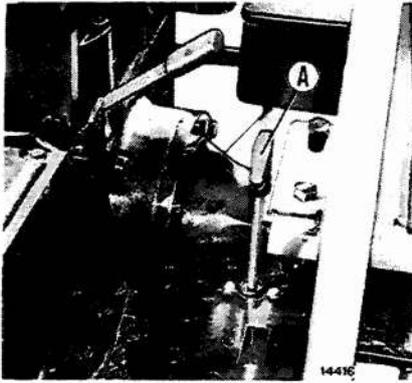
— Front wheel drive applied 5.0 m (17ft 5in)

— Front wheel drive released 4.6 m (16ft 1in)

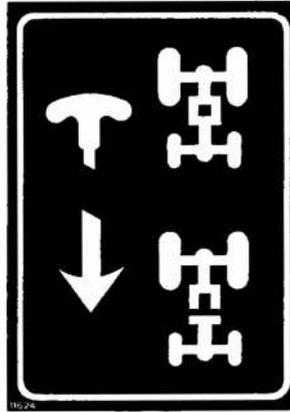
OPERATION

Front wheel drive increases wheel adhesion and its advantages are considerable when working on rough, muddy and slippery ground, when plowing downhill or in any other difficult condition.

Operate control **A** when on the move with tractor in straight-forward driving posture and not under pull.



If engagement proves difficult hold the control in and steer slightly in both directions.



Control **A** up = Applied



Control **A** down = Released

IMPORTANT

To prevent premature tire wear do not drive on hard road surfaces with front wheel drive in and adhere to tire inflation pressures given.

FRONT TRACK ADJUSTMENT

Front wheels may be fitted with disc bulge facing either inward or outward to obtain different tracks as shown (page 66).

When changing track setting, ensure that arrow moulded on tire faces in direction of forward travel.

Torque Data:

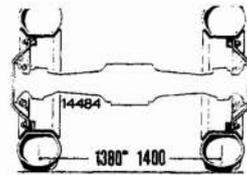
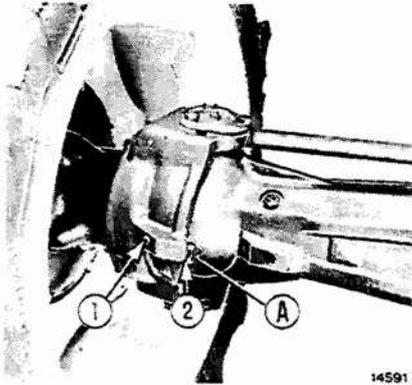
- Wheel desc to rim nuts: 245 Nm - 25 kgm - 180 ft lb
- Wheel desc to hub nuts: 255 Nm - 26 kgm - 188 ft lb.

FRONT TRACKS

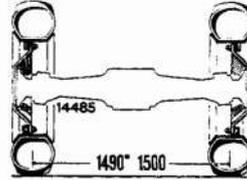
To prevent tires from fouling steering linkage on full lock with axle in maximum tilt conditions, install screw **A** in:

- Position 1 on hydrostatic steering tractors
- Position 2 on mechanical steering tractors

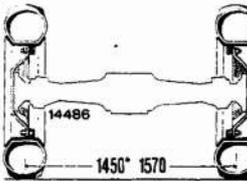
* Track setting options with 7.50-20 tires



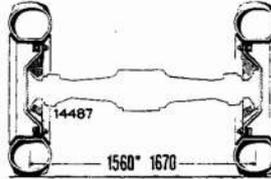
4 ft 6 ¼ in - 4 ft 7 in



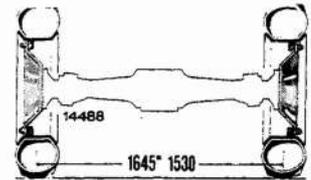
4 ft 10 ½ in - 4 ft 11 in



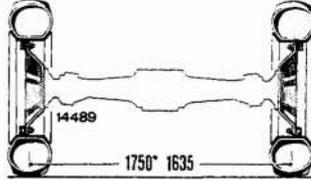
4 ft 9 in - 5 ft 2 in



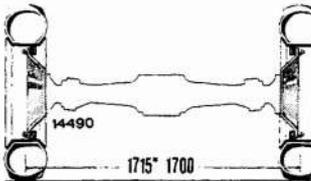
5 ft 1 ½ in - 5 ft 6 in



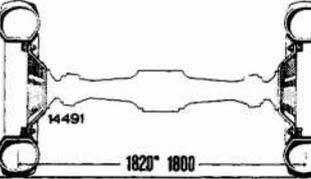
5 ft 4 ¾ in - 5 ft 0 ¼ in



5 ft 9 in - 5 ft 4 ¾ in

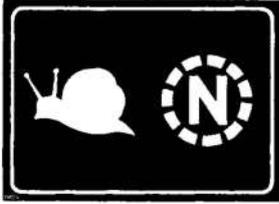


5 ft 7 ⅝ in - 5 ft 7 in



5 ft 11 ¾ in - 5 ft 11 in

20 SPEED VERSION



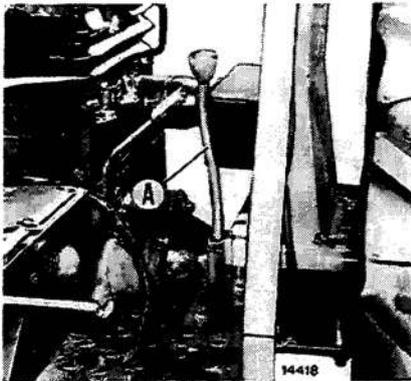
This tractor incorporates a pinion drive creeper gear between clutch and 12-speed transmission which brings the number of available forward gears to 20 plus 8 reverse ratios.

TRACTOR SPEEDS, with engine at governed speed.

 **Creeper**
(lever A forward).

 **Creeper applied**
(lever A back).

To engage creeper stop tractor, de-clutch and pull back lever A as shown.



SPECIFICATIONS
(see also pages 57 and 63)

Operating weight 15 kg or 33 lb more than 12-speed version.

Gear	Rear Tires					
	12.4/11-28		13.6/12-28		12.4/11-32	
	kph	mph	kph	mph	kph	mph
1st low creep	0.3	0.19	0.3	0.19	0.4	0.25
2nd "	0.5	0.31	0.3	0.19	0.6	0.37
3rd "	0.7	0.43	0.7	0.43	0.7	0.43
4th "	1.1	0.68	1.1	0.68	1.2	0.75
1st Nor. Creep	0.9	0.56	0.9	0.56	0.9	0.56
2nd "	1.4	0.87	1.4	0.87	1.5	0.93
3rd "	1.7	1.56	1.8	1.12	1.9	1.18
4th "	2.8	1.74	2.	1.80	3.0	1.86
1st Low	1.3	0.81	1.3	0.81	1.4	0.87
2nd "	2.1	1.30	2.1	1.30	2.2	1.37
3rd "	2.6	1.61	2.7	1.68	2.8	1.74
4th "	4.2	2.61	4.4	2.73	4.5	2.80
1st Normal	3.3	2.05	3.5	2.17	3.6	2.24
2nd "	5.3	3.29	5.5	3.42	5.8	3.60
3rd "	6.8	4.22	7.1	4.41	7.3	4.53
4th "	10.8	6.71	11.2	6.96	11.7	7.27
1st High	8.5	5.28	8.9	5.53	9.3	5.78
2nd "	13.6	8.45	14.2	8.82	14.7	9.13
3rd "	17.3	10.75	18.0	11.18	18.7	11.62
4th "	27.5	17.08	28.7	17.83	29.9	18.58
1st Low Rev.	0.9	0.56	0.9	0.56	1.0	0.62
2nd "	1.4	0.86	1.5	0.93	1.6	0.99
3rd "	1.8	1.12	1.9	1.18	2.0	1.24
4th "	2.9	1.80	3.1	1.93	3.2	1.99
1st High Rev.	3.5	2.17	3.7	2.30	3.8	2.36
2nd "	5.6	3.48	5.9	3.66	6.1	3.79
3rd "	7.2	4.47	7.5	4.66	7.8	4.85
4th "	11.4	7.08	11.2	6.96	12.4	7.71

REVERSER VERSION

Reverser version tractor incorporates 12 forward and 12 reverse ratios and a reverser-splitter gear in addition to the twelve-speed transmission. Reverse gear range (R) is not provided.

SPECIFICATION

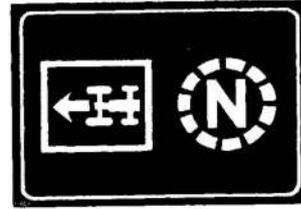
(see also pages 57 and 63)
Operating weight 20 kg or 44 lb more than 12-speed version.

To change direction of travel, stop tractor, shift reverser lever A forward for forward travel and move reverser lever back for reverse.

TRACTOR SPEEDS

in kph and mph with engine at governed speed.

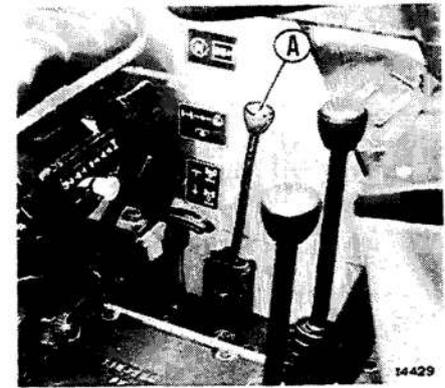
Gear	Rear Tires											
	Forward speed						Reverse speed					
	12.4/11-28		13.6/12-28		12.4/11-32		12.4/11-28		13.6/12-28		12.4/11-32	
	kph	mph	kph	mph	kph	mph	kph	mph	kph	mph	kph	mph
1st Low	1.3	2.6	1.3	0.81	1.4	0.87	1.3	0.81	1.3	0.81	1.4	0.87
2nd »	2.1	1.30	2.1	1.30	2.2	1.37	2.0	1.24	2.1	1.30	2.2	1.37
3rd »	2.6	1.61	2.7	1.68	2.8	1.74	2.6	1.61	2.7	1.68	2.8	1.74
4th »	4.2	2.6	4.4	2.73	4.5	2.80	4.1	2.55	4.3	2.67	4.5	2.80
1st Normal	3.3	2.05	3.5	2.17	3.6	2.24	3.3	2.05	3.5	2.17	3.6	2.24
2nd »	5.3	3.29	5.5	3.42	5.8	3.60	5.3	3.29	5.5	3.42	5.7	3.54
3rd »	6.8	4.22	7.1	4.41	7.3	4.53	6.7	4.16	7.0	4.35	7.3	4.53
4th »	10.8	6.71	11.2	6.96	11.7	7.27	10.7	6.65	11.1	6.90	11.6	7.21
1st High	8.5	5.28	8.9	5.53	9.3	5.78	8.5	5.28	8.8	5.47	9.2	5.72
2nd »	13.6	8.45	14.2	8.82	14.7	9.13	13.5	7.02	14.0	8.70	14.6	9.07
3rd »	17.3	10.75	18.0	11.18	18.7	11.62	17.1	10.62	17.8	11.06	18.6	11.56
4th »	27.5	17.08	28.7	17.83	29.9	18.58	27.3	16.96	28.4	17.65	29.6	18.38



Reverser applied (lever A back).



Reverser released (lever A forward)



DT-TRACTOR NO-SPIN VERSION

⚠ WARNING ⚠

■ When servicing tractor axle or front wheels, stop the engine, engage a gear and apply parking brake before lifting front end of tractor.

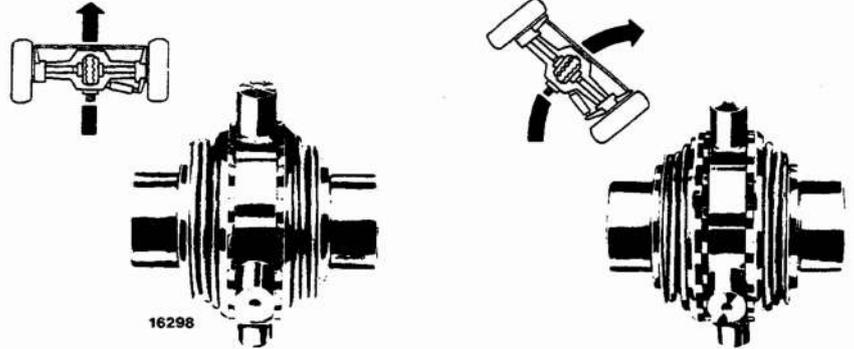
■ Be very careful on slippery ground and downhill to prevent side slip or fish-tailing.

In case of side slip do not brake but slow down by releasing accelerator pedal.

■ Do not use tractor if in straight-forward direction one of the wheels is permanently disengaged. Working with only one operating wheel may cause steering difficulties, as well as dangerous traction losses.

■ Downhill use a low gear, especially when turning, as with the NO-SPIN braking effectiveness is reduced on turns.

■ Both front tires must have the same rolling diameter. Check for correct tire pressure.



When installed on your tractor NO-SPIN unit is placed inside front axle ring gear housing instead of conventional differential unit.

NO-SPIN consists essentially of splined sleeves and dog clutch rings constituting a double joint which performs the following key functions:

— Permits full use of tractor pull;

— Prevents wheel-spin when one wheel loses traction.

— Compensates for differences in wheel travel which occur when turning or traveling over uneven ground.

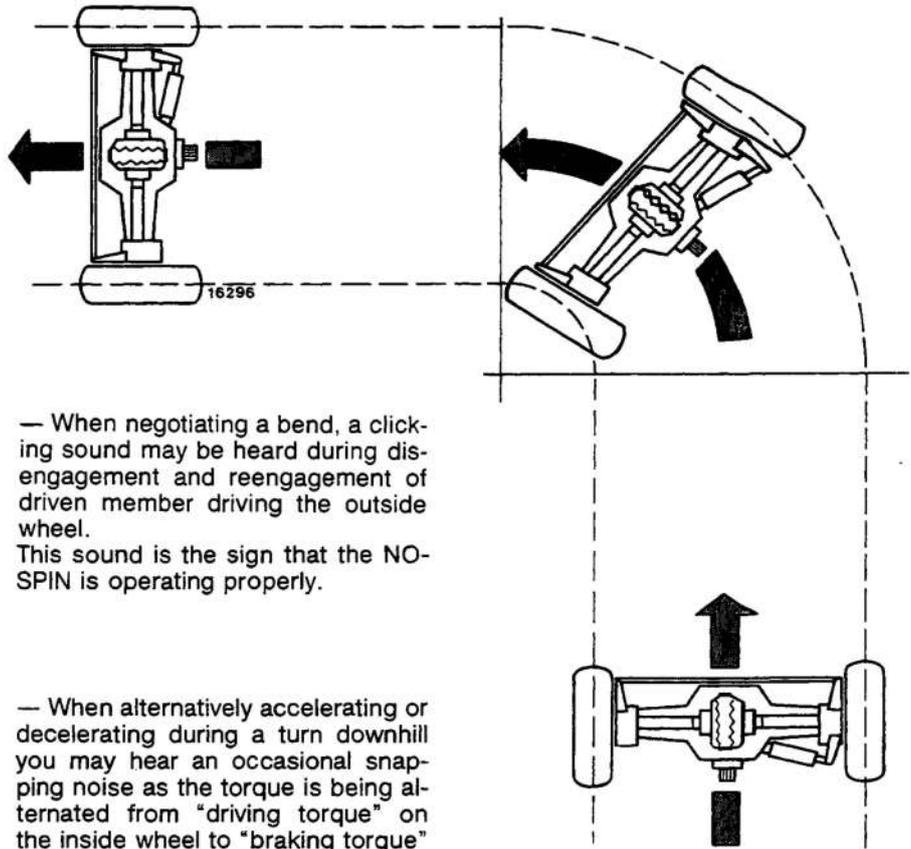
When the tractor is in a straight-forward or reverse mode of operation the NO-SPIN allows equal speed to be distributed to both wheels.

On wide turns the NO-SPIN works as a locked differential provided that the wheels traveling at the same speed are under pull. When the outer wheel loses traction and turns faster, the NO-SPIN disengages the associated axle shaft and the wheel turns free.

If one wheel should lose traction momentarily, the opposite wheel which still has traction continues to pull the vehicle until traction is regained by both wheels.

When the tractor makes a turn or a front wheel passes over an obstruction, the outer wheel or the wheel riding over the obstruction must travel faster and farther than the other. To do this it automatically disengages, passes over the obstruction or negotiates the curve and reengages, again automatically, when the same rotation speed as that of the opposite wheel is reached.

The performance of a tractor equipped with NO-SPIN front axle is somewhat different from that of standard differential tractors. For example:



— When negotiating a bend, a clicking sound may be heard during disengagement and reengagement of driven member driving the outside wheel. This sound is the sign that the NO-SPIN is operating properly.

— When alternatively accelerating or decelerating during a turn downhill you may hear an occasional snapping noise as the torque is being alternated from "driving torque" on the inside wheel to "braking torque" on the outside wheel.

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— When the NO-SPIN equipped tractor is in a straight-forward mode of operation, a continuous click may be heard if the tires are not equal in rolling radii due to unequal wear or unequal inflating.

This can be corrected by matching the tires and checking pressure periodically.

If clicking continues, adjust tire pressures to obtain the same rolling radius for both tires involved.

Periodically, at least every three months, check NO-SPIN differential unit operation as follows:

— With engine off, engage a gear and the front wheel drive, apply parking brake and raise front end of tractor.

— Rotate front wheels in a forward direction to eliminate play.

— Hold right wheel and rotate left wheel rearward. NO-SPIN differential disengages and wheel rotates freely with an indexing or metallic clicking sound.

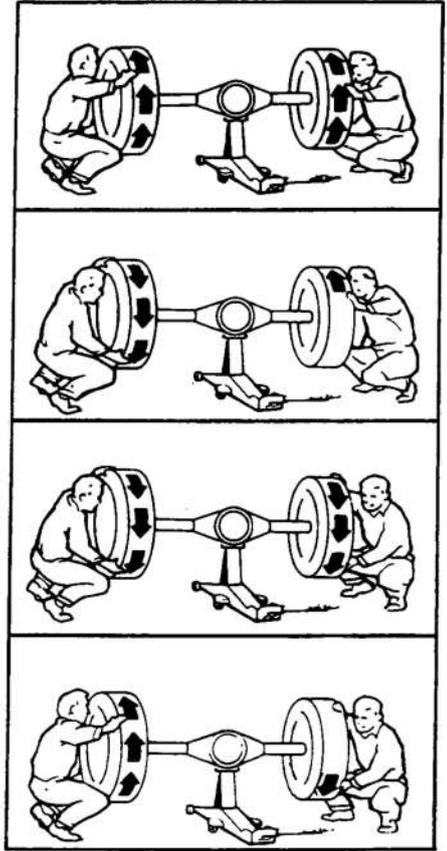
— Stop left wheel, then turn forward slightly; NO-SPIN differential engages and stops the wheel.

— Rotate both wheels rearward to eliminate play.

— Hold right wheel and rotate left wheel forward. NO-SPIN differential disengages and wheel rotates freely with an indexing or metallic clicking sound.

— Stop left wheel, then turn rearward slightly; NO-SPIN differential engages and stops the wheel.

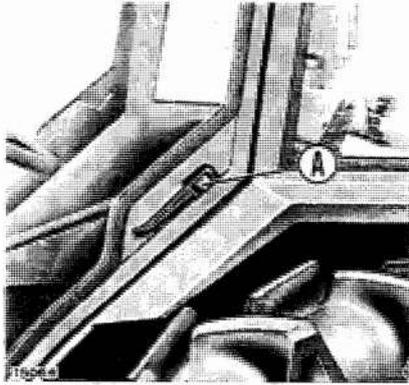
— Repeat the above operations while holding left wheel.



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HEATED AND VENTILATED CAB



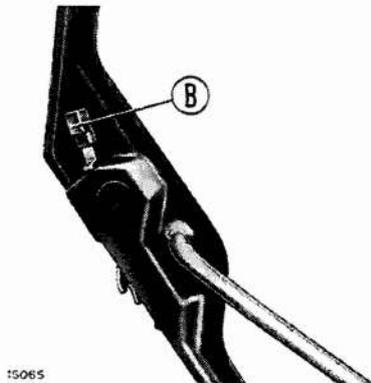
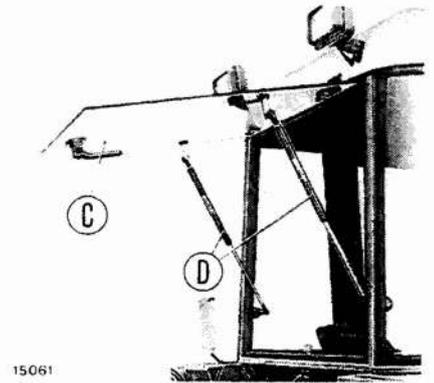


DOORS

To open from outside. Unlock and pull lever **A**.

To open from inside. Push lever **B** forward.

To lock from outside. Doors may be locked from outside using key provided.

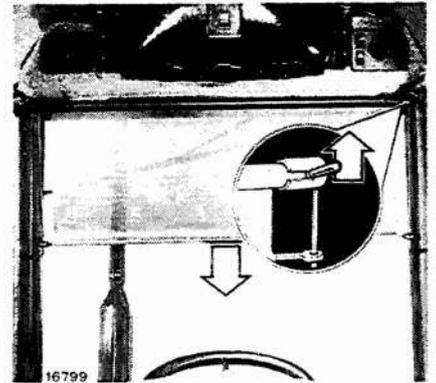


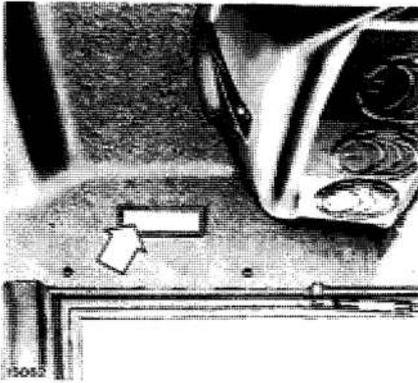
BACK WINDOW

To open, press button on lever **C** and turn. Glass may be held open through telescopic arms **D**.

SUND BLIND

To unwind, pull on center tongue as shown. Push side lever up to rewind.

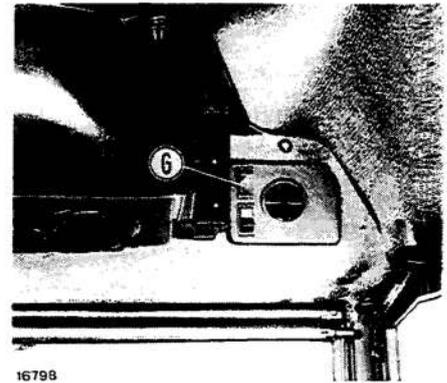




CAB INTERIOR LIGHT

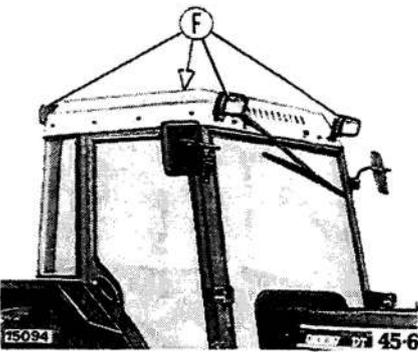
Is operative with lock switch key (page 20) in position 1.

To switch on, press lens as shown and press again to switch off.



CAB MAINTENANCE

- a. Check regularly for trapped water under carpets, matting and lining.
- b. Coat door hinges and locks, hatch cover and openable window hinges with water repellent lubricant.
- c. Clean windows using appropriate detergent or, where necessary, sulphuric ether.



F = WORK LIGHTS

Are operative with lock switch key (page 20) in position 1.

To turn on lights **F** use switch **G**. Move light units to aim beams as required.

WINDSHIELD WASHER

Washer circuit is completed with lock switch in position **1** (page 20). To activate, press washer push-button **H** into position **2**.

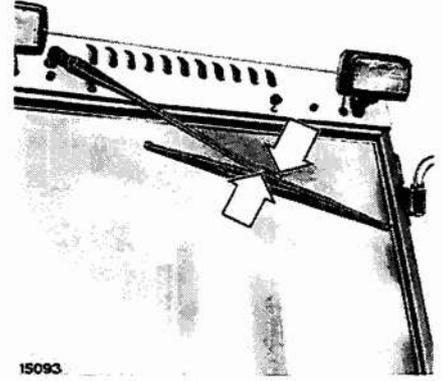
If nozzles fail to operate, clean by inserting a pin in nozzle orifice.
To adjust aim, turn nozzle until jet impinges on shield at top of swept area.



IMPORTANT - For fluid renewals or makeups see attached Servicing Chart.

WINDSHIELD WIPER

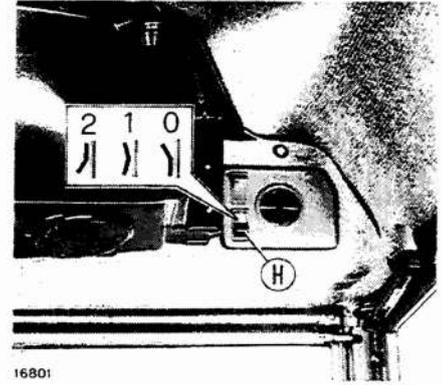
To remove wiper blades, take off screws as shown.



H = Windshield wiper/washer control.

Wiper circuit is completed with lock switch in position **1** (page 20).

- 0. - OFF
- 1. - Wiper ON
- 2. - Wiper/washer ON

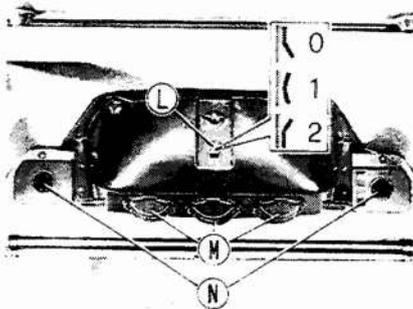


VENTILATION

Operate switch **L** to activate fan and adjust vents **M** to direct air flow where desired.

Air may be drawn from outside or circulated within cab through outlets **N** which take two positions as follows:

- Closed, air drawn from outside through side openings **P**.
- Open, greater volume of air drawn from within through outlets themselves.



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Air admitted to cab from outside is always filtered.

With fan activated and windows and door closed, cab interior pressure is higher than outside and air can only enter cab through filter-protected intakes **P**.

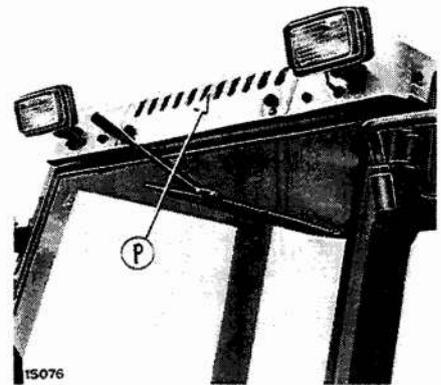
⚠ DANGER ⚠

Cab air filter is not designed as protection against pesticides. Complete protection from these products can only be obtained following the specific instructions for each product.

Heater fan

Circuit of heater fan **L** is completed when lock switch key (see page 20) is turned to position **1**.

- 0.** OFF.
- 1.** Low speed.
- 2.** High speed.



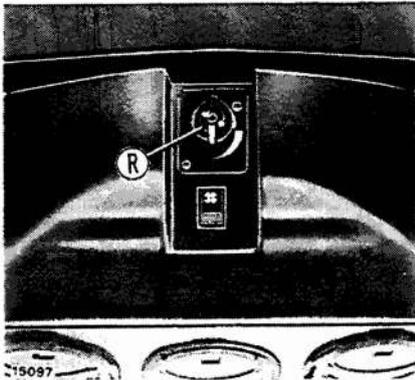
HEATING

Knob **R** controls temperature of heated air by regulating flow of coolant admitted from engine.

Heater fan **M** (page 76) increases volume of air admitted to interior through vents **N** (page 76).

R = Temperature control

- Vertical - Minimum heat
- Horizontal - Maximum heat



Set knob **R** vertical to prevent hot water circulation in cab.

SYSTEM FLUSHING

Cooling water from engine is directed to heater matrix prior to reaching radiator for cooling.

IMPORTANT

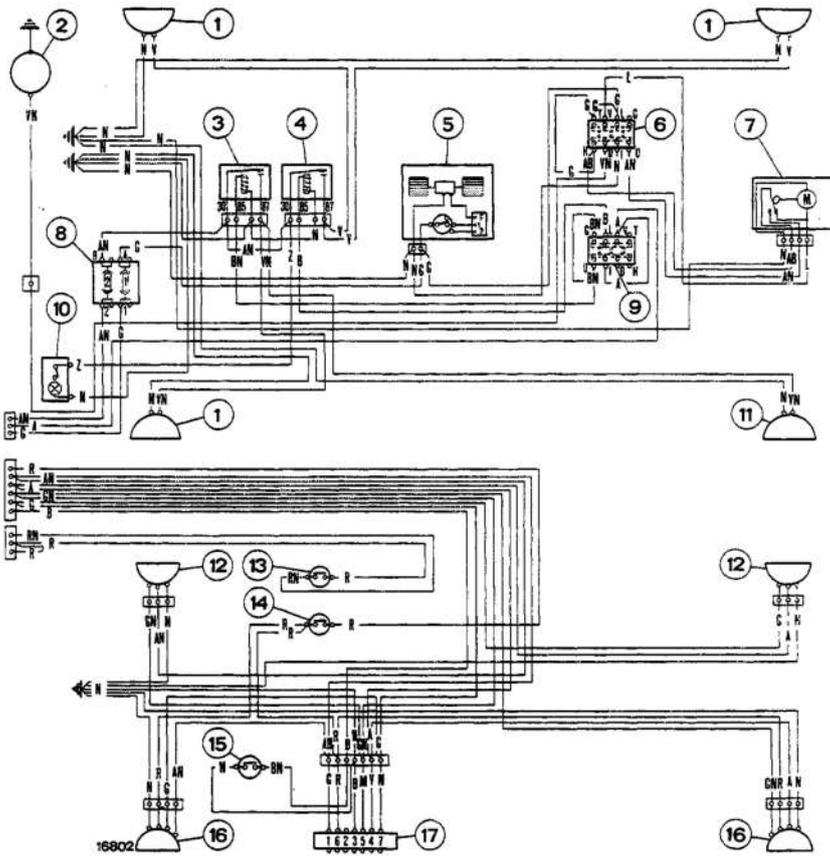
Total cooling system capacity is 14 L or about 3 Gals.

For coolant details see page 56.

For system flushing adhere to the instructions given on page 56 noting that to empty system completely, knob **R** must be moved to horizontal position.

Top up engine cooling system and cab heating system as follows:

- Fill radiator with water and FIAT "PARAFLO 11" and replace the plug.
- Shutoff heater cock (control **R** vertical, blue sector) start engine and run at fast idle for 5 to 10 minutes in order to warm up engine coolant.
- Remove radiator cap, open cock (control **R** horizontal) (red sector) and run engine at high speed (2000 rpm) for about 5 minutes.
- Top up radiator with engine running at high speed (2000 rpm) and refit radiator cap.



WIRING DIAGRAM DETAIL - CAB VERSION

1. Cab work lights.
2. Washer pump.
3. Rear work lights relay switch.
4. Front work lights relay switch.
5. Heater / fan unit.
6. Washer / wiper switch.
7. Wiper motor.
8. Fuse box.
9. Work lights switch.
10. Cab interior light.
11. Rear work light.
12. Front parking/turn signal lamps.
13. Starter inhibitor switch.
14. Stop lights switch.
15. Hand brake indicator.
16. Rear parking / turn signal / stop lights.
17. Seven-pole current outlet.

TRACTOR STORAGE

If the tractor is to be stored for an extended period carry out operations described below. See also distributor-type injection pump instructions on page 49.

■ Protect the engine as follows:

a. For periods of storage of up to one month no precautions are needed provided not more than 100 hours have elapsed since the last engine oil change, otherwise see below.

b. For storage periods in excess of one month, drain engine oil with a warm engine, fill the sump with **oliofiat AMBRA SUPER** oil and run the engine at part throttle for a few minutes.

c. Remove air cleaner outer cartridge and clean as directed in Servicing Chart.

d. Do not drain the engine cooling system. In the cold season ensure that the strength of the FIAT «**PARAFLU 11**» anti-freeze mixture is correct. To this end adhere to the instructions given on page 56.

■ Thoroughly clean the tractor; coat paintwork with silicone wax and unpainted metal parts using approved protectants. Store equipment under cover, in dry and ventilated premises.

■ Ensure that all controls are off (including electrical switches and parking brake).

■ Remove lock switch key.

■ Ensure that piston rods (power steering, lift, etc.) are fully retracted.

■ Fill the fuel tank to maximum level.

■ Remove battery, clean battery top and coat terminal clamps and posts with rosy petroleum jelly. Store battery in ventilated premises away from sunlight, where temperature does not fall below 10°C.

■ Check state of charge by connecting a voltmeter to battery terminals as described on page 50.

■ Prop axles to take the tractor weight off the wheels and deflate the tires. Otherwise, raise tractor and check tire pressure regularly.

■ Cover equipment with non-plastic, non-waterproof tarpaulin.



When starting engine after a period of storage, pay particular attention to the instructions given on page 20.

OPTIONAL VARIANTS AND ACCESSORIES

This manual covers all your tractor equipment including the optional variants and accessories listed below:

- Mechanical reverser.
- Creeper.
- NO-SPIN differential.
- Thermostarter.
- Start-pilot.
- Power steering.
- 540/1000 rpm P.T.O.
- Dry air cleaner with dashboard mounted restriction indicator.
- Fuel sedimenter filter.
- Quick release half couplings for remote control valves.
- Sealed type battery
- Horizontal exhaust.
- Tool box.
- Provision for trailer brake hand lever.
- Remote control valves.
- Side fender extensions.
- Drilled crossmember.
- Front hook.
- Implement attachment devices.
- Ballast.
- Rear work light.
- Front fenders.
- Front fenders for four-wheel drive version (power steering only).
- ROPS frame with canopy.
- Heated and ventilated cab (available only as factory installed original equipment).

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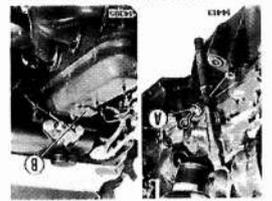
New Holland North America, Inc., New Holland, PA
Printed in U.S.A.

RUNNING-IN

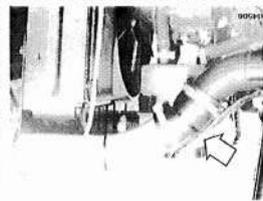
During the running in period (60 hours approx.) adhere to the instructions given under the flexible maintenance and 50 hour section of this chart. Moreover, allow the engine to idle for a few minutes after starting from cold.

- Do not idle the engine for long periods.
- Do not allow the tractor to labour continuously under heavy loads.
- The above apply equally to reconditioned units.

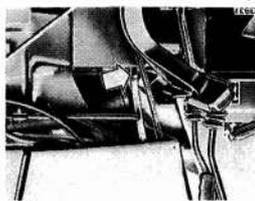
WARNING - On completion of first 60 hours, renew the engine oil (operation 24) and the filter cartridge (operation 28). Moreover, replace the oil filter (operation 29).



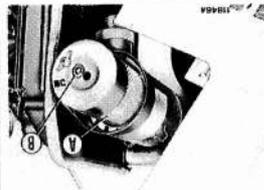
1 ENGINE SUMP - Check oil level to be at max mark on dipstick A and top up through filler B.



5 POWER STEERING FLUID RESERVOIR - With wheels in straight-ahead driving position - Check fluid level and top up as necessary.

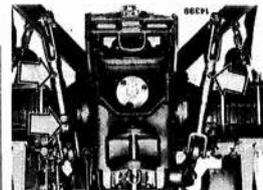


9 DRIVE HOUSING VENT - If necessary remove hose and fitting and wash in kerosene. Allow to drain before installing.

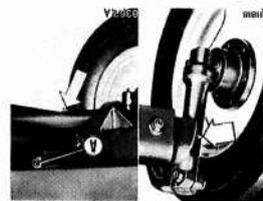


13 DRY AIR CLEANER - When cleaner indicator comes on, remove cover, withdraw outer cartridge A and clean using either of the following:

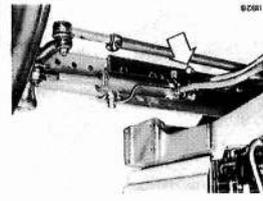
- Compressed air at less than 6.9 bar (7kg/cm² or 100 psi) directing flow inside out.
- Wet and foamless detergent, subsequently rinsing at less than 2.9 bar (3 kg/cm² or 43 psi) and drying in air at less than 50°C.
- Never clean cartridge by striking against a hard surface.
- Replace sealing ring B if damaged.
- Do not separate plastic fins from element.
- Using a wet cloth, thoroughly clean inside of sheet metal container.
- See also under "Remarks".



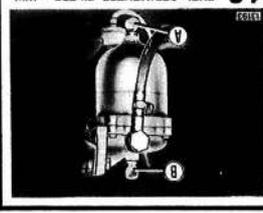
17 LIFT AND 3-POINT LINKAGE - Lubricate (3 points) Fiat TUTELA G9 grease.



18 STEERING AND AXLE PIVOTS - Lubricate using Fiat TUTELA G9 grease. On power steering version, point A is not provided.



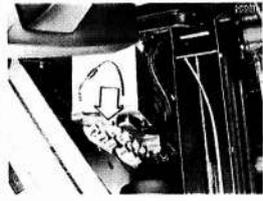
14 FAN BELT - Belt should deflect 10 to 11 mm (3/8 to 7/16 in) under 78 to 88 N (18 to 20 kg or 40 to 45 lb). Adjust through nut A.



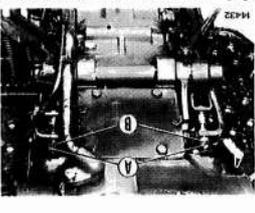
16 FUEL SEDIMENT FILTER - With fuel tanks full, backs off lower screw A and drain water to complete draining, back A and tighten screw A and when fuel issues without bubbles re-tighten screw B.



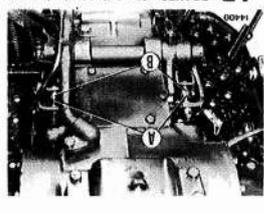
AIR CLEANER - Depress rubber button to clean dust ejector.



6 BATTERY - Check state of charge as instructed on page 50 in manual.

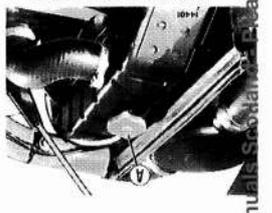


11 PARKING BRAKE - If ratchet free travel exceeds 3 clicks, slacken locknuts A and turn adjuster B to restore 3 clicks. Retighten locknuts A.



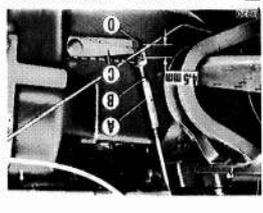
15 BRAKES - Check that brake free travel is equal for both pedals and does not exceed 70 mm (3 in); to adjust proceed as follows:

- Slacken locknuts A and turn adjuster B to 35 mm (2 in) through B.
- Slacken locknuts A and adjust free travel to 35 mm (2 in) through B.
- Move hand lever down.
- Retighten locknuts A.



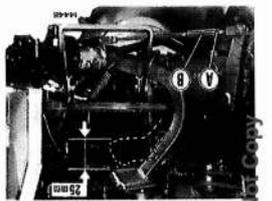
7 P.T.O. CLUTCH - Move lever C fully down and check that free travel at pin D is 4.5 mm or 0.18 in prior to clutch withdrawal. When down to 2.5 mm or 0.10 in adjust clutch as follows:

- Slacken locknut B and turn sleeve A clockwise through 1 1/4 turn (pin D moves through 3 mm or 0.12 in every turn).
- Retighten locknut B.
- Ensure that lever free travel is 4.5 mm or 0.18 in.



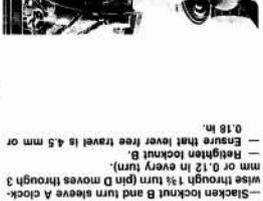
12 COMFORT CAB AIR FILTER (PAPER) - Back off the screws, remove cover, pull out the cartridge and clean.

- With compressed air at less than 6.9 bar (7 kg/cm² or 100 psi, directing the flow inside out.
- Dip element in a solution of water and foamless detergent for abt. 15 minutes. Rinse thoroughly with water at 2.7 bar - 2.8 kg/cm² or 39 psi then dry in air.

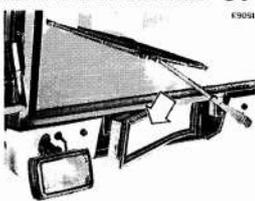


4 MASTER CLUTCH - Check pedal free travel. Correct free travel is 25 mm (1 in). When down to 15 mm (5/8 in) adjust as follows:

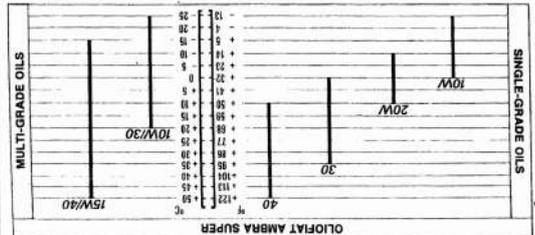
- Slacken lock nut A and turn sleeve B counter-clockwise (one turn equivalent to 12 mm or 1/2 in pedal travel).
- Retighten locknut A.
- Ensure that pedal free travel is 25 mm or 1 in.



8 WASHER RESERVOIR - Check level if necessary restore to correct level (see Capacities).



11 STEERING LINKAGE JOINTS - Ensure that there is no play and that relevant taper spigots are tight in their seats.



MSCELLANEOUS CHECKS - Periodically check the following parts and in case of anomalies turn to linked personnel. If necessary, replace defective parts:

- Power steering cylinder hoses: ensure that hose is free from kinks, cracks or bulges and that there is no leakage between hose and fittings.
- Parking brake hand lever: ensure that ratchet gear locks securely.

WARNING

- Periodically check the following parts and in case of anomalies turn to linked personnel. If necessary, replace defective parts:
- Power steering cylinder hoses: ensure that hose is free from kinks, cracks or bulges and that there is no leakage between hose and fittings.
- Parking brake hand lever: ensure that ratchet gear locks securely.

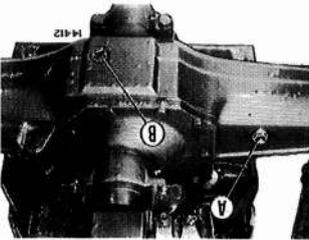
IMPORTANT

If performed at the correct intervals, the routine operations will ensure sustained tractor efficiency. However, in addition to these, the important inspection and adjustment operations listed below should be performed at such intervals as dictated by environmental and working conditions. Experience suggests that it is safer and cheaper to inspect too often than too infrequently.

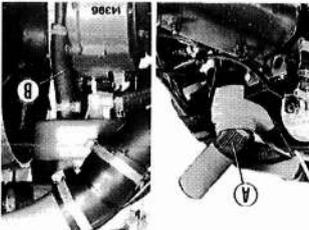
45-66 45-66DT - SERVICING CHART

(Supplement to Operator's Manual Print no. 603.64.190.00R2)

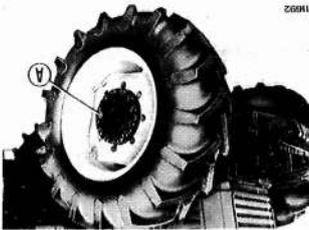
Every 400 Hours Every 200 Hours 50 Hours



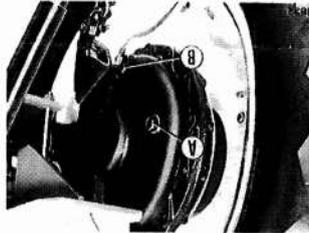
32 FRONT AXLE HOUSING (DT version) - Check that oil level is up to hole of plug A and top up as necessary (see "Capacities").



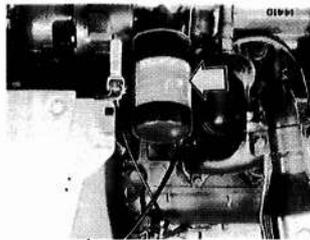
33 POWER STEERING - Remove filter A (press down and move sideways) and wash in kerosene together with plug. Turn, top up using fresh oil (see Op. 30), block and hand tighten through a further 3/4 turn.



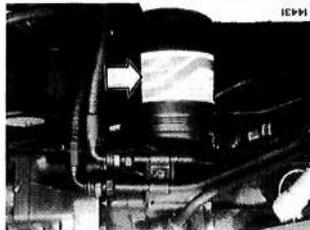
34 FRONT FINAL DRIVES (DT version) - Bring filler A horizontal and check oil level, topping up as necessary.



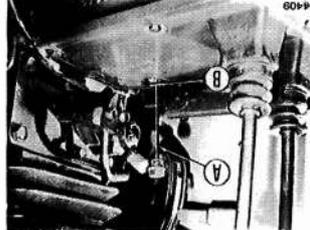
35 REAR FINAL DRIVES - Check that oil level is up to plug A and top up as necessary.



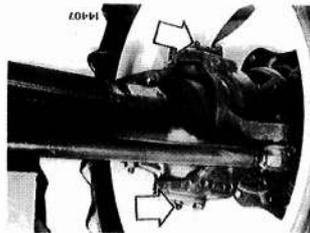
28 ENGINE OIL FILTER - Replace cartridge, oil the seal, spin on cartridge to contact block and tighten by hand through a further 3/4 turn.



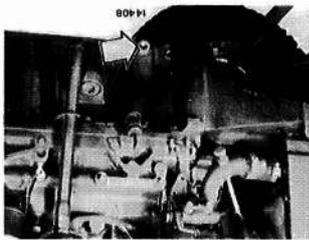
29 LIFT FILTER - Replace cartridge, oil the seal, spin on cartridge to contact block and hand tighten through a further 3/4 turn. Top up using fresh oil (see Op. 30).



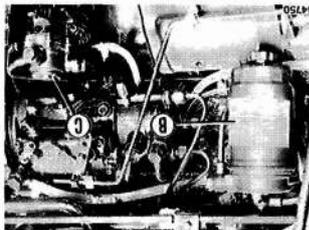
30 DRIVE HOUSING AND LIFT - Check that oil level reaches max mark on dipstick A with tractor level, engine shut off. Lift arms lowered and dipstick screwed fully in. Top up through hole B.



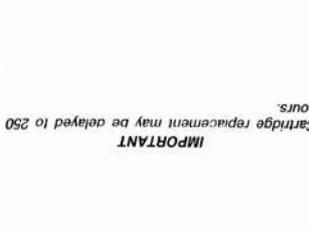
31 KING PINS (DT) - Inject Fiat TUTELA G9 grease at least twice a year (2 points on each side).



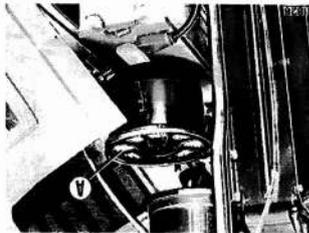
24 ENGINE SUMP - Remove plug, drain and refill (see Capacities and Op. 1).



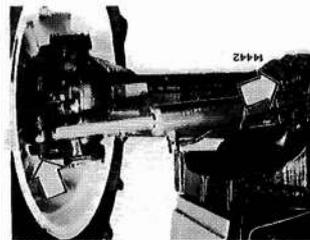
25 FUEL FILTER - Replace cartridge B. Bled system as directed on page 48.



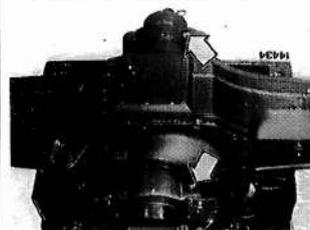
26 FUEL SUPPLY PUMP - Remove cover C (see Op. 25) and clean inner filter.



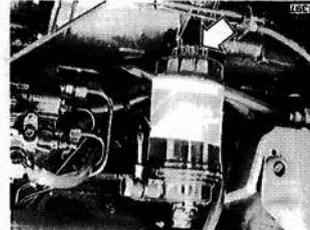
27 OIL BATH AIR CLEANER - Remove element A, wash with kerosene and drain. Oil before installing.



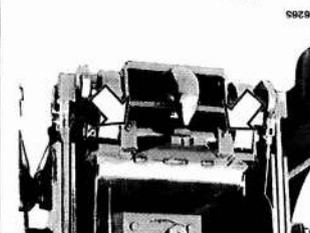
20 STEERING (DT VERSIONS) - Lubricate (2 points) using Fiat TUTELA G9 grease.



21 FRONT AXLE PIVOT (DT Version) - Lubricate using Fiat TUTELA G9 grease.



22 FUEL FILTER - Drain weekly by backing off bottom screw through 3 to 4 turns and stroking fuel supply pump lever.



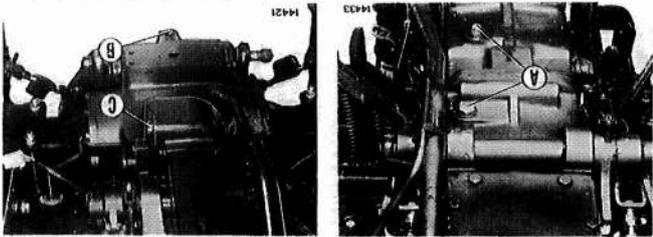
23 TOW HOOK - Inject Fiat TUTELA G9 grease (two lube points).

CAPACITIES

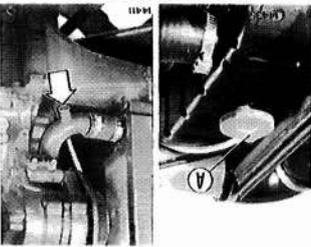
DESCRIPTION	CAPACITY		RECOMMENDED FLUIDS	FIAT LUBRICANTS INTERNATIONAL DESIGNATION
	(dm ³)	Imp. Unit		
Coolant	12	3.17	2% Water and PARAFLU 11* (see page 56)	—
Washer reservoir	2	0.5	Water and FIAT DP (1) fluid	—
Fuel	73	19.3	16 Diesel oil (settled and filtered)	—
Engine and filter oil	7.3	1.9	1 1/2	Diesel engine oil to MIL-L-2104E and Service API CE
Sump oil	6.7	1.7	1 1/2	
Oil bath air cleaner	0.55	0.14	1/2	
Power steering fluid	1.7	0.44	1/2	
Steering oil	0.9	0.8	1/2 Gal	
Front axle oil	4.8	1.26	1	
Front axle oil (each)	0.55	0.15	1/2	Oil for transmission, drives, oil-bath brakes and lifts Meets FIATAGRI CAP 001 and service API GL-4 specifications Viscosity grade:SAE 20W/30
Drive housing (including transmission final drives, bevel gear and brakes) and lift	22	5.8	4 3/4	
Model 45-66	23	6.1	5	
Model 45-66 DT	2.3	0.6	1/2	
Final drives (each)	—	—	—	Lithium-calcium base grease, NLGI 2
Front hub grease	—	—	—	
Lubricator grease	—	—	—	

(1) Anti-freeze detergent liquid effective down to -10°C in 50% - 50% mixture. For temperatures below -10°C use DP1 neat.

Every 1600 Hours or two Years



47 REAR DRIVE HOUSING AND LIFT - Drain oil through plugs A and B and plug C on version). Replace lift filter cartridge (see Op. 29), clean plug magnetic rod, install plugs and refill with oil (see Op. 30).



50 ENGINE COOLING SYSTEM - Remove radiator plug shown, drain coolant and flush system (see page 56). Refill system through A.

51 FRONT AXLE FINAL DRIVES (DT VERSION) - Move plug A lowermost position. (See Op. 35 and Capacities).

52 FRONT AXLE CASING (DT) - Drain oil through plug B and refill through plug A (see Op. 32 and Capacities)

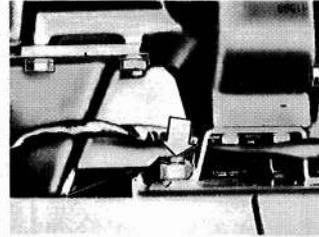
48 STARTER - Check commutator and brushes. Entrust to qualified person.

49 FINAL DRIVES - Drain oil from plug B and refill through A (see op. 31).

44 POWER STEERING - Disconnect lower piping B and allow to drain. Clean filter. Reconnect lower piping and refill (see Op. 29 and Capacities).

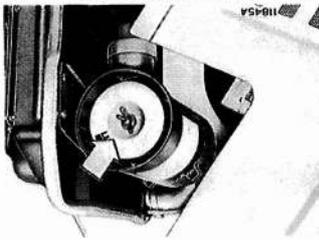
45 COMFORT CAB AIR FILTER (paper) - After 5 cleanings, back off the screws, remove cover and replace cartridge.

46 FUEL INJECTORS - Check popping pressure (230 to 238 bar, 235 to 243 kg/cm² or 3,336 to 3,425 psi). To remove, disconnect delivery pipes and take off brackets.

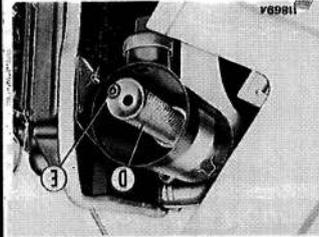


41 FUEL TANK - With tractor on level ground, engine shut off and fuel tank almost empty, proceed as follows:
 - Remove fitting shown (below tank) and drain fuel to remove water and sediment.
 - After draining, install fitting and refill (see page 48).
 - Bleed fuel system as directed on page 48.

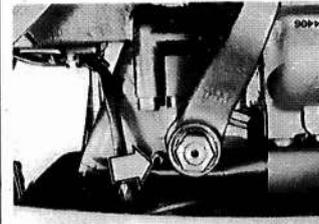
42 ENGINE VALVES - Check valve clearance (0,25 mm or .010 in. in-take, and 0,35 mm or 0,014 in. exhaust) regardless of engine temperature.



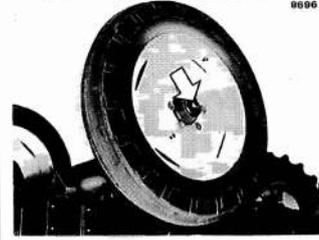
43 DRY AIR CLEANER - After cleaning and replace seals B and E. See also "Remarks".
 Also replace seals B and E. See also "Remarks".



36 DRY AIR CLEANER - After cleaning three times, replace inner cartridge D. If damaged, also replace seal E.



37 STEERING UNIT - Check that oil level is up to plug hole and top up as necessary (see Capacities).



38 FRONT WHEELS - Remove hub cap, pack with Fiat TUTELA G9 grease, and install.

39 OIL BATH AIR CLEANER - Clean all parts. Dip elements in kerosene for half an hour. Drain and oil before assembly.

40 BRAKES - Check pedals free travel and parking brake control (see ops. 15 and 11).

REMARKS

The inflation ratings given are for guidance only. Such factors as tire make, ballast and service conditions, etc., may dictate higher or lower pressures. For further guidance contact tire manufacturers.

Tire inflation pressure - (Model 45-66 DT)

Front tires	P.T.	6	5,50-16	6/8	7,50-16
12,4/11-28	6/8	6/8	6,50-16	8	13,6/12-28
12,4/11-32	6/8	6/8	6,50-16	8	12,4/11-32
Front tires	P.T.	8	7,50-20	9,5-20	8,3-24

Tire inflation pressure (mod. 45-66 DT)

Front	7,50-20	9,5-20	p.r.8	8,3-24
12,4/11-28	Front 1,4 bar (19,9 psi)	—	—	—
13,6/12-28	Front 1,6 bar (22,8 psi)	—	—	—
12,4/11-32	Front 1,8 bar (25,6 psi)	—	—	—

Note. Tire inflation pressures are expressed in bar (kg/cm²)

TIRES
 Tires should be carefully cleaned before fitting or removal. Do not work with tires on the ground. Soap and water should be used to facilitate fitting and removal. Grease should be used only when strictly necessary.
 When fitting a new or used tire, inflate to 3,5 bar (kg/cm²) or 50 psi to ensure that beads are properly retained, then restore to operating inflation rating.
OIL BATH AIR CLEANER
 In very dusty territories bowl oil level should be checked more frequently (Op. 107).
 If bowl deposits are considerable, wash lower element (Op. 27) and clean filter (Op. 39) at shorter intervals.
DRY AIR CLEANER
 Cleaner should be seen to whenever associated indicator comes on. Every year or whenever cracks are detected (by inserting a lighted bulb) replace outer cartridge.
 Do not wash or blow inner safety cartridge but replace every three times outer cartridge is cleaned, or every 400 hours.

- WIRING DIAGRAM (INCLUDING ACCESSORIES)**
- Note: Inset shows start-pilot device which may be fit an alternative to thermostarter.
- To starter switch connection 50
 - * To starter connection 50
 - 1. Headlamps.
 - 2. Battery.
 - 3. Alternator.
 - 4. Low engine oil pressure indicator sending unit.
 - 5. Water temperature gauge sending unit.
 - 6. Fuel gauge sending unit.
 - 7. Horn.
 - 8. Air cleaner restriction indicator sending unit.
 - 9. Multiple gauge (13 function).
 - a. Battery charge indicator.
 - b. Low engine oil pressure indicator.
 - c. Air cleaner restriction indicator.
 - d. Parking brake indicator.
 - e. Not used.
 - f. Parking lights indicator.
 - g. High beams indicator.
 - h. Tractor turn signal indicator.
 - i. Second trailer turn signal indicator.
 - 1. Second trailer turn signal indicator.
 - m. Engine water temperature gauge.
 - n. Fuel gauge.
 - 10. Starter.
 - 11. Parking brake indicator sending unit and stop change over relay.
 - 12. Starter inhibitor switch.
 - 13. Parking brake indicator flasher.
 - 14. Starter switch.
 - 15. Lighting switch and horn button.
 - 16. Single pole power point.
 - 17. Hazard warning and turn signal flasher.
 - 18. Engine shut-off solenoid.
 - 19. Fuses.
 - 20. Thermostarter or start-pilot control button.
 - 21. Thermostarter.
 - 22. Turn signal switch.
 - 23. Hazard warning button and indicator.
 - 24. Front parking and turn signal lights.
 - 25. Stop light switch.
 - 26. Parking brake indicator sending unit.
 - 27. Tail, rear turn signal, stop and number plate lig
 - 28. Seven pole power point.
 - 29. Work light/switch.
 - 30. Start-pilot.
- CABLE COLOR CODE**
- A = Light blue
 - B = White
 - C = Orange
 - G = Yellow
 - H = Gray
 - L = Dark blue
 - M = Brown
 - N = Black
 - R = Red
 - S = Pink
 - V = Green
 - Z = Violet

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