https://truckmanualshub.com/

OPERATOR MANUAL

SOLIS - 90 (CRDI)

INTERNATIONAL TRACTORS LIMITED

HOSHIARPUR

INDIA

Part No. 10013154AA

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

YOUR RIGHTS

While taking delivery of new **Solis Tractor,** kindly ask the dealer to give following items free of cost:

1. **Tool kit which includes**

Grease gun	1pc
Cutter plier 8”	1pc
Screw driver 5”	1pc
D-spanner 10 X 11	1pc
D-spanner 12 X 13	1pc
D-spanner 14 X 17	1pc
D-spanner 18 X 19	1pc
D-spanner 20 X 22	1pc
D-spanner 30 X 32	1pc
Ring spanner 16 X 17	1pc
Ring spanner 24 X 27	1pc
Battery Guarantee card	1pc
Hydraulic Jack (Optional)	1pc
Rear Wheel Spanner Kit (Optional)	1pc

2. **Farmer Kit**

Fuel Filter	1pc
Lub. Oil Filter	2pc
Fan Belt	1pc
Cap Radiator	1pc
Cap Fuel Tank	1pc
Linch Pin	3pc
Fuse Box	1pc
Tyre pressure gauge	1pc

3. **To avail the services.**

4. **To call dealers any time for any breakdown.**

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

PREFACE

Dear Customer, we welcome you with great pleasure in your joining the **ITL** family and thank you for the faith and trust you have placed in the careful selection of your tractor.

Before using this tractor it is highly recommended to read this manual thoroughly. Any person who regularly or occasionally uses your tractor should be encouraged to read these instructions.

Daily and routine maintenance operations can be easily performed with the use of this manual. Our dealers would be pleased to assist you in the maintenance of your tractor and help economical operation.

Use only genuine ITL spare parts from dealers/stockist. It would fetch you a reliable and durable performance.

Information provided in this operator manual is accurate at the time of printing. Improvement and modifications is a continuous process at **International Tractors Limited (ITL)**, we reserve the right to modify at any time without prior notice.

You are the proud owner of the best product for your prosperity. In case of any help/support required please feel free to call our dealership with the tractor details like Engine number and Chassis number. We wish your prosperity and growth.

Export Department

INTERNATIONAL TRACTORS LIMITED

Vill.-Chak Gujran, P.O. Piplanwala 146022

Jalandhar Road, Hoshiarpur, Punjab, India.

Phone: +91-1882-302-525/526

E-mail: exports@sonalika.com

Downloaded from www.Manualslib.com manuals search engine

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

OWNERSHIP AND TRACTOR DETAILS

OWNER'S NAME & ADDRESS	---------- ---------- **TEL No.** ----------

Model :	Delivery Date :
Chassis No.	Bill No. / Date :
Engine No.	Alternator Make / Sr. No.
Battery Make / Sr. No.	Starter Motor Make / Sr. No.
FIP Sr. No. :	Hydraulic Pump Make / Sr. No. :

Tire	Make	Size	Sr. No.
Front (Left)			
Front (Right)			
Rear (Left)			
Rear (Right)			

I have under stood all the terms & conditions of the maintenance of the tractor, terms of warranty, systems, Scheduled services & understood operation of tractor in the field and other operations

Received a new defect free tractor Chassis No. .. .. Engine No. .....

& fully satisfied with the transaction.

OWNER SIGNATURE	**DEALER STAMP & SIGNATURE**
	PH. No. ..... DATE : .....

* **IMPORTANT INFORMATION TO CUSTOMER:** For any assistance with regard to our product, please contact our authorized dealer or authorized service center.

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

OWNERSHIP AND TRACTOR DETAILS

OWNER'S NAME & ADDRESS	---------- ---------- **TEL No.** ----------

Model :	Delivery Date :
Chassis No.	Bill No. / Date :
Engine No.	Alternator Make / Sr. No.
Battery Make / Sr. No.	Starter Motor Make / Sr. No.
FIP Sr. No. :	Hydraulic Pump Make / Sr. No. :

Tire	Make	Size	Sr. No.
Front (Left)			
Front (Right)			
Rear (Left)			
Rear (Right)			

I have under stood all the terms & conditions of the maintenance of the tractor, terms of warranty, systems, Scheduled services & understood operation of tractor in the field and other operations

Received a new defect free tractor Chassis No. .. .. Engine No. .....

& fully satisfied with the transaction.

OWNER SIGNATURE	**DEALER STAMP & SIGNATURE**
	PH. No. ..... DATE : .....

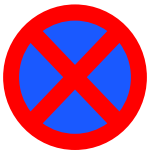
* **IMPORTANT INFORMATION TO CUSTOMER:** For any assistance with regard to our product, please contact our authorized dealer or authorized service center.

Downloaded from www.Manualslib.com manuals search engine

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

ROAD SAFETY SIGNS

 Right Hand Curve	 Left Hand Curve	 Right Hand Pin Bend	 Left Hand Pin Bend	 Narrow Bridge	 Pedestrian Crossing
 School Ahead	 Men at Work	 Cross Road	 Gap in Median	 Side Road Right	 Side Road Left
 Staggered Instersection	 No Parking		 No Stopping or Standing		 Staggered Instersection
 Major Road Ahead	 Major Road Ahead	 Right Reverse Bend	 Left Reverse Bend	 Narrow Road Ahead	 Road Widens Ahead
 Cattle	 Ferry	 One Way Signs Vehicles Prohibited in One Direction	 One Way Signs Vehicles Prohibited in One Direction	 Y-Intersection	 Y-Intersection
 Y-Intersection	 T-Intersection	 Straight Prohibited or No Entry	 Right Turn Prohibited	 Left Turn Prohibited	 U-turn Prohibited

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

INDEX

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

INDEX

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

INDEX

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

INDEX

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

CHAPTER - 1

TRACTOR IDENTIFICATION

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

TRACTOR IDENTIFICATION

1.1 Chassis Serial Number

The chassis and/or engine serial numbers are used to register the vehicles. They are also used to assist your dealer when ordering or referring to special service information. Whenever you have occasion to consult your dealer, remember to identify your vehicle with this number. The chassis number is punched on right front axle bracket. Should you find the number difficult to read, you will also find it on the Statutory plate. (Fig. 1-1)

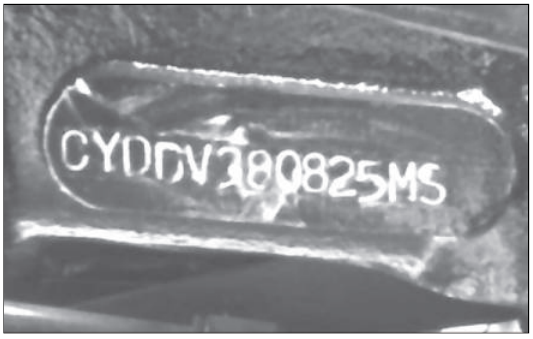


Fig.1-1

1.2 Engine Serial Number

The engine serial number is stamped on the cylinder block as shown in the illustration (A) Fig. 1-2.

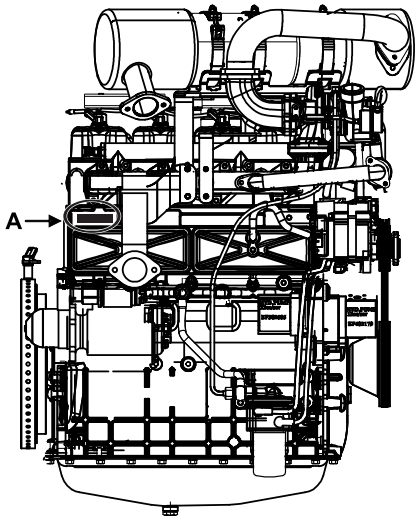


Fig.1-2

1.3 Statutory Plate

Chassis no. is also engraved on statutory plate (Fig. 1-3) which is riveted on left hand side of tractor.

Information about Chassis no and Engine no is helpful while ordering spare parts to get the right parts at right time.

SONALIKA
INTERNATIONAL TRACTORS LTD.

Type: .....
EEC number .....
Identification number: .....
Total permissible mass (*) : .....to .....kg
Permissible front axle load (*): .....to .....kg
Permissible rear axle load (*): .....to .....kg
(*) depending on the tyres.

Permissible towable mass:
Unbraked towable mass: .....kg
Independently-braked towable mass: .....kg
Inertia-braked towable mass: .....kg
Towable mass fitted with an assisted braking system : .....kg
(hydraulic or pneumatic)

Fig.1-3

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

UNIVERSAL SYMBOLS

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


Safety Alert Symbol


Diesel Fuel


Fuel Level


Engine Rotational Speed


Parking Brake


Engine Intake/Combustion Air-Filter


Battery Charging Condition


Engine Oil-Pressure


Turn Signal


Engine-Stop


Engine-Run


Starter Control


Engine Shut-Off Control


Power Take-Off Clutch Control-Off Position


Power Take-Off Clutch Control-On Position


Differential Lock


Position Control-Raised Position


Position Control-Lowered Position


Hazard Warning Lights


Master Lighting Switch


Position Lamps


Headlight-Low Beam


Headlight-High Beam


Audible Warning Device


Four-Wheel Drive-On


Four-Wheel Drive-Off


Fast


Slow


Engine Coolant-Temperature


Read Operator's Manual


Tractor-Forward Movement-Overhead View of Machine


Tractor-Reverse Movement-Overhead View of Machine


Engine Speed Control

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

CHAPTER - 2

INTRODUCTION

WARRANTY

SAFETY NOTES

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

INTRODUCTION AND WARRANTY

2.1 Introduction

NOTE : This book is published for worldwide distribution, and availability of equipment shown either as basic or accessory may vary according to the territory in which the tractor is to be operated. Full details of equipment available in your area can be obtained from your Dealer.

The purpose of this book is to enable the owner and driver to operate the tractor in a safe manner. Providing that the instructions are followed carefully, the tractor will give years of service in our tradition.

The installation of the product by the Dealer gives the opportunity to ensure that the operating and maintenance instructions are understood. Always consult your Dealer if do not understand any part of this book. It is important that these instructions are understood and observed. Daily maintenance should become a routine, and a record of hours in service should be kept.

When new parts are required it is important that only genuine service parts are used. Our Authorized Dealers supply genuine parts and can give advice regarding their fitment and use. Extensive damage may occur as a result of the fitment of parts of inferior quality, Customers are advised to buy their service parts only from an authorized Dealer.

Owing to wide variations in operating conditions, it is impossible for the Company to make comprehensive or definitive statements in its publications regarding performance or methods of use of its machines, or to accept liability for any loss or damage which may result from these statements, or from any errors or omissions. If the tractor is to be used for abnormal conditions which may be detrimental (e.g. deep water or paddy fields) consult your Dealer for special instructions, or the warranty may be invalidated.

These tractors are designed solely for use in customary agricultural operations (intended use).

Use in any other way is considered as contrary to the intended use. The tractor manufacturer accepts no liability for any damage or injury resulting from misuse and these risks must be borne solely by the user

Compliance with, and strict adherence to, the conditions of operation, service and repair as specified by the manufacturer also constitute essential elements for the intended use.

These tractors should be operated, serviced and repaired only by persons familiar with all their particular characteristics and who are acquainted with the relevant safety rules (accident prevention).

Customers are strongly advised to use an official authorized Dealer in connection with any service problems and adjustment that may occur.

2.2 Warranty, Pre-delivery and Installation

The Company, when selling new goods to their Dealers, gives a warranty which, subject to certain conditions, guarantees that the goods are free from defects in material and workmanship. Since this book is published for worldwide circulation, it is impossible to detail the exact terms and conditions of warranty that apply to a retail customer in any particular country. Purchasers of new equipment should request full details from their supplying Dealer.

In accordance with the Company policy of continuous improvement to its machines, alterations in the specifications of machines may be made at any time without notice. The Company accepts no responsibility for discrepancies which may occur between the specifications of its machines and the descriptions thereof contained in its publications.

A dealer is required to carry out certain activities when supplying a new tractor. These consist of a full pre-delivery inspection to ensure that the tractor supplied is ready for immediate use, and full instruction in the basic principles of operation and maintenance of the tractor. These instructions will cover instruments and controls, routine maintenance and safety precautions. All persons who will be concerned with the operation and maintenance of the machine should be present for these instructions.

NOTE: The tractor manufacturer will not accept responsibility for any claim resulting from the fitment of non-approved parts or attachments, or unauthorized modification or alteration.

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

2.3 Warranty Procedure

Correct installation, coupled with regular maintenance, will do much to prevent breakdowns. If, however, operating trouble is experienced during the warranty period, the following procedure must be adopted:-

Immediately notify the Dealer from whom you purchased the tractor, quoting the Model and Serial Number. It is most important that there should be no delay, and you should realize that, even where the original failure is covered by warranty .if the failure is not repaired immediately, warranty cover may not apply.

Provide your Dealer with as much background information as you can. It will help him to know how many hours service has been achieved, the type of work on which you are engaged and the symptoms of the trouble.

It should be noted that normal maintenance services such as tuning, brake/clutch adjustments, and the supply of materials used to service the tractor (oil, filters, fuel and antifreeze) are not covered by terms of the warranty.

2.4 Parts Warning

The fitment of non genuine parts may result in a part of substandard quality being used. The tractor manufacturer will not take the responsibility for any loss, damage or liability resulting from the fitment of such parts, and, if fitted during the normal warranty period the manufacturer's guarantee may be invalidated.

2.5 If You Move

Only the official dealer from whom you purchase the tractor is responsible for the protection afforded by your warranty and, where possible, you should always take the tractor to him for repair. If, however. you move to another area or if your tractor should be working temporarily at some distance from the Dealer from whom it was purchased, you are recommended to obtain from the original Dealer the name and address of the Dealer nearest to your new location and to ask for arrangements to be made for outstanding service warranty commitments to be transferred to the latter. If you have left the area in which the original Dealer operates and have not made arrangements with your new Dealer, the latter will readily provide assistance in emergency but you will be charged at normal rates for any work undertaken unless:

a. You make it clear that the warranty has not expired and
b. You give the repairing Dealer the opportunity to make suitable arrangements with the retailing Dealer.

2.6 Service After Warranty

During the warranty period, you should have all your repairs and maintenance performed by your dealer. This ensures that a detailed check is kept on the progress and performance of your new tractor.

In order to obtain the best results from your tractor it is important that regular maintenance and service checks continue after the warranty period has expired. Make use of your local Dealer for all major tractor services; a trained engineer will spot any problems between the service and the next.

The mechanics are regularly trained and updated on the product, servicing techniques and the use of modern service tools and diagnostic equipment. They receive regular Service Bulletins; have all Workshop Manuals and other such technical information to ensure that the repair or service is to the standard required.

2.7 Safety

The safety of operator is one of the main concerns in designing and developing a new tractor. Designers build in as many safety features as possible. However, every year many accidents occur which could have been avoided by a few seconds thought and a more careful approach to handling farm machinery and implements.

Read and implement the safety instructions detailed in the next section of this book.

WARNING : *In some of the illustrations used in this Operator instruction Book, panels or guards may have been removed for clarity. Never operate the tractor without these components in position. If the removal of panels or guards is necessary to make a repair, they MUST be replaced before operation*

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

2.8 Safety Alert Symbols and Terms

This safety alert symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

The safety alert symbol identifies important safety messages on machines, safety signs, in manuals or elsewhere. When you see this symbol, be alert to the possibility of personal injury or death.

Why is SAFETY important to you? *ACCIDENT DISABLE and KILL*

*** ACCIDENTS are COSTLY * * ACCIDENTS can be AVOIDED***

SAFETY: TRACTOR and IMPLEMENT

- The tractor is a source of power: Both mechanical and hydraulic.
- On its own, the tractor is of little practical value. Only when used in conjunction with an implement or other attachment does it become a working unit.
- This instruction book is compiled to cover those safe working practices that are associated with the base tractor operation.
- It does not cover all operation and safety instructions relevant to all known implements and attachments that may be fitted at the time of tractor delivery or at some future date.
- It is essential that operators use and understand the relevant instruction manual of such implements and attachments.

2.9 Safety: Introduction

This safety section of your Operator Instruction book is intended to point out some of the basic safety situations which may be encountered during the normal operation and maintenance of your PLATFORM, and to suggest possible ways of dealing with these situations. This section is NOT a replacement for other safety practices featured in other sections of this book.

Additional precautions may be necessary depending on attachments used and conditions at the work site or in the service area. The tractor manufacturer has no direct control over tractor application, operation, inspection, lubrication or maintenance. Therefore it is YOUR responsibility to use good safety practices in these areas.

2.10 Safety: A Word To The Operator

It is YOUR responsibility to read and understand the safety section in this manual before operating your tractor. You must follow these safety instructions that take you step by step through your working day.

In reading this section, you will note that illustrations have been used to highlight certain situations. Each illustration is numbered and the same number appears in the text in parenthesis. This number is placed at the end of the written text that refers to the illustration and is made up of two digits, separated by a hyphen: the first digit designates the chapter, the second one of the figure number in that chapter (e.g.Fig.2-34 of chapter 2).

Remember that YOU are the key to safety. Good safety practices not only protect you, but also the people around you. Study the features in this manual and make them a working part of your safety program.

Keep in mind that this safety section is written only for this type of machine. Practice all other usual and customary safe working precautions, and above all REMEMBER: SAFETY IS YOUR RESPONSIBILITY. YOU CAN PREVENT SERIOUS INJURY.

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

SAFETY NOTES

2.11 Safety: Danger, Warning and Caution

Whenever you see the words and symbols shown below, used in this book and on decals, you MUST take note of their instructions as they relate to personal safety.

DANGER: *The symbol and the word DANGER indicates an imminently hazardous situation, which, if not avoided, will result in DEATH OR VERY SERIOUS INJURY.*

WARNING: *The symbol and the word WARNING indicate a potentially hazardous situation. if the instructions or "procedures are not correctly followed it could result in DEATH OR SERIOUS INJURY.*

CAUTION: *The symbol and the word CAUTION indicate a "potentially hazardous situation, which, if not avoided, may result in MINOR INJURY.*

IMPORTANT: The word IMPORTANT is used to identify special instructions or procedures which, if not strictly observed, could result in damage to, or destruction of the machine, process or its surroundings.

NOTE: The word NOTE is used to indicate point of particular interest for more efficient and convenient repair or operation.

2.12 Safety: Decals

WARNING: DO NOT remove or obscure Danger, Warning, Caution or Instruction decals.

Replace any Danger, Warning, Caution or Instruction Decals that are not readable or are missing. Replacement decals are available from your Dealer in the event of loss or damage. The actual location of these safety Decals is illustration at the end of this section.

If a used tractor has been purchased, refer to the illustration at the end of this section to ensure that all the safety warning decals are in the correct position and are readable.

2.13 Safety: Follow A Safety Program

For safe operation:

For safe operation of an agricultural tractor, you must be a qualified and authorized operator. To be qualified you must understand the written instructions supplied in this Operator Instruction Book, have training, and know the safety rules and regulations for the job.

Some regulations specify, for example, that no one under the age of 18 years (according to European Rules) may operate power machinery. This includes tractor, it is your responsibility to know what these regulations are, and obey them, in the operating area of situation.

These will include, but are not limited to, the following instructions for safe tractor operations:

WARNING : *An operator should not use alcohol or drugs which can change his/her alertness or co-ordination. An operator on prescription or 'over the counter' drugs needs medical advice on whether or not he or she can properly operate machines.*

Observe the following precautions:

- NEVER allow children or unqualified persons to operate your tractor. Keep others away from your area of work.
- Securely fasten your seat belt when the tractor has a safety frame in the upright position.
- Where possible, avoid operating the tractor near ditches, embankments and holes. Reduce speed when turning, crossing slopes, and on rough, slippery, or muddy surfaces.
- Stay off slopes too steep for safe operation.
- Watch where you are going, especially at row ends, on roads, and around trees.
- DO NOT permit others to ride on the tractor or the implement unless an approved passenger seat is fitted.
- Hitch only to the drawbar and recommended hitch points, and never above the center line of the rear axle.
- Operate the tractor smoothly - no jerky turns, starts or stops, when the tractor is stopped, apply the parking brakes securely.
- Never modify or remove any part of the equipment and never use attachments unless they are properly matched to your tractor.

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

2.14 Safety Frame

A Safety Structure and seat belt is fitted as standard equipment to the platform tractor at the time of factory assembly. If the safety frame was deleted by the original purchaser or has been removed, it is recommended that you equip your tractor with a Safety Structure and a seat belt. Safety frames are effective in reducing injuries during overturn accidents. A tractor overturning without safety frame can result in serious injury or death (fig.2-1)

Depending on laws in force in the various markets, a seat may be installed. Always raise the safety frame before may be installed. Always raise the safety frame before fastening the seat belt.

If a fold-down safety frame is installed. DO NOT wear a seat belt when the safety frame is in folded down position. NEVER keep the safety frame in the folded down position when working with the tractor.

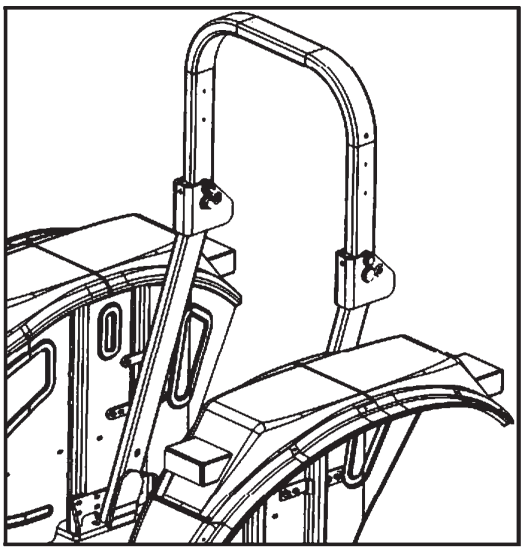


Fig. 2-1

Operation:

- Before using the tractor ensure that the safety frame is not damaged, that it is securely fastened to the tractor, and, if a hinged section is fitted, that it is in the raised position and secured.
- *If* the safety frame has been removed from the tractor, or folded down for a specific operation, it must be refitted or erected immediately using the proper hardware and applying the recommended torque value.
- DO NOT ATTACH chains, ropes or cables to the safety frame for pulling purposes; this will cause the tractor to tip backwards. Always pull from the tractor drawbar.
- If a seat belt is installed, always wear your seat belt-adjusted snugly except when operating with a folded down safety frame or if the safety frame has been removed (Fig. 2-2)
- Check the seat belt for damage. A damaged seat belt must be replaced (Fig. 2-2).

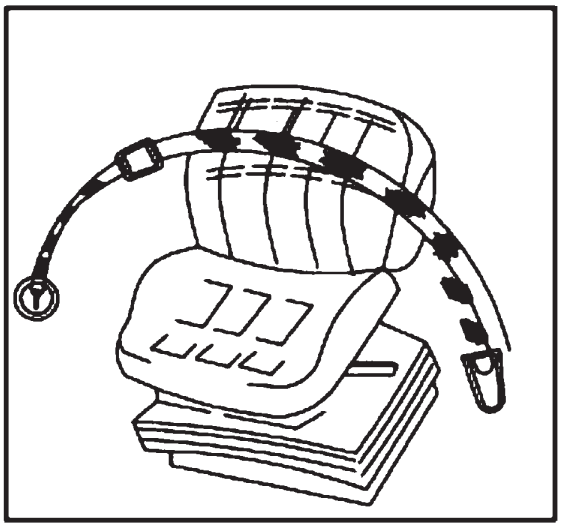


Fig. 2-2

Damage to the safety frame

If the tractor has rolled over or the safety frame has been damaged (such as striking an overhead object during transport), the safety frame must be replaced to provide the original degree of protection.

After an accident, check for damage to the safety frame operator's seat, seat belt and seat mountings. Before you operate the tractor, replace all damaged parts.

DO NOT WELD, DRILL, BEND OR STRAIGHTEN THE SAFETY FRAME. IF DONE, reduce the protection it offers.

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

2.15 Safety: Prepare For Safe Operation

Protect yourself:

Wear all the protective clothing and personal safety devices issued to you or called for by job conditions. Don't take risk hence you may carry/wear the following (fig. 2-3)

(a) A hard hat.
(b) Safety glasses, goggles or face shield.
(c) Hearing protection.
(d) Respirator or filter mask.
(e) Inclement weather clothing.
(f) Reflective clothing.
(g) Heavy gloves (neoprene for chemical, leather for rough work).
(h) Safety shoes.

DO NOT wear loose clothing, jewellery or other items and tie up long hair which could catch on controls or other parts of the tractor.

Learn where fire extinguishers and first aid or emergency equipment is kept and where to get help in a hurry. Make sure you know how to use this equipment.

Fig. 2-3

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

2.16 Know your equipment:

Know your tractor. Know how to operate all equipment on your machine and the implements and attachments used with it. Know the purpose of all the controls, gauges and dials. Know the rated load capacity, speed range, braking and steering characteristics turning radius and operating clearances.

Keep in mind that rain, snow, ie, loose gravel, soft ground, etc. can change the way your tractor operates. ***Under poor conditions, slow down and be extra careful, engage four wheel drive, if fitted.***

Study the DANGER, WARNING or CAUTION safety signs on your tractor and the information signs also.read this operator instruction book before starting the engine.

study it before you start the work (fig 2-4).

if there is something in the manual you don't understand, ask someone (such as your equipment dealer) to explain it to you.

IMPORTANT: This manual covers general safe practices for agricultural tractor it must always be kept with the tractor. For further copies contact your Dealer.

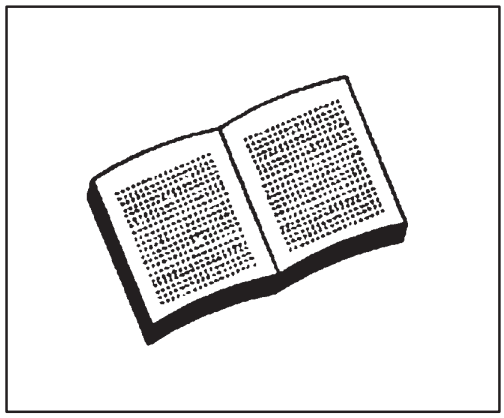


Fig. 2-4

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

2.17 Use all available protective devices

Keep all protective devices in place and securely fastened. Make certain all guards, shields safety signs are properly installed, as specified, and are in good condition.

IMPORTANT: To help keep you and others around you safe, your tractor should be equipped with:

Safety belt. It must always be mounted in protection position (Fig.2-2). A seat belt is recommended according to law requirements on the respective market when ROPS is erected.

Tractors PTO shield.

Your tractor may also need:

Rear view mirrors.

Fire extinguisher.

Safety frame with FOPS (Falling object Protective Structure), protective enclosure or sun screens. Remember FOPS are protection from light falling objects and are not intended as protection from large falling objects such as large round bales or fence rails. For front loader operation see the corresponding Manual. (Fig. 2.5)

SMV (Slow Moving Vehicle) emblem, Additional guards, lights or decals and additional alarm.

Know which devices are required for safe operation of your tractor. Use them. Make sure they are in place and in good condition. NEVER remove or disconnect any safety device.

Check the equipment:

Before you begin your working day, take time to check your tractor and ensure that all systems are in good operational condition.

DO NOT smoke while refueling the tractor. Keep any type of open flame away (Fig.2-6)

Check for loose, broken, missing, or damaged parts. Have everything put into good repair. Make certain all safety devices are in place.

Check safety frame and seat belt for damage. A damage safety frame or seat belt MUST be replaced.

Ensure that implements and attachments are properly installed and that the tractor and implement PTO RPM ratings match.

Check the tires for cuts, bulges and correct pressure. Replace worn or damaged tires. Check foot and parking brakes for proper operation. Adjust if necessary.

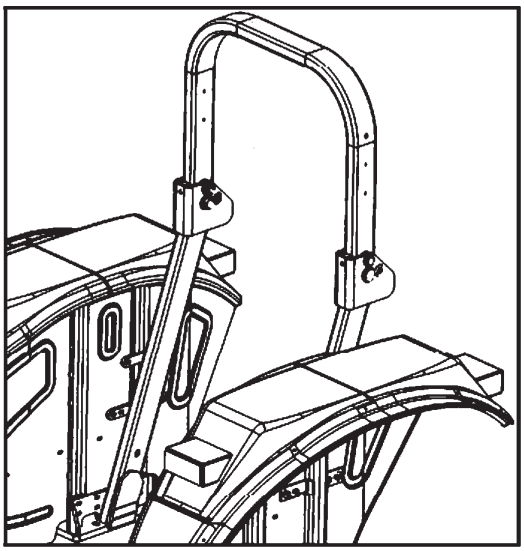
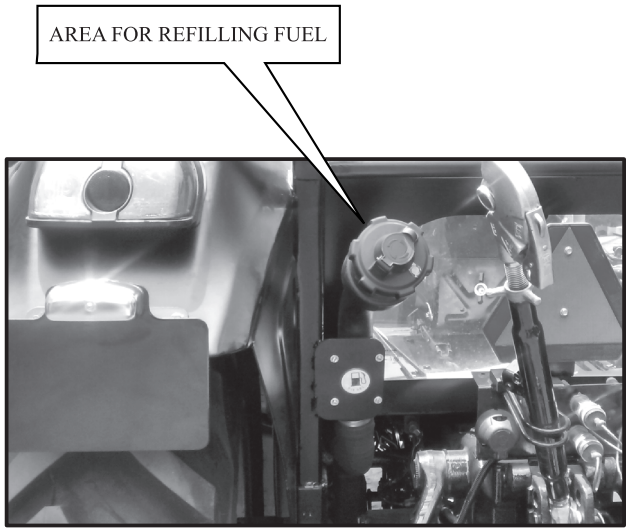


Fig. 2.5



(Fig. 2.6)

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

- Stop the engine and wait for it to cool before refueling. Check the engine oil level and add oil if required.
- Perform all maintenance procedures outlined in the maintenance and adjustment section of this manual.
- Check that the PTO drive locking devices are latched.
- Check that the tractor PTO shield and driveline guards are in place and operating properly.
- Check the tractor and implement hydraulic system. Have any leaks or damaged parts repaired or renewed.

⚠ ***WARNING:*** *Diesel fuel or hydraulic fluid under pressure can penetrate the skin or eyes and cause serious personal injury, blindness or death. Fluid leaks, under pressure, may not be visible. Use a piece of cardboard or wood to find leaks. Never use your bare hand. Wear safety goggles for eye protection. If any fluid is injected into the skin, it MUST be surgically removed within a few hours by a doctor familiar with this type of injury (fig. 2-7)*

Before applying pressure to the fuel or hydraulic system, be sure all connections are tight and that lines, pipes, and hoses are not damaged. Before disconnecting fuel or hydraulic lines, be sure to relieve all pressure.

Make sure that all hydraulic lines are correctly installed and not tangled.

⚠ ***WARNING :*** *Liquid cooling systems build up pressure as the engine gets hot. Before removing the radiator cap, stop the engine and let the system cool.*

Check the engine cooling system and add coolant as required.

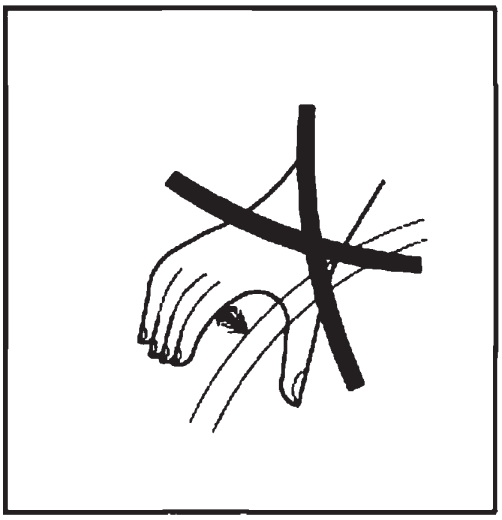


Fig. 2-7

2.18 Clean the tractor:

- Keep work surfaces and engine compartments clean.
- Before cleaning the machine, always lower implements to the ground, place transmission in neutral, engage the parking brake, shut off the engine and remove the key.
- Clean steps, pedals and floor. Remove grease or oil, Brush away dust or mud. In winter, scrape away snow and ice. Remember-slippery surfaces are dangerous.
- When plastic parts need to be cleaned (such as console, instrument panel, monitors, indicators etc.), do not use petrol, paraffin, diluents etc.
- They could cause discoloration, cracking or warping of the cleaned parts.
- These parts should ONLY be cleaned with water, neutral soap and a soft cloth..
- Remove and store implements, keys, hitches etc. in their proper places.

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

2.19 Protect the environment:

It is illegal to pollute drains, water courses or soil. Use authorized waste disposal facilities, including civic amenity sites and garages providing facilities for disposal of used oil. If in doubt, contact your local authority for advice.

To get to know the correct methods to dispose of oils, filters, tyres etc. contact your Dealer or the local agency for waste recycling.

2.20 Only for North America:

The safety sheets of each material give information on chemicals contained in a product, procedures to use it safely, first-aid and procedure to be followed in case of leakage or spills. In all North America such safety sheets are available at the Dealer's.

Before any maintenance on the machine refer to the above mentioned safety sheets for fluids, oils etc. used in this machine. The sheets inform about risks and safe maintenance procedures. We strongly recommended following these indications during any maintenance operations.

Disposal of the tractor: The tractor is made up of parts subjected to rules and laws for their disposal. When the tractor is not used any more, it must be disposed of through proper agencies according to such rules. Do not pollute the environment with the tractor or its parts.

2.21 Safety: Servicing The Tractor

DO NOT service the tractor while the engine is running or hot, or if the tractor is in motion (fig. 2-8)

Before making adjustments to, or servicing the electrical system, disconnect the battery cables, negative (-) cable first.

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

When making repairs or adjustments it is recommended that you consult your Dealer, and have the work carried out by trained personnel.

The implement and/or tractor must be supported on suitable wooden blocks or stands, NOT a hydraulic jack.

Check all nuts and bolts periodically for tightness especially wheel hub and rim nuts. Tighten to the prescribed torque values.

Check the power steering reservoir regularly and top up as necessary with approved oil.

Check the brakes regularly, top up the reservoir and/or adjust where necessary. Make sure that the brakes are evenly adjusted.

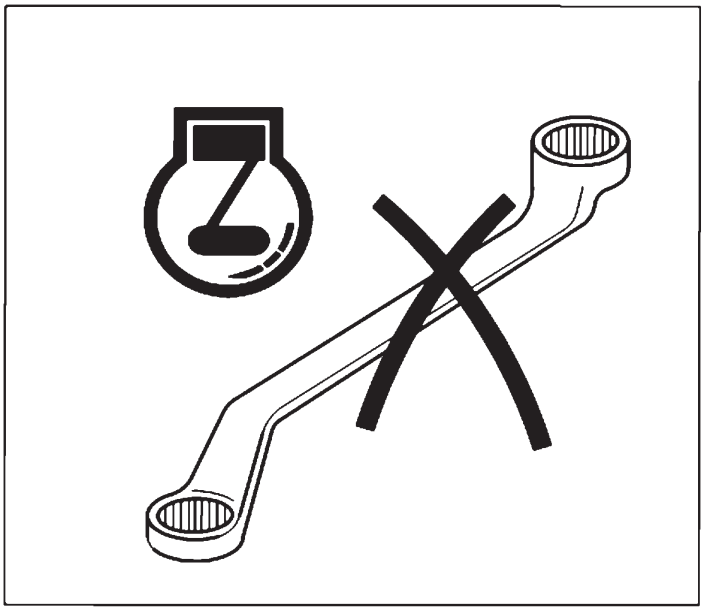


Fig. 2-8

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

2.22 Safety: Starting

Warn bystanders before starting:

Before starting, Walk all around the tractor and any attached equipment. Make sure that no one is under it, on it, or close to it. Let other workers and bystanders know you are starting up and don't start until everyone is clear of the tractor, implements and towed equipment.

Ensure that all bystanders, particularly children are in a safe position before starting the engine.

Mount and dismount properly:

Always use 'three point contact' with the machine, and face the machine when you mount it. Three point contact means both hands and one foot or one hand and both feet are in contact with the machine at all times during mounting and dismounting.

Clean the soles of your shoes and wipe your hands before climbing on. Use handrails, grip handrails, ladders or steps (as provided) when mounting or dismounting.

NEVER use control levers as a hand hold and NEVER step on foot controls when mounting or dismounting.

NEVER attempt to mount or dismount from a moving tractor. NEVER jump off a tractor in any circumstances.

Start safely.

WARNING : *Before starting the engine, make sure there is plenty of ventilation. Never operate the engine in a closed building. The exhaust fumes may cause asphyxiation (fig.2-9).*

Always start the engine from the operator's seat with all the transmission levers and PTO lever in neutral.

Make sure that the tractor dual brake pedals are locked together at all times unless you are making turns in the field which require independent use of the brakes. Make sure the brakes are properly adjusted so that both brakes engage at the same time.

Adjust the seat, fasten the seat belt (where applicable as outlined in this manual), apply the parking brake and put all controls in neutral before starting up.

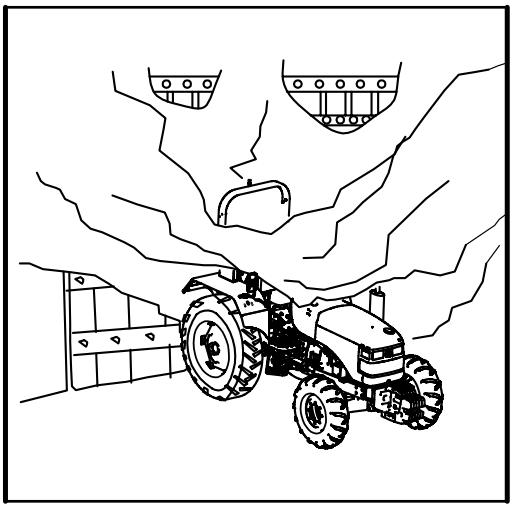


Fig. 2-9

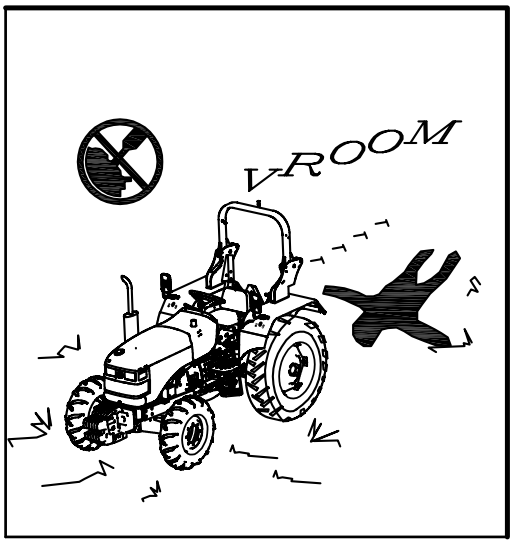


Fig. 2-10

DANGER : *Start the engine, with the starter key, from the operator's seat only. Never attempt to start the engine by shorting across the starter terminals. The machine will start in gear if the neutral start circuit bypassed. This could cause serious injury or death to anyone near the tractor (fig. 2-10).*

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

2.23 Follow recommended starting procedures

Follow the starting procedures recommended in the operation section of this Operator instruction Book. This includes normal starting, cold starting and use of starting fluids.

Test the controls

After starting, recheck all gauges and lights. Make sure everything is functioning correctly. If the tractor does not respond correctly which each control is operated, DO NOT use the machine until the fault is rectified

Ensure that the starter solenoid cover is always in position.

Starting fluid

WARNING : *It is very important that you read the label on the can before using starting fluid. DO NOT use aerosol can of starting aid on tractors with the thermostat connected to the electrical system. Ether combined with thermostat can cause an explosion with damage to engine, personal injury or both. (fig 2-11)*

Handle starting fluid correctly. Starting fluid must only be used when an ether start aid is fitted as original equipment by the manufacturer or when installed by a Dealer as an accessory, in case of tractors being fitted with glow plugs or thermostat ,this must be removed prior to the installation.

If aerosol cans of starting fluid are to be used the thermostat must be disconnected. Remove the wire from the thermostat unit which will be found on the induction manifold. Tape the end of wire to prevent an electrical short circuit.

Before starting the tractor, ensure that no persons or hindrances are present in its range (fig.2-12).

2.24 Safety: Work Safety

WARNING : *An unbalanced tractor could overturn and cause injury or death. Make sure front frame counterweights, wheel weights and wheel ballast are used as recommended by the manufacturer. NEVER add extra counter weights to compensate for an overload, better to reduce the load.*

WARNING : *Keep all parts of your body inside the operator's compartment while operating the tractor.*

2.25 Make the right moves

Make sure your tractor is ready for the job it must do. Know the rated load capacities of your tractor and never exceed them. Be certain that any equipment or implements you intend to use DO NOT exceed the load rating of your tractor. Be sure the tractor and implement PTO rev/min match.

Keep in mind that tractors normally operate on uneven, unpaved, and often bumpy or sloping surfaces. Operating

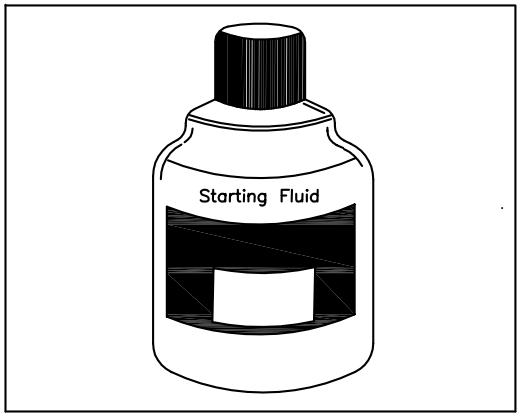


Fig 2-11

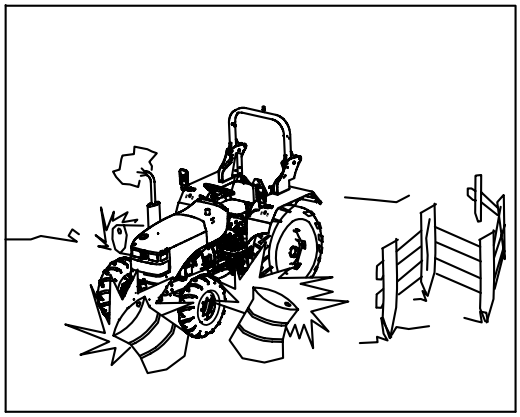


Fig 2-12

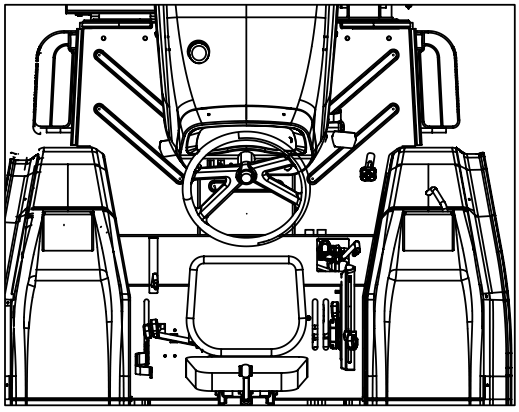


Fig 2-13

WARNING: *Do not start the tractor without ensuring a perfect command of speed and steering controls (Fig. 2-13)*

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

2.26 Follow safe operating practices:

- Operating the controls smoothly: don't jerk the steering wheel or other controls.
- DO NOT get on or off a moving tractor, keep a firm grip on the steering wheel at all times, with the thumbs clear the spokes when driving the tractor.
- Make sure you have adequate clearance in all directions for tractor, safety frame and implement.
- NEVER play games with a tractor or equipment.
- NEVER attempt to work the controls expect from the operator's seat.
- Before getting off the tractor, always disengage the PTO, lower all attachments and implements to the ground, place the tractor in neutral, engage parking brake, shut off the engine and remove the key.

DO NOT touch, lean on, or reach through any implement mechanism or permit others to do so.

Stay alert. Should something break, come loose, or fail to operate in your equipment, stop work, shut off the engine, inspect the machine and have repairs or adjustments made before resuming operation.

2.27 Watch out for others

Be aware of what is going on. Never allow an untrained or unqualified person to operate your tractor. They could injure themselves or someone else.

WARNING: *Your tractor is a one person machine. DO NOT permit others to ride on the tractor or the implement (Fig. 2-15). In some countries a passenger seat must be fitted to carry passengers. Never allow anyone to ride on the implements or other equipment including trailers, except on certain harvesting equipment, specially designed for riders during the actual harvest operation only (not during transport). Such equipment must have provision for a safe riding area. NEVER allow children on a tractor.*

WARNING: *Be certain you can control both speed and direction before moving. Move slowly until you are sure that everything is operating properly. After starting, recheck the steering, right and left. Be certain you have full steering and brake control. If differential is locked, DO NOT operate at high speed or turn the tractor until the differential lock is disengaged.*

Before starting, inspect the work area to establish the best and safest procedure. Plan your work so that you drive as straight as possible forward. Beware of trenches, pits, ditches, slopes, trunks or stumps, ponds etc. Watch for any possibly dangerous condition. If you are using a front loader or foldable implements or implements with high components, watch out for obstacle in the tractor's way.

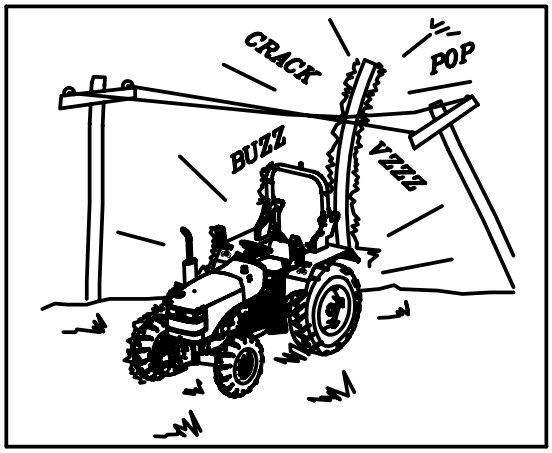


Fig. 2-14

WARNING: *Accidental contact with high-voltage, lines cause death. In case of contact with high -voltage conductors DO NOT leave the tractor, bid move the tractor and/or the loader in such a way as to eliminate the contact and reach a safe distance (Fig. 2-14)*

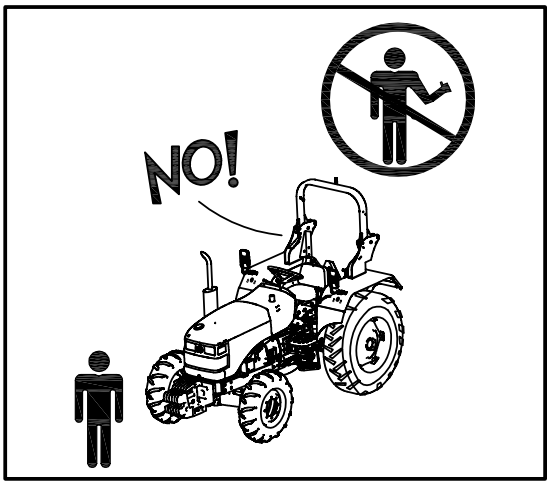


Fig. 2-15

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

SAFETY NOTES

WARNING : *Never lift a load over anyone*

- Keep others away from your operation. Never allow anyone to stand or pass under a raised implement (Fig. 2-16)
- DO NOT lift object that cannot be contained safely inthe bucket, get the appropriate attachment. Never allow anyone to stand on the safety frame or fenders,.
- When using a loader, avoid sudden stops, starts, turns, or change of direction. Keep loads as near to the ground as possible.
- Never stand (or allow anyone else to stand) in front of, under, or behind loaded or loading equipment. Never drive a tractor up to someone standing in front of a fixed object.
- Keep others away from articulation joints, itches, drawbar, lift arm, PTO drive, cylinders, belts, pulleys, and other moving parts. Keep all shields and guards in place.

2.28 Risk of overturning

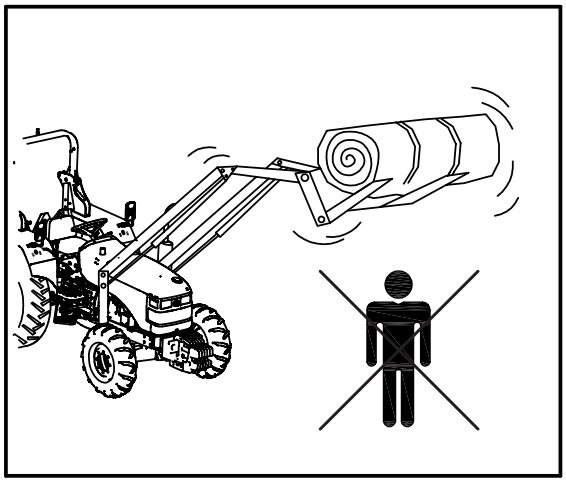
For your safety, it is recommended that all platform tractors are fitted with safety frame and seat belts (Fig.2-17)

In the event of overturning with a tractor fitted with a safety frame, hold the steering wheel firmly and DO NOT attempt to leave the seat until the tractor has come to rest. (fig. 2-17).

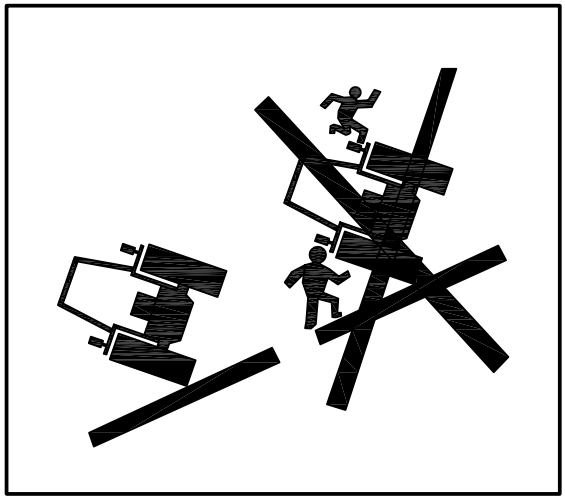
2.29 To avoid side overturns:

- Set the wheel track at the widest setting suitable for the job being done.
- Lock the brake pedals together before driving at transport speeds.
- Reduce speed to match operating conditions. If the tractor is equipped with a front end loader, carry the bucket and load as low as possible.
- Make wide slow turns at reduced speed. DON'T let your tractor bounce. You may loose steering control.
- DON'T pull a load too heavy for your tractor. It could run away on the down slope or the tractor could jackknife around a towed load.
- DON'T brake suddenly. Apply brakes smoothly and gradually.
- When going down a slope use the throttle to slow the tractor engine and use the same gear you would use to up the slope. Shift into gear before you start downhill.
- Engine four-wheel drive (if fitted), this will give four- wheel braking.

WARNING : *NEVER stand, or allow anyone else stand between the tractor and implement unless the engine is turned off parking brakes is engaged, the transmission is in neutral, and all attachments or implements are lowered to the ground.*



(Fig. 2-16)



(Fig. 2-17)

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

SAFETY NOTES

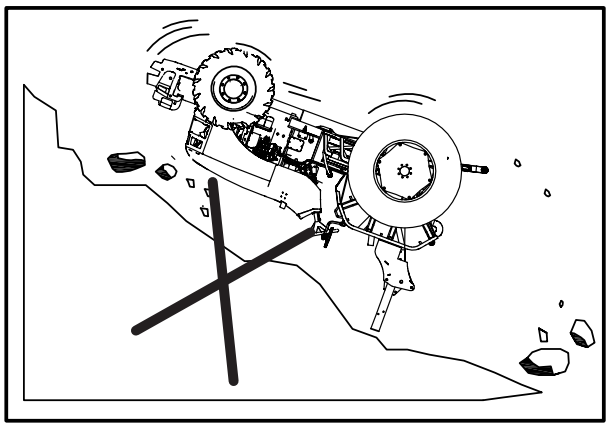
WARNING : *NEVER disengage the clutch or attempt to shift gear after you have started downhill.*

- It is always preferable to straight up or down a steep slope rather than across it.
- Avoid crossing steep slopes if possible. If you must do so, avoid any holes or depressions on the downhill side. Avoid any stumps rocks, bumps or downhill side. Avoid any stumps rocks, bumps or raised areas on the uphill side. When operating near ditches or banks, always keep your tractor behind the shear line (Fig.2-18).

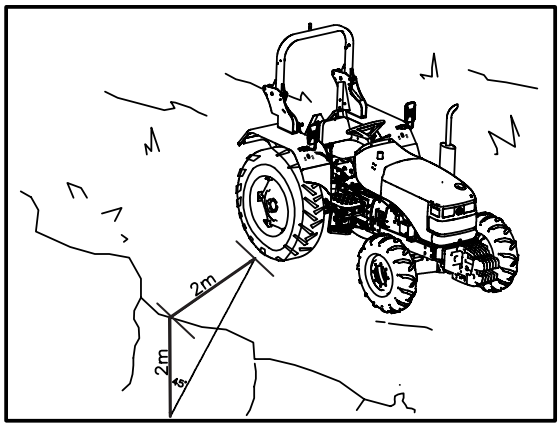
If it is necessary to cross a steep slope, avoid turning uphill, slope down and make a wide turn. Travel directly up or down the slope, never across it. When traveling up or down a slope, keep the heavy end of the tractor pointed uphill. (Fig.2-20).

When traveling across a slope with side mounted implements, keep the implement on the uphill side. Don't raise the implements, keep them as low to the ground as possible when crossing a slope (Fig. 2-21)

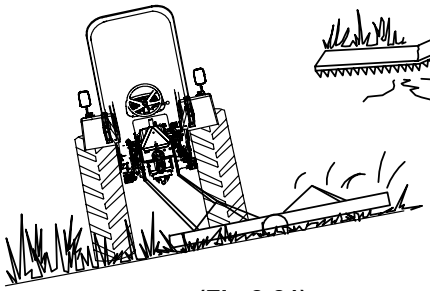
Avoid crossing steep slopes if possible. If you must do so, avoid any holes or depressions on the downhill side. Avoid any stumps, rocks, bumps or raised areas on the uphill side (fig.2-22).



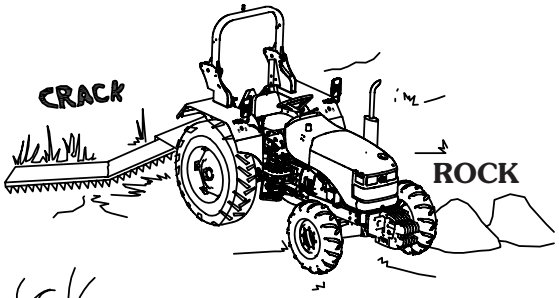
(Fig.2-18)



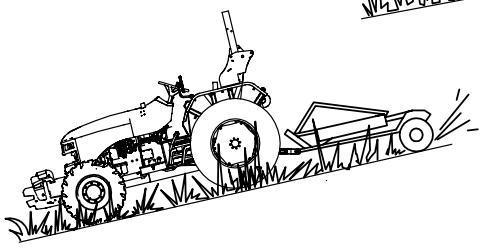
(Fig.2-19)



(Fig.2-21)



(Fig.2-22)



(Fig.2-20)

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

2.30 To avoid rear overturns

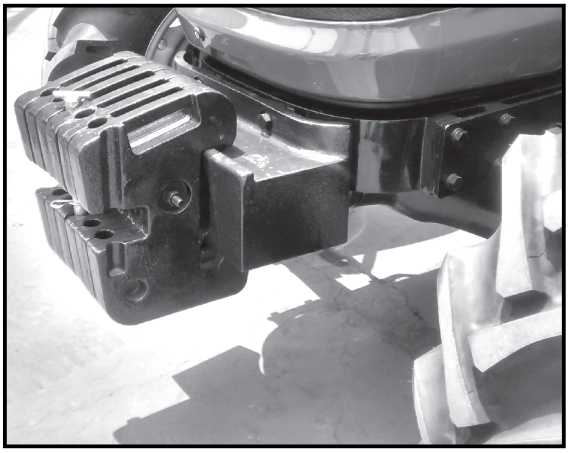
WARNING : *Hitching to the rear axle, or any other point above the swinging drawbar, can cause a rear overturn.*

DO NOT pull anything using the top link connection, or from any point above the centre line of the rear axle. Always use an approved drawbar, and only use a drawbar pin that locks into place.

High hitching can cause rear overturn, which may cause serious injury or death. Hitch loads to the drawbar only.

When using a three-point linkage drawbar, the stays must be fitted and kept in the down position.

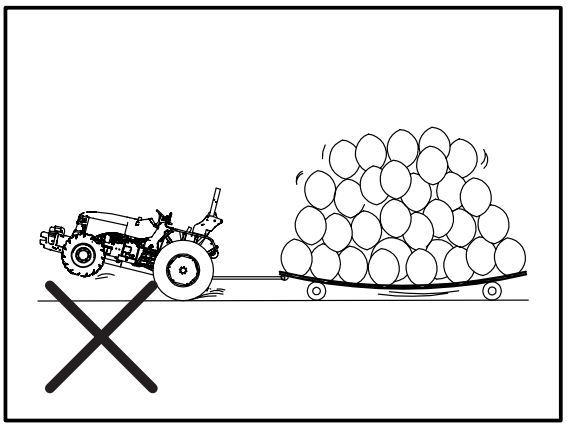
Use front counterweights to increase tractor stability when towing a heavy load or to counter balance a heavy rear mounted implement (Fig.2-23).



(Fig.2-23)

DO NOT overload your tractor and DO NOT ballast it beyond its carrying capacity. Never add ballast weight to counterbalance an overload. Reduce the load instead (Fig.2-24).

WARNING : *An overload is always dangerous. Check the loading capacity of your tractor and NEVER overload (Fig.2-24).*



(Fig.2-24)

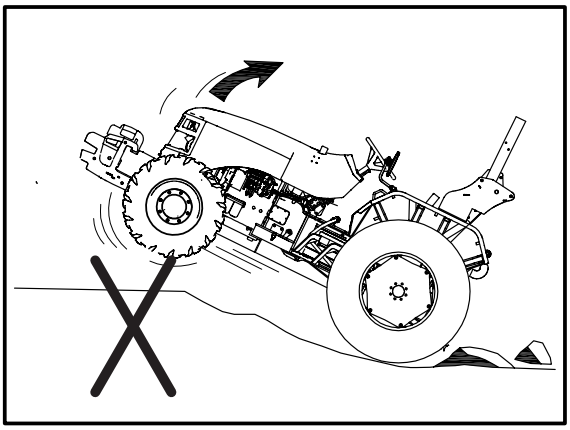
Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

SAFETY NOTES

If the front end of the tractor starts to lift, reduce your speed and, if necessary, disengage the clutch (Fig. 2 25).

If your tractor is bogged down in the mud or frozen to the ground, DO NOT attempt to drive forwards. The tractor can rotate around its rear wheels and overturn (Fig. 2 25).Lift any attached implement and attempt to BACK OUT. If this is not possible, tow it out with another vehicle.

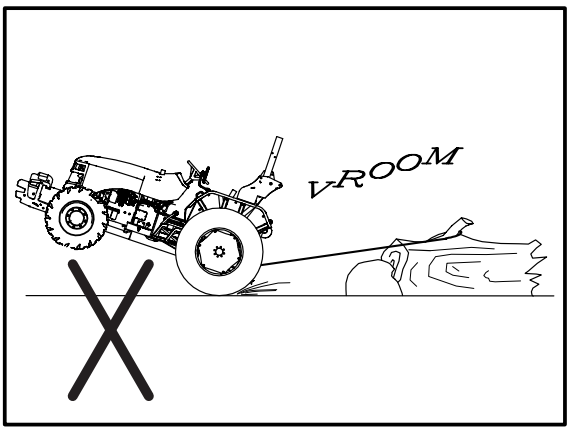


(Fig.2-25)

Start forward slowly and gradually increase your speed. DO NOT rev the engine or drop the clutch. If the tractor is attached to a heavy load, or immovable object, improper clutching may cause overturn (Fig.2-26 and 2-27).

If you get stuck in a ditch, BACK OUT, if possible. If you must go forward, do it slowly, and carefully.

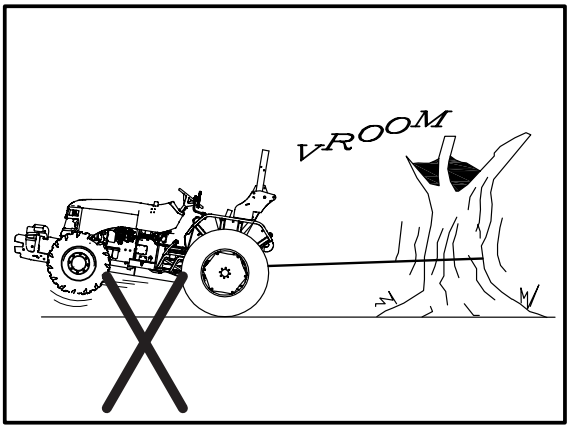
A bare tractor or a tractor with rear mounted attachments should be backed up the slope in reverse and travel forward downhill.



(Fig.2-26)

A tractor with a loaded front end bucket should be backed down the slope and travel forward uphill. Keep the loader bucket as low as possible.

Always keep the tractor in gear when going down hill Never permit the tractor to coast with clutch disengaged or transmission in neutral



(Fig.2-27)

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

2.31 General operating hazards

Ensure that the PTO shield (2) is in plane and that the cap (1) is fitted when the PTO driveline is not in use (Fig. 2-28)

Before attaching, detaching, cleaning or adjusting PTO driven implements, disengage the PTO, stop the engine remove the key, and make sure that the PTO driveline has stopped.

Ensure that all the PTO driveline guards are in place and observe all safety signs .

Be sure everyone is clear of your machine before engaging the PTO. For stationary PTO operation, always place transmission in neutral, engage parking brake and lock both tractor and implement wheels.

When operating mobile PTO driven equipment, never leave the tractor seat until the PTO drive is dis-engaged, the transmission is in neutral, the parking brake is engaged, the engine shut off and the key removed.

DO NOT use PTO adaptors, reducers or extensions as they extend the PTO coupler and universal joint out beyond the protection offered by the PTO shield. The top link rods must not be extended beyond the point where threads begin to show. Fig.2-28

⚠ ***WARNING :*** *NEVER attempt to unplug the hydraulic connections, or adjust an implement with the engine running or the PTO drive in operation. To do so may result in serious injury or death.*

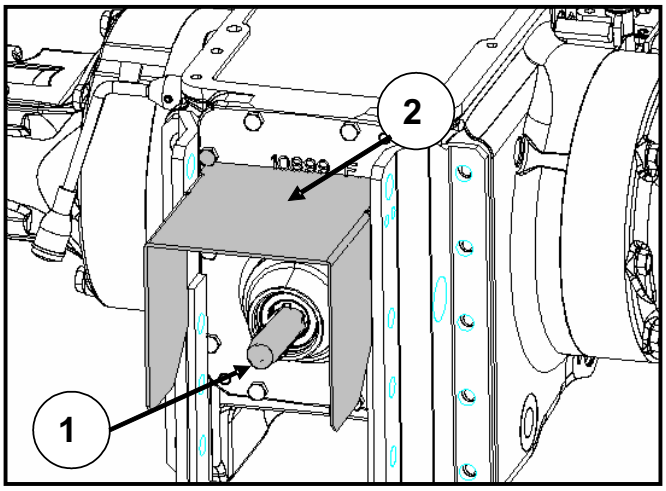
When using chemicals, carefully follow the chemical manufacturer's instructions for use, storage and disposal. Also follow the chemical application equipment manufacturer's instructions.

When operating under poor visibility conditions, or in the dark, use your ground speed. (DO NOT use your field lights when traveling on a roadway because rear pointed white lights are illegal except when reversing and may confuse following drivers).

Operate your tractor with the wheels set the widest setting possible, consistent with the particular task you are performing. To adjust wheel settings refer to Maintenance and Adjustment section.

Reduce your speed when operating over rough or slippery ground when foliage restricts your view of hazards.

DO NOT make sharp turns at high speed.



(Fig.2-28)

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

WARNING : *A front-end loader (bucket or forks) must be equipped with a suitable restraining device to prevent the load, bales, fence posts, rolls of fence, wires etc.) from rolling down the lift arms into the operator's compartment and crushing the driver when the loader is raised. Inadequately secured objects could also fall and injure bystanders. Do not use implements for different purpose or to handle materials they are not expected to . For the operation of front loaders and relative safety rules, please refer to the Operation Manual of the loader.*

Threepoint hitch and side mounted implements make a much larger arc when turning that towed equipment. Make certain to maintain sufficient clearance for safe turning.

When using attachments or implements with the tractor, be sure to thoroughly read the Operator Instruction Book for that attachment or implement and follow its safety instructions.

Pull only from the approved drawbar. Towing or attaching to other locations may cause the tractor to overturn (Fig.2-29).

Improper use of the drawbar, even if correctly positioned, may cause the tractor to overturn to the back.

DO NOT overload an attachment or towed equipment Use proper counterweights to maintain tractor stability. Hitch loads to the drawbar only.

2.32 Road Transport

Before operating your tractor on a public road, a number of precautions must be taken.

Familiarize yourself - and comply - with all local bylaws, and national laws appropriate to your tractor.

Lock your brake pedals together.

Raise all implements to their transport position and lock them in place.

Place all implements into their narrowest transport configuration.

Disengage the PTO and differential lock.

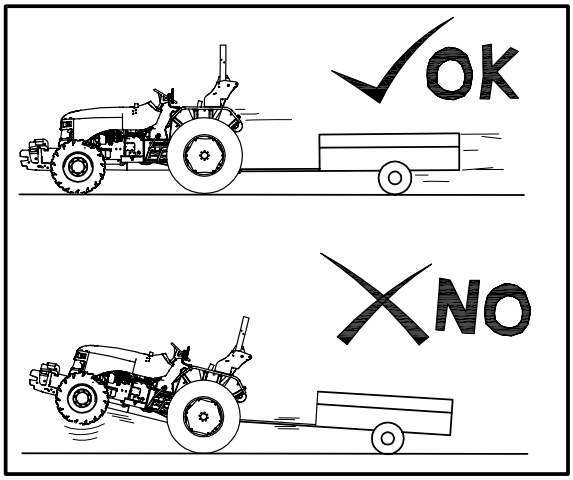
Make sure tractor and equipment are equipped with slow moving vehicle (SMV) signs or beacon if the law requires them (Fig. 2-30 and 2-31) and that loads do not obscure themor other lights.

Make sure any required clearance flags or hazard lights are in place and in working order.

Make sure you use a proper hitch pin with a clip retainer.

Clean off all reflectors and road lights, front and rear, and be certain they are in working order.

Implements mounted on the 3-point hitch and mounted implements projecting from the side need a wider turn radius than trailed implements. Always be sure to keep enough clearance when making a turn.



(Fig.2-29)

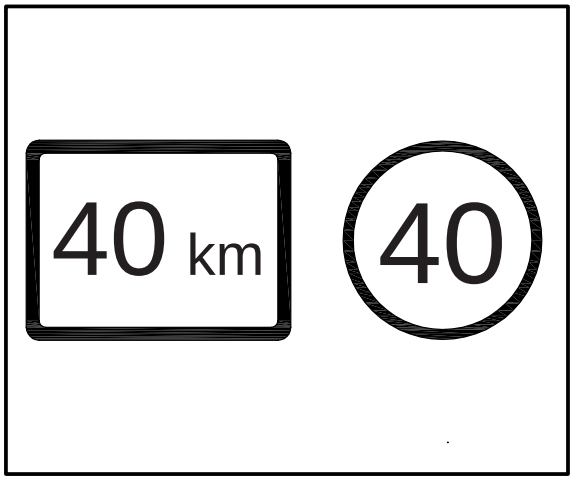


Fig.2-30 Use the symbol valid in your country.

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

2.33 Road regulations

When operating your tractor on a public road a number of precautions must be taken.

WARNING : *DO NOT allow any passengers on the tractor or towed equipment.*

Know the route you are going to travel.

Use flashing lights or beacon when traveling on roads, day or night, unless prohibited by law (Fig. 2-31).

Use caution when towing a load at transport speeds especially if the towed equipment is NOT equipped with brakes.

Observe all local or national regulations regarding the road speed of your tractor.

Use extreme caution when transporting on snow-covered or slippery roads.

Wait for traffic to clear before entering a public road.

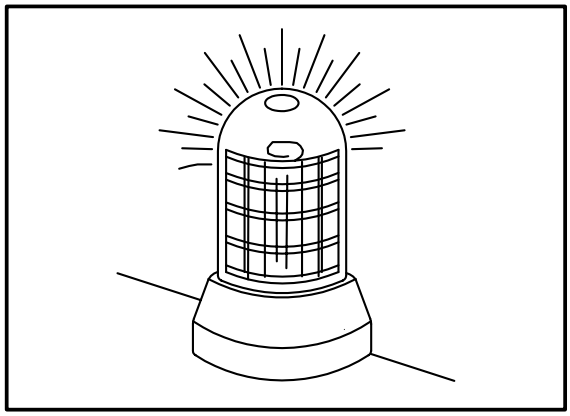
Beware of blind intersections. Slow down until you have a clear view.

DO NOT attempt to pass at any intersection. Slow down for turns and curve

- Make wide, gentle turns.
- Signal your intent to slow, stop or turn.
- Shift to lower gear before going up or down hills.
- Keep tractor in gear. Never coast with the clutch disengaged or transmission in neutral.
- STAY OUT of the path of oncoming traffic.
- Drive in your correct lane keeping as near to the kerb as possible.
- If traffic builds up behind you, pull off the road and let the road and let it go by.
- Drive defensively. Anticipate what other drivers might do.
- When towing a load, start braking sooner than normal and slow down gradually.
- Watch out for overhead obstructions.

2.34 Safety-After Operation

When stopping at any time, bring the tractor to a secure halt (DO NOT park on a slope), apply the parking brake, engage the ParkLock (if installed), disengage the PTO, place all gear shift levers in neutral, lower the implement to the ground, stop the engine and remove the key BEFORE leaving the seat.



(Fig. 2-31)

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

2.35 Risks deriving from exposure to noise:

Noise characteristics and measurement

Noise is a pressure variation in an elastic medium, generally the air, produced by the variation of a material body (source) that determines an undesired and often annoying acoustic sensation. Noise is mainly characterized by;

- **Sound intensity or level:** expresses the entity of the pressure variation due to the sound wave. Measured in decibels (dB), It doubles the sound intensity and, thus, the energy that reaches the ear.
- **Frequency:** expresses the number of pressure variations of the wave per second and is measured in Hertz (Hz)- acute noises have high frequencies (2000-4000 Hz or more) while low-pitched noises have low frequencies (250 Hz or less).
- **How the risk is evaluated:** The higher the sound level and exposure time, the greater the noise risk will be:
- **LAeq:** (Equivalent continues weighted level A): this is a sound level measurement that takes into account noise fluctuations and the varying sensitivity of the ear to the frequencies: LAeq is measured with a sound: level meter;
- **PEL** (Personal Exposure Level): this is a measurement that takes the various noise levels into account along with the time the worker remains on the individual machines or working at determined processes: PEL is calculated mathematically.

Noise pathologies

Damage to the hearing

Noise causes hyperdulia or deafness because it destroys the acoustic receptors, nervous cells able to transform the mechanical sound vibrations into nervous impulses that, on reaching the brain, determine the aural sensation. These receptors are irreplaceable if they are destroyed and the resulting damage is irreversible: hyperdulia worsens if exposure to noise continues and does not improve even if this terminates.

Moreover, it is also bilateral since it can be accompanied by annoying buzzing and whistling sounds, and by intolerance to loud noise.

The damage is insidious since it proceeds slowly and unexpectedly: in the initial phase, when it is limited to a diminished ability to perceive acute sounds (music, bells) or the spoken voice when there is a background noise, it can only be detected by means of an audiometric test. Pulsating noises of great intensity lasting a very short time are highly damaging since the ear is unable to actuate any physiological protective measures in time. Hyperdulia from noise generally arises after several years of exposure and depends on the PEL (risk almost null below 80 dBA) and on individual characteristics. It is an incurable disease: the only efficacious means of protection against it is prevention.

Other effects

Noise does not just determine aural sensation. For levels exceeding* 70dBA, it causes stress by means of the cerebral integration centers and determines a specific neurovegitative reaction responsible for effects that lead to cardio circulatory and gastro enteric diseases. Amongst these, it is worthwhile noting: an increase in gastric acidity, a decrease in the heart rate, visual range and reflex speed; a sensation of discomfort and weariness with an increased sense of fatigue.

These effects are dangerous because they also increase the risk of accidents.

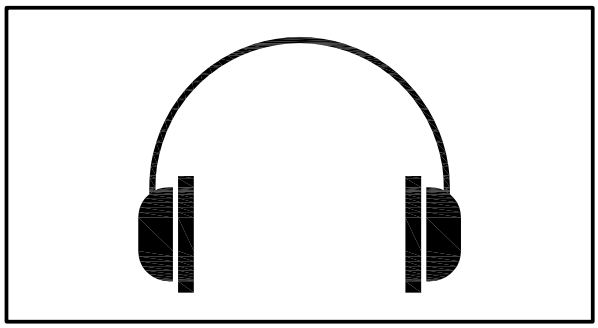
Personal equipment to protect against noise

Individual protective equipment attenuates the sound energy transmitted to the ear through the air. This equipment is used when dangerous exposure cannot be avoided in any other way.

There are different types of devices with different attenuating capacities: helmets, ear muffs, ear plugs (Fig.2-32). Helmets and ear muffs offer the greatest protection but they are bulky and inconvenient to wear. They are therefore only of use for exposure to high noise levels but for short periods of time (max. 2 hours).

Ear plugs are generally tolerated to a greater extent and are of particular use in the case of lengthy exposure to noise of a lesser intensity.

Always use adequate individual protective equipment to safeguard the hearing when the personal daily level of exposure to noise is 85.5 dBA when tractor is moving and 82dBA while tractor is stationary.



(Fig. 2-32)

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

2.36 Hazards related with Fuel System

High-pressure fluid remaining in fuel lines can cause serious injury. Do not disconnect or attempt repair of fuel lines, sensors, or any other components between the high-pressure fuel pump and nozzles on engines with High Pressure Common Rail fuel system.

Only technicians familiar with this type of system can perform repairs.

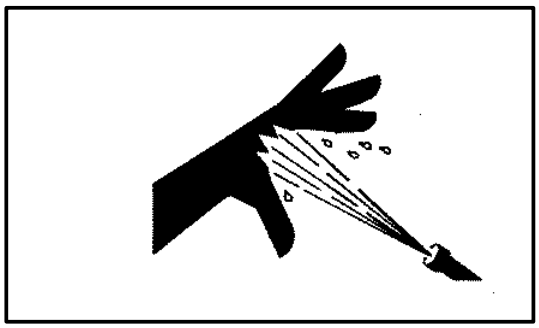


Fig 2-33

2.37 Safely handling Batteries

Battery gas can explode. Keep sparks and flames away from batteries. Use a flashlight to check battery electrolyte level.

Never check battery charge by placing a metal object across the posts. Use a voltmeter or hydrometer.

Always remove grounded (-) battery clamp first and replace grounded clamp last.

Sulfuric acid in battery electrolyte is poisonous and strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes.

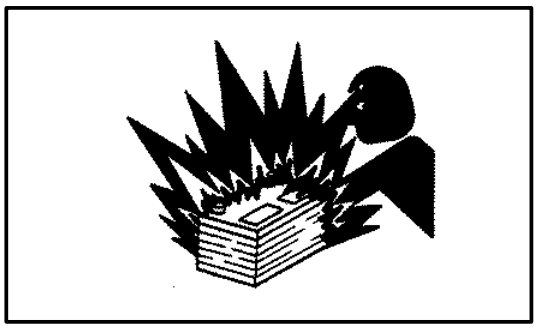


Fig 2-34

Avoid hazards by:

- Filling batteries in a well-ventilated area
- Wearing eye protection and rubber gloves
- Avoiding use of air pressure to clean batteries
- Avoiding breathing fumes when electrolyte is added
- Avoiding spilling or dripping electrolyte
- Using correct battery booster or charger procedure.
- If acid is spilled on skin or in eyes:

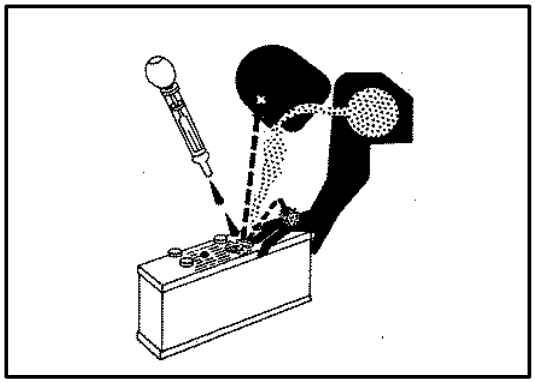


Fig 2-35

Flush skin with water.

1. Apply baking soda or lime to help neutralize the acid.
2. Flush eyes with water for 15-30 minutes.
3. Get medical attention immediately.

If acid is swallowed:

- Do not induce vomiting.
- Drink large amounts of water or milk, but do not exceed 2 Litres.
- Get medical attention immediately.

WARNING: Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

2.38 Handle fuel with care:

- It is highly flammable. Do not refuel the machine while smoking or when near open flame or sparks.
- Always stop engine before refueling machine. Fill fuel tank outdoors.
- Prevent fires by keeping machine clean of accumulated trash, grease, and debris. Always clean up spilled fuel.
- Use only an approved fuel container for transporting flammable liquids.
- Never fill fuel container in pickup truck with plastic bed liner. Always place fuel container on ground before refueling. Touch fuel container with fuel dispenser nozzle before removing can lid. Keep fuel dispenser nozzle in contact with fuel container inlet when filling.
- Do not store fuel container where there is an open flame, spark, or pilot light such as within a water heater or other appliance.

Fig 2-36

2.39 Avoid Hot Exhaust

Servicing machine or attachments with engine running can result in serious personal injury. Avoid exposure and skin contact with hot exhaust gases and components.

Exhaust parts and streams become very hot during operation. Exhaust gases and components reach temperatures hot enough to burn people, ignite, or melt common materials.

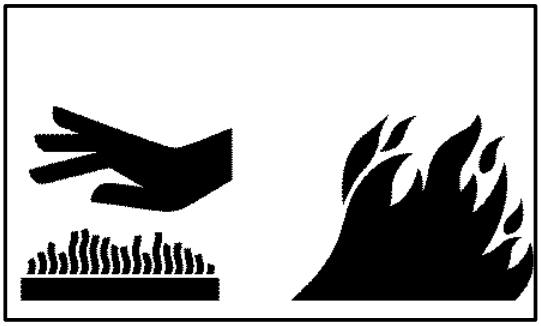


Fig 2-37

2.40 PTO Safety

CAUTION: Remove PTO cap (A) only when the PTO is to be used.
As soon as PTO-driven implement is removed, re-install cap over PTO stub shaft.
The master shield (B) can be folded up to allow an implement to be connected, but it must be folded down again afterwards.

CAUTION: Never operate PTO unless the master shield is in the position shown. Switch off the PTO before raising the implement.

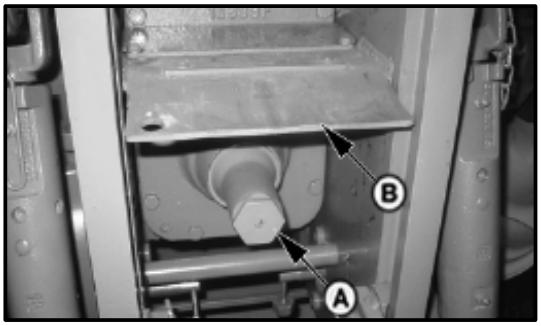


Fig 2-38

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

⚠ CAUTION: Before using the PTO, the maximum permissible angle of articulation on the telescoping driveline must be ascertained. During operation, there must be no contact between the PTO guard and the telescoping driveline. This is particularly important when turning corners.

⚠ CAUTION: Always put a guard (C) on the telescoping driveline and take action to prevent it from turning with the shaft. Do not operate the telescoping driveline unless a guard is installed that covers the PTO shaft completely and does not turn with the shaft.

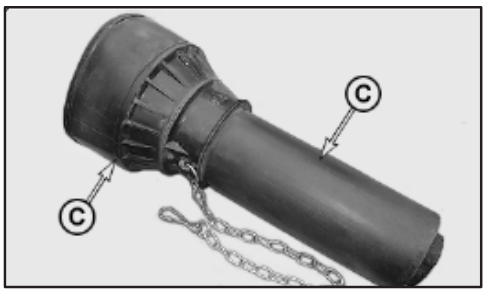


Fig 2-39

Attaching PTO-Driven Implement:

1. Shut off engine and disengage PTO before attaching PTO-driven equipment.

⚠ CAUTION: High-inertia implements do not come to a standstill the moment the PTO control lever is shifted to the disengaged position. Do NOT approach the implement while it is "coasting down". Do not work on the implement until it has stopped.

⚠ CAUTION: Before attempting to clean, adjust or lubricate a PTO-driven machine, the TPL, always make sure the PTO is switched off and stopped, the tractor engine is shut off and the ignition key is removed. Turn key off to stop engine.

Fig 2-40

2. Attach implement to tractor before connecting PTO drive line. Lock TPL in upward position if it is not to be used.

3. Rotate PTO shield upward for clearance. With engine off, turn shaft slightly by hand if necessary to line up splines. Connect drive line to PTO shaft. Pull out on shaft to be sure drive line is locked to PTO shaft. Place PTO shield in downward position.

4. Be sure all shields are in place and in good condition. Never operate PTO unless master shield is properly installed. WITH ENGINE STOPPED, check integral shields on drive line by making sure they rotate freely on shaft. Lubricate or repair as necessary.

5. Check carefully for any interference, make sure TPL is locked in the upward position if it is not used.

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

As far as possible, angles (a) and (b) at the universal joints should be the same at both ends of the Telescoping driveline.
In applications where this is not the case (e.g. sharp turns with PTO engaged), it is recommended to use a continuous-velocity drive shaft.

NOTE: The two schematic drawings do not show any guards on the telescoping driveline. A guard is mandatory when using telescoping drivelines.

IMPORTANT: Only operating conditions described in the Operator's Manuals of the various implements are permitted. This applies particularly to maximum permissible angle of articulation, to the use of freewheel clutches and overload clutches, and to the prescribed amount of overlap when shaped pipes are pushed together.

IMPORTANT: Before using a PTO-driven implement, take action to ensure that the telescoping driveline is lubricated regularly. Comply with instructions in the Operator's Manual provided by the manufacturer.

IMPORTANT: On multi-component telescoping drivelines, the yokes at each end must be aligned as shown.
The yokes at each end must NOT be at 90° to one another (see arrows in illustration on the right).

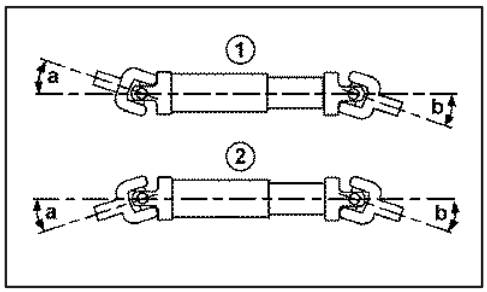


Fig 2-41 Articulation on Telescoping Driveline

Align Forks Correctly
1 - Z-shaped layout
2 - W-shaped layout

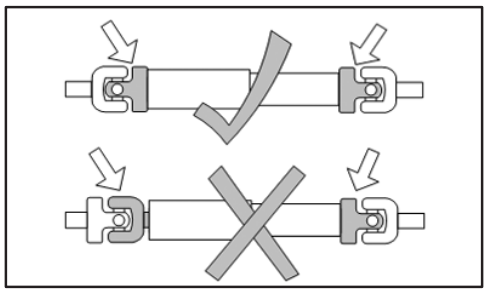


Fig 2-42

2.41 Safety while Operating Loader attachments

- The equipment must only be used by authorised and trained personnel who, beforehand, must read and understand these instructions and become familiar with the equipment controls and their operation.
- Before operation, check all functions of the equipment and attachment going to be used.
- The equipment must be used by people aged more than 18 years, having the qualities required by the national legislation.
- Before or during work, do not take alcoholic beverages, medicines or other substances that may alter your psycho-physical conditions and affect your working abilities.
- The equipment must only be used for the applications intended by the manufacturer. An improper use may cause serious damage and injury.
- Always check the weight and nature of the load to be handled and the stability of the tractor in relation to the ground conditions.
- Couple the equipment only to tractors fitted with adequate rollover protective structures **(ROPS, FRONT GUARD, FOPS).**

Do not use the equipment on steep slopes.

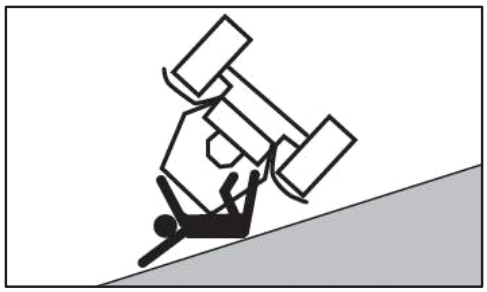


Fig 2-43

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

SAFETY NOTES

- Before pressuring the hydraulic circuit of the equipment, make sure that the hydraulic hoses are intact and properly connected.
- Do not use the equipment to lift or transport people.
Do not use the equipment as a working platform.
Never transit or halt under suspended loads or under parts of the equipment supported solely by hydraulic jacks or ropes.
- Do not use the equipment if problems or anomalous vibrations are noticed.
- Do not use the equipment to handle loads without using an appropriate attachment; for instance, do not use a bucket to lift a round bale. Be very careful to raised loads.

FOR INSTRUCTIONS AND SAFETY RULES FOR OPERATING LOADER, FOLLOW INSTRUCTIONS AVAILABLE ON LOADER'S OPERATOR MANUAL.

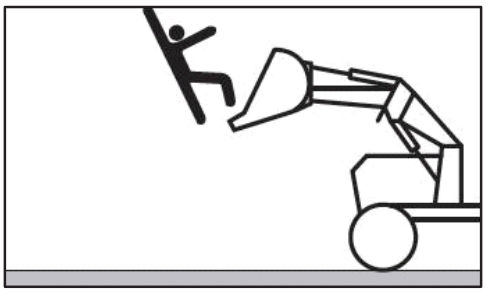


Fig 2-44

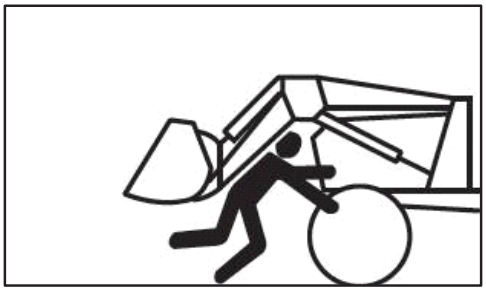


Fig 2-45

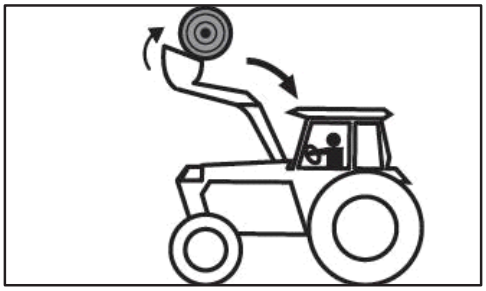


Fig 2-46

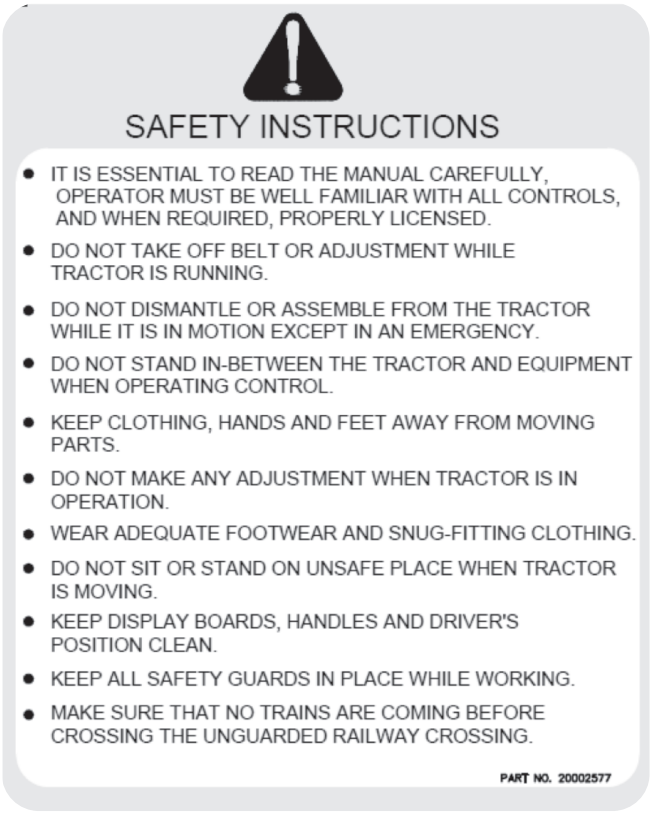
Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

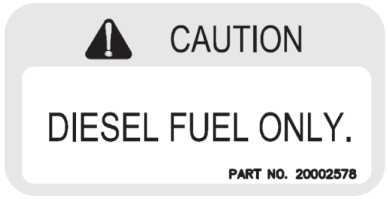
SAFETY NOTES

Safety Decals

1.

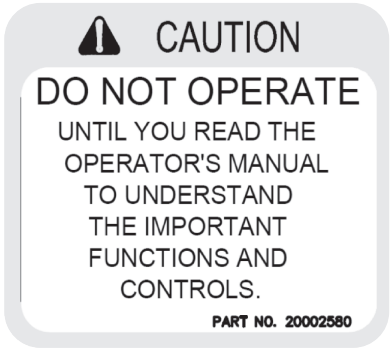


2.

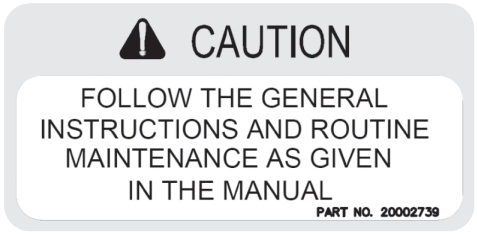


3.

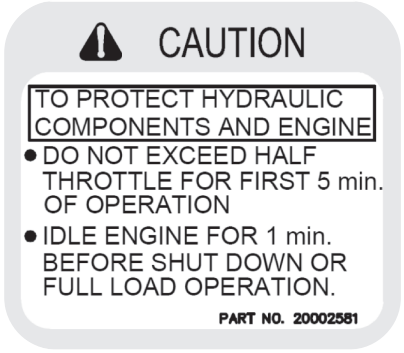
4.



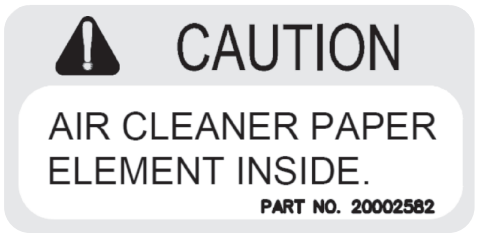
5.



6.



7.



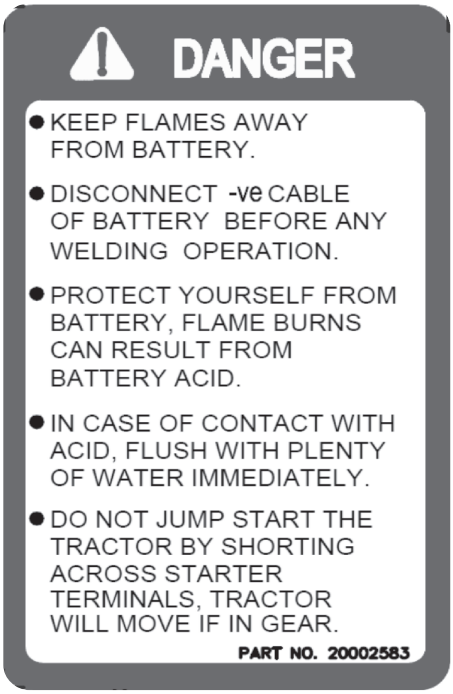
Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

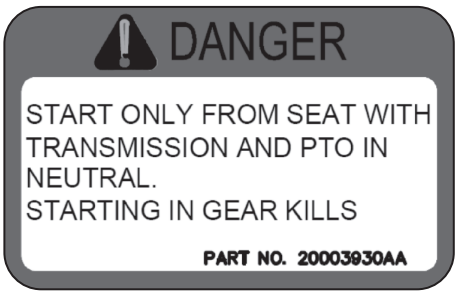
SAFETY NOTES

8.

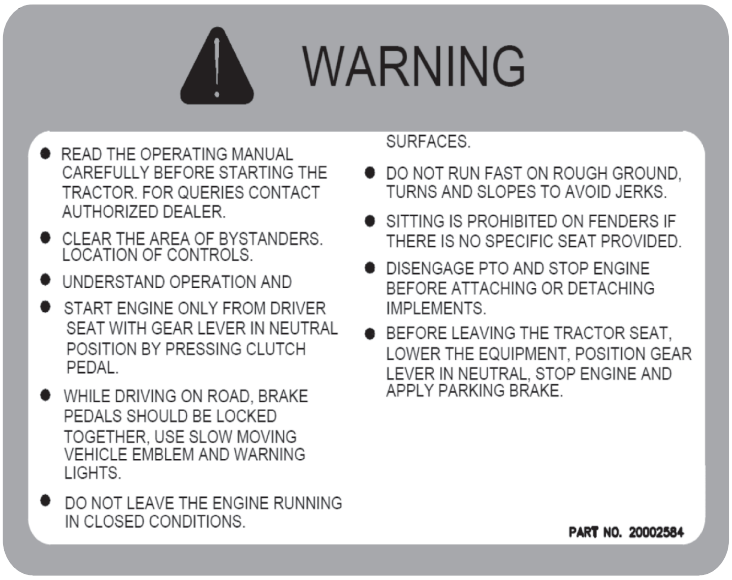
9.



10.

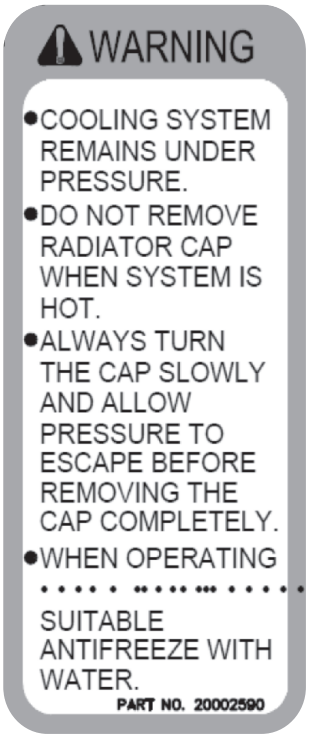


11.



12.

13.



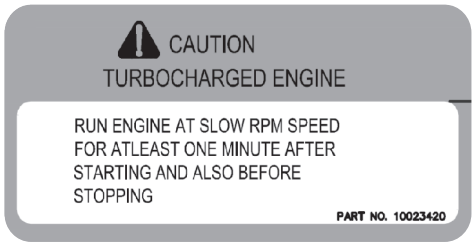
14.

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

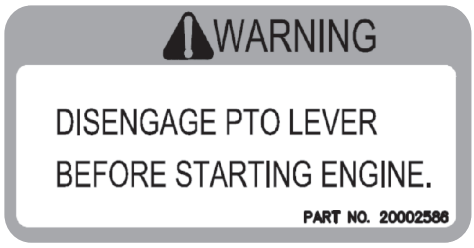
SAFETY NOTES

15.

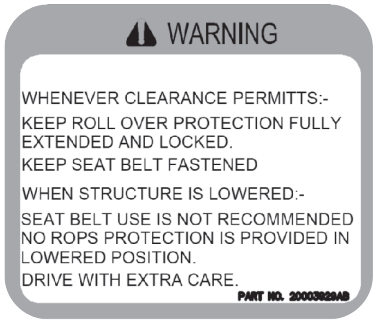


16.

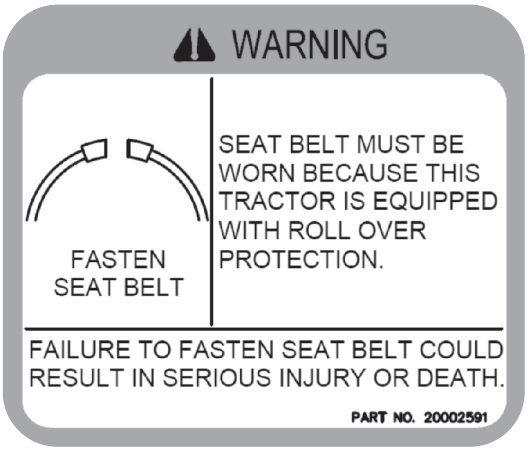
17.



18.



19.



Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

CHAPTER - 3

INSTRUMENTS & CONTROLS

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

3.1 Instruments and controls

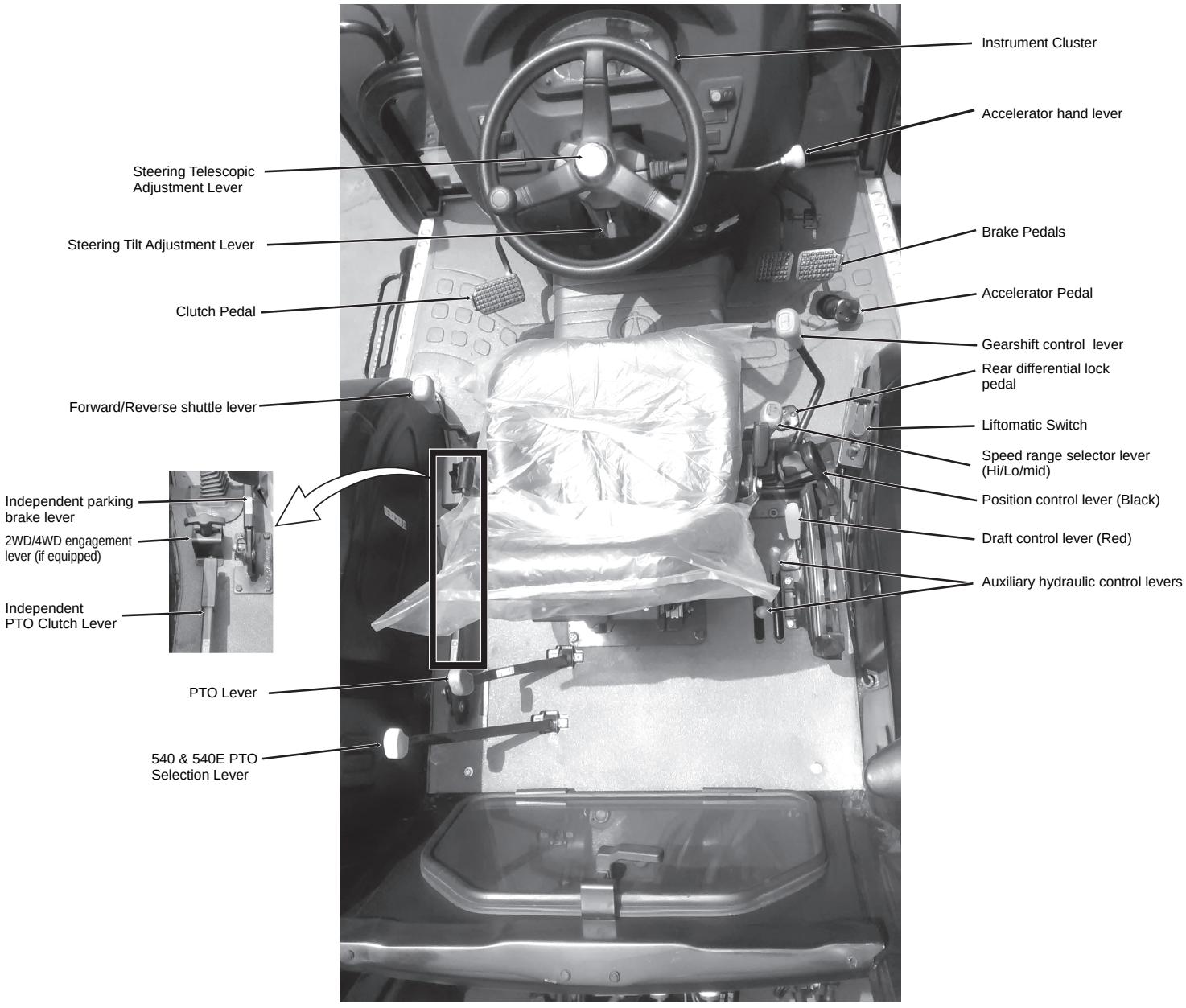


Fig.3-1

NOTE: Consult the Operation chapter for instructions on how to correctly use the controls.

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

3.2 Instrument Panel

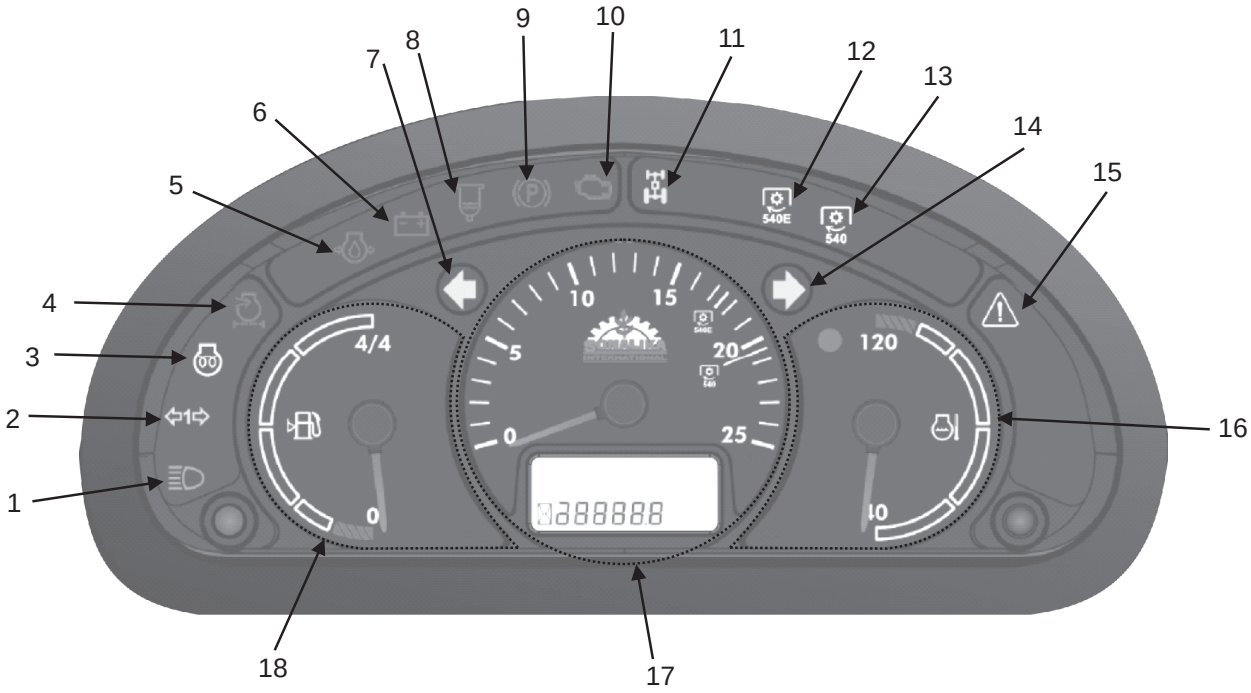


Fig.3-2

Warning Lights

1	High Beam Indicator	10	Diagnostic Warning Signal
2	Trailer Turn Indicator	11	4x4 Engage Indicator
3	Cold Start Glow Light	12	PTO 540E Indicator
4	Dry Air Filter Clogging Warning Light	13	PTO 540 Indicator
5	Oil Pressure Indicator	14	Right Turn Indicator
6	Battery Discharging Warning Light	15	Hazard Warning Light
7	Left Turn Indicator Light	16	Coolant Temperature Gauge
8	Water in Fuel Warning Signal	17	Hour Cum RPM Meter
9	Parking Light	18	Fuel Gauge

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

3.3 Hour Cum RPM Meter (Fig. 3-3)

The engine RPM is displayed by pointer (1) on the graduated scale. The pointer should never reach at 2500 RPM zone which shows excessive engine speed.

Hour meter (2) records the hours engine has clocked.

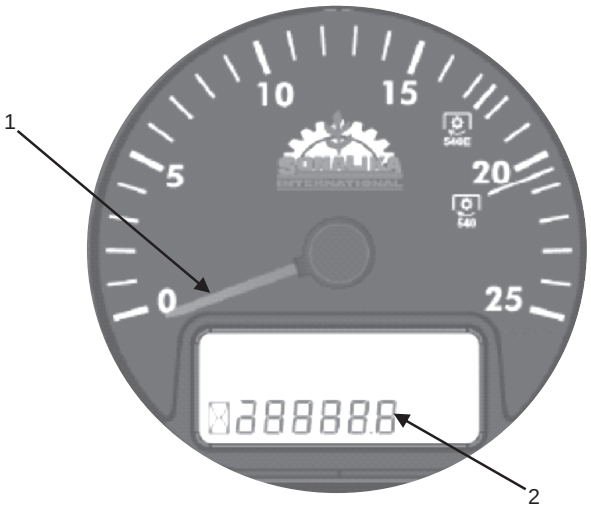


Fig.3-3

3.4 Fuel Level Gauge (Fig. 3-4)

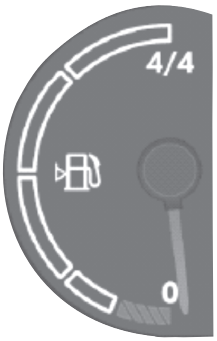


Fig.3-4

3.5 Water Temperature Gauge (Fig. 3-5)

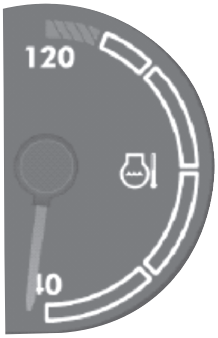


Fig.3-5

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

3.6 Dash Board

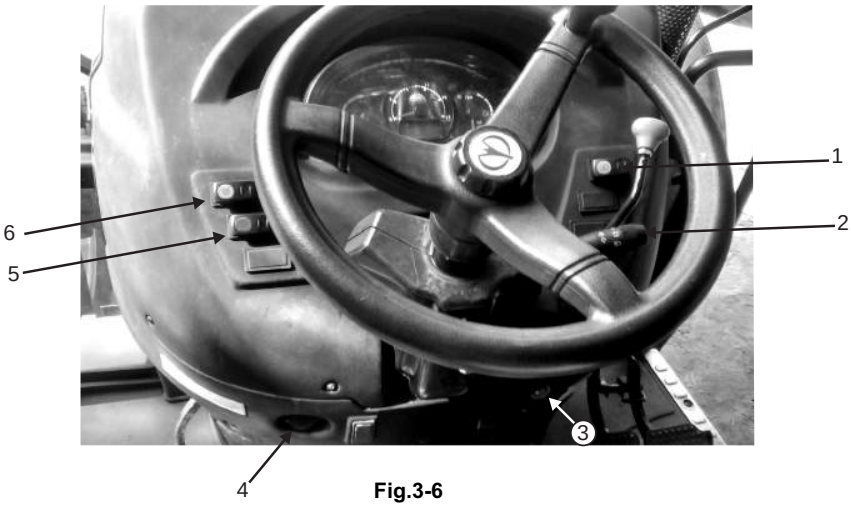


Fig.3-6

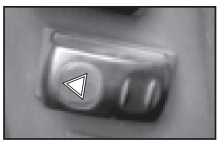
1. Front Upper Light Switch

2. Combination Switch

3. Ignition Switch

4. Mobile Charging Socket

5. Hazard Warning Switch



6. Beacon Light Switch

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

3.7 Combination Switch (Lighting / Turn Signal / Horn Control Lever

Switch is located on right side of steering column operator parking light, Head lights, Turn signal and Horn.

'OFF' Position Fig 3.7(a) (Ignition Switch ON) :

All lights 'OFF' Horn will blow.

1st Click Fig 3.7(b) (Anti Clock Wise) Ignition S/W 'ON' :

Parking light, Instrument panel lights, Licence lamp will glow and Horn will blow but head light are OFF.

2nd Click Fig 3.7(c) (Anti Clock Wise) Ignition Switch 'ON' :

- Head Light (High Beam Mode) along with Parking light, Instrument Panel lights, Licence Lamp will glow and horn will blow. Blue color Indicator will glow in Instruments panel.
- Pull the combination switch upwards to select. Head Light low beam mode. Parking light, Instrument panel lights, Licence lamp will glow Horn will blow.

Fig. 3.7 (A)

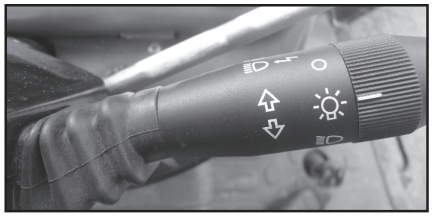


Fig. 3.7 (b)

Fig. 3.7 (c)

Indicator Left And Right (Fig. - 3.8)

Working with Ignition Switch 'ON'.

- Combination Switch Lever Shifted towards front - Left hand Indicator will glow.
  Middle Position : Indicator OFF
- Combination Lever shifted towards operator - Right hand Indicator will glow.

Indicator will not glow if Ignition is OFF.

Passing Light

To flash the headlights momentarily pull the lever all the way up and hold it there. It will return back to the OFF position when released.

NOTE : Passing light lift will glow whether Head light is turned to ON or OFF.

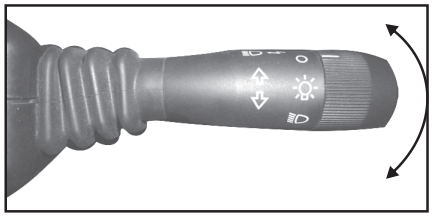


Fig. 3.8 (a)

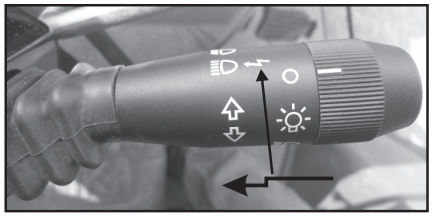


Fig. 3.8 (b)

Horn Switch (Fig. - 3.8 c)

Press in the end of combination switch to blow horn. Horn will not blow if ignition switch is OFF.

Fig. 3.8 (c)

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

3.8 Driver's Seat

The driver's seat can be adjusted in horizontal and vertical control (Fig.3-9).

Horizontal adjustment

1 Lift the lever to move the seat forward or backward.

Seat height vertical adjustment

2 Use knob to adjust the suspension.

3 Use knob to adjust the height of the seat vertically.

4 Seat Belt

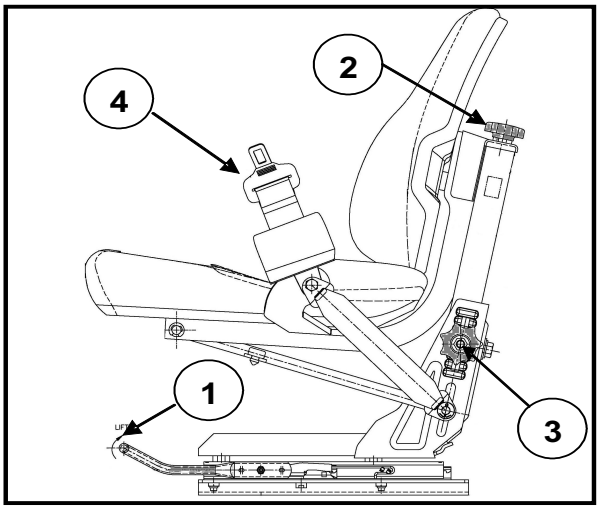


Fig.3-9 (Side view of seat)

3.9 Tool box

The standard tool box contains a kit of tools for the daily maintenance. (Fig.3-10)

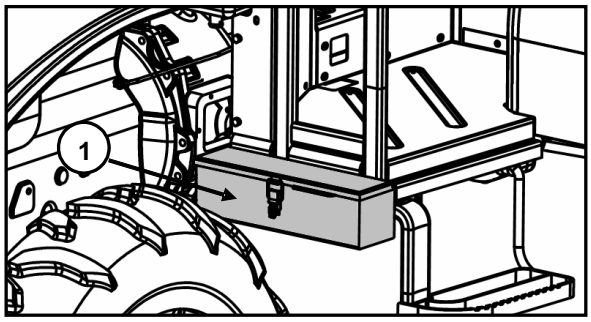


Fig.3-10

3.10 Battery Box

The battery box contains the battery & cover for battery protection. (Fig. 3-11)

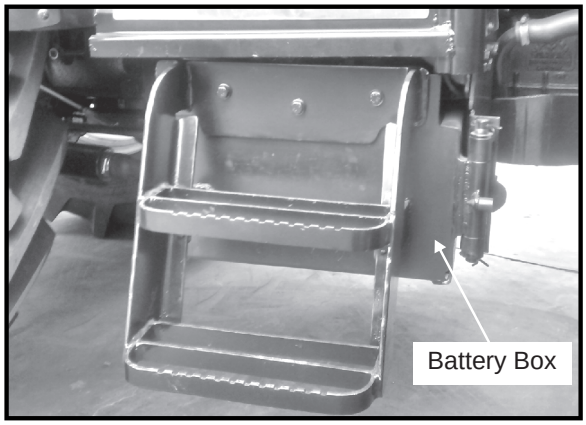


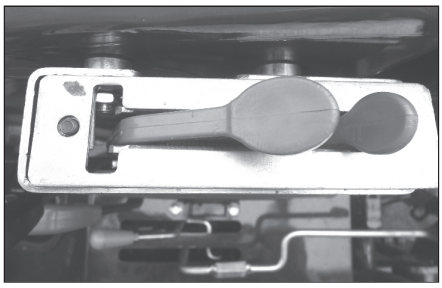
Fig.3-11

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

3.11 Auto Lift (Optional Feature) (Fig. 3-12)

Auto Lift switch is provided on right fender, for easy reach of operator. Best suitable in applications where immediate lifting and lowering of hydraulic linkage is required without disturbing the original position of lift with the levers.



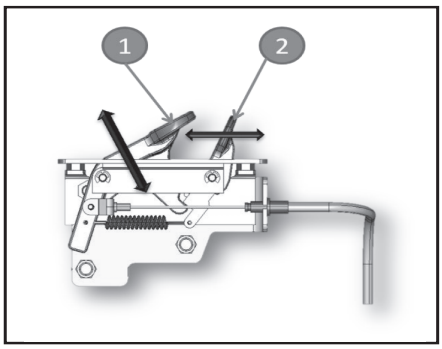


Fig.3-12

Auto Lift

- For lifting the implement to top position without operation of levers.
- One touch lifting and dropping of implement.
- Pressing switch (1) will lower the lift. Keep this lever pressed for normal working of lift.
- Releasing switch (2) will raise the lift to top position.

3.12 Adjusting Steering Wheel Position (Tilting & Height) (Fig. 3-13)

Operator can adjust steering wheel height (Up & Down) as well angle of steering column as per his comfort.

Steering wheel height adjustment : Unscrew steering wheel telescope release Ring (A) Pull up / push down steering wheel vertically to desire height as shown in the fig 1. Tight the steering wheel telescope release Ring (A) to lock in to position.

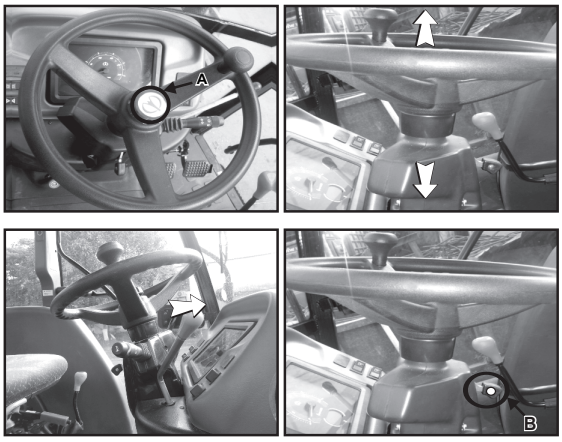


Fig. 3-13

Tilting Steering Wheel (Fig. 3-13) :

- Lift the lever (B)
- Move the steering column assembly to desired angle as shown in fig 2.
- Release the lever to lock the steering column in adjusted position.

CAUTION : *Never adjust the steering wheel when the tractor in motion. If you determine that a re-adjustment is necessary, stop the tractor safely and adjust the steering wheel to the correct position.*

- *Incorrect use of the steering column position can cause serious and fatal injury.*
- *After Adjusting the steering column kindly insure locking of adjustment lever & screw properly.*

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

3.13 Head Lights

Fig. 3-14

3.14 Beacon Light (Optional)

To be used according to your country's regulations.

Fig. 3-15

3.15 Tail lamp

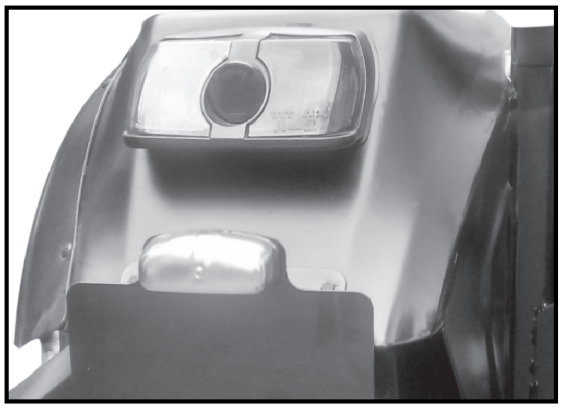


Fig. 3-16

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

3.16 Plough Lamp

Adjustable plough lamp with both vertical and horizontal adjustments (Fig. 3-17).

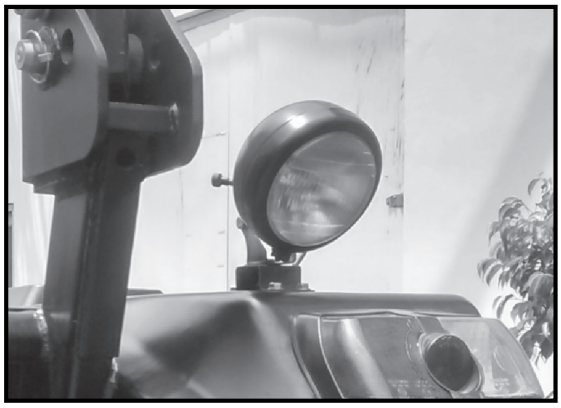


Fig. 3-17

3.17 Front Parking Light (Fig. 3-18)

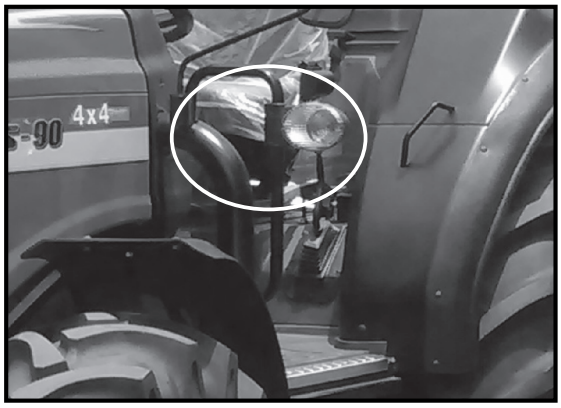


Fig. 3-18

3.18 Registration Plate (Fig. 3-19)

Fig. 3-19

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

3.19 '7' Pin Rear Socket For Trailer (Fig. 3-20)

7 Pin Socket (A) is provided at rear side for electrical connections for the trailer.

Terminal	Function
1	LH turn indicator
2	Not used
3	Earth
4	RH turn indicator
5	RH rear side light
6	Brake lights
7	LH rear side light.

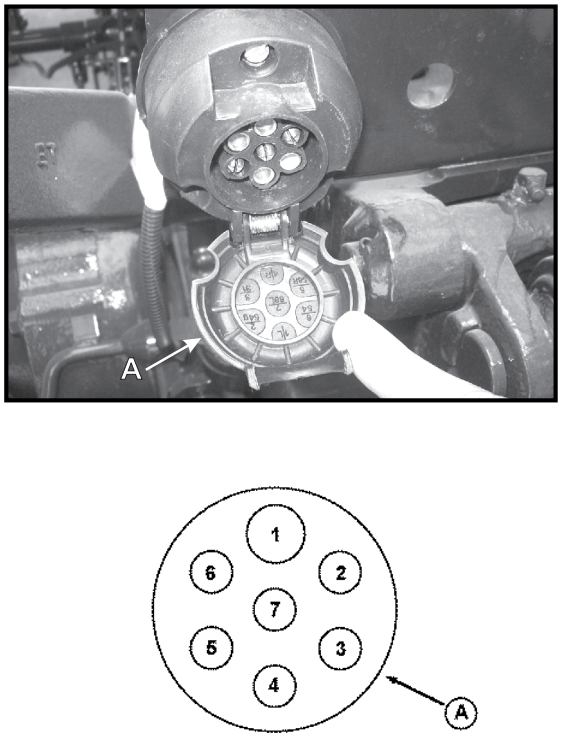


Fig. 3-20

3.20 Fuse Box (Fig. 3-21)

Fuse box is mounted on the dashboard. Remove the cover of Fuse box by pressing the fuse box in lateral direction, as it will come of from locking clamp. Replace the fuse whichever need replacement (Never install a wire instead of proper fuse. Use only specified fuses as mentioned on box).

Refer Maintenance chapter for details of Fuses and Relays.

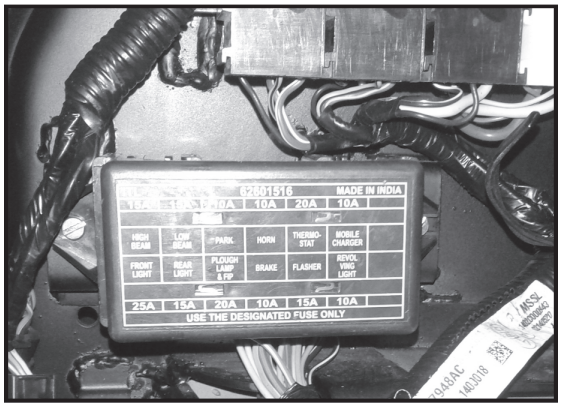


Fig. 3-21

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

CHAPTER - 4

OPERATION

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

OPERATION

4.1 Operation

Carefully read the starting instructions decals, affixed on the side where driver climbs.

4.2 ENGINE

Starting the engine

WARNING : *Make sure that the starting system allows the engine to start only when the lever and low/high selector lever are in the neutral position. If this fails to occur, have the tractor repaired by your dealer or authorized service center.*

A- Check that, the gearshift lever and the range selector lever are in neutral.

B- Move the low/high speed selector lever to neutral position.

C- Move the hand throttle lever to about halfway position.

D- Depress the clutch pedal all the way.

4.3 TURBO ENGINE: Allow the engine to run for a few seconds with the starter motor to allow the turbo compressor to be lubricated.

As soon as the engine starts, accelerate to a 1000-1200 RPM rate without increasing further until the engine has reached the normal operating temperature.

E- Turn the ignition key to the contact position. Then turn the key to the "START" position. Release the key as soon as the engine fires and quickly set the accelerator lever to the idling speed.

WARNING : *When the engine is running, keep at a safe distance from the radiator fan.*

WARNING : *To prevent accidents, never allow anyone to sit on the mudguards or on any other part of the tractor or implement.*

4.4 Cold weather starting (temperatures below 0°C) (32°F)

CAUTION : *When outdoor temperatures drop to around or below 0°C. (32°F), check the cooling system and if necessary add the recommended antifreeze.*

WARNING : *Do not inject fluids (ether) to make the engine easier to start in cold weather. The tractor is equipped with a cold start device.*

Proceed as follows:

- Perform operations A, B, C, and D as instructed above.
- Turn the ignition key to the pre-heat position and keep it there for 20 seconds, then turn the ignition key to the "START" position. If the engine fails to start within 15 seconds, return the key to the pre-heating position.
- Wait a further 10 seconds and then turn the ignition key to the "START" position again.
- As soon as the engine starts, repeat the pre heating or starting procedure as described above.

NOTE:

- If the engine fails to start after two or three attempts and smoke can be seen coming out of the exhaust, repeat the starting procedure without the thermo starter pre heating phase.
- Do not keep the key turned to the start position for more than 15 seconds at a time.
- Wait at least 1 minute between one attempt at starting and another.

If the engine does not start regularly and easily, do not continue as for you may run down the battery. Bleed any air that may have accumulated in the fuel system and, if the problem persists, check that:

- The fuel filters are not blocked.
- The battery and thermo starter are efficient.
- The fuses of the ignition circuit are in good condition and that the fuel shut-off valve is open (contact your dealer or a specialized workshop).

NOTE: Before starting a cold engine in cold weather first cover the radiator with a radiator cover. Remove the cover as soon as a normal working temperature has been reached.

4.5 Running in

It is essential to take the following precautions during the running in period:

1. Experience has shown that the first 50 hours of use are of fundamental importance for the subsequent performance and working life of the engine. During this period, do not subject the tractor to loads greater than those it will have to deal with during the rest of its working life.
2. Engage low gears when towing heavy loads.
3. When running in, check regularly that all screws, nuts and bolts are tight.

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

4. To ensure prolonged clutch life, run the clutch smoothly and carefully.

NOTE: For longer clutch life, avoid clutch riding.

4.6 Marching the tractor

WARNING : *Before moving off, make sure you are perfectly familiar with the brakes, transmission, PTO, diff lock and engine shutoff*

After starting the engine:

1. Fully depress the clutch pedal, select the gear required and then select the speed range.

WARNING : *Make sure that the lever is set for the direction required.*

2. Release the parking brake.

WARNING : *Look out of bystanders, especially when moving in reverse direction.*

3. Accelerate the engine slightly and gradually release the gearshift clutch pedal.

4. Move your foot completely off the clutch pedal and slowly accelerate until you have reached the speed you need.

CAUTION : *Do not keep your foot on the gearshift clutch pedal when driving and remember to check and adjust the clutch to prolong its life and avoid sudden damage to it.*

CAUTION : If *your tractor is equipped with a mechanical reverse shuttle, always bring the tractor to a complete standstill before changing direction.*

4.7 Accelerator Pedal

(1) The accelerator pedal can over-ride the setting of the hand throttle lever to accelerate the engine. However, when you release the pedal, the engine returns to the speed set by the hand lever. When using the accelerator pedal, always set the hand throttle lever to the idling position.

4.8 Stopping the tractor:

- Reduce the engine speed.
- Press the clutch pedal to disengage drive.
- Once the tractor has come to a stop, move the gear lever and speed range lever to neutral before releasing the gearshift clutch pedal.
- Use both pedal brakes to stop the tractor and then apply the parking brakes.

4.9 Turning off the engine:

- Turn the hand throttle lever to the "idling" position.
- Stop the engine by turning the ignition key to the STOP position.

TURBO ENGINE: Take care when stopping the engine after a period of operation at full load. It is advisable to allow it to idle for 1 to 2 minutes before stopping it. This allows the overheated compressor to cool down to avoid any damage of the turbo.

Fig. 4-1

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

4.10 Under Hood Muffler Fig. 4-2

Under hood muffler fitted inside the bonnet for better aesthetics, vision and better sound muffing capabilities.

Heat Insulation & sound muffling sheets under the bonnet hood for noise reduction.

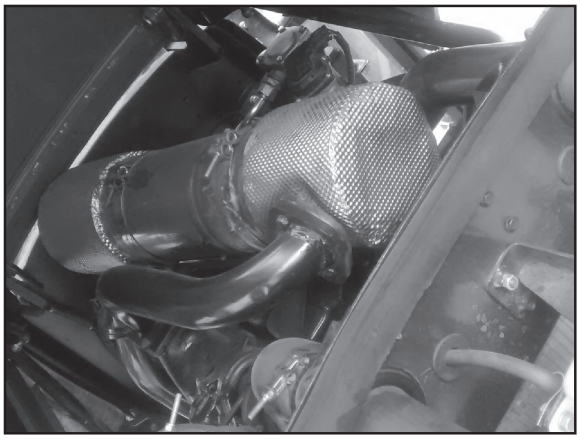


Fig. 4-2

4.11 Opening The Bonnet

Insert the key into the key hole (1) provided at the front of bonnet as shown in (Fig. 4-3).

Rotate it clockwise till gentle click is heard.

Lift the bonnet with the help of the slot (2) (Fig. 4-3) provided. The bonnet will automatically lift up to the preset height with the assistance of gas spring.

To close the bonnet gently lower the bonnet down then press it until lock is engaged.

The tractor is provided with a set of two keys. If lost contact the authorized dealer to get the lock replaced.

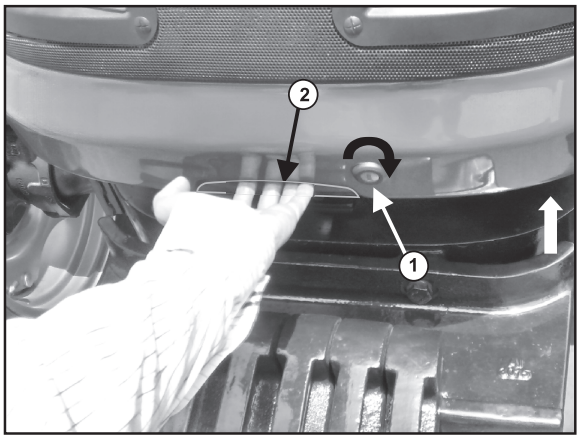


Fig. 4-3

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

4.12 Clutch

Gearshift clutch pedal (Fig. 4-4).

Pedal released = Drive engaged.

Pedal pressed = Drive disengaged.

Select lower gear as per Load condition and don't over ride the clutch for acceleration.

WARNING: *Never keep your foot resting on the clutch pedal when driving.*

WARNING: Never coast down slopes with the gear lever in neutral/*clutch pressed when in gear*

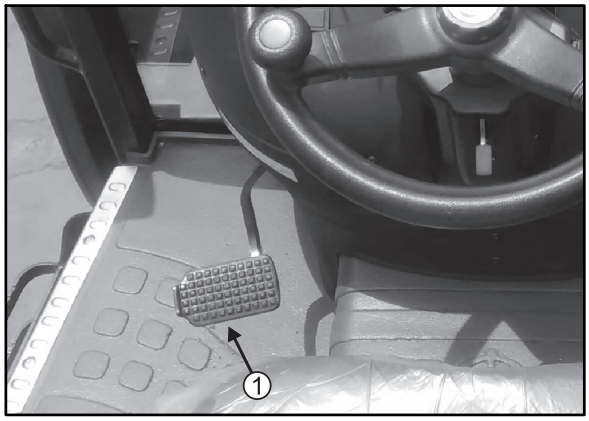


Fig. 4-4

4.13 Mechanical gearbox

Speed Range Levers (Fig. 4-5)

1. Gearshift lever.
- Four speed selector
2. Range Selector
- High
- Medium
- Low
3. Shuttle Lever
- Forward
- Reverse

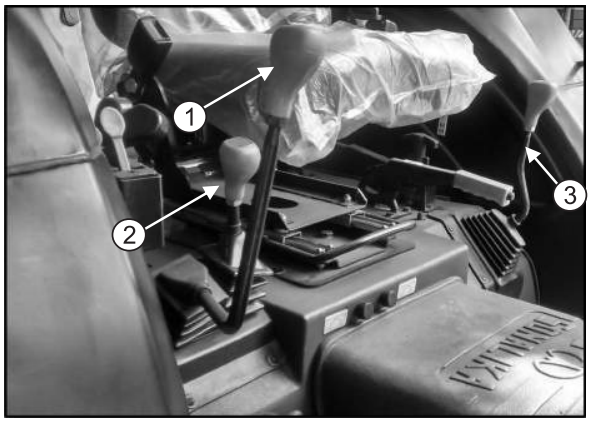


Fig. 4-5

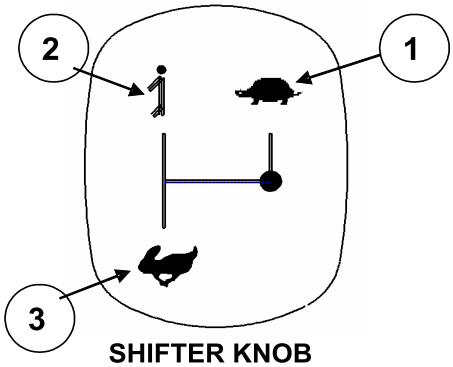
Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

4.14 Shifting Knobs Speed range selector lever

The speed range selector lever has three possible positions corresponding to the low, medium and high speed ranges. Each range is identified by a symbol on the knob of the lever. Fig. 4-6

Sr. No.	Range	Symbol
1.	Low Range	
2.	Mid Range	
3.	High Range	



SHIFTER KNOB

Fig. 4-6

4.15 Gearshift lever

The lever has four different positions. All four gears are fully synchronized. Fig. 4-7

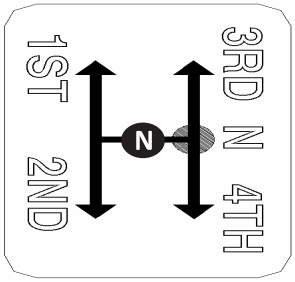


Fig. 4-7

4.16 Shuttle Lever

The lever has two positions viz. forward and back for moving the tractor in forward as well as reverse without gear shifting (position. Fig. 4-8)

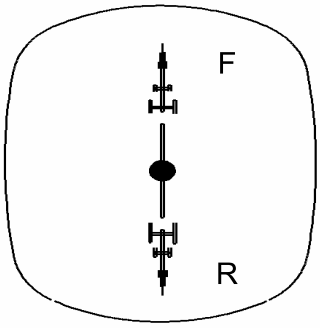


Fig. 4-8

4.17 PTO lever

The lever has three positions viz. ground PTO, neutral position and live PTO position. Fig. 4-9

NOTE: *To change from one speed range to another, press the clutch pedal, and bring the tractor to a complete standstill before moving the speed range selector to its new position.*

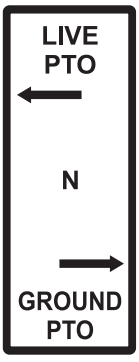


Fig. 4-9

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

4.18 Power Take-Off (Fig. - 4-10)

Tractor is equipped with standard PTO that complies with International regulations. PTO output shaft (1) is Installed at the rear of transmission housing.

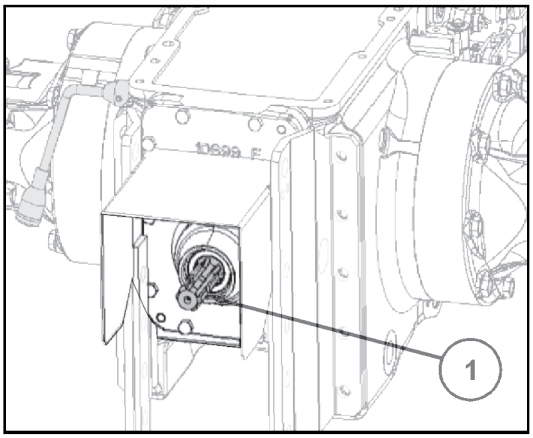


Fig. 4-10

PTO Shaft can be driven in either of two modes (Fig. - 4-11)

1. Live PTO

• It is directly driven by engine and its operation is independent of tractor movement i.e. Either stationery or moving.
• Live PTO engages with PTO lever in Backward position.
• Option of 540 PTO RPM @ 1940 ERPM / 540 E@ 1650 ERPM can be selected with the help of selector lever provided at rear end of differential housing.
• Live PTO can be disengage by pulling up independent PTO clutch lever (Fig 4-13).

2. Ground PTO

• Ground PTO with variable PTO speeds w.r.t. gear can be utilised irrespective of tractor movement (Forward, Reverse or Stationery).
• Engine power flows through Gear box / Rear Axle to PTO shaft.
• PTO lever will be in Forward position.
• Forward / Reverse gear Engaged (Tractor Movement)
• Independent clutch PTO lever will be in normal Engaged (Down) position.

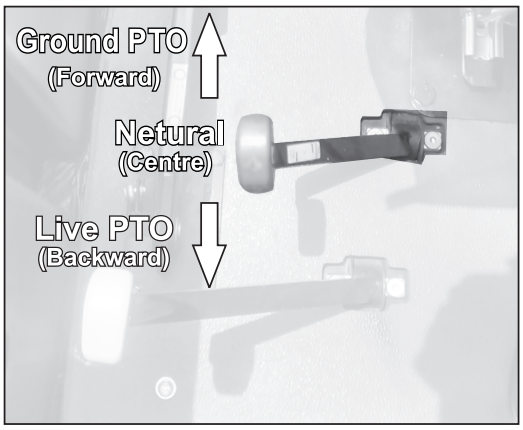


Fig. 4-11

While Tractor is Stationery

• Forward / Reverse gear Engaged, Parking brake Engaged.
• Shuttle lever / Selector lever in Neutral position.
• PTO lever in Forward position.
• Ground PTO can be disengaged either by pulling up independent PTO clutch or pressing clutch pedal.

Symbol	→ GROUND PTO	N	← LIVE PTO
PTO Drive Ground / Live PTO	GROUND PTO	NETURAL	LIVE PTO
LEVER POSITION	FORWARD ←	CENTRE	BACKWARD →

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

4.19 PTO Speed Selection (Fig. - 4.12)

PTO out put has two speeds i.e. 540 and 540E which can be selected through PTO speed selection lever (1) Refer & Fig. 4.12 and table for PTO speed selection i.e. 540/540E. Speed must be changed with PTO disengaged.

PTO SPEED SELECTION	FORWARD	CENTER	BACKWARD
LIVE PTO 540 / 540E	540E	NEUTRAL	540
Engine RPM	1650		1940
GROUND PTO	@ REAR AXLE REVOLUTIONS		

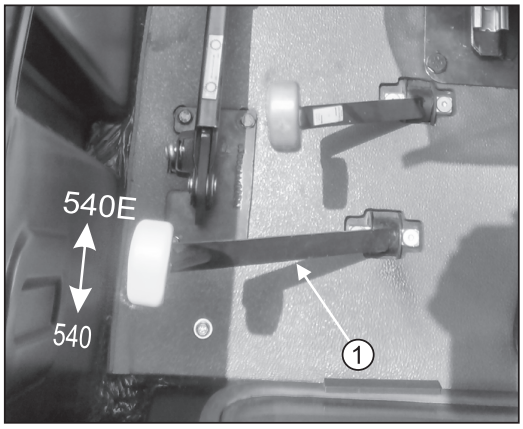


Fig. 4-12

4.20 Economy PTO

A PTO speed of 540 RPM can be obtained for implements that do not require maximum power, such as fertilizer spreaders, sprayers, etc by using the PTO at 540 Eco RPM and decelerating to 1650 RPM. The PTO economy mode has a number of advantages including a reduction in fuel consumption, noise and vibrations.

Warning : *Never exceed 1940 RPM of engine when using 540E (Corresponding to 630 RPM of PTO drive line) to avoid damage to the drive line itself, to the connected implement and persons.*

Independent PTO Clutch Lever (Fig. - 4.13)

Normal position (Downward) - PTO engaged.
Pulled Upward - PTO Disengaged.

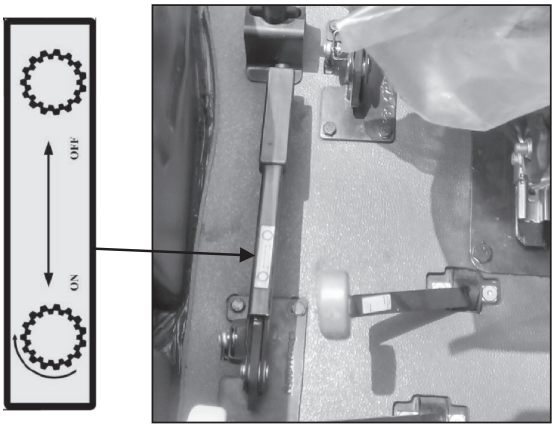


Fig. 4-13

PTO POWER FLOW CHART					
LEVER POSITION & PTO DRIVLINE REVOLUTIONS					
PTO MODE	GEAR SPEED LEVER	FORWARD / REVERSE LEVER	PTO ENGAGEMENT LEVER	INDEPENDENT CLUTCH LEVER	PTO SPEED LEVER
← LIVE PTO	NETURAL / GEAR	NETURAL / GEAR	BACKWARD	ENGAGED (Normal Position) (Downward)	DOWNWARD 540@1940 ERPM UPWARD 540E@1650 ERPM
	NETURAL / GEAR	NETURAL / GEAR	BACKWARD	DISENGAGED (Pulled up)	PTO STOP
→ GROUND PTO	ENGAGED	ENGAGED	FORWARD	ENGAGED (Normal Position) (Downward)	@ REAR AXLE REVOLUTIONS

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

OPERATION

WARNING *: PTO shafts and implements operated by means of the PTO can be extremely dangerous. It is therefore advisable to comply with the following important instructions:*

WARNING : *When PTO is running always use Protective Shield (2, Fig. 4-14) and when PTO is not operational protect PTO splines with PTO Cap (1, Fig. 4-14)*
These parts protect persons from injuries and the shaft splines from damage.

WARNING *: Before connecting adjusting or working on implements operated by the PTO, disengage the PTO, stop the engine, remove the key from the dashboard and engage the parking brake. Do not work under raised implements.*

WARNING *: Check to make sure that all implements operated by the PTO are fitted with the correct protections, are in a good condition and comply with the provisions established by law.*

WARNING : *Before driving an implement through the PTO, ALWAYS make sure that all bystanders are well away from the tractor.*

WARNING : *Fix the draw bar in the central position when using implements that are driven by the PTO of the tractor.*

WARNING : *When using the PTO drive with a stationary tractor, ALWAYS make sure that the gears are in neutral and that the parking brake is applied.*

WARNING : *Before starting up any PTO-driven implement hitched to the three-point linkage, lift the implement to its full height using position control and check that at least 1/4 of the total length of the telescopic section of the drive shaft is engaged.*

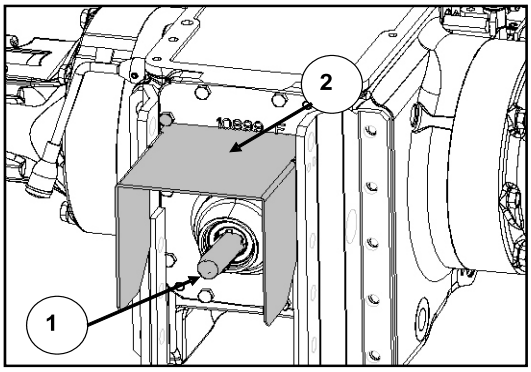


Fig. 4-14

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

4.21 SERVICE BRAKE

The main brakes are operated by means of two pedals (1-Fig. 4.15), one for each rear wheel. Braking on one side assists steering in tight maneuvers. By locking rear wheel on the inside of curve, you can virtually turn the tractor around on its own axis. For simultaneous braking during normal use and for on road use, simply lock the two pedals together with the special brake coupling lock (2-Fig. 4-15).

WARNING: *Always keep the brake pedals coupled for on-road driving to ensure simultaneous braking on both rear wheels. Never use the brakes independently when driving on public roads.*

WARNING: *If you ever notice the brakes becoming less effective, identify the cause immediately and repair. When working on slopes avoid using the brakes as much as possible and select a lower gear in order to use engine braking.*

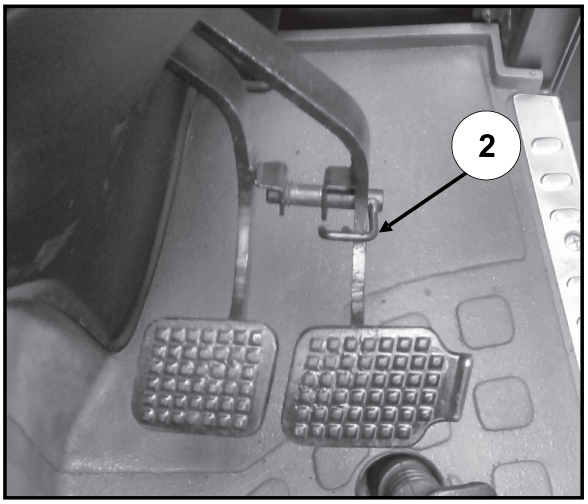


Fig. 4-15

4.22 PARKING BRAKE

The Parking brake is engaged by the hand lever (1 - Fig.4.12) which acts on the brake discs by means of a mechanical control.

Parking brake engagement:

- Pull up the lever (1Fig. 4-16) completely to operate the parking Brake.

Parking brake release:

-Pull the lever lightly (1), Press down the button (2), let the lever down and release the button (Fig. 4.16)

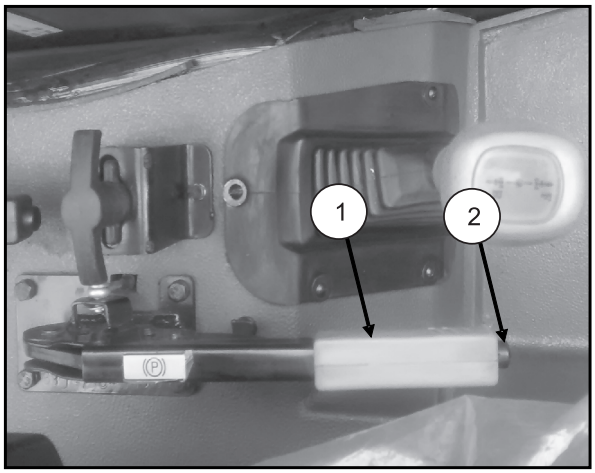


Fig. 4-16

WARNING : *Always engage the hand brake when the tractor is used for work at a standstill, even if only for brief periods of time.*

IMPORTANT : Driving the tractor with the parking brake partially engaged will cause damage to internal transmission components. Make sure the brake is fully off.

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

4.23 Hydraulic trailer Brake (Optional)

Pull dust cover off coupler (A). When connecting the hose, ensure that the connectors are perfectly clean.
Press down on brake pedals to operate hydraulic trailer brake. The braking effect depends on pressure applied to the brake pedals.

⚠ ***CAUTION:*** *Never exceed a speed of 25 km/h (15 mph) when travelling with hydraulically braked trailers.*

IMPORTANT: To prevent undue wear on the brakes, observe the following points:
- Make sure the pressure hose is connected.
- Select the same gear for both downhill and uphill driving.
- Check the hydraulic trailer brake regularly to make sure that it is functioning correctly.

NOTE: The tractor parking brake has no effect on the hydraulic trailer brake. Operate the trailer in accordance with the manufacturer's instructions. This is particularly important when operating the parking brake of the trailer.

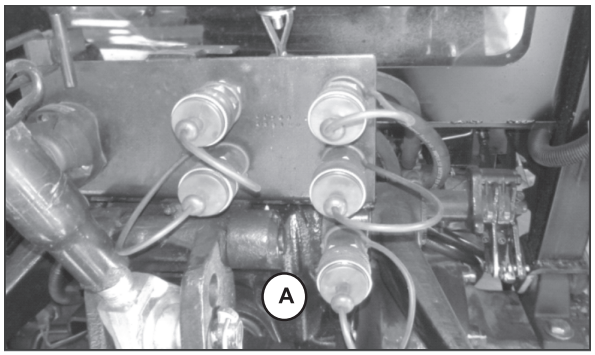


Fig. 4-17

4.24 Differential lock

The rear axle differential is equipped with a locking device to engage when one of the rear wheels slips owing to lack of grip. To lock the differential, slow the tractor down and fully press the pedal (1) (Fig. 4-18).

NOTE: For the best results, engage the diff lock before the wheels are likely to slip. Do not engage the diff lock while one of the wheels is actually slipping. Do not lock the differential without having first depressed the clutch pedal.

The differential must remain locked until the driving wheels regain their grip. To disengage the lock, just remove your foot from the pedal (1). If the differential fails to release, sharply brake on the wheels. Brake the wheel that is out of the furrow during ploughing work.

⚠ ***WARNING :*** *Never use the diff lock when driving the tractor on public roads.*

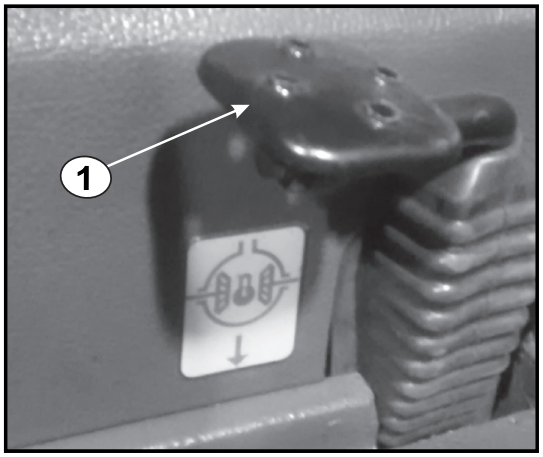


Fig. 4-18

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

4.25 Ground Speed Chart

Following listed gear speeds are in kmph at rated rpm with 18.4x30 Rear tyres.
To convert Kmph into mph, multiply with 0.625.

	SHUTTLE OPTION	RANGE	GEAR	Regular Speed	Creeper Speed (Optional)
FORWARD GEARS		 SLOW	1	1.6	0.5
			2	2.3	0.8
			3	3.3	1.1
			4	4.8	1.6
		 MEDIUM	1	4.0	2.4
			2	5.8	3.5
			3	8.4	5.1
			4	12.1	7.4
		 FAST	1	10.6	10.6
			2	15.5	15.5
			3	22.4	22.4
			4	32.5	32.5
REVERSE GEARS		 SLOW	1	1.3	0.4
			2	2.0	0.7
			3	2.8	0.9
			4	4.1	1.4
		 MEDIUM	1	3.4	2.0
			2	4.9	3.0
			3	7.1	4.3
			4	10.3	6.3
		 FAST	1	9.0	9.0
			2	13.2	13.2
			3	19.1	19.1
			4	27.6	27.6

Note: Above speeds can vary within ±5 % according to tyre pressure & loading conditions.

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

4.26 Front drive, 4WD (Optional)

Press and rotate the control lever 1, Fig. 4-19a downward to engage the four wheel drive. Follow the reverse to disengage the four wheel drive.

Dashboard Indicator as shown in Fig 4-19b shall glow on the engagement of 4WD.

The purpose of the front drive is to increase traction on broken ground, mud and slippery surfaces etc. The control lever (1) , Fig. 4-19 a used to engage and disengage the front drive. Both maneuvers can be carried out whilst the tractor is driving in a straight line and never under stress.

NOTE: Only use fourwheel drive when strictly necessary. Avoid use of 4WD when maximum traction is not required, e.g. on hard ground, roads, etc., since this would only increase tyre wear unnecessarily. Always leave the 4WD lever engaged when parking on slopes with the trailer connected.

WARNING: *Never use the 4WD mode while driving at high speeds or down the hill. Always use when high traction is required.*

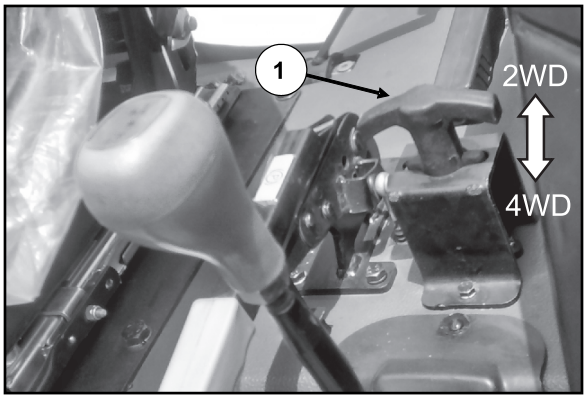


Fig. 4-19a

Fig. 4-19b

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

4.27 Adjusting Wheel Tracks

Adjusting front wheel tracks for 2WD models.

The front wheel track of 2WD tractors wheels can be adjusted to different widths.

Proceed in the following way to adjust track width (Fig.4-20 and 4-21)

- Jack up the front axle.
- Unscrew and remove the nuts, bolts (1) and washers that hold the sliding ends.
- Remove the bolts (2) that fasten the track rod clamps.
- Slide the RH end sideways and fix it at the required track width.
- Repeat the same operation for the LH end.The position of the hydraulic steering cylinder must also be adjusted by moving the support.

The wheel nuts should be fastened to a torque of 140 Nm.

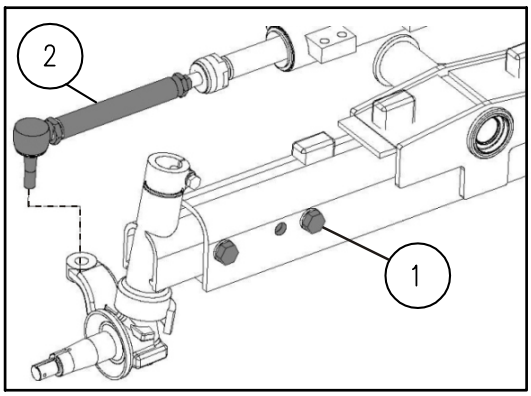


Fig. 4-20

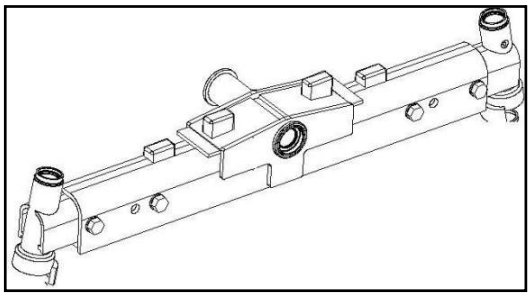


Fig. 4-21

4.28 Adjusting The Max. Steering Angle for 4WD Axle

The maximum steering angle of the 4WD front axle can be varied depending on the type of tyre mounted and the way the tractor is used.

The angle is changed by adjusting the stop screw (1) (Fig.4-22) on the final drive of the axle and locking check nut (2).

This adjustment is very useful when adopting minimum track since it prevents the wheels from interfering with the engine housing.

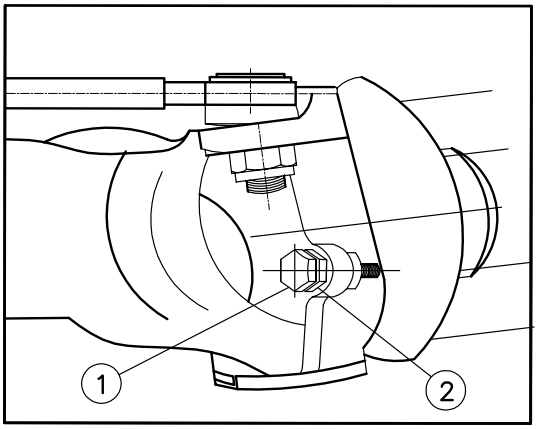


Fig. 4.22

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

4.29 '4WD' Axle- Adjusting Wheel Track

The front track on 4WD tractor can be adjusted by changing the position of central wheel disc w.r.t not mounting face Rims.

(1) Prescribed torque wrench setting for wheel nuts (Fig.4-23) : 250 Nm.

(2) Rim to disk 280 Nm (Fig. 4-23)

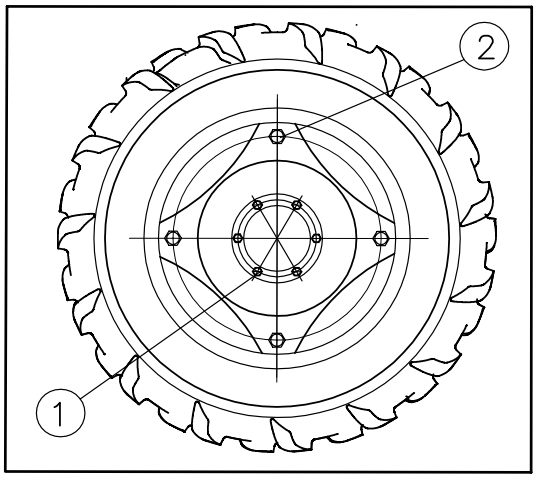


Fig. 4-23

Front track adjust adjiustment for 4WD Tractor.

4.30 Rear Track Width Adjustment

The rear track width can be adjustable by changing the position of the rim fixing points or central wheel discs, as shown in the table below.

Torque the nuts and bolts (1) (Fig. 4-24) that fix the rim to the disc to 250 Nm and those (2) that fix the disc to the wheel hub to 280 Nm. Always check tyre pressure.

Track widths can be obtained with some tyre types (Fig. 4-24)

WARNING : *When jacking up the tractor, pay attention that its weight is correctly distributed and securely wedge the wheels on the ground tighten all nuts and bolts to the required torque.*

WARNING : *Rear wheels are very heavy. Always use a hoist or other suitable lifting equipment to handle, "mount and dismount wheels.*

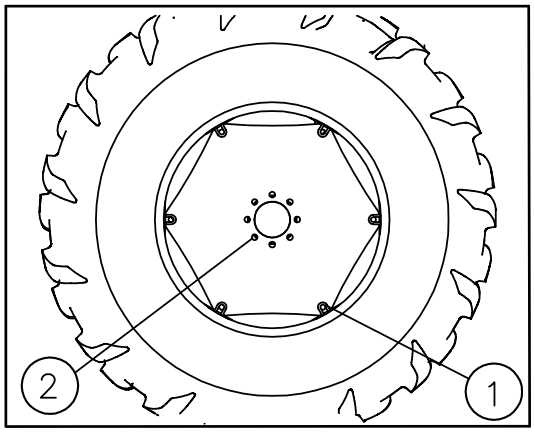
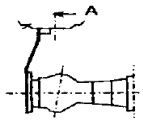
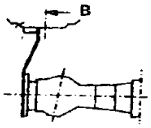
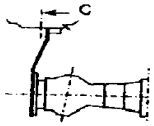
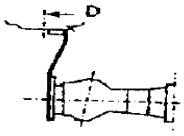
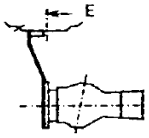
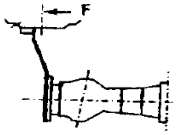
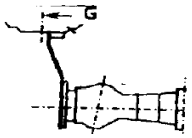
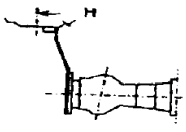


Fig. 4-24

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

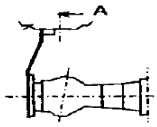
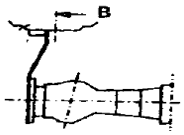
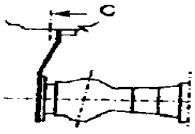
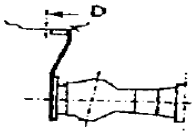
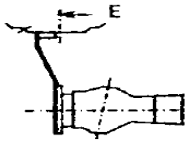
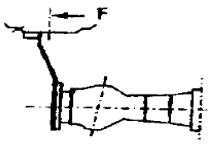
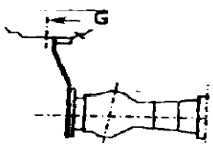
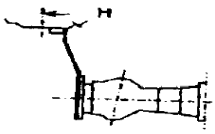
Front Track Adjustment Details

S No	Wheel Body Position	Valve Position	Lug Position	Snap	Front Tyre Width (mm)
					12.4*24
1	Disc/Dish towards **Inside** (Disc position -Concave) (←	Outside	Inside		1514
2			Outside		1628
3		Inside	Inside		1472
4			Outside		1586
5	Disc/Dish towards **Outside** (Disc position -Convex))←	Outside	Inside		1714
6			Outside		1828
7		Inside	Inside		1672
8			Outside		1786

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

Rear Track Adjustment Details

S No	Wheel Body Position	Valve Position	Lug Position	Snap	Rear Tyres Width (mm) 18.4*30
1	Disc/Dish towards Inside (Disc position - Concave) (←	Outside	Inside		1190 (mm)
2			Outside		1302 (mm)
3		Inside	Inside		1386 (mm)
4			Outside		1508 (mm)
5	Disc/Dish towards (Disc position€onvex))←	Outside	Inside		1592 (mm)
6			Outside		1714 (mm)
7		Inside	Inside		1798 (mm)
8			Outside		1910 (mm)

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

4.31 Wheels and Tyres

Regularly check that the front and rear wheel nuts are fully tightened.

Tyre pressure must be checked and adjusted before using the tractor.

NOTE : *The pressure should be adjusted afterwards by the user according to values given in the tables of tire manufacturers and to the use anticipated for the tractor.*

If these simple rules are carefully followed, they will ensure maximum working life for your tyres.

If you notice any cuts in the tread or side walls, have them vulcanized immediately to avoid further damage to the tyres.

Drive slowly on roads if the pressure in the tyres has been reduced for use on soft earth.

NOTE : If the tractor is not going to be used for a long period of time, support it on raised blocks to remove the load from the tyres.

NOTE : Avoid parking the tractor on floors which are covered with oil or diesel fuel. Also avoid parking the tractor where the tyres are permanently exposed to direct sunlight, especially if the tractor is not going to be used for some time.

⚠ ***WARNING :*** *When jacking up the tractor, pay attention that its weight is correctly distributed and securely wedge the wheels on the ground. Tighten all nuts and bolts to the required torque.*

⚠ ***WARNING :*** *Always use a hoist or other suitable lifting equipment to handle, mount and dismount wheels.*

TYRE SIZE & RECOMMENDED AIR PRESSURE AS PER APPLICATION

TYRE SPECIFICATION			PLY	Load Capacity /Tyre (Kg)	RECOMMENDED AIR PRESSURE (PSI)	
					FOR FIELD APPLICATION	FOR HAULAGE APPLICATION
FRONT	BIAS	12.4*24	8	1450	24	30
REAR	BIAS	18.4*30	12	3250	16	28
FRONT	RADIAL	320/85 R24	–	1605	20	22
REAR	RADIAL	460/85 R30	–	3105	18	22

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

4.32 Ballasting the front axle

If heavy implements that might destabilize the tractor are hitched to the lift, cast iron plates can be added to the front end to counterbalance their weight (Fig. 4-25)

The plates have handles so that they can be mounted and demounted more easily.

They should be applied to the support and fixed with the relative rods.

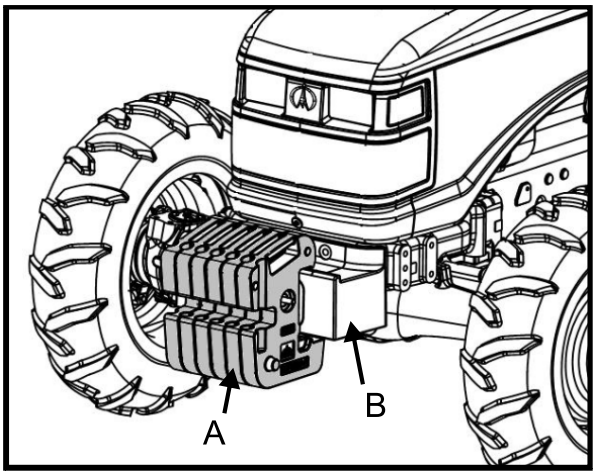


Fig. 4-25

IMPORTANT:

- Do not ballast the tractor over its rated carrying weight.
- When using the tractor for light work, transport and on road towing, remove the ballast to avoid unnecessary strain on the mechanical components.
- With semi-mounted and fully mounted implements (which inevitably increase the load on the rear axle of the tractor), Ballast must only be used when strictly necessary. There is no point in increasing grip beyond the level necessary for efficient work as this will reduce tyre life.
- Carefully check the tyre inflation pressure since this will make the tyre last longer and ensure a wear more evenly on regular use.
- The softer the soil, the lower tyre inflation must be, while the tyre should be inflated to a greater extent as the soil becomes more compact.

⚠ ***WARNING :*** *Manual lifting of the ballast is a potentially dangerous operation.*

* By Default the Tractor is equipped with 8 front weight .

BALLAST MASS (Front)			
Model		Cast Iron Weight (A)	CI Block (B)
Solis 90	2WD	8 Numbers of 31kg. Each can be added as maximum ballast	Cast iron, Block 72kg.
	4WD	8 Numbers of 31kg. each can be added as maximum ballast	Cast iron, Block 72kg.

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

4.33 Ballasting with Water for Rear Wheels

Add weight to rear wheels if needed to improve traction or for stability. The amount of rear ballast should be matched to job and the ballast should be removed when it is not needed.
The weight should be added to the tractor in the form of liquid ballast, rear wheel weights or a combination of both.

Liquid Ballast in Rear Tyres

Water and calcium chloride solution provides safe economical ballast. Used properly, it will not damage tires, tubes or rims. The addition of calcium, chloride is recommended to prevent the ater from freezing. Use of this method of weighting the wheels has the full approval of the tyre companies. See your tyre dealer for this service.

How to ballast (Liquid)

- Jack up the rear wheels.
- Rotate the wheel assy valve on top and remove the valve and let the air move out of the tyre.
- Start filling tube with water with the help of suitable nozzle. Running filling tube nozzle should be at 12 O' Clock position.
- Remove the water hose/nozzle when tube is filled in with water.
- Rotate the tyre to bring tube nozzle position to 11 O' Clock and let the excess water drain out till it stops flowing.
- Put the air valve on the tube nozzle. Fill in the air upto normal inflation pressure. Thumb rule 75% water at 11 O' Clock position, 25% Air.

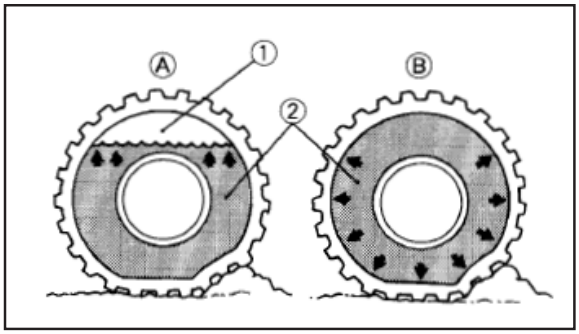


Fig. 4-26

(1) Air (A) Correct - 75% Air compresses like a cushion
(2) Water (B) Incorrect - 100% Full Water can not be compressed

4.34 Ballasting with C.I. Weights for Rear Wheels

Additional Cast iron weights are fitted on rear tyres Before adding ballast confirm with dealer if it is required or not. Fig. 4-27

⚠ CAUTION : During fitting/removing CI weights take care following:-

- Bolt thread damaging.
- Hand / safety of persons nearly.

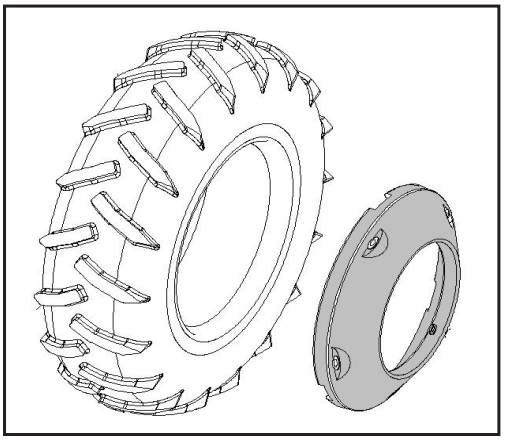


Fig. 4-27

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

4.35 Three-point Linkage

These tractors are equipped with a class 2 three point-linkage provided with fixed ballends. To ensure correct tractor operation, check that the dimensions and weight of each implement correspond to the three point linkage and power lift specifications.

Components of three-point linkage

(Fig. 4.28)

Standard three point linkage with fixed ball ends.

1. Adjust top link;
2. RH adjustable lift rod:
3. Lateral stabilizers;
4. Lower links;
5. LH vertical lift rod;

4.36 Adjustable Top Link (1)

1. The adjustable top link is supported by a bracket with three fixing holes. The correct hole to use depends on the height of the implement.
2. Adjust the length of the top link to vary the attachment angle of the implement in relation to the ground.

- Shorten the top link to increase the angle of attachment.
- Lengthen it to reduce the angle of attachment.

4.37 Adjustable Rh Lift Rod Or Leveling ROD (2)

The right hand lift rod can be adjusted mechanically or hydraulically, depending on the lifting, to make the lower links level and lined up with each other.

This will depend on the type of implement being used and the work to be done.

4.38 Mechanical Adjustment

Shorten the RH vertical lift rod by turning it clockwise. Lenghten the RH vertical lift rod by turning it anti clockwise.

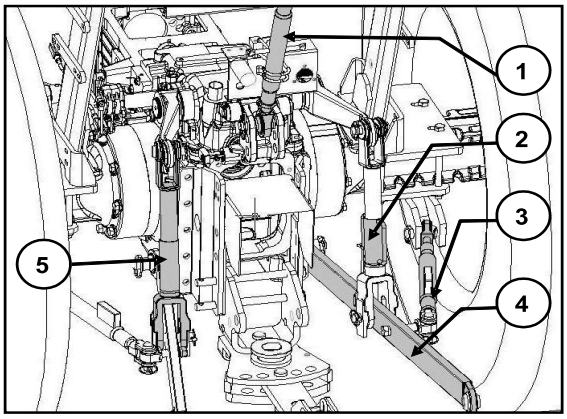


Fig. 4.28

4.39 Lateral Stabilizers (3)

The lateral stabilizers can be set to reduce lateral movement of the lower links if the threepoint linkage.

- With ploughs, disk harrow, etc., the stabilizers can be set to allow a swing of more than 5 or 6 cm (2"2.4").
- With graders, rollers, holes, weeders etc, adjust the stabilizers to restrict the side swing of the lower links.
- When transporting implements that are mounted on the three-point linkage, lateral swing must be eliminated by tightening the stabilizers.

4.40 To Adjust the Stabilizers :

- Turn clockwise to increase lateral swing.
- Turn anti-clockwise to reduce swing.

NOTE - When an implement is raised to on-road transport position, lateral swing of the three-point linkage must be reduced.

Load Specifications:

Swinging drawbar: 789 kg
CBM Drawbar: 2039 kg
Hitch Bracket: 1376 kg
Automatic coupling(Clevis type): 2039 kg
Non automatic coupling(Clevis type): 2039 kg

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

4.41 Lower Links(4)

Lower links with Class 2 fixed ball ends

(Fig.4-29). **Adjusting the RH and LH vertical lift rods.** The two vertical lift rods can be adjusted by means of adjuster arms in order to alter the lateral angle of the implements. (Fig.4-29) and (Fig.4-29)

The latter position must be used for :

implements that require a certain freedom of movement (cultivators, spaders, harrows, ploughs).

WARNING : *ALWAYS use great caution when adjusting or using the three--point linkage.*

4.42 Hitching Implements

1. Lower the three-point linkage.
2. Adjust the lateral stabilizer (2) let the lower links swing freely. (Fig. 4-29)
3. Reverse the tractor on the implement.
4. Raise the three-point linkage until the hooks on the lower links fasten on to the ball ends on the implement crossbar and secure them with safety clips.
5. Adjust the stabilizers to give the right amount of lateral swing for the implement.
6. Hitch up and adjust the top link.

4.43 Unhitching Implements

1. Lower the implement to the ground.
2. Adjust the stabilizers to give the correct freedom of movement to the lower links.
3. Remove the safety clips and unhitch the Implement's crossbar from the hooks on the lower links.

The following are important warnings for the operation and adjustment of implements on the three point linkage.

Use (Fig. 4-29) for adjusting the float position use in vertical position if certain degree of freedom is required for trail type implements. Use horizontal adjustment for locking the lower links and for adequate sensing. Also use the float mode (Fig. 4-29) while hitching the implements for ease in hitching.

WARNING : *ALWAYS stop the engine before attempting to adjust the three-point linkage or any implement hitched to it.*

WARNING : *ALWAYS select position control mode when transporting mounted implements on the three-point linkage. Lock the implement into transport position.*

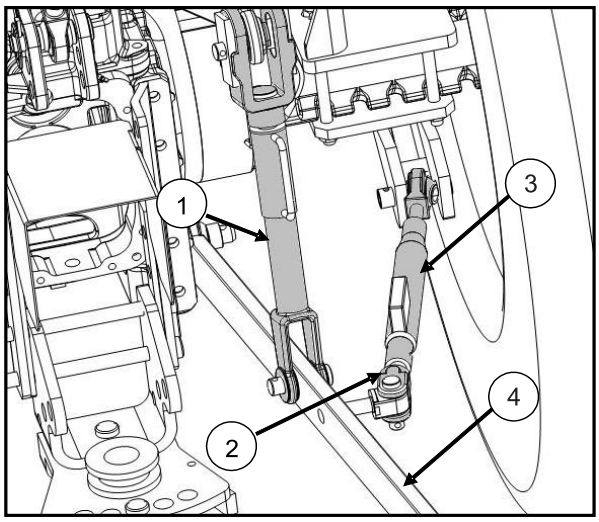


Fig. 4-29 (a)

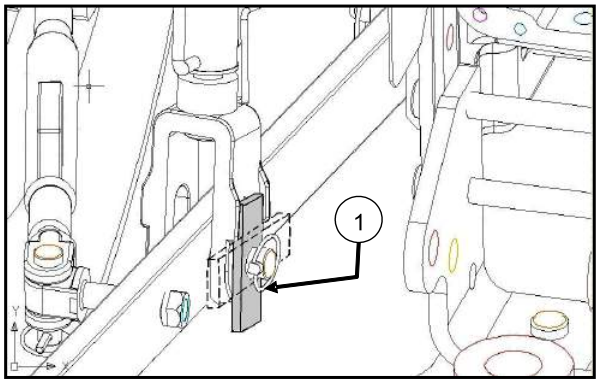


Fig. 4-29 (b)

WARNING : *ALWAYS select position control mode when hitching or unhitching an implement to the three-point linkage.*

WARNING : *Before getting off the tractor, always lower to the ground any implement that is mounted on the three-point linkage.*

WARNING : *NEVER work underneath an implement held up only by the hydraulic power lift and three-point linkage. Support the implement for safety and stop the tractor engine.*

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

4.44 Mechanically Controlled Power Lift

The power-lift control levers are used to set the following (Fig. 4-30).

- Position (Black Color)
- Draft (Red Color)
- Mixed position and draft control

Each of these modes must be chosen according to the type of work in hand, the type of implement and the consistency of the soil.

4.45 Position Lever (1)

Move the draft lever to the lower stop. Set the position of the implement, either in or out of the soil, by moving the position lever toward the upper stop to raise it, or towards the lower stop to lower it. The degree to which implement is moved is proportional to the degree to which the position lever is shifted.

4.46 Draft Lever (2)

Move the position lever to the lower stop and set the implement to the required depth by slowly moving the draft lever towards the lower stop. The depth reached by the implement is proportional to the traction required by the consistency of soil. The tractive force required from the tractor is automatically kept constant in these conditions by the power lift. Lock the lower stop in front of draft lever to bring it to the same position each time round .Raise the implement at the end of each furrow by using the position lever only. At the end of the stroke of draft lever is engaged and power lift no longer controls the traction force.

4.47 Mixed Position And Draft Control Mode (1&2)

When draft control is used in varied soil conditions in which the implement may be buried too deep into the soil, use of combined position and draft control is recommended. Set the implement into the soil and find the correct work depth as indicated in the section on draft control. When the required depth has been reached, gradually move the position lever to the upper stop until the arms of the power lift begin to rise slightly. The power lift operates in the draft control mode but meanwhile prevents the implement from digging excessively into softer soil and producing an uneven job. To raise and dig the implement at the end and at the beginning of each furrow, use only the position lever.

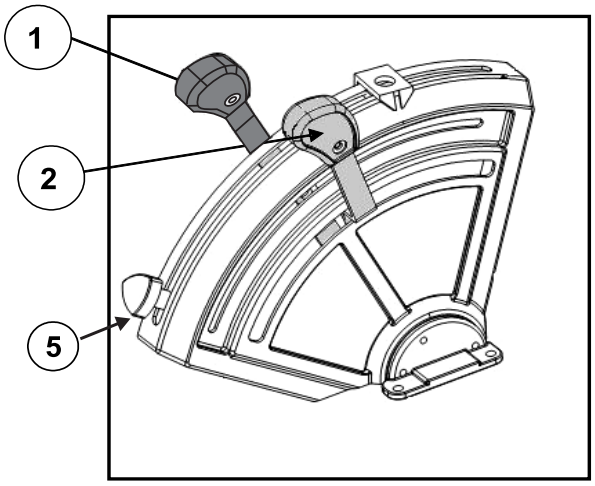


Fig. 4-30 (a)

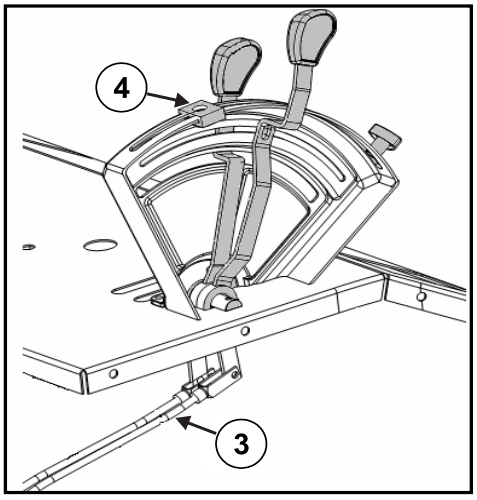


Fig. 4-30 (b)

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

WARNING : *Never tow with the top link connected to the swinging support of the hydraulic power lift.*

4.48 Top Link Of The Mechanical Power Lift (2) (Fig.4-31).

The Rocker bracket (1) has three holes for hitching the implement and adjusting it is slant. It is also provides a means of adjusting draft control sensitivity. Which should be a chosen according to soil conditions.

A	Upper Hole	For Hard Soil
B	Middle Hole	For Medium Soil
C	Lower Hole	For Soft Soil

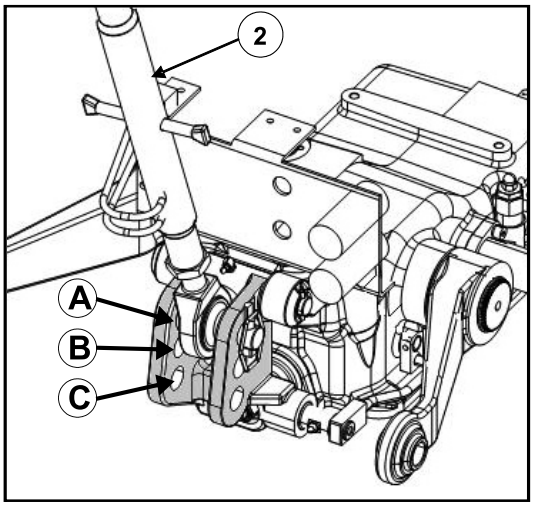


Fig. 4.31

Three point linkage for mechanical power lift with three holes to link to implement.

4.49 Quick Attach Three Point Linkage and Ladder Hitch with Clevis (Optional)

Three Point Linkage Area:

- Attachment can be quickly and easily connected with the help of quick attach three point linkage.
- Cat-II heavy duty self locking type on lower links (1).
- Cat-II heavy duty self locking type Top links(2).

Hitch Area:

- Rotating trailer hitch (clevis) ladder type semi automatic / automatic (3).
- Swinging drawbar with pin.
- Swinging drawbar Ladder type (4).

WARNING : *Stay clear from the area of the three-point linkages while attachment and detachment of implements.*

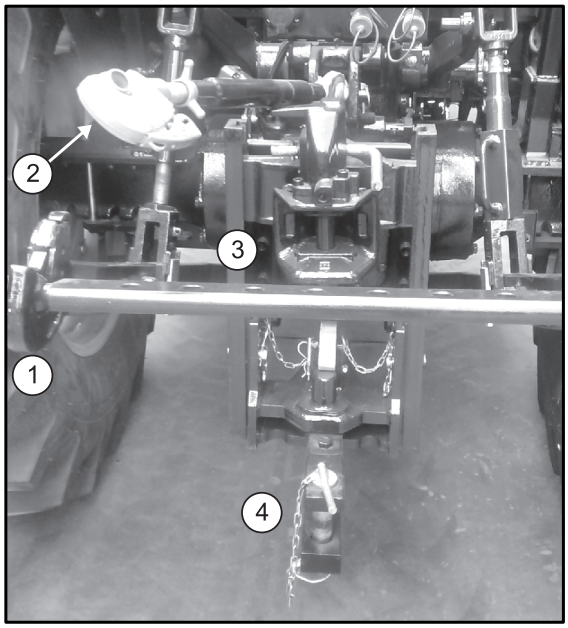


Fig.4-32

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

Quick-Coupling (Hook-Type) Draft Links

These draft links are intended for Category II implement balls.

IMPORTANT: The balls must be the correct size.

Ball Diameter(a): 56mm (2.2in)

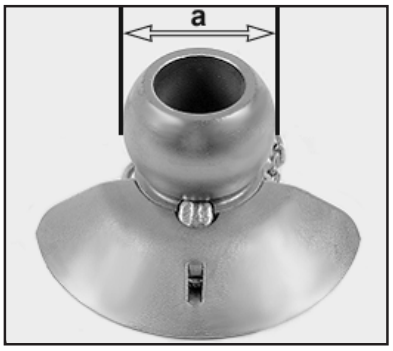


Fig.4-33

How to use the coupler hooks

A - Lever

B - Ball

C - Pin

The couplers are operated by means of lever (A), which can be actuated either by hand or by a control cable.

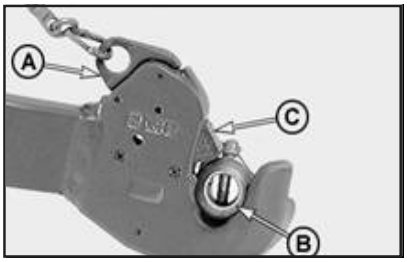


Fig.4-34

IMPORTANT: Make certain that the coupler hooks are locked:

Lever (A) must be in contact with the coupler hook, there must be no play noticeable at ball (B), and pin (C) must enclose the ball.

If coupler hooks have a control cable, pay attention to the cable routing after the implement has been attached. If the cable droops excessively or gets tangled in undergrowth or branches, the hooks may be opened by accident.

NOTE: The coupler hooks can be locked in their "open" position.

To close the coupler hook again, first pull the lever up at an oblique angle.

Quick Attach linkage on Lifting device

Step A (Fig. 4-35):

Roughly align the tractor with the equipment to be attached.

Adjust the distance of lower lifting arms and lateral stabilizers to accommodate the width of add-on being connected.

Lower the bottom gripping hooks below the equipment connectors and bring them closer until the hooks are beneath the pins.

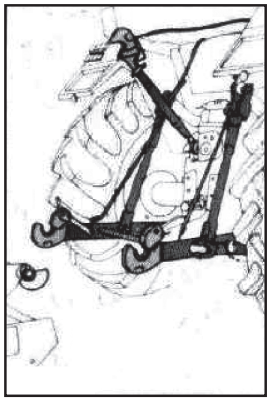


Fig.4-35

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

Step B (Fig 4-36):

Raise the lower lifting arms until the two pins automatically couple.

Joining is aided by conical profile or balls of conical profile that are commonly mounted on pins of the equipment.

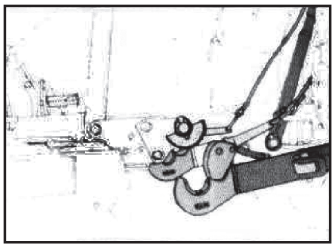


Fig. 4-36

Step C (Fig. 4-37):

Adjust the length of the upper link accordingly so that the hook is located over the pin of the equipment.

Lower the upper link until the hook automatically couples with the pin of the equipment.

Check once again to see if the gripping hooks are securely locked.

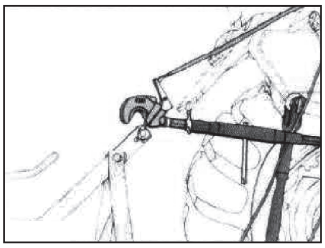


Fig. 4-37

Step D (Fig. 4-38):

Connect and join shafts.

The equipment is now securely coupled and ready to be used.

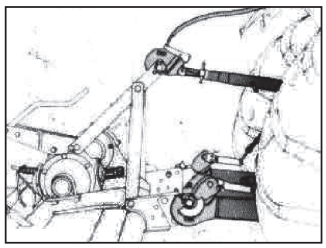


Fig. 4-38

Step E (Fig. 4-39):

To decouple the equipment when finished working, lower the equipment to the ground, decouple the hook of the upper link using the control handle and secure the upper link to the appropriate bracket on the tractor.

Decouple the two lower links using the control cable and then lower the bottom lifting arm.

Turn off the PTO (if in use) and detach any jointed shaft.

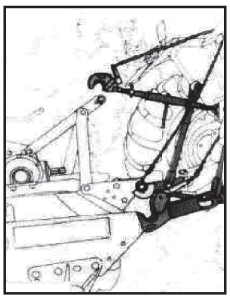


Fig. 4-39

Step F (Fig. 4-40):

For particularly different operating conditions, prevent the bottom hooks from accidently opening.

To do so, close the hook lock by inserting a bolt through the security hole and securing it with a nut.

Lock the clamping sleeve.

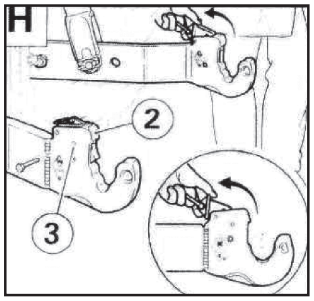


Fig. 4-40

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

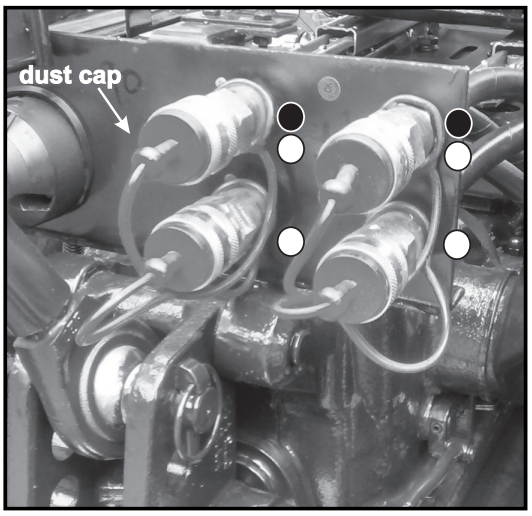
4.50 Auxiliary Circuit (Double DCV)

WARNING: *Never unhitch the implements before removing the QRC's Fig. 4-41*

1. Remove dust caps from hose end.
2. Pull dust plug from couplers.
3. Make sure hose end and coupler receptacles are clean.
4. Check hoses to see which is used for extending cylinder. This hose must be connected to a coupler receptacle in order for cylinder to extend when DCV levers are moved rearward or inward.

CAUTION: *Hydraulic hoses can fail due to physical damage, kinks, age and exposure. Check hoses regularly. Replace damaged hoses.*

5. To connect each hose, push hose tip firmly into coupler receptacle. Pull lightly on hose to make sure positive connection was made.
6. Use levers for operating the respective DCV's.



● Single acting
○ Double acting

Fig. 4-41

4.51 Convertible Auxiliary Hydraulic 2DA/2SA (Fig. 4-41)

Directional Control Valve (DCV) equipped is operated by two levers. Lever "C" (Fig. 4-42) is controlling Double Acting (DA) DCV and Lever "D" (Fig. 4-42) is controlling Convertible Double Acting (DA) Single Acting (SA) DCV.

The Convertible DCV can be converted into Double Acting by tightening converting screw (as shown in Fig. 4-43) and vice-versa for Single Acting.

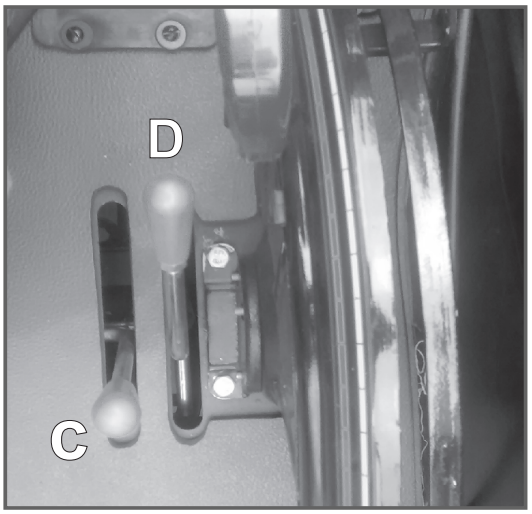


Fig. 4-42

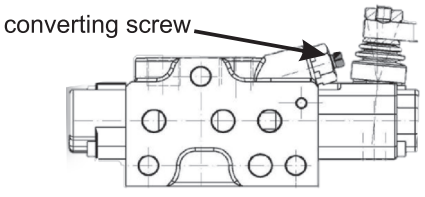


Fig. 4-43

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

4.52 Hydraulic Valve Adjustment

Use knob (1) for locking the implement while transport or to control the speed of lifting and lowering the implement. Rotate clockwise to lock it.

Use knob (2) for controlling the draft sensing of the implement. Use only if no sensing is observed or hunting is observed.

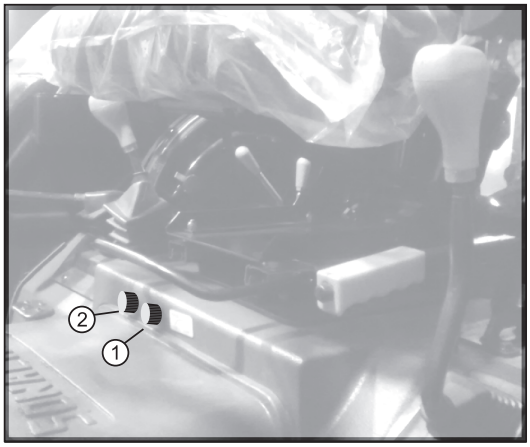
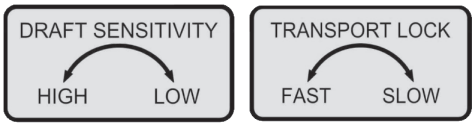


Fig. 4-44



4.53 Front Loader Mounting Points

Front-loader brackets must be installed as shown; the screws must be tightened to the specified torque. Check torque regularly.

IMPORTANT:
When installing front-loader brackets, use appropriate hardware only.

Refer Operator's Manual and Installation Instructions of front loader.

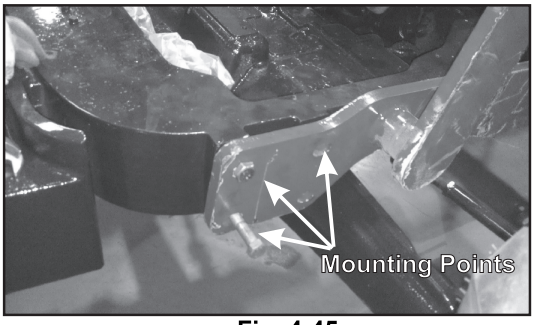


Fig. 4-45

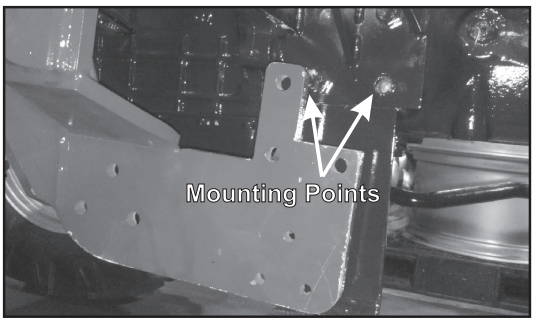


Fig. 4-46

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

4.54 Safety structure (ROPS)

The tractor is equipped with a ROPS (Roll over protection safety structure) (Fig.4-47) mounted behind the driving seat and approved according to the CURRENT EEC STANDARDS.

The protective structure is formed by two parts, one upper and one lower, which are bolted together.

The tractor must only be used with the protective structure in the upright position (Fig.4-47).

WARNING : *The tractor could tip up if used incorrectly. Protection is only guaranteed when the protective structure is in its original upright position with the fixing bolts tightened as described in the assembly instructions.*

WARNING : *It is absolutely forbidden to tie towing chains or ropes to the safety frame or the tractor could jack up Always tow owing the proper devices supplied with the tractor.*

Safety belts can be fitted, depending on the laws in force in the various countries of use. Always wear the safety belts with the protective structure in the upright position. Never wear the safety belts when the protective structure is lowered.

If the tractor must pass through low places or be parked there for maintenance purposes and the top part of the protective structure must be folded at an angle remember that there is not enough protection for the tractor driver in this position and that he could risk serious injury. Remember that after use in low places, it is absolutely necessary to set the protective structure back in its upright position (Fig.4-47) before continuing with any work.

Comply with the following procedure if it is essential to fold down the protective structure for the above reasons (Fig. 4-47 and Fig.4-48):

- Remove the fixing pins (2).
- Overturn the protective structure (1) until it rests on
- the stopper.
- Fit the fixing pins (2) and relative nuts as illustrated.
- Before you use the tractor again in any way, set the protective structure (1) back in the upright position (Fig. 4-37) by carrying out the operation described above in reverse order. Fit the fixing pins.

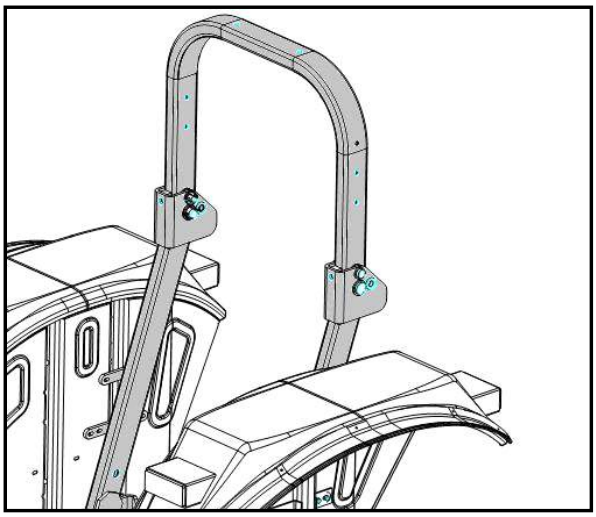


Fig. 4-47

WARNING : *Avoid injury! Make certain all parts are installed correctly.*

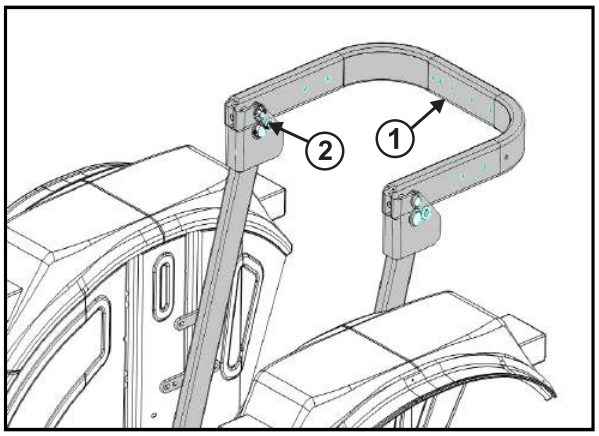


Fig. 4-48

To avoid loosening of structure The protection offered by the safety structure will be impaired if it is subjected to structural damage, as in an overturn accident, or is in anyway altered by welding, bending, drilling or cutting. A damaged safety structure should be replaced, NOT reused. Always keep upper part of the safety structure pinned in vertical position (as in the above when operating the tractor. If the tractor is operated with the safety structure folded down (e.g. to enter a low building) drive with extreme caution and DO NOT use seat belt.

Fold the safety structure up again as soon as the tractor is operated under normal conditions.

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

4.55 Tractor Transport

Towing the tractor (Fig. 4-49)

If you need to tow or push the tractor for a short distance, remember that the power steering system will allow you to drive and steer it for a short way with the engine off. Put the following controls in Neutral.

- Gearshift lever
- Range selector lever
- Disengage the parking brake
- Ensure that the PTO lever (mechanical version) is in disengage position
- Brake pedals

Tow or push the tractor at moderate speed.

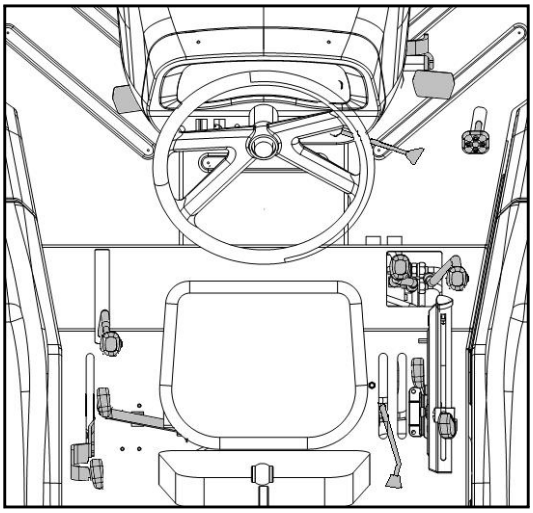


Fig. 4-49

Transporting the tractor

The tractor must be transported with a suitable vehicle. Engage the parking brake.

Firmly fasten the tractor to the transport vehicle using suitable chains or straps.(Fig.4-50) Use the tow bar or its supports as rear fixing points for the tractor.

CAUTION : *Never hitch or connect chains around the tractor components as these could be damaged by the chains themselves or by excessive loads.*

The trailer must be provided with the warning signs and lights required by the local laws in force.

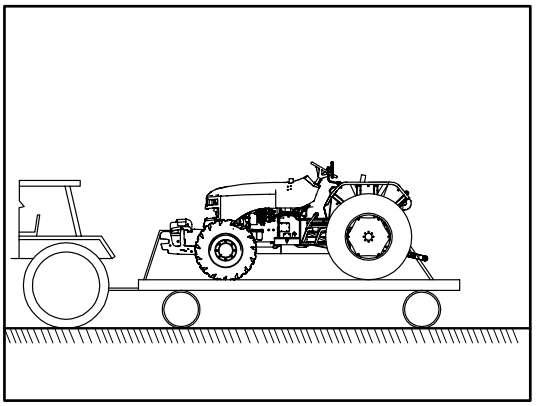


Fig.4-50

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

4.56 Jack Up the Tractor - Lifting Points

The illustrations show the recommended lifting points for jacking up the tractor. Use a stable lifting jack with sufficient lifting force.

Raise Rear of the Tractor (Fig. 4-51, 4-52 & 4-53):

1 - Wooden Wedges
A - Raise Rear of Tractor if Equipped with Height-Adjustable Trailer Hitch
F - Raise Rear of Tractor if Equipped with Hydraulic Pick-Up Hitch

Raise Front of the Tractor (Fig. 4-54 & Fig. 4-55) :

B - Raise Right End of Axle, e.g. to Remove Right Front Wheel
C - Raise Center of Axle (Use Wooden Wedges to Prevent Axle from Tilting)
D - Raise Left End of Axle, e.g. to Remove Left Front Wheel
E - Raise Front End of Tractor under the Basic Weight

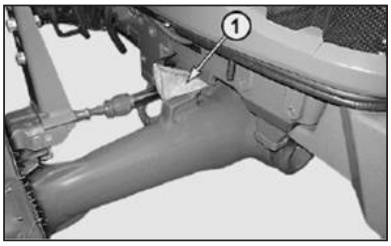


Fig. 4-51: Wooden Wedges

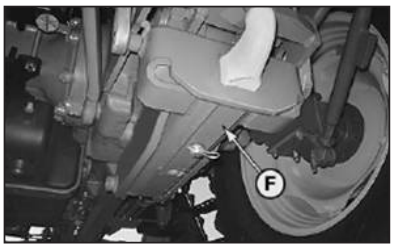


Fig. 4-52: With Hydraulic Pick up Hitch

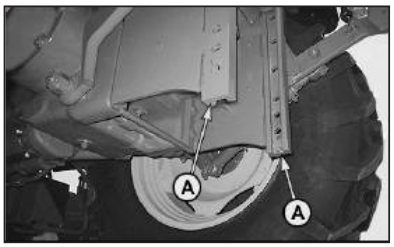


Fig. 4-53: Without Hydraulic Pick-Up Hitch

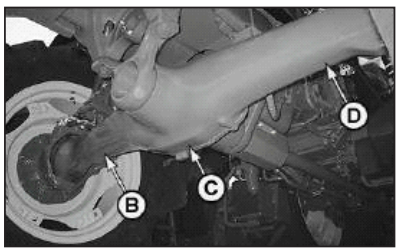


Fig. 4-54

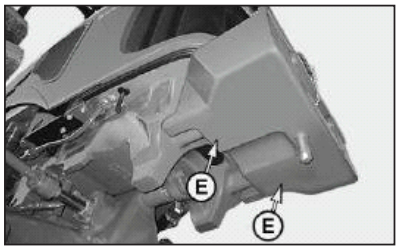


Fig. 4-55

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

CHAPTER - 5

MAINTENANCE

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

5.1 Routine Maintenance Table

MAINTENANCE INTERVAL (HRS)	EVERY 10	50	250	500	750	1000	1250	1500	1750	2000
SERVICE ITEM										
GENERAL										
COMPLETE WASHING	-	W	W	W	W	W	W	W	W	W
NIPPLE GREASING	-	G	G	G	G	G	G	G	G	G
COOLANT LEVEL	C	C	C	C	C	C	C	C	C	C
AIR CLEANER										
AIR CLEANER ELEMENT PRIMARY (DRY.)	-	-	K	K	K	R	K	K	K	R
AIR CLEANER ELEMENT SECONDARY (DRY.)	-	REPLACE ONCE A YEAR OR AFTER 3 REPLACEMENT OF PRIMARY ELEMENT								
AIR INTAKE HOSE CLAMPS	C / T	C / T	C / T	C / T	C / T	C / T	C / T	C / T	C/T	C/T
ENGINE										
ENGINE VALVE CLEARANCE	-	C / A	C / A	C / A	C / A	C / A	C / A	C / A	C/A	C/A
ENGINE OIL & Oil Filter	-	R	R	R	R	R	R	R	R	R
ENGINE IDLE SPEED	-	C / A	C / A	C / A	C / A	C / A	C/A	C / A	C / A	C / A
TURBOCHARGER INTAKE HOSE CLAMP.	-	C / T	C / T	C / T	C / T	C / T	C / T	C / T	C / T	C / T
BELL HOUSING MOUNTING NUT & BOLTS	-	C / T	C / T	C / T	C / T	C / T	C / T	C / T	C / T	C / T
EGR COOLER	-	-	-	K	-	K	-	K	-	K
COOLING SYSTEM										
FAN BELT TENSION (8-10mm)	C / T	C / T	C / T	C / T	C / T	C / T	C / T	C / T	C / T	C / T
COOLANT SYSTEM FLUSHING	ONCE A YEAR OR AFTER 1500 HOURS									
FUEL SYSTEM										
FUEL FILTER	-	-	-	R	-	R	-	R	-	R
CLUTCH										
CLUTCH OPERATION AND PEDAL FREE PLAY.	C / A	C / A	C / A	C / A	C / A	C / A	C / A	C / A	C / A	C / A
TRANSMISSION / HYDRAULIC										
OPERATION OF GEARS	-	C	C	C	C	C	C	C	C	C
TRANSMISSION / HYDRAULIC OIL	-	C/P	C/P	C/P	C/P	R	C/P	C/P	C/P	R
TRANSMISSION / HYDRAULIC OIL FILTER	-	R	R	R	R	R	R	R	R	R
MAGNETIC STRAINER	-	K	K	K	R	K	K	R	K	K
TRANSMISSION BREATHER ASSY	K	K	K	K	K	K	K	K	K	K
OPERATION OF HYDRAULIC	-	C	C	C	C	C	C	C	C	C
HYDRAULIC HOSES AND CLAMPS FOR TIGHTNESS	-	C	C	C	C	C	C	C	C	C

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

MAINTENANCE INTERVAL (HRS)	EVERY 10	50	250	500	750	1000	1250	1500	1750	2000
BRAKES										
BRAKE OPERATION	-	C	C	C	C	C	C	C	C	C
BRAKE PEDAL FREE PLAY	-	C / A	C / A	C / A	C / A	C / A	C / A	C / A	C / A	C / A
STEERING										
STEERING OPERATION	-	C	C	C	C	C	C	C	C	C
STEERING TANK OIL LEVEL (P/S)	-	C/P	C/P	C/P	C/P	C/P	C/P	C/P	C / P	C / P
STEERING OIL STRAINER FILTER (P/S)	-	K	K	R	K	K	R	K	K	R
KING PIN	-	G	G	G	G	G	G	G	G	G
TOE IN (FRONT TYRE)	-	C / A	C / A	C / A	C / A	C / A	C / A	C / A	C/A	C/A
FRONT AND REAR AXLE										
STUB AXLE GREASE	-	G	G	G	G	G	G	G	G	G
WHEEL BEARING GREASE	-	-	G	-	G	-	G	-	G	-
FRONT AXLE 4X4										
FRONT HUB OIL (4X4)	-	C	R	C	C	C	R	C	C	C
DIFFERENTIAL OIL (4X4)	-	C	R	C	C	R	C	C	R	C
BREATHER ASSY. (4X4)	-	K	K	K	K	K	K	K	K	K
WHEELS AND TYRES										
WHEEL NUTS AND BOLTS	-	C / T	C / T	C / T	C / T	C / T	C / T	C / T	C / T	C / T
TYRE AIR PRESSURE	-	C / A	C / A	C / A	C / A	C / A	C / A	C / A	C / A	C / A
BATTERY										
BATTERY ELECTROLYTE LEVEL	-	C	C	C	C	C	C	C	C	C
BATTERY TERMINAL	-	K	K	K	K	K	K	K	K	K
METER /GAUGES										
FUNCTIONING OF OIL GAUGE	C	C	C	C	C	C	C	C	C	C
FUNCTIONING OF TEMP.GAUGE	C	C	C	C	C	C	C	C	C	C
FUNCTIONING OF ALL WARNING LIGHTS	C	C	C	C	C	C	C	C	C	C

LEGEND

A	ADJUST	G	GREASE	C / A	CHECK / ADJUST
T	TIGHTEN	K	CLEAN	C / P	CHECK / TOP UP
C	CHECK	W	WASHING	C / T	CHECK / TIGHT
R	REPLACE	D	DRAIN		

* Engine Oil Grade should be selected as per operating Temperature condition.

* Anti freeze should be used in sub zero ambient temperature..

* Clean Air Cleaner element as and when required as per field operating conditions.

* Clean Strainer filter of Power Steering Tank when any rework of pressure line.

* Clutch pedal play should be adjusted as per field operating conditions.

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

5.2 Fuel Tank Filling

CAUTION *: Comply with the following Instructions when working with the diesel fuel :*

1. Do not smoke while filling the fuel tank because diesel is explosive liquid and catch fire easily.
2. Never use such mixtures. Moreover, mixtures of diesel fuel and alcohol are not approved since the resulting lubrication of the fuel injection system is insufficient.
3. Clean around the plug where the fuel is poured and keep it clean.
4. Fill the tank at the end of the day to prevent the formation of overnight condensation.
5. Never remove the plug or fuel the tractor while the engine is running. Keep control of the pump nozzle whilst the tank is being filled.
6. The tank must not be completely filled. Allow space for an increase in volume. If the original tank plug is lost, it must be replaced with an original spare which must be fully tightened.
7. Dry up any fuel spill immediately.

5.3 Fuel Requisites

It is important to use good quality fuel if the engine Is to be long-lasting and give a good performance. The fuels must be clean, well refined and non-corrosive for the fuel system components. Make sure that you use fuel of a known quality and reliable origin.

5.4 Fueling

Before you fuel the tractor, clean the zone around the fill plug to prevent foreign bodies from entering the tank. After fuelling, screw on the plug and tighten it well.

5.5 Fuel Storage

Take all the necessary precautions to ensure that stored fuel does not become polluted with dirt, water or other substances.

- Store fuel in black iron cans. Do not store it in galvanized cans as the galvanization treatment would react with the fuel and form compounds that would spoil the injection pump and injectors.
- Store fuel cans away from direct sunlight and slightly tilted, so that any sediment inside is eliminated through the outlet tube.
- To make sludge and condensation water easier to remove; there should be a discharge plug C In the lowest point, on the opposite side to the drain tube.
- If the fuel is not filtered from the storage can, use a funnel with the fine gauge mesh over the tracking fuel tank fill plug inlet when fueling.
- Plan your fuel purchases so that summer fuels are not kept for too long and used in the winter.

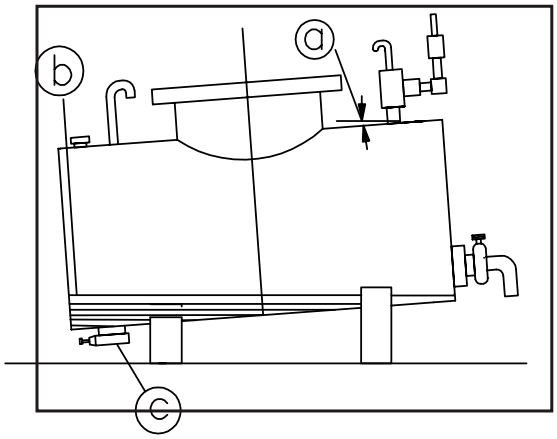


Fig.5.1 Setting up a tank for fuel storage and decanting.

a. Slope 25%.
b. Condensation water.
c. Sludge drain plug.

Fuel tank Capacity: 85 Litres

Fuel grade: High speed Diesel ≤50 PPM Sulphur content

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

5.6 Engine Oil Level (Fig.5-3)

Leave the tractor parked on a leveled surface for at least five minutes before checking the level, to allow the oil to settle in the sump:

Take out the DIPSTICK, wipe it with a rag and then dip it into sump again, then remove the dipstick again and ensure that the oil level is within the upper/lower mark reaches and does not exceed the upper mark.

If necessary, add recommenced engine oil through the oil filler until the required level has been reached.

CAUTION : *Never ever use the engine with the oil level below the Minimum Mark.*

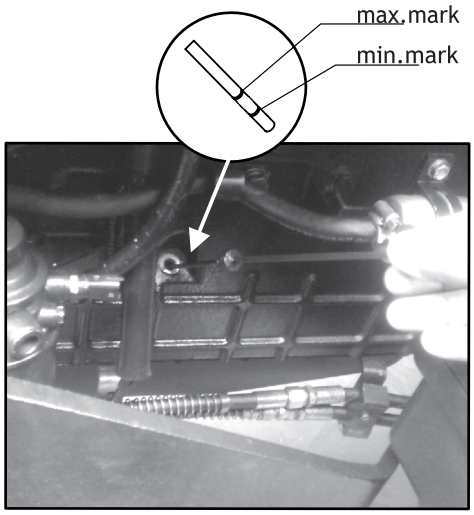


Fig.5-3 Engine oil (LH.S OF Engine)

5.7 Power Steering Reservoir Oil Level

Take out dipstick cum breather (1) and wipe it with clean cloth and observe the oil level in the tank. If necessary pour additional oil through the dipstic hole.

(The oil filter for power steering circuit is located on the power steering reservoir.)

Unscrew the four bolt (2) of filter strainer housing cover plate then remove and replace the filter strainer as per scheduled maintenance.

Tighten the four bolts.

Cleaning Procedure:

(1) Remove the steering tank cap.
(2) Take out the oil strainer.
(3) Clean it with air pressure.
(4) Reinstall.

Recommended Oil Grade: Dextron II D

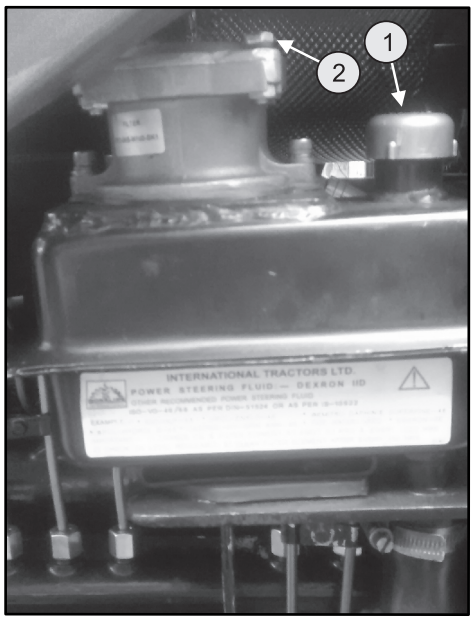


Fig. 5-4

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

5.8 Air Cleaner (Dry Type)
Air filter discharge valve (Fig. 5-5)

Discharge the dust deposits and sediments daily by pressing the rubber valve (2) on the air filter housing (1).

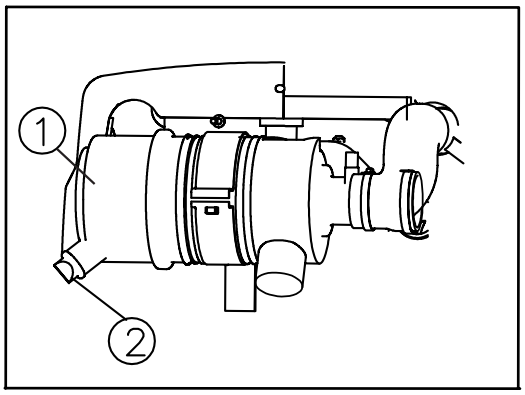


Fig. 5-5

5.9 External Cartridge Of Dry Air Filter (Fig. 5-6)

(1) Air Filter Housing
(2) Clamp
(3) Cover
(4) External Cartridge (Primary Element)
(5) Internal Cartridge (Secondary Element)

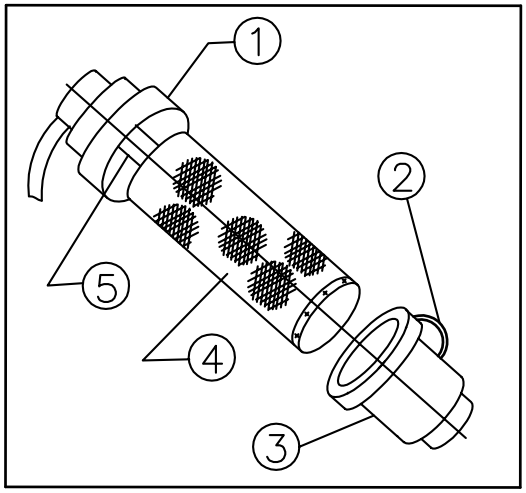


Fig.5-6

Important Instructions :

- Clean the primary element after every 300 hrs of operation or when ever choke indicator glows on dashboard.
- Replace primary element after 3 time cleaning or 900 hrs (whichever is earlier).
- Gently pull primary element back and forth to take it out from housing.
- Clean primary filter element by blowing air (max. pressure not more than 5.9 bar) from inside.
- Internal cartridge not to be removed during cleaning of primary element. Internal cartridge to be replaced after every three replacement of primary filter.
- Do not clean Internal cartridge by compressed air.
- Use clean cloth to wipe sealing areas of primary filter.
- Ensure proper seating of filter into housing before latching the cover. Do not use latches on the cover to force the filter into air cleaner that could cause damage to housing and will void the warranty.
- Ensure proper seating of all rubber rings, replace the damaged ones.

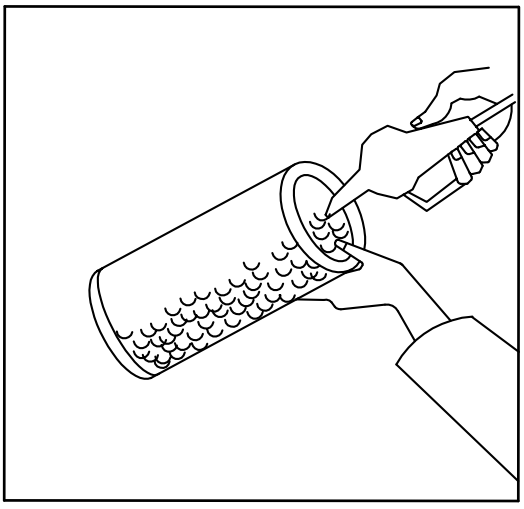


Fig.5-7

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

5.10 Radiator Cap Checking Procedure

Cooling system is closed pressurized system so don't operate the tractor without radiator cap or cap with damaged rubber seals/defective release valve to avoid water loss and engine overheating. Use genuine radiator cap only.

Cooling circuit expansion reservoir (1) (Fig. 5.9)
Periodically check the level in the cooling circuit expansion reservoir. Top up through cap to recommended level.

WARNING : *NEVER remove the cap from the radiator while the engine is still hot. Always unscrew the cap slowly by one position and allow the pressure to drop before you loosen it completely.*

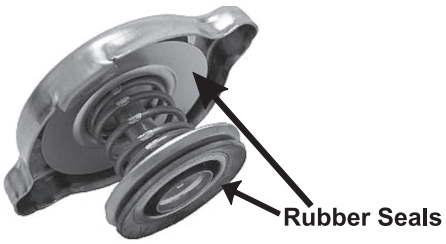


Fig. 5-8

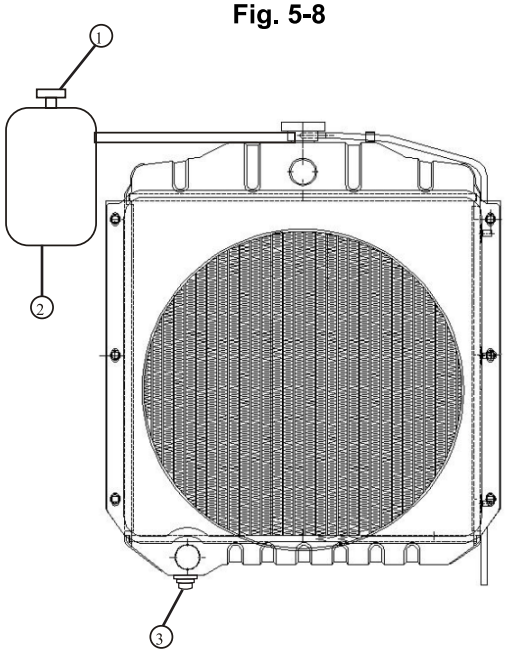


Fig. 5-9

5.11 Cooling System Cleaning

Remove the filler cap (1) from the expansion reservoir (2) (Fig. 5-9) to make coolant draining easier.

Set a suitable vessel in position and drain out the coolant through radiator plug (3) and of the engine block.

Shut off the drain plugs and fill up the system with coolant fluid until the level reaches 20-25 mm below the edge of fill plug (1) (Fig. 5-9) of radiator.

Remove the fill plug and allow the engine to run at 1000 RPM for a few minutes. Now check the level and top up if necessary. Shut the fill plug once the cleaning operation has terminated.

NOTE : In an emergency to make up for sudden leaks, the system can be topped up with water by pouring this through the filler plug.

CAUTION : *Have the fault repaired as soon as possible. Fill with mixture as indicated in the table 5.10 (a).*

Temperature	-8°C	-15°C	-25°C	-35°C
%age of antifreeze per volume%	20	30	40	50

Precaution against freezing temperatures

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

Precaution against freezing temperatures

The system is filled with a mixture of water and antiscaling. Add the proportion of antifreeze given in the following table.

This mixture can be permanently maintained in the circuit for 1 year so long as you have not totalized 1000 hours service during this period. In this case, the mixture must be changed.

Flush out the system whenever you change from using pure water to antifreeze mixture and vice versa.

5.12 Radiator and Intercooler Cleaning

Periodically check to make sure that the Radiator and Intercooler fins are not clogged. Clean with a jet of compressed air directed from the inside towards the outside.

⚠ ***WARNING*** *: These operations must be carried out when the engine is cold. When hot, the grilles and radiator will burn the hands and fingers.*

NOTE: The best results are obtained with a steam cleaver that softens up the dirt. Use a lamp to check the cleaning between the radiator fins. We recommend a daily or cleaning on requirement when Tractor is used in the excess dust operation and chances of radiator chocking.

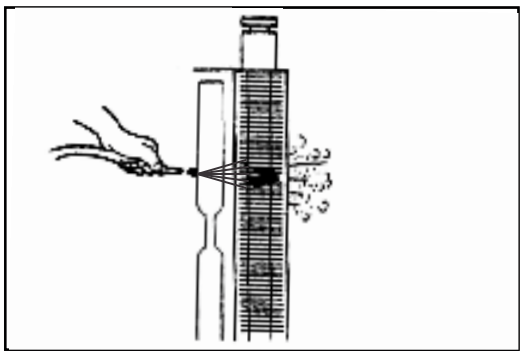


Fig. 5.10

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

5.13 Engine Oil

During the running in period, the engine oil must be changed after the first 50 hours. Following this, change the oil at every service (250, 500, 750 hours, etc)

Change the oil while the engine is hot.

Allow the tractor to cool down. Remove drain plug after parking the tractor on leveled surface.

Fit the drain plug back on the tighten it (3.5 Nm diving torque).

Fill up oil through oil filler of the recommended grade until reaching the maximum level mark on the dipstick.

NOTE: Allow the oil to settle in the engine sump before checking the level. 250 hours is the maximum tolerated frequency for oil changes. The oil must be changed more frequently (e.g. every 125 hour) if the tractor is used in heavy duty conditions. If the tractor is used frequent, change the engine oil at least once a year regardless of the actual number of hours

5.14 Engine Oil Filter

During the running in period the engine oil must be changed after the first 50 hours. Following this change the oil at every service (250,500,750, etc).

1. Unscrew the old filter from its housing.
2. Smear the housing in which the new filter is to be mounted with clean oil . Make sure that the new filter fits correctly into his housing.
3. Fully tighten the new filter into its housing.
4. Top up the level with new oil of recommended grade.

NOTE : Consult the lubricant and fuel chart for the type of oil required.

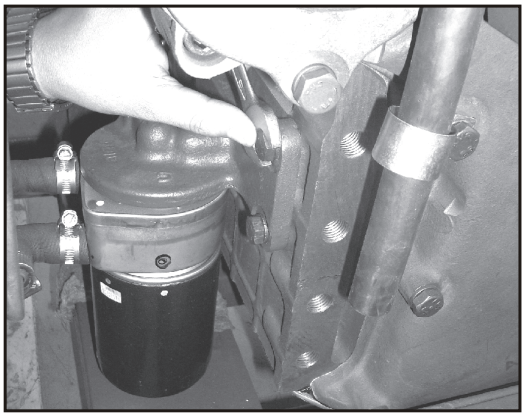


Fig. 5-11

⚠ ***WARNING :*** *Only use genuine filter cartridges. Use of non-genuine cartridges could damage the engine and shorten its working life.*

NOTE : Apply oil filter 'O' ring.

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

5.15 Spin-on Fuel Filter

1. Close the fuel supply.
2. Unscrew the Fuel Filter Assy (1) .
3. Take new Fuel Filter and replace it.
4. Open the Fuel Supply.
5. Slightly loose the bleed screw (2) and do the hand priming by filter primer (3) at Fuel Filter Assy.
6. Start the Engine and check for leakages.

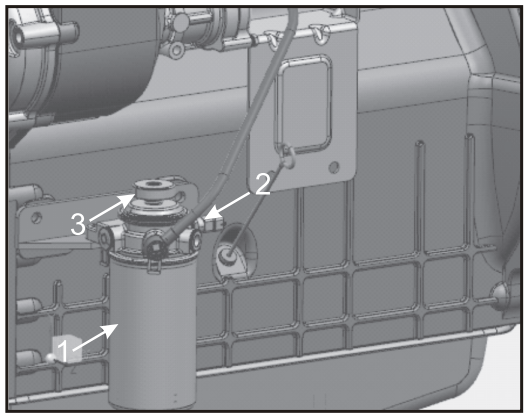


Fig. 5-12

5.16 Transmission / Hydraulic Oil Filter Fig. 5-13a

Hydraulic oil filter is fitted at right hand side of the tractor.
Carefully unscrew oil filter (1) from its adapter, Use of Filter wrench may be necessary.
Clean the filter adapter and lubricate rubber seal on replacement filter with clean hydraulic oil.
Install new filter duly filled with clean oil and tighten by hand.
Do not use filter wrench to tighten the filter.

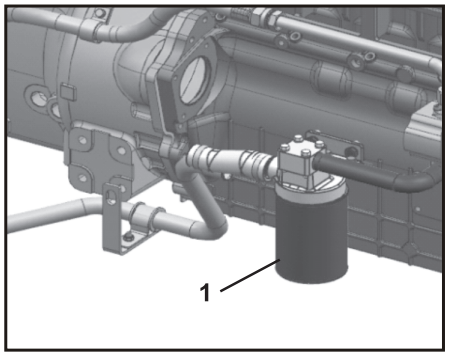


Fig. 5-13a

Magnetic Strainer (Fig. 5-13 b & 5-13c)

First Clean the Magnetic Strainer after 50 hours and then at every service.

Cleaning Procedure:

(1) Remove all hose warm clips (1) Fig. 5-13c.
(2) Separate the Hose pipes (2) Fig. 5-13c from Strainer Assy.
(3) Remove the magnetic strainer (4) from the housing (3).
(4) Clean the strainer and refit the same.
(5) Fix the hose pipes and tighten the hose warm clips.

Replacement: Replace the magnetic stainer at every 750 Hours.

WARNING : *NEVER DISMANTLE THE MAGNETS DURING CLEANING.*

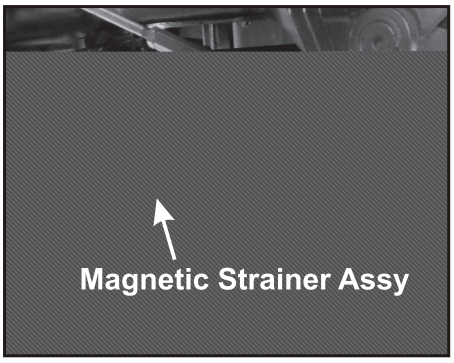


Fig. 5-13b

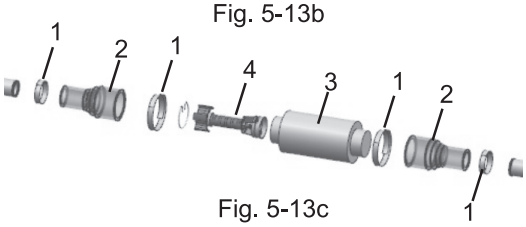


Fig. 5-13c

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

5.17 Starter Motor (Fig. 5.14)

Every 1000 hours, or once a year, clean the starter motor thoroughly and, in particular, check if the brushes and collector are worn.

Note: Always cover the starter motor during washing of tractor.

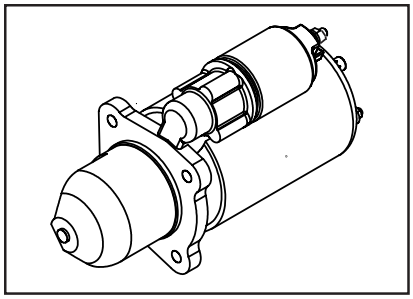


Fig.5-14

5.18 Alternator (Fig.5.15)

Have the condition and operation of the alternator checked by a specialized workshop.

The alternator keeps the battery fully charged. The alternator does not require special maintenance. However the following precautions must be observed.

When connecting the battery to a charger, make sure that the positive (+) lead of the charger is connected to the positive of the battery, and the negative (-) to the negative. Incorrect connection will damage the alternator diodes and other circuit components. Never run the alternator unless it is properly connected. If the battery is not connected, high voltages can build up inside the alternator that can be extremely dangerous if the output terminal is touched. Make sure that all connections are firm and tight before carrying out any inspections or tests on the electrical system.

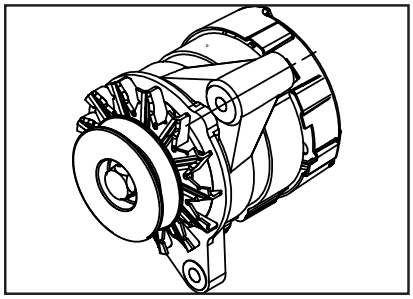


Fig.5-15

Adjustment

To adjust the fan belt tension loosens the nut (A) and (B). Move the alternator outwards to obtain proper belt tension then re - tightens the nuts. (A & B).

Drive belt deflection	
Old	**New**
09 - 10mm	**10 - 11mm**

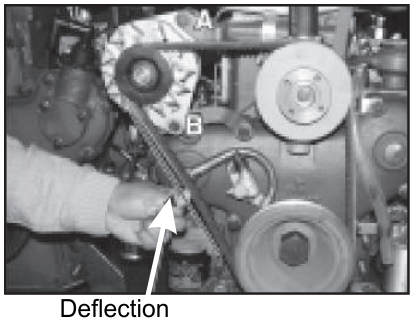


Fig.5-16

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

5.19 Clutch Pedal (Fig. 5-14)

Check the free travel of the gearshift clutch pedal at suitable intervals.

Excessive play reduces the disengaging travel of the clutch and could prevent the gears from being correctly meshed. On the other hand, insufficiently play could lead to abnormal wear on disengaging thrust bearing, overheating and rapid wear on the clutch itself. Free travel (A) (Fig. 5-14) measured on the pedal should be 20-25mm.

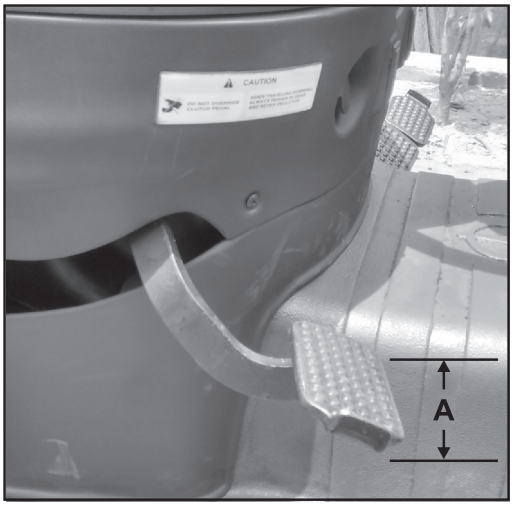


Fig.5-17

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

5.20 Adjusting The Brakes (Fig. 5-16)

Rear brakes

Adjusting the brakes for the first time after the first 50 hours, then according to the work conditions.

The braking system must be adjusted when the free travel of the pedals (Fig. 5-16) becomes excessive and the pedals are near to end of travel. Proceed in the following way to restore free pedal travel to its normal value of about (50-55mm) :

1. Jack up the rear wheels of the tractor.
2. Make sure that the parking brake is off.
3. Free the brake pedals by raising the lock.
4. Unscrew the check nut (1) . Slowly, Tighten the adjuster (2) until you can no longer turn the wheel by hand.
5. Make a reference mark on the adjuster nut (2) and on the support, then slacken off the adjuster nut by 1 turn, i.e. until the wheel can be freely turned. Now lock the adjuster with the relative check nut (1).
6. Check that the brake pedal has a free travel of 50-55mm and repeat the adjustment if necessary.
7. Repeat the same procedure for the other side.

   Finally, check that the free travel is the same for both pedals and that the brakes engages simultaneously on both sides.
8. Check that the parking brake lever has not been affected and adjust if necessary.

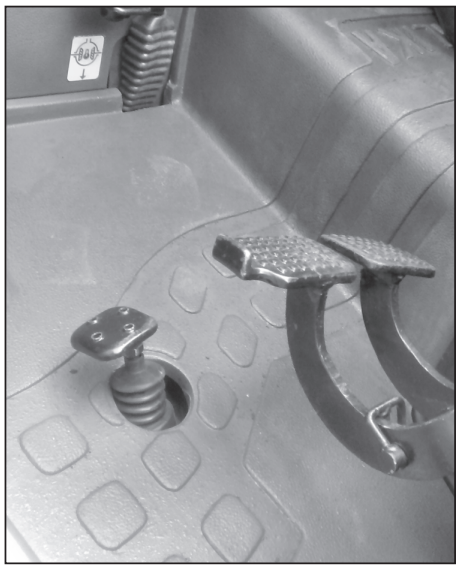


Fig. 5-16

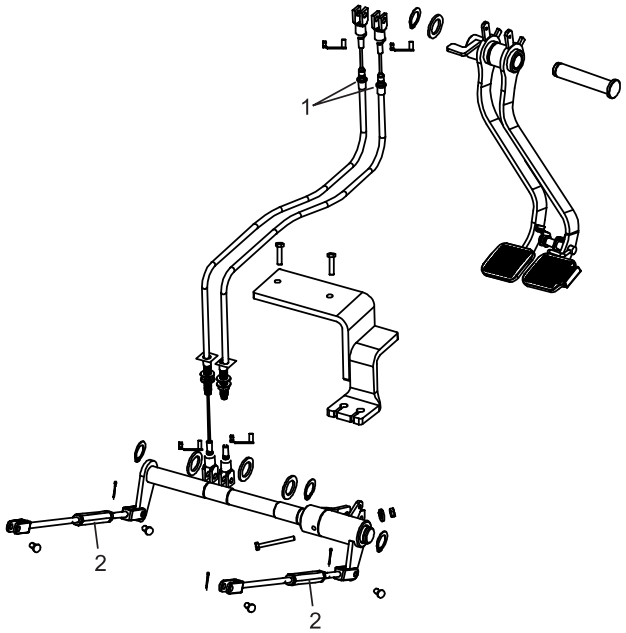


Fig. 5-17

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

5.21 Parking Brake - (Fig. 5-18)

The parking brake lever (1) acts directly on the main brakes. Make sure that free travel is identical for both pedals, since free travel of the pedals dictates the free travel of the parking brake. Once you have adjusted the brake pedals, adjust the free travel of the parking brake by means of adjustment at parking brake cable.

Loosen lock nut (3) and lock nut (4).

Adjust wire (5) so free play is correct for parking brake

Secure lock nuts. Make sure lock nuts are secured when brake adjustment is complete.

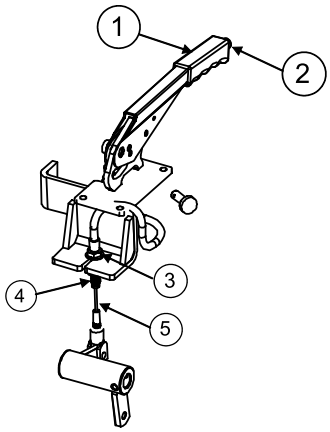


Fig.5-18 Parking brake adjustment

5.22 Front Axle Oil Level

4WD front axle (Optional)

Regularly check the oil level in the differential of the front axle and in the front axle side final drives. Park the tractor on level ground.

Position the final drive plugs (1) (Fig. 5-19) on the wheel center line. Remove the plugs and check the level. Top up if necessary with oil of the specified type through the plugs.

Remove the level plug (2) (Fig. 5-19) from the central axle housing. The oil level must reach the hole. Top up if necessary with oil of the specified type through the plug (2) (Fig. 5.20).

NOTE : See the fuel and lubricant chart for the correct type of oil.

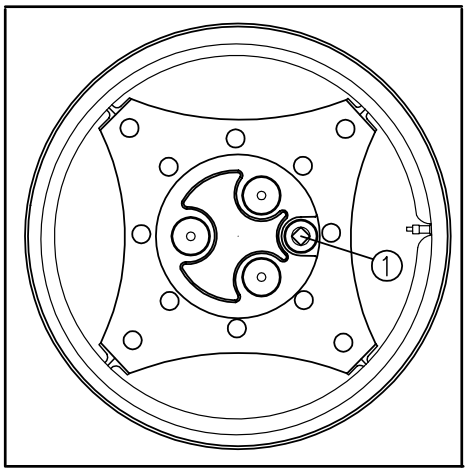


Fig.5-19 Front axle final drive:1Filter,drain and level plug.

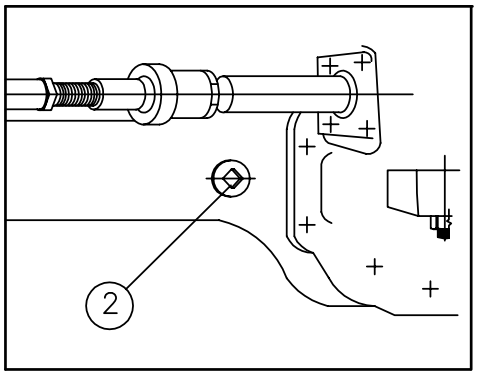


Fig.5.20

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

5.23 Oil Changes In 4wd Front Axle

Axle housing (Fig. 5-21)

Place a vessel under the plug (1),remove the plug drain out all oil.

Side final drives (Fig. 5-19)

Position the final drive plugs (1) downward. Place a vessel under each final drive plug (1) (one for each final drive). Remove the plugs and drain out all oil.

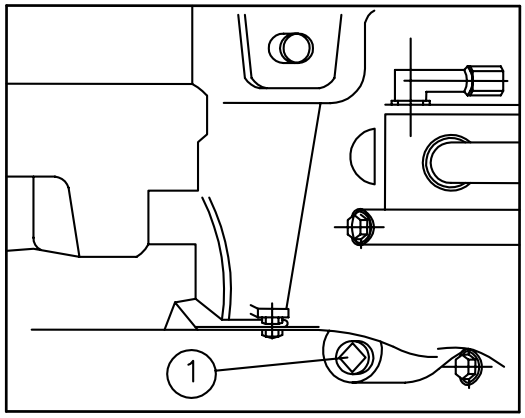


Fig.5-21

Oil filling in 4WD front axle (Optional)

NOTE : See the Lubricants and Fuels chart for the correct type of oil.

Front axle housing

Fit the plug (1) (Fig.5-21) back when no more oil is coming out and fill up with fresh oil through the filler (2) (Fig.5-20) up to the level of filler hole.

Wait for the oil to stabilize before checking the level. Top up if necessary.

Fit the plug back (2) (Fig. 5-20).

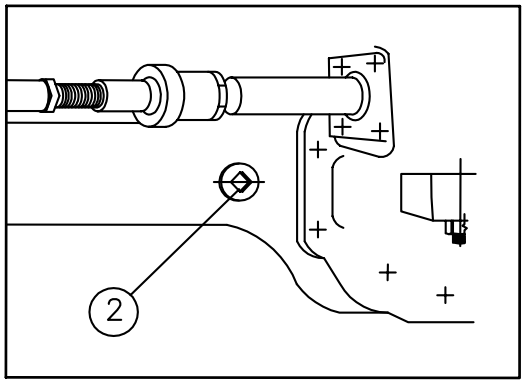


Fig.5.20

Side final drives

Position the plugs (1) (Fig.5-19 - Refilling) on the wheel center line. Fill up with oil of the specified type to the level of the holes.

Wait for the oil to stabilize before checking the level. Top up if necessary. Fit the plug back (1) (Fig. 5-19).

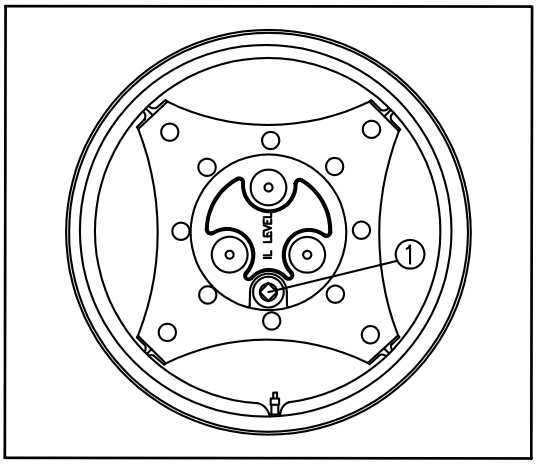


Fig.5.19 - Oil Drain

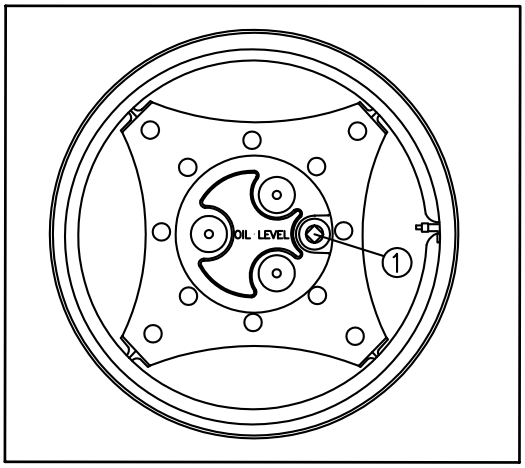


Fig.5.19 - Refilling

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

5.24 Oil Changes For Transmission, Rear Final Drives And Power Lift Hydraulic Circuits.

WARNING : *When draining out and filling oil and checking oil level, take care that the transmission is in horizontal position.*

Oil draining

1. Lower the lift arms to the ground.
2. Remove the plug to make oil draining easier.
3. Place vessel under all drain plugs of transmission housing to collect the oil as it drains out.

WARNING : *Beware of powerful oil jets. Follow all safety rules.*

4. Remove the plugs (Fig. 5-23) and drain out the oil.
5. Clean the plugs and fit back on.

Filling up the transmission

1. Fill up the transmission oil from dipstick plug opening to the maximum level mark on the dipstick (Fig 5-22).
2. Put the gearshift lever in neutral and start the Engine. Let it run on idle until the oil reaches a temperature over 25°c.
3. Check that the transmission oil reaches the required level mark on the dipstick.
4. If required, fill up to the correct level.

NOTE : Let the oil stabilize before checking its level.

WARNING : *See the Lubricants and Fuel chart for the type of oil to be used according to the transmission type.*

NOTE : If implement used require more quantity of oil, make sure that the transmission contains enough oil for every work condition. Top up as required.

There is gap of 5 Ltrs. between minimum and maximum oil lavel mark.

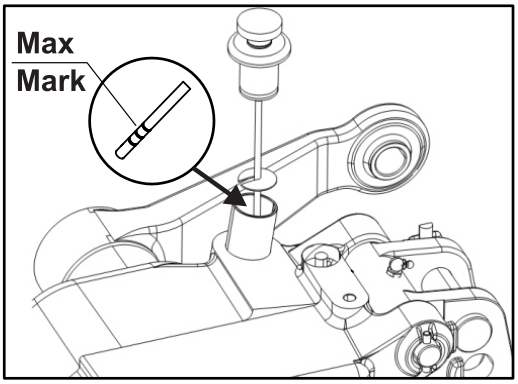


Fig.5-22

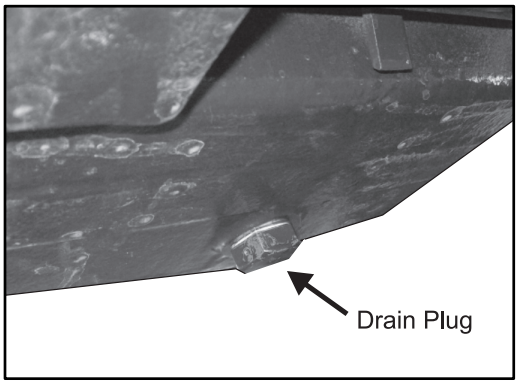


Fig.5-23

5.25 Steering Cylinder Knuckle Joints

Have the knuckle joint nuts (1) checked by an authorized service center after the first 50 hours and then at every service (Fig. 5-24).

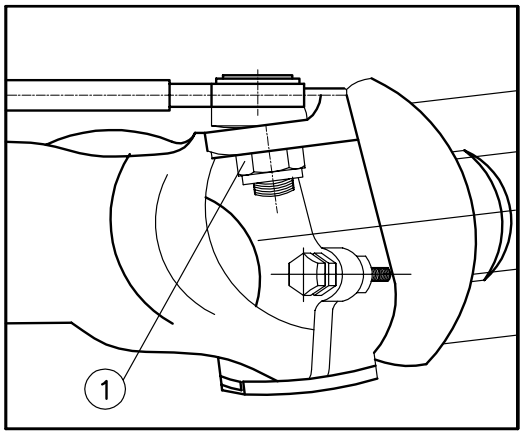


Fig.5-24

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

5.26 Battery Maintenance

Your tractor is equipped with a "Maintenance Free battery." Keep the battery clean and dry, particularly on top. Check the electrolyte level: it should just touch the upper mark and never be under the bottom mark. If necessary, open the cover and add distilled water.

Battery Removal Procedure

The battery box is located under the right floor of the tractor. To access the battery, follow the following steps:

1 Remove the locking pin (1) Fig. 5.25 a.

2. Pull and rotate the front panel of battery box to right side as shown in Fig. 5.25 b.

3. Unscrew the lock nuts (1) Fig. 5.25 c and take the battery out by using the handle.

Check Electrolyte Level

It must be as per the recommendation of battery manufacturer. if required top up with distilled water. Never add acid.

Check Carefully Battery Charging

Protect against freezing. Insure that terminals are clean and tight. Check electrolyte battery charge. This operation is carried out using a battery hydrometer. Specific gravity of a fully charged battery is 1.270±0.005 at 27°C.

Precautions

1. The electrolyte in the battery contains sulphuric acid. which is dangerous and burn the skin take all necessary precautions (protective clothing).
2. If you accidentally splash yourself with acid, take care not to breath in the fumes, rinse thoroughly and consult a doctor immediately.
3. Keep the battery well away from any naked flame or sparks.

WARNING : *Check for all the clearance inside the battery box to avoid any short circuit inside the batterybox*

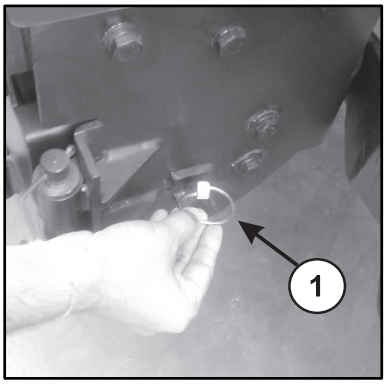


Fig.5-25 a

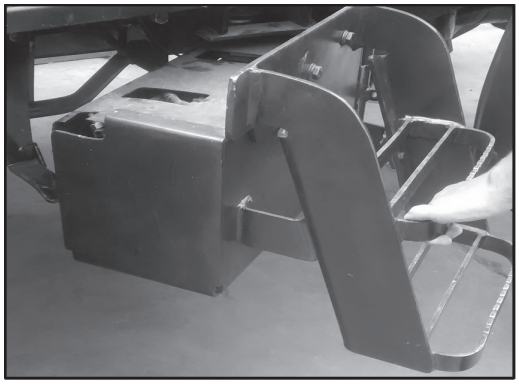


Fig.5-25 b

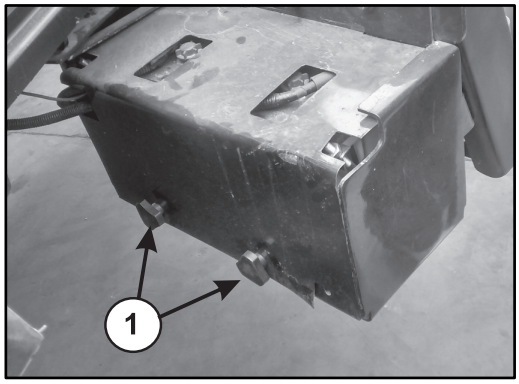


Fig.5-25 c

WARNING : *NEVER top up with SULPHURIC ACID.*

CAUTION : *Apply terminal grease periodically to prevent corrosion of terminals*

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

Battery Eye Indicator (If provided) Fig. 5-26

Battery eye indicator for easy maintenance check.

Indicator Sign	Description
Green with red dot	Battery OK
White with red dot	Charge the Battery
Red with white dot	Add Distilled Water

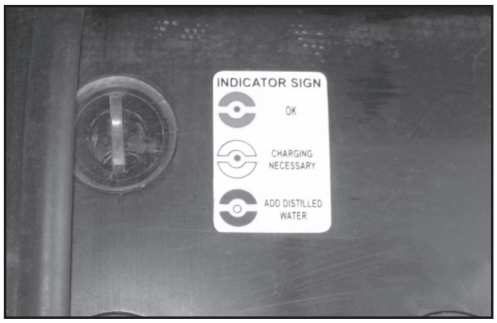


Fig.5-26 Battery Indicator

NOTE : Proceed as described below when the old battery must be replaced with a new one:

1. First disconnect the terminal with the negative(-) sign and then the one with the positive (+) sign.
2. Fit the new battery into its housing without tightening the fixing screws too much.
3. Clean the terminals and connect them to the battery poles. Make sure you connect the negative (-) pole last. Fully tighten the terminal screws on to the poles and protect them with Vaseline.
4. Never short circuit or earth any of the alternator terminals. This could damage the electricalsystem.
5. Never invert the alternator connections. The battery and alternator earths must be of the same sign or the alternator diodes will be damaged.
6. Always disconnect both the alternator terminals before undertaking any electrical are welding on the tractor.

NOTE : Battery leads should be disconnected prior to any welding job as prevention to electrical system damage.

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

5.27 Headlights

As you can use your tractor on public roads, the lighting must comply with the applicable traffic and road regulations. Periodically check headlight alignment in the following way:

Checking Headlight Alignment (Fig. 5-27)

Halt the tractor on level ground facing a shaded wall (Preferably white). The tractor must be unloaded and the tyres correctly inflated. Mark two crosses on the wall in front of the tractor headlights (Fig. 5-27).

Reverse the tractor 5 meters (16.4 ft) away from the wall.

Switch in the main beam. The center of each beam must be vertically aligned with the crosses on the wall. A maximum outward divergence of 130 mm (5 in) is acceptable.

Switch on the dipped beam. The line separating the lighted area from the dark area must fall below the crosses and must be separated from their centers by at least 1 /20th of the height of the crosses from the ground.

Adjust the headlight alignment adjusters to correct alignment as necessary (Fig. 5-28).

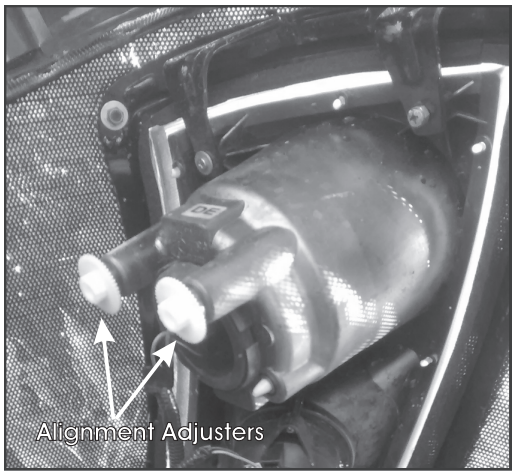


Fig.5-27

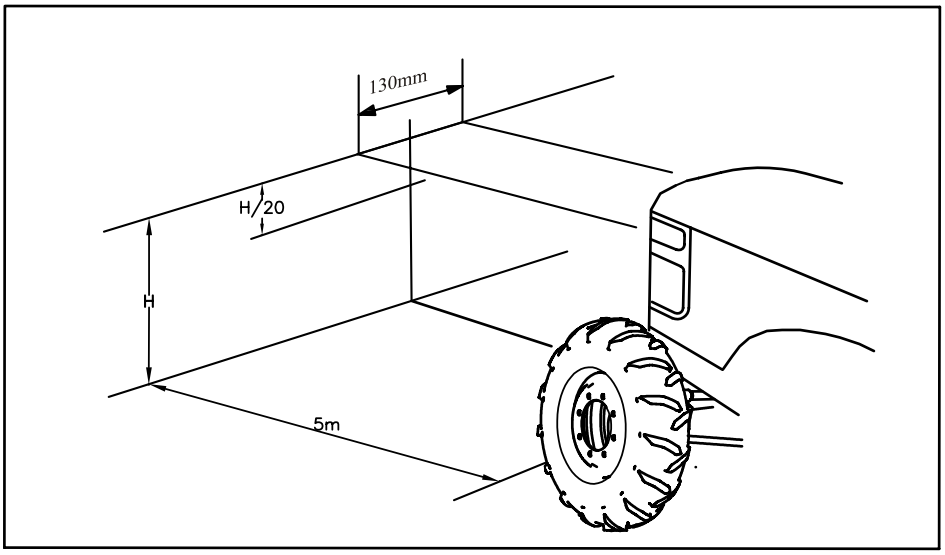


Fig.5.28 Checking headlight alignment

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

5.28 Fuses And Relays

Fuses against short circuits and excessive power draw protect the tractor's electrical system. The number of the fuses in the electrical system depends on the tractor model.

NOTE : Before replacing a blown fuse with a new, equivalent ohm, the cause that lead to the fault should be ascertained and removed.

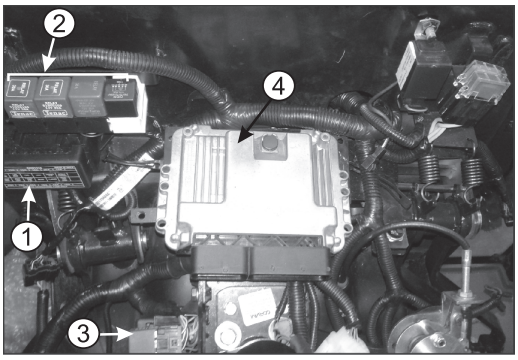


Fig. 5-28

Fuses and relay in the main fuse box (1).

FUSE	
PROTECTED CIRCUIT	**Amp**
Mobile Charger	10
Parking Fuse	10
Plough Lamp	20
Flasher	15
Low Beam	15
High Beam	15
Horn	10
Front Light	25
Brake Light	10
Revolving Light	10
Rear Light	15
Grid Heater	15

RELAYS (2)	
Starting Relay	max. 30A
Main Relay	max. 30A
Low Beam Relay	max. 30A
High Beam Relay	max. 30A
Grid Relay	max. 100A

Fuses and relay in the ECU fuse box (3).

FUSE	
PROTECTED CIRCUIT	**Amp**
Water in Fuel	15
ECU1	30
ECU2	30
High Pressure Pump	10

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

5.29 Long Idle Period

Take the following precautionary measures when your tractor is not going to be used for a long period of time.

- Park the tractor in dry sheltered place.
- Drain the coolant from the radiator and engine.
- Grease all points provided with grease nipples.
- Remove the injectors and squirt a small quantity of engine oil into the cylinders. Turn the engine over by hand, and then fit the injectors back in place.
- Generally clean the tractor .particularly the bodywork components. Protect the painted parts by applying silicon wax and the unpainted metal parts by applying protective lubricant. Park the tractor in a dry, sheltered and possibly ventilated place.
- Make sure that all the controls are in neutral (including he electric switches and parking brake controls).
- Remove the ignition key from ignition switch.
- Make sure that the cylinder stems (of the power steering, power lift system, etc) are positioned.
- Empty the fuel tank and fill with it with new diesel fuel until the maximum level is reached.
- Remove the battery, clean the cover and spread Vaseline on the terminal and terminal caps. Now connect the battery in the ventilated place where the temperature is not liable to drop below 10 and where it is not exposed to direct sunlight.
- Check the battery charge with a voltmeter as described in the battery part of this section Recharge if it is necessary.
- Place stands or other supports under the axles in order to take the weight off the wheels. When the tractor is raised in this way, it is advisable to deflate the tyres. If this is not possible, the tire pressure must be periodically checked.
- Cover the tractor with a tarpaulin (not plastic or waterproof).

CAUTION : *At the end of the idle period. When you start the engine again, pay particular attention to the instruction about starting engine in the operation chapter*

5.30 Miscellaneous Inspection

- Power steering cylinder hoses must not be crushed or cracked. The outer sheath must not be swollen in any way and there must be no oil leaks between the tubes and unions.
- Hand brake lever: make sure that the ratchet mechanism locks in a secure and stable way.
- Make sure that the wheel nuts are correctly torque. Make sure that the safety frame screws are well tightened.
- Check to sure that all other nuts and bolts are well tightened.
- Check the tyres pressure.

5.31 Inspection of Hoses

Check hose clamps of the following systems for tightness:

- Air Cleaner to engine intake or turbocharger
- Cooling system
- Hydraulic system
- Fuel system

Check all hoses for cracks which could cause leaks or possible failure. Replace as necessary.

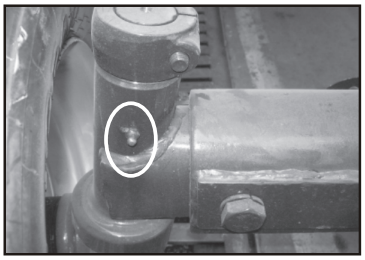
Check/Replace Hydraulic Hoses:

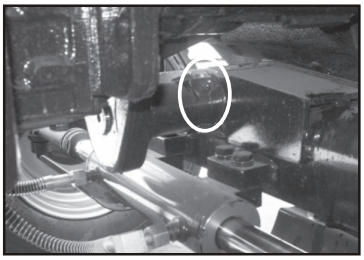
Check hydraulic hoses regularly (On every service / before cranking/ after long idle) for leaks, kinks, cuts, tears, rubbing, bulges, corrosion, exposed fabric and other signs of wear and damage.
Replace worn or damaged hoses immediately.
Replacement hoses are available at your dealer.

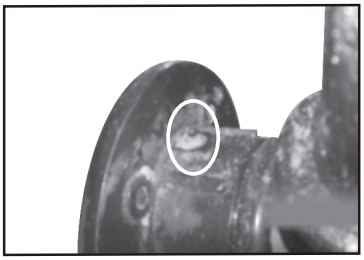
Downloaded from www.Manualslib.com manuals search engine

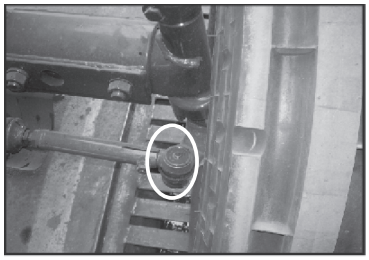
https://truckmanualshub.com/

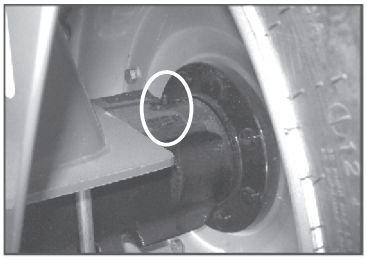
5.32 Greasing Points

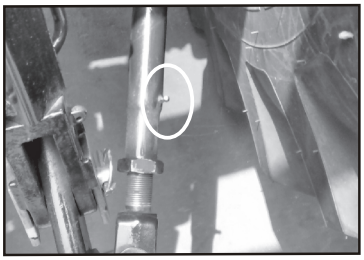

King pin (LHS & RHS)

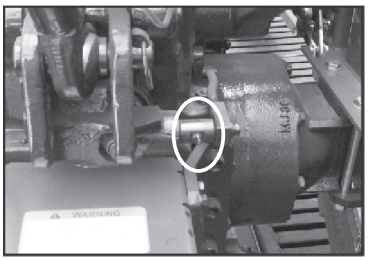

Centre Pin

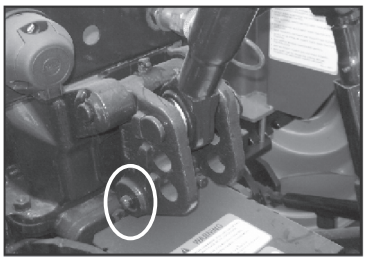

Front wheel hub (LHS & RHS)

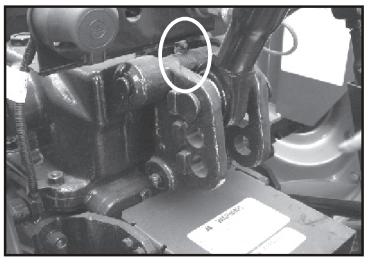

Tie Rod End (LHS & RHS)

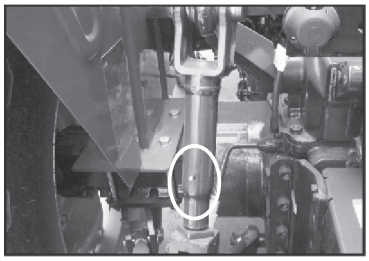

Rear Axle shaft (LHS & RHS)

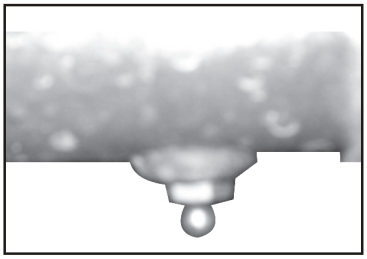

Stabilizer (LHS & RHS)

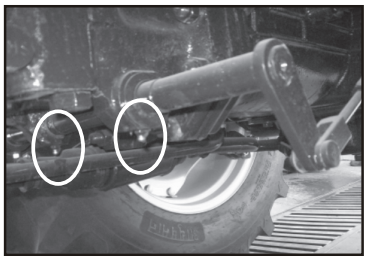

Draft sensing spindle

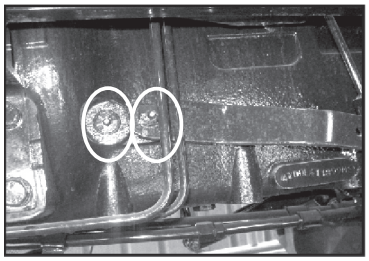

Rocker Link Lower Hinge


Rocker Link Upper Hinge


Lift Rods (LHS & RHS)


Command Support (Hyd)


Brake Link Shaft (LHS&RHS)


Clutch Actuating Shaft (LHS & RHS)

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

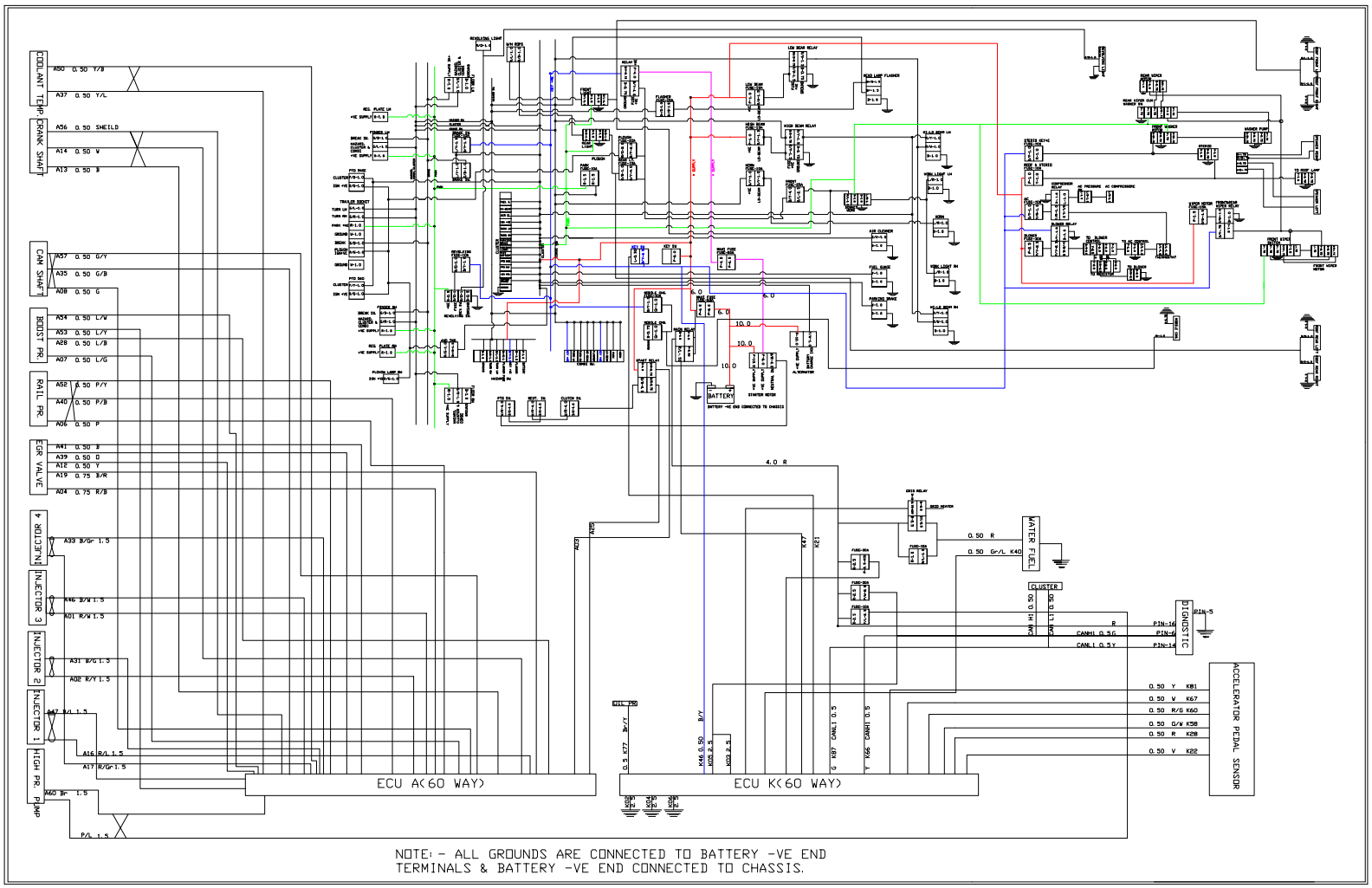
5.33 Oil and Lubrication Chart

Aggregate	Capacity	Recommended Grade
Engine Oil Sump	12 Litres	SAE 15W40
Gearbox and Rear Axle	34 Litres	ELF-2412 /API GL-4
Power Steering	3.5 Litres	Dextron II D
Front Axle (4WD)	5.5 (±10% Litres) 1 Litre (Hub)	API GL-4
Fuel	85 Litres	High Speed Diesel ≤50 PPM Sulphur content

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

5.34 ELECTRICAL WIRING CIRCUIT DIAGRAM - SOLIS 90



Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

CHAPTER - 6

TECHNICAL SPECIFICATIONS

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

TECHNICAL SPECIFICATIONS*

6.1 Technical Specifications

	Model	Solis-90 CRDI (2WD)	Solis-90 CRDI (4WD)
ENGINE	Make	ITL	ITL
	Model and Identification	4105CTI	4105CTI
	Engine Type	4 Stroke Deisel Engine, CRDI, Water Cooled, Turbocharger and Intercooler	4 Stroke Deisel Engine, CRDI, Water Cooled, Turbocharger and Intercooler
	Bore x Stroke (mm)	105 x 118	105 x 118
	Cylinder Capacity (CC)	4087	4087
	Compression Ratio	16.4:1	16.4:1
	Engine Rated Speed	2200	2200
	Low Idling RPM	750 RPM	750 RPM
	Total Lub. Oil Capacity (L)	12	12
TRANSMISSION	Clutch Type	Double Clutch	Double Clutch
	Gearbox Type	Synchrromesh Shuttle gear box with 12 forward and 12 reverse speeds	Synchrromesh Shuttle gear box with 12 forward and 12 reverse speeds
BRAKES & STEERING	Type	Oil Immersed Brakes	Oil Immersed Brakes
	Steering System	Power Steering	Power Steering
HYDRAULICS	Lifting Capacity	Std. 2500 / Optional 3000	Std. 2500 / Optional 3000
POWER TAKE OFF (PTO)	Type	540/540E	540/540E
	Engine Speed for 540/540E rpm	1933 /1652 rpm	1933 /1652 rpm
TYRES	Front Tyre Size	9.00 x 16	Bias - 12.4X24 / Radial - 320/85R24
	Rear Tyre Size	Bias - 18.4X30 / Radial - 460/85R30	Bias - 18.4X30/ Radial - 460/85R30
OVERALL DIMENSIONS (mm)	Wheel base (mm)	2270	2355
	Front Wheel Track (mm)	1398-1748	1520-1940
	Rear Wheel Track (mm)	1445-1845	1445-1845
	Length (mm)	4285	4285
	Width (mm)	1980	1980
	Height (at ROPS) (mm)	2775	2775
	Ground Clearance (mm)	415	415
	Weight (Unladen) in Kg	2995	3255
BRIEF SPECIFICATION OF MATCHING IMPLEMENTS	Disc Plough	3/4 Disc Plough	3/4 Disc Plough
	Rotavator	10 feet	10 feet
	Trailer	15 tonne	15 tonne
	Mold Board Plough	3/4 MB Plough	3/4 MB Plough

Note: All dimensions & specifications are for guidance purpose only & are subjected to change without any prior notice & Implement details are subjected to different field conditions.

Downloaded from www.Manualslib.com manuals search engine

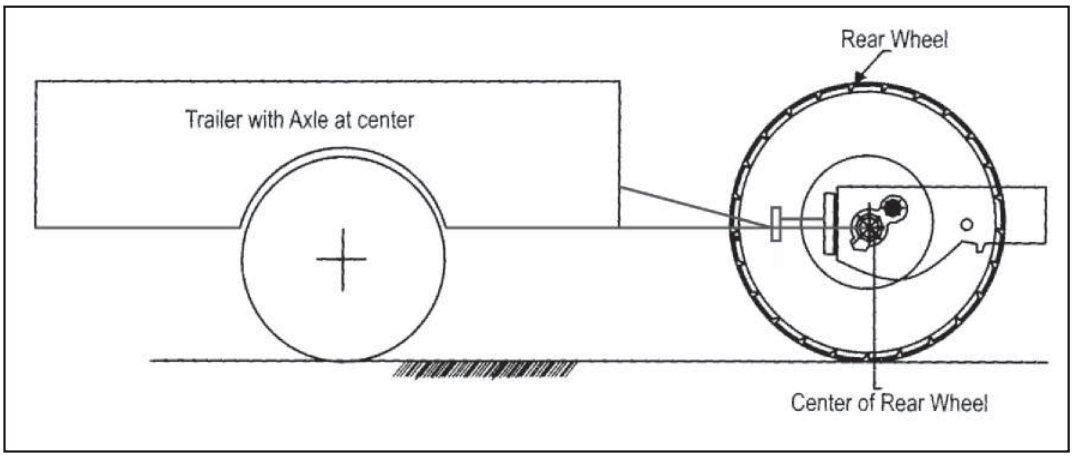
https://truckmanualshub.com/

6.2 Usage of Tractor with Trailer

Front end lifting is not a defect of tractor, it depends upon the hitch point of trailer. Guidelines to avoid the same are given below:

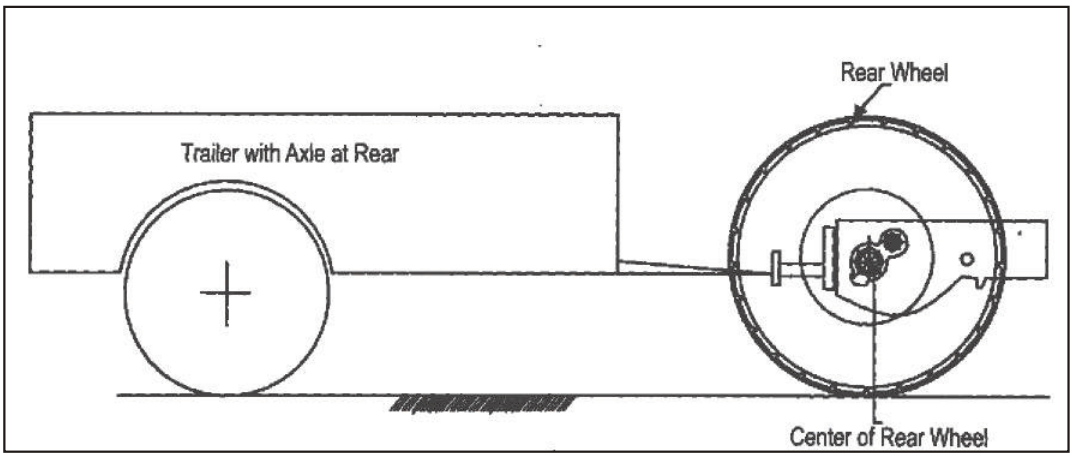
1. When Axle of Trailer is in Centre

When the axle of the trailer is in the centre side the height of trailer hitch plate area where trailer attachment lie, should be at height equal to rear axles or tractor. It should be not in lower position. In this case trailer hitch should be mounted in axis of rear axles & should be mounted on second hole from upper side provided on angle brackets for mounting trailer hitch.



2. When Axle of Trailer is on the Rear Side

When the axle of the trailer in on the rear side, the height of trailer hitch plate area where trailer attachment lie, should be at height lower than rear axles of tractor. It should be not in upper position. In this case trailer hitch should be mounted lower than the axis of rear axles & should be mounted on third hole from upper side provided on angle brackets for mounting trailer hitch.



Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

CHAPTER - 7

WARRANTY

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

WARRANTY

Warranty Policy

(w.e.f 5.12.2012)

M/S International Tractor Limited, India warrant, subject as hereinafter provided that all new goods supplied by it are free from defects in material and workmanship. Its liability under such warranty being limited to making good any part or parts which shall within 24 Months from date of Bill of lading or 18 Months from date of delivery to first original retail purchaser or 1500 Hours which ever is earlier. Warranty for proprietary items will be up to 12 months or 1000 working hours whichever appears earlier from the date of delivery to the first original retail purchaser. Claims will be settled against manufacturing defects by ITL as per their published warranty policy.

(A) - Terms and Condition:

- During warranty period the Authorized Distributor will repair the Tractor by replacing the failed parts from their stock which are supplied by ITL against their order and lodge the claim within 60 days from the date of repair of Tractor.
- The claim will be settled as per ITL warranty policy.
- If any work is out sourced like welding, machining operation, transportation, labor charges etc will not be covered under warranty.

(B) Exceptions To Warranty:

- Electrical fitment like Bulbs and Glasses do not come under warranty. At the time of delivery the customer should ensure that these things are in proper order because after that customer himself is responsible.
- Policy does not include replacement of Oil and Fuel filters, Oil and Lubricants,Nuts & Bolts, Plastic Material,
- Warranty for propriety articles like Fuel Injection Equipments Self starter, Alternator, Batteries, Tyres & Tube will be up to 12 months or 1000 working hours whichever appears earlier from date of sale to the original retail customer & shall be settled as per terms & conditions of the concerned manufacturer provided the repairable items have not been repaired from any other sources.
- Distributor will deliver the tractor with complete oil level as per standard. In case of any seal leakage, customer will have to bear the cost of oil.
- Warranty of normal wear and tear of the components; however ITL will discuss premature or epidemic on case by case basis.
- Parts lost in field are not covered under warranty.

Warranty is not applicable

- If tractor used overloaded, over heated, driver negligence, unauthorized modification, untimely servicing, poor maintenance or tractor met with an accident.
- Tractor has crossed the warranty period.
- In case of late submission of warranty claim. (The claim must be submitted within 60 days from the date of repair).
- If defective parts not available inspection. ITL can request parts within 90 days from date of submission of warranty claims.
- Once a Tractor is purchased / delivered, it will not be returned or replaced. It will be repaired only as per ITL warranty policy.
- Warranty applicable only to first retail purchaser.
- This policy ceases if the components show mishandling, modification, neglect of slight defect, overloading, overheating, poor maintenance or use of incorrect grade of oil.

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

- The warranty becomes inoperative if the tractor is repaired/ dismantled in an unauthorized workshop and use of replacement parts, not supplied/approved by ITL.
- ITL's responsibility is limited to the terms of the warranty and it shall not be answerable for personal injuries or consequential or resulting liability, damage or loss arising from any defects.

(C) - Warranty Claims Submission: -

Authorized Dealer will submit the warranty claim form by filling all column duly signed & seal by dealer with customer signature, along with following documents:

1. Photograph of failed component with Chassis/Engine number written with paint
2. Copy of Job card duly signed by dealer and customer.
3. Copy of Tractor Installation certificate//Delivery Certificate.

- Claims will not be entertained under warranty if received with incomplete information and without supporting documents.
- All warranty claims along with supporting documents must reach warranty department under intimation to Exports Department within 60 days from date of repair of Tractor thru courier/ e-mail.
- Distributor must provide the Installation certificate copy with in 30 days from the date the tractor is delivered to customer, for reference of ITL during warranty settlement. The claim of tractor for which installation certificate is not submitted, warranty claim shall not be settled.

(D) - Storage Of Defective Parts: -

- All failed parts pertaining to warranty replacement are property of ITL & must be retained with distributor at least for 90 days from date of submission of warranty claims with proper tagging & packing for further Inspection/investigation by ITL Engineer. These can be called back to ITL works if necessary for investigation at ITL expense.

(E) - Settlement Of Warranty Claim: -

- Claim will be settled with in 30 days from date of submission of warranty claim as per ITL warranty policy by our warranty division and reimbursement of parts value as per latest prices (applicable import price at the time of repair of tractor) + 35 % as freight component will be credited in Distributor account within 45 days of submission of warranty claim.

Address for submission of warranty claims: -

To,

Exports Department

INTERNATIONAL TRACTORS LTD,

Village- Chak Gujaran,
P.O.- Piplanwala-146022.
Jalandhar Road,
HOSHIARPUR (Punjab) INDIA.
Tel No +91-1882-302521
Fax No +91-1882302523
E- Mail exports@sonalika.com

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

CHAPTER - 8

Do's & Dont's

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

DO'S & DONT'S

DO'S

Engine

a. General

1. Do release the starter key once the engine has started.
2. Do check the proper functioning of oil pressure gauge and battery charging indicator once the engine has started.
3. Do get the tightness of cylinder head and manifold nuts checked regularly.

b. Air Inlet System

1. Do inspect the air element clean if necessary.
2. Do check are the inlet Hose and clamps regularly.

c. Fuel System

1. Do drain sediments from the fuel tank periodically
2. Do clean fuel tank throughly once in every 500 hrs.
3. Do change filter regularly as recommended as per recommended service schedule.
4. Do fill in diesel in the tank at the end of the day's work so as to avoid condensation.

d. Water cooling System

1. Do ensure that radiator is always filled with clean (soft)water & radiator cap in tight.
2. Do clean the radiator front grill to ensure free flow of air when the engine is operating.
3. Do ensure proper tension of fan belt. Deflection should not be more than (10 mm) when pressure is applied between the fan pulley and the crankshaft pulley.

e. Lubrication System

1. Do replace engine oil after first 50hrs. of operation, Thereafter, engine oil should be refilled every 250 working hrs.
2. Check oil level daily with tractor parked on a level ground.
3. Do replace lub. oil filter element every 20 working hrs. After Ist replacement at 50 hrs.
4. Do remove fly wheel housing bottom plug and check for oil traces.

DONT'S

a. General

1. Do not keep on continuously cranking the engine with starter key. It will shorten the life of battery & starter.
2. Do not race the engine in neutral or at the time of cranking.

b. Air Inlet System

1. Do not run the tractor if the air cleaner assembly is defective as this will lead to impure air being taken in and consequently excessive wear of liners and piston rings.

c. Fuel System

1. Do not keep the fuel tank without a proper sealing cap.
2. Do not use contaminated fuel as if may effect the operation of fuel injection pump and the injections.
3. Do not use bad quality spurious filters as replacement.
4. Do not allow leakage through fuel pipe joints.

d. Water Cooling System

1. Do not run the tractor with the radiator cap removed/non-acting radiator cap.
2. Do not run the tractor when the radiator hoses are leaking as it will lead to or heating of the engine.
3. Do not remove thermostat as it will effect engine performance.
4. Do not run the belt tight as it will lead to premature failure of water pump and alternator bearing.
5. Do not run the belt loose as it will lead to inefficient cooling and improper charging of the battery.

e. Lubrication System

1. Do not use wrong grade of lubrication oil.
2. Do not mix different brands of engine oil.

f. Exhaust System

1. Do ensure that the exhaust passage is not blocked.

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

Do's & Dont's

DO'S

CLUTCH

1. Do ensure that clutch free pedal play is between 25 to 35 mm.
2. Do ensure that the clutch pedal is released slowly while moving the tractor.

TRANSMISSION

1. Do change the transmission oil after 400 & subsequently hrs. of operation.
2. Do check the condition of rubber protection bellows on the gear levers periodically as they prevent infiltration of water and dust into gear box.

HYDRAULIC SYSTEM & LINKAGE

1. Do ensure that both hydraulic control levers are in down position while draining the transmission oil.
2. Do ensure that the hydraulic strainer is cleaned at every schedule.
3. Do adjust the top link for proper length.
4. Do ensure that the lift cover bolts are always tight.
5. Do keep the lower links in lifted position when the tractor is moving without an implement mounted on it.
6. Do keep the ball joints on top and lower links clean and dry. Do not lubricate them.
7. Do ensure that implements are raised and lower using the position control lever only and not the draft control lever.

BRAKING SYSTEM

1. Do keep the brake pedals locked with interlocking latch when the tractor is not being used in field.
2. Do use parking brakes when the vehicle is stationary
3. Do check loose connections in linkage mechanism.
4. Do grease brake pedal bush, brake bracket connections.

FRONT AXLE & STEERING MECHANISM

1. Do lubricate the Bushes and steering drag links periodically.
2. Do get the toe-in adjusted by an authorised service centre periodically. It should be maintained between (3-6 mm)
3. Do check the tightness of front and rear wheels recommended torque (Front wheel is 160 mm, Rear wheel 200 mm.)
4. Do flush oil once a year or 1000 hrs which ever is earlier. If tractor is not in operation.

TYRES

1. Do operate the tractor with correct tyre pressure. This will lead to better traction, longer tyre life and better fuel consumption.

DONT'S

CLUTCH

1. Do not rest the foot on the clutch pedal.
2. Do not work the tractor by slipping and re-engaging the clutch.
3. Do not coast down steep slopes with tractor in neutral/with clutch pedal depressed.

TRANSMISSION

1. Do not use top gears with low engine rpm.

HYDRAULIC SYSTEM & LINKAGE

1. Do not move the operational control range to fast response, while the tractor is on a hard surface like concrete, as the implement will crash down and get damaged.
2. Do not attempt to pull or tow anything from the top link connection. It is dangerous.
3. Do not use bolts place of linch pins.
4. Do not reverse the tractor with PTO driven implement attached and PTO lever in ground PTO position implement may get damaged in reverse.

BRAKING SYSTEM

1. Do not attempt to turn sharply using independent brakes when traveling at high speed. This may cause the tractor to overturn.
2. Do not rest foot on the brake pedal.

FRONT AXLE & STEERING MECHANISM

1. Do not use wrong grade of oil for lubrication of steering gear box.

TYRES

1. Do not allow oil, grease and some crop spray containing considerable amounts of acid and alkalies to contaminate the tyre. These can cause considerable damage to the tyre if they penetrate into plies through small holes or splits.
2. Do not operate the tractor with excessive tyre pressure.

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

Do's & Dont's

DO'S

ELECTRICAL

1. Do ensure that the battery terminals are kept clean.
2. Do ensure terminal base is Lubricated with petroleum jelly.
3. Do earth the tractor by wrapping a chain around the front axle, dropping one end of the chain on the ground.

SAVE DIESEL

Let's Join hands

- Do switch off the engine when tractor is not in operation. Avoid unnecessary idling.
- Do operate at Optimum speed and correct gear.
- Do maintain the recommended tyre pressure for fuel efficient operation and long life of tyres. Check daily.
- Do use matching trailer for transportation. Ensure proper hitching. Never overload the trailer.
- Do maintain your tractor in good working condition.
- Do replace genuine parts from Authorised Dealers.

For Better performance

- Ensure that safety shields are in place and in good condition.
- Read all operating instructions before commencing to operate Tractor.
- Keep the air cleaner clean.
- Fit new sealing rings when the filter elements are changed.
- Watch the oil pressure gauge or warning light and investigate any abnormality immediately.
- Ensure that the transmission is in neutral before starting the engine.
- Keep all fuel in cleans storage and uses a filter when filling the tank.
- Attend to minor adjustments and repairs as soon as the necessity is apparent.
- Allow the engine to cool before removing the radiator filler cap and adding water, remove the radiator cap slowly.
- Shift into low gear when driving down steeps hills.
- Latch the brake pedals together when driving on a highway.
- Keep draft control lever fully down when not in use.

Ensure daily care of your tractor to avoid breakdowns.

DONT'S

ELECTRICAL

1. Do not change leads of the battery terminals as this will lead to failure of electrical components.
2. Do not leave the battery leads in the connected position if the tractor is not going to be used for a long period of time.
3. Do not overfill the battery with distilled water. The level should be just enough to submerge the battery plates.
4. Do not do any welding in the tractor without disconnecting Battery terminals.

EVERY DROP COUNTS

To save oil

- Do not allow fuel or oil to leak. Ensure that the joints are adequately tight.
- Do not spill fuel or oil while filling or topping up. Use funnel.
- Do not overfill engine oil as this can cause excessive oil consumption and oil leaks.
- Do not ride the clutch or brake pedal.
- Do not allow the rear wheel to slip. Use ballast, if necessary.
- Do not use worn-out tyres.
- Do not use inferior quality lubricants, use only recommended grade.

For safe operation

- Do not Run the engine with the air cleaner disconnected.
- Do not Start the tractor in an enclosed building unless the doors and windows are open for proper ventilation.
- Do not Operate the tractor or engine while lubricating or cleaning.
- Do not Temper with the fuel injection pump, (if the seal is broken) the warranty becomes void.
- Do not Allow the engine to idle for a long period.
- Do not Use the independent brakes for making turns on the highway or at high speeds.
- Do not Refuel the tractor with the engine running.
- Do not Use the draft control lever for lifting of implements.
- Do not Start the engine with the PTO engaged.

Carefully and follow the other instructions given in the DOs and DOs and DON'Ts maintenance booklet, to ensure maximum saving of oil.

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

CHAPTER - 9

Trouble Shooting

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

9. TROUBLE SHOOTING

PROBLEM	POSSIBLE CAUSE	REMEDY
	ENGINE	
Engine not starting	Wrong way of starting engine	Use proper way of starting
	No fuel	Check oil level
	Air trapped of fuel system	Bleed the fuel system
	Checking of fuel system	Contact your dealer
	Fuel injector faulty	Replace
	Fuel filter choke	Replace filter
Engine not run in proper way	Fuel filter choke	Replace filter
	Low quality of oil	Drain diesel from tank and fill clean diesel
	Choking of fuel system	Check fuel system
	Fuel injectors faulty	Replace fuel injector
More oil consumption	Oil level is more than maximum level	Keep oil level up to mark
	Oil quality is not good	Use genuine oil
Engine not giving maximum power	Leakage of oil	Check and repair
	Heavy load on engine	Decrease load or shift in low gear
	Air cleaner dirty	Clean air cleaner
	Fuel filter choke	Replace filter
	Engine overheating	Check cooling system
	Engine operating temperature is less	Check thermostat
	Valve clearance not proper	Adjust through authorized dealer
	Throttle system not working properly	Check & repair through authorized dealer
Engine abnormal noise	Oil level less	Top up
	Oil pressure less	Check through authorized dealer
	Engine is overheated	Check and find reason
	Improper tappet setting	Adjust through authorized dealer
Oil pressure gauge shows warning	Oil level is less	Top up oil up to level
	Oil quality is not good	Use genuine engine oil
	Oil pump not working	Check and repair through authorized dealer
Engine Over Heating	Radiator cap faulty	Replace with new one
	Choked radiator fins	Clean it
	Engine gets overload	Decrease load or shift to low gear
	Oil level is less	Top up to level
	Coolant level is less	Check level and leakage of system and top up
	Slippage of fan belt	Check belt tension
	Thermostat faulty	Replace
	Choking of cooling system	Clean the cooling system
	Water temp. Gauge not working	Check through dealer and faulty replace

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

PROBLEM	POSSIBLE CAUSE	REMEDY
ENGINE		
More Fuel Consumption	Air cleaner is dirty/choked	Clean air cleaner
	Overloading of engine	Reduce load or shift to low gear
	Improper valve clearance	Check and adjust
	Implement setting improper	Adjust it and take instrument from dealer for tight option
	Less engine temp	Check injectors and service
	Fuel Injection nozzle faulty	Check and service through dealer
HYDRAULIC		
Excessive Heating of Oil	Improper inflation pressure	Check and adjust according to specified
	Oil level is high or less	Check and maintain proper level
	Hydraulic filter element choked	Replace
Linkage Goes Down Slowly	Mechanical linkage may faulty	Contact your authorized dealer
	Bush tight	Contact your authorized dealer
Linkage Not Lift Fully	Response valve setting improper	Contact your authorized dealer
	Improper lift arm setting	Contact your authorized dealer
	Improper internal adjustment	Contact your authorized dealer
Three Point Linkage Not Respond To Lifting While Operating Hydraulic Lever	Linkage connection not joint properly	Contact your authorized dealer
	Heavy load on linkage	Contact your authorized dealer
Draft Control Fast	Draft/position control setting wrong	Contact your authorized dealer
	Implement not working well	Make correct adjustment of implement
Hydraulic System Not working	Response valve setting very low	Check valve by your dealer
	Oil level low	Check and top up
	Hydraulic filter choked	Replace filters
	Hydraulic system faulty	Check through authorized dealer
Properly	Hydraulic pump not working	Contact your authorized dealer
Draft Control Fast	Draft/position control setting wrong	Contact your authorized dealer and check system
BRAKES		
Brakes Noisy	Wrong adjustment of brakes	Check
While Appling Brakes Tractor Goes in One Side	Both brakes are not set properly	Adjust
Brakes Works When Fully Pressed	Wrong adjustment of brake pedal	Check and Adjust

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

PROBLEM	POSSIBLE CAUSE	REMEDY
	ELECTRICAL	
Electrical System Not Working	Battery terminal loose or rusting of terminal	Clean and tight the terminals
	Less specific gravity	Replace or fill electrolyte up to level
Starter Motor Not Working	Battery terminal loose	Tightened
	Battery discharged fully	Recharge or replace battery
	Faulty starter motor	For repair contact your dealer
Battery Not Charging	Loose or rusted terminals	Clean and tight terminal
	Belt loose	Check belt tension
	Faulty battery	Replace

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

CHAPTER - 10

Service Record

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

SERVICE RECORD

CH. NO. _____ENGINE NO. _____

S. NO.	DATE/ HMR	DEALER CODE	BRIEF JOB DESCRIPTION	ACTION TAKEN	DEALER SIGN

Downloaded from www.Manualslib.com manuals search engine

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

INTERNATIONAL TRACTORS LIMITED

Vill. Chak Gujran, P.O. Piplanwala, Jalandhar Road, Hoshiarpur

TRACTOR INSTALLATION CERTIFICATE

TRACTOR DETAILS		OWNER'S DETAILS	
Engine No		Name	
Chassis No:		Address	
FIP No.			
Gear Box No.		Phone No	
Alternator Make and No.		Tractor Model:-	
Hydraulic Pump No.		Invoice Number:-	
Battery Make and No.		Invoice Date:-	
Tyre Details (Sr. Nos) :-		Invoice Value:-	
Front : Left	Right	Details of other tractor owned (if any)	
Rear : Left	Right		

LIST OF INSTRUCTIONS TO BE UNDERSTOOD AND FOLLOWED

S.No	Instructions	Tick here
1	Use of Operator's handbook	
2	Location & Significance of Engine No. Chassis No. etc	
3	Starting and Stopping Procedure	
4	Safety Precautions to be observed	
5	Use and adjustment of Clutch & Brake Pedals	
6	Running of New Tractor for first 100 hrs	
7	Maintainence of correct Tyre Pressure	
8	Operation of Hydraulic System & Adjustment of three point linkage & Mast height setting	
9	Selection of proper gears for different jobs and method	
10	Attachment & Detachment of Implements/Use of lift lock for transportation implements	
11	Setting of Wheel Track width for different crops	
12	Hitching of Trailer/Trolley & Use of Accessories	
13	Lubrication Points and correct grade of lubricants	
14	Periodic Replacement of fuel filters, oil filters, hydraulic filter	
15	Procedure for bleeding Fuel System	
16	Proper handling and storage of fuel	
17	Maintainence of Cooling System, Fan Belt Adjustment	
18	Maintainence of Electrical Equipments	
19	Tightening of bolts and nuts	
20	Daily and Weekly Maintainence Schedule	
21	Terms and conditions of warranty	
22	Availing of Free Service from Authorised Dealer	

Upload Photograph of Customer with Tractor & Impliments taken during installation

Major Application (√)		Accessories received (√)	
Cultivation		Drawbar	
Rotavator		Bumper	
Haulage		Hook	
Genset		Top link	
Loader Dozer		Tool kit	
Grass cutter		Operator manual	
		Front Weights	
		Wheel Weights	

I hereby certify that I have understood all the instructions mentioned in this Certificate regarding Tractor maintenence and Proper use of all controls. I understand that Warranty starts from today, whose terms and conditions have been explained to me and are acceptable to me. I have carefully read all the instructions necessary for maintainence and proper use of Tractor. I will follow all the instructions, failing which my Warranty will stand cancelled.

Dealer representative Name & Signature	Customer Name & Signature
Dealership Name:-	Installation Date:-
Dealership Phone No.	Dealership Address:-

COMPANY COPY

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

INTERNATIONAL TRACTORS LIMITED

Vill. Chak Gujran, P.O. Piplanwala, Jalandhar Road, Hoshiarpur

TRACTOR INSTALLATION CERTIFICATE

TRACTOR DETAILS		OWNER'S DETAILS	
Engine No		Name	
Chassis No:		Address	
FIP No.			
Gear Box No.		Phone No	
Alternator Make and No.		Tractor Model:-	
Hydraulic Pump No.		Invoice Number:-	
Battery Make and No.		Invoice Date:-	
Tyre Details (Sr. Nos) :-		Invoice Value:-	
Front : Left	Right	Details of other tractor owned (if any)	
Rear : Left	Right		

LIST OF INSTRUCTIONS TO BE UNDERSTOOD AND FOLLOWED

S.No	Instructions	Tick here
1	Use of Operator's handbook	
2	Location & Significance of Engine No. Chassis No. etc	
3	Starting and Stopping Procedure	
4	Safety Precautions to be observed	
5	Use and adjustment of Clutch & Brake Pedals	
6	Running of New Tractor for first 100 hrs	
7	Maintainence of correct Tyre Pressure	
8	Operation of Hydraulic System & Adjustment of three point linkage & Mast height setting	
9	Selection of proper gears for different jobs and method	
10	Attachment & Detachment of Implements/Use of lift lock for transportation implements	
11	Setting of Wheel Track width for different crops	
12	Hitching of Trailer/Trolley & Use of Accessories	
13	Lubrication Points and correct grade of lubricants	
14	Periodic Replacement of fuel filters, oil filters, hydraulic filter	
15	Procedure for bleeding Fuel System	
16	Proper handling and storage of fuel	
17	Maintainence of Cooling System, Fan Belt Adjustment	
18	Maintainence of Electrical Equipments	
19	Tightening of bolts and nuts	
20	Daily and Weekly Maintainence Schedule	
21	Terms and conditions of warranty	
22	Availing of Free Service from Authorised Dealer	

Upload Photograph of Customer with Tractor & Impliments taken during installation

Major Application (√)		Accessories received (√)	
Cultivation		Drawbar	
Rotavator		Bumper	
Haulage		Hook	
Genset		Top link	
Loader Dozer		Tool kit	
Grass cutter		Operator manual	
		Front Weights	
		Wheel Weights	

I hereby certify that I have understood all the instructions mentioned in this Certificate regarding Tractor maintenence and Proper use of all controls. I understand that Warranty starts from today, whose terms and conditions have been explained to me and are acceptable to me. I have carefully read all the instructions necessary for maintainence and proper use of Tractor. I will follow all the instructions, failing which my Warranty will stand cancelled.

Dealer representative Name & Signature	Customer Name & Signature
Dealership Name:-	Installation Date:-
Dealership Phone No.	Dealership Address:-

DEALER COPY

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

INTERNATIONAL TRACTORS LIMITED

Vill. Chak Gujran, P.O. Piplanwala, Jalandhar Road, Hoshiarpur

TRACTOR INSTALLATION CERTIFICATE

TRACTOR DETAILS		OWNER'S DETAILS	
Engine No		Name	
Chassis No:		Address	
FIP No.			
Gear Box No.		Phone No	
Alternator Make and No.		Tractor Model:-	
Hydraulic Pump No.		Invoice Number:-	
Battery Make and No.		Invoice Date:-	
Tyre Details (Sr. Nos) :-		Invoice Value:-	
Front : Left	Right	Details of other tractor owned (if any)	
Rear : Left	Right		

LIST OF INSTRUCTIONS TO BE UNDERSTOOD AND FOLLOWED

S.No	Instructions	Tick here
1	Use of Operator's handbook	
2	Location & Significance of Engine No. Chassis No. etc	
3	Starting and Stopping Procedure	
4	Safety Precautions to be observed	
5	Use and adjustment of Clutch & Brake Pedals	
6	Running of New Tractor for first 100 hrs	
7	Maintainence of correct Tyre Pressure	
8	Operation of Hydraulic System & Adjustment of three point linkage & Mast height setting	
9	Selection of proper gears for different jobs and method	
10	Attachment & Detachment of Implements/Use of lift lock for transportation implements	
11	Setting of Wheel Track width for different crops	
12	Hitching of Trailer/Trolley & Use of Accessories	
13	Lubrication Points and correct grade of lubricants	
14	Periodic Replacement of fuel filters, oil filters, hydraulic filter	
15	Procedure for bleeding Fuel System	
16	Proper handling and storage of fuel	
17	Maintainence of Cooling System, Fan Belt Adjustment	
18	Maintainence of Electrical Equipments	
19	Tightening of bolts and nuts	
20	Daily and Weekly Maintainence Schedule	
21	Terms and conditions of warranty	
22	Availing of Free Service from Authorised Dealer	

Upload Photograph of Customer with Tractor & Impliments taken during installation

Major Application (√)		Accessories received (√)	
Cultivation		Drawbar	
Rotavator		Bumper	
Haulage		Hook	
Genset		Top link	
Loader Dozer		Tool kit	
Grass cutter		Operator manual	
		Front Weights	
		Wheel Weights	

I hereby certify that I have understood all the instructions mentioned in this Certificate regarding Tractor maintenence and Proper use of all controls. I understand that Warranty starts from today, whose terms and conditions have been explained to me and are acceptable to me. I have carefully read all the instructions necessary for maintainence and proper use of Tractor. I will follow all the instructions, failing which my Warranty will stand cancelled.

Dealer representative Name & Signature	Customer Name & Signature
Dealership Name:-	Installation Date:-
Dealership Phone No.	Dealership Address:-

CUSTOMER COPY

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

CUSTOMER FEEDBACK CARD

Customer Name : .....

Address : .....

..... Phone (S).....

Chassis No. ..... Engine No. ..... Model : .....

Delivery Dealer Name .....

Delivery Dealer Code ..... Delivery Date.....

S.No.	ANY PROBLEMS FACED WITH THE TRACTOR	Rectified (Yes/No)
1.		
2.		
3.		
4.		
5.		
6.		

2. EXPERIENCE WHILE TAKING DELIVERY FROM SHOW ROOM

	GOOD	FAIR	POOR
Hospitality	☐	☐	☐
Clear explanation by Dealer's Staff on operation, features and maintenance of the Tractor	☐	☐	☐
Cleanliness of Tractor at delivery	☐	☐	☐

	YES	NO
Was there any undue delay in handing over your Tractor on the day of delivery	☐	☐

3. EXPERIENCE IN WORKSHOP

Name of Workshop : _____

City _____

	GOOD	FAIR	POOR
Hospitality	☐	☐	☐
Quality of repair/Service	☐	☐	☐

	YES	NO
Tractor delivered at promised time	☐	☐
Was post service follow up done	☐	☐

Suggestion if Any :

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

TO OPEN CUT HERE

TO OPEN CUT HERE

INLAND LETTER CARD

INTERNATIONAL TRACTORS LIMITED
Works : Village Chak Gujran, P.O. Piplanwala,
Jalandhar Road, Hoshiarpur, PUNJAB (INDIA)
Phone : +91 1882 302-525/526
www.sonalika.com

(Do not write or print below this line)_____ PIN | 1 | 4 | 6 | 0 | 2 | 2 |

SECOND FOLD

NO ENCLOSURES ALLOWED
WRITE PIN CODE IN ADDRESS
SENDER'S NAME AND ADDRESS

PIN | | | | | | |

FIRST FOLD

Downloaded from www.Manualslib.com manuals search engine

https://truckmanualshub.com/

TO ENUSRE

LONG AND EFFICIENT

SERVICE FROM YOUR TRACTOR

USE ONLY

GENUINE

SPARE PARTS

&

RECOMENDED LUBRICANTS

Downloaded from www.Manualslib.com manuals search engine