

OPERATOR MANUAL

- **26**
(Tractor with 9+9 Speed Transmission)

INTERNATIONAL TRACTORS LIMITED
HOSHIARPUR (INDIA)

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

E-mail: exports@sonalika.com

Dear Customer,

We welcome you with great pleasure for joining ITL family and thanks for faith and trust you have placed in the careful selection of your tractor.

We are sure that our dealer must have taken good care while delivering tractor upto your satisfaction.

Before using tractor, it is recommended to read this manual thoroughly. Any person who uses the tractor should be also advised to read these instructions.

Daily and routine maintenance operations can be easily performed with the use of this manual. To get best and trouble free performance from you tractor. Please ensure for periodic maintenance as per recommended schedule in the owner's manual at authorized dealership.

Use only genuine ITL spare parts from dealer/stockist for reliable and durable performance.

Information provided in this operator manual is accurate at the time of printing. Improvements and modifications are a continuous process at **International Tractors Limited (ITL)**, therefore ITL reserves the right for modification at any time without prior notice.

For any help/support feel free to call our dealership with the tractor details like Engine number and Chassis number.

We wish you prosperity and growth.

International Business (IB)

INTERNATIONAL TRACTORS LIMITED

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This publication has been written in compliance with International Standard ISO 3600 'Guide for information, contents and presentation of operation and maintenance manuals supplied with tractors and machinery for agricultural and forestry use'.

OWNERSHIP AND TRACTOR DETAILS

OWNER'S NAME & ADDRESS	<hr style="border-top: 1px dashed black;"/> <hr style="border-top: 1px dashed black;"/>
	TEL.NO. <hr style="border-top: 1px dashed black;"/>

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. :

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

I have understood 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'S 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.

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Tyre	Make	Size	Sr. No.
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1. Using this Operator Manual

This manual is an important part of your tractor and it should be kept with the tractor even when you sell it.

Reading this manual will help you and others avoid personal injury or damage to the tractor. Information provided in this manual will help you to use the tractor in safest and effective way.

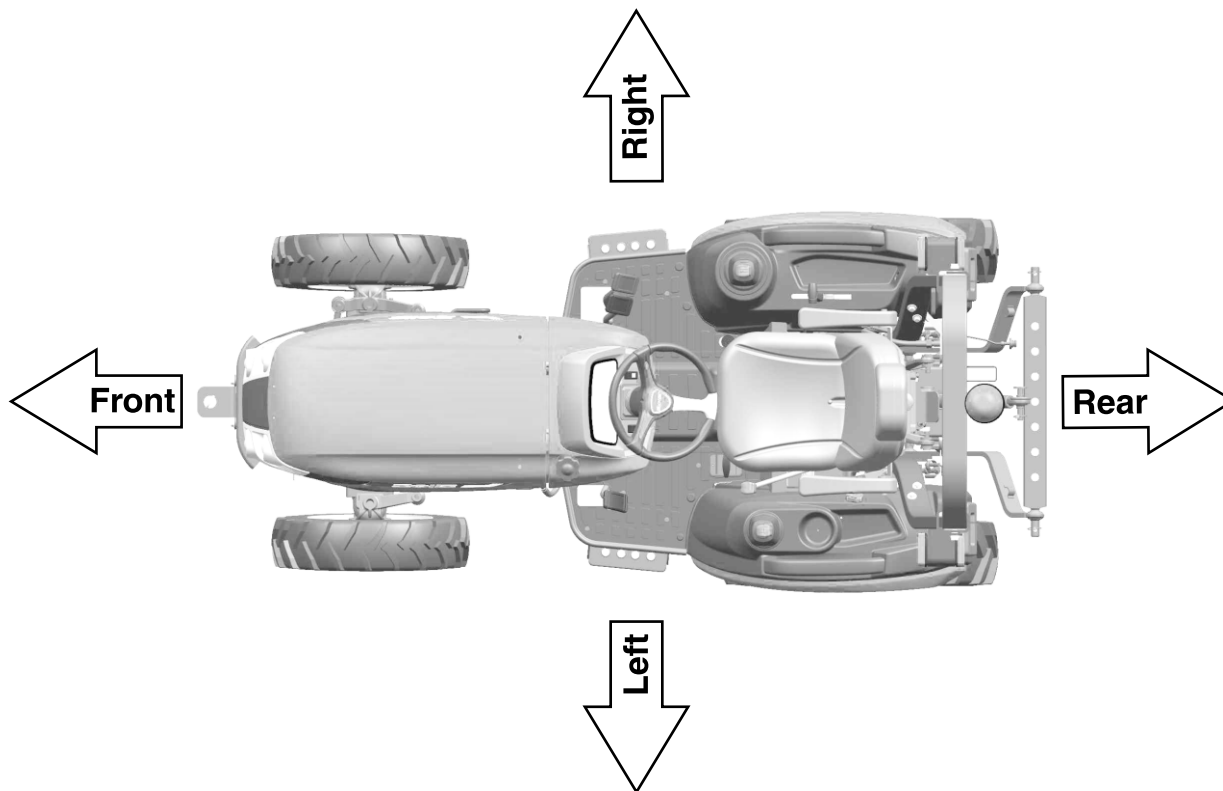
If you have an attachment, use the safety and operating information in the attachment operator's manual along with the tractor operator's manual to operate the attachment safely and correctly.

This manual and safety signs on your tractor may also be available in various languages (contact your dealer for more information).

The tractor shown in this manual may differ slightly from your tractor, but will be similar enough to help you understand our instructions.

Throughout this manual, the use of terms Left Side, Right Side, Front Side and Rear Side must be understood, to avoid any confusion when following these instructions. The Left and Right means left and right sides of the Tractor when facing in the direction of forward travel, reference to the Front indicates the radiator end of the Tractor, while the Rear, indicates the draw bar end.

Always specify the tractor Chassis and Engine serial numbers when you need replacement parts. This will facilitate correct & faster delivery of required parts from the dealer. For easy reference, we suggest you to record these numbers in the space provided in the 'Ownership and Tractor details' page before this Chapter.



1.2 Chassis Serial Number (A): Chassis number is punched on right side of front axle bracket of the tractor (See Fig. A). Should you find the number difficult to read, you will also find it on the Statutory plate.

1.3 Engine Serial Number (B): The engine serial number is stamped on the upper side of the Fuel Injection Pump installation part located in the right side of cylinder block. For easy reference, engine serial number is also mentioned on valve cover of the engine (see Fig. B).

1.4 Statutory Plate (C): Chassis number is also engraved on Statutory plate. Statutory plate is located on left hand side fender (Fig. C1 & C2).

1.5 ROPS Certificate Plate (D) - Optional: ROPS certificate plate is riveted on ROPS. Information about ROPS serial number and tractor model is engraved on ROPS plate. For countries under EEC, ROPS Certificate plate is used as shown in Fig. D.

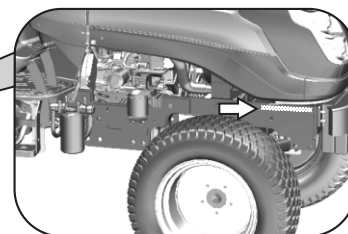


Fig. A: Chassis Serial Number

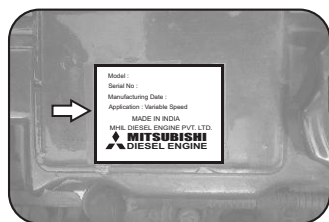


Fig. B: Engine Serial Number (Sticker)

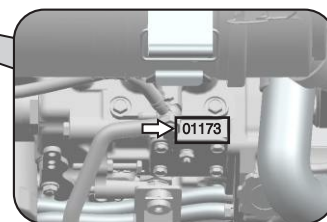


Fig. B: Engine Serial Number (Punch)

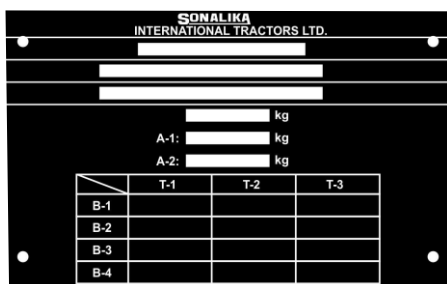


Fig. C: Statutory Plate

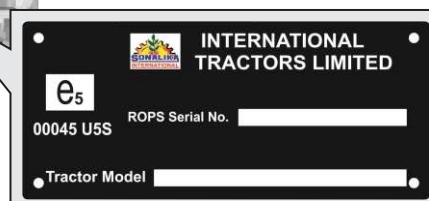

































Fig. D: ROPS Certificate Plate (EEC)

1.6 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.

	Read Operator's Manual		Fast
	Safety Alert Symbol		Slow
	Fuel Level		Engine Coolant-Temperature
	Engine Rotational Speed		PTO 540
	Parking Brake		PTO 540 Economy
	Air Cleaner Clogging Sensor		Differential Lock
	Battery Charging Condition		Hydraulic Control-Lowered Position
	Engine Oil-Pressure		Hydraulic Control-Raised Position
	Turn Signal		Engine Speed Control
	Power Take-Off Clutch Control-Off Position		Remote Cylinder-Retract
	Power Take-Off Clutch Control-On Position		Remote Cylinder-Extend
	Hazard Warning Lights		Engine Stop
	Master Lighting Switch		
	Parking Brake Indication		
	Headlight-Low Beam		
	Headlight-High Beam		
	Audible Warning Device		
	Four-Wheel Drive-On		
	Four-Wheel Drive-Off		

NOTE: WARRANTY WILL BE REIMBURSED AS PER THE WARRANTY POLICY, KINDLY CONTACT NEARBY DEALER/DISTRIBUTOR.



NOTE: E-marked indicated component are applicable for countries under European Economic Community (EEC) compliance.

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.***

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.

**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***

2.7 Guidelines About Safety Sign

Recognize Safety Information:

Any of the following symbols on your machine or in this manual, alert you to the potential for personal injury. Follow recommended precautions and safe operating practices.



DANGER

The symbol and the word DANGER indicate an immediate 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 VERY SERIOUS INJURY.



CAUTION

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

IMPORTANT : Indicates that equipment or property damage could result if instructions are not followed.

NOTE : Indicates important information or information which is useful for tractor operation.

2.8 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. 2.1)

- (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.



(a)



(b)



(c)



(d)



(e)



(f)



(g)



(h)



SAFE OPERATION

Careful operation is your best insurance against accident.

Read and understand this manual carefully before operating the tractor.

All operators no matter how much experience they may have, should read this and other related manuals before operating the tractor or any implement attached to it.

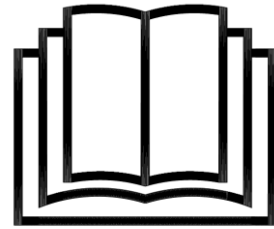
It is the owner's obligation to instruct all operators a safe operation.

BEFORE OPERATING THE TRACTOR

READ SAFETY INSTRUCTION

Carefully read all safety instructions given in this manual for your safety. Tempering with any of the safety devices can cause serious injuries or death. Keep all safety signs in good condition. Replace missing or damaged safety signs.

Keep your tractor in proper condition and do not allow any unauthorized modifications to be carried out on the Tractor, which may impair the function/safety and affect Tractor life.



Strictly follow the instructions outlined in the operator's manual of the mounted or trailed machinery or trailer, and not to operate the combination tractor — machine or tractor — trailer unless all instructions have been followed.

DRIVING THE TRACTOR

1. Watch where you are going especially at row ends, on roads, around trees and low hanging obstacles.
2. To avoid upsets, drive the tractor with care and at speeds compatible with safety, especially when operating over rough ground, crossing ditches or slopes, and when turning at corners.
3. Lock the tractor brake pedals together when transporting on roads to provide proper wheel braking.
4. Keep the tractor in the same gear when going downhill as used when going uphill. Do not coast or free wheel down hills.
5. Any towed vehicle and/or trailer whose total weight exceeds that of the towing tractor, must be equipped with its own brakes for safe operation.
6. When the tractor is stuck or tyres are frozen to the ground, back out to prevent upset.
7. Always check overhead clearance, especially when transporting the tractor.

STARTING THE TRACTOR

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.

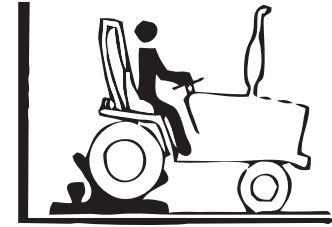
NEVER use control levers as a hand hold and NEVER step on foot controls when mounting or dismounting.

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

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.



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.



KEEP RIDERS OFF TRACTOR

Do not allow riders on the Tractor.

Riders on Tractor are subject to injury such as being stuck by foreign objects and being thrown off the Tractor.



PRECAUTION TO AVOID TIPPING

Do not drive where the Tractor could slip or tip.

Stay alert for holes and rocks in the terrain, and other hidden hazards.

Slow down before you make a sharp turn.

Driving forward out of a ditch or mired condition could cause Tractor to tip over backward. Back out these situations if possible.



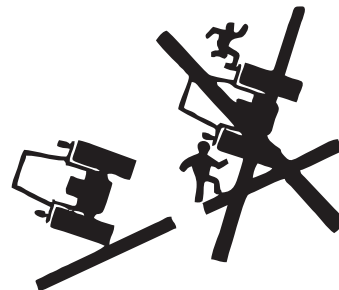
PROHIBITED USE OF TRACTOR DURING OVERTURNING**Risk of Overturning:**

For your safety, tractor is fitted with safety frame and seat belts.

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.

To avoid side overturns:

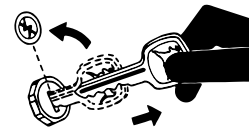
- Reduce speed to match operating conditions. If the tractor is equipped with a front end loader, carry the bucket and load as low as possible.
- Make wide slow turns on reduced speed. DON'T let you tractor bounce. You may loose steering control.
- DON'T pull a load too heavy for your tractor. It could run away on the down slope the tractor could jack knife 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.

**PARK TRACTOR SAFELY**

Before working on the Tractor:

Lower all equipments to the ground.

Stop the engine and remove the ignition key.

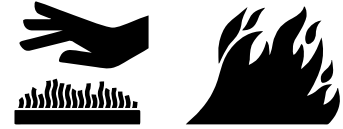
**SAFETY STARTER SWITCH**

1. Clutch operated Safety switch is provided which allows the starting system to become operational only when the clutch pedal is fully pressed.
2. Do not By-pass this Safety switch or work on it. Only Authorized Dealers are recommended to work on Safety starter switch.

AVOID HOT EXHAUST

Servicing machine or attachment with engine running can result in serious personal injury. Avoid exposure.

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.



AVOID HIGH-PRESSURE FLUIDS

Escaping fluid under pressure can penetrate the skin causing serious injury. Keep hands and body away from pinholes and nozzles, which eject fluids under high pressure. If any fluid is injected into the skin, consult your doctor immediately.



PREVENT BATTERY EXPLOSIONS

Keep sparks, lighted matches, and open flame away from the top of battery.

Battery gas can explode.

Never check battery charge by placing a metal object across the poles.



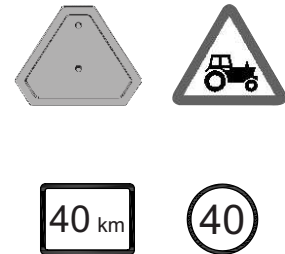
ALWAYS USE SAFETY LIGHTS

Use of hazard warning lights and turn signals are recommended when towing equipment on public roads unless prohibited by state or local regulations.



ROAD REGULATIONS

- When operating your tractor on a public road a number of precautions must be taken.
- Know the route you are going to travel.
- 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.

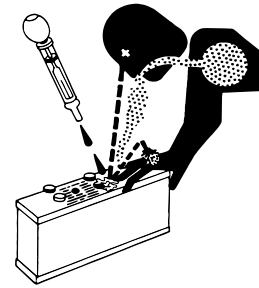


PREVENT ACID BURNS

Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, cause holes in clothing and cause blindness. For adequate safety always:

1. Fill batteries in a well-ventilated area.
2. Wear eye protection and acid proof hand gloves.
3. Avoid breathing direct fumes when electrolyte is added.
4. Do not add water to electrolyte as it may splash off causing severe burns.

If you spill acid on yourself, immediately flush your skin with water and flush your eyes for 10-15 minutes. Get medical attention immediately.

**HANDLE FUEL SAFELY-AVOID FIRES**

Handle fuel with care; it is highly flammable. Do not refuel the Tractor while smoking or near open flame or sparks.

Always stop engine before refueling.

Always keep your tractor clean of accumulated grease and debris.

Always clean up spilled fuel.

**SERVICE TRACTOR SAFELY**

Do not wear a necktie, scarf or loose clothing when you work near moving parts. If these items get caught, severe injury could result.

Remove rings and other jewellery to prevent electrical shorts and entanglement in moving parts.

**STAY CLEAR OF ROTATING SHAFTS**

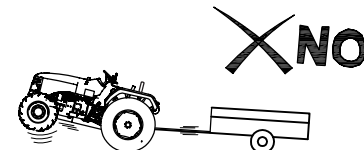
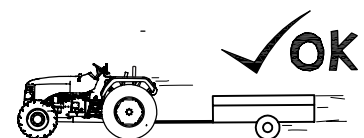
Entanglement in rotating shaft can cause serious injury or death.

Keep PTO shield in place at all times.

Wear close fitting clothing. Stop the engine and to sure PTO drive is stopped before making adjustments, connections, or cleaning out PTO driven equipment.

**GENERAL OPERATING HAZARDS**

- Three point 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.
- 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.

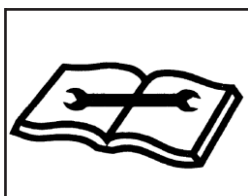


PRACTICE SAFE MAINTENANCE

- Understand service procedure before doing work.
- Keep the surrounding area of the Tractor clean and dry.
- Do not attempt to service Tractor when it is motion.
- Keep body and clothing away from rotating shafts.
- Always lower equipment to the ground. Stop the engine.
- Remove the key equipment to the ground. Stop the engine.
- Securely support any Tractor elements that must be raised for service work.
- Keep all parts in good condition and properly installed.
- Replace worn or broken parts. Replace damage/missing decals.
- Remove any buildup of grease or oil from the Tractor.
- Disconnect battery ground cable (-) before making adjustments on electrical system or welding on Tractor.

**SAFETY TIPS DURING MAINTENANCE**

1. At least on a daily check all oil levels. Water level in the radiator and electrolyte level in the battery and perform services according to the service schedule.
2. Ensure tyre pressure are even and the correct pressure for the job being done is maintained.
3. Check to ensure that the all controls and preventive mechanisms of the Tractor and implement work correctly and effectively.
4. Ensure that an adequate set of the correct tools is available for maintenance and minor repairs.
5. Ensure that all service work and repairs are carried out on a flat area with a concrete or similar floor.
Do not carry out service work on tractor until it is switched off, and the parking brake applied and wheels chocked. Where a tractor is stored in a confined area, ensure that the area is well ventilated as exhaust gases are very harmful, and can cause death.
6. Do not work under lifted implements/Implements under operation.
7. When changing wheels or tyres ensure that a suitable wheel stand is placed under the axle prior to removing the wheel and the wheels are chocked.
8. Where guards or shields need to be removed to perform a service or repair, ensure that the guard or shield is correctly reinstalled before starting the Tractor.
9. Never refuel near a naked flame or with an overheated engine. Ensure to turn off Engine before refueling.
10. The cooling system operates under pressure, take care when removing the Radiator cap a hot engine to prevent being scalded by steam or hot water. Do not add water in the radiator when then engine is hot. Add water to the radiator only after the engine coals down completely.
11. To prevent fire keep the tractor including the engine clean and free from inflammable material and well away from fuels and other inflammable material.



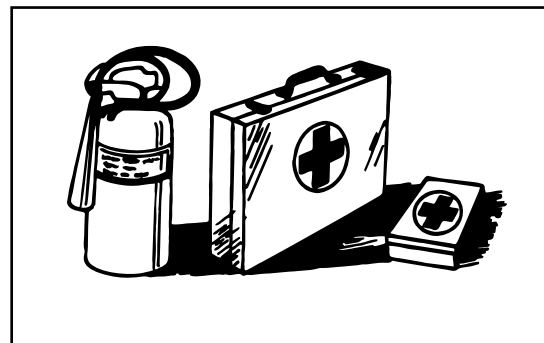
Consult technical manual for proper service procedures

PREPARE FOR EMERGENCIES

Be prepared if a fire starts.

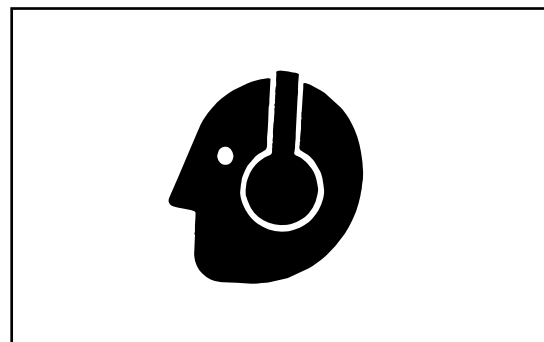
Keep a first aid kit and fire extinguisher ready.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near telephone or mobile phone.

**PROTECT AGAINST NOISE**

Prolonged exposure to loud noise can cause impairment or loss of hearing.

Wear a suitable protective device such as earmuffs or earplugs to protect against uncomfortable loud noises.

**SAFE HANDLING OF STARTING FLUID**

Starting fluid is highly flammable.

Keep all sparks and flame away when using it. Keep starting fluid away from batteries and cables.

To prevent accidental discharge when storing the pressurized can, keep the cap on the container, and store in a cool, protected location.

Do not puncture a starting fluid container.

**KEEP ROPS INSTALLED PROPERLY**

Make sure that all parts are reinstalled correctly if the roll-over protective structure (ROPS) is loosened or removed for any reason. Tighten mounting bolts to proper torque.

The protection offered by ROPS will be impaired if ROPS is subjected to structural damage, is involved in an overturn incident, or is in any way altered by welding, bending, drilling, or cutting. A damaged ROPS should be replaced, not reused.

The seat is part of the ROPS safety zone. Replace only with seat approved for your tractor. Any alteration of the ROPS must be approved by the manufacturer.



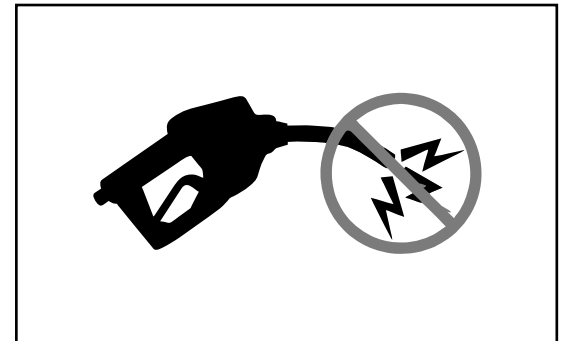
AVOID STATIC ELECTRICITY RISK WHEN REFUELING

The removal of sulfur and other compounds in Ultra-Low Sulfur Diesel (ULSD) fuel decreases its conductivity and increases its ability to store a static charge.

Refineries may have treated the fuel with a static dissipating additive. However, there are many factors that can reduce the effectiveness of the additive over time.

Static charges can build up in ULSD fuel while it is flowing through fuel delivery systems. Static electricity discharge when combustible vapors are present could result in a fire or explosion.

Therefore, it is important to ensure that the entire system used to refuel your machine (fuel supply tank, transfer pump, transfer hose, nozzle, and others) is properly grounded and bonded. Consult with your fuel or fuel system supplier to ensure that the delivery system is in compliance with fueling standards for proper grounding and bonding practices.



PREVENTION OF FIRE

Tractor should be regularly inspected and cleaned to lower the risk of fire.

- During normal operation of tractor, crop material, hay or other debris can be accumulated. This is likely to happen when operating in dry conditions. Any such build up must be removed to ensure proper machine function and to reduce the risk of fire. The tractor must be inspected and cleaned periodically throughout the day.
- Birds and other animals may build nests or bring other flammable materials into the engine compartment or onto the exhaust system. The tractor should be inspected and cleaned prior to the first use each day.
- Regular and thorough cleaning of the tractor combined with other routine maintenance procedures listed in this Operator Manual reduce the risk of fire and the chance of costly downtime.
- Do not store fuel container where there is an open flame, spark, or pilot light such as within a water heater or other appliance.
- Check fuel lines, tank, cap, and fittings frequently for damage, cracks or leaks. Replace, if necessary.

Follow all operational and safety procedures mentioned on the tractor and the Operator Manual. Be careful of hot engine and exhaust components during inspection and cleaning. Before carrying out any inspection or cleaning, always shut OFF the engine, place the transmission in PARK or set parking brake, and remove the key. Removal of the key will prevent others from starting the tractor during inspection and cleaning.

IN CASE OF FIRE

CAUTION: Avoid personal injury.

Immediately stop the tractor at the first sign of fire. Fire may be identified by the smell of smoke or sight of flames. As fire grows and spreads rapidly, get off the tractor immediately and move safely away from the fire. Do not return to the tractor! The number one priority is safety.

Call the fire department. A portable fire extinguisher can put out a small fire or contain it until the fire department arrives; but portable extinguishers have limitations. Always put the safety of the operator and bystanders first. If attempting to extinguish a fire, keep your back to the wind with an unobstructed escape path so you can move away quickly if the fire cannot be extinguished.

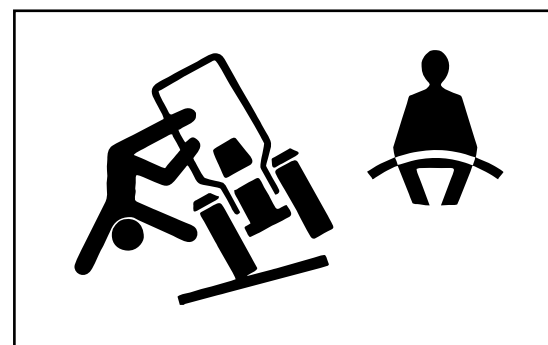
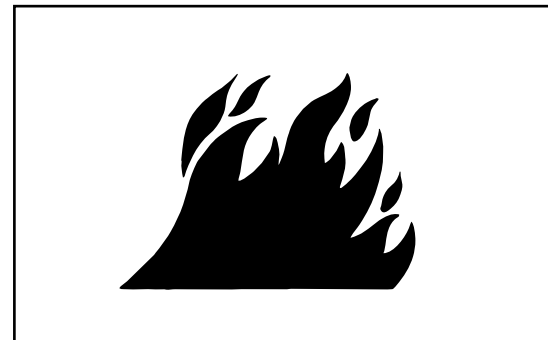
Read the instructions on fire extinguisher and become familiar with their location, parts, and operation before a fire starts. Local fire departments or fire equipment distributors may offer fire extinguisher training and recommendations.

If your extinguisher does not have instructions, follow these general guidelines:

- Pull the pin. Hold the extinguisher with the nozzle pointing away from you, and release the locking mechanism.
- Aim low. Point the extinguisher at the base of the fire.
- Squeeze the lever slowly and evenly.
- Sweep the nozzle from side-to-side.
-

PROPER USE OF SEAT BELT & ROPS

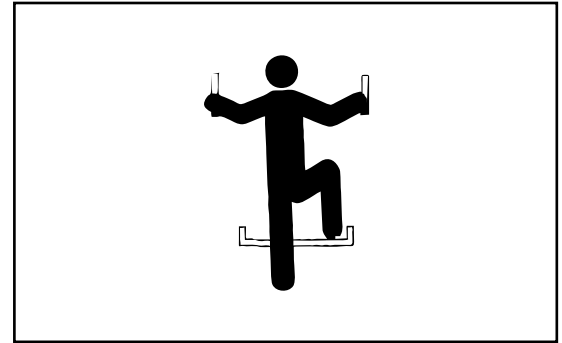
- Avoid crushing injury or death during rollover.
- Keep the ROPS in the fully extended and locked position. USE a seat belt when you operate with a ROPS in the fully extended position.
- Hold the latch and pull the seat belt across the body.
- Insert the latch into the buckle. Listen for a click.
- Tug on the seat belt to make sure that the belt is securely fastened.
- Snug the seat belt across the hips.
- If this machine is operated with the ROPS folded (for example, to enter a low building), drive with extreme caution. DO NOT USE a seat belt with the ROPS folded.
- Return the ROPS to the raised, fully extended position as soon as the machine is operated under normal conditions.



NOTE: 1). Replace entire seat belt if mounting hardware, buckle, belt, or retractor show signs of damage.
2). Inspect seat belt and mounting hardware at least once a year. Look for signs of loose hardware or belt damage, such as cuts, fraying, extreme or unusual wear, discoloration, or abrasion. Replace only with genuine parts.

CORRECT USE OF HANDHOLDS AND STEPS

While getting On and Off the tractor, always face the tractor. Maintain 3 point contact with steps, handholds, handrails. Use extra care in slippery conditions due to mud, snow, or moisture. Keep steps clean and free of grease or oil. Never jump while de-boarding the tractor. Never mount or dismount a moving tractor.



LIMITED USE IN FORESTRY OPERATION

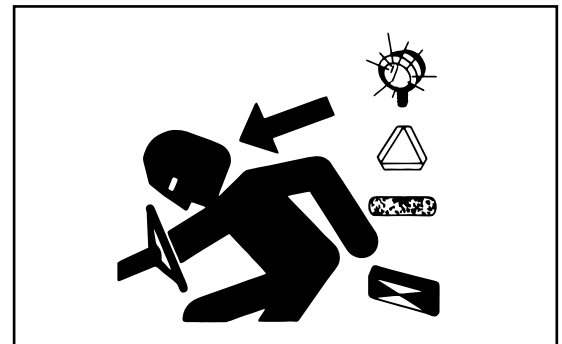
The intended use of tractors when used in forestry operations is limited to tractor-specific applications like transport, stationary work such as log splitting, propulsion, or operating implements with PTO, hydraulic, or electrical systems.

These are applications where normal operation does not present a risk of falling or penetrating objects. Any forestry applications beyond these applications, such as forwarding and loading, requires fitment of application-specific components including Falling Object Protective Structure (FOPS) and/or Operative Protective Structures (OPS).

USE SAFETY LIGHT AND DEVICES

Prevent collisions between other road users, slow moving tractors with attachments or towed equipment, and self-propelled machines on public roads. Frequently check for traffic from the rear, especially in turns, and use turn signal lights.

Use headlights, flashing warning lights, and turn signals day and night. Follow local regulations for equipment lighting and marking. Keep lighting and marking visible, clean, and in good working order. Replace or repair lighting and marking that has been damaged or lost.

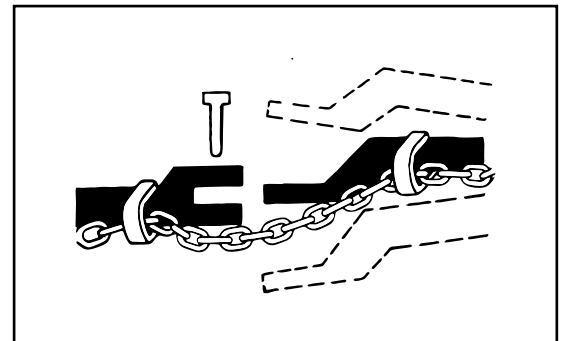


USE OF SAFETY CHAIN

A safety chain will help control drawn equipment should it accidentally separated from the drawbar. Use a chain with a strength rating equal to or greater than the gross weight of the towed machine.

Using the appropriate adapter parts, attach the chain to the tractor drawbar support or other specified anchor location. Provide only enough slack in the chain to permit turning.

Do not use safety chain for towing.



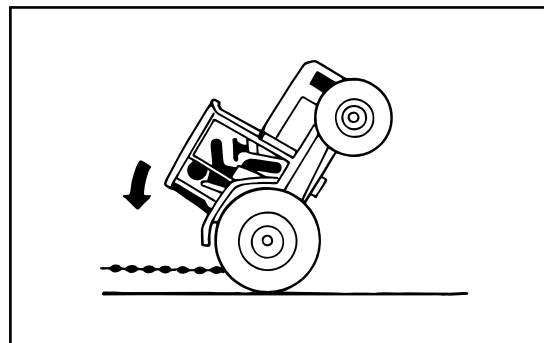
FREEING A MIRED TRACTOR

Attempting to free a mired tractor can involve safety hazards such as the mired tractor tipping rearward, the towing tractor overturning, and the tow chain or tow bar (a cable is not recommended) failing and recoiling from its stretched condition.

Back your tractor out if it gets mired down in mud. Unhitch any towed implements. Dig mud from behind the rear wheels. Place boards behind the wheels to provide a solid base and try to back out slowly. If necessary, dig mud from the front of all wheels and drive slowly ahead.

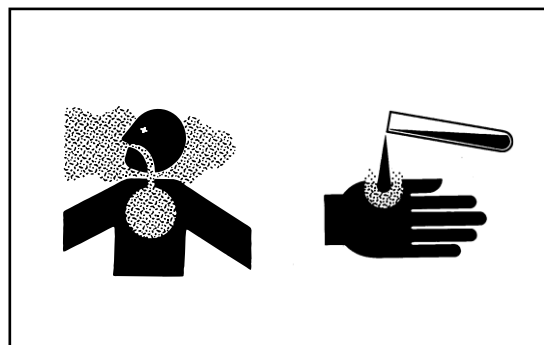
If necessary to tow with another unit, use a tow bar or a long chain (a cable is not recommended). Inspect the chain for flaws. Make sure all parts of towing devices are of adequate size and strong enough to handle the load.

Always hitch to the drawbar of the towing unit. Before moving, clear the area of people. Apply power smoothly to take up the slack: a sudden pull could snap any towing device causing it to whip or recoil dangerously.

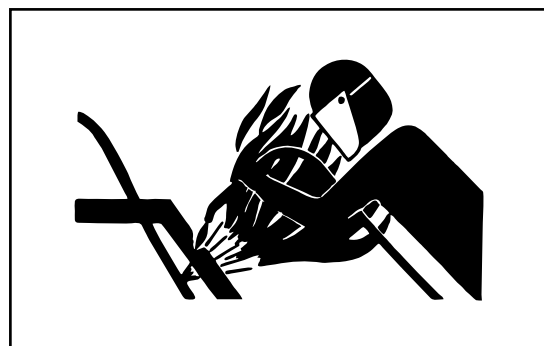
**AVOID CONTACT WITH AGRICULTURAL CHEMICALS**

If pesticide use instructions require respiratory protection, wear an appropriate respirator.

Store the respirator in a closed box or some other type of sealable container, such as a plastic bag.

**AVOID HEATING NEAR PRESSURIZED FLUID LINES**

Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders. Do not heat by welding, soldering, or using a torch near pressurized fluid lines or other flammable materials. Pressurized lines can accidentally burst when heat goes beyond the immediate flame area.



HANDLE ELECTRONIC COMPONENTS AND BRACKETS SAFELY

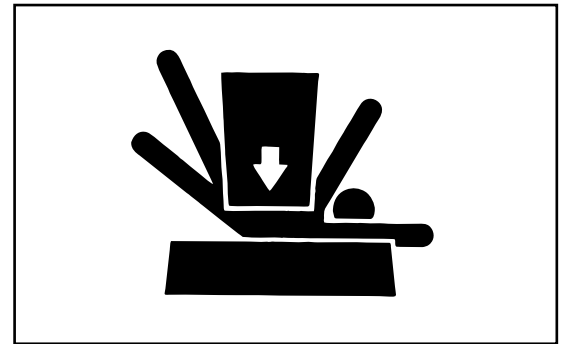
Falling while installing or removing electronic components mounted on equipment can cause serious injury. Use a ladder or platform to easily reach each mounting location. Use sturdy and secure footholds and handholds. Do not install or remove components in wet or icy conditions.



SUPPORT MACHINE PROPERLY

Always lower the attachment or implement to the ground before you work on the machine. If the work requires that the attachment be lifted, provide secure support for them. If left in a raised position, hydraulic supported devices can settle or leak down.

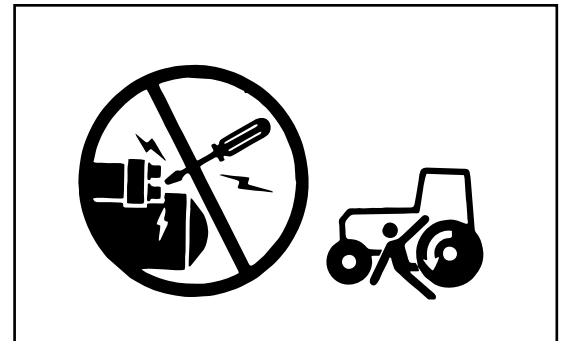
Do not work under the tractor which is supported solely by a jack.



PREVENT TRACTOR RUNAWAY

Avoid possible injury or death from tractor runaway.

NEVER start engine while standing on ground. Start engine only from operator's seat.

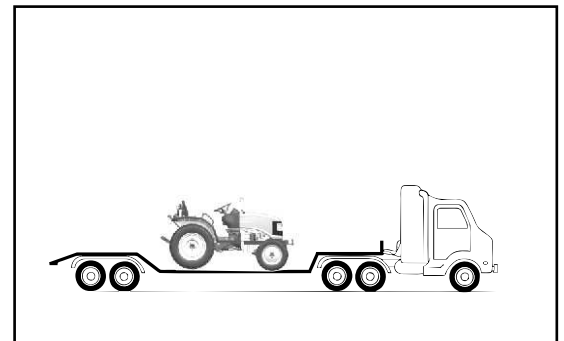


TRANSPORT TRACTOR SAFELY

A disabled tractor is best transported on a flatbed carrier. Use chains to secure the tractor to the carrier. The axles and tractor frame are suitable attachment points.

Before transporting the tractor on a low-loader truck or flatbed rail wagon, make sure that the bonnet is secured over the tractor engine.

Never tow a tractor at a speed greater than 10 km/h (6 mph). An operator must steer and brake the tractor under tow.



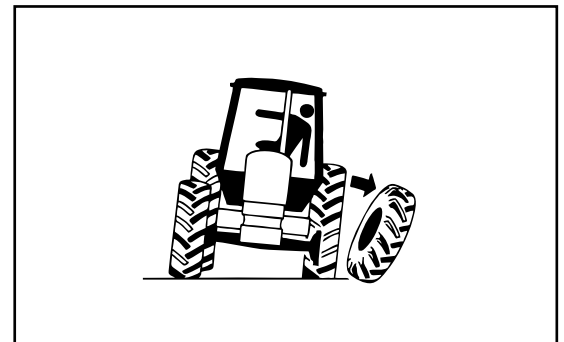
SERVICE TIRES SAFELY

Explosive separation of a tire and rim parts can cause serious injury or death. Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job. Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure. Never weld or heat a wheel and tire assembly. The heat can cause an increase in air pressure resulting in a tire explosion. Welding can structurally weaken or deform the wheel. When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available. Check wheels for low pressure, cuts, bubbles, damaged rims, or missing lug bolts and nuts.



TIGHTENING WHEEL RETAINING BOLTS/NUTS

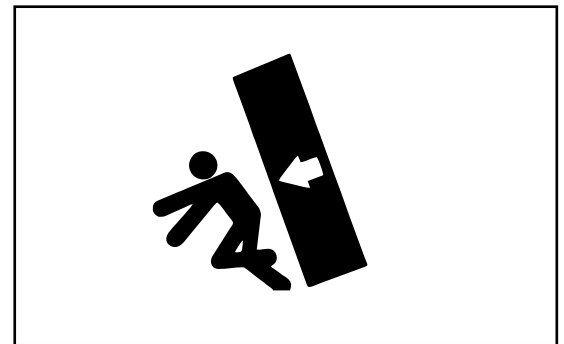
Torque wheel retaining bolts/nuts at the intervals specified in the Maintenance section.



STORE ATTACHMENTS SAFELY

Stored attachments such as dual wheels, cage wheels, and loaders can fall and cause serious injury or death.

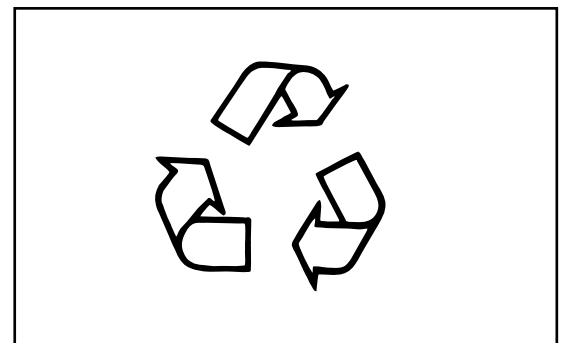
Securely store attachments and implements to prevent falling. Keep playing children and bystanders away from storage area.



DISPOSE OF WASTE PROPERLY

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.

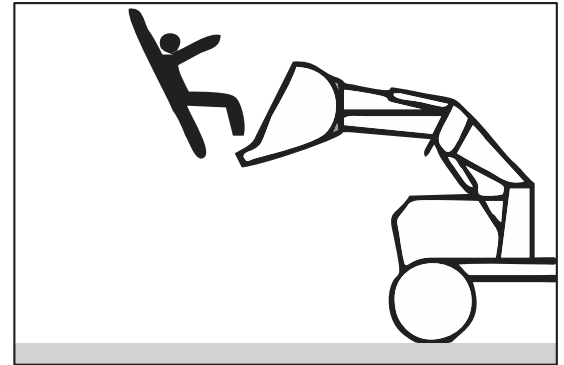
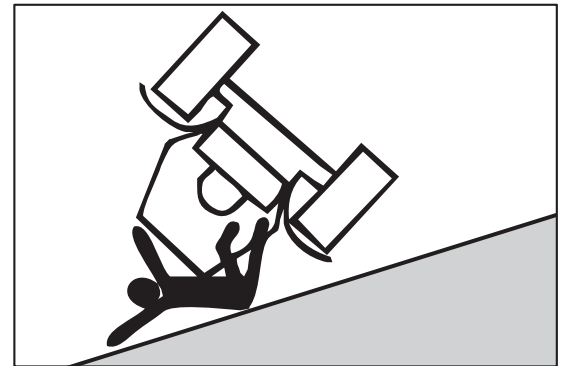


DISPOSAL OF THE TRACTOR:

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.

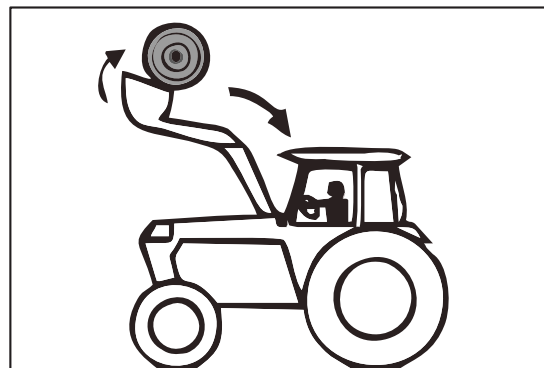
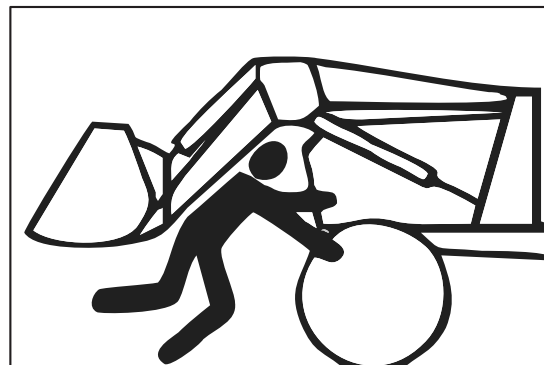
SAFETY WHILE OPERATING LOADER ATTACHMENTS

- 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.
- Do not use the equipment on steep slopes.
- 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.



SAFETY FROM LIGHTNING STRIKE



Lightning strikes injure and kill hundreds of people each year. Follow these precautions to help keep you safe when the weather turns bad:

- As soon as you hear thunder, shut off and put away equipment and move indoors. When you are able to hear thunder, you can be struck by lightning. Lightning can strike even when it's not raining.
- A sturdy building provides the best protection.
- Listen to the radio for weather updates and storm warning.

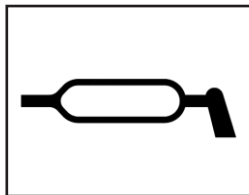
NOISE & VIBRATION LEVELS

The value of the noise at the operator's ear, measured according to standard 167/2013 (EU) and/or as per Directive 2009/76/EC(1) of the European Parliament and of the Council and the noise of the tractor in motion measured according to Annex VI to Directive 2009/63/EC (2) of the European Parliament and of the Council and/or 167/2013 (EU): Operator ear level:- Less than 86 dB. Noise at By standard level (when tractor is in motion & when tractor is stationary):- Less than 85 dB.

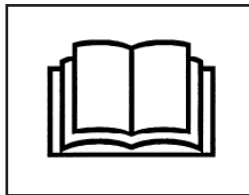
The value of the vibration level measured according to standard 167/2013 (EU) and/or according to Council Directive 78/764/EEC(3) is less than 1.25 m/s².

2.9 Safety Warning & General Information Labels on Tractor

1). No-text Safety Signs on LHS Fender



Grease Lubrication Point



Carefully read operator's manual before handling the tractor.



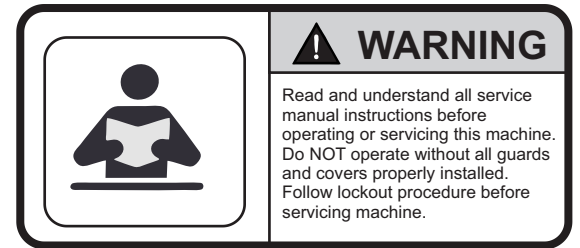
Observe instructions & safety rules when operating.

2). Safety Label on RHS Fender for No rider



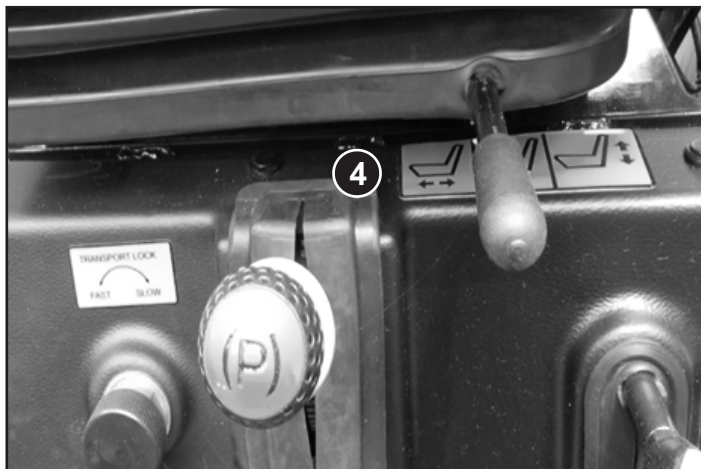
2. ||||

3). Safety Label on RHS Fender for No rider



3. ||||

4). Information Signs for Seat Adjustment



Seat - Longitudinal adjustment (Fore/aft)



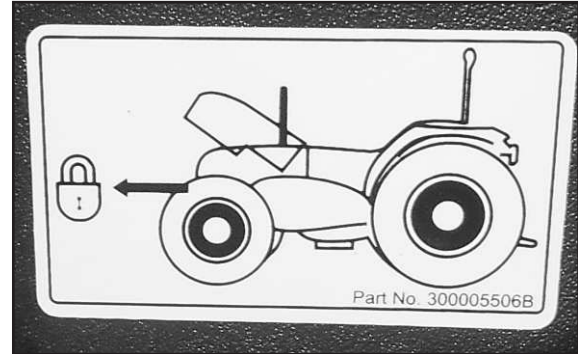
Seat - Weight adjustment



Seat - Height adjustment (Up/down)

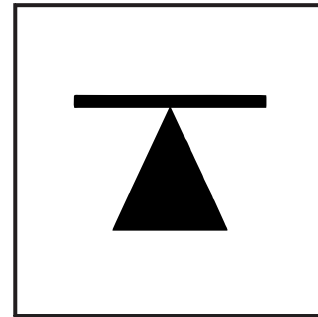
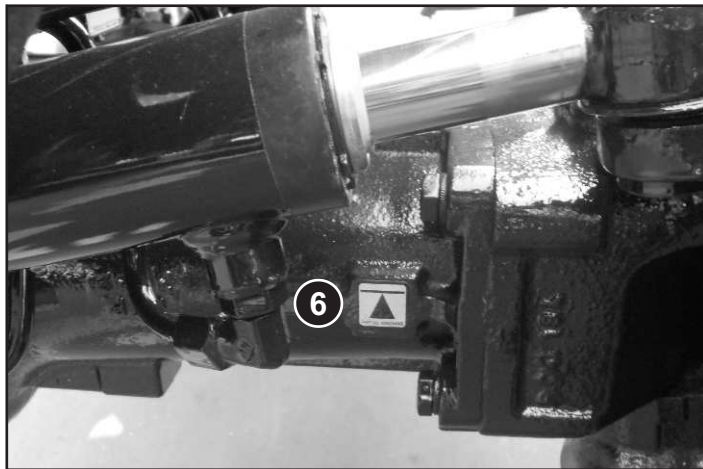
4. ||||

5). Information Sticker on front LHS of Bonnet showing location of Bonnet Lock



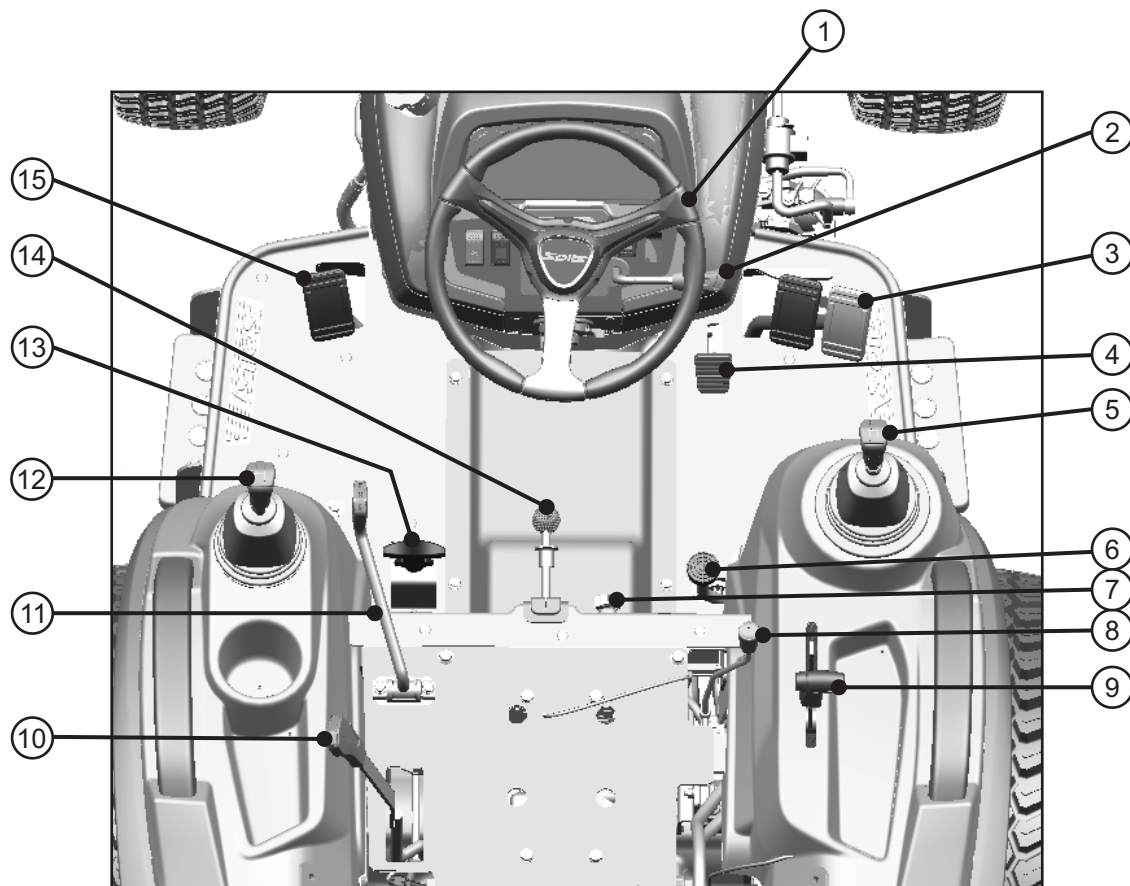
5. ||||

6). Information Sticker for Jack or Support Point Location



6. ||||

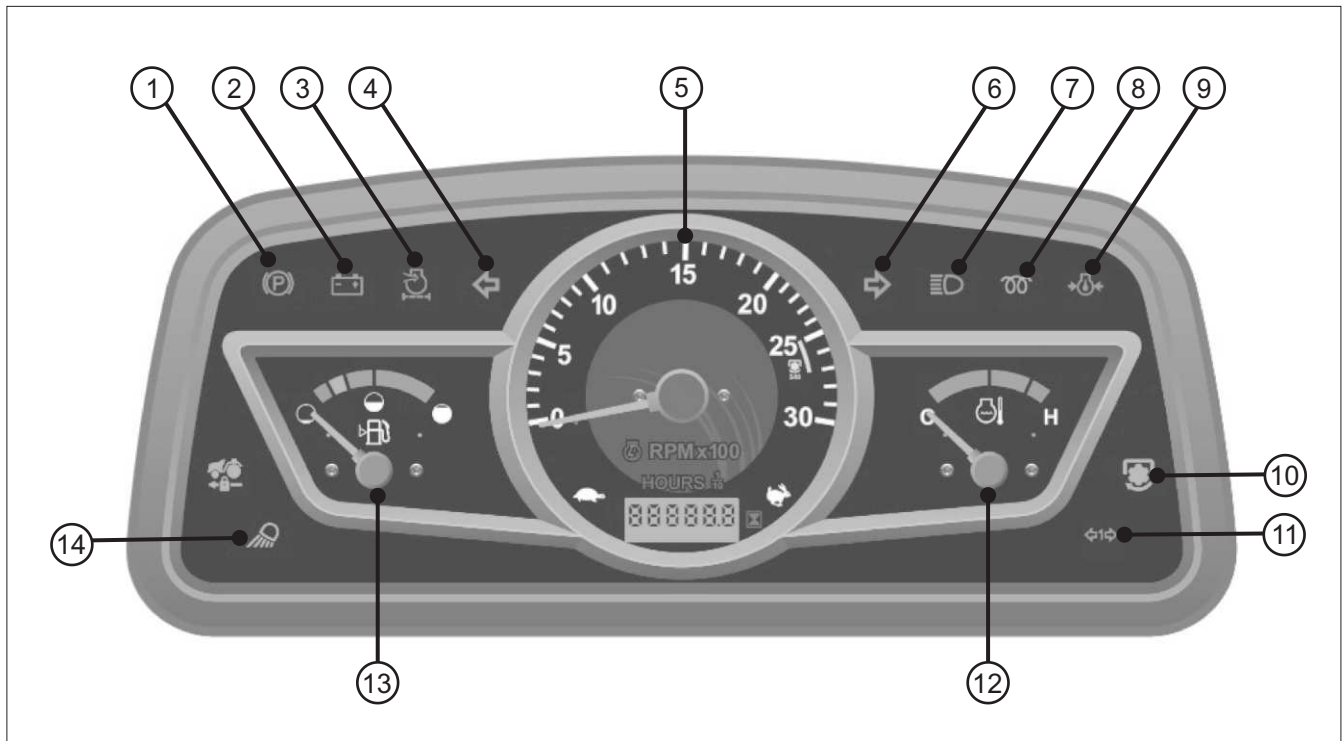
3.1 Tractor Controls



1	Steering Wheel
2	Hand Throttle Lever
3	Brake Pedals
4	Foot Accelerator Pedal
5	Main Gear shifter Lever
6	Differential Lock
7	Response Valve
8	DCV Lever

9	Hydraulic Control Lever
10	PTO Lever
11	Shuttle Lever
12	Speed Range Lever
13	2WD & 4WD Lever
14	Parking Brake Lever
15	Clutch Pedal

3.2. Instrument Panel



1		Parking Brake Indicator
2		Battery Charging Indicator
3		Air Cleaner Clogging Indicator
4		Left Turn Indicator
5		RPM & Hour Meter
6		Right Turn Indicator
7		High Beam Indicator
8		Glow Plug Indicator
9		Oil Pressure Indicator
10		PTO Monitor Lamp
11		Turn Trailer Indicator
12		Temperature Gauge
13		Fuel Gauge
14		Working Lamp Indicator

3.2.1 Park Brake Indicator

It glows when parking brake is engaged.



3.2.2 Battery Charge Indicator

This indicator indicates that either battery is being charged or not. Refer the below given observations with respect to different conditions:

Ignition Switch	Conditions		Battery Charging System Functioning
	Engine	Indicator	
ON	OFF	GLOW	OK
ON	OFF	OFF	Charging System/Battery is defective, Get both thing checked from electrician
ON	Start/Running	OFF	Battery being Charged
ON	Start/Running	GLOW	Charging System is defective / Battery is draining out, get the charging system checked from electrician.



3.2.3 Air Cleaner Clogging Indicator

This light will glow when the air filter get chocked. Clean the air cleaner element immediately with air pressure if this light is glowing.



3.2.4 Left Turn Indicator

It glows when the left side indicator is switched ON.

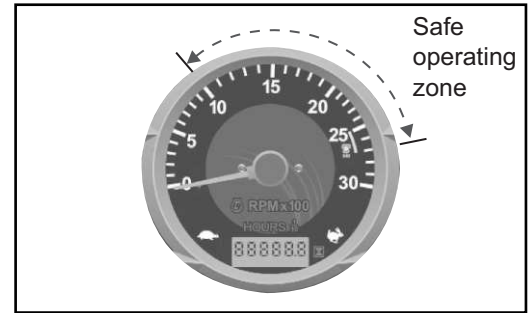


3.2.5 Engine RPM cum Hour Meter

Needle of this meter indicates speed of engine in revolution per minute and the hour meter indicates the number of hours worked by the engine.

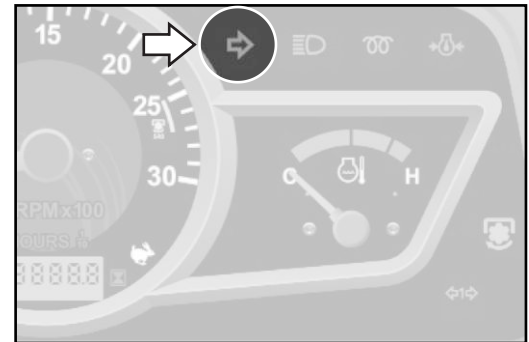
Green Zones is safe for operation.

NOTE: Hour meter may be defer from actual hour (As per Clock) this is purely depend on Engine RPM.



3.2.6 Right Turn Indicator

It glows when the right side indicator is switched ON.



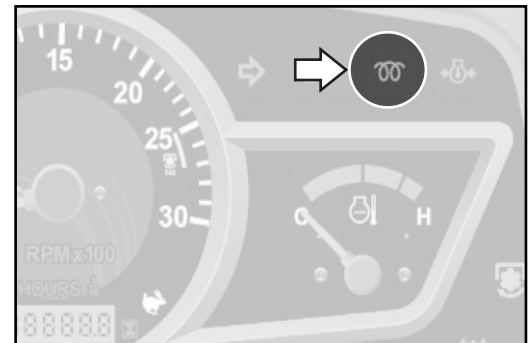
3.2.7 High Beam Indicator

This light glows when Head Lights are in high beam mode.



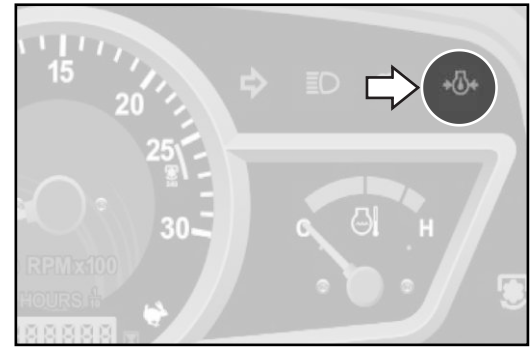
3.2.8 Cold Start Indication

It glows when ignition heater is ON at second position of the starting key.

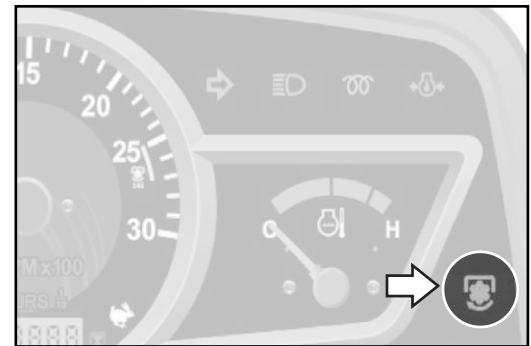


3.2.9 Oil Pressure Indicator

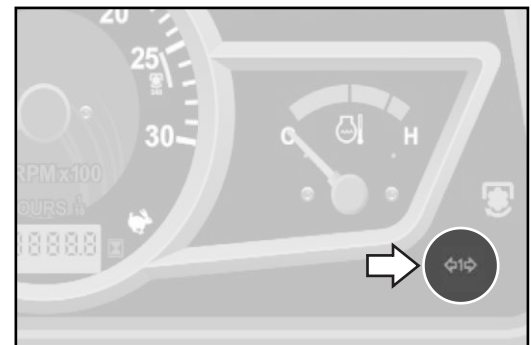
This light glows when engine oil pressure is low.

**3.2.10 PTO Monitor Lamp**

This Lamp will Turn ON, When PTO is engaged.

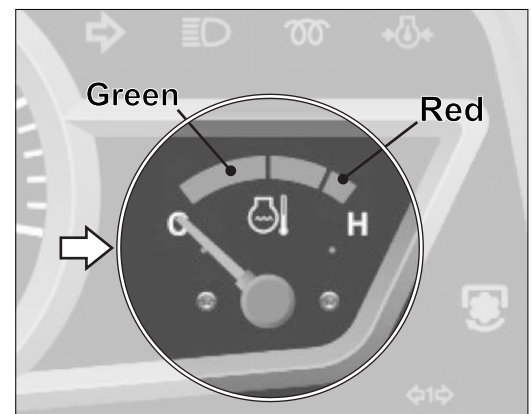
**3.2.11 Turn Trailer Lamp**

This light glows when Trailer lamp load is attached & Turn indicator Switch is ON. Also glows all time when Hazard switch is ON.

**3.2.12 Temperature Gauge:**

This gauge indicates temperature of engine coolant, GREEN zone indicates normal temperature and RED zone indicates engine overheating. If the needle moves beyond normal range, towards RED zone, follow the procedure:

1. Drive safely to the side of road and park your tractor.
2. Allow the engine to run idle.
3. If the temperature does not go down, shut-off the engine and allow sufficient time for it to cool.
4. Visually inspect the fan belt for looseness, breakage and all water hose connections for leak.
5. If the fan belt is OK and no coolant leak is noticed check the coolant level.
6. Add coolant if required otherwise contact your nearest dealer.

**WARNING**

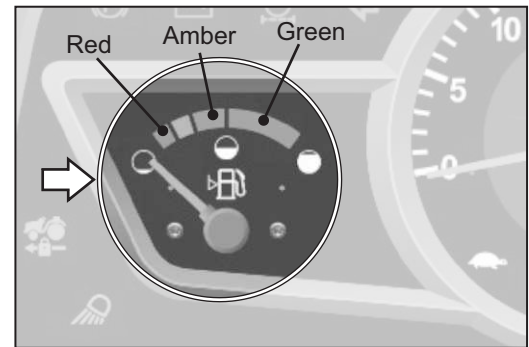
Do not remove the radiator cap when the engine and radiator are hot. Hot coolant and steam may blow out under pressure, which could cause serious injury. The cap should only be taken off when the coolant temperature has lowered.

Necessary precaution to be taken while opening the radiator cap.

3.2.13 Fuel Gauge

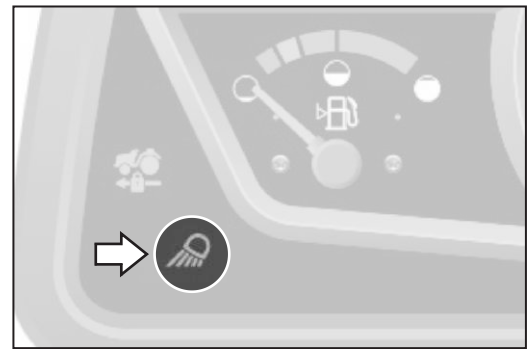
Fuel gauge gives an approximate indication of the quantity of fuel in fuel tank. If the needle enters in RED zone, refill the fuel tank.

Ensure Min. 6 Litre [1.32 U.S. Gallon] of Fuel in Fuel Tank to avoid air locking.



3.2.14 Work Lamp Indicator

This light glows when work lamp or plough lamp is ON.



3.3 Dashboard Controls

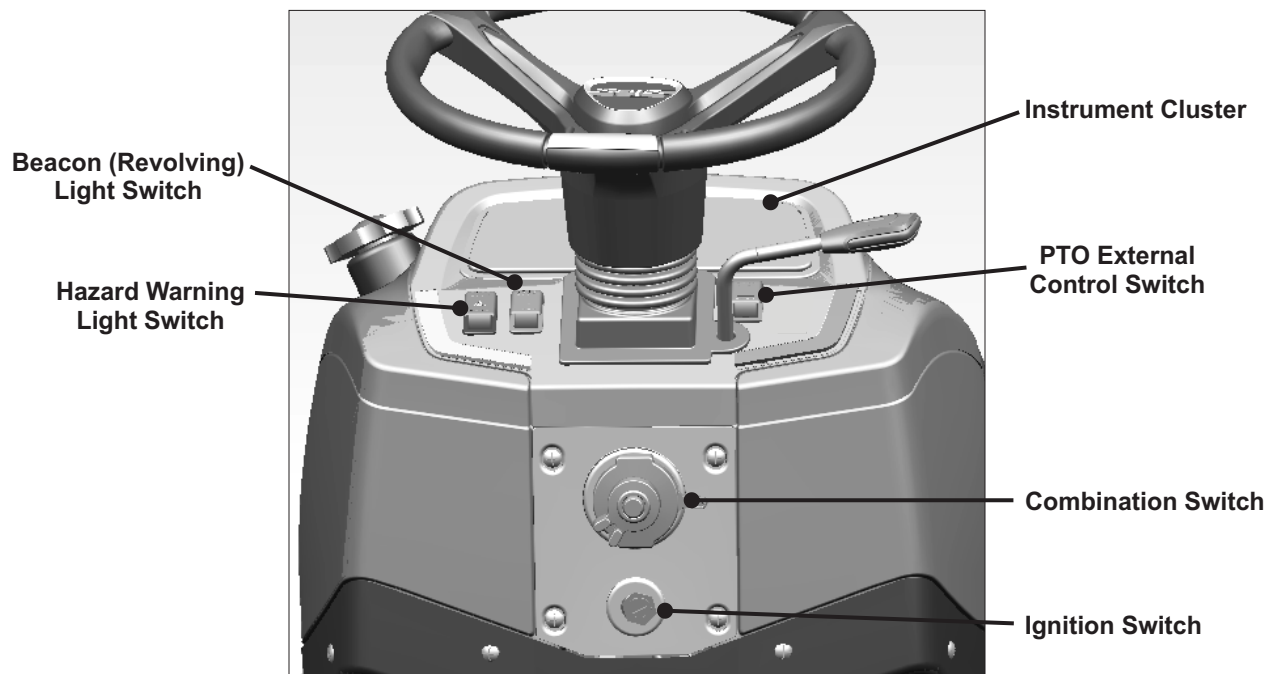


Fig. 9.6

3.3.1 Hazard Warning Light Switch (Fig. 3.3.1):

Purpose of the hazard switch is as follows:

1. All the four lights blinking, indicates that driver has no control on tractor.
2. Mechanical defects in the tractor.

Push this switch to blink all indicators in HAZARD situation to alert others.

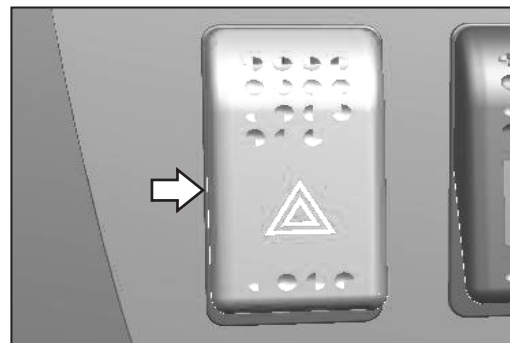


Fig. 3.3.1

3.3.2 Combination Switch (Fig. 3.3.2):

Side Indicator Switch (A):

This switch is used for indicating the vehicle turn. Move turn signal lever left to indicate left (L) hand turn or right (R) for right hand turn. Indicator lights will flash according.

Horn Switch (B):

Press this switch to blow the Horn.

Head Light and Parking Light Switch (C):

This switch illuminates all lights (Parking Light, Head Light, High Beam, Low Beam) with the clockwise rotation.

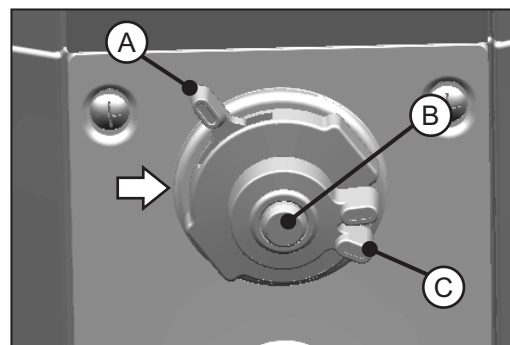
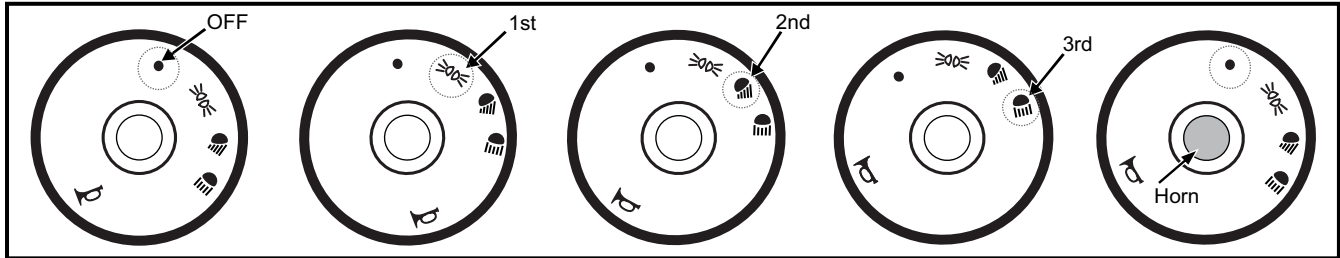


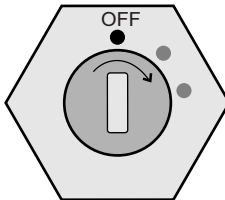
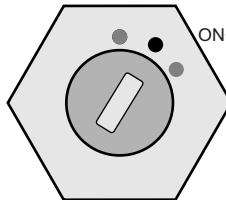
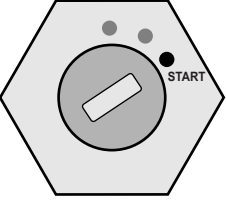
Fig. 3.3.2

<p>OFF Position All lights are off.</p>	<p>1st Position (Clockwise) With 1st click Stop parking lights, Instrument panel lights and tail lights will glow.</p>	<p>2nd Position (Clockwise) : With 2nd click Stop Head lights (Low beam), Instrument panel lights, Parking lights and tail light will glow</p>	<p>3rd Position (Clockwise) : With 3rd click Stop Head lights (High beam), Instrument panel lights, Parking lights and tail light will glow.</p>	<p>Horn : Press the combination switch to blow the Horn.</p>
--	---	---	---	---



3.3.3 Starting Key (Ignition) Switch:

Functioning of starting key switch is as below:

<p>1st Position (OFF) : All the electrical systems remain disconnected in this position.</p> 	<p>2nd Position (ON & HEATER) : The warning lights (Battery, Oil Pressure indicator) will be functional in this position. This is normal running position after the engine is started. Glow plug indication in instrument cluster will glow at this position.</p> 	<p>3rd Position (START): Immediate after the use of air heater turn the key further clockwise to Start position to start the engine.</p> 
--	---	--

NOTE :

- Do not keep the starter engaged more than 5-8 seconds. If engine stalls/fails to start then wait for 5-10 seconds before re-engaging the starter, otherwise you may damage it.
- Keep the switch in OFF condition when engine is also in OFF condition.

3.3.4 Revolving Light Switch:

This switch is used to ON/OFF the revolving Light mounted on Rops.

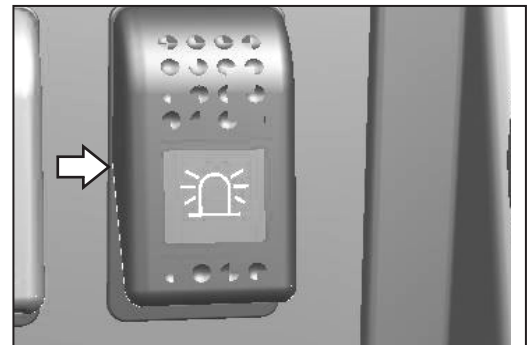


Fig. 3.3.4

3.3.5 PTO External Control Switch

When this switch ON, Operator can get up the driver seat after park brake applied to use the stationary PTO application.

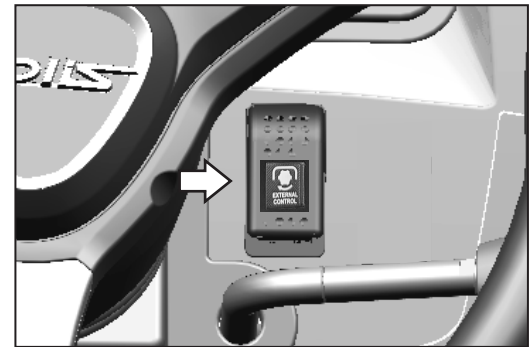


Fig. 3.3.5

3.4 Fuse Box

Fuse Box is mounted on upper radiator Bracket (See figure) if any electrical failure occurs, check and rectify the problem & replace the blown up fuse with genuine fuse of specified rating.



Never install a wire instead for proper fuse.

Refer “Page No. 79” for details of Fuses.

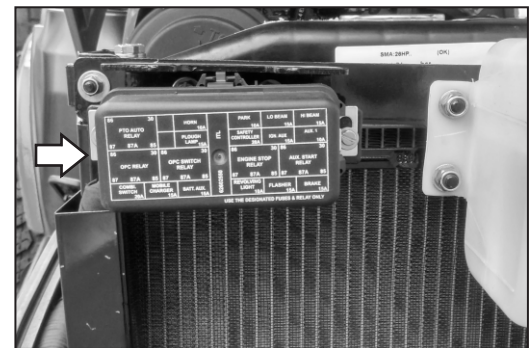


Fig. 3.4

3.5 Battery

Battery is located at front side of tractor on front axle bracket. Open the bonnet to access the battery (see fig. 3.5a).

Battery Cut-off Switch (Fig. 3.5b):

Battery cut-off switch is provided to connect or disconnect power supply from the battery. When the tractor is not in use for longer period, rotate the switch to anti-clockwise to switch off the power supply.

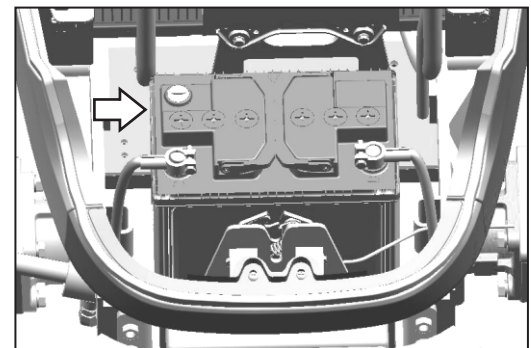


Fig. 3.5a

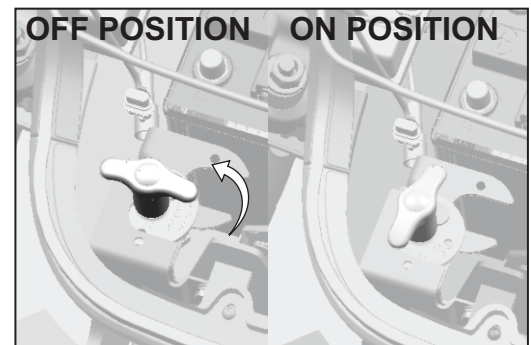


Fig. 3.5b

3.6 Seven Pin Socket:

Seven pin socket mounted on licence plate to attach the trailer connections (see fig. 3.6).

Details of connectors is given under:

Pin No	Used for	Wire Color
PIN 1	Left Turn Single	Yellow
PIN 2	Rear Fog light / Aux +ve	Blue
PIN 3	Earth	White
PIN 4	Right Turn Signal	Green
PIN 5	Right Parking Light	Brown
PIN 6	Brake Light	Red
PIN 7	-	-

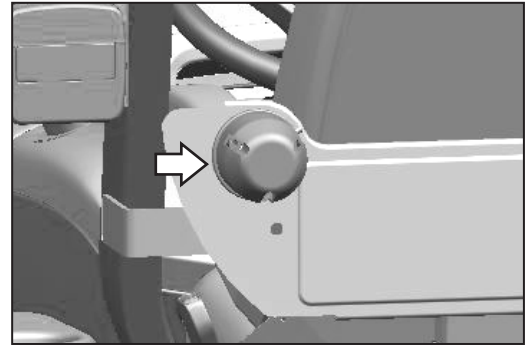


Fig. 3.6

3.7 Tractor Lights

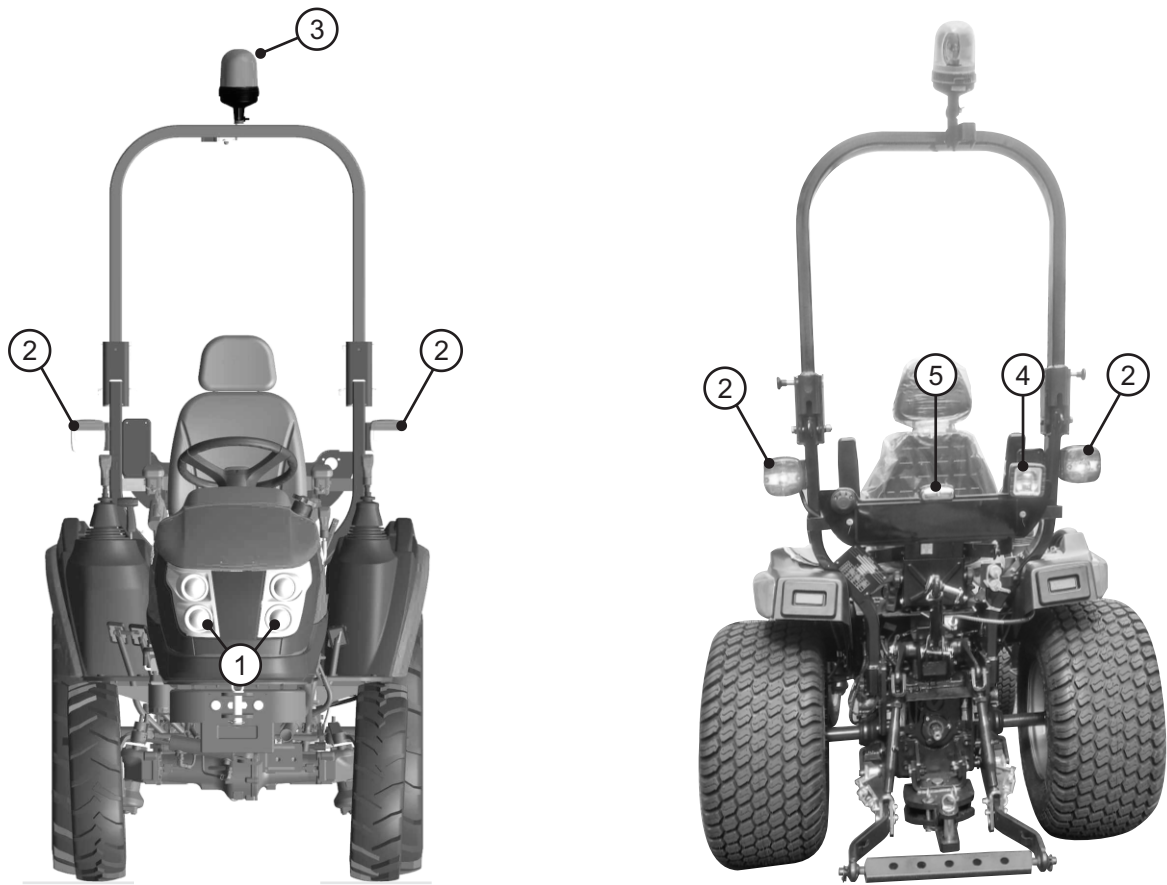
Head Lights (1): Projector lamps are provided for better focus & lighting and improved aesthetics.

Tail Lights (2): Tail Lights are having various indications i.e. light indication for brakes, side indicators and hazard warning light.

Beacon Light (3): To be used according to your country's regulation. This light is detachable type and can be removed based on requirements.

Plough Lamp (4): Adjustable plough lamp is provided at rear side as shown in figure.

Registration Plate Light (5): Registration plate light is provided on registration plate at rear side as shown in figure.



3.8 Registration Plate

A vehicle registration plate or number plate is mounted at rear end of the tractor as shown in figure 3.8.

The same is to be used as per country's rule.

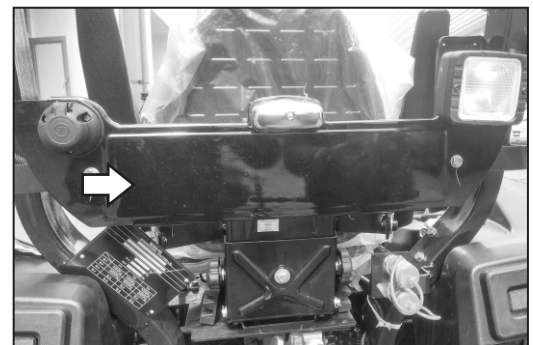


Fig. 3.8

3.9 Driver's Seat

While seating, adjust the weight of operator with weight adjustment knob provided at back side of seat so as to be comfortable driving & to minimize vibrations.

With the to & fro adjusting knob, slide the seat so as to have a comfortable approach towards all levers. The range of effort that can be adjusted while sitting on seat is 50-120 kgf [110.2 - 264.5 lbf]

Horizontal Adjustment

- Lift the lever (1, fig. 3.9a) to move the seat forward and backward.

Vertical Adjustment

- Use knob (2, fig. 3.9b) to adjust the suspension.
- Use knob (3, fig. 3.9b) to adjust the height of the seat vertically.
- Seat belt (4, fig. 3.9c) for safety.

Adjustment of Arm rest inclination:

- Raise the arm rest in upward position.
- Rotate knob (5, fig. 3.9d) in clockwise direction to increase the arm rest inclination.
- Rotate knob (5, fig. 3.9d) in anti-clockwise direction to decrease the arm rest inclination.



CAUTION

To avoid personal injury

- Make adjustments to the seat only while the tractor is stopped.
- Make sure that the seat is completely secured after each adjustment.
- Do not allow any person other than the operator to ride on the tractor.
- Always use the seat belt when the ROPS is installed.
- Do not use the seat belt if the tractor is not equipped with ROPS.



3.9a

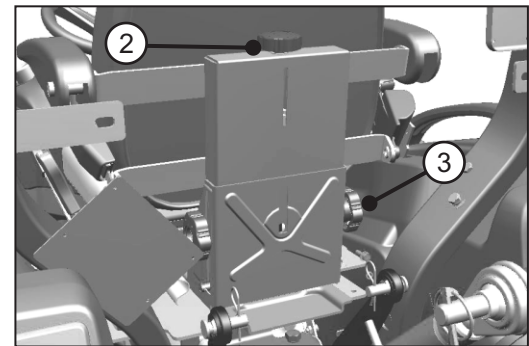


Fig 3.9b

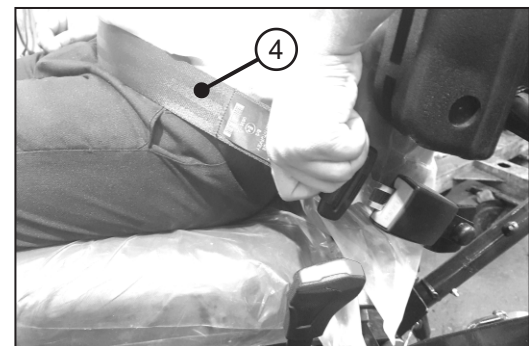


Fig. 3.9c



Fig. 3.9d

4.1 Operator Presence Control (OPC)

4.1.1 Parking Brake OPC

This tractor is equipped with an audible and visible alarm that alerts the operator when he leaves the driving position with the park brake not applied. This audible and visible alarm shall be activated after operator has been detected out of the driving position and the parking brake is not applied. The time-out of alarm is 5-7 seconds. The alarm shall be deactivated when the operator is detected to be present again in the driving position within this time period or when the parking brake is applied with in this time period.

4.1.2 Power take-off OPC

When the operator leaves the driving position with PTO engaged and the vehicle is not in motion, the engine will shut off automatically which will shut off the drive of the power take-off shaft within 7 seconds. The automatic PTO shut off action shall not have negative effects on safety related functions (e.g. braking). A restart of the Power take-off shall only be possible by an intentional actuation of the operator. To start the tractor again, operator has to put all levers in neutral position and press the brake pedal.

Tractor Condition	PTO Condition	Gears Condition	Seat Condition	Parking Brake Condition	Buzzer	OPC Feedback
ON	OFF	Neutral	Operator Leaves Seat	OFF	Will Blow	Buzzer will continuously blow until operator sits on the seat
ON	ON	Neutral	Operator Leaves Seat	OFF	Will Blow	Buzzer will blow continuously till engine stops with in 5-7 seconds
ON	ON	Neutral	Operator Leaves Seat	ON	Doesn't Blow	Engine stops with in 5-7 seconds
ON	ON	Engaged	Operator Leaves Seat	OFF	Will Blow	Buzzer will blow continuously till engine stops with in 5-7 seconds
ON	ON	Engaged	Operator Leaves Seat	ON	Doesn't Blow	Engine stops with in 5-7 seconds
ON	OFF	Engaged	Operator Leaves Seat	OFF	Will Blow	Buzzer will blow continuously until operator sits on the seat
ON	OFF	Engaged	Operator Leaves Seat	ON	Doesn't Blow	No buzzer, no engine shut-off

4.2 Boarding & Leaving the Tractor

Always board the tractor from left hand side where a footrest is provided while taking care the other part of body must not foul with levers. This will provide ease to operator.

After stopping the tractor, leave the tractor from Left or Right side of tractor.

4.3 Engine:



4.3.1 Starting the Engine:



Ignition switch is used to start the engine. Switch has following four positions. See figure 4.3.1 to understand ignition switch positions in your tractor model:

- 1. OFF:** When the key is turned to this position, power supply to the electric circuits is cut off, and the key can be removed or inserted in this position.
- 2. ON+HEAT:** When the key is turned to this position, power is supplied to the electric circuits. After the engine starts, the key is held in this position.
In this position, glow plugs would become hot and allow easy startup of a cold engine.
- 3. START:** When the key is turned to this final position, the starter cranks the engine and the engine starts. When the key is released, it automatically returns to 'ON' position.

For Starting:-

- A Check that the gear shifter lever is in neutral.
- B Move the range lever to neutral position.
- C Tractor is equipped with clutch safety switch, always press the clutch pedal fully before starting the engine.
- D Check that PTO lever is in neutral.
- E Release the hand brake (if engaged).



When the engine is running, keep as a safe distance from the radiator fan.

4.3.2 Cold Weather Starting (Temperature below 0°C or 32°F):

Proceed as follows:

- 1 Perform operations A to C as instructed above.
- 2 Turn the Ignition key to 'Heat' position and when glow plug indicator goes off then turn the key to start position.
- 3 If the engine fails to start repeat Step 2, wait for further 5 to 10 seconds and then turn the key to start position again.

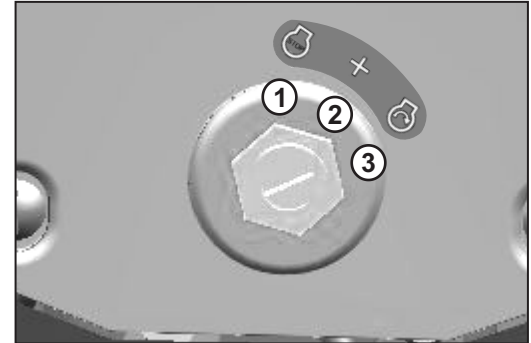


Fig. 4.3a - Ignition Switch

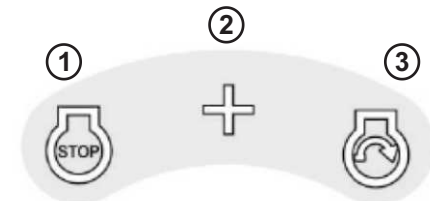


Fig. 4.3b - Ignition Switch Positions

Note:

- 1 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 with less time glow plug heater.
- 2 Do not keep the key turned to start position for more than 5-8 seconds at a time.
- 3 Wait at least one minute after every two failed attempts of starting the tractor.

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:

- 1 Fuel filters are not blocked.
- 2 The battery and Heater plugs are working efficiently.

4.3.3 Running in

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

- 1 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 gear when towing heavy loads.
- 3 When running in, check regularly that all screws, nuts and bolts are tight.

4.3.4 Turning off the Engine:

- 1 Turn the accelerator to idle position.
- 2 Stop the engine by turning the ignition key to 'OFF' position.

4.3.5 Stopping and Parking

- Reduce the engine speed using hand throttle lever / accelerator pedal.
- Press the clutch pedal and brake pedal to stop the tractor.
- Move all gear levers to neutral position.
- Lower any implement to the ground.
- Apply the parking brake.
- Turn the ignition key to 'OFF' position to stop the engine.
- Remove the ignition key.



Always apply the parking brake when parking. Failure to do so can cause accidents and damage. As an extra precaution when parking on a slope, chock the rear wheels.

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

4.4 Under Hood Muffler

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

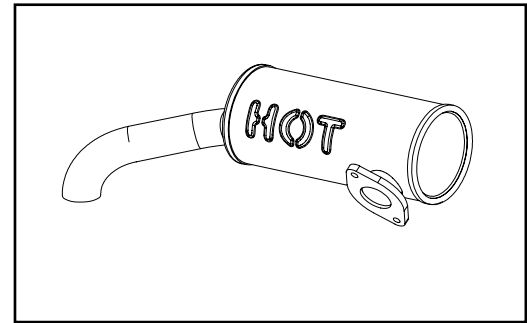


Fig. 4.4

4.5 Opening the Bonnet

Pull the knob 1 (fig. 4.5a) at front left side of the bonnet, till you hear a click sound, to open the bonnet.

Lift the bonnet slightly and it will automatically lift up to the preset height with the assistance of gas spring.

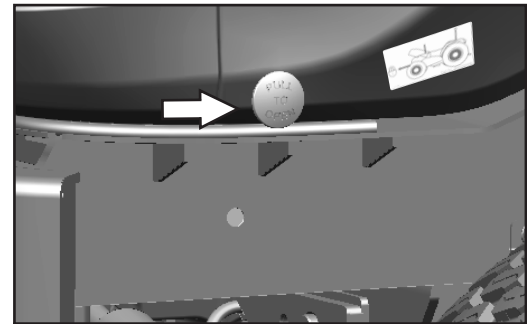


Fig. 4.5a

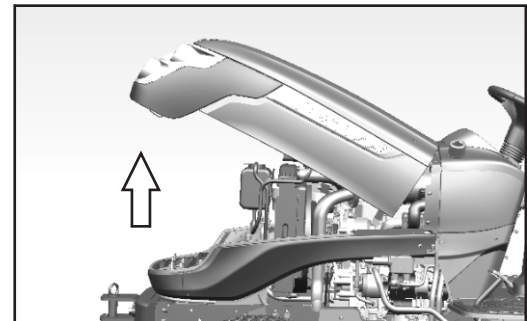


Fig. 4.5b

4.6 Accelerator Pedals

The accelerator pedal can over ride the setting of 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 idling position.

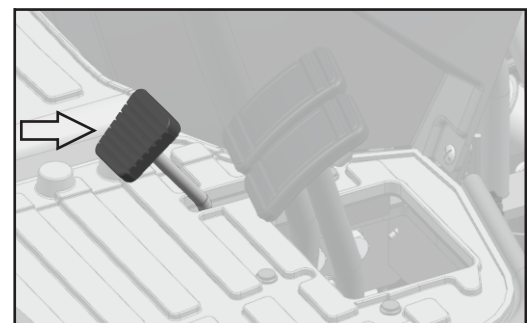


Fig. 4.6

4.7 Clutch Pedal

Pedal released = Drive engaged.

Pedal Pressed = Drive disengaged.

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

IMPORTANT: Never keep your foot resting on clutch pedal when driving.



Never coast down slopes with the gear lever in neutral / clutch pressed when in gear.

4.8 '2WD / 4WD' Lever

You can drive the tractor in both 2WD or 4WD mode. Select the driving mode by Lever as shown in figures (4.8).

2WD mode: By engaging the lever in 2WD position (downward direction) the power is transmitted to rear wheels only.

4WD mode: With the lever in 4WD position (upward direction) the power is simultaneously transmitted to all 4 wheels of tractor.

NOTE: 4WD Mode is for field operation and 2WD mode is for road operation.

2WD=Two Wheel Drive, 4WD=Four Wheel Drive

4.9 Hand Throttle Lever

Hand throttle lever mounted on front panel is used in field application. To increase the speed of engine, pull up the lever and to decrease, pull down the lever.

4.10 Gear Shifter Lever

Gear shifter lever enables to get the required speed (9 Forward and 9 Reverse) by selecting the particular gear with combination of hi-low gear lever.

Before changing the tractor movement from forward to reverse or reserve to forward direction wait for the tractor to stop.

Release accelerator pedal and press the clutch pedal. Select required gear, release the clutch gradually and accelerate the engine.

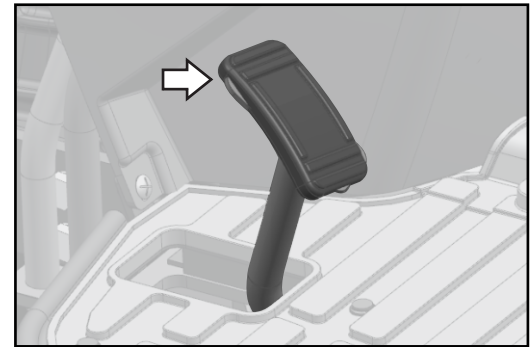


Fig. 4.7

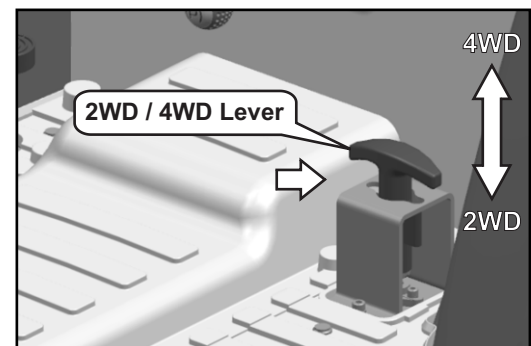


Fig. 4.8

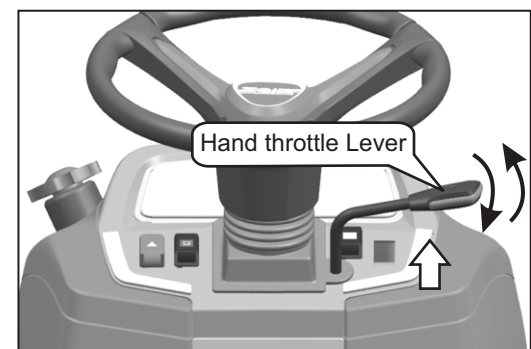


Fig. 4.9

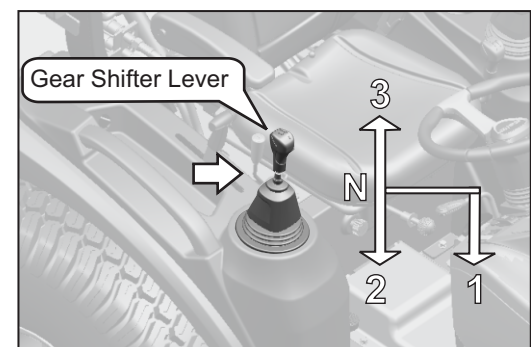
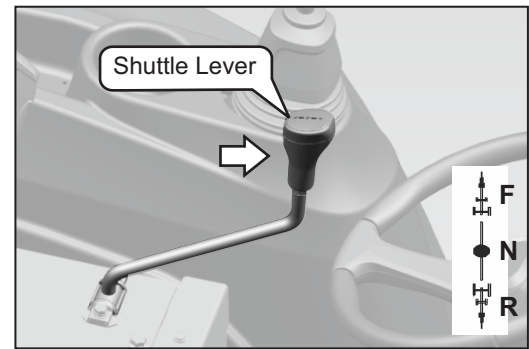


Fig. 4.10

4.11 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.



4.12 Power Take off (PTO)

Power take off is mounted at rear left side of operator. This is used for supplying power directly to implement from engine. PTO can be engaged or disengaged by PTO shifter lever. (See fig.4.12a)

Position	PTO Speed	Engine RPM
PTO 1	540	2565
PTO 2	540E	2083

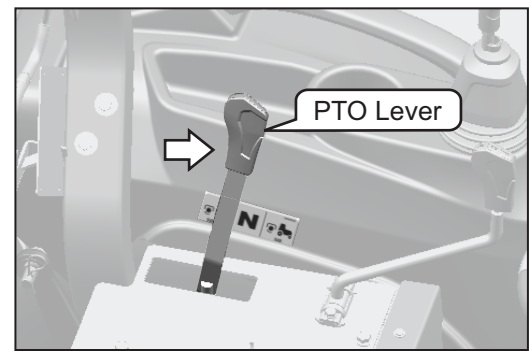


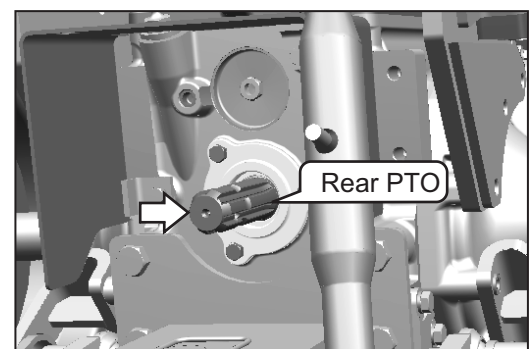
Fig. 4.12a



Rear PTO:

In rear PTO, the PTO speed is 540E RPM. Engage the rear PTO as per following steps:

- Decrease engine speed at idle RPM.
- Make sure that PTO switch is in OFF position.
- Shift PTO lever to backward direction.
- Turn on the PTO switch .
- Increase engine speed as desired.



IMPORTANT: If operator turns off PTO switch, rear PTO and mid PTO are off at once.

IMPORTANT : When PTO is not operational protect PTO splines with PTO Cap (A).

PTO Cap protects persons from injuries and the shaft splines from damage.



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.



When using the PTO drive with a stationary tractor, ALWAYS make sure that the parking brake is applied.



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 the law.



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



Remove PTO cap (A, fig. 4.10b) only when the PTO is to be used. As soon as PTO-driven implement is removed, re-install cap over PTO stub shaft afterwards. There are various versions of PTO guard that are not shown here.



Never operate PTO unless the master shield (B) is in the position shown. Switch off the PTO before raising the implement.



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.



Always put a guard 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.

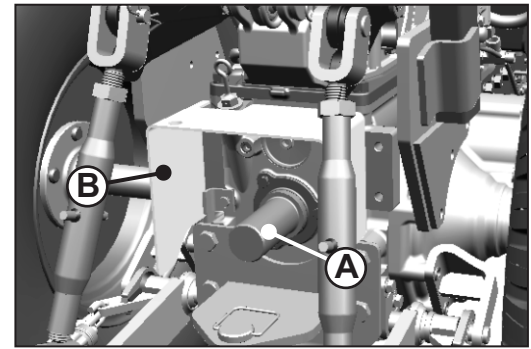


Fig. 4.12b

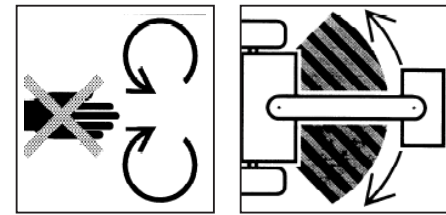
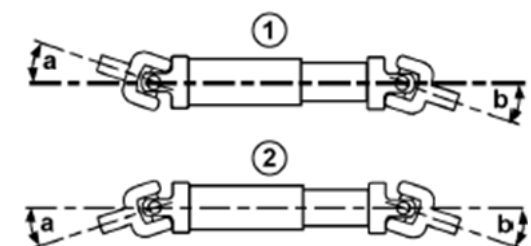


Fig. 4.12c



Fig. 4.12d



Articulation on Telescoping Driveline



Stay clear from the area of the three-point linkage when controlling it.



The mounted machinery must be lowered on the ground before leaving the tractor.



Stay clear from the area between tractor and trailed vehicle.

Information about using implements with power take-off drive shafts



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



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.



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.

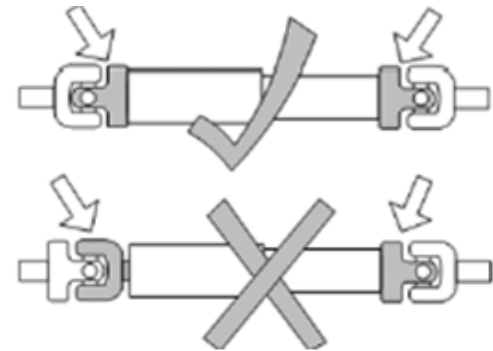
Turn key off to stop engine.

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.

As far as possible, angles (1) and (2) 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.



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

Fig. 4.12e

A requirement to use only power take-off drive shafts with adequate guards

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.

PTO External Control Switch

If you want to operate any PTO driven implement in static condition of the tractor without sitting on the driver seat, the same can be achieved with the help of PTO external control switch, This switch is located near Ignition switch (fig. 4.12f).

Mode of Operation:

During static condition (operator leaves the seat and PTO is in running condition), engage the parking brake and press the switch downward direction in 'ON' condition. This will prevent the engine from getting shut-off.

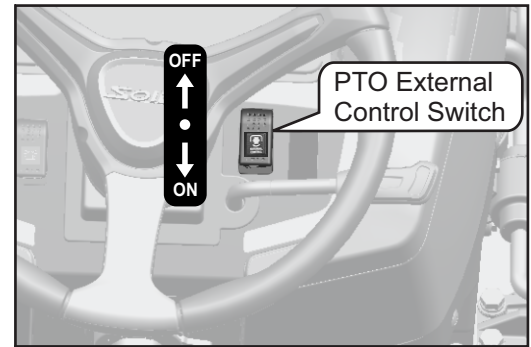


Fig. 4.12f

4.13 Hydraulic Coupling Devices

One Double acting (1DA) detent type Direction control valve (DCV) is equipped as a standard fitment in your tractor. The DCV is used when attaching the implement operated by hydraulic cylinder.

The female Quick release couplers (QRC's) are located at rear side of tractor (see fig. 4.11a).

1. Make sure hose end and coupler receptacles (male & female) are in perfectly clean condition.
2. Remove dust plug from QRC's.
3. To connect male coupler, push it firmly into female coupler receptacle. Pull lightly to make sure positive connection was made.
4. Use DCV lever (Fig. 4.11b) for operating DCV.
5. Move the DCV lever forward or backward to control the implement.

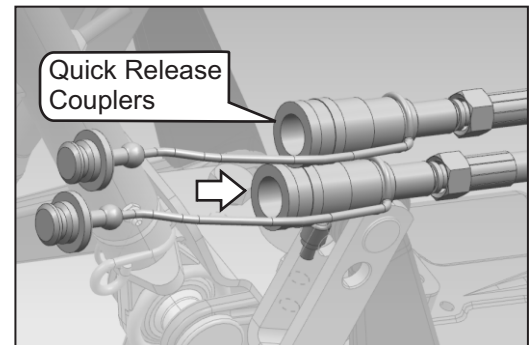


Fig. 4.13 (a)

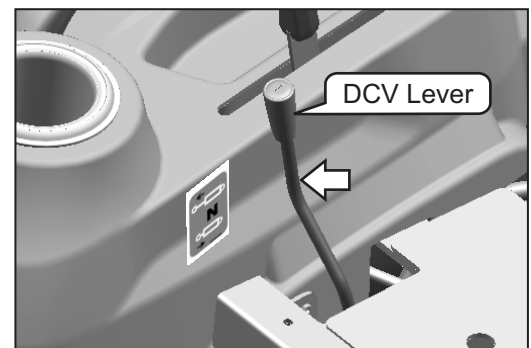


Fig. 4.13 (b)



Use cylinder implements only according to DCV fitted in your tractor.



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



Make sure that DCV Lever is in neutral position in case of DCV is not in use. Failure to follow this instruction may result in serious damage of hydraulic components.



Never unhitch the implements before removing the QRC's.

4.14 Response Valve (Transport Lock)

To adjust the lowering speed for three point linkage, use response valve knob. It also acts as a safety device during transportation of implements. It is located on front end side of Hydraulic rear cover beneath driver seat (see fig. 4.14).

Operation: While implements transportation, lift the implement at desired height and then fully tighten (clockwise) the response valve for its locking.



Response Valve should always be closed during implements transportation.

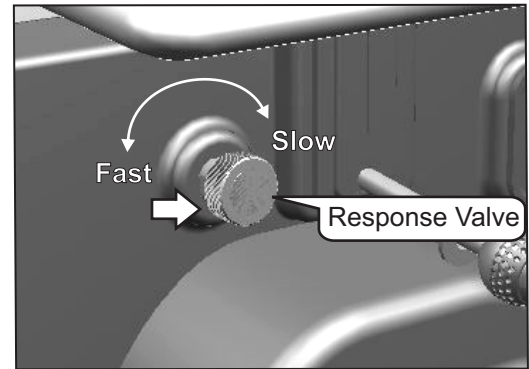


Fig. 4.14

4.15 Speed Range Selector (H-M-L) Lever

This lever is two positions i.e. High, Medium & Low speed range. Each range is identified by a symbol on the knob of the lever.

Note: Select the speed after starting tractor as per requirement.

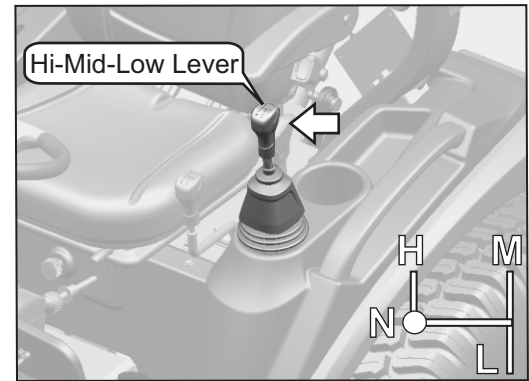


Fig. 4.15

4.16 Differential Lock Pedal

The rear axle differential is equipped with a locking device to engage when one of the rear wheels slip owing to lack of grip. To lock the differential, slow the tractor down and fully press the differential lock pedal (Fig.4.16).

NOTE: For the best results, engage the differential lock before the wheels are likely to slip. 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. If the differential fails to release, sharply brake on the wheels. Brake the wheel that is out of the furrow during ploughing work.



Do not apply differential lock while tractor speed is more than 6 kmph [3.73 mph] on turning.

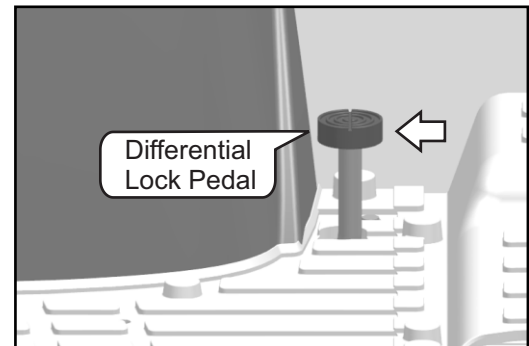


Fig. 4.16

IMPORTANT: Differential lock operation should be in straight position only and should be disengaged at turnings to avoid any damage of differential assembly.

4.17 Power Steering

The tractor is equipped with power steering with a pump of 5.5 CC & steering unit of 40 CC which enables the operator for ease in steering operation.

NOTE: The power steering function goes off when the engine is shut-off.

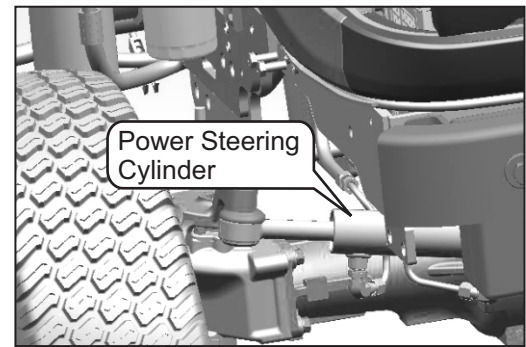


Fig. 4.17

4.18 Service Brake

The service brake pedal located to right hand side of the platform.

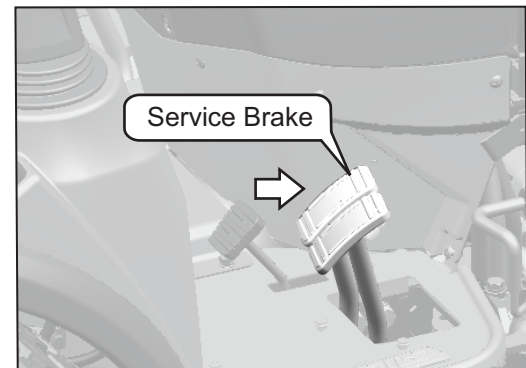


Fig. 4.18

4.19 Parking Brake

The Parking brake is located below driver seat and engaged by the parking brake lever which acts on the brake discs by means of a mechanical control.

Parking brake engagement

- Pull the parking brake lever upward to operate the parking Brake (fig. 4.19).

Parking brake disengagement

- Press sleeve (A, fig. 4.19) in forward direction, push the parking brake lever downward and release the sleeve 'A'.

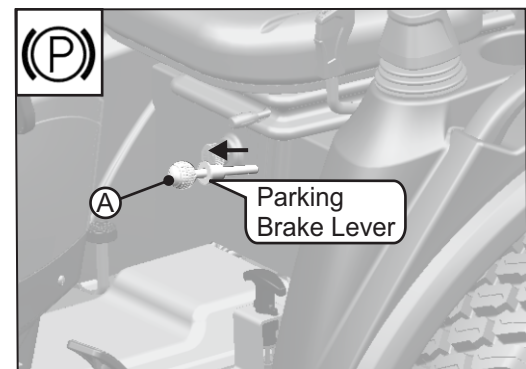


Fig. 4.19



Always engage the parking 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 may cause damage to internal transmission components. Make sure the brake is fully disengaged during tractor operation.*

4.20 Speed Chart

Following listed speeds are at rated engine rpm:

Range	Direction	Rear Tyre Size				
		8.3-20 6PR BKT Tr144/ 171 TT	280/70/R-18 114 A8/B BKT	33X15.5-16.5 10PR BKT LG306 TL	33X15.5-16.5 SPHD BKT	280/70/R16
HI	H1	8.54	7.69	7.62	7.11	7.28
	H2	13.64	12.29	12.17	11.37	11.63
	H3	19.36	17.44	17.28	16.13	16.51
MEDIUM	M1	3.46	3.11	3.08	2.88	2.95
	M2	5.52	4.98	4.93	4.60	4.71
	M3	7.83	7.06	6.99	6.53	6.68
LOW	L1	1.23	1.11	1.10	1.02	1.05
	L2	1.96	1.77	1.75	1.64	1.67
	L3	2.79	2.51	2.49	2.32	2.38



4.21 Wheels and Tyres

Tyres play vital role in transportation and agriculture operations. It is the most important factor in the efficient performance of tractor it should be used only as per company recommendation. Here we will discuss only pneumatic tyres.

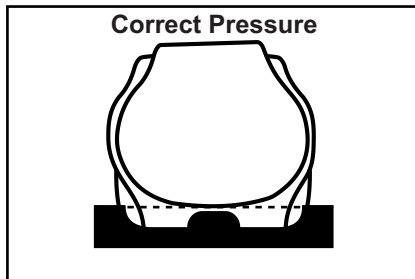
On any tyre there is some marking which represents its size & capacity e.g. Tyre marking is 8.3x20, 4 ply rating i.e. 8.3 inch is the section width, 20 inch is the bead diameter. Ply rating doesn't show that the same No. of plies are inserted in tyre. It is only comparative measure of the load carrying capacity (L.C.C) of tyre. As more ply rating shows more L.C.C. at the same time as L.C.C. increase the shocks absorption capacity decreases.

In general, tractor is considered for two types of work:

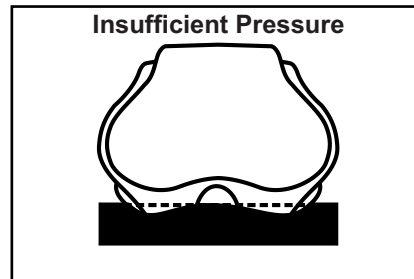
- Work on soft soil where maximum adhesion is needed. In this case there will be use of lowest pressure compatible with the load carried.
- Work on hard ground and roads, towing etc. In this case there will be use of maximum pressure.

In Field Operations

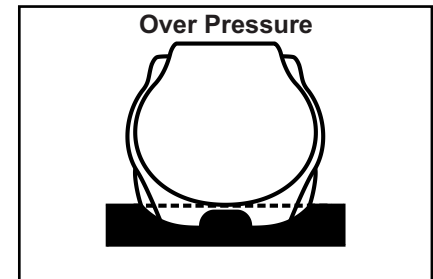
Recommended Tyre Pressure : Front: **20~22 P.S.I** / Rear: **14~16 P.S.I**



- Good adherence by dirt grousers.
- Good cleaning of the tread



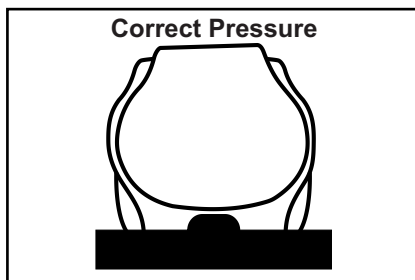
- Reduce adherence through lack of tyre grip.
- Deterioration of tyre casing by traction forces.



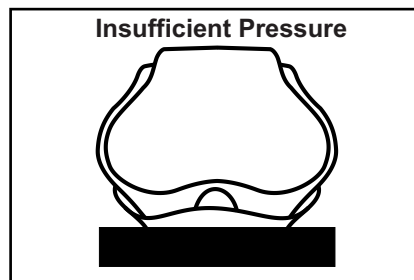
- Reduce group due to lack of cleaning
- Deterioration due to compacted ground.

On Haulage Operations

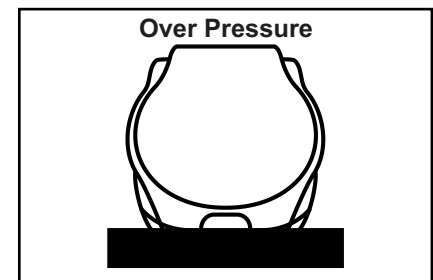
Recommended Tyre Pressure: Front: - **22~24 P.S.I** / Rear **16~18 P.S.I**



- Resistance to Wear



- Reduce adherence through lack of tyre grip.
- Deterioration of tyre casing by traction forces.



- Reduce group due to lack of cleaning
- Deterioration due to compacted ground.

Load Carrying Capacity

Tyre Combination	Axle No	Tyre Dimensions including load capacity index and speed category symbol	Tyre Load rating per tyre [kg]	Maximum permissible mass per axle [kg]	Maximum permissible mass of the vehicle [kg]	Max. permissible vertical load on coupling point [kg]
1	1	6.00-12 & 76 A6	400	800	2220	248
	2	8.3-20 6PR & 96 A6	710	1420		
2	1	7-14 8 PR & 72 A6	685	1370	3240	
	2	8.3-24 & FARM 2000 8PR	935	1870		
3	1	6.5/80-12 & 80 A6	650	1300	3660	
	2	280/70 R18 & 114 A8	1180	2360		
4	1	23x8.5-12 & LG 306 TL	960	1920	5220	
	2	33x15.5-16.5 & LG 306 TL	1650	3300		
5	1	25x8.50-14 (LG306)	750	1500	3400	
	2	13.6x6 (LG306)	950	1900		
6	1	220/55 R12 Galaxy Pro (82A8/82B)	475	950	3190	
	2	280/70 R16 Galaxy Pro (112A8/112B)	1120	2240		
7	1	23x8.5-12 12 PR SPHD	840	1680	5580	
	2	33x15.5-16.5 12 PR SPHD	1950	3900		

4.22 Check Wheel Nut Bolt

Check wheel nut of the front and rear wheel. Torque it as per following specification:

Rear wheel : 130 Nm [103 lbf-ft]

Front wheel : 72 Nm [53 lbf-ft]

4.23 Ballasting the Front Axle

Proper ballasting is an important factor in tractor performance. For better performance of tractor, the weight of tractor can be decreased as per requirement. Maximum productivity can be achieved only if tractor weight is appropriate for the job. Ballast is required for traction and stability. The tractor is equipped with detachable front toe hook. Following factors determine amount of ballast.

- Soil surface loose or firm
- Type of implement
- Travel speed and tractor power output partial or full load.

By default, equipped with 2 Front Weights of 15 Kgs each i.e. 30 Kgs [66.14 pounds].

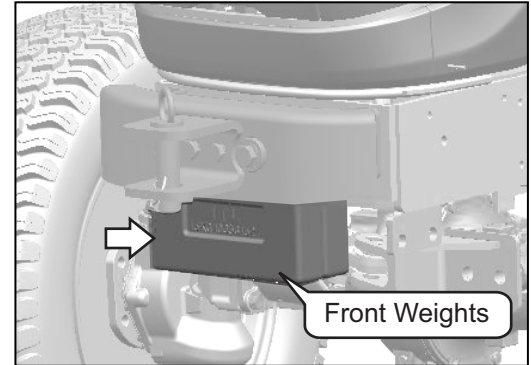


Fig. 4.23

4.24 Hydraulic Control Lever

This black color lever is mounted on right side of driver seat which enables raising or lowering the lift.

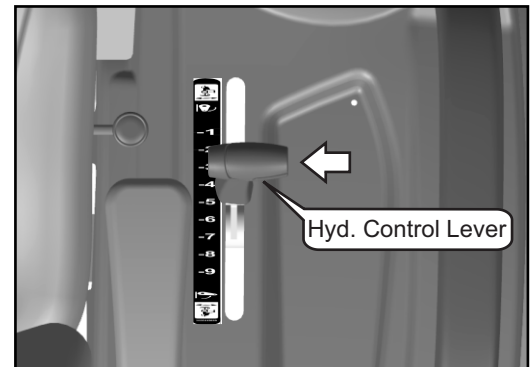


Fig. 4.24

4.25 Three Point Linkage

Three-point linkage is used to mount the implement, which is fully mounted, or semi-mounted and used for different field operation. Three-point linkage is controlled by hydraulic lever. In this two lower link are available, of which one side of the lower link is attached with differential housing and other is used to hitch the lower pin of the implement. Lift rods are mounted on lift arm that is operated through rockshaft. Loose side of Top link is used for attaching upper hitch pin of implement. Top link is adjustable for proper setting of implement and ease at the timing of joining.

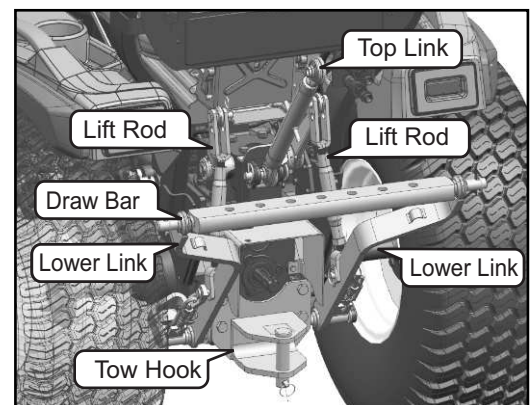


Fig. 4.25

Adjustable Lift Rods

The lift rods can be adjusted mechanically 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.

Top Link

For length adjustment of top link, fix the top link other end and turn the lever for increasing or decreasing the length. During field operation lock the tube to avoid unnecessary turning.

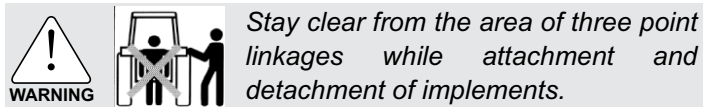
Lower Links

Lower Links are provided for hitching the implement.

Attaching Implement to 3 Point Linkage

Position the tractor to align corresponding linkage with the hitch points of implements. Keep the implement on hard & leveled surface and attach as per given below instructions :

- First attach with Left lower link and Right Lower Link
- Then at last attach with Top Link



NOTE: Maximum allowed vertical load on rear hitch is 248 Kg-f [0.55 pound-force].

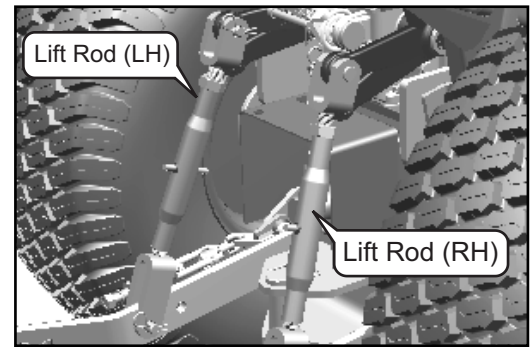


Fig. 4.25b

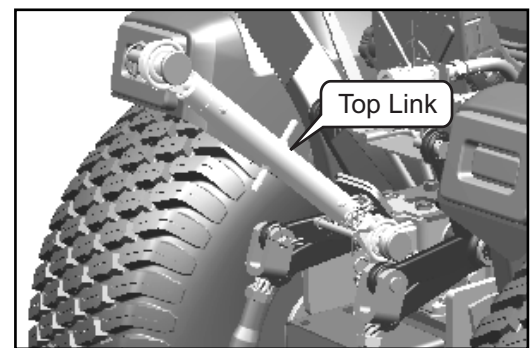


Fig. 4.25c

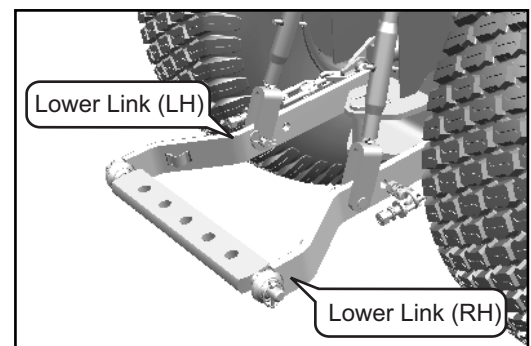


Fig. 4.25d

4.26 Safety Frame: Roll Over Protection Structure (ROPS)

A Safety frame 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 frame and a seat belt. Safety frames are effective in reducing injuries during overturn accidents.



WARNING : A tractor overturning without safety frame can result in serious injury or death.

Operation:

- Before using the tractor ensure that the safety frame is not damaged, that it is securely fastened to the tractor.
- If the safety frame has been removed from the tractor, 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.
- Always wear your seat belt-adjusted snugly except when the safety frame has been removed.
- Check the seat belt for damage. A damaged seat belt must be replaced, Fig. 4.26b.

Maintenance and Inspection:

The ROPS has been certified to industry and/or government standards. Any damage or alteration to the ROPS, mounting hardware or seat belt voids the certification and will reduce or eliminate the protection for the operator, in the event of a roll-over.

The ROPS, mounting hardware and seat belt should be checked at every service for any evidence of damage wear or cracks.

Normal Operating Position

For normal operation, including transport, always use the ROPS in the upright position with a fastened seat belt for full rollover protection (fig. 4.27a).

Operating Foldable ROPS

- Unscrew the Hex screw M10 (1, Fig. 4.27c) - 2 Pcs.
- Remove the snap ring (2, 4.27d) - 2 Pcs.
- Remove the Pin (3, 4.27d) - 2 Pcs. from ROPS bracket.



CAUTION When raising or folding the ROPS, apply parking brake, stop the engine and remove the key. Always perform function from a stable position at the rear of tractor. Fold the ROPS down only when absolutely necessary and fold it up and lock it again as soon as possible.

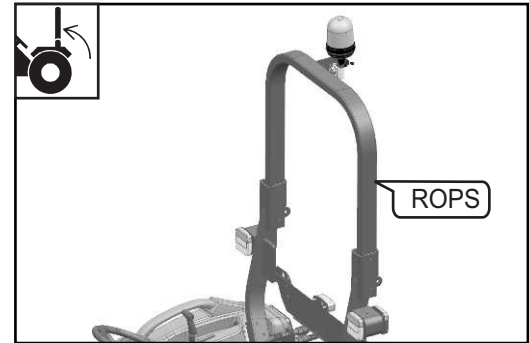


Fig. 4.26a

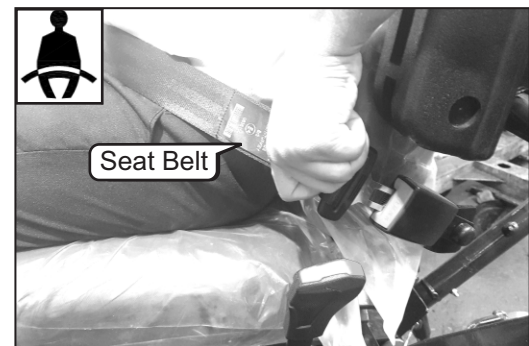


Fig. 4.26b

IMPORTANT: Do not weld, drill, bend or straighten the Safety Frame.

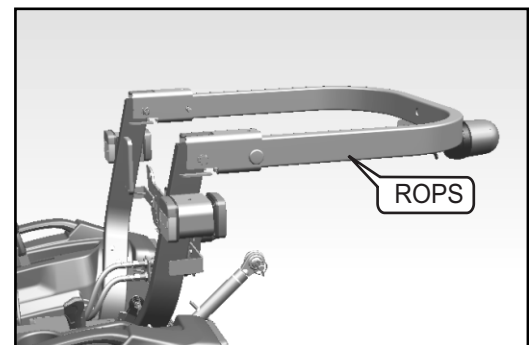


Fig. 4.26c



CAUTION To avoid personal injury hold the ROPS tightly with both hands and fold the ROPS slowly and carefully.



5.1 Maintenance Schedule

Observe the following maintenance schedule. This maintenance schedule is applied to tractors which are operated under normal conditions. When your tractor is frequently operated in muddy places, greasing must be carried out more frequently and when the tractor is often operated in dusty places, clean the air cleaner element and fuel filter more frequently. Extra servicing must be carried out according to particular situation.

Parameters	1st Service 50 Hours	2nd Service 250 Hours	3rd Service 500 Hours	4th Service 750 Hours	5th Service 1000 Hours	6th Service 1250 Hours	7th Service 1500 Hours
General							
Washing	W	W	W	W	W	W	W
Greasing	G	G	G	G	G	G	G
Re-tighten All Fasteners	CT	CT	CT	CT	CT	CT	CT
Rear View Mirror Holder	CT	CT	CT	CT	CT	CT	CT
Safety Frame (ROPS)	C	C	C	C	C	C	C
Engine							
Engine Oil	R	R	R	R	R	R	R
Engine Oil Filter	R	R	R	R	R	R	R
Tappet Clearance	CA	CA	CA	CA	CA	CA	CA
Fuel Filter Element	R	R	R	R	R	R	R
Fan Belt Tension	CT	CT	CT	CT	CT	CT	CT
Radiator Coolant Level	CP	CP	CP	CP	CP	CP	CP
Air Cleaner Element	CL	CL	CL	R	CL	CL	CL
Clutch							
Clutch Pedal Free Play	CA	CA	CA	CA	CA	CA	CA
Transmission / Hydraulic							
Transmission Oil	C	C	C	C	R	C	C
Transmission Breather Assy	CL	CL	CL	CL	CL	CL	CL
Operation of Hydraulic Lift	C	C	C	C	C	C	C
Hydraulic Oil Strainer	CL	CL	CL	R	CL	CL	R

Parameters	50 hrs/ 1st Service	250 hrs/ 2nd Service	500 hrs/ 3rd Service	750 hrs/ 4th Service	1000 hrs/ 5th Service	1250 hrs/ 6th Service	1500 hrs/ 7th Service
Brakes							
Operation of Brakes	C	C	C	C	C	C	C
Brake Pedal Free Play	CA	CA	CA	CA	CA	CA	CA
Steering							
Steering Operation	C	C	C	C	C	C	C
Front Axle 4x4							
Front Axle Differential Oil	R	C	R	C	R	C	R
Breather Assy	CL	CL	CL	CL	CL	CL	CL
Front Axle Pivot	C	C	CA	C	CA	C	CA
Wheels and Tyres							
Front Wheel Bolts	CT	CT	CT	CT	CT	CT	CT
Rear Wheel Nuts	CT	CT	CT	CT	CT	CT	CT
Tyre Inflation Pressure	CA	CA	CA	CA	CA	CA	CA
Battery							
Battery Electrolyte Level	C	C	C	C	C	C	C
Battery Terminals	CL	CL	CL	CL	CL	CL	CL
Electrical							
Functioning of All Gauges & Meters	C	C	C	C	C	C	C
Functioning of Alternator & Starter	C	C	C	C	C	C	C

Legends: R-Replace, C-Check, CT-Check & Tight, CA-Check & Adjust, CL-Clean

Beyond 1500 hours, repeat the cycle every 250 hours.

IMPORTANT:

- Engine oil grade should be selected as per operating temperature condition.
- Anti freeze should be used in sub zero ambient temperature.
- Clean Air Cleaner system as and when required as per field operating conditions.

5.2.1 Fuel Tank Filling



Comply with the following instructions when working with the diesel fuel:

1. Do not smoke while filling the fuel tank because diesel is flammable liquid and catch fire easily.
2. Mixtures of diesel fuel and alcohol are not approved since the resulting lubrication of the fuel injection system is insufficient.
3. Clean the area around the filler neck where the fuel is poured.
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.

5.2.2 Fuel Requisites

It is important to use good quality fuel for the long life & good performance of the engine. 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.

5.2.3 Fueling

Before you fuel the tractor, clean the zone around the filler neck to prevent foreign bodies from entering the tank. After fuelling, tighten the plug properly.

5.2.4 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.

Fuel Tank Capacity: 29 ±3 Liters (7.66 ±0.79 US Gallons)

- 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 water condensation 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 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.

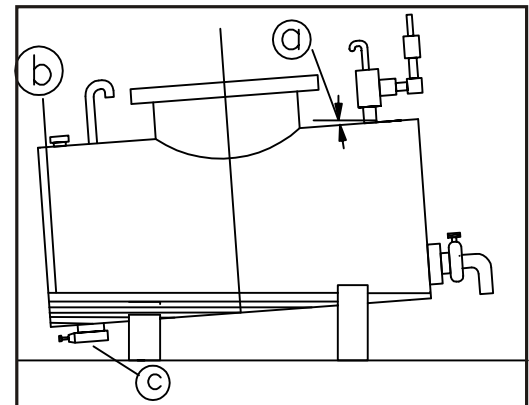


Fig. 5.2a

Setting up a tank for fuel storage and decanting.

- a. Slop 25 %
- b. Condensation water.
- c. Sludge drain plug.

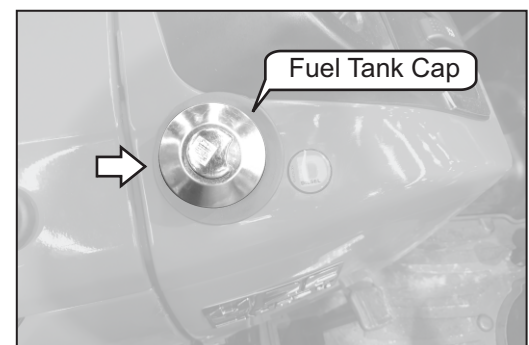


Fig. 5.2b: Fuel Tank Cap

5.3.1 Checking Engine Oil Level

Before checking the oil level be ensure that tractor is parked on leveled ground. Stop the engine and wait for some time, as all oil should return to oil sump.

Check the oil level by unscrewing dipstick (located at RHS of the Engine). Top up the oil level if the level is below the minimum level mark. Do not over fill than maximum level mark. Oil level should be between maximum and minimum marks (see fig. 5.3a).

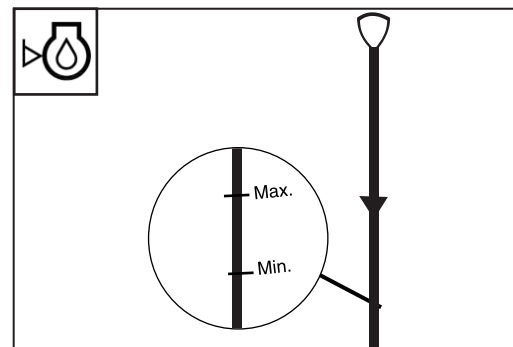


Fig. 5.3a: Dipstick marks

5.3.2 Replacement of Oil Filter & Engine Oil

Changing Oil Filter:

1. Remove the oil filter by rotating it in anti-clockwise direction by hand or with the filter wrench.
2. Take new oil filter and check it for proper seating of gasket.
3. Apply clean engine oil to gasket on the new oil filter.
4. Install oil filter. When the filter gasket contacts the mounting surface of filter, tighten the new oil filter.

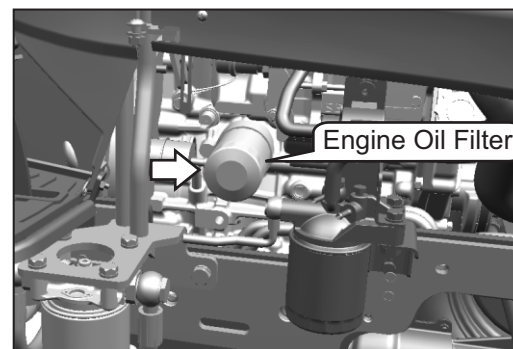


Fig. 5.3b

Refilling Engine Oil :

1. Re-install the Drain plug and remove the oil filler cap.
2. Fill the engine oil with the specified engine oil to the specified level to sump capacity from oil filler cap (fig. 5.3c & 5.3d).
3. Insert into the oil level gauge guide, then pull out the gauge again.
4. Ensure that oil level should be between the MAX. & MIN. marks on the dipstick. If less, then pour the oil to bring it to specified level.
5. Install the oil filler cap after a refill.
6. Check the oil pan and other parts for oil leakage.
7. Start the engine, allow it to run idle and don't race it immediately.

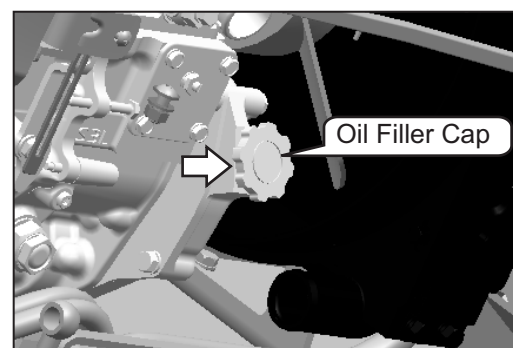


Fig. 5.3c

Recommended grade of Engine Oil:

- SAE- 10W40 (Cold countries)
- SAE- 15W40 (Hot countries)

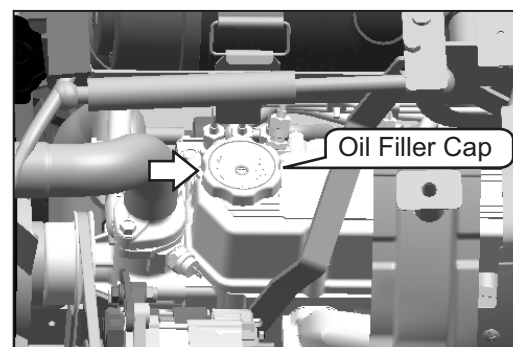


Fig. 5.3d

5.4 Replacement of Fuel Filter

1. Turn off the ignition switch .
2. Remove the filter by rotating it in anti-clockwise direction by hand or special wrench.
3. Take new filter and check it for proper seating of gasket.
4. Apply clean engine oil to gasket on the new fuel filter.
5. Install fuel filter, when the filter gasket contacts the mounting surface of filter, tighten the filter and ensure that there is no leakage.

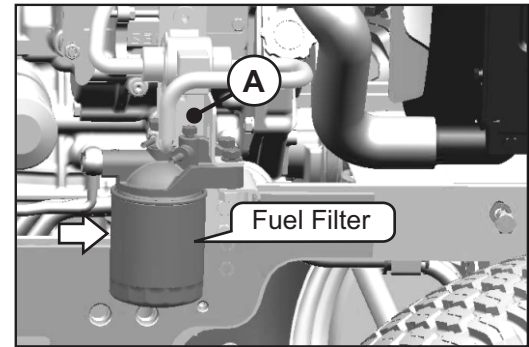


Fig. 5.4a

5.5 Air Bleeding of Fuel System

After changing the fuel filter the system must be air - bleed in following manner:

1. Switch ON the ignition key to start the electric pump till completion of air bleeding process.
2. Loosen the vent plug (A) at the top of fuel filter body.
3. Tighten the vent plug (A) until the bubble free fuel flows from the air vent plug hole.
4. Loosen the vent plug (B) of FIP and allow the air to flow out from the system.
5. Tighten the vent plug (B) until the bubble free fuel flows from the return valve.

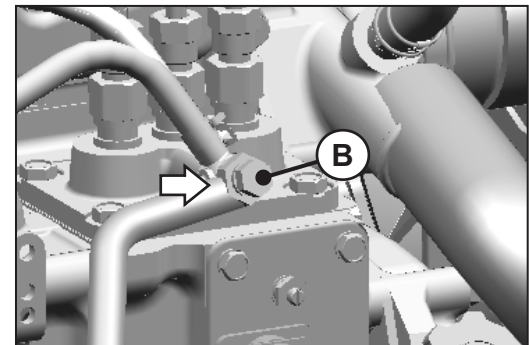


Fig. 5.4b

5.6 Radiator

5.6.1 Coolant Level in Radiator (When Hot)

Slowly open the radiator cap (1, fig. 5.6a) up to the safety catch (about 1/3 turn). Wait to allow the steam to escape. Continue opening the cap, press it down firmly to release the safety catch. The level of coolant should just touch the tab located in the filling spout.

If the level has dropped, check the entire cooling system for leakage (radiator, hoses etc.) If there is no leakage, Top up the coolant.

Fill the reserve tank (2, fig. 5.6a) with coolant up to the FULL line mark for coolant Top up.

Coolant is a mixture of water and anti rusting / anti freezing agent in a recommended ratio.

In sub zero temperature climate conditions use Glysantin G40 antifreeze agent along with water in following ratio (table 5.6.1):

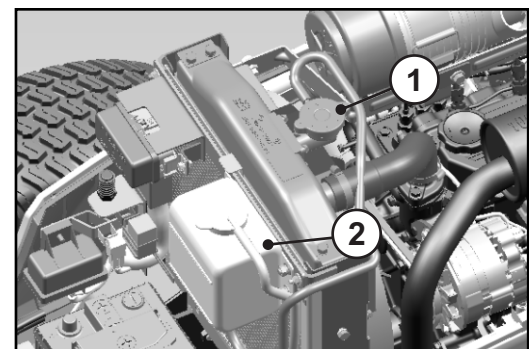


Fig. 5.6a

Temperature Range °C [°F]	0 to -3 [32 to 26.6]	-3 to -8 [26.6 to 17.6]	-8 to -16 [17.6 to 3.2]	-16 to -25 [3.2 to -13]	-25 to -37 [-13 to -34.6]	-37 to -55 [-34.6 to -67]
Antifreeze (%)	10	20	30	40	50	60

5.6.2 Radiator Draining & Flushing (When cold)

1. Remove the radiator cap and drain plug (fig. 5.5b).
2. Let the coolant drain out. Close drain cock and plugs. Flush the cooling system with water / Cleaning Solution for 15 minutes, then drain the cleaning solution.
3. Refit the drain plug and refill the coolant (Mixture of water, anti scaling agent, antifreeze).
4. Run the engine with radiator cap open and accelerate 2-3 times and Top up coolant if required.
5. Refit the radiator cap and ensure tightness all the connections for any leakage.

5.6.3 Radiator Fins Cleaning (Fig. 5.6c)

1. Check Radiator Fins for holes or cracks for chocking.
2. To clean the radiator blow compressed air from engine side to outside.

5.6.4 Radiator Mesh Cleaning (Fig. 5.6d)

1. Raise the bonnet.
2. Pull out the radiator mesh.
3. Clean straw and dust attached from the radiator mesh.

5.6.5 Radiator Cap (Fig. 5.6e)

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

Use genuine radiator cap only.

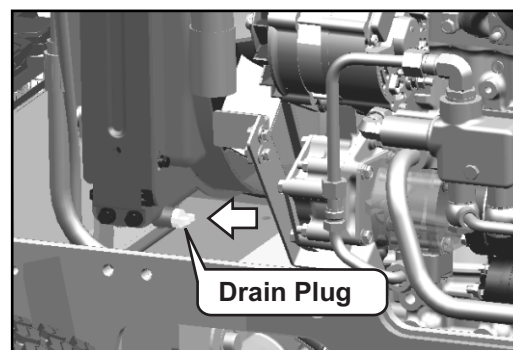


Fig. 5.6b

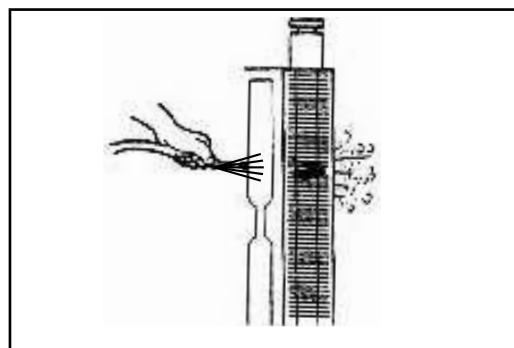


Fig. 5.6c

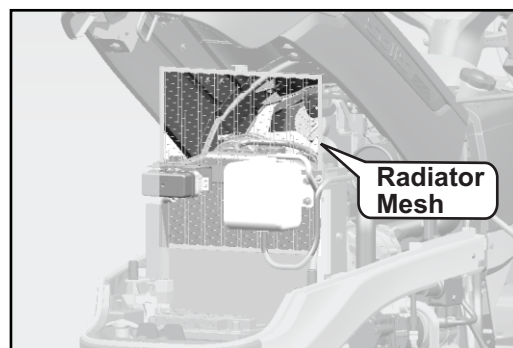


Fig. 5.6d

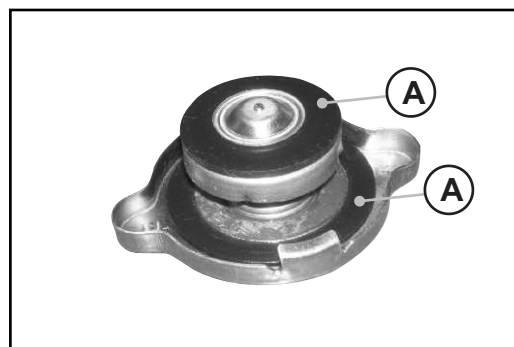


Fig. 5.6e

5.7 Inspection of Hoses

Check/Replace Hoses

- Check hoses regularly – on every service/before cranking tractor after long idle standing– 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 from your dealer.



NOTE: Refer Maintenance Schedule for Inspection interval of Hoses.

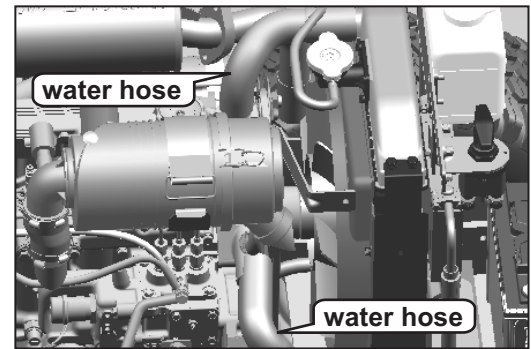


Fig. 5.7

5.8 Air Cleaner Maintenance

Air Cleaner Components (Fig. 5.8a,b,c)

- (1) Air Filter Housing
- (2) Clamp
- (3) Cover
- (4) Rubber Valve
- (5) Air Cleaner Element
- (6) Clogging Sensor

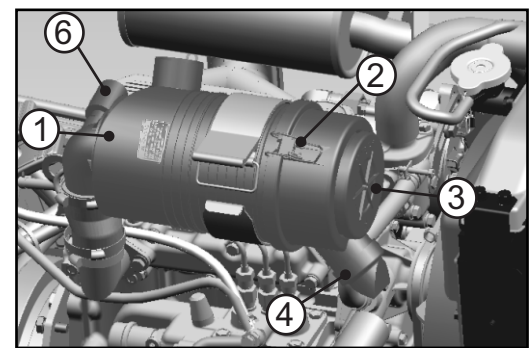


Fig. 5.8a

Important Instructions :

- Clean the air cleaner element at first 50 hours & then after every 250 hrs of operation or whenever choke indicator glows on dashboard.
- Clean filter element by blowing air from inside. Maximum pressure should not exceed 1.6 bar (23 P.S.I).
- Use clean cloth to wipe sealing areas of element.
- After replacing new filter element ensure matching of (◀) mark on cover with the mark (▶) on air filter housing.
- 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.

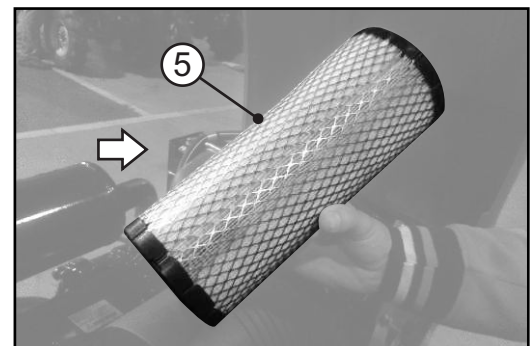


Fig. 5.8b

Replace air cleaner element after three cleaning operations or at every 750 hours, whichever is earlier.

IMPORTANT: NEVER attempt to clean the filter element with exhaust gas from the engine. NEVER ever use oil on dry filter. NEVER ever use oil, diesel fuel, paraffin or solvents to clean the filter element.

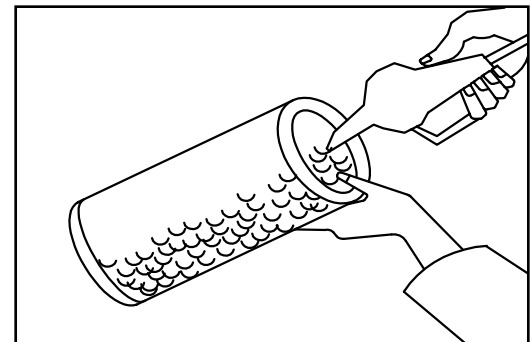


Fig. 5.8c

5.9 Clutch Pedal

By pressing clutch pedal the motion and power of engine will be disengage from gearbox. Release the clutch pedal slowly for transfer the engine power to gear box.

5.10 Method to Check Clutch Pedal Free Play

Press down the clutch pedal and measure the free play of pedal as shown in the figure. The distance should be 25 to 30 mm [0.98 inch to 1.18 inch]. If the distance is less than 25 mm [0.98 inch] or higher than 30 mm [1.18 inch] then get it adjusted.

IMPORTANT: Do not keep foot on clutch pedal while tractor is in running condition. It may cause excessive wear of clutch and clutch falls before its life time.

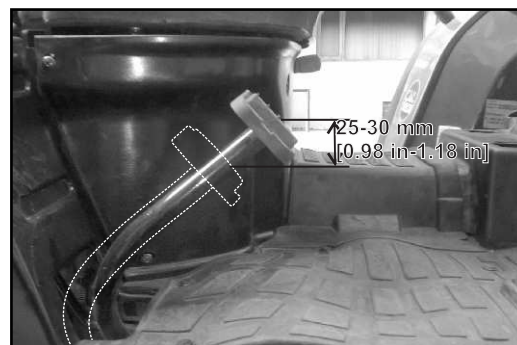


Fig. 5.9

5.11 Brake Pedal

Brake pedal is located at the left side of the platform (see fig. 5.9). Tractor motion is controlled by gradually pressing the brake pedal as per requirement.

5.12 Brake Pedal Free Play

Press down the brake pedal until you feel the restriction and measure the free play of pedal as shown in the figure. The distance should be 25 to 30 mm [0.98 inch to 1.18 inch]. If the distance is less than 25 mm [0.98 inch] or higher than 30 mm [1.18 inch] then get it adjusted.

IMPORTANT: Do not keep foot on brake pedal while tractor is in running condition. It may cause excessive wear of brake liner and brake falls before its life time.

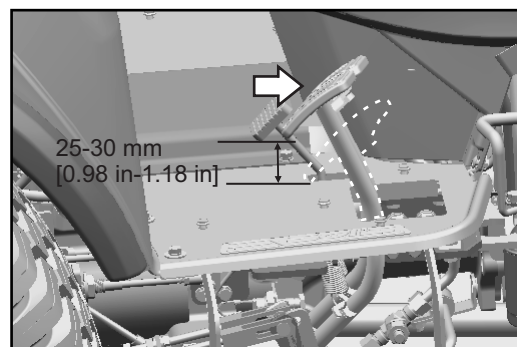


Fig. 5.9

5.13 Steering Cylinder Knuckle Joints

Have the knuckle joint nuts checked by an authorized service center after the first 50 hours and then at every service.

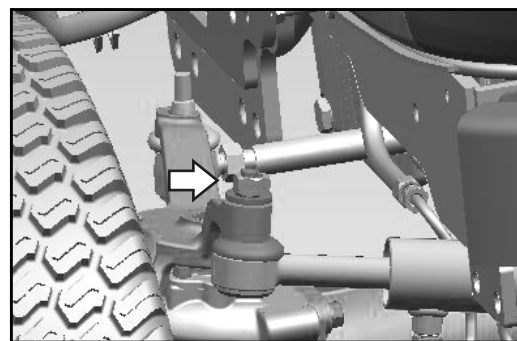


Fig. 5.11

5.14 Oil Level Check in 4WD Front Axle

Oil filling plug is provided on left hand side of the front axle (as shown in fig.). Open the plug and check the oil level. The lower point of the plug should be immersed in the oil.

Front Axle Oil Capacity: 2.7 Liters [0.71 US Gallons]
Oil Grade: EP-80

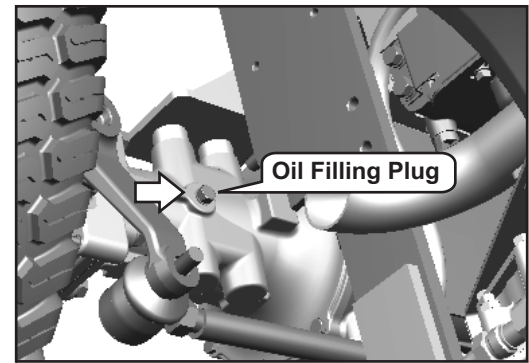


Fig. 5.14

5.15 Oil Changes for Transmission, Rear Final Drives and Power Lift Hydraulic Circuits

NOTE: 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. Unscrew the all plugs
3. Place vessel under all drain plugs of transmission housing to collect the oil as it drains out.
4. Remove the plugs and drain out the oil.
5. Clean the plugs and fit back on.

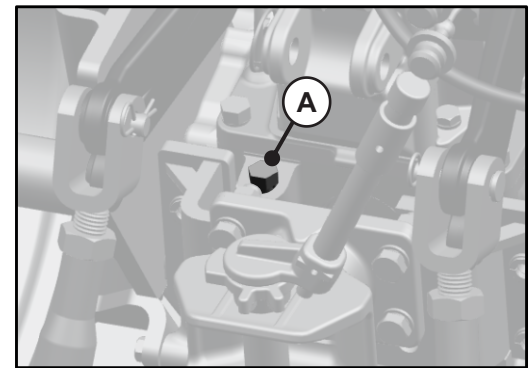


Fig. 5.15a



Beware of powerful oil jets. Follow all safety rules.

Filling up the transmission

1. Fill up the transmission oil from filler plug (A) opening to the maximum level mark on the dipstick.
2. Let it run on idle until the oil reaches a temperature over 25 °C [77 °F].
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.

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.

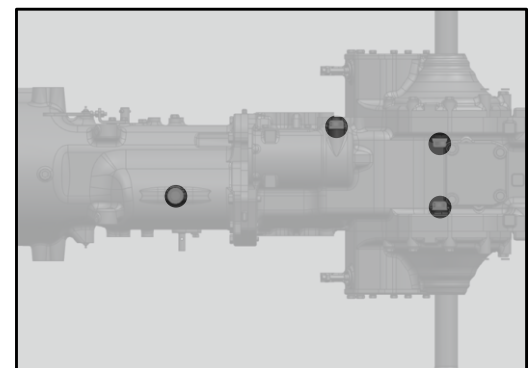
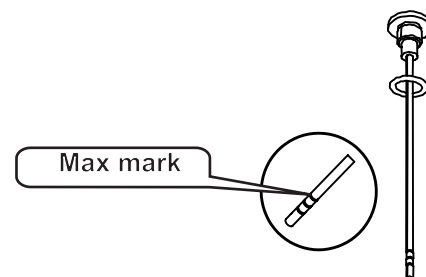


Fig. 5.15a



5.16 Recommended Oil Grade & Application Range

We recommend use of SAE-80W oil grade for transmission and oil brakes .

Transmission Oil Capacity: 23 Liters

5.17 Cleaning of Suction Strainer (Fig. 5.17a)

At each service, thoroughly clean suction strainer by washing with light oil or kerosene.

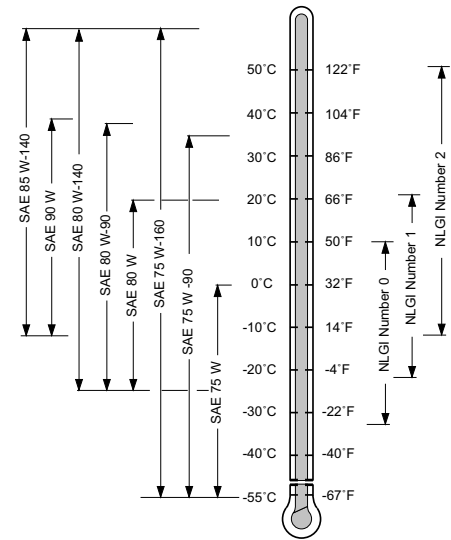
Failure to observe this will result in extensive shortening life of hydraulic system.

Cleaning Procedure of Suction Strainer (fig. 5.17b,c,d):

- (1) Remove all hose warm clips (1).
- (2) Separate the Hose pipes (2) from Strainer Assy.
- (3) Hold the strainer assembly in left hand & remove the wire clip (5) & magnetic strainer (4) from the housing (3) with the help of right hand fingers.
- (4) Unscrew the nut (6) & remove supporting cup (7). After dis-assembling supporting cup remove the sheath (8) having ferrous dust by sliding it with the help of plastic support (10).
- (5) Clean the sheath from ferrous dust with the help of soft cloth and refit the same.
- (6) Assemble the supporting cup & tighten the nut.
- (7) Assemble magnetic strainer in strainer housing and lock it with the wire clip.
- (8) Fix the hose pipes and tighten the hose warm clips.

Replacement: Replace the magnetic strainer at every 750 Hours.

IMPORTANT: Do not dismantle the magnets (9) as these are assembled in polarity sequence and it should not be disturbed (fig. 5.17d).



Recommended oil viscosity according to air temperature

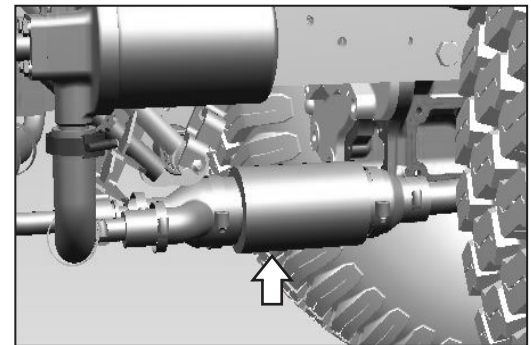


Fig. 5.17a

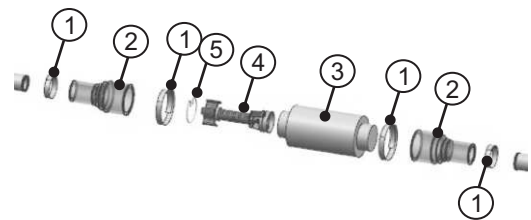


Fig. 5.17b

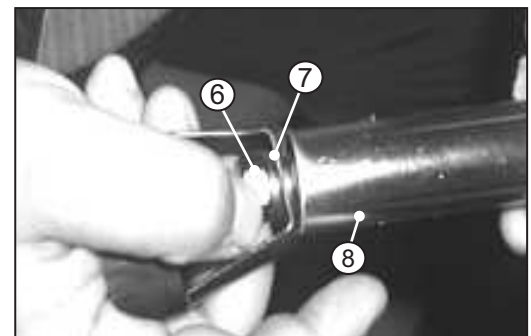


Fig. 5.17c

5.18 General Maintenance of Electrical System

- Never Patch up the electrical circuits.
- Never replace a blown fuse by a higher capacity fuse. It could cause a fire.
- Never work on components such as the alternator or starter motor when the engine is running.
- Lastly when you are cleaning the tractor and using the pressure spray, take care not to damage the connections on the various electrical cable.

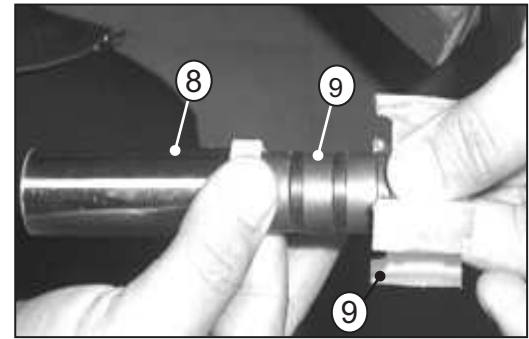


Fig. 5.17d

5.19 Battery and its Maintenance

Battery Removal Procedure

Battery is located at front of the tractor as shown in the figure, follow the below procedure to access the battery:

1. Open the bonnet.
2. Remove fly nut by rotating it anticlockwise.
3. Detach the (-)ve & (+)ve terminals (5.19a) respectively.

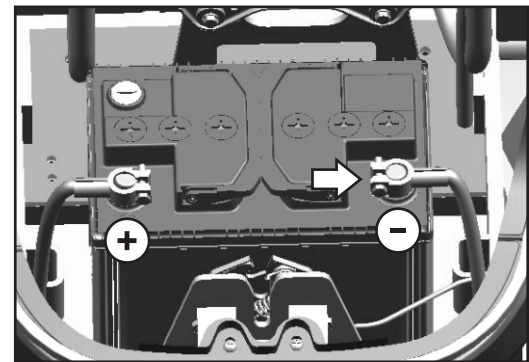


Fig. 5.19a

Check Electrolyte Level

It must be as per the recommendation of battery manufacturer. If required, top up with distilled water just touching the 'Max' mark on the battery (fig. 5.19b). Electrolyte level should never be below 'Min' mark. Never add acid.

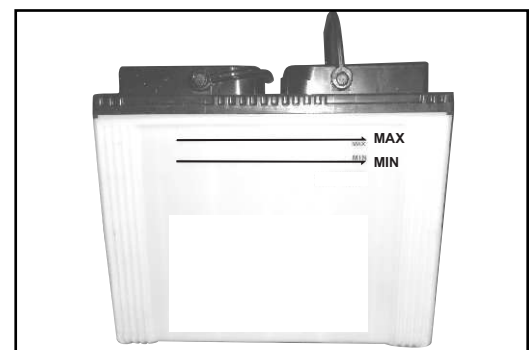


Fig. 5.19b

Check Carefully Battery Charging

Protect against freezing. Insure that terminals are clean and tight. Check specific gravity of battery using a battery hydrometer (fig. 5.19c). Specific gravity of a fully charged battery is 1.265 ± 0.005 at 27°C [80.6°F].



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.



Remember to disconnect the cables before you recharge the battery. It is advisable to remove the battery from its location and to recharge it well away from the tractor. The place of battery recharge must be well ventilated.

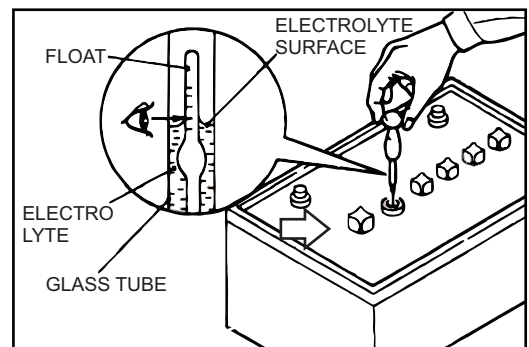


Fig. 5.19c

5.20 Starter Motor

Starter motor is mounted on the left side of the engine. The starting motor rotates the engine crankshaft for starting.

Visually check the starter for damage. If starter is dusty, blow off dust using compressed air.

Note: If defects are found in the starter, contact your dealer.

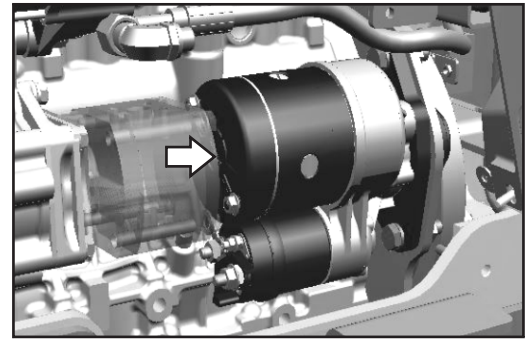


Fig. 5.20

5.21 Alternator

Alternator is fitted on Left side of engine and generates current which charges battery for healthy electrical back up.

Visually check the alternator for damage. If the alternator is dusty, blow off dust using compressed air.

Remove V-belt, and turn the pulley with hands to make sure it rotates smoothly.

NOTE: If defects are found in the alternator, contact your dealer.

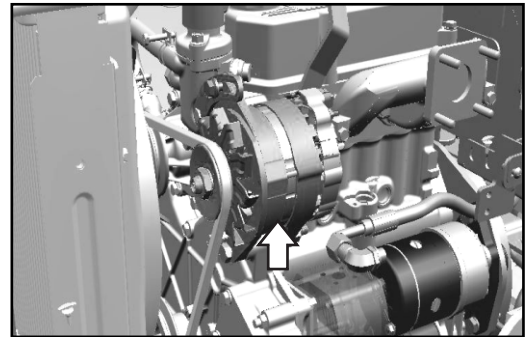


Fig. 5.21a

Checking V-belt

1. Ensure that V-Belt is free from defects such as wear, cuts or surface separations, otherwise replace with genuine specified belt.
2. Inspect belt tension by pushing the belt downward with approx. 98N (10kgf) (22lbf) force midway between pulleys. If the deflection is 10 to 12mm [0.39 to 0.47 in], the tension is correct. If the tension out of the specified value, adjust belt tension.

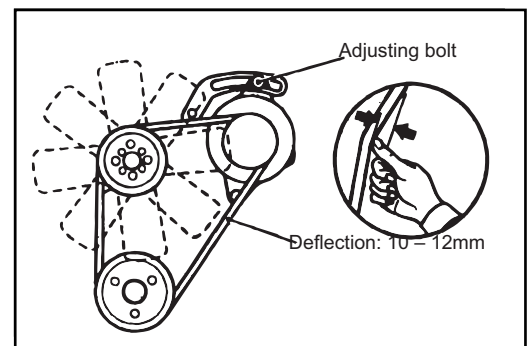


Fig. 5.21b

Adjusting V-belt tension

1. Loose all retaining bolts of the alternator and adjusting plate.
2. Insert a bar between the alternator and cylinder block and use leverage to move that alternator to have proper v-belt tension.
3. While V-belt tension is appropriate, retighten all the retaining bolts of the alternator and adjusting plate.

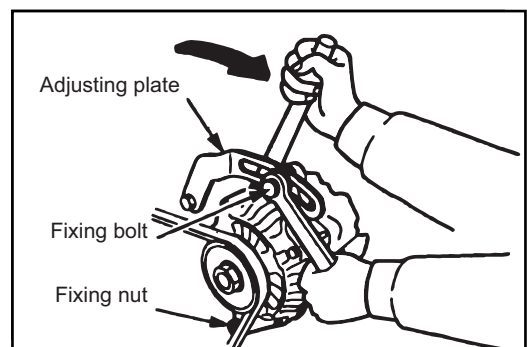


Fig. 5.21c

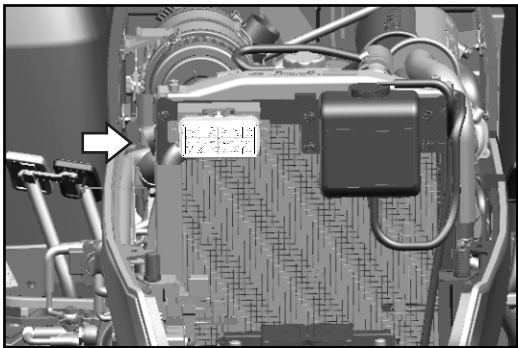
5.22 Fuses in Fuse Box (Fig. 5.22)

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.

86	30		10A HORN	10A PARK	15A LO BEAM	15A HI BEAM
PTO AUTO RELAY			15A PLOUGH LAMP	20A SAFETY CONTROLLER	15A IGN. AUX	10A AUX. 1
87	87A	85				
86	30	86	30	86	30	86
OPC RELAY		OPC SWITCH RELAY		ENGINE STOP RELAY		AUX. START RELAY
87	87A	85	87	87A	85	87
87	87A	85	87	87A	85	87
20A COMBI. SWITCH	15A MOBILE CHARGER	15A BATT. AUX.	10A REVOLVING LIGHT	15A FLASHER	15A BRAKE	

Fig. 5.22: Fuse Box



5.23 Long Idle Period

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

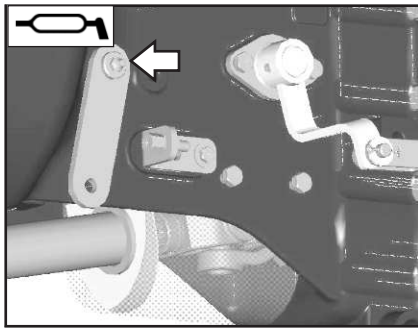
- Park the tractor in dry sheltered place.
- Drain the coolant from the radiator and engine.
- Grease all points provided with grease nipples.
- Remove the injectors and squirt a small quantity of engine oil into the cylinders. Turn the engine over by hand, and then fit the injectors back in place.
- 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 the 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).



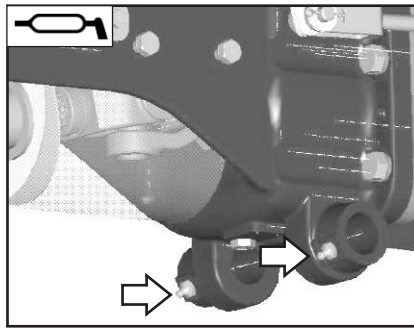
At the end of the idle period. When you start the engine again, pay particular attention to the instruction about starting engine in the operation chapter.

5.24 Greasing Points

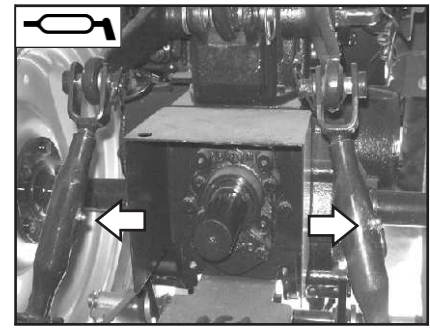
- | | |
|----------------------------------|------------|
| 1. Clutch Actuator Shaft | - 2 Points |
| 2. Brake pedal shaft (LH and RH) | - 2 Points |
| 3. Lift Rods (LH and RH) | - 2 Points |
| 4. Front Axle Pivot Pin | - 1 Point |
| 5. Power Steering Cylinder | - 1 Point |
| 6. Tie Rod | - 2 Point |



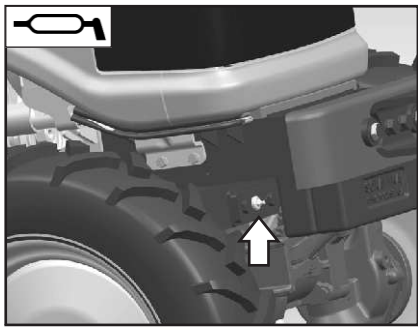
1. C.A. Shaft



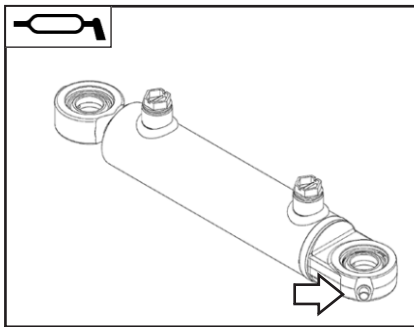
2. Brake pedal shaft



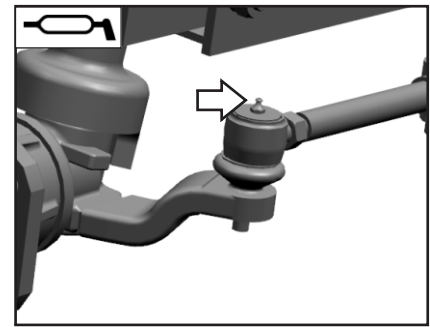
3. Lift Rods



4. Front Axle Pivot Pin



**5. Power Steering Cylinder
(On mounting bracket)**




6. Tie Rod

5.25 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.

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



- Use approved lifting equipment only.
- Jack up tractor on firm, level ground only.
- Before doing any further work on the tractor, first secure it using suitable support stands.

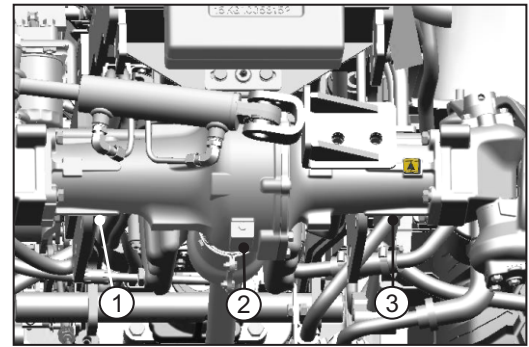


Fig. 5.25a - Raise front of tractor

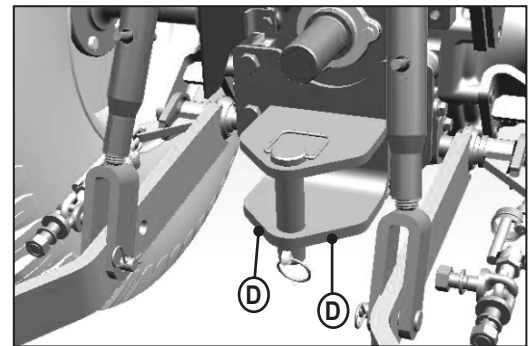


Fig. 5.25b - Raise rear of tractor

5.26 Oil and Lubrication Chart

Aggregate	Capacity	Recommended Grade
Engine Oil	4.2 Litres [1.11 US Gallons]	SAE-10W40
Transmission Oil	23 Litres [4.75 US Gallons]	SAE- 80W
4x4 Front Axle Oil	2.7 Litres [0.71 US Gallons]	EP-80
Fuel	29 ± 3 Litres [7.66 ± 0.79 US Gallons]	High Speed Diesel conforming to IS: 1460-2000 Density 0.840 g/cm ²






Table 5.26

ENGINE	Model		Model: Solis 26 (9+9)
	Make		Mitsubishi Heavy Industries, Ltd.
	Engine Type		3 Cylinder, 4 Stroke, Naturally Aspirated Water Cooled, Vertical overhead valve
	Model and Identification		MVS3L2
	Bore x Stroke		78 mm x 92 mm
	Firing order		1-3-2
	Displacement (cc)		1318
	Compression ratio		22:1
	Injection timing		Stage III: 17° BTDC , Stage V: 15° BTDC
	Engine Rated speed (rpm)		Stage III: 2700, Stage V: 2500
	Low Idling		Stage III: 1000 ± 30, Stage V: 1000 ± 50
	Valve Clearance Intake (mm) / Exhaust (mm)		0.25 mm [0.0098 in.] / 0.25 mm [0.0098 in.]
HYDRAULICS	Max Lifting capacity of Hyd. Lift		600 Kg [1322.8 lbs.]
TRANSMISSION	Clutch Type		Single Clutch, Mechanical
	Gearbox Type		Constant mesh synchromesh
BRAKES	Type		Oil Immersed Brakes
	Minimum dia of turning circle with Brakes (m)		5.14 (LHS) / 5.09 (RHS)
STEERING SYSTEM	Mechanical / Power		Power Steering
P.T.O.	Power take off	Type	Type-I
		PTO Speeds	540@2565 ERPM, 540@2083 ERPM
TYRES	Front Tyre Size		6.00 x 12
	Rear Tyre Size		8.30 x 20
OVERALL DIMENSIONS (mm)	Wheel base		1570 mm
	Front Wheel Track (with agri tyres)		880-990 mm
	Rear Wheel Track (with agri tyres)		920-970 mm
	Length		2945 mm
	Width		1245 mm
	Height upto ROPS		2442 mm
	Ground Clearance (with std. tyres)		240mm
	Total Weight with driver (Front/Rear)		1120 Kg (Frt: 425 Kg, Rear: 580 Kg)

Table 6.1

Note: All dimensions & specifications are for guidance purpose only & are subjected to change without prior notice.

6.2 MATCHING IMPLEMENTS FOR 9+9

Sr. No.	Implements	Parameter	Size	ERPM
1.	Rotavator 	Maximum no. of blades-Lblade,Jblade Maximum Width L or J Blade - cm (in) Length of one L-blade - cm (in) Height of one L-blade - cm (in) Maximum weight - kg (lbs.)	20,28 105 (41.3) 7 (2.8) 0.6 (0.23) 150 (330)	2000-2100 540PTO RPM @ 2565 ERPM
2.	Cultivator (Spring loaded) 	Maximum no. of tynes Maximum height of cultivator from ground - cm(in) Maximum Width - cm(in) Width of one tyne - cm(in) Height of one tyne - cm(in)	7 45 (17.7) 145 (57) 5 (1.9) 8.5 (3.3)	2100-2500
3.	Disc Harrow 	Maximum no. of discs Maximum Width - cm (in) Disc diameter - cm (in) Maximum weight - kg (lbs.)	5x5 83 (33) 46 (18) 130 (286)	2100-2500
4.	Sprayer 	Maximum tank capacity - Lts (U.S. gals)	600 (160)	2000-2100 540PTO RPM @ 2565 ERPM
5.	Trailer 	Dimensions of trolley(LXBXH) - cm (in) Height of trolley from ground, with trolley tyre size-105/80R14 - cm (in) Maximum gross weight - kg (lbs.)	180x90x50 (70.9x35.4 x19.7) 180 (70.9) 2000 (4400)	As per customer practice

Note: Implement size/ERPM (Engine RPM) may vary as per geographic conditions.

Table 6.2




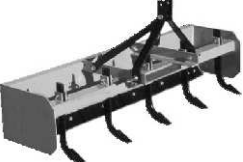

Sr. No.	Implements	Parameter	Size	ERPM
6.	Rear Lawn Mower 	Maximum cutting width - cm (in) Maximum weight - kg (lbs.)	122 (48) 130 (286)	2000-2300
7.	Flail Mower 	Maximum cutting width - cm (in)	110 (43.3)	2000-2300
8.	Rotary Cutter 	Maximum cutting width - cm (in) Maximum weight - kg (lbs.)	110 (43.3) 130 (286)	2000-2100 540PTO RPM @ 2565 ERPM
9.	Box Blade 	Maximum cutting width - cm (in) Maximum weight - kg (lbs.)	125 (49.2) 150 (330)	2000-2300
10.	Bottom Plough 	Maximum Size - in	14x1	2000-2300

Table 6.2

DO'S

ENGINE

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.

Air Inlet System

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

Fuel System

1. Do drain sediments from the fuel tank periodically
2. Do clean fuel tank thoroughly once in every 500 hrs.
3. Do change filter regularly 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.

Water cooling System

1. Do ensure that radiator is always filled with clean (soft) water & radiator cap is 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 (0.39 inch) when pressure is applied between the fan pulley and the crankshaft pulley.

Lubrication System

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

DONT'S

ENGINE

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.

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.

Fuel System

1. Do not keep the fuel tank without a proper sealing cap.
2. Do not use contaminated fuel as it 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.

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.

Lubrication System

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

Exhaust System

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

DO'S**CLUTCH**

1. Do ensure that clutch free pedal play .
2. Do ensure that the clutch pedal is released slowly while moving the tractor.

TRANSMISSION

1. Do change the transmission oil after every 1000 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.
3. Do check the tightness of front and rear wheels recommended torque.
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.

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 clean storage and use 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 steep 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.

PROBLEM	POSSIBLE CAUSE	REMEDY
ENGINE		
Engine not starting	Wrong way of starting engine	Use proper way of starting
	No fuel	Check Fuel level
	Air trapped in fuel system	Bleed the fuel system
	Checking of fuel system	Contact your dealer
	Fuel injector faulty	Replace
	Pull to lever knob in pulling condition	Return it to its proper position
	Fuel filter choke	Replace filters
Engine not running in proper way	Fuel filter choke	Replace filters
	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 Indicator 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

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 right
	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 Strainer choked	Clean/Replace
	Mechanical linkage may faulty	Contact your authorized dealer
Linkage Goes Down Slowly	Bush tight	Contact your authorized dealer
	Response valve setting improper	Contact your authorized dealer
Linkage Not Lift Fully	Improper lift arm setting	Contact your authorized dealer
	Improper internal adjustment	Contact your authorized dealer
TPL 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
Hydraulic System Not Working Properly	Response valve setting very low	Check valve by your dealer.
	Oil level low	Check and top up
	Hydraulic Strainer choked	Clean/Replace
	Hydraulic system faulty	Check through authorized dealer
	Hydraulic pump not working	Contact your authorized dealer
BRAKES		
Noise While Applying Brakes Tractor Goes in One Side	Wrong adjustment of brakes	Check
	Both brakes are not set properly	Adjust
Brakes Works When Fully Pressed	Wrong adjustment of brake pedal	Check and Adjust.
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 / Battery discharged	Tightened / 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

