

# COMPACT

FARMTRAC 20/22

OPERATOR MANUAL

----- To Users -----

Escorts appreciates your selection of FARMTRAC 20/22 tractor for your application.

No one should operate the tractor unless they read and understand the information in this manual.

This manual contains the instructions and data on the safety and operation of the tractor. Follow the operation procedures to make sure that your tractor operates at **MAXIMUM EFFICIENCY**. The operator must keep this manual in the cab of the tractor.

If there is anything in the manual that is not clear or you do not understand, please contact our service technician. We (Escorts) are **NOT** responsible for damages from / to any operator's actions who operates the tractor.

The **OPERATOR'S MANUAL** is an important part of the tractor and shall be read and followed by every person operating the tractor.

The data (data, specifications, illustrations) in this manual is for tractor in production at the time of this manual's publication. We reserve the right to make changes to this manual at any time, without obligation.

Thank you!

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**ESCORTS AGRI MACHINERY**

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# ABBREVIATION LIST


| Abbreviations | Definitions  |
|---------------|--|
| 2WD           | 2-Wheel Drive  |
| 4WD           | 4-Wheel Drive  |
| FPM           | Feet Per Minute  |
| H-M-L         | High -Medium-Low Speed   |
| m/s           | Meters Per Second  |
| PTO           | Power Take Off   |
| RH/LH         | Right-hand and left-hand sides are determined by facing in the direction of forward travel |
| ROPS          | Roll-Over Protective Structures  |
| RPM           | Revolutions Per Minute   |
| R/s           | Revolutions Per Second   |
| SMV           | Slow Moving Vehicle  |


# FOREWORD


You are now the proud owner of FARMTRAC Tractor. This tractor is a product of FARMTRAC quality engineering and manufacturing. It is made of fine materials and under a rigid quality control system. It will give you long, satisfactory service. To obtain the best use of your tractor, please read this manual carefully. It will help you become familiar with the operation of the tractor and contains many helpful hints about tractor maintenance. It is FARMTRAC'S policy to utilize as quickly as possible every advance in our research. The immediate use of new techniques in the manufacturing of products may cause some small parts of this manual to be outdated. FARMTRAC distributors and dealers will have the most up-to-date information. Please do not hesitate to consult with them.

## SAFETY FIRST

This symbol, the industry's "Safety Alert Symbol", is used throughout this manual and on labels on the machine itself to warn of the possibility of personal injury. Read these instructions carefully. It is essential that you read the instructions and safety regulations before you attempt to assemble or use this unit.

 **DANGER :** Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

 **WARNING :** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

 **CAUTION :** Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

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

**NOTE :** Gives helpful information.



# OWNER'S ADDRESS AND TRACTOR IDENTIFICATION

OWNER'S NAME &

.....

ADDRESS

.....

Ph.....Mobile.....

ENGINE NO.

.....

TRACTOR SERIAL NO.

.....

DATE OF INSTALLATION

.....

PURCHASED FROM  
(DEALERS'S STAMP)



## DELIVERY CERTIFICATE

Tear off

Customer Name : ..... Model : .....

Tractor Sr. No. : .....

Address : ..... Engine No. : .....

Chassis No. : .....

Zip Code : ..... Battery Sr. No. : .....

Phone No. : ..... Date of Delivery : .....

Mobile No. : ..... Dealer Code : .....

Date of Birth : ..... Dealer Name : .....

Dealer Address : .....

Tractor purchase decision based on

1) Friends  2) Relatives  3) Newspaper  4) T.V.  5) Wall Painting  6) Previous Tr. experience

Any other person interested to buy tractor

Name : .....

Address : .....

Phone No. : .....

\* Escorts Copy

## INSTALLATION CERTIFICATE

Tear off

Customer Name : ..... Model : .....

Tractor Sr. No. : .....

Address : ..... Engine No. : .....

Chassis No. : .....

Zip Code : ..... Battery Sr. No. : .....

Phone No. : ..... Battery Make : .....

Mobile No. : ..... FIP Sr. No. : .....

Date of Birth : ..... FIP Make : .....

Alternator No. : .....

Alternator Make : .....

Front Tyre No. LH : .....

/Make RH : .....

Rear Tyre No. LH : .....

/ Make RH : .....

Tractor Application : .....

Date of Installation : .....

Delivery Invoice No. : .....

Date of Delivery : .....

Customer's Signature .....

|  |   |
|--|---|
| Dealer Code                                | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| <p><b>Dealer Stamp &amp; Signature</b></p> |   |

\* Escorts Copy



## DELIVERY CERTIFICATE

Tear off

Customer Name : ..... Model : .....

..... Tractor Sr. No. : .....

Address : ..... Engine No. : .....

..... Chassis No. : .....

Zip Code : ..... Battery Sr. No. : .....

Phone No. : ..... Date of Delivery : .....

Mobile No. : ..... Dealer Code : .....

Date of Birth : ..... Dealer Name : .....

..... Dealer Address : .....

Tractor purchase decision based on      Any other person interested to buy tractor

1) Friends        2) Relatives          Name : .....

3) Newspaper        4) T.V.          Address : .....

5) Wall Painting        6) Previous Tr. experience          Phone No. : .....

\* Dealer Copy

## INSTALLATION CERTIFICATE

Tear off

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..... Tractor Sr. No. : .....

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..... Chassis No. : .....

Zip Code : ..... Battery Sr. No. : .....

Phone No. : ..... Battery Make : .....

Mobile No. : ..... FIP Sr. No. : .....

Date of Birth : ..... FIP Make : .....

..... Alternator No. : .....

..... Alternator Make : .....

..... Front Tyre No. LH : .....

..... /Make RH : .....

..... Rear Tyre No. LH : .....

..... / Make RH : .....

Tractor Application : .....

Date of Installation : .....

Delivery Invoice No. : .....

Date of Delivery : .....

Customer's Signature .....

Dealer Code

Dealer Stamp & Signature

\* Dealer Copy



## DELIVERY CERTIFICATE

Customer Name : ..... Model : .....

..... Tractor Sr. No. : .....

Address : ..... Engine No. : .....

..... Chassis No. : .....

Zip Code : ..... Battery Sr. No. : .....

Phone No. : ..... Date of Delivery : .....

Mobile No. : ..... Dealer Code : .....

Date of Birth : ..... Dealer Name : .....

..... Dealer Address : .....

Tractor purchase decision based on

- 1) Friends  2) Relatives
- 3) Newspaper  4) T.V.
- 5) Wall Painting  6) Previous Tr. experience

Any other person interested to buy tractor

Name : .....

Address : .....

Phone No. : .....

\* Customer Copy

Tear off

## INSTALLATION CERTIFICATE

Customer Name : ..... Model : .....

..... Tractor Sr. No. : .....

Address : ..... Engine No. : .....

..... Chassis No. : .....

Zip Code : ..... Battery Sr. No. : .....

Phone No. : ..... Battery Make : .....

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..... Alternator Make : .....

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..... /Make RH : .....

..... Rear Tyre No. LH : .....

..... / Make RH : .....

Tractor Application : .....

Date of Installation : .....

Delivery Invoice No. : .....

Date of Delivery : .....

Customer's Signature .....

Dealer Code

Dealer Stamp & Signature

\* Customer Copy

Tear off

# WARRANTY & MAINTENANCE SERVICE RECORD

| Sl. No. | Date | Hours Covered | Job Card No. | Job Description | Dealer's stamp & Signature |
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**NOTE : TO BE FILLED IN BY DEALER**

# WARRANTY & MAINTENANCE SERVICE RECORD



























| Sl. No. | Date | Hours Covered | Job Card No. | Job Description | Dealer's stamp & Signature |
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**NOTE : TO BE FILLED IN BY DEALER**



# UNIVERSAL SYMBOLS

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

|   |  |  |                           |
|---|--|--|---------------------------|
|    | Safety Alert Symbol                                      |    | Transmission in Neutral   |
|    | Fuel-Level   |    | Low transmission range    |
|    | Engine-Rotational Speed                                  |    | Medium transmission range |
|    | Hourmeter/Elapsed Operating Hours                        |    | High transmission range   |
|    | Engine Coolant-Temperature                               |    | Hazard Warning Lights     |
|    | Air Clogging Sensor                                      |    | Dipped Beam               |
|    | Parking Brake  |  | Position Lamp             |
|    | Battery Charging Condition                               |  | 4-Wheel Drive-On          |
|   | Engine Oil-Pressure                                      |  | Read Operator'S Manual    |
|  | Turn Signal  |  | Master System Warning     |
|  | Engine -Stop   |  |                           |
|  | Engine Run   |  |                           |
|  | Diesel Preheat/Glow Plugs<br>(Low Temperature Start Aid) |  |                           |
|  | Power Take - Off Control Position<br>(Disengaged)        |  |                           |
|  | Power Take-Off Control-On Position<br>(Engaged)          |  |                           |
|  | Differential Lock  |  |                           |

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# SAFE OPERATION

Careful operation is your best insurance against an accident.

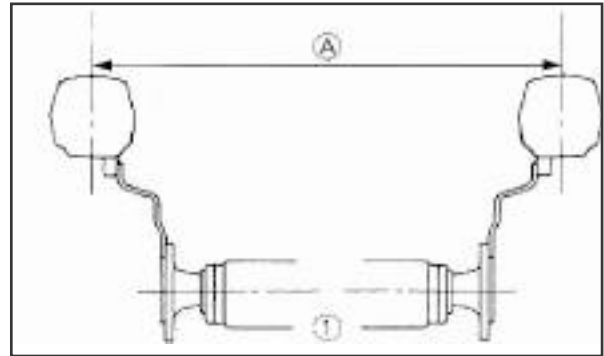
**Read and understand this manual carefully before operating the tractor.**

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 in safe operation.

## 1. BEFORE OPERATING THE TRACTOR

1. Know your equipment and its limitations. Read this entire manual before attempting to start and operate the tractor.
2. Pay special attention to the danger, warning and caution labels on the tractor.
3. Do not operate the tractor or any implement attached to it while under the influence of alcohol, medication, controlled substances or while fatigued.
4. Before allowing other people to use your tractor, explain how to operate and have them read this manual before operation.
5. Never wear loose, torn, or bulky clothing around tractor. It may catch on moving parts or controls, leading to the risk of an accident. Use additional safety items, e.g. hard hat, safety boots or shoes, eye and hearing protection, gloves, etc., as appropriate or required.
6. Do not allow passengers to ride on any part of the tractor at anytime. The operator must remain in the tractor seat during operation.
7. Check brakes, clutch, linkage pins and other mechanical parts for improper adjustment and wear. Replace worn or damaged parts promptly. Check the tightness of all nuts and bolts regularly. (For further details, see "MAINTENANCE" section.)
8. Keep your tractor clean. Dirt, grease, and trash build up may contribute to fires and lead to personal injury.
9. Use only implements meeting the specifications listed under "IMPLEMENT LIMITATIONS" in this manual or implements approved by FARMTRAC.
10. Use proper weights on the front of the tractor to reduce the risk of upsets. When using the front loader, put an implement or ballast on the 3-point hitch to improve stability. Follow the safe operating procedures specified in the implement or attachment manual.

11. The narrower the track width, the greater the risk of a tractor upset. For maximum stability, adjust the wheels to the widest practical track width for your application. (See "TYRES, WHEELS AND BALLAST" section.)



(1) Rear wheels

(A) Track Width

12. Do not modify the tractor. Unauthorized modification may affect the function of the tractor, which may result in personal injury.

## ◆ ROPS

1. FARMTRAC recommends the use of a Roll Over Protective Structures (ROPS) and seat belt in almost all applications. This combination will reduce the risk of serious injury or death, should the tractor be upset. Check for overhead clearance which may interfere with a ROPS.
2. Set parking brake and stop engine. Remove any obstruction that may prevent raising or folding of the ROPS. Do not allow any bystanders. Always perform function from a stable position at the rear of the tractor. Hold the top of the ROPS securely when raising or folding. Make sure all pins are installed and locked.
3. If the ROPS is loosened or removed for any reason, make sure that all parts are reinstalled correctly before operating the tractor.
4. Never modify or repair any structural member of a ROPS because welding, bending, drilling, grinding, or cutting may weaken the structure.
5. If any structural member of the ROPS is damaged, replace the entire structure at your local FARMTRAC Dealer / Distributor
6. If the tractor is equipped with a foldable ROPS it may be temporarily folded down only when absolutely necessary for areas with height constraints. (There is no operator protection provided by the ROPS in the folded position. For operator safety the ROPS should be placed in the upright and locked position and the seat belt fastened for all other operations.)



# SAFE OPERATION

7. Always use the seat belt if the tractor has a ROPS. Do not use the seat belt if a foldable ROPS is down or there is no ROPS. Check the seat belt regularly and replace if frayed or damaged.



(1) ROPS (2) Seat belt

**NOTE :** Rms Value of vibration Acceleration is  $2.3\text{m/s}^2$

## 2. OPERATING THE TRACTOR

Operator safety is a priority. Safe operation, specifically with respect to overturning hazards, requires understanding the equipment and environmental conditions at the time of use. Some prohibited uses which can affect overturning hazards include traveling and turning with implements and loads carried too high etc. It is the operator's responsibility to be alert for any equipment or environmental condition that could compromise safe operation.

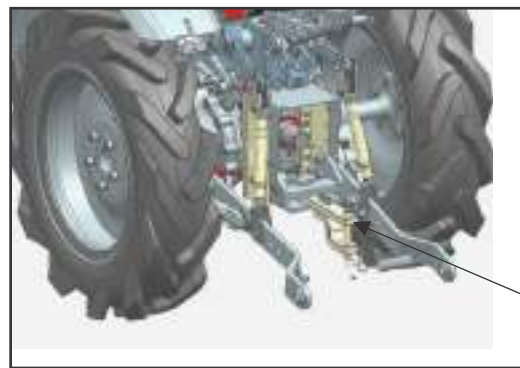
### Starting

- ◆ Always sit in the operator's seat when starting engine or operating levers or controls. Adjust seat as per instructions in the operating the tractor section. Never start engine while standing on the ground.
- 2. Before starting the engine, make sure that all levers (including auxiliary control levers) are in their neutral positions, that the parking brake is engaged, and the Power Take-Off (PTO) selection lever is disengaged or "NEUTRAL". Fasten the seat belt if the tractor has a foldable ROPS in the upright and locked position.
- 3. Do not start engine by shorting across starter terminals or bypassing the safety start switch. Machine may start in gear and move if normal starting circuitry is bypassed.
- 4. Do not operate or idle engine in a non-ventilated area. Carbon monoxide gas is colorless, odorless, and deadly.

5. Check before each use that operator presence controls are functioning correctly. Test safety systems. (See "Checking Engine Start System" in "EVERY 50 HOURS" in "PERIODIC SERVICE" section.) Do not operate unless they are functioning correctly.

### ◆ Working

1. Pull only with the swinging drawbar. Never hitch to axle housing or any other point except swinging drawbar; such arrangements will increase the risk of serious personal injury or death due to a tractor instability



(1) Swinging Drawbar

2. For trailing PTO-driven implements, set the swinging drawbar to the towing position.
3. Attach pulled or towed loads to the swinging drawbar only.
4. Keep all shields and guards in place. Replace if anything is missing or damaged.
5. Avoid sudden starts. To avoid instability, slow down when turning, on uneven ground, and before stopping.
6. The tractor cannot turn with the differential locked and attempting to do so could be dangerous.
7. Do not operate near ditches, holes, embankments, or with other ground surfaces which may collapse under the tractor's weight. The risk of tractor instability is even higher when the ground is loose or wet. Tall grass can hide obstacles, walk the area first to be sure.
8. Watch where you are going at all times. Watch for and avoid obstacles. Be alert at row ends, near trees, and other obstructions.
9. When working in groups, always let the others know what you are going to do before you do it.
10. Never try to get on or off a moving tractor.
11. Always sit in the operator's seat when operating levers or controls.
12. Do not stand between tractor and implement or trailed vehicle unless parking brake is applied.





# SAFE OPERATION

## ◆ Safety for children

Tragedy can occur if the operator is not alert to the presence of children. Children generally are attracted to machines and the work they do.

1. Never assume that children will remain where you last saw them.
2. Keep children out of the work area and under the watchful eye of another responsible adult.
3. Be alert and shut your machine down if children enter the work area.
4. Never carry children on your machine. There is no safe place for them to ride. They may fall off and be run over while running machine.
5. Never allow children to operate the machine even under adult supervision.
6. Never allow children to play with the machine or the implement.
7. Use extra caution while reversing the tractor. Look behind and down to make sure area is clear before moving.

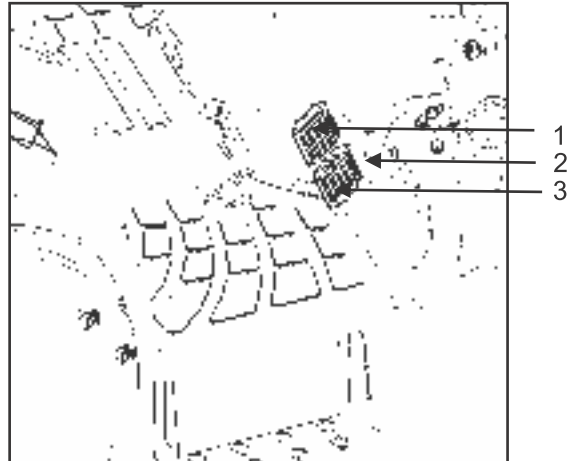
## ◆ Operating on slopes

Slopes are a major factor related to loss-of-control and tipover accidents, which can result in severe injury or death. All slopes require extra caution.

1. To avoid upsets, always back up steep slopes. If you cannot back up the slope or if you feel uneasy on it, do not operate on it. Stay off slopes too steep for safe operation.
2. Driving forward out of a ditch, mired condition or up a steep slope increases the risk of a tractor to be upset backward. Always back out of these situations. Extra caution is required with 4-wheel drive models because their increased traction can give the operator false confidence in the tractor's ability to climb slopes.
3. Keep all movement on slopes slow and gradual. Do not make sudden changes in speed, direction or apply brake and make sudden motions of the steering wheel.
4. Avoid disengaging the clutch or changing gears speed when climbing or going down a slope. If on a slope disengaging the clutch or changing gears to neutral could cause loss of control.
5. Special attention should be made to the weight and location of implements and loads as such will affect the stability of the tractor.
6. To improve stability on slope, set widest wheel track width as shown in "TYRES, WHEELS AND BALLAST" section. Follow recommendations for proper ballasting.

## ◆ Driving the tractor on the road

1. Lock the 2 brake pedals together to help assure straight-line stops. Uneven braking at road speeds could cause the tractor to tip over.



(1) Brake Pedal (LH) (3) Brake Pedal Lock  
(2) Brake Pedal (RH)

2. Check the front wheel engagement. The braking characteristics are different between 2 and 4-wheel drive. Be aware of the difference and use carefully.
3. Always slow the tractor down before turning. Turning at high speed may over turn tractor.
4. Make sure that the Slow Moving Vehicle (SMV) sign is clean and visible. Use hazard lights and turn signals as required.



1. Rear Reflection Light 2. Plough Light

5. Observe all local traffic and safety regulations.
6. Turn the headlights on.
7. Drive at speeds that allow you to maintain control at all times.
8. Do not apply the differential lock while traveling at road speeds. The tractor may run out of control.
9. Avoid sudden motions of the steering wheel as they can lead to a dangerous loss of stability. The risk is especially great when the tractor is traveling at road speeds.



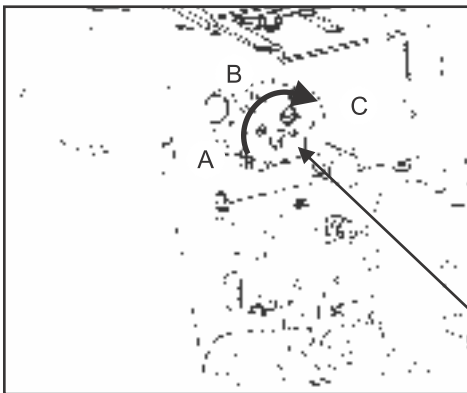
# SAFE OPERATION

10. Keep the ROPS in the "UP" position and wear the seat belt when driving the tractor on the road. Otherwise, you will not be protected in the event of a tractor roll-over.
11. Do not operate an implement while the tractor is on the road. Lock the 3-point hitch in the raised position.
12. When towing other equipment, use a safety chain and place an SMV emblem on it as well.



**(1) Safety Chain**

13. Set the implement lowering speed knob in the "TRANSPORT LOCK" position to hold the implement in the raised position.



**(1) 3-Point Hitch Lowering Speed Knob**

**(A) "FAST" (B) "SLOW" (C) "TRANSPORT LOCK,"**

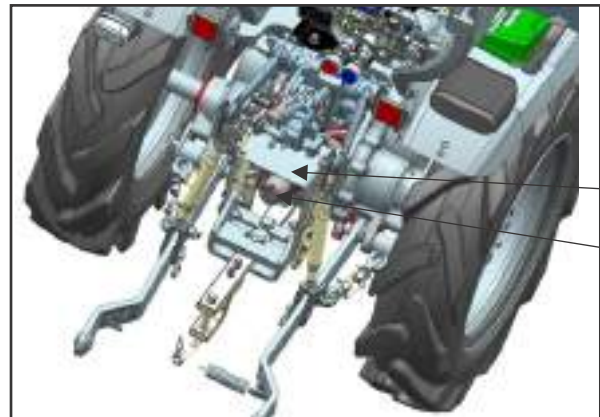
14. Use extreme caution and avoid hard application of the tractor brakes when towing heavy loads. Any towed vehicle whose total weight exceeds that of the tractor must be equipped with brakes for safe operation.
15. Always check overhead clearance, especially when working in confined spaces.

## 3. PARKING THE TRACTOR

1. Disengage the PTO, lower all implements to the ground, place all control levers in their neutral positions, set the parking brake, stop the engine, remove the key from the ignition. Leaving the transmission in gear with the engine stopped will not prevent tractor from rolling.
2. Make sure that the tractor has come to a complete stop before dismounting.
3. Avoid parking on steep slopes, if at all possible park on a firm and level surface; if not, park across a slope with chock the wheels. Failure to comply with this warning may allow the tractor to move and could cause injury or death.

## 4. OPERATING THE PTO

1. Wait until all moving components have completely stopped before getting off the tractor, connecting, disconnecting, adjusting, cleaning, or servicing any PTO driven equipment.
2. Keep the PTO shaft cover in place at all times. Place the PTO shaft cap when the shaft is not in use.



**(1) PTO SHAFT CAP  
(2) PTO GUARD**

3. Before installing or using PTO driven equipment, read the manufacturer's manual and review the safety labels attached to the equipment.
4. When operating stationary PTO driven equipment, always apply the tractor parking brake and place chocks behind and in front of the rear wheels. Stay clear of all rotating parts. Never step over rotating parts.

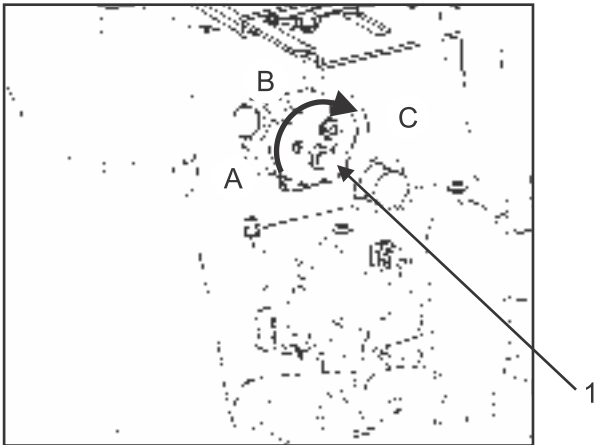




# SAFE OPERATION

## 5. USING 3-POINT HITCH

1. Use the 3-point hitch only with equipment designed for 3-point hitch usage.
2. When using a 3-point hitch mounted implement, be sure to install the proper counterbalance weight on the front of the tractor.
3. When transporting on the road, set the implement lowering speed knob in the "TRANSPORT LOCK" position to hold the implement in the raised position.



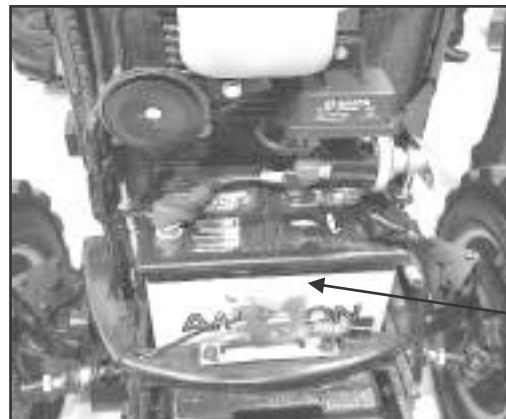
(1) 3-Point Hitch Lowering Speed Knob  
(A) "FAST" (B) "SLOW" (C) "TRANSPORT LOCK,"

## 6. SERVICING THE TRACTOR

Before servicing the tractor, park it on a firm, flat and level surface, set the parking brake, lower all implements to the ground, place the gear shift lever in neutral, stop the engine and remove the key.

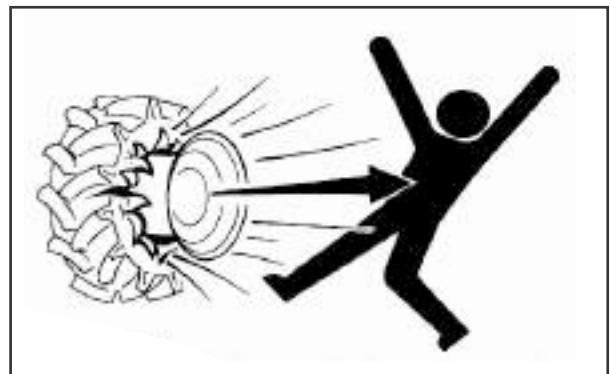
1. Allow the tractor time to cool off before working on or near the engine, muffler, radiator, etc.
2. Do not remove radiator cap while coolant is hot. When cool, slowly rotate cap to the first stop and allow sufficient time for excess pressure to escape before removing the cap completely. If the tractor has a coolant recovery tank, add coolant or water to the tank, not the radiator. (See "Checking Coolant Level" in "DAILY CHECK" in "PERIODIC SERVICE" section.)
3. Always stop the engine before refueling. Avoid spills and overfilling.
4. Do not smoke when working around battery or when refueling. Keep all sparks and flames away from battery and fuel tank. The battery presents an explosive hazard, because it gives off hydrogen and oxygen especially when recharging.

5. Before "jump starting" a dead battery, read and follow all of the instructions. (See "JUMP STARTING" in "OPERATING THE ENGINE" section.)
6. Keep first aid kit and fire extinguisher handy at all times.
7. Disconnect the battery's ground cable before working on or near electric components.
8. To avoid the possibility of battery explosion, do not use or charge the refillable type battery if the fluid level is below the LOWER (lower limit level) mark. Check the fluid level regularly and add distilled water as required so that the fluid level is between the UPPER and LOWER levels.
9. To avoid sparks from an accidental short circuit, always disconnect the battery's ground cable (-) first and reconnect it last.



(1) Battery

10. Do not attempt to mount a tire on a rim. This should be done by a qualified person with the proper equipment.
11. Always maintain the correct tire pressure. Do not inflate tyres above the recommended pressure shown in the operator's manual.



12. Securely support the tractor when either changing wheels or adjusting the wheel track width.

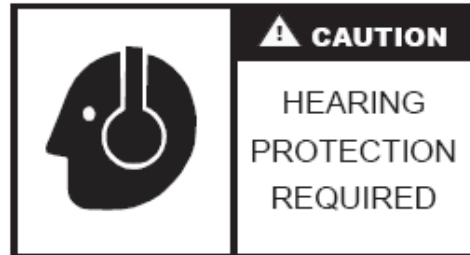


## SAFE OPERATION

13. Make sure that wheel bolts have been tightened to the specified torque.
14. Do not work under any hydraulically supported devices. They can settle, suddenly leak down, or be accidentally lowered. If it is necessary to work under tractor or any machine elements for servicing or adjustment, securely support them with stands or suitable blocking beforehand.
15. Escaping hydraulic fluid under pressure has sufficient force to penetrate skin, causing serious personal injury. Before disconnecting hydraulic lines, be sure to release all residual pressure. Before applying pressure to the hydraulic system, make sure that all connections are tight and that all lines, pipes, and hoses are free of damage.



16. Do not stand between tractor and implement or trailed vehicle unless parking brake is applied.



### Hearing Protection

A hearing protection to be worn when sound levels exceed certain limits.

Hearing Protection Rules of Thumb

Hearing Protection may be needed of:

You have to raise your voice significantly to be heard by someone three feet away.

After leaving a noisy area, Your ears feel plugged or you hear a mild ringing or whoosing noise that goes away after an hour or two.

- (1) Note : Noise at operator's ear level is below 86 dB(A)





# SAFE OPERATION

## 7. DANGER, WARNING AND CAUTION LABELS

D-10647780

 **SAFETY INSTRUCTIONS**

- IT IS ESSENTIAL TO READ THE MANUAL CAREFULLY. OPERATOR MUST BE WELL FAMILIAR WITH ALL CONTROLS, AND WHEN REQUIRED, PROPERLY LICENSED.
- DO NOT TAKE OFF BELT OR ADJUSTMENT WHILE TRACTOR IS RUNNING.
- DO NOT DISMANTLE OR ASSEMBLE FROM THE TRACTOR WHILE IT IS IN MOTION EXCEPT IN AN EMERGENCY.
- DO NOT STAND IN-BETWEEN THE TRACTOR AND EQUIPMENT WHEN OPERATING CONTROL.
- KEEP CLOTHING, HANDS AND FEET AWAY FROM MOVING PARTS.
- DO NOT MAKE ANY ADJUSTMENT WHEN TRACTOR IS IN OPERATION.
- WEAR ADEQUATE FOOTWEAR AND SNUG-FITTING CLOTHING.
- DO NOT SIT OR STAND ON UNSAFE PLACE WHEN TRACTOR IS MOVING.
- KEEP DISPLAY BOARDS, HANDLES AND DRIVER'S POSITION CLEAN.
- KEEP ALL SAFETY GUARDS IN PLACE WHILE WORKING.
- MAKE SURE THAT NO TRAINS ARE COMING BEFORE CROSSING THE UNGUARDED RAILWAY CROSSING.

**FARMTRAC**

D-10647790

 **CAUTION**

DO NOT START TRACTOR WITHOUT BATTERY WHEN ALTERNATOR MOUNTED ON TRACTOR.

D-10647830

 **CAUTION**

WHEN TRAVELLING DOWN HILL, ALWAYS REMAIN IN GEAR AND NEVER DECLUTCH.

D-10647800

 **CAUTION**

TO PROTECT HYDRAULIC COMPONENTS AND ENGINE

- DO NOT EXCEED HALF THROTTLE FOR FIRST 5 min. OF OPERATION
- IDLE ENGINE FOR 1 min. BEFORE SHUT DOWN OR FULL LOAD OPERATION.

D-10647820

 **CAUTION**

AIR CLEANER PAPER ELEMENT INSIDE.

D-10647840

 **WARNING**

TO AVOID INJURY, THIS GUARD MUST BE KEPT IN PLACE.

D-10647880

 **DANGER**

START ONLY FROM SEAT WITH TRANSMISSION AND PTO IN NEUTRAL. STARTING IN GEAR KILLS

D-10647860

 **WARNING**

 DO NOT OVERRIDE CLUTCH PEDAL

D-10647850

 **WARNING**


KEEP CLOTHING AND HANDS AWAY FROM BELTS AND FAN TO AVOID SERIOUS INJURY.

D-10647900

 **WARNING**

WHEREVER CLEARANCE PERMITS :-  
KEEP ROLL OVER PROTECTION FULLY EXTENDED AND LOCKED.  
KEEP SEAT BELT FASTENED WHEN STRUCTURE MUST BE LOWERED  
DRIVE WITH EXTRA CARE  
SEAT BELT USE IS NOT RECOMMENDED  
NO ROPS PROTECTION IS PROVIDED IN LOWERED POSITION.

D-10647810

 **WARNING**

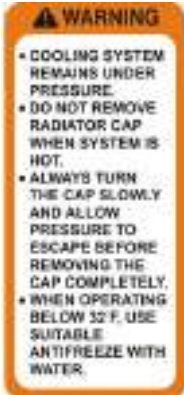
DISENGAGE PTO LEVER BEFORE STARTING ENGINE.



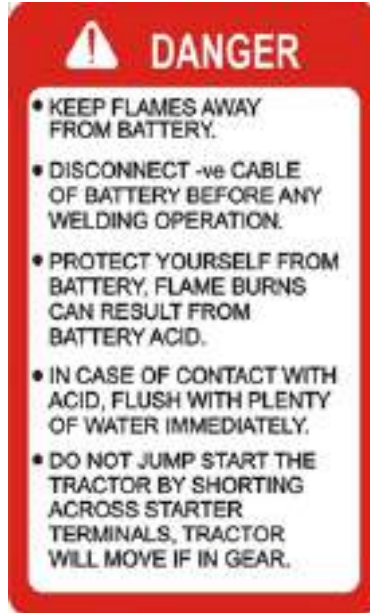
# SAFE OPERATION

## 7. DANGER, WARNING AND CAUTION LABELS

D-10647890



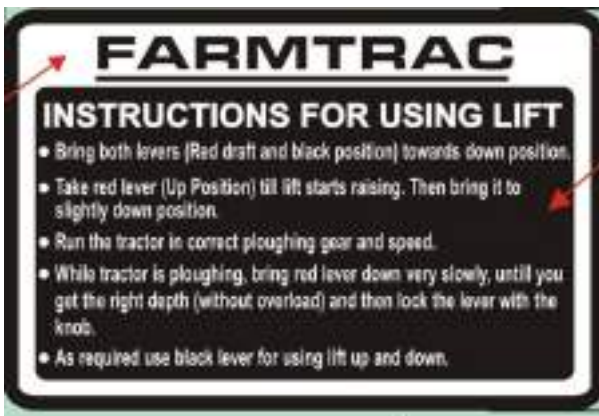
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D-10570890



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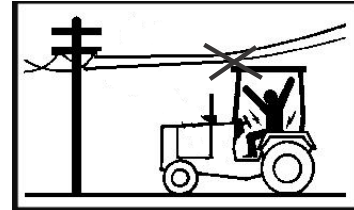
# SAFE OPERATION

## 8. CARE OF DANGER, WARNING AND CAUTION LABELS

1. Keep danger, warning and caution labels clean and free from obstructing material.
2. Clean danger, warning and caution labels with soap and water, dry with a soft cloth.
3. Replace damaged or missing danger, warning and caution labels with new labels from your local FARMTRAC Dealer/Distributor.
4. If a component with danger, warning and caution labels affixed is replaced with new part, make sure new labels are attached in the same locations as the replaced component.
5. Mount new danger, warning and caution labels by applying on a clean dry surface and pressing any bubbles to outside edge.

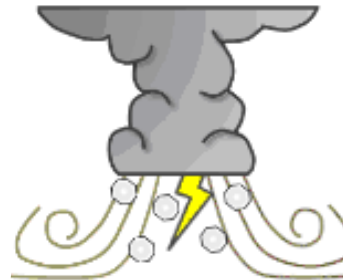
### Overhead Power lines :

1. Due to less gap between Earth and power line, do not cross the tractor on that place. Accident can be happened.



### Lighting strikes can cause significant injury or death Action : Move indoors if you hear thunder

- ✓ Severe thunderstorm Warning means Take Action
- ✓ Take shelter indoors immediately
- ✓ Use extra caution while driving
- ✓ Check forecast updates
- ✓ stay weather ready



# HOW TO GET TOP PERFORMANCE FROM YOUR TRACTOR

## Tractor Maintenance

Ensure daily and periodic maintenance as per given schedule in this manual.

### Do's

- Before starting and stopping the tractor, run engine at idle RPM for approx 1 min.
- When using the tractor after a long time. Insert the key, turn it on and crank the engine 3-4 times to start the engine normally.
- Ensure leak proof joints and clamps are properly tightened .
- Ensure specified grade of lubricating oil.
- Check air & oil filter regularly. In case clogging sensor giving indication it means air cleaner need cleaning or replacement.
- Ensure that engine maintenance intervals are adhered to.

### Don'ts

- Do not add any additives in lubricating oil.
- Do not run the vehicle / engine at idle for long periods (more than 20 – 30mins).

### Dry Air Cleaner

- Check Clogging sensor, clean and remove filter element when the indicator glows red on instrument panel.

### Engine Oil

- Check engine oil level daily. Oil level between “Min” & “Max” mark on the dipstick is safe. Top up oil level if oil level is close to “Min” Mark.

### Clutch and Brake Pedal Free Play

- Maintain 20-25 mm clutch pedal free play for straddle type clutch pedal.
- Maintain 20-25 mm brake pedal free play for straddle type brake pedals.

### Greasing and Lubrication

- Grease all greasing points every 50 hrs. or weekly. For puddling operation grease daily.

## DIESEL FUEL

### Before handling fuel, filling tanks, etc., observe the following:

- Do not use adulterated diesel in your tractor.
- Fill the fuel tank at the end of each day to reduce overnight condensation.
- The fuel cap and neck area should always clean.
- If the original fuel tank cap is lost or damaged, replace it with a genuine part.
- Precautions should be taken to ensure that stored fuel is kept free of dirt, water, etc.
- To facilitate moisture and sediment removal, a drain plug should be provided at the lowest point (at the opposite end to the outlet pipe). If there is no filter on the outlet pipe, then a funnel with a fine mesh should be used.

# SERVICING OF TRACTOR

Your FARMTRAC Dealer / Distributor is interested to support your new tractor and has the desire to help you get the most value from it. After reading this manual thoroughly, you will find that you can do some of the regular maintenance yourself. However, when you are in need of parts or major service, be sure to contact your FARMTRAC Dealer/Distributor. For service, contact the FARMTRAC Dealership from which you purchased your tractor or your local FARMTRAC Dealer/Distributor. When in need of parts, be prepared to give your Dealer / Distributor the tractor, ROPS and engine serial numbers.

|                                | Type | Serial No. |
|--------------------------------|------|------------|
| Tractor                        |      |            |
| ROPS                           |      |            |
| Engine                         |      |            |
| Date of Purchase               |      |            |
| Name of Dealer                 |      |            |
| (To be filled in by purchaser) |      |            |

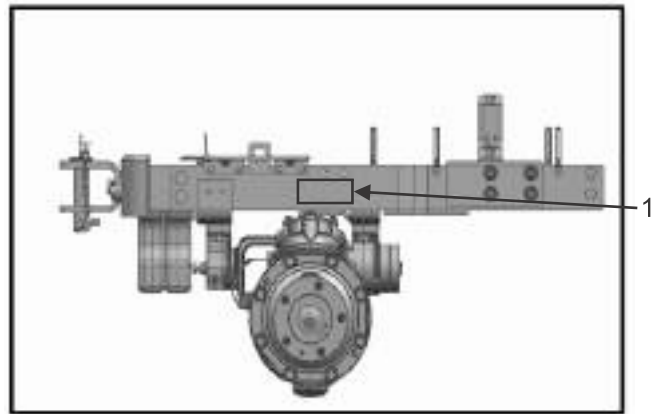
## ◆ Warranty

This tractor is warranted under the FARMTRAC. Limited Express Warranty, a copy of which may be obtained from your selling Dealer / Distributor. No warranty shall, however, apply if the tractor has not been handled according to the instruction given in the Operator's Manual even it is within the warranty period.

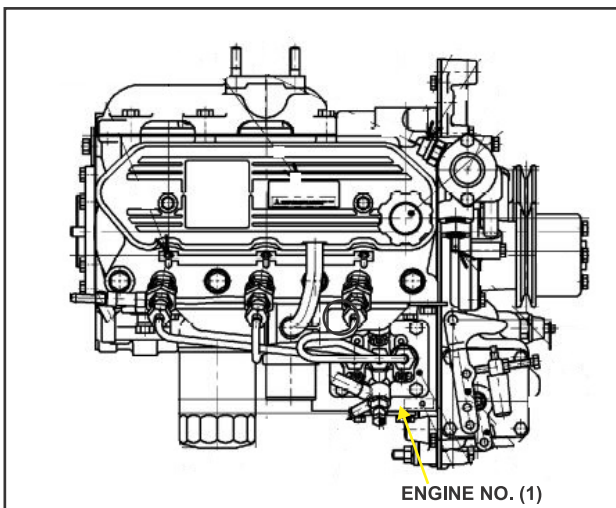
◆ Scrapping the tractor and its procedure To put the tractor out of service, correctly follow the local rules and regulations of the country or territory where you scrap it. If you have questions, consult your local FARMTRAC Dealer / Distributor.



1. Statutory Plate



1. Tractor Chassis Number  
(On the right hand side of front axle support)



1 Engine Number

# SPECIFICATION

| PARAMETERS                                 | FARMTRAC 22 (2WD)          | FARMTRAC 22 (4WD)                         |
|--|----------------------------|---|
| <b>ENGINE</b>                              |                            |   |
| Type                                       | Natural Aspirated          | Natural Aspirated                         |
| Swept Volume (cc)                          | 952                        | 952                                       |
| No. of Cylinders                           | 3                          | 3   |
| Bore x Stroke (mm)                         | 76x70                      | 76x70                                     |
| Power at Rated ERPM, HP                    | 21.3 @ 3000                | 21.3 @ 3000                               |
| Max. Torque Nm                             | 50 Nm @ 1900 - 2000 ERPM   | 50 Nm @ 1900 - 2000 ERPM                  |
| Cold Start Ability (- 15° C)               | Yes with Glow Plug         | Yes with Glow Plug                        |
| <b>PTO</b>                                 |                            |   |
| PTO Speed- Standard                        | 540 and 540 E              | 540 and 540 E                             |
| PTO RPM @ Engine RPM                       | 540 @ 2504 & 540E @ 2035   | 540 @ 2504 & 540E @ 2035                  |
| <b>TRANSMISSION</b>                        |                            |   |
| Type                                       | 9F+3R Constant Mesh        | 9F+3R Constant Mesh                       |
| Rear Axle Reduction Type                   | Bull Gear                  | Bull Gear                                 |
| Differential Lock                          | Yes                        | Yes                                       |
| <b>BRAKES</b>                              |                            |   |
| Type                                       | Oil Immersed Brakes        | Oil Immersed Brakes                       |
| Parking Brake                              | Independent                | Independent with Operator Presence Switch |
| Plate Size and No.                         | 4.5 " & 3                  | 4.5 " & 3                                 |
| <b>3-POINT LINKAGES</b>                    |                            |   |
| 3 point linkage (Geometry) Category I / II | Cat 1N                     | Cat 1N                                    |
| Check chain                                | Yes                        | Yes                                       |
| <b>HYDRAULICS</b>                          |                            |   |
| Type                                       | Position Control           | Position Control                          |
| Lift Capacity (Kg)                         | 750 Kg (at hitch point)    | 750 Kg (at hitch point)                   |
| Auxiliary Valve                            | 1DA (2 nos.)               | 1DA (2 nos.)                              |
| Hydraulic / Steering Pump Capacity (lpm)   | 14.51 (Common)             | 14.51 (Common)                            |
| <b>STEERING</b>                            |                            |   |
| Type                                       | Hydrostatic Power Steering | Hydrostatic Power Steering                |
| <b>FRONT AXLE</b>                          |                            |   |
| Front Axle                                 | 2WD                        | 4WD                                       |
| <b>TYRE</b>                                |                            |   |
| Front Agri Tyre                            | 5.20X14                    | 5X12                                      |
| Rear Agri Tyre                             | 8X18                       | 8X18                                      |



# SPECIFICATION

| <b>VEHICLE</b>                    |  |  |
|-----------------------------------|--|--|
| Air Cleaner type                  | Dry Air Cleaner                          | Dry Air Cleaner                          |
| Brake / Clutch Pedal              | Straddle                                 | Straddle                                 |
| Seat Type - E Marked              | Adjustable with Operator Presence Switch | Adjustable with Operator Presence Switch |
| <b>ELECTRICAL</b>                 |  |  |
| Battery                           | 12V, 65Ah                                | 12V, 65Ah                                |
| Alternator                        | 12V, 42 Amp                              | 12V, 42 Amp                              |
| Starter                           | 12V, 2KW                                 | 12V, 2KW                                 |
| <b>CAPACITIES</b>                 |  |  |
| Fuel Tank capacity, ltr.          | 24                                       |  |
| <b>DIMENSIONS (± 2%)</b>          |  |  |
| Length, mm                        | 2260 (with bumper and hook)              | 2260 (with bumper and hook)              |
| Width, mm                         | -1041                                    | -1054                                    |
| Height, mm                        | 1940 upto ROPS                           | 1940 upto ROPS                           |
| Wheelbase, mm                     | 1465                                     | 1420                                     |
| Ground Clearance, mm              | 290                                      |  |
| Weight, kg (Unballasted)          | 850 (With bumper and weight)             | 900 (With bumper and weight)             |
| <b>OTHER FEATURES</b>             |  |  |
| ROPS                              | E-Marked with beacon lamp                | E-Marked with beacon lamp                |
| Engine Shut-off with Key          | Standard                                 | Standard                                 |
| Battery Cut-off Switch            | Standard                                 | Standard                                 |
| Swinging Drawbar                  | E - Marked                               | E - Marked                               |
| Safety Start Switch - PTO         | Standard                                 | Standard                                 |
| Safety Start Switch - Clutch      | Standard                                 | Standard                                 |
| Safety Start Switch - Range Lever | Standard                                 | Standard                                 |
| Operator Presence Switch          | Standard                                 | Standard                                 |
| <b>OPTIONAL FEATURES</b>          |  |  |
| Drawbar                           |  |  |
| Front Weight                      | 2 No. (15 kg each)                       | 2 No. (15 kg each)                       |

# SPECIFICATION

| PARAMETERS                                 | FARMTRAC 20 (2WD)                        | FARMTRAC 20 (4WD)                        |
|--|--|--|
| <b>ENGINE</b>                              |  |  |
| Type                                       | Natural Aspirated                        | Natural Aspirated                        |
| Swept Volume (cc)                          | 952                                      | 952                                      |
| No. of Cylinders                           | 3  | 3  |
| Bore x Stroke (mm)                         | 76x70                                    | 76x70                                    |
| Power at Rated ERPM, HP                    | 18 @ 2700                                | 18 @ 2700                                |
| Max. Torque Nm                             | 50 Nm @ 1900 - 2000 ERPM                 | 50 Nm @ 1900 - 2000 ERPM                 |
| Cold Start Ability (- 15° C)               | Yes with Glow Plug                       | Yes with Glow Plug                       |
| <b>PTO</b>                                 |  |  |
| PTO Speed- Standard                        | 540 and 540 E                            | 540 and 540 E                            |
| PTO RPM @ Engine RPM                       | 540 @ 2504 & 540E @ 2035                 | 540 @ 2504 & 540E @ 2035                 |
| <b>TRANSMISSION</b>                        |  |  |
| Type                                       | 9F+3R Constant Mesh                      | 9F+3R Constant Mesh                      |
| Rear Axle Reduction Type                   | Bull Gear                                | Bull Gear                                |
| Differential Lock                          | Yes                                      | Yes                                      |
| <b>BRAKES</b>                              |  |  |
| Type                                       | Oil Immersed Brakes                      | Oil Immersed Brakes                      |
| Parking Brake                              | Independent                              | Independent                              |
| Plate Size and No.                         | 4.5 " & 3                                | 4.5 " & 3                                |
| <b>3-POINT LINKAGES</b>                    |  |  |
| 3 point linkage (Geometry) Category I / II | Cat 1N                                   | Cat 1N                                   |
| Check chain                                | Yes                                      | Yes                                      |
| <b>HYDRAULICS</b>                          |  |  |
| Type                                       | Position Control                         | Position Control                         |
| Lift Capacity (Kg)                         | 750 Kg (at hitch point)                  | 750 Kg (at hitch point)                  |
| Auxiliary Valve                            | 1DA (2 nos.)                             | 1DA (2 nos.)                             |
| Hydraulic / Steering Pump Capacity (lpm)   | 13.06 lpm                                | 13.06 lpm                                |
| <b>STEERING</b>                            |  |  |
| Type                                       | Hydrostatic Power Steering               | Hydrostatic Power Steering               |
| <b>FRONT AXLE</b>                          |  |  |
| Front Axle                                 | 2WD                                      | 2WD                                      |
| <b>TYRE</b>                                |  |  |
| Front Agri Tyre                            | 5.20X14                                  | 5.20X14                                  |
| Rear Agri Tyre                             | 8X18                                     | 8X18                                     |
| <b>VEHICLE</b>                             |  |  |
| Air Cleaner type                           | Dry Air Cleaner                          | Dry Air Cleaner                          |
| Brake / Clutch Pedal                       | Straddle                                 | Straddle                                 |
| Seat Type - E Marked                       | Adjustable with Operator Presence Switch | Adjustable with Operator Presence Switch |
| <b>Electrical</b>                          |  |  |
| Battery                                    | 12V, 65Ah                                | 12V, 65Ah                                |
| Alternator                                 | 12V, 42 Amp                              | 12V, 42 Amp                              |
| Starter                                    | 12V, 2KW                                 | 12V, 2KW                                 |

# SPECIFICATION

| <b>CAPACITIES</b>                 |                              |                              |
|-----------------------------------|------------------------------|------------------------------|
| Fuel Tank capacity, ltr.          | 24                           | 24                           |
| <b>DIMENSIONS (± 2%)</b>          |                              |                              |
| Length, mm                        | 2260 (with bumper and hook)  | 2260 (with bumper and hook)  |
| Width, mm                         | 1041                         | 1054                         |
| Height, mm                        | 1940 upto ROPS               | 1940 upto ROPS               |
| Wheelbase, mm                     | 1465                         | 1465                         |
| Ground Clearance, mm              | 290                          | 290                          |
| Weight, kg (Unballasted)          | 850 (With bumper and weight) | 850 (With bumper and weight) |
| <b>Other Features</b>             |                              |                              |
| Downdraft Exhaust                 | Standard                     | Standard                     |
| ROPS                              | E-Marked with beacon lamp    | E-Marked with beacon lamp    |
| Engine Shut-off with Key          | Standard                     | Standard                     |
| Battery Cut-off Switch            | Standard                     | Standard                     |
| Swinging Drawbar                  | Standard                     | Standard                     |
| Safety Start Switch - PTO         | Standard                     | Standard                     |
| Safety Start Switch - Clutch      | Standard                     | Standard                     |
| Safety Start Switch - Range Lever | Standard                     | Standard                     |
| <b>Optional Features</b>          |                              |                              |
| Front Weight                      | 2 No. (15 kg each)           | 2 No. (15 kg each)           |

**NOTE :** For standard / optional features, kindly discuss with your FARMTRAC distributor / Dealer in more detail.  
 : Industrial and turf tyres are not inter changeable.

# SPECIFICATION

## TRAVELLING SPEEDS

| (FT 22)<br>Tractor Speed @ 3000<br>Rated Rpm | Agri Rear Tyre Size<br>8 X 18 | Turf<br>33X15.5-16.5-BKT | Industrial<br>33X15.5-16.5-BKT | Radial<br>280/70R18-BKT |
|--|-------------------------------|--------------------------|--------------------------------|-------------------------|
| L1   | 1.30                          | 1.2                      | 1.3                            | 1.3                     |
| L2   | 1.80                          | 1.8                      | 1.8                            | 1.8                     |
| L3   | 3.20                          | 3.1                      | 3.2                            | 3.3                     |
| M1   | 4.10                          | 4                        | 4                              | 4.1                     |
| M2   | 5.70                          | 5.6                      | 5.6                            | 5.8                     |
| M3   | 10.20                         | 10                       | 10                             | 10.3                    |
| H1   | 8.00                          | 7.8                      | 7.9                            | 8.1                     |
| H2   | 11.30                         | 11.1                     | 11.1                           | 11.5                    |
| H3   | 20.20                         | 19.7                     | 19.9                           | 20.5                    |
| LR   | - 1.50                        | -1.4                     | -1.5                           | -1.5                    |
| MR   | - 4.70                        | -4.6                     | -4.6                           | -4.7                    |
| HR   | - 9.30                        | -9.1                     | -9.1                           | -9.4                    |

| (FT 20)<br>Tractor Speed @2700<br>Rated Rpm | Agri Rear Tyre Size<br>8 X 18 | Turf<br>33X15.5-16.5-BKT | Industrial<br>33X15.5-16.5-BKT | Radial<br>280/70R18-BKT |
|---|-------------------------------|--------------------------|--------------------------------|-------------------------|
| L1  | 1.1                           | 1.1                      | 1.1                            | 1.2                     |
| L2  | 1.6                           | 1.6                      | 1.6                            | 1.6                     |
| L3  | 2.9                           | 2.8                      | 2.8                            | 2.9                     |
| M1  | 3.6                           | 3.6                      | 3.6                            | 3.7                     |
| M2  | 5.2                           | 5                        | 5.1                            | 5.2                     |
| M3  | 9.2                           | 9                        | 9                              | 9.3                     |
| H1  | 7.2                           | 7                        | 7.1                            | 7.3                     |
| H2  | 10.2                          | 9.9                      | 10                             | 10.3                    |
| H3  | 18.2                          | 17.8                     | 17.9                           | 18.4                    |
| LR  | -1.3                          | -1.3                     | -1.3                           | -1.3                    |
| MR  | -4.2                          | -4.1                     | -4.1                           | -4.3                    |
| HR  | -8.4                          | -8.1                     | -8.2                           | -8.5                    |

**NOTE :** Tyre of similar make and size to be used and non compliance may result in incorrect slip of front and rear tyre and hence excessive tyre wear, drive line failure may happen.

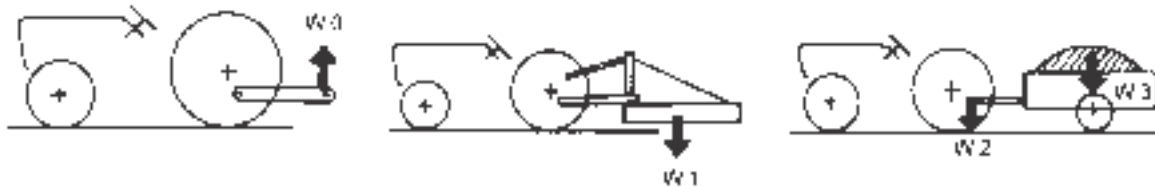
# SPECIFICATION

| S.NO. | Drive | Type       | Front Tyre | Rear Tyre    |
|-------|-------|------------|------------|--------------|
| 1     | 2WD   | Agri       | 5.2x14     | 8x18         |
| 2     | 4WD   | Agri       | 5x12       | 8x18         |
| 3     | 4WD   | Radial     | 180/85 D12 | 280/70 R18   |
| 4     |       | Turf       | 23x8.5-12  | 33x15.5-16.5 |
| 5     |       | Industrial | 23x8.5-12  | 33x15.5-16.5 |

# IMPLEMENT RECOMMENDATIONS

The FARMTRAC Tractor has been thoroughly tested for proper performance with implements sold or approved by FARMTRAC. Use with implements which are not sold or approved by FARMTRAC and which exceed the maximum specifications listed below, or which are otherwise unfit for use with the FARMTRAC Tractor may result in malfunctions or failures of the tractor, damage to other property and injury to the operator or others. [Any malfunctions or failures of the tractor resulting from use with improper implements are not covered by the warranty.]

Lower link end max. loading weight is 750kg. The max. allowable load which can be put on the lower link end : WO  
 The implement's weight which can be put on the lower link : W1 (As in the following list shown on the next page.  
 Max. drawbar load 253kg (W2).  
 Trailer loading weight is 2000kg The max. loading weight for trailer (without trailer's weight): W3



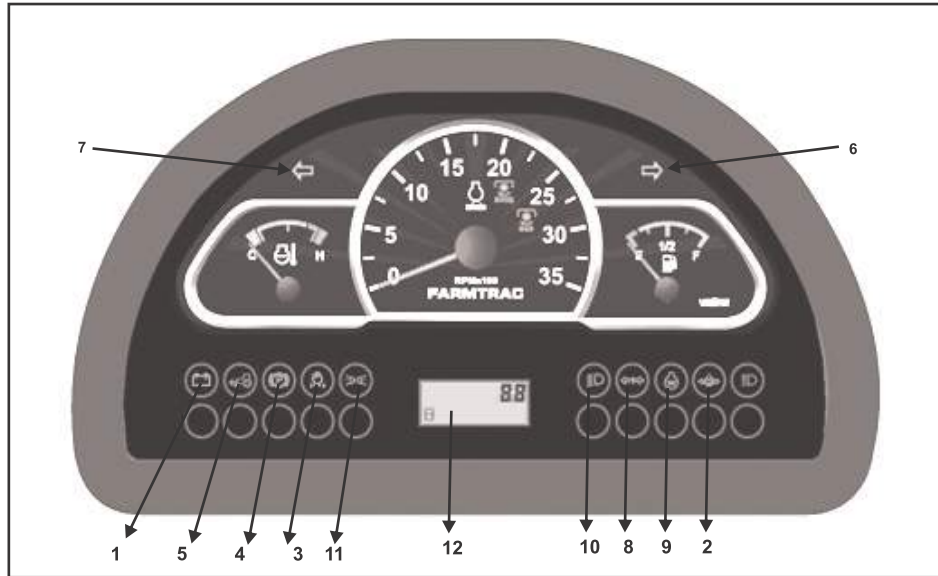
| S.No | Implement              | FARMTRAC 20/22                               |
|------|------------------------|--|
| 1    | Sprayer (Mounted type) | Mist Blower , 200 Ltr, 180 kg                |
| 2    | Rotary Tiller (Dry)    | 0.8 m<br>16 blade L type, 167 kg             |
| 3    | Front Loader           | Max lift 280 kg<br>Max Bucking width 1200 mm |
| 4    | Rear Mower (2-3 blade) | Max cutting width- 56"                       |
| 5    | Trailer                | 1-1.5 Tonn                                   |












**NOTE:**

- Implement size may vary depending on soil and operating conditions.
- Strictly follow the instructions outlined in the operator's manual of the mounted or trailed machinery or trailer, and do not operate the combination tractor - machine or tractor - trailer unless all instructions have been followed.
- For drawbar applications (plough, harrow, cultivator etc.), use of 4 wheel drive mode is mandatory for better traction & durability.

# INSTRUMENT PANEL AND CONTROLS

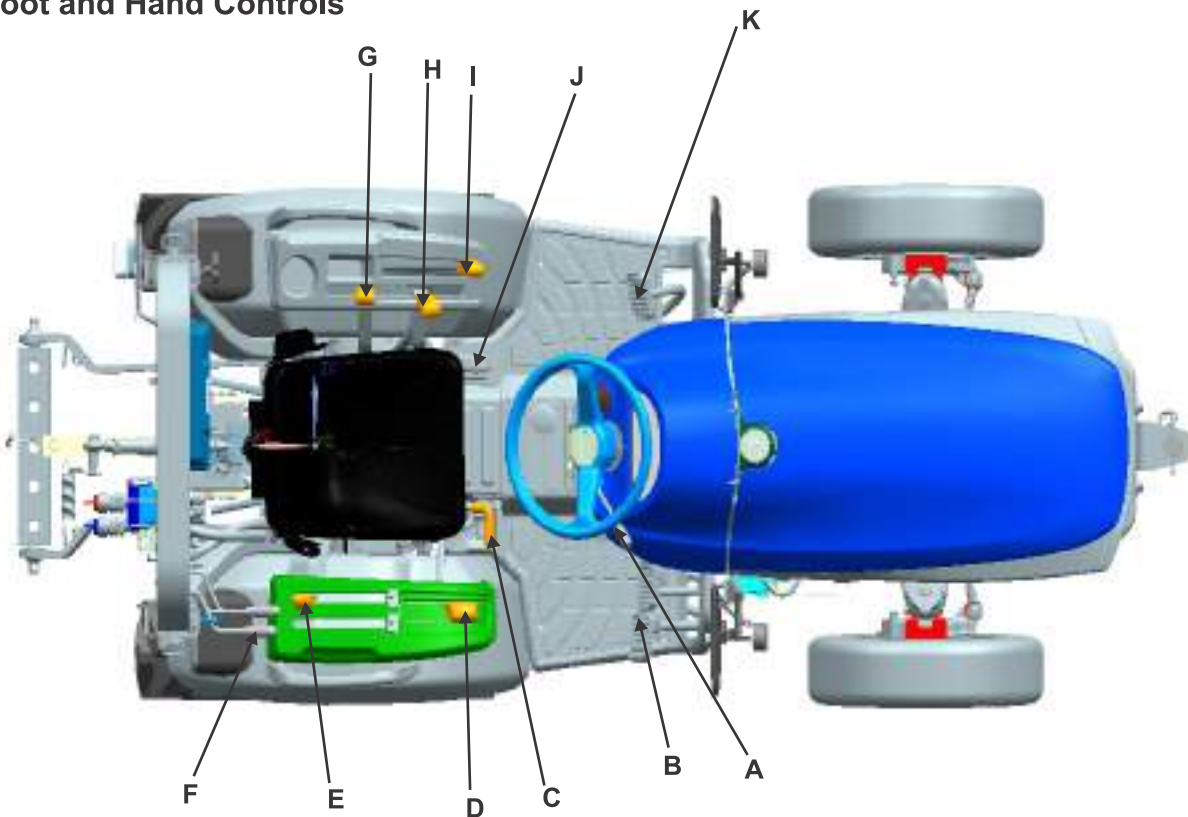
## ■ Instrument Panel, Switches and Hand Controls



| S.NO. | SYMBOL   | GLOWING COLOURS |
|-------|--|-----------------|
| 1     | BATTERY                                    | RED             |
| 2     | ENGINE OIL PRESSURE                       | RED             |
| 3     | ENGINE INTAKE AIR FILTER/CLOGGING SENSOR  | RED             |
| 4     | PARKING BRAKE                             | RED             |
| 5     | 4WD                                       | GREEN           |
| 6     | TURN RIGHT                                | GREEN           |
| 7     | TURN LEFT                                 | GREEN           |
| 8     | TURN TRAILER - 1                          | GREEN           |
| 9     | GLOW PLUG                                 | YELLOW          |
| 10    | DIPPED BEAM                               | GREEN           |
| 11    | POSITION LAMP                             | GREEN           |
| 12    | DIGITAL HOUR METER                        | ORANGE          |
| 13    | FUEL GAUGE                                |                 |
| 14    | RPM METER                                 |                 |
| 15    | COOLANT TEMP. GAUGE                       |                 |

# INSTRUMENT PANEL AND CONTROLS

## ■ Foot and Hand Controls



### ILLUSTRATED CONTENTS

| S. NO | DESCRIPTION                              |
|-------|--|
| A     | HAND THROTTLE CONTROL                    |
| B     | BRAKE                                    |
| C     | DIFF LOCK                                |
| D     | GEAR SHIFTER LEVER                       |
| E     | POSITION CONTROL                         |
| F     | SPOOL LEVER                              |
| G     | PTO LEVER                                |
| H     | 2WD-4WD CONTROL LEVER                    |
| I     | RANGE LEVER (LOW, MEDIUM, NEUTRAL, HIGH) |
| J     | PARKING BRAKE                            |
| K     | CLUTCH                                   |



# PRE-OPERATION CHECK

## DAILY CHECK

To prevent trouble from occurring, it is important to know the condition of the tractor well. Check it before starting.

### **▲ WARNING**

To avoid personal injury or death:

- Be sure to check and service the tractor on a level surface with the engine shut off and the parking brake "ON" and implement lowered to the ground.

### **Check item**

- Walk around inspection
- Check engine oil level
- Check transmission oil level
- Check coolant level
- Clean grill and radiator screen
- Check air cleaner evacuator valve

(When used in a dusty place)

- Check brake pedal
- Check indicators, gauges and meter
- Check lights
- Check wire harness
- Check Seat belt and ROPS
- Check movable parts
- Refuel

(See "DAILY CHECK" in "PERIODIC SERVICE" section.)

- Care of danger, warning and caution labels (See "DANGER, WARNING AND CAUTION LABELS" in "SAFE OPERATION" section.)

PRE-OPERATION

# OPERATING THE ENGINE

## ⚠ WARNING

To avoid personal injury or death :

- Read "Safe Operation" in the front of this manual.
- Read this danger, warning and caution labels located on this tractor.
- To avoid the danger of exhaust fume poisoning, do not operate the engine in a closed building without proper ventilation.
- Never start engine while standing on ground. Start engine only from operator's seat.
- Make it a rule to set all shift levers to the "NEUTRAL" positions and to place the PTO lever in "OFF" position & press the clutch pedal before starting the engine.

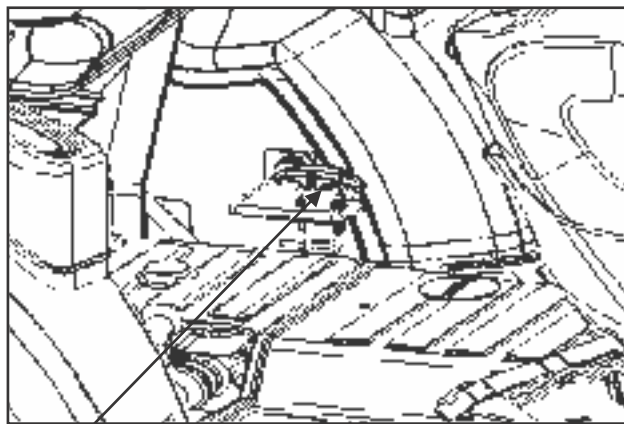
## IMPORTANT:

- Do not use starting fluid or ether.
- To protect the battery and the starter, make sure that the starter is not continuously turned for more than 30 seconds.

## STARTING THE ENGINE

### 1. Make sure the parking brake is set.

1. Pull the lever and rotate 90° to lock.
2. Pull the lever, rotate 90° and release the lever.



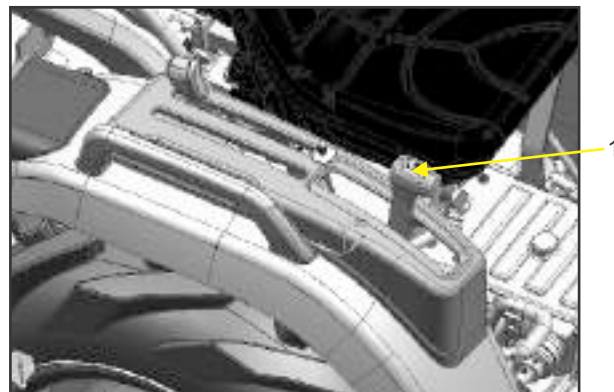
1. Parking Brake Lever

## NOTE:

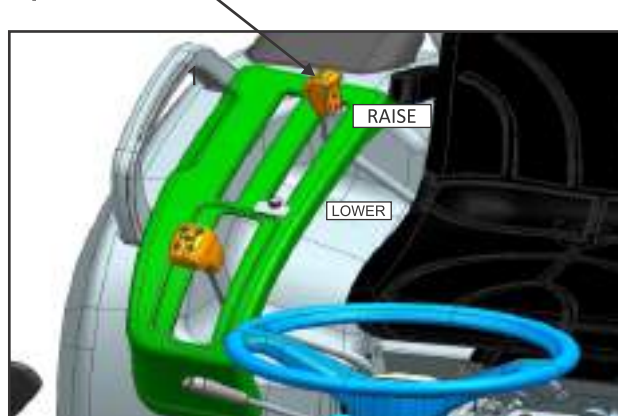
- It is recommended that the operator practice engaging and disengaging the parking brake on a flat surface without the engine running before operating the tractor for the first time.

### 2. Place the main gear lever in neutral position.

**Note :** Always engage the main gear shifter lever by pressing the clutch pedal .

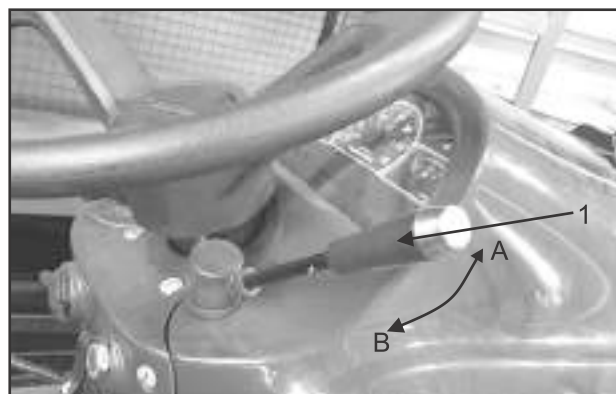


### 5. Place the position control lever in the "LOWEST" position.



1. Position Control Lever

### 6. Set the throttle lever to about 1/2 way.



1. Hand Throttle Lever  
B Increase  
A Decrease

# OPERATING THE ENGINE

7. Insert the key into the key switch and turn it on.



1. Key Start Switch

### Check Instrument cluster.

When the key is turned "ON", lamps (1) (2) should come on. If trouble should occur at any location while the engine is running, the indicator lamp corresponding to problem will turn "ON".



- (1) Engine oil pressure warning indicator
- (2) Electrical charge warning indicator
- (3) Glow plug indicator

8. Turn the key to "PREHEAT" position and hold it for about 10 to 30 seconds or till the glow plug indicator on the cluster goes off.

For the appropriate preheating time, refer to the table below:

| Temperature                              | Preheating Time |
|--|-----------------|
| + 5°C (41°F) or above                    | 10 sec.         |
| - 5°C (41°F) or above, below +5°C (41°F) | 20 sec.         |
| Below - 5°C                              | 30 sec.         |

### NOTE:

- Glow plug indicator (3) comes on while engine is being preheated.

9. Turn the key to "START" position and release when the engine starts.

### IMPORTANT:

- Because of the safety devices, the engine will not start except when the PTO selector lever is placed in the "NEUTRAL" position, clutch pedal is pressed and range lever in the "NEUTRAL" position.

### Cold Weather Starting

When the ambient temperature is below -5°C (23F) and the engine is very cold. If the engine fails to start, turn off the key for 30 seconds. Then repeat steps 8 and 9.

To protect the battery and the starter, make sure that the starter is not continuously turned for more than 30 seconds.

10. Check to see that all the lamps on the instrument cluster are "OFF".

If any lamps stays on, immediately stop the engine and determine the cause.

### STOPPING THE ENGINE

1. After slowing the engine to idle, turn the key to "OFF".

2. Remove the key.

### NOTE:

- If key does not stop the engine, consult your local FARMTRAC Dealer / Distributor.

### WARMING UP

### ⚠ WARNING

To avoid personal injury or death:

- Be sure to set the parking brake during warmup.
- Be sure to set all shift levers to the "NEUTRAL" positions.

For 5 minutes after engine start-up, allow the engine to warm up without applying any load, this is to allow oil to reach every engine part. If load should be applied to the engine without this warm-up period, trouble such as seizure, breakage or premature wear may develop.

### • Warm-up Transmission Oil at Low Ambient Temperature

Hydraulic oil serves as transmission fluid. In cold weather, the oil will be cold, which will increase oil viscosity.

# OPERATING THE ENGINE

This can cause delayed oil circulation or abnormally low hydraulic pressure for some time after engine start-up. This in turn can result in trouble in the hydraulic system. To prevent the above, observe the following instructions: Warm up the engine at about 50% of rated rpm according to the table below:

| Ambient temperature       | Warm-up time requirement |
|---------------------------|--------------------------|
| Above 0 °C (32 °F)        | At least 5 minutes       |
| 0 to -10 °C (32 to 14 °F) | 5 to 10 minutes          |
| -10 to -20°C(14 to -4°F)  | 10 to 15 minutes         |
| Below -20°C (-4°F)        | More than 15 minutes     |

## IMPORTANT:

- Do not operate the tractor under full load condition until it is sufficiently warmed up.

## JUMP STARTING

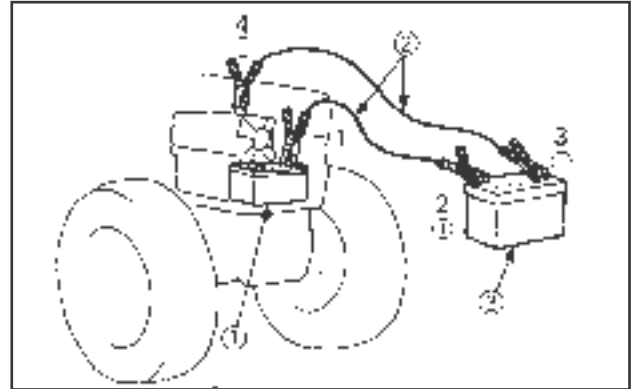
### ⚠ WARNING

To avoid personal injury or death;

- Battery gases can explode. Keep cigarettes, sparks, and flames away from battery.
- If tractor battery is frozen, do not jump start engine.
- Do not connect the other end of the negative (-) jumper cable to the negative (-) terminal of the tractor battery.

When jump starting the engine, follow the instructions below to safely start the engine.

- Bring the helper vehicle with a battery of the same voltage as disabled tractor within easy cable reach. "THE VEHICLES MUST NOT TOUCH".
- Engage the parking brakes of both vehicles and put the shift levers in neutral. Shut both engines off.
- Wear eye protection and rubber gloves.
- Attach the red clamp to the positive (red, (+) or pos.) terminal of the dead battery and clamp the other end of the same cable to the positive (red, (+) or pos) terminal of the helper battery.
- Clamp the other cable to the negative (black, (-) or neg.) terminal of the helper battery.
- Clamp the other end to the engine block or frame of the disabled tractor as far from the dead battery as possible.
- Start the helper vehicle and let its engine run for a few moments. Start the disabled tractor.
- Disconnect the jumper cables in the exact reverse order of attachment. (Steps 6, 5 and 4). Connect



- (1) Dead battery  
(2) Jumper cables  
(3) Helper battery

## IMPORTANT:

- This machine has a 12volt negative (-) ground starting system.
- Use only same voltage for jump starting.
- Use of a higher voltage source on tractors electrical system could result in severe damage to tractor's electrical system.  
Use only matching voltage source when "Jump starting" a low or dead battery condition.

## OPERATING NEW TRACTOR

How a new tractor is handled and maintained determines the life of the tractor.

A new tractor just off the factory production line has been, of course, tested, but the various parts are not accustomed to each other, so care should be taken to operate the tractor for the first 50 hours at a slower speed and avoid excessive work or operation until the various parts become "broken-in." The manner in which the tractor is handled during the "breaking-in." period greatly affects the life of your tractor. Therefore, to obtain the maximum performance and the longest life of the tractor, it is very important to properly break-in your tractor. In handling a new tractor, the following precautions should be observed.

### Do not Operate the Tractor at Full Speed for the First 50 Hours

- Do not start quickly nor apply the brakes suddenly.
- In winter, operate the tractor after fully warming up the engine.
- Do not run the engine at speeds faster than necessary.
- On rough roads, slow down to suitable speeds. Do not operate the tractor at fast speed.

The above precautions are not limited only to new tractors, but to all tractors. But it should be especially observed in the case of new tractors.

### Changing Lubricating Oil for New Tractors

The lubricating oil is especially important in the case of a new tractor.

# OPERATING THE TRACTOR

The various parts are not "broken-in" and are not accustomed to each other; small metal grit may develop during the operation of the tractor; and this may wear out or damage the parts. Therefore, care should be taken to change the lubricating oil a little earlier than would ordinarily be required. For further details of change interval hours, see MAINTENANCE" section.

## BOARDING AND LEAVING THE TRACTOR

1. Never try to get on or off a moving tractor or jump off the tractor to exit.
2. Face the tractor when getting into or out of the tractor. Do not use the controls as hand holds to prevent inadvertent machine movements.
3. Always keep steps and floor clean to avoid slippery conditions.

## OPERATING FOLDABLE ROPS

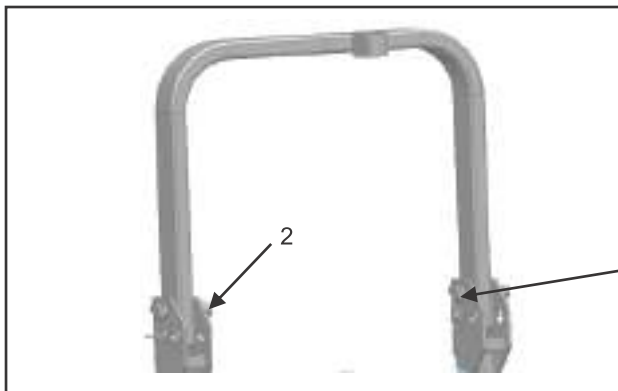
### ⚠ WARNING

To avoid personal injury or death:

- 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.
- Before proceeding to fold ROPS, check for any possible interference with installed implements and attachments. If interference occurs, contact your FARMTRAC Dealer / Distributor.

### • To Fold the ROPS

1. Remove both set bolts, maintain a hold on the ROPS.



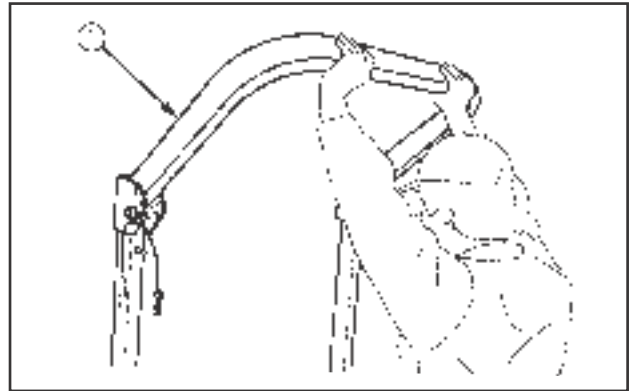
1. Set Bolt 2. Nut

2. Fold the ROPS.

### CAUTION

To avoid personal injury:

- Hold the ROPS tightly with both hands and fold the ROPS slowly and carefully.



1. ROPS

3. Insert both set bolts and secure them with the nuts.

### CAUTION

To avoid personal injury:

- Make sure that both set bolts are properly installed and secured with the nuts.

### To Raise the ROPS to Upright Position

1. Remove both set bolts and nuts.



1. Set Bolt 2. Nut

2. Raise ROPS to the upright position, maintain a hold on the ROPS.

### CAUTION

To avoid personal injury:

- Raise the ROPS slowly and carefully.

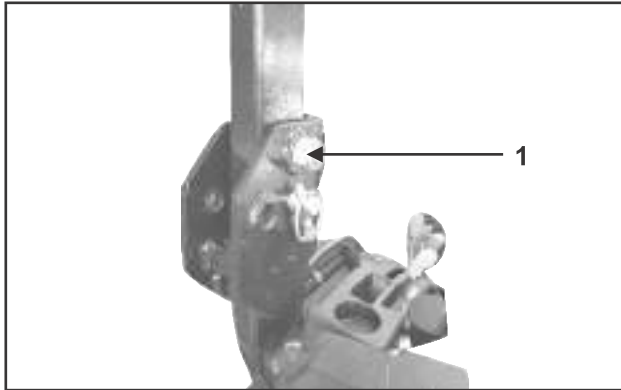
3. Insert both set bolts and secure them with the nuts.

### Adjustment of Foldable ROPS

- Adjust free fall of the ROPS upper frame regularly.
- If you feel less friction in folding the ROPS, tighten the nut (1) until you feel the right friction in the movement.



# OPERATING THE TRACTOR



1. Nuts.

## STARTING

### 1. Adjusting the operator's position.

#### NOTE:

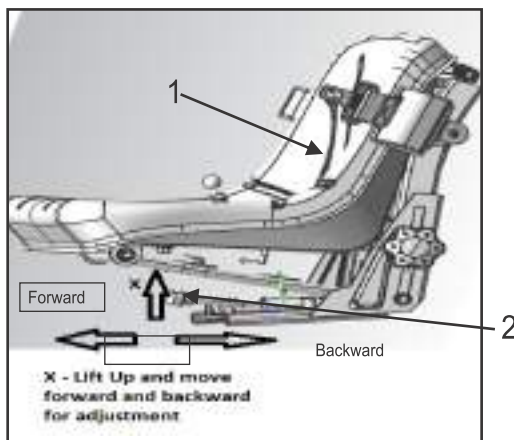
- The seat and suspension should be adjusted to ensure that the controls are comfortably at hand for the operator, ensuring that the operator maintains a good posture and minimizes risks from whole body vibration.

#### Operator's Seat

#### ⚠ WARNING

To avoid personal injury or death:

- Make sure that the seat is completely secured after each adjustment.
- Do not allow any person other than the driver to ride on the tractor.
- Position adjustment Pull in the position adjust lever and slide the seat backward or forward, as required. The seat will lock in position when the lever is released.



1. Seat 2. Position Adjust Lever

#### IMPORTANT:

- After adjusting the operator's seat, be sure to check that the seat is properly locked.

#### Seat Belt

#### ⚠ WARNING

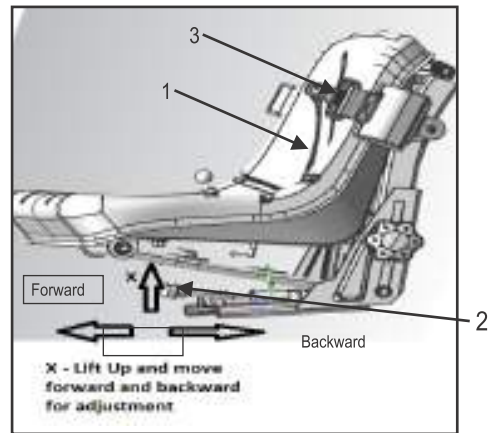
To avoid personal injury or death:

- Always use the seat belt when the ROPS is installed.
- Do not use the seat belt if a foldable ROPS is down or there is no ROPS.

Adjust the seat belt for proper fit and connect to the buckle. The seat belt is auto-locking retractable type.

**Operator presence switch** : When the operator leaves the driving seat, the vehicle will shut off automatically within 7-10 sec.

**NOTE** : Operator presence switch is available.



1. Seat 2. Position Adjust Lever 3. Seat Belt

#### 2. Selecting light switch positions.

##### • Head Light I Turn Signal / Hazard Light Switch

##### ◆ Head Light Switch

- (A) OFF....Head light OFF.
- (B) Head light ON.

##### ◆ Hazard Light

- When hazard light switch is pushed, the hazard lights flash, along with the L/H and R/H indicators on the instrument panel.
- Push hazard light switch again to turn off the hazard lights.

##### ◆ Turn Signal with Hazard Light Switch On

- To indicate a right turn with the hazard lights already flashing (hazard switch on), turn the turn signal switch clockwise.
- To indicate a left turn with the hazard lights already flashing, turn the turn signal switch counterclockwise.
- When the left or right turn signal is activated in combination with the hazard lights, the indicated turning light will flash and the other will stay on.

# OPERATING THE TRACTOR

## ◆ Turn Signal with Hazard Light Switch Off

1. To indicate a right turn without hazard lights (hazard switch off), turn the turn signal switch clockwise.
2. To indicate a left turn without hazard lights, turn the turn signal switch counterclockwise.
3. When the left or right turn signal is activated without the hazard lights, the indicated turning light will flash and the other will stay on.

### NOTE:

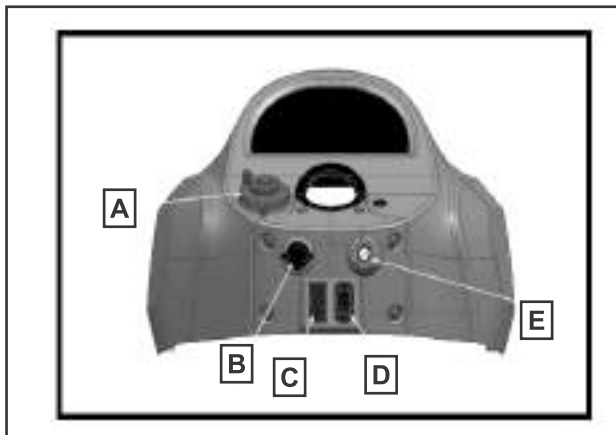
- The hazard light switch is operative when the key switch is in either the "ON" or "START" positions.
- The turn signal light switch is only operative when the key switch is in the "ON" or "START" position.
- The indicator in the hazard light switch will light up when the head light switch is turned on.
- Be sure to return the turn signal switch to center position after turning.



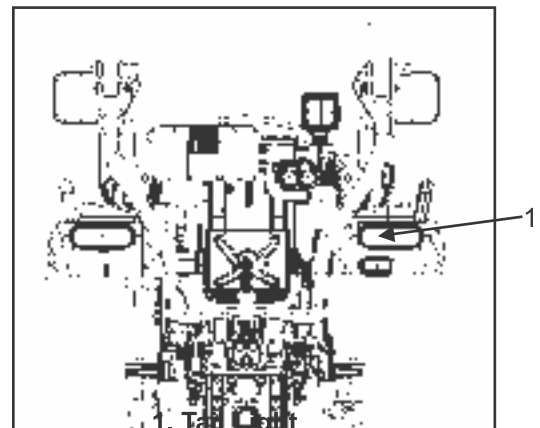
1. Head Light 2. Turn Signal Light

### Tractor Lights

(1) Head light (2) Turn signal / Hazard light



- |                      |                     |
|----------------------|---------------------|
| A. Head Light Switch | D. Beacon Lamp      |
| B. Mobile Charger    | E. Key Start Switch |
| C. Hazard Switch     |                     |



### 3. Checking the brake pedal.

- **Brake Pedals (Right and Left)**

#### ⚠ WARNING

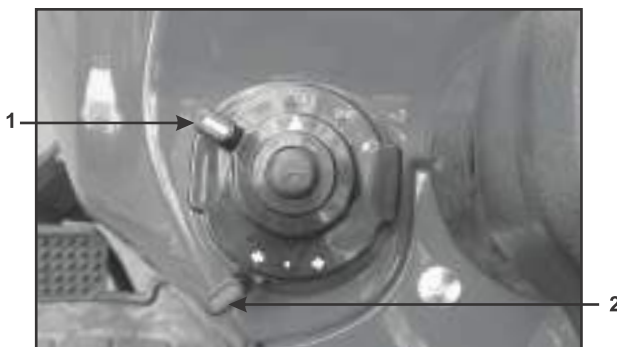
To avoid personal injury or detail:

- Applying only one rear wheel brake at high speeds could cause the tractor to swerve or roll-over.

#### ⚠ WARNING

To avoid personal injury or death:

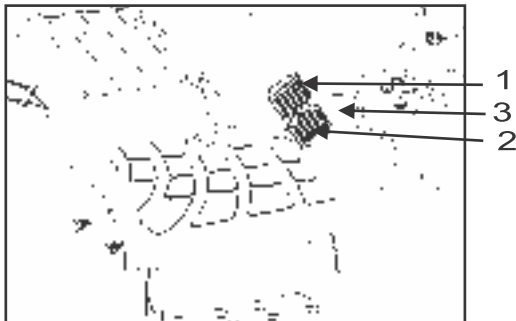
- An accident may occur if the tractor is suddenly braked, such as by heavy towed loads shifting forward or loss of control.
- The braking characteristics are different between 2 wheel and 4 wheel drive. Be aware of the difference and use carefully.
- When driving on icy, wet or loose surfaces, make sure the tractor is correctly ballasted to avoid skidding and loss of steering control. Operate at reduced speed.



(1) Head light switch  
(2) Turn signal light switch

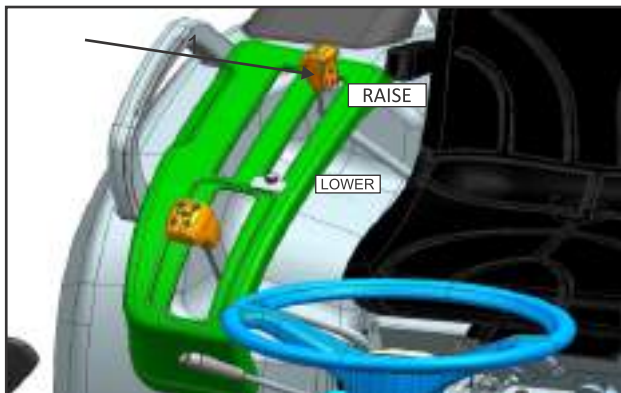
# OPERATING THE TRACTOR

1. Before operating the tractor on the road or before applying the parking brake, be sure to interlock the right and left pedals as illustrated below.
2. Use individual brakes to assist in making sharp turns at slow speeds (Field Operation Only). Disengage the brake pedal lock and depress only one brake pedal.
3. Be sure brake pedals have equal adjustment when using locked together.



1. Left Brake Pedal 2. Right Brake Pedal  
3 Brake Pedal Lock

4. Raise the implement.  
(See "HYDRAULIC UNIT" section)



1 Position Control Lever

5. Selecting the Travel Speed.

### • Range Gear Shift Lever (L-M-N-H)

The range shift lever can only be shifted when the clutch pedal is completely pressed. It is placed on the left hand side of the tractor.

### IMPORTANT:

- (1) Do not force the range gear shift lever.
  - (2) Depress the clutch pedal firmly.
  - (3) Shift the range gear lever according to speed and load of the tractor.
- To avoid damage of transmission, stop tractor before shifting between ranges.

It is equipped with neutral safety start switch which ensures that tractor would not start unless the range lever is at neutral position.



(1) Range gear shift lever  
(L-M-N-H)

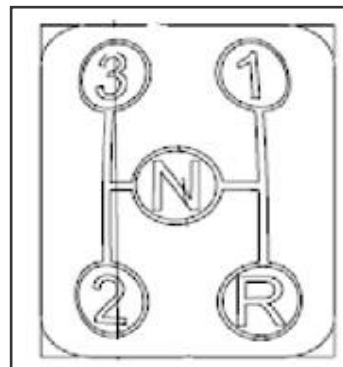
(L) "LOW"  
(M) "MEDIUM"  
(N) "NEUTRAL POSITION"  
(H) "HIGH"

### • Main Gear Shift Lever

The main gear lever, provides choice of 4- speed selection (1st, 2nd, 3rd and reverse). This is a constant mesh arrangement and would enable shifting of gear while in motion. Always press the clutch pedal to shift the gears (1st, 2nd, 3rd and reverse).

### ⚠ WARNING:

Press clutch pedal fully while operating any of the gear levers (main, range, PTO lever, 4WD lever).



Gear Pattern



1. Main Gear Shift Lever



# OPERATING THE TRACTOR

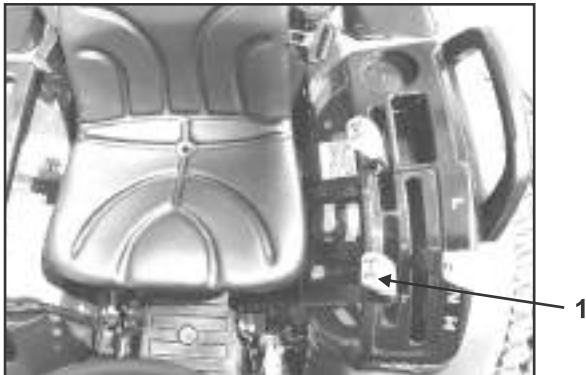
## ■ Front Wheel Drive Lever

### ⚠ WARNING

To avoid personal injury or death:

- Do not engage the front wheel drive when traveling at road speed.
- When driving on icy, wet or loose surfaces, make sure the tractor is correctly ballasted to avoid skidding and loss of steering control. Operate at reduced speed and engage front wheel drive.
- An accident may occur if the tractor is suddenly braked, such as by heavy towed loads shifting forward or loss of control.
- The braking characteristics are different between 2 wheel and 4-wheel drive. Be aware of the difference and use carefully.

Use the lever to engage the front wheels with the tractor stopped. Move the lever in forward and backward direction to disengage and engage the front wheel drive.



1. Four Wheel Drive Lever

### IMPORTANT:

- To avoid damage of transmission, when four wheel drive lever is not smoothly shifted, slightly step forward or reverse.
- Tyres will wear quickly if front wheel drive is engaged on paved roads.

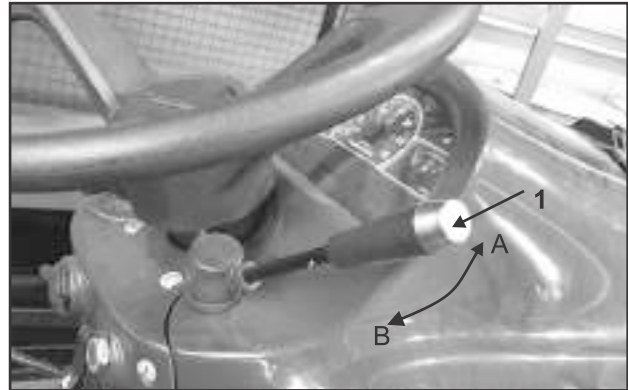
### ◆ Front wheel drive is effective for the following jobs:

1. When greater pulling force is needed, such as working in a wet field, when pulling a trailer, or when working with a front-end loader.
2. When working in sandy soil.
3. When working on a hard soil where a rotary tiller might push the tractor forward.
4. Additional braking at reduced speeds.

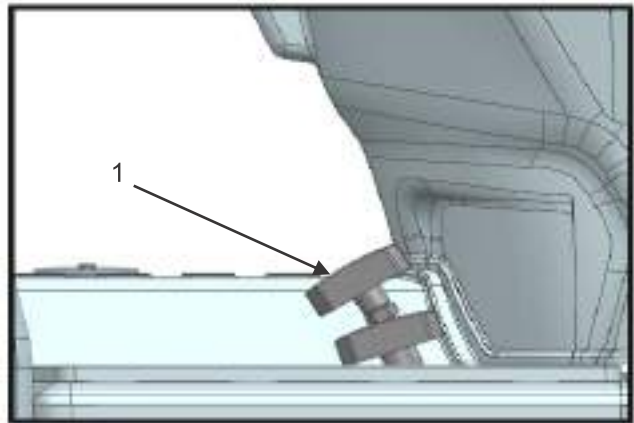
## 6. Accelerate the Engine.

### ■ Hand Throttle Lever

Pulling the throttle lever back increases engine speed, and pushing it forward decreases engine speed.



(1) Hand Throttle lever if  
(B) INCREASE" (A) DECREASE"

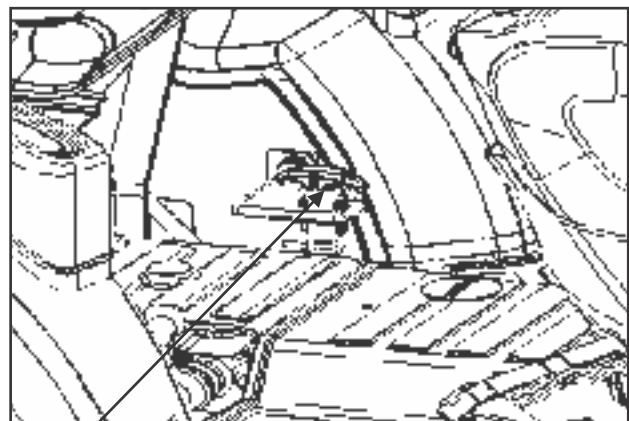


1. Foot Accelerator Pedal

## 7. Unlock the Independent Parking Brake.

### ■ Independent Parking Brake

Pull the lever, rotate 90° and release the lever.



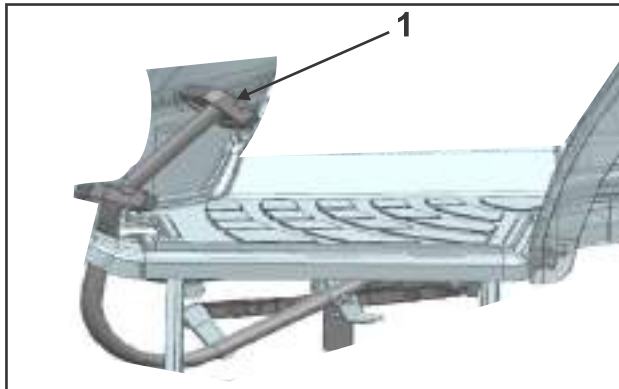
1. Parking Brake Lever

## 8. Depress The Clutch Pedal

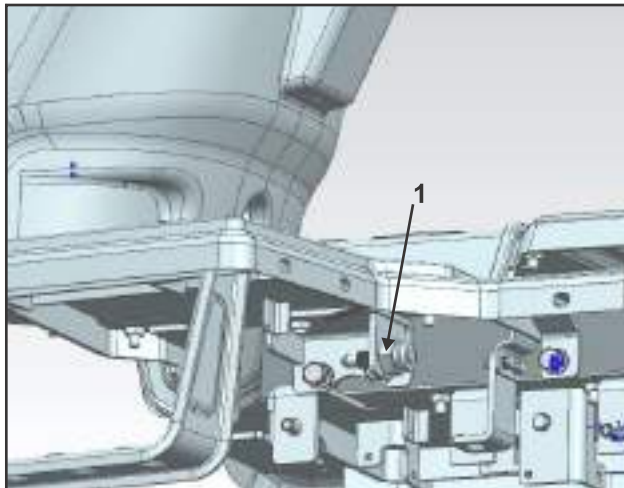
Foot operated clutch pedal is provided on LH side of seat. Always depress the clutch pedal to engage or disengage a gear ratio.

# OPERATING THE TRACTOR

Clutch pedal must be depressed fully when any of the two gear levers (main, range) are operated. When this clutch is depressed, the drive between engine and transmission will be disengaged. Use the clutch pedal gently to transfer engine power smoothly to the driving wheels when moving off from stand still.



1. Clutch Pedal



1. Clutch Safety Switch

## NOTE :

1. All gear levers should be in neutral position (main gear lever, range lever & PTO shifter lever).
2. Press clutch Pedal fully to start the tractor.
3. It is also recommended to start the tractor with operator present on the seat with all recommended instructions.

## STOPPING

1. Slow the engine down.
2. Step on the brake pedal.
3. After the tractor has stopped, disengage the PTO, lower the implement to the ground, shift the transmission to neutral and set the parking brake.

## CHECK DURING DRIVING

### ■ Immediately Stop the Engine if:

- The engine suddenly slows down or accelerates.
- Unusual noises suddenly are heard.
- Exhaust fumes suddenly become very dark.

### ■ Instrument Cluster

If the warning lamps of the Instrument Cluster come on during operation, immediately stop the engine, and find the cause as shown below.

Never operate the tractor while Instrument Cluster lamp is on.



- (1) Engine oil pressure warning indicator
- (2) Electrical charge warning indicator
- (3) Glow plug indicator

### Engine oil pressure

If the oil pressure in the engine goes below the prescribed level, the warning lamp in the Instrument Cluster will come on.

If this should happen during operation, and it does not go off when the engine is accelerated to more than 1000 rpm, check level of engine oil.

(See "Checking Engine Oil Level" in "DAILY CHECK" in "PERIODIC SERVICE" section)

### Electrical Charge

If the alternator is not charging the battery, the warning lamp in the Instrument Cluster will come on.

If this should happen during operation, check the electrical charging system or consult your local FARMTRAC Dealer / Distributor.

## NOTE:

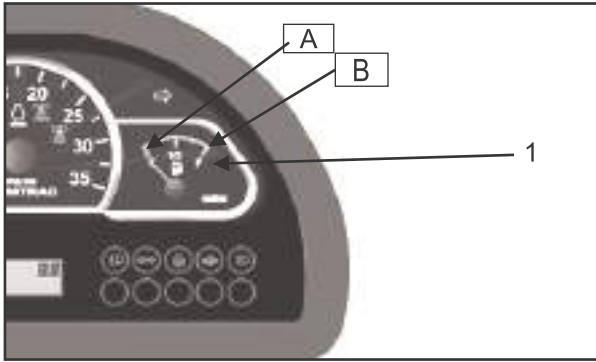
- For checking and servicing of your tractor, consult your local FARMTRAC Dealer / Distributor for instructions.

### ■ Fuel Gauge

When the key switch is on, the fuel gauge indicates the fuel level.

Be careful not to empty the fuel tank. Otherwise air may enter the fuel system. Should this happen, the system should be bled. (See "Bleeding Fuel System" in "SERVICE AS REQUIRED" in "PERIODIC SERVICE" section)

# OPERATING THE TRACTOR



1. Fuel Gauge (B) Full (A) Empty

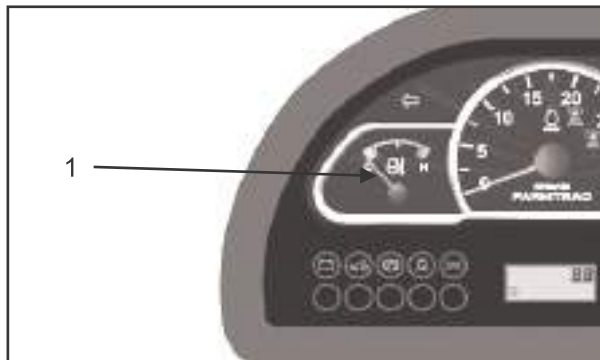
## ■ Coolant Temperature Gauge

### ⚠ WARNING

To avoid personal injury or death:

- Do not remove radiator cap until coolant temperature is well below its boiling point. Then loosen the cap slightly to relieve any pressure before removing the cap completely.

- With the key switch "ON", this gauge indicates the temperature of the coolant. "C" for "cold" and "H" for "hot".
- If the indicator reaches the "H" position (red zone), engine coolant is overheated. Check the tractor by referring to "TROUBLESHOOTING" section.

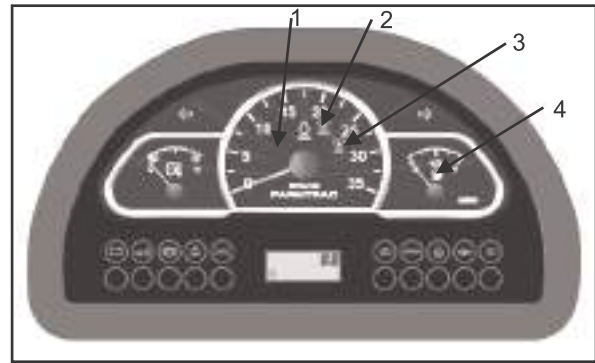


1. Coolant Temperature Gauge

## ■ RPM - cum - Hour Meter

This meter gives readings for engine speed, PTO shaft speed and the hours the tractor has been operated.

- The RPM-cum-Hour Meter indicates the engine speed and the 540 & 540E PTO shaft speed location on the dial.
- The hour meter indicates in 5 digits the hours the tractor has been used, the last digit indicates 1/10 of an hour.



1. Engine RPM cum hour meter  
2. 540E 3. 540 4. Fuel Gauge

## PARKING

### ■ Parking

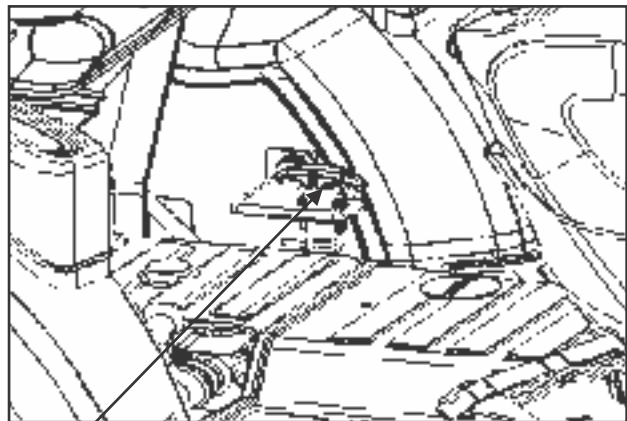
### ⚠ WARNING

To avoid personal injury or death:

- Always set the parking brake, stop the engine and remove the key before leaving the tractor seat.

- When parking, be sure to set the parking brake. To set the parking brake

- Pull the lever and rotate 90° to lock.
- Pull the lever, rotate 90° and release the lever.



1. Parking Brake Lever

- Before getting off the tractor, disengage the PTO, lower all implements to the ground, place all control levers in their neutral positions, set the parking brake, stop the engine and remove the key.
- If it is necessary to park on an incline, be sure to chock the wheels to prevent accidental rolling of the machine.



# OPERATING THE TRACTOR

## OPERATING TECHNIQUES

### ■ Differential Lock

#### ⚠ WARNING

To avoid personal injury or death due to loss of steering control:

- Do not operate the tractor at high speed with differential lock engaged.
- Do not attempt to turn with the differential lock engaged.
- Be sure to release the differential lock before making a turn in field conditions.

If one of the rear wheels should slip, step on the differential lock pedal. Both wheels will turn together, then reduce slippage.

Differential lock is maintained only while the pedal is depressed.



1. Differential Lock Pedal

#### IMPORTANT:

- When using the differential lock, always slow the engine down.
- To prevent damage to power train, do not engage differential lock when one wheel is spinning and the other is completely stopped.
- If the differential lock cannot be released in the above manner, step lightly on the brake pedals alternately.

### ■ Operating the Tractor on a Road

#### ⚠ WARNING

To avoid personal injury or death:

- To help assure straight line stops when driving at transport speeds, lock the brake pedals together. Uneven braking at road speeds could cause the tractor to roll-over.
- When traveling on road with 3-point hitch mounted implement attached, be sure to have sufficient front weight on the tractor to maintain steering ability. (See "BALLAST" section.)
- Towed equipment (without brake) must not exceed 1.5 times the tractor weight when traveling on roads or at high speeds.



1. Rear Reflection Light 2. Plough Light

Be sure SMV emblem and hazard light are clean and visible. If towed or rear-mounted equipment obstructs these safety devices, install SMV emblem and hazard light on equipment. Consult your local FARMTRAC Dealer/Distributor for further detail.

### ■ Operating on Slopes or Rough Terrain

#### ⚠ WARNING

To avoid personal injury or death:

- Always back up when going up a steep slope. Driving forward could cause the tractor to tip over backward. Stay off hills and slopes too steep for safe operation.
- Avoid changing gears when climbing or descending a slope.
- If operating on a slope, never disengage shift levers to neutral. Doing so could cause loss of control.
- Do not drive the tractor close to the edges of ditches or banks which may collapse under the weight of the tractor. Especially when the ground is loose or wet.

1. Slow down for slopes, rough ground, and sharp turns, especially when transporting heavy, rear mounted equipment.
2. Before descending a slope, be sure that the range lever is in the low so that speed can be controlled without using brakes.

#### Transport the Tractor Safely

1. The tractor, if damaged, must be carried on a truck. Secure the tractor tightly with ropes.
2. Follow the instruction below when towing the tractor: Otherwise, the tractor's power train may get damaged.
  - Set the all shift levers to "NEUTRAL" position.
  - If possible, start engine and select 2WD, if creep speed is fitted ensure that it is disengaged.
  - Tow the tractor using its front hitch or drawbar.

### ■ Directions for Use of Power Steering

1. Power steering is activated only while the engine is running. While the engine is stopped, the tractor functions in the same manner as tractors without

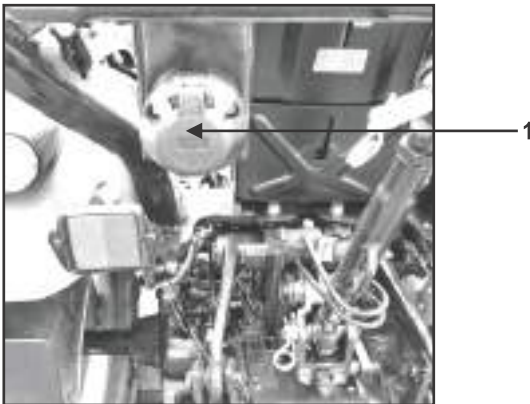
# OPERATING THE TRACTOR

power steering.

2. When the steering wheel is turned all the way to the stop, the relief valve is activated. Do not hold the steering wheel in this position for a long period of time.
3. Avoid turning the steering wheel while the tractor is stopped, or tyres may wear out sooner.
4. The power steering mechanism makes the steering easier. Be careful when driving on a road at high speeds.

## ■ Electrical Outlet

An electrical outlet is supplied for use with implement and electrical equipment.



1. 7 Pin Trailer Socket

## ■ PTO OPERATION

### ⚠ WARNING

To avoid personal injury or death:

- Before operation, be sure to select the correct PTO mode.

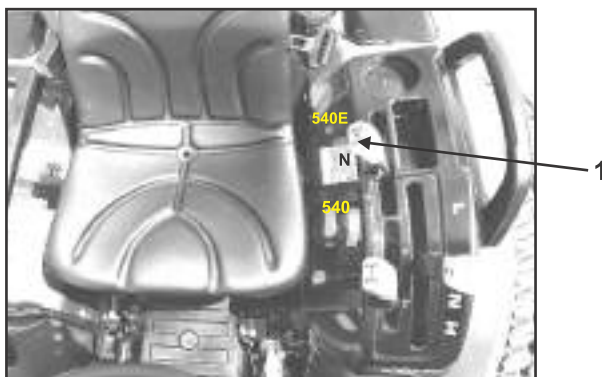
### ⚠ WARNING

To avoid personal injury or death:

- Disengage PTO, stop engine, and allow all rotating components to come to a complete stop before connecting, disconnecting, adjusting, or cleaning any PTO driven equipment.

## ■ PTO Select Lever

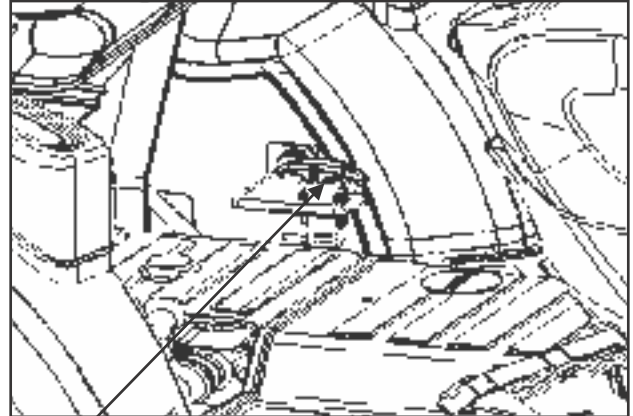
The tractor has a 540 and 540E rpm rear PTO speed.



1. PTO Selector Lever

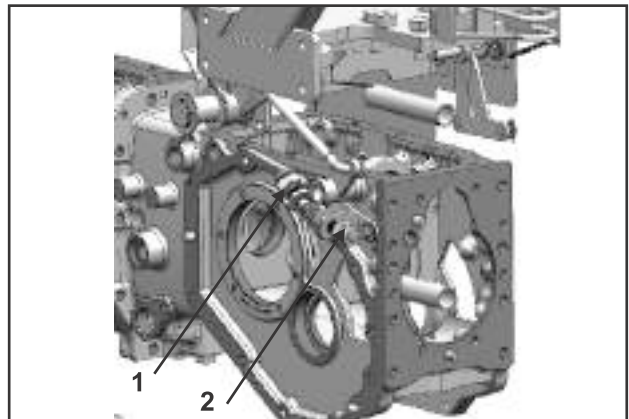
## NOTE:

- If the PTO system is engaged and you stand up from the seat and release the parking brake, the engine stops automatically after standing up.



1. Parking Brake Lever

## PTO SAFETY START SWITCH

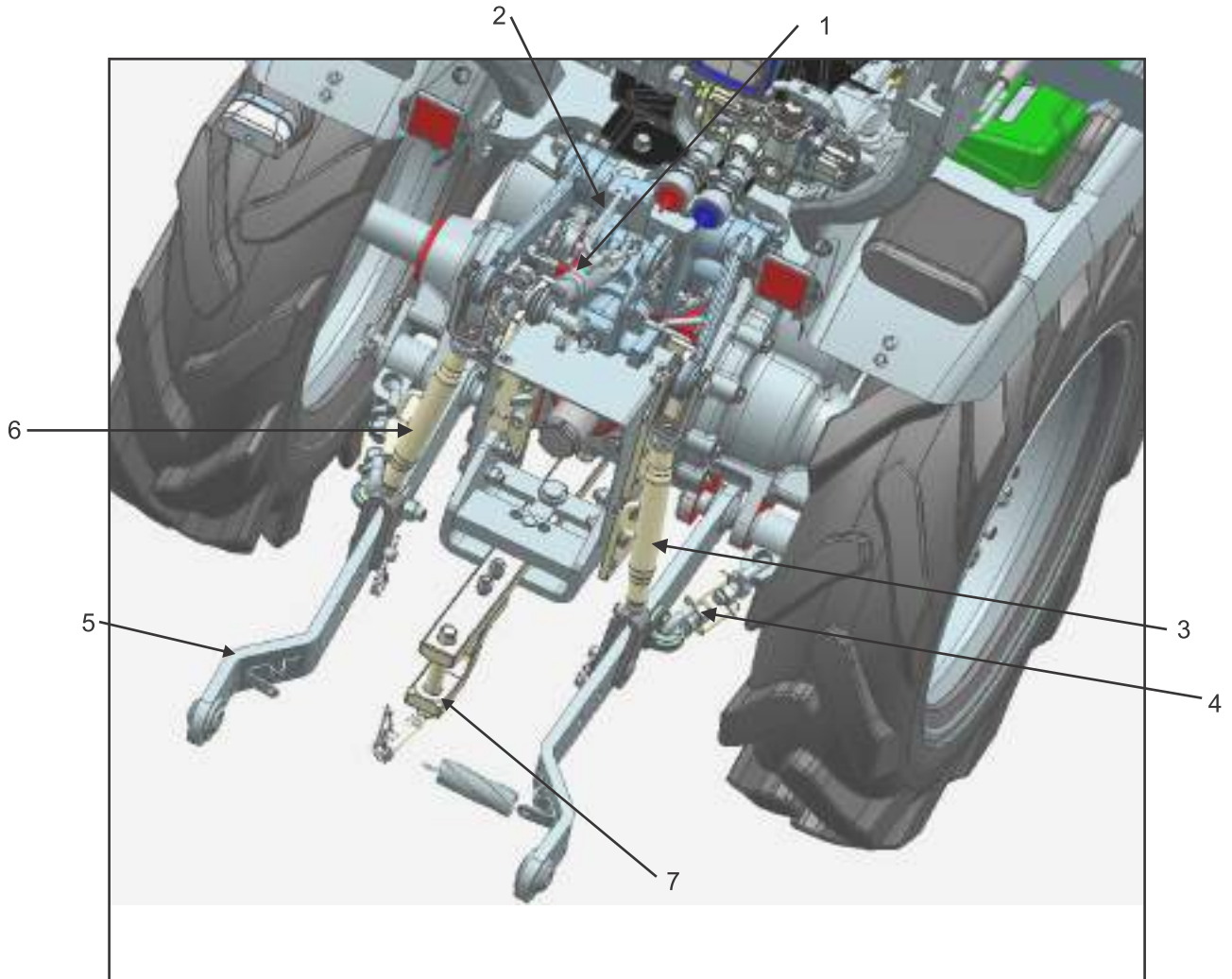


1. PTO Safety Switch 540E  
2. PTO Safety Switch 540

## NOTE :

- It is a safety feature which ensures that tractor will not start unless the PTO select lever is at neutral position .
- Before starting the tractor, keep the PTO select lever at the neutral position.

## 3-POINT HITCH & DRAWBAR



- (1) Top link
- (2) Top link holder
- (3) Lift rod (Right)
- (4) Adjustable Stay-bar
- (5) Lower link
- (6) Lift rod (Left)
- (7) Swinging Draw-bar



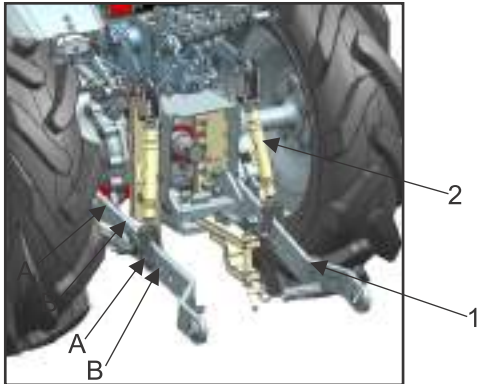
# 3-POINT HITCH & DRAWBAR

## 3-POINT HITCH

1. Make preparations for attaching implement.

- Selecting the holes of lifting rods and lower links

There are 2 holes in the lower links. For most operations the lifting rods should be attached to the (A) holes.



(1) Lower Link  
(2) Adjustable Lift Rod

### NOTE:

- The lifting rods may be attached to (B) hole for lower lifting height, (with increased lifting force)

### Selecting the Top Link Mounting Holes



1. Top Link Mounting Hole

## 2. Attaching and detaching implements

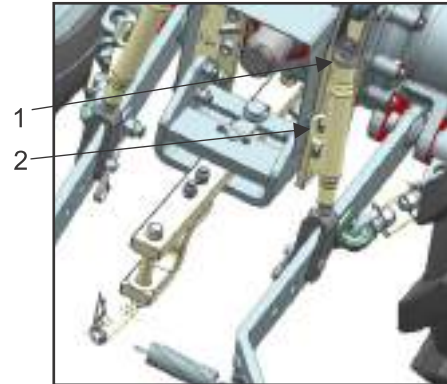
### ⚠ WARNING

To avoid personal injury or death:

- Be sure to stop the engine and remove the key.
- Do not stand between tractor and implement unless parking brake is applied.
- Before attaching or detaching implement, locate the tractor and implement on a firm, flat and level surface.

## ■ Leveling Rod (Right)

Level a 3-point mounted implement from side to side by turning the adjusting handle to shorten or lengthen the adjustable lifting rod with the implement on the ground. After adjustment, tighten the lock nut securely.



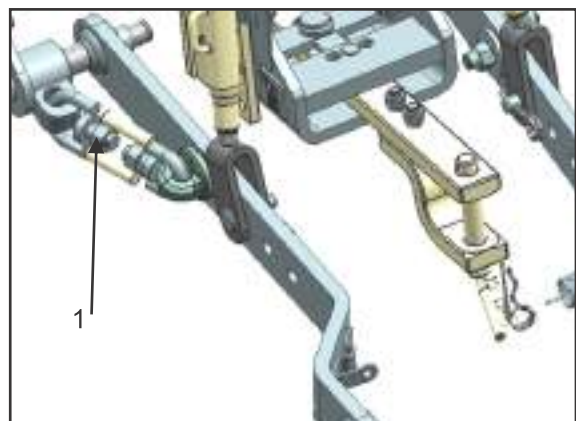
1. Lock Nut 2. Adjusting Handle

## ■ Top Link

1. Adjust the angle of the implement to the desired position by shortening or lengthening the top link.
2. The proper length of the top link varies according to the type of implement being used.

## ■ Adjustable Stay-bar

Check chain are provided to control horizontal sway of the implement. Loose both the lock nuts to increase the sway of the implement. Tighten the lock nut for the desired degree of sway.



1. Check Chain

## SWINGING DRAWBAR

### ⚠ WARNING

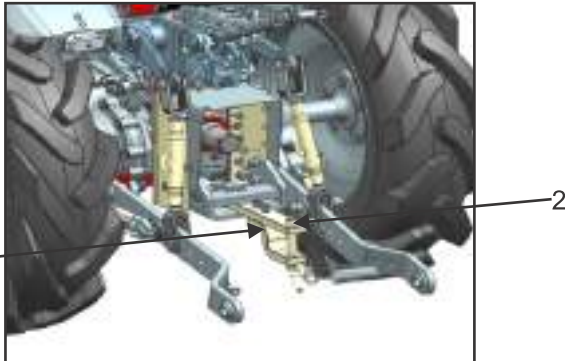
To avoid personal injury or death:

- Never pull from the top link, the rear axle or any point above the draw-bar. Doing so could cause the tractor to tip over rearward causing personal injury or death.

# 3-POINT HITCH & DRAWBAR

## ■ Adjusting Swinging Draw-bar Length

The acceptable draw-bar load is provided in the "IMPLEMENT RECOMMENDATION" section.



1. Swinging Drawbar 2. Drawbar Pin

Adjust the draft control lever for the maximum required draft load (pull).

The hydraulic lift system will now provide normal draft response within the range set by the position control. This adjustment provides a more uniform depth while maintaining an even pull in widely varying soil conditions.

### IMPORTANT :

- Do not operate until the engine is warmed up. If operation is attempted when the engine is still cold, the hydraulic system may be damaged.
- If noises are heard when implement is lifting after the hydraulic control lever has been activated, the hydraulic mechanism is not adjusted properly. Unless corrected, the unit will be damaged. Contact your FARMTRAC Dealer/Distributor for adjustment.

## 3-POINT HITCH CONTROL SYSTEM

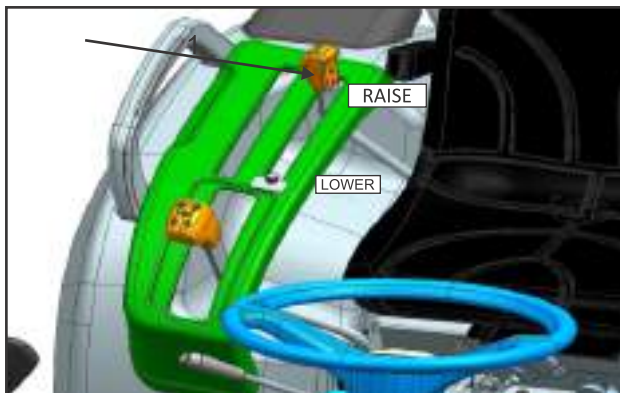
### ⚠ WARNING

To avoid personal injury or death:

- Before using the 3-point hitch controls, ensure that no person or object is in the area of the implement or 3-point hitch. Do not stand on or near the implement or between the implement and tractor when operating the 3-point hitch controls.

### ■ Position Control

This will control the working depth of 3-point hitch mounted implement regardless of the amount of pull required.



(1) Position Control Lever

### Automatic Draft Depth Control (ADDC)

Position control may be used together with the draft control as follows:

Set the position control lever at the maximum desired implement depth. The hydraulic system will not lower the implement below the depth. This will also prevent "diving" which may be encountered with light equipment, such as a rear blade, when grading or back-filling.

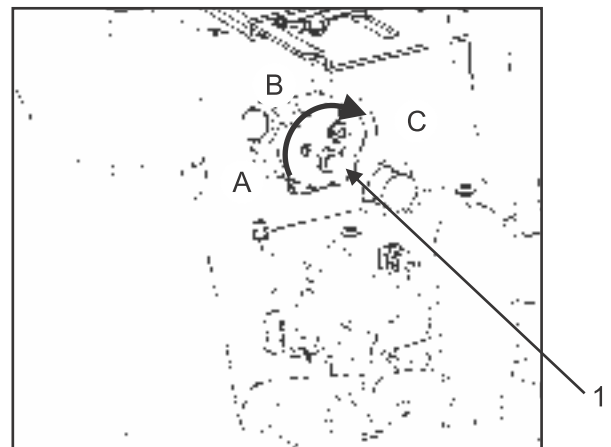
## ■ 3-point Hitch Lowering Speed

### ⚠ WARNING

To avoid personal injury or death:

- Fast lowering speed may cause damage or injury. Lowering speed of implement should be adjusted to 2 or more seconds.

The lowering speed of the 3-point hitch can be controlled by adjusting the 3-point hitch lowering speed knob.



(1) 3- Point Hitch Lowering Speed Knob  
(A) "FAST" (B) "SLOW" (C) "TRANSPORT LOCK,"

## ■ Transport Lock

### ⚠ WARNING

To avoid injury or death from crushing:

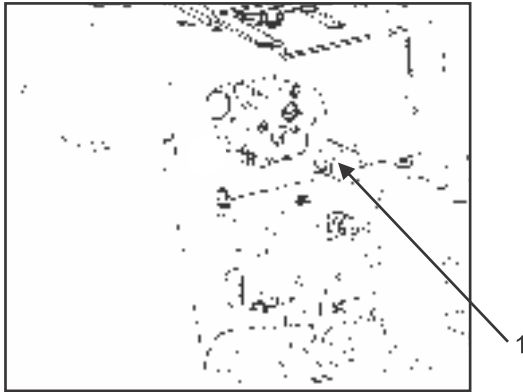
- Do not utilize the transport lock for machine maintenance or repair.
- The transport lock is to prevent accidental actuation when implement is not in use or during transport.

The control valve is equipped with a valve lock feature. The control valve is locked in the "TRANSPORT LOCK" position. The lock is not intended and will not prevent a leak down of the implement during the period of storage.



# 3-POINT HITCH & DRAWBAR

## PRE SELECTOR KNOB



1. Pre Selector Knob

It is used in tipping trolley / single acting external application.

## AUXILIARY SPOOL VALVE

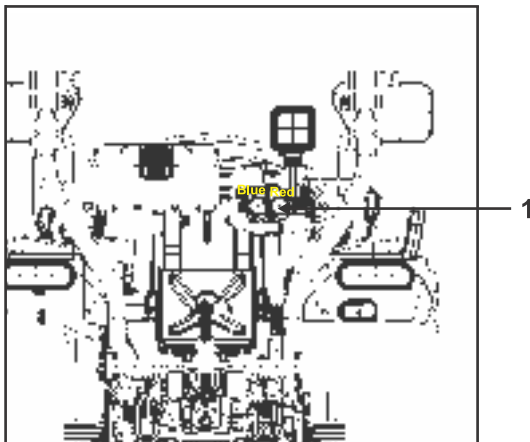
To facilitate the operation of the remote cylinder, Double-Acting Auxiliary Spool Valve is provided in tractor. It is operated by a lever located on the right-hand side of the operator's seat above the valve, which is connected by the pipe to quick-release couplers at the rear of the tractor.

### NOTE :

Always fix the attachment oil connections in the same ports (red or blue) so that cylinder opening and closing directions do not change with respect to the operating knob.

### CAUTION :

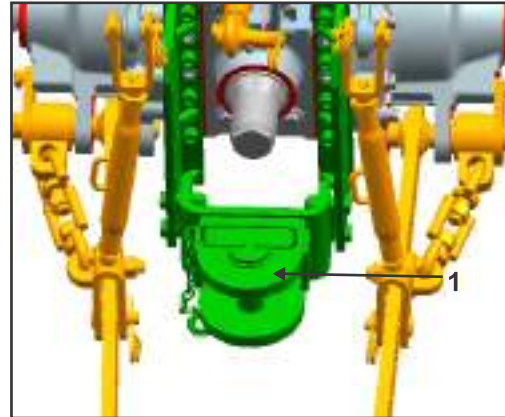
Once the trailer ram is at full lift, bring back the operation lever immediately to neutral position . Keeping the lever in raised position will cause the hydraulic pump to unnecessarily run at full pressure and cause continuous blowing off system pressure and rise in temperature.



1. Double Acting Auxiliary Spool Valve

## Rear Toe Hook

It is used for hitching trailing implements.



1. Rear Tow Hook

## TYRES

### ⚠ WARNING

To avoid personal injury or death:

- Do not attempt to mount a tire on a rim. This should be done by a qualified person with the proper equipment.
- Always maintain correct tire pressure to avoid tyre wear. Do not inflate tyres above the recommended pressure shown in the operator's manual.

### IMPORTANT:

- Do not use tyres other than those approved by FARMTRAC

### Inflation Pressure

Though the tire pressure is factory-set to the prescribed level, it naturally drops slowly over the course of time. Thus, check it regularly and inflate as necessary.



# TYRES, WHEELS AND BALLAST

## ■ DUAL TYRES

Dual tyres are not approved.

**NOTE :** Above shown pressure is for recommendation and can be adjusted further based on type of soil and surface in field or at road as per different countries' geography.

## WHEEL ADJUSTMENT

### ⚠ WARNING

To avoid personal injury or death:

- When working on slopes or when working with trailer, set the wheel track width as wide as practical for maximum stability.
- Support tractor securely on stands before removing a wheel.
- Do not work under any hydraulically supported devices. They can settle, suddenly leak down, or be accidentally lowered. If necessary to work under tractor or any machine elements for servicing or adjustment, securely support them with stands or suitable blocking beforehand.
- Never operate tractor with a loose rim, wheel, or axle.

### Front Wheels

Front track width can not be adjusted.

### IMPORTANT:

- While re-fitting or adjusting a wheel, tighten the bolts to the following torques then recheck after driving the tractor 200 m (200 yards) and 10 times of shuttle movement by 5 m (5 yards).

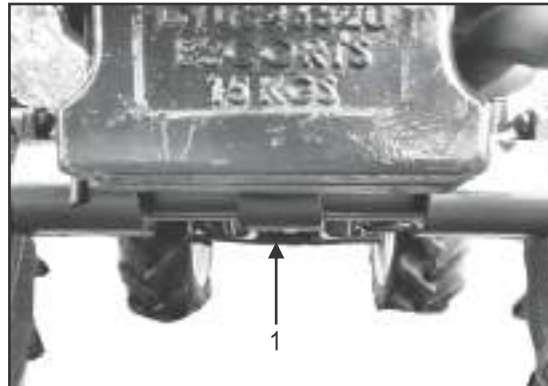


(1) 110 to 130 N-m

### ⚠ WARNING

To avoid personal injury or death:

- Before jacking up the tractor, park it on a firm and level ground and chock the rear wheels.
- Fix the front axle to keep it from swinging.
- Select jacks that withstand the machine weight & set them up as shown below.



1. Jack Point

## ■ Rear Wheels

Rear track width can be adjusted.

### IMPORTANT:

- While re-fitting or adjusting a wheel, tighten the bolts to the following torques then recheck after driving the tractor 200 m (200 yards) and 10 times of shuttle movement by 5 m (5 yards).

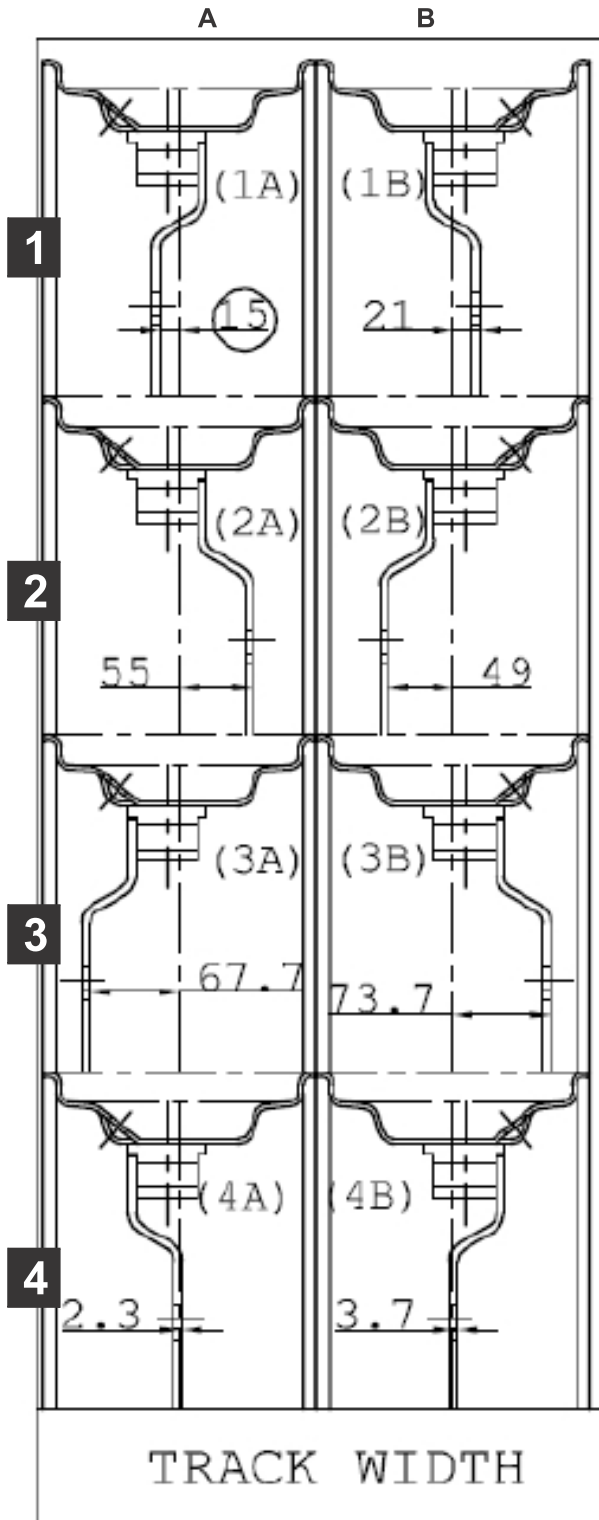


(1) 245 to 270 N-m

# TYRES, WHEELS AND BALLAST

## Track Width options for Agricultural Rear tyres

Rear Tyre Size 8.00- 18

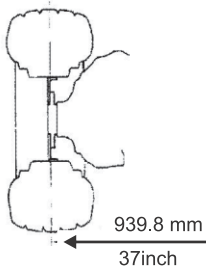
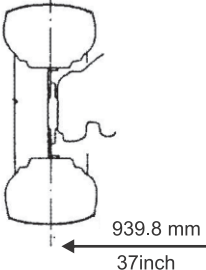


| Tyre Size | 8x18        |      |
|-----------|-------------|------|
|           | TRACK WIDTH |      |
| CONDITION | MM          | IN   |
| 1A        | 825.0       | 32.4 |
| 1B        | 897.0       | 35.3 |
| 2A        | 965.0       | 38.0 |
| 2B        | 757.0       | 29.8 |
| 3A        | 719.6       | 28.3 |
| 3B        | 1002.4      | 39.5 |
| 4A        | 850.4       | 33.5 |
| 4B        | 862.4       | 34.0 |



**NOTE :** Front track width can not be adjusted

# TYRES, WHEELS AND BALLAST

## Front Track Width (Turf & Ind.)

|                      |  |  |
|----------------------|--|--|
| 23x8.50 - 12<br>Turf |  |  <p>939.8 mm<br/>37inch</p> |
| 23x8.50 - 12<br>Ind. |  |  <p>939.8 mm<br/>37inch</p> |

## Rear Track Width (Turf & Ind.)

|                           |  |
|---------------------------|--|
| 33 x<br>15.5-16.5<br>Turf |  <p>1092.2 mm<br/>(43 inch)</p> |
| 33 x<br>15.5-16.5<br>Ind. |  <p>1092.2 mm<br/>(43 inch)</p> |

### NOTE:

With turf and industrial tyre, track width adjustment is not recommended.

### BALLAST

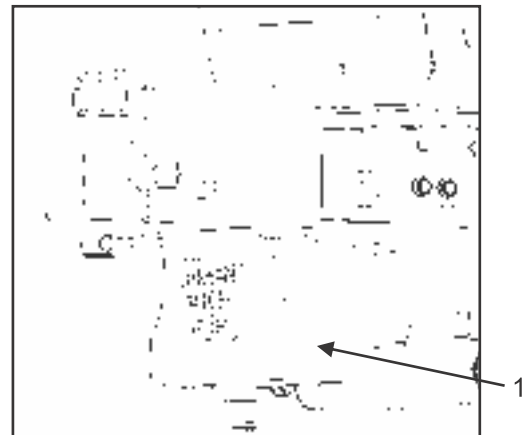
#### ◆ Front Ballast (Optional)

Two number of front end weights can be attached to the bumper for stability and improving traction. Heavy pulling and heavy rear mounted implements tend to lift front wheels.

### NOTE:

[For installation of up to 2 weights]

- Besides the weight, mounting bolt kits are required for mounting the weight.



1. Front End Weight

### IMPORTANT:

- Do not overload tyres.
- Add no more weight than indicated in below chart. Maximum

|                |                          |
|----------------|--------------------------|
| Maximum weight | 15 kg x 2 pieces (30 kg) |
|----------------|--------------------------|

# MAINTENANCE

## SERVICE INTERVALS

| S.No | Items                                    |         | Indication on Hour Meter |     |     |     |      | Service Interval   |
|------|--|---------|--------------------------|-----|-----|-----|------|--|
|      |  |         | 50                       | 300 | 550 | 800 | 1050 |  |
| 1    | Engine oil                               | Replace | x                        | x   | x   | x   | x    | Every 250 hrs. of operation or every 3 months which ever is earlier                      |
| 2    | Engine oil filter                        | Replace | x                        | x   | x   | x   | x    | Every 250 hrs. of operation or every 3 months which ever is earlier                      |
| 3    | Transmission fluid                       | Replace |                          |     |     | x   |      | First service at 800 hrs, subsequent every 1000 hrs                                      |
| 4    | Torque of Front axle trunnion bolt       | Check   | x                        | x   | x   | x   | x    | Torque 140 - 160 Nm.   |
| 5    | Front axle case oil                      | replace |                          |     |     | x   |      | First at 300 hours and then at 500 hours.  |
| 6    | Front axle pivot                         | adjust  | x                        | x   | x   | x   | x    | At Each Service  |
| 7    | Greasing                                 |         | x                        | x   | x   | x   | x    | 1) In normal condition every 50 hr<br>2) In muddy or in Puddling condition daily         |
| 8    | Wheel bolt torque                        | check   | x                        | x   | x   | x   | x    | On every service   |
| 9    | Battery Condition                        | check   | x                        | x   | x   | x   | x    | On every service   |
| 10   | Air cleaner element                      | clean   | x                        |     |     |     |      | 1) In normal condition every 100 hour,<br>2) In Dusty condition -on daily basis cleaning |
|      |  | replace |                          |     |     |     |      | Every 550 hrs. of operation or every 12 months which ever is earlier                     |
| 11   | Fuel filter (cartridge type)             | replace | x                        | x   | x   | x   | x    | Every 250 hrs. of operation or every 3 months which ever is earlier                      |
| 12   | Fan belt                                 | Adjust  | x                        | x   | x   | x   | x    | On every service   |
| 13   | Brake                                    | Adjust  | x                        | x   | x   | x   | x    | On every service   |
| 14   | Radiator hose and clamp                  | check   | x                        | x   | x   | x   | x    | On every service   |
|      |  | replace |                          |     |     |     |      | Every 4 years or as advised by mechanic based on condition                               |
| 15   | Toe -in                                  | Adjust  | x                        | x   | x   | x   | x    | On every service   |
| 16   | Engine valve clearance                   | Adjust  |                          |     | x   |     | x    | Every 500 hr or six months which ever is earlier   |
| 17   | Fuel injection nozzle injection pressure | Check   |                          |     | x   |     | x    | Every 500 hr or six months which ever is earlier   |
| 18   | Cooling system                           | Flush   |                          |     |     |     |      | Every 2 years  |
| 19   | Coolant                                  | replace |                          |     |     |     |      | First at 800 hours and then at 750 hours.  |
| 20   | Fuse                                     | Replace |                          |     |     |     |      | Check on every service, replace as & when required                                       |
| 21   | Light bulb                               | Replace |                          |     |     |     |      |  |

# MAINTENANCE

|    |                     |         |   |   |   |   |   |  |
|----|---------------------|---------|---|---|---|---|---|--|
| 22 | Hydraulic strainer  | check   | x | x | x | x | x | Cleaning every 100 hrs, and at every service |
|    |                     | replace |   |   |   | x |   | First at 300 hours and then at 500 hours.    |
| 23 | Fuel Tank           | Clean   |   |   | x |   | x | Every 500 service hour                       |
| 24 | Starter motor       | Check   |   |   |   |   | x | Every 1000 service hour                      |
| 25 | Alternator          | Check   |   |   |   |   | x | Every 1000 service hour                      |
| 26 | Checking glow plugs | Check   |   |   |   |   | x | Every 1000 service hour                      |
| 27 | Clutch              | adjust  | x | x | x | x | x | On every service                             |
| 28 | Injection pump      | Check   |   |   |   |   |   | Every 2 year                                 |
| 29 | Engine start system | Check   | x | x | x | x | x | On every service                             |

## IMPORTANT:

- 1 Air cleaner should be cleaned more often in severe dusty conditions as recommended in above chart. Replace only if necessary.
- 2 Consult your local FARMTRAC Dealer / Distributor for this service.
- 3 For heavy usage / Frequent pedal application, adjust clutch and brake pedal free play at every 100 hr.

## LUBRICATION AND MAINTENANCE OIL CHART

| S.No. | Description                            | Type/Grade                 | Quantity (litre) |
|-------|--|----------------------------|------------------|
| 1     | Engine Oil                             | API CF / CH-4<br>SAE 15W40 | 3.6              |
| 2     | Gear Box oil                           | UTTO                       | 17               |
| 3     | Rear Axle Oil and<br>Power Steering    |                            |                  |
| 5     | Front Axle Oil<br>Differential Housing | SAE 80 W / SAE<br>80W90    | 3.2              |

**NOTE :** Top up in oil is permissible for limited oil quantity i.e. rear axle- 2-3 liter & front axle - 0.5 liter. For large quantity oil change (more than the above specified limit), change completely with same grade of oil mentioned above.



# PERIODIC SERVICE

## HOW TO OPEN THE HOOD

### ⚠️ WARNING

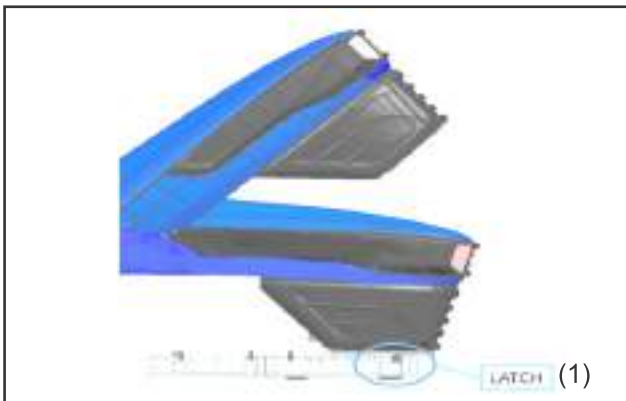
To avoid personal injury or death from contact with moving parts;

- Never open the hood or engine side cover while the engine is running.
- Do not touch muffler or exhaust pipes while they are hot; Severe burns could result.

### ◆ Hood

### ◆ Open the hood

1. Slightly pull up the hood to unlock it with pulling the release lever.



1. Latch

2. Open the hood by holding its bottom with both hands.

### ◆ Close the hood

1. Hold the hood with both hands and push it down.



2. In closing the hood, use both hands again.

## DAILY CHECK

### ⚠️ WARNING

To avoid personal injury or death:

Take the following precautions when checking the tractor.

- Park the machine on firm and level ground.
- Set the parking brake.
- Lower the implement to the ground.
- All residual pressure of the hydraulic system released.
- Stop the engine and remove the key.

### ■ Walk Around Inspection

Look around and under the tractor for such items as loose bolts, trash build-up, oil or coolant leaks, broken or worn parts.

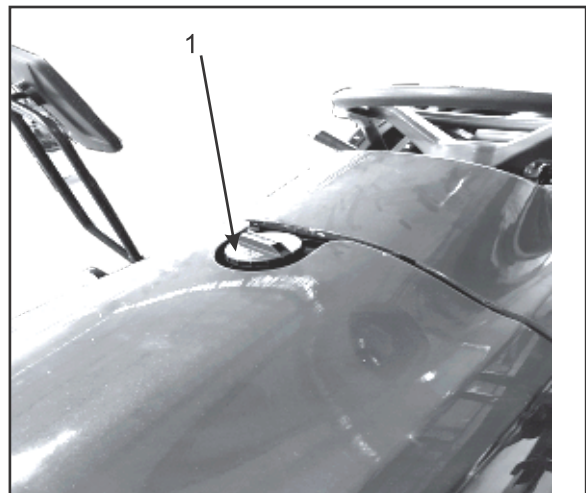
### ■ Checking and Refueling

### ⚠️ WARNING

To avoid personal injury or death:

- Do not smoke while refueling.
- Be sure to stop the engine before refueling.

1. Turn the key switch to "ON", check the amount of fuel by fuel gauge.
2. Fill fuel tank when fuel gauge shows 1/4 or less fuel in tank.



1. Fuel Tank Cap

### IMPORTANT:

- Do not permit dirt or trash to get into the fuel system.
- Be careful not to let the fuel tank become empty, otherwise air will enter the fuel system, necessitating bleeding before next engine start. Be careful not to spill during refueling. If you should spill, wipe it off at once, or it may cause a fire.
- To prevent condensation (water) accumulation in the fuel tank, fill the tank before parking overnight.

# PERIODIC SERVICE

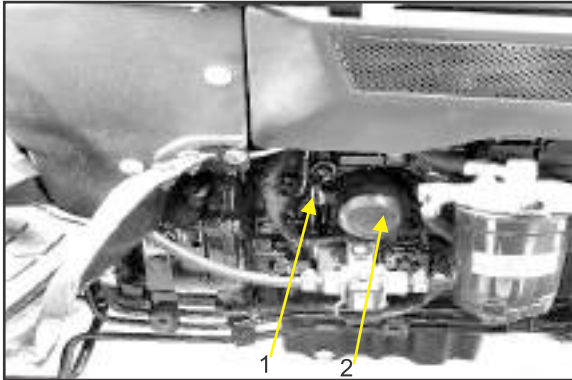
## ■ Checking Engine Oil Level

### ⚠ WARNING

To avoid personal injury or death:

- Be sure to stop the engine before checking the oil level.

1. Park the machine on a flat surface.
2. Check engine oil before starting the engine or 5 minutes or more after the engine has stopped.
3. To check the oil level, draw out the dipstick, wipe it clean, replace it, and draw it out again. Check to see that the oil level lies within the crosshatched area. If the level is too low, add new oil to the prescribed level at the oil inlet. (See "LUBRICANTS" in "MAINTENANCE" section.)



1. Engine Oil Dipstick 2. Engine Oil Filter

### IMPORTANT:

- When using a fresh oil, remove all of the old oil. Never mix two different types of oil and use proper grade oil as recommended.
- If oil level is low, do not run engine.

## ■ Checking Transmission Fluid Level

1. Park the machine on a flat surface, lower the implement and shut off engine. Ensure optimum tyre pressure.
2. To check the oil level, draw out the dipstick, wipe it clean, replace it, and draw it out again. Check to see that the oil level lies within the cross hatched area. If the level is too low, add new oil to the prescribed level at the oil inlet. (See "LUBRICANTS" in "MAINTENANCE" section.)



1. Transmission Oil Dipstick



1. Transmission Oil Dipstick Cum Oil Filling Port

### IMPORTANT:

- If oil level is low, do not run engine.

## ■ Checking Coolant Level

### ⚠ WARNING

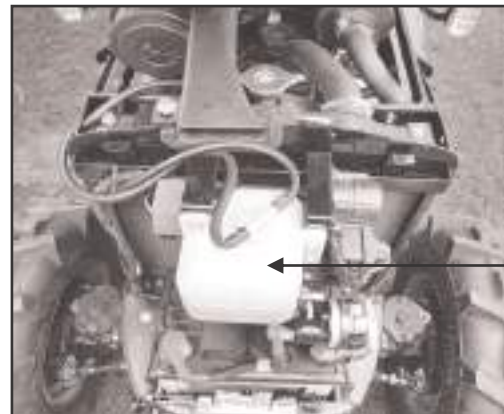
To avoid personal injury or death:

- Do not remove radiator cap while coolant is hot. When cool, slowly rotate cap to the first stop and allow sufficient time for excess pressure to escape before removing the cap completely.

1. Check to see that the coolant level is between the "FULL" and "LOW" marks of recovery tank.
2. When the coolant level drops due to evaporation, add soft water only up to the full level. In case of leakage, add anti-freeze and soft water in the specified mixing ratio between minimum & maximum level.

### IMPORTANT:

- If the radiator cap has to be removed, follow the caution above and securely re-tighten the cap.
- Use clean, fresh soft water and anti-freeze to fill the recovery tank.
- If water should leak, consult your local FARMTRAC Dealer / Distributor.



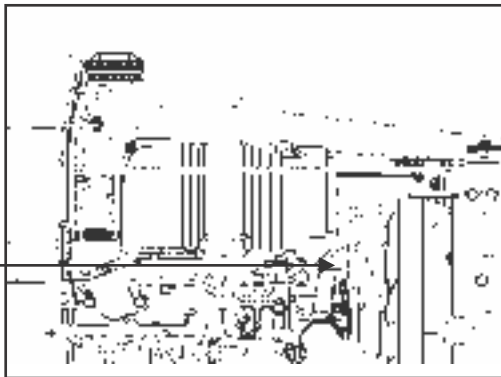
1. Recovery Bottle



# PERIODIC SERVICE

## ■ Cleaning Evacuator Valve

Open the evacuator valve and clean to get rid of large particles of dust and dirt.



1. Evacuator Valve

## Cleaning Grill and Radiator Screen

### ⚠ WARNING

To avoid personal injury or death:

- Be sure to stop the engine and remove the key before removing the trash guard.
1. Check front grill and side screens to be sure they are clean of debris.
  2. Detach the screen and remove all foreign material and clean the front of radiator completely.



1. Trash Guard

### IMPORTANT:

- Grill and Trash Guard must be clean from debris to prevent engine from overheating and to allow good air intake for the air cleaner.

## ■ Checking Brake Pedal

1. inspect the brake pedals for free travel, and smooth operation.
2. Adjust if incorrect measurement is found: (See "Adjusting Brake Pedal" in "on EVERY SERVICE" in "PERIODIC SERVICE" section.)

## ■ Checking Gauges, Meter and Instrument Cluster

1. Inspect the instrument panel for broken gauges, meters and Easy Checker (TM).

2. Replace if broken.

## Checking Head Light, Hazard Light etc.

1. Inspect the lights for broken bulbs and lenses.
2. Replace if broken.

## ■ Checking Seat Belt and ROPS

1. Always check condition of seat belt and ROPS attaching hardware before operating tractor.
2. Replace if damaged.

## ■ Checking and Cleaning of Electrical Wiring and Battery Cables

### ⚠ WARNING

To avoid personal injury or death:

- A loosened terminal or connector, or damaged wire may affect the performance of electrical components or cause short circuits. Leakage in electrical system could result in a fire hazard, a dead battery or damage to electrical components.
- Replace damaged wires or connections promptly.
- If a fuse blows soon after replacement, DO NOT USE A LARGER THAN RECOMMENDED FUSE OR BYPASS THE FUSE SYSTEM.
- Many wiring connections are protected by waterproof plugs, plug and unplug these connections carefully and make sure they are sealed correctly after assembly.
- Accumulation of dust, chaff or spilled fuel deposits around the battery, electrical wiring, engine or exhaust system are a fire hazard. CLEAN THESE AREAS BEFORE STARTING WORK.

To avoid premature electrical malfunctions DO NOT APPLY high pressure water directly to battery, wiring, connectors, electrical components or instrument panel.

### Inspect the following Regularly:

1. Check wiring for chafed or cracked insulation.
2. Check wiring harness clamps. Replace if necessary.
3. Check connectors and terminals for looseness, contamination or overheated (discolored) connections.
4. Check instrument panel for correct operation of switches and gauges. Consult your FARMTRAC Dealer/Distributor regarding maintenance, diagnosis and repair.

## ■ Checking Movable Parts

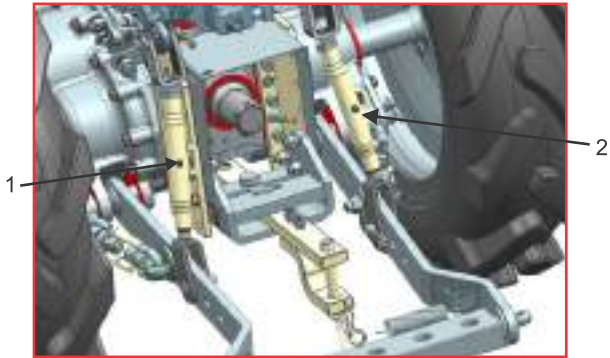
If any of the movable parts, such as levers and pedals, is not smoothly moved because of rust or sticky material, do not attempt to force it into motion.

In the above case, remove the rust or the sticky material, and apply oil or grease on the relevant spot, other wise the machine may get damaged.,

# PERIODIC SERVICE

## EVERY 50 HOURS

- Lubricating Grease Fittings  
Apply a small amount of multipurpose grease to the following points every 50 hours:  
If you operated the machine in extremely wet and muddy conditions, lubricate grease fittings more often.



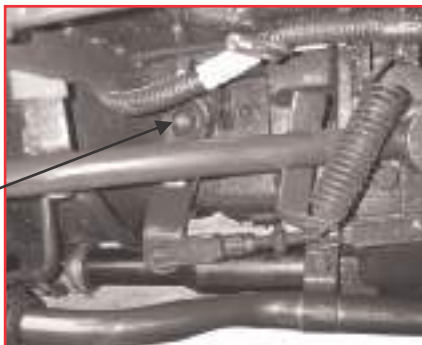
1,2 Grease Point (Lifting Rod)



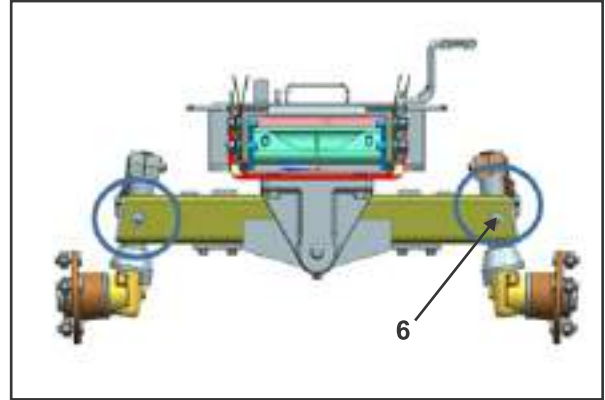
3. Grease Point (Top Link Mounting Bracket)



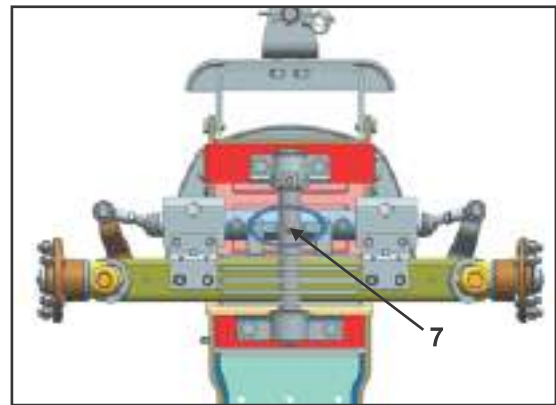
4. Grease Point (Top Link)



5. Grease Point (Clutch Linkage)



6. Grease Point (2WD Front Axle)



7. Grease Point (Bottom View Front Axle)



8. Grease Point (4WD Front Axle)



9. PC Sector on Hydraulic Housing

# PERIODIC SERVICE

## Checking Engine Start System

### ◆ Preparation before testing operator presence switch.

1. Sit on operator's seat.
2. Set the parking brake and stop the engine.
3. Shift the main gear shift lever to "NEUTRAL" position.
4. Shift the range gear shift lever to "NEUTRAL" position.
5. Shift the PTO selector lever to "NEUTRAL" position.
6. Press the clutch pedal and insert the key to start the engine.
7. Stand up. (Do not get off the machine.)
8. The engine must shut off after approximately 7-8 second.
9. If it does not stop, consult your local FARMTRAC Dealer / Distributor for this service.

## ON EVERY SERVICE

### Checking Wheel Bolt Torque



1. 110 to 130 N-m. 2. 245 to 270 N-m.

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

## DANGER

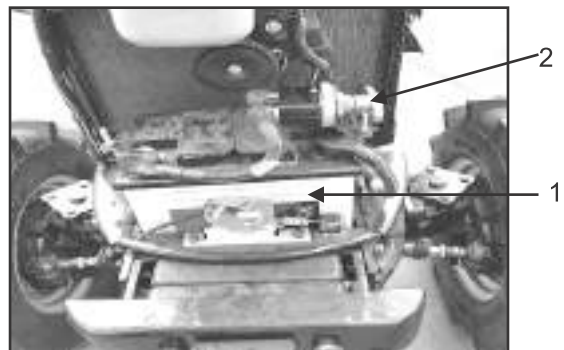
To avoid the possibility of battery explosion;  
For the refillable type battery, follow instructions below.

- Do not use or charge the refillable type battery if the fluid level is below the LOWER (lower limit level) mark. Otherwise, the battery component parts may prematurely deteriorate, which may shorten the battery's service life or cause an explosion. Check the fluid level regularly and add distilled water as required so that the fluid level is between the UPPER and LOWER levels.

## ⚠ WARNING

To avoid personal injury or death:

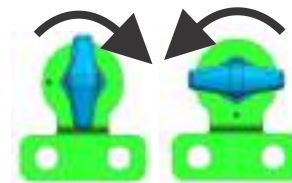
- Never remove the battery cap while the engine is running.
- Keep electrolyte away from eyes, hands and clothes. If you are spattered with it, wash it away completely with water immediately and get medical attention.
- Keep open sparks and flames away from the battery at all times. Hydrogen gas mixed with oxygen becomes very explosive.
- Wear eye protection and rubber gloves when working around battery. Mishandling the battery shortens the service life and adds to maintenance costs.
- The original battery is maintenance free, but needs some servicing.
- If the battery is weak, the engine will be difficult to start and the lights will be dim.
- It is important to check the battery periodically.



1. Battery 2. Battery Isolator Switch

ROTATE CLOCKWISE  
TO TURN ON

ROTATE COUNTER  
CLOCKWISE TO  
TURN OFF



OFF POSITION ON POSITION

Battery Isolator has been used to achieve control of DC.

**NOTE :** It is recommended to cut the battery connection from other electrical equipment while leaving the tractor. This will enhance the battery life.

### ◆ Battery Charging

## ⚠ WARNING

To avoid personal injury or death:

- When the battery is being activated, hydrogen and oxygen gases in the battery are extremely explosive. Keep open sparks and flames away from the battery at all times, especially when charging the battery.



# PERIODIC SERVICE

- When charging the battery, ensure the vent caps are securely in place, (if equipped)
  - When disconnecting the cable from the battery, start with the negative terminal first. When connecting the cable to the battery, start with the positive terminal first.
  - Never check battery charge by placing a metal object across the posts.  
Use a voltmeter or hydrometer.
1. To slow charge the battery, connect the battery positive terminal to the charger positive terminal and the negative to the negative, then recharge in the standard way.
  2. A boost charge is only for emergencies. It will partially charge the battery at a high rate and in a short time. When using a boost-charged battery, it is necessary to recharge the battery as early as possible. Failure to do this will shorten the battery's service life.
  3. The battery is charged if the indicator display turns green from black.
  4. When exchanging an old battery for a new one, use battery of equal specification shown in table 1.

| Volts (V) | Capacity at 5 hr (Ah) | Cold Cranking Amps (A) |
|-----------|-----------------------|------------------------|
| 12        | 65                    | 540                    |

## ◆ Direction for Storage

1. When storing the tractor for a long period, remove the battery from tractor, adjust the electrolyte to the proper level and store in a dry place out of direct sunlight.
2. The battery self-discharges while it is stored. Recharge it once every 3 months in hot seasons and once every 6 months in cold seasons.

## Adjusting Brake Pedal

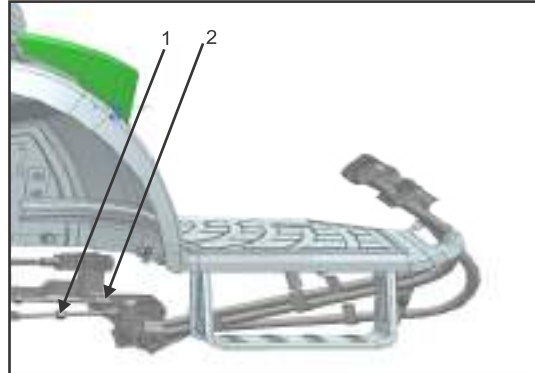
### ⚠ WARNING

To avoid personal injury or death:

- Stop the engine and chock the wheels before checking brake pedal.

|                                |  |
|--------------------------------|--|
| Proper brake pedal free travel | 25 mm on the pedal   |
|                                | Keep the free travel in the right and left brake pedals equal. |

1. Release the parking brake.
2. Slightly depress the brake pedals and measure free travel at the top of pedal stroke.
3. If adjustment is needed, loosen the lock nut and turn the turnbuckle to adjust the rod length within acceptable limits.
4. Re-tighten the lock nut.



1. Lock Nut 2. Turn Buckle

## Adjusting Clutch Pedal Free Play

To adjust the pedal free travel:

1. Remove the split pin, loosen the locknut and then remove the clevis pin.
2. Turn the clevis to increase or decrease the effective over all length of the release rod after loosening the lock nut thus increasing the effective length will give greater free travel and reducing the length will give less free travel.

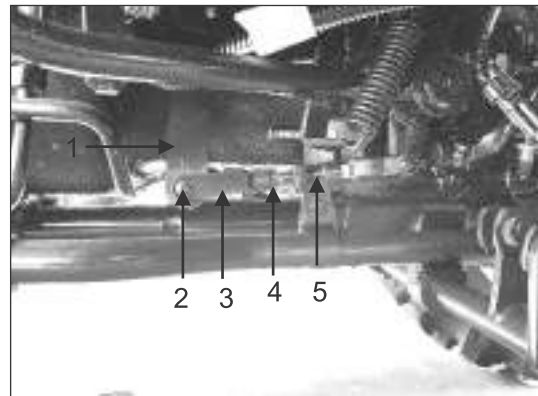


Figure 2B

## Clutch Pedal Adjustment

1. Cross Shaft Lever
2. Clevis Pin
3. Clevis
4. Lock Nut
5. Release Rod

## Checking Radiator Hose and Clamp

### ⚠ WARNING

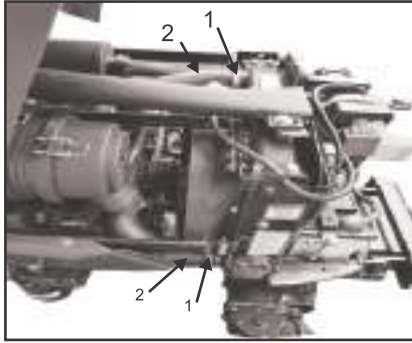
To avoid personal injury or death:

- Be sure to stop the engine and remove the key before checking radiator hose and clamp.
- Allow engine and coolant to cool down sufficiently before checking.

Check to see if radiator hoses are properly fixed on every service.

1. If hose clamps are loose or water leaks, tighten bands securely.
2. Replace hoses and tighten hose clamps securely, if radiator hoses are swollen, hardened or cracked. Replace hoses and hose clamps on every service if checked and found that hoses are swollen, hardened or cracked.

# PERIODIC SERVICE



1. Radiator Clamp 2. Radiator Hose

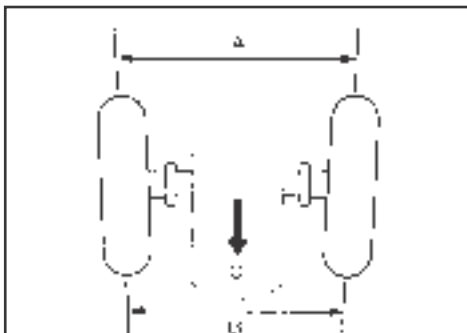
## Precaution at Overheating

Take the following actions in the event the coolant temperature is nearly or more than the boiling point, which is called "Overheating"

1. Park the tractor in a safe place and keep the engine at idle speed.
2. Don't stop the engine suddenly, but stop it after about 5 minutes of unloaded idling.
3. Keep yourself well away from the machine for further 10 minutes or while the steam blows out.
4. Check that there are no dangers such as burns. Get rid of the causes of overheating according to the manual, see "TROUBLESHOOTING" section, and then, start the engine again.

## Adjusting Toe-in

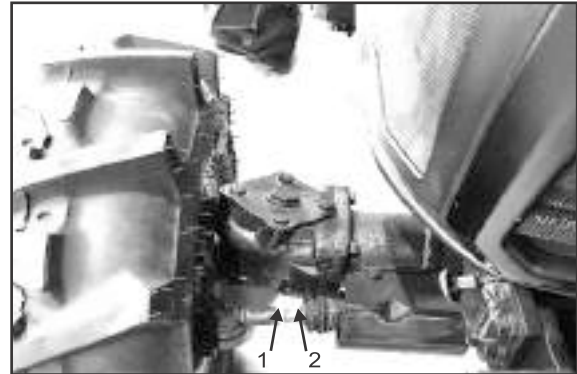
1. Park tractor on a flat place.
2. Turn steering wheel so front wheels are in the straight ahead position.
3. Lower the implement, lock the park brake and stop the engine.
4. Measure distance between tire beads at front of tire, hub height.
5. Measure distance between tire beads at rear of tire, hub height.
6. Front distance should be 4 to 12 mm (0.15 to 0.47 in.) less than rear distance. If not, adjust tie rod length.



A. Wheel to Wheel at Rear B. Wheel to Wheel at Front  
C. FRONT

## ◆ Adjusting procedures

1. Loosen the tie-rod nut.
2. Turn the tie-rod joint to adjust the rod length until the proper toe-in measurement is obtained.
3. Retighten the tie-rod nut.



1. Tie-rod Nut 2. Tie-rod Joint

## Adjusting Fan Belt Tension

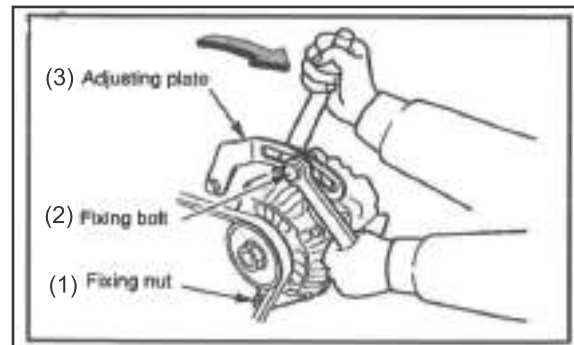
### ⚠ WARNING

To avoid personal injury or death:

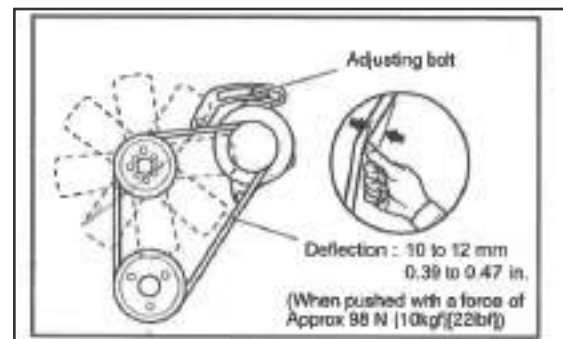
- Be sure to stop the engine before checking belt tension.

|                         |  |
|-------------------------|--|
| Proper fan belt tension | A deflection of between 10 to 12 mm (0.39 to 0.47 in.) when the belt is pressed in the middle of the span. |
|-------------------------|--|

1. Stop the engine and remove the key.
2. Apply moderate thumb pressure to belt between pulleys.
3. If tension is incorrect, loosen the alternator mounting bolts and, using a lever placed between the alternator and the engine block, pull the alternator out until the deflection of the belt falls within acceptable limits.
4. Replace fan belt if it is damaged.



Fan Belt Adjustment



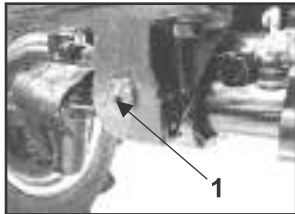
# PERIODIC SERVICE

## Adjusting Front Axle Pivot [4WD]

### ⚠ WARNING

To avoid personal injury or death:

- Park the tractor on a flat place.
- Lower the implement, lock the parking brake and stop the engine.



1. Front Axle Pivot



Adjusting the Front Axle Pivot

### PROCEDURE :

1. Loosen the lock nut (A). Tighten adjusting screw (B) So that the oscillating load is 100-150N (10-15 kgf).
2. Tighten lock nut (A) to 40-50 Nm.
3. Check & adjust at every service.

## EVERY 100 HOUR

### Cleaning Air Cleaner Primary Element

#### ⚠ WARNING

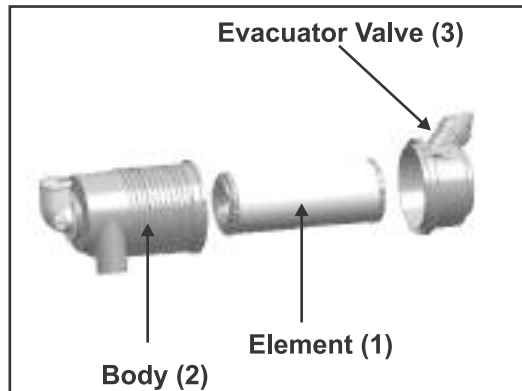
To avoid personal injury or death:

- Be sure to stop the engine and remove the key before cleaning air filter element.

1. Remove the air cleaner cover and primary element.
2. Clean the primary element:  
(1) When dry dust adheres to the element, blow compressed air from the inside, turning the element. Pressure of compressed air must be under 205 kPa (2.1 kgf/cm<sup>2</sup>, 30 psi).
3. Replace air cleaner primary element:  
Once yearly or after every sixth cleaning, whichever comes first.

### NOTE:

- Check to see if the evacuator valve is blocked with dust.



### IMPORTANT:

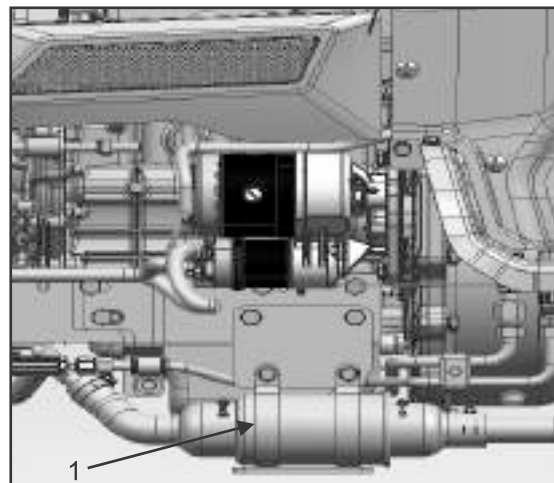
- The air cleaner uses a dry element, never apply oil.
- Do not run the engine with filter element removed. • Be sure to refit the cover with the arrow ^ (on the rear of cover) upright. If the cover is improperly fitted, evacuator valve will not function and dust will adhere to the element.
- Do not touch the secondary element except in cases where replacing is required. (See "Replacing Air Cleaner Secondary Element" in "EVERY 1 YEAR" in "PERIODIC SERVICE" section.)

### ◆ Evacuator Valve

Open the evacuator valve once a week under ordinary conditions - or daily when used in a dusty place - to get rid of large particles of dust and dirt.

## Checking Hydraulic Stainer

1. Check to see that all lines and hose clamps are tight and not damaged.
2. If hoses and clamps are found worn or damaged, replace or repair them at once.



1. Hydraulic Stainer

## EVERY 250 HOURS

### Replacing Engine Oil Filter

#### ⚠ WARNING

To avoid personal injury or death:

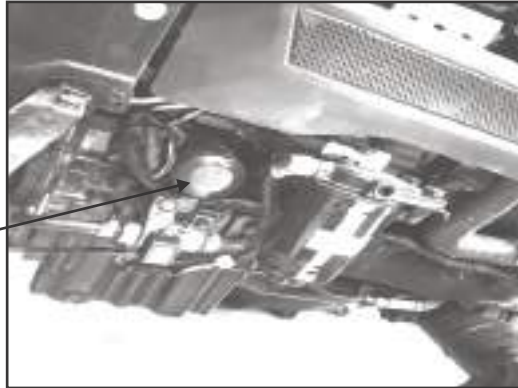
- Be sure to stop the engine before changing the oil filter cartridge.
- Allow engine to cool down sufficiently, oil can be hot and can burn.

1. Remove the oil filter.
2. Put a film of clean engine oil on the rubber seal of the new filter.



# PERIODIC SERVICE

3. Tighten the filter quickly until it contacts the mounting surface.  
Tighten filter by hand an additional 1/2 turn only.
4. After the new filter has been replaced, the engine oil normally decreases a little. Make sure that the engine oil does not leak through the seal and be sure to check the oil level on the dipstick. Then, refill the engine oil up to the prescribed level.



1. Engine Oil Filter

**IMPORTANT:**

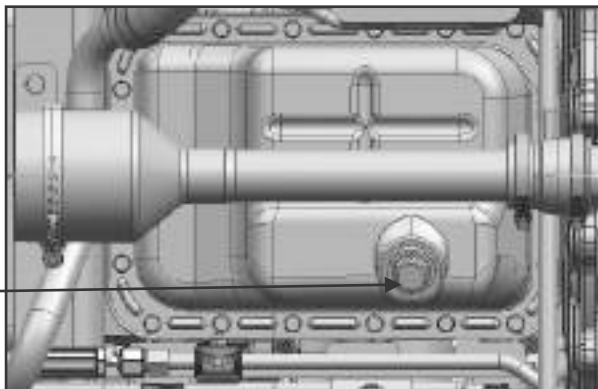
- To prevent serious damage to the engine, use only a FARMTRAC genuine filter.

**Changing Engine oil**

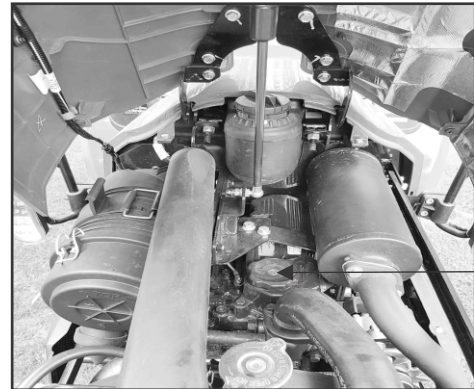
**⚠ WARNING**

To avoid personal injury or death:

- Be sure to stop the engine before changing the oil.
  - Allow engine to cool down sufficiently, oil can be hot and can burn.
1. To drain the used oil, remove the drain plug at the bottom of the engine and drain the oil completely into the oil pan.  
All the used oil can be drained out easily when the engine is still warm.
  2. After draining reinstall the drain plug.
  3. Fill with the new oil up to the upper line on the dipstick (See "LUBRICANTS" in "MAINTENANCE" section.)



1. Engine Oil Drain Plug



1. Engine Oil Filler Plug

**Cleaning Fuel Filter**

**⚠ WARNING**

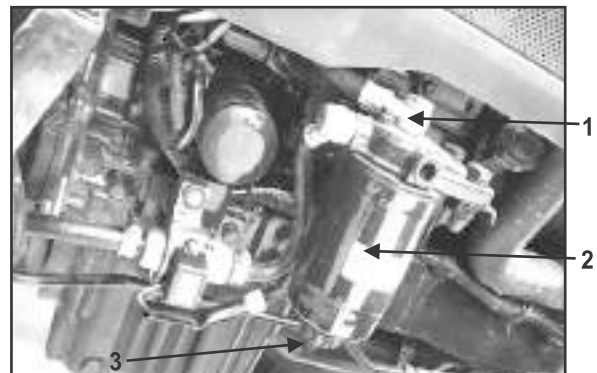
To avoid personal injury or death:

- Stop the engine and remove the key before checking fuel lines and fuel filter.
- Check the fuel lines periodically. The fuel lines are subject to wear and aging. Fuel may leak out onto the running engine, causing a fire.
- Protect your hands when using kerosene to clean components.  
This job should not be done in the field, but in a clean place.

1. Loosen and remove the filter bowl, and rinse the inside with kerosene.
2. Take out the element and dip it in the kerosene to rinse.
3. After cleaning, reassemble the fuel filter, keeping out dust and dirt.
4. Bleed the fuel system.  
(See "SERVICE AS REQUIRED" in "PERIODIC SERVICE" section.)

**IMPORTANT:**

- When the fuel filter bowl has been removed, fuel stops flowing from the fuel tank. If the fuel tank is almost full, however, the fuel will flow back from the fuel return pipe to the fuel filter. Before checking, make sure the fuel tank is less than half-full.



1. Bleeding Screw 2. Fuel Filter 3. Drain Plug

# PERIODIC SERVICE

## IMPORTANT:

- If dust, dirt or water enters the fuel system, the fuel pump and injection nozzles are subject to premature wear. To prevent this, be sure to clean the fuel filter bowl and element periodically.

## EVERY 500 HOURS

- Adjusting Engine Valve Clearance. Consult your local FARMTRAC Dealer/Distributor for this service.
- Checking Fuel Injection Nozzle Injection Pressure Consult your local FARMTRAC Dealer / Distributor for this service.
- Clean fuel tank .

## AT FIRST 800 HOURS (SUBSEQUENT EVERY 1000 HRS.)

### Changing Transmission Fluid

#### ⚠ WARNING

To avoid personal injury or death;

- Allow engine to cool down sufficiently, oil can be hot and can burn.  
Park the tractor at plain and clean surface.
1. To drain the used oil, remove the drain plug at the bottom of the transmission case and drain the oil completely into the oil pan.
  2. After draining reinstall the drain plug.
  3. Fill with new FARMTRAC UTTO fluid up to the upper limit on the dipstick.  
(See "LUBRICANTS" in "MAINTENANCE" section and "DAILY CHECK" in "PERIODIC SERVICE" section)
  4. After running the engine for a few minutes, stop it and check the oil level again; add oil to prescribed level.
  5. Properly dispose of used oil.



1. Transmission Dipstick

## IMPORTANT:

- Do not operate the tractor immediately after changing the transmission fluid.

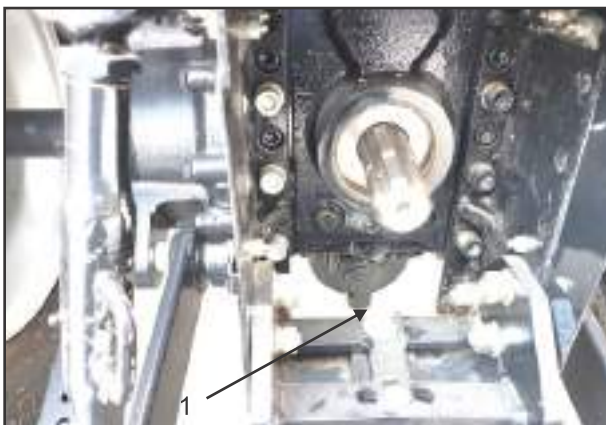
### Changing Front Axle Case Oil

1. Park the tractor on a firm, flat and level surface.
2. To drain the used oil, remove the right and left drain plugs and filling plug at the front axle case and drain the oil completely into the oil pan.
3. After draining, reinstall the drain plugs.
4. Fill with new oil up to the upper notch on the dipstick.  
(See "LUBRICANTS" in "MAINTENANCE" section)

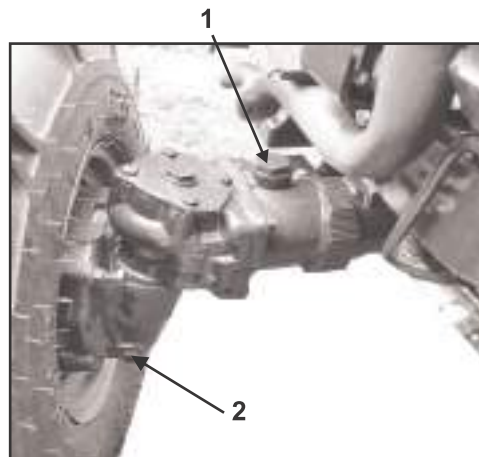
## IMPORTANT:

After 10 minutes, check the oil level again and add oil to prescribed level.

5. After filling, reinstall the filling plug.
6. Properly dispose off used oil.



1. Transmission Drain Plug



1. Filler Plug 2. Drain Plug



# PERIODIC SERVICE

## EVERY 1000 HOURS

- Check Starter Motor.
- Check Alternator.
- Check Glow Plug.

## EVERY 1 YEAR

- Replacing Air Cleaner Primary Element as recommended in the service chart

### IMPORTANT:

- To prevent serious damage to the engine, use only a FARMTRAC genuine filter.

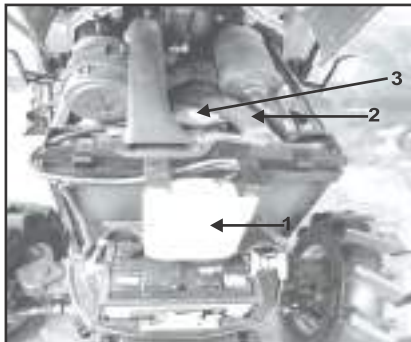
## EVERY 2 YEARS

- Flushing Cooling System and Changing Coolant
- Checking Injection Pump. Consult your local FARMTRAC Dealer / Distributor for this service.

### ⚠ WARNING

To avoid personal injury or death:

- Do not remove radiator cap while coolant is hot. When cool, slowly rotate cap to the first stop and allow sufficient time for excess pressure to escape before removing the cap completely.
1. Stop the engine, remove the key and let it cool down.
  2. To drain the coolant, disconnect the radiator hose (engine side), and remove the radiator cap. The radiator cap must be removed to completely drain the coolant.
  3. After all coolant is drained, reconnect the radiator hose.
  4. Fill with clean soft water and cooling system cleaner.
  5. Follow directions of the cleaner instruction.
  6. After flushing, fill with clean soft water and anti freeze until the coolant level is just below the radiator cap. Install the radiator cap securely.
  7. Fill with coolant up to the "maximum" mark of recovery tank.
  8. Start and operate the engine for few minutes.
  9. Stop the engine, remove the key and let cool.
  10. Check coolant level of recovery tank and add coolant if necessary.
  11. Properly dispose of used coolant.



1 Recovery Bottle 2. Radiator Hose  
3. Radiator Cap

### IMPORTANT:

- Do not start engine without coolant.
- Use clean, fresh soft water and anti-freeze to fill the radiator and recovery tank.
- When mixing the anti-freeze with water, the anti-freeze mixing ratio is 50%.
- Securely tighten radiator cap. If the cap is loose or improperly fitted, water may leak out and the engine could overheat.

### Anti-Freeze

### ⚠ WARNING

To avoid personal injury or death:

- When using antifreeze, put on some protection such as rubber gloves (Antifreeze contains poison.)-
- If it is swallowed, seek immediate medical help. Do NOT make a person throw up unless told to do so by poison control or a health care professional. Use standard first aid and CPR for signs of shock or cardiac arrest. Call your local Poison Control Center or your local emergency number for further assistance.
- When antifreeze comes in contact with the skin or clothing, wash it off immediately. • Do not mix different types of Antifreeze. The mixture can produce chemical reaction causing harmful substances.
- Antifreeze is extremely flammable and explosive under certain conditions. Keep fire and children away from antifreeze.
- When draining fluids from the engine, place some container underneath the engine body.
- Do not pour waste onto the grounds, down a drain, or into any water source.
- Also, observe the relevant environmental protection regulations when disposing of antifreeze.

Always use a 50/50 mix of long-life coolant and clean soft water in FARMTRAC engines. Consult your local FARMTRAC Dealer / Distributor concerning coolant for extreme conditions.

1. Long-life coolant (hereafter LLC) comes in several types. Use ethylene glycol (EG) type for this engine.
2. Before employing LLC-mixed cooling water, fill the radiator with fresh water and empty it again. Repeat this procedure 2 or 3 times to clean up the inside.
3. Mixing the LLC Premix 50% LLC with 50% clean soft water. When mixing, stir it up well, and then fill into the radiator.
4. The procedure for the mixing of water and antifreeze differs according to the make of the antifreeze and the ambient temperature. Refer to SAE J1034 standard, more specifically also to SAE J814c.

| Vol. %<br>Anti-freeze | Freezing Point |       | Boiling Point |       |
|-----------------------|----------------|-------|---------------|-------|
|                       | °C             | °F    | °C            | °F    |
| 50                    | -34            | -29.2 | 107           | 224.6 |

# PERIODIC SERVICE

At 1.013 x 10<sup>5</sup> Pa (760mmHg) pressure (atmospheric). A higher boiling point is obtained by using a radiator pressure cap which permits the development of pressure within the cooling system.

## 5. Adding the LLC

- (1) Add only water if the mixture reduces in amount by evaporation.
- (2) If there is a mixture leak, add the LLC of the same manufacturer and type in the same mixture percentage.  
Never add any long-life coolant of different manufacturer. (Different brands may have different additive components, and the engine may fail to perform as specified.)
6. When the LLC is mixed, do not employ any radiator cleaning agent. The LLC contains anticorrosive agent. If mixed with the cleaning agent, sludge may build up, adversely affecting the engine parts.
7. FARMTRAC genuine long-life coolant has a service life of 2 years. Be sure to change the coolant every 2 years.

### NOTE:

The above data represent industry standards that necessitate a minimum glycol content in the concentrated antifreeze.

### Replacing Radiator Hose (Water pipes)

Replace the hoses and clamps.  
(See "Checking Radiator Hose and Clamp " on "EVERY SERVICE" in "PERIODIC SERVICE" section.)

### Replacing Fuel Hose

Consult your local FARMTRAC Dealer / Distributor for this service.

### Replacing Intake Air Line

Consult your local FARMTRAC Dealer / Distributor for this service.

## SERVICE AS REQUIRED

### Bleeding Fuel System

Air must be removed:

1. When the fuel filter or lines are removed.
2. When the tank is completely empty.
3. After the tractor has not been used for a long period of time.

### Bleeding procedure is as follows:

1. Fill the fuel tank with fuel.
2. Start the engine and run for about 30 seconds, and then stop the engine.

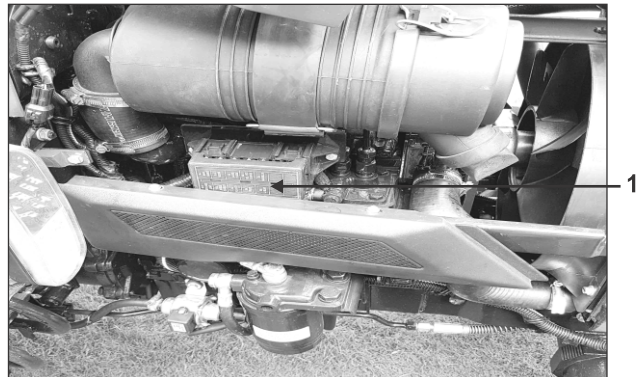
### Replacing Fuse

The tractor electrical system is protected from potential damage by fuses.

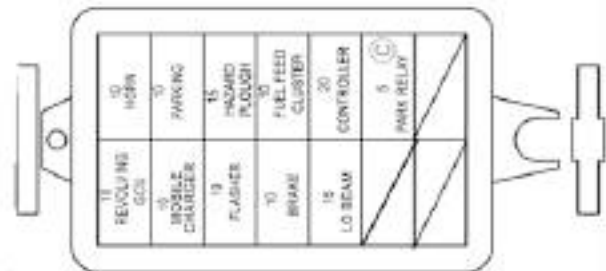
A blown fuse indicates that there is an overload or short somewhere in the electrical system.  
If any of the fuses should blow, replace with a new one of the same capacity.

### IMPORTANT:

- Before replacing a blown fuse, determine why the fuse blew and make any necessary repairs. Failure to follow this procedure may result in serious damage to the tractor electrical system. Refer to the "TROUBLESHOOTING" section of this manual or your local FARMTRAC Dealer / Distributor for specific information dealing with electrical problems.



1 . Fuse Box



### Replacing Light Bulb

1. **Head lights.**  
Take the bulb out of the light body and replace with a new one.
2. **Other lights**  
Detach the lens and replace the bulb.

| Light             | Capacity  |
|-------------------|-----------|
| Head Light        | 55W       |
| Tail / Turn Light | 4.5W/4.5W |
| Hazard Light      | 4.5W/4.5W |
| Plough Light      | 55W       |
| Beacon Light      | 55W       |

# STORAGE

## ⚠ WARNING

To avoid personal injury or death:

- Do not clean the machine while the engine is running.
- To avoid the danger of exhaust fume poisoning, do not operate the engine in a closed building without proper ventilation.
- When storing, remove the key from the key switch to avoid unauthorized persons from operating the tractor and getting injured.

## TRACTOR STORAGE

If you intend to store your tractor for an extended period of time, follow the procedures outlined below. These procedures will insure that the tractor is ready to operate with minimum preparation when it is removed from storage.

1. Check the bolts and nuts for looseness, and tighten if necessary.
2. Apply grease to tractor areas where bare metal will rust also to pivot areas.
3. Detach the weights from the tractor body.
4. Inflate the tyres to a pressure a little higher than usual.
5. Change the engine oil and run the engine to circulate oil throughout the engine block and internal moving parts for about 5 minutes.
6. With all implements lowered to the ground, coat any exposed hydraulic cylinder piston rods with grease.
7. Remove the battery from the tractor. Store the battery following the battery storage procedures. (See "Battery" in "EVERY 100 HOURS" in "PERIODIC SERVICE" section.)
8. Keep the tractor in a dry place where the tractor is sheltered from the elements. Cover the tractor.
9. Store the tractor indoors in a dry area that is protected from sunlight and excessive heat. If the tractor must be stored outdoors, cover it with a waterproof tarpaulin. Jack the tractor up and place blocks under the front and rear axles so that all 4 tyres are off the ground. Keep the tyres out of direct sunlight and extreme heat.

## IMPORTANT:

- When washing the tractor, be sure to stop the engine. Allow sufficient time for the engine to cool before washing.
- Cover the tractor after the muffler and the engine have cooled down.

## REMOVING THE TRACTOR FROM STORAGE

1. Check the tire air pressure and inflate the tyres if they are low.
2. Jack the tractor up and remove the support blocks from under the front and rear axles.
3. Install the battery. Before installing the battery, be sure it is fully charged.
4. Check the fan belt tension.

5. Check all fluid levels (engine oil, transmission / hydraulic oil, engine coolant and any attached implements).
6. Start the engine. Observe all gauges. If all gauges are functioning properly and reading normal, move the tractor outside. Once outside, park the tractor and let the engine idle for at least 5 minutes. Shut the engine off and walk around tractor and make a visual inspection looking for evidence of oil or water leaks.
7. With the engine fully warmed up, release the parking brake and test the brakes for proper adjustment as you move forward. Adjust the brakes as necessary.

## ENGINE STORAGE

The following describes how to store the engine in a not operable condition for three months or more and in an operable condition for three months or more. If the engine has been left unattended for three months or more, the internal engine parts can rust that may cause damage to the engine. When storing the engine for an extended period of time, be sure to follow the directions below.

### Storing engine in non operable condition for 3 months or more. Preparation for storage

1. Drain engine oil, and pour in rust-preventive oil (NP-10-2) into the engine.
2. Prepare a fuel mixture containing 50% rust-preventive oil (NP-9), and fill the fuel tank with it.
3. Operate the engine at a speed to 800 to 1000 per min (idling) for 5 to 10 minutes under no load.
4. Immediately before stopping the engine, spray volatile corrosion inhibitor (V.C.I.) through the inlet port to prevent rust on the air intake system.
5. With the engine stopped, drain the fuel mixture from the fuel tank.
6. Apply rust-preventive oil (NP-3) liberally on the exposed sections of the machining.
7. Seal air inlet, exhaust outlet, breather and other openings with an adhesive cloth tope.
8. Loosen V-belt.
9. Wrap adhesive cloth tape on the terminals of the starters and alternator, and seal the openings. Cover these sections with polyethylene sheet or processed polyethylene covers.
10. Disconnect cables from the battery terminals, and charge the battery. Clean the terminals, apply a thin coat of grease to the terminals. and store the battery in a cool and dry room.
11. Cover the entire engine.
12. Completely press the clutch pedal and put the stopper to avoid clutch plate sticking.

## NOTE:

- (a) Store the engine in a well-ventilated indoor area.
- (b) No need to drain coolant since it contains LLC. (Add LLC to increase the concentration between 30 and 60%).

# STORAGE

- (c) Post a sign at an easily noticeable place to warn that the rust-preventive oil in the engine must be replaced with engine oil, and the fuel tank must be filled with fuel before operating the engine.
- (d) A new engine oil can substitute for rust-preventive oil (NP-10-2).

## Recommended rust-preventive oil and corrosion inhibitor.

**Table 9-1 Recommended rust preventive Oil and corrosion inhibitor**

| JIS No. |          | Recommended Product   | Application                                    |
|---------|----------|---|--|
| K2246   | NP -3    | Nippon Oil Corporation<br>Anti Rust P-1400                    | Prevention of rust on exposed machine surfaces |
|         | NP -9    | Nippon Oil Corporation<br>Anti Rust P-2400                    | Prevention of rust on fuel system              |
|         | NP -10-2 | Nippon Oil Corporation<br>Anti Rust P-230                     | Prevention of rust on lubricating system       |
| Z1519   | -        | Ryokou Kagaku<br>V.C.I. Diana<br>Volatile corrosion inhibitor | Prevention of rust on air intake system        |

### Maintenance during storage

Charge the battery once a month. First, check the battery electrolyte for correct level and then charge the battery.

### Using engine after storage

1. Remove the cover from the engine.
2. Connect a fully charged battery.
3. Remove the cover from the starter and alternator.
4. Adjust the tension of V-belt.
5. Remove sealing tapes from the openings of engine.
6. Drain rust-preventive oil, and pour in appropriate engine.
7. Fill the fuel tank with fuel, and bleed the fuel system.
8. Inspect the entire engine.
9. Remove the rocker covers, and lubricate the valve mechanisms.
10. Shut off the fuel supply and crank the engine for about 10 seconds, and repeat this cranking 3 times at intervals of about 1 minute.

### CAUTION

To crank the engine, shut off the fuel supply to the engine and operate the starters.

11. Make sure the engine oil pressure rises.
12. Start the engine
13. Conduct a warm-up operation for sufficient duration.
14. Apply load and increase the engine speed to the rated speed.

### Storing engine in operable condition for 3 months or more.

When the engine is not operated during storage of three months or more, internal engine parts can rust and lose oil film. As a result, the engine can seize when it is started after storage. To prevent such a risk, the engine must be operated periodically during storage.

### Operating engine for maintenance purpose

Operate the engine for maintenance purpose at least once a month as described below.

1. With fuel shut off (press the engine stop button in order to shut off fuel injection), operate the starters twice at intervals of about 15 seconds and check to see if the engine oil pressure increases.
2. After the engine starts, operate under no load for 5 to 10 minutes.

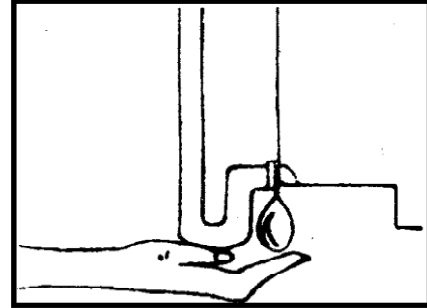


# TIPS ON FUEL SAVING

## 1. Know your Tractor

Your manual will tell you everything you need to know about the maintenance and operation of your tractor.

Research shows that a badly maintained tractor wastes upto 25% of precious diesel.



## 2. Stop diesel leaks

Check your tractor daily. A leak of one drop per second can cost you 600 litres per year.

## 3. Turn your engine off, when you stop

An idling tractor wastes more than 1 litre of diesel every hour.

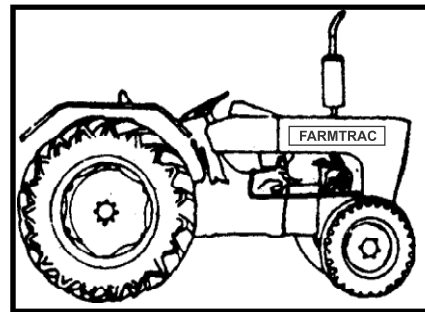
### Remember :

- When in doubt, check with your dealer.

### Remember :

Inspect joints in

- Fuel tank,
- Fuel injectors,
- Fuel pump,
- Fuel lines.



### Remember :

- Keep your battery, dynamo and self-starter in top running condition. If they are faulty they can force you to idle.

## 4. Drive in the correct gear always

If your tractor struggles to pull a load with the throttle at maximum. You should go into lower gear. If it accelerates, slip into a higher gear.

Wrong gear selection can increase fuel consumption by 30% and reduce field output by 50%.

## 5. Does your tractor smoke, too

A tractor that smokes excessively wastes precious diesel. Oversize implements or using the wrong gear, cause tractor smoke. If your tractor continues to smoke, have it attended from your dealer. Test nozzles and if required recalibrate the fuel injection pump.

Faulty fuel injection can increase fuel consumption by 25%.

### Remember :

- Smokes from a tractor indicates overloading, gear down.

### Remember :

- Don't use oversize implements.
- Service the engine regularly.

## 6. Dirt—your engine's worst enemy

Good air filtration is important since tractors often operate in dusty conditions. Research proves that unfiltered air wears out cylinder bores 45 time faster and piston rings 115 times faster than normal.

Good fuel filtration is important, too. Dirty fuel endanger the engine too. Use quality fuel filters and replace them as recommended.

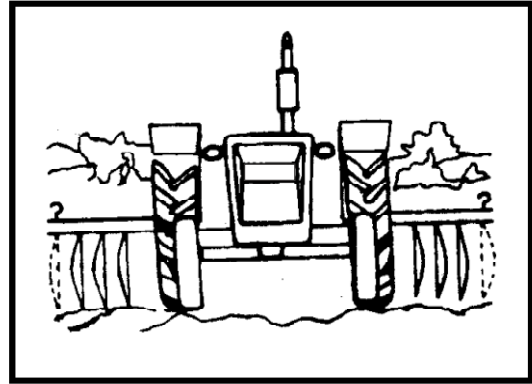
### 7. Worn out tyres reduce pulling power

Relug your tyres on time. While refitting tyres, make sure the 'V' treads point downwards when viewed from the front.

**Remember :**

- Different tyre pressure are recommended for road and field work. Check your manual or ask your dealer.

You may consume upto 30% more fuel if you use undersized implements or operate at low speeds.



### 8. Match hauling capacity with load

Choose implement size and tractor operating speed to match your engine's full horsepower. Run in the highest gear possible at which your tractor doesn't smoke. If your tractor on full throttle accelerates even in the top gear. Your implement is too small. A bigger implement or a multiple arrangement of implements may help you get the maximum benefit of tractors, power and cut diesel waste.

**Remember :**

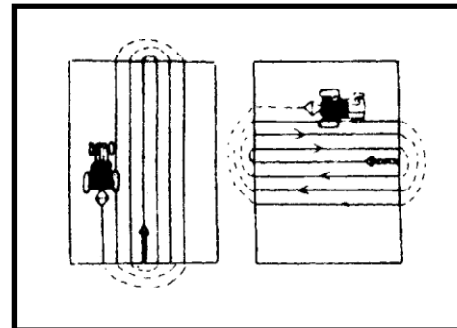
Consult an expert when selecting implements.

### 9. Plan your field run

Plough according to a planned layout that reduces idle running, backtracking and awkward turns. You will save diesel if you plough long furrows instead of short ones.

**Remember :**

- Your first openings must be straight and parallel.
- Side lands and headlands should be ploughed around the field continuously without reploughing the field.



### Using a pump-set

Operate your tractor at the throttle setting which gives you the recommended speed for either a PTO or a belt drive.

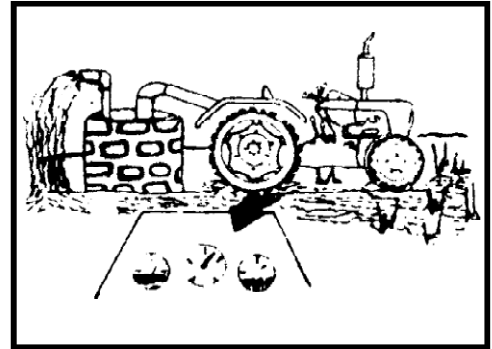
Your tractor has a built-in tachometer, the correct engine speed will be marked on the dial.

Ask your dealer or an expert to make the throttle setting according to the size of your pump.



### Remember :

- You will save money if you operate the engine at its best speed for the pump.



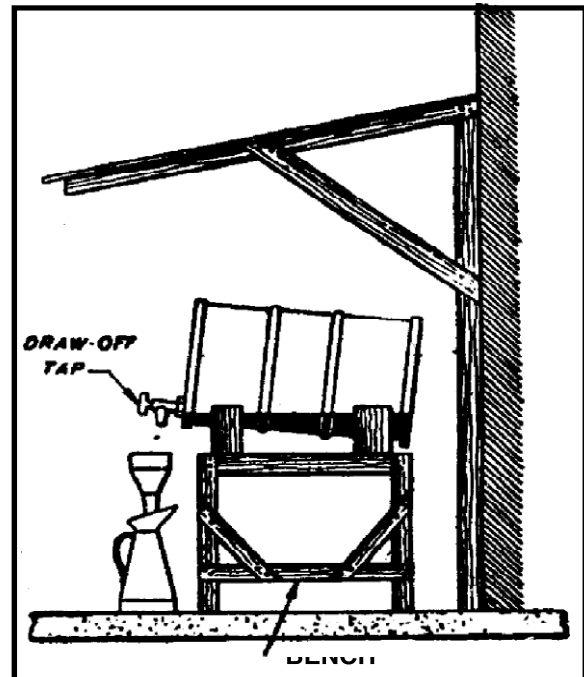
### DIESEL STORAGE AND HANDLING

The Funnel for pouring the diesel should have a close mesh gauze. Cans and funnel should be kept clean and dry and covered up when not in use.

The barrels should be kept well sheltered and the contents given ample time to settle before any diesel is withdrawn.

A tap should be screwed into the hole on one end of the barrel, which should be placed tilted away from the tap. It will be necessary to loosen the second plug for drawing the diesel and to tighten it afterwards.

The barrel should not completely drained, but refilled while there is still 5-10 litres diesel in it.



## How to troubleshoot

### Starters do not crank or crank slowly, resulting in start failure

Table 11-1 Starters Do Not Crank or Crank Slowly, Resulting in Start Failure

|                    | Cause  | Remedy                                  |
|--------------------|--|---|
| Electrical system  | Blown fuse   | Change fuse                             |
|                    | Faulty wire connection between battery and starter switch                                    | Connect wire correctly                  |
|                    | Faulty wire connection between battery, starters and starter switch                          | Connect wire correctly                  |
|                    | Insufficiently charged battery   | Inspect and adjust V-belt tension.      |
|                    | Specific gravity of battery fluid too low  | Charge battery                          |
|                    | Faulty battery   | Install new battery                     |
|                    | Faulty starter or starter relay  | Consult a FARMTRAC Dealer / Distributor |
| Lubricating system | Oil viscosity too high   | Use appropriate engine oil,             |
| Fuel system        | Air in fuel system   | Bleed fuel system                       |
|                    | Low fuel level   | Add fuel                                |
|                    | Clogged fuel filter  | Change fuel filter                      |
|                    | Faulty fuel feed pump  | Consult a FARMTRAC Dealer / Distributor |
|                    | Faulty fuel injection pump   | Consult a FARMTRAC Dealer / Distributor |
| Engine mechanical  | Faulty moving parts (interference between valves and pistons, or foreign items in cylinders) | Consult a FARMTRAC Dealer / Distributor |

### Starters crank, but engine does not start

Table 11-2 Starters Crank, But Engine Does Not Start

|                   | Cause   | Remedy  |
|-------------------|---|---|
| Fuel system       | Empty fuel tank   | Add fuel, and bleed fuel system               |
|                   | Damaged fuel pipe   | Consult a FARMTRAC Dealer / Distributor       |
|                   | Loose fuel pipe connection  | Tighten connection, Consult a FARMTRAC dealer |
|                   | Improper fuel   | Use proper fuel, Refer to :FUEL* (4-1).       |
|                   | Dust or water mixed in fuel   | Remove dust or water from fuel tank           |
|                   | Clogged fuel filter   | Change fuel filter                            |
|                   | Faulty fuel feed pump   | Consult a FARMTRAC Dealer / Distributor       |
|                   | Faulty fuel injection pump  | Consult a FARMTRAC Dealer / Distributor       |
| Air intake system | Clogged air cleaner   | Clean pre-cleaner,                            |
| Engine mechanical | Compression pressure low (damaged cylinder liner, piston or piston ring, or faulty valve seat or nozzle packing seal) | Consult a FARMTRAC Dealer / Distributor       |

## Other problems and countermeasures

### Engine output is low

Table 11-3 Engine Output is Low

| Cause  | Remedy  |
|--|---|
| Engine oil viscosity too high  | Use engine oil of appropriate viscosity according to ambient temperature. |
| Improper fuel, checking, replacing   | Use proper fuel.  |
| Insufficient air intake (clogged air cleaner)                                    | Clean air cleaner element, or replace if necessary.                       |
| Engine overcooling   | Cover the radiator or Consult a FARMTRAC dealer                           |
| Clogged fuel filter  | Change fuel filter.   |
| Insufficient cooling (overheating)   | Consult a FARMTRAC Dealer / Distributor                                   |
| Incorrect valve clearance  | Consult a FARMTRAC Dealer / Distributor                                   |
| Faulty fuel feed pump  | Consult a FARMTRAC Dealer / Distributor                                   |
| Faulty fuel injection pump   | Consult a FARMTRAC Dealer / Distributor                                   |
| Faulty fuel injection nozzles  | Consult a FARMTRAC Dealer / Distributor                                   |
| Faulty controller, faulty crankshaft angle pick up, faulty camshaft angle sensor | Consult a FARMTRAC Dealer / Distributor                                   |
| Low compression pressure (worn cylinder liners, worn piston rings, etc)          | Consult a FARMTRAC Dealer / Distributor                                   |

### Exhaust smoke is white or blue

Table 11-4 Exhaust Smoke is White or Blue

| Cause  | Remedy  |
|--|---|
| Excessive amount of engine oil   | Maintain correct oil level.   |
| Engine oil viscosity too high  | Use engine oil of appropriate viscosity according to ambient temperature. |
| Overcooling  | Cover the radiator or Consult a FARMTRAC Dealer / Distributor             |
| Faulty thermostat (water temperature does not rise)                              | Consult a FARMTRAC Dealer / Distributor                                   |
| Faulty fuel injection nozzles (uneven injection among cylinders)                 | Consult a FARMTRAC Dealer / Distributor                                   |
| Faulty controller, faulty crankshaft angle pick up, faulty camshaft angle sensor | Consult a FARMTRAC Dealer / Distributor                                   |
| Low compression pressure (worn piston liners, worn piston rings, etc)            | Consult a FARMTRAC Dealer / Distributor                                   |
| Improper fuel (low cetane number)  | Use proper fuel.  |

## Exhaust smoke is black or dark gray

Table 11-5 Exhaust Smoke is Black or Dark Gray

| Cause   | Remedy  |
|---|---|
| Improper fuel   | Use proper fuel.                                    |
| Incorrect valve clearance   | Consult a FARMTRAC Dealer / Distributor             |
| Faulty fuel feed pump   | Consult a FARMTRAC Dealer / Distributor             |
| Low compression pressure<br>(worn piston liners, worn piston rings, etc.)           | Consult a FARMTRAC Dealer / Distributor             |
| Insufficient intake air<br>(improper ventilation, clogged air cleaner)              | Clean air cleaner element, or replace if necessary. |
| Faulty controller, faulty crankshaft angle pick up,<br>faulty camshaft angle sensor | Consult a FARMTRAC Dealer / Distributor             |
| Faulty fuel injection nozzles   | Consult a FARMTRAC Dealer / Distributor             |
| Faulty fuel injection pump  | Consult a FARMTRAC Dealer / Distributor             |

## Fuel consumption is high

Table 11-6 Fuel Consumption is High

| Cause   | Remedy  |
|---|---|
| Faulty fuel feed pump   | Consult a FARMTRAC Dealer / Distributor             |
| Faulty fuel injection pump  | Consult a FARMTRAC Dealer / Distributor             |
| Faulty controller, faulty crankshaft angle pick up,<br>faulty camshaft angle sensor | Consult a FARMTRAC Dealer / Distributor             |
| Improper fuel   | Use proper fuel.                                    |
| Low compression pressure<br>(worn piston liners, worn piston rings, etc.)           | Consult a FARMTRAC Dealer / Distributor             |
| Insufficient intake air<br>(improper ventilation, clogged air cleaner)              | Clean air cleaner element, or replace if necessary. |

## Engine oil consumption is high

Table 11-7 Engine Oil Consumption is high

| Cause                                   | Remedy  |
|---|---|
| Excessive amount of engine oil          | Maintain correct oil level.<br>2).  |
| Engine oil viscosity too low            | Use engine oil of appropriate viscosity according to ambient temperature. |
| Engine oil leakage                      | Consult a FARMTRAC Dealer / Distributor                                   |
| Worn cylinder liners, worn piston rings | Consult a FARMTRAC Dealer / Distributor                                   |
| Worn valve stem seals                   | Consult a FARMTRAC Dealer / Distributor                                   |



## Engine overheats

Table 11-8 Engine Overheats

| Cause                            | Remedy                                  |
|----------------------------------|---|
| Radiator, heat exchanger leakage | Consult a FARMTRAC Dealer / Distributor |
| Low coolant level                | Add coolant.                            |
| Faulty water pump                | Consult a FARMTRAC Dealer / Distributor |
| Faulty thermostat                | Consult a FARMTRAC Dealer / Distributor |

## Engine oil pressure is faulty

Table 11-9 Engine Oil Pressure is Faulty

| Cause                             | Remedy  |
|-----------------------------------|---|
| Insufficient amount of engine oil | Maintain correct oil level.   |
| Engine oil viscosity too low      | Use engine oil of appropriate viscosity according to ambient temperature. |
| Clogged oil filter                | Replace oil filter.   |
| Faulty oil pump                   | Consult a FARMTRAC Dealer / Distributor                                   |
| Faulty relief valve               | Consult a FARMTRAC Dealer / Distributor                                   |
| Faulty oil pressure sensor        | Consult a FARMTRAC Dealer / Distributor                                   |

Note: If the problem cannot be corrected easily or when a problem other than those listed above occurs, consult a Mitsubishi dealer. When ordering replacement parts, provide the engine serial number. When requesting repair, provide the engine serial number and service hour meter reading.

## When fuel has run out

When fuel runs out during engine operation and the engine has stopped, restart engine as described below.

1. Return the starter switch to the OFF position.
2. Add fuel to the fuel tank.
3. Bleed the fuel system.
4. Restart the engine.

**TROUBLESHOOTING - CLUTCH, GEARBOX, REAR AXLE AND FRONT AXLE**

| AGGREGATE                                 | PROBLEM                                       | CAUSE  | ACTION   |
|---|---|--|--|
| CLUTCH                                    | CHATTERING / NOISE / VIBRATION                | Abnormal sound during clutch release                                 | Contact FARMTRAC Dealership  |
|   |   | Clutch disc rivet worn or broken                                     | Contact FARMTRAC Dealership  |
|   |   | Clutch Cover and Disc assembly internal parts broken                 | Contact FARMTRAC Dealership  |
|   |   | Pilot Bearing wornout  | Contact FARMTRAC Dealership  |
|   |   | Clutch disc wornout  | Contact FARMTRAC Dealership  |
|   |   | Release Bearing wornout  | Contact FARMTRAC Dealership  |
|   | CLUTCH DRAGS                                  | Excessive Clutch pedal freeplay                                      | Adjust the pedal freeplay (Refer Instructions)                                   |
|   |   | Fulcrum ring of the pressure plate worn or broken                    | Contact FARMTRAC Dealership  |
|   | CLUTH SLIPPING                                | Clutch pedal free travel too Less                                    | Adjust the pedal freeplay (Refer Instructions)                                   |
|   |   | Clutch disc excessively worn   | Contact FARMTRAC Dealership  |
|   |   | Grease or oil on clutch disc facing                                  | Contact FARMTRAC Dealership  |
|   |   | Diaphragm spring loose tension                                       | Contact FARMTRAC Dealership  |
|   |   | Fulcrum ring of the pressure plate worn or broken                    | Contact FARMTRAC Dealership  |
|   | CLUTCH NOT ENGAGING / DISENGAGING             | Clutch Linkages not adjusted   | Contact FARMTRAC Dealership  |
| LEAKAGE FROM CLUTCH HOUSING DRAIN PLUG    | Seal Input shaft Damaged                      | Contact FARMTRAC Dealership  |  |
| TRANSMISSION                              | TRACTOR STATIONARY AFTER ENGAGING GEARS       | Input Shaft Circlip jump out   | Contact FARMTRAC Dealership  |
|   | MAIN SPEED GEARS SELECTION NOT SMOOTH         | Air vent hole plugged in shifting boot /sand, durt at bush locations | Clear the vent hole in Shift Lever boot /Clean the parts from any sand or dust & |
|   | SPEED GEAR LEVER DOESN'T SHIFT                | Spring Tension Excess  | Contact FARMTRAC Dealership  |
|   | TRACTOR STALLS / NOT MOVE AFTER ENGAGING GEAR | Interlock wornout / damaged  | Contact FARMTRAC Dealership  |
|   |   | Circlip jump out from Input shaft                                    | Contact FARMTRAC Dealership  |
|   | ABNORMAL NOISE                                | Oil level below Dipstick level                                       | Fill Oil - Refer Instructions  |
|   |   | Gear / Bearing worn or broken  | Contact FARMTRAC Dealership  |
|   | GEAR JUMP OUT                                 | Detent spring damaged  | Contact FARMTRAC Dealership  |
|   |   | Shifter Sleeve splines damaged/wornout                               | Contact FARMTRAC Dealership  |
|   |   | Fork Lugs bent   | Contact FARMTRAC Dealership  |
|   | LEAKAGE / SEEPAGE FROM WELCH PLUG             | Clearance in Plug/Hole or inclined assembly                          | Contact FARMTRAC Dealership  |
| LEAKAGE / SEEPAGE FROM COVER 4WD SHAFT    | Seal Damaged                                  | Contact FARMTRAC Dealership  |  |
| LEAKAGE / SEEPAGE FROM 4WD SHIFTING LEVER | Seal Damaged                                  | Contact FARMTRAC Dealership  |  |



**TROUBLESHOOTING - CLUTCH, GEARBOX, REAR AXLE AND FRONT AXLE**

| AGGREGATE                            | PROBLEM                                      | CAUSE  | ACTION                                     |
|--------------------------------------|--|--|--|
| REAR AXLE                            | ABNORMAL NOISE                               | Improper backlash between Crown Wheel Gear & Pinion Shaft    | Contact FARMTRAC Dealership                |
|                                      |  | Excess float in Differential Assembly                        | Contact FARMTRAC Dealership                |
|                                      |  | Differential Assembly Bearing wornout                        | Contact FARMTRAC Dealership                |
|                                      | NOISE WHILE TURNING                          | Differential washers wornout                                 | Contact FARMTRAC Dealership                |
|                                      |  | Improper backlash between Differential Pinoin and Side Gear  | Contact FARMTRAC Dealership                |
|                                      |  | Differential pinions gear or Side gears worn or damaged      | Contact FARMTRAC Dealership                |
|                                      |  | Bull Gear / Pinion Shaft Teeth damage                        | Contact FARMTRAC Dealership                |
|                                      | DIFFERENTIAL LOCK NOT ENGAGING / DISENGAGING | Differential lock fork bent / damaged                        | Contact FARMTRAC Dealership                |
|                                      |  | Differential lock sleeve splines damaged                     | Contact FARMTRAC Dealership                |
|                                      | DIFFERENTIAL LOCK PEDAL DOESN'T RETURN       | Differential lock fork guiding pin profile damaged / wornout | Contact FARMTRAC Dealership                |
|                                      |  | Rust in Differential Lock Linkage                            | Remove Rust or Contact FARMTRAC Dealership |
|                                      | LEAKAGE FROM REAR AXLE                       | Seal Damaged   | Contact FARMTRAC Dealership                |
|                                      | LEAKAGE FROM PTO SEAL                        | Seal Damaged   | Contact FARMTRAC Dealership                |
|                                      | LEAKAGE / SEEPAGE FROM WELCH PLUG            | Improper sitting of welch plug in bore                       | Contact FARMTRAC Dealership                |
| LEAKAGE FROM PTO SHIFTING LEVER      | Seal O Ring Damaged                          | Contact FARMTRAC Dealership                                  |  |
| BRAKE                                | ABNORMAL NOISE DURING BRAKING                | Insufficient Oil   | Fill Oil (Refer Instructions)              |
|                                      |  | Incorrect Oil Grade  | Contact FARMTRAC Dealership                |
|                                      |  | Water Ingress in Oil   | Contact FARMTRAC Dealership                |
|                                      | UNEVEN BRAKING FORCE                         | Uneven Brake Pedal Freeplay                                  | Adjust - REFER INSTRUCTIONS                |
|                                      |  | Brake disc wornout   | Contact FARMTRAC Dealership                |
|                                      | HIGH BRAKING FORCE REQUIRED TO STOP          | High Freeplay in brake pedal                                 | Adjust - REFER INSTRUCTIONS                |
|                                      |  | Brake disc worn-out  | Contact FARMTRAC Dealership                |
|                                      |  | Actuator Assembly Worn-out                                   | Contact FARMTRAC Dealership                |
|                                      | BRAKE DRAGS                                  | Less Pedal Freeplay  | Adjust - REFER INSTRUCTIONS                |
|                                      |  | Actuator Ball Cam profile wornout                            | Contact FARMTRAC Dealership                |
|                                      |  | Brake pedal return spring weaken or broken                   | Contact FARMTRAC Dealership                |
| 4WD LEVER MOVE FREELY WHILE SHIFTING | Shifter ball struck                          | Contact FARMTRAC Dealership                                  |  |
| EXCESS NOISE IN HIGH GEARS           | Not Recommended to operate in High Gears     | Don't operate H1/2/3 in 4WD Mode                             |  |

**TROUBLESHOOTING - CLUTCH, GEARBOX, REAR AXLE AND FRONT AXLE**

| <b>AGGREGATE</b>           | <b>PROBLEM</b>                                     | <b>CAUSE</b>  | <b>ACTION</b>                    |
|----------------------------|--|---|----------------------------------|
| <b>4WD<br/>FRONT AXLE</b>  | DIFFERENTIAL NOT WORKING                           | - Differential Gear Broken  | Contact FARMTRAC Dealership      |
|                            | LEAKAGE FROM KNUCKLE HOUSING & KNUCKLE COVER       | - Differential Gear Broken  | Contact FARMTRAC Dealership      |
|                            | LEAKAGE FROM KNUCKLE HOUSING & SWIVEL HOUSING      | - Seal damaged  | Contact FARMTRAC Dealership      |
|                            | WHEEL END SHAFT NOT ROTATING OR JAMMED             | - Internal Parts Damaged  | Contact FARMTRAC Dealership      |
|                            | LEAKAGE FROM WHEEL HOUSING                         | - Seal damaged  | Contact FARMTRAC Dealership      |
|                            | LEAKAGE FROM PINION SHAFT                          | - Seal damaged  | Contact FARMTRAC Dealership      |
|                            | LEAKAGE FROM REAR PILLOW BLOCK                     | - O'Ring damaged  | Contact FARMTRAC Dealership      |
|                            | SEEPAGE / GREASE COMES OUT FROM FRONT PILLOW BLOCK | - O'Ring damaged  | Contact FARMTRAC Dealership      |
|                            | LEAKAGE FROM RETAINER PINION SHAFT                 | - O'Ring damaged  | Contact FARMTRAC Dealership      |
|                            | EXCESSIVE FLOAT IN FRONT AXLE ASSEMBLY             | - Bolt & nut not properly tightening  | Adjust Play - Refer Instructions |
|                            | POWER NOT TRANSFER FROM REAR WHEEL TO FRONT WHEEL  | - Propeller Shaft broken  | Contact FARMTRAC Dealership      |
|                            | EXCESSIVE NOISE                                    | -Improper backlash b/w gears<br>- Oil quantity insufficient<br>- Bearing,Gears damaged. | Contact FARMTRAC Dealership      |
|                            | FRONT WHEELS WANDER TO ONE DIRECTION               | Uneven tire Pressure  | Check and correct air pressure   |
|                            |  | Improper toe-in adjustment  | Adjust - REFER INSTRUCTIONS      |
|                            |  | Tie-rod end loose   | Tighten - REFER INSTRUCTIONS     |
|                            |  | Air trapped in power steering   | Bleed                            |
| FRONT WHEEL DOESN'T ROTATE | Gear damaged                                       | Contact FARMTRAC Dealership   |                                  |
|                            | Differential Gears damaged                         | Contact FARMTRAC Dealership   |                                  |



**ESCORTS**

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