



Long Agribusiness

OWNER'S MANUAL



LANDTRAC TRACTOR

MODELS: 410 DTC/450/450 DTC/470 DTC

MODELS: 530 DTC/550/550 DTC



COMMON SENSE SOLUTIONS

Long Agribusiness, LLC

PO BOX 1139 • TARBORO, NC 27886 • (252) 823-4151

IMPORTANT - READ CAREFULLY

This **⚠ Danger Sign** indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. You should look for this symbol on your LongAgribusiness equipment and throughout this manual.

This **⚠ Warning Sign** indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed.

This **⚠ Caution Sign** indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

Note: You should look for these symbols on your LongAgribusiness equipment and throughout this manual.

TO THE OWNER

Thank you for purchasing your LongAgribusiness product. Your investment is in a quality product, carefully designed and manufactured for easy use and minimal maintenance. Your product is constructed of premium components and is as durable as you'll find. Before using your product for the first time, we recommend that you read this entire manual and study the information contained herein carefully. This will aid you in planning the work and avoiding most human error.

TO THE OPERATOR

This LongAgribusiness product is an investment which deserves the best in maintenance and service. Proper care will allow full return on this investment. Replace parts only with LongAgribusiness approved replacement parts. Use of non-approved parts will automatically void any warranty!

Record the serial number, chassis, and model numbers here when applicable. Any communication regarding equipment sold by LongAgribusiness or its dealers must include these reference numbers. In the event parts are needed for this product these reference numbers will help speed up your order.

SERIAL _____

CHASSIS _____

MODEL _____



The information contained herein is from data available at the time of printing. LongAgribusiness, LLC. reserves the right to make changes in specifications shown herein or to add improvements without notice and without incurring obligation.

CALIFORNIA PROPOSITION 65 WARNING

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.

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SAFETY PRECAUTIONS



In addition to endangering life and physical well-being, accidents can cause loss of money and man-hours. Most accidents can be avoided if all persons working with and around the equipment use good common sense and judgement. Always, observe these basic safety rules.

1. Read this manual carefully to acquaint yourself with the tractor and its operation.
2. Make sure that all operators have been instructed in the tractor's operation and how to operate it properly and safely.
3. Prior to use of the tractor, inspect the tractor and attachments to insure that they are in good operating condition. Do not operate the equipment with damaged or missing parts.
4. Allow only the operator on the tractor at all times. Do not carry passengers. Keep children away at all times.
5. Do not start or operate the tractor unless you are in the operator's seat. Be sure the gear shift lever is in neutral.
6. Do not bypass the transmission, consult your LongAgribusiness dealer.
7. Use seat belt at all times except for when the ROPS is in the folded-down position.
8. This tractor is equipped with a fold-down Roll Over Protective Structure (ROPS). The folded position must be restricted to use inside buildings and other structures (such as chicken houses, etc.) That will not allow for clearance of the ROPS in its upright normal position. No protection is provided in the folded-down position. Raise ROPS immediately after low clearance use. Seat belt use is not recommended when the ROPS is in the folded-down position.
9. Always keep a firm grip on the steering wheel.
10. Do not exceed safe driving speed. Adjust your speed to the type of ground you are traveling on.
11. Engage the clutch slowly, especially when driving up steep hills or out of ditches. There is always the possibility of the front wheels rising off the ground. Should this occur, immediately disengage the clutch.
12. Always keep the tractor in gear when going down hill. Do not coast with the clutch disengaged or the transmission in neutral.
13. Whenever possible, avoid operating the tractor near ditches, embankments, or holes.
14. When operating on steep grades, use extra care to maintain proper stability. Do not operate on slopes too steep for safe operation.
15. Reduce speeds when turning on curves, hills, and on slick, rough, or muddy surfaces.
16. Always be conscious of where you are and are going, especially at row ends, on roads and highways, and going around obstructions (trees, buildings, etc.)
17. If the tractor drive wheels are stuck, shift to reverse gear and back out to prevent from lifting the front wheels off the ground and possibly rolling the tractor over backwards.
18. Slow moving vehicles on highways are dangerous. Use a slow moving (SMV) sign in conjunction with headlights, taillights, and flashing warning lights.
19. Do not tie ropes, chains, or cables to the axle or other parts of the chassis. Always hitch the load to the tractor's drawbar in the lowest position; except when pulling implements specifically designed for and properly attached to the three point hitch.
20. When using chains or cables, always take up the slack gradually. Never take up the slack with a jerk.
21. Drive slowly when pulling heavy wheeled loads, especially if the towed vehicle has no brakes. Towed loads that weigh more than the tractor should be equipped with an independent braking system.
22. Always wait until the tractor has come to a complete stop before dismounting.
23. Before dismounting from the tractor, with or without the engine running, disengage the PTO (unless operating as a stationary power unit), place gear and range selector levers in neutral, lower implements and/or attachments to the ground, and apply the parking brake.
24. Never stand between the tractor and the drawn implement, unless the transmission is in neutral and the brakes are locked. Never stand between the tractor and the drawn implement while the tractor is being backed up for hitching.
25. Never examine, clean, service or adjust the tractor or any equipment operated by the tractor, until the tractor's engine has been shut off, the transmission is in neutral and the brakes are locked, the PTO is disengaged, and all moving parts have stopped, unless otherwise specifically instructed in the owner's/operators manual to so.



SAFETY PRECAUTIONS



26. Never refuel the tractor when the engine is hot or while it is running.
27. Never refuel the tractor while near any open flame or while smoking.
28. Do not fill the fuel tank completely to the top if the tractor is exposed to the sun for long periods of time. Fuel will expand and over run. Wipe up any spillage of fuel.
29. Keep a fire extinguisher handy at all times. Use a dry chemical or CO2 type extinguisher on fuel, oil or electrical fires.
30. Before removing the radiator cap, relieve the pressure in the cooling system by carefully turning the cap to its first position.
31. Disconnect both battery cables before making any adjustment on the engine or electrical system.
32. When it becomes necessary to service or charge the tractor's battery, keep **any** sparks or flames away, as the battery gives off a highly explosive hydrogen gas when being charged. Never smoke around a charging battery.
33. Keep brakes properly adjusted.
34. Escaping hydraulic oil can have extremely high pressure. A stream of oil can easily penetrate the skin and cause blood poisoning. All connections must be kept tight and all lines and pipes must be in good condition. Be sure to relieve all hydraulic pressure before disconnecting any line or pipe on the tractor's hydraulic system.
35. Do not operate the tractor and attachments with guards and shields removed. Keep them in place.
36. Set wheels as wide as practical for the job at hand. A wider wheel track gives the tractor better stability.
37. Add front weights for pulling heavy drawbar loads or mounted implements.
38. If tractor is equipped with a Front Loader, weight must be added to the rear of the tractor for stability.
39. When preparing a calcium chloride solution for liquid tire ballast, never pour water on the calcium chloride. A chlorine gas is given off which is explosive and can be hazardous to your health if inhaled. This can be avoided by slowly adding the calcium chloride flakes to water and stirring until dissolved.
40. Never run the tractor engine in an enclosed area without proper ventilation.
41. Keep hands and loose clothing away from all moving parts.
42. Always lower any implement which is attached to the three point hitch or supported by a remote hydraulic cylinder to the ground, or block it securely at a workable height before inspecting, adjusting, or performing any maintenance.
43. When parts need replacing, use only parts approved by LongAgribusiness, LLC. Do not substitute parts.



CAUTION: Some drawings in this manual may show shields or cover panels removed for the purposes of clarity. **NEVER OPERATE** the tractor without **ALL** shields and cover panels in place!

SAFETY LABELS

The following decals will be found on your 410 DTC/450/450 DTC/470 DTC/530 DTC/550/550 DTC tractor. Each of these decals contain important safety messages which are necessary for the safe operation of the tractor.

The decals should be kept clean and legible at all times. A soft damp cloth may be used to clean the decals. If the decals are damaged, missing, painted over, or otherwise not readable, they should be replaced with new decals available from your dealer. When components

are replaced on the tractor during repair, all safety decals on that component(s) must be replaced with new decals. The decals are easily attached by first cleaning the area that the decal is to be attached, removing the paper covering the self-adhesive back of the decal and then applying the decal to the surface.

Note: Misting a light coat of water over the area where the safety decal is to be placed, allows for repositioning if a mistake is made. Wipe away the excess water and let dry.



SAFETY DECALS



⚠ WARNING



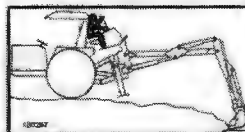
TO PREVENT DEATH OR SERIOUS INJURY:

IF THIS TRACTOR IS EQUIPPED WITH A FOLD DOWN ROPS, DEATH OR INJURY MAY RESULT IF THIS TRACTOR OVERTURNS WITH THE ROPS IN THE FOLDED DOWN POSITION.

DO NOT WEAR THE SEATBELT WHEN THE ROPS IS IN THE FOLDED DOWN POSITION.

OPERATE THIS TRACTOR WITH THE ROPS IN THE FOLDED DOWN POSITION ONLY WHEN NECESSARY

3011912



⚠ DANGER

CRUSHING HAZARD

TO PREVENT SERIOUS INJURY OR DEATH DO NOT ATTACH ANY BAGGAGE TO THIS TRACTOR EQUIPPED WITH THIS ROLLBAR, AND/OR CAB, UNLESS THE BAGGAGE IS SO RIGIDLY MOUNTED TO THE TRACTOR THAT IT CANNOT BE LIFTED UP WITH THE HYDRAULIC LIFT.

708040

⚠ WARNING

SEATBELT HAZARD

To prevent serious injury or death:



- This tractor is equipped with a rollover protective structure; therefore the seatbelt must be worn at all times, except when the tractor is equipped with a fold down ROPS and it is in the folded down position.

NOV 96

3011937

⚠ WARNING



TO PREVENT DEATH OR SERIOUS INJURY:

IF THIS TRACTOR IS EQUIPPED WITH A FOLD DOWN ROPS, DEATH OR INJURY MAY RESULT IF THIS TRACTOR OVERTURNS WITH THE ROPS IN THE FOLDED DOWN POSITION.

DO NOT WEAR THE SEATBELT WHEN THE ROPS IS IN THE FOLDED DOWN POSITION.

OPERATE THIS TRACTOR WITH THE ROPS IN THE FOLDED DOWN POSITION ONLY WHEN NECESSARY

1

⚠ CAUTION



- Keep all objects clear of fan.

3011797

⚠ WARNING



NOV 96

To prevent serious injury or death:

- The differential lock is provided for use on slippery surfaces. It must not be used on the road.

3011636

⚠ CAUTION

DO NOT OPERATE ON HARD SURFACES IF THE TRACTOR IS EQUIPPED WITH AND ENGAGED IN 4-WHEEL DRIVE.

NOV 96

708035

SAFETY DECALS

WARRANTY DISCLAIMER

THE LIMITED WARRANTY OF THE MANUFACTURER FOR ITS PRODUCTS DOES NOT INCLUDE:

- ANY WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR USE;
- ANY IMPLIED WARRANTIES OF ANY KIND;
- LIABILITY FOR PERSONAL INJURY, DAMAGES, SUCH AS THOSE RESULTING FROM LOSS OF USE OF THE PRODUCT OR LOSS OF PROFITS OR DAMAGE TO CROPS;
- LIABILITY OF ANY HAND SELLER THE PRODUCT HAS BEEN FACTUALLY INSTALLED, USED, MISUSED, IMPROPERLY ASSEMBLED AND/OR ATTACHED OR INVOLVED IN AN ACCIDENT;
- LIABILITY OF USING COMPONENTS INCLUDING BOLT AND WASHERS OTHER THAN THOSE IDENTIFIED BY PARTS MANUALS OR THE DISCLOSURES IN THE OWNER'S MANUAL.

SEE OWNER'S MANUAL FOR FULL TEXT OF MANUFACTURER'S LIMITED WARRANTY.

CAUTION

DO NOT OPERATE

Until you have read the owner's manual. If you did not receive a copy, one may be obtained by contacting:

LongAgribusiness

PO BOX 1133, Tarboro, N.C. 27860
252-523-4151 FAX: 252-523-4576
e-mail: service@longagri.com

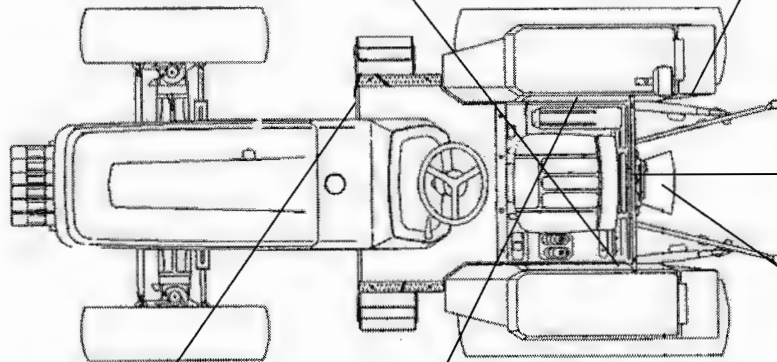
WARNING




HIGH PRESSURE FLUID HAZARD

To prevent serious injury or death:

- Relieve pressure on system before repairing, adjusting or disconnecting.
- Wear proper hand and eye protection when searching for leaks, use wood or cardboard instead of hands.
- If hydraulic fluid penetrates skin, obtain medical treatment IMMEDIATELY



WARNING



RUNOVER HAZARD

To prevent serious injury or death:


- Start only from seat with gear and range selectors in neutral.
- Do not start engine by shorting across starter terminals.

WARNING

TO PREVENT SERIOUS INJURY OR DEATH:

- AFTER FIRST HOUR OF OPERATION, FRONT AND REAR WHEEL LUGNUTS AND BOLTS SHOULD BE CHECKED FOR PROPER TORQUE. THERE AFTER CHECK DAILY.
- PTO-KEEP HANDS, FEET AND CLOTHING AWAY FROM PTO AND OTHER MOVING PARTS.
- DISENGAGE PTO AND SHUT OFF ENGINE BEFORE SERVICING TRACTOR OR IMPLEMENTS OR ATTACHING OR DETACHING IMPLEMENTS.
- KEEP ALL SAFETY SHIELDS IN PLACE FOR YOUR PROTECTION.
- PULL ONLY FROM THE DRAWBAR OR FROM LOWER LINKS IN THE DOWN POSITION. PULLING FROM THE AXLE OR ANY POINT ABOVE AXLE MAY CAUSE REARWARD UPSET.
- LOCK TRACTOR BRAKE PEDALS TOGETHER FOR TRAVEL ON ROADS OR HIGHWAYS.
- ALWAYS APPLY PARKING BRAKE AND SHIFT TRANSMISSION TO NEUTRAL BEFORE DISMOUNTING.
- ALLOW NO RIDERS ON TRACTOR OR IMPLEMENTS.
- ENGAGE CLUTCH GRADUALLY.
- CHANGE TO LOW GEAR DOWN STEEP HILLS.

WARNING



ENTANGLEMENT HAZARD

To prevent serious injury or death:

- PTO safety shield must be kept in place
- DO NOT REMOVE

*For further information on Tractor Safety, refer to your Agricultural Tractor Safety Manual (799415).

INTRODUCTION

The information contained in this manual applies to the Landtrac 410 DTC, 450, 450 DTC, 470 DTC, 530 DTC, 550, and 550 DTC tractors. The 410 DTC, 450, and 450 DTC tractors are equipped with an in-line 4 cylinder diesel engine rated at 41 H.P. The 470 DTC tractor is equipped with an in-line 4 cylinder diesel engine rated at 47 H.P.. The 530 DTC, 550, and 550 DTC tractors are equipped with an in-line 4 cylinder diesel engine rated at 53 H.P.

This manual was prepared to furnish you with information related to breaking-in, operating and servicing the

tractor. Also included is information on safety procedures, specifications, accessories and the tractor warranty.

It is strongly recommended that you read this entire manual carefully prior to operating the tractor for the first time. This will allow you to become familiar with the tractor's controls and the break-in period procedures. The time spent in becoming familiar with the tractor will be repaid by your efficiency and a longer operating service life of the tractor.

TRACTOR IDENTIFICATION

The tractor's serial number is located on the identification plate, located on the left hand side of the chassis as shown in Fig. 4-1.

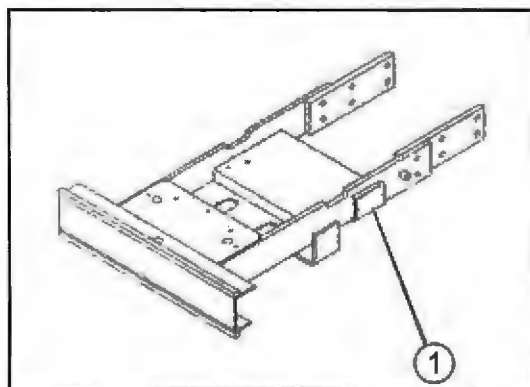


Fig. 4-1 — Chassis Serial No.

The tractor's engine serial number is stamped on the right hand side of the engine block as shown in Fig. 4-2.

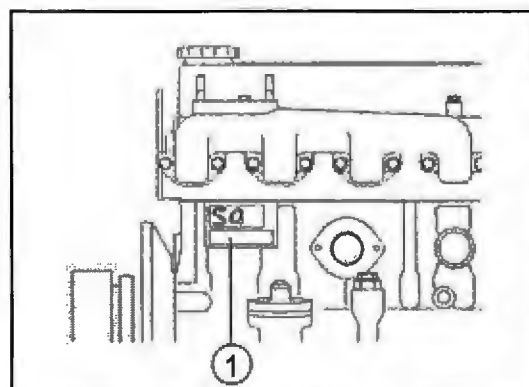


Fig. 4-2 — Engine Serial No.

SPECIFICATIONS- 2 WHEEL DRIVE

ENGINE

| | 450 | 550 |
|-----------------------------|---------------------------|---------------------------|
| Net Engine Horsepower | 41 H.P. (31Kw) | 53 H.P. (40Kw) |
| Type | Indirect Injection Diesel | Indirect Injection Diesel |
| Rated Engine Speed | 2600 RPM | 2500 RPM |
| Number of Cylinders | 4 | 4 |
| Bore | 3.46 in. (88mm) | 3.70 in. (94mm) |
| Stroke | 3.74 in. (95mm) | 4.73 in. (120mm) |
| Displacement | 141 Cu. in. (2311cu.cm.) | 203 Cu.in. (3331cu.cm.) |

POWER TAKE OFF

| | | |
|--------------|----------------|----------------|
| PTO HP | 36 H.P. (27Kw) | 46 H.P. (34Kw) |
|--------------|----------------|----------------|

TRAVELING SYSTEM

| | | |
|---------------------------|-------------------------------------|--------------------------------|
| Forward Speed Range | 0.1 - 12.7 mph (0.2 - 20.5 km/h) | 0.2 - 15 mph (0.3 - 24km/h) |
|---------------------------|-------------------------------------|--------------------------------|

SPECIFICATIONS- 2 WHEEL DRIVE

POWER TAKE OFF

Speed..... 540 RPM
Shaft Dia..... 1 3/8 in. (35mm) 6-Spline

HYDRAULICS

Flow gpm/rpm..... **450** - 8.3gpm/2600
..... **550** - 8.9gpm/2500
Lift Capacity..... 3250lbs. (1475kg)
3-Point Linkage..... CAT I&II
Controls..... Position, Draft and Mixed Control

TRAVELING SYSTEM

Transmission..... 8 Forward - 8 Reverse
Gear Shift Mech.... Main Gear: Syncromesh 4 Speeds
Range Gear..... Sliding Gear H-L
Forward to Reverse Shift..... Shuttle
Clutch..... 10.83 (275mm) Dia. Dry Single Disc
Brake..... Service: Wet Multi-Disc,
Parking..... Hand Lever Operated
Steering..... Hydrostatic Power Steering
Differential Lock (Rear)... Foot Operated, Mechanical

ELECTRICAL

Battery..... 12 Volts, 600 CCA
Alternator..... 12 Volt 50 Amps

DIMENSIONS (WITH STANDARD TIRES)

Max. Length (front ballast to link-end) .. 137 in. (3480mm)
Max. Width..... **450** - 61.8 in. (1569mm)
..... **550** - 65.2 in. (1656mm)
Height to Top of ROPS ... **450** - 93 in. (2362mm)
..... **550** - 94 in. (2388mm)

Wheelbase **450** - 72.8 in. (1850mm)
..... **550** - 77 in. (1957mm)

TIRES

450 ... (F) 6.00-16, 4 ply F2. (R) 12.4-28. 4 ply R1
550 ... (F) 7.50-16, 4 ply F2. (R) 13.6-28.4 ply R1

MINIMUM GROUND CLEARANCE

..... **450** - 13.4 in. (340mm)
..... **550** - 14.8 in. (365mm)

WEIGHT (w/ROLLBAR) ... **450** - 4000 lbs. (1814kg)
..... **550** - 4160 lbs. (1887kg)

CAPACITIES

Cooling System..... **450** - 9.5 qts. (9 liters)
..... **550** - 10.5 qts. (10 liters)
Fuel Tank..... 17.2 gal. (65 Liters)
Crankcase:
Oil and Filter Change . **450** - 8.5 qts. (8 liters)
..... **550** - 11.5 qts. (11 liters)
Transmission & Hydraulic System .. 39 qts. (37 liters)
Final Drives (each side)..... 7.4 qts. (7 liters)

SPECIFICATIONS- 4 WHEEL DRIVE

ENGINE

| | (410 DTC/450 DTC) | (470 DTC) | (530 DTC/550 DTC) |
|-----------------------------|---------------------------|----------------------------|---------------------------|
| Net Engine Horse power..... | 41 H.P. (31 Kw). | 47 H.P. (35Kw). | 53 H.P. (40Kw) |
| Type..... | Indirect Injection Diesel | Indirect Injection Diesel. | Indirect Injection Diesel |
| Rated Engine Speed..... | 2600 RPM | 2700 RPM. | 2500 RPM |
| Number of Cylinders..... | 4 | 4 | 4 |
| Bore..... | 3.46 in. (88mm) | 3.46 in. (88mm). | 3.70 in. (94mm) |
| Stroke..... | 3.74 in. (95mm) | 4.05 in. (103mm). | 4.73 in. (120mm) |
| Displacement..... | 141 Cu. in. (2311cu.cm.) | 152 Cu. in. (2505cu.cm.) | 203 Cu.in. (3331cu.cm.) |

POWER TAKE OFF

PTO HP..... 36 H.P. (27Kw). 38 H.P. (28Kw). 46 H.P. (34Kw)

TRAVELING SYSTEM

Forward Speed Range..... 0.1 - 12.7 mph..... 0.1 -13.7 mph..... 0.2 -15 mph
(0.2 - 20.5 km/h) (0.2 - 22 km/h). (0.3 - 24km/h)

SPECIFICATIONS- 4 WHEEL DRIVE

POWER TAKE OFF

Speed 540 RPM

Shaft Diameter 1 3/8 in. (35mm) 6 - Spline

HYDRAULICS

Flow gpm/rpm ... **410 DTC/450 DTC** - 8.3gpm/2600

..... **470 DTC** - 8.6gpm/2700

... **530 DTC/550 DTC** - 8.9gpm/2500

Lift Capacity 3250 lbs. (1475 kg)

3-Point Likage CAT I & II

Controls Position, Draft, and Mixed Control

TRAVELING SYSTEM

Transmission . 8 Forward - 8 Reverse Normal Speed

... 8 Forward - 8 Reverse Creeper Speeds

Gear Shift Mech: Main Gear: Syncromesh 4 Speeds

Range Gear: Sliding Gear H-L/Creeper Gear

Forward to Reverse Shift Shuttle

Clutch 10.83 (275mm) Dia. Dry Single Disc,

Brake Service: Wet Multi-Disc,

Parking Hand Lever Operated

Steering Hydorstatic Power Steering

Differential Lock (Rear) .. Foot Operated, Mechanical

ELECTRICAL

Battery 12 Volts, 600 CCA

Alternator 12 Volt 50 Amps

DIMENSIONS (WITH STANDARD TIRES)

Max. Length (front ballast to link-end: 137in. (3480mm)

Max. Width ... **410 DTC/450 DTC** - 61.8in. (1569mm)

... **470 DTC/530 DTC/550 DTC** - 65.2in. (1656mm)

Height to top of ROPS

..... **410 DTC/450 DTC** - 93 in. (2362mm)

..... **470 DTC/530 DTC/550 DTC** - 94 in. (2388mm)

Wheelbase

..... **410 DTC/450/470 DTC** - 72.8 in. (1850mm)

... **530 DTC/550 DTC** - 77 in. (1957mm)

TIRES

410 DTC/450 DTC (F) 8.3-20, 6plyR1.

(R) 12.4-28, 4plyR1.

470 DTC ... (F) 9.5-20, 6plyR1.

(R) 13.6-28, 4plyR1.

530 DTC/550 DTC ... (F) 9.5-20, 6 plyR1.

MINIMUM GROUND CLEARANCE

..... **410 DTC/450 DTC** - 13.4 in. (340mm)

..... **470 DTC** - 14 in. (356 mm)

..... **530 DTC/550 DTC** - 14.8 in. (365 mm)

WEIGHT (W/ROLLBAR)

..... **410 DTC/450 DTC** - 4440 lbs. (2014kg)

..... **470 DTC** - 4540 lbs. (2059kg)

..... **530 DTC/550 DTC** - 4160 lbs. (2090kg)

CAPACITIES

Cooling System **410 DTC/450 DTC** - 9.5 qts. (9 liters)

..... **470 DTC** - 9.5 qts. (9 liters)

... **530 DTC/550 DTC** - 11.5 qts. (11 liters)

Fuel Tank 17.2 gal. (65 Liters)

Crankcase:

Oil and Filter Change ... **410 DTC/450 DTC** - 8.5 qts.

(8 liters)

..... **470 DTC** - 9.5 qts. (9 liters)

... **530 DTC/550 DTC** - 11.5 qts. (11 liters)

Transmission & Hydraulic System: 39 qts. (37 liters)

Final Drives (each side) 7.4 qts. (7 liters)

Front Axles 10.5 qts. (10 liters)

STANDARD EQUIPMENT

Dry Type Air Cleaner

Preheat Starting Aid

Transmission--8 Forward and 8 Reverse

Transmission (DTC)-- 16 Forward and 16 Reverse

Hand and Foot Throttle Control

Instrumentation- Alternator Warning Light, Engine Oil

Pressure Light, Water Temperature Gauge,

Fuel Gauge, Tachometer w/ Hourmeter,

Hydrostatic Steering

PTO - Independent and Manual

Cat. I & II Three Point Hitch

Hydraulic Draft and Position Control

Rear Work Light

Adjustable Seat

Fold-Down ROPS w/Seat Belt

Safety Flashers

Two Spool Valve w/ Quick Couplers

OPTIONS

Front Hand Weight Kit

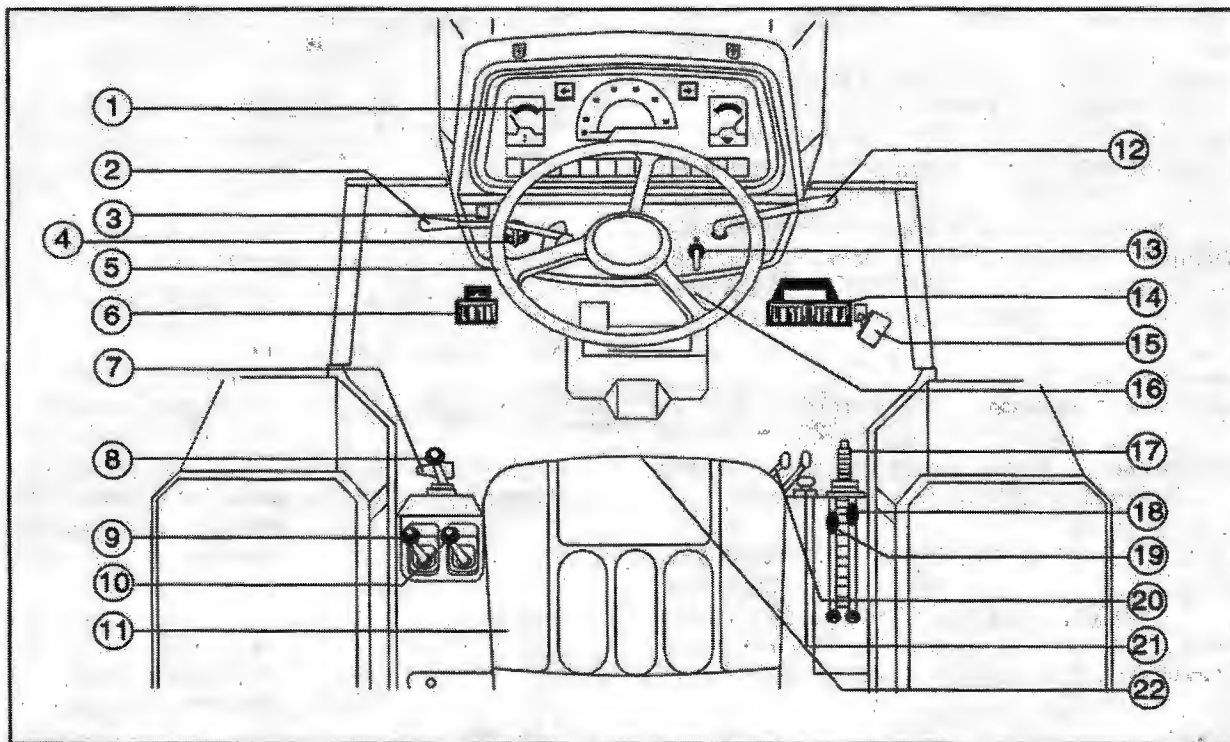


Fig. 7-1 - Operating Levers and Pedals

1. Instrument Panel - See *Controls and Instruments* section for detailed information on each gauge and light.

2. Shuttle Drive Lever - This lever is used to change the direction of travel. With the tractor in any gear, moving the lever will allow the tractor to be switched from forward to reverse and back without the use of the gear shift lever. Stop the tractor and then shift the shuttle lever in the desired direction.

3. Horn Switch - Press the horn switch to sound horn.

4. Light Control Switch - The light control switch controls the instrument panel lights and the headlights. See *Controls and Instruments* section for detailed information on each function.

5. Steering Wheel - Controls the direction of the tractor.

6. Transmission Clutch Pedal - The clutch pedal operates the transmission via a mechanical linkage. Depress the clutch pedal before starting the engine. If not depressed, the safety start switch will not allow the tractor to be started. (See Fig. 7-2)

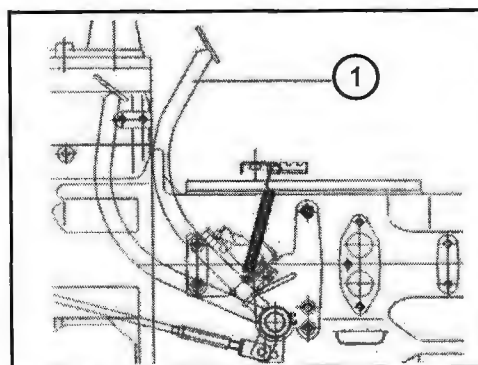


Fig. 7-2 -- Transmission Clutch Pedal
1. Clutch Pedal

7. Creeper Gear Lever (DTC Models Only) - The creeper gear lever is used to engage the creeper gear which provides 8 additional forward and reverse speeds. This gear is used for extremely low speeds.

Up - Creeper gear is engaged.

Down - Creeper gear is disengaged.

8. Main Gear Shift Lever - This lever selects four speed ratios (1,2,3,4) which are fully synchronized. To change from one speed to the other in the same range, shift the main shift lever after depressing the clutch pedal. (The gears are synchronized in order to shift without stopping).

9. **4WD Lever** (4 Wheel Drive Models Only)- lever engages and disengages the 4WD. To change from two wheel drive to four wheel drive, stop the tractor and shift the lever forward after depressing the clutch.

Forward- Four wheel drive engaged.

Backward- Four wheel drive is disengaged.

! Caution: Do not drive on roads or other hard surfaces with the front axle engaged. Failure to do so may result in damage to the front axle or drivetrain and cause premature tire wear.

10. **Range Gear Shift Lever**- This lever provides the tractor with two speed ranges which are not synchronized. I = low II = high. To change ranges, stop the tractor and move the range lever after first depressing the clutch pedal.

! Caution: Anytime the tractor is left unattended both the gear shift lever and range selector lever must be placed in neutral. If this procedure is not followed the tractor can jump into gear causing personal injury or death.

11. **Operator's Seat** - The operator's seat has two adjustments, one for seat position and the other for operator weight. To set seat position, move the lever on the left side of the seat bracket sideways and adjust the seat to the desired setting and release the lever. Rock the seat to make certain it is securely locked into position. To adjust operator weight there is a knob located directly beneath the seat. Moving the knob in a clockwise direction will increase the spring tension while moving the knob counterclockwise will decrease the spring tension.

12. **Hand Throttle** - The hand throttle is used to set engine speed at a fixed level.
Push the lever forward to decrease speed.
Pull the lever to rearward to increase speed.

13. **Independent Electro-Hydraulic PTO Switch** - This switch selects and starts the PTO.
- Center Position (OFF)
- Turning switch to left (INDEPENDENT) continuous operation.
- Turning switch to right (MANUAL) operating by transmission clutch disengagement.

! Warning: Keep the PTO control switch in the off position when the PTO is not in use.

14. **Brake Pedals** - The brakes are mechanically operated.
(See Fig. 8-1).

- A. Left brake control pedal
- B. Right brake control pedal
- C. Brake pedal locking pin

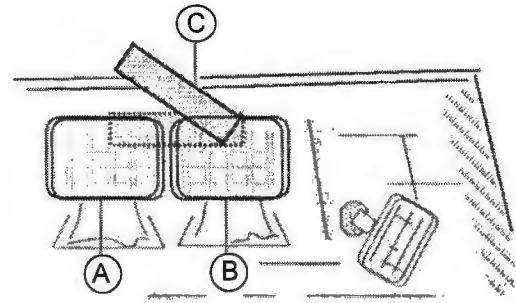
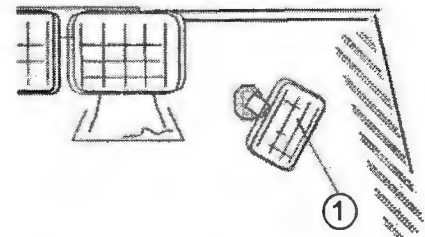


Fig. 8-1 - Brake Pedals

- A. Left Brake Pedal
- B. Right Brake Pedal
- C. Brake Pedal Lock Pin

! Warning: When traveling on roadways, always connect the brake pedals with the lock pin. Braking when the pedals are not locked could cause the tractor to skid and possibly overturn.

15. **Foot Throttle** - The foot throttle may be used independently of the hand throttle to control the engine speed and is recommended for use when traveling on the highway. (See Fig. 8-2).



16. **Hazard Warning Light Switch**- Use the flashing warning lights whenever driving the tractor on public roads. The panel light flashes at the same time as the flashing warning lights.
17. **Parking Brake Lever**- The parking brake lever is applied by pulling the lever upward and released by pressing the button and lowering the lever. (See Fig. 9-1).
Up - Brake on.
Horizontal - Brake off.

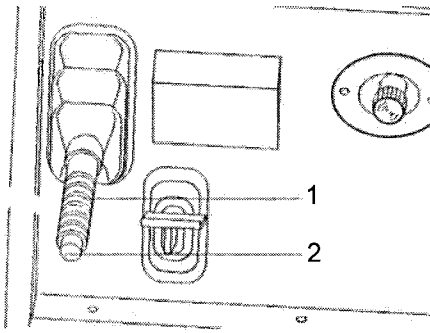


Fig. 9-1 - Parking Brake Lever

1. Parking Brake 2. Release Button

18. **Position Control Lever-** This lever selects the desired depth or height of the implement when working.
19. **Draft Control Lever-** This lever regulates the amount of draft on the 3-point lift, which can be increased or decreased as desired.
20. **Remote Control Valve Levers-** These two levers control the rate of oil flow to the quick disconnect couplers. See **Remote Control Valves** section for detailed information.

21. **Rear Differential Lock Pedal-** The rear differential allows the drive wheels to rotate at different speeds when the tractor is turning. This pedal locks the wheels so that they turn at the same rate of speed.



Caution: Do not enter a curve or try to make a turn with the differential locked. Never use the differential lock when traveling on a highway or road.

22. **Hydraulic Lift Speed Control Knob-** This lever selects the rate at which an implement is lowered. To lower the implement slowly, turn the knob in a counterclockwise direction. To lower the implement faster, turn the knob in a clockwise direction. See **Hydraulic Lift** section for detailed information.

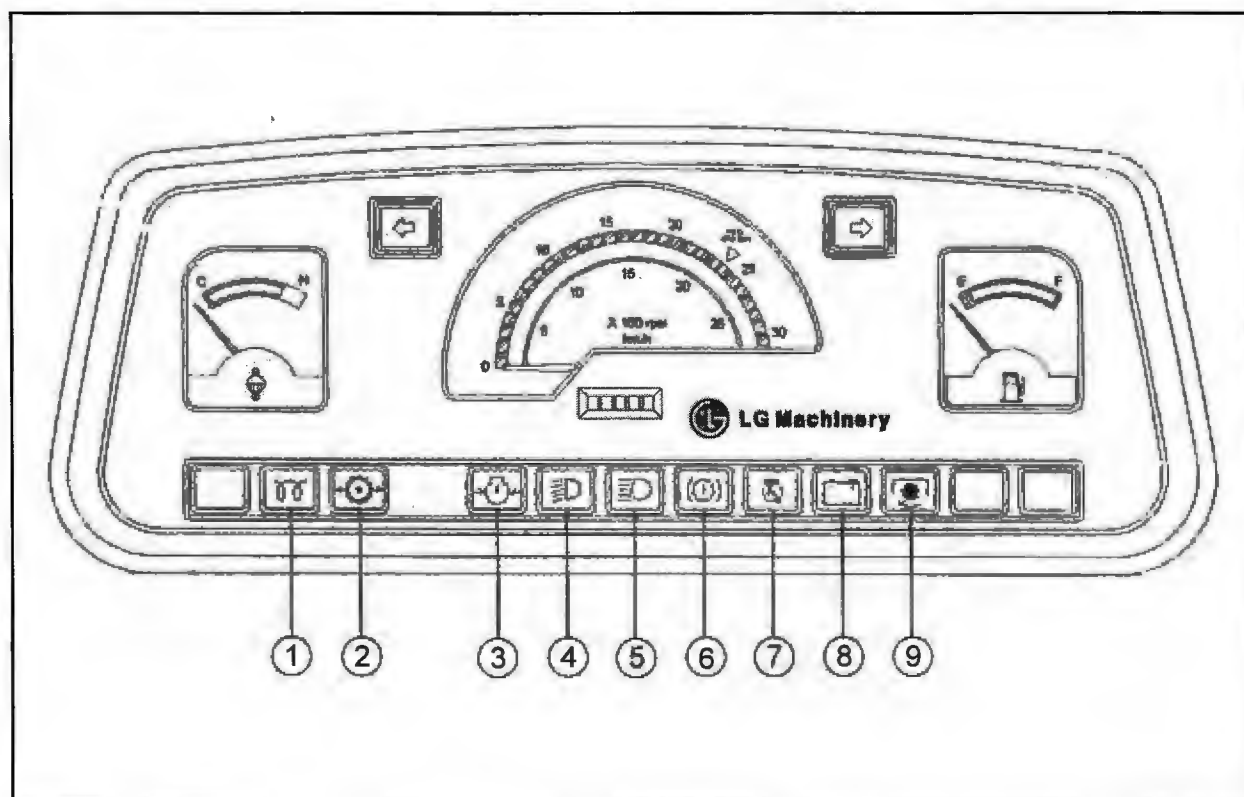


Fig. 10-1 - Instrument Panel

Note: Instrument panel has a series of lights which provide information on the tractor's performance.

1. **Glow Plug Indicator** - When the ignition is in the **ON** position, the glow plug indicator comes on. This indicates that all electrical functions are working. Start the engine after the indicator goes out (approximately 10 seconds).
2. **Hydraulic Oil Filter Warning Light** - This light comes on when the hydraulic filter needs to be replaced. During cold weather, the light may come on until the engine is warm.
3. **Engine Oil Pressure Warning Light** - This light should go out once the engine has been started. If the light stays on while the engine is running, stop the engine immediately and look for the cause of the problem. If the problem is not found, contact your local LongAgribusiness dealer.
4. **Headlight Low Beam** - This light comes on when the headlights are on low beam.
5. **Headlight High Beam** - This light comes on when the headlights are on high beam.
6. **Parking Brake Light** - Indicates the parking brake is on (the ignition key is in the **ON** position).
7. **Engine Stop Warning Light**
8. **Battery Charging Malfunction Light** - This light should go out once the engine has been started. If the light stays on while the engine is running, the battery charging system is malfunctioning. Check connections. If connections are tight, proceed with any necessary repairs.
9. **Power Take-Off Light** - This light illuminates to indicate that the power take-off is engaged. This light will only burn when the engine is running.

1. **Speedometer/Tachometer** - (1) Shows the engine speed in RPM. (2) Shows the actual travel speed in km/h. (See Fig. 11-1).

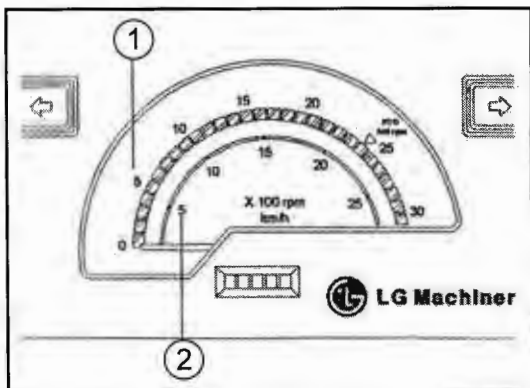


Fig. 11-1 — Speedometer/ Tachometer

2. **Hourmeter** - The hourmeter indicates the number of hours that the engine has been running. This indicates up to a maximum of five digits. Characters with a black background are whole hours while characters with white background are in tenths of an hour. (See Fig. 11-2).

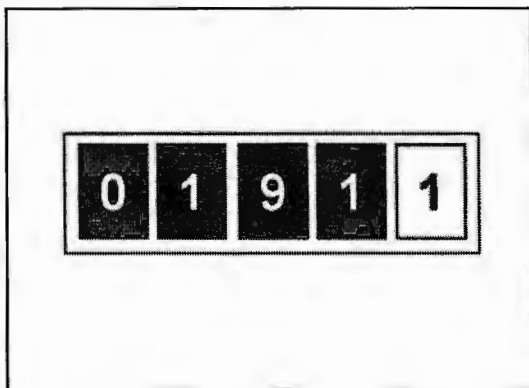


Fig. 11-2 — Hourmeter

3. **Engine Coolant Temperature Gauge** - If the gauge is in the "H" area, reduce the load on the engine or shift to a lower gear immediately and, if the needle stays in the "H" area, have cooling system checked immediately. (See Fig. 11-3).

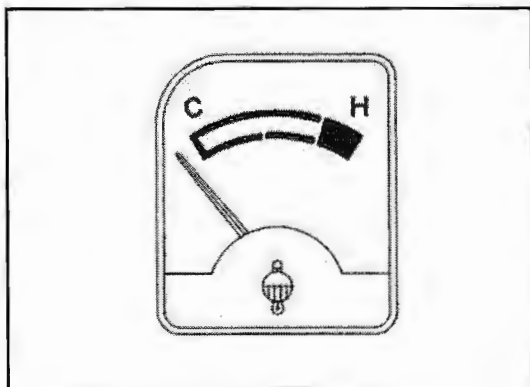


Fig. 11-3 — Coolant Gauge

4. **Fuel Level Gauge** - When the tank is full, the needle will be at the extreme right side of the gauge indicating so by being on the "F" mark. As the tank empties the needle will gradually move to the left indicating an empty tank by the "E" mark. (See Fig. 11-4).

! Caution: Never allow the fuel tank to be run completely empty. This can cause air to accumulate in the fuel system. Once the tractor is refueled, it will require bleeding of the fuel system before starting the engine again.

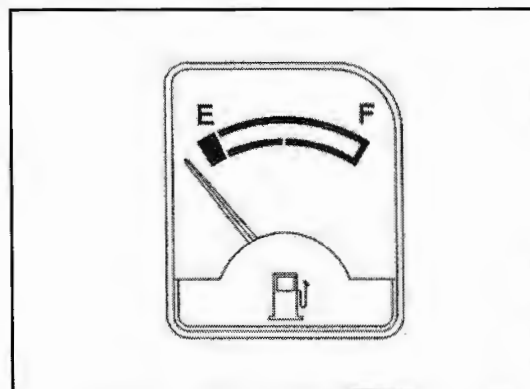


Fig. 11-4 - Fuel Tank Gauge

5. **Shuttle Drive Lever** - The shuttle lever operates as follows:

| | | |
|---|---------|------------------|
| F | Forward | (See Fig. 11-5). |
| N | Neutral | |
| R | Reverse | |

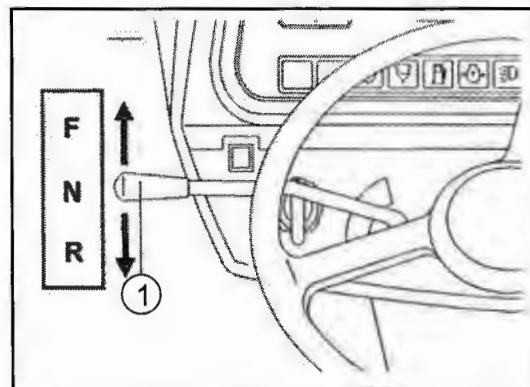


Fig. 11-5 — Shuttle Drive Lever

6. **Hand Throttle** - The hand throttle is used to set engine speed to a fixed level. (See Fig. 12-1).

➡ Push forward - minimum engine speed.

➡ Pull rearward - maximum engine speed.

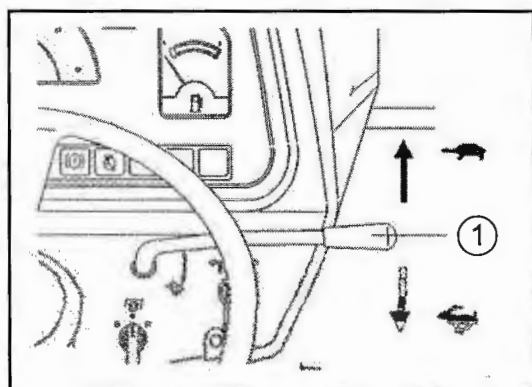



Fig. 12-1 - Hand Throttle

7. **Independent Electro-Hydraulic PTO Switch -**

This switch (1) uses the following positions to control the PTO. (See Fig. 12-2).

 **PTO OFF** - This setting turns the PTO off.

INDEPENDENT - This sets the PTO into continuous operation, meaning that the PTO will run while lifting the implement or when the clutch is pushed in.

MANUAL - This sets the PTO into operation and will stop the PTO when the clutch is pushed in.

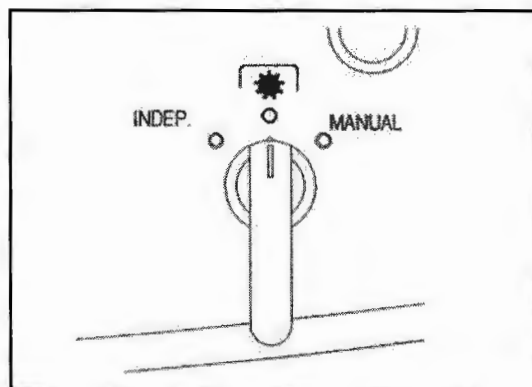



Fig. 12-2 - Independent Electro-Hydraulic PTO Switch

 **Warning:** Keep the PTO control switch in the off position at all times when the PTO is not in use.

8. **Ignition Switch -** To operate the three switch functions, turn the ignition key (1) through the following positions. (See Fig. 12-3).

– Position A (**OFF**)

In this position, there is no power to the circuits and the key can be removed. This position also shuts the engine off by way of an automatic activation of the fuel injection cut-off.

– Position B (**ON**)

This is the engine start presetting. All panel lights and instruments work in this position.

– Position C (**START**)

This position engages the starter motor.

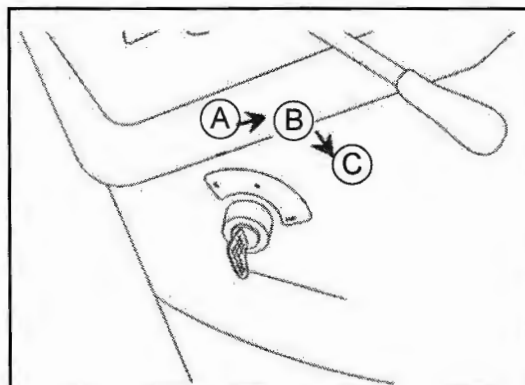




Fig. 12-3 - Ignition Switch

9. **Light Control Switch -** The light control switch (1) operates the headlights and taillights in the following positions.. (See Fig. 12-4).

OFF - Instrument panel light **OFF** and front head light **OFF**.

 - Instrument panel light **ON** and side lights **ON**.

 - Instrument panel light **ON** and headlights **low beam**.

 - Instrument panel light **ON** and headlights **high beam**.

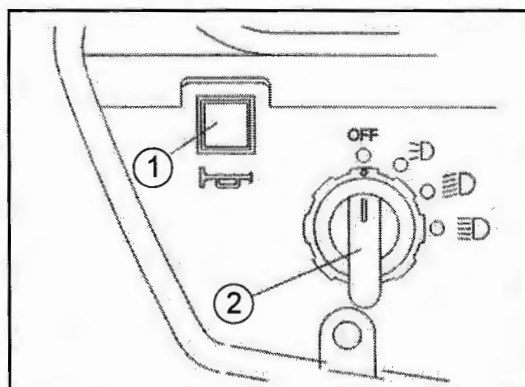



Fig. 12-4 - Light Control Switch

10. **Seven-Terminal Outlet -** This outlet is used to connect lights, turn signals and other remote electrical equipment on trailers or implements to the tractor. (See Fig. 13-1).

 **Caution:** Always use the auxiliary lighting on towed implements when the tractor's lights are obscured by the implement.

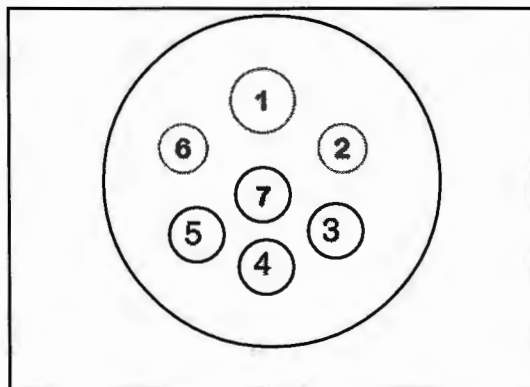


Fig. 13-1 - Terminal Outlet Diagram

| Terminal | Function | Wire Color |
|----------|-------------------|------------|
| 1 | Ground | White |
| 2 | Work Lights | Black |
| 3 | Left Turn Signal | Yellow |
| 4 | Accessory | Red |
| 5 | Right Turn Signal | Green |
| 6 | Tail Lamp | Brown |
| 7 | Accessory | Blue |

11. Hazard Warning Light Switch - This switch turns the hazard warning lights on or off. Use these lights along with the headlights when traveling on public roads. The panel lights also flash at the same time as the hazard warning lights. (See Fig. 13-2).

! Caution: Always use the hazard warning lights when traveling on public roads or highways. By using these lights in combination with the SMV (Slow Moving Vehicle) sign, it will make you more visible to other traffic and help to avoid possible accidents.

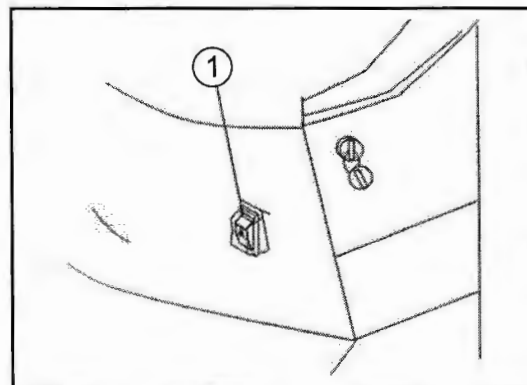



Fig. 13-2 - Hazard Warning Light Switch

BEFORE USING THE TRACTOR

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

After reading this section, ensure that you or anyone who will operate the tractor, are familiar with the layout and use of the controls.

 **Caution:** Never start the tractor if you are not familiar with all the controls.

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

BEFORE STARTING THE ENGINE

 **Caution:** Before starting the engine and moving the tractor, follow these instructions:

- Before starting the engine, check that all controls are in neutral.
- Do not start or operate the tractor in an enclosed area.

STARTING THE ENGINE

After following the safety instructions, start the engine as follows:

1. Check to ensure the parking brake is set.
2. Make sure the transmission is in neutral and PTO control switch (Independent electro-hydraulic PTO switch) is in the **OFF** position.
3. **Note:** For safety; if the PTO switch is in the **INDEPENDENT** or **MANUAL** positions, the engine cannot be started.
4. Turn the ignition key to the **ON** position. Check the hydraulic oil filter warning light. During cold weather, the light may come on until the engine is warm.
5. Wait approximately 6 seconds until the glow plug indicator is out.
6. Depress the clutch to activate the safety start switch.
7. Turn the ignition key to the **START** position until the engine starts.
8. As soon as the engine starts, release the ignition.


8. As soon as the engine starts, release the ignition key. The key will then return to the **ON** position. Do not hold the key in the **START** position after the engine has started as this will damage the starter motor.

Check and make certain that the engine oil warning light and the battery charging system light go out after the engine has started. If either stays on while the engine is running, stop the engine and make the necessary repairs.

STARTING THE ENGINE IN COLD WEATHER

After following the safety instructions, start the engine as follows:

1. Depress the clutch to activate the safety start switch.
2. Turn the ignition key to the **ON** position for approximately 10 seconds and wait until the glow indicator is out.
3. Turn the ignition key to the **START** position until the engine starts.
4. Once the engine starts, release the ignition key.


 **Warning:** When starting in cold weather, cover the radiator with a suitable object so the engine coolant can quickly reach a warm temperature. Then remove the cover.


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

Wait at least one minute between attempts. It is advisable not to make more than six attempts to start the engine to avoid excessive battery discharge. All controls must be actuated only from the driver's seat.

Stop the engine before carrying out any service or maintenance operations on the tractor. Keep all guards in place.

While moving over roadways, obey all highway codes.


 **Caution:** If the tractor has not been used for an extended period of time, allow the hydraulic oil time to warm up. This will enable proper lubrication of the hydraulic components before using them under load. In cold weather, run the engine at 1,300 - 1,500 RPM for about 5 minutes.


 **Caution:** If a warning light is on, stop the engine and investigate the problem. If the warning light continues to stay on, contact your local LongAgribusiness dealer.


MOVING THE TRACTOR


After the engine has been started, the tractor can now be driven:

1. Depress the clutch and move the shuttle shift lever, the main shift and the range shift lever to the desired settings.
2. Accelerate the engine as necessary.
3. Release the parking brake lever and engage the clutch, releasing it slowly.

 **Warning:** Engage the clutch slowly! If engaged too fast, especially when in muddy conditions or on a steep slope, it can cause the tractor to over turn. Disengage the clutch immediately if the front wheels start to lift.

 **Warning:** When facing downhill, keep the tractor in gear. Never depress the clutch and never place the transmission in neutral.


 **Warning:** When the tractor is moving, the operator must remain seated properly behind the steering wheel.


 **Warning:** Do not get on or off the tractor while it is moving.

STOPPING THE TRACTOR

Stopping the tractor is accomplished as follows:


1. Reduce the engine speed.
2. Press the clutch pedal and brake pedal and slowly bring the tractor to a stop.


 **Warning:** Once the tractor has stopped and is stationary, move the main shift, range shift and shuttle drive levers into neutral, release the clutch pedal and engage the parking brake.

 **Warning:** Never leave an attached implement in a raised position. Always lower the implement before stopping the engine.


STOPPING THE ENGINE


Stopping the engine is accomplished by simply turning the ignition key switch to the **OFF** position.

 **Warning:** Before leaving the seat, disengage the power-take off, engage the parking brake, and place the transmission in neutral. Always remove the key when leaving the tractor unattended.

 **Warning:** When parking, look for a flat surface (whenever possible), put the tractor in neutral and apply the parking brake. On sloping ground, in addition to leaving the parking brake on, place the shuttle drive in forward and the main shift lever in first gear when facing uphill. When facing downhill place the shuttle drive in reverse and the main shift lever in first gear. As an additional safety measure, we recommend the use of wheel chocks. This procedure must always be followed especially when parking with a towed implement attached.

TRANSPORTING THE TRACTOR

 **Warning:** Do not tow tractor. Towing tractor can cause the gearbox to seize or make the tractor unstable causing it to overturn resulting in serious injury or death. If repairs cannot be made in the field, load the tractor on an appropriate vehicle for transport.

 **Caution:** Use extreme caution when loading tractor. The tractor can overturn or become a rolling hazard.

LOADING THE TRACTOR

Load the tractor completely with all four wheels on the transport vehicle or trailer's platform. Secure the tractor on the transport with suitable chains.

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

Use the drawbar or its support as a rear hitch point on the tractor.

MECHANICAL TRANSMISSION - 450, 550

The transmission is controlled by three levers.

Eight forward and eight reverse gears are provided by using the main shift lever, range gear shift lever, and the shuttle drive lever.

MAIN GEAR SHIFT LEVER

The main gear shift lever (1) selects four speed ratios (1,2,3,4) which are fully synchronized. To change from one speed to another in the same range, shift the main shift lever after depressing the clutch. (The gears are synchronized in order to shift without stopping.) (See Fig. 16-1).

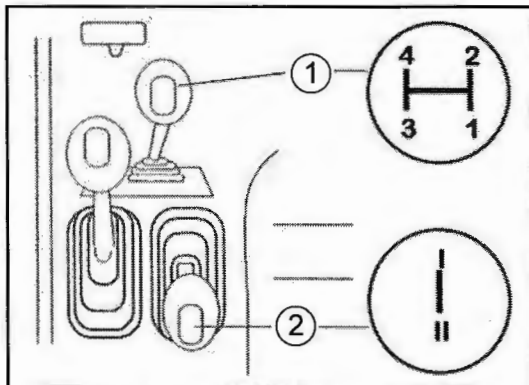


Fig. 16-1 - Main Gear Shift Lever and Range Gear Shift Lever

RANGE GEAR SHIFT LEVER

The range shift lever (2) provides two speed ranges which are not synchronized.

I = low II = high

To change ranges, stop the tractor and move the range lever after depressing the clutch pedal. (See Fig. 16-1).

! Warning: Anytime the tractor is left unattended, both the gear shift lever and the range selector lever must be placed in neutral. If this procedure is not followed the tractor can jump in gear causing personal injury or death.

CREEPER GEAR SHIFT LEVER (DTC MODELS ONLY)

An additional creeper lever (3) is used to select the creeper gear which provides eight additional forward and reverse speeds. (See Fig. 16-2).

A - Creeper Mode - Pull Up
B - Standard Mode - Push Down

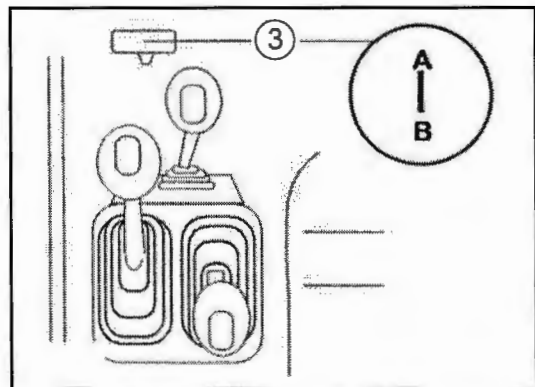


Fig. 16-2 - Creeper Gear Shift Lever

SHUTTLE DRIVE LEVER

The shuttle drive is operated as follows:

F = Forward N = Neutral R = Reverse

Although the tractor does not have to be stopped completely to reverse the direction of travel, you should stop the tractor, depress the clutch pedal and shift the shuttle lever (4) for safety. (See Fig. 16-3).

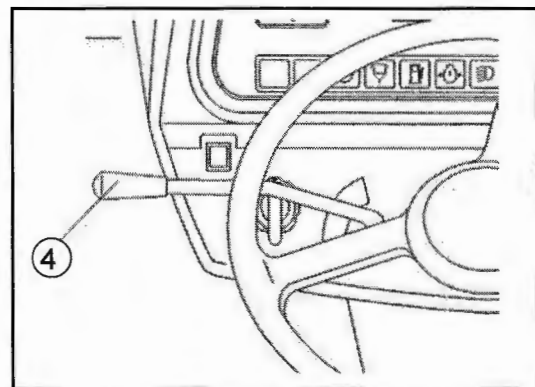


Fig. 16-3 - Shuttle Drive Lever

! Caution: With the engine running and just one gear lever in neutral, the transmission could be accidentally engaged if the lever is bumped. To prevent this from occurring, always move both levers to the neutral position, lower the implement and stop the engine before leaving the tractor.

SPEED IN MPH AT MAXIMUM POWER

Note: Gears should be selected to avoid overloading the engine. Please refer to the ground speeds with the engine operating at rated speeds indicated.
(410 DTC/450/450 DTC=2600 RPM, 470 DTC=2700 RPM, 530 DTC/550/550 DTC=2500 RPM)

Landtrac 410 DTC/450/450 DTC

| Mode | Creeper (A)-DTC only | | | | | | | | Standard (B) | | | | | | | |
|---------|----------------------|------|------|-----|-----------|-----|-----|-----|--------------|-----|-----|-----|-----------|-----|------|------|
| Range | Low (I) | | | | High (II) | | | | Low (I) | | | | High (II) | | | |
| Gear | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Forward | 0.1 | 0.2 | 0.25 | 0.3 | 0.6 | 0.9 | 1.2 | 1.7 | 1.1 | 1.5 | 2.0 | 3.0 | 4.4 | 6.4 | 8.6 | 12.7 |
| Reverse | 0.2 | 0.25 | 0.3 | 0.5 | 0.7 | 1.1 | 1.5 | 2.2 | 1.3 | 1.9 | 2.5 | 3.7 | 5.5 | 8.0 | 10.8 | 16 |

Landtrac 470 DTC

| Mode | Creeper (A)-DTC only | | | | | | | | Standard (B) | | | | | | | |
|---------|----------------------|------|-----|-----|-----------|-----|-----|-----|--------------|-----|-----|-----|-----------|-----|------|------|
| Range | Low (I) | | | | High (II) | | | | Low (I) | | | | High (II) | | | |
| Gear | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Forward | 0.1 | 0.2 | 0.3 | 0.4 | 0.6 | 0.9 | 1.2 | 1.9 | 1.1 | 1.6 | 2.2 | 3.2 | 4.8 | 6.8 | 9.3 | 13.7 |
| Reverse | 0.2 | 0.25 | 0.4 | 0.6 | 0.8 | 1.2 | 1.6 | 2.3 | 1.4 | 2.0 | 2.7 | 4.0 | 6.0 | 8.6 | 11.6 | 17.2 |

Landtrac 530 DTC/550/550 DTC

| Mode | Creeper (A)-DTC only | | | | | | | | Standard (B) | | | | | | | |
|---------|----------------------|------|-----|-----|-----------|-----|------|-----|--------------|-----|-----|-----|-----------|-----|------|------|
| Range | Low (I) | | | | High (II) | | | | Low (I) | | | | High (II) | | | |
| Gear | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Forward | 0.2 | 0.25 | 0.3 | 0.5 | 0.7 | 1.0 | 1.36 | 2.1 | 1.2 | 1.7 | 2.4 | 3.5 | 5.2 | 7.5 | 10.1 | 15 |
| Reverse | 0.2 | 0.25 | 0.3 | 0.5 | 0.8 | 1.1 | 1.4 | 2.2 | 1.3 | 1.9 | 2.5 | 3.7 | 5.5 | 8.0 | 10.8 | 15.8 |

Note: The ground travel speeds shown above in the three tables are obtained using 12.4-28-R1 rear tires on the Landtrac 410 DTC/450/450 DTC. The 470 DTC 530 DTC/550/550 DTC use a 13.6-28-R1 rear tire. The actual speeds will vary with different tire sizes, tire loads, and air pressure.

FOUR WHEEL DRIVE (DTC MODELS ONLY)

Four wheel drive can increase the tractor's grip in less than favorable conditions. The benefits of this are particularly noticeable when working on uneven, muddy or slippery ground, on plowed ground or in other difficult conditions.

To change from two wheel drive to four wheel drive, stop the tractor, depress the clutch pedal and then shift the four wheel drive select lever (1) forward. (See Fig. 17-1).

Caution: Use two wheel drive only on hard surfaces to prevent premature wear to the front tires, and possible damage to the Drive Train. Abnormal tire wear can also indicate incorrect tire pressure.

Caution: If tractor is equipped with a Front Loader, weight must be added to the rear of the tractor for stability and reduction of load on the Front Axle. Failure to do this can result in possible damage to the Drive Train.

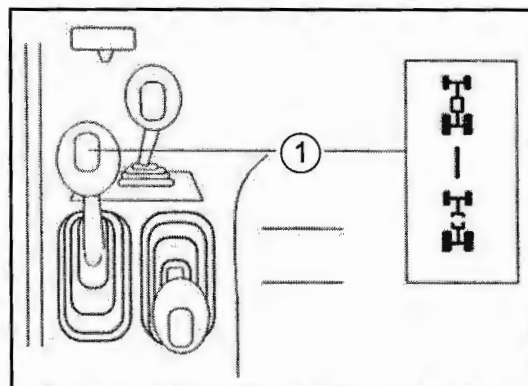


Fig. 17-1 - Four Wheel Drive Select Lever

REAR DIFFERENTIAL LOCK

The differential allows the drive wheels to rotate at different speeds when the tractor is turning. The differential has a locking device, controlled by the pedal (1). (See Fig. 17-2). It is advisable to lock the differential in the following conditions only:

1. When one wheel is on uneven, muddy or slippery ground and tends to slip while the other grabs.
2. In plowed fields, to prevent the wheel which is out of the furrow from slipping.

To lock the differential, reduce the speed and depress the pedal fully. To release the lock, press the brake pedal.

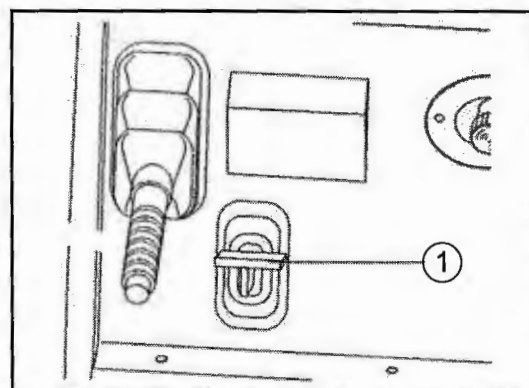


Fig. 17-2 - Rear Differential Lock Pedal

Caution: Do not keep the differential locked unnecessarily as this robs power, can cause damaging stresses in the transmission system, tire wear and steering problems. Do not use the differential in the locked position on hard surfaces.

POWER TAKE-OFF

The power take-off fitted to your tractor is used to transfer power from the engine to the implement. (See Fig. 18-1).

All tractors, models 410 DTC, 450, 450 DTC, 470 DTC, 530 DTC, 550, 550 DTC are fitted standard with a power take-off synchronized at 540 RPM. It is a single speed independent electro-hydraulic control type.

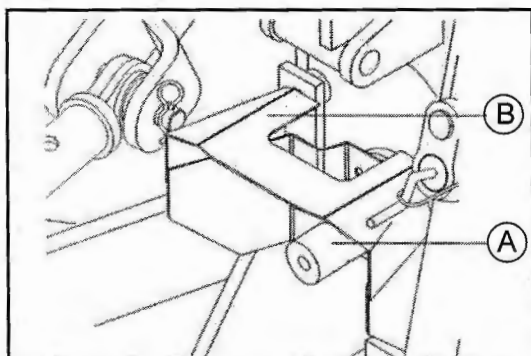


Fig. 18-1 - Power Take-Off

Caution: When the PTO is not in use, always keep the shaft cover (A) mounted over the splined shaft.

Caution: When the PTO is not in use, with or without an implement connected to the shaft, ensure the independent electro-hydraulic PTO control switch is in the **OFF** position.

Caution: Never operate an implement connected to the PTO at a speed faster than specified.

Danger: Never stand on the safety guard (B) when the PTO is in use.

Danger: Always shut the engine off when working on an implement connected to the PTO.

Caution: The electronic system, which controls the PTO, prevents the engine from starting if the PTO is engaged. Modifications to the system may defeat this and other safety features.

OPERATIONS OF THE POWER TAKE-OFF

The independent electro-hydraulic power take-off is fitted with a six spline, 1 3/8" (34.87mm) diameter output shaft rated for 540 RPM PTO operation.

By using the electro-hydraulic PTO control switch, the PTO can be engaged and disengaged on the move without engaging the transmission clutch, even under load. When the PTO switch is on, the PTO light on the instrument panel comes on.

After using the PTO, ensure the independent electro-hydraulic PTO control switch (1) is in the **OFF** position to disengage the PTO clutch. (See Fig. 18-2).

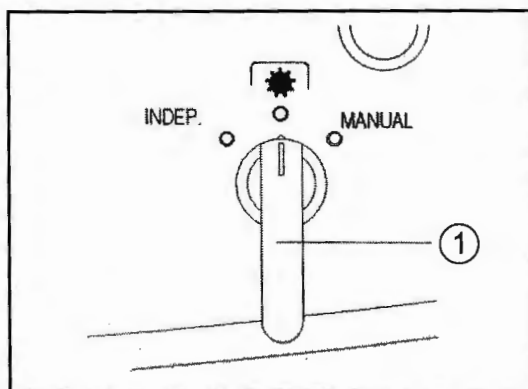


Fig. 18-2 - Power Take-Off Switch

Move the independent electro-hydraulic PTO control switch (1) to the **INDEPENDENT** or **MANUAL** position to operate the PTO.

INDEPENDENT Position - When the power take-off is set in this position, the shaft always rotates. The operation of the PTO is totally independent of the tractor's speed, therefore the tractor can be stopped without stopping the PTO. To stop the PTO in this position, simply turn the independent electro-hydraulic PTO switch to the **OFF** position.

MANUAL Position - When the power take-off is set in this position, the shaft stops rotating automatically when the transmission clutch pedal is depressed.

The shaft rotates in a clockwise direction. This is determined while viewing the tractor from behind.

Caution: Shut the engine off and disengage the power take-off before attaching the PTO-driven equipment.

Caution: Before attempting to clean, adjust or lubricate any PTO-driven implement, always make sure the power take-off is switched off, tractor engine is shut off and the ignition key is removed.

SEAT AND WHEEL TRACK ADJUSTMENT

SEAT ADJUSTMENT

To move the seat forward or backward, pull lever (1) sideways and move the seat in the desired direction. Release the lever to lock the seat into position. (See Fig. 19-1 & Fig. 19-2).

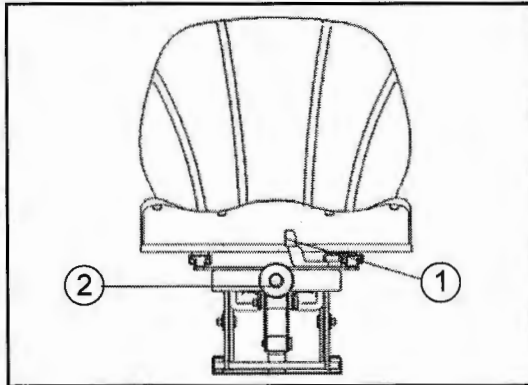


Fig. 19-1 - Seat Adjustment

Seat Suspension Adjustment

To adjust the suspension, turn the knob (2) clockwise or counter-clockwise based on your weight. (See Fig. 19-1 & 19-2).

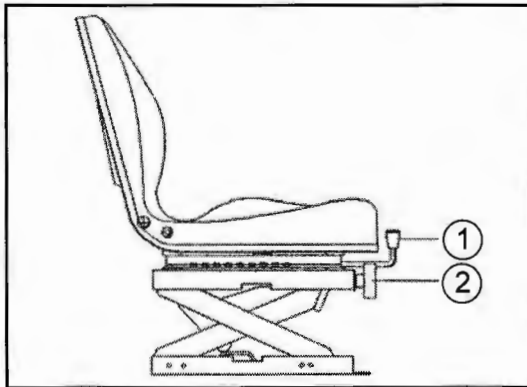


Fig. 19-2 - Seat Suspension Adjustment

Warning: To avoid danger, follow the instructions below:

- Do not adjust the seat when the tractor is moving.
- Check the attaching bolts periodically.
- To prevent injury, no objects should be placed within the moving area of the driver seat.
- Seatbelt must be fastened before driving when the ROPS is fully extended and locked.

SEAT BELT

To fasten the seat belt, insert tongue (3) into (1). To unfasten the seat belt, press button (2) and pull it out. (See Fig. 19-3).

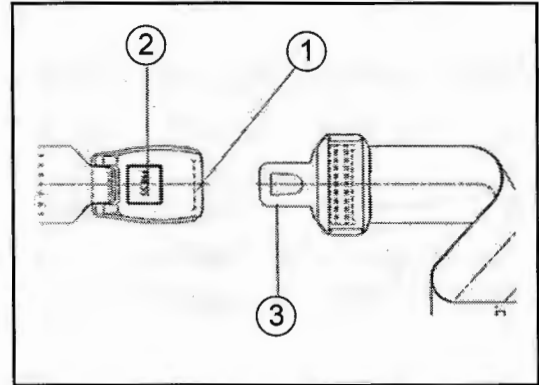


Fig. 19-3 - Seat Belt

WHEEL TRACK ADJUSTMENTS -- 450, 550

Adjusting Front Wheel Tracks

Front wheel tracks of different widths can be obtained by extending or retracting the front axle. (See Fig. 19-4 for 410, 530 adjustments).

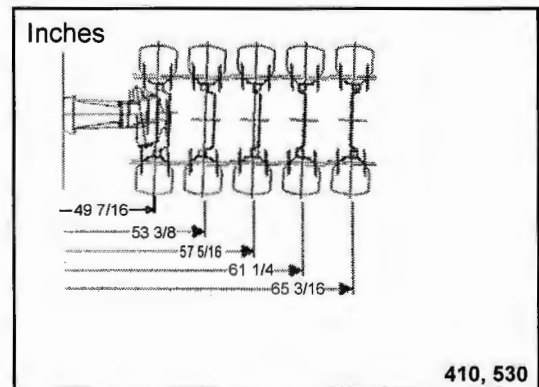


Fig. 19-4 - Front Wheel Track Adjustments

Adjusting Rear Wheel Tracks

Rear wheel tracks of different widths can be obtained by moving the rear disc positions. (See Fig. 20-1 for 450 adjustments). (See Fig. 20-4 for 550 adjustments).

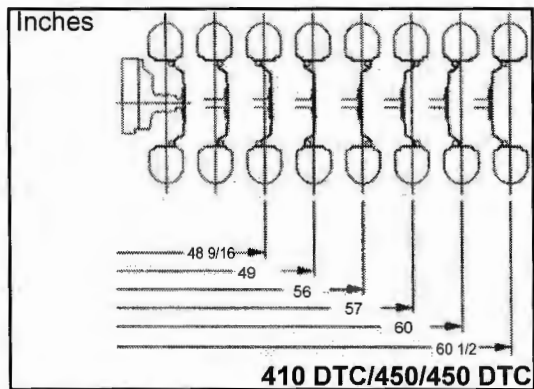


Fig. 20-1 - Rear Wheel Track Adjustments

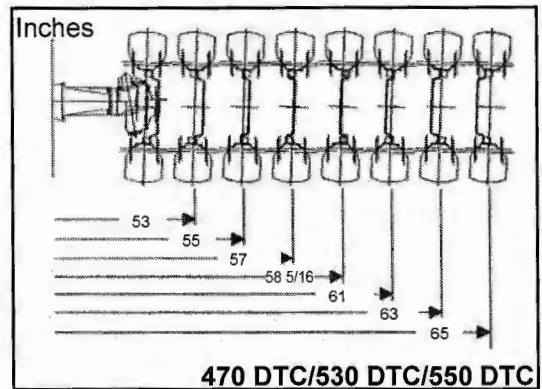


Fig. 20-3 - Front Wheel Track Adjustments

WHEEL TRACK ADJUSTMENTS -- DTC

Adjusting Front Wheel Tracks

Front wheel tracks of different widths can be obtained by moving the front disc positions. (See Fig. 20-2 for 410 DTC/450 DTC adjustments). (See Fig. 20-3 for 470 DTC/ 530 DTC/550 DTC adjustments).

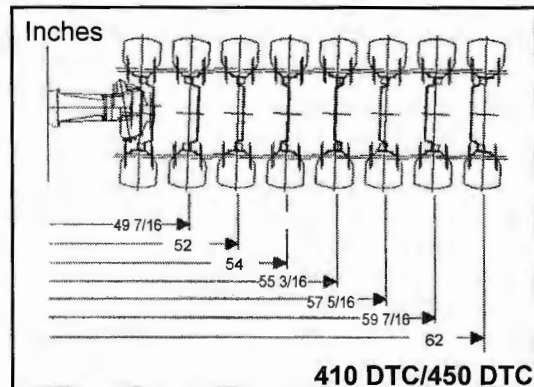


Fig. 20-2 - Front Wheel Track Adjustments

Adjusting Rear Wheel Tracks

Rear wheel tracks of different widths can be obtained by moving the rear disc positions. (See Fig. 20-1 for 410 DTC/450 DTC adjustments). (See Fig. 20-4 for 470 DTC/ 530 DTC/550 DTC adjustments).

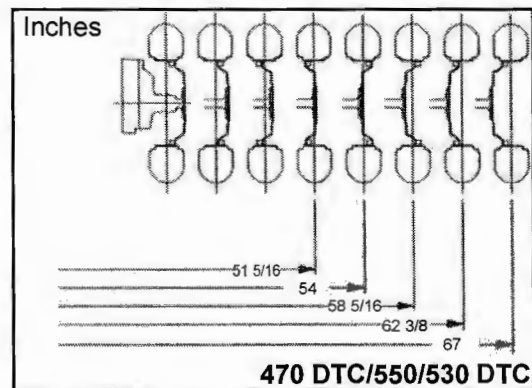


Fig. 20-4 - Rear Wheel Track Adjustments

When adjusting the track widths, ensure that the points of the tire treads are still facing the direction of forward travel.

⚠ Danger: When removing the wheels, proceed with extreme caution. Use a suitable means to lift the tractor and use jack stands for support. Use appropriate equipment to move heavy parts.

HYDRAULIC LIFT

The hydraulic lift system uses the transmission oil which is supplied by a gear pump mounted on the engine and driven from the engine timing gear.

The position control lever (1) and the draft control lever (2) are used to select and operate the most suitable mode for the implement and the conditions. (See Fig. 21-1).

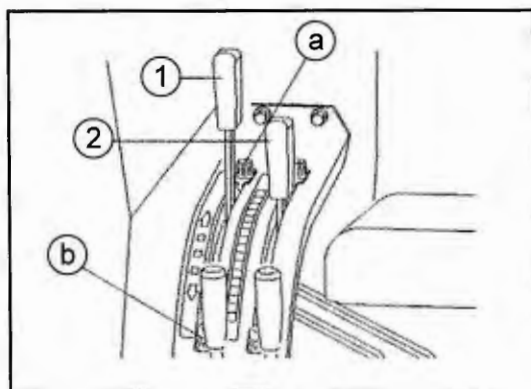


Fig. 21-1 - Hydraulic Lift Controls

Position Control

Move the draft control (2) completely forward to make the draft control non-operative.

To set the position of the implement used (either in or above ground) shift the position control lever (1) forward to lower it and backward to raise it. The movement of the implement will be proportionate to the movement of the position lever.

To keep the height of the implement within the desired range, restrict the lever to the lowest position with the stop (b) and to the highest position with the stop (a).

Draft Control

Move the hydraulic sensor lever (1) to position (A) for the draft control to work. (See Fig. 21-2).

Move the position lever (1) completely forward to make the position control non-operative. (See Fig. 21-1).

The desired implement depth can be set in the ground by gradually shifting the draft control lever (2). (See Fig. 21-1). The depth which is reached by the implement is proportionate to the traction power which will be determined by soil consistency. When set in draft control position, the lift will automatically maintain the proper traction power required from the tractor at constant level.

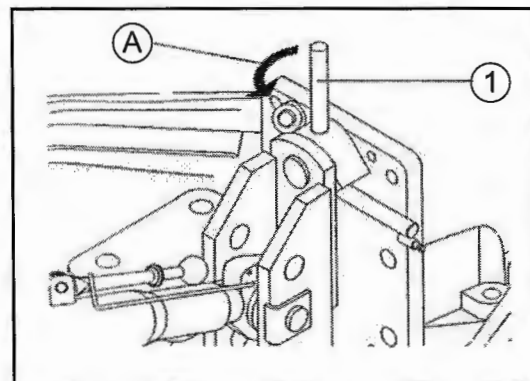


Fig. 21-2 - Hydraulic Sensor Control Lever

Mixed Position & Draft Control

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

When the implement is set at the desired depth, gradually shift the position lever (1) until the link arms start to rise. (See Fig. 21-3).

The lift operates in draft control, but at the same time, it also prevents the implement from raising or going too deep into the soil.

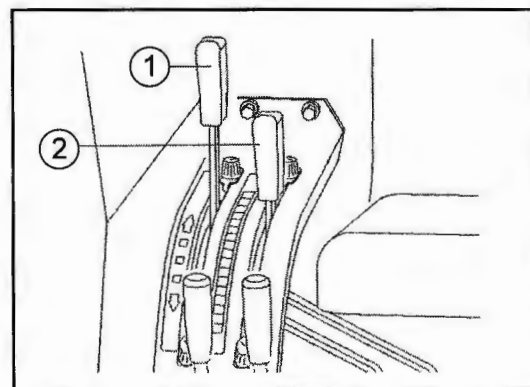


Fig. 21-3 - Mixed Position & Draft Control

Hydraulic Lift Speed Control

To lower the implement slowly, turn the hydraulic lift speed control knob (1) in a counter clockwise direction (A) for low speed. If the knob is turned until it stops in direction (A) the implement will not move down.

To lower the implement fast, turn the hydraulic lift speed control knob (1) in a clockwise direction (B) for high speed. (See Fig. 22-1).

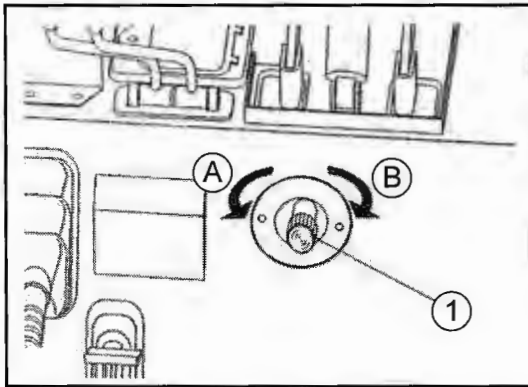


Fig. 22-1 - Hydraulic Lift Speed Control

INTRODUCTION

The Landtrac 410 DTC/450/450 DTC/470 DTC/530 DTC/550/550 DTC are supplied with a category II and an optional category I 3-point hitch. Listed below are the main components of the 3-point hitch. (See Fig. 23-1).

1. Adjustable Length Top Link
2. Right Side Lift Rod
3. Lateral Stabilizers
4. Lower Lift Arm
5. Left Side Lift Rod
6. Top Link Attachment Bracket

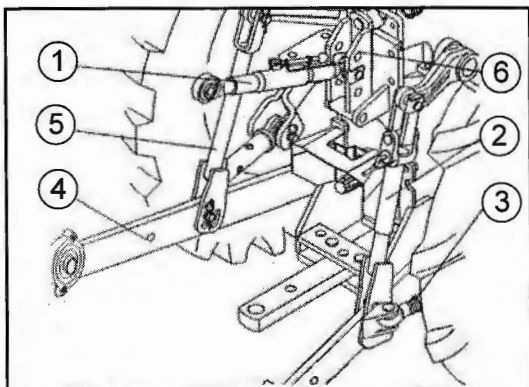


Fig. 23-1 - 3-Point Linkage Components

Top Link Adjustments

The top link (1) can be connected to the attached bracket by using one of three holes. Select the most suitable hole for attaching the implements.

To adjust the top link, rotate the sleeve using the cross pin (2). (See Fig. 23-2).

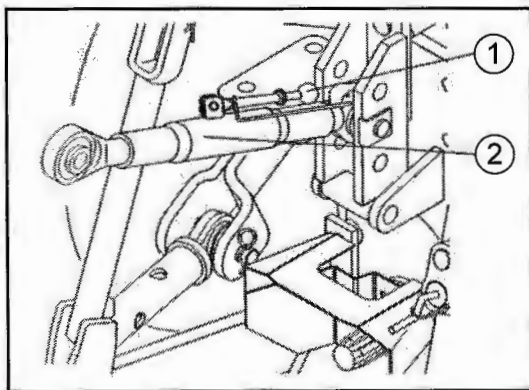


Fig. 23-2 - Top Link Adjustment

Top Link Attachment Bracket

The top link attachment bracket (1) has three holes. Select the most suitable hole. (See Fig. 23-3).

Note: The hole selection for the top link attachment bracket should be made depending on the weight of the implement being used and the amount of draft response needed.

Note: Always use the hair clip pin (2) to hold the retention pin (3) in place.

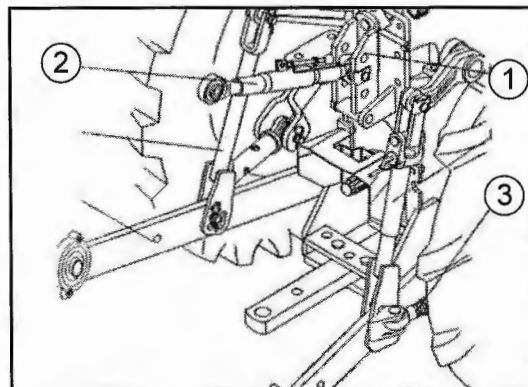


Fig. 23-3 - Top Link Attachment Bracket

Left Side Lift Rod

Adjust the length of the lift rod (1) by one of three holes on the attachment bracket (2). Select the most suitable hole so the implement can be set at its correct working position. (See Fig. 23-4).

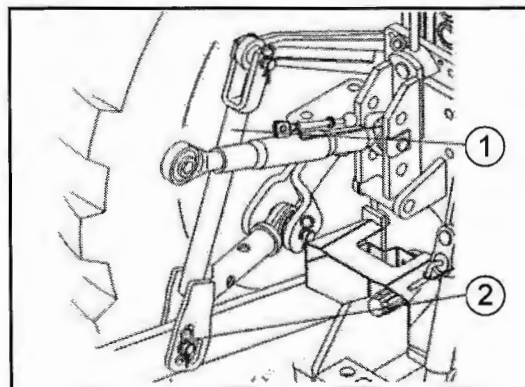


Fig. 23-4 - Left Side Lift Rod

Telescopic Lateral Stabilizers

To adjust the stabilizer length, remove linch pin (1) and rotate the sleeve (2). Rotating the sleeve clockwise will tighten the sleeve and rotating it counterclockwise will loosen the sleeve. (See Fig. 24-1).

Important: Adjust the telescopic lateral stabilizers so that the lateral movement of the lower arms (3) is no greater than 5 inches. Insert lynch pin after making adjustment.

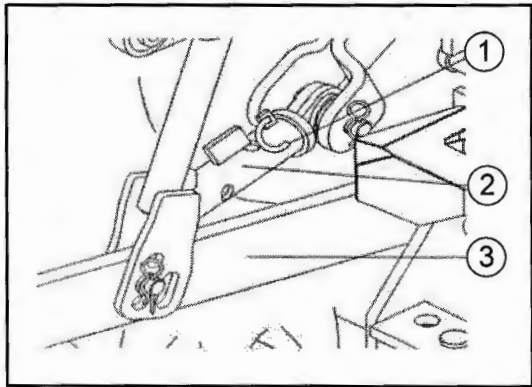


Fig. 24-1 - Lateral Stabilizers

Right Side Lift Rod

The right side lift rod (1) can be adjusted by using the adjustment handle (2). Remove the locking spring (3) from its locking position and make the desired adjustment. Once the adjustment is correct, lock the spring back in its locking position. (See Fig. 24-2).

Note: Adjust the rod length to set the implement in its correct working position.

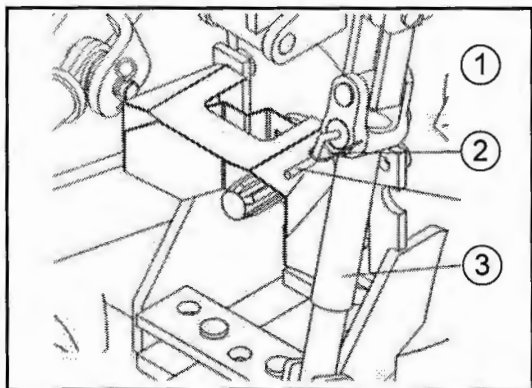


Fig. 24-2 - Right Side Lift Rod

Adjusting Range of Lift Rod and Top Link

The adjustment range of the 3-point lift is as follows:
(See Fig. 24-3).

A [Top Link- 16" - 21.5" (400-545mm)

| | | |
|-----|-----------------------------------------|-----------|
| B [| Lift rods fully shortened - 17" (440mm) | LH |
| | - 16" (400mm) | RH |
| | Lift rods fully extended - 20" (510mm) | LH |
| | - 21.5" (545mm) | RH |

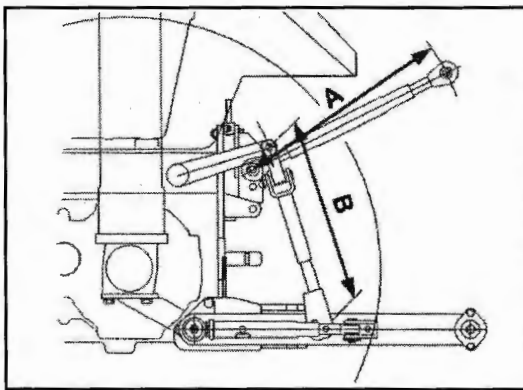


Fig. 24-3 - Top Link Adjustments

Draw Bar Adjustment

The draw bar adjustment is used for implements, agricultural machinery and trailers which have two axles. (See Fig. 24-4).

The wide horizontal trajectory of the draw bar is extremely useful for implements and other machinery that require lateral freedom of movement, such as a baler.

Once an adjustment has been made, the lateral swing of the draw bar can be limited by inserting a limit pin in the desired holes on both sides of the draw bar. For implements using the PTO, mount the clevis facing downward. (See Fig. 24-5).

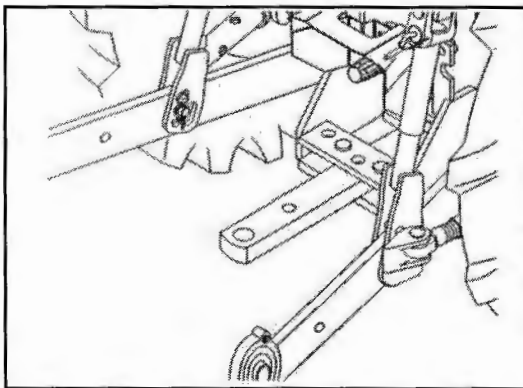


Fig. 24-4 - Draw Bar

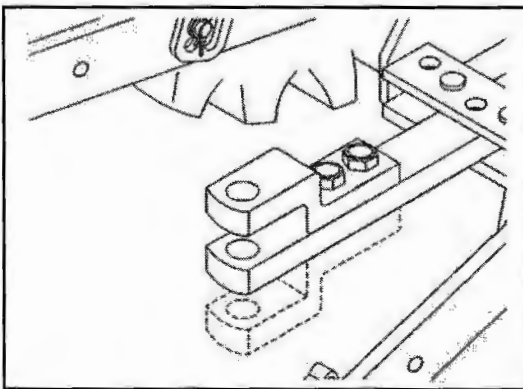


Fig. 24-5 - Clevis Draw Bar

QUICK DISCONNECT COUPLERS

Two control valves are mounted on the tractor for remote control of single-action and double-action cylinders. Each valve has two 1/2" quick-fitting female push-pull couplers. This allows connection of the control cylinder lines without tools. (See Fig. 25-1).

To connect them simply push the sleeve back inserting the hose and to disconnect them, push the sleeve back removing the hose. This should only be done after the following has been done:

- Stop the engine
- Lowering any implement connected to the lift.
- Thoroughly cleaning the two ends to be attached.

Note: The remote control valves use the tractor's transmission and hydraulic oil so it must always be kept at the proper level.

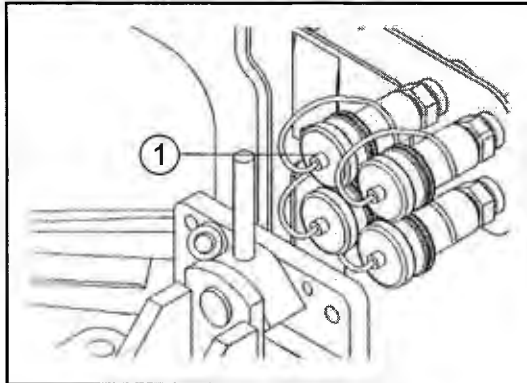


Fig. 25-1 - Quick Disconnect Couplers

Warning: When not using the female couplers, protect them with the plastic caps attached to each. This will prevent dirt and other debris from entering into the hydraulic system which could cause the system to fail.

Remote Control Valve Levers

It is possible to vary the oil flow to the couplers using the remote control valve levers, the outside lever (1) and the inside lever (2) as follows: (See Fig. 25-2).

- Pushing the control lever forward and down increases the flow to the couplers. The lower port becomes the pressure side and the upper port becomes the return side. (See Fig. 25-3).
- Pull the control lever up to reduce the oil flow to the couplers.

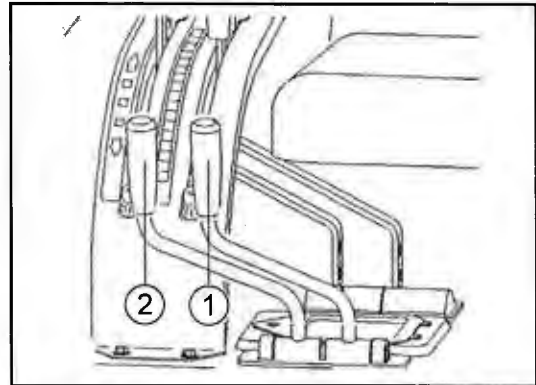


Fig. 25-2 - Remote Control Valve Levers

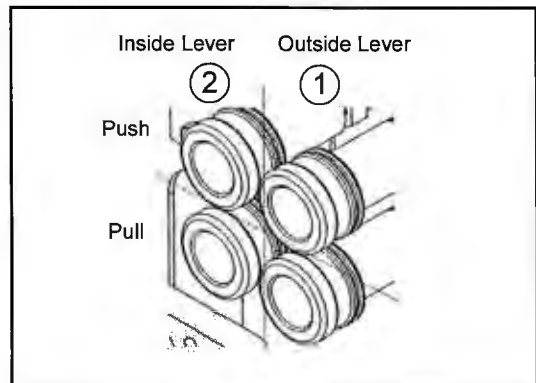


Fig. 25-3 - Quick Disconnect Identification

Caution: Leaks from a pressurized hydraulic line can penetrate the skin and cause severe injury. If hydraulic fluid does penetrate the skin, seek medical assistance immediately to prevent the possibility of gangrene setting in.

Caution: Never use your hands to locate a hydraulic leak. We recommend the use of cardboard and safety glasses whenever checking for hydraulic leaks.

Caution: Switch off the engine and bleed the pressure before connecting or disconnecting pressurized lines.

Caution: Tighten all connections before starting the engine or pressurizing the hydraulic system.

Single Action/Double Action Switching

To switch the control valve to:

Single-Action - Turn knob (1) to position (A) until it stops. The port (1) is now operating in single action. (See Fig. 26-1).

Double-Action - Turn knob (1) to position (B) until it stops. (See Fig. 26-1).

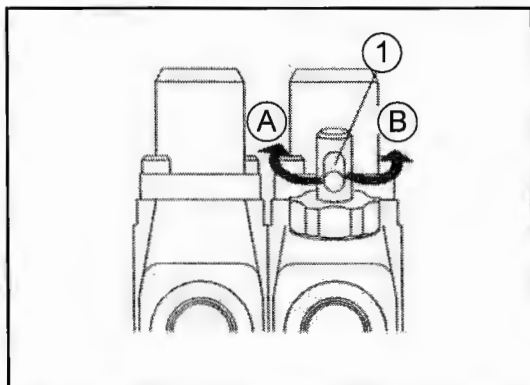


Fig. 26-1 - Single Acting/Double Acting Switching

Single-Action Coupling

First hitch the equipment to the tractor draw bar. With the engine shut off, connect the hydraulic line to the coupler (1) on the tractor (See Fig. 26-2).

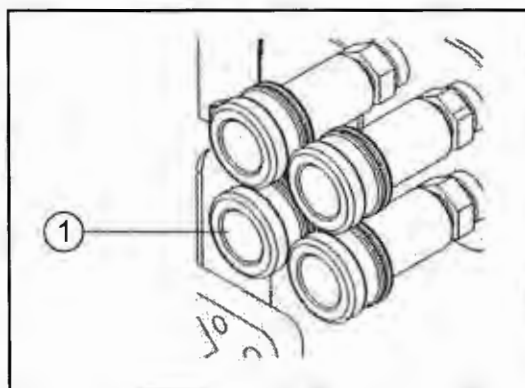


Fig. 26-2 - Single-Action Coupling

Caution: Before connecting the equipment, check and make certain that the parking brake is set and the tractor is in neutral.

CLUTCH PEDAL ADJUSTMENT

Check that distance (A), the amount of clutch pedal play, measures between $3/4"$ to $1\ 3/16"$ to prevent abrasion in the clutch system. If not, adjust the control until you reach the correct measurement as shown. (See Fig. 27-1).

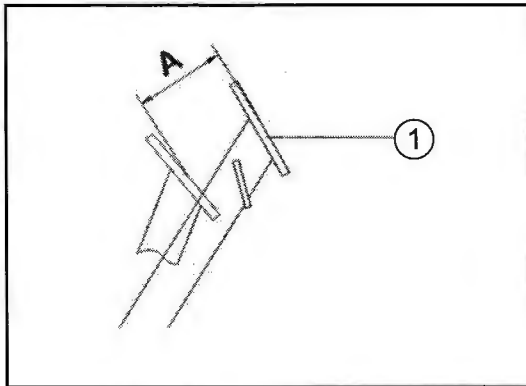


Fig. 27-1 - Clutch Pedal Adjustment

- Release the locking nut (2) and turn the rod (3) counter-clockwise.
- Check that distance (A) is correct before tightening the lock nut. (See Fig. 27-2).

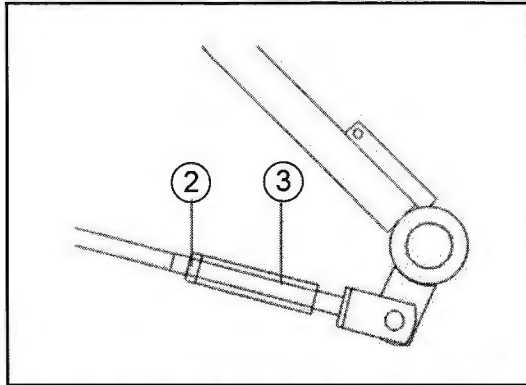


Fig. 27-2 - Clutch Pedal Adjustment Rod

BRAKE PEDAL ADJUSTMENT

Check that distance (B), the amount of brake pedal play, measures between $1\ 9/16"$ to $2"$ to prevent abrasion in the brake system. If not, adjust the control until you reach the correct measurement as shown. (See Fig. 27-3).

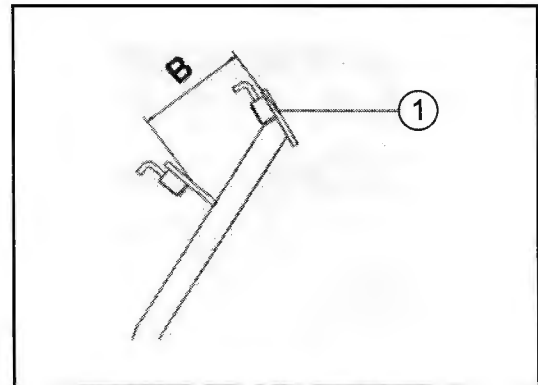


Fig. 27-3 - Brake Pedal Adjustment

- Release the locking nut (2) and turn the rod (3) counter-clockwise.
- Check that distance (B) is correct before tightening the lock nuts. (See Fig. 27-4).

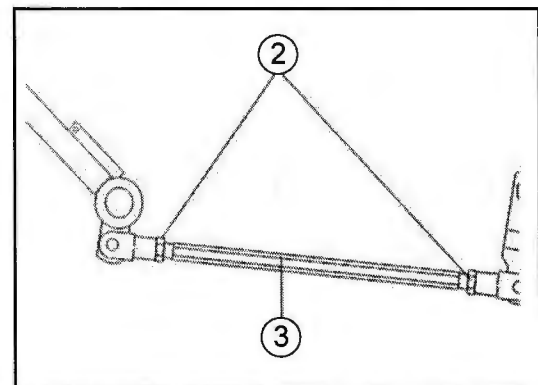


Fig. 27-4 - Brake Pedal Adjustment Rod

- After adjusting the pedal play, press down on the brake pedals while the tractor is in motion. If the brakes are not properly adjusted, the tractor may pull to the right or left while braking. If this does occur, readjust the brake travel for the side opposite the direction of pull.

Note: If the distance (B) of brake pedal play is over $2"$, make adjustments to the length of the rod.

FAN BELT ADJUSTMENT

To check the proper tension of the fan belt (1), press against it with a force of approximately 22 lbs. (See Fig. 28-1).

Measure the amount of deflection. If the belt moves more than $3/8"$ to $1/2"$, adjustment is necessary.

For adjustment, loosen bolts (2) and (3). Insert a pry bar between alternator (4) and the cylinder block to adjust the required belt deflection. Retighten bolts (2) and (3).

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

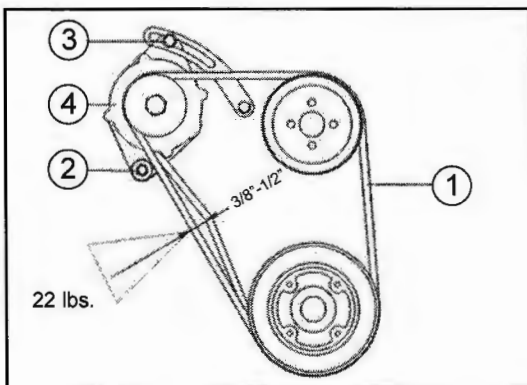


Fig. 28-1 - Fan Belt Adjustment

CLUTCH HOUSING (WATER DRAINING)

Condensation may cause water to accumulate in the clutch housing. If this does occur, the following should be done. (See Fig. 28-2).

- Remove the rubber plug (1) to allow all of the water to drain from the housing.
- Make sure that the water is completely drained.
- Install the rubber plug.

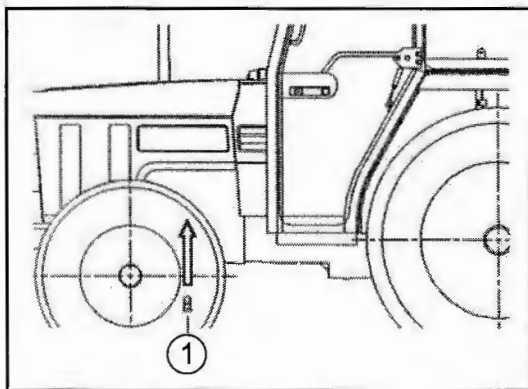


Fig. 28-2 - Clutch Housing

AIR FILTER SYSTEM

Cleaning Primary Filter Element

Remove the cover (1), take out primary filter element (2) and clean as follows: (See Fig. 28-3).

- When serviced in the field, tap it on the palm of your hand as a temporary measure.

Note: Never clean air filter element by tapping it on a hard surface. Change the filters when cracks appear.

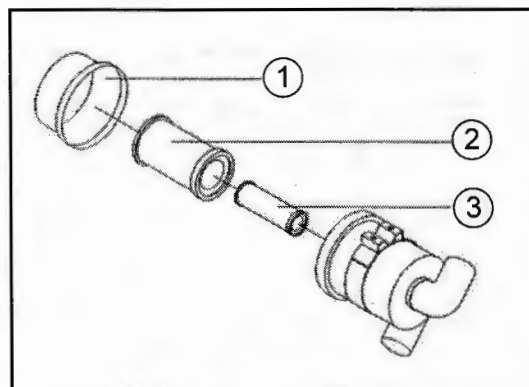


Fig. 28-3 - Dry Type Air Cleaner

- If tapping element does not remove dust, blow out dust with compressed air (not exceeding 72.5 psi) by inserting the air line nozzle inside the element and blowing air through the element to the outside as shown. (See Fig. 28-4).

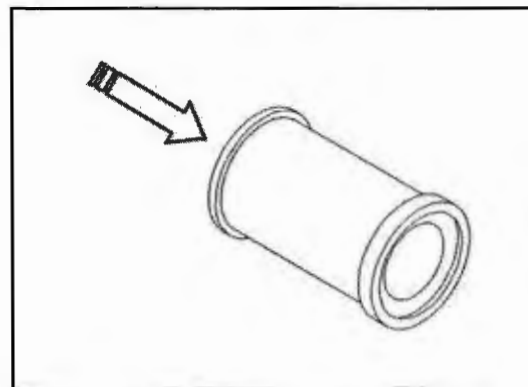


Fig. 28-4 - Cleaning Filter Element

- Clean the inside of the cover carefully with a damp cloth.
- Wash the element in a solution of lukewarm water, soaking it for approx. 10 minutes before stirring it in the solution for approx. 5 minutes. Rinse thoroughly with clean water. Shake excess water from element and allow it to dry.

⚠ Caution: Never run the engine without the primary filter element.

Safety Filter Element

Safety filter element (3) must be changed if it becomes damaged and at every third service of the air cleaner primary element. Change it at least once a year. (See Fig. 28-3).

Important: Always replace safety filter element, do not attempt to clean it.

INSTALLATION

Slide a serviced or new primary filter element down until it makes contact with the end of the filter housing.

Important: Never close the hood or start the engine unless the filter is locked securely.

CLEANING COOLING FAN AND RADIATOR SCREEN

With a jet of compressed air (not exceeding 72.5 psi) clean off any dirt accumulated on the radiator screen (1), (See Fig. 29-1) and cooling fan (2). (See Fig. 29-2).

Note: For efficient cooling, the radiator screen must be kept clean. Remove any dust or oil and carefully straighten any bent fins. Reinstall screens.

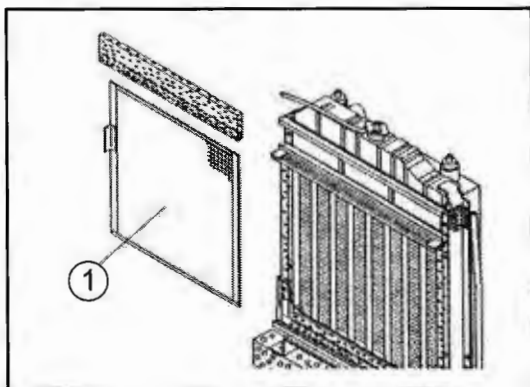


Fig. 29-1 - Radiator Screen

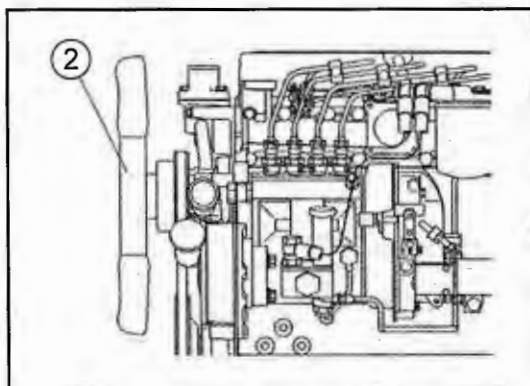


Fig. 29-2 - Cooling Fan

CHECKING LIGHTS

Check that all lights are operating correctly, especially before driving on public roads. Comply with all legal regulations.

FUELS

Diesel fuels are classified as either No. 1 or No. 2 fuels. No. 2 diesel fuel is heavier and will produce more work per gallon and is recommended for temperatures above 32°F (0°C). No. 1 diesel fuel is lighter and is recommended for temperatures below 32°F (0°C). At these low temperatures, the waxes in No. 2 diesel fuel may solidify and clog the fuel injection system.

Note: Be sure to use **only** diesel fuel and not fuel oil, which is formulated for furnaces. Even though the petroleum fractions are the same, fuel oil contains much more dirt and contains deposits which are very unsuitable for internal combustion engines and fuel injection systems.

FUEL CARE

No fuel is satisfactory for use if it is dirty. Fuel injection systems are seriously affected by dirt, water, and other sediments. For proper engine performance, only clean fuel must enter the injection pump. The following "rules of thumb" should be covered when handling fuels:

1. Do not handle fuel in open containers.
2. Do not use dirty or lint filled rags around fuel containers or injection equipment.
3. Clean all storage tanks at regular intervals.
4. If pumps are used to transfer fuel from storage tanks to the tractor, keep them covered with dust proof covers when not in use.
5. When emptying a drum or storage tank, agitate the fuel as little as possible, and leave approximately one inch of fuel in the bottom of the tank or drum. This fuel may contain water and sediment.
6. Store fuel in tanks or drums which are manufactured especially for fuel. Use a tank with a water trap or other form of filtering device.

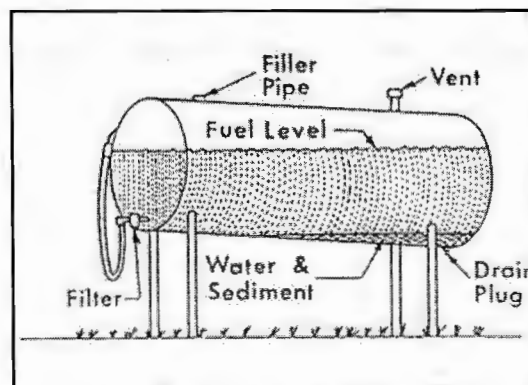


Fig. 29-3 - Fuel Storage Tank

TRACTOR LUBRICATION AND MAINTENANCE

The following information deals with the lubrication and maintenance of your tractor. Be sure to follow the recommended time intervals and use the types of oils and lubricants which are recommended.

TRACTOR LUBRICATION

The service life and dependability of your tractor depends largely on you, as well as the use of proper lubricants.

Tractor lubrication is, therefore, one of the most important service operations you will perform to your tractor and it will require particular attention.

| ASSEMBLY | QUANTITY | QUALITY |
|-------------------------------|----------------------------------------|-----------------------------------------------|
| Cooling System | 410/450/470 9.5 qts. (9L) | Permanent type Antifreeze |
| | 530/550 10.5 qts. (10L) | |
| Fuel Tank | 17.2 gals. | Diesel fuel |
| Engine Oil Sump and Filter | 410/450/470 8.5 qts. (8L) | SAE 15W-40, API Rating SF, CD, Series 3 |
| | 530/550 11.5 qts. (11L) | |

1. Check the level of the oil in the engine, gear box, final drives, etc. Do so when the engine is cold and the tractor itself is on a level surface.
2. Oil changes should be made at the end of the day's work while the oil is hot. When the oil is heated it flows much easier.
3. Clean grease fittings before applying grease with a grease gun, as well as afterwards, to prevent accumulations of dirt or dust.
4. Clean your tractor weekly, removing dust, dirt, and mud. After using pest controls and fertilizers, remove the residue from the tires.

| ASSEMBLY | QUANTITY | QUALITY |
|---------------------------------------|--------------------|-----------------------------------|
| Transmission/ Hydraulics | 39 qts. (37L) | Chevron 1000 THF or Equivalent |
| Final Drive Housing (each side) | 7.4 qts. (7L) | SAE 90 Gear Oil |
| Front Axles (DTC only) | 10.5 qts. (10L) | SAE 90 Gear Oil |
| Grease Fitting | — | Multi-purpose |

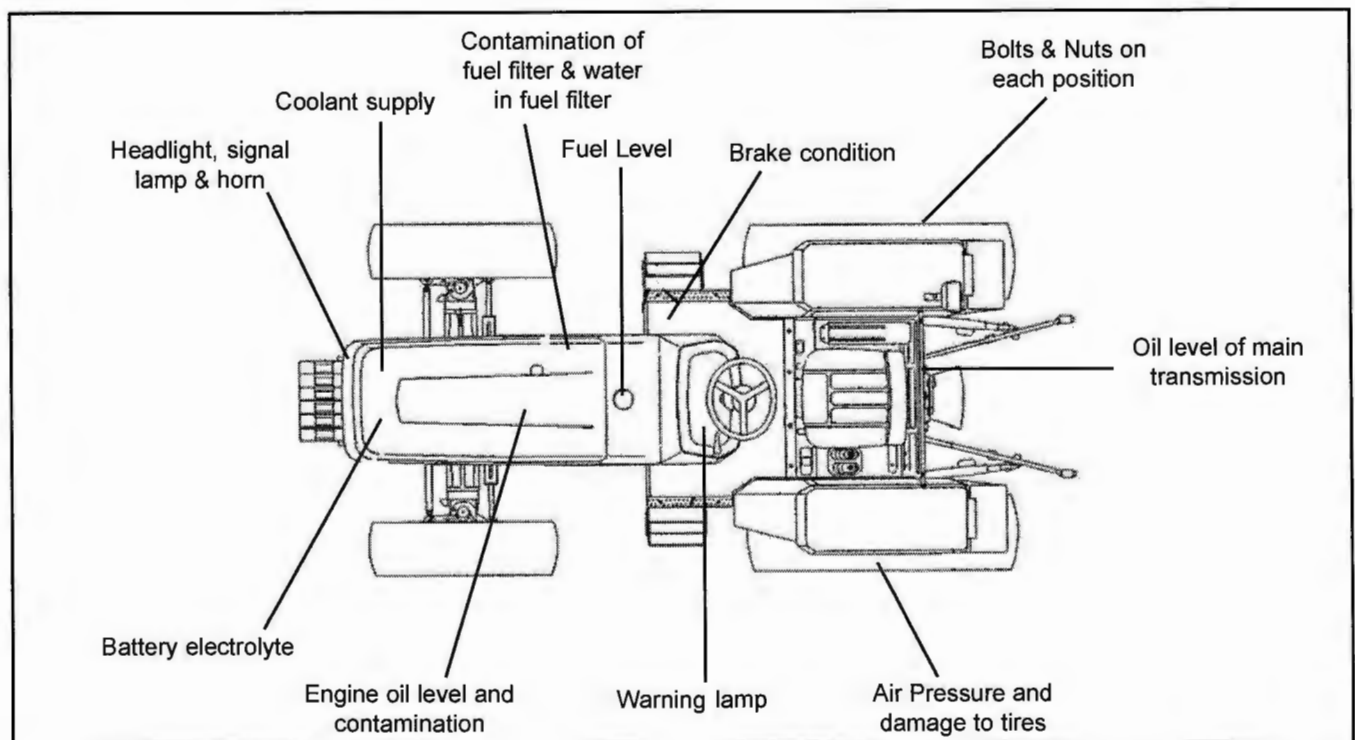


Fig. 30-1 - Check before starting the engine

| Break-In Period | | Maintenance To Be Performed | Normal Maintenance and Lubrication Period | | | | | |
|-----------------|----|-----------------------------------------------------------------------------------|-------------------------------------------|----|-----|-----|-----|------|
| 8-10 | 50 | | Operating Hours | | | | | |
| | | | 10 | 50 | 200 | 400 | 800 | 1000 |
| • | | Check engine oil sump level | • | | | | | |
| | • | Change engine oil | | | • | | | |
| | • | Change engine oil filter | | | • | | | |
| • | | Check engine radiator coolant level | • | | | | | |
| | | Change engine radiator coolant | | | | | • | |
| | • | Check fan V-belt tension | • | | | | | |
| | | Drain and clean fuel tank | | | | • | | |
| | • | Change fuel filter element | | | • | | | |
| | | Clean fuel filter bowl | | • | | | | |
| | | Change air cleaner elements | | | • | | | |
| | | Remove air filter assembly, disassemble and clean | | | • | | | |
| | • | Adjust clutch pedal free play (if needed) | | | • | | | |
| | • | Adjust brake pedal free play (if needed) | | | • | | | |
| • | | Check oil level of transmission housing/hydraulic system | • | | | | | |
| | | Change oil in transmission housing/hydraulic system | | | | • | | |
| | • | Change transmission/hydraulic system filter element | | | | • | | |
| • | | Check tire pressures | • | | | | | |
| | • | Check level of battery electrolyte | • | | | | | |
| | • | Lubricate tie rods | | • | | | | |
| | • | Lubricate steering knuckle pivot | | • | | | | |
| | • | Lubricate front axle pivot | | • | | | | |
| | • | Lubricate clutch pedal | | • | | | | |
| | • | Lubricate brake pedal | | • | | | | |
| | • | Lubricate three point hitch and hydraulic lift mechanism | | • | | | | |
| • | | Check tightness of all bolts, nuts, fittings and unions Torque to proper value | • | | | | | |
| | • | Have dealer check valve clearance and torque head bolts | | | | • | | |
| | • | Change oil in front axle housing (DTC only) | | | | • | | |
| • | | Check oil level in front axle housing (DTC only) | • | | | | | |
| | • | Change oil in final drive | | | | • | | |
| • | | Check oil level in final drive | • | | | | | |
| | | Clean cooling fan and radiator screen | | • | | | | |
| | • | Drain water in clutch housing (if needed) | | | • | | | |
| | | Check lights | | | • | | | |
| | | Have dealer adjust injector pressure | | | | | • | |

Fig. 31-1 - Maintenance Chart

CHANGING ENGINE OIL

With the tractor on level ground, drain oil by removing the drain plugs (1) and install drain plugs after draining oil. Fill engine sump with fresh oil at fill point (2). (See Fig. 32-1).

Run engine for a short time and check for leaks at filter base and drain plugs.

Shut-off engine and wait 10 minutes then recheck oil level adding oil if needed.

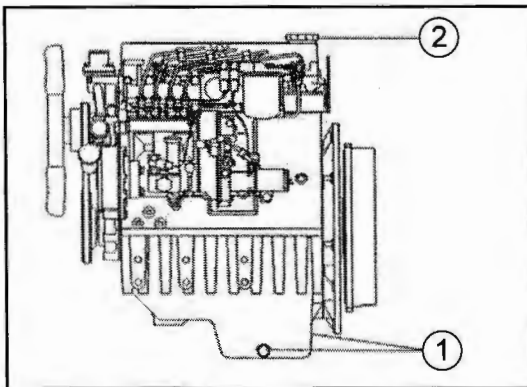


Fig. 32-1 - Engine Oil

Note: Change the engine oil and filter regularly after every **200** hours of operation.

Note: For oil quantities and grades, see the **LUBRICANT SPECIFICATION TABLES**.

CHANGING OIL IN FRONT AXLE HOUSING (DTC ONLY)

- Park tractor on level ground.
- Drain oil into a suitable container by removing the three drain plugs (1) and two air bleeding plugs (3).
- After all the oil has drained from the housing, install drain plugs (1).
- Remove oil level plug (2) and filler plug (4) and fill the housing through the filler hole until oil comes out of the oil level hole.
- Install the air bleeding plugs, oil level plugs and filler plug. (See Fig. 32-2 & 32-3).

Note: Change the front axle oil regularly after every **400** hours of operation.

Note: For oil quantities and grades, see the **LUBRICANT SPECIFICATION TABLE**.

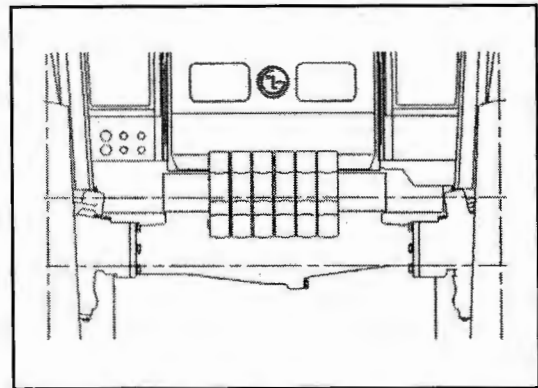


Fig. 32-2 - Leveling Front Axle

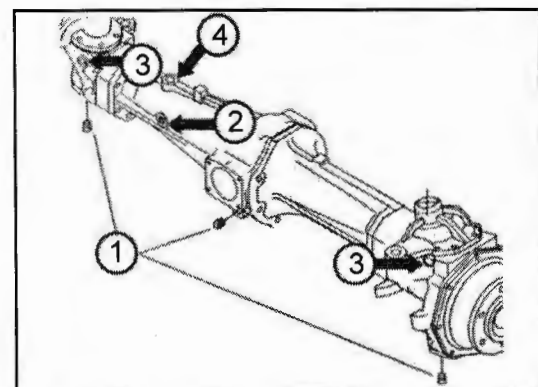


Fig. 32-3 - Draining and Filling Front Axle

CHANGING TRANSMISSION / HYDRAULIC OIL FILTER

Replace transmission / hydraulic oil filter elements as follows:

- Unscrew the used filter element (1).
- Coat sealing rings of new filter element with grease and screw on filter element.
- Check the oil level. If necessary, add oil to reach the proper level.
- Idle the engine for a few minutes and check for leaks. If there are any leaks, tighten the filter a little more. (See Fig. 33-1).

Note: Change the transmission / hydraulic oil regularly after every **400** hours of operation. The filter should be changed at the same time.

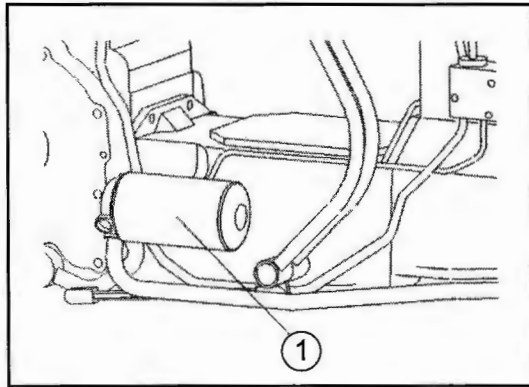


Fig. 33-1 - Transmission Oil Filter

CHANGING OIL IN FINAL DRIVE

Change the final drive oil with the tractor on level ground, shut off engine. Change oil as follows:

- Drain the oil by removing two drain plugs (1) on each side and oil level plug (2) on each side.
- After all oil has been drained from the final drive, install the drain plugs.
- Fill through the filler hole (3) until oil comes out of the oil level hole.
- Install the oil level plug. (See Fig. 33-2).

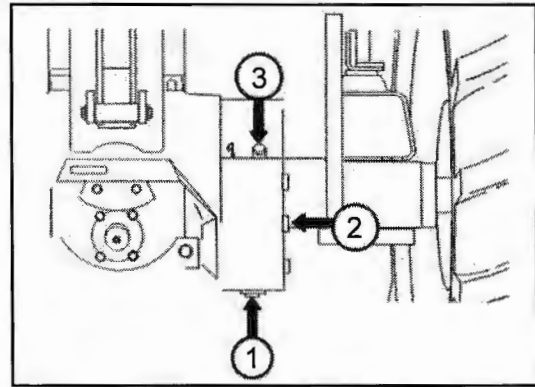


Fig. 33-2 - Final Drive

Note: Change the final drive oil regularly after every **400** hours of operation.

Note: For oil quantities and grades, see the **LUBRICATION SPECIFICATION TABLES**.

CHECKING ENGINE OIL LEVEL

Check the engine oil level. It is recommended that the oil level be checked at the beginning of each work day prior to starting the engine.

If the engine is or has been running, stop the engine and wait at least 10 minutes for the oil to settle in the oil pan before checking oil level.

- Pull out dipstick (1), clean it with a cloth and insert dipstick completely. Remove the dipstick again and check that oil level is between the “L” and “H” marks. (See Fig. 34-1).

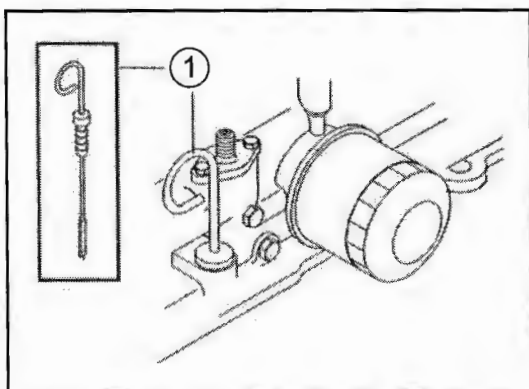


Fig. 34-1 - Oil Dipstick

If necessary, top off with oil through fill points (2) or (3), until the correct level is reached. (See Fig. 34-2).

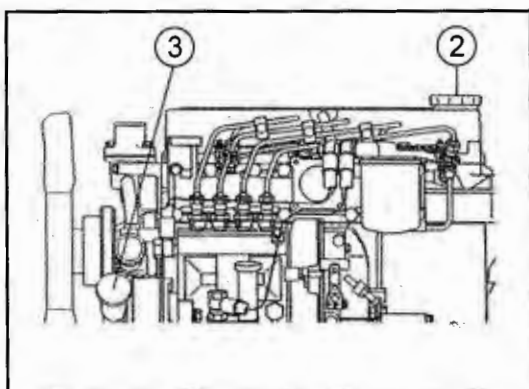


Fig. 34-2 - Oil Fill Points

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

Warning: Never run the engine when the oil level is below the “L” mark.

CHECKING TRANSMISSION / HYDRAULIC SYSTEM OIL LEVEL

Important: Check oil level when oil is cold, if possible in the morning when the tractor has been standing overnight.

- Park tractor on level ground.
- Shift transmission to “neutral”.
- Lower draft links.
- Check oil level through oil level gauge (1).

The oil level should be between the two marks on the oil dipstick (1). If necessary, top off the oil through fill point (2) until correct level is reached. (See Fig. 34-3 & Fig. 35-4).

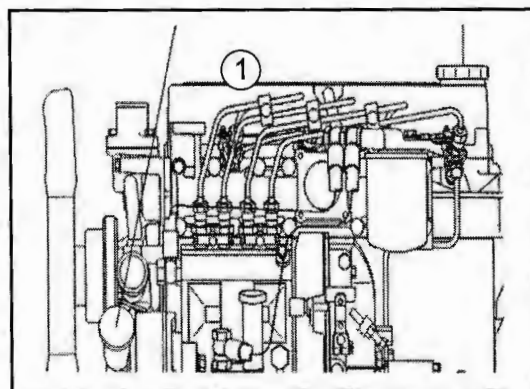


Fig. 34-3 - Transmission / Hydraulic Oil Level

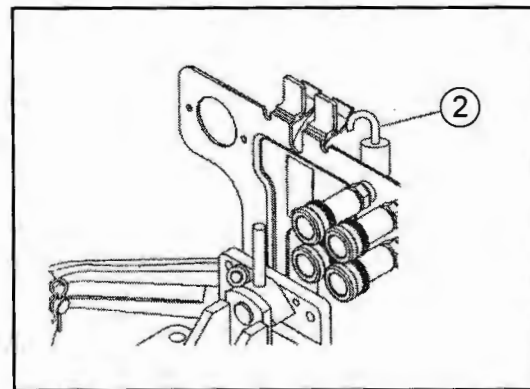


Fig. 34-4 - Transmission/Hydraulic Oil Fill

CHECKING COOLANT LEVEL IN RADIATOR SUB TANK

Check the coolant when the engine is cold. The coolant level should be below the radiator neck. The level of coolant in the sub tank (1) must always be above the **LOW** mark.

If necessary, top off and add coolant through fill point (2). (See Fig. 35-1).

Warning: Do not remove the radiator cap while the engine is hot. The radiator is pressurized when hot and if opened, steam and boiling coolant will be sprayed out, possibly causing serious burns and eye injury.

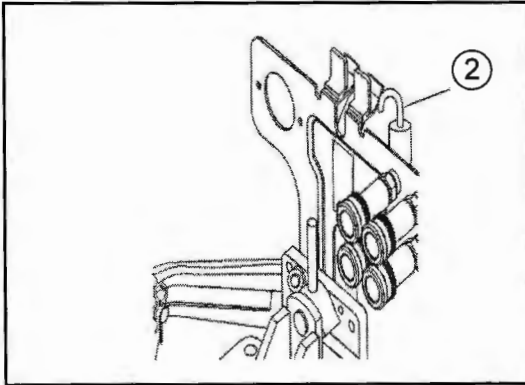


Fig. 35-1 - Radiator Sub Tank

Note: In areas where antifreeze is not needed for protection against freezing, it is recommended that a solution of at least 33% antifreeze be used to prevent rust and corrosion.

CHECKING ELECTROLYTE LEVEL OF BATTERY

Keep the top part of the battery clean and dry.

Check that the level of electrolyte reaches the top mark and never falls below the lower mark. If necessary, lift the covers (1) and add clean water. (See Fig. 35-2).

Note: If the battery frequently needs to be filled or if it should tend to run down, have the electrical system checked by a certified serviceman.

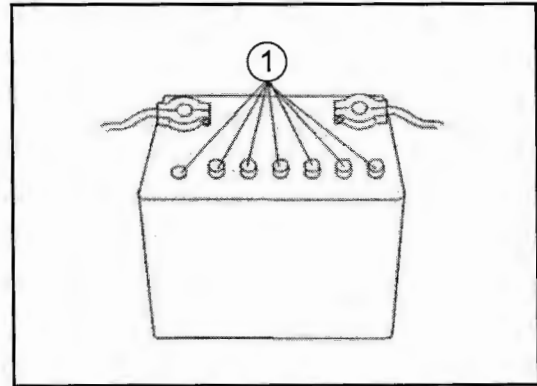


Fig. 35-2 - Battery

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

! Caution: Never fill the battery with **SULFURIC ACID**.

! Caution: Never use rapid **boost** battery chargers to recharge the battery.

! Caution: Before recharging the battery, always disconnect the cables. The battery should be removed from its seats and recharged away from the cables.

! Danger: When recharging the battery, keep the area well ventilated. Do not smoke or have open flames around battery while charging.

LUBRICATING FRONT AXLE SUPPORT (DTC MODELS)

Using a grease gun, apply all purpose grease in two lubricating nipples (1) and (2). (See Fig. 36-1).

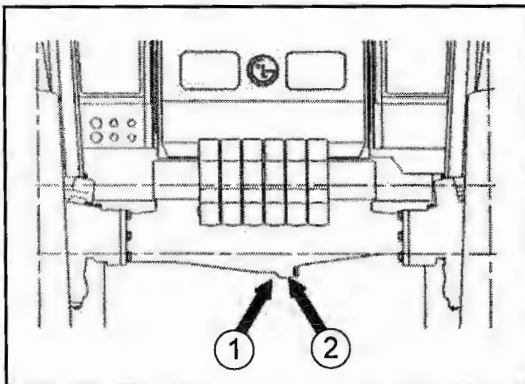


Fig. 36-1 - Front Axle Support (DTC Models)

Important: Carry out this service after every **10** hours of operation when working in very wet and muddy conditions.

LUBRICATING STEERING CYLINDERS

The DTC model tractors are equipped with two steering cylinders. Using a grease gun, apply all purpose grease in four lubricating nipples. (See Fig. 36-2).

The 2-wheel drive model tractors are equipped with one steering cylinder. Using a grease gun, apply all purpose grease in two lubricating nipples. (See Fig. 36-2)

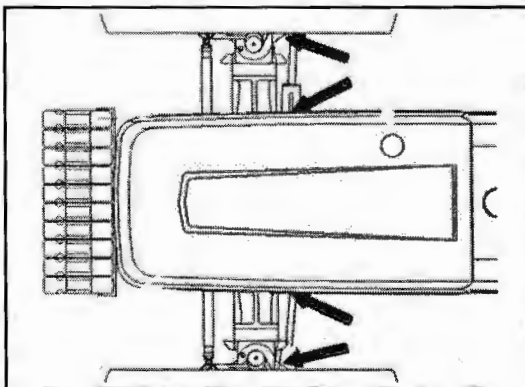


Fig. 36-2 - Steering Cylinders

LUBRICATING LIFT LINKAGE

Using a grease gun, apply all purpose grease in the lubricating nipple (1). (See Fig. 36-3).

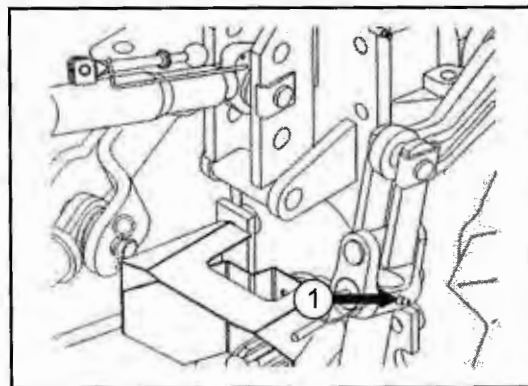


Fig. 36-3 - Lift Linkage

LUBRICATING CLUTCH PEDAL

Using a grease gun, apply all purpose grease in the lubricating nipple (1). (See Fig. 36-4).

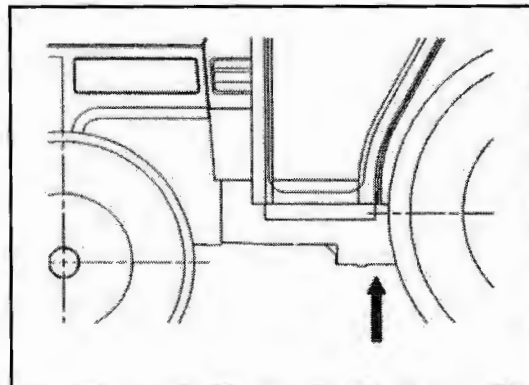


Fig. 36-4 - Clutch Pedal

LUBRICATING BRAKE PEDAL

Using a grease gun, apply all purpose grease in the lubricating nipple (1). (See Fig. 36-5).

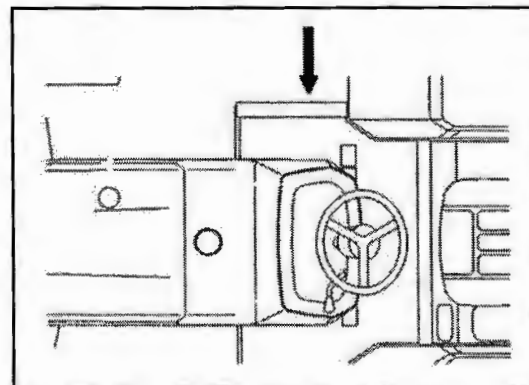


Fig. 36-5 - Brake Pedals

Important: Thoroughly clean all grease fittings prior to greasing and replace damaged grease fittings immediately.

LUBRICATING RANGE GEAR SELECTOR

Using a grease gun, apply all purpose grease in the lubricating nipple (1). (See Fig. 37-1).

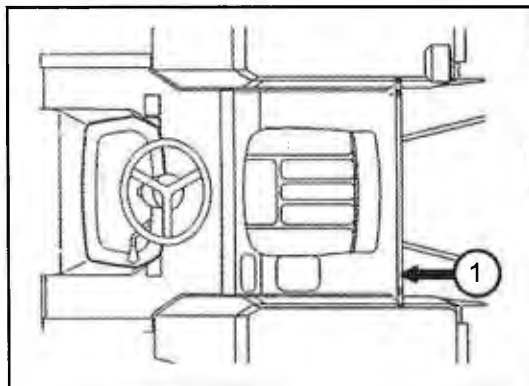


Fig. 37-1 - Range Gear Selector

LUBRICATING KING PIN COVER (DTC ONLY)

Using a grease gun, apply all purpose grease in the lubricating nipples. (See Fig. 37-2).

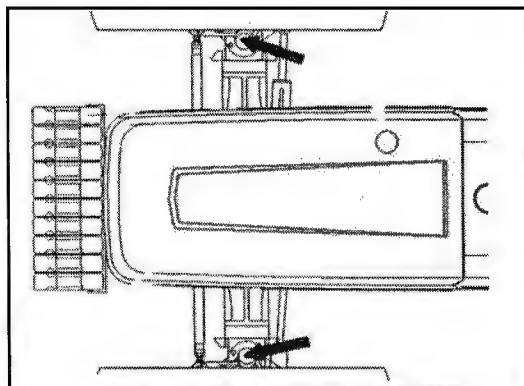


Fig. 37-4 - King Pin Cover

Lubricating Steering Knuckle Pivots

Using a grease gun, apply all purpose grease in the lubricating nipple (One per side). (See Fig. 37-3).

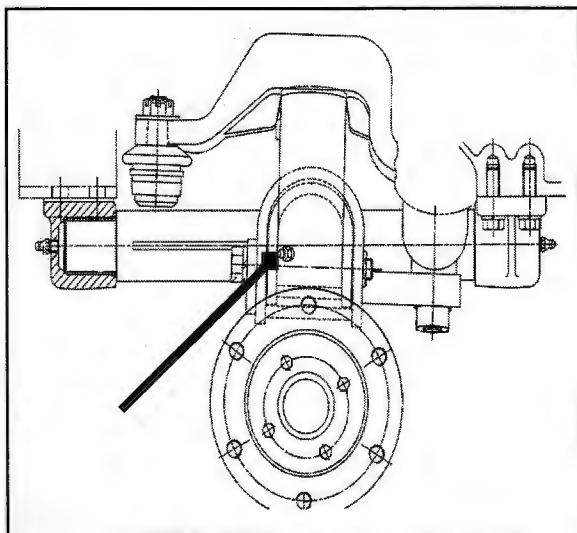


Fig. 37-3 - Steering Knuckle Pivots

LUBRICATING FRONT AXLE SUPPORT (2-WHEEL DRIVE MODELS)

Using a grease gun, apply all purpose grease in the lubricating nipples (2). (See Fig. 37-4).

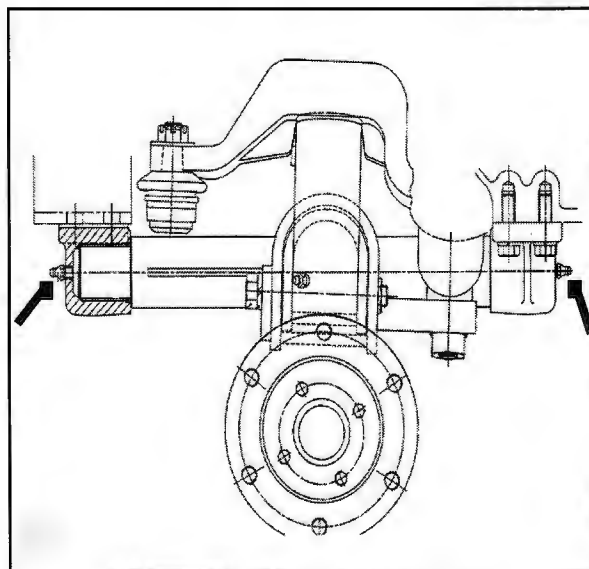


Fig. 37-4 - Front Axle Support

CHANGING DRY TYPE AIR CLEANER

Remove the cover (1), change primary filter element (2) and safety filter element (3) regularly after **200** hours of operation. (See Fig. 38-1).

In case of cleaning primary filter element, See **PREVENTIVE MAINTENANCE** section.

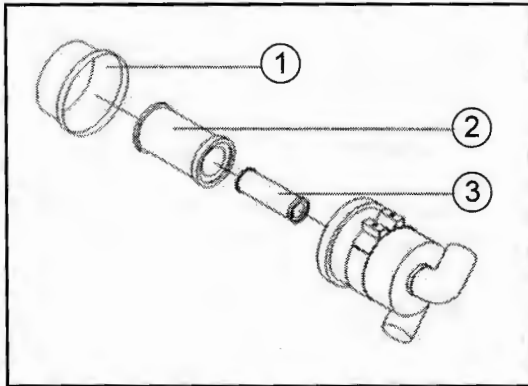


Fig. 38-1 - Air Cleaner

CHANGING ENGINE OIL

Change the oil regularly after every **200** hours of operation. Change the engine oil as described in **FIRST 50 HOURS** section. Check the oil level as described in **EVERY 10 HOURS** section.

CHANGING ENGINE OIL FILTER

Change engine oil filter element as follows:

- Remove the used filter element (1) and clean mounting surfaces (2). (See Fig. 38-2).
- Apply a thin film of oil to sealing ring (3) of filter. (See Fig. 38-3).
- Tighten filter element until its sealing ring touches mounting surface and hand tighten.
- Idle the engine for a few minutes and check for leaks. If there is an oil leak, tighten the filter a little more.

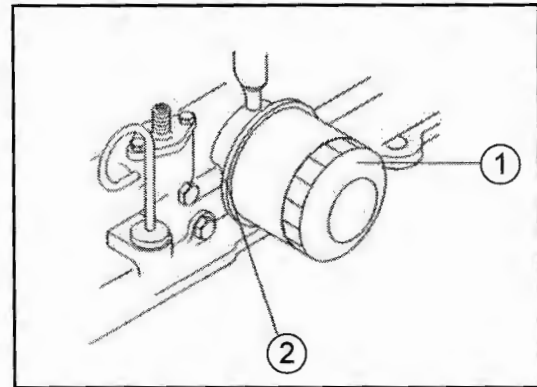


Fig. 38-2 - Removing Oil Filter

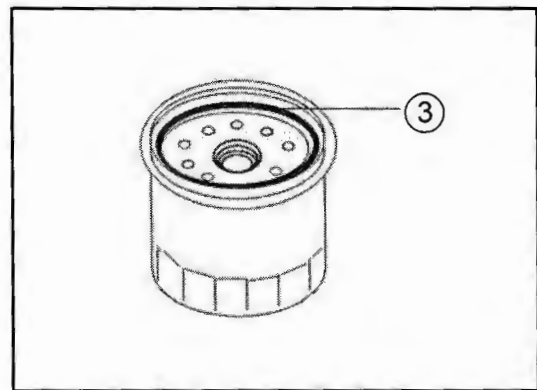


Fig. 38-3 - Filter Sealing Ring

Note: Engine oil and filter element should be replaced at the same time.

CHECKING OIL LEVEL IN FRONT AXLE (DTC ONLY)

Remove level plug (1). Oil should be level with plug bore. If necessary, fill the housing through the filler hole (2) until oil comes out of the oil level hole. Tighten level plug. (See Fig. 38-4).

Note: For oil quantities and grades, see the **LUBRICATION SPECIFICATION TABLE**.

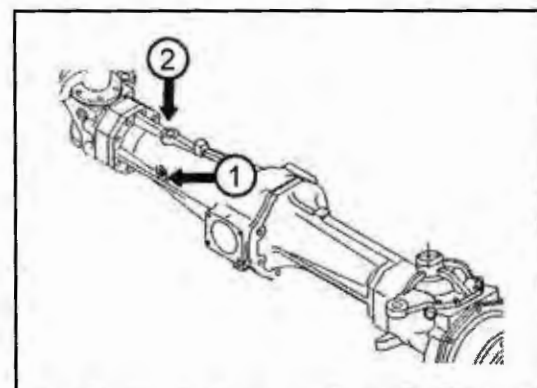


Fig. 38-4 - Front Axle

CHECKING OIL LEVEL IN FINAL DRIVE

Remove level plug (1). Oil should be level with plug bore. If necessary, fill the housing through the filler hole (2) until oil comes out of its hole. Tighten oil level and filler plugs. (See Fig. 39-1).

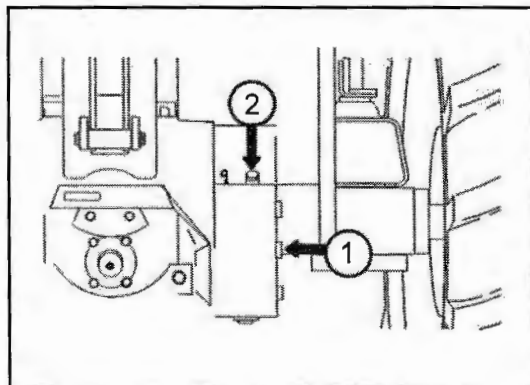


Fig. 39-1 - Final Drive

CHANGING FUEL FILTER

Change fuel filter element as follows:

- Remove the used filter element (1) and clean mounting surface (2). (See Fig. 39-2).
- Apply a thin film of oil to sealing ring (3). (See Fig. 39-3).
- Tighten filter element until its sealing ring touches mounting surface and hand tighten.
- Check for leaks. If there are leaks, tighten the filter a little more.

To purge the air after changing the filter, proceed as follows:

- Loosen air vent plug (4) on the fuel filter (by turning it 1 1/2 times). (See Fig. 39-2).
- Unlock priming pump plunger (5) by turning it to the left and operate the pump (just turn the ignition key to "ON" position). (See Fig. 39-2).
- When the fuel flows free of bubbles, lock the priming pump plunger and then tighten the air vent plug.

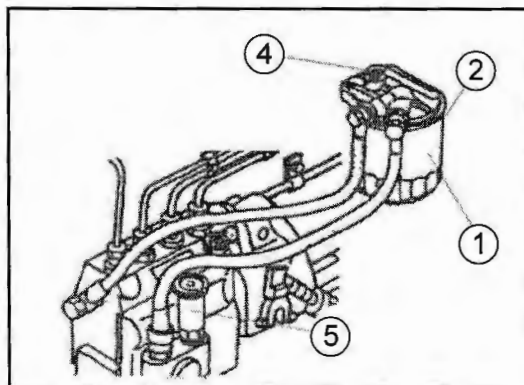


Fig. 39-2 - Changing Fuel Filter

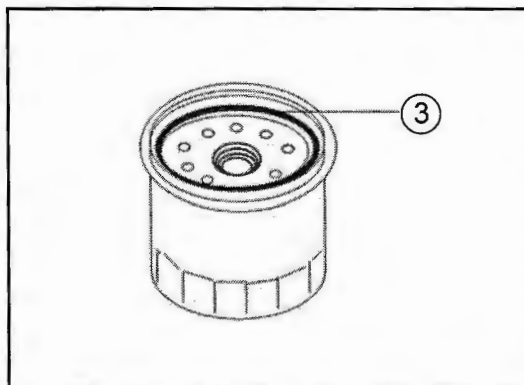


Fig. 39-3 - Fuel Filter

Note: If air vent plug is tightened before the priming pump plunger is locked, fuel pressure acts on the feed pump, making it difficult to re-insert the plunger.

Note: If the tractor has not been used for an extended period of time, the filter and fuel line have been removed, or when the fuel tank has been emptied, air may enter the fuel system. In these cases, bleeding of the system is required.

CHANGING TRANSMISSION / HYDRAULIC OIL

Change the transmission oil with the tractor on level ground.

Start engine and operate hydraulic functions to heat up oil. Shut off the engine and lower the link arms. Change oil as follows:

- Drain oil into suitable container by removing three drain plugs (1) and fill through filler hole (2). (See Fig. 40-1 & Fig. 40-2).
- After replacing the transmission oil, check oil as described in **EVERY 10 HOURS** section.

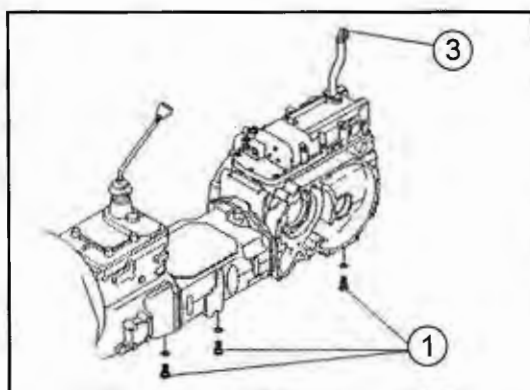


Fig. 40-1 - Drain Plugs

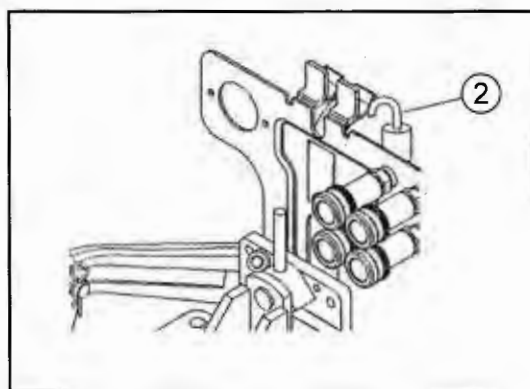


Fig. 40-2 - Filler Hole

Note: For oil quantities and grades, see the **LUBRICANT SPECIFICATION TABLES**.

CHANGING OIL IN FRONT AXLE (DTC ONLY)

Change the front axle oil regularly after every **400** hours of operation. Change the front axle oil and check the oil level as described in **FIRST 50 HOURS** section.

CHANGING OIL IN FINAL DRIVE

Change the final drive oil regularly after every **400** hours of operation. Change the final drive oil and check the oil level as described in **FIRST 50 HOURS** section.

ENGINE VALVE ADJUSTMENT

This job must be done by a qualified serviceman. The valve gap (A) should be (0.010 in.). (See Fig. 40-3).

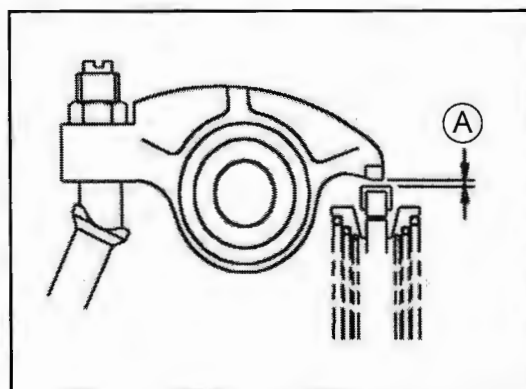


Fig. 40-3 - Engine Valve Adjustment

Note: A larger than specified valve gap results in noisy operation and a smaller one reduces the engine power.

BLEEDING THE FUEL SYSTEM

To bleed the fuel system, proceed as follows:

- Bleed the fuel filter by loosening the air vent plug on the fuel filter (by turning it 1 1/2 times).
- Loosen air vent plug (1) on the injection pump (by turning it 1 1/2 times).
- Unlock priming plunger (2) by turning it to the left and operate the pump (just turn the ignition to the **ON** position).
- When the fuel flows free of bubbles, lock the priming pump plunger and then tighten the air vent plug. (See Fig. 41-1).

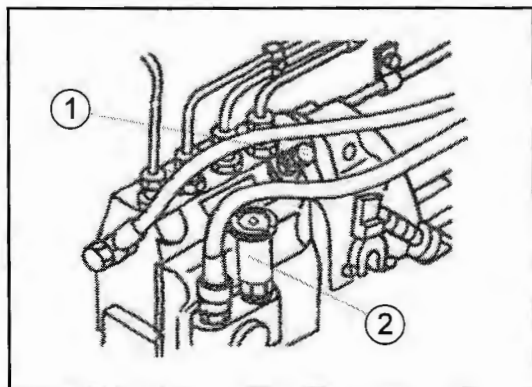


Fig. 41-1 - Bleeding Fuel System

Note: Air in the fuel line makes it difficult to start the engine, bleeding of the fuel system is required each time the fuel tank is drained.

Note: If the air vent plug is tightened before the priming pump plunger is locked, fuel pressure acts on the feed pump, making it difficult to restore the plunger.

CHANGING COOLANT

The cooling system uses a mixture of water and anti-freeze which contains antioxidants, anti-corrosive, anti-foaming and anti-crusting properties.

Note: The coolant should be changed every **800** hours or once a year whichever occurs first.

Draining:

- The coolant should be circulated through the system until it reaches a temperature between 158°F to 176°F.
- Stop the engine. Once the cap has cooled enough to touch with your bare hand carefully remove the cap (1). (See Fig. 42-1).
- Open the radiator drain cock (2), remove the engine block drain plug (3) and drain the coolant into a container. (The radiator drain cock (2) is not visible on this illustration). (See Fig. 42-1 & 42-2).

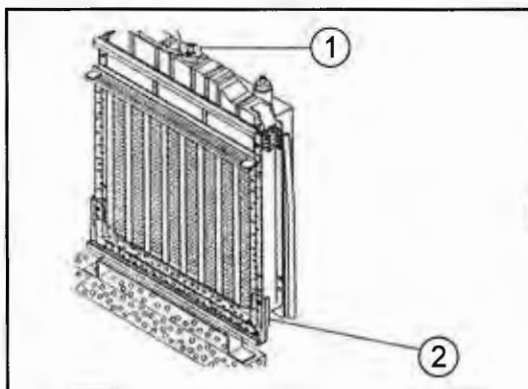


Fig. 42-1 - Filler Cap and Drain Plug

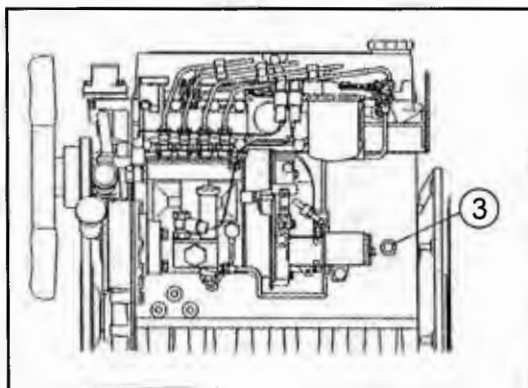


Fig. 42-2 - Engine Block Drain Plug

Flushing:

- Close the radiator drain plug and install the engine block drain plug.

- Fill the cooling system with a cleaning solution which will not harm rubber or metal components. Start and idle the engine at 800 to 900 RPM for 15 minutes. Stop the engine and drain the cleaning solution into a container.

- Refill the system with coolant and idle the engine at 800 to 900 rpm for 10 minutes. Continue flushing the system until the draining water is clean.

! Caution: The engine must be off when the water is drained.

! Warning: Draining water may be hot. Care should be taken while draining to prevent injury.

Refilling:

- Tighten the radiator drain cock and reinstall the engine block drain plug.
- Pour coolant into the radiator. Recommend water and antifreeze mixture as shown in the chart below:

| Ambient Temperature | 14°F (-10°C) | - 4°F (-20°C) | - 22°F (-30°C) |
|---------------------|-----------------|------------------|-------------------|
| Antifreeze, % | 30 | 40 | 50 |

- Add coolant to the radiator slowly to help avoid air pockets in the system.
- After filling, run the engine for a short period of time, allowing the two fluids to mix thoroughly.
- Check the coolant level in the radiator expansion tank and radiator. Add coolant if the level is lower than required level.

ADJUSTING INJECTOR PRESSURE

This job must be done by an authorized serviceman.

With the engine off, adjust the pressure settings as described below:

- To remove the injectors from the engine, disconnect the lines and remove the injectors (1). (See Fig. 43-1).
- The pressure setting of injectors should be 1706 psi (120kg/cm²) for the 410 DTC/450/450 DTC/470 DTC. For the 530 DTC/550/550 DTC, the setting should be 1991 psi (140kg/cm²).
- Reinstall the injectors and lines.

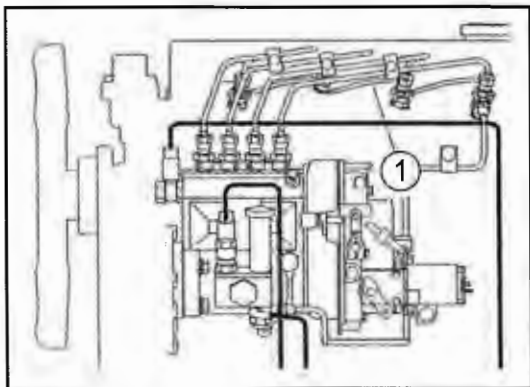


Fig. 43-1 - Fuel Injectors

Warning: Do not make adjustments to the injectors when the engine is hot.

Note: Before loosening or disconnecting any part of the injection system, thoroughly clean the area in which you are going to work.

Note: Cover all injector lines and apertures to prevent any dirt from entering.

TROUBLE SHOOTING

The following are suggestions listed for your convenience. You can make simple adjustments on your tractor that will improve its operation and save you time as well as expense through dealer service work.

If any trouble is experienced, make sure of the cause before attempting to make any adjustments. Always make one adjustment at a time, and if the adjustment made does not improve the problem, return to the original setting before proceeding to the next adjustment.

HARD TO START

Cold Air Temperature
No Fuel
Air Trapped in Fuel Line
Flooded Engine

Incorrect Timing
Loss of Compression
Dirty Nozzles

Weak Battery
Valve Clearance Incorrect

Fuel Lift Pump Faulty
Fuel Injection Pump Faulty
Fuel Injection Pump Out of Time

Use the thermo-start aid, see Cold Start Procedure
Refill the tank and be sure to bleed the fuel system
Bleed the fuel system
Crank the engine with the fuel shut-off until the excess fuel is out of the cylinders, then follow normal starting procedures.
Have your LongAgribusiness Dealer reset the timing
Check head gasket, see your LongAgribusiness Dealer
Have your LongAgribusiness Dealer check and clean the nozzles
Check the battery's electrolyte
Have your LongAgribusiness Dealer check and correct the valve clearance
See your LongAgribusiness Dealer
See your LongAgribusiness Dealer
See your LongAgribusiness Dealer

ENGINE OVERHEATING

Low Coolant Level in Cooling System
Radiator Clogged
Fan Belt Slipping
Collapsed Radiator Hose
Radiator Cores Clogged

Thermostat Not Functioning or Stuck
Engine Overloaded
Diluted Lubricating Oil
Water Pump Impeller Vanes Broken

Fill the radiator to its proper level
Clean the cooling system
Tighten the fan belt alternator bracket
Replace the defective hose
Remove all dirt and trash from the radiator's grill; clean with compressed air or water
Install a new thermostat of the correct range
Reduce engine load or change to a lower gear
See your LongAgribusiness Dealer
Replace the water pump

LOSS OF POWER

Insufficient Fuel
Air in Fuel System
Restriction in The Fuel Line
Fuel Lift Pump Defective
Late Injection Timing
Loss of Compression
Clogged Air Cleaner or Restricted Air Flow
Sticking Valves
Valve Clearance Incorrect
Faulty Nozzles
High Idle RPM Too Slow

Refill the fuel tank and bleed the fuel system
Bleed the fuel system
Clean the fuel system
Replace the lift pump
See your LongAgribusiness Dealer
See your LongAgribusiness Dealer
Clean the air cleaner and it's element
See your LongAgribusiness Dealer
See your LongAgribusiness Dealer
Clean or replace the nozzles
See your LongAgribusiness Dealer

IRREGULAR OPERATION

Governor Control Linkage Binding
Compression Uneven
Valves Not Seating Properly
Faulty Fuel Nozzle
Low Operating Temperature
Fuel Injection Pump Out of Time

See your LongAgribusiness Dealer
See your LongAgribusiness Dealer
See your LongAgribusiness Dealer
See your LongAgribusiness Dealer
Run engine before putting it under a full load
See your LongAgribusiness Dealer

EXCESSIVE EXHAUST SMOKE

BLACK SMOKE

Excessive Fuel Rate
Overloading Engine
Restriction in Air Supply
Low Coolant Temperature

See your LongAgribusiness Dealer
Reduce engine load or shift to a lower gear
Clean the air cleaner
Check the thermostat

WHITE SMOKE (INDICATES MISFIRING)

Low Engine Operating Temperature
Faulty Injector

Poor Compression

Check the thermostat
Clean the injectors, test the nozzle for pressure leakage and the spray pattern
See your LongAgribusiness Dealer

BLUE SMOKE (INDICATES HIGH OIL CONSUMPTION)

Worn or Stuck Rings
Low Coolant Temperature

See your LongAgribusiness Dealer
Check thermostat

ENGINE KNOCKING

Engine Overloaded
Incorrect Timing
Engine RPM Too Low
Excessively Worn Rod and Main Bearings

Reduce engine load or shift to a lower gear
See your LongAgribusiness Dealer
Adjust the engine RPM
See your LongAgribusiness Dealer

All adjustments on the fuel system must be made by a competent mechanic.

TORQUE CHART

TIGHTENING TORQUES - GRADE 8.8

| | | |
|---------------------------------------|----------------------------------------|-----------------------------------------|
| M4 2 ft. lbs. (.29 kgm) | M12 58 ft. lbs. (3 kgm) | M24 470 ft. lbs. (64 kgm) |
| M5 4 ft. lbs. (.57 kgm) | M14 94 ft. lbs. (13 kgm) | M27 707 ft. lbs. (98 kgm) |
| M6 7 ft. lbs. (1 kgm) | M16 144 ft. lbs. (20 kgm) | M30 967 ft. lbs. (134 kgm) |
| M7 11 ft. lbs. (1.6 kgm) | M18 190 ft. lbs. (26 kgm) | |
| M8 18 ft. lbs. (2 kgm) | M20 260 ft. lbs. (36 kgm) | |
| M10 32 ft. lbs. (5 kgm) | M22 368 ft. lbs. (51 kgm) | |

TIGHTENING TORQUES - GRADE 10.9

| | | |
|--------------------------------------|----------------------------------------|------------------------------------------|
| M4 3 ft. lbs. (.41 kgm) | M12 92 ft. lbs. (13 kgm) | M24 752 ft. lbs. (104 kgm) |
| M5 6 ft. lbs. (.83 kgm) | M14 146 ft. lbs. (20 kgm) | M27 1113 ft. lbs. (154 kgm) |
| M6 11 ft. lbs. (2 kgm) | M16 224 ft. lbs. (31 kgm) | M30 1511 ft. lbs. (209 kgm) |
| M7 18 ft. lbs. (3 kgm) | M18 309 ft. lbs. (43 kgm) | M33 2042 ft. lbs. (282 kgm) |
| M8 26 ft. lbs. (4 kgm) | M20 435 ft. lbs. (60 kgm) | |
| M10 53 ft. lbs. (7 kgm) | M22 590 ft. lbs. (82 kgm) | |

NOTES

LIMITED WARRANTY

LongAgribusiness, LLC. warrants that each new Landtrac agricultural tractor sold by it and its authorized dealers will be free, under normal usage and service, from defects in materials and workmanship, for a period of one (1) year in general and for a period of two (2) years, in particular for the Drivetrain*, from the date of purchase by first original retail purchaser. All warranty is further limited to a maximum of one thousand (1,000) hours of operation from the date of purchase by the first original retail purchaser.

The Drivetrain* includes a) engine including the crankcase, oil pan, cylinder head, valve cover, timing gear cover, water pump housing, manifolds and all components fully encased within but excluding components of fuel injection system, and b) power train limited to clutch housing, transmission housing, final drive housings, drive axles and components fully encased within.

LongAgribusiness's obligation under this warranty is limited to repairing or replacing at its option in an authorized LongAgribusiness Dealer's place of business any part or parts that, within the applicable period previously stated, are returned to its factory in Tarboro, North Carolina; with transportation charges prepaid. LongAgribusiness's examination must show that the returned part or parts were faulty at the time of manufacture. Replacements made pursuant to this warranty shall be warranted only for the remainder of the period applicable to the product.

This warranty is expressly limited to the replacement of faulty parts only, as set forth herein, and is the only warranty given by the manufacturer or agent, distributor, dealer, or seller to the purchaser, and is in lieu of any and every warranty of every kind either expressed or implied, and this warranty cannot be changed, modified or added to except in writing by a duly elected officer of LongAgribusiness, LLC., and no dealer, distributor, agent, salesman or representative has the right or the authority to change, modify or enlarge this warranty or to make any promise, stipulation and agreement inconsistent or in conflict therewith.

This warranty does not apply if the equipment has been subjected to misuse, negligence on the part of the owner or operator, or in the event of an accident. This warranty does not extend to expendable items that within normal usage may be replaced within the warranty period. The warranty does not cover normal maintenance, services such as cleaning or minor adjustments.

No other warranty whether of merchantability, fitness or otherwise, expressed or implied, in fact or by law, is given by LongAgribusiness with respect to any new equipment or part and no other or further obligation or liability shall be incurred by LongAgribusiness by reason of the manufacture or sale of any equipment or part whether for breach of any warranty, negligence of manufacture or otherwise.

The obligations of LongAgribusiness set forth in the first paragraph above shall be the exclusive remedy for any breach of warranty hereunder. In no event shall LongAgribusiness be liable for any general, consequential, or incidental damages including, without limitations, any damages for loss of use or loss of profits.

LongAgribusiness equipment sold through other than authorized dealers is not subject to standard LongAgribusiness Warranty and service policies.

This warranty shall not apply to any equipment or part that has been repaired or altered outside of LongAgribusiness' factory or an authorized dealer's shop.

It is a policy of LongAgribusiness, LLC. to improve its products whenever possible. We reserve the right to make changes or improvements at any time without incurring any obligations to make such changes on products sold previously, prior to the changes or improvements.

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REMEMBER TO CONTACT YOUR LOCAL DEALER
FOR GENUINE LONGAGRIBUSINESS PARTS.

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YOUR SERVICING DEALER