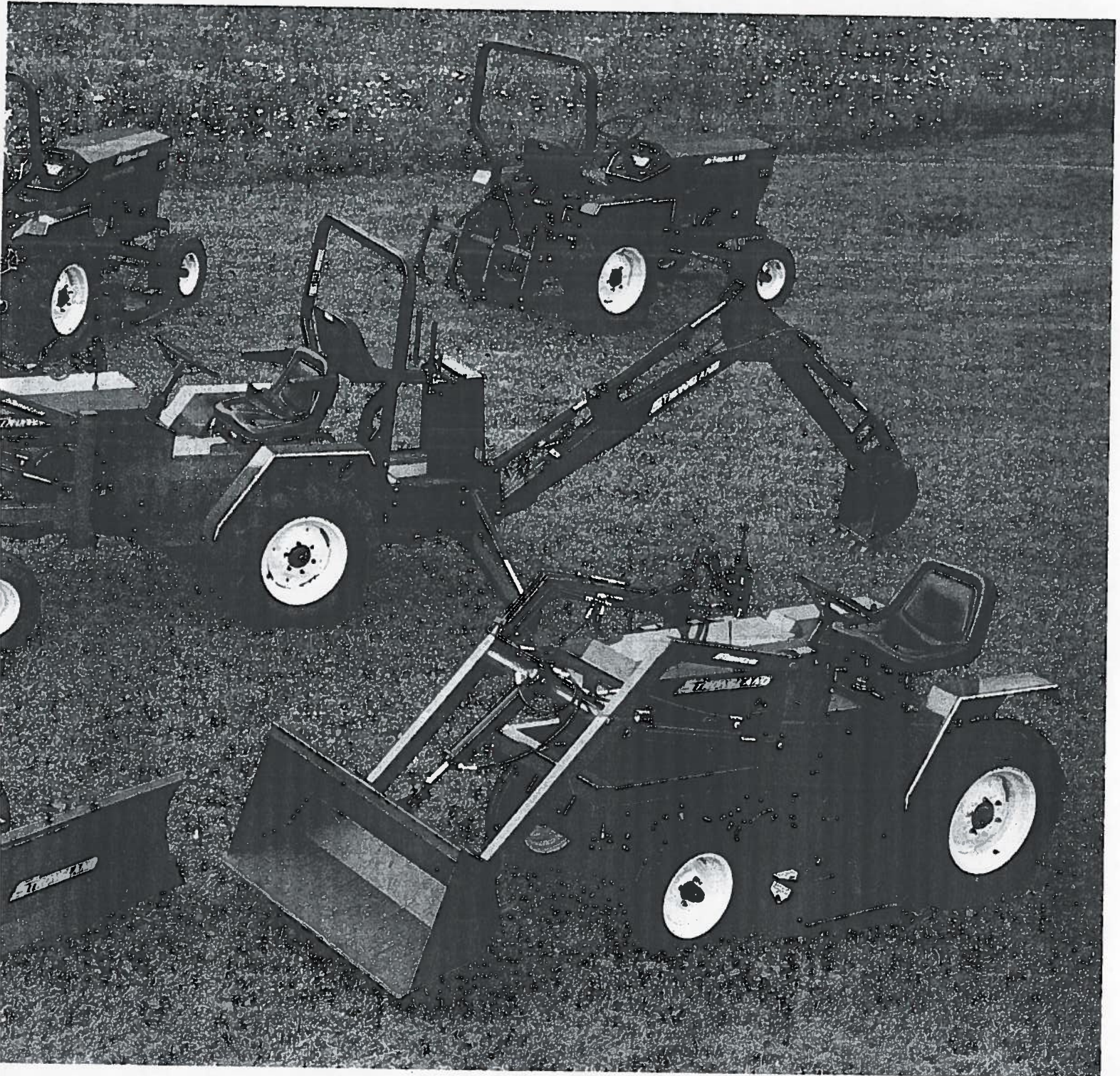


STRONGLAND™

74 SERIES OWNERS MANUAL



OWNER'S MANUAL
STRONGLAND
74 Series Tractor

STRONGLAND TRACTOR

Limited Warranty

We warrant each new tractor manufactured by us to be free from defects in material and workmanship under normal conditions of non-commercial use and service. Our obligation under this warranty being within **FIVE YEARS** after delivery to the original purchaser; all products must be returned to an authorized **STRONGLAND** dealer's place of business, or at our request be returned to our factory, with all transportation costs prepaid, and which our examination shall show to our satisfaction to have been thus defective. **THIS WARRANTY IS EXPRESSLY MADE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING SPECIFICALLY WITHOUT LIMITING THE GENERALITY THEREOF, ANY IMPLIED WARRANTY OF MERCHANTABILITY, AND OF ALL OTHER OBLIGATIONS OR LIABILITIES ON OUR PART.** We expressly deny any power or authority on the part of any person to incur or assume for us any other liability in connection with the sale of any tractor manufactured by us. This warranty shall not apply to any tractor which shall have been repaired or altered outside our factory or in any way so as to affect its use and operation, as determined by us, nor shall it apply to any tractor which has been subject to misuse, negligence or accident, or which has been operated contrary to our printed instructions. We make no warranty whatsoever in respect of accessories, equipment or parts not manufactured by us but which have been made by other manufacturers; such accessories, equipment or parts will be subject to those warranties extended by the original manufacturer of same.

ARMSTRONG TRACTOR COMPANY
ONE PARKS BEND, BOX 12 • VANDERGRIFF, PENNSYLVANIA 15690

ARMSTRONG TRACTOR COMPANY

Warranty Agreement

A: GENERAL PROVISIONS

Armstrong Tractor Company provides the warranties described below to the original purchaser of any new *STRONGLAND* tractor or implements and accessories purchased from an authorized dealer. Armstrong Tractor Company will repair or replace, at its option, any part covered under warranty which is found to be defective in material and/or workmanship during the applicable warranty period. In order to obtain warranty repairs, the purchaser must deliver the product at the purchaser's expense to an authorized *STRONGLAND* dealer, or at our request, to our factory for examination.

B: WARRANTY COVERAGE

Normal warranty applies to *STRONGLAND* products for the periods listed in the table on the back of this sheet. The warranty begins on the date of purchase.

C: THIS WARRANTY DOES NOT COVER THE FOLLOWING:

1. Repair due to normal wear items such as belts, cutting edges, cutting blades, shear blocks, shear pins, couplers, brake linings, springs, hardware, and seats.
2. Normal maintenance and adjustments such as filter elements, lubricants, light bulbs, belts, belt tensioning, brake adjustments and tune-ups.
3. Wear or failure due to lack of periodic lubrication.
4. Repairs using other than original *STRONGLAND* parts.
5. Shipping damages.
6. Any problems resulting from improper set-up by customer or retailer.
7. Pick-up and delivery, or service calls.
8. Physical abuse or misuse of the product or operation of the product in a manner contrary to the provisions of its operator's manual.
9. A repair made or parts replaced or modified by anyone other than an authorized *STRONGLAND* dealer.

D: WARRANTY TERMINATES IF ANY OF THE FOLLOWING OCCUR:

1. The replacement parts are other than original *STRONGLAND* parts or authorized *STRONGLAND* parts.
2. Regular maintenance and service is not performed as prescribed by the owner's manual during the warranty term.
3. If the serial number is removed or defaced in any way.
4. If service for defects covered under this warranty is performed by other than authorized *STRONGLAND* dealers or factory representatives.

WARRANTY SERVICE

For warranty service, return your *STRONGLAND* Tractor, together with proof of purchase and serial number, to an authorized *STRONGLAND* dealer or Armstrong Tractor Company, Attn: Customer Service Dept., One Parks Bend, Box 12, Vandergrift, PA 15690. Transportation of your *STRONGLAND* Tractor to and from the location of warranty service shall be at your sole expense and risk.

WARRANTY COVERAGE

PRODUCT	TERM OF WARRANTY	COVERAGE
Tractor	5 Years / Residential Use 1 Year / Commercial Use	Parts & Labor Parts & Labor
Mower Deck	1 Year / Residential Use 90 Days / Commercial Use	Parts & Labor Parts & Labor
Front Loader	1 Year / Residential Use 90 Days / Commercial Use	Parts & Labor Parts & Labor
Front Loader Cylinder	2 Years	Parts & Labor
Backhoe	Per Manufacturer's Warranty	
Implements / Accessories	1 Year	Parts & Labor
COMPONENT	TERM OF WARRANTY	COVERAGE
Engine:		
Onan Performer	3 Years <i>(optional extended warranty to 5 Years)</i>	Parts & Labor
Kohler Command	2 Years	Parts & Labor
Briggs & Stratton Vanguard	2 Years	Parts & Labor
Drive Pumps:	1 Year	Parts & Labor
Drive Motors:		
White	4 Years	Parts & Labor
Danfoss	1 Year or 1000 Hours <i>(whichever comes first)</i>	Parts & Labor
PTO Drive Motor:		
Danfoss	1 Year of 1000 Hours <i>(whichever comes first)</i>	Parts & Labor
Power Steering	1 Year of 1000 Hours <i>(whichever comes first)</i>	Parts & Labor
Battery	24 Months First Year: Second Year:	Full Replacement Pro-rated Replacement
Tires	Per Manufacturer's Warranty	—
Tractor Cylinders	1 Year	Parts & Labor
Electric Brake/Clutch	1 Year	Parts & Labor

OWNER'S MANUAL

STRONGLAND

74 Series Tractor

- Study this Owner's Manual.
- Study the Manufacturer's Manual accompanying the Mower Deck or any other implement attached to the Tractor.
- Study the Engine Manufacturer's Manual.
- Be careful and observe all safety precautions.
- Maintain in good operating condition with all safety devices securely in place.
- Before starting engine and operating the tractor, carefully study the owner's manuals accompanying the tractor, the mower deck and any other implement(s) attached to the tractor. Observe all safety precautions. Store this and other manuals in a safe place for future reference.
- Familiarize yourself with the operation of all controls.
- Know how to stop the tractor, PTO and engine quickly.
- Never allow anyone to operate the tractor without proper instructions.
- Never permit children to operate the tractor.
- Be alert and exercise extreme caution at all times.
- Always look behind to insure the area is clear before placing the tractor in reverse.
- To prevent injury, never carry passengers.
- Keep all people and pets a safe distance away.
- When using any attachments, be sure the discharge is directed safely.
- Keep away from moving parts.
- Wear sturdy, heavy-soled shoes and close-fitting clothes that will not get caught in moving parts. Never operate the tractor while wearing athletic shoes or short pants, or while barefooted. Wear safety glasses during operation, maintenance or repair of equipment to protect eyes from foreign objects.
- Keep the engine and hydraulic fluid cooler free of excessive oil, grease, grass, dirt, leaves and other debris to reduce the risk of fire hazard and to insure sufficient cooling.
- Keep all bolts, nuts, screws and other hardware fasteners tightened.
- Do not change the engine governor setting or over-speed the engine.
- Disengage the electric PTO clutch and fully depress the brake foot pedal before starting the engine.
- When leaving the tractor, be sure to disengage the electric PTO clutch, lower the attached implements, engage the park brake, stop the engine and remove the ignition key.
- Use care when pulling loads or using heavy equipment. Limit loads to those that can be safely controlled. Avoid excessive speeds and sharp turns. The maximum capacity of the hydraulic hitch is 700 lbs. at the end of the hitch and 400 lbs. twelve inches beyond the hitch. Never exceed these limits. The tractor could become unstable and overturn backward.

- Stop and inspect for damage after striking a foreign object. Repair, if necessary, before restarting and operating the tractor.
- Before performing any equipment adjustment, maintenance or repair, disengage the electric PTO clutch, engage the park brake, stop the engine, remove the ignition key and wait for all movement to stop. Disconnect both spark plug wires to prevent accidental starting of the engine. Never perform any equipment adjustment, maintenance or repair when the engine is hot. Wear safety glasses to protect eyes from foreign objects.
- Check the operation of the brakes frequently and adjust or repair as required.
- When crossing gravel walks, driveways or roadways, or when crossing uneven, rough terrain, disengage the electric PTO clutch and raise the attachments.
- Remain alert and be watchful for holes, ruts, stumps, rocks or other hidden hazards or irregularities of the terrain that may cause the tractor to overturn.
- Operate the tractor smoothly in order to maintain control. Avoid erratic operation, sharp turns, excessive speed and sudden starting or stopping.
- If it is necessary to operate the tractor on a slope, exercise extreme caution and observe the following additional precautions for safe operation on slopes:
 - ♦ Never operate the tractor on slopes exceeding 15 degrees of incline (approximately 2 1/2 feet of rise every 10 feet). The tractor could become unstable and overturn, possibly resulting in serious injury or death.
 - ♦ When operating the tractor on a slope, always travel up and down; never operate across the slope. Traveling across a slope could cause the tractor to become unstable and overturn, possibly resulting in serious injury or death.
 - ♦ Before operating the tractor on a slope, survey the slope to locate potential hazards. Gullies, ruts, mounds, stumps, rocks or other irregularities of the terrain may cause the tractor to overturn.
 - ♦ Reduce the speed of the tractor when on a slope. Slower speeds allow the operator to safely react to potential hazards. Avoid sharp turns and exercise caution when changing directions on a slope.
 - ♦ Avoid turning when operating the tractor on a slope. If safe operation requires turning, always turn down the slope. Turning up a slope greatly increases the risk of overturning the tractor.
 - ♦ Avoid stopping when climbing a slope. If safe operation requires stopping when climbing a slope, start up the slope slowly and smoothly to reduce the risk of the tractor overturning backward. If the tractor fails to climb the slope, disengage the electric PTO clutch, raise the attachments and slowly back down the slope. Do not attempt to turn around the tractor.
- When mowing, observe the following precautions:
 - ♦ Clear the work area of objects likely to be thrown when mowing.
 - ♦ Never allow people or pets near the mower discharge chute.
 - ♦ Disengage electric PTO clutch and stop engine when a pet or bystander enters the vicinity. A small object could be thrown in any direction by the mower, causing serious injury.
 - ♦ Mow only in daylight or if the headlights allow sufficient visibility for safe operation.
 - ♦ Never mow at less than half engine speed.
 - ♦ Make sure discharge direction is clear before lowering mower deck.
 - ♦ Never permanently remove the mower deck discharge chute.

- ♦ Frequently check mower deck blade mounting bolts for tightness.
- ♦ Keep blades sharp for efficient operation.
- ♦ Before attempting to unclog the mower deck or discharge chute, disengage the electric PTO clutch, engage the parking brake, stop the engine and remove the ignition key. Disconnect both spark plug wires to prevent accidental engine starting. Wait a moment to allow rotation of the mower blades to completely stop.
- Handle gasoline with care and do not smoke when handling fuel.
 - ♦ Use only approved safety container for fuel.
 - ♦ Never remove the fuel tank cap or add fuel to a running or hot engine or fill the tank indoors. Wipe up all spilled fuel. Always use original vented fuel tank cap. Do not run engine indoors; exhaust fumes are dangerous.
- Observe proper, environmentally safe, disposal regulations and laws.
 - ♦ Never drain or pour oil or other fluids into the ground, any body of water or down a drain.
 - ♦ Consult your local Environmental Protection Agency office or other ecological authority to determine the proper disposal method for fluids and other waste material. As a public service, recycling centers and many automotive repair shops accept waste material in order to promote the proper disposal in an environmentally safe fashion.
 - ♦ Use only proper containers when draining fluids. Never drain fluids into empty food or beverage containers, as an unsuspecting individual may be tempted to drink the toxic contents. Immediately following the draining of fluids, seal the container, then properly dispose of the container.

TO THE OWNER

Thank you for purchasing the American-built *STRONGLAND* Tractor, designated and constructed with the highest quality components and workmanship available. The high quality and durability of your *STRONGLAND* Tractor is backed by one of the strongest warranties in the industry. To insure reliable and economical performance, the recommended operation and maintenance procedures provided in this manual must be followed. Proper maintenance in accordance with the preventative maintenance schedule within this manual is the responsibility of the owner. With proper care, your tractor will provide many years of trouble-free service.

Your dealer is concerned with the safety, reliability and performance of your *STRONGLAND* Tractor. Qualified, experienced service technicians, trained in the latest methods of tractor diagnostics and service, are prepared to provide knowledgeable and proper maintenance, adjustment and repair of your tractor. Original equipment maintenance and service parts and supplies available from your *STRONGLAND* dealer will assure the integrity and reliability of your *STRONGLAND* Tractor.

Your new *STRONGLAND* Tractor is fully equipped with all popular features and can be further complemented with the addition of several optional equipment accessories as follows:

STANDARD FEATURES

- Full-time hydraulics
- 38 HP continuous-use hydraulic Drive Pump
- Parking brake
- Category "1" three-point hitch
- 5-gallon fuel tank
- Standard size 12-volt automotive battery
- Electric key-switch ignition
- Electric PTO Clutch to provide belt-driven power to attachments
- Ammeter and Hour Meter gauges
- Halogen headlights
- 3/4" x 4" welded steel bar frame
- 2" solid steel rear axle
- High-back deluxe seat

OPTIONAL EQUIPMENT

- 48" Mower Deck
- 51" Snow Thrower
- Tire Chains
- Turn Signals
- Oil Pressure Gauge
- Captain's Chair
- Large Turf Tires:
 - Front: 20.5 x 8.0 x 10
 - Rear: 31 x 15.50 x 15
- 66" Mower Deck
- 48" Grader Blade
- Stabilizing Kit
- Wheel Weights
- Oil Temperature Gauge
- 540 Rear PTO
- Debris Blower
- Power Broom
- Front Bumper Weight Box
- 25 HP Kohler Command Engine
- 24 HP Onan Performer Engine
- 21 HP Lombardini Diesel Engine
- Category "1" Agricultural Tool Package:
 - Disk Harrower
 - Cultivators
 - Furrowers
 - Turning Plow
 - Double Turning Plow

This owner's manual provides the information required for the proper care and maintenance, as well as the instructions required for the *safe* and efficient operation of your tractor. Before starting and operating the tractor, study this owner's manual carefully and observe all safety precautions.

Record Important Purchase Information Here

Dealership Where Purchased	Purchase Date	Serial Number
QUALITY FARM & (FARMER) FLEET	7/26/98	CH7430018

STRONGLAND "74" SERIES TRACTOR SPECIFICATIONS

DRIVE TRAIN

Hydrostatic Pump
Axial piston, variable displacement
3000 PSI max continuous pressure
17.5 GPM

Hydrostatic Motor
275 Ft/Lbs Torque @ 3000 PSI
530 RPM @ 17.5 GPM Maximum

Final Drive - Differential Type
2" diameter steel axle
6.2:1 gear reduction in differential
7.5 MPH max ground speed

Hydrostatic Implement Pump
Axial Piston, variable displacement
3000 PSI max continuous pressure
17.5 GPM

Rear PTO
SAE 540 RPM
1-3/8 diameter 6 splines
Hydraulic driven by
auxiliary implement pump

3-POINT HITCH

Category-I

CONTROLS

Engine Speed:
Slide Throttle control
Ground Speed:
Rocker type foot pedal
(Optional addition - hand control)

PTO / Implements:
Electric clutch activated —
T-handle, turn-lock control

ELECTRICAL SYSTEM

Battery: 12 volts,
330 cold cranking amps
Lights (2): 75 candle power,
2.93 amps each
Electric PTO Clutch: 3.3 amps
Amp gauge: +/- 20 amps
Ignition switch: on, off, start
Hour meter

TIRES

Front: 20.5 x 8 - 10, 905 lb. load rating
Rear: 9.5 - 16, 4 ply rating

STEERING

Hydrostatic Power Steering

ROLL OVER PROTECTION STRUCTURE

Standard

BRAKES

Normal braking is accomplished by retarding the speed control pedal. A hand operated emergency brake operates a drum brake.

HYDRAULIC RESERVOIR

2.2 gallon capacity

FUEL TANK

Capacity: 5 gallons
Material: Natural Cross Link Polyethylene

DIMENSIONS

Overall Length	92"
Overall Width	46"
Wheel Base	61-1/2"
Front Wheel Track	37"
Rear Wheel Track	36-1/2"
Height:	
Top of steering wheel	53"
Top of ROPS	81"
Minimum ground clearance	10-1/2"
Weight:	1575 lbs. dry weight

ENGINE

Onan Performer
20HP or 24HP 3600 RPM
Horizontally Opposed Twin Cylinder
Horizontal Shaft
Air Cooled
Kohler Command
25 HP @ 3600 RPM
V - Twin Cylinder
Horizontal Shaft
Air Cooled
Max Torque: 39.5 Lb-Ft @ 2400 RPM
Lombardini Diesel
21 HP @ 3600 RPM
In Line Twin Cylinder
Horizontal Shaft
Air Cooled

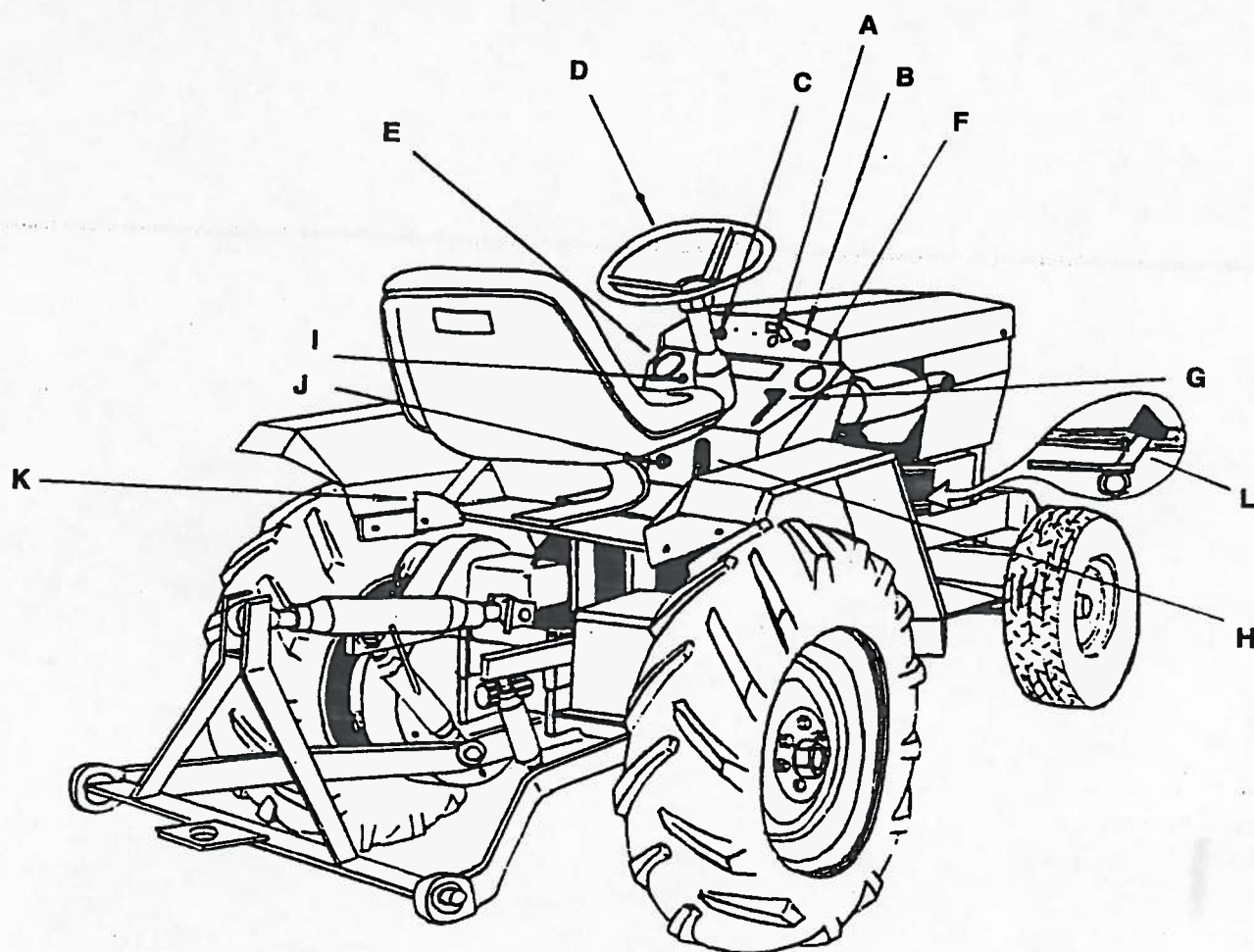


Figure 1: Controls

- A. Ignition Switch**
- B. Headlamp Switch**
- C. Electric PTO Control Switch**
- D. Steering Wheel**
- E. Ammeter Gauge**
- F. Hour Meter Gauge**

- G. Throttle Control**
- H. Hydraulic Hitch Control Lever**
- I. Choke Control Knob**
- J. PTO Speed Control (optional)**
- K. Parking Brake Lever**
- L. Hydraulic Motion Foot Pedal**

CONTROLS

The following controls are shown in Figure 1.

A. Ignition Switch

The electric ignition key-switch is a three-position switch with spring return from "START" position to "ON" position. Insert the key into the ignition switch, then turn the key fully clockwise to the "START" position to start the engine. To avoid engine starter motor damage never operate the starter motor for more than 10 seconds at a time. If the engine fails to start within 10 seconds, turn the key fully counterclockwise to the "OFF" position. Wait a few minutes to allow the starter motor to cool before again attempting to start the engine. When the engine starts, release the key allowing it to return to the center "ON" position. To stop the engine, turn the key fully counterclockwise to the "OFF" position. Remove the key from the ignition switch before leaving the tractor.

B. Headlamp Switch

This two-position on/off toggle switch controls electric power to the headlights. Push switch upward to turn on the headlights. Push the switch downward to turn off the headlights.

C. Electric PTO Control Switch

This two-position on/off toggle switch controls electric power to the PTO (power take-off) clutch. When engaged, the electric PTO clutch provides belt-driven power to the mower deck (if attached) or other implement (if attached). Position the switch upward to the "START" position to engage the electric PTO clutch. Position the switch downward to the "STOP" position to disengage the electric PTO clutch.

NOTE

The safety interlock system prevents the engine from starting if the electric PTO control switch is not in the "STOP" position.

D. Steering Wheel

The steering wheel turns the front wheels in order to control the direction of vehicle travel. Turn the steering wheel counterclockwise to turn left. Turn the steering wheel clockwise to turn right.

E. Ammeter Gauge

The ammeter gauge indicates the rate of battery charge or discharge. During normal operation the gauge should indicate battery charging (needle above zero, toward "+"). If during normal operation the gauge constantly indicates battery discharging (needle below zero, toward "-"), stop the tractor and contact your dealer to arrange for electrical system repair.

F. Hour Meter Gauge

The hour meter gauge indicates cumulative elapsed time of engine operation. This gauge should be monitored in order to determine when periodic maintenance is required. Refer to the preventive maintenance schedule to determine recommended intervals of scheduled maintenance according to hours of operation. The hour meter operates, accumulating hours, whenever the engine is running or the ignition switch key is in the center "ON" position.

G. Throttle Control

The throttle control lever controls the engine throttle to provide variable engine speeds. When placed at the desired position, the corresponding engine speed will be maintained. Set the lever midway between the **"FAST"** position and the **"SLOW"** position when starting the engine. When mowing or using other power take-off (PTO) operated equipment, best performance is achieved with the lever set at the **"FAST"** position. With the tractor stopped and at rest, and the PTO off, set the lever at the **"SLOW"** position to maintain a slow engine idle speed.

H. Hydraulic Hitch Control Lever

The hydraulic hitch control lever can be placed in one of four positions in order to control the height of the hitch and implement, if installed, on the hitch. The lever has a spring-return to the **"NEUTRAL"** position from both the **"UP"** position and the **"DOWN"** position. To raise the hitch, pull rearward on the lever. To lower the hitch, push forward on the lever. When released, the lever returns to the **"NEUTRAL"** position, holding the hitch and implement, if installed, at the height established by the previous movement of the hitch control lever. Some operating conditions warrant the use of the **"FLOAT"** position (i.e. using the optional turning plow). This position completely relieves hydraulic control of the hitch. Push fully forward on the hydraulic hitch control lever to lock in the **"FLOAT"** position. When locked in the **"FLOAT"** position, hydraulic control is disengaged, allowing the implement to follow (float along) the contour of the terrain.

I. Choke Control Knob

The manually operated choke control knob is used when starting a cold engine. Before starting a cold engine, pull the choke control knob fully outward to choke the engine. Easier starting may result from less choking due to variations in ambient temperature, engine temperature, quality and grade of fuel, etc. A warm engine requires little or no choking. After the engine starts, as it warms up, gradually push the choke control knob fully inward to open the choke, allowing maximum combustion air into the carburetor. Never use the choke control knob to enrich the carburetor fuel mixture after starting as severe engine damage may result.

J. PTO Speed Control

The PTO speed control handle controls the hydraulic oil flow from the auxiliary pump to the rear power take-off (PTO) or front-end implement. The sliding control gives the ability to run the implements with differing RPM requirements. When desired RPM is achieved, turn T-handle to the left or right to lock RPM speed in place.

K. Park Brake Lever

The park brake engages the brakes to prevent tractor rolling or other movement. Always engage the park brake when leaving the tractor.

L. Hydrostatic Motion Foot Pedal

The hydrostatic motion foot pedal, located on the right side of the tractor, controls the speed and direction of tractor movement in accordance with the setting of the throttle control lever. Minimal toe pressure applied to the top pedal results in a slow forward speed of the tractor. Full toe pressure applied to the pedal results in the maximum forward speed of the tractor. Minimal heel pressure applied to the bottom of the pedal results in a slow rearward speed of the tractor. Full heel pressure applied to the bottom pedal results in the maximum rearward speed of the tractor. Because tractors are difficult to control in the reverse (rearward) direction, always apply minimal heel pressure to the bottom pedal to maintain control of the tractor at a slow rearward speed. Braking is also accomplished by either toe or heel pressure, dependent on the direction of tractor movement.

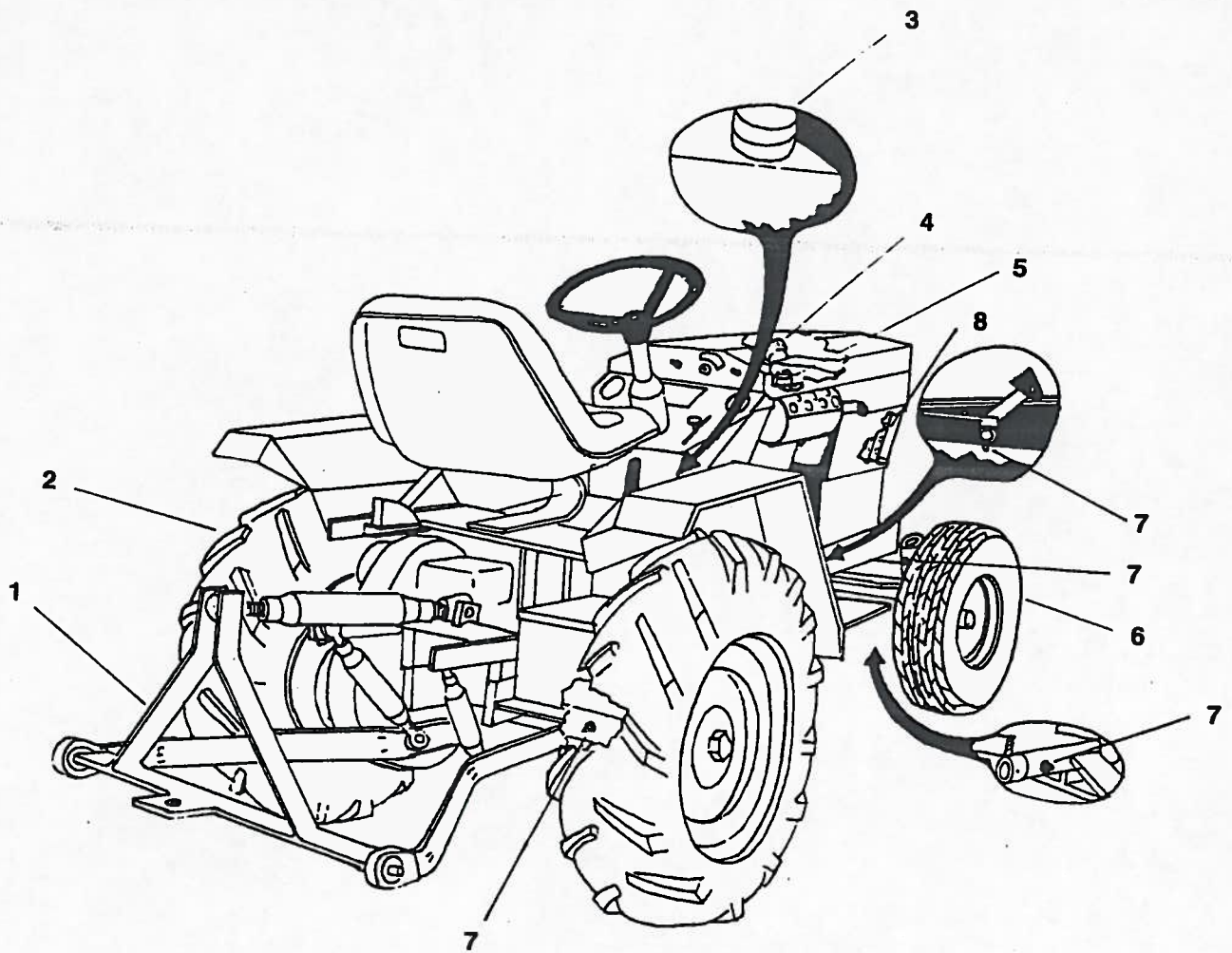


Figure 2: Pre-start Checklist

- 1. Hydraulic Hitch**
- 2. Rear Tire Pressure**
- 3. Hydraulic Fluid Level**
- 4. Fuel Level**
- 5. Engine Oil**
- 6. Front Tire Pressure**
- 7. Grease Fittings**
- 8. Hydraulic Fluid Cooler**
- 9. Hardware (not shown)**

PRE-STARTING PROCEDURES

- Study this Owner's Manual.
- Study the Manufacturer's Manual accompanying the Mower Deck or any other implement attached to the Tractor.
- Study the Engine Manufacturer's Manual.
- Be Careful and Observe all Safety Precautions.
- Maintain in Good Operating Condition with all Safety Devices Securely in Place.

Practice Safe Operating Procedures

This owner's manual provides the information for the safe and efficient operation of your tractor. Before starting and operating the tractor, carefully study this owner's manual and observe all safety precautions. Familiarize yourself with the operation of all the controls. Never allow anyone to operate the tractor without proper instructions.

See Figure 2 and follow steps 1 through 9.

1. Check Hydraulic Hitch

Check the proper fastening of implements attached to the tractor. Refer to the manufacturer's manual accompanying the specific implement attached to the tractor.

2. Check Rear Tire Pressure

Check the inflation pressures of both rear tires before each use. Inflate to 12 to 15 PSI.

- When using stabilizing kit, the outer tires should be inflated to half the required PSI.

3. Check Hydraulic Fluid Level

Check the level of hydraulic fluid and add if necessary.

4. Check Fuel Level

WARNING

Never remove the fuel tank cap when the engine is running or hot.

With the engine stopped and cool, raise the hood, remove the fuel cap, then fill the tank with fuel. Do not remove the fuel tank cap while the engine is running or hot. Insure that the fuel is clean and fresh before filling the fuel tank. Replace and tighten the fuel tank cap. *Refer to the engine operating and maintenance instructions manual for further detailed instructions and recommendations.*

5. Check Engine Oil

With the engine stopped, remove the dipstick from the engine oil fill tube to check the oil level and to add oil to the engine crankcase. Check the oil level daily and add oil as required. The dipstick must be securely screwed into the engine fill tube when the engine is running. *Refer to the engine operating and maintenance instructions manual for further detailed instructions, oil requirements and other recommendations.*

6. Check Front Tire Pressure

Check the inflation pressures of both front tires before each use. Inflate to 25 to 30 PSI.

7. Check Grease Fittings

Check all five (5) grease fittings for proper lubrication.

Lube Type: Multi-Purpose Lithium Grease

8. Check Hydraulic Fluid Cooler

The hydraulic fluid cooler is located behind the front grill, below the headlights. Clean accumulated grass, dirt or other air passage obstructions from the hydraulic fluid cooler.

9. Check Hardware (not shown)

Check the general condition of the tractor before each use and tighten or replace, if necessary, any loose fasteners or other hardware.

WARNING

The maximum capacity of the hydraulic hitch is 1000 lbs. at the end of the hitch, and 700 lbs. twenty-four inches beyond the hitch. **NEVER** exceed these limits. The tractor could become unstable and overturn backward, possibly resulting in serious injury or death.

OPERATION

WARNING

**Read this owner's manual before operating the tractor.
Learn all the rules for safe operation. Improper or care-
less operation may result in serious injury or death.**

- Before starting and operating the tractor, carefully study the owner's manuals accompanying the tractor, mower deck and any other implement(s) attached to the tractor, and observe all safety precautions. Familiarize yourself with the operation of all controls. Never allow children to operate the tractor. Never allow anyone to operate the tractor without proper instructions. Only adults, well acquainted with the instructions for safe operation should operate the tractor.
- Be alert and exercise extreme caution at all times. Know how to stop the tractor, PTO and engine quickly. Always look behind to insure the area is clear before placing the tractor in reverse, then continue looking behind while backing up.
- To prevent injury, never carry passengers. Keep all people and pets a safe distance away. When mowing, disengage the PTO and stop the engine when a pet or bystander enters the vicinity. A small object could be thrown in any direction by the mower causing serious injury. Never allow people or pets near the mower discharge chute. When using any attachments, make certain the discharge is directed safely.
- Maintain in good operating condition with all safety devices securely in place. Keep away from moving parts. Before attempting to unclog the mower deck or discharge chute, disengage the PTO, engage the park brake and stop the engine. Disconnect both spark plug wires to prevent accidental engine starting. Wait a moment to allow rotation of the mower blades to completely stop.
- Never remove the fuel tank cap or attempt to fill the fuel tank while the engine is running or hot.
- Operate the tractor smoothly in order to maintain control. Avoid erratic operation, sharp turns, excessive speed and sudden starting or stopping. Avoid slopes. If it is necessary to operate the tractor on a slope, exercise extreme care and observe the following additional precautions for safe operation on slopes.

SLOPE OPERATION PRECAUTIONS

WARNING

Never operate the tractor on slopes exceeding 15 degrees of incline (approximately 2-1/2 feet of rise every 10 feet). The tractor could become unstable and overturn, possibly resulting in serious injury or death.

WARNING

When operating the tractor on a slope, always travel up and down, never across, the slope. Traveling across a slope could cause the tractor to become unstable and overturn, possibly resulting in serious injury or death.

- Before operating the tractor on a slope, survey the slope to locate potential hazards. Gullies, ruts, mounds, stumps, rocks or other irregularities of the terrain may cause the tractor to overturn.
- Reduce the speed of the tractor when on a slope. Slower speeds allow the operator to safely react to potential hazards. Avoid sharp turns and exercise caution when changing directions on a slope.
- Avoid turning when operating the tractor on a slope. If safe operation requires turning, always turn down the slope. Turning up a slope greatly increases the risk of overturning the tractor.
- Avoid stopping when climbing a slope. If safe operation requires stopping when climbing a slope, start up the slope slowly and smoothly to reduce the risk of the tractor overturning backward. If the tractor fails to climb the slope, disengage the electric PTO clutch, raise the attachments and slowly back down the slope. Do not attempt to turn around the tractor.

ENGINE STARTING

WARNING

To reduce the risk of operator injury and to insure safe operation, the tractor is equipped with a safety interlock system. The electric PTO control switch must be in the "STOP" position before the engine will start. Never bypass the safety interlock system. Never operate the tractor if the safety interlock system malfunctions.

1. Pull the choke control knob fully outward to choke the engine. Easier starting may result from less choking due to variations in ambient temperature, engine temperature, quality and grade of fuel, etc. A warm engine requires little or no choking.
2. Place the throttle control lever midway between the "FAST" position and the "SLOW" position.
3. Place the electric PTO control switch in the "STOP" position to disengage the electric PTO clutch.

CAUTION

To avoid engine starter motor damage, never operate the starter motor for more than 10 seconds at any given time.

4. Insert the key into the ignition switch, then turn the key fully clockwise to the "START" position to start the engine. To avoid engine starter motor damage, never operate the starter motor for more than 10 seconds at a time. If the engine fails to start within 10 seconds, turn the key fully counterclockwise to the "OFF" position. Wait a few minutes to allow the starter motor to cool before again attempting to start the engine. When the engine starts, release the key, allowing it to return to the center "ON" position.

NOTE

For the optional diesel engine models: insert key into the ignition switch, then turn the key to the ready position. Before attempting to start the engine, you must wait for glow plugs to warm up. This will be indicated when the glow plug light goes out. You then can continue with step 4 as normal.

5. After the engine starts, as it warms up, gradually push the choke control knob fully inward to open the choke, allowing maximum combustion air into the carburetor.

CAUTION

Never use the choke control knob to enrich the carburetor fuel mixture after starting, as severe engine damage may result.

ENGINE STOPPING

1. Place the electric PTO control switch in the lower **"STOP"** position to disengage the electric PTO clutch.
2. Using the hydraulic hitch control lever, lower any attached implement to the ground. This relieves pressure from the hydraulic system and prevents possible injury caused by an unexpected drop of the implement.

WARNING

Remove the mower deck when using an implement on the 3-point hitch.

3. Engage the park brake.
4. Place the throttle control lever in the **"SLOW"** position.
5. Allow the engine to idle for a moment before stopping.

CAUTION

Never use the choke control knob to stop the engine as severe engine damage may result.

6. Turn the ignition key fully counterclockwise to the **"OFF"** position to stop the engine.
7. Remove the key from the ignition switch before leaving the tractor.

WARNING

Remove the key from the ignition switch when the tractor is unattended to prevent accidental or unauthorized starting.

TRACTOR OPERATION

⚠ WARNING ⚠

Avoid sudden starts, sudden stops and excessive speed.

⚠ CAUTION ⚠

Never leave the tractor seat before disengaging the PTO, engaging the park brake and shutting off the engine. Remove the key from the ignition switch when the tractor is unattended to prevent accidental or unauthorized starting.

1. Start engine, disengage the park brake, use hydro control pedal to prevent drift.
2. Set the throttle control lever to the "FAST" position.
3. Using the hydraulic hitch control lever, raise any attached implement from the ground.
4. Set the tractor in motion by depressing the hydrostatic motion foot pedal. Minimal toe pressure applied to the top pedal results in a slow forward speed of the tractor. Full toe pressure applied to the top pedal results in the maximum forward speed of the tractor. Minimal heel pressure applied to the bottom pedal results in a slow rearward speed of the tractor. Full heel pressure applied to the bottom pedal results in the maximum rearward speed of the tractor. Because tractors are difficult to control in the reverse (rearward) direction, always apply minimal heel pressure to the bottom of the pedal to maintain control of the tractor at a slow rearward speed.
5. Upon arrival at the intended work area, tractor movement is slowed or stopped in accordance with the foot pressure applied to the hydrostatic motion foot pedal.
6. Set the throttle control to the position required to allow the engine to power the anticipated load.

NOTE

When mowing or using other power take-off (PTO) operated equipment, best performance is achieved with the throttle control lever set at the "FAST" position.

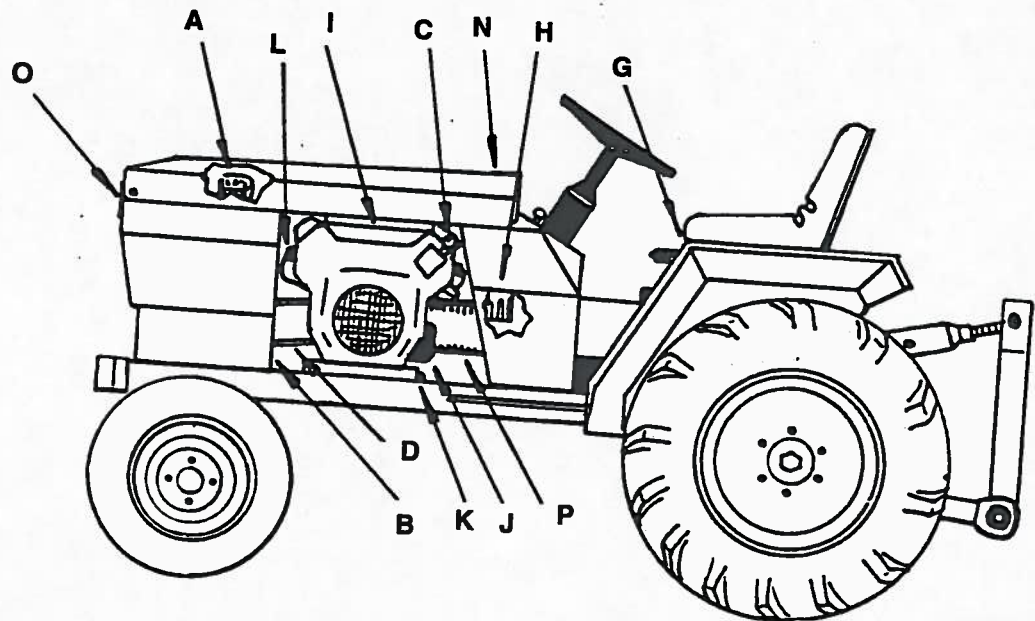


Figure 3:
Maintenance

7. Place the electric PTO control switch in the upper "START" position to engage the electric PTO clutch in order to supply belt-driven power to the mower deck (if attached) or other implement (if attached).
8. Using the hydraulic hitch control lever, lower any attached implement until it rests safely on the surface below. Refer to the manufacturer's manual accompanying the attached implement for specific instructions.
9. Set the tractor in motion by depressing the hydrostatic motion foot pedal.
10. Slow or stop the tractor movement by adjusting the pressure on hydrostatic motion control pedal.
11. When work is completed, place the electric PTO control switch in the "STOP" position to disengage the electric PTO clutch, then raise the implement and proceed to the final parking area.

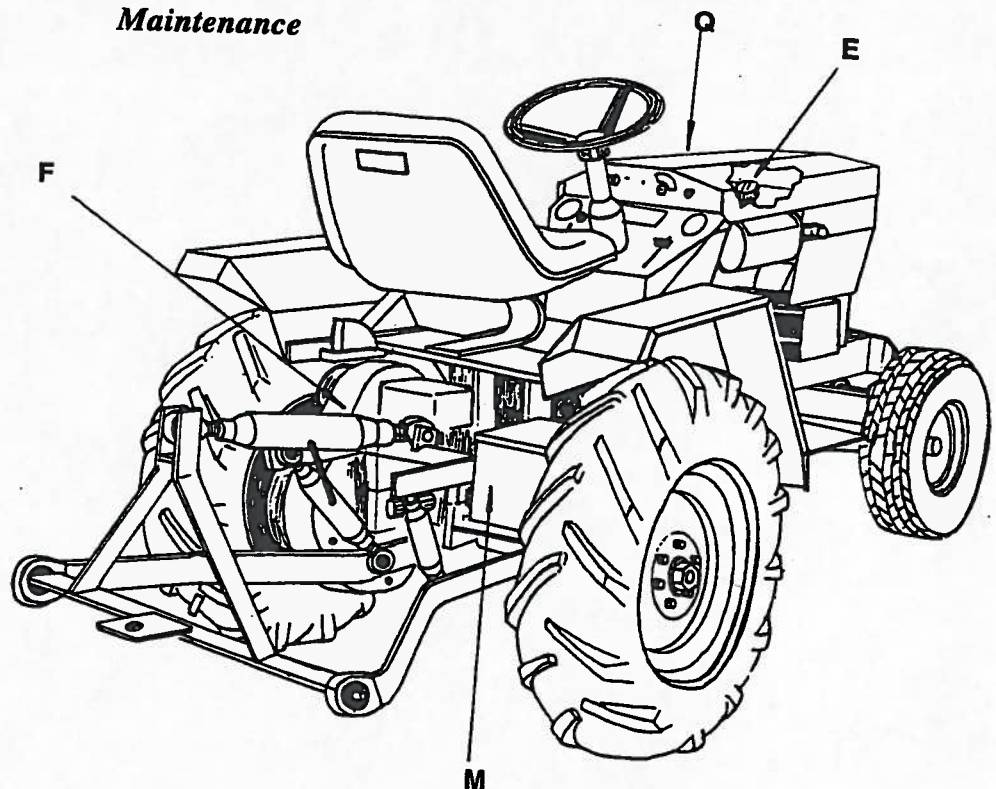
▲ WARNING ▲

Before leaving the tractor, lower the attached implement until it rests safely on the ground. This purposely relieves pressure from the hydraulic system, thereby reducing the risk of personal injury should the attached implement suddenly drop due to unintentional loss of system pressure.

12. Place the throttle control lever in the "SLOW" position.
13. Engage the park brake.
14. Stop the engine and remove the key from the ignition switch.

- A. Fuel Tank
- B. Fuel Shut-Off Valve
- C. Fuel Filter
- D. PTO Drive Belt
- E. Engine Oil Dipstick
- F. Final Drive Gear Case
- G. Hydraulic System Fluid Reservoir
- H. Hydraulic System Fluid Filter
- I. Engine Air Cleaner
- J. Engine Oil Filter
- K. Engine Crankcase Drain Plug
- L. Engine Spark Plugs
- M. Battery
- N. Fuse
- O. Headlamps
- P. Main Drive Belt
- Q. Hood
- R. Grease Fittings (not shown)
- S. Safety Interlock Switches (not shown)

**Figure 3:
Maintenance**



MAINTENANCE

WARNING

Before performing any equipment maintenance, disengage the electric PTO clutch, engage the park brake, stop the engine and remove the ignition key. Disconnect both spark plug wires to prevent accidental starting of the engine. Never perform any maintenance when the engine is hot. Wear safety glasses to protect eyes from foreign objects.

Original equipment maintenance and service parts and supplies, available from your dealer, will assure the integrity and reliability of your *STRONGLAND* Tractor.

When maintenance is performed, the hour meter gauge reading should be recorded in a log book. In accordance with the interval listed in the preventive maintenance schedule, the next scheduled maintenance for that task, in terms of hours of operation, should be calculated and recorded in the log book. When the hour meter indicates the calculated and recorded hours of operation for the next scheduled maintenance, the associated maintenance task should be performed. Once the maintenance is performed, again calculate the next scheduled maintenance for that task and record the result in the log book.

Refer to Figure 3 for maintenance items.

A. Fuel Tank

WARNING

Never remove the fuel tank cap when the engine is running or hot.

With the engine stopped and cool, raise the hood, remove the fuel tank cap, then fill the tank with fuel. Do not remove the fuel tank cap while the engine is running or hot. Insure that the fuel is clean and fresh before filling the fuel tank. Replace and tighten the fuel tank cap. *Refer to the engine operating and maintenance manual for further detailed instructions and recommendations.*

B. Fuel Shut-Off Valve

The fuel shut-off valve located on the bottom of the fuel tank controls the flow of fuel to the engine. To stop the flow of fuel to the engine, close the valve by turning the knob clockwise until it stops. To allow the flow of fuel to the engine, open the valve by turning the knob counterclockwise until it is tight. The fuel shut-off valve must be in the normal, open position allowing fuel to the engine in order for the engine to start and operate.

C. Fuel Filter

WARNING

Never remove the fuel filter when the engine is running or hot. Close the fuel shut-off valve before removing the fuel filter.

The in-line fuel filter located in the fuel supply hose traps dirt and other foreign particles from the fuel supply, preventing damage or clogging of the engine carburetor. Replace the fuel filter after every 100 hours of operation or annually, whichever first occurs. Visually inspect the fuel filter periodically and replace the filter if it is dirty. Close the fuel shut-off valve before replacing the fuel filter. When replacing, insure that the arrow on the fuel filter points in the direction of fuel flow (towards the engine). Open the fuel shut-off valve after replacing the fuel filter. *Refer to the engine operating and maintenance manual for further detailed instructions and recommendation.*

D. PTO Drive Belt

Periodically adjust tension. To adjust the PTO belt, loosen the bolts on both sides of the grill base and tighten the belt by turning the belt tension bolt until PTO belt is at desired tension; re-tighten the grill base bolts. When worn, replace belt.

E. Engine Oil Dipstick

The dipstick is removed from the engine oil fill tube to check the oil level and to add oil to the engine crankcase. When checking the oil level, the tractor must be level and the engine must be cold. Clean the area around the dipstick cap and oil fill tube to prevent accumulated dirt and debris from entering the crankcase and contaminating the oil. Remove the dipstick and wipe it clean with a clean cloth, replace the dipstick fully into the oil fill tube, then remove it for a true reading of the oil level. The oil level should be maintained at the "FULL" mark on the dipstick. Check the oil level daily and add oil as required. The dipstick must be securely screwed into the engine oil fill tube when the engine is running.

NOTE

Some engines have an oil fill cap secured to one of the valve covers. If so equipped, oil should be added to the engine crankcase by removing this cap, then pouring the fresh oil into the valve cover oil fill port. The cap must be securely screwed into the valve cover when the engine is running.

Oil Type: *Refer to the engine operating and maintenance manual for recommendations.*

NEW ENGINES:

Refer to the engine operating and maintenance instructions manual for further detailed instructions, oil requirements and other recommendations. Change the oil after the first 8 hours of operation.

F. Final Drive Gear Case

The final drive gear case must be kept full of gear lube at all times. The gear case lower drain plug is removed at lube change intervals to drain used lube from the *warm* gear case into a suitable container. Replace and tighten the lower drain plug when the gear case is fully drained of used lube. Remove the gear case upper fill plug and fill the gear case to upper fill point level with fresh lube. Replace and tighten the upper fill plug. (See Figure 4)

Lube Type: High quality SAB 80W - 90W gear tube.
Changing Gear Lube: Change the gear lube after every 100 hours of operation.

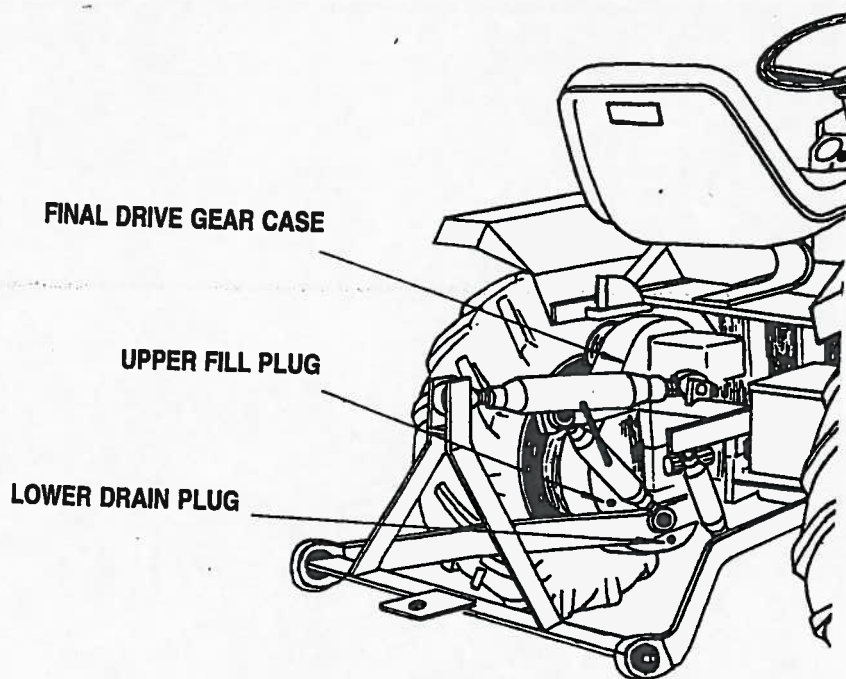


Figure 4: Final Drive Gear Case

G. Hydraulic System Fluid Reservoir

Periodically clean the area around the fluid fill cap and reservoir to prevent accumulated dirt or debris from entering the reservoir and contaminating the fluid, then remove the cap to check the purity and proper level of fluid in the reservoir. When checking the fluid level, the tractor must be level, the engine must be stopped and the hydraulic pump must be cold. The fluid level should be maintained at 2" below the top of the reservoir. If inspection indicates a contaminated fluid reservoir supply (dirty or milky appearance), contact your dealer to arrange for hydraulic system inspection and repair. The drain plug is removed at fluid change intervals to drain used fluid from the hydraulic system into a suitable container. Replace the hydraulic system fluid filter when changing the system fluid. Replace and tighten the drain plug when the hydraulic system is fully drained of used fluid. Add clean, fresh fluid to the reservoir as required to bring the level of the fluid to 2" below the top of the reservoir.

Fluid Type: For warm weather use ISO 68 hydraulic fluid;
for cold weather use ISO 32 hydraulic fluid.

Changing Fluid: Change the fluid and filter after every 100 hours of operation.

⚠ WARNING ⚠

Escaping hydraulic oil under pressure can have sufficient force to penetrate the skin causing serious personal injury. If injured by escaping hydraulic oil, immediately consult a physician. Use paper or cardboard, not body parts to check for leaks in system.

H. Hydraulic System Fluid Filter

The hydraulic system fluid filter traps dirt and other contaminants from the fluid reservoir, preventing damage to the hydraulic pump and motor. Replace the fluid filter when changing the system fluid. The filter is located under the center console inspection cover. Change the fluid and filter after every 100 hours of operation. Contact your dealer for assistance.

WARNING

Escaping hydraulic oil under pressure can have sufficient force to penetrate the skin causing serious personal injury. If injured by escaping hydraulic oil, immediately consult a physician. Use paper or cardboard, not body parts to check for leaks in system.

I. Engine Air Cleaner

Before starting the engine, inspect the air cleaner housing, pre-cleaner and filter for accumulated grass, dirt or other obstructions and clean as required. Clean or replace the air pre-cleaner after every 25 hours of operation. Clean or replace the air filter after every 100 hours of operation. When operating in unusually dusty or dirty conditions, clean or replace more often. *Refer to the engine operating and maintenance manual for further detailed instructions and recommendations.*

J. Engine Oil Filter

The engine oil filter traps dirt and other contaminants from the engine crankcase oil supply, preventing damage to the engine. Replace the oil filter after every 100 hours of operation or annually, whichever first occurs. *Refer to the engine operating and maintenance manual for further detailed instructions and recommendations.*

K. Engine Crankcase Drain Plug

The engine crankcase drain plug is removed at oil change intervals to drain used oil from the warm engine crankcase into a suitable container. Replace and tighten the drain plug when the engine crankcase is fully drained of used oil. Remove the engine oil dipstick and fill the engine crankcase by pouring the recommended type of clean, fresh oil into the engine oil fill tube. As previously directed in the section entitled "Engine Oil Dipstick", check to insure proper oil level using the dipstick. Replace the dipstick. The dipstick must be securely screwed into the engine oil fill tube when the engine is running. *Refer to the engine operating and maintenance manual for further detailed instructions and recommendations.*

Oil Type: *Refer to the engine operating and maintenance manual for further detailed instructions and recommendations.*

Changing Oil: **Change the oil after the first 8 hours of operation.** Thereafter, under normal operating conditions, change the oil after every 50 hours of operation or annually, whichever first occurs. When operating under the heavy load or in high ambient temperatures, change the oil after every 25 hours of operation. *Refer to the engine operating and maintenance manual for further detailed instructions and recommendations*

NOTE

Consult your local service station, Environmental Protection Agency office or other ecological authority to determine the proper disposal method for oil, fluids and other waste material.

L. Engine Spark Plugs

The engine spark plugs are susceptible to wear. Periodically, remove and inspect the engine spark plugs, clean as required and reset the gap as required. Replace the engine spark plugs after 100 hours of use. *Refer to the engine operating and maintenance manual for further detailed instructions and recommendations*

M. Battery

The 12 VDC battery should be kept clean by neutralizing any acid deposits with a solution of baking soda and water. Prevent this solution from entering the battery cells through the battery vents. Coat the battery cable terminals and exposed wire with grease for protection against corrosion. If removed from the tractor, avoid tipping the battery to prevent leakage of electrolyte. If the battery is not sealed, remove the dust caps and check the electrolyte level monthly. Add distilled water as required to maintain the electrolyte level at the internal split rings. Periodically check the condition of the battery using a hydrometer, recharging the battery as required.

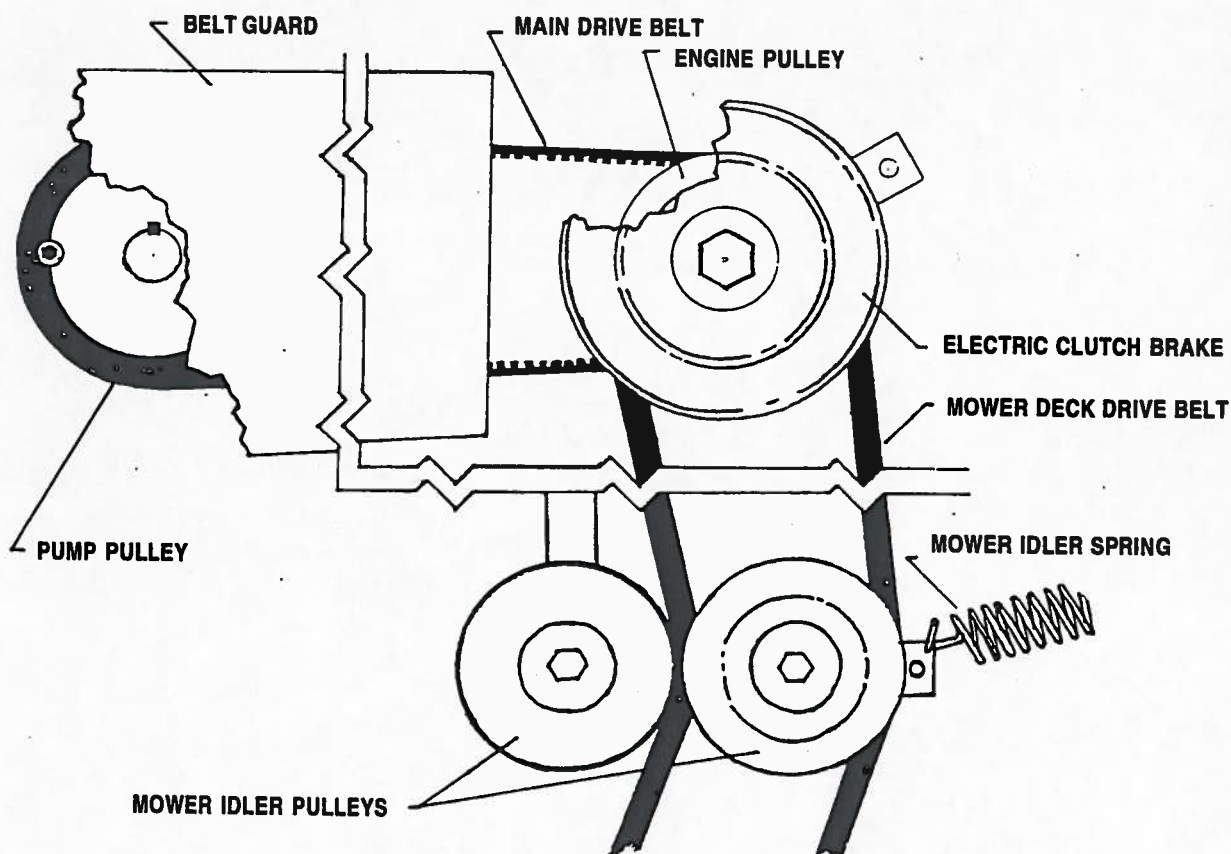


Figure 5: Main Drive Belt

N. Fuse

The fuse, located under dash in engine compartment, protects the 12 VDC electrical system from damage caused by excessive electrical current (amperage) overload. Replace a "blown" fuse with a standard automotive type fuse at its required amps. If the new fuse fails, contact your dealer to arrange for electrical system inspection and repair.

O. Headlamps

⚠ WARNING ⚠

Do not replace headlamp bulb(s) when the failed bulb is hot.

⚠ CAUTION ⚠

Do not touch glass portion of the new headlamp bulb with fingers.

The halogen headlamps provide illumination for limited operation of the tractor in conditions of reduced light. To replace a headlamp bulb, remove the socket from the back of the headlamp by rotating the socket 1/4 turn counterclockwise, then pull the socket outward. Do not touch the glass portion of the new headlamp bulb with fingers as reduced bulb life will result. If touched, clean the glass portion of the new bulb using isopropyl alcohol and a lint-free cloth. After removing the failed bulb from the socket, replace with a new GE 894 halogen bulb. Replace the socket into the back of the headlamp and rotate the socket 1/4 turn clockwise to secure in place.

P. Main Drive Belt

The main drive belt should be inspected periodically to insure the integrity of the belt. Replace a worn, brittle, damaged or broken belt as follows: (See Figure 5)

1. Remove the belt guard side panel from the right side of the tractor frame.
2. Remove the mower deck/PTO drive belt. Refer to the Mower Deck Owner's Manual.
3. Loosen the four engine mounting bolts and the two belt tension bolts to allow movement of the engine.
4. Remove the belt from the hydraulic system pump pulley.
5. Remove the belt from the engine pulley.
6. Install the new belt on the engine pulley.
7. Install the new belt on the hydraulic system pump pulley.
8. Tighten the drive belt by turning the two belt tension bolts, then tighten the four engine mounting bolts.
9. Install and secure the belt guard side panel to the right side of the tractor frame.
10. Install the mower deck or PTO drive belt. Refer to the Mower Deck Owner's Manual.

Q. Hood

The hood helps to keep the engine clean and free of dirt and debris. Keep the hood in place at all times during tractor operation.

R. Grease Fittings

After every 100 hours of use, lubricate all five zerck grease fittings using a multi-purpose lithium grease.

1. Right Front Spindle
2. Left Front Spindle
3. Front Axle Pivot
4. Rear Axle
5. Hydraulic Control Pedal

S. Safety Interlock Switches

The safety interlock switches reduce the risk of operator injury and insure safe operation of the tractor. Never bypass the safety interlock system. Never operate the tractor if the safety interlock system malfunctions. In the event of system failure, stop the tractor and contact your dealer to arrange for electrical system inspection and repair. Before the engine will start, the operator must be seated with the electric PTO control switch in the **"STOP"** position and the park brake set.

WARNING

To reduce the risk of operator injury and to insure safe operation, the tractor is equipped with a safety interlock system. Before the engine will start, the operator must be seated and the electric PTO control switch must be in the **"STOP"** position. Never bypass the safety interlock system. Never operate the tractor if the safety interlock system malfunctions. This tractor is not a dedicated grasscutter. The mowing deck will operate with the operator out of the seat.

ADJUSTMENTS

Your dealer is concerned with the safety, reliability and performance of your *STRONGLAND* Tractor. Qualified, experienced, service technicians, trained in the latest methods of tractor diagnostics and service, are prepared to provide knowledgeable and proper maintenance, adjustment and repair of your tractor. Original equipment maintenance, and service parts and supplies available from your dealer, will assure the integrity and reliability of your *STRONGLAND* Tractor.

Seat Position Adjustment

In order to provide the operator with the most comfortable access to the foot pedals and dashboard controls, the seat position adjustment allows for the forward or rearward adjustment of the operator's seat. Seat adjustments may be made as follows: remove the bolt fastening the seat to the seat spring, then move to one of the desired positioning holes.

Engine Adjustments

Refer to the Engine Operating and Maintenance manual for detailed engine adjustment instructions and recommendations.

All other adjustments should be referred to your dealer.

STORAGE

When the tractor will remain inoperative for a period of 30 days or more, the following storage precautions should be observed.

WARNING

Drain fuel into an approved container. Never store the tractor in an enclosed area with fuel in the tank. Fuel fume accumulation is explosive. Deterioration of stored fuel may cause severe engine starting problems.

1. Disconnect fuel line at fuel tank or carburetor and drain fuel tank into an approved container.
2. Refer to the engine operating and maintenance manual for detailed engine storage instructions and recommendations.
3. Thoroughly clean the engine, hydraulic fluid cooler and the entire tractor.
4. To reduce the risk of rust and corrosion, touch up paint as required. Contact your dealer for assistance.
5. Completely lubricate all points of lubrication.
6. Remove the battery from the tractor. Clean the exterior battery case, as a dirty battery will discharge more quickly than a clean battery. Store the battery in a cool, dry place. Check the condition of the battery every 30 to 60 days and recharge as required.
7. Protect the tires and seat from exposure to direct sunlight. Check tire pressures at regular intervals and inflate as required. If the tractor will remain inoperative for an extended period of time, it is recommended that the tractor be placed on jack stands or blocks.

MAINTENANCE CHART — Be Careful and Observe All Safety Precautions

COMPONENT	LUBRICANT	CHECK	CHANGE	NOTES
Engine	Refer to the engine operating and maintenance instructions manual for instruction and recommendation.			
Engine Air Cooling System		Before each use		Clean debris from engine.
Hydraulic System Fluid Cooler		Before each use		Clean debris from cooler.
Fuel Tank		Before each use		Unleaded <i>only</i> or diesel.
Tires		Before each use	As required	Check required PSIs.
Main Drive Belt		Before each use	As required	See text.
Brakes		Before each use	As required	Refer to dealer.
Battery		Periodically	As required	See text.
Fuel Filter		Periodically	100 hours or annually	Close Shut-off valve to replace.
Final Drive Gear Case	SAE 80W-90W Gear Lube	Before each use	100 Hours	Visually check daily for leaks.
Hydraulic System Fluid Reservoir and Filter	ISO 68 or ISO 32 Hydraulic fluid	Before each use	100 Hours	Replace filter when changing fluid. Refer to dealer.
Grease Fittings	Multipurpose Lithium Grease		100 Hours	Lubricate 5 zerK grease fittings.
Moving Parts, Controls	Motor Oil		100 Hours	Lubricate all moving parts.
Wheel Bearing	Wheel Bearings Grease		100 Hours	Refer to dealer.

NOTE: Whenever performing maintenance on your equipment, please follow all recommended safety procedures. Wear protective eyewear (safety glasses). Wear long sleeved shirts, long pants and sturdy shoes. When dealing with lubricating or hydraulic fluids follow manufacturers instructions printed on the label.

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
ENGINE STARTER FAILS TO OPERATE	<ol style="list-style-type: none"> 1. Dead battery. 2. Loose or dirty battery connections. 3. Loose wiring or faulty ignition switch. 4. Interlocks engaged. 5. Blown Fuses. 	<ol style="list-style-type: none"> 1. Charge or replace battery. 2. Clean and tighten battery connections. 3. Secure wiring or refer to dealer. 4. Set brake, move the electric PTO to "OFF" position 5. Change fuse.
STARTER OPERATES BUT ENGINE FAILS TO START —OR— ENGINE STARTS BUT QUICKLY STALLS —OR— ENGINE IDLES OR OPERATES IRREGULARLY —OR— ENGINE OPERATES BUT LACKS POWER	<ol style="list-style-type: none"> 1. Closed fuel shut-off valve. 2. No fuel in fuel tank. 3. Fuel cap vent clogged. 4. Water or contaminants in fuel tank. 5. Fuel line or carburetor clogged. 6. In-line fuel filter clogged. 7. Improperly choked or flooded engine. 8. Incorrect carburetor adjustment(s). 9. Loose throttle linkage. 10. Air cleaner clogged. 11. Loose wiring or faulty ignition switch. 12. Dirty-improperly gaped spark plugs. 13. Loose or grounded ignition wiring. 	<ol style="list-style-type: none"> 1. Open fuel shut-off valve. 2. Fill fuel tank. 3. Refer to dealer. 4. Drain and fill fuel tank with fresh gasoline. 5. Refer to dealer. 6. Replace in-line fuel filter. 7. Reset choke control and try to start engine. 8. Refer to engine manual or call dealer. 9. Refer to dealer. 10. Clean/replace air cleaner. 11. Secure wiring or refer to dealer. 12. Clean/re-gap/replace spark plugs. 13. Secure ignition wiring or refer to dealer.
ENGINE FAILS TO SHUT OFF WHEN IGNITION SWITCH IS TURNED OFF —OR— DIESELING	Loose engine ground wire or faulty ignition switch	Secure wire or refer to dealer.
HYDROSTATIC DRIVE FAILS TO FUNCTION —OR— HYDRAULIC SYSTEM FAILS TO FUNCTION	<ol style="list-style-type: none"> 1. Loose tension on main drive belt 2. Low or no fluid in reservoir - leaks in the system. 3. System malfunction 4. Lift may be in float position 5. Loose engine or drive pulleys. 	<ol style="list-style-type: none"> 1. Replace main drive belt or refer to dealer. 2. Add fluid to reservoir or refer to dealer. 3. Refer to dealer. 4. Remove from float position. 5. Tighten set screws on pulley.

NOTE: Whenever performing maintenance on your equipment, please follow all recommended safety procedures. Wear protective eyewear (safety glasses). Wear long sleeved shirts, long pants and sturdy shoes. When dealing with lubricating or hydraulic fluids follow manufacturers instructions printed on the label.

ZINGA INDUSTRIES INC

2400 ZINGA DRIVE

RENDERSBURG, WI. 53959

PHONE -

608-524-420

HYDRAULIC SYSTEM

OIL FILTER (10 MICRON)

ZINGA - BF-10-18

OR

NAPA - #12'69

OR

NEW HOLLAND - 0814018494
(# ON FILTER)
(PART # RT103144)

FRONT + REAR PUMPS

BOTIT ARE "OILGEAR"

MOD. / PVE022A10V

(IN SMALL LETTERS)

LH44MSNNN N25F420P

REAR PUMP SERIAL #

95188091

OILGEAR

MILLWAUKEE WIS.

PHONE 414-327-1700