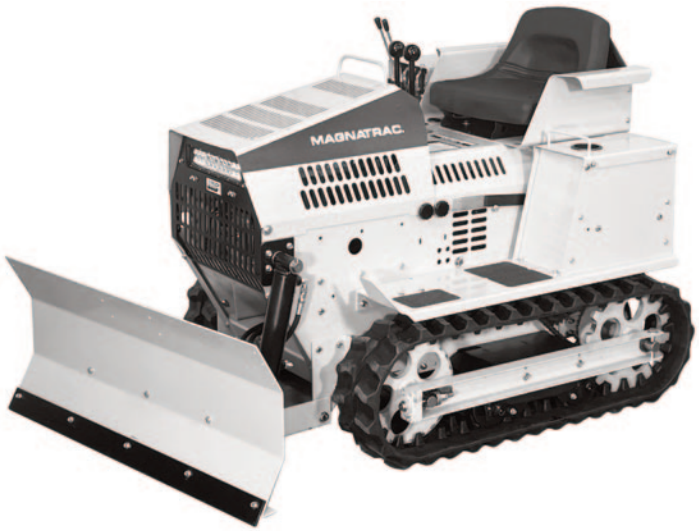
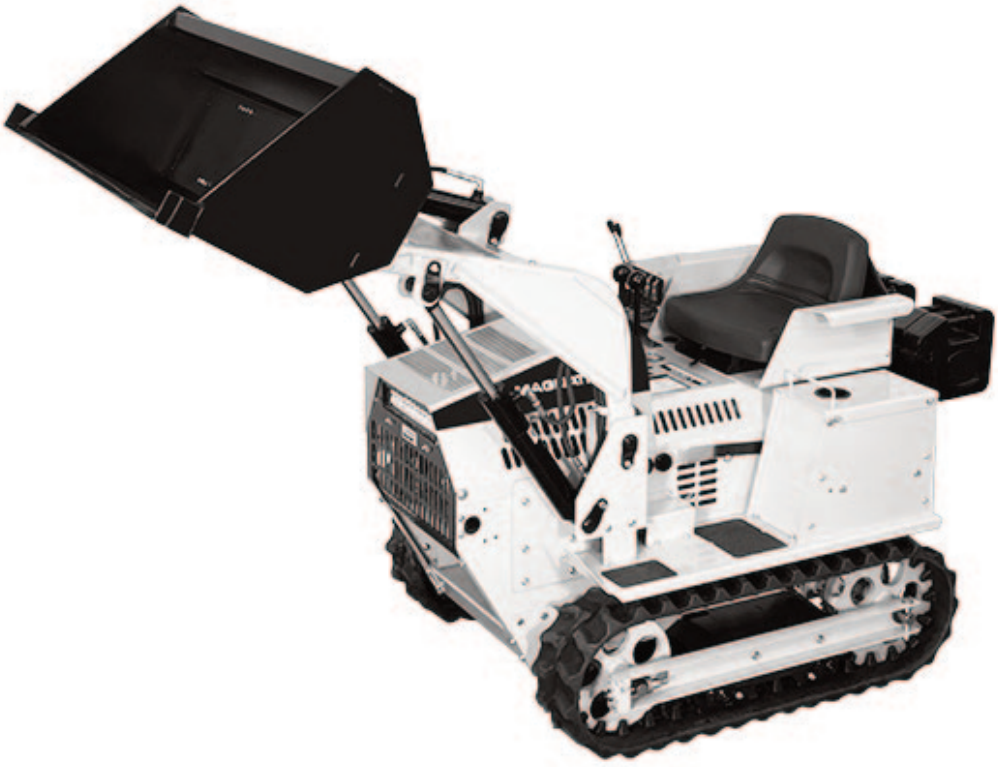
MAGNATRAC®

RT1150





Operator / Technical Manual

Struck Corp. - Cedarburg, WI 53012

Version - 01.01.23

Important Facts & Tips for Top Performance

The following are facts that will be expanded on within this Manual. They are brought to you "first" to impress upon you their primary importance in preventing damage to your RT1150, understanding how to operate the unit, and also to protect your safety and prevent costly and unnecessary maintenance expenses.

SAFE BLOCKING AREA

When "blocking" your Crawler off the ground for service, be aware that you should **only apply a hydraulic jack, in the "Green Shaded" areas marked below.**

POWER VS. SPEED

The greatest amount of **"Power" (drawbar torque)** your RT1150 can deliver is by pushing the track drive handles: **1/4 of the way forward and/or rearward**. The greatest amount of **"Speed"** your RT1150 can deliver is by pushing the track drive handles: **fully forward and/or rearward.**

Doing your **tough/heavy work at approx. 1/2 thottle & slower travel speeds** accomplishes a few things:

1. It keeps the engine cooler.
2. It gives your RT1150 maximum draw bar torque.
3. It provides time to make "attachment adjustments" on the go!

You're encouraged to completely read this Manual to get a firm over-view of: how your RT1150 operates, significant safety points, and also maintenance tips on how to increase your MAGNA-TRAC'S life.

PARKING BRAKE

NEVER FORGET to take off your Parking Brake... **BEFORE** you drive away. If you fail to disengage the Parking Brake, it can cause damage to the hydro-static transaxles!

DRIVE BELT

It is strongly advised that you thoroughly read the Drive Belt Removal & Installation chapter in the Service Section of this Manual to give you an over-view of the mechanics of your hydro-static drive system.

In factory tests of different driving techniques, we found that Drive Belt life will range from **100 to 400 hours**. This testing proved that the operator is the greatest variable in determining Belt life. From these tests, the following driving rules have evolved. If followed, they will give you the best Belt life consistent with the severity of work you are doing.

1. If your MAGNATRAC cannot push a particular load you have two options:

A. Immediately reduce the load (raise the Bucket or Blade) or...
B. Backup and take a new angle at the load.

Never hold your track controls in a fixed position (forward or rearward) against an immovable object for a long period of time, you will unnecessarily wear the drive belt.

2. Your MAGNATRAC has outstanding pushing ability, but it's up to you, the operator, to use its ability in the most efficient and economical manner.

TRACTION & TRACKS

The track system of your MAGNATRAC is the result of over 60 years of experience.

A few helpful hints are listed below, that if followed, will give you maximum track performance.

1. Avoid Overloading Your Track System. The track system is designed to absorb a great deal of material, but the less you force it to "digest", the greater the track's stability and overall life.
When working the machine, clear a "driving path" with the front attachment (Blade, Bucket, etc.) you are using. Avoid climbing in loose material and counter-rotating your tracks. This action will "corkscrew" the Tracks into the pile and force unnecessarily large amounts of material into the Tracks.

2. Keeping Up with Track Tensioning. Properly tensioning your tracks will allow the most reliable and stable track system. Loose tracks, and/or front idler mis-alingment is the main cause of track derailment. Please see proper tensioning in the Service section of this manual.

3. Work Smartly when Excavating. The RT1150 can do alot of tough homeowner work. However, when excavating an area, we advise to use the backhoe to dig, or to use our Hydro Rear Hitch & Three Shank Ripper to loosen the soil first. Then come through the area with a front bucket or blade, for moving the loosened material. This allows you to use the power of the RT1150 smartly & efficiently.

LUBRICATION

The consistent greasing of all moving joints, where grease zerks are present, will greatly extend the life of your equipment. **However, the rear drive chains should NOT be lubricated with grease.** We advise to spray on, non-detergent aersol Chain & Wire Rope Lubricant, approx. every 50 hours. We use CRC® brand, Grainger® Item #2F139.

ROLL-OVER STRUCTURE AND INCLINES

The MAGNATRACS low center of gravity and ground gripping traction, are no substitute for this safety struture. A must if using the MAGNATRAC in a business.

CAUTION: For safe operation on inclines, or when driving out of a ditch or excavation area when a Backhoe is mounted, we advise to drive in reverse when going up slopes.

HYDROSTATIC TRANSAXLES

Other than recommended transaxle oil and filter changes, the transaxle normally will not require servicing during the life of the vehicle in which it is installed. Should servicing be required, the exterior of the transaxle will need to be thoroughly cleaned. **Do NOT use a pressure washer to clean the unit.** A Transaxle Service & Repair Manual is included with this manual.

HOUR & TACH METER

The hour meter is based on actual engine run hours. Alerts begin flashing a warning 4 hours before service is due, and will automatically reset 1 hour after the service interval. The meter displays RPM while engine is running, and hours while engine is off.

1. It will flash **"LUBE" at 25 hour** service intervals. Please see the 25 hour service section of this manual.

2. It will flash **"CHG OIL" at 100 hour** service intervals. Please see the 100 hour service section of this manual.

FREE TECHNICAL SUPPORT

As always, the Struck Corporation through the customer service department, stands ready to help you with any technical or work related questions you may have either now or in the future!

Phone: 1-877-828-8323
Email: support@struckcorp.com
Text: 1-262-278-9298

LIMITED WARRANTY
NEW STRUCK CRAWLERS and/or ATTACHMENTS

(Effective with shipments made after January 1st, 2023)

A. GENERAL PROVISIONS

C.F. Struck Corp. will repair or replace, at its option, for the original purchaser of a new Struck Crawler and/or Attachment, any covered part or parts found upon examination at our factory in Cedarburg, Wisconsin, to be defective in material or workmanship or both; this is the exclusive remedy. Warranty service must be performed by the C. F. Struck Corp. at their factory in Cedarburg, Wisconsin 53012. Warranty service will be performed without charge for parts or labor. The purchaser will be responsible, however, for transportation charges to and from the factory.

B. WHAT IS WARRANTED

All parts of any new Struck Crawler and/or Attachment are warranted for two (2) years, with the following exceptions: Belts, which are warranted for 90 days (excludes normal wear and tear); Rubber Tracks, which are warrantied for 6 months or 500 hours; Engines, which are warranted by their manufacturer; and Batteries, which are provided on a complimentary basis and carry no warranty whatsoever. C. F. Struck Corp. reserves the right to make product design and specification changes without notice and without obligation on their part to present product owners. The Warranty term begins on the date the product is shipped to the purchaser.

C. WHAT IS NOT WARRANTED

(1) Used Products; (2) Any product that has been altered or modified in ways not approved by C. F. Struck Corp.; (3) Depreciation or damage caused by normal wear, lack of reasonable and proper maintenance, failure to follow the product's Operator's/Technical Manual instructions, failure to upgrade crawler with parts furnished at no charge, misuse, lack of proper protection during storage, or accident (4) Normal maintenance parts and service; (5) Use of Struck Crawler and/or Attachments in certain industrial-type applications may affect Warranty coverage.

D. RETURNS AND REFUNDS

In the event of defective materials or workmanship the purchaser agrees to allow C.F. Struck Corp the opportunity to correct the defect in a timely manner at the expense of C.F. Struck Corp. It is at the discretion of C.F. Struck Corp to either correct the defect or refund the purchaser.

To return a Struck Crawler and/or attachment for reasons other than defect the purchaser will be financially responsible for an 8% restocking fee, and for shipping the Struck Crawler and/or Attachment to the C.F Struck Corp. factory in Cedarburg, Wisconsin 53012. No Returns after 90 days.

E. SECURING WARRANTY SERVICE

To secure Warranty service, the purchaser must:
(1) Report the product defect to the factory in Cedarburg, Wisconsin 1-262-377-3300 or 1-877-828-8323.
(2) Make the part available to the factory in a reasonable period of time.

F. LIMITATION OF IMPLIED WARRANTIES AND OTHER REMEDIES

To the extent permitted by law, neither C. F. Struck Corp. nor any company affiliated with it makes any Warranties, representations or promises as to the quality, performance or freedom from defect of the products covered by this Warranty. IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, TO THE EXTENT APPLICABLE, SHALL BE LIMITED IN DURATION TO THE APPLICABLE PERIOD OF WARRANTY SET FORTH ON THIS PAGE. THE PURCHASER'S ONLY REMEDIES IN CONNECTION WITH BREACH OR PERFORMANCE OF ANY WARRANTY ON C. F. STRUCK CORP. PRODUCTS ARE THOSE SET FORTH ON THIS PAGE. IN NO EVENT WILL C. F. STRUCK CORP. OR ANY COMPANY AFFILIATED WITH IT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

(Note: Some states do not allow limitations on how long an implied Warranty lasts or the exclusion or limitation of incidental or consequential damages so the above limitations and exclusions may not apply to you.) This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

G. ASSEMBLY RESPONSIBILITY

Though the MAGNATRAC RT1150, MH4900 and MH8500 are offered completely assembled, it's still the customer's responsibility to provide competent service ability! The servicing can be provided either by the mechanically customer, or by a local mechanic. All Attachments and accessories are shipped in easy-to-assemble "semi-kit" form for lowest cost shipping. We provide Manuals and Illustrations for complete service and repair so that anyone with reasonable mechanical skill can preform all required service work. Check the MAGNATRAC Specifications & Ratings (in Spec Book or Buyer's Guide) for a list of all standard features.

I hereby accept the terms and conditions of Warranty described above:

_____
print name

_____ _____
signature *date*

RT1150
MH4900
MH8500
Warranty 01.01.23

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IMPORTANT: *Though the MAGNATRAC is offered completely assembled, it's still the customer's responsibility to provide competent service ability! The servicing can be provided either by the mechanically-inclined customer, or by a local mechanic. We provide manuals & drawings for complete service and repair so that anyone with reasonable mechanical skill can perform all required service work.*

Congratulations…

on your purchase of a quality-built, Struck® Compact Crawler Tractor. We are confident that the dependability and economical performance of your MAGNATRAC® will prove that you made a wise choice.

The purpose of this Manual is to acquaint you with the MAGNATRAC® RT1150. This Manual explains how to operate and service your Crawler, and how to maintain its high operating efficiency. Instructions are given clearly, with the intention of making these operations as easy as possible.

Keep this Manual in a convenient place for quick and easy reference. Use it as a guide whenever questions arise. You have purchased a dependable, sturdy Crawler, but only by operating and caring for it properly can you expect to receive the service and long life for which it was designed.

If in the future you need new parts to replace those that may be worn, insist on genuine Struck® parts. They are exact duplicates of the originals, made from the same patterns and of the same high-quality materials.

When ordering parts, always be sure to give the following information for your Crawler:

MAGNATRAC Records

MAGNATRAC Model: _____

MAGNATRAC Serial # _____

Engine Model: _____

Engine Serial # _____

Ship Date: _____

Mail: **STRUCK CORPORATION**
W51N545 STRUCK LANE
CEDARBURG, WI 53012

Phone: (262) 377-3300 local
(877) 828-8323 toll-free

Text: (262) 278-9298

Email: **support@struckcorp.com**

Web: struckcorp.com

**For immediate service always call the factory and ask for a technician.*

1- TO THE OPERATOR

RECOGNIZE SAFETY INFORMATION

This is the safety-alert symbol. When you see this symbol on your Crawler or in this Manual, be alert to the potential for personal injury.

UNDERSTAND SIGNAL WORDS

A signal word — DANGER, WARNING, or CAUTION — is used with the safety-alert symbol. DANGER identifies the most serious hazards.

Safety labels with the signal word DANGER or WARNING are typically near specific hazards.

General precautions are listed on CAUTION safety labels. CAUTION also calls attention to safety messages in this Manual.

FOLLOW SAFETY INSTRUCTIONS

Carefully read all safety messages in this Manual and on your Crawler and Attachment safety labels. Follow recommended precautions and safe operating practices.

Keep safety labels in good condition. Replace missing or damaged safety labels.

To keep your Crawler running efficiently, read the instructions in this Manual.

Left side, right side, front, and rear are viewed by facing in the direction of the Crawler's forward travel.

Record your Crawler serial numbers in the space provided. You need this information when you order parts.

SERVICE & MAINTENANCE RECORDS

Proper service and maintenance work is critical to trouble free operation of your equipment. It is also critical to diagnosing problems should they arise. Use the space provided on the following - page to record maintenance and service work performed.

Date	Service Work	Date	Service Work

2- SAFETY RULES

Reports on accidents show that careless use of machinery causes a high percentage of accidents. You can avoid many accidents by following the safety rules on these pages. Study these rules carefully and enforce them on the job
.

SAFETY BEFORE STARTING OR OPERATION

The Crawler should be operated only by persons 18 years old or older.

Clothing worn by the operator should be fairly tight and NOT baggy.

Fasten a first aid kit to the Crawler.

Fasten a fire extinguisher to the Crawler. Keep the extinguisher fully charged. Learn to use it correctly.

If the Crawler has an unsafe condition, do not operate. Put a tag on the Track Drive Controls.

Do not start or operate the Crawler unless you are in the operator's seat.

Before you start the Engine, be sure there is plenty of ventilation.

Keep hands, feet, and clothing away from power-driven parts.

Fasten a slow-moving vehicle sign to the rear of the Crawler.

Guards, shields, and other protective devices must be in place and in good condition.

Before you start or operate the Crawler, clear the area of all persons and obstacles.

OPERATION SAFETY

When you operate the Crawler, do not allow anyone to ride on the Crawler or its equipment.

Drive at safe speeds at all times, especially on rough ground and hillsides.

Carry the Bucket or Blade as low as possible at all times, especially when you work on a hillside or back up a steep hill.

Do not drive too close to the edge of a ditch or excavation.

Watch for overhead wires. Do not touch wires with any part of the Crawler or its Attachments.

Do not leave your Crawler unattended with the Engine running.

Keep work areas as level as possible.

When loading logs with the Log Forks, make sure the logs are balanced.

When you drive out of a ditch or excavation, or up a steep hillside, or when Crawler is hitched to a heavy load, engage Track Drive Controls slowly. If the front of the Crawler comes off the ground, release Track Controls immediately.

Do not use the Crawler as a battering ram.

Do not guide cable onto Winch Drum with your hands.

When you drive the Crawler on a road, use the correct lights to warn operators of other vehicles.

Before you move any equipment, be sure all persons are away from the Crawler.

When the Crawler is operating, only the operator should be on it.

If it is necessary to make checks with the Engine running, always use two people...the operator at the controls should be able to see the person doing the checking

KEEP HANDS AWAY FROM MOVING PARTS!

BEFORE YOU GET OFF THE UNIT:

Move Track Drive Controls to neutral.
Engage Parking Brake Lever.
Lower all equipment to the ground.
Move throttle to idle for 1 minute.
Stop Engine and remove the key.

SERVICE SAFETY

Be sure you understand a service procedure before you work on the Crawler.

Unauthorized modifications to the Crawler may impair the function and/or safety and affect Crawler life.

Do not work under Crawler or raised equipment unless it is correctly supported...contact factory for recommended procedures.

Before you work on the Engine or electrical system, disconnect the battery's "ground" (-) terminal first! When work is finished, connect battery's "ground" terminal (-) last.

When driving connecting pins (Spring Pins), wear goggles or safety glasses.

Do not run Engine while working on the Crawler.

Be careful when handling any type of fuel. Do not smoke while filling the fuel tank or working on the fuel system.

Check for faulty wiring or loose connections.

Do not lubricate or work on the Crawler while it is moving.

When you work near the Tracks, use extreme care. Do not disassemble parts unless you know the correct procedure and have correct tools.

FIRE PREVENTION MAINTENANCE

Be prepared if an accident or fire should occur.

Know where the first aid kit and the fire extinguisher are located...know how to use them.

Check fire extinguisher for correct charge.

Do not smoke while refueling or handling highly flammable material.

Shut off the Engine when refueling.

Use care in refueling if the Engine is hot.

Do not use open pans of gasoline or diesel fuel for cleaning parts. Use good commercial, nonflammable solvents.

Provide adequate ventilation when charging battery.

Do not check battery charge by placing metal objects across the posts.

Do not allow sparks or an open flame near battery.

Do not smoke near battery.

Never check fuel, battery electrolyte, or coolant levels with an open flame.

Never use an open flame to look for leaks anywhere on the equipment.

Never use an open flame as light anywhere on or around the equipment.

Keep containers tightly closed when not in use.

Inspect electrical wiring for worn or frayed insulation. Install new wiring if wires are damaged.

Temperature in Engine compartment may go up immediately after you stop the Engine. Be on guard for fires.

Before you clean trash from the Engine compartment, wait until the Engine has cooled. Open Hood to cool the Engine faster. While the Engine cools, clean trash from other areas.

Check for leaking fuel lines or fittings with a piece of cardboard or wood. Do not use your hands.

Tighten loose fittings. If hoses are kinked, install new parts.

NOISE PROTECTION

Prolonged exposure to loud noise can cause impairment or loss of hearing. Wear a suitable hearing protective device such as earplugs to protect against objectionable or uncomfortably loud noise.

START ENGINE ONLY FROM THE OPERATOR'S SEAT!

Avoid possible injury or death from Crawler runaway.

Do not start Engine by shorting across starter solenoid terminals. Crawler may start and move if normal circuitry is bypassed.

CAUTION: Never start Engine while standing on ground. Start Engine only from operator's seat, with Brake engaged.

Inspect your Crawler carefully each day before you start it. See "Pre-Start Inspection".

Clean your Crawler regularly.

3- CONTROLS & INSTRUMENTS

Learn the location and purpose of all Controls, Instruments and Warning labels. Thoroughly study the Operator's Manual furnished by the engine manufacture and included with your Crawler instructions.

A - LEFT TRACK CONTROL

B - RIGHT TRACK CONTROL

C - THROTTLE/CHOKE CONTROL (ITC)

D - HEADLIGHT (if equipped)

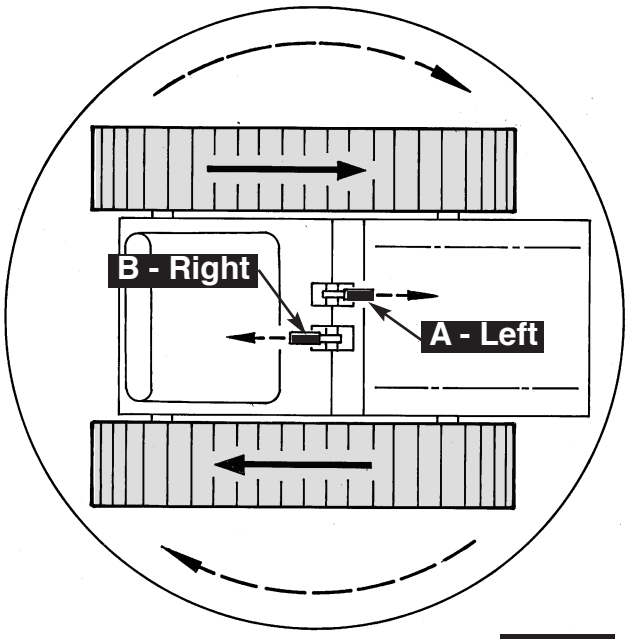
E - KEY IGNITION SWITCH

F - HOUR METER/TACH (if equipped)

G - FUEL VALVE LEVER (not shown)

H - PARKING BRAKE (not shown)

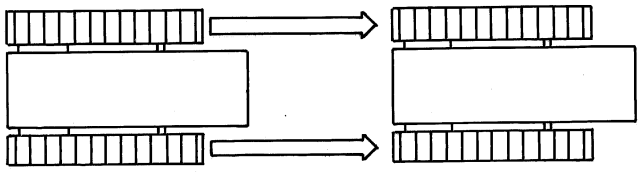
A & B - LEFT & RIGHT TRACK CONTROLS



INTRODUCTION: The turn demonstrated (above) is the key to your Crawler's superior maneuverability. It is accomplished with only two controls, the **A** & **B** Left & Right Track Controls. The illustrations (below) show how to maneuver your crawler in other turns.

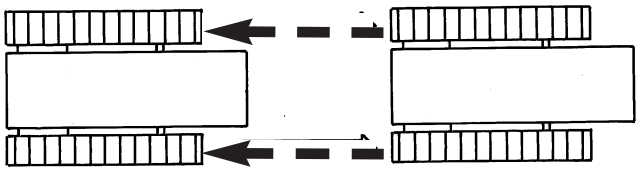
MOVING FORWARD:

To move straight ahead, simultaneously push forward on both Left and Right Track Controls.

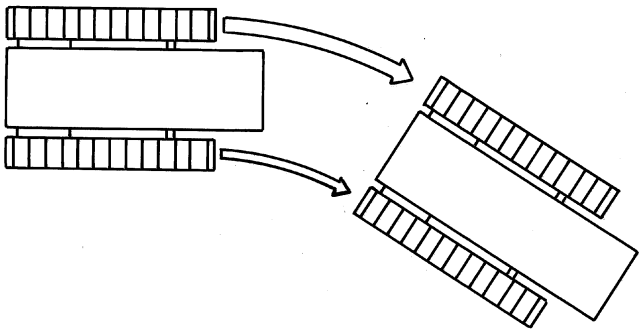


MOVING REARWARD:

To move straight rearward, simultaneously pull rearward on both Left and Right Track Controls.

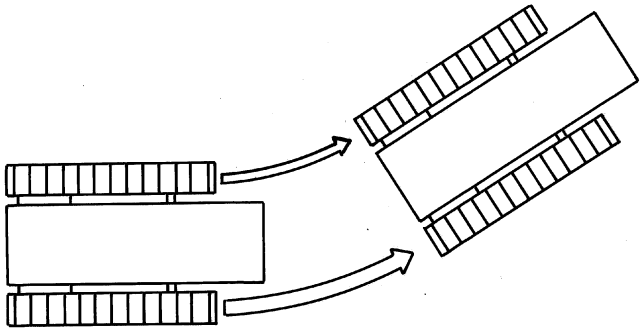


TURNING RIGHT:

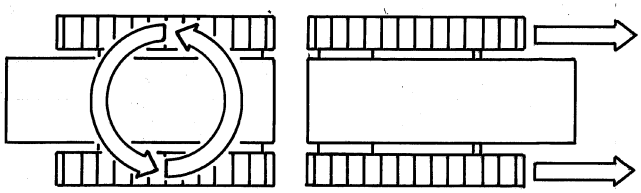


To turn sharply right, push forward on Left Track Control while holding Right Track Control in neutral.

TURNING LEFT:



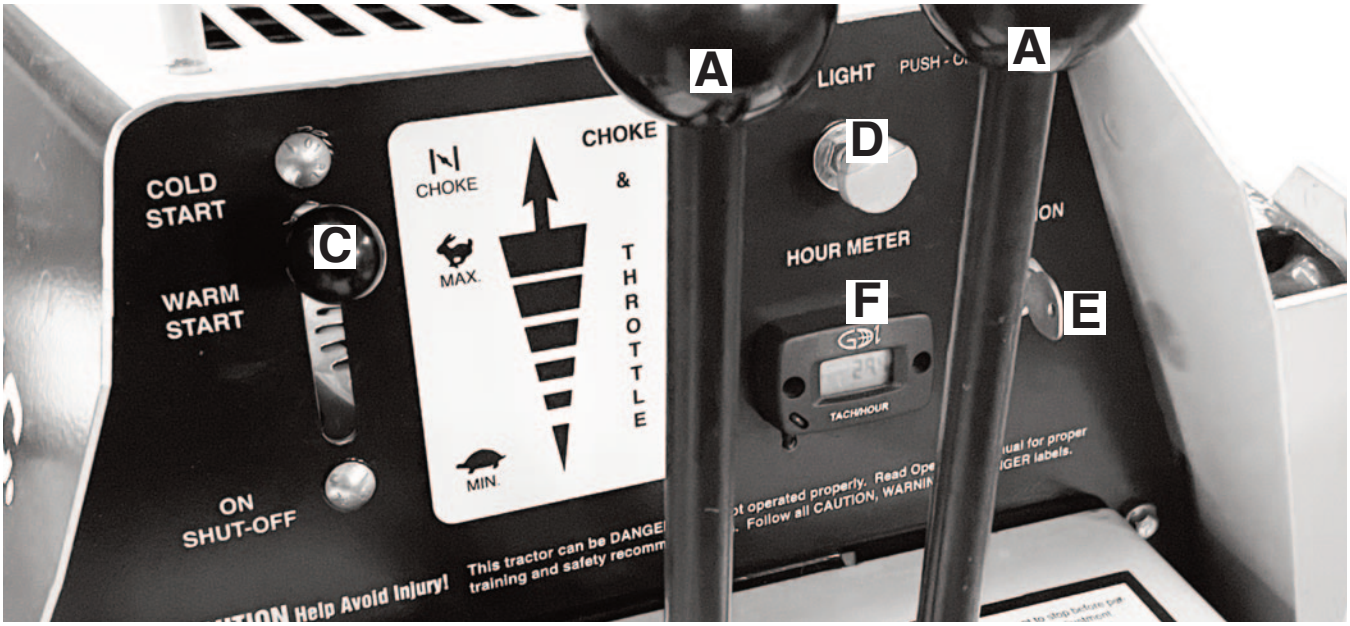
To turn sharply left, push forward on Right Track Control while holding Left Track Control in neutral.



COUNTER-ROTATING TRACKS

To counter-rotate Tracks (tightest turn possible), push one Track Control forward while simultaneously pulling rearward on the other Track Control.

NOTE: When either Track Control is "slowly" released, it will automatically return to neutral. NEVER allow Track Controls to "snap-back" to neutral. See OPERATION section of this manual for further instructions.



DASHBOARD CONTROLS

C - THROTTLE/CHOKE CONTROL (ITC)

The throttle and choke are combined into one sturdy handle.

For **COLD ENGINE STARTS**, pull handle upward to the **"Choke" position, as far upward as possible.** As soon as the engine starts, move handle into the "Throttle" range.

For **WARM ENGINE STARTS**, (when you have been using the unit and the engine is warm), move the handle **to the "High Throttle" position.** As soon as the engine starts, move handle into the "Throttle" range.

Adjust handle as needed in the Throttle position of choice. Fuel comsumption is better at lower ranges. **Adjusting your Power vs. Speed is done mostly in the Left & Right Track Drive Controls.** Push the track drive controls **"slightly"** forward or rearward to achieve **"maximum power".** Push the track drive controls **"fully"** forward or rearward to achieve **"maximum speed".**

Though all crawlers by their design are somewhat "rough riding", you can minimize the "roughness" by traveling at the lowest speeds when going over hard surfaces.

Before turning off tractor, move Throttle/Choke Control handle to the **ON SHUT- OFF** position.

D - HEADLIGHT SWITCH (If equipped)

The Headlight Switch is a basic "Pull ON", "Push OFF" switch. Behind the dash, in the wiring harness, is a replaceable Safety Fuse. When replac ing, use a new fuse of the same amps as the one being replaced.

E - KEY IGNITION SWITCH

Switch is activated by rotating key clockwise. Turning it fully clockwise will engage engine starter ...release key and it will return automatically to the RUN "ON" position. Turn fully counter-clockwise to OFF position to stop engine. Remove key.

F - HOUR METER /TACH (If equipped)

The Hour Meter/Tach displays the hours run and the RPM of the engine. Keeping up with your maintenance of your MAGNATRAC keeps it running in top condition!

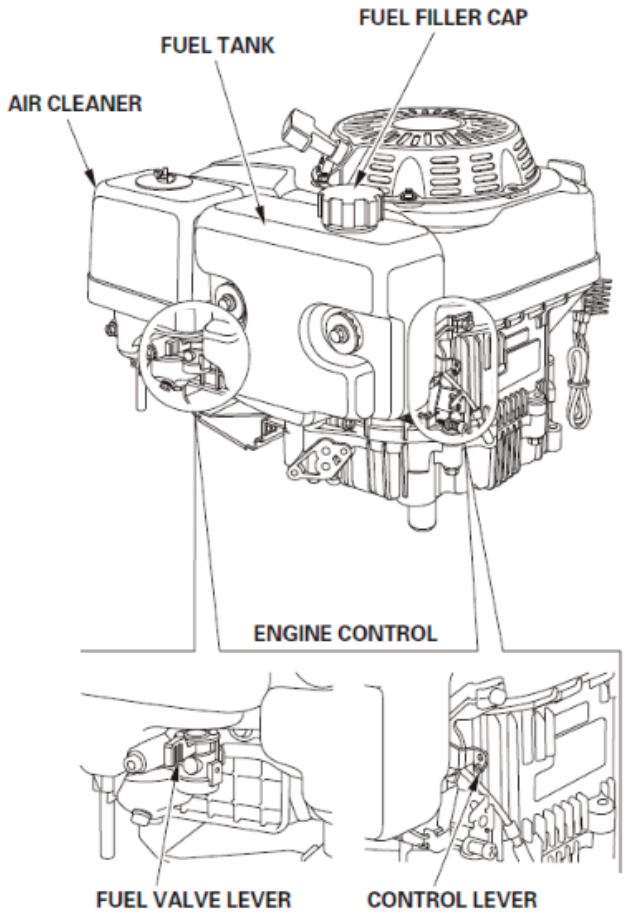
Flashes **"CHG OIL"** at **100 hour** service intervals and **"LUBE"** at **25 hour** service intervals, the service interval is based on actual run hours.

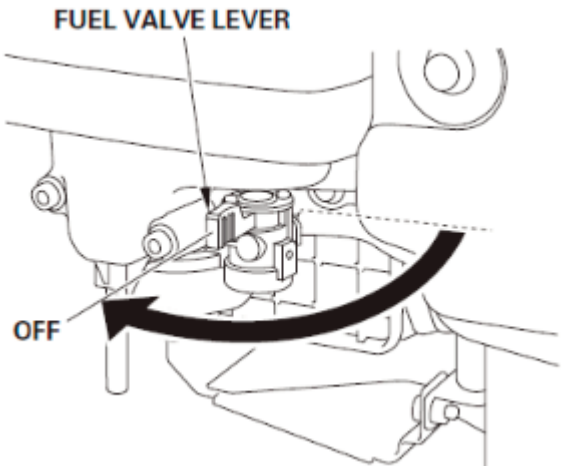
OPERATION & SERVICE RESET:

Alerts begin flashing a warning 4 hours before service is due, and clear automatically 1 hour afterward. Meter displays RPM while engine is running, hours while engine is off. Service alarms will automatically reset 1 hour after service interval.

G - FUEL VALVE LEVER

The Fuel Shut Off Valve Lever controls the fuel to the carburetor. **Turn it OFF for transport** or when cleaning carburetor. (Consult Engine Manual for more information).



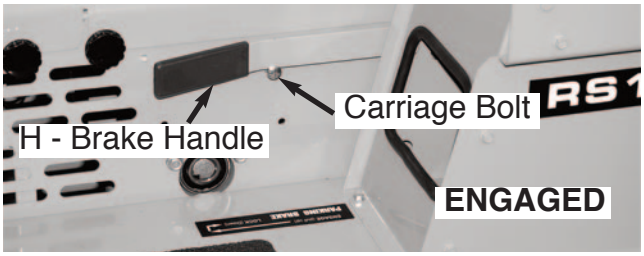


The fuel valve lever can be accessed by reaching your arm under the grill. The decal shown below will point to the area.

H - PARKING BRAKE

The Parking Brake acts both as a parking brake and as an emergency brake.

To “engage” Parking Brake, pull Brake Handle up firmly and loop it “up and over” the Carriage Bolt provided...make sure handle edge is on top of Bolt and behind “inside face” of Carriage Bolt.



To “disengage” Parking Brake, reverse the above procedure and allow Brake Handle to rest downward.

As the Parking Brake is also your emergency brake, it’s extremely important to maintain its performance with daily inspection. See Service section of this manual for proper procedures.

EXTREMELY IMPORTANT:

As it’s mandatory to engage the Parking Brake **before** starting your crawler, always remember to **disengage it before driving away.**

If you fail to disengage the Parking Brake it can damage your transaxles and be of no value in an emergency!!!

4- OPERATION

PRE-STARTING INSPECTION

Before you start your Crawler for the first time each day, perform the following checks:

ENGINE & TRANSAXLE COMPARTMENT

Check engine oil level.
Check engine air intake system.
Remove trash and oil/dirt deposits.
Inspect drive belt & pulley conditions.
Inspect oil level of transaxles.
Inspect control linkage of transaxles.
Inspect bypass mechanism of transaxles.

TRACKS & ATTACHMENTS

Check for bent, broken, or missing parts.
Check Track Springs.

HARDWARE

Check for loose or missing parts.

ELECTRICAL SYSTEM

Check for worn or frayed wires or loose connections.

LUBRICATION

Check lubrication points shown in Periodic Service section of this Manual.

GUARDS AND SHIELDS

Check for tightness and condition.

BATTERY COMPARTMENT

Remove trash.
Check cables for tightness and corrosion.

FUEL TANK

Check fuel level.

OPERATOR'S STATION

Check control levers for free movement.
Clean fenders and instrument panel.
Adjust Seat location to fit operator.

CAUTION - Before you start the engine:

Clear the work area of people and obsta cles.
Check the condition of the Crawler. (Prestart inspection).
Be sure there is enough ventilation.
Be sure to know the correct starting and stopping procedure.
Sit in the Operator's Seat.

PREPARE FOR ENGINE STARTING

1. Allow Left (**A**) and Right (**B**) Track Controls to assume their natural "spring-loaded" center neutral positions.

2. Engage Parking Brake (**H**). (Make sure Brake lever is pulled "up and over" round head of Carriage Bolt provided...make sure handle "edge" is on top of this Bolt and behind its inside face).

3. Check that all Attachments are in the fully lowered position.

4. Make sure you are properly seated so Seat Safety Switch will engage

STARTING THE ENGINE

The throttle and choke are combined into one sturdy handle.

1a. For **COLD ENGINE STARTS**, pull handle upward to the **"Choke" position, as far upward as possible.** As soon as the engine starts, move handle into the "Throttle" range.

NOTE: After starting a "cold" Engine, it may be necessary to leave the handle in the "choke" position for a minute, before moving it to the "Throttle" position.

1b. For **WARM ENGINE STARTS**, (when you have been using the unit and the engine is warm), move the handle **to the "High Throttle" position.** As soon as the engine starts, move handle into the "Throttle" range.

CAUTION: Do not crank the Engine continuously for more than 10 seconds at a time. If the Engine does not start, allow a 60-second cool-down period between starting attempts. Failure to follow these guidelines can burn out the starter motor.

CAUTION: If the Engine develops sufficient speed to disengage the starter but does not keep running (a “false start”), the Engine rotation must be allowed to come to a complete stop before attempting to restart the Engine.

If the starter is engaged while the flywheel is rotating, the starter pinion and flywheel ring gear may clash, resulting in damage to the starter.

If the starter does not turn the Engine over, shut off starter immediately. Do not make further attempts to start the Engine until the condition is corrected.

If the battery charge is not sufficient to turn over the Engine, recharge the battery.

CAUTION: Do not attempt to jump start the Engine with another battery. Starting with batteries larger than those recommended can burn out starter motor.

WARM-UP PERIOD

Run Engine at half throttle for 5 minutes.
Do not run Engine at fast, or slow idle.
Operate Crawler at less-than-normal loads and speeds for the first 15 minutes.

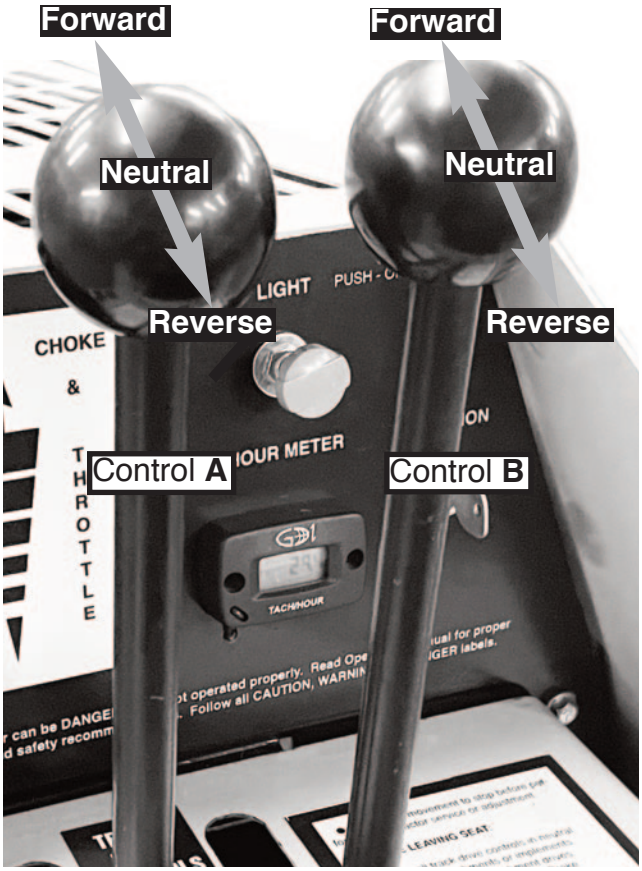
WARNING: Lethal Exhaust Gases! Engine exhaust gases contain poisonous carbon monoxide. Avoid inhaling fumes, and never run the Engine in a closed building or confined area.

NOTE: Assembled Crawlers are “run in” under no load at the factory to properly break-in their transaxles.

TRAVELING

Disengage Parking Brake (**H**); Fully raise all Attachments to recommended traveling heights.

To move *straight* ahead, simultaneously push both Left Track Control (**A**) and Right Track Control (**B**) forward.



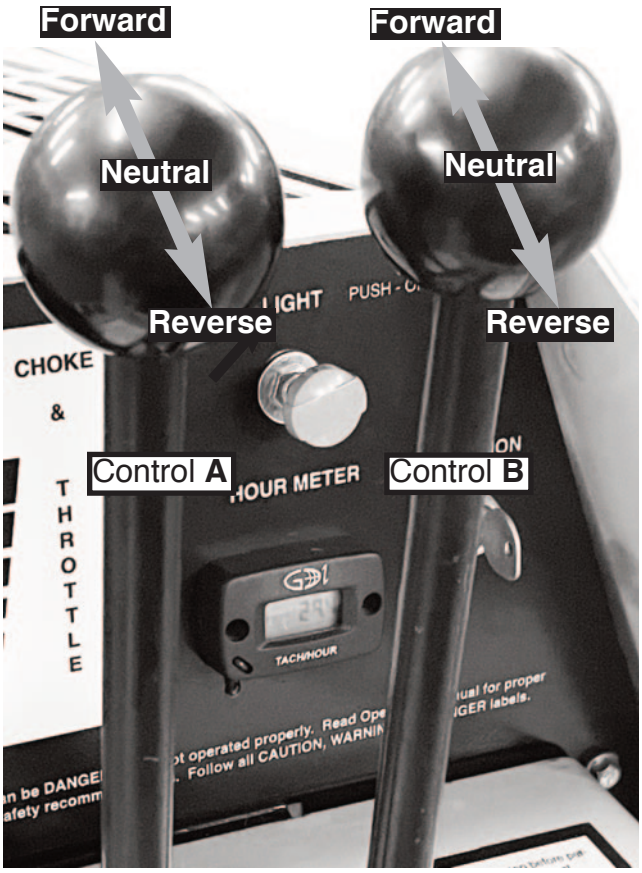
To move *straight* to the rear, simultaneously pull both Right and Left Track Controls rearward.

To turn *sharply* to the right, push Left Track Control fully forward...leave Right Track Control in neutral.

To turn *slowly* to the right, push Left Track Control fully forward while simultaneously pushing “partially” forward on Right Track Control...the farther you push the Right Track Control forward, the slower you will turn right.

To turn *sharply* to the left, push Right Track Control fully forward...leave Left Track Control in neutral.

To turn *slowly* to the left, push Right Track Control fully forward while simultaneously pushing “partially” forward on the Left Track Control...the farther you push the Left Track Control forward, the slower you will turn to the left.



To *counter-rotate* Tracks, (shortest turn possible), push one Track Control forward while simultaneously pulling rearward on the other Track Control. You may counter-rotate "clockwise" or "counter-clockwise"; move in which ever direction satisfies the job at hand.

Stopping the Crawler: The Right and Left Track Controls are of the self-centering (neutral) type. This allows you to simply release pressure on both Track Controls to disconnect active power to the Tracks and come to a complete stop. **Never "snap" Track Controls back into neutral! Damage to the hydrostatic transaxles may occur.**

PARKING THE CRAWLER

1. Lower all Attachments to the ground.

2. Allow Right and Left Track Controls to go "slowly" to neutral.

3. Engage Parking Brake.

4. Run Engine at half speed 2 minutes without load.

5. Move Throttle/Choke Control to low, **"ON SHUT-OFF".**

6. Turn Ignition Switch to Off.

IMPORTANT: If Engine stops under load, remove load. Start Engine immediately. Run 30 seconds at half speed before adding load.

CAUTION: When you park your Crawler on a slope, put blocks against tracks. **Do not** park Crawler with tracks pointed downhill, always park "crossways" to the hill!

STORAGE

Always store your MAGNATRAC in a garage, shed or barn. If the only option is to park outside, make sure to securely tarp the unit and park on a flat surface with the parking brake engaged.

If Tracks are frozen to the ground, be careful to avoid damage to the Tracks and transaxles when you try to move the Crawler.

We advise to turn off the fuel shut off valve and run until the unit stops if going to store for a long period of time. This is to ensure easy starting during the next season. Remember to turn ON the fuel when ready for work the next time!

5- DRIVE BELT, FUELS & LUBRICANTS

BELT

DRIVE BELT

Your RT1150 is equipped with a **#004520 Oil & Heat Resistant, Hi-Power II Double V Drive Belt**. This drive belt powers your left & right hydrostatic transaxles, as well as your hydraulic attachment pump.

FUELS

FUEL SPECIFICATIONS

Add fuel to fuel tank per engine manual specs. **Unleaded 86 octane or higher** is recommended per HONDA. Verify fuel shut-off valve is in the open position.

FILLING FUEL TANK

The Fuel Tank is located underneath the hood, on the engine.

Fuel Tank capacity is 0.61 US gallons.

Use unleaded gasoline per Engine Owner's Manual.

CAUTION: Handle fuel carefully. Do not fill fuel tank when the Engine is running. Do not smoke while you fill fuel tank or work on fuel system.

STORING FUELS

Keep fuel in a container in a protected area. Water and sediment must be removed before fuel gets to the Engine. Do not depend on fuel filters to remove water.

IMPORTANT: Keep all dirt, scale, water, or other foreign matter out of fuel.

LUBRICANTS

ENGINE OIL

Check enclosed Engine Owner's Manual and closely follow their recommendations. **10W30 is recommended for general use.**

TRANSAXLE OIL

Check enclosed Transaxle Manual and closely follow their recommendations. Typically, an engine oil with a minimum rating of 9.0cSt (55 SUS) at 230º F (110º C) and an API classification of SL is recomended. A **20W50 engine oil has been selected for use by the transaxle factory** and is recomended for normal operating conditions.

HYDRAULIC ATTACHMENT OIL

Use a premium quality hydraulic oil with maximum anti-wear properties, rust and oxidation treatment. We use an **AW46 Hydraulic Oil**. (ISO 46). If operated at exteme hot or cold temperatures, please consult a local oil shop for an oil viscosity best suited for your conditions.

GREASE

Use premium quality SAE Multi-Purpose Grease in a grease gun, with a flexible "nose" to lubricate grease zerks throughout the MAGNATRACS pivot points. Recommended grease: **Multipurpose NLGI 2 Grade Lithium Complex, ISO VG 220**.

REAR DRIVE CHAIN LUBRICATION

At a minimum...brush on **SAE 30 weight oil (non-detergent)** on rear drive chains. A more expensive, but cleaner option is to use a spray lubricant, such as: **non detergent aerosol Chain & Wire Rope Lubricant. We use CRC® brand, Grainger® Item #2F139.** Both of these methods are acceptable lubrication options.

STORING LUBRICANTS

Store lubricants in clean containers in an area protected from dust, moisture, etc.

6- LUBRICATION & SERVICE INTERVALS

LUBRICATION AND SERVICE INTERVALS

Recommended service intervals are for normal conditions. Service more often if Crawler is operated under more difficult conditions such as high temperature, dust, etc. Use only quality lubricants at intervals specified in this manual.

PERIODIC SERVICE CHART

Air Filter - Service per instructions in Engine Owner's Manual.

Engine Oil - Service per instructions in Engine Owner's Manual. **First oil change for a NEW engine is at 20 hours.**

Rubber Tracks - Tension per instructions in Service section of this manual. **Initial break in tension check is at 20 hours.**

Transaxle Oil - To ensure fluid quality levels and longer life, **an initial transaxle oil & filter change at 100 hours** is advised.

Battery - Charge & change as needed. New battery is advised approx. every 3-4 years.

Engine Fuel Tube - Check engine fuel tube. Follow engine manual. Approx. every 2 years.

1ST USAGE

Hydraulic Oil - Attach any additional attachments first (Backhoe, rear hitch, etc.) Check level on a flat & level surface; level should be showing in the oil sight glass on the hydraulic tank. Add additional fluid if needed.

Engine Oil - Check engine oil level before use to make sure oil level is at acceptable level on the dipstick. Add additional if needed.

Fuel - Add fuel to fuel tank per engine manual specs. **Unleaded 86 octane or higher** is reccommended per HONDA. Verify fuel shut-off valve is in the open position.

25 HOURS (LUBE)

Grease Fittings - Lubricate all grease fittings per location instructions in manual of each attachment you have mounted on your MAGNATRAC.

Clean area around each grease fitting on Front Idler and Rear Drive Assemblies. Grease each grease fitting until you feel "back pressure".

A small breakdown of how many grease fittings are on the RT1150 and various Attachments is as follows:

As a standard guide, there will be a grease fitting for each "Pivot Point", or "pin/axle" that you see on a particular attachment. (See below).

Front Idlers:	**2**
Rear Drive Sprockets:	**2**
Center Idlers:	**4**
HFH15 Hydro Front Hitch:	**2**
HL300 Hydro Loader:	**10**
D1060UG Backhoe:	**18**
HRH35 Hydro Rear Hitch:	**2**

50 HOURS

Air Filter - Clean Engine Air Filter by following En gine Owner's Manual. Clean more frequently if using in dusty conditions.

Tracks, Idlers & Sprockets - Pressure wash track system, including: Front Idler and Rear Drive Sprockets. Tension tracks. Check Service section of this Manual for complete explanation and Track Tension ing procedures.

Rear Drive Chain - Lubricate & maintain proper chain tension in Crawler's Rear Drive. Check Service section of this manual for complete rear drive chain tensioning.

Drive Belt - Check drive belt tension & condition. Check Service section of this Manual for complete Drive Belt tensioning & removal procedures.

Transaxles - Inspect control linkages for any loose or damaged parts. Check for any partially engaged bypass valves.

General Once-Over - Check for loose nuts and bolts and any signs of premature wear. Correct any problems immediately. Con tact factory with any questions or requests for help.

100 HOURS (CHG OIL)

Drive Belt - Check drive belt tension & condition. Check Service section of this Manual for complete Drive Belt tensioning & removal procedures.

Engine Oil - Drain and refill per recommendations in Engine Owner's Manual.

Spark Plug - Check-adjust spark plug. Follow en gine manual.

Spark Arrestor - Clean spark arrestor, if applicable. Follow engine manual.

Transaxles - Inspect control linkages for any loose or damaged parts. Check for any partially engaged bypass valves. If first 100 hour service, **an initial transaxle oil & filter change at 100 hours** is advised. See service section of this manual, & transaxle Service & Repair Manual.

300 HOURS

Drive Belt - Check drive belt tension & condition. Check Service section of this Manual for complete Drive Belt tensioning & removal procedures.

Spark Plug - Replace spark plug. Follow engine manual.

Air Filter - Replace Air Filter at this time. Filters can be purchased through the Struck Corporation or through local engine dealers. Follow engine manual.

Spark Arrestor - Clean spark arrestor, if applicabale. Follow engine manual.

Other Engine Adjustments - Follow engine manual.

Transaxles - Inspect control linkages for any loose or damaged parts. Check for any partially engaged bypass valves.

400 HOURS

Drive Belt - Check drive belt tension & condition. Check Service section of this Manual for complete Drive Belt tensioning & removal procedures.

Hydraulic Oil - Completly drain and fill hydraulic oil tank. See service section of this manual.

Transaxle Oil - Drain tranaxle oil, change filters and add new. See service section of this manual, & transaxle Service & Repair Manual.

Transaxles - Inspect control linkages for any loose or damaged parts. Check for any partially engaged bypass valves.

7- SERVICE

In the following Service section of this Manual, you will be required to do various assembly and disassembly procedures. Each section will try to remind you of safe procedures, but the best safety device is still the mechanic himself.

GENERAL INFORMATION

CAUTION: Try to do your work in a level, open area away from people and obstacles.

1. Pay attention to what you are doing..the parts you will be handling can be heavy, sharp or could pinch. Always wear heavy gloves when handling the Tracks and similar sharp, pinching parts.

2. When you are required to block your crawler to raise it off the ground, make sure you use strong blocking materials and think out how the Crawler will safely balance on blocking. **To protect yourself and your Crawler from damage, check "Safe Blocking Diagram" on front page of this Manual!**

Never be too proud to ask a friend or neighbor for help...especially when blocking up your Crawler or working with the Tracks.

As always, the factory is your best source for competent service advice and explanations of any service procedures that are unclear...always feel comfortable calling for whatever advice you may need!

ENGINE

Your RT1150 comes with a complete Engine Owner's Manual. It provides complete operation and maintenance instructions for your engine.

STARTER

IMPORTANT: Don't operate starter switch longer than 10 seconds at a time. If engine does not start within 10 seconds, wait 60 seconds before trying to start again. After a false start, do not turn starter button until Engine has stopped turning.

If the starter will not operate or operates sluggishly, check for the following:

Run down battery.
Dirty, loose, or corroded cables and wires.
Engine oil viscosity too heavy.

BATTERY

Your Crawler has a 12 volt, negative-grounded system with one battery.

BATTERY PRECAUTIONS

CAUTION: Sulfuric acid in batteries is a poison and could cause severe burns. Avoid contact with skin, eyes, and clothes. When you work around batteries, protect eyes and face from battery fluid and explosion.

CAUTION: Keep flames and sparks away from battery.

Do not use booster cables or adjust battery terminal connections unless you know the correct procedure.

When you charge a battery or use a battery in a closed space, be sure there is enough ventilation. Before you work on the Engine or electrical system, disconnect the battery's "ground" (-) terminal first! When work is finished, connect battery's "ground" terminal (-) last.

COLD WEATHER BATTERY SERVICE

During cold weather, attach a trickle charger to your battery for ease of starting.

BATTERY STORAGE

If Crawler will be stored for more than 30 days, remove battery. Keep it fully charged.

BATTERY MAINTENANCE

1. Remove corrosion from terminals with a stiff, non-metallic brush.

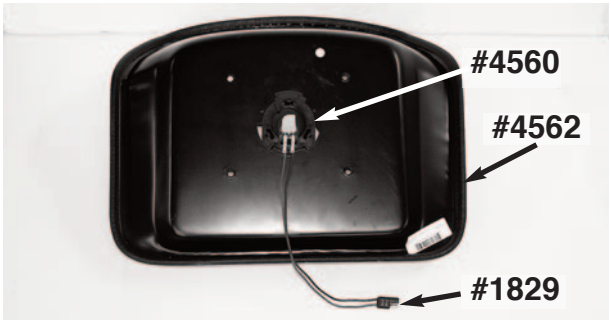
2. Put petroleum jelly on terminals. Maintain protective cover on “positive” (+) terminal of battery.

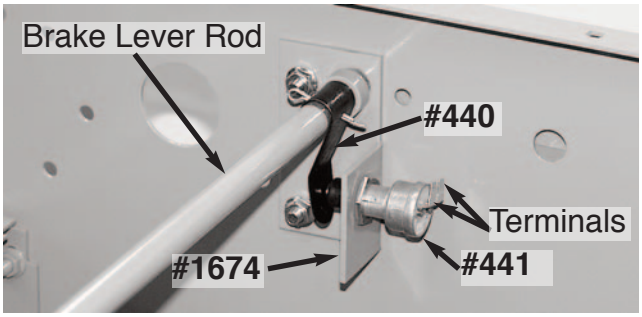
3. Replace battery approx. every 3 years.

SAFE STARTING SWITCHES

There are two Safety Switches on the RT1150. One on underside of the Seat, and the other, on the Brake Lever Rod inside the RT1150.

These switches are used in the Crawler’s electrical system as safety devices. They detect if the operator is properly seated, and that the Parking Brake is engaged before the Crawler can start.



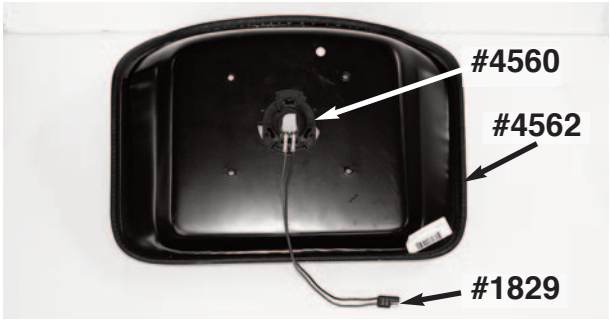


To check either the **#4560 Seat Switch** or **the #441 Parking Brake Switch**, you must remove the electrical connectors attached to each switch’s terminals and connect a continuity tester to its terminals (a simple flashlight type continuity tester would be fine).

SEAT SWITCH TEST

Remove #4562 Seat from its #1674 Seat Mounting Bracket. Then remove the electrical connectors attached to each of the #4560 Seat Switch’s two terminals. See pictures on the next page for assistance with removal.

1. By pushing down on the center of the seat the Seat Switch should “open”. A continuity tester, attached to the two terminals of the Switch, should have its light **OFF** at this time!



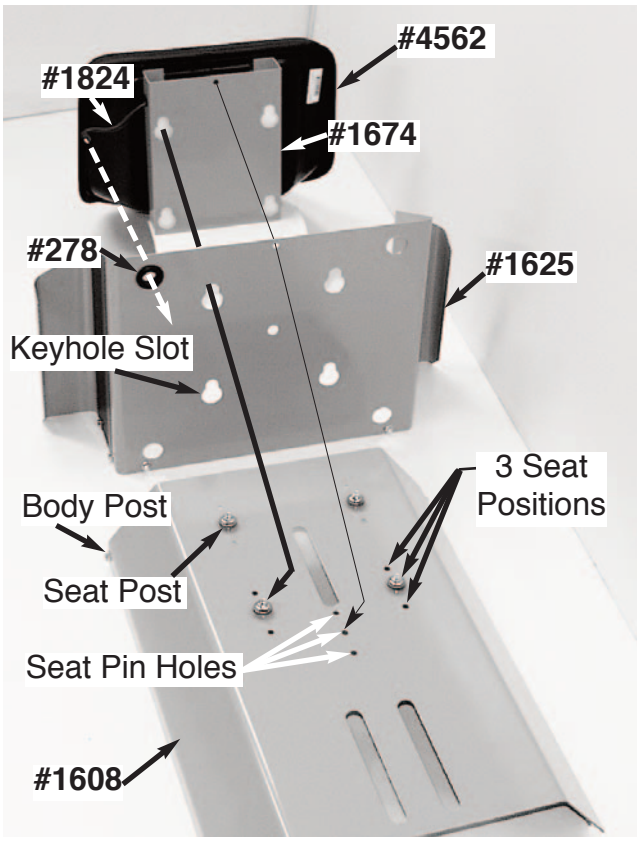
2. With pressure removed from the seat, the Switch should “close”...the light should be **ON!**

If both of the above conditions are not met, the Switch is defective and must be replaced. When test is completed, remove continuity tester and replace original electrical connectors on both terminals of Seat Switch. Remount seat to its Mounting Bracket.

Reassemble the Seat Assembly to your Crawler and reconnect it’s Plug.

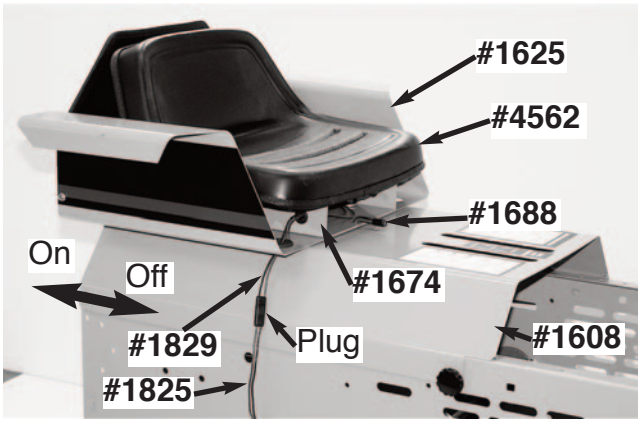
At this time following recommended safe starting procedures, start the Engine and check Seat Switch response...readjust if necessary.

SEAT & REAR COVERS



Your Seat & Rear Cover Assembly is made up of 3 main components: The #1674 Mounting Bracket (with attached #4562 Seat) and #1625 Arm Rests mounted to #1608 Rear Cover. They are held together with three "keyhole" slots" over four "posts". The "posts" can be located in three different positions to satisfy the operator's seating comfort.

When all components are nested together, they will share a common "seat pin hole" that will lock the assembly together with a #1688 Seat Pin.



Seat Removal:

1) Fully open the Hood by loosening & removing the two #1866 "threaded" Knobs (located at lower rear of Hood). Rotate Hood fully forward until Chain holds it.

2) Disconnect the #1824 & 1825 Wires at mating Plug. Draw #1824 Wire & Plug out of #278 Grommet.

3) Remove #1688 Seat Pin and slide "forward" the #1674 Mounting Bracket with #4562 Seat and lift up to remove.

4) Take #1625 Arm Rests, slide forward and lift up to remove.

5) Remove the two #1866 "threaded" Knobs on front lower edges of #1608 Cover. Slide the Cover rearward and remove.

Seat Re-Assembly:

To replace your Seat Assembly "reverse" the steps above.

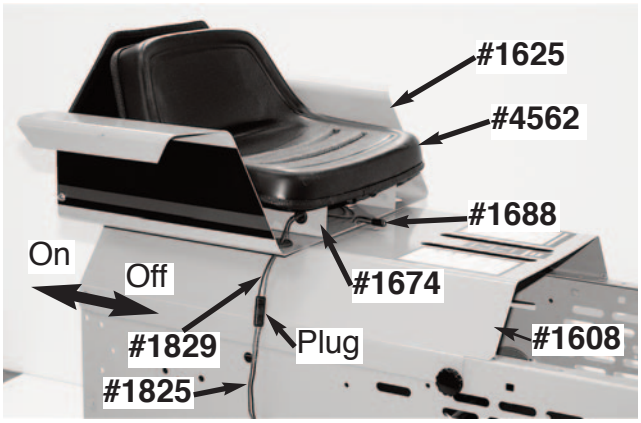
1) Upon completion of reassembly, **make sure** that #1824 Wire & Plug pass through #1854 & #278 Grommets and connect to mating #1825 Wire & Plug.

2) Make sure "front top edge" of #1608 Cover **rests on top of "lip"** that protrudes rearward out of lower section of #1618 Dash.

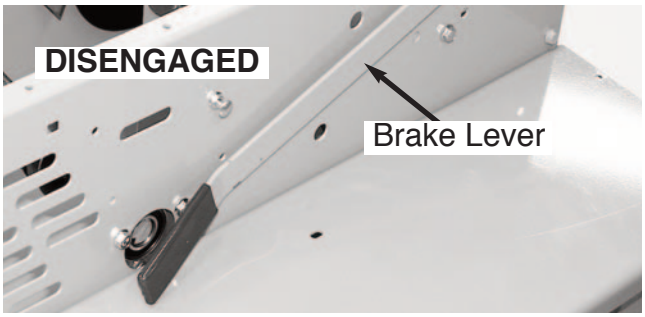
3) Close Hood and secure it and Cover Assembly with #1866 Knobs.

PARKING BRAKE SWITCH TEST

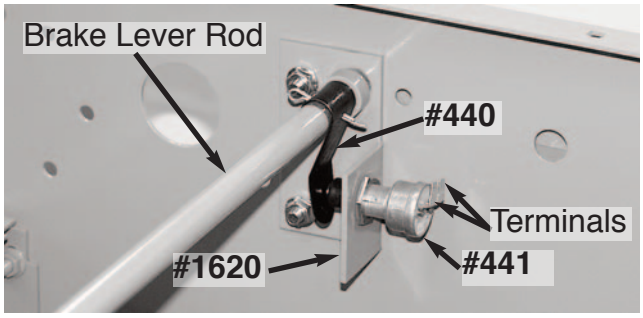
Begin your procedure by parking your Crawler on an open, firm, level surface. Shut off engine and engage Parking Brake. Open Hood and swing fully forward. Remove #1688 Seat Pin. Remove #4562 Seat & #1674 Mounting Bracket, #1625 Arm Rests, and #1608 Rear Cover. **NOTE:** Be sure to disconnect the "mating" #1829 and #1825 Seat Wires at their common Plug.



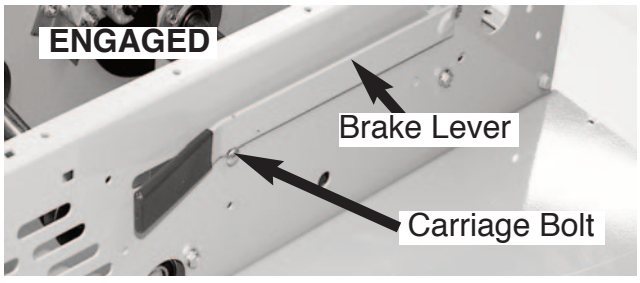
Disengage Parking Brake. Remove the two electrical wire plugs from their #441 Parking Brake Switch and connect a continuity tester to its two terminals.



(1) With “plunger” of #441 Parking Brake Switch not depressed, the light of the continuity tester should be **OFF**. With “plunger” of Parking Brake Switch fully depressed, the light of the continuity tester should be **ON.**



(2) When the Parking Brake Lever is pulled “upward” and looped “up and over” the Carriage Bolt provided into an “engaged” position, Parking Brake Switch should be “closed” (the result of contact with the rotated #440 Leaf Spring). The light of the continuity tester should be **ON!**



(3) When the Parking Brake Lever is released and put into it’s “disengaged” mode (Lever should NOT be on the bolt) the Parking Switch should be “open” (the Leaf Spring would have rotated back and away). Continuity light should now be **OFF!**

If both conditions of procedure (1) (above) are not met, replace Parking Brake Switch. If both conditions of procedure (1) are met, but the conditions of procedure (2) & (3) are not met, you must adjust the “horizontal location” of the #441 Switch in its #1620 Bracket.

The #441 Parking Brake Switch is secured “front to rear” in it’s #1620 Bracket with hex nuts.

Adjust Switch’s location “front to rear” to meet requirements (1), (2) and (3) (above) by relocating its two hex nuts.

When adjustment is completed, tighten Switch’s hex nuts...terminals on Switch should point straight up. Remove continuity tester and replace electrical plug on terminals of Switch. Replace Seat & Mounting Bracket, Arm Rest and Rear Cover Assembly...check that it is positively latched with #1688 Seat Pin! Close Hood and secure it and Rear Cover with #1866 threaded Knobs.

NOTE: Be sure to reconnect “mating” #1829 & 1825 Seat Wires at their common Plug.

At this time, following recommended safe starting procedures, start the Engine and check Parking Brake’s Switch setting...readjust if necessary.

BATTERY

Your Crawler has a 12 volt, negative-grounded system with one battery.

BATTERY PRECAUTIONS

CAUTION: Sulfuric acid in batteries is a poison and could cause severe burns. Avoid contact with skin, eyes, and clothes. When you work around batteries, protect eyes and face from battery fluid and explosion.

CAUTION: Keep flames and sparks away from battery.

Do not use booster cables or adjust battery terminal connections unless you know the correct procedure.

When you charge a battery or use a battery in a closed space, be sure there is enough ventilation. Keep batteries where children cannot reach them with vent caps tight and level.

COLD WEATHER BATTERY SERVICE

During cold weather, attach a trickle charger to your battery for ease of starting.

BATTERY STORAGE

If Crawler will be stored for more than 30 days, remove battery. Keep it fully charged.

BATTERY MAINTENANCE

1. Remove corrosion from terminals with a stiff, non-metallic brush.

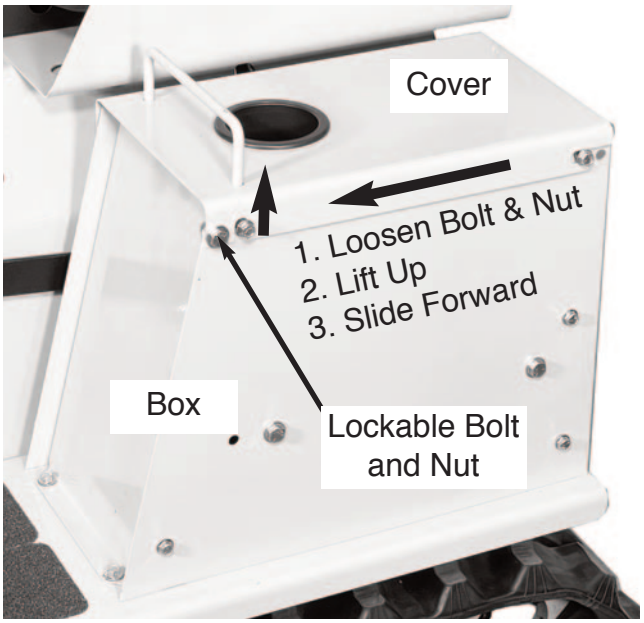
2. Maintain protective cover on “positive” (+) terminal of battery.

3. Replace battery approx. every 3 years.

LOCATION & REMOVAL

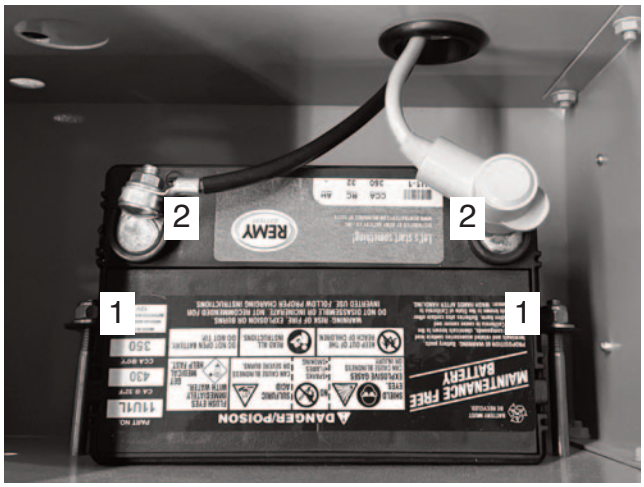
Your battery is securely mounted inside the battery box shown below. Battery box cover is slotted for easy access, and has a lockable bolt that securely holds the cover in transit.

To Remove Cover: 1. Loosen lockable bolt and nut. 2. Lift up. 3. slide cover forward.



To Remove Battery: Your battery is fastened to the inside of the battery box, by a “side” mounting bracket and 2 long bolts.

1. Loosen (but do not remove) 2 nuts, securing “side” bracket to the side of the battery.
2. Loosen and remove Carriage bolt & nut from both (+) and (-) terminals. Do the (black) wire first, and make sure to touch any metal with a wrench when disconnecting the postive (+) red wire.
3. Lift battery out of battery box. Work in reverse order when replacing with new battery.



ENGINE

Your RT1150 comes with an Engine Owner's Manual. It provides complete operation and maintenance instructions for your engine. On this page, you will find helpfull pictures that allow easy acess to engine filters, oil drain hose, etc.

If you are having engine issues, please contact us directly and speak with our tech support team first, prior to contacting your local engine dealer. This allows us to double check any possible wiring connections, and/or safety switch issues.

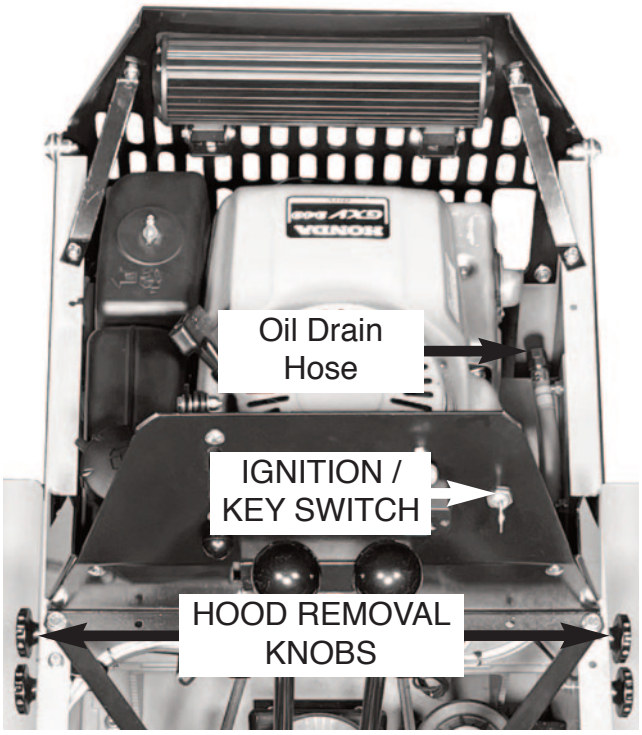
IGNITION/STARTER

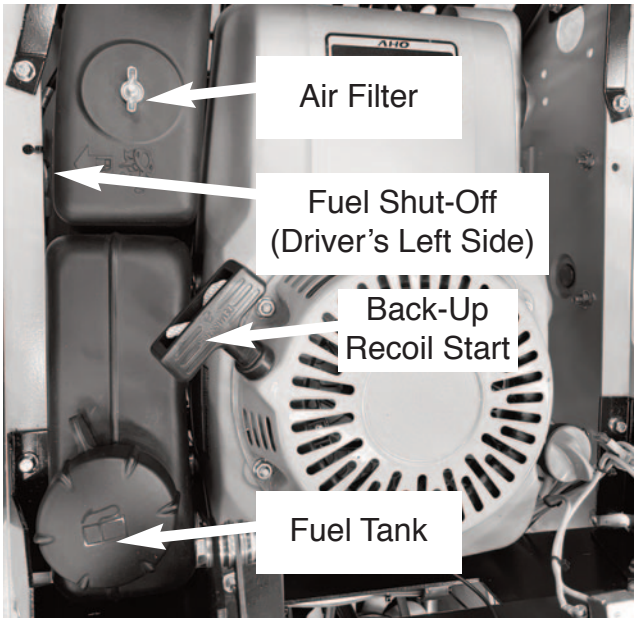
IMPORTANT: Don't operate ignition/starter switch longer than 10 seconds at a time. If engine does not start within 10 seconds, wait 60 seconds before trying to start again. **After a false start, do not turn starter button until Engine has stopped turning.**

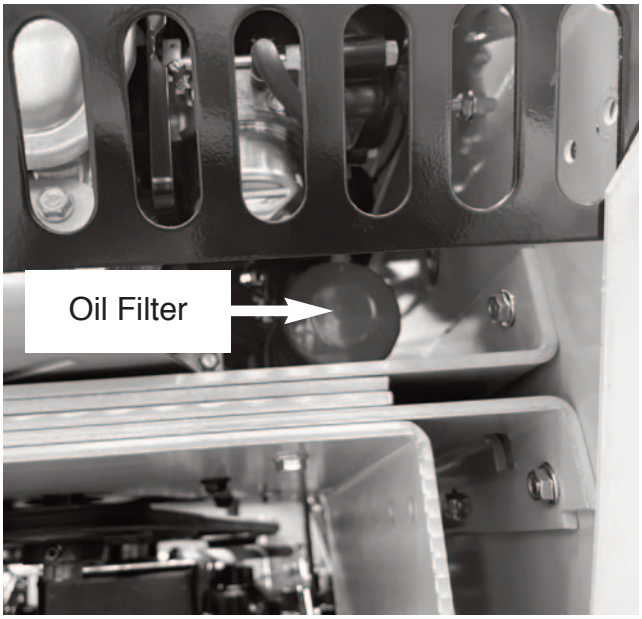
If the starter will not operate or operates sluggishly, check for the following:

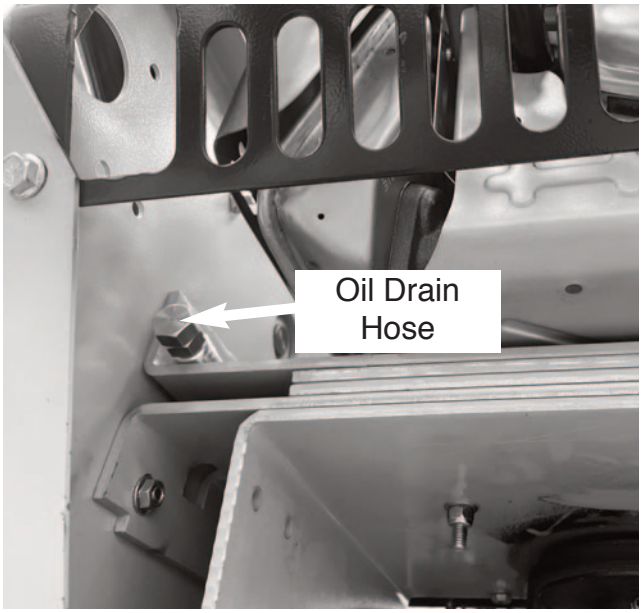
- Run down battery.
- Dirty, loose, or corroded cables and wires.
- Engine oil viscosity too heavy.

To Remove Hood & Gain Access to the Engine Compartment: With hand pressure, loosen, and remove hood removal knobs fully. Shown below.







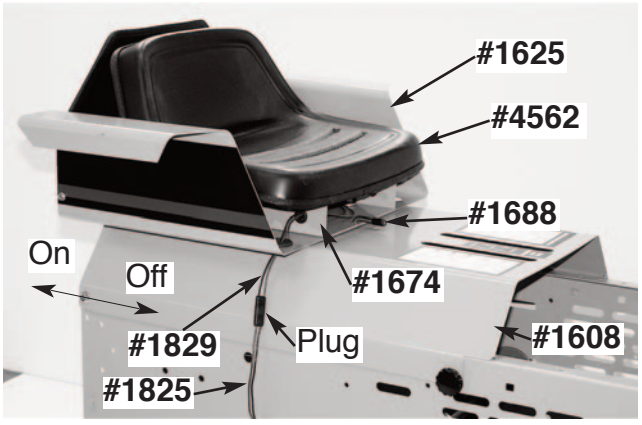


DRIVE BELT

To access the #004520 Drive Belt, begin your procedure by parking your Crawler on an open, firm, level surface. **If you have a Hydraulic Front Hitch, lower it to the ground. If you have a Hydraulic Loader, lift it as high as possible, and insert your cylinder lock.** Shut off Engine, engage your Parking Brake Lever and dismount. Rock attachment valve handles back and forth, to make sure attachments, will not move.

WARNING: Do not attempt any servicing or adjustments with the engine running. Use extreme caution while inspecting drive belt assembly and all linkage, pulleys, etc.

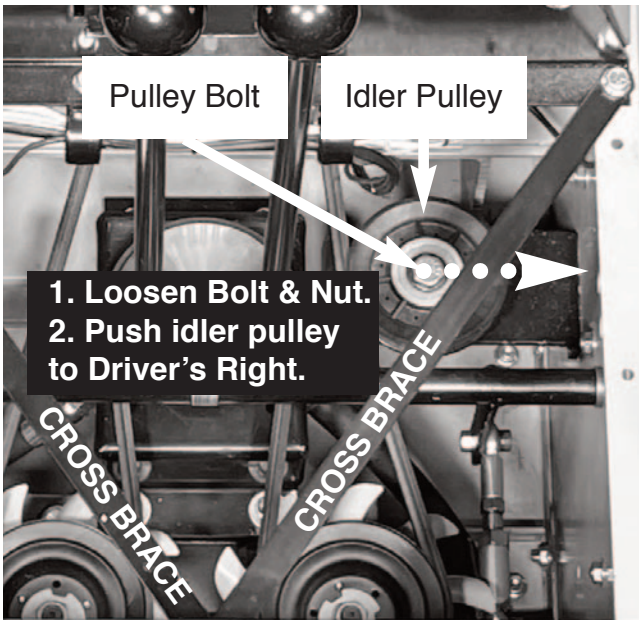
Loosen and remove the two black hood handles (not shown). Raise and remove hood. Remove the #1688 Seat Pin. Then remove the #4562 Seat & #1674 Mounting Bracket, #1625 Arm Rests, and #1608 Rear Cover. **NOTE:** Be sure to disconnect the "mating" #1829 and #1825 Seat Wires at their common Plug. **Picture below is showing wires for clarity. However, wire connections are on the driver's left hand side.**

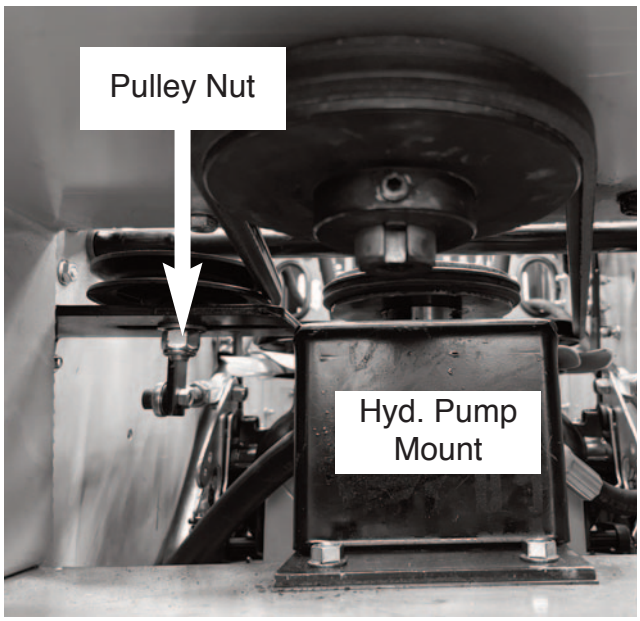


DRIVE BELT - TENSIONING, REMOVAL & REPLACEMENT

Your RT1150 is equipped with a **#004520 Oil & Heat Resistant, Hi-Power II Double V Drive Belt**. This drive belt powers your left & right hydrostatic transaxles, as well as your hydraulic attachment pump.

A simple idler pulley keeps tension on the drive belt and minimizes belt vibration. If the drive belt is loose, or squealing, and the idler pulley is not putting enough tension on the belt, or you're replacing the belt, follow the procedure shown below.



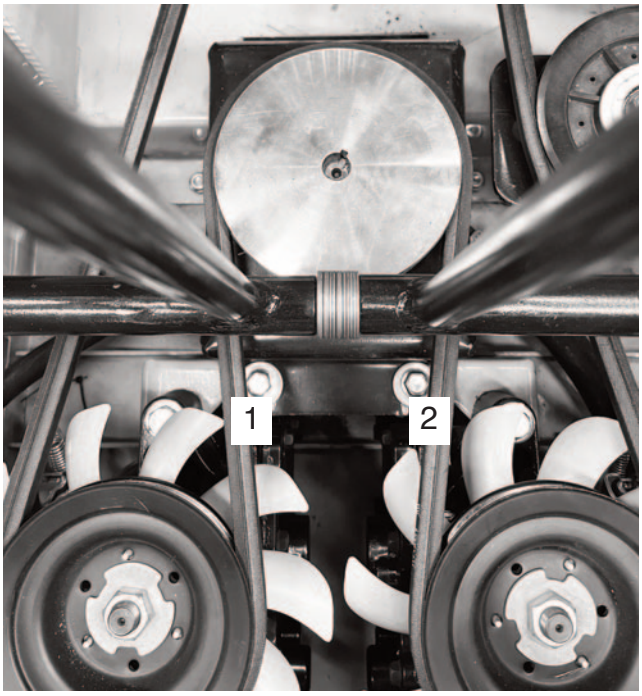


Step 1: Loosen, (but do NOT remove) the Pulley Bolt and Nut shown in the **top picture** above. **Note: The area is tight, remove cross braces, by loosening their corner bolts, if needed.**

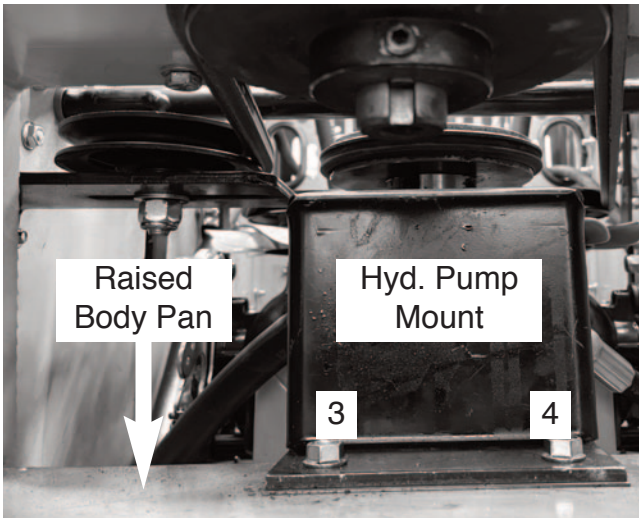
Step 2: Push idler pulley all the way to driver's right, as far as possible. **(TOP PICTURE)**

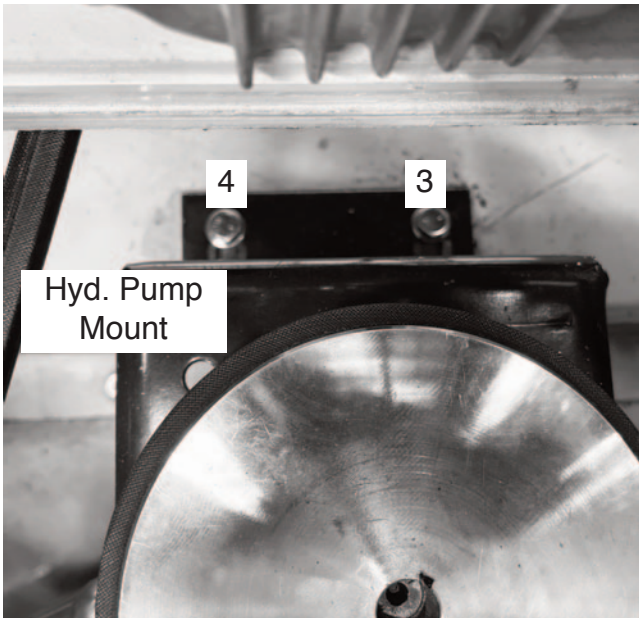
Step 3: Loosen the 4 bolts on the hydrualic pump mount using a wrench or ratchet with socket.

Note: There are **welded nuts** on the underside of the pump mount that is **closest to the operator seat.** Use the two pictures below as a guide. **The picture below** shows the bolt 1 & 2 with the welded nut on the underside. No need to hold the nut, just loosen the 2 bolts, but do NOT remove.



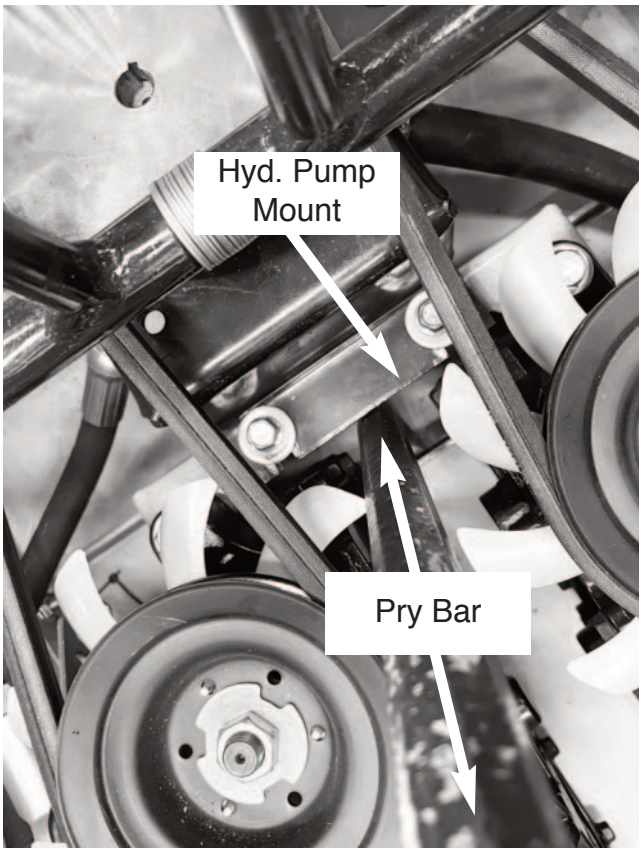
The **picture below and at the top right of the next column** shows bolt 3 & 4. The nuts are on the underside of the "raised body pan." **Note: Using ratchet extension with socket and wrench, have 1 person hold the nut from the underside of the body pan, while another person loosens (but doesn't remove) the bolt, from the top. You should not need to remove any front counterweight.**





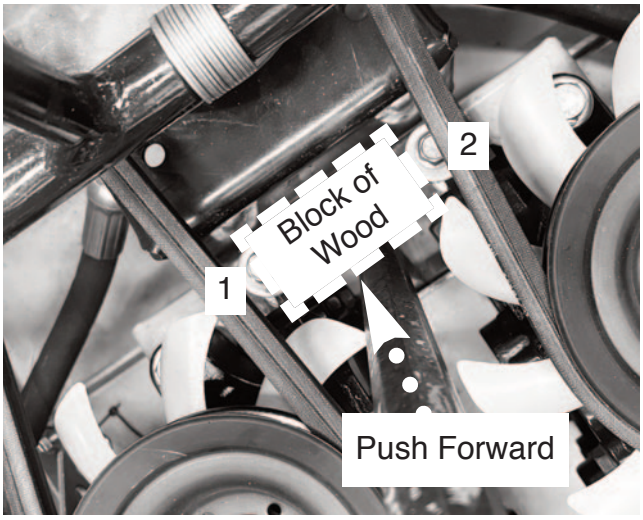
Note: If Tensioning Drive Belt, continue to Step 4. <u>Skip to Step 9 if removing or replacing.</u>

Step 4: Using the **picture below and on the top left of the next page** as a guide, insert a long pry bar in the area shown below. Make sure the pry bar tip, sits firmly against the back wall of the support plate. Be careful not to damage the cooling fans of both transaxles.

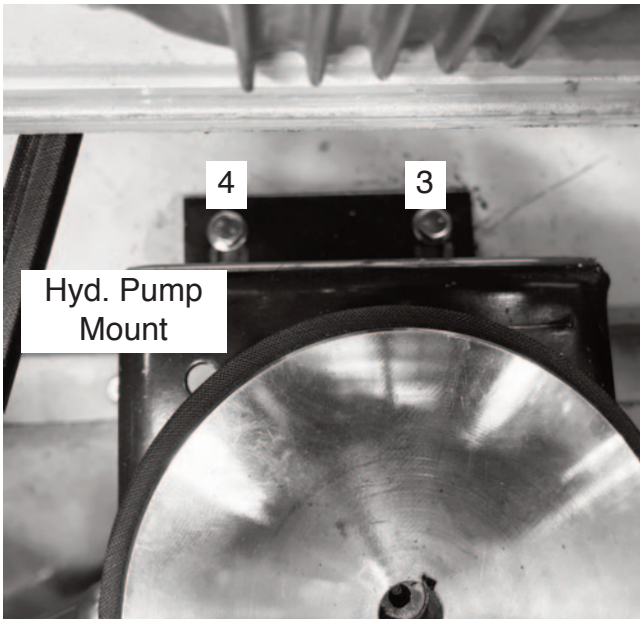


Step 5: Using the **picture above and below** as a guide, push pry bar forward against hydraulic pump mount. Hydraulic pump mount should move forward, and tighten the drive belt. At this time, tighten bolt 1 & 2 to hold the position of the hydraulic pump mount and belt.

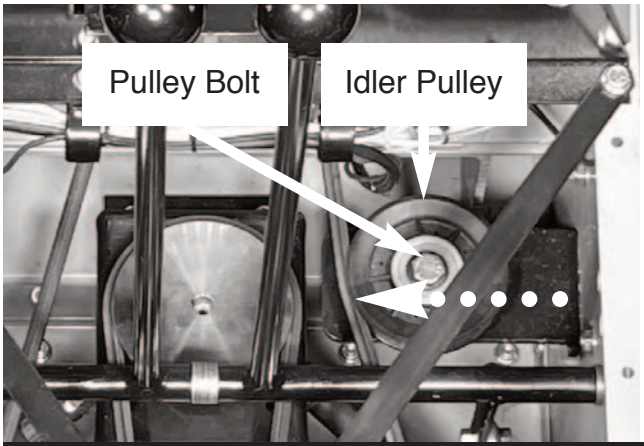
Note: You may need to insert a short block of wood into the area shown below. This allows you to gain enough leverage to push the Hydraulic Pump Mount forward.



Step 6: Tighten bolt 3 & 4 and their corresponding nuts. **(PICTURE BELOW)** The nuts are on the underside of the "raised body pan." **Note: Using ratchet extension with socket and wrench, have 1 person hold the nut from the underside of the body pan, while another person loosens (but doesn't remove) the bolt, from the top. You should not need to remove any front counterweight.**

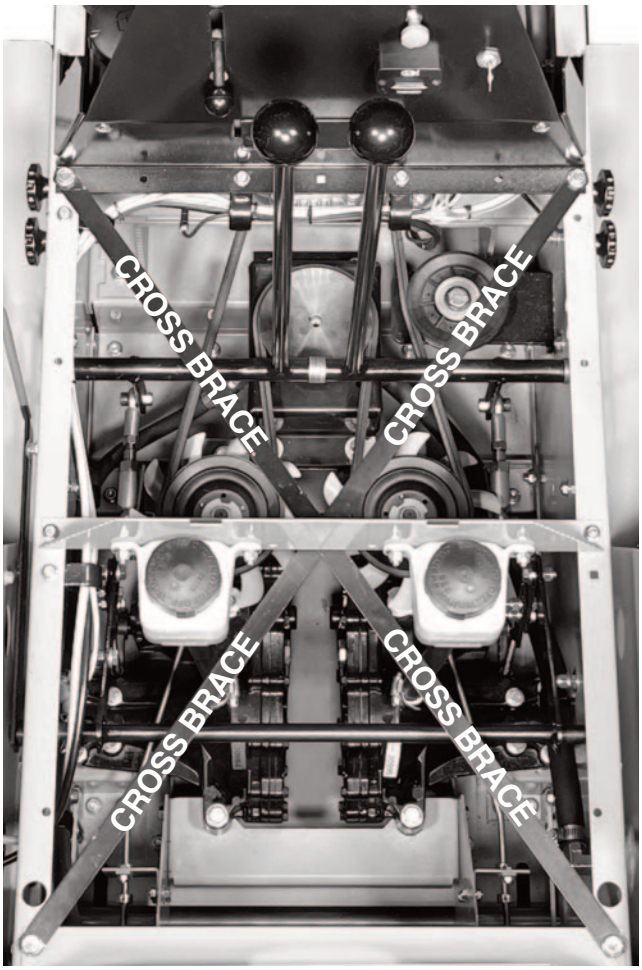


Step 7: Push idler pulley to the driver's left, **just enough too make contact with the drive belt,** then push another 1/2", tighten pulley bolt & nut. See picture below.



1. Push idler to make contact with belt.
2. Then push another 1/2".
3. Tighten pulley bolt & nut.

Step 8: If you moved the cross braces to gain access to the area, move cross braces back into position and tighten bolt and nuts.

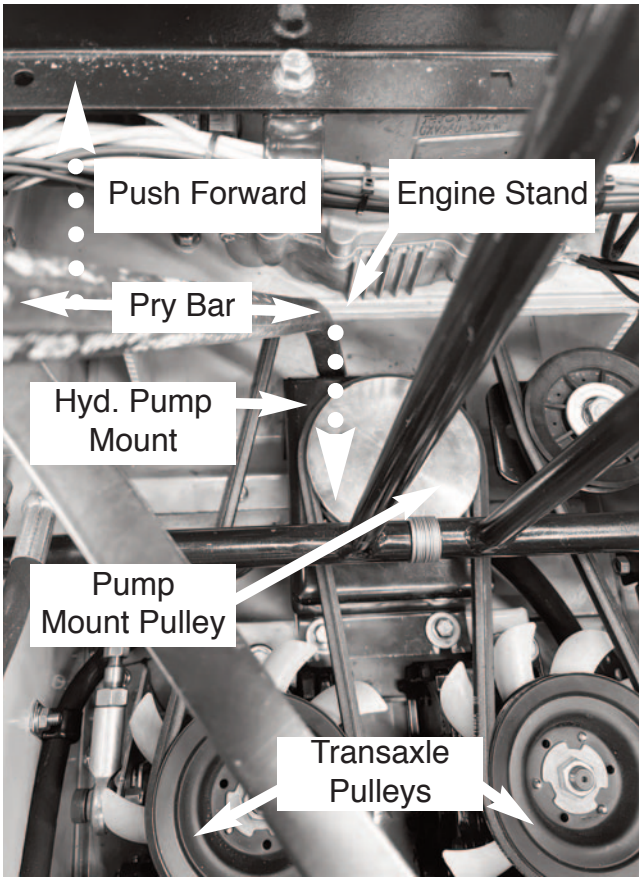


Congratulations! Your install is now complete. Reinstall Rear Cover's Seat and Hood. See page 23.

DRIVE BELT REMOVAL PROCEDURE

Follow Steps 1-7 first. In these instructions, we advise to use a pry bar to move the hydraulic pump mount, however, if the four hydraulic pump mounting bolts are loose enough from the previous steps, you may be able to use hand pressure to move the hydraulic pump rearward and forward as needed.

Step 9: Using the picture at the op of the next column as a guide, insert a long pry bar in the area shown. Make sure the pry bar sits firmly between the hydraulic pump mount and the engine stand. Be careful not to damage the engine, wiring, etc.

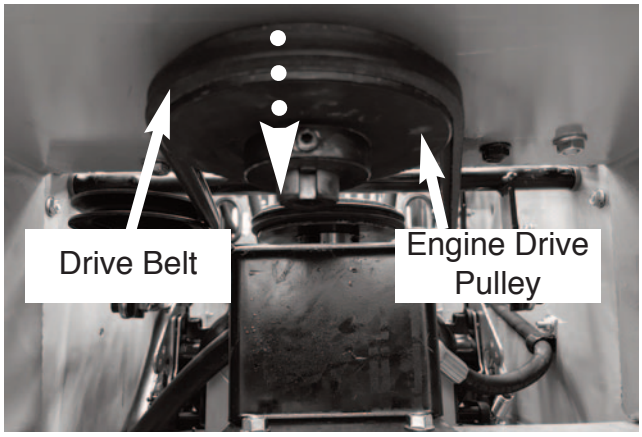


Step 10: Pushing "forward on the top" of the pry bar, will push the "bottom part of the pry bar rearward," which will push the hydraulic pump mount rearward as well. **Make sure hydraulic pump mount is as far rearward as possible.**

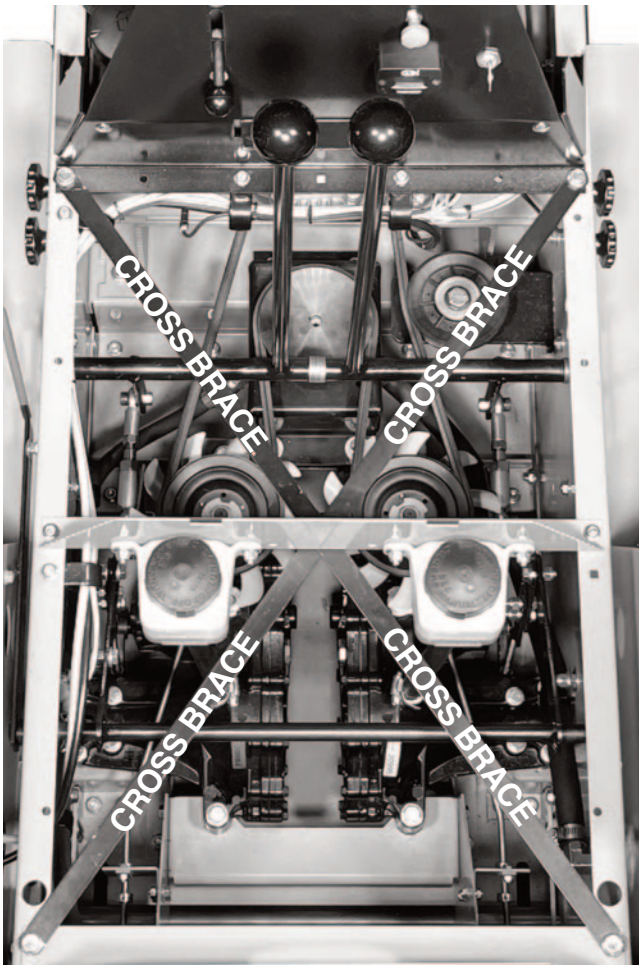
Step 11: The drive belt should be loose enough to now to be removed. Pull drive belt towards engine and "over" the hyd. pump mount pulley.

Step 12: Then loop "over" each transaxle pulley.

Step 13: Now loop "under" the engine drive pulley, as shown in the picture below.



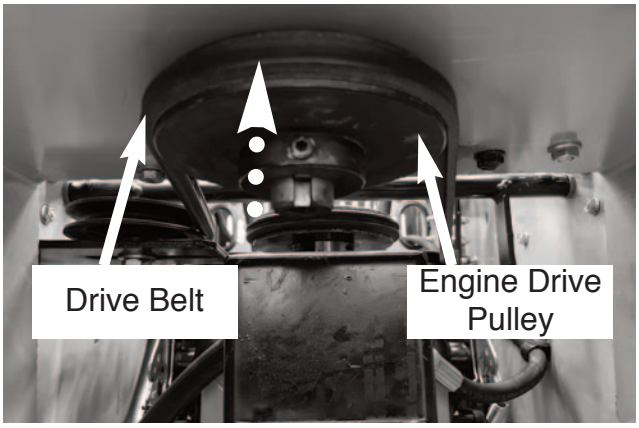
Step 14: The drive belt should be free at this time. Pull forward or rearward, depending which area has better access, and then out the body.



DRIVE BELT REPLACEMENT PROCEDURE

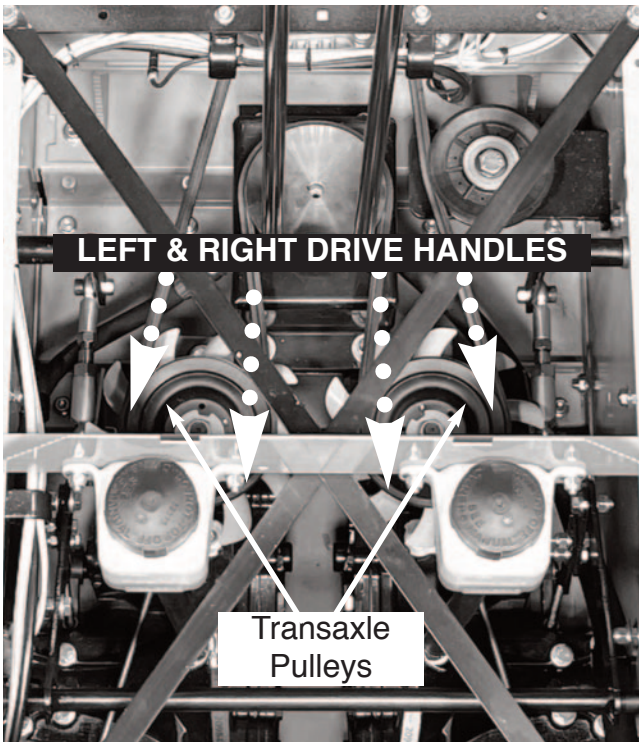
Follow Steps 1-14 first, in the previous pages.

Step 15: Loop NEW engine drive belt "over" and "onto" the engine drive pulley, **as shown in the picture below.**



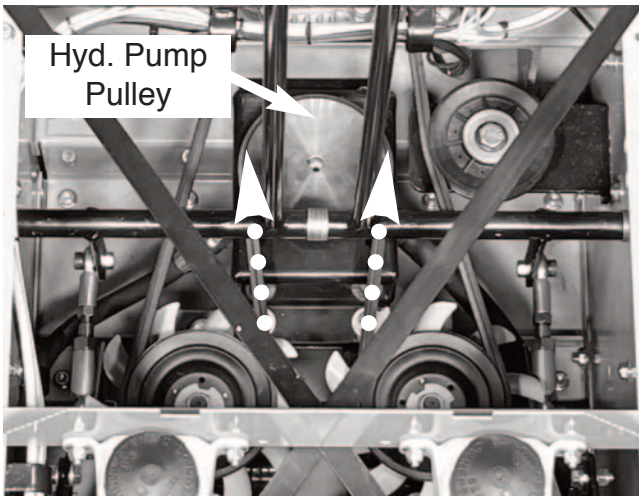
Step 16: Now pull the drive belt rearward, toward the back of the unit, keeping enough pressure on the belt, that it stays on the engine drive pulley.

Step 17: Loop drive belt over, and onto each transaxle pulley as shown in the picture below. **Note: Make sure the belt is "under" the left and right drive handles.**



Step 18: While making sure the belt is still secured on the engine pulley and transaxle pulleys, now loop "over and onto" the last pulley: the hydraulic pump pulley. **See picture below.**

Step 19: Double check that the drive belt is still wrapped around all 4 pulleys at this time. **Move to Step 4, on page 28 to tighten the drive belt.**



Note: If your drive belt is in good to great condition, but you've maxed out on the tensioning that the pump mount can provide, you can move the pump on the pump mount.

Please speak with a Struck Technician for assistance with moving the pump on the pump mount. It may be easier to install a NEW drive belt instead of moving the pump position.

TRANSAXLES

SAFETY & GENERAL INFORMATION

Other than recommended oil and filter changes, the transaxles normally will not require servicing during the entire life of the unit. Should other servicing be required, the exterior of the transaxles will need to be thoroughly cleaned before beginning most procedures. **Do not wash the transaxle while it is hot. Do not use a pressure washer to clean the unit.**

A few other warnings are listed below for the transaxles.

WARNING! Do not attempt any servicing or adjustments on the transaxles or drive belt with the engine running. Use extreme caution while inspecting the drive belt assembly and all MAGNATRAC linkage!

A cam style, block lifting bypass is utilized on the transaxles to permit moving the vehicle for a short distance at a maximum pulling speed of 2 mph, without starting the engine. The brake must be disengaged prior to actuating the bypass mechanisms.

WARNING! Actuating the bypass will result in the loss of hydrostatic braking capacity. The machine must be stationary, on a level surface and in neutral when actuating the bypass.

A Transaxle Service & Repair Manual is included in your MAGNATRAC Owner's Manual. Explanations for how to access your transaxle hydraulic filters, and how to change the oil will be covered in this manual section. **However, in some steps outlined in the next few pages, you will be asked to follow certain pages in the Transaxle Service & Repair Manual.**

WARRANTY

Please contact our technical support team 1-877-828-8323, if you feel you have a transaxle in need of warranty service.

1. Use of components for purpose of repair other than Genuine Hydro-Gear parts must be pre-authorized in writing by Hydro-Gear to be elibible for warranty consideratioin. Use of non-genuine Hydro-Gear parts could damage the product, or cause it to not operate properly or fail prematurely.

2. Repairs by other personnel other than as authorized by Hydro-Gear must be pre authorized by Hydro-Gear in wiriting to be eligible for warranty consideration.

3. Hydro-Gear does not provide warranty coverage for defects or damages caused by the use of unauthorized parts or service.

EXTERNAL MAINTENANCE

Regular external maintenance of the transaxle should include the following:

1. Check the oil level in accordance with **"Fluid Change Procedure," page 11, step 12 in your Transaxle Manual.**

2. Inspect the condition of the drive belt, idler pulley(s), and idler spring(s). Insure that no belt slippage can occur. Belt slippage can cause low input speed to the transaxle.

3. Inspect the MAGNATRAC control linkage to the directional control arm on the transaxle. Also insure that the control arm is securely fastened to the trunnion arm of the transaxle.

4. Inspect the bypass mechanism on the transaxle, and the MAGNATRAC linkage to insure that both actuate and release fully.

FLUIDS

The fluids used in your transaxles have been carefully selected, and only equivalent, or better products should be substituted.

Typically, an engine oil with a minimum rating of

9.0 cSt (55 SUS) at 230º F (110º C) and an API classification of SL is recommended. **A 20W50 engine oil has been selected for use by the factory** and is recommended for normal operating procedures.

Note: All fluids should be handled and disposed of according to local, state, and federal regulations.

FLUID VOLUME & LEVEL

Fluid volume information is provided below. Total system volume will depend on expansion tank size, hose length, and transaxle volume.

Purging will be required if oil has been changed. Refer to the purging procedures located on page 37 of the manual.

Correct oil volume is determined by the transaxle model number, and then added based on the expansion tank hose length, and the expansion tank. **Approx. 2.4 qts. will fill each transaxle and it's corresponding fill hose, to the cold fill level in the expansion tank.**

FLUID & FILTER CHANGE

The transaxles are designed with an external filter for ease of maintenance. To ensure constant fluid quality levels and longer life, an initial oil and filter change is **at 100 hours, then every 400 hours** thereafter is recommended.

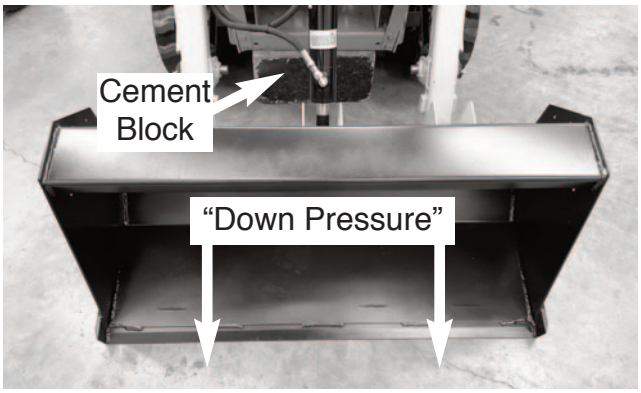
The following procedure can be performed with the transaxles installed, and the MAGNATRAC on a level workspace. Apply the bypass valve for each transaxle and engage the MAGNATRAC parking brake.

WARNING! Before draining oil, ensure that the oil that will be removed is less than 100º F before doing so. Failure to allow the transaxles to cool prior to changing the oil, could result in over filling the unit and damaging the transaxles.

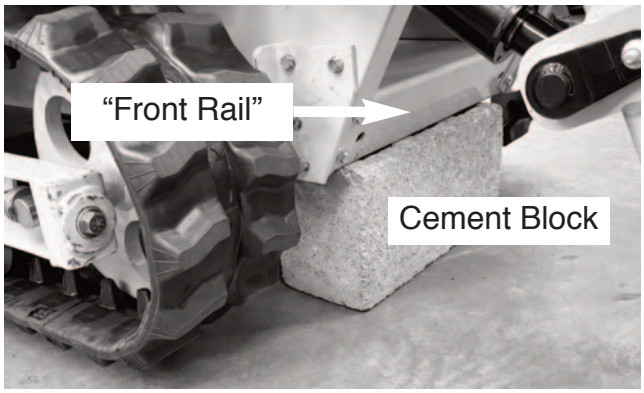
Tools & Filters Needed:

- Oil drain Pan (12" or more diameter with 8 qt. capacity is optimal).
- (2 pcs.) #004519-1 Struck Transaxle Oil Filters.
- Approx. 16 oz. of 20W50 Engine Oil.
- Ratchet with a 3/8" Socket.
- Oil Wrench.
- (3) Cement Blocks, & (1) Hydraulic Floor Jack. (2,000lb. Lift Capacity Minimum).

Step 1: Using the hydraulic power of your "Front Mounted" attachment, apply "Down Pressure" to get the front of the machine a few inches off the ground. Install a "Cement Block" under "Front Rail." See both pictures below.

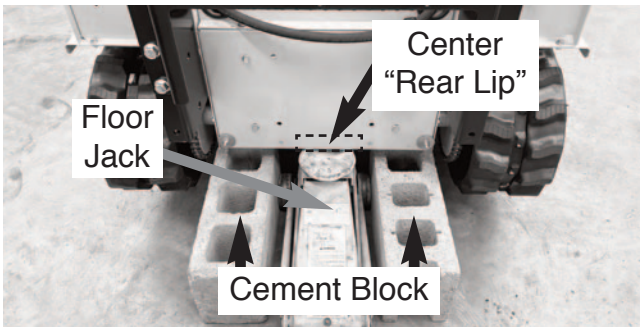


Step 2: Raise the front attachment slowly, this will allow the "Front Rail" of the machine to be sittting firmly on the cement block. See below.



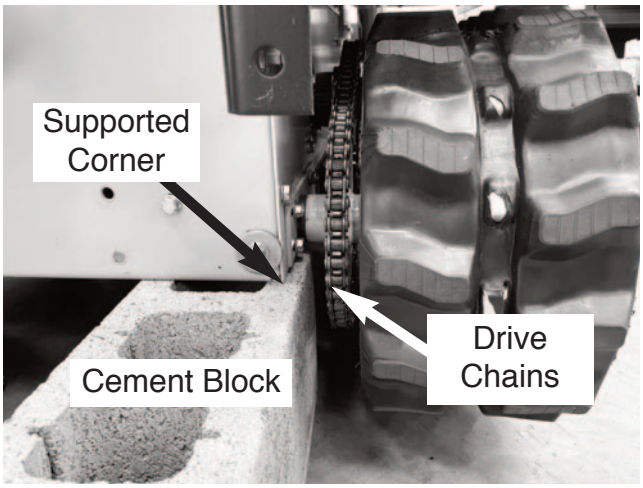
Procedure Note: Sliding your oil pan under the machine and removing both access panels will be easier to do, prior to inserting your rear cement blocks. See Steps 7 & 8, then come back to Step 3.

Step 3: Use the “Down Pressure” of your rear attachment to lift the back of the RT1150 a few inches off the ground. If no rear attachment is mounted, remove any rear counterweight to lessen the weight. Move floor jack under the center “rear lip” of machine, lift rear of machine a few inches off the ground. See picture below.

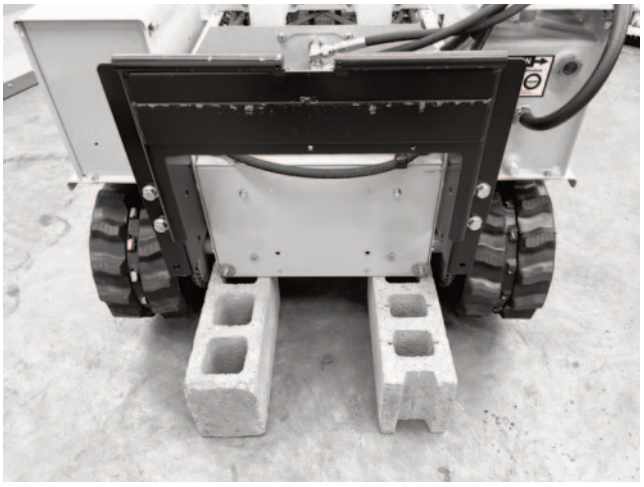


Step 4: Slide cement blocks under each side as shown above.

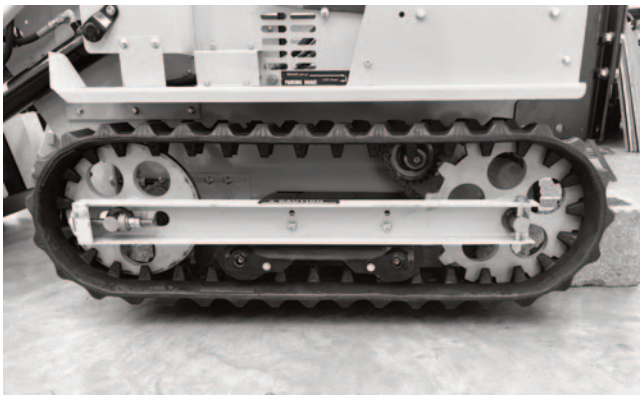
CAUTION: Make sure cement blocks are fully supporting each corner of the machine, and that your rear drive chains are not touching any part of the cement blocks. See below.



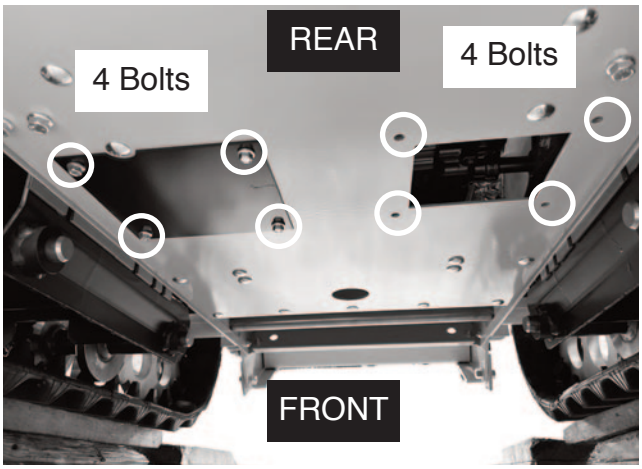
Step 5: Slowly release the pressure from the floor jack, allowing the rear of the machine to be fully supported by the two cement blocks. Remove the floor jack at this time. See the picture at the top of the next column.



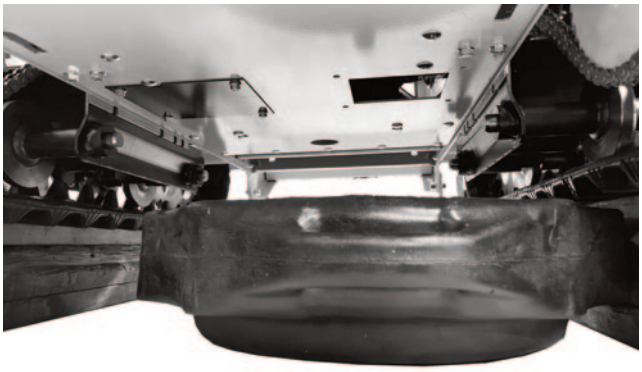
Step 6: The full weight of your machine should now be fully supported, both tracks should be off the ground, and your rear drive chains should be “Free” to rotate. Start the unit, run both track drive handles back and forth to confirm. Adjust as needed.



Step 7: Lay under the RT1150, and using the ratchet with 3/8” socket, loosen the (8) Bolts securing the (2) Removable Access Covers. Remove both covers and place to the side. Don’t worry about the nuts, they are welded to the backside of the body panel. See the picture on the top left of the next page.

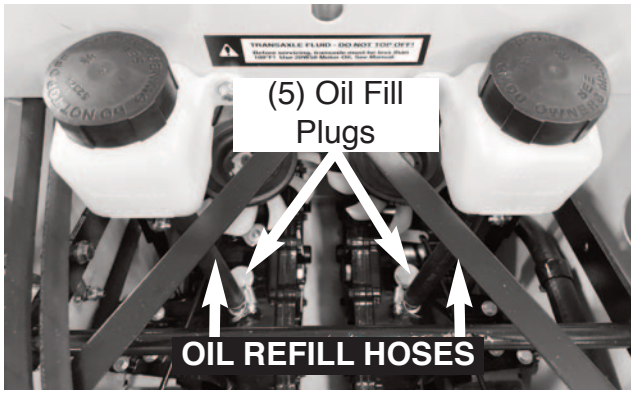


Step 8: Insert oil drain pan under one of the openings. See picture below.



Step 9: Using the socket style wrench, reach into the opening, and loosen the oil filter and remove. **Note: Using the Transaxle Service Manual, reference Page 10, Step 2 under the "Disassembly" column. Please disregard "Step 1" on this page, as the filter guard has been removed at our factory for easy access to this area.**

Step 10: Continuing to follow the Transaxle Service Manual, (Step 3), remove the oil fill plug (5) to allow the remaining oil to drain from the transaxle. The picture below shows the oil fill plug as well, it's right in front of the oil refill hose.



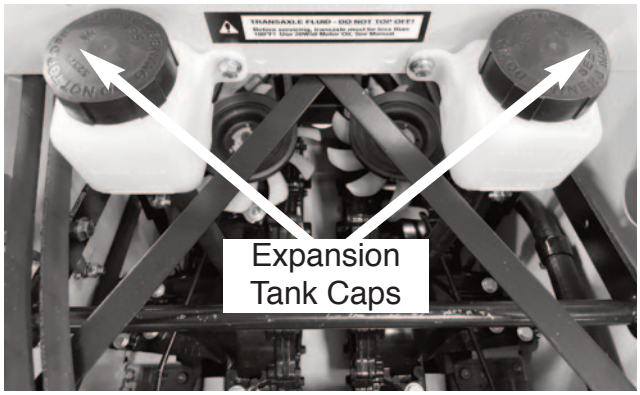
Step 11: Continuing to follow the Transaxle Service Manual, (Step 3), on page 11. After the oil has drained, wipe the filter base surface off and apply a film of NEW oil to the gasket of the NEW replacement Transaxle Oil Filter #004519-1.

Step 12: Continuing to follow the Transaxle Service Manual, (Step 4), on page 11. Install the NEW Transaxle Oil Filter #004519-1 by hand. Turn 3/4" to 1 full turn after the filter gasket contact the filter base surface.

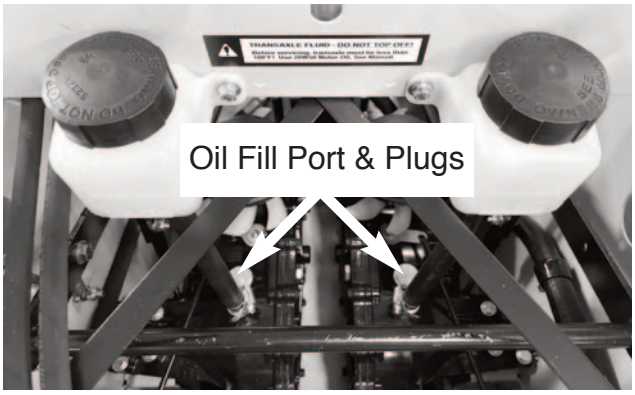
Repeat steps 8-12 on this page, for the opposite transaxle, if you have only done one transaxle at this time.

Step 13: Continuing to follow the Transaxle Service Manual, (Step 7), on page 11. Drain all filters of free flowing oil prior to disposal. Place used oil in appropriate containers and deliver to an approved recycling collection facility.

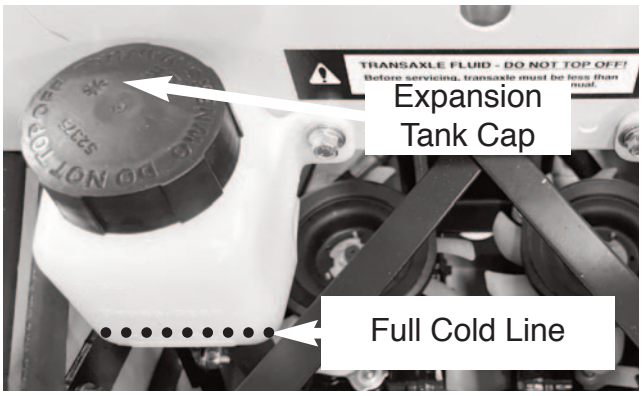
Step 14: Remove both caps from the transaxles expansion tanks. See picture below.



Step 15: Fill with 20W50 motor oil until oil just appears at the bottom of each **transaxles oil fill port.** (Approx. 2 qts. per each transaxle). Install the oil fill plug into each transaxle as the oil level reaches this port. **Tighten oil fill plugs to 120 in. lbs.** See picture below.



Step 16: Continue to fill both transaxles through the expansion tanks, **until the "Full Cold" line is reached** on the plastic expansion tank.

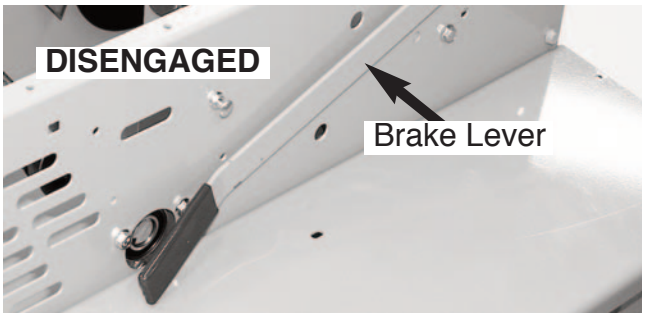


Step 17: Re-install the expansion tank caps by hand. Be careful to not overtighten. See above.

Proceed to Opening the Bypass Arm, (below). After that, continue to the Purging Procedure.

OPENING THE BYPASS ARMS

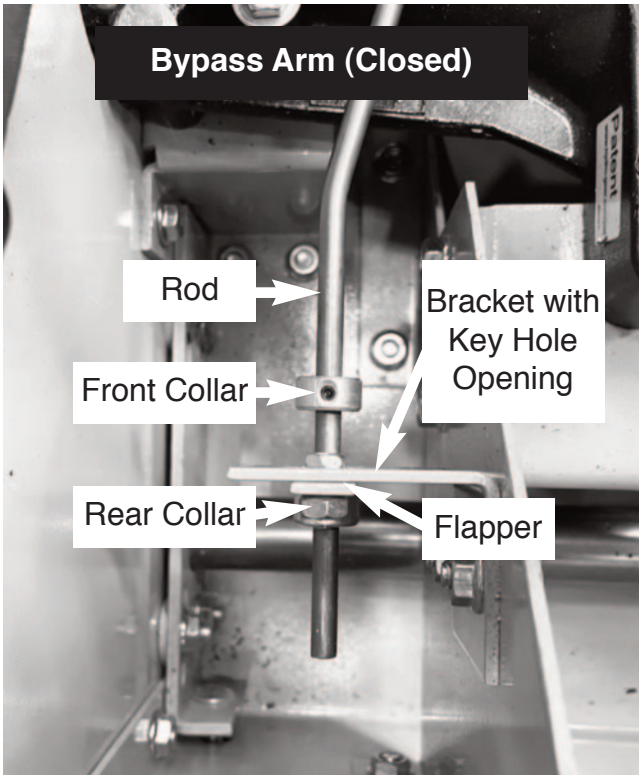
Prior to opening the bypass arms, disengage the MAGNATRAC brake lever. Lift up lever on the left fender, and release off of bolt. See the picture below.



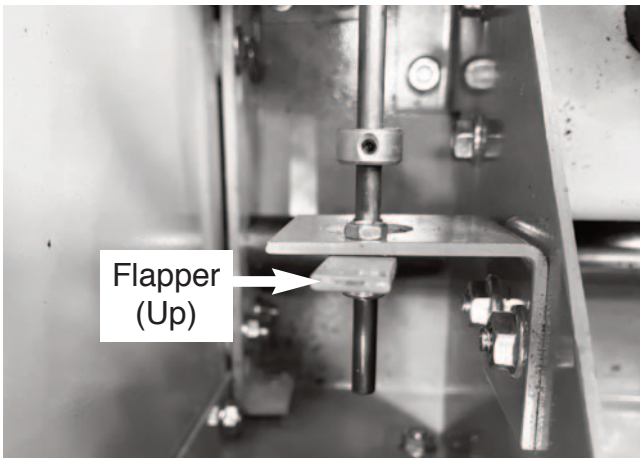
Opening the transaxle bypass arms is an easy process, but one must understand the parts involved in order to accomplish this task. The picture on the top of the next column shows the parts involved.

This process is also used if you want/need to tow the machine at a max. of 2 mph, without engine power. Follow Steps 1 through 3 before towing the unit.

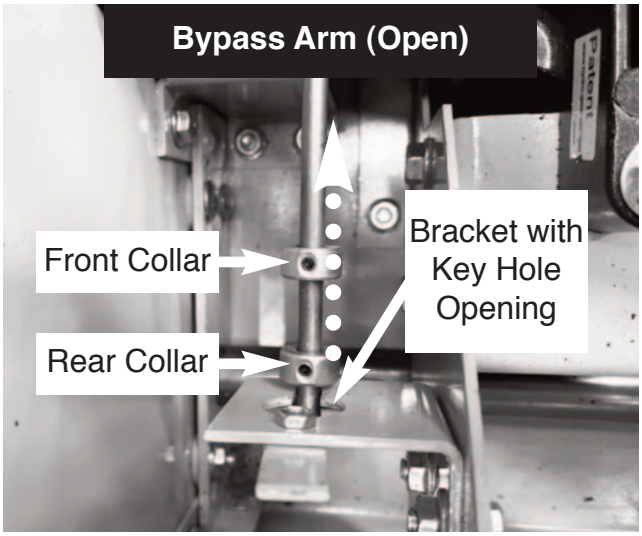
Keep in mind there is a **bypass arm for each transaxle, so you'll need to do this to both sides.**



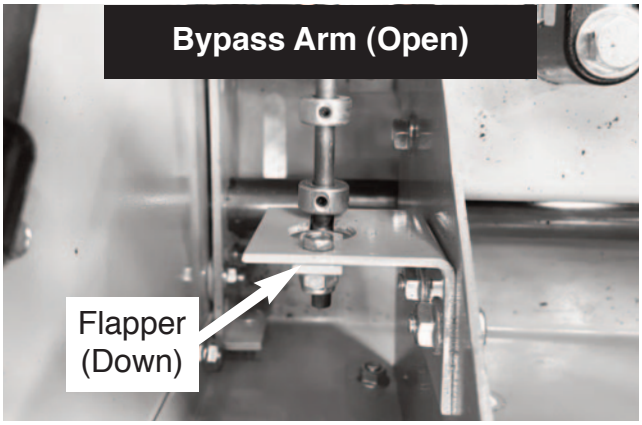
Step 1: Rotate the "Flapper" upward as shown in the picture below.



Step 2: Pull the "Rod" forward, allowing the "Rear Collar" to come through the key hole slot in the "Bracket." **Your bypass arm assembly is now "Open"** and should now look like the picture at the top left of the next page.



Step 3: To make sure the bypass arm stays **"Open",** we advise to rotate the "Flapper" downward at this time. See picture below. If you have not done so already, please follow steps 1-3 on the opposite transaxle at this time.



Continue to the Purging Procedure at this time.

PURGING PROCEDURE

Due to the effects air has on efficiency in hydrostatic drive applications, it is critical that it is purged from the system.

Air creates inefficiency because of its compression and expansion rate is higher than that of the oil approved for use in the hydrostatic drive system.

These purge procedures should be implemented any time a hydrostatic drive system has been opened to facilitate maintenance, or the oil has been changed.

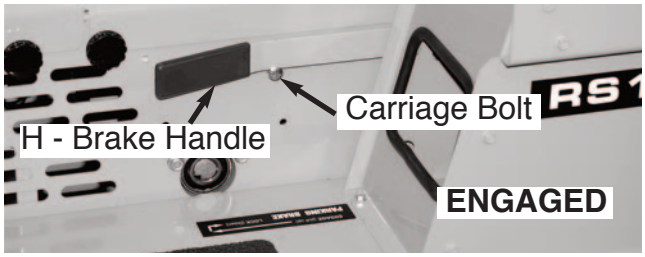
The resulting symptoms in hydrostatic drive systems may be:

1. Noisy operation.
2. Lack of power or drive after short term operation.
3. High operation temperature and excessive expansion of oil.

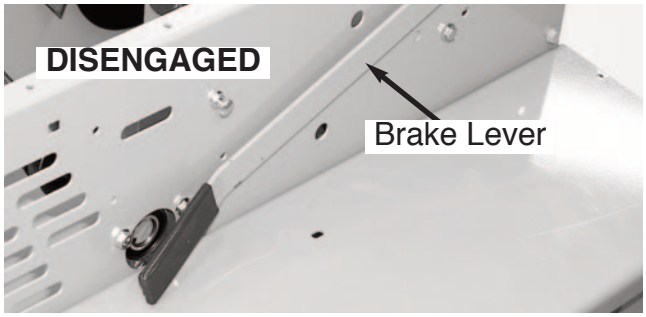
Before starting the steps below, make sure the transaxles are at the proper oil level. If it is not, fill to the specifications outlined in the **FLUID AND FILTER CHANGE PROCEDURE** on page 34 in this section.

The following procedures steps must be followed to fully purge the hydrostatic transaxles.

Step 1: With the **"bypass arms open"** from your previous steps, **"enagage"** your MAGNATRAC brake lever to start the engine. Start the unit.

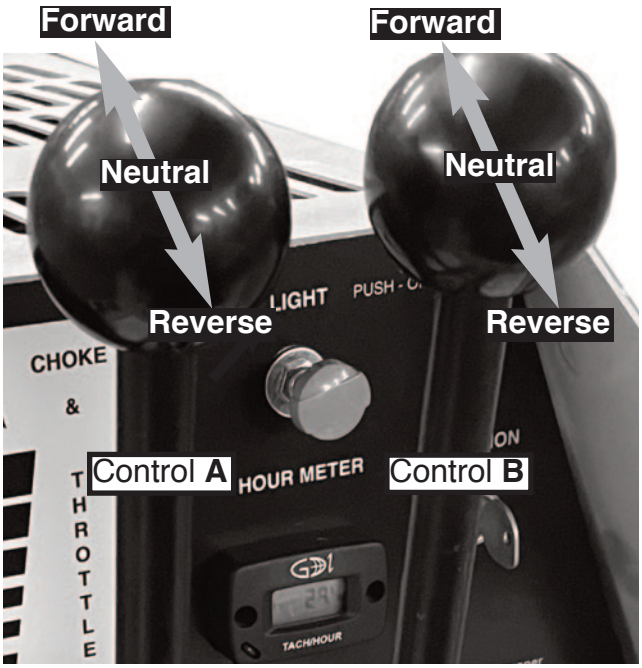


Step 2: "Disengage" the MAGNATRAC brake lever while the engine is still running. See below.

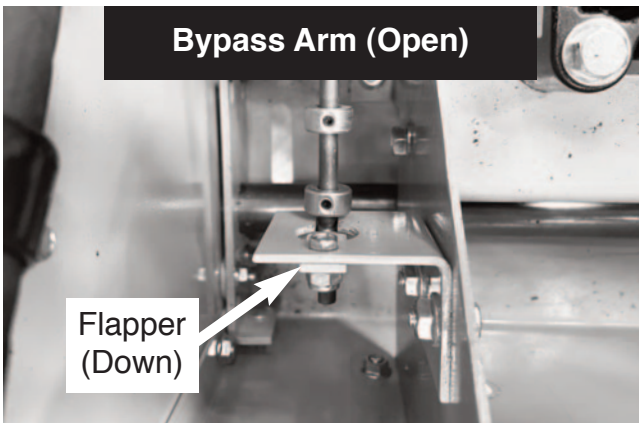


Step 3: Slowly move track control handles A and B, in both forward and reverse directions, approx. 5 to 6 times. See picture at the top left of the next page.

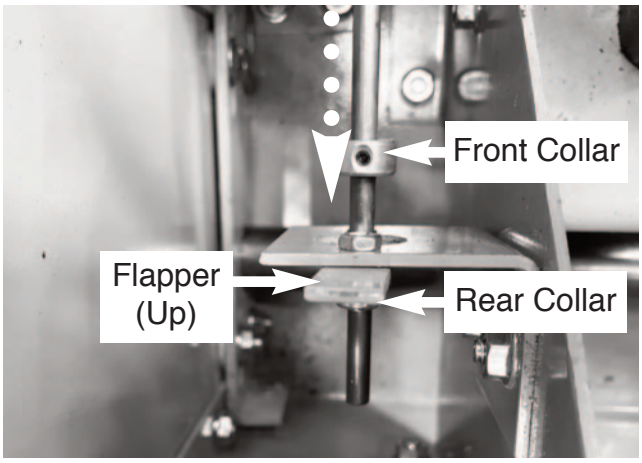
Shut off the MAGNATRAC at this time. Keep your MAGNATRAC brake lever disengaged at this time.



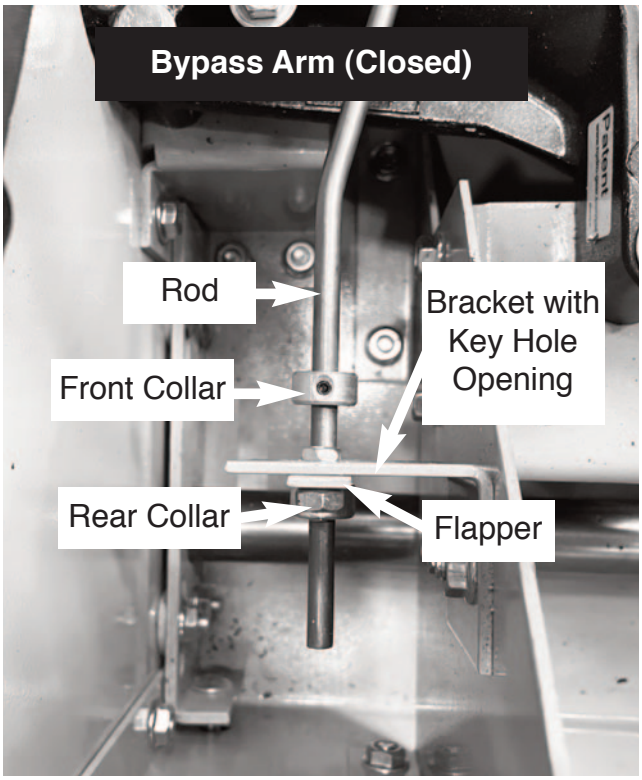
Step 4: Your Bypass Arm should still be "Open" at this time. See below.



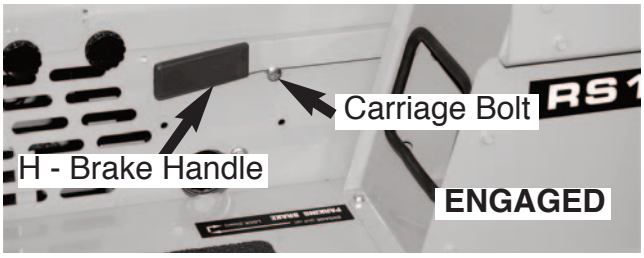
Step 5: Lift "flapper" up and pull the "Rod" rearward, allowing the "Rear Collar" to come through the key hole slot in the "Bracket." It should now look like the picture below.



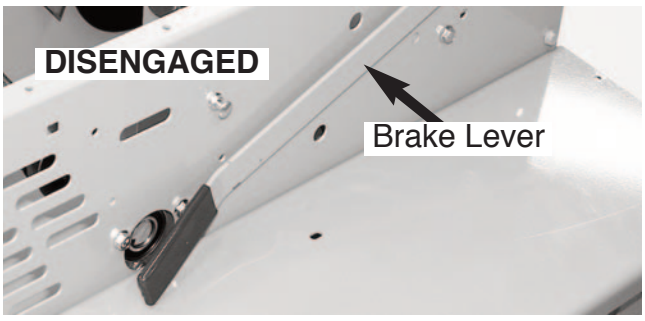
Step 6: Your bypass arm is now considered **"Closed."** To make sure the bypass arm stays **"Closed",** we advise to rotate the "Flapper" downward at this time. See picture below.



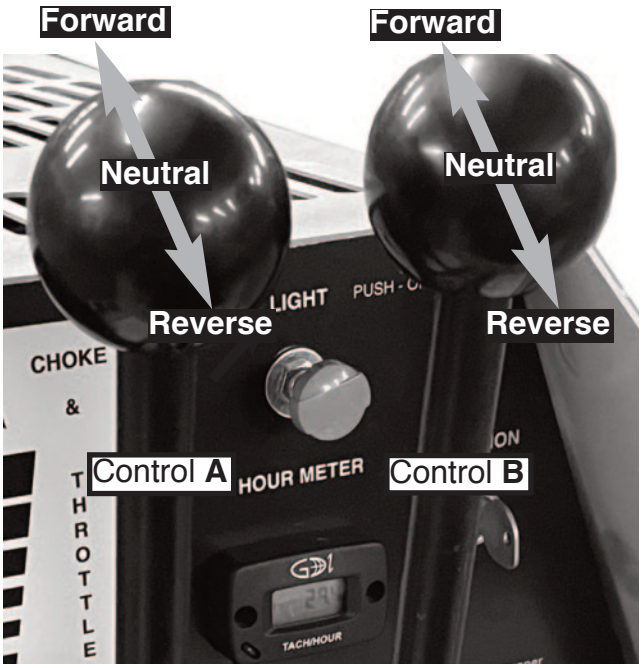
Step 7: With the **"bypass arms closed"** from your previous steps, **"enagage"** your MAGNATRAC brake lever to start the engine. Start the unit.



Step 8: "Disengage" the MAGNATRAC brake lever while the engine is still running. See below.



Step 9: Slowly move track control handles A and B, in both forward and reverse directions, approx. **5 to 6 times. See picture below.**



Step 10: Shut off the MAGNATRAC at this time. Keep your MAGNATRAC brake lever disengaged at this time.

Step 11: Check the oil level of each expansion tank as shown below. Shut off the unit.

Step 12: If low, add **20W50 Engine Oil** through the expansion tanks, **until the "Full Cold" line is reached** on the plastic expansion tank.

Note: It may be necessary to repeat Steps 1 through 12, until all air is purged from the system. When both transaxles operate at normal noise levels and move smoothly forward and reverse at normal speeds, then the transaxle is considered purged.

FINAL STEPS

To reinstall transaxle oil filter access panels, use Step 7 on page 35.

To lower the machine to the ground, work Step 7 through Step 1 in reverse order on pages 34 & 35.

RETURN TO NEUTRAL SETTING

The return to neutral (RTN) mechanism on the transaxle is designed to set the directional control into a neutral position when the operator releases the track control handles (Control A & B). If you notice that your track drive handles do NOT return to exact neutral when you release them, do not be alarmed. Due to our design, you may have to manually move the handles back to center. If this is excessive, and one track continues to move after you release the drive handle, please contact our technical support team prior to making any adjustments to the return to neutral adjusting screw.

Adjustments to the return to neutral (RTN) adjustment screw are shown in the transaxle manual, page 13, however, we HIGHLY advise to talk with our technical support team first, to see if there's other issues with the transaxle or Struck Corp. linkage.

OTHER TRANSAXLE ITEMS

Please contact the Struck Technical Support Team if you have any questions prior to starting any of the above mentioned procedures, or prior to making any other transaxle adjustments.

Below are ways to contact the Struck Technical Support Team.

Phone: (262) 377-3300 local
(877) 828-8323 toll-free

Text: (262) 278-9298

Email: support@struckcorp.com

Web: struckcorp.com/contact-us

HYDRAULICS

GENERAL INFORMATION

Hydraulic fluid is the medium by which power is transferred in your attachment control system. Anti-wear (AW) hydraulic oils are made from a petroleum base fluid and commonly contain anti-wear additives. This additive works to protect the hydraulic pump. They come in multiple viscosity grades that have varying applications. **We use a AW46 hydraulic oil,** which can be used to operate the hydraulic systems in off-road equipment such as dump trucks, excavators, and backhoes.

SAFETY

Because hydraulic systems operate at over a thousand PSI and temperatures reaching over 100º F, severe injuries and death can result from component failures and care must always be taken when performing maintenance on hydraulic systems.

WARNING! Seek immediate medical attention if any hydraulic oil penetrates your skin, is sprayed in your eyes, or other openings in your body.

ATTACHMENT CONTROL SYSTEM

Your attachments are controled by a hydraulic power system. It consists of a pump, valve, hoses, tank, inline strainer, oil sight window, oil drain nut, and breather cap.

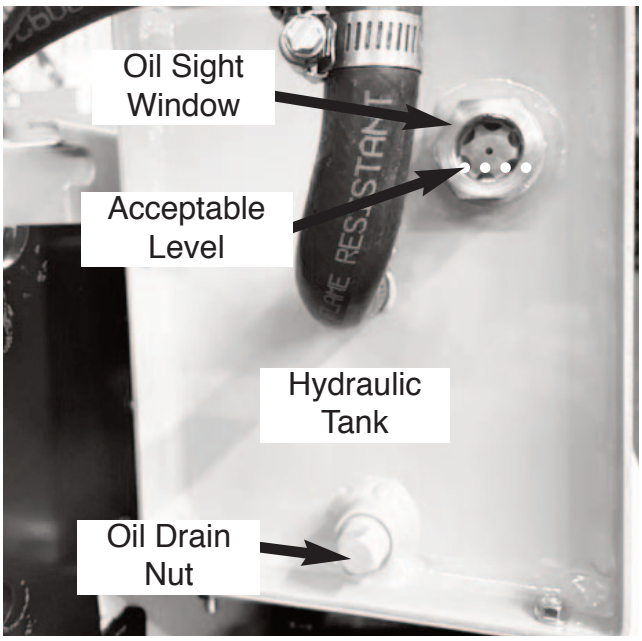
This whole system is powered by the drive belt. If your drive belt is slipping, or your tank is low on fluid, or you have a loose suction line, you will notice that your attachments will behave erratically.

If your drive belt is broken, your attachments and your transaxles will not operate.

WARNING! Hot hydraulic oil burns! If you have too much fluid in the tank, your hydraulic fluid will come out of the breather cap.

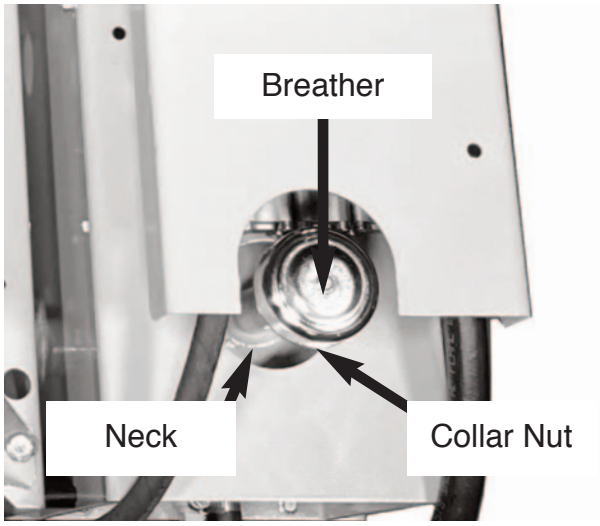
CHECKING HYDRAULIC OIL LEVEL

To check hydraulic oil level, make sure your MAGNATRAC is sitting on level ground. Stand behind the rear of the unit. The oil sight window is located on the back of the hydraulic tank, on the right rear fender. If you can see the “top” of the fluid level in the window, you have enough. No need to add fluid to the top of the window. See picture below. If below the window, see “Adding Hydraulic Oil” below.



ADDING HYDRAULIC OIL

To add hydraulic oil, loosen breather’s “collar nut” from the side using a cresecent wrench. Collar nut may be made of molded black plastic or steel depending on the type. Fully remove breather, and add hydrailic oil through the “neck”. Fill until you see hydraulic oil in the sight glass window. See pictures below and above.



DRAINING HYDRAULIC OIL & CLEANING STRAINER FILTER

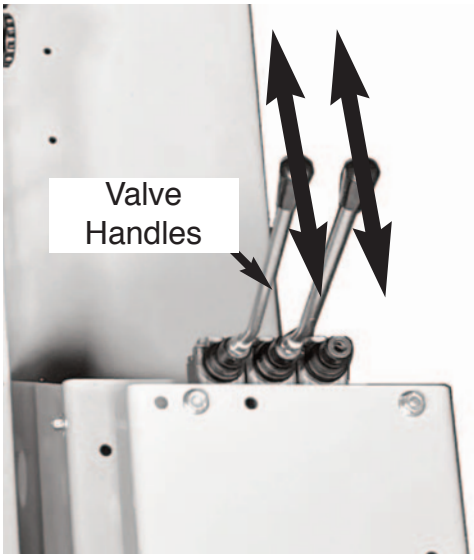
Because hydraulic systems operate at over a thousand PSI and temperatures reaching over 100º F, severe injuries and death can result from component failures and care must always be taken when performing maintenance on hydraulic systems.

WARNING! Hot hydraulic oil burns! Do NOT drain your hydraulic oil if you have been using the machine for longer than 10 minutes!

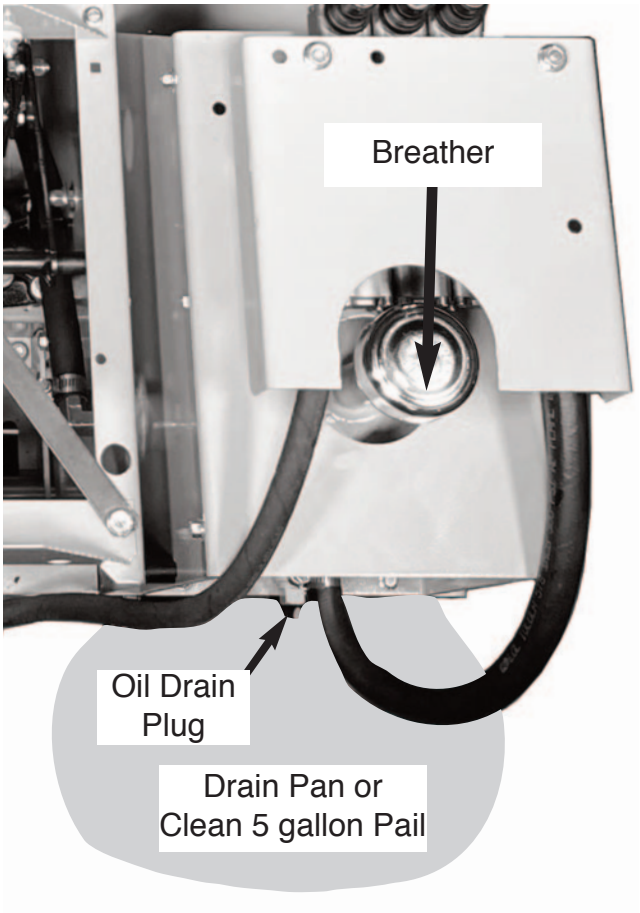
Step 1: Drive your MAGNATRAC to a level area, such as a flat garage floor. Make sure no bystanders are in the area, and that the area is well ventilated. Raise & lower front attachment for approx. 3 minutes to get the fluid warm.

Step 2: Shut off the unit, set your parking brake, and lower all front and rear attachments to the ground.

Step 3: Rock all hydraulic attachment valve handles, (including backhoe valve handles) back and forth, approx. 5 times to relax all cylinders. See picture below. (Backhoe valve NOT shown).



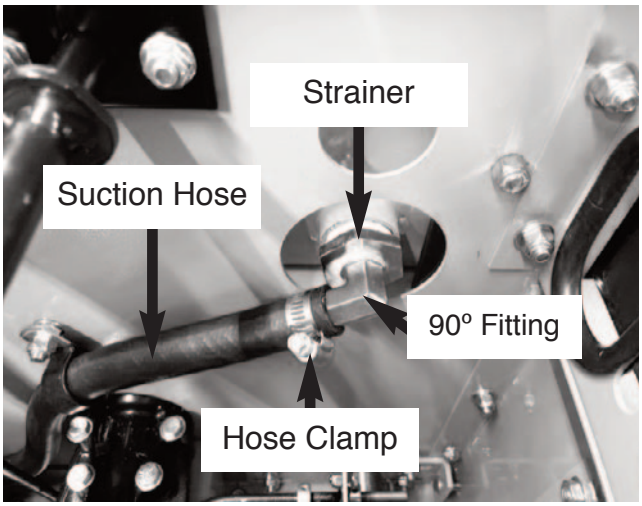
Step 4: Place an oil drain pan, or a clean 5 gallon pail, (enough to hold approx. 4 gallons), near the right rear fender, just under the oil drain plug as shown in the picture on the top of the next column. **Note: You may have to "wedge" the oil pan between the tracks and the fender, or support it from the backside to hold it in position.**



Step 5: Using an adjustable crescent wrench, loosen the oil drain plug and allow the fluid to come into the pan or pail. Note: removing the breather may allow the fluid to drain quicker. Follow the procedure outlined on the previous page for removing the breather.

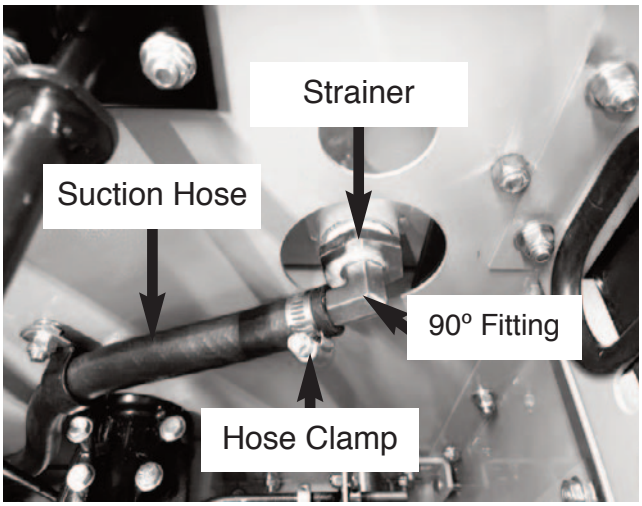
Step 6: Remove seat and rear cover assembly if it not already removed. See page 23.

Step 7: Once, the fluid is **fully drained**, remove the hose clamp from the suction hose. (Inside the body, driver's right rear). See below.



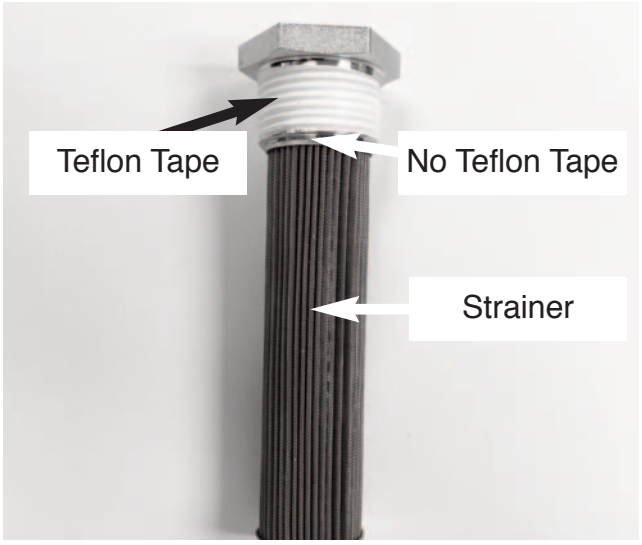
Step 8: Wrap a plasic bag around the end of the-suciton hose, use a zip tie to secure, and support suction hose so it is in a vertical position, not allowing any fluid to leak out.

Step 9: Remove the strainer, by using an adjustable crescent wrench, or a ratchet with a 1-1/2" socket (if you remove the 90º fitting from the end of the strainer). **Note: If you prefer to remove the 90º fitting, you will need to hold the strainer with one wrench, and then turn the 90º fitting with another wrench.**

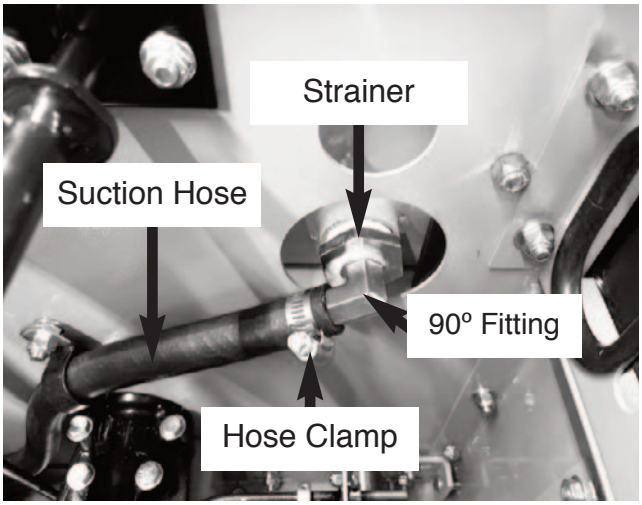


Step 10: Once strainer is removed, take the old teflon tape off of the threaded part of the strainer. **Clean the strainer with a non-flammable solvent, such as brake cleaner. Wait for it to dry.**

Step 11: Wrap new teflon tape around the threads, being careful not to get any excess over the bottom of the threads. Repeat the same process to the 90º fitting if you removed it from the strainer, during Step 9.

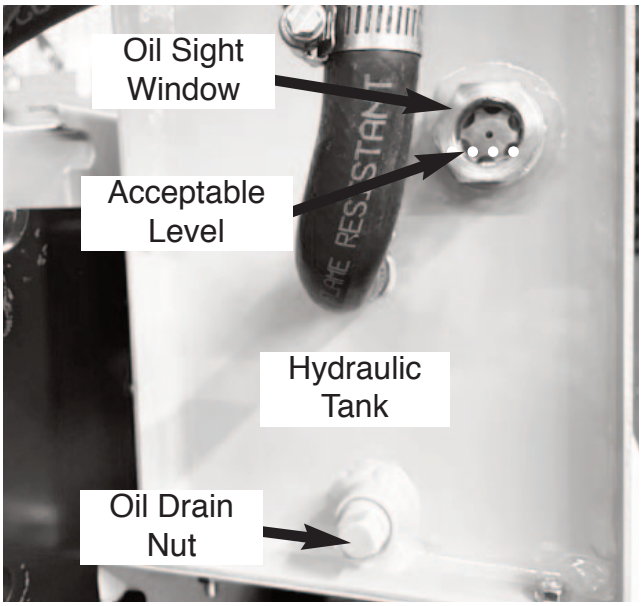


Step 12: Thread the strainer back into the tank. Tighten using an adjustable crescent wrench, or a ratchet with a 1-1/2" socket. **Note: Make sure this connection is tight. If loose, hydraulic oil will leak from the connection, and then you'll have to repeat the process with new teflon tape.**



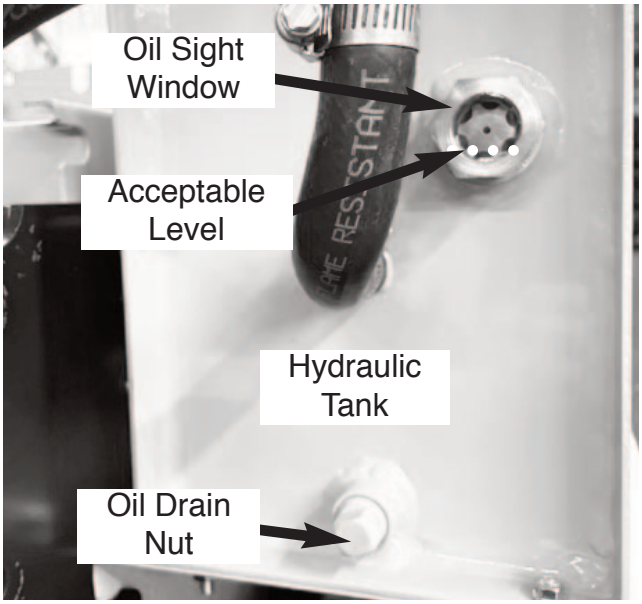
Step 13: If you removed the 90º fitting in the previous steps, make sure to thread it back into the strainer. Tighten with crescent wrench or 3/4" wrench. See final angle of 90º fitting. **Note: Make sure this connection is tight. If loose, hydraulic oil will leak from the connection, and then you'll have to repeat the process with new teflon tape.**

Step 14: Remove zip ties and plastic bag if used in step 8. Work suction hose back onto 90º fitting and position hose clamp as shown in the above picture. Thread oil drain nut back onto tank. **Tighten the <u>hose clamp</u> and <u>oil drain nut!</u>**



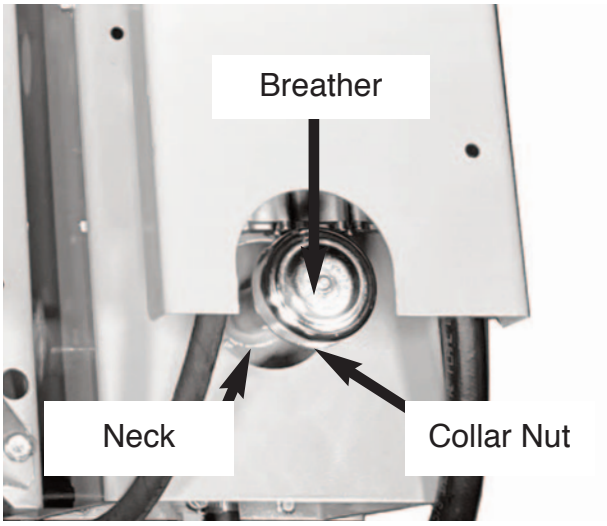
Step 15: Add just enough hydraulic oil to the tank so the level is above the strainer. Check for leaks at the strainer connection and the oil drain nut. **Note: If leaks are found, repeat steps 7-15.**

Step 16: If no leaks are found, continue filling the hydraulic tank until you see the fluid in the hydraulic oil sight window.



Step 17: Thread breather onto the neck. Turn the "collar nut" from the side with hand pressure only until you cannot turn it anymore. Continue to the purging procedure on the top of the next column.

CAUTION! Do NOT use a crescent wrench or other wrench to tighten! Damage may occur!



PURGING PROCEDURE

Anytime you drain the tank, disconnect and reconnect any threaded hose connections, or open up any part of the attachment control system, you must purge any air from the system.

Simply stated, what you are doing is working all valve handles on the attachment valve, and the backhoe valve (if applicable), back and forth until all air in the system comes out of the oil tank breather.

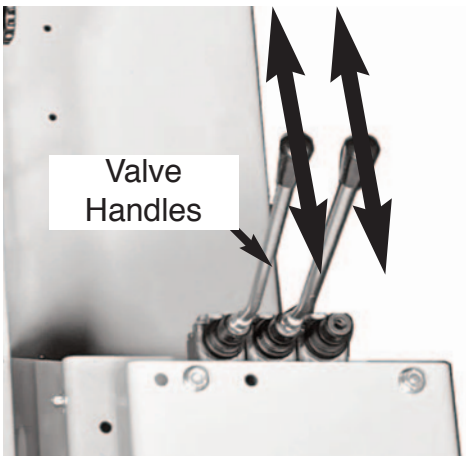
Step 1: Make sure no bystanders are in the area, and that your work area is well ventilated. Engage your parking brake, and start the unit up. Set the throttle at mid throttle.

Step 2: Raise your front attachment all the way up in the air, (loader or front hitch). Hold the (lift) attachment valve handle, in that position for approx. 3 seconds. The relief valve will kick in. See picture below.

Step 3: Now lower the same attachment to the ground, and follow the same process. Hold the (lower) attachment valve handle, in that position for approx. 3 seconds. The relief valve will kick in. See picture below.

CAUTION! When lowering, take care not to damage the floor you are working on. The machine has down pressure and will lift the front of the tractor off the ground, and you may scratch your garage floor.

Step 4: Continue the same process for all valve handles on the attachment valve first, and then the backhoe valve next. See picture below. The air is now purged from the attachment control system.



REAR DRIVE CHAINS

CHAIN TENSIONING

Do a thorough washing and cleaning of the #1805 Chains and mating Sprockets with a powerwasher or a stiff brush. The Sprockets must be clean and the mating Drive Chains must be clean & lubricated to give proper chain adjustment. **Note: This may be helpful to do outside, and not in your garage or shop.**

Begin your Drive Chain Tensioning procedure by driving Crawler onto a firm, level surface. Shut off Engine and dismount...do not "engage" Parking Brake Lever. From below, support body of Crawler so the Tracks clear the ground by approximately 2" and are free to rotate...make sure the Brake is disengaged at this time.

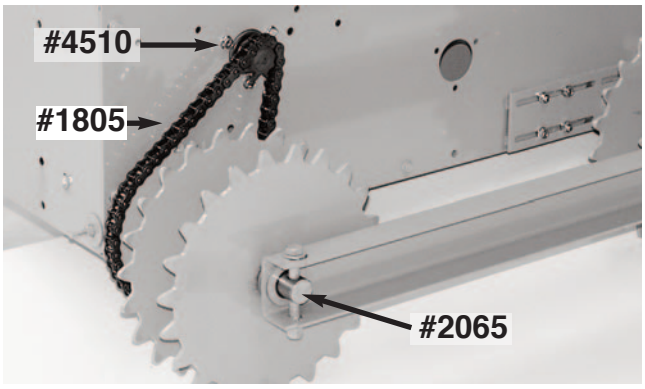
Use solid blocking, place it under the Crawler's Body per **"Safe Blocking Diagram"** in front section of this Manual. It will give the Crawler the greatest support left to right and front to rear.

Lubrication: At a minimum...brush on **SAE 30 weight oil (non-detergent)** on rear drive chains. A more expensive, but cleaner option is to use a spray lubricant, such as: **non detergent aerosol Chain & Wire Rope Lubricant. We use CRC® brand, Grainger® Item #2F139.** Both of these methods are acceptable lubrication options.

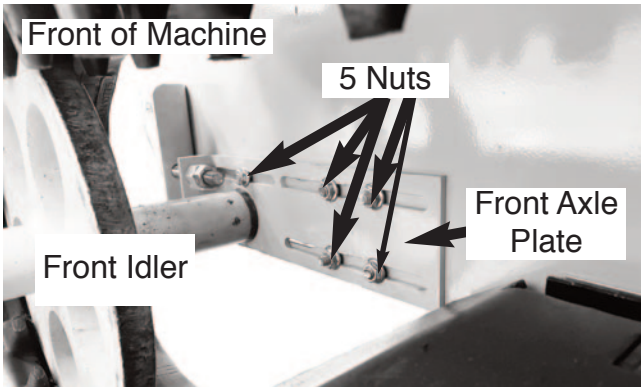
NOTE: Your front idler, rear drive sprockets, & sprocket hubs may look different from the ones shown in the next few pages, but the rear drive chain tensioning procedure will be the same. For clarity purposes, the pictures show the tracks removed. It is NOT necessary to remove the tracks to tighten the rear drive chains, but you MUST loosen them.

Understanding the Task: The #1805 Rear Drive Chains (#50H Roller Chain) are tightened by increasing the center distance between the **movable #2065 Rear Axle** and the **fixed #4510 Sprocket Hub. We advise for the tracks to be loose to properly adjust the rear drive chain. Please see the picture at the top of the next column.**

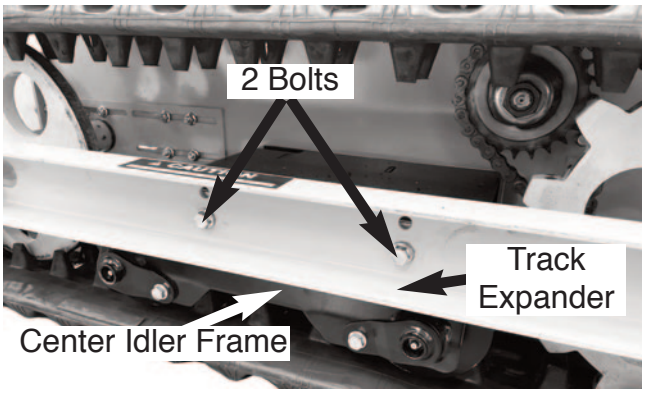
Open Hood and swing fully forward; remove #1688 Seat Pin. Remove Seat & Bracket, Arm Rests and Rear Cover.



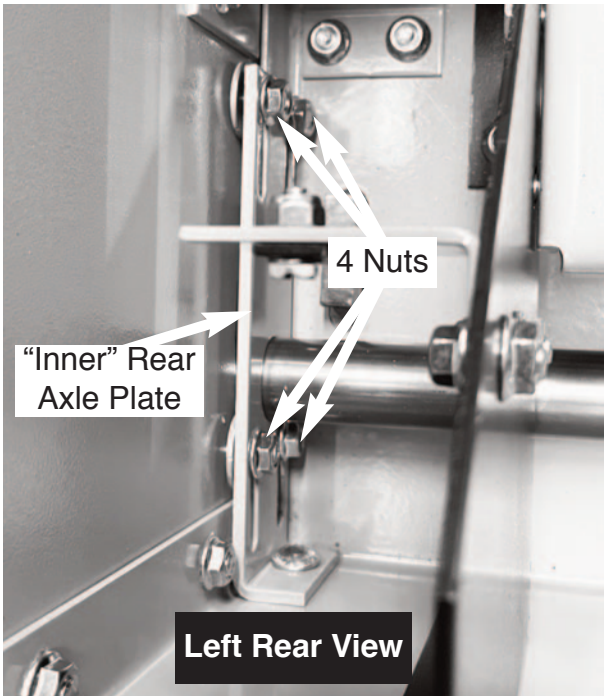
Step 1: From "outside" the Crawler's body, loosen (but do not remove) the five nuts on each Front Axle Plate. Do the same for both sides of the tractor. See below.

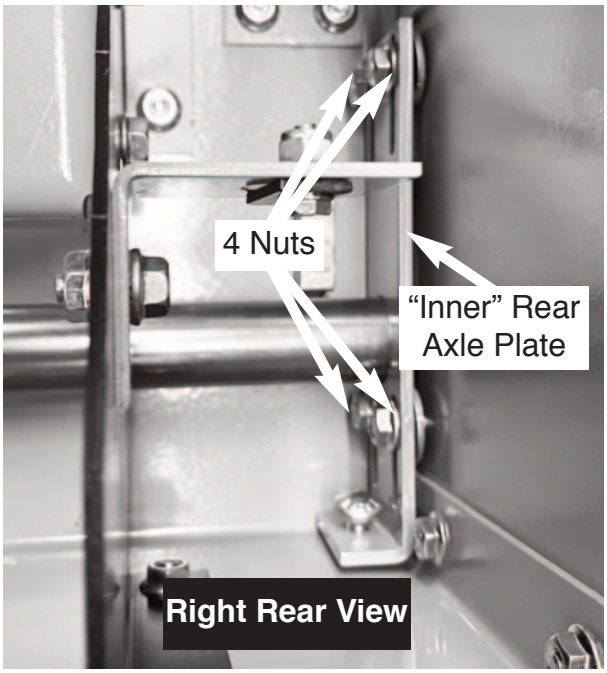


Step 2: Loosen the 2 bolts that connect the "center idler frame" to the "track expander." Do the same to both sides of the tractor. (If installed on your machine.) See below.

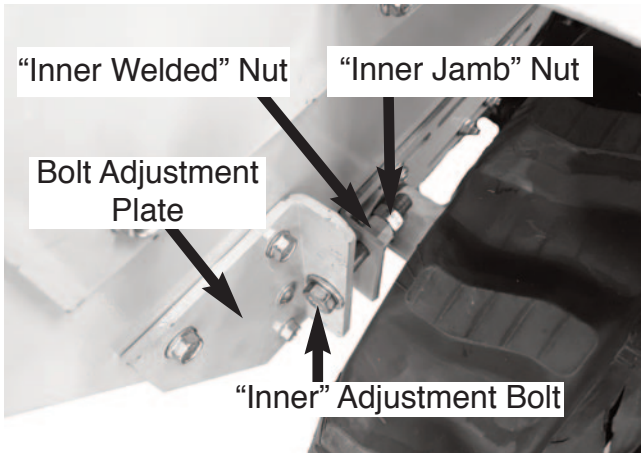


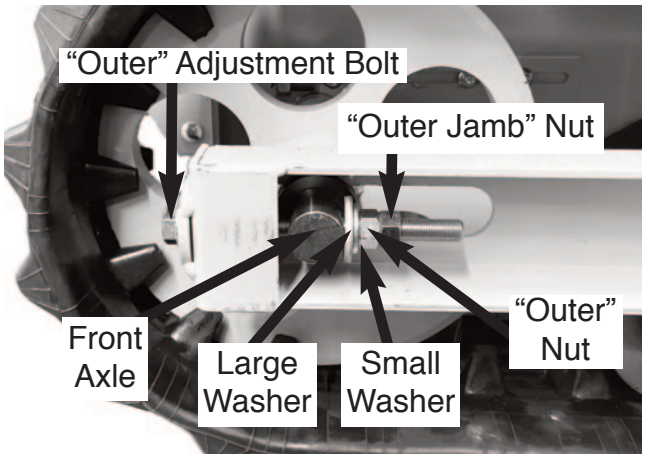
Step 3: From "inside" the Crawler's body, loosen (but do not remove) the 4 nuts on each "Inner Rear Axle Plate". Do the same for both sides of the tractor. See the 2 pictures at the top left of the next page.





Note: Use the 2 pictures at the top of the next column as a reference. You will be working back and forth between the "Outer" and "Inner" adjustment bolts. Doing this assures will not strip the threads of the adjustment bolts.





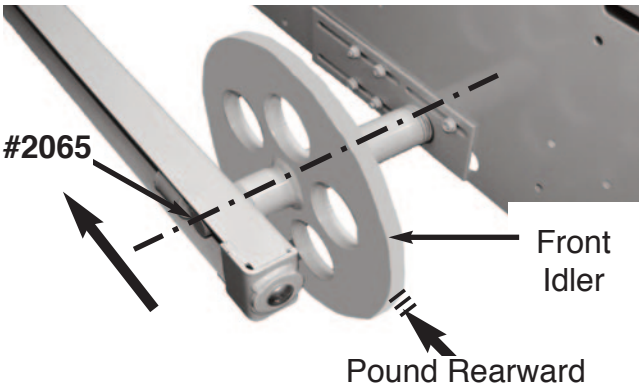
Step 4: Using a cordless impact driver or ratchet with 3/4" socket and 3/4" wrench, loosen **"Outer" nuts on both sides of the machine** approx. half way down the threads. See above.

Step 5: Using a cordless impact driver or ratchet with 3/4" socket and 3/4" wrench, now loosen the **"Inner Welded" Nuts on both sides of the machine,** approx. half-way down the threads. See above.

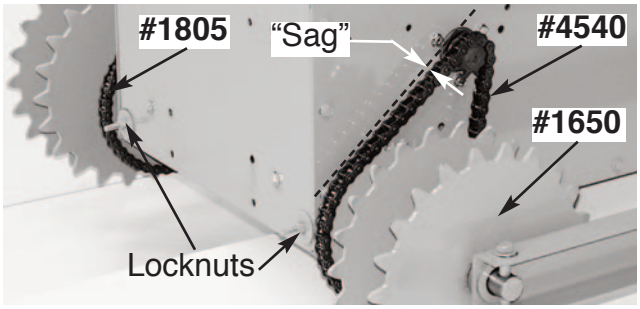
Step 6: Now work **back to the outside of the machine.** Using a cordless impact driver or ratchet with 3/4" socket and 3/4" wrench, loosen **"Outer" nuts on both sides of the machine** until they are at the end of the threads, but still on the bolts. See above.

Step 7: Now work **back to the inside of the machine.** Using a cordless impact driver or ratchet with 3/4" socket and 3/4" wrench, loosen **"Inner Welded" nuts on both sides of the machine** until they are at the end of the threads, but still on the bolts. See above.

Step 8: To ensure that both Front Idlers (on each side) have moved rearward, using a mallet, pound on each track & front idler in the area shown below. Do this to both sides. See below. Your front idlers should have moved rearward during Steps 4-8.



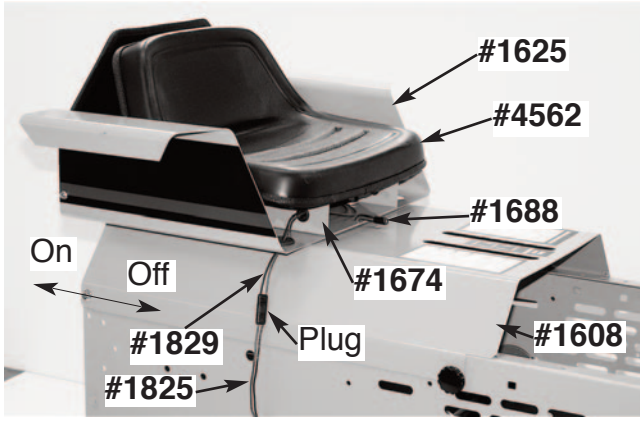
Step 9: To tighten the Drive Chains, start rotating **clockwise** the Locknut located on left and right lower rear of Body. To draw Rear Axle back evenly, turn one Locknut 1/2 turn, then go to the other side and tighten the other Locknut 1/2 turn...use this back and forth procedure **until both #1805 Drive Chains are reasonably tight...not "bow-string" tight, but about a 1/4" of "sag"** in the slack strand when the balance of the chain is taught. See below.



NOTE: When satisfied that both #1805 Drive Chains are tightened evenly, retighten the four Bolts holding the two "Inner" Rear Plates on left & right side of Body. See the 2 pictures on the left hand side of the previous page. (Left & Right Rear Views).

Thoroughly lubricate your Drive Chains at this time, if you did NOT do it earlier in the process.

Replace Seat Assembly, Arm Rests and Rear Cover and close Hood...secure all with #1866 "threaded" Knobs.



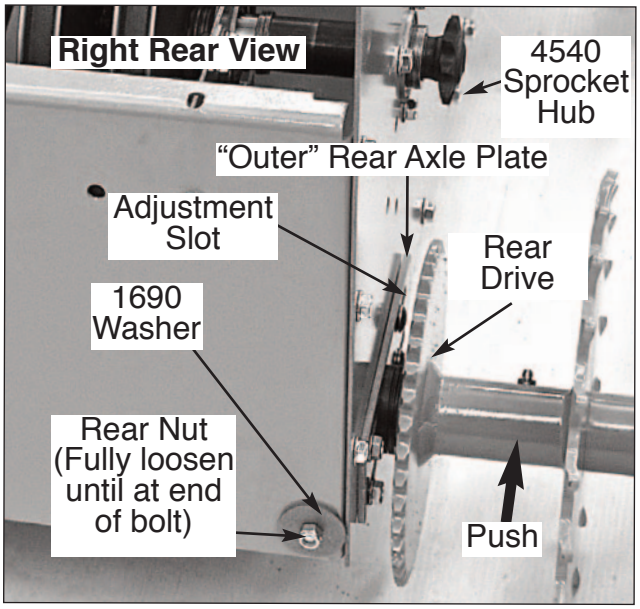
Note: Skip to page ??, step # if you have finished tensioning your rear drive chains.

CHAIN REPLACEMENT

To replace your rear drives chains, **first follow Steps 1-8 on pages 44-46.**

Step 1: Remove old drive chains if still connected, by finding the retaining clip that holds the master chain connector in place. Insert a small flat head screwdriver under the retaining clip, pull upward. The master connector should now separate fro mthe drive chain.

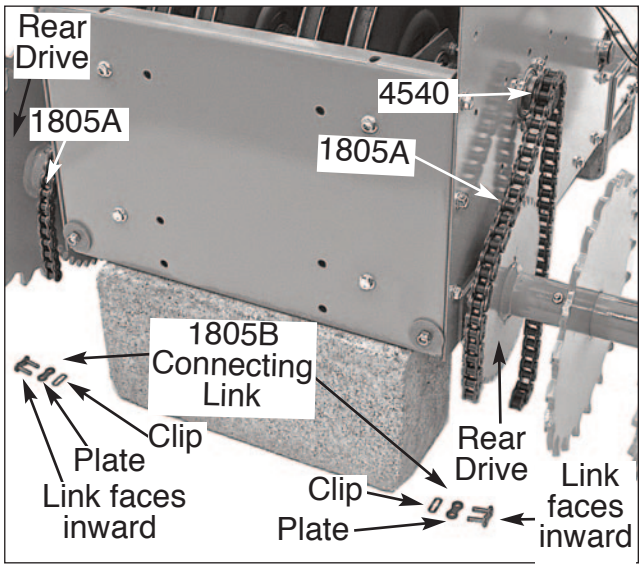
Step 2: Fully loosen "Rear Nuts" on both left & right sides, until the nuts are at the end of the bolt. See below.



Step 3: Push Rear Drive Sprockets **on both sides forward,** until you reach the end of the slot on the "Outer" Rear Axle Plates. See above.

Step 4: Loop a #1805A Chain around each set of Rear Drive Sprockets and #4540 Sprocket Hub on left & right sides of Body. See below.

Step 5: Join ends of each #1805A Chain with the *pins* of each #1805B Connecting Link. Secure each Link with Plate and lock with Clip.



Note: When installed, the pins of each master connector link should point towards the center of the machine. See above.

Step 6: To tension your new drive chains, skip to Step 9 on the previous page.

TRACKS

PERFORMANCE TIPS

The track system of your MAGNATRAC is the result of over 60 years of experience. As always, please contact the Struck Technical Support Team with any questions or concerns.

Phone: 877-828-8323
Email: support@struckcorp.com
Text: 262-278-9298

Tip 1. Avoid Overloading Your Track System. The track system is designed to absorb a great deal of material, but the less you force it to "digest", the greater the track's stability and overall life. When working the machine, clear a "driving path" with the front attachment (Blade, Bucket, etc.) you are using. Avoid climbing in loose material and counter-rotating your tracks. This action will "cork-screw" the Tracks into the pile and force unnecessarily large amounts of material into the Tracks.

Tip 2. Keeping Up with Track Tensioning. Properly tensioning your tracks will allow the most reliable and stable track system. Loose tracks, and/or front idler mis-alingment is the main cause of track derailment. Please see proper tensioning in the Service section of this manual.

LOOSENING THE RUBBER TRACKS

Do a thorough washing and cleaning of the track system with a powerwasher.

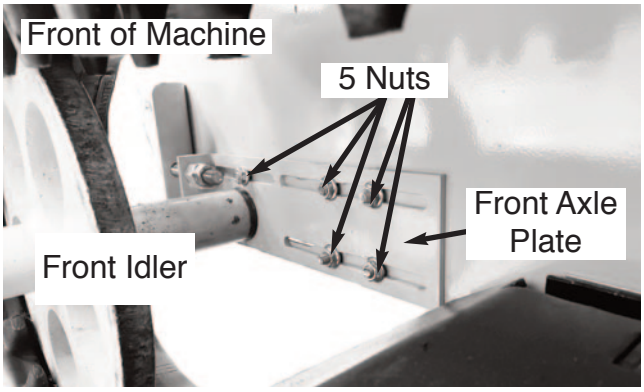
Begin your track loosening procedure by driving Crawler onto a firm, level surface. Shut off Engine and dismount...do not "engage" Parking Brake Lever. From below, support body of Crawler so the Tracks clear the ground by approximately 2" and are free to rotate...make sure the Brake is disengaged at this time.

Use solid blocking, place it under the Crawler's Body per **"Safe Blocking Diagram"** in front section of this Manual. It will give the Crawler the greatest support left to right and front to rear.

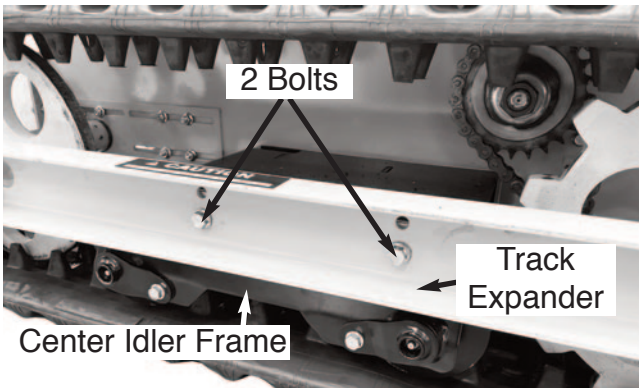
Understanding the Task: The tracks are adjusted by loosening 4 tension bolts and moving the **#2065 Front Axle** rearward. This is accomplished by the following procedure.

Open Hood and swing fully forward; remove #1688 Seat Pin. Remove Seat & Bracket, Arm Rests and Rear Cover.

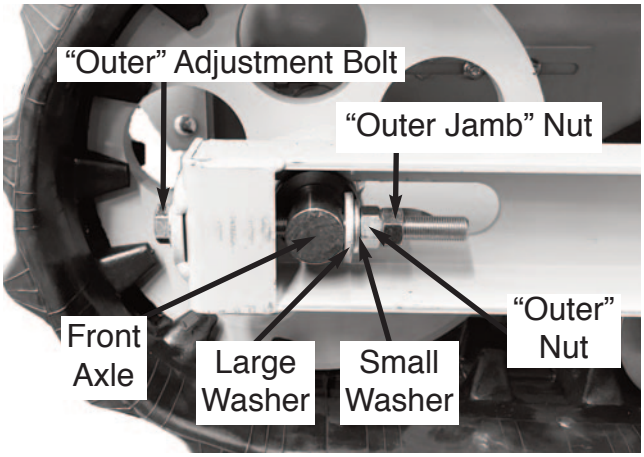
Step 1: From "outside" the Crawler's body, loosen (but do not remove) the five nuts on each Front Axle Plate. Do the same for both sides of the tractor. See below.



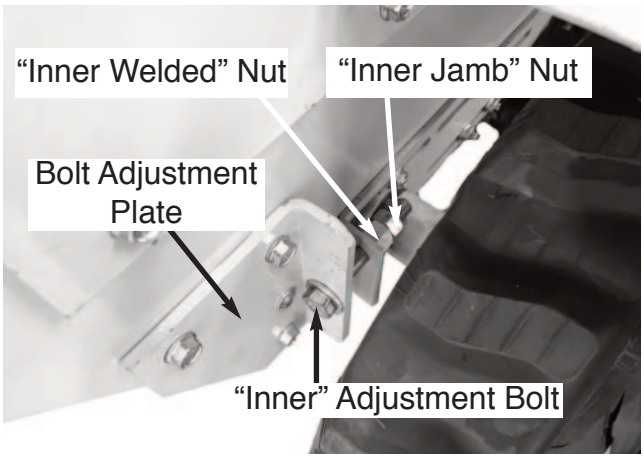
Step 2: Loosen the 2 bolts that connect the "center idler frame" to the "track expander." Do the same to both sides of the tractor. (If installed on your machine.) See below.



Step 3: Using a cordless impact driver or ratchet with 3/4" socket and 3/4" wrench, loosen and remove the **"Inner & Outer Jamb" nuts on both sides of the machine**. (A total of 4). See the 2 pictures at the left of the next page.



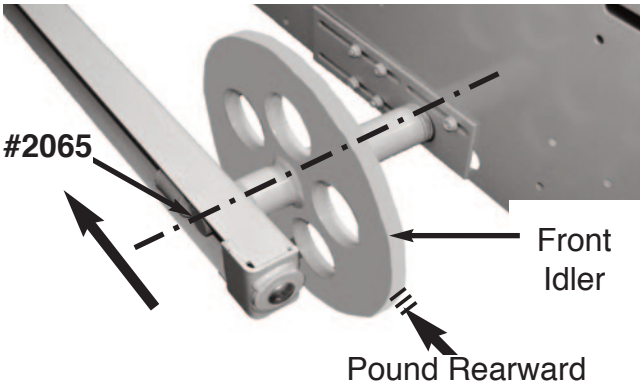
Step 4: Using a cordless impact driver or ratchet with 3/4" socket and 3/4" wrench, now loosen the **"Inner Welded" Nuts on both sides of the machine,** approx. half-way down the threads. See below.



Step 5: Now work **back to the outside of the machine.** Using a cordless impact driver or ratchet with 3/4" socket and 3/4" wrench, loosen **"Outer" nuts on both sides of the machine** until they are at the end of the threads, but still on the bolts. See top picture, above.

Step 6: Now work **back to the inside of the machine.** Using a cordless impact driver or ratchet with 3/4" socket and 3/4" wrench, loosen **"Inner Welded" nuts on both sides of the machine** until they are at the end of the threads, but still on the bolts. See bottom picture, above.

Step 7: To ensure that both Front Idlers (on each side) have moved rearward, using a mallet, pound on each track & front idler in the area shown below. Do this to both sides. See the picture at the top of the next column. Your front idlers should have moved rearward during Steps 1-7.



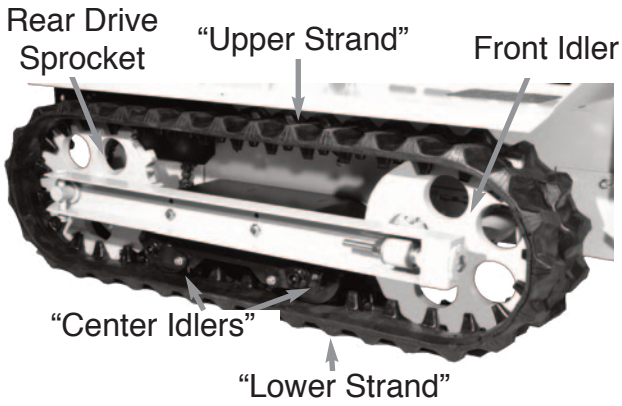
Both tracks should now be loosened. To remove your tracks, continue onto the next section below.

REMOVING THE RUBBER TRACKS

Before attempting to remove the tracks, see the picture below to provide background on how the total Rubber Track System is adjusted and maintained. Follow the procedure for loosening the tracks from the previous pages prior to following these instructions.

Below is a photo to aid you in parts identification as you read the following procedures. For clarity, only the parts described in the instructions are included in the drawings and photos. In some cases, to lessen confusion, certain parts do not appear in the following photos.

Note: Front idlers may vary in design. The track removing procedure is still the same.



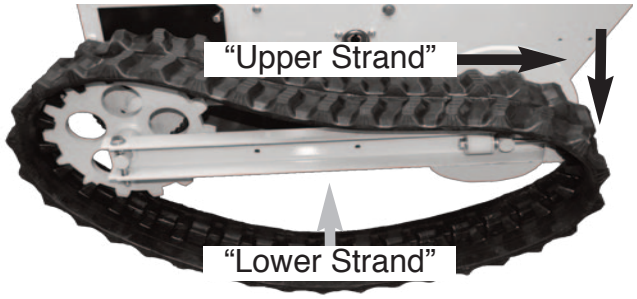
CAUTION: When working with the Rubber Tracks, you will be dealing with some significant weight and lifting situations. Though the Crawler can be successfully "blocked up" off the ground and the Rubber Tracks removed and replaced by a single person, it's advisable to have an able-bodied "helper" available for both assistance and safety.

TIPS: Realize that the more you can lift & support the "Lower Strand" of each Track, the more slack you will have in the "Upper Strand" of the Track to work with. If working without a helper, lay & stack 2x4s on the ground to lift & support the "Lower Strand".

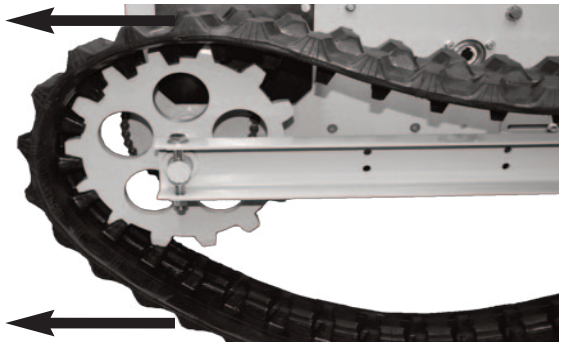
Step 1: Follow the **"LOOSENING THE TRACKS"** Procedure from **pages 48 & 49, then come back to Step 2 below.**

Step 2: With gloved hands, have Person #1, begin to rotate the **"Upper Strand" forward & lift upward**. Have Person #2, continue to support the **"Lower Strand" by lifting upward**. If having a second person is not possible, continue to support the "Lower Strand" by 2x4s. Continue working until tracks have come **"Up & Over" the front idler,** and look like the picture below.

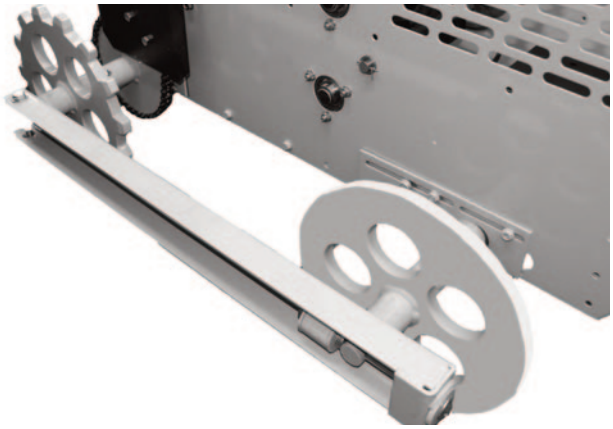
WARNING: Do not start the unit, allow anyone to sit on the tractor seat and move the drive handles forward, while your hands are located in the track system! Sever injury or even death can ocurr!



Step 3: Pulling rearward on the Track will allow you to now loop the Track off the Rear Drive Sprocket allowing complete Track removal. **See picture on the top of next column.**



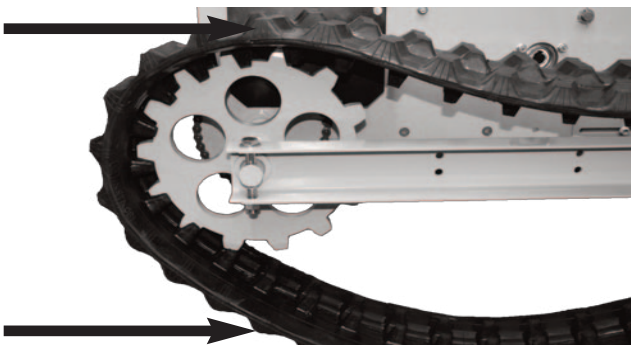
Once the track is removed, your crawler track system should now look like the following picture. **Note: Center idlers not shown for clarity. See next section below if replacing tracks, or if your tracks have derailed.**



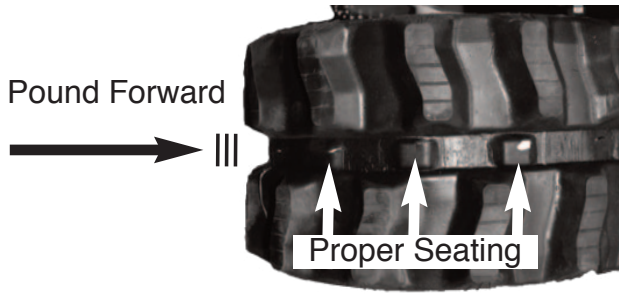
RUBBER TRACK REPLACEMENT

Prior to completing the section below, make sure you complete both the **"LOOSENING THE TRACKS"** and the **"REMOVING THE TRACKS"** procedures listed on pages: 48-50.

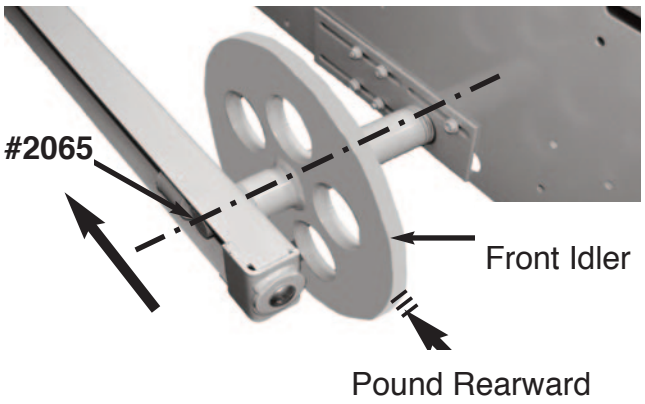
Note: You can start with the front idler instead of the rear drive. We started with the rear drive in the steps that follow.



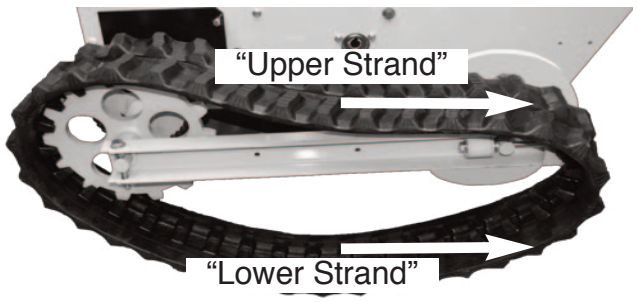
Step 1: Slip the rearward end of Track around the Sprocket of the Rear Drive. Rotate the rubber track slightly to mate up the rear drive sprocket teeth with the mating sprocket holes in the track. Once lined up, gently pound forward on the sprocket tooth. The sprocket teeth should be "seated" in the track. **See picture below. for proper "track seating".**



Step 2: Once happy with the proper "seating", double check that **your front idler is all the way rearward before attempting to attach track onto front idler.** See Step 7 on page 49.

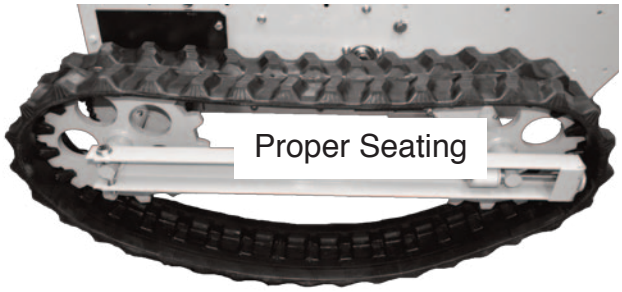


Step 3: Once happy with the proper "seating" of the rear drive track sprocket, and that your front idler is all the way rearward, loop the forward end of the Track around the Front Idler. See below.



NOTE: Realize that the more you can support the "lower strand" of each Track, the more slack you will have in the "upper strand" of the Track to work with! TIP: Lay & stack 2x4s on the ground to support the "lower strand".

Step 4: The front idler and/or tracks may have to be rotated to ensure the "front idler" sits between the **"inside guidance rails"** of the track. Your front idler and rear drive sprockets should be properly "seated" as shown below. If you have questions please call the factory and ask to speak with a struck technician regarding any additional questions or concerns that you may have. Once happy with the track "seating", please repeat these steps for the other side of the crawler. **Tracks properly "seated", but still loose, shown below.**



RUBBER TRACK TENSIONING

Do a thorough washing and cleaning of the track system with a powerwasher.

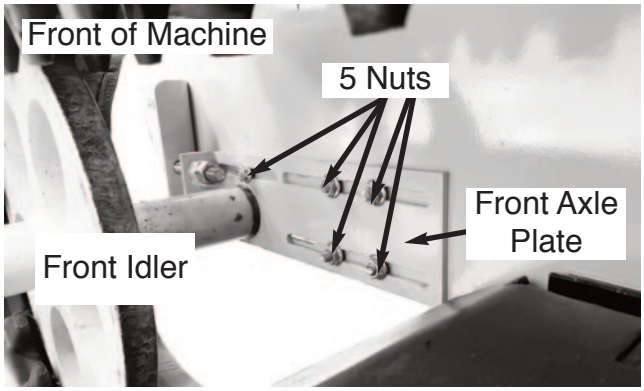
Begin your track tensioning procedure by driving Crawler onto a firm, level surface. Shut off Engine and dismount...do not "engage" Parking Brake Lever. From below, support body of Crawler so the Tracks clear the ground by approximately 2" and are free to rotate...make sure the Brake is disengaged at this time.

Use solid blocking, place it under the Crawler's Body per **"Safe Blocking Diagram"** in front section of this Manual. It will give the Crawler the greatest support left to right and front to rear.

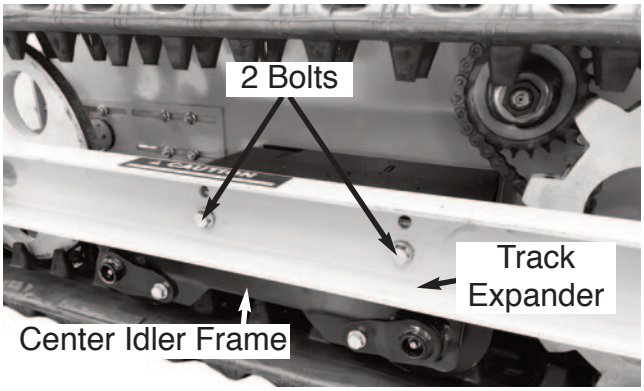
Understanding the Task: If your tracks are sagging in the middle, or have derailed. The tracks need to be tensioned. This is accomplished by tightening the 4 tension bolts and moving the **#2065 Front Axle** forward. This is accomplished by the following procedure.

Open Hood and swing fully forward; remove #1688 Seat Pin. Remove Seat & Bracket, Arm Rests and Rear Cover.

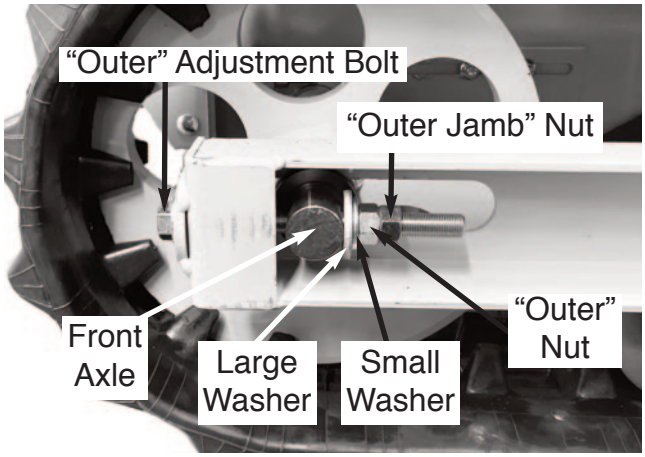
Step 1: From "outside" the Crawler's body, loosen (but do not remove) the five nuts on each Front Axle Plate. Do the same for both sides of the tractor. See below.

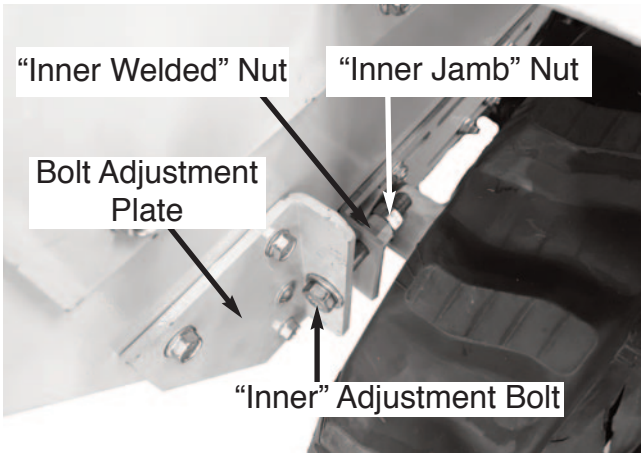


Step 2: Loosen the 2 bolts that connect the "center idler frame" to the "track expander." Do the same to both sides of the tractor. (If installed on your machine.) See below.



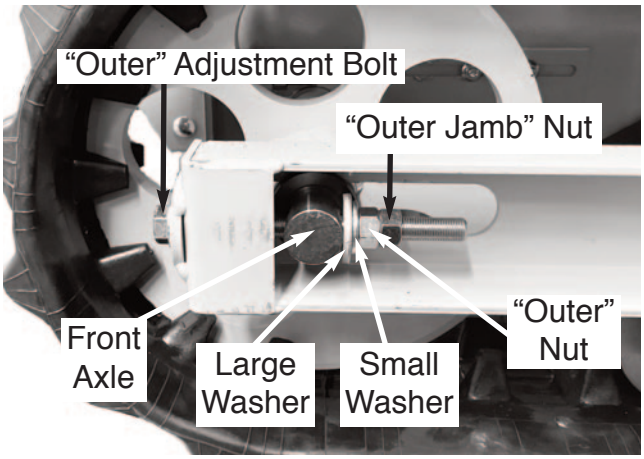
Step 3: Using a cordless impact driver or ratchet with 3/4" socket and 3/4" wrench, loosen and remove the **"Inner & Outer Jamb" nuts on both sides of the machine**. (A total of 4). See the picture below & the top of the next column.



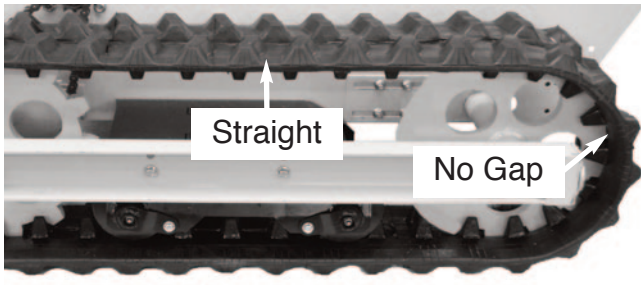


Step 4: Using a cordless impact driver or ratchet with 3/4" socket and 3/4" wrench, now tighten the **"Inner Adjustment Bolt" on both sides of the machine,** approx. turning the bolt 5 times. See above. (Do both Inner bolts).

Step 5: Now work **back to the outside of the machine.** Using a cordless impact driver or ratchet with 3/4" socket and 3/4" wrench, tighten **"Outer Adjustment Bolt" on both sides of the machine** approx. turning the bolt 5 times. See picture, below. (Do both outer bolts).



Step 6: Keep working back and forth until **both tracks** are as tight. "Upper Strand" should be straight, and there should be **NO GAP** between the "Front Idler" and the Rubber Tracks.

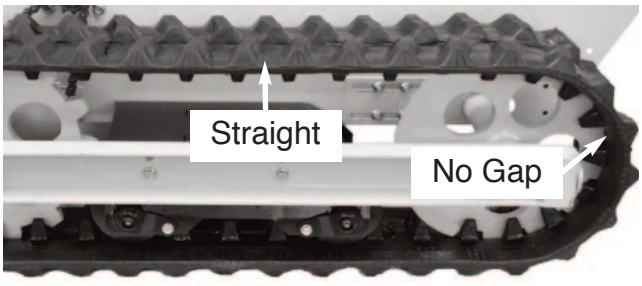


Step 7: On the **Right Side** of the machine, lay a **3 ft. straight edge** accross the “Outside Face” of the “Rear Drive Sprocket” and the “Front Idler”.

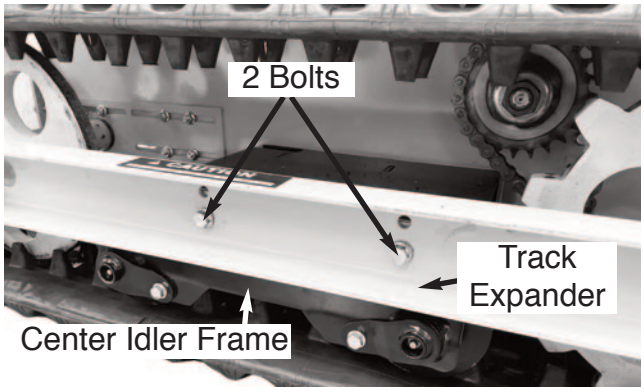
Step 8: Adjust **“Inner” & “Outer” Adjustment Bolts on right side of the machine**, until straight edge lays flat on both “Outside Faces.” **(See adjustment bolt pictures from steps 4 & 5).**

Step 9: Now move to the **Left Side** of the machine, and adjust **“Inner” & “Outer” Adjustment Bolts**, until straight edge lays flat on both “Outside Faces.”

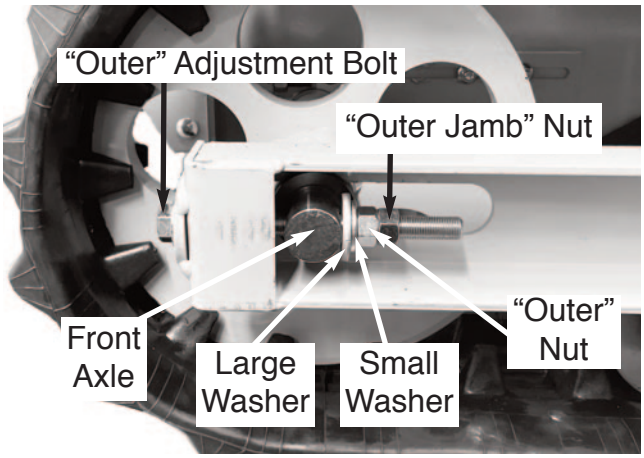
Step 10: Double check the “Upper Strands” are still straight, and there are **NO GAPS** between the “Front Idlers” and the Rubber Tracks, **on both sides.**

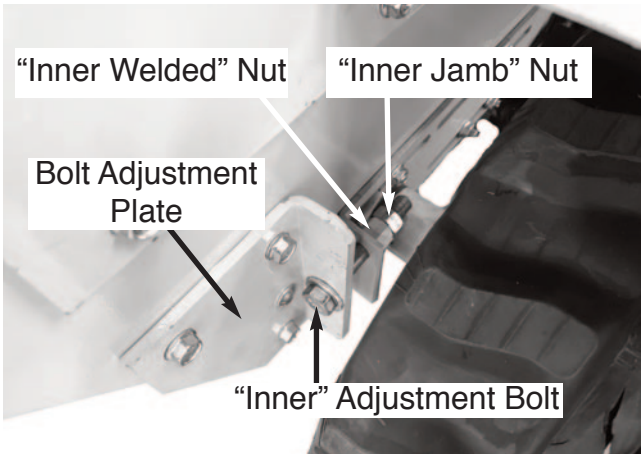


Step 11: Tighten the 2 bolts that connect the “center idler frame” to the “track expander.” Do the same to both sides of the tractor. (If installed on your machine.) See picture in the next column.

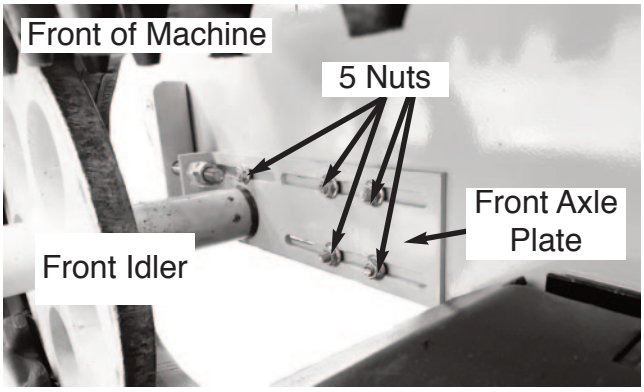


Step 12: Hand thread, then using a cordless impact driver or ratchet with 3/4” socket and 3/4” wrench, tighten the **“Inner & Outer Jamb” nuts on both sides of the machine**. (A total of 4). See the two pictures below.





Step 13: From “outside” the Crawler’s body, tighten the five nuts on each Front Axle Plate. Do the same for both sides of the tractor. See the picture at the top left of the next page.



Step 14: Your tensioning procedure should now be complete.

CAUTION: Lower the machine down to the ground safely, making sure no by-standers are in the area. Take care that none of your extremeties are below any part of the tractor.

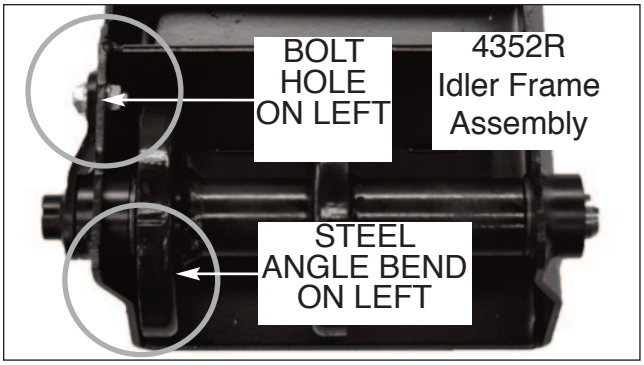
Test drive the machine in a well ventilated area, and make any needed adjustments.

CENTER IDLER SYSTEM

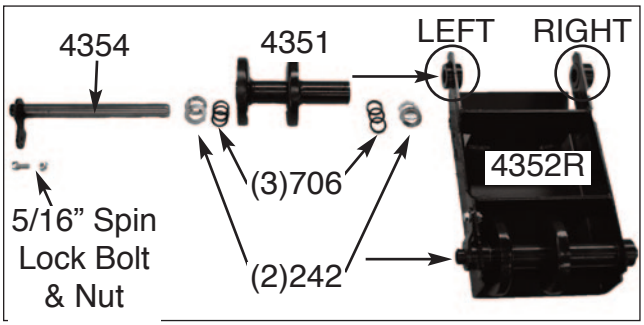
If you purchased a Center Idler System Upgrade from the factory, both idlers and greasable axles on each side of the machine, have been fully assembled and lubicated at the factory. The following steps are for customers that have added center idlers at a later date.

TIPS: Prior to installing your center idler system, onto each side of your tractor. **You'll need to pre-assemble your #4352 L&R Idler Frame and Idlers.** Although, this creates more weight to lift in the assembly, this does make the process easier. We also advise to follow the procedure for loosneing your tracks shown on pages 48 & 49 prior to starting this process. This makes access to the area, much easier.

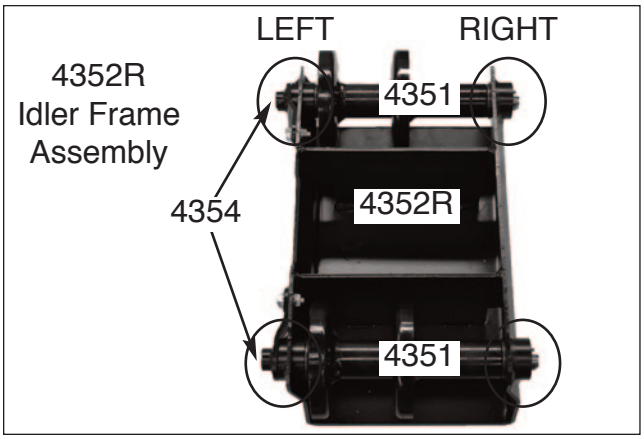
Step 1: Identify the #4352R and #4352L Idler Frames by placing them upside down as shown in the next picture. The *bolt hole* and the *steel angle bend* should be on the LEFT side for the #4352R Idler Frame and on the RIGHT side for the #4352L Idler Frame.



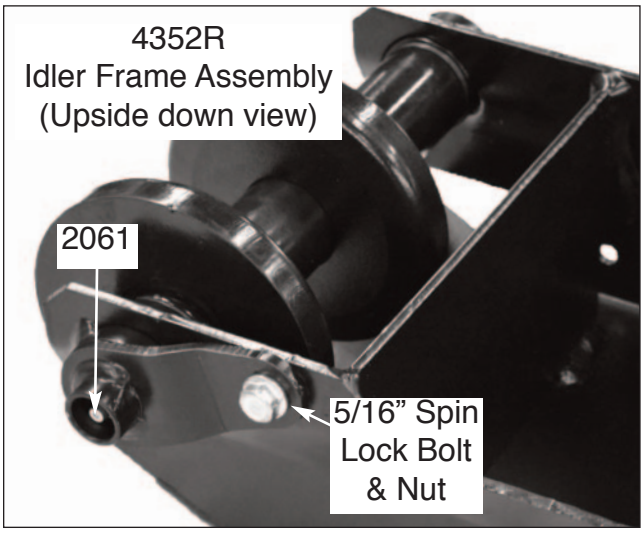
Step 2: Install (3) #706 O-rings into each side of the #4351 Idler. The O-rings should rest against the inside brass bushing. (See picture below). **Note: Lubricating these O-rings with a light coating of motor oil or another lubrication will help in the assembly process.** Do the same to the other #4351 idlers. (You should be using 6 O-rings per each idler. 3 for each side.)



Step 3: Take a #4354 Center Axle and slide it through the LEFT collar as shown below. Next, add (2) #242 Shim Washers, then slide your axle through the #4351 Idler, then add 2 more #242 Shim washers on the other side of the Idler. Double check that your #706 O-rings are still in place.

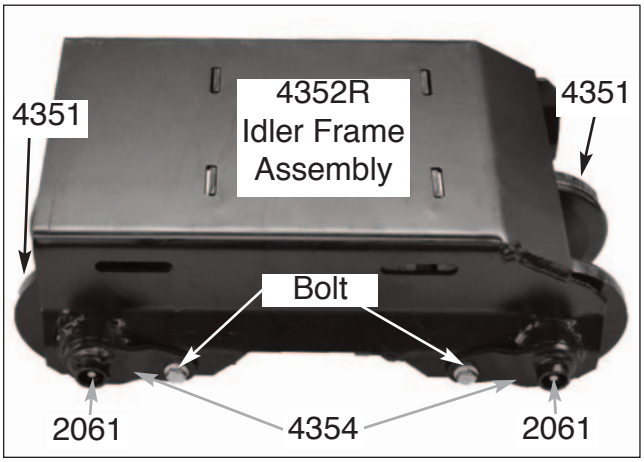


Step 4: Slide the remaining end of the #4354 Center Axle through the RIGHT collar. Push through fully. Do the same process to the other 3 sets of #4354 Center Axles and #4351 Idlers.

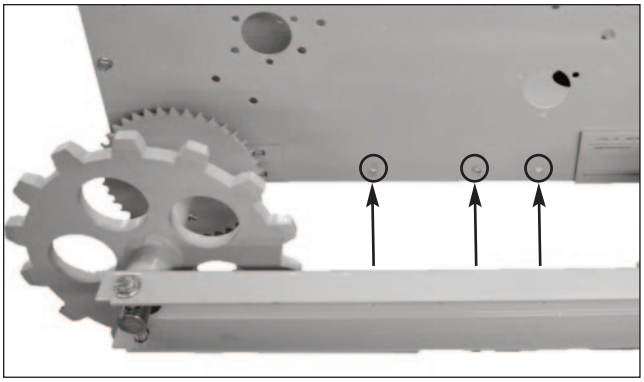


Step 5: Secure #4354 Center Axles with (1) 5/16"-18 x 1 1/4" Spin Lock Bolt and (1) 5/16"-18 Spin Lock Nut...tighten. Insert a #2061 Grease Fitting into end of each #4354 Center Axle...tighten. **Do the same process to the other 3 sets of #4354 Center Axles & #4351 Idlers.** See picture above.

Once assembly is complete, flip over your #4352 L & R Idler Frame Assemblies. They should look like the below picture. **Note: The #4352R Idler Frame Assembly is shown below.**



Step 6: Remove the (3) bolts *from each side* of the body, for later re-assembly. **See picture in the next column.**

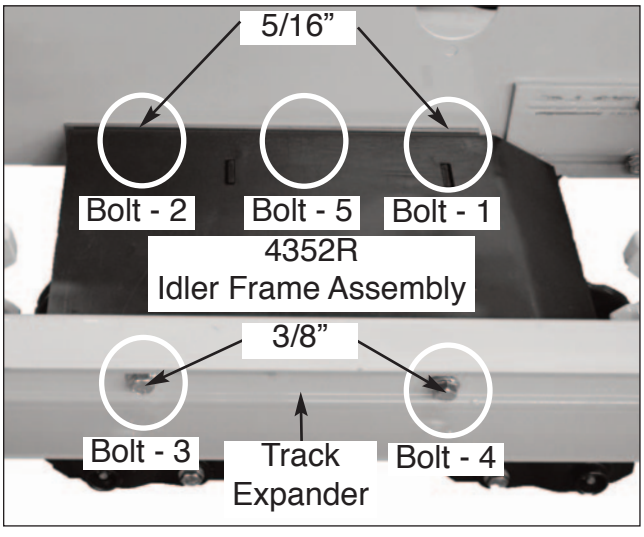


For the next steps, **Bolts 1, 2 and 5** are the **5/16" Bolts** and nuts that you removed from your body wall above. **Bolts 3 and 4** are new **3/8" Bolts** and Nuts. Having a helper available in this process to hold the assembly up and spin on the nuts will make the process much easier.

Step 7: Loosely, attach **Bolt - 1** through the #4352R Idler Frame Assembly, then through the body wall. Attach a **5/16" Nut** to the inside of the body wall. See picture below.

Step 8: Loosely, attach **Bolt - 2** through the #4352R Idler Frame Assembly, then through the bodywall. Attach a **5/16" Nut** to the inside of the body wall. See picture below.

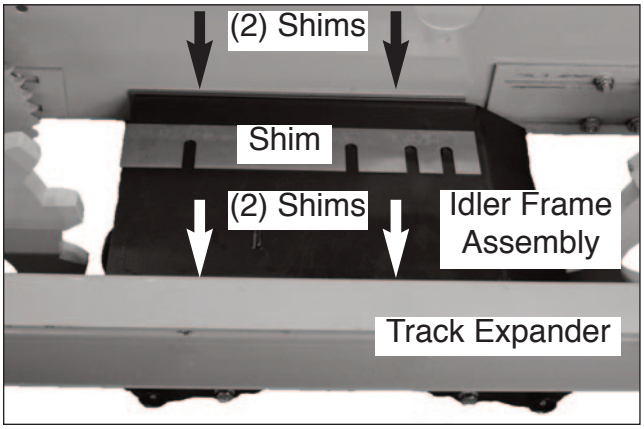
Step 9: Loosely, attach **Bolt - 3 & Bolt 4** through the **LOWER HOLES** on the Track Expander, then through the #4352R Idler Frame Assembly. Attach a **3/8" Nut** to the inside of the #4352R Idler Frame Assembly. See below.



Step 10: Loosely, attach **Bolt - 5** through the #4352R Idler Frame Assembly, then through the bodywall. Attach a 5/16" Nut to the inside of the body wall. See previous picture.

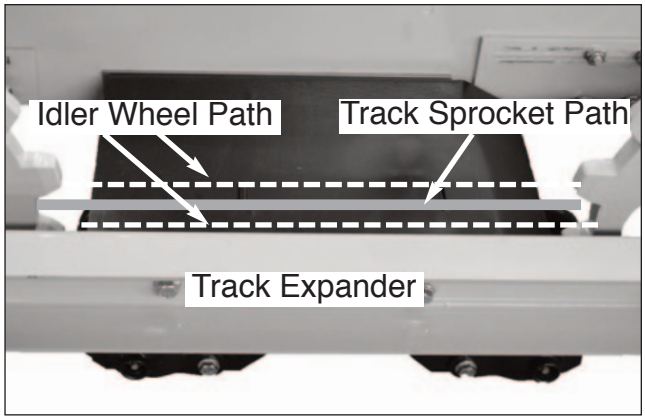
All bolts should be loose at this time. **Repeat Steps 6-10** to the other side of the tractor, using the #4352L Idler Frame Assembly.

Step 11: Drop in from above, (2) #4353 Shims **between the #4352R Idler Frame Assembly and the right body wall.** Making sure the openings are towards the bottom of the shims when dropping them in. Shims are slotted, to allow for bolt clearance. See picture below.



Step 12: Drop in from above, (2) #4353 Shims **between the Track Expander and the #4352R Idler Frame Assembly.** Making sure the openings are towards the bottom of the shims when dropping them in. See picture above.

Step 13: Drop in from above, additional #4353 Shims **on both sides, to allow approx. equal spacing between track sprocket path an idler wheel path.** Tap shims gently with hammer to allow them to "be seated". Don't force excessive amount of shims. See picture on the top of the next column.



Step 14: Once happy with the spacing, make sure to tighten all 5/16" and 3/8" Bolts and Nuts. **Repeat Steps 11-14 for the opposite side of the tractor.**

If you loosened your tracks to gain greater access to the area, please refer back to page 51 - 54 to tension your tracks.

8- TROUBLESHOOTING

Below are tips and guidelines for troubleshooting some problems or concerns, which may occur during the life of your equipment. Should these guidelines not solve a problem, please contact the factory for further instruction.

NOTE: In many cases, problems with a transaxle are not related to a defective transaxle, but are caused by a slipping drive belt, partially engaged bypass valves, and loose or damaged control linkages. Be sure to perform all operational checks and adjustments outlined in the Service & Maintenance section of the Transaxle Manual, before assuming the transaxle is malfunctioning.

WARNING! Do not attempt any servicing or adjustments on the transaxles or drive belt with the engine running. Use extreme caution while inspecting the drive belt assembly and all MAGNATRAC linkage!

Engine won't crank.

- There are **2 electrical safety switches** on every MAGNATRAC **(seat safety switch & brake safety switch).** If the safety switches are not in contact; the switches will prevent the engine from cranking. Make sure you are sitting on the seat and that the parking brake is engaged, (on top of the bolt).
- With a continuity tester verify that the Brake safety switch is operating properly.
- Check to see if the solenoid is working. When you turn the key from run to off position you should hear a clicking sound. Have another person listen while an operator tries to start the unit.
- Check fuse in wiring harness.
- Verify that the wiring is in good condition.

Engine cranks but won't start, or starts and stops running right away.

- Make sure the fuel shut-off is turned "on."
- Verify the battery is fully charged & that wire connections to the battery are tight.
- Verify seat safety switch is being engaged and operating properly. The connection may be loose.
- Verify there is adequate fuel & that the fuel filter is in good condition.
- Replace with new fuel.
- Carburetor may be clogged.

Engine dies when not in the seat.

- This is a normal operating characteristic to safeguard against accidental engagement of the tractor and/or attachments while not properly located in the operator's seat.
- If the engine dies continuously, check the wire connections and verify wires are not frayed or damaged.

WARNING! Do not bypass this safety feature by completing the wire circuit, or by addding weight to your seat!

Hydraulic attachments Behave erratically.

- Verify hydraulic fluid level is showing in the oil sight window. Low fluid levels can result in air intake to the hydraulic attachment system, which can result in erratic operating characteristics.
- Verify the suction lines are properly secured. Loose suction lines can result in air intake and erratic operation.
- Check tension and condition of drive belt.

One cylinder function of an attachment is not responding.

- A non-functioning cylinder can result from either a problem with the cylinder, or the valve section operating the cylinder. To test, take the two hoses of the non-functioning cylinder and switch their connection at the operating valve with those of the adjacent valve section.

- If the non-functioning cylinder continues to not operate, the cylinder is faulty.
- Should the cylinder now work, but the cylinder of the control that was switched stops working problem lies in the valve section.
- Contact the factory for details.

MAGNATRAC is stuck.

- Use the hydraulic down pressure of the at tachments to loosen the tracks. Call the fac tory with any questions.
- To tow the MAGNATRAC at a maximum of 2 m.p.h. without starting the engine: Lower all attachments so that they are **just above the ground**. WE NEVER ADVISE TO PUSH! See instructions below.

  1. Make sure the parking brake is disengaged.

  2. Loosen & remove threaded balls on the end of the left & right track drive handles.

  3. Loosen and remove black threaded knobs of the hood and the seat cover. Ro tate hood upward and remove seat and rear cover assembly.

  4. Actuate both the left & right bypass mechanisms. See warning below. See Service Section of this manual.

WARNING! Actuating the bypass will result in the loss of hydrostatic braking capacity. The machine must be stationary, on a level surface and in neutral when actuating the bypass.

No power to hydraulic attachments.

- Check the condition of the drive/attachment pump belt, located under the engine. Tension or replace. See Service section of this manual.

Hydraulic oil is overflowing from the oil breather.

- Check the level of the oil in hydraulic tank, level when full should be showing on the oil sight window.
- Check the rating of your 3rd party attachment that may be connected. Call the factory with questions.

MAGNATRAC has no or little power.

- Verify engine throttle is adequate. > Check the throttle/choke connection.
- Verify there are not external loads draining engine power.
- Check the condition of the engine drive belt and/or pulley, it may need to be tensioned or replaced if broken. (See the Service section of this manual).
- Control linkage of the transaxle is bent, or out of adjustment. > Repair or replace linkage, see page 9 of transaxle manual.
- Brake partially engaged. > Disengage brake, replace broken or missing return spring.
- Transaxle oil level low or contaminated. > Fill to proper level when cold or change transaxle oil. See transaxle manual, page 11.
- Transaxle bypass assembly sticking. Repair or replace linkage. See transaxle manual, page 9.
- Air trapped in transaxle hydraulic system. > Purge transaxle hydraulic system. See page 12 in Transaxle Manual.

- Brake partially engaged. > Disengage brake, replace broken or missing return spring.

MAGNATRAC does not drive/track straight.

- Due to normal inefficiencies in adjust handles, each track must be individually controlled to achieve a straight travel path. Operating both drive handles equal distance will naturally result in a “slightly” curved travel path.

- Transaxle Control linkage is bent, or out of adjustment. > Repair or replace linkage, see page 9 & 13 of transaxle manual.
- Transaxle bypass assembly sticking. > Repair or replace bypass. See transaxle manual, page 29.
- Brake partially engaged. > Disengage brake, replace broken or missing brake return spring.

MAGNATRAC operates in one direction only.

- Transaxle control linkage bent or out of adjustment. > Repair or replace linkage, see page 9 of transaxle manual.
- Drive belt slipping or pulley damaged. > Repair or replace drive belt or pulley, page 9.

Transaxle is noisy

- Oil level low or contaminated. > FIll to proper level or change oil. Page 11 of Transaxle Manual.
- Excessive loading. > Reduce Vehicle Loading. Page 9 of the transaxle manual.
- Loose parts. > Repair or replace loose parts.
- Bypass assembly sticking. > Repair or replace linkage, page 9 of the transaxle manual.
- Air trapped in hydraulic system. > Purge hydraulic system, page 12 of the transaxle manual.
- Brake partially engaged. > Disengage brake, replace broken or missing brake return spring.

Transaxle is operating hot

- Debris built up around transaxle. > Clean off debris. Page 20 of Transaxle Manual.
- Cooling fan damaged. Repair or replace cooling fan, pages 22-24 of transaxle manual.
- Oil level low or contaminated. > Fill to proper level or change oil, page 11 of transaxle manual.
- Excessive loading. > Reduce vehicle loading, page 9 of the transaxle manual.
- Air trapped in hydraulic system. > Purge hydraulic system, page 12 of the transaxle manual.
- Brake partially engaged. > Disengage brake, replace broken or missing brake return spring.

Transaxle leaks oil

- Damaged seals, housing or gaskets. > Replace damaged components.
- Air trapped in hydraulic system. > Purge hydraulic system, page 12 of the transaxle manual.

9- SAFETY & WORK PROCEDURES FOR THE MAGNATRAC

The following material is designed to familiarize you with the basic characteristics of a MAGNATRAC (tracked Vehicle). Its purpose is to teach you how a MAGNATRAC responds in comparison to the more familiar wheeled tractors. In addition, it outlines safe and efficient work procedures for a compact crawler tractor equipped with optional attachments (loaders, backhoes, blades, etc.)

Each MAGNATRAC operator encounters dramatically different working conditions than another. For this reason the following drawings and descriptions are general in nature. They illustrate general points rather than details which may apply to only one operator's working conditions. You are encouraged to contact the factory at anytime for help or advice for any job you have in mind.

A tracked Vehicle, by its very nature, requires the use of operating techniques and procedures that are unfamiliar to most people used to driving wheeled vehicles.

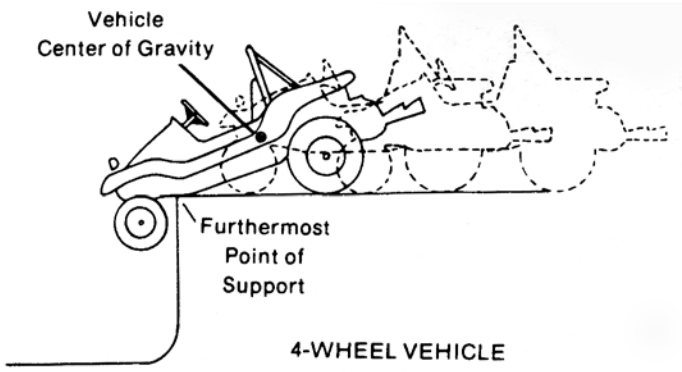
This means that a person intending to operate a Tracked Vehicle must allow himself ample opportunity to familiarize himself with the controls and characteristics of the machine.

It is the purpose of this booklet to inform and instruct prospective Track Vehicle operators in an effort to help them use it safely.

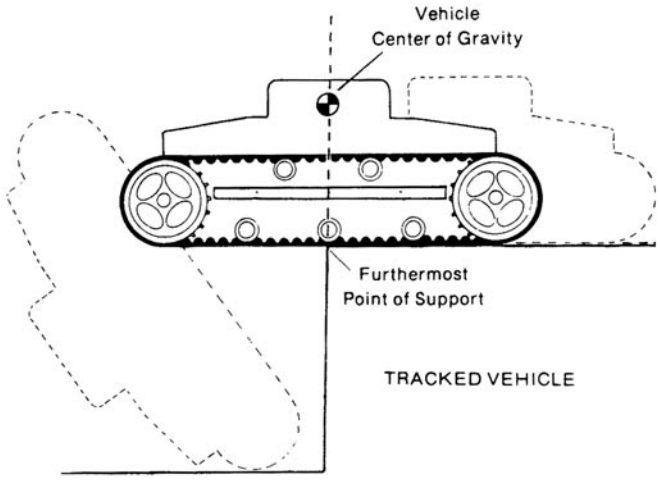
SAFETY WARNING: NO PERSON SHOULD ATTEMPT TO OPERATE A TRACKED VEHICLE BEFORE READING THIS BOOKLET THOROUGHLY. IF ANY PORTION OF THIS BOOKLET IS NOT CLEARLY UNDERSTOOD, WRITE TO US AT THE ADDRESS ON THE FRONT COVER.

TRACKED VEHICLE CHARACTERISTICS

Tracked vehicles possess certain inherent features not found on standard four-wheel vehicles. For instance, a standard vehicle will hit bottom when the wheels on either end are driven over a drop-off. In most cases this will stop vehicle motion and give immediate warning.

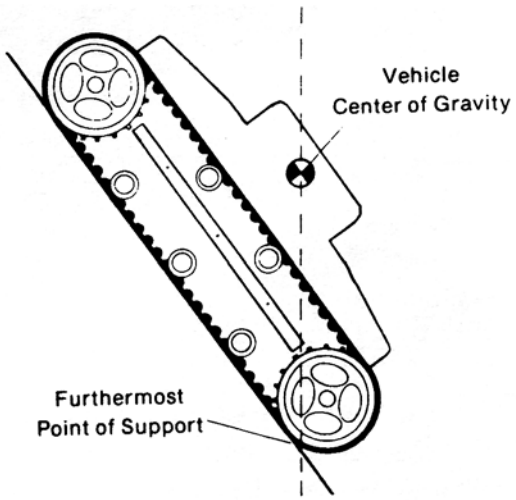


A tracked Vehicle, however will continue on without any warning until its center of gravity passes across an imaginary line drawn straight up from the furthermost point of support with ground. It will drop SUDDENLY. (See illustration upper right). THIS WILL HAPPEN EVEN AT THE VERY SLOWEST SPEEDS.



SAFETY WARNING: ANYTIME A PORTION OF THE TRACK IS NOT IN CONTACT WITH THE GROUND, STABILITY IS REDUCED. NEVER ATTEMPT TO 'JUMP' A TRACKED VEHICLE OVER DROP-OFFS, HILL CRESTS, OR OTHER OBSTACLES. THIS CAN BE EXTREMELY HAZARDOUS.

A Tracked Vehicle can climb or descend steep slopes, so steep in fact that the vehicle can tip over forward or backward, before it loses traction.



Tipover occurs when the Vehicle's center of gravity passes across an imaginary line drawn straight up from the furthermost point of support with ground.

When the vehicle's center of gravity passes this point, the vehicle will tip over SUDDENLY.

TRACKED VEHICLE OPERATION

A Tracked Vehicle, by its very nature, is a vehicle requiring a great degree of care and judgment during operation. It should be kept in mind that while your Tracked Vehicle is designed to operate in rough terrain, this same fact allows for the possibility of a hazardous condition developing at any time. Safe operation of your Tracked Vehicle must be based on the understanding of the vehicle's limitations, thorough knowledge of the controls and their functions, and the operator's good judgment and experience.

SAFETY WARNING: WHERE THE OPERATOR IS NOT CERTAIN OF THE VEHICLE'S ABILITY TO TRAVERSE AN OBSTACLE OR TERRAIN SITUATION, OR, IS NOT CERTAIN OF HIS OWN ABILITY TO SAFELY OPERATE THE VEHICLE, AN ALTERNATE ROUTE MUST BE TAKEN.

OPERATION ON SLOPES

Tracked Vehicle operation on slopes presents an obvious opportunity for the vehicle to tip over. This type of operation demands constant attention to changes in terrain and the ability to anticipate and avoid possible hazards.

This ability can only be developed through careful study of the points noted in this section and a slow, planned effort on the operator's part to become proficient.

The most effective guard against hazards while operating on slopes, especially during downhill operation is to keep vehicle speed very slow.

SAFETY WARNING: WHEN OPERATING ON SLOPES VEHICLE SPEED SHOULD BE KEPT VERY SLOW AND THE OPERATOR SHOULD BE EXTREMELY ALERT FOR CHANGES IN TERRAIN.

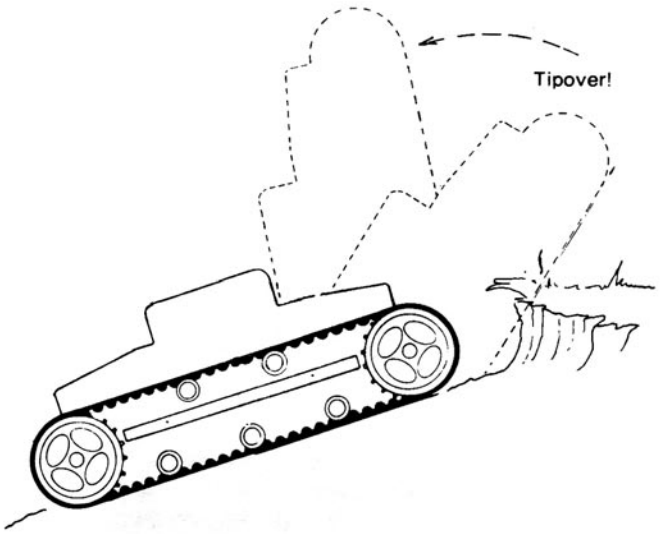
Vehicle stability on a hill, for example, is determined not only by the general slope of the hill but also by terrain conditions (rocks, ditches,, logs, drop-offs, etc.) and by the nature of the hill surface (gravel, sand, grass, snow, rock, etc.), the payload which the vehicle is carrying, the manner in which the payload is distributed within the vehicle, attachments and accessories which have been added to the vehicle, and so forth.

Similarly, driving technique and its effect on vehicle stability enters into any determination of what constitutes a safe slope. Excessive speed, sudden braking, choice of path - all can be critical.

UPHILL OPERATION

The following illustrations depict some situations in which a Tracked Vehicle can be expected to tip over. Variations in speed, loading, terrain and vehicle condition must all be analyzed to determine whether or not a specific obstacle can be traversed. If in doubt, do not attempt.

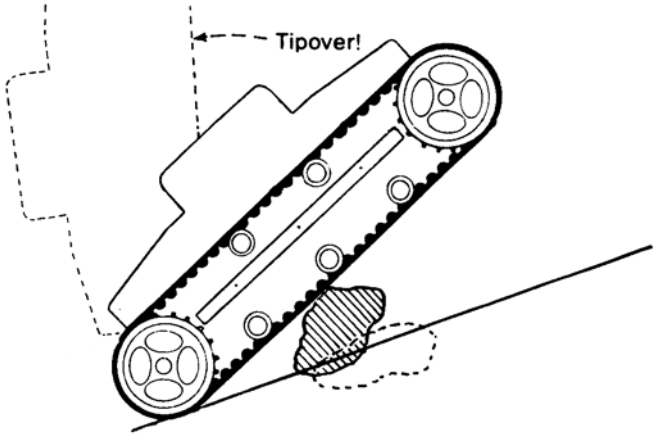
SAFETY WARNING: ON STEEPER SLOPES SMALLER OBSTACLES WILL CAUSE A TRACKED VEHICLE TO TIP OVER.



It is common to see a situation where a natural erosion has caused the very top of a bank or hill to rise sharply. Always check for this condition before attempting to climb any such type of terrain. A Tracked Vehicle could climb up to a point at which it falls over backward.

It is also very important to check for this terrain condition before going down over the edge of a bank or dropoff.

The same situation can occur where an embedded object is pulled from the ground. The vehicle track may 'grab' a rock or log. As the object emerges from the ground, rolling under the track, the vehicle could climb to the point at which it falls over backward.

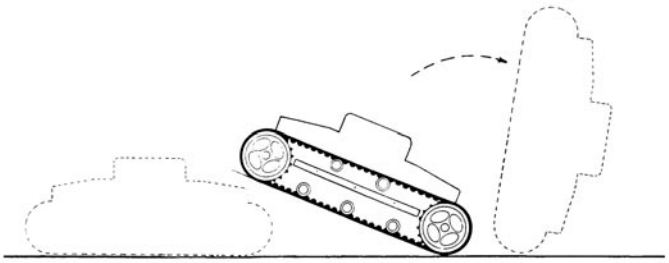


DOWNHILL OPERATION

SUDDEN STOPS

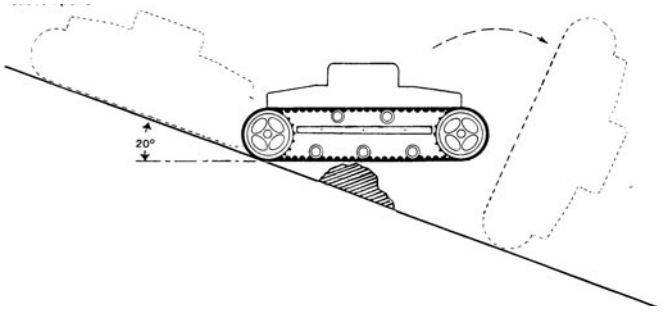
If a Tracked Vehicle is driven down a slope and the tracks are stopped suddenly, the vehicle's exceptional traction may cause it to tip over forward.

SAFETY WARNING: IF VEHICLE MOTION IS ABRUPTLY DECREASED OR STOPPED, A TRACKED VEHICLE CAN TIP OVER FORWARD. THIS POSSIBILITY BECOMES GREATER AS THE VEHICLE SPEED AND/OR DOWN SLOPE INCREASES.



CROSSING OVER AN OBJECT

This illustration is drawn to depict an obstacle situation in which a Tracked Vehicle can be expected to tip over. Variations likely to occur in natural terrain, the approach to the obstacle, operator skill and loading of a Tracked Vehicle may reduce the size of obstacle or steepness of the slop required, which could cause tipover.



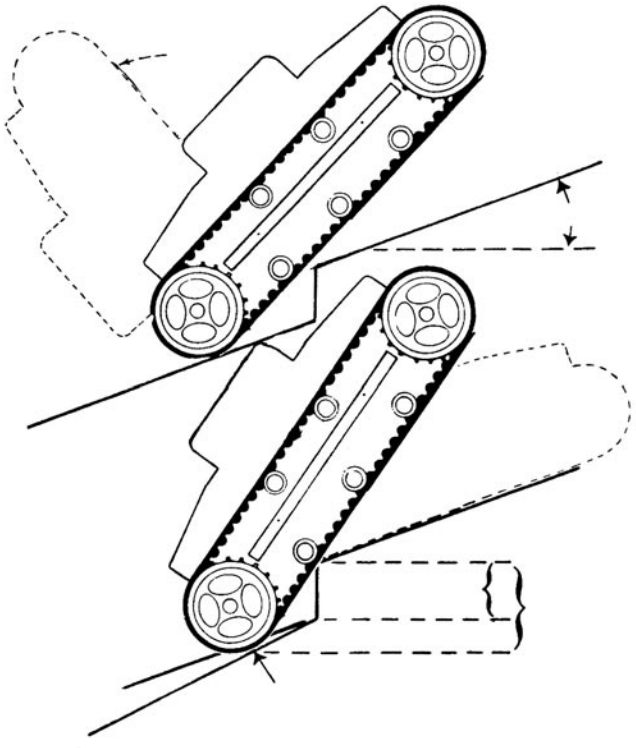
SAFETY WARNING: IF THE VEHICLE'S CENTER OF GRAVITY PASSES THE POINT OF SUPPORT, A TRACKED VEHICLE WILL BEGIN TO TIP. UNLESS THE TERRAIN ON THE DOWNSIDE OF THE OBJECT PROVIDES A NEW POINT OF SUPPORT, FAR ENOUGH AHEAD OF THE VEHICLE CENTER OF GRAVITY TO NEGATE THE EFFECT OF INERTIA, A TRACKED VEHICLE WILL TIP OVER FORWARD.

SAFETY WARNING: ON STEEPER SLOPES, SMALLER OBSTACLES WILL CAUSE A TRACKED VEHICLE TO TIP OVER.

SAFETY WANING: OBSTACLES, SOME OF WHICH MIGHT BE DRIVEN OVER SAFELY WHILE ON LEVEL TERRAIN, CAN CAUSE A HAZARD WHILE OPERATING ON SLOPES.

DROPOFFS

This illustration is drawn to depict a dropoff situation in which a Tracked Vehicle can be expected to flip. Variations occurring in natural terrain, the approach to the obstacle, operator skill, and loading of a Tracked Vehicle may reduce the size of the dropoff or the steepness of the slope, which could cause tipover.



SAFETY WARNING: A TRACKED VEHICLE MUST BE OPERATED WITH GREAT CARE AT ALL TIMES AND ON ANY SLOPE. SLOPES STEEPER THAN 20° SHOULD BE REGARDED AS ULTRA-HAZARDOUS AND APPROACHED WITH EXTREME CAUTION. EVEN ON SLOPES OF LESS THAN 20°, A TRACKED VEHICLE CAN BE TIPPED OVER BY A SUDDEN STOP, EXCESSIVE SPEED, UNEVEN TERRAIN, OR OTHER SPECIAL CONDITIONS OR COMBINATIONS OF SUCH CONDITIONS.

An important variable in determining if a give obstacle will cause a Tracked Vehicle to tip over is the vertical distance between the last point of contact and the new point of support. Note that the new point of support can be on level ground, a downhill slope, or a steeper downhill slope. The apparent size of the obstacle or dropoff is not the same as the drop it causes. Among the many other vari-

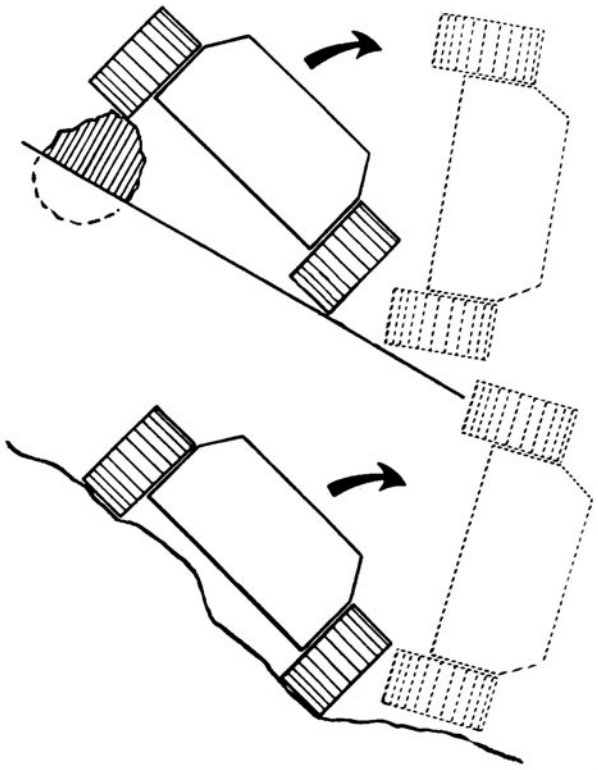
ables are the steepness of the slopes, size of the obstacle causing the drop, the shape of the last point of support, the load on the Tracked Vehicle, initial speed, tightness of the track, traction, symmetry of the obstacle to the Tracked Vehicle and operator skill and judgment.

SIDEHILL OPERATION

The illustrations show how driving over an obstacle withe the uphill track or into a hole with the downhill track will cause the vehicle to tip over sideways.

A slippery surface, like snow, ice, frozen sand, and loose gravel can also be dangerous. It is possible to slide into a tree or rock or to slide off the edge of a cliff.

SAFETY WARNING: REGARD ALL OPERATIONS ON SLOPING TERRAIN AS HAZARDOUS.



PARKING THE VEHICLE

When a Tracked Vehicle is parked on a sufficient slope, failure to engage the parking brake, or failure of the parking brake to function properly-can result in the vehicle rolling down the slope, out of control.

OPERATING SAFETY PRECAUTIONS

1. Keep hands and feet inside vehicle.
2. Never attempt to operate the vehicle from anywhere other than the driver's seat.
3. Avoid unnecessary quick stops.
4. Avoid quick turns.
5. Shut off engine and engage parking brake when leaving vehicle.
6. Park sideways on slopes.

LOADER OPERATION

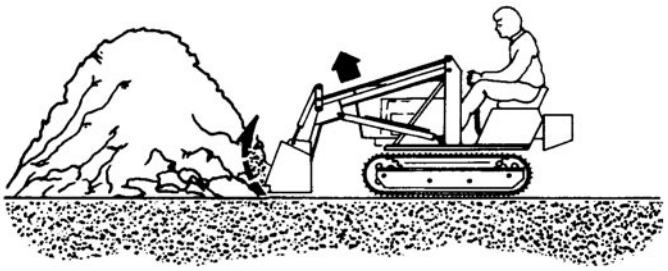
Suggested operating techniques for loader operation are outlined in this section. Practice the lever movements as you operate the loader through the various jobs described.

Filling the Bucket

Set the bucket to the level position. Approach, then enter the pile.

Ease the control levers to lift and roll back the bucket.

Lift and roll back of the bucket will increase efficiency because a level bucket throughout the lifting cycle resists bucket lift and increases breakaway effort.



NOTE: Do not be concerned if the bucket is not completely filled during each pass. Maximum productivity is determined by the amount of material loaded in a given period of time. Time is lost if two or more attempts are made to fill the bucket on each pass.

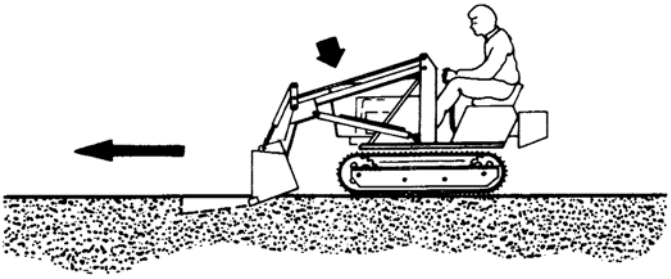
LIFTING THE LOAD

To lift and carry the load, without spillage, fully roll the bucket back after filling and before moving the unit.

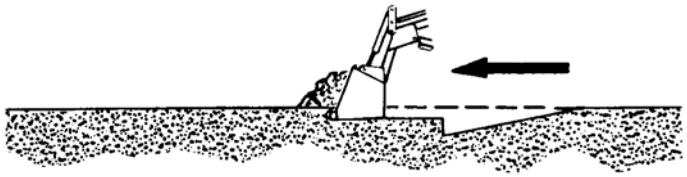
NOTE: Do not attempt to lift bucket loads in excess of loader capacity.

PEELING AND SCRAPING

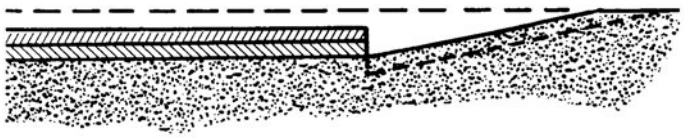
USe down pressure and a slight bucket angle to start long cuts. Make a short angle cut and break out cleanly.



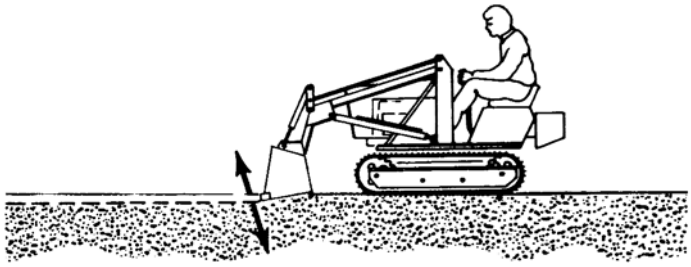
With the bucket level, start a cut at the notch approximately 2 inches (50.8 mm) deep. Hold the depth by feathering the bucket to adjust the cutting lip up or down. When the front of the tracks enter the notch, adjust the lift arms to maintain the proper depth.



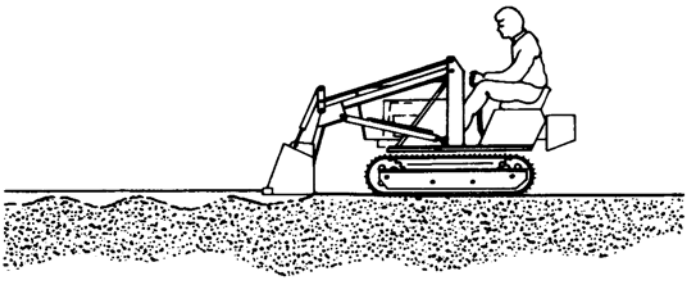
Make additional cuts until the desired depth is reached.



After reaching the desired depth, actuate the loader control lever to compensate for bucket lip action only; do not move the lever for lift cylinder action. Doing this allows you to concentrate on maintaining a precise cut.



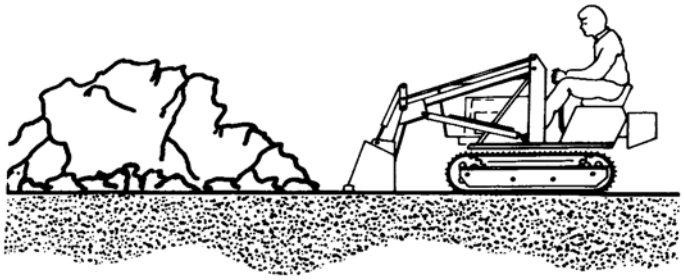
If the lever is moved for lift cylinder action without controlling the bucket angle, the bucket may gouge and leave a series of ruts in the surface.



OPERATING WITH FLOAT CONTROL

During hard surface operation, place the control lever in “float” (held by the detent), and keep the bucket level. This will permit the bucket to “Float” on the contour of the working surface. If hydraulic down pressure is exerted, the bucket will wear faster than normal.

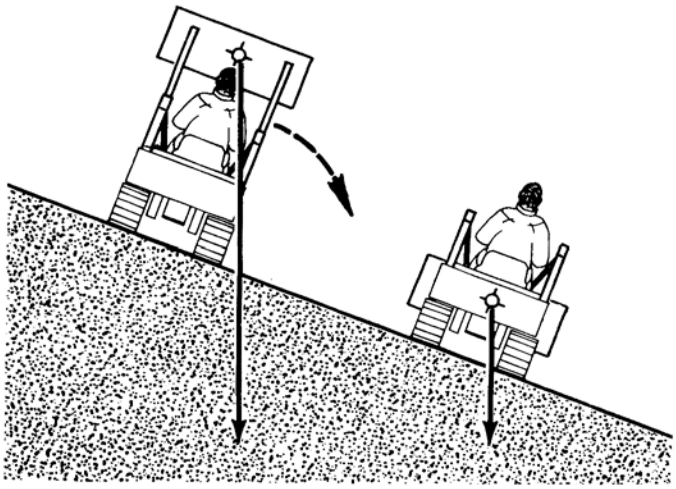
The ‘float” position will prevent the mixing of surface material with stockpile material. It will also reduce the chance of surface gouging when removing snow or other material.



CARRYING THE LOAD

Position the bucket in the full roll back position and the lift arms as low as possible for maximum stability and visibility whether the bucket is loaded or empty.

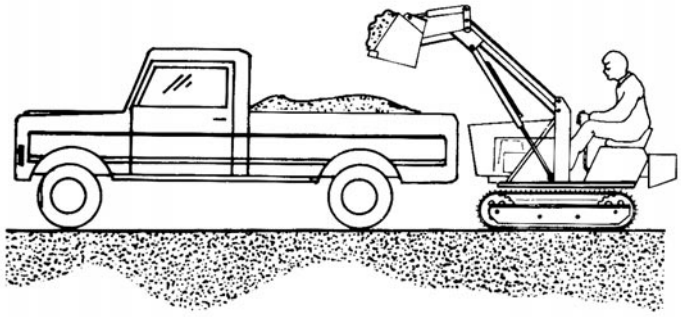
CAUTION: When operating on a hill or slope, keep the bucket as low as possible. This keeps the bucket center of gravity (C/G) as low as possible, giving maximum stability.



When transporting the load, keep the bucket as low as possible to resist tipping, in case a track drops in a rut.

DUMPING THE BUCKET

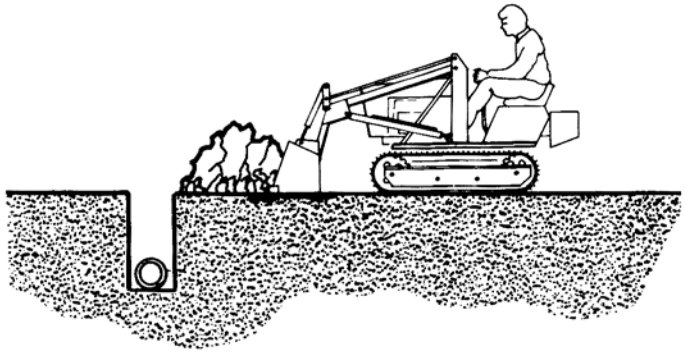
Lift the bucket high enough to clear the side of the vehicle. Move unit in as close to the side of the vehicle as possible, then dump the bucket.



After the bucket is dumped, back away from the vehicle while lowering and leveling the bucket.

BACKFILLING

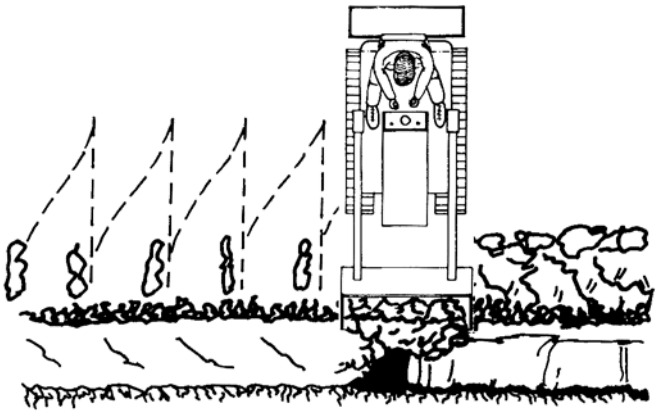
Efficient backfilling occurs by pushing maximum amounts of soil without losing speed or “stalling.” If a “stall” occurs, downshift or reduce the depth. If the unit is not working at capacity in the gear selected, increase the depth of the cut.



Approach the pile with a level bucket. When adjusting the depth of cut to a load that can be handled without going into a “stall,” actuate the control lever for lift and bucket action simultaneously, or separately as required, to maintain a level bucket.

Leave the soil in the bucket, as dumping on each pass is time consuming. Lift and level the bucket for the next pass while backing from the excavation.

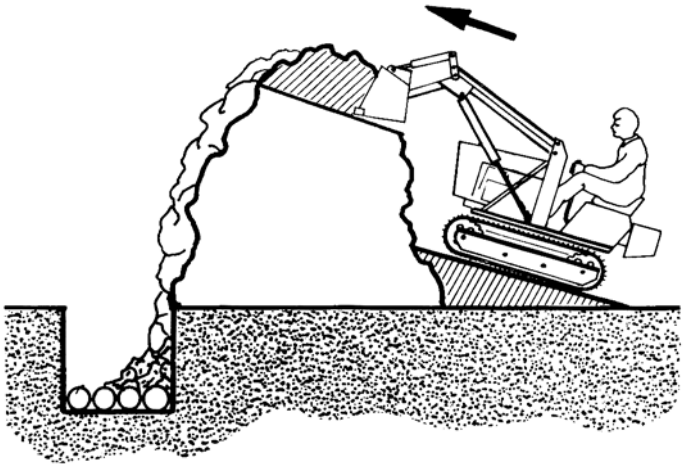
Operate at right angles to the ditch.



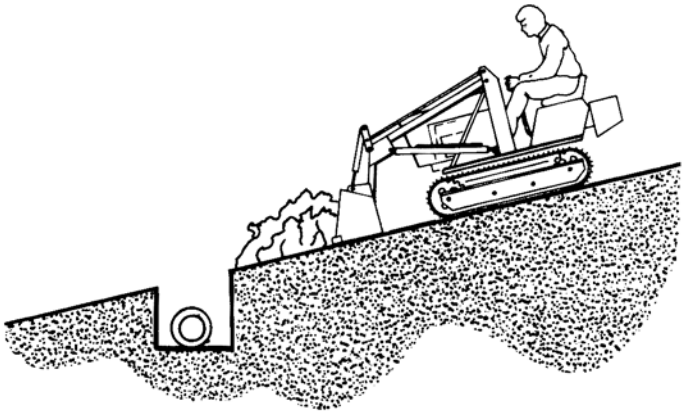
Leave soil that drifts over the side of the bucket for final cleanup.

One lengthwise cleanup pass will usually leave the backfill at an acceptable grade.

When backfilling from a large pile, shovel off the top of the pile, pushing toward the excavation. Drag some soil rearward to form a work ramp of convenient grade.

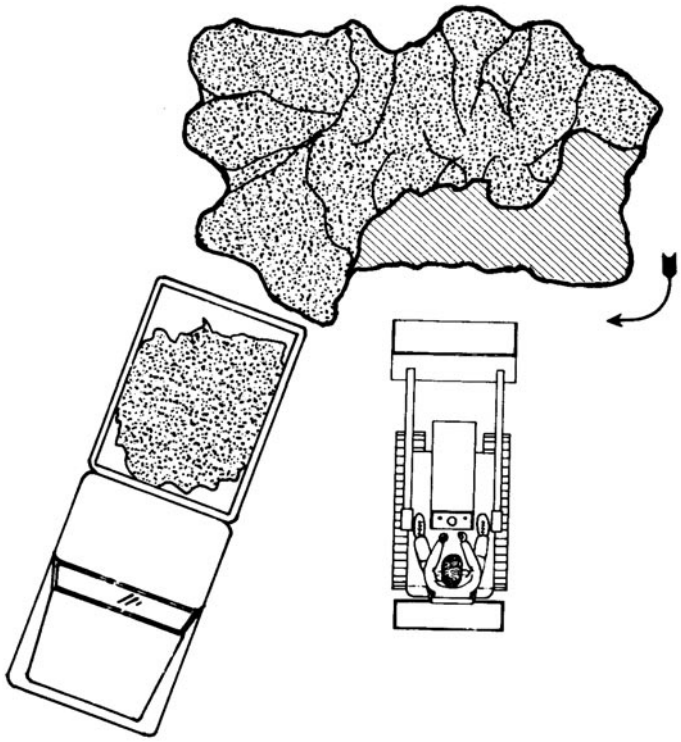


When backfilling on a slope, have the soil piled on the high side for easier backfilling.



LOADING FROM A STOCKPILE

Initially approach the stockpile with the bucket approximately to feet (609.6 mm) off of the ground. Lower the bucket to ground level when the stockpile height has been reduced so the bucket will break out easily.

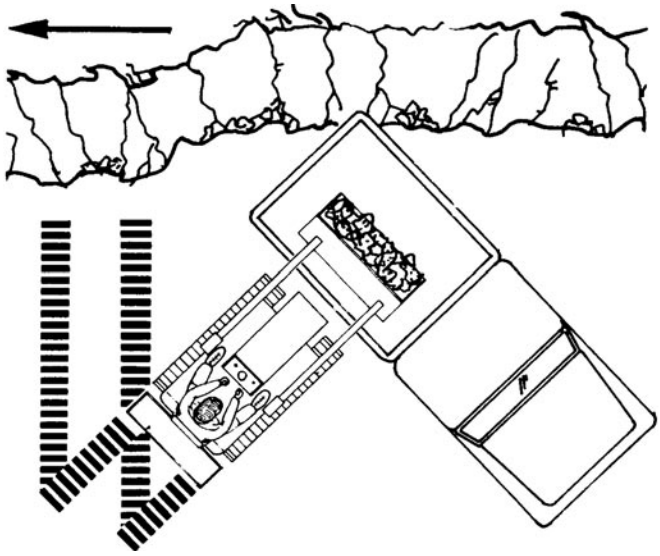


Keep an area clean so the truck or trailer can back in close to the work area. This will minimize travel distance from the pile to the truck. Keep the truck in close and work around the pile.

LOADING FROM A BANK

Select the highest forward gear that provides the most efficient loading operations without going into a “stall.”

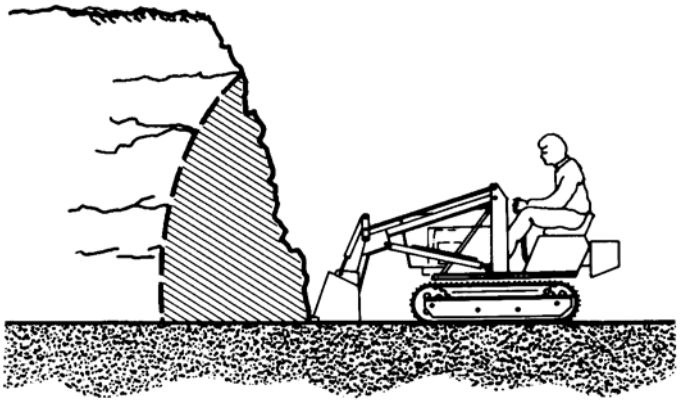
For faster loading, maintain a 45° turn angle, and work as close to the truck as possible.



Always keep the truck close to the operation and keep cutting depth half the length of the truck bed.

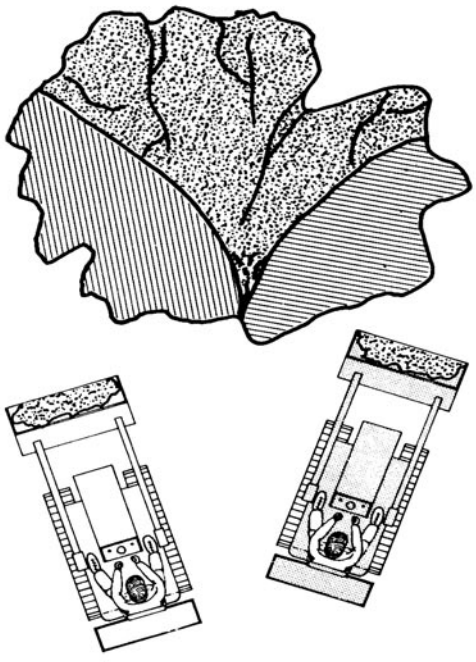
Backgrade with the bucket occasionally, and approach the bank with the bucket flat. Slight down pressure with the bucket level helps keep the working area smooth. Use the heel or low rear edge of the bucket for back-grading ruts, etc.

CAUTION: Exercise care when undercutting high banks. Soil slides can be dangerous. Load from the banks as low as possible for maximum efficiency. Remember that loader lift and break-away capacities diminish rapidly as loading height is increased.

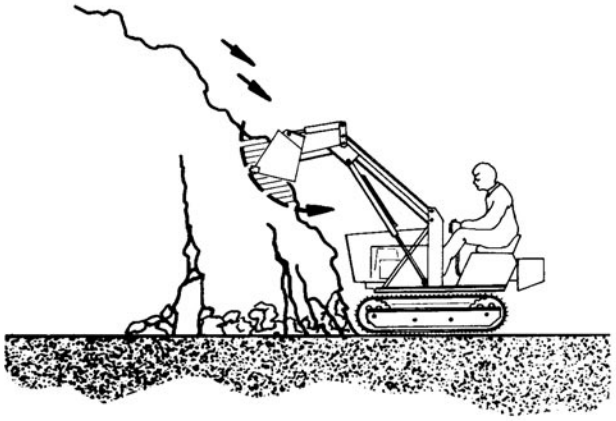


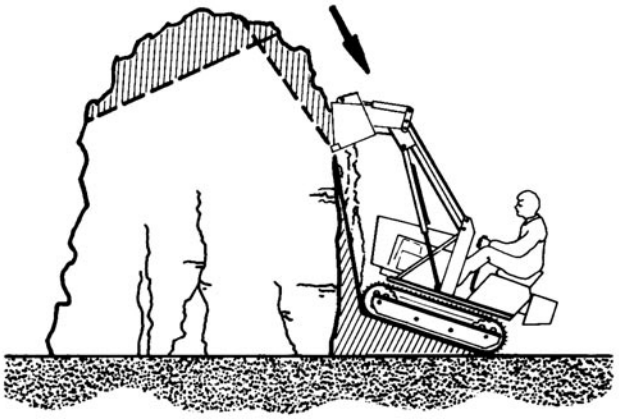
BREAKING AND SPREADING LARGE PILES.

Side-cutting is a good technique for cutting down a large stockpile.



If the pile sides are too high and are likely to cave in, use the loader to break them down.

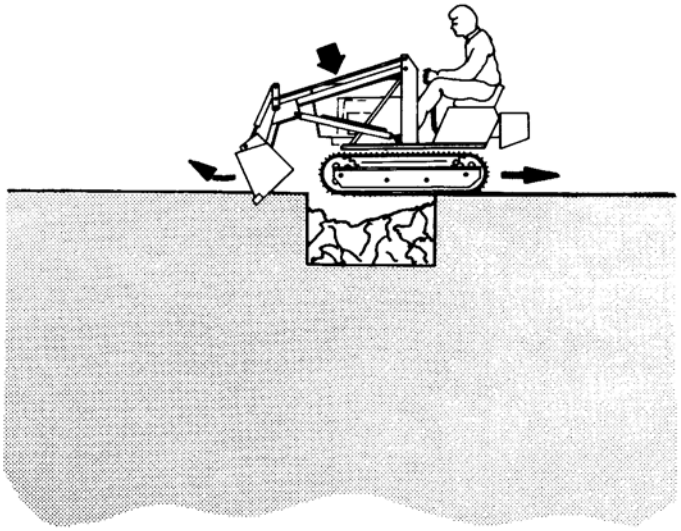




Then, build a ramp by shovel-loading material from the top until a work area is cut through the pile.

If stuck in a ditch...

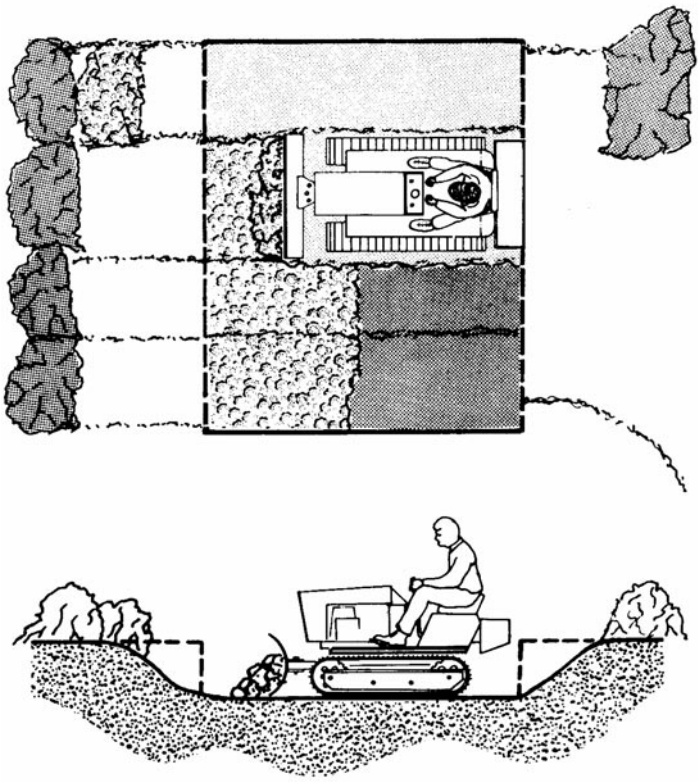
...dump the bucket and apply down pressure to lift the front of the tracks from the ditch. Actuate the bucket as engine power is applied to move the unit backward.



BULLDOZING

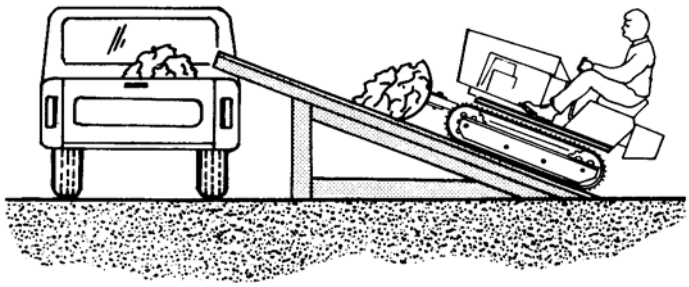
DOZER EXCAVATION

When dozing out a pit with a blade or bucket, make cross cuts working from South to North in overlapping swaths. When the bucket or blade fills, lift and push contents over the undug ground which will later be dozed to the opposite side and then out.



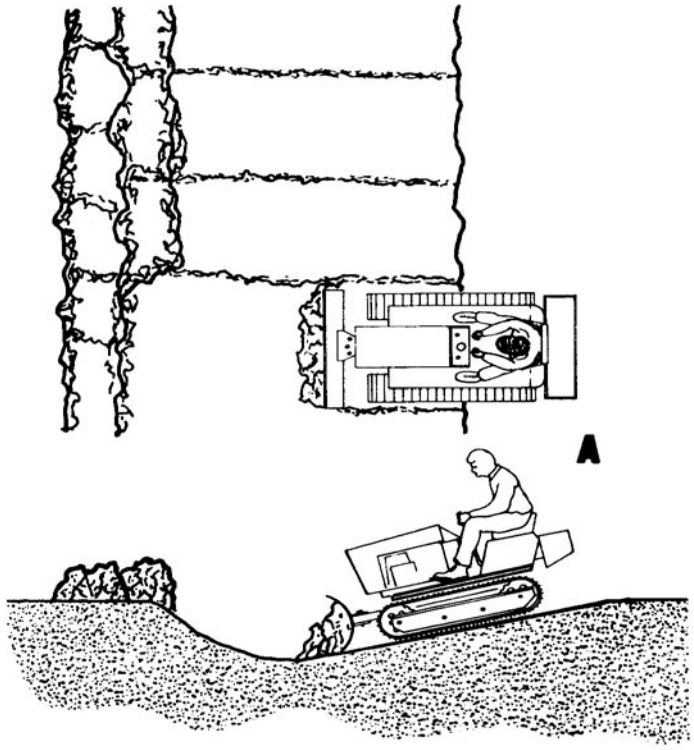
You have to work down from ramps on either side of opening until the desired depth and area are achieved. You should leave one ramp intact so that trucks can deliver foundation materials where they will be used. If soil is excessively hard, loosen it with a ripper or plow. The remaining ramp can be cut out with either a backhoe or by hand.

When regular loading tools are not available it is possible to utilize bulldozers for filling tracks and trailer. Inclined ramps, built of earth, steel or wood, are a means to assist loading economically when level terrain predominates.

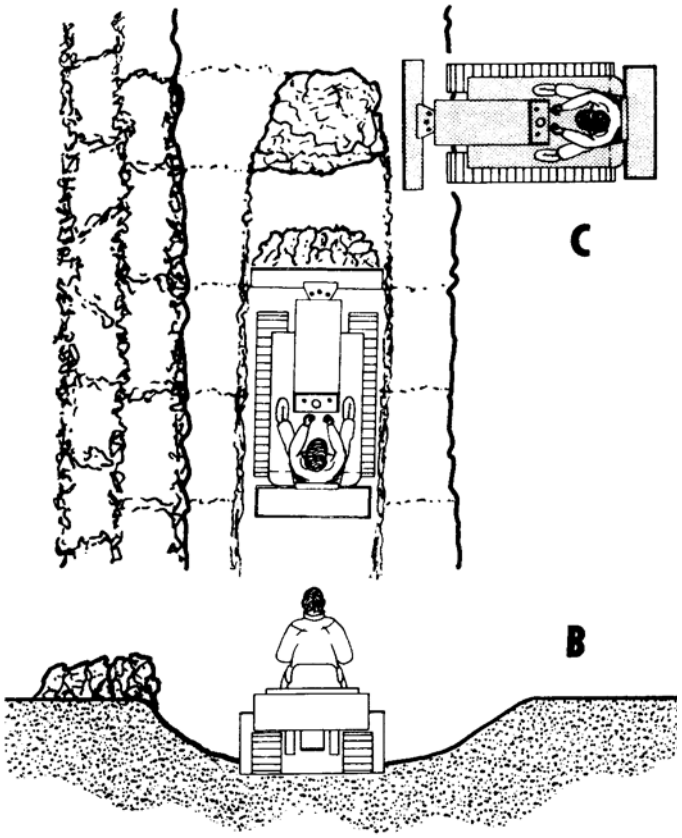


DOZER DITCHING

A dozer and blade can dig wide, shallow ditches effectively as shown in the following illustrations. When the limits for side excavation are reached (A)...



...the unit can work in the trench pushing the material forward into mounds (B), that can then be pushed to the side (C).

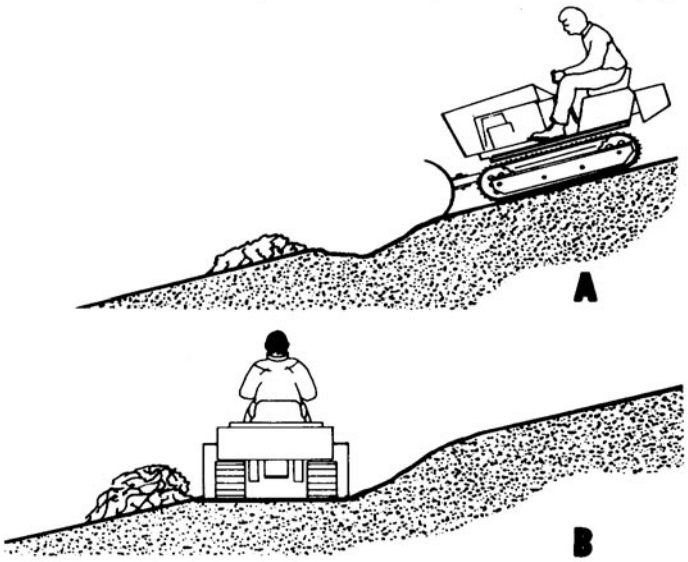


SIDE HILL CUTS

Always start or pioneer all side hill cuts from the top of hills and then work your way down with the cut. It may be necessary to reach the starting point by climbing up a more gradual slope on the opposite side of the hill. Working downhill gives you the advantage of gravity.

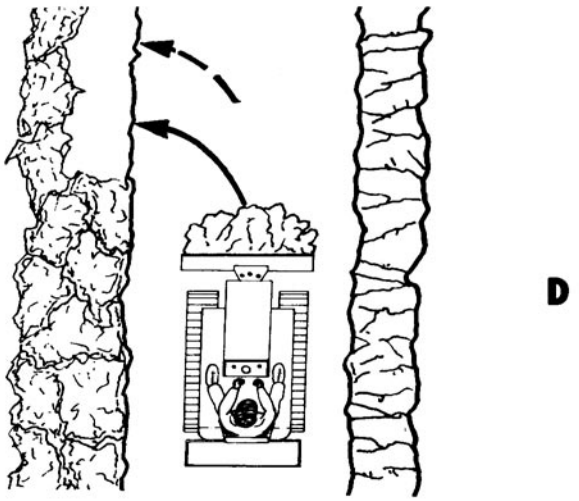
1. Working from above

On average terrain start cuts working straight down the hill making short passes to bench out an area (A) large enough so that the tractor can eventually turn and work parallel to the road (B).



Keep pioneering cuts sloping into the uphill side (C) for maximum earthmoving efficiency.

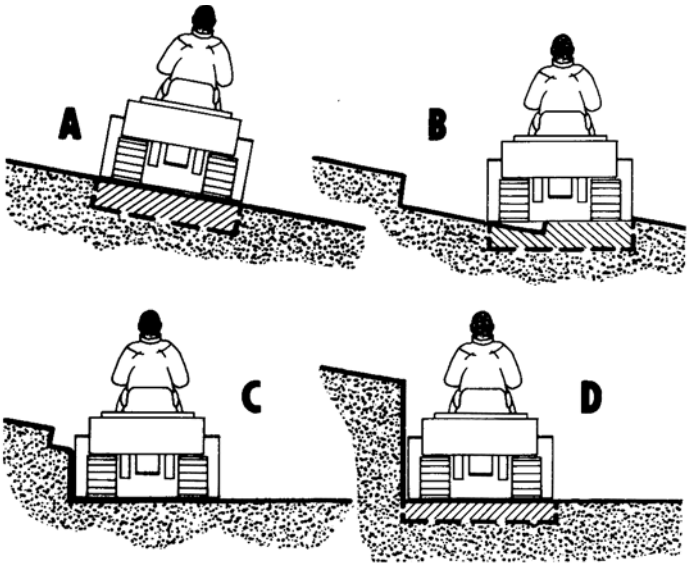
Make short swinging passes as you work downhill to drift material over the side of the cut 9(D).



2. Working from Side (only)

A short, wide shelf may also be cut in a hillside, working from the side only as illustrated below.

The first cut (A) is made parallel to the hillside, followed by a second cut (B) in which the tractor's inside track rides in the trough formed by the previous cut. This tilts the tractor to a more level position (depending on depth of trough) and allows succeeding cuts C, & D to be made parallel to the desired finish level.

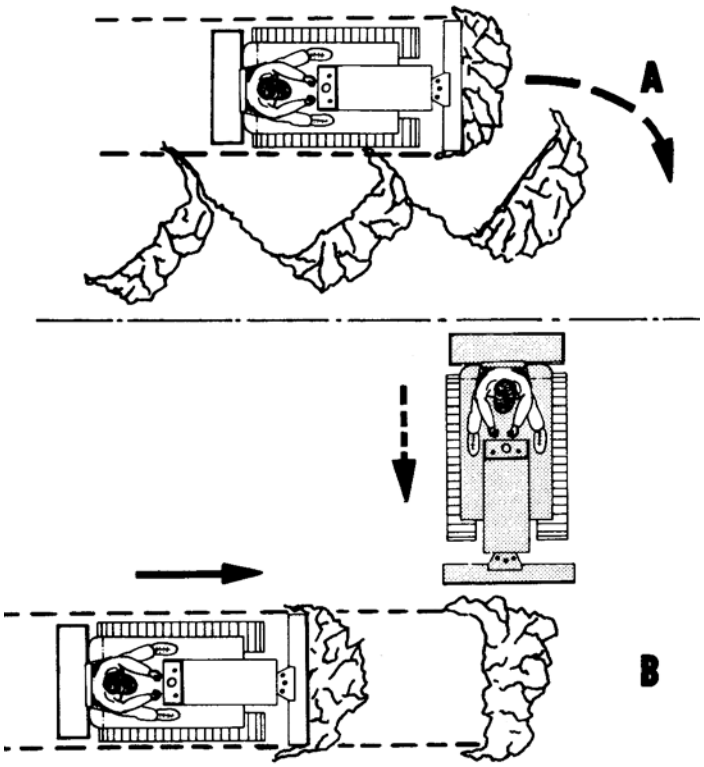


Always keep the fill end high, as the tractor will mire less if it can back up going down grade.

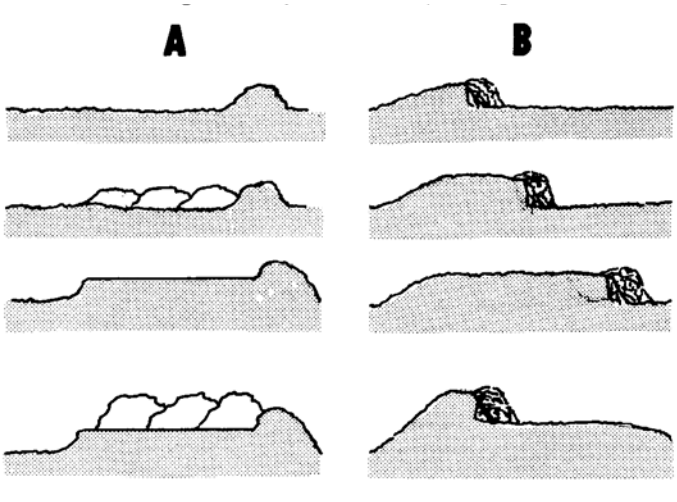
Do not push material further than absolutely necessary in order to stay on firm footing. When backing up, do not raise blade. Raising the blade puts extra weight on the front idlers causing greater track penetration. Let blade float as you back away from the edge of soft fills.

EARTH MOVING

When stripping soil from a road or driveway, either push it forward and angle it to the side (A) or push it forward, then perpendicularly push it to the side (B).



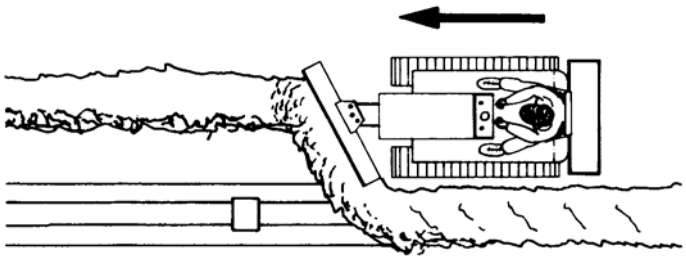
Dirt can be piled by dropping successive loads together, then leveling this material and repeating the process at a higher plane (A). In the alternative, loads can be dumped in the opposite direction, creating the new plateau while pushing loads forward (B).



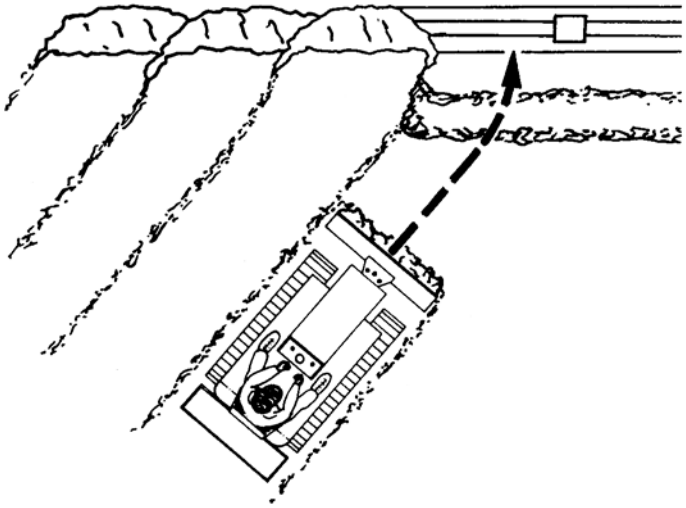
Both methods will work. When working in heavy growth or particularly hard soils, plow or rip the area prior to dozing.

BACKFILLING

Angling blade bulldozers are excellent for backfilling ditches as they can drift material into the trench while maintaining forward motion.

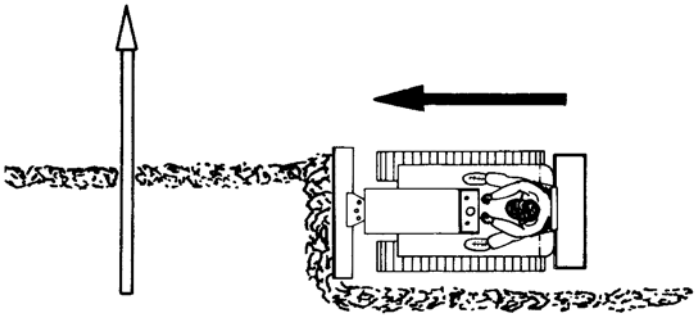


With straight blade dozers, approach at an angle and end up each pass by swinging into the structure or culvert for smooth, fast results.



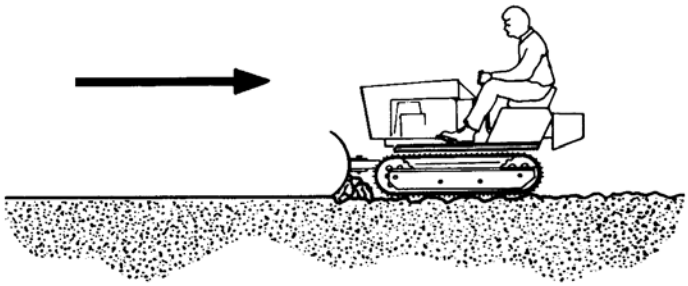
FINISH DOZING

Side slopes can be finished with a dozer by starting at the top and traveling parallel to the right-of-way. Earth from each pass will fall to the lower side of the blade and form a windrow. This material is then picked up on succeeding passes filling up irregularities in terrain. Don't allow blade corner to dig as the slope will steepen beyond job specifications.



Another method commonly used: Start at the bottom and travel diagonally up the slope. In this way a windrow will be continually drifted to one side and will tend to fill low spots or irregularities.

When finishing in non-solid materials, such as earth, drag the blade backwards for a smooth job. Rock, of course, may damage the blade base, so such practice is not to be recommended where abrasive material is common.



CRAWLER TIPS

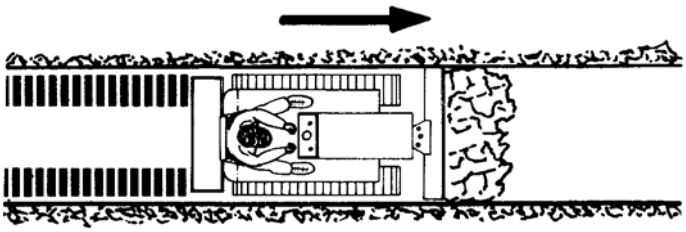
For Safety & Dozing Success

Don't back up further than necessary and don't push earth for greater distances than required. These are common faults of inexperienced operators. Always have a plan of operation!

When dropping down a steep hill or over the side of a fill, use blade for a brake.

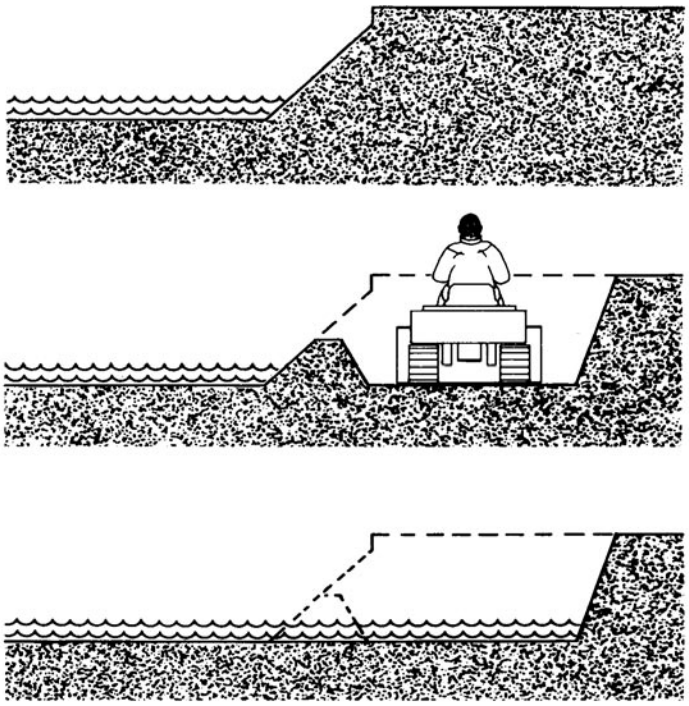
When traveling, carry the blade low. This practice helps protect drivetrain and other vital parts of the tractor.

If possible "slot doze" to keep load from spilling around the sides of the blade.



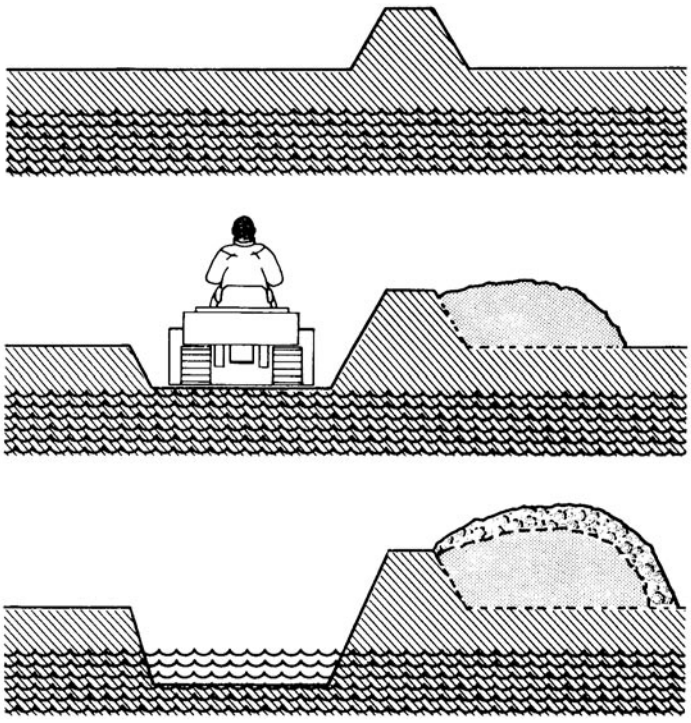
TECHNIQUES FOR COMPLETING VARIOUS PROPERTY IMPROVEMENTS

When enlarging ponds or streams, leave a ridge between the water and the excavation. When a desired depth is reached, dig out the ridge.



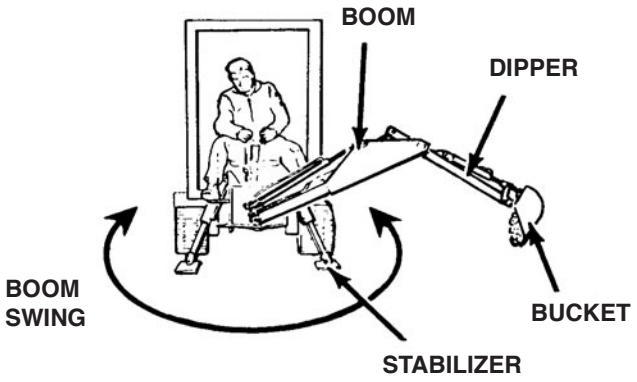
When excavating ponds or streams, leave a ridge between the water and the excavation. When a desired depth is reached, dig out the ridge.

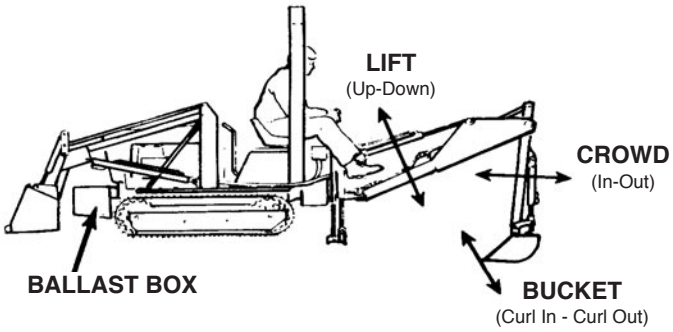
When excavating wet soupy material construct a dry soil dike and place watery mud behind this structure to keep it from running back in the work area.



BACKHOE OPERATION

TERMINOLOGY





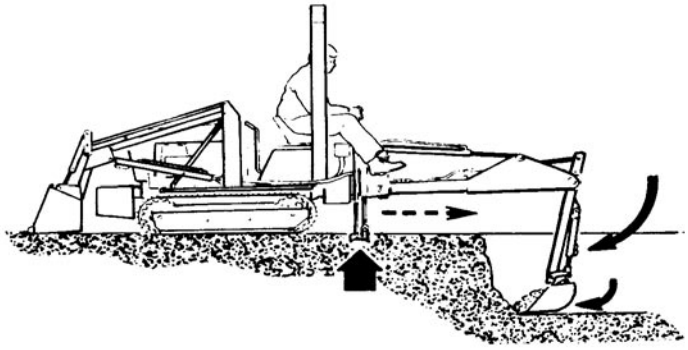
STABILITY

Stability is the key to backhoe performance. The following information and illustrations pertaining to stability should be carefully studied prior to operating the backhoe.

To increase stability for a digging operation, position the loader bucket flat on the ground. Apply sufficient down pressure on the bucket to transfer weight from the front of the tractor to the loader bucket.

IMPORTANT: The loader bucket must be flat on the ground. Rolling the bucket forward so the cylinders are extended may cause bucket cylinder or rod damage.

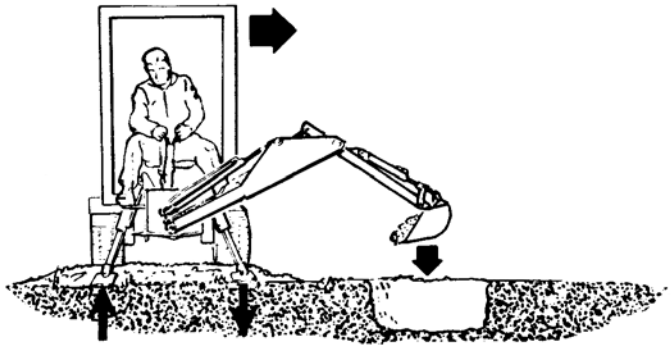
During normal digging, as the bucket penetrates the ground and is filled, there is a tendency for the rear of the Tractor to raise off the ground and move toward the bucket. Properly set, the stabilizers anchor the Tractor and prevent it from moving toward the bucket. The ability of the stabilizers to hold depends on the amount of weight acting on them.



When lifting a full bucket, there is a tendency for the front of the tractor to rise. Counterweight in the form of a ballast box is required to overcome this tendency. The backhoe should not exert more lift force than the effective counterweight can balance. Effective counterweight is the weight of the tractor from the stabilizer pads to the loader.

Set the stabilizers to remove weight from the rear track wheels. The tracks are to remain touching the ground as this provides for the widest stabilizer stance and the lowest center of gravity. Raising the tracks off the ground will not only reduce stability and digging depth, but will impair performance and impose unnecessary stress on the unit.

Stability is particularly important when operating the backhoe at the extreme swing positions, because the tendency is to lift one stabilizer and transfer the total weight of the unit to the other stabilizer.

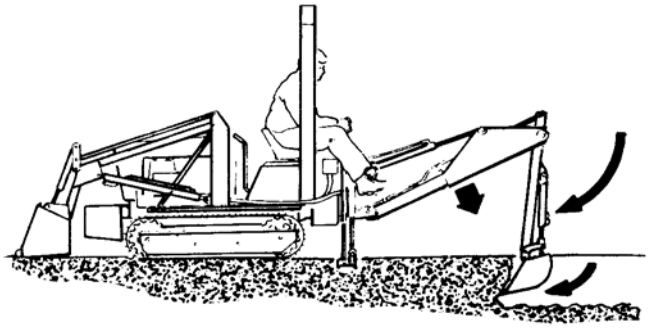


FILLING THE BUCKET

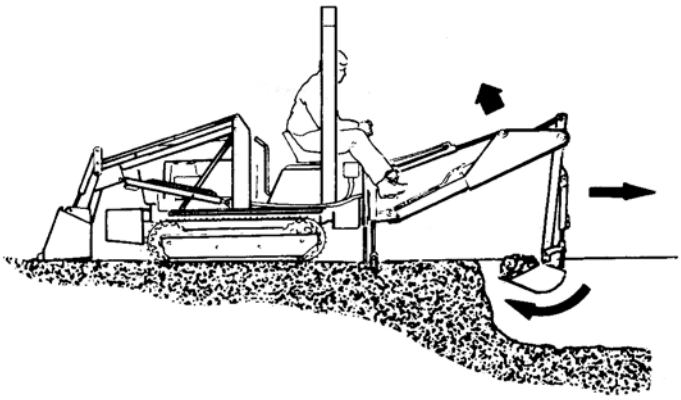
Operate two or more levers at the same time throughout the filling cycle for smooth action and maximum performance.

Control the bucket attitude throughout the digging cycle to keep the teeth at the proper angle for best penetration. This will minimize dragging and scraping the bucket through the ground.

When digging in hard-packed soil, bucket penetration can be increased by applying down pressure with the boom while crowding in and curling the bucket. If the crowd action “stalls,” it may be necessary to apply lift occasionally during the digging cycle to correct the bucket depth.



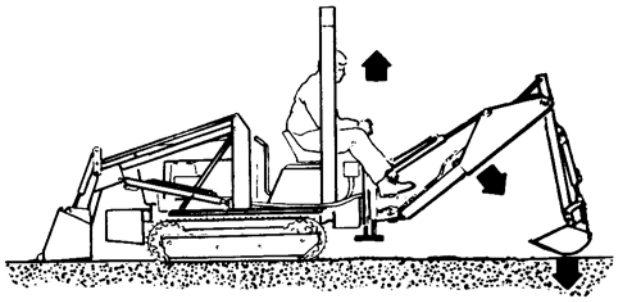
To obtain a cleaner trench and avoid the buildup of material directly in front of the backhoe, crowd out and completely curl the bucket while starting to lift it from the excavation. In this way, excess material will fall back into the excavation.



MOVING THE TRACTOR TO THE SIDE

Lift stabilizers clear of the ground, curl the bucket approximately halfway and crowd in so the dipstick is nearly vertical.

NOTE: The dipstick pivot, bucket pivot, and the point where the bucket contacts the ground should be aligned to reduce stress on the bucket and crowd cylinders. (Bucket forward of the boom-to-dipstick pivot).

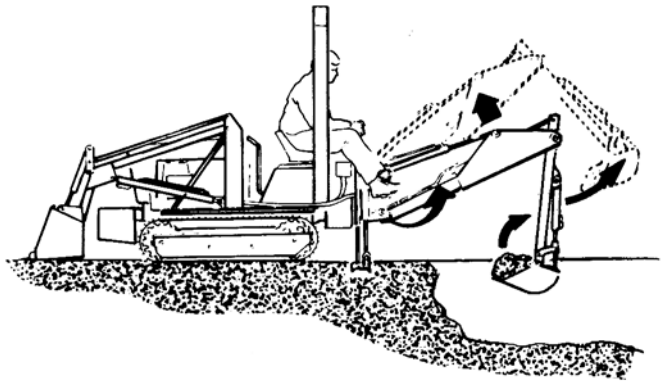


Apply sufficient down pressure with the boom to raise the rear of the tracks off the ground. Slowly actuate the swing control lever to move to the right or left as required. Reset stabilizers and continue digging.

DUMPING THE BUCKET

To dump the bucket at the end of the digging cycle, lift the bucket clear of the trench while crowding it out and swinging it to the spoil pile.

As the pile is approached, dump the bucket. When the bucket is empty, the dipstick and bucket are in position to resume digging upon return to the trench.

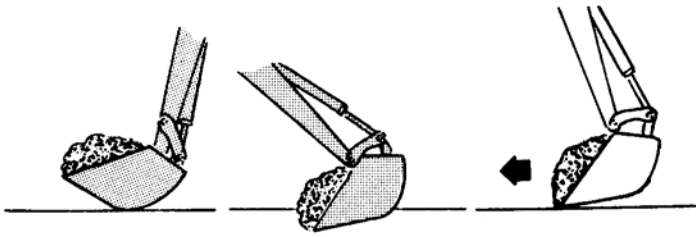


IMPORTANT: Avoid constant jarring or hammering type contact between the spoil pile and the loaded bucket as this may cause premature wear to the backhoe pins and bushings.

TRENCHING

Trenching is the most basic backhoe digging operation. Other digging operations are merely variations of this basic function (i.e. filling the bucket, dumping the bucket, and moving the unit forward).

While trenching, it is generally important to maintain a level trench bottom. This is accomplished by setting the bucket at the proper angle of approach. As the bucket is crowding in, continuously push on the bucket lever to maintain the correct cutting angle. At the same time, pull on the lift lever to relieve down pressure and keep the bucket in the same plane.



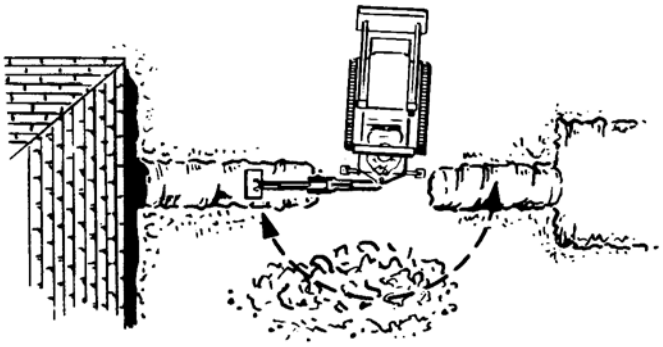
TRENCHING BETWEEN A BUILDING AND OPEN EXCAVATIONS.

Start the trench at the building. Trench out halfway to the excavation. Then, start trenching from excavation to the first trench. Dig toward the first trench until there is just enough room to move the unit out from between the two trenches.

Position the unit so the backhoe swing post is over the centerline of the trench connection. Dig with the backhoe at extreme swing position, and in close to the stabilizers

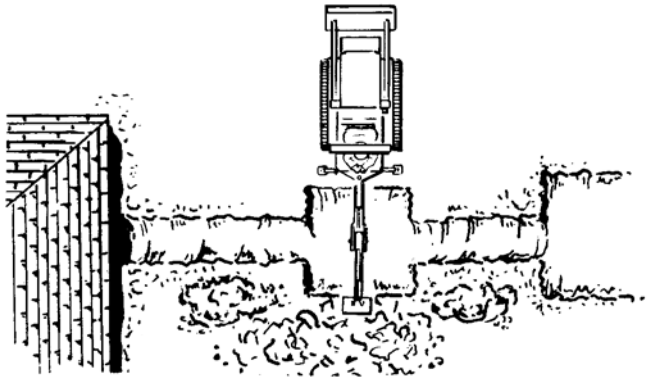
as possible. Pile the spoil on the opposite side of the trenches.

Continue the trench by moving the Tractor forward.



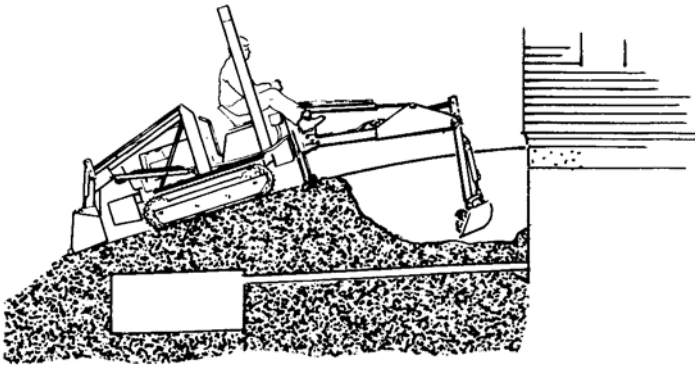
Moving too far will require excessive down pressure for digging, plus hand clean-up of the trench bottom. It is better to move a lesser amount than to move too far.

Position the unit forward so the two trenches can be connected. Pile the spoil on the opposite side of the trench.

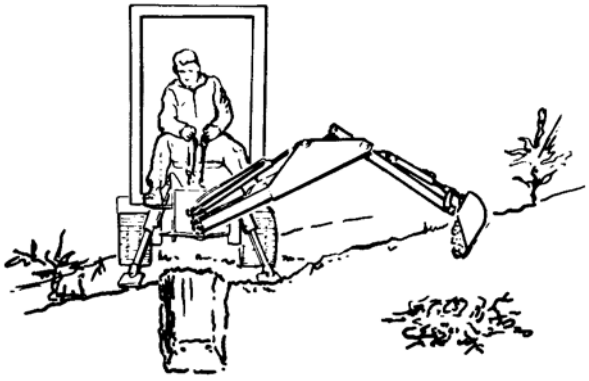


SIDE SLOPE EXCAVATING OR TRENCHING

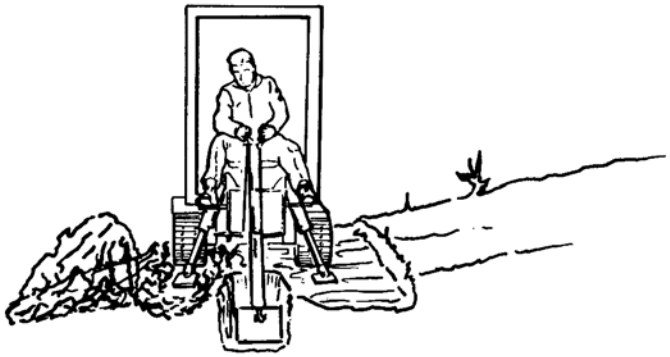
Dig with the backhoe uphill whenever possible.



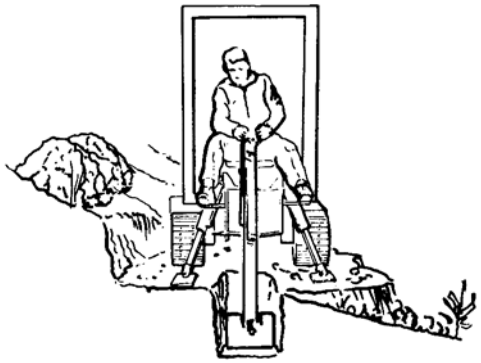
Level the backhoe on slopes with the stabilizers to dig plumb trenches, or...



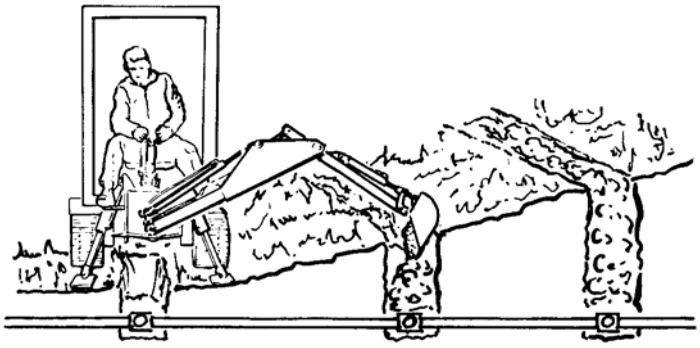
...use the backhoe or loader to cut a level slot for the uphill track and stabilizer. Pile ten spoil from the slot on the low side.



When on the side of a steep slope, cut a level surface along the uphill side of the trench with the loader. Pile the spoil of the cut downhill. When digging, pile the spoil of the trench uphill.

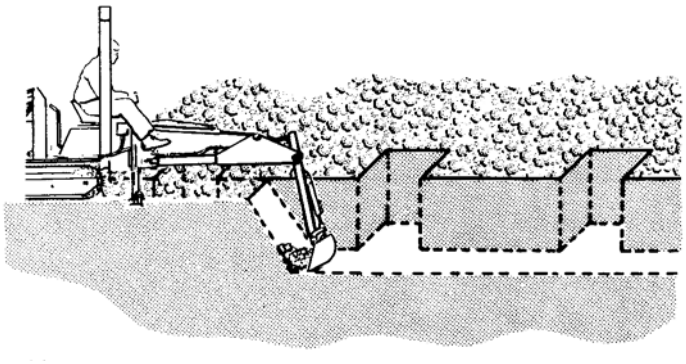


Dig field tile trenches progressively. As soon as one trench is completed, have the workmen lay the tile. Start the next trench, using the spoil to fill the previous trench.

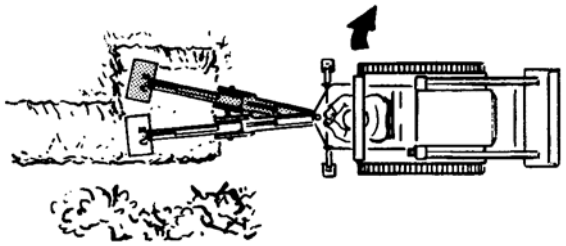


CONTINUOUS TRENCHING WITH SPACED BELL-HOLES

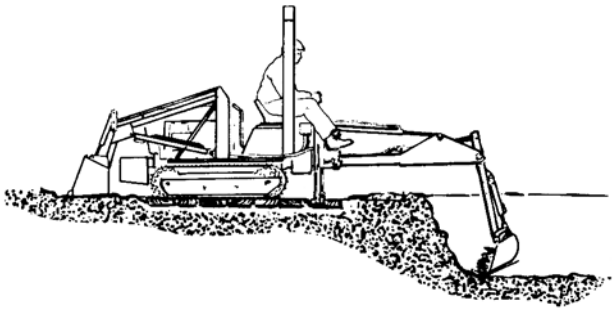
Begin by digging the trench to the desired grade. Progress along the trench to the bellhole locations and dig as much of the bellhole as possible without moving the backhoe from the trench line setting.



Move to the side as previously described and complete the bellhole. Realign the backhoe with the trench, and proceed trenching to the next bellhole.

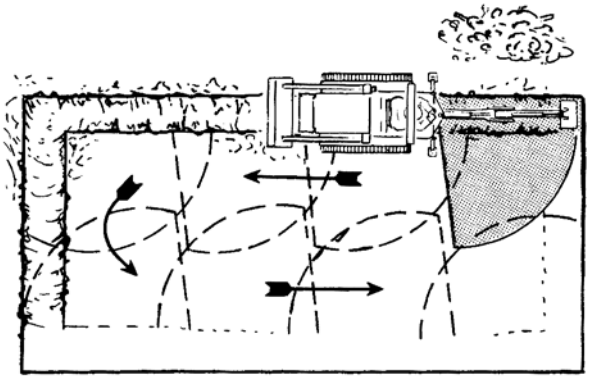


When finishing straight walls or bellholes in sandy soil, use a platform under the rear of tracks and the stabilizers. The platform distributes the load over a larger area and lessens the possibility of a cave-in. The platform also tends to keep the unit from creeping rearward if hard digging is encountered.



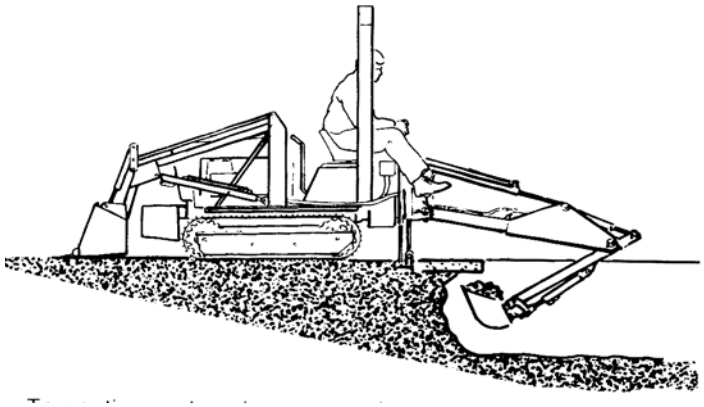
DIGGING STRAIGHT WALL SHALLOW BASEMENTS

Begin at one corner, removing a much material as possible to grade level. Then, reset the unit forward and continue digging to grade. Progress around the edge of the basement, finishing each corner as you come to it.



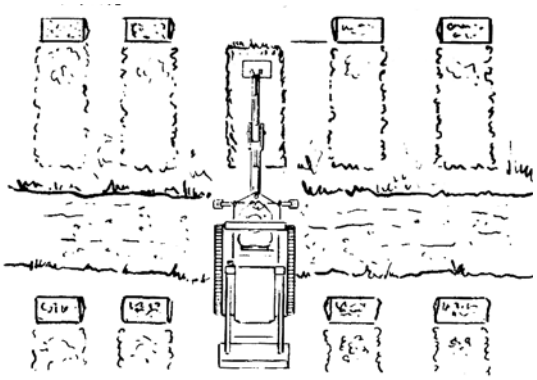
DIGGING UNDER A SIDEWALK OR CURB

To continue a trench or excavation under a sidewalk or curb, position the backhoe as shown.

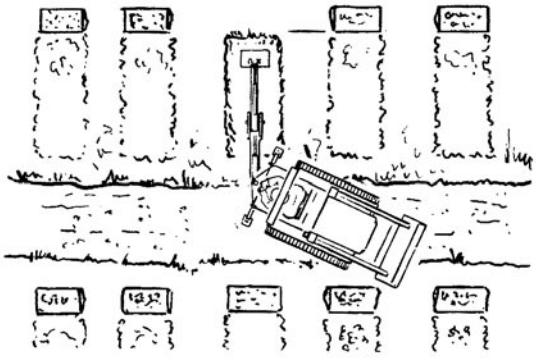


GRAVE DIGGING

For the best grave digging position, back the tractor straight in toward the grave site.



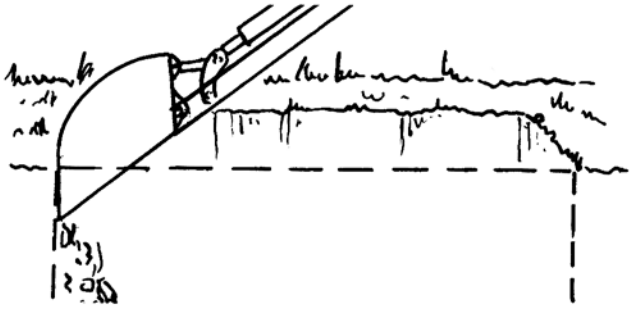
When grave markers prevent a straight-in position back the tractor in at a 45° or 90° angle to the grave site.



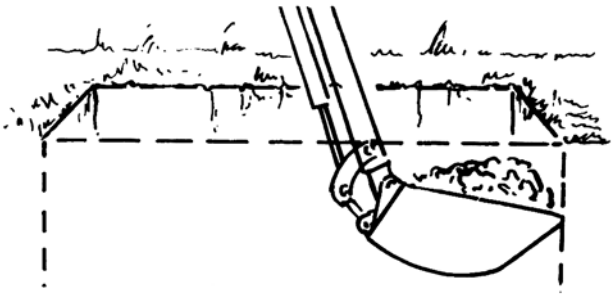
Position the tractor close enough to the grave to dig a full depth straight wall at the far end of the grave.

Start digging in the middle of the grave. At first, take shallow bites around the edges to avoid damage to the surrounding sod. After a on-foot (304.8 mm) depth is reached, full buckets can be removed, wherever possible.

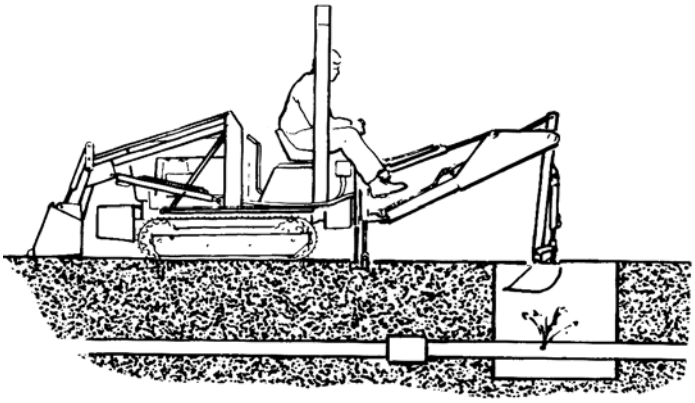
When the desired depth is reached, finish the end walls. Finish the far wall by crowding out and forcing down.



Lift up and crowd in to finish the close end wall.



PIPELINE LEAK REPAIR



Locate the pipeline with a bellhole about six feet (182 cm) wide and tenn feet (304 cm) long. Then dig length-wise along the pipeline to locate the leak.

When the leak is located, position the unit to dig at grade level on both sides of the pipeline.

If a length of pipe must be replaced, strip the soil form both ends of the bellhole. Dig the bellhole or trench large enough to allow the workmen adequate space in the leak area.

BACKFILLING

Backfill by lifting the bucket over the spoil pile and then crowding in. Pull both the crowd and lift levers for smooth, even backfilling.

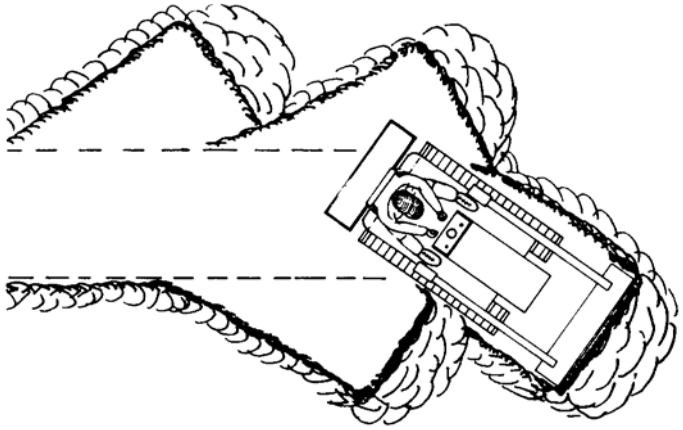
IMPORTANT: Do not backfill by using the swing circuit and dragging the bucket sideways. Doing so can cause damage to the dipstick, boom, swing cylinders, or main-frame.

MISCELLANEOUS

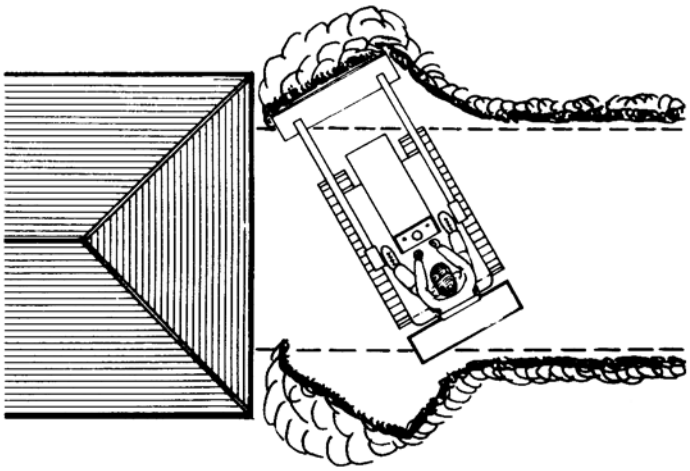
SNOW PLOWING

Snow is bulkier than dirt and its slippery consistency diminishes traction. When clearing snow, it is important to push the load to the back of the piling area because it cannot be reached again.

When snow is particularly heavy, paths can be cut with a straight blade in a herring bone pattern. Passes can be curving to the sides or straight and are stopped as soon as the load gets too heavy to push.

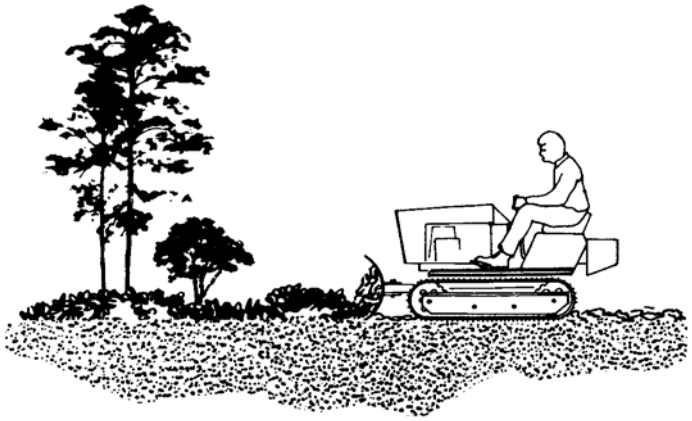


When plowing a garage drive, make consecutive passes to the side of the garage entrance, the obvious objective being to avoid piling snow against the door.



TREE REMOVAL

Light trees and brush are removed by lowering the blade a few inches into the ground just enough to strike and cut roots...usually done in first or second gear. An occasional backing up may be necessary to clear the blade so it can always cut cleanly. Otherwise the blade will slide over root and accomplish little.



Heavier trees and brush require more car and time to uproot. First contact tree with blade high and centered for maximum leverage. Make contact gently...push a few times at half throttle while watching the top carefully. Look for dead limbs - they're widow makers! If tree seems in good condition open the throttle and try again.

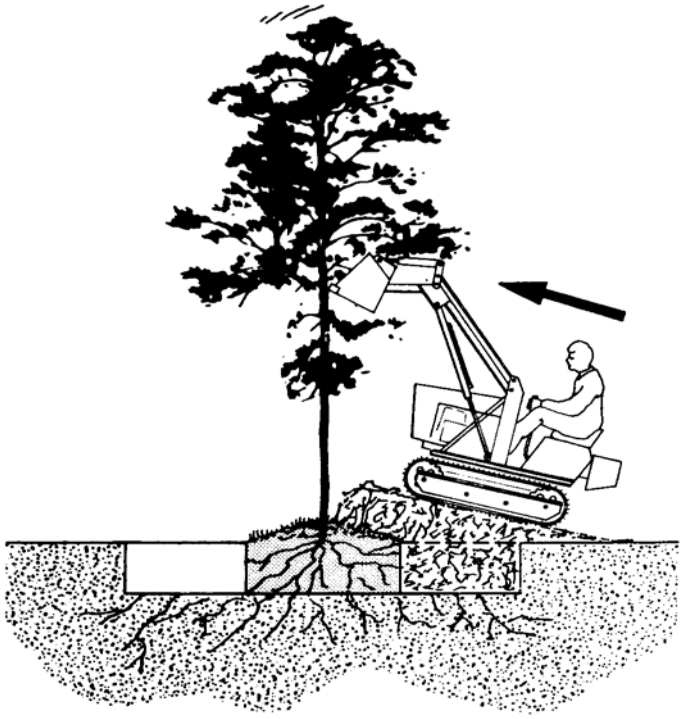
Lower blade into the ground and doze exposed roots and tree completely clear of the ground.

To remove the larger trees follow a 3 step procedure: First, determine the direction of fall...usually in the direction of lean...and then make a few passes on the opposite side to a depth of say, 2 feet, or enough to cut some of the larger roots.

Second, cut roots on both adjacent sides in a similar manner.

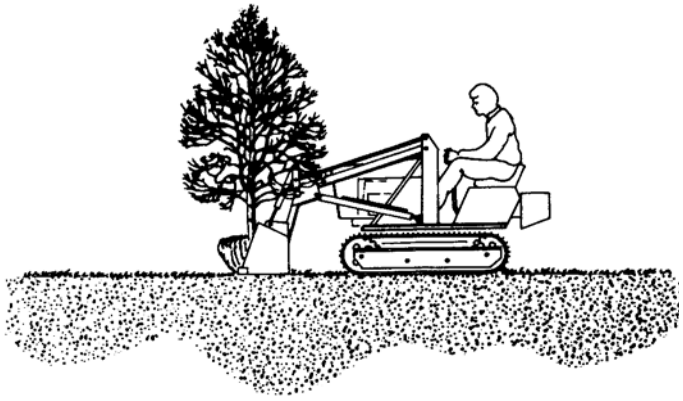
Build an earth ramp up to the starting side of the tree to get still more leverage and then push. As the tree starts

over, reverse tractor quickly, for the roots pulling out of the ground may damage the machine. Next fill stump hole and then lift entire root section clear of the ground.



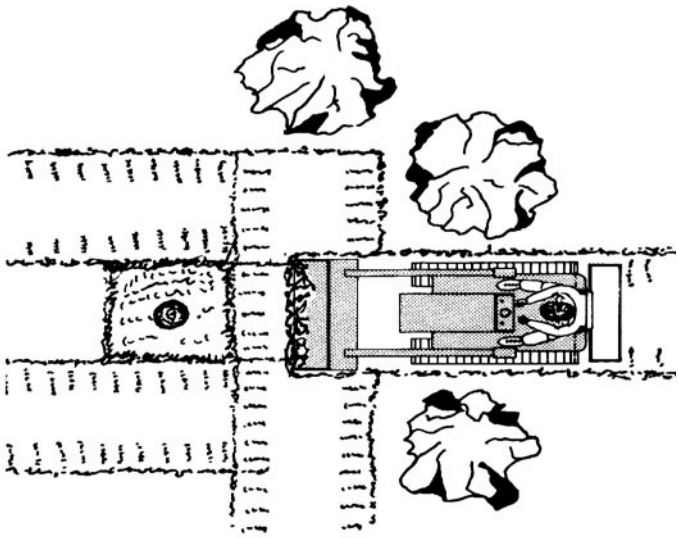
DON'T charge into big trees at full throttle. And don't push too long at a time. Track spinning is wasted effort.

TRANSPLANTING



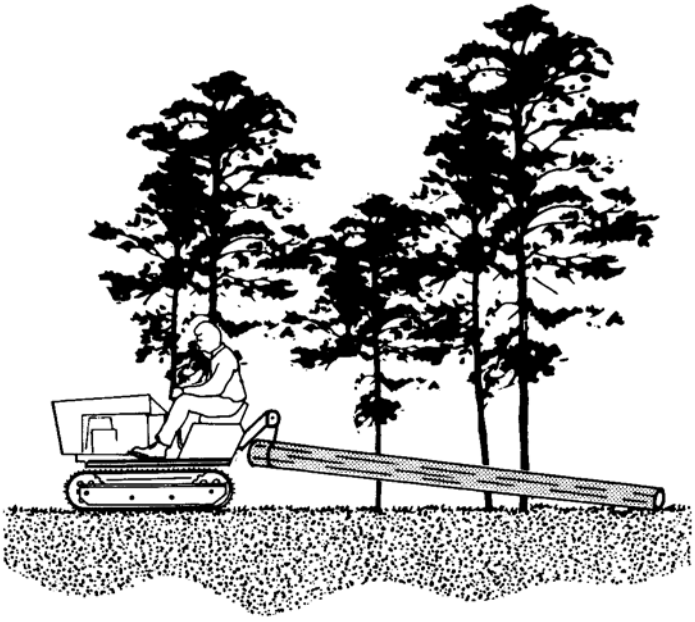
When transplanting trees of suitable size, place bucket under the dirt ball and lift it to a new site - securing the trunk to the bucket.

When the tree is too large to lift in a bucket, dig around the tree (as previously described) and then push it over the ground to its new destination. (Note below)



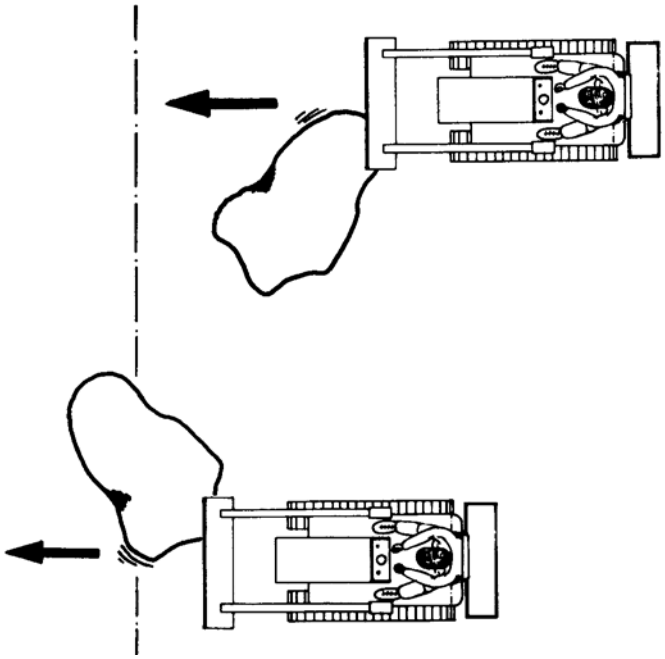
LOGGING

When pulling timber or poles, the front end should be lifted to maintain traction and reduce drag.



MOVING BOULDERS AND STONE

Dozers can move large rocks on firm ground perhaps several times its own weight. If the stone is too large for direct pushing, it can be pushed first on one side and then on the other.



ROCKS

When a large rock is imbedded in a group of smaller ones, loosen and remove the smaller ones before attacking the big one. Operators should remember that if a rock doesn't move, something is holding it. Before proceeding, find cause and remedy it to prevent machine damage.

Many rocks such as shale and sandstone are found in tipped position. Always dig under the outcrop, lift, and break it out rather than try to penetrate from the opposite side. Sometimes driving a tractor on top will crush such rocks making removal easy.

STUMPS

Small dozers can tackle big stumps if you dig first. Make consecutive cuts around the stump until it is loose enough to pull out by a chain or blade.

Notch the stump and leverage it out using a log or railroad tie.

10- PARTS LISTING & DIAGRAMS

Item #	Description	Qty
000053	Fitting, 854-FSO-06x06	1
000217A	Clevis Yoke End 5/15-24 x 2-1/4"	2
000228	Machine Key, 1/4" x 1/4" x 1"	1
000235-up	Washer, 1-9/16" OD x 7/16" ID	2
000240	O-Ring, 1-1/8 "OD x 7/8" ID	24
000242	Washer, 18 GA x 7/8" ID x 1-1/2" OD - Heat Treated	20
000413	Battery Strap	1
000428	Spring (4 1/2 long)	1
000440	Leaf Spring	1
000441	Neutral safety switch with (2) nuts, sensing	1
000442	#U1-1 Battery, 12 Volt, 350CCA	1
000444	Ignition switch with key, nut and lock washer	1
000447	Headlight / fan switch	1
000616A	Breather cap, for hydraulic tank. 3/4"NPT	1
000670	Hose Clip, Standard, painted	3
000819A	Paint, "2013 STRUCK Gold" - 11 oz. net weight can aerosol spray can	1
000931	Hose Clamp, 5/8"	4
001134	Adhesive Backed Wire Clamp 1/2"	2
001608	Seat Pan, painted	1
001609	Spanner (with large hole)	1
001612	Battery box, assembled, painted	1
001615	Battery box cover, includes hole for cup holder and has handle, painted	1
001619	Tube	2
001624	Bridge	1
001625XX	Arm rests kit - Includes: Arm rest housing with back structural plate	1
001645	Brace	1
001655-up	Bearing plate, unpainted	1
001672-up	Washer, 11/16" OD x 3/8"ID x 1/8", unpainted	4
001674	Seat Mount Bracket	1
001718	Cover	1
001720-up	Stud, unpainted	2
001726	Fitting 4603-10x08	1
001800-4	Tach/Hour Meter	1
001805B	#50H Connector link (FINAL DRIVE)	2
001820	Collar, 1/4 ID x 1/2 OD MCMC-025	2
001840	Cage clip, use with the hood	4
001861	Push mount cable tie, white	7
001866	Black plastic knob with 3/4" screw for hood	4
001904	Clamp, vinyl coated, 3/4"	1
001905	Clamp, vinyl coated, 1"	1
001906	Cotter pin, 1/8 x 1 1/4	3
001920XX	Valve Assembly	1
002060	Grip, handle, red	1
002583	Thin shim washer - 5/8 x 1" 18GA	26
004197	Oil Sight	1
004237-9	20MM Oil Drain Hose Assembly	1
004247	Tie Rod End	2
004249	Disc Spring	4
004250	Plastic Washer	2
004251	Shoulder Bolt 5/16-18 x 1/2" 3/8" shoulder	2
004264	Stem bolt	1
004330	Black Plastic Ball Knob	2
004348	Rubber Track - (1 side) - 180mm (7" wide) x 72mm (pitch) x 35 (links)	2
004351	Center Idler for Rubber Tracks, painted, bushings	4
004352L	Left Idler frame, painted	1
004352R	Right Idler frame, painted	1
004353-up	Shim, unpainted	20
004354	Quick Release Center Axle, painted ends	4

Item #	Description	Qty
004500XX	Painted Chassis Sub-Assembly	1
004504	Lower motor mount, painted	1
004505	Upper motor mount, painted	1
004506	Pump bracket, painted	1
004509	Pulley, 1/2" bore, painted	1
004509	Pulley, 1/2" bore, painted	1
004510	Sprocket hub welded assembly	2
004511	Mount, painted	2
004512	Rear Mount, painted	1
004513	Front Mount, painted	1
004514	Belt tensioner bracket, painted	1
004515	Honda Vertical Shaft Engine GXV390	1
004515-1	Paper element for the air cleaner on the Honda Vertical Shaft Engine GXV390	1
004515-2	Spark plug (BPR5ES) for the Honda Vertical Shaft Engine GXV390	1
004516	Channel, painted	1
004517	Link painted	2
004519-1	Transaxle Oil filter for ZT3400 (2 per)	2
004519L	TRANSAXLE - LEFT, CCW	1
004519R	TRANSAXLE - RIGHT, CW	1
004520	Hi Power II Double "V" Belt Gates Belt , 75" for ZT3400 Transaxle - (#AA73 Napa)	1
004521	Plate, painted	2
004531	Parking brake lever	1
004534	Upper Mount, painted	1
004536	Cover, painted	2
004537	Bypass lever, painted	2
004538	Lock bracket, painted	2
004539	Lock, painted	2
004560	Seat switch - normally closed	1
004562	Seat	1
004579	Black Plastic Ball Knob	1
004593	Painted Dash Brace	2
004594	Bracket, painted	1
004596	Slimline Suction Strainer 1 NPT Male x 1/2 NPT Female, 60 Mesh	1
004597	Brass Barbed Hose Fitting 90 Degree Elbow	1
004598	Expansion Tank	2
004607	Grill	1
004608	Headlight Angle Bracket	2
004609	Grill Bracket	2
004615	Painted Hood	1
004616	Left & Right - Front Fender Support, painted	2
004617	12" 72W Offroad Truck LED Light Bar	1
004618	Link, painted	2
004619-up	Pull, unpainted	2
004626	Oil Tank	1
004627	Cover, painted	1
004633	Axle tensioner	2
004635	4604-08X06 Fitting	2
004637	Zinc Yellow-Chromate Plated Hex Head Screw, Grade 8 1/2-20 x 6" long, Fully Threaded	2
004638XX	5/8 soft hose, (fill hose for transaxles)	2
004639	TRH50X in 57 pitches both ends Roller Link, 36" long	2
004640XX	Throttle/Choke outside casing (ITC System)	1
004641XX	Throttle/Choke inside wire (ITC System)	1
004643	Hose Assembly 3/8" x 73" Pump to Valve	1
004660	Attachment Pump (0.21 CID) CCW Rotation	1
004661	Shoulder Bolt 1/2"	2
004662	Ball Joint Rod End RH Thread	2
004664	Clip, painted	2
004668	Hose Assembly 5/8" (soft) x 29" Tank to pump	1

Item #	Description	Qty
004669	Hose Assembly 5/8" (Soft) x 24" Valve to Tank	1
BOLT-1/2-37	1/2-13X4 G5 BOLT	2
BOLT-1/4-118	1/4-20X 1/2 HX SPIN LOCK BLT	32
BOLT-1/4-119	1/4-20X 3/4 HX SPIN LOCK BLT	6
BOLT-1/4-3	1/4-20X 1 G5 BOLT	4
BOLT-1/4-4	1/4-20X 1 1/4 G5 BOLT	1
BOLT-1/4-79	1/4-20X 1/2 G5 CARR BLT ZC	2
BOLT-10-24-189	10-24X 3/4 HX HD MACHINE SCREW	2
BOLT-3/8-21	3/8 - 16 X 1 G5 BOLT	6
BOLT-3/8-25	3/8 - 16 X 2 1/2 G5 BOLT	4
BOLT-5/16-10	5/16-18 X 2 G5 BOLT	1
BOLT-5/16-11	5/16 - 18 X 2 1/2 G5 BOLT	12
BOLT-5/16-11	5/16 - 18 X 2 1/2 G5 BOLT	2
BOLT-5/16-12	5/16-18 X 3 G5 BOLT	2
BOLT-5/16-121	5/16-18X 3/4 SPIN LOCK BLT	20
BOLT-5/16-123	5/16-18X 1 HX SPIN LOCK BLT	5
BOLT-5/16-127	5/16-18 x 1/2 Spinlock Bolt	12
BOLT-5/16-200	5/16-18 x 1-1/4" HEX HD Capscrew - G8	2
BOLT-5/16-71	5/16 x 24 x 2 CAP SCREW	2
BOLT-5/16-84	5/16-18X1 G5 CARR BLT ZC	2
BOLT-5/16-9	5/16-18 X 1 3/4 G5 BOLT	2
DEC-RT1150	DECALS FOR THE RT1150 - (Glossy, Peel & Stick)	1
MAT-001957-1	Purus Premium MV 46 Hydraulic Oil (160 VI) - (AW46)	3.5 gal
MAT-001958	Service Pro Premium Synthetic Blend 10W 30 Motor Oil	1.16 qt
MAT-004657	20W50 ENGINE OIL (TRANSAXLE OIL)	4.8 qt
NUT-1/2-213	1/2-20 HEX NUT - STAINLESS STEEL	2
NUT-1/2-251	1/2-20 G5 HX NUT	6
NUT-1/4-220	1/4-20 NYLON LOCK NUT	9
NUT-1/4-230	1/4-20 SPIN LOCK NUT	36
NUT-10-24-219	10-24 NYLON LOCK NUT	2
NUT-10-32-225	10-32 Hex Nut	2
NUT-3/8-232	3/8-16 SPIN LOCK NUT	6
NUT-3/8-243	3/8-16 DOT LOCK NUT	4
NUT-3/8-245	3/8-24 Hex Head Fine Thread Nut	2
NUT-5/16-221	5/16-18 NYLON LOCK NUT	11
NUT-5/16-231	5/16-18 SPIN LOCK NUT	61
NUT-5/16-242	5/16-18 DOT LOCK NUT	2
SETSCW-5/16-179	5/16-18 X 1/2" SETSCREW	4
VALVE-HYD.CONT-02	Attachment Valve Lever - 210mm	3
WASH-1/2-264	1/2 SAE Flat Washer	6
WASH-1/4-260	1/4 SAE Flat Washer	18
WASH-3/16-259	3/16 SAE Flat Washer	6
WASH-3/4-001	3/4" SAE Flat Washer, Zinc	2
WASH-5/16-261	5/16 SAE Flat Washer	29

Photo RT-1

MAGNATRAC® RT1150

Overview - Left View

This section of your MAGNATRAC® RT1150 *Operator/Technical Manual* is designed to help you quickly locate parts and areas you will need to identify to properly maintain and service your MAGNATRAC®. The photos are used to familiarize yourself with the MAGNATRAC®.

Areas and Views of the RT1150:

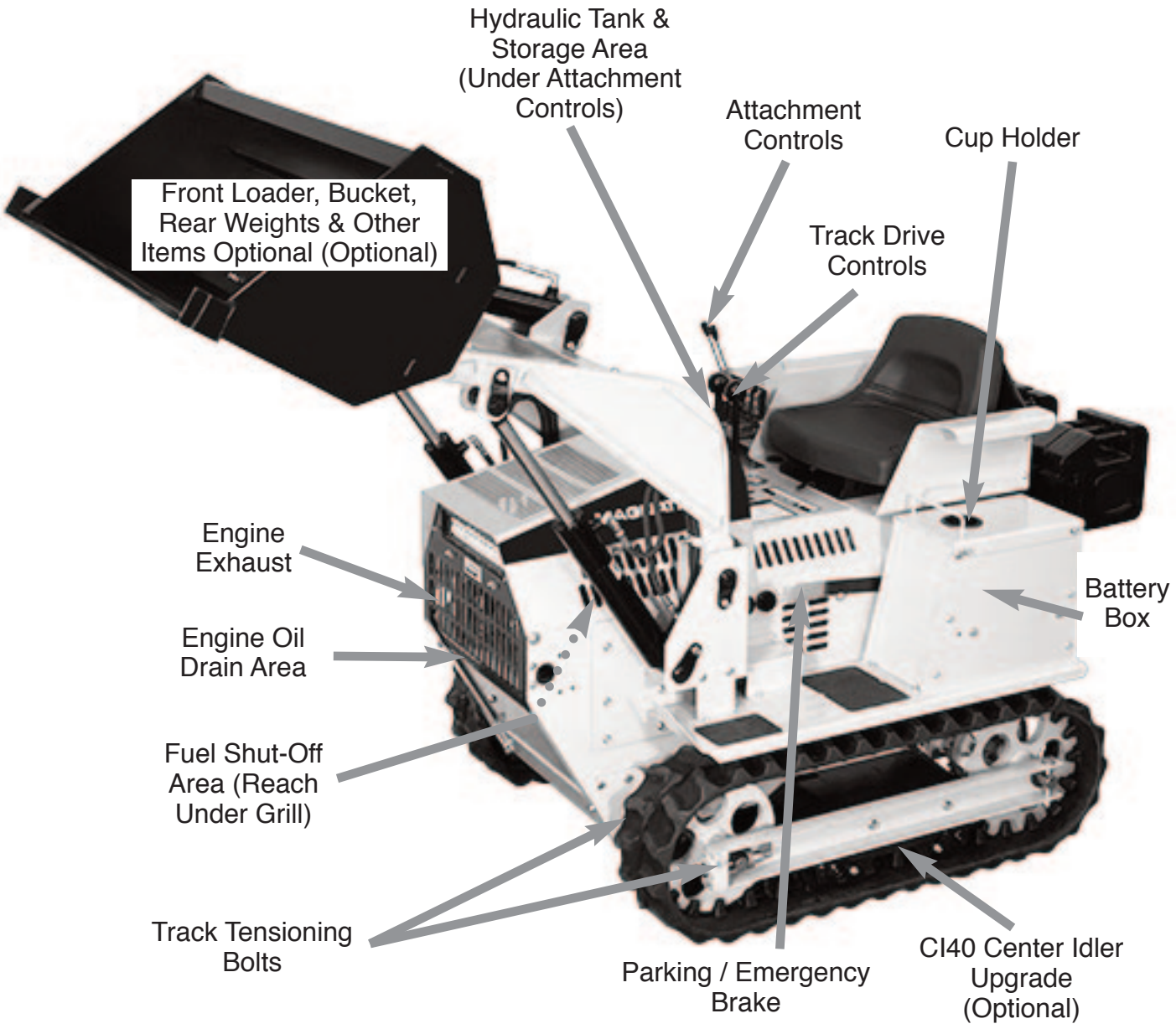
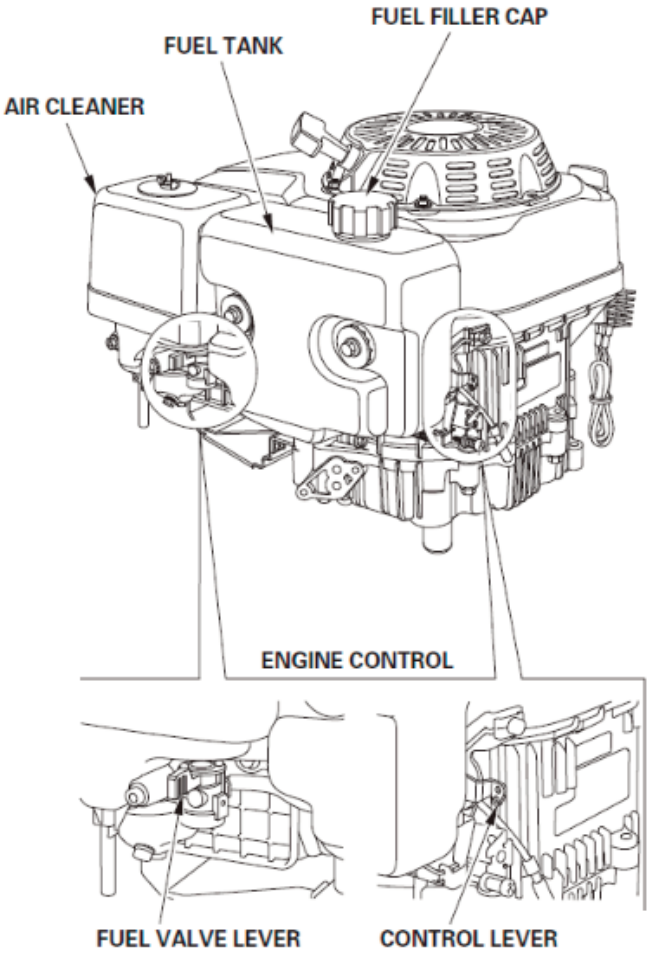
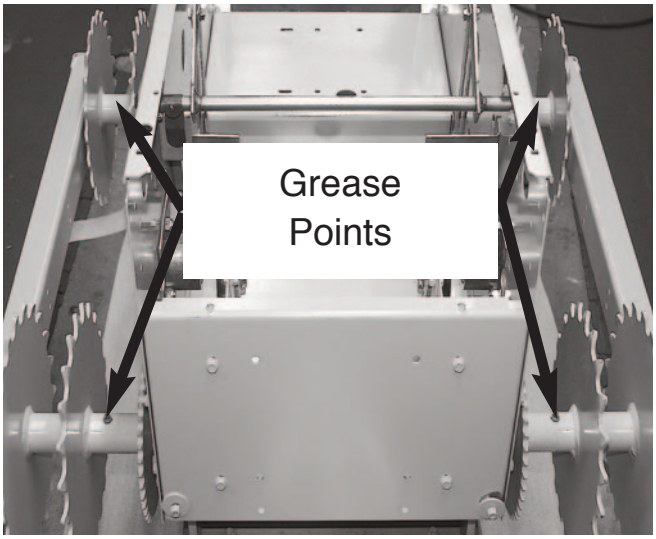


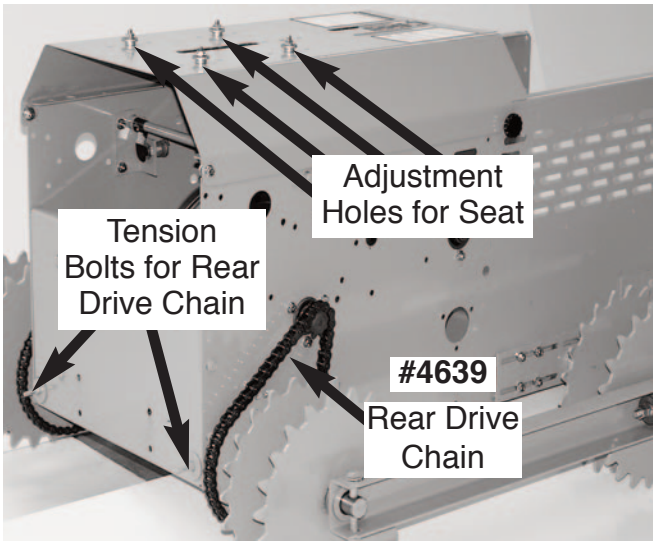
Photo RT-2

MAGNATRAC® RT1150

Overview - Close Up Views







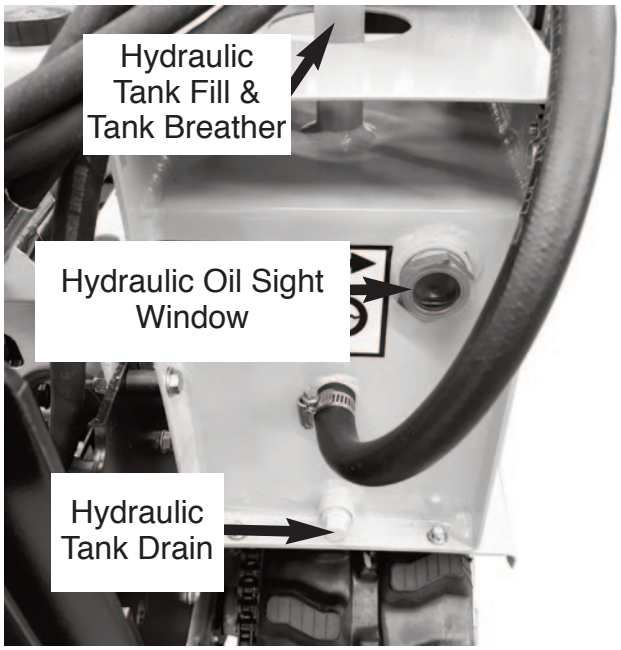


Photo RT-3

MAGNATRAC® RT1150

Overview - Inside

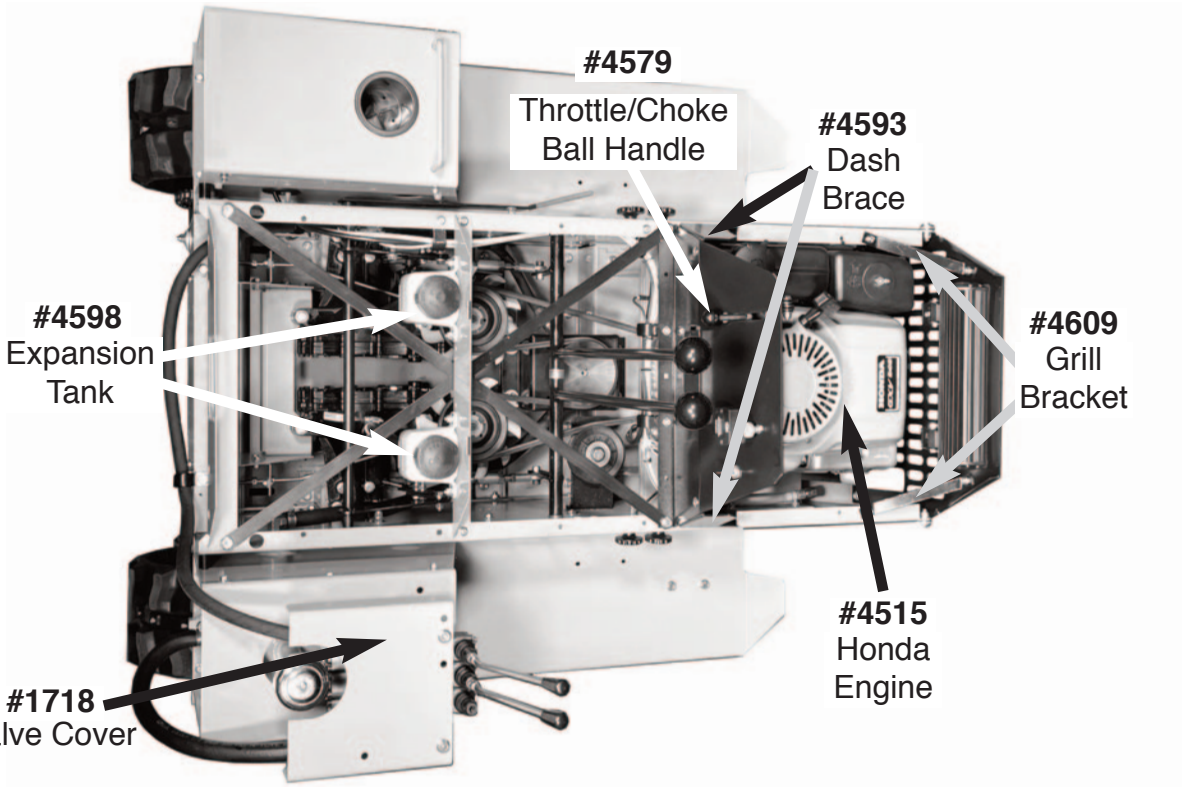


Photo RT-4

MAGNATRAC® RT1150

Overview - Right View

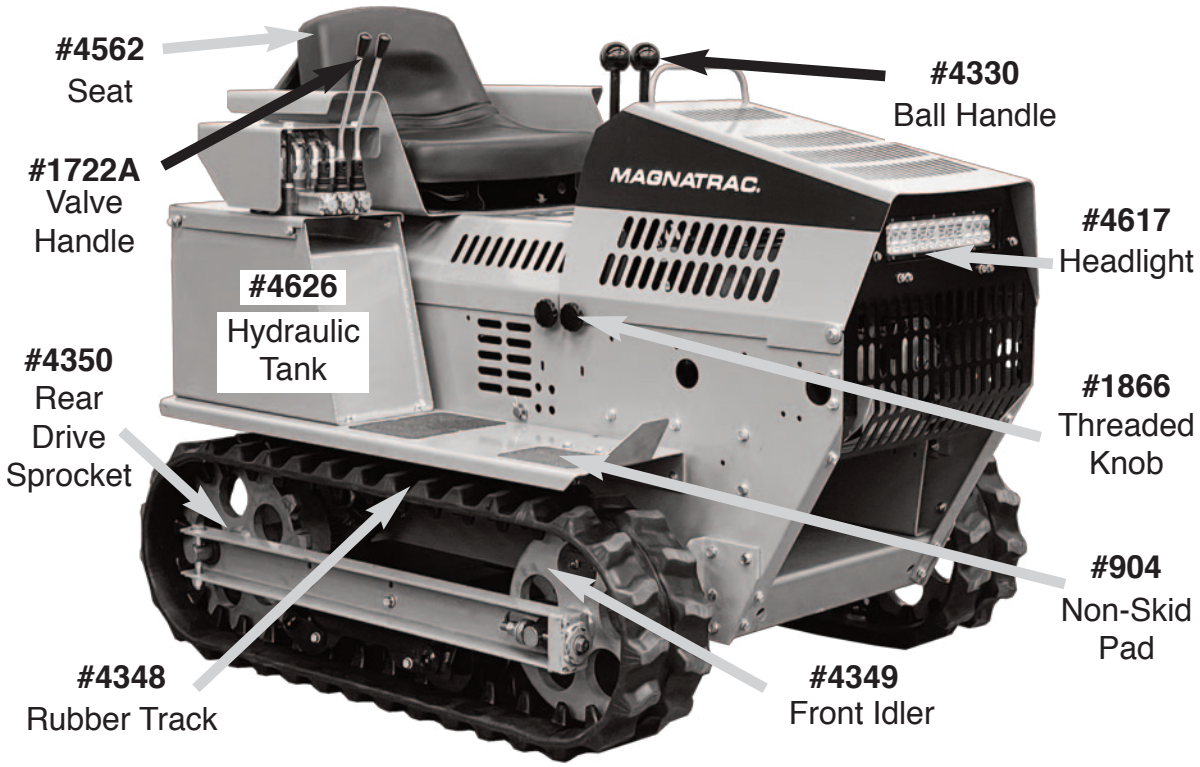
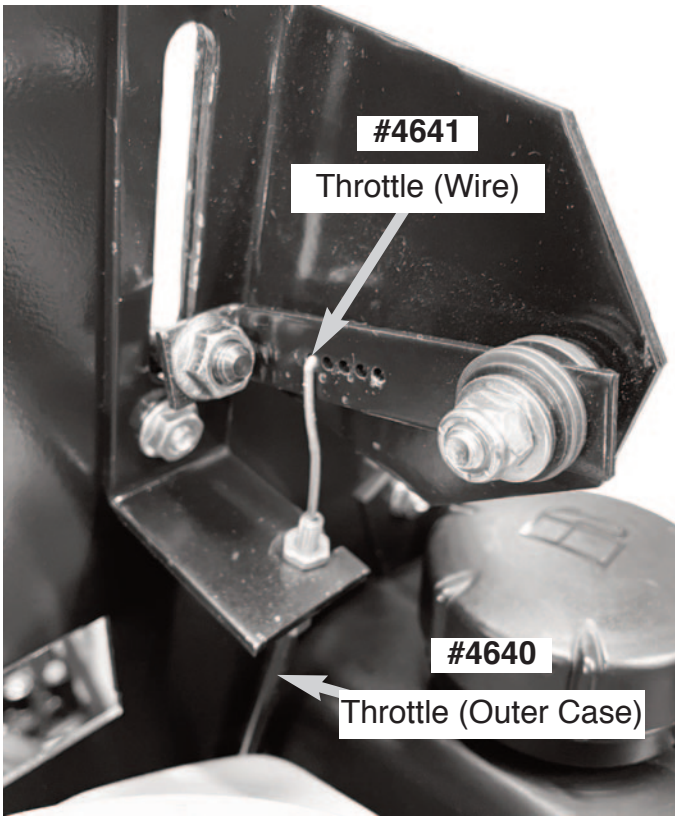


Photo RT-5

MAGNATRAC® RT1150

Throttle - Rear View



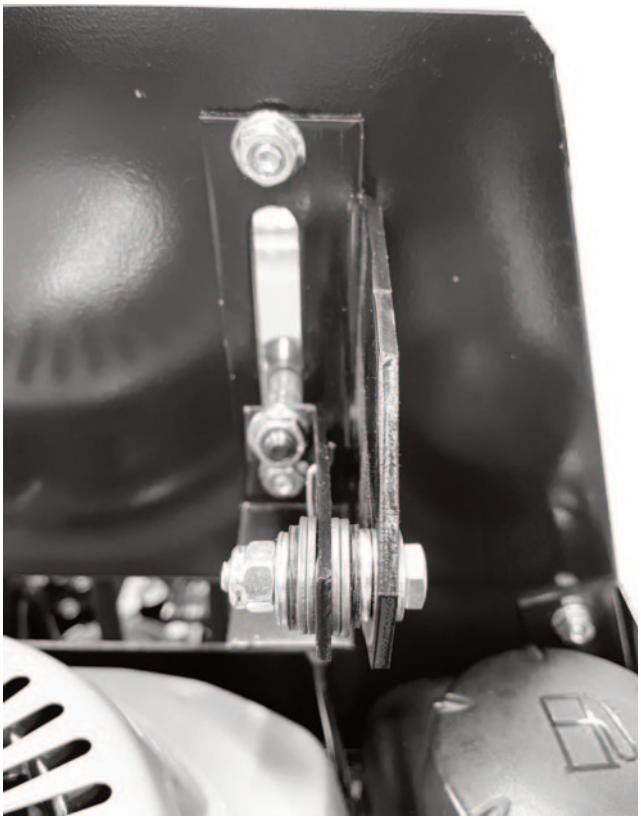


Photo RT-6

MAGNATRAC® RT1150

Wiring - Back of Dash

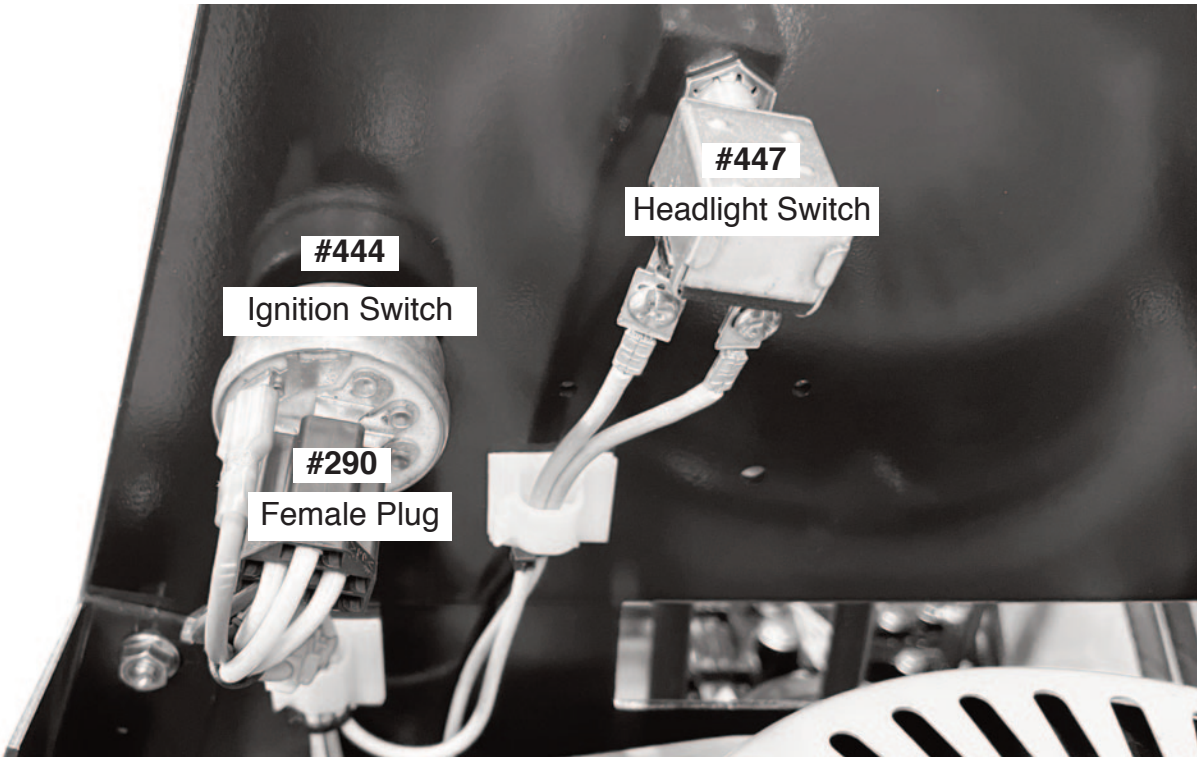


Photo RT-7

MAGNATRAC® RT1150

Hydraulic Attachment System Diagram - Version 1.23

Note: If backhoe is purchased, your pump "Pressure Line" (#4643) will go to the backhoe valve instead of the Attachment Control Valve. The (#1770) "Pressure Line" will then feed the Attachment Control Valve.

Pressure Line *- (Hard Hose):*

Suction or Return Line *- (Soft Hose):*

Hydaulic Flow Direction:

Backhoe Lines *- (Optional):*

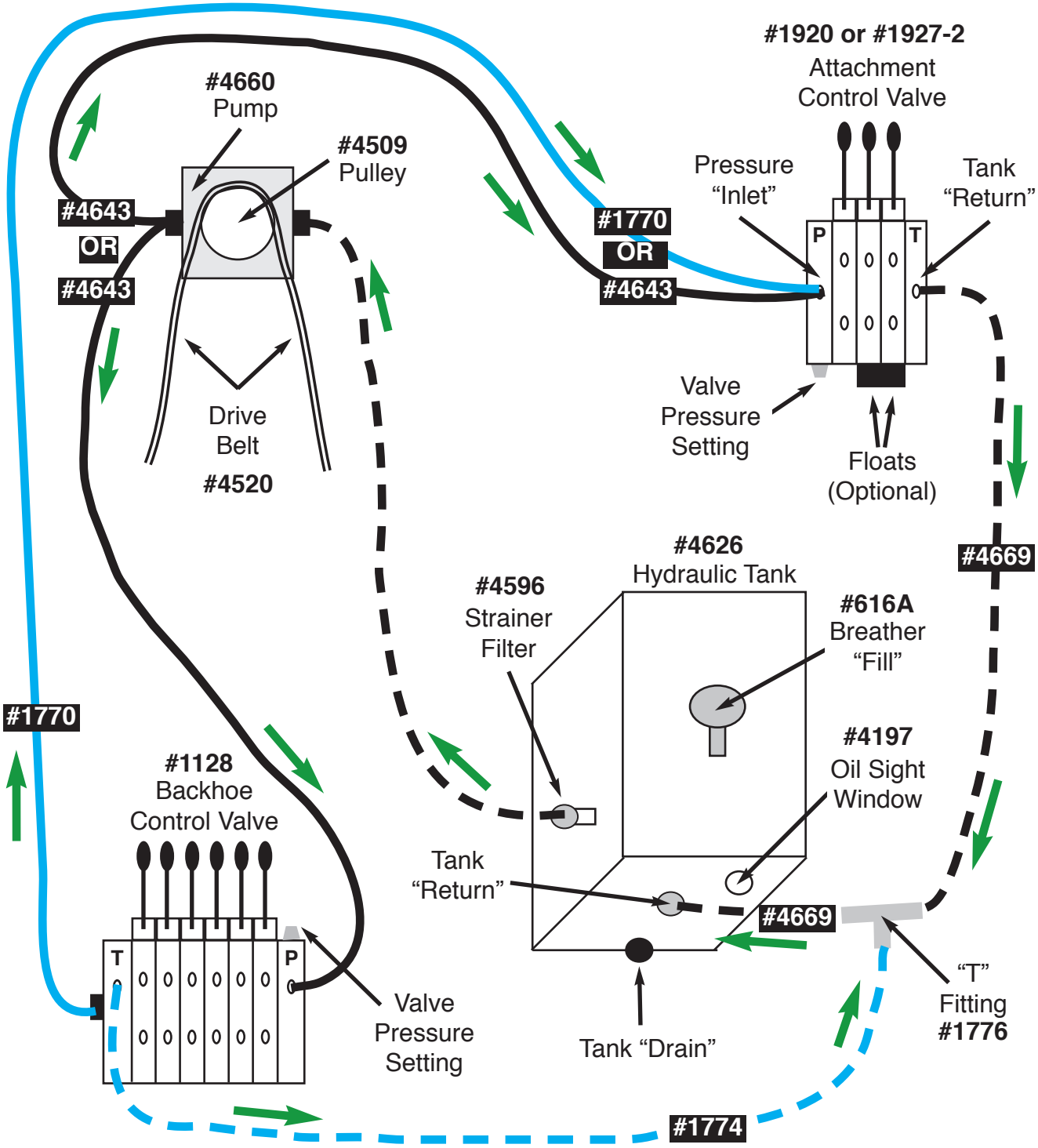
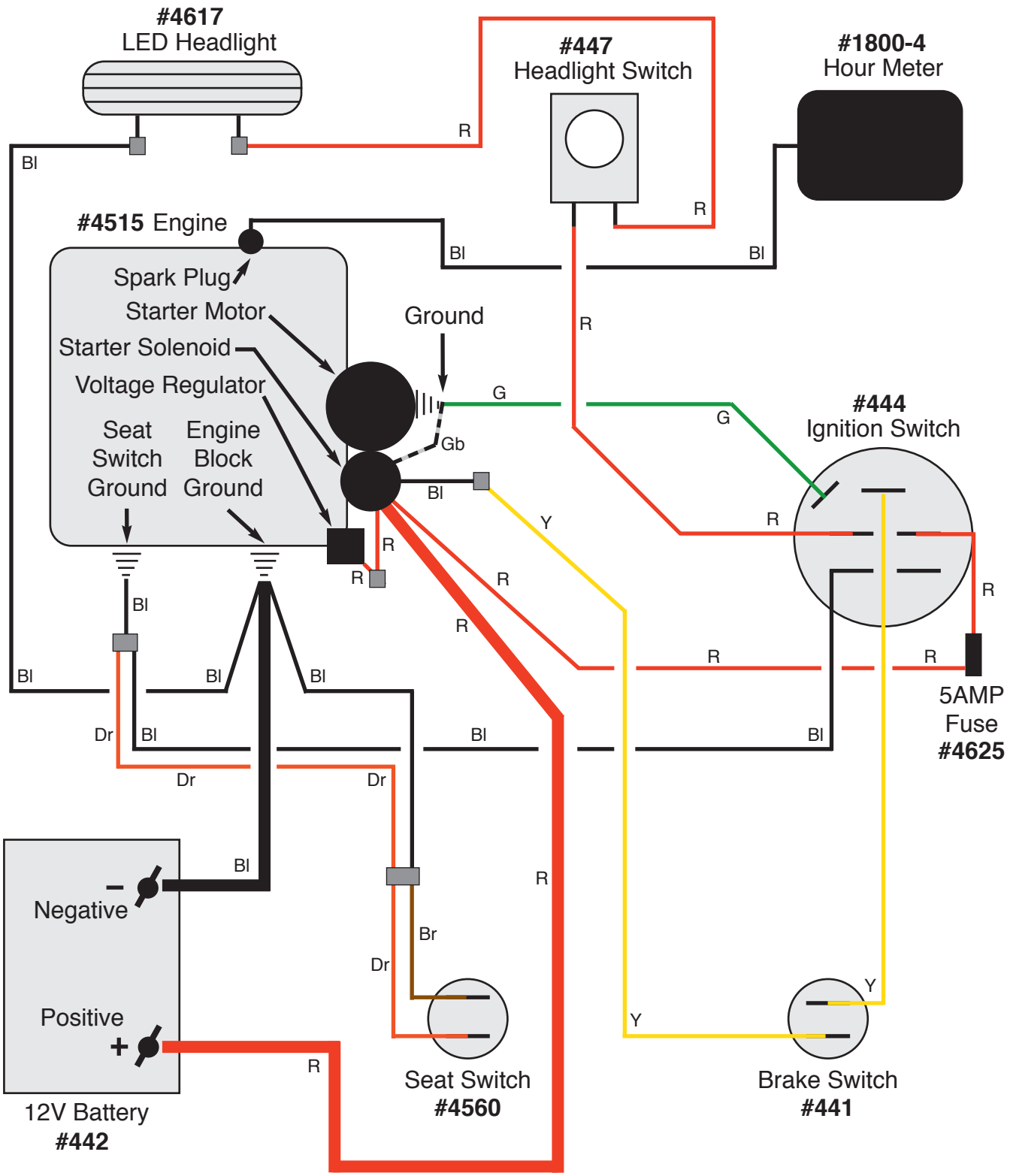


Photo RT-8

MAGNATRAC® RT1150

Wiring Diagram - Honda GXV390 - Version 1.23



Bl - Black
Br - Brown
Y - Yellow
G - Green
R - Red
Dr - Dark Red
Gb- Gray & Black

#4670 Wiring Harness
- Does NOT include positive and negative battery cables.