

S/N: 715001-Current



WALK-BEHIND LOADER

MODEL WB1500

OPERATOR'S MANUAL

RAMROD Equipment

(A Division of Leon's Mfg. Company Inc.)

Canada

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INTRODUCTION

TO OUR CUSTOMER:

RAMROD EQUIPMENT is pleased that you have chosen a **RAMROD WALK-BEHIND**. This loader is a simple, compact power source designed and manufactured to give you years of dependable service.

Read this Manual carefully before operating the Walk-Behind. It contains the necessary information for safe and proper operation, routine servicing, and preventive maintenance.

We also recommend that you carefully read the Engine Manufacturer's Manual before operating the Walk-Behind. Do not neglect the maintenance that is recommended. All engine notations in this manual are generic; the manufacturer's manual takes precedence in the event of any discrepancies.

The reference to right-hand and left-hand used throughout this Manual refers to the position when operating the machine, facing forward.

For any additional information required, please refer to your **RAMROD Dealer**.

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November 2007
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RAMROD WARRANTY

RAMROD EQUIPMENT warrants each new RAMROD Walk-Behind to be free from proven defects in material and workmanship under normal use and maintenance for a period of twelve (12) months, commencing with delivery to the original buyer. Under conditions of this warranty, the Walk-Behind must be operated according to the manufacturer's instructions by a competent and careful operator.

This warranty shall not apply to the Walk-Behind or any part thereof, which has been subject to misuse, negligence, alteration, accident, or used in any way, which, in the manufacturer's option, adversely affects its performance.

It is the responsibility of the Buyer, at his expense, to transport the Walk-Behind or any part thereof in fulfilling this warranty to a designated service shop.

In no event shall the Buyer be entitled to recover for incidental or consequential damages such as, but not limited to, rental of replacement equipment, loss of profits, and loss of Walk-Behind fluids and lubricants.

This warranty does not extend to Walk-Behind components such as, but not limited to, engine, batteries, hydraulic/hydrostatic components which are manufactured by others, and which carry separate warranties of their respective manufacturers.

This warranty is in lieu of all other warranty expressed or implied, and there are no warranties of merchantability or fitness for a particular purpose.

No representative of the manufacturer or selling dealer has authority to change this warranty in any manner whatsoever.

Printed in Canada

NOTE: In order for warranty to be in effect, the following warranty registration forms must be completed and one copy sent to Ramrod Equipment at time of sale.



Leon's Mfg. Company Inc.

"Home of Quality Leon & Ramrod Products"

RAMROD WALK-BEHIND LOADER DEALER PRE-DELIVERY INSPECTION & SERVICE REPORT

Owner: _____ Dealer: _____
Address: _____ Address: _____

Model: _____ Serial No: _____ Date: _____
Engine Serial No: _____ Hour Meter Reading: _____

<u>Item</u>	<u>Remarks</u>
<input type="checkbox"/> Check engine oil level	
<input type="checkbox"/> Check hydraulic oil level	
<input type="checkbox"/> Check battery fluid level	
<input type="checkbox"/> Check engine belt tension (if applicable)	
<input type="checkbox"/> Check air cleaner hoses & connections	
<input type="checkbox"/> Grease/lubricate all pivot points	
<input type="checkbox"/> Check all nuts/bolts for tightness (wheel bolt torque: 90 ft-lbs)	
<input type="checkbox"/> Check for loose or missing bolts, nuts, cotter pins etc.	



Leon's Mfg. Company Inc.



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RAMROD EQUIPMENT

NEW WALK-BEHIND WARRANTY REGISTRATION FORM

Walk-Behind Serial Number

Model Number

Engine Serial Number

Name of Owner

Name of Dealer

Owner's Type of Business

Owner's Address

Dealer's Address

Date Walk-Behind Sold

Date Walk-Behind Delivered

Please forward to:
RAMROD EQUIPMENT
P.O. Box 5002, 135 York Road East
Yorkton, Saskatchewan, Canada
S3N 3Z4

Phone: (800) 667-1581

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Owner's Address

Dealer's Address

Date Walk-Behind Sold

Date Walk-Behind Delivered

DEALER COPY



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Walk-Behind Serial Number

Model Number

Engine Serial Number

Name of Owner

Name of Dealer

Owner's Type of Business

Owner's Address

Dealer's Address

Date Walk-Behind Sold

Date Walk-Behind Delivered

CUSTOMER COPY

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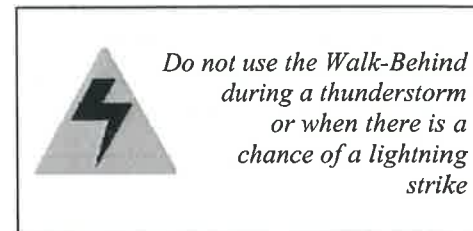
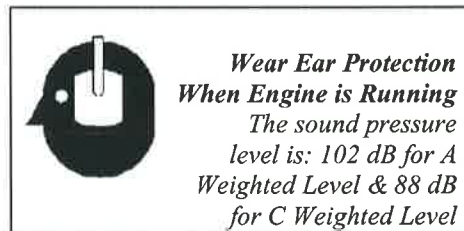
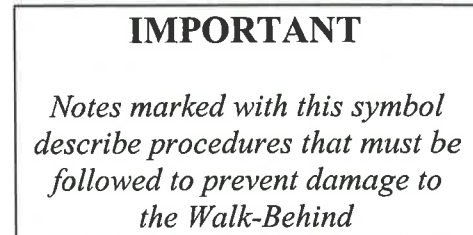
I. SAFETY

OPERATE WALK-BEHIND SAFELY

IMPROPER OPERATION OF THIS WALK-BEHIND MAY RESULT IN SERIOUS INJURY. BEFORE OPERATING THIS MACHINE, OPERATORS MUST HAVE PROPER INSTRUCTIONS, BE FAMILIAR WITH THE SAFETY PRECAUTIONS, AND HAVE READ THIS MANUAL AND THE ENGINE MANUFACTURER'S MANUAL THOROUGHLY.

OPERATORS MUST UNDERSTAND THE CAPABILITIES AND LIMITATIONS OF THE EQUIPMENT WITH RESPECT TO SPEED, BRAKING, STEERING, STABILITY AND LOAD CHARACTERISTICS PRIOR TO OPERATING THE MACHINE.

NEW OPERATORS MUST CHECK ALL CONTROLS IN A SAFE, OPEN AREA PRIOR TO OPERATING THE MACHINE.



SAFETY PRECAUTIONS

READ YOUR OWNERS'S MANUAL AND ALL SUPPLEMENTS BEFORE OPERATING YOUR WALK-BEHIND.

WHEN LEARNING TO OPERATE THE MACHINE, SET THE FLOW DIVIDER TO LOW GROUND SPEED AND PROCEED SLOWLY AND CAREFULLY.

DO NOT OPERATE ANY OF THE CONTROL LEVERS INCLUDING AUXILIARY POWER TAKE-OFF UNLESS YOU ARE FIRMLY HOLDING THE GRIP HANDLES.

DO NOT JERK THE CONTROL LEVERS, USE A STEADY EVEN MOTION.

KEEP HANDS, FEET AND CLOTHING AWAY FROM ALL MOVING PARTS AND CYLINDERS.

DO NOT RIDE IN BUCKET.

DO NOT ALLOW ANY OTHER PERSON OR ANIMAL CLOSE TO THE WALK-BEHIND WHILE IN OPERATION.

SAFETY PRECAUTIONS – CONTINUED

WATCH FOR OTHER PEOPLE AND EQUIPMENT.

KEEP THE BUCKET LOW WHEN TRAVELLING, TURNING, OR CHANGING SPEED.

TRAVEL SLOWLY OVER ROUGH TERRAIN.

BEWARE OF TRENCHES, HOLES AND SIDE SLOPES.

DO NOT DRIVE THE WALK-BEHIND ACROSS STEEP SLOPES.

LOAD, UNLOAD, AND TURN AROUND ON FLAT, LEVEL GROUND ONLY.

ENSURE ADEQUATE VENTILATION WHEN USING THE MACHINE IN CONFINED SPACES OR INDOORS.

DO NOT CARRY LOAD WITH ARMS IN A RAISED POSITION. ALWAYS CARRY LOADS CLOSE TO THE GROUND.

TO AVOID FREE-FALL OF LOAD WHEN LOWERING LIFT ARMS, DO NOT PUSH LIFT ARM LEVER FULLY FORWARD.

DO NOT EXCEED RATED LOAD CAPACITY.

ALWAYS LOWER THE BUCKET AND SHUT OFF THE ENGINE BEFORE LEAVING THE MACHINE.

AVOID PARKING ON A SLOPE. IF IT IS NECESSARY, PARK ACROSS THE GRADE, GROUND THE BUCKET AND BLOCK THE WHEELS.

WHEN HOOKING UP ATTACHMENTS TO THE MACHINE, ENSURE THAT LOCK PINS ARE FULLY ENGAGED.

DO NOT PLACE ANY PART OF THE OPERATOR'S BODY OR ALLOW ANYONE UNDER WALK-BEHIND ARMS OR ATTACHMENTS.

DO NOT LUBRICATE, ADJUST OR REPAIR THE MACHINE WITH THE ENGINE RUNNING.

NEVER FUEL A HOT MACHINE.

DO NOT SMOKE WHEN FUELING OR OPERATING THE MACHINE.

ALWAYS READ THE OWNER'S MANUAL FOR PROCEDURES FOR SERVICING AND MAINTAINING THE WALK-BEHIND.

BE AWARE OF WHERE YOUR FEET ARE IN RELATION TO THE TRACKS WHEN REVERSING THE MACHINE, PARTICULARLY WHILE TURNING IN REVERSE.

THE FOLLOWING PRECAUTIONS APPLY IF THE MACHINE IS EQUIPPED WITH A RIDE-ON PLATFORM:

DO NOT OPERATE ANY OF THE CONTROL LEVERS INCLUDING AUXILIARY POWER TAKE-OFF UNLESS BOTH YOUR FEET ARE ON THE PLATFORM AND YOU ARE FIRMLY HOLDING THE GRIP HANDLES.

DO NOT ALLOW MORE THAN ONE PERSON ON THE PLATFORM AT A TIME.

DO NOT PLACE ANY BODY PART UNDER THE PLATFORM WHILE THE ENGINE IS RUNNING.

REMEMBER, **SAFETY FIRST.**

II. CONTROL

It is necessary to become familiar with the location and purpose of each control before operating the Walk-Behind.

ENGINE CONTROLS

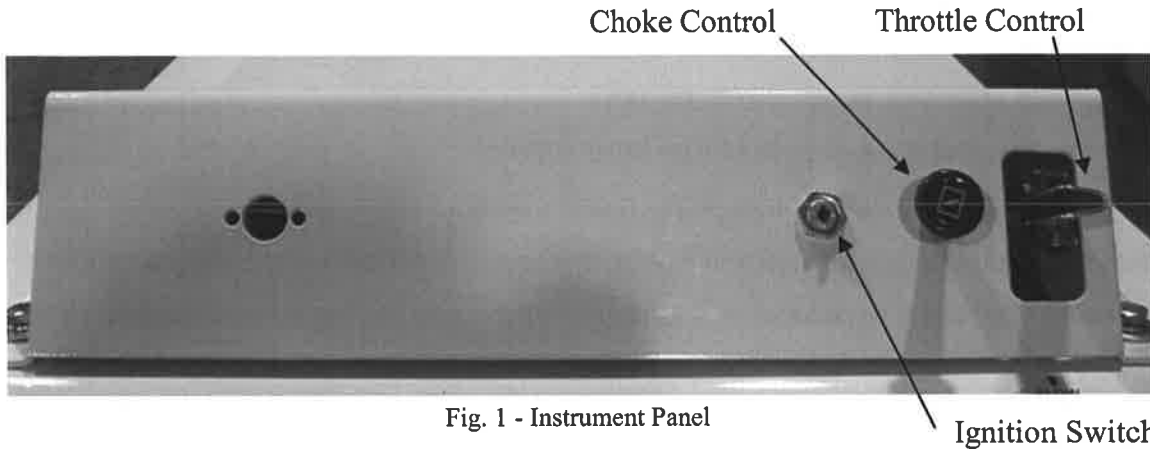


Fig. 1 - Instrument Panel

Choke Control – Pull the choke control out to start a cold engine. As the engine warms up push choke control in gradually.

Throttle Control – When the throttle control lever is fully up the engine is at idle speed. Pushing the control lever down increases engine speed.

Ignition Switch – The ignition switch is a three-position switch. Clockwise from the OFF position are the ON and START positions.

IMPORTANT

Be sure ignition key is in OFF position, or even removed, when the engine is not running

IMPORTANT

In order to obtain maximum power while working, the engine should be running at full throttle

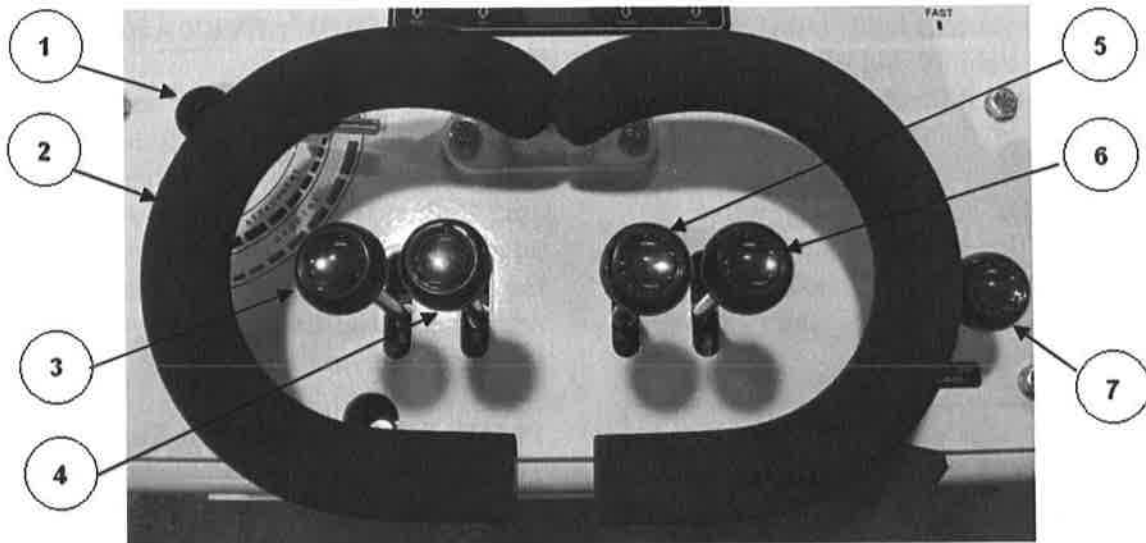


Fig. 2 – Control Panel

PRIMARY CONTROLS

1. Flow Divider
2. Grip Handle
3. Lift Lever
4. Tilt Lever
5. Left-Hand Drive Lever
6. Right-Hand Drive Lever
7. Auxiliary Lever

DRIVE LEVERS, Items 5 & 6, Fig. 2

The left-hand drive lever controls the track on the left-hand side while the right-hand drive lever controls the track on the right-hand side.

Engage the drive levers slowly because even a small movement of the levers will produce motion. All lever movements should be smooth and gradual. To drive the Walk-Behind straight forward, move both control levers forward an equal amount. Likewise, to drive the Walk-Behind straight backward, move the control levers back an equal amount.

The Walk-Behind is steered by moving one lever further forward than the other. To turn left, move the right lever further ahead than the left lever; to turn right, move the left lever further ahead than the right lever. For the Walk-Behind to perform a spin-turn, or “Skid Steer”, move

one lever forward and the other backward the same amount.

The Walk-Behind features single-handed steering. For normal operation, the most comfortable hand position is to operate the two steering levers with the

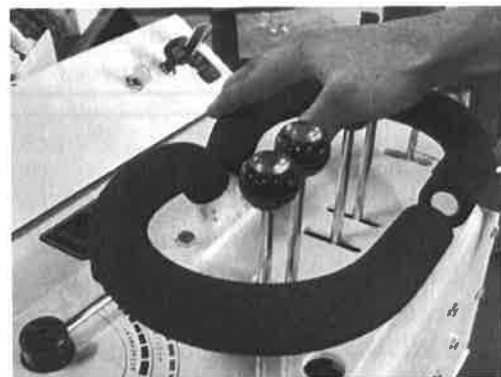


Fig. 3 – Single-Hand Steering

palm of your right hand with your fingers gripping the grip handle, as shown in Fig. 3. Flexing your fingers will allow forward travel, and simply rotating your palm will allow normal steering. To reverse, slip your palm back to the rear of the grip handle, and use the tips of your fingers to pull the steering levers backwards.

This will allow for more precise control of the unit. Your

left hand should hold onto the grip handle for stability, but can also be used to operate the tilt and dump functions as required.

NOTE: Be sure to slowly move the levers to the center (neutral) position when stopping. The Walk-Behind will stop **INSTANTLY** if the operator releases the drive levers.



Warning

Do not move any of the control levers unless standing with both feet on the platform (if equipped) and holding the grip handles



Warning

When reversing the machine, particularly when executing a turn while reversing, be aware of where your feet are in relation to the tracks at all times to prevent backing over your toes



Warning

Use extreme caution when stopping. If the bucket or attachments are raised when stopping, the machine can tip. Keep all movements smooth. All new operators must work the machine in a safe open area to become familiar with its operating characteristics.

LIFT CONTROL LEVER – Item 3, Fig. 2

The outside control lever located on the left-hand side controls the lift. Pushing the lever forward lowers the lift arm and pulling the lever back raises the lift arm. The lever is spring-centered to return to neutral upon release.

TILT CONTROL LEVER – Item 4, Fig. 2

The inside control lever located on the left-hand side controls the tilting action of attachments such as buckets, forks, etc. Pulling the lever back rolls the attachments back. Pushing forward on the lever tilts forward or “dumps” the attachment. The lever is spring-centered to return to neutral upon release.

FLOW DIVIDER – Item 1, Fig. 2

The walk-behind features a variable flow divider which splits available oil flow between the auxiliary circuit and the loader functions. This allows selection of the relative speeds of the machine and attachments, and enables the operator to set the machine speed and attachment flow to match the conditions of any given job.

For applications such as trenching and tilling almost all flow should be diverted to the attachment, leaving only enough flow to the wheel motors for crawling the machine along. Other attachments such as grapple buckets will require a more balanced flow.

Even when the auxiliary circuit is not in use, the flow control can be used to vary machine speed. For work in close quarters, and while learning to drive, set the flow to the machine to low. If, on the other hand, you need to travel longer distances quickly, set the flow divider to high machine flow in order to achieve higher ground speeds.

Be aware that the flow control will also change the speed of various machine functions such as lift and tilt. With full flow to the machine, these functions will operate quickly.

AUXILIARY LEVER – Item 7, Fig. 2

The direction of auxiliary flow and “on-off” control of attachments is provided by this lever. Pushing the lever forward will operate the attachment in one direction, while pulling it back will operate the attachment in the opposite direction. This lever locks in each position and must be returned to the center (off) position manually. Ensure that the lever is set to off when not in use.

IMPORTANT

Ensure that the auxiliary lever is kept in neutral when not in use to avoid wasting power. Engine is difficult to start if lever is engaged. Hydraulic oil may also overheat.

III. OPERATION

You can take full advantage of all the features of your Ramrod Walk-Behind by following the operating information presented here. The Walk-Behind has been designed to do a lot of work with a minimum of operator fatigue.

Note: For more information regarding engine starting and operation, refer to your engine owner's manual.

PRE-STARTING INSPECTION AND PREPARATION

Before you start the Walk-Behind for the first time each day, perform the following checks and service:

1. Check engine crankcase oil level
2. Check engine fuel and open fuel shut-off valve if closed
3. Check hydraulic fluid level in tank
4. Check for fuel, engine oil, or hydraulic leaks
-WARNING- *Never check for hydraulic leaks with your bare hand. High-pressure fluid could penetrate your skin and cause severe injury*
5. Visually inspect all hoses, lines, fittings, tracks, pivot points, mounting pins, nuts and bolts, safety shields and decals for possible failure or looseness.
6. Check that all controls are in the neutral position.



WARNING

Do not move any of the control levers unless standing with both feet on the platform (if equipped) and holding the grip handles

STARTING PROCEDURE

1. Push the throttle lever down slightly
2. Engage choke
3. Turn the ignition switch to "ON" and then through to the "START" position. (If the engine fails to start by cranking for 10 seconds, wait 5 seconds before trying again)
4. As the engine warms up, push back the choke control gradually
5. Set the throttle lever for idling speed. Avoid excessive engine speed during warm-up
6. To restart a warm engine – move throttle control slightly and turn ignition key to "START"

IMPORTANT

Do not crank engine with starter for more than 10 seconds at a time, as this will overheat the starter

IMPORTANT

Ensure the auxiliary lever is in neutral when not being used to avoid wasting power. Engine is difficult to start if lever is engaged. Hydraulic oil may also overheat

IMPORTANT

Do not put Walk-Behind under full-load condition until it has warmed up

SHUT-OFF PROCEDURE

1. Park the Walk-Behind on level ground. If it is necessary to park on a slope, park across the grade and block the wheels
2. Lower the lift arms and ground the bucket
3. Return throttle control to "idle" position, and allow engine to idle for a short time
4. Ensure Auxiliary & Control levers are in neutral position
5. Turn ignition key off and remove key

IMPORTANT

*Be sure ignition key is in OFF position
or removed when the engine is not
running*

QUICK-ATTACH LOCK PINS

The tool bar design allows changing from one attachment to another quickly and easily, without having to remove pins.

Attachments are secured on the unit with two spring-loaded pins. Rotating the handles on the pins 180° moves the pins from the locked to the unlocked position.

To unlock attachments, rotate both pins so that their handles are both pointing to the outside of the tool bar (as shown in Figure 4).

To lock attachments, rotate both pins inwards so that both handles are pointing towards the center of the machine (as shown in Figure 5). This will allow the springs to push the pins downwards through the mounting holes in the attachment and secure it to the unit.

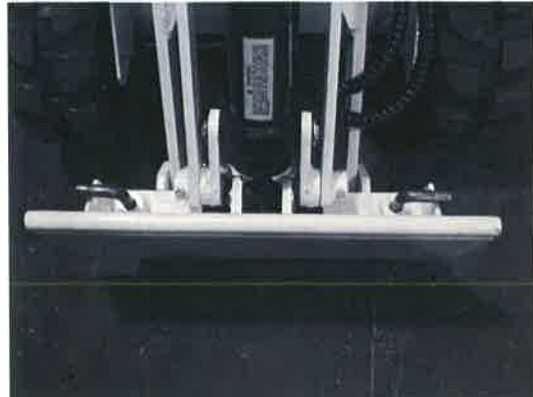


Fig. 4 - Lock Pins Disengaged

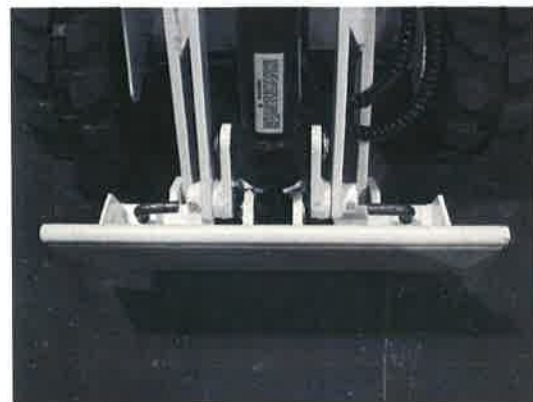


Fig. 5 - Lock Pins Engaged



WARNING

The design of the quick-attach system is such that attachments can be lifted and carried without the lock pins being engaged. Before using any attachment, ensure that the lock pins are fully engaged. The attachment will fall off when dumped if the lock pins are not engaged, resulting in possible damage or injury.



WARNING

After hook-up to attachment, check to ensure lock pins are fully engaged and locked into position

MOUNTING ATTACHMENTS

ATTACHMENT INSTALLATION

1. Rotate lock pins to the unlock position (handle pointing outwards).
2. Tilt the attachment frame forward as shown in Figure 6, so that the top round edge of the attachment frame will fit under the lip of the attachment.
3. Drive into the attachment, raising the arms so that the top of the attachment frame slips under the lip on the attachment, and attachment lifts slightly.
4. Using the tilt cylinder, roll back the attachment so it drops into place, as shown in Figure 7.
5. Rotate the lock pins to the locked position (handles facing inwards), and check that the lock pins are fully inserted through the lock holes in the attachment.
6. Connect attachment hydraulic hoses (if required) to the quick couplers shown in Figure 8.

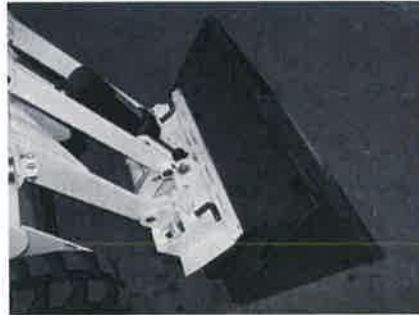


Fig. 6



Fig. 7



Fig. 8



WARNING

After hook-up to attachment, check to ensure lock pins are fully engaged and locked into position

REMOVAL OF ATTACHMENT

1. Lower lift arms and tilt the attachment forward so that it is resting on the ground.
2. If attachment is equipped with hydraulics, stop the engine, relieve hydraulic pressure in the attachment lines by shifting the auxiliary lever back and forth, and disconnect the attachment.
3. Rotate the lock pins to the unlocked (handles pointing outwards) position.
4. Start the engine, and tilt the attachment mount frame until it clears the mounting lip on the attachment. Back the Walk-Behind away from the attachment.
5. Attach the two attachment quick couplers together to avoid getting dirt in the attachment hydraulics.

OPERATION

OPERATIONAL PROCEDURE

The Walk-Behind operational procedures and suggestions in this manual are based on the use of a bucket. Procedures and suggestions may vary with the use of different attachments. See your attachment manual or contact your local dealer for more information.

OPERATING SUGGESTIONS

1. Install an attachment (bucket). **Set the machine flow divider to half power to the machine or less.** Drive carefully to a clean and level area and practice operating the Walk-Behind at a slow rate until familiar with the operation of all controls.
2. Hydraulic power transmission is instantaneous. When using the drive levers, sudden movement will result in acceleration to full speed and a very jerky ride. Use smooth and gradual movements when using the drive levers.
3. For efficient operation of the Walk-Behind, keep the work area small and as level as possible.
4. Decrease cycle time by “skid” turning rather than backing up, using a slow turn, then going forward.
5. When driving on slopes keep the heaviest end of the Walk-Behind upward. When driving on a slope with an empty bucket, back up the slope in reverse, and drive down a slope forward as in Figure 9. When driving on a slope with a load, drive up the slope forward and back down the slope in reverse as in Figure 10.
6. Fill the bucket to rated capacity. Turning is easier with a full load than with a partial load.
7. To increase machine life, let the engine warm completely before starting operations each day. Avoid “overloading” or “lugging” the Walk-Behind.

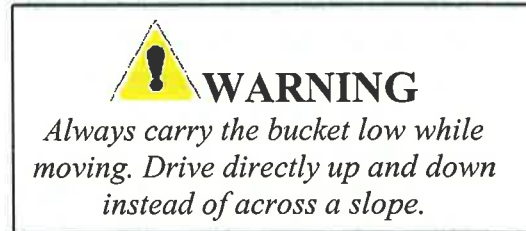


Fig. 9 – Empty Bucket



Fig. 10 – Full Bucket

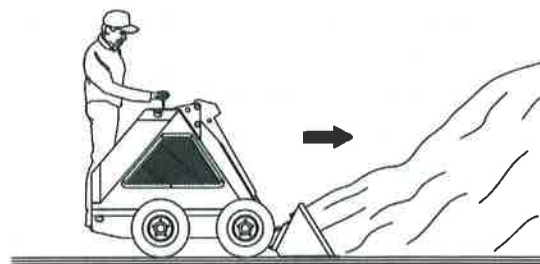


Fig. 11 – Approaching a Pile

OPERATION

FILLING AND DUMPING A BUCKET

1. Approach a pile of material with the lift arms fully lowered and the bucket cutting edge just skimming the top of the ground as shown in Figure 11.
2. As soon as the bucket is full, tilt the bucket back and reverse away from the pile, as shown in Figures 12 and 13.
3. When dumping, raise the bucket high enough to clear the stockpile or the sides of the container being loaded.
4. Drive forward slowly until the bucket is over the dumping area and tilt the bucket forward until it completely empties.
5. Tilt bucket back, reverse if necessary to clear container side, lower lift arms and drive away.

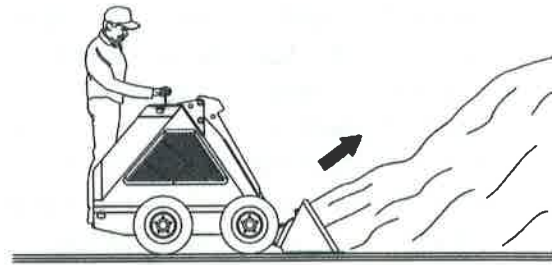


Fig. 12

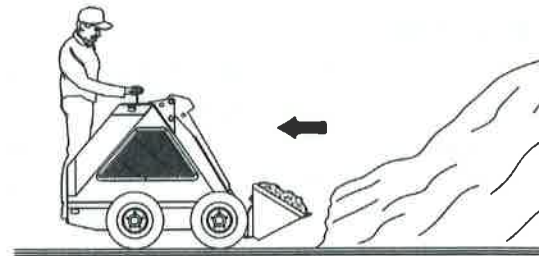


Fig. 13

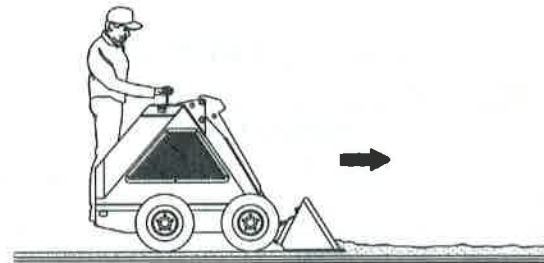


Fig. 14

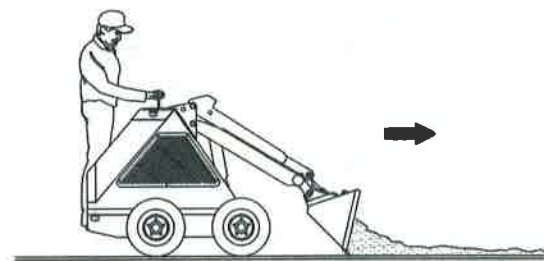


Fig. 15



WARNING

Never step off the operator platform (if equipped) with a load raised off the ground

DIGGING WITH A BUCKET

1. Lower lift arms fully and tilt bucket forward until cutting edge is on the ground.
2. Drive machine forward slowly and continue to tilt bucket forward until it enters the ground to desired depth and then tilt it back a small amount to keep an even depth, as shown in Figure 14.
3. Continue driving forward until bucket is full and then tilt bucket fully back while driving slowly forward or stopping the machine.

FILLING/LEVELLING

1. To spread material on uneven ground, raise lift arms and tilt bucket forward while driving slowly forward, as shown in Figure 15.

OPERATION

2. To level a filled area, tilt bucket forward and drive machine backwards to drag bucket and spread material, as shown in Figure 16.
3. Another method of leveling is to travel forward with bucket down and level, full of material and pushing excess into low areas. Depth is controlled by tilting the bucket slightly up or down, as in Figure 17.

BACKFILLING

1. When filling a trench or hole, either drive up to the hole with a filled bucket carried low or push material up to the edge as shown in Figure 18.
2. Tilt bucket forward as soon as it reaches the edge of the hole and when necessary raise the arms to empty the bucket.

TRANSPORTING THE WALK-BEHIND

Important

Never tow the Walk-Behind - damage may result

When the machine is transported on a truck or trailer, proper ramps must be used for loading.

A Walk-Behind with an empty bucket or no attachment should be driven backwards up a ramp onto the trailer or forward down a ramp, as shown in Figure 19.

After the Walk-Behind has been driven onto the transporting vehicle, lower any attachments and use chains or tie-downs to prevent the Walk-Behind from moving during sudden stops and starts or when traveling up and down grades.

Close the fuel valve when the Walk-Behind is to be transported. Vibration during transport could cause the carburetor to flood.

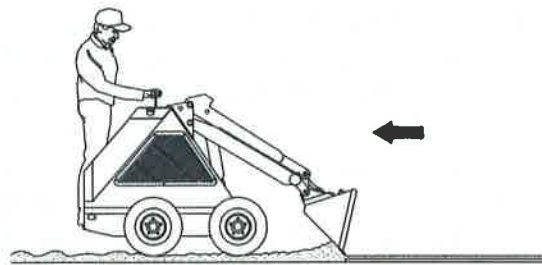


Fig. 16

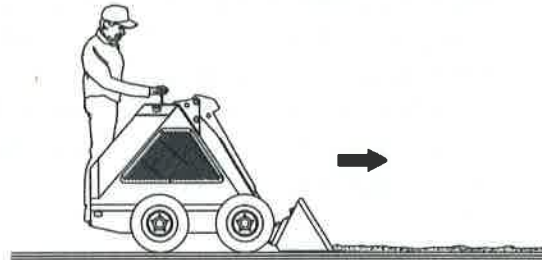


Fig. 17

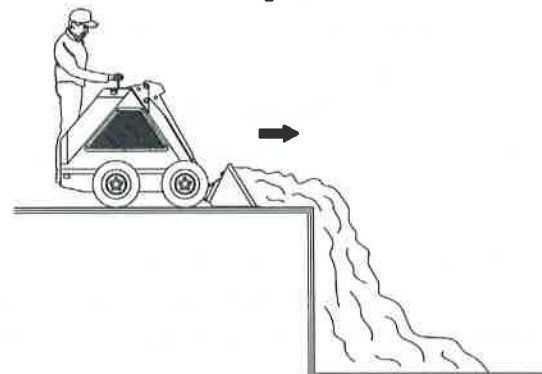


Fig. 18

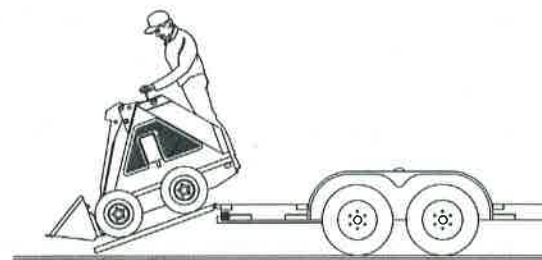


Fig. 19



WARNING

When transporting the Walk-Behind on a road or highway, ensure that the trailer is equipped with the proper lights and signs as required by law

OPERATION

LIFT CYLINDER SAFETY LOCK

Your Walk-Behind is equipped with a lift cylinder safety lock. It is bolted on the right side of the body near the rear for storage, and is painted red.

In order to safely work underneath the lift arms, remove any attachment currently on the Walk-Behind and remove the safety lock from its storage location. Raise the lift arms to their maximum height and place the lock around the exposed rod of the lift cylinder as shown in Figure 20. Secure the lock in place using the bolt that secured the lock to the storage tab.



Fig. 20 – Cylinder Lock Installation

Ensure that the engine is shut off before performing any work on the Walk-Behind. After completing work on the Walk-Behind, remove the lock from the lift cylinder and replace it in its storage location.

Important

Never lower the lift arms with the cylinder lock in place. Damage to the lift cylinder will result.

LIFTING THE WALK-BEHIND

The Walk-Behind may be lifted using a strap placed underneath the lift arms and/or the operator bar.

Ensure that all lift equipment is rated for the weight of the Walk-Behind. The weight of the machine (without an attachment and full oil and fuel tanks) is approximately 1200lbs.



WARNING

*Never stand underneath the Walk-Behind while it is being lifted.
All lift equipment must be rated for the weight of the Walk-Behind.*

IV. MAINTENANCE

ENGINE MAINTENANCE

For proper engine maintenance, refer to your Engine Owner's Manual. This pertains to all applicable maintenance on your engine. Maintenance with respect to fluids and lubricants are included in the "Periodic Maintenance and Service Schedule" in your Manual.

The engine can be accessed through the sides of the body and also by opening the access panel above the engine compartment.



Fig. 21 – Engine Compartment – Right Side

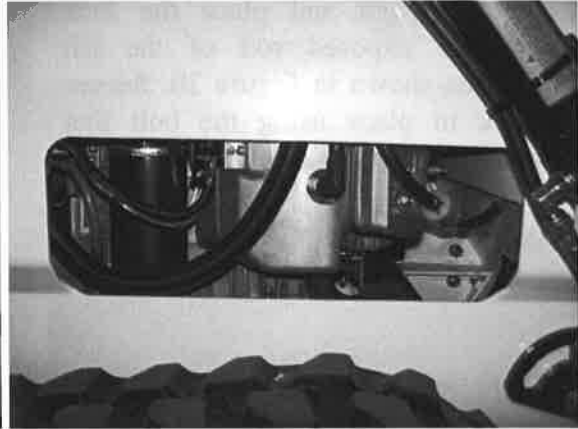


Fig. 22 – Engine Compartment – Left Side



Fig. 23 – Engine Compartment – Top Right



Fig. 24 – Engine Compartment – Top Left

BATTERY/HYDRAULIC OIL FILTER

Check the battery hold-down bracket for tightness. Do not over-tighten. Remove any acid corrosion from the battery terminals and cables with a baking soda and water solution. Terminals may be coated with a high-temperature grease.

The battery and hydraulic filter may be accessed by removing the upper front cover as shown in Figure 25.



Fig. 25 - Hydraulic Filter and Battery

FUELS, LUBRICANTS AND CAPACITIES

The performance obtained from your Walk-Behind is greatly affected by the quality of the petroleum products used within it. The following chart shows which lubricant to use in the various components of the Walk-Behind.

COMPONENT	TEMPERATURES	TYPE OF LUBRICANT/FLUID	CAPACITY Litres (US Gal.)
Engine Oil	See engine owners manual	See engine owners manual	See engine owners manual
Fuel Tank	All Temperatures	Gasoline – Regular	24.5 (6.5)
Hydraulic Oil Reservoir	Above 0°C (32°F) Below 0°C (32°F)	S.A.E. 10W30 Dextron II or III	38 (10)

NOTE: For high temperature operation, S.A.E. 15W40 or 20W50 can be used. Note that these oils can cause severe pump damage if used under 10°C (50°F).

The fuel filler spout is located near the rear of the left body side, as shown in Figure 26.



Fig. 26 - Fuel Fill Location



The hydraulic oil fill and level check cap is located under the upper front cover on the top of the hydraulic reservoir at the left side (see Figure 27).



Fig. 27 - Hydraulic Oil Fill Location



WARNING

Do not service the Walk-Behind while the engine is running

HYDRAULIC SYSTEM MAINTENANCE

HYDRAULIC OIL LEVEL CHECK

1. Ensure that the Walk-Behind is sitting level, the lift arms are down, and the tilt cylinder is fully retracted.
2. Remove the hydraulic oil cap, and check the level. The oil should be approximately 2 inches from the top of the tank.
3. If necessary add the proper type and grade of oil.

CHANGING HYDRAULIC OIL

1. The hydraulic oil drain is accessed from underneath the machine after removing the bottom access panel as shown in Figure 28.
2. Open the hydraulic oil filler cap to allow air to enter the reservoir.
3. Remove the drain plug (shown in Figure 29) to drain the oil.
4. Replace the drain plug and refill reservoir with clean oil.



Fig. 28 – Bottom Access Plate



Fig. 29 - Hydraulic Oil Drain

FINAL DRIVE MAINTENANCE

TRACK ADJUSTMENT

The track system on the Walk-Behind does not use any chains; however, it is important to keep the track system tensioned properly.

Tracks should be tensioned so that a 180lb person standing on one foot in the center of the track makes the track bend down approximately 1".

Track tension is adjusted through use of the track tensioner, shown in Figure 30. Simply loosen the four bolts securing the front axle to the frame, and use a wrench to tighten the tensioning nut until desired track tension is achieved. Be sure to re-tighten the four axle bolts once finished to secure the front axle once again.



Fig. 30 - Track Tensioner

Note that as the track wears it will periodically need re-tightening to maintain the correct tension. It is recommended that you check track tension at 3 hours, 10 hours and weekly thereafter.

PERIODIC GREASING DETAILS

Greasing is an important factor in extending the service life of many items on your Walk-Behind including cylinders and pivot pins.

All serviceable grease points may be greased with a general purpose or bearing grease. The points on the Walk-Behind which can be greased are shown in the figures below. It is recommended that greasing be performed on a weekly basis.

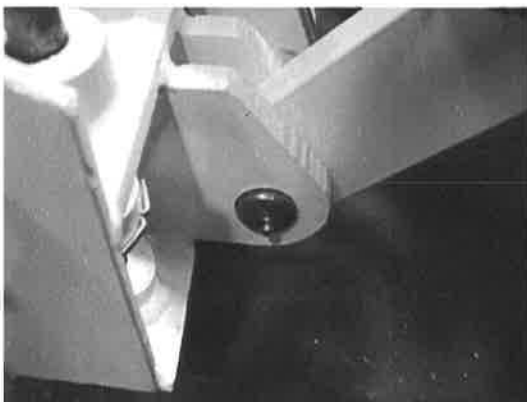


Fig. 31 - Lower Quick-Attach Pin Zerk



Fig. 32 - Lower Leveling Pin Zerk

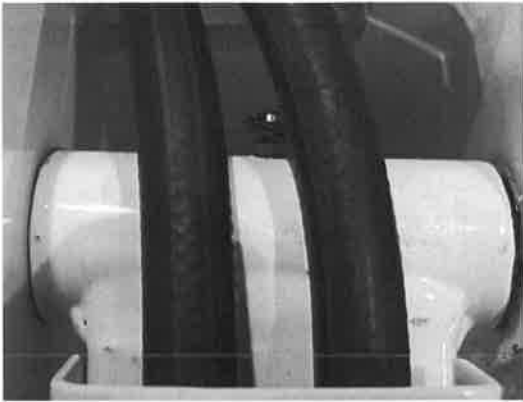


Fig. 33 – Leveling Arm Bushing Zerk

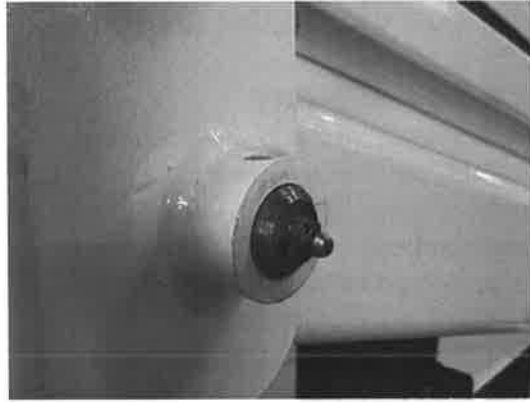


Fig. 34 – Lift Pin Zerk

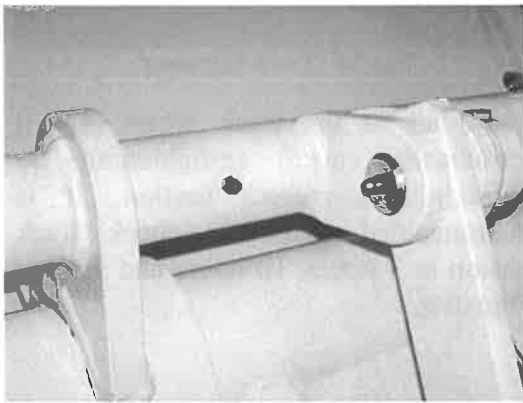


Fig. 35 – Upper Leveling Pin
and Link Tube Zerks

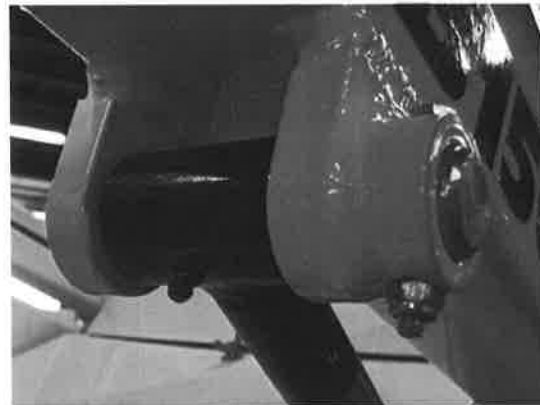


Fig. 36 – Lift Cylinder Zerk



Fig. 37 – Pivot Bushing Zerk

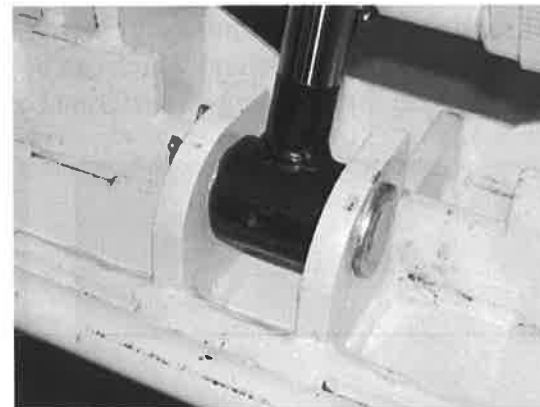


Fig. 38 – Tilt Cylinder Zerk

MAINTENANCE

PERIODIC MAINTENANCE AND SERVICE SCHEDULE

Item	Service Required	Service Interval (Hours)				
		8 or Daily	25 or Weekly	50 or Bi-Weekly	100 or Monthly	1000 or Annually
Engine Oil*	Check level of engine oil and top up if necessary	X				
Engine Fuel	Check level and top up if necessary	X				
Hydraulic Oil	Check level and top up if necessary	X				
Rear Sprocket Bolts	Check wheel bolts (torque to 90 lb-ft).	X				
Decals	Check for damaged safety or instruction decals. Replace if necessary	X				
Air Cleaner*	Service element.		X			
Grease Pivot Points	Grease all pivot points		X			
Track Tension	Check track tension and adjust if necessary.			X		
Battery*	Clean and protect battery terminals			X		
Engine Oil*	Change oil after first 20 hours of operation, or as indicated in engine manual.			X		
Engine Oil*	Replace engine oil.				X	
Fuel Filter*	Clean and dry thoroughly.				X	
Spark Plug*	Clean and check gap.				X	
Hydraulic System	Check all hoses, fittings, etc. thoroughly. Replace if needed.				X	
Hydraulic Oil Filter	Replace oil filter.				X	
Engine Oil Filter*	Change oil filter.				X	
Hydraulic Oil	Change hydraulic oil					X

*see engine manual

MAINTENANCE

TROUBLESHOOTING

The following chart is intended to help isolate problems and provide possible remedies.

SYMPTOM	POSSIBLE CAUSES	POSSIBLE REMEDIES
Starter does not crank engine	-Low battery output -Loose or disconnected battery cable	-Recharge or replace battery -Check and tighten all connections
Engine turns over but does not start	-No Fuel in Tank. -Fuel shut-off valve closed -Improper starting procedure -Auxiliary control lever engaged -Spark plug fouled	-Fill tank with clean fuel -Open fuel shut-off valve -Refer to starting procedure -Set auxiliary lever to neutral -Check spark plug gap and clean or replace spark plug
Noisy hydrostatic system	-Air in system -Loose suction line and/or fittings -Clogged oil filter -Hydraulic oil too thick -Internal pump or motor damage	-Check oil level, top up if necessary -Bleed system -Tighten all fittings and connections -Replace oil filter -Warm up hydraulic oil when too cold -See your RAMROD Dealer
Erratic or no output on transmission	-Hydraulic oil too thick -Flow divider set to deliver all flow to attachment -Hydraulic oil level too low -Drive coupling between engine and pump broken	-Use proper viscosity oil. -Set flow divider to deliver flow to machine -Check oil level. Add as necessary -Check couplings, replace if necessary
Loss of hydraulic oil flow from gear pump	-Reservoir low on oil -Drive coupling between engine and pump broken -Hydraulic gear pump not functioning correctly	-Check oil level. Add if necessary -Check couplings, replace if necessary -Inspect and repair if necessary
Hydraulic cylinders do not function properly	-Loss of hydraulic flow from gear pump -Air in system	-See above -Bleed system
Oil overheating	-Reservoir low on oil -Auxiliary control lever engaged -Setting of relief valve too high or too low	-Check oil level. Add if necessary -Return auxiliary lever to neutral -Set to correct pressure -See your RAMROD Dealer
No drive on one side of machine	-Key sheared on motor shaft -Wheel motor failure	-Inspect shaft and hub for damage or wear. Replace key and tighten on slotted nut. -See your RAMROD Dealer

