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# MINI SKID LOADER

MODEL 1330/1350 "PRO-SERIES"

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## OPERATOR'S MANUAL

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### **RAMROD Equipment**

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

#### **Canada**

P.O. Box 5002  
135 York Road East  
Yorkton, Saskatchewan  
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# INTRODUCTION

## TO OUR CUSTOMER:

**RAMROD EQUIPMENT** is pleased that you have chosen a **RAMROD MINI-SKID**.

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 Mini-Skid. It contains the necessary information for safe and proper operating, routine servicing and preventive maintenance.

We also recommend that you carefully read the Engine Manufacturer's Manual before operating the Mini-Skid. Do not neglect the maintenance that is recommended.

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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September 2011  
Printed in Canada



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## **RAMROD WARRANTY**

The RAMROD EQUIPMENT warrants each new RAMROD Mini-Skid 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 Mini-Skid must be operated according to manufacturer's instructions, and by a competent and careful operator.

This warranty shall not apply to the Mini-Skid on 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 Mini-Skid 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 Mini-Skid fluids and lubricants.

This warranty does not extend to Mini-Skid components such as, but not limited to, engine, tires, batteries, hydraulic/hydrostatic components which are manufactured by others, and which carry separate warranties of their respective manufacturer's.

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, nor the selling dealer has authority to change this warranty in any manner whatsoever.

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<p><b>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.</b></p>
---



**Leon's Mfg. Company Inc.**  
*"Home of Quality Leon & Ramrod Products"*

RAMROD MINI-SKID LOADER  
 DEALER PRE-DELIVERY INSPECTION & SERVICE REPORT

Owner: \_\_\_\_\_ Dealer: \_\_\_\_\_  
 Address: \_\_\_\_\_ Address: \_\_\_\_\_

Model: \_\_\_\_\_ Serial No: \_\_\_\_\_ Date: \_\_\_\_\_  
 Engine Serial No: \_\_\_\_\_ Hour Meter Reading: \_\_\_\_\_

<b><u>Item</u></b>	<b><u>Remarks</u></b>
--------------------	-----------------------

- ( ) Check engine oil
- ( ) Check hydraulic oil level
- ( ) Check radiator coolant level
- ( ) Check battery fluid level
- ( ) Check tension of engine belts
- ( ) Check air cleaner hoses & connections
- ( ) Grease/lubricate all pivot points
- ( ) Grease/lubricate control lever cross  
Shafts and linkages
- ( ) Check all wheel bolts for tightness  
(90 ft-lbs)
- ( ) Check tire pressure
- ( ) Check drive chain adjustment
- ( ) Check for loose or missing bolts, nuts,  
Cotter pins etc.



**Leon's Mfg. Company Inc.**



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# RAMROD EQUIPMENT

## NEW MINI-SKID WARRANTY REGISTRATION FORM

\_\_\_\_\_  
Mini-Skid Serial Number  
Number

\_\_\_\_\_  
Model Number

\_\_\_\_\_  
Engine Serial

\_\_\_\_\_  
Name of Owner

\_\_\_\_\_  
Name of Dealer

\_\_\_\_\_  
Owner's Type of Business

\_\_\_\_\_  
Owners Address

\_\_\_\_\_  
Dealers Address

\_\_\_\_\_  
Date Mini-Skid Sold

\_\_\_\_\_  
Date Mini-Skid Delivered

### **OPTIONS & ACCESSORIES**

#### BUCKETS:

- 31 inch ( 787 mm)
- 36 inch ( 914 mm)
- 42 inch (1067 mm)
- 44 inch (1118 mm)

**RAMROD COPY**

Please forward to:  
RAMROD EQUIPMENT  
P.O. Box 5002, 135 York Road East  
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Phone: (800) 667-1581  
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#### **OPTIONS & ACCESSORIES**

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**CUSTOMER COPY**

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# I. SAFETY

## OPERATE MINI SKID SAFELY

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

THIS SAFETY ALERT SYMBOL POINTS OUT IMPORTANT SAFETY PRECAUTIONS.




OPERATORS MUST UNDERSTAND CAPABILITIES AND LIMITATIONS OF THE EQUIPMENT, WITH RESPECT TO SPEED, BRAKING, STEERING, STABILITY AND LOAD CHARACTERISTICS BEFORE STARTING TO OPERATE.

NEW OPERATORS MUST CHECK ALL CONTROLS IN A SAFE, OPEN AREA BEFORE STARTING WORK.




**WARNING**  
*This Decal Advised Of Actions or Danger Which Can Cause Personal Injury.*

**IMPORTANT**  
*This Decal Identifies Procedures Which Must Be Followed to Prevent Damage Top The Mini-Skid*



*Wear Ear Protection When Engine Is Running. The Sound Pressure Level Is: 102 DB for A Weighted level & 88 DB For C Weighted Level...*



*Do Not Use The Mini-Skid During A Thunderstorm Or When There Is A Chance Of A Lightning Strike.*

## SAFETY PRECAUTIONS

READ YOUR OWNERS'S MANUAL AND ALL SUPPLEMENTS BEFORE OPERATING YOUR MINI-SKID.

WHEN LEARNING TO OPERATE, PROCEED SLOWLY AND CAREFULLY.

DO NOT PLACE FEET UNDER THE PLATFORM.

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

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

# **I. SAFETY**

## **SAFETY PRECAUTIONS – CONTINUED**

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

DO NOT RIDE IN BUCKET.

DO NOT ALLOW MORE THAN ONE PERSON ON THE MINI-SKID AT ANY TIME.

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

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 MINI-SKID ACROSS STEEP SLOPES.

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

ENSURE ADEQUATE VENTILATION WHEN USING THE MACHINE IN CONFINED SPACES.

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

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, CHECK TO BE SURE LOCK PINS ARE FULLY ENGAGED.

DO NOT PLACE ANY PART OF THE OPERATOR'S BODY OR ALLOW ANYONE UNDER MINI-SKID 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 MAINTENANCE OF THE MINI-SKID.

REMEMBER, **SAFETY FIRST**.

## II. CONTROL

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

### ENGINE CONTROLS AND INSTRUMENTATION



**Low Fuel Indicator Light** – Indicator will illuminate when fuel levels become low and require refueling.



**Low Hydraulic Oil Indicator Light** – Indicator will illuminate if the hydraulic oil is low. Stop the engine and immediately add oil.



**Low Engine Oil Indicator Light** – Indicator will illuminate if the engine oil is low. Stop the engine and add oil immediately.



**Engine Temperature Indicator Light (If Equipped)** – Indicator will illuminate if the engine temperature becomes too hot. Shut off the engine immediately.



**Throttle Control Idle** – When the throttle is in this position machine is at idle.



**Throttle Control Maximum** – Increasing throttle from idle will increase machine speed until the maximum operating point is reached.

**Shut-Off Button (If Equipped)** – Turn ignition switch to the OFF position and hold shut-off button until the engine stops. The ignition switch must be in the OFF position to prevent battery drain.



**Light Switch (If equipped)** – This switch is used to control the working lights.



**Ignition Switch (Gas)** – The ignition switch is a three position switch. Clockwise from the OFF position is the ON and START positions.



**Ignition Switch (Diesel)** – The ignition switch is a four position switch. Turn the key counter-clockwise and hold to warm the glow plugs. Glow plugs must be warmed three to four seconds prior to starting. Clockwise from the OFF position is the ON and START positions.



**Hour Meter/Tachometer (Gas)** – The hour meter records total machine hours. The hour meter accumulates whenever the key is not in the OFF position. During operation engine speed (RPM) will be presented.



**Hour Meter (Diesel)** – The hour meter records total machine hours. The hour meter accumulates whenever the key is not in the OFF position.

#### **Important**

*Be Sure Ignition Key Is In OFF Position Or Even Removed When The Engine Is Not Running*

#### **Important**

*For Maximum Power While Working The Engine Should Be Running At Full Throttle*

#### **Important**

*Some Engine Models Come With Additional Features And Indicators, Refer To Engine Owner's Manual For Details*



## II. CONTROL

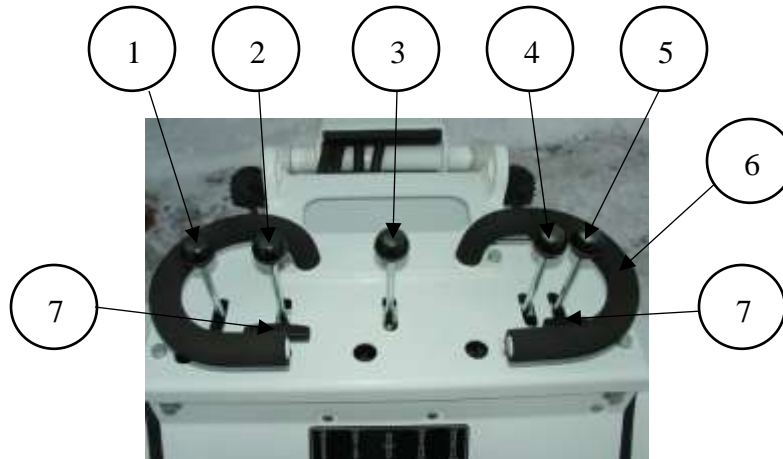


Figure 1: Control Panel

### PRIMARY CONTROLS

1. Lift Arm Lever
2. Tilt Lever
3. Auxiliary Lever
4. Left Hand Drive Lever
5. Right Hand Drive Lever
6. Grip Handle
7. Auxiliary Controls (7 GPM each)



Figure 2: Single Hand Steering

#### DRIVE LEVERS, Items 4 & 5 Figure 1

The left hand drive lever controls the track on the left hand side and 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 cause motion. All lever movements should be smooth and gradual. To drive the Mini-Skid straight forward, move both control levers forward the same amount. To drive the Mini-Skid straight backwards, move both control levers back the same amount.

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

The “TASKMASTER” features single-handed steering. For normal operation, the most comfortable hand position is to operate the two steering levers with the palm of the right hand, with the fingers gripping the grip handle.

Flexing the fingers will allow forward travel, and simply rotating the palm will allow normal steering. To reverse, slip the palm back to the rear of the grip handle, and use the tips of the fingers to pull the steering levers backwards. This position will allow for more precise control of the unit. At the same time, the left hand should grip the grip handle for operator stability, but can also be used to operate the lift and tilt functions as required.

**Note:** Be sure to slowly move the levers to the center (neutral) position when stopping. The Mini-Skid 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 And Holding The Grip Handles*

## II. CONTROL



### **Warning**

*Keep **BOTH HANDS** On The Grip Handle At All Times When Operating The Machine.*



### **Warning**

*Use Extreme Caution When Stopping. If The Bucket Or Attachments Is Raised, 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 1, Figure 1**

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. In these two positions, the lever is spring centered to neutral upon release of the lever.

### **TILT CONTROL LEVER – Item 2, Figure 1**

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 tilts the attachments back. Pushing forward on the lever tilts forward or “dumps” the attachment. The lever is spring centered to neutral upon release.

### **Important**

*Ensure That The Auxiliary Lever Is Kept In Neutral When Not Being Used To Avoid Wasting Power. Engine Is Difficult To Start If Lever Is Engaged. Hydraulic Oil May Also Over Heat.*

### **AUXILIARY CONTROLS – Item 7, Figure 1**

The Taskmaster features two “T-Bar” control knobs which each provide 7 gallons per minute oil flow to the auxiliary circuit. This allows the operator to select the speed of the attachment. These are “push-pull” knobs. Pulling the knob “up” turns the oil flow on to the attachment circuit. Pushing the knob “down” turns the oil flow off.

Thus, for attachments where 7 GMP is desired (grapples, dozer blades, backhoes, etc.) pull either one of the control knobs up.

For attachments where 14 GPM is desired (trenchers, post-hole augers, tillers, etc.) pull both of the control knobs up.

When the auxiliary circuit is not in use (no hydraulic attachment mounted on the machine), both control knobs should be pushed down to turn off this circuit.

### **AUXILIARY LEVER – Item 3, Figure 1**

Direction of auxiliary flow and “on-off” control of attachments is provided by this lever. When the auxiliary controls above are turned on, this lever becomes active. Pushing this 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.

## II. CONTROL

### ATTACHMENT LOCK PINS

#### ATTACHMENT LOCK PINS

The “Taskmaster” 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 one half of a turn 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 3.

To lock attachments, rotate both pins inwards so that both handles are pointing towards the center of the machine as shown in Figure 4. This will allow the springs to push the pins downwards through the mounting holes in the attachment and secure it to the unit.



Figure 3: Lock Pins Disengaged



Figure 4: 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, check to be sure that the lock pins are fully engaged and properly in place. 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 Be Sure Lock Pins Are Fully Engaged, And Locked Into Position.*

### III. OPERATION

You can take full advantage of all the features of your **RAMROD Mini-Skid** by following the operating information presented here. The Mini-Skid has been designed to do a lot of work with a minimum of operating 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 Mini-Skid 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 skid and cause injury.*
5. Visually inspect all hoses, lines, fittings, tires, 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 And Holding The Grip Handles*

#### STARTING PROCEDURE – GASOLINE ENGINE

1. Push the throttle lever down slightly
2. 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.)
3. Set the throttle lever for idling speed. Avoid excessive engine speed during warm-up.
4. 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 Mini-Skid Under Full Load Condition Until It Has Had An Adequate Warm-Up Period.*

### III. OPERATION

#### SHUT-OFF PROCEDURE – GASOLINE ENGINE

1. Park the Mini-Skid 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 while.
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 Even Removed When The Engine Is Not Running.*

#### STARTING PROCEDURE – DIESEL ENGINE

1. Open Throttle lever slightly.
2. Turn key counter-clockwise to the “Preheat Position” and hold for a few seconds.
3. Turn key clockwise to the “Start” position to crank engine.
4. Once engine starts, release key.
5. Set throttle lever to idling speed to allow engine to warm up.
6. If engine fails to start after cranking 10 seconds, repeat steps 2 and 3, allowing a longer “Preheat” period
7. To restart a warm engine, turn key clockwise to start.

#### SHUT-OFF PROCEDURE – DIESEL ENGINE

1. Park the Mini-Skid 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. Move throttle to a slow idling position and allow the engine to run for a few minutes to cool down.
4. Turn key counter – clockwise to the “Off” position.

#### **Important**

*Different Engine Model Options Are Available With Additional Procedures, Consult The Engine Owner’s Manual For More Information*

### III. OPERATION

#### MOUNTING ATTACHMENTS

##### INSTALLATION OF ATTACHMENT

1. Rotate Lock Pins to the unlock position (handle pointing outwards).
2. Tilt the attachment frame forward as show in Figure 5, 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 6.
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 as shown in Figure 7.

back and forth, and disconnect the attachment.



Figure 5



Figure 6



Figure 7



#### **WARNING**

*After Hook-Up To Attachment, Check To be Sure Lock Pins Are Fully Engaged and Locked Into Position*

##### REMOVAL OF ATTACHMENT

1. Lower lift arms and tilt forward on the attachment so that the attachment is resting on the ground.
2. If attachment is hydraulically equipped, stop the engine, relieve hydraulic pressure in the attachment lines by shifting the auxiliary lever
3. Rotate the lock pins to the unlocked (handles pointing outwards) position.
4. Start engine, tilt the attachment mount frame clears that lip on the attachment, and back the Mini-Skid away from the attachment.

### III. OPERATION

#### OPERATIONAL PROCEDURE

Mini-Skid operational procedure and suggestions in this manual are based on the use of a bucket. Operating procedure and suggestions for such other attachments as dozer blade, posthole auger, trencher, rock hammer, etc., are included in the respective attachments bundle.

#### OPERATING SUGGESTIONS

1. Install an attachment (bucket). Drive carefully to a clean and level area and practice operating the Mini-Skid 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 Mini-Skid, 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 Mini-Skid 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 8. When driving on a slope with a load, drive up the slope forward and back down the slope in reverse as in Figure 9.
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 “over-loading” or “lugging” the Mini-Skid.



Figure 8: Empty Bucket

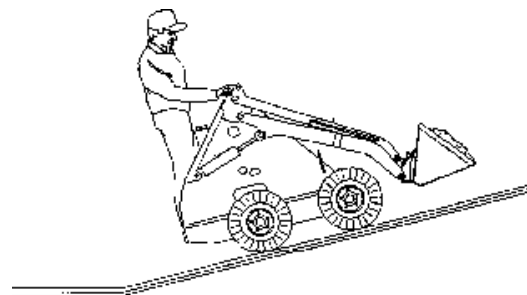


Figure 9: Full Bucket

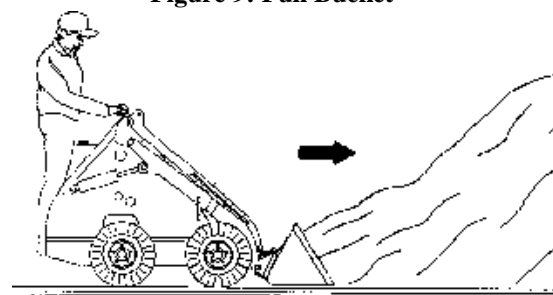


Figure 10



#### WARNING

*Always Carry The Bucket Low While Moving. Drive Directly Up And Down Instead of Across A Slope*



#### WARNING

*If Operating Mini-Skid Indoors, Make Sure Building Is Well Ventilated.*

### III. OPERATION

#### FILLING AND DUMPING A BUCKET

1. Approach the pile with the lift arms fully down and bucket cutting edge just skimming the top of the ground as in Figure 10.
2. As soon as the bucket is full, tilt bucket back and back away from the pile, as shown in Figure 11 and 12.
3. When dumping, raise bucket high enough to clear stockpile or sides of container being loaded.
4. Drive slowly forward until bucket is over dumping area and tilt bucket forward until it completely empties.
5. Tilt bucket, back up if necessary to clear container side and back away.

3. Continue driving forward until bucket is full and then tilt bucket fully back while driving slowly forward or stopping the machine.

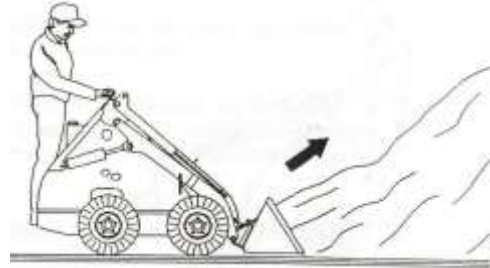


Figure 11

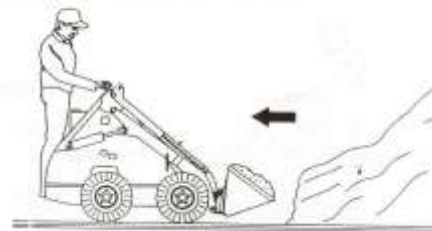


Figure 12

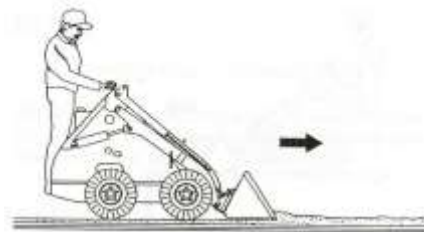


Figure 13

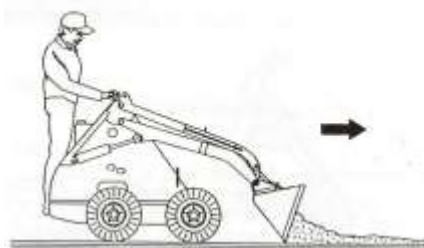


Figure 14



#### WARNING

*Use Extreme Caution When Stopping. If The Bucket Or Attachment Is Raised The Machine Can Tip. Keep All Movements Smooth and Gradual When Maneuvering With Lift Arms Raised. Do Not Cross Obstructions With Arms Raised. All New Operators Must Work The Machine In A Safe Open Area To Become Familiar With Its Operating Characteristics.*



#### WARNING

*Never Step Off The Operator Platform With The Load Raised*

#### 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 show in Figure 13.

#### LEVELING

1. To spread material on uneven ground, raise lift arms and tilt bucket forward while driving slowly forward, as shown in Figure 14.



### III. OPERATION

1. To level a filled area, tilt bucket forward and drive machine backwards to drag bucket and spread material, as shown in Figure 15.
2. 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 16.

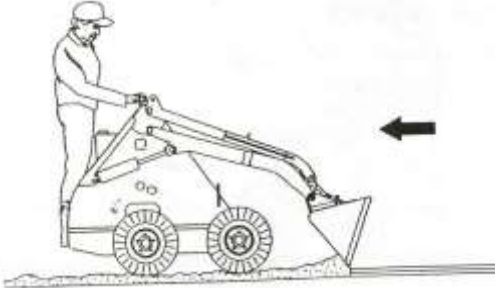


Figure 15

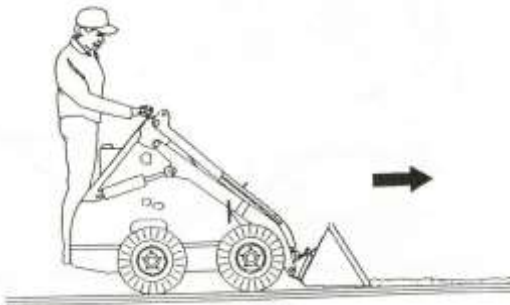


Figure 16

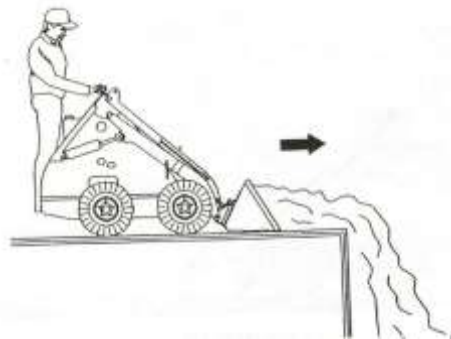


Figure 17

#### BACKFILLING

1. When filling a trench or a hole, drive up to the hole with bucket low or push material up to edge, as in Figure 17.

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 MINI-SKID

##### **Important**

*Never Tow The Mini-Skid Damage May Result.*

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

A Mini-Skid 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 18.

After the Mini-Skid is driven onto the transporting vehicle, lower any attachments, and install chains to hold Mini-Skid from moving during sudden stops or when traveling up and down grades.

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

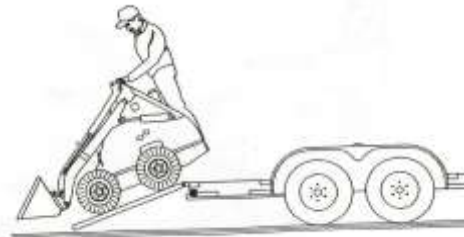


Figure 18



#### **WARNING**

*When Transporting On A Road Or Highway During The Day Or At Night, Be Sure That The Trailer Is Equipped With Lights And Signs As Required By Law.*

### III. OPERATION

#### LIFT ARM SUPPORT DEVICE

Your Mini-Skid is equipped with a lift arm support device. This is bolted to the bottom of the leveling arm on the left side of the machine.

In order to safely work underneath the lift arms remove the support device from the leveling arm and remove any attachment from the Mini-Skid. Raise the lift arms to their maximum extension and place the support device onto the lift cylinder of the Mini-Skid. Lock the support in place using the bolt that attached it to the leveling arm.

Ensure the machine is shut off before performing any work on the Mini-Skid. After completing work on the Mini-Skid remove the support device from the lift cylinder and replace it on the leveling arm.

#### **Important**

*Never Lower The Lift Arms With The Support Device In Place. Damage To The Lift Cylinder Will Result.*



#### **WARNING**

*Before Performing Any Work Underneath The Mini Lift Arms Remove Any Attachment And Raise The Lift Arm To Full Height. Use The Lift Arm Support To Lock The Arms In The Raised Position*

#### LIFTING THE MINI-SKID

Lift lugs are provided at the top of the Mini-Skid to facilitate lifting the Mini-Skid as a unit.

Both lift lugs must be used in order to properly balance the machine when it is being lifted. Use a sling to hook each lift lug.

Ensure that all lift equipment is rated for the weight of the Mini-Skid being lifted. Machine weights vary from 1700 lbs to 2300 lbs (without attachments). Contact Ramrod Equipment or your nearest dealer for more information.



#### **WARNING**

*Never Stand Underneath the Mini-Skid When It Is Being Lifted. All Lift Equipment Must Be Rated For The Mini-Skid Weight.*



**Figure 19: Lifting Lugs**

## **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.

To access the engine compartment, remove louvered side panels or back panel as required.

### **BATTERY MAINTENANCE**

The battery is located within the engine compartment.

**NOTE:** 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. Coat the terminals with high temperature grease.

## IV. MAINTENANCE

### FUELS, LUBRICANTS AND CAPACITIES

The service obtained from your Mini-Skid is greatly affected by the quality of the petroleum products used in it. It requires only common products, which are commercially available through the outlets of major refineries. The following chart shows which lubricant to use in the various components of the Mini-Skid.

COMPONENT	TEMPERATURES	TYPE OF LUBRICANT/FLUID	CAPACITY Liter (US. Gals.)
Engine Oil	See engine owner's manual	See engine owners Manual	See engine owner's manual
Fuel Tank	All Temperatures	Gas – Regular Diesel – Regular	30 Liter (8 US gal.)
Hydraulic Oil Reservoir	All Temperatures	ISO 46 Anti-Wear Hydraulic Oil	37 Liters 10 US Gal.



Fuel filler location: To the left of the operator controls, Figure 20.

Hydraulic oil filler location: To the right of the operator controls, Figure 21.



Figure 21



Figure 20

## IV. MAINTENANCE

### HYDRAULIC SYSTEM MAINTENANCE

#### HYDRAULIC OIL LEVEL CHECK

1. Ensure that the Mini-Skid is standing level, the lift arms are down and the tilt cylinder is closed.
2. Remove the oil cap, and check the level. If oil is apparent, the level is satisfactory.
3. If necessary add the proper type and grade of oil.

**NOTE:** *These units are equipped with a low hydraulic warning indicator. Do not operate if this indicator is lit.*



**Figure 22: Hydraulic Oil Drain Plug**

#### CHANGING HYDRAULIC OIL

1. The hydraulic oil drain is located on the front of the machine as seen in Figure 22.
2. Remove drain plug to drain oil.
3. Replace drain plug and refill reservoir with clean oil.
4. Start the engine and check for leaks.

#### CHANGING OIL FILTER

1. To access filter, remove the right side panel as seen in Figure 23.
2. Remove oil filter housing.
3. Remove and replace old filter.
4. Reassemble oil filter and close the panel.

**NOTE:** *when changing filter, it is recommended that a container be placed under the filter to collect any spilled oil.*



**Figure 23: Hydraulic Oil Filter**

## IV. MAINTENANCE

### FINAL DRIVE MAINTENANCE

#### CHAIN ADJUSTMENT

##### 1. Primary Chain Adjustment -

Place unit on stand or blocks so that the track is off the ground.

- a) Loosen track tensioner by undoing the tension nut as seen in Figure 24
- b) Loosen all four 5/8 bolts in Figure 25.
- c) Chain adjustment can then take place by using the two 3/8 bolts in Figure 25 which will slide the axle assembly to the desired position. The chain should have no **more than .250** of slack at all time. **Note: if chain tension is not maintained to specification, chain breakage will occur.** Track tension can be checked by removing the foot plate.
- d) Once desired chain tension is achieved, torque the four 5/8 bolts to 158 Lbs.
- e) Retighten track tensioner until desired track tension is reached –  
**NOTE: A 180 lb person stepping on top of the track should give no more than 1” of flex mid-span between the tension wheels and drive sprocket.**

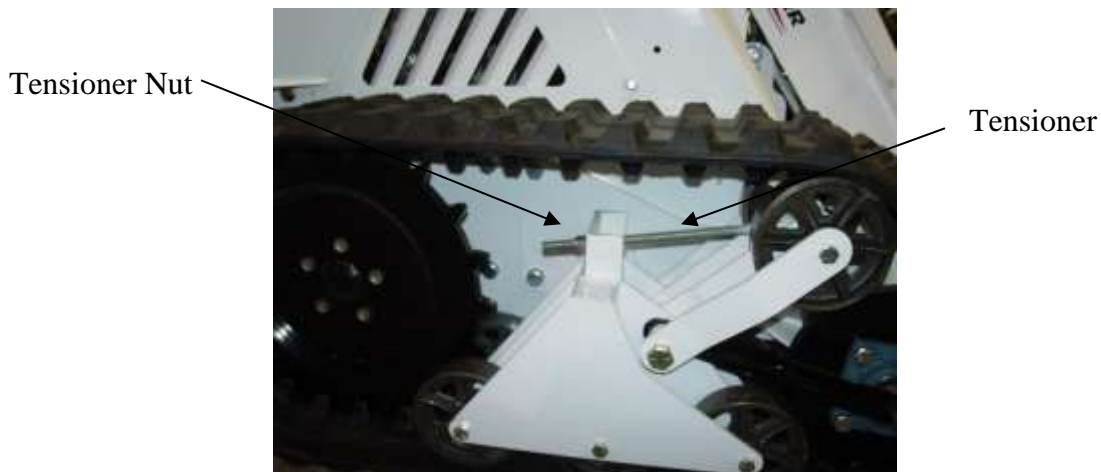


Figure 24: Track Drive Assembly

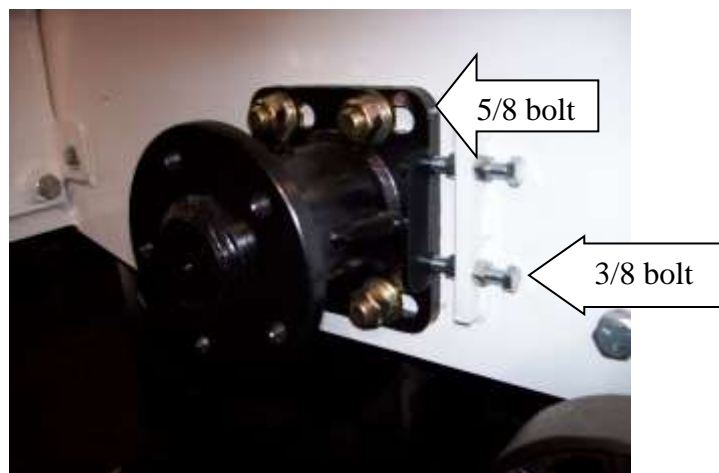


Figure 25: Axle Assembly

## IV. MAINTENANCE

### CHAIN LUBRICATION

For best life drive chains should be lubricated every 8 hours, following this schedule can extend your chain life by as much as 7 times. The manufacturer's recommendations (Renold Power Transmission Ltd) for chain lubricant and application are as follows:

Lubricant should be a good quality non-detergent mineral oil (example 30 W). Heavy oils and greases are NOT recommended as a lubricant. The following table provides a guide for lubricant viscosity at various ambient temperatures:

Ambient Temperature		Lubricant Rating	
Celsius	Fahrenheit	SAE	BS 4231
-5 to +5	23 to 41	20	46 to 68
5 to 40	41 to 104	30	100
40 to 50	104 to 122	40	150 to 220

For the majority of the above applications a SA# 30 weight oil would be acceptable.

Oil should be applied periodically (every 8 hours) with a brush or oil can. The goal is to keep the chain wet with oil and ensure penetration of the oil into the chain joints.

Applying lubrication by aerosol is also acceptable, but it is important that the lubricant is approved for use on roller chain.

## IV. MAINTENANCE

### PERIODIC GREASING DETAILS

Greasing is an important factor in extending the service life of many items on your Mini-Skid including cylinders, axle bearings and pivot pins.

#### GREASING THE HUBS AND BEARINGS

Only bearing grease such as Darina EP2 grease should be used on the hubs. The rear hubs on the machine have grease points located midway along the top of the hubs. The machine also has grease points on the bearing blocks located on either side of the front track wheels and on the track rollers.

When greasing the hubs and bearings care should be taken to avoid over greasing which can damage grease seals. These points come greased, and require at most 1 or 2 shots of grease. DO NOT grease until grease squeezes out the side of the seals.

The outside track rollers and front and rear inner rollers can be greased from the side of the machine. To grease the central inner track roller raise the lift arm and lock it in place, the central roller can then be accessed from the front of the machine. It may be necessary to move the machine backwards or forwards to access all the roller grease zerks.

#### GREASING PIVOT POINTS

The pivot points may be greased with a general purpose or bearing grease. The pivot points include: both cylinder cross tubes (the lift and tilt cylinders), all quick attach pivot points, and the lift and leveling arm pivot points.

The lift cylinder, leveling arm and lift arm pivot points can be reached by raising the machine lift arms to their highest extent. The machine should be shutdown and the cylinder lock installed prior to greasing. The cylinder lock is located under the left side of the leveling arms.



**Figure 26: The Three Grease Points Under The Lift Arms**



**Figure 27: The Track Rollers And Front Bearing Block**



## IV. MAINTENANCE

### PERIODIC MAINTENANCE AND SERVICE SCHEDULE

Item	Manual	Service Required	8 or Daily	25 or Weekly	50 or Bi-Weekly	100 or Monthly	1000 or Annually
Engine Oil	Engine Manual	Check level of engine oil and top up if necessary	X				
Engine Fuel	Ramrod Manual	Check level, and if necessary, top up.	X				
Hydraulic Oil	Ramrod Manual	Check level, and if necessary, top up.	X				
Tires and Wheel Bolts	Ramrod Manual	Check tire pressure and wheel bolts (bolts to 90 lb-ft).	X				
Decals	Ramrod Manual	Check if damaged safety or instruction decals. Replace if necessary	X				
Drive Chains	Ramrod Manual	Lubricate.	X				
Wheel Drive Chain (s)	Ramrod Manual	Check and adjust tension if necessary.		X			
Air Cleaner	Engine Manual	Service element.		X			
Grease Pivot Points	Ramrod Manual	Grease all pivot points		X			
Battery	Ramrod & Engine Manual	Clean and protect battery terminals.			X		
Engine Oil	Engine Manual	Change oil after first 20 hours of operation or as indicated in engine manual.			X		
Grease Hubs	Ramrod Manual	Grease hubs and track rollers, be careful not to over grease.				X	
Engine Oil	Engine Manual	Replace engine oil.				X	
Fuel Filter	Engine Manual	Clean and dry thoroughly.				X	
Spark Plug	Engine Manual	Clean and check gap.				X	
Hydraulic System	Ramrod Manual	Check all hoses, tires, fittings, etc. thoroughly. Replace if needed.				X	
Hydraulic Oil Filter	Ramrod Manual	Replace oil filter.				X	
Engine Oil Filter	Engine Manual	Change oil filter.				X	
Hydraulic Oil	Ramrod Manual	Change hydraulic oil					X

## IV. MAINTENANCE

### TROUBLESHOOTING

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

<b>SYMPTOM</b>	<b>POSSIBLE CAUSES</b>	<b>POSSIBLE REMEDIES</b>
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 heavy  Internal pump or motor damage	Check oil level, add 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 heavy  Hydraulic oil level too low  Drive coupling between engine and pump broken	Use proper viscosity oil.  Check oil level. Add is necessary  Check couplings, replace if necessary
Loss of hydraulic oil flow from gear pump	Reservoir low on oil  Drive couplings between engine and pump broken  Hydraulic gear pump not functioning	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 level to neutral  Set to correct pressure See your RAMROD Dealer
No drive on one side of machine	Primary Chain Failure	Inspect and replace
No drive on one wheel	Secondary Chain Failure	Inspect and replace
Noisy operation	Chains too loose Chains dry	Tighten chain Lubricate chain