



RAMROD



230A SERIES SKID STEER LOADERS

Owner's Manual

INTRODUCTION

TO OUR CUSTOMER:

We at **RAMROD EQUIPMENT CORPORATION** are pleased that you have chosen a **RAMROD Mini Loader**. This loader is a simple, compact earth moving machine designed and manufactured to give you years of dependable service.

We would ask that you carefully read this Manual before operating the loader. It contains the necessary information for safe and proper operating, routine servicing and preventative maintenance.

We also recommend that you carefully read the Engine Manufacturer's Manual (Honda) before operating the loader. 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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LITHO'D IN CANADA

April, 1988



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I. SAFETY

OPERATE LOADER SAFELY

IMPROPER OPERATION OF THIS LOADER MAY RESULT IN SERIOUS INJURY. BEFORE OPERATING THIS LOADER, 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 Advises Of Actions Or Danger Which Can Cause Personal Injury.

IMPORTANT

This Decal Identifies Important Proceedings Which Must Be Followed To Prevent Damage To The Loader.

SAFETY PRECAUTIONS

-  READ YOUR OWNER'S MANUAL AND ALL SUPPLEMENTS BEFORE OPERATING YOUR MINI LOADER.
-  WHEN LEARNING TO OPERATE, PROCEED SLOWLY AND CAREFULLY.
-  WEAR CLOSE FITTING PROTECTIVE CLOTHING AND SHOES.
-  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.

SAFETY

SAFETY PRECAUTIONS - CONTINUED

- ⚠ KEEP HANDS, FEET AND CLOTHING AWAY FROM ALL MOVING PARTS AND CYLINDERS.
- ⚠ DO NOT RIDE IN THE BUCKET.
- ⚠ DO NOT ALLOW MORE THAN ONE PERSON ON THE LOADER AT ANY TIME.
- ⚠ DO NOT ALLOW ANY OTHER PERSON OR ANIMAL CLOSE TO THE MINI LOADER 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 LOADER 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 LOADER ARMS OR ATTACHMENTS.
- ⚠ DO NOT REMOVE PROTECTIVE GUARDS ON MACHINE EXCEPT IN THE CASE OF MAINTENANCE.
- ⚠ DO NOT LUBRICATE, ADJUST OR REPAIR THE MACHINE WITH THE ENGINE RUNNING.
- ⚠ NEVER FUEL A HOT MACHINE.
- ⚠ DO NOT SMOKE WHEN FUELLING OR OPERATING THE MACHINE.
- ⚠ ALWAYS READ THE OWNER'S MANUAL FOR PROCEDURES FOR SERVICING AND MAINTENANCE OF THE MINI LOADER.
- ⚠ REMEMBER - SAFETY FIRST.

II. CONTROLS

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

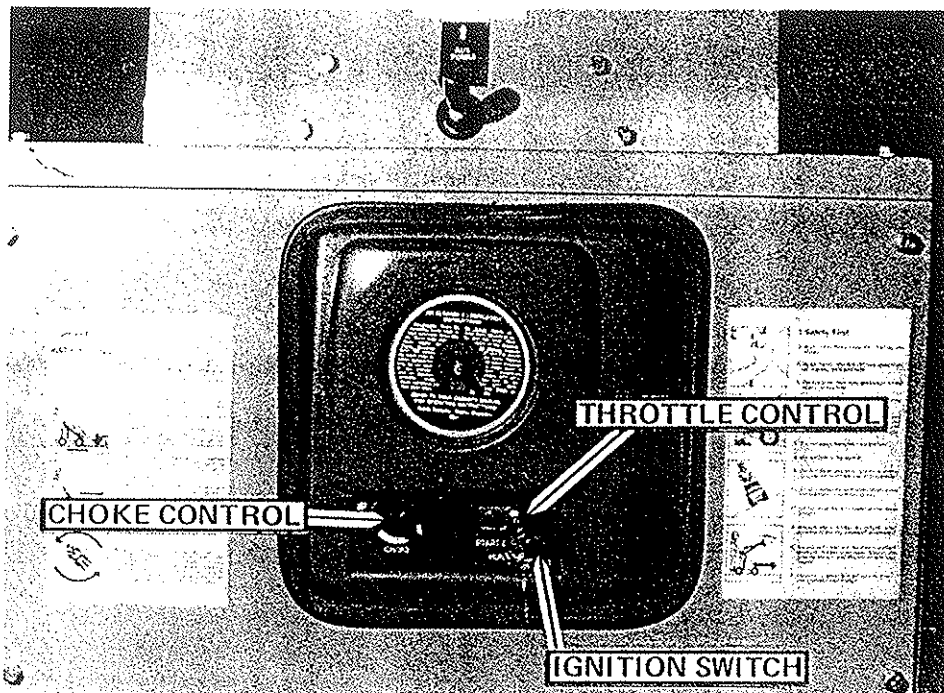


FIGURE 1 - GAS ENGINE CONTROLS

ENGINE CONTROLS

IGNITION SWITCH — FIGURE 1

The ignition switch is a three position switch. Clockwise from the OFF position, are the ON and START position.

THROTTLE CONTROL - FIGURE 1

When the throttle control is set fully down the engine is at idle speed. Pulling the control upward increases the engine speed.

CHOKE CONTROL — FIGURE 1

Turn counterclockwise the choke control to start a cold engine. As the engine warms up, turn back the control gradually.

IMPORTANT

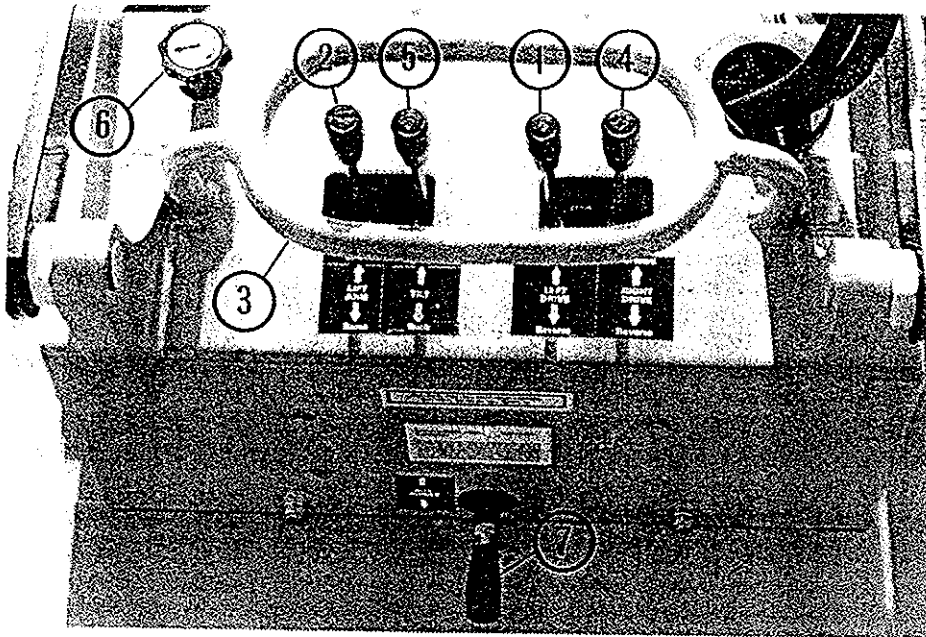
Be Sure Ignition Key Is In OFF Position, Or Even Removed, When The Engine Is Not Running.

IMPORTANT

The Machine Should Always Be Worked With The Engine Running At Full Speed.

CONTROLS

On the top face of the mini loader are four spring centred levers which control the basic mini loader functions. The auxiliary power lever (on the rear face) is for use with powered accessories.



1. Left Hand Drive Lever
2. Lift Lever
3. Grip Handle
4. Right Hand Drive Lever
5. Tilt Lever
6. Speed Control Valve
7. Auxiliary Lever

FIGURE 2 — CONTROL PANEL

CONTROLS

The left hand drive lever controls the wheels on the left hand side and the right hand drive lever controls the wheels on the right hand side.

Engage the drive levers slowly because even a small movement of the levers will cause motion. Maximum power is produced at minimum speed. All lever movements should be smooth and gradual. To drive the loader straight forward, move both control levers forward the same amount. To

drive the loader straight backward, move both control levers back the same amount.

The loader 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 loader to go into a spin-turn, or "Skid-Steer", move one lever forward and the other backward the same amount.



WARNING

Do Not Move Any Of The Control Levers Unless Standing With Both Feet On The Platform And Holding The Grip Handles.



WARNING

Use Extreme Caution When Stopping. If The Bucket Or Attachment 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.

CONTROLS

LIFT CONTROL LEVER — FIGURE 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. In these two positions, the lever is spring centred to neutral upon release of the lever.

SPEED CONTROL VALVE — FIGURE 2

Turning this valve clockwise decreases the operating speed of all loader functions. The operator can set this speed to a comfortable level.

AUXILIARY CONTROL LEVER — FIGURE 2

The auxiliary control lever is located on the rear face and can be used to control accessory attachments such as: post hole augers, trenchers, rock hammers, etc. Accessory hydraulic hoses are connected to the quick couplers at the front of the machine. Lifting the auxiliary up puts the attachment in forward motion and pushing it down reverses the motion. The lever is not spring centred and must be returned to neutral manually.

TILT CONTROL LEVER — FIGURE 2

The inside control lever located on the right hand side controls the tilting action of attachments such as buckets, forks, etc. Pushing the lever forward tilts the attachment forward and pulling the lever back tilts the attachment back. The lever is spring centred 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 Overheat.

ATTACHMENT LOCK PINS

ATTACHMENT LOCK PINS

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

The two pins are located on the inner side and along the top of the attachment frame. To unlock attachments, pull up the pin handle and slide towards the centre, as shown in Figure 3.

To lock attachments, first check that the lock pins align with, and enter freely into the attachments holes; then slide the pins into the attachment mounting bars and lock the pin handle in a downward position, as show in Figure 4.

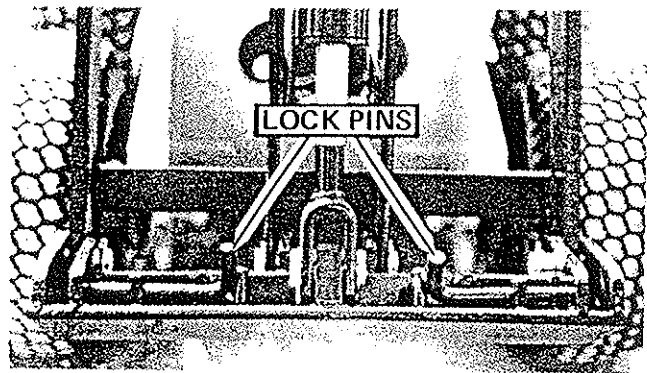


FIGURE 3

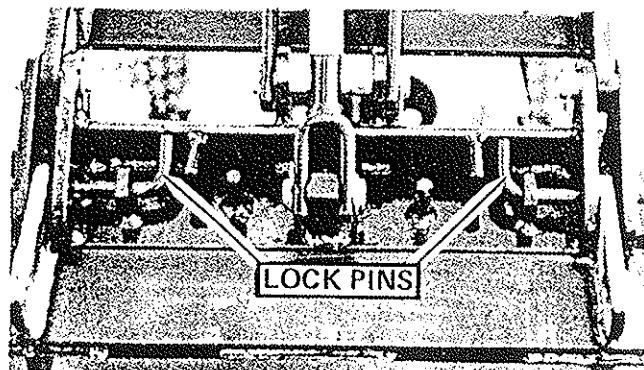


FIGURE 4



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 Loader by following the operating information presented here. The loader has been designed to do a lot of work with a minimum of operating fatigue.

PRE-STARTING INSPECTION AND PREPARATION

Before you start the loader 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 oil leaks.
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

1. Push the throttle lever up slightly.
2. Turn the choke control completely on.
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, turn-back the choke control gradually.
5. Set the throttle lever for idling speed. Avoid excessive engine speed during warmup.
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 That The Auxiliary Lever Is Kept 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 Loader Under Full Load Conditions Until It Has Had An Adequate Warm-Up Period.

NOTE: For more information regarding engine starting and operation, refer to your Honda "Owner's Manual".

OPERATION

SHUT-OFF PROCEDURE

1. Park the loader 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. Turn ignition key off.
5. Place control levers in neutral position, and remove the key.

IMPORTANT

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

MOUNTING ATTACHMENTS

INSTALLATION OF ATTACHMENT

1. Pull up pin handles and slide the pins toward the centre of the attachment mount frame.
2. Tilt the attachment frame forward as shown in **Figure 5**, and line up the mount bars on the attachment with the slots on the attachment frame.
3. Drive up the attachment and tilt back the attachment frame until the attachment is lifted off the ground and rests against the attachment frame, as shown in **Figure 6**.
4. Be sure that the mount bars on the attachment are fitted properly into the slots on the attachment frame.
5. Slide pins into the attachment mounting bars and lock the pin handle in a downward position.
6. Connect accessory hydraulic hoses to the quick couplers if so required. See **Figure 7**. Restart the engine.

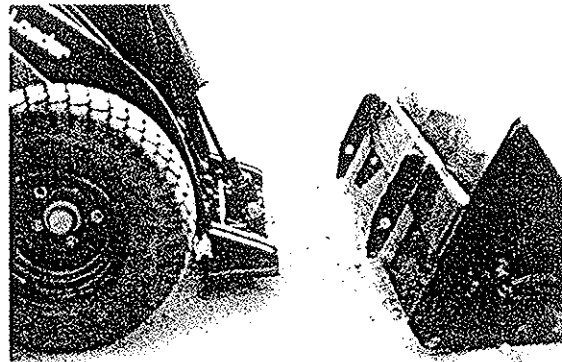


FIGURE 5

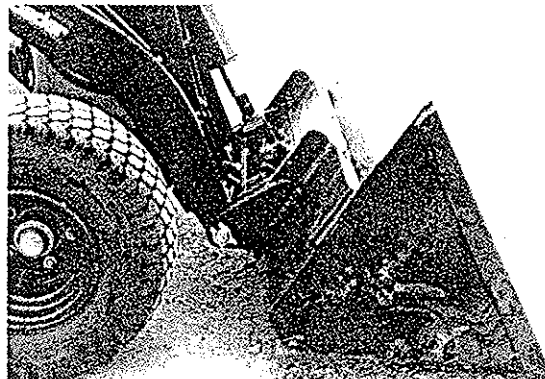


FIGURE 6

⚠ WARNING ⚠

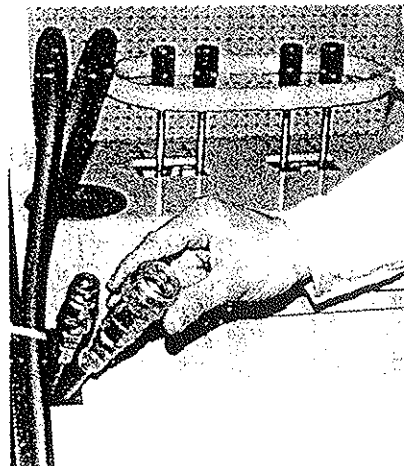
After Hook-Up To Attachment, Check To Be Sure Lock Pins Are Fully Engaged, And Locked Into Position.

REMOVAL OF ATTACHMENT

1. Lower lift arms fully and tilt attachment frame back. Stop the engine.
2. If attachment is hydraulically equipped, relieve pressure in the lines, and disconnect the hydraulic hoses.
3. Pull the locking pin handles up and slide the pins toward the centre of the attachment frame.
4. Start engine, tilt the attachment frame forward and back the loader away from the attachment.

NOTE: You may have to rest the attachment on a higher point (i.e. pallet, etc.) before removing it. The remaining procedures are the same.

FIGURE 7



OPERATION

OPERATIONAL PROCEDURE

Loader 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, post hole auger, trencher, rock hammer, etc., are included in the respective attachment bundle.



FIGURE 8 — EMPTY BUCKET

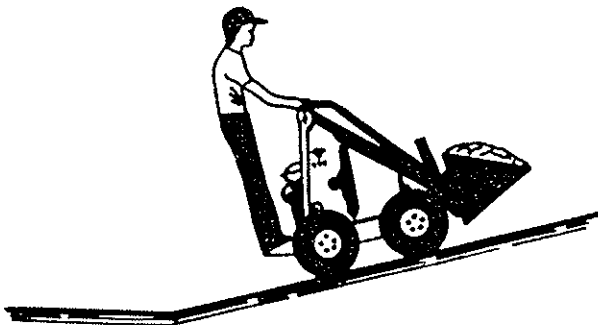


FIGURE 9 — FULL BUCKET

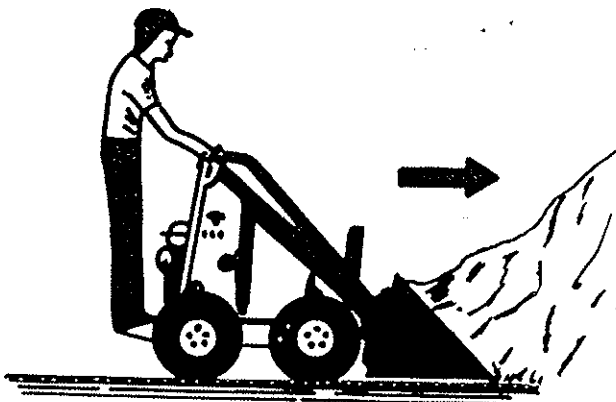


FIGURE 10

OPERATING SUGGESTIONS

1. Install an attachment (bucket). Drive carefully to a clean and level area and practise operating the loader 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 loader, 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 loader 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 and is 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 loader.

⚠ WARNING ⚠

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

⚠ WARNING ⚠

If Operating Loader Indoors, Make Sure Building Is Well Ventilated.

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.

OPERATION

2. As soon as the bucket is full, tilt bucket back and back away from the pile, as shown in Figures 11 and 12.
When transporting a load, carry the bucket just high enough to clear obstacles.
3. When dumping, raise bucket high enough to clear stock pile 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 sides and back away.

⚠ WARNING ⚠

Use Extreme Caution When Stopping. If The Bucket Or Attachment Is Raised, The Machine Can Tip. Keep All Movements Smooth And Gradual When Manoeuvring With Lift 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 shown in Figure 13.
3. Continue driving forward until bucket is full and then tilt bucket fully back while driving slowly forward or stopping the machine.

LEVELLING

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



FIGURE 11

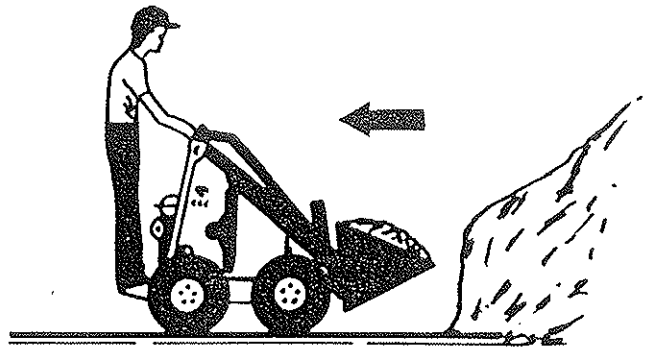


FIGURE 12

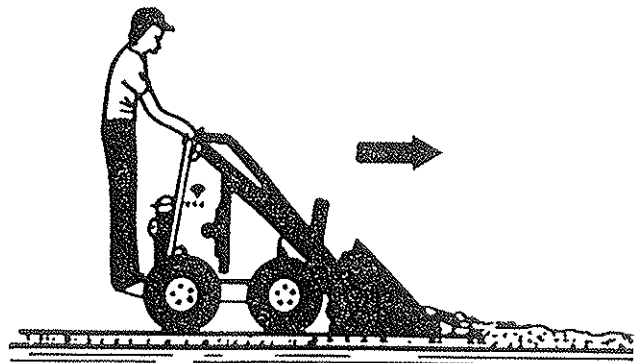


FIGURE 13

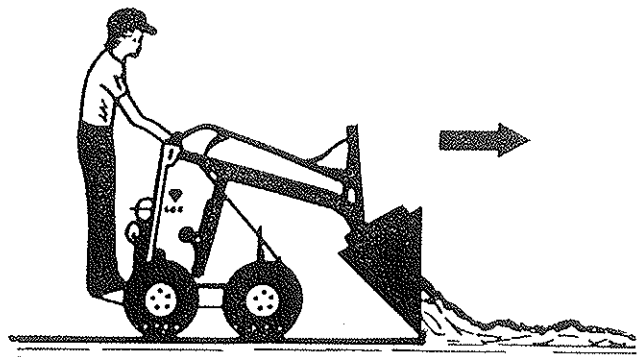


FIGURE 14

OPERATION

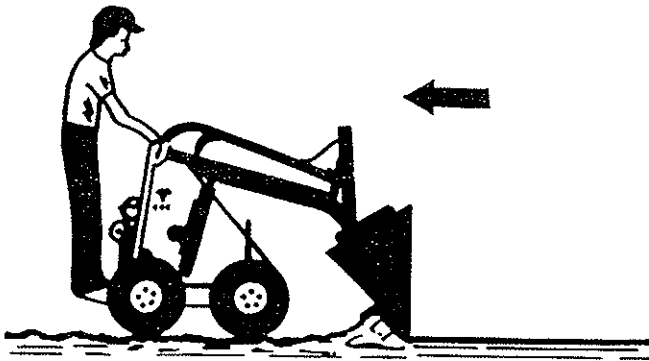


FIGURE 15

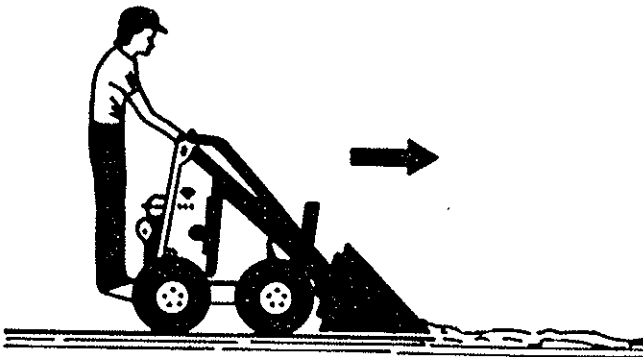


FIGURE 16

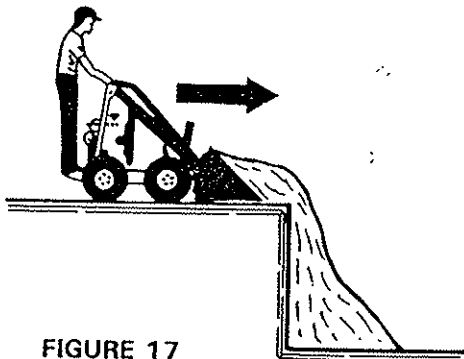


FIGURE 17

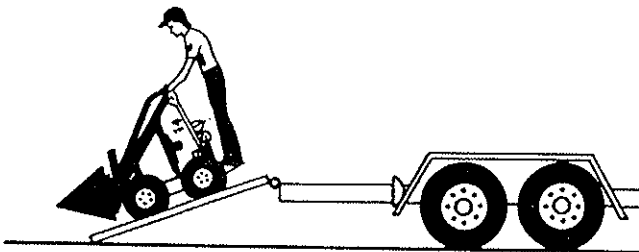


FIGURE 18

2. To level a filled area, tilt bucket forward and drive machine backwards to drag bucket and spread material, as in Figure 15.
3. Another method of levelling 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.

BACKFILLING

1. When filling a trench or a hole, drive up 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 lift arms to empty the bucket.

TRANSPORTING THE LOADER

IMPORTANT

*Never Tow The Loader.
Damage May Result.*

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

A loader 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 loader is driven onto the transporting vehicle, lower any attachments, and install chains to hold loader from moving during sudden stops or when travelling up and down grades.

Close the fuel valve when the mini loader is to be transported. Vibration during transport could cause the carburetor to flood.

⚠ 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.

	No. Used
	1
	1
	1
127101	1
	In Above
	4
	1
	13
	3
	4
	7
	4
	1
	2
	5
	2
	1
	1
	1
	1
	1
	2
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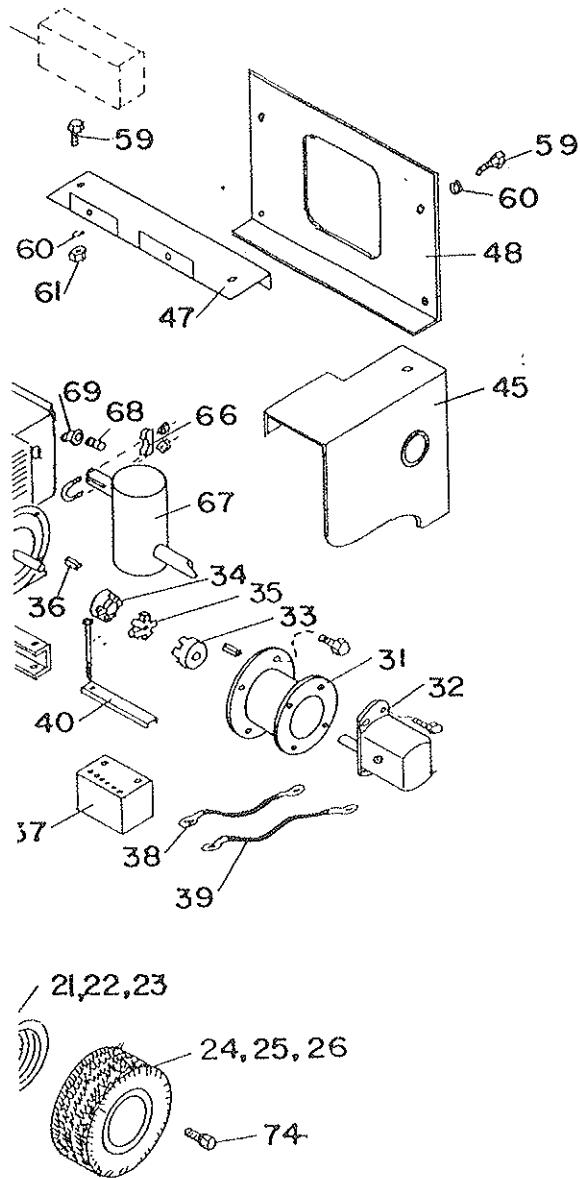


FIGURE 19

IV. MAINTENANCE

Maintenance and service of the mini loader is made simple by the use of hydraulics for power transmission and the accessibility to the components.

Maintenance and service intervals recommended in this manual are based on operation under average conditions. When operating the loader in severe conditions of heat, cold, dust, high humidity or other extremes, service the loader at more frequent intervals.

Failure to perform regular maintenance will result in damage to the loader. Periodic maintenance and service is the key to trouble free operation.

When replacement parts are needed for mini loader components, **Figure 19** on page 12 shows a complete breakdown of the loader. Page 13 shows the corresponding parts list containing item number, part number, description and quantity.

USING THE PARTS LIST

ITEM:

— The item number is the identifying number from the illustration.

PART NUMBER:

— The part numbers that appear in the part number column, are 6 digit numbers by which the components may be identified and ordered from us.

DESCRIPTION:

— This column contains the name and description of the part.

QUANTITY:

— This column shows the quantity of each part used on that loader component.

ORDERING PARTS

When ordering parts from us, be sure to state:

- 1) Part Number
- 2) Full Description
- 3) Quantity Required

4) Loader Model and Serial Number

NOTE: The reference to right and left used throughout this manual, refers to the position when operating the machine, facing forward.

APPLIED WARRANTIES

Below are listed the warranties for the major components of the mini loader as set by their respective manufacturers at the publication date of this manual. For the complete **RAMROD** warranty, refer to page 24 of this manual.

For information on the engine warranty, refer to the Honda warranty booklet supplied.

REXROTH HYDRAULIC PUMP

— 6 months from the time of 1st delivery to purchaser.

OVER CENTRE VALVE-FLUID CONTROL

— 6 months from the time of 1st delivery to purchaser.

NICHOLS WHEEL MOTOR

— 18 months from date shipped and/or 12 months from date installed.

BATTERY - GLOBELITE

— 9 months from time installed.

TIRES - GOODYEAR

— 12 month or 25% No Charge replacement on Factory defects. 4 year weather check.

CYLINDERS - RAM INDUSTRIES

— 6 months from date installed.

MAINTENANCE

FUELS, LUBRICANTS AND CAPACITIES

The service obtained from your loader 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 loader.

COMPONENT	TEMPERATURES	TYPE OF LUBRICANT/FLUID	CAPACITY Litre (Imp. Gals.)
Engine Oil - must meet Kohler motor specification	Above 25°C (77°F) 0°C to 25°C (32° - 77°F) -15°C to 0°C (5° - 32°F) Below -15°C (5°F)	SAE 30 SAE 10W SAE 10W SAE 5W30	1 litre (1 quart)
Fuel Tank	All temperatures	91 Octane, Regular	4 litres (1 gal.)
Hydraulic Oil Reservoir	All temperatures (Oil pre-heat when temp. falls below -29°C (-20°F))	Dexron II	37 litres (39 quarts)



WARNING

*Never Add Fuel To A Loader When
The Engine Is Running Or Is Hot.*



WARNING

*Do Not Service Loader While
Engine Is Running.*

ENGINE MAINTENANCE

OIL LEVEL CHECK

Note: Remove the upper front cover for engine access.

1. Ensure that the loader is standing level.
2. Remove dipstick on the right hand side of the engine, **Figure 21**, visibly check the level. Top up with recommended oil; see the chart above if required.

For proper engine maintenance, refer to your Honda Owner's Manual. This pertains to all applicable maintenance on your Honda engine. Maintenance with respect to fluids and lubricants are included in the "Periodic Maintenance and Service Schedule" on page 17.

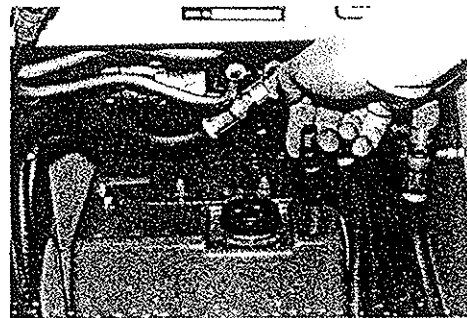


FIGURE 21

BATTERY MAINTENANCE

With your new loader, you will also receive a "Battery Facts and Information Booklet". We recommend that you carefully read this booklet before servicing the battery.

Check the battery hold down bracket for tightness. Do not overtighten.

Remove any acid corrosion from the battery terminals and cables with baking soda and water solution. Coat the terminals with a high temperature grease.

HYDRAULIC/HYDROSTATIC SYSTEM MAINTENANCE

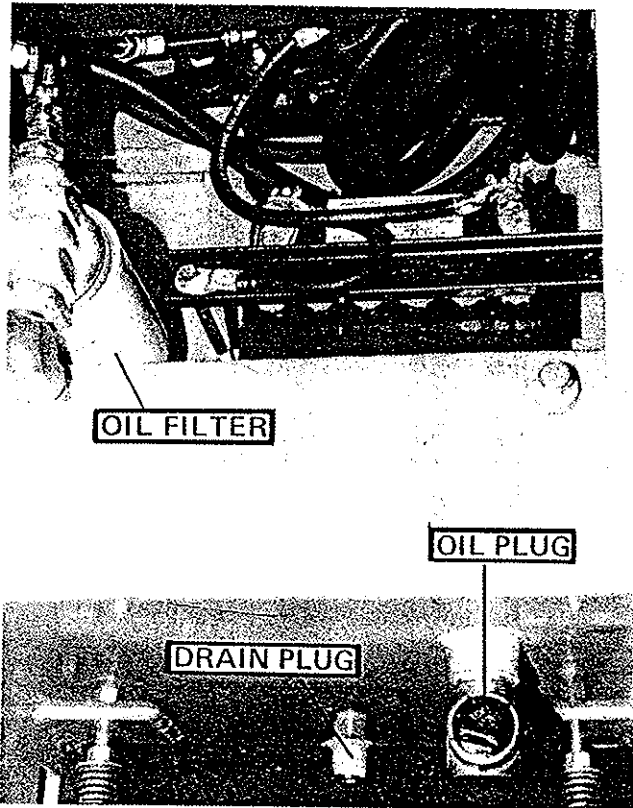


FIGURE 22

NOTE: Upper and lower front covers removed.

HYDRAULIC OIL LEVEL CHECK

1. Ensure that the loader is standing level, the lift arms are down and the tilt cylinder is closed.
2. Remove the oil plug, see Figure 22, and check the level. If oil is apparent, the level is satisfactory.
3. If necessary, add the proper type and grade of oil, see page 15, until it appears at the check point.

CHANGING HYDRAULIC OIL

The hydraulic oil normally needs to be changed after 1,000 operating hours or annually. However, if the oil becomes contaminated, or a major repair has been done to the hydrostatic transmission, it should be changed at once.

1. Remove the oil drain plug. See Figure 22, and drain the oil. Remove the oil level plug to ensure a better flow.
2. Replace the oil drain plug, and refill reservoir with clean oil of proper grade and type, see page 15.
3. Start engine, and check for leaks. Stop engine and re-check the oil level.

CHANGING HYDRAULIC OIL FILTER

1. With the engine stopped, unscrew and remove the old oil filter, see Figure 22.
2. Clean the oil filter mounting flange.
3. Apply a thin film of oil to the sealing ring and screw the new filter into place. Hand-tighten the filter.
4. Start the engine and check for leaks. Stop the engine, and check the hydraulic oil level.

IMPORTANT

Do Not Allow Dirt To Enter Into The Hydraulic/Hydrostatic System

FINAL DRIVE MAINTENANCE

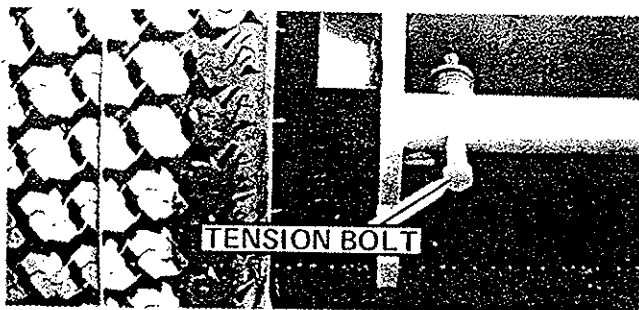


FIGURE 23

DRIVE CHAIN

To obtain proper tension on the chain, tighten the tension bolts, Figure 23, till the spring is almost compresses. Ensure that the chain is tight. The spring gives a cushioning effect.

When mounting the rear hub, Figure 24, torque the wheel nut to 250 ft. lbs. to prevent damage to the wheel motor shaft, keyway and rear hub taper.

Visually inspect the chain daily and apply oil when it appears dry.

MAINTENANCE

WHEELS AND TIRES

Because the wheel studs are mounted to the front sprocket, when the wheel nuts are loosened the tension on the chain will cause the sprocket to go out of line, making it difficult to mount a tire.

Therefore, when removing the front tire on either side it is important to loosen the drive chain when removing or mounting a tire.

Visually inspect the tires and wheels daily for proper inflation and for looseness. Ensure that all wheel studs and wheel nuts are tight. For proper tire pressures, refer to page 20.

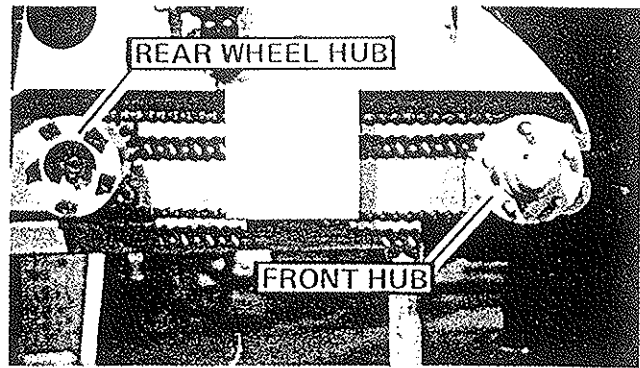


FIGURE 24

PERIODIC MAINTENANCE AND SERVICE SCHEDULE

ITEM	MANUAL	SERVICE REQUIRED	HOURS OF OPERATION				
			10 OR DAILY	20 OR WEEKLY	50 OR BI-WEEK	100 OR MONTHLY	1000 OR ANNUALLY
Engine Oil	Ramrod Manual	Check level of engine oil and top up if necessary. See Page 15 for specs.	X				
Engine Fuel	Ramrod Manual	Check level, and if necessary, top up. See Page 15 for specs.	X				
Hydraulic Oil	Ramrod Manual	Check level, and if necessary, top up. See Page 15 for specs.	X				
Tires and Wheel Nuts	Ramrod Manual	Check tire pressure and wheel nuts. See Page 20.	X				
Decals	Ramrod Manual	Check for damaged safety or instruction decals. Replace if necessary. See P. 25	X				
Engine Oil	Engine Manual	Change oil after first 20 hours of operation. See Page 15 for specs.		X			
Wheel Drive Chain	Ramrod Manual	Check and adjust tension if necessary.		X			
Air Cleaner	Engine Manual	Clean element and re-oil.			X		
Battery	Ramrod & Engine Manuals	Check level of battery acid and, if necessary, top up. Clean and protect battery terminals.			X		
Engine Oil	Engine Manual	Replace engine oil. See Page 15 for specs.				X	
Fuel Strainer	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. See Page 20.				X	
Hydraulic Oil	Ramrod Manual	Change hydraulic oil. See Page 15 for specs.					X

OPERATION

TROUBLE SHOOTING

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

SYMPTOM	POSSIBLE CAUSES	POSSIBLE REMEDIES
Starter does not crank engine	Fuse protecting ignition system burned Low battery output Loose or disconnected battery cable	Replace with 1.5A fuse 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 you 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. Refer to Page 15 Check oil level. Add if 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 lever to neutral Set to correct pressure
No drive of either wheel on one side	Key sheared on motor shaft	Inspect shaft and hub for damage or wear. Replace key and tighten on slotted nut.
No drive of front wheel on one side	Chain failure	Inspect and replace
Noisy operation	Chains too loose Chains dry	Tighten chain Lubricate chain

V. LOADER SPECIFICATIONS

Rated Operating Capacity 230 kg. (507 lbs.)
 Shipping Weight: (Crated)
 with 4" wheels and 31" bucket . . . 1,155 lbs. (524 kg.)
 with 6" wheels and 36" bucket . . . 1,160 lbs. (526 kg.)
 with 8" wheels and 42" bucket . . . 1,166 lbs. (530 kg.)
 Travel Speed 5 k.p.h. (3 m.p.h.)

DIMENSIONS (With 18 x 8.50 x 8 tires - 8")

- A. Overall Operating Height 90.375" (2296mm)
- B. Height To Hinge Pin . . . 65.750" (1670mm)
- C. Overall Height of Loader 46.750" (1187mm)
- D. Overall Length with 42" bucket 75.375" (1915mm)
- E. Dump Angle 90°
- F. Dump Height @ 45° Dump Angle 47.750" (1213mm)
- G. Reach, Fully Raised @ 45° Dump Angle 22.125" (562mm)
- H. Height To Bottom Of 42" Bucket 62.00" (1575mm)
- I. Maximum Roll Back At Ground 35°
- J. Maximum Roll Back Fully Raised 36.5°
- K. Wheel Base 25.250" (641mm)
- L. Overall Length Less Bucket 57.250" (1454mm)
- M. Ground Clearance 5.50" (140mm)
- N. Angle Of Departure 26°
- O. Clearance Circle Without Bucket 28.56" (725mm)
- P. Clearance Circle With 42" Bucket 49.10" (1247mm)
- Q. Clearance Circle, Rear 32.45" (824mm)
- R. Overall Width Without Bucket 39.00" (1003mm)
- S. Tread Width 31.00" (787mm)

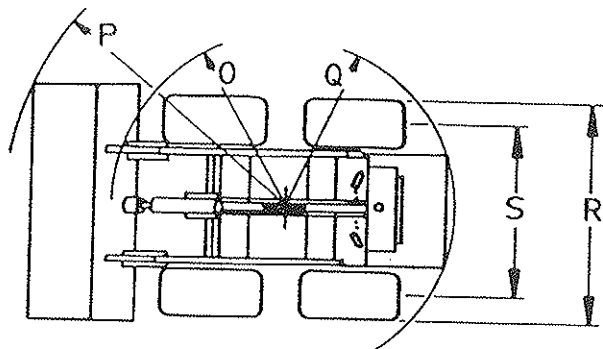
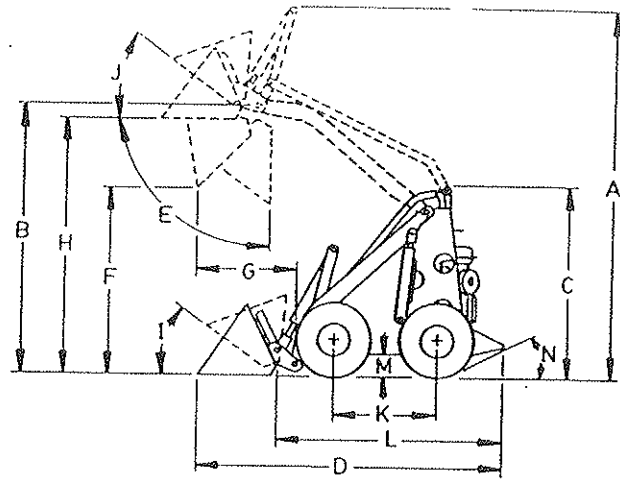


FIGURE 25

NOTE: 16 x 6.50 x 8 (6") tires will decrease the machine dimensions as follows:

- All vertical dimensions will decrease by 1 inch (25mm)
- G. Reach, Fully Raised @ 45° Dump Angle . . . 23" (584mm)
- R. Overall Width Without Bucket 35" (889mm)
- S. Tread Width 29" (737mm)

NOTE: 4.80 x 8 (4") tires will decrease the machine dimensions as follows:

- All vertical dimensions will decrease by .50 inch (13 mm)
- G. Reach, Fully Raised @ 45° Dump Angle . . . 22.50" (572mm)
- R. Overall Width Without Bucket 31" (787mm)
- S. Tread Width 27" (686mm)

—LOADER SPECIFICATIONS—

ENGINE

Make and Model Kohler M14
Cycle, Valve Arrangement 4 cycle, side valve
Displacement 24.8 in.³ (406cm³)
Maximum Output (Horsepower) 10 H.P. (7.5 kw) @ 3600 r.p.m.
Dry Weight (Mass) 77.2 lbs. (35 kg.)

HYDROSTATIC/HYDRAULIC SYSTEM & FINAL DRIVE

Pump Rexroth, Gear Type, Fixed Displacement, 0.40 in³/rev. (6.5cm³)
Pump Capacity 4.50 GPM (13.6 l/min) @ 2500 P.S.I. (172 Bar)
Motor Nichols, Variable Displacement, 16.4 in³/rev. (269cm³)
Control Valve 5 Spool, Series Parallel, Spring Return and Detent On Auxiliary
System Relief Pressure 2500 P.S.I. (172 Bar)
Filtration Return Line: 10 Micron
Cylinders (3) Double Acting 2.50 Bore, 8.00 Stroke, 1.250 Rod.
Final Drive Primary Chain Number ASA 60

ELECTRICAL

Battery 12 Volt, Negative Ground, 220 Amps.

FLUID CAPACITIES

Fuel Tank 4 litres (1 Imp. Gal.)
Engine Oil 1 litre (1 quart)
Hydraulic Oil Reservoir 37 litres (39 quarts)

TIRES AND BUCKETS

TIRE	PRESSURE
4.80 x 8 - 4 ply	50 p.s.i. (3.45 kPa)
16 x 6.50 x 8 - 4 ply	30 p.s.i. (207 kPa)
18 x 8.50 x 8 - 2 ply	20 p.s.i. (138 kPa)

BUCKET	CAPACITY
31" (787mm)	2.84 ft ³ (0.008m ³)
36" (914mm)	3.30 ft ³ (0.09m ³)
42" (1067mm)	3.85ft ³ (0.11m ³)

LOADER SPECIFICATIONS

DECALS

Operating Instructions
Part No. 179150
Location: Far L/H side on rear face

Safety First
Part No. 179149
Location: Far R/H side on left face

OPERATING INSTRUCTIONS

Hydraulic power transmission is instantaneous. When using the drive levers, sudden movement will result in acceleration to full speed and very jerky ride. Ease the levers either forward or reverse.

If the bucket is pivoted down while the arms are down, the front of the mini loader will lift off the ground. This is a standard operation when scraping and leveling. The standing platform will prevent the mini loader from overturning backwards.

HINTS FOR USE



1 When attacking the heap or pile, always have the bucket level. To achieve this, lower the loader arm and activate bucket tilt cylinder to bring the bucket level with the ground.

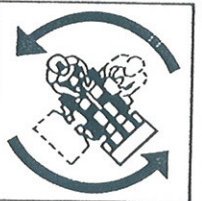
2 Towards the end of the run when the bucket is nearly full, gently roll the bucket backwards. This decreases the lifting resistance when the arms are raised and promotes an efficient tear out.

3 When transporting material in the bucket on hillsides or rough ground, keep the bucket close to ground level. This lowers the centre of gravity of the loader and maximizes stability.

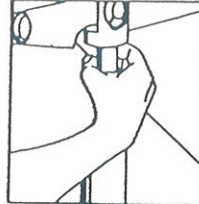


4 When scraping, leveling and surface stripping, lower the bucket to ground level, tilt it down and so raise the front wheels slightly off the ground. Drive forward using the back wheels, the bucket will bite into the soil as you move forward.

5 The material may then be dumped into a trailer or utility truck for removal or repositioning on the site. Do not step off the operator platform with the load raised.



Manoeuvring is made possible by individual controls for the hydraulic motor on each side of the mini loader. A turn may be achieved by varying the amount and/or direction of power supplied to each side of the machine. The machine is capable of turning in its own length by applying equal forward and reverse power to opposite sides of the machine.



1 Safety First

2 Wear close fitting protective clothing and shoes.

3 Keep hands, feet and clothing away from all moving parts and rams.

4 Do not allow more than one person on the loader at any time.

5 Do not smoke while fuelling or operating the mini loader.

6 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.

7 Do not place feet under the platform.

8 Do not ride in the bucket.

9 Do not allow any other person or animal close to the mini loader while in operation.

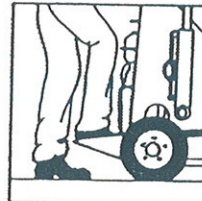
10 Ensure adequate ventilation when using the machine in confined spaces.

11 Do not drive the mini loader across steep slopes.

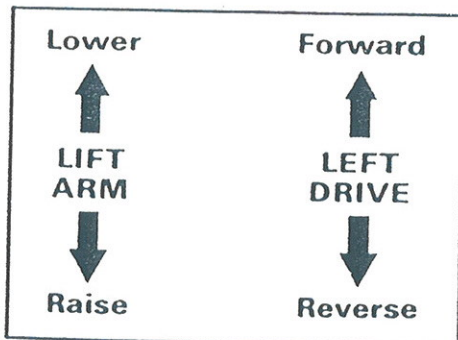
12 Always place bucket on ground when parking or leaving the loader unattended.

13 Do not carry load with the arms in a raised position. Always carry loads close to the ground. Do not step off platform with load raised.

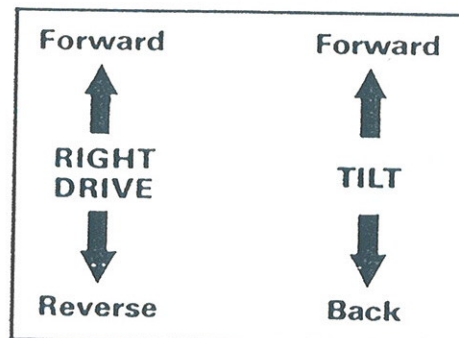
14 Caution — Never jerk the control levers, use a steady even motion.



Left Controls
Part No. 179146
Location: Top L/H side on control console



Right Controls
Part No. 179147
Location: Top R/H side on control console



LOADER SPECIFICATIONS

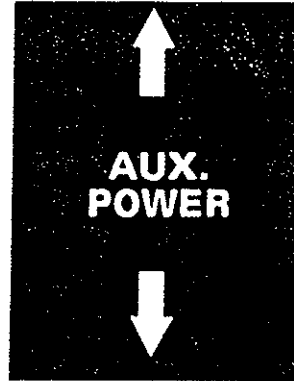
Shutdown and Parking
Part No. 179151
Location: Centre of rear face

SHUT DOWN AND PARKING

When parking the mini loader always lower the bucket to the ground. Do not park on steep slopes. To turn off the engine, reduce the engine speed at the throttle and turn the start key to the "Off" position. If the mini loader is to be transported close the fuel valve. Vibration during transport could cause the carburettor to flood.

CAUTION

Auxiliary Power
Part No. 179145
Location: Centre of rear face



Patent
Part No. 179152
Location: Top centre of rear face

INT. REG. PAT. No. PCT-AU83-00165.
INT. REG. DESIGN No. 1017838

Ramrod - 2" High
Part No. 179140

Mini Loader - 1" High
Part No. 179141

Black Ram Head - Small
Part No. 179142

RAMROD Mini Loader



Black Ram Head - Large
Part No. 179143



White Ram Head - Small
Part No. 179144



230 - 1½" High
Part No. 179148

230

—LOADER SPECIFICATIONS—

LOADER IDENTIFICATION

The loader serial number plate is located on the front face of the control console under the lift arm. The Kohler engine serial number is located under the rear air cleaner cover.

In order to qualify for warranty, the "New Loader Warranty Registration Form" must be completed

and one copy mailed to RAMROD EQUIPMENT CORPORATION. One copy should be retained by the Selling Dealer, and one by the Owner. To validate the engine warranty, the Honda Registration Certificate must be completed and mailed to the address shown in the Honda Warranty Book.

NOTE: Spark Plug Removal.
The spark plug is removed by inserting a 13/16" open end wrench under the top cover as shown below. **Note:** Rear and engine cover and top rear cover must be removed.

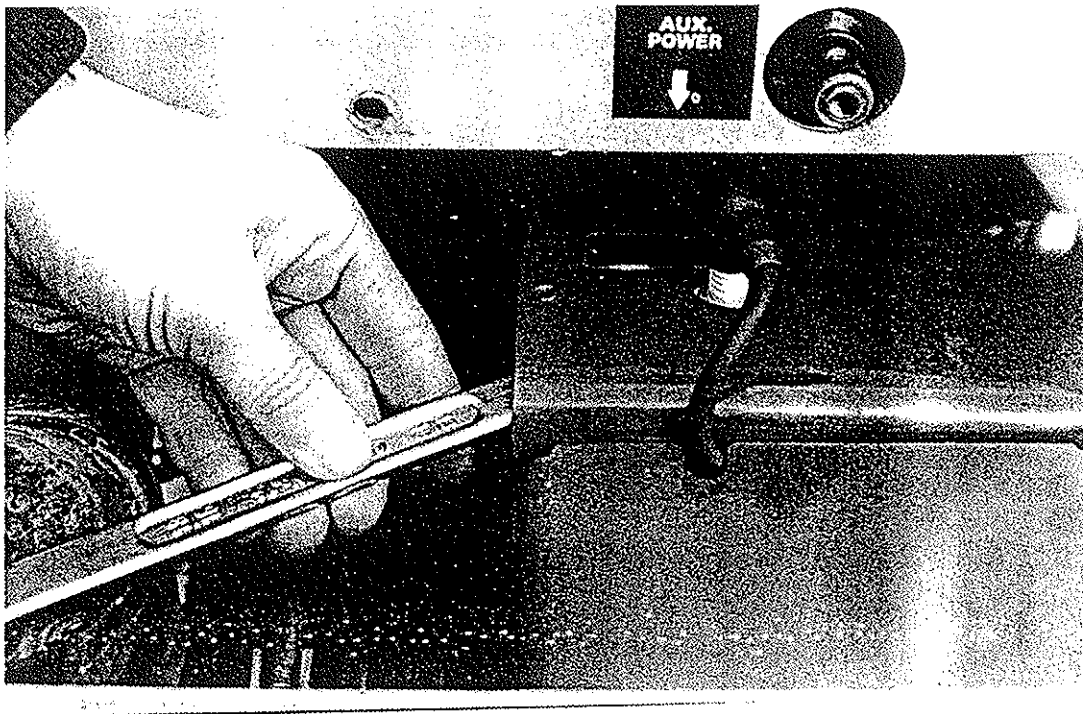


FIGURE 26

RAMROD WARRANTY

The **RAMROD EQUIPMENT CORPORATION** warrants each new **RAMROD** Skid Steer Loader to be free from proven defects in material and workmanship under normal use and maintenance for a period of six (6) months, commencing with delivery to the original buyer. Under conditions of this warranty, the Skid Steer Loader must be operated according to manufacturer's instructions and by a competent and careful operator.

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

It is the responsibility of the Buyer, at his expense, to transport the Loader 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 Loader fluids and lubricants.

This warranty does not extend to Loader components such as, but not limited to, engines, 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 warranties 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.



RAMROD EQUIPMENT CORPORATION

"Manufacturers of Quality Built Skid Steer Loaders"

NEW LOADER WARRANTY REGISTRATION FORM

Loader Serial Number	Model Number	Engine Serial Number
Name of Owner		Name of Dealer
Owner's Address		Dealer's Address
Date Loader Sold		Date Loader Delivered
OPTIONS & ACCESSORIES		SERIAL NUMBER (IF APPLICABLE)

TIRES:

- 4.00 x 8
- 16 x 6.50
- 18 x 8.50

BUCKETS:

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

RAMROD COPY

135 YORK ROAD EAST,
YORKTON, SASKATCHEWAN, CANADA S3N 3N6
PHONE (306) 783-6592 TELEX 074-21544
FAX (306) 782-1884



RAMROD EQUIPMENT CORPORATION

"Manufacturers of Quality Built Skid Steer Loaders"

NEW LOADER WARRANTY REGISTRATION FORM

Loader Serial Number	Model Number	Engine Serial Number
Name of Owner	Name of Dealer	
Owner's Address	Dealer's Address	
Date Loader Sold	Date Loader Delivered	
OPTIONS & ACCESSORIES	SERIAL NUMBER (IF APPLICABLE)	

TIRES:

- 4.00 x 8
- 16 x 6.50
- 18 x 8.50

BUCKETS:

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

DEALER COPY

