RAMROD

580 SERIES SKID STEER LOADERS

Owner's and Operator's Manual

INTRODUCTION

TO OUR CUSTOMER:

RAMROD EQUIPMENT is pleased that you have chosen a **RAMROD** Skid Steer Loader. This loader was 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.

If your **RAMROD** Skid Steer Loader is powered by a gasoline engine, you have also received an "Operator's Instruction Book" for gas engines from the manufacturer. If your **RAMROD** Skid Steer Loader is powered by a diesel engine, you have received an "Operator's Instruction Book" for diesel engines from the manufacturer.

We also recommend that you carefully read this Engine Manufacturer's Manual 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 seated in the operator's seat, facing forward.

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

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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

- WEAR A HARD HAT AT ALL TIMES.
- ALWAYS FASTEN SEAT BELT.
- WHEN LEARNING TO OPERATE, PROCEED SLOWLY AND CAREFULLY.
- ALWAYS LOWER BUCKET, ENGAGE PARKING BRAKE AND SHUT OFF ENGINE BEFORE LEAVING THE SEAT.
- AVOID PARKING ON A SLOPE. IF IT IS NECESSARY TO PARK ON A SLOPE, PARK ACROSS THE GRADE, ENGAGE THE PARKING BRAKE, GROUND THE BUCKET AND BLOCK THE WHEELS.
- DO NOT OFFER RIDES TO OTHERS.
- DO NOT EXCEED RATED LOAD CAPACITY.
- LEAVE PROTECTIVE GUARDS ON MACHINE.
- NEVER FUEL A HOT MACHINE.
- DO NOT LUBRICATE, ADJUST OR REPAIR THE MACHINE WITH ENGINE RUNNING.
- BEWARE OF TRENCHES, HOLES AND SIDE SLOPES.
- WATCH FOR OTHER PEOPLE AND EQUIPMENT.
- KEEP BUCKET LOW WHEN TRAVELLING, TURNING OR CHANGING SPEED.
- LOAD, UNLOAD AND TURN AROUND ON FLAT, LEVEL GROUND ONLY.
- TRAVEL SLOWLY OVER ROUGH TERRAIN.
- TO AVOID FREE-FALL OF LOAD WHEN LOWERING LIFT ARMS, DO NOT FULLY DEPRESS LIFT ARM CONTROL PEDAL TO FLOAT POSITION.
- KEEP HANDS AND FEET INSIDE OPERATOR'S COMPARTMENT.

II. INSTRUMENTS AND CONTROLS

INSTRUMENT PANEL

Become familiar with location and purpose of each instrument and control before operating the loader.

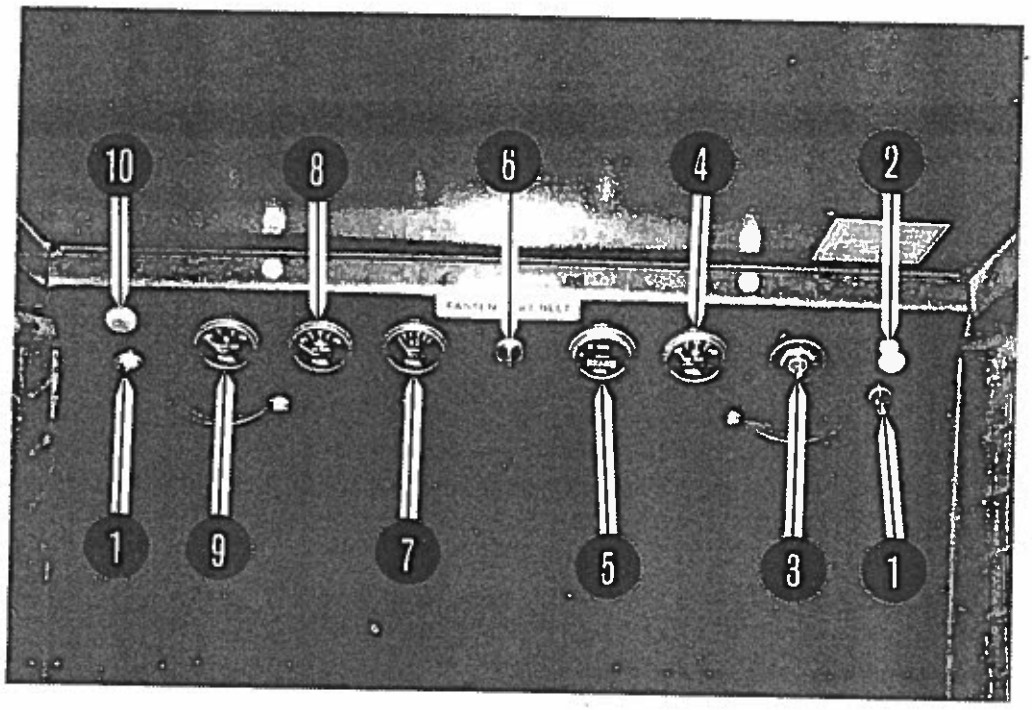


FIGURE I
Instrument Panel - located above and ahead of operator, on R.O.P.S. Top - Panel.

1. 20 AMP FUSE
This fuse protects the ignition, lighting and all indicator instruments.

2. LIGHT SWITCH
The light switch is a three position switch. Pulling the switch to first detent will turn on the headlights. Pulling the switch to second detent will turn on the headlights and rear work light. Pushing the switch in will shut the lights off.

3. IGNITION SWITCH
The ignition switch is a four position switch. On diesel units only, turning the key counter-clockwise from the OFF position, will engage the engine's preheat system. Clockwise from the OFF position are the RUN and START positions.

4. HYDRAULIC OIL TEMPERATURE GAUGE
This gauge monitors the temperature of the oil in the hydrostatic transmission. If temperature exceeds 225° F (107° C) during operation, shut off the engine and determine the cause of overheating. Refer to Trouble Shooting.

5. HOUR METER
This meter registers the engine's total operating hours.

IMPORTANT

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

6. ENGINE PRE-HEAT INDICATOR
The diesel engine is equipped with glow plugs to assist in starting. The pre-heat indicator will turn red when the engine's combustion chamber has reached the proper temperature for starting.

7. VOLTMETER
The voltmeter indicates battery voltage - before cranking, voltage pull-down during cranking, rate at which battery is restored after cranking, normal operating voltage which monitors alternator and regulator functions.

8. ENGINE OIL PRESSURE GAUGE
This gauge registers engine oil pressure when engine is running.

9. ENGINE TEMPERATURE GAUGE
This gauge registers the temperature of the engine's cooling system.

10. LOW FUEL LEVEL INDICATOR (OPT.)
This will light when there is approx. five gallons or less of fuel remaining.

11. LOW HYD. OIL LEVEL INDICATOR (OPT.)
This will light when there is insufficient oil to properly run the hydraulic or hydrostatic systems.

ENGINE CONTROLS

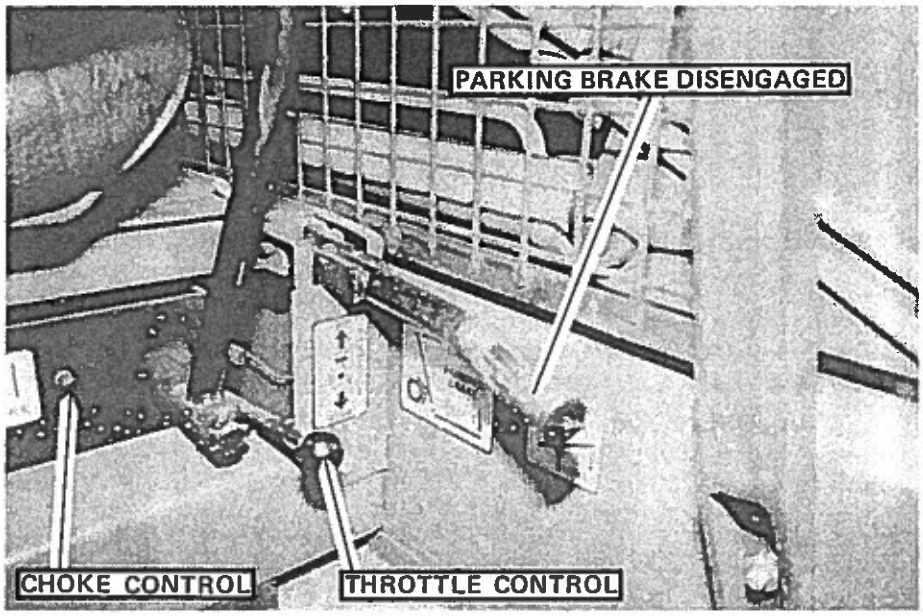


FIGURE 2 - Gas Engine Controls

CHOKE CONTROL (FIGURE 2)
Pull out the choke control to the half-way position (right out in extreme cold weather) to start a cold engine. When engine has started, push part-way in.

THROTTLE CONTROL (FIGURE 2)
When the throttle control is set fully down the engine is at idle speed. Pulling the control upward increases the engine speed.

FUEL SHUT-OFF (FIGURE 3)
Push the fuel shut-off knob in to allow engine to be started. Pull knob out to stop engine.

THROTTLE CONTROL (FIGURE 3)
When the throttle control is set fully up, the engine is at idle speed. Pushing the control downward increases the engine speed.

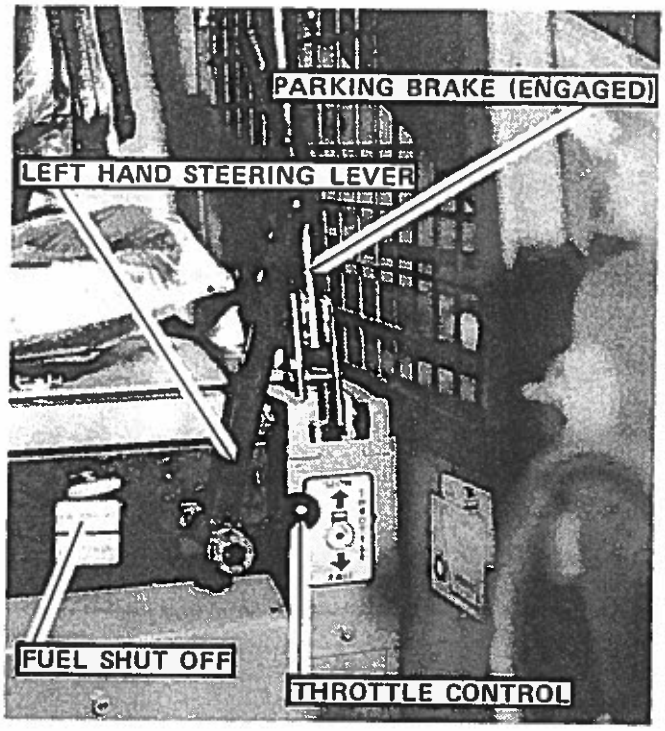


FIGURE 3 - Diesel Engine Controls

IMPORTANT

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

PARKING BRAKE (FIGURES 2 & 3)

FIGURE 2 shows the parking brake lever in the disengaged position. The brake is engaged by pulling the lever upward and back and locking into the over-centre position. **FIGURE 3** shows the parking brake lever in the engaged position.

WARNING

Always Engage The Parking Brake Before Stopping The Engine. The Machine May Roll Out Of Control If The Engine Stops And The Brakes Are Not Applied. Also, Ensure That Brakes Are In Proper Adjustment At All Times.

STEERING CONTROLS

The steering controls are located on either side of the operator's seat. **(FIGURES 2 & 3** Show the L/H Steering Lever). The levers are adjustable laterally (sideways) to suit operator comfort, and fold inward to the horizontal position to facilitate engine roll-out. The steering control levers are mechanically dampened and spring centered to the neutral position.

NOTE: Some loaders are equipped with optional neutral start switches (not illustrated). On those loaders both steering control levers must be placed in neutral detent otherwise engine will not crank over. The L/H lever controls the wheels on the L/H side of the loader and the R/H lever the R/H wheels.

Engage the steering 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, as shown in **FIGURE 4, A.** To drive the loader straight backward, move both control levers back the same amount, as shown in **FIGURE 4, B.**

NOTE: Some loaders are equipped with optional back-up alarm, that will "BEEP" when both control levers are pulled back.

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, as show in **FIGURE 4, C & D.** For the loader to go into a spin-turn, or "SKID-STEER", move one lever forward and the other back the same amount, as shown in **FIGURE 4, E & F.**

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.

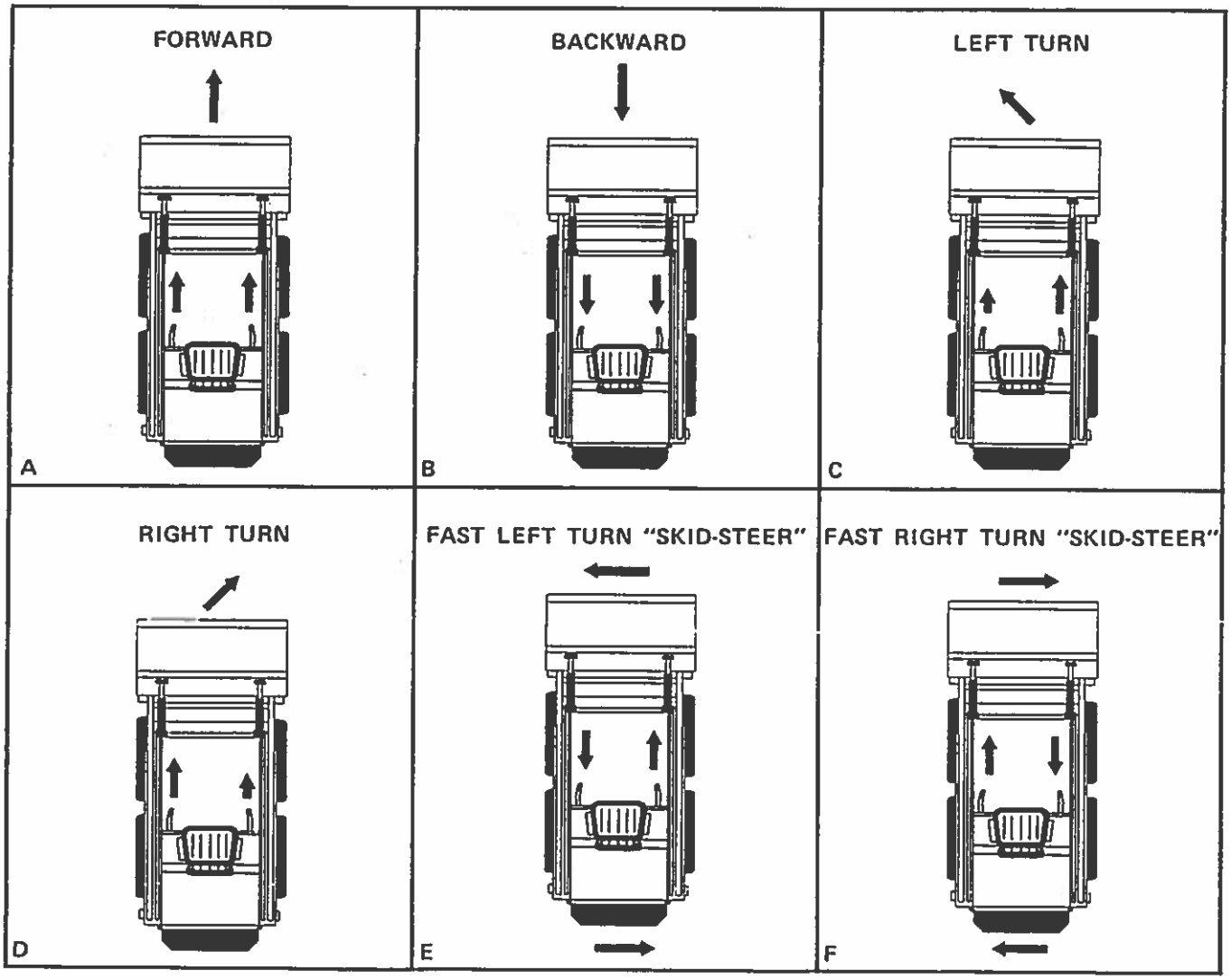


FIGURE 4 - L/H and R/H Steering Levers Control Loader Speed, Direction and Turning.

FOOT PEDALS

The three foot pedals shown in FIGURE 5, control the hydraulic functions of the machine.

LEFT PEDAL - LIFT ARM CONTROL (FIGURE 6)
Push the heel on the pedal to raise lift arms. Push the toe on the pedal to lower lift arms. In these two positions, the pedal is spring centered to neutral upon removal of foot. Pushing toe of the pedal fully downward holds lift arm in a float position allowing the bucket to follow the ground as the loader is driven. Push heel of pedal to release from float position.

CENTRE PEDAL - TILT CONTROL (FIGURE 7)
This pedal controls the tilting action of front accessory mount frame for attachments such as buckets, forks, etc. Push the toe on the pedal to tilt attachments forward and push heel on the pedal to tilt attachments rearward. The pedal is spring centered to neutral upon removal of foot.

RIGHT PEDAL - AUXILIARY HYDRAULICS (FIGURES 7 & 14)
This pedal can be used to control accessory attachments such as backhoes, grapple forks, hydraulic drives, etc. Accessory hydraulic hoses are connected to the quick couplers located at front and rear of machine. Push the toe on the pedal to direct power to the female coupler. Push the heel on the pedal to direct power to the male coupler. Pedal is not spring centered and must be returned to neutral "HOLD" position with the foot.

For operator comfort, the foot pedal control linkage can be adjusted to change the foot pedal angle.

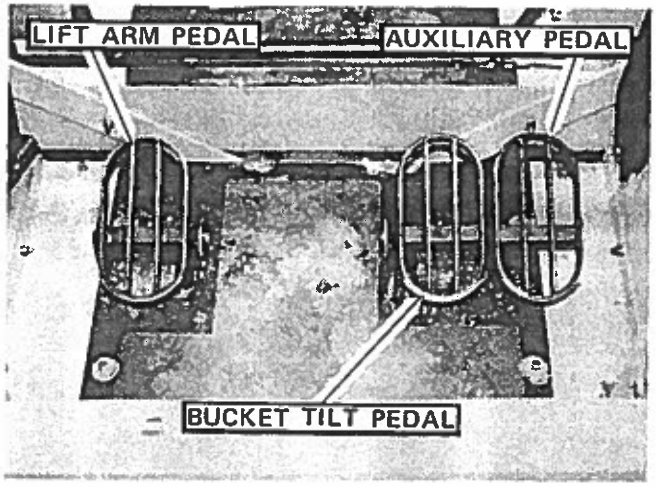


FIGURE 5

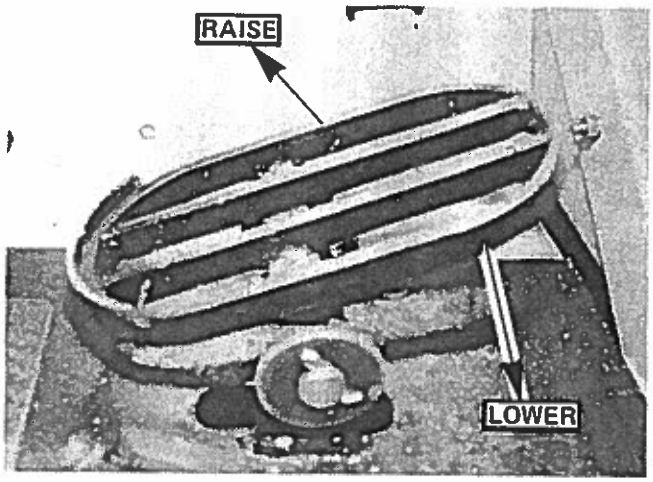


FIGURE 6

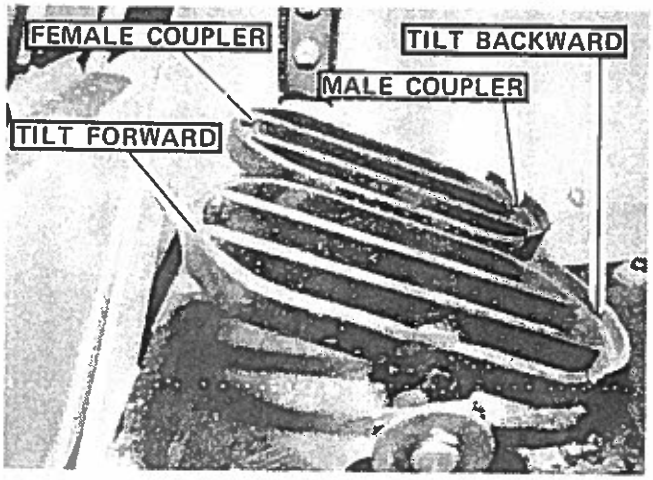


FIGURE 7

WARNING

Always Keep Feet On The Foot Pedal Controls While Operating The Loader.

IMPORTANT

Ensure That Right Auxiliary Pedal Is Kept In Neutral When Not Being Used To Avoid Wasting Power. Engine Is Difficult To Start If Pedal Is Engaged. Hydraulic Oil May Also Overheat.

ATTACHMENT LOCK LEVERS

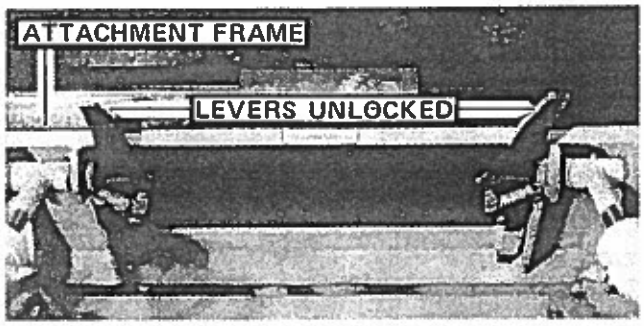


FIGURE 8

The quick-attach design allows changing from one attachment to another quickly without having to remove bolts or pins.

The two levers are located on the inner side and along the top of the attachment frame. To unlock attachments, pull up the levers to the vertical position, as shown in **FIGURE 8.**

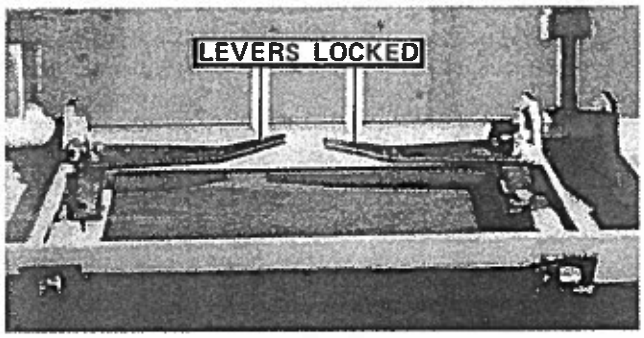


FIGURE 9

To lock attachments, first check that lock pins align with, and enter freely into attachment's slots; then rotate levers inward and down locking into the over-centre position, as shown in **FIGURE 9.**

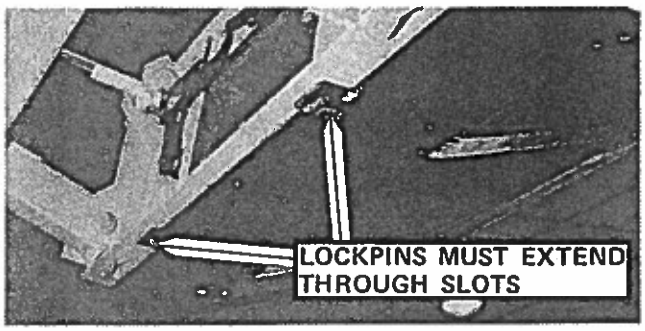


FIGURE 10

WARNING

After Hook-Up To Attachment, Check To Be Sure Lock Pins Are Fully Engaged, As Shown In **FIGURE 10.**

SEAT AND SEAT BELT

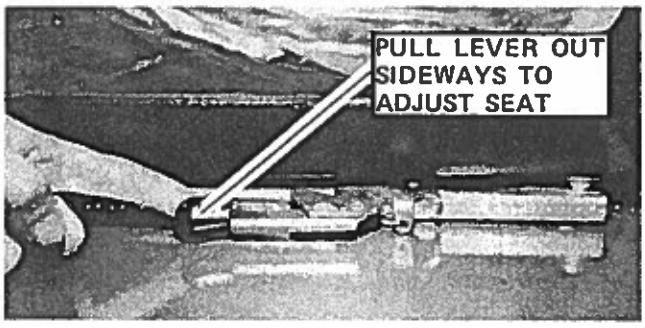


FIGURE 11

The loader is equipped with an adjustable seat which can be moved forward or back for operator comfort, as shown in **FIGURE 11.**

For your safety the loader is equipped with a seat belt. Before starting the loader, adjust and fasten the seat belt.

III. OPERATION

You can take full advantage of all the features of your **RAMROD** Skid Steer 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 coolant level.
3. Check radiator and hydraulic oil cooler.
4. Check engine fuel, and hydraulic/hydrostatic fluid level in tank (Open fuel shut-off valve if closed).
5. Visually inspect all hoses, lines, fittings, tires, belts, lights, pivot points, nuts and bolts, safety shields and decals for possible failure or looseness.
6. Check for fuel, coolant, engine or hydraulic oil leaks.
7. Check operation of gauges on instrument panel by turning the ignition key to the "Run" position.
8. Adjust the seat to the most comfortable position for operating foot pedals and hand controls.
9. Check that parking brake is engaged, and all controls are in the neutral position. On loaders that are equipped with neutral start switches, the steering control levers must be placed in neutral detent otherwise engine will not crank over.

NOTE: For complete daily servicing, refer to SECTION IV.

⚠ WARNING

Always Be Properly Seated In The Operator's Seat With The Seat Belt Fastened Before Starting The Engine.

STARTING PROCEDURE — GAS

1. Move throttle control ¼ to halfway up to sufficiently keep engine running after it has been started.
2. Pull out the choke control to the halfway position. (Only in extreme cold weather need the choke control be pulled right out, and it must be returned to the half way position as soon as the engine begins to 'hunt' - due to an over rich mixture).
3. Turn ignition key to "Run" and then through to "Start" position.
4. As soon as engine starts, release key and push in the choke control as far as possible to give smooth fast idle running. It should be fully returned as soon as possible.
5. Observe gauges for proper functioning of systems. Avoid excessive engine speed during warmup.

NOTE: To restart a warm engine - move throttle control up slightly and turn ignition key to "Start" position until the engine fires.

STARTING PROCEDURE — DIESEL

1. Move throttle control slightly downward (Fully up is idle speed).
2. Push fuel shut-off in.
3. Turn ignition key counter clockwise to "Pre-Heat" position and hold until pre-heat indicator turns red.
   Over 0° C (32° F) pre-heat for 15 sec.
   Below 0° C (32° F) pre-heat for 30 sec.
   Restarting warm engine, NO pre-heat required.
4. Turn ignition key clockwise through to "Start" position.
5. As soon as engine starts, release key and observe gauges for proper functioning of systems. Warm up the engine at medium speed.

NOTE: If the engine fails to start, turn the key counter-clockwise and pre-heat again.

If the engine fails to start in freezing weather, an extra 12-volt battery can be connected in Parallel. This means the extra battery is connected Negative to Negative and Positive to Positive.

WARNING

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

IMPORTANT

Do Not Crank Engine With Starter For More Than 15 Seconds At A Time, As This Will Overheat Starter.

IMPORTANT

Do Not Put Loader Under Full Load Conditions Until Temperatures And Pressures Have Stabilized.

ENGINE OIL PRESSURES FOR GAS AND DIESEL ENGINES AT NORMAL OPERATING TEMPERATURES

Engine	Throttle at "Idle"	Throttle at "Full"
Gas	20 P.S.I. Minimun 1.38 Bar	35 - 40 P.S.I. 2.41 - 2.76 Bar
Diesel	14 P.S.I. Minimum 0.97 Bar	43 - 64 P.S.I. 2.96 - 4.41 Bar

SHUT-OFF PROCEDURE

1. Park the loader on level ground. If it is necessary to park on a slope, park across the grade.
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. **Gasoline** - turn ignition key off.
   Diesel - pull fuel shut-off knob out, and turn ignition key off.

NOTE: If the loader is not likely to be used for some time, the fuel shut-off valve should be closed.

5. Place foot pedals in neutral position, engage the parking brake, and remove the key.

NOTE: For information regarding Engine Break-In Procedure, please refer to your Ford "Operator's Instruction Book", or Kubota Diesel Engine "Operator's Manual", as appropriate.

QUICK-ATTACH OPERATION

INSTALLATION OF ATTACHMENT

1. Pull attachment lock levers up into the vertical position.
2. Tilt attachment frame forward, as shown in **FIGURE 12.** Drive up to attachment until the upper edge of frame is under top flange of the attachment and centered. Be careful not to damage levers.
3. Tilt back the attachment frame until the attachment is lifted off the ground and rests against attachment frame, as show in **FIGURE 13.** Stop the engine.
4. Rotate attachment lever inward and down locking into the over-centre position, as shown in **FIGURE 9.**
5. Connect accessory hydraulic hoses to quick couplers if so required. See **FIGURE 14.** Restart the engine.

> **WARNING**
>
> *After Hook-Up To Attachment, Check To Be Sure Lock Pins Are Fully Engaged, As Shown In* **FIGURE 10.**

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 lines, and disconnect hydraulic hoses.
3. Pull attachment lock levers up into the vertical position.
4. Start engine, tilt attachment frame forward and back loader away from attachment.

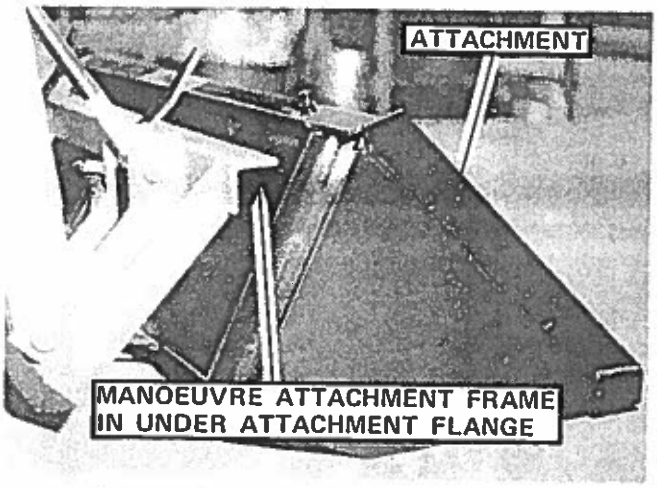


FIGURE 12

FIGURE13

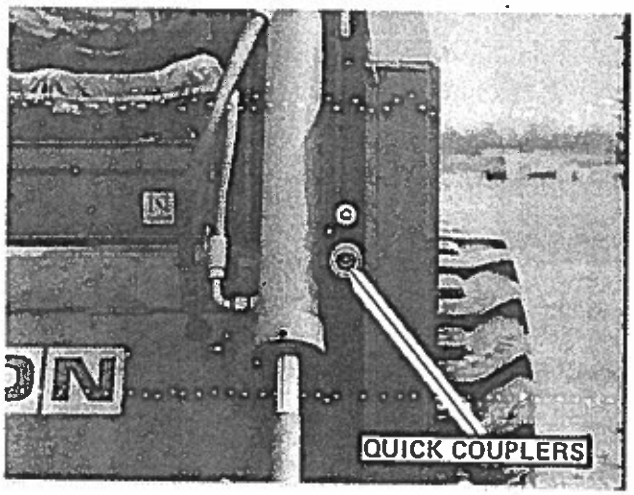


FIGURE14

OPERATIONAL PROCEDURE

Loader operational procedure and suggestions in this manual are based on the use of a heavy-duty bucket. Operating procedure and suggestions for such other attachments as snow blower, dozer blade with power angle, grapple fork, etc. are included in the respective attachment bundle.

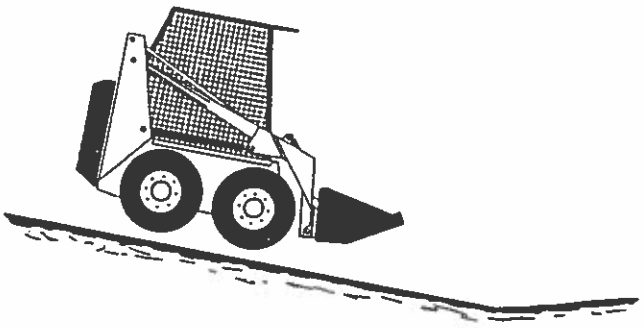


FIGURE 15 A - Empty Bucket

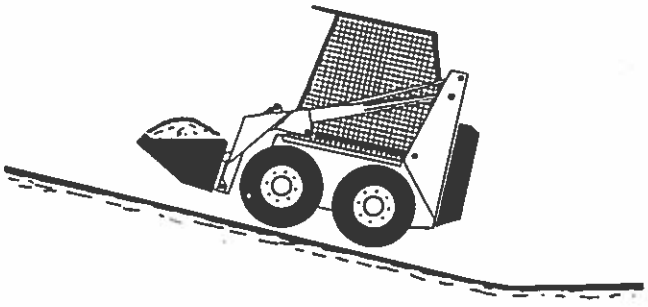


FIGURE 15 B - Full Bucket

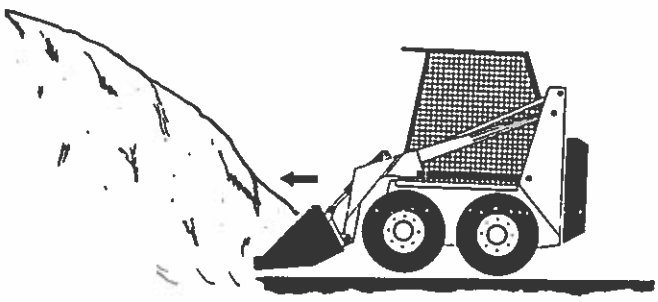


FIGURE 16 A

OPERATING SUGGESTIONS

1. Install an attachment (heavy duty bucket). Drive carefully to a clean and level area and practice operating the loader at a slow rate until familiar with the operation of all the controls.

2. For efficient operation of the loader, keep the work area small, and as level as possible.

3. Decrease cycle time by "Skid" turning rather than a go backward - go forward turn.

4. When driving up and down a slope, keep the heavy end of the loader upward as shown in **FIGURE 15 A & B.**
   Empty bucket - drive down forward, back up in reverse, as in **FIGURE 15 A.**
   Full bucket - back down in reverse, drive up forward, as in **FIGURE 15 B.**

5. Fill the bucket to rated capacity. Turning is easier with a full load than with a partial load.

6. To increase machine life, let the engine warm completely before starting operation 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.

FILLING A BUCKET FROM A PILE AND DUMPING

1. Approach pile with lift arms fully down and bucket cutting edge just skimming the top of ground, as shown in **FIGURE 16 A.**

2. As soon as the bucket is full, tilt bucket back and back away from the pile, as shown in FIGURE 16 B & C.
   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.

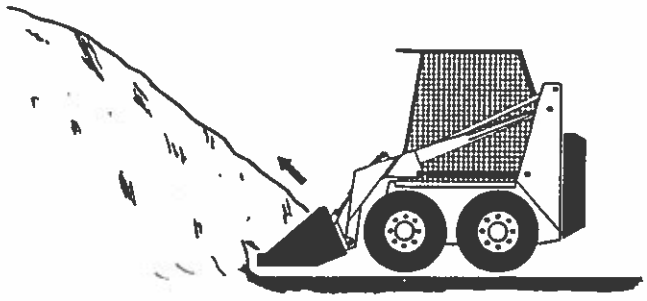


FIGURE 16 B

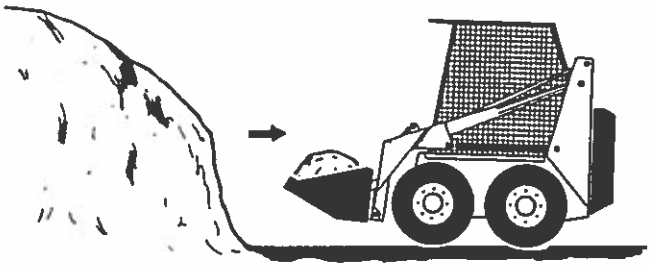


FIGURE 16 C

WARNING

Keep All Movements Smooth And Gradual When Manoeuvering With Lift Arms 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 16 D.

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

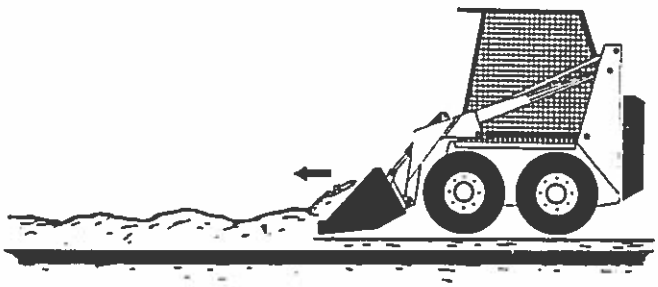


FIGURE 16 D

LEVELLING

1. To spread material on uneven ground, raise lift arms and tilt bucket forward while driving slowly forward, as in FIGURE 17 A.

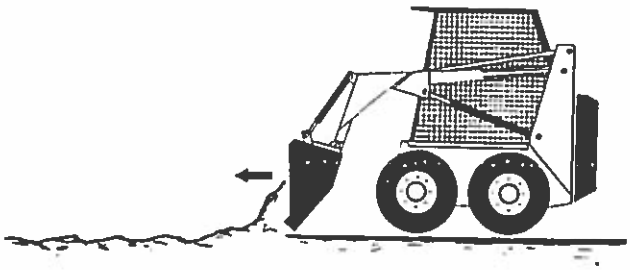


FIGURE 17 A

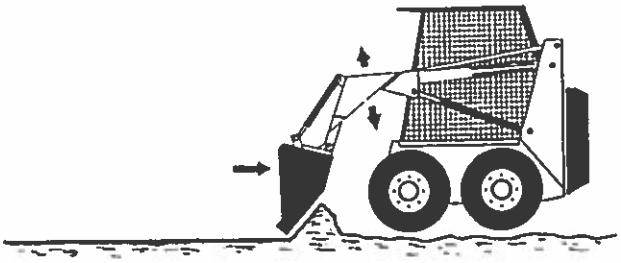


FIGURE 17 B

2. To level a filled area, push lift arm pedal into the "float" position, tilt bucket forward and drive machine backwards to drag bucket and spread material, as in **FIGURE 17 B.**

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 17 C.**

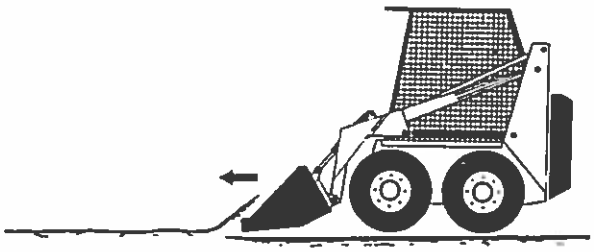


FIGURE 17 C

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 D.**

2. Tilt bucket forward as soon as it reaches the edge of the hole and when necessary raise lift arms to empty the bucket.

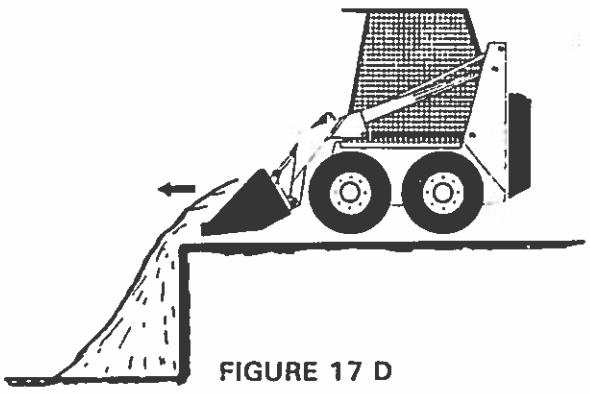


FIGURE 17 D

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 engage the parking brake. Install chains to hold loader from moving during sudden stops or when travelling up and down grades.

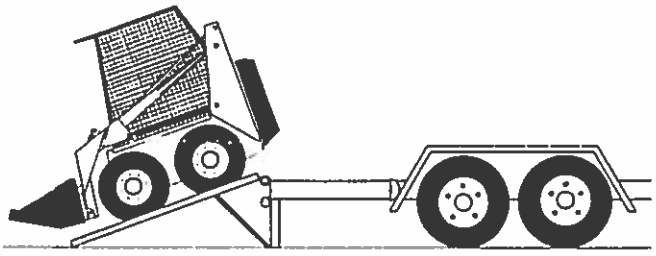


FIGURE 18

⚠ WARNING ⚠

When Transporting Or Operating On A Road Or Highway During The Day Or At Night, Use Accessory Lights And Signs As Required By Law.

—IV. FUELS, LUBRICANTS, FLUIDS 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.

FUELS

The quality of fuel is an important factor in getting dependable performance and satisfactory engine life.

WARNING

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

DIESEL

Diesel fuels are classified as either No. 1-D or No. 2-D fuel. The approved fuel for Kubota diesel engines in Canada and the U.S.A. is A.S.T.M./D975 No. 1-D and No. 2-D.
No. 2-D . . . . . Temperatures Above 4° C (40°F)
No. 1-D . . . . . Temperatures Below 4° C (40° F)

GASOLINE

Use the proper octane rating of 91 or equivalent of a regular grade of gasoline. The gasoline should be clean and free from dirt and moisture.

LUBRICANTS

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.)
Gas Engine Oil Must Meet specification SSM 2C 9001 AA and qualities for API classification of SF	Above 25° C (77° F) 0° C to 25° C (32 - 77° F) -15° C - 0° C (5 - 32° F) Below -15° C (5° F)	SAE 30 SAE 10W SAE 10W SAE 5W30	3.7 (0.81) (includes filter)
Diesel Engine (Oil must meet the requirements of MIL-L-2140C and qualities for API classification of CC/CD grades)	Above 25° C (77° F) 0° C - 25° C (32° - 77° F) Below 0° C (32° F)	SAE 30 SAE 20 SAE 10W or SAE 10W-30	9.0 (1.98) (includes filter)
Fuel Tank - Gas Fuel Tank - Diesel	All Above 4° C (40° F) Below 4° C (40° F)	91 Octane, Regular No. 2-D No. 1-D	61 (13.42) 61 (13.42)
Gas Engine Governor	All	Same As In Gas Engine	
Hydraulic Oil Reservoir (For hydraulic system, API classification of SE/SF)	All (Oil pre-heat required when temp. falls below -29° C (-20° F)	SAE 10W40	65 (14.30)
Chain Compartment each side	All	Same As In Gas Engine	3 (0.66)
Cooling System Gas Engine	Establish min. temp. for your area and check mixture in radiator.	Ethylene glycol base antifreeze and water.	9.5 (2.09)
Cooling System Diesel Engine	Establish min. temp. for your area and check mixture in radiator.	Ethylene glycol base antifreeze and water.	6.9 (1.52)
Grease Fittings	All	SAE high temperature multi-purpose	As Required

V. MAINTENANCE

Any maintenance or service procedure on or around the engine is made convenient by the "Roll-Out" engine feature.

ROLLING-OUT THE ENGINE (FIGURE 22)

1. Rotate steering levers inward and down to the horizontal position, as shown in **FIGURE 19.**

2. Remove the two left side rear-door hinge pins, see **FIGURE 20**, and swing door open.

3. Remove the two engine frame securing nuts and washers, see **FIGURE 21** (Loaders with gas engine are equipped with wing-nuts).

4. Pull back on engine frame until assembly rolls out.

NOTE: To return engine to operating mode, reverse the above procedure.

WARNING

Do Not Service Loader While Engine Is Running.

FIGURE 19

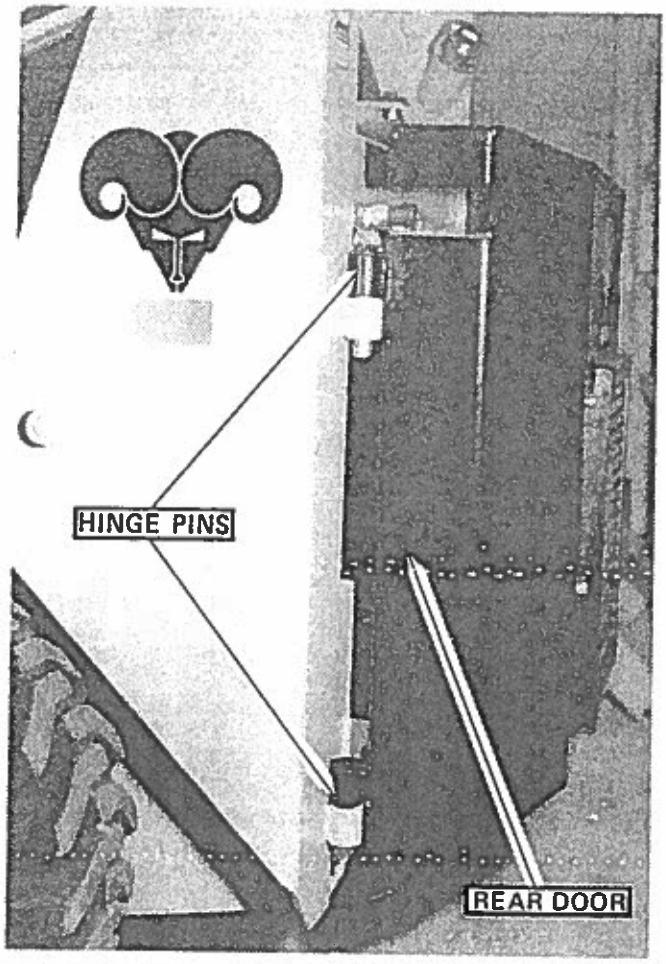


FIGURE 20

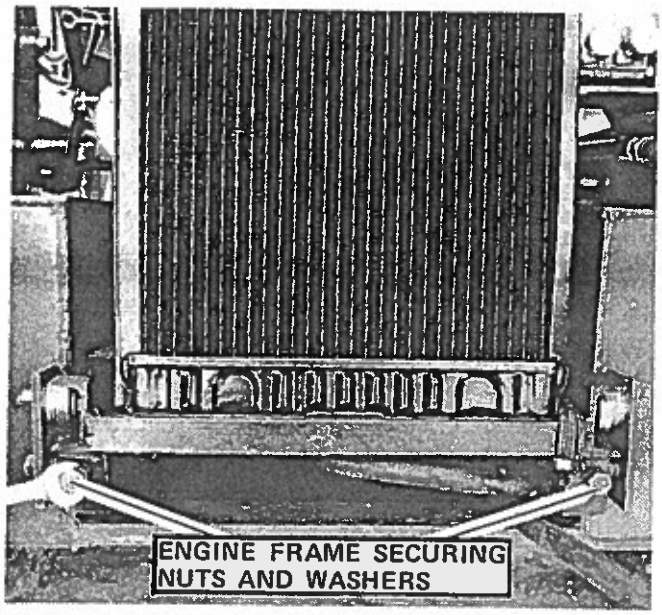


FIGURE 21

WARNING

Never Roll-Out The Engine When It Is Running.

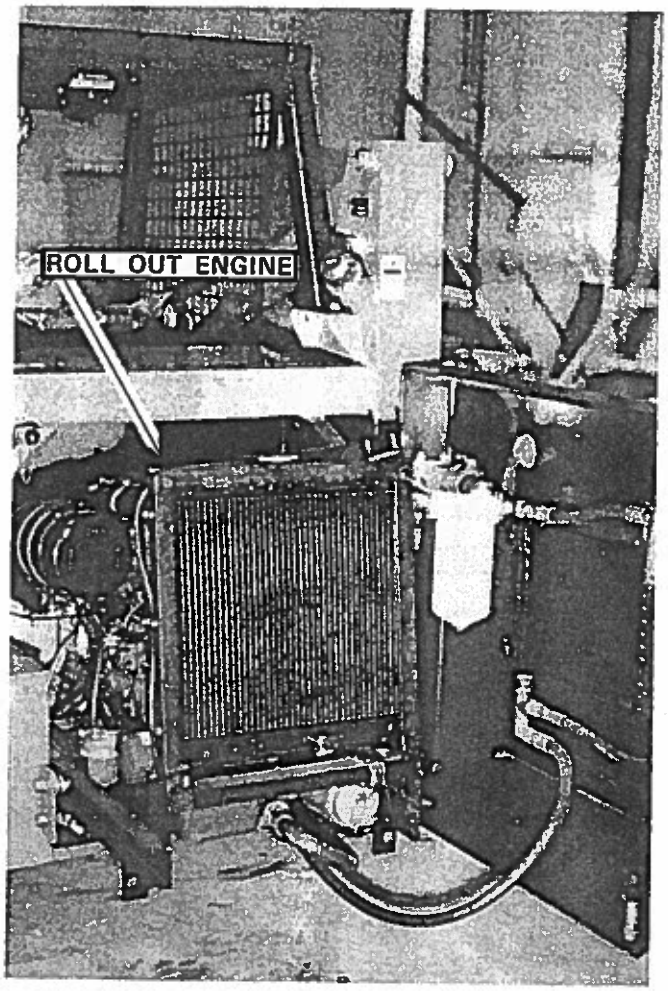


FIGURE 22 - Roll-Out Engine

PERIODIC MAINTENANCE AND SERVICE SCHEDULE

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.

NOTE:

1. The Engine "Operator's Manual" (as appropriate to your model), contains a summary of regular maintenance for the engine. Please follow those instructions carefully, particularly those that apply to the Running-In Procedure. Maintenace with respect to engine lubrication and coolant is included in the following "Periodic Maintenance and Service Schedule".

2. Both metric and imperial hardware is used on this machine. Body hardware is metric whereas drive train hardware and hydraulic fittings and adapters are imperial.

PERIODIC MAINTENANCE AND SERVICE SCHEDULE

ITEM	MANUAL PAGE NO.	SERVICE REQUIRED	HOURS OF OPERATION						
			10 OR DAILY	50	100	200	400	600	1000 OR ANNUALLY
Engine Oil	ROM 19, 25	Check level of engine oil, and, if necessary, top up. See chart on Page 15 for specs.	X						
Engine radiator	ROM 21, 26	Check level of coolant, and, if necessary, top up. See chart on Page 15 for specs.	X						
Air Cleaner	ROM 23	Empty dust cap, and inspect condition of system.	X						
Engine Fuel	ROM 4	Check level of engine fuel, and, if necessary, top up. See chart on Page 15 for specs.	X						
Hydraulic Oil	ROM 30	Check level of hydraulic oil, and, if necessary top up. See chart on Page 15 for specs.	X						
Lubrication	ROM 19	Grease all fittings until excess shows.	X						
Tires & Wheel Nuts	ROM 40	Check tire pressure, and torque wheel nuts. See specs on Page 40.	X						
Instruments & Controls	ROM 3	Check for proper operation as described in Section II.	X						
Decals	ROM 48	Check for damaged safety or instruction decals. Re-place if necessary.	X						
Battery	ROM 39	Check level of battery acid and, if necessary, top up. Clean and protect battery terminals.		X					
Air Cleaner	ROM 23	Clean or renew air cleaner element.		X					
Engine V-Belts	ROM 23	Check for alignment, tension and condition. (29)		X					
Fuel System	ROM 22	Check complete system for leaks. (27)		X					
Governor (Gas)	ROM 20	Check level of oil, and if necessary, top up. See chart on Page 15 for specs.		X					
Parking Brake	ROM 40	Check operation of brakes and adjust as required.		X					
Engine Oil - Gas and Diesel	ROM 20, 26	Replace engine oil. See chart on Page 15 for specs. FOM 12, KOM 24			X				
Fuel Filter - Diesel	ROM 27	Clean as described in Engine Manual. KOM 20			X				
Wheel Drive Chain	ROM 35, 36	Check, and adjust tension if necessary.			X				
Chain Case	ROM 33	Check level of oil, and, if necessary top up.			X				
Engine Cooling System	ROM 21, 26	Check radiator, and if necessary, clean. Check all hoses and connections for leaks.			X				
Hydraulic System	ROM 21	Check oil cooler, and, if necessary, clean. Check all hoses, lines, fittings on cylinders for leaks.			X				
Engine Oil Filter - Gas and Diesel	ROM 20, 26	Replace engine oil filter. FOM 13 KOM 24				X			
Hydraulic Oil Filter	ROM 31	Replace hydraulic oil filter.				X			
Fuel Pump - Gas	FOM 14	Clean fuel lift pump.				X			
Spark Plugs -Gas	FOM 15	Clean and adjust or, if necessary, renew spark plugs.				X			
Contact Breakers (Gas)	FOM 17	Adjust or, if necessary, renew contact breakers.				X			
Ignition Timing	FOM 18	Check and if necessary, adjust ignition timing.				X			
Valve Clearance - Gas	FOM 20	Check and, if necessary, adjust valve clearance.				X			
Idling Speed - Gas and Diesel	ROM 25, 29	Check, and adjust idling speed if necessary.				X			
Maximum Speed Gas & Diesel	ROM 24, 29	Check, and adjust maximum speed if necessary.				X			
Fuel Filter - Gas & Diesel	ROM 22, 27	Replace fuel filter element. KOM 20					X		
Fuel & Hydraulic & Hydrostatic Tanks	ROM 22, 30	Drain condensation from bottom of tanks.					X		
Air Cleaner	ROM 23, 28	Replace air cleaner element. Clean interior of air cleaner body.						X	
Engine Cooling System	ROM 21, 27	Drain, flush out, and refill cooling system.							X
Hydraulic/Hydrostatic Oil	ROM 30	Change hydraulic/hydrostatic oil.							X
Chain Case	ROM 33	Drain, flush out, and refill chain case.							X
Hydraulic Oil Strainer	ROM 30	Replace hydraulic oil strainer.							X

NOTE:
Abbreviations Used In Above Table: ROM = RAMROD Operator's Manual; FOM = Ford "Operator's Instruction Book"; KOM = Kubota "Operator's Manual"

GREASE FITTING LOCATIONS

All grease points on the loader, shown below, should be lubricated with SAE high temperature multi-purpose grease in every 10 hours of operation. Before applying grease gun, wipe away all accumulated dirt from top and sides of each grease fitting. Apply grease until excess shows. The grease points are indicated in **FIGURES 23 & 24.**

REF. #	DESCRIPTION	NO. OF FITTINGS
1	Arm Pivots	2
2	Level Link Pivots	2
3 (a,b)	Lift Cylinders	4
4	Bellcrank	6
5	Tilt Cylinders	4
6	Front Mount	2
7	Foot Pedals	3
8	Steering Lever Pivots	2
9	Hydraulic Control Shaft	3

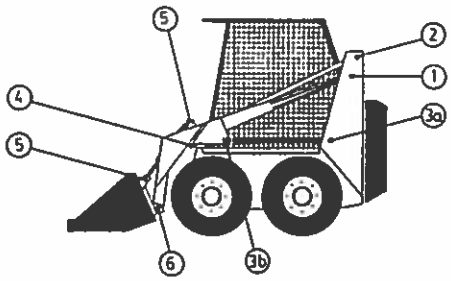


FIGURE 23

NOTE: To get to grease points 8 and 9, the seat and its base plate has to be removed. To remove the seat assembly, remove the two wing nuts located at the front of the seat. Lift the front of the seat until it clears the wing nut mounting studs and slide seat assembly forward. When installing the seat, be sure the seat's base plate locks in place at the rear.

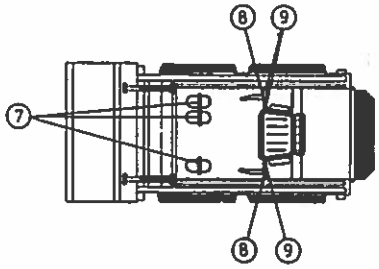


FIGURE 24

ENGINE MAINTENANCE - GAS

OIL LEVEL CHECK

The engine oil level can be checked with the engine in the operating mode or in the rolled-out position.

1. Ensure that the loader is standing level.

2. Withdraw the dipstick, see **FIGURE 25**, and wipe it with a clean rag. Replace it fully and withdraw again. The mark made by the oil on the dipstick scale will indicate the engine oil level. If oil level is low, roll-out the engine, and add the proper type and grade of oil via the oil filler.
See Page 15 for engine oil specifications.

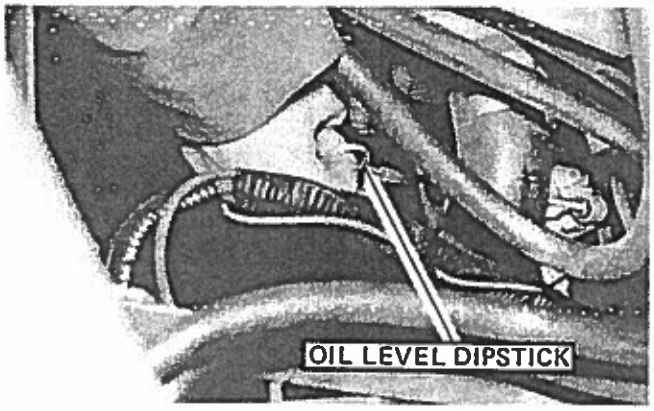


FIGURE 25

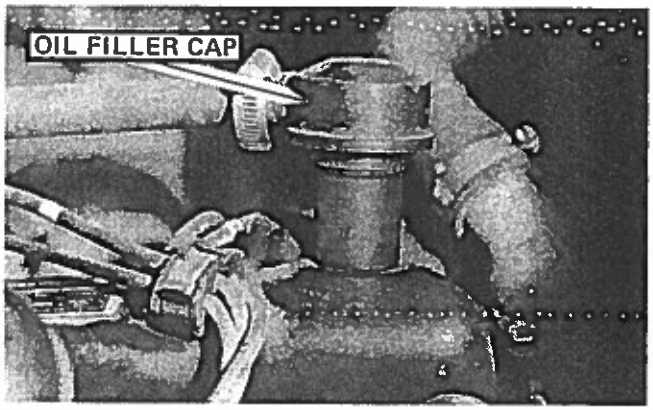


FIGURE 26

CHANGING ENGINE OIL AND FILTER

1. Ensure that the loader is standing level.
2. Operate the engine until warm. Stop the engine.
3. Roll-out the engine, as described on Page 16.
4. Remove the oil drain plug, see **FIGURE 27A**, and drain the oil.
5. Unscrew and remove the old oil filter, see **FIGURE 27.**
6. Clean oil filter mounting flange.
7. Apply a thin film of oil to the sealing ring and screw the new filter into place. Hand-tighten filter.
8. Replace oil drain plug, and refill engine with clean crankcase oil for the proper type and grade. Run engine for at least 10 minutes and check for leaks.
9. Recheck engine oil level, and add if necessary.

NOTE: Always allow oil to drain back to the oil pan before checking the oil level. This requires about 10 minutes.

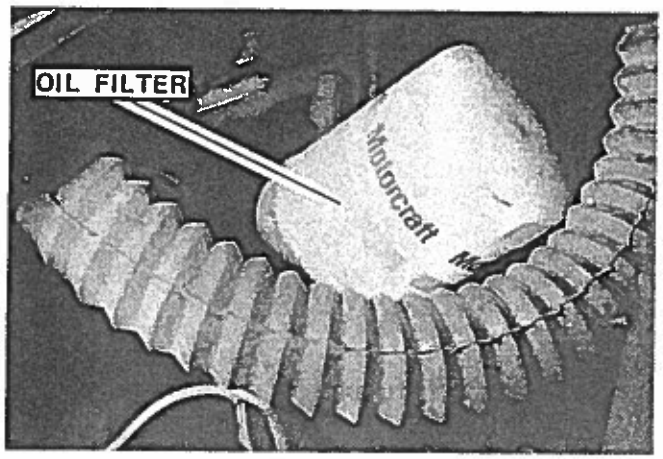


FIGURE 27

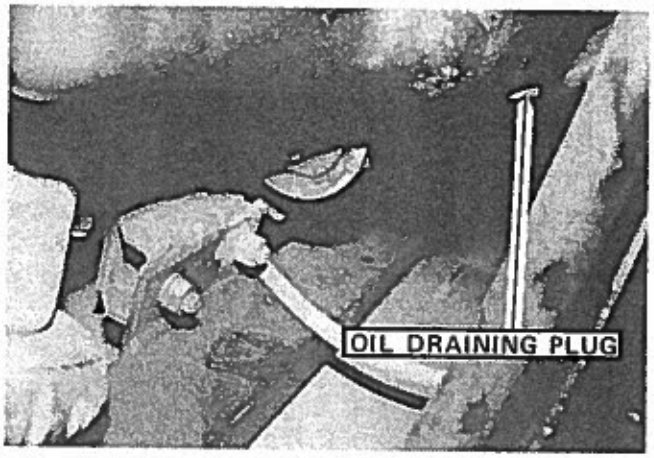


FIGURE 27 A

GOVERNOR OIL LEVEL CHECK

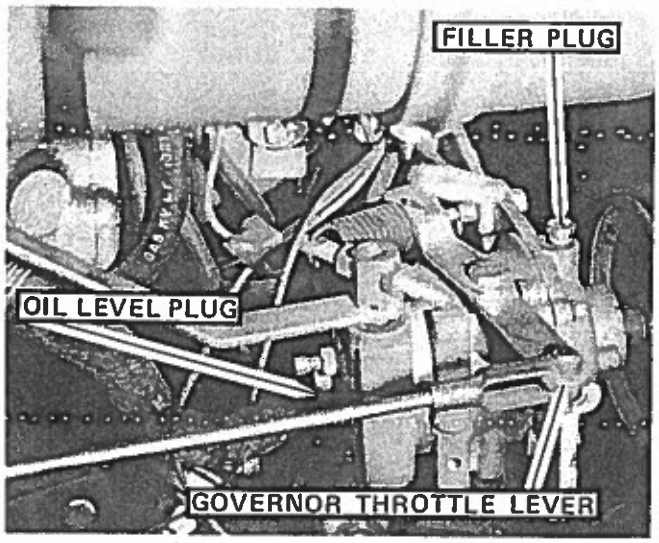


FIGURE 28

To check the oil level in the governor, remove the filler plug and the oil level plug. See **FIGURE 28.** Pour in the proper type and grade of oil through filler until it starts to run out of oil level plug hole. Stop pouring and allow surplus oil to drain. Replace both plugs securely.

COOLING SYSTEM

The loader comes from the factory with a 1:1 ratio, water-antifreeze mix which provides protection down to -37° C (-35° F). The radiator cap is readily accessible by swinging the rear door open, as shown in FIGURE 29.

WARNING

Do Not Remove The Radiator Cap When The Engine Is Hot.

Check coolant level daily, and if necessary, fill to 13 to 25 mm (½ to 1 inch) below the radiator filler neck. Use solution of anti-freeze with equal parts of soft water.

NOTE: For the cooling system to function efficiently, the fins of the radiator and of the oil cooler, along with the outside of the engine must be kept clean. Remove any accumulated debris with compressed air, or a pressure washer.

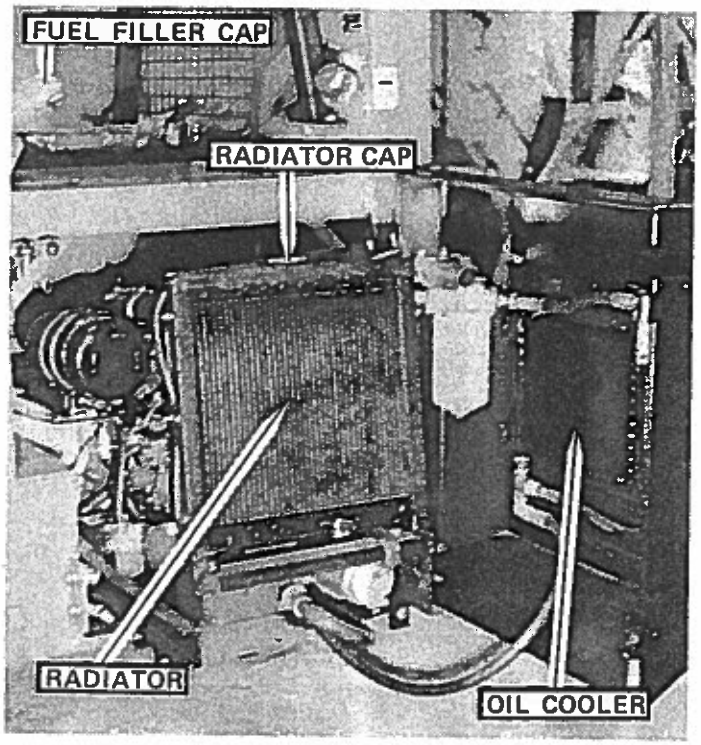


FIGURE 29

CHANGING ENGINE COOLANT

To drain the cooling system:

1. Remove the radiator cap, and open the drain valve located on the base of the radiator. Drain the engine block via drain valve located on the R/H side of the engine.
2. Flush the cooling system with clean water, and close both drain valves.
3. Fill the radiator with a 50-50 mixture of ethylene glycol and soft water. Refit the radiator cap securely.
4. Run engine for a few minutes and check for leaks.
5. Recheck coolant level, and add if necessary.

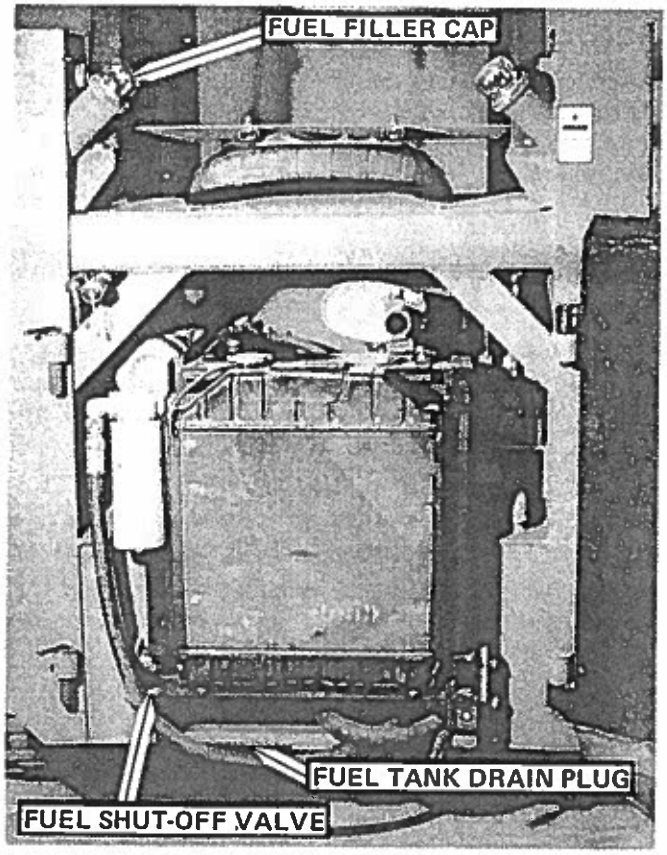


FIGURE 30

ENGINE FUEL SYSTEM

The fuel filler spout is located on the left inner side at the rear of the machine, see **FIGURE 30**. Use the proper octane rating of 91 or equivalent of a regular grade of gasoline.

WARNING

Never Refuel The Loader When The Engine Is Running Or Is Hot.

To replace fuel filter, shown in **FIGURE 31**, proceed as follows:

1. Close fuel shut-off valve, see **FIGURE 30.**

2. Remove spring clips, see **FIGURE 31**, and slip hose ends off filter.

3. Slip hose ends on new filter and refit spring clips.

4. Open fuel shut-off valve.
   Drain any sediment or condensation from the fuel tank via fuel tank drain plug hole. The fuel tank drain plug hole is rearmost on the bottom left side of the machine as shown in **FIGURE 32.**

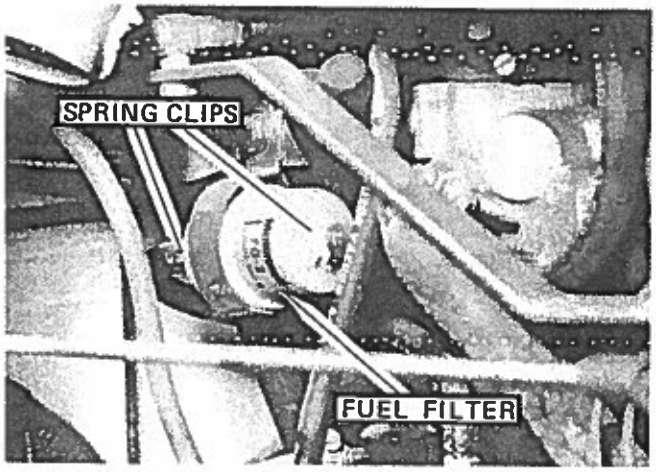


FIGURE 31

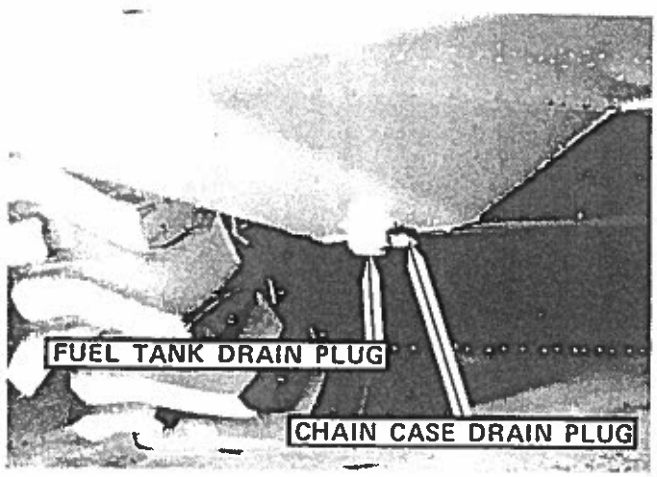


FIGURE 32

ENGINE AIR CLEANER (FIGURE 33)

To remove filter element, loosen clamp and remove dust cap. From dust cap, remove dust cap insert, and wipe inside of dust cap with a damp cloth. Remove wing nut, and pull filter element from body.

Clean filter element and determine if it may be reused. Element can be cleaned by thorough shaking, or compressed air could be used to back-flow element. Compressed air pressure must be under 686 KPa (99 P.S.I.)

After cleaning, place a light bulb inside element and carefully check element for ruptures or other damage. For best results, do this in a darkened area. Inspection of element on outside will then disclose any small holes or ruptures.

To install filter element, first wipe inside of body with a damp cloth. Place filter element in body and install wing nut.

NOTE: As a double check, attempt to rotate element by hand. If element can not be rotated, it is properly installed.

Reinstall dust cap insert into dust cap, and refit dust cap to body by tightening clamp securely. Some dust caps are marked with arrows pointing up.

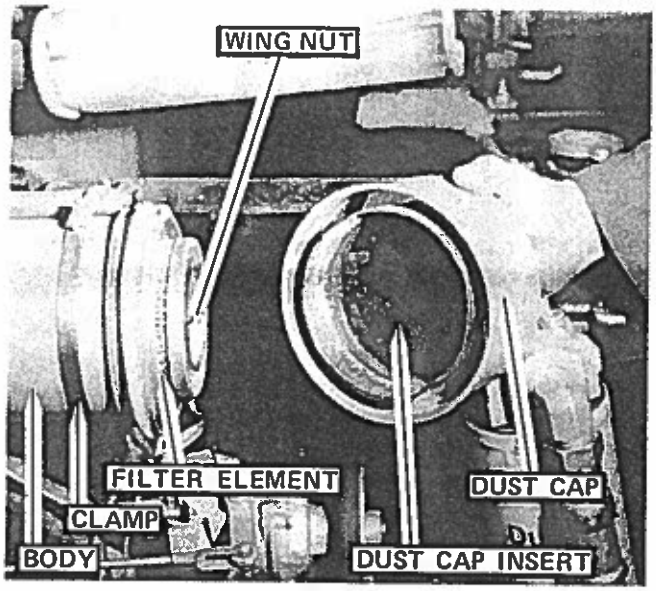


FIGURE 33

IMPORTANT

Any Hole In Filter Element Will Allow Dust To Pass Into The Engine, Shortening Its Service Life.

CARE OF BELTS (FIGURE 34)

The engine V-belts should be checked periodically for correct tension and adjusted if necessary.

Both the governor and alternator belts should have 13 mm (0.5 inch) free movement, under normal thumb pressure of approximately 5 pounds force, measured in middle of longest span.

To adjust governor belt, loosen governor mounting bolts and move the governor until the correct tension is obtained. Retighten the bolts.

NOTE: After governor belt has been adjusted the engine's idle speed, and maximum r.p.m. should be checked.

To adjust alternator belt, loosen alternator mounting bolts and move alternator until the correct tension is obtained. Retighten the bolts.

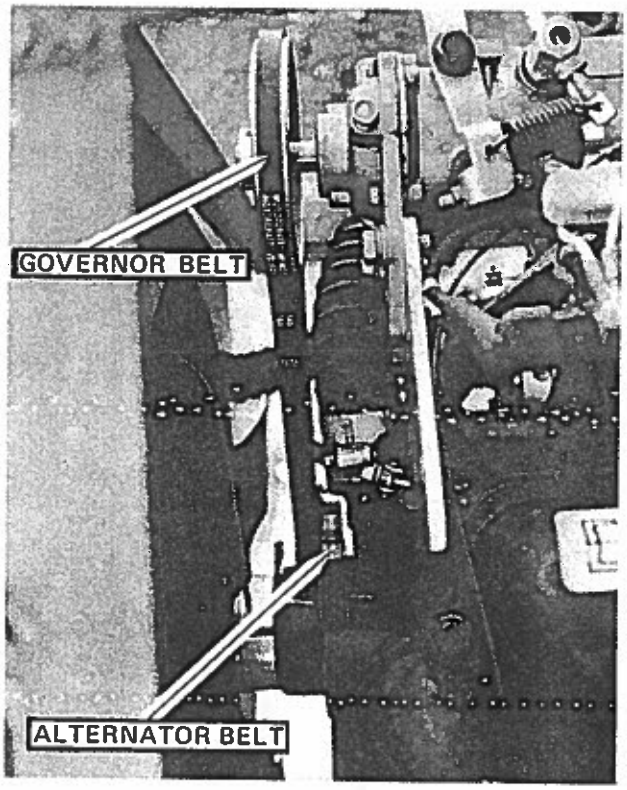


FIGURE 34

GOVERNOR AND CARBURETOR ADJUSTMENT

Before attempting governor adjustments ensure that governor oil level and belt tension are correct. Also, check the governor-carburetor link rod, see **FIGURE 35**, for proper adjustment as follows:

1. With engine shut off, move throttle control in ROPS compartment completely up to "Fast" position.

2. Roll-out the engine.
   Check the gap between the carburetor throttle lever and its maximum open position stop. It should be 1 mm to 6 mm (1/32 to 1/4 inch) wide.

3. If adjustment is necessary, loosen the link rod ball joint lock nuts, remove the rod from the carburetor throttle lever and adjust the length of the rod with the ball joints.

4. Install the link rod on the carburetor throttle lever and recheck the gap. Tighten the lock nuts.

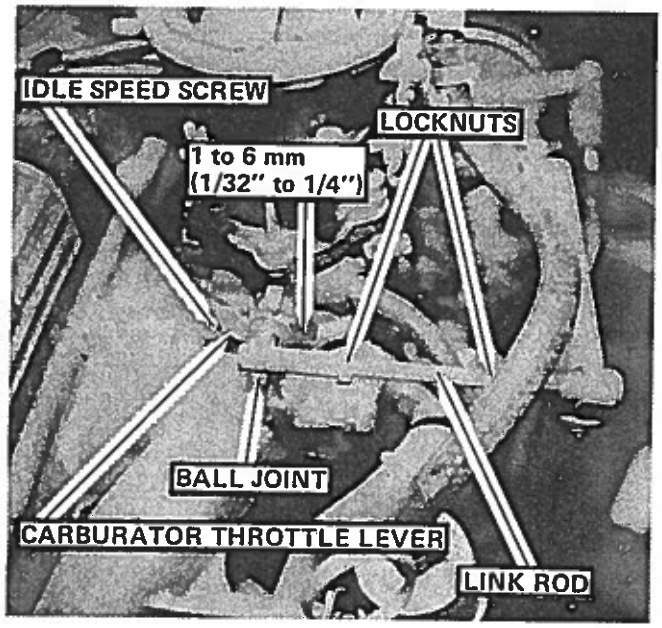
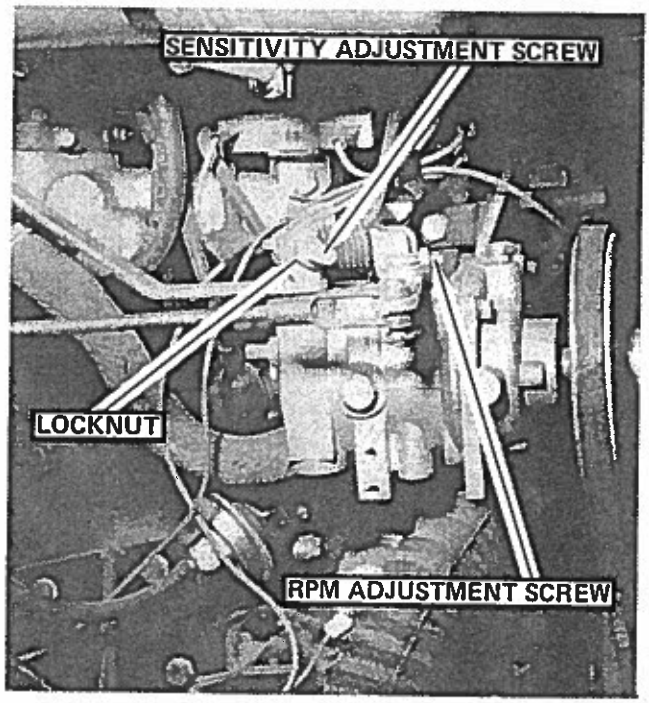


FIGURE 35



HIGH SPEED ADJUSTMENTS

The engine speed is adjusted with the engine in the operating mode. Check and adjust engine R.P.M. as follows:

1. Start engine, and run it until it reaches normal operating temperature.

2. Stop engine, and attach a tachometer to the engine.

3. Restart engine, and move throttle lever to Fast position. Observe tachometer reading.

   NOTE: Engine must operate at 2500 R.P.M.

If adjustment is necessary, proceed as follows:

1. Stop engine.
2. Loosen the locknut, see **FIGURE 36**, and adjust R.P.M. adjustment screw appropriately. (Turning the R.P.M. adjustment screw in a counter-clockwise direction will increase engine R.P.M.)

> **⚠ WARNING ⚠**
>
> *Do Not Make Any R.P.M. Adjustments While The Engine Is Running.*

LOW SPEED ADJUSTMENT

1. Attach a tachometer to the engine.
2. Start engine, and move throttle lever to Slow position.
3. Observe tachometer reading, and adjust idle speed screw, see **FIGURE 35**, until engine idle speed of 600 is obtained.
3. Restart engine, and run at full throttle. Observe tachometer reading, and make further adjustments as necessary.
4. When the 2500 engine R.P.M. has been obtained, securely lock R.P.M. adjustment screw in position by tightening the locknut. Remove tachometer.

GOVERNOR SENSITIVITY

This adjustment is not usually necessary but may be required when a new governor is installed and the engine response is too slow or too fast during acceleration.

In this case the sensitivity adjustment screw, see **FIGURE 36**, can be adjusted to increase or decrease the tension of the spring. For proper governor operation, there should be a 5 to 10% spread between full-load and no-load governed speed.

Too small an R.P.M. spread between the two speeds will cause governor hunting and surging. Too large a spread will cause low response.

ENGINE MAINTENANCE - DIESEL

OIL LEVEL CHECK

The engine oil level can be checked with the engine in the operating mode or in the rolled-out position.

1. Ensure that the loader is standing level.
2. Withdraw the dipstick, see **FIGURE 37**, and wipe it with a clean rag. Replace it fully and withdraw again. The mark made by the oil on the dipstick scale will indicate the engine oil level. If oil level is low, roll-out the engine, and add the proper type and grade of oil via the oil filler.

   See Page 15 for engine oil specifications.

NOTE: It is recommended that the oil level be maintained near the upper limit.

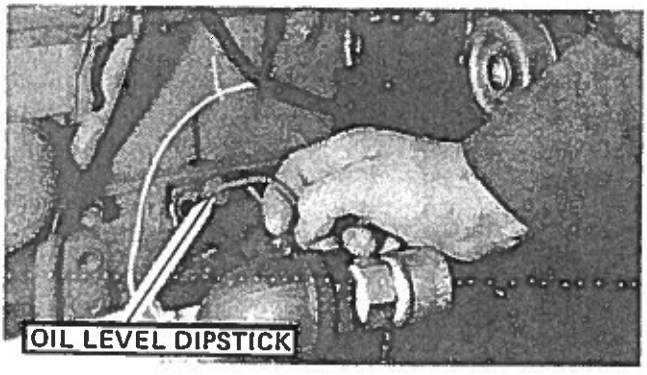


FIGURE 37

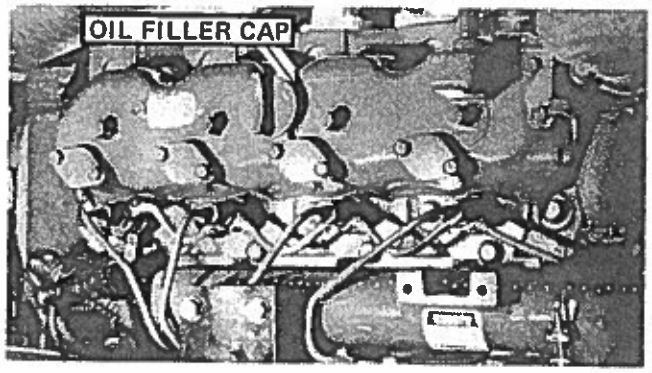


FIGURE 38

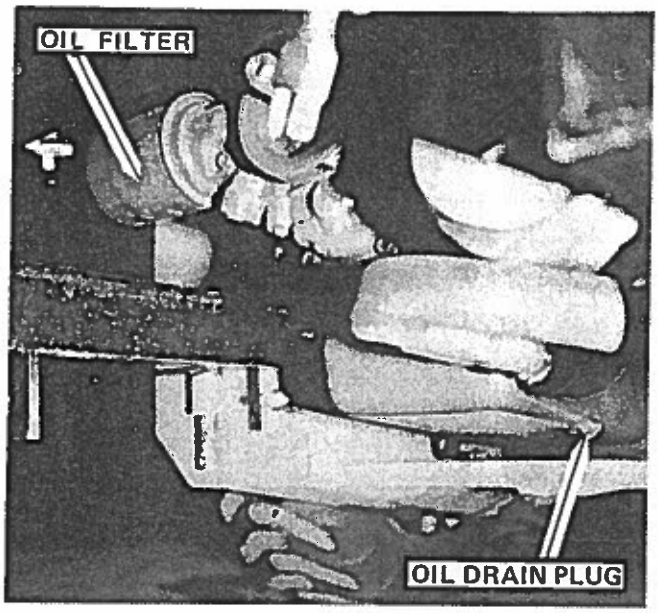


FIGURE 39

WARNING

Do Not Remove The Radiator Cap When The Engine Is Hot.

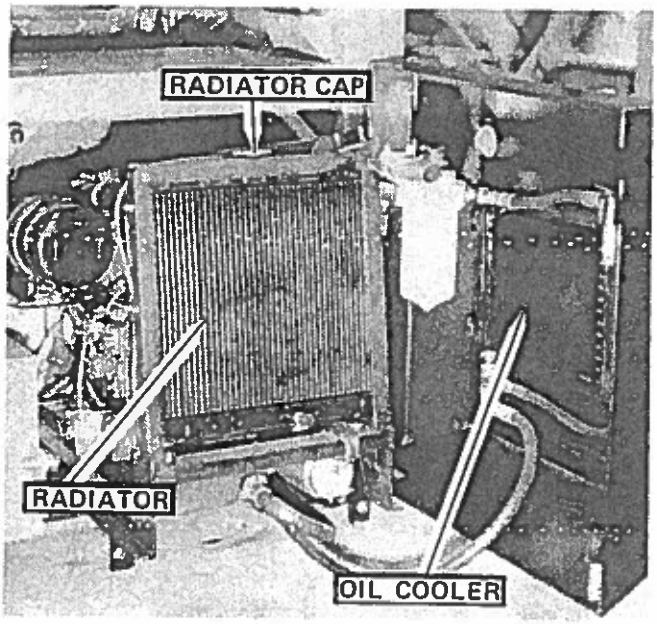


FIGURE 40

CHANGING ENGINE OIL AND FILTER

1. Ensure that the loader is standing level.
2. Operate the engine until warm. Stop the engine.
3. Roll-out the engine as described on Page 16.
4. Remove the oil drain plug, see **FIGURE 39**, and drain the oil.
5. Unscrew and remove the old oil filter.
6. Clean oil filter mounting flange.
7. Apply a thin film of oil to the sealing ring and screw the new filter into place. Hand-tighten filter.
8. Replace oil drain plug, and refill engine with clean crankcase oil of the proper type and grade. Run engine for at least 10 minutes and check for leaks.
9. Recheck engine oil level, and add if necessary.

NOTE:
1. Always allow oil to drain back to the oil pan before checking the oil level. This requires about 10 minutes.
2. Change engine oil after the first 35 hours of operation, and every 100 hours thereafter.

COOLING SYSTEM

The loader comes from the factory with 1:1 ratio, water-antifreeze mix which provides protection down to -37° C (-35° F). The radiator cap is readily accessible by swinging the rear door open, as shown in FIGURE 40.

Check coolant level daily, and, if necessary, fill to 13 to 25 mm (1/2 to 1 inch) below the radiator filler neck. Use solution of anti-freeze with equal parts of soft water.

NOTE: For the cooling system to function efficiently, the fins of the radiator and of the oil cooler, along with the outside of the engine must be kept clean. Remove any accumulated debris with compressed air or a pressure washer.

CHANGING ENGINE COOLANT

To drain the cooling system:

1. Remove the radiator cap, and open the two drain valves located on the base of the radiator. Drain the engine block via drain valve located on the L/H side of the engine.
2. Flush the cooling system with clean water, and close all three drain valves.
3. Fill the radiator with a 50-50 mixture of ethylene glycol and soft water. Refit the radiator cap securely.
4. Run engine for a few minutes and check for leaks.
5. Recheck coolant level, and add if necessary.

ENGINE FUEL SYSTEM

The fuel filler spout is located on the left inner side at the rear of the machine, see **FIGURE 41**. Use only diesel fuel with specifications that is approved by Kubota. For fuel specifications and types, refer to Page 15 of this manual, and also the Kubota "Operator's Manual" Page 15.

WARNING

Never Refuel The Loader When The Engine is Running Or Is Hot.

The fuel filter pot, see **FIGURE 42**, and the element inside it should be cleaned in every 100 hours of operation. The element should be replaced in every 400 hours of operation.

To remove the element for cleaning, or to replace proceed as follows:

1. Close fuel filter pot cock, see **FIGURE 42**.
2. Remove ring screw, and detach fuel filter pot and element.
3. Wash fuel filter pot and element in clean kerosene or diesel fuel.
4. Refit washed or new element into fuel filter pot and secure assembly in place with ring screw.

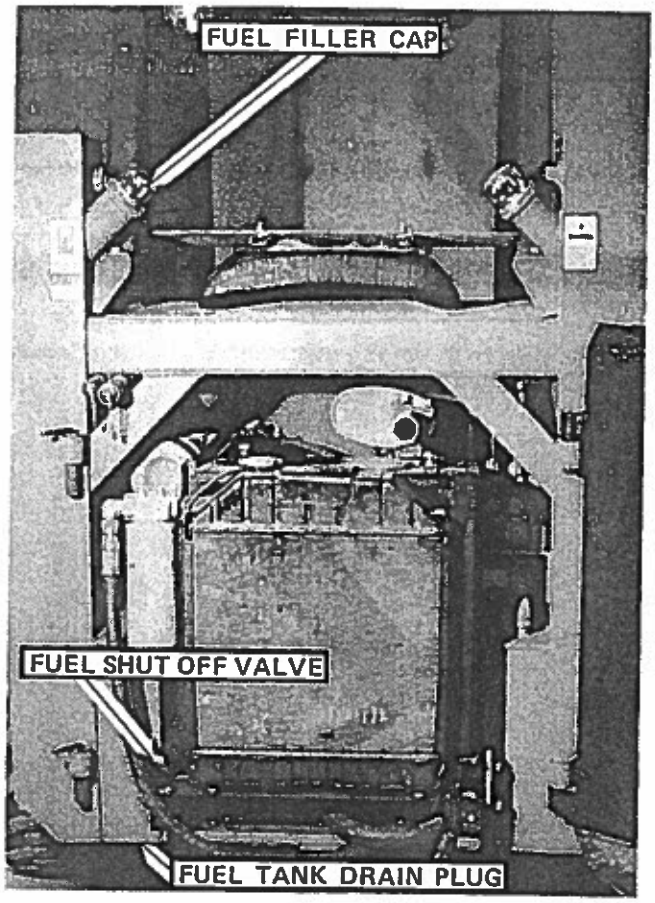


FIGURE 41

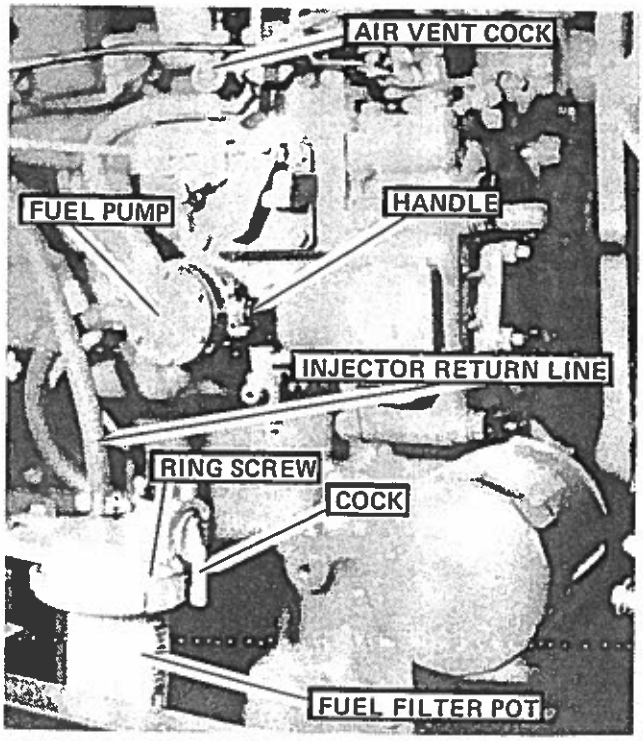


FIGURE 42

IMPORTANT

Do Not Allow Any Dirt To Enter Into The Fuel Injection System.

5. Open fuel filter pot cock and bleed the system.

NOTE: Before attempting to bleed the system, the fuel filter pot must be full. If pot does not fill up, remove injector return line and allow the air to escape.

BLEEDING THE FUEL SYSTEM

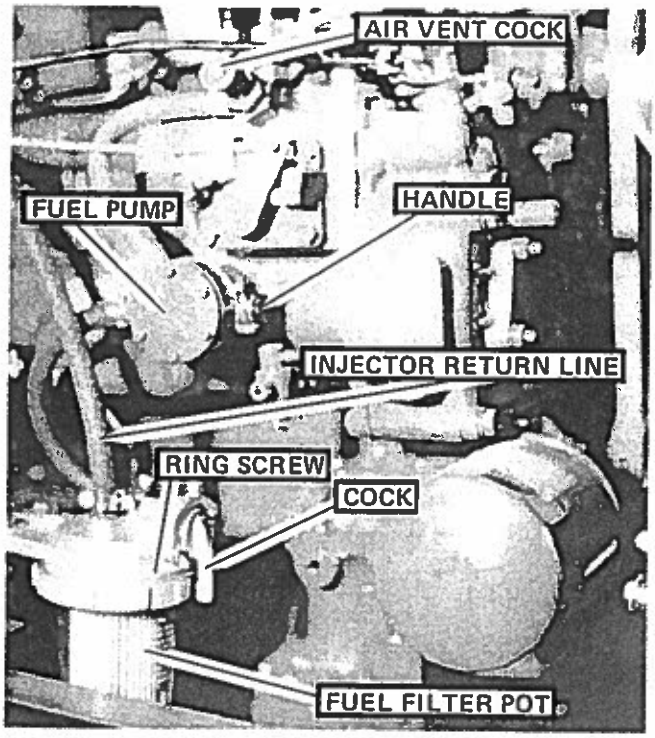


FIGURE 42 (Reprinted)

The fuel system should be bled of air if any of the following conditions have occurred:

1. Fuel tank has been permitted to run dry.
2. If fuel lines, filter element or other components within the system have been disconnected.
3. If engine has not been operated for a considerable length of time.

To air-bleed system, proceed as follows:

1. Open air vent cock, see **FIGURE 42.**
2. Making sure that the fuel shut-off, see **FIGURE 3,** is pushed in, manually operate fuel pump handle. If engine is not equipped with fuel pump handle, crank engine over. Continue to pump or crank until fuel free of bubbles runs out the air vent cock.
3. Close air vent cock and start engine.

ENGINE AIR CLEANER (FIGURE 33)

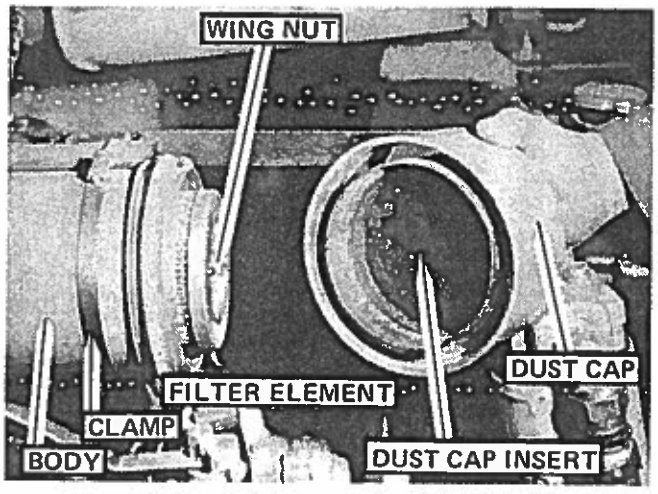


FIGURE 33 (Reprinted)

To remove filter element, loosen clamp and remove dust cap. From dust cap, remove dust cap insert, and wipe inside of dust cap with a damp cloth. Remove wing nut, and pull filter element from body.

Clean filter element and determine if it may be reused. Element can be cleaned by thorough shaking, or compressed air could be used to back-flow element. Compressed air pressure must be under 686 KPa (99 P.S.I.)

After cleaning, place a light bulb inside element and carefully check element for ruptures or other damage. For best results, do this in a darkened area. Inspection of element on outside will then disclose any small holes or ruptures.

To install filter element, first wipe inside of body with a damp cloth. Place filter element in body and install wing nut.

NOTE: As a double check, attempt to rotate element by hand. If element can not be rotated, it is properly installed.

Reinstall dust cap insert into dust cap, and refit dust cap to body by tightening clamp securely. Some dust caps are marked with arrows pointing up.

IMPORTANT

Any Hole In Filter Element Will Allow Dust To Pass Into The Engine, Shortening Its Service Life.

CARE OF FAN-ALTERNATOR BELT

The fan-alternator belt should be checked periodically for correct tension and adjusted if necessary. The belt should have 7 mm (0.28 in.) free movement, under normal thumb pressure of approximately 5 pounds force. To adjust belt, loosen alternator mounting bolts and move alternator until the correct tension is obtained. Retighten the bolts.

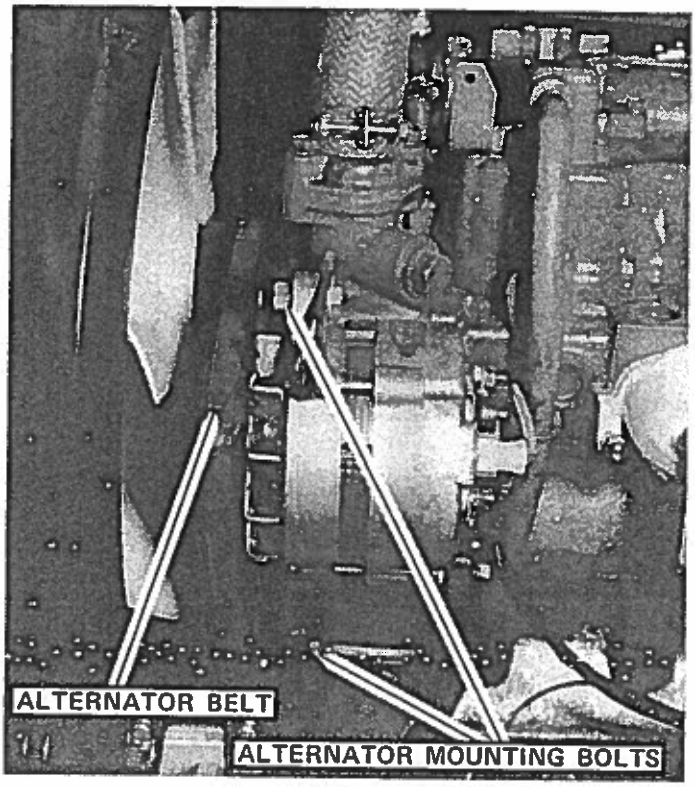


FIGURE 43

ENGINE SPEED

The engine speed has been set in the factory, and normally no adjustment is necessary.
Idling R.P.M.; 800.
Maximum R.P.M.: 2500

Both, idle and maximum R.P.M. adjustments on the pump are SEALED and must only be made by an authorized Kubota Dealer.

HYDRAULIC/HYDROSTATIC SYSTEM MAINENTANCE

The hydraulic and hydrostatic circuits use a common reservoir. The oil filler spout is located on the right inner side at the rear of the machine, see **FIGURE 44.**

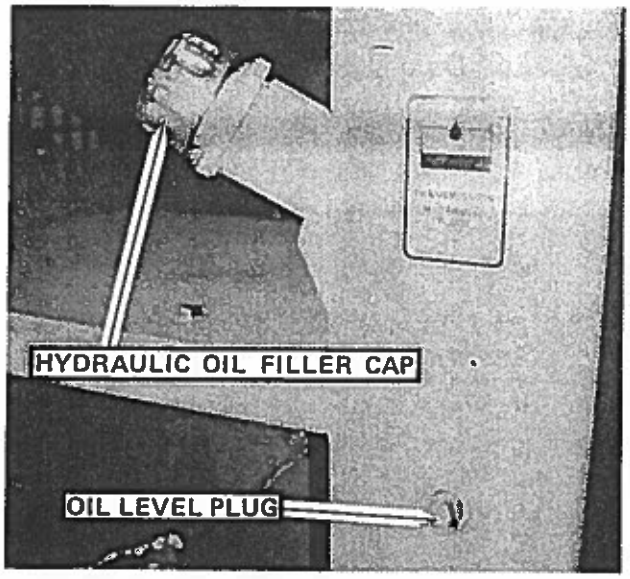


FIGURE 44

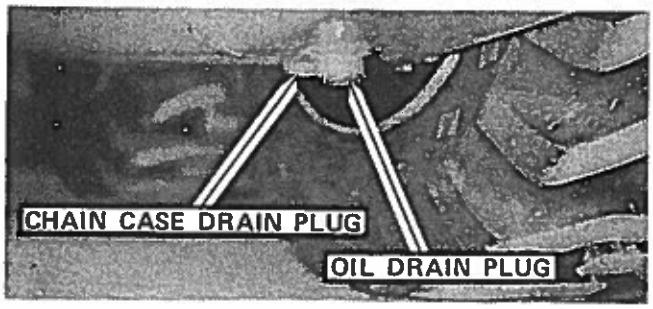


FIGURE 45

HYDRAULIC OIL LEVEL CHECK

1. Ensure that the loader is standing level, the lift arms are down and the bucket is flat on the ground.

2. Remove oil level plug, see **FIGURE 45.** If oil is apparent, the level is satisfactory.

If necessary, add the proper type and grade of oil via the oil filler spout until it appears at the check point.

See Page 15 for hydraulic oil specifications.

CHANGING HYDRAULIC OIL AND STRAINER

The hydraulic oil normally needs to be changed after 1000 operating hours or annually. However, if the oil becomes contaminated or a major repair has been done to the hydrostatic transmission, it should also be changed at once.

To change hydraulic oil and/or the strainer, proceed as follows:

1. Remove the oil drain plug, located at the bottom of the reservoir on the R/H side, see **FIGURE 45,** and drain oil.

2. Roll out the engine.

3. Unfasten suction hose and remove strainer element from tank. Determine if it could be cleaned and reused.

4. Install new or cleaned strainer and reconnect the suction hose.

5. Replace oil drain plug, and refill reservoir with clean oil of the proper type and grade. See Page 15 for hydraulic/hydrostatic oil specifications and quantities.

6. Start engine, and check for leaks. Stop engine and recheck oil level.

IMPORTANT

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

CHANGING HYDRAULIC OIL FILTER

The hydraulic oil filter, see **FIGURE 47**, is located on the rear door of the machine and is accessible by opening the door.

NOTE: On certain gas units, the filter is located on the engine frame, near the top of the radiator.

To change the filter proceed as follows:

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

NOTE: Some diesel units are equipped with a cannistor instead of a spin on type oil filter. The filter element in those filters should be changed at the same intervals as the spin-on type.

IMPORTANT

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

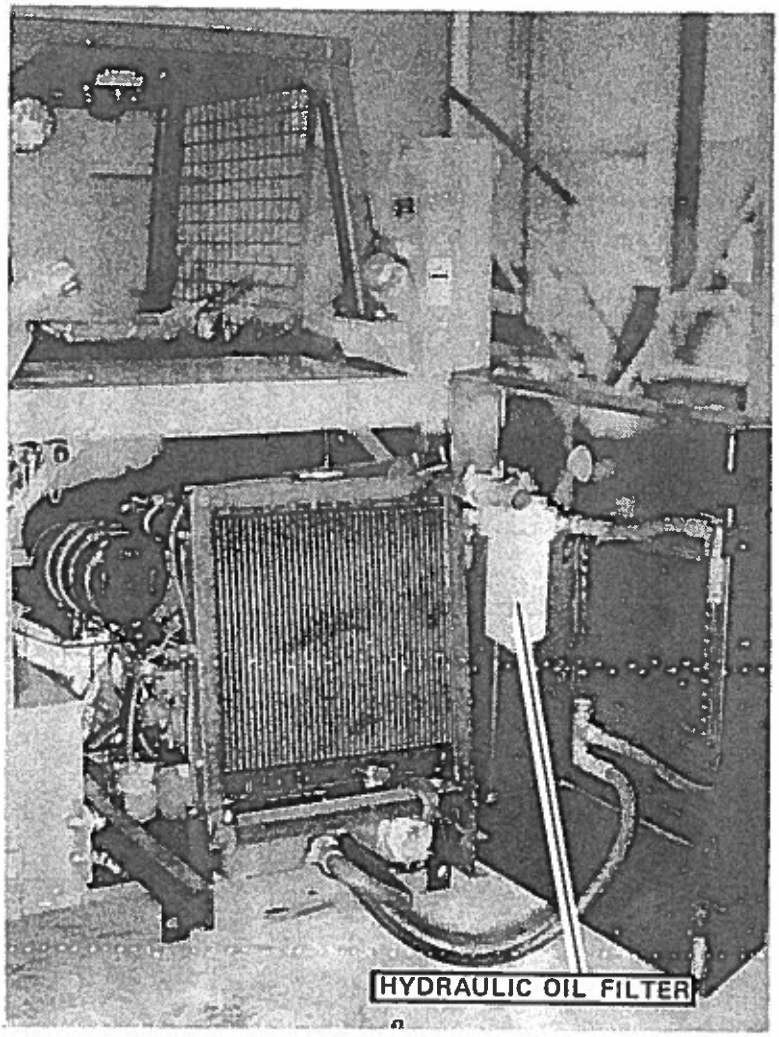


FIGURE 47

HYDRAULIC/HYDROSTATIC CIRCUIT

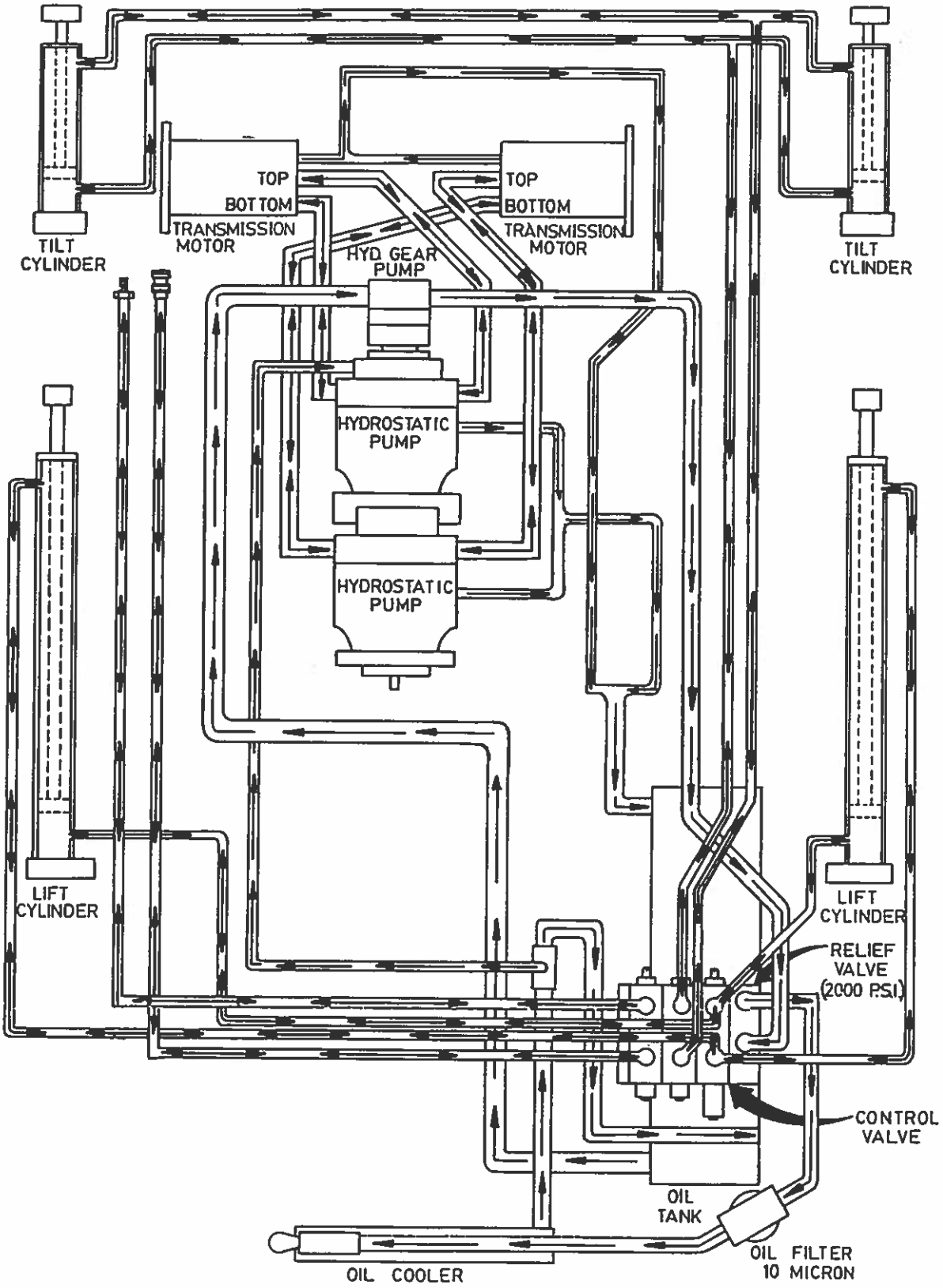


FIGURE 48 HYDRAULIC/HYDROSTATIC CIRCUIT

FINAL DRIVE MAINTENANCE

The wheels of the loader are driven by chains located in the chain cases. There are two independent chain cases, each one housing three chains, and requiring its own maintenance. The required final drive maintenance could best be performed with the loader lifted off the ground in level position, and securely blocked.

OIL LEVEL CHECK

To check the oil level, remove the tire, preferably the rear one, from each side. Then remove the exposed inspection cover, see **FIGURE 49**, and simply measure the depth of oil in the bottom of the chain case.

It should be 10 to 13 mm (3/8 to 1/2 in.) deep. If necessary, add the proper type and grade of oil via the inspection hole.

To change the chain case oil, remove drain plugs located at the bottom of each chain case, as shown in **FIGURE 50**, and drain the oil. Replace drain plugs, and refill each chain case with clean oil of the proper type and grade.

See Page 15 for chain case oil specifications and quantities. Replace inspection covers, and reinstall wheels.

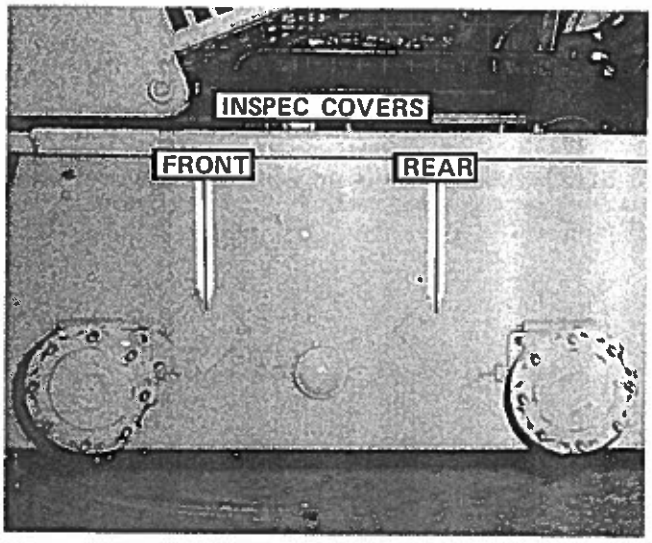
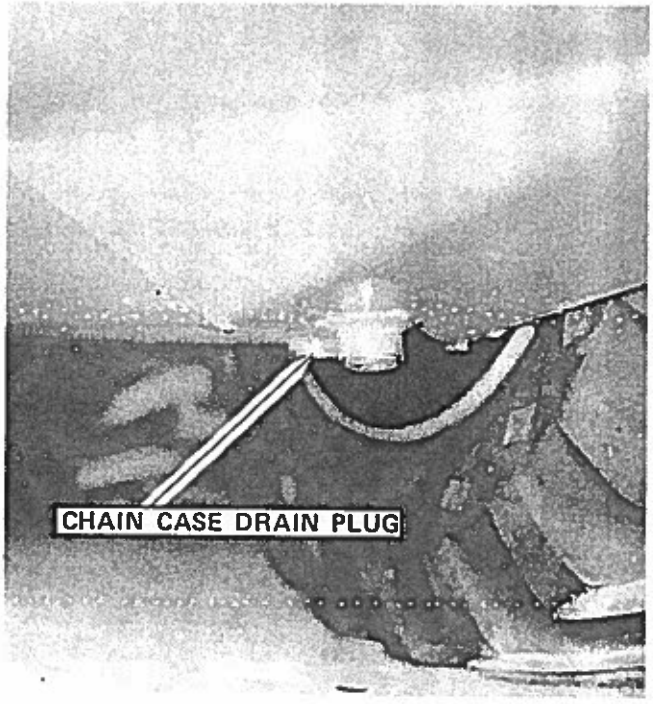


FIGURE 49



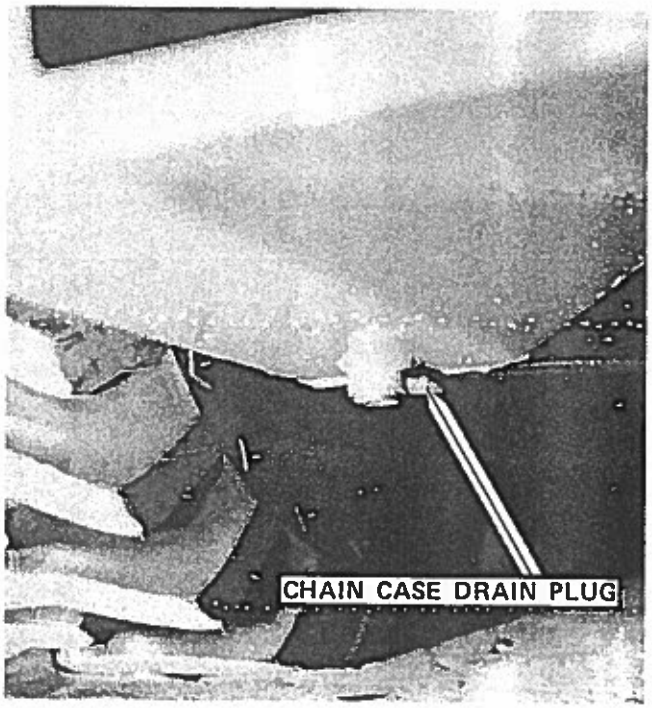


FIGURE 50

CHAIN CASE SCHEMATIC

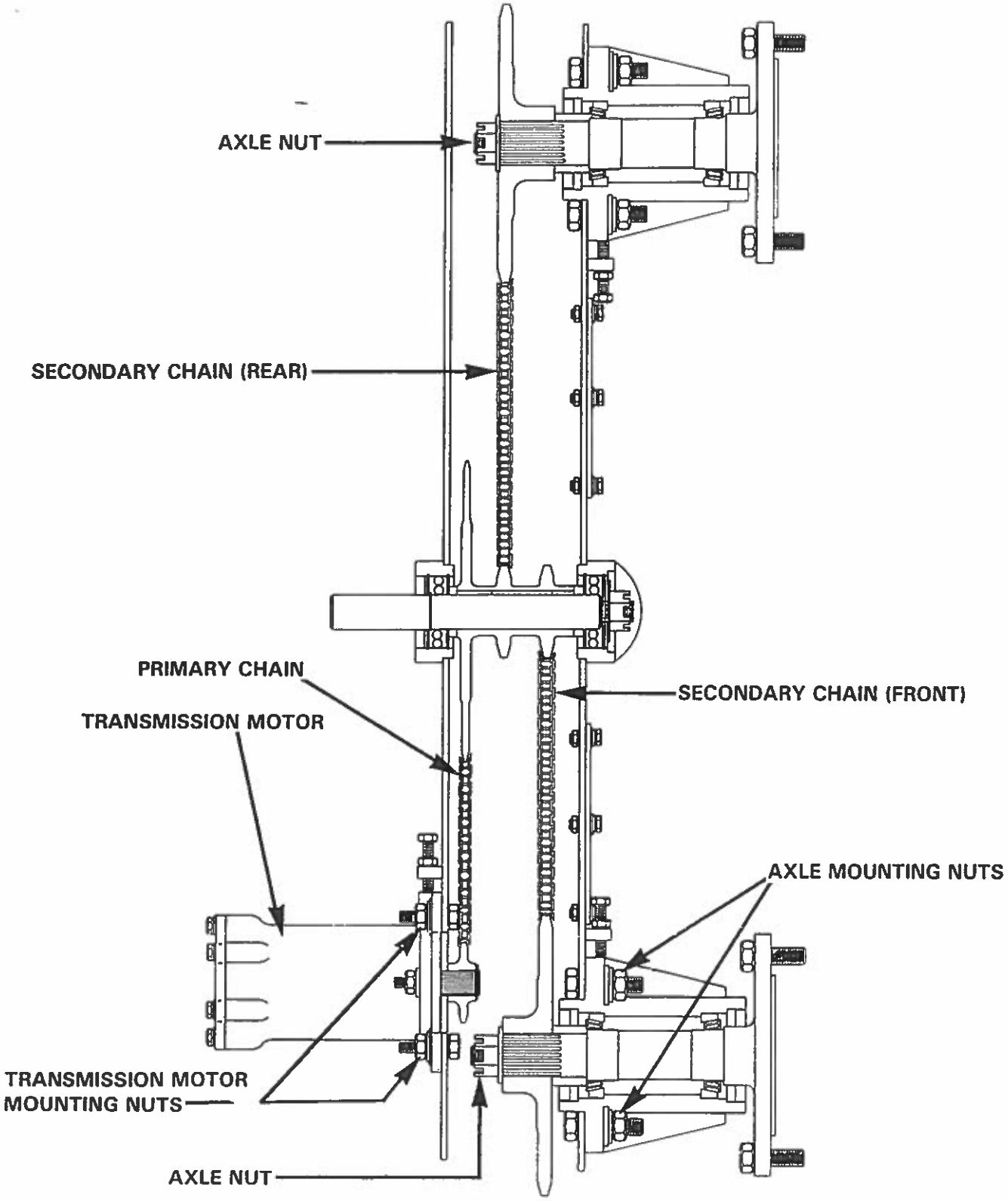


FIGURE 51 - L/H Side Chain Case

PRIMARY CHAIN TENSION CHECK AND ADJUSTMENT

NOTE: When checking and or adjusting any chain's tension in either chain case, the machine must be lifted off the ground and securely blocked.

Check and adjust primary chain tension as follows:

1. Remove the front wheels, and inspection covers, see **FIGURE 49**. Both the primary and secondary chains will be exposed, as shown in **FIGURE 52**.

2. Ensure that bottom span of primary drive chain is tight, and measure the full chain deflection of the top chain span under firm finger pressure.

It should be 10 to 13 mm (3/8 to 1/2 inch).

If tension is correct, replace inspection covers and wheels.

If adjustment is necessary, proceed as follows:

1. Roll out the engine, and remove seat assembly.

2. Remove floor panel bolts and detach the three ball joints, see **FIGURE 53**.

3. Lift out floor panel assembly.

4. Loosen the four transmission motor mounting nuts, see **FIGURE 54**, and the adjusting bolt jam nut.

5. Turn adjusting bolt until the correct chain tension is obtained.

6. Retighten transmission motor mounting nuts and torque to 109 N.M. (80 lbs. ft.).

7. Tighten adjusting bolt jam nut and reinstall floor panel assembly.

8. Reinstall seat assembly, and return engine in operating mode.

9. Reinstall inspection covers and wheels.

SECONDARY CHAIN TENSION CHECK AND ADJUSTMENT (FIGURES 52 & 55)

1. With the loader lifted off the ground and securely blocked, remove all four wheels and inspection covers.

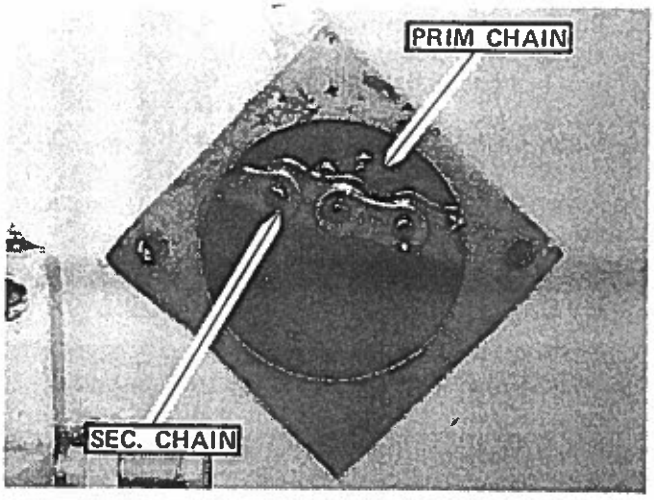


FIGURE 52

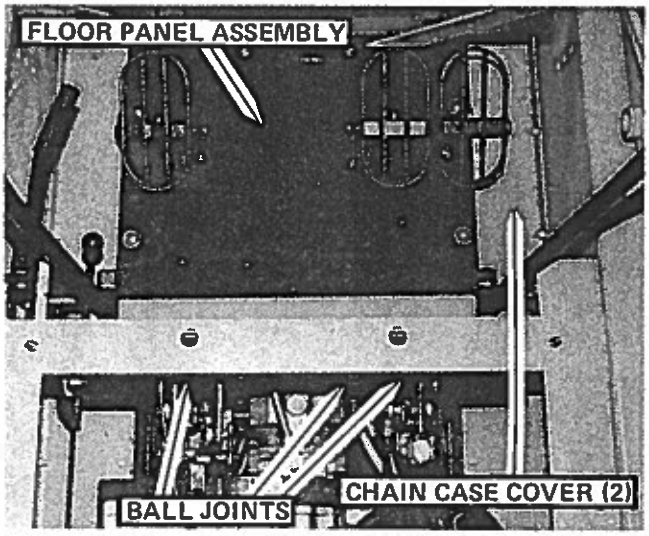


FIGURE 53

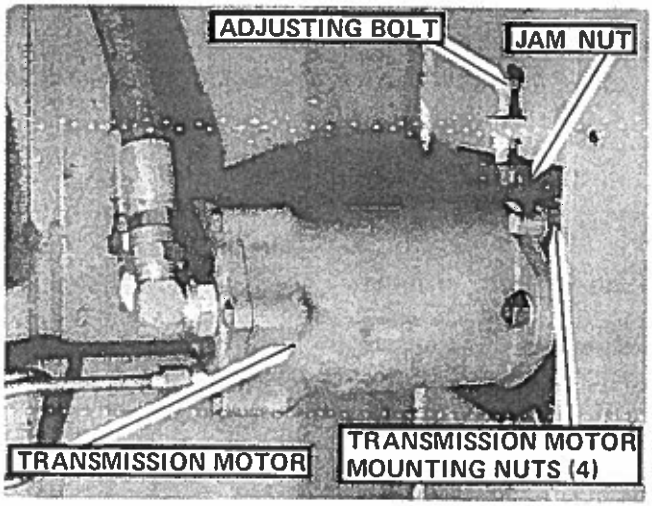


FIGURE 54

2. Ensure that bottom span of secondary chain is tight, and measure the full chain deflection of the top chain span under firm finger pressure.

It should be 13 to 16 mm (1/2 to 5/8 inch).

If tension is correct, replace inspection covers and wheels.

If adjustment is necessary, proceed as follows:

1. Loosen the four axle mounting nuts, see **FIGURE 55**, and the adjusting bolt jam nut.
2. Turn adjusting bolt until the correct chain tension is obtained.
3. Retighten axle mounting nuts and torque to 135 N.M. (100 lbs. ft.).
4. Tighten adjusting bolt jam nut and reinstall inspection cover and wheel.

NOTE: Repeat above procedure for all four wheels.

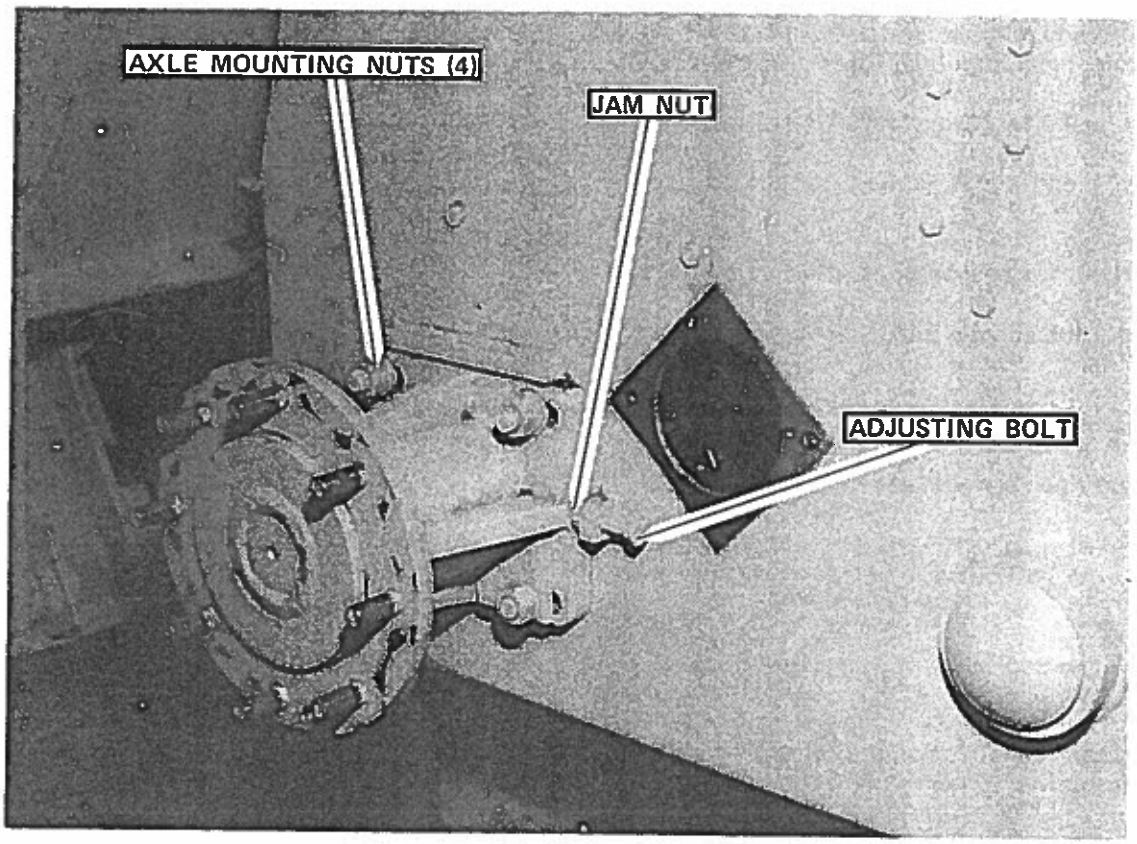


FIGURE 55

PRE-LOADING AXLE BEARINGS

The axle bearings are pre-loaded and must have NO end play. With the loader lifted off the ground and securely blocked, check for axle end play by firmly pushing and then pulling on the wheels in the horizontal plane.

If any movement is observed, re-torque axle nut, see **FIGURE 51**, until NO play is evident. DO NOT OVERTIGHTEN.

NOTE:
To gain access to axle nut, the floor panel and the chain case cover, see **FIGURE 53**, must be removed.

ELECTRICAL SYSTEM

Check all electrical connections for tightness. This is important to assure proper current flow and maximum electrical system performance.

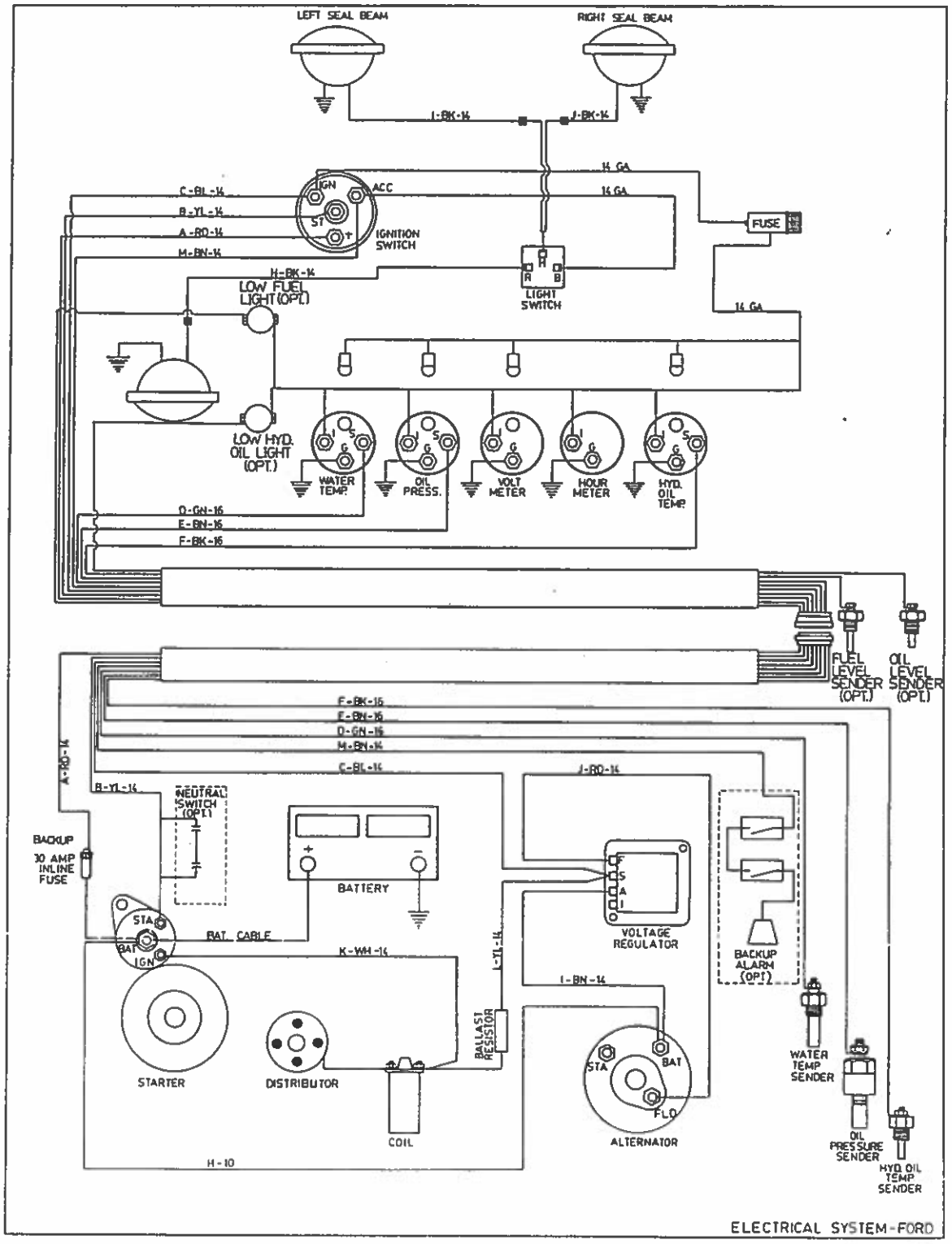


FIGURE 56 CIRCUIT DIAGRAM - GAS

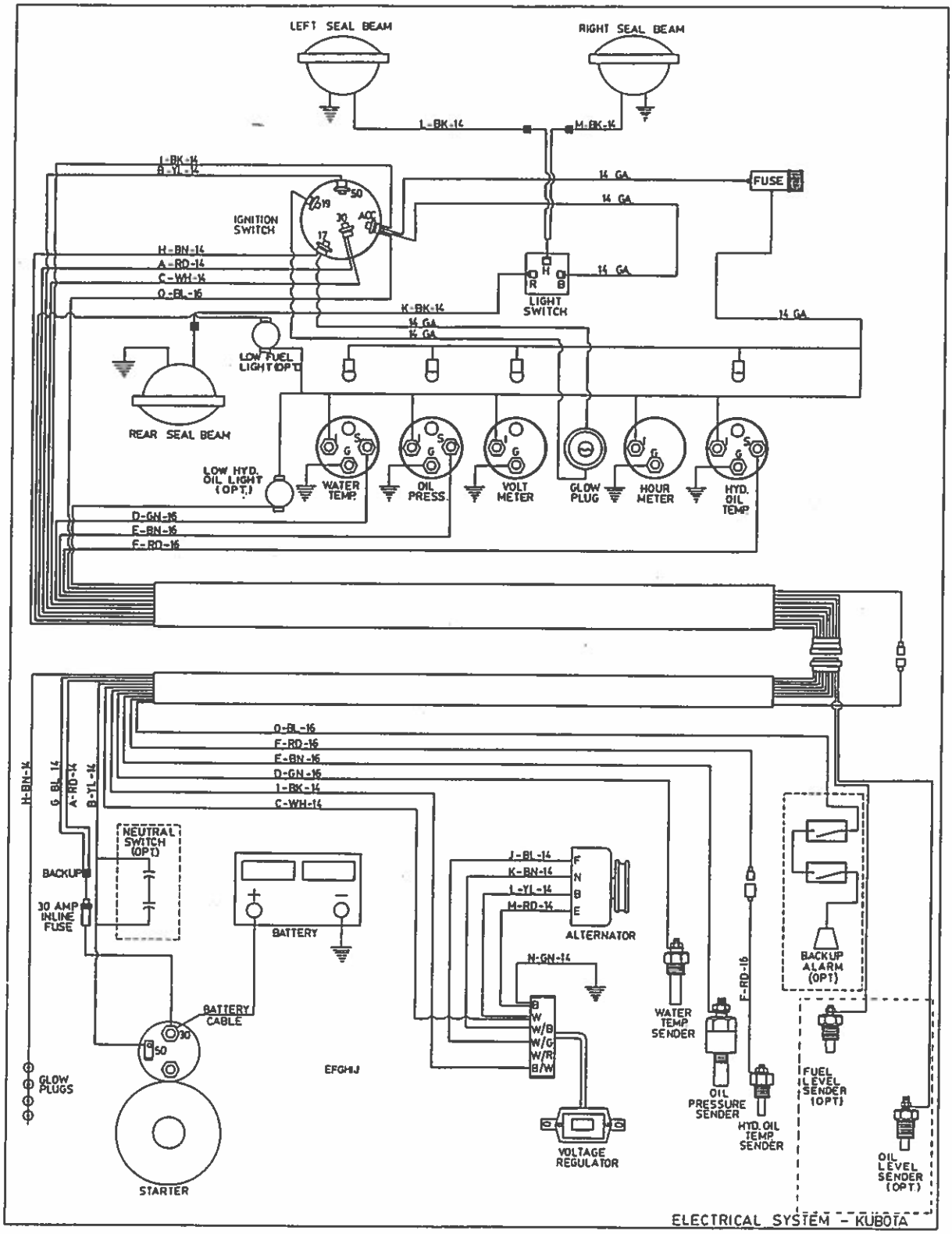


FIGURE 57

CIRCUIT DIAGRAM - DIESEL

BATTERY MAINTENANCE

The 12-volt battery is located on the removable engine frame, below the operator's seat, see **FIGURE 58.**

NOTE: With your new loader you also receive a "Battery Facts & 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 connections with a high temperature grease.

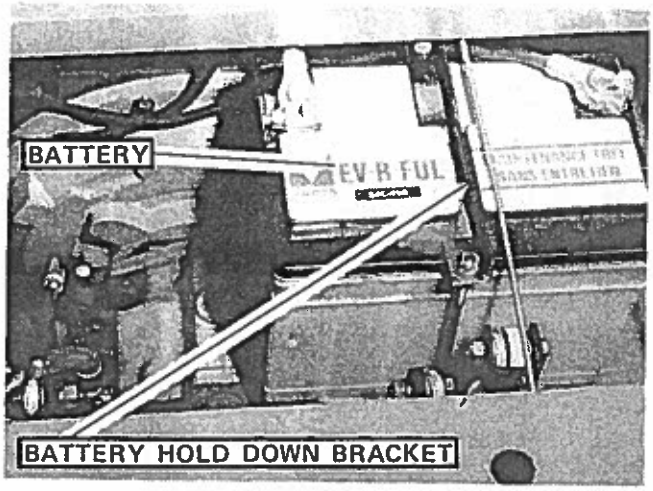


FIGURE 58

IMPORTANT

When Servicing The Electrical System, Disconnect Batteries.

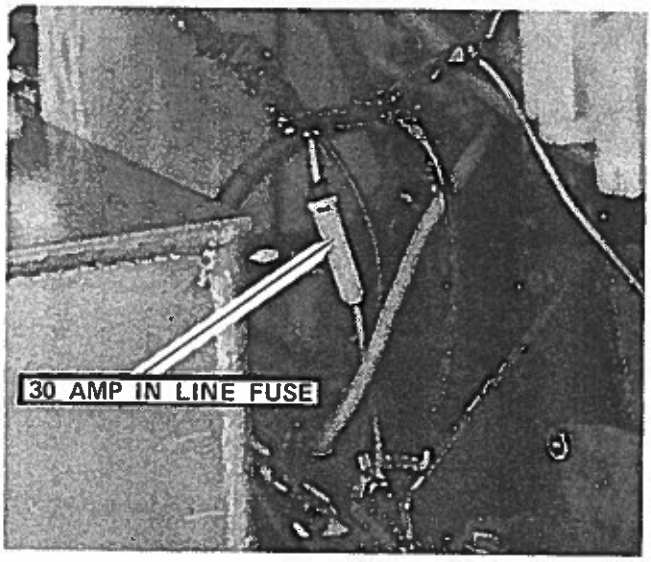


FIGURE 59

IMPORTANT

When Connecting Batteries, Make Sure To Connect Positive To Positive And Negative To Negative.

CIRCUIT PROTECTIONS

A 30-amp inline fuse located near the starter, see **FIGURE 59,** for Gas and **FIGURE 60,** for Diesel, protects the electrical system. A burned out fuse indicates a dead short in the wiring harness. Find and correct the cause of the short before replacing the fuse.

There is also a 20-amp fuse located on the instrument panel, protecting the various electrical circuits. For amperage ratings and identifications, refer to Page 3.

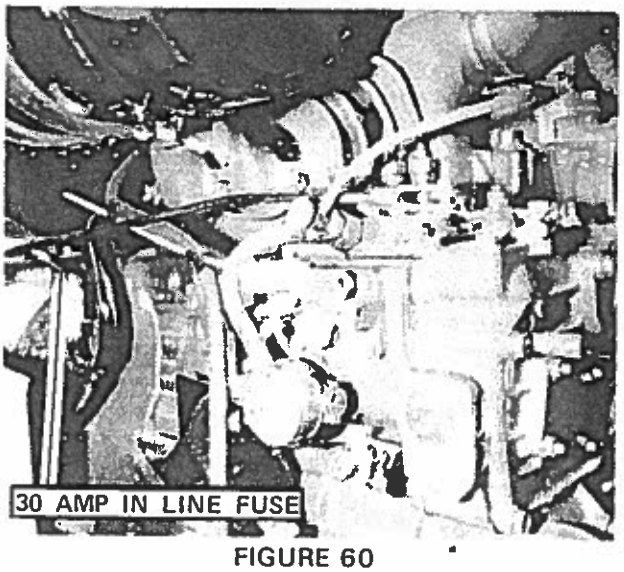


FIGURE 60

WHEELS AND TIRES

To prevent damage to rim and wheel studs, torque wheel nuts 109 - 122 N.M. (80 - 90 lb. ft.).

NOTE: The wheel nuts should be checked and tightened after the first hour of operation.

Inspect tires for wear or damage. Check and inflate tires to the correct pressure:

STANDARD TIRES:
7.00 x 15, 6 ply . . . . . 380 KPa (55 p.s.i.)

FLOTATION TIRES:
10.00 x 16.5, 6 ply . . . . . 241 KPa (35 p.s.i.)

The standard tires are tube-type, and the flotation tires are tubeless.

The front and rear tires will wear at different rates. For even wear, the front and rear tires could be interchanged on the same side when wear is first noticed.

CONTROLS ADJUSTMENTS

PARKING BRAKE

When properly adjusted, the parking brake handle will require a firm pull, approximately 45 N. (10 lbs.) force to lock the lever in the overcentre position.

If adjustment is necessary, proceed as follows:

1. Remove seat assembly.
2. Disconnect clevis from brake handle by removing the clevis pin. See **FIGURE 61**.
3. Loosen locknut on cable rod and rotate clevis as required (clockwise to tighten).
4. Reassemble clevis and check adjustment.

NOTE: If cable rod has reached limit of adjustment, then cable length must be adjusted by removing cable clamp at brake caliper lever and changing the loop position. Refer to **FIGURE 62.**

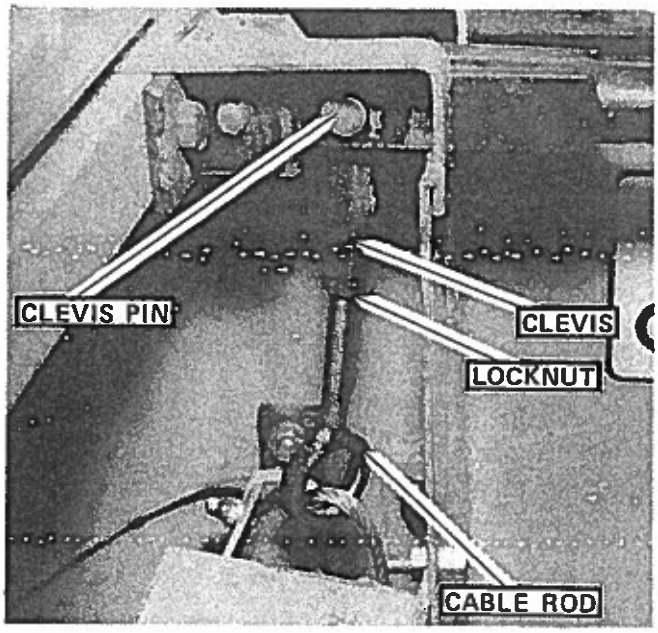


FIGURE 61

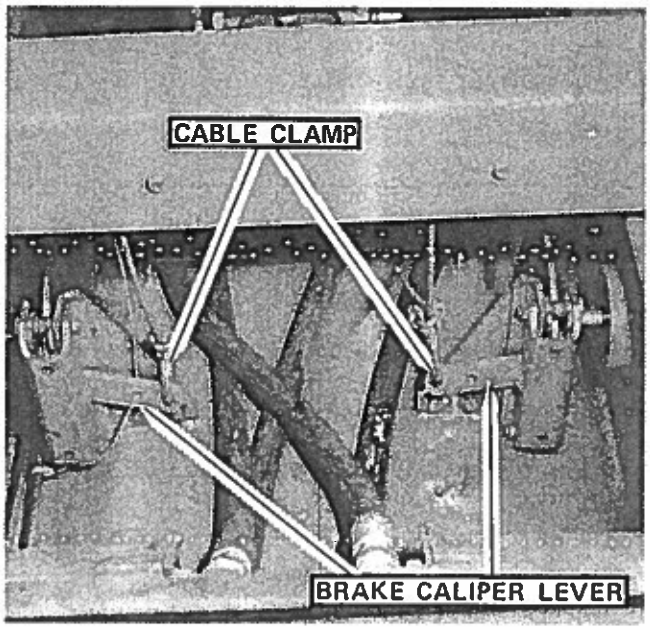


FIGURE 62

STEERING CONTROL LEVERS

The steering control levers are mechanically dampened and spring centered to the neutral position.

NOTE: In addition to being spring centered, some loaders have a neutral detent position for the control levers.

Persistent hydrostatic noise or wheel movement, (creep), when the steering control levers are in neutral indicate that steering adjustments are needed.

NOTE: When steering adjustments are needed, it is strongly recommended that the loader be lifted off the ground and securely blocked.

Access to steering linkages is obtained by removing seat assembly.

Before proceeding with steering adjustments, check to see if the self centering unit, **FIGURE 64**, is adjusted properly.

When the steering control levers are in neutral position, the spring seats and bracket ends, see **FIGURE 64**, should be in full contact. This adjustment is made in the factory, and normally no subsequent adjustment is necessary.

Steering adjustments are made as follows:

1. Having observed which way the wheels creep, stop engine and allow steering control levers to assume neutral position.
2. Loosen lock nut and detach ball joint, see **FIGURE 63**.
3. Turn ball joint on control rod.
   If wheels were creeping forward, increase control rod assembly length.
   If wheels were creeping backwards, decrease control rod assembly length.
4. Start engine, and determine if further adjustments are necessary.
5. When proper adjustment has been obtained, tighten lock nut and reinstall seat assembly.

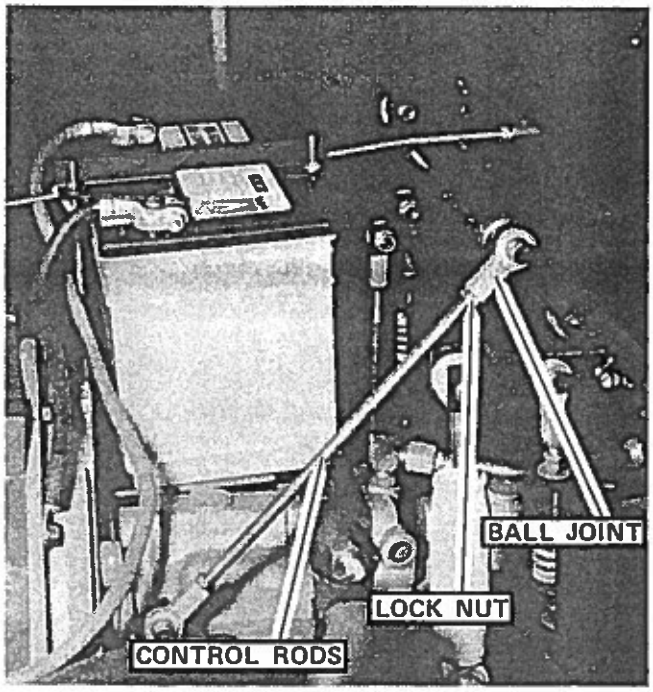


FIGURE 63

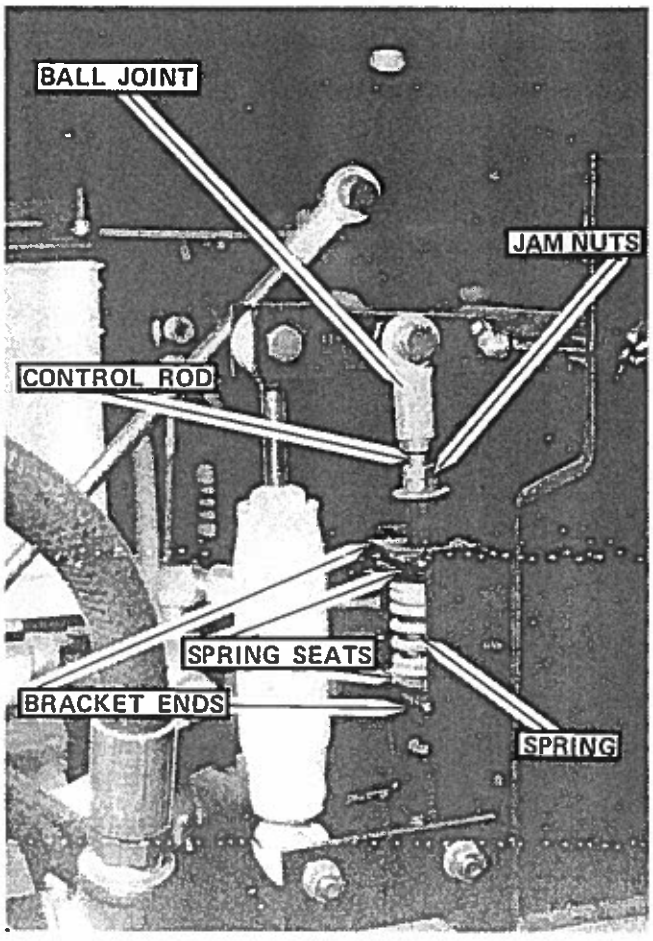


FIGURE 64

FOOT PEDAL ANGLE

All three foot pedals can be adjusted to sit at an angle that is most comfortable for the operator. The operating angle of the pedals have been set in the factory for an average operator height. To check for convenience, sit in the operator's seat and place your feet on the foot pedals. Move the seat back or ahead as may be required. If the angle in which the foot pedals operate need to be altered, proceed as follows:

1. Roll out the engine.
2. Remove seat assembly.
3. Loosen ball joint jam nuts, see **FIGURE 53**, and detach ball joints.
4. Adjust ball joints, until a desired foot pedal angle is obtained.
   NOTE: Increasing rod assembly length will result in a more horizontal position of pedals.
5. Once all pedals have been adjusted, reinstall ball joints and tighten jam nuts.
6. Reinstall seat assembly, and place engine in operating mode.

TROUBLE SHOOTING

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

ENGINE - GAS & DIESEL

SYMPTOM	POSSIBLE CAUSES	POSSIBLE REMEDIES
Starter does not crank engine	Fuse protecting ignition system burned	Check 20-amp fuse on instrument panel, and replace if necessary
	Fuse protecting electrical system burned	Check 30-amp fuse located near starter, and replace if necessary
	Low battery output	Check, and recharge if necessary
	Steering levers are not placed in neutral detent. (This only applies if loader is equipped with optional neutral start switches	Place steering levers in neutral detent
Engine turns over but does not start	No fuel in tank	Fill tank with clean fuel
	Fuel shut-off valve closed	Open fuel shut-off valve
	Improper starting procedure	Refer to: starting procedure - gas or starting procedure - diesel
	Auxiliary control pedal is in "detent"	Return pedal to centered neutral position
	Air in fuel system (diesel only)	Bleed fuel system
Engine overheats	Level of coolant in radiator low	Check level, fill if necessary
CAUTION: If engine is hot, loosen radiator cap to first notch to let pressure escape, then remove cap.		
	Plugged radiator	Clean debris out of radiator fins
	Loose fan belt	Adjust fan belt tension
NOTE: For trouble shooting other engine problems, refer to the Engine "Operator's Manual".		

HYDROSTATIC DRIVE AND CONTROLS

SYMPTOM	POSSIBLE CAUSES	POSSIBLE REMEDIES
Hydrostatics do not function properly	Transmission "creeps" or noisy when steering levers are in neutral	Adjust steering linkages. See "Steering Control Levers" of this Operator's Manual
System noisy in operation	Air in system	Check oil level, add if necessary. Bleed air out of pump and system
	Loose suction line	Tighten fittings
	Clogged oil strainer	Replace strainer element
	Hydraulic oil too heavy	Warm up hydraulic oil when too cold
	Internal pump or motor damage	See your **RAMROD** Dealer.
Erratic or no output on transmission	Hydraulic oil level too low	Check oil level. Add if necessary
	Oil too heavy	Use proper viscosity oil
	Drive coupling between engine and pump broken	Check coupling, replace if broken

NOTE: If hydrostatic system will not operate in either direction, and the above are not the possible causes, see your **RAMROD** Dealer. Most likely there will be internal damage to the transmission.

HYDRAULIC SYSTEM

Loss of hydraulic oil flow from gear pump	Reservoir low on oil	Check oil level. Add if necessary
	Drive couplings between engine and pump broken	Check couplings, replace if necessary
	Hydraulic gear pump not functioning	Inspect and repair if necessary
Hydraulic cylinders do not function properly	Loss of hydraulic oil flow from gear pump	See above
	Foot pedal linkage disconnected or binding	Inspect and adjust
	Relief valve failure in control valve	Check pressure and adjust
	Air in system	Check all connections, including vaccuum gauge sending line
Oil overheating	Reservoir low on oil	Check oil level. Add if necessary
	Plugged oil cooler	Clean debris out of oil cooler fins
	Auxiliary control pedal is in "detent"	Return pedal to centered neutral position
	Setting of relief valve too high or too low	Set to correct pressure

FINAL DRIVE

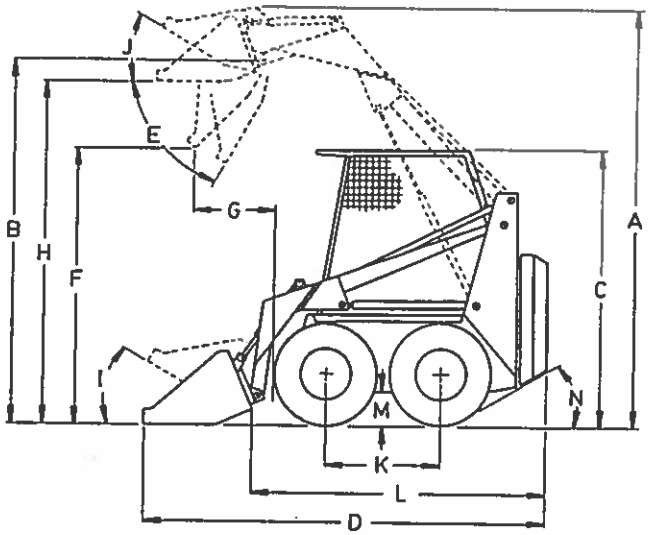
No drive of either wheel on one side	Primary chain failure	Inspect and replace if necessary
No drive of one wheel on one side	Secondary chain failure	Inspect and replace if necessary
Noisy operation	No lubricating oil	Check oil level. Add if necessary
	Axles have too much end play	Pre-load axle bearings removing all end play
	Chains too loose	Check and adjust chain tension

VI. LOADER SPECIFICATIONS

STANDARD SELF LEVELING LOADER

Rated Operating Capacity		(lb)	kg	(1276) 580
Tipping Capacity		(lb)	kg	(2606) 1182
Shipping Weight	Gas	(lb)	kg	(4741) 2150
(c/w 1575 mm bucket)	Diesel	(lb)	kg	(4917) 2230
Travel Speed		(m/h)	km/h	(6.7) 10.8 with 10.00 x 16.5 tires

Dimensions (with 10.00 x 16.5 tires)	(inch)	mm
A. Overall Operating Height	(128.5)	3265
B. Height To Hinge Pin	(110.25)	2800
C. Overall Height Of Loader	(79.25)	2015
D. Overall Length With 1575 mm Bucket	(125)	3175
E. Dump Angle		70°
F. Dump Height @ 45° Dump Angle	(83.75)	2130
G. Reach, Fully Raised @ 45° Dump Angle	(28)	710
H. Height To Bottom Of 1575 mm Bucket	(104)	2640
I. Maximum Roll Back At Ground		23°
J. Maximum Roll Back Fully Raised		32°
K. Wheel Base	(35.8)	910
L. Overall Length Less Bucket	(97.68)	2480
M. Ground Clearance Sides	(8.25)	210
Centre	(11.25)	285
N. Angle of Departure		27°
O. Clearance Circle without Bucket	(51.3)	1300
P. Clearance Circle with 1575 mm Bucket	(77.65)	1970
Q. Clearance Circle, Rear	(55.21)	1400
R. Overall Width Without Bucket	(60.50)	1535
S. Tread	(49.6)	1260



Side View

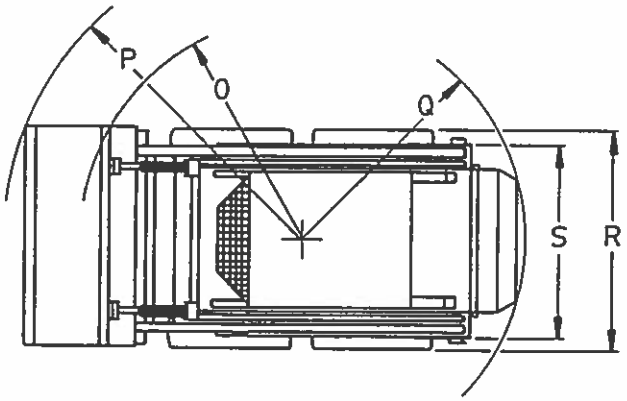


FIGURE 65 - Top View

NOTE:
Standard Tires, 7.00 x 15, will decrease machine width as follows:
Tread width (S) 48.1 inch 1220 mm
Overall width (R) 55.88 inch 1420 mm
Travel Speed Will Decrease To:
6.4 (10.3) m/h (km/h)
All Vertical Dimensions Will Decrease By:
0.4 (10) inch (mm)

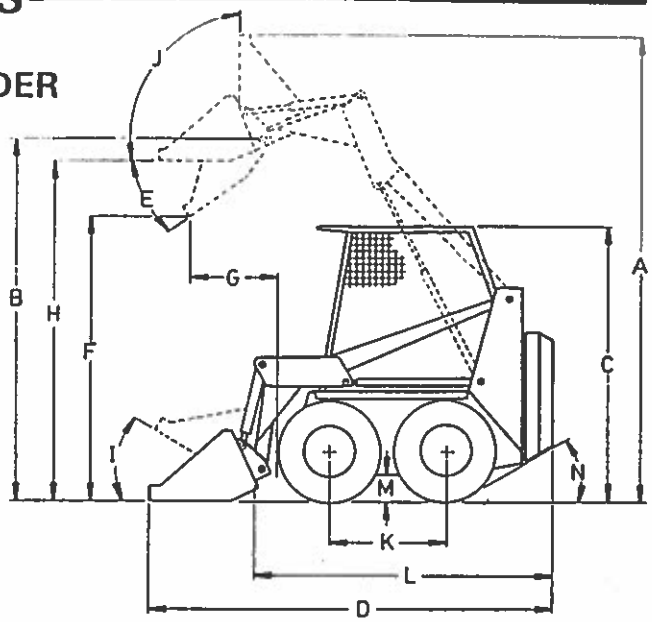
LOADER SPECIFICATIONS

OPTIONAL NON SELF LEVELING LOADER

Rated Operating Capacity		(lb) kg	(1276) 580
Tipping Capacity		(lb) kg	(2606) 1182
Shipping Weight	Gas	(lb) kg	(4550) 2165
(c/w 1575 mm bucket)	Diesel	(lb) kg	(4730) 2145
Travel Speed		(m/h) km/h	(6.7) 10.8 with 10.00 x 16.5 tires

Dimensions (with 10.00 x 16.5 tires)

	(inch)	mm
A. Overall Operating Height	(142.5)	3620
B. Height To Hinge Pin	(110.25)	2800
C. Overall Height Of Loader	(79.25)	2015
D. Overall Length With 1575 mm Bucket	(127.96)	3250
E. Dump Angle		42°
F. Dump Height	(80)	2030
G. Reach, Fully Raised	(30)	760
H. Height To Bottom Of 1575 mm Bucket	(100.25)	2545
I. Maximum Roll Back At Ground		23°
J. Maximum Roll Back Fully Raised		90°
K. Wheel Base	(35.8)	910
L. Overall Length Less Bucket	(100.64)	2555
M. Ground Clearance Sides	(8.25)	210
Centre	(11.25)	285
N. Angle of Departure		27°
O. Clearance Circle without Bucket	(53.86)	1368
P. Clearance Circle with 1575 mm Bucket	(80.38)	2040
Q. Clearance Circle, Rear	(55.21)	1400
R. Overall Width Without Bucket	(60.5)	1535
S. Tread	(49.6)	1260



Side View

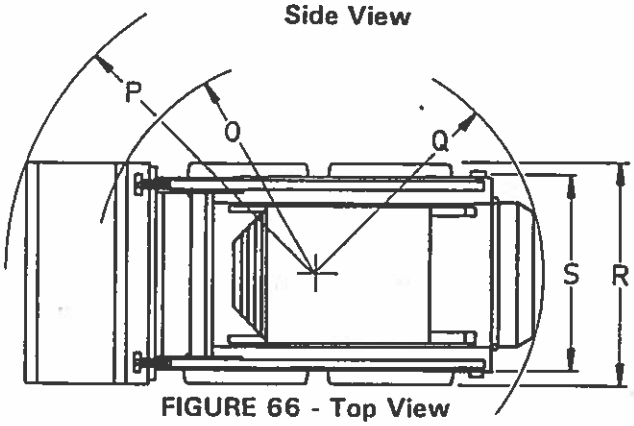


FIGURE 66 - Top View

NOTE:
Standard Tires, 7.00 x 15, will decrease machine width as follows:

Tread width (S)	48.1 inch	1220 mm
Overall width (R)	55.88 inch	1420 mm

Travel Speed Will Decrease To: (m/h) km/h (6.4) 10.3

All Vertical Dimensions Will Decrease By: (inch) mm (0.4) 10

OPTIONAL ENGINES

LOADER MODEL NO.	ENGINE DESCRIPTION
581 Gasoline	Make and Model . . . . . See Engine Mfg. specs. Cylinders . . . . . 4 Cooling System . . . . . Liquid Displacement . . . . . See Engine Mfg. specs. Horsepower . . . . . See Engine Mfg. specs. Engine Speed: Idle . . . . . 600 R.P.M. Full (No load) . . . . . 2500 R.P.M.

LOADER SPECIFICATIONS

LOADER MODEL NO.	ENGINE DESCRIPTION
584 Diesel –	Make and Model . . . . . See Engine Mfg. specs. Cylinders . . . . . 4 Cooling System . . . . . Liquid Displacement . . . . . See Engine Mfg. specs. Horsepower . . . . . See Engine Mfg. specs. Engine Speed: Idle . . . . . 800 R.P.M. Full (No load) . . . . . 2500 R.P.M.

ACCESSORIES

	WIDTH		CAPACITY	
	(inch)	mm	(cu. ft.)	cu. m
Bucket	(54)	1370	(10)	0.28
Bucket	(62)	1575	(11.5)	0.33
Bucket, Special Purpose .	(62)	1575	(14)	0.40
Bucket, Light Material . .	(66)	1676	(26)	0.74
Tool Bar With Following Fork Attachments; Forks, Grapple, Pallet	(60)	1524	N/A	N/A
Bucket Grapple Attachment	(62)	1575	N/A	N/A
Backhoe Reach	(128)	3251 Digging Depth 108 in. (2743) mm		
Snow Blower	(60)	1524	N/A	N/A
Dozer Blade (Power Angle)	(84)	2134	N/A	N/A
Earth Drill	48 (1219) long; 14 (356) to 48 (1219) Extensions 16 (152) to 18 (457) Diameter			
Block Heater	550 watts			
Cab Enclosure	N/A	N/A	N/A	N/A
Cab Heater	N/A	N/A	N/A	N/A

LOADER SPECIFICATIONS

HYDROSTATIC TRANSMISSION AND FINAL DRIVE

Pump . . . . . Variable Displacement, 2.48 cu. in. (40.6 cu. cm) Tandem
Motor . . . . . Fixed Displacement, 5.04 cu. in. (82.6 cu. cm.)
System Relief Setting . . . . . 4000 P.S.I. (276 Bar)
Final Drive: Primary Chain Number ASA 50
Secondary Chain Number ASA 80
Running Oil Bath

HYDRAULIC SYSTEM

Pump . . . . . Gear Type
Pump Capacity . . . . . 14.9 GPM (56.4 l/min) @ 2000 P.S.I. (138 Bar)
Control Valve . 3 Spool, Series Type With Float On Lift And Detent On Auxiliary
System Relief Pressure . . . . . 2000 P.S.I. (138 Bar)
Filtration . . . . . Return Line - 10 Micron; Suction Line - 125 Micron
Cylinders . . . . . Double Acting

	LIFT (2) Self & Non Self Leveling (inch) mm	TILT (2) Self Leveling (inch) mm	TILT (2) Non Self Leveling (inch) mm
Bore	(2.50) 63.50	(2.50) 63.50	(2.50) 63.50
Stroke . .	(29.13) 740	(14.75) 37.5	(18.70) 475
Rod	(1.50) 38.10	(1.25) 31.75	(1.25) 31.75

ELECTRICAL

Battery . . . . . 12 Volt, Negative Ground
Dimensional Group Size 24, Cranking 450 Amps

TIRES

Standard	7.00 x 15, 6 Ply	55 P.S.I. (380 KPa)
Flotation	10.00 x 16.5, 6 Ply	35 P.S.I. (241 KPa)

FLUID CAPACITIES GAS & DIESEL

	GAS		DIESEL	
	(Imp. Gal.)	LITRE	(Imp. Gal.)	LITRE
Fuel Tank	(13.42)	61	(13.42)	61
Engine Oil (with filter)	(0.81)	3.7	(1.98)	9.0
Hydraulic Oil Reservoir	(14.30)	65	(14.30)	65
Engine Cooling System	(2.09)	9.5	(1.52)	6.9
Final Drive (Chain case)	(0.66)	3	(0.66)	3

Due to **RAMROD'S** continuing policy of product improvement, **RAMROD** reserves the right to change specifications without Notice or Obligation.

OFTEN REQUIRED PERIODIC MAINTENANCE PARTS

		RAMROD PART NO.
Gas Model (Model 2274 E)	Engine Oil Filter	117045
	Fuel Filter	117046
	Air Cleaner Element	117047
	Spark Plug	117055
	Spark Plug	117056
	Voltage Regulator	117023
Diesel Model (Model V1902-B)	Engine Oil Filter — 70000 - 32090	117050
	Fuel Filter — 70000 - 34500 (Spin on)	117051
	Fuel Filter — 15521 - 43160 (Cartridge)	117052
	Air Cleaner Element — 70000 - 12850	117053

Hydraulic Oil Filters:
Hydraulic Oil Filter (10 micron): (Spin on) P16-3324 127124

Hydraulic Oil Strainer (100 micron): LHA — TMS - 25 - 100 117029

DECALS

STARTING PROCEDURE (GAS ENGINE)

1. Move throttle control ¼ to ½ way up.
2. Pull out choke control ½ way.
3. Turn ignition key to start position.
4. As soon as engine starts, release ignition key and push in choke control as far as possible to give smooth running.
5. Observe gauges for proper functioning of system. (Avoid excessive engine speed during warmup)

SHUT-OFF PROCEDURE

1. Park loader on level ground, and lower bucket.
2. Return throttle control to idle position.
3. Turn ignition key off.

NOTE: Refer to Owner's/Operator's Manual for:

1. Comprehensive Starting and Shut-off Procedure.
2. Periodic Maintenance and Service Schedule.
3. Safe Operation of Loader.

STARTING PROCEDURE (DIESEL ENGINE)

1. Move throttle control slightly downward.
2. Push fuel shut-off in.
3. Turn ignition key CCW to "Pre-Heat" and hold until Pre-Heat Indicator turns red.
4. Turn ignition key to start position.
5. As soon as engine starts, release ignition key.
6. Observe gauges for proper functioning of systems. (Avoid excessive engine speed during warmup).

SHUT-OFF PROCEDURE

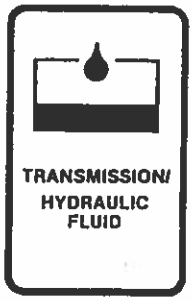
1. Park loader on level ground, and lower bucket.
2. Return throttle control to idle position.
3. Pull fuel shut-off knob out and turn ignition key off.

NOTE: Refer to Owner's/Operator's Manual for:

1. Comprehensive Starting and Shut-off Procedure.
2. Periodic Maintenance and Service Schedule.
3. Safe Operation of Loader.

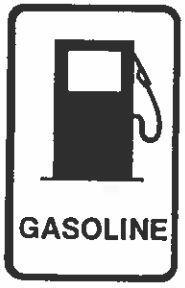
LOADER SPECIFICATIONS

TRANSMISSION HYDRAULIC FLUID
Part No. 179050
Location: Rear R/H Upright

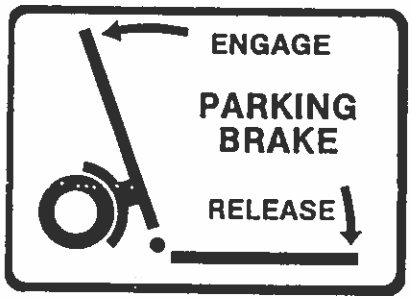


WARNING, STOP & COOL
Part No. 179051
Location: Rear L/H Upright

GASOLINE
Part No. 179052
Location: Rear L/H Upright
(Gas Only)



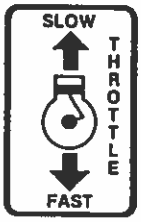
PARKING BRAKE
Part No. 179053
Location: Lower L/H Side
Under Parking Brake Lever



WARNING (Review Operator's)
Part No. 179054
Location: Top R/H Corner Of Engine Cover

FASTEN SEAT BELT
Part No. 179055
Location: Instrument Panel

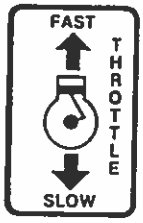
THROTTLE - (Fast & Slow)
Part No. 179057
Location: Lower L/H Side Plate,
Under Parking Brake Lever
(Gas Only)



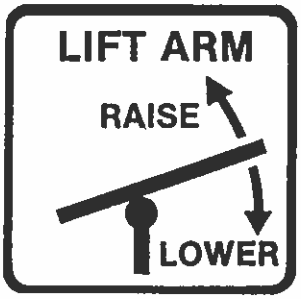
RATED OPERATING CAPACITY
Part No. 179049
Location:
Non Self Leveling - Top of L/H Lift Arm
Self Leveling - L/H Self Leveling Link

CHOKE
Part No. 179059
Location: Engine Panel (Gas Only)

THROTTLE - (Slow & Fast)
Part No. 179072
Location: Lower L/H Side Plate,
Under Parking Brake Lever
(Diesel Only)

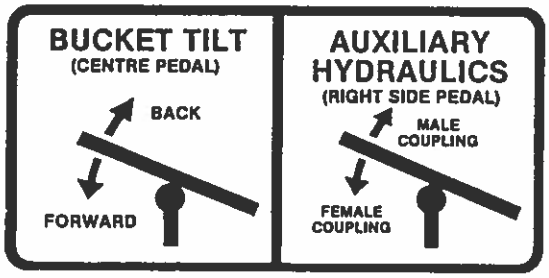


LIFT ARM
Part No. 179059
Location: Lower L/H Side Near Lift Arm Pedal

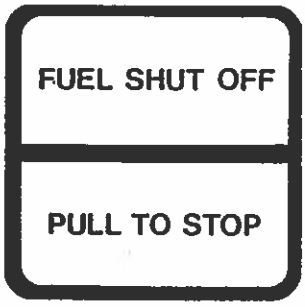


DIESEL
Part No. 179073
Location: Rear L/H Upright (Diesel Only)

BUCKET TILT - AUXILIARY H
Part No. 179060
Location: Lower R/H Side Near Auxiliary Foot Pedal

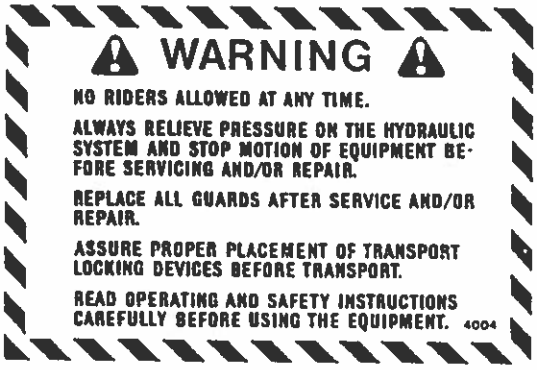


FUEL SHUT OFF - PULL TO STOP
Part No. 179074
Location: Engine Panel (Diesel Only)



LOCKING LEVERS
Part No. 179061
Location: Top of Attachment Frame

WARNING - NO RIDERS
Location: Rear L/H Side of Engine Cover



RAMROD
WARRANTY

RAMROD EQUIPMENT 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 twelve (12) months, or 1,000 operating hours, whichever occurs first, 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.

LOADER IDENTIFICATION

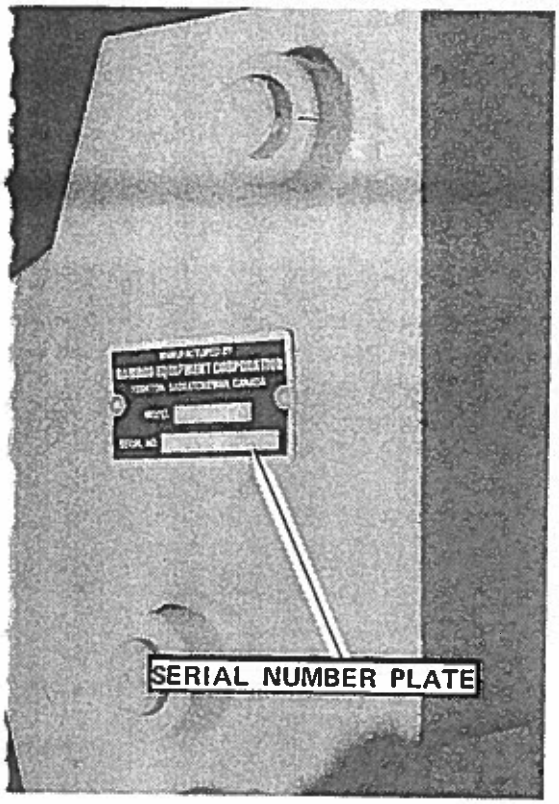


FIGURE 67

The loader serial number plate is located on the inside of the R/H lift arm mast, see **FIGURE 67.**

In order for the Owner to qualify for warranty, the "New Loader Warranty Registration Form" must be completed and one copy mailed to **RAMROD EQUIPMENT.** One copy should be retained by the Selling Dealer, and one by the Owner.

FIGURES 68 & 69 show Engine Identification Plate and Serial Number locations. To validate the engine warranty the Engine Registration Certificate must be completed and mailed to the address shown on the Certificate.

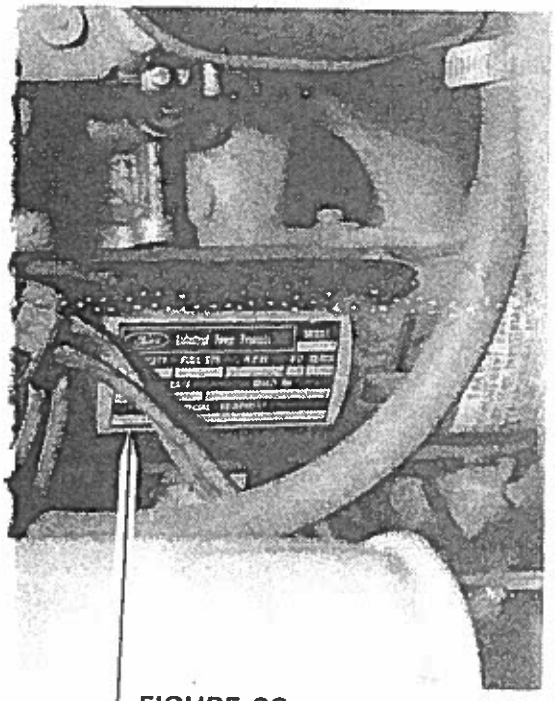


FIGURE 68
GASOLINE ENGINE
ENTIFICATION PLATE LOCATION

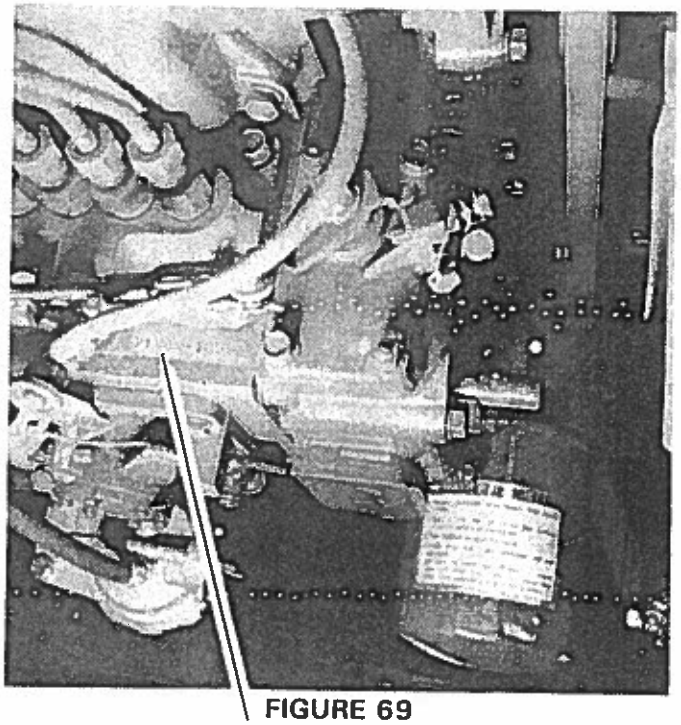


FIGURE 69
DIESEL ENGINE
SERIAL NO. LOCATION

135 YORK ROAD EAST,
YORKTON, SASKATCHEWAN, CANADA S3N 3N6
PHONE (306) 783-8539 TELEX 074-21544

RAMROD EQUIPMENT

"Manufacturers of Quality Built Skid Steer Loaders"

NEW LOADER WARRANTY REGISTRATION FORM

Self Leveling ☐

Non Self Leveling ☐

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: Standard ☐ Flotation ☐

☐ Bucket - 1370 mm (54 inch)

☐ Bucket - 1575 mm (62 inch)

☐ Bucket - 1575 mm (62 inch) Special Purpose

☐ Bucket - 1676 mm (66 inch) Light Material

Tool Bar With Following Fork Attachments:

1. Forks ☐ 2. Grapple ☐ 3. Pallet ☐

☐ Bucket - 1575 mm (62 inch) Grapple Attachment

☐ Backhoe

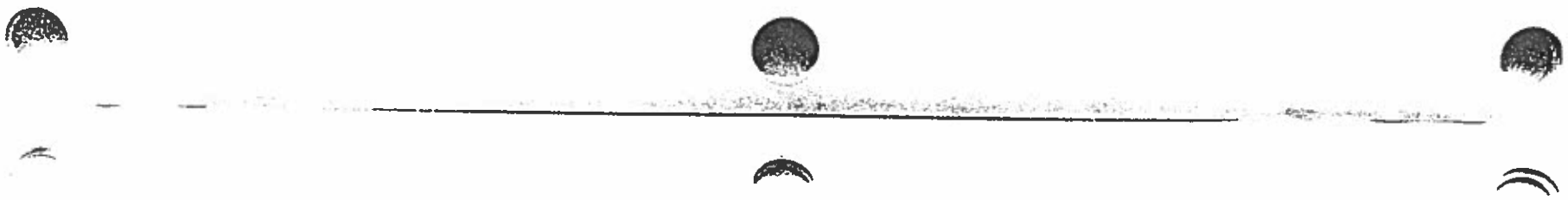
☐ Snow Blower

☐ Dozer Blade (Power Angle)

☐ Earth Drill ☐ Cab Enclosure

☐ Block Heater ☐ Cab Heater

RAMROD COPY



135 YORK ROAD EAST,
YORKTON, SASKATCHEWAN, CANADA S3N 3N6
PHONE (306) 783-8539 TELEX 074-21544

RAMROD EQUIPMENT

"Manufacturers of Quality Built Skid Steer Loaders"

NEW LOADER WARRANTY REGISTRATION FORM

Self Leveling ☐

Non Self Leveling ☐

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: Standard ☐ Flotation ☐

☐ Bucket - 1370 mm (54 inch)

☐ Bucket - 1575 mm (62 inch)

☐ Bucket - 1575 mm (62 inch) Special Purpose

☐ Bucket - 1676 mm (66 inch) Light Material

Tool Bar With Following Fork Attachments:

1. Forks ☐ 2. Grapple ☐ 3. Pallet ☐

☐ Bucket - 1575 mm (62 inch) Grapple Attachment

☐ Backhoe

☐ Snow Blower

☐ Dozer Blade (Power Angle)

☐ Earth Drill ☐ Cab Enclosure

☐ Block Heater ☐ Cab Heater

DEALER COPY

135 YORK ROAD EAST,
YORKTON, SASKATCHEWAN, CANADA S3N 3N6
PHONE (306) 783-8539 TELEX 074-21544

RAMROD EQUIPMENT

"Manufacturers of Quality Built Skid Steer Loaders"

NEW LOADER WARRANTY REGISTRATION FORM

Self Leveling ☐

Non Self Leveling ☐

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: Standard ☐ Flotation ☐

☐ Bucket - 1370 mm (54 inch)

☐ Bucket - 1575 mm (62 inch)

☐ Bucket - 1575 mm (62 inch) Special Purpose

☐ Bucket - 1676 mm (66 inch) Light Material

Tool Bar With Following Fork Attachments:

1. Forks ☐ 2. Grapple ☐ 3. Pallet ☐

☐ Bucket - 1575 mm (62 inch) Grapple Attachment

☐ Backhoe

☐ Snow Blower

☐ Dozer Blade (Power Angle)

☐ Earth Drill ☐ Cab Enclosure

☐ Block Heater ☐ Cab Heater

CUSTOMER COPY

RAMROD EQUIPMENT
135 York Road East
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