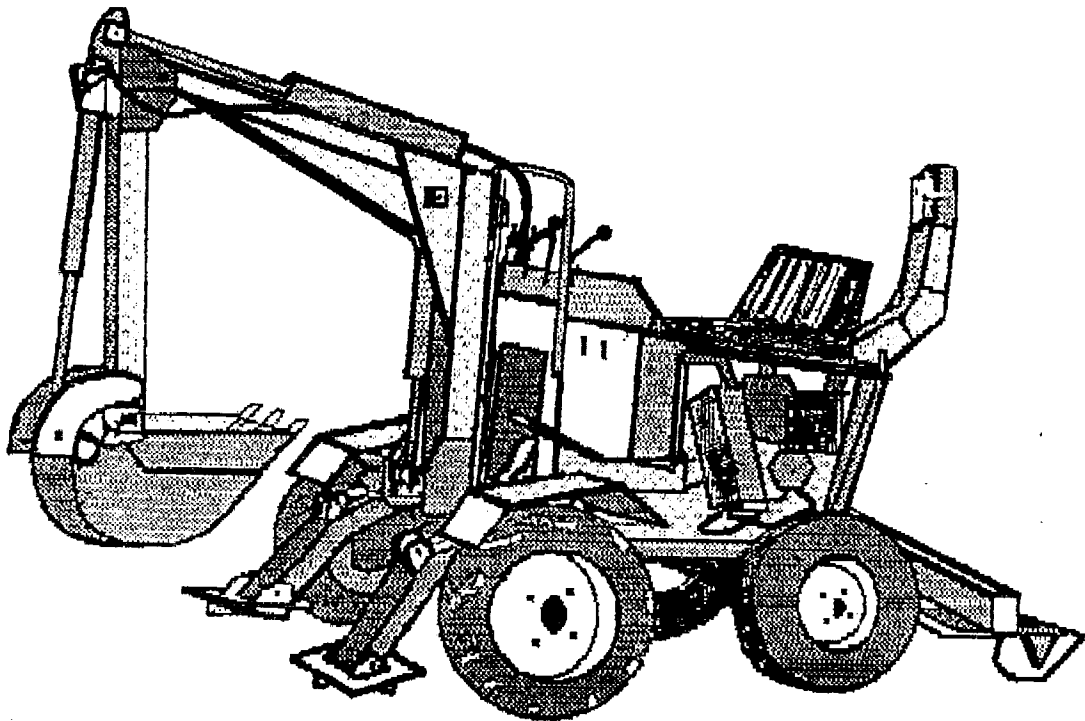


POWERFAB LTD

MODEL 125 WTD

OPERATIONS AND PARTS MANUAL



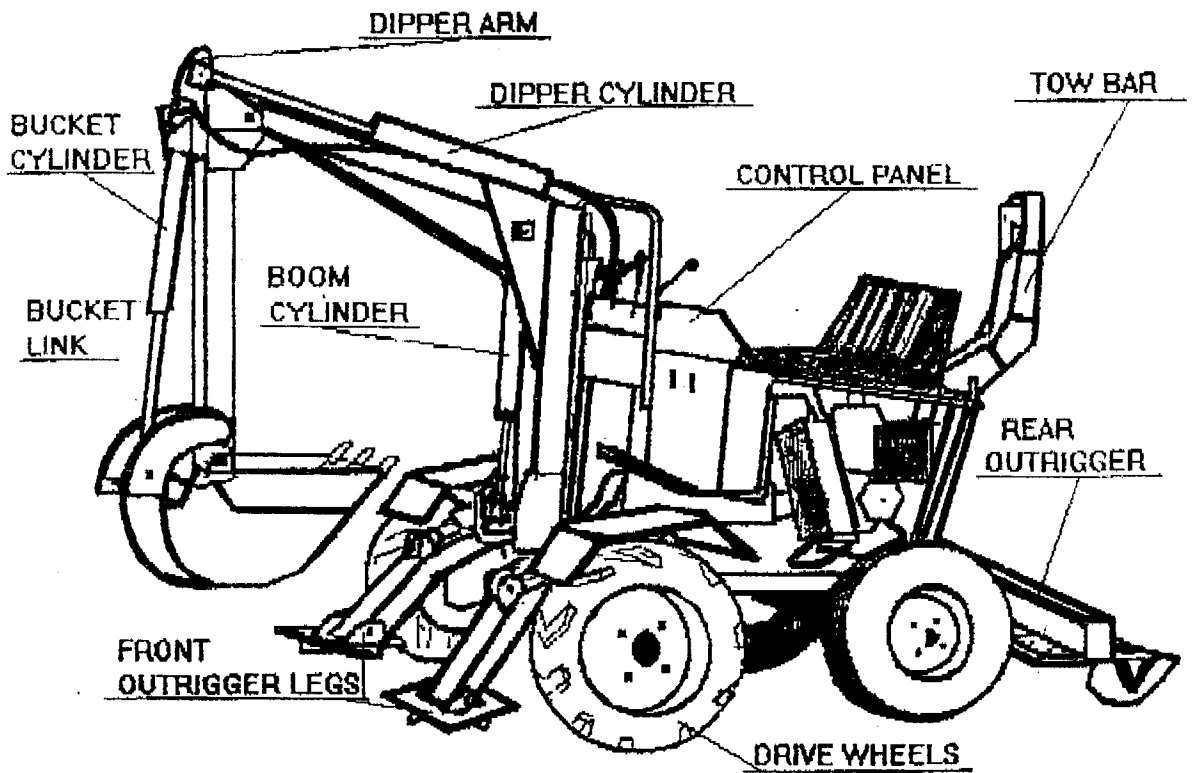
POWERFAB LTD. 125 WTD EXCAVATOR INTRODUCTION

Before you use the machine check that the components have not been damaged and that there are no oil leaks.

Before operating the machine study the instructions in this manual and familiarize yourself with the controls before starting the engine. There are certain fundamentals which should be applied whatever the skill of the operator. These are mainly concerned with your safety and that of others.

ILLUSTRATION 1

MAJOR COMPONENTS

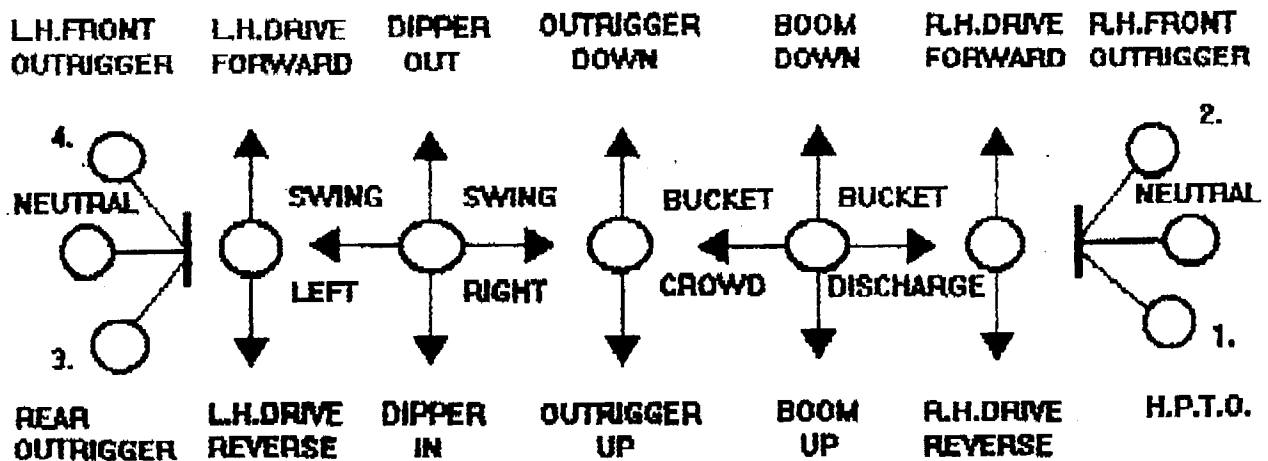


SAFETY PRECAUTIONS

1. Periodically check that pins are locked in position and that all bolts are tight.
2. Rest the bucket on the ground when the machine is not in use.
3. Do not work on or under the machine without first lowering the bucket to the ground and making sure the engine is switched off.
4. Stop the engine before filling the hydraulic system.
5. Check frequently for leaks or damage to the hydraulic system.
6. The operating relief valve units have been factory set, NEVER try to adjust them.
7. Do not allow anyone near the machine when the engine is running or when operating. The operator must never operate the machine while standing to the front, rear or side of it. Never hold onto the control levers when mounting or dismounting the machine.
8. Check for obstructions or buried services before commencing work.
9. Avoid steep gradients and unstable conditions which are likely to affect the stability of the machine. Always carry the bucket low when travelling.
10. Do not drive too close to an excavation or ditch. Be sure the surrounding ground has adequate strength to support the weight of the machine and load.
11. It is important that tyres are correctly inflated. The front drive wheel tyres are to be 22 PSI (1.5 bar) for on road use. In extremely soft off road conditions this can be reduced to 12 PSI (0.83 bar). This pressure must be raised again to 22 PSI before again travelling on the road. The rear trail wheels both require to be kept at a constant pressure of 40 PSI (2.75 bar).
12. Whenever stopping lower the rear outrigger until the rear wheels are just off the ground. Then curl the bucket back and drop the boom until the bucket teeth are resting on the ground. The four tap levers (2 either side) must be in the fully forward position.
13. Where front stabilizer legs have been moved to the 'in' position for passing through a narrow opening, they must be repositioned in the 'out' position before commencing the digging cycle when on open ground.
14. If it has been necessary to remove the rear stabilizer foot for access purposes, care must be taken that this is replaced and the bolts fully tightened down before commencing the dig.
15. When trench digging never move forward over the trench. This could cause the trench side to collapse which could take the machine with it. Always move backwards over the trench.
16. The operator should never personally enter a deep trench without taking safety precautions against wall collapse. Shutter and support the trench sides in the area where it is required to work.
17. The weight ratio is such that the machine is most efficient when operating with a person whose weight is at least 60 kilos (130 lbs). Where the operator is below this weight, a ballast may be added to the rear of the machine up to a maximum weight of 45 kilos (100 lbs) to ensure good loading stability.
18. Max speed 31 mph (50 kph) with gross weight of excavator (740 kilos) half kerb weight of the towing vehicle (1480 kilos minimum).
19. After first use of the concrete breaker, the hydraulic tank should be topped up.
20. Always raise the wheels off the ground before digging to avoid damage to the axles. NEVER dig on your drive wheels.
21. A counter weight can be added to the outrigger to give improved stability when driving.
22. It is important that all grease points are lubricated after each 20 hour period.

GETTING STARTED

1. Either side of the seat are two levers which operate the front and rear outriggers. With those levers in the forward position (2, 4) select the middle lever on the control panel and raise the front wheels off the ground approximately 50mm (2") by extending the front legs. Repeat this operation for the rear wheels with the two levers either side in the backward position (1,3).
2. Select the second lever from the right to extend the boom cylinder, raise the boom and then extend the bucket cylinder to curl the bucket in towards the machine. Select the second lever from the left to extend the dipper arm cylinder to bring the dipper arm close to the machine.
3. Select combined boom and bucket operation by moving the lever diagonally between the two services. Likewise the swing and dipper arm operation can be combined.
4. When travelling on the flat, keep the boom, dipper and bucket close to the machine. This will not only give you the greatest stability but will prevent the digging arms and bucket from striking objects while moving.



EXCAVATING PROCEDURE

Before commencing the excavation, walk over the area; a major danger in excavating is the possibility of striking buried services. If in doubt ask someone who knows the site, proceed with caution and watch for tell tale signs such as:-

1. Changes of soil texture or color.
2. Patches of gravel or sand.
3. Ceramic tiles or earthenware piping.
4. Plastic marker strips; in some places it is practice to bury them 150mm (6") above cables.

Always treat such signs with caution and hand dig if necessary to expose the object. Once exposed do not dig down with the machine to clear it as the comprehensive action of excavating may break or damage it. Where the possibility of buried services exists, it is safer to dig in layers similar to that shown in illustration 10.

Think of your operating sequence in order that you do not dig yourself into a corner or have to cross your own trench.

To commence the dig, position yourself then push the front feet and outrigger down onto the ground until the wheels have risen approximately 50mm (2") off the ground. The machine is now resting on the feet and outrigger. Never dig on the wheels with the feet and outrigger in the raised position. Now curl the bucket back and raise the dipper arm. Then slowly lower the boom rolling the bucket forward until the bucket teeth are resting on the ground at the required position. To commence digging proceed as shown and as described in illustrations 5 to 10.

The actual digging technique will develop with practice. The boom and bucket control lever and the dipper and swing control lever have been arranged so that you can speed up the digging cycle by combining certain operations. The boom and bucket cylinders can be operated at the same time by pushing the control lever diagonally between the chosen service functions.

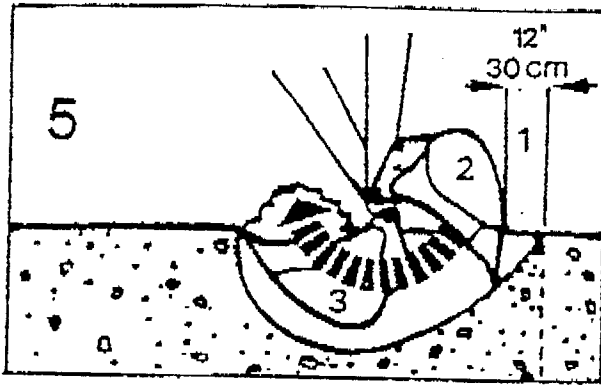
As an example pushing the lever forward and diagonally to the right will lower the boom while the bucket is curling backward in the discharge attitude. Likewise the dipper can be raised or lowered as you swing by operating the control lever in the appropriate diagonal direction.

The excavator will go up a 30 degree slope, however care should be taken when travelling up the steepest slopes that the boom and dipper are extended to about 2 / 3 of its full reach. The bucket teeth must point forward and about 40cm above the ground. This also applies when reversing downhill

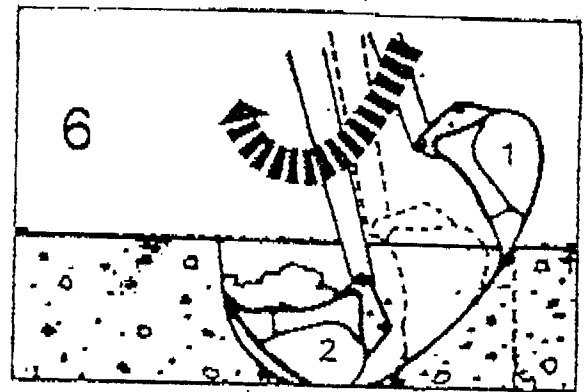
When travelling up a gradient avoid sharp turns, do not deviate from a straight line of travel on the steepest gradients. Never turn the excavator across the direction of travel of the gradient if the angle of the slope is 20 degrees or more.

When travelling down a slope move slowly and maintain a path that is in line with the slope of the gradient, do not make a sharp turn at right angles to the gradient or travel down a slope that is 30 degrees or more. When driving down a slope the boom, dipper and bucket must be centralized and folded in close to the machine.

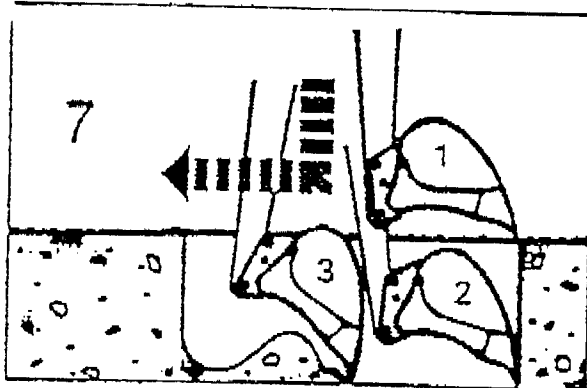
When excavating on a gradient and at right angles to the slope of the gradient a levelling operation should be carried out before digging the trench.



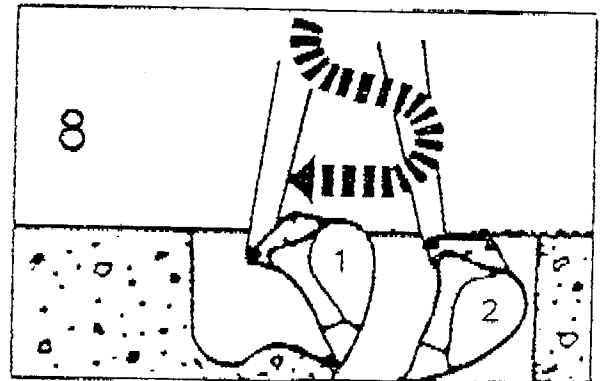
1. Enter bucket here to allow for bucket rolling.
2. Apply dipper pressure and lightly roll the bucket.
3. Allow the boom to follow the bucket rotation.



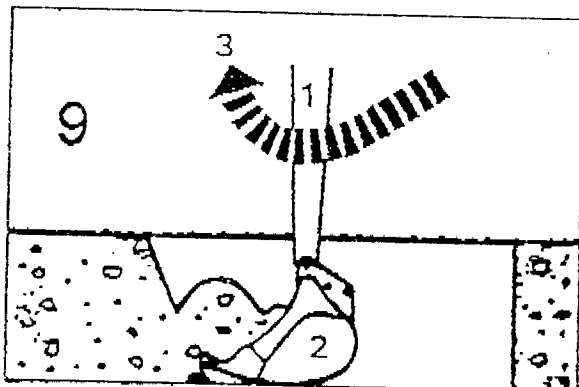
1. Sliding action of bucket compacts earth.
2. Allow bucket roll to bring the bucket clear — then lift out. Bucket fills in short distance at this point.



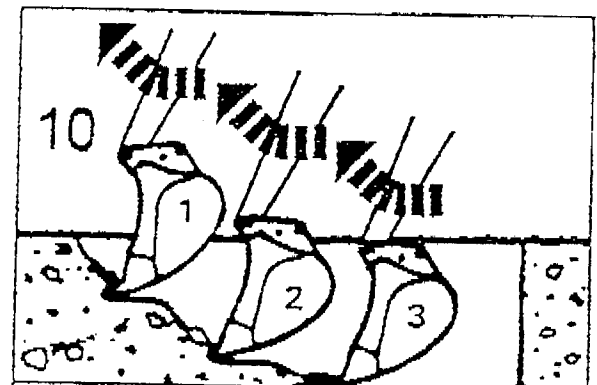
1. Lower the boom moving dipper away to keep bucket lip vertical.
2. Fully roll the bucket as it reaches bottom.
3. Pull dipper inward 60 cm (2 ft) to clear the back of the bucket.
4. Gently open the boom lift service to allow natural lift to the boom.



1. Push dipper away and at the same time —
2. Roll the bucket inward keeping it level with the bottom of the dig.



1. Pull the dipper inwards and —
2. Gently roll the bucket to keep the teeth at the correct angle with the bottom of the dig.
3. Continue to roll the bucket and lift clear. Move the dipper outwards and prepare to dump.



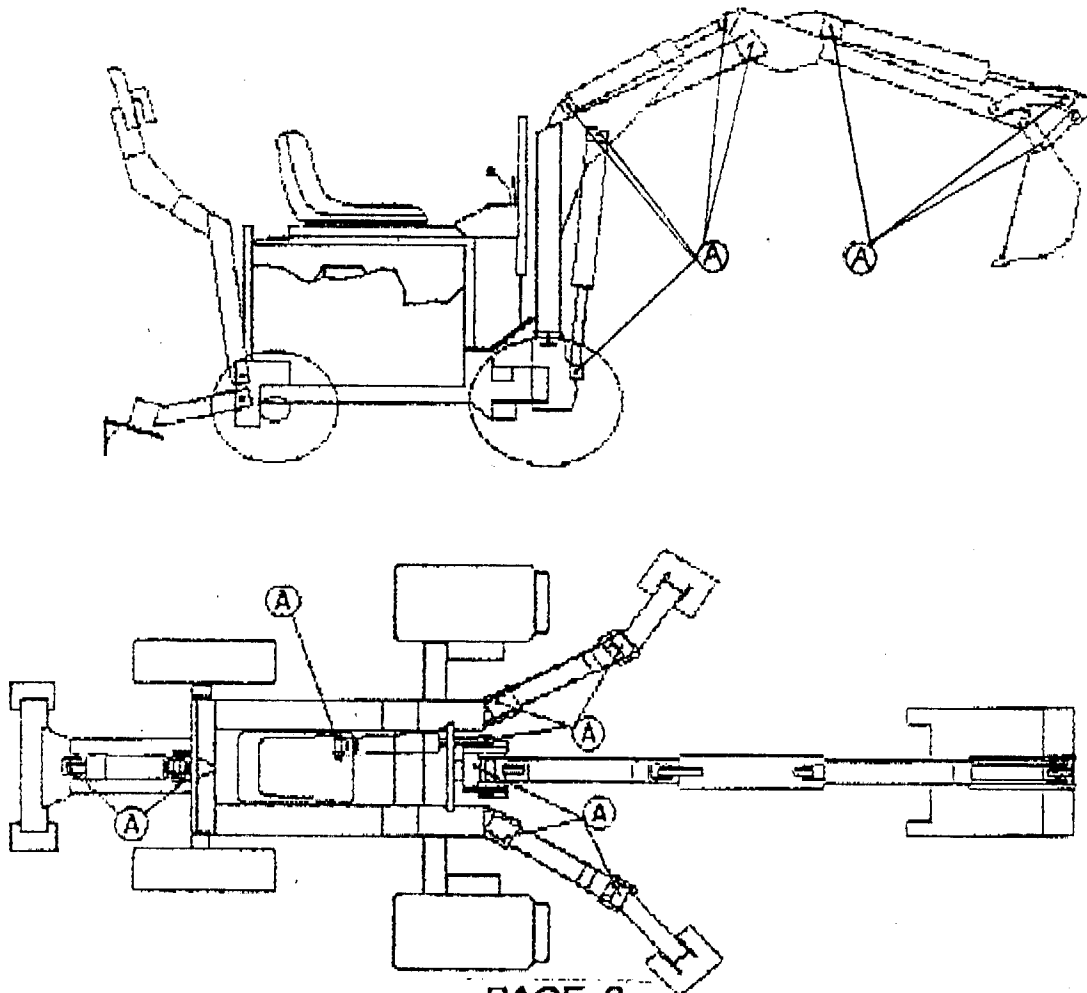
1. On subsequent "pitches" work to the bottom of the dig in layers.
- 2.3. Layer thickness depends upon material density.

MAINTENANCE

1. Check that the pins are secure and all bolts are tight after the first 10 hours of operation and at 50 hour intervals thereafter.
2. Check the hydraulic oil tank level periodically and check hydraulic hoses, cylinders and connections for oil leaks.
3. Replace the return line filter element and hydraulic tank strainer after 20 hours use. Replace them again after each succeeding 250 hours of operation. Clean the strainer mesh with petrol, making sure that it is perfectly dry before replacing it.
4. Make sure that the correct lubricants are used; they are:-

a. Engine Oil	Rimula x oil 10 w/ 30	Kubota Petrol
	Rimlex oil 15/ 40	diesel
b. Hydraulic system	Shell Tellus oil 37	
c. Grease Points	Shell Retinax Grease 'A'	
5. Apply the grease through the grease nipples after each 20 hour period of operation.
6. Refer to the engine manual for this machine and carry out service procedures described.

GREASE POINTS



TROUBLE SHOOTING

TROUBLE	CAUSE	REMEDY
Lack of hydraulic power to all services.	<ul style="list-style-type: none"> Hydraulic oil level is low. Suction line joints allowing entry of air. Oil leakage on pressure line. Main line relief valve setting incorrect. Service line relief seating remains open. Suction strainer clogged. Pump shaft seal is worn or damaged. Pump worn or internally scored. Decrease in engine power. 	<p>Fill reservoir to correct level.</p> <p>Tighten joints.</p> <p>Tighten joints. Set to correct pressure or replace if necessary, do not set above this.</p> <p>Remove, clean or replace if necessary.</p> <p>Remove and clean strainer. Replace seals throughout.</p> <p>Replace pump.</p> <p>Consult engine manual or dealer if fault persists.</p>
One service only has lack of power or will not operate.	<ul style="list-style-type: none"> Valve slice seals damaged or worn on this valve slice. Worn or loose valve lever linkage on this valve slice. 	<p>Rest bucket on the ground then disconnect the cylinder hoses from the slice affected. Connect these to the slice of another service and operate the cylinder. If the cylinder operates satisfactory then the valve slice in question is at fault. Check and replace seals or linkage as found necessary. Note, if seal fault is found change all seals on this slice.</p>
Engine starting is difficult. Output is insufficient. Engine suddenly stops.	<ul style="list-style-type: none"> Hydraulic cylinder leaking from gland or across piston head seal. <p>Consult engine manual.</p>	<p>Rest bucket on the ground. Leak from the gland (at rod end) will easily be seen. Replace all seals and wiper ring. To detect piston head seal leak disconnect the rod end and extend the cylinder to the end of its stroke. Disconnect the rod end (gland end) hose from the valve connection and suspend it in an oil drum.</p> <p>NOTE: For safety reasons a spare hose should be fitted (hand tight) to the above valve connection, this is also to be suspended in the drum. Operate valve to extend cylinder. If oil is discharged into the drum the piston head seal has failed and must be replaced. Replace all seals and wiper ring.</p> <p>Consult engine manual or dealer if fault persists.</p>