

VICTA TWO-CYCLE ENGINE SPECIFICATION CHART

VICTA 125 c.c. and 160 c.c. SERIES

	125 c.c.	160 c.c.
BORE	2.125"	2.421"
STROKE	2.125"	
CAPACITY	125 c.c.	160 c.c.
PISTON TAPER GROUND BOTTOM OF SKIRT	2.120"	2.416"
TOP RING LAND	2.115"	2.411"
PISTON RINGS—2 OFF	$\frac{3}{32}$ " x 2.125"	$\frac{3}{32}$ " x 2.421"
BIG END BEARING 1955-1974 MODELS	15 STEEL ROLLERS	
BIG END BEARING FROM 1974 MODELS	CAGED ROLLER BEARING	
LITTLE END	BRONZE BUSH	BRONZE BUSH—1966-1974 NEEDLE BEARING from 1974
CONNECTING ROD	HARDENED ALLOY STEEL	
CRANKPIN	HARDENED ALLOY STEEL	
GUDGEON PIN562" ALLOY STEEL	.6154" ALLOY STEEL
BEARING—MAGNETO SIDE ..	BALL BEARING, 20 m.m.	
BEARING—DRIVE SIDE 1955-1974 MODELS	BALL BEARING, 20 m.m. BALL BEARING, 17 m.m.	
BEARING—DRIVE SIDE FROM 1974 MODELS	BALL BEARING, 20 m.m. BALL BEARING, 20 m.m. L.D.	
CRANKSHAFT	ALLOY STEEL FORGINGS, 15° TAPER DRIVE END $\frac{1}{2}$ " B.S.F. THREAD BOTH ENDS	
IGNITION	$\frac{1}{8}$ " B.T.D.C.	
BREAKER POINT GAP020"	
SPARK PLUG GAP025"	
SPARK PLUG	CONTACT YOUR NEAREST VICTA DEALER	
CORRECT FUEL	2 STROKE PETROL-OIL MIXTURE	

3. Disconnect the High Tension Lead (No. 0) from the spark plug (No. 1).
4. Remove engine from the chassis; See Page L15. If fitted with a starter pulley, unscrew pulley by tapping in anti-clockwise direction using a block of wood in rope slot as a punch.
5. Remove the mounting screws which hold the cowl to the engine. The starter screws need not be disturbed; the cowl and starter can be lifted off as a unit.
6. As the cowl is removed slip the high tension lead grommet out of the slot in the cowl.
7. Remove Spark Plug (No. 1). Disconnect decompressor vacuum pipe (No. 3) from cylinder barrel and remove decompressor unit (No. 2) from cylinder head (No. 7). (See fig. L20).
8. Remove cylinder head bolts (No. 5), nuts (No. 4) and washers. (See fig. L20). Spanner size $\frac{1}{4}$ ". Whitworth or tube type required.
9. At this stage the cylinder head will usually be free; if not, tap it lightly with a block of wood in the vicinity of the joint between the

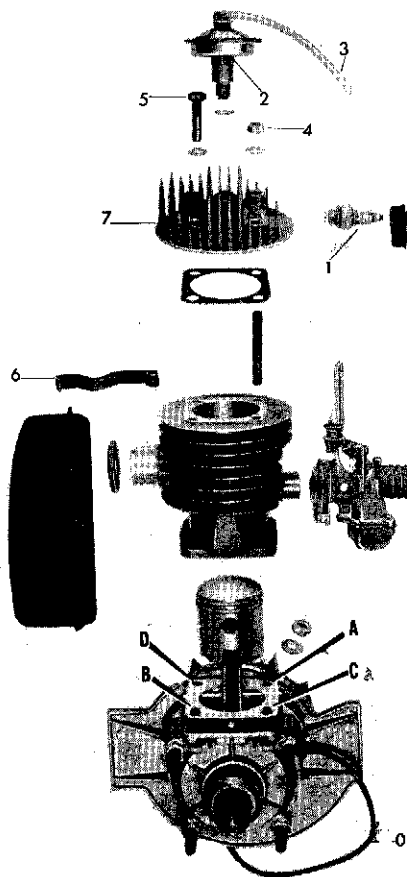


Fig. L20

head and the cylinder barrel, being careful not to break the fins of the head or the barrel.

10. Loosen clips (No. 6) and remove the muffler. (See fig. L20).
11. Remove 4 cylinder base nuts and shake-proof washers A, B, C, D (Fig. L20). The cylinder should now be free; if not, a light blow on its top end with palm of hand will break lower joint. Gently slide cylinder off the piston.
If port covers are fitted remove nut from the central stud of each port cover; in some cases there is one acorn type nut and one plain; in others, two plain nuts. Be careful to keep nuts separate from the cylinder base nuts as the thread size is different and they must not be mixed on re-assembly. Tap each port cover sideways at one end to break joint, and remove.
12. Extract the circlip from each side of the piston with long-nosed pliers. Push out the gudgeon pin from the piston just far enough to allow the piston to be removed from the connecting rod. If the gudgeon pin cannot be removed by hand pressure, use tool shown in Fig. L21, or a suitable punch. If a punch is used, have someone support the opposite side of the piston so that the connecting rod will not be strained or bent. Put a scratch mark inside the piston so that it can be re-fitted the same way round.

13. Piston rings may be removed by either of the following methods:—
 - (a) Hold the piston securely on the bench. With the thumbs on the ends of the piston ring press gently apart until it is possible to clear the ring from the piston. (Fig. L22.) Care must be taken not to exert too much pressure or the piston ring may break.

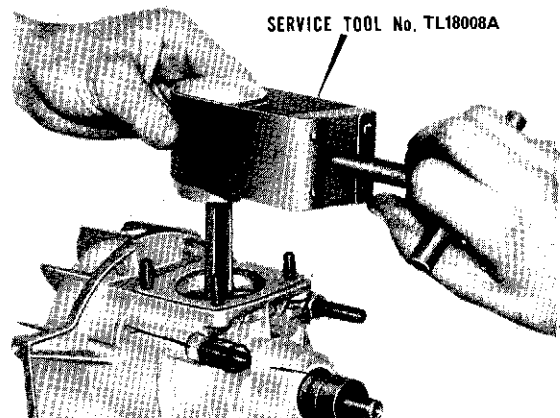


Fig. L21

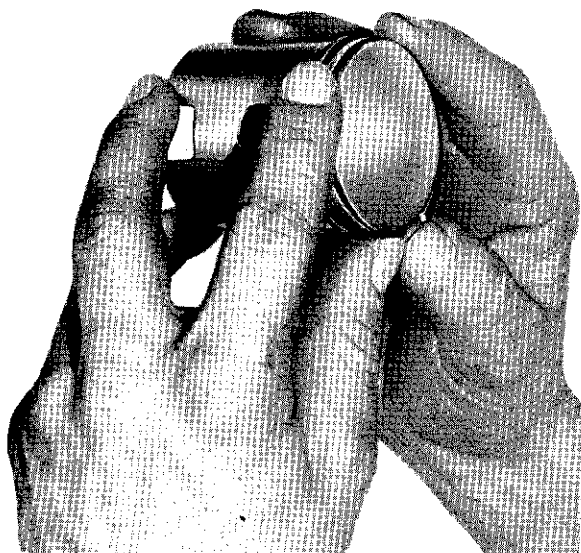


Fig. L22

- (b) Insert 3 thin strips of metal between the piston and the rings. Insert the strips one at a time and work them around the piston until they are equally spaced. The rings may then be eased up over the strips until they clear the piston (Fig. L23).

At this stage it would be advisable to check the clearance between the piston and cylinder bore; if the clearance is excessive, it would be desirable to rebores the cylinder and fit a new oversize piston rather than fit new rings, which might, if the cylinder bore is badly worn, become trapped in the ports and break.

The clearance may be checked in two ways:

- (i) With a micrometer, measure the diameter of the piston at the lower end of the skirt. The standard size at this point is 2.120", giving a clearance of .005" in the cylinder bore. If the piston measures 2.117" or less, the clearance will be excessive and the cylinder should be rebored and an oversize piston assembly fitted.
- (ii) Place the cylinder lower end up on the bench, and drop the piston without piston rings into it so that the head of the piston is down. Now see if it is possible to insert a .008" feeler gauge between the skirt of the piston and the

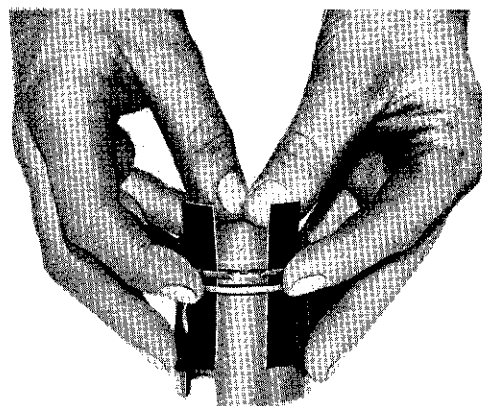


Fig. L23

cylinder wall; if this feeler or a larger one will go in, excessive piston clearance is indicated and the cylinder should be rebored and an oversize piston assembly fitted.

NOTE: Decompressor models are not effected by excessive clearance.

14. Before fitting new rings ALL carbon must be carefully removed from the piston ring grooves. To do this, break one of the old piston rings and file the end to a chisel point; the section of the ring may then be wedged in a file handle to provide a convenient scraper of just the right width. Scrape the carbon from the top of the piston, being careful not to damage the comparatively soft aluminium alloy. Wash the piston in clean kerosene and dry off with a clean cloth.
15. Check the gap of the new piston rings by placing each ring squarely in the lower, unworn end of the cylinder bore; the gap between the ends of each ring should be not less than .008" or more than .017". Carefully file the end of the ring if there is insufficient gap.
16. Assemble the new rings to the piston, using the three thin strips of metal if necessary, making sure that the cutaway for the ring peg is right way up. The crimped expander ring may be fitted last by feeding it between the ring joint into the lower groove.
17. Remove all carbon from ports in cylinder, being careful not to mark bore. Do not file or alter the shape of ports, otherwise the efficiency of cylinder may be destroyed. Clean off all traces of old gaskets and wash cylinder in clean kerosene.
If cylinder has port covers clean these and use a rule to check whether port covers are warped; if they are, lap joint face as per

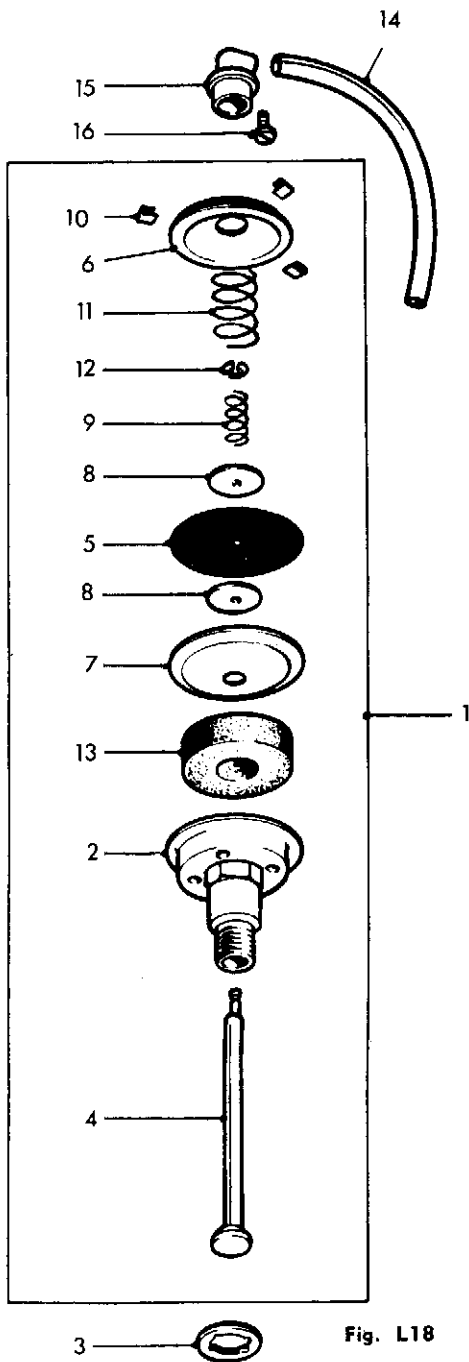


Fig. L18

OPERATION OF THE VALVE

When the engine is at rest the spring (11) in the exploded view, places a load on the top diaphragm washer (8) and holds the valve off its seat.

As the engine is pulled over with the starter, the passage of gas past the valve gradually forces it onto its seat, the engine then fires and starts.

The vacuum pipe (14) is connected to the cylinder inlet manifold, the resulting vacuum working in conjunction with the diaphragm holds the valve on the seat while ever the engine is running. When the engine stops the vacuum drops, then the spring (11) takes over and pushes the valve off its seat again ready for the next start.

PARTS LIST

Item No.	Part No.	Qty.	DESCRIPTION
1	1-1044	1	Decompressor assy.
2	1-1045	1	Body and filter housing assy.
3	1-1052	1	14 mm plug gasket.
4	1-1046	1	Valve.
5	1-988	1	Diaphragm.
6	1-990	1	Diaphragm cover.
7	1-991	1	Diaphragm plate.
8	1-989	2	Diaphragm washer.
9	1-992	1	Diaphragm spring.
10	1-998	3	Diaphragm clip.
11	1-995	1	Valve control spring.
12	3-336	1	Retainer.
13	1-994	1	Filter element.
14	1-999	1	Vacuum pipe.
15	1-996	1	Vacuum pipe nozzle.
16	C20-225	1	Screw.

COMPRESSION

It is important to note that compression cannot be checked without isolating the decompressor.

This may be done by removing the vacuum pipe at cylinder inlet and attaching a length of fuel line to the vacuum pipe, whereupon sucking gently will close the valve. The following operation to test compression can then take place.

Every time a two-cycle engine is serviced both the combustion chamber and crankcase compres-

ion should be checked. To do this open the throttle, disconnect the spark plug lead and turn the mower on its side. The engine shaft can then be revolved by turning the blade holder manually. In each revolution there should be two positions where resistance or compression is felt. One is when the charge in the combustion chamber is being compressed, the other when the charge in the crankcase is being compressed. The combustion chamber compression is much the higher of the two.

With a little practise spread over a number of engines with varying degrees of wear, it soon be-

comes possible to form a good idea of an engine's condition.

If little or no resistance is felt when turning the engine it should be dismantled for further examination so that a decision may be made to rebore or merely fit new piston rings.

CYLINDER AND PISTON

If the cylinder bore is polished and free from scores the decision rests on the condition of the piston. Providing the piston is free from scores and that its skirt size is such that the clearance between this and the cylinder bore does not exceed .008", the fitting of new piston rings would restore most of the efficiency.

If the piston to cylinder bore clearance exceeds .008", the cylinder should be rebored and an oversize piston fitted.

NOTE: Decompressor models are not effected by excessive clearance.

Never fit a new piston in a worn two-cycle cylinder. This type of cylinder wears to a barrel shape, large in the middle, tapering to each end. No matter how good the cylinder bore appears to be, it should be rebored and have an oversize piston fitted to obtain full value from the piston.

EFFECT OF DUST

Dust is the worst enemy of the internal combustion engine; it causes rapid wear on the piston skirt resulting in the loss of the pumping effect necessary for the induction of the fuel/air mixture.

The symptoms exhibited by an engine damaged by dust are:—

1. Little or no crankcase compression but some combustion chamber compression. The worn piston skirt fails to seal the inlet port, not enough fuel/air is taken into the crankcase. The piston rings, if chrome plated, retain some sealing effect in the early stages of dust damage.
2. The engine hard to start or will start only after removal of air filter and/or muffler. Removal of these parts takes the load off the pumping section, piston skirt and ports.

REMEDY FOR WORN CYLINDER

When dust damage occurs it is necessary to rebore the cylinder and fit an oversize piston. This gets rid of the dust impregnated surface of the cylinder bore and so provides a clean surface for the new piston to run on.

As the dust would be distributed throughout the engine, the crankcase should be dismantled and a thorough cleaning job carried out, not forgetting the inside of the snorkel and carburettor bore.

Causes of dust entry are: punctured, torn or poorly fitted snorkels; punctured filter elements (people poke holes in them or use unnecessary force in cleaning).

PREVENTION OF WEAR

Make sure that filter elements, snorkels and all other parts of the induction tract are maintained in good condition according to the manufacturer's instructions.

REMOVING ENGINE FROM THE CHASSIS

1. Slacken off clamp screw and remove carburettor.
2. Disconnect H.T. lead, tip the mower on its left side.
3. Place ring spanner (S.A.E. 1" or S.A.E. 13/16") over the blade holder nut.
4. Steady the spanner and the blade holder with one hand, tap the handle of the spanner with a hammer (see Fig. L19) and remove nut and blade holder. When refitting the blade holder, finally tighten the nut by tapping the spanner with a hammer in the reverse direction.

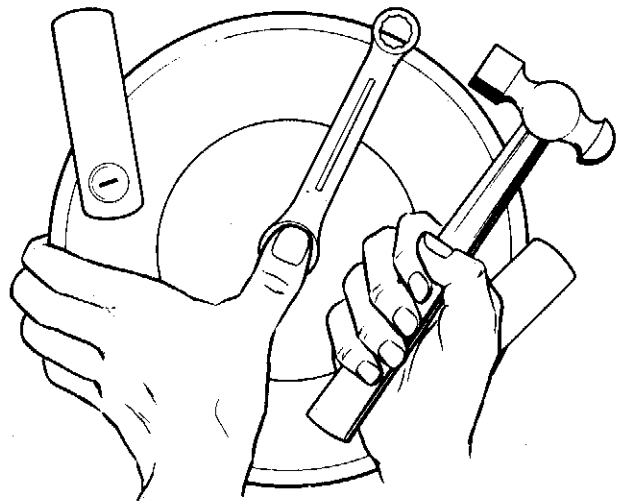


Fig. L19

5. Remove nuts from engine mounting bolts.
6. Set mower back on wheels and lift engine clear of base plate.
7. The tapered sleeve may be removed by holding the assembly so that the side of the tapered sleeve rests on a solid steel block. Hammer blows on a punch will jar the tapered sleeve loose.

DECARBONISING AND FITTING NEW RINGS

IMPORTANT—Clean engine thoroughly before dismantling.

1. Turn the petrol tap off.
2. Remove the fuel line from the carburettor.

BASIC TWO-CYCLE ENGINE OPERATION

The Victa two-cycle engine operates on the loop scavenge principle, utilising the crankcase as a compressor in its cycle of operations, and the piston to close or open the various cylinder ports as required. As the piston ascends on the compression stroke it creates a vacuum in the crankcase. When the stroke is almost completed the lower edge of the piston uncovers the inlet port in the cylinder to which the carburettor is attached. At this stage atmospheric pressure causes a charge of fuel and air to enter as a gas below the piston and more or less fill the crankcase. (See illustration A, Fig. L17.)

Just before the piston reaches top dead centre, a spark occurs across the points of the spark plug, igniting the gas in the combustion chamber (see illustration B) so that maximum combustion pressure occurs as the piston reaches the top of its stroke, thrusting the piston down on the power stroke. As the piston descends, its lower edge seals off the inlet port, cutting off the entry of the gas mixture, and compression of the mixture in the crankcase commences. As the power stroke of the piston continues, the exhaust port in the cylinder is uncovered and the burnt gas escapes into the muffler. (See illustration C.) At this time the top openings of the transfer passages are uncovered and because the lower ends of these passages communicate with the crankcase, the gas mixture compressed there is discharged into the combustion chamber in such a way that the final dregs of burnt gas are blown through the exhaust port (this is called loop scavenge). (See illustration D.) The piston then reaches and passes bottom dead centre. As it ascends again it closes the transfer and exhaust ports, commences to compress the charge of gas in the combustion chamber, and the cycle is repeated.

As the fuel-air mixture contains a proportion of lubricating oil, it will be seen that all the moving parts of the engine are bathed in an oil mist at some stage of the operations, and the

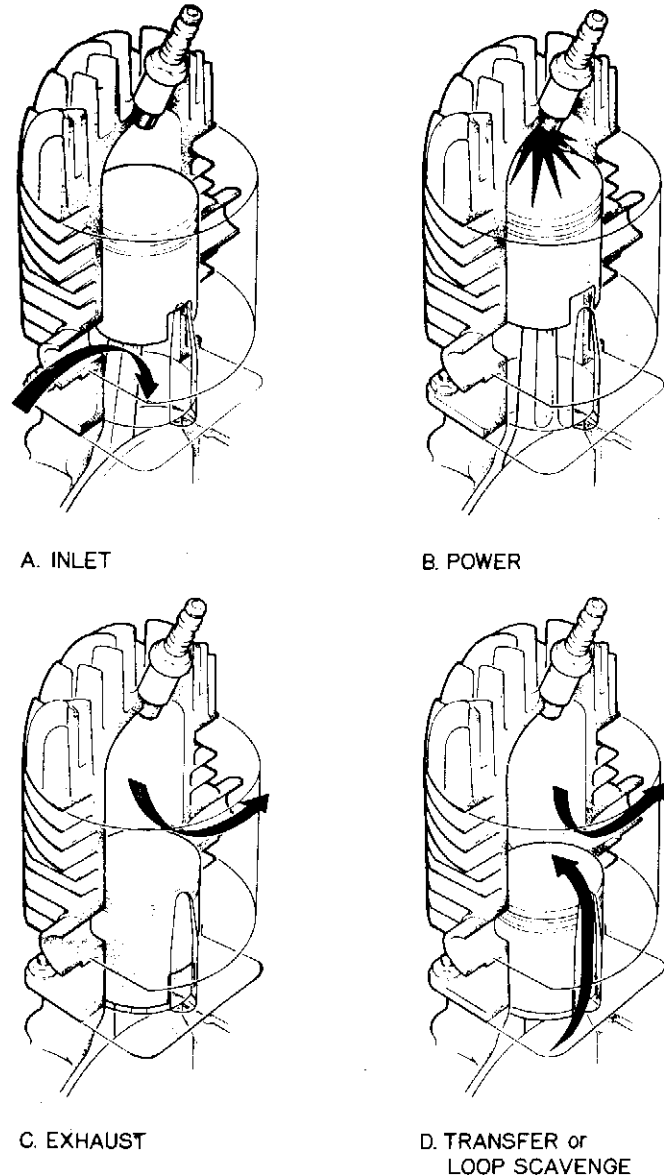


Fig. L17. Two-Cycle Engine Operation.

importance of having the correct grade of oil in the petrol in the right proportions will be readily understood.

AUTOMATIC DECOMPRESSOR ASSEMBLY

The decompressor is used in conjunction with a rewind starter on Victa two-stroke engines. The decompressor valve places far less strain

on the starting section of the engine and is much easier to start than engines fitted with the spring powered impulse starter.

cylinder head instructions—para. 18. Dry off parts and refit port covers to cylinder using new gaskets which should be coated on both sides with grease. Be sure that a new fibre washer is fitted on each port cover stud, then a plain washer and nut. Tighten nut firmly but not over-tight, otherwise port cover will be distorted.

18. Scrape the carbon out of the cylinder head and all trace of the old gasket from the joint face, taking care not to damage the surface of the aluminium alloy casting.

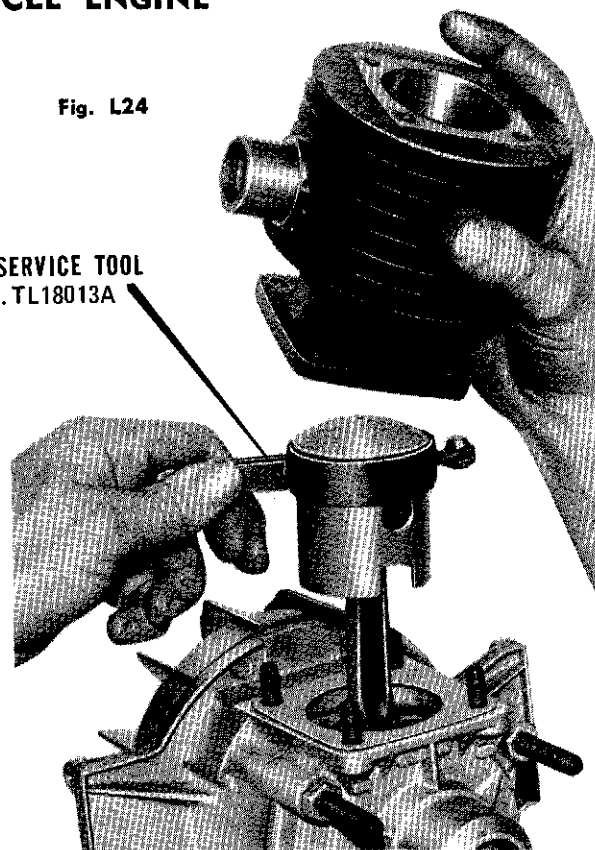
If the cylinder head joint face is warped, it may be reconditioned as follows:

Take a sheet of medium grade emery cloth and lay it on a perfectly flat surface, place the cylinder head face down on the cloth and work it backwards and forwards; keep the head flat down on the cloth and turn it 90° every few strokes. Examine the head at frequent intervals and cease the lapping operation when a clean, flat face has been secured. Wash the head in clean kerosene and dry off.

19. Clean the face of the crankcase and place over the studs the new cylinder base gasket (white); use dry, no oil or grease is required. Oil the small end bush and the gudgeon pin and refit the piston to the connecting rod, using the same care as was called for when dismantling. Carefully install the gudgeon pin circlips in the grooves in the piston. Piston ring pegs go toward exhaust port side in 125 c.c., to inlet port in 160 c.c.
20. For compressing the piston rings in their grooves while the cylinder is refitted, the use of a piston ring clamp, service tool TL 18013A is recommended, but a successful substitute can be made from a clean $\frac{1}{2}$ " wide metal strip. The strip should be 8" long. Put a 90° bend in it $\frac{3}{4}$ " from each end. There should be a gap of approximately $\frac{1}{4}$ " between the turned-up ends when the strip is wrapped tightly around the piston skirt.
21. Apply plenty of clean oil to the piston rings and to the bore of the cylinder. Locate the rings so that the gaps are lined up with the pegs in the piston and place the clamp or compression strip over the rings to pull them tightly into the grooves; use a pair of pliers if finger pressure is insufficient (Fig. L24). Slip the cylinder into place and use it to push the clamp or compression strip down off the rings. Place the cylinder on the crankcase studs and fit the 4 shakeproof washers and the nuts. Run the nuts down with the fingers and then tighten each one a little at a time until all are firmly and evenly tensioned; do not overstrain by applying all possible pressure to the spanner.
22. Lightly smear each side of the new head gasket with grease; use the grease to stick

Fig. L24

SERVICE TOOL
No. TL18013A



the gasket to the face of the cylinder head. Slip the washers on the cylinder head bolts and the bolts into the head; offer the assembly to the cylinder, enter the bolts and tighten evenly and firmly as with the cylinder base nuts.

23. Clean the spark plug and reset the gap to .025". Reassemble the remainder of the engine in reverse order to that adopted in dismantling.

DISMANTLING THE CRANKCASE.

1. Unscrew the four crankcase nuts and remove the crankcase bolts.
2. Tap the side of the crankcase with a hide hammer to break the seal.
3. Hold one half of the crankcase by hand and tap the end of the crankshaft with a hide or copper-faced hammer until the crankcase is removed. Repeat the above process for the other side.
4. It will be noticed that there is no sealing gasket between the crankcase halves, the seal being attained by coating the jointing surfaces with gasket cement on re-assembly. It is essential to make sure that there are no burrs on the matching surfaces. Ensuring a good seal between the crankcase halves is essential for the efficient operation of the motor.

Special precautions need to be observed when re-assembling the crankcase seals. Service tools are provided for this operation, P/Nos. TL18004A and TL18005A.

Engine—Early Type

on a perfectly flat surface; place the cylinder head face down on the cloth and work it backwards and forwards; keep the head flat down on the cloth and turn it 90° every few strokes. Examine the head at frequent intervals and cease the lapping operation when a clean, flat face has been secured. Wash the head in clean kerosene and dry off.

(20) Clean the face of the crankcase and place over the studs the new cylinder base gasket (white); use dry, no oil or grease is required. Oil the small end bush and the gudgeon pin and refit the piston to the connecting rod, using the same care as was called for when dismantling. Carefully install the gudgeon pin circlips in the grooves in the piston. Piston ring pegs go toward exhaust port side in 125 c.c., to inlet port in 160 c.c.

(21) For compressing the piston rings in their grooves while the cylinder is refitted, the use of a piston ring clamp, service tool TL 18013A is recommended, but a successful substitute can be made from a clean 12.7 mm (½ in) wide metal strip. The strip should be 203 mm (8 in) long. Put a 90° bend in it 19 mm (¾ in) from each end. There should be a gap of approximately 6.35 mm (¼ in) between the turned up ends when the strip is wrapped tightly around the piston skirt.

(22) Apply plenty of clean oil to the piston rings and to the bore of the cylinder. Locate the rings so that the gaps are lined up with the pegs in the piston and place the clamp or compression strip over the rings to pull them tightly into the grooves; use a pair of pliers if finger pressure is insufficient. Slip the cylinder into place and use it to push the clamp or compression strip down off the rings. Place the cylinder on the crankcase studs and fit the 4 shakeproof washers and the nuts. Run the nuts down with the fingers and then tighten each one a little at a time until all are firmly and evenly tensioned; do not overstrain by applying all possible pressure to the spanner.

(23) Lightly smear each side of the new head gasket with grease; use the grease to stick the gasket to the face of the cylinder head. Slip the washers on the cylinder head bolts and the bolts into the head; offer the assembly to the cylinder, enter the bolts and tighten evenly and firmly as with the cylinder base nuts.

(24) Clean the spark plug and reset the gap to 0.635 mm (0.025 in). Reassemble the remainder of the engine in reverse order to that adopted in dismantling.

DISMANTLING THE CRANKCASE

(1) Unscrew the four crankcase nuts and remove the crankcase bolts.

(2) Tap the side of the crankcase with a hide hammer to break the seal.

(3) Hold one half of the crankcase by hand and tap the end of the crankshaft with a hide or copper faced hammer until the crankcase is removed. Repeat the above process for the other side.

(4) It will be noticed that there is no sealing gasket between the crankcase halves, the seal being attained by coating the jointing surfaces with gasket cement on re-

assembly. It is essential to make sure that there are no burrs on the matching surfaces. Ensuring a good seal between the crankcase halves is essential for the efficient operation of the motor.

Special precautions need to be observed when re-assembling the crankcase seals. Service tools are provided for this operation, P/Nos. TL 18004A and TL 18005A.

The top oil seal is inserted from inside the crankcase. Drive the new seal into place with the drift section of TL 18004A. Place the tapered seal guide on the crankshaft to guide the shaft through the new seal when reassembling.

The lower oil seal is inserted after the crankcase assembly is completed. The tapered guide is placed in position on the lower crankshaft and smeared with a light film of oil. The seal is pushed on and is then tapped into position using the tubular drift.

CRANKSHAFT BEARING REMOVAL

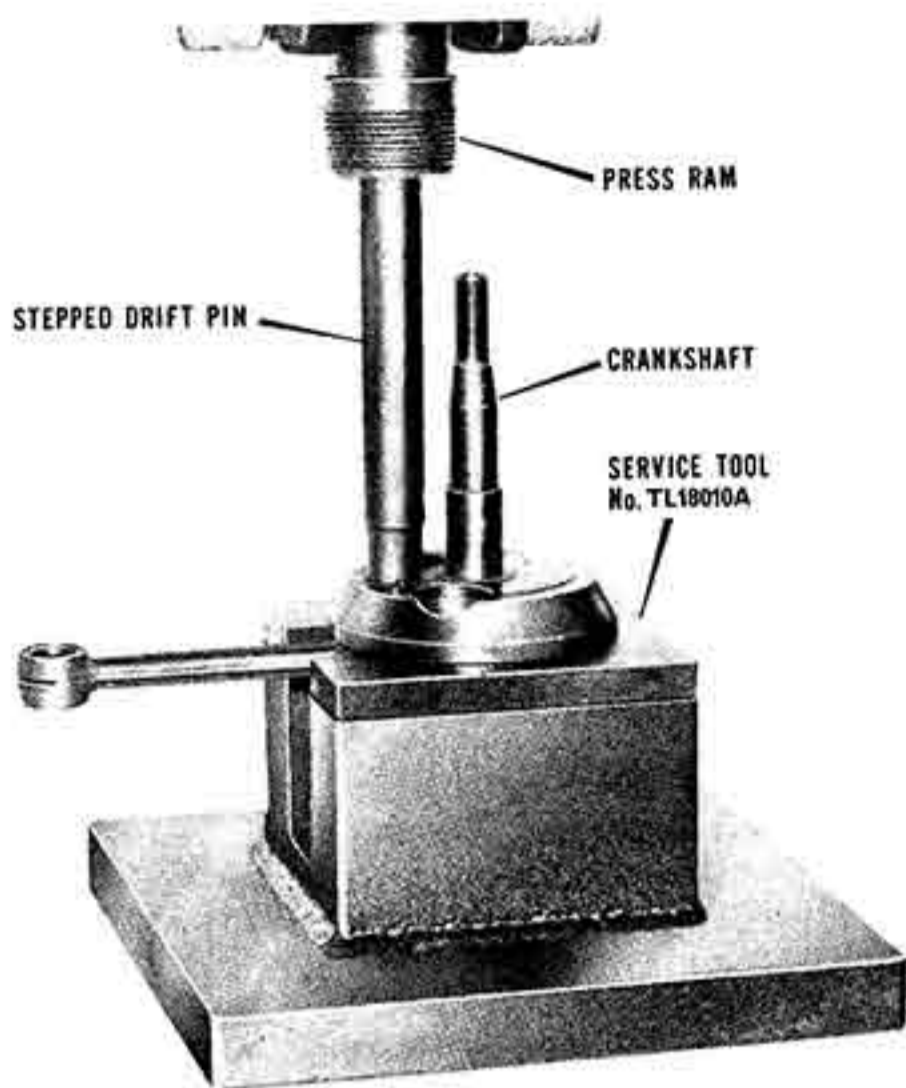
To remove the bearings in this particular case, it is preferable to use the Victa bearing removal tool, Part No. TL 18028A. The assembly and use of this tool are simple to complete.

Begin by placing the halves of the tool around the bearing and tighten into position with the pair of bolts and nuts supplied with the puller halves.



Remove the bearings from the crankshaft using a suitable puller.

Engine—Early Type



Press the crankpin from the crankshaft using the service tools and a press.

The two long bolts are then located into the centre bar slots and screwed into the puller halves. The large threaded bolt is then screwed through the centre bar to bear against the crankshaft end to affect removal of the bearing. If this tool is not available the bearings may be prised off with two screwdrivers.

DISMANTLING THE CRANKSHAFT

This operation requires the use of a hydraulic press or screw press in conjunction with a Victa crankshaft assembly jig No. TL 18010A.

(1) Place the spacer plate of the jig between the crankshaft halves, and set the crankshaft and spacer plate on the jig under the press. Place the stepped drift pin so that the small diameter fits the hole in the crankpin. Bring the press ram down so that it bears on top of the stepped drift pin, and apply gradual pressure until the crankpin has been pushed out of the top half of the crankshaft.

(2) Remove the connecting rod, caged rollers and thrust washers.

(3) Turn the crankshaft over and repeat Operation 1. This then completes the dismantling of the crankshaft.

ASSEMBLING THE CRANKSHAFT

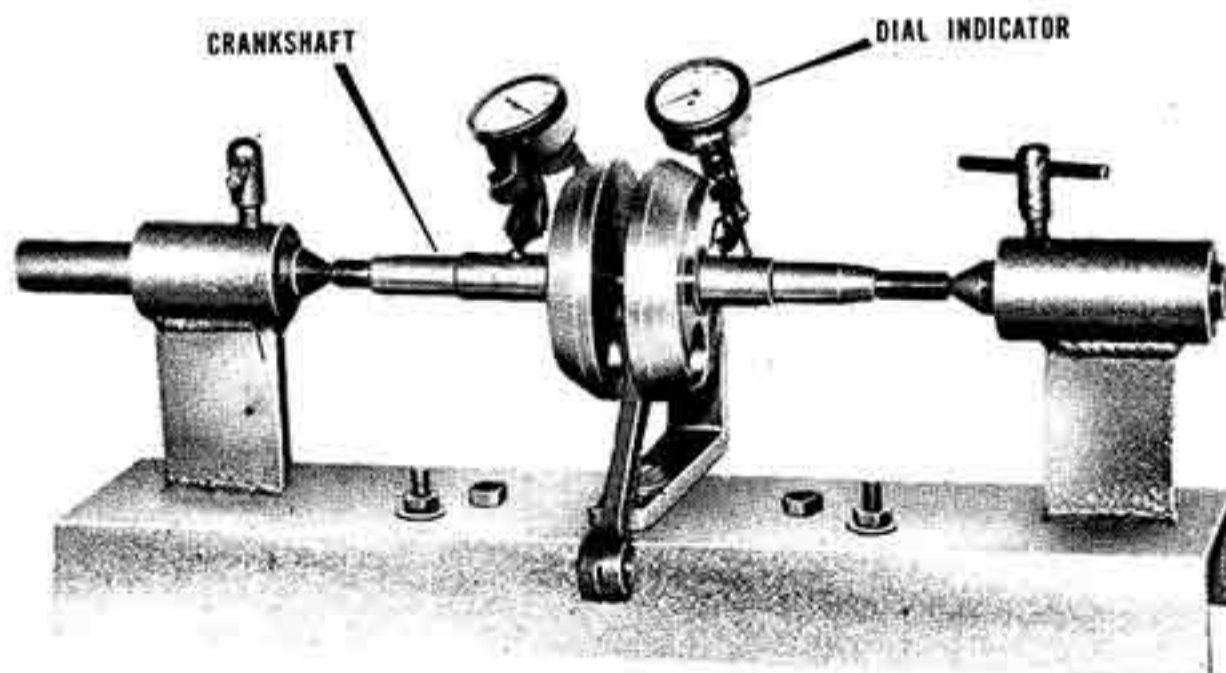
(1) Place the bottom crankshaft half in the jig with the shaft protruding through the centre hole in such a way that the crankpin hole is out of alignment with the offset hole in the jig. The crankpin is now placed in position and the press ram brought down, so pressing the pin into position.

(2) Thrust washers, caged rollers and connecting rods are then assembled.

(3) Place the top half crankshaft in position in the jig. The hardened adaptor block is then placed on the end of the stepped drift pin, set up over the crankpin hole. Bring the press ram down until the two halves have a clearance of not less than 0.203 mm (0.008 in) or more than 0.254 mm (0.010 in) between the connecting rod and the side of the crankshaft. The crankshaft assembly at this stage should have an eccentricity not exceeding .025 mm (0.015 in).

(4) The assembly is now placed either between centres in a lathe or in an alignment jig. With the aid of a dial indicator the crankshaft is brought into final alignment. Maximum tolerance of eccentricity to be not more than .025 mm (0.001 in) (total indicator reading).

NOTE: Late model Series 70-2-stroke motors have a modified crankshaft. Top and

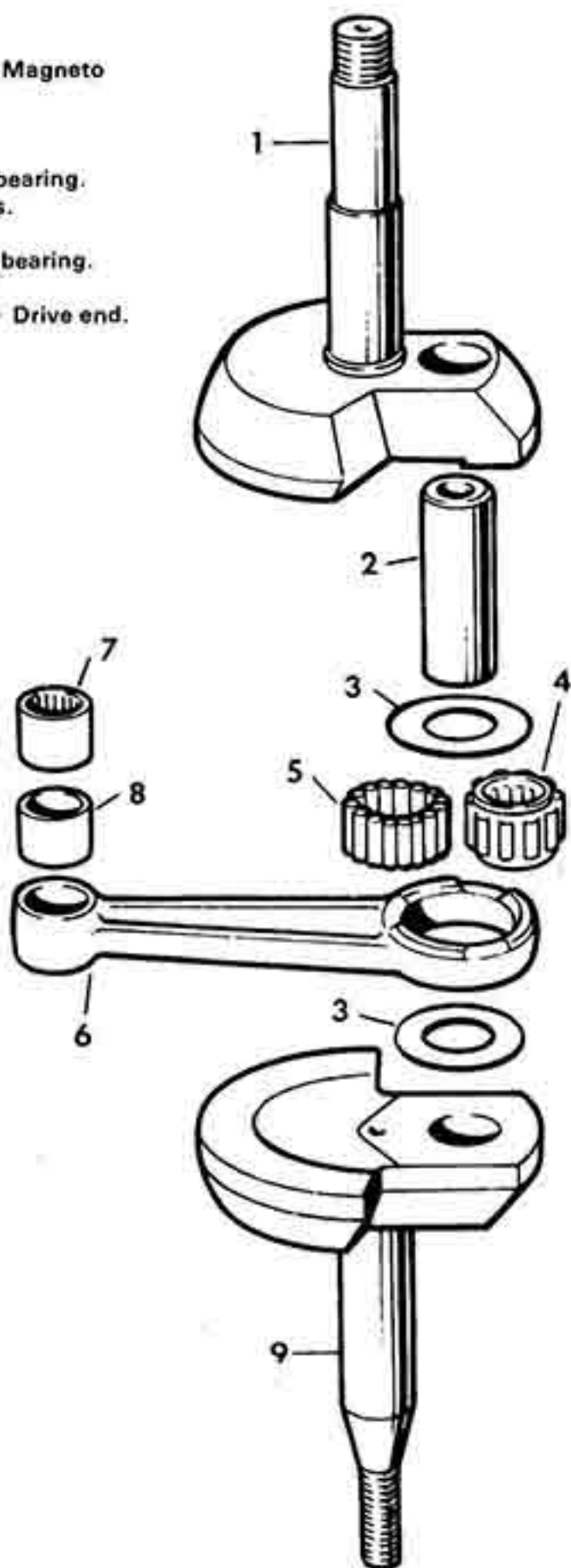


Check the eccentricity of the crankshaft between centres and using dial indicators.

Engine—Early Type

KEY

1. Crankshaft—Magneto end.
2. Crankpin.
3. Washers.
4. Caged roller bearing.
5. Needle rollers.
6. Conrod.
7. Needle roller bearing.
8. Bronze bush.
9. Crankshaft—Drive end.



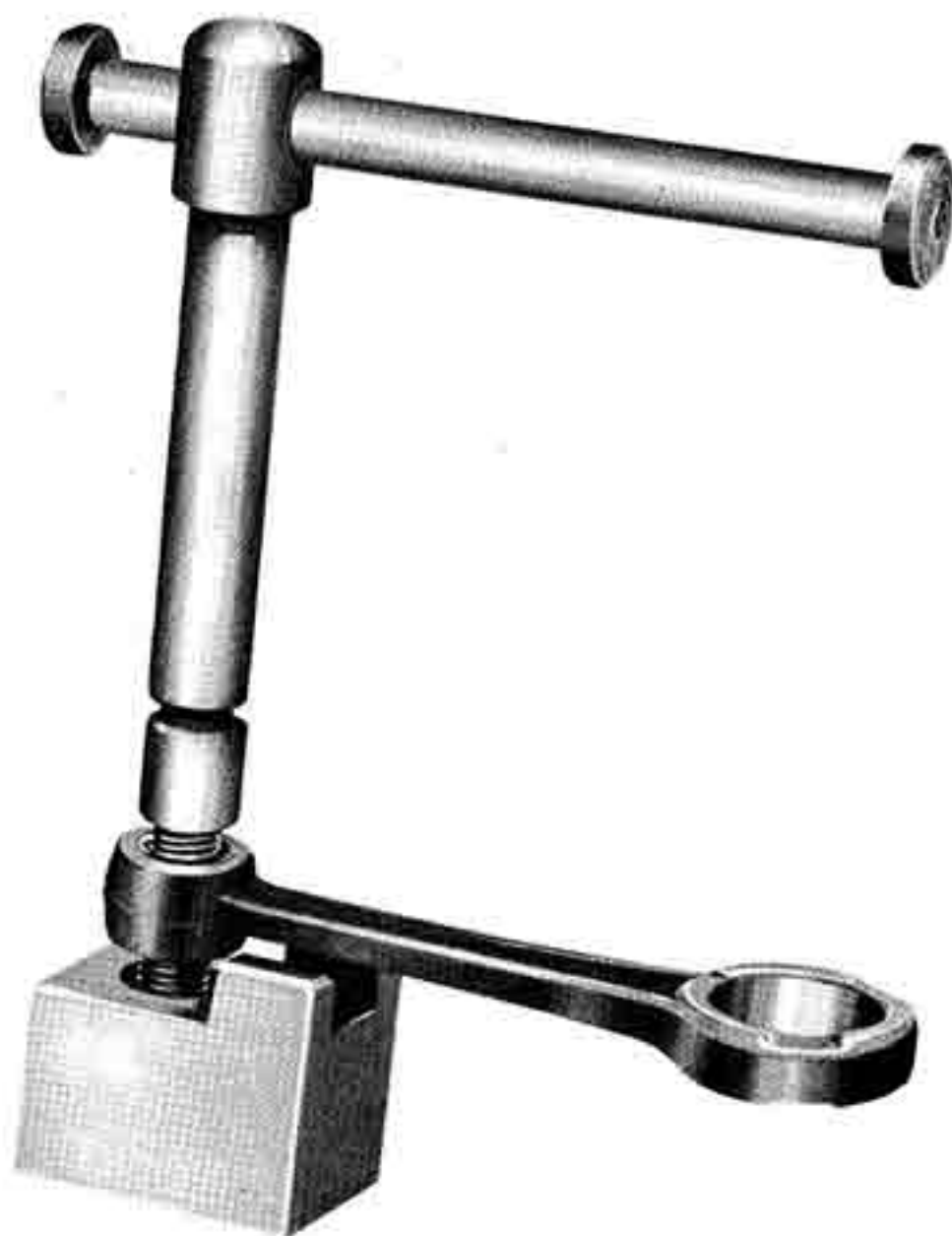
Dismantled view of crankshaft components.

bottom halves of the crankshaft change in shape but can be, if necessary, matched with the old type crankshaft half.

Further modifications are: The fitting of a caged roller big end assembly to both 160 c.c. and 125 c.c. engines. This replaces the set of 15 loose rollers. While the 125 c.c. engines conrod retains its small end bronze bush the 160 c.c. engines conrod is now fitted with a needle roller bearing to the small end. The new 160 c.c conrod with needle roller bearing fitted is interchangeable with those fitted to early 160 c.c. engines.

SMALL END BUSH REPLACEMENT

When replacing small end bushes, special tool TL 18008A should be used, placing new bush over threaded



Replacing the small end bush using the service tool.

shaft and passing the shaft through old bush and screwing into the block.

By turning screw handle the new bush will push the old one out, drill and cut oil slots and ream to a firm push fit.

With conrod in the centre of the gudgeon pin rest the pin over the top of vice jaws and tap around the outside of the conrod small end eye with a hammer. This will remove the high spots left by the ream.

The gudgeon pin should be now a light thumb press.

6. SERVICING THE 160 cc. ENGINE

TO REMOVE ENGINE FROM CHASSIS— SELF-PROPELLED MOWERS

NOTE: Servicing procedures for 160 cc engines are identical to those of the 125 cc engine except where specified in the following sections.

- (1) Remove the carburettor as outlined in the relevant section.
- (2) Disconnect H.T. lead and tip mower on left side.
- (3) Place a suitable ring spanner over blade holder nut, steady blade holder and remove nut by tapping handle of spanner. When refitting nut tap handle of spanner with hammer to fully tighten or, use an impact wrench.

Engine—Early Type

(4) Take off 3 nuts and washers, remove transmission cover, slip belt off tension pulley, run it off large pulley and remove. Take off 3 nuts and washers which retain engine mounting plate on base plate and lift engine clear.

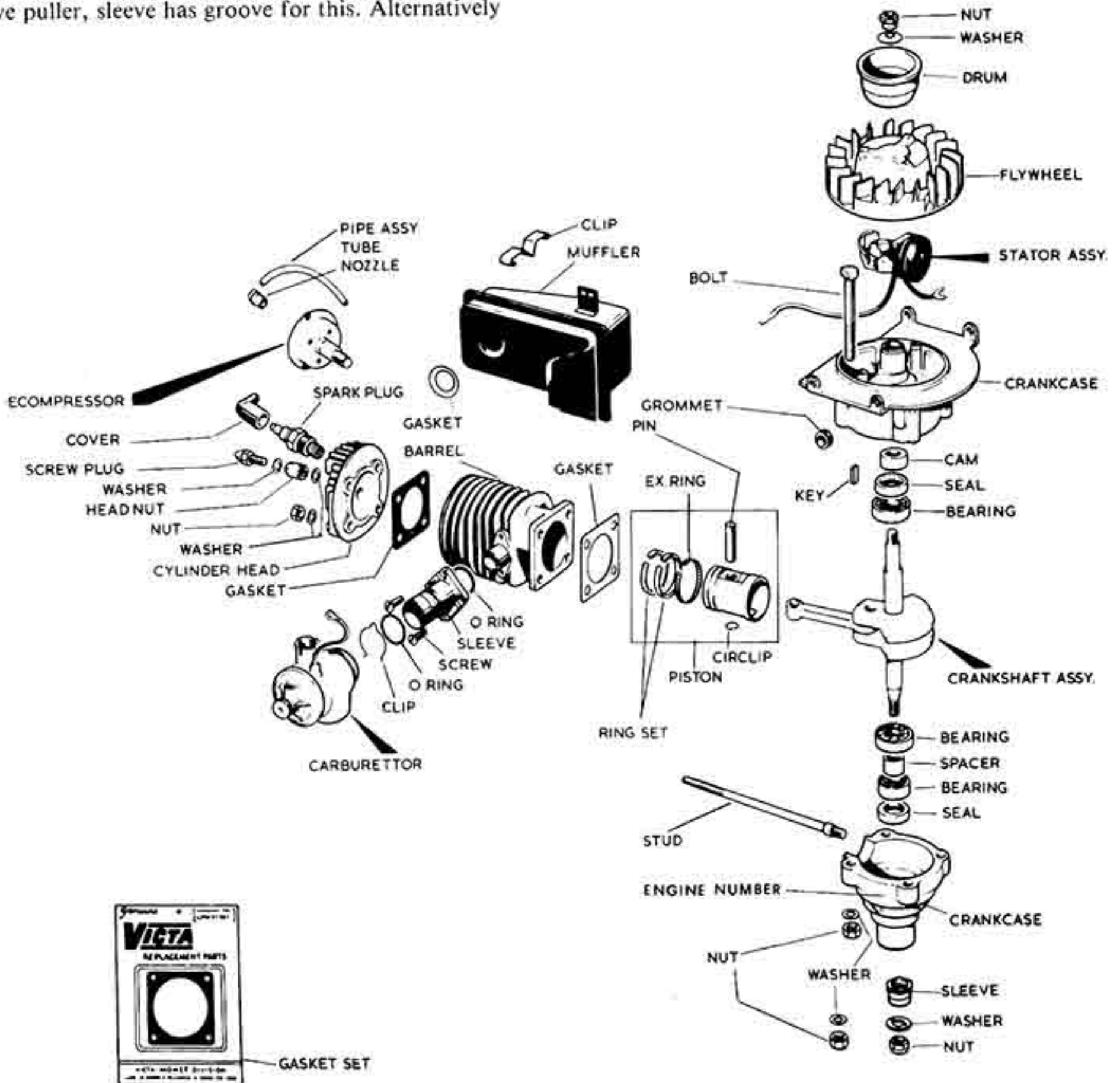
Decarbonising, piston ring fitting etc., follows the same lines as in the 125 c.c. engine. Special requirements of 160 c.c. engine are listed below.

TO DISMANTLE

(1) Remove 4 cylinder head nuts, take off cylinder head and slide cylinder off 4 long bolts. Remove circlips, gudgeon pin and take off piston.

(2) Take off tapered sleeve, this may be done with a sleeve puller, sleeve has groove for this. Alternatively

taper may be stretched, to do this hold assembly so that the tapered sleeve rests on a solid steel block, apply a heavy punch to top of sleeve, one or two hammer blows on punch will spring sleeve off taper. The aluminium drive pulley is a slight interference fit on crankshaft. To remove pulley warm it with a low oxy-acetylene or blow lamp flame, before doing so avoid fire risk by taking off engine cowl and large dust excluding washer on lower crankcase. Keep flame away from oil seal. After a few seconds heating pulley can be withdrawn by hand, using a piece of cloth to protect fingers. Remove engine mounting plate. Remove 4 nuts, take out crankcase bolts, split crankcase. Servicing of crankshaft and bearings is the same as in the Victa 125 c.c. engine.



Dismantled view of late model 160cc engine fitted with breaker point ignition. Typical.

Engine—Early Type

TO ASSEMBLE

Proceed in reverse order, when fitting drive pulley warm the pulley and slide it on shaft until there is a space of approximately 3 mm ($\frac{1}{8}$ in) between pulley and shoulder on shaft. Lightly drive tapered sleeve onto shaft making sure hexagon section engages in pulley recess, sleeve will force pulley right home on shaft, pulley does not butt against shoulder.

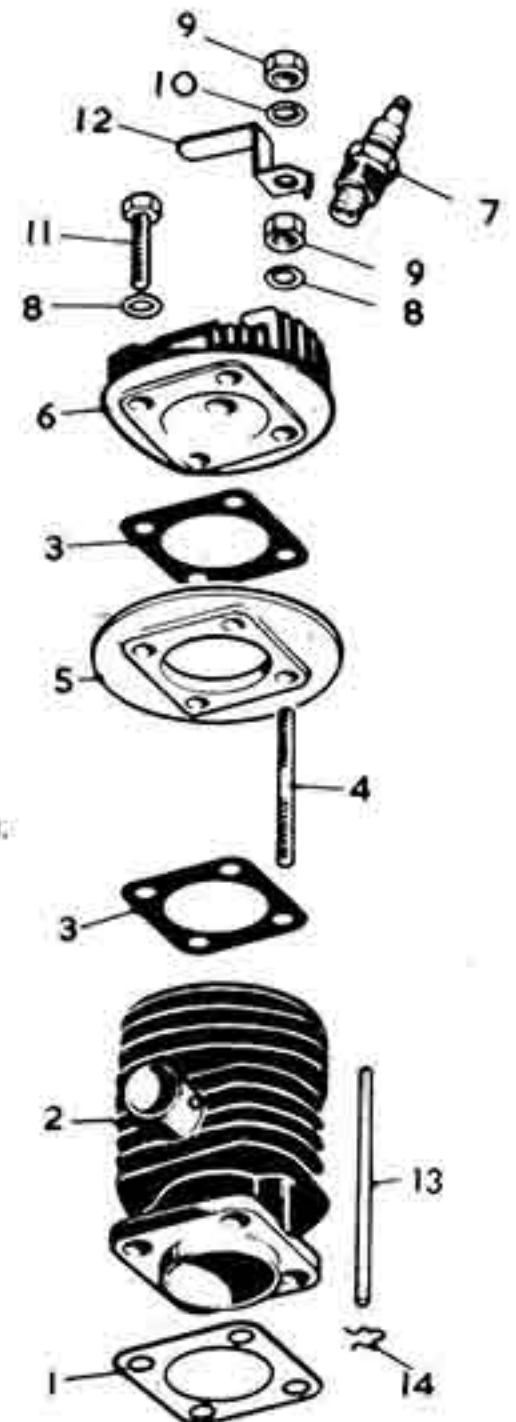
SPECIAL NOTES

When installing piston make sure that piston ring pegs go to inlet side, this is reverse to assembly order in 125 c.c. engine.

Use a collapsible strip type piston ring compressor such as Victa tool 18-013 when installing the cylinder block, this tool is easy to pull through long cylinder bolts after it is pushed down rings by cylinder.



View of cylinder head and cylinder barrel removed from 160cc engine. Early models.



KEY

1. Gasket.
2. Cylinder barrel.
3. Gasket.
4. Stud.
5. Spacer.
6. Cylinder head.
7. Spark plug.
8. Washers.
9. Nuts.
10. Washer.
11. Bolt.
12. Stop plate.
13. Muffer retaining clip stud.
14. Clip.

The Series 70 2-stroke engine when fitted to the Imperial mower range has a cylinder head spacer to reduce the compression ratio.

Engine—Early Type

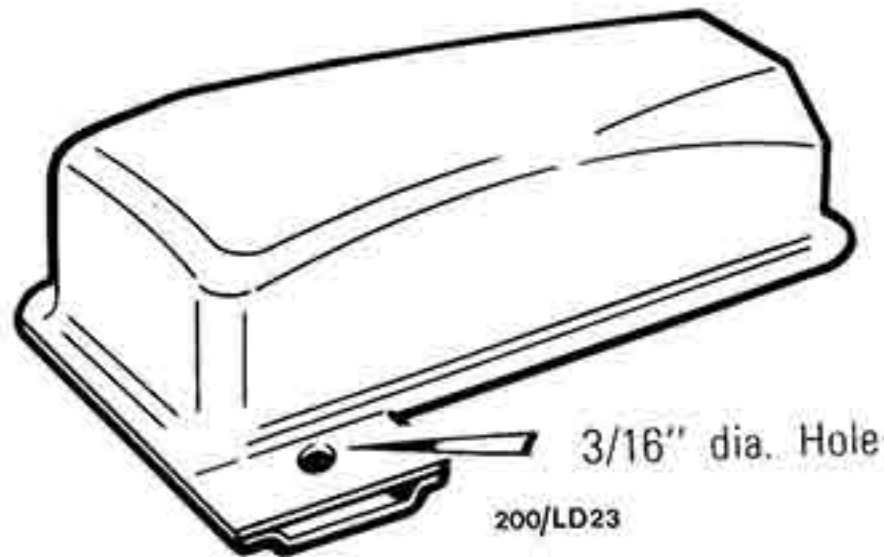


Illustration showing the hole in the muffler on the Powerplus engine to distinguish it from the muffler fitted to the standard engine.

Fit the cylinder head and use a tension wrench to tighten the cylinder head nuts, maximum tension is 12–15 Nm (9–11 ft lb). Any additional tension is likely to impair the head gasket seal and damage the cylinder head.

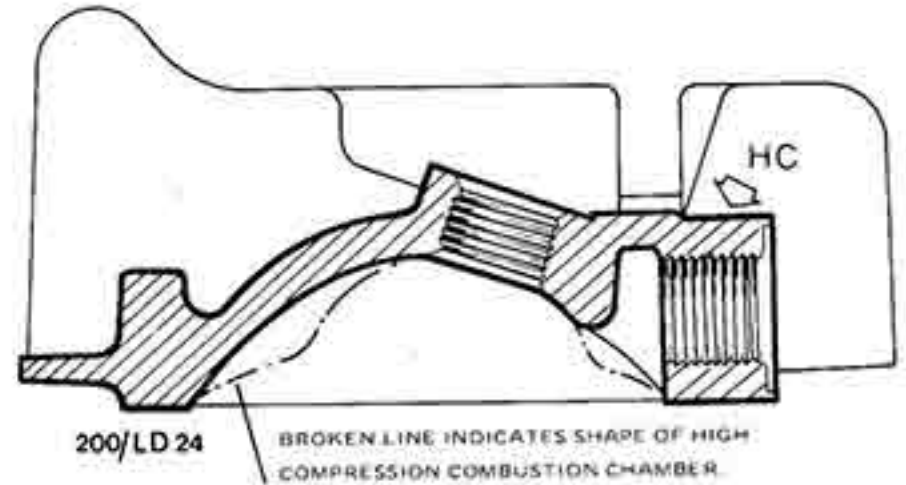


Illustration showing the difference between the Powerplus cylinder head and the standard cylinder head.

NOTE: The Series 70 motor when fitted to the Imperial mower range has a cylinder head spacer to reduce compression.

On mowers fitted with the Powerplus engine a different cylinder head and muffler are used. Under no circumstances should the muffler or cylinder head be interchanged between those components of other models.