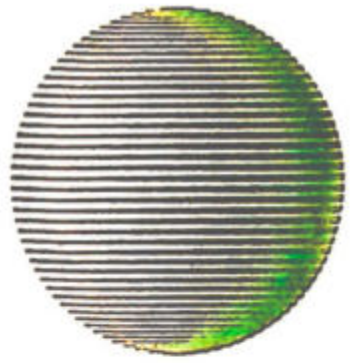
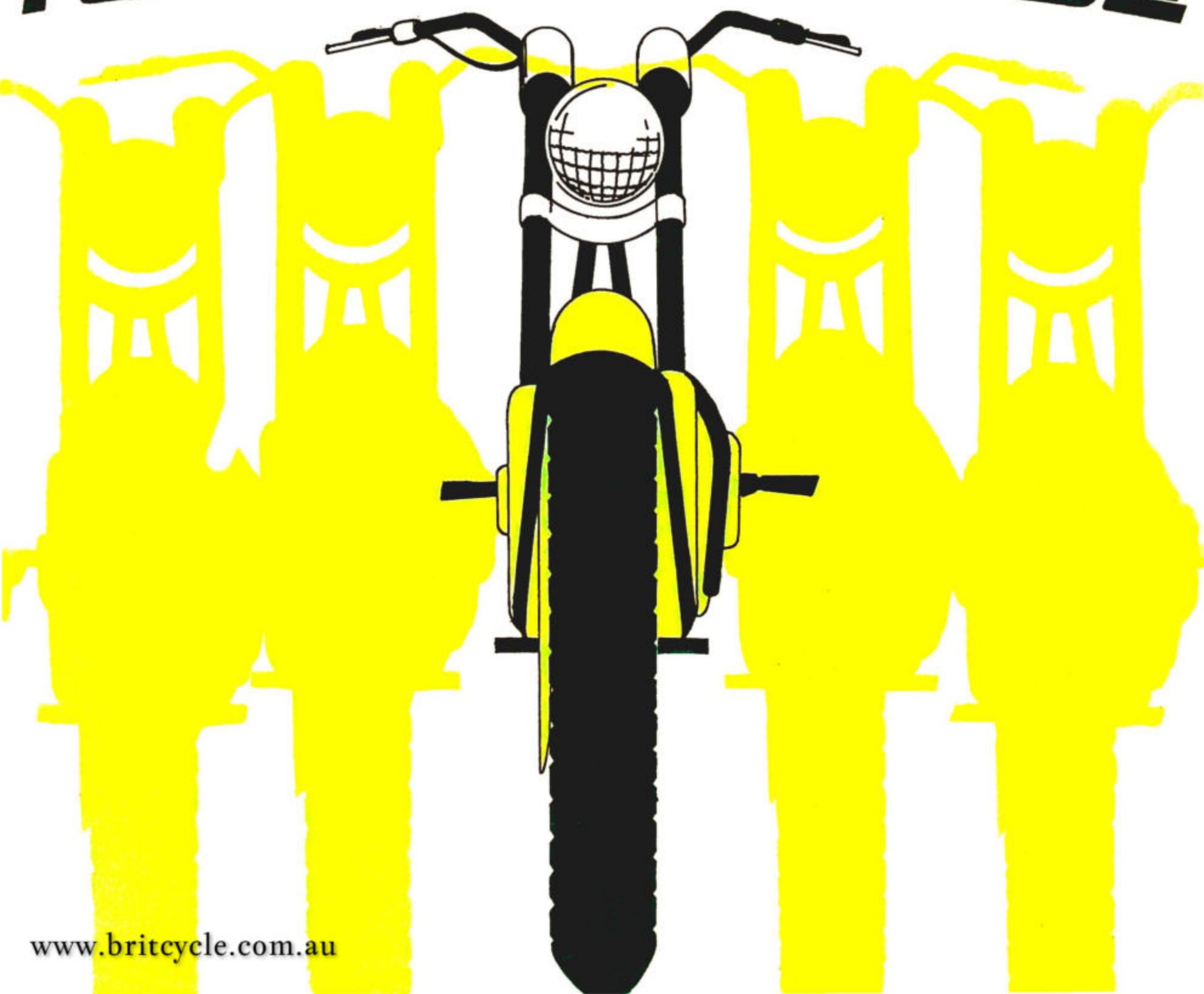


Norton

SERVICE TOOL CATALOGUE

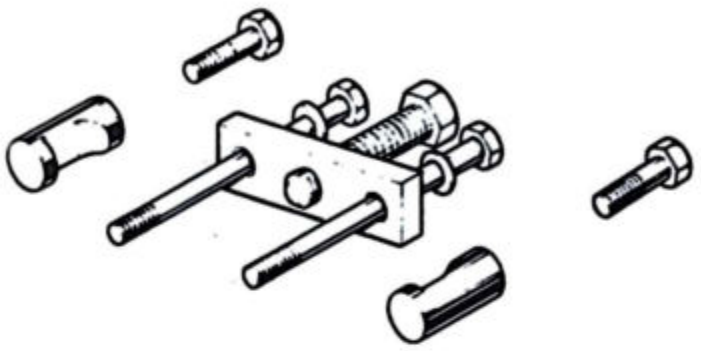


NORTON SERVICE TOOLS

PART No.	PAGE No.	DESCRIPTION
064297	1	ENGINE SPROCKET/CLUTCH HUB/ CAM SPROCKET PULLER
060949	2	AUTO ADVANCE LOCKWASHER
060999		CLUTCH SPRING COMPRESSION TOOL
064298	3	SLIDE HAMMER-ROCKERSPINDLE/ AUTO ADVANCE
061015	4	CLUTCH LOCK TOOL
061359		CONTACT BREAKER OIL SEAL TOOL
NM 12093	5	BOX SPANNER GEARBOX SPROCKET NUT/CRANKCASE FILTER
ET 2003		TIMING PINION EXTRACTOR
063964	6	VALVE GUIDE EXTRACTOR AND INSERTER
063965		PEG SPANNER WHEEL BEARING LOCKRINGS/MASTER CYLINDER END PLUG
064292	7	DRIFT AND HANDLE SET - CRANK-SHAFT/CONTACT BREAKER OIL SEALS
063968	8	EXHAUST PIPE LOCKRING SPANNER
063969		VALVE SEAT FACE CUTTER
063971	9	ISOLASTIC BUFFER ASSEMBLY TOOL
064622		STRAP WRENCH
063970	10	EXTRACTOR MAIN BEARING RACE

Norton

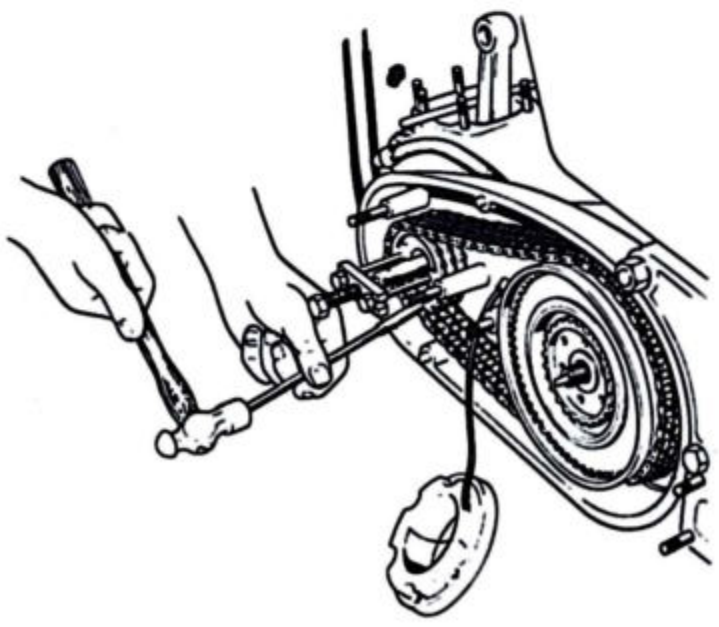
064297 Engine sprocket/clutch centre/camshaft sprocket tool.

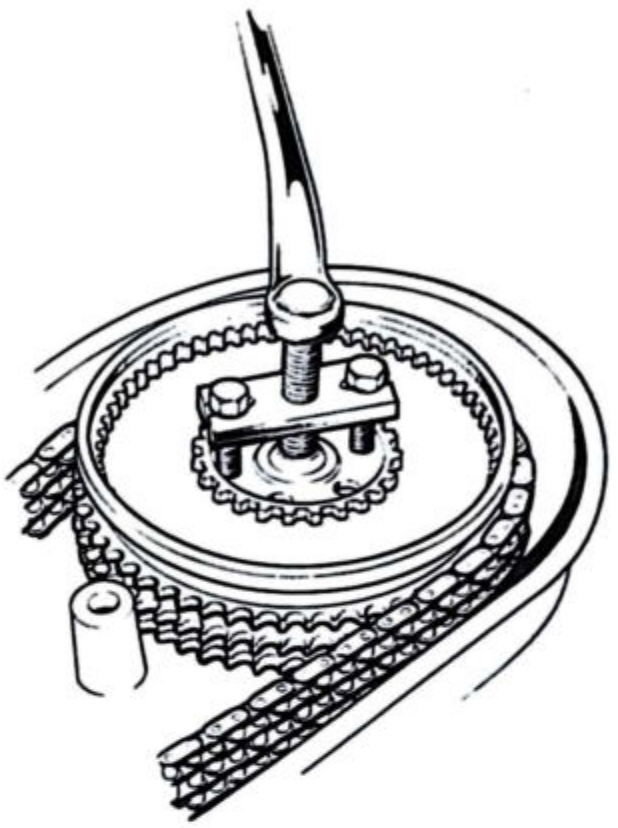


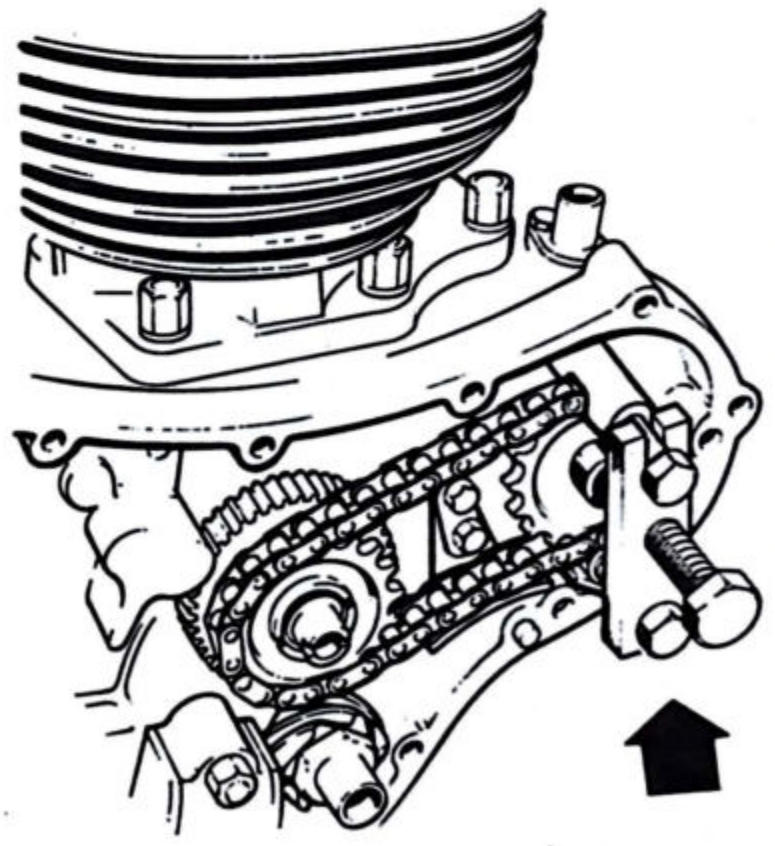
a) To withdraw engine sprocket – Assemble puller central bolt and long bolts. With alternator removed, position puller so that large central bolt is in line with crankshaft end. Screw long bolts into threaded holes in sprocket as deeply as possible. These bolts should be screwed in an equal amount so that the assembly is not cocked to one side. Tighten the centre bolt until considerable resistance is felt. Tap the sprocket smartly with a hammer and long drift; if this fails to free the sprocket, tighten the centre bolt and tap again. When the sprocket pulls free of the taper, the clutch can be slid off the transmission shaft and the primary chain/sprocket assembly removed.

b) To withdraw the clutch centre – Assemble the puller using the short bolts supplied. Screw these bolts into the threaded holes in the clutch centre an equal amount and tighten the central bolt. Since the clutch is fitted to a splined parellel bore (no taper), little effort should be needed to withdraw it.

c) To withdraw camshaft sprocket – Assemble puller with the short bolts supplied and two 061037 puller claws. Fit with a claw on either side of the sprocket and tighten central bolt to free sprocket from camshaft.



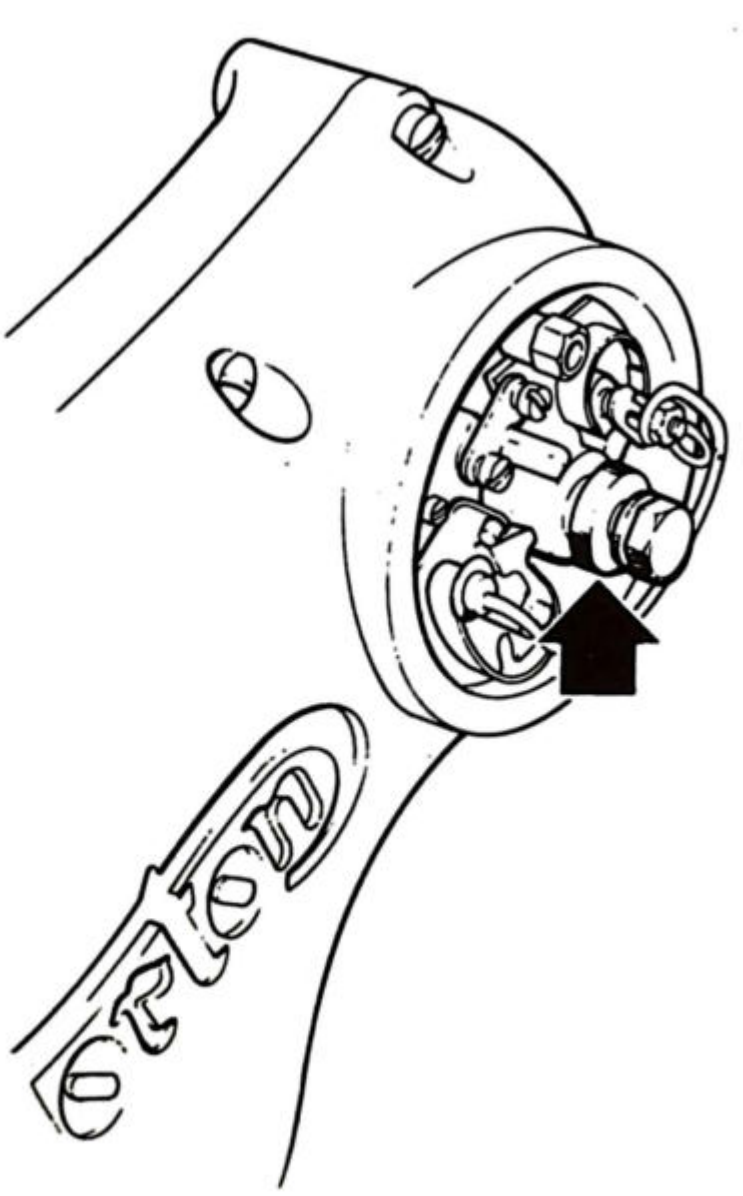




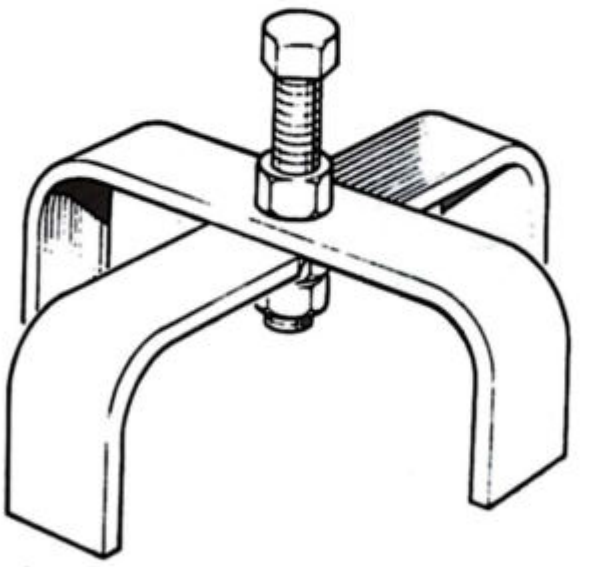
Norton

060949 Auto-advance lockwasher

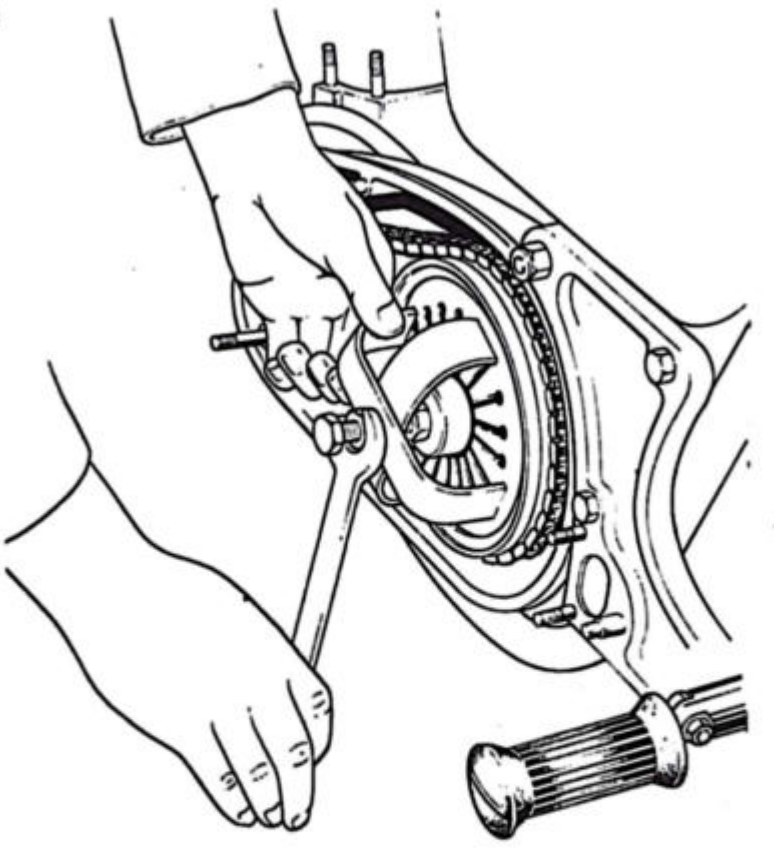
Remove centre bolt from auto-advance mechanism and withdraw washers. Fit the lockwasher with the cut-away side toward the point cam and replace centre bolt with washer . Turn points cam to the full anti-clockwise position and hold while tightening centre bolt. Proceed to set ignition timing in the usual manner. When removing the lockwasher, be sure that the advance mechanism is free and lubricated.



060999 Diaphragm clutch spring compression tool



Remove outer primary cover, release clutch adjustment locknut and remove threaded clutch adjuster. Screw centre bolt of tool into spring centre until well engaged. Tighten nut just under bolt head until the spring is free to turn. Do not overtighten this nut or the spring may be damaged. Peel the circlip from the groove around the outside of the spring and lift out the spring. Unless the spring is to be replaced shortly, release the tension of the withdrawal tool.

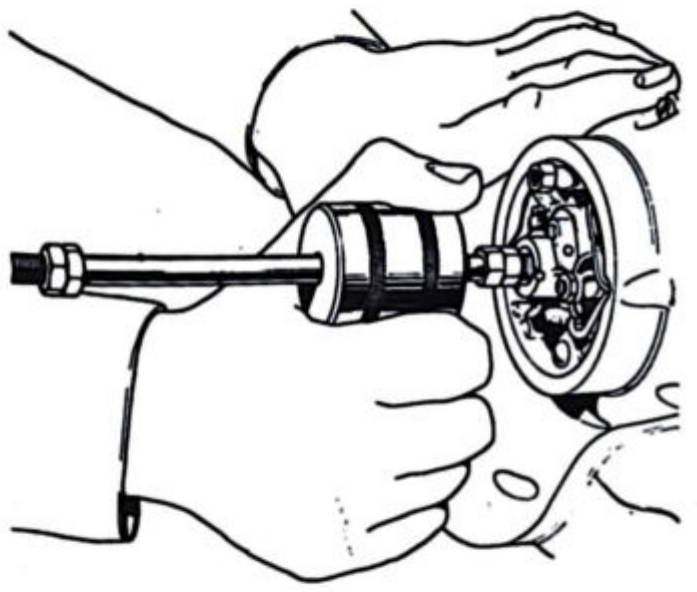


Norton

064298 Slide hammer

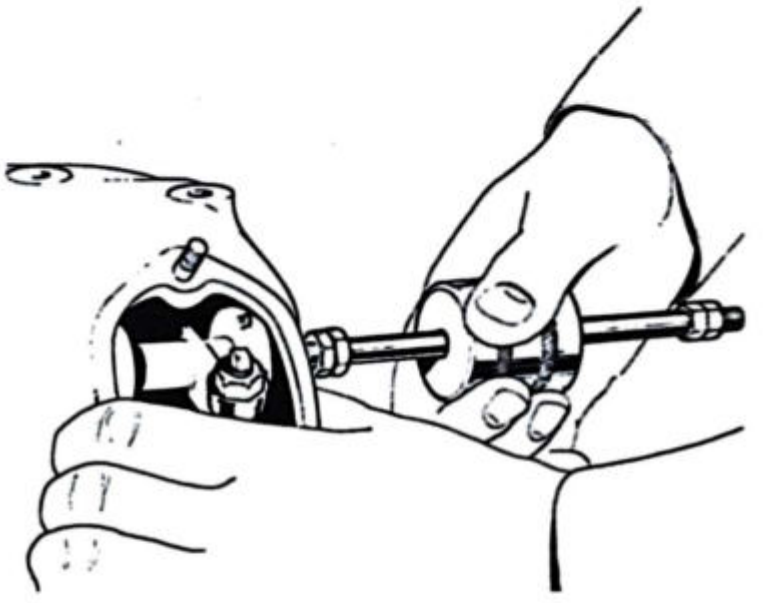
This tool removes the auto-advance cam and also the rocker spindles.

a) To remove the auto-advance cam, take out the centre bolt and washer from the auto-advance mechanism. Insert the correctly threaded end of the slide hammer rod into the auto-advance mechanism, ensure at least 3/8 in. (9.5 mm) thread engagement, tightening into position using the rod locknut. Grasp the sliding weight firmly in the hand and slide back sharply several times to deliver a series of blows on the slide hammer rod outboard nuts. The auto-advance cam will be dislodged easily by this method.



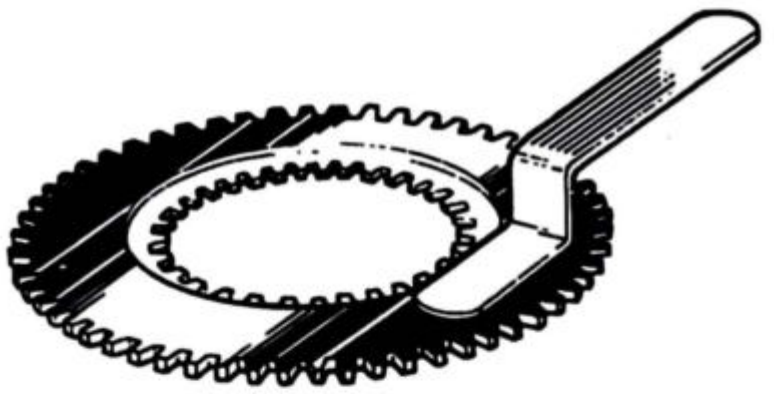
(b) To remove rocker spindle, take off the sealing plate, locking plate and gaskets, screw the slide hammer rod at least 3/8in. (9.5mm) into the spindle and use the slide hammer as described.

It will be appreciated that a range of adaptors can be made, by the individual fitter, for this tool to suit many other extractor applications.

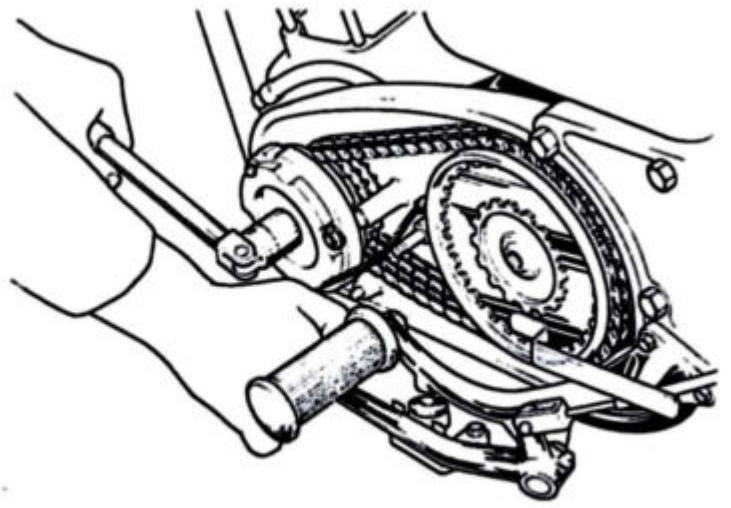


Norton

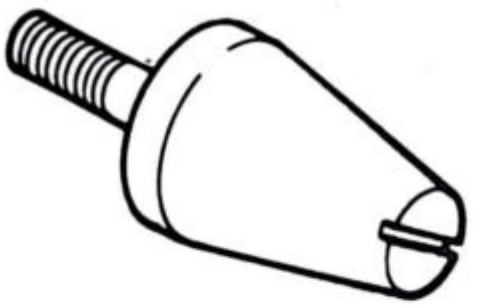
061015 Clutch lock tool



To lock the clutch with the spring removed, remove the pressure plate and the first two (or more) plates. Slide the tool into position in the clutch, making sure that full contact is made on all inner and outer splines. Engage fourth gear and apply rear brake to prevent engine from turning while removing alternator nut, oil pump drive nut, etc.



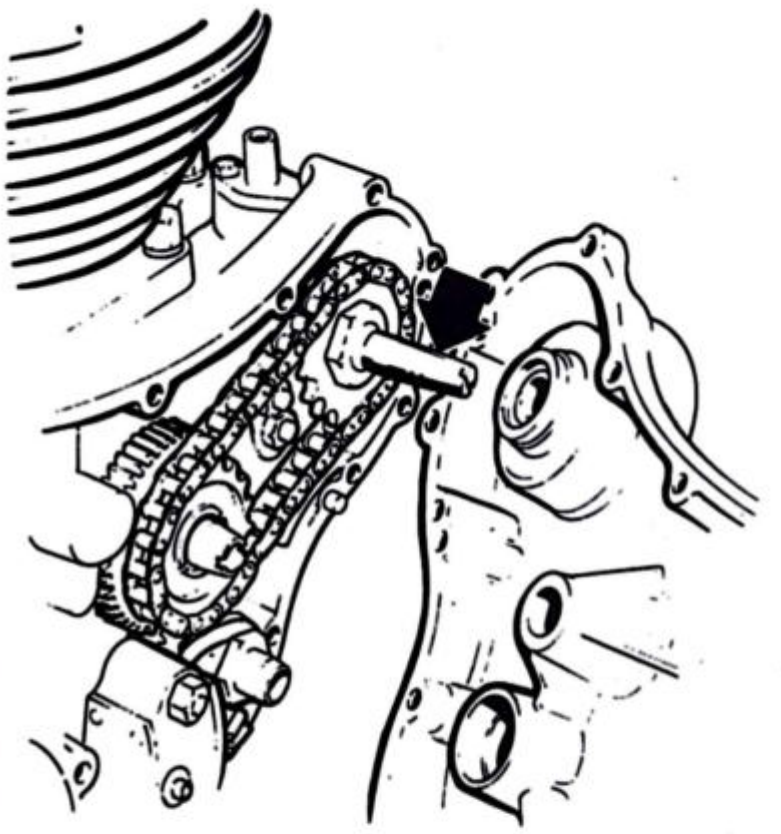
061359 Contact breaker oil seal guide



(included in the tool kit of each Norton Commando)

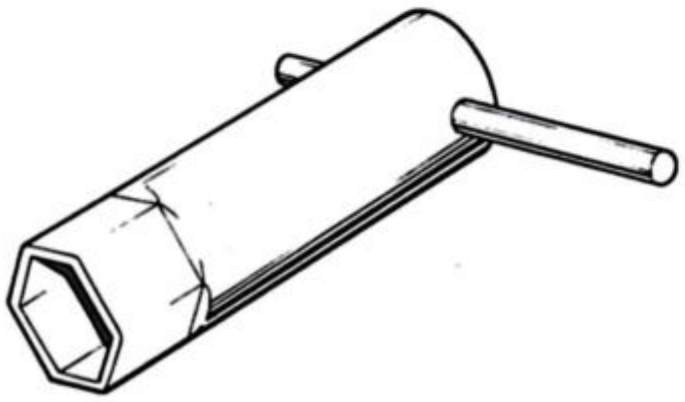
To prevent damage to the contact breaker oil seal in the timing cover, the seal guide should be used whenever the timing cover is to be replaced.

The guide is screwed into the end of the camshaft as far as possible and covered with a light film of oil. Inspect the seal for wear, cracks, and proper seating in timing cover; apply a thin film of oil to its sealing lip. Carefully align the timing cover with the camshaft (and guide) and the end of the crankshaft and push into position. Unscrew guide and withdraw. Continue assembly and retime ignition in normal manner.

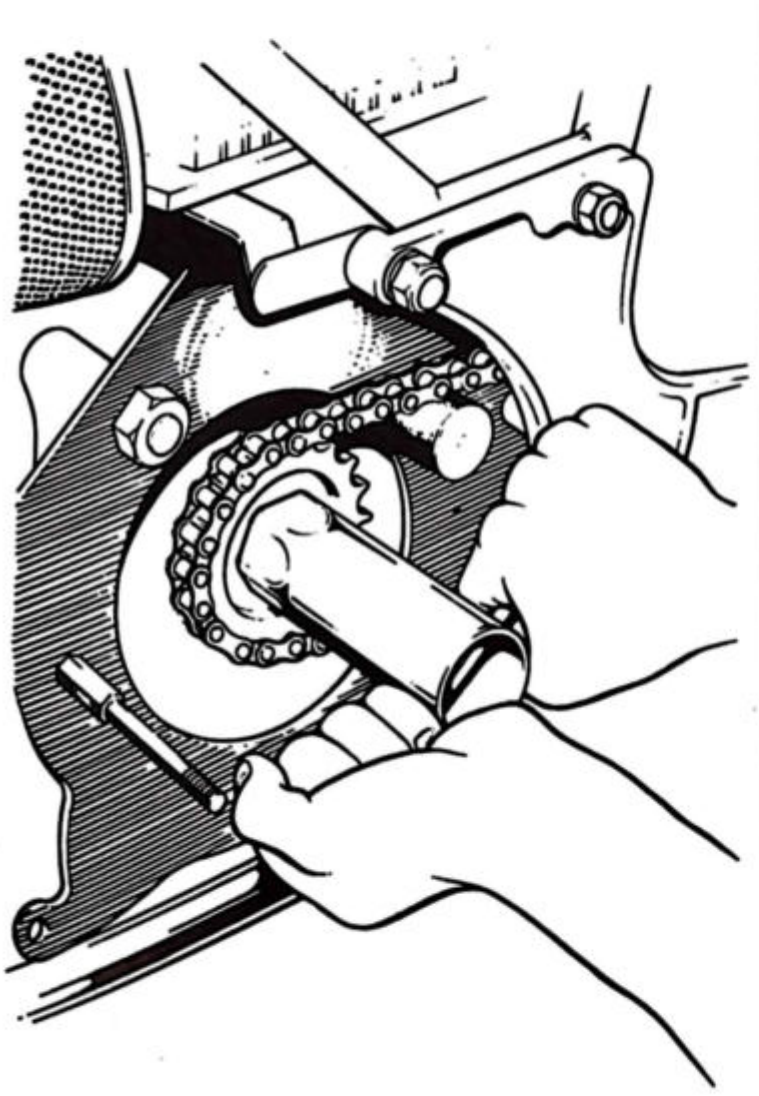


Norton

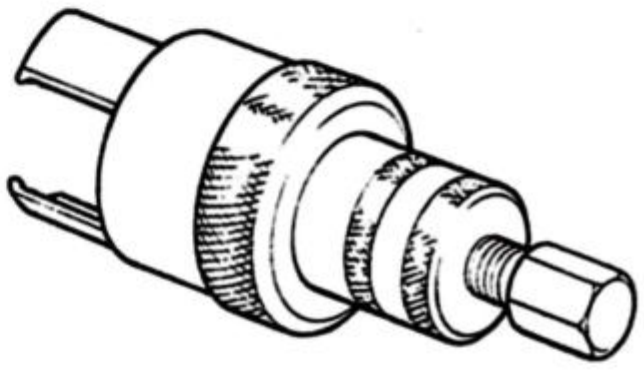
NM 12093 Box spanner



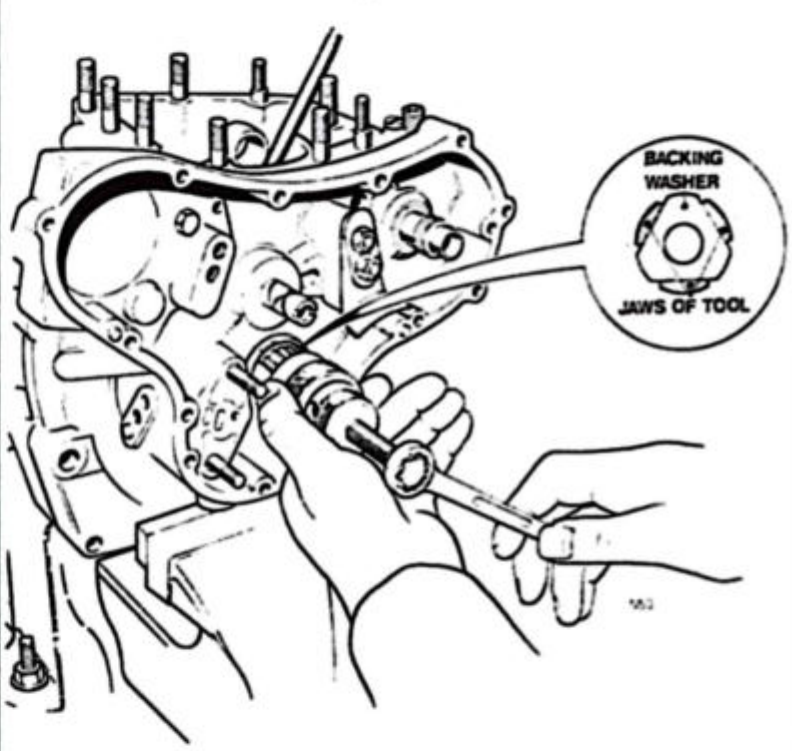
Made to B.S.F./B.S.W. 1in. form with section 1½in. across flats. This spanner is especially made to remove the large nut securing the countershaft sprocket and also fits the large sump plug/strainer fitted to certain models. When removing the countershaft sprocket nut, remember that this nut has a left-hand thread and must be replaced very tightly – 80ft. lbs. torque.



ET 2003 Timing pinion extractor

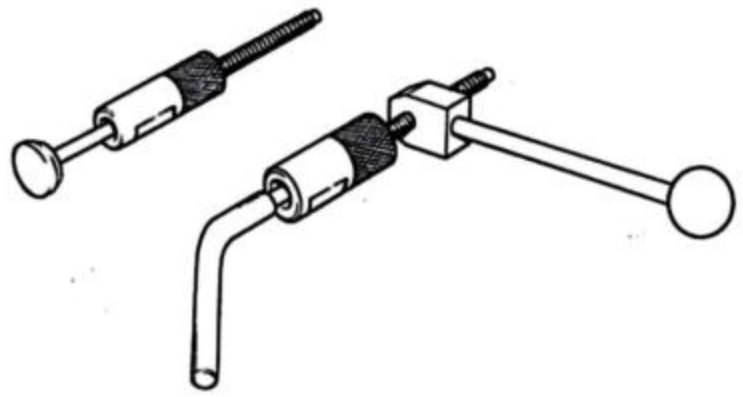


Fit the extractor over the timing end of the crankshaft and engage the three claws behind the pinion gear. Tighten the large outer knurled ring as firmly as possible. Screw in the large bolt to extract the pinion.



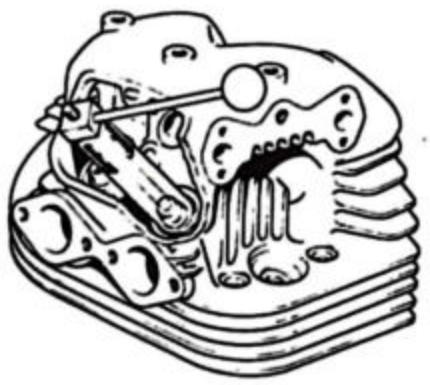
Norton

063964 Valve guide extractor and inserter

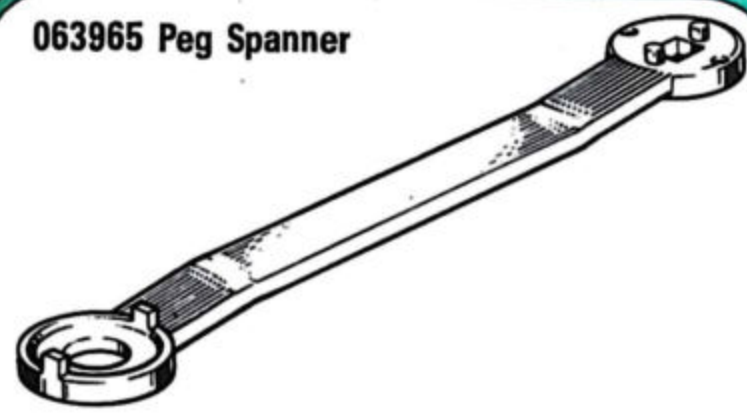


To remove valve guides (assuming that head has already had rockers and valves removed), heat head to about 150 to 200° C. From the outside of head, place the adaptor marked "EXTRACT" hollow end down over the guide. Fit the long threaded stem with the cranked handle through the guide from the combustion chamber. Screw the handle down the threaded portion of the stem and the guide will be pushed from the head into adaptor portion of the tool. Repeat the process for other guides.

To insert valve guides, heat the head to about 150° - 200C. Place the long stem with the conical fitting at the end into the cylinder head so that the conical fitting aligns with the valve seat and the long threaded portion projects out through the rocker box. Lightly oil the guide outer surface and guide bore. Slide the new valve guide, tapered end first, onto the stem, followed by the adaptor marked "INSERT", hollow end first. Fit the handle and screw home to push the guide fully into the head. Repeat for the other guides.



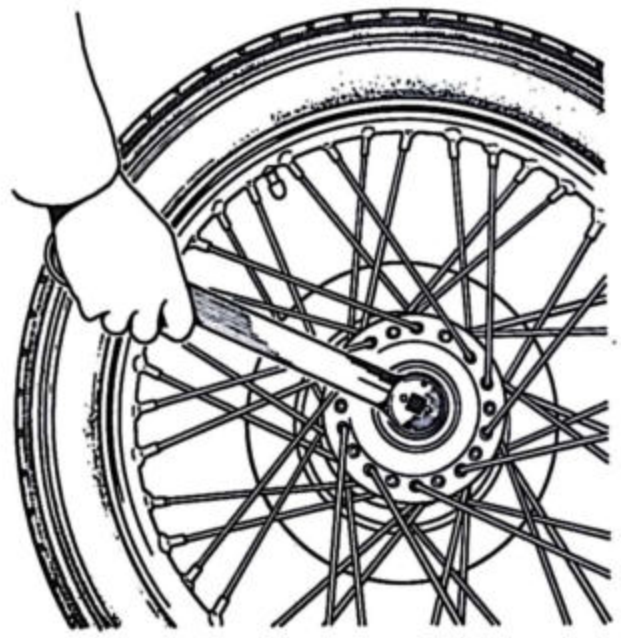
063965 Peg Spanner

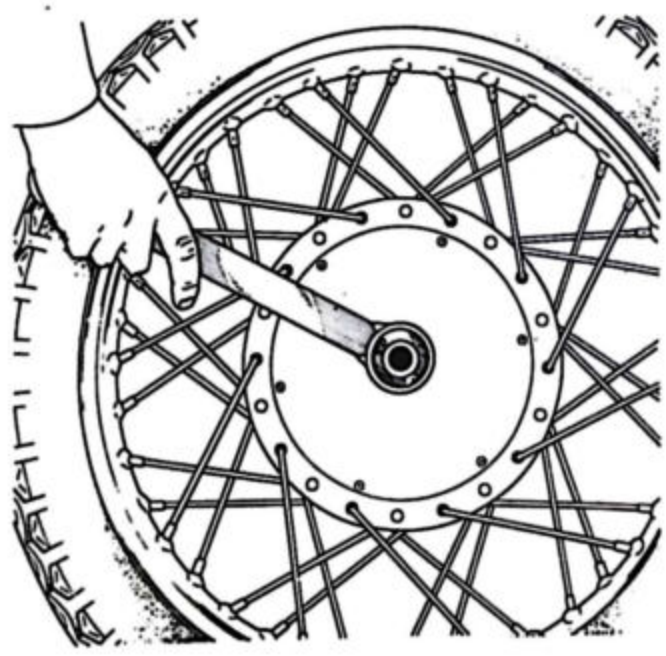


This tool removes and refits wheel bearing lockrings; also the end plug from the disc brake caliper. Use the large round end with square-faced pegs for removal of the rear wheel bearing lockring. (This ring has a left hand thread).

Use the other end and smaller set of pegs to remove the retaining ring for the front wheel bearing lockring (right hand thread).

The larger pegs and squared hole are for removal and fitting of the disc brake caliper end plug, in conjunction with a suitable extension and torque spanner. This operation is best undertaken with the caliper in situ on the fork leg. The recommended torque setting for the plug is 26lb/ft. torque.

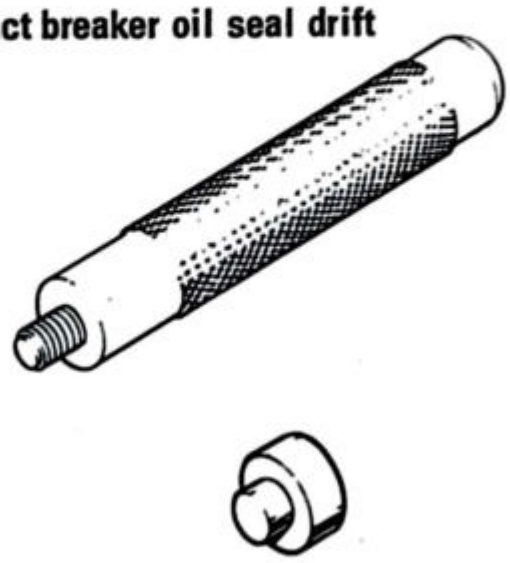




Norton

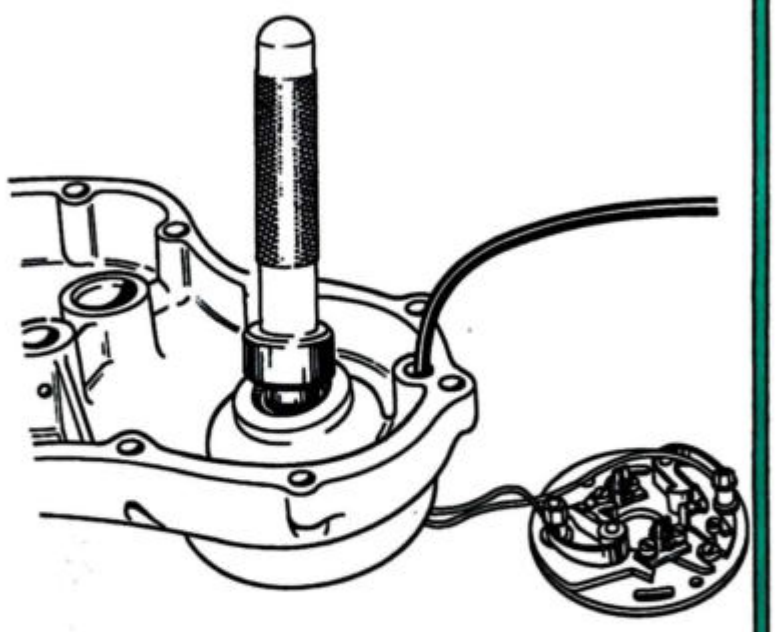
064292 Drift and handle set

Contact breaker oil seal drift



This set includes 063966 contact breaker seal drift and 063967 crankshaft oil seal drift which are no longer available separately. The same handle is used for both drifts which are drilled and tapped to accept this.

For fitting contact breaker oil seals in timing cover - This should be used when fitting contact breaker oil seals to ensure proper positioning of the seal and to prevent the seal being damaged during assembly. The drift is drilled and tapped on the back surface to accept the handle. To fit the oil seal, lightly oil the boss into which the seal fits and place the seal into position with the spring lip facing away from the timing cover. Place the drift in position and press or tap the seal down firmly.

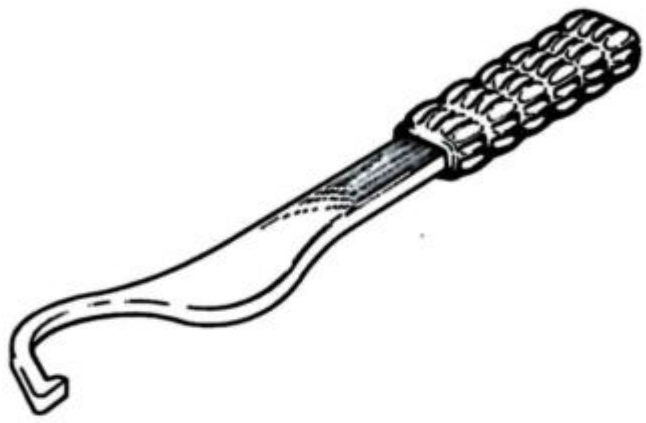


Crankshaft oil seal drift

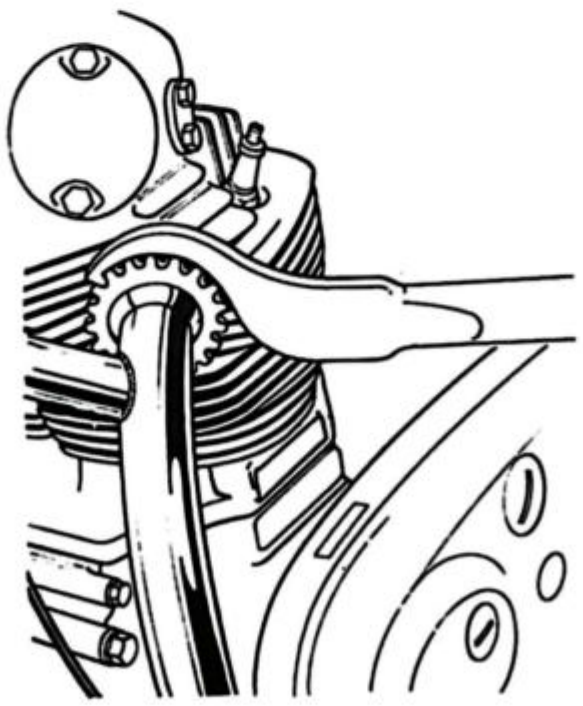
For fitting crankshaft oil seals in timing cover - This drift should be fitted with the handle and used in the same manner as 063966 (see previous paragraph); however, this seal must be positioned so that the spring and lip side faces into the timing cover boss.

Norton

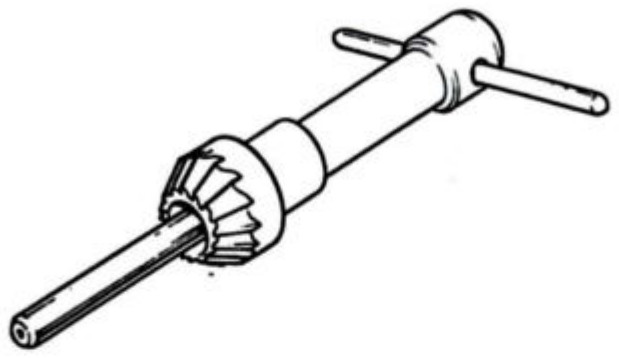
063968 "C" spanner for exhaust pipe lockrings



This tool is designed so that the lockrings securing the exhaust pipes can be tightened properly. Fit a tab washer 062412 to the exhaust lockring, place a sealing washer in the exhaust port, and place the exhaust pipe in position in the port. Engage the lockring in the threads and screw in handtight. Fit the "C" spanner into the fins and tighten the lockring as firmly as possible using a smooth, even pressure.



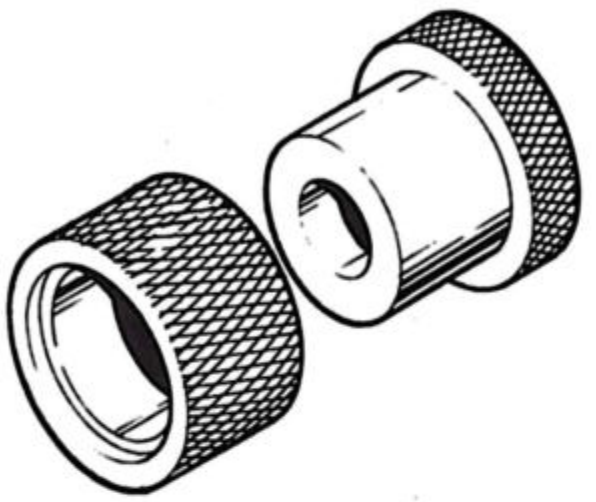
063969 Valve seat face cutter



If, when the valves are removed, the valve seats are found to be excessively burnt or pitted, they must be recut to restore a smooth, even face before new valves are ground in. The most important part of cutting new faces is to remove as little metal as possible while removing all traces of burnt material. Pass the cutter into the valve seat with the pilot into the valve guide. Using firm, even pressure to avoid chatter, take the first cut for about 90° to 120° . Repeat until the faces are free of any pitting. Thoroughly clean the combustion chamber and port areas. Repeat for other burnt seats and grind in valves normally.

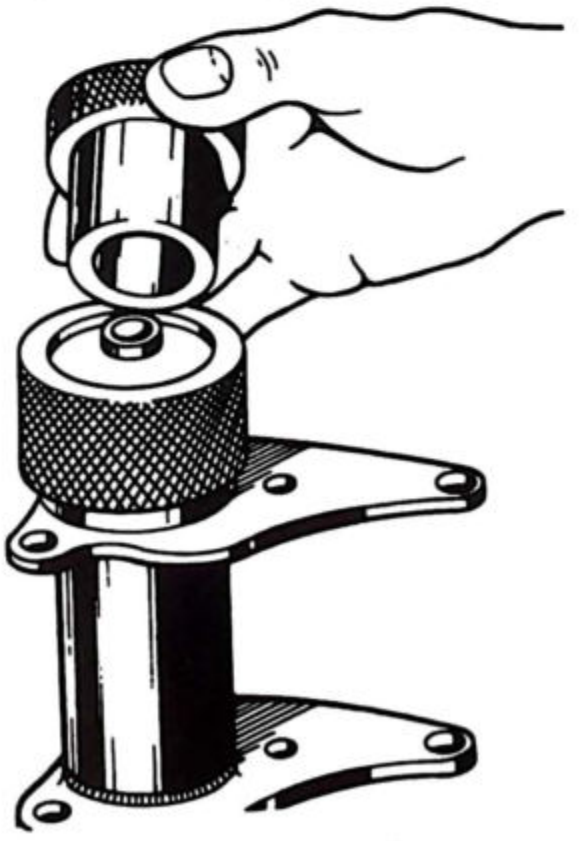
Norton

063971 Front Isolastic assembly tool

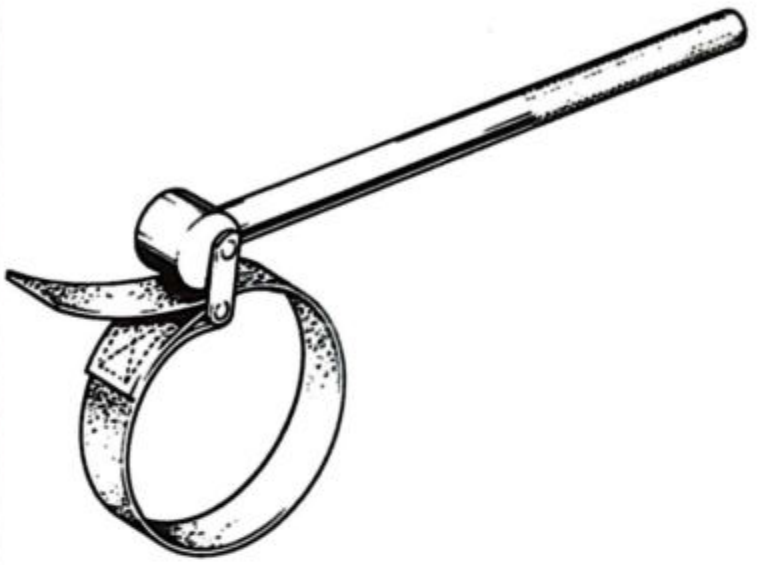


To compress and fit the rubber bushes in the front Isolastic engine mounting, clean the large tube and place on end on a workbench. Place the tapered collar over the end of the tube, paint the edge of the rubber bush with a rubber lubricant (do not use grease or other petroleum based lubricants - they will rot the rubber), and insert into the open end of the tapered collar.

Fit the drift part of the tool and press the bush into the tube. Turn the tube over and drop the spacer with rubber buffers in place into the tube. Fit the second rubber bush into the tube using the tool. The assembly is now ready to be refitted to the motorcycle.

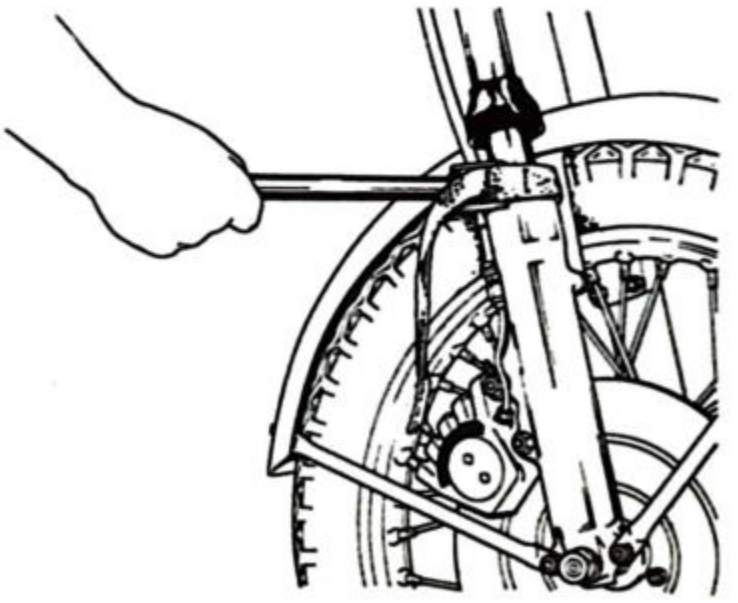


064622 Strap wrench



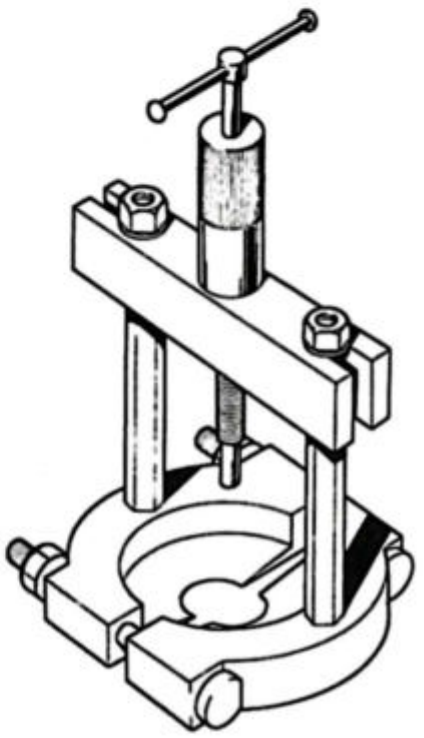
This multi-purpose tool releases and secures: fork oil seal retaining collars and full-flow oil filter. The strap wrench also holds the clutch housing for use in conjunction with service tool 061015 whilst the power unit is out of the frame. For releasing or securing operations the tool is used in one order of assembly for slackening (see illustration below) and reverse order for tightening. Pass the strap around the part to be held, thread through the stirrup and take up almost all the slack. Apply pressure to the handle so that the stirrup end of the lever (formed as a 'T') forces against the strap, thus gripping tightly on the part to be released or secured.

To use the tool for holding the clutch, assemble as in the foregoing text with the strap around the clutch housing outboard of the sprocket teeth. Insert clutch lock tool 061015, then prevent the clutch turning by holding the strap wrench handle.

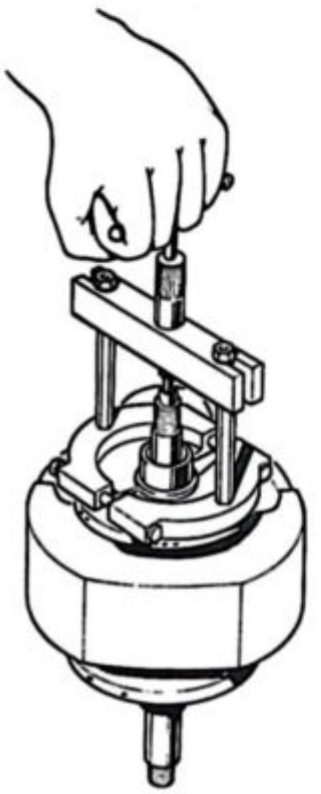


Norton

063970 Main bearing race extractor



For withdrawing the roller main bearing inner race from the crankshaft. This tool is the only method of removing the race without mutilating the crankshaft. It incorporates a hydraulic ram in the body, so that considerable force is applied without forcing and damaging any part. To remove the bearing inner race, hold the crankshaft assembly in a vice, gripping on the flywheel. Unwind the small handle portion of the hydraulic ram and push the small plunger into the hydraulic body as far as possible. Loosen the jaws of the tool and place in behind the inner bearing race AS FLAT AGAINST THE CRANKSHAFT AS POSSIBLE. Push the jaws together behind the flange of the bearing race and turn the large nuts at the side of the jaws down finger tight. When the jaws are in position, tighten the side nuts, a half-turn at a time alternately, a total of about six full turns each (or until the race is seen to move slightly). Tighten the large hydraulic body (centered over the end of the crankshaft) into place and then



turn the small handle to pull the race off the crankshaft. **Important:** This tool works by wedging the bearing off enough for the jaws to clamp behind the bearing for the actual extracting operation. The tool jaws may be destroyed if they are not clamped under the flange far enough; however, take care that the jaws are not clamped down tight on the crankshaft.