RACING

STANDARD

Tuning the

TRIUMPH

TIGER 100

INTRODUCTION

The Triumph Tiger 100, first introduced for the 1939 season, was offered as a faster version of the popular Speed Twin. It achieved immediate recognition by knowledgeable riders and in the intervening years has gained for itself an unsurpassed reputation for performance and reliability. It has always responded well to the efforts of amateur tuners, and has taken a successful part in competitive events in all parts of the world.

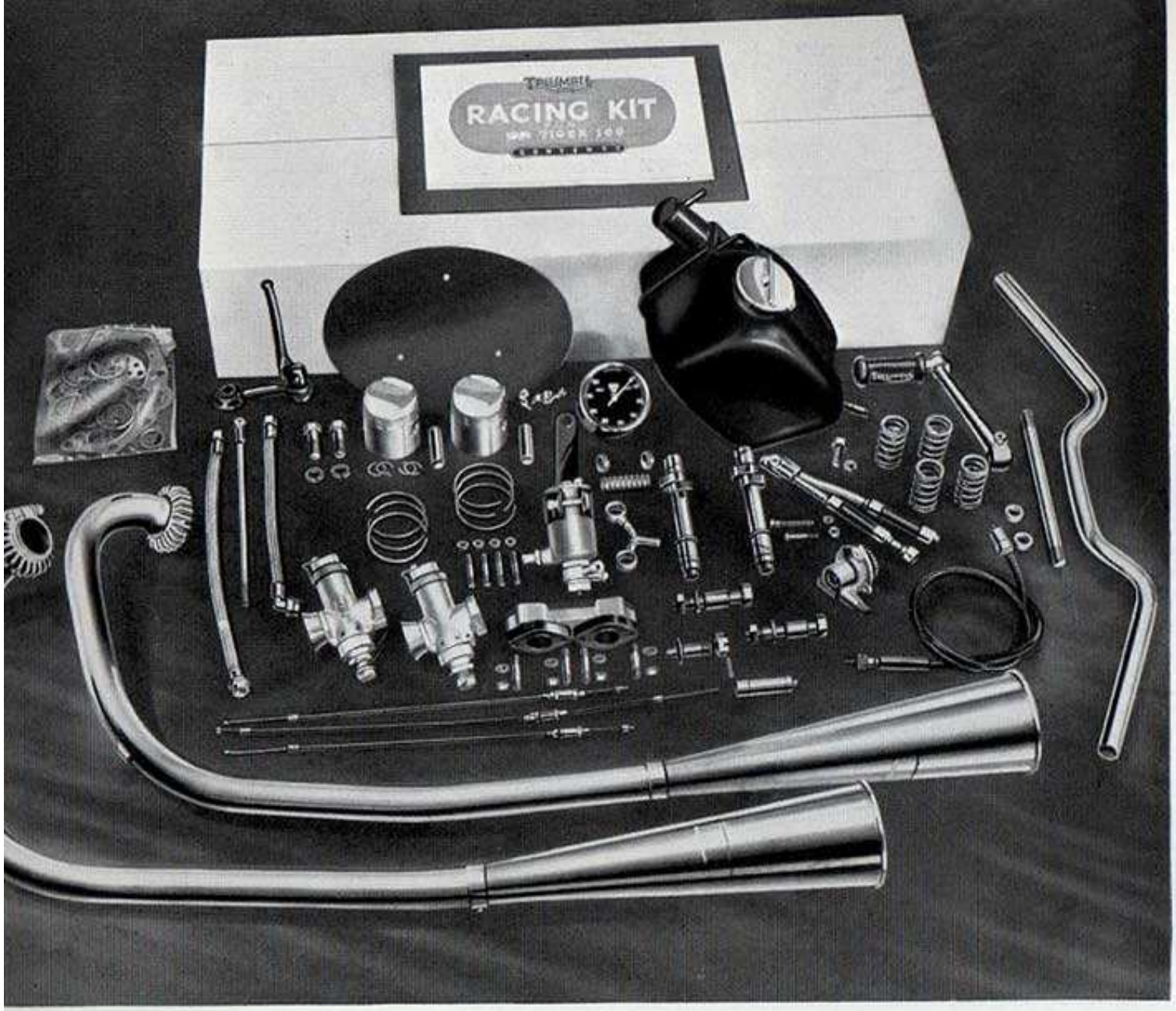
The present Tiger 100 incorporates a new engine of advanced design with an aluminium alloy cylinder barrel and head, and many other features calculated to provide enhanced performance. This machine is both faster and lighter than its predecessor, and although it is supplied from the factory to roadster specification only, a special feature is the provision made in its design whereby it can, at a most reasonable cost, readily be converted by the knowledgeable owner from its standard form to racing specification.

A special Racing Kit, which includes the necessary parts, has been produced and it is the purpose of this booklet to describe how the conversion should be carried out.

The Kit is made up complete in a container and will be supplied to 1951 and later Tiger 100 owners on receipt of engine and frame numbers. In addition there are certain other items available, which though perhaps not essential, may be required by some owners. Details of these also are included in this booklet. Your Triumph Dealer will supply particulars of prices.

Whilst it is not claimed that the Tiger 100 in racing form can compete successfully against the Factory Specials made in the Tool Rooms of certain Companies for the T.T. and other European races, it is a fact that properly prepared and competently ridden it will hold its own against any road racing motor cycle which can be purchased by the public.

TIGER 100 IN STANDARD FORM

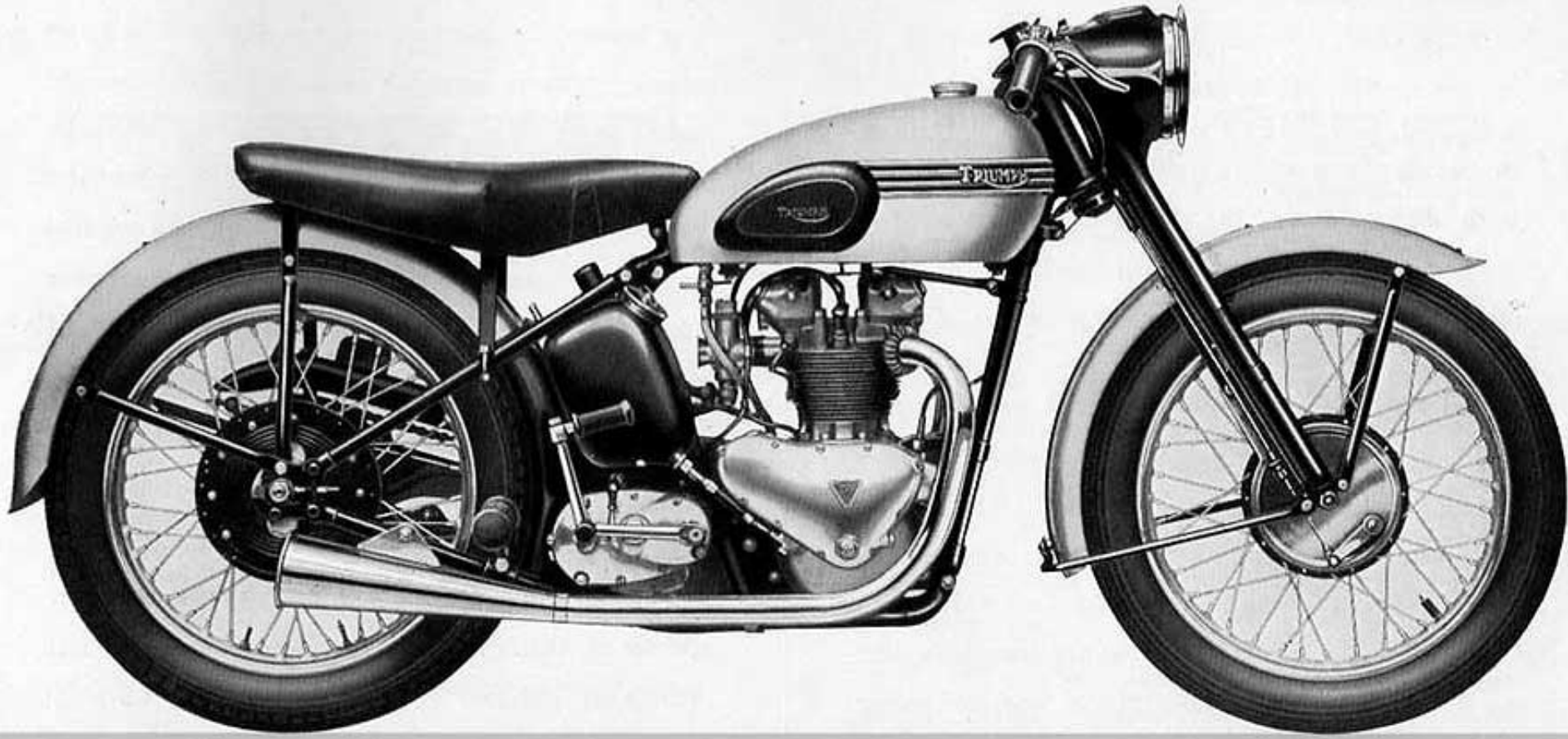


TIGER 100 RACING KIT

Comprises the following :—

(1) PISTONS. Complete with rings. Choice of Compression Ratios—see page 28.
(2) CAMSHAFTS. Two, racing lift type.
(3) VALVE SPRINGS. Four pairs racing type, inner and outer.
(4) CARBURETTERS. Two Amal Type 6 complete with special dual manifold and 'remote' float chamber.
(5) Dual THROTTLE CABLES with junction box.
(6) PETROL PIPES. Two racing type, flexible.
(7) TACHOMETER. Smiths 8000 R.P.M. with cable drive and gearbox.
(8) OIL TANK one gallon capacity with quick release filler cap.
(9) EXHAUST PIPES. Two small diameter with megaphones.
(10) FOOTREST. One folding pattern.
(11) HANDLEBAR. Racing type.
(12) NUMBER PLATE. One regulation oval pattern with brackets.
(13) BRAKE ROD. One short rear.
(14) KICKSTARTER with folding pedal.
(15) JOINTING WASHERS AND GASKETS. One complete set.

Note. All the above parts are available separately, if required, from the Service Department at usual list prices. Also available are Close Ratio Gears and Racing type alloy Mudguards.



TRIUMPH TIGER 100 IN RACING FORM

Success in racing does not come by chance. It is the result of experience and painstaking preparation both of the man and the machine. In this booklet we are chiefly concerned with the machine, but a few words on the Man also will not be out of place.

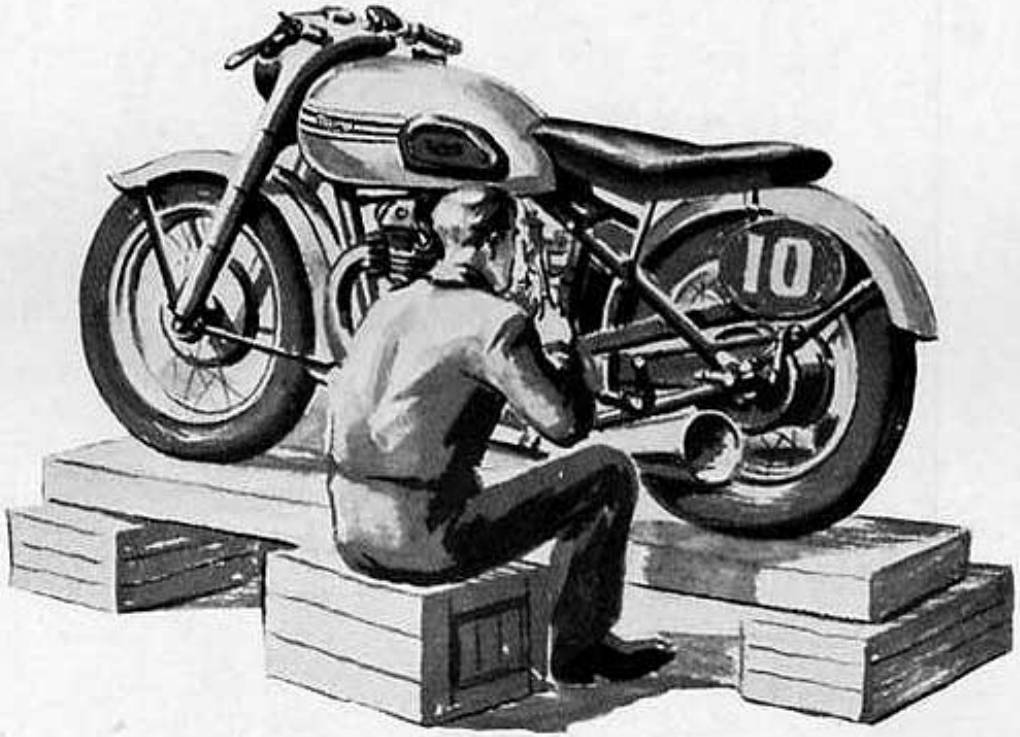
The Man must be an experienced motor cyclist and he must be physically fit. Unless he is thoroughly accustomed to handling a fast motor cycle safely and competently on busy roads in all weathers, and unless he is fit, he cannot hope to succeed at racing speeds. Racing involves not only intense mental concentration, sometimes for hours on end, but also physical fitness and stamina of a high order.

These qualities cannot be obtained overnight, and in consequence great races are not won by beginners. Success is the culmination of a gradual build up. Start in a small way and progress from local club events, grass tracks, etc. to small road circuits, and then by stages to the bigger ones. Learn your limitations, ride in all weathers and watch the Experts—study their methods and ask their advice. Never ride or race at speeds which are above your confident limit. Work up your speeds so that eventually you can ride really fast with that genuine confidence which is born of knowledge and experience—not the foolhardy confidence of the unimaginative beginner.

As regards the machine, we describe in this booklet the best method of ensuring that it will give of its best. Follow these instructions closely and remember that attention to detail is vital. Every nut, bolt and split pin must be in its right place, and every component and fitting must be systematically checked before each meeting. Nothing must be left to chance, and if you are not prepared or able to do the job properly yourself you must obtain the services of a first class racing mechanic. Quite apart from the risks to life and limb, you cannot ride in a race to win with the nagging question at the back of your mind, "Did I tighten this?" or "Should I have replaced that"?

Racing is a hard school and success does not come easily. There is no room for "ifs" and "buts", the oft repeated phrase "I would have won if . . . " is of no use to anyone. The serious rider makes absolutely sure before the starting flag drops that he, his machine and his organisation are as good as it is in his power to make them The thrill of seeing the chequered flag fall for you—the winner ! —will only ever be yours if you make yourself one of the elite who leave nothing to chance.

EIGHT STAGES IN MACHINE PREPARATION



STAGE ONE

CLEANING THE MOTORCYCLE

Before any work at all is started, the machine must be thoroughly cleaned all over. This should be done with a brush, using petrol, paraffin or a suitable degreasing agent. Make sure that no liquid gets into the brakes, carburetter or magneto. Meticulous cleaning at this stage will avoid dirt getting into vital components later on when re-erection commences. **THIS IS VERY IMPORTANT.**

STAGE TWO

REMOVAL OF ENGINE FROM FRAME

(1) Remove petrol tank and Twin Seat.

(2) Remove exhaust pipes and silencers by slackening off exhaust-pipe clip at cylinder-head and removing front bracket nut and silencer hanger bolt.

(3) Disconnect main feed oil pipes at engine by removing nut securing oil block to crankcase. Remove rocker oil feed pipe at rocker boxes. Drain off all oil,

(4) Remove carburetter.

(5) Disconnect plug leads, magneto cut-out cable, magneto control cable and dynamo wires.

(6) Remove torque stays.

(7) Disconnect rocker oil-feed.

(8) Remove foot-rests and foot-rest spindle.

(9) Remove battery, battery carrier, air cleaner and remove oil tank and fittings.

(10) Take off primary chaincase, clutch and engine sprocket (for details of this work see general Instruction Book).

(11) Slacken off clip securing dynamo to crankcase ; remove electrical connection, take off dome nut on timing cover and withdraw dynamo from housing.

(12) Support engine under crankcase with box of suitable height.

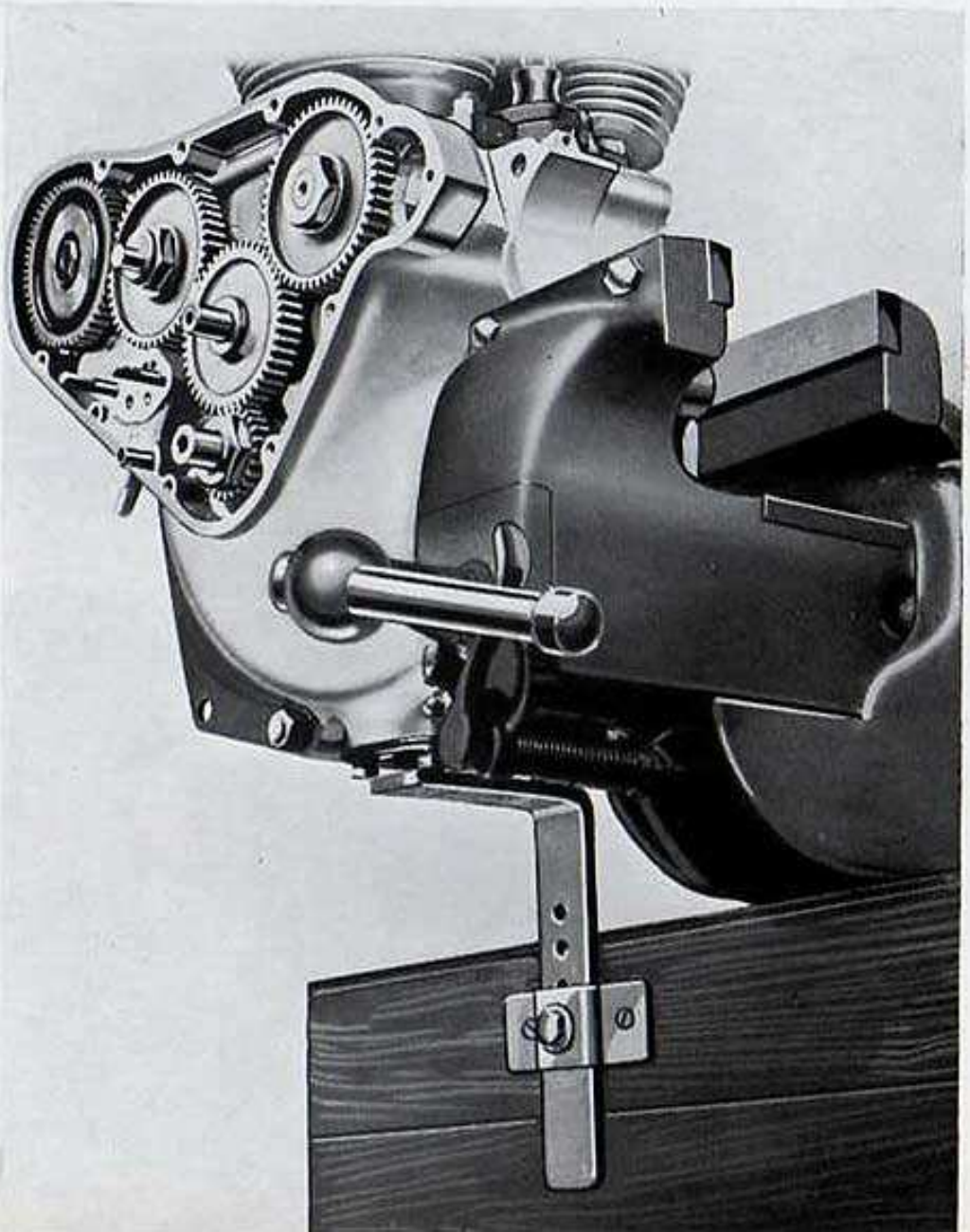
(13) Remove rear engine-plate back bolts and slacken off rear-plate front bolts.

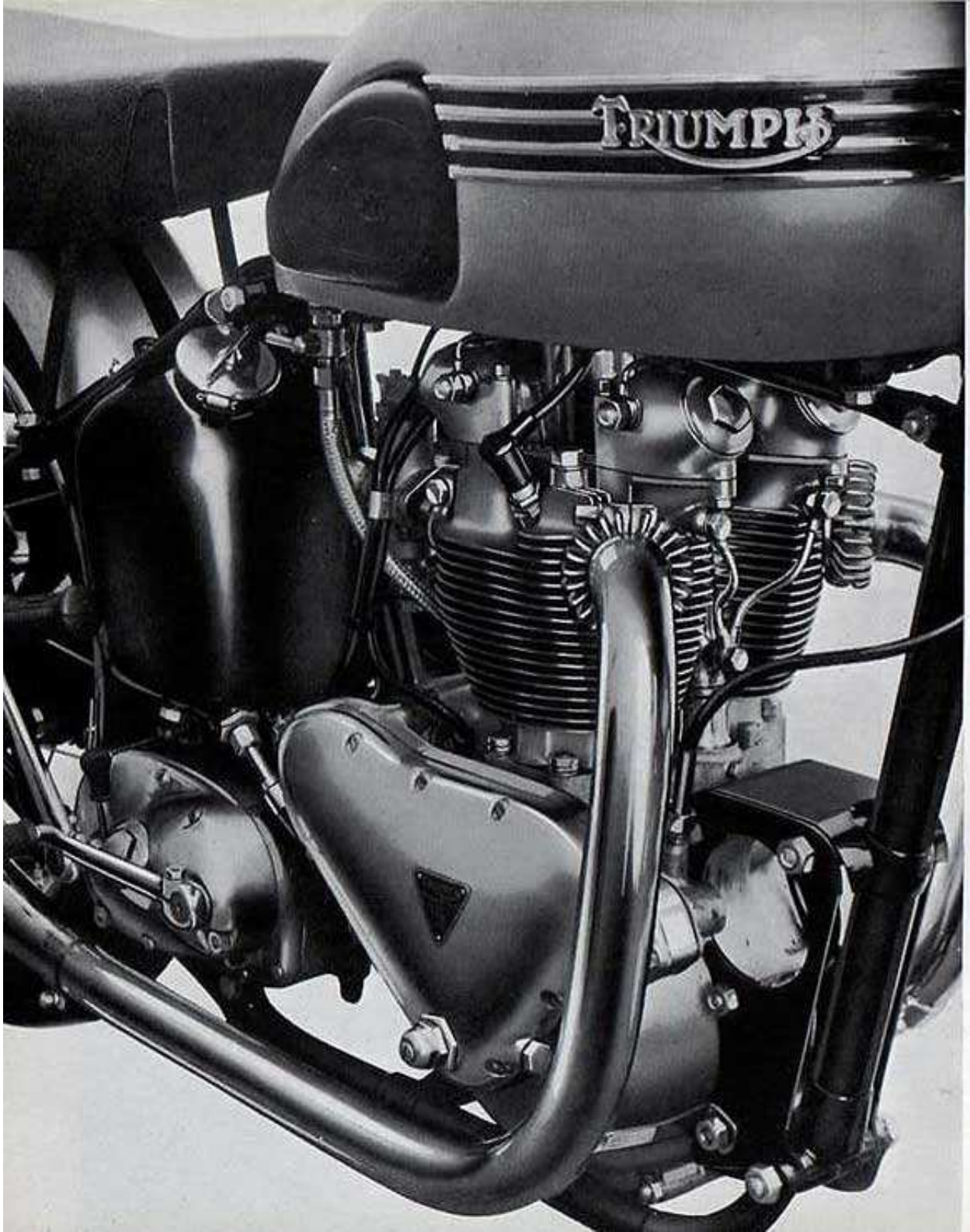
(14) Remove front engine-plate bolts except lower front bolt which connects rear frame to front frame, slacken off the nut of this.

(15) Tilt engine backwards and swing the front engine plates forward.

(16) Lift engine from frame.

(17) Mount engine rigidly on bench before further work is attempted—see photograph below.





STAGE THREE

DISMANTLING OF ENGINE

(1) Remove rocker gear oil drain pipes.

(2) Take off cylinder head complete with rocker boxes by unscrewing the light holding down bolts. Remove push rods and cover tubes.

(3) Remove rocker boxes screws and nuts and detach boxes from head.

(4) To remove valves from cylinder head a special tool should be used to compress valve springs. In the absence of this tool a suitable piece of wood can be made to fit contour of cylinder head combustion chamber. This prevents the valve dropping when pressure is exerted on spring collar. A piece of hard wood suitably slotted can then be pressed down on valve spring collar to expose cotters, which can be eased out with a small screwdriver. A sharp tap with a hammer on the end of a piece of wood will probably be necessary to disengage cotters before removal. Mark valves before removal to enable correct re-positioning.

(5) Remove timing cover, oil pump timing gears and shaft keys. The nuts securing cam wheels have left-hand threads. The intermediate gear will slide off its shaft ; removal of the others is by special tools as follows :—
Camwheel Remover—Part No. D.178.
Camwheel Replacer—Part No. D.181.
Crankshaft Pinion Extractor—Part No. ST.1101W.
*Magneto Gear Extractor—Part No. DA.50/1.
*This tool is supplied in the standard tool kit for removing the clutch centre.

(6) When removing cylinder block, care must be taken not to drop tappets into crankcase. To avoid this place rubber band around heads of tappets before lifting.

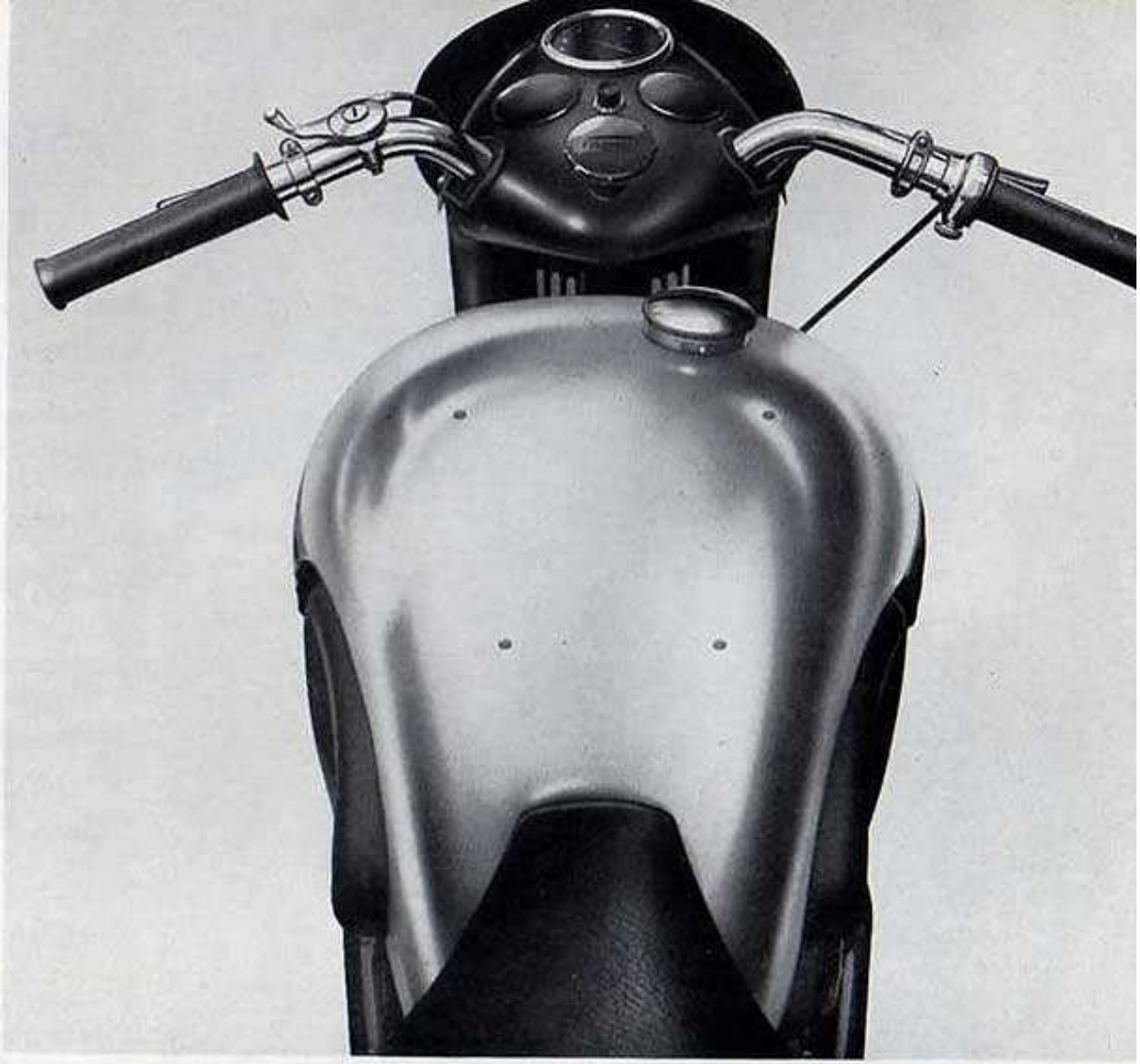
(7) Remove magneto.

(8) Take off pistons by removing circlips and tapping gudgeon pins clear of connecting rods with soft drift, care being taken to support opposite side of piston whilst doing this.

(9) Remove the two screws fitted in the crankcase internal bosses.

(10) Take the engine out of the vice, removing the remaining crankcase bolt and stud. Unscrew the four screws securing oil filter plate and remove filter assembly. Drain off oil.

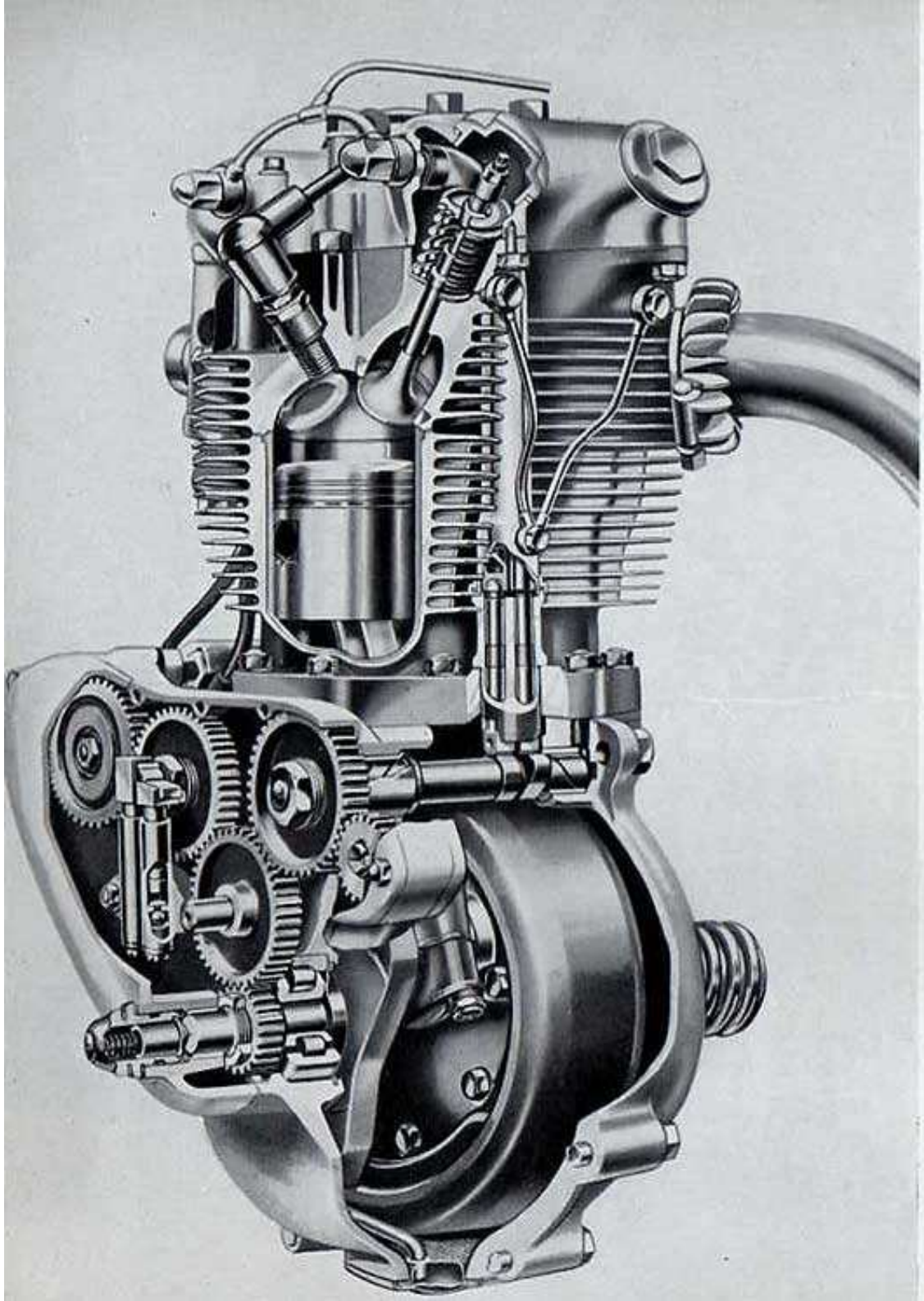
(11) To remove camshafts and crankshaft, split the crankcase by bumping the drive side shaft on a piece of wood. If the bench is not solid, place the wood on the ground, the assembly will then separate more easily. Take note not to lose the breather rotary valve and spring which fit in the drive side inlet camshaft bush.



ILLUSTRATED LEFT AND ABOVE.

(Left) The Tiger 100 all-alloy engine showing the close pitch fins on the head and barrel. Note also the reversed gear lever and folding kickstarter for racing use.

(Above) The Tiger 100 equipped with racing handlebar, tachometer and number plate. This bar in conjunction with the special footrest mounting makes an ideal racing riding position.



Sectional View Tiger 100 Engine.

STAGE FOUR

REASSEMBLY OF ENGINE

Lay all parts out in correct reassembly order. Moving parts and surfaces upon which they work must be liberally oiled. Ensure that both halves of the crankcase are perfectly clean and that all old jointing compound has been removed from surface faces.

(1) Lay drive side crankcase on bench and place flywheel assembly in position.

(2) Insert rotary disc and then the spring in inlet drive side camshaft bush followed by camshaft which mates with rotary disc.

(3) Insert the other camshaft in bush and thread timing side crankcase over crankshaft and camshafts.

(4) Replace the two internal screws into crankcase bosses, then rear bolt and bottom front stud. Reassemble sump filter and position crankcase in vice as in dismantling procedure.

(5) Fit pistons to connecting rods, ensure correct positioning of circlips.

(6) Place piston ring clips (split tubes of same internal diameter as outer diameter of pistons) over pistons to secure rings. Do not have piston ring gaps in line.

(7) Fit the four tappets into the tappet guides and secure in position with a rubber band.

(8) Turn crankshaft backwards and hold cylinder block so that the pistons enter the bores fully and ring clips can be removed. Tighten block to crankcase.

(9) The cylinder head must be assembled with the racing valve springs from the kit and the inlet manifold studs changed for the twin carburetter manifold. Except for matching ports at joint faces, no alteration to port size or shape should be attempted.

(10) Fit cylinder head. After offering up, remove manifold to cylinder block and lightly tighten the four outside bolts.

(11) Fit the key to the timing side mainshaft and replace the half time pinion.

(12) Replace the magneto but do not fit the driving gear.

(13) VALVE TIMING.

Mere marking of timing gears is not sufficiently accurate for racing so three keyways are provided to enable timing to be set to an accuracy of approximately plus or minus 2½ degrees.

(*a*) Fit keys to camshafts.

(*b*) Fit timing side exhaust push rod and rocker box. Tighten down on head. Ensuring that the tappet is on the back of its cam, adjust rocker pin to give no clearance but rocker just free to slide endwise.

(*c*) A suitable timing disc, marked in degrees, should be attached to one end of the crankshaft, the drive side being more convenient for timing purposes. A pointer should be fixed to any convenient location. The crank is then turned to bring pistons to exact TDC and disc and pointer adjusted to read O and clamped up firmly. An additional check on TDC setting should be made by turning crank back till pistons are, say, 1½" down the stroke. Note reading on disc. Turn crank forward until pistons are again 1½" down stroke. Disc reading should be the same. Particular care should be taken to ensure accurate TDC setting.

(*d*) Rotate exhaust camshaft forwards until the rocker is no longer free to slide.

(e) Turn crankshaft forwards until disc reads 72 degrees before BDC. The camshaft pinion should now be aligned by eye so that one of the three keyways is in line with the camshaft key and the teeth in line with the teeth on the intermediate wheel. The camshaft wheel is then drawn on with the special tool Part No. D. 181 and the nut tightened. The crankshaft should now be turned backwards until the rocker again pinches up which should give the point of closing of the exhaust valve as 50 degrees after TDC.

STAGE FOUR—*continued.*

(*f*) It should be appreciated that due to tolerances in manufacture, wear, etc., it may not be possible to get the exact figures quoted. Points of opening and closing should now be checked and if substantially different from the above figures, say more than 3 degrees either way, it will be necessary to extract the camshaft pinion and try one of the remaining two keyways. Do not forget to mark the keyway already tried with indelible pencil, so that it will not accidentally be tried again.

(*g*) Foregoing procedure should now be repeated for the inlet camshaft in this case the crankshaft being first turned backwards the exhaust valve being closed until the disc reads 70 degrees after BDC and the camshaft also of course being turned backwards until rocker pinches, this giving the point of *closing* of the inlet valve. After fitting and tightening wheel, the point of inlet opening should be checked, being approximately 52 degrees before TDC (the exhaust valve of course being open here).

(*h*) As a final check, the drive side cylinder push rods may be fitted and the timing of the drive side cylinder checked.

(*i*) If any discrepancy is found between the two cylinders, say up to 4 degrees this should be equalised. To do this it will be again necessary to remove the camshaft pinions and select the correct keyway. When the timing has been corrected the final figures should be inserted on the Test Record sheets (pp 22-26) thereby obviating this last operation for subsequent assemblies.

(14) Remove rocker boxes and push rods for final assembly. Check all parts for cleanliness and fit the push rod cover rubbers to tappet block and the drain pipes to cover tubes. Assemble the cover tubes and push rods to the inlet side and fit the rocker box with jointing washers. Repeat this operation on the exhaust side, then replace the four cylinder head bolts and tighten head evenly. Fit inlet manifold.

(15) Fit the four oil drain adaptors to the cylinder head.

(16) Adjust valve tappets (Inlet .002″, Exhaust .004″). Lubricate rocker gear with engine oil, using an oil gun through the inspection apertures. Refit inspection caps.

(17) IGNITION TIMING.

Before timing the magneto the gap at the contact breaker points should be checked on each cam and set as near as possible to .012″ on each. The magneto should be timed with control fully advanced and using a .0015″ feeler blade between the points as under :

For petrol or petrol-benzole :

42 deg. before TDC

For Methanol or other alcohol fuels :

38 deg. before TDC

The normal procedure is to connect the rear pick-up (No. 1) to the timing side cylinder and to time on the top cam with the drive side piston on compression, or on the bottom cam with the timing side on compression. After tightening magneto driving gear, recheck timing.

(18) Fit Tachometer gearbox in aperture of crankcase normally occupied by dynamo pinion.

(19) Replace timing cover, using jointing compound on the joint face to make an oil seal.

STAGE FIVE

PREPARATION OF MOTORCYCLE

(1) Remove headlamp from nacelle and wiring harness complete, disconnect and remove speedometer cable.

(2) Remove nacelle top unit and take out ammeter, speedometer, lighting switch and horn.

(3) Remove controls from handlebar and detach handlebar from fork.

(4) Fit racing pattern handlebar and refit controls.

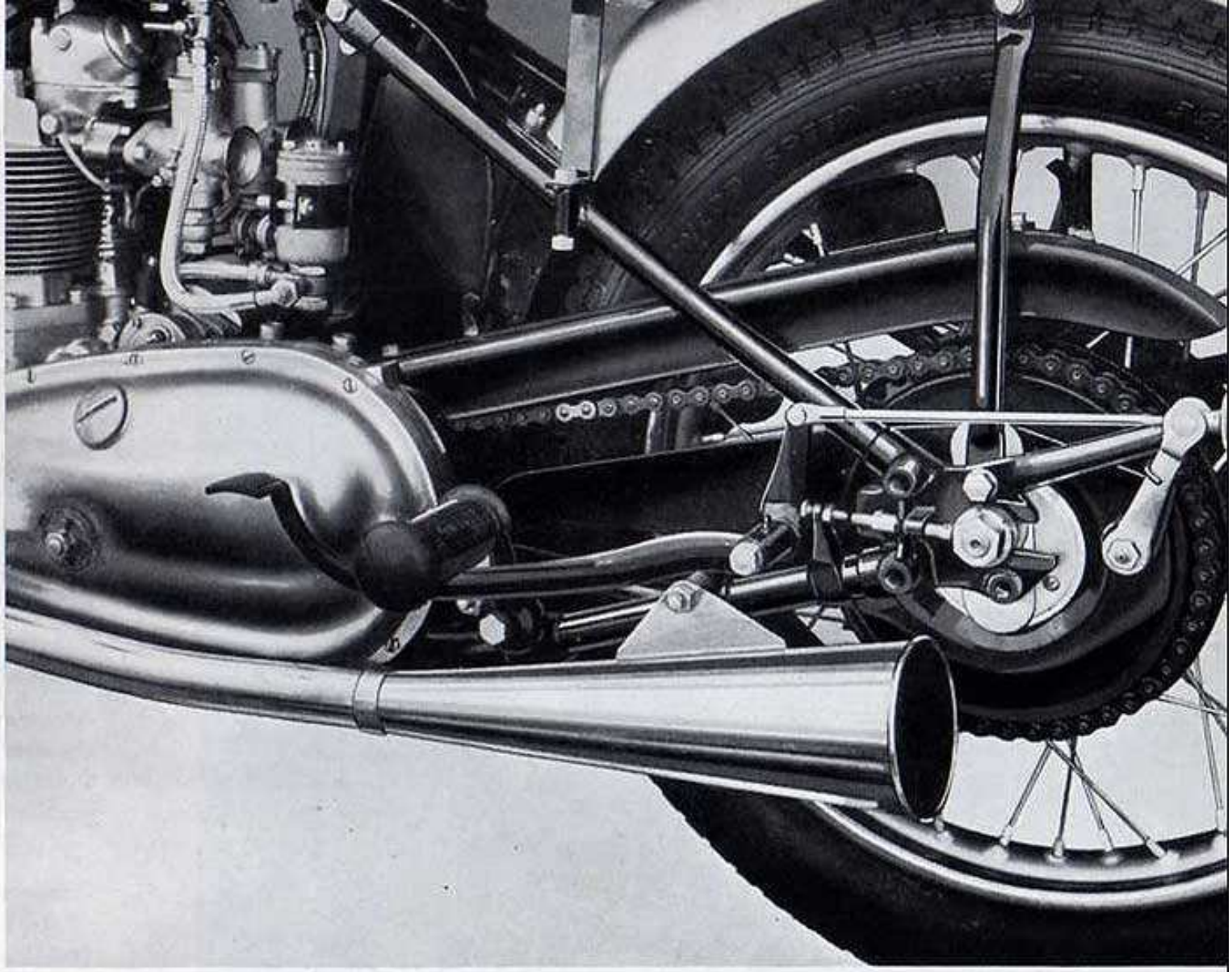
(5) Fit Tachometer in speedometer aperture and replace top Nacelle unit.

(6) Fit tachometer cable to head and clip to frame.

(7) Fit racing number plate.

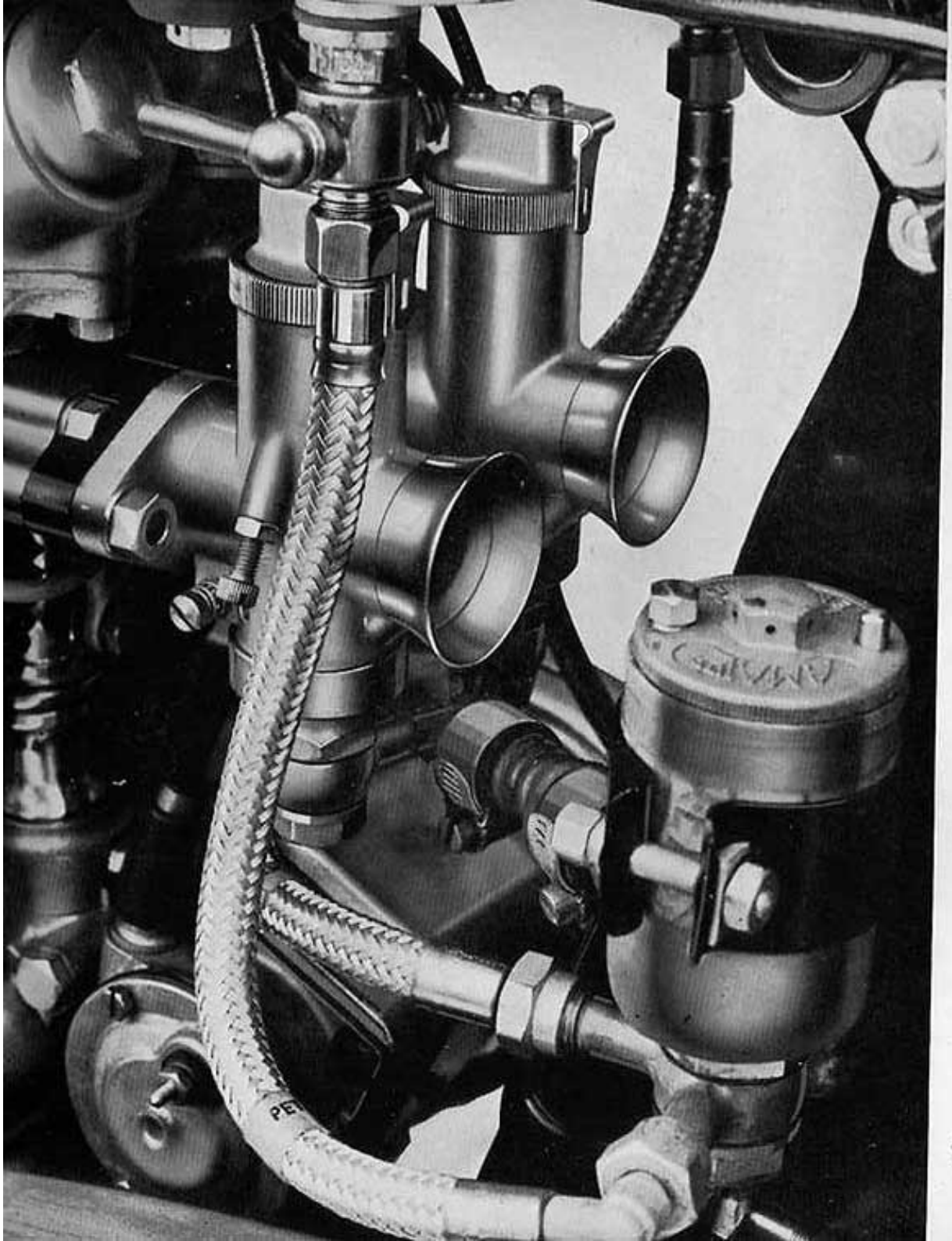
(8) Fit float chamber bracket to nearside of seat tube and install oil tank complete with fittings.

(9) For racing it is essential that both wheels should be accurately balanced. Place machine on rear and front stands and ensure that both wheels revolve freely. In the case of the rear wheel, remove chain. Wrap lead wire around one or more spokes at "light" part of wheel until it balances. Finish by covering with insulating tape and varnish with shellac or jointing cement.



REAR BRAKE PEDAL ASSEMBLY

The above photograph shows how the rear brake pedal and footrest are mounted in the rearward position for racing. Note short brake rod.



STAGE SIX

REPLACING ENGINE IN FRAME

(1) Fit rear engine plates to engine leaving studs and nuts loose. Fit footrest distance piece between plates, and support in position by placing long bolt through footrest spindle holes in plate.

(2) Place box under frame cradle as in dismantling and lift engine into position, tilting it backwards and at same time swing two front engine plates into position.

(3) Allow engine to re-position itself and then fit remaining crankcase and frame bolts and nuts and tighten up.

(4) Fit torque stays to engine and tighten up nuts.

(5) Connect up drive cable to tachometer gearbox.

(6) Fit twin carburetters to manifold and connect throttle cables.

(7) Assemble 90 degree union and flexible pipe to float chamber. Fold a small piece of glass paper double and wrap round float chamber which can then be installed loosely in mounting.

(8) Connect petrol pipes.

(9) Connect unions to carburetters, insert and tighten sleeve nuts. *N.B.—For basic carburetter settings see Technical Data at end of book.* To adjust level of float chamber (this should actually be done after assembly of machine is complete) turn on petrol. Chamber should be raised gradually until petrol commences to drip from mixing chambers with machine on its wheels on the level. Lower chamber slightly, say $\frac{1}{32}$", tighten clips, turn off petrol. Try again later,

Twin Carburetter Layout

STAGE SIX—*continued.*

half an hour or longer. If no drip, level is correct. If it drips, lower and try again.

(10) Connect up magneto cut-out cable and control cable.

(11) Position the rod from the kit where footrest spindle was fitted and fit distance piece between nearside engine plate and primary case.

(12) Smear jointing cement in front aperture of inner primary case and fit case in position. Ensure oil seal is fitted under spring plate and over gearbox mainshaft. Fit and tighten up bolt securing rear upper chain guard to chaincase.

(13) Fit key to gearbox mainshaft and sleeve to engine shaft. The clutch assembly less plates can then be fitted with primary chain and engine sprocket in one operation.

(14) Select bottom gear and assemble nut and washer to gearbox mainshaft and screw up until pressure on nut turns rear wheel.

(15) Fit shock absorber slider to engine sprocket, followed by the spring and collar and finally, fit and tighten engine shaft nut.

(16) Finally tighten nut securing clutch housing and turn lock washer over.

(17) Assemble the clutch plates to housing.

(18) Fit the primary outer chaincase. Use a new paper gasket when fitting.

(19) Fit distance pieces supplied with Kit to replacement footrest rod and secure with original nuts.

(20) The oil pipes from tank to engine should now be fitted. After fitting, but before tightening nut securing junction block, it is advisable to have a quantity of oil in the oil-tank and to see that this drips from the block to ensure against an air lock in the feed pipe.

(21) Fit rocker feed pipe to the engine.

(22) Fit racing exhaust pipes and megaphones to engine and frame.

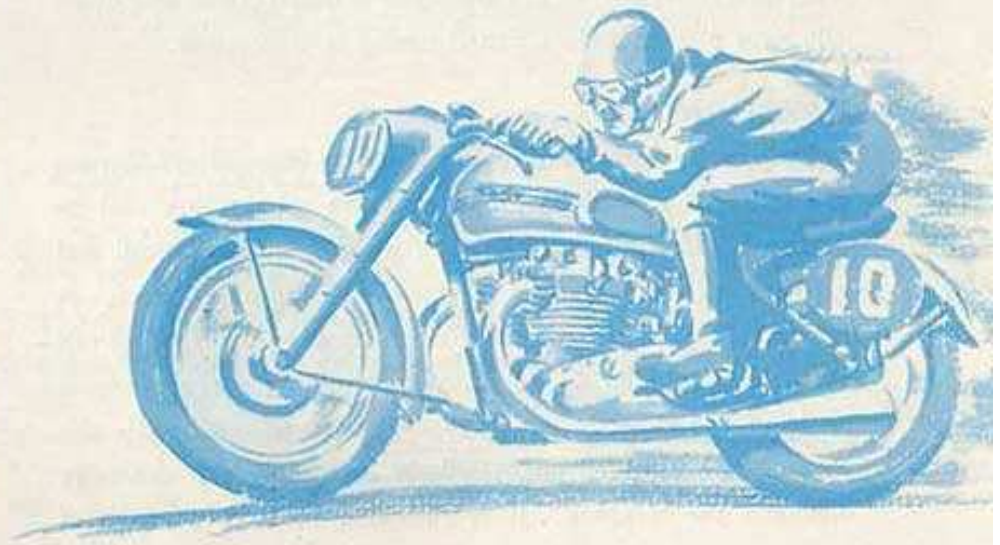
(23) Fit sparking plugs and H.T. leads.

(24) Lower tank into position and bolt to frame ; ensure the rubber washers are in position. Connect up petrol pipes.

(25) Fit Twin-Seat.

(26) Reverse position of gear lever and fit racing footrest and brake pedal assembly and adjust to suit.

(27) Refill oil-tank, primary chaincase and petrol tank.



STAGE SEVEN

TESTING AND CHECKING

To get the best results when tuning for speed purposes, it is vitally important that all moving parts should be well run in and absolutely free. With this object in view we suggest that before the Tiger 100 owner embarks on his racing conversion work, that he covers about 1000 miles on the road following carefully the running-in suggestions given in the standard Instruction Book. At this mileage the bearings throughout the machine should be completely free and running sweetly. Having completed the conversion, a further short period of running-in is desirable to bed down the new pistons before actual racing is attempted.

CARBURATION.

Basic carburetter settings are given on Page 28 and if these are followed it will be found that the carburation will be reasonably correct, but the fuel, geographical position, and type of exhaust system all have considerable effect. A reasonably good tickover and clean opening up right to full throttle should be aimed at in determining correct needle position and throttle cut away. The lower the needle the weaker the mixture and similarly increasing the cut-away weakens the mixture. It is advisable to have a range of slides available varying from 2 to 4. To determine the best main jet size, the engine should be thoroughly warmed up and then driven flat out for about a quarter of a mile, after which the throttle should be slammed shut and the clutch withdrawn allowing the engine to stop. The plugs should then be examined. If the end of the body is grey, the mixture is too weak and a larger jet is required. If sooty the mixture is too rich. The condition to be aimed at should be something between these two—a dry polished black. Of course the plug should be absolutely clean before carrying out this test.

IGNITION.

Accuracy of the ignition timing can be checked by running on full throttle and moving the ignition lever back gently and noting the increase or decrease in r.p.m. Regarding plugs, there are many different types produced for racing and here it is wise to consult the plug manufacturer if the recommended ones are not suited to the type of racing undertaken. Different courses call for different types of plug depending very often on the amount of full throttle work involved. "Soft" plugs for warming up only are also necessary.

GEARING.

Choice of the correct engine sprocket depends on many factors such as the individual peculiarities of the circuit, direction of wind, weight of the rider, etc. Generally speaking, it is better to gear low rather than too high as the

STAGE SEVEN—*continued*

latter prevents the full power of the engine being developed. A sprocket which will give 7000 r.p.m. in top can be reckoned to be roughly correct on the Tiger 100.

STEERING.

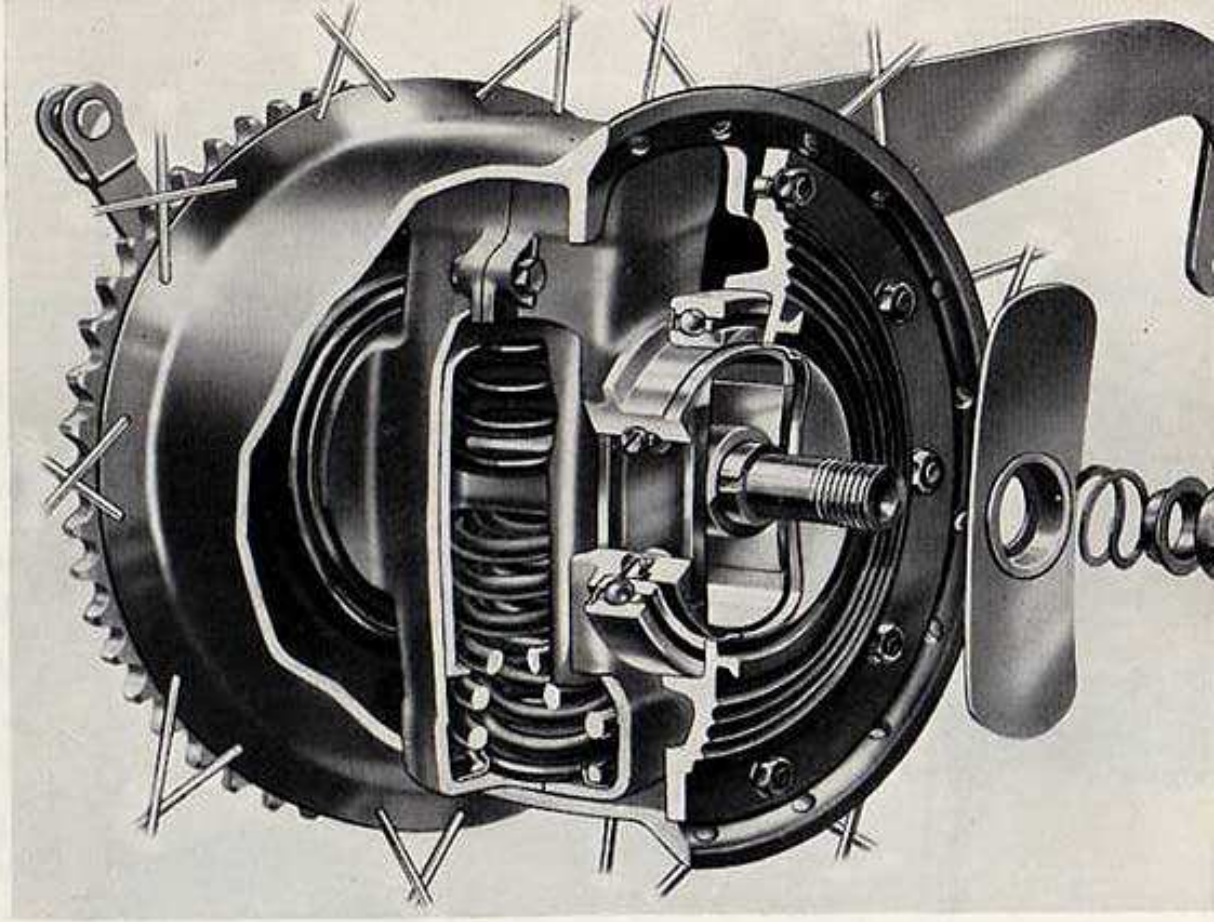
A racing machine must handle well otherwise its full capabilities cannot be exploited. The points to be watched are head bearings, fork bushes, alignment of wheels and last but by no means least, tyre pressures. Variations of a few pounds in tyre pressures can make a vast difference in the handling of a machine at racing speeds. Tyres too must be maintained in good order and scrapped immediately any sign of deterioration becomes apparent.

BRAKES.

The brakes of the Tiger 100 are particularly powerful and well up to the demands made by racing. Care must be taken in the choice of linings when these are renewed and oil and water must obviously be kept away from the braking surfaces. The front brake cable must be checked frequently and replaced if frayed at any point.

RECORD KEEPING.

It is important to keep a record of any modifications made and the results obtained from them. This avoids going over the same ground twice. A special log book can be compiled or use can be made of the pages provided in this booklet.



MAINTENANCE OF THE

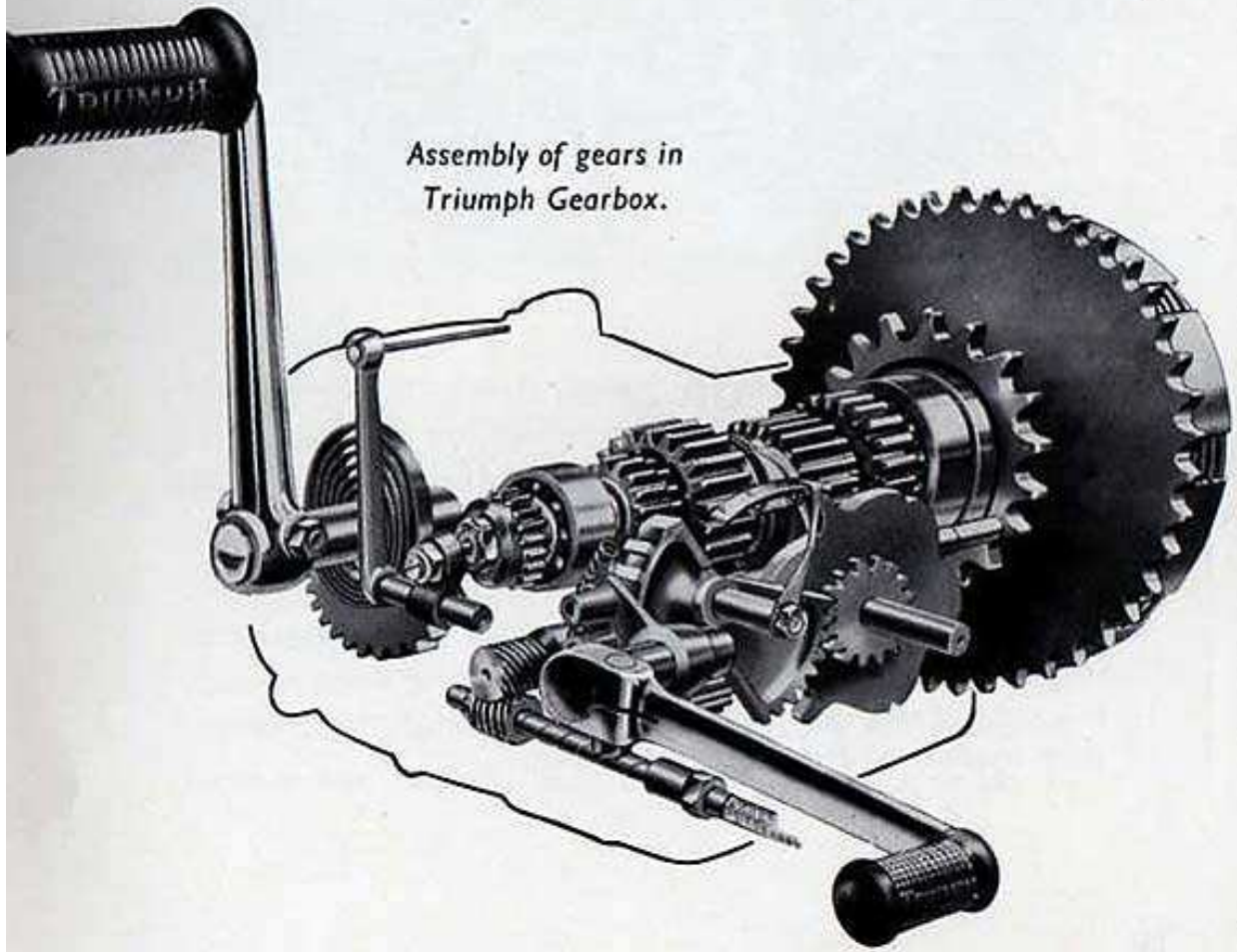
TRIUMPH SPRING WHEEL

The Triumph Spring Wheel as delivered is packed with grease and should require no attention inside at least 20,000 miles. If inspection or overhaul is desired it is suggested that the wheel is returned to the dealer or to the works. It is an ideal rear suspension unit for racing being completely rigid laterally and not prone to wear.

STAGE EIGHT

FITTING CLOSE RATIO GEARS TO GEARBOX

Close Ratio Gears are an advantage in some types of racing, and to the owner who has purchased these in addition to the "Racing Kit", we give the following points for guidance when fitting them. It is assumed that the engine, transmission etc. have already been removed from the frame.



Assembly of gears in Triumph Gearbox.

REMOVING GEARBOX FROM FRAME

(1) To take the gearbox from the frame, disconnect clutch cable and unscrew nut holding chain adjuster to frame.

(2) Remove the clamping bolt and pivot bolt after which gearbox can be detached from frame.

(3) Remove drain plug and drain oil.

(4) Clamp gearbox in vice by means of bottom lug, gear-change facing operator and select bottom gear.

DISMANTLING.

(5) Take out retaining screws and nuts and remove outer cover by gripping footchange lever and kick-starter crank. To overcome jointing compound used in assembly a little force may be necessary.

(6) Remove nut on mainshaft high gear. To prevent shaft turning use small metal bar placing one end on jaw of vice and other under a sprocket tooth.

(7) Slide high gear along mainshaft locking all gears and enabling kickstarter ratchet nut to be removed.

(8) Remove kickstarter ratchet nut and withdraw ratchet assembly.

(9) Take off gearbox inner cover—four screws. Note one screw is inside cover adjacent to selector quadrant.

(10) Withdraw selector rod and mainshaft.

(11) Take gear cluster with selectors out of casing. Do not lose camplate rollers fitted to selectors.

(12) Take out mainshaft high gear but leave camplate in position.

STAGE EIGHT—*continued*

RE-ASSEMBLING (with Close Ratio gears).

(1) Place ⅜" bar in vice and fit into swivel boss of gearbox (gearbox to have open end uppermost).

(2) Insert mainshaft high gear and fit sprocket, do not fit nut at this stage.

(3) Grease camplate rollers and assemble to selector forks.

(4) Place mainshaft second and third gears together, selector grooves facing inwards and fit selector with camplate roller over second gear (long).

(5) Insert assembly into casing, second gear meshing with high gear and camplate roller engaging with camplate track.

(6) Assemble layshaft second and third gears to layshaft high gear splines, large gear first selector groove towards centre. Fit selector fork, roller towards speedometer drive end.

(7) Fit layshaft cluster in casing again engaging camplate roller with camplate track. Enter selector spindle through selector fork engaging small diameter of spindle into locating hole at bottom of casing.

(8) Fit mainshaft and low gear through mainshaft cluster and layshaft low gear over spindle of layshaft engaging with layshaft third.

(9) Remove gearbox casing from vice and replace again as when dismantling, open end facing operator.

(10) Smear film of jointing cement on inner face of inner cover and assemble to casing with indicator in low gear position.

(11) Fit screw adjacent to selector quadrant and test gear selection by operating quadrant with screwdriver ; turn high gear and mainshaft when testing.

(12) Replace remaining screws to inner cover and fit kickstarter assembly—plain washer, spring, pinion, ratchet, lockwasher and nut. Lock gears as before when tightening nut.

(13) Assemble outer cover to inner cover (using jointing cement in joint). Position kickstarter crank half-way down before pushing cover into position. Tighten up cover screws and nuts.

(14) Fit chain sprocket nut, lock with bar and tighten. Centre-punch nut on thread end to lock.

(15) Refit gearbox to frame but do not tighten clamp or swivel bolts ; this operation is completed when adjusting chains.

RECORD YOUR TESTS

DATE	MODIFICATION	RESULTS

TRIUMPH TIGER 100

ENGINE : Vertical twin cylinder with two gear driven camshafts. Overhead valves. Bore 63 mm. Stroke 80 mm. Capacity 498 c.c. Aluminium alloy die cast cylinder head and barrel with close pitch finning. Iron valve seat inserts and cylinder liners. Cylinder heads, ports and all moving parts highly polished. Special high compression pistons of high silicon low expansion alloy. Totally enclosed and positively lubricated valve gear, highly polished rocker boxes and push-rod tubes. High tensile aluminium alloy crankcase. "H" section connecting rods in RR56 hiduminium alloy with patented plain big-ends. Patented crank-shaft mounted with central flywheel. Full dry sump lubrication, plunger type pumps with positive feeds to big-ends and valve gear. Pressure indicator on timing cover. Manual control magneto and separate dynamo gear-driven. Amal carburetter, Triumph quick action twist grip.

TRANSMISSION : Primary chain in polished cast aluminium oil-bath case. Rear chain positively lubricated and protected on both runs.

FOUR-SPEED GEARBOX : Triumph design with large diameter shafts and gears of hardened nickel and nickel-chrome steel. Special dogs for easy changing. Positive stop footchange fully enclosed. Integral speedometer drive. Large diameter multiplate clutch.

PETROL TANK : All-steel welded streamline design. Quick opening plated filler cap. Two racing type taps. Plated parcel grid on tank top.

OIL TANK : All-steel welded design with accessible filters, drain plug and separate vent. Quick release leak-proof filler cap.

FRAME : Brazed full cradle type with large diameter tapered front down tube.

FRONT FORKS : Famous Triumph design telescopic pattern with six inches of hydraulically damped movement.

BRAKES : Triumph design, exceptionally powerful. Finest quality linings. Finger adjust-ment. Polished front anchor plate.

HANDLEBAR : Quick-action twist grip with finger adjustment friction control. Integral horn push. Adjustable plated clutch and brake levers.

MUDGUARDS : Wide "D" section with streamline stays. Completely detachable rear guard. Rear number plate with centrally mounted lamp and lifting handle.

WHEELS AND TYRES : Triumph design wheels with heavy-duty dull plated spokes. Dunlop tyres, ribbed front, studded rear.

TOOLBOX : All-steel, with quick release fastener. Complete set good quality tools and greasegun.

NACELLE : Unique Triumph design instrument panel. All instruments rubber mounted, illumi-nated and readily accessible.

EQUIPMENT : Lucas 6-volt 60-watt dynamo with ball-bearing armature. Powerful built-in headlamp. Smiths 120 m.p.h. chronometric speedo-meter with r.p.m. scale and internal illumination. Electric horn. Tyre inflator.

AIR CLEANER : Triumph design patented Vokes air cleaner with straight line intake.

FINISH : Petrol tank in silver sheen. Mud-guards in silver sheen with black centre strip. Wheel rims in silver sheen lined blue.

SPRING WHEEL : (Pat. No. 52885). The famous Triumph rear suspension system is available as an extra on the Tiger 100.

INFORMATION

TECHNICAL DATA
(Measurement as Standard unless otherwise stated)

	Standard	Racing
Engine Type	O.H.V. TWIN	—
Bore and Stroke ... ... m/m	63 x 80	—
Cylinder Capacity ... ... c/c	498	—
Compression Ratio ... ... Standard	7.6 : 1	See separate table
B.H.P. and R.P.M. (Low Octane)	32 at 6500	42 at 7000
Petrol Tank Capacity ... ... Gallons	4	—
Oil Tank Capacity ... ... Pints	6	8
Carburetter Main Jet	160	See separate table
Carburetter Throttle Slide	6/3½	"
Carburetter Needle	6	"
Carburetter Needle Position	3	"
Carburetter Needle Jet	107	"
Inlet Valve Opens B.T.C. ... Degrees	26½	52
Inlet Valve Closes A.B.C. ... Degrees	69½	70
Exhaust Valve Opens B.B.C. ... Degrees	61½	72
Exhaust Valve Closes A.T.C. ... Degrees	35½	50
Ignition Timing fully advanced ... Inches	⅜	See separate table
Contact Breaker Gap ... ... Inches	.012	—
Sparking Plug Gap ... ... Inches	.015 to .018	—
Tappet Clearance — Cold ... ... Inches	.002 in. .004 ex.	—
Primary Chain Pitch ... ... Inches	½ x .335 x .305	—
Primary Chain Length—Solo ... ... Links	78	—
Rear Chain Pitch ... ... Inches	⅜ x .400 x ⅜	—
Rear Chain Length ... ... Links	92	—
Front Tyre Size ... ... Inches	3.25 x 19	—
Rear Tyre Size ... ... Inches	3.50 x 19	—
Wheel Base Static ... ... Inches	55	—
Overall Length ... ... Inches	84	—
Overall Width ... ... Inches	28.5	—
Saddle Height ... ... Inches	29.5	—
Ground Clearance ... ... Inches	6	—
Weight — Dry ... ... Lbs.	355	330

IGNITION TIMING.

Contact Breaker points	.012" gap
Low Octane Fuel	42 deg.
50/50 Petrol-Benzole	42 deg.

BASIC CARBURETTER SETTINGS.

	Valve	Needle Pos.	Needle Jet	Main Jet
Low Octane Fuel	No. 4	2	109	200
50/50 Petrol-Benzole	No. 4	2	109	220

N.B.—Mixture weakened by lowering float chamber and enriched by raising it.

COMPRESSION RATIOS.

Low Octane Fuel	Piston Part No. E.2489 C.R. 8.25
50/50 Petrol-Benzole	Piston Part No. E.2884 C.R. 9.5

GEAR RATIOS.

Eng. Sprkt.	Standard Ratios				Close Ratios			
	Top	3rd	2nd	1st	Top	3rd	2nd	1st
19	5.80	6.90	9.80	14.15	5.80	6.32	7.54	9.84
20	5.50	6.55	9.30	13.40	5.50	6.00	7.15	9.35
21	5.24	6.24	8.85	12.80	5.24	5.72	6.81	8.90
*22	5.00	5.95	8.45	12.20	5.00	5.45	6.50	8.50
23	4.78	5.69	8.09	11.69	4.78	5.23	6.23	8.12
24	4.57	5.45	7.75	11.20	4.57	5.00	5.96	7.78

*Standard.

PLUG RECOMMENDATIONS (for Racing).

Lodge RL49 K.L.G. 689LR Champion NA12

TYRE PRESSURES.

Front (300-19) 20 lbs. Rear Rigid (350-19) 20 lbs.
Rear Spring " 18 lbs.

OIL RECOMMENDATIONS (for Racing).

Any of the appropriate oils recommended in the standard Instruction Book may be used. Failing these a first class mineral oil of SAE 50 viscosity should be employed.

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