

Greeves

**Instruction and
Service Handbook**

For Models

20TA 20TAS 24TAS

20SAS 24SAS

24DB 25DB

20TC 20TCS 24TCS

Greeves Motor Cycles

CHURCH ROAD · THUNDERSLEY · ESSEX

Telephone: South Benfleet 2761 (3 lines)

Price 2/6

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IMPORTANT

TO ENABLE US TO MAINTAIN A HIGH STANDARD OF SPARES SERVICE, IT IS ESSENTIAL THAT THE FRAME NUMBER IS QUOTED WITH EVERY ORDER

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OPERATING & SERVICE NOTES

MODELS 20TA, 20TAS and 24TAS
20SAS and 24SAS
24DB and 25DB
24TCS, 20TC and 20TCS

LOCATION OF CONTROLS

The handlebar controls are laid out in orthodox style. On the right-hand side of the bar the throttle twist grip and front brake lever, and on the left-hand side the clutch lever and horn/dipper switch. Trials machines also include on this side of the bar the decompressor lever. In the case of competition machines the horn/dipper switch is replaced by a bulb horn. An air lever is provided for the scrambler machines and is attached to the frame tie behind the carburetter.

For the road machines the lighting switch is situated in the front of the battery tool box shroud. Direct lighting sets fitted to competition machines have the switch fitted to the head lamp body.

On the left-hand side of all machines will be found the footbrake pedal and on the right-hand side the gear change lever and kickstart. On all machines, with the exception of the trials models, first gear is obtained by raising the gear change lever, second, third and fourth by depressing the lever. To change down the lever is raised.

The gear change lever is located on a splined shaft and by releasing the clamp bolt can be drawn off and replaced at a different angle if required.

Due to the necessity to obtain a more rearward position of the footrests on the trials models, the gear change lever has been shortened and reversed. This reversal causes opposite rotation of the splined shaft and the necessity to change gear in the opposite direction, i.e. 1st gear depress lever, 2nd, 3rd and 4th raise lever.

The handlebar angle can be altered to suit individual preference by slackening the four cap allen socket screws used in the handlebar clamps. A special allen key will be found in the tool kit for this job. Place the key into the hexagon socket in the top of the screw and whilst holding the locking nut under the crown plate, turn the key anti-clockwise slightly. Repeat for all four screws. Rotate bars to desired position and lock up clamps.

To prevent competition handlebars from rotating in their clamps under excessive loads, we recommend that a small amount of valve grinding paste be placed between the bars and their seatings.

RUNNING THE ENGINE

STARTING ENGINE FROM COLD

Switch on the petrol. Press down air slide on top of carburetter. Depress the float "tickler" for approx. 3-4 seconds. Slightly open the throttle. Smartly, but not violently, rotate the starting lever with the right foot. When the machine is running it will be found from practice how soon the air strangler can be raised. When the engine is hot it will not be necessary to depress the tickler or use the air strangler.

When re-starting a hot scrambler engine fitted with Monobloc carburetter it is advisable to lean the machine as far to the left as possible whilst kicking it over. This will prevent the mixture becoming over rich.

RUNNING IN

The running in period is really the most important time in the life of the engine and the handling you give it during the first 1,000 miles will determine what sort of service it is going to give you later.

TRIALS AND ROAD MACHINES

It is advisable not to exceed half throttle for the first 500 miles. Avoid sudden and sharp acceleration, especially when the engine is not pulling under load. Do not force it up hills in top gear when a change down would ease the load.

When this period has been completed short bursts of higher speed can be used. Do not completely close the throttle after accelerating as this has the effect of cutting off the lubrication to the engine and may result in a seizure.

PETROIL MIXTURE

The lubrication of the engine depends entirely on oil being mixed with the petrol and entering through the carburetter. It is, therefore, most important that under no circumstances should the engine be run on neat petrol as a seizure will most certainly result.

For trials use and hard road driving our own preference is for Filtrate Colloidal 2-stroke oil (graphited) at 24 to 1 initially and eventually when run in at 32 to 1 (half a pint to 2 gallons), or Shell 2T at 16 to 1 and 20 to 1.

LUBRICATION

250 cc. Scrambler Model 24SAS

The Villiers Engineering Company strongly recommend that a Castor base lubricant, such as Castrol R, should be used at a ratio of 24 to 1 in all the 250 c.c. Mark 33A Scrambler engines fitted to the above model.

Castor base oils can readily be mixed with all modern day premium petrols and it is also important to note that only first grade petrols should be used, such as Shell Premium with I.C.A. or Mobil Gas Special and that 100 Octane "Super" fuels are not recommended.

The Villiers handbook supplied with the machine will assist you in selecting the correct gearbox and chaincase oils.

ROUTINE MAINTENANCE

CLEANING

Care should be taken not to rub off road dust and mud with a dry cloth, as this will result in scratching of the paint work. The machine should be washed down with a liberal quantity of water which will soften the mud and float away the grit. After drying off with a washleather the paint work can be polished. Care should be taken to prevent water entering the brake drums or carburetter.

The engine and gearbox are best cleaned with a brush and paraffin, and then dried off with a clean rag.

The aluminium beam or front frame member has been protected by a clear lacquer and should not be cleaned with an abrasive. Competition machines that have become muddy either in a scramble or a trial should be cleaned down as soon as possible after the meeting, before the mud has a chance to set.

GREASING AND OILING

All Greeves competition machines are fitted with protected and grease-packed ball journal bearings. They will not require greasing throughout their lives.

Road machines are fitted with similar sized bearings as the competition machines, but of a type that will require greasing. Two or three strokes of the grease gun should therefore be applied to the grease nipple in the centre of each hub every 2,000 miles. The speedometer gearbox, situated in the backplate of the rear wheel should be given one stroke of the grease gun every 5,000 miles.

A small amount of light lubricating oil should be frequently applied to such points as the pillion footrest hinges, centre stand pivot, brake lever pivot, brake and clutch lever pivots and the front and rear brake fulcrum lever bearings. The front and rear suspension are of such a design that no lubrication or greasing is required.

CARE OF THE DRIVING CHAIN

The life of the driving chain can be considerably extended, by frequent removal, cleaning in paraffin and lubricating with one of the many chain lubricants.

NOTE: The spring fastener must be fitted with the closed end facing the forward direction of travel. To test the chain for wear it should be removed from the machine and laid out flat and straight on the floor. Working from each end the links should be pushed together until all the clearances have been taken up. Holding one end firmly the chain should be stretched and the amount of extension measured. If this dimension exceeds $\frac{3}{8}$ in. the chain should be replaced. When it becomes necessary to replace the final drive chain, a check should be made to see that the gear box and rear wheel sprockets are in good condition and have not become hooked. It is uneconomic in the long run to fit a new chain to worn sprockets as its life will be greatly reduced.

USE OF THE CHAIN OILER ON COMPETITION MACHINES

All competition machines have been fitted with a unique chain oiler which uses the nearside swinging arm leg as an oil reservoir for a drip feed onto the chain. The system is filled from the offside of the machine through a tube extending from the swinging arm cross tube immediately in front of the rear mudguard. The oiler should be charged with approx. 1 pint of SAE 30 oil. The oil is directed onto the chain through a needle valve, and the amount the valve should be opened will depend upon the climatic temperature.

NOTE: Do not forget to turn the needle valve off when not in use.

CARE OF CONTROL CABLES

Control cables are far too often sadly neglected to the stage where they become harsh in operation and prevent the rider from having a fine control over his machine. To prevent this the cables should be periodically removed from the machine, hung up and a light oil allowed to run down inside the cable.

CLEANING EXHAUST SILENCER

On all models the centre section of the silencer can be withdrawn for de-carbonising by removing the small nut and bolt at the extreme end of the silencer.

BATTERY

On the road models the battery is situated in the centre shrouded section immediately under the nose of the seat. To open the compartment door the knob on top of the case should be raised. This will release the door which can be completely removed. It will now be seen that the compartment is divided into two. The top half containing the tools and the bottom half the battery. To top up the battery it is necessary to firstly remove the tools and slide out the shelf by pulling directly towards you. The lid of the battery can now be removed. The battery should be topped up to $\frac{1}{4}$ in. above the plates with pure distilled water once a month. DO NOT ADD ACID. Any water spilled on top of the battery should be carefully wiped away. Should it be necessary to completely remove the battery at any time, it is only necessary to disconnect the positive and negative terminals before the battery can be lifted out.

TYRE PRESSURES

		Front			Rear	
		Solo	Pillion	Solo	Pillion	
24DB }	18	18	22	28		
25DB }						

ROAD PRESSURES FOR TRIALS MACHINES

18 PSI Front. 16 PSI Rear.

TYRE PRESSURES COMPETITION USE

Tyre pressures used in competition will vary considerably from one terrain to another. We are therefore unable to offer general advice on this subject.

SECURITY BOLTS

Security bolts are fitted to all competition machines to prevent tyre creep. It is important that when re-fitting tyres the security bolts are correctly positioned. This operation is clearly illustrated in the Dunlop booklet supplied with your machine.

ADJUSTMENTS AND MAJOR DISMANTLING

ENGINE

Full instructions for maintaining the engine will be found in the VILLIERS handbook supplied with the machine.

CHAIN ADJUSTMENT

The chain should be adjusted to a total up and down movement of $\frac{1}{2}$ in. in the tightest position. This position can be found by compressing the rear suspension whilst rotating the rear wheel and feeling the chain tension. To tension the chain, slacken wheel nuts and torque arm bolt and turn adjuster nuts clockwise, both sides must be adjusted the same amount. Lock up wheel nuts and torque arm bolt.

STEERING HEAD ADJUSTMENT

24DB, 25DB

The steering head bearing consists of two rows of $\frac{1}{2}$ in. diameter steel balls running in hardened steel tracks (see Fig. 2). To test for slackness, raise the front wheel off the ground and check for fore and aft movement. If the amount of adjustment required is very slight it can be taken up as follows. Slacken the steering head bolt locking nut immediately under the bottom crown plate. Turn the steering head bolt with a spanner clockwise until the fore and aft movement is removed. Care should be taken not to over tighten or the steering will be stiff. Do not forget to tighten the locking nut.

In the case of the road machines an aluminium pressing between the handle-bar clamps covers the head of the steering head bolt, to enable adjustment to be made a spanner slot has been provided at the rear of this cover. If the adjustment required is excessive it will follow that the head race tracks and balls have become worn and will require replacing. Instructions for fork removal have been included in a later paragraph.

STEERING HEAD—COMPETITION

The models listed below have been fitted with a modified head assembly consisting of reversing the head bolt. It will be found that the top crown plate race bush is tapped and that the fork bottom crown plate race bush is a clearance on the bolt. The bolt is therefore entered from the underside of the bottom crown plate. Instructions for adjustment are as above.

It is most important that head race adjustment is checked and adjusted if found necessary, not only before every meeting but before every race.

MODELS FITTED MODIFIED ASSEMBLY

24SAS Frame No. 59/1899 and 59/3202 onwards.

20SAS Frame No. 59/1952 onwards.

20TCS } All.
24TCS }

When ordering a replacement fork leg assembly or top crown plate it is most important to quote the frame number.

WHEEL REMOVAL

Front

Remove the front brake cable at the backplate end by pulling out the split pin from the shackle clevis pin. It will now be possible to unscrew the adjuster screw locking nut and free the cable from the wheel. Unscrew wheel nuts and remove keeper plates. In the case of the road models the keeper plates are attached to the mudguard stay and to release the wheel it will be found necessary to spring this stay over the wheel spindle. The wheel can now be removed. Care should be taken upon replacement to ensure that the torque arm which is a slotted lug welded to the backplate, locates over the stop spacer. See figure 3.

Rear

Undo the speedometer cable at the backplate connection, remove chain connecting link and free chain; disconnect rear brake rod by unscrewing the knurled adjuster, remove torque arm securing bolt.

It only remains to slacken the wheel nuts and pull the wheel rearwards out of the spindle slots.

When replacing the rear wheel the spindle should be placed in the slots (brake drum on the offside) and the adjusters fitted, the nuts should now be fitted and lightly nipped up. Locate the torque arm which is a slotted lug welded to the backplate with its mating lug on the swinging arm, fit bolt and nut but do not tighten. Fit chain and adjust as previously described. Lock up wheel nuts. Tighten torque arm bolt. Re-fit brake rod and adjust brake. Replace speedometer cable.

WHEEL ALIGNMENT

It is advisable to check wheel alignment whenever the rear wheel has been removed from the frame. To do this place a 6 ft. long straightedge along the sides of the wheels touching both front and back sides of the rear wheel. With the steering dead ahead the distance between straightedge and the front and rear of the front wheel should be equal. Now repeat for other side and check that all dimensions are the same.

BRAKE ADJUSTMENT

Front Wheel

The front brake is adjusted by the screwed adjuster situated on the front backplate. Raise the front wheel from the ground so that it may rotate freely. Loosen the locking nut on the under side of the stop block and turn the upper nut clockwise whilst holding the adjuster until the brakes can be heard to rub when the wheel is rotated. Slacken off the adjustment three complete turns and lock up the bottom nut.

Rear Wheel.

Raise the rear wheel off the ground so that it may rotate freely. The rear brake can now be adjusted by turning the knurled knob at the end of the brake rod (near the rear wheel spindle) clockwise until the brake can be heard to rub when the wheel is rotated. The adjuster should now be slackened five complete turns.

TO REMOVE AND REFIT WHEEL BEARINGS IN EITHER WHEEL

The wheel must be completely removed as previously described. Remove backplate by unscrewing the locking nut. The spindle can now be knocked out with a hide hammer driving it from the brake drum side. The spindle will bring with it one bearing (the NS). This bearing can now be removed and the spindle re-inserted into the remaining bearing. By striking the spindle from the flange side the brake drum side bearing will be removed. Bearings should not be removed unless they are to be replaced.

It is most important when replacing the first bearing to press it into the housing by exerting pressure on the outside ring and not the centre.

The following sequence should be followed. Press in drum side bearing, having in the case of the road machines packed the bearing with grease. Insert spindle from opposite side, place the other bearing onto spindle and press into housing. In this case it is most important to use a piece of tube that will exert pressure on the outside and centre of the race at the same time. Check for free running and complete assembly. See Figure 1 for a sectional diagram. When assembling care should be taken to ensure that the distance spacers are correctly positioned.

FRONT SUSPENSION DAMPER UNITS

METALASTIK rubber bushes are used in torsion as the suspension medium for the Greeves front fork. The assembly is hydraulically damped by a GIRLING damper unit fitted inside each leg.

Should you have reason to inspect the GIRLING hydraulic front dampers this can be carried out as follows. Remove the bottom fixing bolts of the damper from the bottom loop. You will find if the unit is in perfect order that there is very little resistance to compressing the unit but that there is considerable resistance to a jerk extension. Should you find that the units require replacing proceed as follows. Having removed the bottom fixing bolts, remove the top fixing bolts which pass through the fork legs. It will now be found that the units cannot be removed without rotating the bottom loop downwards. This can be done by placing a piece of stout wood or steel across the top edge of the loop

plates directly above the spindle slots. Another piece of stout wood or steel tube about 3 ft. long can be used as a lever by inserting under the bottom loop tube and over the wood or steel that has been placed over the spindle slots. Pressure exerted on the end of the lever will twist the bottom loop about the rubber suspension bushes and the units may be released.

FRONT SUSPENSION

The rubber bushes are virtually indestructible under normal conditions, but, should the occasion arise that a new set is required either the complete fork or the bottom loop only should be returned to the Service Department as they are originally pressed into the housings under a 10-ton press and it would be most impracticable for the owner to remove or replace them himself.

TO REMOVE FORK LOOP

Remove front wheel. Remove the bottom fixing bolts of the Girling dampers. Remove the two bolts which clamp up the aluminium cups either side of the METALASTIK bushes. These aluminium cups should now be removed by knocking out with a piece of $\frac{1}{2}$ in. dia. rod placed through the bolt hole. Once one cup has been removed from either side, it is a simple matter to remove the remaining ones.

It will be noticed that the outside pair of clamping cups have been pinned into the housing of the Metalastik bush by two pins, which should be removed and kept for re-assembly. The bottom loop is now free to be removed. To re-assemble, offer up the bottom loop and fix into position the four clamping cups, making sure that the drilled cups are on the outside of the legs. Insert the two bolts (the long bolt and spacer on the offside) but tighten them only lightly so that the pinning angle can be set. This angle allows the correct amount of pre-load to be applied to the bushes and is correct when the centre distance between the two fixing points of the damper unit is $11\frac{1}{2}$ in. (see Fig. 1), and $11\frac{3}{8}$ in. in the case of the TC series trials model. Having set the angle tighten up the clamp bolts, this will hold the loop in position while the four pin holes are being drilled. Using a No. 15 drill, drill through the existing holes in the outer clamping cups into the housing for a depth of $\frac{3}{8}$ in. Replace the four pins and bolt up the damper bottom fixings. As the $11\frac{1}{2}$ in. given is greater than the extended dimensions of the damper it will be found necessary to force the loop round until the bolts can be inserted. For assembly drawing see Fig. 1. A drilling jig is available from the Service Department for a returnable deposit of £1.

TO REMOVE COMPLETE FORK FROM FRAME

Competition Machines

Having removed the front wheel as previously described, proceed to undo the handlebar clamp using the Allen key provided. This is a hexagon rod bent to right angles which you will find to fit into the heads of the four fixing screws. These screws are locked under the crown plate with nuts which will require holding with a spanner whilst the screws are turned. Having removed all four screws the clamps and handlebars are now free. To enable you to remove the bars completely it will be necessary to disconnect the clutch, de-compressor and

throttle cable from their fixings on the handlebars. Proceed to disconnect the speedometer drive, by unscrewing the knurled cable connection immediately under the speedometer head. The front competition plate is the next removal and this is carried out by releasing the two holding bolts which pass through the front registration number plate. On the top of each fork leg will be seen the head of a bolt, these are used to pull up the internal tapered expander plugs which fix the top crown plate to the fork legs. Before the forks can be removed it is necessary to unscrew each bolt four turns and strike them a light blow downwards to release the tapered disc. Having completed this, remove the head bolt locking nut situated under the bottom crown plate and unscrew the fork crown stud. The forks can now be removed by lightly tapping the top crown plate upwards. When replacing forks do not lock up the tapered discs until the head has been adjusted.

Road Machines

Fork removal on the road machines is made slightly more difficult by the necessity to first remove the headlamp and fork shroud, and this should be done as follows. Remove handlebars as described in previous paragraph. Remove headlamp rim by unscrewing the fixing bolt situated at the bottom of the rim and lifting the rim off from the bottom. Disconnect all electrical connections, making careful note of their location. Remove speedo cable by unscrewing the knurled connector. It will now be seen that the headlamp body is held to the fork legs by two bolts. When these are removed the headlamp shell is released. The speedometer cable, control cables and wiring harness must now be pulled through the shroud, and when this is done the shroud can be removed by raising vertically. The instructions previously described under "competition machines" can now be followed.

REAR SUSPENSION

The swinging arm is pivoted on Metalastik rubber bushes which require no lubrication whatsoever. Should you suspect that either of the bushes has failed, the swinging arm should be removed and returned to the Service Department.

The Armstrong hydraulically damped rear units are of the sealed pattern and do not require topping up. The hydraulic operation can be inspected by removing the top fixing bolt from the frame and slackening the bottom fixing. This will allow the unit to be swung out of the top fixing brackets. The outer shroud should be firmly clasped and pressed downwards, this will release the split collet at the top of the unit, which should be removed. The damping action can be checked as described under "FRONT SUSPENSION "DAMPER UNITS" ".

To prolong the life of the units when scrambling or trials riding the units can be covered with a rubber sleeve or piece of inner tube to prevent sand and mud from entering them.

FRAME

The frame will not require any attention unless it has been involved in an accident, in which case it should be inspected very carefully and checked for wheel alignment. If the frame is damaged or distorted it should be returned to the works for rectification.

ENGINE REMOVAL

Should the need arise to remove the engine this can be carried out as follows:

All Models except 25DB

It is advisable always to remove the tank first to prevent its accidental damage. This can be done by removing the front and rear tank fixing bolts, disconnecting the petrol pipe and drawing the tank off the frame. This operation is made easier if the tank is raised at the front as much as possible and then pulled forward and upwards. Next unscrew the exhaust pipe flange nut, release the silencer to pipe clip and draw off the exhaust pipe. It is advisable at this stage to remove the carburetter from the manifold to prevent its accidental damage. Disconnect the clutch cable from the engine. Remove the rear driving chain. It only remains now to undo the three bolts fixing the engine into the cradle plates. Having removed these, the engine should be lifted vertically as far as possible and drawn out.

Model 25DB

In the case of the 25DB it will be found necessary after removing the tank to remove the two ignition coils bolted to the underside of the frame top tube.

It is now only necessary to release the exhaust pipe, remove the carburetter cover, clutch cable, throttle cable and a driving chain, before the engine fixing bolts can be withdrawn and the engine lifted out of the frame.

ELECTRICAL

Wiring diagrams have been included for all models including the direct lighting set, which is fitted as an extra to competition machines.

In the case of the Sports Road Twin (25DB) the ignition coils are situated under the tank channel. Should new connections be made at any time it is easier to remove the tank than attempt to carry out the work in the confined space of the tank channel.

WARNING

The casing of the horn is "live" and if shorted out to any part of the frame the horn will sound. When removing the air filter from the 24DB or the carburetter cover from the 25DB it is advisable to place a thin piece of cardboard between the horn and cover or air filter to prevent contact.

HEADLAMP BEAM ADJUSTMENT

A small amount of beam adjustment is available by unscrewing the bolt immediately under the headlamp rim. The rim is spring loaded and if the screw is turned anti-clockwise the beam will be raised.

WATER PROOFING

It is important before using the machine in competition to prepare the engine in such a way that water will not enter the contact points or the carburetter.

Upon removal of the contact points cover, it will be seen that the low tension cable passes through a rectangular hole (or round hole on 32A engine). This hole allows water which has entered the cover from other points to flow in,

causing an electrical short and the engine to stop. Therefore the hole must be sealed around the cable to prevent this and we recommend SEALASTIK for this purpose. The seating of the cover plate should also be treated with SEALASTIK and this will enable the compartment to be made water-tight when the cover is replaced. It is important to note that the cover should be removed frequently, and any condensation formed due to the sealing up, dried out.

The problem of preventing water and mud entering the carburetter is one that is tackled in many ingenious ways, and the actual method employed is rather dependent upon the facilities available. However, whatever the method employed care should be taken not to restrict the air flow to the carburetter. The comparatively small amount of time necessary to prepare the water-proofing may mean the difference between winning or losing.

MISCELLANEOUS DATA

TYRE SIZES

	Front	Rear
24DB and 25DB	2.75 × 19	3.25 × 18
20TA, 20TAS, 24TAS, 24TCS, 20TCS, 20TC	2.75 × 21	4.00 × 18
20 SAS Scrambler	2.75 × 21	3.25 × 19
24SAS Scrambler	2.75 × 21	3.50 × 19

TANK CAPACITY

24DB and 25DB	2½ Gallons
24TAS, 20TC, 20TCS, 24TCS	2 Gallons
20TA, 20TAS, 20SAS, 24SAS	1¾ Gallons

BATTERY

24DB and 25DB	9 Amp. Hour
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GEAR RATIOS

	1st	2nd	3rd	4th
24DB	17.38	10.52	7.51	5.91
25DB	17.52	10.89	7.59	5.73
20TA, 20TAS, 24TCS, 20TC, 20TCS	27.9	18.6	10.4	7.75
20SAS	25.8	15.31	10.92	8.6
24SAS	23.6	22.31	10.19	8.03
24TAS	26.12	17.41	9.72	7.26

REAR WHEEL SPROCKETS

24DB	44 Teeth
25DB	48 Teeth
20TA, 20TAS, 24TAS, 20TC, 20TCS, 24TC	54 Teeth
20SAS	60 Teeth
24SAS	70 Teeth

HEADLAMP AND REAR LIGHT BULBS

24DB and 25DB	Main Beam	...	...	...	6 Volt 30/24 Watt Pre Focus.
	Pilot	...	...	...	6 Volt 6 Watt
	Speedo	...	...	...	6 Volt 17 Amp.
	Tail	...	...	...	6 Volt 6 Watt

DIRECT LIGHTING SET

	Main Beam	...	...	...	6 Volt 36/36 Watt Pre Focus.
	Pilot	...	...	...	3.5 Volt 15 Amp.
	Tail	...	...	...	6 Volt 6 Watt.

BRAKE SIZES

All Models 6 in. x 1 in.

Model	Compression Ratio	Bore	Stroke
24DB	7.25-1	66 mm.	72 mm.
25DB	8.2-1	50 mm.	63.5 mm.
20TA, 20TC	7.25-1	59 mm.	72 mm.
20TAS, 20TCS	8.2-1	59 mm.	72 mm.
24TAS, 24TCS	7.25-1	66 mm.	72 mm.
20SAS	...	59 mm.	72 mm.
24SAS	...	66 mm.	72 mm.

ENGINE TYPE

24DB	246 c.c. Villiers 32A	24TAS, 24TCS	246 c.c. Villiers 32A
25DB	250 c.c. Villiers 2T	20SAS	197 c.c. Villiers 9E
20TA, 20TC	197 c.c. Villiers 9E	24SAS	246 c.c. Villiers 33A
20TAS, 20TCS	197 c.c. Villiers 9E		

WEIGHTS

24DB	...	245 lb.	24TAS, 24TCS	240 lb.
25DB	...	270 lb.	20 SAS	223 lb.
20TA, 20TC	233 lb.		24SAS	230 lb.
20TAS, 20TCS	233 lb.			

RECOMMENDED SPARKING PLUGS

24DB	...	HH 14	} For Trials Competition use we highly recommend an HNP Plug. R.49 recommended after running in.
25DB	...	HH 14	
20TA, 20TC	...	HH 14	
20TAS, 20TCS	...	HH 14	
24TAS, 24TCS	...	HH 14	
20SAS	...	3 HN	
24SAS	...	RL 50	

CARBURETTOR DETAILS FOR 20SAS AND 24SAS WHEN USING PETROL

	Make	Model	Size	Slide	Main Jet
20SAS	...	Amal	No. 376	1 $\frac{1}{16}$ Bore	No. 3 250
24SAS	...	Amal	No. 389	1 $\frac{3}{16}$ Bore	No. 3 480

(560 prior to engine No. 257)

Depending upon prevailing conditions it may be found necessary to fit either larger or smaller main jet.

The Garda air filter should be removed after every meeting, thoroughly cleaned in petrol, and dipped into a container of clean light engine oil and hung up to drain before re-fitting.

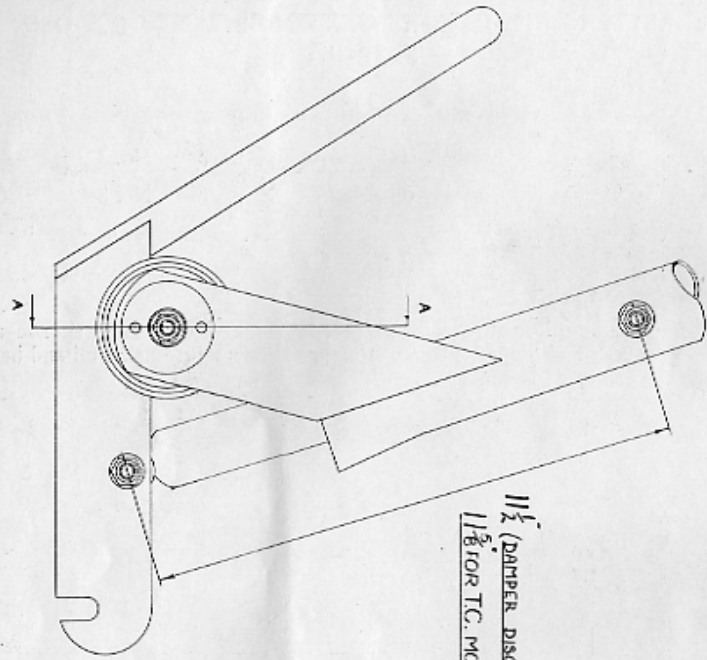
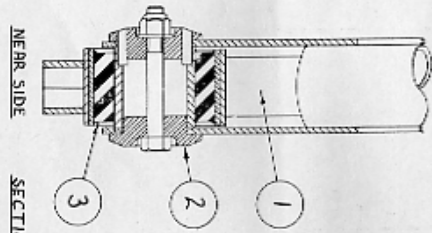
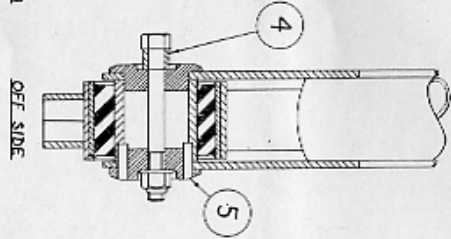


FIG. 1

1 1/2" (DAMPER DISCONNECTED)
1 1/8" FOR TC. MODELS



SECTION AA
NEAR SIDE



SECTION BB
OFF SIDE

- 1 DAMPER UNIT
- 2 CLAMPING CUP
- 3 METALASTIK SUSPENSION LASH
- 4 TORQUE ARM LOCATION
- 5 DOWEL PIN

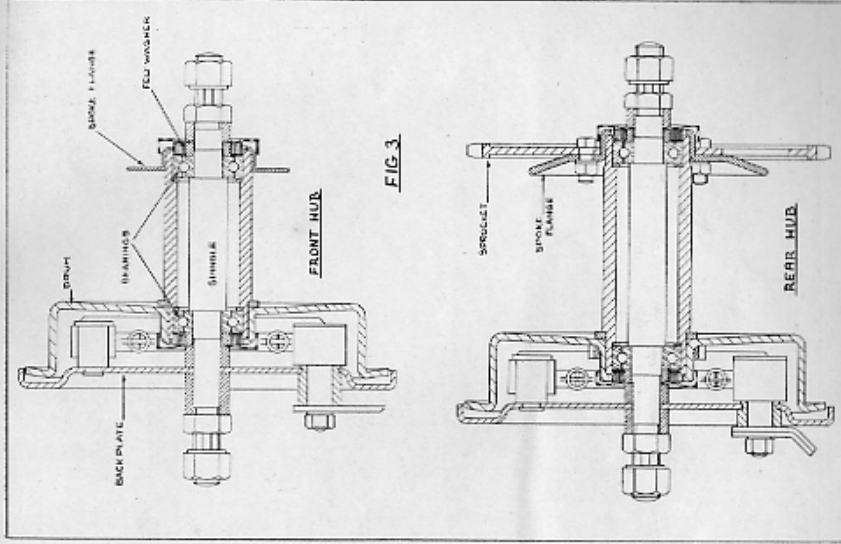


FIG. 3

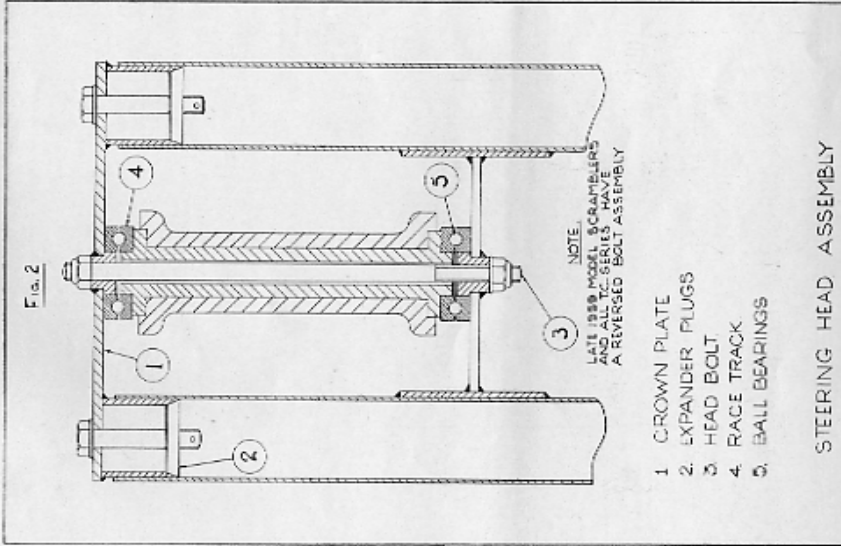
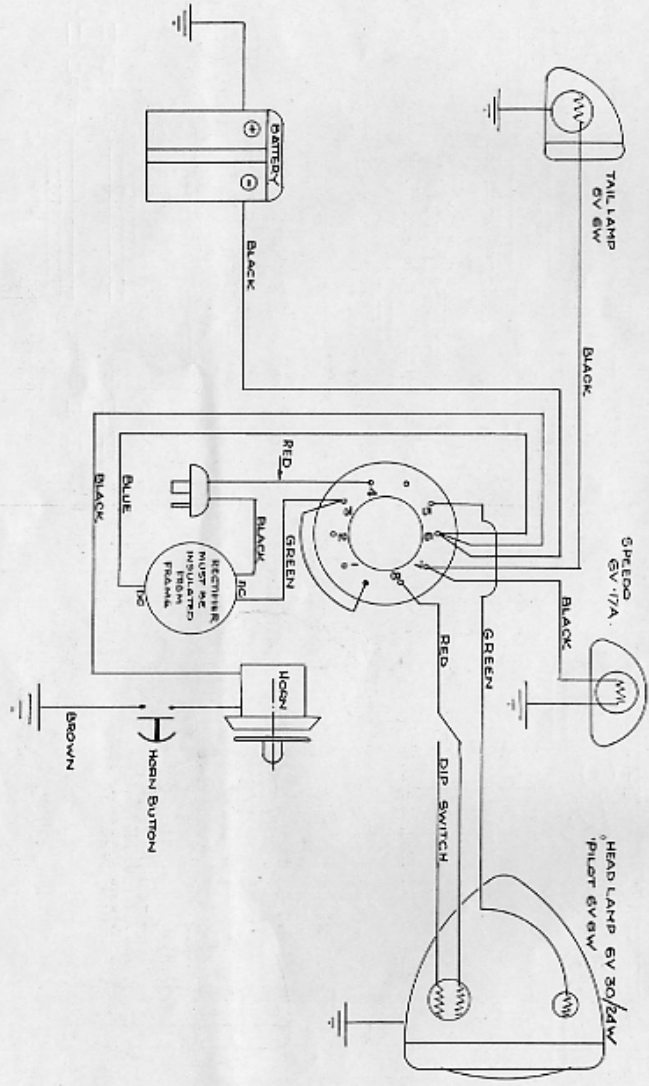


FIG. 2

NOTE.
LATE 1959 MODEL SCRAMBLERS
AND ALL TC SERIES HAVE
A REVERSED BOLT ASSEMBLY

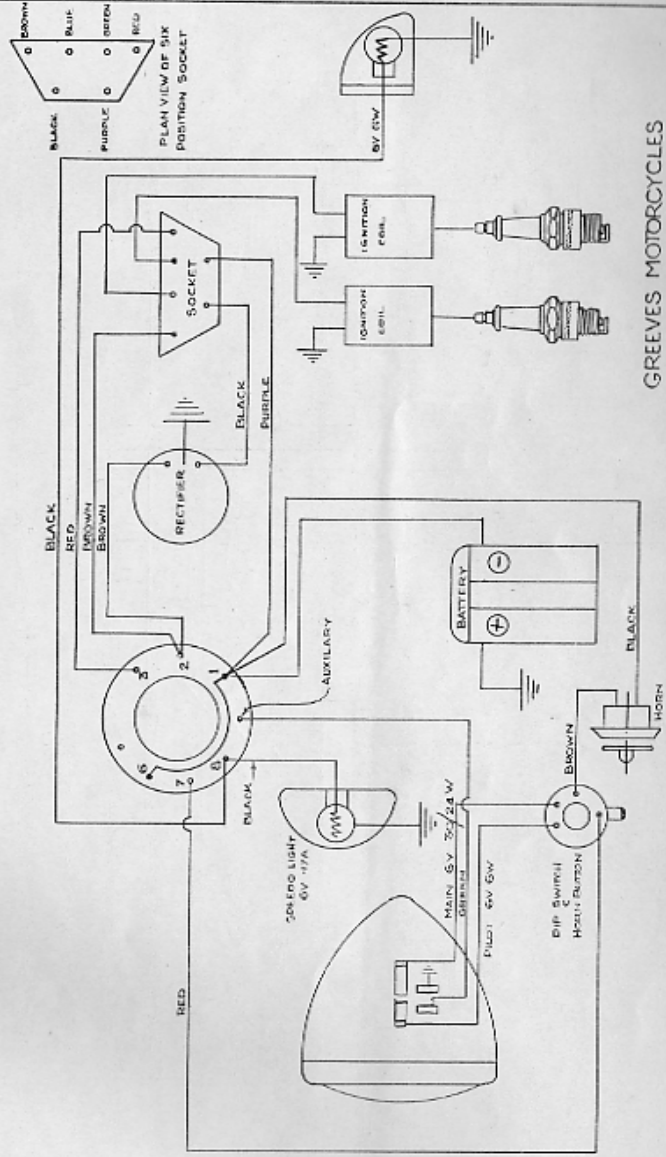
- 1 CROWN PLATE
- 2 EXPANDER PLUGS
- 3 HEAD BOLT
- 4 RACE TRACK
- 5 BALL BEARINGS

STEERING HEAD ASSEMBLY



LIGHTING DIAGRAM FOR 24DB SPORTS.

LIGHTING DIAGRAM FOR 25DB SPORTS



DIRECT LIGHTING SET DIAGRAM

