

LAMPS

HEADLAMPS FITTED TO MACHINES INTENDED FOR THE HOME MARKET AND FOR EXPORT, EXCLUDING EUROPE

These lamps have a double filament pre-focus Left Hand Dipping 6 volt 30/24 watt Lucas No. 373 main bulb and 6 volt 3 watt Lucas No. 988 pilot bulb.

HEADLAMPS FITTED TO MACHINES INTENDED FOR EXPORT TO EUROPE These lamps have a double filament pre-focus 6 volt 35/35 watt Lucas No. 403 bulb.

HEADLAMPS FITTED TO MACHINES INTENDED FOR EXPORT TO FRANCE ONLY

These lamps have a double filament pre-focus 6 volt 36/36 watt bulb (yellow) with a three point connection to the lamp.

Basically the above lamps are identical, the difference occurring only with the method of attachment of the bulb in the French type headlamp and in the power of the bulbs.

REPLACING THE HEADLAMP BULB

To gain access to the headlamp bulb, slacken the front rim retaining screw situated at the top of the lamp fixing ring. Disengage and withdraw the front rim and light unit assembly, removing the upper edge first. With the exception of the French headlamp, press the moulded adaptor inwards and turn it to the left. Lift off the adaptor and withdraw the defective bulb. When inserting a replacement bulb, locate the slot in the bulb flange with the projection in the bulb holder. Re-fit the adaptor, engaging its moulded recesses with corresponding projections on the bulb holder. Press inwards and secure by turning the adaptor to the right.

On the French headlamp, release the two clips securing the adaptor and remove the adaptor. Take out the defective bulb by pressing it in and turning to the left. When replacing the bulb, engage the three points on the bulb in the slots of the adaptor, press in and turn to the right to secure. Replace the adaptor with the projection on the adaptor engaging in the slot on the headlamp and secure by refastening the clips. Re-fit the rim to the nacelle, locating the bottom of the rim first. Tighten the securing screw and check the beam setting.

SETTING THE HEADLAMP BEAM

To check the headlamp beam setting, place the motorcycle in front of a light coloured wall at a distance of about 25 feet (8 metres). The machine should be carrying its normal load during this check, since the weight of the rider (and pillion passenger) may affect the setting. Switch on the main beam. This should be directed straight ahead and parallel with the ground. Loosen the two small screws on either side of the lamp fixing ring, and raise or lower the beam by pulling out or pressing in, the bottom of the ring. When the required adjustment has been obtained, re-tighten the two screws.

With the Lucas pre-focus type bulb fitted in these lamps, the filament is correctly positioned during manufacture in relation to the focal point of the reflector. No further focusing is necessary.

PARKING LIGHT

The parking light is simply pushed into the main light unit and is fitted with a 6 volt 3 watt Lucas No. 988 bulb, for all markets.

REAR LAMP

Access to rear light bulbs is gained by removing the two moulded cover retaining screws. The correct replacement for the stop tail lamp is Lucas No. 384 6 volt 6/18 watt bulb. This bulb has offset securing pins to prevent incorrect insertion into the bulb holder and to ensure that the higher wattage filament is illuminated when the brake pedal is depressed. In the event of failure of the 6 watt filament do not change the cables over to obtain rear lighting from the 18 watt filament as the heat generated will probably burn the plastic lens.

TO REMOVE THE NACELLE TOP UNIT

Battery. Disconnect the battery positive lead.

Steering Damper. Unscrew and remove.

Headlamp. Unscrew the retaining screw at the top of the headlamp retaining ring and ease the headlamp away from the ring, pulling from the top. Disconnect the earth wire (black) from the bulb holder frame, and the two headlight leads (blue/white and blue/red) at the snap connectors.

Retaining Ring. Remove by unscrewing the two small screws at the sides of the ring.

Motifs. Unscrew the four screws and two nuts securing the motifs and remove.

Rear Nacelle Retaining Screws. Remove the two small screws and nuts holding the rear of the top unit to the fork covers, being careful not to lose the nuts.

Lighting and Ignition Switch. Unscrew the small grub screw at the side of the plastic switch lever and pull the lever away from the switch. Unscrew the brass nut around the switch body, remove the name disc and push the switch through into the nacelle.

Horn. Disconnect the brown/blue lead from the horn terminal.

Speedometer. Unscrew the speedometer drive cable at the head and detach the speedometer light.

Ammeter. Disconnect the leads at the ammeter: one brown/white from the L.H. terminal and two brown/blue from the R.H. terminal.

NOTE

If it is intended to remove the top unit only, it is unnecessary to proceed any further. If the forks are to be removed however, it will be necessary to disconnect the blue lead from the dipper switch to switch position number 3 and also the red and black pilot light lead. Both these leads are fitted with snap connectors.

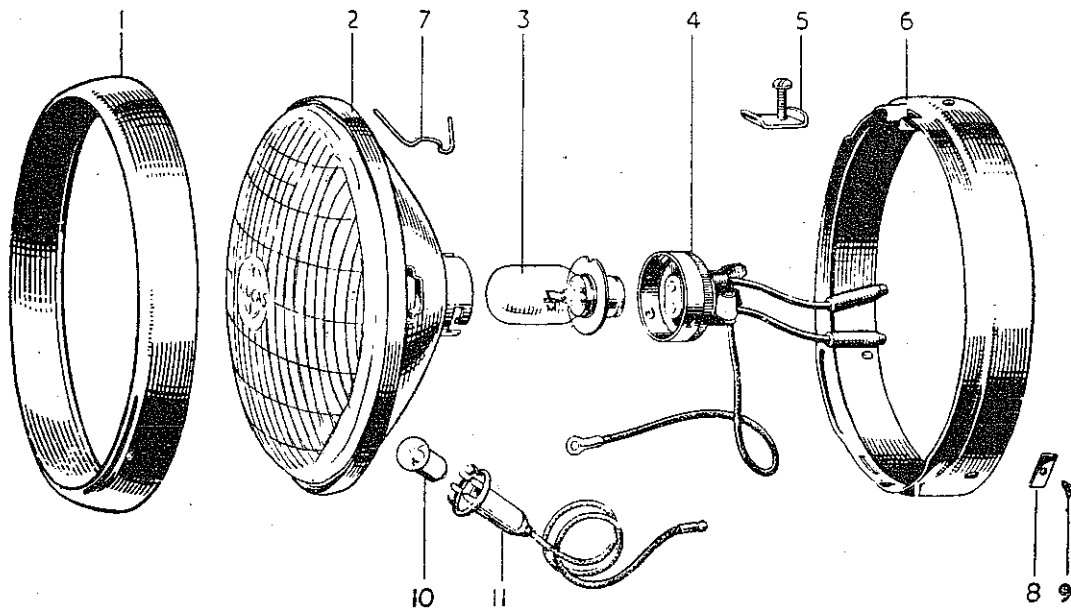


Fig. 49. HEADLAMP

INDEX

Index No.	Description.
1	Rim, front.
2	Light unit.
3	Bulb, pre-focus 30/24 W.
4	Adaptor, bulb.
5	Screw and plate.
6	Ring, lamp fixing.
7	Wire, clip.
8	Plate, tapped.
9	Screw, fixing.
10	Bulb, pilot 3W.
11	Bulbholder, pilot.

TO REPLACE THE NACELLE TOP UNIT

The replacement of the top unit is simply the reverse of the dismantling procedure. It is sometimes helpful to use a smear of grease to hold the nut on the finger, when replacing the rearmost nacelle top retaining screws.

BATTERY

Topping Up. During charging, water is lost by gassing and evaporation and this must be replaced to maintain the battery in a healthy condition. Once a month or more often in warm climates, the level of the electrolyte in the cells of the battery must be examined; if necessary, distilled water must be added to bring the electrolyte just level with the top of the separators.

Never use a naked light when examining the condition of the cells, as there is a danger of igniting the gas coming from the active materials.

Checking the Condition of the Battery. Occasionally check the condition of the battery by taking measurements of the specific gravity of the electrolyte in each of the cells. A small volume hydrometer is required for this purpose—this instrument resembles a syringe containing a graduated float which indicates the specific gravity of the acid in the cell from which the sample has been taken

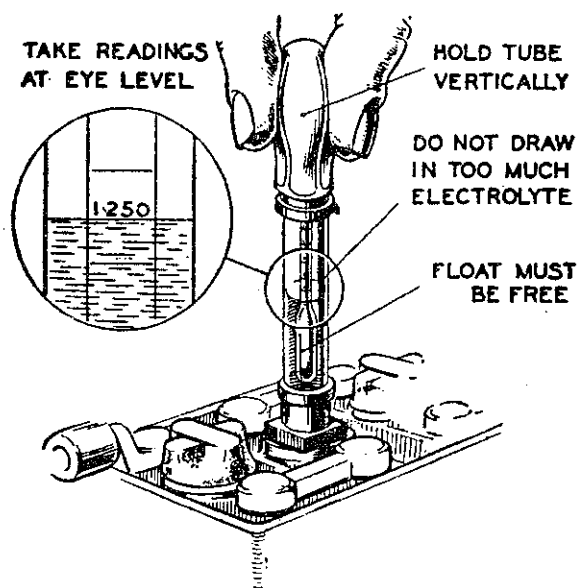


Fig. 50. TAKING HYDROMETER READINGS

Measurements should not be taken immediately after the cells have been "topped-up" as the electrolyte will not be thoroughly mixed. The space between each separator is not wide enough to permit the nozzle of a hydrometer to be inserted. Before taking a sample, tilt the battery to bring sufficient electrolyte above the separators.

Specific gravity readings and their indications are as follows:—

1.280-1.300	...	...	...	Cell fully charged.
About 1.210	...	...	...	Cell about half discharged.
Below 1.150	...	...	...	Cell fully discharged.

The reading for each of the cells should be approximately the same. If one cell gives a value very different from the rest, it may be that acid has spilled or has leaked from that particular cell, or there may be a short circuit between the plates. In this case the battery should be examined by a Lucas Service Depot or Agent.

Never leave the battery in a discharged condition. If the motorcycle is to be out of use for any length of time have the battery fully charged and every fortnight, give it a short refreshing charge to prevent any tendency for the plates to become permanently sulphated.

Detachable Cable Connectors. When connecting the battery, unscrew the knurled nut and withdraw the collet or cone shaped insert, noting that it is not interchangeable with the collet in the other terminal. Bare the end of the cable for about one inch and thread one bared end through the knurled nut and collet. Bend back the cable strands over the narrow end of the collet and insert the collet and cable into the terminal block. Secure the connection by tightening the knurled nut.

Battery Earth. The A.C. Lighting-Ignition Unit and dynamo unit have been designed for positive (+ve) earth systems. If the battery connections are reversed the equipment will be damaged.

ELECTRIC HORNS

These horns, before being passed out of the Works, are adjusted to give their best performance, and will give a long period of service without any attention.

If the horn becomes uncertain in its action, giving only a choking sound, or does not vibrate, it does not follow that the horn has broken down. First ascertain that the trouble is not due to some outside source, e.g. a discharged battery, a loose connection, or short circuit in the wiring of the horn. In particular, ascertain that the horn push bracket is in good electrical contact with the handlebars. It is also possible that the performance of a horn may be upset by its mounting becoming loose.

Adjustment. The following adjustment will not alter the tone of the horn. It will take up any wear of the moving parts which, if not corrected, may result in loss of power and roughness of note.

Accurate adjustment requires the use of a 0-10 amp. D.C. ammeter—the maximum permissible current consumption being 6 amperes at 6 volts—but the owner rider, who may not possess one of these instruments can carry out the following procedure if the horn note is considered to have deteriorated:—

Operate the horn push and turn the adjustment screw anti-clockwise until the horn just fails to sound. Release the horn push and turn the adjustment screw clockwise for six notches, i.e. a quarter of a turn, when the original performance should be restored. If further adjustment is necessary, turn the screw one notch at a time.

If the original performance cannot be restored by adjustment do not attempt to dismantle the horn, but return it to a Lucas Service Depot for examination.

TOOLKIT

<i>Part No.</i>	<i>Description.</i>	<i>Purpose.</i>
D.360	Spanner, open-ended $\frac{1}{8}$ " \times $\frac{5}{32}$ " Whit.	General
NA.55	Spanner, open-ended $\frac{1}{4}$ " \times $\frac{5}{16}$ " Whit.	„
DA.16	Spanner, open-ended $\frac{3}{8}$ " \times $\frac{7}{16}$ " Whit.	„
D.370	Spanner, closed $\frac{3}{16}$ " \times $\frac{1}{4}$ " Whit.	„
PA.57	Spanner, closed $\frac{1}{2}$ " \times $\frac{9}{16}$ " Whit.	Wheel nuts
D.311	Spanner, closed $\frac{5}{8}$ " \times $\frac{11}{16}$ " Whit.	Wheel nuts
D.362	'C' Spanner and Tappet Key	Suspension units
D.87	Spanner, box	Sparking plugs
D.336	Screwdriver, Phillips head	General
D.363	Tyre lever—screwdriver	„
D.364	Tyre lever—clutch key	Clutch adjustment.
DA.50/1	Extractor	Clutch hub
415116	Spanner	Contact breaker points
D.296	Tyre Inflator	

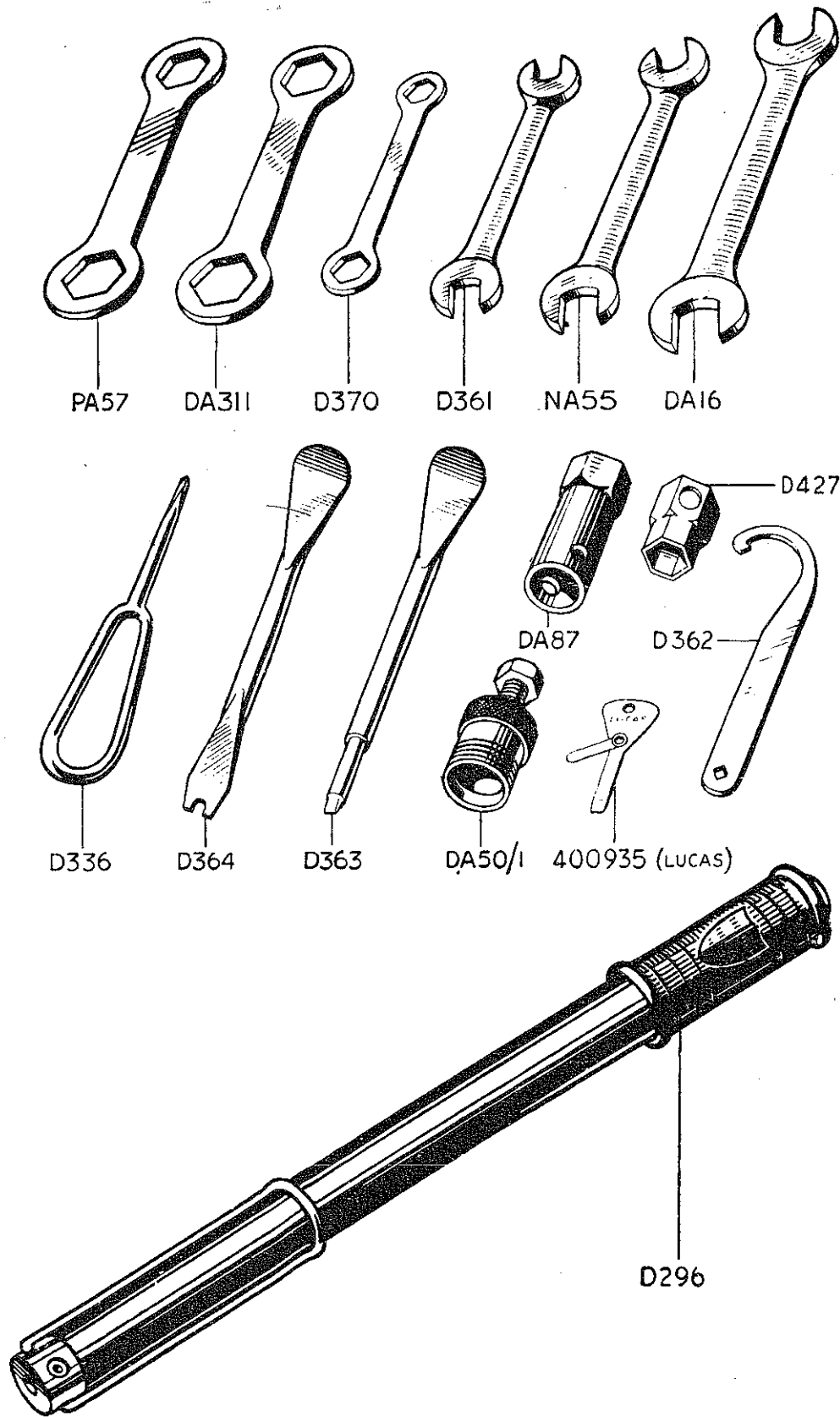


Fig. 51. TOOLKIT

FAULT FINDING

The following paragraphs have been drawn up to enable the rider to diagnose trouble which may arise during normal service. For each failure the faults and antidotes are arranged in order of probability. In each case the rider should always look for the obvious, such as no petrol, oil, controls incorrectly set, low tension wire shorting, and, before searching for an "A.C." ignition fault, always check over all electrical connections and clean and tighten if necessary; then follow with the process of elimination. If all else is in order and the machine will not start on "EMG", see Page 142.

ENGINE WILL NOT START

Lack of fuel	...	...	...	...	Tank empty, obstruction in petrol pipe or tank filter choked.
Excessive flooding	...	...	...	...	Dirt under float needle seating (see Page 128).
Oiled up or fouled, sparking plug	...	...	...	...	Remove, clean off carbon and wash in petrol. Allow to dry.
Engine valve stuck open	...	...	...	...	See Page 36 for valve removal.
Exhaust valve seatings burned	...	...	...	...	See Page 36 for valve removal.
No spark at plugs	...	...	...	...	See Page 142.
Contact points dirty	...	...	...	...	Clean with carborundum stone, wash with petrol and re-gap.
Incorrect contact point gap	...	...	...	...	Re-gap to 0.014 in. -0.016 in. (0.36-0.40 mm.).
Contact breaker arm sticking	...	...	...	...	Remove arm and clean pivot with fine emery, grease lightly and replace arm. Check gap.
H.T. connector shorting	...	...	...	...	Remove distributor cap and clean thoroughly; replace if cracked or damaged.
Condensation on sparking plugs	...	...	...	...	Remove plugs and heat up.

FAULT FINDING

No petrol or fuel obstruction ...	...	Check fuel in tank. Supply at carburetter if no supply. Remove pipes and tank filters if necessary. See Page 128.
Choked main jet ...	...	Dry ignition system.
Water on H.T. leads, or sparking plug	...	Remove carburetter and clean out.
Water in float chamber ...	...	Clean out vent hole.
Vent hole in petrol tank filler cap choked	...	Re-connect.
Battery lead off ...	...

ENGINE MISFIRES

Defective or oiled sparking plug	...	Clean and test plugs.
Water fouling main jet ...	...	Clean carburetter.
Incorrect contact breaker gap ...	...	Check and adjust to 0.014 in. -0.016 in. (0.36-0.40 mm.).
Contact points burned and arcing	...	Remove points and true with a carborundum stone. Replace and re-gap; change condenser if trouble persists. This fault can be caused by continuous running in the "EMG" position. See Page 36 for replacement.
Weak or broken valve spring ...	...	Clean out carburetter and check petrol supply at carburetter end. See Page 128.
Partial obstruction of petrol supply ...	...	Replace H.T. cable.
Slow running orifice choked ...	...	Replace sparking plug.
H.T. cable perished and shorting to frame	...	See Page 140.
Sparking plug insulation cracked	...	Replace.
Condenser failing ...	...
H.T. cable on coil faulty ...	...

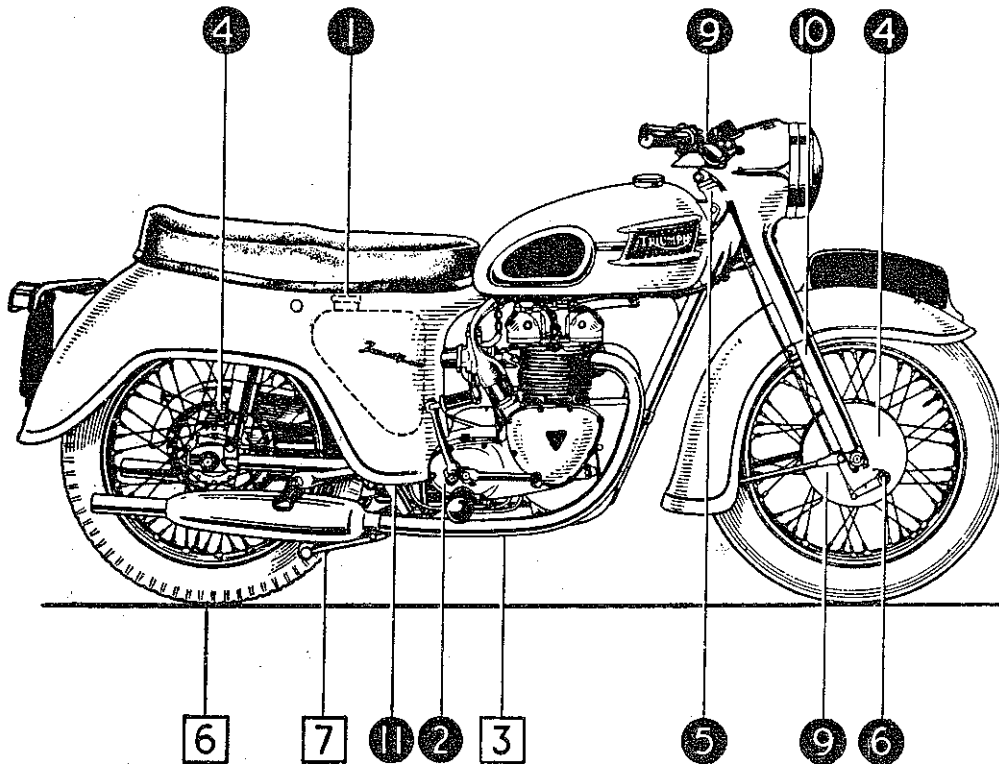
LOSS OF POWER

Faulty sparking plugs	...	...	...	Change.
Incorrect tappet adjustment	...	...	...	See Page 34.
Lack of lubrication	...	...	...	See that oil indicator button is working (see Page 20). Check supply in oil tank.
Sticky valve	...	...	...	Remove cylinder head (see Page 36). See Page 46.
Valves not seating	...	...	...	See Page 50.
Broken or gummed up piston ring	...	...	...	Place machine on the stand and re-adjust brakes. See Page 36.
Brakes binding	...	...	...	Change gasket.
Engine requires decarbonising	Remove, wash in petrol, re-oil and replace (see Page 131). Remove and clean.
Head gasket blowing	
Air filter choked	
Dirty carburetter	

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ENGINE OVERHEATS

Lack of lubrication	Check supply of oil, see that the indicator button is operating when the engine is running; if not, refer to Page 22. Ensure that the correct oil is used.
Faulty sparking plugs	...	...	...	Can cause pre-ignition; change and test. See Page 36.
Engine requires decarbonising	...	...	...	Check timing (see Page 64). See Page 46.
Ignition timing too late	...	...	...	Remove and clean in a solution of caustic soda.
Exhaust valve burned, or pitted valve seats	...	...	...	Dismantle engine, see Page 36.
Silencer choked	...	...	...	Partly choked jet, worn throttle slide.
Piston ring worn or seized in piston groove	...	...	...
Weak mixture	...	...	...



Numbers in circles refer to right side of machine.

Number in squares refer to left side of machine.

Fig. 52. LUBRICATION CHART

No.	Part.	S.A.E.	No.	Part.	S.A.E.
1	Engine Oil Tank	20 or 30	7	Footbrake Pedal spindle	Grease
2	Gearbox	50	9	Exposed Cables	20
3	Primary Chaincase	20	10	Fork (Hydraulic)	20 or 30
4	Wheel Hubs	Grease	11	Swinging Fork Spindle	Grease
5	Steering Head	Grease	OIL-CAN LUBRICATION All Brake Rod Joints and Pins		
6	Brake Cam Spindle	Grease			

SEE PAGES 156 and 157

RECOMMENDED LUBRICANTS

UNITED KINGDOM

UNIT	REGENT	SHELL	MOBIL	B.P.	WAKEFIELD	ESSO
Engine—Summer Winter ...	Havoline SAE 30 Havoline SAE 20W	Shell X-100 30 Shell X-100 20/20W	Mobiloil A Mobiloil Arctic	Energol SAE 30 Energol SAE 20	Castrol XL Castrolite	Esso Extra Motor Oil 20W/30
Gearbox ...	Havoline SAE 50	Shell X-100 50	Mobiloil D	Energol SAE 50	Castrol Grand Prix	Esso Extra Motor Oil 40/50
Primary Chaincase ...	Havoline SAE 20W	Shell X-100	Mobiloil Arctic	Energol SAE 20	Castrolite	Esso Extra Motor Oil 20W/30
Telescopic Fork— Summer Winter	Havoline SAE 30 Havoline SAE 20W	Shell X-100 30 Shell X-100 20/20W	Mobiloil A Mobiloil Arctic	Energol SAE 30 Energol SAE 20	Castrol XL Castrolite	Esso Extra Motor Oil 20W/30
Wheel Bearings ...	Marfak Multi-purpose 2	Shell Retinax A	Mobilgrease MP	Energol L2	Castrol L2	Esso Multipurpose Grease H
Easing Rusted Parts	Graphited Penetrating Oil	Shell Donax P	Mobil Spring Oil	Energol Penetrating Oil	Castrol Penetrating Oil	Esso Penetrating Oil

RECOMMENDED LUBRICANTS

OVERSEAS

UNIT	CALTEX	SHELL	MOBIL	B.P.	CASTROL	ESSO
Engine —Above 90° F. 32°-90° F. ... Below 32° F.	Caltex SAE 40 Caltex SAE 30 Caltex SAE 20W	Shell X-100 40 Shell X-100 30 X-100 20/20W	Mobiloil A.F. Mobiloil A Mobiloil Arctic	Energol SAE 40 Energol SAE 30 Energol SAE 20W	Castrol XXL Castrol XL Castrolite	Esso Extra Motor Oil 20W/40
Gearbox ...	Caltex SAE 50	Shell X-100 50	Mobiloil D	Energol SAE 50 20W	Castrol Grand Prix	Esso Extra Motor Oil 50
Primary Chaincase ...	Caltex SAE 20W	Shell X-100 20/20W	Mobiloil Arctic	Energol SAE 20W	Castrolite	Esso Extra Motor Oil 20W/40
Telescopic Fork — Below 60 F° Above 60 F°	Caltex SAE 20W Caltex SAE 30	Shell X-100 20/20W Shell X-100 30	Mobiloil Arctic Mobiloil A	Energol SAE 20W Energol SAE 30	Castrolite Castrol XL	Esso Extra Motor Oil 20W/40
Wheel Bearings ...	Marfak Multi-purpose 2	Shell Retinax A	Mobilgrease MP	Energrease L2	Castrolase LM	Esso Multipurpose Grease H
Easing Rusted Parts ...	Caltex Penetrating Oil	Shell Donax P	Mobil Spring Oil	Energol Penetrating Oil	Castrol Penetrating Oil	Esso Penetrating Oil

TECHNICAL DATA

MODEL	3TA up to No. H.2329	5TA up to No. H.18612	T100A up to No. H.18612	T100A up to No. H.22430
ENGINE. Bore and Stroke—mm.	58.25 × 65.5	69 × 65.5	69 × 65.5	69 × 65.5
Capacity—c.c.	348	490	490	490
Compression Ratio	7.5 : 1	7 : 1	9 : 1	9 : 1
Power Output—b.h.p. @ r.p.m.	18.5 @ 6,500	27 @ 6,500	32 @ 7,000	34 @ 7,000
Tappet Clearance—in.	0.010	0.010	Inlet 0.002 in. Exhaust 0.004 in.	Inlet 0.002 in. Exhaust 0.004 in.
Valve Timing in degrees with 0.020 in. (0.50 mm.) tappet clearance for checking	26½ 69½ 61½ 35½	26½ 69½ 61½ 35½	27 48 48 27	34 55 55 34
IGNITION. Type	Coil	Coil	Energy Transfer	Coil
Contact Gap—in.	0.014-0.016	0.014-0.016	0.014-0.016	0.014-0.016
Timing (fully retarded)	at T.D.C.	at T.D.C.	1/16 in. B.T.D.C.	1/16 in. B.T.D.C.
SPARKING PLUG. Champion, K.L.G., Lodge	N4, FE75, HLN	N4, FE75, HLN	N4, FE75, HLN	N4, FE75, HLN
Plug Gap—in.	0.020	0.020	0.020	0.020
CAPACITY. Petrol—gallons	3½	3½	3½	3½
Oil Tank—pints	5	5	5	5
Gearbox—pints	2/3	2/3	2/3	2/3
Primary Chaincase—pints	½	½	½	½
Fork Leg—pints	¼	¼	¼	¼

TECHNICAL DATA

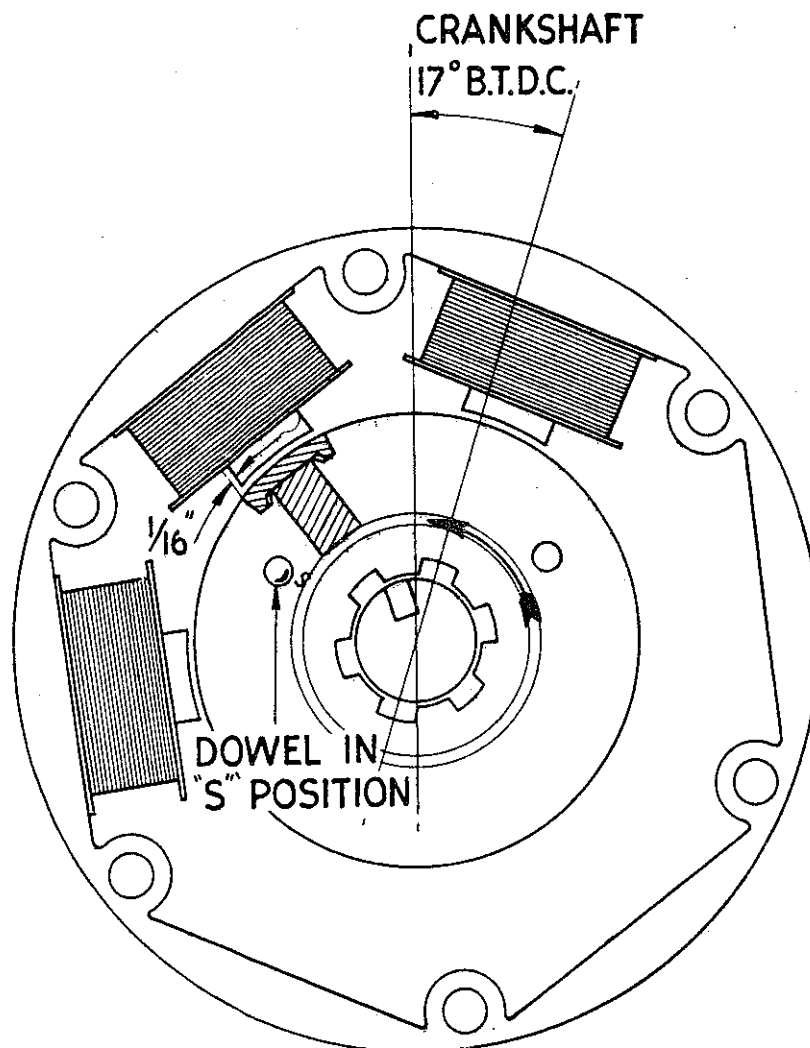
MODEL	3TA up to No. H.2329	5TA up to No. H.18612	T100A up to No. H.18612	T100A up to No. H.22430
CARBURETTER. Choke— inches	$\frac{13}{16}$ in.	$\frac{7}{8}$ in.	$\frac{7}{8}$ in.	1 in.
Main Jet	110	160	160	190
Needle Jet ... ..	.105	.105	.105	.106
Needle type	B	B	B	C
Needle Position	3rd	3rd	3rd	3rd
Throttle Valve	$375/3\frac{1}{2}$	$375/3$	$375/3$	$376/3\frac{1}{2}$
Pilot Jet	25	25	25	25
GEAR RATIOS. Top	5.31	4.80	4.80	5.05
Third	6.30	5.62	5.62	6.0
Second	9.32	8.35	8.35	8.9
Bottom	13.00	11.56	11.56	12.3
GEARBOX SPROCKET. Teeth	18	20	20	19
CHAIN LENGTH. Primary $\frac{3}{8}$ in. Duplex	78	78	78	78
Rear $\frac{3}{8}$ in. $\times \frac{3}{8}$ in.	100	101	101	102
TYRE SIZE. Front	3.25×17	3.25×17	3.25×17	3.25×17
Rear	3.25×17	3.50×17	3.50×17	3.50×17
BRAKE SIZE. Front—in.	7	7	7	7
Rear—in.	7	7	7	7

T100A ENERGY TRANSFER IGNITION

TIMING PROCEDURE

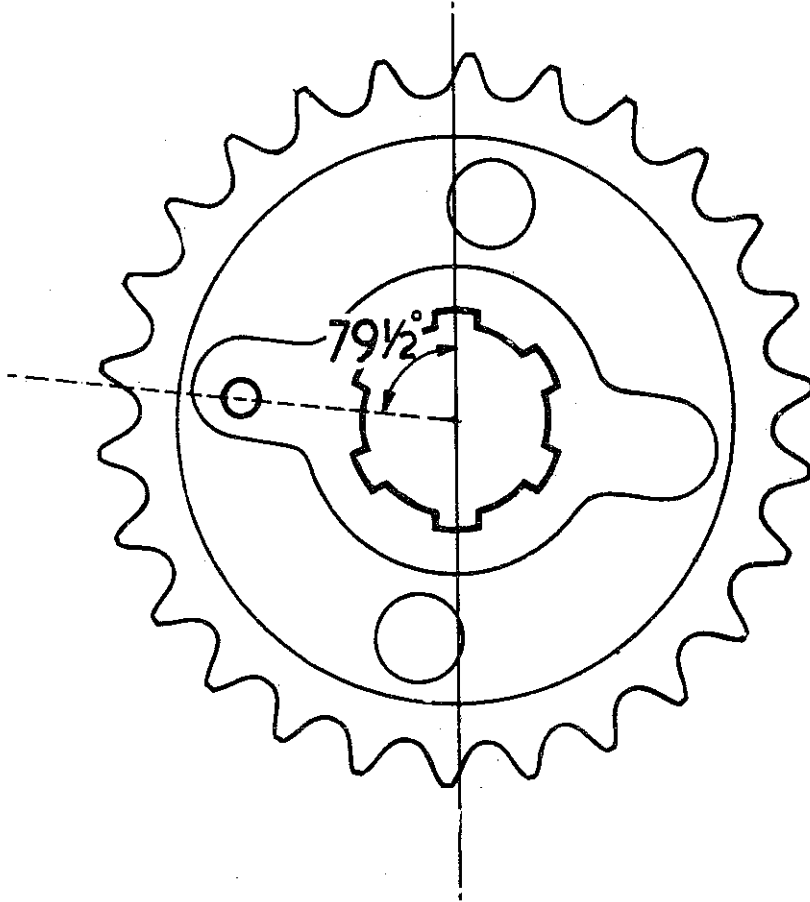
Verify the part number of the distributor (40710) before removing the cap. Check the mechanical condition and then clean and set the contact points to 0.014"—0.016" (0.35—0.40 mm.). Remove the condenser, if fitted, and substitute the larger external condenser (54413286) under the coil fixing bolt and connected to the black/white lead. Replace the cap, making sure the H.T. cable connections are secure.

Remove the primary chaincase and turn the crankshaft to top dead centre. At this point the leading edge of each magnet pole in the rotor will be approximately $\frac{3}{8}$ " (10 mm.) anti-clockwise from the trailing edge of a stator pole-piece. Turn the crankshaft backwards until the magnet edge is exactly $\frac{1}{16}$ " (1.6 mm.) anti-clockwise from the pole-piece (see below). This is the correct point of magnetic intensity with the auto-advance mechanism in its retarded or static position.



Now connect a battery and bulb in place of the black/white wire to the low tension terminal on the distributor and turn the body until the contact-breaker points just open, shown by the bulb going out. After clamping the distributor body, turn the crankshaft forward and check that the contacts do open at this point on each lobe of the distributor cam. The magnetic trail must not be less than $\frac{1}{16}$ " (1.6 mm.) on either lobe and, if necessary, the distributor should be retarded on the more advanced lobe.

CRANKSHAFT T.D.C.



If the sprocket or rotor has been removed, the correct positions for replacement with the crankshaft at top dead centre are the peg on the sprocket just after "9 o'clock" and the "S" hole in the rotor engaged with the peg. (If the rotor is not marked the "S" hole is nearer to the keyway (see above). Test for starting and running before replacing the chaincase.

Replace the chaincase and replenish with $\frac{1}{2}$ pint (300 c.c.) of S.A.E.20 grade oil. Do not use graphited oil, which can cause breakdown of the insulation of the ignition coils.

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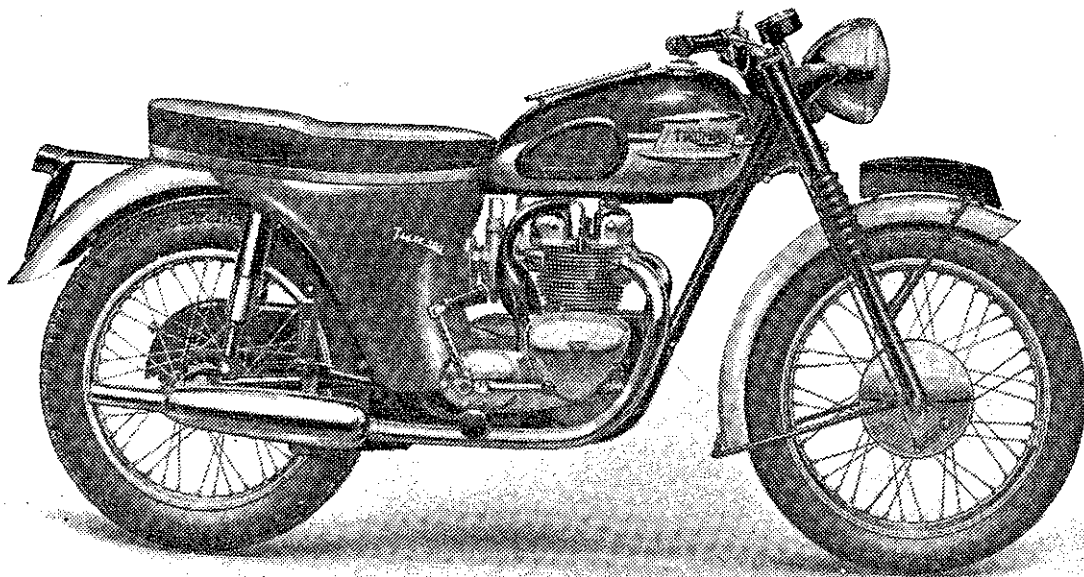
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TECHNICAL DATA T100 S/S

From Engine No. 25252

ENGINE

Type	O.H.V. Twin
B.H.P. and R.P.M.	34 at 7,000
Bore	...	...	...	...	2.716 in. (69.0 mm.)
Stroke	...	...	...	...	2.578 in. (65.5 mm.)
Capacity	...	...	...	...	29.8 cu. in. (490 c.c.)
Compression Ratio	...	...	...	...	9 : 1
Valve Clearance (Cold)	...	...	...	...	Inlet 0.002 in. (0.05 mm.) Exhaust 0.004 in. (0.10 mm.)

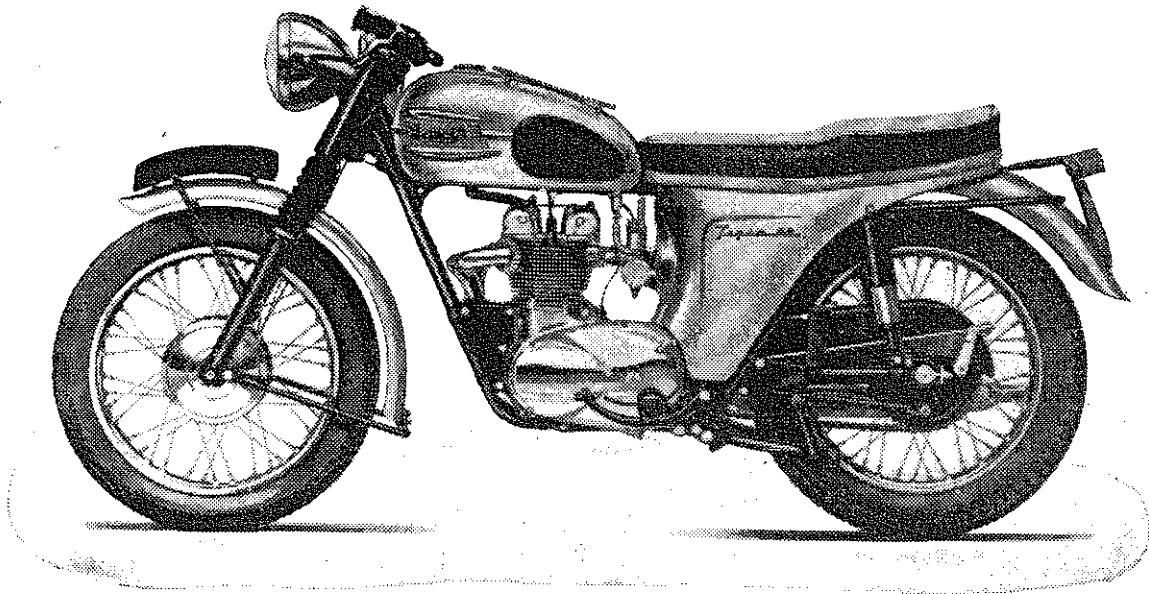
Valve Timing

(with 0.020 in. (0.50 mm.) valve clearance for checking)

Inlet valve opens	B.T.C.	...	...	34 degrees
Inlet valve closes	A.B.C.	...	...	55 degrees
Exhaust valve opens	B.B.C.	...	...	48 degrees
Exhaust valve closes	A.T.C.	...	...	27 degrees

IGNITION

Distributor Type	...	...	...	Lucas 18D2 clockwise
Contact Breaker Gap	...	...	...	0.014-0.016 in. (0.36-0.40 mm.)
Distributor Range...	...	...	...	...15 degrees (30 degrees crankshaft)
Ignition Timing (fully retarded)				
Crankshaft Position	...	...	...	7 degrees B.T.D.C.
Piston Position	...	...	...	1/64 in. (0.30 mm.) B.T.D.C.
Sparking Plugs	...	...	...	Champion N4
Plug Gap	...	...	...	0.020 in. (0.50 mm.)



TECHNICAL DATA T90

From Engine No. 29733

ENGINE

Type	...	...	...	...	O.H.V. Twin
B.H.P. and R.P.M.	...	...	...	...	27 at 7,500
Bore	...	...	...	...	2.292 in. (58.25 mm.)
Stroke	...	...	...	...	2.578 in. (65.5 mm.)
Capacity	...	...	...	...	21.23 cu. in. (349 cc.)
Compression Ratio	...	...	...	...	9 : 1
Valve Clearance (Cold)	...	...	...	...	Inlet 0.002 in. (0.05 mm.) Exhaust 0.004 in. (0.10 mm.)

Valve Timing

(with 0.020 in. (0.50 mm.) valve clearance for checking)

Inlet valve opens	B.T.C.	...	...	34 degrees
Inlet valve closes	A.B.C.	...	...	55 degrees
Exhaust valve opens	B.B.C.	...	...	48 degrees
Exhaust valve closes	A.T.C.	...	...	27 degrees

IGNITION

Contact Breaker Type	...	...	...	Lucas 4CA
Contact Breaker Gap	...	...	...	0.014-0.016 in. (0.36-0.40 mm.)
Auto Advance Range	...	...	...	16 degrees (32 degrees crankshaft)
Ignition Timing (fully retarded)	...	...	...
Crankshaft Position	...	...	...	8 degrees B.T.D.C.
Piston Position	...	...	...	$\frac{1}{8}$ in. (0.30 mm.) B.T.D.C.
Sparking Plugs	...	...	...	Champion N4
Plug Gap	...	...	...	0.020 in. (0.50 mm.)

INTRODUCTION

The T90 and T100 S/S models are basically similar to the T100A and this section should be used in conjunction with the T100A Instruction Manual.

The T90 and T100 S/S have coil ignition supplied from a battery with provision for emergency start in case of a flat or discharged battery. Some machines for export have direct lighting and energy-transfer ignition allowing removal of the lighting equipment for competition use.

ENGINE

All T90 and T100 S/S models are fitted with sports camshafts giving the timing figures shown in the technical data. This is obtained by meshing the timing gears as shown.

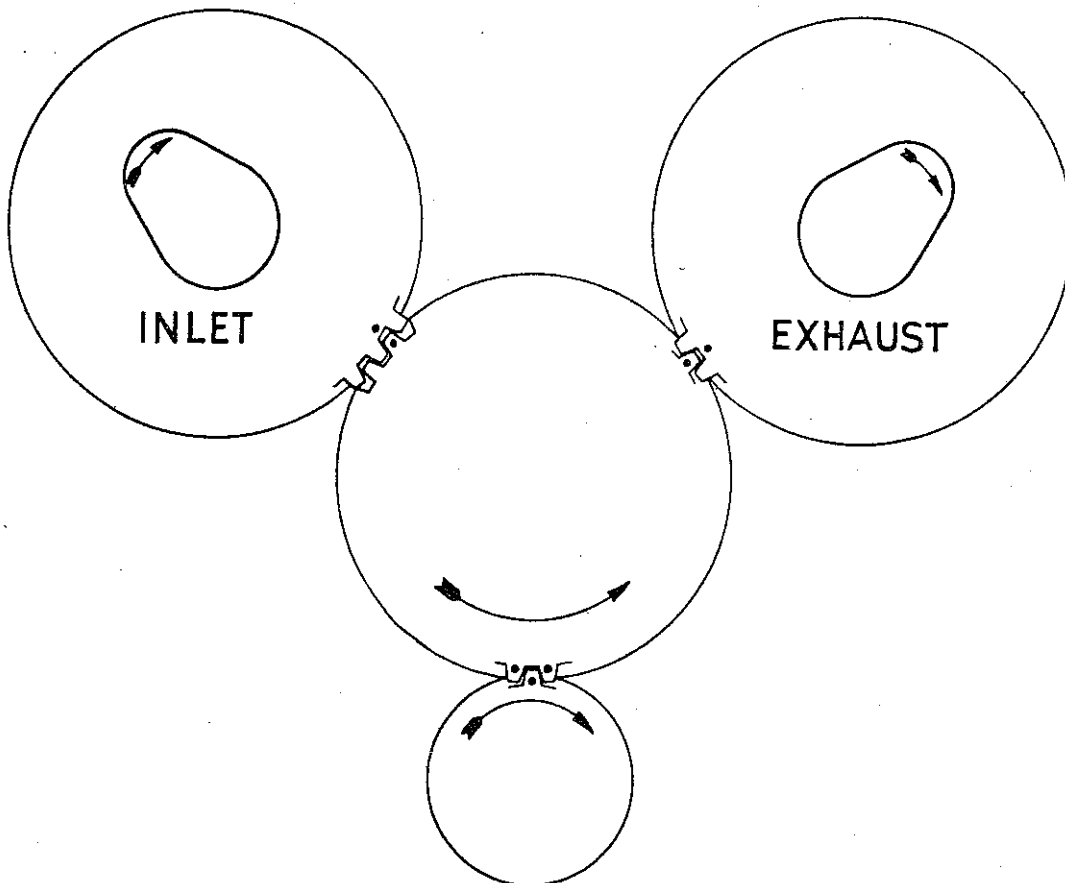


FIG. 1. TIMING GEAR MARKINGS

IGNITION TIMING, T100 S/S

The standard figure for the ignition timing fully advanced is 37° B.T.D.C. Machines with coil ignition have a 15° range distributor

Rotate the cam and auto advance mechanism **CLOCKWISE** until the rear C.B. points are on the point of opening. Fit and tighten the central bolt, (on later models, the cam and auto advance mechanism is positively located in the engine exhaust camshaft by a peg and slot arrangement).

Connect a bulb to the terminal of the condenser at 11 o'clock (with the C.B. leads still unconnected into the main wiring harness), and with a battery connected between the other bulb terminal and the crankcase, rotate the C.B. plate assembly until the C.B. points at 8 o'clock just open, shown by the bulb going out.

Lock up the hexagonal sleeve nuts and fit the outer cover.

Connect up the two C.B. leads into the main wiring harness, checking the black/yellow lead connects to the ignition coil feeding the right hand side (T/S) spark plug.

EMERGENCY STARTING

With the introduction of the twin contact breaker and twin ignition coil system, the emergency start facility is still provided, enabling the machine to be started in the eventuality of the battery becoming discharged.

It will be noted however, that with the ignition switch turned to the 'EMG' position, the engine will run on one ignition coil/contact breaker combination only, and hence on one cylinder.

In cases where 'EMG' start is used therefore, it is essential that the ignition switch is returned to the normal 'IGN' position once the engine has started, to provide charge to the battery, prevent damage, and ensure even running.

ALTERNATOR ROTOR

The T100 S/S alternator rotor is located to the crankshaft by a Woodruff key in the same manner as the 5TA. Machines with energy-transfer ignition have the rotor located by a dowel which must be fitted as shown on page 173.

FORK ASSEMBLY REF. N° 1

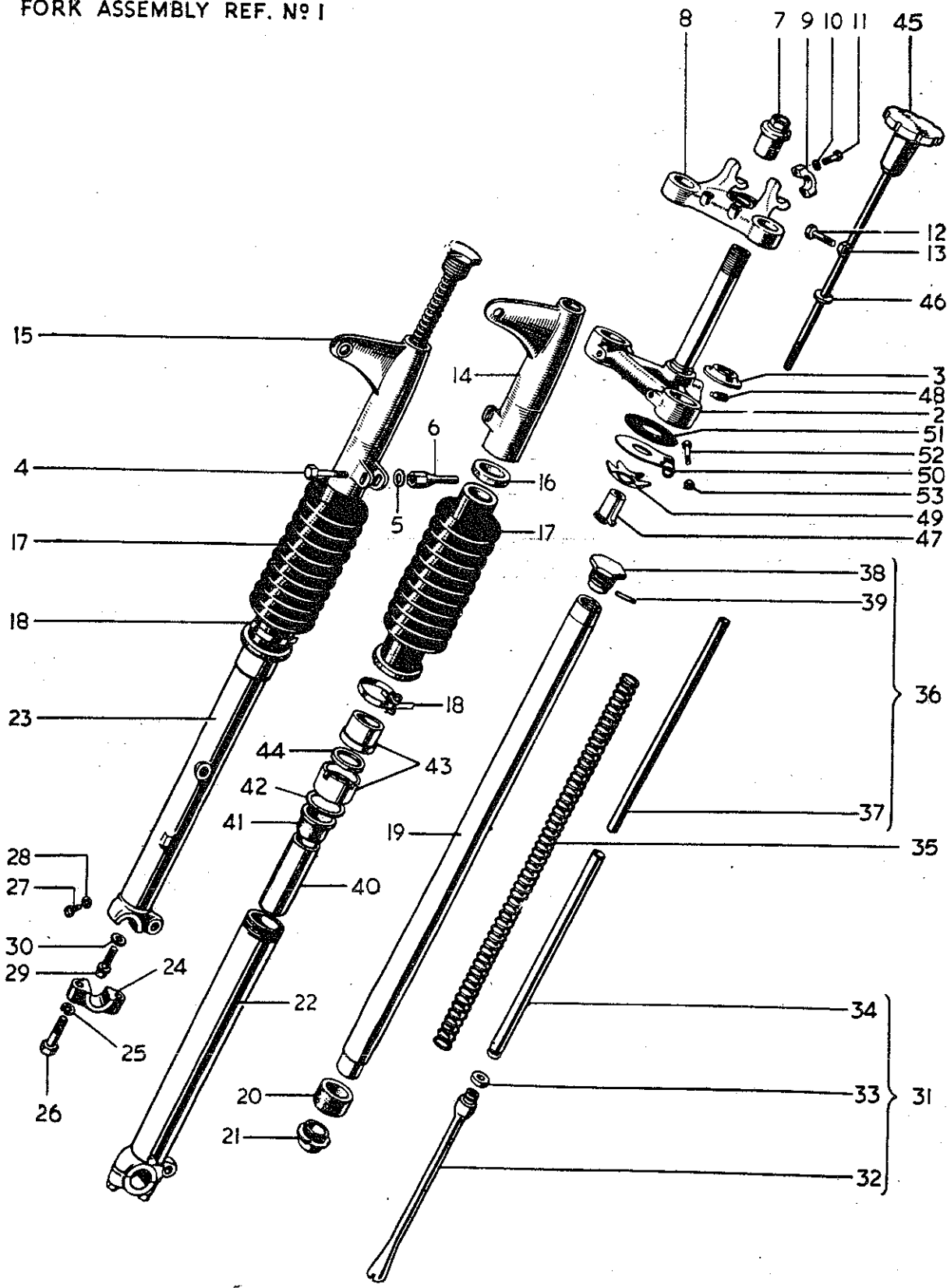


FIG. 4. TELESCOPIC FRONT FORK

TELESCOPIC FRONT FORK

The front fork has a separate headlamp instead of the nacelle but is otherwise similar to the T100A. The hydraulic damping is by the same grade of oil as specified for the engine but the system is sensitive to variations in the surrounding temperature. If the fork action is lively or "bouncy" use a thicker grade of oil, conversely if the action is sluggish use a thinner grade. Do not vary the amount from the specified quantity of 150 c.c. ($\frac{1}{4}$ pint) in each leg.

INDEX TO FIG. 4

TELESCOPIC FRONT FORK

- | | |
|--------------------------|-----------------------------|
| 1. Fork assembly | 28. Fibre washer |
| 2. Middle lug and stem | 29. Flanged bolt |
| 3. Bottom cone | 30. Aluminium washer |
| 4. Pinch bolt | 31. Restrictor rod assembly |
| 5. Plain washer | 32. Restrictor rod |
| 6. Nut | 33. Plain washer |
| 7. Sleeve nut | 34. Guide tube |
| 8. Top lug | 35. Main spring |
| 9. Handlebar cap | 36. Cap nut assembly |
| 10. Plain washer | 37. Guide tube |
| 11. Bolt | 38. Cap nut |
| 12. Pinch bolt | 39. Pin |
| 13. Nut | 40. Damping sleeve |
| 14. Left cover | 41. Top bearing |
| 15. Right cover | 42. Plain washer |
| 16. Sponge rubber washer | 43. Sleeve nut assembly |
| 17. Telescopic gaiter | 44. Oil seal |
| 18. Clip | 45. Steering damper rod |
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| 20. Lower bearing | 47. Adjuster sleeve |
| 21. Sleeve nut | 48. Locating pin |
| 22. Left bottom member | 49. Spring plate |
| 23. Right bottom member | 50. Anchor plate |
| 24. Spindle cap | 51. Friction disc |
| 25. Spring washer | 52. Bolt |
| 26. Bolt | 53. Nut |
| 27. Drain plug | |

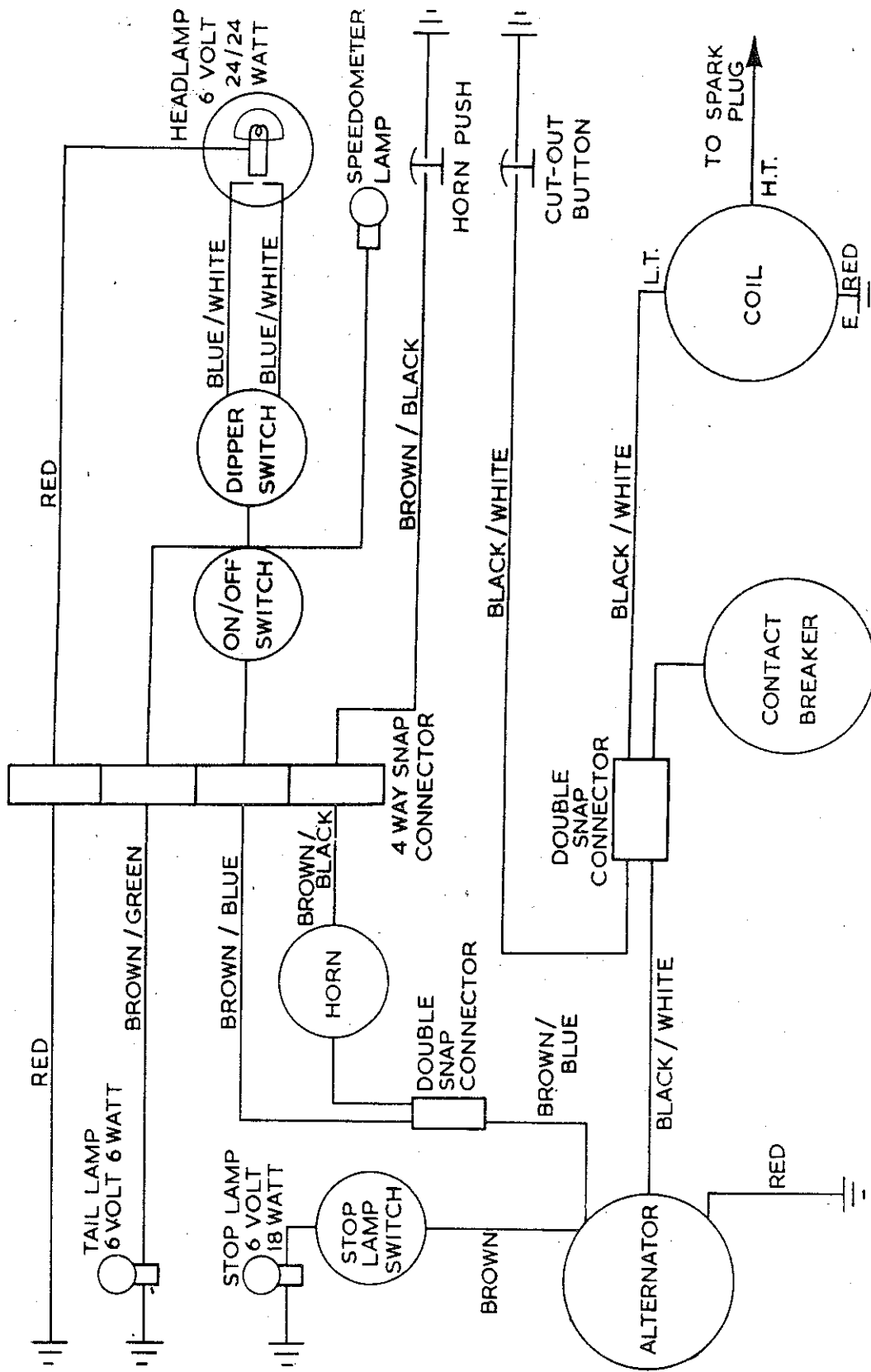


FIG. 7. WIRING DIAGRAM T100 S/C up to Engine No. 29732

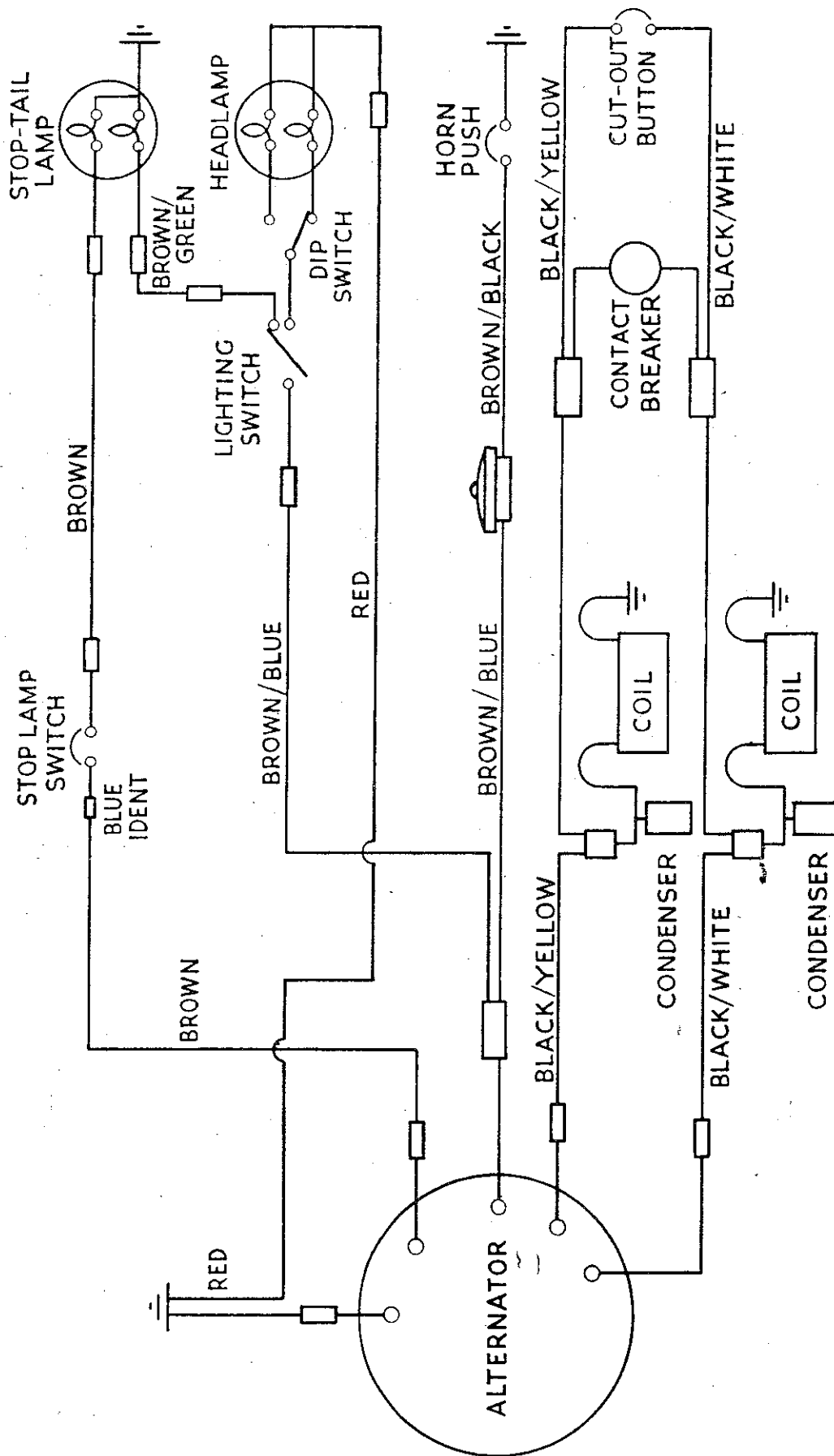


FIG. 8. WIRING DIAGRAM T100 S/C from Engine No. 29733