Chapter 7 Electrical system

Contents

Specifications

	750S and 850T	750S3 and 850T3 V-1000 and Le Mans
Battery		
Type	M	6DS 11
Make	Marelli	Marelli
Capacity	32 ah	32 ah
Polarity	Negative earth	Negative earth
Alternator		
Make	Bosch	Bosch
Type	G1 (R) 14V	G1 14V 20A 21
Output	14V/180W	14V/280W
Charging starts at	980 rpm	1000 rpm
Field winding resistance	6.90 ohms + 10%	
Voltage regulator		
Make	Bosch	
Type	AD/1/14V	
Regulated voltage:		
Under load	13.9 - 14.8V	
Rectifier		
Make	Bosch 14V/15A	
Starter motor		
Make	Bosch	Bosch
Type	DG(L) (DF, 850T model)	DF
Output	0.4 HP (0.5 HP, 850T model)	0.6 HP
Commutator minimum diameter	31.2 mm (1.2283 in)	33 mm (1.299 in)
Minimum brush length	11.5 mm (0.4527 in)	
Armature axial float	0.05 - 0.2 mm (0.002 - 0.008 in)	
Horns		
Make	Belli	Belli
High tone current	3A	3A
Low tone current	4A	4A

Bulbs		
Headlamp, European	40/45W	40/45W
Headlamp, USA	40/45W sealed beam	40/45W
Parking	5W (European only)	3W
Tail/stop	5/21W	5/21W
Oil pressure	1.2W	1.2W
Neutral indicator	1.2W	1.2W
Alternator charge	1.2W	1.2W
Main beam	—	1.2W
Parking light warning	—	1.2W
Instrument lighting	3W	3W
Flashing indicator	21W	21W
Under seat illumination lamp	3W (750S model only)	
Fuses	8 at 15 amps) 1 at 25 amps) 750S 6 at 16 amps 850T	6 at 16 amps

1 General description

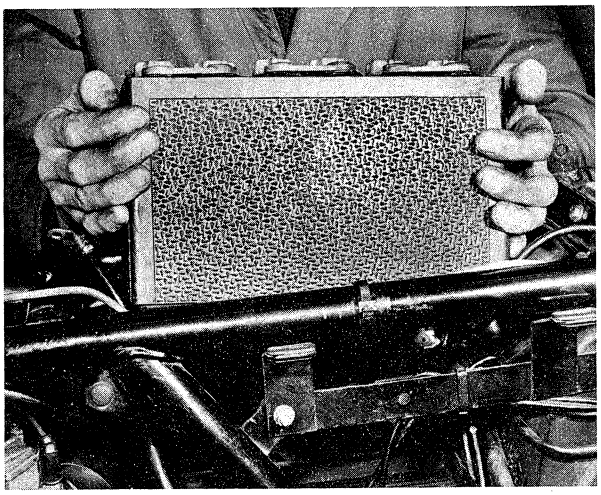
The charging system consists of a 12 volt three-phase alternator driven directly by the crankshaft. The alternator has a rotor fixed to the front of the crankshaft, rotating within a stator screwed to the crankcase. The rotor is not permanently magnetised, energising current being supplied by the charge warning lamp circuit, via two brushes bearing on slip rings.

The a.c. voltage generated is rectified to d.c. by the diodes on the plate attached to the frame below the right-hand frame side cover, and regulated by the mechanical voltage regulator mounted below the petrol tank on the top frame tubes.

2 Battery: removal

1 Lift the dualseat and secure it in the upright position. Remove the tool tray and detach the battery retaining straps. Disconnect the battery leads by unscrewing the terminal bolts; always remove the negative lead (Earth) first.

2 The battery can now be lifted out. In addition to being very heavy - the battery is unusually large - the battery is retained in a confined space. Lift the battery up at the rear and slide it from position at about 45°. Spillage of the electrolyte is unlikely but if it does occur, wash the acidic fluid off with plenty of cold water, to prevent corrosion of the affected parts.



2.1 Battery is vast and very heavy

3 Battery: maintenance

1 The battery fitted to all the Moto Guzzi V-twins covered in this manual is rated at 32 ah. Inspection and replenishment of the fluid level may be made through the single filler orifice in the battery top, after prising out the filler plug. Inspection may be aided by the use of a small torch. **DO NOT** hold a naked flame near the cell filler hole; the electrolyte gives off hydrogen and oxygen (a notably inflammable mixture).

2 Top up the battery with distilled water if the level is below that of the plates. Do not fill more than 5 mm (3/16 in) above the level of the plates. If a battery is used having separate cell filler caps, check each cell individually and replenish as required. The condition of the battery may be checked using a small hydrometer. The reading should be from 1.260 - 1.280. If the specific gravity is lower than this, the battery should be charged from a trickle charger.

3 The normal safe charging rate for a battery is 1/20th of the battery capacity. The charge rate for a 32 amp/hour battery is therefore approximately 1½ - 2 amps. Charging the battery at a slightly higher level is permissible (up to 3 amps) but this may shorten the life of the battery and should therefore be avoided if at all possible.

4 Ensure that the battery lead connections are clean and tight. Apply petroleum jelly to the terminals to prevent corrosion. Ensure that the battery is earthed well.

5 All models have a negative earth system.

6 If the motorcycle is not going to be used for a time, the battery should be put on charge every six weeks. If the battery is permitted to discharge completely the plates will sulphate, indicated by a grey colour, and render the battery useless. A fully charged battery will have plates a muddy brown colour. If the case has a sediment on the bottom, the plates are breaking up and the battery will soon require replacement. Disconnect the battery from the motorcycle electrical system if it is being charged on the machine, or the rectifier diodes will suffer. Remove the cell filler plugs when charging.

4 Crankshaft alternator: checking the output

1 The output from the alternator mounted on the end of the crankshaft can be checked only with specialised test equipment of the multi-meter type. It is unlikely that the average owner/rider will have access to this equipment or instruction in its use in consequence, if the performance of the alternator is in any way suspect, it should be checked by a Moto Guzzi agent or an auto-electrical specialist.

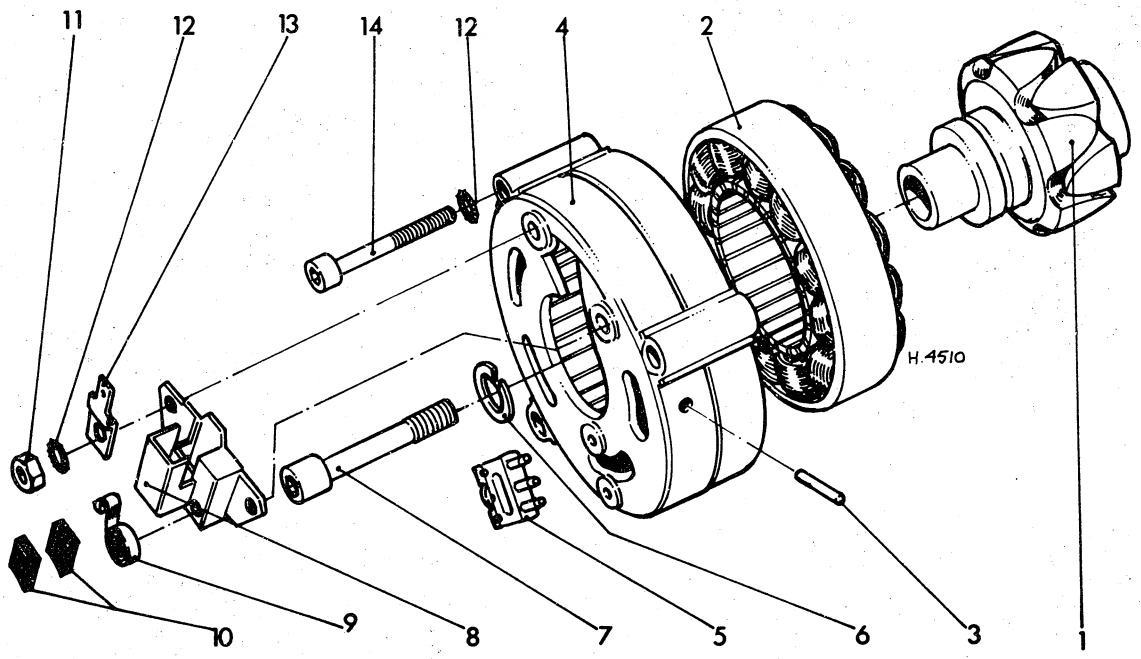


Fig. 7.1. Alternator

1 *Rotor - 1 off*
2 *Stator - 1 off*
3 *Spring dowel pin - 2 off*
4 *Alternator housing - 1 off*
5 *Three pin connector - 1 off*
6 *Spring washer - 1 off*
7 *Rotor centre screw - 1off*
8 *Brush holder - 1 off*
9 *Brush spring - 2 off*
10 *Brush - 2 off*
11 *Nut - 2 off*
12 *Spring washer - 9 off*
13 *Terminal - 2 off*
14 *Socket cap screw,- 3 off*

5 Alternator: removal

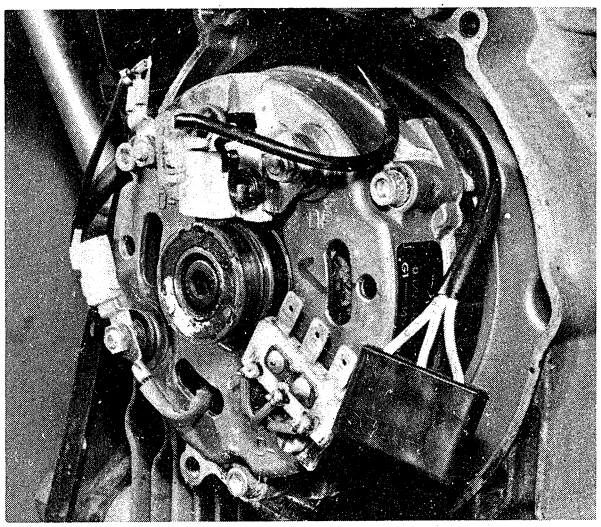
1 Disconnect the battery negative (earth) lead.
2 Slacken the horn fixing screws.
3 Unscrew the three hexagon socket cap screws and remove the engine front cover.
4 Pull off the three-pin output socket from the alternator plug. Pull off the two leads to the brush holder. Note the colours of the leads for replacements.
5 Pull up the alternator brushes and wedge them clear of the slip rings with the ends of the brush springs.
6 Unscrew the three hexagon socket cap screws, and remove the alternator stator.
7 Unscrew the rotor centre fastening screw with an Allen key. An extractor is required to release the rotor from its taper. To provide a bearing for the extractor centre screw, replace the rotor fastening screw. The rotor is threaded and when the fastening screw reaches the end of the thread it will be felt to be loose, until it engages with the thread on the end of the crankshaft. Engage the first few threads. Alternatively, make a headed pin that will pass through the rotor, and contact the end of the crankshaft. It should be 3/16 in diameter and 2¼ in long. Tighten the extractor centre screw and tap gently if necessary to break the taper. Remove the rotor.

6 Alternator: renovation

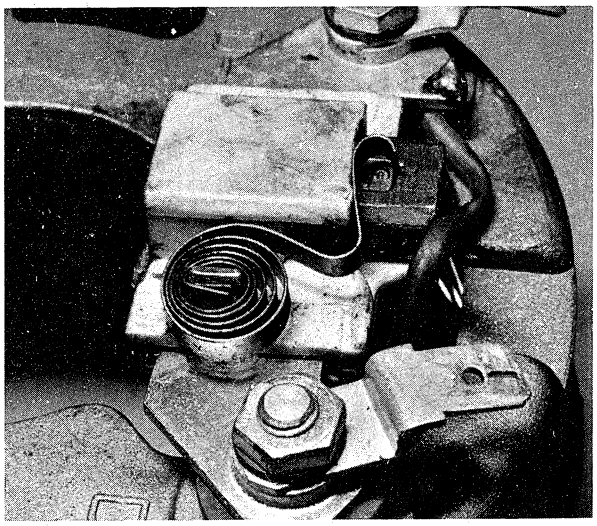
1 Check that the brushes move freely in their holders and that the springs press them firmly against the slip rings. The brushes should be renewed if they are worn badly.
2 The two nuts on the brush holder, visible from the front of the alternator stator, retain the blade terminals only.
3 To replace the brushes, unscrew the two nuts accessible from inside the stator housing, remove with spring washers and take off the brush housing. Note the insulating washers and bush on the right-hand stud (viewed from the front of the housing).
4 When soldering new brushes in position, do not allow solder to run down the brush tails towards the brushes. Note that the brush tails locate in slots behind the brushes.
5 Clean dirty slip rings with petrol, or if necessary very fine glass paper. **Do not** use emery paper. Scored slip rings must be skimmed in a lathe to a minimum diameter of 26.8 mm (1.055 in).
6 The stator and rotor winding have to be checked for short circuits with 40 volts a.c., this requires specialised equipment. The resistance between phase outputs may also be checked. Set the multi-meter to read ohms. Check the resistance between each pair of alternator output terminals on the three-pin plug. The value should be 0.62 ohms. Check the resistance of the energiser winding across the slip rings, the value should be 6.90 ohms + 10%.

7 Diode plate rectifier: removal

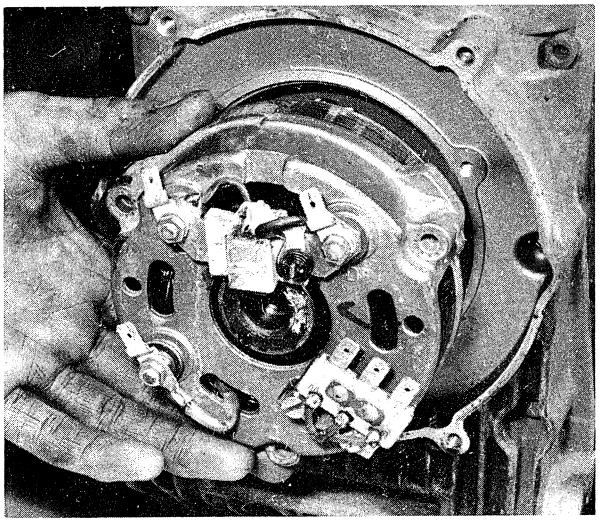
1 The diode plate is mounted behind the right-hand side cover. On the plate are fitted the diodes which rectify the three phase a.c. output from the alternator, to d.c. for charging the battery.
2 Checking the diodes requires specialised equipment not normally available to the amateur mechanic. If one diode is faulty, the complete assembly must be replaced.
3 Disconnect the battery negative lead. Remove the right-hand side cover and disconnect the multiple socket and two separate leads to the rectifier plate. Unscrew the four retaining screws and lift the plate away sufficiently to disconnect the final leads.
4 It is imperative that the leads are connected correctly on refitting the plate. To this end note the wire positions carefully during removal.



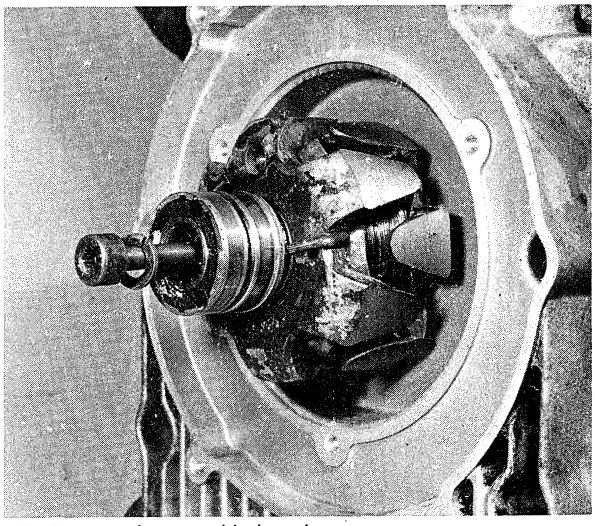
5.4a Note alternator wiring before removal



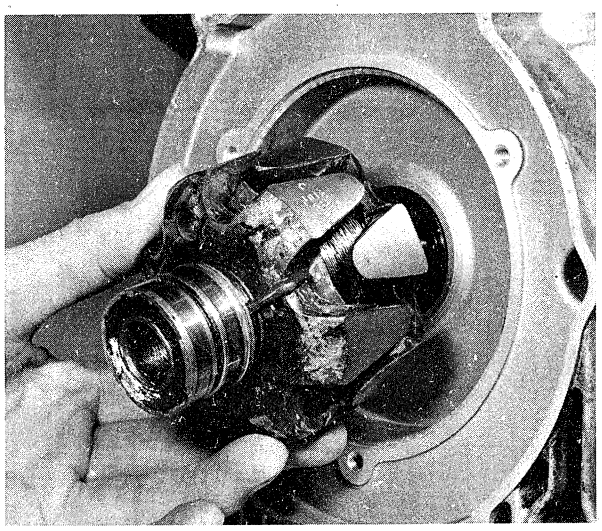
5.4b Wedge the brushes by means of the springs and ...



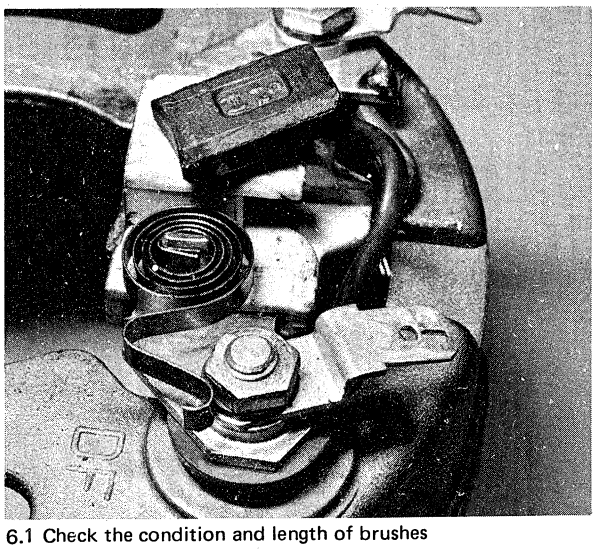
5.6 ... lift the stator from position



5.7a Remove the central bolt and ...



5.7b ... lift the rotor off the tapered shaft



6.1 Check the condition and length of brushes

8 Voltage regulator: removal

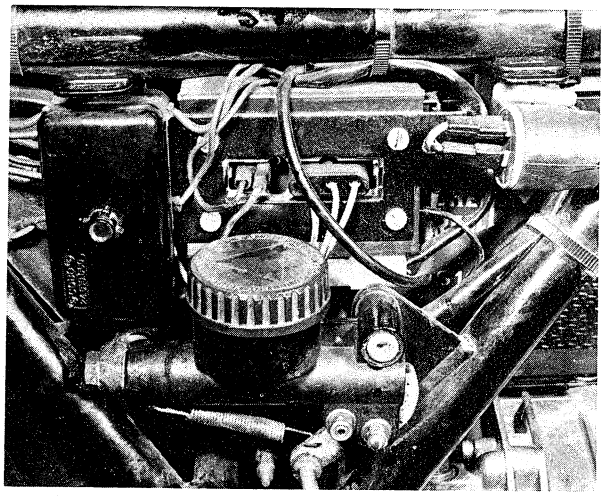
1 The voltage regulator, mounted below the top frame tubes, is not adjustable. If it is suspected of being faulty, it should be checked by a specialist.
2 To remove, unplug the three-pin plug, unscrew the two screws and lift the unit away.

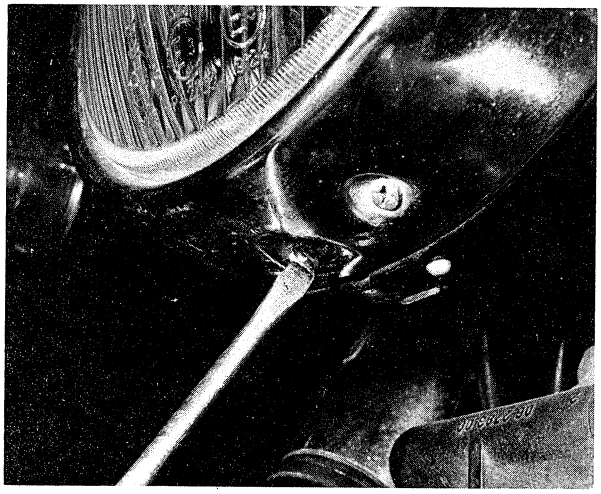
9 Headlamp: replacing the bulbs and adjusting the beam

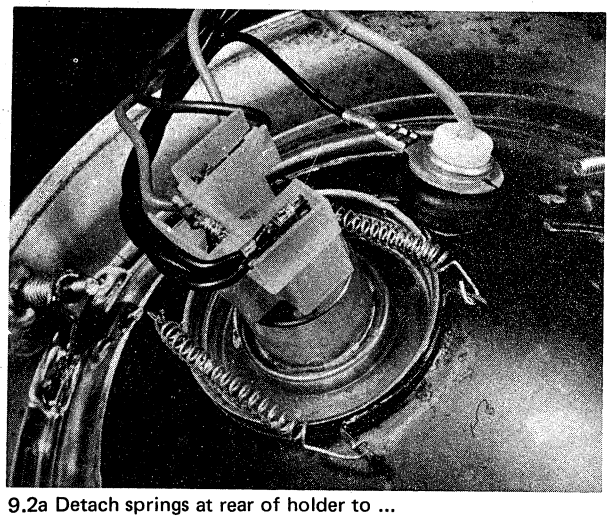
1 Remove the single retaining screw from the base of the headlamp rim. On Le Mans models removal of the small handlebar fairing is necessary to gain access to the screw. On 750S models the rim is split at the lower edge and is secured by a clamping bolt. Lift the rim up and out from the lower edge and away from the shell.
2 The headlamp bulb is retained in a holder which is secured to the rear of the reflector unit by two coil springs. Unhook the springs and pull the holder from position. If required, pull off the lead socket from the pins at the rear of the holder. The bulb has an offset pin bayonet fixing. Push the bulb in, twist it to the left and release, to remove it. The pins are offset, to prevent replacement of the bulb in the wrong position.
3 The pilot bulb (where fitted) is also bayonet fixed, in a holder which is a push fit in the reflector unit. Before replacing bulbs, ensure that the contacts are clean.

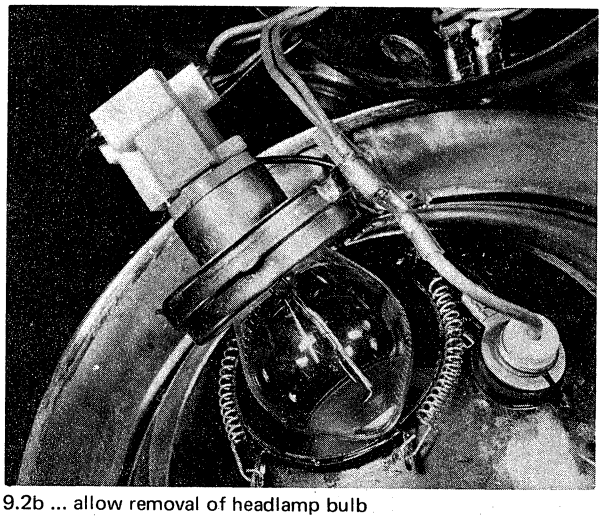
When replacing the headlamp, hook the rim over the top of the shell and push the bottom of the rim over the retaining clips at the bottom of the shell. Ensure that it is firmly fitted, since it does not bounce!
4 On 750S models, headlamp beam height is adjusted by slackening the two headlamp fixing bolts fixing the lamp to the fork brackets and pivoting the headlamp in a vertical plane. All other models are fitted with three screws passing through the headlamp rim at equidistant intervals around the periphery. By loosening or tightening the screws the headlamp beam may be adjusted within limits in any plane. Further vertical adjustment may be made by means of the headlamp shell pivot bolts. When adjusting the beam tyre pressures should first be checked and the rider should be seated normally.

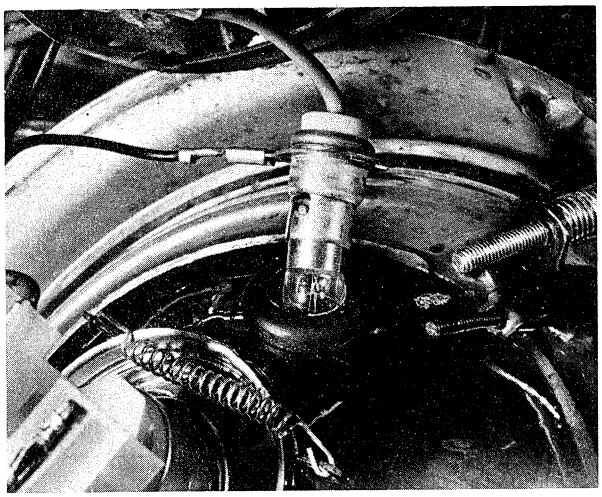
UK lighting regulations stipulate that the lighting system must be arranged so that the light does not dazzle a person standing in the same horizontal plane as the vehicle, at a distance greater than 25 feet from the lamp, whose eye level is not less than 3 feet 6 inches above that plane. It is easy to approximate this setting by placing the machine 25 feet away from a wall, on a level road and setting the beam height so that it is concentrated at the same height as the distance from the centre of the headlamp to the ground. In addition, the headlamp must be capable of being dipped.


7.1 Rectifier mounted behind right-hand frame cover


9.1 Headlamp rim held by single screw - except 750 models


9.2a Detach springs at rear of holder to ...


9.2b ... allow removal of headlamp bulb



9.3 Pilot bulb is a pushfit in reflector

10 Indicator relay: replacing

1 The indicator relay is mounted in a rubber holder to isolate the unit from the effects of vibration. The relay is located forward of the rectifier.
2 The flashing rate should be between 60 and 120 times per minute in the UK. If the rate deviates, check the indicator bulb wattages and contacts, or wiring - particularly earth returns, or switch.
3 If the relay malfunctions, the usual indication is one flash before the system goes dead. The relay will require renewal if the fault cannot be traced to a bulb or wiring, or the indicator switch. Handle the relay with care, as it is easily damaged by being dropped.

11 Fuses: replacing

1 The six fuses are contained in a bank within a plastic box below the right-hand side cover. The box lid is secured by a knurled bolt, Each of the fuses are interconnected permanently, none being fitted as a spare.

A blown fuse can be recognised by the melted metal strip. If a fuse blows repeatedly, the electrical system should be checked to eliminate the fault. Do not put in a fuse of a higher rating - another item may be damaged - or a fire result. The same applies to replacing the fuse with wire. Spare fuses of the correct rating should always be carried.

12 Instrument lighting and warning lamps: replacing bulbs

1 Both speedometer and rev-counter are internally illuminated. In addition there are a number of warning lights fitted to the lighting console integral with the instrument housing.
2 All bulbs are of the bayonet type fitted into holders which are a push fit in the underside of the instruments or lighting panel.

13 Indicators and rear/stop lamp: replacing bulbs

1 The indicators and rear lamp are similar in design. Both lens and reflector with integral bulb holder are retained in the housing by two screws. Unscrew the screws, remove the lens and reflector and separate. Check the condition of the gasket.
2 Check the electrical connections on the rear of the reflector, particularly the earths.
3 The bulbs are bayonet type, the rear/stop lamp bulb has double filaments, with off-set pins to ensure correct orientation.
4 The V-1000 model has in addition, a separate number plate illuminating unit. The lens cover is retained by two screws.
5 Always replace indicator bulbs with those of the correct rating, or the flashing rate will be upset.

14 Ignition switch

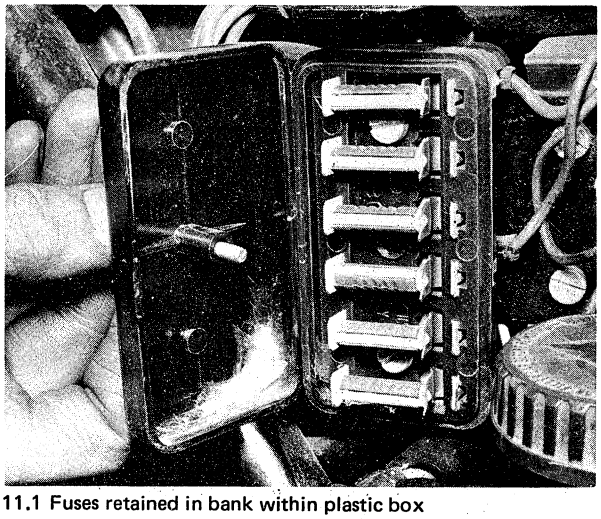
1 The ignition switch is mounted forward of the fuel tank, on the top frame tube. If the condition of the switch is suspect, a battery and bulb or a multi-meter may be used to check continuity with the unit removed from the machine.
2 After removal of the petrol tank in order to gain access, remove the two bolts holding the switch to the frame. Disconnect the wiring leads by pulling out the socket. The switch unit proper may be withdrawn from the mounting sleeve, by pressing in the spring loaded peg with a pointed instrument. Repair of a faulty switch is impracticable; a new unit together with the correct key should be acquired.

15 Stoplamp switches and brake fluid level switch

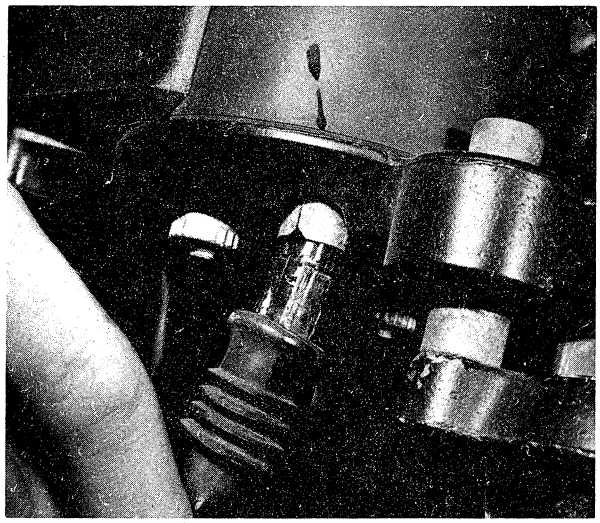
1 There are front and rear brake operated stoplamp switches, neither can be repaired.
2 If a faulty switch is suspected, check for continuity.
3 On drum rear brake models the switch is a mechanical unit actuated by the brake pedal. On all hydraulic brakes the switches are incorporated in the hydraulic hose junction boxes. A faulty switch should be renewed.
4 The brake fluid level indicator switch, fitted to V-1000 and Le Mans models, is located in the fluid reservoir cap. Again, it cannot be repaired, the cap must be replaced. The warning lamp may flash under heavy braking, but this does not indicate a fault.

16 Prop stand switch: V-1000 Convert models only

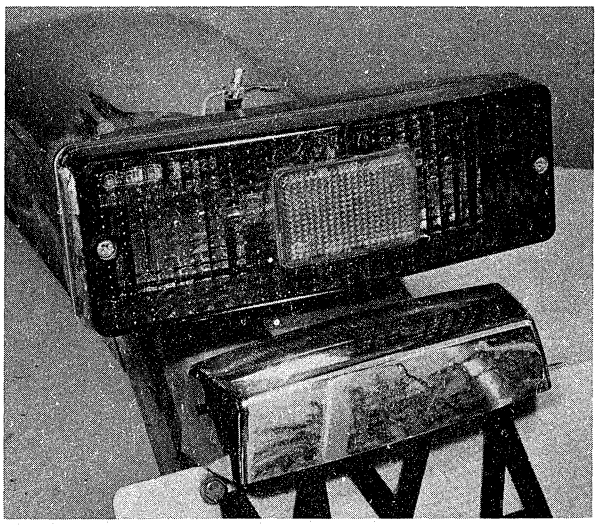
1 On V-1000 models, a switch is fitted, operated by the prop-stand, which prevents functioning of the ignition system when the stand is extended. In addition, the switch operates a warning light which indicates that the stand has not been retracted.
2 The switch is mounted on a bracket forward of the prop stand bracket. Continuity of the switch may be checked by using a battery and bulb.



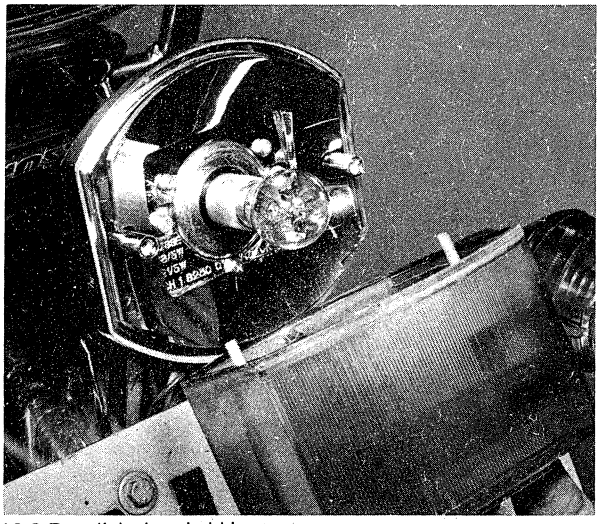
11.1 Fuses retained in bank within plastic box



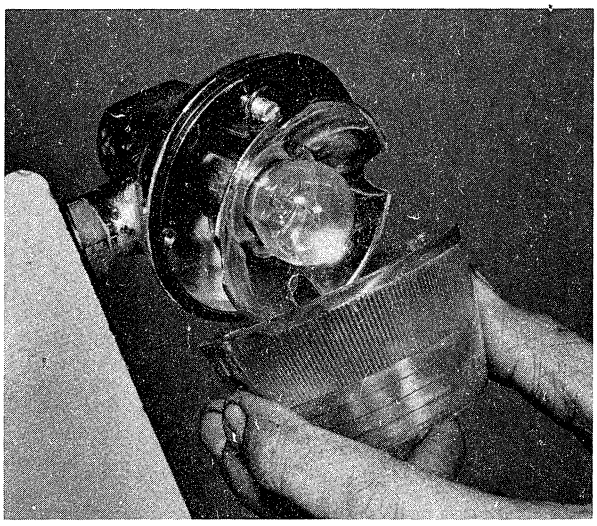
12.2 Instrument illuminating bulb holders are push fit



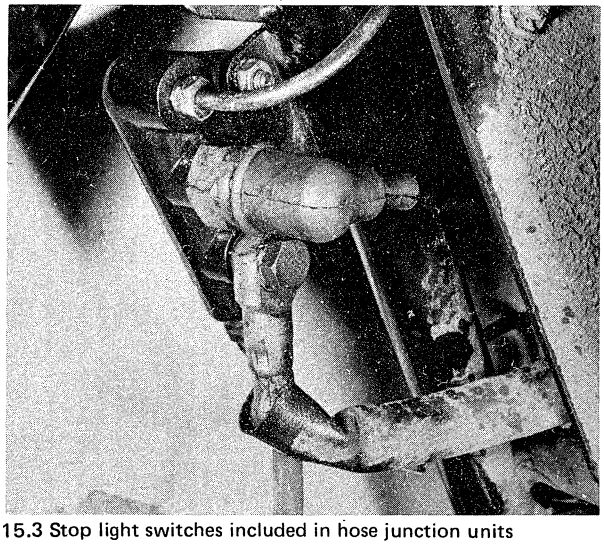
13.1 Separate rear light and number plate light - V-1000 models



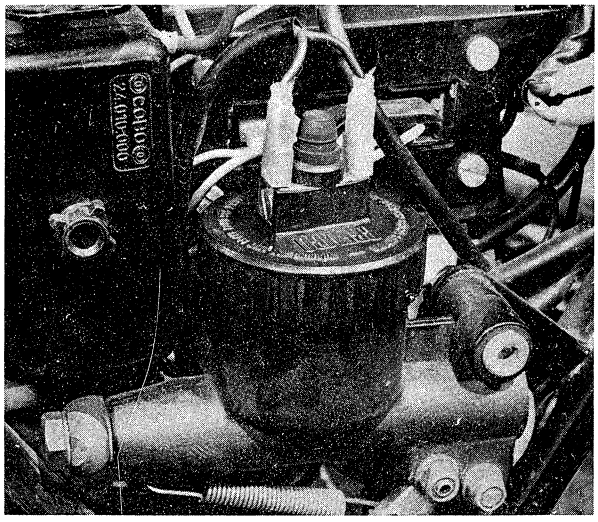
13.2 Rear light lens held by two screws as are ...



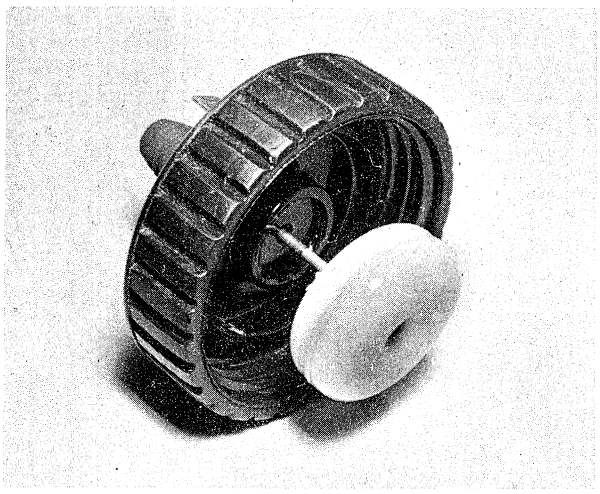
13.3 ... lens covers on flashing indicators



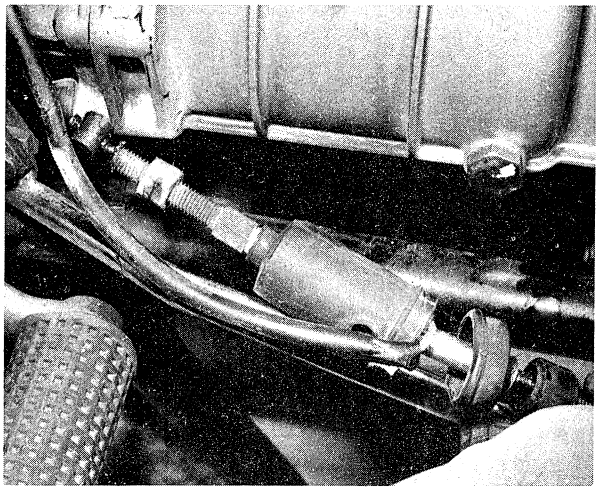
15.3 Stop light switches included in hose junction units



15.4a Fluid level switch on V-1000 models is ...



15.4b ... operated by means of a float



17.1 Starter isolator is included in clutch cable

17 Starter isolating switch

1 A switch is incorporated in the clutch cable on all but Le Mans models to prevent engine starting when the clutch is not disengaged. The switch is a sealed unit and is integral with the clutch cable. Consequently if failure occurs the clutch cable must be renewed as a unit.
2 If the switch malfunctions and does not complete the starter circuit the safety feature may be overriden temporarily by disconnecting the two leads to the switch and joining them together.

18 Horns

1 Two horns, of useful volume, are fitted to all models. The high tone horn has a current rating of 3 amperes, and the low tone unit a rating of 4 amperes.
2 On all models except V-1000 machines, the horns are mounted as a pair on the frame front down tubes. The horns on V-1000 models are mounted separately under the front crashbar air deflectors (stabilisers).
3 If both horns do not sound check the continuity of the switch and wiring. If one horn does not sound check the wiring and then check the horn from a separate power source. A faulty unit should be renewed: repair is not possible.

19 Wiring: layout and examination

1 The wiring is colour coded in accordance with the accompanying wiring diagrams.
2 Screw terminals and spring clip terminals should be checked for tightness. Inspect blade type terminals for good contact. Pay special attention to earth connections. If the lights are poor, or the bulbs blow frequently, the earth returns are probably poor, and connections should be inspected. Check the wires for damaged insulation, they must not be pulled tight, nor routed over sharp edges.

20 Fault diagnosis: electrical system

Fault	Cause	Remedy
Alternator making noises	Brushes squeaking	Renew brushes or clean slip rings.
Charge warning lamp glows at half strength when engine is idling	Poor contact in wiring	Check wiring and connections.
	Faulty regulator	Check and renew if necessary.
	Worn brushes	Renew.
	Rectifier diode shorting	Check and renew if necessary.
	Rotor or stator shorting	Check and renew, if necessary.
Battery overcharging	Poor contact between regulator and alternator	Check wiring.
	Faulty regulator	Check and renew, if necessary.
Charge warning lamp remains alight or glows when engine speed is above idling	Faulty regulator	Check and renew if necessary.
	Poor contact in wiring	Check wiring.
	Worn brushes	Renew.
	Faulty rotor winding	Check and renew, if necessary.
	Poor contact in rotor energising circuit	Check wiring.
	Faulty diodes	Check and renew, if necessary.
Charge warning lamp will not light when ignition is switched on	Faulty bulb.	Renew.
	Poor connection	Check wiring.
Complete electrical failure	Blown fuse	Renew after tracing fault.
Dim lights, horn inoperative	Discharged battery	Check alternator output.
		Check condition of battery.
Bulbs 'blow'	Vibration, poor contact	Check that bulb holders are secure.
		Check earth connections.

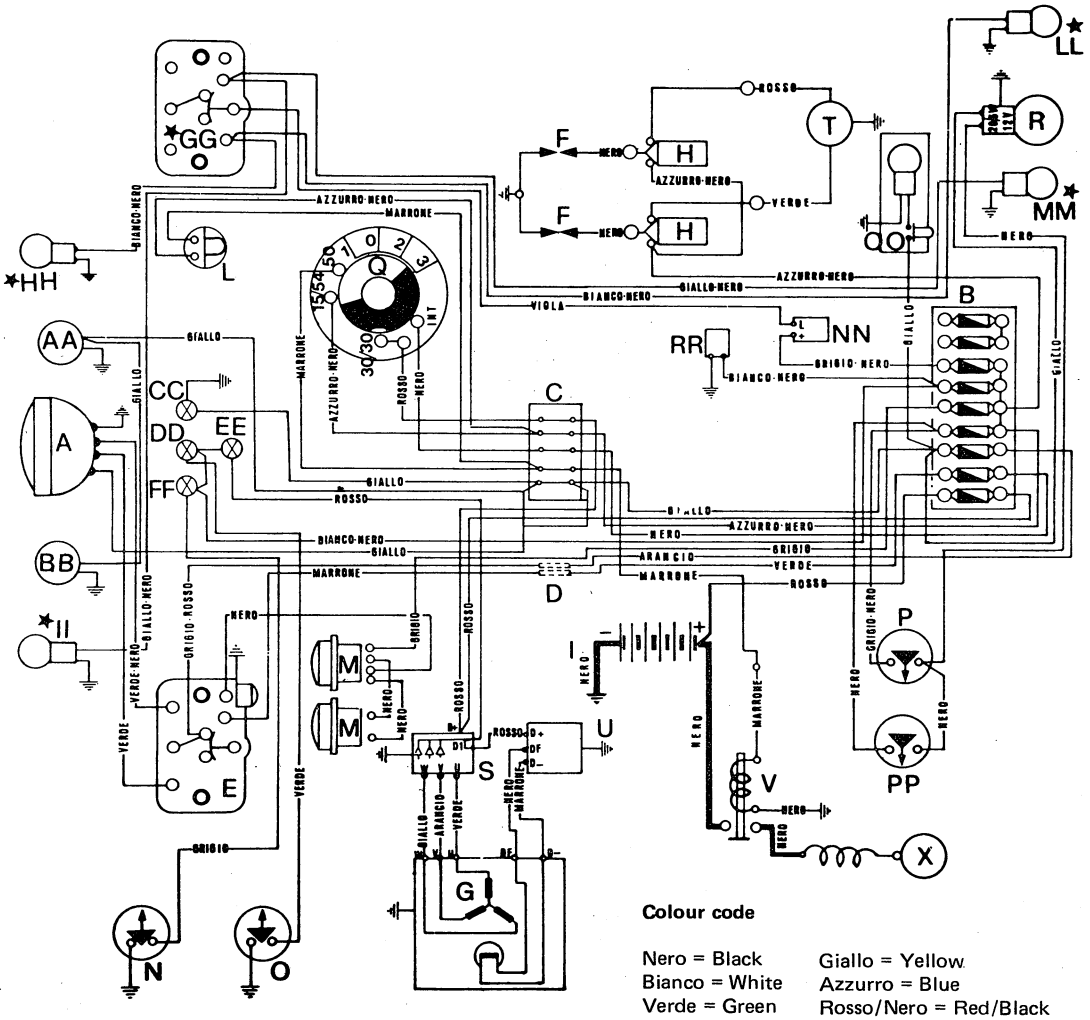


Fig. 7.2. Wiring diagram - 750-S models

Colour code

Nero = Black
Bianco = White
Verde = Green
Grigio = Grey
Viola = Violet
Arancio = Orange
Rosa = Pink
Rosso = Red
Marrone = Brown
Giallo = Yellow
Azzurro = Blue
Rosso/Nero = Red/Black
Azzurro/Nero = Blue/Black
Verde/Nero = Green/Black
Bianco/Nero = White/Black
Giallo/Nero = Yellow/Black
Grigio/Nero = Grey/Black

A	Headlight: (bulb 40/45W - 12V - bulb 5W - 12V) European version
	Sealed beam insert (40/45W - 12V) USA version
B	Terminal block with fuses
C	Distributing block
D	Faston connectors
E	Switch, lighting and horn control
F	Spark plug
G	Generator
H	HT coils
I	Accumulator
L	Engine starting bottom
M	Horn
N	Oil pressure indicator cutout
O	Neutral position indicator cutout
P	Rear stop light cutout
Q	Ignition switch
R	Number plate and stop light
S	Rectifier
T	Double contact breaker
U	Voltage regulator
V	Solenoid
X	Starter motor

AA	Speedometer (bulb 12V - 3W)
BB	Rev. counter (bulb 12V - 3W)
CC	Green warning light (12V - 1,2W) lights on (European version) Or red warning light (12V - 1,2W) parking (USA version)
DD	Orange warning light (12V - 1,2W) neutral indicator
EE	Red warning light (12V - 1,2W) oil pressure
FF	Red warning light (12V - 1,2W) battery charge
GG	Turn indicator lights cutout
HH	Front turn light, right (orange)
II	Front turn light, left (orange)
LL	Rear turn light, right (orange)
MM	Rear turn light, left (orange)
NN	Flasher unit relay
OO	Courtesy light
PP	Front stop light cutout
RR	Electrovalve

Ignition switch position

0 -
1 - 30/30 INT
2 - 30/30 INT - 15/54
3 - 30/30 INT - 15/54 - 50

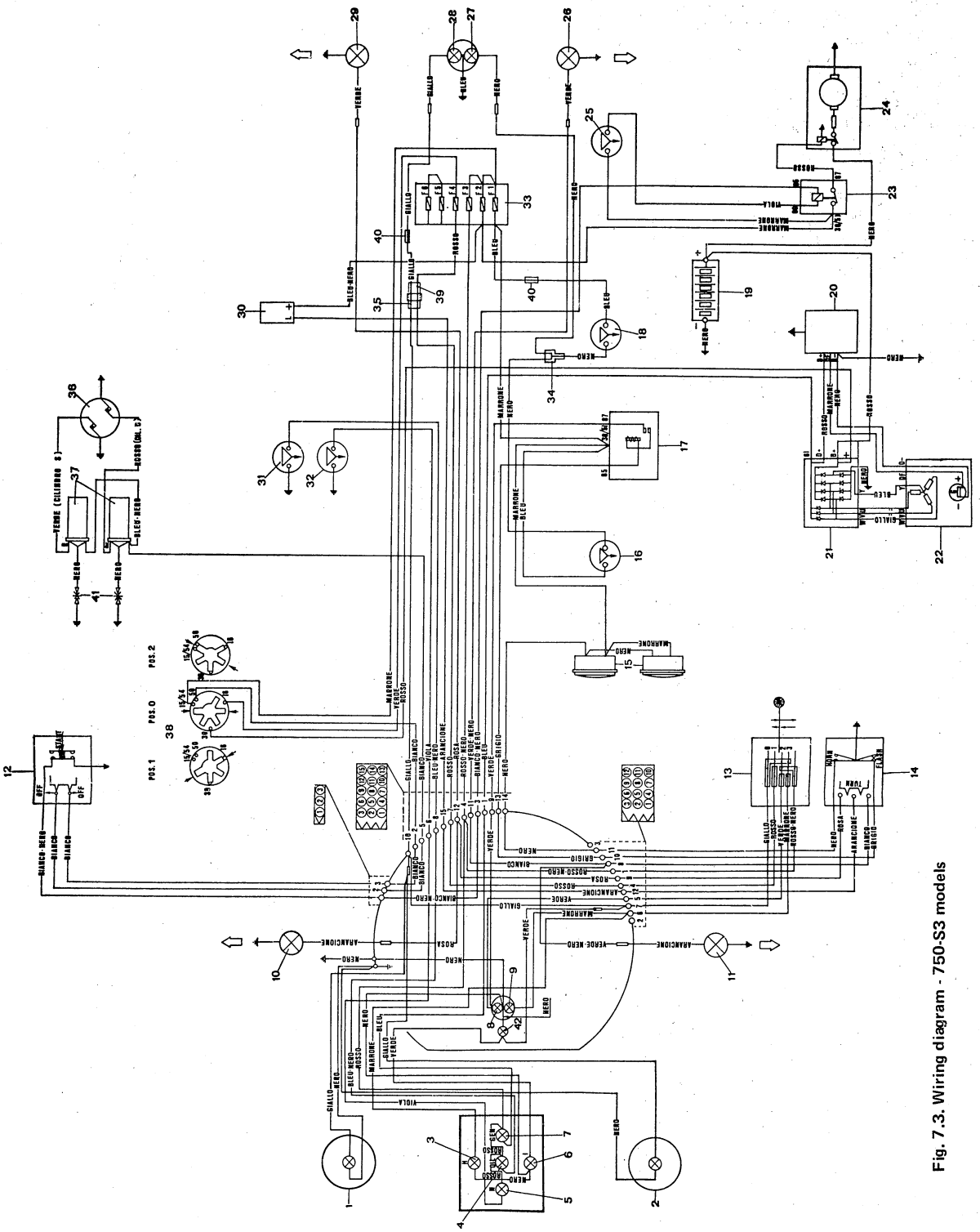


Fig. 7.3. Wiring diagram - 750-S3 models

Fig. 7.3. Wiring diagram: 750 - S3 models

1 Km counter
2 Rev. counter
3 High beam indicator light
4 Oil pressure indicator light
5 Neutral indicator light
6 Town driving indicator light
7 Generator charge indicator light
8 Low beam
9 High beam
10 Right front turn signal light
11 Left front turn signal light
12 Engine starting and stopping switch
13 Lighting switch
14 Switch: turn signal, starting, horns, flashing light
15 Horns (power 7 A)
16 Front brake stop light cutout
17 Flashing light relay
18 Rear brake stop light cutout
19 Battery (12V - 32 Ah)
20 Regulator
21 Rectifier
22 Alternator
23 Starter motor relay
24 Starter motor
25 Clutch cable cutout
26 Left rear turn signal
27 Rear brake stop light
28 Number plate and town driving light
29 Right rear turn signal
30 Flasher unit
31 Oil pressure cutout
32 Neutral position cutout
33 Terminal block with fuses (16 A)
34 3-way connector
35 4-way connector (AMP)
36 Contact breaker
37 Coils
38 Ignition switch (3 positions)
39 4-way connector (AMP)
40 2-way connector
41 Spark plugs
42 Town driving light, front

Colour code

Nero = Black
Bianco = White
Verde = Green
Grigio = Grey
Viola = Violet
Arancio = Orange
Rosa = Pink
Rosso = Red
Marrone = Brown
Giallo = Yellow
Azzurro = Blue
Rosso/Nero = Red/Black
Azzurro/Nero = Blue/Black
Verde/Nero = Green/Black
Bianco/Nero = White/Black
Giallo/Nero = Yellow/Black
Grigio/Nero = Grey/Black
Grigio/Rosso = Grey/Red

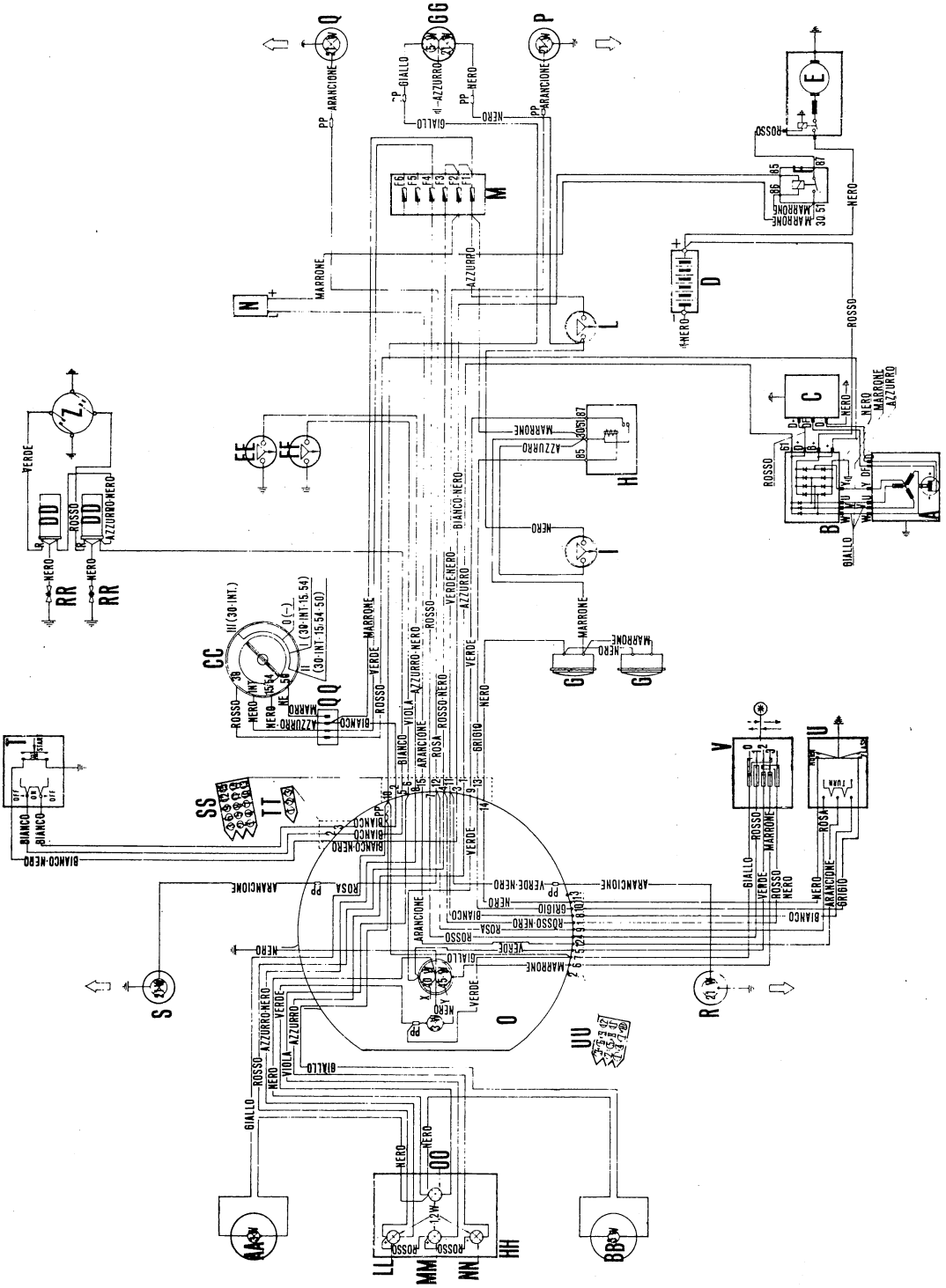


Fig. 7.4. Wiring diagram - 850-T model (European version)

A	Generator
B	Rectifier
C	Regulator
D	Battery
E	Starter motor
F	Starter motor relay
G	Horn
H	Flashing light relay
I	Hydrostop
L	Rear stop switch
M	Terminal block with fuses
N	Flasher unit
O	Asymmetric light
P	Left turn signal, rear
Q	Right turn signal, rear
R	Left turn signal, front
S	Right turn signal, front
T	Engine starter and stop switch
U	Control device, turn signals, horn, flashing light
V	Light switch: dimmer, city light, parking light
AA	Speedometer
BB	Rev. counter
CC	General commutator
DD	HT coil
EE	Oil light switch
FF	Neutral light switch
GG	Number plate and stop light
HH	Instrument panel
LL	Oil pressure light (red)
MM	Neutral light (orange)
NN	Battery light (red)
OO	City light (green)
QQ	4-way connector (AMP)
RR	Spark plugs
SS	15-way connector (MOLEX)
TT	3-way connector (MOLEX)
UU	12-way connector (MOLEX)
X	Low beam
Y	High beam
Z	Contact breaker

Colour code

Nero = Black
Bianco = White
Verde = Green
Grigio = Grey
Viola = Violet
Arancio = Orange
Rosa = Pink
Rosso = Red
Marrone = Brown
Giallo = Yellow
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Azzurro/Nero = Blue/Black
Verde/Nero = Green/Black
Bianco/Nero = White/Black
Giallo/Nero = Yellow/Black
Grigio/Nero = Grey/Black

Fuses

F1 - 15A	Horn, stop, signals relay
F2 - 15A	Starter relay, flasher unit
F3 - 15A	Head light, lights LL; MM; NN
F4 - 15A	Parking light, light OO
F5 - 15A	Reserve
F6 - 15A	Reserve

Fig. 7.4. Wiring diagram: 850 - T model (European version)

1	Km counter
2	Rev counter
3	High beam indicator light
4	Oil pressure indicator light
5	Neutral indicator light
6	Town driving indicator light
7	Generator charge indicator light
8	Low beam
9	High beam
10	Right front turn signal light
11	Left front turn signal light
12	Engine starting and stopping switch
13	Lighting switch
14	Switch; turn signal, starting, horns, flashing light
15	Horns power (7A)
16	Front brake stop light cutout
17	Flashing light relay
18	Rear brake stop light cutout
19	Battery (12V - 32 Ah)
20	Regulator
21	Rectifier
22	Alternator (14V - 20A)
23	Starter motor relay
24	Starter motor (12V - 0.7 HP)
25	Clutch cable cutout
26	Left rear turn signal
27	Rear brake stop light
28	Number plate and town driving light
29	Right rear turn signal
30	Flasher unit
31	Oil pressure cutout
32	Neutral position cutout
33	Terminal block with fuses (16A)
34	3-way connector
35	4-way connector (amp)
36	Contact breaker
37	Coils
38	Ignition switch (3 positions)
39	4-way connector (amp)
40	2-way connector
41	Spark plugs
42	Town driving light, front

Colour code

Nero	=	Black
Bianco	=	White
Verde	=	Green
Grigio	=	Grey
Viola	=	Violet
Arancio	=	Orange
Rosa	=	Pink
Rosso	=	Red
Marrone	=	Brown
Giallo	=	Yellow
Azzurro	=	Blue
Rosso/Nero	=	Red/Black
Azzurro/Nero	=	Blue/Black
Verde/Nero	=	Green/Black
Bianco/Nero	=	White/Black
Giallo/Nero	=	Yellow/Black
Grigio/Nero	=	Grey/Black
Grigio/Rosso	=	Grey/Red

Fig. 7.5. Wiring diagram: 850 - T3 model (European version)

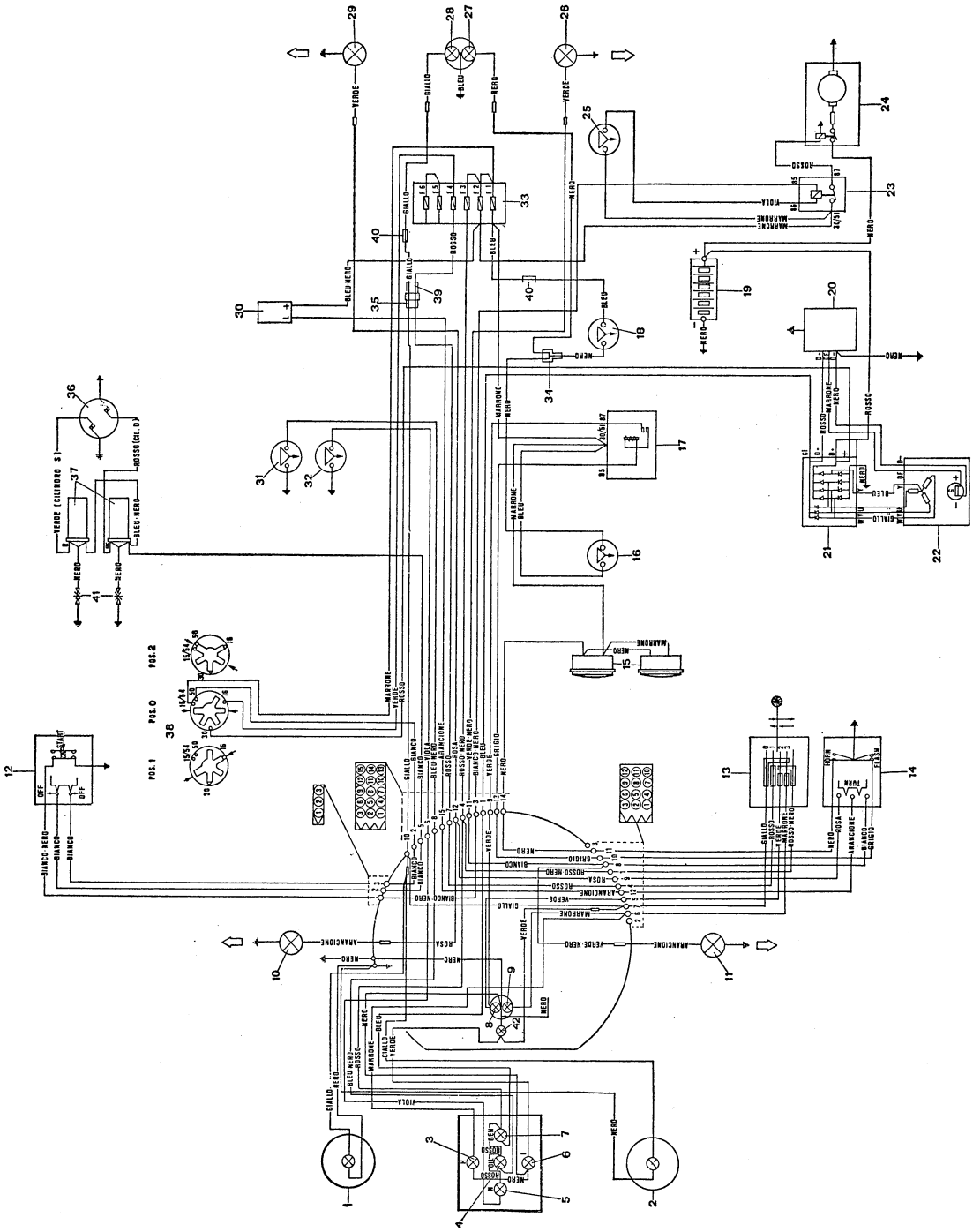

Fig. 7.5. Wiring diagram: 850 - T3 model (European version)

Fig. 7.6. Wiring diagram: 850-T3 model (US version)

1 Mile counter (bulb 3W)
2 Rev counter (bulb 3W)
3 High beam indicator light (1.2W)
4 Oil pressure indicator light (1.2W)
5 Neutral indicator (light 1.2W)
6 Low beam indicator light (1.2W)
7 Generator charge indicator light (1.2W)
8 Low beam (40W)
9 High beam (45W)
10 Right front turn signal light (21W)
11 Left front turn signal light (21W)
12 Engine starting and stopping switch
13 Lighting switch
14 Switch; turn signal, horns, flashing light
15 Horns power (7A)
16 Front brake stop light cutout
17 Flashing light relay
18 Rear brake stop light cutout
19 Battery
20 Regulator
21 Rectifier
22 Alternator
23 Starter motor relay
24 Starter motor
25 Clutch cable cutout
26 Left rear turn signal (21W)
27 Rear brake stop light (21W)
28 Number plate and parking light (5W)
29 Right rear turn signal (21W)
30 Flasher unit
31 Oil pressure cutout
32 Neutral position cutout
33 Terminal block with fuses (16A)
34 3-way connector
35 4-way connector
36 Contact breaker
37 Coils
38 Ignition switch (3 positions)
39 4-way connector
40 2-way connector
41 Spark plugs
42 Light switch, with stop device from position High-Low Beam to position Parking light

Colour code

Nero = Black
Bianco = White
Verde = Green
Grigio = Grey
Viola = Violet
Arancio = Orange
Rosa = Pink
Rosso = Red
Marrone = Brown
Giallo = Yellow
Azzurro = Blue
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Azzurro/Nero = Blue/Black
Verde/Nero = Green/Black
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Giallo/Nero = Yellow/Black
Grigio/Nero = Grey/Black
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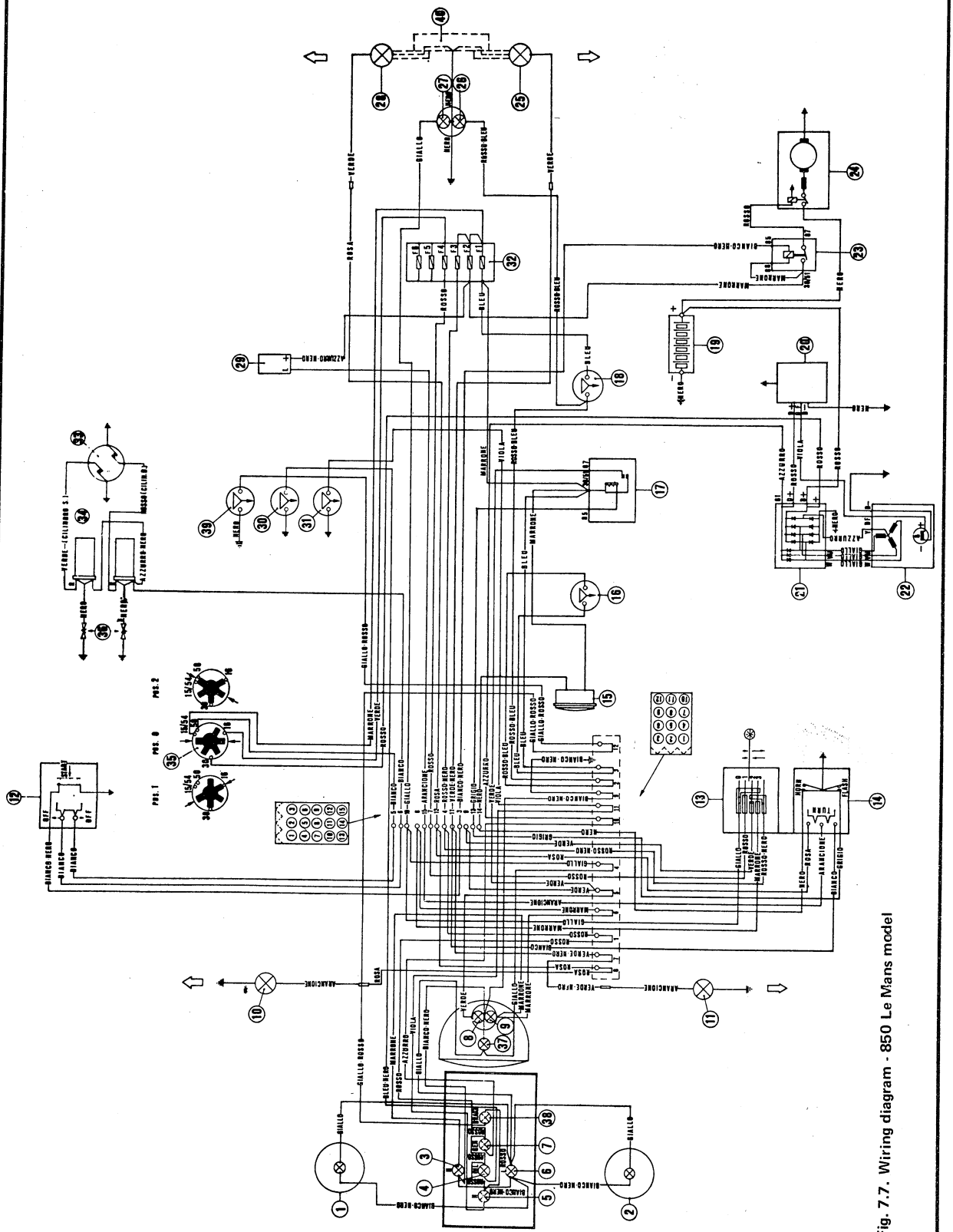

Fig. 7.7. Wiring diagram - 850 Le Mans model

1 Km counter, bulb 3W
2 Rev counter, bulb 3W
3 High beam warning light, bulb 1.2W
4 Oil pressure warning light, bulb 1.2W
5 Neutral warning light, bulb 1.2W
6 Parking light warning bulb 1.2W
7 Generator charge warning light, bulb 1.2W
8 High beam
9 Low beam bulb 40/45W
10 Right front turn signal, bulb 21W
11 left front turn signal, bulb 21W
12 Engine starting and stopping switch
13 Lighting switch
14 Switch turn signals, starting, horn, flashing light
15 Horn (Absorption 3.5A)
16 Front brake stop light cutout
17 Flashing light relay
18 Rear brake stop light cutout
19 Battery 12V - 20 Ah
20 Regulator
21 Rectifier
22 Alternator (14V 20A)
23 Starter motor relay
24 Starter motor (12V - 0.7 HP)
25 Left rear turn signal, bulb 21W
26 Rear brake stop light
27 Number plate and parking light bulb 5/21W
28 Right rear turn signal, bulb 21W
29 Flasher unit
30 Oil pressure cutout
31 Neutral position cutout
32 Terminal block and fuses (16A fuses)
33 Contact breaker
34 Coils
35 Ignition switch (3 positions)
36 Spark plugs
37 Parking light front bulb 3W
38 Brake fluid level warning light (Brake) bulb 1.2W
39 Brake fluid level indicator cutout left and rear circuit

Colour code

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Viola = Violet
Arancio = Orange
Rosa = Pink
Rosso = Red
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Giallo = Yellow
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Bianco/Nero = White/Black
Giallo/Nero = Yellow/Black
Grigio/Nero = Grey/Black
Grigio/Rosso = Grey/Red

Fig. 7.7. Wiring diagram: 850 Le Mans model

1 Speedometer bulb (3W)
2 Additional light (bulb 5) - only on request
3 High beam warning light (bulb 1.2W) H
4 Oil pressure warning light (bulb 1.2W) Oil
5 Neutral position warning light bulb (1.2W) N
6 Town driving warning light (bulb 1.2W) L
7 Generator charge warning light (bulb 1.2W) Gen
8 Low beam
9 High beam bulb 40/45W
10 Turn indicator light - front, right (bulb 21W)
11 Turn indicator light - left, front (bulb 21W)
12 Engine starting and stopping control
13 Additional light switch
14 Control: turn indicator lights, horns, flashing lights
15 Horns (consumption: 7A)
16 Front brake switch
17 Flashing light (flash) relay
18 Rear brake switch
19 Battery
20 Regulator
21 Rectifier
22 Alternator
23 Starter motor relay
24 Starter motor
25 Switch on clutch control wire
26 Turn indicator light - rear, left (bulb 21W)
27 Rear stop light (bulbs 5/21W)
28 Number plate light (bulb 5W)
29 Turn indicator light - rear, front (bulb 21W)
30 Turn indicator lights, flasher unit
31 Oil pressure switch (on the engine crankcase)
32 Town driving light, front (bulb 3W)
33 Terminal block with fuses (16A fuses)
34 3-way connector
35 4-way connector Amp
36 Breaker
37 Coils
38 Ignition switch (3 positions)
39 Switch actuating rear turn indicator lights flashing
40 2-way connector
41 Spark plugs
42 Light switch with travel limit from position High/Low beam to position Town driving light
43 Right turn indicator warning light (bulb 1.2W)
44 Left turn indicator warning light (bulb 1.2W)
45 Warning light indicating Side stand in position Park (bulb 1.2W)
46 Brake fluid level warning light - brake (bulb 1.2W)
47 Fuel level warning light fuel (bulb 1.2W)
48 4-way connector (amp)
49 Connection
50 Brake fluid level indicator
51 Fuel level indicator
52 Electrovalve (2.5W)
53 Coil control device
54 Commutator for side stand warning light Park position
55 Rear parking light (bulb 5/21W)

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Bianco/Nero = White/Black
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Grigio/Nero = Grey/Black
Grigio/Rosso = Grey/Red

Fig. 7.8. Wiring diagram: V1000 1 - Convert model (European version)

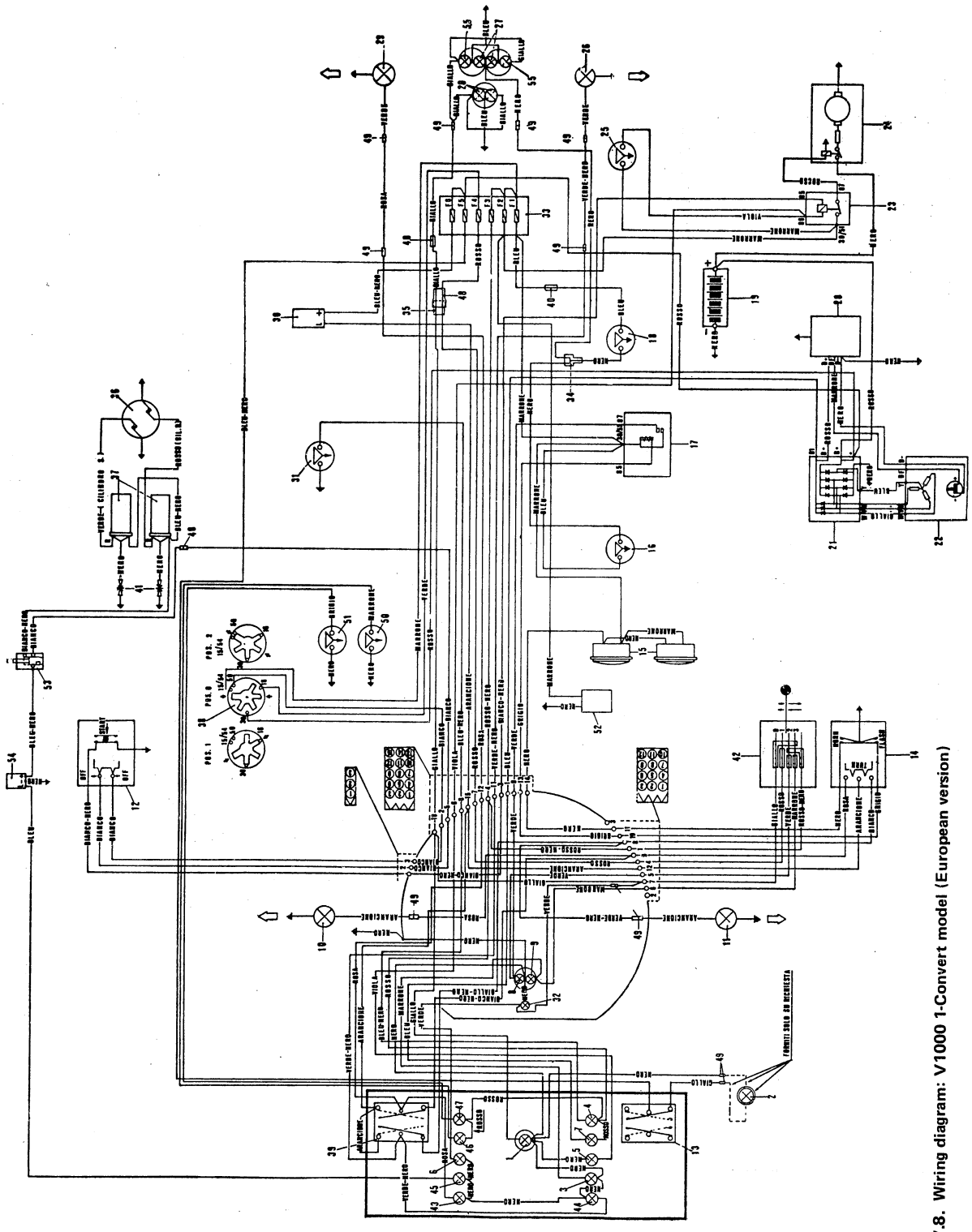

Fig. 7.8. Wiring diagram: V1000 1-Convert model (European version)

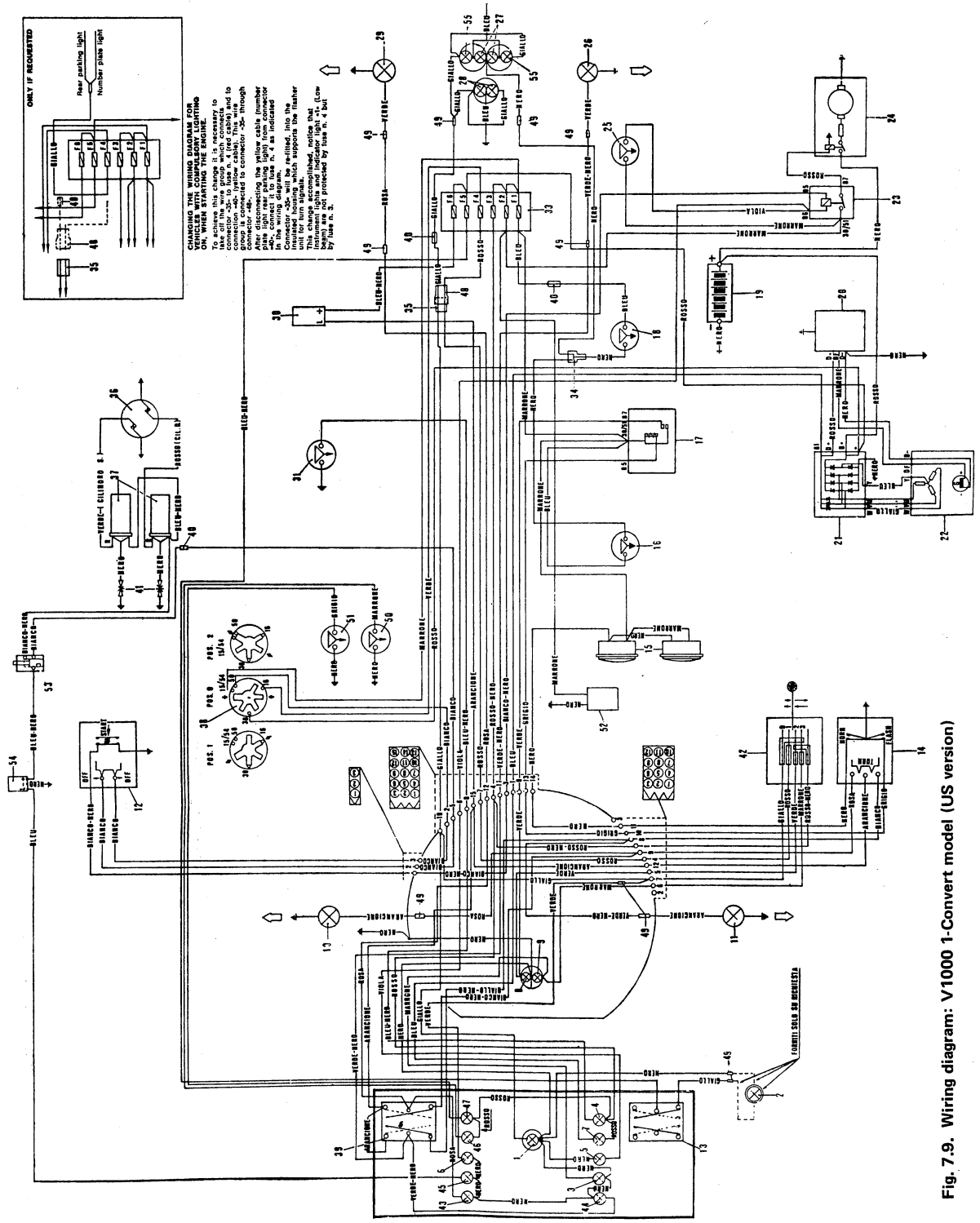

Fig. 7.9. Wiring diagram: V1000 1-Convert model (US version)

1 Mile counter, speedometer (bulb 3W)
2 Additional light (bulb 5) - only on request
3 High beam warning light (bulb 1.2W) H
4 Oil pressure warning light (bulb 1.2W) Oil
5 Neutral position warning light (bulb 1.2W) N
6 Low beam and parking warning light (bulb 1.2W) L
7 Generator charge warning light (bulb 1.2W) Gen
8 Low beam
9 High beam bulb 40/45W
10 Turn indicator light - right, front (bulb 21W)
11 Turn indicator light - left, front (bulb 21W)
12 Engine starting and stopping control
13 Additional light switch
14 Control: turn indicator lights, horns, flashing lights
15 Horns (consumption: 7A)
16 Front brake switch
17 Flashing light (flash) relay
18 Rear brake switch
19 Battery
20 Regulator
21 Rectifier
22 Alternator
23 Starter motor relay
24 Starter motor
25 Switch on clutch control wire
26 Turn indicator light - rear, left (bulb 21W)
27 Rear stop light (bulbs 5/21W)
28 Number plate light (bulb 5W)
29 Turn indicator lights, flasher unit
30 Turn indicator lights, flasher unit
31 Oil pressure switch (on the engine crankcase)
32 Town driving light, front (bulb 3W)
33 Terminal block with fuses (16A fuses)
34 3-way connector
35 4-way connector (amp)
36 Breaker
37 Coils
38 Ignition switch (3 positions).
39 Switch actuating rear turn indicator lights flashing
40 2-way connector
41 Spark plugs
42 Light switch with travel limit from position High/Low beam to position Town driving light
43 Right turn indicator warning light (bulb 1.2W)
44 Left turn indicator warning light (bulb 1.2W)
45 Warning light indicating side stand in position Park (bulb 1.2W)
46 Brake fluid level warning light Brake (bulb 1.2W)
47 Fuel level warning light Fuel (bulb 1.2W)
48 4-way connector (amp)
49 Connection
50 Brake fluid level indicator
51 Fuel level indicator
52 Electrovalve (2.5W)
53 Coil control device
54 Commutator for side stand warning light Park position
55 Rear parking light (bulb 5/21W)

Colour code

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Fig. 7.9. Wiring diagram: V1000 1 - Convert model (US version)