

Chapter 8

Electrical system

Note: Unless specifically mentioned in this Chapter, the information given for the 1982 750 Sabre applies to the UK VF750S-C, and that for the 1987 and 1988 700/750 Magnas applies to the UK VF750C-H and C-J respectively.

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Specifications

Battery

Capacity

1982 through 1986 700/750 models	12V, 14Ah
1987 and 1988 700/750 models	12V, 12Ah
1100 models	12V, 18Ah

Alternator

Output

750 Sabre models	300W at 5000 rpm
700 Sabre models	350W at 5000 rpm
1982 through 1984 700/750 Magna models	300W at 5000 rpm
1985 and 1986 700 Magna models	350W at 5000 rpm
1987 and 1988 700/750 Magna models	345W at 5000 rpm
1100 Sabre models	350W at 5000 rpm
1100 Magna models	300W at 5000 rpm

Charging voltage

1100 Sabre models	13 to 16 volts
1100 Magna and all 700/750 models	14 to 15 volts

Starter motor

Brush length

New	12 to 13 mm (0.47 to 0.51 in)
Service limit	6.5 mm (0.26 in)

Fuses

Main fuse (on starter relay)	30A
All other fuses (in fusebox)	10A and 15A

Bulb

US models

UK models

Headlight

1982 750 models (sealed beam)	12V 65/45W	12V 60/55W
All other models	12V 60/55W	12V 60/55W

Position (parking) light

—	12V 4W
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Tail/stop light

1987 and 1988 700/750 Magna models	12V 5/21W	12V 5/21W
All other models	12V 8/27W	12V 5/21W

Front turn signal/running lights

12V 23/8W	12V 21W
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Rear turn signal lights

12V 23W	12V 21W
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License plate light

1982 through 1986 Magna models	12V 8W	—
1987 and 1988 700/750 Magna models	12V 5W	12V 5W
1100 Sabre models	12V 4cp	—

Instrument illuminating lights

1982 through 1986 models	12V 3 or 3.4W	12V 3W
1987 and 1988 700/750 Magna models	12V 1.7W	12V 1.7W

Warning lamps

12V 3W	12V 3W
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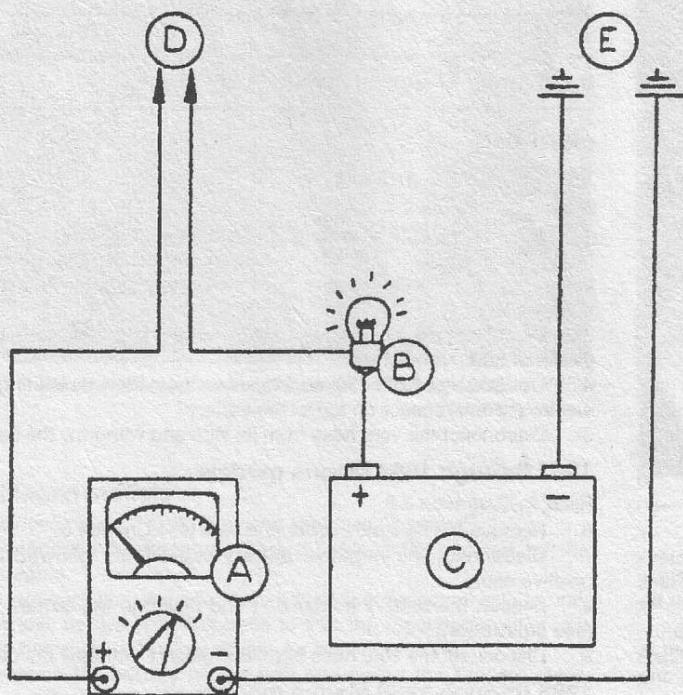
Torque settings

Nm

ft-lbs

Oil pressure switch

700/750 Sabres and 1982 through 1984		
700/750 Magna models	15 to 20	11 to 14
1100 models and 1985-on 700/750 Magna models	10 to 14	7 to 10



2.5 Simple testing equipment for checking the wiring

A	Multimeter	D	Positive probe (+)
B	Bulb	E	Negative probe (-)
C	Battery		

1 General information

The machines covered by this manual are equipped with a 12-volt electrical system. The components include a three-phase alternator and a regulator/rectifier unit.

The regulator/rectifier unit maintains the charging system output within the specified range to prevent overcharging and converts the AC (alternating current) output of the alternator to DC (direct current) to power the lights and other components and to charge the battery.

The starting system includes the motor (mounted on the front of the crankcase), the battery, the relay and the various wires and switches. If the engine stop switch and the ignition (main) key switch are both in the Run or On position, the circuit relay allows the starter motor to operate only if the transmission is in Neutral or the clutch lever is pulled to the handlebar.

Note: Keep in mind that electrical parts, once purchased, can't be returned. To avoid unnecessary expense, make very sure the faulty component has been positively identified before buying a replacement part.

2 Electrical troubleshooting

Refer to illustration 2.5

A typical electrical circuit consists of an electrical component, the switches, relays, etc. related to that component and the wiring and connectors that hook the component to both the battery and the frame. To aid in locating a problem in any electrical circuit, refer to the wiring diagrams at the end of this Chapter.

Before tackling any troublesome electrical circuit, first study the appropriate diagrams thoroughly to get a complete picture of what makes up that individual circuit. Trouble spots, for instance, can often be narrowed down by noting if other components related to that circuit are operating properly or not. If several components or circuits fail at one time, chances are the fault lies in the fuse or ground (earth)

connection, as several circuits often are routed through the same fuse and ground (earth) connections.

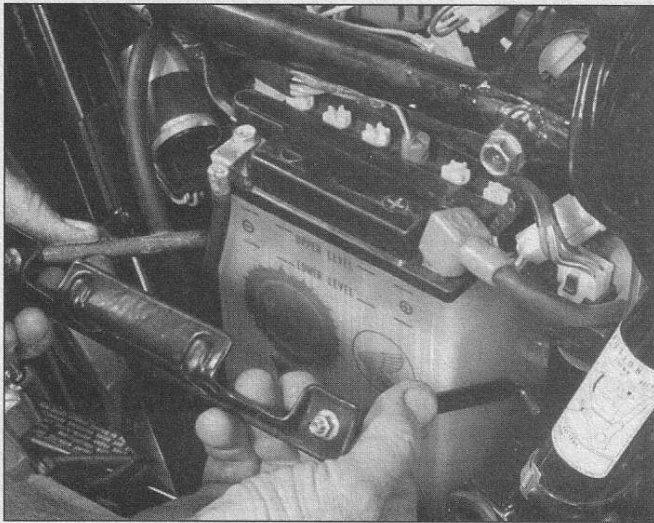
Electrical problems often stem from simple causes, such as loose or corroded connections or a blown fuse. Prior to any electrical troubleshooting, always visually check the condition of the fuse, wires and connections in the problem circuit. Intermittent failures can be especially frustrating, since you can't always duplicate the failure when it's convenient to test. In such situations, a good practice is to clean all connections in the affected circuit, whether or not they appear to be good. All of the connections and wires should also be wiggled to check for looseness which can cause intermittent failure.

If testing instruments are going to be utilized, use the diagrams to plan where you will make the necessary connections in order to accurately pinpoint the trouble spot.

The basic tools needed for electrical troubleshooting include a test light or voltmeter, a continuity tester (which includes a bulb, battery and set of test leads) and a jumper wire, preferably with a circuit breaker incorporated, which can be used to bypass electrical components (see illustration). Specific checks described later in this Chapter may also require an ohmmeter. Ideally a multimeter with resistance, current and voltage measuring facilities should be available.

Voltage checks should be performed if a circuit is not functioning properly. Connect one lead of a test light or voltmeter to either the negative battery terminal or a known good ground (earth). Connect the other lead to a connector in the circuit being tested, preferably nearest to the battery or fuse. If the bulb lights, voltage is reaching that point, which means the part of the circuit between that connector and the battery is problem-free. Continue checking the remainder of the circuit in the same manner. When you reach a point where no voltage is present, the problem lies between there and the last good test point. Most of the time the problem is due to a loose connection. Keep in mind that some circuits only receive voltage when the ignition key is in the On position.

One method of finding short circuits is to remove the fuse and connect a test light or voltmeter in its place to the fuse terminals. There should be no load in the circuit (it should be switched off). Move the wiring harness from side-to-side while watching the test light. If the



3.2 Battery clamp is held by two nuts on 700/750 Sabres

bulb lights, there is a short to ground (earth) somewhere in that area, probably where insulation has rubbed off a wire. The same test can be performed on other components in the circuit, including the switch.

A ground (earth) check should be done to see if a component is grounded (earthed) properly. Disconnect the battery and connect one lead of a self-powered test light (continuity tester) to a known good ground (earth). Connect the other lead to the wire or ground (earth) connection being tested. If the bulb lights, the ground (earth) is good. If the bulb does not light, the ground (earth) is not good.

A continuity check is performed to see if a circuit, section of circuit or individual component is capable of passing electricity through it. Disconnect the battery and connect one lead of a self-powered test light (continuity tester) to one end of the circuit being tested and the other lead to the other end of the circuit. If the bulb lights, there is continuity, which means the circuit is passing electricity through it properly. Switches can be checked in the same way.

Remember that all electrical circuits are designed to conduct electricity from the battery, through the wires, switches, relays, etc. to the electrical component (light bulb, motor, etc.). From there it is

directed to the frame ground (earth) where it is passed back to the battery. Electrical problems are basically an interruption in the flow of electricity from the battery or back to it.

3 Battery - removal and installation

Removal

700/750 Sabre models

Refer to illustration 3.2

- 1 Remove the right side cover and seat (see Chapter 6).
- 2 Loosen the two nuts on the battery hold down clamp until the lower ends can be disengaged from the battery support bracket (see illustration).
- 3 Disconnect the negative battery cable first, followed by the positive cable.
- 4 On 1982 and 1983 750 models, disconnect the wire leading to the electrolyte level sensor on top of the battery.
- 5 Disconnect the vent hose from its side and withdraw the battery.

1982 through 1984 Magna models

Refer to illustration 3.8

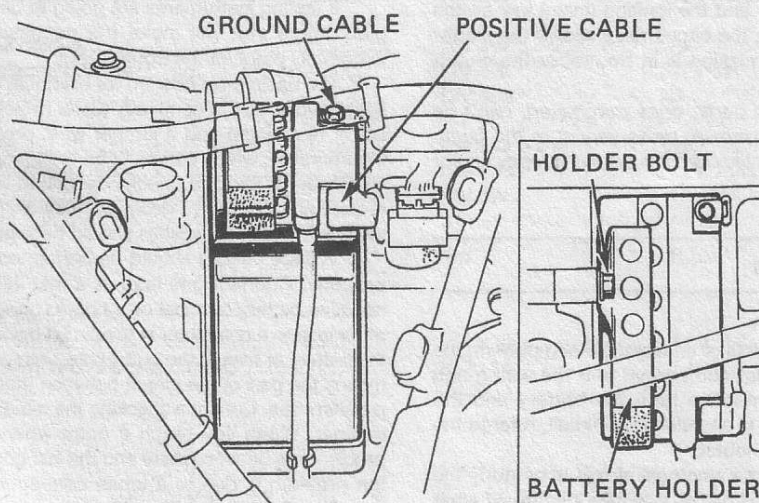
- 6 Remove the right side cover and seat (see Chapter 6).
- 7 Disconnect the negative battery cable first, followed by the positive cable.
- 8 Loosen the battery holder bolt and dislodge the battery holder (see illustration).
- 9 Disconnect the vent hose from its side and withdraw the battery.

1985 through 1988 Magna models

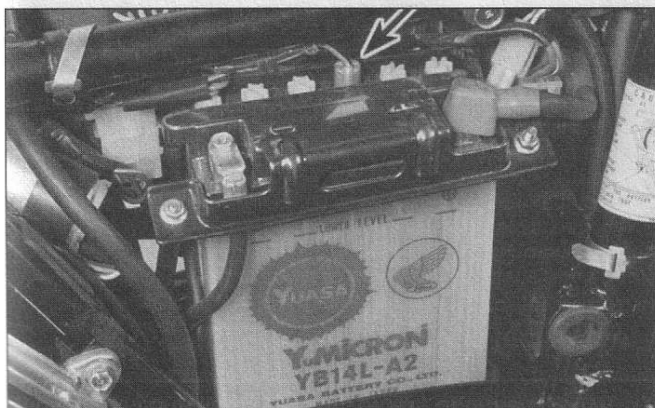
- 10 Remove the seats (see Chapter 6).
- 11 Disconnect the negative battery cable first, followed by the positive cable.
- 12 Release the battery holder plate bolts (1985/86 models) or strap (1987/88 models), disconnect the vent hose and lift the battery from the frame.

1100 Sabre models

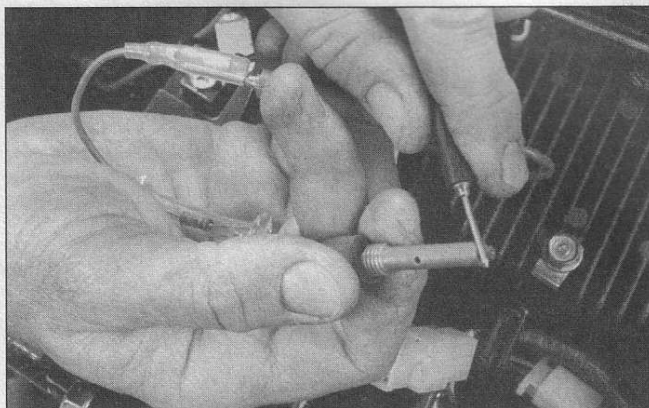
- 13 Remove the left side cover (see Chapter 6).
- 14 Remove the bolt from the battery holder strap.
- 15 Disconnect the negative battery cable first, followed by the positive cable.
- 16 Disconnect the vent hose from its side and withdraw the battery.



3.8 Battery on 1982 through 1984 700/750 Magnas



6.2 Electrolyte level sensor location in battery (arrow)



6.3 Measuring electrolyte level sensor resistance

1100 Magna models

- 17 Remove the right side cover and seat (see Chapter 6).
- 18 Disconnect the negative battery cable first, followed by the positive cable.
- 19 Disconnect the wire connectors from the regulator/rectifier unit, remove its two retaining bolts to free the regulator/rectifier unit from the frame; this will allow access for battery removal.
- 20 Remove the battery holder bolt and swing the bracket clear. Disconnect the vent hose from its side and withdraw the battery.

Installation

- 21 Installation is the reverse of the removal procedure, noting the following:
 - a) Be sure the battery vent hose is properly routed (see label attached to motorcycle frame) and not kinked.
 - b) Connect the negative cable last and ensure that the protective cover is installed over the positive terminal.

4 Battery - inspection and maintenance

- 1 Most battery damage is caused by heat, vibration, and/or low electrolyte levels, so keep the battery securely mounted, check the electrolyte level frequently and make sure the charging system is functioning properly.
- 2 Refer to Chapter 1 for electrolyte level and specific gravity checking procedures.
- 3 Check around the base of the battery for sediment, which is the result of sulfation caused by low electrolyte levels. These deposits will cause internal short circuits, which can quickly discharge the battery. Look for cracks in the case and replace the battery if either of these conditions is found.
- 4 Check the battery terminals and cable ends for tightness and corrosion. If corrosion is evident, remove the cables from the battery and clean the terminals and cable ends with a wire brush or a knife and emery cloth. Reconnect the cables and apply a thin coat of petroleum jelly to the connections to slow further corrosion.
- 5 The battery case should be kept clean to prevent current leakage, which can discharge the battery over a period of time (especially when it sits unused). Wash the outside of the case with a solution of baking soda and water. Do not get any baking soda solution in the battery cells. Rinse the battery thoroughly, then dry it.
- 6 If acid has been spilled on the frame or battery box, neutralize it with the baking soda and water solution, dry it thoroughly, then touch up any damaged paint. Make sure the battery vent tube is directed away from the frame and is not kinked or pinched.
- 7 If the motorcycle sits unused for long periods of time, refer to Section 5 and charge the battery approximately once every month.

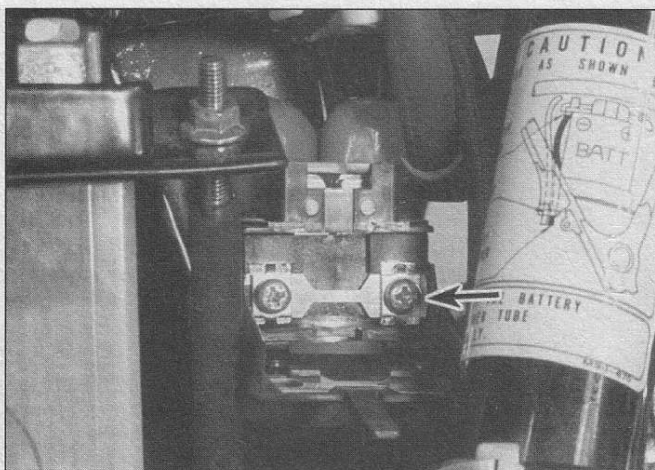
5 Battery - charging

- 1 If the machine sits idle for extended periods or if the charging system malfunctions, the battery can be charged from an external source.
- 2 To properly charge the battery, you will need a charger of the correct rating, an hydrometer, a clean rag and a syringe for adding distilled water to the battery cells.
- 3 The maximum charging rate for any battery is 1/10 of the rated amp/hour capacity. As an example, the maximum charging rate for a 14 amp/hour battery would be 1.4 amps. If the battery is charged at a higher rate, it could be damaged.
- 4 Do not allow the battery to be subjected to a so called quick charge (high rate of charge over a short period of time) unless you are prepared to buy a new battery.
- 5 When charging the battery, always remove it from the machine and be sure to check the electrolyte level before hooking up the charger. Add distilled water to any cells that are low.
- 6 Loosen the cell caps, hook up the battery charger leads (red to positive, black to negative), cover the top of the battery with a clean rag, then, and only then, plug in the battery charger. **Caution:** Remember, the gas escaping from a charging battery is explosive, so keep open flames and sparks well away from the area. Also, the electrolyte is extremely corrosive and will damage anything it comes in contact with.
- 7 Allow the battery to charge until the specific gravity is as specified (refer to Chapter 1 for specific gravity checking procedures). The charger must be unplugged and disconnected from the battery when making specific gravity checks. If the battery overheats or gases excessively, the charging rate is too high. Either disconnect the charger or lower the charging rate to prevent damage to the battery.
- 8 If one or more of the cells do not show an increase in specific gravity after a long slow charge, or if the battery as a whole does not seem to want to take a charge, it is time for a new battery.
- 9 When the battery is fully charged, unplug the charger first, then disconnect the leads from the battery. Install the cell caps and wipe any electrolyte off the outside of the battery case.

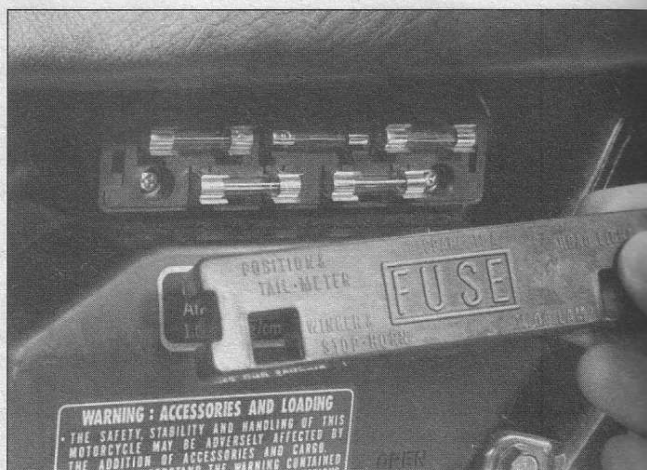
6 Battery electrolyte level sensor (1982 and 1983 750 Sabre models) - check and replacement

Refer to illustrations 6.2 and 6.3

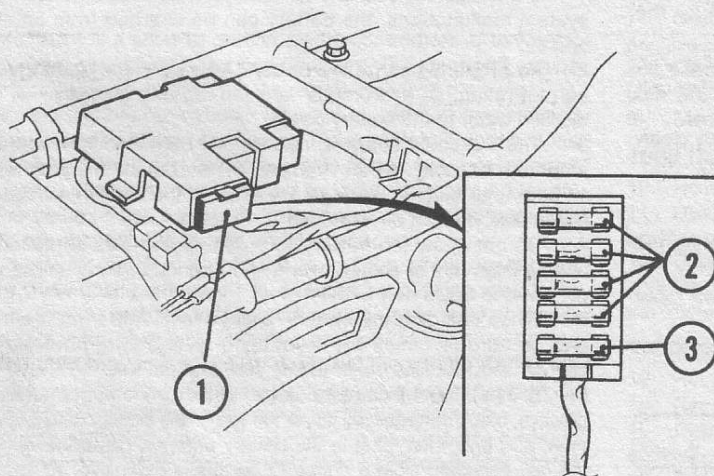
- 1 Remove the right side cover and seat (see Chapter 6).
- 2 Disconnect the sensor wiring lead and unplug the sensor from the battery (see illustration). Wipe any electrolyte off the sensor.
- 3 Use an ohmmeter to measure the resistance between the tip of the sensor and its wiring lead (see illustration). A reading of 680 ohms should be obtained; if widely different from this, the sensor is defective.



7.1 Main fuse is located in starter relay (arrow)



7.2a Fusebox location on 700/750 Sabres



7.2b Fusebox location on 1982 through 1984 700/750 Magnas

- | | |
|-----------|--------------|
| 1 Fusebox | 3 Spare fuse |
| 2 Fuses | |

7 Fuses - check and replacement

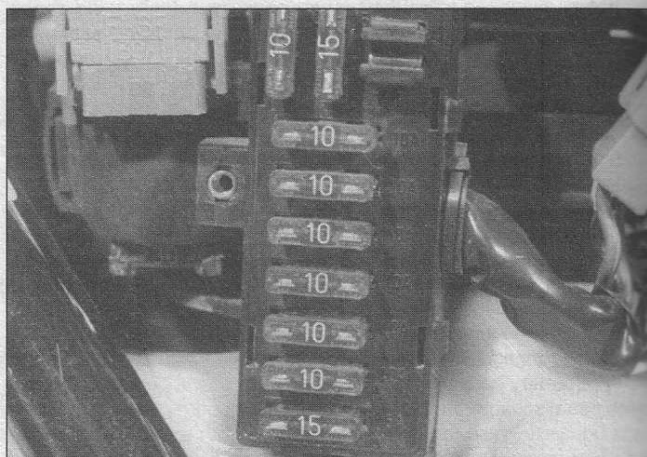
Refer to illustrations 7.1, 7.2a, 7.2b and 7.2c

Caution: Turn the ignition (main) key switch Off prior to checking or replacing fuses, to prevent accidental short-circuiting.

1 The main fuse is housed in the starter relay, next to the battery. Unclip the cover to reveal the fuse (**see illustration**). Early models use a ribbon-type fuse wire which is retained by two screws, whereas a plug-in type fuse is fitted to later models.

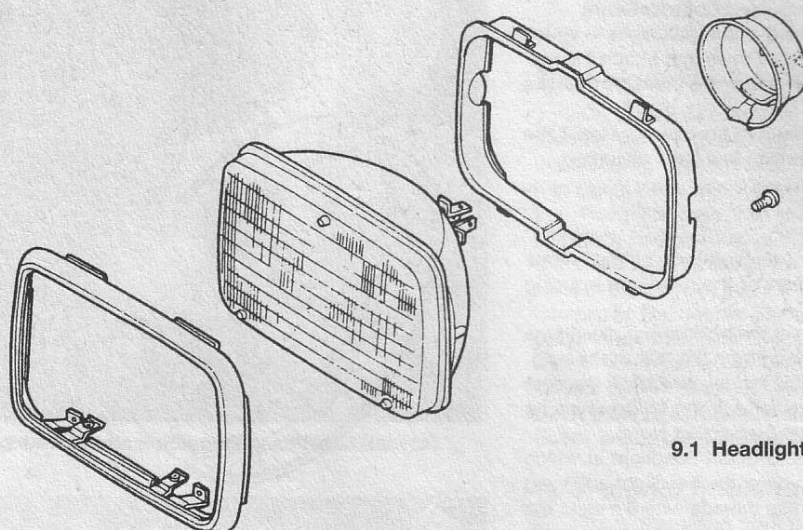
2 The circuit fuses are housed in a fusebox; refer to the *wiring diagrams* for the circuits protected. On 700/750 Sabre models the fusebox is located behind the left side cover, above the toolbox (**see illustration**). On 1982 through 1984 700/750 Magnas it is beneath the seat on the rear fender, next to the spark units, and on later Magnas it is under the right side cover (**see illustrations**). The fusebox on 1100 models is situated under a cover between the horns; release the cover screw for access. In all cases, the circuits protected are listed on the fusebox lid. **Note:** On certain Magna models, the cooling fan fuse is housed in an in-line fuseholder on the fan wiring.

3 The fusebox fuses are of the glass cartridge type on early models and plug-in type on later models. Slide the glass cartridge type out of its spring clips to remove, and pull the plug-in type out with the fingertips or using the plastic gripper provided. Fuse ratings differ between circuits - always replace a fuse with one of the same amperage. **Caution:** Never put in a fuse of a higher rating or bridge the



7.2c Fusebox location on 1985-on 700/750 Magnas

terminals with any other substitute, however temporary it may be. Serious damage may be done to the circuit, or a fire may start. Spare fuses of each rating are located in the fusebox, and a spare main fuse is clipped to the base of the starter relay. If the spare fuses are used,



9.1 Headlight details (700/750 Sabres)

always replace them so that a spare fuse of each rating is carried on the machine at all times.

4 If a fuse blows, be sure to check the wiring circuit very carefully for evidence of a short-circuit. Look for bare wires and chafed, melted or burned insulation. If a fuse is replaced before the cause is located, the new fuse will blow immediately.

5 Occasionally a fuse will blow or cause an open-circuit for no obvious reason. Corrosion of the fuse ends and fusebox terminals may occur and cause poor fuse contact. If this happens, remove the corrosion with a wire brush or emery paper, then spray the fuse end and terminals with electrical contact cleaner.

8 Lighting system - check

1 The battery provides power for operation of the headlight, taillight, brake stop light, license plate light (where fitted) and instrument cluster lights. If none of the lights operate, always check battery voltage before proceeding. Low battery voltage indicates either a faulty battery or a defective charging system. Refer to Section 4 for battery checks and Section 36 or 37 for charging system tests. Also, check the condition of the fuses and replace any blown fuses with new ones.

Headlight

2 If the headlight is out when the engine is running (US models) or it won't switch on (UK models), check the fuse first with the key On (see Section 7), then unplug the electrical connector for the headlight and use jumper wires to connect the bulb directly to the battery terminals. If the light comes on, the problem lies in the wiring or one of the switches in the circuit. Refer to Section 23 for the switch testing procedures, and also the wiring diagrams at the end of this Chapter.

Tail light and license plate light

3 If the taillight fails to work, check the bulbs and the bulb terminals first, then check for battery voltage at the taillight electrical connector. If voltage is present, check the ground (earth) circuit for an open or poor connection.

4 If no voltage is indicated, check the wiring between the taillight and the ignition main (key) switch, then check the switch. On UK models, check the lighting switch as well.

Brake light

5 See Section 17 for the brake light switch checking procedure.

Neutral indicator light - 1987 and 1988 700/750 Magna models

6 If the neutral light fails to operate when the transmission is in Neutral, check the fuses and the bulb (see Sections 7 and 20). If the bulb and fuses are in good condition, check for battery voltage at the light green/red wire attached to the neutral switch. If battery voltage is present, refer to Section 25 for the neutral switch check and replacement procedures.

7 If no voltage is indicated, check the wiring between the switch and the bulb for open-circuits and poor connections.

OD (overdrive) indicator light - 1982 through 1986 700/750 Magna models

8 If the OD light fails to operate when the transmission is in top gear, check the fuses and the bulb (see Sections 7 and 20). If the bulb and fuses are in good condition, check for battery voltage at the green/orange wire attached to the neutral/OD switch. If battery voltage is present, refer to Section 25 for the neutral/OD switch check and replacement procedures.

9 If no voltage is indicated, check the wiring between the switch and the bulb for open-circuits and poor connections.

9 Headlight bulb and position light (UK models only) bulb - replacement

Headlight

Note: The headlamp bulb is of the quartz-halogen type. Do not touch the bulb glass as skin acids will shorten the bulb's service life. If the bulb is accidentally touched, it should be wiped carefully when cold with a rag soaked in stoddard solvent (denatured alcohol) and dried before fitting. Allow the bulb time to cool before removing it if the headlight has been used.

Sabre models

Refer to illustration 9.1

1 Remove the two screws (700/750 models) or single screw (1100 models) at the bottom of the headlight housing. Ease the headlight out of its housing at the bottom edge and disengage the two tabs at the top (see illustration).

2 As the headlight is withdrawn, disconnect the wiring connector from the rear of the bulb.

3 On all models except the US 1982 750 model, peel back the dust cover and release the headlight bulb retainer. Lift the bulb out via its wire connector tabs - don't touch the glass (see above Note).

4 The US 1982 750 model has a sealed-beam headlight in which the bulb is not removable. Remove the two screws that attach the rear retaining ring to the headlight rim, then separate them to free the sealed beam unit.

5 Installation is the reverse of the removal procedure. Reset the headlight aim where the adjuster screw setting has been disturbed.

Magna models

Refer to illustration 9.6

6 Remove the two screws (round headlight) or single screw (rectangular headlight) from the lower part of the headlight housing (see illustration).

7 Ease the headlight out of its housing at the bottom and disengage the tab at the top, then disconnect the wiring from the rear of the bulb.

8 On all models except the US 1982 750 model, peel back the dust cover and release the headlight bulb retainer. Lift the bulb out via its wire connector tabs - don't touch the glass (see above Note).

9 The US 1982 750 model has a sealed-beam headlight in which the bulb is not removable. Mark the position of the headlight adjusting screw by applying a small dot of paint on its threads where it exits the locknut, then remove the adjusting screw, spring, washer and nut. Remove the two screws that attach the rear retaining ring to the headlight rim, then separate them to free the sealed beam unit.

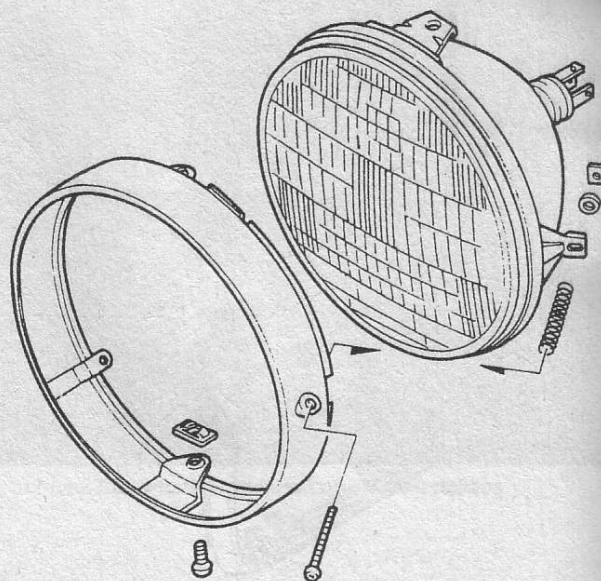
10 Installation is the reverse of the removal procedure. Reset the headlight aim where the adjuster screw setting has been disturbed.

Position (parking) light (UK models only)

11 Remove the headlamp from the housing as described above.

12 Pull the bulbholder out from the base of the headlight. Twist the bulb counterclockwise (anticlockwise) to release it from its holder.

13 Insert the new bulb and twist it clockwise to secure it, then push the bulbholder into the headlight unit.



9.6 Headlight details (early 700/750 Magnas)

10 Headlight housing - removal and installation

1982 and 1983 750 Sabre models

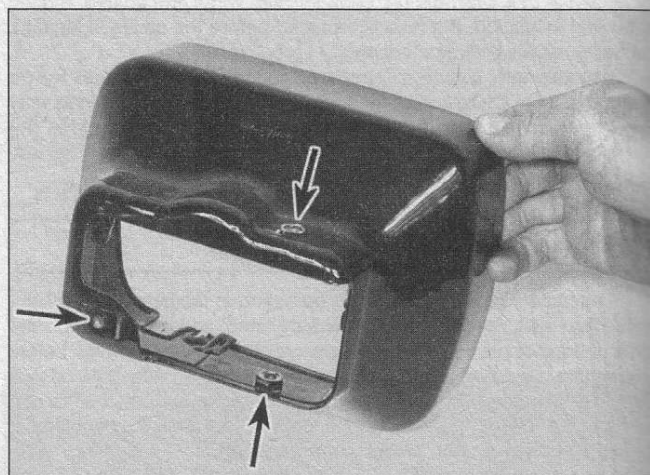
Refer to illustration 10.3

1 Remove the headlight as described in Section 9.

2 Loosen the instrument cluster pivot bolts and tilt the cluster to the rear, toward the fuel tank.

3 Remove the three headlight housing mounting screws. One is located on the top, one on the bottom and one in the rear (see illustration). Remove the headlight housing. As the housing is lifted off, carefully withdraw the wiring and connectors out the rear opening.

4 Installation is the reverse of the removal procedure. Carry out aim adjustment on completion (see Section 11).



10.3 Headlight housing mounting points (1982/83 Sabres)

All other models

5 Remove the headlight as described in Section 9.

6 Release the wiring inside the housing from any ties so that it is able to pass through the access hole in the rear of the housing. Unplug the wire connectors from the turn signal relay and running light relay on 1100 Sabre models.

7 On 1982 through 1986 models, remove the two headlight housing mounting bolts from the front turn signal mount brackets and retrieve their collars and nuts (where fitted). As the housing is lifted off, carefully withdraw the wiring and connectors out the rear opening. On 1987 and 1988 Magna models, remove the two nuts and through-bolts at the base of the housing, then lift the housing off its bracket; note the collars and spacer on the through-bolts.

8 Installation is the reverse of the removal procedure. Carry out aim adjustment on completion (see Section 11).

11 Headlight aim - check and adjustment

1 An improperly adjusted headlight may cause problems for oncoming traffic or provide poor, unsafe illumination of the road ahead. Before adjusting the headlight, be sure to consult with local traffic laws and regulations.

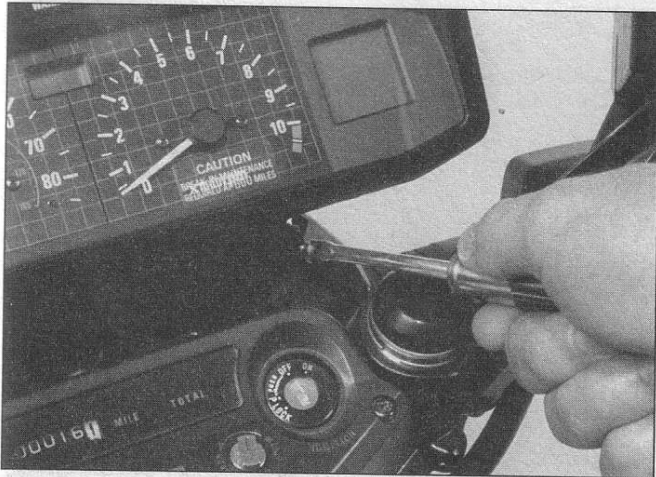
2 The headlight beam can be adjusted both vertically and horizontally. Before performing the adjustment, make sure the fuel tank is at least half full, and have an assistant sit on the seat.

1982 and 1983 750 Sabre models

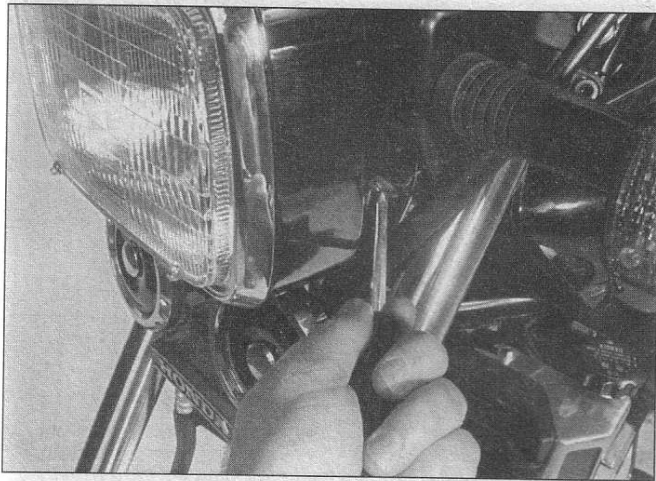
Refer to illustrations 11.3 and 11.4

3 Vertical adjustment is made via the screw located to the right side of the instrument cluster (see illustration).

4 Horizontal adjustment is made by turning the screw located to the rear of the headlight housing on the left side (see illustration).



11.3 Headlight aim vertical adjustment (1982/83 Sabres)



11.4 Headlight aim horizontal adjustment (1982/83 Sabres)

1982 and 1983 750 Magna models

5 Adjust vertically by loosening the headlight housing-to-turn signal mount bracket bolts and manually twisting the housing up or down.

6 Use the adjuster screw set in headlight rim, adjacent to the housing left mount point, to make horizontal adjustment. Turn the screw clockwise to move the beam to the right of the rider, and counterclockwise (anticlockwise) to move it to the left.

1100 models and 1984 through 1986 700 models

7 Adjust vertically by loosening the headlight housing-to-turn signal mount bracket bolts and manually twisting the housing up or down. Tighten the bolts once adjustment has been made.

8 Horizontal adjustment is made by loosening the two bolts which connect the headlight housing to the short angled link brackets. These are accessed from the top rear of the housing and once loosened, will allow movement of the housing independent of the link brackets. Tighten the bolts once adjustment has been made.

1987 and 1988 700/750 Magna models

9 Vertical adjustment is made via the screw set in the lower left side of the headlight rim (left described with the rider seated normally).

10 Horizontal adjustment is made via the screw set in the lower right side of the headlight rim.

11 Do not confuse the adjustment screws with the two headlight retaining screws set in the base of the housing.

12 Turn signals - bulb replacement and housing removal and installation

Turn signal bulbs

1 On 1100 Sabre models, remove the single screw from the base of the turn signal and pull the lens off. On all other models, remove the three screws from the lens (1982 through 1986 models) or rear of the turn signal (1987 and 1988 models), and pull the lens and gasket off.

2 Push the bulb into the holder and twist it counterclockwise (anticlockwise) to remove it. Check the socket terminals for corrosion and clean them if necessary. Line up the pins of the new bulb with the slots in the socket, push in and turn the bulb clockwise until it locks into place. The double filament bulbs of US models with front running lights have offset pins to ensure correct installation. **Note:** It is a good idea to use a paper towel or dry cloth when handling the new bulb to prevent injury if the bulb should break and to increase bulb life.

3 Fit the lens, together with the seal on all models except the 1100 Sabre, and secure with the screw(s).

Turn signal housings

4 Trace the wiring from the turn signal to the wire connectors and disconnect them. In the case of the front turn signals the connectors will be found in the headlight housing or connector box behind the horns. Remove the seat to access the rear turn signal wire connectors.

5 To remove the turn signal housing from the flexible support, remove the single screw from the back of the housing, and pull the housing and wires off. If removal of the flexible support is required, unscrew its retaining nut on the inside of the turn signal mount bracket (front) or frame (rear). On 1987 and 1988 700/750 Magna models, the front mounting takes the form of a clamp around the fork tubes. If removal is required, remove the forks (see Chapter 5) to permit the clamps to be released.

6 Installation is a reverse of the removal procedure. Check that the turn signals (and running lights on US models) operate correctly before riding the motorcycle.

13 Turn signals - circuit check and relay replacement

Circuit check

1 The battery provides power for operation of the signal lights, so if they do not operate, always check the battery voltage first. Low battery voltage indicates either a faulty battery or a defective charging system. Refer to Section 4 for battery checks and Section 36 or 37 for charging system tests. Also, check the fuses (see Section 7) and the switch (see Section 23).

2 Most turn signal problems are the result of a burned out bulb or corroded socket. This is especially true when the turn signals function properly in one direction, but fail to flash in the other direction. Check the bulbs and the sockets (see Section 12).

3 If the bulbs and sockets check out okay, check for power at the turn signal relay with the ignition On. Refer to *wiring diagrams* at the end of the book to identify the power source terminal.

4 If power is present, check the wiring between the relay and the turn signal lights (see the *wiring diagrams* at the end of this Chapter).

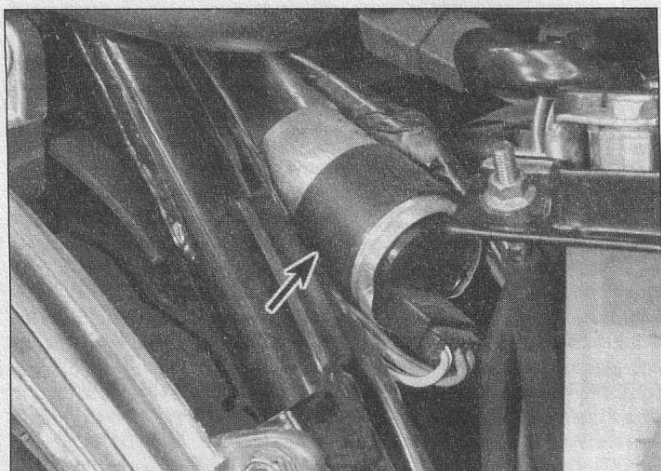
5 If the wiring checks out okay, replace the turn signal relay.

6 If there is a fault in the self-cancelling function (where fitted), refer to the following Section.

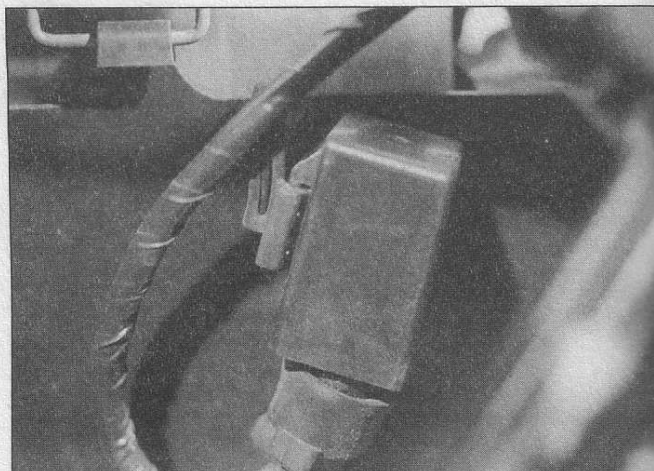
Relay replacement

Refer to illustrations 13.7 and 13.8

7 The turn signal relay on early models takes the form of a cylindrical unit, and a black square unit on later models. It is located behind the right side cover to the rear of the battery on early Sabre models or under the seat on early Magna models (see illustration).



13.7 Early type cylindrical turn signal relay (arrow)



13.8 Later type turn signal relay

8 On later 700 Sabre models it is located behind the right side cover, next to the rear frame tube. On later 700/750 Magnas it is located behind the left side cover (**see illustration**). On 1100 Magna models it is located under the right side cover, behind the rear brake fluid reservoir. On 1100 Sabre models, the relay is housed in the headlight housing; remove the headlight for access (see Section 9).

9 Disconnect the turn signal relay from its rubber mount and detach the wire connectors. Install a new relay and check the turn signals for proper operation.

14 Turn signal cancelling system - check and component replacement

1 If the cancelling system is not working properly, first make sure that all wiring is in good condition and that all connectors are clean and tight. Check the turn signal bulbs and fuses (see Section 12).

1982 and 1983 750 Sabre models, 1983 and 1984 1100 Magna models

Refer to illustrations 14.4, 14.7, 14.13 and 14.20

Angle sensor testing

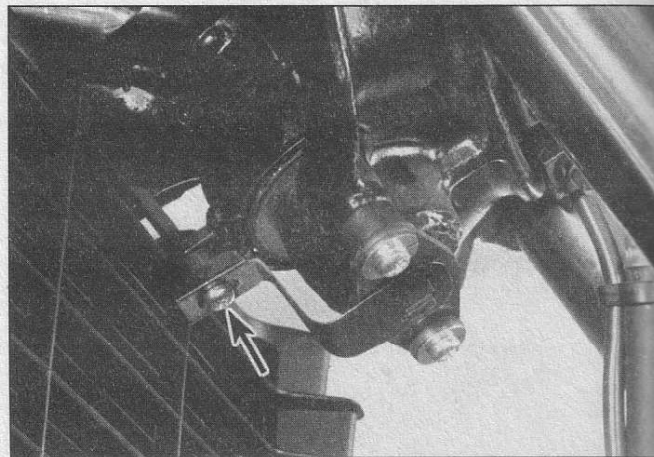
2 While turning the front wheel from right to left, watch the angle sensor, visually checking for any apparent wear, damage or looseness.

3 On 750 models, remove the odometer assembly as described in Section 18 and locate the angle sensor wires at the top of the steering stem. On 1100 models, locate the angle sensor wire connectors in the electrical connector box behind the horns. On all models, connect the ohmmeter between the black/yellow and green/white wires to measure the resistance. It should be 10 to 19 ohms.

4 Next remove the rear sensor mounting screw (**see illustration**). Check the resistance between the white and green/white wires as you slowly turn the sensor arm from left to right. As this is done, the resistance should increase smoothly. If the results from either of these checks are not as described, the sensor should be replaced with a new one.

5 To replace the angle sensor on 750 models, remove the two screws retaining the odometer assembly to the top of the steering head. Lift the assembly up far enough to disconnect the wires running into the steering stem. Remove the three screws that retain the angle sensor to the bottom of the steering stem and withdraw it. Installation is the reverse of the removal procedure.

6 Disconnect the sensor wires in the electrical connector box behind the horns, unclip the cover between the handlebar clamps, and pull the wiring free of the connector box. Remove the three screws that retain the angle sensor to the bottom of the steering stem and withdraw it. Installation is the reverse of the removal procedure.



14.4 Angle sensor bracket rear mounting screw (arrow)

Turn signal switch testing

7 Remove the seat (1982 750 models), or the front cover on the right side of the machine next to the radiator (1983 750 models) or connector box cover behind the horns (1100 models) and disconnect the wiring connector leading to the cancel unit. Turn the ignition (main) key switch On. Move the turn signal switch to the L (left) turn position and connect an insulated jumper wire between the blue/black and brown/blue lead terminals on the harness side of the connector (**see illustration**). When this is done, the turn signal switch should return to the middle (neutral) position.

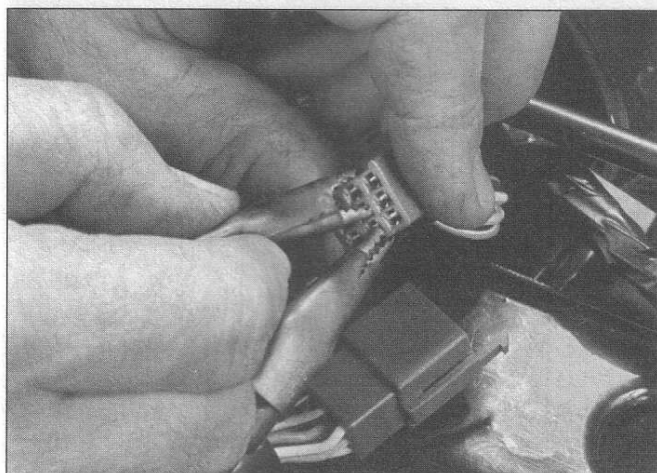
8 Repeat the test with the switch in the R (right) turn position, then turn the ignition (main) key switch Off. If the switch does not operate as described, it should be replaced. Refer to Section 24 for removal of the left handlebar switch assembly.

Speed sensor - 750 Sabre models

9 Disconnect the cancel unit wiring connector (see Step 7) and using a multimeter set to the ohms range, check for continuity between the white/black and green wire terminals on the harness side of the connector while spinning the front wheel slowly. Continuity should switch on and off alternately.

10 If this does not happen, remove the headlight and disconnect the speed sensor wiring connector inside the headlight housing. Again spin the wheel slowly while measuring the resistance between the speed sensor terminals.

11 If continuity still does not alternate off and on, replace the speed sensor. If alternating continuity exists at this point, but not at the



14.7 When testing the turn signal switch, use a jumper wire to connect the specified terminals



14.20 Turn signal cancel unit location on the 1982 750 Sabre

cancel unit connector, an open circuit exists in the wiring between the two components.

12 To replace the speed sensor, remove the headlight (see Section 9), then locate the sensor wire connectors in the headlight housing and disconnect them. Free the wiring from any ties.

13 Remove the single mounting screw that retains the speed sensor to the front wheel and lift it free. The O-ring should be replaced whenever the sensor is removed (see illustration).

14 Installation is the reverse of the removal procedure.

Speed sensor - 1983 and 1984 1100 Magna models

15 Disconnect the cancel unit wiring connector (see Step 7) and using a multimeter set to the ohms range, check for continuity between the white/black and green wire terminals on the harness side of the connector while spinning the front wheel slowly. Continuity should switch on and off alternately.

16 If this does not happen, access the white/black wire which exits the base of the speedometer and the green wire ground (earth) tab. If the instruments have to be detached to access these wires, note that the speedometer cable must remain connected. Again spin the wheel slowly while measuring the resistance between the speed sensor terminals.

17 If continuity still does not alternate on and off, replace the speed sensor/speedometer. If alternating continuity exists at this point, but not at the cancel unit connector, an open circuit exists in the wiring between the two components.

18 The speed sensor takes the form of a reed switch built into the



14.13 Replace the O-ring (arrow) whenever speed sensor is removed (750 Sabre)

speedometer; if it is proven faulty, the speedometer unit must be replaced.

Cancel unit

19 There is no specific testing procedure for the cancel unit. If the angle sensor, turn signal switch, and speed sensor are all operating normally, and there are no open or short circuits, then the cancel unit should be replaced with a new one.

20 To replace the cancel unit on 1982 750 Sabre models, first remove the regulator/rectifier as described in Section 36. Disconnect the wiring connector leading to the cancel unit. Remove the left side cover. Open the toolbox and reach inside the upper compartment to disengage the cancel unit housing frame retainers. Hinge the cancel frame up until the unit can be pulled out (see illustration). Installation is the reverse of the removal procedure. When reconnecting the cancel unit frame to the toolbox, slide the unit into the frame, hinge the frame down and engage the retainers using a screwdriver.

21 On 1983 750 Sabre models, the cancel unit is mounted to the electrical components bracket on the right side of the frame. Remove the frame front cover for access, unbolt the components bracket and release the cancel unit from its rear face.

22 To replace the cancel unit on 1100 Magna models, remove the electrical connector box behind the horns. The cancel unit is located in the left side of the box (described in the normal riding position). Unplug its wire connector and release it from the mounting tab.

1100 Sabre models and 1985/86 1100 Magna models

Refer to illustrations 14.34 and 14.36

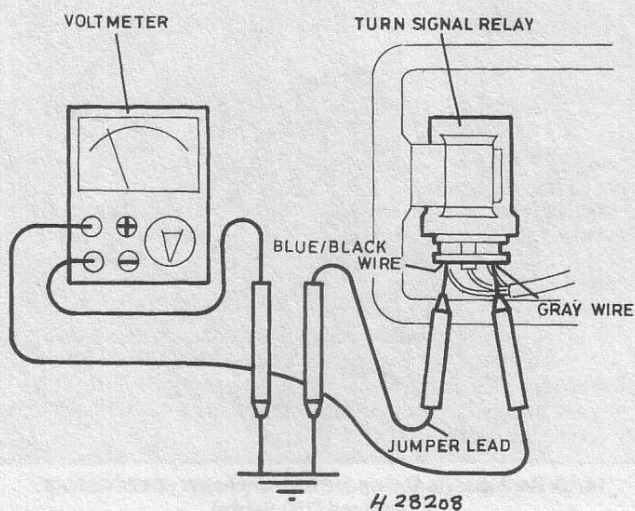
Turn signal switch

23 On Sabre models, remove the electrical connector cover from between the horns; it is retained by two socket-head bolts at the top. There is no need to remove the cover/horn assembly, but support it so that no strain is placed on the wiring. On Magna models, remove the single screw from the fusebox cover and remove the cover. Detach the wiring from the back of the horns and remove the central mounting bolt bracket to detach the horn assembly from the motorcycle. Remove the wiring connector box cover.

24 On all models, identify the turn signal switch wire connector, dislodge it from the bracket and separate it. Make the following tests on the switch side of the connector.

25 With the switch knob in the R (right position) check for continuity between the brown/blue and orange/white wires, then between the gray and light blue wires - continuity should be shown.

26 With the switch knob in the L (left position) check for continuity between the brown/blue and light blue/white wires, then between the



14.34 Turn signal relay test (1100 Sabres and 1985/86 1100 Magnas)

gray and orange wires - continuity should be shown.

27 On Sabre models only, with the switch knob in the middle position check for continuity between the brown/blue and orange/white wires, then between the brown/blue and light blue/white wires - continuity should be shown. Hold the knob fully to the left or right, and check for continuity between the green and light green/white wires - continuity should be shown.

Angle sensor/cancel unit

28 While turning the front wheel from right to left, watch the angle sensor, visually checking for any apparent wear, damage or looseness.

29 Remove the headlight (see Section 9) to access the cancel unit wire connector. Turn the ignition (main) key switch On and connect the probes of a 0-to-20V dc voltmeter into the back of the connector (don't separate it) terminals carrying the blue/black and green wires - a reading of 8V should be shown.

30 Move the turn signal knob to the L or R position and note the meter reading - voltage should drop to 1V. Now push the switch knob to cancel the turn signals - voltage should rise to 8V.

31 If the angle sensor does not produce the correct voltage readings it must be replaced. Disconnect its wire connector, pry off the cover between the handlebar clamps, then free the wiring. Remove the single support bracket screw and the two angle sensor mount screws from the base of the steering stem, withdraw the cancel unit from the steering stem.

Turn signal relay

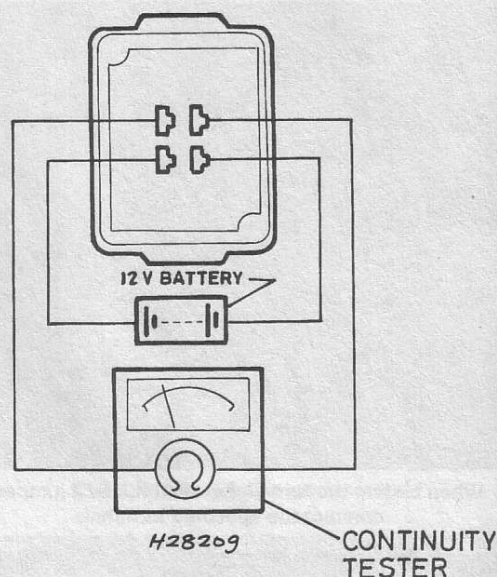
32 On Sabre models, remove the headlight (see Section 9). The turn signal relay is located on the right side of the housing (as in the normal riding position). On Magna models, remove the right side cover; the relay is located behind the rear brake fluid reservoir.

33 Connect an insulated jumper wire into the back of the relay connector terminal for the blue/black wire and ground (earth) its other end on the frame. Turn the ignition On - the turn signals should light up (transmission must be in neutral position).

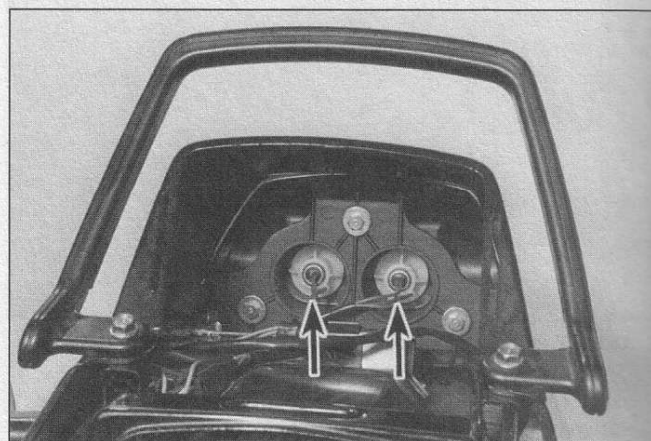
34 If they don't, leave the jumper wire connector, and check for voltage at the grey wire terminal of the relay (see illustration). If no voltage is shown, the relay must be replaced. Turn the ignition Off, disconnect the wire connectors from the relay and pull the relay off its mounting tab.

Running light relay

35 On Sabre models, remove the headlight (see Section 9); the running light relay is located on the left side of the housing (as in the



14.36 Running light relay test (1100 Sabres and 1985/86 1100 Magnas)



15.2 Tail/stop light bulbholders are accessed from inside tailpiece

normal riding position). On Magna models the relay is located in the connector box (behind the horns). Unplug the relay wiring connector and pull the relay of its mounting tab.

36 To test, connect a multimeter or continuity tester between the light blue/white and orange/white wire terminals of the relay, then connect a fully-charged 12V battery across the blue/black and brown/blue wire terminals (Sabre models) or blue/black and white/green wire terminals (Magna models). With the battery connected continuity should be shown, and no continuity (infinite resistance) with it disconnected (see illustration).

37 If the relay does not respond as described, it must be replaced.

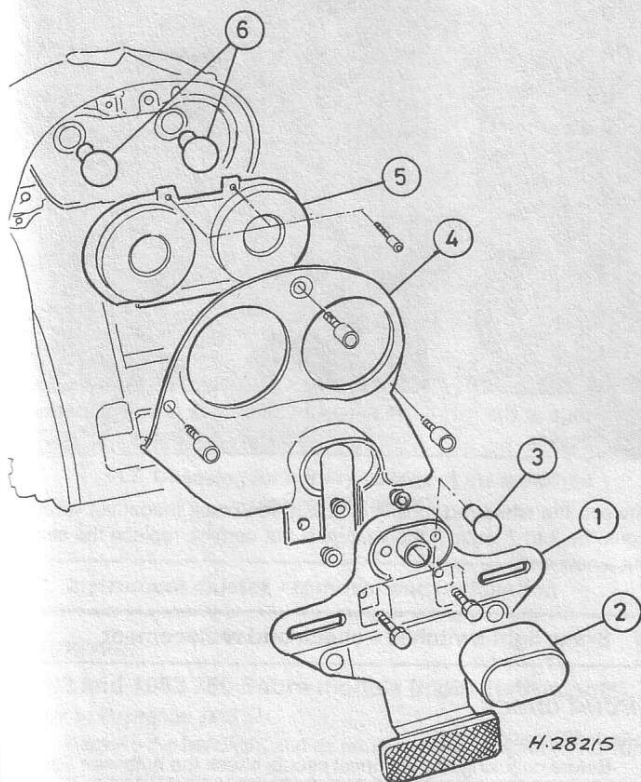
15 Tail/stop light and license plate - bulb replacement

Tail/stop light bulbs

Sabre models

Refer to illustration 15.2

1 Remove the seat (see Chapter 6). Disengage the toolbox



15.11 Tail/stop light and license plate light detail (1987 and 1988 700/750 Magnas)

- | | |
|-------------------------|-------------------------|
| 1 License plate bracket | 4 Tail/stop light cover |
| 2 License plate lens | 5 Tail/stop light lens |
| 3 License plate bulb | 6 Tail/stop light bulbs |

and remove it.

2 If only the bulbs (700/750 models) or bulb (1100 models) need to be replaced, it is possible, though difficult, to twist the bulb socket(s) out and replace the bulbs (**see illustration**).

3 Push the bulb into the holder and twist it counterclockwise (anticlockwise) to remove it. Check the socket terminals for corrosion and clean them if necessary. Line up the pins of the new bulb with the slots in the socket, push in and turn the bulb clockwise until it locks into place.

Note: The pins on the bulb are offset so it can only be installed one way. It is a good idea to use a paper towel or dry cloth when handling the new bulb to prevent injury if the bulb should break and to increase bulb life.

4 The other method is to remove the entire taillight assembly as described below. Disconnect the wiring connectors leading to the tail light bulbs.

5 Remove the three tail light assembly mounting screws/nuts from the side of the tail piece and then withdraw the taillight assembly from the rear of the motorcycle.

6 The tail light assembly is not designed to be disassembled and, if necessary, should be replaced as a single unit.

7 Installation is the reverse of the removal procedure. Check the operation of the tail/stop light bulb(s) before riding the motorcycle.

1982 through 1986 700/750 Magna models

8 Remove the two screws that retain the tail/stop light lens and lift off the lens. Recover the sealing ring.

9 Remove and install the new bulb as described in Step 3.

10 Install the sealing ring in its groove, followed by the lens; secure with the two screws. Check the operation of the tail/stop light before riding the motorcycle.

1987 and 1988 700/750 Magna models

Refer to illustration 15.11

11 Remove the license plate bracket bolts and tilt the bracket rearwards (**see illustration**).

12 Remove the three socket-head screws to release the tail/stop light cover. Remove the two screws at the top edge of the lens and withdraw the lens, disengaging its lower tabs from the slots in the light unit. Recover the sealing ring.

13 Remove and install the new bulb as described in Step 3.

14 Install the sealing ring in its groove and slot the lens lower tabs into the cutouts in the light unit, then tighten the lens screws securely. Install the remaining components in a reverse of the removal procedure.

15 Check the operation of the tail/stop lights and license plate light before riding the motorcycle.

1100 Magna models

16 Remove the seat (**see Chapter 6**).

17 Open the toolbox and remove the contents. Remove the toolbox to access the tail/stop lamp bulbholder.

18 Twist the bulbholder free of the light unit. Remove and install the new bulb as described in Step 3.

19 Install the bulbholder, toolbox and seat in a reverse of the removal sequence.

License plate light bulb

1982 through 1986 700/750 Magna models

20 Remove the seat (**see Chapter 6**) and toolbox.

21 Remove the two nuts and withdraw the light unit cover, lens and gasket. Twist the bulb counterclockwise (anticlockwise) to release it from its holder.

22 Install the new bulb and twist it clockwise to secure it in the holder. Install the remaining components in a reverse of the removal procedure.

23 Check the operation of the license plate light before riding the motorcycle.

1987 and 1988 700/750 Magna models

24 Remove the license plate.

25 Remove the two bolts located just beneath the license light, noting that they screw into nuts on the underside of the fender. Tilt the license plate bracket rearwards from the fender being careful not to lose the two collars.

26 Remove the two nuts from the rear of the license light and withdraw the lens (**see illustration 15.11**). Twist the bulb counterclockwise (anticlockwise) to release it from its holder.

27 Install the new bulb and twist it clockwise to secure it in the holder. Install the remaining components in a reverse of the removal procedure.

28 Check the operation of the license plate light before riding the motorcycle.

1100 Sabre models

29 Refer to Steps 1 through 7 above, noting that the bulb holder is located just under the tail/stop light bulbholder.

1100 Magna models

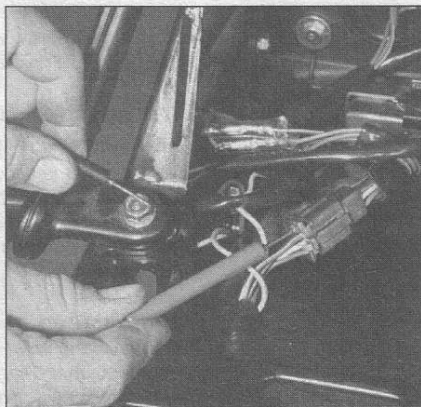
30 Remove the two screws from the light unit and withdraw the cover, lens and gasket.

31 Depress the bulb and twist it counterclockwise (anticlockwise) to release it from its holder. Install a new bulb, pushing it down and rotating it clockwise to lock it in place.

32 Check the operation of the license plate light before riding the motorcycle.



16.2 Tail/stop light sensor (arrow) is located on rear fender (750 Sabre shown)



16.3 Checking for battery voltage at the tail/stop light sensor connector



16.6 Headlight sensor (arrow) location on 1982 750 Sabre

16 Tail/stop light sensor and headlight sensor - check and replacement

Tail/stop light sensor - 1982 through 1986 Magnas, 1982/83 750 Sabres and all 1100 Sabres

Refer to illustrations 16.2 and 16.3

1 On Magna models and 1100 Sabre models, the tail/stop light failure warning bulb should come on for a few seconds when the ignition is turned on and then extinguish unless a fault is indicated. If the warning light doesn't come on, check the warning light bulb in the instrument cluster and the wiring. On 1983-on Magna models also check the pilot light check unit wiring, and as a last resort replace the check unit. The check unit is housed inside the toolbox on 1985/86 700 Magnas and on the rear fender on all other models.

2 If the warning light bulb remains illuminated (1100 Sabres and all Magnas) or the display indicates a fault (750 Sabres), first check that the tail/stop light bulbs are intact, then check the unit as follows. **Note:** The manufacturer does not specify a test procedure for the 1985/86 700 Magna models; the unit can only be checked by substitution. Locate the sensor wiring connector, but do not disconnect it. Remove the seat and use the wiring diagrams at the end of this manual to identify the sensor wire color codes (see illustration).

3 Use a voltmeter to check the voltage between the black/brown lead and ground (earth), with the ignition (main) key switch On (see illustration). If no voltage is shown, current is not reaching the sensor and the open circuit must be corrected.

4 If voltage was shown in the previous test, measure the voltage between the white/yellow (positive) and green/yellow (negative) wires. It should show 5 volts. If no voltage is shown, the sensor is defective and must be replaced with a new one.

Headlight failure sensor - 1982 and 1983 750 Sabre models

Refer to illustrations 16.6 and 16.7

5 If the warning unit indicates a fault first check the headlight bulb. If the bulb is intact, check the unit as follows.

6 On the 1982 model, remove the fuel tank and locate the headlight sensor (see illustration). On the 1983 model, the sensor is mounted behind the horns. Trace the wiring from the sensor to the block connector.

7 Do not disconnect the connector. Turn the ignition switch On and check the voltage between the black/brown wire and ground/earth (see illustration). If no voltage is shown, current is not reaching the sensor and the open circuit should be repaired.

8 If voltage was present in the previous test, measure the voltage

between the white/red (positive) and green/black (negative) wires. It should be 3 to 7 volts. If the voltage is not correct, replace the sensor with a new one.

17 Brake light switches - check and replacement

Circuit check

Refer to illustration 17.3

1 Before checking any electrical circuit, check the bulb (see Section 15) and fuses (see Section 7).

2 Using a test light connected to a good ground (earth), check for voltage at the brake light switch wiring connector (see Step 8 for the rear brake light switch). If there's no voltage present, check the wire between the switch and the fusebox for breakage (see the wiring diagrams at the end of this Chapter).

3 To check the switch function, disconnect the wires from the switch and using an ohmmeter or self-powered test light connect the probes between the switch terminals (front) or wire connections on switch side of the connector (rear) (see illustration). Continuity should be shown with the lever or pedal applied, and no continuity (infinite resistance) with it released.

4 If the switch checks out OK, check the wiring between the switch and the brake lights (see the wiring diagrams at the end of this Chapter).

Switch replacement

Front brake lever switch

5 Pull back on the front brake lever and remove the single switch mounting screw.

6 Disconnect the switch from the wire connectors.

7 Installation is the reverse of the removal procedure. When installing the switch, pull back on the front brake lever to be sure the locating slot is in the right place. The brake lever switch isn't adjustable.

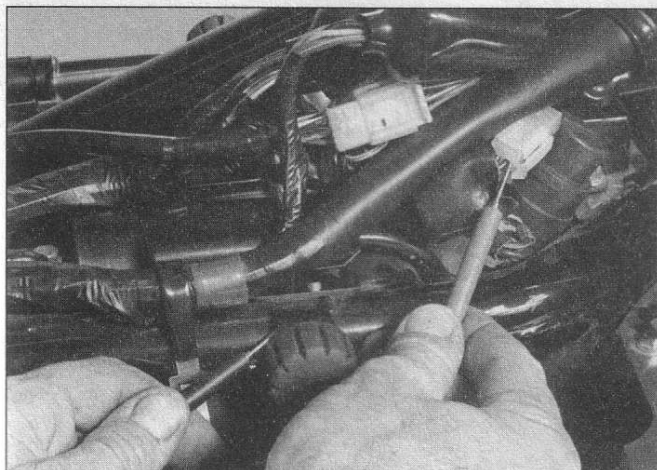
Rear brake pedal switch

8 Trace the wiring up from the switch to the block connector, located under the right side cover on 1985-on 700/750 Magna models or under the seat on all other models. Disconnect the connector and release the wiring from any ties.

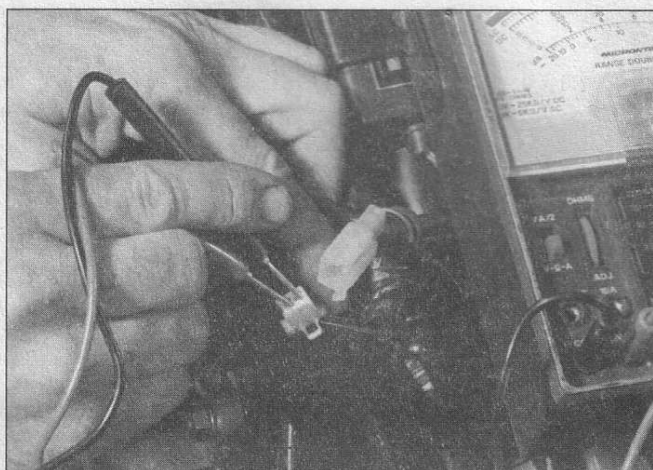
9 Disconnect the spring from the switch (it may be easier to disconnect it from the brake pedal first, then the switch).

10 Release the adjusting nut and free the switch from its bracket. **Note:** Access to the switch is greatly improved on 1100 Magna models, by first removing the right footpeg (see Chapter 6).

11 Installation is the reverse of the removal procedure. Adjust the brake light switch as described in Chapter 1.



16.7 Checking for battery voltage at the headlight sensor connector



17.3 Rear brake switch continuity test is made at the switch connector

18 Instrument cluster - removal and installation

Removal

1982 and 1983 750 Sabre models (main instruments)

Refer to illustration 18.3

- 1 Remove the headlight and its housing (see Sections 9 and 10).

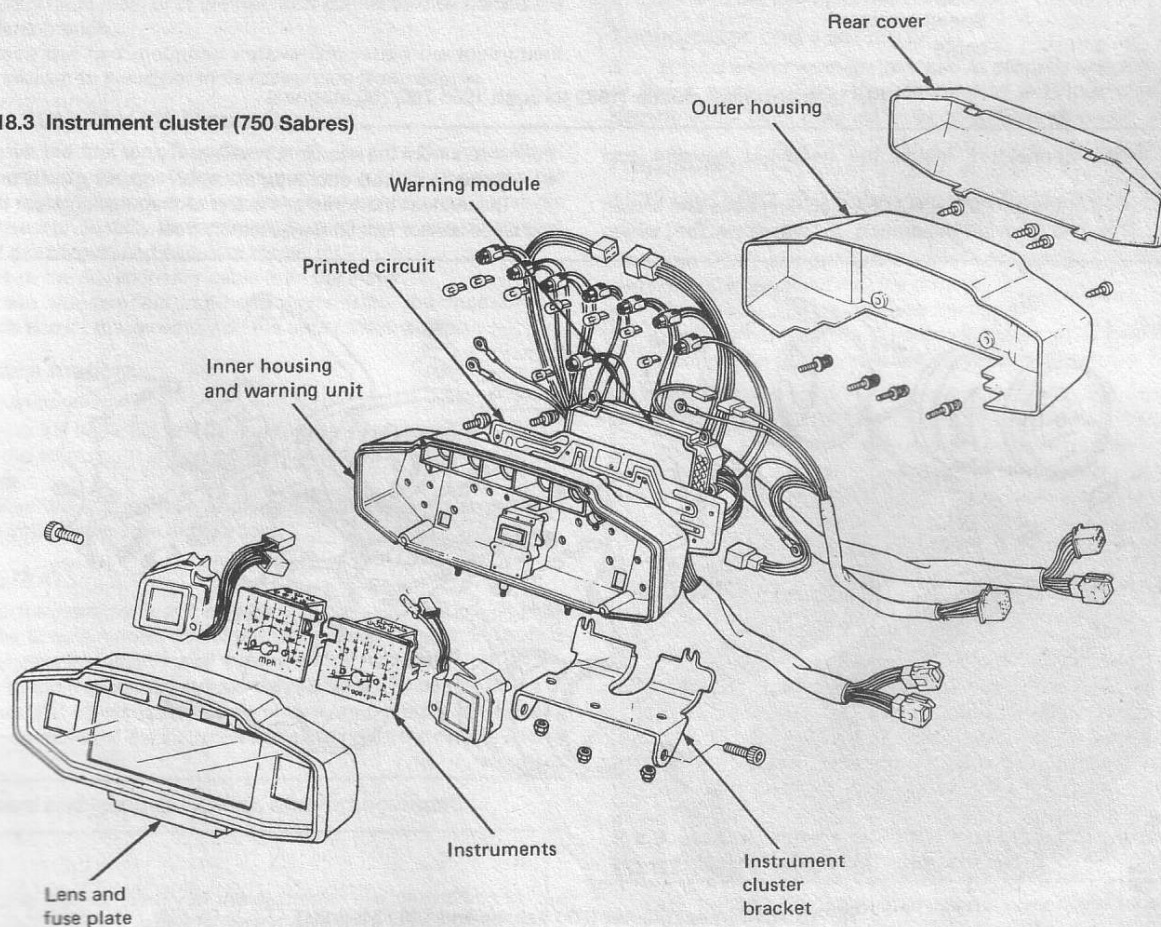
- 2 Disconnect the instrument wiring at the block connector, located in the steering head area.

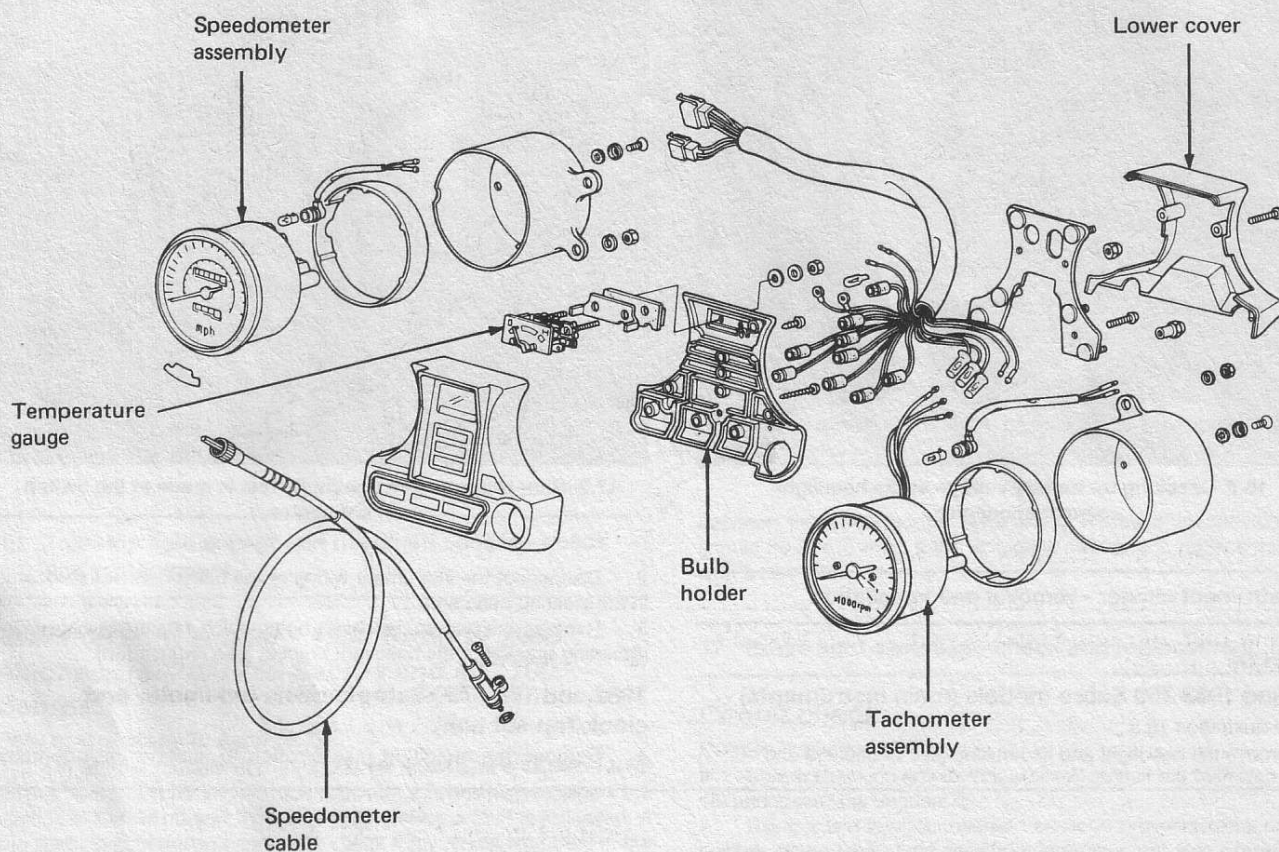
- 3 Remove the two socket-head bolts which retain the instrument mounting bracket to the headlight bracket (see illustration).

1982 and 1983 750 Sabre models (odometer and clock/trip set unit)

- 4 Remove the headlight (see Section 9). Locate the odometer

18.3 Instrument cluster (750 Sabres)





18.11a Instrument cluster (1982 through 1986 700/750 Magnas)

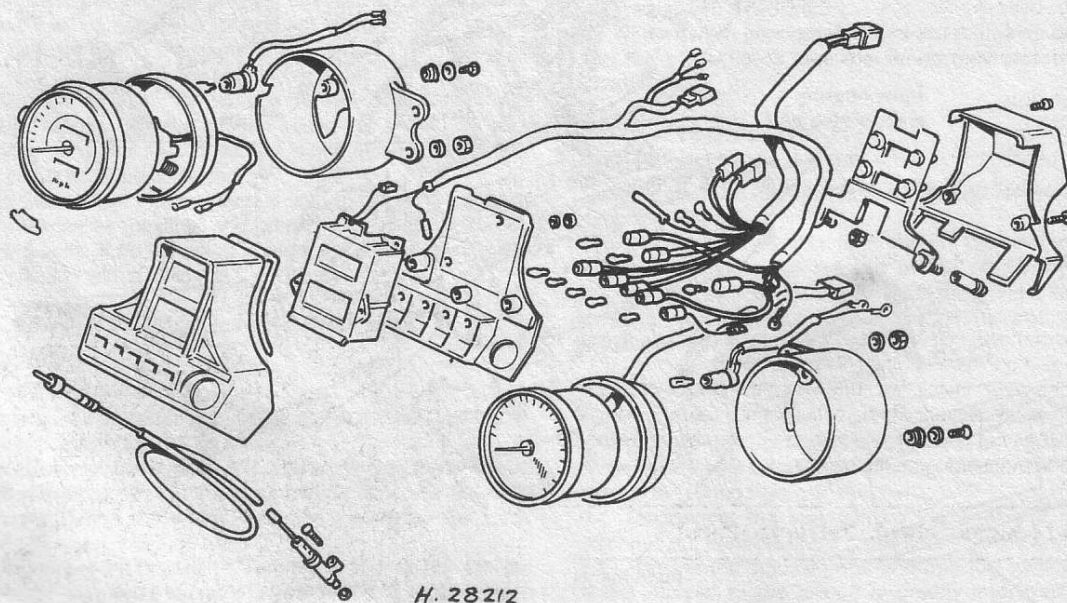
assembly wiring connectors inside the headlight housing and disconnect them.

5 Remove one of the turn signal bracket mounting bolts and loosen the other. This will provide clearance to withdraw the wiring

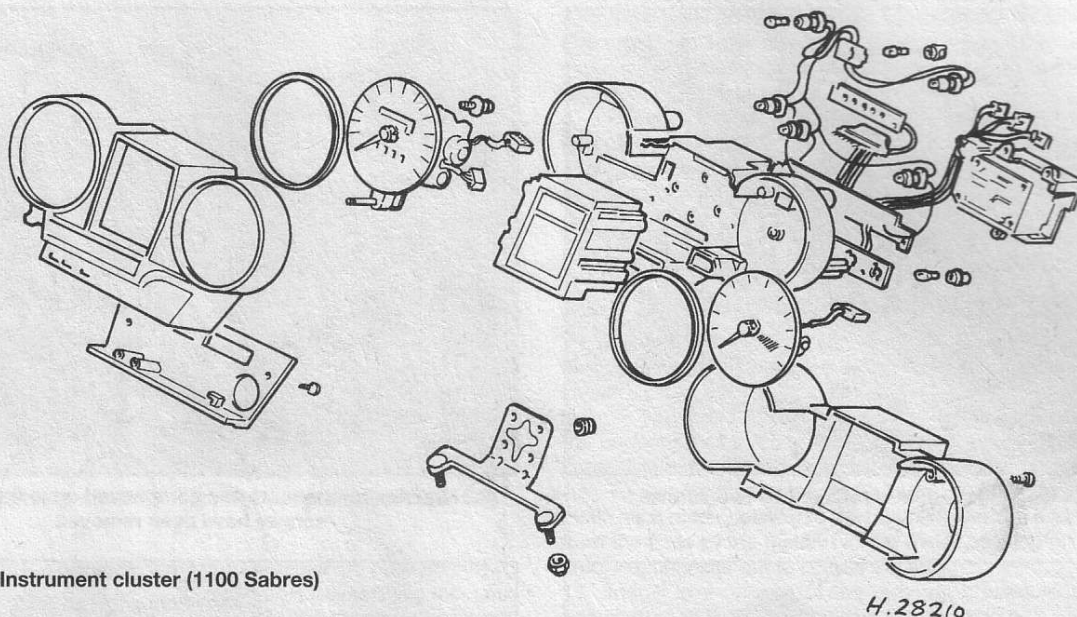
connectors from the headlight housing.

6 Remove the two odometer assembly mounting bolts and lift it up.

7 Disconnect the wires at the top of the steering stem that lead to the angle sensor and lift the assembly free.



18.11b Instrument cluster (700 Sabres and 1100 Magnas)



18.17 Instrument cluster (1100 Sabres)

1984 and 1985 700 Sabre models and all 1982 through 1986 Magna models

Refer to illustrations 18.11a and 18.11b

- 8 Remove the headlight and its housing (see Sections 9 and 10).
- 9 Unscrew the speedometer cable from the meter.
- 10 Disconnect the instrument wiring at the block connector, located in the steering head area, or in the electrical connector box behind the horns on later models.
- 11 Remove the two mounting nuts which retain the instrument mounting bracket to the upper triple clamp (see illustrations).

1987 and 1988 700/750 Magna models

- 12 Remove the fuel tank (see Chapter 4). Remove the large black plastic cover from the right side of the steering head to access the instrument wiring block connectors; the cover is retained by a single screw at the rear. Identify the connectors using the wiring diagram at the end of this manual and separate them.
- 13 Unscrew the speedometer cable from the meter.
- 14 Remove the two chrome-head bolts from the face of the instruments and lift the assembly off the upper triple clamp.

1100 Sabre models

Refer to illustration 18.17

- 15 Remove the headlight and its housing (see Sections 9 and 10).
- 16 Pull the instrument wiring connector blocks directly out of the instruments.
- 17 Remove the two mounting nuts which retain the instruments to the upper triple clamp (see illustration).

Installation

- 18 Install the instruments in a reverse of the removal procedure. Note that on later Magna models one of the two instrument mounting nuts is much taller than the other; install this nut on the right side.
- 19 Check, and if necessary, adjust, the headlight aim (see Section 11).
- 20 Ensure that all wiring connector blocks are correctly remade and check the operation of the instruments before riding the motorcycle.

19 Meters and gauges - check and replacement

Check

Note: Due to the complexity of the electronic instrumentation on the Sabre models, it is not practical for the home mechanic to perform a

full diagnosis of the components. Seek advice from a Honda dealer if a fault is suspected.

Temperature gauge/display/warning light

- 1 This check is described in Chapter 3.

Fuel display/warning light

- 2 Refer to Section 27 of this Chapter.

Tachometer and speedometer

- 3 Special instruments are required to properly check the operation of these meters. Take the machine to a Honda dealer service department or other qualified repair shop for diagnosis.

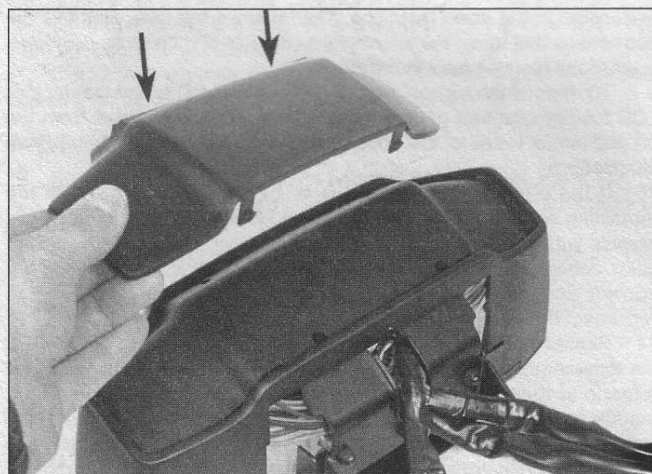
Replacement

1982 and 1983 750 Sabre models (main instruments)

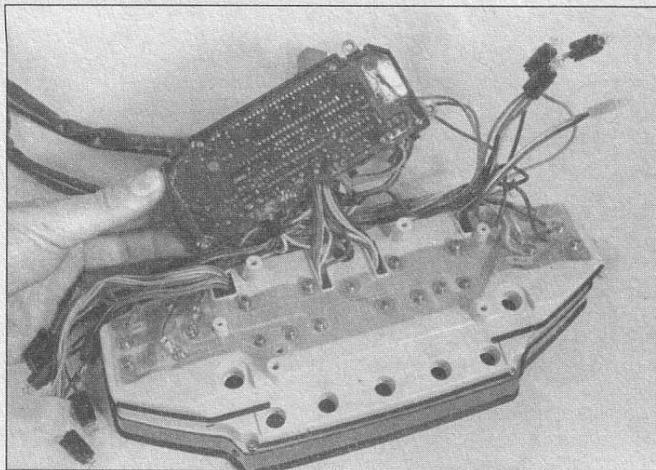
Refer to illustrations 19.5, 19.8 and 19.9

Caution: Don't place the instruments face-down on the bench, or damping oil will leak out into the display.

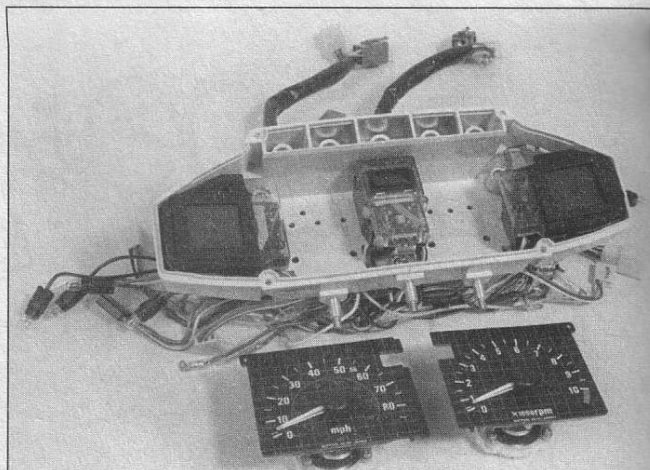
- 4 Remove the instruments (see Section 18).
- 5 Pry the cover tabs free to release the lower cover (see illustration).
- 6 Remove the four screws that retain the outer cluster housing and lift it off.



19.5 1982/83 750 Sabre instruments - pry cover tabs free . . .



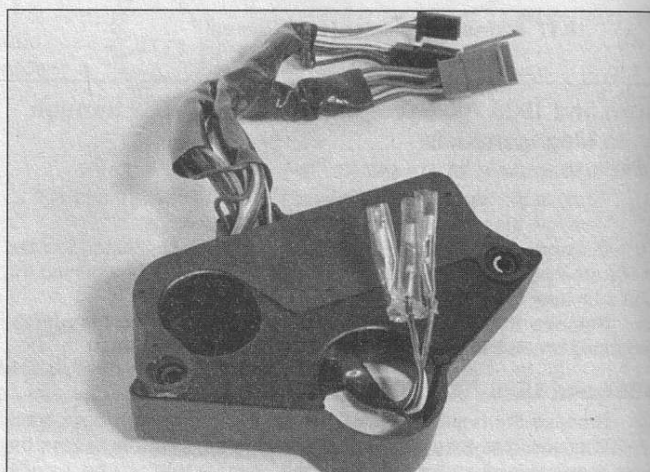
19.8 ... warning module is retained by two screws



19.9 Cluster components can be removed once their mounting screws have been removed



19.13 Release bottom cover to access odometer and bulb (arrows)



19.15 Position wire harness as shown when installing odometer assembly

7 Remove the four screws that retain the lens to the housing and lift the lens off. **Note:** The lens is treated with an anti-fogging agent. Any fingerprints on the inside of the lens may permanently mar the surface.

8 Note the positions of the taped wiring harnesses, as they must be re-secured in the same positions. Then remove the tape. Remove the two screws that retain the warning light module and carefully position it clear of the housing (see illustration).

9 To remove the tachometer, speedometer, LCD tripmeter/clock or LCD fuel/temperature gauge, remove their mounting screws from the printed circuit inside of the housing and lift the component(s) out (see illustration).

10 If the printed circuit board is to be removed, remove all the remaining screws that retain it to the housing. Do not mix up these screws with the component mounting screws. Note that the wiring color codes are labeled on the printed circuit. Check that these are correct and make any further notes or labels you may need to reconnect them properly.

11 Reassembly of the instrument cluster is basically the reverse of the disassembly procedure, noting that all wire connections should be remade in their original locations. After securing the warning light module to the housing, the two wiring harnesses exiting the rear of the module should be separated and taped down to the housing to keep them apart. To prevent electrical interference in the instrument components, especially the warning unit, the light and dark green wires must be kept separate from the yellow wire in the other harness.

1982 and 1983 750 Sabre models (odometer and clock/trip set unit)

Refer to illustrations 19.13 and 19.15

12 Remove the odometer assembly (see Section 18).

13 Unsnap the bottom cover from the assembly to expose the odometer and bulb (see illustration).

14 If the odometer must be removed, fold back the rubber covering on the bottom of the assembly enough to remove the odometer mounting screws, unscrew the odometer motor from it and lift the odometer out.

15 Reassembly is the reverse of the disassembly procedure. Before installing the assembly, check that the wiring harnesses are correctly routed (see illustration).

1100 Sabre models

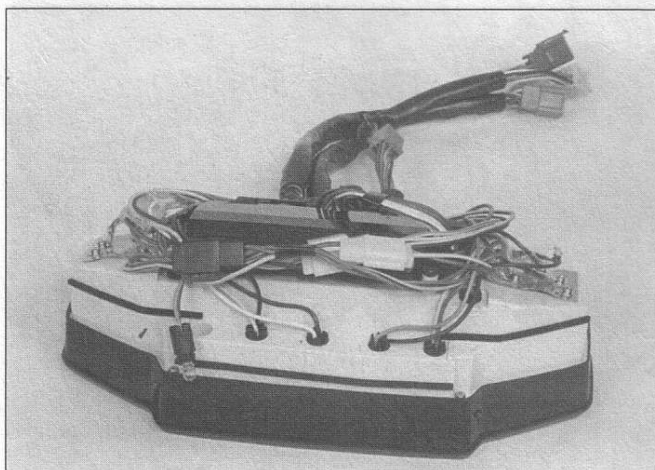
Caution: Don't place the instruments face-down on the bench, or damping oil will leak out into the display.

16 Remove the instruments (see Section 18).

17 Remove the four screws from the underside of the instruments to release the cover.

18 Separate the mounting bracket from the instruments by removing the four nuts and washers in the center of the assembly.

19 Remove the four screws from the base of the instruments and lift off the front panel/lens, noting the sealing rings around the speedometer



20.4 Pull bulbholders out of cluster for access to bulbs (arrow)

and tachometer. The speedometer and tachometer are retained by two screws each; disconnect their wiring connectors before lifting them out of the housing. On reassembly, ensure that the tripmeter reset rod correctly engages the reset button in the front panel and that the sealing rings are in place between the meters and front panel.

20 The LCD gear position, fuel, coolant temperature and clock unit is retained by four screws, accessed from the rear of the housing.

1984 and 1985 700 Sabre models, all 1982 through 1986 Magna models

Caution: Don't place the instruments face-down on the bench, or damping oil will leak out into the display.

21 Remove the instruments (see Section 18).

22 Remove its two screws and lift off the lower cover, then remove the two nuts which retain each meter housing to the mounting bracket and the two screws from the base of the meter. Disconnect the wiring and lift the meter housing off the meter.

23 To access the temperature gauge, remove the speedometer and tachometer as described above, then remove the screws/nuts securing the mounting bracket, followed by those which secure the housing to the front panel/lens. Release the gauge and its wiring from the housing.

1987 and 1988 Magna models

Caution: Don't place the instruments face-down on the bench, or damping oil will leak out into the display.

24 Remove the instruments (see Section 18).

25 Remove the five screws from the underside of the instruments and withdraw the chrome cover. Remove the two retaining screws and disconnect the wiring to detach each meter from the instruments.

26 Don't omit to fit the meter seals on installation.

20 Instrument and warning light bulbs - replacement

1982 and 1983 750 Sabre models

Main instruments

Refer to illustration 20.4

1 Loosen the instrument cluster mounting bolts and tilt the cluster to the rear, toward the fuel tank.

2 The rear cover of the cluster is secured to the housing by four plastic mounting tabs. The bottom tabs are just inside the protruding center section, while the upper tabs are about an inch inside both of the upper center corners (see illustration 19.5). Using a blade type screwdriver, insert it between the edge of the cover and the housing at one of the lower tabs. Carefully twist the screwdriver while simultaneously pulling out on the lower edge of the cover.

3 Repeat the above procedure to loosen the other lower tab. If the cover does not easily disengage at this point, pull the lower edge of the cover out about an inch and use a screwdriver to carefully pry the top tabs out of their holes.

4 Remove the four screws that retain the outer cluster housing and lift it off. Pull the bulbholders out to access the bulbs (see illustration).

5 Install in a reverse of the removal procedure and check the operation of all bulbs before riding the motorcycle.

Odometer and clock/trip reset unit

6 Refer to Section 18 for details.

1982 through 1984 700/750 Magna models

7 Remove the headlight and its housing (see Sections 9 and 10).

8 Remove the two screws which retain the instrument lower cover and lift it off.

9 To access the warning lamp bulbs, remove the three screws from the underside of the instruments and lift off the top cover/display panel. The bulbs are now accessible and can be replaced.

10 To gain access to the meter bulbs, remove the two nuts which retain each meter housing to the mounting bracket and the two screws from the base of the meter. Lift the meter housing off the meter and pull the bulbholder out to access the bulb.

11 Install in a reverse of the removal procedure and check the operation of all bulbs before riding the motorcycle.

1985 and 1986 700 Magna models

12 Remove the headlight and its housing (see Sections 9 and 10).

13 Remove the fuel tank (see Chapter 4). Trace the wiring from the instruments to the block connector situated above the air filter housing. Disconnect the connector.

14 Remove the two nuts which retain the instruments to their mounting bracket and lift the instruments off the motorcycle. **Caution:** Don't place the instruments face-down on the bench, or damping oil will leak out into the display.

15 Remove its two screws and lift off the lower cover to access the warning light bulbs. Pull the bulbholder out of the housing to access the bulbs.

16 To gain access to the meter bulbs, remove the two nuts which retain each meter housing to the mounting bracket and the two screws from the base of the meter. Lift the meter housing off the meter and pull the bulbholder out to access the bulb.

17 Install in a reverse of the removal procedure and check the operation of all bulbs before riding the motorcycle.

1987 and 1988 700/750 Magna models

18 Remove the headlight and its housing (see Sections 9 and 10).

19 Unscrew the speedometer cable. Remove the five screws from the underside of the instruments and withdraw the chrome cover.

20 Each bulbholder is a push-fit in the base of the instruments. Pull them out gently to access the bulbs.

21 Install in a reverse of the removal procedure and check the operation of all bulbs before riding the motorcycle.

1100 Sabre models

22 Remove the headlight and its housing (see Sections 9 and 10).

23 Remove the four screws from the underside of the instruments to release the cover.

24 Each bulbholder is a push-fit in the base of the instruments. Pull them out gently to access the bulbs.

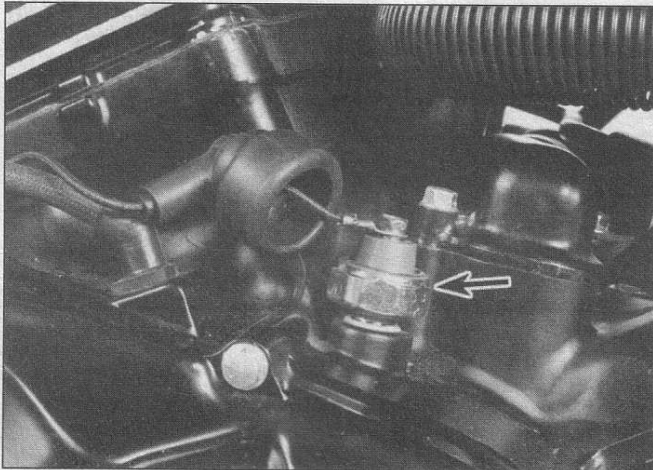
25 Install in a reverse of the removal procedure and check the operation of all bulbs before riding the motorcycle.

1984 and 1985 700 Sabre models and all 1100 Magna models

26 Remove the headlight and its housing (see Sections 9 and 10).

27 Remove the two screws to release the instrument console lower cover.

28 To access the warning light bulbs, remove the four screws from



21.2 Oil pressure switch location (arrow)

the underside of the console and lift the top cover display off for direct access to the bulbs.

29 To access the illuminating bulb in either meter, remove the two nuts which retain the meter to the main mounting bracket. Disconnect the bulb wiring, and reed switch/tachometer wiring at the connectors or screwed terminals and in the case of the speedometer, unscrew the drive cable.

30 Remove the two screws from the base of the meter and lift off the chrome housing, threading the wiring through its hole. The meter bulb holder is set in its base; pull the bulbholder out for access.

31 Install in a reverse of the removal procedure and check the operation of all bulbs before riding the motorcycle.

21 Oil pressure switch - check and replacement

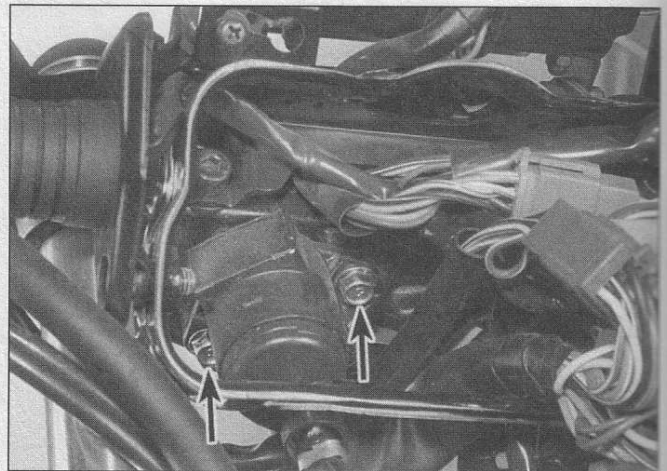
Check

Refer to illustration 21.2

- 1 Before checking the electrical circuit, check the bulb (see Section 20) and fuses (see Section 7).
- 2 The switch is screwed into the top of the crankcase on the right side (**see illustration**).
- 3 Peel back the rubber cover, then undo the retaining screw and detach the wiring connector from the switch.
- 4 With the wire detached and the ignition switched On, the light should be out. If it's illuminated, the wire between the switch and instrument cluster must be grounded (earthed) at some point.
- 5 Ground (earth) the wire on the crankcase and check that the warning light comes on. If the light does come on, either the switch is defective or the engine oil pressure is low. Perform an oil pressure check as described in Chapter 2. If the oil pressure checks out okay the switch is defective and must be replaced.
- 6 If the light does not come on when the wire is grounded (earthed), check for voltage at the wire terminal using a test light. If there's no voltage present, check the wire between the switch, the instrument cluster and fusebox for continuity (see the *wiring diagrams* at the end of this Chapter).

Replacement

- 7 Slide the rubber cover off the switch and unscrew the wire connection.
- 8 Unscrew the switch from the top of the crankcase.
- 9 Ensure the switch threads are clean and dry and apply a thin coat of suitable sealant to them.
- 10 Screw the switch into the top of the crankcase and tighten it until just the last two threads are visible, then tighten it to the specified torque.



22.6 Ignition switch is retained to upper triple clamp by two bolts (arrows)

11 Attach the wire, tightening its retaining screw securely, then seat the rubber cover over the switch.

12 Check the operation of the oil pressure warning light.

22 Ignition (main) key switch - check, removal and installation

Check

- 1 Disconnect the switch wiring block connector as described below and make the following tests on the switch side of the connector block.
- 2 Using an ohmmeter, check the continuity of the terminal pairs (see the *wiring diagrams* at the end of this Chapter). Continuity should exist between the terminals connected by a solid line when the switch is in the indicated position.
- 3 If the switch fails any of the tests, replace it.

Removal

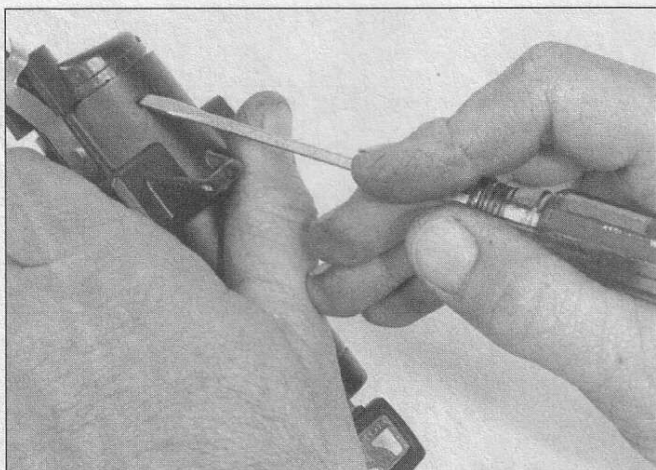
All 700/750 Sabre models and 1982 through 1984 700/750 Magna models

Refer to illustrations 22.6, 22.7a and 22.7b

- 4 Disconnect the battery negative lead.
- 5 Remove the fuel tank (see Chapter 4) to access the ignition switch wiring block connector. On Magnas, the main tank can be raised on its support rod if less than half full. Identify the connector and disconnect it.
- 6 Remove the headlight housing (see Section 10) to access the switch retaining bolts on the underside of the upper triple clamp (**see illustration**). Remove the two retaining bolts and lower the switch out of the triple clamp. On Sabre models, remove the headlight mounting bracket bolts and reposition the bracket to permit switch removal.
- 7 To release the switch from the lock cylinder, pry back the metal tabs of the wiring clamp, then insert the key into the lock and turn it midway between the ON and OFF positions. Insert a small screwdriver into the release slots in the lock body and depress the tabs to release the switch (**see illustrations**).

1985 and 1986 700 Magna models and all 1100 Magna models

- 8 Disconnect the battery negative lead.
- 9 On 700 models remove the cover from between the horns, then identify and disconnect the ignition switch wiring connector block.
- 10 On 1100 models, remove the cover from between the horns, detach the wiring from the back of the horns and remove the central mounting bolt bracket to detach the horn assembly from the motorcycle. Remove the wiring connector block cover, identify the ignition switch block connector and disconnect it.



22.7a Depress switch lock tabs to separate it from lock barrel



22.7b Release the wire clamp tabs and remove switch



22.14 Switch is retained to frame top tube by two socket head bolts on 1987 and 1988 700/750 Magnas

11 Remove the headlight housing (see Section 10) to access the switch retaining bolts on the underside of the upper triple clamp. Remove the two retaining bolts and lower the switch out of the triple clamp.

12 To release the switch from the lock cylinder, pry back the metal tabs of the wiring clamp, then insert the key into the lock and turn it midway between the ON and OFF positions. Insert a small screwdriver into the release slots in the lock body and depress the tabs to release the switch (see illustrations 22.7a and 22.7b).

1987 and 1988 700/750 Magna models

Refer to illustration 22.14

13 Disconnect the battery negative lead.

14 Remove the fuel tank (see Chapter 4) to access the switch retaining bolts and wiring connector block. Trace the wiring from the back of the switch and separate it at the block connector. Unscrew the two bolts and remove the switch from the frame top tube (see illustration).

15 The switch can be separated from its bracket by removing the two nuts on its rear face and the ground (earth) tab screw.

1100 Sabre models

16 Disconnect the battery negative lead.

17 Remove the bolt on each side of the fusebox cover (just above the horns) and pull the cover forwards. Disconnect the wiring from the

horns and remove their mounting bolts to release them from the fusebox cover.

18 Remove the two screws from the front face of the fusebox, hinge the fuse mounting forward and disconnect the wiring connectors from the rear of the fusebox. Identify the ignition switch wiring block connector and disconnect it.

19 Remove the headlight housing (see Section 10) and instruments (see Section 18). Remove the two retaining bolts and lower the switch out of the triple clamp.

20 To release the switch from the lock cylinder, pry back the metal tabs of the wiring clamp, then insert the key into the lock and turn it midway between the ON and OFF positions. Insert a small screwdriver into the release slots in the lock body and depress the tabs to release the switch (see illustrations 22.7a and 22.7b).

Installation

21 Install the switch in a reverse of the removal procedure. On 1987 and 1988 700/750 models, install the mounting rubbers and collars in the switch bracket before installing the retaining bolts.

22 Reconnect the battery negative lead and check that all electrical components operate correctly before riding the motorcycle.

23 Handlebar switches - check

1 Generally speaking, the switches are reliable and trouble-free. Most troubles, when they do occur, are caused by dirty or corroded contacts, but wear and breakage of internal parts is a possibility that should not be overlooked. If breakage does occur, the entire switch and related wiring harness will have to be replaced with a new one, since individual parts are not usually available.

2 The switches can be checked for continuity with a multimeter set to the resistance function (ohmmeter) or a continuity test light. Always disconnect the battery negative cable, which will prevent the possibility of a short circuit, before making the checks.

3 Trace the wiring harness of the switch in question back to its connector(s) in the steering head area. Unplug the relevant electrical connector(s).

4 Using the multimeter or test light, check for continuity between the terminals of the switch harness with the switch in the various positions (see the *wiring diagrams* at the end of this Chapter).

5 If the continuity check indicates a problem exists, refer to Section 24, remove the switch and spray the switch contacts with electrical contact cleaner. If they are accessible, the contacts can be scraped clean with a knife or polished with crocus cloth. If switch components are damaged or broken, it will be obvious when the switch is disassembled.

**1982 THROUGH 1986 700/750
MAGNA MODELS**

Color code	Lg/R	G/O
Position		
1st		
N	○-----○	
2nd		
3rd		
4th		
5th		
OD		○-----○

**ALL SABRE MODELS
AND 1100 MAGNA**

Color code	Y	Lg/R	Bk/Y	W/B	R/W	Br/Y	G/O	GROUND
Position								
1st	○-----○							○-----○
N		○-----○						○-----○
2nd			○-----○					○-----○
3rd				○-----○				○-----○
4th					○-----○			○-----○
5th						○-----○		○-----○
OD							○-----○	○-----○

25.4 Gearchange switch continuity tests**24 Handlebar switches - removal and installation****Removal****Left handlebar switch**

- 1 Disconnect the wiring from the clutch switch, and trace the main wiring harness back from the switch to the wiring connector blocks in the steering head area. Disconnect the connector blocks.
- 2 Work back along the harness, freeing it from all the relevant clips and ties, while noting its correct routing.
- 3 Remove the rear view mirror, then loosen the two clutch master cylinder clamp bolts and lift the master cylinder assembly off the handlebars; support it in a level position to prevent fluid leakage. On early models, the master cylinder clamp can remain attached to the choke cable.
- 4 Working from the underside of the switch, remove the three screws (early models) or two screws (later models) and separate the switch halves. On later models, free the choke cable from the choke lever and release the nut on the underside of the switch to free the choke cable outer.

Right handlebar switch

- 5 Disconnect the wiring from the brake switch, and trace the main wiring harness back from the switch to the wiring connector blocks in the steering head area. Disconnect the connector blocks.
- 6 Work back along the harness, freeing it from all the relevant clips and ties, while noting its correct routing.
- 7 Remove the three (early models) or two (later models) screws from the underside of the switch and separate the switch halves.
- 8 Free the throttle cables from the grip pulley and slide the twistgrip off the handlebar end. **Note:** Use the in-line cable adjuster to create enough slack in the cables to disconnect them from the pulley, or alternatively free them at the carburetor end.
- 9 Unscrew the knurled nuts to free the cables from the bottom half of the switch.

Installation

10 Installation is a reversal of the removal procedure, noting the following:

- a) Making sure that the locating peg on the bottom half of the switch is correctly located in the handlebar hole.
- b) Tighten the handlebar screws situated at the front of the switch first.
- c) When installing the clutch master cylinder, if the clamp has an UP marking, fit it so that it is facing upwards and position the assembly so that the body-to-clamp top mating surface aligns with the punch

mark on the handlebar. Install the clamp bolts and tighten the top one fully, followed by the bottom bolt.

- d) On completion check the choke cable operation (left side) or throttle cable operation (right side) and, if necessary, adjust as described in Chapters 4 and 1 respectively.

25 Gearchange/neutral/OD switch - check and replacement**Check**

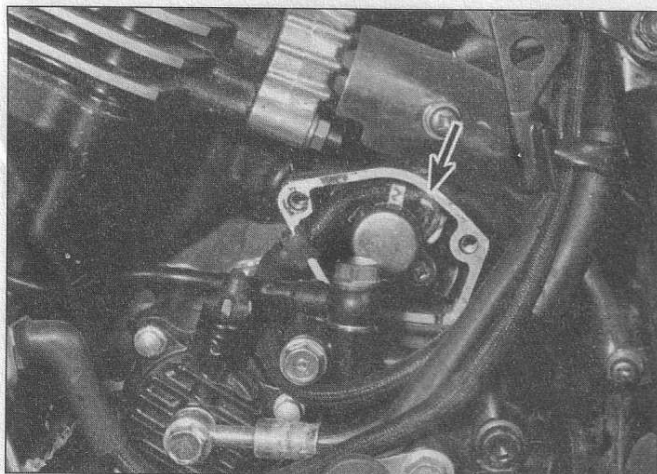
Refer to illustration 25.4

All Sabre models and 1100 Magna models

- 1 Before checking the electrical circuit, check the fuses (see Section 7).
- 2 Shift the transmission into 1st gear. Remove the seat and trace the gearchange switch wiring connector; use the wiring diagrams at the end of this manual to identify the connector. Disconnect the connector and make the following tests on the gearchange switch side of it.
- 3 Using a multimeter or a continuity test light, connect one probe to the yellow wire terminal of the connector and the other to ground (earth) on the engine. Continuity should be shown in 1st gear, and no continuity (infinite resistance) in the other gears.
- 4 Carry out the same test by connecting the probe to the other wire terminals of the connector, noting that continuity should only be shown in the corresponding gear (see illustration).
- 5 If the gearchange switch does not respond correctly, it is defective and must be replaced. If the switch checks out OK, check the wiring between the switch and instrument display, then finally replace the display unit.

1982 through 1986 700/750 Magna models

- 6 Before checking the electrical circuit, check the neutral and OD (overdrive) bulbs (see Section 20) and fuses (see Section 7).
- 7 Shift the transmission into neutral. Remove the left side cover (1985 and 1986 models) or seat (earlier models) and access the neutral/OD switch block connector; use the wiring diagrams at the end of this manual to identify the connector.
- 8 Disconnect the connector and make the following tests on the switch side of the connector. Using a multimeter or continuity test light, connect one probe to the light green/red wire and ground (earth) the other probe on the engine; continuity should be shown with the transmission in neutral (see illustration 25.4).
- 9 Shift the transmission into top gear (OD) and check between the green/orange wire and the engine case; again continuity should be



25.17 Gearchange switch (arrow) location

shown if the switch is operating correctly. There should be no continuity (infinite resistance) in all other gears.

10 If the switch does not operate as described, replace it.

1987 and 1988 700/750 Magna models

11 Before checking the electrical circuit, check the bulb (see Section 20) and fuses (see Section 7).

12 Shift the transmission into neutral. Remove the right side cover and access the neutral switch block connector in the electrical components frame.

13 With the wire detached and the ignition switched On, the neutral light should be out. If not, the wire between the switch and instrument cluster must be grounded (earthed) at some point.

14 Ground (earth) the wire on the crankcase and check that the neutral light comes on. If the light does come on, the switch is defective.

15 If the light does not come on when the wire is grounded, check for voltage at the wire terminal using a test light. If there's no voltage present, check the wire between the switch, the instrument cluster and fusebox (see the wiring diagrams at the end of this Chapter).

Replacement

Refer to illustration 25.17

16 Remove the gearchange/neutral switch cover.

17 Remove the two switch mounting screws and pull the switch out of the crankcase (see illustration).

18 Trace the wiring up from the switch to the block connector, releasing it from any ties. On 1985 through 1988 700/750 Magna models remove the right side cover to access the connector located in the electrical connector holder frame. On all other models, remove or raise the fuel tank (as applicable). Refer to the wiring diagrams at the end of this manual to identify the connector block.

19 Disconnect the switch wiring connector and remove the switch and its wiring.

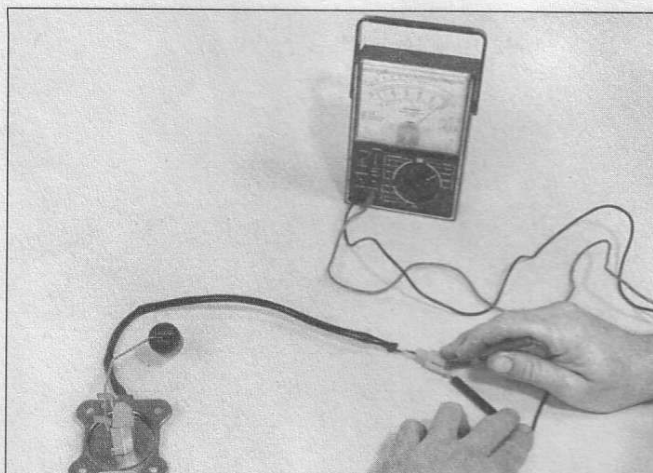
20 Installation is the reverse of the removal procedure, noting the following:

- a) Make sure that the wiring is securely held by any ties provided and seat the wiring grommet into the casing cutout.
- b) Install a new gasket on the switch cover.

26 Coolant reservoir tank level sensor (1982 and 1983 models) - check

1 Disconnect the wiring at the block connector and make the following continuity check on the sensor side of the connector.

2 Connect a multimeter set to the ohms range between the two terminals of the connector. The sensor is functioning correctly if



27.2 Fuel sender resistance check (Sabre models)

continuity is indicated with the coolant level above the LOWER level mark on the reservoir, and no continuity (infinite resistance) with the level below the LOWER mark.

3 Remove the reservoir tank (see Chapter 3) and remove the sensor from the base of the tank.

27 Fuel sender - check

Warning: Gasoline (petrol) is extremely flammable, so take extra precautions when you work on any part of the fuel system. Don't smoke or allow open flames or bare light bulbs near the work area, and don't work in a garage where a natural gas-type appliance (such as a water heater or clothes dryer) is present. If you spill any fuel on your skin, rinse it off immediately with soap and water. When you perform any kind of work on the fuel system, wear safety glasses and have a fire extinguisher suitable for a class B type fire (flammable liquids) on hand.

All Sabre models

Refer to illustration 27.2

1 Remove the fuel sender unit from the fuel tank (see Chapter 4).

2 Connect a multimeter set to the ohms range to the wire connector terminals and measure the resistance with the float arm fully raised (full) and fully lowered (empty) (see illustration).

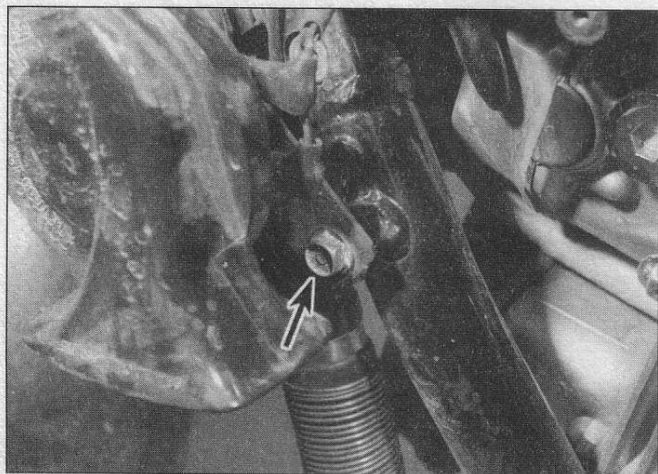
3 On 750 models the meter should read 4 to 10 ohms in the full position and 95 to 100 ohms in the empty position. On 1100 models, it should read 3.5 to 9.5 at full and 90 to 100 ohms at empty respectively.

4 To check the display unit function, reconnect the fuel sender wire connector to the harness. Switch the ignition On and move the float slowly from the full to empty positions; the display segments should respond accordingly. On 750 models, the fuel warning symbol should be displayed on the instrument warning unit in the empty position.

1982 through 1986 700/750 Magna models and all 1100 Magna models

5 The low fuel warning light (reserve sensor) should come on for approximately 1 to 4 seconds within 60 seconds of the ignition (main) key switch being turned On, and then extinguish unless the fuel level is too low. This is a self-check function to ensure that the circuit is operating correctly. If the light does not come on, check the fuse (see Section 7), wiring and bulb (see Section 20).

6 The sensor is operating correctly if the bulb comes on with less than 3.5 liters (1982 through 1984 700/750 models), 3.5 to 4 liters (1985/86 700 models), or 3 liters (1100 models) in the tank. The bulb should not come on with more than 6.5 liters (700/750 models), 3.5 to 4 liters (1985/86 models), or significantly more than 3 liters (1100 models) of fuel in the tank.



29.1 Horn is mounted to frame downtube by single bolt (arrow) on 1987 and 1988 700/750 Magnas

7 If the sensor unit does not function correctly it must be replaced (see Chapter 4). On 1983-on models, if the sender unit checks out OK and the bulb still does not light, check the pilot light check unit wiring, and as a last resort replace the check unit. The check unit is housed inside the toolbox on 1985/86 700 Magnas and on the rear fender on all other models.

28 Fuel pump relay (1100 models and 1982 through 1984 700/750 Magna models) - check and replacement

Check

Note: The following check relates to 1100 models only; no information is available on the relay fitted to the 700/750 Magnas.

1 Remove the fuel pump relay from its mounting rubber, but leave the wire connector connected to it. With the ignition On, check for battery voltage at the black/light green wire terminal (1100 Sabre models) or black wire terminal (1100 Magna models). Turn the ignition Off. If full battery voltage is reaching the relay, and the fuel pump tests described in Chapter 4 confirmed the fuel pump to be functioning correctly, the relay should be replaced.

2 Before replacing the relay, check that the fault is not due to a broken wire between the relay and the spark unit for cylinders 2 and 4. Make continuity checks using the wiring diagrams at the end of this manual.

Replacement

3 The fuel pump relay is mounted next to the battery. Remove the right side cover (Magna models) or left side cover (1100 Sabre models) for access. Use the wiring diagrams at the end of this manual to identify the relay's wire color codes. Unplug the wire connector from the relay and maneuver it out of its mounting rubber.

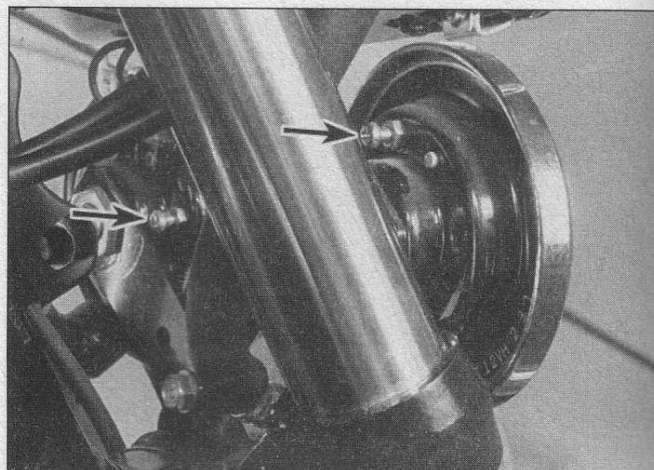
29 Horn - check and replacement

Check

Refer to illustrations 29.1 and 29.4

1 On 1982 through 1986 models, the horns are mounted on the lower triple clamp. A single horn is fitted to 1987 and 1988 700/750 Magna models, mounted on the left frame downtube (see illustration).

2 Unplug the wiring connectors from the horn. Using two jumper wires, apply battery voltage directly to the terminals on the horn. If the horn sounds, check the switch (see Section 23) and the wiring between the switch and the horn (see the wiring diagrams at the end of this Chapter).



29.4 Adjustment to horn tone can be made via screw on rear face (arrow)

3 If the horn doesn't sound, replace it.

4 Adjustment to the horn note can be made via the adjuster screw on its rear face; tighten the locknut securely after adjustment (see illustration).

Replacement

All 700/750 Sabres and 1982 through 1984 700/750 Magna models

5 Unbolt each horn from the brake hose three-way union on the lower triple clamp. Pull the wires off the terminals.

1985 and 1986 700 Magna models

6 First remove the cover between the two horns; it is retained by a single screw at the top. Remove the nut and withdraw the horn off the mounting bracket stud. Pull the wires of their terminals.

1987 and 1988 700/750 Magna models

7 Remove the mounting bolt, pull the wires off their terminals and remove the horn.

1100 Sabre models

8 Remove the bolt on each side of the fusebox cover (just above the horns) and pull the cover forwards. Disconnect the wiring from the horns and remove their mounting bolts to release them from the fusebox cover.

1100 Magna models

9 First remove the cover between the two horns; it is retained by a single screw at the top. Either remove the center bolt to detach both horns together with their mounting bracket, or unbolt each horn separately. Pull the wires off their terminals.

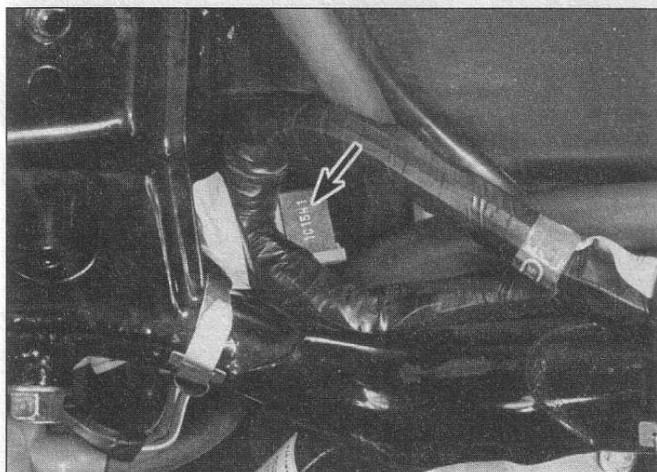
30 Clutch diode - check and replacement

Refer to illustrations 30.1 and 30.3

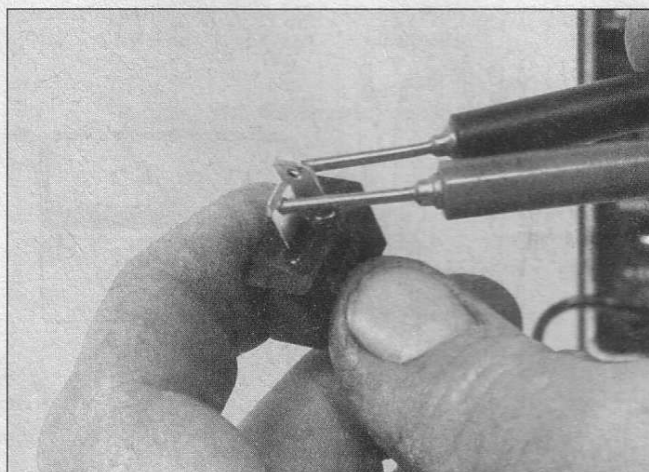
1 The clutch diode is plugged into the main wiring harness clipped to the frame below the rear of the fuel tank (see illustration). The diode is part of the starter safety circuit (See Section 1) and prevents the starter motor operating while the transmission is in gear unless the clutch lever is pulled in. If the starter circuit is faulty, first check the fuses (see Section 7).

2 To gain access to the diode remove the fuel tank (see Chapter 4). Use the wiring diagrams at the end of this manual to identify the diode's wire colors.

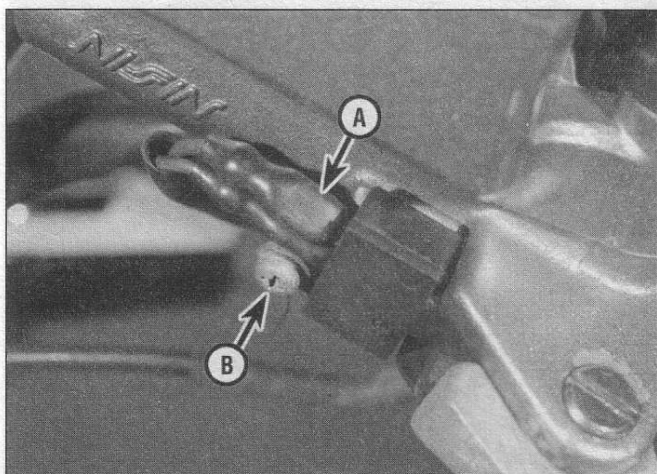
3 Unplug the diode from the wiring harness and using a multimeter set to the resistance scale (ohmmeter) or a continuity test light, check



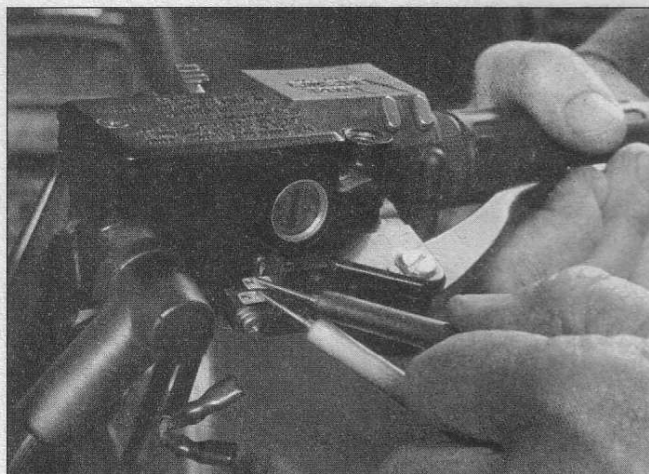
30.1 Clutch diode is located under fuel tank (arrow)



30.3 Continuity should only exist in one direction on clutch diode



31.2a Clutch switch wire connectors (A) and retaining screw (B)



31.2b Check for continuity across switch terminals with lever pulled in

for continuity between the terminals of the diode (**see illustration**). Transpose the meter probes and check for continuity in the opposite direction. If the diode is serviceable there should be continuity in one direction (indicated by the arrow on the diode) and no continuity (infinite resistance) in the other. If not, the diode must be replaced.

4 If the diode checks out okay, check the other components in the starter circuit (clutch switch, gearchange/OD/neutral switch and starter relay) as described in the relevant sections of this Chapter. If all components check out fine, check the wiring between the various components (**see the wiring diagrams** at the end of this book).

5 Plug the diode back into position and install the fuel tank (**see Chapter 4**).

31 Clutch switch - check and replacement

Check

Refer to illustrations 31.2a and 31.2b

1 The clutch switch is situated in the lever mounting bracket. The switch is part of the starter safety circuit (**see Section 1**) which prevents the starter motor operating while the transmission is in gear unless the clutch lever is pulled in. If the starter circuit is faulty, first check the fuses (**see Section 7**).

2 To check the switch, disconnect the wiring connectors (**see illustration**). Using a multimeter set to the resistance scale (ohmmeter)

or a continuity test light, check for continuity between the terminals of the switch with the lever pulled into the handlebar and no continuity (infinite resistance) with the lever released (**see illustration**). If this is not the case, the switch is faulty and must be replaced.

3 If the switch checks out okay, check the other components in the starter circuit (clutch diode, gearchange/OD/neutral switch and starter relay) as described in the relevant sections of this Chapter. If all components check out fine, check the wiring between the various components (**see the wiring diagrams** at the end of this book).

Replacement

4 Disconnect the wiring connectors from the clutch switch.

5 Remove the single screw (**see illustration 31.2a**) and lift off the clutch switch.

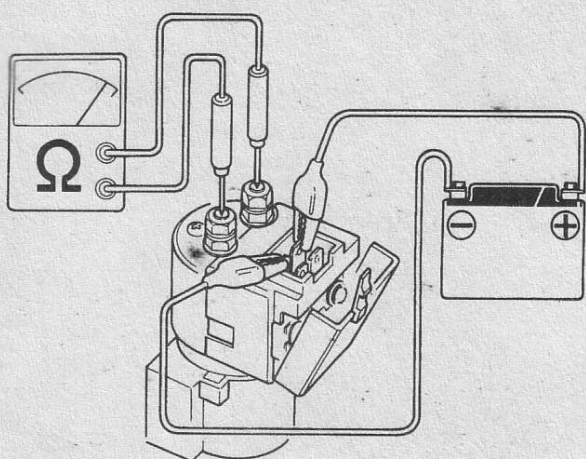
6 Install the new switch, making sure the alignment tab is positioned correctly. Tighten the screw securely and reconnect the wiring.

32 Starter relay - check and replacement

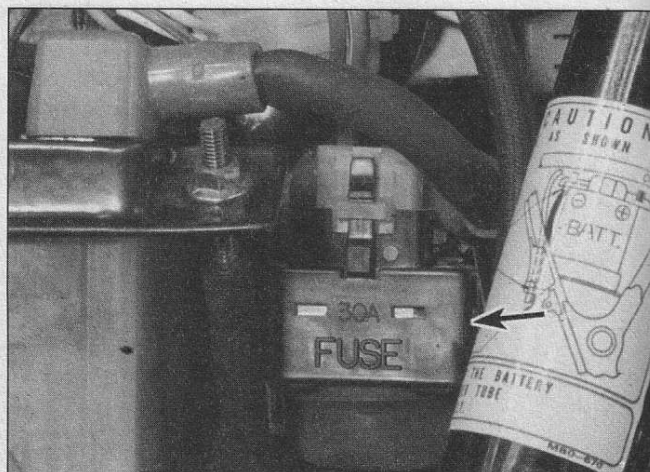
Check

Refer to illustration 32.4

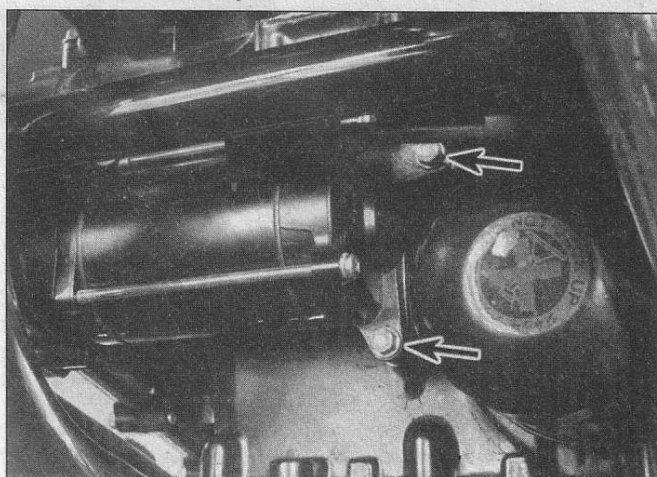
1 If the starter circuit is faulty, first check the fuses (**see Section 7**). The starter relay is located in a rubber holder, next to the battery; the 30A main fuse is integral with the relay.



32.4 Starter relay check (see text)



32.7 Starter relay location (750 Sabre shown)



33.4 Starter motor is retained by two bolts (arrows)



33.5 Install a new O-ring on the starter body

2 With the ignition switch On, the engine kill switch in Run and the transmission in neutral, press the starter switch. The relay should be heard to click.

3 If the relay doesn't click, switch off the ignition and remove the relay as described below and test as follows.

4 Set a multimeter to the ohms x 1 scale and connect it across the relay's starter motor and battery lead terminals. Using a fully-charged 12 volt battery (the machine's battery will do) and two insulated jumper wires, connect the positive terminal of the battery to the yellow/red terminal of the relay, and the negative terminal to the green/red wire terminal of the relay (**see illustration**). At this point the relay should click and the multimeter read 0 ohms (continuity). If this is the case the relay is serviceable and the fault lies in the starter switch circuit (check the clutch diode, clutch switch and gearchange/OD/neutral switch as described elsewhere in this Chapter). If the relay does not click when battery voltage is applied and indicates no continuity across its terminals, it is faulty and must be replaced.

Replacement

Refer to illustration 32.7

5 Disconnect the battery terminals, remembering to disconnect the negative (-) terminal first.

6 Peel back the rubber cover, then undo the two retaining nuts and disconnect the large-diameter starter motor and battery leads from

the relay.

7 Disconnect the relay wiring connector and remove the relay from the bike (**see illustration**).

8 Installation is the reverse of removal ensuring the terminal nuts are securely tightened. Connect the negative lead last when reconnecting the battery.

33 Starter motor - removal and installation

Removal

Refer to illustration 33.4

1 Disconnect the battery negative lead.

2 Peel back the rubber cover and unscrew the nut securing the starter cable to the motor stud.

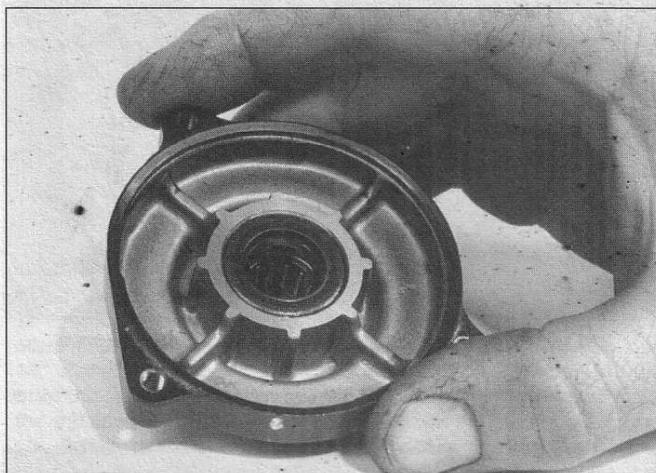
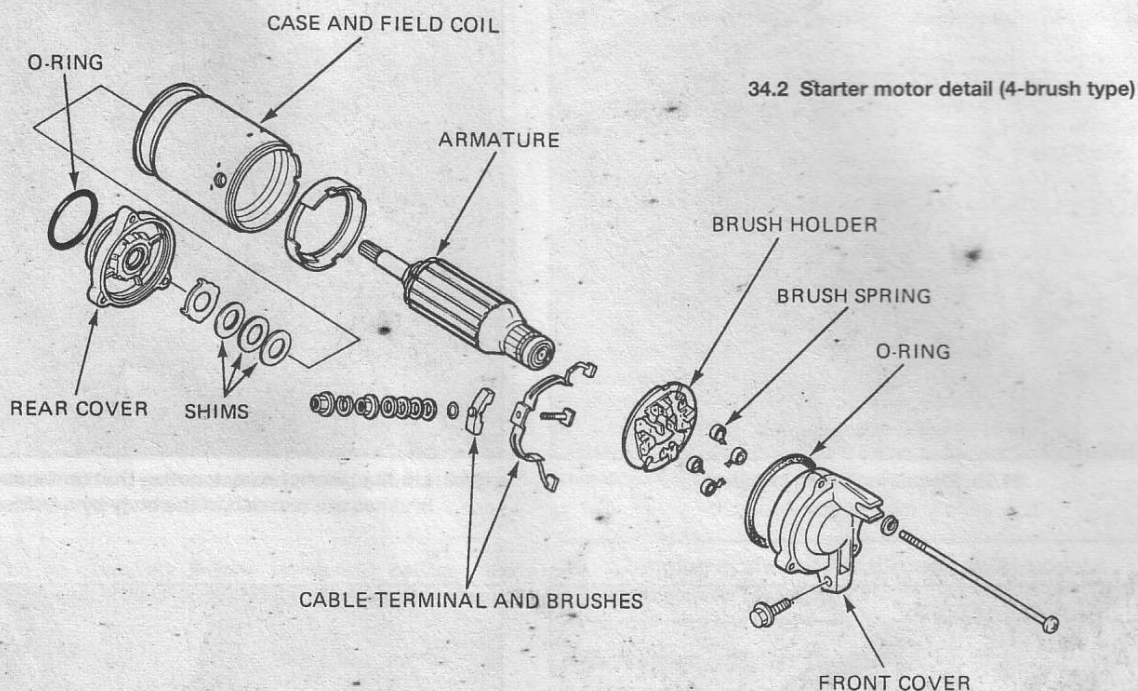
3 Drain the engine oil and remove the oil filter (see Chapter 1).

4 Unscrew the starter motor retaining bolts and work the starter motor out of the crankcase (**see illustration**).

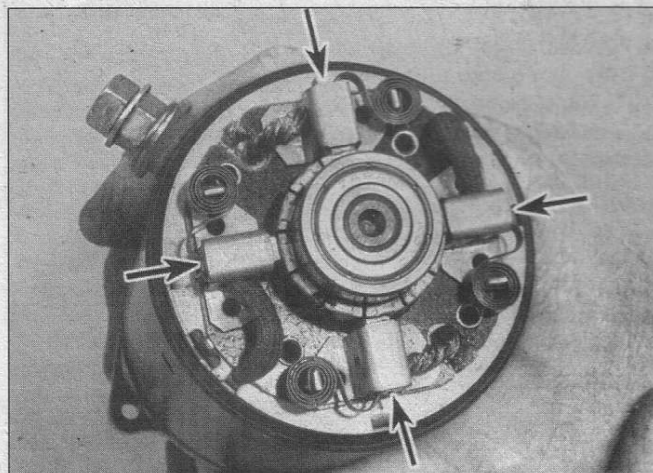
Installation

Refer to illustration 33.5

5 Install a new O-ring on the end of the motor, ensuring it is correctly seated in its groove; apply a smear of engine oil to it to aid installation (**see illustration**).



34.3 Check oil seal (arrow) and needle bearing in rear cover



34.5a Brush locations on 4-brush starter (arrows)

- 6 Maneuver the motor into position in the crankcase.
- 7 Fit the retaining bolts and tighten them securely.
- 8 Connect the cable and securely tighten the nut. Make sure the rubber cover is correctly seated over the terminal.
- 9 Install a new oil filter and refill the engine with the correct quantity and type of oil (see Chapter 1). Reconnect the battery negative lead.

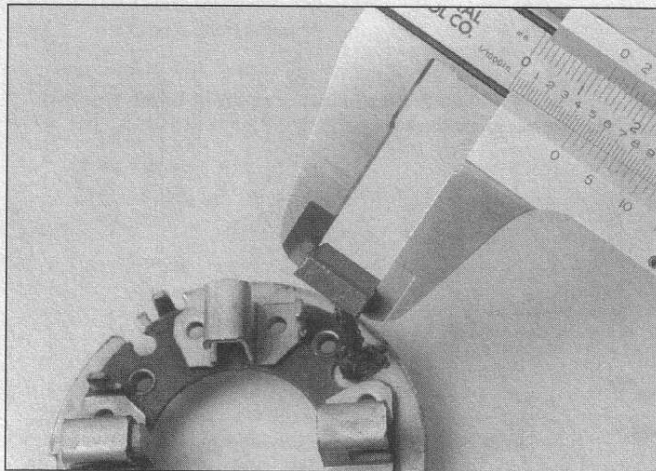
34 Starter motor - disassembly, inspection and reassembly

Disassembly and inspection

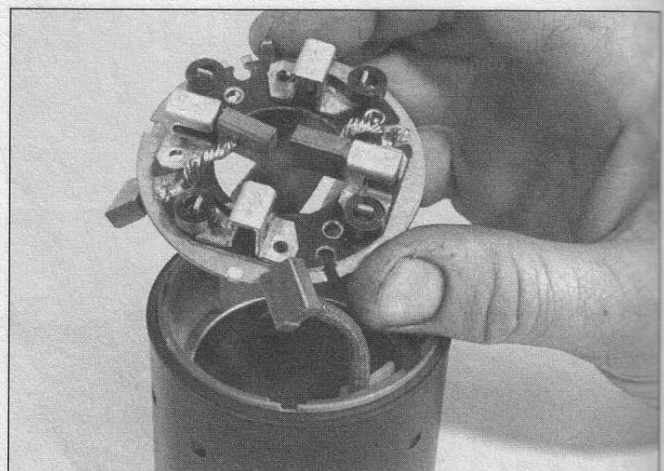
Refer to illustrations 34.2, 34.3, 34.5a, 34.5b, 34.6, 34.8, 34.10a and 34.10b

- 1 Remove the starter motor (see Section 33).

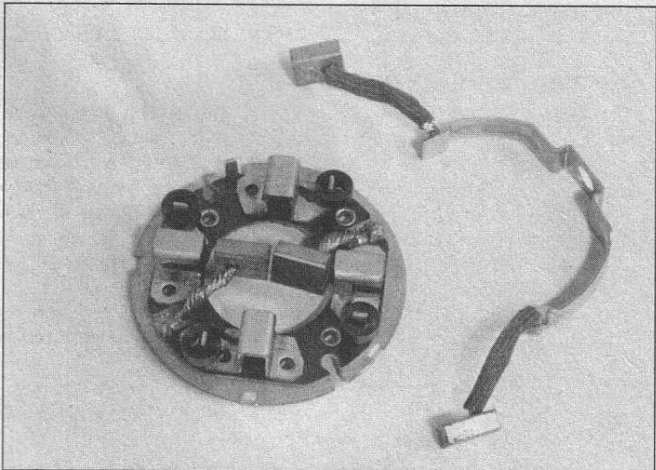
- 2 Remove the starter motor case bolts and separate the rear cover from the motor. Do not lose the shims on the rear of the armature (see illustration).
- 3 With the rear cover removed, check the condition of the oil seal in it (see illustration). Also check for oil inside the starter motor. If oil is present, the seal is defective and should be replaced. At the same time, check the needle bearing in the rear cover by spinning it lightly with your finger. There should be no roughness felt or noise heard. If necessary, the bearing can be removed after prying out the seal. A new seal is installed by tapping it in with a suitable size socket.
- 4 Remove the front cover from the starter motor.
- 5 The parts of the starter motor that most likely will require attention are the brushes. Measure the length of each one and compare the results to the Specifications (see illustrations). If one or more brushes are worn beyond the specified limits, replace all of them with new ones. If the brushes are not worn excessively, cracked, chipped, or otherwise damaged, they may be re-used.



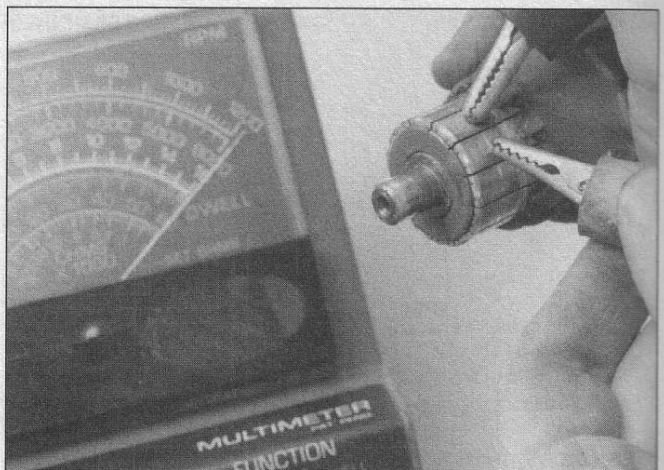
34.5b Measuring brush length



34.6 Lift the brushplate out, noting that on 4-brush starter two brushes are retained to the body by a holder clip . . .



34.8 . . . do not separate brushes from holder plate or clip



34.10a Check for continuity between commutator bars

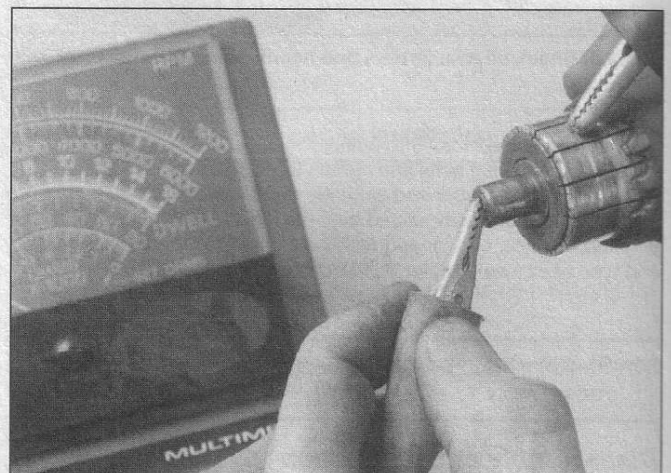
6 If the brushes need to be replaced, slide the armature out the rear of the starter motor and lift the brush holder plate out (**see illustration**). Note that two of the brushes are retained to the starter motor case by a holder clip on the 4-brush starter. On the 2-brush starter (fitted to 1988 750 Magnas) one of the brushes is attached directly to the terminal bolt.

7 Remove the nut from the terminal on the outside of the case and slide off the washers. The terminal bolt can now be removed from the inside of the case. On the 4-brush starter, separate the brush holder clip and insulator from the bolt.

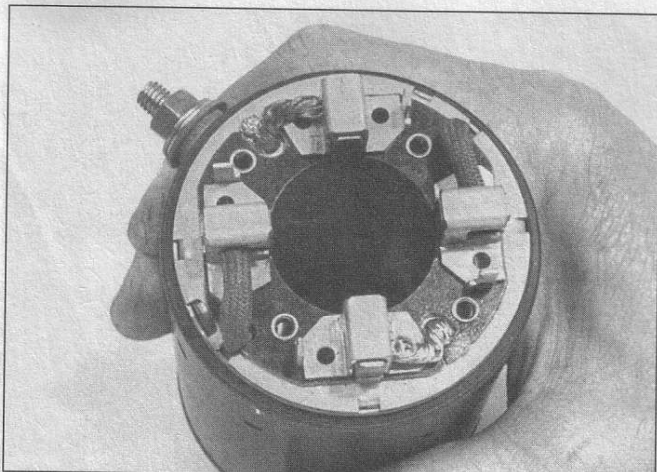
8 Do not separate the brushes from either the holder clip or the holder plate. A set of new brushes will come complete with these holder components (**see illustration**).

9 While the armature is removed, inspect the commutator for scoring, scratches or discoloration. The commutator can be cleaned and polished with crocus cloth, but do not use sandpaper or emery paper. After cleaning, wipe away any residue with a cloth soaked in an electrical system cleaner or denatured alcohol. If there is any doubt as to the condition of the commutator or armature as a whole, have it inspected and tested by a dealer or other qualified repair shop.

10 Using an ohmmeter or a continuity test light, check for continuity between the commutator bars (**see illustration**). Continuity should exist between each bar and all of the others. Also check for continuity between the commutator bars and the armature shaft (**see illustration**).



34.10b There should be no continuity (infinite resistance) between the commutator and the shaft



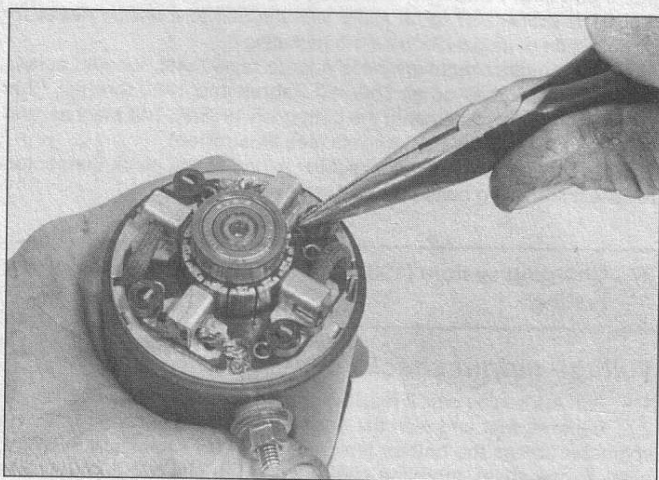
34.15 When installing brushes, remove the springs and insert the brushes prior to installing the armature . . .

There should be no continuity (infinite resistance) between the commutator and the shaft. If the checks indicate otherwise, the armature is defective.

Reassembly

Refer to illustrations 34.15 and 34.17

- 11 To begin installation, position the brush holder and insulator in the case.
- 12 Install the terminal bolt through the clip (4-brush starter), insulator and case and position the outer insulators and washers on the outside of the bolt. Then install the nut to hold it in place.
- 13 Install the brush holder plate so that its pin aligns with the notch in the case. Be sure the brush wires of those brushes already installed are located in their proper slots.
- 14 Install new O-rings on both ends of the case.
- 15 Remove the brush springs and insert the brushes in their holders (see illustration).
- 16 Install the rear cover and internal shims onto the armature and install the armature assembly into the case.
- 17 Install the clips onto the brush holder plate and use needle-nosed pliers to secure them around the brushes (see illustration).
- 18 Install the front cover onto the case, aligning its notch with the brush holder plate pin, then reinstall the case bolts. **Note:** Check that the end cover alignment marks match those on the case.
- 19 Install the starter motor in the crankcase (see Section 33).



34.17 . . . then install the armature, followed by the brush springs

35 Charging system testing - general information and precautions

- 1 If the performance of the charging system is suspect, the system as a whole should be checked first, followed by testing of the individual components (the alternator stator coils and the voltage regulator/rectifier). **Note:** Before beginning the checks, make sure the battery is fully charged and that all system connections are clean and tight.
- 2 Checking the output of the charging system and the performance of the various components within the charging system requires the use of a multimeter (with voltage, current and resistance checking facilities).
- 3 When making the checks, follow the procedures carefully to prevent incorrect connections or short circuits, as irreparable damage to electrical system components may result if short circuits occur.
- 4 If a multimeter is not available, the job of checking the charging system be left to a dealer service department or a reputable motorcycle repair shop.

36 Charging system (1982 through 1986 models) - component testing

Alternator output test

- 1 Start the engine and warm it up to normal operating temperature.
- 2 Remove the seat and side covers. Allow the engine to idle and connect a multimeter set to the 0-to-20 dc volts scale (voltmeter) across the terminals of the battery (positive lead to battery positive terminal, negative lead to battery negative terminal). Slowly increase engine speed and note the reading obtained; it should be within the range 13 to 16V on 1100 Sabre models, and 14 to 15V on all other models. Stop the engine and disconnect the meter when the test is complete. **Note:** Occasionally the condition may arise where the charging voltage is excessive. This condition is almost certainly due to a faulty regulator/rectifier.
- 3 On 1100 models and 1985/86 700 Magnas, it is possible to check alternator current at specific engine speeds. Refer to Steps 4 and 5 on 700 models and Steps 6 and 7 for 1100 models.
- 4 On 1985 and 1986 700 Magna models, disconnect the 6-pin connector containing the red/white and green wires from the regulator/rectifier unit. Connect the probes of an ammeter between one of the red/white and one of the green wire terminals on the regulator/rectifier side of the connector.
- 5 Start the engine and note the meter reading at the specified engine speeds.

Engine speed	1,200 rpm	5,000 rpm
Current	5A minimum	20 to 30A

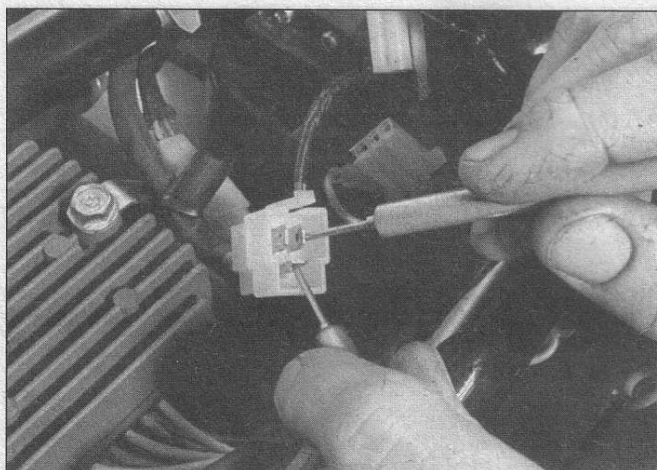
- 6 On 1100 models, disconnect the black wire from the regulator/rectifier 6-pin block connector. Disconnect the wiring connector from the headlight unit. Connect an ammeter in series, between the battery positive terminal and the positive lead.
- 7 Start the engine and note the meter reading at the specified engine speeds.

Engine speed	1,000 rpm	5,000 rpm
Current	10.2A minimum	25A minimum

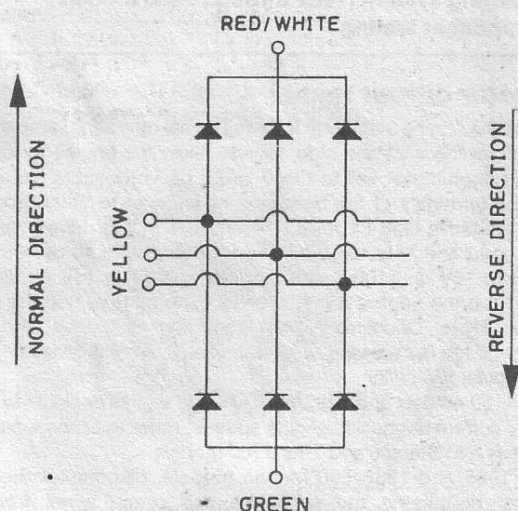
Alternator stator coils check

Refer to illustration 36.9

- 8 Remove the left side cover and seat (see Chapter 6), then trace the alternator wiring up from the casing to the block connector containing the three yellow wires.
- 9 Disconnect the connector. Using a multimeter set to the ohms x 1 (ohmmeter) scale measure the resistance between each of the yellow wires on the alternator side of the connector, taking a total of three readings, then check for continuity between each terminal and ground



36.9 Make alternator stator coil tests at the alternator block connector



36.12b Regulator/rectifier internal circuitry

(earth) (see illustration). If the stator coil windings are in good condition there should be no continuity (infinite resistance) between any of the terminals and ground (earth) and continuity (low resistance) between the three yellow wire readings. If not, the alternator stator coil assembly is at fault and should be replaced. **Note:** Before condemning the stator coils as trash, check the fault is not due to damaged wiring between the connector and coils.

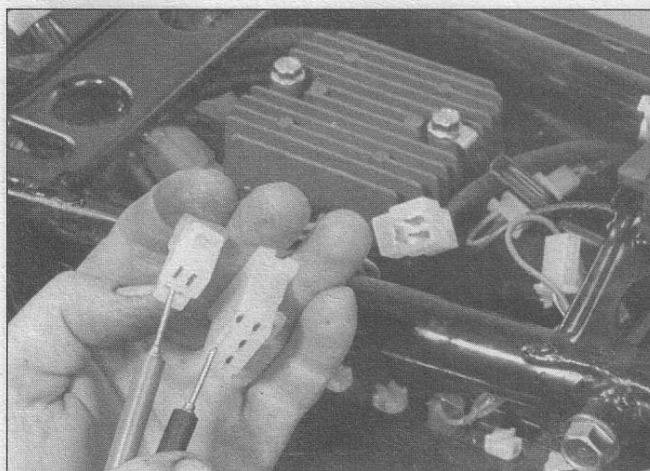
10 Refer to Chapter 2, Section 19 for removal and installation details.

Regulator/rectifier check

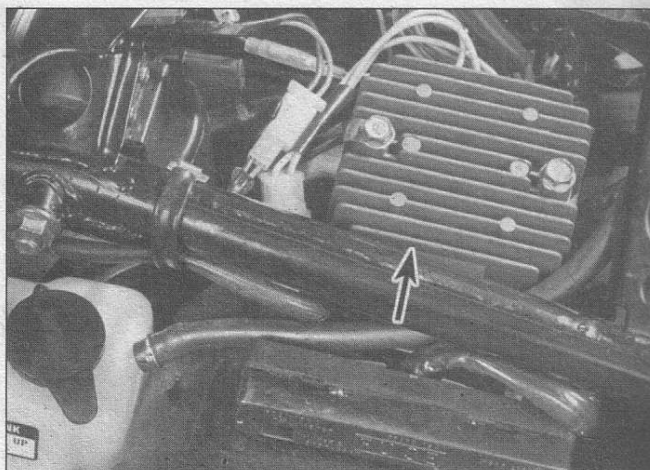
Refer to illustrations 36.12a, 36.12b and 36.14

11 Remove the side covers and seat (see Chapter 6) and disconnect the wiring block connector leading from the regulator/rectifier unit. Make the following tests on the regulator/rectifier side of the block connector.

12 Using an ohmmeter or a multimeter set to the ohms range, check for continuity between the green lead and each of the yellow leads in turn, then reverse the meter probes and carry out the same test. Continuity (low resistance) should exist in one direction, and no continuity (infinite resistance) in the other direction (see illustrations). Carry out the same check between the red/white and each yellow wire; again continuity should only be shown in one direction.



36.12a Make regulator/rectifier tests at the block connectors from the unit



36.14 Regulator/rectifier location (early models)

13 If continuity is shown in both directions, or in neither direction, that particular diode is faulty and the regulator/rectifier unit must be replaced. **Note:** The use of certain multimeters could lead to false readings being obtained. Therefore, if the above check shows the regulator/rectifier unit to be faulty take the unit to a Honda dealer for confirmation of its condition before replacing it.

14 The regulator/rectifier unit is a large finned unit, located across the frame top tubes on all 700/750 Sabres and 1982 through 1984 700/750 Magnas, underneath the battery on 1985/86 700 Magnas, and next to the battery on 1100 models (see illustration).

15 Disconnect the regulator/rectifier wiring at the block connector, release its retaining bolts/nuts and remove the unit.

37 Charging system (1987 and 1988 models) - component testing

Voltage output check

- 1 Run the engine until it reaches normal operating temperature.
- 2 Remove seat and with the engine idling, connect a 0-to-20V dc voltmeter across the battery terminals (red lead to positive terminal, black to negative). Increase engine speed briefly to 5000 rpm and observe the voltmeter reading. **Caution:** Do not run the engine at high speed for any longer than is necessary to make the reading. Stop the

engine and disconnect the meter.

3 If the charging system is functioning correctly, voltage should be within the range given in the Specifications. If outside of this range, check the regulator/rectifier and alternator stator coils as described below.

Regulator/rectifier unit and stator coil check

Refer to illustration 37.9

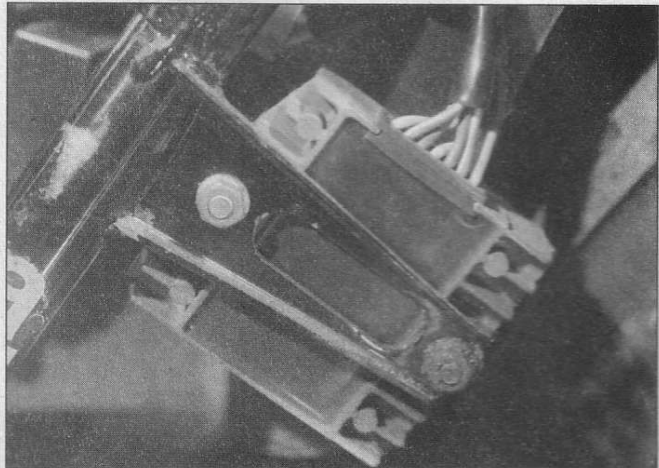
4 Remove the seat and left side cover (see Chapter 6). Identify the 4-pin block connector (containing the green and red/white wires) from the regulator/rectifier unit and disconnect it.

5 Switch the ignition main (key) switch On and connect a multimeter set to the 0-to-20V dc scale between one of the green and one of the red/white wire terminals in the harness side of the connector (positive meter lead to red/white and negative lead to green). Next carry out the same test on the other pair of green and red/white wire terminals.

6 In each test battery voltage should be shown. Switch the ignition Off and reconnect the 4-pin block connector.

7 Switch the multimeter to the resistance function (ohms). Separate the 3-pin connector from the regulator/rectifier unit (containing the three yellow wires) and make the following test on the harness (alternator) side of the connector.

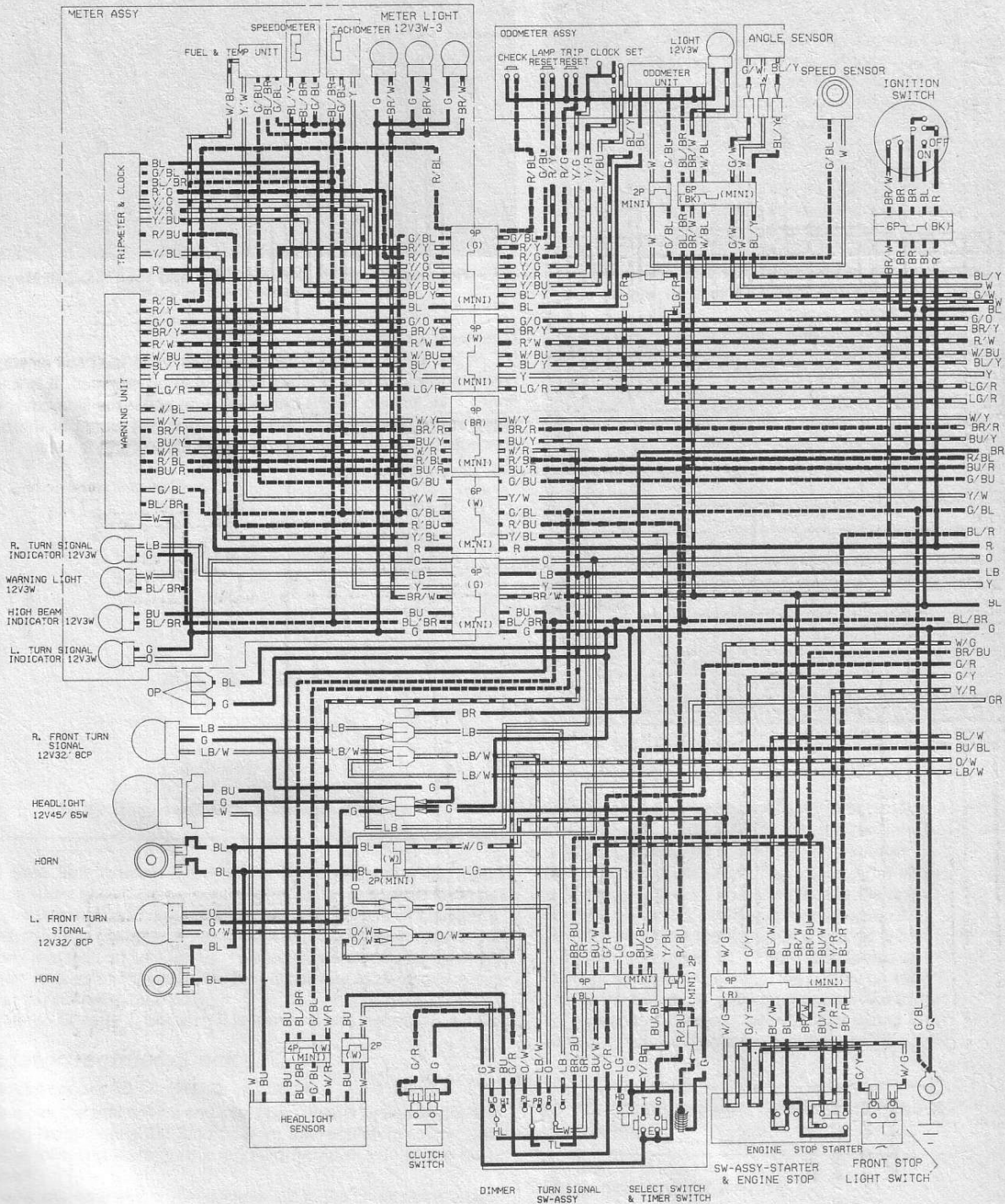
8 Connect the meter across each pair of yellow wires in turn, taking a total of three readings. Each reading should be within the range 0.5 to 10 K ohm. If any reading indicates a break in the circuit (ie infinite resistance) check the wiring from the block connector to the stator coils for continuity. If the wiring checks out OK, the stator coils are faulty and should be replaced; refer to Chapter 2, Section 19 for details



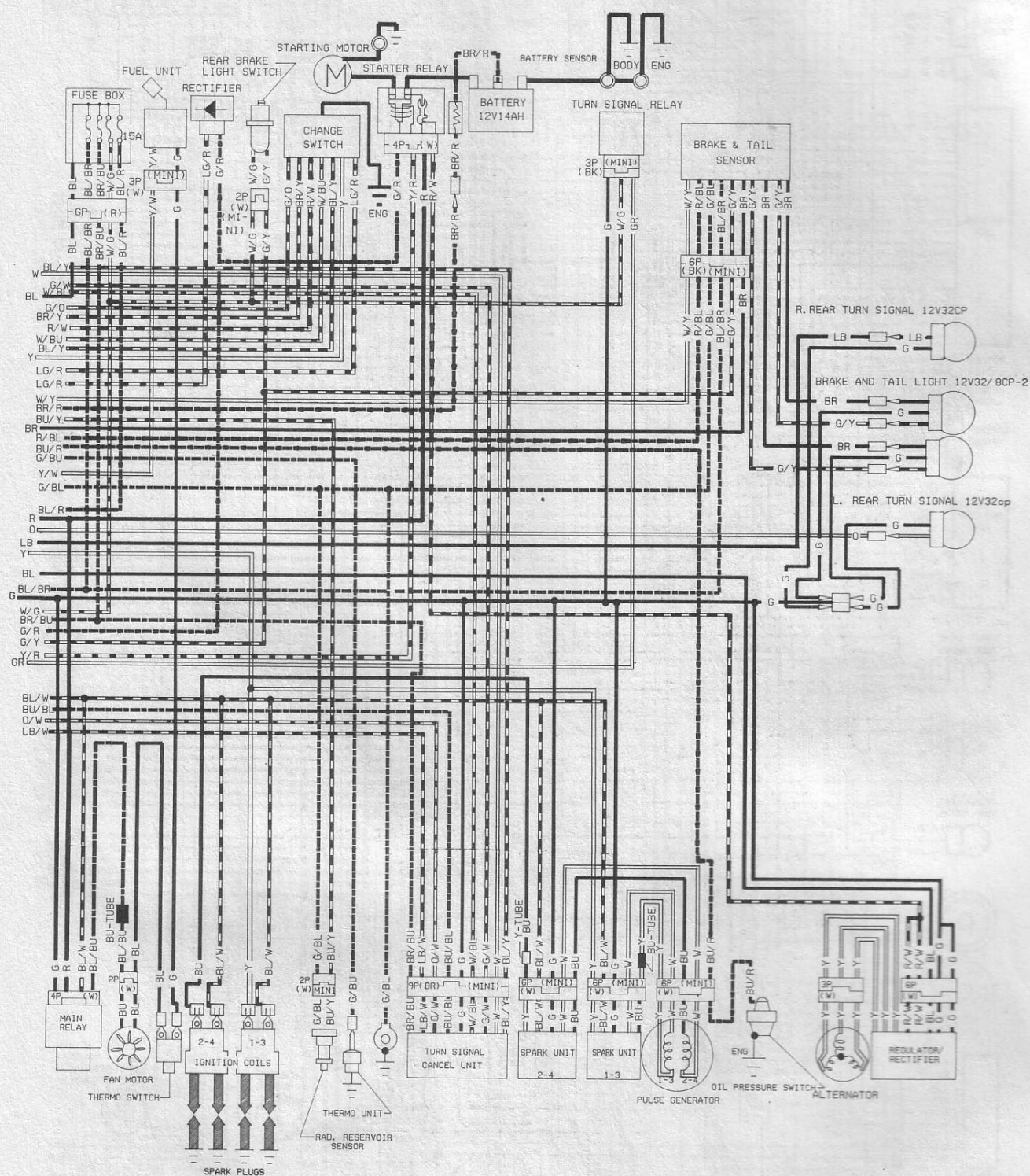
37.9 Regulator/rectifier location (1987 and 1988 700/750 Magnas)

of removal and installation.

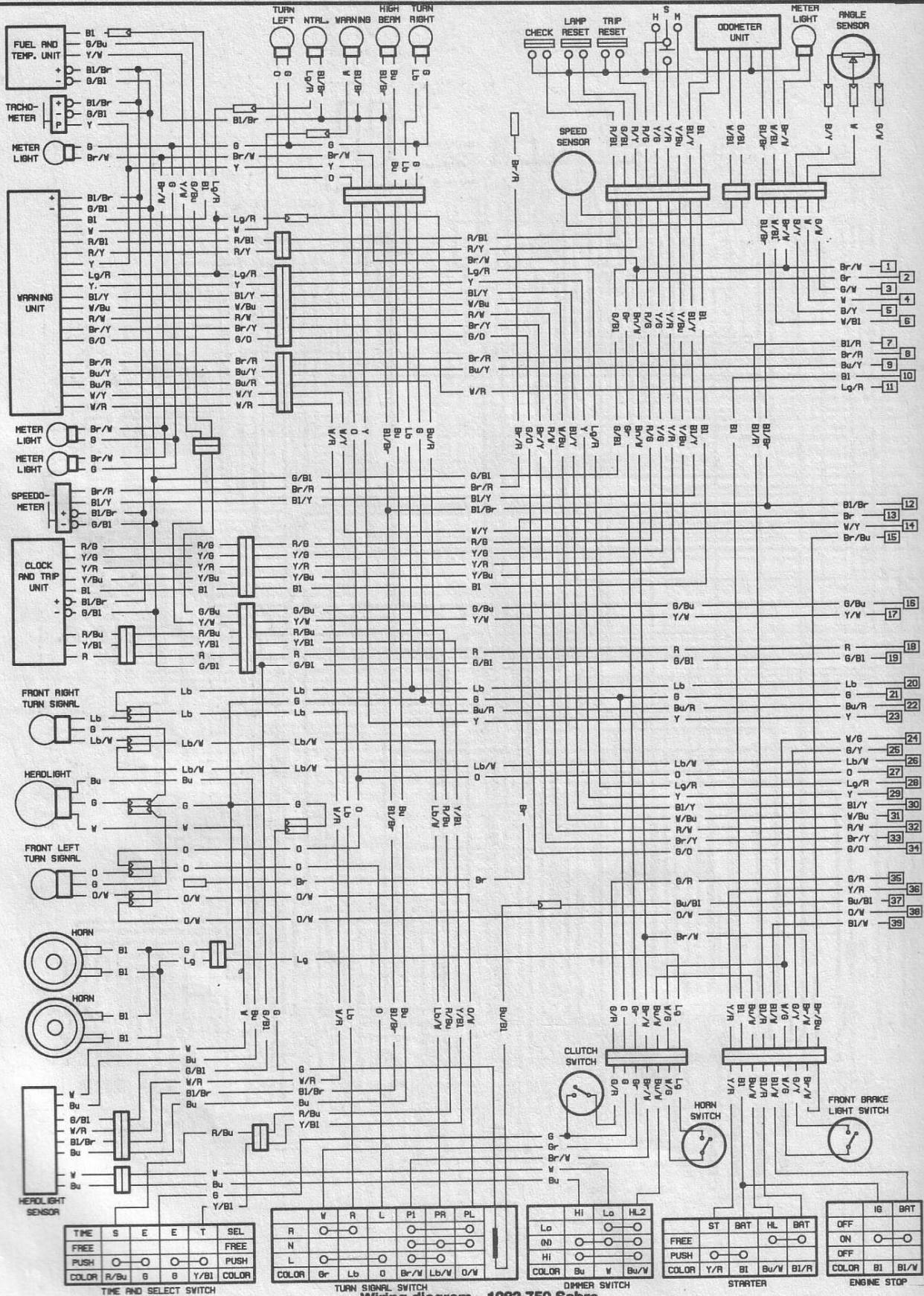
9 If the above tests are satisfactory and the fault still exists, the regulator/rectifier unit is faulty and should be replaced. It is a large finned unit, located on the frame left side, under the side cover (**see illustration**). Disconnect the regulator/rectifier wiring at the block connector, release its retaining bolts/nuts and remove the unit.



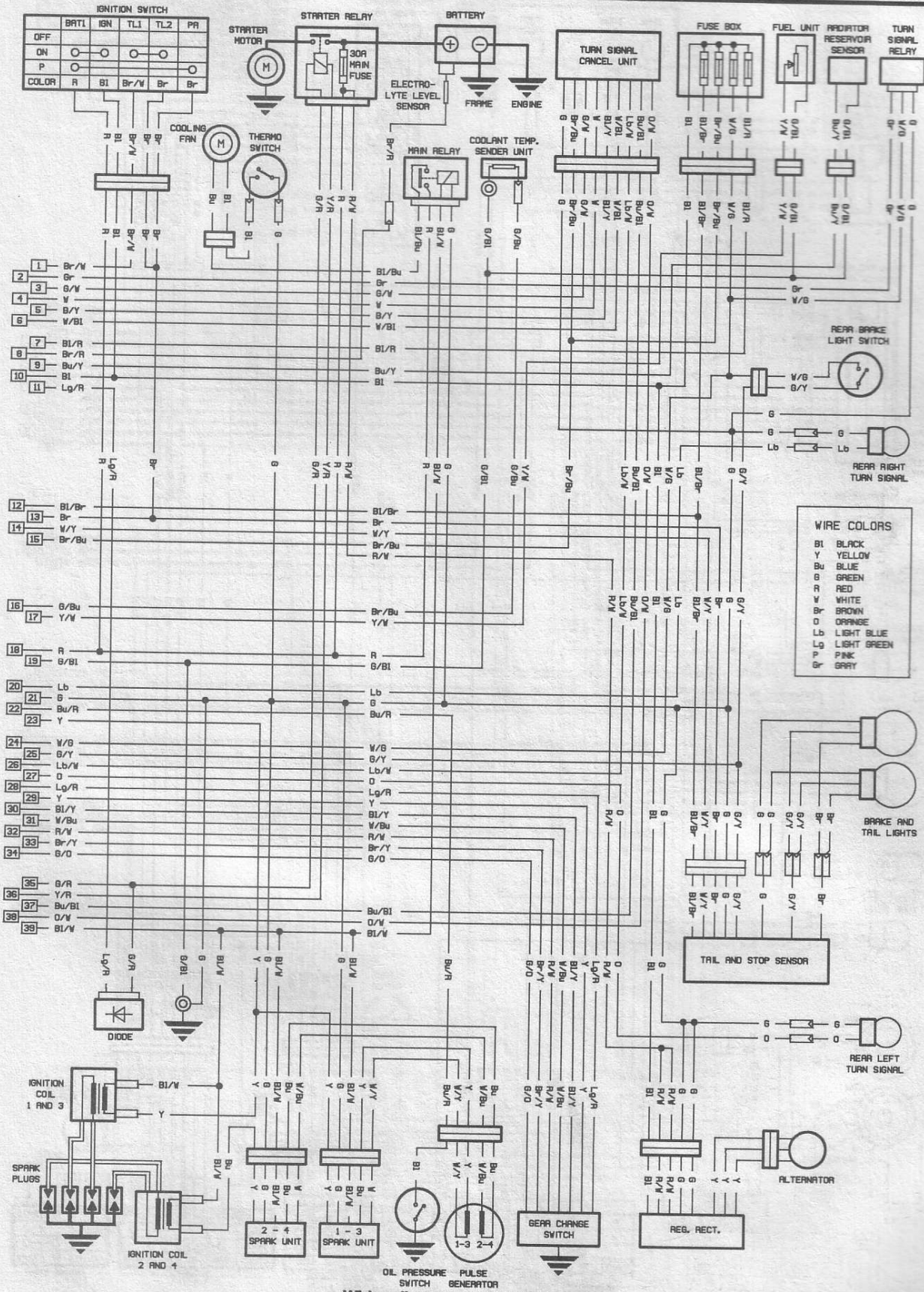
Wiring diagram - 1982 750 Sabre

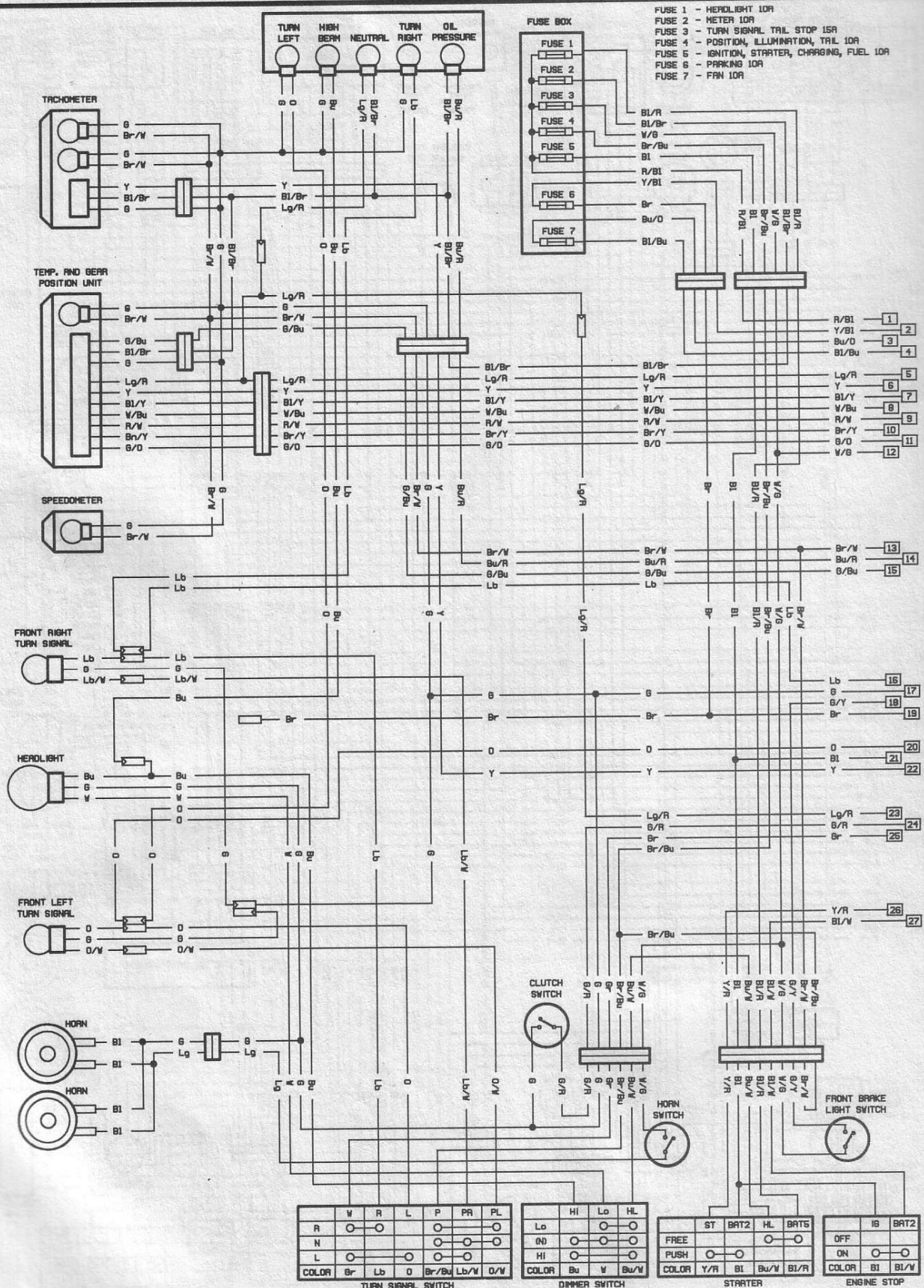


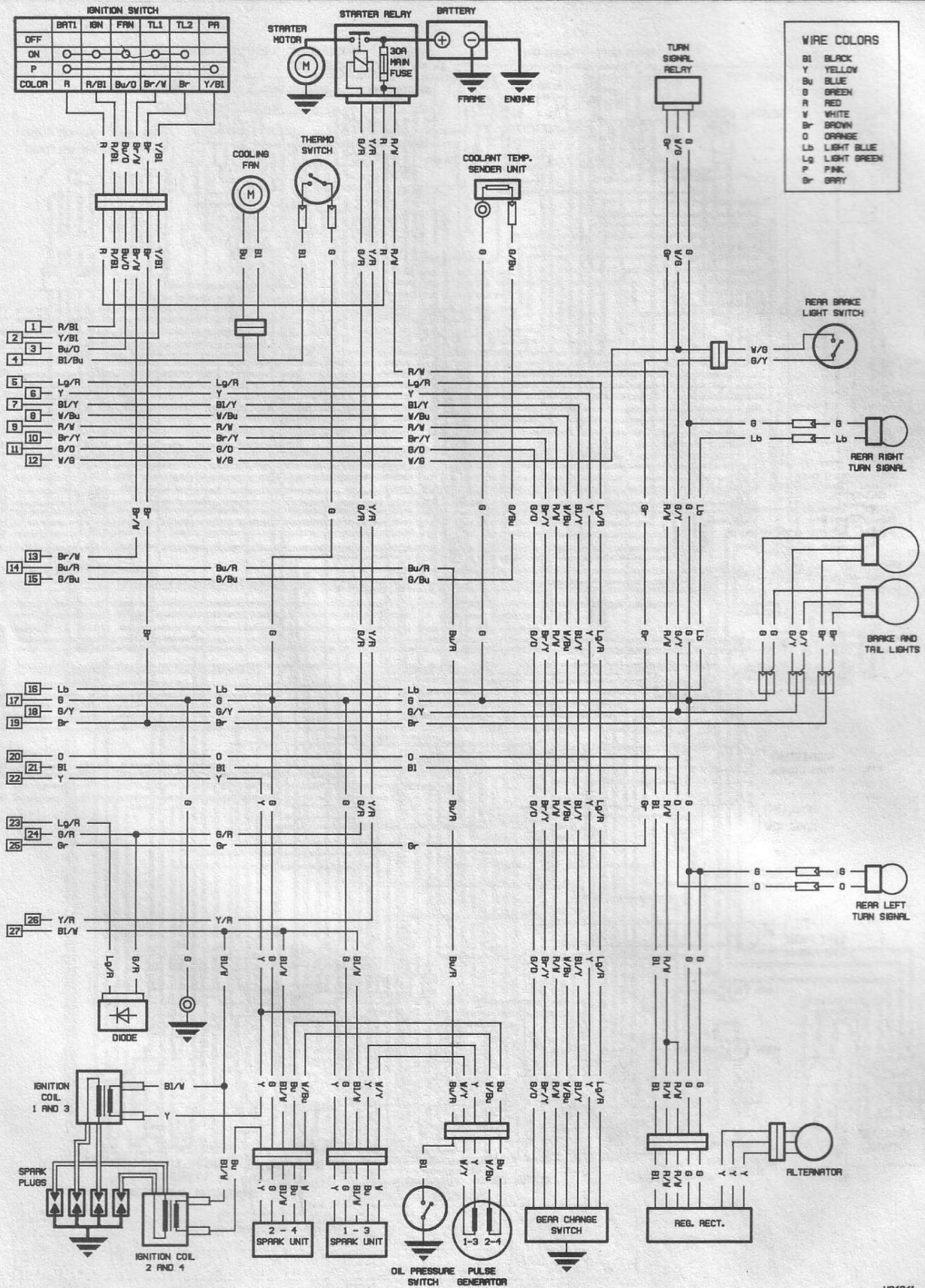
Wiring diagram - 1982 750 Sabre



Wiring diagram - 1983 750 Sabre

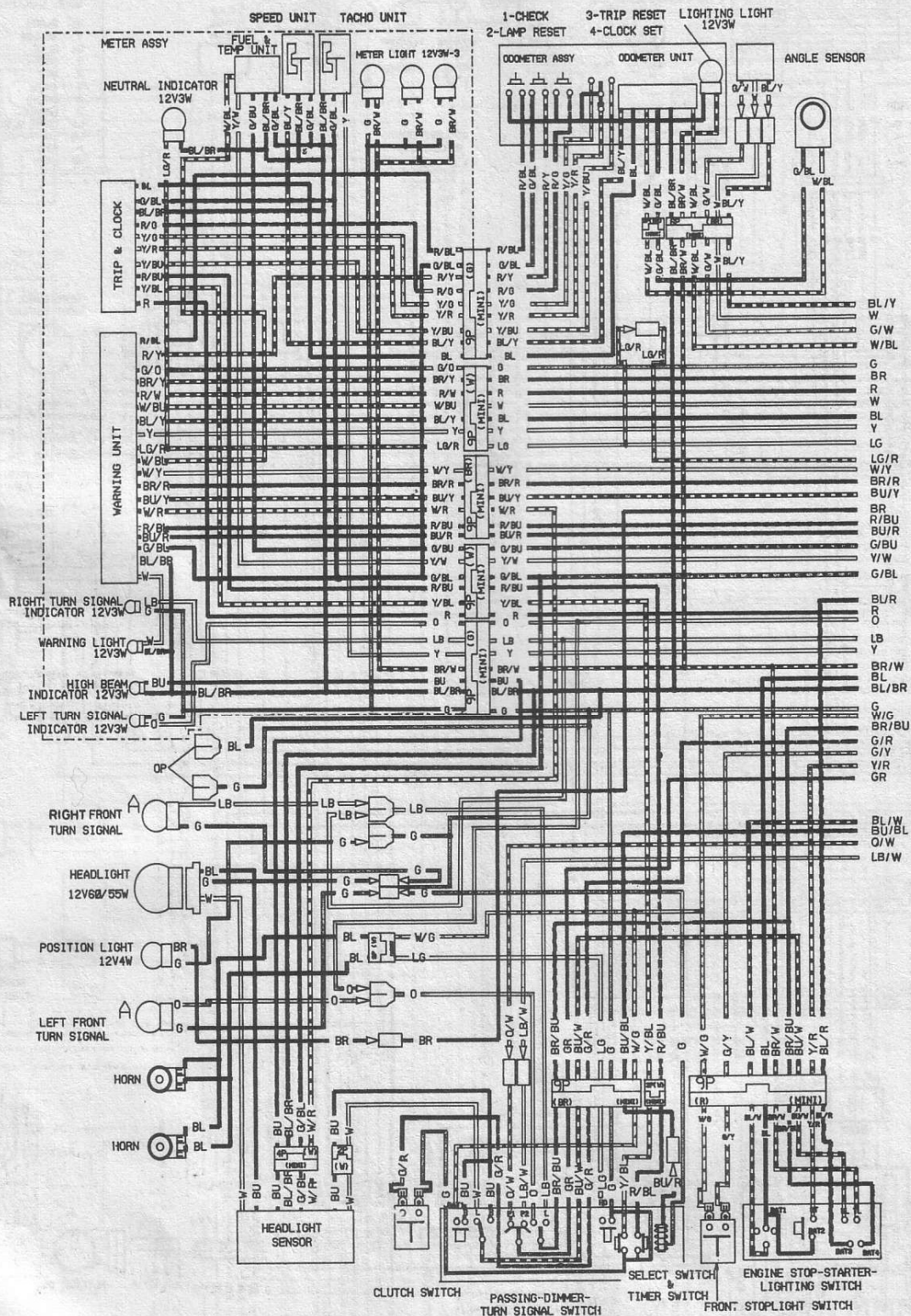




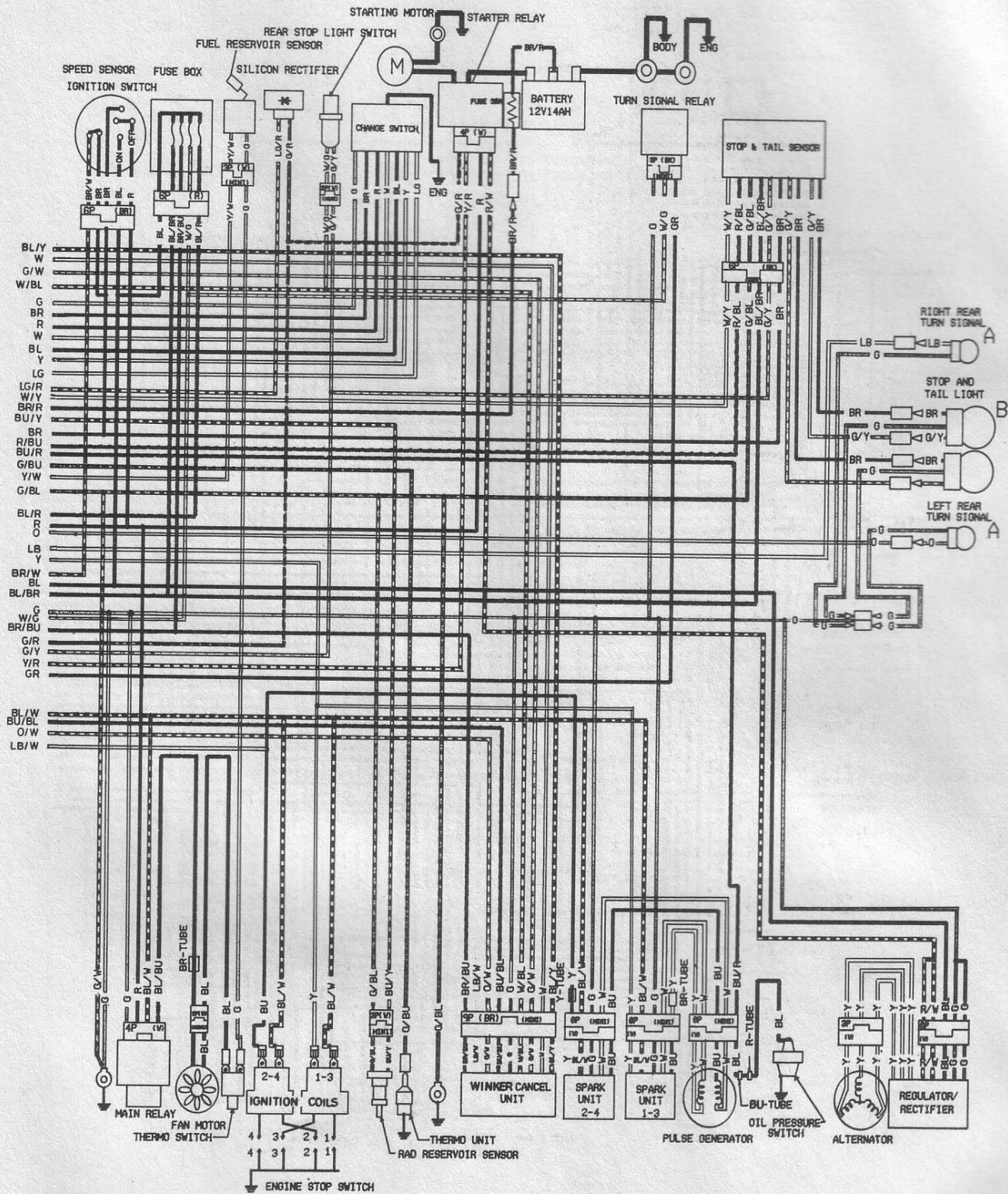


Wiring diagram - 1984/85 700 Sabres

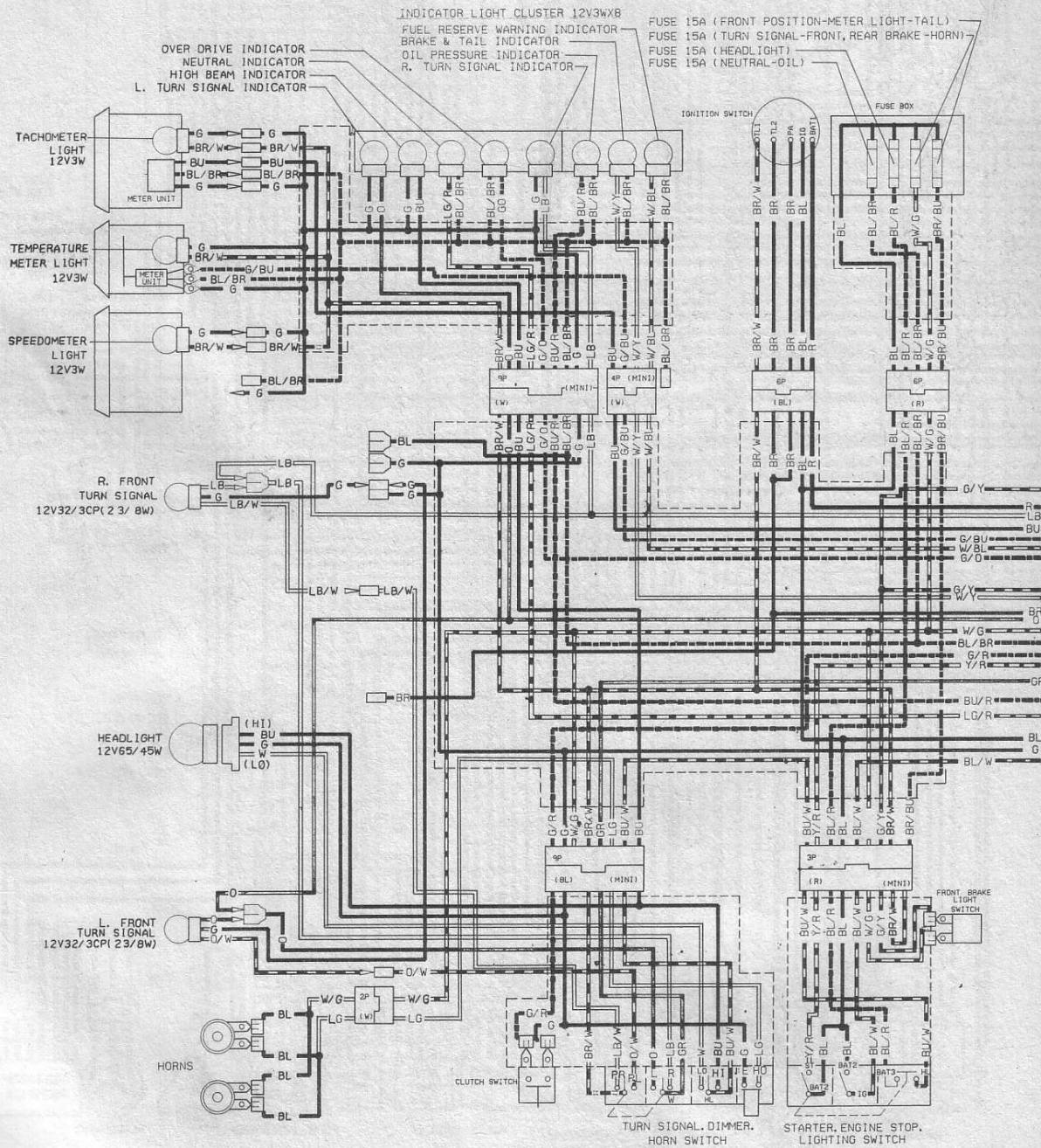
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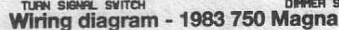
Wiring diagram - VF750S-C UK model

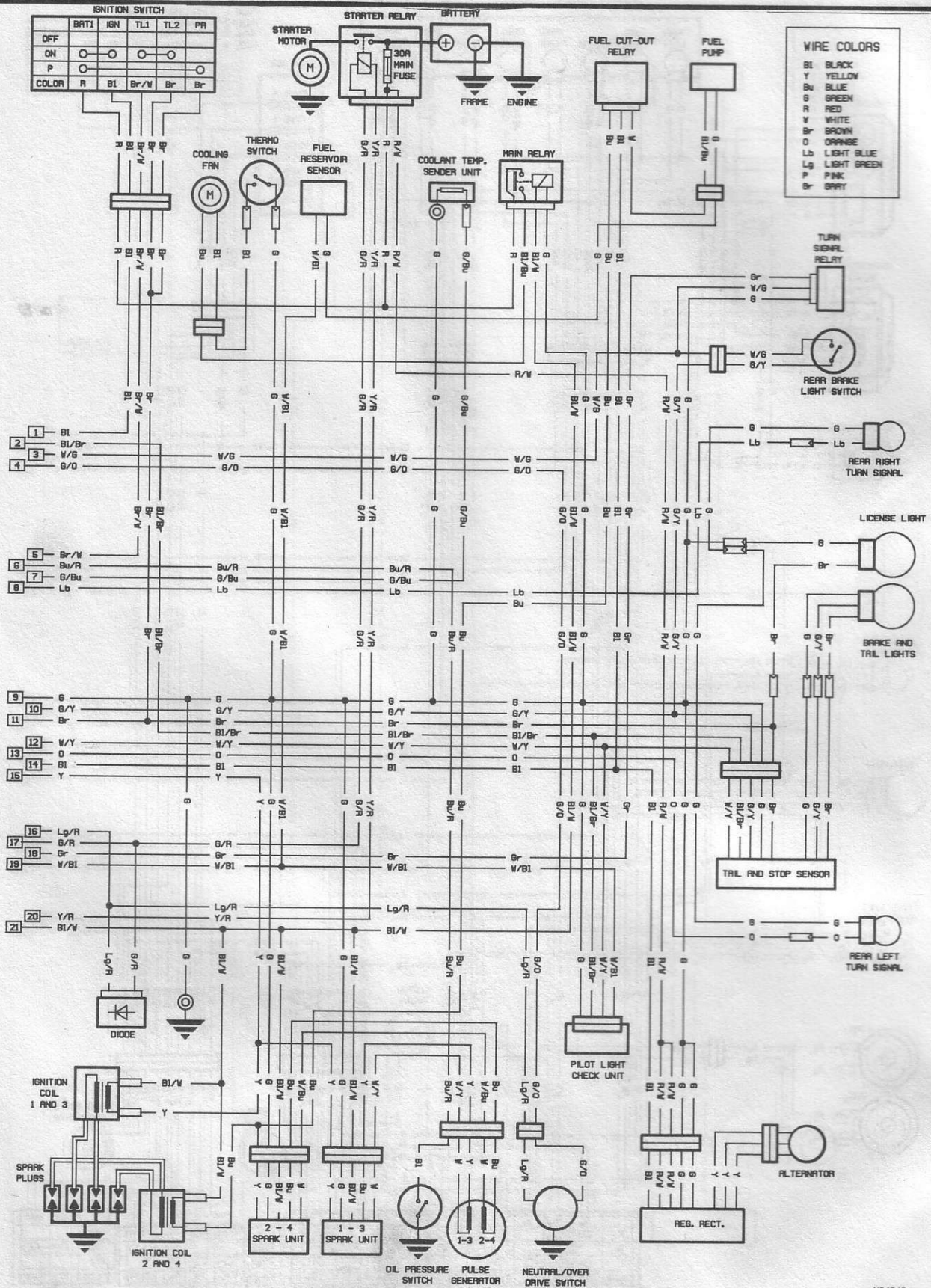


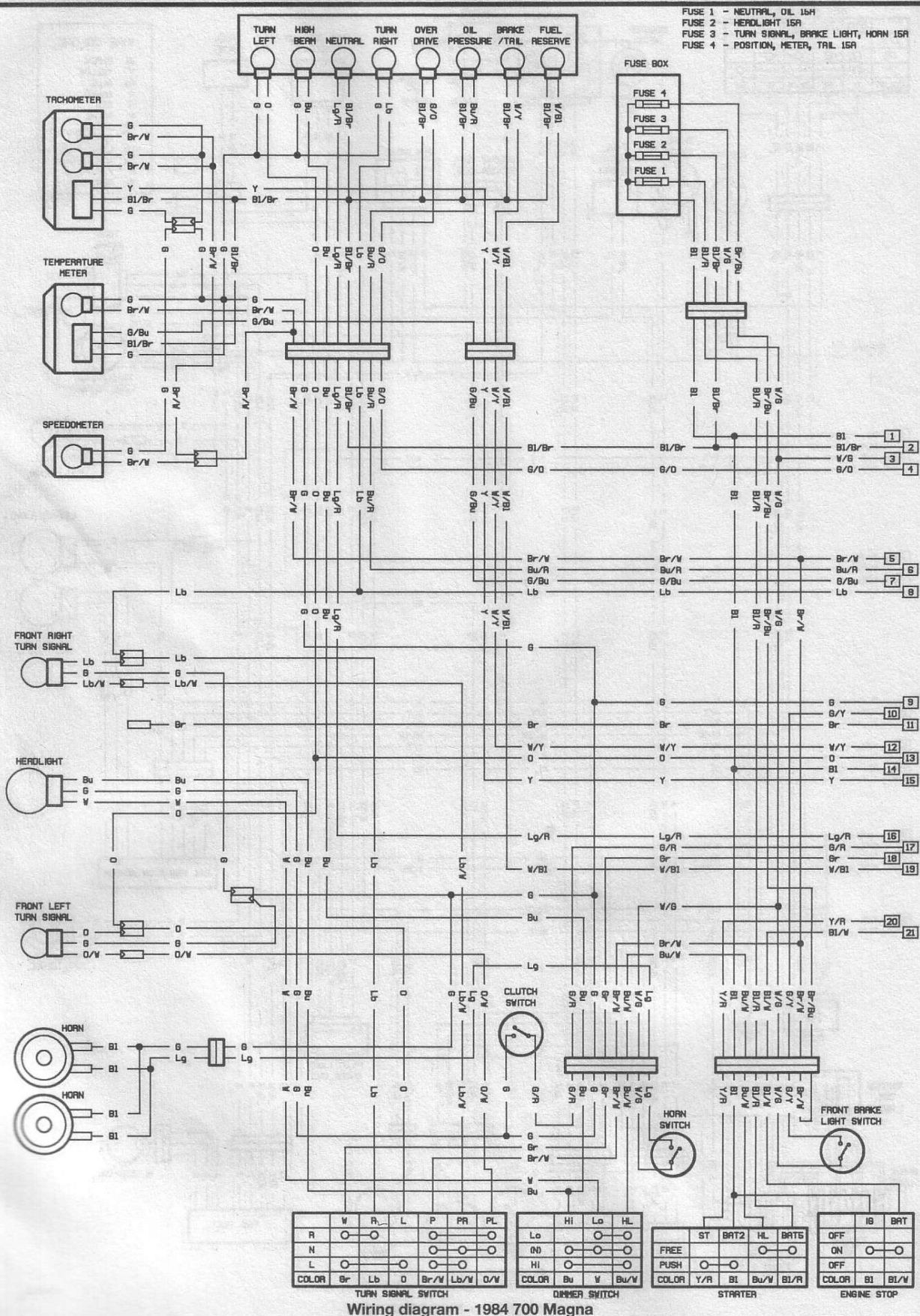
Wiring diagram - VF750S-C UK model

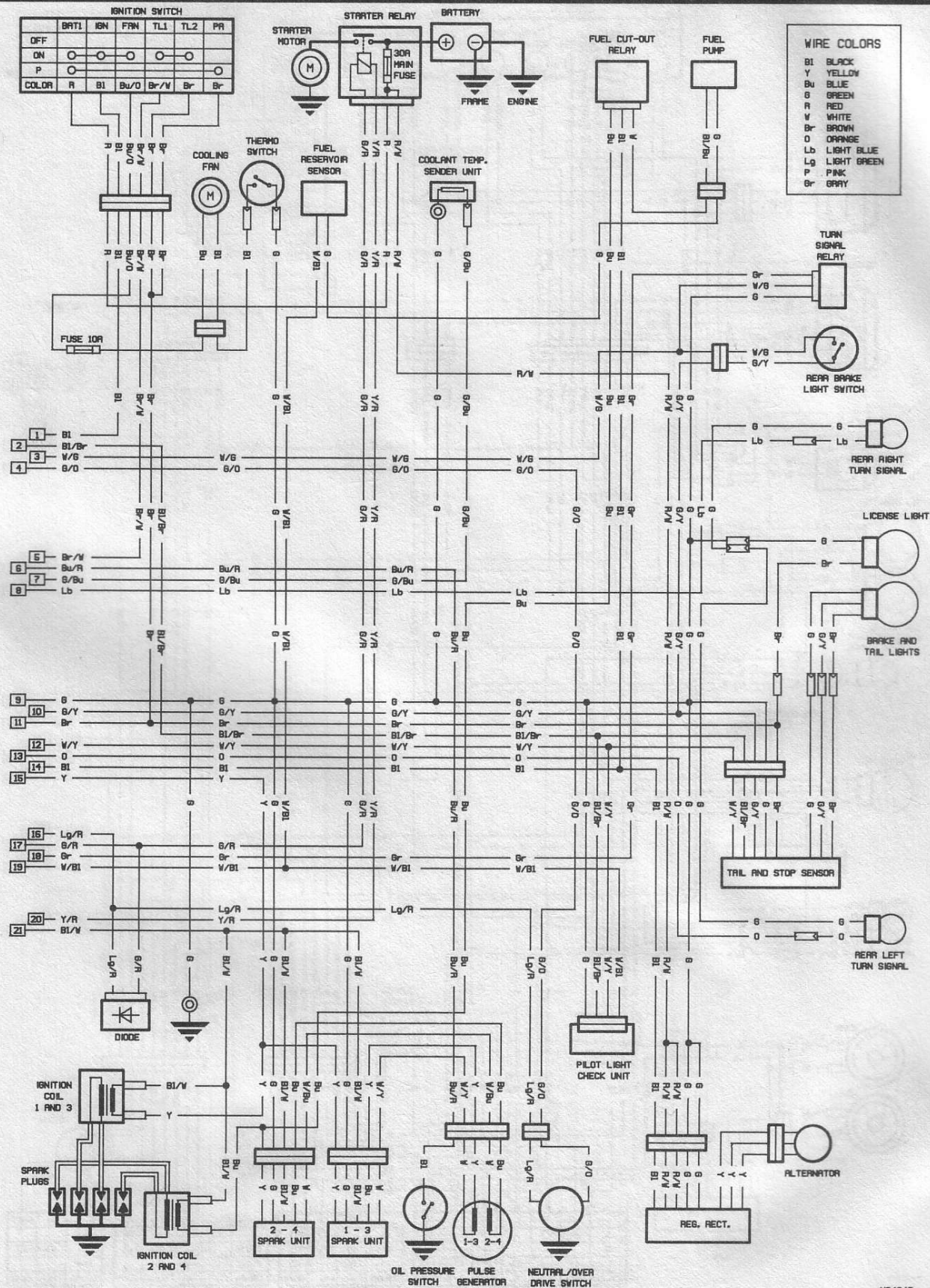


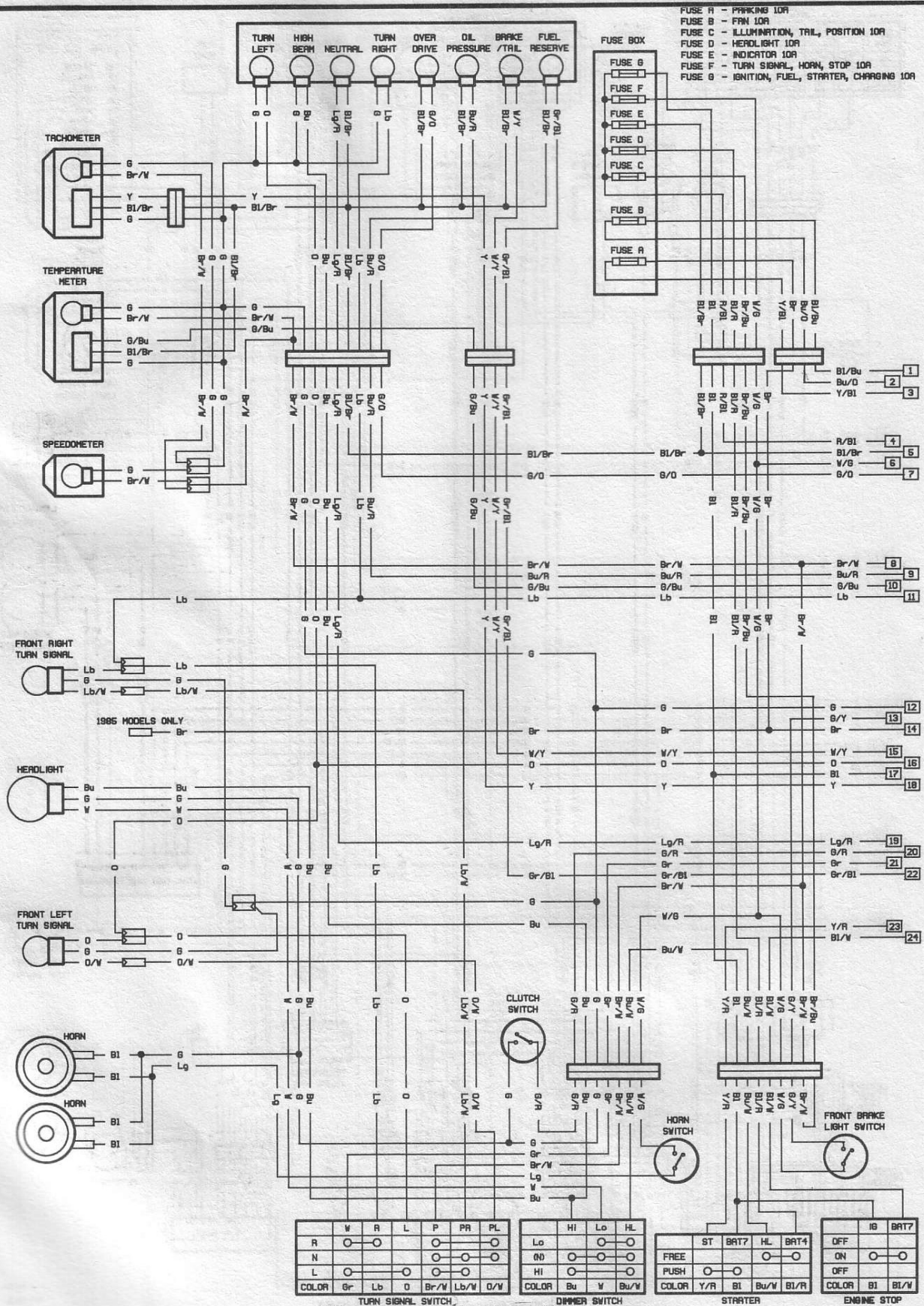
Wiring diagram - 1982 750 Magna

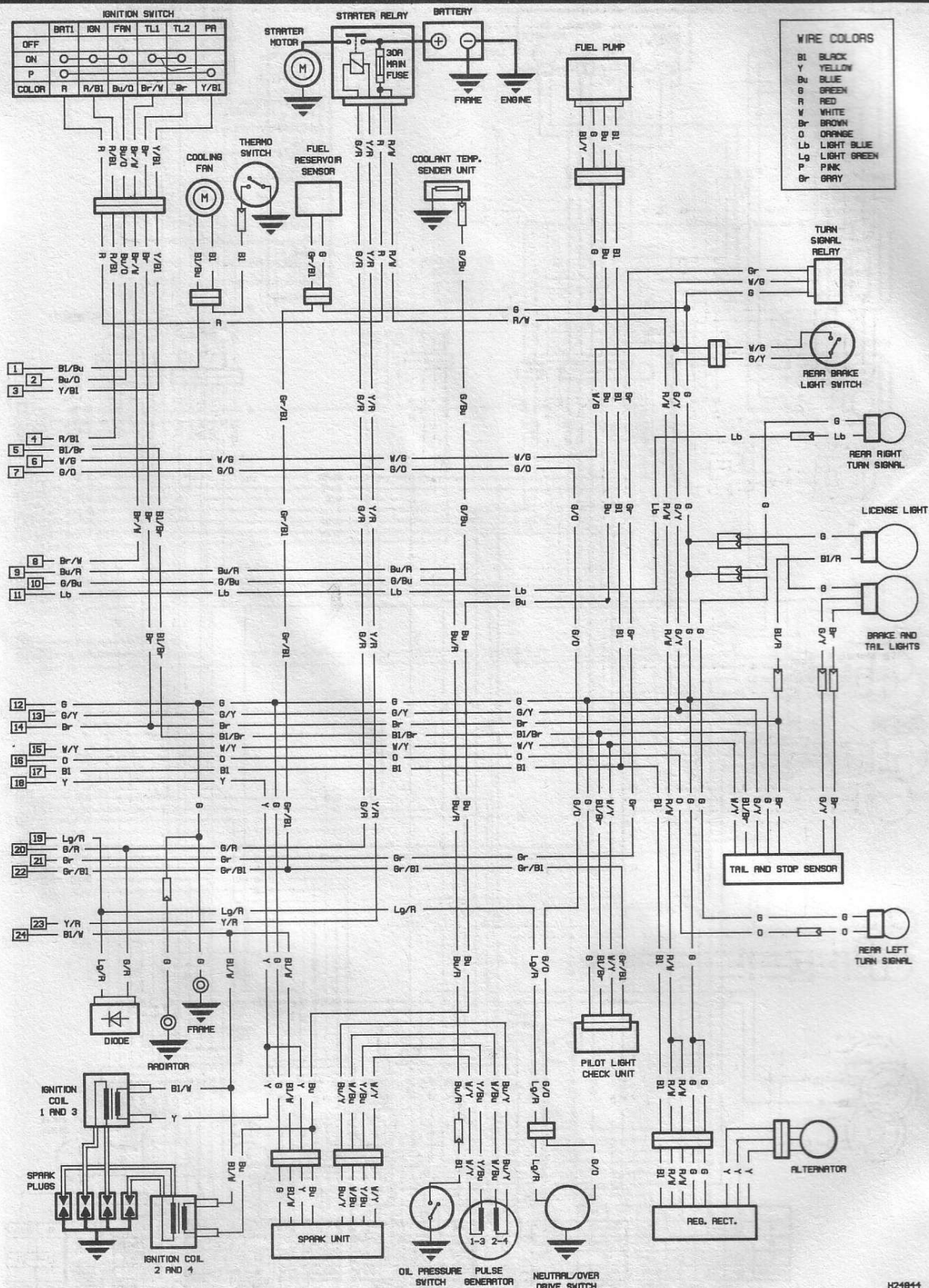


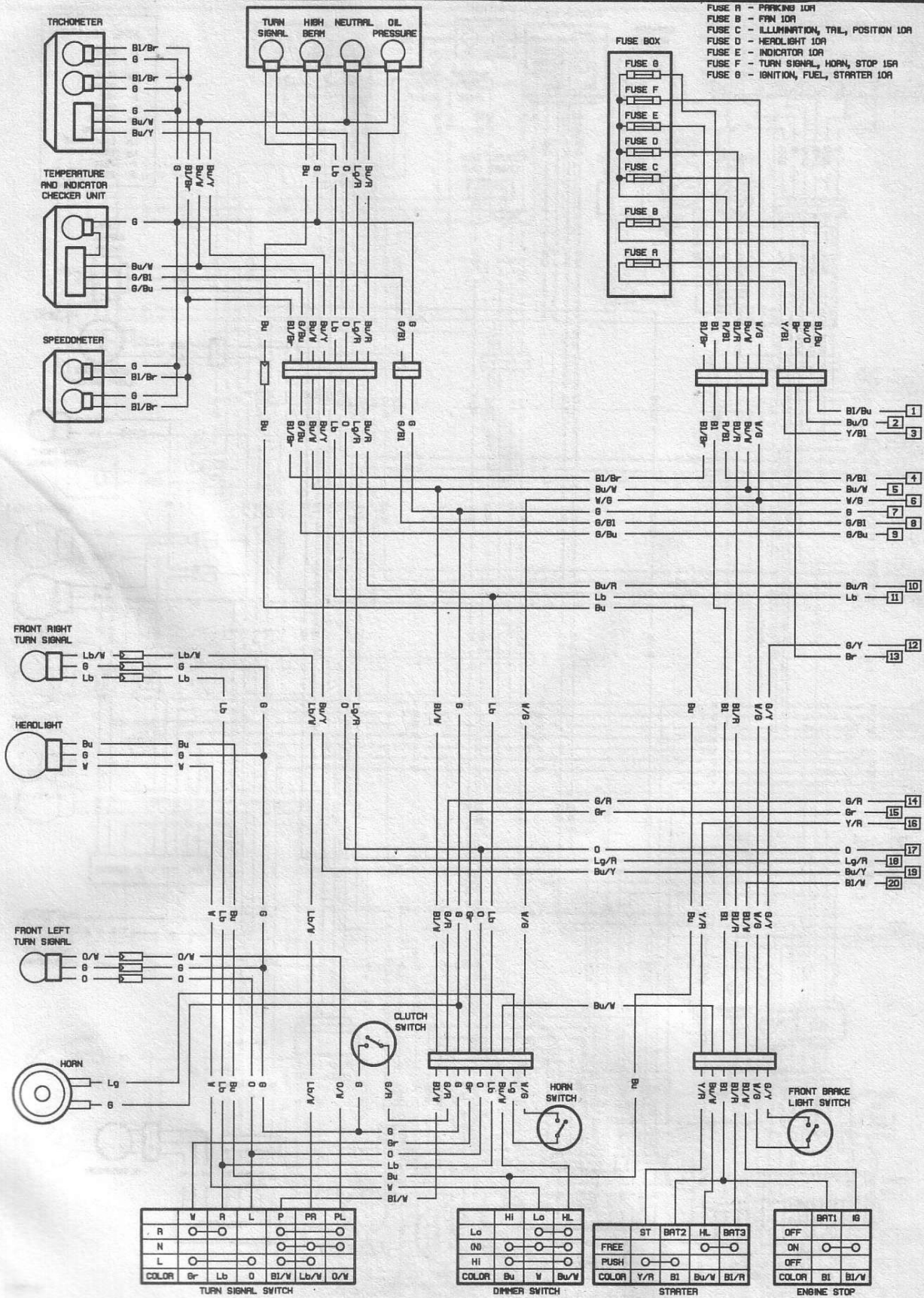








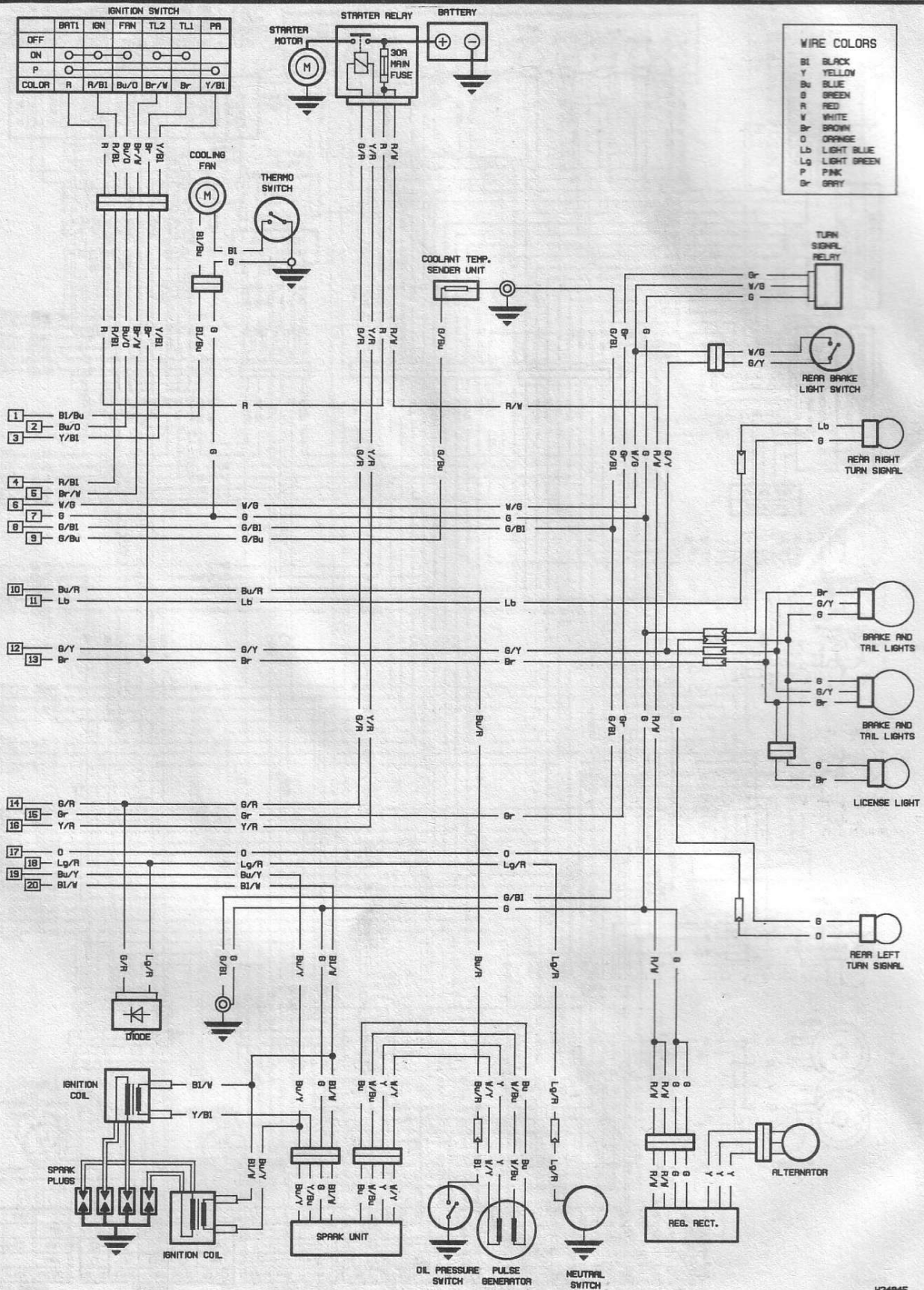




Wiring diagram - 1987 and 1988 700/750 Magnas

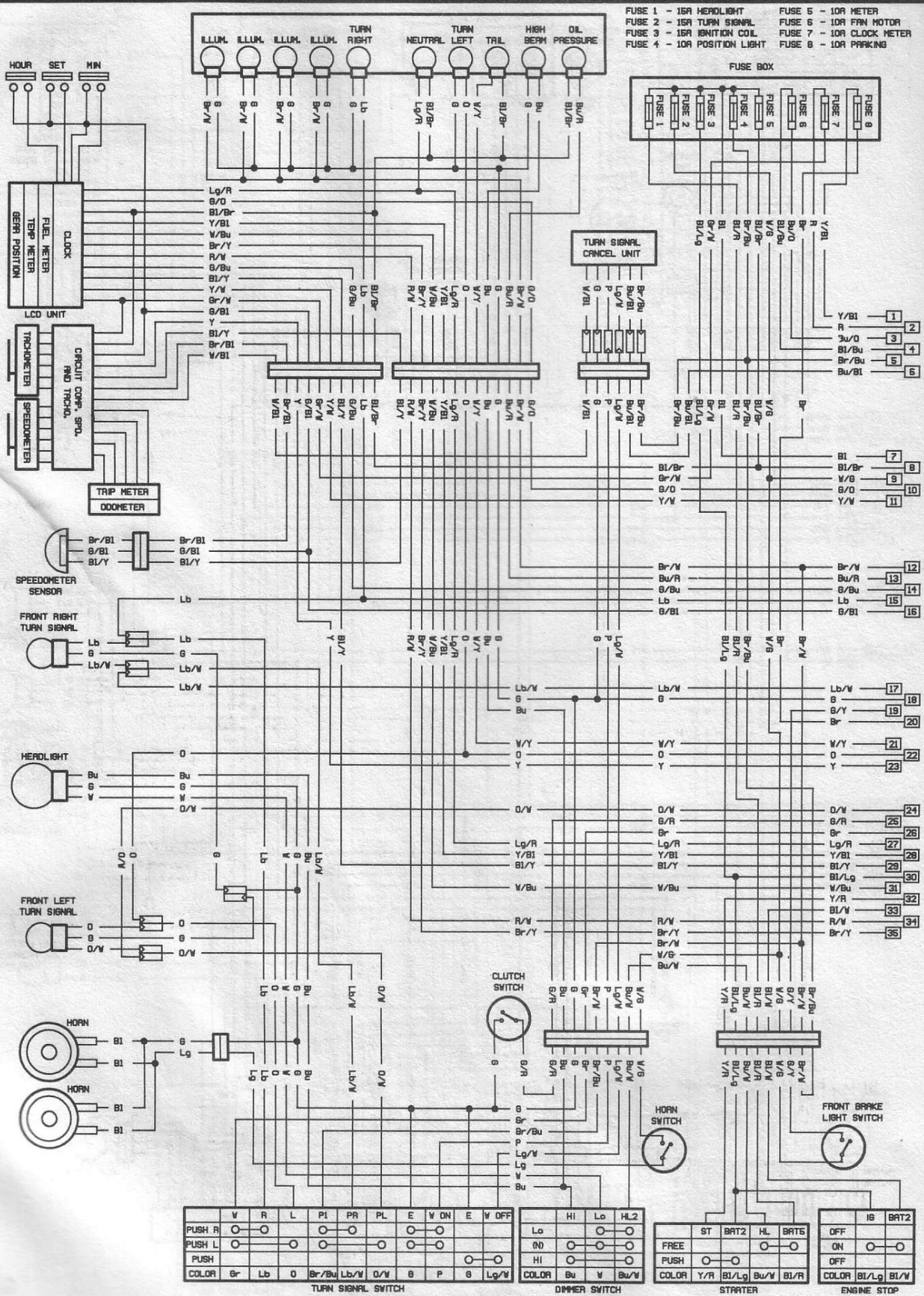


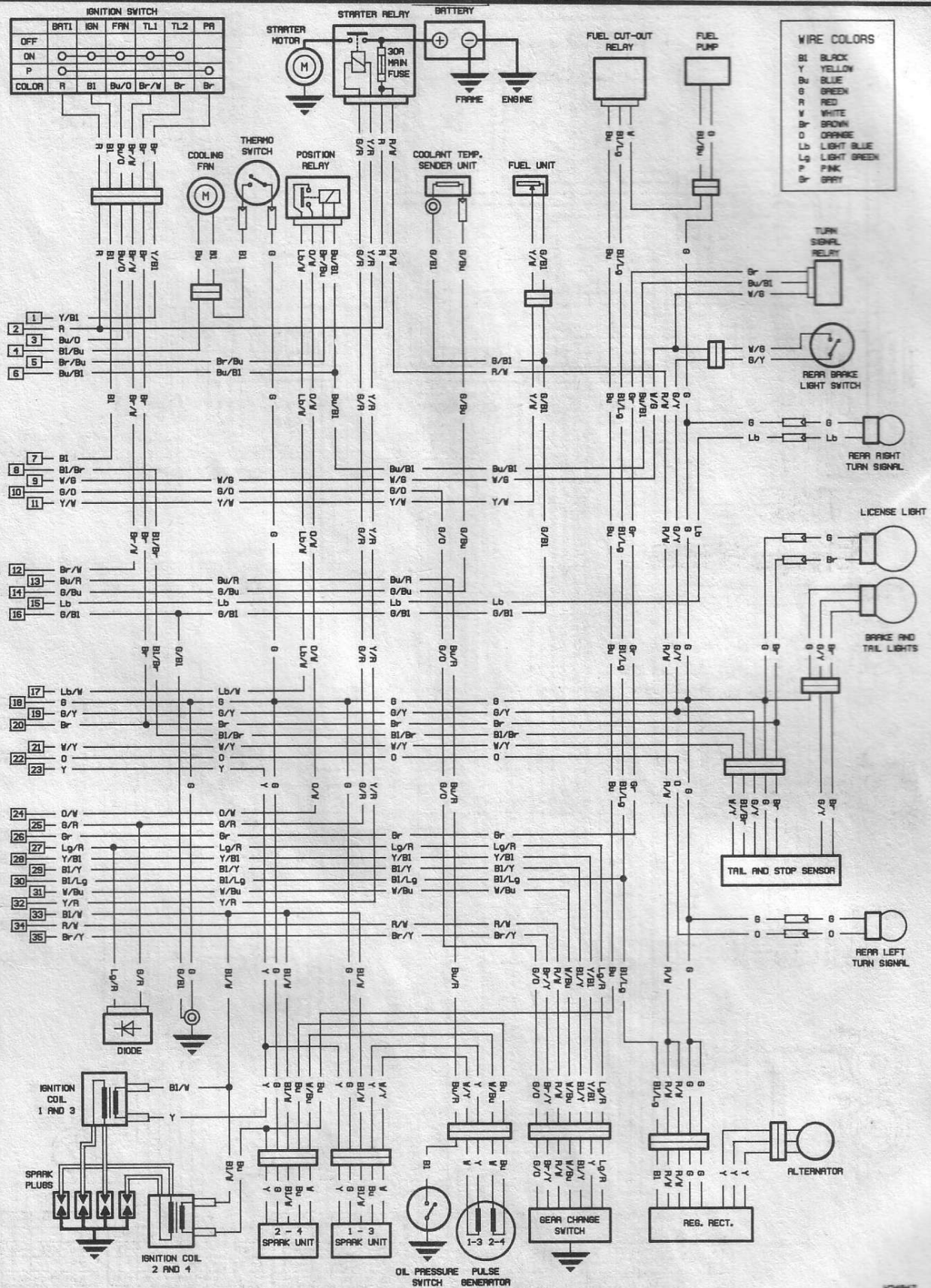




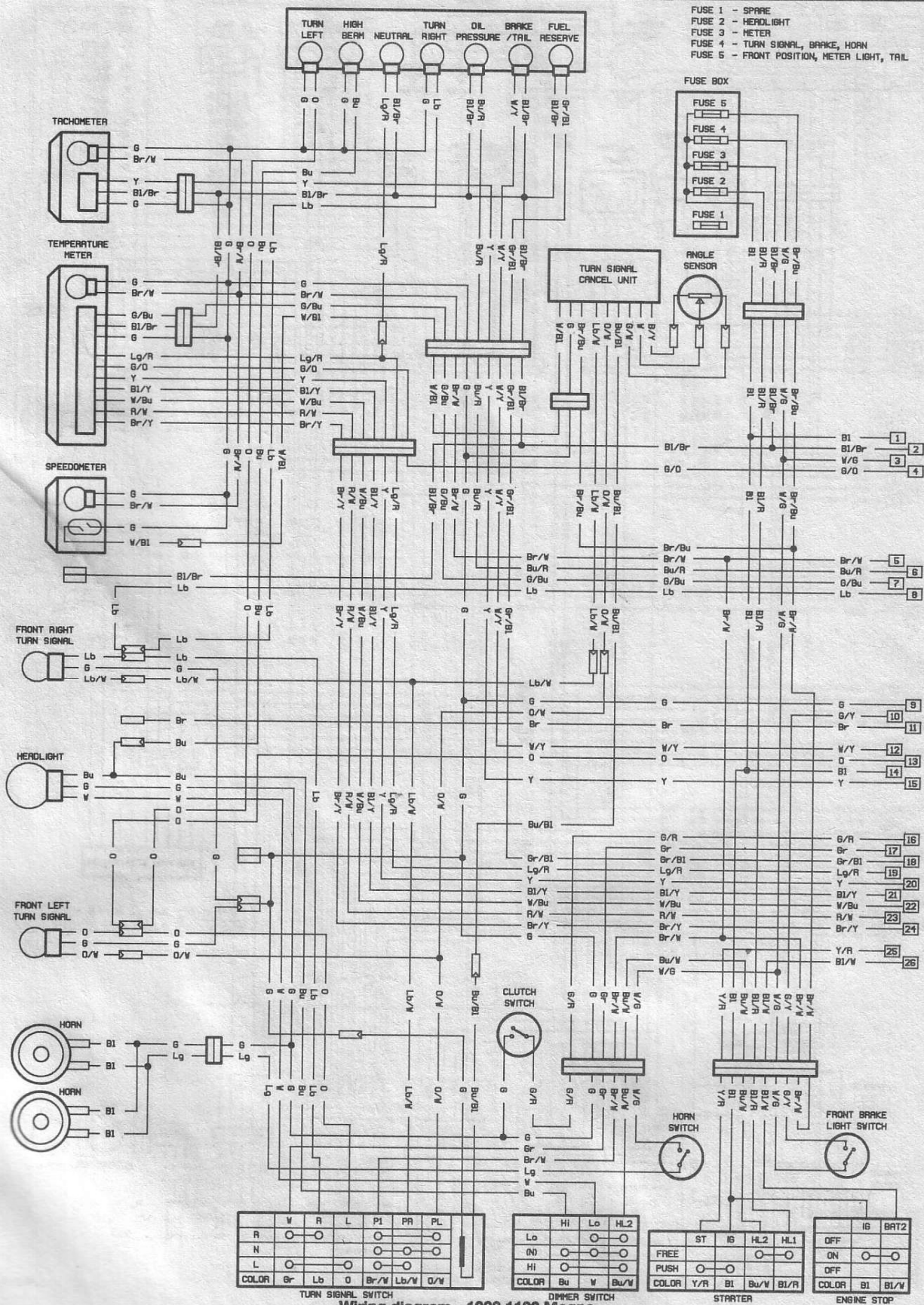
Wiring diagram - VF750C-H/C-J Customs

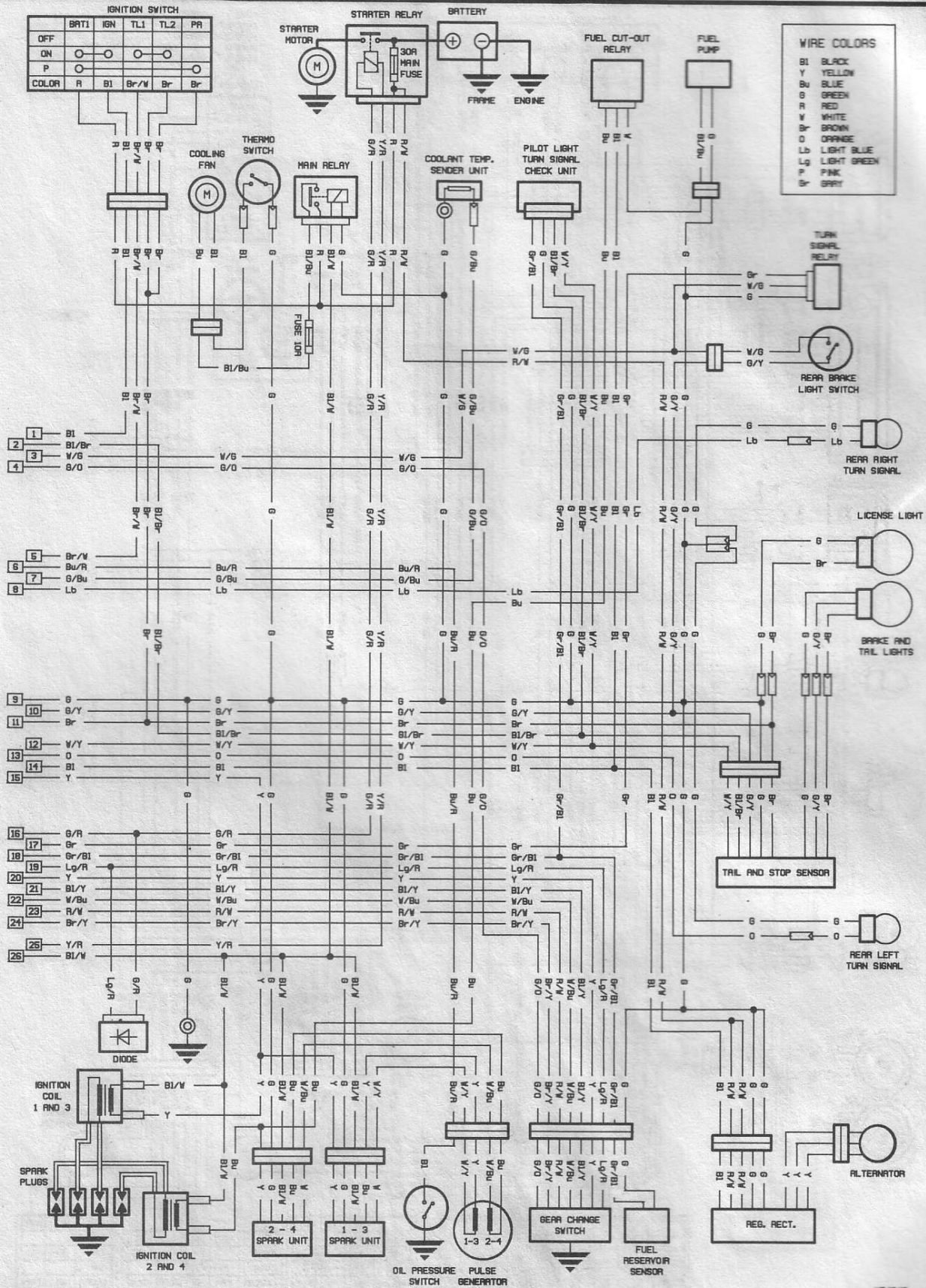
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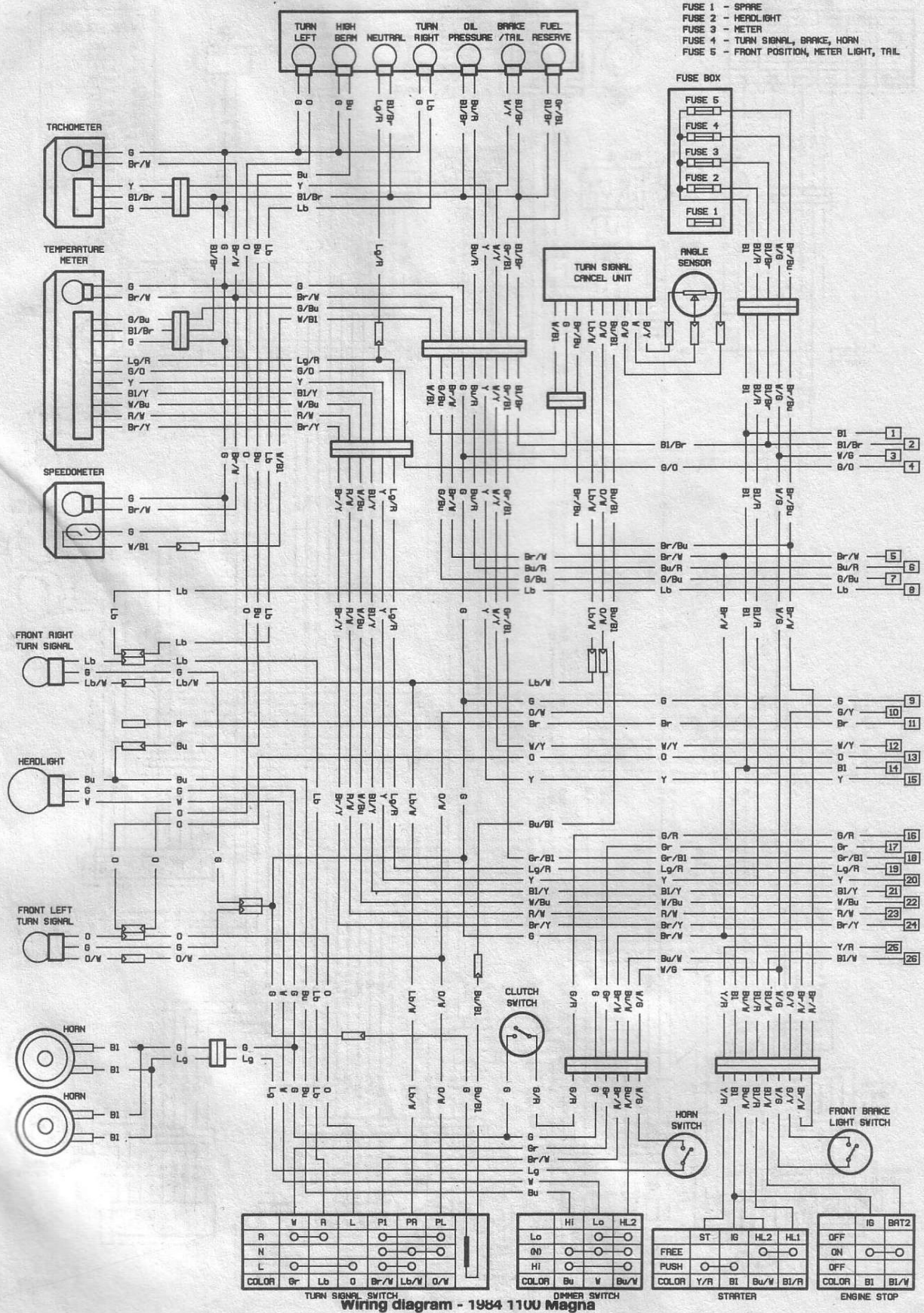


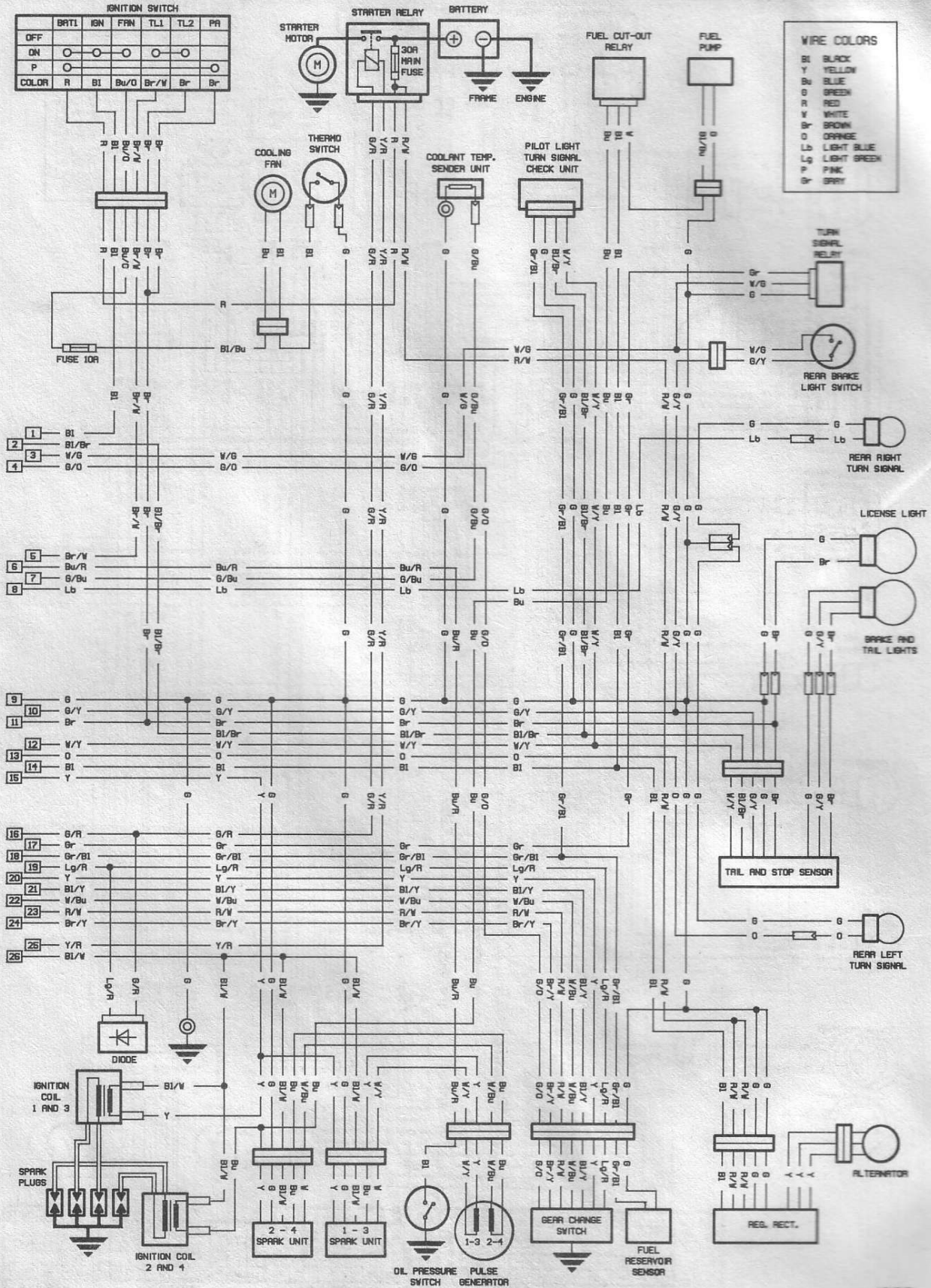
Wiring diagram - 1984/85 1100 Sabre

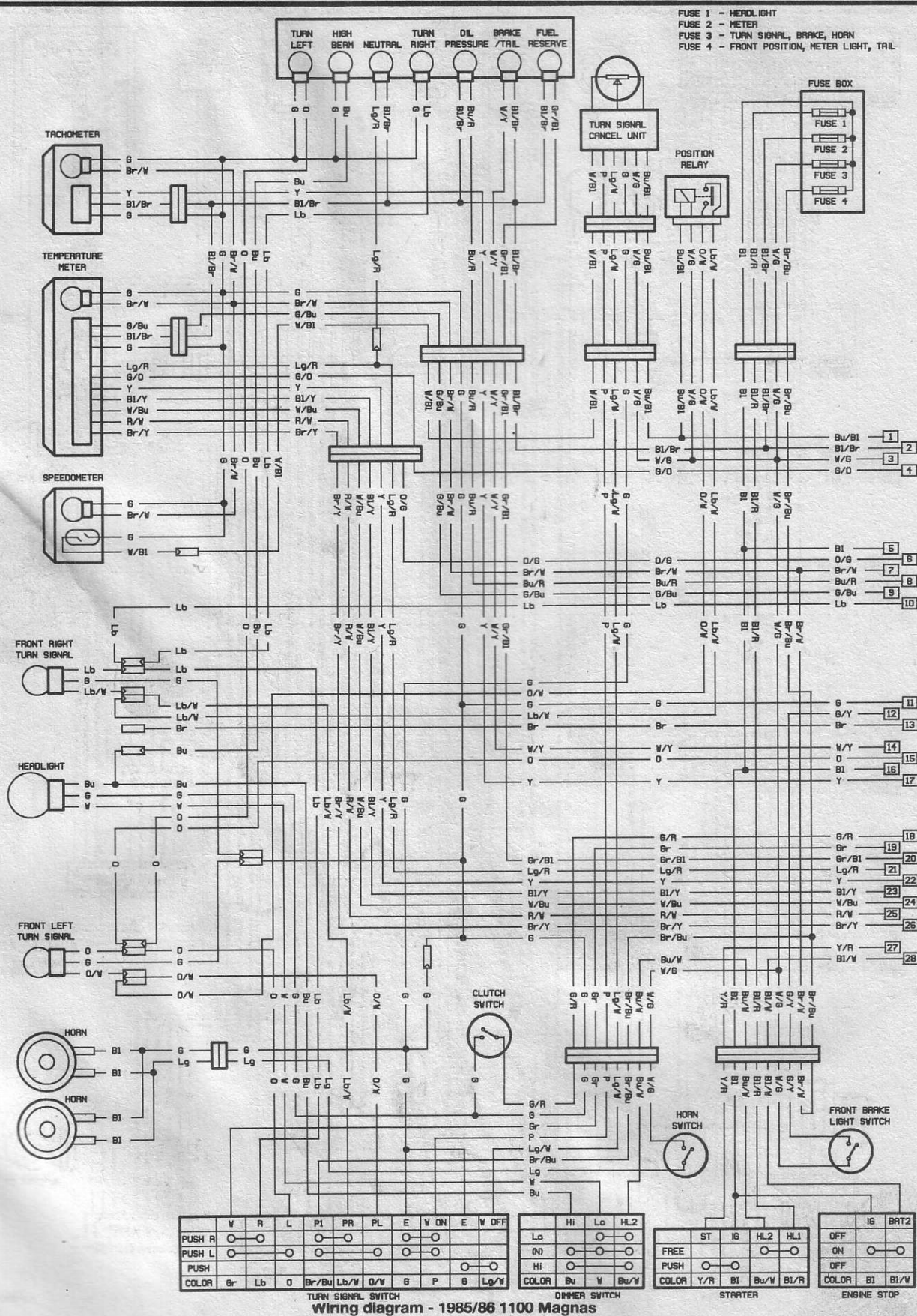


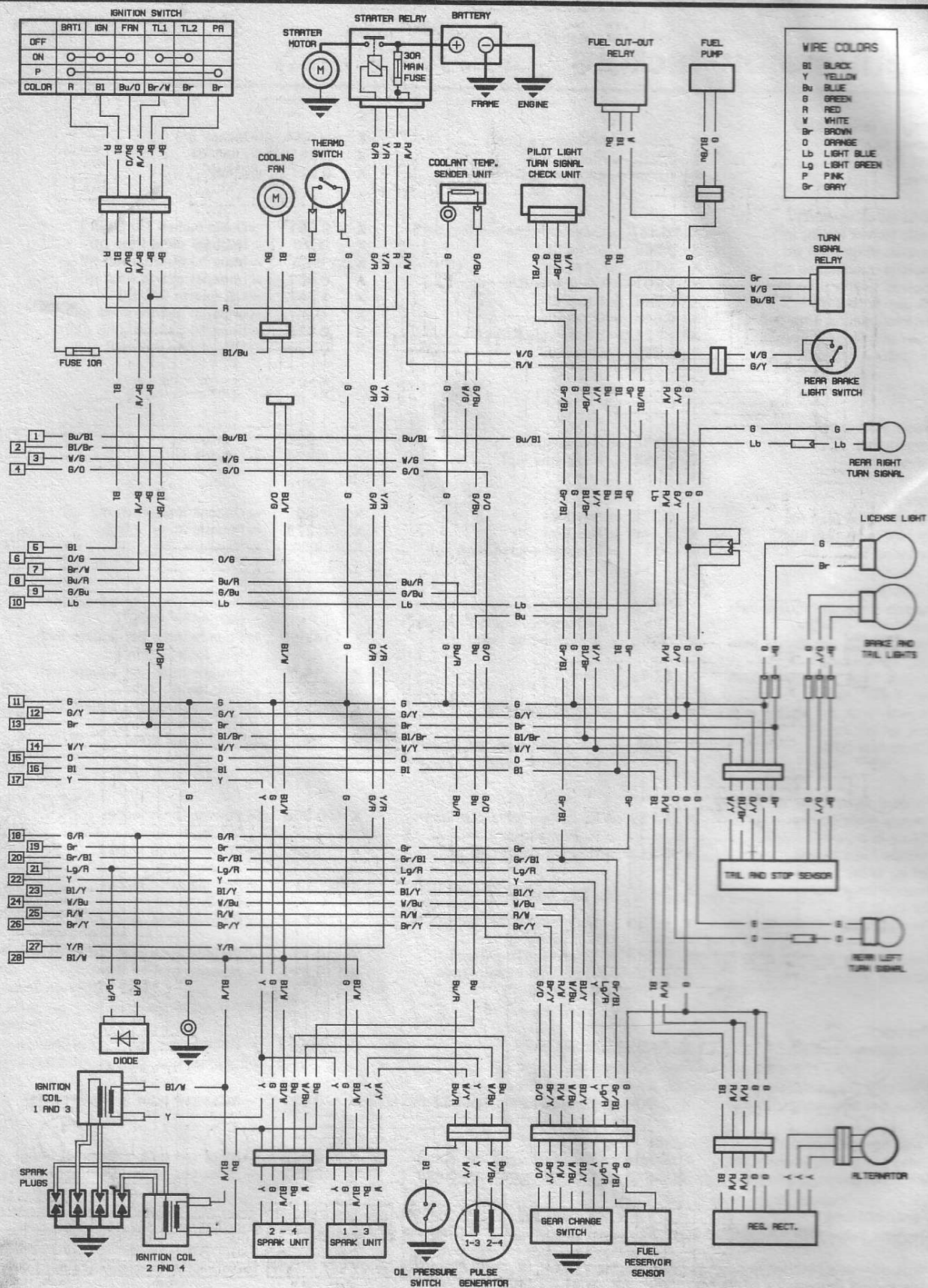


Wiring diagram - 1983 1100 Magna









Conversion factors

Length (distance)

Inches (in)	X 25.4 = Millimetres (mm)	X 0.0394 = Inches (in)
Feet (ft)	X 0.305 = Metres (m)	X 3.281 = Feet (ft)
Miles	X 1.609 = Kilometres (km)	X 0.621 = Miles

Volume (capacity)

Cubic inches (cu in; in ³)	X 16.387 = Cubic centimetres (cc; cm ³)	X 0.061 = Cubic inches (cu in; in ³)
Imperial pints (Imp pt)	X 0.568 = Litres (l)	X 1.76 = Imperial pints (Imp pt)
Imperial quarts (Imp qt)	X 1.137 = Litres (l)	X 0.88 = Imperial quarts (Imp qt)
Imperial quarts (Imp qt)	X 1.201 = US quarts (US qt)	X 0.833 = Imperial quarts (Imp qt)
US quarts (US qt)	X 0.946 = Litres (l)	X 1.057 = US quarts (US qt)
Imperial gallons (Imp gal)	X 4.546 = Litres (l)	X 0.22 = Imperial gallons (Imp gal)
Imperial gallons (Imp gal)	X 1.201 = US gallons (US gal)	X 0.833 = Imperial gallons (Imp gal)
US gallons (US gal)	X 3.785 = Litres (l)	X 0.264 = US gallons (US gal)

Mass (weight)

Ounces (oz)	X 28.35 = Grams (g)	X 0.035 = Ounces (oz)
Pounds (lb)	X 0.454 = Kilograms (kg)	X 2.205 = Pounds (lb)

Force

Ounces-force (ozf; oz)	X 0.278 = Newtons (N)	X 3.6 = Ounces-force (ozf; oz)
Pounds-force (lbf; lb)	X 4.448 = Newtons (N)	X 0.225 = Pounds-force (lbf; lb)
Newtons (N)	X 0.1 = Kilograms-force (kgf; kg)	X 9.81 = Newtons (N)

Pressure

Pounds-force per square inch (psi; lbf/in ² ; lb/in ²)	X 0.070 = Kilograms-force per square centimetre (kgf/cm ² ; kg/cm ²)	X 14.223 = Pounds-force per square inch (psi; lbf/in ² ; lb/in ²)
Pounds-force per square inch (psi; lbf/in ² ; lb/in ²)	X 0.068 = Atmospheres (atm)	X 14.696 = Pounds-force per square inch (psi; lbf/in ² ; lb/in ²)
Pounds-force per square inch (psi; lbf/in ² ; lb/in ²)	X 0.069 = Bars	X 14.5 = Pounds-force per square inch (psi; lbf/in ² ; lb/in ²)
Pounds-force per square inch (psi; lbf/in ² ; lb/in ²)	X 6.895 = Kilopascals (kPa)	X 0.145 = Pounds-force per square inch (psi; lbf/in ² ; lb/in ²)
Kilopascals (kPa)	X 0.01 = Kilograms-force per square centimetre (kgf/cm ² ; kg/cm ²)	X 98.1 = Kilopascals (kPa)

Torque (moment of force)

Pounds-force inches (lbf in; lb in)	X 1.152 = Kilograms-force centimetre (kgf cm; kg cm)	X 0.868 = Pounds-force inches (lbf in; lb in)
Pounds-force inches (lbf in; lb in)	X 0.113 = Newton metres (Nm)	X 8.85 = Pounds-force inches (lbf in; lb in)
Pounds-force inches (lbf in; lb in)	X 0.083 = Pounds-force feet (lbf ft; lb ft)	X 12 = Pounds-force inches (lbf in; lb in)
Pounds-force feet (lbf ft; lb ft)	X 0.138 = Kilograms-force metres (kgf m; kg m)	X 7.233 = Pounds-force feet (lbf ft; lb ft)
Pounds-force feet (lbf ft; lb ft)	X 1.356 = Newton metres (Nm)	X 0.738 = Pounds-force feet (lbf ft; lb ft)
Newton metres (Nm)	X 0.102 = Kilograms-force metres (kgf m; kg m)	X 9.804 = Newton metres (Nm)

Power

Horsepower (hp)	X 745.7 = Watts (W)	X 0.0013 = Horsepower (hp)
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Velocity (speed)

Miles per hour (miles/hr; mph)	X 1.609 = Kilometres per hour (km/hr; kph)	X 0.621 = Miles per hour (miles/hr; mph)
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Fuel consumption*

Miles per gallon, Imperial (mpg)	X 0.354 = Kilometres per litre (km/l)	X 2.825 = Miles per gallon, Imperial (mpg)
Miles per gallon, US (mpg)	X 0.425 = Kilometres per litre (km/l)	X 2.352 = Miles per gallon, US (mpg)

Temperature

Degrees Fahrenheit = (°C x 1.8) + 32	Degrees Celsius (Degrees Centigrade; °C) = (°F - 32) x 0.56
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*It is common practice to convert from miles per gallon (mpg) to litres/100 kilometres (l/100km), where mpg (Imperial) x 1/100 km = 282 and mpg (US) x 1/100 km = 235