Chapter 12
Body electrical system

Contents

Degrees of difficulty

Easy, suitable for novice with little experience 

Fairly easy, suitable for beginner with some experience 

Fairly difficult, suitable for competent DIY mechanic 

Difficult, suitable for experienced DIY mechanic 

Very difficult, suitable for expert DIY or professional 

Specifications

General

System type	12-volt negative earth

Fuses (early models)

No	Circuit protected	Rating (amp)
1	Reverse light, cooling fan relay, tachometer (GTI)	10
2	Accessories, indicators, fuel gauge, warning lights, heater blower motor	25
3	Ignition switch, wash/wipe system, stop-lights, tachometer (non-GTI option), radio, heated rear window, electric window relay (option), clock illumination (GTI).	25
4	Central door locking (option)	10
5	Cooling fan	25
6	Hazard warning switch	10
7	Spare	-
8	Cigarette lighter, clock, interior lights, glovebox illumination, radio	20
9	Electric front windows	25
10	Heated rear window, horns	20
11	Rear foglight	5
12	Side/tail lights/warning light, instrument panel illumination, number plate lights	5
13	(In-line) fuel pump (GTI)	25

Fuses (1986 to 1988 GTI and CTI models)

No	Circuit protected	Rating (amp)
1	Reversing lights, tachometer	10
2	Direction indicators, heater blower motor, oil pressure gauge, oil temperature gauge, heated seats, fuel gauge, coolant temperature gauge, low battery charge warning, oil pressure warning, brake system warning, coolant temperature warning, low coolant level warning	25
3	Windscreen wiper/washer, stop-lights, headlight washer, radio, accessories	25
4	Spare	-
5	Hazard warning	10
6	Spare	-
7	Cigarette lighter, clock, interior lights, boot light, central door locking, radio	25
8	Horns	25
9	Electrically-operated windows	20
10	Rear foglight	5
11	Tail light (RH), number plate light	5
12	Tail light (LH)	5
13	Instrument panel illumination, side lights	5
14	Fuel pump	15

Fuses (1988 to 1989 models, except GTI and CTI)

No	Circuit protected	Rating (amp)
1	Reversing lights	10
2	Direction indicators, heater blower motor, ignition warning light	25
3	Fuel gauge, stop-lights, front and rear wash/wipe, tachometer, headlight wash, radio, storage tray light, warning lights (coolant temperature, oil pressure, coolant level, handbrake, choke)	25
4	Spare	-
5	Hazard warning	10
6	Spare	-
7	Cigarette lighter, clock, interior lights, boot light, central door locking, radio	25
8	Horns, heated rear window	25
9	Electrically-operated windows	20
10	Rear fog light	5
11	Tail lights, number plate light	5
12	Spare	-
13	Instrument panel illumination, side lights	5
14	Fuel pump	15

Fuses (1988 to 1989 GTI and CTI models)

No	Circuit protected	Rating (amp)
1	Reversing lights, tachometer	10
2	Direction indicators, heater blower motor, oil pressure gauge, oil temperature gauge, heated seats, fuel gauge, coolant temperature gauge, low battery charge warning, oil pressure warning, brake system warning, coolant temperature warning, low coolant level warning	25
3	Front and rear wash/wipe, stop-lights, headlight washer, radio, accessories, storage tray light, map reading light	25
4	Spare	-
5	Hazard warning	10
6	Spare	-
7	Cigarette lighter, clock, interior lights, boot light, central door locking, radio	20
8	Horns, heated rear window	25
9	Electrically-operated windows	20
10	Rear foglight	5
11	Tail light, number plate light	5
12	Spare	5
13	Instrument panel illumination, side lights	5
14	Fuel pump	15

Fuses (1989 to 1991 - all models)

No	Circuit protected	Rating (amp)
1	Reversing lights, tachometer, fuel gauge, warning lights (low battery charge, coolant temperature, oil pressure, low coolant level, brake system, choke).	10
2	Direction indicators, gauges (fuel, oil temperature, coolant temperature, oil pressure), heater blower motor, warning lights (low battery charge, coolant temperature, oil pressure, low coolant level, brake system, choke)	25
3	Map reading light, stop-lights, windscreen and tailgate wash/wipe, tachometer, radio, glovebox light, electric windows, heated rear window	25
4	Driving lights	15
5	Hazard warning lights	10
6	Spare	-
7	Cigarette lighter, clock, interior lights, luggage compartment light, central locking, radio, power feed to tow bar	25
8	Horn, heated rear window	25
9	Electric windows	20
10	Rear fog light	5
11	Tail lights, number plate lights	5
12	Spare	-
13	Instrument panel illumination, side lights	5
14	Electric fuel pump	15

Fuses (1991 models onward)

No	Circuit protected	Rating (amp)
1	Reversing lights, tachometer, fuel gauge, warning lights (low battery charge, coolant temperature, oil pressure, low coolant level, brake system, choke).	10
2	Direction indicators, gauges (fuel, oil temperature, coolant temperature, oil pressure), heater blower motor, warning lights (low battery charge, coolant temperature, oil pressure, low coolant level, brake system, choke, ABS)	25
3	Map reading light, stop-lights, windscreen and tailgate wash/wipe, tachometer, radio, glovebox light, heated rear window	25
4	Driving lights	15
5	Hazard warning lights	10
6	Spare	-
7	Clock, interior lights, luggage compartment light, central locking, radio, power feed to tow bar	25
8	Horn, heated rear window, cigarette lighter	30
9	Electric windows	20
10	Rear fog lights	5
11	Tail lights	5
12	Spare	-
13	Instrument panel illumination, side lights	5
14	Electric fuel pump	15

Fuses in engine compartment

Circuit protected	Rating (amp)
ABS	30
Power supply to ABS electronic control unit	15
Cooling fan	30
Oxygen sensor	10

Bulbs

	Wattage
Headlights:	
Non-GTI	45/40
GTI	H4 (60/55)
Front parking lights	5
Direction indicator lights	21
Front driving light (GTI)	H3 (55)
Tail/stop-lights	5/21
Reverse light	21
Rear foglights	21
Interior light	5
Number plate lights	5

1 General information and precautions

General information

The electrical system is of 12-volt negative earth type. Power for the lights and all electrical accessories is supplied by a lead/acid battery which is charged by the alternator.

This Chapter covers repair and service procedures for the various electrical components and systems generally not associated with the engine. Information on the battery, ignition system, alternator, and starter motor can be found in the relevant Parts of Chapter 5.

Precautions

Warning: Before carrying out any work on the electrical system, read through the precautions given in "Safety first!" at the beginning of this manual and in Chapter 5.

Caution: Prior to working on any component in the electrical system, the battery negative lead should first be disconnected, to prevent the possibility of electrical short-circuits and/or fires. If a radio/cassette player with anti-theft security code is fitted, refer to the information given in the reference sections of this manual before disconnecting the battery.

2 Electrical fault finding - general information

Note*: Refer to the precautions given in "Safety first!" and in Section 1 of this Chapter before starting work. The following tests relate to testing of the main electrical circuits, and should not be used to test delicate electronic circuits, particularly where an electronic control unit is used.*

General

1 A typical electrical circuit consists of an electrical component, any switches, relays, motors, fuses, fusible links or circuit breakers related to that component, and the wiring and connectors which link the component to both the battery and the chassis. To help to pinpoint a problem in an electrical circuit, wiring diagrams are included at the end of this manual.

2 Before attempting to diagnose an electrical fault, first study the appropriate wiring diagram, to obtain a complete understanding of the components included in the particular circuit concerned. The possible sources of a fault can be narrowed down by noting if other components related to the circuit are operating properly. If several components or circuits fail at one time, the problem is likely to be related to a shared fuse or earth connection.

3 Electrical problems usually stem from simple causes, such as loose or corroded connections, a faulty earth connection, a blown fuse, a melted fusible link, or a faulty relay. Visually inspect the condition of all fuses, wires and connections in a problem circuit before testing the components. Use the wiring diagrams to determine which terminal connections will need to be checked in order to pinpoint the trouble-spot.

4 The basic tools required for electrical fault-finding include a circuit tester or voltmeter (a 12-volt bulb with a set of test leads can also be used for certain tests); an ohmmeter (to measure resistance and check for continuity); a battery and set of test leads; and a jumper wire, preferably with a circuit breaker or fuse incorporated, which can be used to bypass suspect wires or electrical components. Before attempting to locate a problem with test instruments, use the wiring diagram to determine where to make the connections.

5 To find the source of an intermittent wiring fault (usually due to a poor or dirty connection, or damaged wiring insulation), a "wiggle" test can be performed on the wiring. This involves wiggling the wiring by hand to see if the fault occurs as the wiring is moved. It should be possible to narrow down the source of the fault to a particular section of wiring. This method of testing can be used in conjunction with any of the tests described in the following sub-Sections.

6 Apart from problems due to poor connections, two basic types of fault can occur in an electrical circuit - open-circuit, or short-circuit.

7 Open-circuit faults are caused by a break somewhere in the circuit, which prevents current from flowing. An open-circuit fault will prevent a component from working.

8 Short-circuit faults are caused by a "short" somewhere in the circuit, which allows the current flowing in the circuit to "escape" along an alternative route, usually to earth. Short-circuit faults are normally caused by a breakdown in wiring insulation, which allows a feed wire to touch either another wire, or an earthed component such as the bodyshell. A short-circuit fault will normally cause the relevant circuit fuse to blow.

Finding an open-circuit

9 To check for an open-circuit, connect one lead of a circuit tester or the negative lead of a voltmeter either to the battery negative terminal or to a known good earth.

10 Connect the other lead to a connector in the circuit being tested, preferably nearest to the battery or fuse. At this point, battery voltage should be present, unless the lead from the battery or the fuse itself is faulty (bearing in mind that some circuits are live only when the ignition switch is moved to a particular position).

11 Switch on the circuit, then connect the tester lead to the connector nearest the circuit switch on the component side.

12 If voltage is present (indicated either by the tester bulb lighting or a voltmeter reading, as applicable), this means that the section of the circuit between the relevant connector and the switch is problem-free.

13 Continue to check the remainder of the circuit in the same fashion.

14 When a point is reached at which no voltage is present, the problem must lie between that point and the previous test point with voltage. Most problems can be traced to a broken, corroded or loose connection.

Finding a short-circuit

15 To check for a short-circuit, first disconnect the load(s) from the circuit (loads are the components which draw current from a circuit, such as bulbs, motors, heating elements, etc).

16 Remove the relevant fuse from the circuit, and connect a circuit tester or voltmeter to the fuse connections.

17 Switch on the circuit, bearing in mind that some circuits are live only when the ignition switch is moved to a particular position.

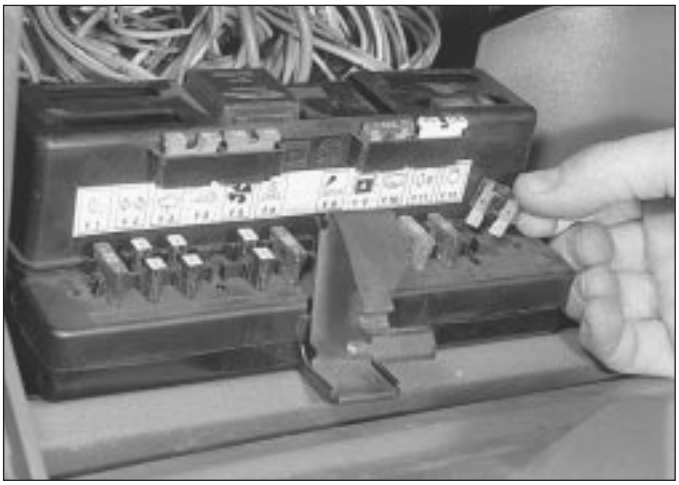
18 If voltage is present (indicated either by the tester bulb lighting or a voltmeter reading, as applicable), this means that there is a short-circuit.

19 If no voltage is present during this test, but the fuse still blows with the load(s) reconnected, this indicates an internal fault in the load(s).

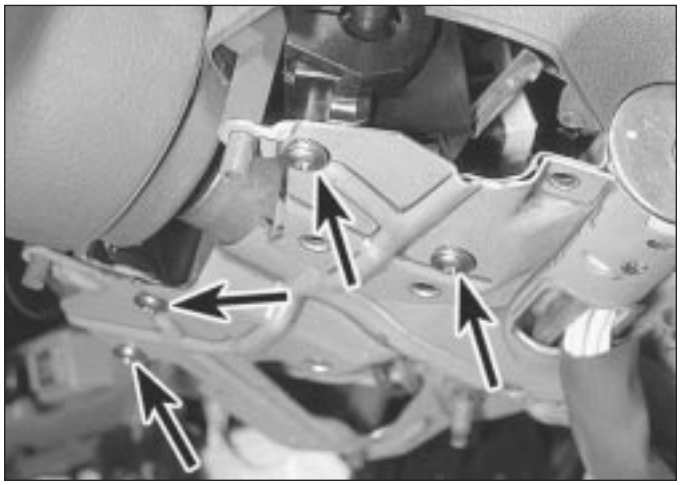
Finding an earth fault

20 The battery negative terminal is connected to "earth" - the metal of the engine/transmission and the vehicle body - and many systems are wired so that they only receive a positive feed, the current returning via the metal of the car body. This means that the component mounting and the body form part of that circuit. Loose or corroded mountings can therefore cause a range of electrical faults, ranging from total failure of a circuit, to a puzzling partial failure. In particular, lights may shine dimly (especially when another circuit sharing the same earth point is in operation), motors (eg wiper motors or the radiator cooling fan motor) may run slowly, and the operation of one circuit may have an apparently-unrelated effect on another. Note that on many vehicles, earth straps are used between certain components, such as the engine/transmission and the body, usually where there is no metal-to-metal contact between components, due to flexible rubber mountings, etc.

21 To check whether a component is properly earthed, disconnect the battery and connect one lead of an ohmmeter to a known good earth point. Connect the other lead to the wire or earth connection being tested. The resistance reading should be zero; if not, check the connection as follows.



3.4 Removing a fuse



4.4 Combination switch screws (arrowed)

22 If an earth connection is thought to be faulty, dismantle the connection, and clean both the bodyshell and the wire terminal (or the component earth connection mating surface) back to bare metal. Be careful to remove all traces of dirt and corrosion, then use a knife to trim away any paint, so that a clean metal-to-metal joint is made. On reassembly, tighten the joint fasteners securely; if a wire terminal is being refitted, use serrated washers between the terminal and the bodyshell, to ensure a clean and secure connection. When the connection is remade, prevent the onset of corrosion in the future by applying a coat of petroleum jelly or silicone-based grease, or by spraying on (at regular intervals) a proprietary ignition sealer, or a water-dispersant lubricant.

3 Fuses and relays - general information

Fuses

1 The fuse board is located above the glovebox on the left-hand side of the facia.
2 Blade type fuses are used and symbols by the fuses denote the circuit protected.
3 On GTI models an in-line fuse for the fuel pump is located near the rear of the fuse board. The fuse board also incorporates a connector which can be adjusted to supply the radio with negative or positive current according to the polarity of the radio fitted. On later models, additional fuses are located behind the left-hand side of the radiator, on the left-hand side of the bulkhead, and near the horn on 1.9 GTI models.
4 To remove a fuse, first switch off the ignition then open the glovebox. Depress the spring clip and lower the fuse board. Pull the fuse out of its terminals; the wire within the fuse should be visible; if the fuse is blown the wire will be broken or melted **(see illustration)**.
5 Always renew a fuse with one of an identical rating; never use a fuse with a different rating from the original or substitute anything else. Never renew a fuse more than once without tracing the source of the trouble. The fuse rating is stamped on top of the fuse; note that fuses are also colour-coded for easy recognition.
6 Persistent blowing of a particular fuse indicates a fault in the circuit(s) protected. Where more than one circuit is involved, switch on one item at a time until the fuse blows, so showing in which circuit the fault lies.
7 Besides a fault in the electrical component concerned, a blown fuse can also be caused by a short-circuit in the wiring to the component. Look for trapped or frayed wires allowing a live wire to touch vehicle metal, and for loose or damaged connectors.
8 The fuse board is retained at the rear by two plastic ball and socket joints which can be snapped apart to remove the assembly.

Relays

9 A relay is an electrically-operated switch, which is used for the following reasons:
a) A relay can switch a heavy current remotely from the circuit in which the current is flowing, allowing the use of lighter gauge wiring and switch contacts.
b) A relay can receive more than one control input, unlike a mechanical switch.
c) A relay can have a timer function - for example an intermittent wiper delay.
10 If a circuit which includes a relay develops a fault, remember that the relay itself could be faulty. Testing is by substitution of a known good relay. Do not assume that relays which look similar are necessarily identical for purposes of substitution.
11 Relays are incorporated in most circuits and are mounted on the fuse board or within the engine compartment.
12 Make sure that the ignition is switched off, then pull the relay from its socket. Push the new relay firmly in to refit. Refer to the wiring diagram key for a list of relays.

4 Switches - removal and refitting

Steering column combination switches

1 Disconnect the battery negative lead.
2 Remove the steering wheel and column shrouds, with reference to Chapter 10.
3 Disconnect the wiring harness plug.
4 Remove the relevant screws and withdraw the switch from the column platform **(see illustration)**.
5 Refitting is a reversal of removal.

Facia switches (pre-1988 models)

6 Disconnect the battery negative lead.
7 Carefully prise out the switch against the tension of the plastic retaining tabs **(see illustration)**.
8 Disconnect the wiring or multi-plug, noting the fitted location, and remove the switch.
9 Refitting is a reversal of removal.

4.7 Heated rear window switch and cigar lighter removed from facia

4.13a On later models, remove the switch panel lower screws . . .

4.13b Insert lengths of rod into the special holes . . .

4.13c . . . and withdraw the switch panel surround

Facia switches (1988 models onward)

10 Disconnect the battery negative lead.
11 Open the ashtray.
12 Unclip the bottom of the clock surround (where fitted) and remove it.
13 Remove the screws from the bottom of the switch panel, then insert lengths of welding rod (or similar) into the special holes, and remove the switch panel surround **(see illustrations)**.
14 The individual switches may now be removed by inserting two small screwdrivers in the slots on each side of the switch, extracting the switch, and disconnecting the wiring.
15 Refitting is a reversal of removal.

Instrument panel rheostat - removal and refitting

16 Prise the rheostat from the steering column lower shroud, and disconnect the wiring **(see illustration)**.
17 Refitting is a reversal of removal.

Reversing light switch - removal and refitting

18 Disconnect the wiring and unscrew the switch from the top or side of the transmission housing **(see illustration)**. Remove the washer.
19 Refitting is a reversal of removal, but renew the washer if necessary

Courtesy light switch

20 Disconnect the battery negative lead.
21 The switch is secured to the door pillar by a self-tapping screw. Extract the screw and withdraw the switch and leads **(see illustration)**.
22 If the leads are disconnected, tape them to the pillar to prevent them from slipping inside the pillar cavity.
23 It is recommended that the metal contacts of the switch are smeared with petroleum jelly as a precaution against corrosion.
24 Refit by reversing the removal operation.

Glovebox illumination switch

25 Disconnect the battery negative lead.
26 Open the glovebox then reach up and release the switch from the inside of the facia **(see illustration)**.
27 Disconnect the wiring.
28 Refitting is a reversal of removal.

Ignition switch/steering column lock

29 Refer to Chapter 10.

Handbrake warning switch

30 Move the front seats fully forward then remove the screw and lift the cover from the handbrake lever.
31 With the handbrake applied, remove the mounting screw, withdraw the switch and disconnect the wiring **(see illustration)**.
32 Refitting is a reversal of removal.

Brake stop light switch

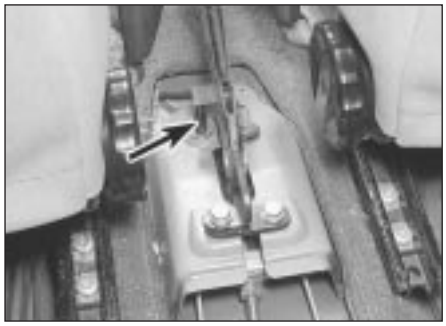
33 Disconnect the battery negative lead.
34 Remove the lower facia panel from the steering column.
35 Disconnect the two wires **(see illustration)**.

4.16 Instrument illumination rheostat

4.18 Reversing light switch location on the BH3 transmission

4.21 Removing a courtesy light switch

4.26 Glovebox illumination switch



4.31 Handbrake warning light switch (arrowed)

4.35 Brake stop light switch wiring connector (arrowed)

36 Unscrew the locknut nearest the pedal, and withdraw the switch from the bracket.
37 Refitting is a reversal of removal, but adjust the locknuts so that the distance between the end of the switch threaded body and the pedal (fully released) is 3.5 mm.

5 Instrument panel - removal and refitting

Removal

Pre-1988 models

1 Disconnect the battery negative lead.
2 On non-GTI models, using an Allen key, unscrew the two upper retaining screws at each end of the panel surround **(see illustration)**.
3 On GTI models, remove the plastic tray from the top of the panel surround by pushing it towards the windscreen to release the securing clips. Unscrew the now-exposed panel surround securing screw.
4 Unscrew the two lower surround retaining screws located either side of the steering column shroud **(see illustration)**.
5 Withdraw the surround from the facia.
6 Pull out the instrument panel while depressing the lower spring supports, then disconnect the multi-plugs and speedometer cable **(see illustrations)**.
7 If necessary, the individual components can be removed for repair or renewal **(see illustrations)**.

1988 models onward

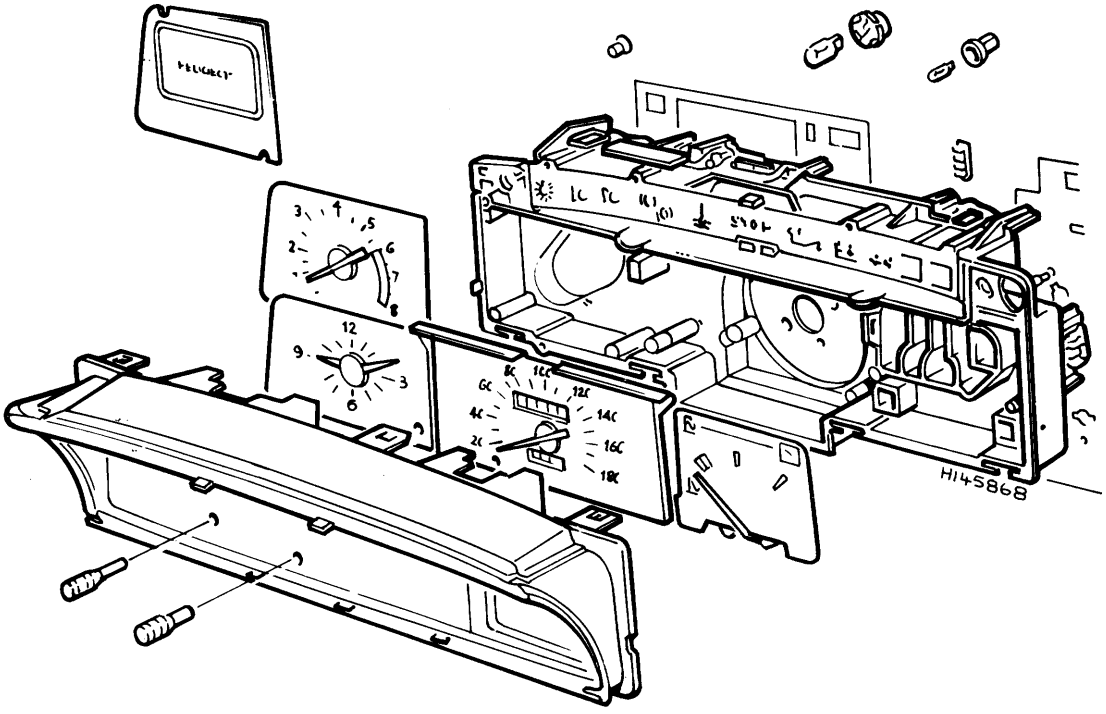
8 Disconnect the battery negative lead.
9 Remove the trapezium-shaped coin compartment or cover from the top of the facia by lifting the bottom edge.
10 Pull off the heater control knobs, using card or thick cloth and pliers on the central bars.
11 Remove the screws beneath the outer control knobs, and withdraw the upper front panel surround.
12 Remove the screws and withdraw the visor trim from the instrument panel.

5.2 Removing the instrument panel upper . . .

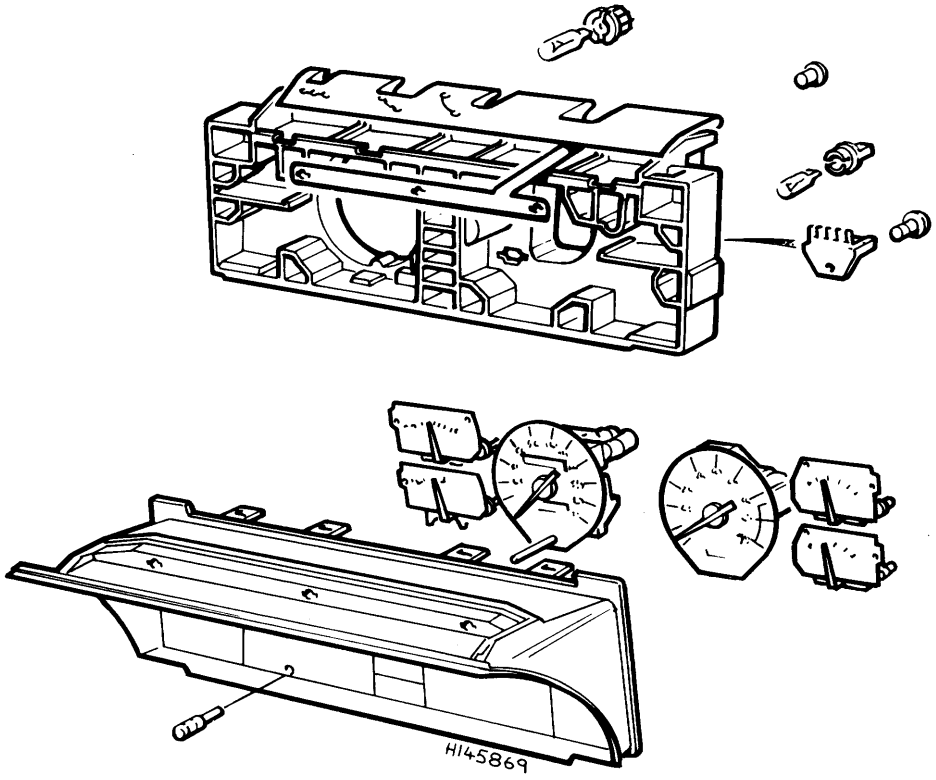
5.4 . . . and lower retaining screws

5.6a Instrument panel spring support

5.6b Instrument panel right-hand upper multiplug



5.7a Exploded diagram of non-GTI instrument panel



5.7b Exploded diagram of GTI instrument panel

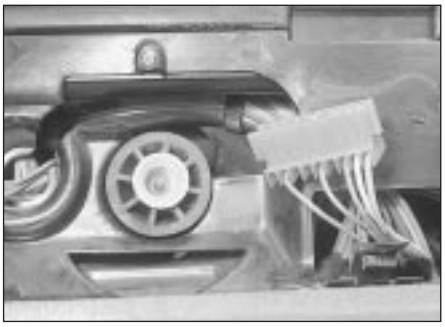
5.16 Removing the instrument panel mounting screws on later models . . .

5.17 . . . and disconnecting the wiring plugs

13 Remove the screws and withdraw the centre vents.
14 Using a screwdriver through the steering column lower shroud, unscrew the visor locating studs.
15 Remove the side screw, then lift away the visor.
16 Remove the mounting screws from each side of the instrument panel **(see illustration)**.
17 Tilt the instrument panel and disconnect the wiring plugs, noting their locations **(see illustration)**.
18 Disconnect the speedometer cable by squeezing the end fitting. Remove the instrument panel. If necessary, the individual components can be removed for repair or renewal.

Refitting

19 On all models, refitting is a reversal of removal.



7.3a Speedometer cable end with instrument panel removed

6 Clock - removal and refitting

Removal

Pre-1988 models

1 Disconnect the battery negative lead.
2 Using a small screwdriver, carefully prise the clock from its location in the facia.
3 Disconnect the clock wiring and remove the unit.

1988 models onward

4 Disconnect the battery negative lead.
5 Remove the trapezium-shaped coin compartment or cover from the top of the facia by lifting the bottom edge.
6 Pull off the heater control knobs, using card or thick cloth and pliers on the central bars.
7 Remove the screws beneath the control knobs, and withdraw the upper front panel surround.
8 Open and remove the ashtray.
9 Unclip the bottom of the clock surround and remove it.
10 Remove the oddments tray, or if fitted, the radio, as described in Section 22.
11 Remove the screws and withdraw the lower front panel surround by releasing the bottom edge first.
12 Disconnect the wiring plug from the rear of the clock, then release the clock from the lower front panel surround.

Refitting

13 On all models, refitting is a reversal of removal.

7 Speedometer cable - renewal

1 Disconnect the speedometer cable from the transmission by removing the retaining bolt or rubber plug.
2 Remove the instrument panel, as described in Section 5.
3 Prise the rubber grommet from the bulkhead beneath the facia **(see illustrations)**.
4 Remove the retaining clips, where fitted, and withdraw the speedometer cable.
5 Refitting is a reversal of removal.

8 Bulbs (exterior lights) - renewal

General

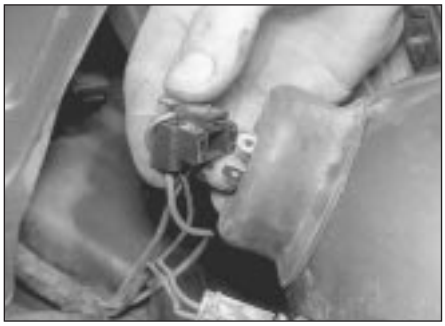
1 With all light bulbs, remember that if they have just been in use, they may be very hot. Switch off the power before renewing a bulb.
2 With quartz halogen bulbs (headlights and similar applications), use a tissue or clean cloth when handling the bulb; do not touch the bulb glass with the fingers. Even small quantities of grease from the fingers will cause blackening and premature failure. If a bulb is accidentally touched, clean it with methylated spirit and a clean rag.
3 Unless otherwise stated, fit the new bulb by reversing the removal operations.

Bulb renewal

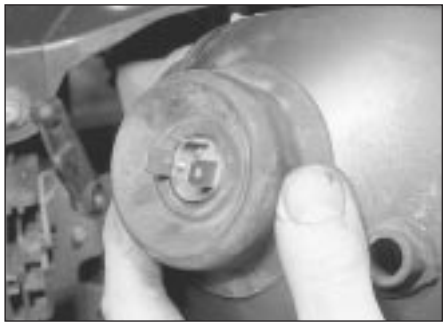
Headlight

4 Where fitted, remove the cover from the rear of the headlight.
5 Pull the connector from the bulb **(see illustration)**.
6 Remove the rubber cover, noting that the water drain hole is at the bottom **(see illustration)**.

7.3b Speedometer cable grommet on the bulkhead



8.5 Pull off the connector . . .



8.6 . . . remove the rubber cover . . .

8.7a . . . release the spring clips . . .

8.7b . . . and withdraw the headlight bulb

8.9 Removing the front parking light bulbholder

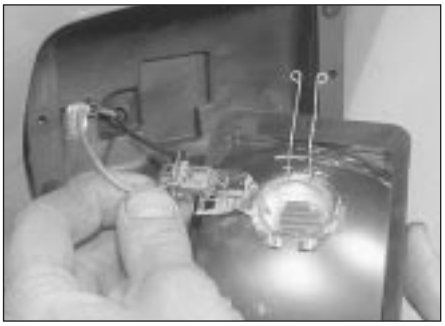
7 Release the spring clips and withdraw the bulb **(see illustrations)**.
8 Fit the new bulb with the locating tab uppermost.

8.10 Remove the front direction indicator light bulbholder . . .

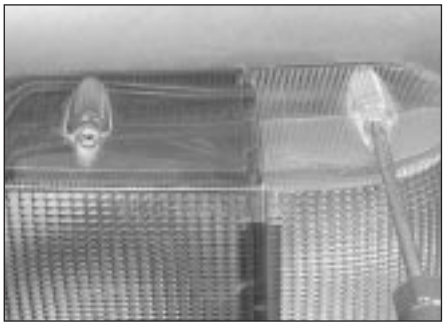
8.11 . . . and extract the bulb

8.12 Removing the front direction indicator side repeater on later models

8.15 On GTI models, remove the driving light lens surround, lens and reflector . . .



8.16 . . . then release the spring clips and remove the bulb assembly



8.18a Remove the rear light cluster screws . . .

8.18b . . . and release the lens from the tabs

Front parking lights

9 Pull the bulbholder from the rear of the headlight then depress and twist the bulb to remove it **(see illustration)**.

Front direction indicator

10 Turn the bulbholder anti-clockwise and withdraw it from the rear of the light **(see illustration)**.
11 Depress and twist the bulb to remove it **(see illustration)**.

Front direction indicator side repeater

12 On early models, reach up behind the front wing, squeeze the plastic tabs together and push out the light. On later models, turn the light anti-clockwise and withdraw it from the front wing **(see illustration)**.
13 Disconnect the wiring, remove the end cap, and extract the bulb:
14 When refitting the early type, position the light so that the location peg enters the hole in the front wing.

Front driving light (GTI models)

15 Remove the two lens surround retaining screws and withdraw the surround, lens and reflector **(see illustration)**.
16 Release the spring clips and remove the bulb assembly **(see illustration)**.
17 Detach the bulb feed wire at the connector.

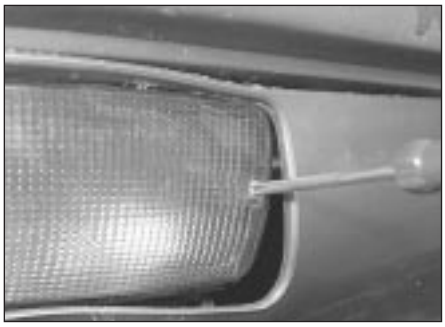
Rear light cluster bulbs

18 Remove the lens upper retaining screws then tilt the lens back and release it from the lower tabs **(see illustrations)**.
19 Depress and twist the bulb to remove it **(see illustration)**.

Rear foglight

20 Remove the screws and withdraw the lens **(see illustration)**.

8.19 Removing a rear light cluster bulb



8.20 Remove the rear foglight lens . . .

8.21 . . . and extract the bulb

8.22 Remove the rear number plate light lens . . .

8.23 . . . and extract the bulb

21 Depress and twist the bulb to remove it **(see illustration)**.

Number plate light

22 Twist off the lens **(see illustration)**.

9.3 Prise out the interior light for access to the bulb

23 Depress and twist the bulb to remove it **(see illustration)**.

Reversing light (1991 models onward)

24 On later models, a single reversing light is mounted in the rear valance, instead of the twin lights in the rear light clusters fitted to previous models.

25 Bulb renewal is as described previously for the rear foglight bulb.

9 Bulbs (interior lights) - renewal

General

1 See Section 8, paragraphs 1 and 3.

2 Some switch illumination/pilot bulbs are integral with their switches and cannot be renewed separately.

Bulb renewal

Interior light

3 Prise the light from the console **(see illustration)**.

4 Extract the festoon type bulb from within the light unit.

Map reading light

5 Prise the light from the console and extract the festoon type bulb **(see illustration)**.

Instrument panel bulbs

6 Remove the instrument panel, as described in Section 5.

7 Two types of bulb are fitted. Pull out the square type bulbholder and remove the wedge type bulb **(see illustration)**. Twist the round type bulbholder through 90° to remove it, but on this type the bulb cannot be separated from the holder.

Glovebox light

8 On pre-1988 models, remove the switch, with reference to Section 4, then depress and twist the bulb to remove it.

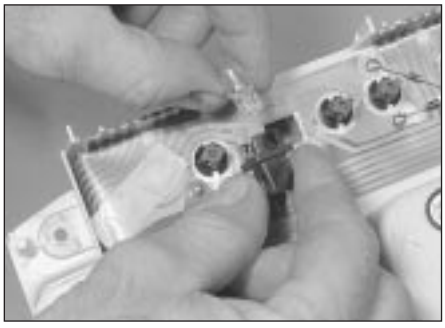
9 On 1988 models onward, open the glovebox and prise out the light. Remove the festoon-type bulb from the terminals.

Clock illumination bulb

10 Remove the clock as described in Section 6.

11 Twist the bulbholder from the rear of the clock, then remove the bulb from the holder **(see illustration)**.

9.5 Removing the map reading light and extract the bulb



9.7 Removing square type instrument panel bulbholder

9.11 Removing digital clock illumination light bulb

9.13 Heater control panel illumination light bulb (arrowed) on early models

Heater control panel illumination bulbs (pre-1988 models)

12 Remove the facia centre air vents, with reference to Chapter 11.

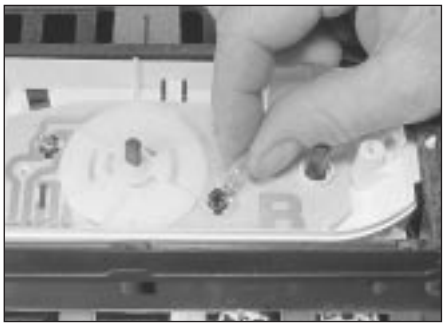
13 Pull the bulbholder from the rear of the panel and extract the bulb **(see illustration)**.

Heater control panel illumination bulbs (1988 models onward)

14 Disconnect the battery negative lead.

15 Remove the trapezium-shaped coin compartment or cover from the top of the facia by lifting the bottom edge.

10.3 Releasing the headlight spring clips



9.18 Removing the heater control panel illumination bulb on later models

16 Pull off the heater control knobs, using card or thick cloth and pliers on the central bars.

17 Remove the screws beneath the control knobs, and withdraw the upper front panel surround.

18 Pull the bulb from the control panel **(see illustration)**.

10 Headlight unit - removal and refitting

Removal

1 Remove the headlight and front parking light bulbs (see Section 8).

2 Remove the front radiator grille as described in Chapter 11.

3 Release the spring clips from the pivot pins on each side of the headlight **(see illustration)**.

4 Press the load level adjustment arm from the lever ball and withdraw the headlight.

Refitting

5 Refitting is a reversal of removal.

11 Front direction indicator light unit - removal and refitting

Removal

1 Remove the headlight, as described in Section 10.

2 Remove the indicator bulb (see Section 8).

3 Remove the screw securing the light to the headlight adjustment assembly and withdraw the light unit **(see illustrations)**.

Refitting

4 Refitting is a reversal of removal.

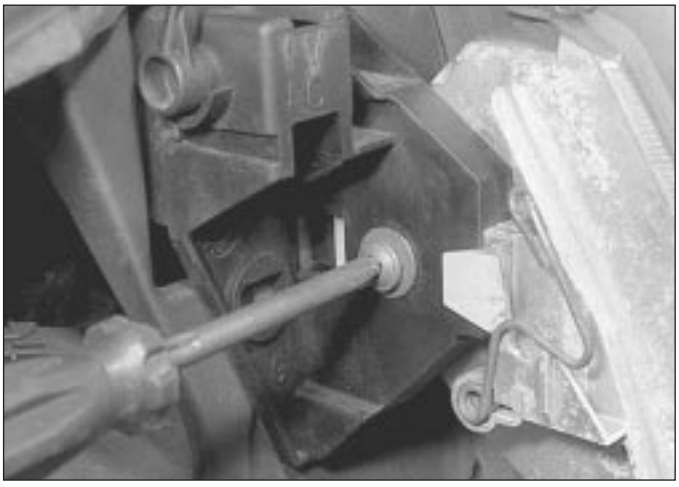
12 Headlight beam alignment - checking and adjusting

It is recommended that beam alignment is be carried out by a Peugeot dealer or other specialist heaving the necessary optical alignment equipment.

Each headlight incorporates a manual adjustment to compensate for different loads. If this fails to provide the correct beam, emergency adjustment is possible by turning the screw in the top of the manual adjustment for vertical movement, and the knob at the rear of the headlight for horizontal movement.

13 Dim-dip lighting system - general information

All models manufactured from late 1986 are fitted with a dim-dip lighting system, which essentially prevents the vehicle from being driven with the sidelights alone switched on.



11.3a Remove the headlight adjustment assembly screw . . .

11.3b . . . and withdraw the front direction indicator light unit

14.2a Unscrew the nut . . .

14.2b . . . and remove the wiper arm

When the ignition is switched on with the sidelights also switched on, the relay is energised, closing the internal contacts and supplying current to the dipped beam circuit via the resistor. This causes the dip filaments in the headlights to be illuminated at one-sixth dipped beam brightness. The relay winding is earthed through the headlight main beam filaments, so that the relay is de-energised when the main beam is switched on.

14 Wiper arms - removal and refitting

Removal

1 Before removing a wiper arm, stick some masking tape to the screen glass, along the edge of the blade so that its position on the glass can be restored when the arm is being refitted to its spindle splines.
2 Flip up the plastic cover, unscrew the nut and pull the arm from the spindle **(see illustrations)**.

Refitting

3 Refitting is a reversal of removal, but align the blade with the tape on the glass before pushing the arm home.

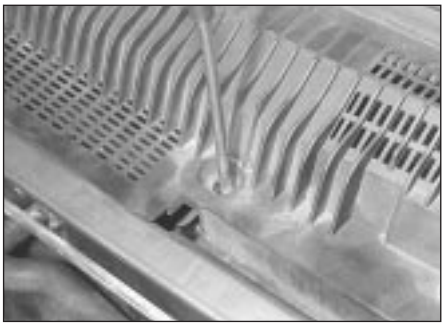
15 Windscreen wiper motor and linkage - removal and refitting

Removal

1 Remove the wiper arms, as described in Section 14.
2 Disconnect the battery negative lead.
3 Open the bonnet then remove the air inlet grille by removing the screws and easing the grille from the windscreen weatherstrip **(see illustration)**.
4 Unscrew the nuts from the wiper spindle bodies **(see illustration)**.
5 Disconnect the wiper motor wiring connector.
6 Unscrew the mounting bolt and disengage the wiper motor from the upper location pins.
7 The motor can be separated from the linkage by removing the nut securing the crank to the spindle.

Refitting

8 Refitting is a reversal of removal, but use a screwdriver to lift the weatherstrip as the grille is inserted.



15.3 Removing the air intake grille screws

15.4 Wiper spindle body

16 Tailgate wiper motor - removal and refitting

Removal

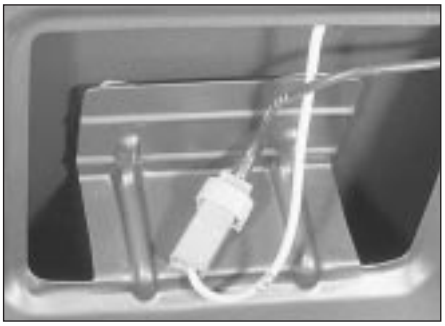
1 Remove the wiper arm, as described in Section 14.
2 Remove the tailgate trim, with reference to Chapter 11.
3 Disconnect the battery negative lead.
4 Disconnect the wiring and the relay wiring connector **(see illustrations)**.
5 Unscrew the spindle nut and remove the spacer and washer.
6 Unscrew the mounting bolts and withdraw the motor assembly, noting the location of the washers and earth wires **(see illustration)**.
7 The relay can be removed by removing the mounting screw.

Refitting

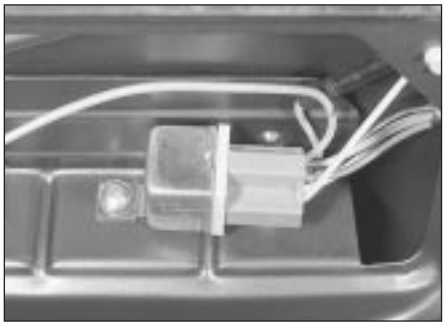
8 Refitting is a reversal of removal.

17 Washer system - general information

The washer fluid reservoir is located in the left-hand front corner of the engine compartment with the bulk of the unit below



16.4a Tailgate wiper motor wiring connection . . .



16.4b . . . and wiper motor relay

16.6 Tailgate wiper motor and mounting bolts

20.3 Horn and mounting nut

22.3 Removing the radio on early models

22.6 Removing the radio side trims on later models

the wheel arch. The reservoir supplies both the windscreen and tailgate jets. On some models a headlight washer system is installed with the reservoir in the right-hand front corner of the engine compartment.

The washer jets are adjustable by inserting a pin into their nozzles and moving them to give an acceptable pattern on the glass.

The use of a good quality screen wash product is recommended. In winter add some methylated spirit to the fluid to prevent freezing. Never use cooling system antifreeze as it will damage the paintwork.

18 Tailgate heated window - general information

Take great care not to scratch the heater elements with carelessly stacked luggage or rings on the fingers.

Avoid sticking labels over the elements, and clean the glass interior surface with warm water and a little detergent, wiping in the same direction as the elements run.

HAYNES HiNT

Small breaks in the heated rear window grid can be repaired using special conductive paint, obtainable from motor accessory shops. Use the paint as directed by the manufacturer.

19 Central door locking system - general information

On models fitted with a central door locking system it is possible to lock all doors, including the tailgate, simply by locking the driver's door.

The system uses electric actuators to move the door lock mechanisms. The actuators can be removed by dismantling the doors, as described in Chapter 11.

20 Horn - removal and refitting

Removal

1 Disconnect the battery negative lead.

2 Remove the relevant headlight, as described in Section 10.

3 Unscrew the mounting nut, remove the horn and disconnect the wiring **(see illustration)**.

Refitting

4 Refitting is a reversal of removal.

21 Air compressor and horn (1.9 GTI models) - removal and refitting

Removal

1 Disconnect the battery negative lead.

2 Remove the left-hand headlight as described in Section 10.

3 Disconnect the air hose and supply wire.

4 Unbolt and remove the compressor or horn as required.

Refitting

5 Refitting is a reversal of removal.

22 Radio - removal and refitting

Removal

Note: *If the radio incorporates an anti-theft system, once the battery has been disconnected, the radio unit cannot be re-activated until the appropriate security code has been entered. Do not remove the unit unless the appropriate code is known.*

Early models

1 A standard radio aperture is provided in the centre console.

2 Disconnect the battery negative lead.

3 Pull off the control knobs and unscrew the mounting nuts. The surround can then be withdrawn and the radio removed after disconnecting the aerial and wiring **(see illustration)**.

4 An in-line fuse is normally fitted to the feed wire behind the radio.

Later models

5 Disconnect the battery negative lead.

6 Remove the radio side trims **(see illustration)**, and insert lengths of welding rod or metal dowel into the exposed holes to release the clips. Special tools are available for this operation from motor accessory shops or Peugeot dealers.

7 Withdraw the radio from the facia, and disconnect the aerial and wiring.

Refitting

8 Refitting is a reversal of removal.

23 Vehicle immobiliser - general information

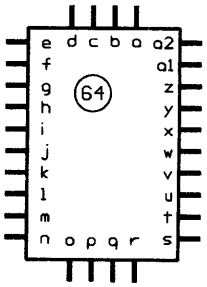
From 1993, a vehicle immobiliser system is fitted to certain GTI models. The system is activated by locking the car with the PLIP remote control device.

A possible fault with the system should not be overlooked if the car cannot be started, and other areas of investigation have failed to locate the cause. Refer to a Peugeot dealer for additional information.

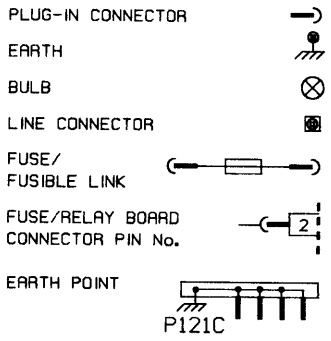
NOTES:

1. All diagrams are divided into numbered circuits depending on function e.g. Diagram 2: Exterior lighting.
2. Items are arranged in relation to a plan view of the vehicle.
3. Items may appear on more than one diagram so are found using a grid reference e.g. 2/A1 denotes an item on diagram 2 grid location A1.
4. Complex items appear on the diagrams as blocks and are expanded on the internal connections page.
5. Not all items are fitted to all models.
6. For fuse information see specifications.
7. Wire identification is not by colour, but by letters or numbers appearing on the wire at each end.

INTERNAL CONNECTION DETAILS



KEY TO SYMBOLS



KEY TO INSTRUMENT CLUSTER (ITEM 64)

a = Oil Pressure Warning Lamp
b = Ignition Warning Lamp
c = High Temp. Warning Lamp
d = Brake Warning Lamp
e = Brake Warning Lamp
f = Direction Indicator Lamp
g = Instrument Illumination
h = Earth
i = Main Beam Warning Lamp
j = Dipped Beam Warning Lamp
k = Instrument Illumination
l = Tachometer
m = Clock
n = +VE Supply
o = Choke Warning Lamp
p = Low Fuel Warning Lamp
q = Fuel Gauge
r = Sidelamp Warning Lamp

KEY TO INSTRUMENT CLUSTER (ITEM 64)
(ADDITIONAL CONNECTIONS XU/TU MODELS ONLY)

s = Direction Indicator Lamp LH
t = Direction Indicator Lamp RH
u = Oil Level Warning Lamp
v = Oil Temperature Gauge
w = Coolant Temperature Gauge
x = Coolant Level Warning Lamp
y = + VE Supply
z = Earth
a1 = Oil Pressure Gauge
a2 = Injection System Warning Lamp

ITEM	DESCRIPTION	DIAGRAM/ GRID REF.
1	Air Flow Sensor	1b/B5
2	Alternator	1/C3, 1a/C3, 1b/B2, 2/C3
3	Ashtray Illumination	2a/H4
4	Auto. Trans. Inhibitor Relay	1/G4
5	Auto. Trans. Inhibitor Switch	1/D5
6	Auto. Trans. Pump Control Relay	1/G6
7	Battery	1/C7, 1a/C7, 1b/C7, 2/C8, 2a/B7, 3/B7, 3a/B7
8	Brake Pad Wear Sensor	1/D1, 1/D8, 1a/D1, 1a/D8, 1b/C1, 1b/C8
9	Central Locking Control Switch	3a/K1
10	Central Locking Motor LH Front	3a/K8
11	Central Locking Motor LH Rear	3a/M8
12	Central Locking Motor RH Rear	3a/M1
13	Central Locking Motor Tailgate	3a/M5
14	Choke Switch	1/J3, 1a/J3
15	Cigar Lighter	2a/H4

ITEM	DESCRIPTION	DIAGRAM/ GRID REF.
16	Cigar Lighter Illumination	2a/H4
17	Clock	2a/J3
18	Combination Switch - Lighting, Direction Indicators And Horn	2/J3, 2a/G3, 3/G3
19	Combination Switch - Wash/Wipe	3/G3
20	Coolant Temp. Gauge Sender Unit	1a/D5, 1b/G4
21	Coolant Temp. Sensor	1b/D5
22	Coolant Temp. Switch	1/B5, 1a/C5, 1b/G3
23	Cooling Fan Motor	1/A5, 1a/B5
24	Cooling Fan Resistor	1/G8, 1a/A5
25	Cooling Fan Switch	1/A3, 1a/B3
26	Diagnostic Socket	1/D6, 1a/D6, 1b/D2
27	Dim/Dip Relay	2/E5
28	Dim/Dip Resistor	2/E7
29	Direction Indicator Flasher Relay	2a/E7
30	Direction Indicator LH Front	2a/A8
31	Direction Indicator RH Front	2a/A1
32	Distributor	1/E6, 1a/E6, 1b/E5
33	Driving Lamp LH	2/A6
34	Driving Lamp Relay	2/E4
35	Driving Lamp RH	2/A3
36	Electric Window Motor LH Front	3a/J8
37	Electric Window Motor RH Front	3a/J1
38	Electric Window Relay	3a/D6
39	Electric Window Switch LH	3a/H8
40	Electric Window Switch RH (Drivers)	3a/J1
41	Electric Window Switch RH (Passengers)	3a/H1
42	Foglamp Rear	2/M3
43	Foglamp Switch	2/G3
44	Fuel Gauge Sender Unit	1/M5, 1a/M5, 1b/M5
45	Fuel Injection ECU	1b/G6
46	Fuel Injectors	1b/D4
47	Fuel Pump	1/L6, 1b/M6
48	Glove Box/Lamp Switch	2a/J7
49	Handbrake Warning Switch	1/L5, 1a/L5, 1b/K5
50	Hazard Warning Lamp/Switch	2a/F4
51	Headlamp Unit LH	2/A7
52	Headlamp Unit RH	2/A2
53	Heated Rear Window	3/M4
54	Heated Rear Window Relay	3/E6
55	Heated Rear Window Switch	3/H3
56	Heater Blower Motor	3/H4
57	Heater Blower Motor Control Unit	3/C8
58	Heater Blower Motor Speed Control	3/J4
59	Heater/Ventilation Illumination	2a/H3
60	Horn	3/A8
61	Ignition Coil	1/E7, 1a/E7, 1b/E6
62	Ignition Module	1/E7, 1a/E6, 1b/E6
63	Ignition Switch	1/J1, 1a/J1, 1b/K1, 2/F1, 2a/G1, 3/E1, 3a/F1
64	Instrument Cluster	1/H3, 1a/H3, 1b/K3, 2/F3, 2a/F3
65	Instrument Illumination Control	2a/F3
66	Interior Lamp	2a/D5
67	Interior Lamp Door Switch LH	2a/C8
68	Interior Lamp Door Switch RH	2a/C1
69	Lamp Cluster LH Rear	2/M7, 2a/M7
70	Lamp Cluster RH Rear	2/M1, 2a/M1
71	Low Brake Fluid Sender Unit	1/E2, 1a/E2, 1b/E2
72	Low Coolant Sender Unit	1b/F8
73	Luggage Comp. Lamp	2a/L4
74	Luggage Comp. Lamp Switch	2a/M4
75	Map Reading Lamp	2a/E5
76	Number Plate Lamp	2/M4, 2/M5
77	Oil Level Indicator Unit	1b/H5
78	Oil Level Sensor	1b/G4
79	Oil Pressure Sender Unit	1b/G3
80	Oil Pressure Switch	1/B5, 1a/C5, 1b/G4
81	Oil Temp. Sender Unit	1b/H4
82	Radio/Cassette Unit	3a/F5
83	Reversing Lamp Switch	2/D5
84	Spark Plugs	1/E5, 1a/E5, 1b/E4
85	Speaker LH Front	3a/C8
86	Speaker RH Front	3a/C1
87	Starter Motor	1/C6, 1a/C6, 1b/B6, 2/B5
88	Stop-Lamp Switch	2a/D3
89	Supplementary Air Device	1b/D5
90	Suppressor	1/C2, 1b/B2
91	Tachymetric Relay	1b/A7
92	TDC Position Sensor	1/C6, 1a/D6, 1b/D3
93	Throttle Switch	1b/B4
94	Washer Pump Front	3/B8
95	Washer Pump Rear	3/M2
96	Wiper Motor Front	3/C3
97	Wiper Motor Rear	3/M5
98	Wiper Relay Front	3/E8, 3/J5
99	Wiper Relay Rear	3/M6

Key to wiring diagrams (continued)

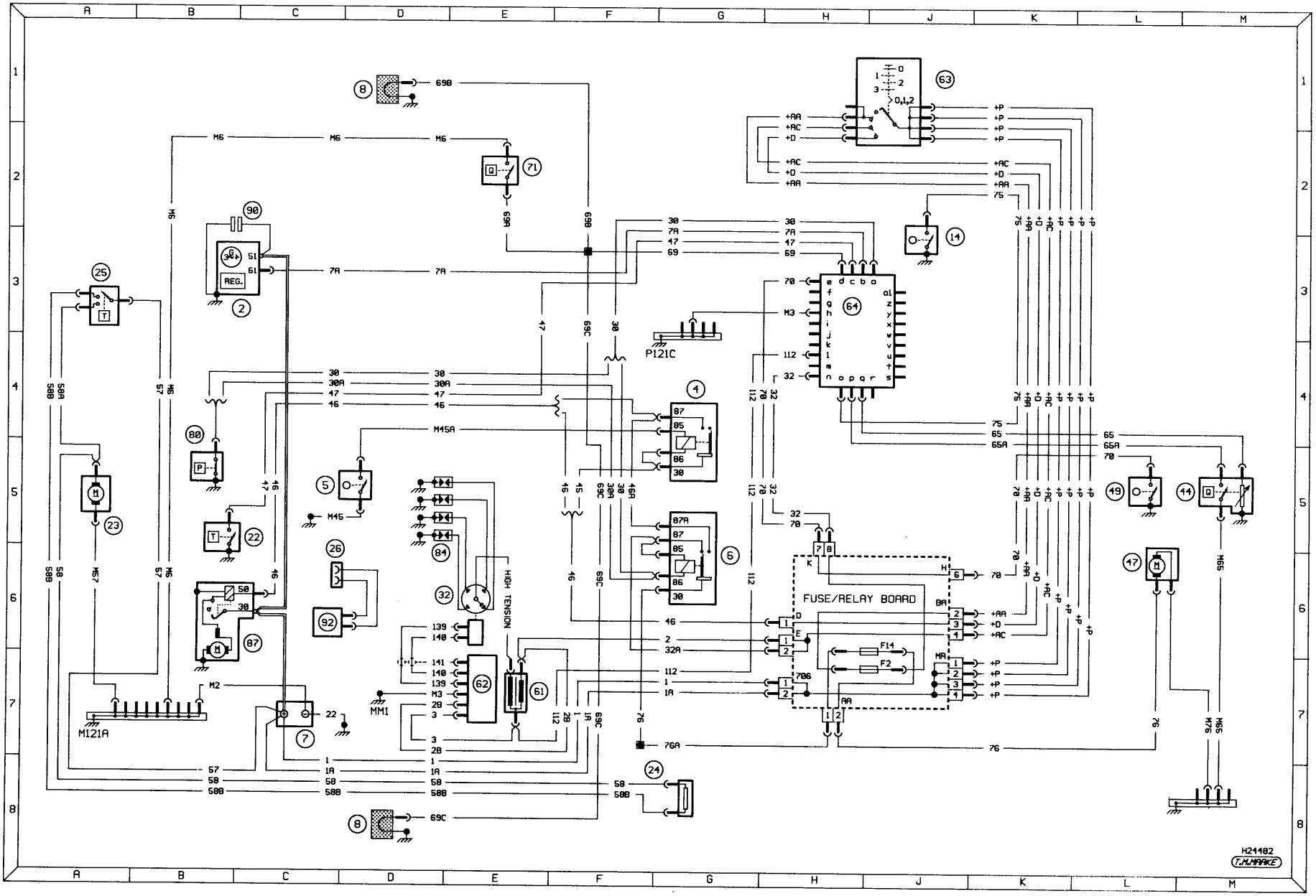


Diagram1: Typical starting, charging, ignition, cooling fan, warning lamps and gauges (XV8, XW7, XY8 and XU51C engine models)

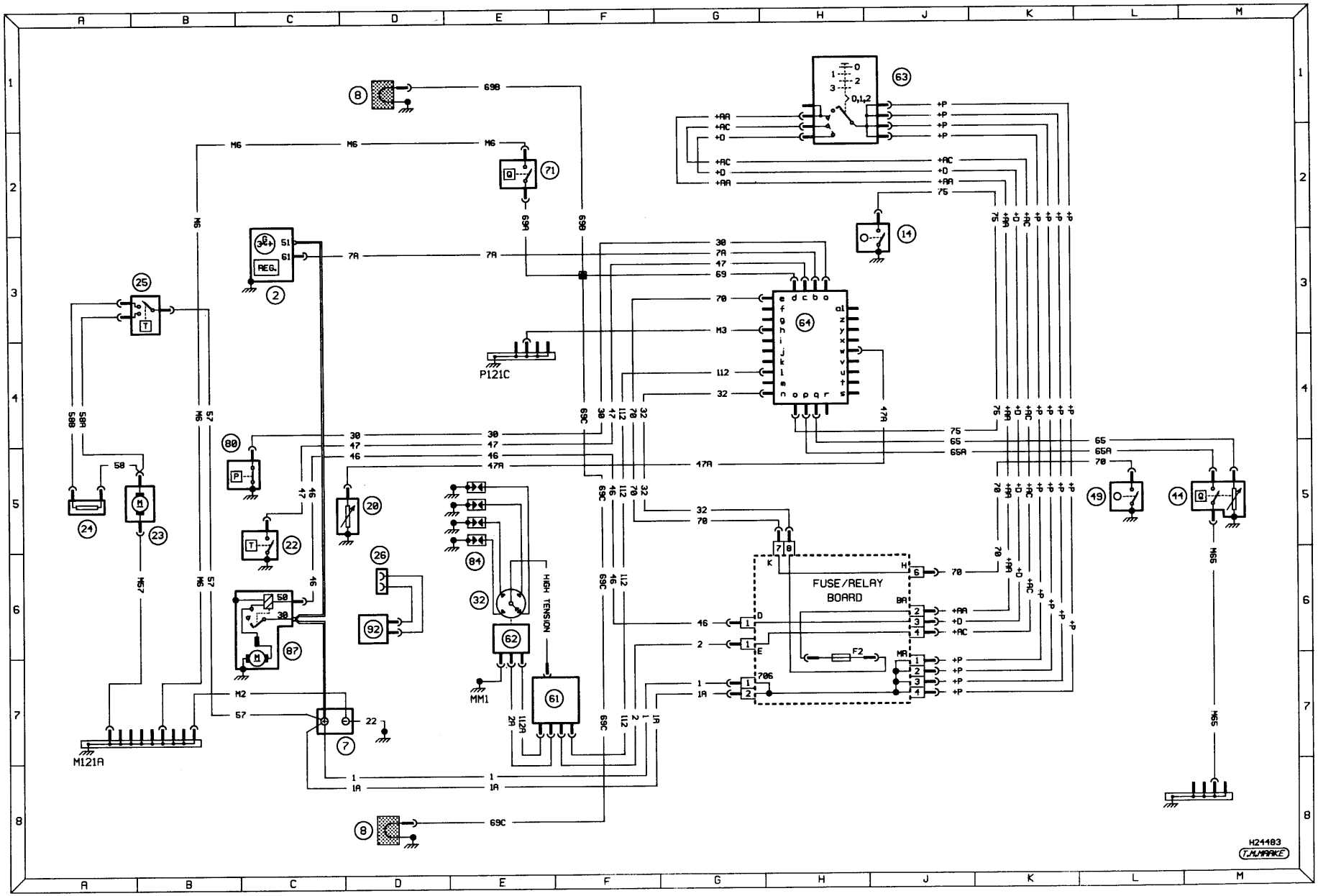


Diagram1a: Typical starting, charging, ignition, cooling fan, warning lamps and gauges (TU1, TU3 and TU9 engine models)

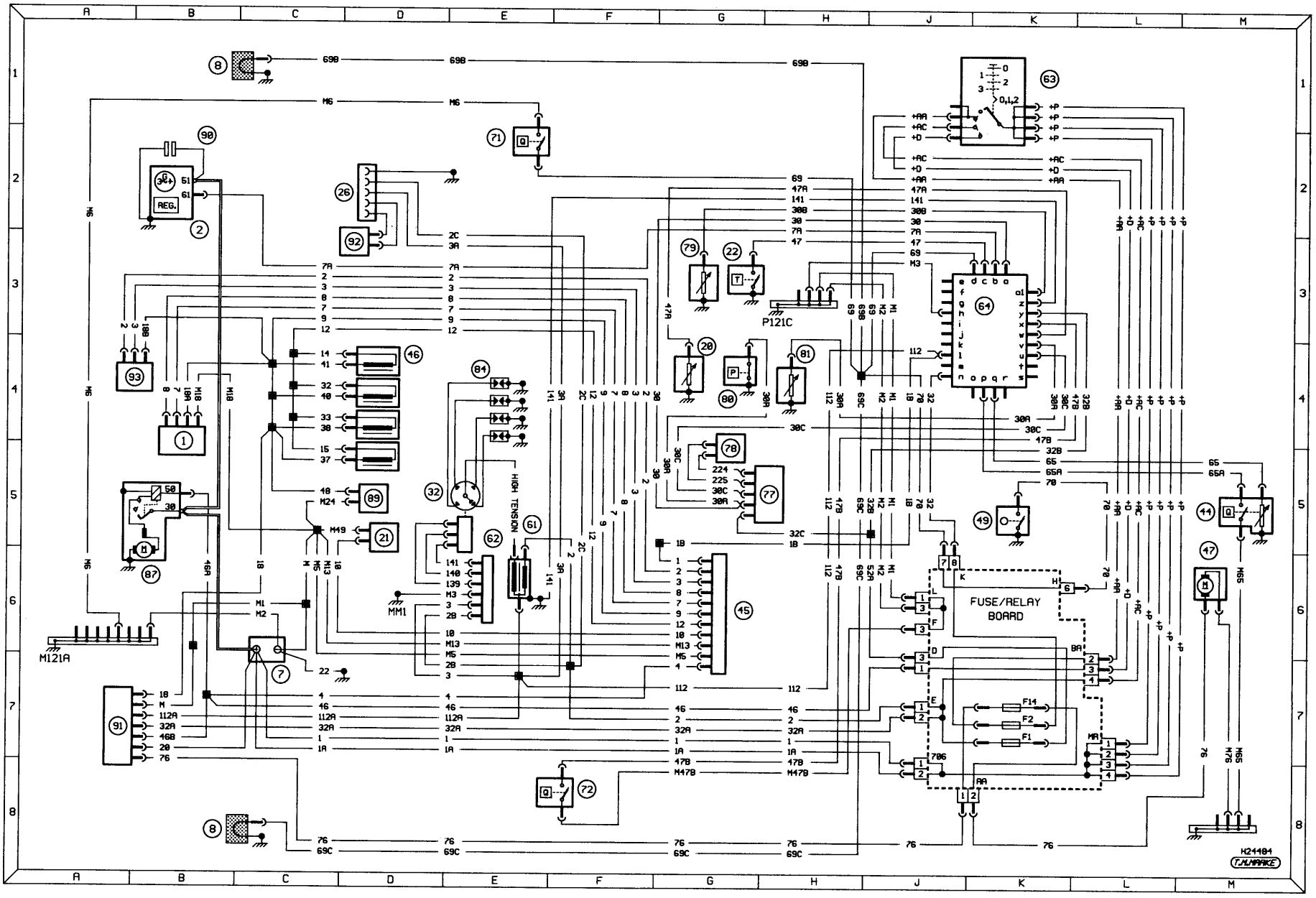


Diagram1b: Typical engine management, warning lamps and gauges (XU5J/JA and XU9JA engine models)

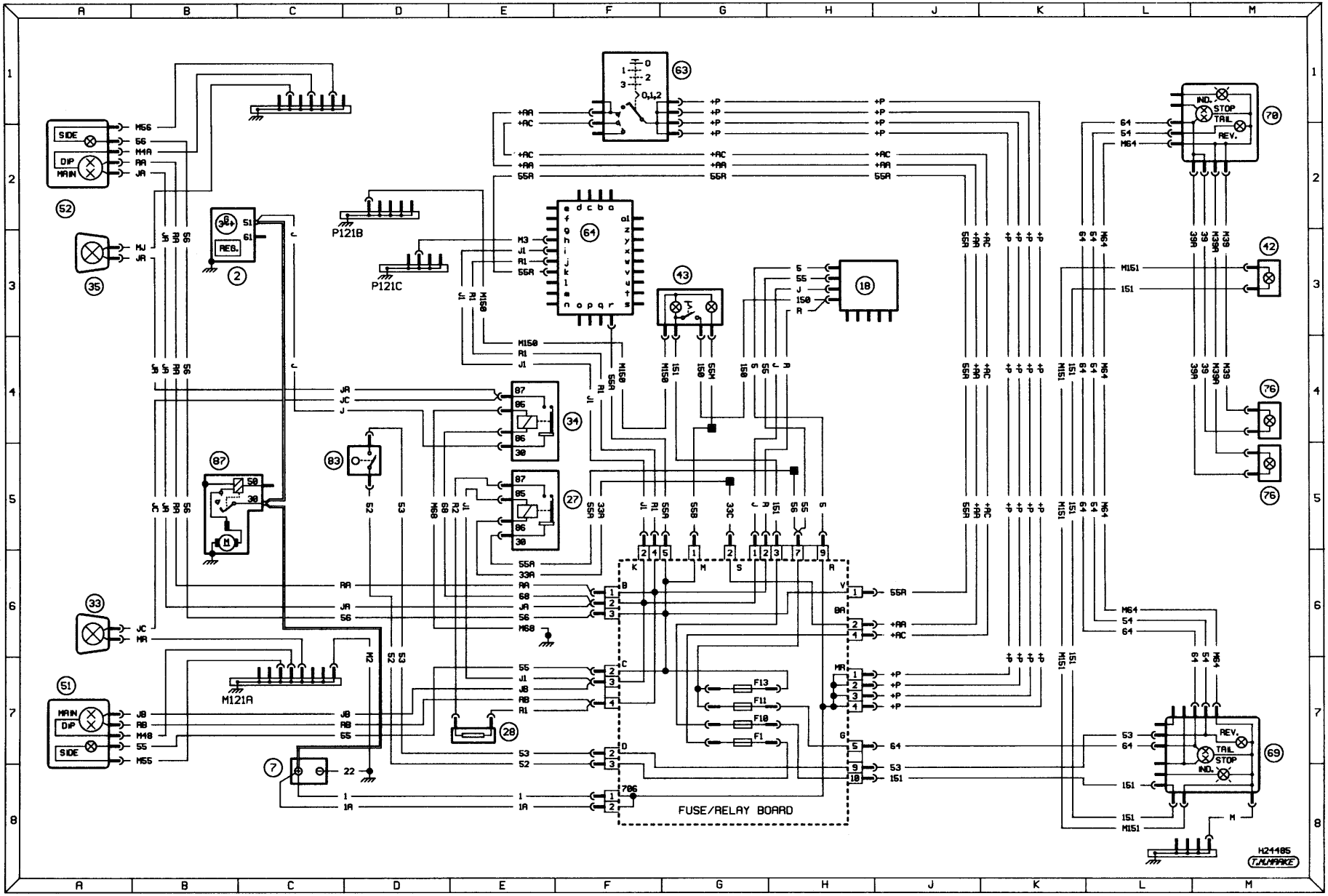


Diagram 2: Typical exterior lighting - reversing lamps, foglamps, sidelamps and headlamps

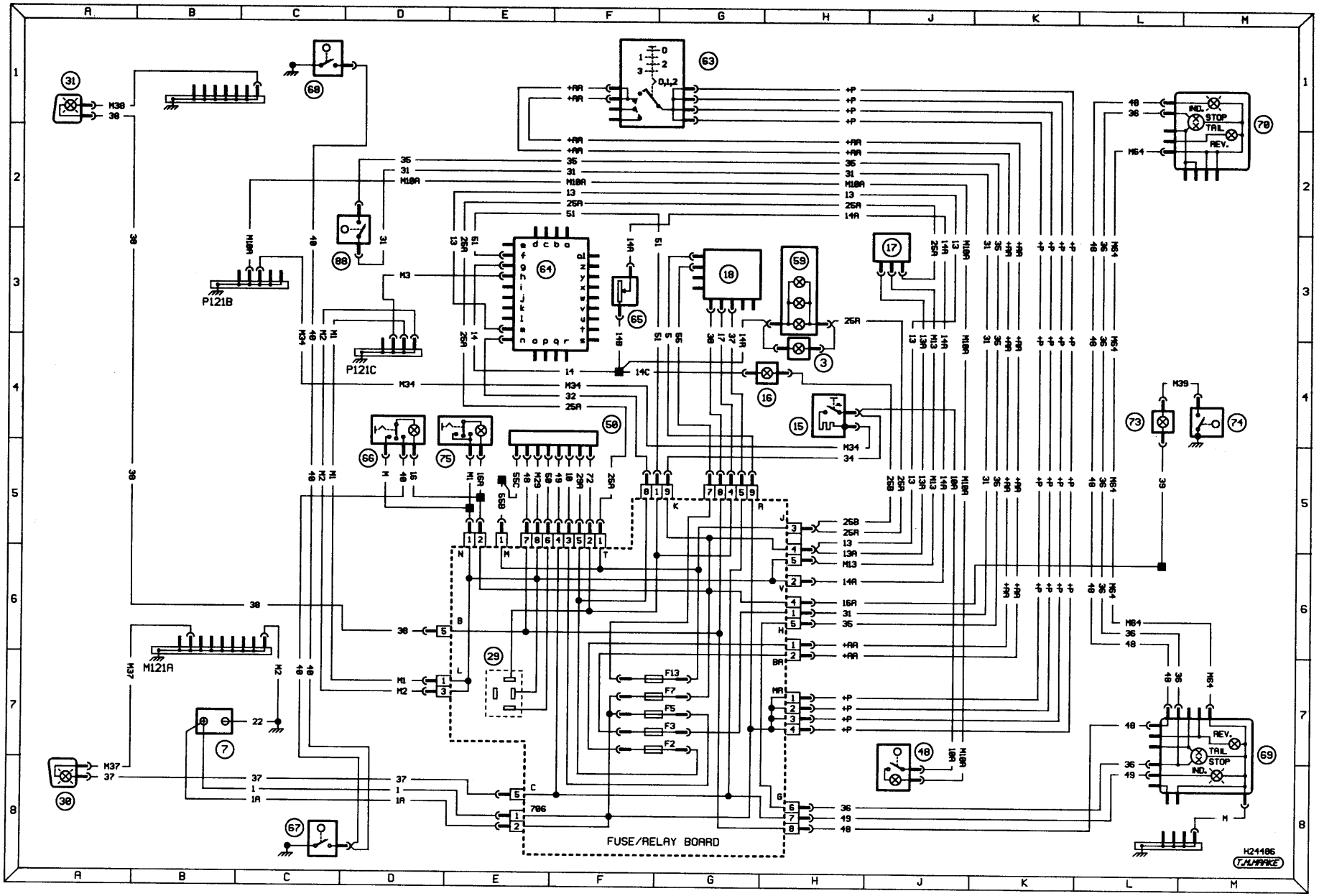


Diagram 2a: Typical exterior lighting - direction indicators and stop-lamps; typical interior lighting and associated circuits

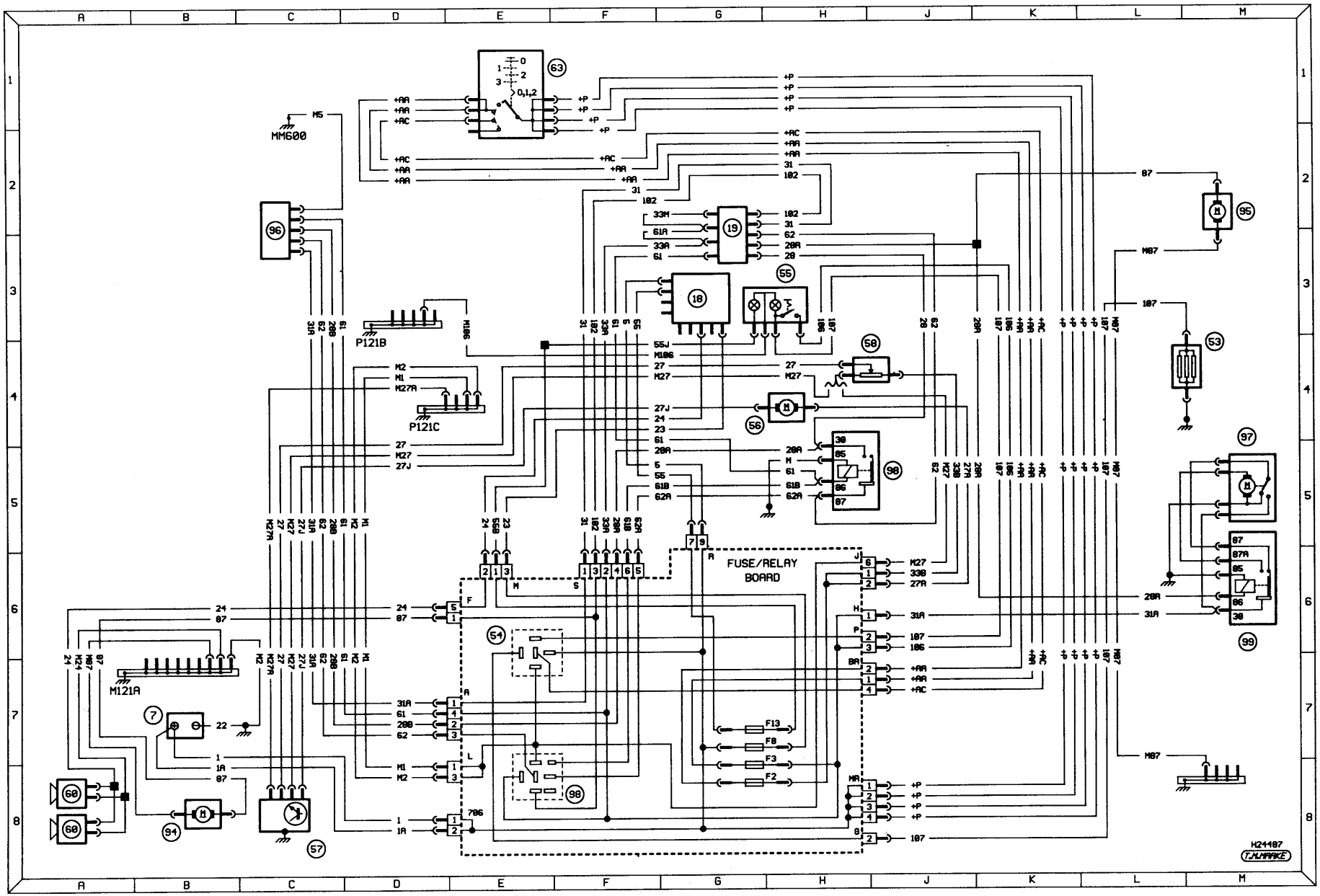


Diagram 3: Typical ancillary circuits - wash/wipe, horn, heater blower and heated rear window

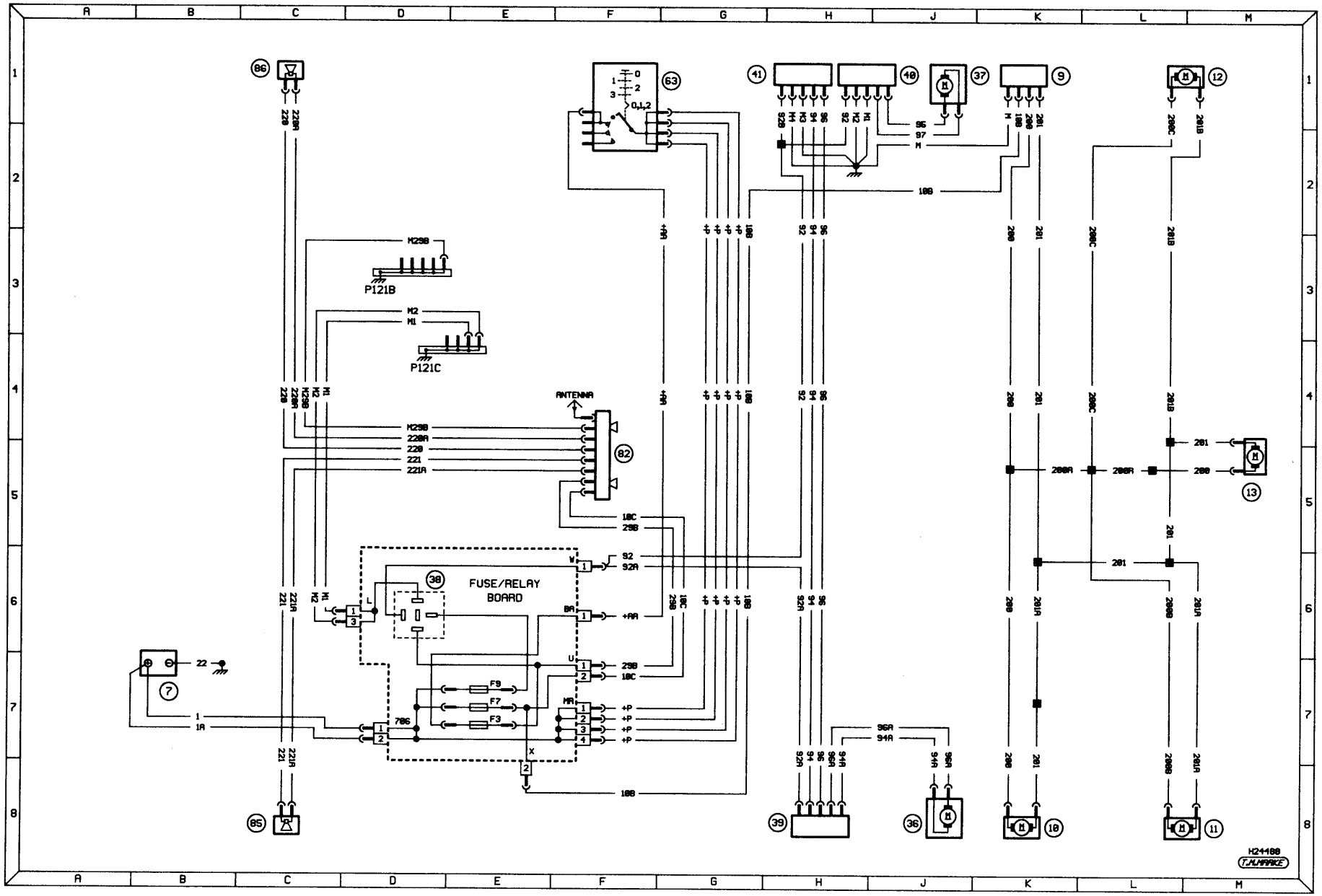
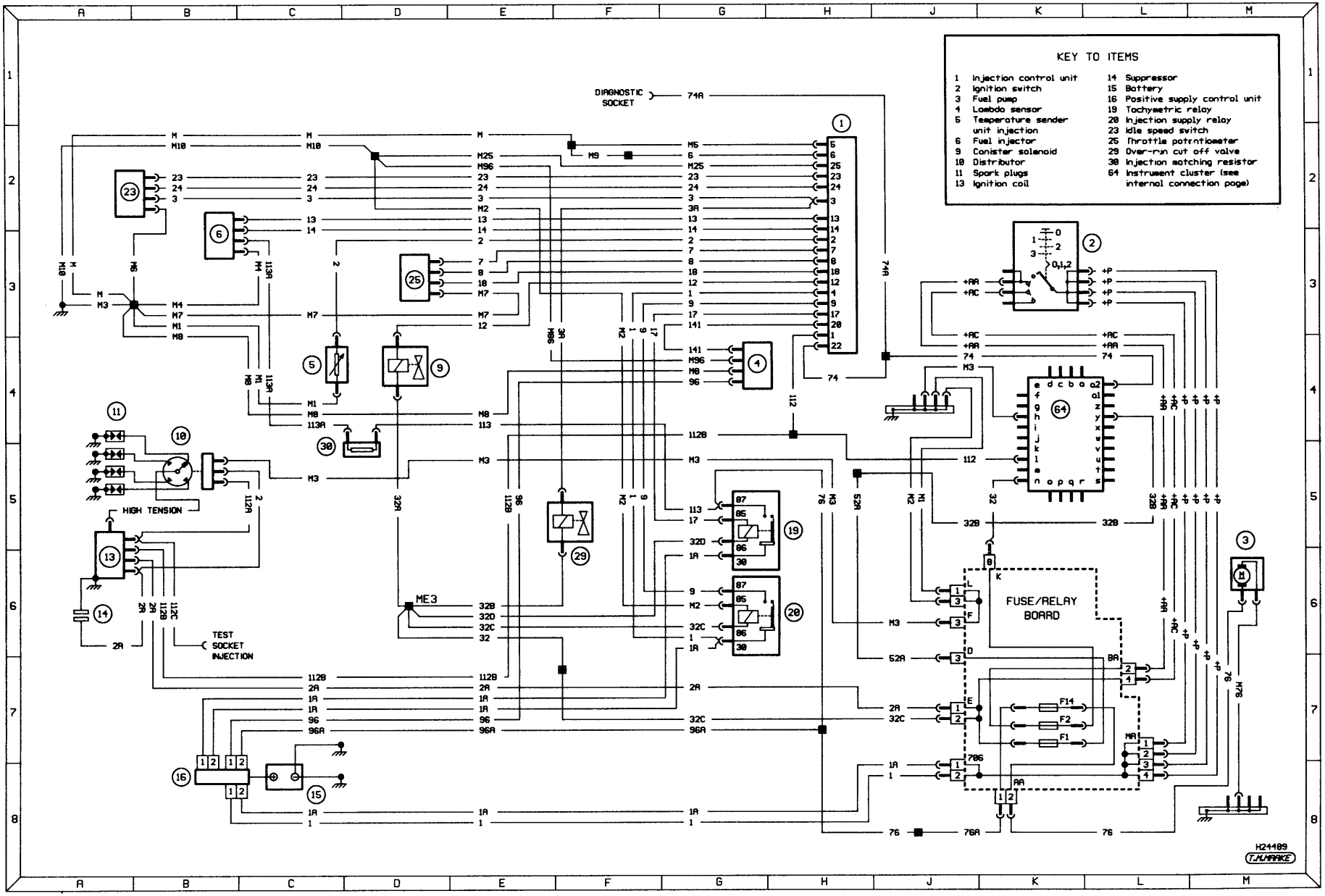
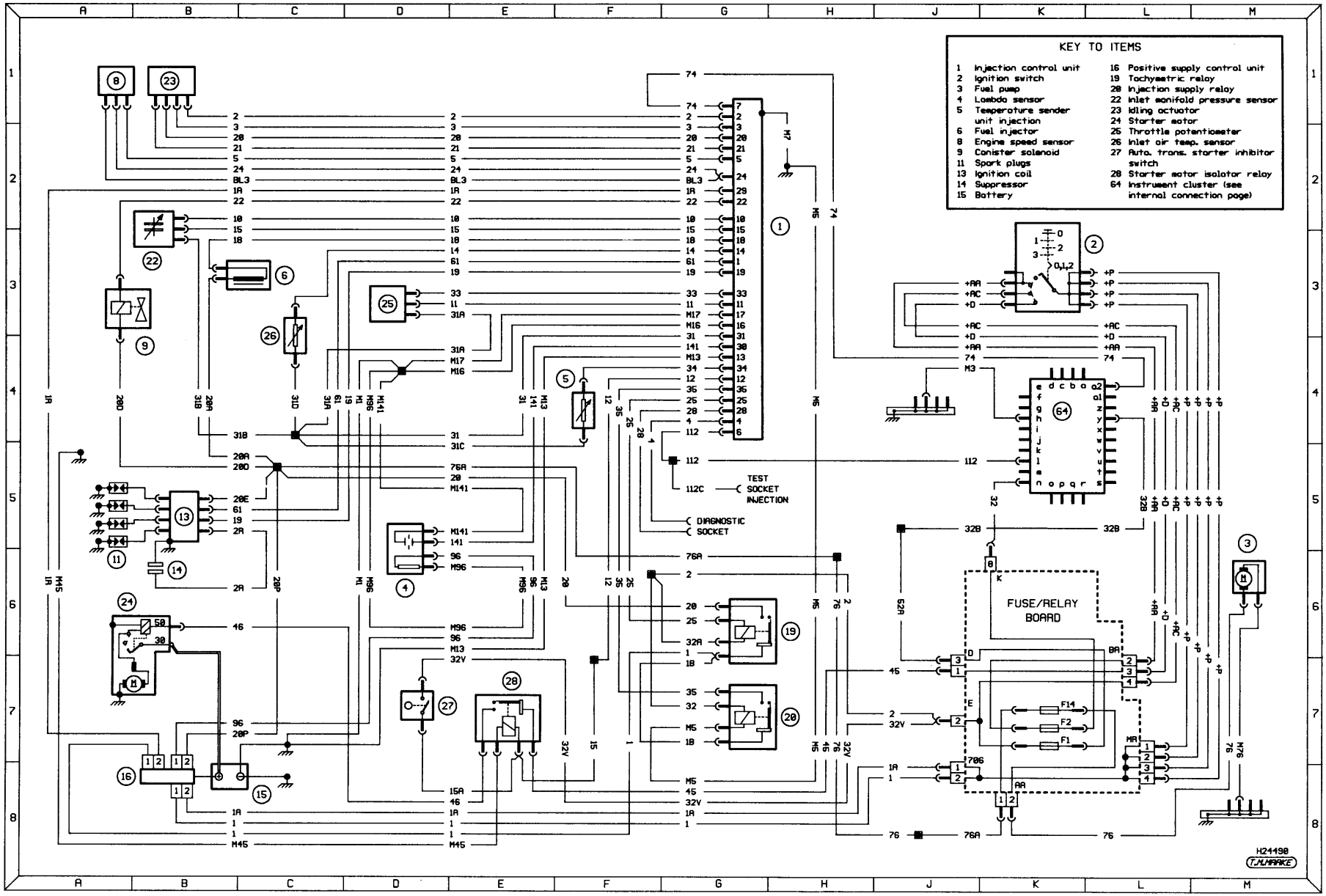


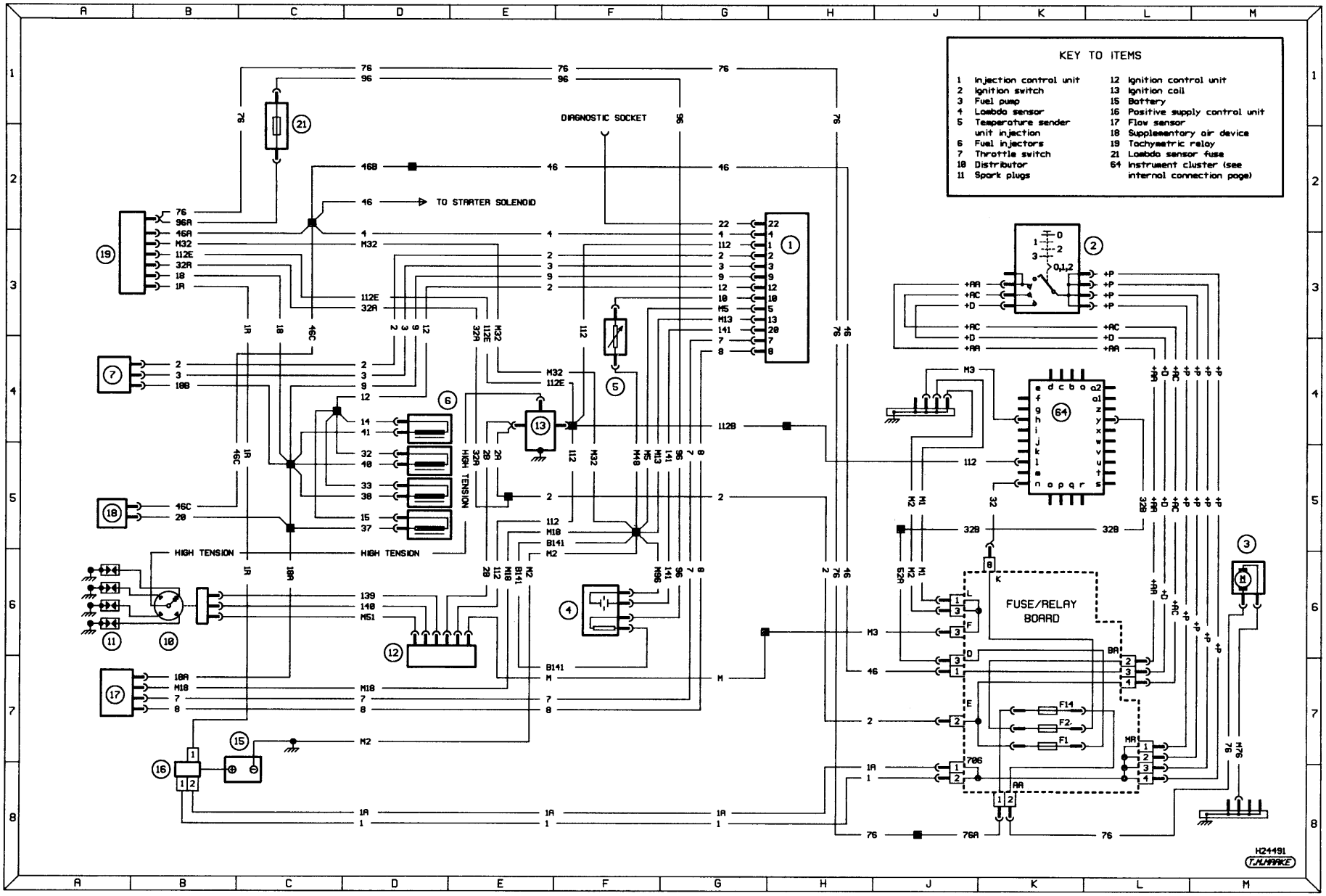
Diagram 3a: Typical ancillary circuits - electric windows, central locking and radio/cassette



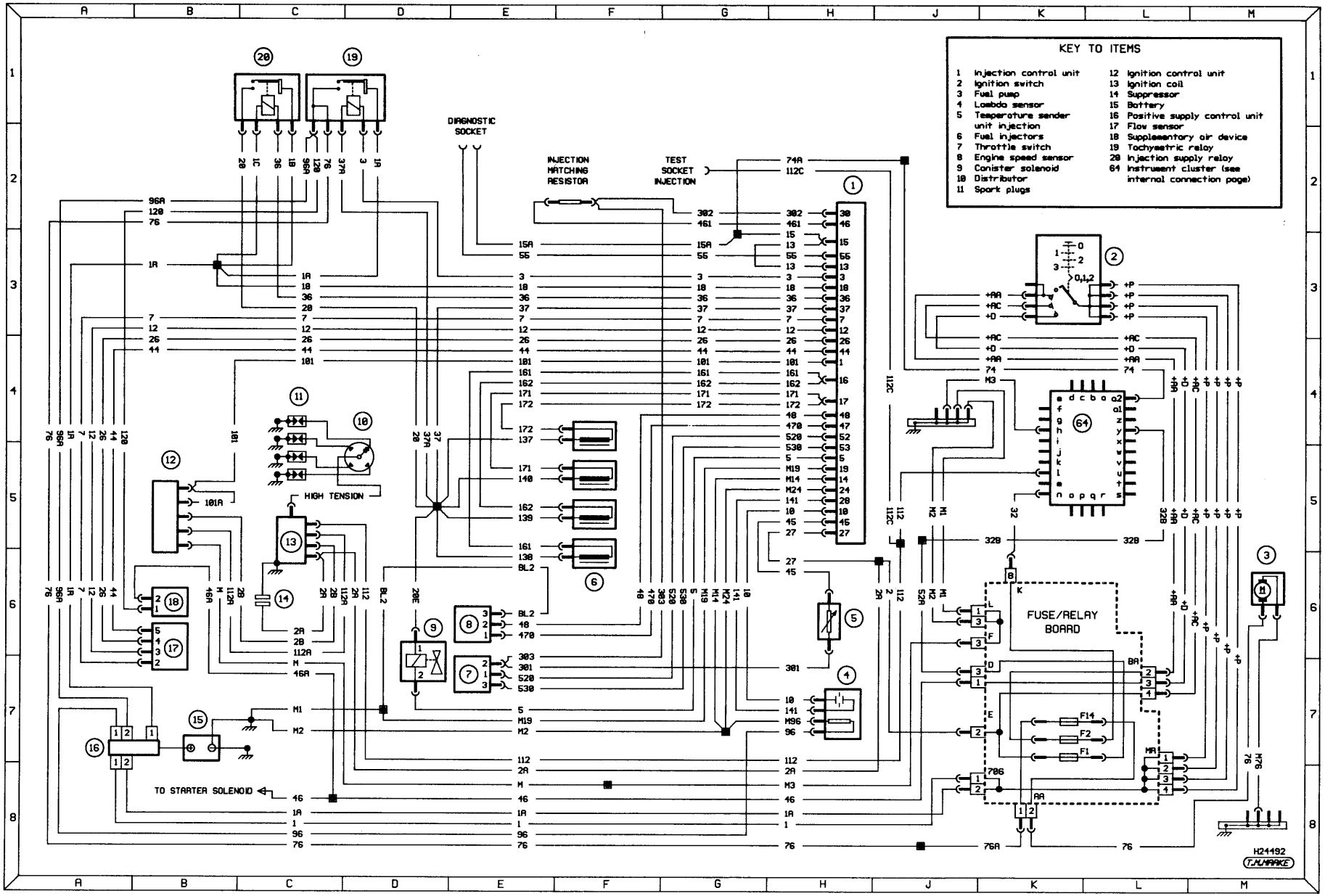
Supplementary diagram A: Typical engine management (TU3M/Z and TU3FM/L engine models)



Supplementary diagram B: Typical engine management (TU1M/L and XU5M3/Z/L engine models)



Supplementary diagram C: Typical engine management (XU9J1/Z/L engine models)



Supplementary diagram D: Typical engine management (XU9JA/L engine models)