

CHAPTER 13-5

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CONTENTS

Para

1	Introduction
2	General
3	Electrical systems
6	Engine and auxiliary harness assemblies
8	Chassis and rear body harness assemblies
10	Main cable harness assembly
12	How to use the circuit diagrams
13	Power distribution
14	Headers, splices and centre taps
15	Wire attributes
16	Connectors
17	Earth distribution
18	Line types
20	Components
21	Earth points
22	Fuses and diodes

Fig

Page

1	Engine and auxiliary harness assemblies	11
2	Chassis and rear body harness assemblies	13
3	Main cable harness assembly	15
4	Power distribution	16
5	Connectors	17
6	Line types I	17
7	Line types II	17
8	Components	18
9	Earth points	18
10	Fuses and diodes	18
11	Earth distribution I	19
12	Earth distribution II	20
13	EEGR	21
14	Header joints	22
15	Instruments I	23
16	Instruments II	24
17	Power distribution I	25
18	Power distribution II	26
19	Power distribution III	27
20	Splices and Centre taps I	28
21	Splices and Centre taps II	29
22	Splices and Centre taps III	30
23	Splices and Centre taps IV	31
24	Starting and Charging I	32
25	Starting and Charging II	33
26	Brake reverse lamps	34
27	Fog lamps	35
28	Headlamp levelling	36

(continued)

CONTENTS (continued)

Fig		Page
29	Horn	37
30	Heated front screen	38
31	Heated rear screen.....	39
32	Head, side and number plate lamps I.....	40
33	Head, side and number plate lamps II.....	41
34	Indicators and Hazards I	42
35	Indicators and Hazards II	43
36	Fuel burning heater	44
37	Trailer socket.....	45
38	Wipers and washers - front	46
39	Wipers and washers - rear	47
40	Earth distribution I - FFR	48
41	Earth distribution II - FFR	49
42	EEGR - FFR	50
43	Header joints - FFR	51
44	Instruments I - FFR.....	52
45	Instruments II - FFR.....	53
46	Power distribution I - FFR.....	54
47	Power distribution II - FFR.....	55
48	Power distribution III - FFR.....	56
49	Splices and Centre taps I - FFR	57
50	Splices and Centre taps II - FFR.....	58
51	Splices and centre taps III - FFR.....	59
52	Splices and Centre taps IV - FFR.....	60
53	Starting and Charging I - FFR	61
54	Starting and Charging II - FFR	62

INTRODUCTION

1 This chapter covers the technical description for the electrical system as fitted to Truck Utility Light (TUL) HS and Truck Utility Medium (TUM) HS winterised vehicles fitted with the 24 volt electrical system. The information given is applicable to both left and right hand drive vehicles.

GENERAL

2 The electrical system fitted to Truck Utility Light (HS), and Truck Utility Medium (HS) winterised vehicles has been designed to provide a comfortable environment for the user in sub-zero temperatures.

ELECTRICAL SYSTEMS

3 The electrical systems on the TUL and TUM winterised vehicles are made up of three main harnesses: Engine harness, Chassis harness and Main cable assembly harness.

4 In addition, several supplementary harnesses/cables, covering right and left hand wing components, instrument binnacle, radio, convoy lamp, rear body components, wiper link, glow plug link, heater and fuel system are fitted.

5 Connected together these harnesses form the vehicle harness, which supplies power to the instrument panel, switches and controls, interior and exterior lighting. Each harness can be disconnected and separated individually.

Engine and auxiliary harness assemblies

6 The engine and auxiliary harnesses (Fig 1) connect the various electrical components fitted on the engine to the vehicle batteries and main cable assembly harness.

6.1 When the starter switch is turned to position III, an electrical current is sent from the battery to the starter motor, which cranks the engine over.

6.2 When the engine is running, the single drive belt at the front of the engine turns the alternator, which generates electricity to maintain the efficient operation of the vehicle and ancillary equipment.

6.3 The engine harness assembly is made up of the following items:-

6.3.1 Alternator ECU Feed (FFR)

6.3.2 Twin alternator interlink (FFR)

6.3.3 Reverse switch

6.3.4 Diff lock switch

6.3.5 Fuel shut-off switch

6.3.6 Oil pressure switch

6.3.7 Water temperature switch

6.3.8 Alternator connections

6.3.9 EGR valve

6.3.10 Throttle pot

6.3.11 Diagnostics

6.3.12 ECU coolant temp

6.3.13 Starter solenoid (FFR)

6.3.14 Tachometer

6.4 There are various ancillary leads within the engine bay area that are not part of the engine harness assembly, but functional to the engine itself. There are also leads supplying other components within the electrical system, but will be mentioned in this paragraph.

6.5 Earth lead (part of negative earth cable). The earth lead, which connects the engine/gearbox assembly to the chassis, is fitted to prevent the drive train becoming live and, therefore, prevent electric shocks.

6.6 Low brake fluid level indicator. The lead runs from the top of the brake fluid reservoir to the main cable harness and operates the brake warning light in the instrument panel should the fluid level become low.

6.7 Brake pedal stop switch. The lead runs from the switch mounted on top of the brake pedal box to the main cable assembly harness. The switch operates the stop lights at the rear of the vehicle when the brake pedal is depressed.

7 The following list identifies the electrical components location and their harness route within the engine bay area:-

7.1 Water temperature switch lead. Routes from the thermostat housing through the engine harness to the main cable assembly harness. Colours: Green/blue

- 7.2 Engine harness leads (5 off). Route from the starter solenoid to the main cable assembly harness. Colours: White/red, Brown (4 off) Brown/light green (FFR)
- 7.3 Heater plug lead (1 off). Routes from the main cable assembly harness to No.1 heater plug on the RH side of the cylinder head. Colours: Brown /yellow
- 7.4 Heater plug connecting leads (3 off). Route from No.4 cylinder heater plug to the three other heater plugs. Colours: Yellow/black
- 7.5 Alternator leads (3 off). Route from the rear of the alternator through the engine harness assembly to the main cable assembly harness. Colours: Brown/yellow, Brown, Brown.
- 7.6 Fuel cut-off solenoid lead. Routes from the fuel injection pump through the engine harness assembly to the main cable assembly harness. Colours: White.
- 7.7 Oil pressure switch lead. Routes from the oil filter housing through the engine harness assembly to the main cable assembly harness. Colours: White/brown
- 7.8 Positive battery cable. Routes from the starter motor to the vehicle battery and inter vehicle socket. Colour: Red
- 7.9 Negative earth cable. Routes from vehicle battery to inter vehicle socket and transfer box casing via chassis earthing point. Colour: Black
- 7.10 Battery link cable. Links both batteries, negative to positive. Colour: Red.
- 7.11 Low brake fluid level indicator lead (2 off). Route from the brake fluid reservoir to the main cable assembly harness. Colour: Black/white, Black.
- 7.12 Brake pedal stop switch leads. Route to from the pedal box to the main cable assembly harness. Colour: Green/purple, Green/yellow
- 7.13 Webasto heater connection. (Grey plug) From main harness to Webasto RFI filter.

Chassis and rear body harness assemblies

8 The chassis and rear body harnesses (Fig 2) connect the rear lamps and fuel tank to the main cable assembly harness. The stop lights and number plate lamp are connected directly to the chassis harness but the side, indicator, fog, and reverse lamps, share supplementary rear body harnesses. The convoy lamp and fuel tank have separate harnesses.

- 8.1 The chassis harness assembly is made up to connect to the following items:
- 8.1.1 Stop lights
 - 8.1.2 Convoy lamp
 - 8.1.3 Trailer socket
 - 8.1.4 Number plate lamp
 - 8.1.5 Rear lamps
 - 8.1.6 Rear fuel tank connection, (TUM and Field Ambulance only)
 - 8.1.7 Rear wiper motor
 - 8.1.8 Reverse light

- 8.1.9 Fog lamps
- 8.1.10 Tail lights
- 8.1.11 Rear directional indicators
- 8.1.12 Gearbox earth.

9 The following list identifies the electrical component locations and their harness route along the chassis.

9.1 Stop lights. Route from stoplights to the chassis cable assembly harness. Colours: Green/purple, black.

9.2 Convoy lamp harness leads (2 off). One routing from the convoy lamp to the chassis harness 6 way connector, the other to earth. Colours: Red/brown, Black.

9.3 Trailer socket leads (12 off). Route from the rear chassis cross member to the chassis harness connecting on the inside of the vehicle. Colours: Unipren (yellow) with lettered identification tags to ensure correct connection to chassis harness leads as follows:

9.3.1 A - Red/brown, B - Green/purple, C - Red/brown, D - Black, E - Red/orange, F - Red/yellow, H - Red/brown, J - Green/purple, K - Purple, L - Black, M - Green/purple, N - Green/purple.

9.4 Number plate lamp leads (2 off). Route from the number plate lamp to a connector on the chassis harness. Colours: Red/orange, black.

9.5 Gearbox earth leads (5 off). Colour: Black.

9.6 Rear tank leads (2 off, TUM only). Route from the fuel tank to the chassis harness via the 3 way connector. Colours: Green/Black, black.

9.7 Chassis harness main connections. Connects the various electrical components, by way of moulded connectors, to the main cable assembly.

9.7.1 Plug 1 (orange). Colours: Red/orange, Red/brown, Red/yellow, Green/red.

9.7.2 Plug 2 (blue). Colours: Green/brown, White/black, Green, Brown/light green.

9.7.3 Plug 3 (grey). Colours: Green/white, Green/purple, Red/light green, Purple.

9.7.4 Plug 4 (black). Colours: Green/black

9.8 Rear lamp harnesses. Separate harnesses, for LH and RH lamps, which connect to the chassis harness assembly via two 6 way connectors. Colours: LH - Red/yellow, Green/red, Red/orange, Black. RH - Green/brown, Red/yellow, Green/white, Red/orange, Black. Green/purple.

Main cable harness assembly

10 The main cable harness assembly (Fig 3) connects to the front lamps, chassis harness, engine harness and the various instruments, switches and indicators within the vehicle.

10.1 The main cable assembly harness is made up to connect to the following items:

10.1.1 Warning light panel

10.1.2 Instrument panel

- 10.1.3 Windscreen washer pump
- 10.1.4 Wiper motor
- 10.1.5 Horn/indicator/Dip switch
- 10.1.6 Ignition switch
- 10.1.7 Hazard warning switch
- 10.1.8 Rear fog switch
- 10.1.9 Heater/blower motor
- 10.1.10 Map reading lamp
- 10.1.11 Main lighting switch
- 10.1.12 Inspection sockets
- 10.1.13 Relays
- 10.1.14 Headlamp levelling switch
- 10.1.15 Headlamps and side lamps
- 10.1.16 Headlamp levelling motors
- 10.1.17 Indicators
- 10.1.18 Brake fluid level switch
- 10.1.19 Glow plug timer
- 10.1.20 Main fuse box
- 10.1.21 Side tank connections
- 10.1.22 Heated rear windscreen switch and warning lamp
- 10.1.23 Heated front windscreen switch and warning lamp.
- 10.1.24 Webasto heater connections
- 10.1.25 Stop light switch
- 10.1.26 Ammeter (FFR)
- 10.1.27 Radio

11 The following list identifies the electrical components, their location and harness route within the vehicle and engine bay area:

11.1 In-line resistors and diodes . Integral within the main cable assembly harness and are replaceable.

11.1.1 Diode leads (3 off) . Colours: Brown/yellow, Yellow/brown. Light green/purple, Brown/light green.

- 11.1.2 In-line resistor lead. Colours: Yellow/blue, Blue/green.
- 11.2 Warning light leads. Grouped into two and plugged into the rear of the warning light housing mounted in the instrument binnacle and routed to the main cable assembly harness.
- 11.3 Plug 1 (natural)
 - 11.3.1 Oil pressure. Colours: White/brown, White.
 - 11.3.2 Ignition. Colours: Yellow/brown.
 - 11.3.3 Brake circuit. Colours: Black/white.
 - 11.3.4 Direction indicators. RH - Green/white, LH - Green/red
- 11.4 Plug 2 (natural)
 - 11.4.1 Trailer. Colours: Light green/purple
 - 11.4.2 Earth. Colours: Black
 - 11.4.3 Side lights. Colours: Red/black
 - 11.4.4 Fog lights. Colours: Red/yellow
 - 11.4.5 Main beam. Colours: Blue/white, Brown/light green
 - 11.4.6 Differential lock. Colours: Black/blue, White
 - 11.4.7 Glow plug. Colours: Yellow/black
- 11.5 Horn, directional indicators, Dip switch and wash wipe switch. Located on the steering column and routed to the main harness assembly. (14 way moulded connector) Colours: Blue, Green/white, Light green/brown, Green/red, Blue/white, Blue/red, Purple, Purple/black, Blue/light green, Light green/black, White/green, Yellow/light green, Red/light green, Green.
- 11.6 Hazard switch. Located on the fascia in the auxiliary switch. Plugged into the rear of the panel and routed to the main harness assembly. (8 way black connector) Colours: Black/red, Light green/Brown, Green/red, Green/white, Light green, Purple, Green/yellow.
- 11.7 In line resistor 2.7k 0.5 watt. Located behind the fascia. Routed into the main harness assembly. Colours: Yellow blue, Blue yellow.
- 11.8 Flash. (2 way natural connector) Colours: Green/red, green/white.
- 11.9 Rear fog switch. (5 way black connector) Located on the fascia in the auxiliary switch panel. Plugged into the rear of the panel and routed to the main harness assembly. Colours: Blue/purple, Red/yellow.
- 11.10 Headlight level switch. (5 way natural connector) Located on the fascia in the auxiliary switch panel. Routed to the main harness assembly. Colours: Blue/black, Yellow/blue, Green/blue.
- 11.11 Ignition switch. (4 single natural connectors) Located on the steering column. Routed to the main harness assembly. Colours: Brown, Brown, White, White/orange, White/red.
- 11.12 Instruments. Located on the fascia and plugged into the rear of the instrument binnacle. Routed to the main harness assembly (6 way connector grey connector). Colours: Green/blue, Black, Green, Green, Red/orange, Green/black.

11.13 Heater fan switch. Located on the fascia on the side of the instrument binnacle and plugged into the rear of the binnacle. Routed to the main harness assembly (3 way light grey connector). Colours: Green/slate, Green/yellow, Black.

11.14 Inspection sockets. Located on the fascia in the centre panel. Plugged into the rear of the panel (2 single black connectors). Colours: Black, Purple.

11.15 Wiper motor. Located behind the fascia lower panel and plugged into the wiper motor. Routed to the main harness assembly (6 way grey connector). Colours: Black, Brown/light green, Blue/light green, Green, Green, Red/light green.

11.16 Blackout lighting. Located in the fascia centre. Plugged into the rear of the panel and routed to the main harness assembly. (2 off 4 way connectors).

11.16.1 Plug 1 (black). Colours: Red/white, Blue, Red, Red/Brown.

11.16.2 Plug 2 (natural). Colours: Brown, Brown/white.

11.17 Map reading light. (2 way natural connector) Located on the fascia in the centre panel. Plugged into the rear of the panel and routed to the main harness assembly. Colours: Purple/white.

11.18 Map reading light switch. (5 way black connector) Located on the fascia in the centre panel. Plugged into the rear of the panel and routed to the main harness assembly. Colours: Purple/white, Purple,

11.19 Relays. Located below the fascia behind the fuse box cover. Routed into the main harness assembly.

11.19.1 Brake check relay (Black). Colours: Black, Black, White/red, Black/white.

11.19.2 Start relay (Black). Colours: White/red, White/red, Black, Brown.

11.19.3 Ignition cont. relay (Black). Colours: White/yellow, White, Black, Green/yellow

11.19.4 Hazard/DI unit (Black). Colours: Light green/purple, Light green, Black, Light green/Brown.

11.19.5 Front wiper delay (Black). Colours: White/green, Yellow/light green, Black, Brown/light green, Light green/black, Green.

11.19.6 Heated front screen relay (Black). Colours: Orange/slate, Purple/yellow, Light green/purple, Purple/orange.

11.19.7 Heated rear window relay (Black). Colours: Purple/brown, White/green, Black, White/black.

11.19.8 Webasto heater relay (Black). Colours: Purple/green, Purple/orange, Black, Purple, Purple/green.

11.20 Fusebox (20 way). Located below the fascia and under the fuse box cover. Routed into the main harness assembly.

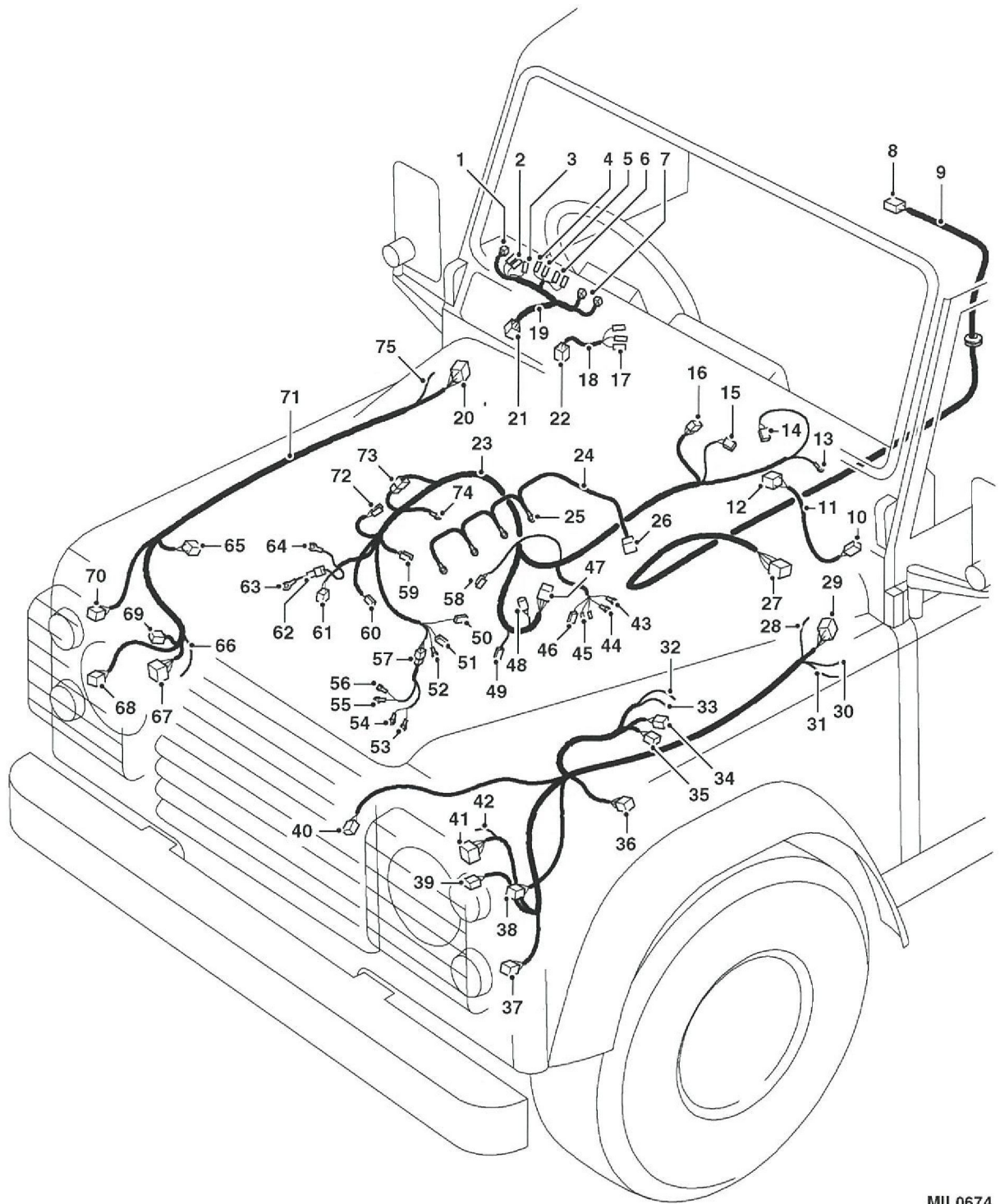
11.21 Plug 1. Colours: 1 Brown/white; 2 Purple; 3 Brown/white; 4 Purple; 5 Brown/white; 6 White/yellow; 7 Blue/white; 8 Blue/orange; 9 Blue/white; 10 Blue/slate; 11 Blue/red; 12 Blue/pink; 13 Blue/red; 14 Blue/black; 15 Red; 16 Black/green; 17 Red/brown; 18 Red/brown; 19 Red; 20 Red/black.

- 11.22 Plug 2. Colours: 1 White, 2 Green, 3 White/orange, 4 Purple/green, 5 Brown, 6 Purple; 7 Brown; 8 Purple, 9 Brown; 10 Purple, 11 Red/white, 12 Red/orange, 13 Blue, 14, Blue/purple; 15 Brown; 16 Purple/brown; 17 Brown; 18 Orange/slate; 19 Brown; 20 Purple.
- 11.23 Brake fluid level. (2 single natural connectors) Located in the engine compartment plugged into the top of the brake fluid reservoir, and is routed to the main harness assembly. Colours: Black, Black/white.
- 11.24 Stop light switch. (2 way grey connector) Located on the brake pedal box and is routed to the main harness assembly. Colours: Green/yellow, Green/purple.
- 11.25 Heater motor. (3 way light grey connector) Located in the engine compartment local to the heater motor and routed to the main harness assembly. Colours: Green/ slate, Green/yellow, Purple/green.
- 11.26 Wash pump. (2 way natural connector, 2 way black connector) Located under the bonnet local to the windscreen wash reservoir and routed to the main harness assembly. Colours: Black, Black/light green, Light green/black.
- 11.27 Glow plug timer. (6 way black connector) Located under the bonnet on the bulkhead. Routed to the main harness assembly. Colours: White/red, Yellow/black, White, Black, Brown, Black/yellow.
- 11.28 Radio. Located inside the vehicle, routed to the main harness assembly. Colours: Black, Red.
- 11.29 Main fuses. Located under the bonnet against the bulkhead. Routed to the main harness assembly. Colours: Brown, Brown, Brown, Brown.
- 11.30 L.H wing connection (Grey 10 way connector). Located under the L.H wing, routed back to the main cable harness assembly. Colours: Green/red, Red/black, Purple/black, Blue/slate, Blue/pink, Light green/black, Black/light green, Blue/green, Black/yellow, Black.
- 11.31 Horn. (2 single natural connectors) Located behind radiator grille plugged into horn. Routed back to main harness assembly. Colours: Purple/black, Black.
- 11.32 Glow plug. (Light grey connector) Located under the bonnet local to glow plugs. Routed back to the main harness assembly. Colours: Black/yellow.
- 11.33 Starter solenoid. (2 way natural connector) Located under the bonnet local to the starter motor, routed back to the main harness assembly. Colours: White/red.
- 11.34 Side Tank connections. (3 way black connector) Located under bonnet local to bulkhead. Routed to main harness assembly. Colours: Green/black, Black.
- 11.35 Chassis connections (3 off 4 way). Located under the bonnet local to the bulkhead. Routed to the main harness assembly.
- 11.35.1 Plug 1. (4 way black connector) Colours: Red/orange, Red/brown, Red/yellow, Green/red.
- 11.35.2 Plug 2. (4 way white connector) Colours: Green/brown, White/black, Green, Brown/light green.
- 11.36 Engine connections. (14 Way grey connector). Located under the bonnet local to the bulkhead. Routed to main harness assembly. Colours: White/brown, Green/blue, Brown/yellow, White, Green/yellow, Green/brown, Black/blue, Black, Black, Black, Brown/yellow, Black, White/red, Black.

- 11.37 R.H wing connector (Grey 10 way). Colours: Green/white, Red/black, Blue/orange, Blue/black, Blue/yellow, Blue/green, Black.
- 11.38 Heated rear window switch (5 way natural connector). Colours: White, White/green.
- 11.39 Heated front windscreen (5 way black connector). Colours: Brown/light green, Black.
- 11.40 Heated rear screen warning lamp (single black connector). Colour: White/black.
- 11.41 Hazard switch warning lamp (single black connector). Colour: Black
- 11.42 Rear wash wipe switch (Green connectors). Colour: Green.
- 11.43 Webasto heater switch (2 off natural single connectors). Colours: Blue/purple, Purple.
- 11.44 Webasto heater (RFI) connector (6 way grey connector). Colours: Purple/orange, Blue/purple, Purple, Brown/green, Blue/green, Black.

KEY TO FIG 1

1	Fuel gauge illumination	39	LH H/L level
2	Fuel indicator 1,2	40	Horn connection
3	Fuel indicator earth	41	LH headlamp
4	Water temperature earth	42	Front breather tube
5	Water temperature gauge illumination	43	Starter solenoid FFR
6	Temperature indicator	44	Starter solenoid
7	Speedo illumination	45	Resistor
8	Radio	46	Starter A
9	Radio harness	47	Engine main harness conns
10	Wiper motor connection	48	2 way econ seal
11	Wiper link harness	49	Twin alternator link
12	Main harness connection	50	EGR valve
13	Earth	51	Alternator C
14	Diff lock	52	Alternator C earth
15	Reverse switch	53	Alternator connection 3
16	Diagnostic socket	54	Alternator connection 2
17	Heater switch connection	55	Alternator connection 1
18	Heater switch harness	56	Tacho connection 1
19	Instrument harness	57	Alternator A,B connection
20	RH wing main harness connection	58	Coolant temperature (ECU)
21	Instrument main harness connection	59	Water temperature
22	Main harness connection	60	Oil pressure switch
23	Engine harness	61	Alternator A connection
24	Glow plug harness	62	Alternator link 1
25	Glow plug connections	63	Alternator CINN 1
26	Glow plug main harness connection	64	Alternator earth
27	Radio main harness connection	65	RH repeater
28	Front breather tube	66	Front breather tube
29	LH wing main harness connection	67	RH headlamp
30	Front washer tube connection	68	RH flasher
31	Rear washer tube connection	69	RH H/L level
32	Front washer tube	70	RH side lamp
33	Rear washer tube	71	RH wing harness
34	Front wash pump	72	Throttle pot
35	Rear wash pump	73	Fuel shut off harness
36	LH repeater	74	Fuel shut off
37	LH flash	75	Front breather tube B
38	LH side lamp		

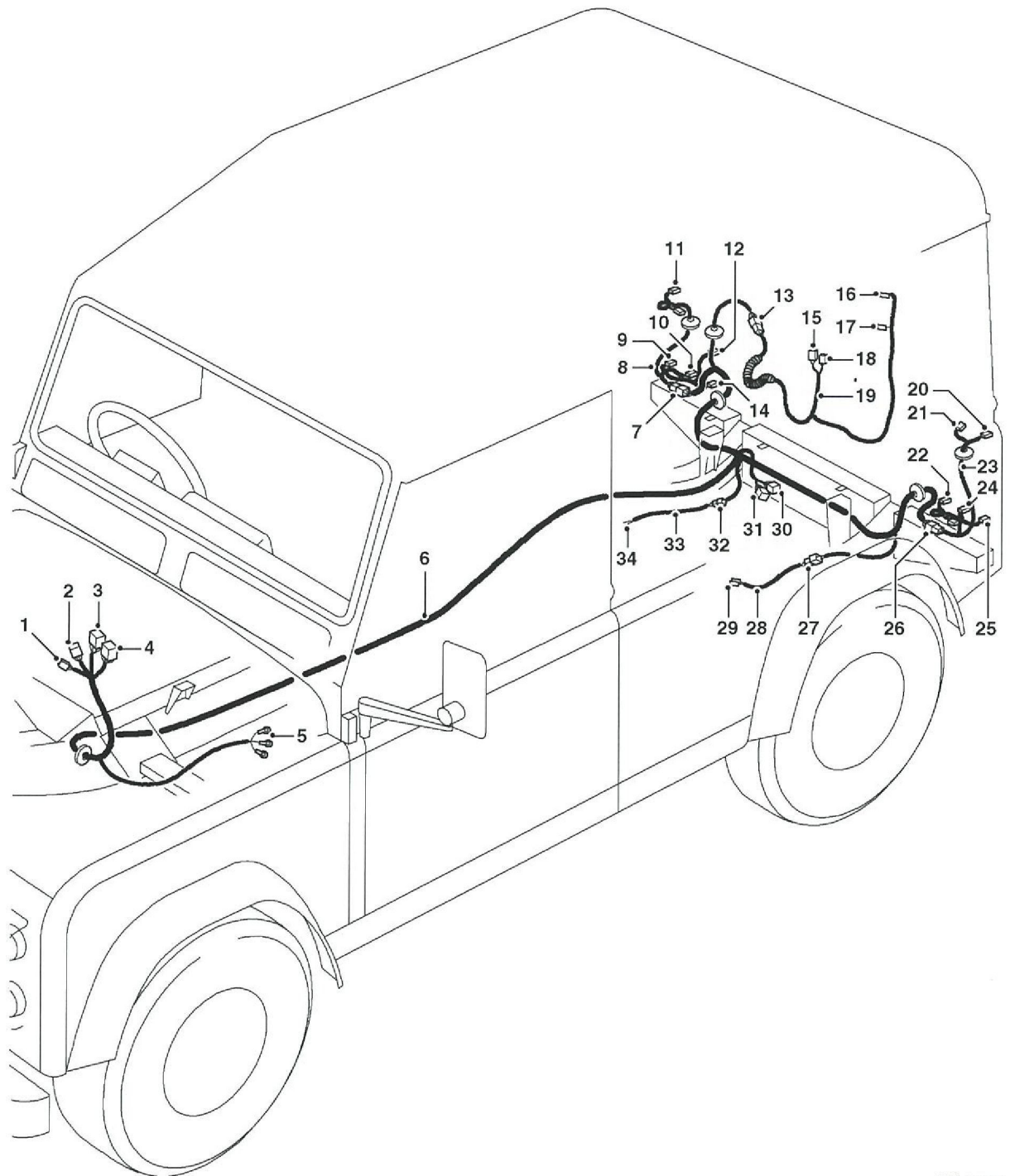


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Fig 1 Engine and auxiliary harness assemblies

KEY TO FIG 2

1	Main harness connection 4	18	Wiper park switch
2	Main harness connection 3	19	Rear w/w, rear HS harness
3	Main harness connection 1	20	LH rear stop light
4	Main harness connection 2	21	Number plate light
5	Gear box earths	22	LH rear fog light
6	Chassis harness	23	LH rear body harness
7	RH body connection	24	LH rear indicator flash
8	RH body harness	25	LH tail light
9	RH tank light	26	LH body connection
10	RH rear indicator flash	27	Rear tank connection
11	RH rear stop light	28	Rear tank link
12	Reverse light	29	Rear tank
13	Wiper motor connection	30	Trailer connection 2
14	RH fog lamp	31	Trailer connection 1
15	Wiper motor	32	Convoy light connection
16	Heated rear window	33	Convoy light link
17	Rear window earth	34	Convoy light

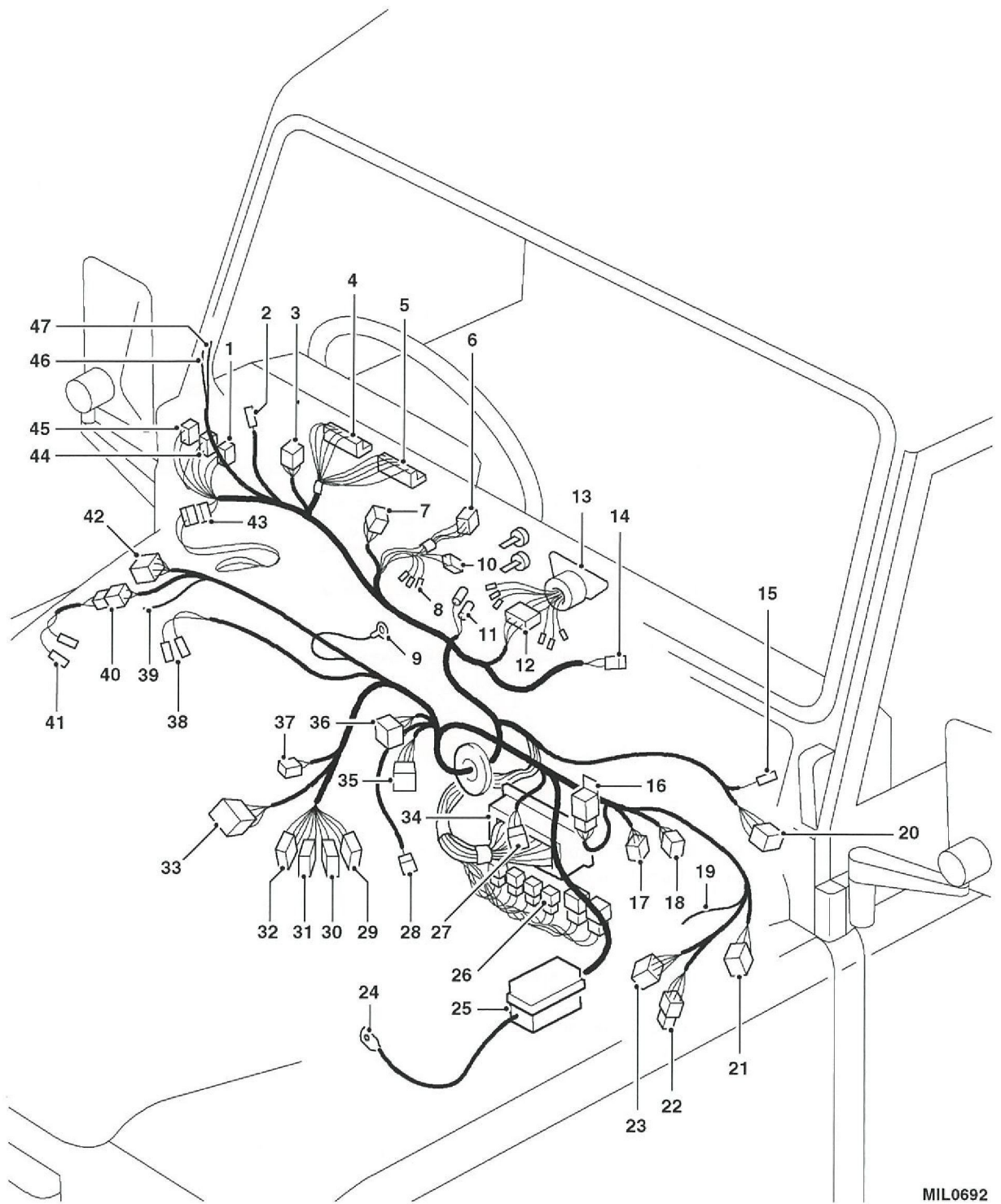


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Fig 2 Chassis and rear body harness assemblies

KEY TO FIG 3

1	H/L level switch connection	25	Main fuse box
2	HFS connectio	26	Relays
3	Instrument harness connection	27	Webasto RFI connection
4	Warning lamp 1	28	Glow plug connection
5	Warning lamp 2	29	Chassis harness connection 1
6	Horn/ DI/Dip/ W/Wipe switch	30	Tank connection
7	Resistor pack connection	31	Chassis harness connection 3
8	Ignition switch	32	Chassis harness connection 2
9	Earth	33	Engine harness connection
10	Heater switch	34	Auxiliary fuse box
11	Inspection sockets	35	Header connection 7
12	B.O lighting connection	36	Header connection 1
13	B.O. lighting switch	37	Webasto fuel pump connection
14	Map lamp switch	38	Stop light switch
15	HFS earth	39	Front breather tube B
16	Glow plug timer	40	Brake fluid connection
17	Ammeter illumination	41	Brake fluid switch
18	Radio connection	42	RH wing connection
19	Front breather tube A	43	H/L levelling switch link
20	Wiper motor	44	Hazard switch connection
21	LH wing connection	45	Fog lamp switch connection
22	Heater blank	46	Front breather tube A
23	Heater motor	47	Front breather tube B
24	Starter motor connection		



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Fig 3 Main cable harness assembly

HOW TO USE THE CIRCUIT DIAGRAMS

12 The circuit diagrams are presented with Power and Earth distribution first, followed by individual circuits for each electrical system on the vehicle.

Power distribution

13 The power distribution diagram shows the connections from the battery to the engine and fuse boxes. It also shows the internal circuitry of the fuse boxes.

13.1 The fuse box details are followed by the earth distribution diagram.

13.2 The Header joints, Splices and centre taps sections follow on outlining the way in which internal harness splices and header joints distribute power in the harness.

13.3 This information should be used during diagnosis of electrical faults to check symptoms in associated circuits and narrow down the search area.

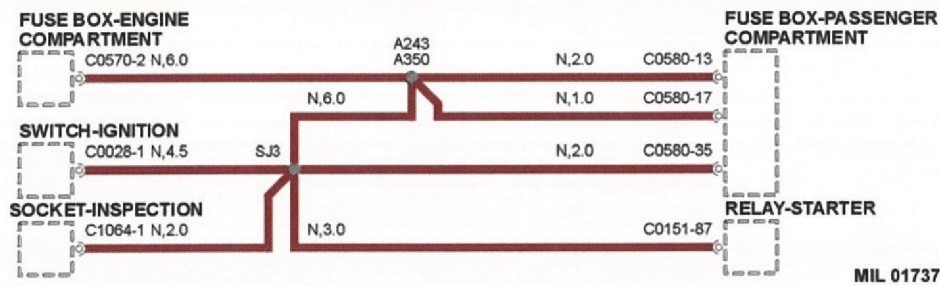


Fig 4 Power distribution

Headers, splices and centre taps

14 Header and splice circuits present the joint(s) and wiring up to the first component. Splices are identified by a number with an alphabetical prefix and wire colour.

Wire attributes

15 Additional information separated by a “,” is shown along side the wire colour.

15.1 Wire gauge is the cross sectional area of the wire in square millimetres. This is included to help in selecting the correct wire during harness repair.

15.2 Wire length (Power and Earth distribution only) is the length of wire in millimetres. This can be used to locate internal harness splices; look for the shortest wire between the joint and connector. For example, it can be seen that C0570-2 is 730 mm from joint A350 (refer to Fig 4).

Connectors

16 Header joints are identified by their corresponding connector number with a numbered suffix to indicate the pin-out detail of wire, i.e. C0580-4 identifies connector 0580, pin number 4 (refer to Fig 5). Wire insulation colour is identified in the normal way. Where wires have a predominant colour with a secondary colour stripe, the main colour is identified first, i.e. LGS – Light Green with a Slate stripe.

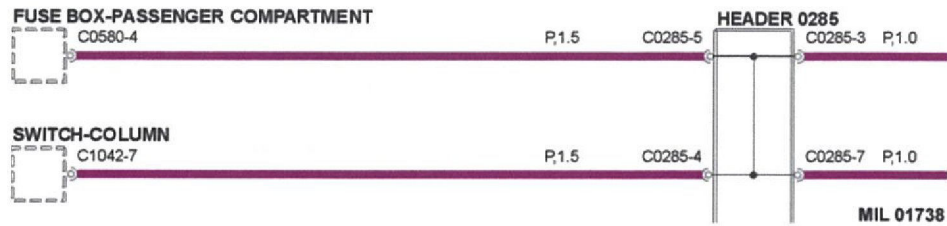


Fig 5 Connectors

Earth distribution

17 The ground distribution section comprises a number of Headers, Splices and centre taps circuits. These are used in a similar manner to those in Power distribution; to narrow the search area by checking for fault symptoms in associated circuits.

Line types

18 Fig 6 means that the wire connects to another circuit.



Fig 6 Line types I

19 The "cup and ball" symbol indicates the male and female halves of the connector (refer to Fig 7).

19.1 Plug on lead, fly lead (Fig 7 (A)), wired directly to the component.

19.2 Connector plugs directly into circuit (Fig 7 (B)).

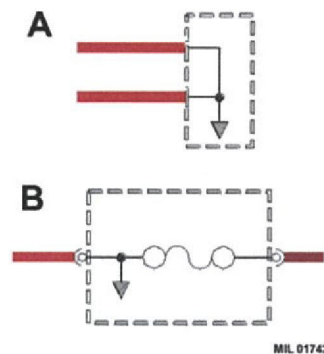


Fig 7 Line types II

Components

20 The name, or description of the component is shown. A dotted outline indicates that the component is not shown in its entirety.

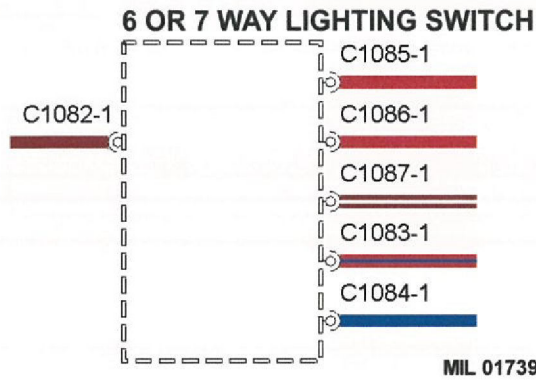


Fig 8 Components

Earth points

21 Earth points are identified with an eyelet symbol and a connector number, except where components are grounded through their fixings, when only the eyelet is shown.

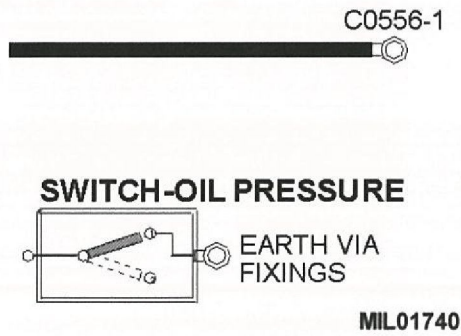


Fig 9 Earth points

Fuses and diodes

22 Fusible links (refer to Fig 10 (A)) and current fuses (B), are identified as shown. The direction of the arrow in a diode symbol (C) indicates the direction of flow. The Zener diode (D) prevents current flow until a precise voltage is reached.

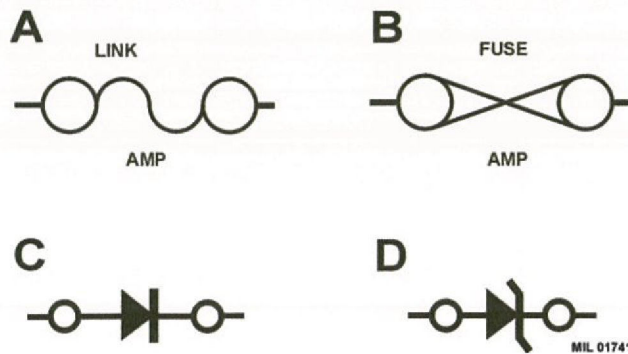


Fig 10 Fuses and diodes

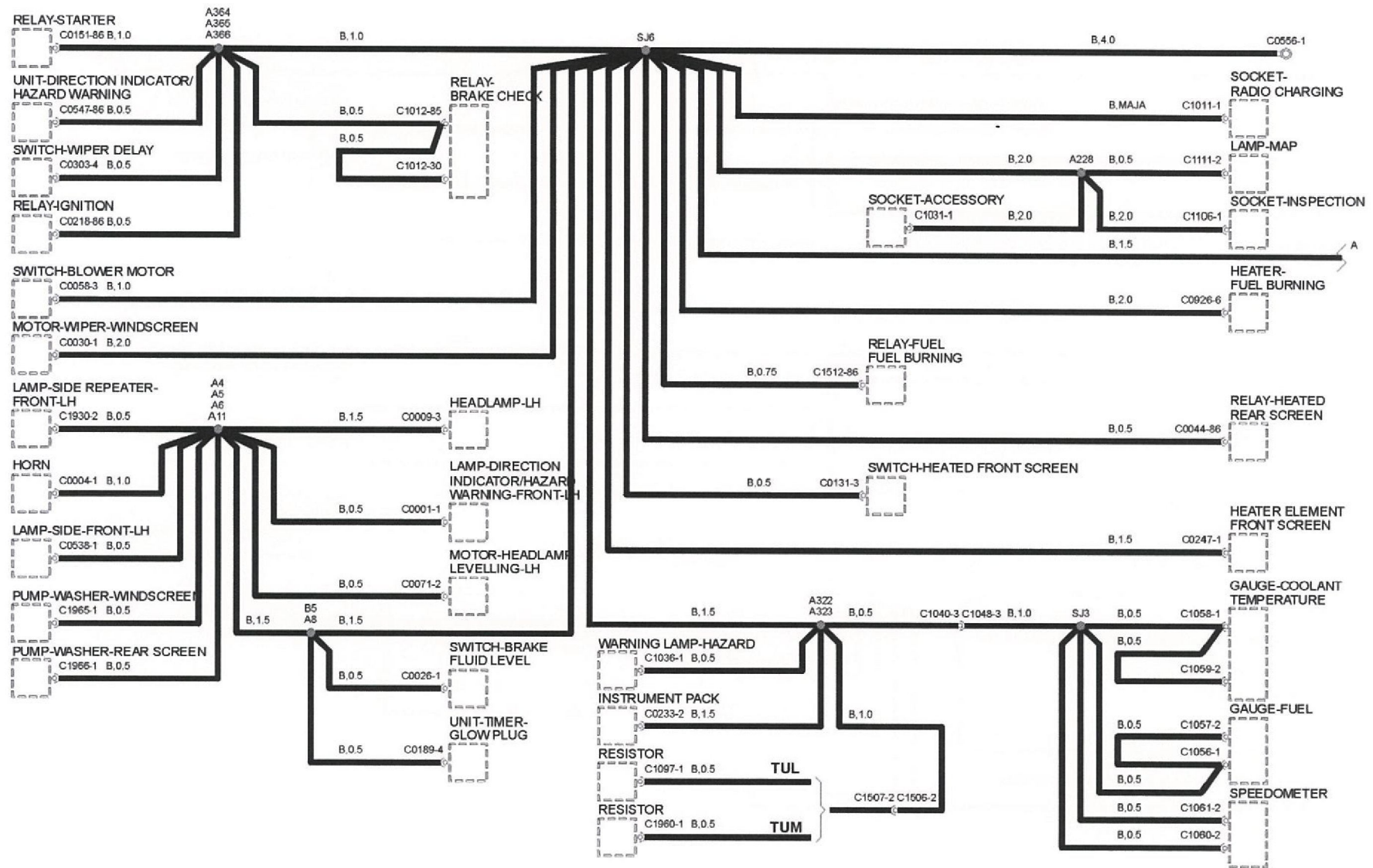


Fig 11 Earth distribution I

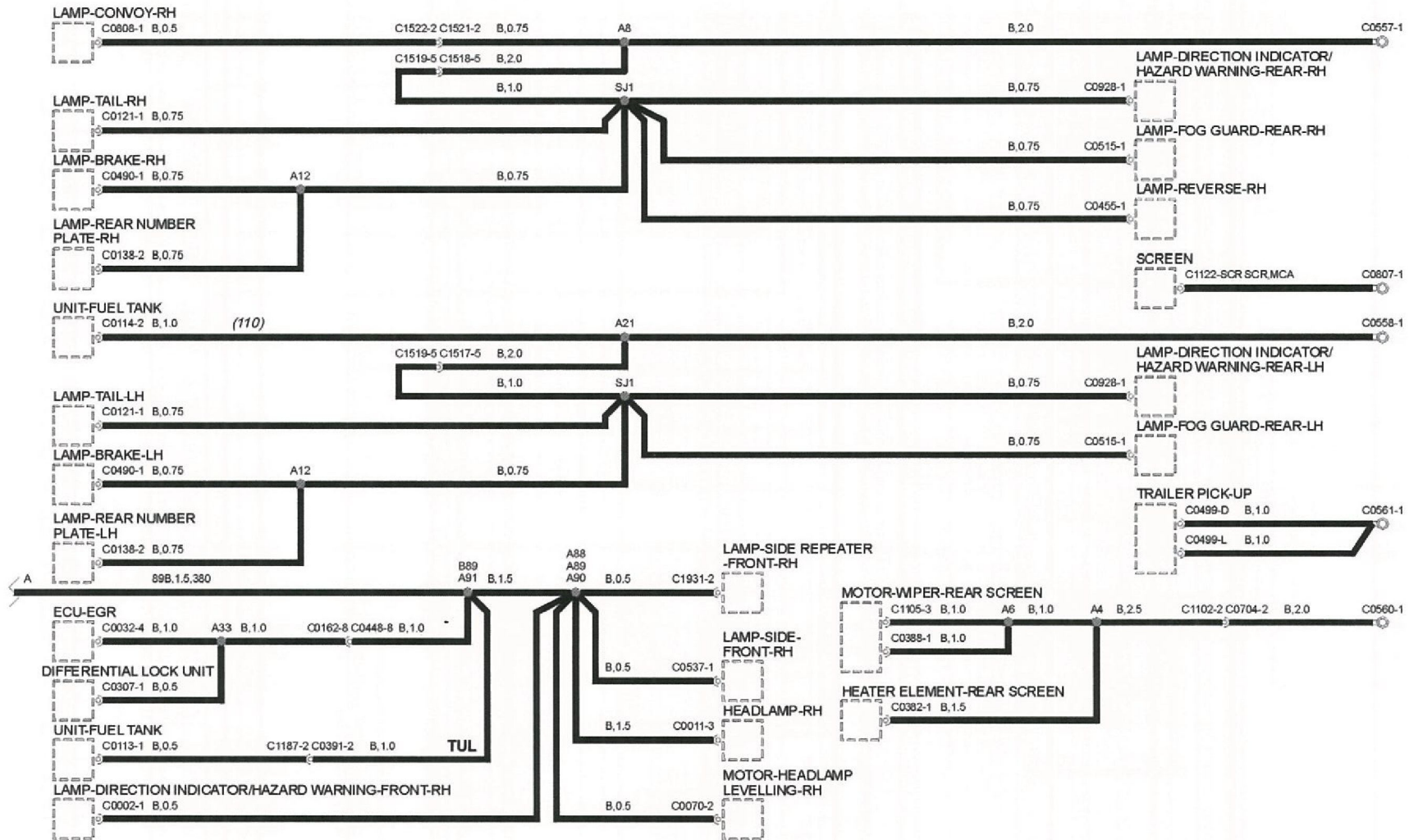


Fig 12 Earth distribution II

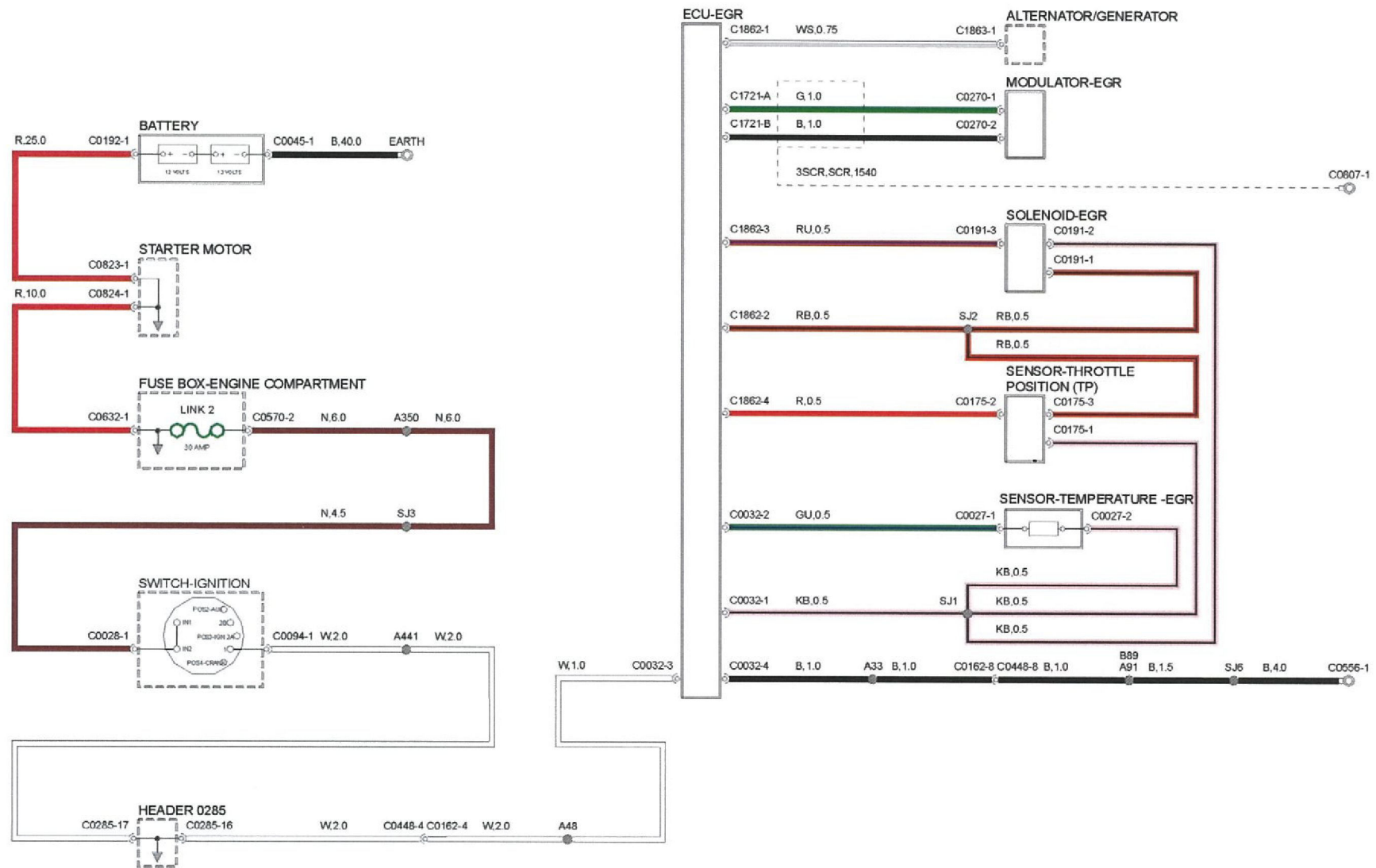


Fig 13 EEGR

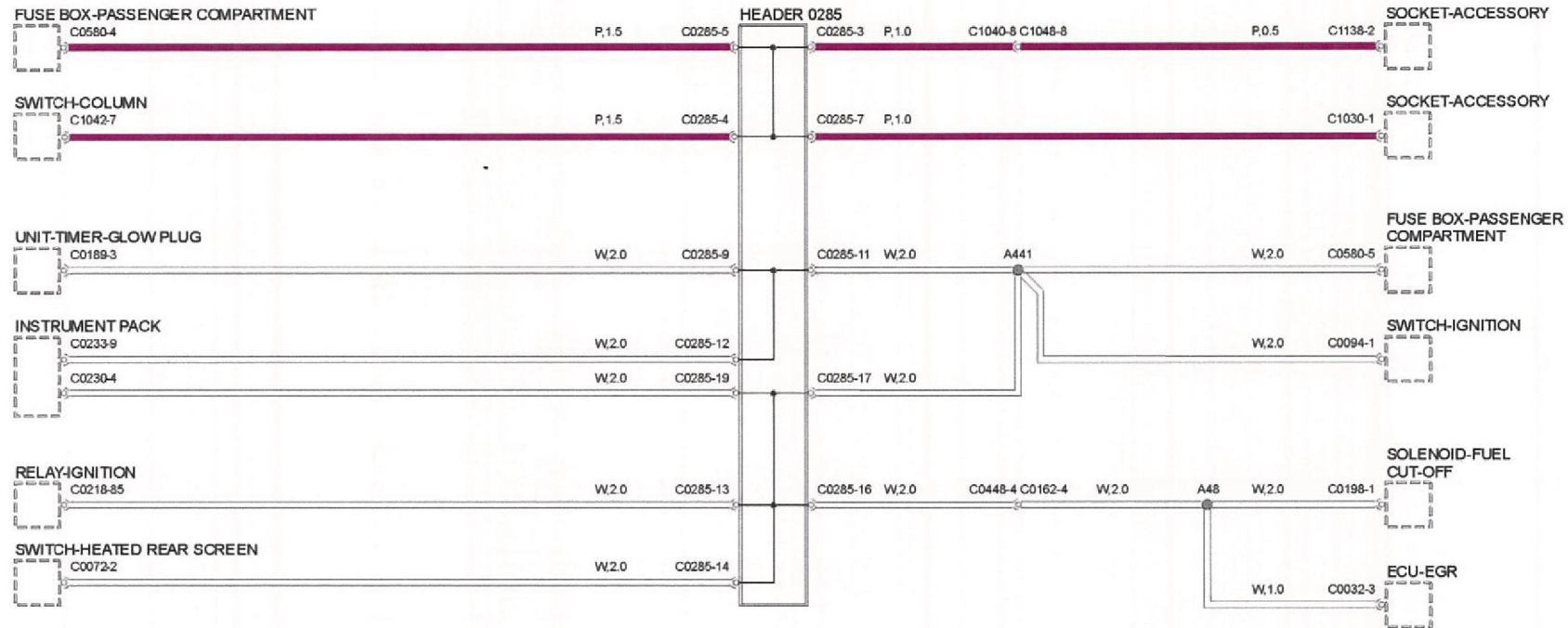


Fig 14 Header joints

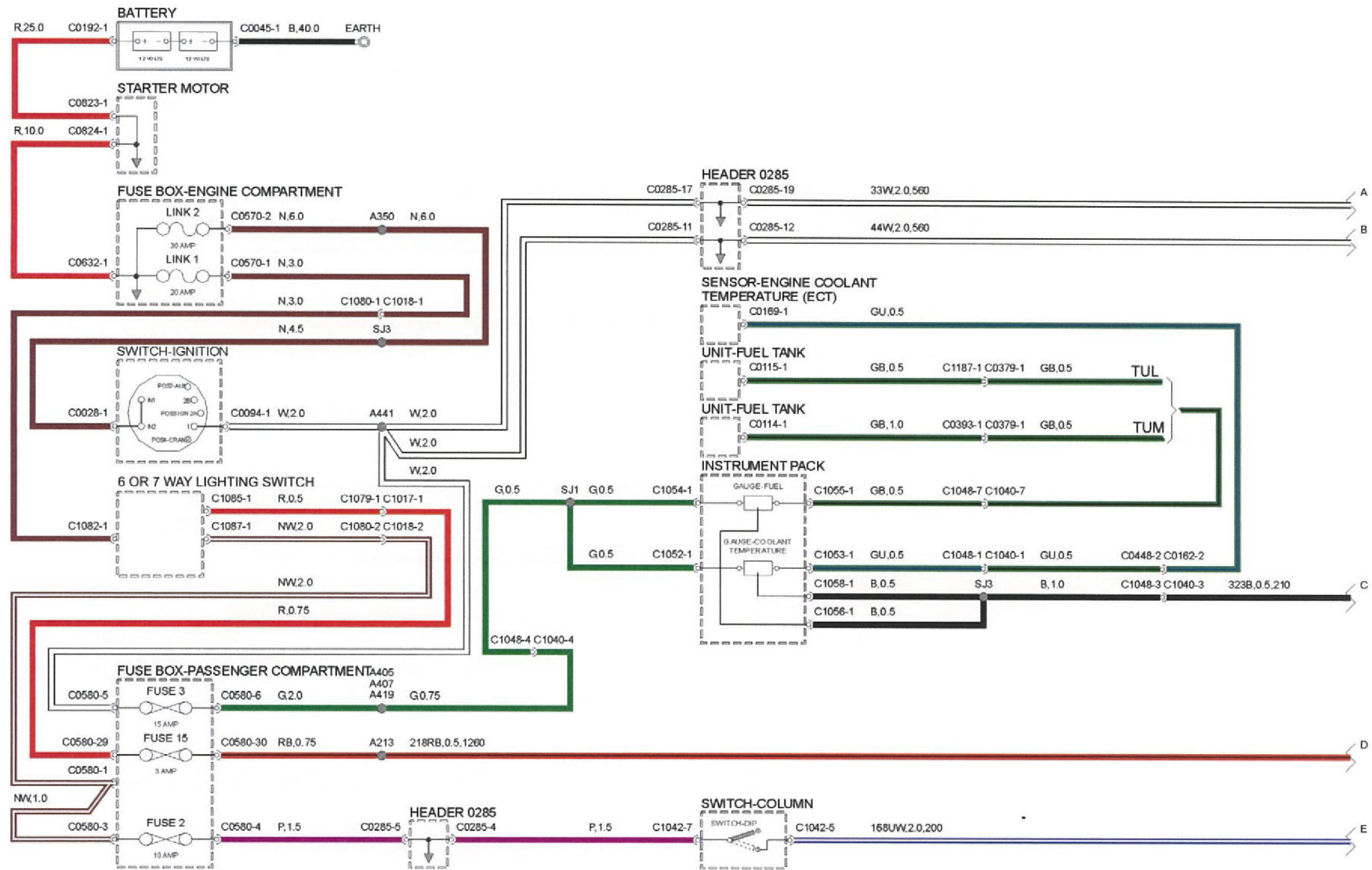


Fig 15 Instruments I

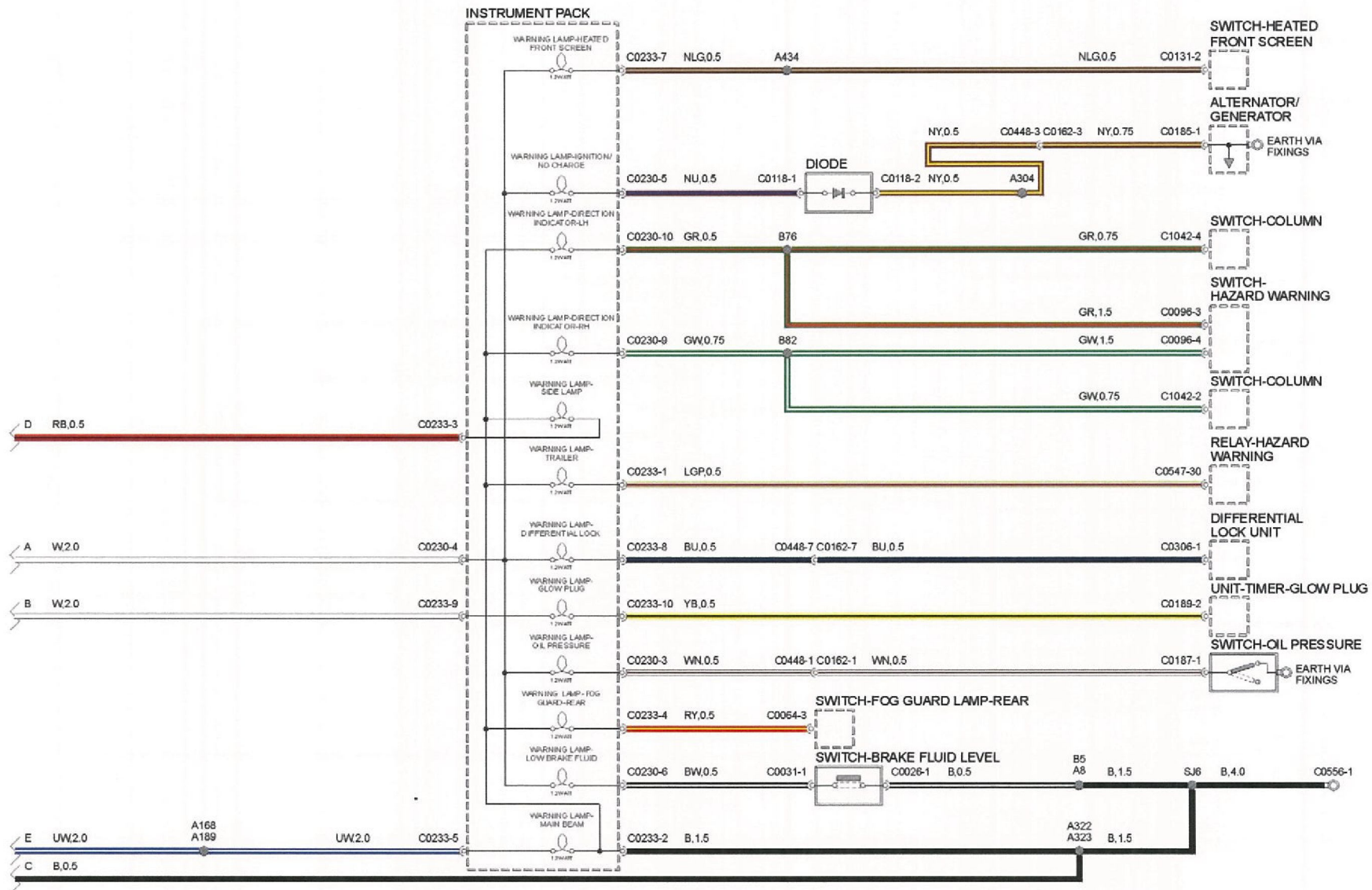


Fig 16 Instruments II

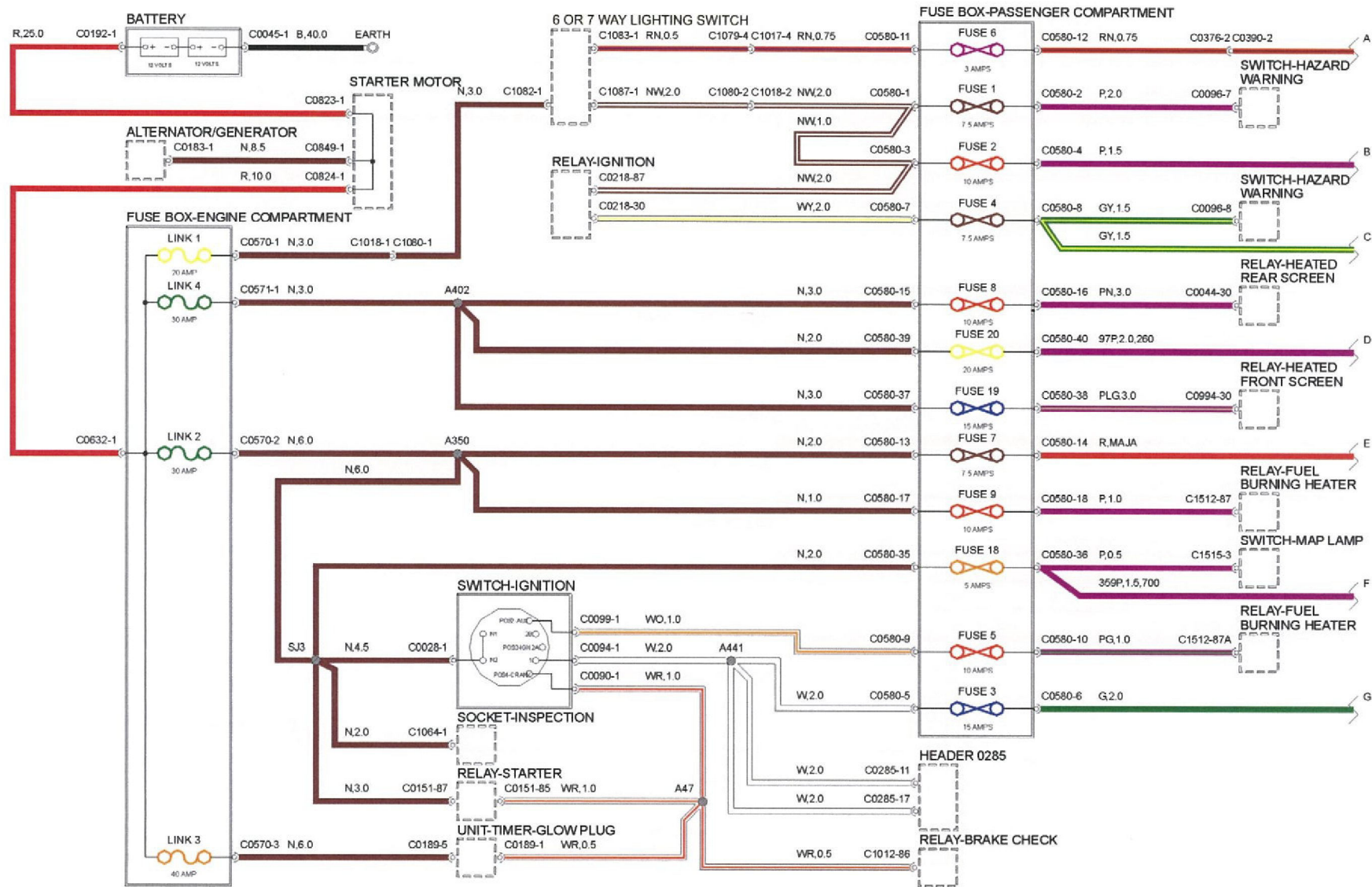


Fig 17 Power distribution I

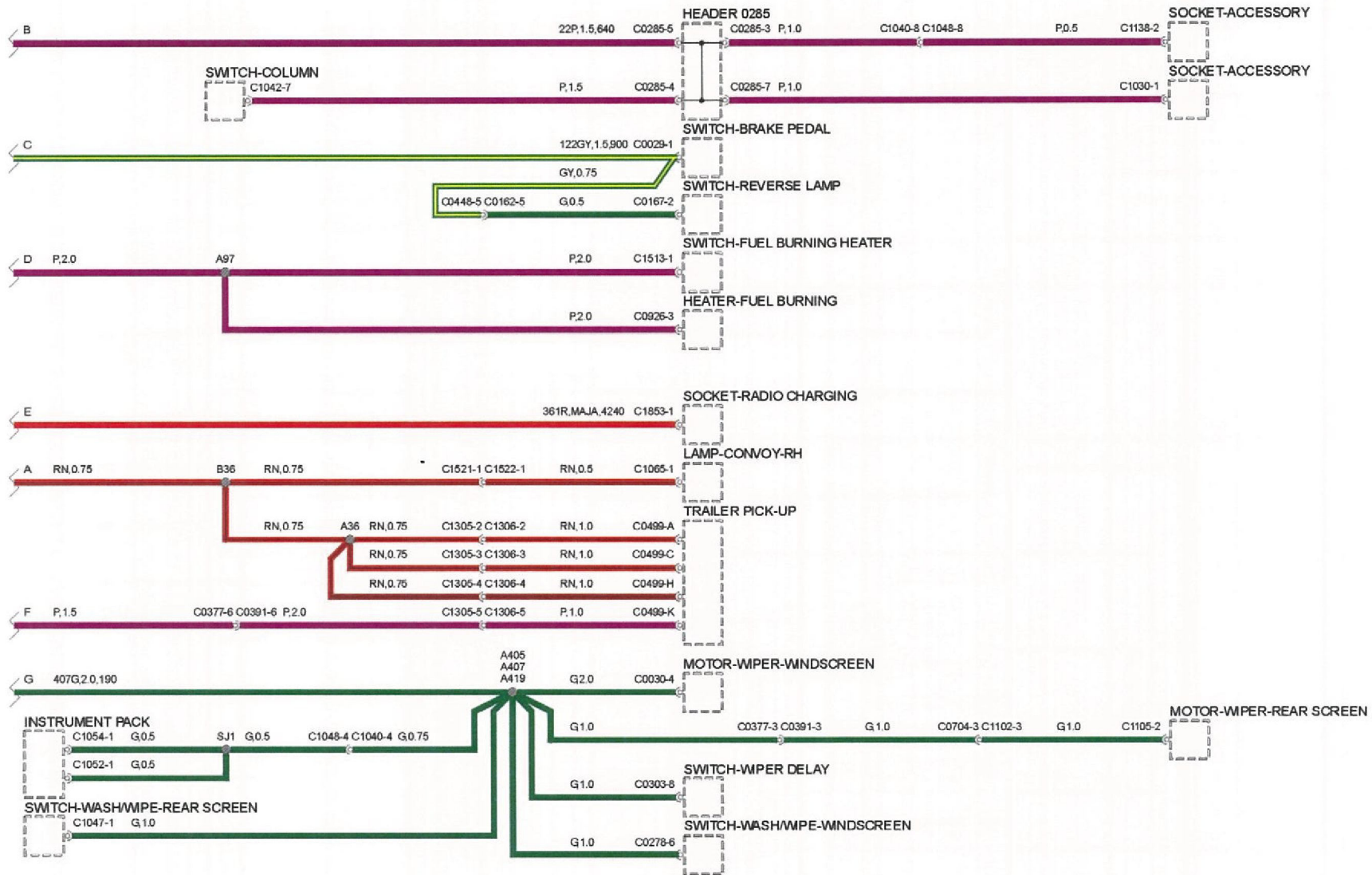


Fig 18 Power distribution II

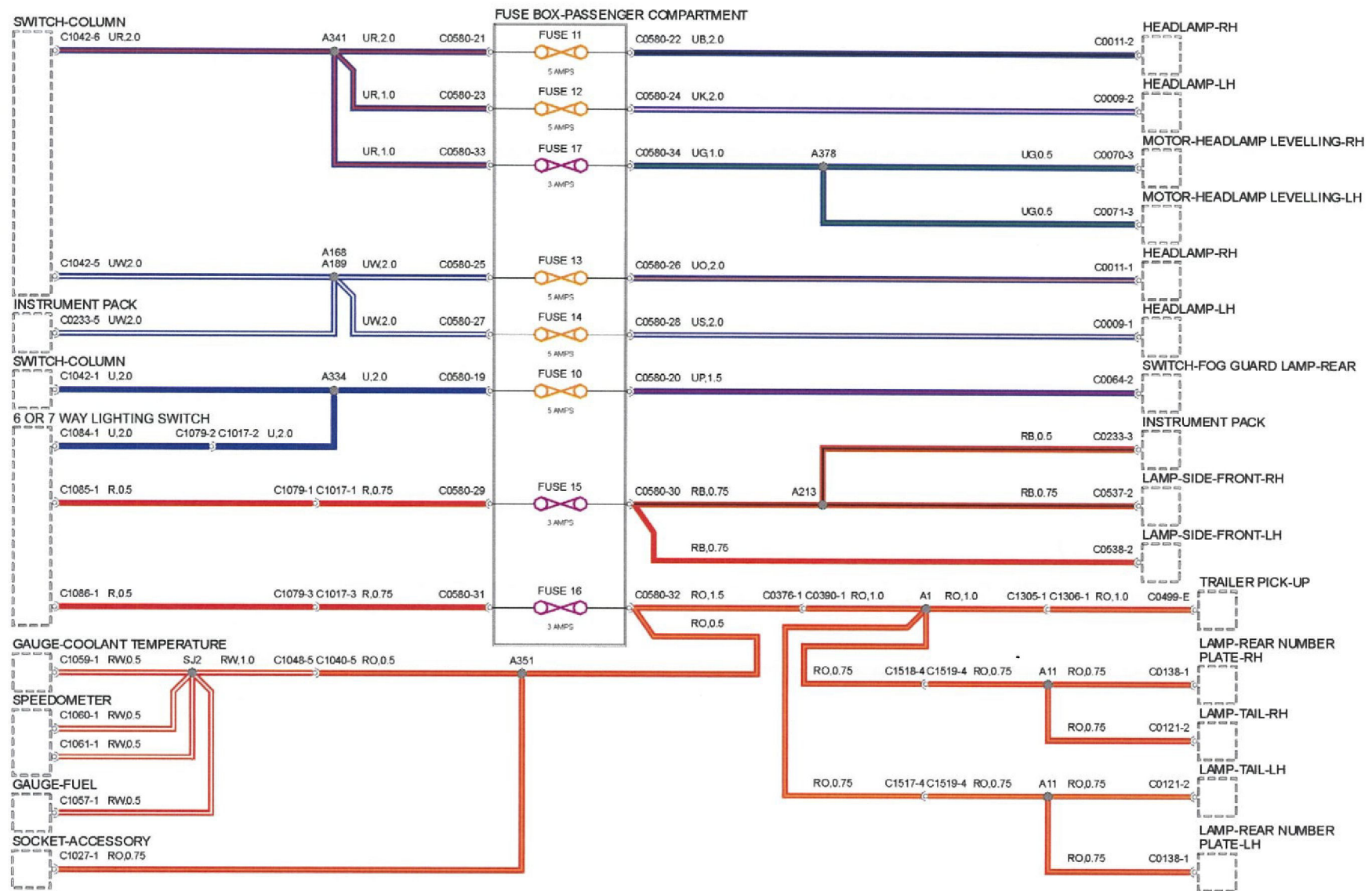


Fig 19 Power distribution III

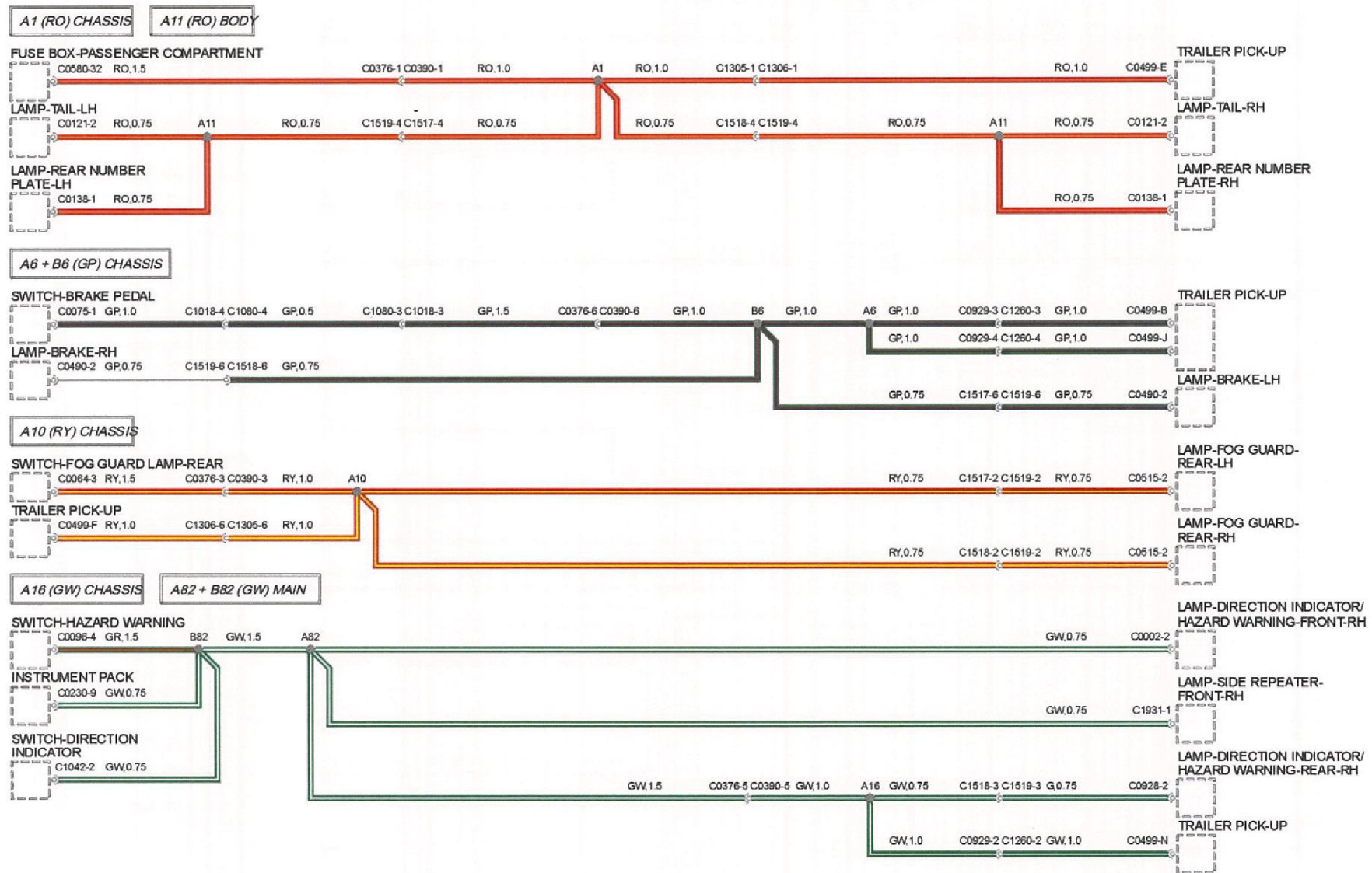


Fig 20 Splices and Centre taps I

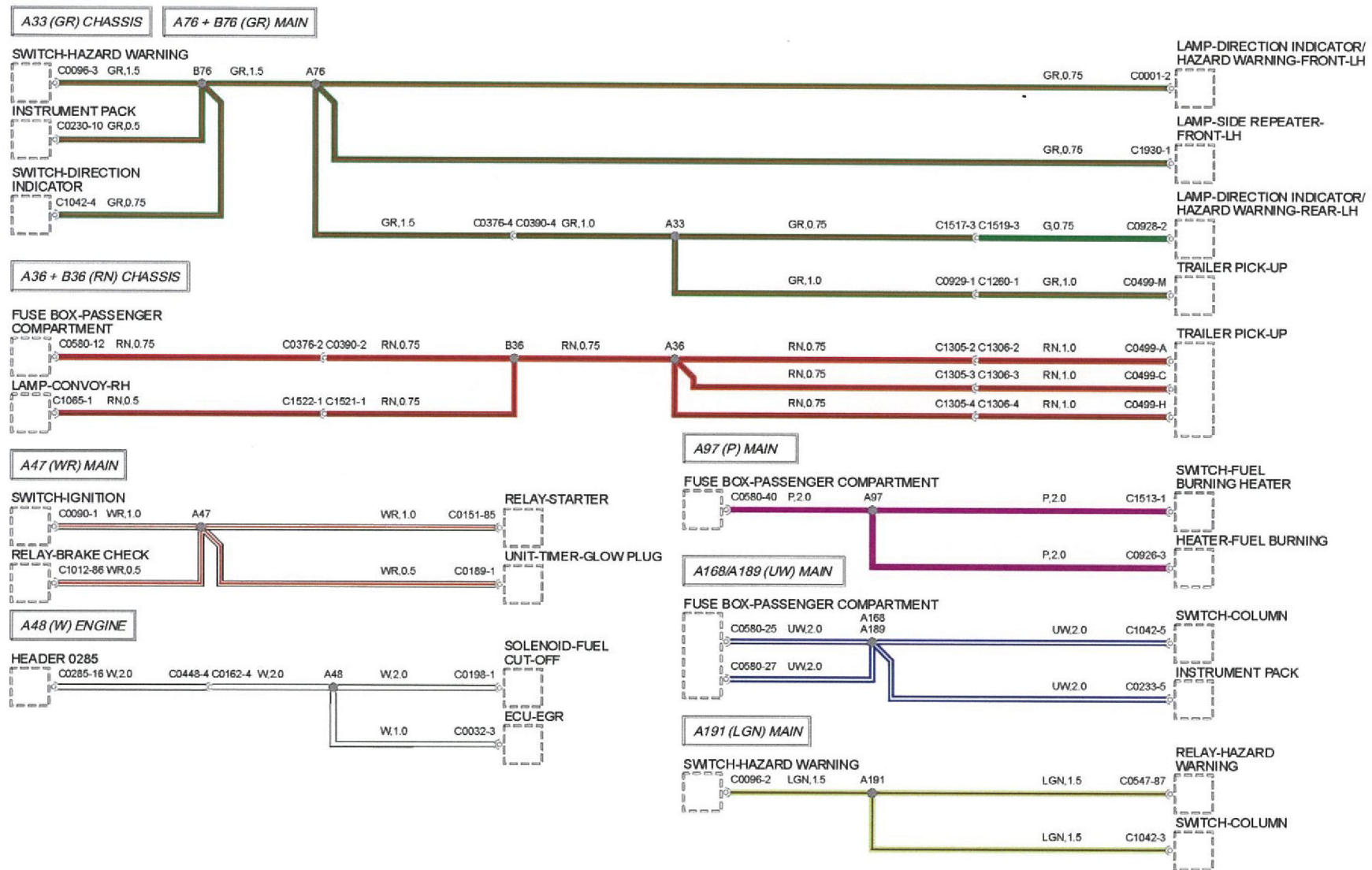


Fig 21 Splices and Centre taps II

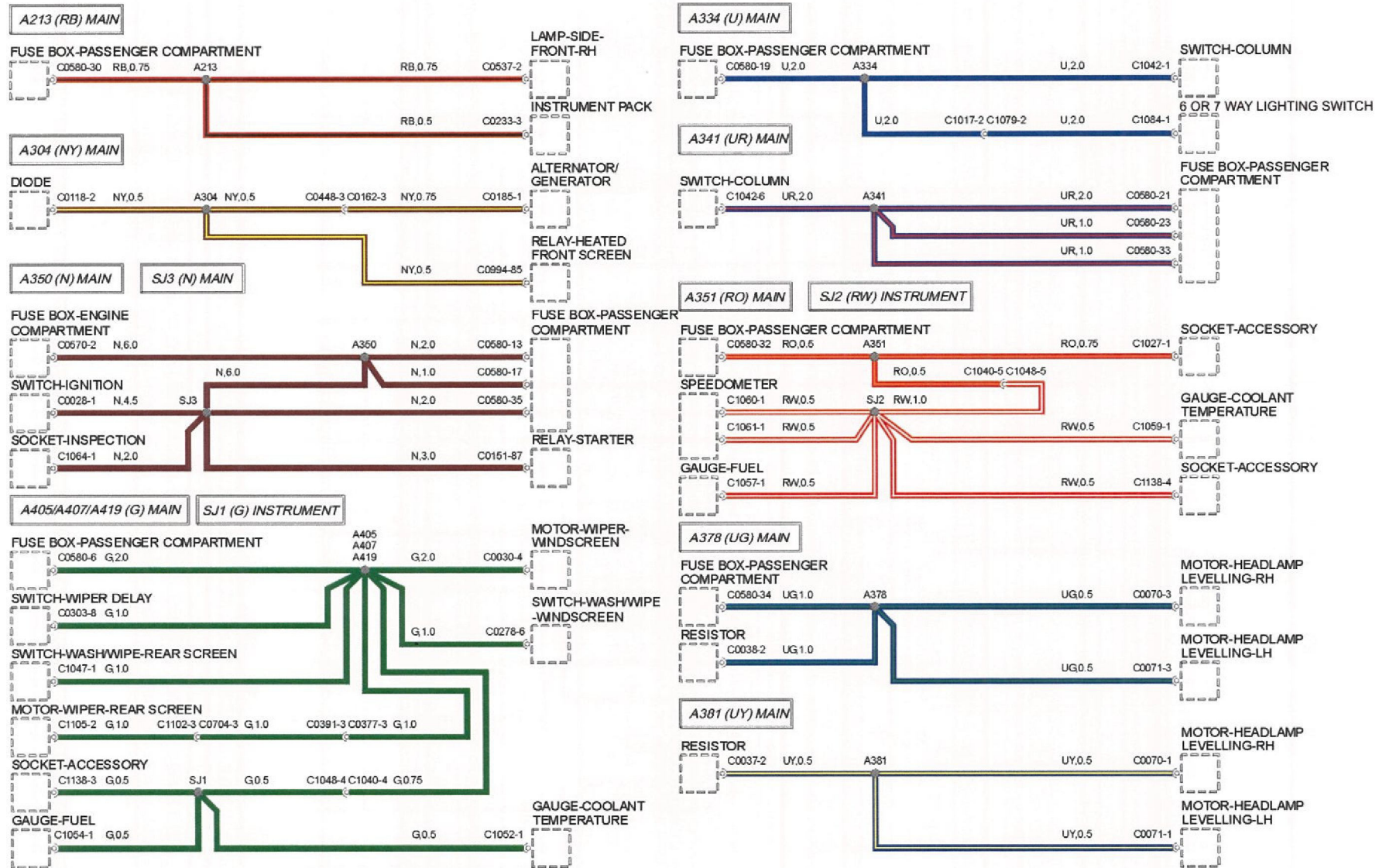


Fig 22 Splices and Centre taps III

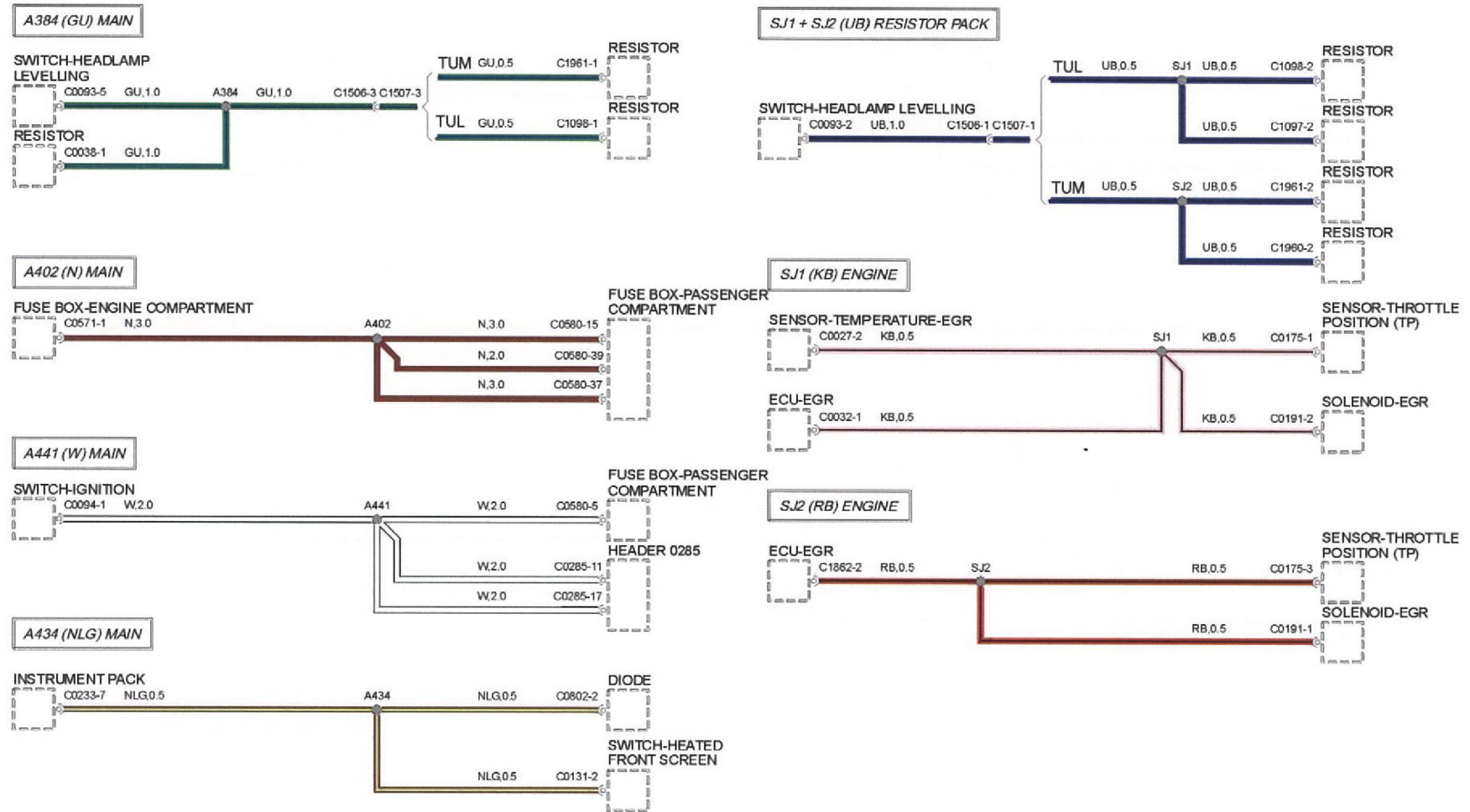


Fig 23 Splices and Centre taps IV

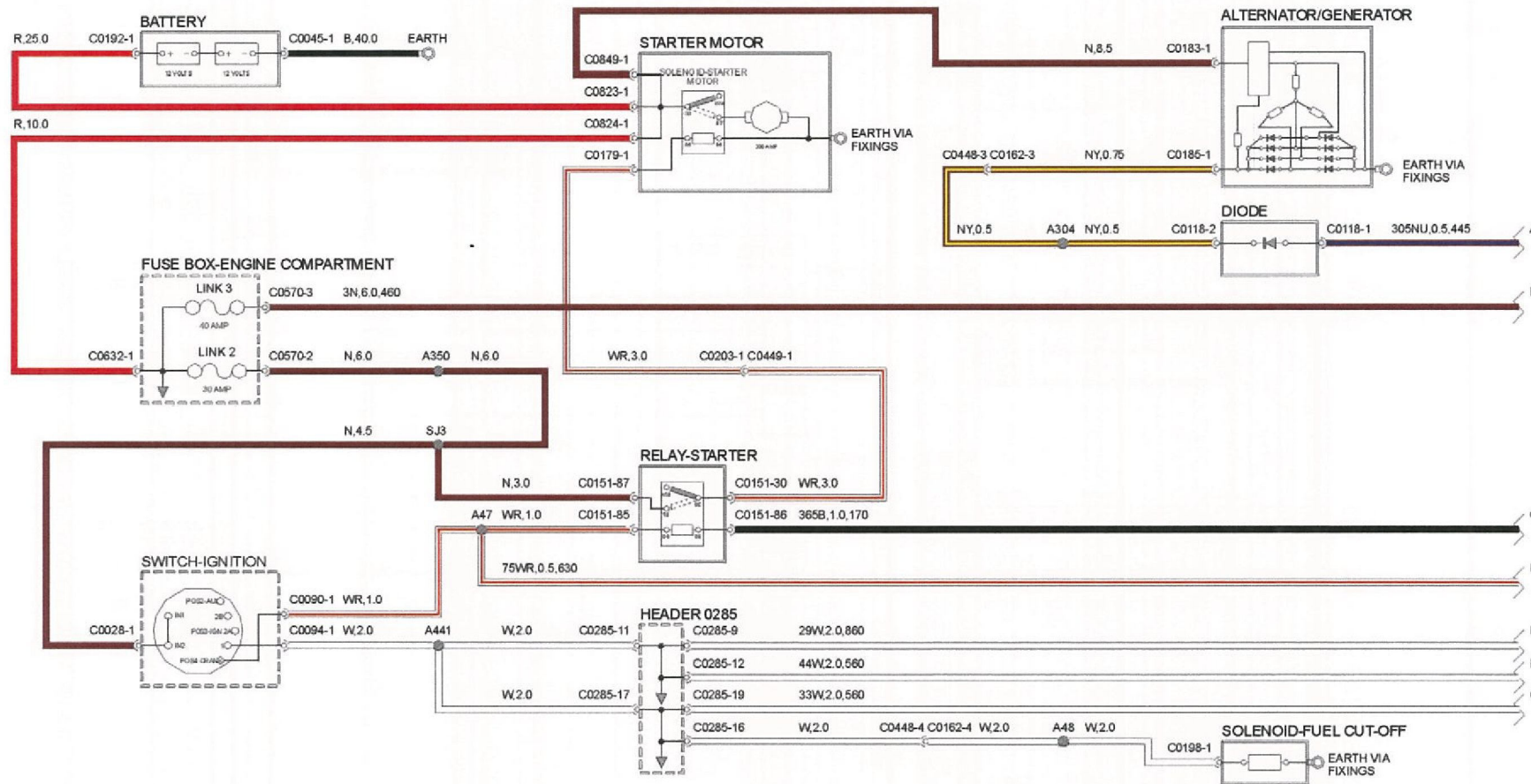


Fig 24 Starting and Charging I

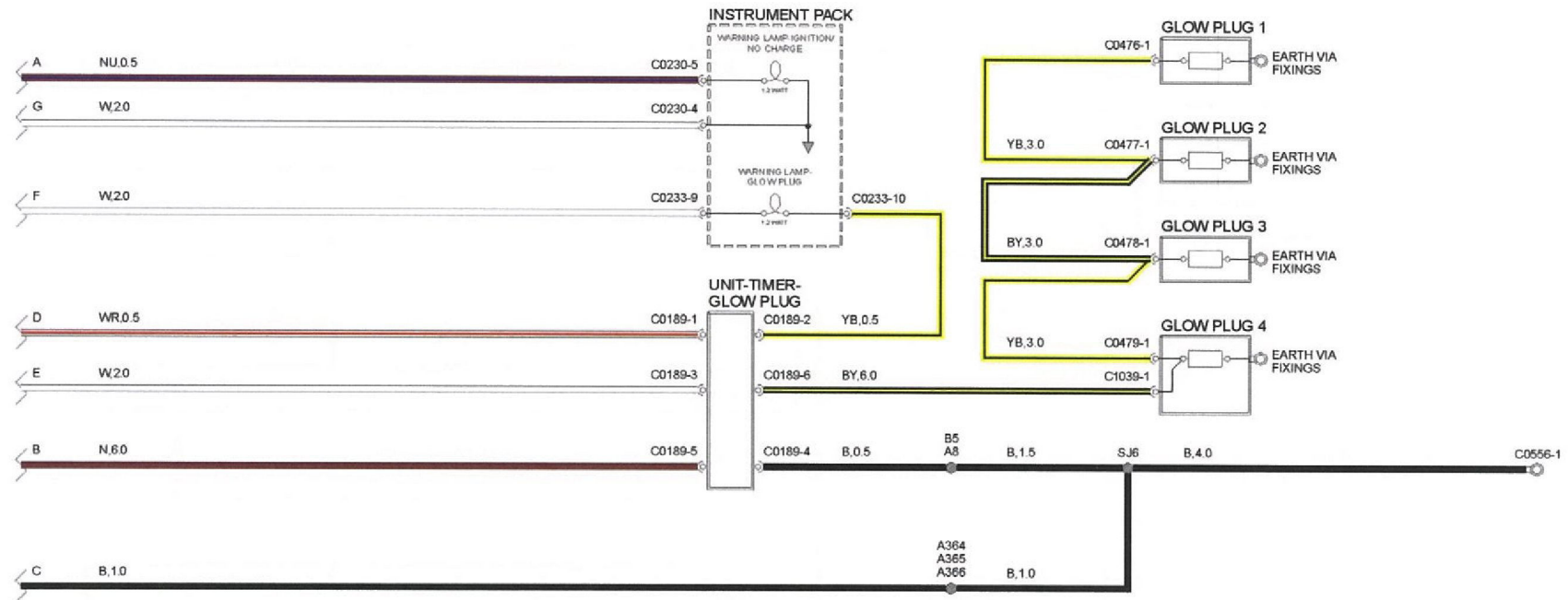


Fig 25 Starting and Charging II

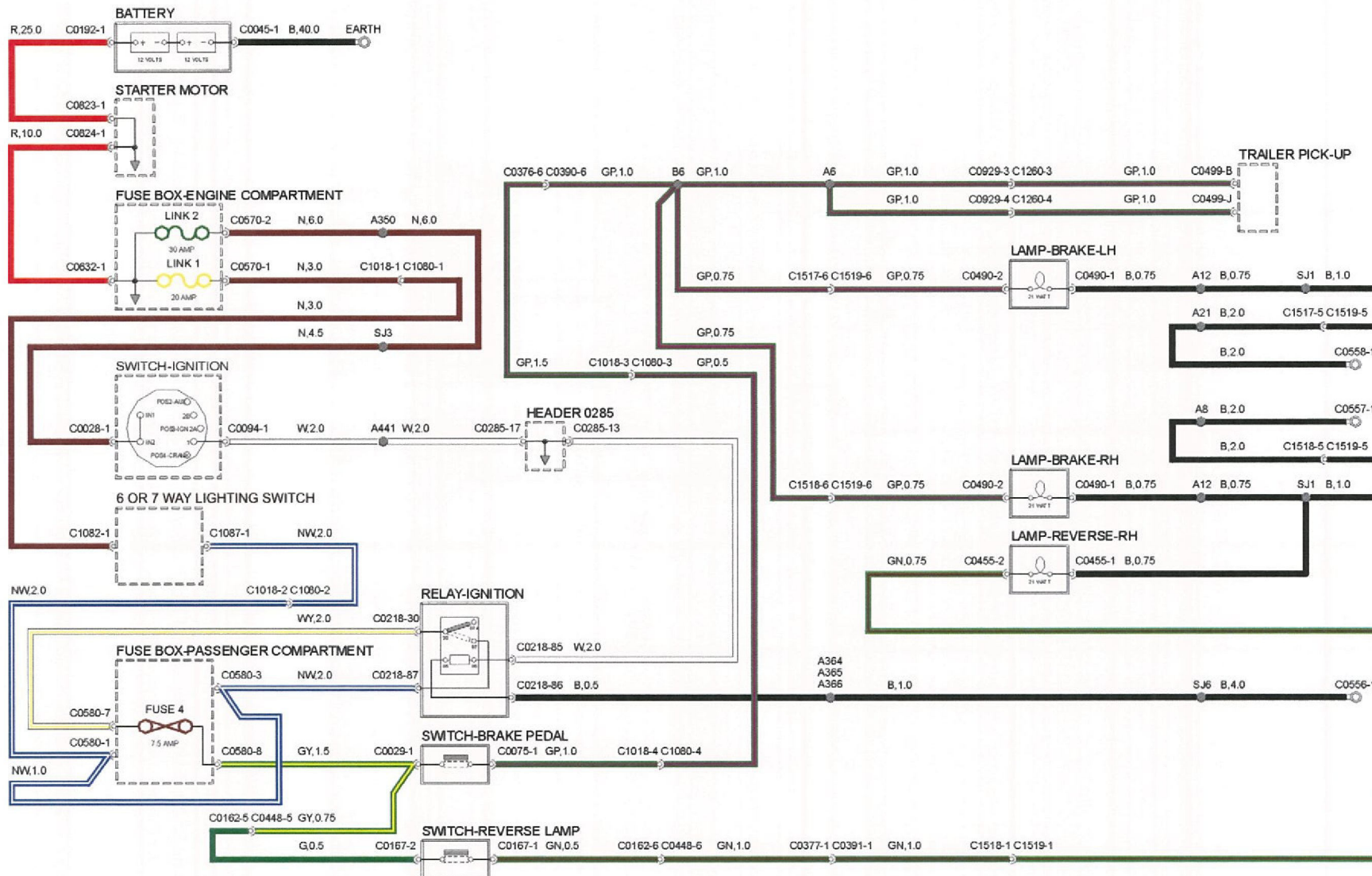


Fig 26 Brake reverse lamps

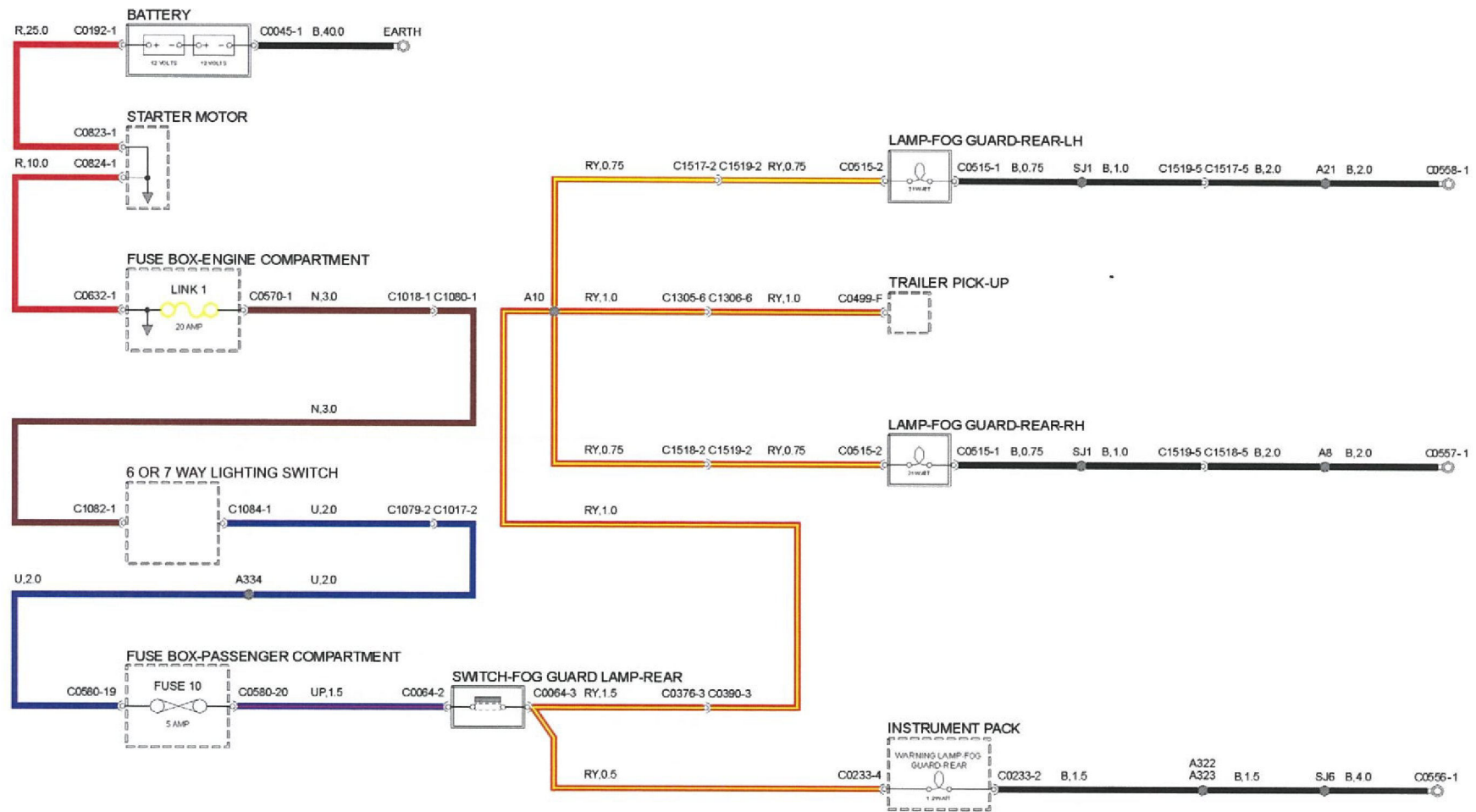


Fig 27 Fog lamps

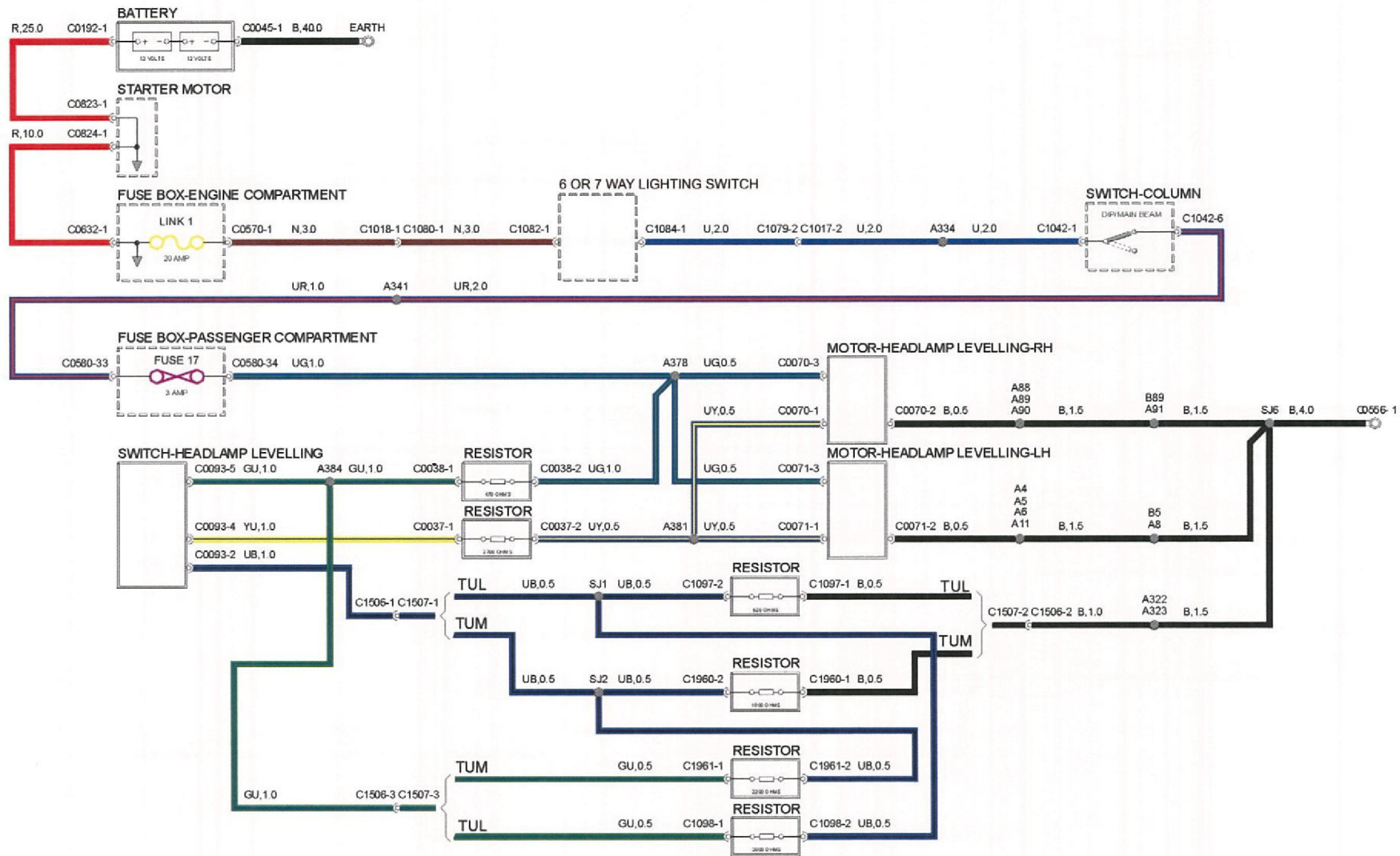


Fig 28 Headlamp levelling

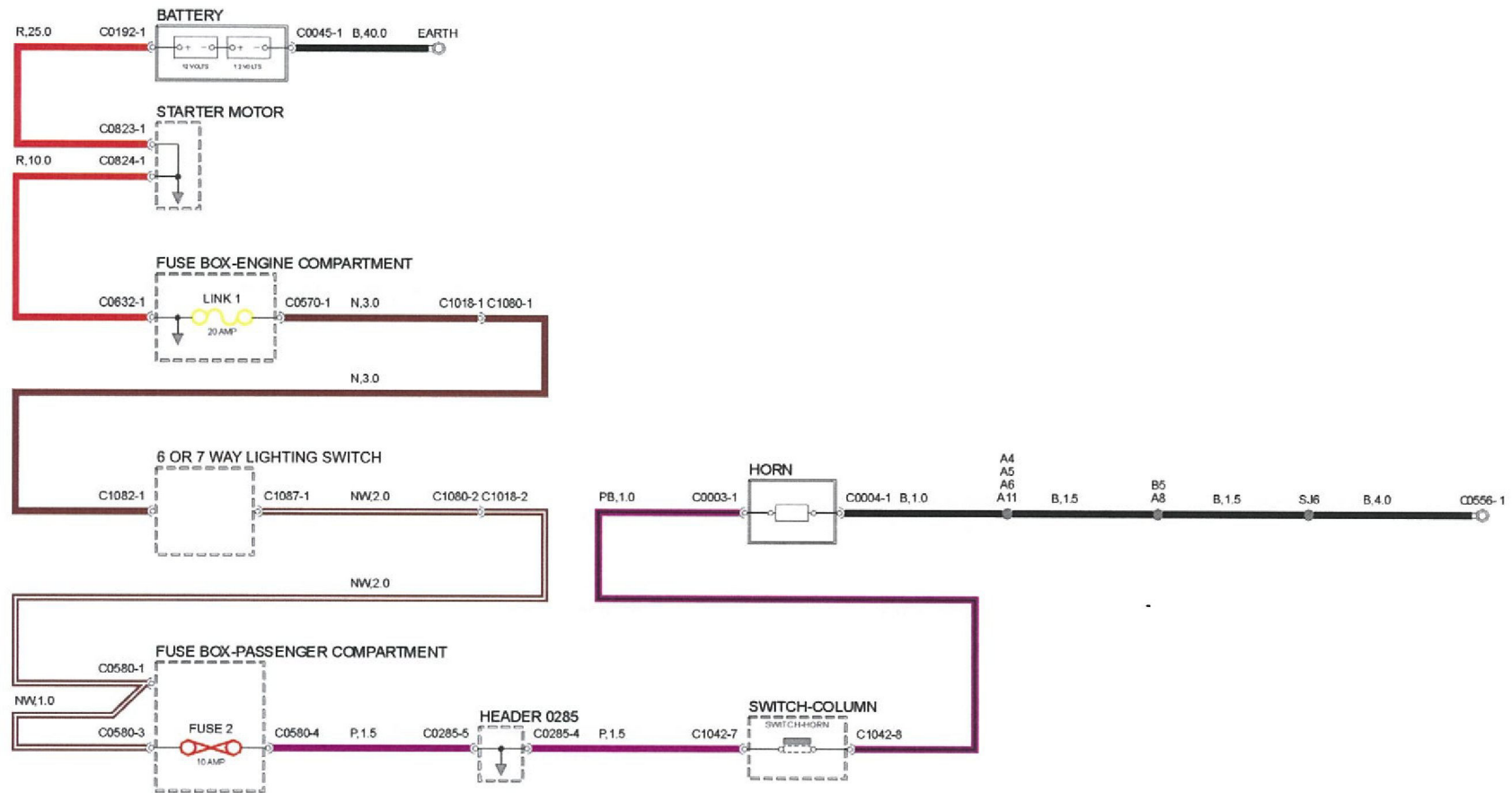


Fig 29 Horn

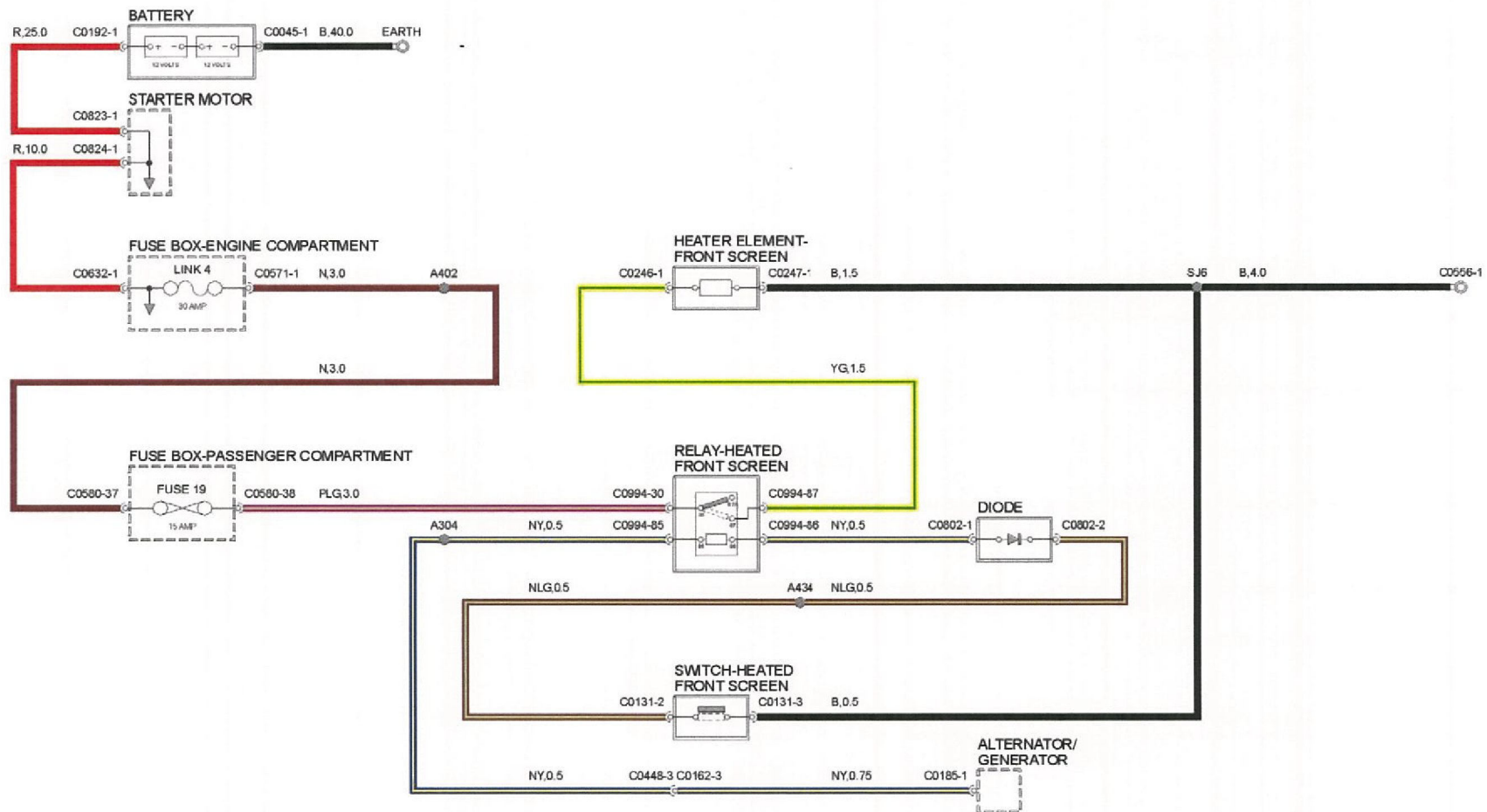


Fig 30 Heated front screen

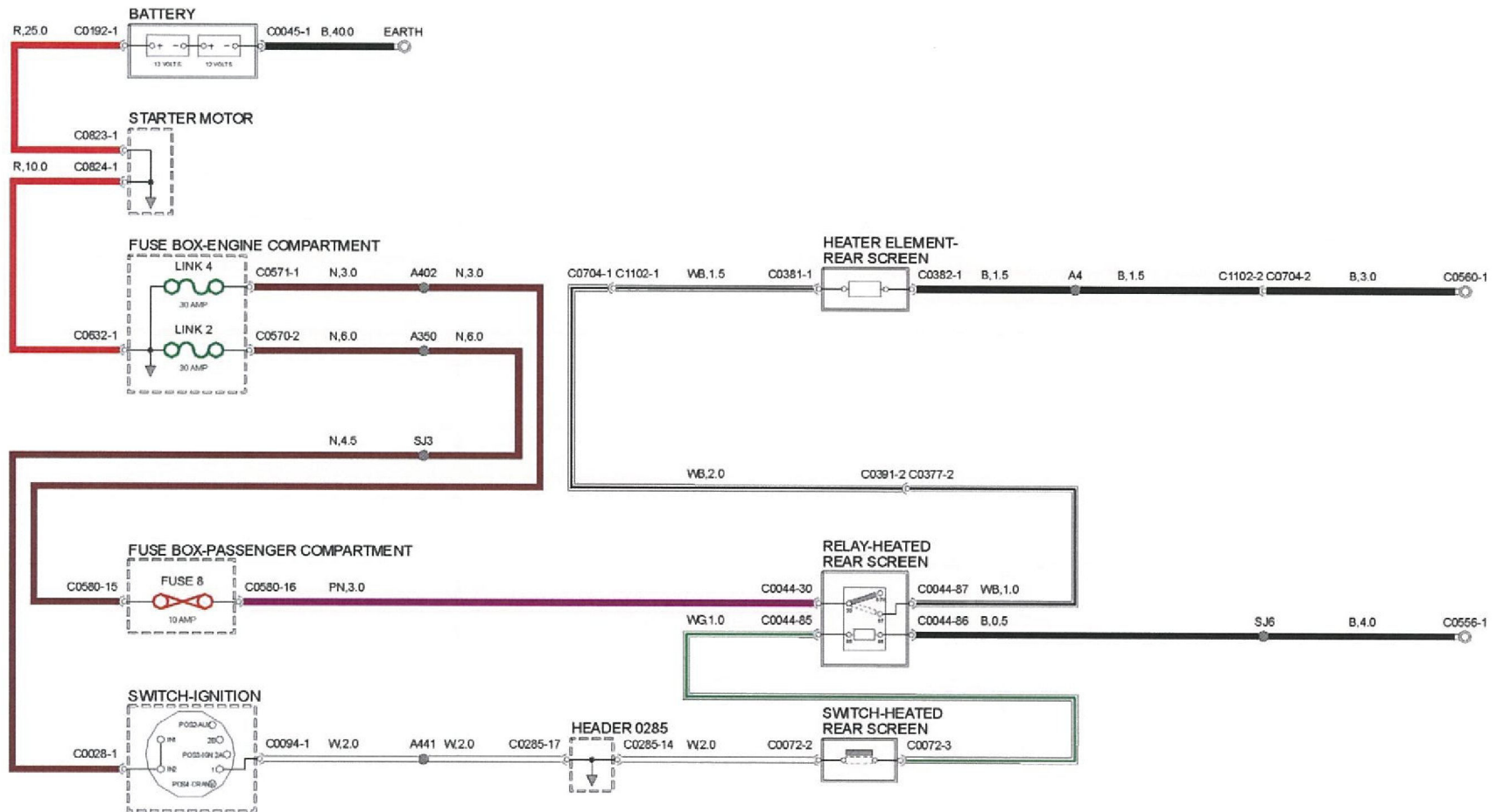


Fig 31 Heated rear screen

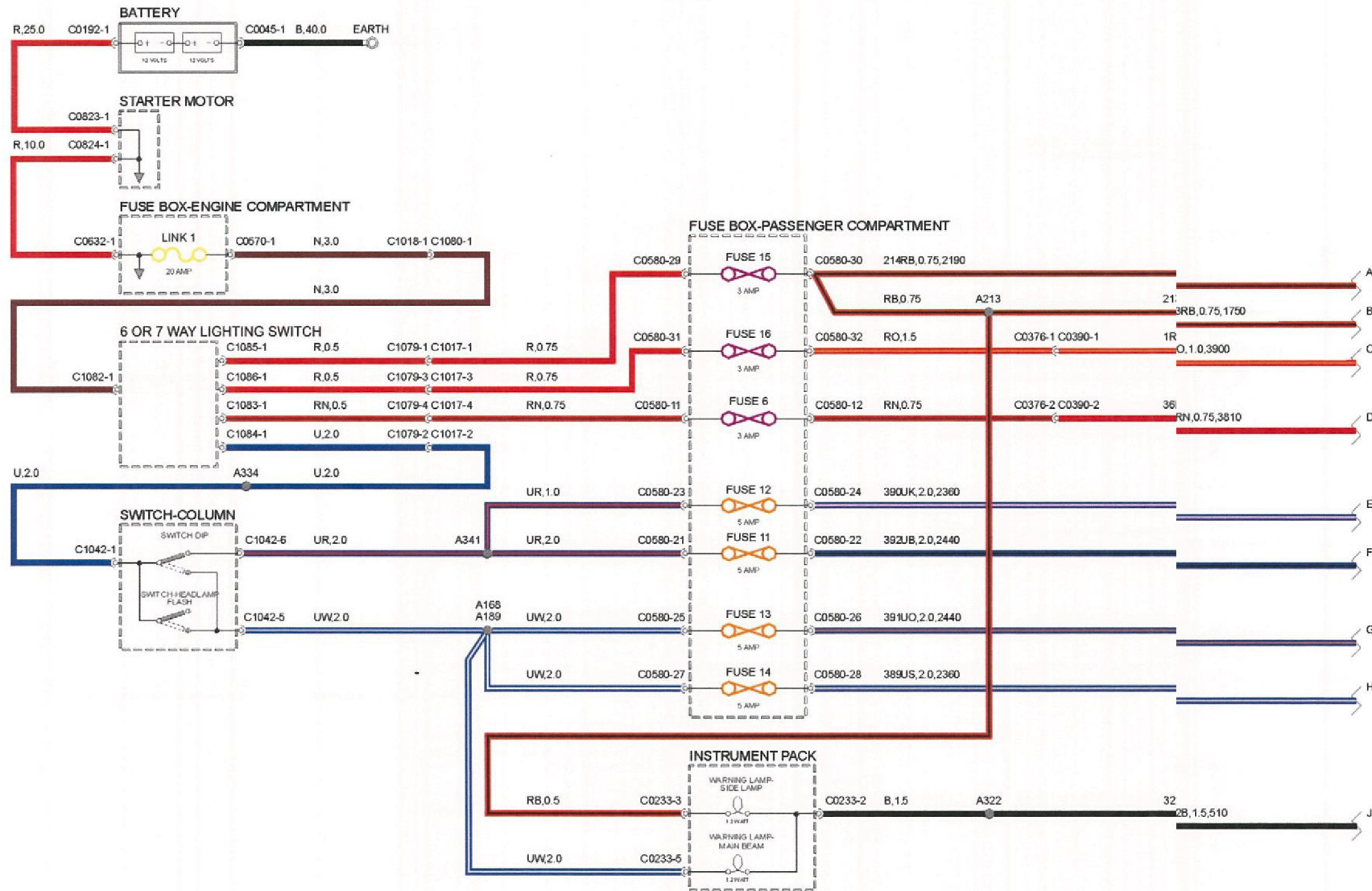


Fig 32 Head, side and number plate lamps I

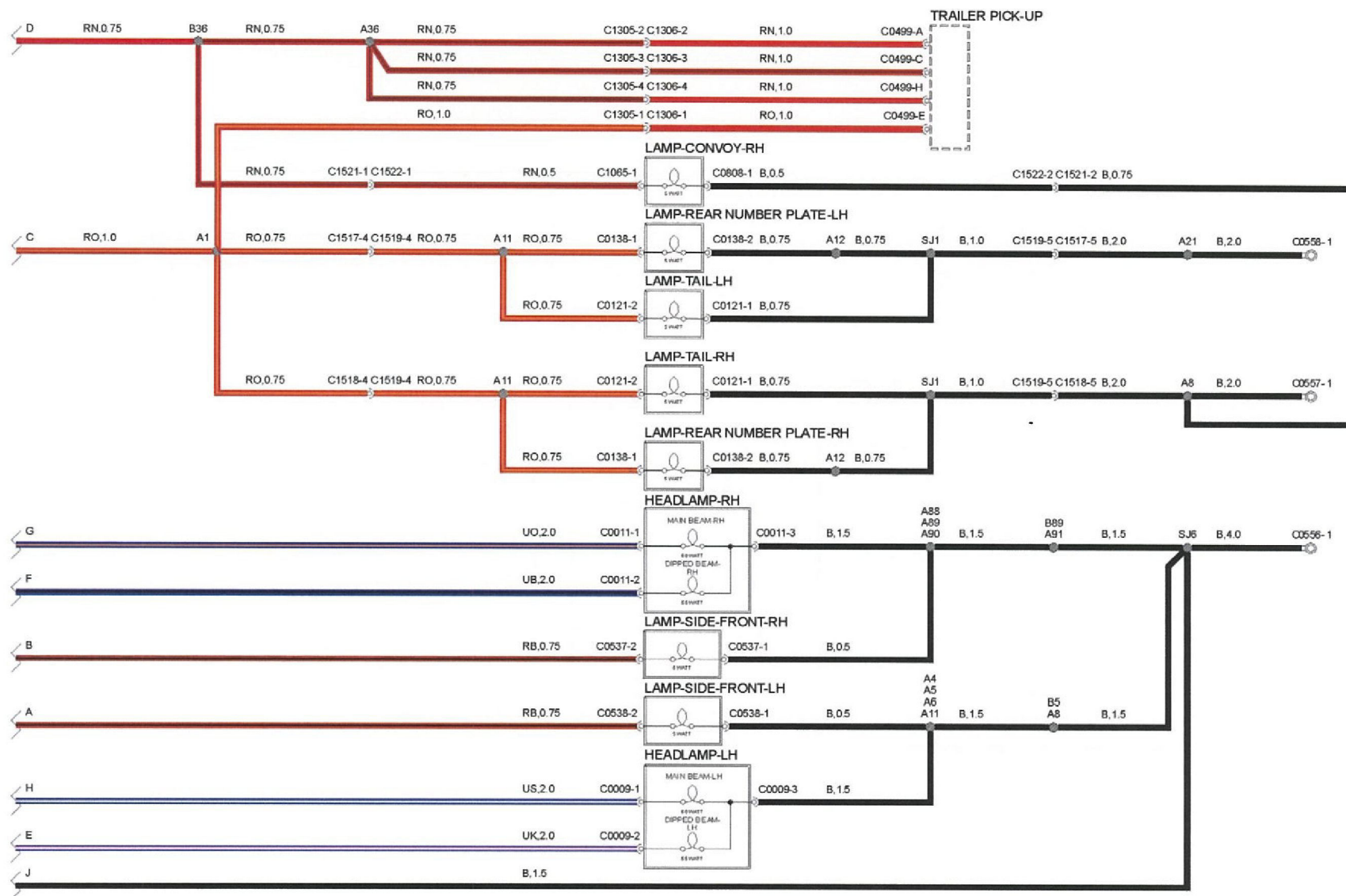


Fig 33 Head, side and number plate lamps II

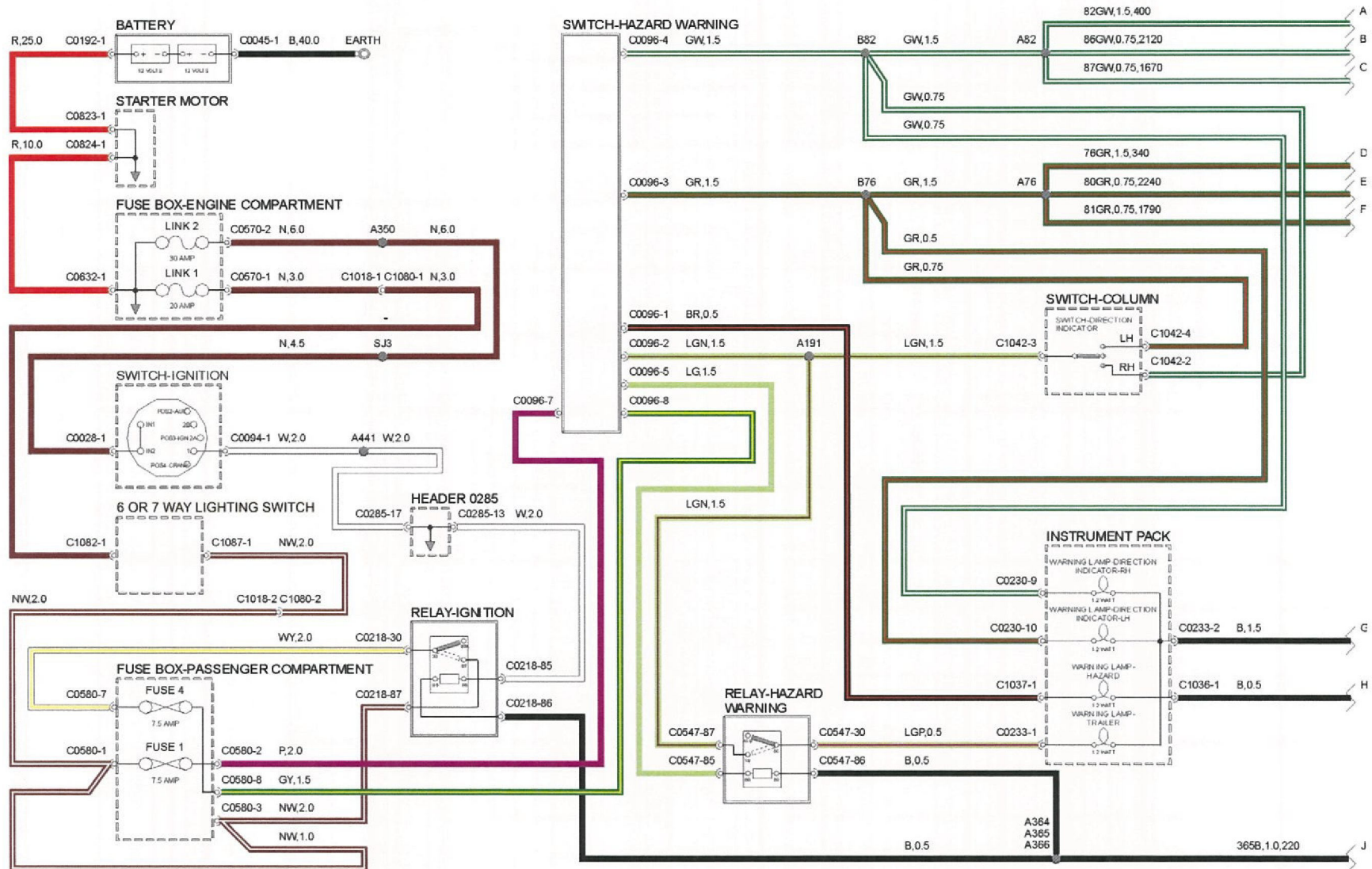


Fig 34 Indicators and Hazards I

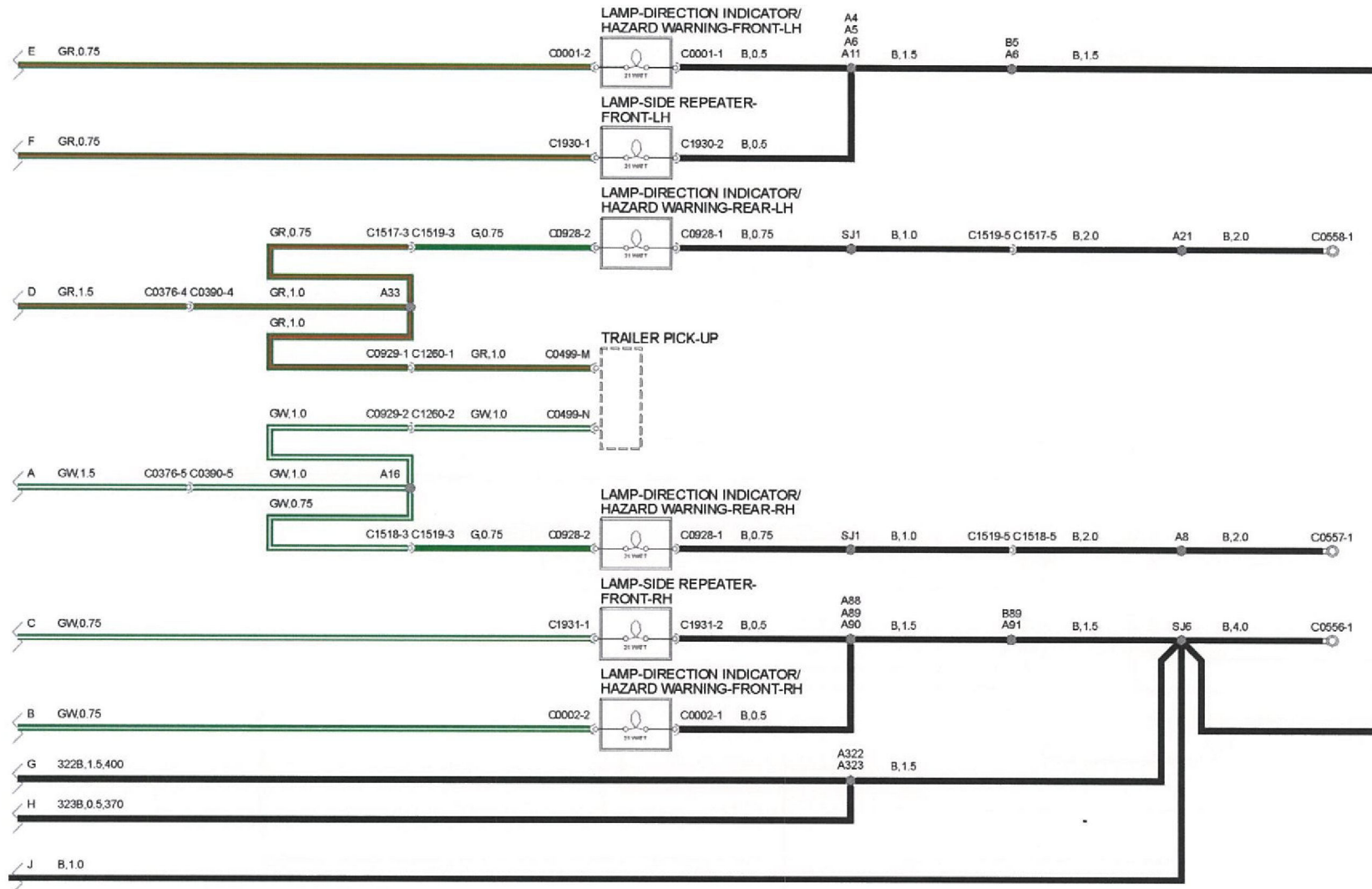


Fig 35 Indicators and Hazards II

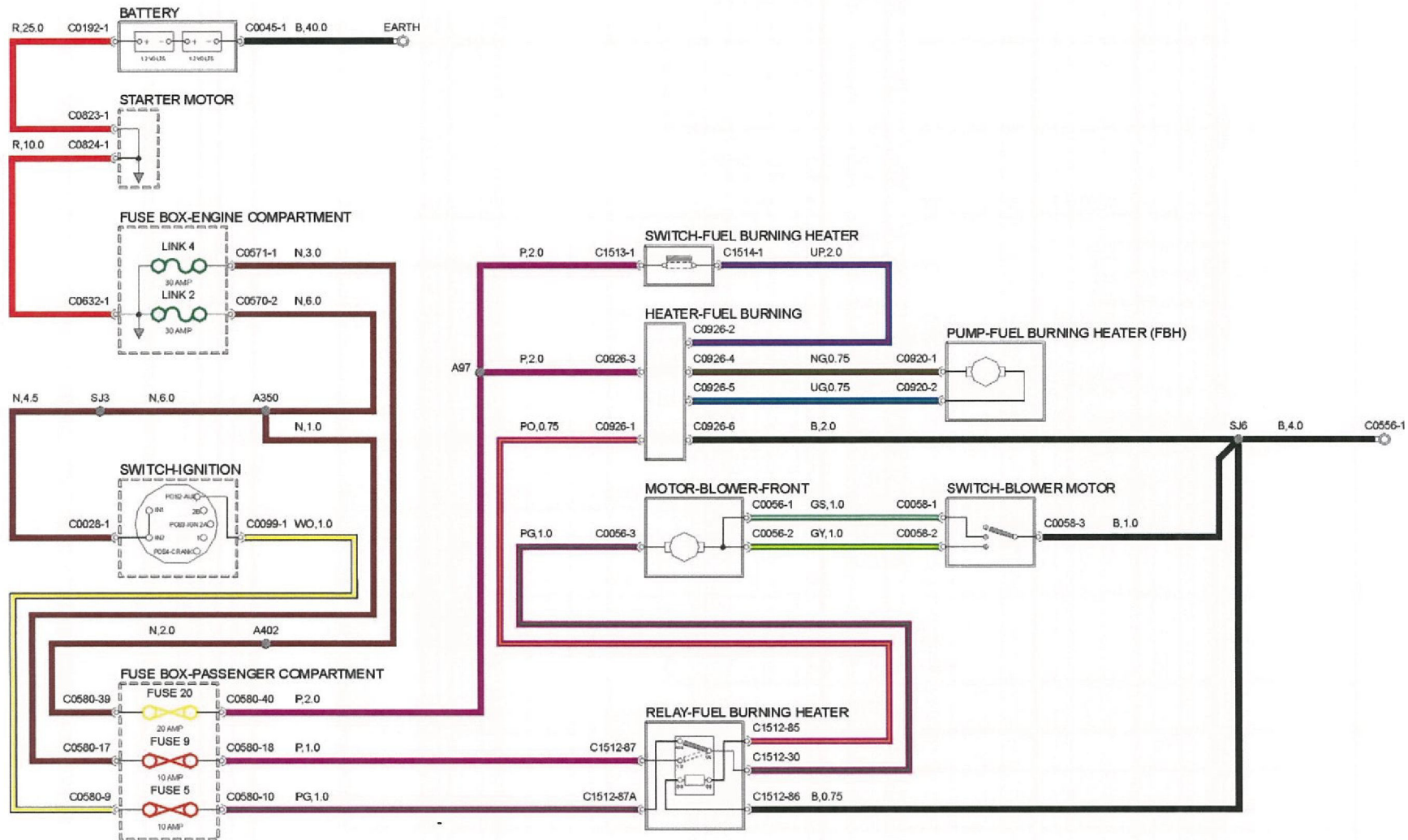


Fig 36 Fuel burning heater

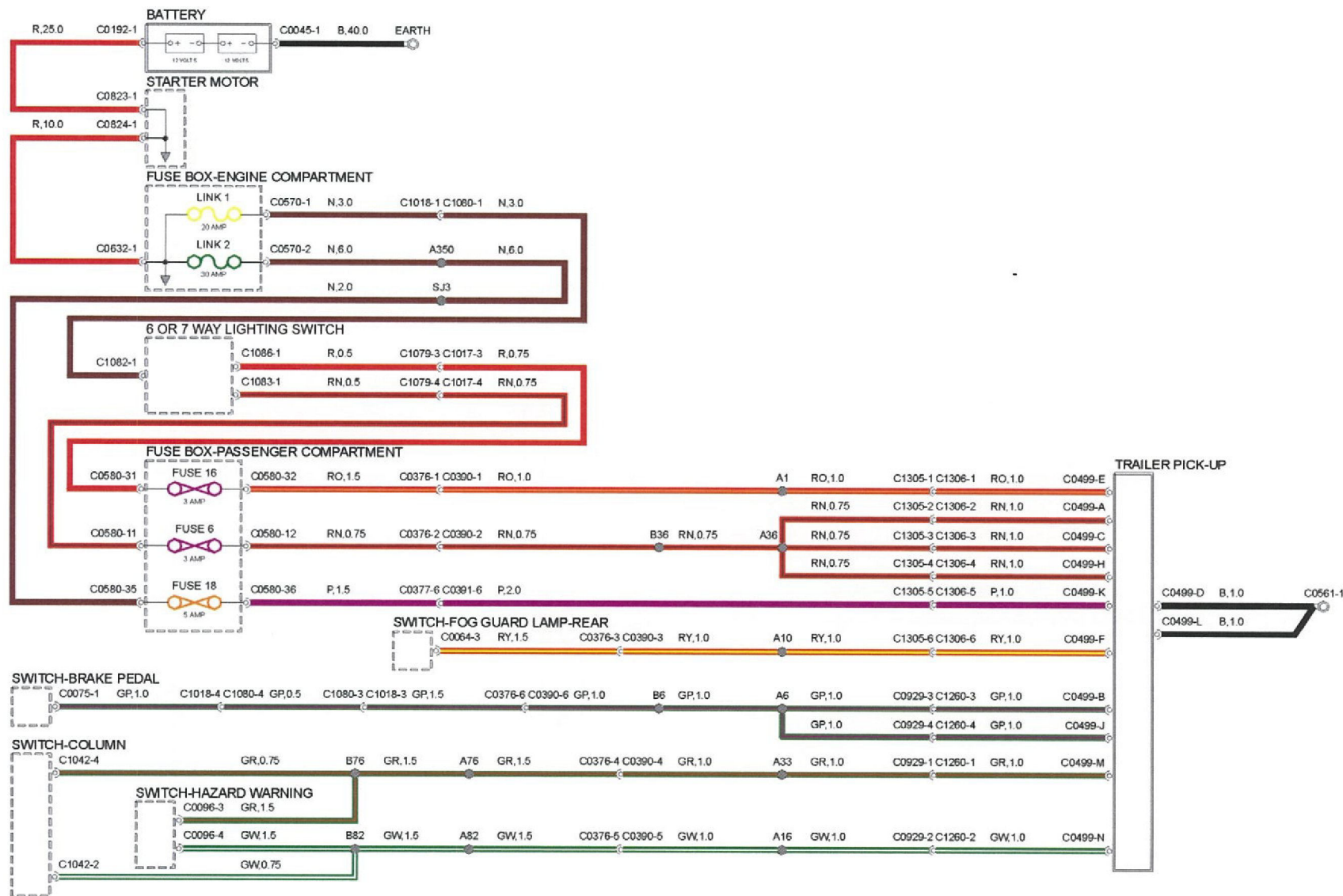


Fig 37 Trailer socket

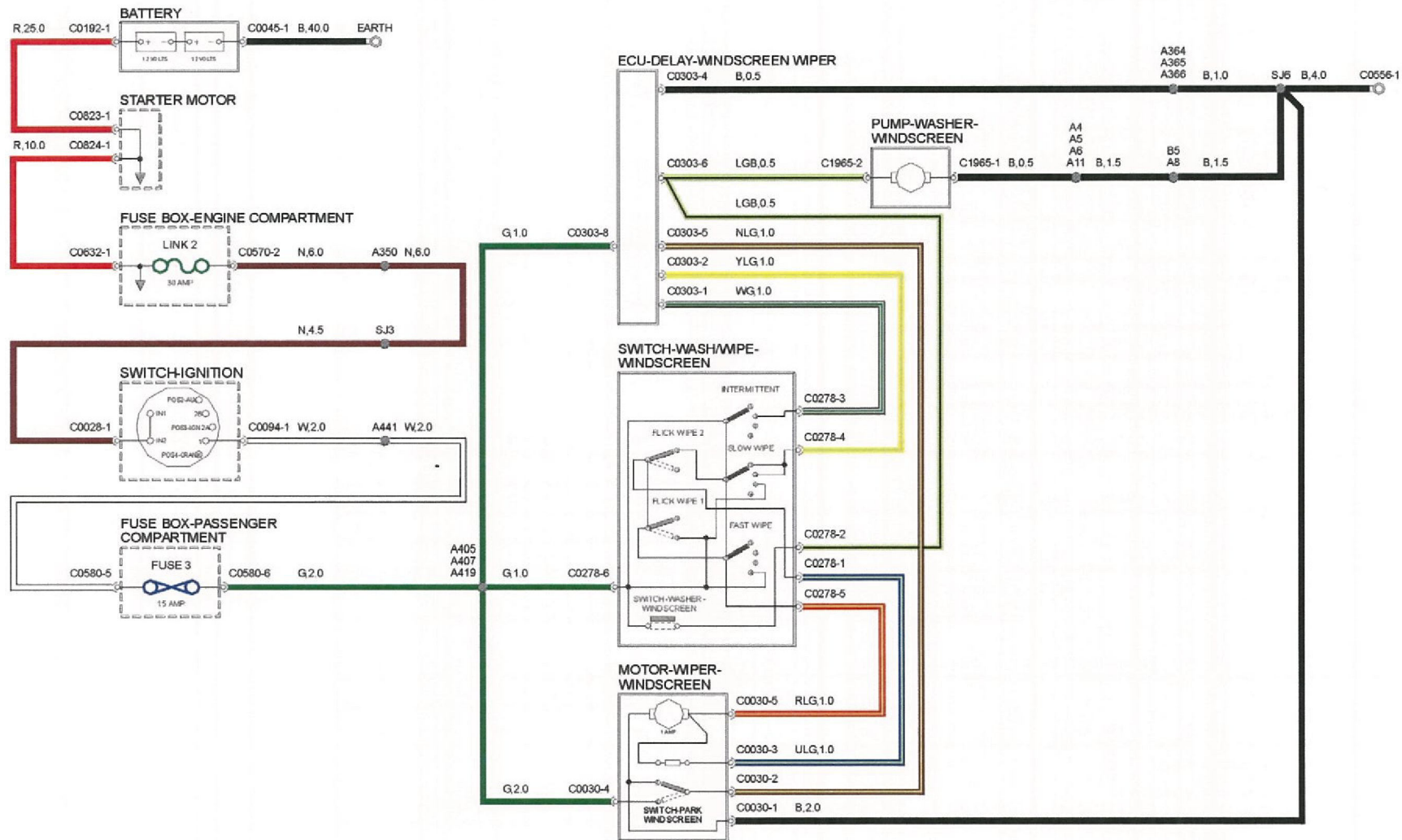


Fig 38 Wipers and washers - front

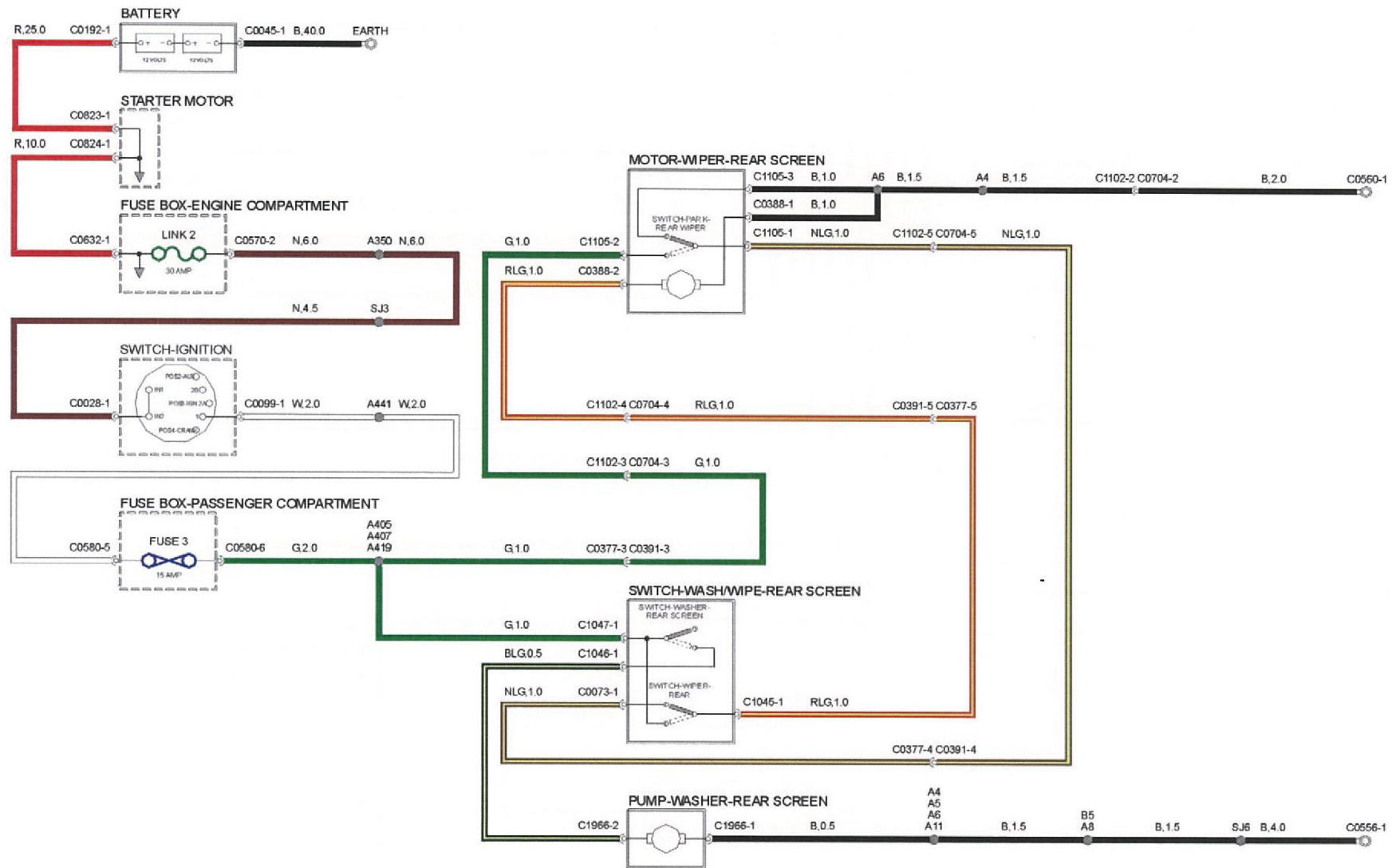


Fig 39 Wipers and washers - rear

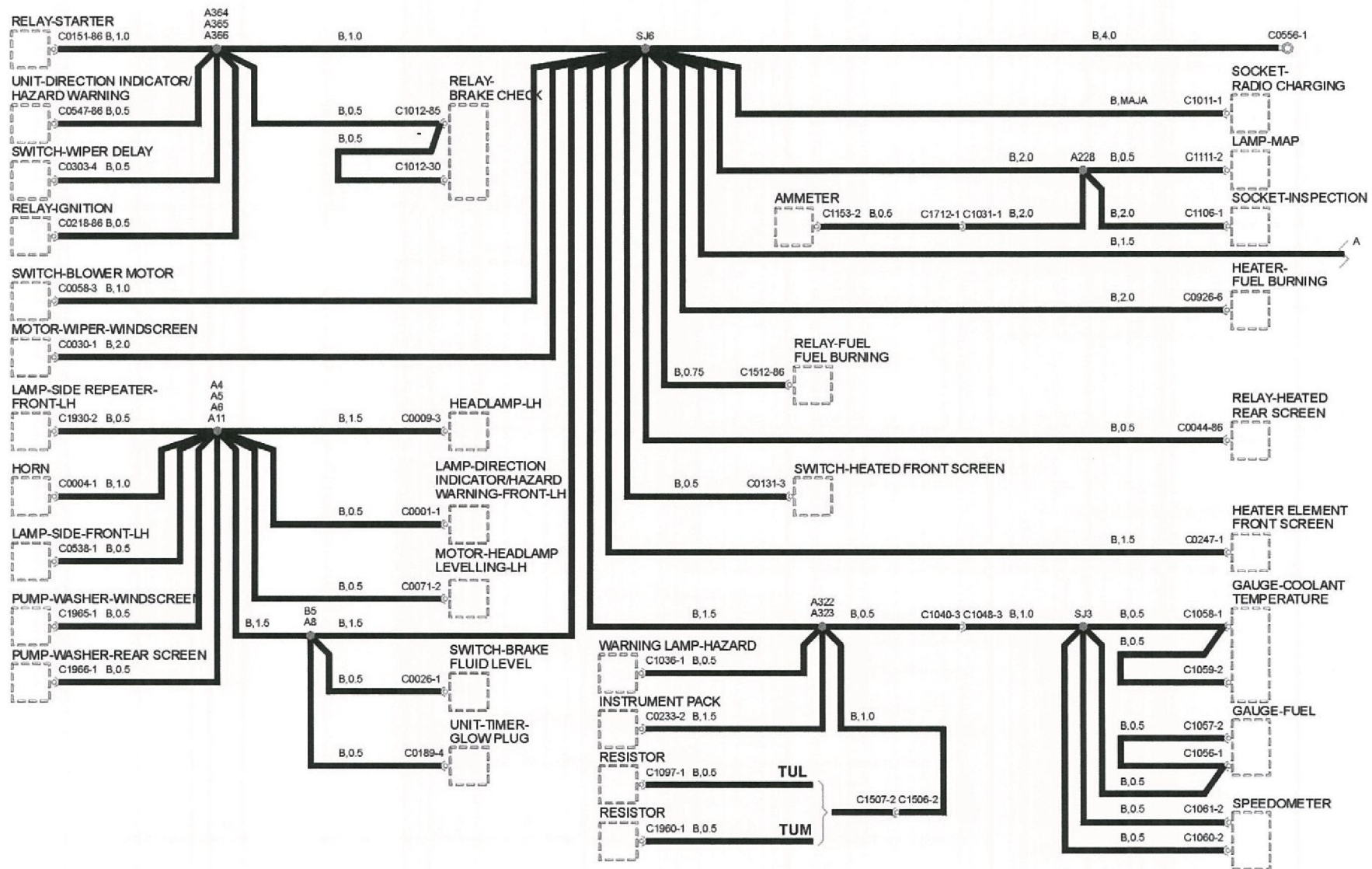


Fig 40 Earth distribution I - FFR

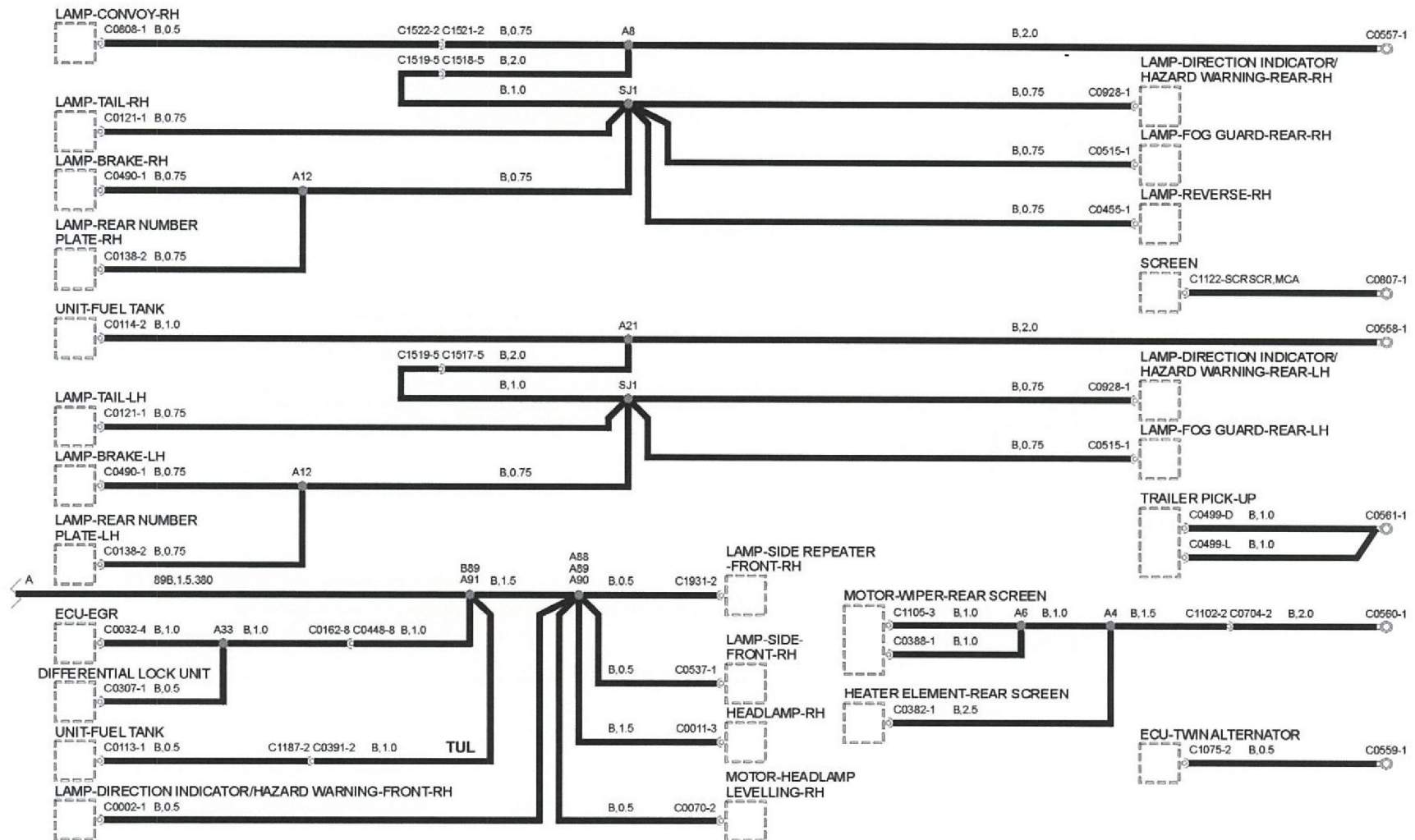


Fig 41 Earth distribution II - FFR

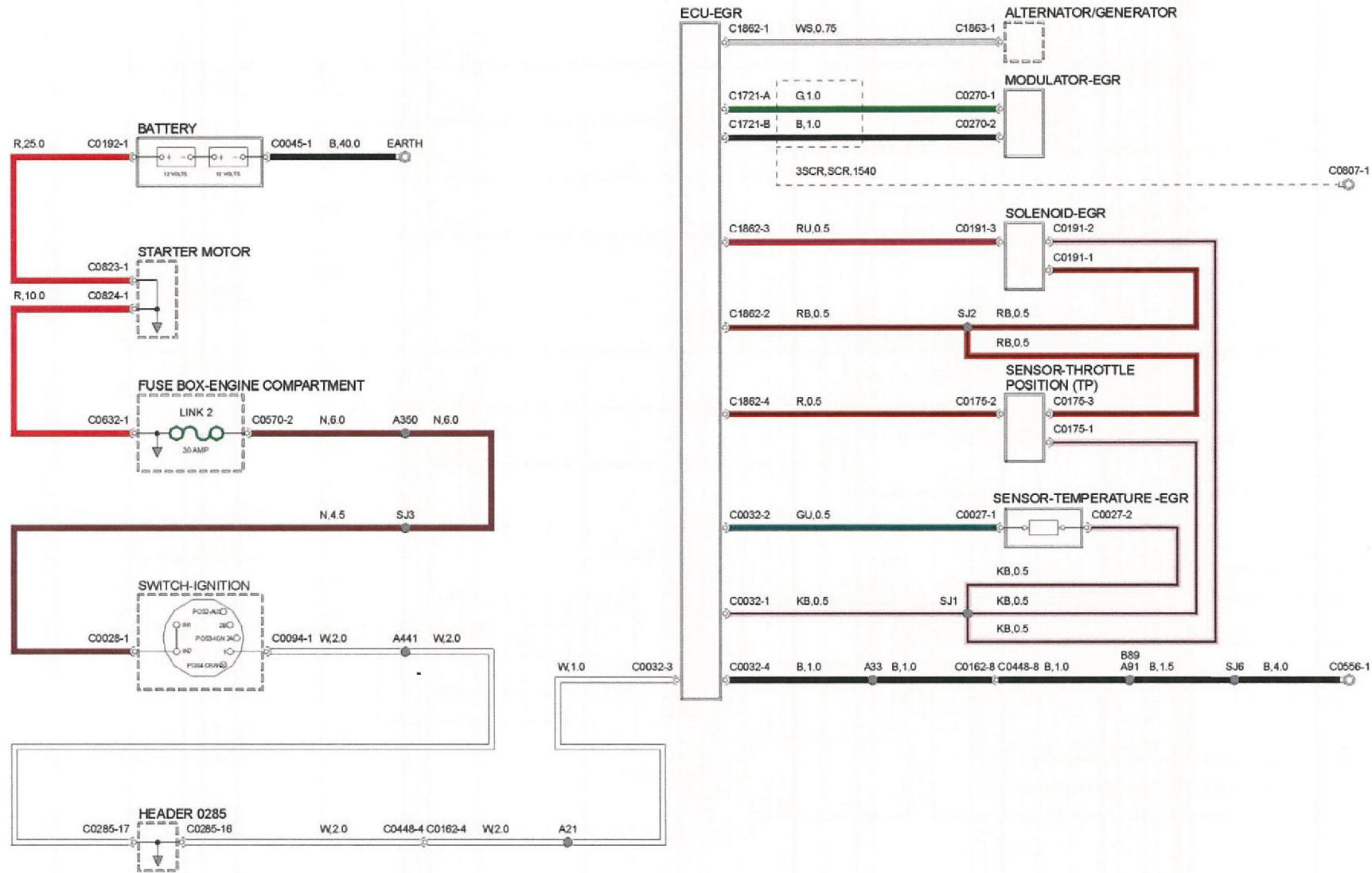


Fig 42 EGR - FFR

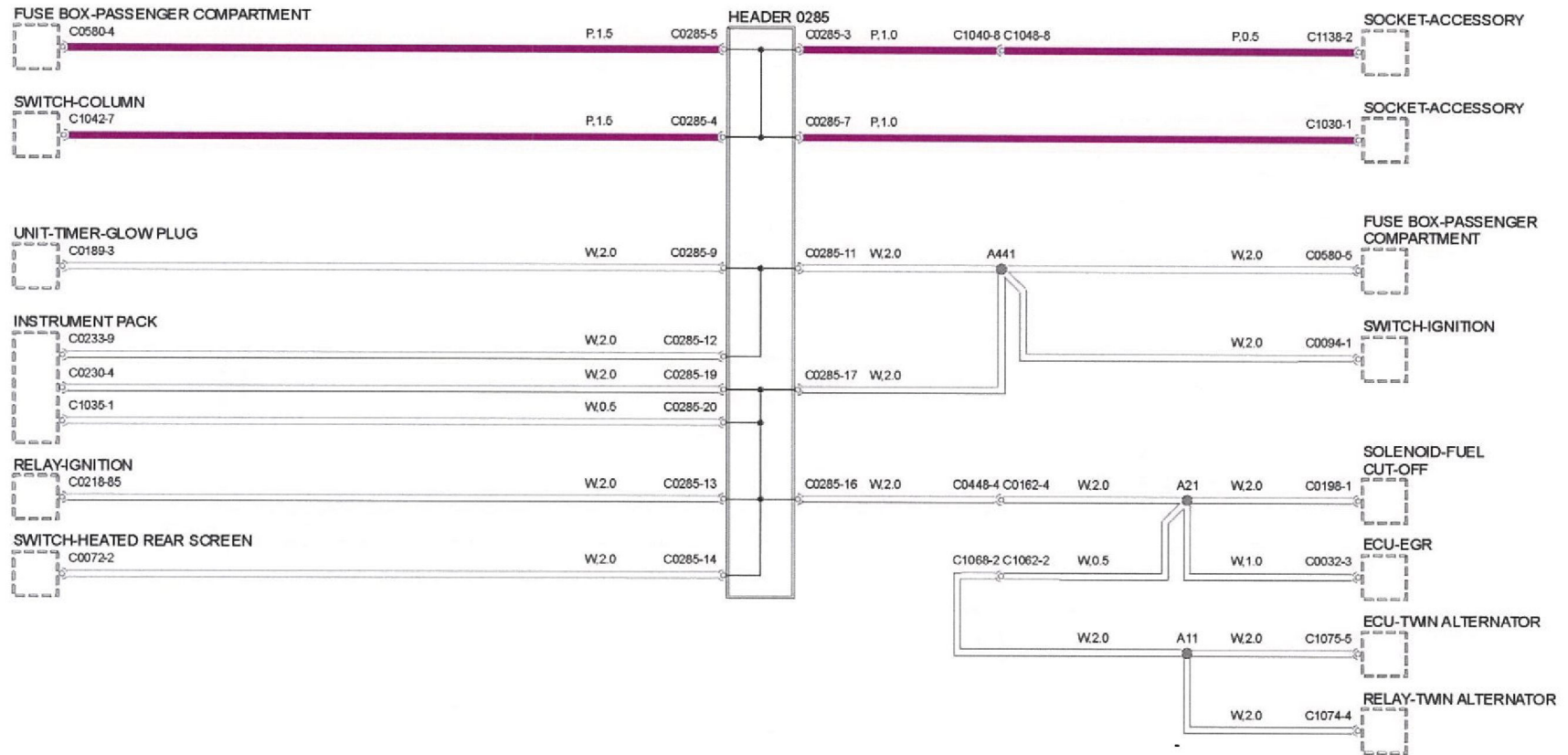


Fig 43 Header joints - FFR

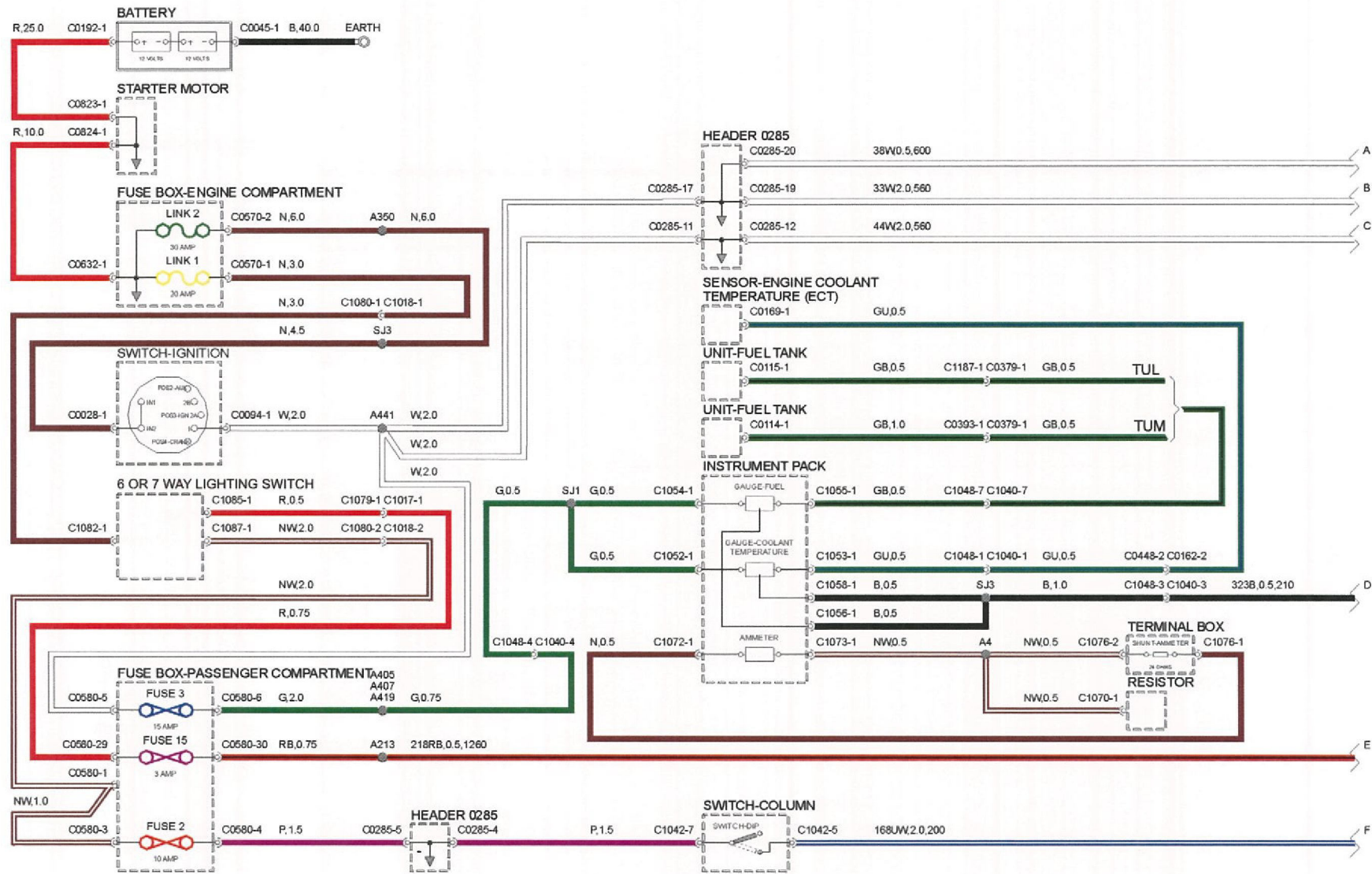


Fig 44 Instruments I - FFR

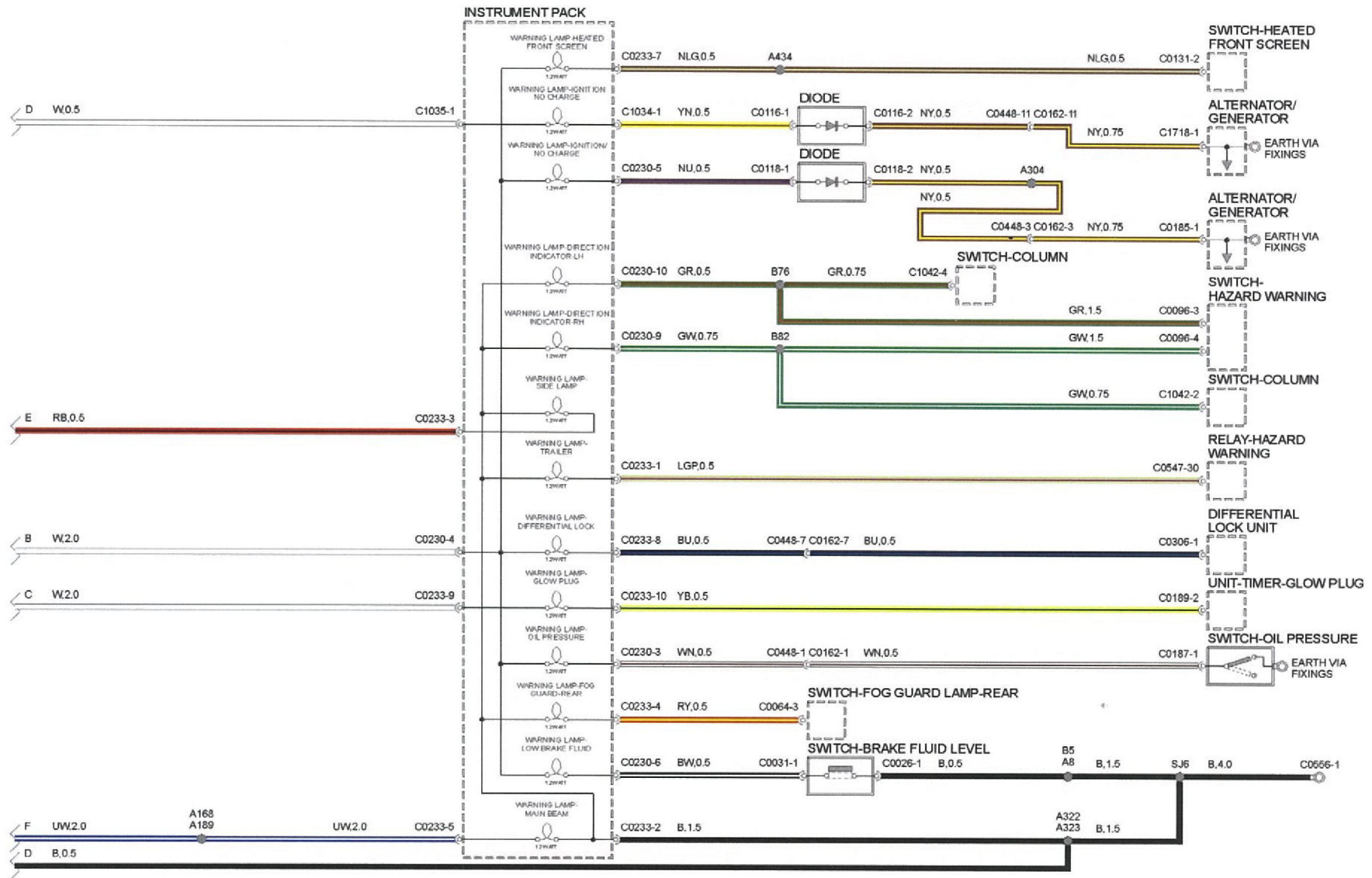


Fig 45 Instruments II - FFR

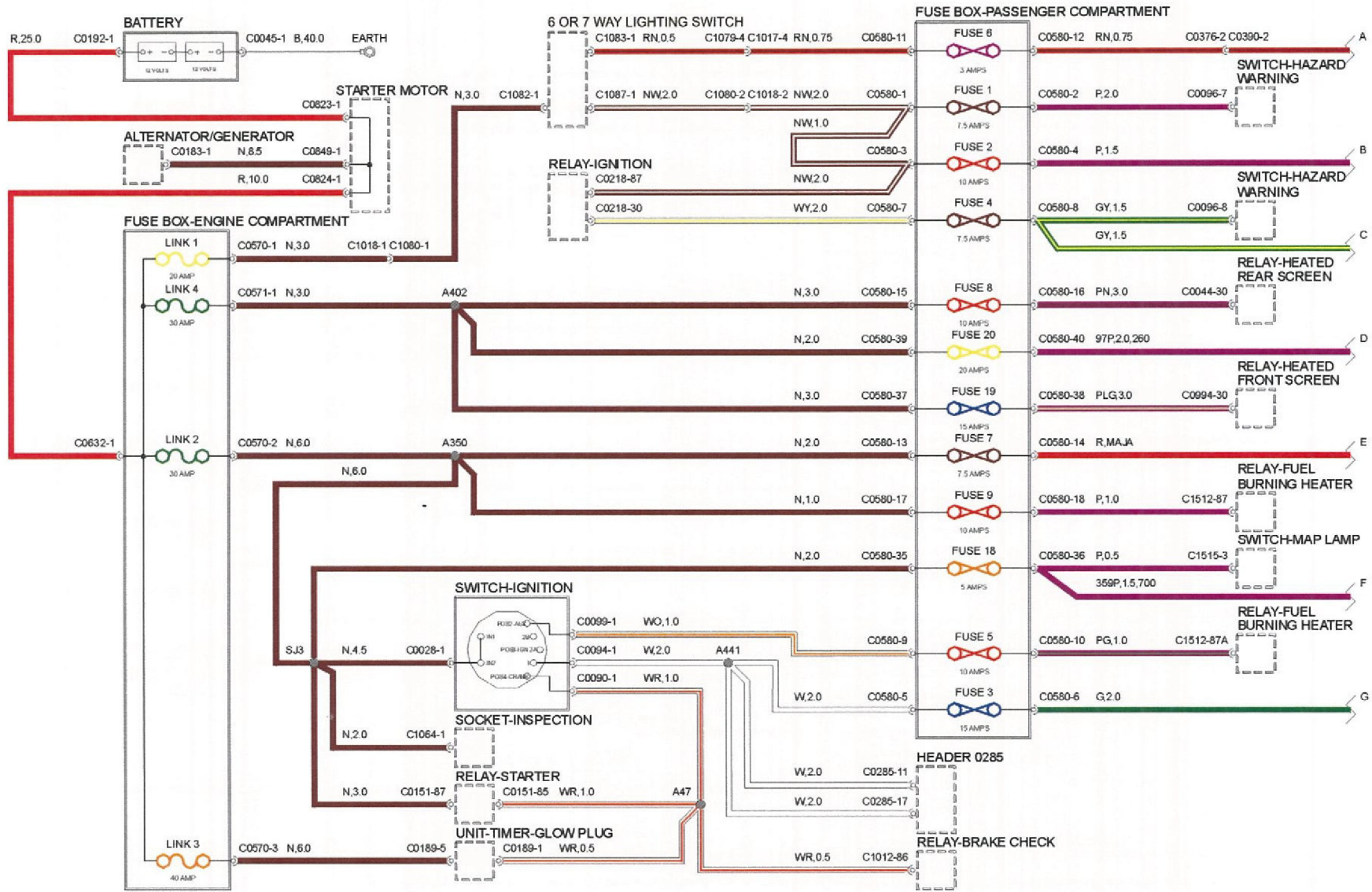


Fig 46 Power distribution I - FFR

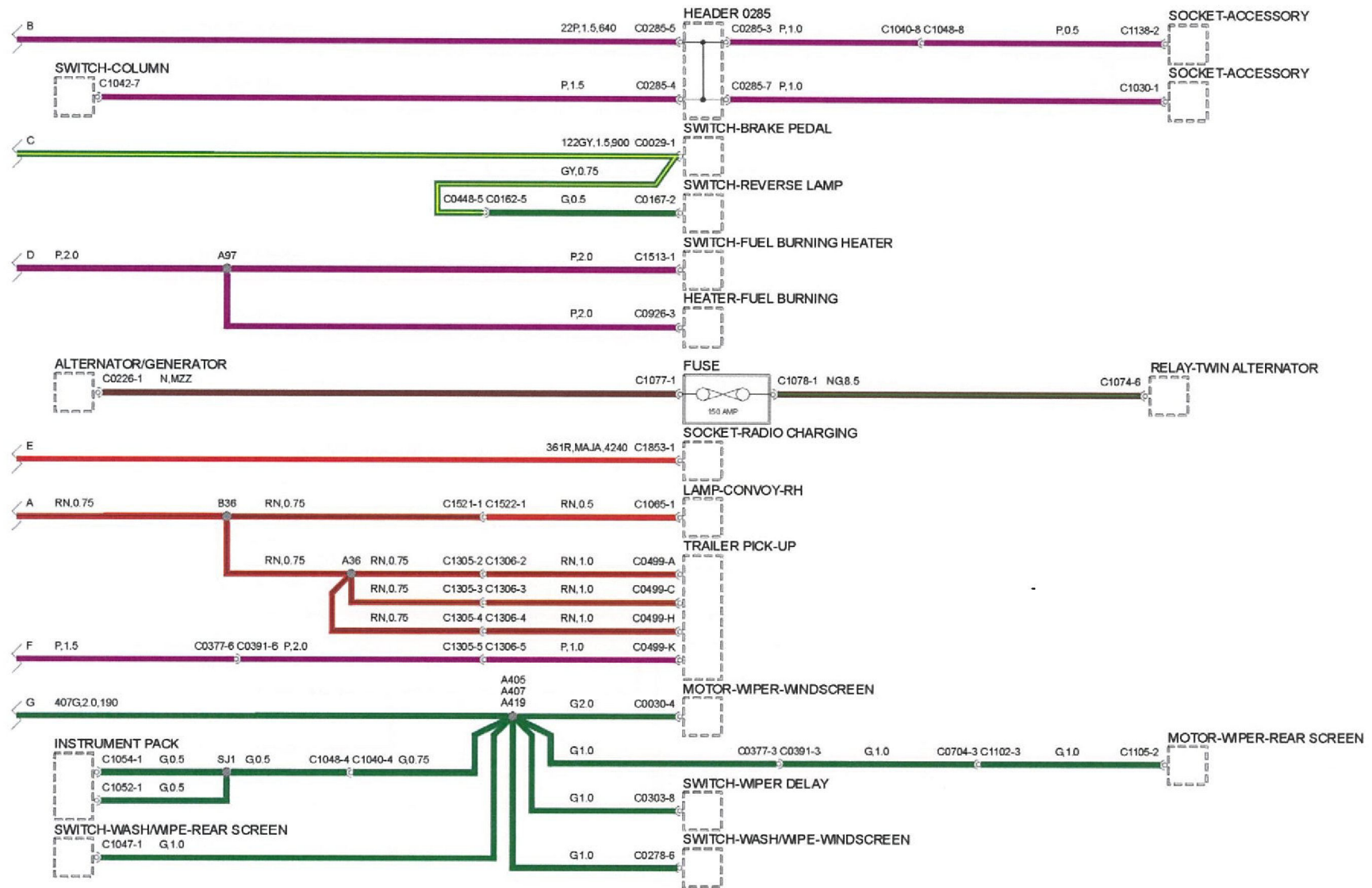


Fig 47 Power distribution II - FFR

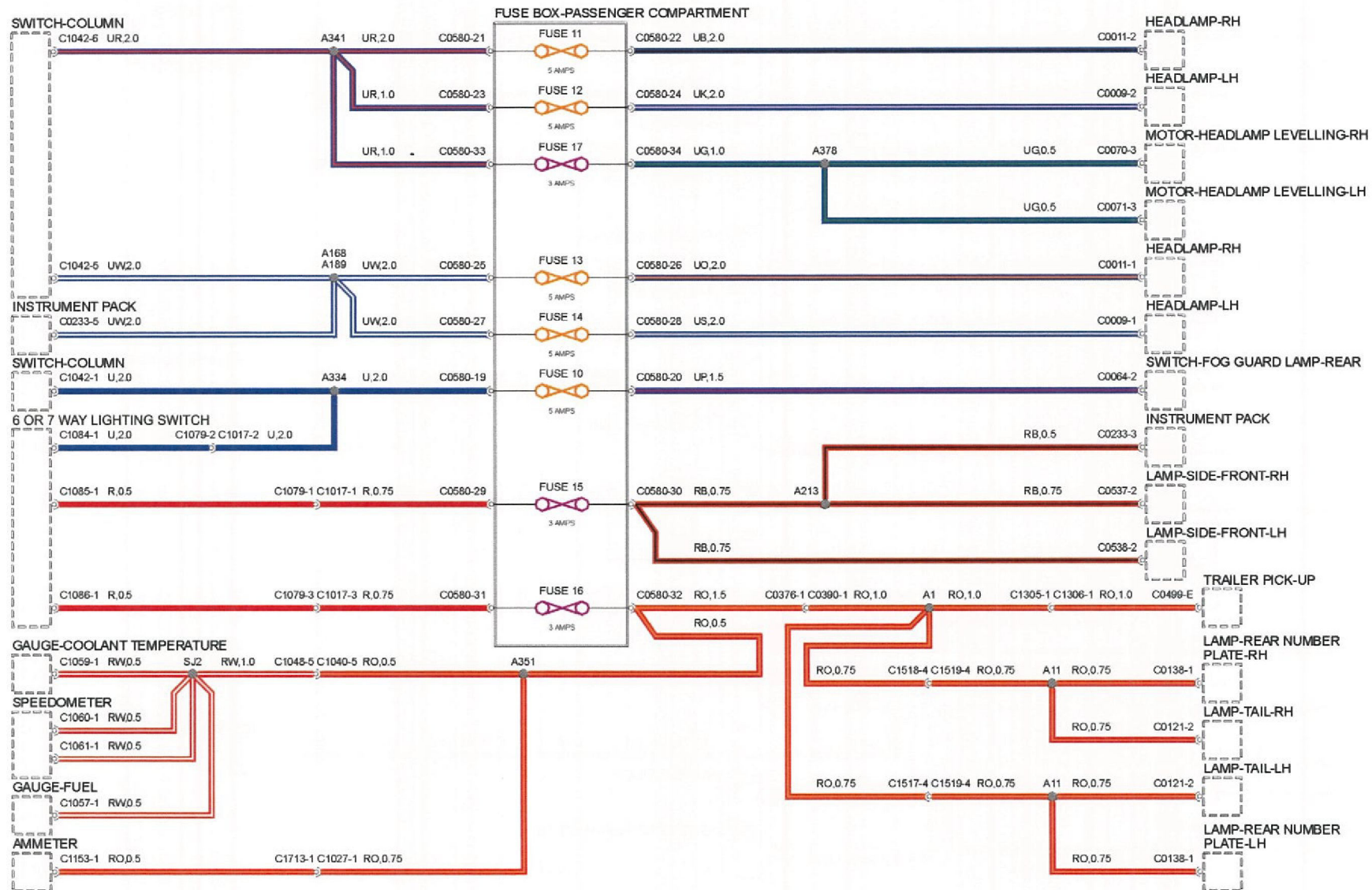


Fig 48 Power distribution III - FFR

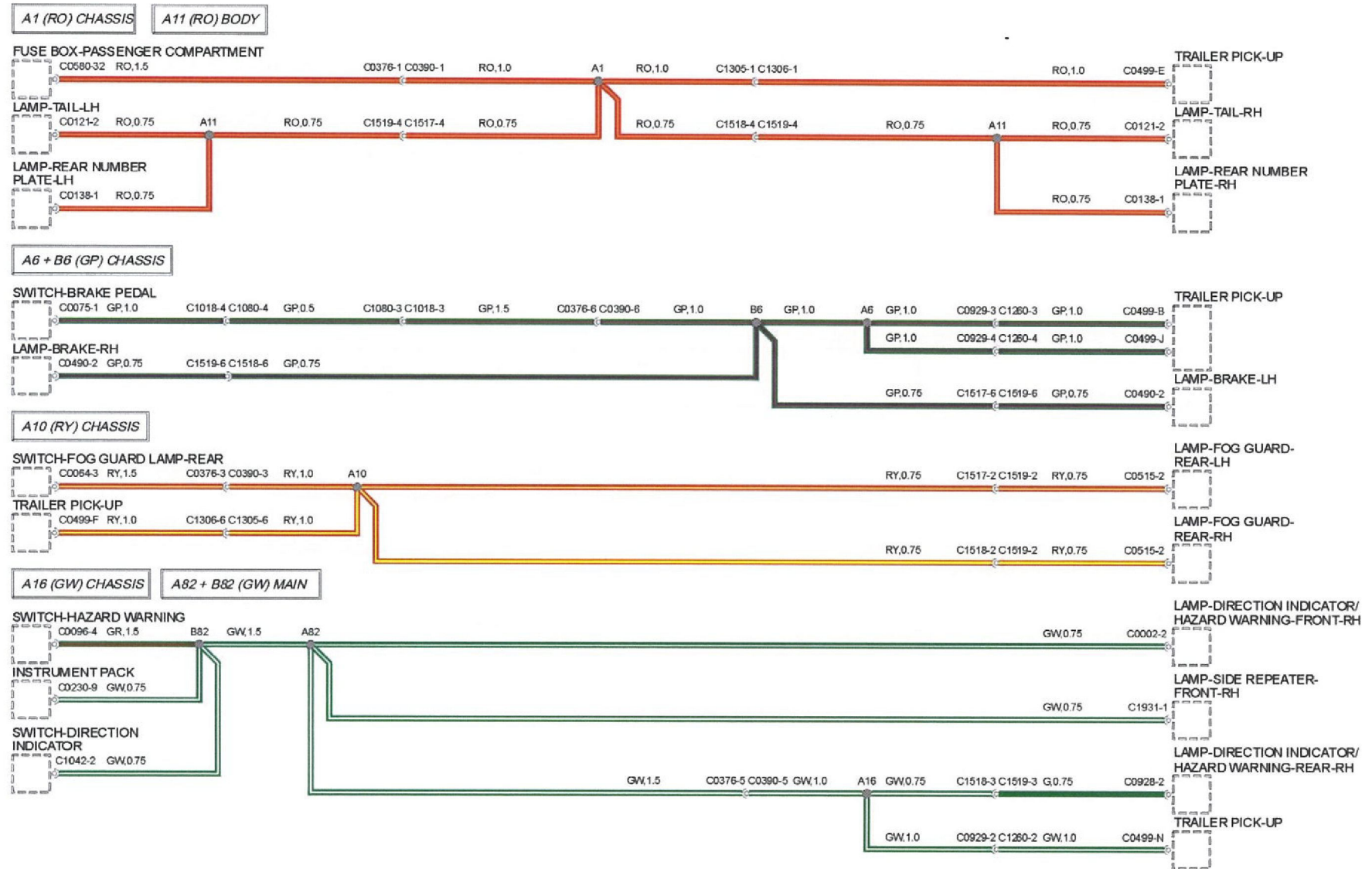


Fig 49 Splices and Centre taps I - FFR

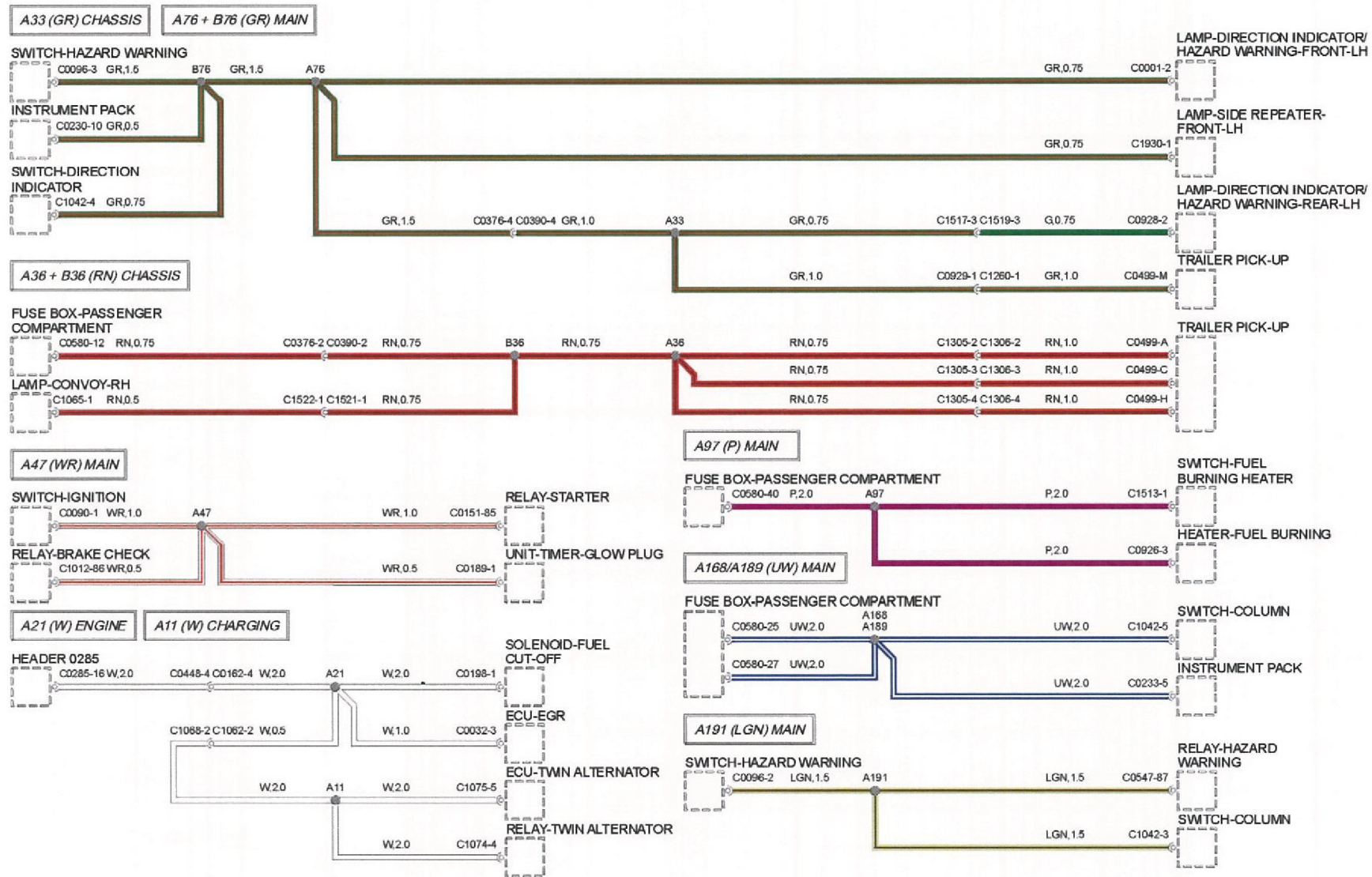


Fig 50 Splices and Centre taps II - FFR

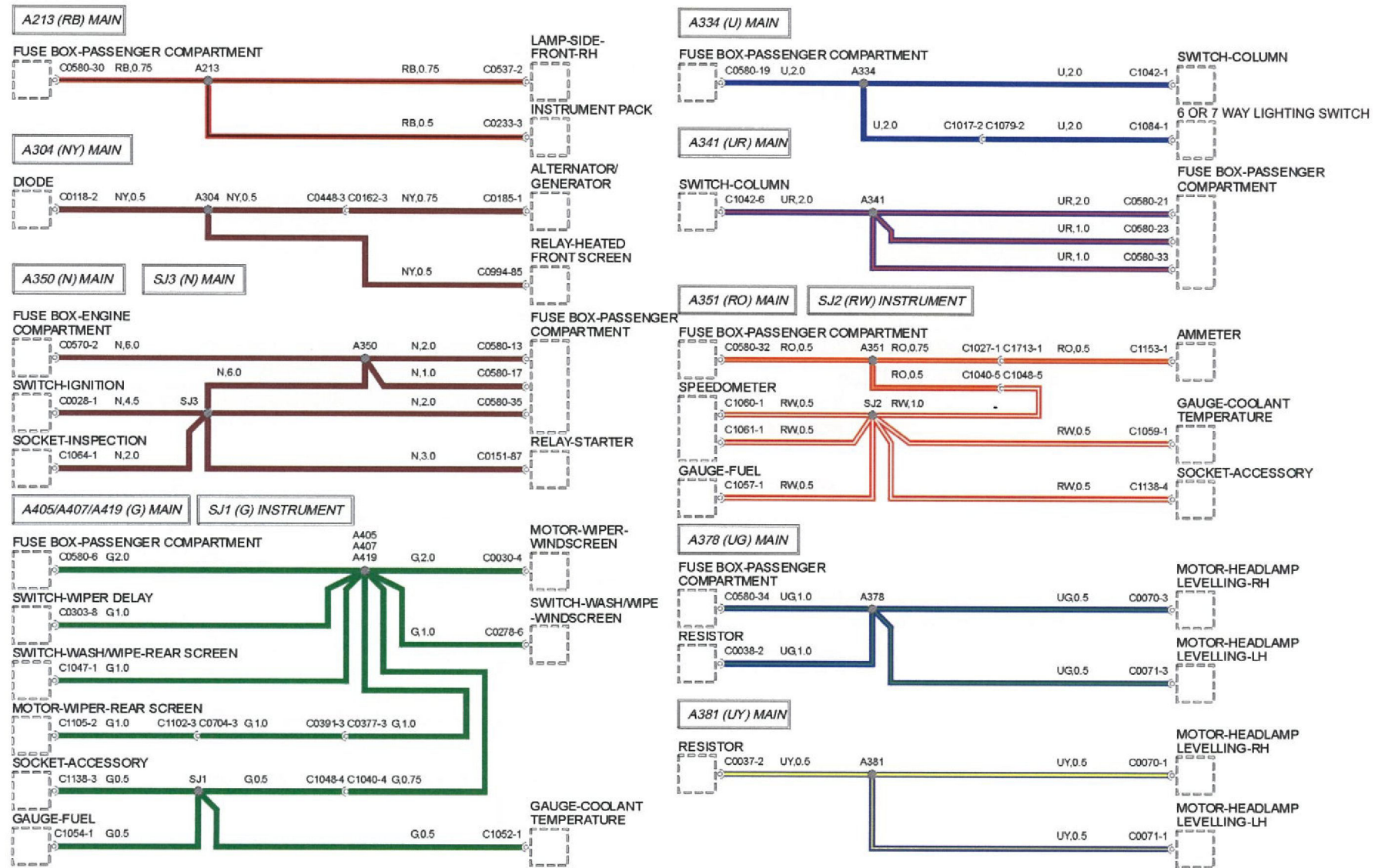


Fig 51 Splices and Centre taps III - FFR

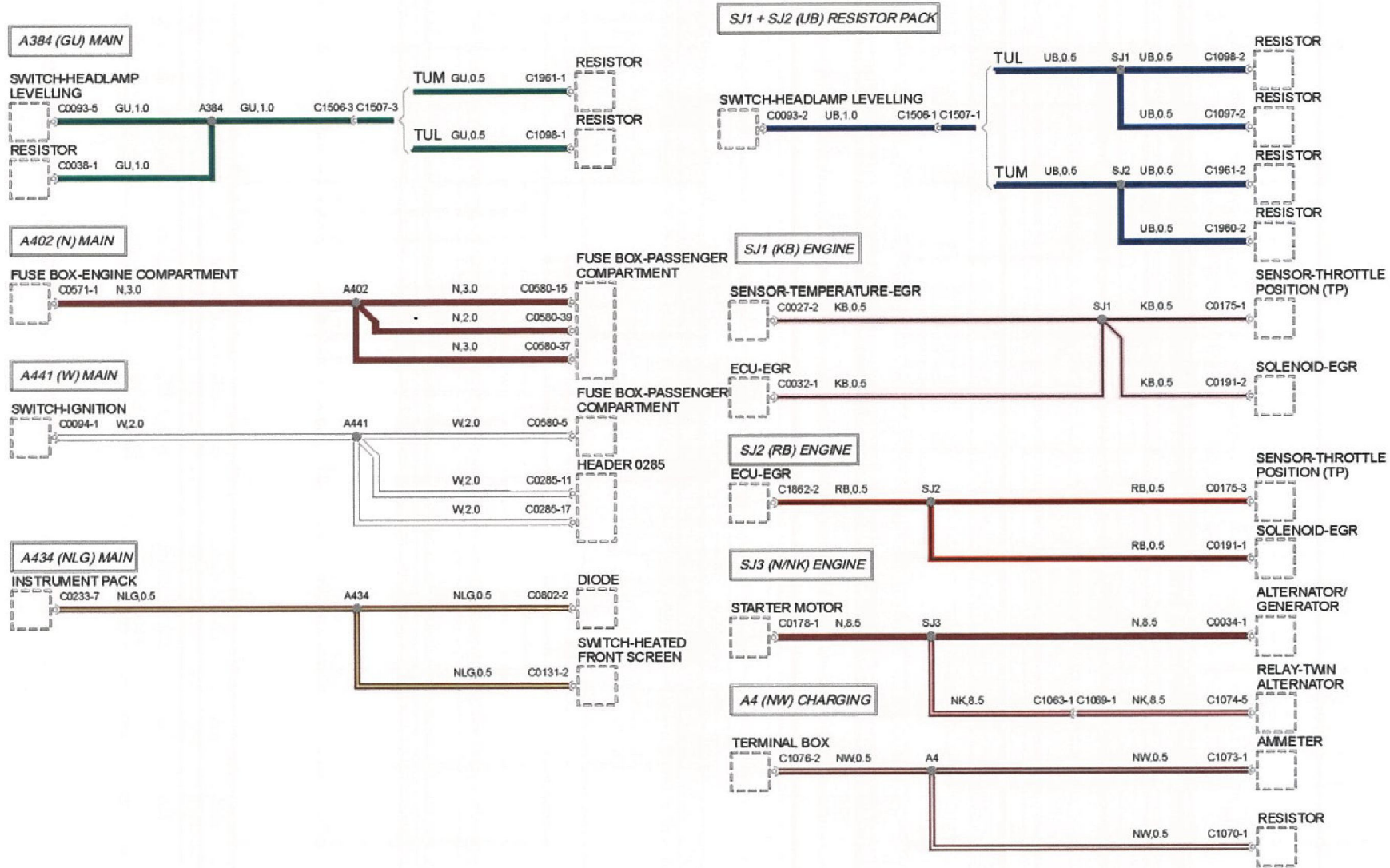


Fig 52 Splices and Centre taps IV - FFR

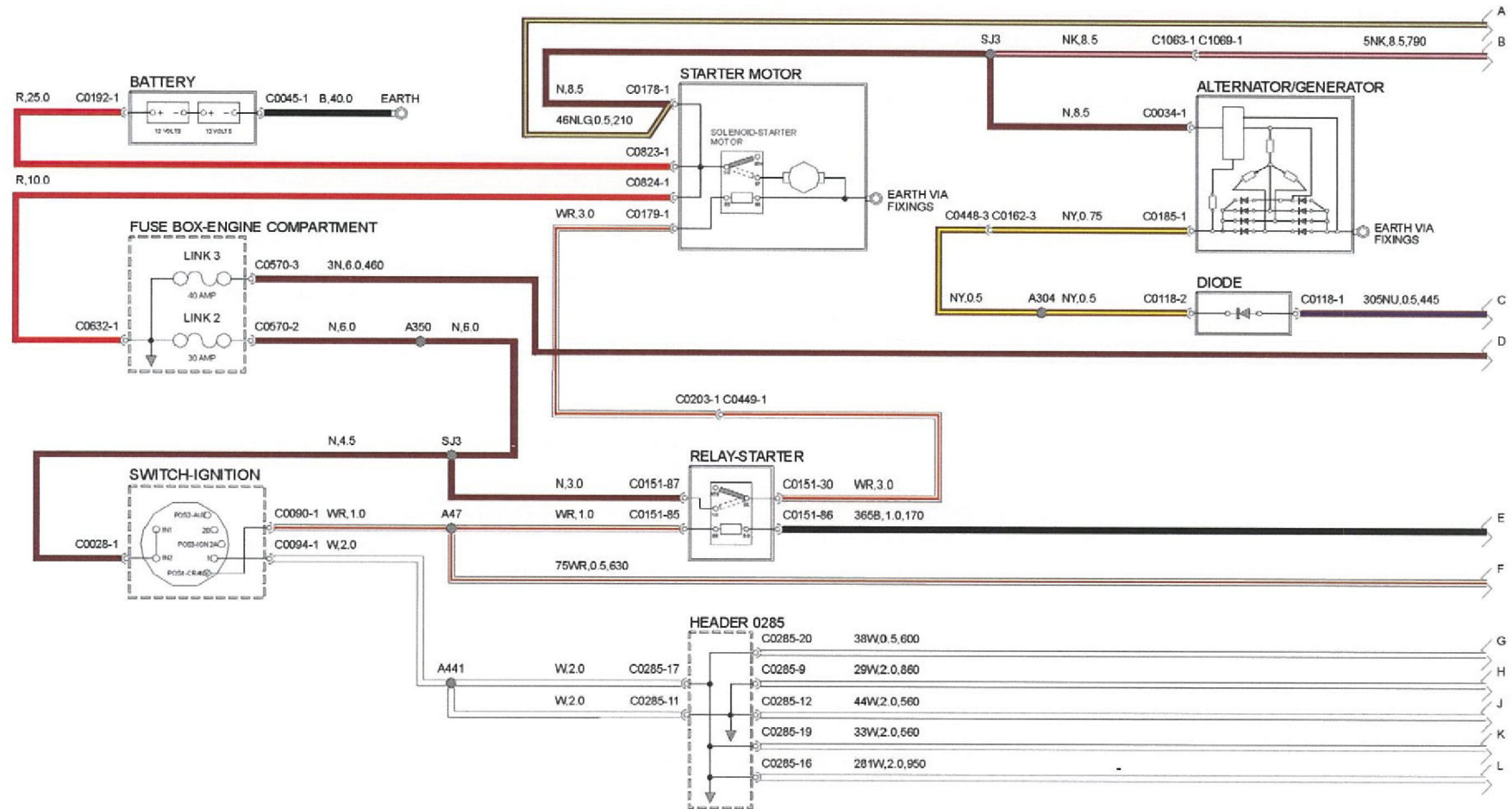


Fig 53 Starting and Charging I - FFR

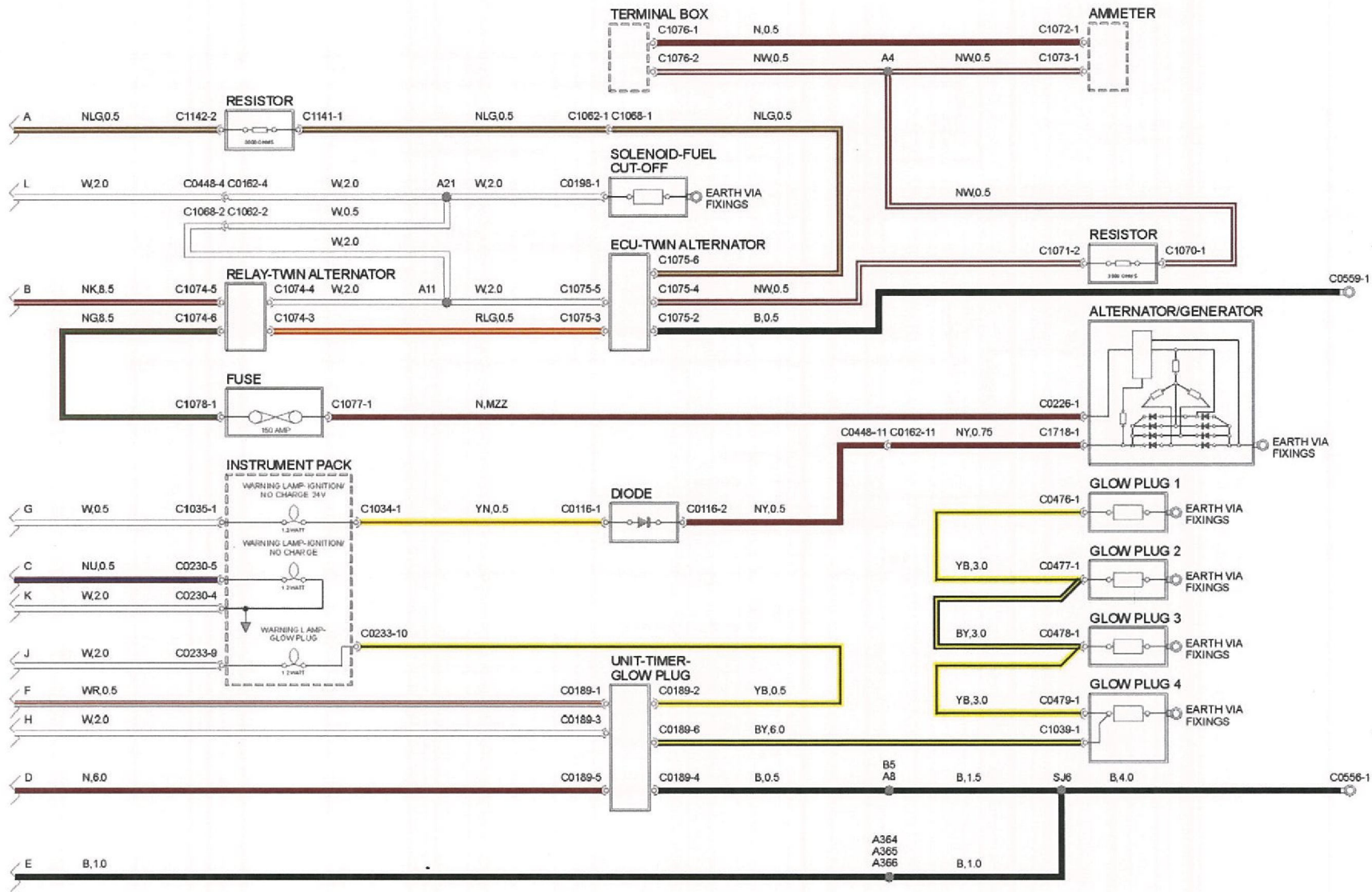


Fig 54 Starting and Charging II - FFR