1. COMPONENTS

1.1 GENERAL

Bulbs

Headlight (main beam)		halogen	70 W
Headlight (dipped beam)		halogen	70 W
Parking light		spherical bulb	5 W
Rear light		spherical bulb	2 x 5 W
Rear fog lamp		spherical bulb	21 W
Reversing light		spherical bulb	21 W
Stop light		spherical bulb	21 W
Direction indicator lamp		spherical bulb	21 W
Marker light		spherical bulb	5 W
Side marker light		special type	3 W
Combilamp:	fog lamp	halogen	70 W
	spotlight	halogen	70 W
Interior lighting		spherical bulb	10 and 21 W
Bunk light		spherical bulb	10 W
Stepwell lighting		spherical bulb	5 W
Marker light		spherical bulb	5 W
Work lamp:	white	halogen lamp	70 W
	yellow	spherical bulb	35 W

Max. current and wire diameter (mm^2)				
Wire diameter	**< 2 m**	**2 - 4 m**	**4 - 8 m**	**> 8 m**
1	9	5	4	
1.5	22.5	13.5	7.5	6
2.5	37.5	22.5	12.5	10
4	60	36	20	16
6	90	54	30	24
10	150	90	50	40
16	240	144	80	64
25	375	225	125	100
35	525	315	175	140
50	750	450	250	200
70	1050	630	350	280
95	1425	855	475	380
120	1800	1080	600	480

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SYMPTOM: STARTING TROUBLE POOR STARTING TEST RESULT POWER FAILS UNDER LOAD	
Possible cause	**Remedy**
Discharged battery	Charge the battery
Worn battery (plates corroded and worn away)	Replace the battery
Defective battery (‘dead cell’)	Replace the battery
Battery too small	Replace with battery of a higher capacity
Battery sulphated (plates have hardened)	Replace the battery

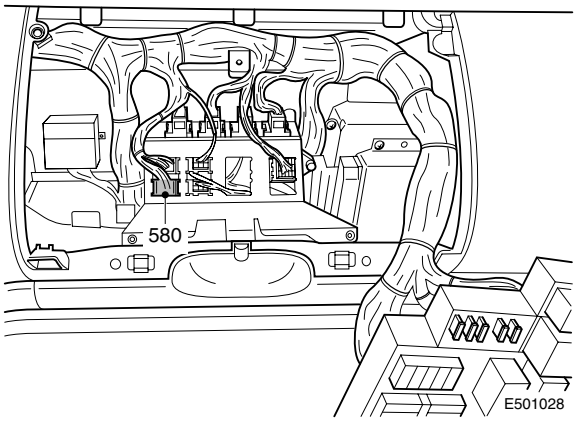
SYMPTOM: BURNT IN BATTERY POLES	
Possible cause	**Remedy**
Terminals not securely fitted, or poor contact	Have the battery poles repaired, fit the terminals properly and replace the terminals if necessary

SYMPTOM: 1 OR 2 CELLS BUBBLE EXCESSIVELY UNDER HIGH LOADS (STARTING OR STARTING TEST)	
Possible cause	**Remedy**
Defective cells	Replace the battery
Leaking cell partition	Replace the battery

SYMPTOM: BATTERY DISCHARGES VERY FAST (DOES NOT RETAIN POWER)	
Possible cause	**Remedy**
Insufficient charging	Check the charging. Is the charging time (driving time) sufficient?
Short circuit in charging circuit	Check the charging circuit
Major self discharging, for example due to contamination	Clean the battery
Battery sulphated (on examining the plates, they are found to be hard and, in some cases, whitened)	Replace the battery

1.4 CONNECTION OF ACCESSORIES VIA THE ACCESSORIES CONNECTOR

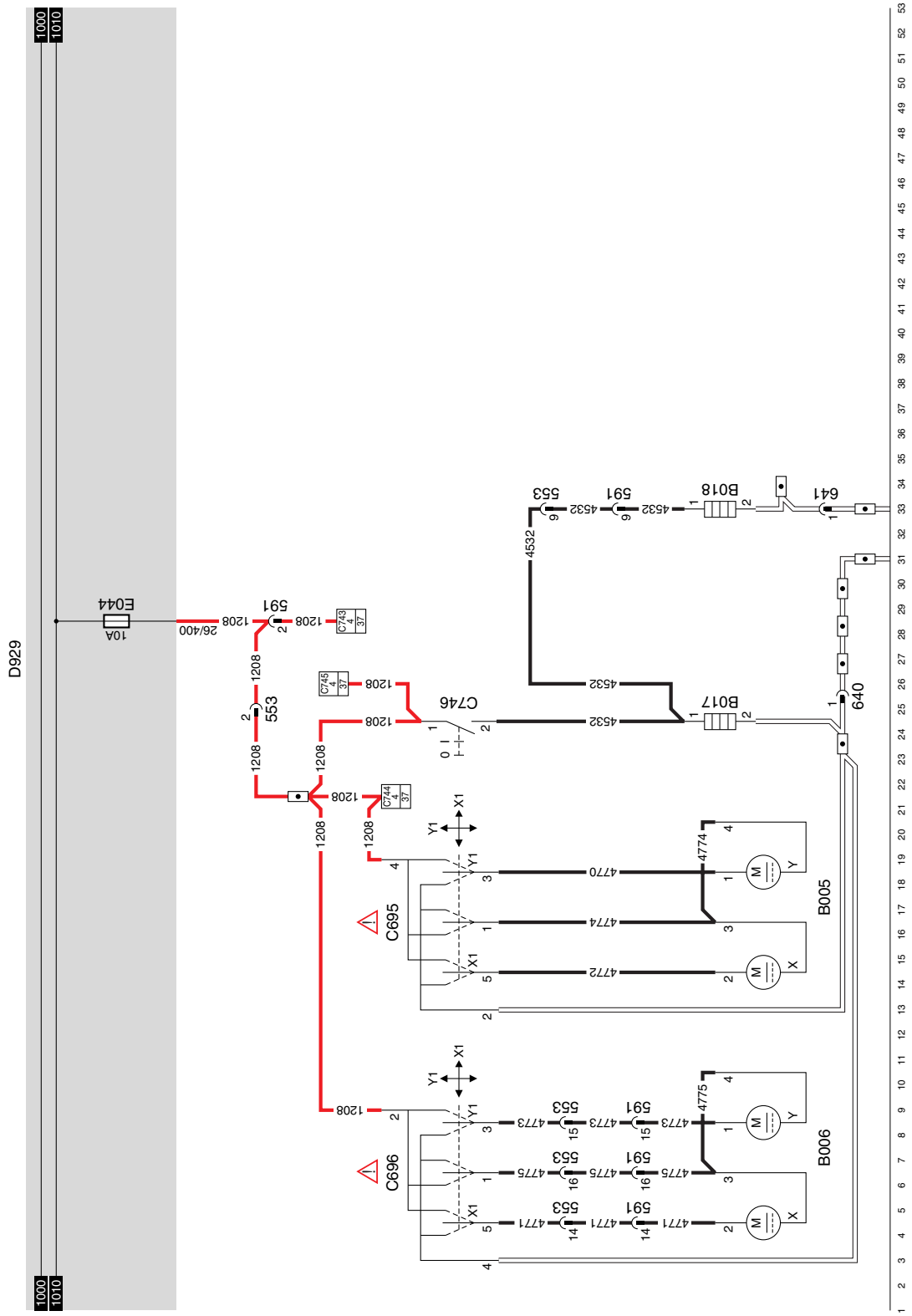
A 6-pin green accessories connector (connector no. 580 = A027) that is connected to the dashboard wiring harness has been fitted below the central PCB.



The following signals are available there:
Pin pattern for wiring harness connector 580:

Pin no.	Wire no.	Description
1	1154	Power supply before contact
2	1258	Power supply after contact
3	3412	Cab locking signal
4	3157	Engine running signal
5	M	Earth
6	M	Earth

NOTE: The power supply **before** contact is fuse-protected via fuse E142. The power supply **after** contact is fuse-protected via fuse E163. Both 25 A. The power supply to the spotlights, rotating beam and cooler box (among others) is also via fuse E142.



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Locking the co-driver's side door with key/button.
The operation is as described above, except that unit D905 will now measure an earth signal at pin 12 (wire 5062), and it will connect pin 15 (wire 4538) of component B199 to earth. The door on the driver's side will now also lock and the alarm will be set.

Locking co-driver's side door using switch C774.
When switch C774 is operated (pin 3 connected to pin 7), an earth signal is created at pin 3 (wire 5118) of unit D905. D905 now connects pin 12 (wire 5062) to earth, so that B200 is activated and the co-driver's side door is locked.

Locking the doors on the driver's and co-driver's sides using the remote control unit.
When the door locking button on the remote control unit is pressed, the remote control unit will send a fixed-code signal to the CDS-3 unit (D905). When the CDS-3 unit (D905) recognises the remote control unit on the basis of the fixed code, the remote control unit will send coded messages to the CDS-3 unit (D905). These messages are coded with a rolling code. This rolling code will change every time the remote control is operated. After the CDS-3 unit (D905) has accepted the messages, it will send a signal to the VIC unit (D900) and, if the vehicle has an alarm system, it will also send a signal to the alarm unit (D911).

As a result, the CDS-3 unit (D905) will connect pins 12 (wire 5062) and 15 (wire 4538) to earth. This will activate the motors (B199 and B200). The CDS-3 unit (D905) then checks the status of the outputs to the motors (B199 and B200). It uses this information to determine whether the doors have been successfully locked. The CDS-3 unit (D905) will send a message to the VIC unit (D900) via pin 2 (wire 3647) to inform it that the doors have successfully locked. As a result, the VIC unit (D900) will switch off the interior lighting. If the doors have not locked properly after three attempts, a message will be sent to the VIC unit (D900), to inform it that the doors have not locked successfully; the interior lighting remains on.
If the vehicle has an alarm system, a signal is also sent from the CDS-3 unit (D905) pin 2 (wire 3647) to the alarm unit (D911). This switches the alarm on.

INITIALISATION

When the CDS-3 unit is supplied with power for the first time (on installing or replacing the electronic unit), or if new hand-held transmitters are used (max. 8), the CDS–3 unit must be able to recognise these transmitters. Follow the procedure below to enable the CDS-3 unit to communicate with hand-held transmitters.

When installing or replacing CDS-3 electronic unit.

Step 1:

Lock the co-driver's side door using the switch (C774) on the central console.
After 2 to max.10 seconds, unlock the co-driver's side door using the switch (C774).
After 2 to max.10 seconds, lock the co-driver's side door using the switch (C774).

The CDS-3 electronic unit is now aware that the hand-held transmitters are being initialised and it will send a signal to the VIC. The VIC will activate the direction indicators and make them flash once.

Step 2:

Press the "locking" button on the hand-held transmitter (▶◀), and keep it pressed.
Inside the cab, press "lock co-driver's door".

ROOF HATCH (SH CAB)

OPENING ROOF HATCH
When the roof hatch switch (C736) is operated and a connection is made between contacts 2 and 6 and therefore between contacts 1 and 3, a voltage is applied to pin 1 of the roof hatch motor (B175) through fuse E045, switch C736 and wire 4761. The roof hatch will open.

Electrically closing the main switch
The main switch (D924) can be closed:
- Electrically in the cab using switch C853
- Electrically on the chassis using switch C854

ATTENTION: Switches C853 and C854 are connected in series. When C853 or C854 is switched on, the other switch must be in the 'main switch on' position.

When C853 or C854 is operated, the C1 and C2 connections are connected to the C4 and C5 connections through wire 4176, contacts 5 - 7 of switch C853, wire 4177, contacts 1 - 2 of switch C854 and wire 4178.
Relay G367 is immediately energised through wire 4174 and connection point A3 (A3 is connected to earth in the unit for 0.5 seconds). This connects point 88a to 88 of relay G367. The positive pole of the batteries is now connected to the vehicle's power supply.
Immediately after switch C853 closes, connection point A7 is internally connected to earth.

Connection point A5 is connected to the positive pole via wire 3173 and fuse E330 after connection point 88 of relay G367. This connection transmits a signal to the ECU to indicate that relay G367 has switched.

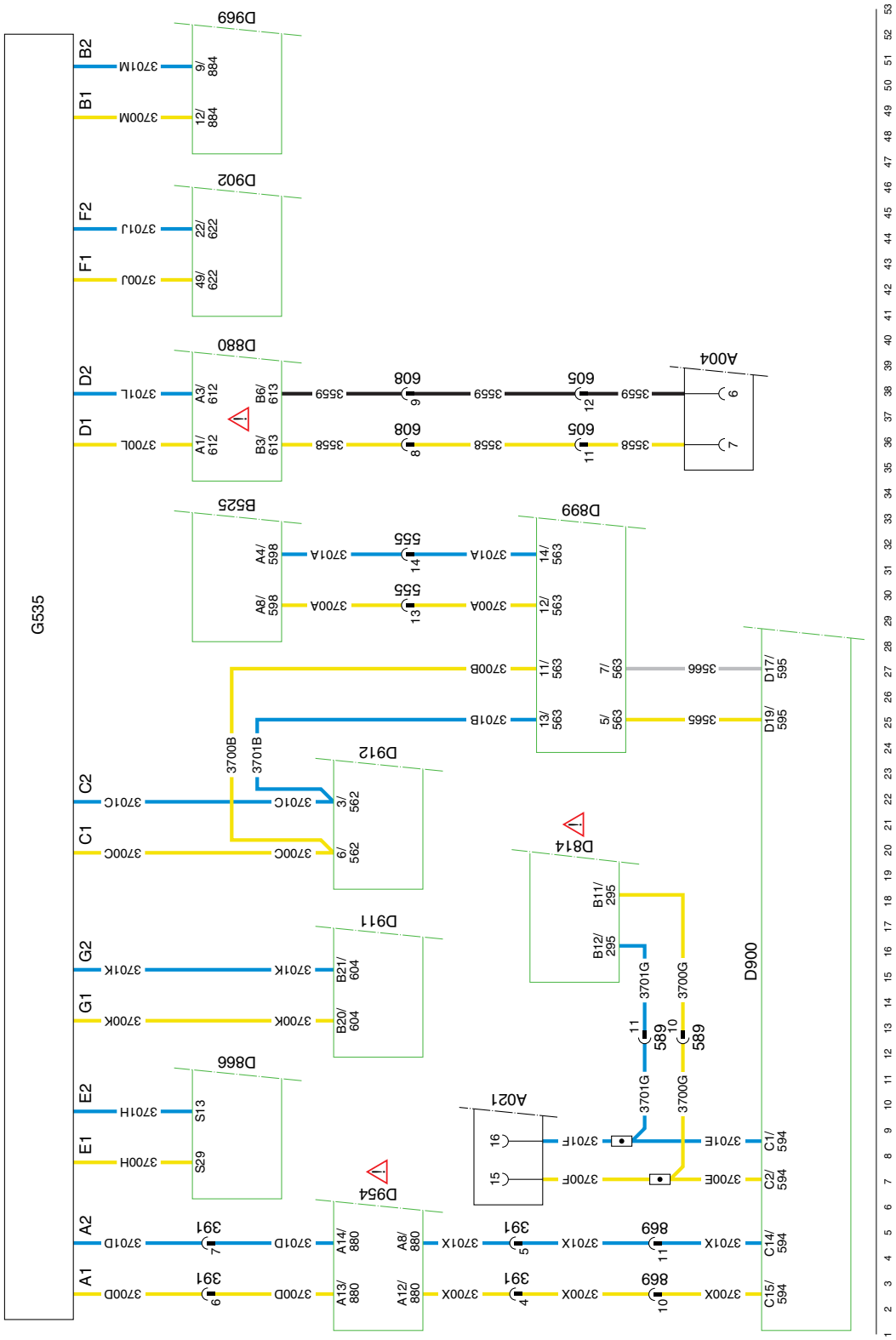
Electrically opening the main switch
The main switch (D924) can be opened:
- Electrically in the cab using switch C853
- Electrically on the chassis using switch C854

ATTENTION: Switches C853 and C854 are connected in series. When C853 or C854 is switched on, the other switch must be in the 'main switch on' position.

When C853 or C854 is operated, the C1 and C2 connections are disconnected from the C4 and C5 connections through wire 4176, contacts 5 - 7 of switch C853, wire 4177, contacts 1 - 2 of switch C854 and wire 4178.
Two actions are carried out immediately after switch C853 is opened:
1. Connection point A7 is disconnected from earth (A2) in the unit.
   If the engine is running, it is switched off.
2. After a delay of approx. 6 seconds, relay G367 is connected to earth in the unit for approx. 0.5 seconds via wire 4175 and connection point A4. This breaks the connection between points 88a and 88 of relay G367. The batteries are now disconnected from the vehicle's power supply.

Connection point A5 is connected to the positive pole via wire 3173 and fuse E330 after connection point 88 of relay G367. This connection transmits a signal to the ECU to indicate that relay G367 has switched.

Note:
When one of the switches (C853 or C854) that activate the electronic unit (close main switch) is operated, relay G367 is activated after approximately 3 seconds. If one of the switches is operated again within the 3 seconds, the electronic unit (D924) will select the priority 'main switch ON'.


G535
D969
D902
D880
A004
B525
D899
D912
D911
D814
D900
A021
D954
D866
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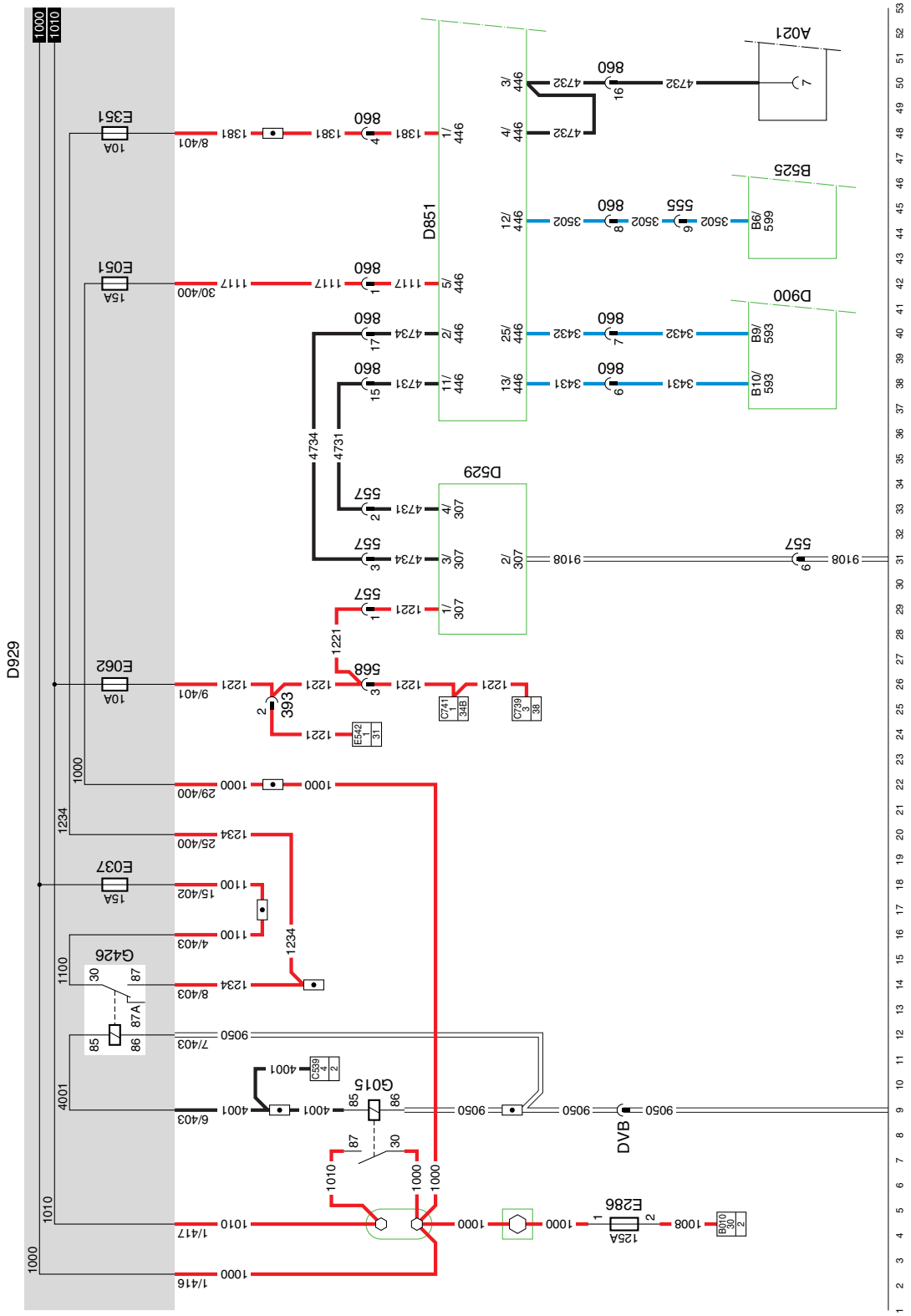
EL001095



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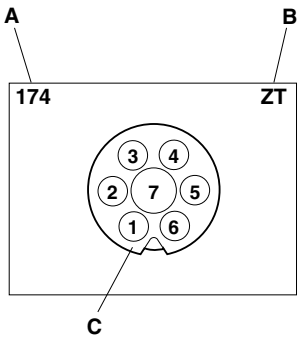
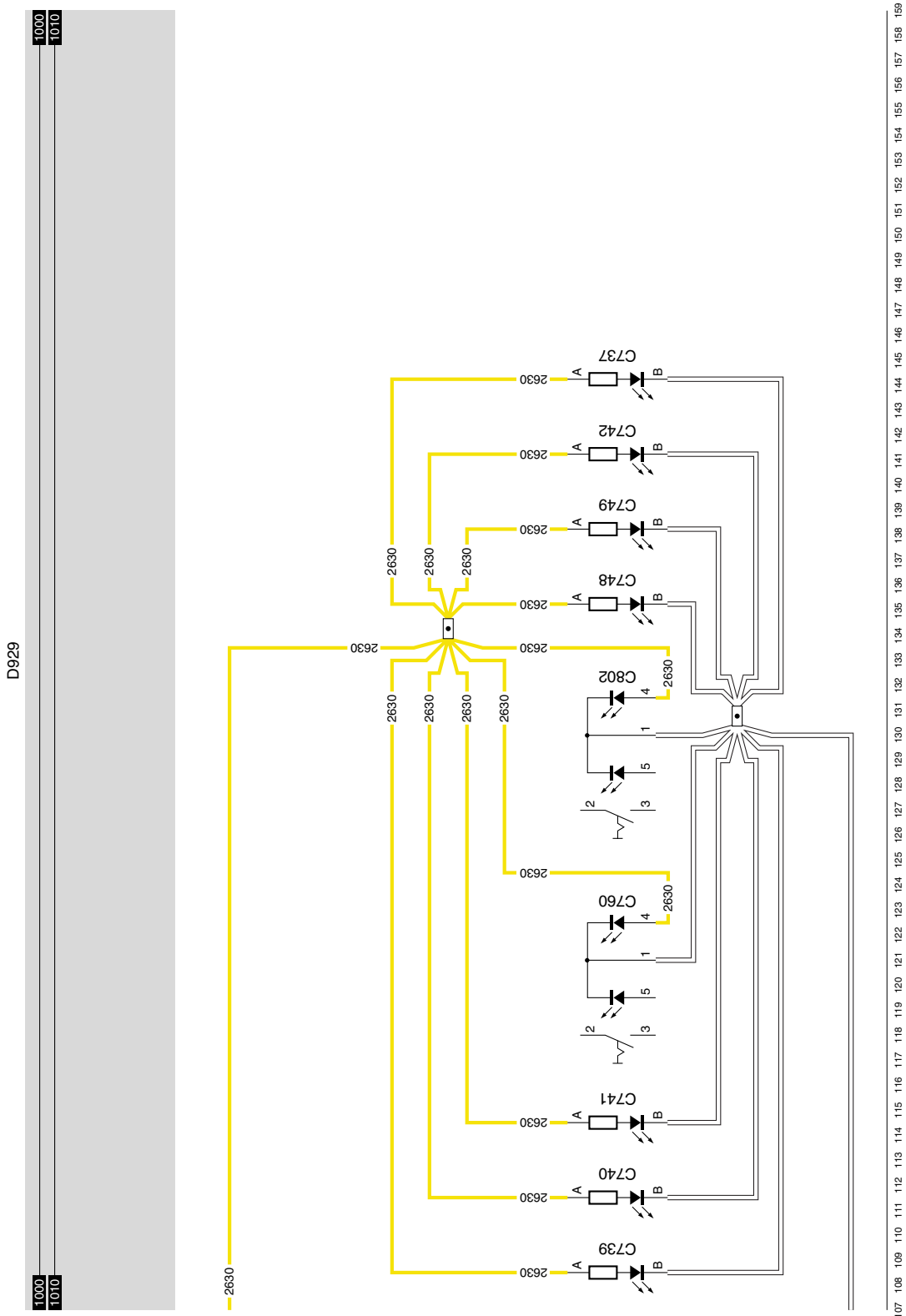
CONTENTS

1.2 DRAWINGS SHOWING LOCATION OF CONNECTORS

Explanation of connector drawings
A : Connector coding
B : Colour of connector
BN = brown
BW = blue
GL = yellow
GS = grey
OE = orange
RD = red
VI = violet
WT = white
ZT = black
C : List of pin numbers on connector
The pin numbers on the connector are viewed from the wire input side.



E500122



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Pin 5 is connected to connection point A10 of D911 (ALS-S) through wire 3651.

Pin 6 is connected via wire 3659 to connection point B6 of D911 (ALS-S).

Pin 7 is connected via wire 3660 to connection point B4 of D911 (ALS-S).

Pin 8 is connected to earth.

TELEPHONE CONNECTOR (A076)

Pin 1 is connected via wire 1353 to connection B1 (12V) of D895.

Pin 2 is connected via wire 1108 to connection A4 (12V) of D895.

Pin 3 is connected to earth.

ACCESSORIES SOCKET (6-pin) (A027)

Pin 1 is connected to power before contact through wire 1154 and fuse E142.

Pin 2 is connected to power after contact through wire 1258 and fuse E163.

Pin 3 is connected to connection point 2 of F616 (cab locking sensor) through wire 3412.

Pin 5 is connected to C42 of the VIC (D900) through wire 3157.

Pin 5 is connected to earth.

Pin 6 is connected to earth.

Pin 3 is connected to connection point 5 of G350 (reversing lights relay) through wire 4591.

Pin 4 is connected to power before contact through wire 1113 and fuse E048.

Pin 5 is connected via wire 3660 to connection point B4 of D911 (ALS-S).

Pin 6 is connected to connection point A10 of D911 (ALS-S) through wire 3651.

Pin 7 is connected via wire 2152 to connection point 87 of relay G005 (fog lamp relay, rear).

APPLICATION CONNECTOR, SUPERSTRUCTURE (8-pin) (A070)

Pin 1 is connected to power before contact through wire 1113 and fuse E048.

Pin 2 is connected to connection point 1 of C725 (work lamp switch) through wire 2155.

Pin 3 is connected to connection point 87 of G036 (stop light relay) through wire 4601.

Pin 4 is connected to connection point 5 of G350 (reversing lights relay) through wire 4591.

Pin 6 switches the right tail light via wire 2103.

Pin 7 is connected to connection point 87 of relay G036 (stop light relay) through wire 4601.

Pin 8 is connected to connection point 5 of G350 (reversing lights relay) through wire 4591.

Pin 9 is connected to power before contact through wire 1113 and fuse E048.

Pin 10 is connected via wire 3659 to connection point B6 of D911 (ALS-S).

Pin 11 is connected via wire 3660 to connection point B4 of D911 (ALS-S).

Pin 12 is connected to connection point A10 of D911 (ALS-S) through wire 3651.

Pin 13 Not connected.

Pin 14 Not connected.

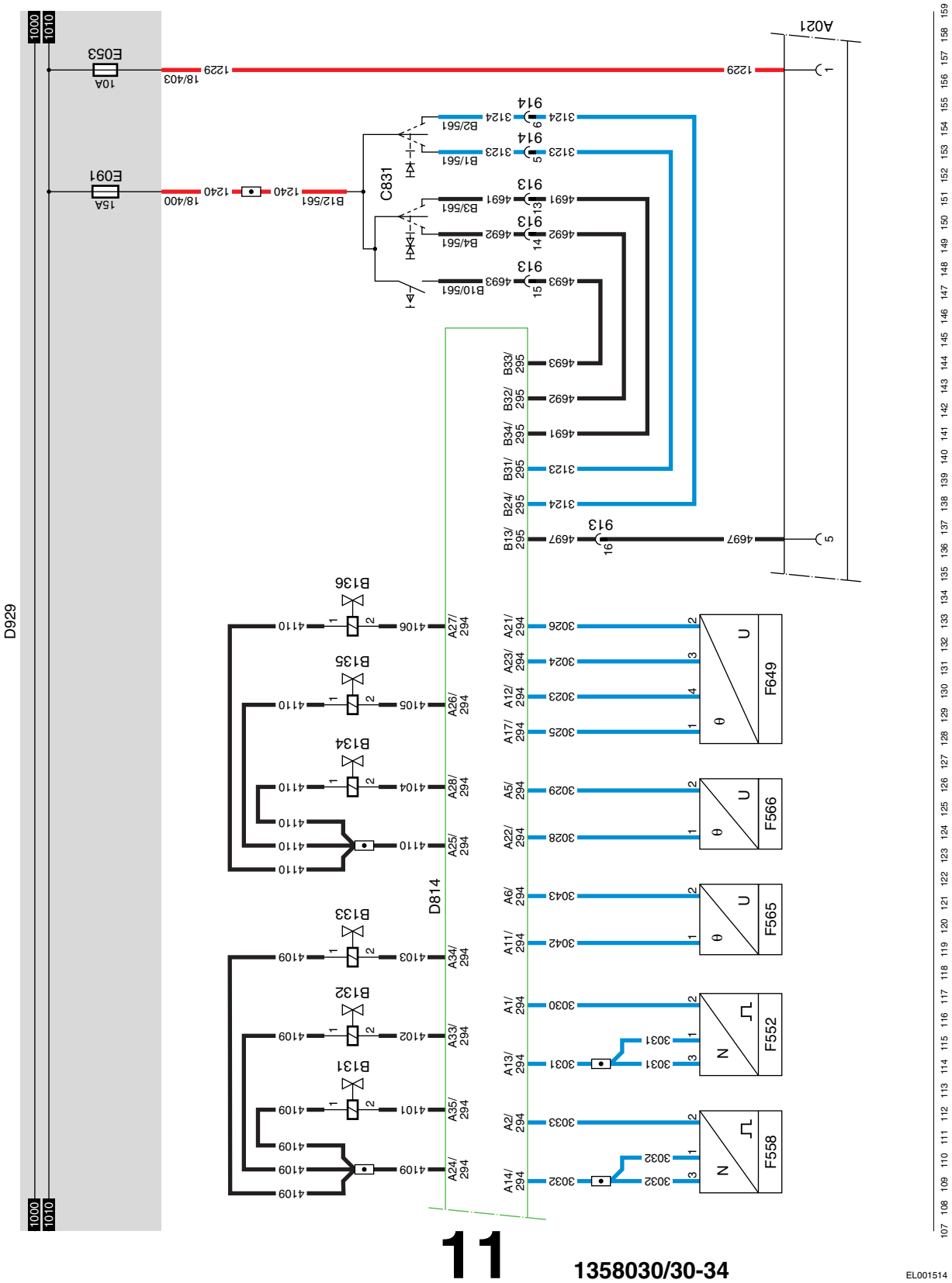
Pin 15 Not connected.

SOCKET, REAR FOG LAMP AND REVERSING LIGHT PLUG (A001)

Pin 1 is connected to earth.

Pin 2 is connected via wire 3659 to connection point B6 of ALS-S (D911).

Basic code number	Description	Number on search bar
B308	Drawn vehicle control valve	843
B309	ASR cut-off valve	859
B335	Electronically controlled fan clutch	927
B338	Alarm system horn	351
B340	Four-wheel drive valve	295
B341	Glow element	22
B344	Automatic lubrication pump with integrated electronic unit	503
B353	Automatic gearbox control solenoid, retarder	720
B354	Automatic gearbox accumulator	721
B356	Cooler box	799
B365	Radio	1113
B372	Valve block fluid flow	579
B378	Heating element for fuel filter/water separator	592
B385	AS Tronic clutch unit	1051
B386	Valve block steering cylinder	581
B387	Electronic unit, fuel heater/water separator (Fleetguard)	996
B467	Radio	1128
B525	Modular tachograph (MTCO)	54
C000	Dipped beam, left	254
C001	Dipped beam, right	255
C002	Main beam, left	258
C003	Main beam, right	260
C006	Left spotlight	261
C007	Right spotlight	262
C008	Fog lamp, front left	264
C009	Fog lamp, front right	265
C010	Width marker light (headlight), left	229
C011	Width marker light (headlight), right	242
C012	Width marker light, front left	231
C013	Width marker light, front right	243
C014	Direction indicator lamp, front left	79
C015	Direction indicator lamp, front right	83



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4. CHANGES IN THE ELECTRICAL SYSTEM FROM CHASSIS NUMBER 0E659894

4.1 OVERVIEW OF THE CHANGES IN THE ELECTRICAL SYSTEM

Section diagram	Electrical system	Changes	From chassis number
B	Overview of earthing points	Various earthing points changed	0E663173
1	Main switch	New main switch	0E682847
5	Tachograph	ECN name changed	0E682847
8	VIC	Relay, EBS warning, semi-trailer (G497) added	0E659894
11	UPEC	Relay, EBS warning, semi-trailer (G497) added to fuse E035	0E659894
15B	Stop lights/cab tilting gear	Power supply to wire 1248 changed to wire 1217	0E659894
21	Air conditioning/air-conditioning reci rculation/heater fan	Temperature switch E508 replaced by temperature sensor F754	0E659894
24	ABS - ASR-D	Relay, EBS warning, semi-trailer (G497) added	0E659894
25	DEB	Relay, EBS warning, semi-trailer (G497) added to fuse E035	0E659894
34C	ECAS-2 FT low deck + FA large volume	New	0E673432
36	24 V/12 V 10/20 A converter/radio/CB set	Supplemented by connection for combi-aerial	0E659894
37	Electric drop glass/central door locking/roof hatch, XC	Connection to fuses E033 and E034 changed to wire 1000	0E682847
44	EBS-2	Relay, EBS warning, semi-trailer (G497) added	0E659894
47	FA connectors	Relay, EBS warning, semi-trailer (G497) added	0E659894
48	FT connectors	Relay, EBS warning, semi-trailer (G497) added	0E659894
53	Car kit telephone	New	0E663173

The other section diagrams from circuit diagrams 1358030/35-37 contain no functional changes compared with circuit diagram 1358030/30-34.