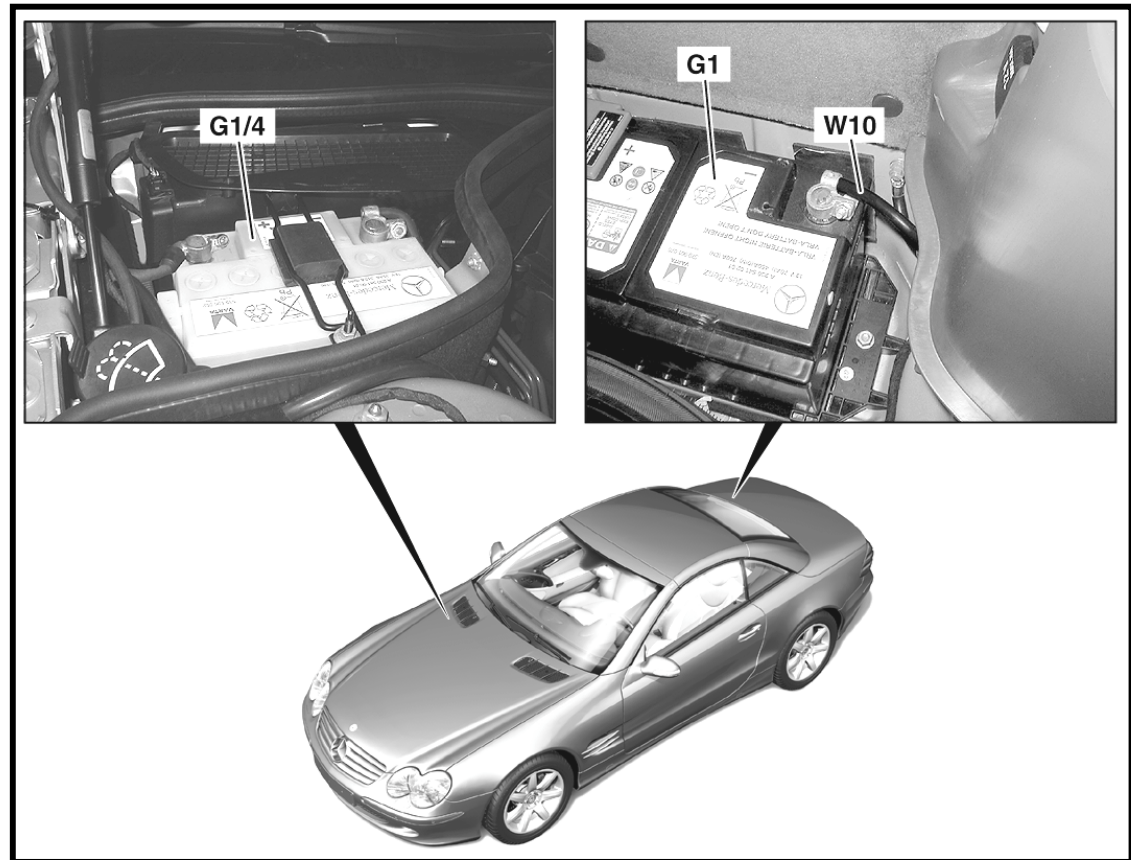




Mercedes-Benz

# R230 Dual Battery On-board Electrical System



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# Dual Battery System Tasks

- Extends vehicle's driving time for safety

Manage electrical power consumption by temporarily disabling convenience consumers if vehicle power falls below a certain voltage.

- Guarantees vehicle will start with a dead systems battery

To provide a back-up power supply to the systems circuit if the system battery cannot provide sufficient power to the vehicle.

# Program Highlights

- Dual battery on-board electrical system components
  - starter battery
  - systems battery
  - vehicle power supply control module
  - battery cut-off relay
  - isolation relay
- Power distribution
  - prefuse diagram
  - prefuse locations
- Dual battery functional description
  - normal modes
  - failure modes

# Starter Battery (G1/4)



**Note: when jump starting, ONLY USE THIS BATTERY!**



- Starter battery: 12V    35Ah    315A (DIN)    520A (EN)
- Construction: standard automotive lead acid (maintenance required)
- Function: i) supplies electrical power for starter motor armature only  
ii) provides back up power to the system circuit

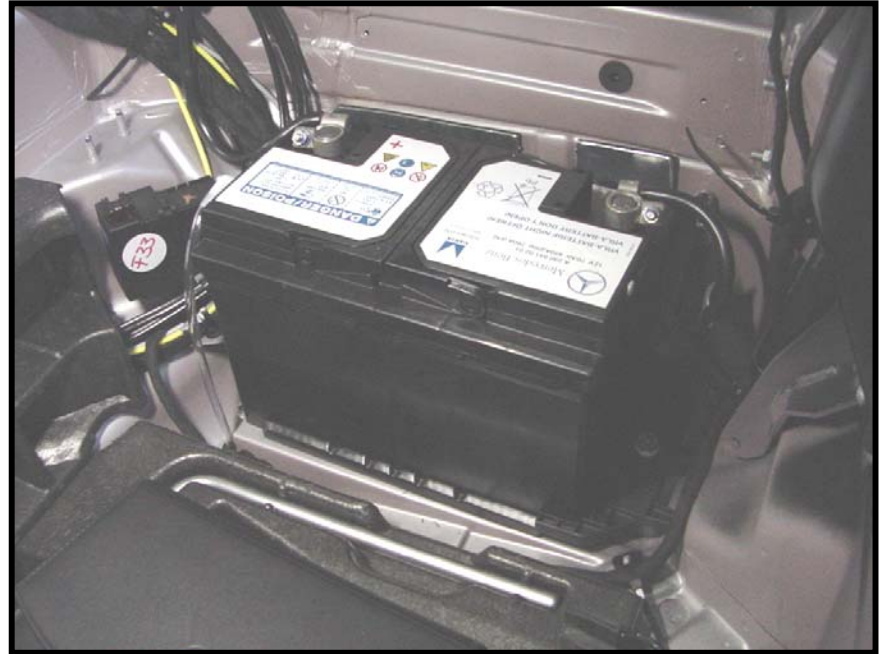
# Starter Battery Failure Display



- Multi-function display red (category 1 malfunction)
- DTC's will be set in the vehicle power supply control module (N82/1)
- Cannot be erased by customer (can only be erased using SDS / DAS)

# Systems Battery (G1)

Note: when jump starting,  
NEVER USE THIS BATTERY!



Location: in trunk - right side

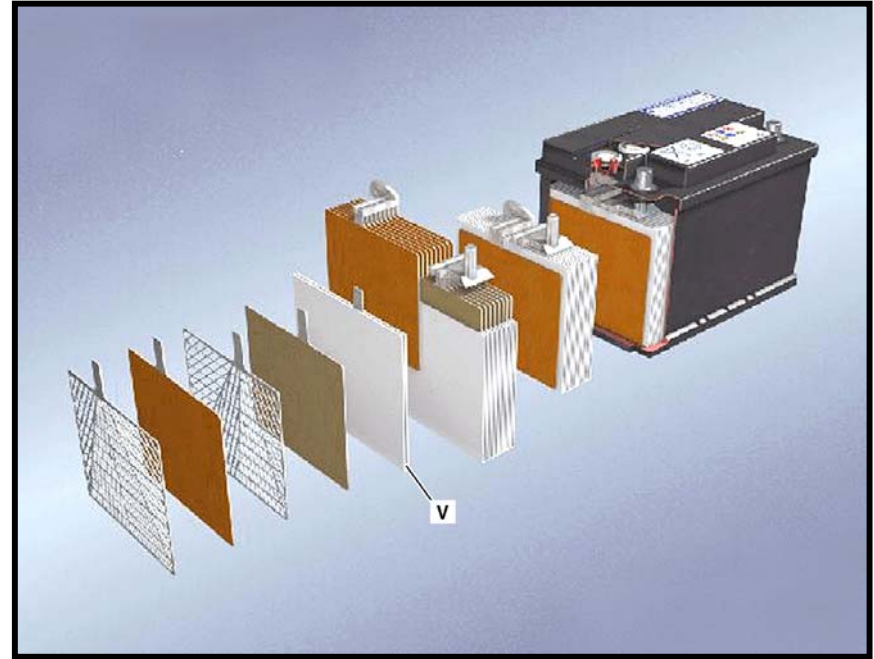
- Systems battery: 12V 70Ah 450A (DIN) 798A (EN)
- Construction: Valve Regulated Lead Acid (VRLA) type, using Absorbent Glass Mat (AGM) design
- Function: supplies electrical power for entire vehicle (incl. the starter solenoid) with the exception of the starter motor armature



# AGM / VRLA Battery Construction

The major differences in construction between a AGM battery and standard lead acid automotive battery are:

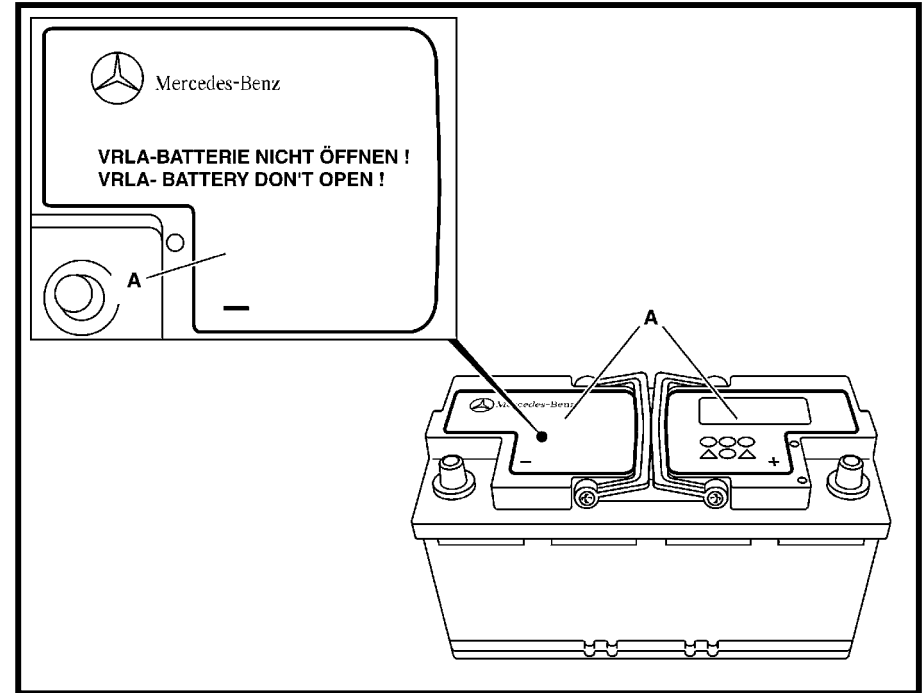
- Completely sealed case construction
- No liquid electrolyte in solution
- Absorbent glass mat (V) holds electrolyte in contact with positive and negative plates
- Vent valve is normally sealed no gases can escape during normal charging
- Vent valve is only opened if internal pressure exceeds predetermined level





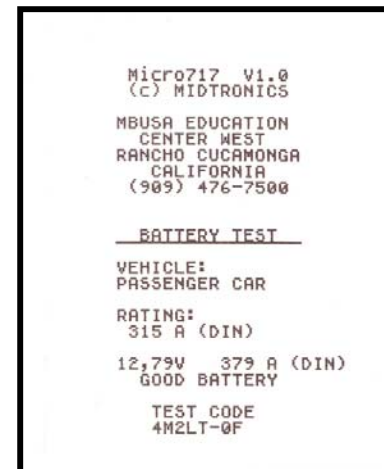
# AGM / VRLA Battery Properties

- Longer service life
- Improved deep cycle performance
- No liquid acid spills or leaks
- Fast recharge time
- Completely maintenance free

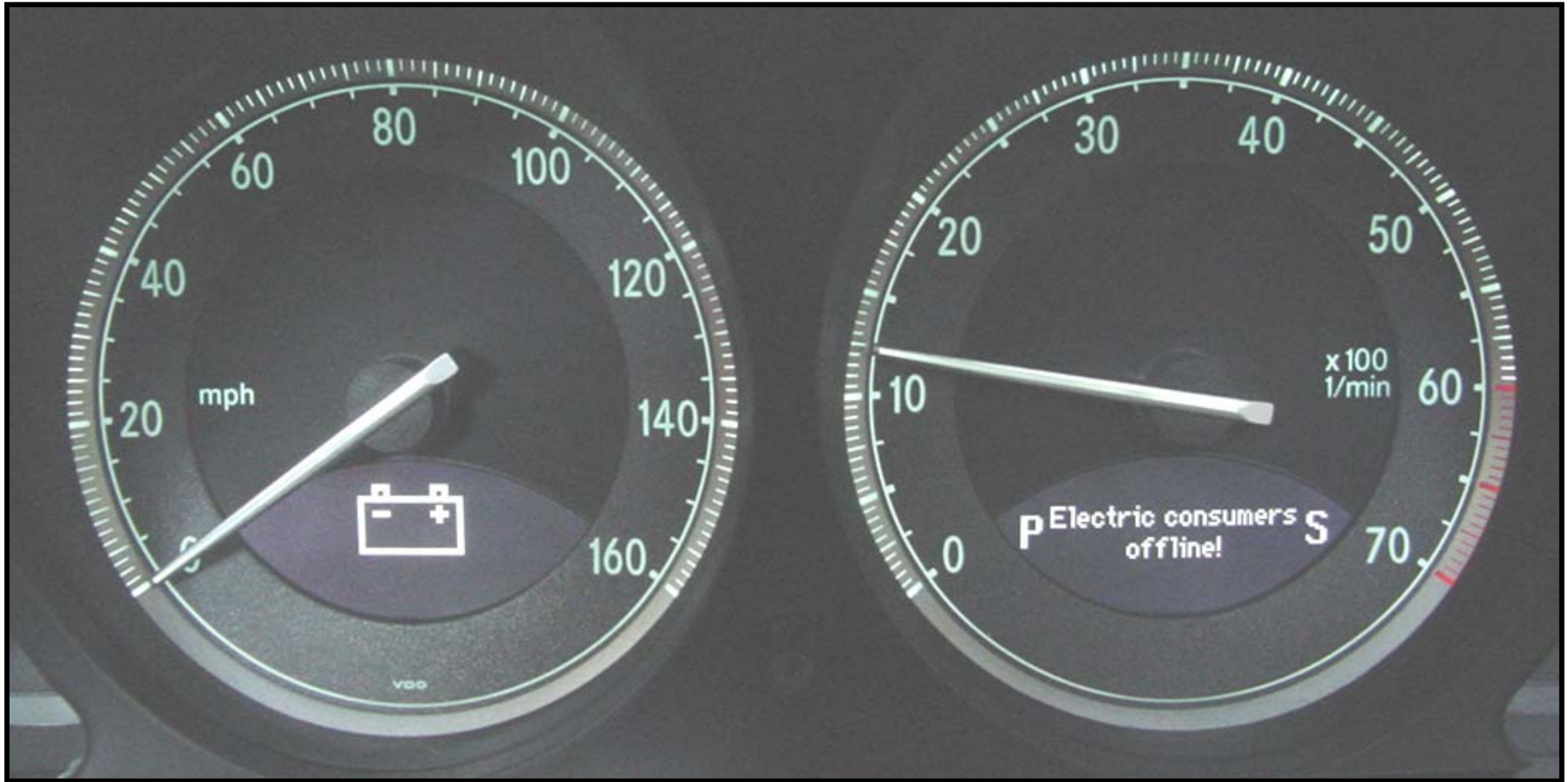


# AGM / VRLA Battery Testing

- AGM batteries cannot be tested using previous methods (load and acid density tests)
- Requires the new Midtronics MCR 717 tester and printer
- Tester measures battery conductance by inducing A/C voltage of a given frequency and amplitude on the battery posts and monitoring the current flow in response to it
- Discard the acid density sheet, and enter test code (recorded by tester) on warranty claim forms
- Battery replaced under warranty must have a test printout attached to the R.O.
- Detailed information about testing, and using the MCR717 can be found in WIS SI54.10-P-0003-01

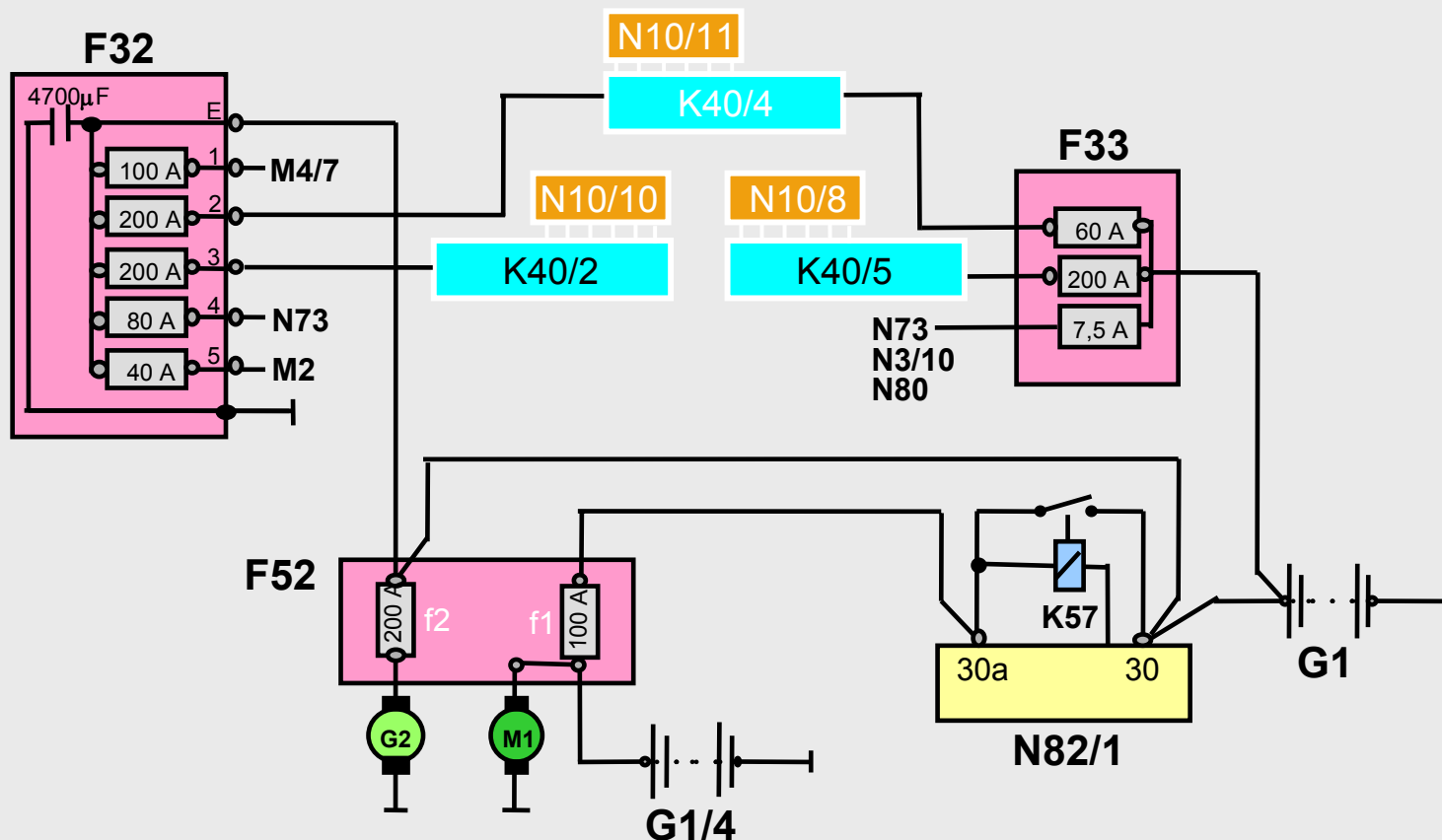


# Systems Battery Failure Display



- DTC's will be set in N82/1
- High current consumers are shut down (prioritization feature)

# Prefuse Diagram

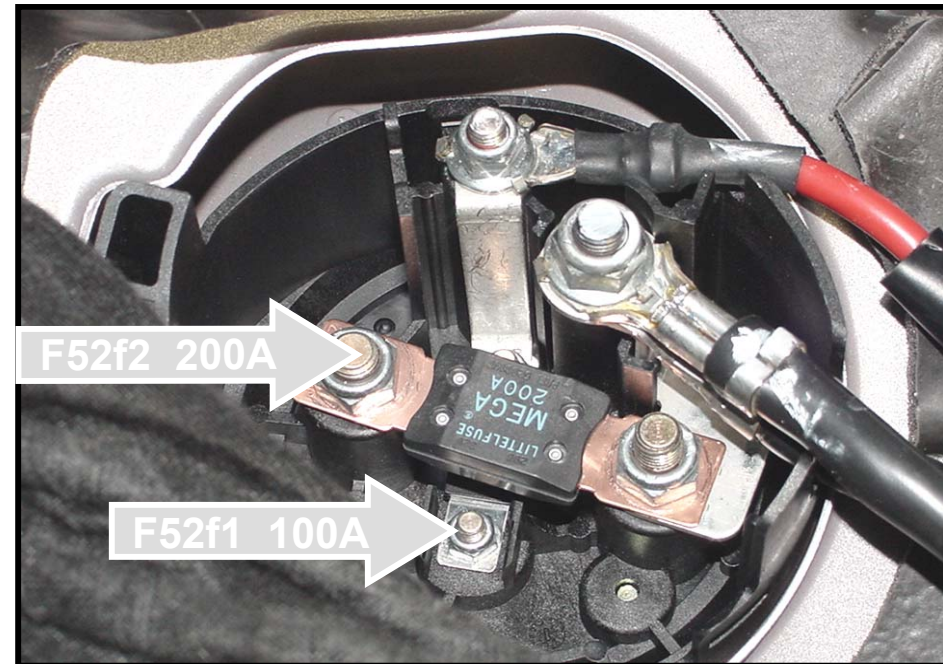


F32	prefuse front	K40/4	fuse and relay module (FR)	N10/8	SAM (rear)
F33	prefuse rear	K40/5	fuse and relay module (rear)	N10/10	SAM (FL)
F52	prefuse block	K57	battery cut-off relay	N10/11	SAM (FR)
G1	systems battery	M1	starter	N73	Electronic ignition switch (EIS)
G1/4	starter battery	M2	blower motor	N80	Steering column module (SCM)
G2	alternator	M4/7	engine fan	N82/1	Vehicle power supply control module
K40/2	fuse and relay module (FL)	N3/10	engine control module (ME)		

# Front Prefuse Block (F52)



Location: passenger footwell (upper left)

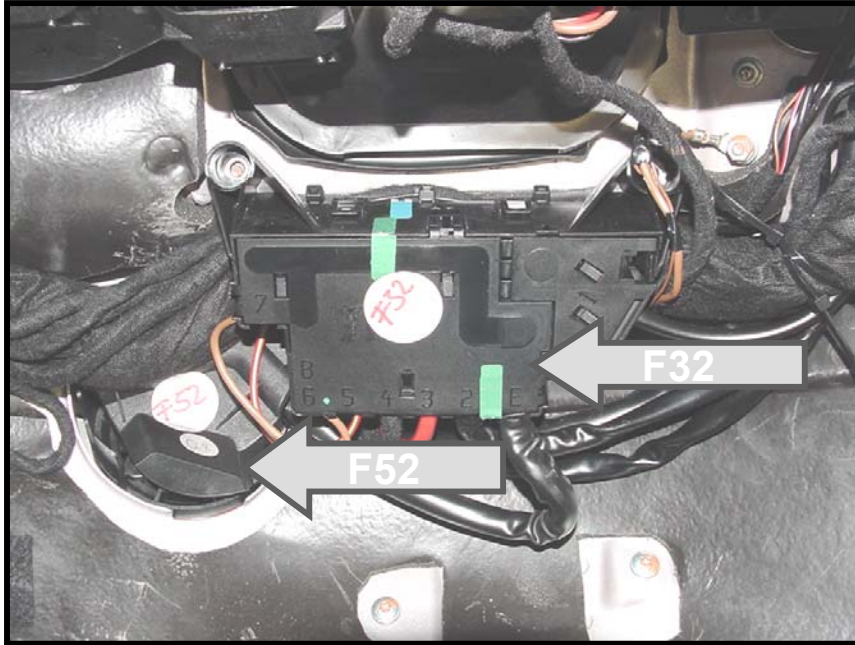


F52f1- Circuit 30a protection for supply wires to K57, K75, and N82/1

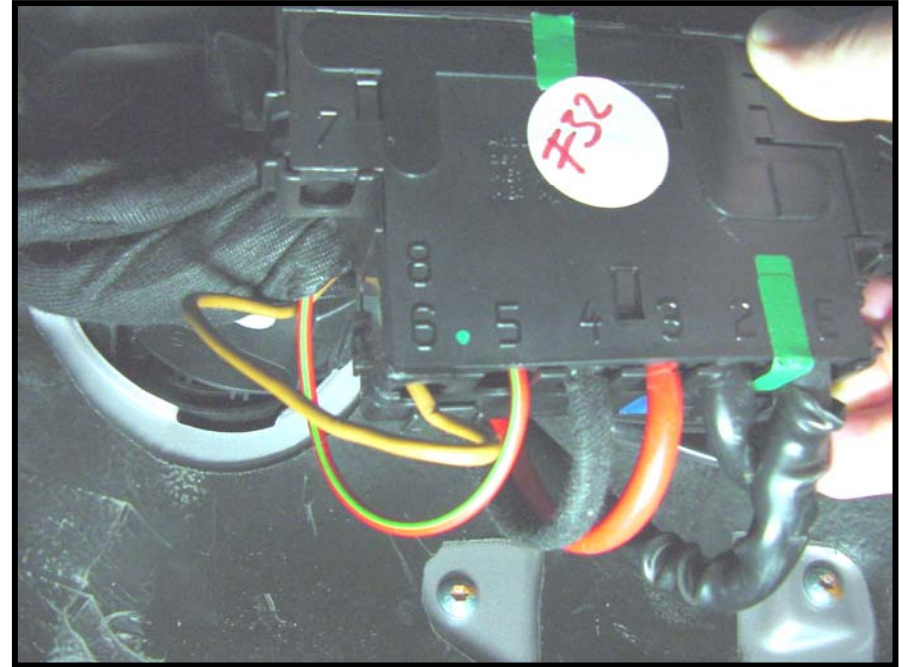
F52f2- Alternator (G2) short circuit protection



# Front Prefuse Block (F32)



Location: passenger footwell



Function: over current protection for the following (see next page)