

## TRW SPS (TYPE 2/P38 NRR) - System Overview

Introduced into the P38 range rover during the 1999 face lift, specifically to support additional safety features of Seat Belt Pretensioners and Side Air Bags mounted in the seats. This means that it is very easy to determine if this ECU is fitted simply by looking for the SRS tag sewn into the side edge of the seat back rest. The ECU will also support additional external Crash sensors which are fitted in the NAS market.

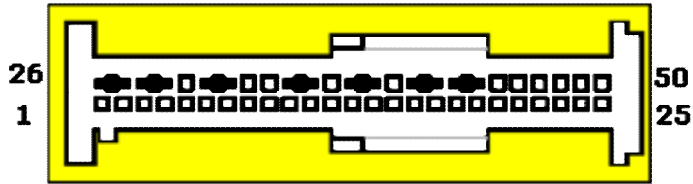


## TRW SPS (TYPE 2/P38 NRR) - Known Fitments

Vehicle makes models and variants known or believed to be using this vehicle system, required diagnostic lead and degree of known compatibility.

Vehicle Make	Vehicle Model	Vehicle Variant	Diagnostic Lead	Compatibility Level
Land Rover	Range Rover P38	1999 >	Green OBD Lead	Verified

TRW SPS (TYPE 2/P38 NRR) - Pin Outs



1	Left pretensioner + ve
2	Left pretensioner - ve
3	Right pretensioner + ve
4	Right pretensioner - ve
5	Ignition
6	Ground
7	Airbag warning lamp
8	Not Used
9	Diagnostic line
10	Driver's airbag + ve
11	Driver's airbag - ve
12	Not Used
13	Passenger's airbag
14	Passenger's airbag
15	Front right crash sensor + ve
16	Left side airbag + ve
17	Left side airbag - ve
18	Right side airbag + ve
19	Right side airbag - ve
20 - 23	Not Used
24	Front right crash sensor -ve
25	Front left crash sensor -ve
26	Shorting bar for 1 and 2
27	Shorting bar for 1 and 2
28	Shorting bar for 3 and 4
29	Shorting bar for 3 and 4
30	Not Used
31	Shorting bar for 6 and 7
32	Shorting bar for 6 and 7
33	Airbag warning lamp
34	Not Used
35	Shorting bar for 10 and 11
36	Shorting bar for 10 and 11
37	Front left crash sensor + ve
38	Shorting bar for 13 and 14
39	Shorting bar for 13 and 14

40	Not Used
41	Shorting bar for 16 and 17
42	Shorting bar for 16 and 17
43	Shorting bar for 18 and 19
44	Shorting bar for 18 and 19
45 - 50	Not Used

#### TRW SPS (TYPE 2/P38 NRR) - Diagnostic Capabilities (Read Fault Codes)

This airbag system can self detect up to 37 faults. Most of these are major or safety related faults causing full system shutdown with only a few being minor caused by, for instance a flat battery.

The systems perform a self-diagnostic test that takes about 15 seconds whenever the ignition is switched on, logging any faults that are found, and then at regular intervals thereafter. Resistors are placed at strategic points in the airbag wiring harness / loom giving the systems the ability to self detect open or short circuits. Main loom loops are from the ECU up the column through the spiral cassette through the airbag and back through the spiral cassette to the ECU; from the ECU through the passenger airbag and back again; on MPS systems, one through each of the two crash sensors mounted behind the head lamps at the front and then returning to the ECU, and then two loops each going to the instrument cluster, through a bulb each and back again. In accordance with the manuals no repairs must be carried out on the loom at all, hence no wiring diagram is supplied in the manufacturer's manuals. All problems involving the airbags, spiral cassette, crash sensors, or loom must be done in strict accordance with the relevant manufacturer's workshop manual instructions. There is a deep memory within the airbag ECU that keeps a long-term record of resets to detected faults. This means that if a particular connection was poor and went open circuit - even just once - the fault would be logged by the system as - a sensor is open circuit - and the airbag warning light would come on. If the fault was not found and the fault code memory was cleared it would be very likely to reappear. This would be logged as an intermittent fault within the system.

#### TRW SPS (TYPE 2/P38 NRR) - Diagnostic Capabilities (Clear Fault Codes)

This function checks the fault code memory for resident faults and clears the fault code memory if the fault has been rectified. Having deleted the faults the system then rechecks the fault memory to ensure that it is clear. Failure to clear the fault memory successfully is usually due to the system re-logging the fault the moment the fault memory is clear, meaning that the fault has not been rectified properly and as far as the system is concerned, still exists. The system may also carry out a re-check for successful clearing of the fault code memory but then the system may re-log the fault shortly after.

## TRW SPS (TYPE 2/P38 NRR) - Diagnostic Capabilities (Settings)

Values, configuration settings, and other stored information which can be read from the ECU, edited and then rewritten back. Read settings can also be stored as a standard HTML page for reference. These pages can then later be re loaded and re written back to the ECU. Please note that some values may be read only due to the fact that they are supplied from the ECU's ROM or are internally calculated.

- **Manufacturer:** Gives the manufacturer's name for the airbag ECU.
- **Model:** Gives the manufacturer's model code allocated to this airbag ECU. Not all ECU types feature this information diagnostically.
- **Software version:** Gives the software version number for this airbag ECU. Not all ECU types feature this information diagnostically.
- **Hardware version:** Gives the hardware version number for this airbag ECU. Not all ECU types feature this information diagnostically.
- **Serial number:** The electronically stored serial number for this airbag ECU, and can be found printed on a label affixed to the top or side of the ECU.
- **Date of build:** Gives the electronically stored date of build for this airbag ECU. Not all ECU types feature this information diagnostically.
- **Part reference:** Gives the part reference which identifies the family variant of this airbag ECU. Not all ECU types feature this information diagnostically.
- **Part number:** Gives the vehicle part number for this airbag ECU. Not all ECU types feature this information diagnostically.
- **System type:** Some airbag ECU's / DCU's are fitted in different vehicle models. Where this is the case this value shows which system has been detected. Where the ECU / DCU type is unique to a vehicle model, this value then indicates the vehicle model.

The SRS airbag has only one programmable option:

- **VIN:** The electronically stored Vehicle Identification Number (VIN) in this airbag ECU. This number should be changed if the ECU is fitted in another vehicle. It should also be entered on new airbag ECU's. The number can be found on the VIN plate under the bonnet or on the visible VIN tag at the bottom of the windscreen.
- **Driver's airbag:** This denotes fitment or omission of the driver's airbag. Not all ECU types feature this information diagnostically.
- **Passenger's airbag:** This denotes fitment or omission of the passenger's airbag. Not all ECU types feature this information diagnostically.
- **Right hand pretensioner:** This denotes fitment or omission of the right hand seat belt pretensioner. Not all ECU types feature this information diagnostically.
- **Left hand pretensioner:** This denotes fitment or omission of the left hand seat belt pretensioner. Not all ECU types feature this information diagnostically.
- **Driver's side airbag:** This denotes fitment or omission of the driver's side airbag. Not all ECU types feature this information diagnostically.

- Passenger's side airbag: This denotes fitment or omission of the passenger's side airbag. Not all ECU types feature this information diagnostically.
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