



# ABY / ADU Engine Wiring

A demystifying guide to schematics & cabling

Rev02 - Paul Nugent, 3<sup>rd</sup> August 2009



# Introduction

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- The purpose of this document is to itemise and describe the ABY / ADU engine wiring loom
- Refer to my 'Schematics & Wiring Primer' in the first instance for any background information
- This document identifies all of the locations used to correctly integrate the ABY/ADU wiring into an Audi B3/B4 vehicle (or adapt to other vehicles)
- This information is as correct as I can make it but the reader is well advised to double check that everything is to their own satisfaction at installation.

**For all S2/RS2 schematics across the years and B3/B4 variants →**  
**[http://www.s2central.net/S2\\_Schematics/](http://www.s2central.net/S2_Schematics/)**



# ABY/ADU looms over the years

## LHD

ABY	Notes	Part Number
1992-1994	-	8A1 971 072 BM
1992-1994	With anti-theft & IMMO-A	8A1 971 072 GL
1995 >>	With IMMO-1	8A1 971 072 JB

## RHD

ABY	Notes	Part Number
1992-1994	-	8A2 971 072 AG
1992-1994	With anti-theft & IMMO-A	8A2 971 072 DA
1995 >>	With IMMO-1	8A2 971 072 EH *

\* Used in this document

ADU	Notes	Part Number
1994	With anti-theft & IMMO-A	8A1 971 072 GT
1995,1996	With IMMO-1	8A1 971 072 JF

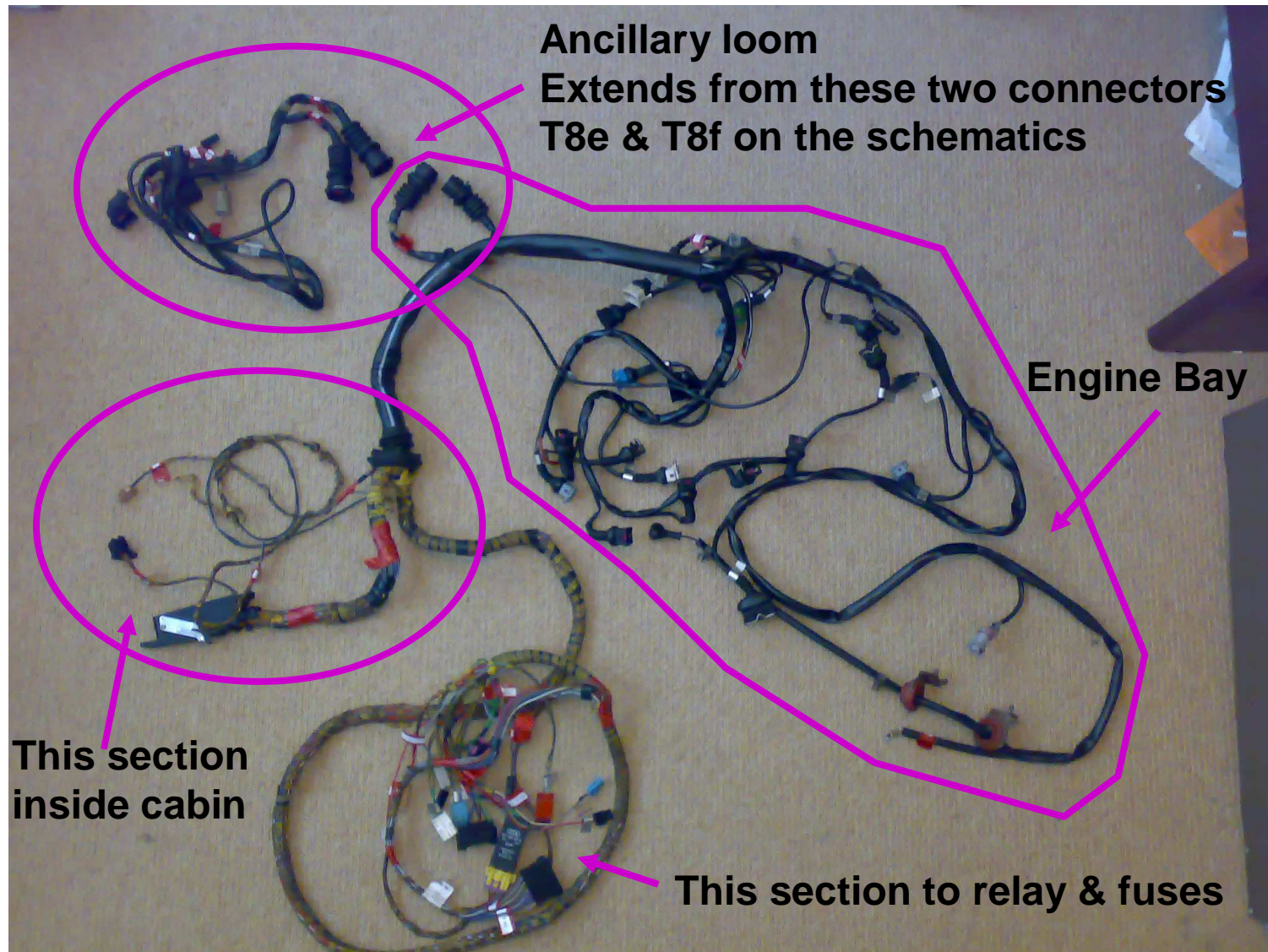
ADU	Notes	Part Number
1994-1996	With IMMO-1 ?	8A2 971 072 EN

### NOTE -

IMMO-1 uses key transponders and ECU comms  
IMMO-A predates that with an alternative system



# The ABY Wiring Loom (Late RHD shown)





# Main ABY Wiring Loom

Note – This loom is RHD MY95



## Consider the loom to be composed of five sections :

Bundle 1 - To the ECU - wrapped in yellow tape

Bundle 2 - The heavy insulated section into the engine bay

Bundle 3 - A very skinny bundle that connects to a single 2-pin plug

Bundle 4 - Another skinny bundle, yellow wrapped, with two connectors at the end

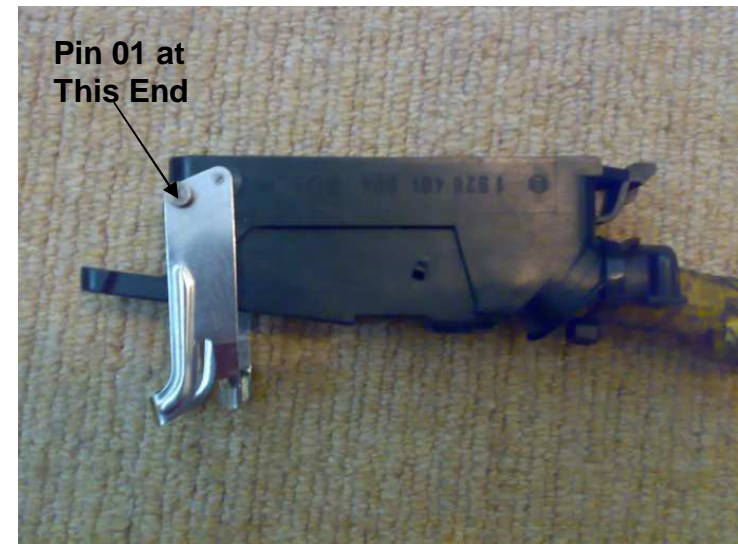
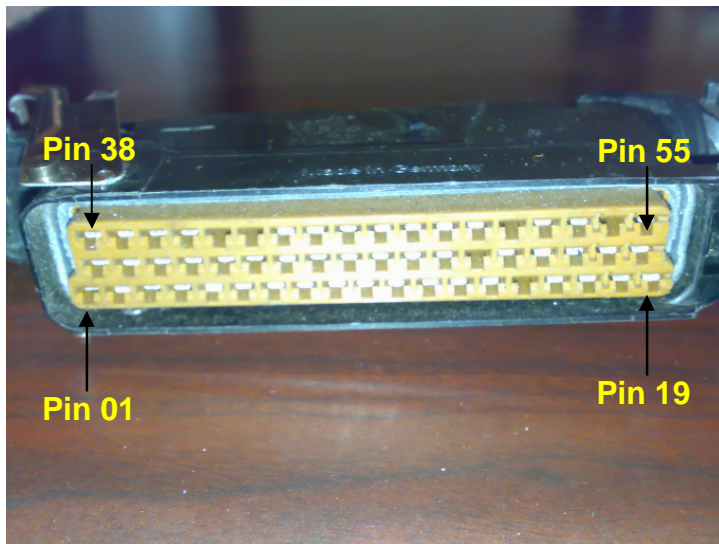
Bundle 5 - Big yellow bundle to the fusebox & relay blocks with a mass of spaghetti at the end





# Bundle 1 – ECU (J220)

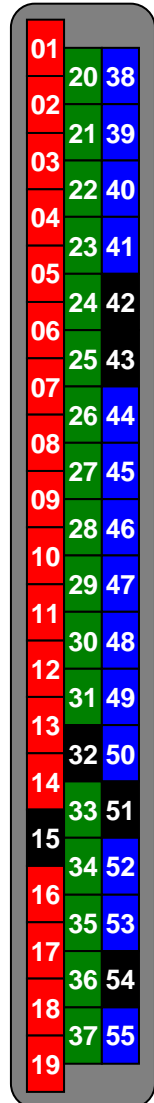
- Bundle 1 connects directly to ECU by way of huge 55-pin Bosch Motronic connector





# ECU Pin Out

## JPT-55



Pin	Colour	To
01	gn/ws	N122 / 4
02	li	N122 / 3
03	br/gn	J17 / 47
04	gn/sw	N71 / 2
05	ws	N80 / 2
06	gn/sw	HVAC I/O
07	sw/ws	G70 / 3
08	gn	G40 / 2
09	gr	F96 / 1
10	br/ge	0V
11	ws	G61 / 1
12	ro/sw	+5V
13	gn/gr ws/ro	OBD-L
14	br/ro	0V
15	-	-
16	br/ro	INJ #5
17	br/bl	INJ #2
18	ro/ws	+12V (S27)
19	br/ge	0V

Pin	Colour	To
20	ro/sw	N127 / 4
21	gn	N127 / 3
22	gr/br	MIL
23	sw/bl	N122 / 1
24	br/ro	0V
25	bl/li	G70 / 4
26	ws/gn	G70 / 2
27	sw	+12V (S32)
28	gn	G39 / T1a
29	gn	G66 / 1
30	sw/li	0V ref
31	br/sw bl bl/sw	OBC
32	-	-
33	gn/ge	N75 / 2
34	br/gn	INJ #3
35	br/ws	INJ #4
36	br/sw	INJ #1
37	bl/sw	J17 / 59 (S28)

Pin	Colour	To
38	br/bl	Code Plug
39	ws/sw	Code Plug
40	li	RPM
41	sw/ge	J155 / 3
42	-	-
43	-	-
44	sw/ge	G42
45	ro/gn	G62
46	bl/ws	F76 / R
47	ro	G4 / 2
48	li + gr	0V ref
49	bl	G28 / 2
50	ws/bl	VSS
51	-	-
52	gn/li	F60 / 6
53	gn/bl	G69 / 3
54	-	-
55	gn/ro gn	OBD-K



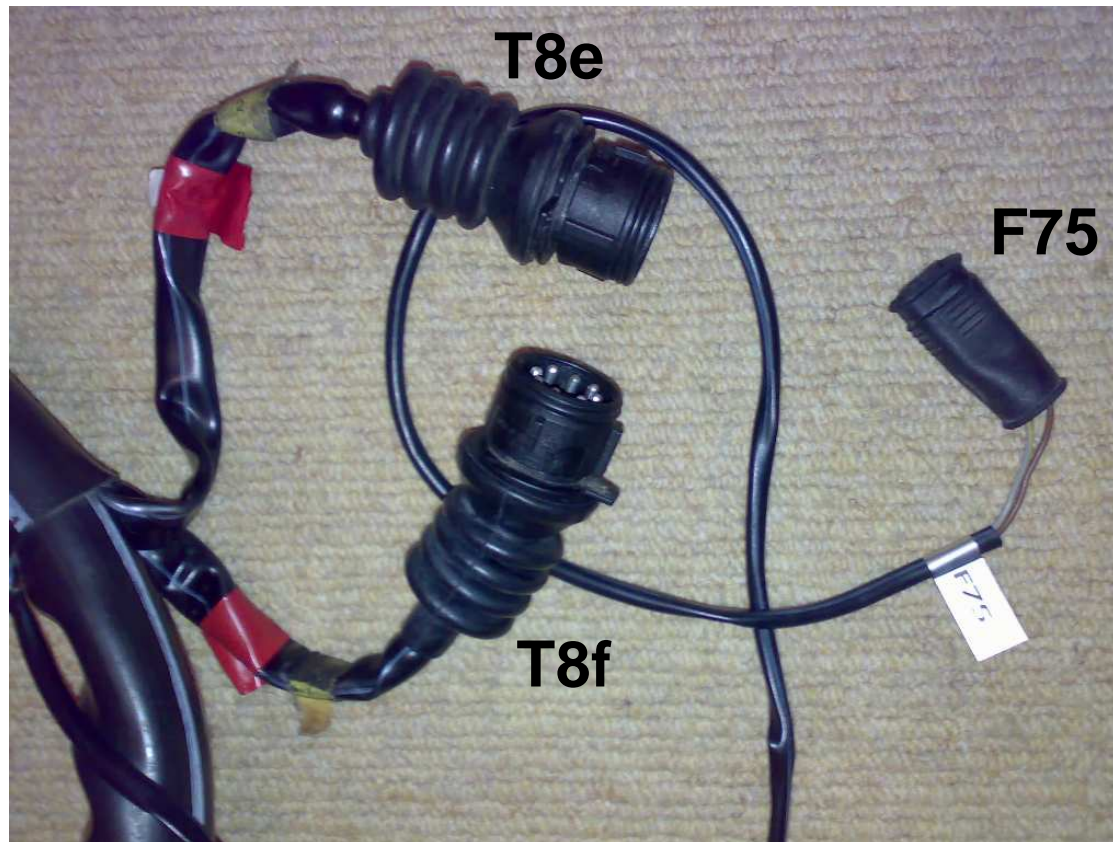
## Bundle 2 – Engine Room

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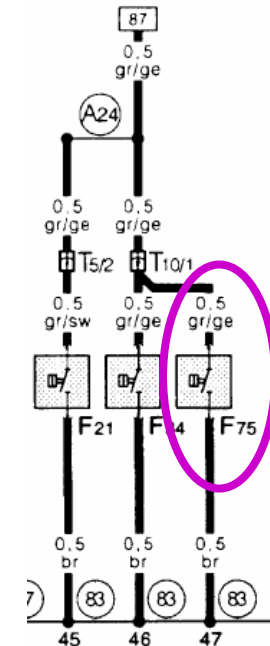
- Let's break this one down into smaller cable bundles, starting from the bulkhead grommet :
  - 2.1 Two circular multi-pin plugs and one 2-pin plug
  - 2.2 Hefty mass of multi-pin plugs
  - 2.3 Plugs for lambda probe
  - 2.4 Two spades and a 2-pin plug
  - 2.5 A 6-pin plug on its own
  - 2.6 A grey circular plug with 2 pins
  - 2.7 A red/black wire with single spade
  - 2.8 A black wire with hooded eyelet connector



# Bundle 2.1 – Engine Loom



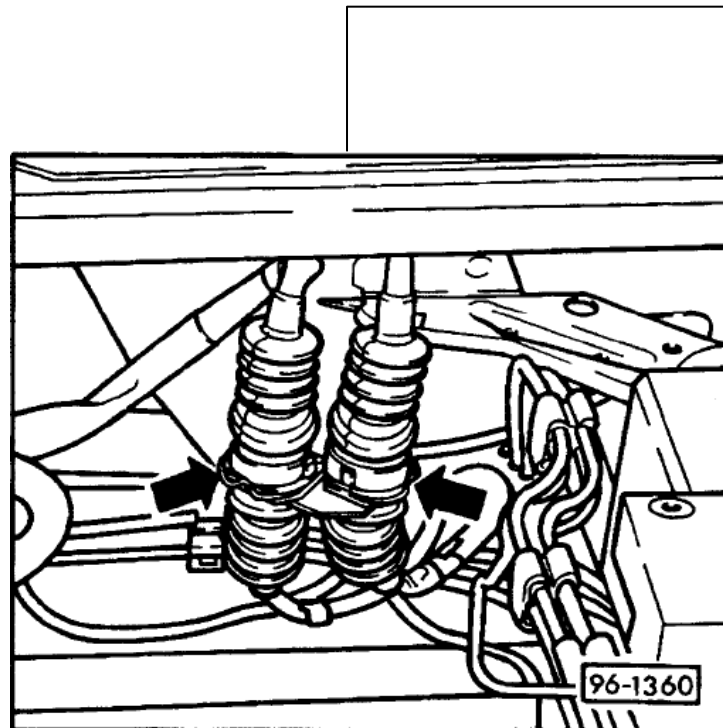
**TIP** - Test connectivity from F75 to T10/1 and 0V  
See Bundle 5.



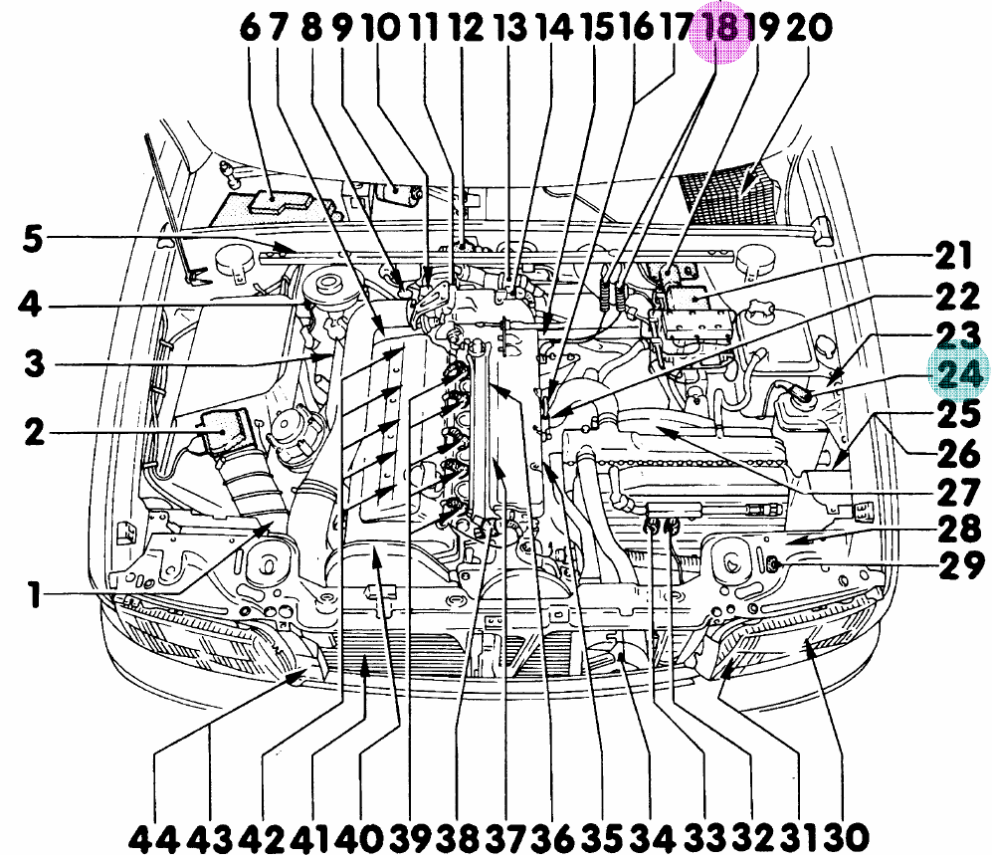
- **F75** – 2 pin connector for hydraulic oil level switch
- **T8f** is marked with a '1' label – this side is male
- **T8e** is marked with a '2' label – this side is male



# Locations : T8e, T8f & F75



**T8e & T8f**  
Bulkhead – Location 18



**F75 on Hydraulic Reservoir**  
Location 24



## Bundle 2.2 – So many connectors !



- **Bundle 2.2.A**

- Total of 9 multi-pin plugs here
- 6 of them extend to various sensors by way of the bulkhead connector panel (BCP) shown on next page



- **Bundle 2.2.B**

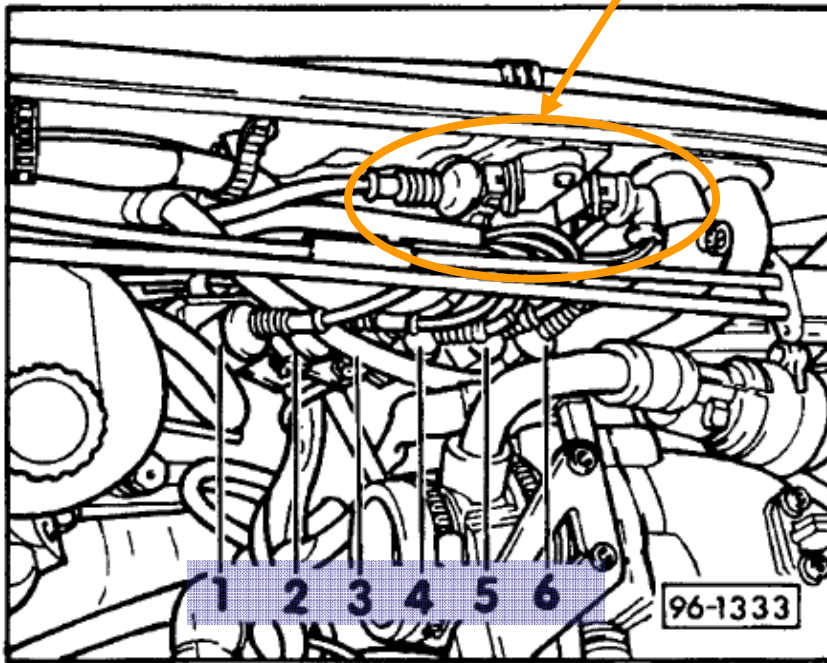
- A fatter branch carries these to fuel injectors, inlet manifold and head





# Bulkhead Connector Panel (BCP)

2 x Power Output Stages (POS) – **N122** & **N127**



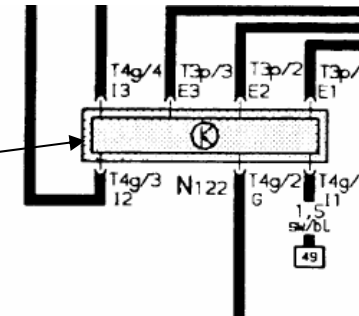
Location – Rear of cylinder head

1. White, Coils 4 & 5 (**T3aa**)
2. White, Coils 1-2-3 (**T3k**)
3. Green: Knock-1 (**G61**)
4. Blue: Knock-2 (**G66**)
5. Grey: Crank Speed (**G28**)
6. Black: Crank Position (**G4**)

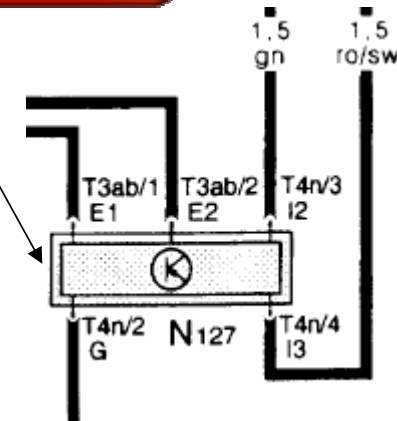
**Note – Other colours of knock sensor exist.**



## Bundle 2.2.A.1 – POS & Coils



**Warning -  
Schematic Errors  
Ahead**

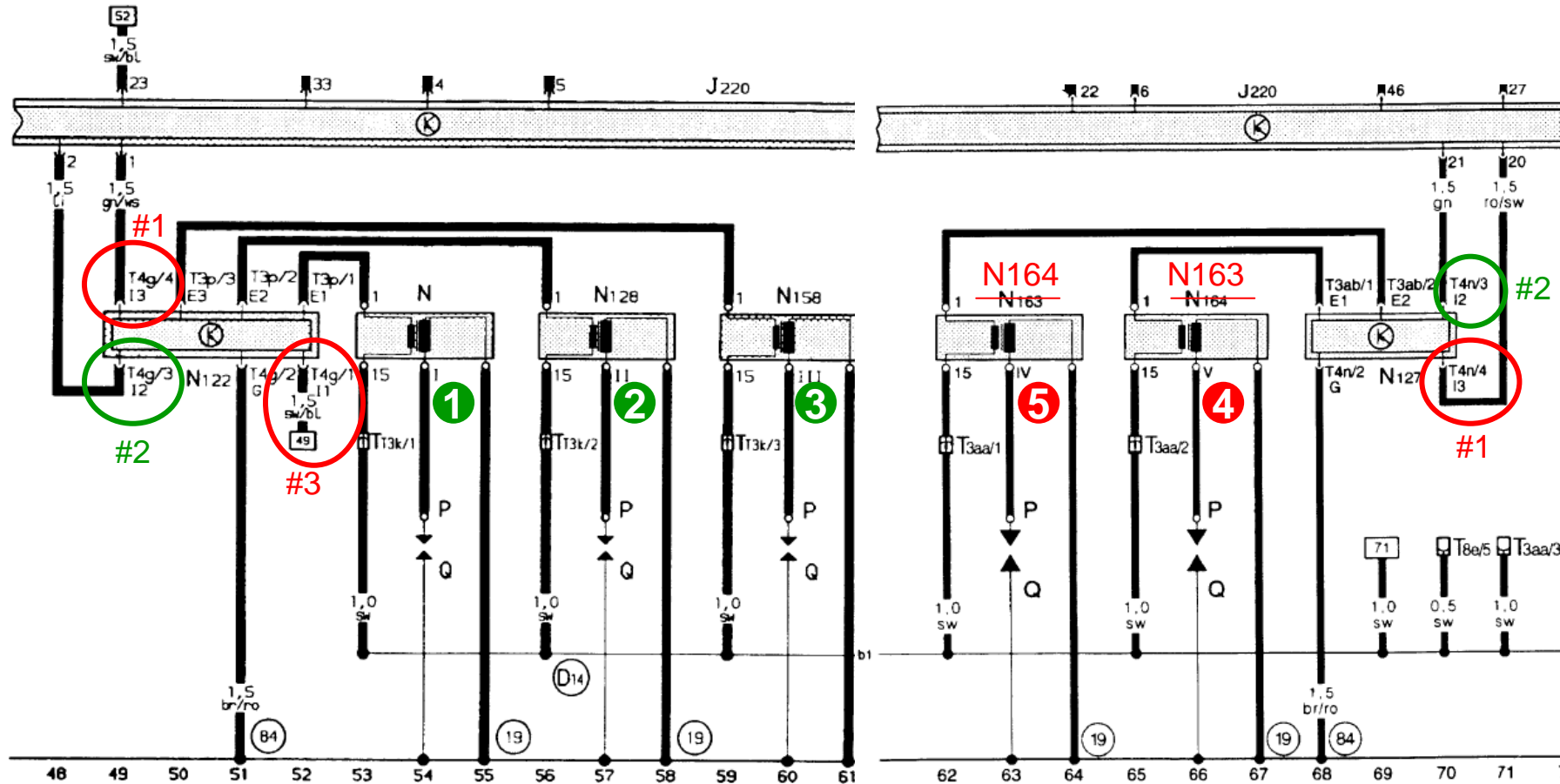


- **T4g** – Brown, Input to POS for cyls 1-2-3 (**N122**)
- **T4n** – Black, Input to POS for cyls 4 & 5 (**N127**)
- **T3k** and **T3aa** – White, +12V supply to coils, fused by S32





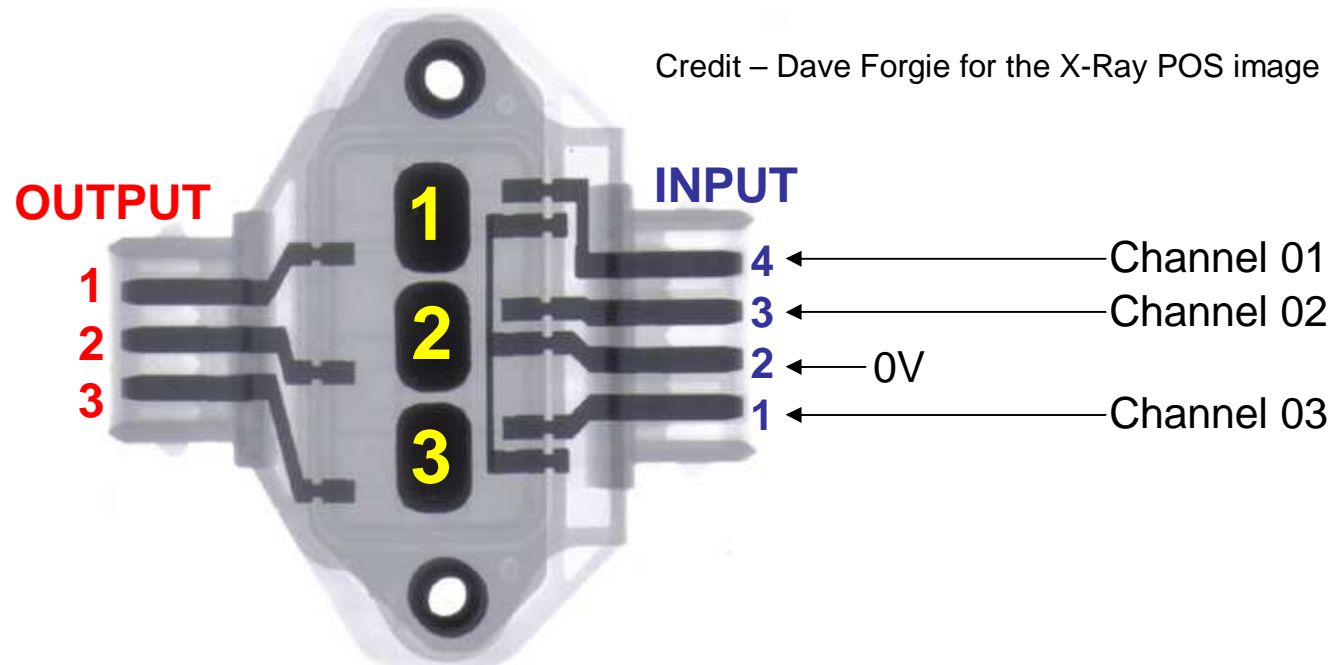
# Factory Schematics are WRONG



Corrections shown above – annotated in red...  
NOTE also that some variations of wire colour exist



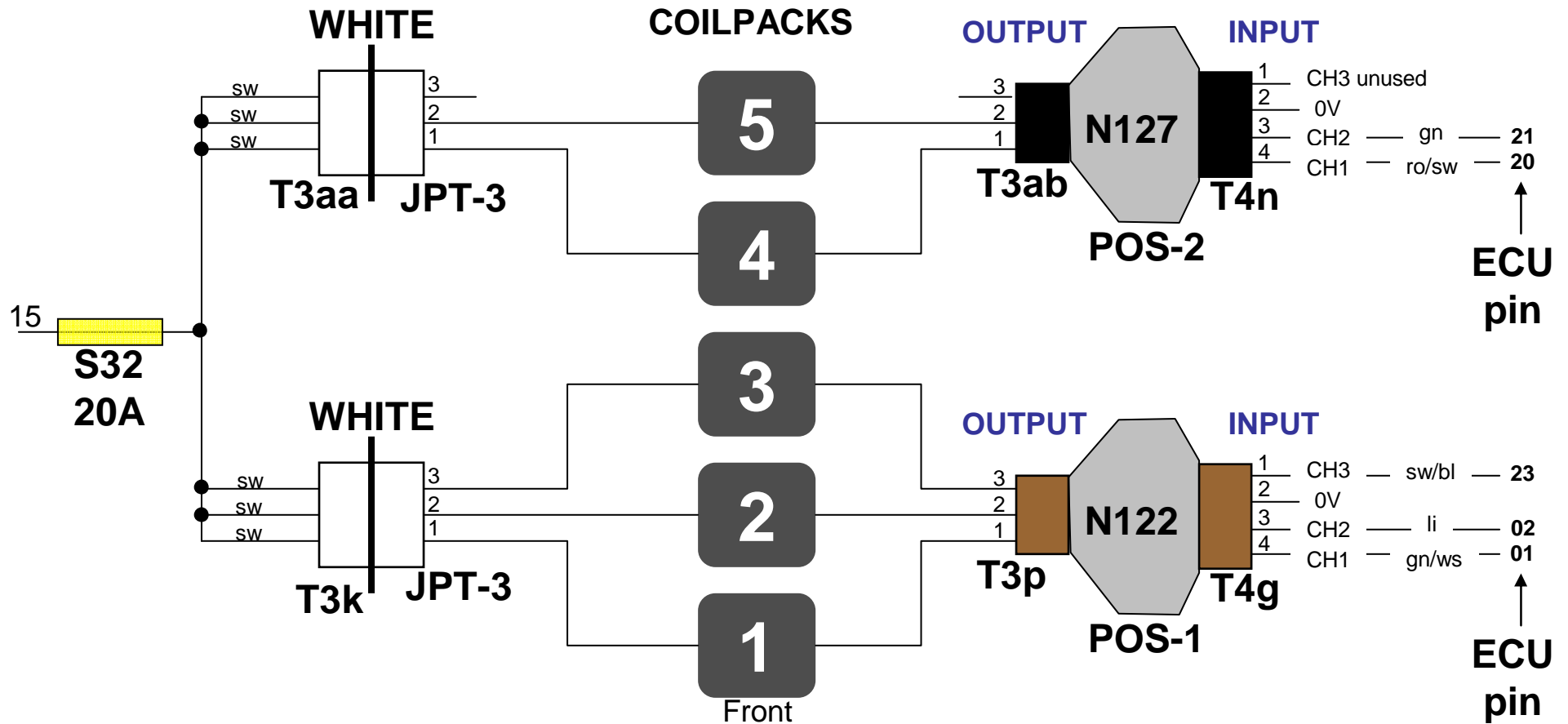
# The Correct POS Topology



Coil Pack per Cylinder	ECU Pin Number / 55	Common Wire Colours	POS-1 (N122) <b>BROWN</b>	POS-2 (N127) <b>BLACK</b>
1	1	gn/ws	Ch 01, T4g/4	-
2	2	li	Ch 02, T4g/3	-
3	23	sw/bl	Ch 03, T4g/1	-
4	20	ro/sw	-	Ch 01, T4n/4
5	21	gn	-	Ch 02, T4n/3



# Coilpack wiring from POS-1 & 2



- Coilpacks have integral connector with flying leads that **must** be correctly spliced into JPT-3 connectors as shown logically above.
- Note that POS drawn upside down here to align with cylinder direction.
- POS units **must** have thermal paste on the connection to bulkhead.

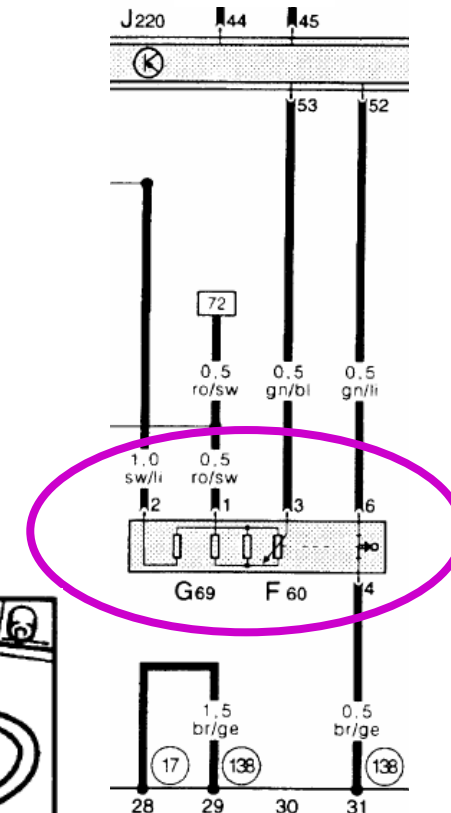
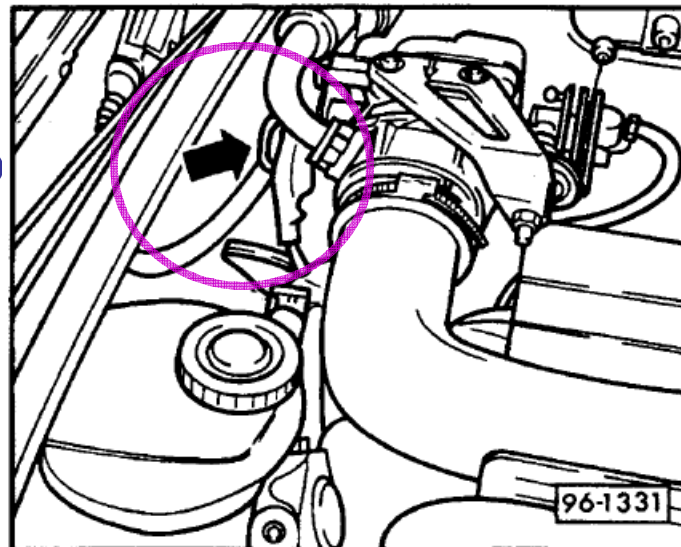


## Bundle 2.2.A.2 – Throttle Position Sensor



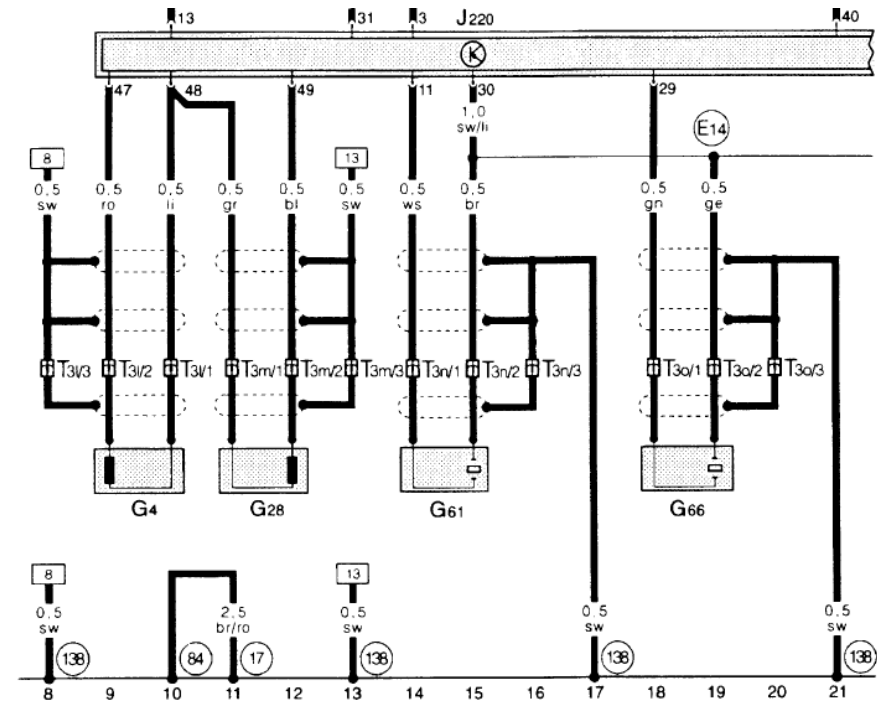
**G69 / F60**

**Connects directly to  
the throttle body**





## Bundle 2.2.A.3 – Knock & Crank Sensors



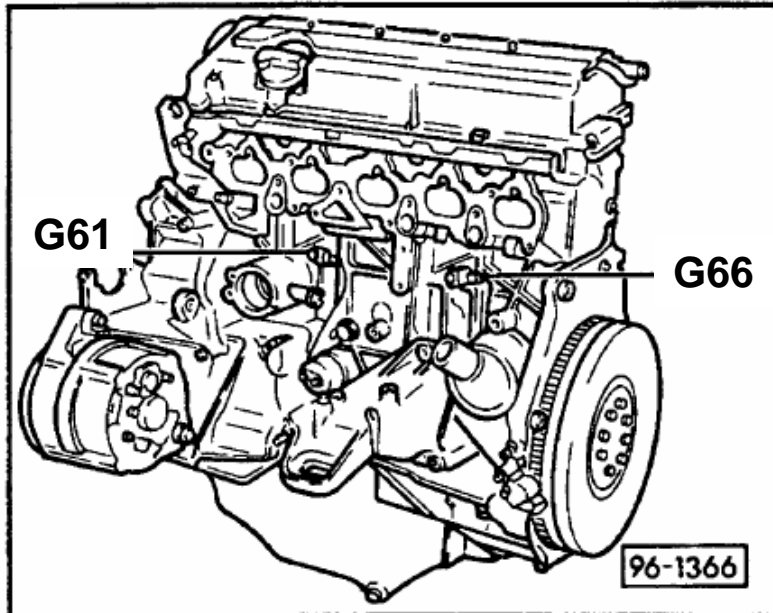
- BLACK : **T3I** → Crankshaft Position Sensor (**G4**)
- GREY : **T3m** → Crankshaft Speed Sensor (**G28**)
- GREEN : **T3n** → Knock Sensor 1 (**G61**)
- BLUE : **T3o** → Knock Sensor 2 (**G66**)

Note that other coloured knock sensors were used in different years. Check your own wiring carefully.





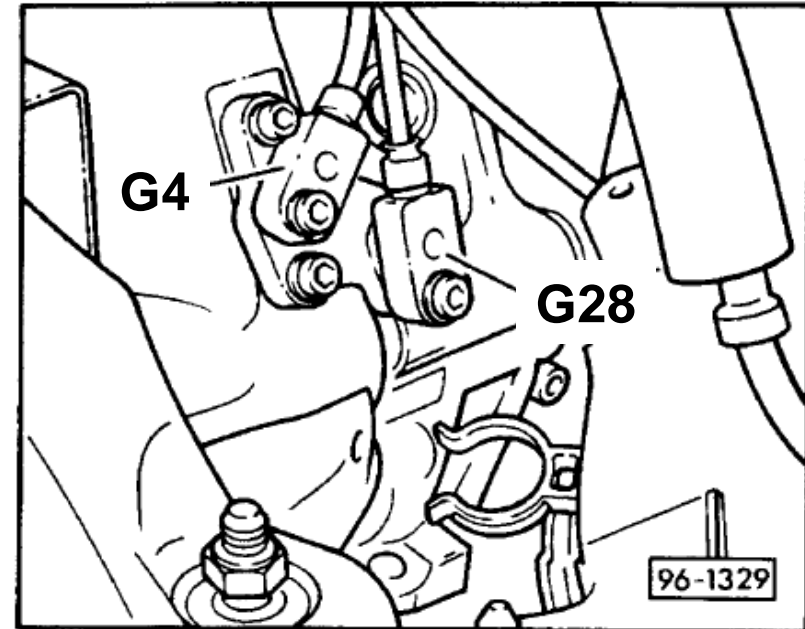
# Locations – Knock & Crank Sensors



Location – Left side of engine block

**G61** - Knock-1 (Cyls 1-2-3)

**G66** - Knock-2 (Cyls 4 & 5)



Location – Left side of engine block

Low down near bellhousing.

**G4** - Crank Position Sensor

**G28** - Crank Speed Sensor



## Bundle 2.2.B.1 – IAT, ISV & Earth



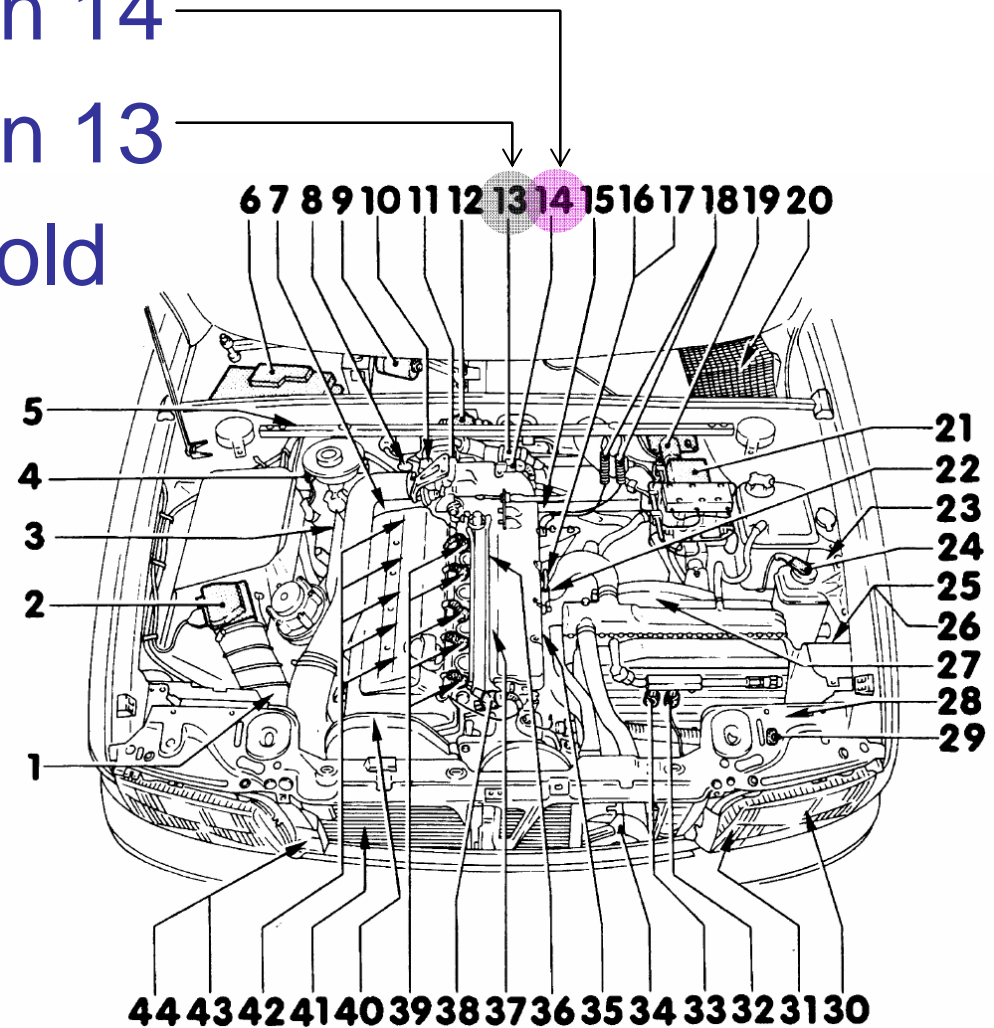
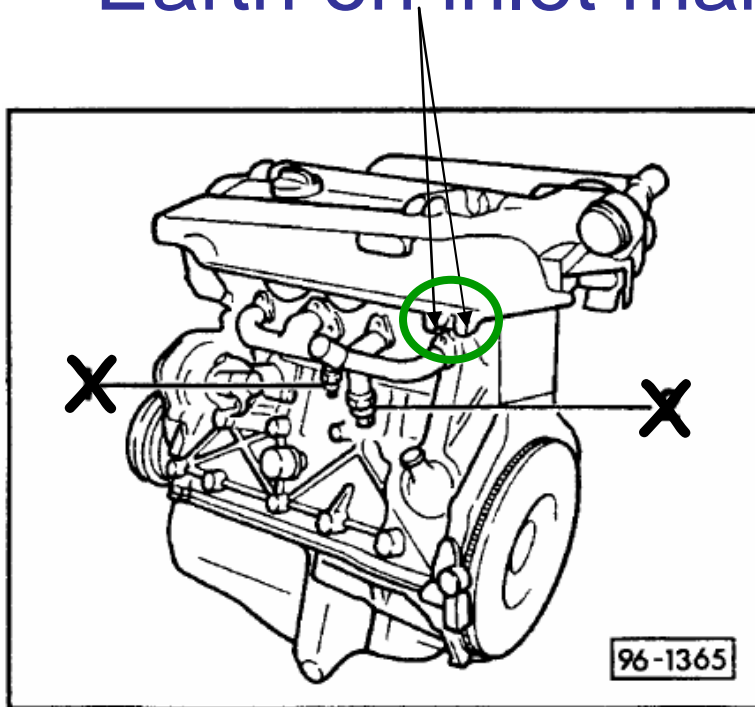
- **G42** – Intake Air Temp Sensor
- **N71** – Idle Stabiliser Valve
- Earth Points at inlet manifold. Ensure each eyelet has two wires firmly crimped on and that a good clean connection is made with the manifold.

**Tip** – Check connectivity from this earth point to all of the others in loom.



# Locations – IAT, ISV & Earths

- **G42** - IAT – Location 14
- **N71** - ISV – Location 13
- Earth on inlet manifold





## Bundle 2.2.B.2 – EVAP & CTS

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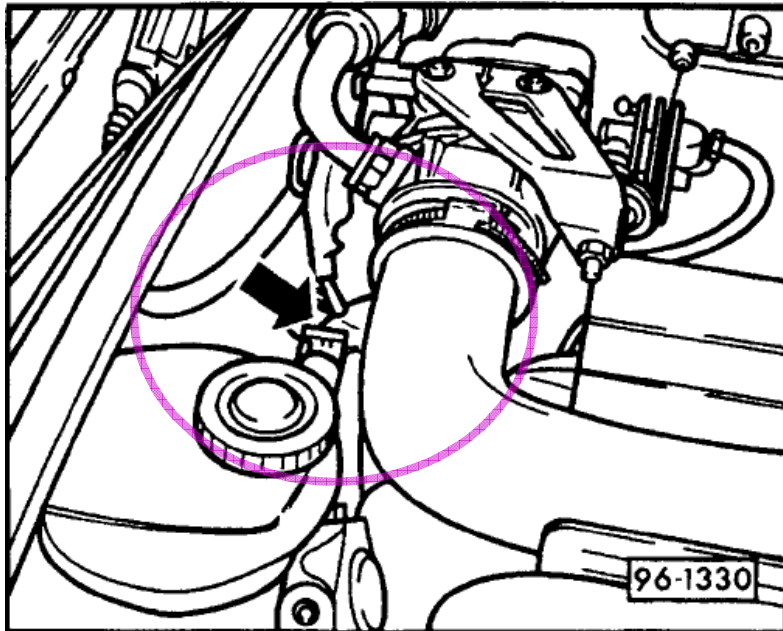


**G62** – Coolant Temp Sensor  
**N80** – EVAP purge valve

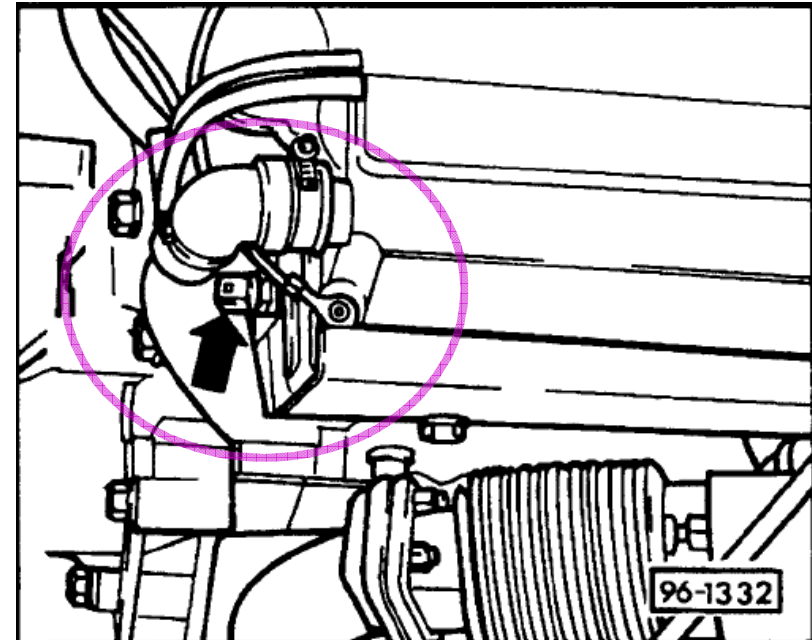




# Locations : EVAP & CTS



**N80** – EVAP purge valve  
Behind / Under Inlet pipe



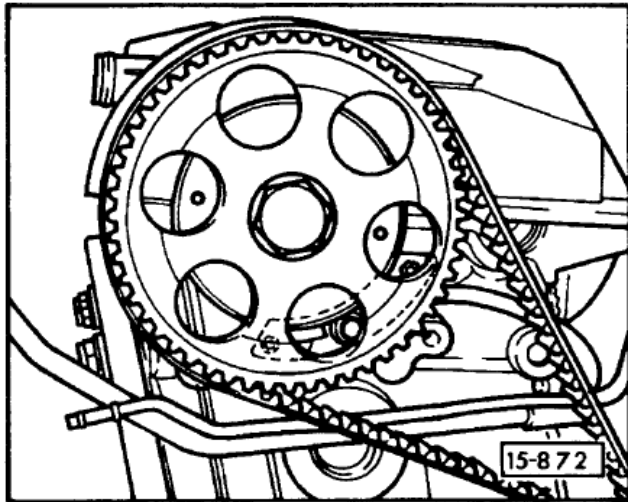
**G62** – Coolant Temp Sensor  
Rear of cylinder head



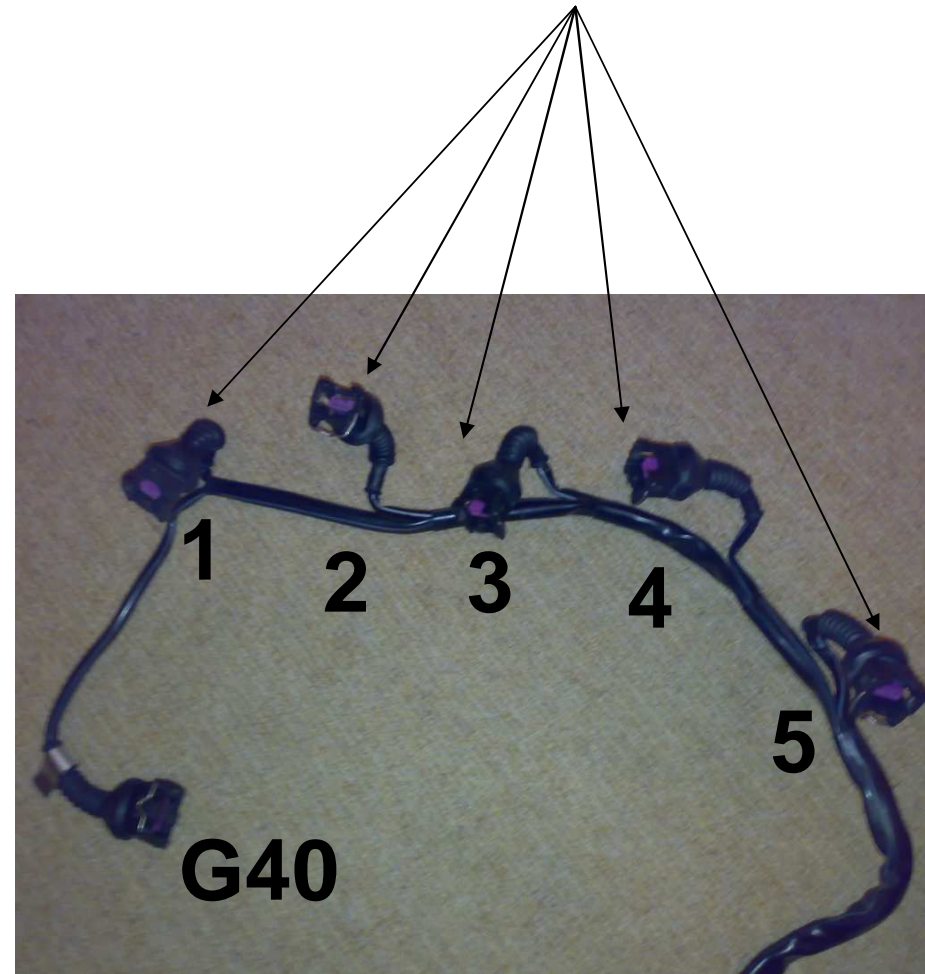


## Bundle 2.2.B.3 – Injectors & Camshaft

Fuel Injectors for cylinders 1 through 5 from left to right

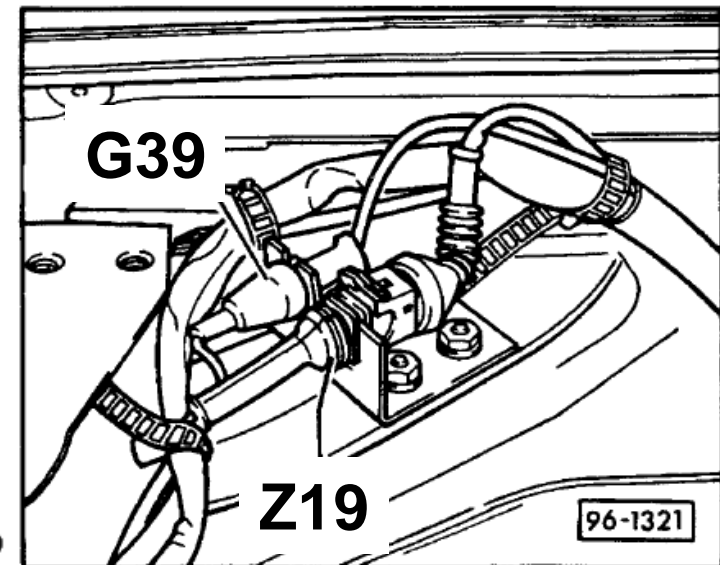
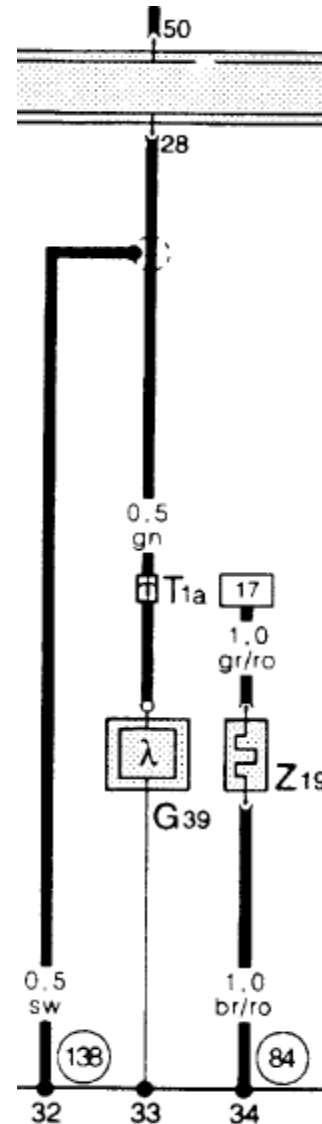


**G40** Location – Under Camshaft Pulley



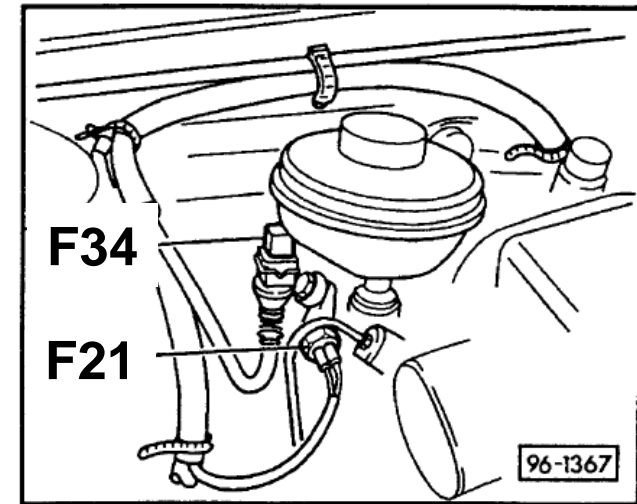
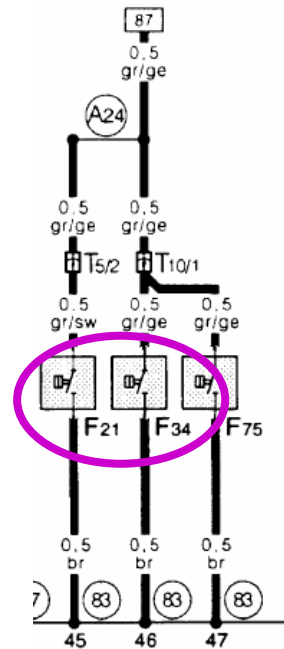
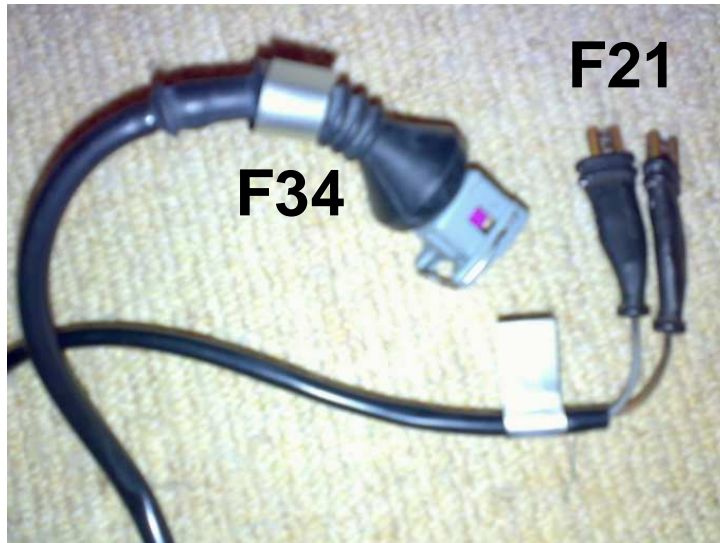


## Bundle 2.3 – Lambda Probe



Location – Near right strut

## Bundle 2.4 – Brakes & Servo



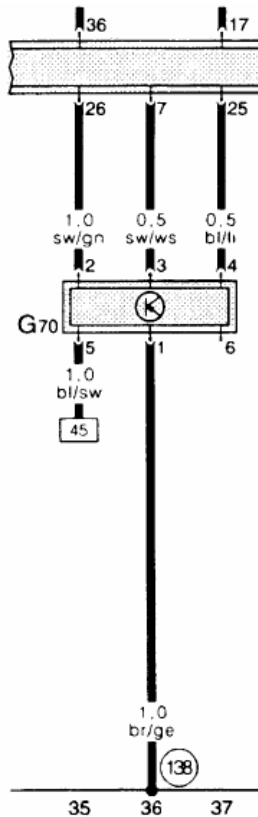
- **F21** – two spades onto hydraulic servo unit
- **F34** – 2-pin JPT (grey) for brake fluid level

**TIP – Test connectivity to T5, T10 & 0V**

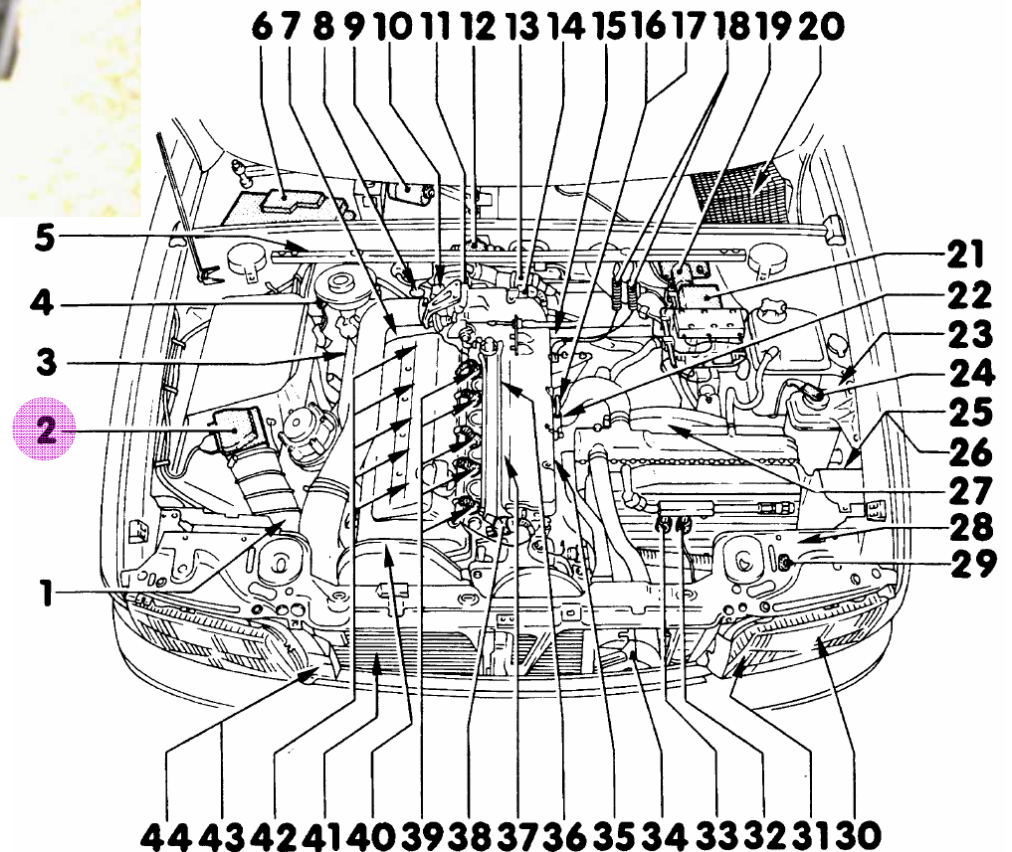




# Bundle 2.5 - MAF



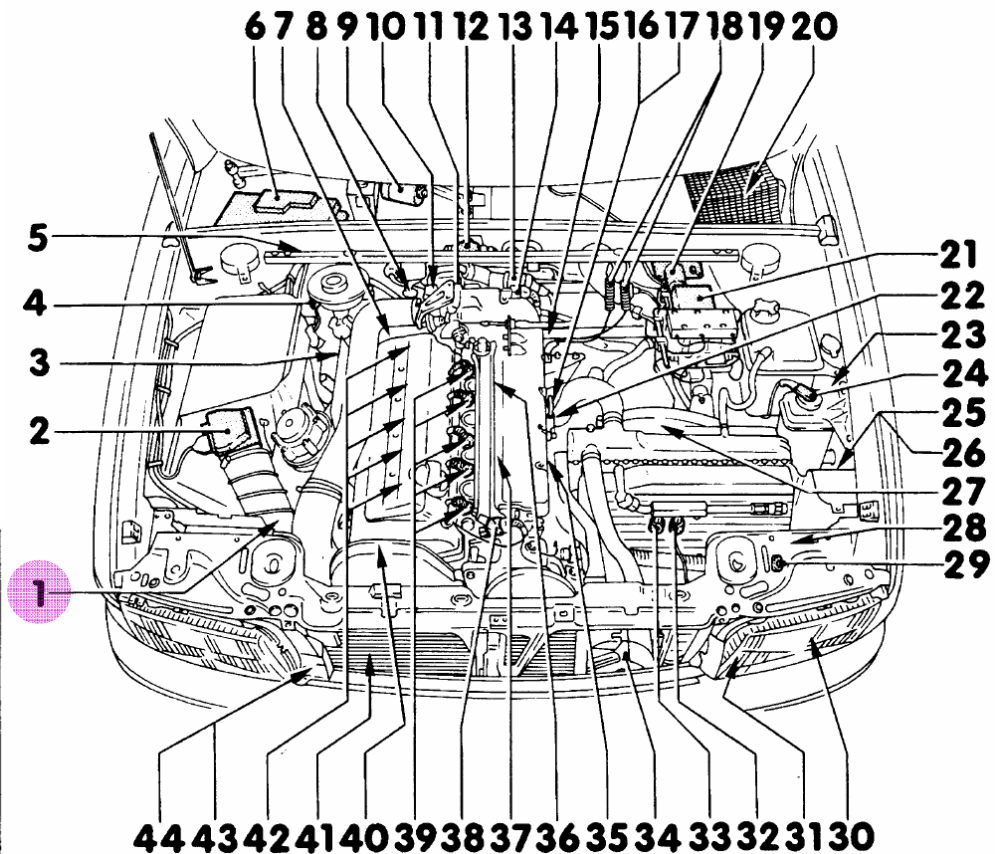
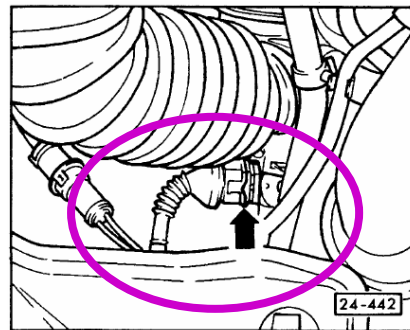
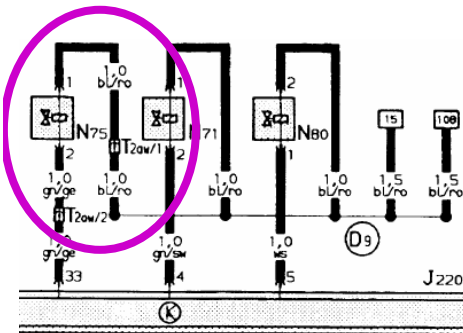
**G70**



- Self explanatory
  - Location 2 at airbox



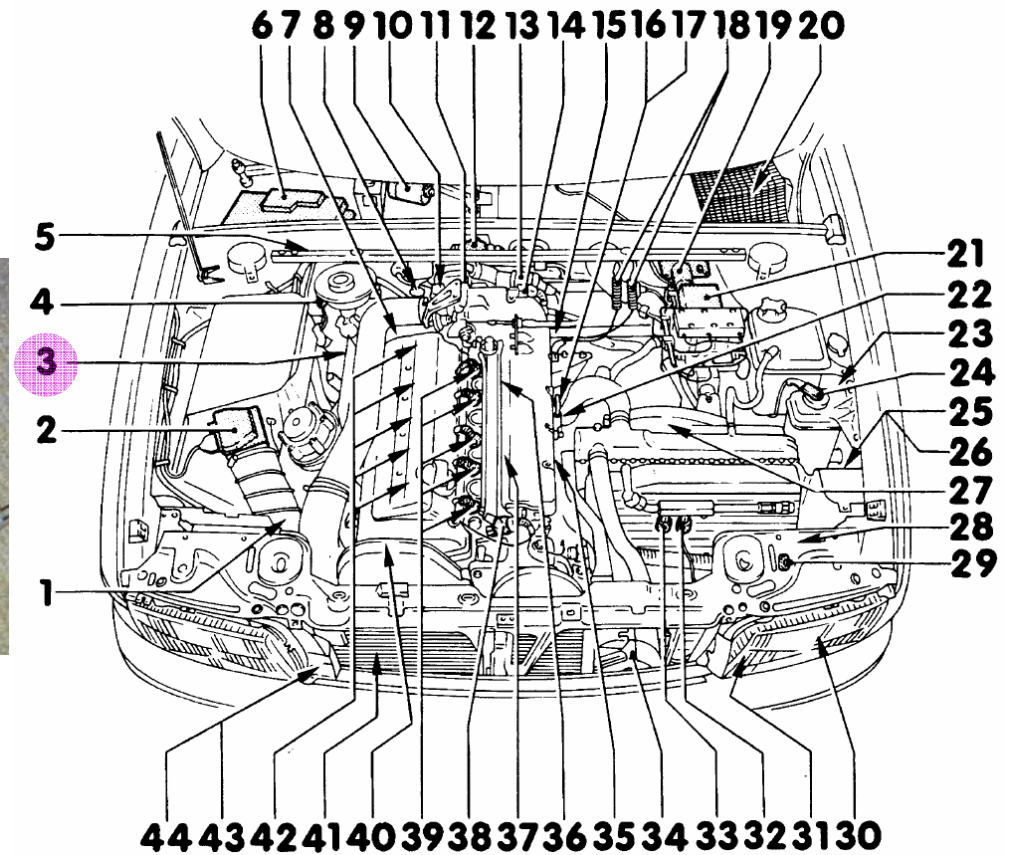
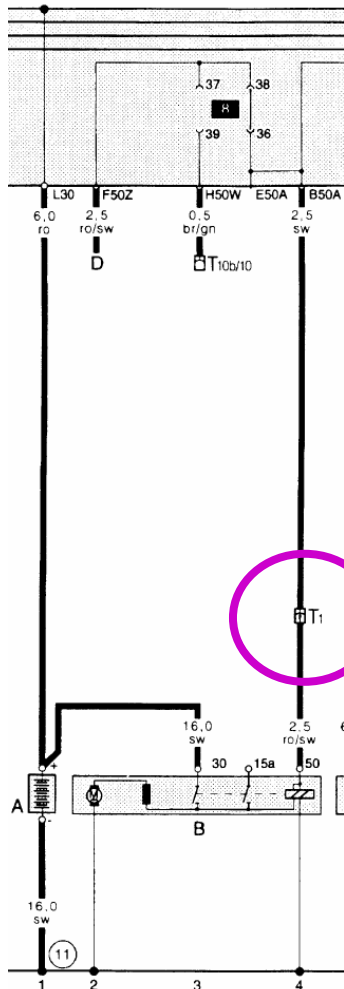
# Bundle 2.6 - WGFV



- **N75** (WGFV) connects to this plug **T2aw** via a small extension loom (not shown here). 2-pin JPT at WGFV.



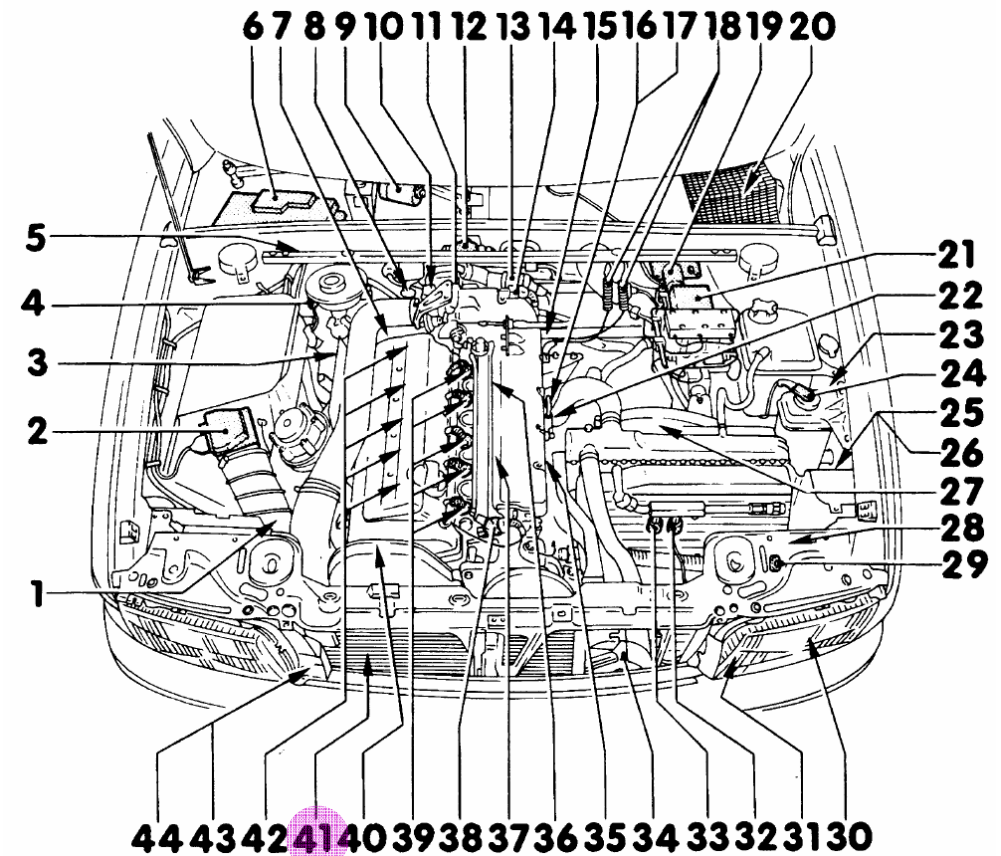
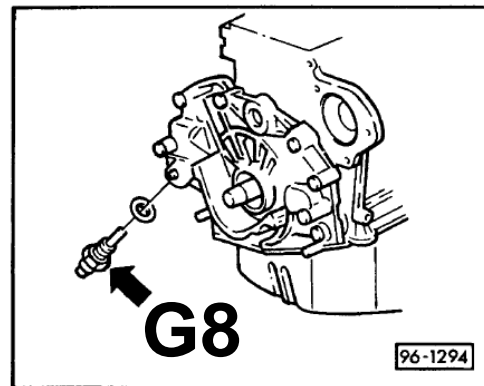
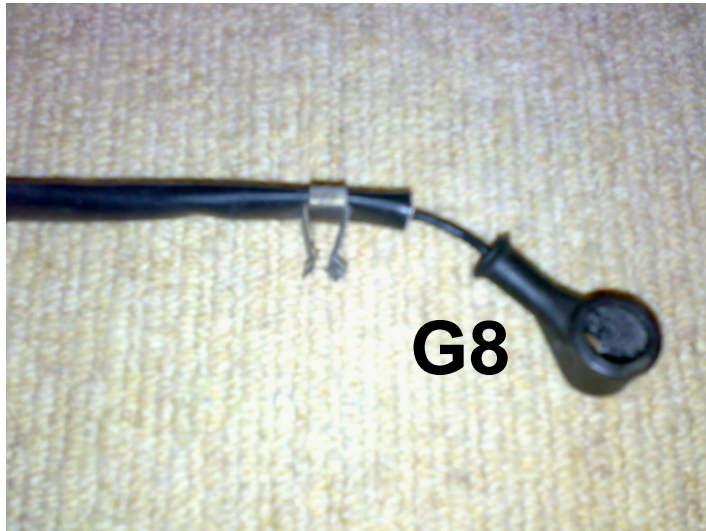
# Bundle 2.7 – Starter Solenoid



- T1 – red/black wire on white spade to starter
- TIP** – Test connectivity to B plug at the fusebox (Bundle 5)



# Bundle 2.8 – Oil Temp Sender



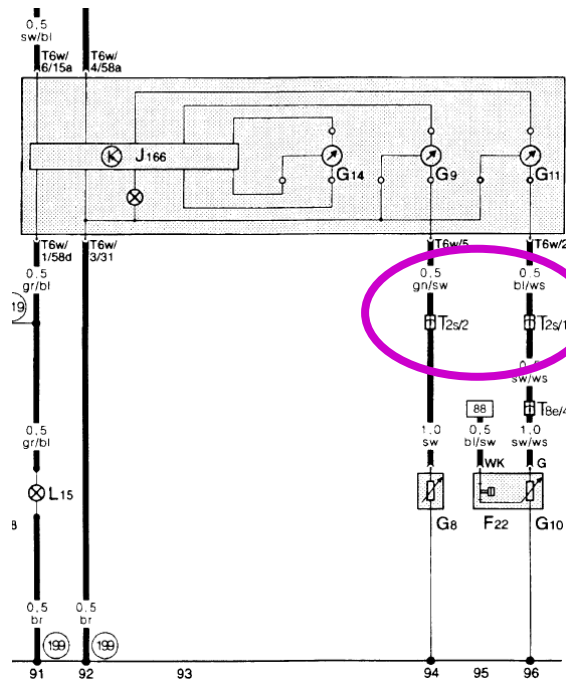
- **G8** connects to the oil pump
  - Schematic shown on next page





# Bundle 3 – Centre Console

- Bundle 3 goes behind the centre console
  - Referred to as **T2s** on the ABY schematics
  - For oil temperature & oil pressure guages



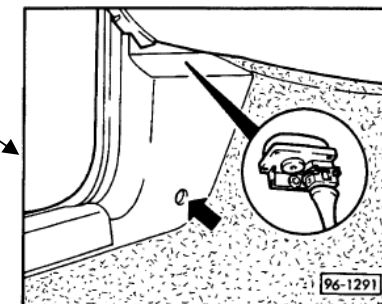
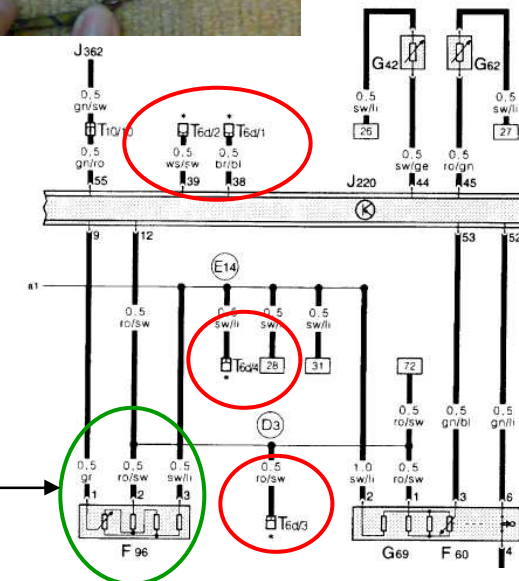
- **TIP - Test connectivity to sensors as follows :**
  - Black wire connects directly to **G8** (Bundle 2.8)
  - Black/White wire connects to **G10** (Bundle A1 via T8e/4)





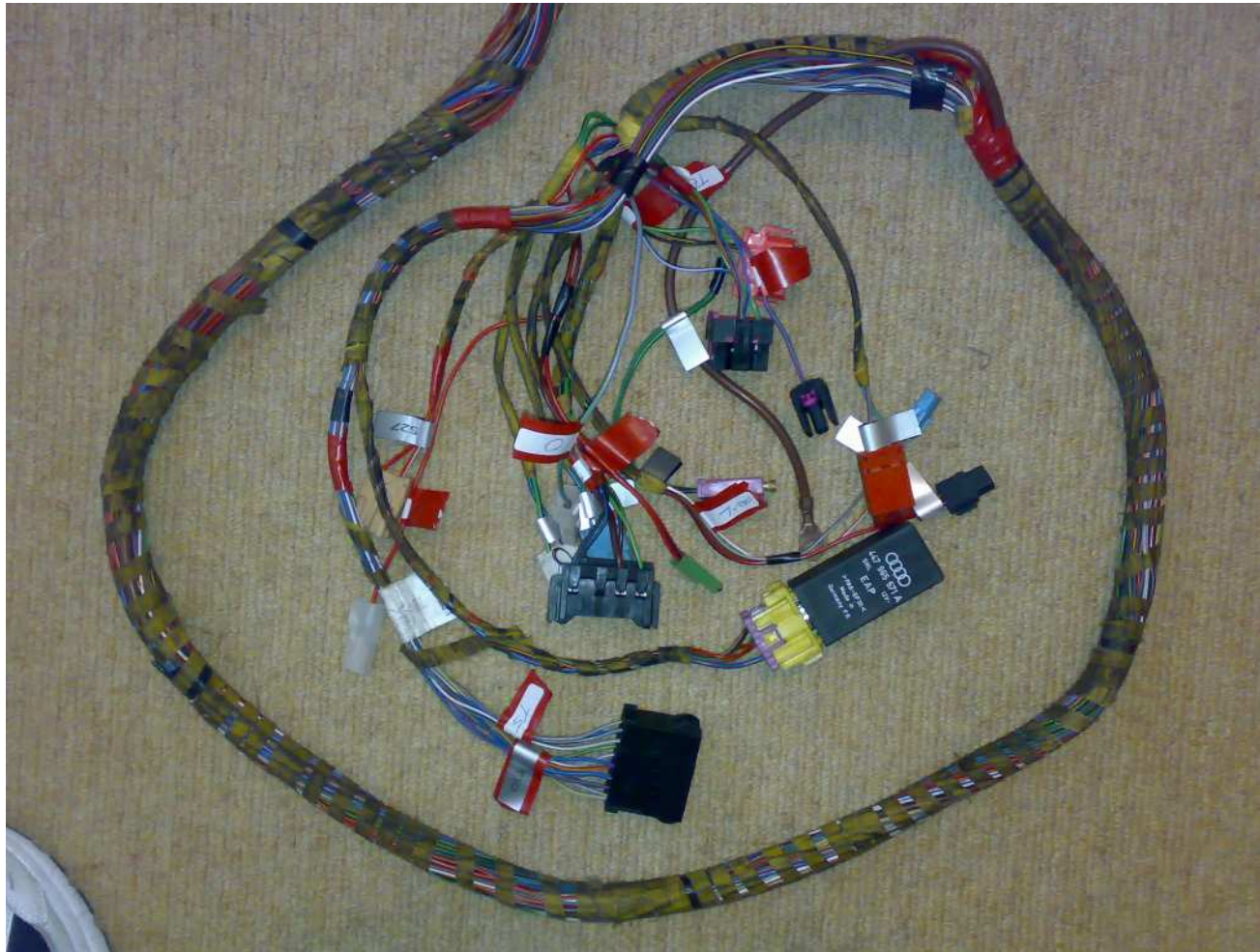
# Bundle 4 – Coding Plug & F96

- Coding Plug – BLACK
  - Notated as **T6d**
  - Not actually used on the S2 or RS2 in most territories
    - Allegedly used in some LHD territory as a speed limiter
  - Was employed on UrS4/S6 (AAN engine) to effect a speed limiter
  - If in any doubt, leave this plug disconnected
- Ambient Pressure Sensor
  - Notated as **F96**
  - A 3-pin JPT multi-pin plug which is missing on this loom (easy fixed)
  - Resides inside left A-pillar





# Bundle 5 – Fusebox Spaghetti



## Schematic References :

J155 Relay  
T5 and T10  
Earth point '32'  
T1f - blue/red wire  
T6r - black multi-pin  
T5h - red multi-pin  
87a - a black spade  
S24 - blue  
S25 - red  
S27 - brown  
S28 - white  
S32 - purple  
L30 - large white spade  
O – grey/green wire  
B - black multi-pin  
M30ac - green spade  
T2x - black (OBD power)  
T2y - blue (OBD blink)  
Eyelet - OBD L-wire



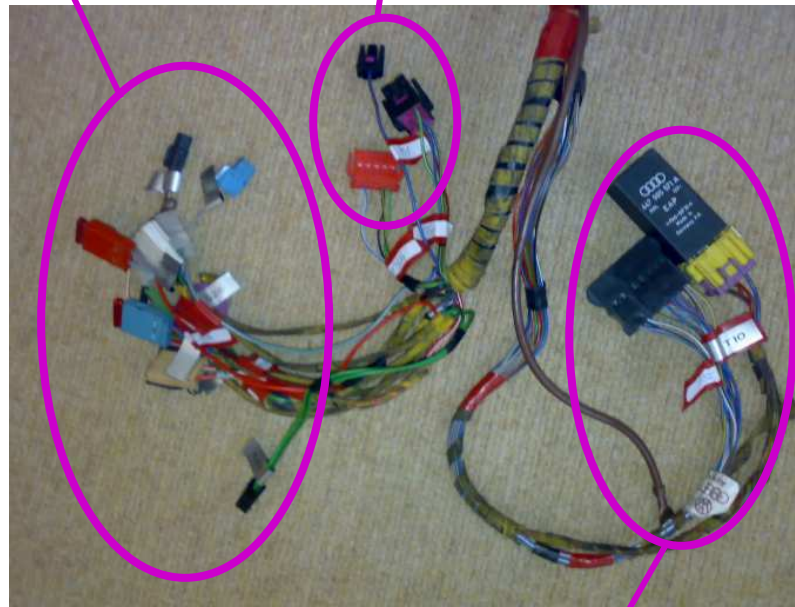
# Three sub-groupings for Bundle 5

- 5.1 – Main Fusebox (CEP)

**87a** - a black spade  
**B** - black multi-pin  
**L30** - large white spade  
**M30ac** - green spade  
**O** – grey/green wire  
**S24** – blue  
**S25** – red  
**S27** – brown  
**S28** – white  
**S32** – purple  
**T2x** - black (OBD power)  
**T2y** - blue (OBD blink)  
Eyelet - OBD **L-wire**

- 5.2 – Intermediate plugs

**T1f** - blue/red wire  
**T6r** - black multi-pin  
**T5h** - red multi-pin



- 5.3 – Auxiliary panel

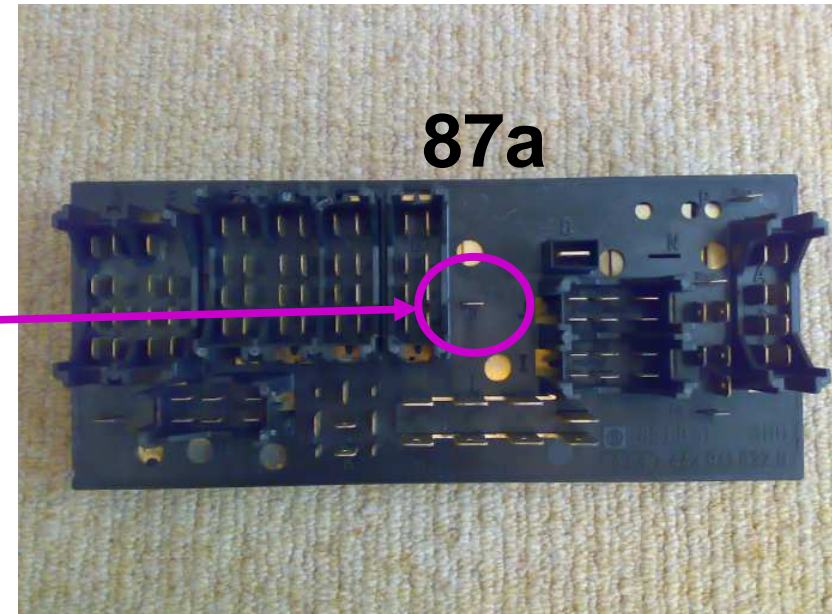
**J155** - Afterrun Relay  
**T5 & T10** - Black multi-pin  
Earth point '32'

**You've got this far – don't panic now 😊**

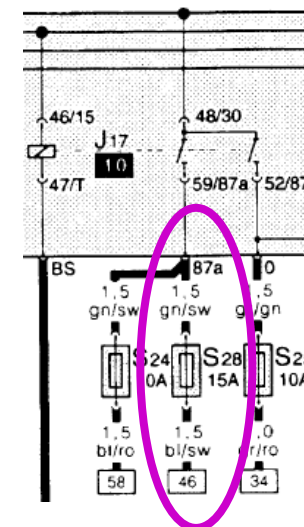




## Bundle 5.1 – Terminal 87a



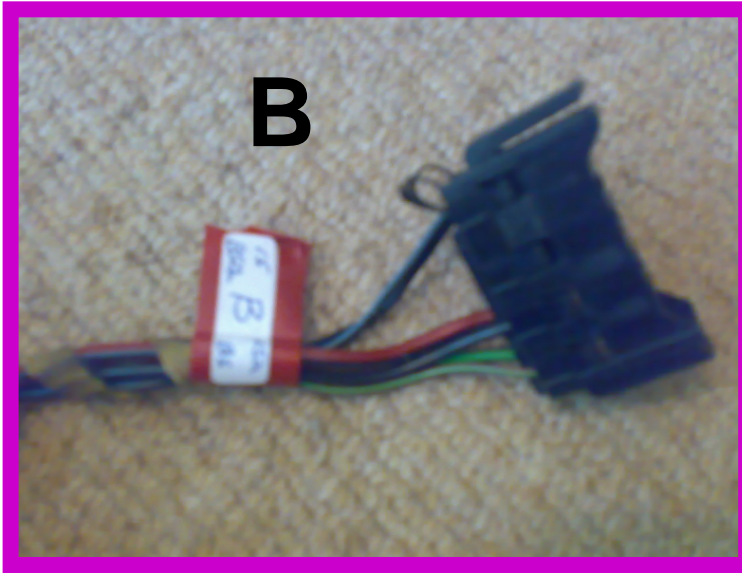
- 2 x green/black wires in black spade
- Attach this to **87a** on rear of CEP
- Provides 12V to **S28** when fuel pump ON
- Note that if your CEP does not have the **87a** terminal you can parallel this with the **O** wire. You will also have to remove pin 59 from the fuel pump relay in this case







# Bundle 5.1 – Multiplug B



Part Number = 443 972 994

- Connects to CEP
  - Only fits the correct way !

Pin-Out As Follows (mm<sup>2</sup>):

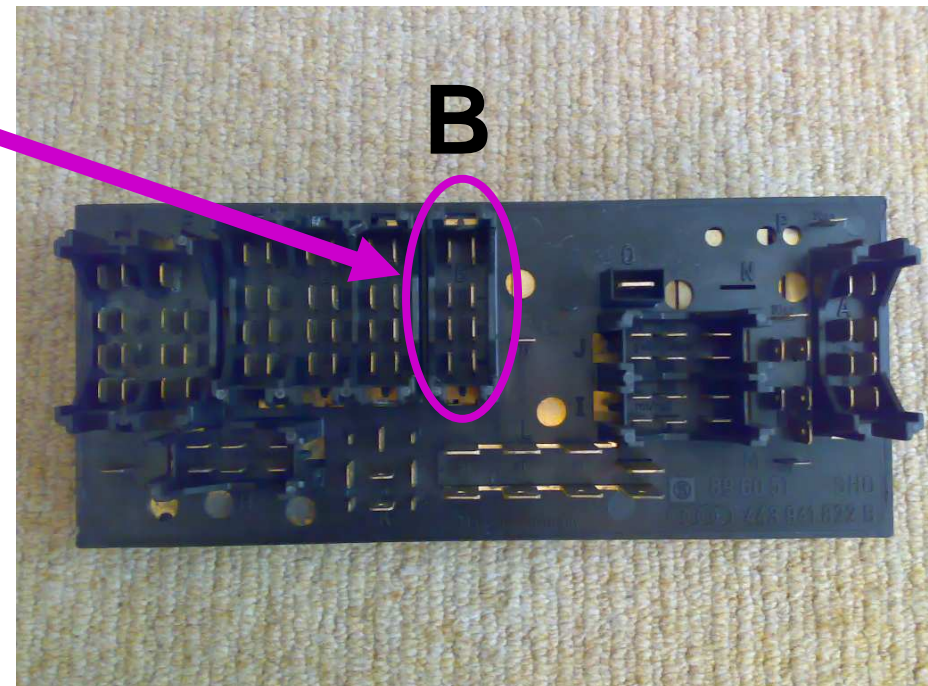
BS = brown / green (0.5)

B15 = black (1.5)

B15a = 2 x black/blue (1.0)

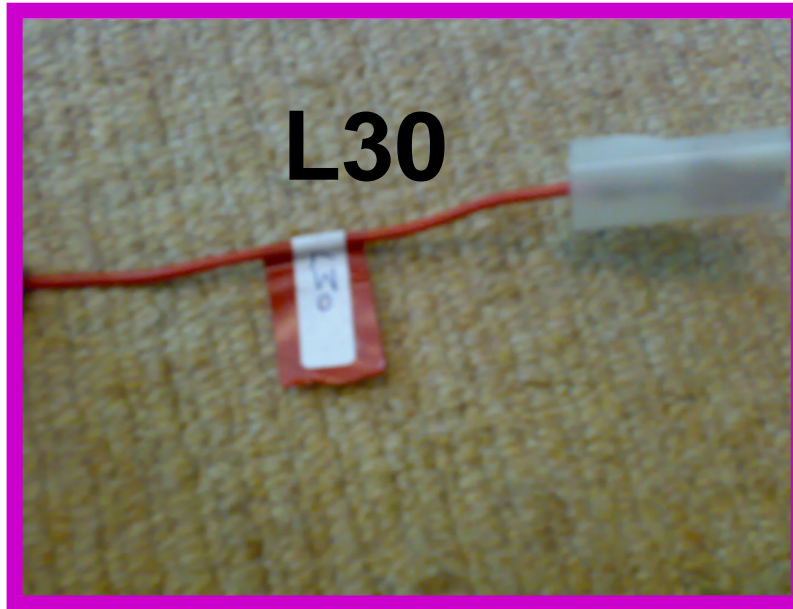
B50a = black (2.5)

B53c = red/green (1.0)

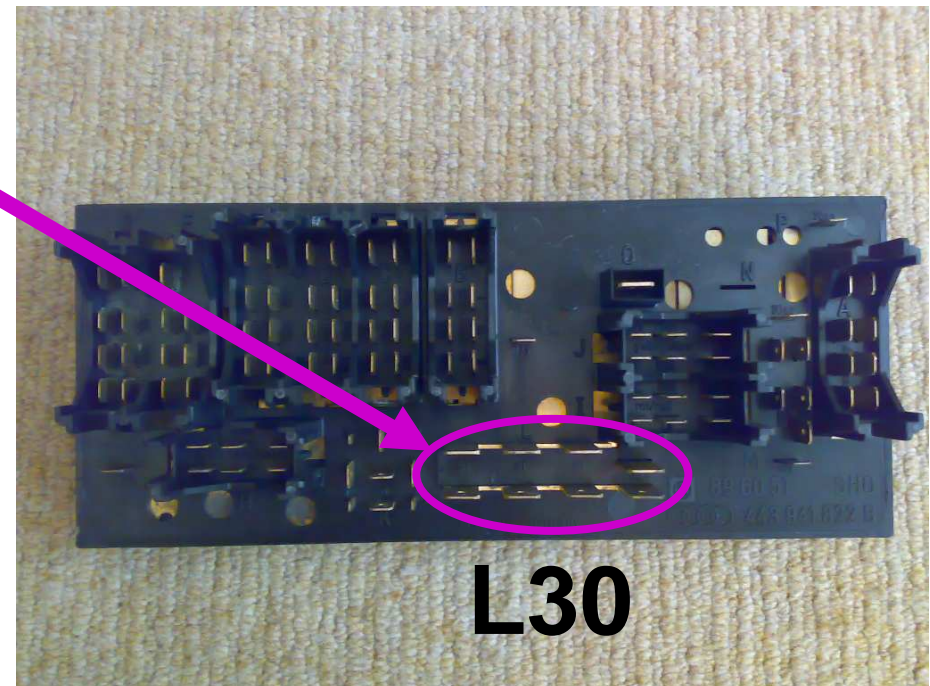
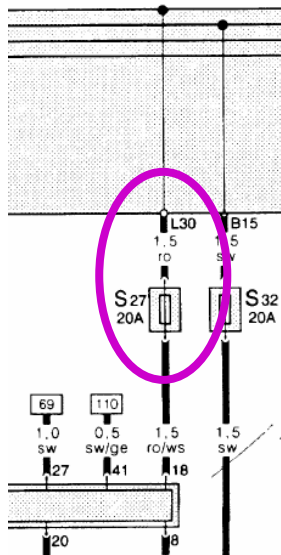




## Bundle 5.1 – L30



Connect to any free **L30** terminal on rear of CEP. Provides un-switched +12V feed to **S27**.





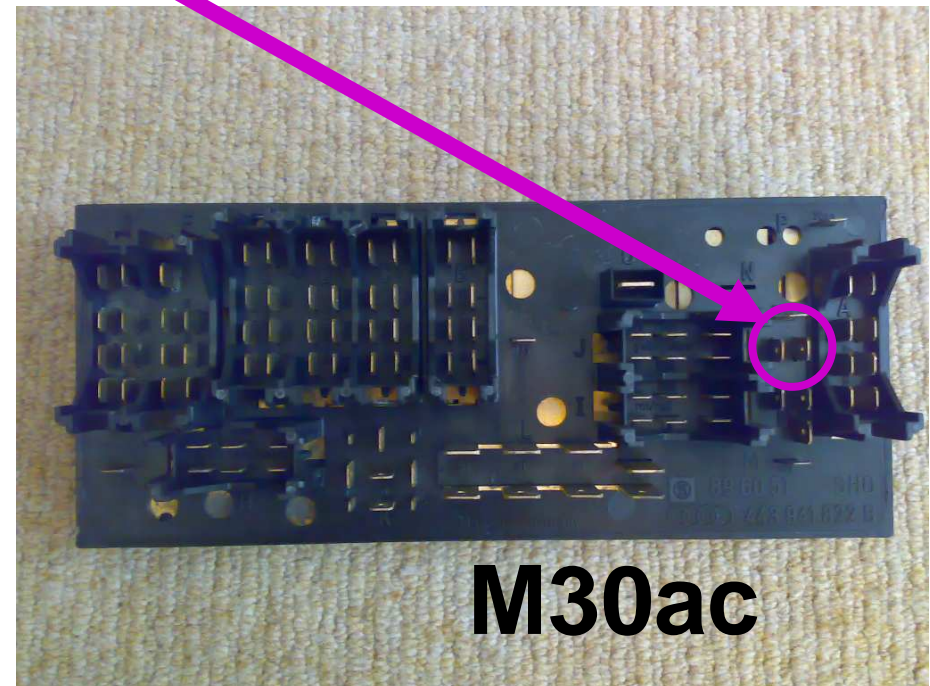
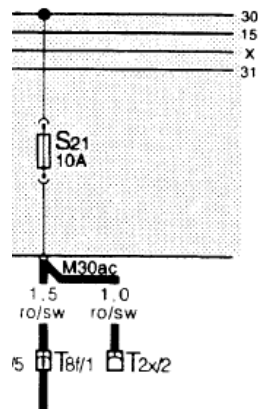


## Bundle 5.1 – M30ac



**M30ac**

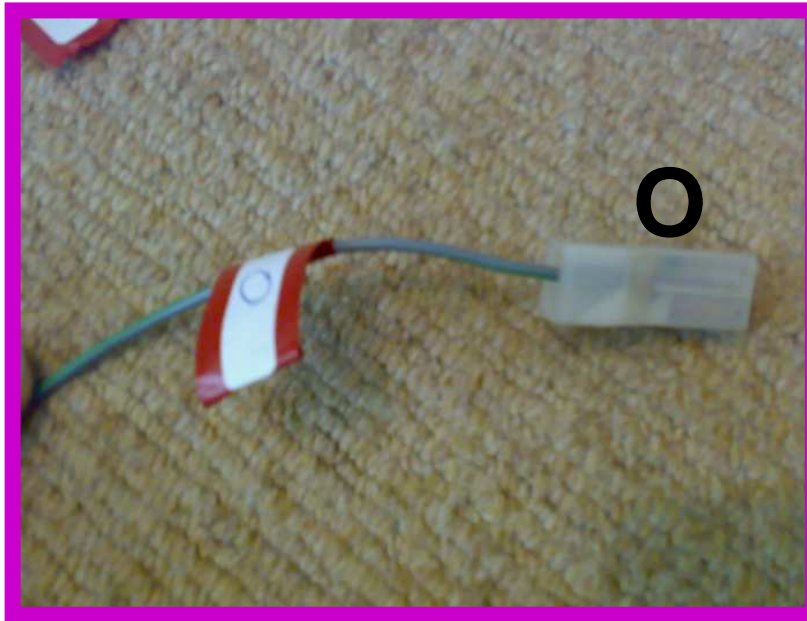
Provides +12V via **S12** to after-run system  
And also the +12V power to black OBD plug.



**M30ac**

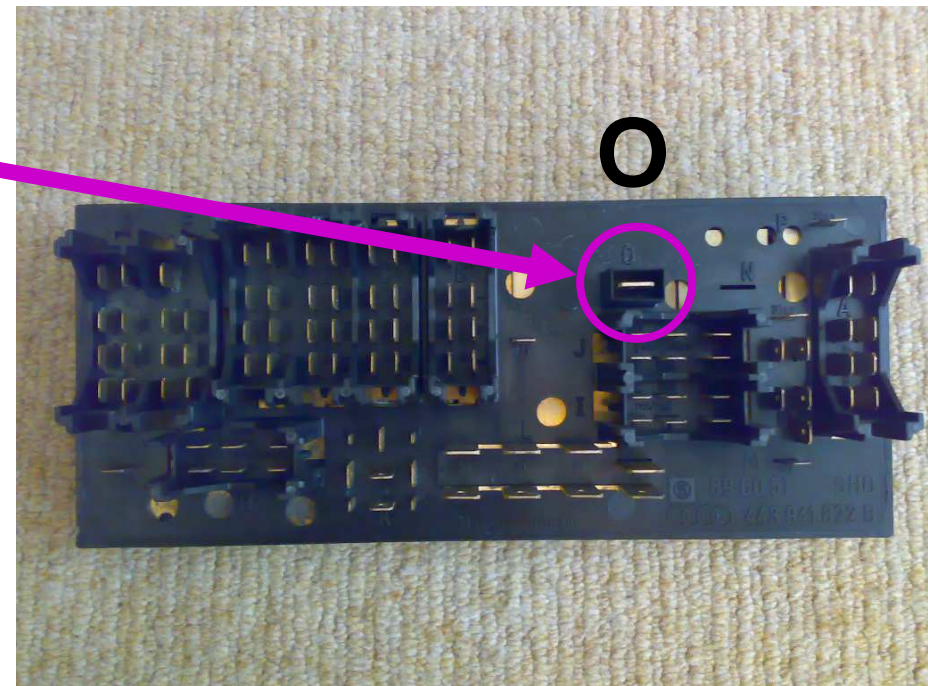
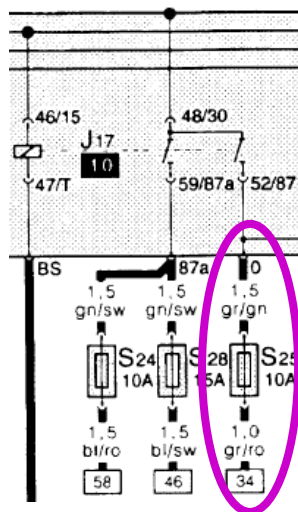


# Bundle 5.1 – O



Grey / Green wire with large spade connector.

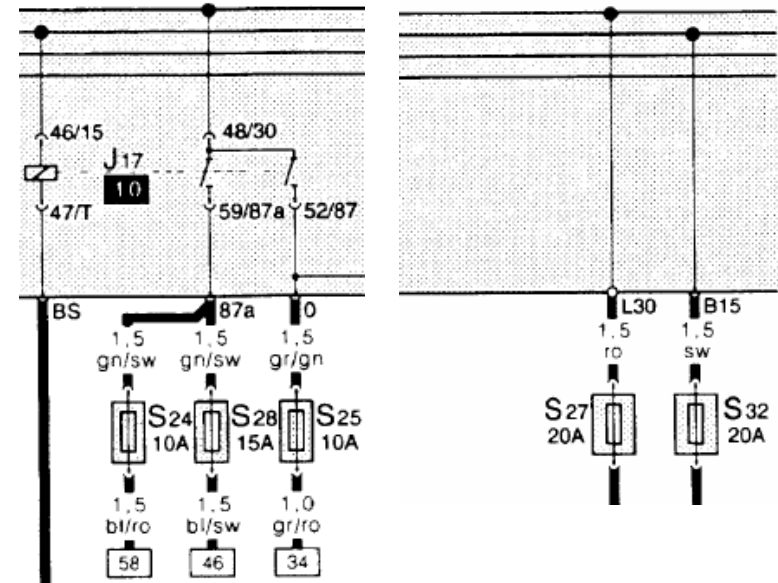
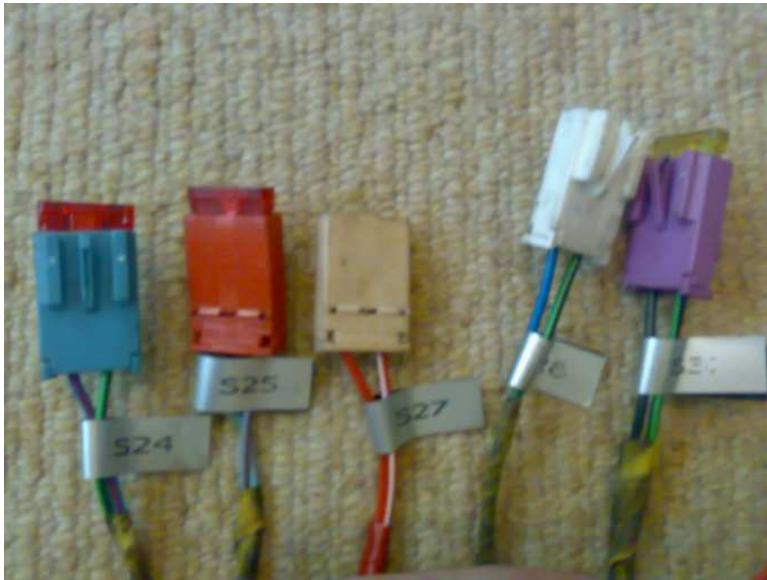
Provides +12V to **S25** when fuel pump is ON.







# Bundle 5.1 – Fuses



Part Number for aux fuse holder = 443 937 530

S24 = 10A protects ISV (**N71**), WGFV (**N75**) & EVAP (**N80**)

S25 = 10A protects lambda probe heater **Z19**

S27 = 20A protects ECU (**J220**) permanent 12V

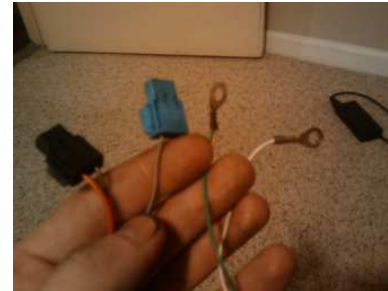
S28 = 15A protects fuel injectors and MAF (**G70**)

S32 = 20A protects coilpacks



# Some notes about OBD

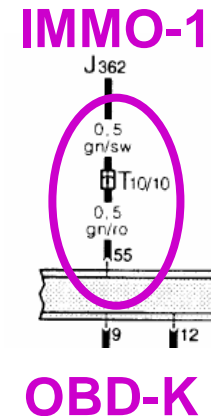
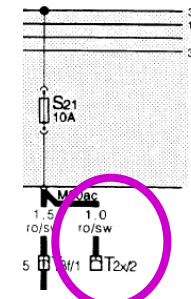
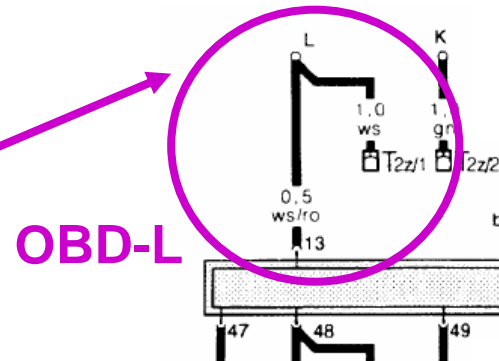
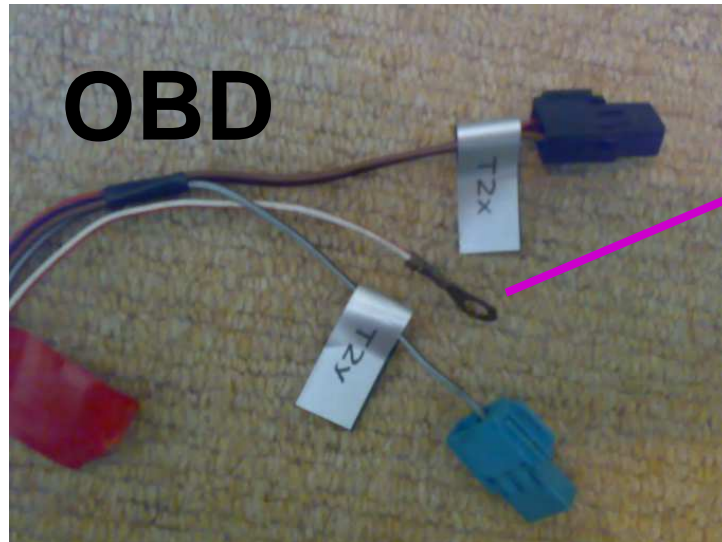
- Early loom variants have 2 x OBD connections from the ECU. Both presented on eyelets
  - L wire is green/grey
  - K wire is green/red
- Later wiring looms had preparation for IMMO-1 integration... These intercept the K-wire via an intermediate terminal.
  - As such there is no K-wire eyelet on the later ABY wiring looms
  - Also note that the K & L wire colour changes from July 1993. Strange...
- A little additional loom extends these eyelets to the white OBD plug for K / L connectivity. Part number = 8A0 971 379
- All variants should have the Blue OBD plug (MIL) on the loom



Pic of an earlier ABY loom  
Showing the K & L eyelets  
Thanks to David Pecoraro

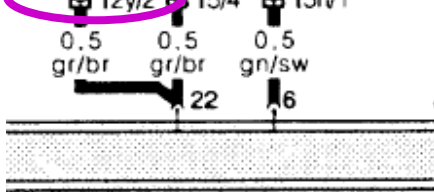


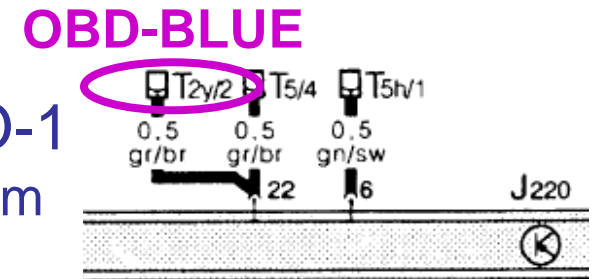
## Bundle 5.1 – OBD (Later Loom Shown)



### OBD Plug Part Numbers:

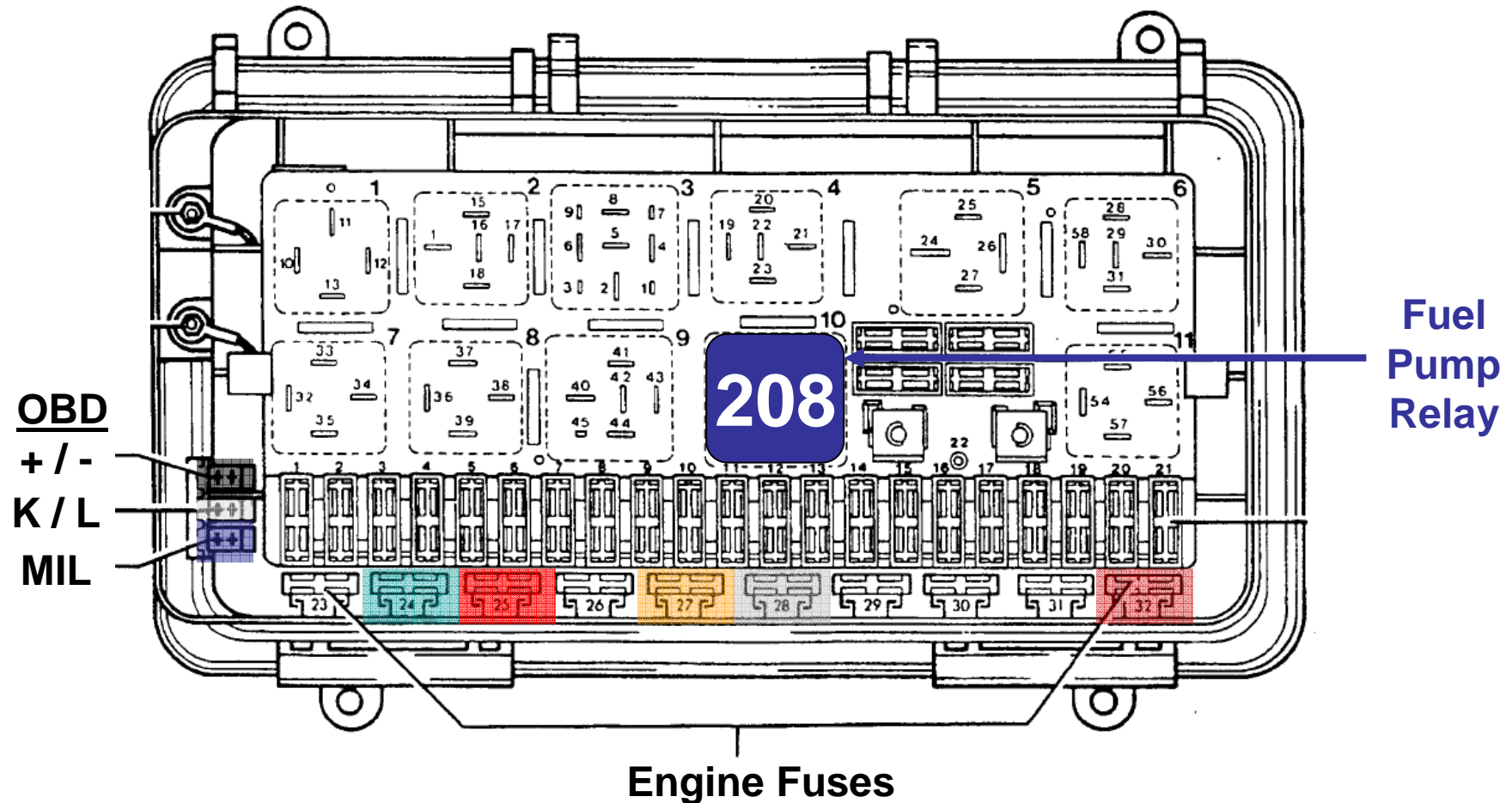
Black = 443 972 580    Blue = 443 972 577    White = 443 972 577 E

- Note the K-wire connects via **T10** to IMMO-1
    - Hence white OBD plug not in the ABY/ADU loom
    - T10** or **J362** links to K-wire eyelet
  - L-wire connects to eyelet in main fusebox
    - From there a small jumper loom connects to white OBD connector
  - Black OBD plug is +/- supply fused by **S21**
  - MIL / Blink output on blue OBD plug also common with **T5/4**
- 





# ABY / ADU Fuses, Relays & OBD

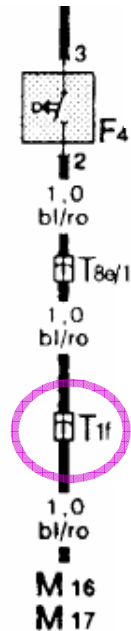


**Fuel Pump Relay = 8A0 951 253 B**

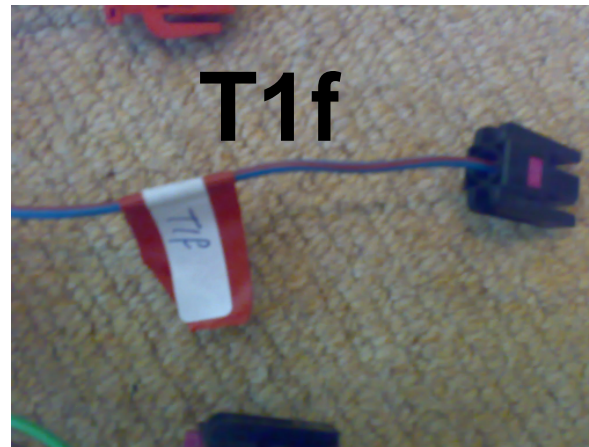




# Bundle 5.2 – T1f (to Reverse Lights)



Reverse Lamps



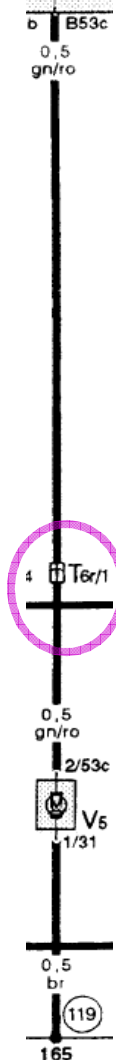
Part = 8A0 972 623

Tip : Test loom connectivity from T8e/1 to T1f

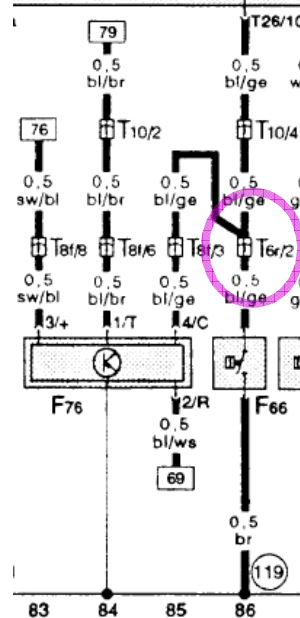


# Bundle 5.2 – T6r, Miscellaneous

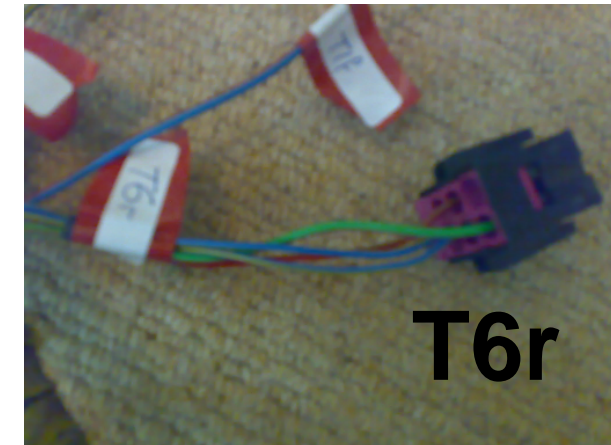
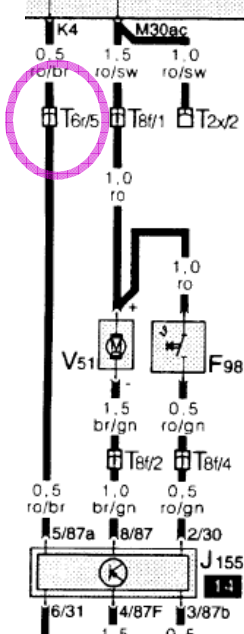
## CEP



## Autocheck



## CEP



Part = 4A0 972 988

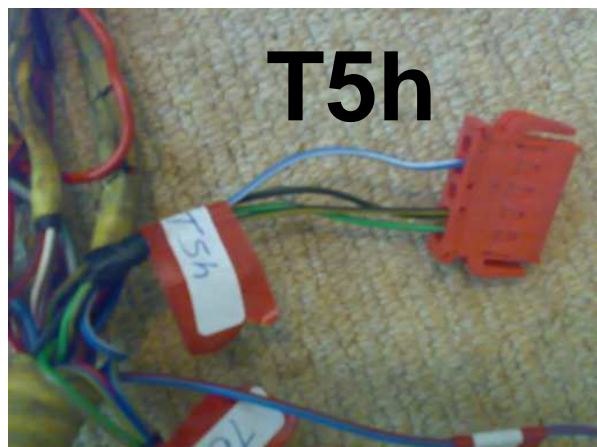
## T6r – Behind Dashboard

- 1 = red / green to V5
- 2 = blue / yellow to F66 & F76
- 3 =
- 4 =
- 5 = red / brown to J155
- 6 =

**Tip : Test loom connectivity from T6r to J155, T8f, T10 and B53ac as shown.**



# Bundle 5.2 – HVAC Integration via T5h



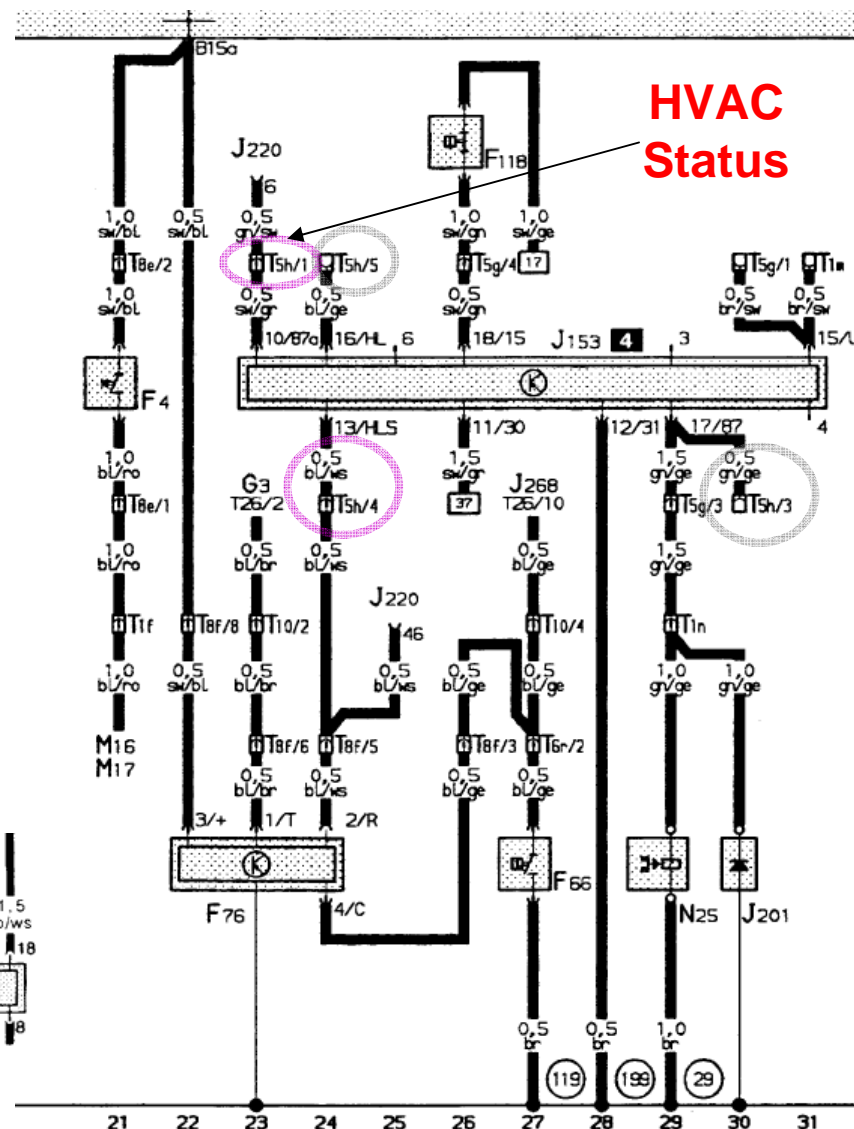
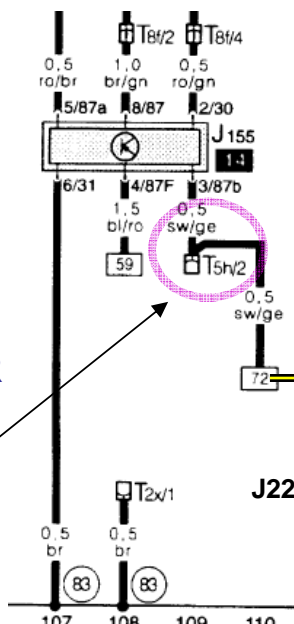
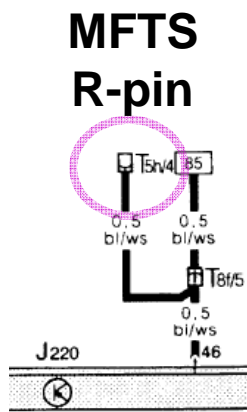
Part = 893 971 635

## T5h – Behind Dashboard

- 1 = green / black to J220 #6
- 2 = black / yellow to J220 #41
- 3 = empty on this side
- 4 = blue / white to MFTS (F76) pin R
- 5 = empty on this side

### Tech Tip :

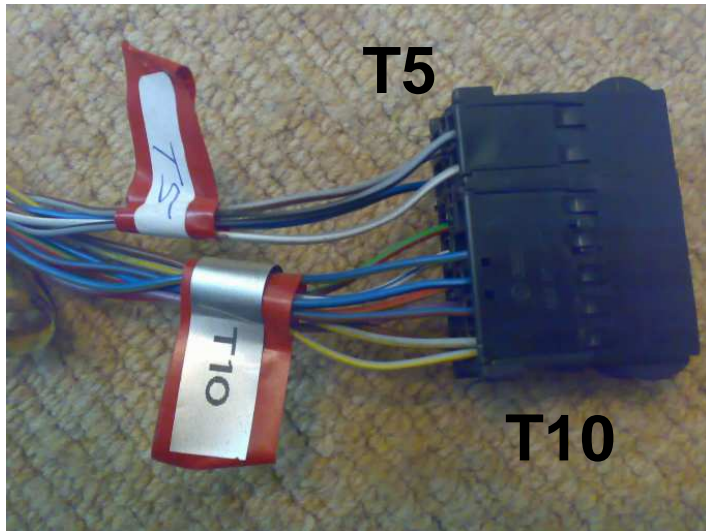
This signal ensures the after-run pump cannot operate when the engine is running !







# Bundle 5.3 – Auxiliary Panel T5 & T10



**T5** = 893 971 835  
**T10** = 893 971 977

**T5 & T10**

## T10 Pin-Out

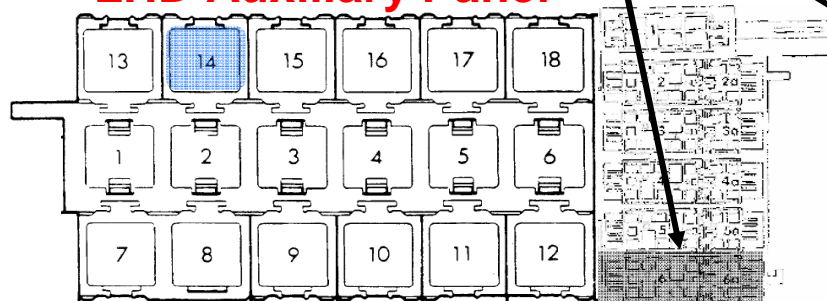
- 1 – gr/ge (F34 & F75)
- 2 – bl/br (F76) - temp
- 3 – bl/sw (F22) – oil 0.3bar
- 4 – bl/ge (F66 & F76)
- 5 – unused
- 6 – br (0V)
- 7 – li (J220) - rpm
- 8 – ro/ge (G22)
- 9 – ws/bl (VSS)
- 10 – gn/ro (K-wire) – White OBD and/or IMMO-1

## T5 Pin-Out

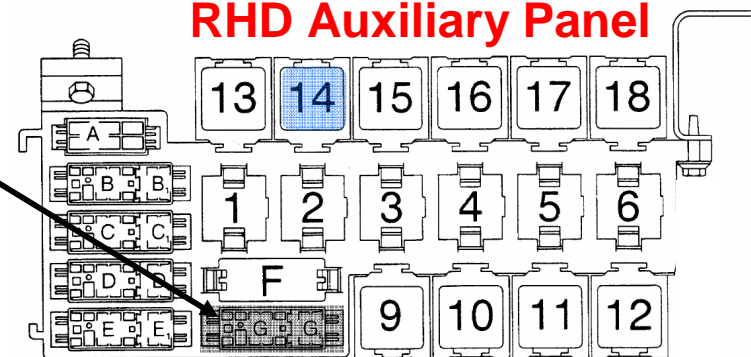
- 1 – ws/gr (F1) – oil 1.8bar
- 2 – gr/sw (F21)
- 3 – br/sw\* (J220) – fuel use
- 4 – gr/br (MIL) – Blue OBD
- 5 – unused

\* or bl or bl/sw

## LHD Auxiliary Panel



## RHD Auxiliary Panel

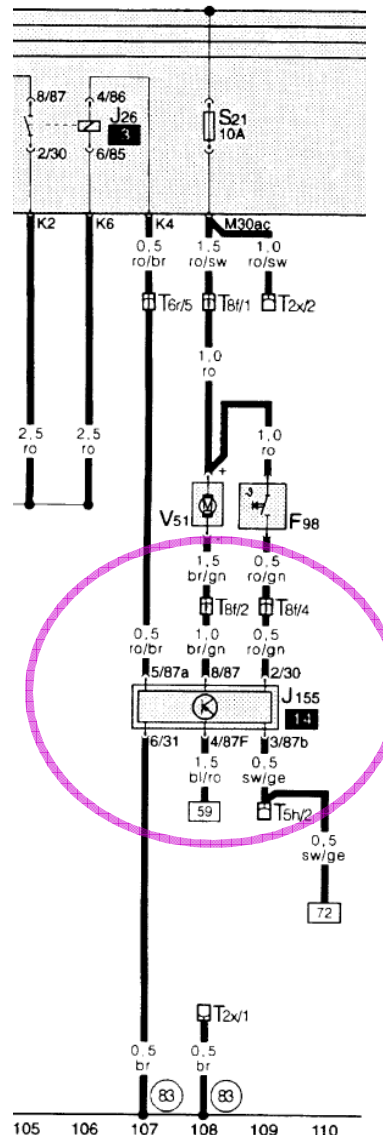




# Bundle 5.3 – Auxiliary Panel, J155 & 0V



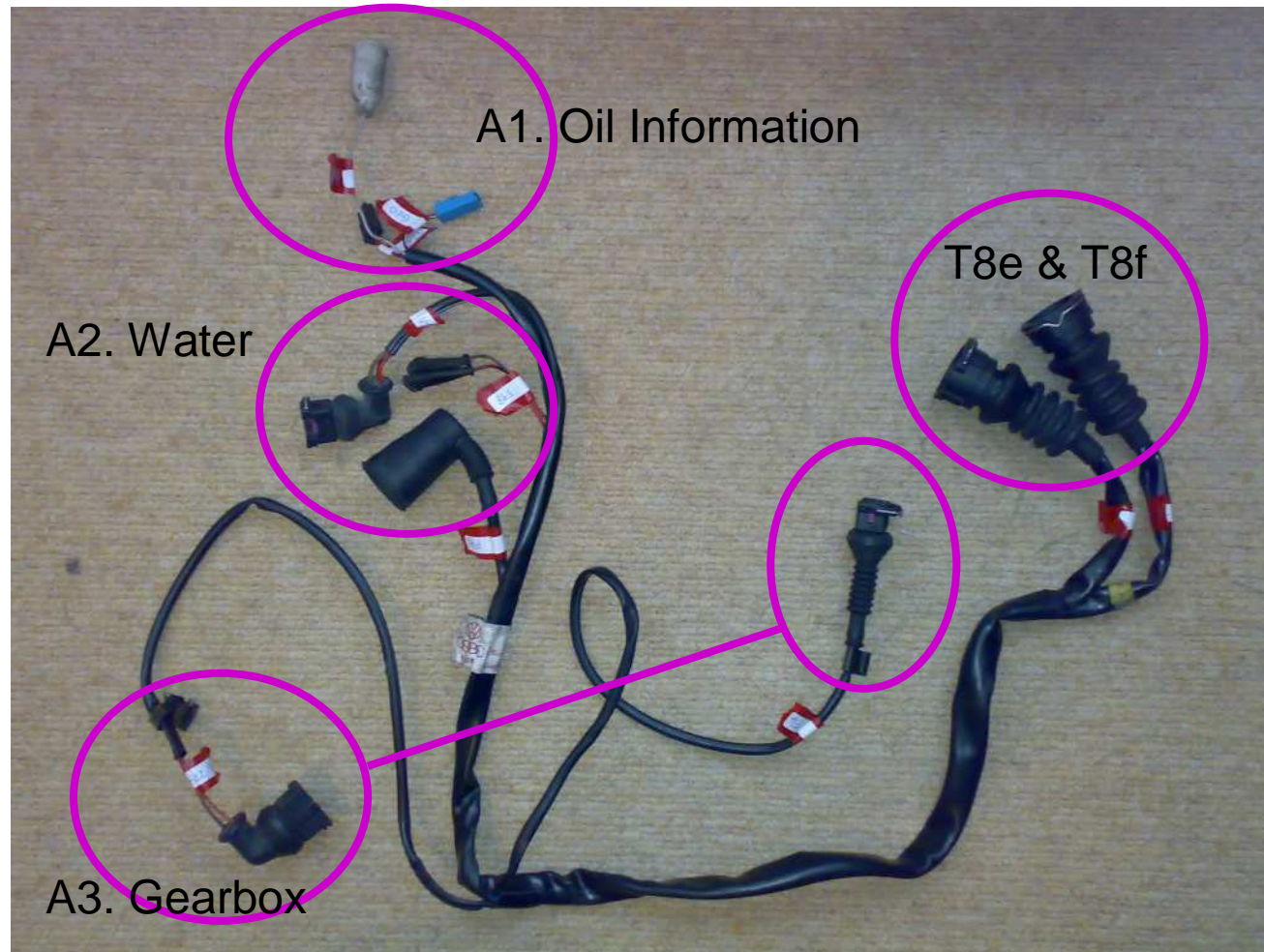
After-run Relay (**J155**)  
 Auxiliary position #14  
 Part = 447 965 571 A  
 Carrier = 443 937 528  
 Relay Label = 324



Earth Strap 32  
 To A-pillar



# Ancillary Bundle Overview



**Part Number = 895 971 066 B**





# Ancillary Bundle – T8e & T8f

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- T8f is marked with a '1' label
- T8e is marked with a '2' label

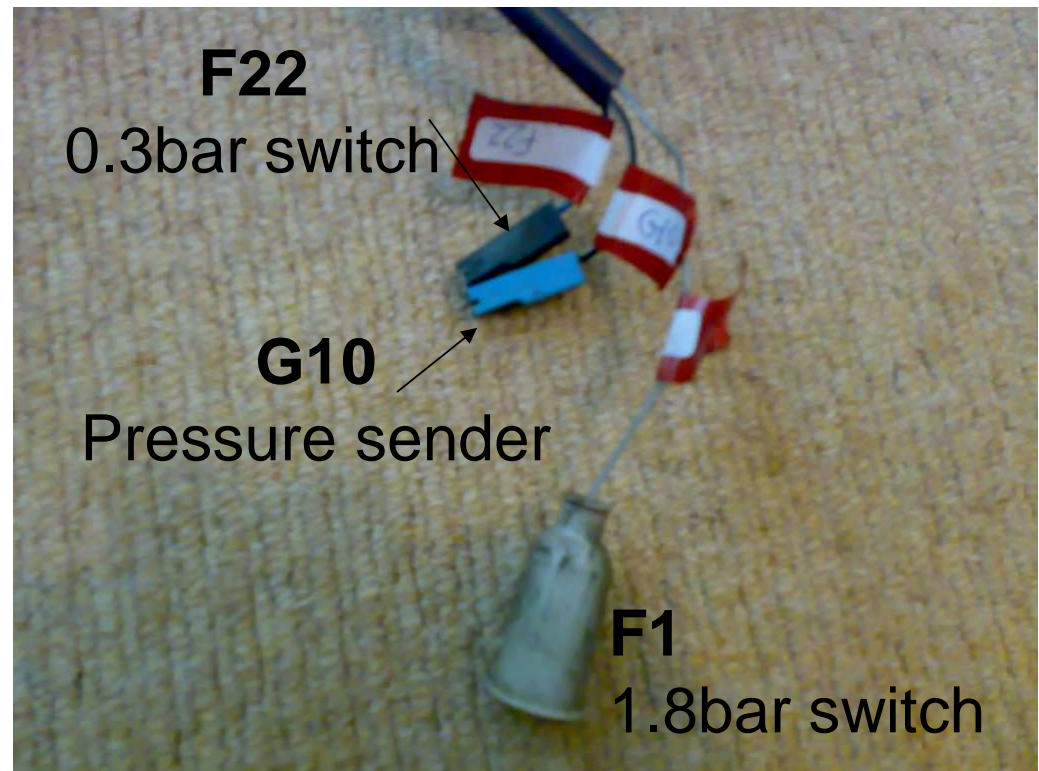
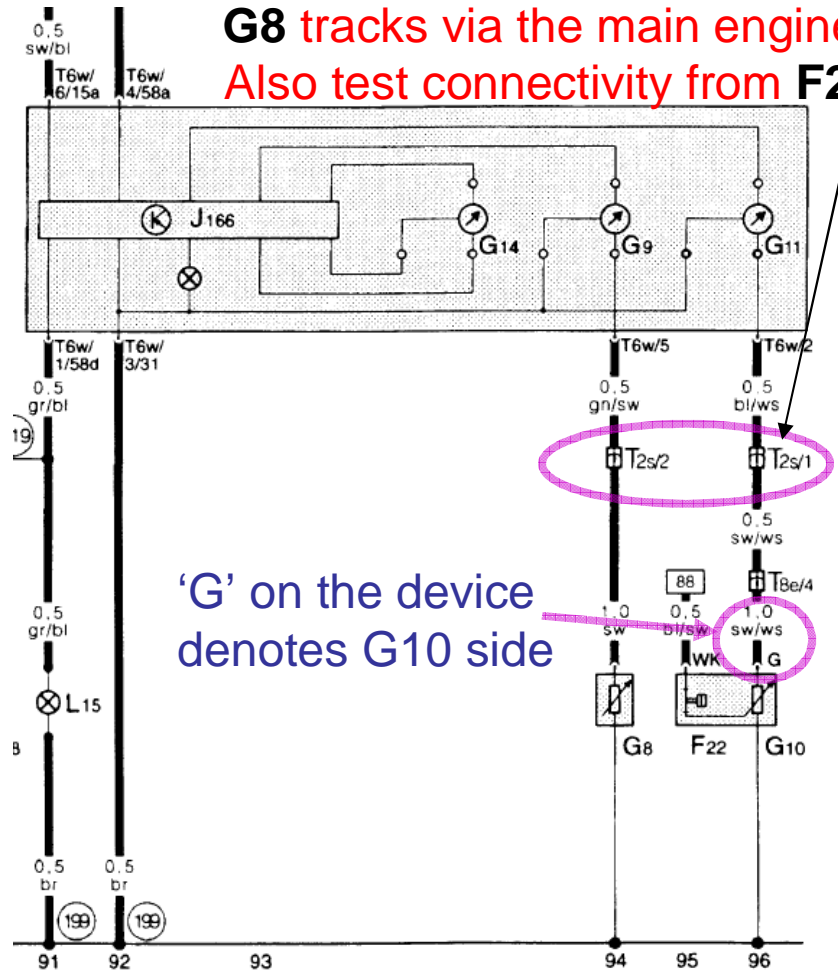
Purpose of these is to extend ABY loom to various engine bay sensors.



# Ancillary Bundle A1 – Oil Senders

**TIP** - Test connectivity from **G10** via **T2s** in Bundle 3

**G8** tracks via the main engine loom in Bundle 2. **F1** connects to **T5** (Bundle 5).  
Also test connectivity from **F22** to **T10/3** via **T8f/7** (See track 88 on next page)



Bundle A1 connects the oil pressure sensor / switches on left side of engine block.



**F98 - Switch**

**V51 Pump**



**TIP** - Test connectivity from **F76** to **B** and **T10** via **T8f**. See Bundle 5.

Activity  
and T10  
Bundle 5.

Diagram illustrating the wiring connections for a 10-pin connector (pins 79 to 70) to a 10-pin connector (pins 83 to 71). The connections are as follows:

- Pin 79: 0.5 bl/br to T10/2
- Pin 76: 0.5 sw/bl to T8/1/6
- Pin 78: 0.5 bl/br to T8/1/6
- Pin 77: 0.5 bl/ge to T8/1/3
- Pin 75: 0.5 bl/ge to T6/2
- Pin 74: 0.5 gr/ws to T8/1/3
- Pin 73: 0.5 bl/sw to T10/3
- Pin 72: 0.5 sw/bl to T8/1/6
- Pin 71: 0.5 bl/br to T8/1/6
- Pin 70: 0.5 bl/ge to T8/1/3

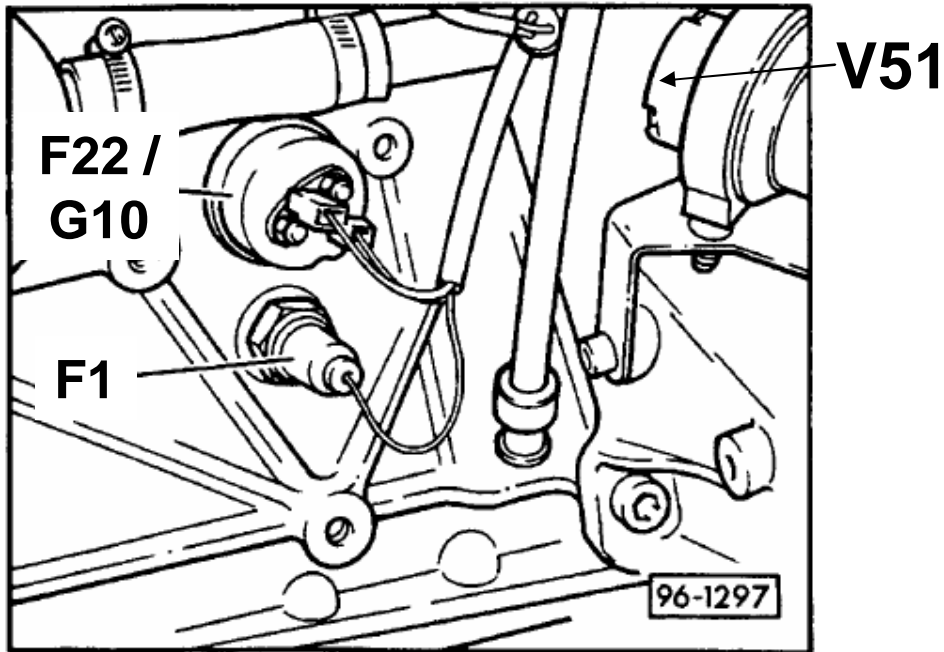
Additional components and connections shown include:

- Terminal 79 connected to T10/2
- Terminal 76 connected to T8/1/6
- Terminal 78 connected to T8/1/6
- Terminal 77 connected to T8/1/3
- Terminal 75 connected to T6/2
- Terminal 74 connected to T8/1/3
- Terminal 73 connected to T10/3
- Terminal 72 connected to T8/1/6
- Terminal 71 connected to T8/1/6
- Terminal 70 connected to T8/1/3
- Terminal 79 connected to T10/2
- Terminal 76 connected to T8/1/6
- Terminal 78 connected to T8/1/6
- Terminal 77 connected to T8/1/3
- Terminal 75 connected to T6/2
- Terminal 74 connected to T8/1/3
- Terminal 73 connected to T10/3
- Terminal 72 connected to T8/1/6
- Terminal 71 connected to T8/1/6
- Terminal 70 connected to T8/1/3





# Ancillary Locations – Oil & Water



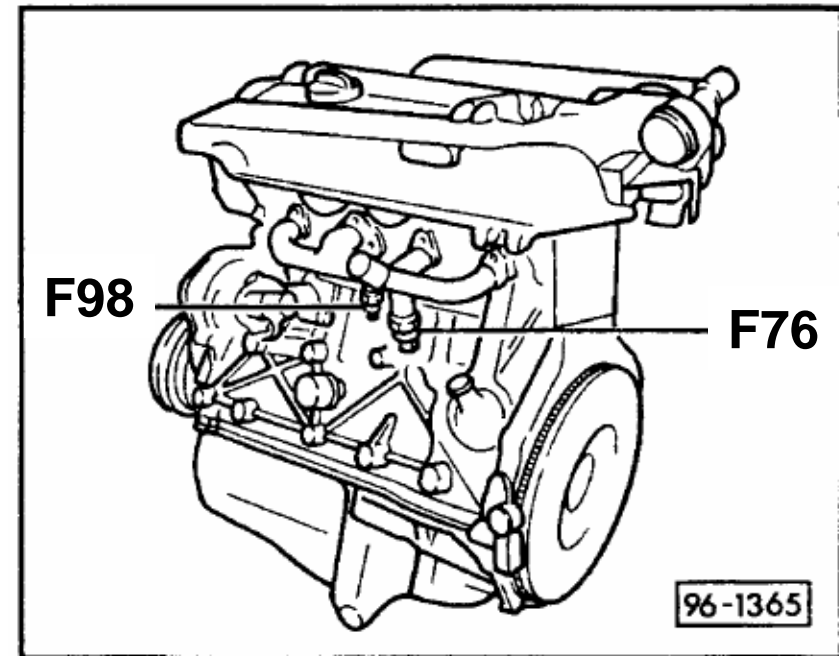
Location – Below water rail.

## **F22 / G10** combination

- **F22** is the BLACK spade (switch)
- **G10** is the BLUE spade (sender)

Ensure BLUE spade connects to 'G' pin

**F1** - 1.8bar oil pressure switch – white hood



Location – Water rail on left side.

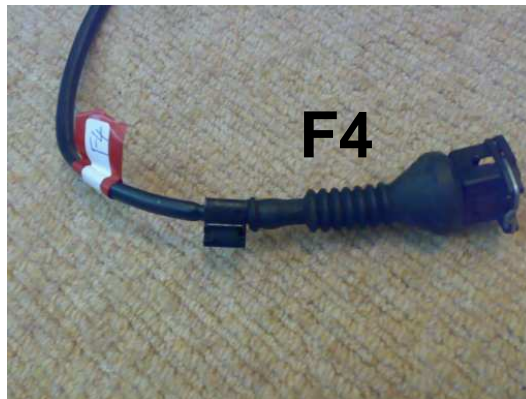
**F98** – Thermoswitch for afterrun pump system

**F76** = Multi Function Temperature Sensor (MFTS)



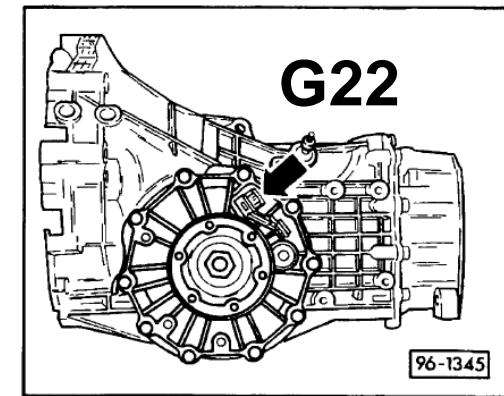
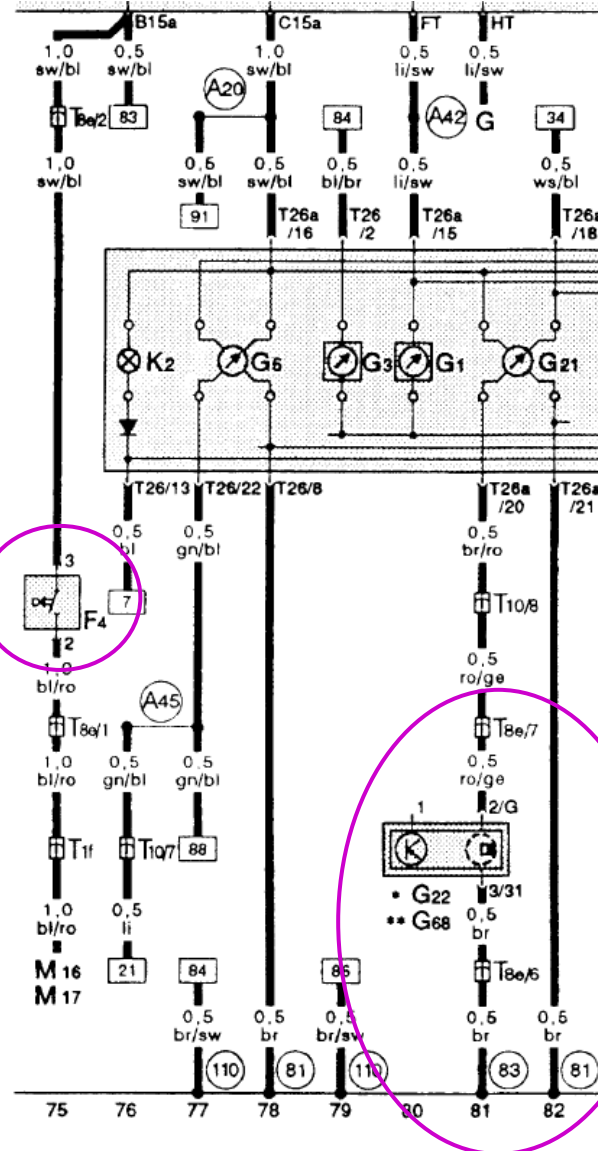
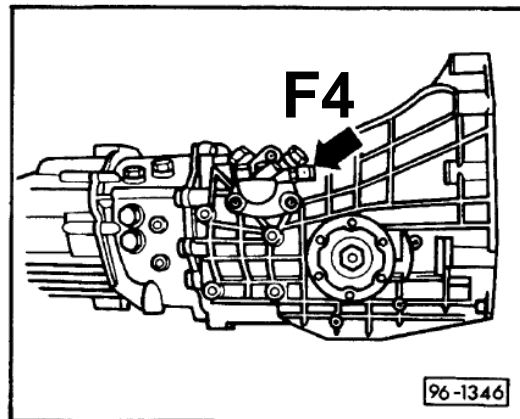
# Ancillary Bundle A3 – Gearbox

## Reverse Light Switch



2-pin JPT

**TIP** - Test connectivity thru  
**F4** between **T8e** and **T1f**  
See Bundle 5...



**TIP** - Test connectivity thru  
**G22** between **T8e** and **T10**  
See Bundle 5...

## Speed Sender



3-pin JPT



# A note about loom connectors

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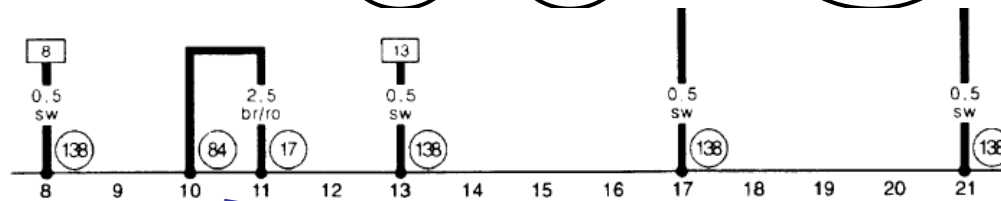
- The vast majority of the multi-pin plugs found on the loom are from the AMP 'junior power timer' family of connectors – *JPT* for short. Even the ECU is JPT-55.
  - 2, 3 & 4-pin JPT connectors and insulation hoods are widely available from aftermarket electrical specialists
  - 6-pin JPT are hardest to find for MAF (**G70**) & TPS (**F60/G69**)
    - 4A0 906 236 is the Audi part number for the female plug
    - 4A0 906 102 is the connector insulation hood
  - Circular connectors **T8e** & **T8f** are also hard to find
    - Female = 443 972 984
    - Male = 443 972 983
    - Hood = 443 906 102 F
  - There's a few other oddball's of course...



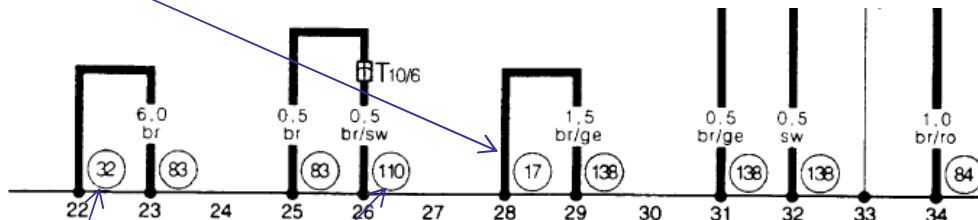


# Finally – A word about earthing

- There are internal earth points on the ABY loom
  - Shown as (83), (84) and (138) on the schematics



- (17) is the earth point at the inlet manifold



- (32) is the earth point inside on the A-pillar

- (110) is another earth point in the main dash loom



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**END**

**Please send any comments,  
questions or corrections to  
S2central@mac.com**