

Wiring and fitting Loom

If you are a novice with wiring and this kind of installations, it may be best to enlist the help of an auto electrician, or some one that has some electrical knowledge before commencing this part of the build!

As mistakes could be very costly indeed, not to mention the damage that could be caused to the wires, there is a serious risk to your own safety! As a “HOT” wire connector to a “GROUND” or the other way round could cause the cable to melt and start a fire before you know it!

That said (and now you are really scared if you was not before) If you follow the basic rules and double check every thing before you connect the battery then it's not beyond most people. You may need to just call in a specialist if you are not 100% sure of your own ability before the power is connected.

RVD are only ever a call or e-mail away and we will do our uppermost to help as much as we can from remote!

RVD'S wiring looms come with all the main plugs and sockets needed for relays, and flasher units, along with the connectors that need to be fitted to the donor BMW switch gear, (column stalks, Ignition, ABS) the only connectors you may need are for the Fuel pump and rear lights, Speedo, and tank sender. As these components often vary from type & make of the units you decide to use on your car, it will be difficult to determine the connectors that you will need until you have these parts.

RVD have **two** types of loom available:

- 1, fuel injection loom (for BMW E34 engines and other injected engines)
- 2, Carburetor engine (none ECU) (older FORD V8 302 CHEVY V8 and ROVER V8)

Note: It is a good idea to notify RVD as soon as you have made your engine choice to make sure that we can have the right type of loom in stock for you. **ALL RVD LOOMS ARE RELAY SWITCHED FOR HIGH LOAD COMPONENTS ie: Horns / Headlight (upto 150 watt each lamp) Rad Fans / Washer pump / Wipers / Fuel pump (carb loom).** This gives a much higher reliability to all the switch gear use and needs less expensive and large switches, simple on/off are needed even for Hazards!

Fitting the loom to the body and chassis unit:

Method:

- 1.** You should have cut all the lighting holes and cutouts by this point, if not go to the light fitting section of this manual.
- 2.** Lay the main loom out on the outside of the body over the top of the engine bulkhead, and run the loom down the wing towards the front of the car, this will help you determine the best place to make the holes required for the grommets and “P” clips that you need to fit.
- 3.** For Right Hand drive cars the loom runs down the LEFT wing and on Left hand drive cars the loom is inverted and runs down the RIGHT wing. The rear section is also run on the opposite side to the Right Hand drive cars (on the LEFT side)
- 4.** The taped section of the loom runs under the bonnet and the tie-wrapped section is under the dash, In the center section of the under dash section there are 2 fly lead sections, one has the relays and intermittent wiper timer relay on it, this should be mounted on top of the center tunnel in a position

that allows access when the dash is in place but does not show when looking in to the car. The other is the **switch connection sockets** (12pins total 1x4&1x8 but may vary)

5. Relays from the end back along to wards the main loom :

First two relays are **Headlights /on off & Hi Low beam.**

The next two are **Wipers on/off & High/Low speed.**

The next one is the **Washer Pump relay.**

The last is the larger 6 pin **Intermittent timer relay**

Note: it's a good point to take note of where the relays are mounted and what they are for!
As this can be very helpful if a fault occurs at any time.

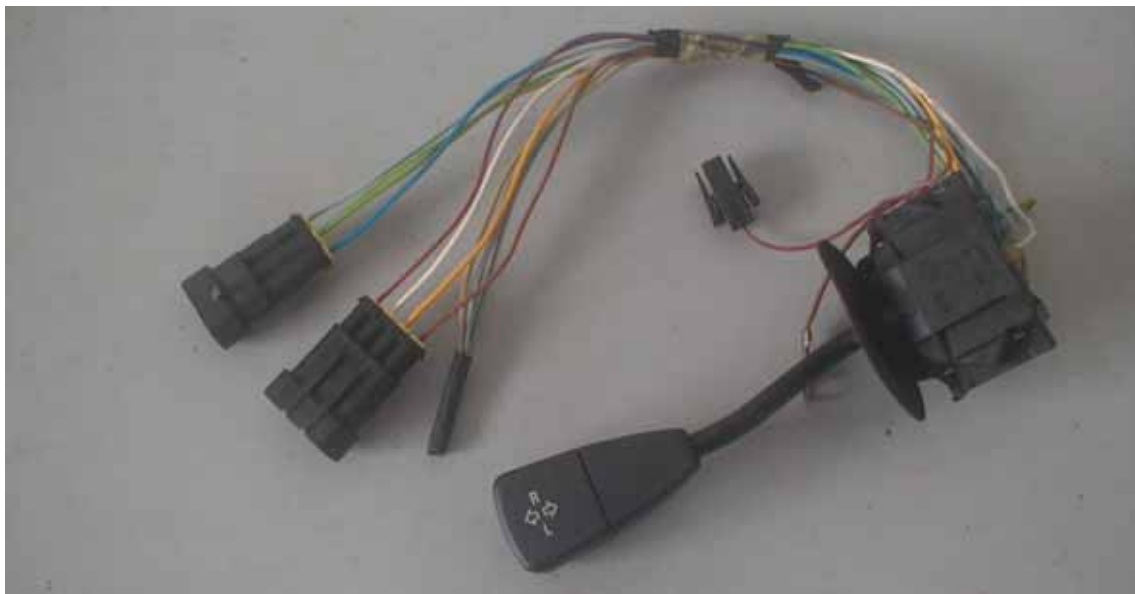
- 6.** Working away from the taped under bonnet section to the end of the loom you will find the sockets for the ignition switch and the stalk switches, these should run over the top of the steering column support and hang down either side of the column. The rear section 11 way socket should be run over the steering column as well and across to the side plate support.
- 7.** Tie the loom in a position that allows the sockets and exit points of the loom not to be over stretched or chaff on any of the steel parts, with 3, 22mm rubber covered "P" clips fitted in appropriate positions along the steering column support bar, fix the loom along the under side of the bar, towards the front edge of the bar (to the front of the car)
- 8.** Now make a suitable hole around 1" to 1 ½"(25-40mm) down from the top edge the bulk head in the passenger foot well, (around the same point as the mould joint line on the outside of the car at the top of the wing radius), the hole will need a suitable grommet (or fill with PU sealant) to prevent water seeping in. the hole needs to be large enough to pass all the wires for the fuse boxes thought around 45mm. Sand the edges around the hole as the fiber can be very sharp and cut the loom tape as you pass it through.
- 9.** Once the loom is passed through the hole the joint at witch the fuse box section should be just inside the engine bay, Fit the grommet (you may need to split the grommet to aid fitting) position the fuse boxes in a vertical position as high up as possible on the bulk head, the positions will be limited by the length of the wires and the loom.
- 10.** Mark the screw holes for both boxes, and drill out, we tend to fit M5 riv-nuts as this saves trying to fit the nuts on the other side. (if you have very long arms you may be able to do it ok)
- 11.** Now the loom is secure you may want to fit a 4th "P" clip inside the cockpit between the last clip (steering bar) and where the grommet is in the bulkhead, to support the loom. This will be around the point of the radius of the bulk head where it comes around to the rear of the engine.
- 12.** Run the loom across to the inner wing from the bulkhead grommet to a high point near the center of the wing (inline with the mould joint) fix with a 16mm "P" clip.
- 13.** Find the headlight fly lead point where it exits from the main loom, position the loom as high up as you can along the inner wing, mark the point at which the head light fly lead exits the main loom on the inner wing just below the main loom run. Drill around ½" (13mm) hole in the wing and de-burr the hole before fitting the head light loom through the hole, fitt grommet.
- 14.** Run the head light loom along the top edge of the inner wing towards the head light and indicator holes, clip along the way with a suitable clip, tie-wrap basses and tie-wraps are a good method or small "P" clips as shown below.



- 15.** Run the remainder of the loom down to the 50 x 25mm box that runs from side to side of the car just behind the radiator, “P” clip the loom along the bottom front edge of the box section. Make sure that the large ground eye will reach the top bolt hole of the front bumper bracket.
- 16.** Find a good point to make a hole for the opposite side headlight, this will not be the same as the first it will be further forward and lower than the other side. Fix the loom to the headlight and indicator as you did with the opposite side.
- 17.** This should leave you with only 3 sets of leads left at the front of the car behind the radiator, 2 are the same colours and the 3rd is Green and Brown, this is the **Fan power**. The other 2 are the **Horns**.
- 18.** Between the bulkhead and wheel arch you will find the fly leads for the **Side Repeater** and the **Washer Pump**, the washer pump has 2 larger 6.4mm female spade connectors on it, and the side repeater has small 2.8mm female spades on the end.
- 19.** Between the headlight exit and the washer pump you should find 1 more fly lead with two 6.4mm female spades on the ends this is for the **Rad Fans thermostatic switch**.
- 20.** You should now have the entire main loom fitted under the bonnet and a little less “spaghetti” hanging all over the place? Move back into the cockpit and to the passenger side of the car, you should find two relays on the end of a fly lead hanging from the main loom. Run the wires over the top of the steering column support to the side plate, mount the pair of relays on transverse piece of sheet steel that attaches to the box section of the s/column support to the side plate, as low as possible. This will allow access to them once the dash and all the under dash components are fitted. These relays are for **Horn & Rad fans**.
- 21.** On the driver side you should find one unit (ECU) engines and two if a carb engine, these are the **Indicator & fuel pump relays**. These should be mounted in the mirror position of the Rad fan & Horn relays.
- 22.** There should only be one large clear covered relay hanging on the center tunnel side of the steering column this is the **Hazard light relay**. Mount this in suitable position either on the bulkhead or on the center tunnel (make sure you don’t mount in the place needed for the ABS unit). We have used a relay to switch all the necessary wires for this function, you no longer need to fit a large and hard to connect hazard switch. Now all that is needed is a plan on/off type switch, this we hope will save you problems wiring this complicated connection, also you will be able to use the same type of switch for all the other functions as for this one. Keeping you dash neat and professional.



- 23.** To connect the BMW switch gear to the loom you will need to remove the original Bm sockets and crimp on the new sockets that are provided with the loom, (the connections are shown on the connections and relay sheets)
- 24.** The type of connector may vary depending on the supplier at the time of manufacture we try to keep then as close to the same type as we can. (the ones pictured may vary to the current type used)



- 25.** The **Ignition socket** is that larger wired 4 pin socket, remove the original Bm plug and crimp on the new socket provided, (connections on the connections sheets)
- 26.** There should only be only 3 leads hanging from the section of the loom around the steering column, 2 of these leads are taped and one of these two has small 2.8 mm spades on the ends, this lead is the **side repeater indicator**, the second has no end connectors on it. This is the lead to the **brake reservoir float switch** (fluid warning light) these leads need to be taken through the bulkhead above the pedal box in a similar place to the main loom on the other side. Use a suitable grommet around the leads.
- 27.** The third is to the **brake light switch** (with two 6.4mm spades on the ends) you will need to fit a suitable switch to the pedal box (a Mini one is a good and widely available one to use) Pop rivets can be used to fix a small bracket to the pedal box for this switch.

- 28.** Over the center tunnel section you should find a **6 pin ABS socket, & a 9 pin clocks socket,** on the fly lead of the with the 9 pin socket there are 3 wires for the stereo if you are fitting (red = constant live, Violet = ACC live, Brown = Ground-)
- 29.** Between the center tunnel and the steering column there is a shorter **9pin Warning light socket** and a longer section of loom that has NO Connections on the end this is for Fuel injection engines only, and connects to the **engine loom socket** that you should have removed from the donor car loom with around 12'' 300mm of wire.
- 30. Engine loom connection,** there are only a few of the wires that need to be connected out of all the wires that come from the socket as a large amount of the wires are for information to the trip computer and not needed for your Python. Connect these wires with soldered joints or bullet type connectors. The main wires are:

<u>Python loom</u>		<u>BMW colour's</u>
<u>A,</u> cranking wire 2.0sqmm black	=	black /yellow
<u>B,</u> Ignition Live 2.0sqmm Green	=	Green
<u>C,</u> Fuel pump 2.00sqmm Red	=	Green / Violet
<u>D,</u> Battery light 0.6sqmm blue or blue/red	=	Blue
<u>E,</u> Oil light 0.6sqmm black (or marked)	=	
<u>F,</u> Rev-Counter 0.6sqmm white/blue (or marked)	=	

There are two other wires in this fly loom that are the **oil Pressure & Water Temp** these will require the fitting of the relevant sender units to the engine block, the **water temp** can be drilled and taped into the thermostat housing (most Bm engines have a spare blank space) the **Oil pressure** is a little more difficult, on the M30/M40 engines, a nut or a threaded tub can be welded to the top of center bolt that holds the oil filter on, a small hole should then be drilled through the head of the bolt into the center of the donor bolt, to allow the oil to pass into the center of the nut or threaded section you have fitted. You will then need to run wires from these sensors and connect to the two wires that are marked. M20 engines have a Oil light switch on the side of the engine that can be removed and replaced with a "Y" piece or a combination switch for oil light and pressure.

- 31.** The **Red leads** that are left unconnected, the two read leads with ring eyes on the ends are constant live feeds, there is one on ether side of the car, the one on the driver side will be needed to connect the live feed in to the ECU unit (witch you will find a large red lead with a ring eye on this is the power in to the engine loom and ECU) the Red lead on the other side this connection is for the ABS power feed. There are two ways to make a power point bolt ether side one is to use a big-head bolt bonded onto the underside of the scuttle, in a position that will not allow the live wires to short out on any of the steelwork. The second is to drill a hole through the horizontal part of the bulkhead under the wing section, and place a bolt through the hole with a locking nut, and then fit the ring eyes on the stud on the inside the cockpit. ***Note: these points can be used for other equipment that may need constant power feeds.***
- 32. Brown leads,** the Brown lead that are under the dash should be routed to the side plates and terminated on the top bolt of the 19x19mm box bar that is bolted on to the side plate with 2 M8 bolts. These bolts can be used ether side for a good earth point. ***Note: if you have painted these parts or powder coated there parts then you may need to remove some of the paint under the ring eye, to obtain a good connection.***
- 33. Starter motor connections,** If you are not using a BMW engine then some of these connections will need to be changed or extended. **BMW Engines** from the main loom close to the point of the fuse box fly lead there is a lead with a 10mm ring eye on the end this is the connection to the back of the starter

motor, this should be connected to the bolt on the rear of the starter along with the main battery cable (this cable should be min 16sqmm in size the bigger the engine the bigger the cable that will be needed) ***Note: it is advisable not to connect this until later on in the build, as you can connect a small size wire with an in-line fuse of around 25-30amps to test all the systems one by one, as the only large power drain is for Cranking the engine. With a small fuse in this line any problems will not cause wires to melt, if the fuse keeps blowing then check each cricket one at a time to isolate the problem. Once you are happy with all systems are working then connect, and then test the cranking with the ECU not connected.***

34. Wiper motor wires, these wires are on the passenger side of the loom, the fly lead has 5 wires with smaller 4.6mm spade connectors on the end with clear rubber insulators, for wiring positions refer to the wiper motor fitting section in the manual.

35. The one single wire that exits the loom over the center tunnel is the **hand brake light switch** wire, this wire will be the same as the wire that runs to the brake reservoir float switch.

36. The Pair of wires that exit the loom on the driver side of the loom are to the **reversing light switch** these will need bullet connectors or crimp connections.

37. Rear section to fitting, this is best fitted from the driver side rear wheel arch. Two holes for grommets will need to be made, one in the vertical bulkhead of the boot and one through the rear bulkhead of the cockpit. The first in the boot needs to be large enough to pass all the wires through along with the ring eye of the ground connection, we recommend a hole at least 1 ½ “38mm and use a blanking grommet with a hole punched in it for the loom to pass through, a second hole can be punched for that battery cable to run through as well. The hole position needs to be just above the chassis rear crumple section on the center line of the chassis rail that is underneath.



38. The second hole needs to be made in the cockpit bulkhead on the inside of the chassis rail around half way down the section of the bulkhead that is riveted to the chassis, this hole should be around 12-16mm and fitted with a suitable grommet.

- 39.** Feed the boot section of the loom through the first hole and run the taped section around the back side of the chassis rail, “P” clip in place at the rear section, then pass the 11 connector ends through the bulkhead hole, route the loom to make sure it cannot chaff, and “P” clip in place.



- 40.** route the loom along the sill to the 19x19 box bar of the side plate, run the loom up the 19x19 box , and tie-wrap in place, fit the 11 pins into the holder supplied with the loom and connect to the main loom.(wiring positions on connection layout sheet)
- 41.** The wires for tank sender / Speedo sender / fuel pump, exit the loom in the wheel arch, depending on the components used on your car run these as required to fit your parts used. Speedo may vary depending on the make of Speedo used. Refer to makers instructions for more information.
- 42.** Run the rear light wires along the line of the rivets to the rear of the boot, drill a hole into the chassis rail from inside the boot and tap M8 or M10 for the Ground ring eye and bolt down.
- 43.** Route the wires to the passenger side lights across the rear of the boot. Note make sure that you run up and over the bumper brackets and not across the point that it bolts down to.