

# Installation Instructions

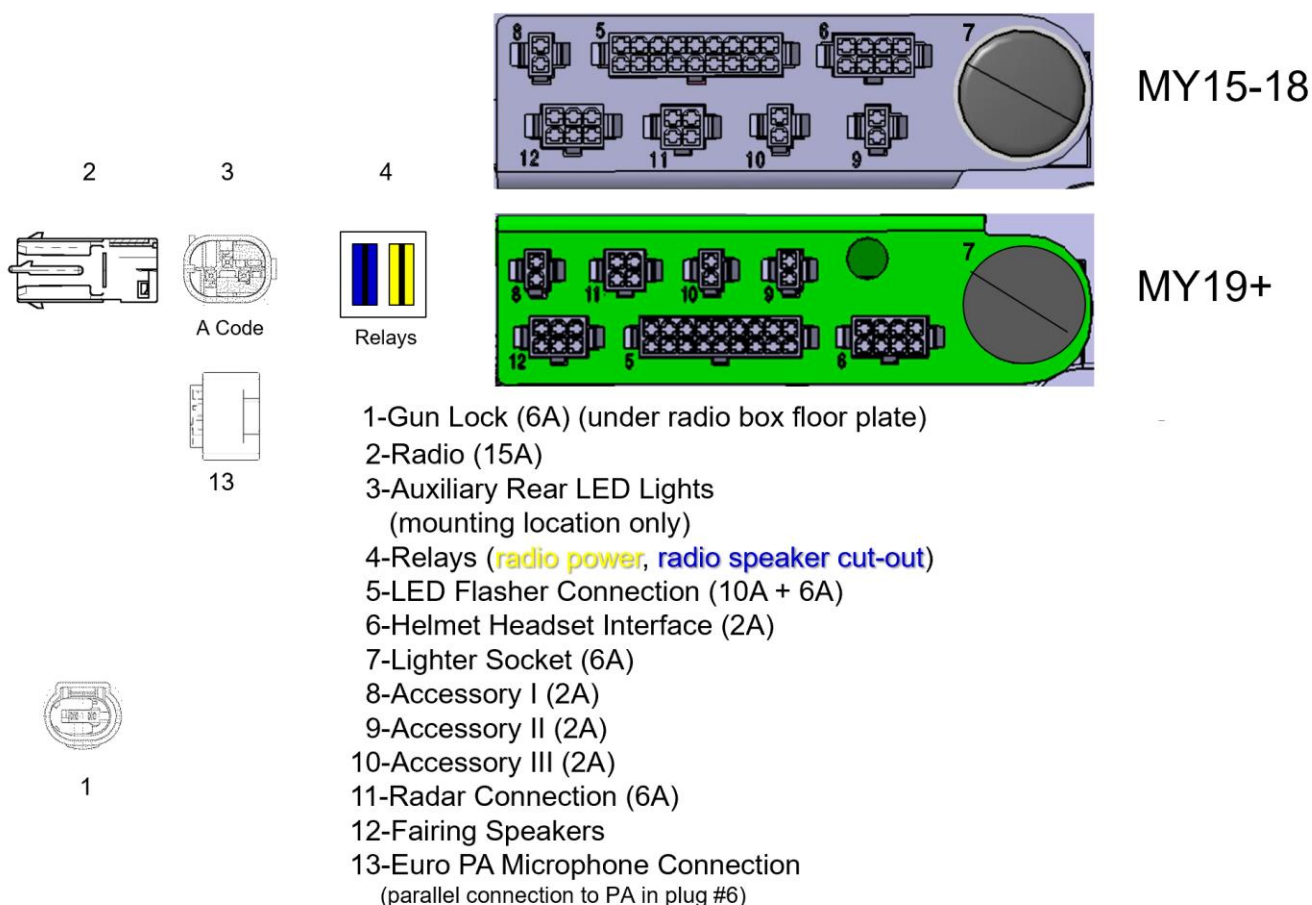
## K 52 SF Radio & Electrical Accessory Installation Tips

These instructions must be read carefully and thoroughly before beginning work. FMS Solutions, LLC accepts no liability for damage caused by failure to observe the installation instructions. FMS Solutions, LLC accepts no responsibility for the function or durability of aftermarket accessories fitted to police motors nor accepts any liability for their warranty.

The K 52 SF model sets a new standard for pre-wiring a vehicle for radio and electrical accessory installations. Additionally, all pre-wired circuits are managed by a central controller (GMSF) which limits the on-time of each circuit after ignition-off. This management eliminates all parasitic loads on the system 30 minutes after ignition-off so that your equipment can't discharge the auxiliary battery when the motorcycle is not in use.

**Caution: Never, ever connect any device or accessory directly to the main or auxiliary batteries! Otherwise, the current management from the GMSF is defeated! Regardless of "how you always did it", don't do it that way anymore unless specifically instructed to do so by FMS Accessories. The only time direct connection is allowed is when the parasitic load of the device is below 10  $\mu$ A (10 microamps or 0.01 mA milliamp).**

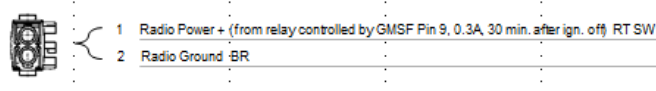
**Plug connections inside radio box of the R 1200 / 1250 RT-P (bracket arrangement varies by model year):**



**Radio Installations:**

A clean radio power and ground circuit is provided at plug #2 on the main image above. This is a 2.5mm cable with a separate fuse located under the seat. This circuit is primarily for radios, but can also be used together with radios and laptop chargers and can be fused up to 20A if necessary. Switched power is not needed as this circuit comes alive when ignition is turned-on and shuts-down 30 minutes after ignition-off. If your radio requires an earlier ignition shut-down to retain the radio memory, use ACC2 as the ignition trigger, which shuts-down after 25 minutes.

Many radios today have large diameter cables making it difficult to connect all positive and negative cables on two terminals. Therefore, a "Y" harness is available to split this circuit into two legs. **Note that two Radio Power Plug Connectors would be needed.**



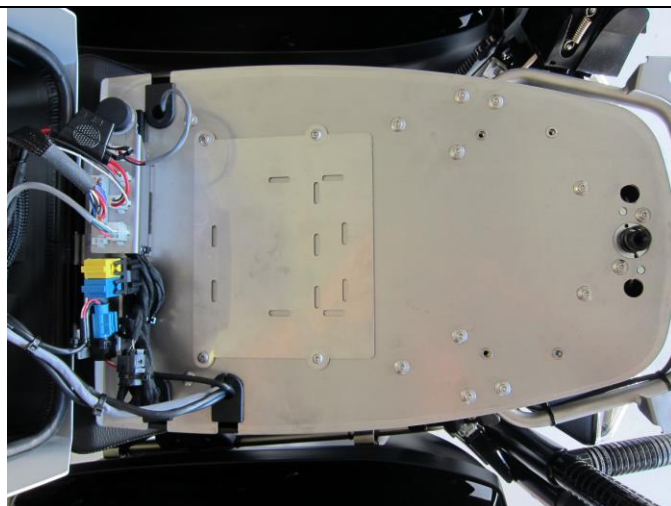
<https://fmsaccessories.com/radio-installation>

<https://fmsaccessories.com/radio-connection-plug-code-a>  
<https://fmsaccessories.com/radio-power-plug-divider-code-a>  
<https://fmsaccessories.com/accessory-i-iii-connection-plugs>  
<https://fmsaccessories.com/speaker-connection-plugs>  
<https://fmsaccessories.com/radio-receiver-saddlebag-relocation-kit>  
<https://fmsaccessories.com/power-socket-male-plug>  
<https://fmsaccessories.com/power-socket-to-lighter-socket-extension-cord>

A Radio Quick Mounting Plate is available to speed-up installation of radio chassis. This plate is indexed for most common radio brackets for installation either direction, complete with "T" self-clinching bolts and flanged nuts for quick centering and tightening from the top side. It attaches to the four threaded inserts in the radio box floor saving time and effort.

The floor trim (black trim running around the base of the radio floor plate) can be easily moved to enable routing of cables without removing the radio box floor plate.

<https://fmsaccessories.com/radio-receiver-quick-mounting-plate>

**Radio Antennas:**

A radio antenna mount is provided behind the radio box to mount most types of antennas.

**Note: It is not recommended to mount low profile antennas on the top of the radio box lid due to possible interference with the lighting controller.**

When routing antenna cables:

1. Keep them as far away from the main power and light cables as possible.
2. Never tie the antenna cable to other cables.
3. Bundle excess antenna cable on the right side of the auxiliary battery away from other cables.
4. Route the antenna cable into the radio box through the RH floor plate portal.



A lower band antenna mount has been developed for use with higher powered radios where more clearance is needed between the long antenna to allow easy mounting by the rider. This mount centers and moves the antenna farther away from the radio box.

Variants of this mount also exist for “shark fin” antennas.

<https://fmsaccessories.com/low-band-antenna-ground-plate>

**Note that BMW does not recommend operation of radios with transmit wattage set in excess of 15W.**



### Ultra Low Band Antennas

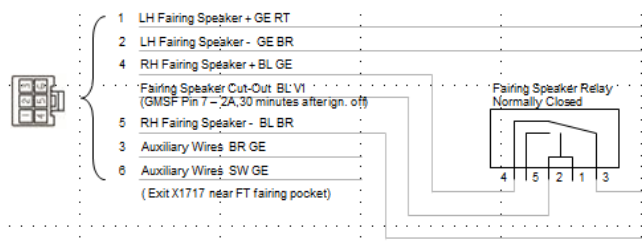
If extreme low band radios are utilized, a special reinforced antenna mount has been developed and is available under the CHP Parts section of the FMS Accessories website. These mounts provide a wide ground plane and are suitable for high output antennas. This mount was optimized for use in the 36 – 42 MHz range.

<https://fmsaccessories.com/low-band-antenna-mount-chp>



Radio Speakers are standard on the R 1200 RT-P model and are pre-wired to the radio box. You will need the special Radio Speaker Plug to make the connection. Note that the RH speaker can be muted from the handlebar switch. Most often, agencies connect the radio to the RH speaker and the Dopler radar speaker to the LH fairing speaker. Two additional wires are present in the plug to send signal to the front of the motorcycle based on local needs. That plug is located near the horn plug (bundled cable).

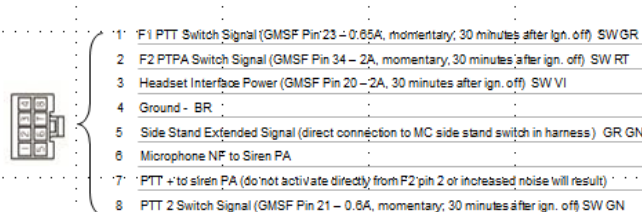
<https://fmsaccessories.com/speaker-connection-plugs>



The helmet headset interface plug provides connections to the PTT, PTT2 and PTPA switches as well as provides power & ground for the interface unit, microphone NF (audio) signal and PTT+ to trigger the siren PA. Additionally, the side stand down/up signal wire is present for use with PVP systems or use with a relay to limit traffic emitter operation when parked.

Note that PVP and Setcom systems when ordered for BMW's come with the special plug connection. PVP system require an interface module available from PVP.

<https://fmsaccessories.com/helmet-headset-connection-plugs>





**Laptop PC Installation:**

Most laptop PC's can be installed in the radio box using Velcro rather than heavy, large docking stations. There are two main ways to mount them. You can either mount them to the floor plate with the radio receiver mounted to the radio box lid, or utilize a pivoting laptop mounting that also incorporates a printer case for the Brother PocketJet printer.

<https://fmsaccessories.com/laptop-pivot-mount>

If mobile radios are also needed, it is easiest to relocate them to the LH saddlebag utilizing a relocation kit.

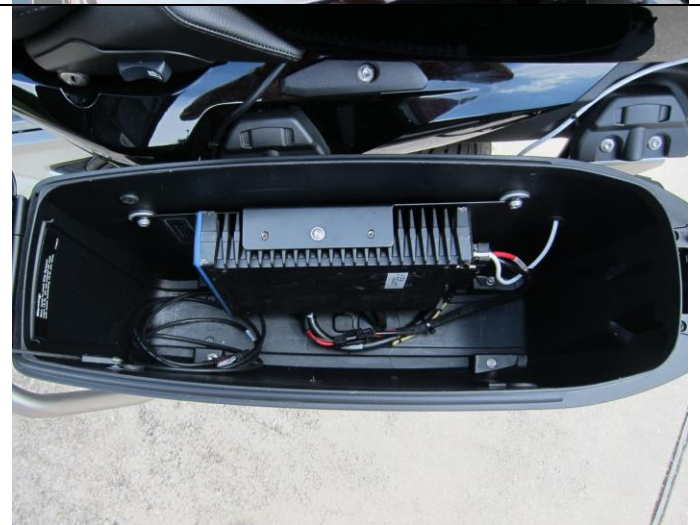
<https://fmsaccessories.com/radio-receiver-saddlebag-relocation-kit>



Laptop chargers are typically units taken from agency cars and SUVs. Be aware that agencies often use more consumptive devices in cars where the battery size is much larger. Insist on using power supplies that don't draw excessive power (available as low as 24W) and charge the PC only when the engine is running. You can do this by using a relay triggered by ACC1, connecting to the radio power circuit for the PC charger power.

<https://fmsaccessories.com/laptop-power-relay-harness>

This way, when ignition is OFF, the laptop runs on the laptop battery. LIND offers a selection of power supplies for most all laptops used by agencies. <https://lindelectronics.com/>



Thermal printers can be located beside or ahead of the laptop, mounted in the lid of the radio box, or in some cases, inside the lid of the saddlebag, depending upon the paper / printer size. Power thermal printers from the lighter socket connector. <https://fmsaccessories.com/printer-power-connector>



Mounts for Zebra printers are also available and can be combined with Lidar gun holsters if desired.

<https://fmsaccessories.com/zebra-printer-case>



**Radar System Connections:**

A radar plug with Power, Ground and VSS is provided in the radio box plug strip.

**Caution:** The VSS line already has a 10k  $\Omega$  resistor integrated in the motorcycle main harness so do not add any resistors to the connection.

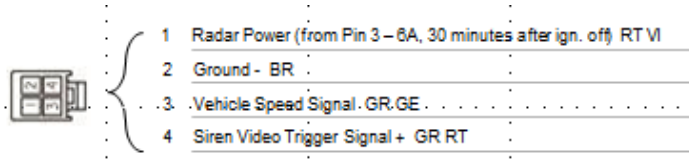
This plug also contains the siren video trigger when mobile video systems are installed and you wish to have the siren icon on the video screen enabled.

FMS produces a variety of mounts for moving radar including dashboard displays, antenna mounts, remote controller mounts, counting unit mounts, etc. See the FMS Accessories website for all available mounting parts to optimize your installation as well as installation instructions.

<https://fmsaccessories.com/moving-radar-mounts>

**Note for Kustom Signals Radar:** Kustom Signals limits their radar to 2A. Based on Kustom's request, they wish for all installations to use the cigarette lighter plug and the lighter socket that comes with each Kustom system. The radar plug shares power with the cigarette lighter socket and is limited to 6A, but the Kustom Signals lighter socket is fused at 2A. If a direct connection is desired, an in-line fuse holder must be installed with a 2A fuse to protect the counter unit.

Alternatively, you can also connect the radar power to ACC2 or ACC3 while running the VSS from the radar plug. This way, you could utilize the 6A radar node for other purposes if desired based on the sum of equipment being installed on a given unit.

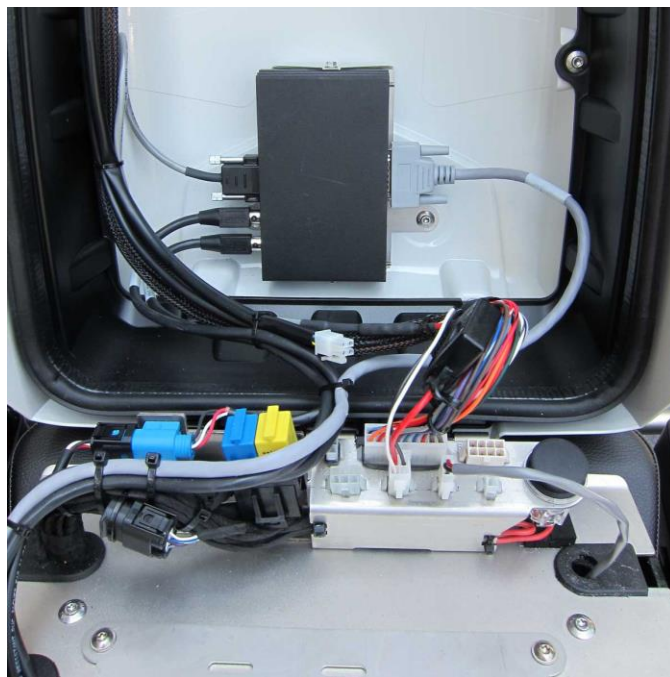


<https://fmsaccessories.com/radar-connection-plug>

<https://fmsaccessories.com/fairing-usb-outlet-w-voltmeter-on-off-switch>

<https://fmsaccessories.com/fairing-waterproof-lighter-socket>

See the BMW Police Motors Website at [www.bmwmc.net](http://www.bmwmc.net) for detailed installation photos for Stalker radar (use same routing and details for other brands as well using the appropriate mounts based on the radar brand, model and antenna type).



**Front 12v USB or Lighter Power Outlet:** (waterproof SAE or USB) are available. USB with connection to aux. battery provides many benefits including aux. bat. voltage and charging helmets while parked. USB can also be connected to power socket which turns-OFF with ignition.

<https://fmsaccessories.com/fairing-usb-outlet-w-voltmeter-on-off-switch>

<https://fmsaccessories.com/fairing-waterproof-lighter-socket>

<https://fmsaccessories.com/front-fused-power-socket-harness>

<https://fmsaccessories.com/power-socket-male-plug>

Note that a direct fused connection harness for the BMW power socket to main battery is available, typically used for heated vests or other higher load needs above 10A.



**Rear 12v Accessory Socket:** The factory DIN power socket located near the left rear turn signal is connected to the front power socket and is primarily used for charging both batteries. When connected to the BMW 2.5A battery charger, the GMSF connects the auxiliary and main batteries simultaneously to enable charging of both batteries from a single connection.

**BMW 2.5 Ah Charger PN 77 02 2 470 951**

A mating DIN power socket plug is available to connect various accessories to the power sockets including heated vests, etc.

<https://fmsaccessories.com/power-socket-male-plug>



**Accessory Connections:**

Three accessory plugs are provided within the radio box to connect various items such as thermal printers, laptop chargers, USB outlets, BT amplifiers, etc.

Note that each plug has slightly different timing after ignition-off for specific reasons:

ACC 1 = 60 seconds after ignition off

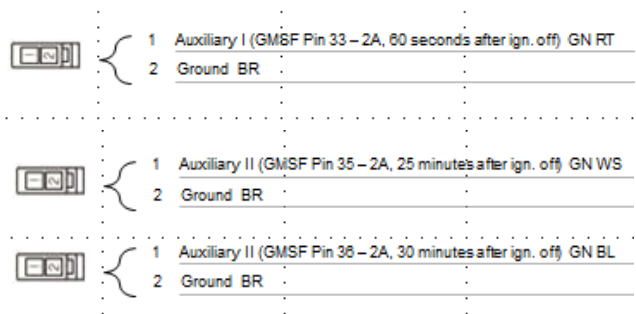
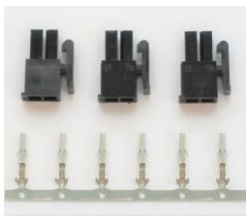
ACC 2 = 25 minutes after ignition off\*

ACC 3 = 30 minutes after ignition off

ACC1 is intended to provide an “ignition ON” signal to trigger various devices. The 2A max load can trigger multiple relays.

ACC2 was reduced in timing to 25 minutes for use as a video system ignition signal so that there is a 5 minute gap to allow the video system to save files before the main power is terminated at 30 minutes after ignition off. It can also be used for other power including BT Amplifiers, modems, etc.  
(\*from summer 2016 GMSF software update)

ACC3 can be used for USB power or any other desired use.



<https://fmsaccessories.com/accessory-i-iii-connection-plugs>

<https://fmsaccessories.com/release-tool-for-harness-repair>

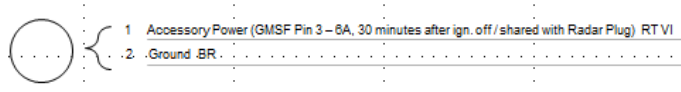
<https://fmsaccessories.com/crimping-tool>



Note: it is recommended to obtain at least one release tool to facilitate wiring connections.

The radio box cigarette lighter socket shares the same 6A power as the radar plug power and can be used for any desired use from radar power, cell phone chargers, Brother PocketJet printers, etc.

<https://fmsaccessories.com/printer-power-connector>





**Video Systems:** FMS Accessories makes several mountings for video cameras and displays from L3 and Kustom Signals.

<https://fmsaccessories.com/kustom-road-warrior-display-mount>

<https://fmsaccessories.com/kustom-road-warrior-processor-mount>

<https://fmsaccessories.com/l3-mobile-vision-display-mount>

<https://fmsaccessories.com/video-camera-mount>



The FMS Accessories camera mount will work with virtually any of the "lipstick" cameras on the market today with 1/4 x 20 TPI threads.

**Note:** Some video systems require an ignition power trigger and save their data between the gap from ignition off to main power off. If your system works this way, we suggest connecting the ignition trigger to ACC2 which is powered for 25 minutes after ignition off. ACC3 and all other power points are powered for 30 minutes after ignition off, providing a 5 minute window for your video system to save files.

<https://fmsaccessories.com/video-camera-mount>



BMW provides an "ICON" connection plug for video icon signals. Note that the siren signal comes from Pin 4 of the radar plug. Current icon signal leads pulse for brake and emergency light activation – later flasher board versions will not. Updated firmware is available for earlier flashers to stabilize icon signals.



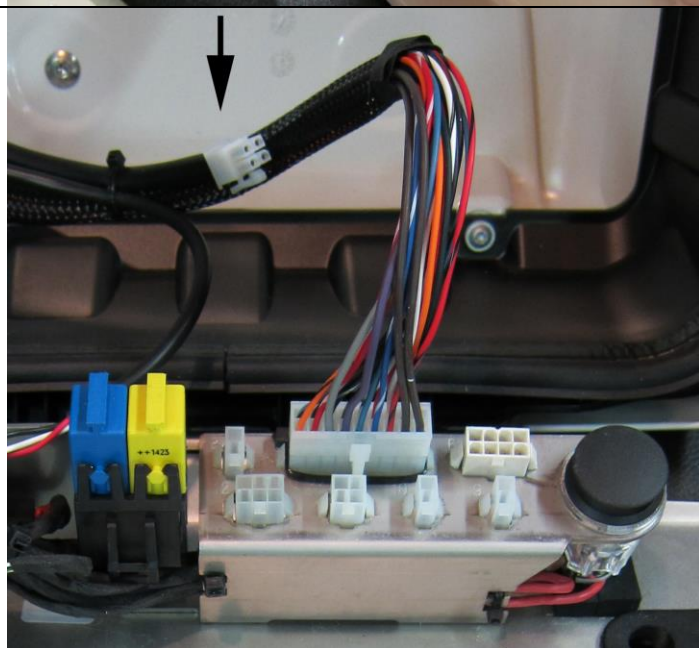
### Video Connection Plug

1-LH Turn Signal

2-RH Turn Signal

3-Rear Brake

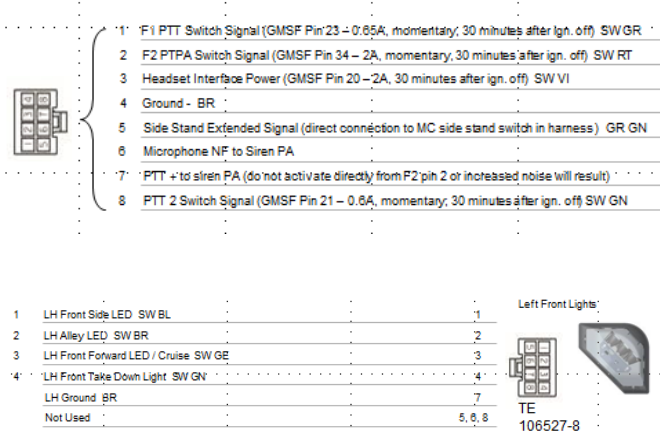
4-Rear Emergency Lights



<https://fmsaccessories.com/video-system-icon-plug>

**Traffic Emitter Systems:** Traffic emitters are becoming more commonly used by agencies to turn traffic lights green in their direction of travel. The most common systems use a hide-away strobe bulb inside the headlight. Most systems activate with front light activation (use CA steady-burn light as activation signal Pin 3). Use a relay activated by the side stand to turn-on/off the emitter when the stand is deployed (dropping relay power when the side stand is deployed – normally 12V+ when stand is up). Side stand signal is Pin 5 on the helmet headset interface plug.

If manual switching is desired, use the PTT2 button, programmed to latch-on/latch-off via ISTA-P, to activate the emitter (add an LED indicator light) along with the relay described above.



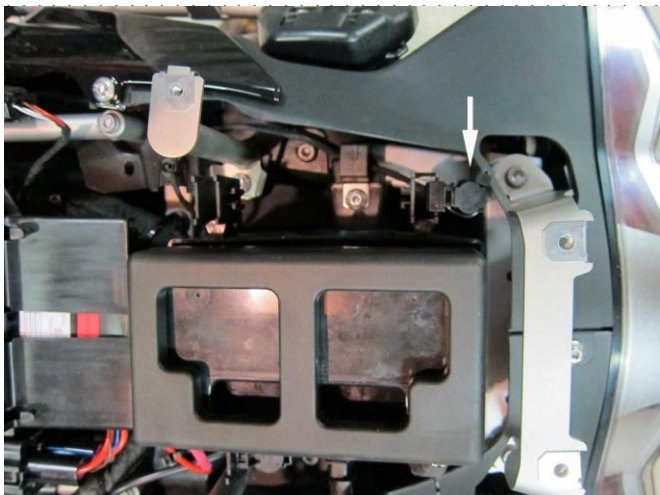
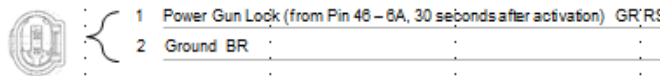
**Gun Lock Connection:**

The GMSF controller interprets the gun lock activation at the handlebar switch and energizes the plug connection for the gun lock under the floor of the radio box by the auxiliary battery. That connection then remains energized for 30 seconds after pressing the handlebar switch.

A plug is also available from FMS Accessories for connection to the gun lock plug when not using BMW weapon mounts.



<https://fmsaccessories.com/sealed-bmw-connector-sets>



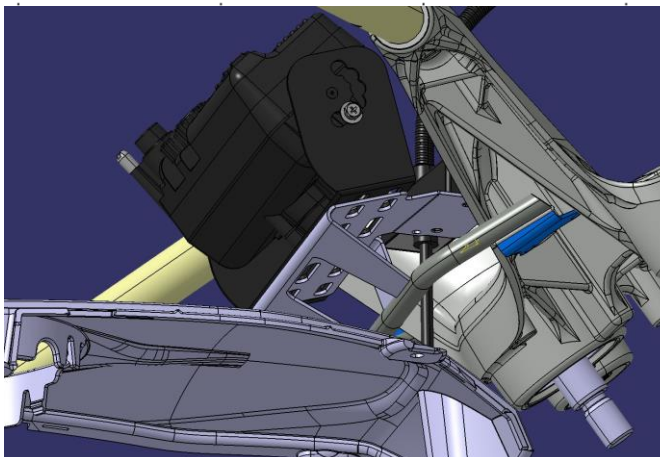
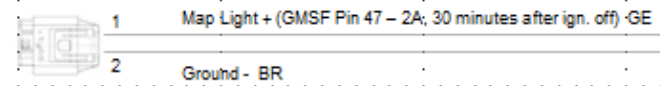
**Map Light Connection:**

A plug for the map light connection is located under the RH handlebar for easy connection of the BMW map light accessory. Other accessories can be powered from this 2A connection if you are not using the map light.

A plug is also available from FMS Accessories for connection to the gun lock plug when not using BMW weapon mounts.



<https://fmsaccessories.com/sealed-bmw-connector-sets>



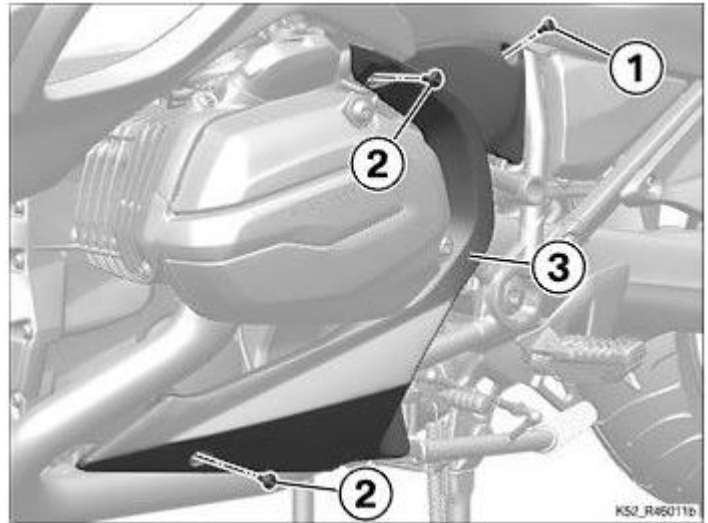


**Preparation for Cable Routing:**

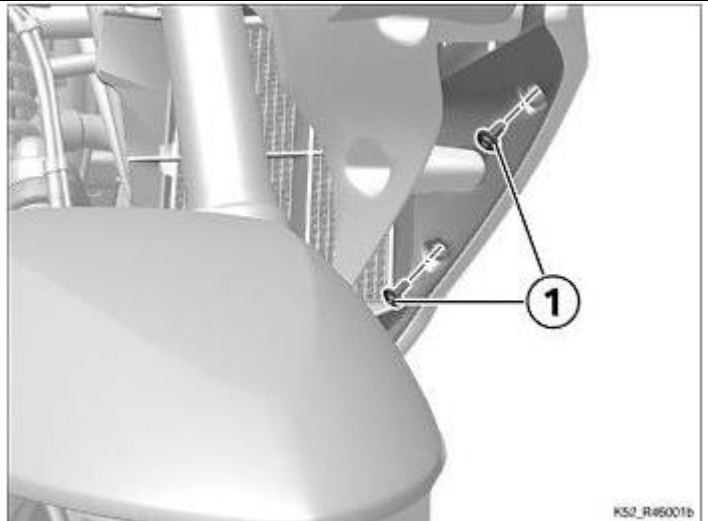
Access the cable path on the left side of the motorcycle to route radio control head cables, radar cables, etc.

Remove left fairing panel.

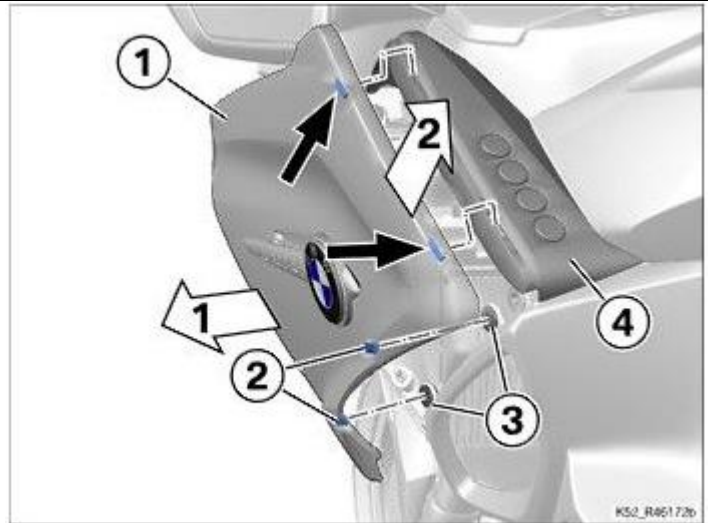
Note screw (1) is a long collar screw.



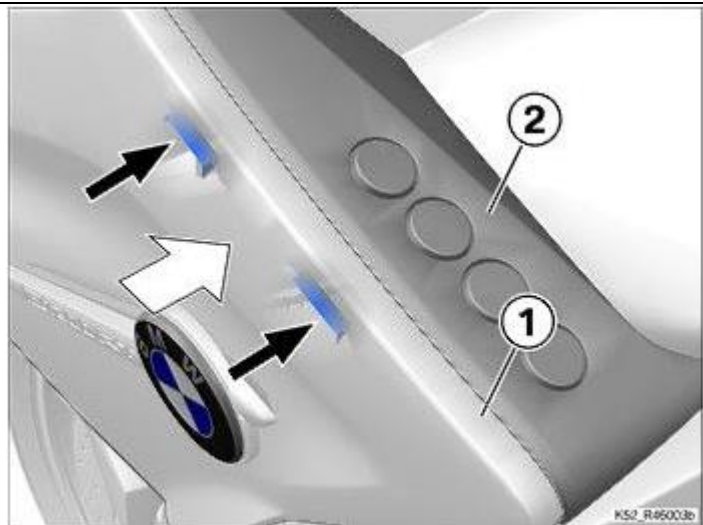
Remove left fairing side panel.



Note panel secures with rubber grommets (3).

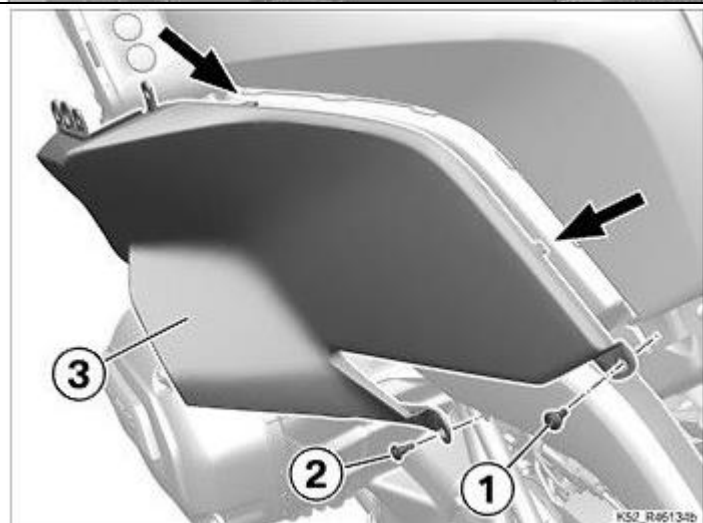


Note panel has tabs at rear beside blanked control panel – move up/back to disengage tabs before removing panel.



Remove left knee cover. Note tabs engaging fuel tank cover.

Note screw (1) is a long collar screw. Screw (2) is a short collar screw.



Note screws (1) in this illustration are short collar screws.

