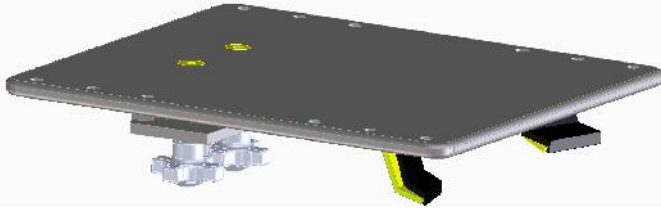


BMW Luggage Rack Mount (LRM) System Owner's Manual

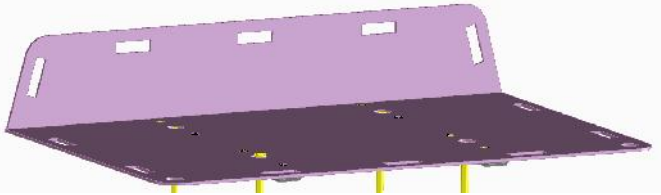
Congratulations on your purchase of the LRM System. When properly mounted, used, and maintained this product will provide you with years of service.

The LRM System consists of up to three components :

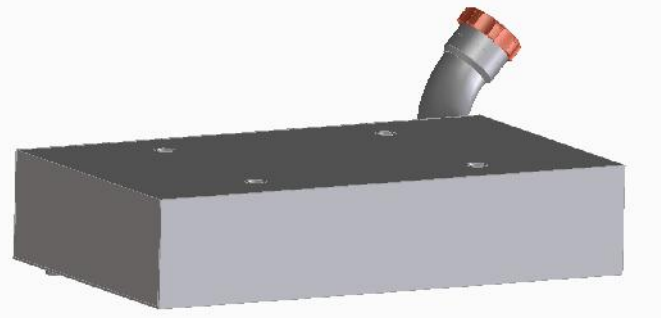
- The LRM Mounting Plate is the basic component of the system and is always required. The LRM mounting plate provides a platform to be used for mounting accessories.



- The LRM Luggage Deck is a 24" x 14" platform with a 4" front riser with slots for strapping and holes for antenna mounting. This optional platform attaches to the LRM mounting plate.



- The LRM Auxiliary Tank is a nominal 4.5 gallon fuel tank. This optional tank may be attached to the LRM mounting plate or sandwiched between the mounting plate and the luggage deck.



This document is organized according to these components.

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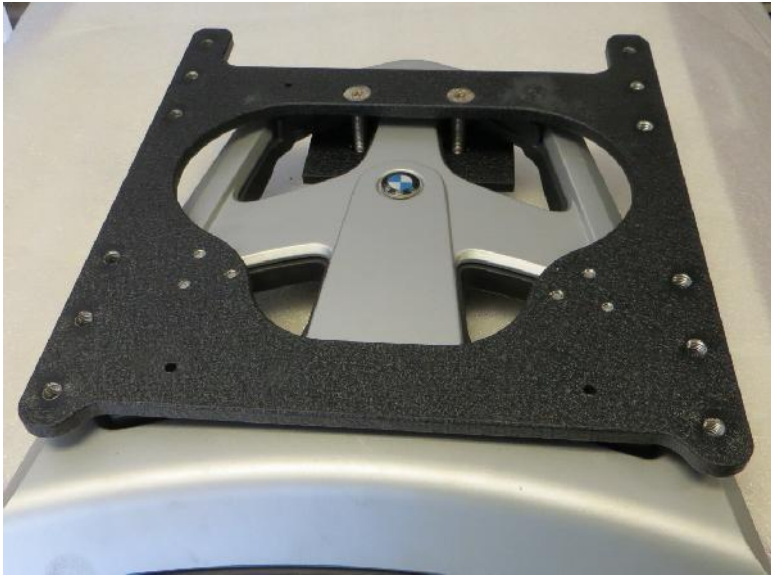
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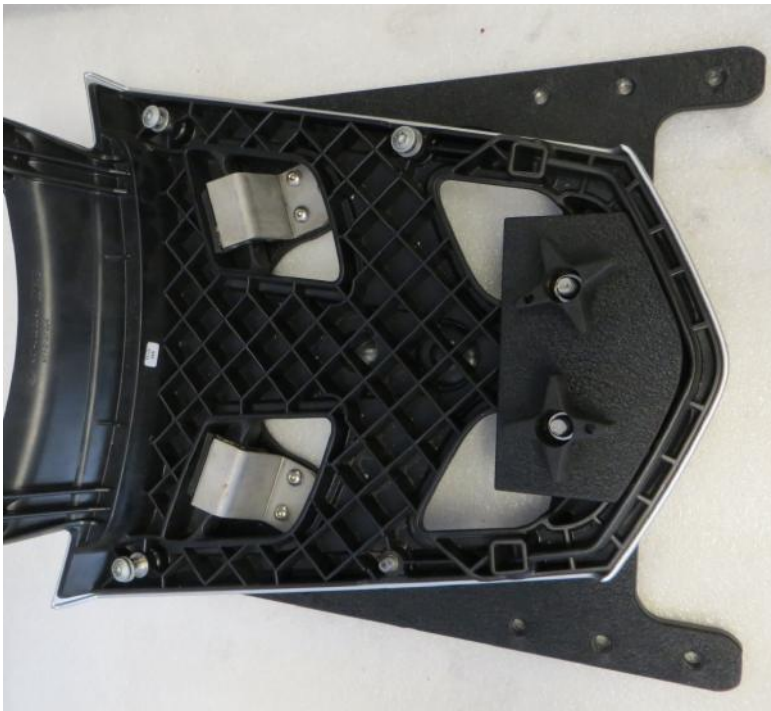
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LRM Mounting Plate

This plate is mounted to the lattice style luggage rack in the same manner as the stock BMW top case.



There are stainless steel tabs that engage the forward part of the luggage rack. The rear of the plate has M8 studs which extend through the luggage rack. The plate is locked in place by a clamping plate affixed over the M8 studs.



LRM Mounting Plate Specifications

The mounting plate is constructed of 5/16" thick corrosion resistant aluminum alloy, The outside dimensions are 12" front to back and nominally 11" left to right.

The mounting plate may or may not have material reduction cutouts.

Mounting hardware is stainless steel. Stock BMW rubber bumpers and pads are employed. These rubber elements are glued in place.

Items included with mounting plate:

- Mounting plate with the following attached:
 - 2 SS mounting tabs
 - 6 M5 SS button head socket screws
 - 6 M5 SS split lock washers
 - 4 rubber bumpers glued to the plate
 - 2 rubber rests glued to the mounting tabs
 - 2 each M8 SS flat head socket screws used as rear mounting studs
- Rear Mount Hardware consisting of:
 - Locking plate
 - 4 each M8 SS hex nuts
 - 2 each plastic thumb nuts
 - 1 each zip tie

LRM Mounting Plate Installation

The following tools may be required depending on how you secure the locking plate:

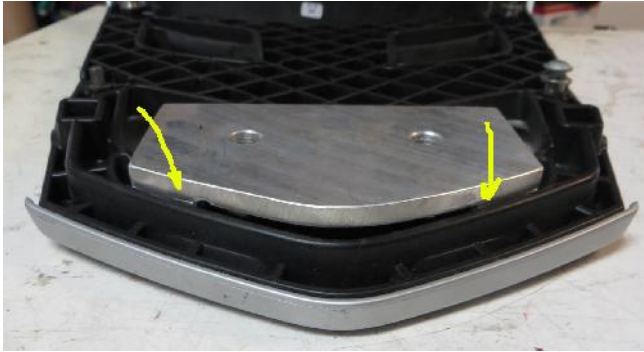
- 14 mm end wrench
- Side cutters
- Needle nose pliers

Step 1 Place the motorcycle on the center stand.

Step 2 If a top case is installed, remove it.

Step 3 Place the LRM plate on the luggage rack. You will need to angle it somewhat to get the tabs to engage the front of the rack. Press it into position being careful to not let the M8 studs mar or scratch the rack.

Step 4 From the underside, place the locking plate over the M8 studs and check that the tabs slide inside the recess on the luggage rack (see illustration). You may need to push the plate with some force to get the forward rubber rests tightly onto the rack. It is designed to be snug.



Note: On the K1600 the taillight extends further to the rear than on other models. This may make it difficult or perhaps impossible to use the plastic thumb nuts.

Step 5 Raise the rear of the plate slightly to get clearance to start the thumb nuts. If the thumbnuts will not clear the taillight then remove the M8 Hex nuts from the plastic thumbnuts.

Step 6 Tighten the thumbnuts (or nuts) alternately until they are snug. **DO NOT OVERTIGHTEN.** Tension on the clamping plate is compressing the rubber bumpers. You want this plate to be snug enough to prevent movement but not so tight as to mash out the rubber bumpers.

Step 7 Secure the thumbnuts with the zip tie provided to prevent them from working loose. If you did not use the plastic thumb nut, place an M8 hex nut on each stud and tighten them up against the existing nut. Use two wrenches and hold the first nut in place while you tighten the second nut against it. This is a 'jam nut' locking mechanism that will prevent these nuts from working loose.

This completes the installation of the LRM base plate.

Removal/Replacement

You do not need to remove any mounted equipment to remove and replace the mounting plate.

Removal of the mounting plate is the reverse of the installation method. Be aware that the rubber bumpers and rests are glued in place and may have come loose. Be sure to check that these are still in place so you don't have to purchase replacements.

Reinstallation is the same as installation.

LRM Mounting Plate Maintenance

Periodic

There is very little that can go wrong with this plate but does have some items you need to check.

Every 5,000 miles or weekly, whichever occurs first:

- Inspect the LRM Mounting Plate for visible signs of damage or looseness.
- Give it a good tug/shake to make sure it is tight.
- Inspect the clamping plate nuts to ensure they are tight and snug.
- Try to raise the front of the plate to see if the stainless steel latching tabs are loose.

If the LRM mounting plate is removed check the rubber pads and rests to ensure the glue is still intact. These rubber elements cannot escape when the LRM plate is properly installed. It is only during removal and replacement that they need to be held in place. Should these need to be reglued any good contact cement will work.

Adjustments

The front latching tabs may become loose. First, remove the mounting plate and verify that the M5 bolts holding the latching tabs are tight and secure. If not, tighten these.

If the hardware is secure then the latching tabs have become loose due to severe road conditions and/or compression of the rubber rests. Looseness for these reasons is not a problem but may be irritating.

Step 1 To tighten them you will need to have a C-clamp large enough to reach over the plate to the tab. Place some kind of a backing shield on the top side of the plate to prevent marring or damaging the paint.

Step 2 Gently tighten the clamp to squeeze the tab closer to the plate.

Note: Be CAREFUL! A little movement can make a big difference. The amount this need to move is imperceptible to the human eye and requires vernier or dial calipers to measure.

Step 3 Reinstall the plate to see if you made it tighter.

Step 4 Repeat as needed.

If you get them too tight (clamping plate will not go into position) you will need to have a large crescent wrench or some pry bar/lever mechanism to try to unbend the tabs. Worst case is that you would need to remove them and use a bench vise to straighten them out.

LRM Luggage Deck (Optional)

Luggage Deck Specifications

The luggage deck is constructed of 1/8" thick corrosion resistant aluminum alloy. The outside dimensions are 14" front to back and 24" left to right. There is a 4" riser at the front of the luggage deck to provide rigidity and to aid in retaining the load.

The luggage deck has slots for strapping and tie downs. It also has holes at each rear corner to allow for antenna mounting.

The luggage deck is mounted on 1" x 1/2" rails using M4 stainless steel flat head socket screws. These screws provide ample longitudinal security but may not handle the vertical forces which may be encountered if you have a heavy load attached and traverse a rough road. To aid in the vertical forces we glued the rails to the deck using an RTV sealing compound. This will provide sufficient adhesion but will not make a bond that can't be removed. It is highly unlikely that you would ever need to remove these rails.

These rails perform two functions: they strengthen the deck and raise it above the mount. By raising it we have allowed you to use bolts to secure your own accessories.

Items included with Luggage Deck:

- Luggage deck and attaching hardware consisting of:
 - 2 each 1" x 1/2" mounting rails
 - 8 each M4 x 10 SS flat head socket screws
 - Rubber anti-vibration pads on mounting rails
 - 4 each M8 SS short socket head cap screws (used to secure deck to mounting plate with no auxiliary tank)
 - 4 each M8 SS flat washers

Luggage Deck Installation

The deck is secured to the mounting plate using M8 socket head cap screws (short without auxiliary tank, long with auxiliary tank)

Step 1 Locate the following hardware:

- 4 each M8 SS hex socket screws
- 4 each M8 SS flat washers

Step 2 Position the deck over the LRM plate in close alignment to the desired mounting holes.

Step 3 Place a flat washer on each M8 screw and drop them into the mounting hole recesses.

Step 4 Once all screws have been started tighten them. **DO NOT OVERTIGHTEN** you are compressing the anti-vibration pads and do not want to squeeze them out.

Removal/Replacement

Reinstallation is the same as installation.

Luggage Deck Maintenance

The only item for wear or replacement would be the anti-vibration pads.

Should you ever need to remove the mounting rails from the luggage deck you will need to separate the bonding. After you have removed all screws start at one corner and use a screwdriver to pry an opening between the deck and rail. You may need to use a utility knife blade or razor blade to help separate the RTV sealant.

Periodic

There is very little that can go wrong with this deck but does have some items you need to check.

Every 5,000 miles or weekly, whichever occurs first:

- Inspect the deck for visible signs of damage or looseness.
- Make sure the flat head screws are not working loose.

LRM Auxiliary Tank (Optional)

LRM Auxiliary Tank Specifications

This tank is constructed of .100" thick 5052 marine grade aluminum alloy. It is equipped with a longitudinal baffle in accordance with Iron Butt Association® requirements. The drain bung has internal ¼" female National Pipe Threads, the vent bung has internal 1/8" female National Pipe Threads. This allows you to use readily available plumbing supplies.

It has been pressure tested at 4 PSI over a period of not less than 12 hours with no drop in pressure.

There are two sizes:

- R1200RT Tank Size = 4.8 gallon
- K1600GTL Tank Size = 4.45 gallon

The target is to stay just below the 11.5 gallon limit of the Iron Butt Rally®. This auxiliary tank will pass any current technical inspection requirements in the IBA, MERA, Team Strange, or other long distance riding associations.

Items included with Tank:

- Auxiliary Tank
- Non-Vented filler cap with brass lanyard
- 1/8" MNPT x 1/4" hose barb elbow attached to filler neck for vent
- Mounting hardware consisting of:
 - 4 each M8 x 140 SS socket head socket screws
 - 4 each M8 SS flat washers
 - 4 each spacer tubes
 - Anti-vibration pads already affixed to the base of the tank
- Shut Off Valve Assembly
 - a customized 45 degree ¼" NPT elbow with male ground lug
 - a chrome plated brass ¼" NPT full flow shut off valve
 - 1 each ¼" Straight Barb Fitting attached to shut off valve
 - approximately 18" of bonding wire with female ground socket
- Plumbing Supplies
 - 6 feet ¼" fuel line
 - 4 feet ¼" Clear Vinyl Vent Line
 - 2 each SS Hose Clamps



The shut off valve assembly has been assembled but not attached to the tank. Additionally, the tank bung has PTFE paste sealant pre-applied.

Note: In actual laboratory testing, paste sealants have shown better results than PTFE tape in sealing threaded pipe connections at fluid temperatures up to 250°F (120°C) so PTFE tape is not recommended for our application.

How tight to make this joint is a difficult question. Keep in mind you are mating a brass fitting into an aluminum bung. The aluminum is very soft and it is easy to cross-thread it or strip out the threads. So this leads us to a technical answer: somewhere between nudge tight and a grunt tight.

The goal here is to make it tight enough to not leak but not so tight things go awry. This really becomes a "tighten until it just feels right" type of answer and that comes with experience. In our experience this does not need to be excessively tight. In general, you want to aim for 2 or 3 full turns after hand tight. If it still feels loose, complete another full turn.

Carefully align this assembly with the ¼" NPT bung in the tank and tighten.

The alignment of the valve should be approximately 45 degrees towards the front and center of the tank.

Auxiliary Tank Installation

The auxiliary tank mounting is designed to be simple. There are two methods depending on whether you have the optional luggage deck or not.

Procedure With Luggage Deck

- Step 1** Position the tank over the LRM plate in close alignment to the desired mounting holes.
- Step 2** Place a spacer tube in each hole through the tank.
- Step 3** Position the deck over the tank in close alignment to the mounting holes.
- Step 4** Place a flat washer on each M8 screw and drop them into the mounting hole recesses.
- Step 5** Once all screws have been started tighten them to 25NM.

Procedure Without Luggage Deck

The following additional hardware is included if no deck is being used:

- 4 each rubber O-ring spacers
- 4 each M8 fender washers

- Step 1** Position the tank over the LRM plate in close alignment to the desired mounting holes.
- Step 2** Place a spacer tube in each hole through the tank.
- Step 3** Place a fender washer and an O-ring spacer on each M8 bolt and drop them into the mounting hole recesses.
- Step 4** Once all screws have been started tighten them to 25NM.

Auxiliary Tank Maintenance

There are only two removable components with the auxiliary tank, the shut off valve and the filler cap. It is unlikely that either of these would require replacement.

Removal and replacement of the shut off valve assembly is the reverse of the installation procedure in Fuel Shut Off Valve Attachment on page 10.

The filler cap is connected to the auxiliary tank with a brass chain to prevent loss. This chain has a twist of copper wire and is inserted into the tank. It can be removed with a steady pull which will straighten the wire. To reinstall, bend loops in the wire (as shown) and push the wire back into the tank. Make sure the ends of the wire are completely in the tank to prevent filler cap loss.



Periodic Maintenance

Before every ride inspect the auxiliary tank for visible signs of damage or leakage.

Every 5,000 miles or weekly, whichever occurs first:

- Inspect the auxiliary tank mounts to ensure they are tight and snug.
- Inspect the lanyard on the filler cap to make sure the wire is securely in the tank.
- Inspect the tank for any signs of leakage.
- Inspect the shut off valve and fittings for any signs of leakage.

Every 12,000 miles or annually, whichever occurs first:

- Remove the tank and inspect all components, fittings, and mounting points for visible signs of wear, fretting, deterioration, and/or leakage.

Final Auxiliary Tank Installation

Fuel Hose Routing

A clearance channel must be cut in the side panel to allow for the hose to be routed under the seat without pinching it. Using a utility knife, Dremel Tool, or rotary file/grinder; cut an angled groove in the side panel as shown in the following image.



Note: It is a good idea to check that you have enough clearance by installing the seat and making sure the hose can slide freely through the slot you have cut.

Fuel Hose Attachment



- Step 1** Place a hose clamp on the hose.
- Step 2** Put the hose over the barb on the shut off valve
- Step 3** Tighten the hose clamp.
- Step 4** Route the hose through the channel you have cut.

Connect the other end of the hose to any optional plumbing equipment you may have such as a quick connect or hose union.

Bonding (ground) Wire Installation

Due to the shock mounting of the tank it is insulated from the bike frame. This creates the potential for a static electricity charge to build up and create a fire/explosion hazard.

Using the supplied ground wire attach it to the lug on the shut off valve and route it alongside the fuel hose.

Locate a point on the frame that is grounded. Use of an ohmmeter or continuity tester is required.

Attach the wire to this point.

Verify that the tank is grounded to the frame of the motorcycle by checking continuity between an unpainted point on the filler neck and the negative terminal of the battery (or other known ground point).



Failure to provide a ground between the motorcycle frame and the tank can result in serious injury or death should gasoline fumes be ignited by a static electricity spark.

Installing and Routing Vent Line

Step 1 Place a hose clamp on the clear vent line hose.

Step 2 Place the hose on the filler neck barb.

Step 3 Tighten the hose clamp.

Step 4 Route the vent line to the rear of the motorcycle.

Note: The vent line must be routed such that any overflow does NOT get on or near the hot exhaust or in the track of the rear wheel.

Step 5 Affix the hose such that it stays in position.

Note: If you leave the zip tie slightly loose you can remove the vent line without removing the zip tie.

Step 6 Trim the end of the vent line at a 30 to 45 degree angle to minimize the potential of negative pressure caused by air turbulence.

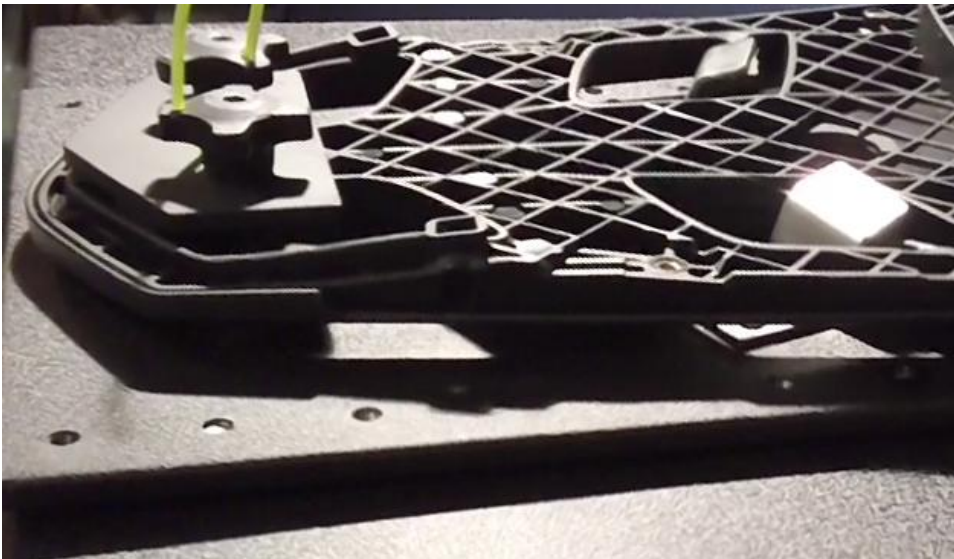


Affixing LRM Assembly to Bike

The LRM assembly is designed to allow for simple removal and replacement of the assembly. The front tabs slide into the luggage rack. You will need to angle the assembly to get it forward far enough to allow the retaining clamp bolts go through the rear openings of the rack.



Once in position place the clamping plate over the mounting studs on the rear and install the locking plate as described in LRM Mounting Plate Installation on page 6.



LRM Assembly Removal/Replacement

The entire LRM Assembly may be removed without disassembly.

Step 1 Remove the seat to gain access to the fuel line.

Step 2 Disconnect the fuel line at the quick connect or union.

Step 3 Unplug the bonding wire from the shut off valve lug.

Step 4 Loosen the vent line from it's retainers.

Step 5 Cut the zip tie on the clamping plate knobs.

Step 6 Remove the clamping plate.

Step 7 Raise the rear of the LRM assembly and pull backwards to disengage the forward mounting tabs.

Note: There are rubber rests glued to the forward mounting tabs and rubber pads glued to the LRM plate. This glue may have loosened. Make sure you don't lose any of these pads. Reference LRM Mounting Plate Maintenance on page 6.

Plumbing Supplies (Optional)

The following items are optional and may or may not be included in the package.

Optional Plumbing Kit

- Optional plumbing kit consisting of:
 - 1 each Bulkhead Fitting
 - 1 each Quick Coupler Nipple
 - 1 each Quick Coupler
 - 2 each ¼" El Barb Fitting
 - 2 each ¼" Straight Barb Fitting
 - 3 each SS Hose Clamps

