INSTALLATION INSTRUCTIONS FOR A REPLACEMENT TANK

THE LONG RANGER

THE BIG TANK FOR A BIG COUNTRY

MADE IN AUSTRALIA

New Defender 110 - L663

TR90D - 174lt Diesel 2020 – on

This tank replaces 90lt OEM saddle tank.

GENERAL NOTES

a) Fitting time is approximately 5 hours. No major vehicle modifications are required. This LONG RANGER tank locates under the vehicle in place of the standard tank.

b) New tank sits the same height as the underbody felt that fitted around the OEM tank. This underbody felts is removed and not refitted.

c) A hoist is not essential but will speed the job up significantly.

d) The original filler, fuel level sender unit, pick-up unit, are reused in this installation. Extreme care and cleanliness is recommended when handling fuel level sender and submerged fuel pump units. Inspect any components that are to be reused from the original tank installation for serviceability and replace any item found to be defective.

e) The original tank may have a hole cut in it to remove some components and cannot be reused.

f) LONG RANGER tanks are coated with a high-performance primer. For added protection, a topcoat may be added. If the vehicle has been rustproofed, it is suggested that the tank (and any changes made to the vehicle during fitting) be touched up after installation.

g) The trip meter distance to empty will no longer work as intended by the manufacturer, it is expected you could double the DTE reading with the new larger tank fitted.

Observe safety precautions during the installation of the LONG RANGER fuel tank

INSTALLATION KIT TR90D

QTY DESCRIPTION

- ❑ 1 LONG RANGER Tank #**TR90DA** (Smaller RHS 29KG)
- ❑ 1 LONG RANGER Tank #**TR90DB** (Larger LHS 31KG)
- ❑ 1 Plastic bag 900mm long
- ❑ 1 Clamp ring #**R63CR (pickup unit)**
- ❑ 1 Harness bracket #**TR90B1 (**Diesel exhaust harness**)**
- ❑ 1 Sender unit mount #**TR90SUM** (LHS tank)
- ❑ 1 Underbody felt mounting #**TR90B3 RHS**
- ❑ 1 Underbody felt mounting #**TR90B4 LHS**
- ❑ 1 O-Ring #**TR63ORING**
- ❑ 1 Plastic joiner quick release **#PLJOQC1916B**
- ❑ 8 Screws M5 x 10mm (LHS Sender unit mounting)
- ❑ 8 Screws M5 x 12mm (RHS pickup unit mounting)
- ❑ 11 Bolt, M6 x 20mm Long
- ❑ 1 M6 Nyloc nut
- ❑ 12 M6 x 19 Flat washer
- ❑ 10 Spring washer M6
- ❑ 12 M6x1.0 Speed Nut Extruded Short #**FAM6 SNEXSH** (Underbody felt mounting and mudflaps)
- ❑ 8 Bolt, M8 x 30mm Long, (tank mounting)
- ❑ 8 8x24 flat washers
- ❑ 8 M8 spring washers
- ❑ 4 Bolt, M10 x 30mm Long, (tank mounting)
- ❑ 2 Bolt, M10 x 20mm Long, (underbody felt mounting)
- ❑ 6 M10x30x2.5 flat washers
- ❑ 6 M10 spring washers
- ❑ 10 Cable tie 5mm x 200mm
- ❑ 2 Stickon cable tie pads (#56448)
- ❑ 4 Hose clamp MH6 (10mm & 13mm hose)
- ❑ 2 Hose clamp MH8 (16mm hose)
- ❑ 2 Hose clamp HS28 (38mm filler link hose)
- ❑ 1 Fuel hose 10mm x 950mm (External fuel transfer between tanks)
- ❑ 1 Fuel hose 10mm x 300mm (**SPECIAL IN TANK FUEL HOSE**)
- ❑ 1 Fuel hose 16mm x 300mm (OEM fast fill breather to elbow on LHS tank)
- ❑ 1 Fuel hose 38mm x 190mm (Filler link)
- ❑ 1 Sheathed wire twin-core 2mm x 600mm long (sender extension) AXC0799L 10amp
- ❑ 2 Terminal red male bullet connector
- ❑ 2 Terminal red female bullet connector
- ❑ 2 Terminal red straight connector
- ❑ 1 Fitting instructions
- ❑ 1 Warranty information sheet and return card
- ❑ 1 LONG RANGER sticker

INSTALLATION GUIDE

DANGER - WHILE WORKING WITH FLAMABLE LIQUID
AVOID FLAMES, SMOKING AND GRINDING SPARKS WITH FUEL PRESENT
BE PREPARED WITH SUITABLE FIRE FIGHTING EQUIPMENT ON HAND

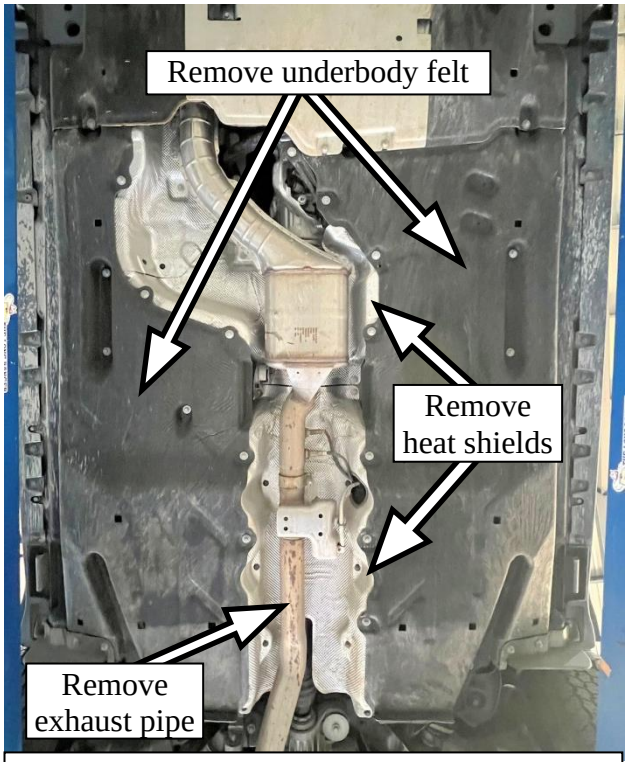


Photo 1: Underbody felt removal

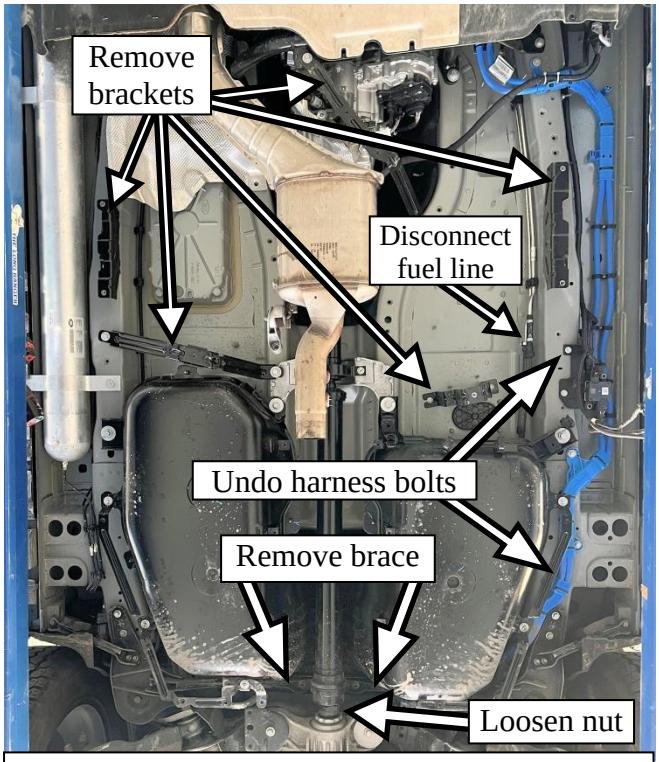


Photo 2: Tank area preparation

1. Take a few minutes to read through this installation guide before proceeding
2. Check that all items listed in the Long Ranger kit have been received, and that nothing has been damaged in transit
3. Although the Long Ranger tank has been cleaned and sealed at the factory, it is recommended that its interior be vacuumed again as an added precaution against blocked filters and/or fuel pump damage
4. If parts are missing or damaged, if foreign matter is found in the tank, or if any problems arise during installation, contact the factory office without delay for advice
   phone (02) 4953 3288, fax (02) 4953 1916 or email fitting@thelongranger.com.au
   Our web page also contains an FAQ , so some of your questions may already be answered
5. **As per Photo 1&2**: Remove the underbody felt and all its mounting brackets
6. Remove exhaust system from join after muffler back to rear of diff, will need to unplug 3 sensor cables
7. **As per Photo 1**: Remove heat shields and mounting brackets at rear of transfer case and retain for later use
8. **As per Photo 2:** Remove bolts from centre bearing and loosen large nut on rear diff to remove tail shaft, drop tail shaft from diff and centre bearing and remove from rear of transfer. *NOTE: complete removal of the tail shaft makes job a lot easier but not essential.*

9. **As per Photo 2:** Remove tubular brace from rear of tank. *Note: some models appear to have a spacer block that also requires temporary removal, ensure it goes back in the same configuration*
10. If fitted, some side steps may need temporary removal if they protrude underneath OEM tank
11. **As per Photo 2:** Disconnect fuel supply line on L/H chassis rail (plastic line)
12. Disconnect fuel filler at rear of tank
13. Support tank and remove eight tank mounting bolts
14. Lower tank 100mm, disconnect fast fill breather fitting and 2x electrical fittings
15. Remove tank. *Note: Weight distribution may be uneven depending on which side of the tank all the fuel is, if a half full tank you can expect it will all be in the RHS.*
16. **As per Photo 3:** Unclip plastic fuel line from OEM tank and refit to steel hard line on L/H rail, cable tie to adjacent line.
17. **As per Photo 3:** Remove the two bolts from blue and black cable harness and refit later.
18. **As per photo 3**: Cable tie 10mm x 900mm fuel line along cross member (TLR to TLR pick up and transfer) using stick on cable tie pads. *Note: have hose central to vehicle*
19. Remove pickup/sender unit from OEM tank, with unit partially removed, disconnect internal electrical connection and fuel line quick connect fitting connected to pick up. *Note: See how to squeeze quick connect in photo 7*
20. Cut 90 deg plastic quick connect fitting from fuel line inside of OEM tank and retain
21. **As per photo 4**: Remove OEM sender unit in left side of tank by unclipping plastic cradle and remove from tank. This is done by first squeezing the back of the quick connect to release from fitting, then push the tab indicated in and up to release from holder, twist and rotate with care to remove unit from tank.

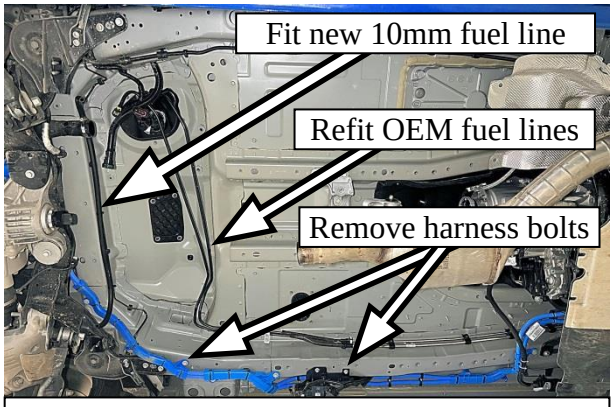


Photo 3: Tank area preparation

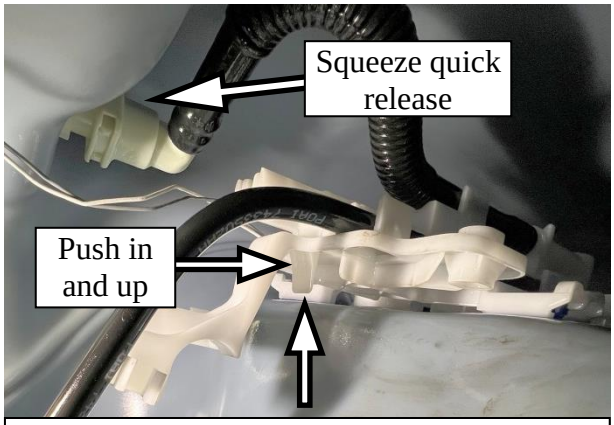


Photo 4: LHS sender unit removal


Photo 5: LHS sender unit

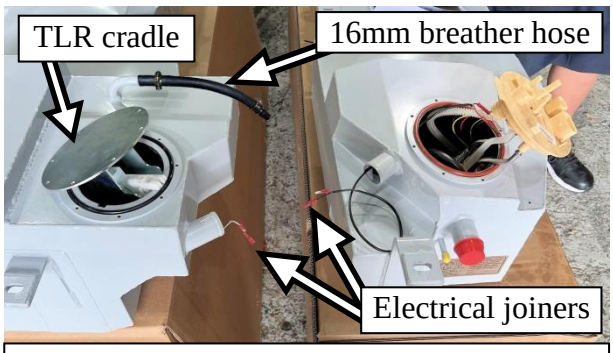


Photo 6: Tank preparation

22. **As per photo 6**: Mount sender unit into TLR cradle #TR90SUM and fit into TLR left tank using Supplied "O" ring and M5x10 screws. Orientate float as per photo and guide wiring out of tank via 38mm pipe on side of tank. *Note: Breather hose is discarded*

23. **As per photo 6**: Cut electrical plug from sender wiring protruding from 38mm fill pipe. *TIP: cut one at 60mm and the other at 40mm from the plug, crimp 1x male and 1x female bullet terminal to the wires, this ensures the connections are offset.*

24. Extend wiring on cut off plug with supplied twin core 600mm wiring and joiners, ensure OEM wires are correctly connected to corresponding colours, crimp male and female Bullet terminals to opposite end.

25. Plug electrical plug with extended wiring back into OEM pump/sender unit and cable tie to existing wires.

26. **As per photo 6&7**: Connect supplied 10mm x 300mm "in-tank" fuel hose to plastic click fitting previously removed in step 20. Connect other end of hose to 10mm steel pipe inside TLR right tank. (NOTE: THIS MUST BE *"IN TANK"* FUEL HOSE).

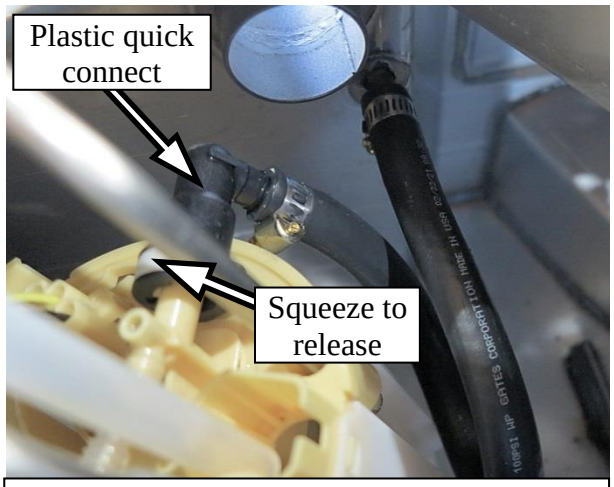


Photo 7: 10mm in tank fuel hose

27. **As per photo 6&7**: Using the OEM "O" ring, install pickup/sender unit into TLR right side tank whilst doing this plug the transfer hose with 90 deg quick connect fitting onto pick up unit and guide wires out of tank via 38mm fill pipe at left rear of tank. Use TLR TR63 clamp ring and M5 x 12mm screws. *Note: Ensure the sender unit wires do not foul on the sender unit float arm*
Note: Ensure hose is not kinked

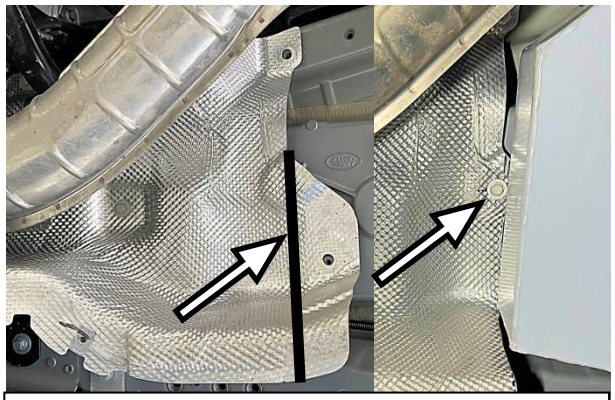


Photo 8: Trim heat shield

28. **As per diagram and photo 6**: Connect 16mm x 300 fast fill breather hose to fitting on TLR left tank and fit supplied plastic quick release fitting to other end of hose with clamp supplied

29. **As per bolt layout diagram:** Lift left TLR tank into place and support, secure tank using OEM and TLR fasteners, but leave the rear M10 bolt loose at this stage. Run exhaust sensor cable over tank while lifting. *Note: refit blue and black cable harness with OEM bolts previously removed,*

30. **As per diagram**: Reconnect 16mm fast fill breather with the quick connect fittings

31. Fit 38 x 190 filler hose to pipe at left rear of R/H tank, secure with clamp supplied and pull sender unit wires through hose

32. Lift R/H tank into place and support about 50mm down from final fitted location. Connect fuel pickup line and two electrical plugs to top of OEM pump/sender unit

33. **As per diagram**: Connect sender wiring between 2 TLR tanks whilst lifting R/H tank to final location. Connect 32mm hose to L/H tank and clamp. *Note: Any excess wire should be pushed into the LHS tank to avoid fouling the RHS sender unit float arm*
34. **As per bolt layout diagram:** Secure R/H tank using OEM and TLR hardware as per diagram, but leave the rear M10 bolt loose at this stage
35. Refit chassis brace at rear of tanks and ensure all fasteners including loosely fitted M10 bolts now tight
36. Connect previously fitted 10mm pickup line at rear of left and right TLR tanks. Secure with MH06 clamps supplied
37. Connect OEM filler hose to rear of R/H TLR tank
38. Refit tail shaft, and exhaust system, refit exhaust sensors.
39. **As per photo 9**: Fit harness bracket supplied to exhaust system and cable tie the harness in place
40. Check clearance all round
41. **As per photo 11**: Fit speed nuts to all mounting holes and fit under body felt brackets supplied. *Note: will need to remove one tank mounting bolt*
42. **As per photo 10&13**: Trim & Refit the underbody felt with M6 bolts and washers provided. Measure in 180mm from profile indicated and trim, check fitment against tank. *Note: Ensure mudflaps have all fasteners refitted and sit square, we have supplied two extra speed nuts for the mudflaps if required. New holes will need to be made through felt to mount to brackets*

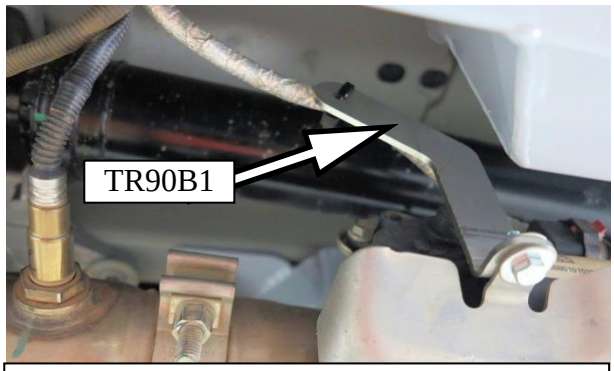


Photo 9: Harness bracket

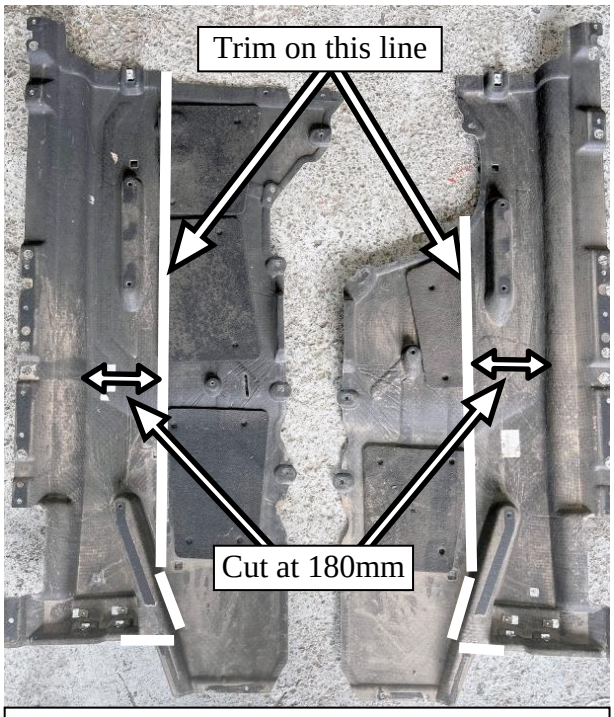


Photo 10: Trim underbody felt

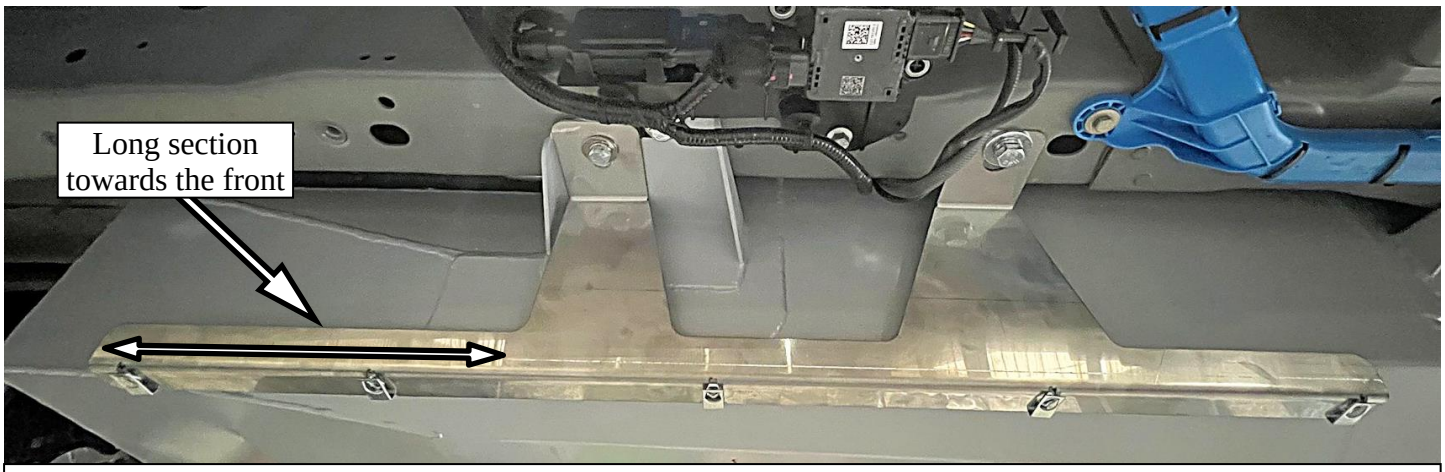


Photo 11: Under body felt bracket – LHS shown

43. Transfer the fuel removed earlier to the new Long Ranger tank.
44. We suggest that the tank is filled with a test load of fuel, test drive vehicle and inspect all fittings for leaks (not included in the quoted price).
45. Visually check the job over, make sure all bolts and clamps are fastened correctly, ensure all fuel hoses and electrical wiring will not chafe on nearby components and moving suspension, detail the area involved in the work before returning the vehicle to its owner.

Photo 13: Final fitment

Explain to the owner the operation of the LONG RANGER TANK.

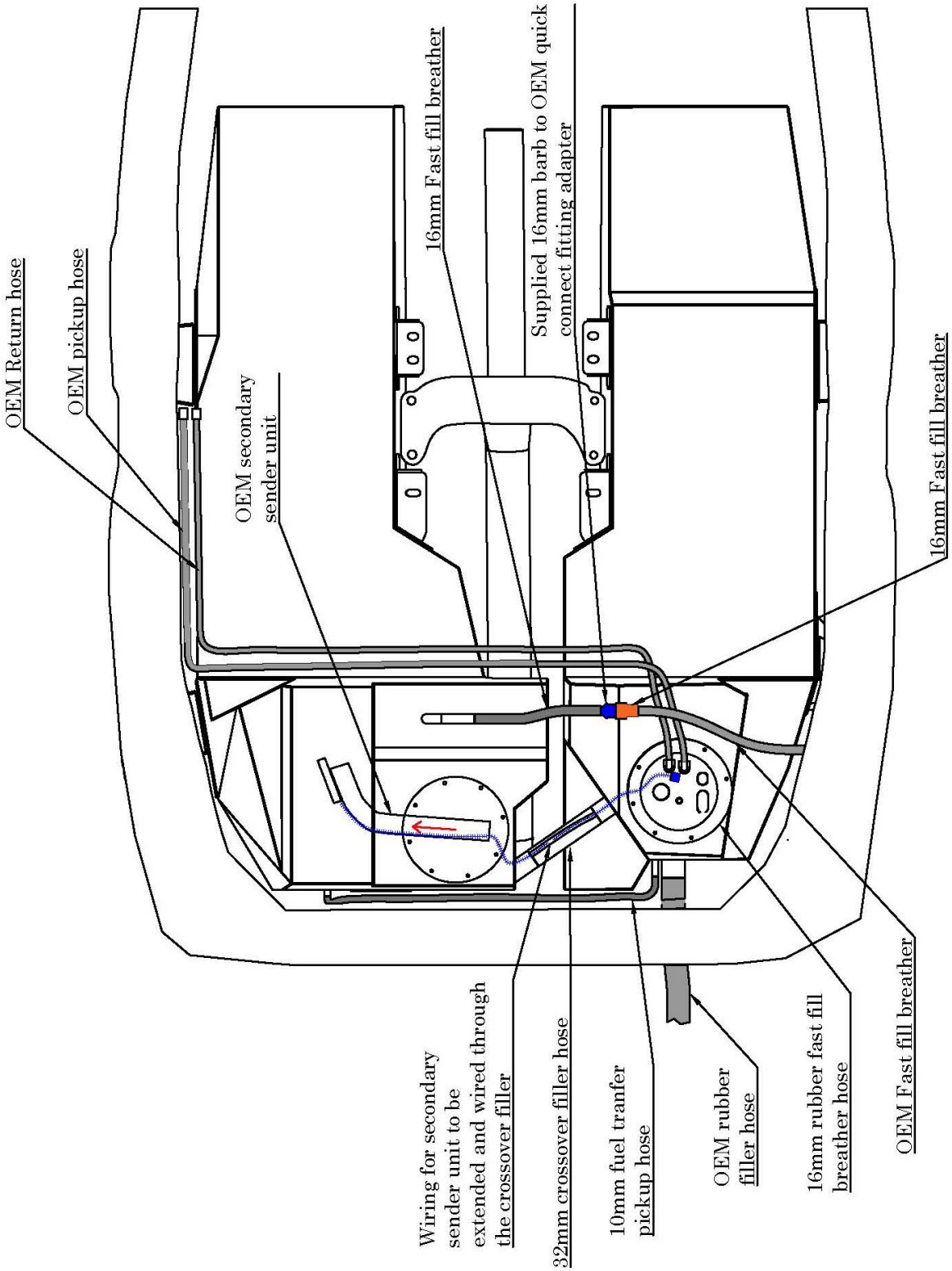
a) The LONG RANGER tank will fill in a similar fashion to the tank it replaces, but the operator has the option of carrying a substantially larger quantity of fuel.
b) Due to the different shape of the LONG RANGER tank, the gauge will measure a larger quantity of fuel and will remain on *FULL* for a longer distance before slowly moving to *EMPTY*. The top half of the new tank is bigger than the bottom half.
c) The **trip computer** with distance (driving range) to empty will no longer accurately show the distance left to travel. The computer still thinks the tank only has the OEM capacity and will not give a larger range reading with the new tank installed. It is suggested that the readings be cautiously interpreted along with the gauge until familiar with the new readings. As a rough guide the DTE will be approximately 100% greater with this new 174lt tank installed.
d) The Owner's manual states the low fuel light is activated with approximately 11lt in OEM tank, this figure is now approximately doubled with the longranger tank fitted.
e) The quoted capacity of the LONG RANGER tank was determined by a bench test. The actual operating capacity may vary slightly from vehicle to vehicle.
f) The LONG RANGER tank is a premium quality accessory that will provide many years of satisfactory service provided that the Care and Maintenance items listed below are taken care of each time the vehicle is serviced.

Hand these instructions, together with the Warranty Registration card and warranty information, to the owner. Neatly apply the LONG RANGER sticker to the rear bumper or window.

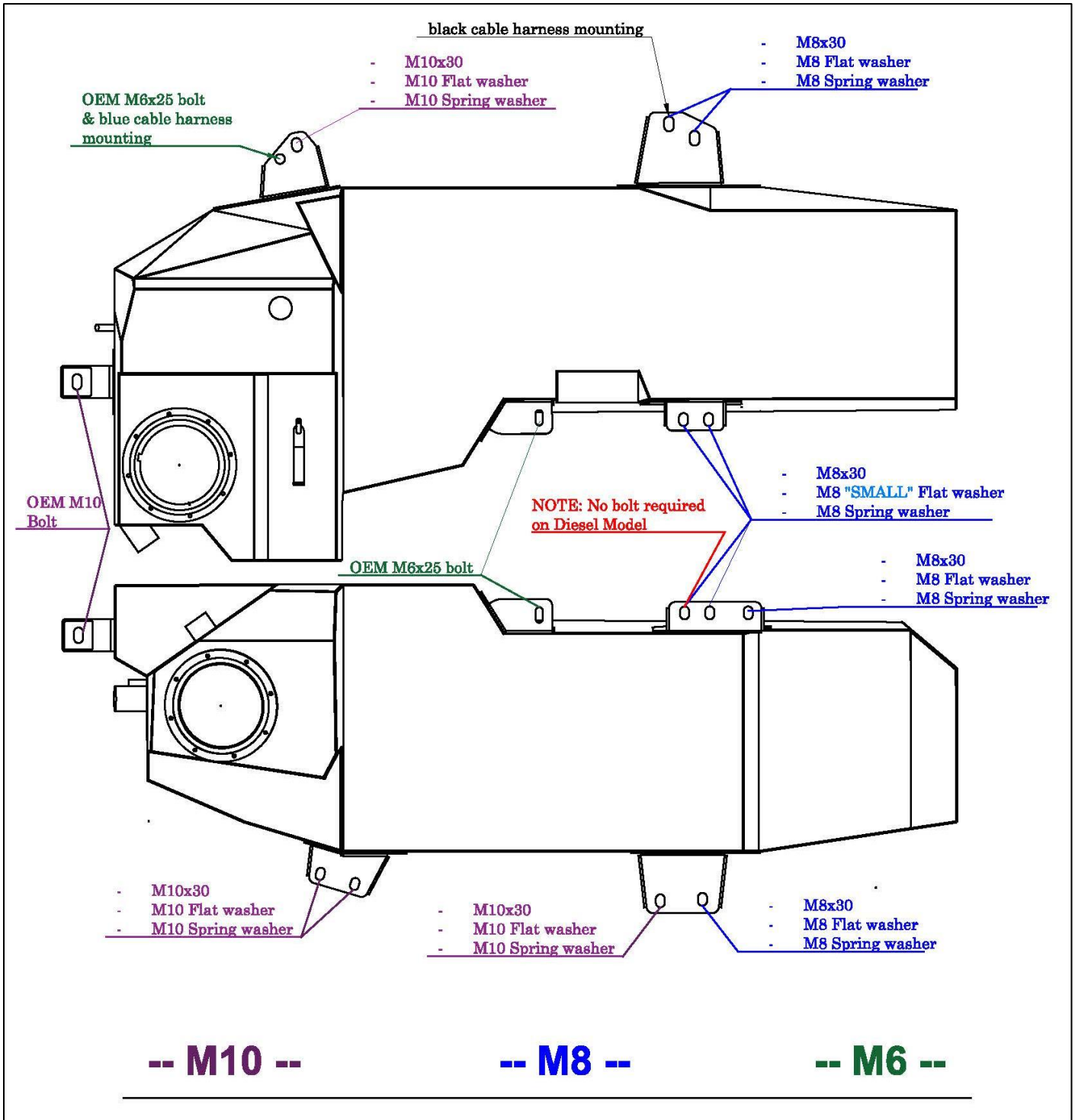
CARE AND MAINTENANCE

1. After the first 1,000 kilometers, clean or replace the fuel filter, check that there is no rubbing or chafing of the tank, fuel hoses or associated components.

2. At each of the vehicle manufacturer's recommended services, check all fastenings for the correct tension, that rust preventative has been correctly applied where applicable, release the tank drain plug and confirm that there is no water present, and replace the fuel filter according to manufacturer's recommendations.



PLUMBING & WIRING DIAGRAM



Bolt layout guide