



**Brown Davis Automotive Pty. Ltd.**

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**TL200A1**

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Last edited: 31/07/2014

## **Fuel Tank Part List and Installation Instructions**

**TANK P/N: TL200A1**

LANDCRUISER 200 SERIES  
AUXILIARY PETROL TANK

| Item | Description   | Quantity | Part number | P | C |
|------|---|----------|-------------|---|---|
| 1    | TANK - AUXILIARY                                    | 1        | TL200A1     |   |   |
| 2    | HOSE – FUEL AND EMISSION - 8mm                      | 2.0m     |             |   |   |
| 3    | HOSE – TMP - 12.5mm                                 | 0.7m     |             |   |   |
| 4    | HOSE – FILLER – 35mm                                | 100mm    |             |   |   |
| 5    | HOSE – FILLER – 44mm                                | 140mm    |             |   |   |
| 6    | HOSE – FILLER – 44mm                                | 120mm    |             |   |   |
| 7    | HOSE CLAMP – STAINLESS – 8-16mm                     | 6        |             |   |   |
| 8    | HOSE CLAMP – STAINLESS – 12-20mm                    | 4        |             |   |   |
| 9    | HOSE CLAMP – STAINLESS – 32-50mm                    | 4        |             |   |   |
| 10   | HOSE CLAMP – STAINLESS – 40-60mm                    | 2        |             |   |   |
| 11   | DRAIN PLUG – MAGNETIC – M14 (fitted to tank)        | 1        | DP-M14      |   |   |
| 12   | FUEL PICK UP - 5/16" x 1/4 BSP ELBOW                | 1        |             |   |   |
| 13   | BRASS – TAIL BARB - 1/2" x 1/4 BSP                  | 1        |             |   |   |
| 14   | WIRE – TWIN CORE – 3.0mm – RED/BLACK                | 7.0m     |             |   |   |
| 15   | CRIMP FITTING – SPADE FEMALE 1/4" - RED             | 7        |             |   |   |
| 16   | CRIMP FITTING – SPADE FEMALE 3/16" - RED            | 2        |             |   |   |
| 17   | CRIMP FITTING – RING 5mm – RED                      | 2        |             |   |   |
| 18   | CRIMP FITTING – RING (LARGE) – BLUE                 | 1        |             |   |   |
| 19   | SWITCH – ROCKER - ON/OFF RED PILOT                  | 1        |             |   |   |
| 20   | SET SCREW – HEX – M10 x 30mm – ON WIRE – PLATED 8.8 | 8        |             |   |   |
| 21   | SET SCREW – HEX – M10 x 30mm – PLATED 8.8           | 2        |             |   |   |
| 22   | NUT – STANDARD PLATED – M10                         | 20       |             |   |   |
| 23   | WASHER – PANEL PLATED – M10                         | 2        |             |   |   |
| 24   | WASHER – SHAKEPROOF INTERNAL PLATED – M10           | 10       |             |   |   |
| 25   | WASHER – FLAT PLATED – M10                          | 10       |             |   |   |
| 26   | SET SCREW – HEX – M6 x 30mm – PLATED 8.8            | 1        |             |   |   |
| 27   | NUT – STANDARD PLATED – M6                          | 2        |             |   |   |
| 28   | WASHER – FLAT PLATED – M6                           | 2        |             |   |   |

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|    |   |   |            |  |  |
|----|---|---|------------|--|--|
| 29 | SET SCREW – HEX – M8 x 25mm – PLATED 8.8              | 1 |            |  |  |
| 30 | NUT – STANDARD PLATED – M8                            | 1 |            |  |  |
| 31 | WASHER – FLAT PLATED – M8                             | 2 |            |  |  |
| 32 | CABLE TIE - 8" BLACK                                  | 1 |            |  |  |
| 33 | SENDER UNIT - VDO 220-004 (fitted to tank)            | 1 |            |  |  |
| 34 | FUEL PUMP – POSI FLO                                  | 1 |            |  |  |
| 35 | FUEL FILTER – INLINE – 8mm                            | 1 |            |  |  |
| 36 | FUEL GAUGE – CP90 LED DASH UNIT                       | 1 |            |  |  |
| 37 | TANK BRACKET - REAR BRACKET – 3 HOLE                  | 2 | TB-200A1-b |  |  |
| 38 | TANK BRACKET - FILLER SPACER BRACKET                  | 1 | TB-200A1-a |  |  |
| 39 | FILLER TUBE   | 1 | FT-TL200A1 |  |  |
| 40 | TWIN FILLER ( <i>with fuel cap thread installed</i> ) | 1 | TF-TL200A1 |  |  |
| 41 | WARRANTY CARD & INFORMATION SHEET                     | 1 |            |  |  |
| 42 | BROWN DAVIS AUTOMOTIVE STICKER                        | 1 |            |  |  |

Packed by (P): \_\_\_\_\_

Checked by (C): \_\_\_\_\_

Date Packed: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

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All Brown Davis Automotive fuel tank kits are manufactured to Australian Standards and the Australian Design Rules where applicable and carry a full **3 Year Warranty**. Construction in 2.0 mm (14 gauge) cold rolled, aluminium coated, steel ensures maximum strength and durability and minimum corrosion susceptibility. This gauge of steel is sufficiently impact resistant that an additional tank guard is not necessary (most standard tank guards are thinner than 1.5 mm).

All tanks are M.I.G. (Metal Inert Gas) welded to assure the strongest possible seams and are baffled to prevent fuel surge. They are then pressure tested using two different techniques to eliminate the possibility of leaks. Drain plugs are fitted horizontally to prevent them being damaged if the tank is scraped over rocks and are magnetic to collect any metallic dirt that may enter your fuel system.

In all cases, Brown Davis Automotive fuel tanks are designed with severe off road use in mind and will not compromise ground clearance, entry, exit or ramp over angles.

**AUXILIARY TANKS** Are designed to be installed in addition to the original factory fuel tank, with its own fuel gauge. An electrical changeover system simultaneously changes the source of fuel from the original (main) tank to the auxiliary tank (or vice versa), the vehicles fuel gauge is simultaneously changed over to indicate the level in the tank from which the fuel is being drawn.

1. Begin by removing the spare wheel from under the rear of the vehicle. Also remove the rear section of the exhaust by undoing the single bolt flange in front of the diff (the bolt to undo is on top of the bracket not the visible nut!) and unhooking rubber hangers.





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2. The spare wheel frame between the chassis needs to be removed. Using a 12mm socket/spanner, undo the two bolts on the upper side of both the LHS and RHS of the bracket. Proceed to undo the central bolt of the bracket using a small 12mm spanner. Once undone, remove this main section of the frame from the vehicle.



3. Proceed to undo the two brackets left on each chassis rail. Remove all 6 bolts using a 12mm socket/spanner.



4. The filler neck needs to be unhooked under the car. For the breather line, slide the blue clip out and pull the hose off, for the main filler line undo the hose clamp and remove hose.



- 5 The inner guard lining drivers side rear wheel arch needs to be removed to gain access to the filler neck. Using an allen key, undo and remove the liner, retaining the screws.



- 6 With the guard liner removed, using a 12mm socket/spanner undo the filler neck mount bracket bolt. Furthermore, underneath the car there is another mount bolt that needs to be undone to allow removal of the entire filler tube.





7. With the filler tube out of the car, it needs to be trimmed as shown.
- filler tube - cut 185mm from filler neck flange
  - breather tube - cut 130mm from start of bend radius



8. Once trimmed, the filler tube and breather tube need to be filed smooth at the cut points, and the tube can be put back into the vehicle only finger tight to allow for movement when installing the new filler neck. Where the filler neck used to mount to the inner wheel arch, the black dual angle bracket supplied needs to be fitted here to space the filler out further and fastened using the factory nut on the wheel arch mount and the supplied M8 bolt, M8 nyloc nut and M8 washer to fasten the filler tube to the bracket as shown.



9. The supplied dual filler neck can now be installed. As indicated in the pictures below, the circular cutout in the filler neck needs to be pointing towards the ground to be at the correct orientation (angle can be adjusted slightly to suit). Once in place, join the filler neck to the factory filler tube as shown with the supplied rubber joiner and hose clamps.



- 10 Proceed to fit the filler neck breather line with the hose and clamps provided between the factory filler tube breather and the new filler neck as pictured.



11. The fuel filler line for the transfer pump now needs to be fitted to the second (lower and rear pointing) outlet on the new filler neck. Fix in place with the hose clamp provided, and route the hose along the filler tube down to under the vehicle as shown.



12. Taking the supplied transfer pump, prepare the pump and pump mount to be installed on the filler tube mounting bracket. Using a 6mm drill bit, drill the space on the filler neck join to allow the transfer pump mount bracket to be mounted through this. The hose from the dual filler neck fitted earlier can also be connected up to the outlet of the transfer pump as shown, and cable tied into place neatly along the filler tube and fastened using the hose clamps provided.

*(Note: the location and orientation of the pump, pictured below.)*



13. Wiring for the transfer pump and gauge now needs to be run from the engine bay. Route some dual wire down the driver's side of the car. One of the wires needs to run power to the transfer pump, and the other wire will be used as the signal wire for the fuel gauge sender unit. Trim and strip one wire and fit a crimp on fitting to fit to the positive terminal on the transfer pump. A second piece of wire is needed with crimp on fittings on both ends to mount one end to the ground terminal on the transfer pump, and the other end to the body between the filler tube and the chassis as shown. Once the ground wire is mounted, tighten the filler tube bolt completely, along with the filler tube bracket bolts in the driver's side rear guard.





14. The second of the wires can be left at full length and routed to where the centre of the tank will be when in position (will be trimmed when the tank is being fitted).



15. The main mounting brackets for the tank as supplied mount off the factory holes in the rear of the chassis rail. These three holes on either side of the vehicle need to be drilled out from the factory size to a 10mm size hole.



16. The tank can now be lifted up and supported under the car. Trim the wire to connect to the gauge sender unit terminal to length and fit the spade terminal supplied, then connect it to the sender unit as it cannot be done once the tank is in place. The tank pick up hose and hose clamp supplied also needs to be connected for the same reason. Route this fuel hose over the diff/chassis to allow connection to the transfer pump later.



17. The front tank brackets also need to be drilled through the chassis cross member. With the tank pushed up and the side rear brackets in place beneath the tank mounts, take a drill with 10mm drill bit and through the cross member using the already drilled tank bracket as a guide. Once drilled, another two M10 screws welded to wire need to be fed through the cross member into position for both mounts and again retained by M10 nuts, M10 flat washers and M10 star washers. Leave these bolts only finger tight.





18. The spare wheel frame is to be re-installed next. However a minor modification now needs to be made to the centre of the mount as shown. With a hacksaw, make cuts approximately 25mm apart as shown and fold this over with a hammer. This will allow clearance in order to bolt the frame brackets back in.

The brackets that hold the frame to the chassis rail need to be bolted to the frame first due to lack of access with the tank now fitted. Attempt to fit these brackets with their respective bolts back into their exact position when removed from the car (using the marks left on the paint by the nut head/washers showing their original location). Once these are bolted firmly to the frame, the bolts need to be trimmed down to allow fitment of the bolts that fasten this frame back to the chassis rail.





19. With the tank now resting on the spare wheel cross member, fit the left and right rear mounting brackets as shown.

The brackets are fastened with the provided M10 bolts which have a wire welded to the end by threading the bolts through the openings in the chassis rail. Once the bolts go through the bracket, retain with the supplied M10 nuts, M10 flat washers and M10 star washers as shown. Leave these bolts only finger tight.



20. The tank should now be in place with bolts only finger tight. Using vice grips or similar clamping tool, clamp the rear tank brackets to the rear tank mounts in order to be able to drill both brackets for mounting. Once clamped, pilot drill holes using a 5mm drill bit, before drilling with a 12mm drill bit to finish off. Fit two M10 screws, M10 flat washers, M10 star washers and M10 nuts through the brackets and tighten firmly.





21. The transfer pump fuel hose routing now needs to be completed. With the hose routed earlier from the tank pick up over the diff/chassis cross member, trim the hose to length to allow fitment of the supplied fuel filter between the pump and the tank as shown and fasten with hose clamps supplied.



22. The tank filler neck and breather lines now need to be attached to the fuel filler. Starting with the straight brass fitting supplied, coat the thread with pipe thread sealant and fit into position. Proceed to route a piece of supplied fuel hose between this brass fitting and the rear most vacant breather outlet on the dual filler neck and fasten with hose clamps supplied.





23. The filler tube supplied can now be joined using the hose and hose clamps supplied. Note the orientation of the filler tube in the images below. Once in place and fastened, proceed to check all connections and hose clamps on the dual filler neck to ensure proper fitment.



24. With the tank still only loosely bolted into place to allow adjustment, fasten the spare wheel frame firmly to the chassis with the six 12mm factory mount bolts. Also replace the 12mm bolt in the central mount at the rear of the car. The spare wheel frame should now be fully in place.



25. Using a 12mm socket or spanner, all tank mount bolts can now be tightened firmly. Once all bolts are tightened, proceed to double up the M10 nuts on each bracket mount with the nuts provided to ensure a very rigid mount. With all bolts now fastened, trim the excess wire from the mount bolts where they entered through the chassis rail/cross member openings using side cutters.



26. The exhaust system can now be re-installed, ensuring the exhaust join clamp is firmly tightened to prevent exhaust leak. Finally refit the spare wheel into the vehicle.



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27. The wiring for the gauge sender unit and fuel transfer pump needs to be completed. Attached is a wiring diagram for both items as to how Brown Davis wire and install both items.  
Gauge fitment position can be chosen by the installer/vehicle owner.
  
28. With the tank installation complete, double check all fittings and hoses to ensure everything is well fitted. Proceed to fill the tank and check for any possible leaks.



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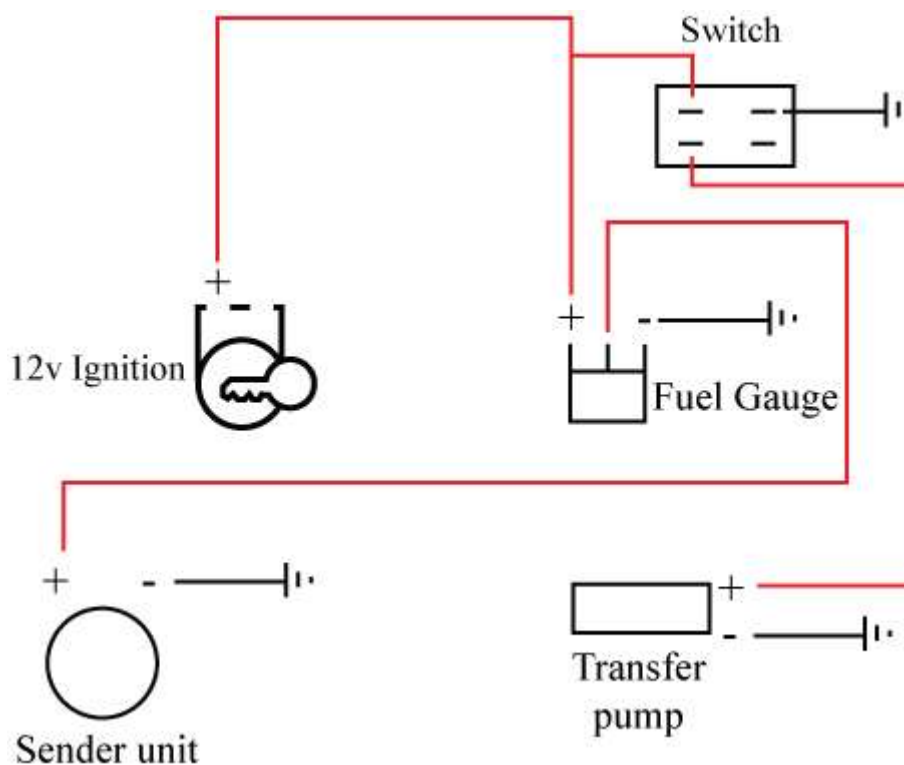
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### Wiring diagram





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### **OPERATION INFORMATION**

The operation of your new Brown Davis Automotive gas conversion fuel tank is little different from the original main tank, however very similar.

Filling the tank may be via a dual filler neck in the factory fuel fill position, or may be a remote filler at another location as identified to you upon installation. Simply fill the auxiliary petrol tank exactly as with a standard tank via the appropriate filler type.

The fuel gauge is separate to the main tank, however will read as with a standard gauge indicating empty/full and the progression in between. It should read with the same degree of accuracy as with a standard tank other than the difference in capacity to the standard tank.

The low fuel light for the main tank will still function as normal.

Maintenance and service of your new Brown Davis Automotive auxiliary fuel tank other than the recommended 1000km check and filter change should be in align with the normal vehicle Manufactures service schedule and guidelines. Remember the long range tank has a magnetic drain plug that the standard tank did not. With the fuel level low the drain plug can be removed and cleaned to remove any metal fragments introduced from the filler bowser scraping on the filler tube when filling or particles and rust flakes from jerry cans used on long trips. This facility is supplied to protect the in-tank fuel pumps fitted to most modern vehicle fuel tanks.

**Finally make sure the warranty card is filled out completely and returned to Brown Davis Automotive and that the warranty information is read and understood. If there are any queries about this or any of the above information please contact us at Brown Davis at the attached address or phone and fax numbers for assistance.**