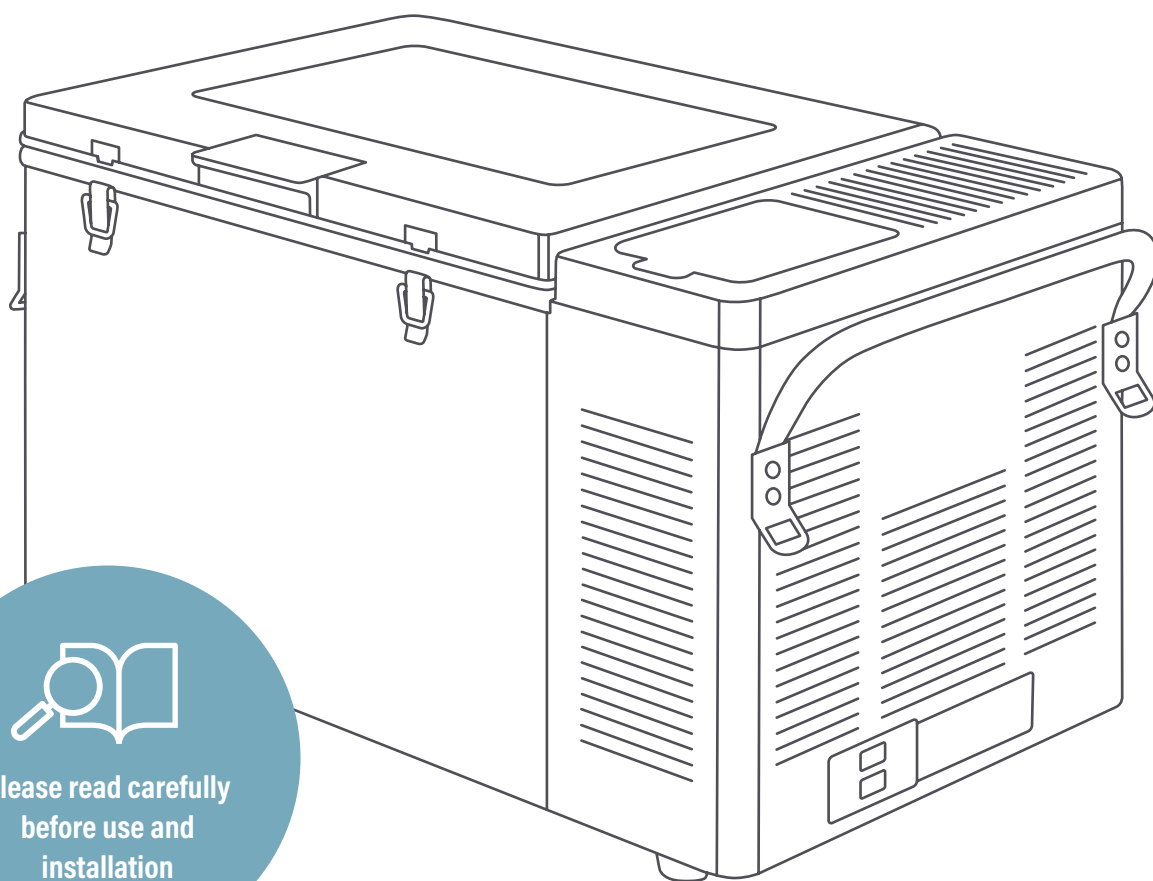


THE ORIGINAL BUSHMAN HEAVY DUTY SERIES

SC35-HD /
SC35-52-HD

Owners Manual & Operating Instructions



Please read carefully
before use and
installation



100% AUSSIE OWNED
FAMILY COMPANY

EST 1982

Congratulations on your purchase of a Bushman fridge

Please be safe and use common sense and caution when installing, operating and cleaning this appliance. If you are unsure about any of these instructions, contact your local dealer before proceeding.

Important information

- Do not lay your Bushman on its back or sides or at any angle exceeding 30°.
- Never operate your Bushman directly from 240V mains power without using a 240V – 12V adapter.
- Never place items on top of the vents above the compressor, heat will not be able to escape and overheating could occur.
- Do not remove the rubber feet.

Fitting the Extension Collar and High Lid

When you first fit your extension collar and high lid, adjustment to the hinges may be necessary if they do not sit flat. If required, please adjust your hinges as follows:

1. Remove the flat lid.
2. Fit the extension collar followed by the high lid but do not latch them down.
3. Release the tension on all rear hinge screws by 1 turn each. There are 24 screws in total.
4. Latch down the extension collar and high lid. The latches only need a snug fit. If they are overly stiff or loose, you can raise or lower each latch using their 2 adjustment screws. Apply moderate pressure by pushing down on the high lid.
5. Once the extension collar and high lid are latched down nicely, tighten the 24 rear hinge screws.
6. Do not over tighten any screws.

Fitting the Handles and tie down brackets

The handles, tie-down brackets and 8 screws are included inside the fridge cabinet. Please position the handles on the cabinet first, followed by the tie-down brackets on top. Do not over tighten the screws.

12V Installation

Power supply

Your fridge must be connected to a stable and regulated 12 V or 24 V DC power supply only. The compressor will automatically detect which voltage is present adjust accordingly. If you are using a generator or other power supply, the output must be a pure sine wave. Any fluctuations in generator current may damage the compressor.

Wiring

Our preferred method for wiring your fridge is to run a dedicated circuit (positive and negative wires) directly from the fridge all the way to your battery bank. This always ensures the best possible power supply to your fridge. If you have another device running from the same circuit, this can cause power spikes or dips and cause the compressor to stop.

If you are using a battery management system or shunt to keep track of your fridges power consumption, ensure the fridge circuit is connected on the shunt terminal closest to your battery. In most cases this setup will be ok, but if you ever experience stop / start issues with your fridge, or intermittent defrosting – try bypassing your BMS or shunt and wiring the fridge circuit directly to your battery bank, as you might have a conflicting device in your electrical system causing a power spike or drop as it cycles on or off. Sometimes these conflicts are hard to pinpoint, but wiring your fridge directly to your battery bank will eliminate any possibility of a conflict.

CROSS SECTION IN MM2	AWG (AMERICAN WIRE GAUGE)	MAXIMUM LENGTH OF WIRE IN METRES	
		12 V	24 V
2.5	14	2.5	5
4	12	4	8
6	10	6	12
10	8	10	20

240V Installation

Plug your 12V lead into the 240V adaptor and then direct to mains power.

Never run direct from the refrigerator to mains power without a 240V adaptor, irreversible damage can occur.

Efficient Operation

Ventilation

Always allow sufficient air ventilation around the rear, sides and top of the compressor compartment. This will ensure heat can escape easily from the compressor and condensor.

Transit cover

Your transit cover is designed to protect your Bushman from scratches, minor dints and direct sunlight.

Equalising fridge temperature

If you run your Bushman using the 240V adapter for 4 or 5 hours before placing in your vehicle, this will ensure that the internal air temperature, condensor and insulation has had time to equalise. Doing this will result in shorter cycle times and more efficient operation once you run your Bushman on 12V.

Normal Operating Sounds

You may hear faint gurgling, bubbling or whirring sounds when your Bushman is running. This is normal as the refrigerant is being pumped through the refrigerant coils.

Using a Generator

Only use a high quality pure sine wave generator to operate your Bushman. Fluctuations in generator current will damage the refrigerator and / or the 240V adaptor.

For fail safe operation with a generator we recommend running a battery charger from your generator outlet to a 12V battery, and then running your Bushman directly from the battery.

Using the Control Panel

Adjusting the set temperature

1. Flick the power switch to the ON position. The red power light and blue screen will light up.
2. To display the set temperature, hold down the SET button.
3. To adjust the set temperature, hold down the SET button whilst pressing either the UP or DOWN button until the desired set temperature is displayed.
4. Pressing MAX COOL will set the temperature to -18°C

Cycle times

When your Bushman is running it will operate at 2°C either side of set temperature. For example, with your Bushman set at 0°C it will run until reaches -2°C and then stop. The green energy saving light illuminates when the compressor is cycled off. The compressor will cut back in when the cabinet temperature reaches +2°C. By running 2°C either side of the set temperature the compressor will not cut in and out excessively and this will reduce your power consumption.

Cleaning

Internal Cleaning

Wash the inside of your Bushman with luke warm water and a mild soap. Never use abrasive or corrosive cleaning agents, steel wool or scouring sponges.

Trouble Shooting

Red Led Error Light

From mid 2016 onwards all Bushman SC35-52 are fitted with a red LED error light inside the compressor compartment. If your Bushman cuts out or will not operate, look inside the compressor compartment for a flashing red LED light. The number of flashes corresponds to the following error type.

NO. OF FLASHES	ERROR CODE
1 (E1)	Battery protection cut-out The voltage is outside the cut-out setting, Refer to VOLTAGE ISSUES below.
2	Too many start attempts (Or fan over current) This generally indicates the compressor has had too many start attempts due to battery protection cut-out. It could also indicate fan overload of more than 0.5A but this is extremely rare. Refer to VOLTAGE ISSUES below.
3	Motor start error The rotor is blocked or the differential pressure in the refrigeration system is too high (>5 bar). Contact BUSHMAN.
4	Minimum motor speed error Refrigeration system is too heavily loaded. Motor cannot maintain minimum speed approx 1,850 rpm. Contact BUSHMAN.
5	Thermal cut-out of electronic unit Refrigeration system too heavily loaded or ambient temperature is high. Electronic unit will run too hot. Contact BUSHMAN.
6	Thermostat failure If the NTC thermistor is short-circuit or has no connection. Contact BUSHMAN.

Cut In / Cut Out

Your Bushman has built in battery protection and needs a minimum 10.9V to start and 9.6V to continue operating.

During operation a load is placed on the power supply and voltage can drop by as much as 2V, especially if the wiring in insufficient (less than 6mm direct to battery) or if there is a loose connection somewhere.

If this occurs when you try and start your Bushman and the power supply drops under 10.9V it will not start. If this occurs when your Bushman is running and the power supply drops below 9.6V it will stop.

Common 12V Power Supply Issues

Wiring

Often the standard wiring from the car battery to the 12V outlet is too small. A minimum 6mm automotive wiring should be used and the earth should be wired directly back to the battery.

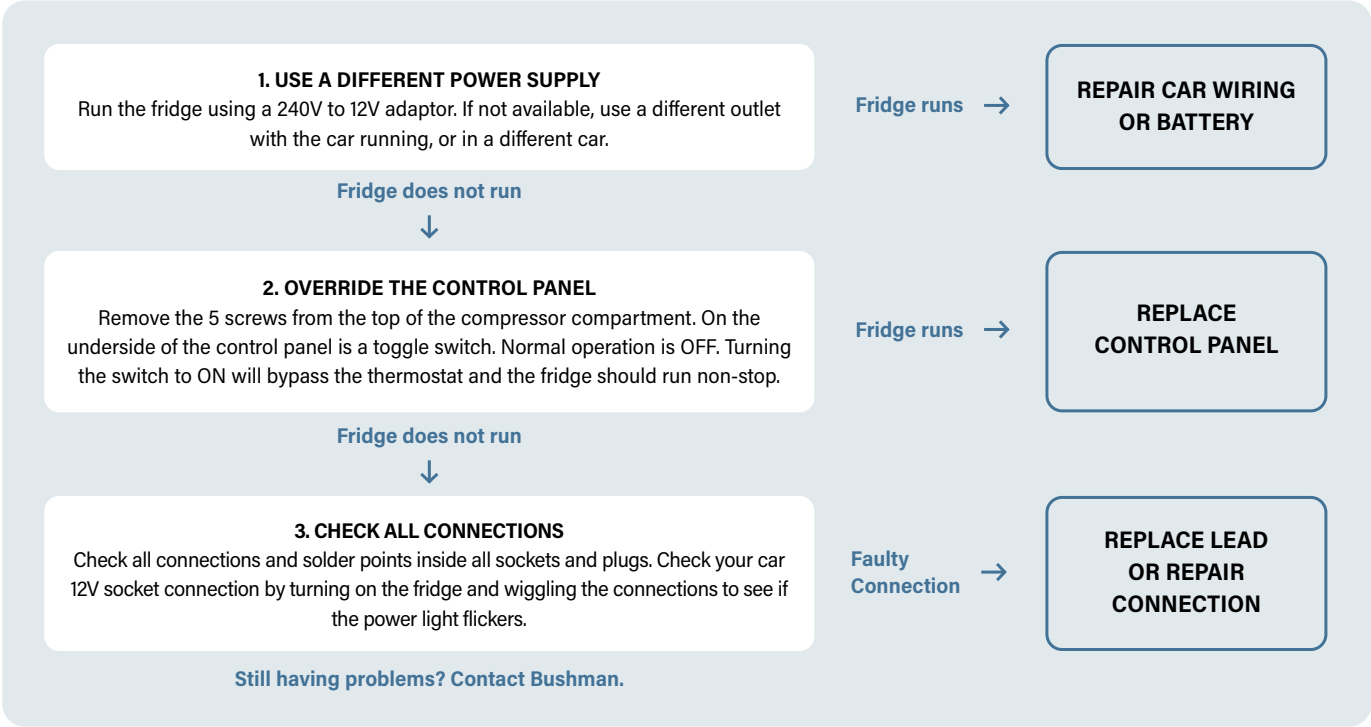
Battery

The car battery could be old, undersized or have a dead cell causing too much voltage drop.

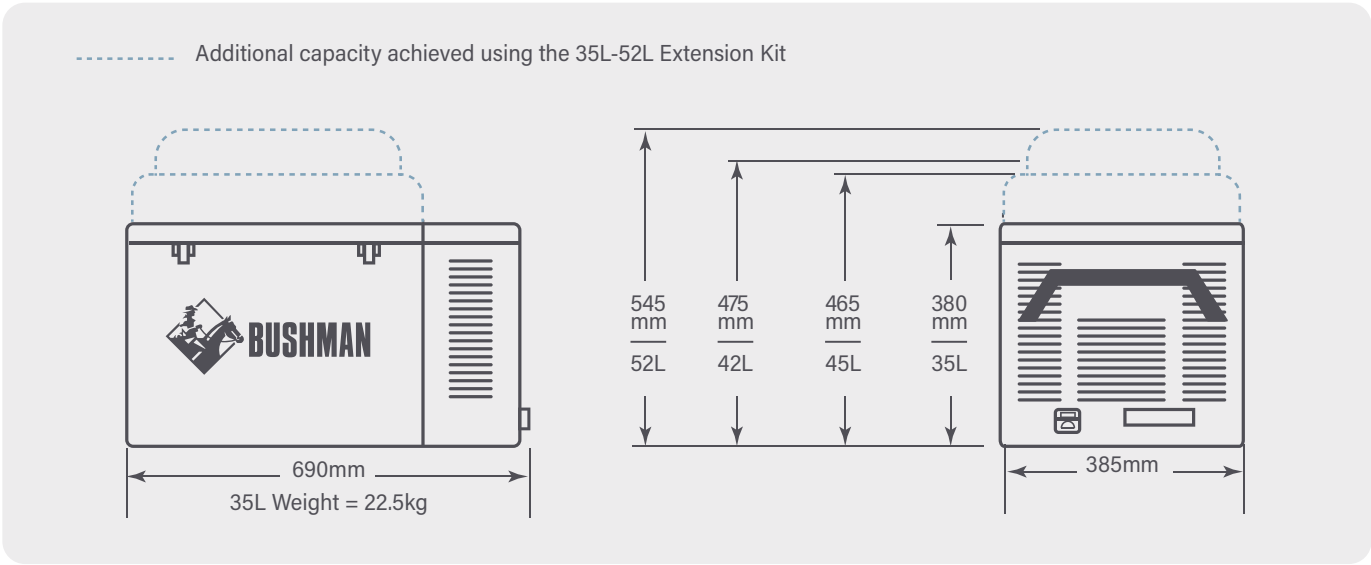
Connections

The 12V plug, car 12V socket or any of the connections between the fridge and the battery could be faulty or have come loose since installation.

Troubleshooting Flow Chart



Measurements



Warranty

DP Refrigeration trading as Bushman Fridges ABN 94 615 295 255 (Bushman) warrants, to the original owner, that this product is free from defects in workmanship and material for a period of three years (7 years for the compressor only) from the purchase date. This warranty shall be limited to repairing or replacing, at Bushman's option and without charge to the purchaser, defective components. All warranty work shall be performed at a Bushman approved facility. Shipping charges related to returning the product to the Bushman facility are not covered under this warranty. However, this warranty covers shipping charges related to returning the repaired product to the customer.

This warranty does not apply to damage or wear to the product caused by accident, abuse, misuse, neglect, unauthorized alteration or repair, or if the product was not operated in accordance with Bushman printed installation and operating instructions. To obtain service under this warranty, the defective product must be returned in clean condition to Bushman together with original purchase receipt. Any product repaired or replaced under this warranty will be warranted for the balance of the warranty period with respect to the original purchased product.