

RURAL FIRE BRIGADE ASSOCIATION QUEENSLAND

Isuzu FTS 139-260 4x4 Heavy Attack



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4 MANUAL AMENDMENTS

Table 1: Manual Amendments

Amendment No.	Date of Issue	Description of Amendments	Page(s) Amended
1			
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5 SERVICE BULLETINS

Table 2: Service Bulletins

Bulletin No.	Date of Issue	Title	Major Components Affected
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CAUTION

PLEASE READ AND UNDERSTAND ALL ASPECTS OF THE FIRE APPLIANCE DUCOT AND USAGE BEFORE USING THE VEHICLE. FAILURE TO FOLLOW INSTRUCTIONS, PROCEDURES, SERVICE SCHEDULES, MISUSE OR ABUSE OF ITEMS MAY RESULT IN INJURY OR DAMAGE. QUIK CORP PTY LTD, ITS SUBSIDIARIES, EMPLOYEES OR DIRECTORS SHALL NOT ACCEPT LIABILITY OR RESPONSIBILITY FOR LOSS OR DAMAGES THAT MAY OCCUR.

IT IS THE DRIVER'S RESPONSIBILITY TO OPERATE THE VEHICLE ACCORDING TO ALL QFES AND ROAD TRANSPORT RULES AND REGULATIONS.

DO NOT FIT ADDITIONAL STOWAGE WITHOUT WRITTEN APPROVAL FROM THE MANAGER OPERATIONAL SUPPORT AS ANY SUCH ITEMS MAY OVERLOAD THE APPLIANCE OR VOID MANUFACTURER'S WARRANTY TERMS AND CONDITIONS.

6 SYMBOLS

The following symbols are used in the DUCOT to make the user aware of items and hazards.

WARNING

Indicates the presence of a hazard that can cause personal injury if the hazard is not avoided.

CAUTION

Indicates the presence of a hazard that can cause damage to equipment.

WARNING

Indicates the presence of an electrical hazard that can cause personal injury if the hazard is not avoided.

NOTE

Indicates additional information.

7 TERMS AND ABBREVIATIONS

Term/Abbreviation	Description
Appliance	The term appliance refers to the overall system/unit. In this circumstance, it is a purpose-built RFBAQ CAFS Heavy Attack.
CAFS	Compressed Air Foam System
HF	High-Frequency Radio
LED	Light Emitting Diode
N/S or NS	Near Side
NSF	Near Side Front
NSM	Near Side Mid
NSR	Near Side Rear
NSFUT	Near Side Front Under Tray
NSMUT	Near Side Mid Under Tray
NSRUT	Near Side Rear Under Tray
O.E.	Original Equipment
O.E.M.	Original Equipment Manufacturer
O/S or OS	Off Side
OSF	Off Side Front
OSM	Off Side Mid
OSR	Off Side Rear
OSFUT	Off Side Front Under Tray
OSMUT	Off Side Mid Under Tray
OSRUT	Off Side Rear Under Tray
RCR	Road Crash Rescue
UHF	Ultra High-Frequency Radio
VHF	Very High-Frequency Radio

8 VEHICLE INFORMATION

All dimensions are in mm.

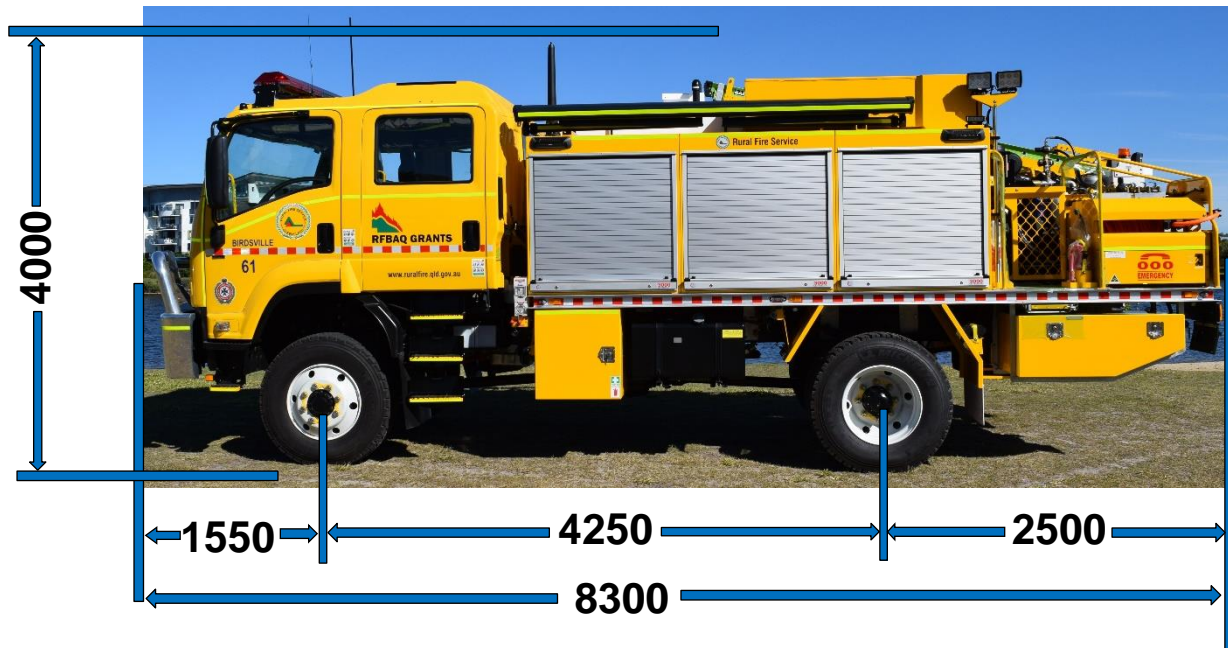


Figure 1: Near/Passenger Side View of Vehicle



Figure 2: Rear View of Vehicle



Figure 3: Front View of Vehicle

Table 3: Vehicle Dimensions and Specifications

DIMENSIONS	
Overall Length	8300mm
Overall Height	4000mm
Width (body)	2405mm
Cab Width (excluding mirrors)	2400mm
Wheel Base	4250mm
Front Overhang	1550mm
Rear Overhang	2500mm
WEIGHTS	
Front Axle Rating	5200 kg
Rear Axle Rating	9000 kg
Rated Gross Vehicle Mass	13900 kg
GROUND CLEARANCE	
Angle of Approach	28°
Departure Angle	20°
Ramp Angle	14°
CABIN/CHASSIS	
Chassis Model	Isuzu FTS139-260 Medium Wheel Base 4x4 Crew Cab Chassis
Engine	6HK1-TCN 6 Cylinder 24 valve SOHC 7,790 cc
Engine Power	176 kW @ 2,400 rpm 706 Nm @ 1,450 rpm
Fuel Tank Capacity	200L
ELECTRICAL SYSTEM	
Operating Voltage	24 Volts DC
Starter Motor	24V 4.50kW
Battery	2 x 80D26L (630 CCA)
Alternator	24V 90 Amp
TYRES	
Front Steer Tyres	11R22.5 148/145K Michelin XZY 3 Tubeless
Rear Tyres	11R22.5 148/145K Michelin XDY 3 Tubeless
Pressures (Operational)	Front 541 kPa (78 psi) Rear 634 kPa (92 psi)
Fire Fighting Systems	
Pump	Waterous CLVK
Pump Engine	Hatz 4H50TI-OPU 24V
CAFS	Rotocomp EVO-6
Hose Reels	Quik Corp RFR-B 24V Electric Rewind
Water Tank Capacity	3000L

9 DUCOT SUMMARY

D	DESCRIPTION	<ul style="list-style-type: none"> The appliance is a purpose-built Rural Heavy Attack Vehicle.
U	USE	<ul style="list-style-type: none"> To provide transportation for six personnel and equipment to an incident on paved or unpaved roads. A purpose-built appliance capable of carrying crew and materials safely and expediently to a fire scene. To provide the crew with up to 3000 litres of water. To provide a Compressed Air/Foam System for fire-fighting. (CAFS) To provide scene lighting.
C	CONSTRUCTION	<ul style="list-style-type: none"> The vehicle chassis is an Isuzu FTS 139-240 Crew Cab 4x4 with manual transmission. High-strength all-steel cab construction. The 15mm polypropylene UV resistant tank with baffles and overflow has a capacity of 3000L. A Waterous CLVK pump and a Rotocomp EVO6 Air Compressor coupled to a Hatz 4H50TI diesel engine are at the rear of the appliance. Two Quik Corp RFR-B 24V electric rewind hose reels. One located at the rear NS (CAFS) and one at the rear OS of the vehicle. They both have 25mm Storz fittings. Body construction consists of a steel structural member sub-frame. Lockers and stowage units built from aluminium sheet.
O	OPERATION	<ul style="list-style-type: none"> Cabin Contents Operation Pump Operation CAFS Operation Plumbing Operation Hose Reel Operation Water Tank Operation Ancillary Equipment Operation Electrical Systems Operation
T	TESTING	<ul style="list-style-type: none"> Vehicle inspection Vehicle maintenance – daily Vehicle maintenance – weekly

10 D – DESCRIPTION

The basis of the 2020 Heavy Attack Appliance is a factory-built Isuzu FTS 139-260 4x4 Crew Cab Chassis. The four-door air-conditioned safety cabin is mounted on a 4x4 (dual rear wheels) configuration chassis. The FTS 139-260 Heavy Attack Appliance body is custom-built for fire-fighting and rescue operations.

The Isuzu FTS 136-260 has an Isuzu 6HK1-TCN four-stroke, six-cylinder, 24 valve, SOHC, inline diesel engine rated at 176 kW @ 2,400 RPM with a maximum torque of 706 Nm @ 1,450 - 2,400 RPM. An Isuzu MZW-6P Manual Transmission transmits power to the wheels.

The cabin has an electronic control panel with integrated warning systems. The control panel informs the driver of possible open doors or deployed equipment when the vehicle is operating and sounds an audible alarm if the handbrake is released.

The appliance features a one-piece red and blue emergency light bar with red and blue emergency light strobes. It also has lighting systems that illuminate areas on each side and to the rear of the vehicle.

The lockers and custom-made stowage brackets utilise aluminium sheet, mesh and tube in their construction. The storage lockers have interior LED lights, and the floors are lined with rubber to prevent damage.

The appliance is fitted with warning systems to ensure the operator is aware of the operating status at all times.

The appliance can carry the following stowage items:

- | | |
|-----------------------------------|---|
| • 10 x Traffic Cones | • 4 x Portable Radios |
| • 1 x Standpipe | • 2 x Stinger Torches |
| • 2 x Rakehoes | • 6 x Fire Blankets |
| • 2 x Beaters | • 1 x First Aid Kit |
| • 2 x 10L Fuel Containers | • 1 x Pair Storz Spanners |
| • 2 x Fuel Pourer | • 1 x Pair QRT Spanners |
| • 2 x Drip Torches | • 1 x Pair Large Suction Storz Spanners |
| • 4 x 2.2m Suction Hoses | • 5 x Hose Branches Various Sizes |
| • AED Defibrillator | • 2 x Side Handlines |
| • 8 x Lay-flat Hoses | • 1 x Foam External Pick Up Hose |
| • 1 x Suction Strainer | • 1 x RCR Timber Cribbage Blocks/Steps |
| • 1 x 4.5kg DCP Fire Extinguisher | • 1 x Road Crash Rescue Kit including |
| • 1 x Waeco CFX35 Cooler | Spreaders and Cutters |

11 U – USE

The main uses of the FTS 139-240 Rural Heavy Attack Appliance are:

- the ability to transport a useable 3000 litres of water to an incident.
- To provide transportation of six personnel and equipment to an incident on paved or unpaved roads.
- To provide fire fighting capabilities.
- To provide a Compressed Air Foam System for fire fighting.
- To provide scene lighting.
- To provide communication tools.
- To provide Road Crash Rescue equipment.

12 C – CONSTRUCTION

12.1 Body

12.1.1 Near/Passenger Side



Figure 4: NS View of Appliance

Item	Item Name
1	Near Side Front Locker
2	Folding Arm Awning
3	HF Antenna
4	Near Side Front Scene Light
5	Near Side Mid Locker
6	Tent Locker
7	Near Side Rear Locker
8	Near Side Rear Scene Light
9	Near Side Work Light
10	Mast Light
11	Deck Platform Area
12	Drip Torch
13	Low Water Beacon
14	Hose Reel
15	Low-Pressure Handline Outlet
16	Near Side Rear Under Tray Locker
17	Pull Out Step Ladder
18	Wheel Chocks
19	Near Side Rear Compressed Air Outlet High Pressure (12 Bar/180psi)
20	Near Side Front Under Tray Locker
21	Near Side Front Compressed Air Outlet High Pressure (12 Bar/180psi)
22	Battery Isolator
23	240V Inlet

Table 4: NS of Appliance

12.1.2 Off/Driver Side



Figure 5: OS View of Appliance

Item	Item Name
1	Ladder Rack
2	Extension Ladder
3	OS Work Light
4	Off Side Rear Scene Light
5	Off Side Rear Locker
6	Off Side Mid Locker
7	3000L Poly Water Tank
8	Off Side Front Locker
9	Off Side Front Scene Light
10	Wheel Chocks
11	Off Side Front Compressed Air Outlet High Pressure (12 Bar/180psi)
12	Off Side Front Under Tray Locker
13	Low-Pressure Handline Outlet
14	Foam Induction Pick Up Point
15	Off Side Rear Under Tray Locker
16	Traffic Cone Holder
17	Off Side Rear Compressed Air Outlet High Pressure (12 Bar/180psi)
18	Hose Reel

Table 5: OS of Appliance

12.1.3 Rear



Figure 6: Rear View of Appliance

Item	Item Name
1	Mast Light
2	Tent Locker
3	Rear Work Lights/Auxiliary Reverse Lights
4	Reverse Camera
5	Low Water Beacon
6	Extension Ladder
7	Ladder Rack
8	Off Side Rear Emergency Strobes
9	Rear Control Panel
10	Branch Holder
11	Traffic Cone Holder
12	CAFS 64mm QRT - Delivery 3
13	100mm Storz - Inlet
14	Rear Recovery Bar
15	Hydrant Fill
16	64mm QRT – Delivery 2
17	64mm QRT – Delivery 1
18	Foam Branch Holder
19	Near Side Rear Emergency Strobes

Table 6: Rear of Appliance

12.1.4 Pump Control Panel

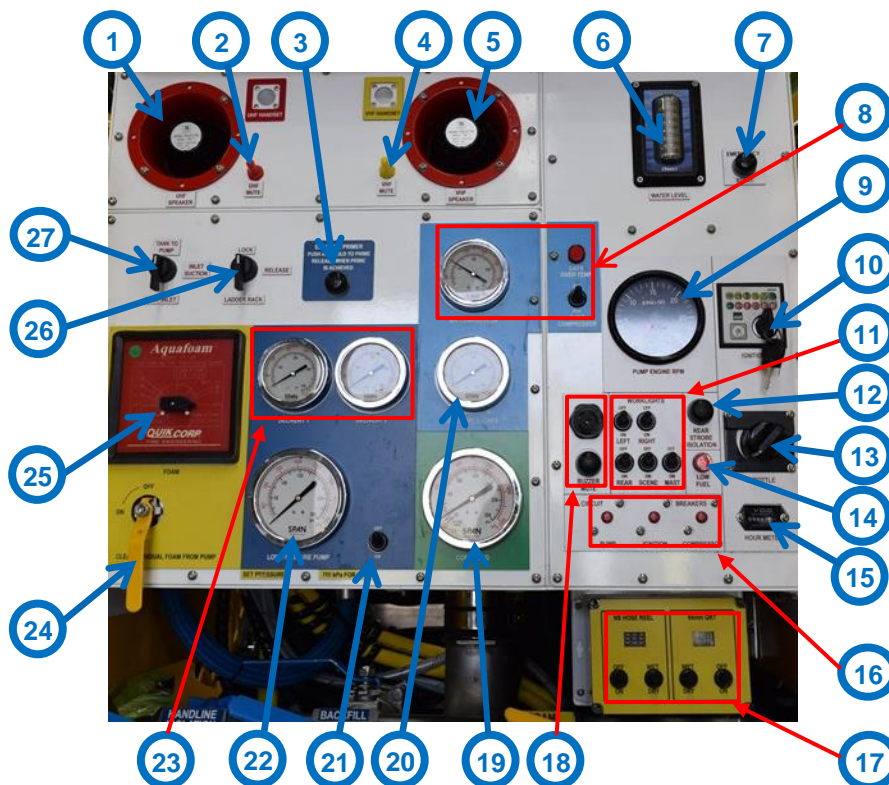


Figure 7: Pump Control Panel

Item	Item Name
1	UHF External Speaker
2	UHF Speaker Mute Switch
3	Primer Button
4	VHF Speaker Mute Switch
5	VHF External Speaker
6	Water Level Indicator
7	Pump Emergency Start Button
8	Air Compressor – Switch, Pressure Gauge and Over Temperature Warning Light
9	Pump Set Tacho
10	Pump Set Ignition Switch and Warning Lights
11	Work, Scene and Mast Lights Switches
12	Rear Emergency Strobe Isolation Button
13	Pump Set Throttle Control
14	Low Fuel Warning Light
15	Pump Set Hour Meter
16	CAFS Delivery Controls
17	Circuit Breakers – Pump Controls and CAFS
18	Buzzer and Buzzer Mute Button
19	Compound Gauge
20	Pressure Gauge - 64mm QRT - CAFS Delivery 3
21	Low-Pressure Pump Switch
22	Low-Pressure Pump Gauge
23	Pressure Gauges – Delivery 1 and Delivery 2
24	Foam Flush Valve
25	Foam Proportioner – Aquafoam
26	Ladder Rack Pneumatic Switch
27	Pump Inlet Pneumatic Switch

Table 7: Pump Control Panel

12.1.5 Pump Set

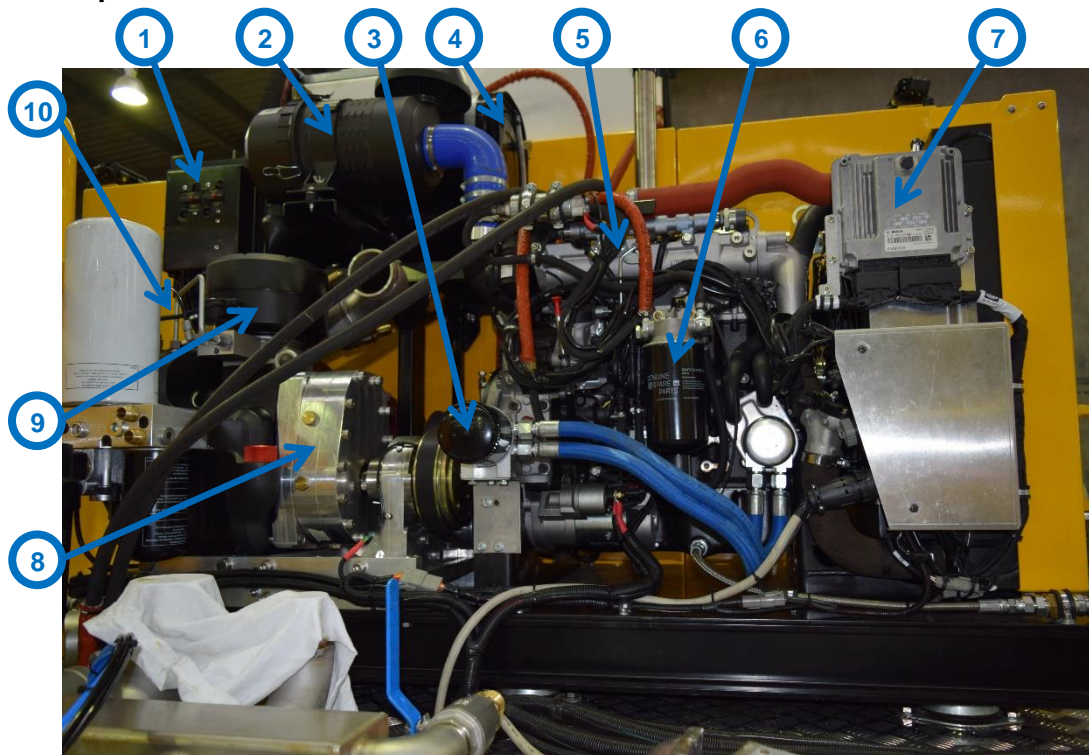


Figure 8: OS Rear of Appliance

Item	Item Name
1	Pump Set Batteries and Circuit Breaker Panel.
2	Hatz Air Cleaner Assembly.
3	Hatz Oil Filter.
4	Hatz Fuel Tank.
5	Hatz 4H50-TIC.
6	Hatz Fuel Filter.
7	Hatz Engine ECU.
8	Air Compressor Gear Box.
9	Rotocomp EVO6 Air Compressor.
10	Pump – Waterous CLVK (behind the Air Compressor and below the Pump Set Batteries).

Table 8: Pump Set

12.1.6 Plumbing Manifold

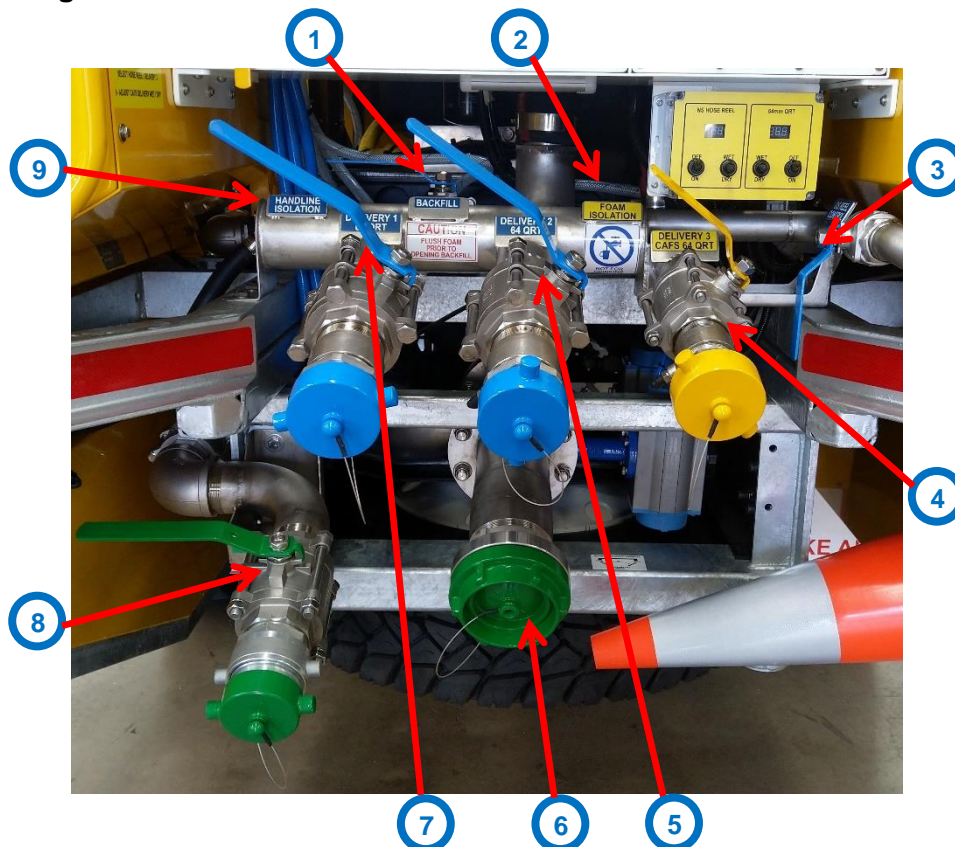


Figure 9: Plumbing Manifold

Item	Item Name
1	Backfill Valve
2	Foam Isolation Valve
3	OS Hose Reel Control Valve
4	Delivery 3 – CAFS Valve
5	Delivery 2 – Low-Pressure Valve
6	Suction Inlet
7	Delivery 1 – Low-Pressure Valve
8	Hydrant Fill Valve
9	Handline Isolation Valve

Table 9: Delivery Manifold

12.1.7 Stowage



Figure 10: Off Side Front (OSF) Locker (closed)



Figure 11: Off Side Front (OSF) Locker (open)



Figure 12: Off Side Mid (OSM) Locker (closed)



Figure 13: Off Side Mid (OSM) Locker (open)



Figure 14: Off Side Rear (OSR) Locker (closed)



Figure 15: Off Side Rear (OSR) Locker (open)



Figure 16: Off Side Front Under Tray (OSFUT) Locker (closed)



Figure 17: Off Side Front Under Tray (OSFUT) Locker (open)



Figure 18: Off Side Rear Under Tray (OSRUT) Locker – Foam Storage (closed)



Figure 19: Off Side Rear Under Tray (OSRUT) Locker – Foam Storage (open)



Figure 20: Near Side Front (NSF) Locker (closed)



Figure 21: Near Side Front (NSF) Locker (open)



Figure 22: Near Side Mid (NSM) Locker (closed)



Figure 23: Near Side Mid (NSM) Locker (open)



Figure 24: Near Side Rear (NSR) Locker (closed)



Figure 25: Near Side Rear (NSR) Locker (open)



Figure 26: Near Side Front Under Tray Locker – closed



Figure 27: Near Side Front Under Tray Locker – open



Figure 28: Near Side Rear Under Tray (NSRUT) Locker - Closed

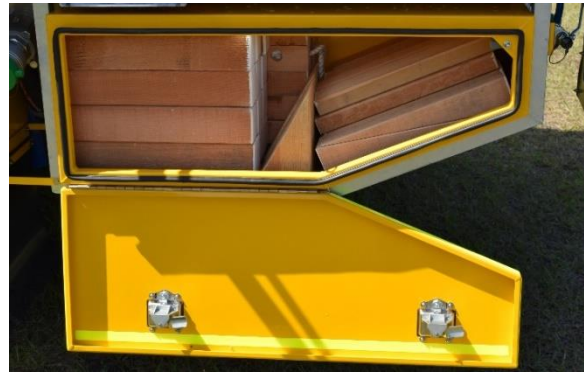


Figure 29: Near Side Rear Under Tray (NSRUT) Locker - Open

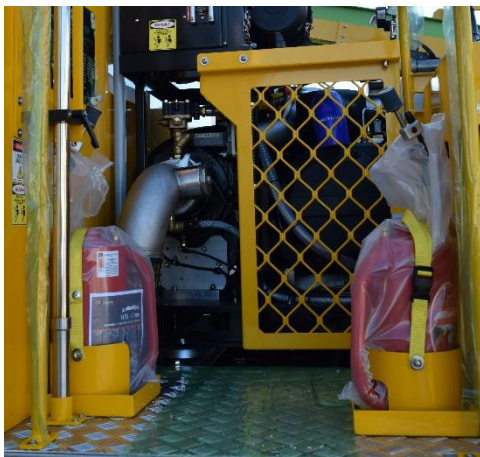


Figure 30: Drip Torches



Figure 31: Fuel Cans and Pourers



Figure 32: Tent Locker (closed)



Figure 33: Tent Locker (open)



Figure 34: Rakehoe Storage



Figure 35: Fire Beater Storage



Figure 36: Traffic Cone Holder



Figure 37: Standpipe Holder



Figure 38: Fire Extinguisher



Figure 39: Ladder

12.2 Cab

12.2.1 Front External



Figure 40: Front of Appliance

Item	Item Name
1	Emergency Light Bar
2	Driving Light Bar
3	Emergency Strobe Light (Red)
4	Siren Speaker
5	Front Anchor Point
6	Bull Bar
7	Emergency Strobe Light (Blue)

Table 10: Cab Front External

12.2.2 Off / Driver Side – External



Figure 41: Cabin OS View

Item	Item Name
1	Fire Curtains
2	Front Cabin Grab Handles
3	Front Step Light
4	Front Cabin Steps
5	Rear Cabin Steps
6	Rear Step Lights
7	Rear Cabin Grab Handles

Table 11: OS Cab - External

12.2.3 Near / Passenger Side - External



Figure 42: Cabin NS View

Item	Item Name
1	Fire Curtains
2	Front Grab Handle
3	Front Step Light
4	Front Cabin Access Steps
5	Rear Cabin Access Steps
6	Rear Step Lights
7	Rear Grab Handles

Table 12: NS Cab - External

12.2.4 Centre of Cab - Internal



Figure 43: Centre of Cab – Internal

Item	Item Name
1	Centre Console
2	Optional VHF Radio Hand Piece Place Holder
3	Siren Controller / PA Hand Piece
4	UHF Radio Hand Piece
5	HF Radio Hand Piece
6	Ignition Circuit Breaker

Table 13: Centre of Cab - Internal

12.2.5 Cab Centre Console

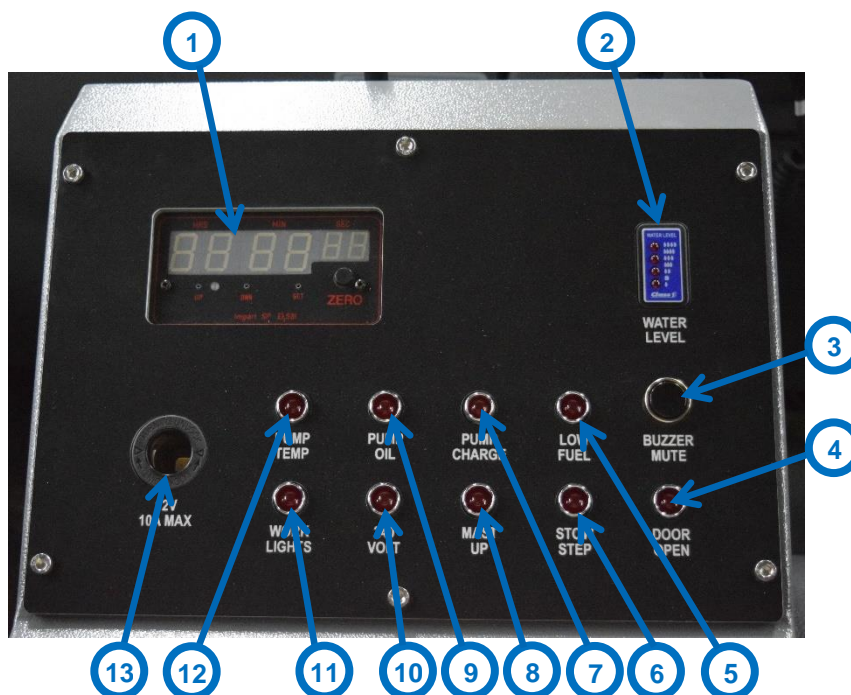


Figure 44: Centre Console Display Panel

Item	Item Name
1	Digital Clock
2	Water Level Display
3	Buzzer Mute Switch
4	Door Open Warning Light
5	Low Fuel Warning Light
6	Stow Step Warning Light
7	Pump Charging System Warning Light
8	Mast Up Warning Light
9	Pump Oil Pressure Warning Light
10	240 Volt Connected Warning Light
11	Work Lights ON Warning Light
12	Pump Temperature Warning Light
13	12V Accessory Socket

Table 14: Centre Console Display Panel Items

It is usual for the Pump Temperature Warning Light, Pump Oil Pressure Warning Light and Pump Charging System Warning Light to flicker for up to 10 seconds after turning off the pump set.

12.2.6 Cab Roof Internal



Figure 45: Cab Roof Internal

Item	Item Name
1	UHF Speaker
2	HF Speaker
3	Front Fire Curtain

Table 15: Cab Roof Internal

12.2.7 Cab Back Internal



Figure 46: Rear Cabin Wall Behind Seats

Item	Item Name
1	Rear Fire Curtain

Table 16: Rear of Cab

13 O – OPERATION

13.1 Cabin

13.1.1 Entering and Exiting

The appliance cabin is fitted with handrails/grab rails to provide 3 points of contact when entering or exiting the vehicle. Only use the designated grab points to get in and out of the cabin.



Figure 47: OS Cab - Door Open



WARNING

Always ensure 3 points of contact when entering and exiting the vehicle. Failing to do so may result in loss of balance and injuries from falling.

13.1.2 Bull Bar

For servicing purposes, the vehicle cabin tilts to provide access to the engine bay. The Bull Bar has a limit switch that prevents the OEM Power Cabin Tilt from operating. Lower the Bull Bar to activate the limit switch and enable the OEM Power Cabin Tilt.



Figure 48: Bull Bar

Item	Item Name
1	Bull Bar Pin
2	Bull Bar Eye Bolts
3	Front Anchor Point

Table 17: Bull Bar

To lower the bull bar, follow these steps:

1. Support the Front Anchor Point and Remove the Bull Bar Pin.
2. Remove and safely store the Front Anchor Point.
3. Reinstall the Bull Bar Pin
4. Remove the 2 Bull Bar “Eye” Bolts.
5. Support the weight of the bull bar and then remove the Bull Bar Pin.
6. Control the descent of the bull bar to the fully lowered position.
7. Follow the OEM Vehicle Manual for Cabin tilting procedures.

NOTE

A Cabin Tilt Safety Switch has been added to the OEM Cabin Tilt System. The cabin will not tilt unless the Bull Bar has been lowered.

WARNING

Failure to support the weight of the bull bar and control its descent to the lowered position can result in damage to the bull bar and/or crushing injuries.

WARNING

Secure all loose items in the cabin prior to tilting. Failure to do so can lead to vehicle or equipment damage caused by unsecured items moving as the cabin tilts.

13.1.3 Cabin Items and Accessories

The cabin has the following items and accessories:

- Centre Console
- Rear Electrical Panel
- Window Fire Curtains
- UHF and VHF Radio Handpieces
- UHF and VHF Radio Speakers
- 2 x Torch Stowage and Chargers
- 6 x Fire Blankets

There are several other items, switches and accessories which come standard with the vehicle. Refer to the OEM manual for operating instructions.

13.1.4 Cabin Centre Console

The purpose-built centre console houses a 12v accessory socket, clock, tank level mini display, warning lights, buzzer and buzzer mute switch, all within easy reach of the driver. The console can also store an A4 ring binder style folder inside the compartment. The 12V power outlet in the Centre Console has a maximum current rating of 10A as dictated by the circuit protection.

The appliance has warning lights monitoring the pump engine and body functions. Pump engine warning lights include; oil pressure, temperature and charge system. Body warning lights include; door open, stow step, mast up, 240 Volt, work lights and low fuel.



Figure 49: Cabin Centre Console (closed)



Figure 50: Cabin Centre Console (open)

The function of each switch in the display panel is listed below

Feature	Description of Function
Buzzer Mute Button	This switch will turn off the warning buzzer. The buzzer will reset with the vehicle ignition, or the parking brake has been released and re-applied.

Table 18: Centre Console Switches

The function of each warning light in the display panel is listed below.

Warning Light	Description of Warning.	
Low Fuel	Indicates the fuel level in the tank has dropped to a ¼ of a tank, or approximately 50L of fuel remaining.	
Door Open	This light will illuminate when any of the following are open or have not been closed properly.	
	<ul style="list-style-type: none"> • NSF Locker • NSM Locker • NSR Locker • NSFUT Locker • NSRUT Locker 	<ul style="list-style-type: none"> • OSF Locker • OSM Locker • OSR Locker • OSFUT Locker • OSRUT Locker
240V	Indicates when there is a 240V electrical supply active on the vehicle.	
Stow Step	This light will illuminate when the Deck Platform step ladder is down.	
Mast Up	This light will illuminate when the Mast Light is up.	
Pump Temp	This light will illuminate if the Hatz engine is overheating.	
Pump Oil	This light will illuminate if the Hatz engine oil pressure is low or if the pump ignition is on and the engine is not running.	
Pump Charge	This light will illuminate if the Hatz charge system fails or if the pump ignition is on and the engine is not running.	
Work Lights	This light will flash off and on to alert the driver if any of the following lights are on: Left or Right Work Lights, Rear Work Lights, Mast Lights, Under Tray Lights or Pump Panel Lights.	

Table 19: Centre Console Warning Light Description

CAUTION

Moving the appliance or attempting to transport the appliance with storage systems not securely housed may cause damage to the equipment and make the vehicle extremely unsafe to drive.

Attached to the front of the centre console is a LED map light with a built-in switch. The map light is on a flexible arm to assist the driver or front passenger. There is also a 12v accessory socket.



Figure 51: Front of the Cabin Centre Console

13.1.5 Ignition Circuit Breaker

There is a circuit breaker for the ignition signal located to the left of the steering wheel. This circuit breaker protects the vehicle ignition wiring if the additional Fire Electrical Systems develop a short circuit or otherwise draw excess current from the Isuzu vehicle ignition wiring circuit.



Ignition Circuit
Breaker

Figure 52: Ignition Circuit Breaker in Cab

13.1.6 Siren Controller and PA

The siren controller is on the dash in the cab. The label below is beside the controller handset on the dash and lists the button functions.

The unit also has a Public Address (PA) system. Push the “Push to talk” button on the side of the Siren Controller Handset and speak into the Microphone.

If the handbrake is applied, the system will revert to “Park mode”, setting any active mode to Button 1 functionality: The emergency lights turn off, except for the light bar rotators and the rear LED strobe lights, and the vehicle’s hazard lights will activate. If the siren is operating, it will be deactivated.

Refer to the Siren Controller OEM manual for further operational instructions.

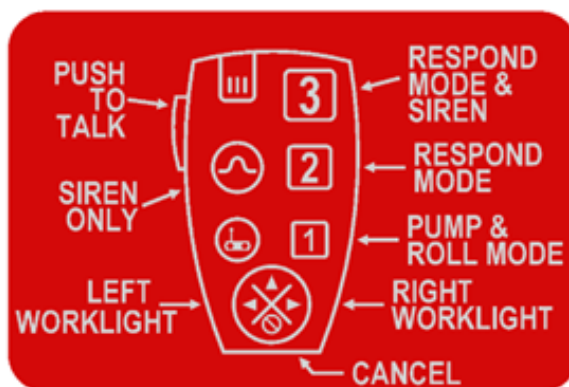


Figure 53: Siren Controller Label

The Siren Controller functions;

Switch/Button	Description of Function
Button 1:	"Pump and Roll Mode" activates the light bar rotators on the cabin roof and the rear strobe LEDs. If the parking brake is applied, the vehicle hazard lights will also activate.
Button 2:	"Respond Mode" This activates all emergency lights without the siren. If the parking brake is active, all lighting will return to Button 1 functions, and the vehicle hazard lights will activate.
Button 3:	"Respond Mode with Siren" This button activates all emergency lights and the siren. The siren tone changes by pressing the horn button on the steering wheel. If the vehicle parking brake is applied, all lights will return to the Button 1 functions, and the siren will turn off.
Siren Only:	Operates siren (wail) while holding the button. If the siren is operating, pressing this button will change the tone while holding the button. The tone will revert to the original tone when the button is released.
Cancel Button:	This button cancels all modes completely.
Button ◀:	NS Work Lights. This button turns on the Near Side Alley Lights in the light bar and the Near Side Work Lights.
Button ▶:	OS Work Lights. This button turns on the Off Side Alley Lights in the light bar and the Off Side Work Lights.

Table 20: Siren Controller Functions

13.1.7 Cabin Switches

The cabin dash has switches that control various functions around the appliance. There are switches for UHF and VHF External Speakers, Driving Lights, Under Deck Lights and Auxiliary Reverse Lights. For O.E. switches and functions, consult the Owners' Manual.

Number	Switch	Description of Function
1	Driving Lights Switch	The switch controls the LED driving light bar on the bull bar. This switch requires the vehicle high beam headlights to be on to operate.
2	Auxiliary Reverse Switch	The switch controls the two rear-facing work lights. The vehicle must be in reverse gear when activating this momentary button. As soon as reverse is de-selected in the gearbox, the auxiliary reverse lights turn off.
3	Under Deck Lights Switch	This switch controls the Under Deck Lights around the tray body. This switch requires the vehicle park lights and vehicle ignition to be on to operate.
4	UHF External Speaker Switch	Operates UHF External Speaker. This switch enables the UHF radio to broadcast the UHF radio communications to the UHF External Speaker at the Pump Control Panel.
5	VHF External Speaker Switch	Operates VHF External Speaker. This switch enables the VHF radio to broadcast the VHF radio communications to the VHF External Speaker at the Pump Control Panel.

Table 21: Dash Switches



Figure 54: Dash Switch Locations

13.1.8 Radios

The appliance has transceivers for a UHF and an HF radio under the rear seat. The UHF and HF radios have handsets on the dash that control the transceivers; the handsets have a built-in microphone with a push-to-talk button, a display, and buttons to control channels and volume.

The radios are live as soon as the battery isolator is on. Isolate the batteries when the vehicle is not in use to prevent the batteries from discharging.

The radios have speakers mounted to the inside of the cabin roof. The UHF also has an external speaker at the rear of the appliance in the pump control panel. The UHF external speaker has a switch in the vehicle dash to the left of the steering wheel. The switch enables the operator to turn on or off the external speaker. When the vehicle ignition is active and the speaker switches are on, they will illuminate to indicate the appliance is broadcasting radio transmissions outside of the vehicle. The external speakers also have momentary mute switches on the pump control panel that allow the operator to silence the external speaker as long as they hold the switch actuator.

Please refer to the OEM manuals for Radio operation instructions.

NOTE

The appliance has the provision for a VHF transceiver, including wiring, cabin speaker, external speaker switch and external speaker/speaker mute. At the writing of this manual, there is no VHF radio in the vehicle.



Figure 55: Centre of Cab

Item	Item Name
1	Remote HF Radio Hand Piece
2	Remote UHF Radio Hand Piece

Table 22: Radio Controls

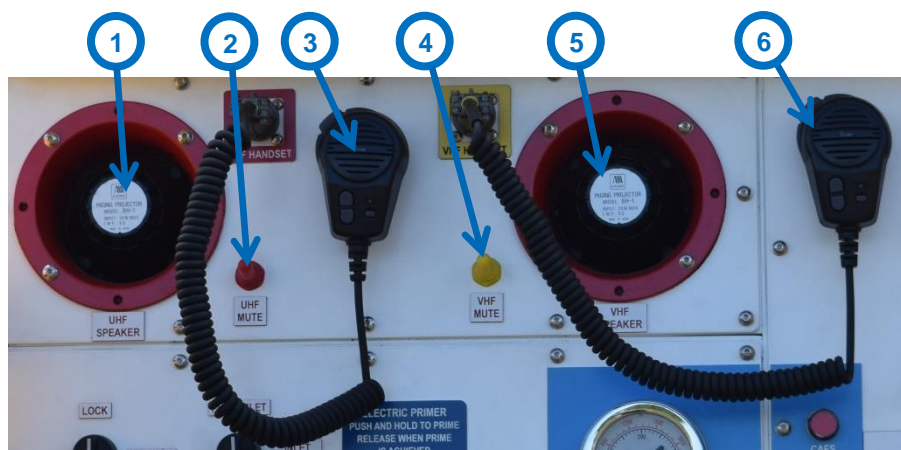


Figure 56: External Radio and Speaker Controls

Item	Item Name
1	External UHF Speaker
2	External UHF Speaker Mute Switch
3	External UHF Radio Hand Piece (Optional)
4	External VHF Speaker Mute Switch
5	External VHF Speaker
6	External VHF Radio Hand Piece (Optional)

Table 23: External Radio and Speaker Controls

WARNING

Failure to isolate the vehicle batteries when the vehicle is parked without the engine running could lead to the batteries being discharged leaving the vehicle unable to start.

13.1.9 Cabin Electrical Panel

The Cabin Electrical Panel is under the rear seat. It houses circuit breakers, relays, the siren controller and radio equipment.



Figure 57: Cabin Rear Electrical Panel – Seat Removed

To access the rear electrical panels, lift the seat base.

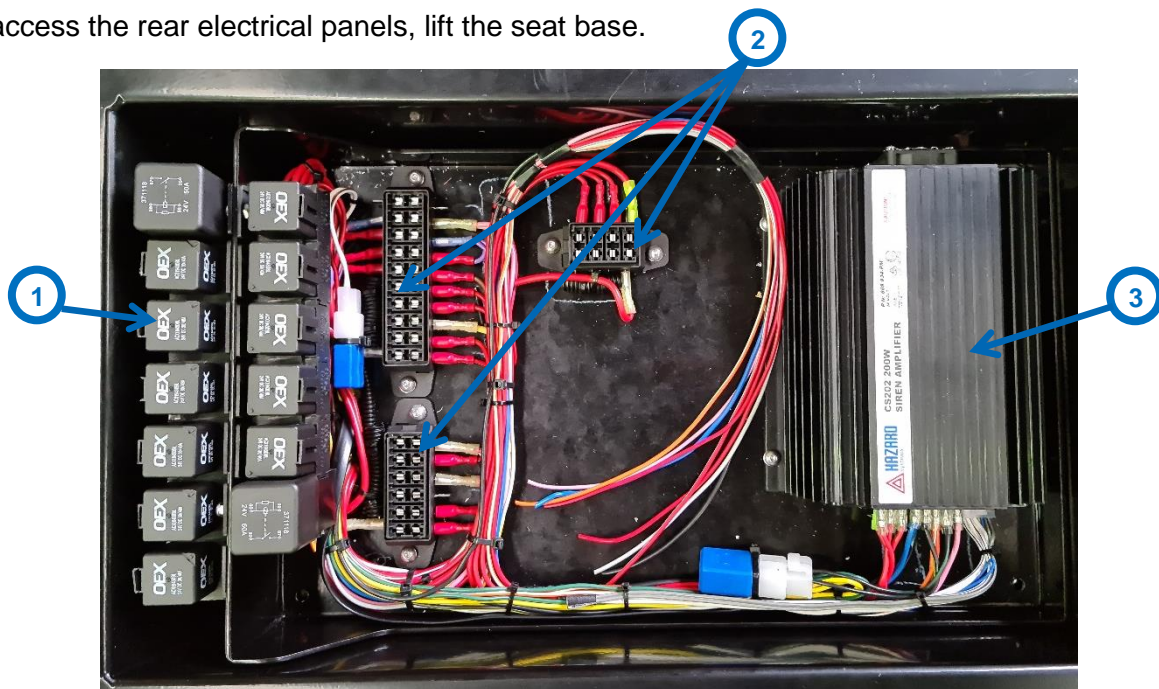


Figure 58: OS Cabin Rear Electrical Panel

Item	Item Name
1	Relays
2	Manual Reset Circuit Breakers
3	Siren Controller

Table 24: OS Cabin Rear Electrical Panel Layout

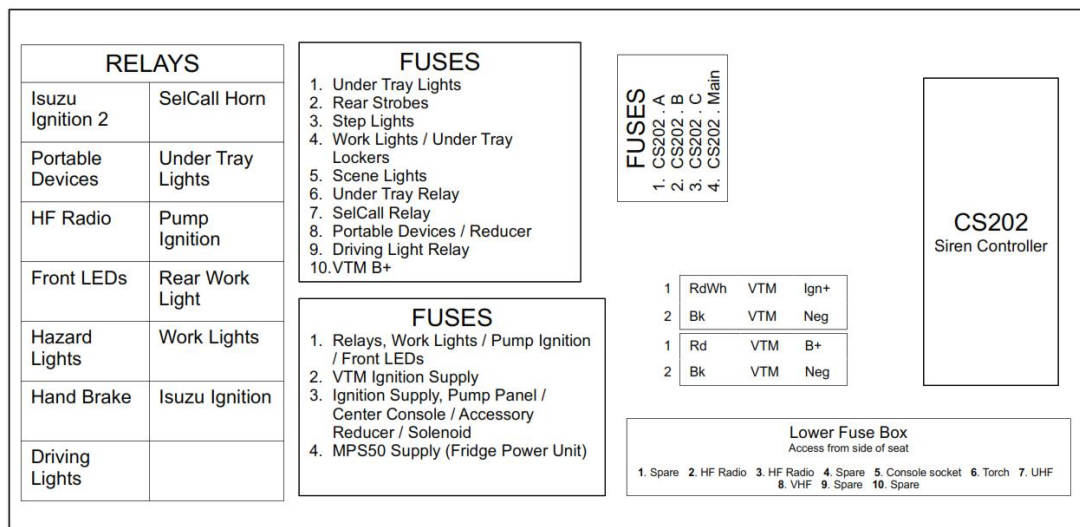


Figure 59: Relay and Circuit Breaker Layout

Unbolting the top section provides access to the voltage reducers.

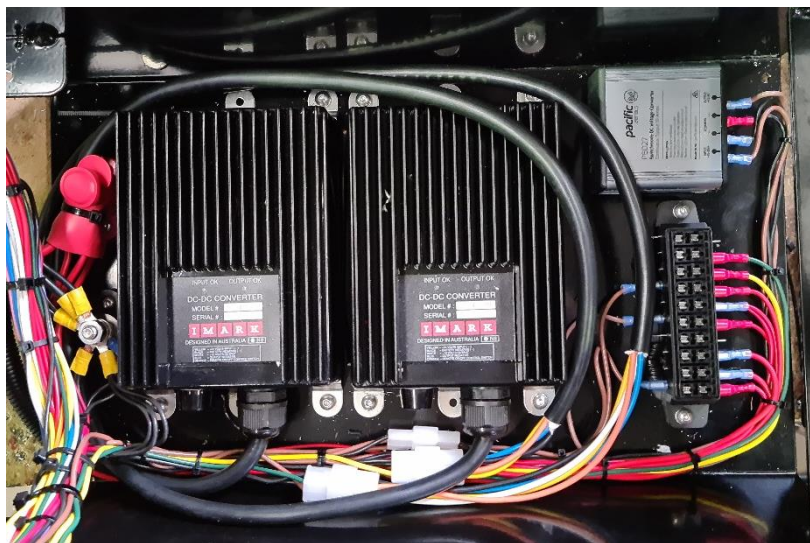


Figure 60: Voltage Reducers Under Cabin Rear Electrical Panel

To access the rear electrical panels, lift the seat base.

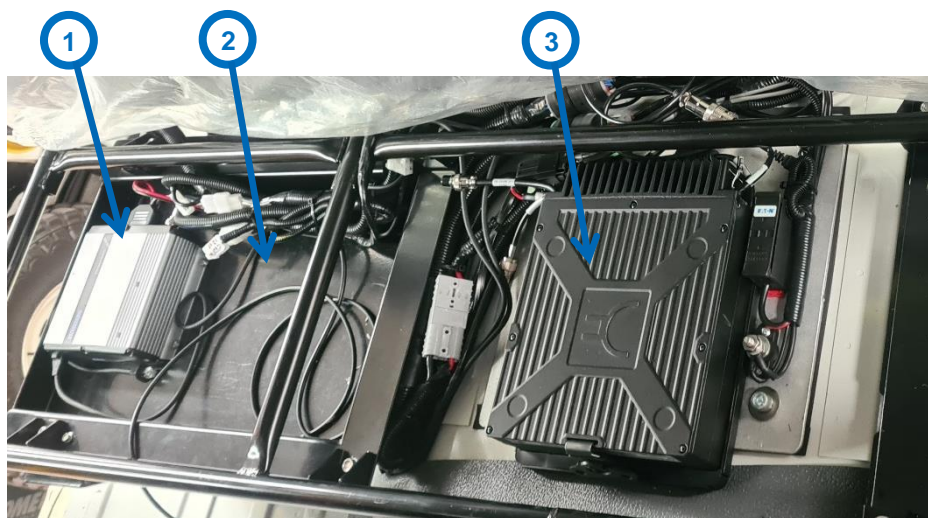


Figure 61: OS Cabin Electrical Panel

Item	Item Name
1	Simoco UHF Radio
2	Provision for Simoco VHF Radio
3	Codan HF Radio

Table 25: Cabin Rear Electrical Panel Radios

 **CAUTION**

Ensure that the battery isolator is turned off if the vehicle is being parked for any length of time as the Radio Systems draw power constantly and will drain the battery over time.

 **WARNING**

Ensure that all power systems are off/isolated before working on electrical systems. Failure to do so can cause electrocution injuries.

13.1.10 Portable Radio Holders

There is a provision to store six portable radios in the cabin. There are four portable radio holders on the panel between the front and rear seats below the helmet holders. These are for the rear seat occupants. There are two holders on the front of the centre console for the front seat occupants.



Figure 62: Front Seat Portable Radio Storage



Figure 63: Rear Seat Portable Radio Storage

13.1.11 Torches

There are two charging bases for the Stinger LED torches. The charging bases are in the rear of the cabin, just inside the rear doors on the side of the seat base. The chargers operate when the vehicle is connected to 240V mains power or the vehicle ignition when the appliance engine is running.



Figure 64: Torch Storage/Charging Base

13.2 Pump Set

The pump set is on the OS rear of the subframe. Access to the pump set is via the Platform Deck area on the rear side.

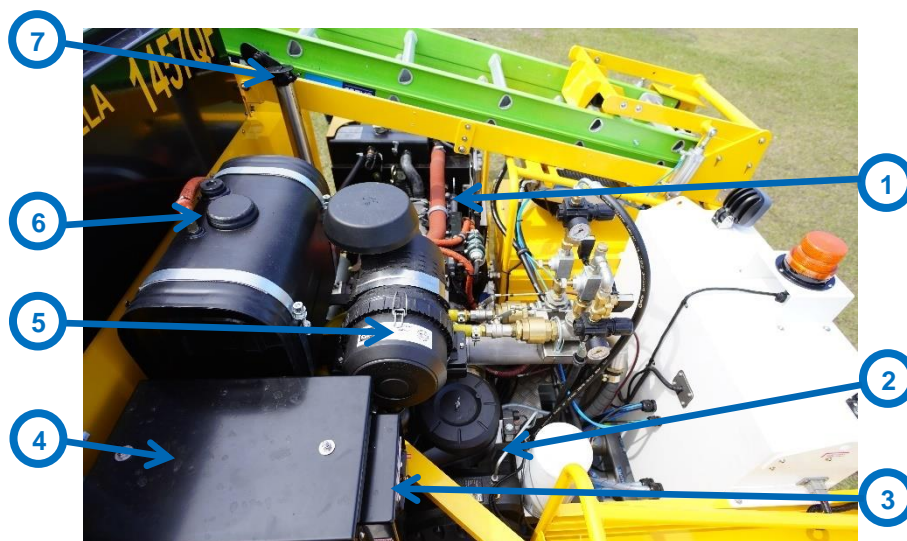


Figure 65: Pump Set

Item	Item Name
1	Hatz 4H50-TIC
2	Roto Comp Air Compressor
3	Pump Circuit Breaker Panel
4	Pump Set Battery Box
5	Hatz Air Filter
6	Hatz Reserve Fuel Tank
7	Hatz Exhaust

Table 26: Pump Set

13.2.1 Pump Set Batteries

The batteries ensure the Hatz charging system can maintain the electrical supply to the pump set's circuits during an incident that causes the vehicle batteries to be disconnected, allowing the pumps' electrical functions to continue operating, thus ensuring the flow of water, air or both.

The onboard battery charger maintains the batteries when the appliance is in the station and the 240v lead is connected. The Pump Set Batteries also receive charging current from the vehicle alternator while the vehicle is running.

WARNING

Before servicing any part of the appliance, ensure the power has been isolated, the pump is off, and pressure has been released from the plumbing system. Failure to do so may result in the unexpected release of energy causing injury, damage or even death.

WARNING

Motors and exhausts may be hot from recent use. Allow an appropriate amount of time for the hot surfaces to cool before servicing to avoid burning injuries or damage.

13.2.2 Primer

There is a Waterous electric primer below the deck, between the chassis rails. The primer switch is on the Pump Control Panel.

Steps for priming the pump and plumbing system are as follows:

1. Close all discharge valves.
2. Select the water source, either Tank to Pump or Suction Inlet.
3. Press and hold the Primer Button until a continuous flow of water comes out of the discharge pipe, indicating the pump is primed and ready to start.

The Primer Discharge Pipe is below the Pump Control Panel just under the tray on the near side.

WARNING

Failure to prime the pump can cause pump failure and/or shorten the operational life of the pump.

13.2.3 Pump Control Panel

The Pump Control Panel contains electrics for operating the pump set, CAFS and work lights. It also houses warning lights and an alarm to indicate low water and low fuel. There are external speakers for broadcasting communications and gauges for monitoring pressure in the plumbing and CAF systems.

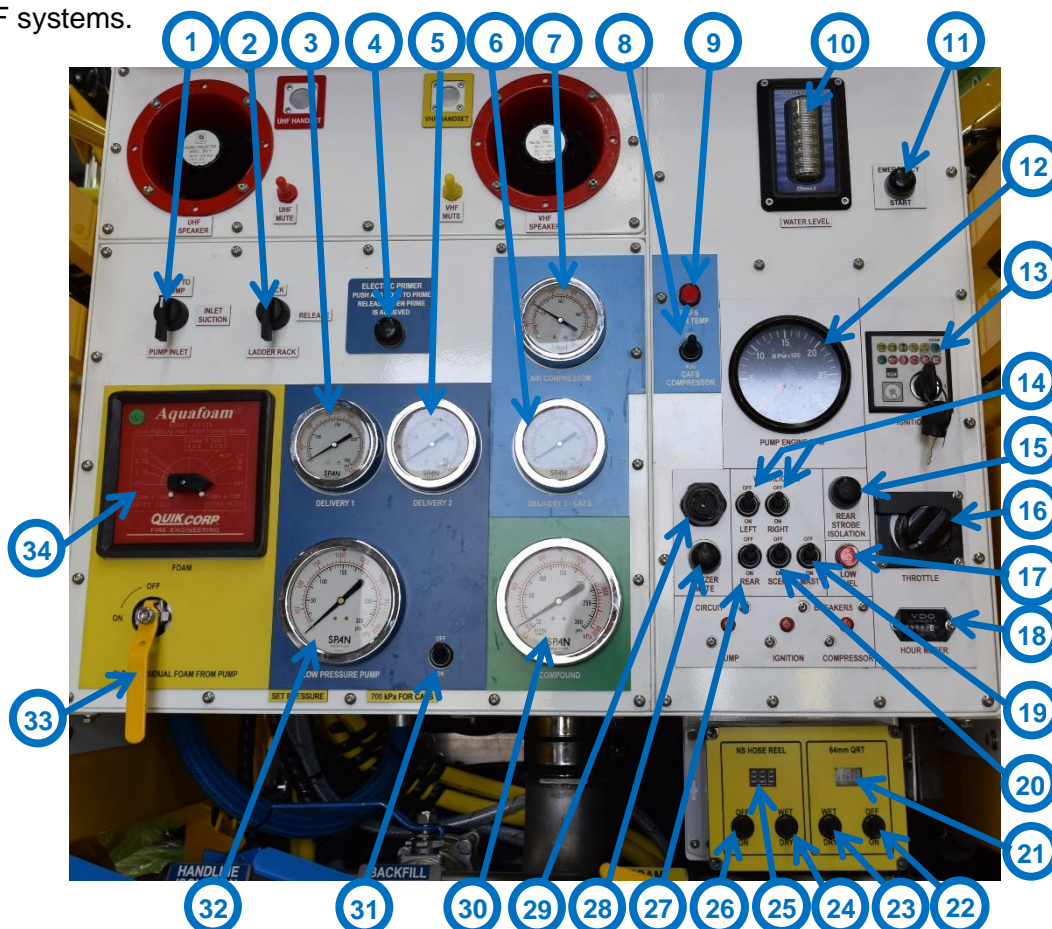


Figure 66: Pump Control Panel

Item	Item Name	Function
1	Pump Inlet	This switch selects the water source for the pump set.
2	Ladder Rack	This switch controls the ladder rack actuator.
3	Delivery 1 Pressure Gauge	This gauge displays the operating pressure of Delivery 1.
4	Primer Button	Momentary button to operate the electric primer.
5	Delivery 2 Pressure Gauge	This gauge displays the operating pressure of Delivery 2.
6	Delivery 3 – CAFS Pressure Gauge	This gauge displays the operating pressure of Delivery 3 – CAFS.
7	Air Pressure Gauge	This gauge displays the air pressure generated by the compressor.
8	Compressor Switch	This switch controls the Air Compressor for Air Lines or CAFS operation.
9	Compressor Over Temperature Light	Warning light to alert the operator if the Air Compressor is over-heating.
10	Tank Level Display	Displays the water tank level. Requires either Vehicle Ignition or Pump Ignition to operate.
11	Emergency Start	Links the Pump Batteries with the vehicle batteries to assist with starting the Hatz engine.
12	Tacho	Displays the Hatz motor RPM.
13	Hatz Ignition Switch and Warning Panel	Controls the starting and stopping of the Hatz engine and displays warnings about abnormal conditions with the Hatz engine.
14	Left and Right Work Light Switches	These switches control the Left and Right Work Lights. Vehicle park lights and ignition must be on to operate.
15	Rear Strobe Light Isolation	Isolates the rear Red & Blue Strobes when the emergency lights are active. Automatically resets when the siren controller is off.
16	Hatz Hand Throttle	Controls the Hatz engine RPM.
17	Low Fuel Warning Light	Warning Light illuminates when the vehicle fuel tank is below ¼ capacity, indicating approximately 50 litres of fuel.
18	Hour Meter	Displays the total number of hours the Hatz engine has been operating.
19	Mast Light Switch	This switch controls the two LED lights on the light mast. Requires vehicle park lights, ignition and pump ignition to operate.
20	Scene Lights Switch	This switch controls the Pump Panel Lights, including Gauge Backlighting. Requires vehicle park lights and pump ignition to operate.
21	64 QRT Display	Displays the current setting for the Wet/Dry mixture for CAFS for the 64 QRT Delivery 3.
22	64 QRT Air Switch	This switch controls the air supply to the 64 QRT Delivery 3.
23	64 QRT Mixture Switch	This switch controls the Wet/Dry mixture to the 64 QRT Delivery 3.
24	Hose Reel Mixture Switch	This switch controls the Wet/Dry mixture to the NS Hose Reel.
25	Hose Reel Display	Displays the current setting for the Wet/Dry mixture for the CAFS.
26	Hose Reel Air Switch	This switch controls the air supply to the NS Hose Reel.
27	Rear Work Lights Switch	This switch controls the rear-facing work lights. Requires vehicle park lights, ignition and pump ignition to operate.
28	Buzzer Mute Button	A momentary button to mute the warning buzzer.
29	Warning Buzzer	The buzzer will sound for Low Fuel or Low Water.
30	Compound Gauge	Gauge providing information about the Pump Inlet operating pressure.
31	Low-Pressure Pump Switch	This switch controls the Low-Pressure Pump. Requires pump ignition to operate.
32	Low-Pressure Pump Gauge	Low-Pressure Pump outlet operating pressure.
33	Foam Flush Valve	Flushes water through the Foam Supply Line.
34	Foam Proportioner	Aquafoam FP135 controls the percentage of foam in the mixture.

Table 27: Pump Control Panel

13.2.4 Pump Control Panel Internal

Inside the Pump Control Panel, there are relays, circuit breakers, voltage reducers and a low fuel module.

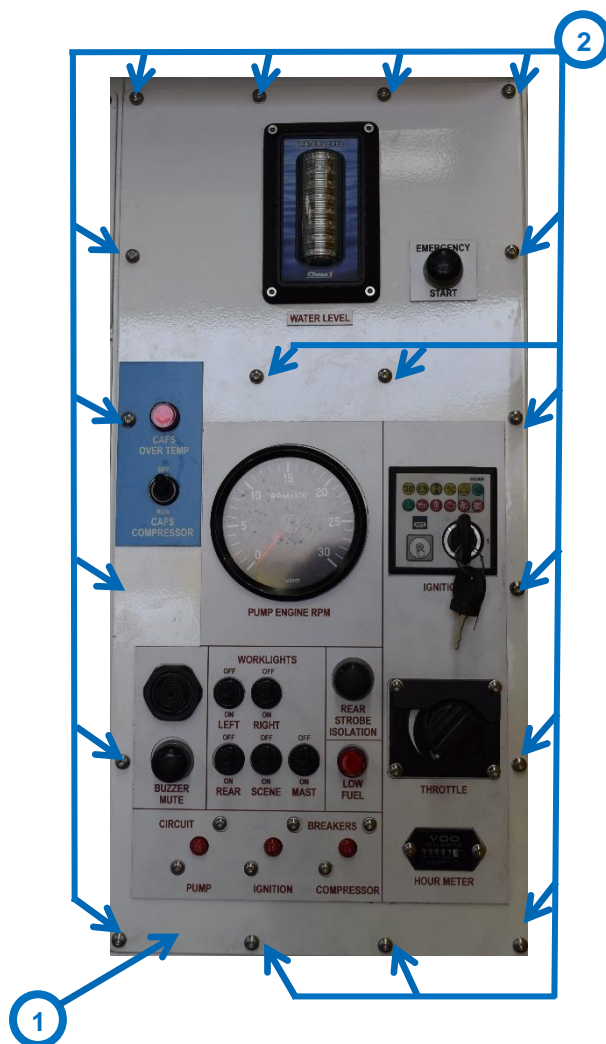


Figure 67: Pump Control Panel Access

Item	Item Name
1	Pump Control Panel Electrical Panel
2	Panel Bolts

Table 28: Pump Control Panel Access

To gain access to the Pump Control Panel electrical panel:

1. Isolate the power to the Pump Control Panel by turning the vehicle battery isolation switch to the off position.
2. Isolate the Pump Set Batteries at the Circuit Breaker at the rear of the appliance.
3. Remove the bolts securing the panel.
4. Gently pull the panel forward to expose the internal area.



WARNING

Isolate the power supply to the Pump Control Panel before accessing the internal areas. Failure to do so can cause electrocution injuries.

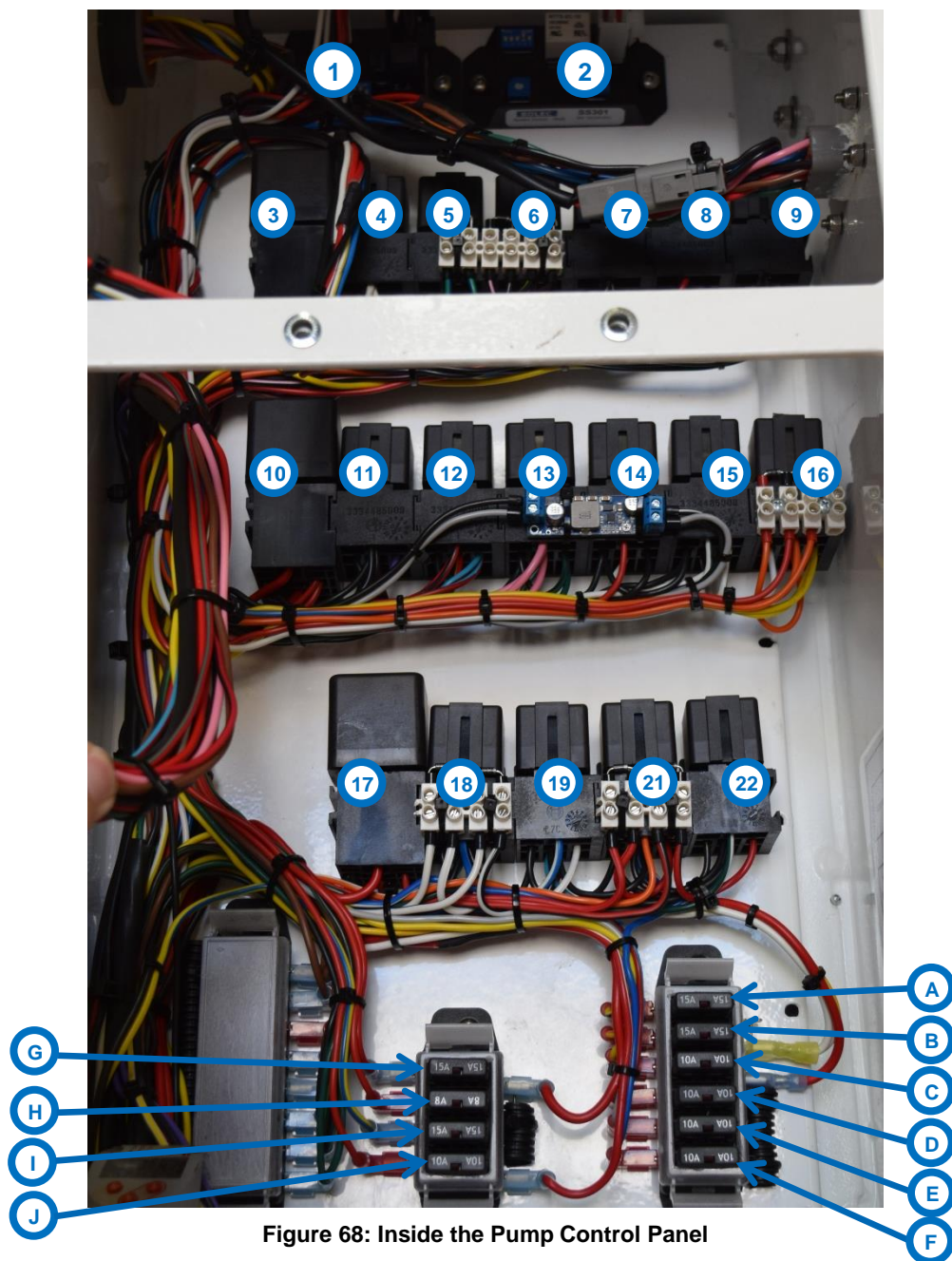


Figure 68: Inside the Pump Control Panel

Item	Item Name	Function
A	Fuse 1	Hose Reel CAFS Switch
B	Fuse 2	64 QRT CAFS Switch
C	Fuse 3	CAFS Mixer Displays
D	Fuse 4	Hose Reel Wet Dry Valve
E	Fuse 5	Valve Linear Actuator Position Feedback
F	Fuse 6	64 QRT Wet Dry Valve
G	Fuse 7	CAFS Air Shut Off Solenoid
H	Fuse 8	Speed Module/Clutch Idle Lockout
I	Fuse 9	CAFS Compressor Cooling Fan
J	Fuse 10	Auxilliary Reverse Lights

Item	Item Name	Function
1	Low Fuel Module	Monitors the vehicle fuel level. Activates the low fuel alarm when the fuel level has dropped below ¼ (50L) of the tank volume.
2	RPM Module	This module activates the Water Pump Clutch & Compressor Interlocks.
3	Pump Ignition 1 Relay	This relay supplies power for a number of Pump Ignition circuits.
4	Air Pressure Relay	Turns off the Air Shut Off Solenoid Relay when the Air Compressor exceeds the maximum air pressure.
5	Air Shut Off Solenoid Relay	If the Hatz motor loses oil pressure or the compressor exceeds the maximum air pressure, it turns off the Air Shut Off Solenoid.
6	Clutch Relay 1 12V	This relay combined with Clutch Relay 2 and 3 control the Water Pump Clutch & RPM Interlock.
7	Oil Pressure Relay	It uses the low oil pressure signal from the Hatz engine to turn off the Air Compressor.
8	Low Water Beacon Relay	Activates the Low Water Beacon and Alarm when the water level has dropped below ¼ (750L) of the tank volume.
9	Clutch Relay 2	This relay combined with Clutch Relay 1 and 2 control the Water Pump Clutch & RPM Interlock.
10	Pump Ignition 2 Relay	Supplies power to the CAFS Compressor, Volume Pump and Pump Control Panel.
11	Low Water/Fuel Buzzer Relay	Activates the Buzzer when the vehicle fuel level drops below ¼ (50L) OR when the water tank level drops below ¼ (750L).
12	Buzzer Mute Relay	Silences the Low Water/Low Fuel warning buzzer when the Buzzer Mute Switch is activated. Automatically resets with the vehicle ignition.
13	Rear Strobe Isolation Relay	De-activates the rear emergency strobes. Strobes will reset with the siren controller operation.
14	Reverse Relay	This relay is the Reverse Signal from vehicle reverse lights.
15	Auxiliary Reverse Relay	Enables the driver to operate the rear work lights from the cabin when the vehicle is in reverse gear.
16	Clutch Relay 3	This relay combined with Clutch Relay 1 and 2 control the Water Pump Clutch & RPM Interlock.
17	Pump Ignition 3 Relay	This relay provides power to the CAFS Cooling Fan and Air Shut-Off Relay.
18	Hose Reel Wet Relay	This relay opens the water valve to the hose reel outlet.
19	Hose Reel Dry Relay	This relay closes the water valve to the hose reel outlet.
20	64 QRT Wet Relay	This relay opens the water valve to the CAFS QRT Outlet.
21	64 QRT Dry Relay	This relay closes the water valve to the CAFS QRT Outlet.

Table 29: Pump Control Panel Internal

To replace the panel:

1. Carefully place the Pump Control Panel back on the enclosure. Ensure no wires are pinched or kinked.
2. Secure the panel with the supplied screws.

13.2.5 Hatz 4H50TI-OPU Diesel Engine

The engine is a water-cooled, four-cylinder, fuel-injected diesel that delivers a maximum of 73.8hp (55kw) at 3000rpm. The Hatz 35L fuel tank connects to the vehicle diesel fuel system. The fuel supply to the Hatz motor can be isolated using the Pump Set Diversion Valve beside the vehicle fuel tank on the near side. Refer to APPENDIX D – FUEL SYSTEM on Page 118.

Refer to O.E.M. instructions for operating and servicing requirements of the Hatz Engine.

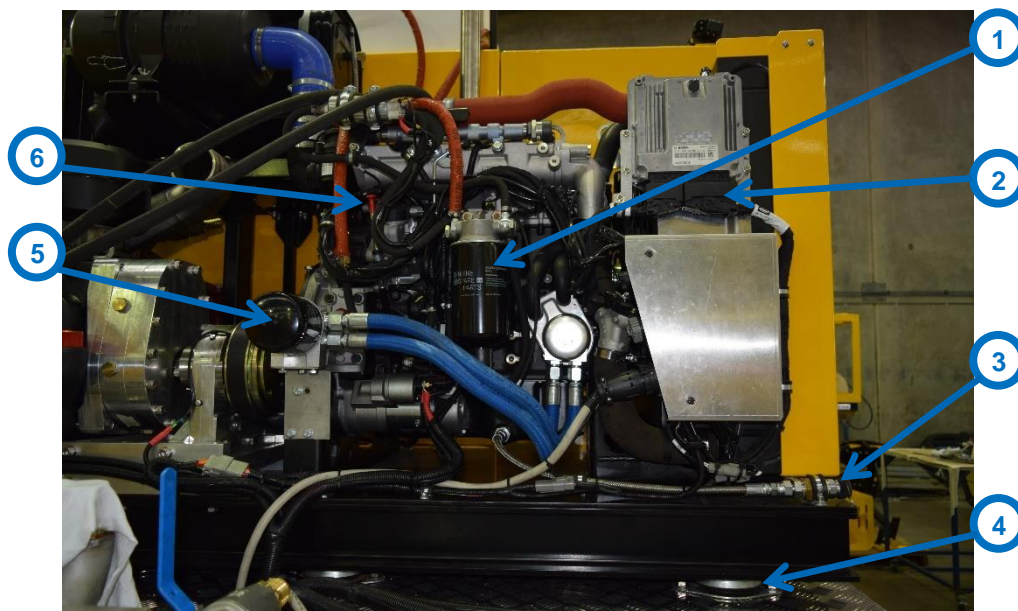


Figure 69: Hatz 4H50TI Pump Set Engine

Item	Function
1	Fuel Filter
2	Hatz ECU
3	Hatz Engine remote oil drain
4	Pump Set Mount
5	Oil Filter
6	Oil Dip Stick

Table 30: Hatz Pump Set Engine

Below the pumpset batteries are the water isolation valves for the CAFS Mixers. These are only required if the plumbing supply to the mixer valves develop a leak.



Figure 70: CAFS Mixer Water Isolation Valve

13.2.6 Starting the Engine

The starting procedure for the engine is as follows:

1. Conduct daily maintenance checks on the engine; refer to the Hatz Engine OEM manual.
2. Ensure the Fuel Diversion Valve is On.
3. Ensure that all discharge valves are closed.
4. Prime the pump (refer to 13.2.2 on page 53).
5. Turn the ignition key to the “ON” position, then to the “START” position and hold. The engine will begin to crank over. If the engine does not immediately start, the throttle may need to be adjusted (Wait 2 mins between each start attempt.). If the engine does not start, the ignition key must be cycled off and then back on before engaging the crank position again. Once the engine has started, allow the ignition key to return to the “ON” position.
6. Once the engine is running, turn on the Low-Pressure Pump Switch if Water is required. Turn on the Air Compressor Switch if Compressed Air is required. Turn on both switches for CAFS.
7. Adjust the throttle to achieve the required pressure.

CAUTION

Do not crank the engine for more than 20 seconds at a time. Failure to comply may cause damage to the starter motor.

NOTE

The water pump will only engage when the engine is at idle. If the water pump is turned off, the engine rpm must be reduced to idle before the pump can re-engage.

NOTE

The pump set engine is connected to the vehicle electrical system for starting but is wired so that it will continue to operate if there is an interruption to the vehicle's power supply.

If the Pumpset Batteries fail, the Hatz engine will not start. If there is an issue with starting the Hatz engine, press and hold the Emergency Start Button on the pump control panel beside the water level display while turning the pump ignition to start in step 5 of Section 13.2.6 on Page 59. It may be necessary to hold the Emergency Start Button on for 10 seconds after the engine has started.

If the Emergency Start Button is needed to start the Hatz engine, have the Pumpset Batteries tested as soon as practical.



Figure 71: Emergency Start Button

13.2.7 Stopping the Engine

To stop the engine;

1. Decrease the engine throttle to idle speed.
2. Turn off the Low-Pressure Pump Switch.
3. Turn off the Compressor Switch
4. Turn off the Pump Ignition Switch.

13.3 Plumbing

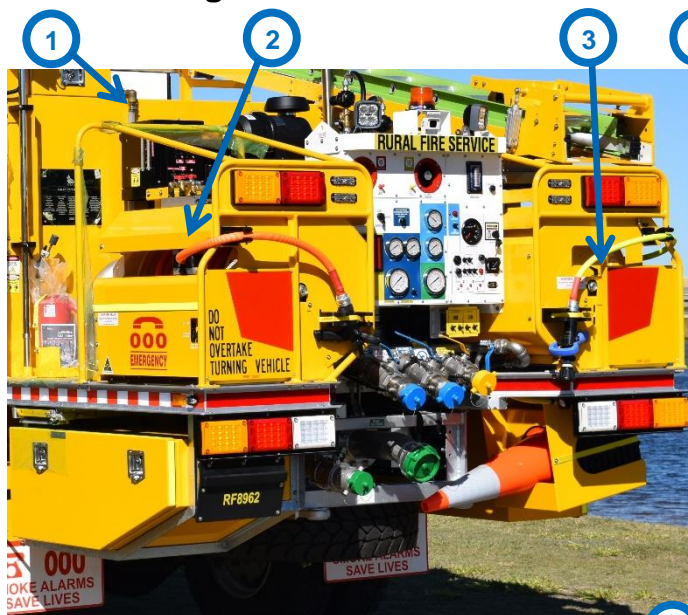


Figure 72: NS Rear of Appliance

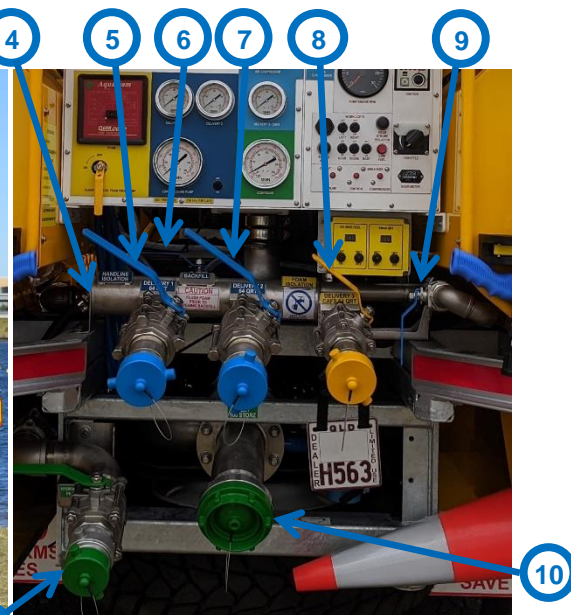


Figure 73: Rear Plumbing

Item	Item Name	Coupling / Fitting
1	Sight Tube	64mm QRT
2	NS Hose Reel	25mm Storz
3	OS Hose Reel	25mm Storz
4	Delivery Manifold	N/A
5	Delivery 1	64mm Male QRT
6	Back Fill Valve	75mm Ball Valve
7	Delivery 2	64mm Male QRT
8	Delivery 3 - CAFS	64mm Male QRT
9	OS Reel Control Valve	25mm Ball
10	Inlet - Drafting	100mm Storz
11	Hydrant Fill	64mm Male QRT

Table 31: Plumbing Items

NOTE

All valves operate with the handle in the direction of flow.

13.3.1 Water Source

The Pump Inlet pneumatic switch is on the pump control panel beside the Ladder Rack pneumatic switch. The Pump Inlet Switch selects between the onboard water tank (Tank to Pump) or external supply (Inlet Suction).



Figure 74: Pump Inlet Pneumatic Switch

13.3.2 Onboard Water Tank

To use the onboard water supply:

1. Set the Inlet Suction pneumatic switch to “TANK TO PUMP”.
2. Prime the pump (refer to section 13.2.2).
3. Start the pump engine (refer to section 13.2.6).
4. The pump will begin drawing water from the onboard tank.

13.3.3 Drafting Water

In conjunction with the onboard suction hoses, the pump set can draft water from an external source. The pump can use the water to supply the delivery outlets or fill the onboard water tank. Follow this procedure to draft water from an external source.

1. Position the appliance within range of the water source allowing for the suction hoses on-board.
2. Remove the suction hose(s) from the Suction Hose Locker.
3. Remove the Cap from the 100mm Storz Inlet port located at the rear of the appliance.
4. Connect suction hoses to the appliance inlet.
5. Connect a suction hose strainer and float to the suction hose, and position it in the water source.
6. Set the Pump Inlet pneumatic switch to the “INLET SUCTION” position.
7. Prime the pump (refer to section 13.2.2). Note: the time taken to prime the pump is dependent on the total length of the suction hose between the appliance and the water source. The compound gauge will drop into the negative section of the gauge.
8. Start the pump set engine and engage the water pump (refer to section 13.2.6).
9. The pump will begin to draft water from the external source, and pressure will show on the main pressure gauge.

The water from the external source can fill the tank and or supply the delivery outlets.

- To fill the onboard tank, open the Backfill Valve and monitor the tank water level.
- To discharge from one of the ports on the manifold, connect a Lay-flat hose with a 64mm QRT to Delivery 1 or Delivery 2. Fit a nozzle and lay-flat hose to a Delivery Outlet and then open Delivery Valve 1 or 2 corresponding to the Delivery Outlet connected.
- To discharge from the hose reel, open the Reel Control Valve. Refer to section 13.3.6 for hose reel operation.

i NOTE

To avoid water wastage, carefully monitor the onboard tank being filled. Shut off the pump set and close the valves once the tank is full.

13.3.4 Hydrant Fill

The Hydrant Fill is below the plumbing delivery manifold at the rear of the vehicle and has a 64mm female QRT fitting and Cap. The Hydrant Fill directs water to the top of the tank, where there is an air gap to prevent backflow into the water supply. The Hydrant Fill also has a check valve and an isolation valve. The tank has an overflow tube running vertically in the centre of the tank, which allows excess water to drain onto the ground behind the rear axle of the appliance.



Figure 75: Hydrant Fill Point

When filling from a hydrant, use the lay-flat hoses stored in the OSM Locker and the Standpipe in the OSR Locker.

Filling the tank from a hydrant:

1. Position the appliance within the range of the hydrant.
2. Retrieve the Standpipe, the standpipe pry bar, a QRT Spanner and the 64mm lay-flat hose from their storage locations in the OSM Locker.
3. Connect the Standpipe to the fire hydrant.
4. Ensure the outlet is pointing safely away from the appliance and personnel, then briefly open and close the Standpipe to flush any contaminants.
5. Connect the lay-flat hose to the Hydrant Fill Point and the Stand Pipe and, using the appropriate tools, ensure the couplings are tight.
6. Open the Hydrant Fill Valve (appliance side).
7. Open the Standpipe Valve. Water will fill the lay-flat hose and will start to fill the tank.
8. Monitor the water level via the sight tube on the rear face of the tank.
9. When the float in the sight tube reaches the top, the tank is full. Shut off the Standpipe Valve.
10. Shut off the Hydrant Fill Valve on the Hydrant Fill Point (on the appliance).
11. Disconnect the lay-flat hose from the appliance and the Standpipe and drain.
12. Place the Cap back on the Hydrant Fill Point on the appliance.
13. Remove the Standpipe from the fire hydrant and return it to its storage location.
14. Roll up the hose and return the hose to its storage location.
15. Return the standpipe key and any other tools or fittings to their storage location.

 **NOTE**

To avoid water wastage, carefully monitor the onboard tank being filled. Reduce the water flow when the water level float nears the top. Shut off the fire hydrant once the tank is full.

13.3.5 Water Delivery

There are three options for water discharge on this appliance:

- 2 x 64mm QRT outlets (Delivery 1 and Delivery 2) on the Discharge Manifold.
- Hose Reel on the NS or OS.
- Handline Outlets on the NS or OS.

To discharge water from the manifold Delivery Outlets:

1. Select which discharge outlet to use Delivery 1 or Delivery 2.
2. Remove the relevant lay-flat hoses from their storage location.
3. Roll out hoses and connect them to the relevant outlet.
4. Ensure the other end of the hose is coupled correctly to the destination receptacle or branch.
5. Select Water Source, i.e. Tank or Inlet Suction (refer to section 13.3.1 Page 62).
6. Start the pump set as per instructions in section 13.2.6 (Page 59).
7. Once the pump has started and is up to pressure, open the ball valve for the relevant discharge outlet to discharge water into the lay-flat hose.

To discharge water from the OS Hose Reel:

1. Select Water Source, i.e. Tank or Inlet Suction (refer to section 13.3.1 Page 62).
2. Start the pump set as per instructions in section 13.2.6 (Page 59).
3. Release the Branch from the PAC bracket on the rear of the appliance.
4. Release the reel drum brake by turning the lever counter-clockwise. If the lever cannot turn enough to release the brake, lift the lever and rotate it backwards and then release it and turn it forwards again to release the brake further. Refer to Figure 77 and Figure 78.
5. Pull the hose to unwind it to the desired length.
6. Apply the hose reel brake to prevent the reel from unwinding with water pulsing.
7. Open the OS Reel Control Valve at the delivery manifold and adjust the Branch to control the spray pattern.
8. When the operation is complete, close the OS Reel Control Valve at the delivery manifold.
9. Operate the Branch to release the water pressure from the hose.
10. Release the hose reel drum brake and start to rewind the deployed hose ensuring the hose is rewound evenly across the drum surface.
11. Place the Branch back into the PAC bracket on the rear of the appliance.
12. Apply the hose reel drum brake.
13. Shut down the pump set. (refer to section 13.2.7 Page 60).

To discharge water from the NS Hose Reel:

1. Select Water Source, i.e. Tank or Inlet Suction (refer to section 13.3.1 Page 62).
2. Start the pump set as per instructions in section 13.2.6 (Page 59).
3. Set the Hose Reel Mixture to maximum Wet.
4. Release the Branch from the PAC bracket on the rear of the appliance.
5. Swap the CAFS 12mm Straight Bore Nozzle to the 25mm Storz fitted nozzle on the Slide and Tilt Shelf in the OSM Locker.
6. Release the hose reel brake by turning the lever counter-clockwise. The hose reel brake lever is spring-loaded holding it down against a ratchet mechanism. If the brake lever impacts the hose reel and the brake has not released, lift the brake lever upwards and rotate it back to the starting position. Release the brake lever to allow it to re-engage the ratchet, then turn the brake lever again. Repeat until the hose reel brake has released. Refer to Figure 77 and Figure 78.
7. Pull the hose to unwind it to the desired length.
8. Apply the hose reel brake to prevent the reel from unwinding with water pulsing.
9. Open the NS Reel Control Valve in the deck platform area beside the hose reel and adjust the Branch to control the spray pattern.
10. When the operation is complete, close the NS Reel Control Valve at the deck platform beside the hose reel.
11. Operate the Branch to release the water pressure from the hose.
12. Release the hose reel drum brake and start to rewind the deployed hose ensuring the hose is rewound evenly across the drum surface.
13. Place the Branch back into the PAC bracket on the rear of the appliance.
14. Apply the hose reel drum brake.
15. Shut down the pump set. (refer to section 13.2.7 Page 60).

To discharge water from the Handlines:

1. Retrieve the required Handline/s from the Slide and Tilt Shelf in the OSM Locker.
2. Connect the Handline to the 25mm Storz outlet at the NS Rear or OS Front of the tray.
3. Connect the required Branch to the Handline.
4. Select Water Source, i.e. tank or suction (refer to section 13.3.1 on Page 62).
5. Prime the pump set as per instructions in section 13.2.2 on Page 53
6. Start the pump set as per instructions in section 13.2.6 on Page 59
7. Once the pump has started and is up to pressure, open the Handline Isolation Valve at the Discharge Manifold.
8. When ready to start delivering water, open the Ball Valve at the outlet.
9. Operate the Branch to start water flow.
10. When the operation is complete, close the Ball Valve at the outlet.
11. Operate the Branch to release pressure in the Handline.
12. Disconnect the Handline.
13. Disconnect the Branch from the Handline and store it in the OSM Locker.
14. Coil and Stow the Handline/s on the Slide and Tilt Shelf in the OSM Locker.
15. Shut down the pump set. (refer to section 13.2.7 Page 60)

NOTE

The Handline Isolation Valve at the manifold, only needs to be turned off if there is a leak.

13.3.6 Hose Reels

There are two hose reels on the appliance, one on the NS rear and one on the OS rear. The NS hose reel is set up primarily for CAFS, but it can be used as a normal low-pressure delivery. The OS hose reel is a dedicated low-pressure delivery. The Near Side Hose Reel (CAFS) has 60m of 25mm I.D. Stabilo Fire Hose. The Off Side Hose Reel (Water) has 60m of 19mm I.D. Stabilo Fire Hose.

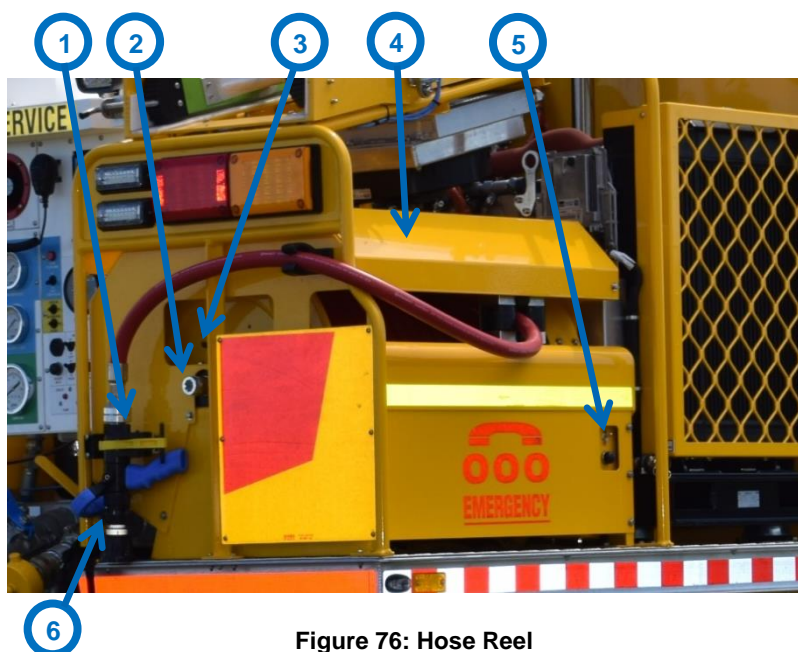


Figure 76: Hose Reel

Item	Item Name
1	Nozzle Stowage Clamp
2	Hose Reel Axle Socket
3	Reel Drum Brake
4	Hose Reel
5	Reel Rewind Control
6	Hose Nozzle

Table 32: Hose Reel Items



Figure 77: Hose Reel Brake – Lifting the Lever.



Figure 78: Hose Reel Brake

13.3.7 Electrical Rewinding the Hose Reel:

1. Ensure the vehicle ignition is on.
2. Ensure the hose branch is off, and the hose reel brake is released.
3. At the control panel on the hose reel, turn the electric rewind on (toggle switch).
4. Press and hold the rewind button to rewind the hose.
5. Release the button when the red hose marker is within 1 metre of the hose reel.
6. Complete the rewinding process manually to prevent damage to the hose.
7. Secure the hose nozzle in its stowed position.



NOTE

The vehicle ignition must be on for the electric hose reel rewind to operate.



CAUTION

The Hose Reel rewinding process is recommended as a two-person operation. One to operate the rewind mechanism (electric or manual) and one to apply tension to the hose and guide it onto the hose reel.



WARNING

Do not operate the hose rewind when the hose is already fully rewound. This could cause damage to the hose or hose reel and possibly cause injuries from uncontrolled objects.

13.3.8 Manually Rewinding the Hose Reel

In the event of power or equipment failure, rewind the hose reel manually, using the supplied reel handle and by following these steps.

1. Ensure the hose reel brake is off.
2. Remove the manual rewind handle from its stowed location.
3. Connect the handle to the socket of the hose reel axle. Correctly engage the handle by pushing the handle lock aside to allow it to slide into the socket.
4. Turn the handle to rewind the hose.
5. When complete, remove the handle and return it to its stowed location.



Figure 79: Hose Reel Handle

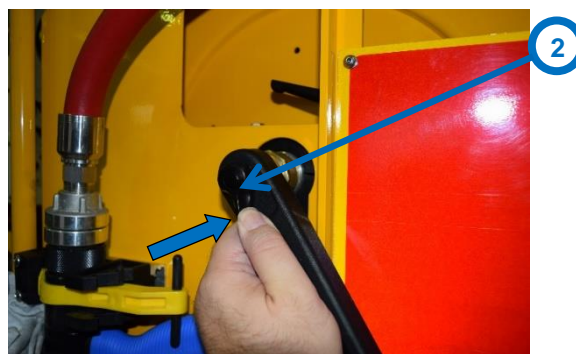


Figure 80: Hose Reel Handle – Engaged

Item	Item Name
1	Hose Reel Manual Rewind Handle
2	Handle Lock
3	Hose Reel Axle Socket

Table 33: Hose Reel Handle

WARNING

Secure the hose reel correctly before moving the appliance to prevent the hose un-winding and causing equipment damage and/or injury.

WARNING

Never operate the hose reel electric rewind when the manual rewind handle is installed. Injury to personnel and/or damage to equipment may occur.

13.4 Foam

The appliance has an Aquafoam™ foam metering and delivery system. Any outlets connected to the Delivery Manifold can discharge foam. The Aquafoam™ draws foam from the drums in the OSRUT Locker or from an external source connected to the Foam Induction Pick Up Point Storz fitting beside the OSRUT Locker.

To induct foam into the system:

1. Select Water Source, i.e. tank or suction (refer to section 13.3.1 Page 62).
2. Start the pump set as per instructions in section 13.2.6 (Page 59)
3. Turn on the low-pressure pump.
4. Select the method of water delivery (hose reel or other). Refer to section 13.3.5 Page 64.
5. Ensure the Backfill Valve is “CLOSED”.
6. Select the foam source by setting the Valve at the Foam Induction Pick Up Point to either the onboard supply or from an external foam source.
7. To regulate the consistency of the foam, adjust the dial on the Aquafoam™.



Figure 81: Foam Induction Pick Up Point – Set to Onboard Foam

WARNING

Do not open the Backfill Valve while using foam. If the Backfill Valve is opened while the foam is being used, the foam will be directed into the tank, contaminating the water supply. This will require the tank to be flushed and fully cleaned before it can be used again.

WARNING

When switching between different Classes of Foam, i.e. Class A to Class B or vice versa, always flush the residual foam from the system before inducing the new Class of Foam. Failure to flush the system between different Classes of Foam will damage the pump and plumbing systems.

WARNING

After using Foam the plumbing system must be flushed. Any residual foam left in the plumbing system can cause damage to the pump and plumbing systems.

13.5 Air Compressor

The Heavy Attack appliance has a Rotocomp Air Compressor driven by the Hatz diesel engine. It provides compressed air to run the CAFS and the four high-pressure (12 bar/180 psi) air outlets. There are isolation valves on top of the NS Hose Reel to isolate individual outlets if there is an air leak. The air system has a small air reservoir tank.

WARNING

The compressed air outlets supply high pressure compressed air - 12 bar (180 psi). Only use equipment and lines that are rated for 12 bar or higher. Injury and damage can occur as a result of using equipment not rated for high air pressure.

To use the compressed air outlets:

1. Start the Pump Engine. Refer to section 13.2.6 Page 59.
2. Set the CAFS Compressor switch to the RUN position. The compressor will not engage until the Pump Engine RPM is above idle.
3. Adjust the Pump Engine RPM to suit the application.
4. Ensure the Isolation Valves located above the NS Hose Reel are open. These should be left in the open position and only closed if a leak is detected.
5. Connect the air-line/air tool to an outlet and open the valve just behind the fitting.



Figure 82: CAFS Compressor Switch



Figure 83: Compressed Air Outlet and Valve



Figure 84: Compressed Air Isolation Valves

13.6 Compressed Air Foam System (CAFS)

The CAFS unit uses a liquid solution mixed with compressed air and water to deliver a fire suppressant foam that can coat and cling to most surfaces. Use the Hose Reel and Delivery 3 Wet / Dry switches and displays to adjust the consistency of the foam to suit the task. The foam drum locker (Off Side Rear Under Tray Locker) stores three twenty-litre foam drums. The foam drums can attach directly to a dedicated foam intake inside the foam drum locker. There is a 25mm Storz Foam Induction Pickup Point on the off-side rear of the appliance to draw foam solution from an external source. CAFS is available from the NS Hose Reel or via Delivery 3, a dedicated 64mm QRT fitting at the Plumbing Manifold. A CAFS Temperature Warning Light will illuminate if the system reaches 105°C to alert the operator to throttle back or turn off the system.

Refer to Figure 85: CAFS Controls on Page 72.

1. Start the Pump Engine. Refer to section 13.2.6 on Page 59.
2. Set CAFS Compressor switch to RUN position.
3. Prime the pump. See section 13.2.2 on Page 53.
4. Turn on the Volume Pump (Low-Pressure) and adjust the throttle to 700kPa pump pressure.
5. Set the Foam Proportioner to 0.3%
6. Turn on the Foam Isolation Valve.
7. Set the CAFS Wet/Dry to Wet (Over 25 on the display).
8. Turn on the CAFS Air Valve to the desired outlet – Hose Reel / Delivery 3
9. Commence spraying by opening the CAFS Nozzle Branch.
10. Adjust the CAFS Wet/Dry Valve to set the required foam consistency.
11. Adjust the Pump Engine RPM to maintain 700kPa

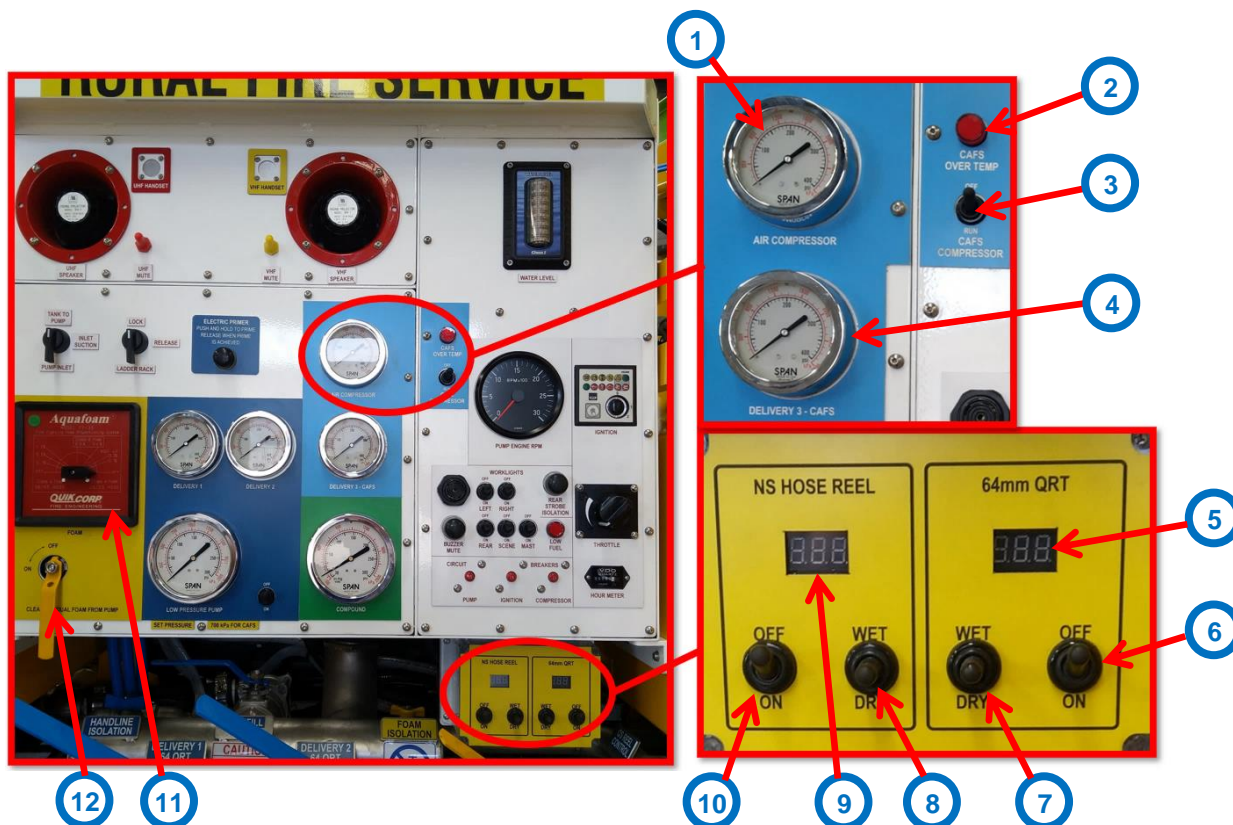


Figure 85: CAFS Controls

Item	Item Name
1	Air Compressor Pressure Gauge
2	CAFS Compressor Over Temperature Light
3	CAFS Compressor Switch
4	Delivery 3 – CAFS Pressure Gauge
5	64mm QRT Delivery 3 - CAFS Mixture Display
6	64mm QRT Delivery 3 – Air Supply Switch
7	64mm QRT Delivery 3 – CAFS Wet/Dry Mixture Switch
8	NS Hose Reel – CAFS Wet/Dry Mixture Switch
9	NS Hose Reel – CAFS Mixture Display
10	NS Hose Reel – CAFS Wet/Dry Mixture Switch
11	Aquafoam™ Foam Proportioner
12	Foam Flush Valve

CAUTION

CAFS wet/dry adjustment must be in the wet setting at the commencement of CAFS operation.

WARNING

Never open the Backfill Valve when using Foam. This will allow Foam Solution to contaminate the water tank.

CAUTION

Release stored air pressure in the hose reel and lay-flat once CAFS usage is complete.

13.7 Water Tank

The onboard water tank is a custom-made HDPE Polymer Tank with a useable capacity of 3000 litres. The tank is fitted with multiple lateral baffles to minimise the effect of water surge during transit. The water tank also incorporates an internal overflow system for pressure relief, which will prevent damage if the water tank is over-filled or over-pressurised. It also assists in minimising spillage during transit.

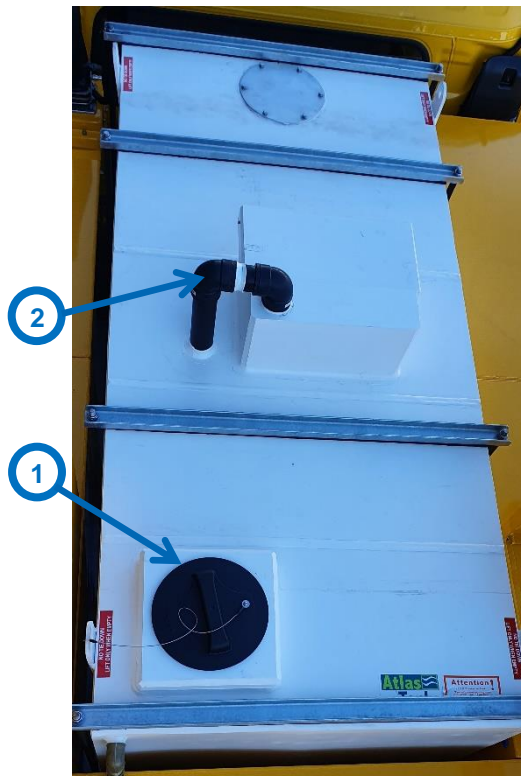


Figure 86: Top of Tank

Item	Item Name
1	Tank Inspection Cover
2	Tank Fill Line

Table 34: Tank



Figure 87: Tank Overflow Outlet

13.7.1 Water Level Management

The sight tube on the rear of the tank and the electronic Water Level Indicator display the water level in the onboard tank. A low water warning will alert the operator when the water tank reaches 25% of its capacity. When the low water alert activates, there will be about 750 litres of water remaining.

The low water alerts on the body and the pump control panel will only operate when the pump ignition is active to prevent lights and warning alarms from causing a distraction to other road users when the appliance is returning to refill. Vehicle Ignition On;

- Electronic Water Level Indicator Display at the Pump Control Panel
- Mini Water Level Indicator in the Cabin
- Cabin Low Water Alarm

Vehicle Ignition and Pump Ignition On:

- Electronic Water Level Indicator Display at the Pump Control Panel
- Mini Water Level Indicator in the Cabin
- Cabin Low Water Alarm
- Low Water Strobe will activate at 25% tank capacity.
- Warning Buzzers at the Cabin Centre Console and the Pump Control Panel will activate at 25% tank capacity.

Buzzer mute conditions:

- Press the buzzer mute button in the Pump Control Panel or the Cabin Centre Console to stop the low water alarm in the respective location.
- The buzzer in the Pump Control Panel will reset when the pump ignition turns off, or the water rises above 75% or fuel rises above 25%.
- The buzzer in the Cab Centre Console will reset when the vehicle ignition turns off.

Vehicle Ignition On and Pump Ignition Off:

- Electronic Water Level Indicator Display at the Pump Control Panel
- Mini Water Level Indicator in the Cabin
- The buzzer in the Cabin Centre Console will activate when levels are below 25%.

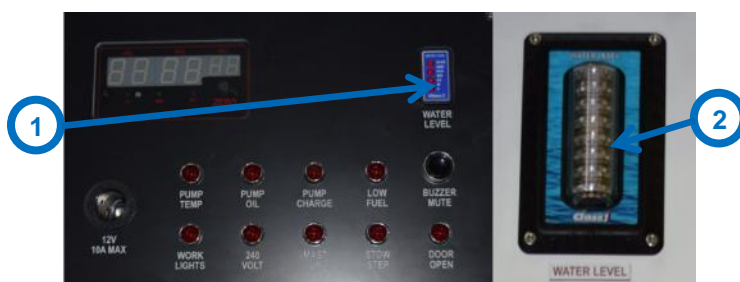


Figure 88: Water Level Indicator

Item Label	Item Name
1	Cabin Mini Water Level Display
2	Pump Control Panel Water Level Display

Table 35: Water Level Indicator

13.7.2 Filling the Tank

Filling the tank can be achieved via drafting through the pump set (refer to 13.3.3) or from a fire hydrant (refer to 13.3.4 Page 63).

13.7.3 Draining the Tank

Reduce the tank level by using the pump set (refer to 13.3.5 Page 64). When the tank level is low, then remove plug in the tank sump to further drain remaining water from the tank.

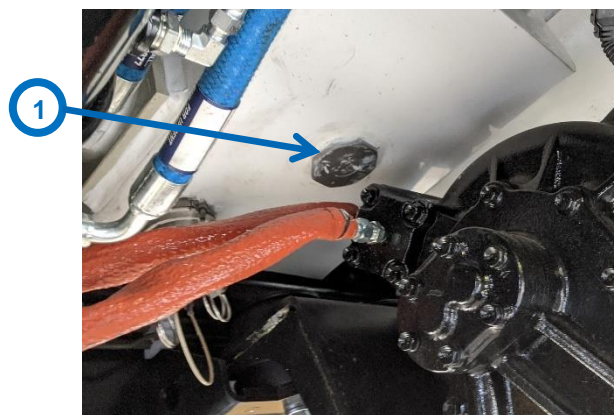


Figure 89: Tank Drain Plug

Item	Item Name
1	Tank Drain Plug

Table 36: Tank Drain Plug

WARNING

Drain the tank as low as practical using the pump before using the Tank Drain. If the water tank is full when the Tank Drain plug is removed, a large volume of water will be released. It will have the potential to flood the area or even cause bogging and/or damage to the appliance and/or injury to personnel.

To drain the tank:

1. Position the appliance so the released water can flow downhill, away from the vehicle. i.e. park the appliance facing uphill on a hard, flat surface.
2. Pump out as much water as practical without running the pump dry.
3. Shut down the Hatz motor.
4. Undo the plug in the Sump.
5. Once the water has drained from the tank, refit the plug.

CAUTION

Additional PPE may be required as this process will place the operator in direct line with the water being released.

WARNING

Do not operate the pump set without water in the tank. Doing this can cause damage to the pump equipment.

13.8 Lockers

The appliance has lockers above and below the deck. The above deck lockers; NSF, NSM, NSR, OSF, OSM, OSR and the Tent Locker. The below deck lockers; NSFUT, NSRUT, OSFUT and the OSRUT. Some lockers may be referred to by the specific role that it fills; i.e. the OSFUT Locker can also be called the Chainsaw Locker.

13.8.1 Locker Doors

The appliance has lockers that store equipment and supplies necessary for the role of fire and rescue. The above deck lockers have roller shutters, except for the Tent Locker. The Tent Locker and all the lockers below deck height have Drop “T” handles.

To open the lockers with roller shutters:

1. Grab the bottom of the roller shutter and pull the shutter downwards.
2. While holding the roller shutter down, rotate the bottom edge outwards.
3. Push the roller shutter upwards.
4. To close the roller shutter, pull the shutter all the way down until it latches.

To open the locker doors with drop “T” handles:

1. Pull each drop “T” lock handle out from the locker door.
2. Rotate each handle to unlatch the door. If the handle does not rotate, use the supplied key to unlock the latch.
3. Reverse the procedure to close the locker door.

13.8.2 Near Side Front Locker

The NSF Locker has two Slide and Tilt Shelves and stowage space on the floor. It houses some Road Crash Rescue equipment and Air Lines.



Figure 90: Near Side Front Locker

Item	Item Name
1	Slide and Tilt Shelves
2	Air Lines
3	Road Crash Rescue Equipment

Table 37: Near Side Front Locker

13.8.3 Near Side Front Under Tray Locker

The NSFUT Locker has a First Aid Kit, Fire Extinguisher, and a defibrillator.



Figure 91: Near Side Front Under Tray Locker

Item	Item Name
1	First Aid Kit / Defibrillator
2	Fire Extinguisher

Table 38: Near Side Front Under Tray Locker

13.8.4 Near Side Mid Locker

In the NSM Locker is a Waeco CFX35W fridge on a slide and drop mechanism to provide easier access. There is a 24V DC accessory socket to supply power to the fridge.



Figure 92: Near Side Mid Locker

Item	Item Name
1	Slide and Drop Fridge Mount
2	Waeco CFX35

Table 39: Near Side Mid Locker

13.8.5 Near Side Rear Locker

The NSR Locker incorporates the Suction Hose Locker, 240V Battery Charger, Fridge Power Supply, 6 x 240V AC power outlets, 4 x 24V DC accessory sockets and a Slide and Tilt Shelf.

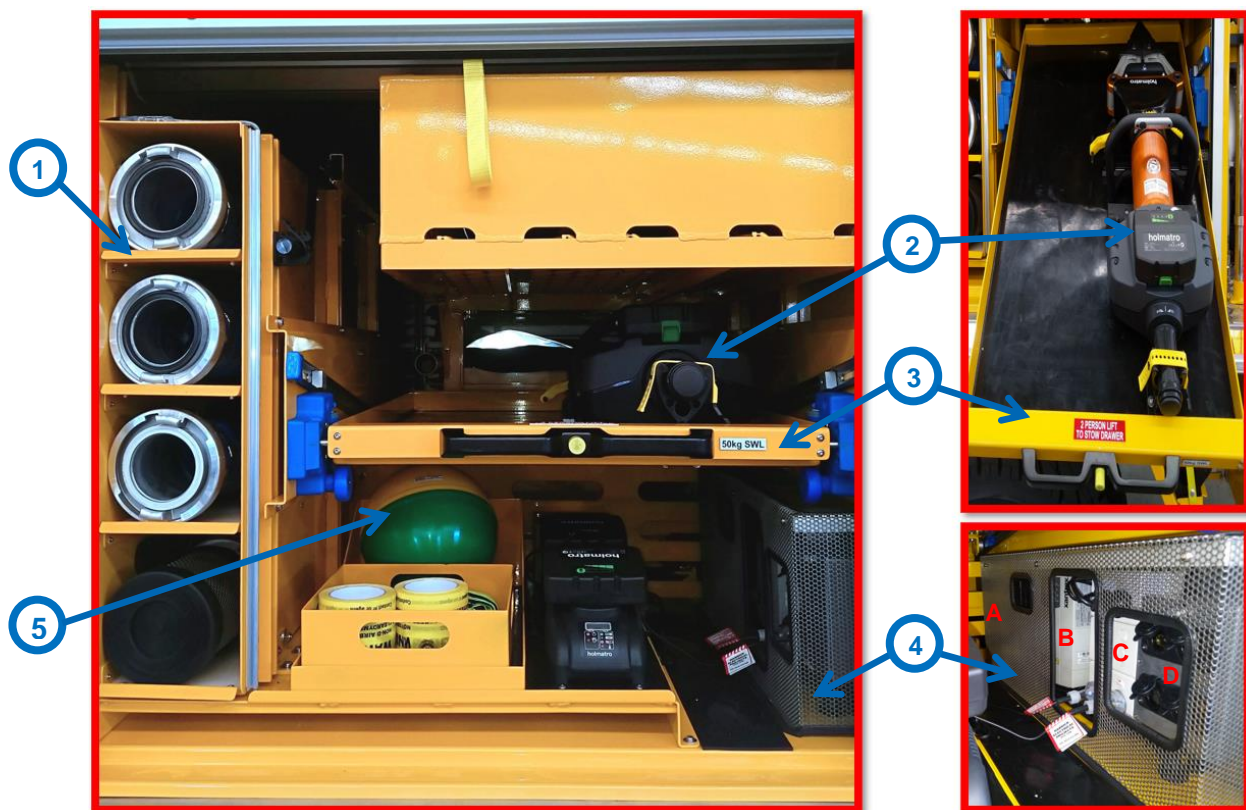


Figure 93: Near Side Rear Locker

Item	Item Name
1	Suction Hose Locker
2	Shelf for Additional Storage.
3	Slide and Tilt Shelf
4	A - Fridge Power Supply B - 240V Battery Charger C - 240 Volt AC Outlets D - 24V Accessory Sockets
5	Float – Suction Filter

Table 40: Near Side Rear Locker

13.8.6 Near Side Rear Under Tray Locker

The NSRUT Locker has Timber Cribbage, Front Recovery Point and access to the spare wheel winch.

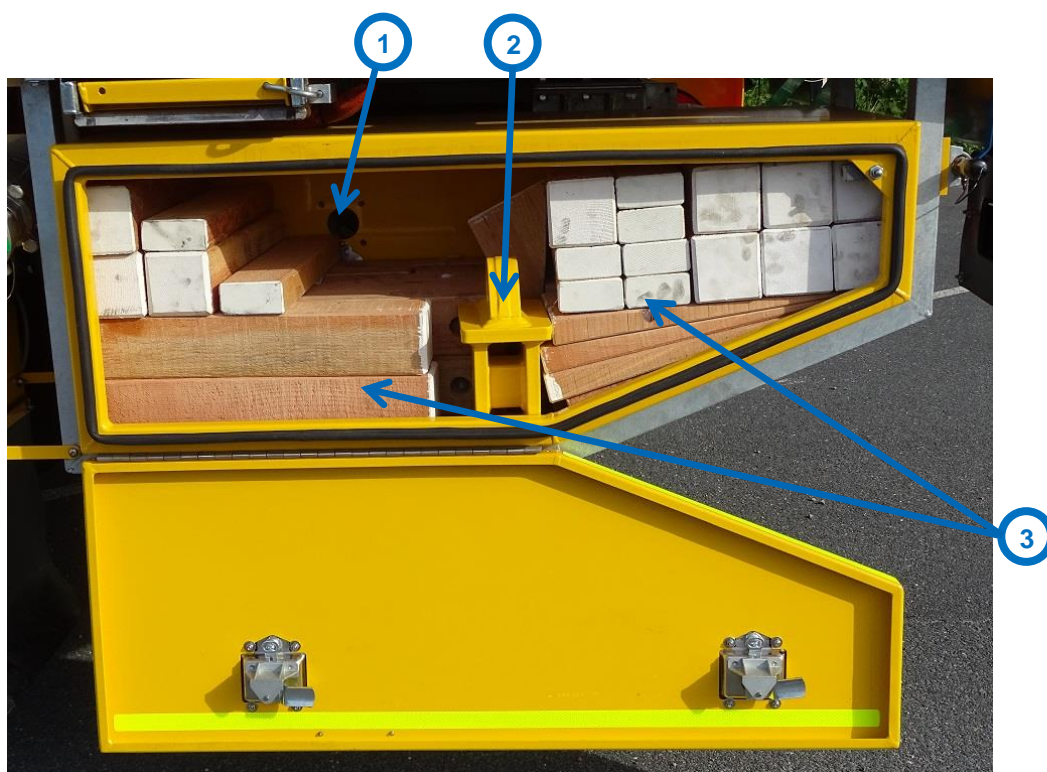


Figure 94: Near Side Rear Under Tray Locker

Item	Item Name
1	Access to Spare Wheel Winch
2	Front Recovery Point
3	Timber Cribbage

Table 41: Near Side Rear Under Tray Locker

13.8.7 Off Side Front Locker

The OSF Locker is for stowing crew equipment, wheel chocks and a petrol generator and extension lead.



Figure 95: Off Side Front Locker

Item	Item Name
1	Wheel Chocks
2	Crew Equipment
3	Petrol Generator
4	Extension Lead

Table 42: Off Side Front Locker

13.8.8 Off Side Front Under Tray Locker

The OSFUT Locker is also known as the Chainsaw Locker. It has provision for storing 1 x chainsaw, 2 x 10-litre fuel cans and 2 x fuel pourers.



Figure 96: Off Side Front Under Tray Locker

Item Label	Item Name
1	Fuel Pourers
2	10L Diesel Fuel Can
3	10L Unleaded Fuel Can

Table 43: Off Side Front Under Tray Locker

13.8.9 Off Side Mid Locker

The OSM Locker has a Slide and Tilt Shelf to store a 7m Handline and a 3m Handline. It also has a custom made Lay-flat Hose Holder, Foam Branch Holder, 2 x QCFE Nozzle Holders, Storz Spanner Holder, QRT Spanner Holder and storage for various plumbing adaptors.

To access the Handlines stored on the Slide and Tilt Shelf:

- Open the roller shutter.
- Press the yellow button to release the Slide and Tilt Shelf.
- Pull shelf outwards and downwards.
- Release the restraints for the required equipment.
- Lift equipment clear of the shelf and locker.

To stow the shelf:

- Press the yellow button to release the slide lock.
- Push the slide in until it locks in place.
- Close the roller shutter.



Figure 97: Off Side Mid Locker

Item	Item Name
1	Slide and Tilt Shelf
2	QCFE Nozzles
3	Foam Branch
4	Storz Spanners
5	QRT Spanners
6	Spare O'Rings
7	Adapter Couplings
8	Lay-flat hose Release Buckle
7	Lay-flat Hoses
9	Large Storz Spanners

Table 44: Off Side Mid Locker



Figure 98: Off Side Mid Locker – Slide and Tilt Shelf

Item	Item Name
1	Branch Storage
2	2 x Handlines

Table 45: Off Side Mid Locker

13.8.10 Off Side Rear Locker

The OSR Locker has a large slide-out shelf. The slide houses Fire Beaters, Rakehoes, a Fibreglass Spine Board, a Glass Management Kit, a Standpipe, a Plug Bar and a Stabifast Kit.

To access equipment stored on the slide:

- Open the roller shutter.
- Press the yellow button to release the slide lock.
- Fully extend the slide until it locks in the deployed position.
- Release the restraints for the required equipment.
- Lift equipment clear of the slide and locker.

To stow the slide:

- Press the yellow button to release the slide lock.
- Push the slide in until it locks in place.
- Close the roller shutter.

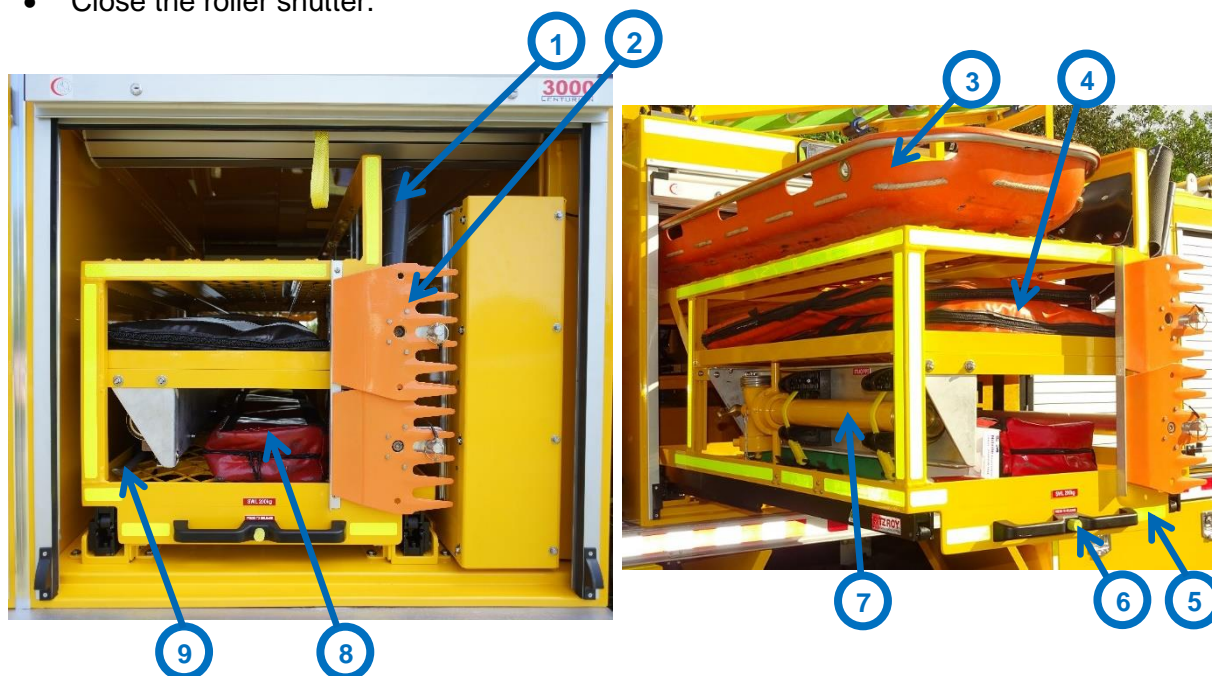


Figure 99: Off Side Rear Locker

Item	Item Name
1	Fire Beaters
2	Rakehoes
3	Fibreglass Spine Board
4	Glass Management Kit
5	Slide Assembly
6	Yellow Slide Release Button
7	Stand Pipe
8	Stabifast Kit
9	Plug Bar

Table 46: Off Side Rear Locker

13.8.11 Off Side Rear Under Tray Locker

The OSRUT Locker is also known as the Foam Locker. This locker has a shelf slide for storing 3 x 20L Foam Drums. The Foam Drums can be used from the stored position by connecting the Foam Line to one of the Foam Drums. There is also a hose stored here for use with an external foam source. This hose has a 25mm Storz fitting on one end and a Foam Spike on the other.



Figure 100: Off Side Rear Under Tray Locker

Item	Item Name
1	Foam Drum
2	Shelf Slide
3	Foam Pick Up
4	External Foam Hose

Table 47: Off Side Rear Under Tray Locker

13.9 Ancillary Equipment

The appliance has pre-determined equipment installed to accomplish its intended purpose. The following precautions apply to the stowage and handling of each item.

⚠ CAUTION

Each item must be stowed correctly to prevent the items from moving while the appliance is in transit or operation. Failure to do so may result in damage to the item/s and/or the appliance and injury to persons in the vicinity.

⚠ WARNING

Practice the best lifting techniques to handle the items and prevent strain injuries.

13.9.1 Suction Hoses

The suction hoses are in the Suction Hose Locker, located inside the NSR Locker. Open the NSR Locker to access the Suction Hose Locker.

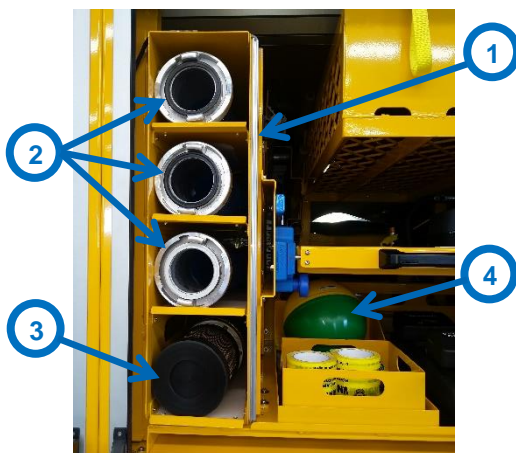


Figure 101: Suction Hose Locker (open)

Item	Item Name
1	Suction Hose Locker
2	Suction Hose
3	Suction Hose with Strainer
4	Float for Suction Hose with Strainer

Table 48: Suction Hose Locker

To remove the suction hoses:

1. Open the NSR Locker Roller Shutter
2. Lift and Pull the required Suction Hoses, one at a time.

To return the hose(s), guide the suction hose into one of the stowage tubes and push until the hose is correctly seated.

⚠ WARNING

Support the end of the suction hose as it exits the storage tube to prevent it from dropping uncontrollably, possibly causing damage or a crushing injury.

13.9.2 Fridge

The appliance has a Waeco CFX35W Fridge secured to an MSA Drop Slide Side Mount assembly in the NSM locker. The MSA Drop Slide enables the fridge to slide out of the locker and drop-down for easier access. Refer to the operation manuals for the Waeco CFX35W Fridge and the MSA Drop Slide Side Mount for operation information.

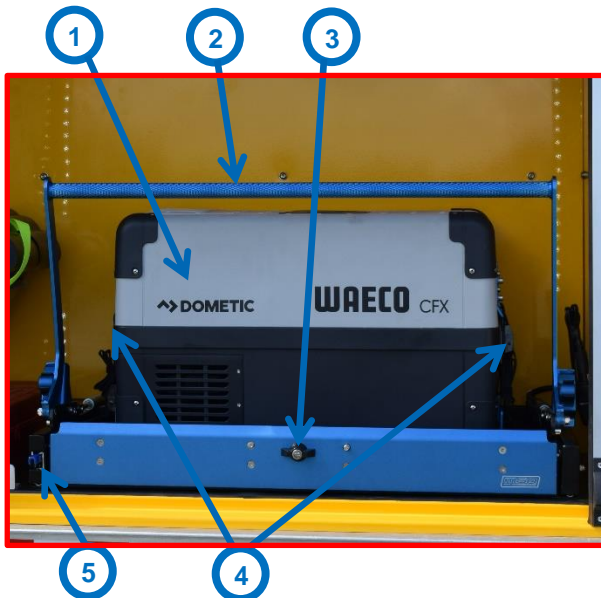


Figure 102: Fridge (stowed position)



Figure 103: Fridge (down position)

Item	Item Name
1	Waeco CFX35 Cooler
2	Drop Slide Handle
3	Drop Slide Lock
4	Fridge Tie Down Straps
5	Slide Catch Lever

Table 49: Fridge Items

To operate the Fridge Drop Slide, follow this procedure:

1. Unlock the drop slide by turning the drop slide lock counterclockwise to a vertical position. Use the key supplied to unlock the drop slide lock if necessary.
2. Hold the slide catch lever down and pull the drop slide forward.
3. Release the slide latch and pull the drop slide forward until it locks in the outermost position.
4. Stand beside the drop slide and move the drop slide handle back toward the appliance to lower the fridge to the down position.
5. To stow the fridge, reverse the procedure.

13.9.3 Ladder

The appliance has a ladder rack to store a Bailey 6m Green Fibreglass Extension Ladder. The ladder is secured using a pneumatic actuator and a spring bolt. The actuator works on air pressure from the vehicle's accessory air tank. To ensure there is enough air pressure to operate the system, the vehicle engine should be running. Removing and stowing the ladder is a multi-person procedure.

To remove the Ladder:

1. With the vehicle engine running, turn the ladder actuator to the release position.
2. Push the ladder forwards to take the weight off the Slide Spring Bolt.
3. Release the Slide Spring Bolt.
4. Guide the ladder down and out of the ladder rack.
5. When the ladder is nearly free of the ladder rack, an additional operator assists with supporting the ladder as it clears the ladder rack. i.e. one person at either end of the ladder.
6. With enough people to support the ladder, lower the ladder safely to the ground.
7. To stow the ladder, reverse the above procedure.

WARNING

Multi-person operation. Due to the size and weight of the ladder ensure correct lifting procedures to avoid strain injuries.



Figure 104: Ladder Rack

Item	Item Name
1	Ladder Rack Pneumatic Actuator
2	Ladder Rack Pneumatic Switch
3	Slide Spring Bolt
4	Bailey 3.9m to 6.64m Green Fibreglass Extension Ladder

Table 50: Ladder Rack

13.9.4 Awning

The appliance is fitted with a wind-out awning to provide shade from the sun or shelter from the rain. To operate the awning:

1. Retrieve the Awning Winder Handle from its stored position in the NSR Locker.
2. Insert the Awning Winder Handle into the Awning Winder mechanism.
3. Turn the Handle clockwise to extend the awning.
4. Continue turning the Handle until the awning reaches full extension.

Reverse the above operation to stow.

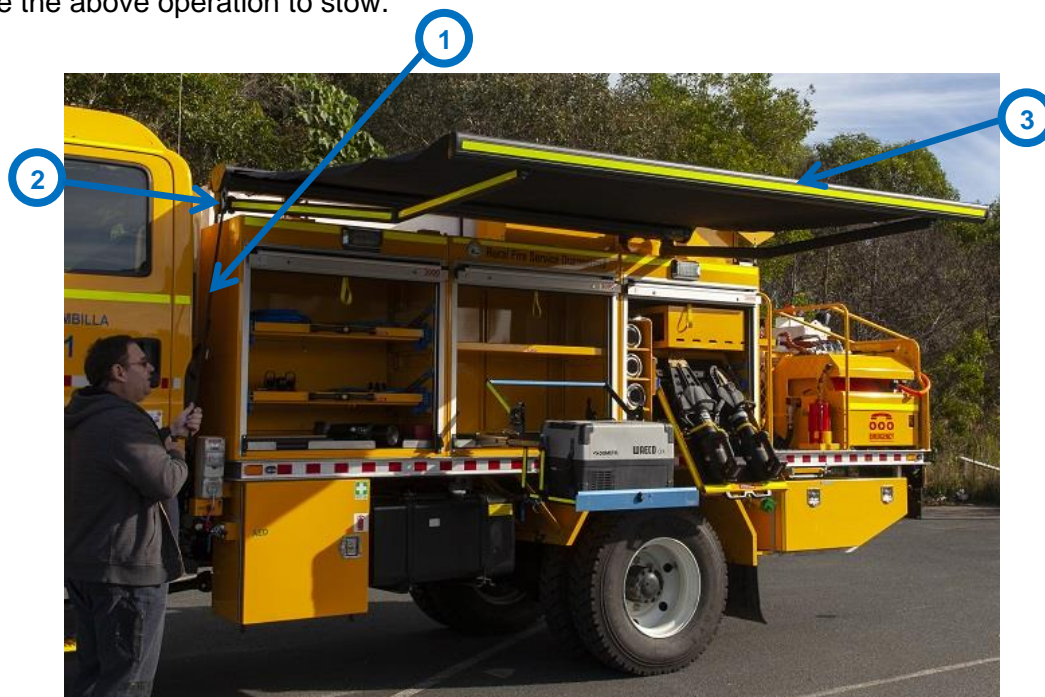


Figure 105: Folding Arm Awning

Item	Item Name
1	Awning Winder Handle
2	Awning Winder Mechanism
3	Awning

Table 51: Folding Arm Awning

13.9.5 Fuel Cans

There are two 10 litre Fuel Cans in the OSFUT Locker. One for Drip Torch Fuel and one for unleaded fuel. To access the Fuel Cans, open the OSFUT Locker, release the retaining strap and lift the Fuel Can out. The Fuel Can Pourer attachments are also stored here.



Figure 106: Fuel Can Storage

Item	Item Name
1	Fuel Pourer Holders
2	Buckle Strap
3	10L Drip Torch Fuel Can
4	10L Unleaded Fuel Can

Table 52: Fuel Cans and Pourers

To remove the fuel can from storage:

1. Undo the Buckle Strap holding the Fuel Can in place.
2. Lift the Fuel Can by the handle upwards to clear the holder and then outwards.
3. Reverse the procedure to store the Fuel Can after use.

13.9.6 Fuel Pourers

There are two Fuel Pourers in a purpose-built holder mounted inside the OSFUT Locker. Refer to Figure 106.

13.9.7 Traffic Cones

Ten Traffic Cones are housed on a purpose-built holder, under the tray on the off side rear of the appliance.



Figure 107: Traffic Cone Holder

Item	Item Name
1	Traffic Cones
2	Traffic Cone Retaining Strap
3	Buckle

Table 53: Traffic Cone Holder

To remove the Traffic Cones:

1. Squeeze the buckle to release the retaining strap.
2. Slide the Traffic Cones out of the holder.
3. Reverse the process to stow the Traffic Cones.

13.9.8 Deck Platform Access Ladder

The Deck Platform can be accessed using the Slide Out Step Ladder on the near side rear of the appliance. The Deck Platform provides access to the pump set and equipment stored on the Deck Platform.



Figure 108: Deck Platform Access

Item	Item Name
1	Pull Out the Ladder Latch
2	Turn the Latch
3	Grab Bottom Rung of Ladder
4	Pull the Ladder Outwards
5	When Fully Extended, Lower the Ladder

Table 54: Step Ladder Operation

To access the Deck Platform area, follow these steps:

1. Pull out and Turn the Ladder Latch.
2. Pull the Step Ladder outwards.
3. Lower the Step Ladder.
4. Using the three points of contact method, climb the ladder.
5. Reverse the procedure to return to the ground and stow the access ladder.

WARNING

Ensure the appliance park brake is on before gaining access to the deck to prevent the vehicle from moving out of control, possibly causing damage or injury.

WARNING

Maintain 3 points of contact when accessing the Deck Platform. Failing to do so may result in loss of balance and injury from falling.

WARNING

Maintain control of the access ladder when lowering to prevent it from falling possibly causing equipment damage or injury from striking or crushing.

13.9.9 Standpipe

There is one dual head Standpipe fitted on the slide in the OSR Locker. Also stored here is the Hydrant Plugging Bar.



Figure 109: Standpipe

Item	Item Name
1	Standpipe
2	Standpipe PAC Brackets
3	Plugging Bar

Table 55: Standpipe

To remove the Standpipe from storage, follow these steps:

1. Open the OSR Locker Roller Shutter.
2. Press the release button and extend the slide until it locks in the extended position.
3. Undo the Standpipe PAC brackets.
4. Lift the Standpipe up and out of the slide and locker.
5. Reverse the procedure to stow the Standpipe.

13.9.10 Lay-Flat Hoses

The lay-flat hoses have a dedicated holder in the OSM Locker. There is a provision to stow the following lay-flat hoses.

QTY	DESCRIPTION	LENGTH
3	64mm QRT Duraline Lay-Flat	30m
3	38mm QRT Duraline Lay-Flat	30m
2	64mm QRT Duraline Lay-Flat	10m

Table 56: Lay-Flat Stowage



Figure 110: OSM Locker (open)

Item	Item Name
1	Lay-Flat Hoses
2	Lay-Flat Hose Retaining Strap

Table 57: Lay-Flat Hoses

To remove the hoses from the open locker:

1. Release the Lay-Flat Hose Retention Strap
2. Remove a hose from the locker by lifting and pulling it outwards.

To store the hoses, ensure they are rolled tight and reverse the procedure.



WARNING

Practice correct lifting techniques and lift one hose at a time to avoid a muscular strain injury.

13.9.11 Fire Extinguisher

There is one 4.5kg DCP Fire Extinguisher stored in the NSFUT Locker.

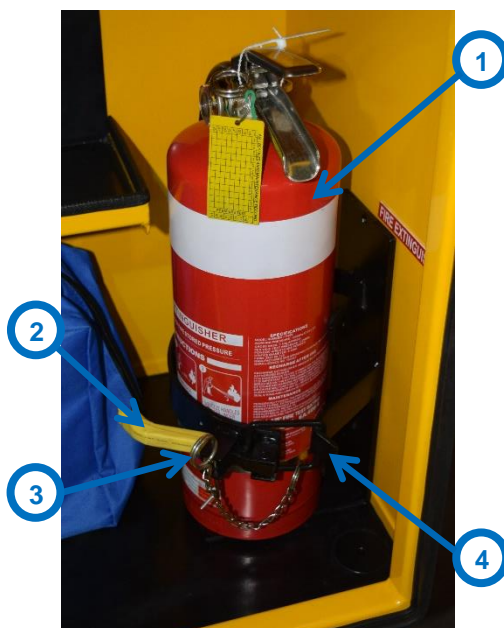


Figure 111: Fire Extinguisher

Item	Item Name
1	Fire Extinguisher
2	Retaining Clamp Lever
3	Retaining Clamp Clip
4	Retaining Clamp Hook

Table 58: Fire Extinguisher

To remove the Fire Extinguisher from storage, follow the steps below:

1. Remove the Retaining Clamp Clip.
2. Rotate the Retaining Clamp Lever to release the Retaining Clamp.
3. Unhook the Retaining Clamp Hook.
4. Rotate the Retaining Clamp to free the Fire Extinguisher.
5. Lift and pull the Fire Extinguisher outwards to remove it from its bracket.

To store the Fire Extinguisher, reverse the procedure.

CAUTION

Do not leave an empty or used Fire Extinguisher on the appliance. The Fire Extinguisher must be serviced or replaced at the earliest possible convenience. Failure to comply could result in serious damage, injury or death.

WARNING

Use correct lifting techniques when removing the Fire Extinguisher from storage. Incorrect lifting may result in muscular strain.

13.9.12 Chainsaw Locker

The chainsaw is in the Off Side Front Under Tray Locker, also known as the Chainsaw Locker. The locker stores the Chainsaw, Chainsaw Fuel Can, Drip Torch Fuel Can, and the Fuel Can Pourers.



Figure 112: Chainsaw Locker

Item	Item Name
1	Fuel Pourer Holders
2	Fuel Can Retaining Strap
3	Diesel Fuel Can
4	Unleaded Fuel Can

13.9.13 Bull Bar and Front Anchor Point

The appliance has a genuine bull bar. Please refer to the Owners' Manual for servicing and tilting instructions. A certified anchor point replaces the O.E. Bull Bar pin. The Anchor Point is a secure point for attaching safety lines during rescue and recovery operations.



Figure 113: Front Anchor Point

CAUTION

Do not exceed the rating of the Front Anchor Point. Exceeding the rating could lead to the Anchor Point failing which will result in serious damage to the appliance and could cause injury or death.

13.9.14 Rear Recovery Bar

The appliance has a custom-designed rear recovery bar. The Rear Recovery Bar has ratings for two types of loading situations, single point pull and straight pull. The ratings for these are:

- Single Point Straight Pull Load = 15000 kg
- Combined Straight Pull at 60 degrees Load = 8660 kg each side



Figure 114: Rear Recovery

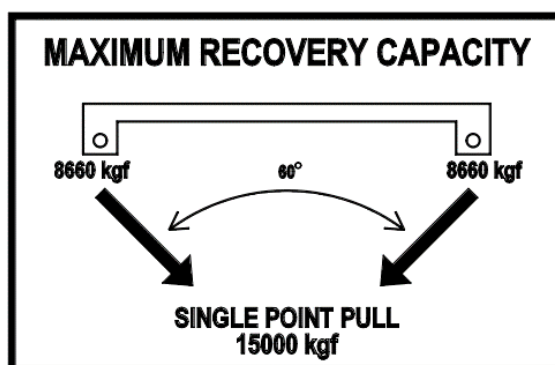


Figure 115: Rear Recovery Capacity Label

Refer to Section 19 APPENDIX E – REAR RECOVERY POINT CERTIFICATION for the engineering certificate



WARNING

For Straight Pull Recovery Situations, only use one recovery point. Do not exceed 15000kgf to prevent damaging the rear recovery system.

13.10 Electrical

The appliance has been fitted with customised electrical systems to provide the functionality required to fulfil the roles of a fire and rescue appliance. These include:

- Emergency Lights and Siren
- Lighting
- Communications
- Battery Isolation
- Circuit Protection
- 240V System
- Ancillary Electrical Systems

13.10.1 Emergency Lights and Siren

The handset on the dash controls all of the Emergency Lights and Siren functions. The emergency lights and siren require the vehicle ignition to be on to operate. For detailed instructions, refer to section 13.1.6 Siren Controller and PA on page 44.

13.10.2 Work Lights

The appliance has work lights on top of the lockers and the pump control panel. The work lights operate as three groups, NS, OS and Rear. All three groups have individual switches on the pump control panel; however, the siren controller left, and right arrows can control the NS and OS work lights. From the Siren Controller Arrows, the Left and Right Work Lights only require the vehicle ignition to be on to operate. From the Pump Control Panel, the Left and Right Work Lights require the vehicle ignition and park lights to operate.

The Rear Work Lights only operate from the Pump Control Panel unless the Auxiliary Reverse switch is active. The Rear Work Lights require the vehicle ignition, park lights and pump ignition to operate.

13.10.3 Auxiliary Reverse Lights

The Auxiliary Reverse Lights system provides the ability to turn on the two rear-facing work lights to improve visibility when reversing at night. To operate the Auxiliary Reverse Lights:

- With the vehicle engine running, select reverse gear.
- Press the Auxiliary Reverse Lights momentary switch.
- The Rear Work Lights will turn on.
- Moving the gear lever out of reverse automatically turns off the Auxiliary Reverse Lights to prevent the lights from staying on and distracting/frustrating other road users while the appliance is driving along.

13.10.4 Mast Light

The Mast Light switch is on the Pump Control Panel. The vehicle ignition and park lights must be on for the Mast Light to operate.

13.10.5 Under Deck Lights

The Under Deck Lights are fitted along both sides and around the rear of the appliance. These lights illuminate the ground immediately around the appliance. The Under Deck Lights Switch is in the vehicle cabin, on the dash to the right of the steering wheel. For the Under Deck Lights to operate, the vehicle ignition and park lights must be on. Turning off the vehicle ignition or the park lights will turn off the Under Deck Lights.

13.10.6 Cabin Step Lights

The vehicle steps have lights that illuminate the steps used for entering and exiting the cabin. These lights will automatically turn on when the vehicle park lights are on and one of the cabin doors are open.

13.10.7 Locker Lights

The lockers have LED lights fitted to them. With the vehicle ignition and park lights on, the Locker Lights will turn on automatically when a locker door or roller shutter is open.

13.10.8 Pump Panel Lights

The Pump Panel Lights work with the Scene Lights Switch, and it requires the vehicle ignition, park lights and the pump ignition to operate. The Pump Panel Lights include the LED strip lights on the panel and the back-lit gauges.

13.10.9 Driving Light Bar

The appliance is fitted with a LED Driving Light Bar to assist with visibility when driving at night. The Driving Light Bar operates via the Driving Light Switch on the dash to the right of the steering wheel. The vehicle hi-beam and the Driving Light Switch must be on for the Driving Light Bar to operate. Switching the vehicle to low-beam or turning off the vehicle headlights, or turning off the Driving Light Switch will turn off the Driving Light Bar.

13.10.10 Radios

The appliance has UHF and HF radios and the provision to add a VHF radio. These are under the rear seat and accessed from the rear side. The handsets that control the radios are in the middle of the dash near the siren controller. The radios operate directly from the battery via the Battery Isolator and do not require the vehicle ignition on to operate. When the appliance is not in use for more than an hour, isolate the vehicle batteries to prevent the radios from discharging the batteries.

The UHF and VHF radios can also broadcast transmissions via external speakers at the rear of the appliance. The External Speaker Switches on the dash control the external speakers. Turn both switches on to broadcast transmissions for UHF and VHF.

At the Pump Control Panel, while listening to a broadcast from one of the radios, operating the Speaker Mute Switch for the other radio will eliminate the distraction allowing the operator to focus on one conversation. The UHF Speaker Mute and VHF Speaker Mute Switches are on the Pump Control Panel beside the speakers. The mute switches are ON – Momentary OFF style toggle switches. The switch only breaks the circuit when it is activated. As long as the operator holds the switch, it will remain in the OFF position. Releasing the switch will turn the speaker back on.

NOTE

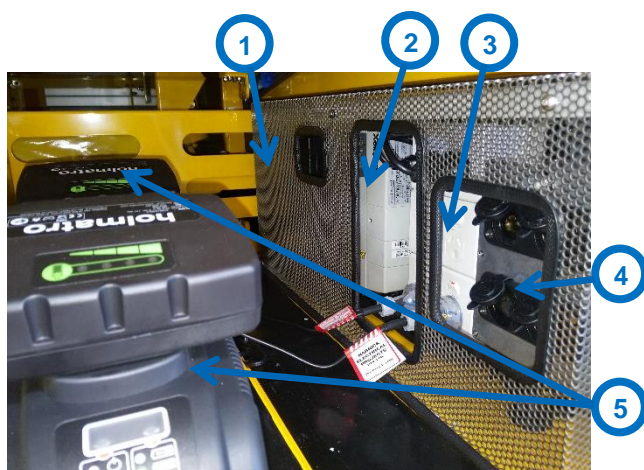
The HF radio does not have an external speaker.

13.10.11 NSR Locker Accessory Sockets.

There are four 24 Volt accessory sockets in the NSR Locker to operate the 24V DC chargers for the Road Crash Rescue equipment. The accessory sockets have a maximum combined output of 10 amps. Do not connect 12 Volt devices to these sockets. When the vehicle connects to 240V Mains, the battery charger supplies 24V DC to the Accessory Sockets. When the vehicle ignition is on, the vehicle batteries supply 24V DC.

WARNING

These are 24 Volt accessory sockets only. Do not connect 12 Volt devices. 12 Volt items will be damaged or destroyed if connected.



Item	Item Name
1	Fridge Power Supply
2	Battery Charger
3	240V Outlet
4	24V DC Accessory Sockets
5	RCR Battery Chargers

Table 59: NSR Locker Electrical Panel

Figure 116: NSR Locker Electrical Panel

13.10.12 Fridge Power Supply

The fridge operates via a Dometic MPS50A power supply that connects to both 240V AC Mains and the 24V DC vehicle system. The power supply has priority switching built in that will automatically run the fridge on 240V AC when connected at the station. When disconnected from the mains power, the fridge will only operate when the vehicle ignition is on. The MPS50A power supply is inside the NSR Locker beside the battery charger. Refer to the O.E. Waeco Fridge manual for more information. The accessory socket in the NSM Locker is 24V DC. Do not connect 12V devices to this outlet.

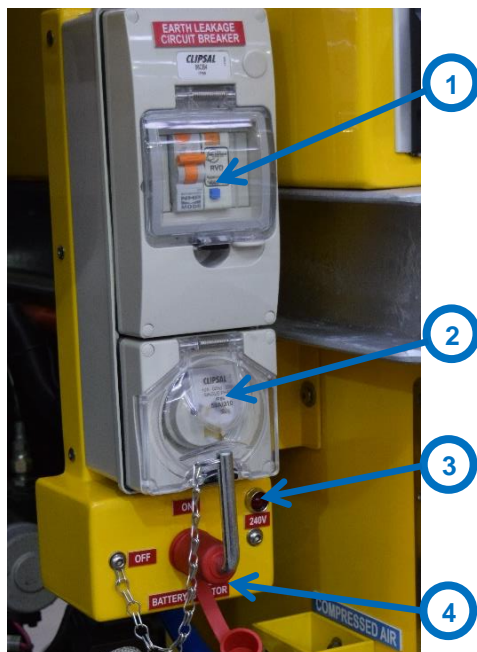
There are two 12V accessory outlets in the cabin, one in the dash and one in the centre console.

WARNING

This is a 24-Volt accessory socket only. Do not connect 12-Volt devices. 12-Volt items will be damaged or destroyed if connected.

13.10.13 240V Supply

The 240V inlet provides 240V AC Mains to the NSR Locker. There are six power points in the NSR Locker. One for the Fridge Power Supply is to keep the fridge in readiness when the vehicle is parked up. One for the battery charger to maintain the vehicle and pump set batteries between appliance turnouts. The other four outlets are for battery chargers for Road Crash Rescue equipment and future expansions if required.



Item	Item Name
1	240V RVD and RCBO Electrical Protection
2	240V Inlet
3	240V Warning Light
4	Vehicle Battery Isolator

Table 60: 240V Inlet

Figure 117: 240V Inlet

Follow this procedure to connect a 240V power supply to the appliance:

1. Park the appliance in a secure and dry location near the power source.
2. Isolate the vehicle batteries by rotating the Battery Isolation handle to the off position.
3. Attach the external power supply to the 240V inlet on the NS front of the tray and turn it on.
4. Reverse the process to remove the external power supply and operate the appliance.

13.10.14 Battery Isolation

The Battery Isolator is on the front NS of the tray just behind the cabin. When the vehicle engine is not running, isolate the batteries to prevent them from being discharged. To isolate the batteries from the vehicle, turn the battery isolator handle to the off position. Refer to Figure 117.

To isolate the Pump Set Batteries from the appliance, press the trip button on the circuit breakers at the Pump Set Circuit Breaker Panel. Never trip these circuit breakers while the pump set is running.

WARNING

Never run the pump with the Alternator Circuit Breaker tripped. Never trip the Alternator Circuit Breaker while the pump is running. Either situation will cause the Alternator to overcharge which will destroy electronic components and the Alternator.

13.10.15 Circuit Protection

The appliance has 4 locations for circuit protection. The Main Circuit Breaker Panel, the Pump Set Circuit Breaker Panel, the Pump Control Panel and the Rear Cabin Electrical Panel.

The Main Circuit Breaker Panel is on the near side of the appliance above the vehicle batteries. It houses the circuit breakers for the Radio Memory, Cabin, Pump, Primer, Battery Charger and the NS and OS Hose Reels. The Radio Memory circuit breaker is connected directly to the batteries and not through the Battery Isolator. This circuit requires continuous voltage to maintain memory circuits.



Figure 118: Main Circuit Breaker Panel

Access to the Pump Set Circuit Breaker Panel is from the near side Deck Platform. There are circuit breakers here for the Pump Batteries, Alternator, Pump Panel and Battery Charger. Also, there are circuit breakers for the Volume Pump and Charge Equalizer circuit.



Figure 119: Pump Set Circuit Breakers

The Pump Control Panel has three circuit breakers mounted to the front: Low-Pressure Pump, Pump Ignition and the Air Compressor.

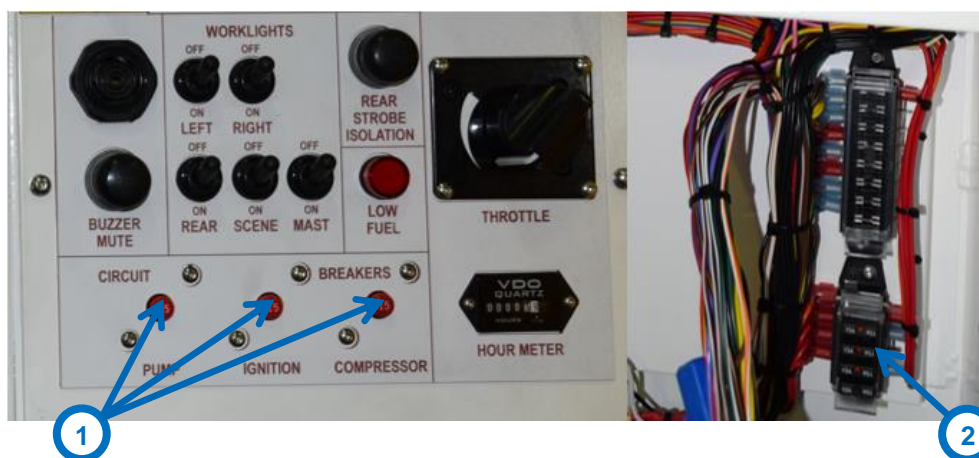


Figure 120: Pump Panel Circuit Breakers

Item	Item Name
1	Pump Panel Circuit Breakers
2	Pump Panel Internal Circuit Breakers

Table 61: Pump Panel Circuit Breakers

The Cabin Rear Seat Electrical Panel is on the near side of the appliance under the rear seat. There are circuit breakers here for the following:

- Fridge
- Siren Controller
- Vehicle Ignition Circuits
- IVMS(Optional)
- Driving Lights
- Body and Emergency Lighting

There are also 12 Volt fuses for the UHF Radio, VHF Radio, GWN Radio (Optional), Accessory Sockets and Torch Charging Bases.

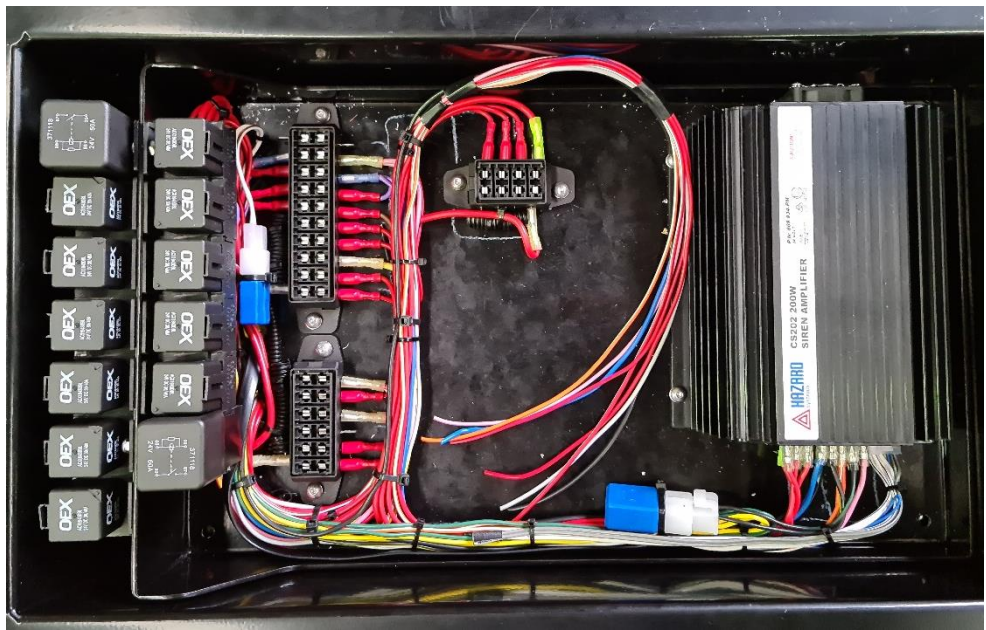


Figure 121: NS Cabin Rear Electrical Panel

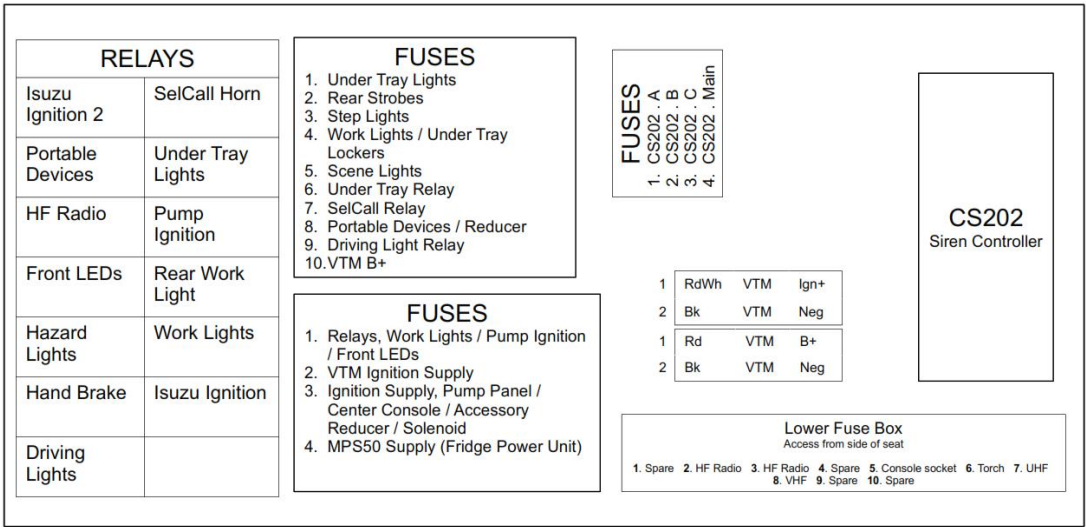


Figure 122: Cabin Relay and Circuit Breaker Layout

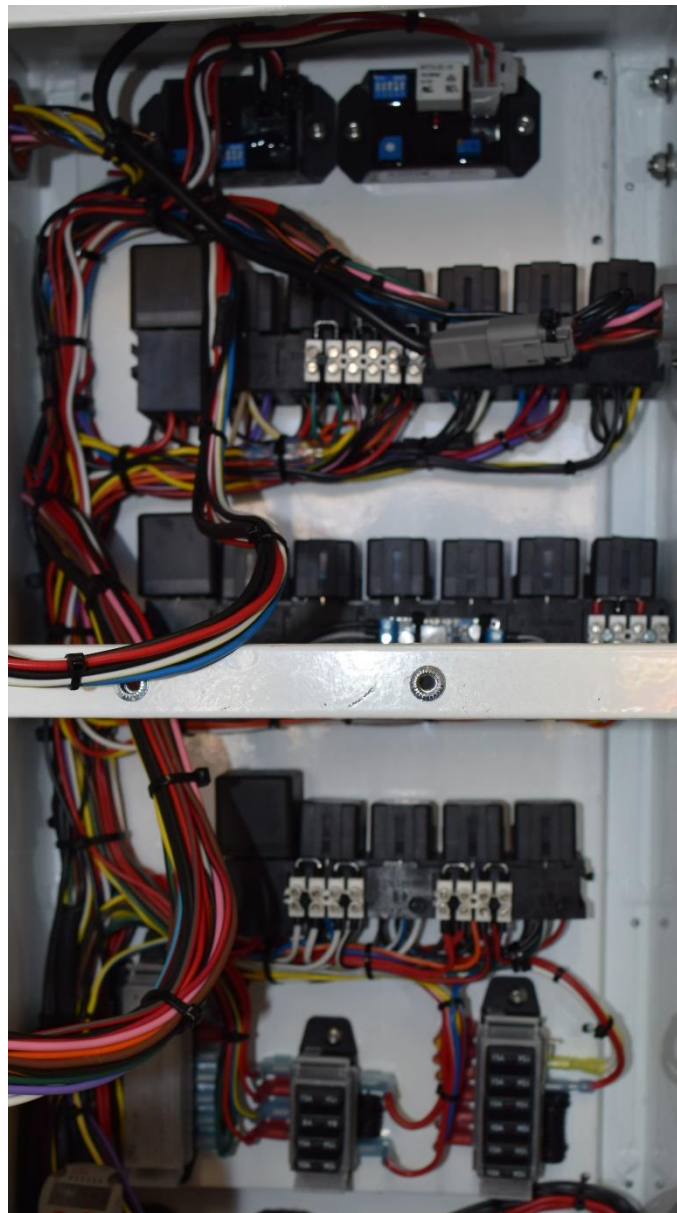


Figure 123: Pump Panel Relay and Circuit Breaker Panel

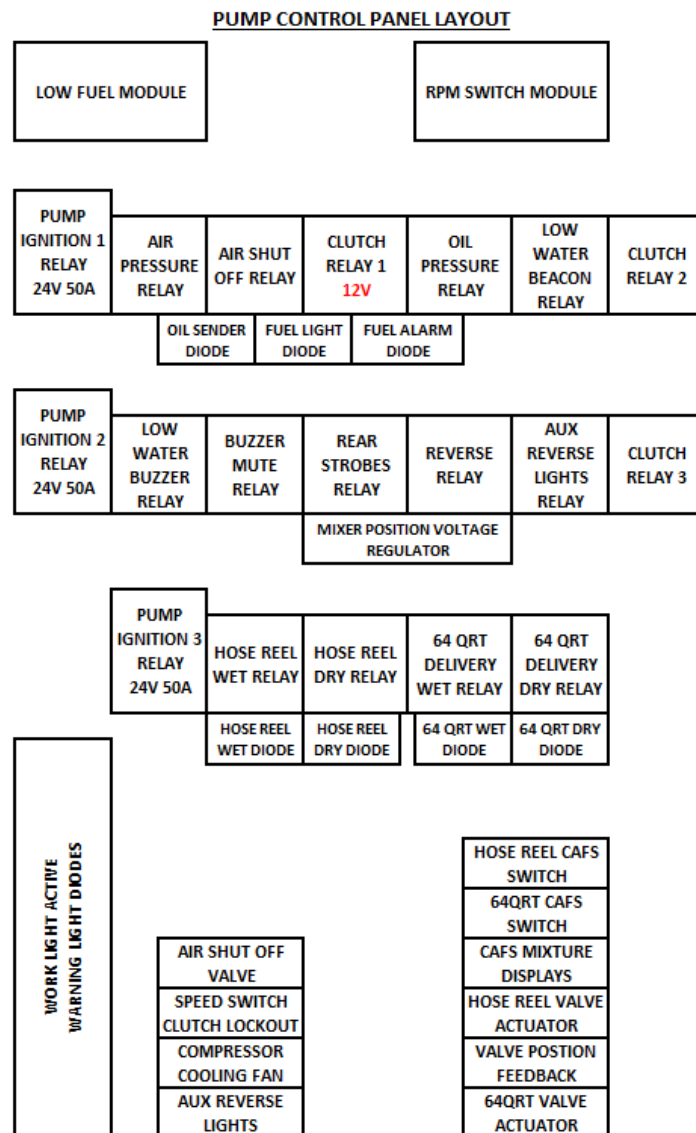


Figure 124: Pump Panel Relay and Circuit Breaker Layout

14 T – TESTING

The following section provides details on the necessary testing and maintenance procedures for the appliance.

OPERATION LABEL	OPERATION
C	Check
D	Drain
I	Inspect
++	Monitor during appliance break-in

Table 62: Inspection and Maintenance Key

14.1 Appliance Pre-Start Checks

PRE-START CHECKS		
FUNCTION	OPERATION	ACTION
OEM Vehicle Lighting	C	From the vehicle cabin, check and operate all OEM lighting to ensure correct operation
Emergency Lighting (Beacon/ Strobes)	C	From the control panel operate all emergency lighting to ensure correct operation
Locker Lighting	C	With the vehicle deployed, check all lighting in each locker
Locker Doors	I	Inspect all locker doors
Steps	I	Inspect each step under each door for wear and tear.
Bull Bar	I	Inspect the bull bar for damage.
Storage Systems	I	Inspect hose reel, standpipe, suction hose box and other storage items to ensure they are secure and that there are no signs of damage.
Pump Engine Oil	C	Check the oil level of the Hatz engine via the dipstick.
Compressor Oil	C	Check the oil level of the Rotocomp Compressor.
Brake Air Cylinders	D	Drain each OEM compressed air tank to remove excess moisture. Refer to the vehicle manual. *Tank Drain Location is on the Near Side Front Mudguard of the Rear Wheels

Table 63: Appliance Pre-Start Checks



Figure 125: Vehicle Air Tank Drains

Making room for the OSFUT Locker required relocating the factory air tanks inside the vehicle chassis. Stainless steel wire rope has been attached to the drain valves and routed to the Near Side Rear Wheel Mudguard. To operate the drain valves, pull the ring attached to the wire rope.

14.2 Vehicle

This section details the vehicle maintenance and inspection procedures.

Item	Daily	Weekly	Notes
ENGINE			
Engine Oil	C		
Fuel Tank Level	C		
Batteries		C	
Coolant System Level	C		
Engine Compartment		I	
Drive Belts		C	
EXHAUST			
DPD (Diesel Particle Diffuser)	C		If the DPD Warning Light flashes, the driver must perform a manual regeneration within 60-100km. Refer to the vehicle manual.
TRANSMISSION			
Transmission Oil Level	C		
FRONT AND REAR AXLES/STEERING			
Wheel Nuts		C	
BRAKES			
Compressor	C		
Brake Air Tanks	C		Purge daily
Tyre Air Pressures		C	
BODY/CABIN			
OEM Lamps and Globes	C		

Table 64: Vehicle Maintenance Schedule

NOTE

OEM vehicle components should be inspected as per the manufacturer's recommended service intervals.

14.3 Pump Set

The individual components of the pump should undergo maintenance as per OEM instructions. Below is a summary of these maintenance tasks:

HATZ 4H50 ENGINE			
Item	Daily	Weekly	Notes
Engine Oil	C		
Fuel Tank Level	C		
Fuel Line		C	Check the fuel line for damage or leaks
Air Filter		C	
Exhaust	C		
Waterous CLVK - Pump	C		

Table 65: Pump Set Maintenance Schedule

14.4 Plumbing

The following components for the appliance should undergo maintenance regularly.

PLUMBING			
Item	Daily	Weekly	Notes
Primer Filter		C	
Valves		I	Inspect for damage / leaks
Hoses		I	Inspect for damage / leaks
Adaptors		I	
Water Tank Sight Tube		I	

Table 66: Plumbing Parts Maintenance Schedule

14.5 Stowage

STOWAGE			
Item	Daily	Weekly	Notes
Straps		I	Check for tears
Pac Brackets		I	Check for wear and damage
Hoses		I	Check for wear and damage

Table 67: Stowage Parts Maintenance Schedule

14.6 Air Compressor

Rotorcomp EVO6-NK Air Compressor			
Item	Daily	Weekly	Notes
Oil	C		
Air Cleaner	C		
Cooling System	C		Ensure no debris is blocking air-flow through the radiator.

Table 68: Air Compressor Maintenance Schedule

14.7 Electrical

ELECTRICAL			
Item	Daily	Weekly	Notes
Cabin Step Lights		C	
Locker Lights		C	
Driving Lights		C	
Warning Lights	C		
Warning Buzzers	C		
Emergency Lights	C		Front, Rear, Side Strokes & Light Bar
Siren/PA	C		
Work Lights	C		
Under Tray Lights	C		
ADR Clearance Lights	C		Sides and Rear
Radios	C		
External Speakers	C		
Aerials	I		
Torch	C		
Fridge	C		
240V Inlet	C		
Battery Charger	C		
Hose Reel Rewind	C		
Pump Control Panel	C		

Table 69: Electrical Maintenance Schedule

15 APPENDIX A – ELECTRICAL DIAGRAMS

16 APPENDIX B – PLUMBING DIAGRAM

17 APPENDIX C – PLUMBING MAINTENANCE

17.1 Primer Wye Strainer

The electric primer has a Wye Strainer fitted in the water supply line to prevent debris from entering the primer. Access to the Wye Strainer is from the near side Platform Deck. This filter should be checked and cleaned regularly.



Figure 126: Primer Wye Strainer Location

Item Label	Item Name
1	Primer Wye Strainer

Table 70: Primer Wye Strainer

17.2 Foam Intake Pick Up Point – Wye Strainer

The Foam Intake has a Wye Strainer to prevent debris from entering the plumbing system. This Wye Strainer should be checked and cleaned regularly.



Figure 127: Foam Intake Wye Strainer Location

Item Label	Item Name
1	Foam Intake Wye Strainer

Table 71: Foam Intake Wye Strainer

18 APPENDIX D – FUEL SYSTEM

The fuel supply to the Hatz engine uses the fuel return line from the vehicle engine.

The appliance has a Fuel Diversion Valve on the nearside between the fuel tank and the mudguard. If the fuel supply to the Hatz engine develops a leak, the Fuel Diversion Valve can isolate the supply and divert the fuel back to the vehicle fuel tank.

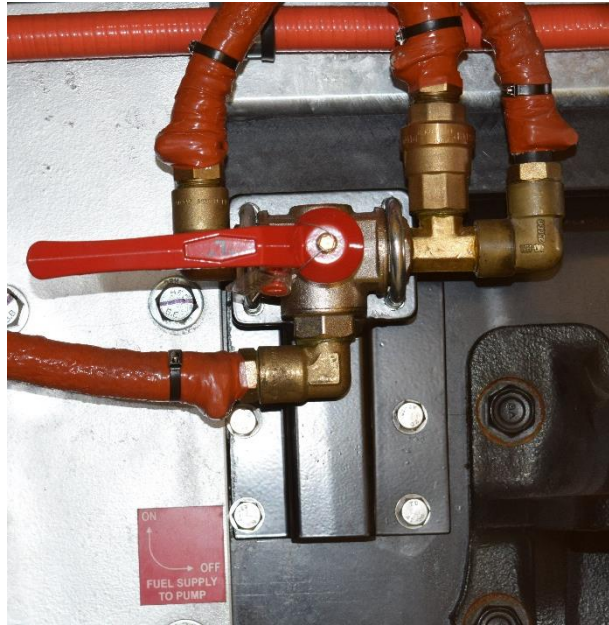


Figure 128: Pump Set Fuel Diversion Valve

WARNING

Do not modify or tamper with this valve. Connecting this valve incorrectly can lead to blocking the vehicle engine fuel return line that will lead to engine failure.

19 APPENDIX E – REAR RECOVERY POINT CERTIFICATION



Address:
UNIT 2 / 143 GRANITE ST,
GEEBUNG, QLD 4034 AUSTRALIA

Postal address:
PO BOX 444
VIRGINIA BC QLD 4014 AUSTRALIA

Phone: 07 3265 5200 **Fax:** 07 3265 5155 **International:** +61 7 3265 5200
Web: www.altra9eng.com.au **Email:** info@altra9.com.au **ABN:** 88 130 941 936

Structural Design Check Certificate

Project Description : Isuzu FTS139-260 – Rear Recovery Bar
For : Quikcorp Warana
Drawing Number : QW-0120(0), QW-0121(0), QW-0122(0)
Our Reference : SDC-QW-017

Scope of Certificate:

Recovery Point Brace Assembly

Design Criteria:

Single Side Straight Pull (Load = 15 000 kgf)
Combined Straight Pull (Load = 8 660 kgf ea side)
Refer Drg QW-0120 for Loads & Direction

Codes of Practice:

AS3996	1993	Mechanical Equipment - Steelwork
AS1170.0	2002	Structural Design Actions – General Principles
AS1170.1	2002	Structural Design Actions – Permanent, imposed and other actions
AS1554.1	2004	Structural Steel Welding – Welding of Steel Structures

"I hereby certify that the structure under consideration has been designed in accordance with the relevant Standard Codes and publications referred to herein and in accordance with the good engineering practice. On this basis, the structure completed in accordance with the above described plans and specifications and in accordance with the designed conditions of use identified herein will be structurally sound."

Signed: 

Date: 13/09/2018

Brendan Shute BEng (Mech)
Mechanical/Structural Engineer

20 APPENDIX F – SPARE PARTS

A list of all spare parts for the appliance is listed below:

QC part #	OEM number	Description
4758450	C40	Spring Body Mount 5/8" ZP
3340190	LP1B	Lamp License Plate LED inc plate mount
3099335	SST15	Fitting S/S Tee 1/2" BSPF
4547000	LRX21271	Reflector Amber 127x48mm
3356457	ULTMCRB	Light LED Strobe Red/Blue 12/24v Code 3 Ultra Thin
1166800	Hella 2053BULK (4)	BCC Side Marker Light (Red/Amber) LED
3340020	94856H	Lamp Combination with Rev LED
1058002	DF532	Alarm Back Up 12-24V Dual Tone
5902100	72430	Worklamp LED Sq Flood 12-24V 500Lumens
4547001	84031BL	Reflector Amber 90x40mm
5626111	WC6- Large	Wheel Chock - Rubber 270Lx150Wx152Hmm
2765736	98-63SPA/DCSY	Standpipe 63mm AL Double Head QRT thread
4428010	1903145 (1)	Rake Hoe Keeper Pin
2691650	S500WD	Drawer Slide Fitzroy 500kg 1400mm long (pair)
3184910	DBHAND-2	Handle Double D Lock In (DBHAND-2)
3184911	DYHAN4-5	Lock Out Kit for Double D Handle (suits DBHAND-2)
3601000	B4	Pin Lynch 4.5mm
4821000	BS25SS	Staple Breaching 25mm S/S
4428000	VG-RAKHO	Rake Hoe
2765635	BRT1.XX.HT.EZYBEAT	Fire Beaters EZYBEAT wooden handle
5480110	FV100SZ100	Valve Foot / Strainer 100mm Acetal c/w 100 Storz
1081007	804-2420-01	Battery Charger 24v 20A Truecharge2
2693907	clic2025dwe	Enclosure GPO 10A 250V white
2693939	CLI238/25WE	Surface Mounting Block for GPO
2693916	BS33	Enclosure Aluminium BS33
4551052	ACX1943DBL	Relay 24V Changeover Diode Protected
4742892	81027BL	Socket Accessory Twin 12v 20A Panel Mnt
3125192	S5515	Fuseable Link Resettable 15 Amp S55 Panel Mount
3648050	MPS50A	Power Isolator 240v to 24v (MPS50)
3610500	PW 063	Pinchweld RFR Guard Edge Protection
2765480	Strainer Float 9"	Strainer Float 9" c/w Carabiner
3356650	37SCENE	Light Scene 10 LED 12/24v
5905000	72730	Worklamp LED Bar 12-24V 12W 800Lumen
1081008	808-0232-01	Battery Charger Truecharge2 Temp Sensor
3109907	CFX35W	35w Fridge/Freezer Waeco CFX35W
3109906	CFXIC35	Fridge Cover to Suit Waeco CFX35W
3109916	DS45SIDE	Fridge Drop Slide Side Mount DS45
4742891	81025BL	Socket Accessory Single 12V (Surface Mount)
2539628	289-578	Clip Spring 5/8" (24.61x7.94x29.37mm) white
3309722	VH-DU64/3344/GA	Hose Assy Layflat Duraline 64mmx30m c/w M&F QRT
3309700	VH-DU38/1364/GA	Hose Assy Layflat Duraline 38mmx30m c/w QRT
3309720	VH-DU64/10/fitted	Hose Assy Layflat Duraline 64mmx10m c/w M&F QRT

3465502	150-366AP	Nozzle Protek 366 (1 1/2")
3087000	SZM40	Fitting Storz 38x38 BSP Male Adaptor
1442490	QUIK40664	Gun Holder (RFR for T400) no PC
3610600	PW 056 PVC	Plastic Pinch weld SR black8x14
3307800	20026290	Hose 3/4" Gorilla Good Year 500PSI
3081100	SZH20BARB	Fitting Storz 25 x 20 Tail Single Barb
4758290	GSS3220	QCFE Fire Nozzle
3086000	SZM25	Fitting Storz 25x25 BSP Male Adaptor
5610050	SBW50 F/Yellow	Webbing Polyester 50mm Flouro Yellow
1158810	SR50D	Buckle Side Release Double Ended Suit 50mm Webbing
5905000	72730	Worklamp LED Bar 12-24V 12W 800Lumen
3356650	37SCENE	Light Scene 10 LED 12/24v
1442495	QUIK40665	Nozzle Holder Tube AKRON (RFSQ-MAV16-067)
1162550	NS858FS880	BCC Lock Drop-T SS Bent Tongue Keyed FS880
3605600	PW040	Pinch weld Seal (040) 10x13 (bulb 11x11)
4593900	M119155	Roller Boat 200x 54mm dia 17mm bore Blue
4593959	REN440	Rubber Bump Stop 40x50mm
3339925	1902042 (0)	Ladder Fold Down Spacer
3357001	BH837/002SS	Lock Reel - RFR (Spring Bolt)
3339994	BAIFS20407	Ladder Bailey Green Fibreglass 3.9-6.6m
2691190	163307	Cylinder Double Acting
2610000	197581	Control Valve 1 Way
4899900	174397	Swivel Flange
3069510	C00600600	Fitting Push In Tee 6mm tube
3340112	87542	Lamp L.E.D Strip 306mm 9-33V (ally housing)
4879911	TZ7310	Switch Limit Long Button TZ7310
2691196	PID 6A	Diode Plug in 1 x 3Amp
1162550	NS858FS880	BCC Lock Drop-T SS Bent Tongue Keyed FS880
3605600	PW040	Pinch weld Seal (040) 10x13 (bulb 11x11)
3340111	87541	Lamp L.E.D Strip 178mm 9-33V (ally housing)
4879911	TZ7310	Switch Limit Long Button TZ7310
2691196	PID 6A	Diode Plug in 1 x 3Amp
3610600	PW 056 PVC	Plastic Pinch weld SR black8x14
5476000	SP9004	Valve Drain Tube (Blurter)
5476001	5476001	Valve Drain Tube Spiggot (Blurter)
3340112	87542	Lamp L.E.D Strip 306mm 9-33V (ally housing)
5505250	SSBV2P20	Valve Ball S/S 2pce 3/4"
3085500	SZM20	Fitting Storz 25x20 BSP Male Adaptor
3096000	SZC25	Fitting Storz 25mm Blanking Cap
3005000	BFP3-1212	Fitting Male Tailpiece 3/4"BSP x 3/4"Tail Brass
3318005	VG-JERRY/10DT	Jerry Can Steel 10L Drip torch Shamrock Green
3318006	VG-JERRY/U	Jerry Can Steel 10L Unleaded Fuel Red
3318009	VG-JERRY/P	Jerry can fuel pourer 3 in 1
1442900	QKCP1153	Louvre/Vent Plate 147x74, 6 holes
1442901	QUIK559254	Louvre/ Vent Backing Plate
4742801	BWD3076L-14-L	Slide Lock In/Out 350mm LH (BWD14")

4742802	BWD3076L-14-R	Slide Lock In/Out 350mm RH (BWD 14")
5456880	3WBVL12	Valve Ball Brass 3 Way 1/2" Lport Btm Entry
2903000	RHN2015	Fitting Red Nipple 3/4" x 1/2"BSP Brass
3085000	SZF20	Fitting Storz 25x20 BSP Female Adaptor
3096000	SZC25	Fitting Storz 25mm Blanking Cap
2944100	BYS12	Fitting Brass Y Strainer 1/2"
2905000	HN15	Fitting Nipple 1/2"BSP Brass
2910000	MFE15	Fitting Brass 1/2" M/F 90o
3002000	BFP3-0808	Fitting Male Tailpiece 1/2" BSP x 1/2" Tail Brass
4821000	BS25SS	Staple Breaching 25mm S/S
3098630	SSN15	Fitting S/S Nipple Hex 1/2"
3099230	SSCP15	Fitting S/S Socket 1/2"
3304001	PFTPR12	Hose Translucent 1/2 -230PSI
3098230	SSHN15	Fitting S/S Hose Nipple 1/2"
3098894	SSB2015	Fitting S/S Reducing Bush 3/4" x 1/2" bsp
3085000	SZF20	Fitting Storz 25x20 BSP Female Adaptor
3100004	SF20001AU	Foam Fire Fighting Fire Brake Class A 20 litre
3099220	SSCP10	Fitting S/S Socket 3/8"
2693650	PEOCAP58MMBLK	Drum Lid 58mm Black (20L)
2781850	3120436	Fitting 4mm Threaded / Barbed Adaptor
3002400	BFP6-0806	Fitting Male Elbow 3/8"BSP x 1/2"Tail 90o Brass
3004000	BFP3-0806	Fitting Male Tailpiece 3/8"BSP x 1/2"Tail Brass
4547520	B82G-2GK-QP3-RMG	Regulator Air 1/4"10Bar B82G (Norgren)
3069535	C01470628	Fitting Push In Elbow G1/4-6
3069525	C01250628	Fitting Push In G1/4-6
2901990	01073-0604	Fitting Red Nipple 3/8" x 1/4"BSP Brass
3069510	C00600600	Fitting Push In Tee 6mm tube
3069515	C01250618	Fitting Push In G1/8-6
3069520	C02250605	Fitting Push In M5-6
3069525	C01250628	Fitting Push In G1/4-6
3069530	C02470605	Fitting Push In Elbow M5-6
4754510	BH-1	Speaker Ashdivox BH-1
4881012	TS509E	Switch Toggle DPDT On- Mom Off 12-24v
4881103	TS001-YEL	Switch Toggle Rubber Boot Yellow
4881107	TS001-RED	Switch Toggle Rubber Boot Red
4754550	1904148	Speaker Gasket 3mm Polyethelene
2902000	RHN1510	Fitting Red Nipple 1/2"x3/8"BSP Brass
5459000	VBCE15	Valve Spring Check Brass 1/2" Female BSP
2910000	MFE15	Fitting Brass 1/2" M/F 90o
3010000	RB1510	Fitting Reducing Bush 1/2" X 3/8"BSP Brass
3004010	3004010	Fitting 3/8 BSP x 1/2 M Tail Brass+2mm Orifice
2907951	MFE10LR	Fitting Brass 3/8" M/F 90o LR
3004000	BFP3-0806	Fitting Male Tailpiece 3/8"BSP x 1/2"Tail Brass
2989001	06011-08	Fitting Hose Elbow 1/2" Brass
5505200	15-625-2PCE	Valve Ball S/S 2pce 1/2"
2910000	MFE15	Fitting Brass 1/2" M/F 90o

2765746	SN15300	Fitting All Thread Brass 1/2" x 300mm
2906960	BN15	Fitting Backnut 1/2" Brass
3001050	BFP10-0808	Fitting Female Tailpiece 1/2"BSP x 1/2"Tail Brass
3048300	HS15	Fitting Hex Socket 1/2"BSP Brass
3002500	BFP6-0808	Fitting Male Elbow 1/2"BSP x 1/2"Tail 90o Brass
1002100	9301	Actuator Selector N-22-SW
5520000	11914	Valve Body SV-5-M5-B
4742820	1205858	Silencer U-M5
3069510	C00600600	Fitting Push In Tee 6mm tube
3139051	THU6209298	Gauge LFP310-30-300#/KPA-LIGHT-24V-1B-SFB-G
3139052	THU6209299	Gauge LFP310-300#/K-LIGHT-24V-IB-SFB-G (0-300 PSI)
3139055	LFP210-400-PSI/KPA-L	Gauge Pressure 2.5" Dial 0-400psi/kpa backlit
3048150	HS8	Fitting Hex Socket 1/4"BSP Brass
3069536	20005-0404C	Fitting Push In Elbow G1/4- 1/4" Tube
4890001	90030BX	Switch Push Button (Cole Hersee)
4880000	56-90029BR	Switch Toggle On/Off SPST 20A
4881100	60058BL	Switch Toggle Rubber Boot
3311499	ITL-40R	Indicator Water Level Class1 Red LED Blue Label
3124567	CDM15	Fuse 15amp Circuit Breaker Manual Reset
3309902	331.534	Hourmeter Analogue 10-80V
4916920	333065001	Tachometer 24v 0-3000rpm 100mm dial
1058006	B657	Alarm Piezo Buzzer
3356523	BA16DS-RED	Light Pilot LED 10-30V Red
2693928	HB6223	Enclosure Poly 171x121x80 Clear lid
4881010	ACX3919BL	Switch Toggle DPDT Mom On- Off- Mom On 15A
4881098	ACX3949BL	Switch Toggle Rubber Boot (suits 4880000)
3356461	85338A	Light Strobe Amber 12-80V Single Flasher
3340113	87543	Lamp L.E.D Strip 500mm 9-33V (ally housing)
4880000	56-90029BR	Switch Toggle On/Off SPST 20A
3124567	CDM15	Fuse 15amp Circuit Breaker Manual Reset
4899500	410.060	Switch VDO Low Fuel Kit 410.060
4551052	ACX1943DBL	Relay 24V Changeover Diode Protected
3123200	FH01	Fuse Holder Blade 4 Way Flush Mount
3124555	55710BL	Fuse Blade STD 10amp Circuit Breaker Manual Reset
3124565	55715BL	Fuse Blade STD 15amp Circuit Breaker Manual Reset
2691197	IN5408	Diode 3Amp Axial
3123400	FH03	Fuse Holder Blade 8 Way Flush Mount
4881100	60058BL	Switch Toggle Rubber Boot
2691212	C1938-1	Distribution Post Through Bulkhead 8mm (Black)
2691203	C1938-1R	Distribution Post Through Bulkhead 8mm (Red)
2394590	CE10	Charge Equaliser Redarc 19to33v 10A
3124566	CB255-15	Fuse 15amp Circuit Breaker Manual Reset
3125180	CB255-10	Fuseable Link Resettable 10 Amp (255 Series)
4895054	34D-P016G-DD1-AA	Switch Pressure 34D
4895055	0523057000000000	Connector 34 D pressure Switch 2m cable
3340111	87541	Lamp L.E.D Strip 178mm 9-33V (ally housing)

5910080	72449	Worklamp LED Square Flood 9-64V 1200Lumens
7072800	P3163SCH10	Pipe S/S 316 SCH 10 3"
7072700	P31665NBS10	Pipe S/S 316 Sch 10 2 1/2"
3097165	SWEF1031650	Fitting S/S Elbow Buttweld 45degree 2" sch 10
7072600	P3162SCH10	Pipe S/S 316 Sch 10 2"
3099490	SSWN65	Fitting S/S Toe Nipple 2 1/2"
3099480	SSWN50	Fitting S/S Toe Nipple 2"
3097160	SWE1031650	Fitting S/S Elbow Buttweld 90o 2" sch 10 STD Radi
3098280	SSHN50	Fitting S/S Hose Nipple 2"
3099450	SSWN25	Fitting S/S Toe Nipple 1"
3099430	SSWN15	Fitting S/S Toe Nipple 1/2"
3097180	SWE1031680	Fitting S/S Elbow Buttweld 90o 3" Sch 10
3097140	SWE1031632	Fitting S/S Elbow Buttweld 90o 1 1/4" - Long
3098300	SSHN80	Fitting S/S Hose Nipple 3"
3099280	SSCP50	Fitting S/S Socket 2"
3099210	SSCP08	Fitting S/S Socket 1/4"
3099290	SSCP65	Fitting S/S Socket 2 1/2"
3069536	20005-0404C	Fitting Push In Elbow G1/4- 1/4" Tube
5505601	SSBV3P65	Valve Ball S/S 3pce 2 1/2" Locking Handle
3080012	FS2002	Fitting 65 QRT Male x 65mm BSPM AL
3080013	FS0504	Fitting 65 QRT Blanking Cap Al
5505501	SSBV3P50	Valve Ball S/S 3pce 2" Locking Handle
3080008	FS2001	Fitting 65 QRT Male x 50mm BSPM AL
5505500	SSBV2P50	Valve Ball S/S 2pce 2"
3098680	SSN50	Fitting S/S Nipple Hex 2"
5459895	SSSPRV50	Valve Spring Check SS 2"
3097080	SSEMF50	Fitting S/S Elbow 90o M/F 2"
5505380	SSBV2P32	Valve Ball S/S 2pce 1 1/4"
3098260	SSHN32	Fitting S/S Hose Nipple 1 1/4"
3097067	SS90EMF32	Fitting S/S Elbow 90o M/F 1 1/4"
5435120	T25MF	Valve Ball T-Handle 1" M/F
3097063	SSE25	Fitting S/S Elbow 90o F/F 1"
3098250	SSHN25	Fitting S/S Hose Nipple 1"
5435098	VGASMF15TH	Valve Ball T-Handle (Gas) 1/2" M/F
2944100	BYS12	Fitting Brass Y Strainer 1/2"
3002000	BFP3-0808	Fitting Male Tailpiece 1/2" BSP x 1/2" Tail Brass
2905000	HN15	Fitting Nipple 1/2"BSP Brass
3048020	RHS1510	Fitting Red Socket 1/2" x 3/8" BSP Brass
3009450	BF24-0604	Fitting Reducing Bush 3/8" x 1/4"BSP Brass
3069526	20003-0404C	Fitting Push In G1/4- 1/4"tube
2906000	HN20	Fitting Nipple 3/4"BSP Brass
3007000	BFP3-1612	Fitting Male Tailpiece 3/4"BSP x 1"Tail Brass
3098902	SSB2515	Fitting S/S Reducing Bush 1 " x 1/2" bsp
2906960	BN15	Fitting Backnut 1/2" Brass
2908000	FE15	Fitting Brass 1/2" F/F 90o
3099341	SST40	Fitting S/S Tee 1 1/2" BSPF

2905000	HN15	Fitting Nipple 1/2"BSP Brass
5451000	VBB15	Valve Ball Brass 2 Way 1/2" F/F
3004700	BFP3-1208	Fitting Male Tailpiece 1/2"BSP x 3/4"Tail Brass
3009000	BMLEM3832	Fitting Male Lump End 1 1/2"BSP x 1 1/4"Tail Brass
3098912	SSRB4015	Fitting S/S Reducing Bush 1 1/2" x 1/2" BSP
3098630	SSN15	Fitting S/S Nipple Hex 1/2"
3099335	SST15	Fitting S/S Tee 1/2" BSPF
2941999	HP15	Fitting Brass Plug 1/2" BSP Hex Head
3099399	SWT1031694	Fitting S/S Tee Butt weld 4" Sch 10
3097190	SWE1031694	Fitting S/S Elbow Butt weld 90o 4" Sch 10
3099998	SSFSE31694	Flange Slip on S/S 4" Table E
3098310	SSHN100	Fitting S/S Hose Nipple 4"
3097195	SWEF1031694	Fitting S/S Elbow Butt weld 45degree 4" Sch 10
7072900	P316100S10	Pipe S/S 316 SCH 10 4"
1917323	1917323	Tie Rod M16 x 125mm Fastener
3097195	SWEF1031694	Fitting S/S Elbow Butt weld 45degree 4" Sch 10
3099510	SSWN100	Fitting S/S Toe Nipple 4"
5458840	BFVSASR100	Valve Butterfly 4" with Actuator spring return
3069535	C01470628	Fitting Push In Elbow G1/4-6
3093000	SZF100	Fitting Storz 100x100 BSP Female Adaptor
7105835	M-304-SS	Woven Mesh 5A 1.25D 1220mm wide
3094900	SZC100	Fitting Storz 100mm Blanking Cap
3198010	H377436	Stabilo 25mm Fire Hose 60m roll
3198004	H377316	Stabilo 19mm Fire Hose 60m roll
2995525	D-16-16	Fitting Hydraulic 1" Nipple Zinc
2995611	D-16-12	Fitting Hydraulic 1" x 3/4" Male BSPT
3085700	SZF25	Fitting Storz 25x25mm Female BSP Adaptor
3085000	SZF20	Fitting Storz 25x20 BSP Female Adaptor
3033000	A25	Fitting Adaptor 1"BSP M/F
3023000	RA3225	Fitting Red Adaptor 1"BSPM x 1 1/4"BSPF Brass
3098260	SSHN32	Fitting S/S Hose Nipple 1 1/4"
5505380	SSBV2P32	Valve Ball S/S 2pce 1 1/4"
3098755	SSRHN3225	Fitting S/S Reducing Nipple 1 1/4" x 1"
3356804	24063-08BX	Solenoid 85A 24v plasticised
3465530	TFTD75DP+WAA7114K	Nozzle TFTD75DP 1"bsp Pistol Grip
3465531	TFTDQ60TO	Nozzle Selectable Tip TFTDQ60TO
3465532	TFTDSS5	Nozzle Smooth Bore TFTDSS5
3086000	SZM25	Fitting Storz 25x25 BSP Male Adaptor
2693501	VG-FCT2	Drip Torch Rodney FireBug 5 litre retractable wand
3045700	T8	Fitting Tee 1/4" BSPF Brass
3002100	BFP6-0404	Fitting Male Elbow 1/4"BSP x 1/4"Tail 90o Brass
5448990	MBVM6	Valve Ball Brass Mini 2 way M/F 1/4"
3002110	BFP3-0404	Fitting Male Tailpiece 1/4"BSP x 1/4"Tail Brass
3306582	RPD2-0025	Hose Fuel Black 1/4" (6mm)
2699000	702L	Fastener Ojop locking 702L zinc
2699100	31Z	Fastener Ojop Hook Plate 31 Zinc

2669901	IN03	Cooler Oil 430x340x50mm
2698302	EFX4771	Fan Universal 336mm Puller 24V 1771cfm
2995515	D-08-08	Fitting Hydraulic 1/2" Nipple Zinc
4736120	TS04	Sign AL-Do not overtake turning Vehicle (RH)
3340010	94840	Lamp Combination 9-33v LED
4736110	TS03	Sign AL-Do not overtake turning Vehicle (LH)
3340001	D8625L	Ladder Pull Out 3 Step Zinc
3340110	87540	Lamp L.E.D Strip 114mm 9-33V (ally housing)
4879908	TZ9204	Switch Limit TZ9204
3356510	1900549 (1)	Light Mast Gland Boss
4554520	4865/M M8x40mm SS	Index Clamping Handle S/S male x 40mm
1915569	1915569	BLOCK - CLAMP
5910025	72723	Worklamp Rec LED 60W 4500 Lumens wide flood beam
3098568	SSPN5096	Fitting S/S Pipe Piece 2" 150mm Long
3097087	SSE65	Fitting S/S Elbow 90o F/F 2 1/2" BSP
3098762	SSN6550	Fitting S/S Reducing Nipple 2 1/2" x 2"
5459895	SSSPRV50	Valve Spring Check SS 2"
3098280	SSHN50	Fitting S/S Hose Nipple 2"
3080025	FS2214	Fitting 65 QRT Fem x 65mm BSPM AL c/w strainer
3080014	FS2267	Fitting 65 QRT Blanking Plug AL
3097080	SSEMF50	Fitting S/S Elbow 90o M/F 2"
3098568	SSPN5096	Fitting S/S Pipe Piece 2" 150mm Long
3099342	SST50	Fitting S/S Tee 2" BSPF
3097083	SSE50	Fitting S/S Elbow 90o F/F 2"
3610600	PW 056 PVC	Plastic Pinch weld SR black8x14
2591001	99-Cone700	Cone Traffic 700mm 3.5kg base class 2 reflective
4996007	1925204 (0)	Tank Poly 3000 Litre (1925204)
4917858	1903375 (0)	Tank Splash Lid Flange
4917859	1903374 (0)	Tank Splash Lid Panel
4917860	1903026 (0)	Tank Gasket --Splash Lid
3194301	TCA1S3BT	Hinge Self Closing Gate 205kg
4930900	3510120	Tank Lid Ring Kit 255mm CLOSED (flat mount)
4920500	300 116	Tank Strainer Basket 400/600 (240mm deep)
2940400	FE25	Fitting Brass 1" F/F 90o
2906300	HN25	Fitting Nipple 1"BSP Brass
2765750	SN25300	Fitting All Thread Brass 1" x 300mm
3008000	BFP31616	Fitting Male Tailpiece 1"BSP x 1"Tail Brass
3010000	RB1510	Fitting Reducing Bush 1/2" X 3/8"BSP Brass
2907950	MFE10	Fitting Brass 3/8" M/F 90o
3311560	102162	Indicator Water Level Transducer (ITL)
2765791	CSS100F	Fitting Camlock S/S 4" Type F
3098830	SSHP50	Fitting S/S Plug 2"
3097080	SSEMF50	Fitting S/S Elbow 90o M/F 2"
4593960	3316582S	Rubber Elbow 45o 114mm dia ID (P114316)
3574950	101011	Pipe DWV 100 SN6 (114mmOD 108mm ID)
3305001	LFH100BL	Hose BlueLine Layflat PVC 100mm

2786120	BTO25	Fitting Tank Outlet 1" Brass
3196010	CVT25	Hose Clear 25mm ID CVT
3160007	168.1604.19	Float Ball Sight Gauge 15.5mmOD (Braglia)
5435120	T25MF	Valve Ball T-Handle 1" M/F
2940400	FE25	Fitting Brass 1" F/F 90o
3008000	BFP31616	Fitting Male Tailpiece 1"BSP x 1"Tail Brass
2906300	HN25	Fitting Nipple 1"BSP Brass
2940000	MFE20	Fitting Brass 3/4" M/F 90o
3007000	BFP3-1612	Fitting Male Tailpiece 3/4"BSP x 1"Tail Brass
3307900	20026304	Hose 1" Gorilla Good Year 500PSI
1850171	1905094	Multipump Boss Belt Tensioner
1110050	NTN-12x32x10	Bearing (NTN) Idler Belt 6201
1925425	1925425	BELT TENSIONER - BEARING SPACER
1908617	1908617 (1)	Idler Pulley Flanged Multi-Pump
1136301	6406 2RS	Bearing 6406 NTN (30x90x20) Sealed
1914562	1914562	BOSS CLUTCH HOUSING ADAPTOR
1136058	6210LLUNTN	Bearing 6210 NTN (50x90x20)
1915301	1915301	PULLEY - 8M-60S-36 - 29mm BORE
2541153	5227-22 12 volt	Clutch Electromagnetic 5227-22 12 volt 1.125"bore
4075010	CLVK	Pump CLVK Single Stage Fire Pump (c/w G'box)
1151020	1064-8MGT-30	Belt HTD 8MGT-1064-30 Poly Chain
5420000	82507-2T	Valve Assembly Priming (VAP)
3002401	06106-0806	Fitting Male Elbow 3/8"NPT x 1/2"Tail 90o Brass
3005005	10512B-112	Fitting Male Tailpiece 3/4"NPT x 3/4"Tail Brass
3011005	3220x12x8	Fitting Reducing Bush 3/4" x 1/2"NPT Brass
3002510	06106-0808	Fitting Male Elbow 1/2"NPT x 1/2"Tail 90o Brass
3019990	RA158	Fitting Red Adapter 1/4"BSPM x 1/2"BSPF Brass
4093000	51293	Pump Thermo Protector Valve 60 degrees
3387007	85280340	Motor/Engine Mount Flanged Interlocked 710kg
7072800	P3163SCH10	Pipe S/S 316 SCH 10 3"
3097061	SSEF25	Fitting S/S Elbow 45o F/F 1"
3097120	SWE1031620	Fitting S/S Elbow Buttweld 90o 3/4" sch 10
3098640	SSN20	Fitting SS Nipple Hex 3/4"
3008000	BFP31616	Fitting Male Tailpiece 1"BSP x 1"Tail Brass
5435110	T20FF	Valve Ball T-Handle 3/4" F/F
7072900	P316100S10	Pipe S/S 316 SCH 10 4"
3097190	SWE1031694	Fitting S/S Elbow Buttweld 90o 4" Sch 10
3098310	SSHN100	Fitting S/S Hose Nipple 4"
3099290	SSCP65	Fitting S/S Socket 2 1/2"
3099230	SSCP15	Fitting S/S Socket 1/2"
3098831	SSP65	Fitting S/S Plug 2 1/2"
4075025	82904-1A	Pump Anode Flanged 2.5"
3097180	SWE1031680	Fitting S/S Elbow Buttweld 90o 3" Sch 10
3098300	SSHN80	Fitting S/S Hose Nipple 3"
3099342	SST50	Fitting S/S Tee 2" BSPF
1916409	1916409	Injector Air CAFS MP Type 8

1918587	1918587	Screw Air Bleed MP Type 8
2941379	HP10	Fitting Brass Plug 3/8"BSP Hex Head
3098680	SSN50	Fitting S/S Nipple Hex 2"
5459520	VBCE50	Valve Spring Check Brass 2"
5459200	SPRVHD20	Valve Spring Check Brass 3/4"
5453000	VBB25	Valve Ball Brass 2-Way 1" F/F
5514950	8240200.9100.00000	Valve Solenoid 1/2" 82400 (no coil)
5514951	0000000.901.02400	Coil 24V for 82400 Solenoid Valve (Click on)
3015950	RB5020	Fitting Reducing Bush 2" x 3/4"BSP Brass
3011000	RB2015	Fitting Reducing Bush 3/4" x 1/2"BSP Brass
3098918	SSRB5025	Fitting S/S Reducing Bush 2" x 1"
2765746	SN15300	Fitting All Thread Brass 1/2" x 300mm
2903000	RHN2015	Fitting Red Nipple 3/4" x 1/2"BSP Brass
2906300	HN25	Fitting Nipple 1"BSP Brass
3098250	SSHN25	Fitting S/S Hose Nipple 1"
3098280	SSHN50	Fitting S/S Hose Nipple 2"
3097053	SSE15	Fitting S/S Elbow 90o F/F 1/2"
3097062	SSEMFF25	Fitting S/S Elbow 45o M/F 1"
3097083	SSE50	Fitting S/S Elbow 90o F/F 2"
4547511	R73G-4GK-RMN	Regulator Air 1/2"10Bar R73 (Norgren)
3140005	18-013-013	Gauge Pressure 10 Bar (145psi) Norgren
3099341	SST40	Fitting S/S Tee 1 1/2" BSPF
3098660	SSN40	Fitting SS Nipple Hex 1 1/2"
5459600	VBCE40	Valve Spring Check Brass 1 1/2" (brass stem plate)
5452000	VBB20	Valve Ball Brass 2 way 3/4" F/F
3015000	RB4015	Fitting Reducing Bush 1 1/2" x 1/2"BSP Brass
2905600	RHN2520	Fitting Red Nipple 1"x3/4"BSP Brass
3097073	SSE40	Fitting S/S Elbow 90o F/F 1 1/2"
3098569	SSPP40150	Fitting S/S Pipe Piece 1 1/2" 150mm
3009200	BMLEM3838	Fitting Male Lump End 1 1/2" x 1 1/2"Tail Brass
3005000	BFP3-1212	Fitting Male Tailpiece 3/4"BSP x 3/4"Tail Brass
1001949	121P00-11002420	Actuator LA12P 100mm Stroke 24v with Potentiometer
3002500	BFP6-0808	Fitting Male Elbow 1/2"BSP x 1/2"Tail 90o Brass
3002300	BFP6-0608	Fitting Male Elbow 1/2"BSP x 3/8"Tail 90o Brass
1108905	SBI24	Battery Isolator Smart 24V 100Amp
3125250	CB255-30	Fuseable Link Resettable 30 Amp (255 Series)
3125300	CB185F-60	Fuseable Link Resettable 60 Amp
3125500	CB185F-100	Fuseable Link Resettable 100A
1091500	YTX14-BS	Battery YTX14-BS
3399500	4H50TI-OPU	Motor Hatz 4H50TI-OPU 24V DieselTurbo Intercooled
1915194	1915194	PULLEY - 8M-60S-36 - 48mm BORE
1921732	1921732	Pulley 8PV-190mm-48mm Bore
1850171	1905094	Multipump Boss Belt Tensioner
1909509	1909509 (0)	PULLEY - IDLER - HP PUMP
1134000	3201.2RSR.TVH FAG	Bearing 3201.2RSR.TVH FAG
1921446	1921446	PULLEY - 8PV - 164mm - 32mm BORE

1924459	1924459	Housing Bearing Pulley EVO6 Compressor
1905096	1905096 (1)	Multipump Short Belt Tensioner Assembly
1850171	1905094	Multipump Boss Belt Tensioner
1110050	NTN-12x32x10	Bearing (NTN) Idler Belt 6201
1925425	1925425	BELT TENSIONER - BEARING SPACER
3462028	1904011 (1)	Multi Pump Pulley Idler
2550110	EVO6-NK-G V001	Compressor CAFS EVO6-NK-G V001 c/w G'box 24vdc
1136059	6210LLUC3NTN	Bearing 6210 C3 NTN Sealed (50x90x20)
4879930	TFS239	Switch Fan TFS239 (2 Wire) 105 Degrees
1151500	8PK1015GATES	Belt-V 8PK1015- Poly Rib
3550007	GW32098	Oil Industrial ISO 68
3309852	PFES103-300	Hose Silicone 3" Elbow 90o
2762050	F17-800-A#DG	Filter Air 40UM F17 800 A3DG 1
3097060	SS90EMF25	Fitting S/S Elbow 90o M/F 1"
5459400	SPRVHD25	Valve Spring Check Brass 1"
2995525	D-16-16	Fitting Hydraulic 1" Nipple Zinc
5481111	4013500A	Safety Valve 1/2" 174 PSI 12 BAR 4013500A
2995515	D-08-08	Fitting Hydraulic 1/2" Nipple Zinc
2996250	CLJ-08-08	Fitting Hydraulic Elbow M/F 1/2" BSPT 90o
2998050	BF1-0808K	Fitting Hydraulic 1/2" Female Crimp
2998051	BF9-0808K	Fitting Hydraulic 1/2" Female Crimp 90o
3220000	R1AT-08	Hose Hydraulic 1/2" (R1AT)
2691200	JB3816-3-8M	Distribution Post Power Small Base (Red)- 8mm stud
2691210	JB3816-2-8M	Distribution Post Power Sml Base (Black) 8mm stud
2694774	B2978	Exhaust Rain Cap 2"
2574530	171601	Compressor Kit 4Litre Air Tank
3098230	SSHN15	Fitting S/S Hose Nipple 1/2"
3097050	SS90EMF15	Fitting S/S Elbow 90o M/F 1/2" BSP
3098230	SSHN15	Fitting S/S Hose Nipple 1/2"
5505200	15-625-2PCE	Valve Ball S/S 2pce 1/2"
2905500	RHN2515	Fitting Red Nipple 1" x 1/2"BSP Brass
3045930	T25	Fitting Tee 1" BSPF Brass
2906300	HN25	Fitting Nipple 1"BSP Brass
3009500	RB158	Fitting Reducing Bush 1/2" x 1/4"BSP Brass
5476010	BF30-04	Valve Drain Cock Brass Body 1/4" NPT
2941999	HP15	Fitting Brass Plug 1/2" BSP Hex Head
3220000	R1AT-08	Hose Hydraulic 1/2" (R1AT)
2998050	BF1-0808K	Fitting Hydraulic 1/2" Female Crimp
2998051	BF9-0808K	Fitting Hydraulic 1/2" Female Crimp 90o
3674505	9320	Pump Priming Subassy VPO (24V)
2940005	3400x12	Fitting Brass 3/4" M/F 90o NPT Extruded
2942049	3152x12	Fitting Brass Hex Plug 3/4" NPT
3098630	SSN15	Fitting S/S Nipple Hex 1/2"
3098743	SSN1508	Fitting S/S Reducing Nipple 1/2 x 1/4"
3040130	390511050	Fitting Air Quick Conn Holmatro Body x 1/4" BSPF
3077790	CA96462	Fitting Quick Release Body Dust Cap (24mmID)

3098743	SSN1508	Fitting S/S Reducing Nipple 1/2 x 1/4"
3040130	390511050	Fitting Air Quick Conn Holmatro Body x 1/4" BSPF
3077790	CA96462	Fitting Quick Release Body Dust Cap (24mmID)
5505250	SSBV2P20	Valve Ball S/S 2pce 3/4"
3085500	SZM20	Fitting Storz 25x20 BSP Male Adaptor
3099339	SST25	Fitting S/S Tee 1" BSPF
3098903	SSB2520	Fitting S/S Reducing Bush 1 " x 3/4" bsp
3098240	SSHN20	Fitting S/S Hose Nipple 3/4"
1108906	BMS-05	Battery Isolator H/D 250A 12V, 125A 24V
3356526	62097BL	Light Pilot LED 24v Red Chrome
4551060	RVD	Residual Voltage Detection Device
2693931	CLI56CB4GY	Enclosure Mounting Cover grey
2693933	CLI56E3GY	Enclosure Clipsal 3 Gang Grey
3311801	56AI310LE	Inlet 240volt 10amp 3 pin flat grey (face only)
4879750	NHPM6RCBD1030C	Switch RCD+MCB RCBO 10A 240v 30mA DIN mount
3125520	CB185F-150	Fuseable Link Resettable 150A
3125250	CB255-30	Fuseable Link Resettable 30 Amp (255 Series)
3125300	CB185F-60	Fuseable Link Resettable 60 Amp
3125182	S5510	Fuseable Link Resettable 10 Amp S55 Panel Mount
3125185	S55Boot	Boot Rubber Fuseable Link Resettable (s55)
3356804	24063-08BX	Solenoid 85A 24v plasticised
1108995	ACX3128	Battery Terminal Insulator Red-50x25x25
2691201	C2791R	Distribution Post Through Bulkhead 6mm (Red)
4551052	ACX1943DBL	Relay 24V Changeover Diode Protected
4547990	ACX1997	Relay Mini Mounting Base
4548115	P142450	Relay 24V 50A
4547993	47105/1	Relay Mounting Base Mini High Current
1108970	ACX3124	Battery Terminal Protector (Red) 40x21x21mm
1108972	ACX3125	Battery Terminal Ptotector Black - 40x21x21mm
2691197	IN5408	Diode 3Amp Axial
3123300	FH02	Fuse Holder Blade 6 Way Flush Mount
3123600	ACX1834	Fuse Holder Blade 10 Way Flush Mount
3123400	FH03	Fuse Holder Blade 8 Way Flush Mount
3124555	55710BL	Fuse Blade STD 10amp Circuit Breaker Manual Reset
3124565	55715BL	Fuse Blade STD 15amp Circuit Breaker Manual Reset
3124605	55720BL	Fuse Blade STD 20amp Circuit Breaker Manual Reset
4740802	809-018-PM	Siren Kit CS202 24V Park Mode
2668800	601420	Convertor DC 24-12V 20Amp (Imark)
5533485	P5027	Voltage Reducer 24v-12v 10A
4896062	R508	Switch Rocker Off -Momentary On 12 / 24v
4896067	R403-24R-03	Switch Rocker R Series "ServiceLamps " 24v Red
4896064	R404-24R-09	Switch Rocker R Series Actuator "Spot Light" 24v R
4742889	81026BL	Socket Accessory Single 12V/24v Panel Mnt
3124504	S5505	Fuse Panel Mount 5Amp Circuit Breaker Manual Reset
2691195	PID41	Diode Plug in 2 x 3amp
4551022	886-010	Relay Headlight Flasher 24V

5533485	P5027	Voltage Reducer 24v-12v 10A
4896051	R2-1	Switch Rocker R series Actuator Blank
4896065	R404-24R	Switch Rocker R Series Actuator 24v Red
5153800	Streamlight Torch	Torch Streamlight Poly Stinger 76162 LED 12V
3341505	M1-81	Latch Flush Pull to Open
4742889	81026BL	Socket Accessory Single 12V/24v Panel Mnt
3311550	112124	Indicator Water Level Slave Class 1
4889990	C936/K	Switch Push Button Off/Mom-on (AEI)
3356526	62097BL	Light Pilot LED 24v Red Chrome
4551027	68252BL	Relay Flasher 24V 40W
1159000	ACX5112	Buzzer Slow Pulse
3340201	2639	Lamp Map Reading 9-31 Volt
2539628	289-578	Clip Spring 5/8" (24.61x7.94x29.37mm) white
2765681	FTS139-260	Fire Curtains(Radiant Heat Shield) IsuzuFTS139-260
3340196	BR15B	Lamp License Plate LED 74x38mm
3340110	87540	Lamp L.E.D Strip 114mm 9-33V (ally housing)
5532800	32373	Vibration Isolator (Davey Buffer Kit)
3356355	X69A-QFRS2RB24V	Lightbar X69A QFRS spec 24v (EX-00019-C)
3356605	DLX601LED	Light Driving LED 600mm 120W 12-30vdc
3356621	GWA0015	Light Driving Loom GWA0015
4740810	810-011	Siren Speaker 128db 100W (D100B)
5456851	47035-08SEL	Valve Ball Brass 3 way 1/2" Lport Side Entry
2910000	MFE15	Fitting Brass 1/2" M/F 90o
3003700	BFP3-0608	Fitting Male Tailpiece 1/2"BSP X 3/8"Tail Brass
2992975	BF50-08	Fitting Male Tee BSP Brass 1/2"
5458953	23151-08V	Valve Check Brass 1/2" Fem BSP Viton
3002000	BFP3-0808	Fitting Male Tailpiece 1/2" BSP x 1/2" Tail Brass
2908000	FE15	Fitting Brass 1/2" F/F 90o
9000000	CAB-09-09	90o JIC male x JIC Female SW
9000000	JF1-0906P	9/16 JIC Fem Str 3/8" hose
3003000	BFP3-0606	Fitting Male Tailpiece 3/8"BSP X 3/8"Tail Brass
3048200	HS10	Fitting Hex Socket 3/8"BSP Brass
2907950	MFE10	Fitting Brass 3/8" M/F 90o
3003000	BFP3-0606	Fitting Male Tailpiece 3/8"BSP X 3/8"Tail Brass
9000000	JF1-0906P	9/16 JIC Fem Str 3/8" hose
3306605	RPD2-0038	Hose Fuel Black 3/8" (10mm)
3306705	FLH12	Hose Fuel Black 1/2" (12mm)
3205551	TF12	Hose Flexible Air 1/2" ID 230psi Blue
3279030	20459048	Hose Suction Rubber Extremeflex 100mm
2765788	CSS100C	Fitting Camlock S/S 4" Type C
3307800	20026290	Hose 3/4" Gorilla Good Year 500PSI
3279005	20459045	Hose Suction Rubber Extremeflex 50mm
3306000	14125-04	Hose 1/4" Nylon Tube Black
3278997	20472432	Hose Suction Rubber Extremeflex 32mm
3271000	FSFC19	Hose Suction Clear 3/4 reinforced
3304001	PFTPR12	Hose Translucent 1/2 -230PSI

5626010	WS41Y	Wheel Nut Indicator 41mm yellow
3465510	VG-710/S	Ally Fire Technology 1 inch branch variable flow pistol grip
3321001	FIRSTAID	First aid kit in soft bag Alpha brand (for treating burns, immobilisation and snake bites)
3311200	98-PB600	610 mm hydrant bar galvanised
3080006	FS7027	QRT spanners
3096150	SZSP4065	Storz spanners
3096155	SZSPBC	Storz spanners
2765720	1000-1005	4.5 kg fire extinguisher DCP
2765721	1500-2001	Heavy duty vehicle mounting bracket to suit 4.5 kg extinguisher
3309722	VH-DU64/3344/GA	64 mm x 30 m QRT Duraline layflat
3309700	VH-DU38/1364/GA	38 mm x 30 m QRT Duraline layflat
3309720	VH-DU64/10/fitted	64 mm x 10 m QRT Duraline layflat
3080007	FS2208	Fitting 65 QRT Female Swivel x 50mm BSPF AL
3080008	FS2001	Fitting 65 QRT Male x 50mm BSPM AL
3080010	FS2210	Fitting 65 QRT Female swivel x 40mm BSPM AL
3088000	SZF40	Fitting Storz 38x38 BSP Female Adaptor
2767500	CAL50F	Fitting Camlock 2" Male x BSP Male (type F)
2767200	CAL50A	Fitting Camlock 2" Male x BSPF (Type A)
2767250	CAL50B	Fitting Camlock 2" Female+BSP Male (type B)
2767300	CAL50D	Fitting Camlock 2" Female x BSP Female (type D)
5398000	84200	Triangle Safety (Set of 3)
3195795	TFA1010	Hose Ass Air 3/8" x 10m (Nitro style couplings)
3040131	350581249	Fitting Air Quick Conn Holmatro Tip x 1/4" BSPF
3003500	BFP30604	Fitting Male Tailpiece 1/4"BSP x 3/8"Tail Brass
1052800	AIPBG	Air Blow Gun
5399250	AIPTPG	Tyre Inflator with Gauge
2735100	Mann C1760/1	Filter Air Mann C1760/1
2735101	LB131453	Filter Oil / Water Separator LB131453
2735102	AA8485	Filter Oil AA8485
3188618	QUIKCORP-100618	Harness MAIN BODY RFBAQ - HEAVY
3188619	QUIKCORP-100619	Harness BODY POWER & THROUGH RFBAQ - HEAVY
3188620	QUIKCORP-100620	Harness CABIN POWER & UNDER CAB RFBAQ - HEAVY

21 APPENDIX G – WARRANTY POLICY

This document sets out the warranties that are given by Quik Corp Pty Ltd (ABN 18 081 235 556) in relation to the Product purchased from or manufactured by Quik Corp.

1. Definitions

1.1. In this warranty policy:

“**Quik Corp**” means Quik Corp Pty Ltd (ABN 18 081 235 556);

“**Customer**” means the party who originally acquired the Product from Quik Corp, or an authorised distributor, reseller or dealer for Quik Corp, for their own use.

“**OEM Equipment**” means the items of equipment fitted to the product by Quik Corp and which items have been manufactured by others and have their own manufacturer’s warranty.

“**Product**” means the goods or machinery that the Customer acquired and which were manufactured by Quik Corp.

2. Warranty

2.1. Subject to clause 3 and clause 4, Quik Corp warrants to the Customer that the Product will be free from proven defects in material and workmanship for twelve months from the date of purchase by the Customer unless a specific warranty period applies to a component listed in Appendix A.

2.2. The warranty is not transferable.

3. Limitations

3.1. This warranty does not cover damages resulting from shipping and handling, abuse, accidents, alterations, normal wear or failure to maintain or use the Quik Corp product with due care.

3.2. Quik Corp does not warrant that the operation of the product will be uninterrupted or error-free. The Customer must read and follow all instructions and manuals for the setup, maintenance and use of the Product. If the Customer fails to do so, the product may not function correctly and may suffer other damage.

3.3. This warranty does not extend to OEM equipment which has its own warranty, and the Customer must rely on the OEM equipment warranty for any defects in material or workmanship relating to the OEM equipment.

3.4. This warranty does not extend to cover corrosion due to any cause nor to any damage to painted or anodised surfaces that occurs after the Customer takes delivery of the product.

3.5. This warranty does not cover the time required to diagnose a warranty problem.

3.6. The use of parts other than Quik Corp parts for repair of warranted items will automatically negate any warranty. Warranted components must be replaced with genuine Quik Corp parts.

3.7. Repairs by an unauthorised agent will automatically forfeit any warranty. Warranty repairs must be carried out by Quik Corp or an authorised Quik Corp Dealer/Service Agent only.

3.8. This warranty does not cover transportation or insurance costs for Products needing repair or replacement of warranted components. Nor does it cover any freight or insurance costs in obtaining new parts or returning old parts to Quik Corp for inspection purposes.

3.9. The time taken to remove and re-install a warranted part or component into other brands of equipment will not be covered by the Quik Corp warranty. Only parts and labour directly attributable to the repair of the Quik Corp unit is covered.

3.10. Quik Corp does not pay for cleaning or clean the Product, accessories or work area before or after the warranty repair.

3.11. Quik Corp assumes no responsibility for the improper choice of models or where products are used in excess of rated capacities and design functions, or under abnormal conditions. We make available a free technical service to help with any product selection, application or situation.

4. Repair or Replace

- 4.1. During the warranty period, Quik Corp or its authorised Dealer/Service Agent shall repair or replace, at Quik Corp's discretion, without charge for parts and standard labour, any part of the Quik Corp Product which fails because of defects in material or workmanship unless the damage arises from:
 - 4.1.1. Failure resulting from neglect or misuse, such as improper operation, lack of required maintenance or continued use of the Product after the discovery of a defect which results in greater damage to the Product;
 - 4.1.2. Deteriorated or failed components such as but not limited to diaphragms, O-rings, hoses, seals, electrical wiring and connections damaged by corrosive chemicals, dirt and sand, excessive heat or moisture. The Customer should ensure the type and strength of chemicals used in the Product are compatible with the design of the Product;
 - 4.1.3. The use of accessories, hardware, or software which were not manufactured by, installed by or approved in writing by Quik Corp;
 - 4.1.4. The use of consumable items such as but not limited to oils, lubricants, diaphragms, O-rings, hoses seals, gaskets, filter elements, flow meters, clutches, drive belts, pivot pins, paint, batteries, radio transmitters, radio relays, push buttons, switches, hose rollers, aerials, spray guns and nozzles as these items are considered to be normal wear items and are not warranted;
 - 4.1.5. Component failure caused by not performing scheduled maintenance service such as oils, grease, failure to clean tanks, pumps, filters, spray lines, nozzles or any other components and not tightening or replacing loose or missing bolts, nuts, fittings, shields and covers;
 - 4.1.6. Damage or machine failure caused by carelessness or accidental damage, improper operation, inappropriate transportation or storage of the Product;
 - 4.1.7. Any contamination or leakages caused or induced by the Customer;
 - 4.1.8. Any use or operation of the Product outside the physical, electrical or environmental specifications of the Product;
 - 4.1.9. Any alterations, modifications, attachments or unauthorised repairs to the Product which have not been authorised in writing by Quik Corp; and
 - 4.1.10. Failures due to faulty or inadequate electrical sources of power.

5. OEM Warranties

- 5.1. All OEM (Original Equipment Manufacturer) components are covered by the Original Manufacturer's Warranty. It is the Customer's responsibility to familiarise themselves with these warranties, and subject to clause 7, that is the only warranty given to the customer in respect of that part of the Product.

6. Warranty Claim Procedure

- 6.1. To obtain warranty service:
 - 6.1.1. The Warranty Registration Form must be returned to Quik Corp by the Customer within 14 days of taking delivery of the Product;
 - 6.1.2. The Customer must read the Operating manual before operating the Product;
 - 6.1.3. The Customer must provide with notice of the defect Quik Corp within the warranty period and within 14 days of discovery of the claimed problem, and allow reasonable time for replacement or repair.
- 6.2. Quik Corp may, at its discretion, request the Customer to deliver the alleged defective parts to an authorised servicing Dealer/Service Agent or to Quik Corp. Transportation of the Product to the authorised servicing Dealer/Service Agent or Quik Corp for warranty work is the responsibility of the Customer and is at the Customer's expense. Alternatively, the Customer may request a Quik Corp service technician to travel to the site of the Product to effect repairs or replacement, however, the reasonable travel costs (including travelling time) of the service technician must be paid for by the Customer.
- 6.3. Any service outside the scope of this warranty will be charged for at Quik Corp's rates and terms then in effect.

7. Other

- 7.1. This warranty is in lieu of all other warranties (except those of title), expressed or implied, and there are no warranties of merchantability or fitness for a particular purpose.
- 7.2. Unless the Product has been purchased for personal, domestic or household use, any liability of Quik Corp to the Customer arising under a statute which may not be excluded, restricted or modified by agreement, is limited to an amount equal to, as determined by Quik Corp:
 - 7.2.1. Replacement of the Product or supply of equivalent Product;
 - 7.2.2. The repair of the Product;
 - 7.2.3. The payment of the cost of replacing or repairing the Product; or
 - 7.2.4. Refund of the purchase price paid by the Customer.
- 7.3. Subject to clause 7.2, in no event shall Quik Corp or the authorised Dealer/Service Agent be liable for any loss of profit or any consequential, indirect or special loss, damage or injury of any kind whatsoever arising directly or indirectly from the Product or any defect.
- 7.4. The benefits under this Warranty are in addition to other rights and remedies under a law in relation to the Product.
- 7.5. The judgement of Quik Corp in all cases of claims under this warranty shall be final and conclusive and the Customer agrees to accept its decisions on all questions as to defect, repair and to the exchange of any part or parts.

21.1 Component Warranties

- Waterous CLVK Pump – Manufacturer's warranty
- Hatz 4H50-TIC Engine – Manufacturer's warranty
- MSA Drop Slide – Manufacturer's warranty
- Waeco CFX35 Cooler – Manufacturer's warranty
- Hose Reel – 6 Years
- Poly Tank - 15 Years (Subject to OEM terms and conditions)
- Stainless Steel Plumbing (manufactured) – 20 years
- Pressure and Compound Gauges – 2 years
- Valves, Fittings and Hoses – 5 Year
- Hardware (locks for lockers, gas struts) – 1 Year
- Tray – 10 Years
- Locker Framework – 5 years
- Electrical – 1 year
- Other items not specified – 1 year or OEM/manufacture's warranty.