OWNERS MANUAL

MARINER

Oil Hydraulic Lift
with Automatic door operators & controls

AS1735 - Part 16

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Before you use the Lift

Lifts are designed to provide a safe means of transporting passengers vertically between two or more levels.

Lifts are inherently an extremely safe means of transport and are built to comply with Government Regulations and applicable Australian Standards.

Lifts manufactured by Aussie Lifts are fully tested when manufactured and tested again when the lift has been installed. This testing involves certain safety features that are set and adjusted to suit the individual lift and location of the lift.

No unauthorized adjustments or changes to the lift should be made. Any unauthorized changes will void any warranty in place and could compromise the safety of the lift, the lift operation and passengers using the lift.

Misuse and abuse of the lift can compromise the continued reliable operation of the lift, the safety of passengers using the lift and void the manufacturer's warranty.

Use of the lift in accordance with the Owners Operating Manual will provide for a long trouble free life of the lift and provide many happy lift travels.

Safety Warnings

The lift is designed to carry a specific load DO NOT operate the lift with a load that exceeds the lifts load rating. The load rating is displayed on the name plate inside the lift car. No load in the lift should extend outside the confines of the lift car.

The lift is designed to be operated by the use of call buttons on the landings and in the lift car. Except for emergencies this is the only means of safely operating the lift.

Passengers travelling in the lift car should position themselves centrally in the lift car.

The lift has landing doors to prevent entry into the lift shaft. The doors should always be left in the closed position. Landing doors should never be blocked in the open position.

When not required or when keyed off the lift should only be parked at the lowest landing.

Warranty

Aussie Lifts Pty Ltd warrants to the original purchaser of the Hydraulic Lift that the company will repair or exchange, at its option any part of the lift that fails, for reason of defective materials or workmanship within 12 months from the date of installation.

This warranty covers any parts, labour and travelling costs involved.

The company's obligation under this warranty is limited to the repair or exchange of parts that fail within the applicable period.

The company assumes no responsibility for any other damage including incidental and consequential damages.

The company assumes no responsibility for any damage to parts caused by accident or misuse.

Any unauthorized tampering with, or modification of, this lift without the written consent of Aussie Lifts Pty Ltd will render this warranty null and void.

The Owner:_____

Install Site:_____

Serial Number:_____ Install Date:_____

Using your Lift

Your lift has been provided with key switches to allow you to control the operation of the lift. The lift is required to be parked with the keys in the OFF position (|) to prevent the lift being used by unauthorised people.

Key the lift ON so that the lift is available for use and you can open the landing door. The lift has *Automatic Doors* that operate to open the landing door.

The landing doors are required to be fully closed before pressing the call button which will register the call onto the control system, as the lift is automatically controlled there is no need to continually press the call button for the entire travel of the lift, the lamp will remain illuminated until the lift reaches the destination floor.

You should stand in the centre of the lift and not attempt to exit the lift until the lift has reached the destination floor and has come to a complete stop. Once stopped the *Automatic Doors* will operate and the door will fully open. The door will be held open to allow exiting of the lift.

During the travel of the lift should the rider encroach on the car entrance area the lift will stop. This is because the car entrance is protected by a curtain of light. Any object interrupting any of the car entrance protection beams, will stop the lift. Passengers should clear the car entrance area, wait 5 seconds and place a call onto the lift system. The lift will then continue with its journey.

When you wish to call the lift to a landing you can do so by pressing the call button on the landing, the lamp will remain illuminated until the lift reaches the destination floor.

Lift Operation

Calling the lift car to a landing

(a) **If you are at the lower landing** press the Call (Down) button. The button will become illuminated to acknowledge the call. Once the car has arrived at the landing the button will no longer be illuminated.
(b) **If you are at the upper landing** press the Call (Up) button. The button will become illuminated to acknowledge the call. Once the car has arrived at the landing the button will no longer be illuminated.

Sending the lift car away from a landing

(a) If you are at the lower landing press the Send (Up) button. The button will become illuminated to acknowledge the operation. Once the car has arrived at the landing the button will no longer be illuminated.

Operating the lift from the lift car

After entering the lift and closing the door, make sure the photo electrics are clear of any obstruction. Once everything is checked the lift is ready to commence operation.

(a) **If you wish to travel to the upper landing** press the Up button. The button will become illuminated to acknowledge the operation. Once the car has arrived at the landing the button will no longer be illuminated. It is now safe to exit.

(b) **If you wish to travel to the lower landing** press the Down button. The button will become illuminated to acknowledge the operation. Once the car has arrived at the landing the button will no longer be illuminated. It is now safe to exit.

Care of your lift

Internal finish

Colour bond

The walls of the lift car are made of colourbond material and can be cleaned with warm water and a damp cloth, do not use solvent cleaners, as they will damage the plastic lens of the sensors. It is very important the floor of the car be kept clean and free of any foreign matter as the photo electric sensors across the entrances are only a small distance from the floor. Obstruction of these sensors will prevent the lift from running.

Regular servicing

The lift is a mechanical device and is the owner's responsibility to make sure it is serviced at no greater than 12 monthly intervals by an approved and competent person that is trained in the servicing of this type of equipment.

Emergency

The lift is provided with an emergency telephone to enable the passenger to make contact with someone should the need arise.

A copy of the Emergency Instructions is displayed on the inside of the Machine Cabinet Door and is also provided in this manual.

Control Introduction

The lift control is – single call – simplex control. The lift will only respond to a single landing or car call placed on the lift.

The lift runs in the up direction using relays to control the hydraulic pump motor.

Down control is via a two-solenoid hydraulic valve arrangement that provides the acceleration, speed control and final stopping of the lift.

The circuit uses magnets in the lift shaft to determine its position and the correct point to commence slowing into the floor.

Power Supply

The lift is supplied from a single phase 240 V circuit for normal operation and utilises batteries for emergency operation.

In the event of power failure the stand by batteries will provide enough power to lower the lift car to the lower landing. Located in the machine cabinet the two 12v 7Ah batteries are permanently connected to a charger and monitored. This protects the battery from running down to a voltage level from which it will never recover.

It is ideal to keep mains power to the lift on at all times. In the event of the mains power being turned off we recommend the main switch in the machine cabinet be turned off. This will isolate the lift circuit and stop the emergency batteries from running flat.

The Logic Controller

The Logic Controller has a LCD (Liquid Crystal Display) that is used to provide information on the status of the lift.

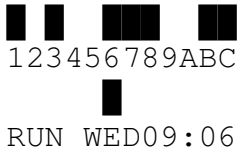
When initially powered the Logic Controller will wait for the electrical supply to be stable prior to commencing any lift operational functions.

The LCD display will show various pieces of information depending on the status of the lift; the information may be on one line or use both lines. The following table shows the various LCD messages.

Logic Controller Display Messages

Screen 1 is the screen display usually displayed by the controller, this is the input and output states.

Screen 1.



Input state ■ = ON

Output state ■ = ON

RUN = PLC running Day and Time

Pressing the “Sel” button will display the status information

Screen 1 A

Bat	24.3	*Volts*
Pwr	24.7	*Volts*
Run	0002	*No of up Runs*

Pressing the “↓” button will display the software information

Screen 1 B.

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03/10/07 *Version date*

Pressing the “Esc” button will take the display back to the Input and Output status display.

Error Messages

	Time of Travel Expired	The lift has not reached floor level within 70 seconds.
	Both Limits Together	The Logic Controller should never see both direction limits at the same time. There is a fuse or wiring fault.
	10 Up runs No Lock or L ray	After each run the Logic Controller needs to see a door open. If the lift completes 10 up travels without a door opening it will stop. Opening a door resets the error.
	Limit Fail	If there is a problem with a reed the lift will stop.
	Power Low	There is a problem with the power supply check the fuses and power.
	Battery Low	There is a problem with the battery supply check the fuses and battery charger.

Features

Landing Doors

The lift is fitted with swing action doors at both landings; the doors come complete with full length pull handles, automatic door closers and interlocking latches.

The interlocking latch is a safety feature. It prevents the lift car from operating if a door is open or the interlocking connection is broken.

Door Hold

This feature allows the landings doors to be held in the fully open position and allows for easier access to and from the lift car. The landing door is required to be opened to the fully open position for the door to be held open.

Upon reaching the floor the "Door Hold" magnets are activated for 30 seconds. Each time a door is closed and opened the magnets are reactivated for 30 seconds. Pressing a call button will release the doors.

Option - Automatic Doors

This feature allows for the landings doors to be automatically opened when the lift arrives at the floor or when access to the lift car is required.

The door will remain open for approximately 10 seconds to allow passengers to enter or exit the lift car.

Press the ▼ button when on the Lower floor will cause the landing door to open.

Press the ▲ button when on the Top floor will cause the landing door to open.

When the lift arrives at the landing the doors will automatically open.

With automatically operated landing doors lift users need to ensure the door swing zone in front of the landing doors is kept clear at all times. Passengers should always stand to one side of the swing zone and only enter when the door has fully opened. The lift should be entered or exited in a timely manner to prevent the possibility of coming into contact with the door when it is automatically closing.
Should the door come into contact with an object during the opening cycle then the door will stop and the door will be retracted into the closed position.

Landing door re-open.

When the landing door is open an obstruction in front of the car entrance beams will cause the door to re-open or remain open while the entrance beams are obstructed. To

prevent the doors from remaining open indefinitely this feature will time out after 1 minute and allow the doors to close.

Landing door hold open.

Pressing the appropriate landing button for 5 seconds will hold the doors open for up to 3 minutes. The enabling of this feature is indicated by the car lights flashing once. The hold open can be cancelled by pressing the Up or Down button.

Key Switch access control – Off / On type

The key switch mounted in the lower landing control station will control access to the lift. The key switch will enable the lift to be turned ON or OFF. When the lift is ON it is available for use from any control station.

To turn the lift ON turn the key switch from the horizontal position to the vertical position.

To turn the lift OFF turn the key switch from the vertical position to the horizontal.

The lift can be parked in a secure position by sending the lift up from the bottom floor, counting to 5 and then turning the key OFF. This will stop the lift away from the bottom landing and the landing doors cannot be opened. This prevents the lift car from being accessible and the control buttons are not operational so the lift cannot be called.

Key Switch - Toggle type access control

If access to the lift is required to be controlled from more than one landing then this is provided by toggle key switches. The key switch will enable the lift to be turned ON or OFF. When the lift is ON it is available for use from any control station, when OFF the lift is parked in a secure position and no access to the lift car is possible.

This feature is a toggle arrangement and all that is required is the momentary operation of the key switch to change the state of the lift. The state of the lift is indicated by the LED indicator on the landing button station.

To turn the lift OFF momentarily turn the key switch from the vertical position to the horizontal and then back to the vertical. The LED indicator will be off.

To turn the lift ON momentarily turn the key switch from the vertical position to the horizontal and then back to the vertical. The LED indicator will be on.

Lift "ON" Indication

The status of the lift is indicated on the landings by a LED, this LED can have 3 conditions.

"On" – Lift is on and available for use

"Off" – Lift is off and not available for use
"Flashing" – Lift is "on" but safety circuit is open or internal safety relay in the PLC is open indicating a fault has been detected by the PLC.

During normal operation the LED will flash when the door is open as passengers enter and exit the lift.

A "Lift On" LED is also mounted on the main PCB.

Auto - Park

This feature allows the lift to be keyed on and remain on and in use until the lift is required to be parked in a position where the lift car is not accessible, and the lift cannot be used.

When the lift has been tuned OFF the lift will automatically home to the lowest floor, and then after a pause the lift will move up a short distance out of the landing.

This will place the lift in a position where the landing doors cannot be opened, which prevents unauthorised access to the lift car and prevents the lift from being used.

The interruption of a safety switch, the car light beams, will cause the lift to turn itself ON and be available for use.

Should the lift be turned OFF at the "Main Switch" in the control cabinet, the lift will automatically park it's self when the "Main Switch" is turned back ON.

Option :- Auto – Park and Auto - Off

Some situations require the lift to remain in a parked position and only be available when required. This feature requires any person requiring to use the lift to be in possession of a key.

When the lift is required for use the key switch on the landing station is momentarily operated to switch the lift on – this will be indicated by the LED on the landing station illuminating.
Pressing the button will call the lift and the passenger can use the lift to travel to their required landing.

The lift will automatically home to the lowest landing after 5 minutes and will wait at the lower level for 10 seconds and then the lift will run up and park the lift in a position where the landing doors cannot be opened, which prevents unauthorised access to the lift car and prevents the lift from being used.

The interruption of a safety switch, the car light beams, will cause the lift to turn itself ON and be available for use.

Should the lift be turned OFF at the "Main Switch" in the control cabinet, the lift will automatically park it's self when the "Main Switch" is turned back ON.

Calls

Calls can only be registered on the lift if all the safety switches and doors are closed, the lift is keyed ON and there are no errors on the logic controller.

Pressing a call button will cause the call lamp to illuminate. The button will remain illuminated to acknowledge the operation.

Photo electric sensors

Positioned at the car entrance just above the floor is an array of photoelectric sensors which will stop the lift car if a light beam is broken.

It is important to keep the floor of the lift car clean of any foreign matter as the lower photoelectric sensor is close to the finished floor level. A leaf that has blown onto the lift car floor is enough to interrupt the sensor and prevent the lift from operating.

Lights

Two down lights are mounted in the top of the lift car they will automatically activate upon opening the doors, breaking the photo sensors or calling the lift car. When the lift has been stationary at a landing for 3 minutes the lights will be automatically switched off.

In the event of mains power failure, the light will remain on until the emergency power supply voltage drops to a monitored level or the main power is restored.

Re-Levelling

Should the lift sink below top floor level, the logic controller will run the lift and pump the lift car back up to floor level (subject to power and errors).
The lift will not re-level if any of the safety switches or car entrance light rays or landing door is open.

Telephone

For safety the lift car has an automatically dialling telephone. The phone is activated by pressing the “Phone” ☽ button for 10 seconds or until the unit is heard to connect. The telephone will announce that you are being connected and then announce the address of the building where the lift is installed. Passengers can then talk to the operator on the line.
The phone can be programmed with up to 3 telephone numbers, which are dialled in an escalation sequence should the previous number not be answered or is busy.
Contact with the lift car can be made by calling the lift – pressing the “Phone” ☽ button will allow the emergency telephone to answer the call.

Time of Travel

To safeguard the hydraulic pump against damage caused by low hydraulic fluid or the overloading of a lift car, the lift is fitted with a timer to measure the time of travel. It is set to allow the lift car enough time to reach the top landing plus a safety margin. If the car has not reached the upper landing in this time then the timer will shut down the lift. The timer is reset by opening and closing a safety switch (Stop button or Light Ray in lift car) or keying the lift “off” then “on”.

Power Failure

In the event of power failure battery power is available to lower the lift car to the lower landing using normal controls, as long as all safeties are in circuit.

Lift is going down when there is a power failure. The emergency battery backup will start and the lift will continue to lower the car to the lower landing with all safeties in place.

Lift is going up when there is a power failure. The lift will stop and the emergency power battery will switch in. To activate the descent of the lift car, press the Down button inside the car. The lift will now lower the car to the lower landing with all safeties in place.

Option - VF Drive

To protect the drive from any power fluctuations and also as a power saving mode the VF Drive unit is shut down after 60seconds. As the unit is only required to move the lift up so the unit can be shut down when the lift is at the top floor and the lift will travel down with the VF drive turned off.

Machine Cabinet

Constructed from Galvanised sheet metal primed and painted with grey hammer finish. The machine cabinet is suitable for either internal or external installation. Housed inside the machine cabinet are the hydraulic pump unit, hydraulic control valves, electrical control board, emergency power supply and cabinet light are all protected against damage by a key lockable door.
The emergency tools and instructions are stowed within the cabinet.

Emergency Operation

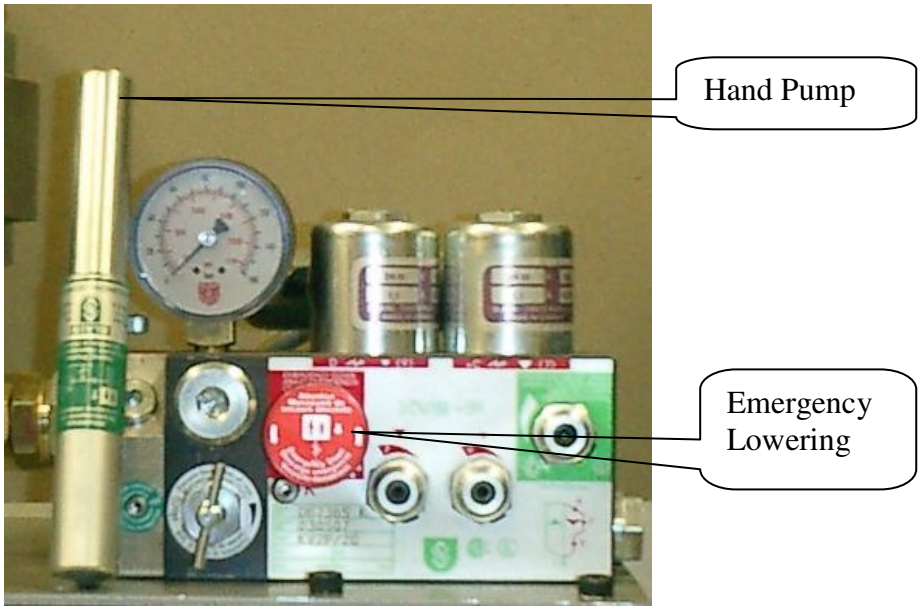
In all cases it is recommended that any stranded passenger remain within the lift car and assistance sought via the telephone installed in the lift car.

Emergency lowering of lift

Passengers should be informed of the intended emergency operation of the lift and are required to remain calm and clear of the car entrance.

The lift main switch is turned OFF so the lift is prevented from running under any circumstances.

The emergency lowering valve is provided within the Machine Cabinet and identified as such. The valve is spring return and must be held anti clockwise in the operating position for the lift car to descend to the lowest landing. The lift can be lowered fully onto the buffer stops. Once fully lowered the landing doors can be opened and the passenger can exit the lift being aware that the car floor will not be entirely level with the landing and a small step will be evident.



ONCE THIS VALVE IS USED ALL SAFETIES OF THE LIFT ARE DISREGARDED AND COMMUNICATION WITH THE PASSENGER MUST BE MAINTAINED WHILE THE LIFT IS DESCENDING.

NO ATTEMPT IS TO BE MADE TO RECOMMISSION THE LIFT WITHOUT THE LIFT BEING INSPECTED BY A LIFT TECHNICIAN.

Emergency release of passengers

Passengers should be informed of the intended emergency operation of the lift and are required to remain calm and clear of the car entrance.

The lift main switch is turned OFF so the lift is prevented from running under any circumstances.

Should it be impossible to lower the lift car then access to the lift car may be obtained by opening the landing door.

An emergency door-operating key is provided within the Machine Cabinet and labeled as such with instructions for use attached.

The landing door closest to the lift car can then be opened and the passenger assisted to exit the lift car.

Extreme caution is to be exercised if using this method as large distances can exist between the lift car and the landing floor. It may require the use of step ladders or similar to safely remove a passenger from the lift car.

THE PREFERED METHOD OF PASSENGER RELEASE IS TO LOWER THE CAR TO THE LOWEST FLOOR as this minimises the risk of passengers exiting the lift car when the car is not level with the landing.

Safety Gear Release

The lift is connected to the hydraulic rams via two chains. This requires the lift to be fitted with a safety mechanism (safety gear) that will hold the lift should either chain become loose.

The safety gear has an electrical switch that will prevent the lift operating when the safety gear has been activated.

When this safety gear has been operated the lift car cannot be automatically or manually lowered, the lift car must first be raised, this allows the safety mechanism to be released and then the lift can then be manually lowered.

To manually raise the lift:-
Turn the main switch OFF
Ascertain the passenger condition (as described previously).
Insert the extension handle into the hand pump on the valve block.
Pump the lift up with the hand pump until the safety gear has released – the lift can then be lowered using the manual-lowering valve.

Note: When hand pumping the lift you should feel some resistance in the pumping action and the lift car should be observed moving up.

Trouble shooting

In the unlikely event that a problem with the operation of the lift develops there are some basic trouble shooting methods that the owner can employ as an initial response.

The lift is a complex and intrinsically safe piece of equipment and any fault finding or trouble shooting should be confined to the methods and descriptions contained in this manual. Improper use of the equipment or changes to the equipment could result in the creation of a dangerous situation.

The logic controller LCD screen will give an indication as to the current state of the lift. Ensure the screen is not displaying an error message.

Using the logic controller I/O status a possible problem or faulty switch may be able to be identified.

Ensure all the landing doors are closed and there are no obstructions to the car entrance light beams.

Report the problem and a technician may be able to provide telephone assistance or arrange to visit and rectify the problem.

Connection board LED's

The status of the fuses on the connection board can be determined by looking at the four green led's. Each led has the name of the circuit they are protecting. Normal operation is for the led's to be illuminated.

The status of the landing door locks, landing door latches, pit safety switches and car safety switches can be determined by looking at the red led associated with each switch. Normal operation is for the led to be illuminated. Depending on the type of lift, and the specific installation requirements not all of the switches may be required; if a switch is not installed then the corresponding led will not have been fitted.

Common faults and remedial actions

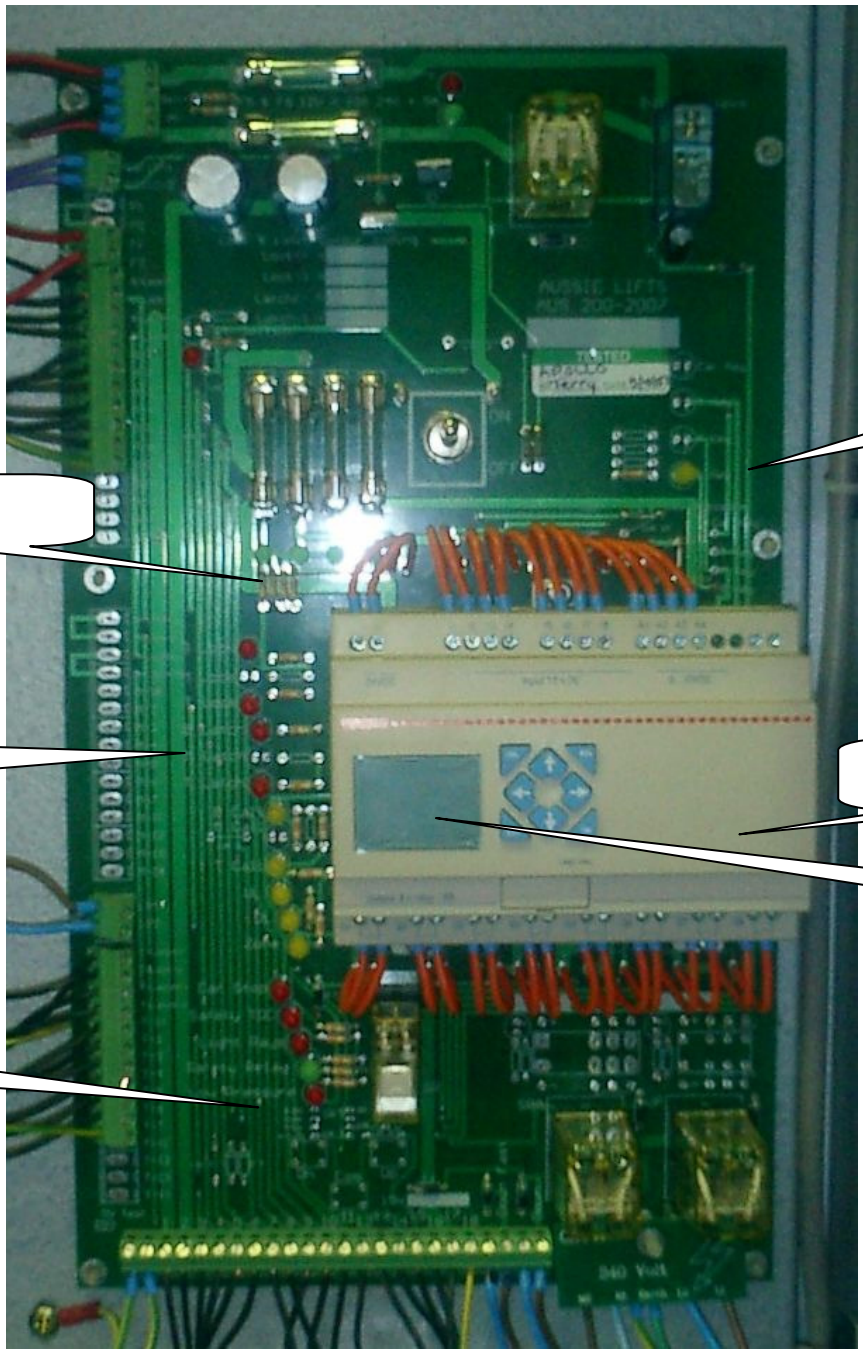
Problem	Cause	Action
Lift car not responding when called to a landing	Lift is turned OFF	The lift is required to be ON to operate.
	Door interlock not connecting	Check that both doors are closed correctly and there is no obstruction e.g. wasp nest inside the interlock. The electrical contact of the front of the brass door lock should be clean – not painted.
	Main Power Failure	• Check that the lift is switched on at the control cabinet. • Check that the house has power. • Check that the circuit supplying the lift has power. • This may require calling an Electrician.
	Obstruction to the photo electric sensors inside the lift car	Check that the photo sensors are clean and clear of any obstruction. If not, remove or clean (Do not use solvents – clean dry cloth only) and wait 5 second before reinstating operation of lift
	Shut down being activated - Lift being operated five times without the doors being opened or photo electric being broken	Open the lift door and move in front of the photoelectric sensors at the car entrance. The lift will now reset itself.
	Electrical circuit problem – e.g. blown fuse	Place a service call
Lift car not travelling	Obstruction to the photo electric sensors inside the lift car	Check that the photo sensors are clean and clear of any obstruction. If not, remove or clean and wait 5 second before reinstating operation of lift
	Door interlocks not connecting	Check that both doors are closed correctly and there is no obstruction e.g. wasp nest inside the interlock. The electrical contact of the front of the brass door lock should be clean – not painted.

Problem	Cause	Action
	Emergency stop button inside the lift car has been pressed	Wait 5 seconds before placing a new call.
	Main Power Failure	• Check that the lift is switched on at the control cabinet. • Check that the house has power. • Check that the circuit supplying the lift has power. • This may require calling an Electrician.
Lift car only travelling a short distance from a landing e.g. 80mm	Door interlocks disconnecting	Push the landing door to see if will open. If it does the door interlock has disconnected and the door needs to be closed before the lift will travel. Once the door is closed, wait 5 seconds before reinstating the operation.
	Obstruction to the photo electric	Check that the photo sensors are clean and clear of any obstruction. If not, remove or clean and wait 5 second before reinstating operation of lift
	Emergency stop button has been pressed	Wait 5 seconds before placing a new call.
	Main Power Failure	• Check that the lift is switched on at the control cabinet. • Check that the house has power. • Check that the circuit supplying the lift has power. • This may require calling an Electrician.
Lift car not reaching top landing	Time out	Lift has travelled slowly and the internal timer has stopped the lift.
	Low fluid level	Check fluid level making sure that the lift car is at the lower landing
Lift car trying to re-level at the upper landing	Leaking seals	Place a service Call
	Faulty solenoid	Place a Service Call

Problem	Cause	Action
Lift not travelling down	Safety gear energised. No passenger entrapment.	If no trapped passengers then place a service call. The reason for safety gear activation requires investigation.
	Safety gear energised. Passenger entrapment.	Refer to Emergency instructions to hand pump lift car to release safety gear and then manually lower and release passengers. Then place a service call. The reason for safety gear activation requires investigation.
Lift car travelling below the lower landing and springs back up after exiting car	Magnetic sensors not responding. Problem may be due to a change of weather or strong winds	Place a service call
Lift car not sitting flush at lower landing	Obstruction under the lift car e.g. pegs, toys, vermin, animal	Place a service call
Lift car shuttering when travelling	Cylinders are very dry they require lubrication	DO NOT USE LIFT Service call required
Lift making a noise when travelling – otherwise running normally	Guide wheels need adjusting and/or lubricating	Service Call
Lift making a noise when travelling – running abnormally	Mechanical problem	DO NOT USE LIFT Service call required
The lift tripping out the switch board	Moisture in the Electrical board.	Service Call
Door not closing properly	Door way not clear	Check door way and clear any obstructions
	Concrete foundations have moved	Service call
	Obstruction with the door interlock e.g. wasp nest	Service Call

Problem	Cause	Action
Lights remaining on in the lift car	Lift running on battery due to mains power failure	• Check that the lift is switched on at the control cabinet. • Check that the house has power. • Check that the circuit supplying the lift has power. • This may require calling an Electrician.
Lights in the lift car not coming on	A light bulb blown	Replace bulb
	Main power failure and flat back up battery	Service call
	Blown fuse	Service call
	Electrical fault	Service call
Light flicking in the car	Battery power low	Battery needs to be replaced. Service call recommended
	Lightning Strike	Service call
Telephone not working	Telephone lines are down	Check other telephone to see if it has dial tone
	Faulty telephone	Using another telephone that works plug it into the telephone point in the lift to see if there is dial tone. If there is, the telephone is faulty and needs replacing.
	Faulty telephone line to the lift	If by plugging in another telephone that you know works into the telephone point in the lift car and there is no dial tone than the telephone line is faulty. Call Telstra.

Control Board



Specification

Standard lift specification

Load – 350 kg

Car internal size – 1100mm wide x 1400mm deep x 2000mm high

Machine cabinet – 600mm wide x 300mm deep x 1800mm high

Hydraulic fluid – Hydraulic Oil – Fuchs Renolin B 32

Power – Single phase 240V AC 50 Hz – 16Amp

Car Lights – 24V 5W LED

Battery backup – 2 x 12V 7Ah batteries

Battery charging – Constant trickle charged

Applicable Australian Standard – AS1735.16