

snorkel

A38E



OPERATORS **MANUAL**

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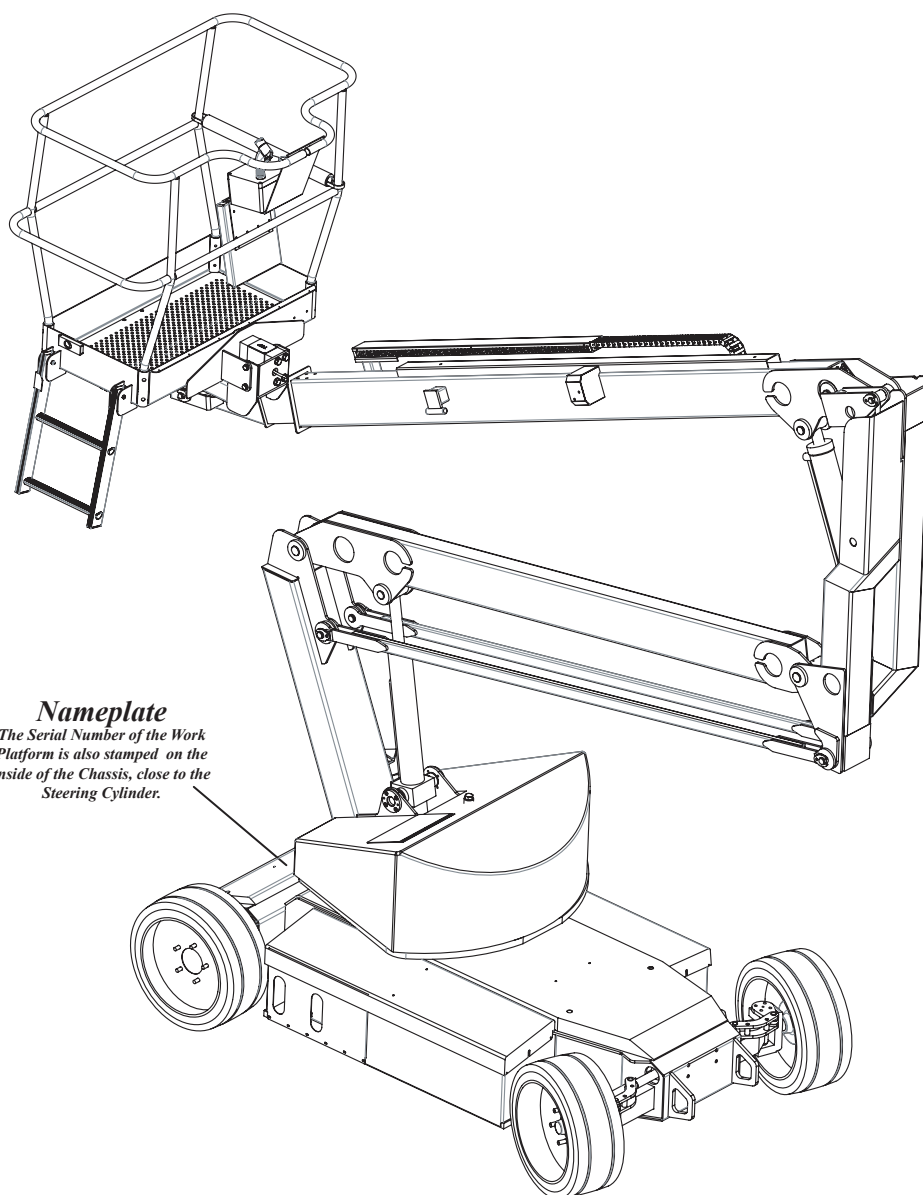
April 2015

Serial Number 006001 +

OPERATORS MANUAL

A 38E

Aerial Work Platform



The A38E work platform meets and exceeds the requirements of both:
En280:2001 and ANSI A92.5 (1992)

OPERATION MANUAL

WARNING

All personnel shall carefully read, understand and follow all safety rules and operating instructions before operating or performing maintenance on any Snorkel aerial work platform.

Safety Rules

Electrocution Hazard



THIS MACHINE IS NOT INSULATED!

Tip Over Hazard



NEVER elevate the platform or drive the machine while elevated unless the machine is on a firm, level surface.

Collision Hazard



NEVER position the platform without first checking for overhead obstructions or other hazards.

Fall Hazard



NEVER climb, stand, or sit on platform guardrails or midrail.

USE OF THE AERIAL WORK PLATFORM: This aerial work platform is intended to lift persons and his tools as well as the material used for the job. It is designed for repair and assembly jobs and assignments at overhead workplaces (ceilings, cranes, roof structures, buildings etc.). All other uses of the aerial work platform are prohibited!

THIS AERIAL WORK PLATFORM IS NOT INSULATED! For this reason it is imperative to keep a safe distance from live parts of electrical equipment!

NEVER get closer than the minimum distance recommended by your National Regulations.

Exceeding the specified permissible maximum load **is prohibited!** See "Platform Capacity" for details.

The use and operation of the aerial work platform as a lifting tool or a crane **is prohibited!**

NEVER exceed the manual force allowed for this machine. See "Manual Force" for details.

DISTRIBUTE all platform loads evenly on the platform.

NEVER operate the machine without first surveying the work area for surface hazards such as holes, drop-offs, bumps, curbs, or debris; and avoiding them.

OPERATE machine only on surfaces capable of supporting wheel loads.

NEVER operate the machine when wind speeds exceed this machine's wind rating. "Beaufort Scale" for details.

IN CASE OF EMERGENCY push EMERGENCY STOP switch to deactivate all powered functions.

IF ALARM SOUNDS while platform is elevated, STOP, carefully lower platform. Move machine to a firm, level surface.

Climbing up the railing of the platform, standing on or stepping from the platform onto buildings, steel or prefab concrete structures, etc., **is prohibited!**

Dismantling the entry gate or other railing components **is prohibited!** Always make certain that the entry gate is closed and securely locked!

It is prohibited to keep the entry gate in an open position when the platform is raised!

To extend the height or the range by placing of ladders, scaffolds or similar devices on the platform **is prohibited!**

NEVER perform service on machine while platform is elevated without blocking elevating assembly.

INSPECT the machine thoroughly for cracked welds, loose or missing hardware, hydraulic leaks, loose wire connections, and damaged cables or hoses before using.

VERIFY that all labels are in place and legible before using.

NEVER use a machine that is damaged, not functioning properly, or has damaged or missing labels.

To bypass any safety equipment **is prohibited** and presents a danger for the persons on the aerial work platform and in its working range.

NEVER charge batteries near sparks or open flame. Charging batteries emit explosive hydrogen gas.

Modifications to the aerial work platform **are prohibited** or permissible only at the approval by **Snorkel**.

AFTER USE, secure the work platform from unauthorized use by turning the keyswitch off and removing key.

The driving of **MEWP's** on the public highway is subject to regulations made under the Road Traffic Acts.

ALWAYS use a full body harness, **prior to raising the platform**, as recommended by the Health and Safety Executive (H1/05/05)

CONTENTS

	Safety Rules.....	Page 1
	Contents.....	Page 2
1.0	Introduction & Specifications	
1.0	<i>Introduction</i>	Page 3
	Purpose	Page 3
	Scope	Page 3
1.1	<i>General Information</i>	
	Platform	Page 3
	Control Box	Page 3
	Elevating Assembly	Page 3
	Rotation Gear	Page 3
	Drive & Steer Systems	Page 4
	Power System	Page 4
	Control System	Page 4
	Chassis	Page 4
	A38E Purpose & Limitations	Page 4
1.2	<i>Specifications</i>	Page 5
1.3	<i>Notes</i>	Page 6
2.0	Machine Preparation	
2.1	<i>Preparation For Use</i>	Page 7
2.2	<i>Preparation For Shipment</i>	Page 7
2.3	<i>Forklifting The Work Platform</i>	Page 7
2.4	<i>Lifting The Work Platform</i>	Page 7
2.5	<i>Transport by Truck</i>	Page 7
2.6	<i>Manual Brake Release</i>	Page 8
2.7	<i>Storage</i>	Page 8
2.8	<i>Charging</i>	Page 9
3.0	Operation	
3.0	<i>Introduction</i>	Page 11
	General Functioning	Page 11
	Driving	Page 11
	Steering	Page 11
	Operating the Booms	Page 11
	Design Features	Page 12
3.1	<i>Safety Rules & Precautions</i>	Page 13
3.2	<i>Controls & Indicators</i>	Page 14
3.3	<i>Pre-Operation Inspection</i>	Page 16
3.4	<i>Operation</i>	Page 17
	Elevating & Lowering The A38E Work Platform	Page 17
	Travel With The Work Platform Lowered	Page 17
	Travel With The Work Platform Elevated	Page 18
	Levelling	Page 18
	Platform Rotate	Page 18
	Hydraulic Platform Rotate	Page 18
	Manual Platform Rotate	Page 18
	Emergency Situations & Emergency Override	Page 18
	Emergency Lowering	Page 18
	Control From Ground Level	Page 18
	After Use Each Day	Page 20
	Manual Rotation	Page 20
	Manual Telescopic Retraction	Page 20
3.5	<i>Daily Preventive Maintenance Checklist</i>	Page 22
	Notes	Page 23

1.0 Introduction

PURPOSE

The purpose of this Service & Parts Manual is to provide instructions and illustrations for the operation and maintenance of the A38E Work Platform manufactured by Snorkel (See Figure 1-1).

SCOPE

The manual includes the procedures and responsibilities which must be strictly adhered to for proper operation, maintenance, adjustment, and repair of this product. The Maintenance Section further covers preventative maintenance and trouble shooting.

1.1 General Information

The A38E is a quickly deployable self propelled aerial work platform, designed to raise two operators with hand tools to a work height of up to 13.45 m (44.12 ft.) i.e. a platform floor height of 11.45 m (37.56 ft.). It is designed to provide mobility with the Platform in the raised or lowered position, although travel with the Platform raised is limited to a low speed. The boom assembly and telescope functions are operated by a hydraulic pump driven by a DC electric motor. Two DC electric traction motors coupled to two braked gearboxes regulate the drive function.

PLATFORM

The platform is large enough for two operators and has a free-draining perforated floor with 150 mm (5.9 inches) toeboards. Hand rails are constructed from steel tubing and a safety drop-bar is provided at the entrance. Safety harness anchor points are also fitted in the floor of the platform. The primary Control Box is fitted permanently within this platform.

▲ WARNING ▲

DO NOT begin using the machine until the platform entrance drop bar is in the fully lowered position.

CONTROL BOX

The control box is permanently fitted at the front centre of the platform. It features a Joystick which will provide proportional control for raising or lowering either of the two booms, extending or retracting the Telescopic Boom, rotating (slewing) the entire Booms, Platform (if Platform Rotate fitted) & Posts Assembly or driving. A safety feature which is incorporated into the Joystick's operation is the Interlock Switch. This must be activated at all times while operation is required. This allows for one-handed operation. A complete explanation of control functions can be found in Section 3.

ELEVATING ASSEMBLY

The platform is raised and lowered by a combination of two steel lift booms and one telescopic boom, each of which is operated by a hydraulic cylinder which in turn is actuated by hydraulic power from the motor driven pump. Solenoid operated valves control to which cylinder the hydraulic oil is directed. Each cylinder features an integral holding valve to prevent uncontrolled descent in the case of a hose burst.

ROTATION GEAR

The Booms & Posts Assembly can be rotated to provide up to 5.6 m (18.4 ft.) of side outreach, measured from the centreline of rotation to the front of the Platform. This is done by means of an integral hydraulic motor driving a Worm Drive Unit, around a large diameter Slew Gear.

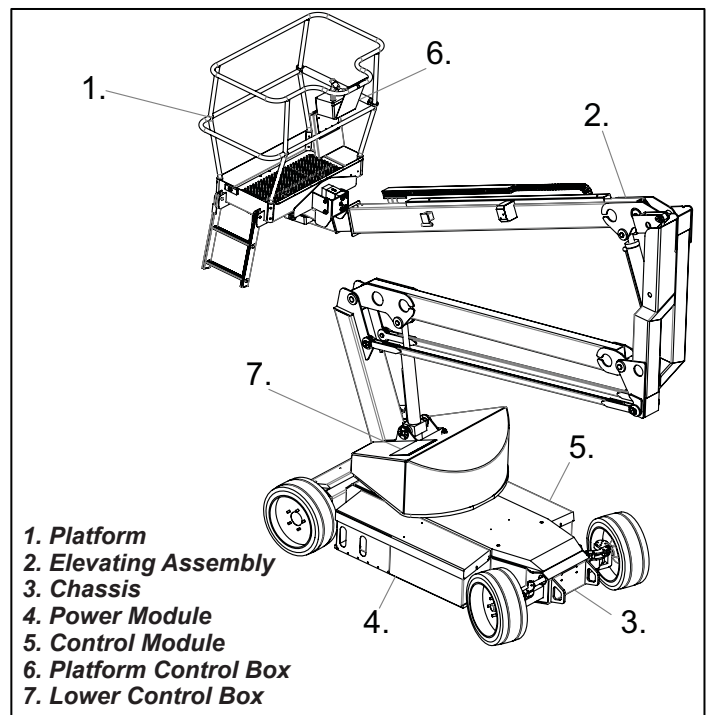


Figure 1-1: A38E Work Platform

DRIVE & STEER SYSTEMS

The A38E Work Platform is restricted to low speed drive when the Platform is raised above the Boom Rest Limit Switch. The Traction controller controls the application of drive from the Joystick by means of two Traction Motors, which are assembled to the drive wheels via a Drive Reduction Gearbox.

Steering of the A38E Work Platform is controlled by the P600, which controls the signals activating a double acting cylinder. An Operator can Steer left or right by depressing the Rocker Switches on top of the Joystick, while activating the Interlock Switch.

POWER SYSTEM

The power system incorporates eight 6V batteries driving the drive traction motors, or the 4kW (5.4HP) electric motor which in turn drives the hydraulic pump. The application of this hydraulic pressure is performed by the Control System.

CONTROL SYSTEM

The machine is provided with fully proportional controls by means of the interaction between a P600, electronic motor controller and a proportional joystick. The P600 and motor controller regulate the drive motor/pump speed and hence the flow of oil reaching the cylinders, the Worm Drive Unit or the Drive Reduction Gearbox. It regulates the direction of flow of the hydraulic oil via the solenoid valves located on the manifold block, and it also monitors the operation of all switches on the machine via the machine harness system.

The motor control units are located, in the left hand chassis module. The manifold block is located on the hydraulic tank. This is accessible by removing the main cover.

CHASSIS

The chassis is a structural frame designed to support all the components of the A38E Work Platform.

A38E PURPOSE & LIMITATIONS

The purpose of the A38E work platform is to provide a quickly deployable variable height work platform. It is capable of lifting two people with work tools up to an upper limit of 215 kg (ANSI 475 lbs) in total. The unit will provide the ability to reach over obstacles but must be used on firm level ground. See Specification table on page 1-3.

The platform must only be used on firm level or slightly uneven ground capable of supporting the maximum load generated under the four wheels. **Do not use on soft or severely sloping ground.**

⚠ DANGER ⚠

NOTE: It should be recognised that if the tilt switch senses a degree of slope greater than 3° the elevating circuits will lockout and sound a warning alarm. The Emergency Override should then be used, to lower the Elevating Assembly.

1.2 Specifications

Table 1-1: Specifications

ITEM	METRIC	IMPERIAL (ANSI)
Duty Cycle	45% of 8 hour shift	45% of 8 hour shift
Platform Size	0.58 m x 1.3 m (inside gaurdrails)	1.77 ft x 4.3 ft (inside gaurdrails)
Max. Platform Capacity	215 kg	475 lbs
Indoors	2 People	2 People
Outdoors	1 People	2 People
Min. Platform Floor Height	13.45 m	44.12 ft
	11.45 m	37.56 ft
	0.65 m	2.13ft
	6.10 m	20.00 ft
Platform Height At Maximum Outreach	5.40 m	17.72 ft
Stowed Dimensions		
Length	4.04 m	13.25 ft
Width	1.50 m	4.92 ft
Height	2.00 m	6.56 ft
Ground Clearance	0.12 m	0.39 ft
Wheel Base x Gauge	2.00 m x 1.27 m	6.56 ft x 4.16 ft
Rotation	362 degrees non-continuous	362 degrees non-continuous
Unloaded Weight	3,770 kg	7,826 lbs
With Load/ Max Weight	3,970 kg	8,840 lbs
Drive Speed Stowed	0 - 4 km/h	0 - 2.49 mph
Drive Speed Elevated	0 - 0.4 km/h	0 - 0.25 mph
Maximum Gradeability	36%	36%
Inside Turning Radius	0.40 m	1.31 ft
Outside Turning Radius	2.40 m	7.87 ft
Power Source	48V DC 4kW, 8 X 6V 210Ah Batteries	48V DC 5.4HP, 8 X 6V 210Ah Batteries
System Voltage Control	12V	12V
Battery Charger	Auto Dual AC input 100-240V ~ 50/60Hz 18A Output 48V, 25A	(Auto Dual AC input 100-240V ~ 50/60Hz 18A) Output 48V, 25A
Hydraulic Oil Tank Capacity	25 Litres	6.5 Gallons US
Max. Hydraulic Pressure	145 bar	2105 psi
Hydraulic Oil Grade	ISO #46	ISO #46
Cylinder Types	2 Double Acting Lift Cylinders With Lock Valves And Manual Emergency Lowering Facility. 1 Double Acting Telescopic Cylinder 1 Double Acting Plat. Rotate Cylinder	2 Double Acting Lift Cylinders With Lock Valves And Manual Emergency Lowering Facility. 1 Double Acting Telescopic Cylinder 1 Double Acting Plat. Rotate Cylinder
	Refer to Section 5 of the Service & Parts Manual	Refer to Section 5 of the Service & Parts Manual
Control System	One handed Proportional Joystick Operating Energy Efficient Motor Control System	One handed Proportional Joystick Operating Energy Efficient Motor Control System
Wheels/Tyres	400 mm Diameter Steel Disc Wheel With Solid All Surface Tyres	15.75 inch Diameter Steel Disc Wheel With Solid All Surface Tyres
Braking	Automatic Spring Applied Hydraulic Release	Automatic Spring Applied Hydraulic Release
Max Noise Level	69.5 dB(A)	69.5 dB(A)

NOTES:

2.1 Preparation for use

⚠ CAUTION ⚠

Read, understand and follow all operating instructions before attempting to operate the machine.

2.2 Preparation for Shipment

1. Lubricate machine per lubrication instructions in Section 4.4, Maintenance.
2. Fully lower the platform and make sure the machine is stowed securely.
3. Check that the hydraulic oil level is adequate and that it is not over filled.

Check that the batteries are charged and disconnect the batteries using the Battery Disconnect Plug. This prevents excessive power drain prior to next using the machine.

2.3 Forklifting the Work Platform

⚠ CAUTION ⚠

The A38E is not designed to be consistently forklifted. This operation can be used for very short distances only.

Forklift from the side by lifting under the chassis modules as per Figure 2-1. When lifting the A38E with a forklift, great care should be taken not to damage the right or left hand modules as these contain sensitive equipment.

2.4 Lifting the Work Platform

⚠ CAUTION ⚠

See specifications (Section 1.2) for the weight of the work platform and be certain that lifting apparatus is of adequate capacity to lift the platform.

The A38E may be lifted by an overhead hoist/crane in the following manner:

Four lifting straps capable of safely supporting the total weight of the A38E (3,770 Kg /7,430 lbs CE Version & 4,010 Kg /8,840 lbs ANSI Version) and at

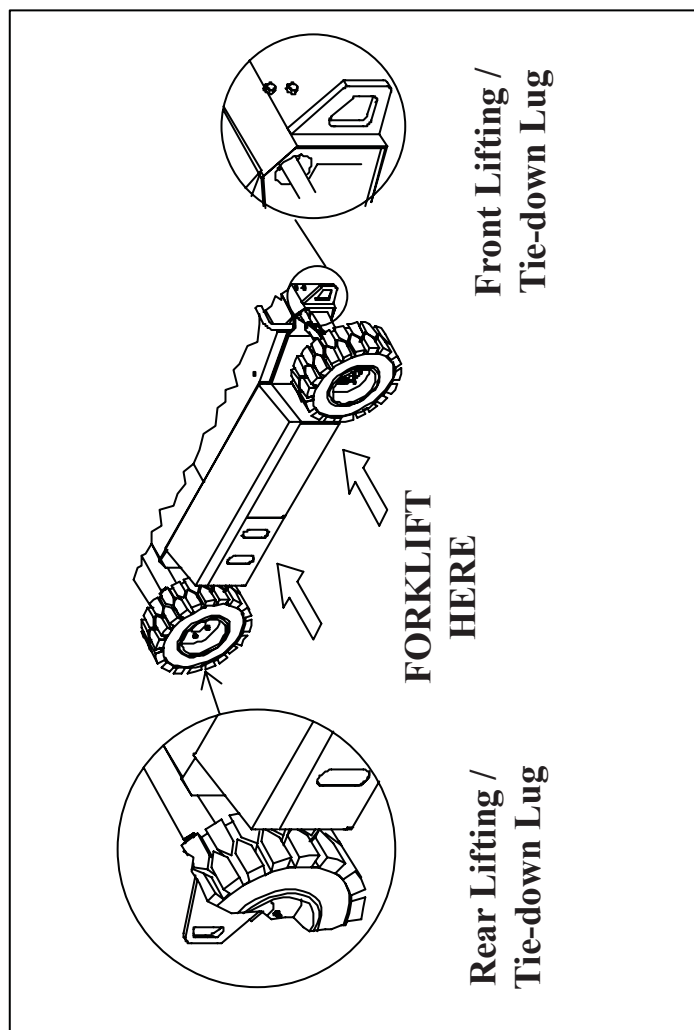


Figure 2-1: Forklifting & Lifting the A38E

least 250 cm (8 ft.) long are required. This minimum length is important to ensure the correct lifting angle. The straps should be positioned at the Lifting/Tie Down Lugs as shown in Figure 2-1. Great care must be taken to avoid damage to any of the components of the machine.

2.5 Transport by Truck

The A38E is normally carried upon a suitably rated transportation vehicle. Because of the high gradeability of the A38E it will be capable of driving directly on to most vehicles. If however the loading slope is greater than the gradeability or the batteries have been depleted sufficiently a winch should be used. The procedure when using a winch is to disengage the gearbox from the drive wheels using the Allen key release, and then winch the machine on to the vehicle in its freewheel state.

Refer to Section 2.6 which follows.

When the A38E is on the Truck it should then be made secure.

1. Chock the wheels of the A38E.
2. Secure the work platform to the transport vehicle with chains or straps of adequate load capacity attached to the lifting lugs on the chassis.

⚠ CAUTION ⚠

Overtightening of the chains or straps through tie down lugs may result in damage to the Work Platform.

2.6 Manual Brake Release

⚠ CAUTION ⚠

Perform this operation only when the machine will not operate under its own power and it is necessary to move the machine, or for winching onto a trailer for transportation. Ensure the machine is on level ground before commencing this operation and use wheel chocks as appropriate to prevent the machine from rolling inadvertently. Do not exceed 3 mph. Faster speeds will damage drive components and void warranty.

1. Ensure that the Platform is fully lowered and that the Elevating Assembly is slewed (rotated) such that the platform is stowed above the drive wheels. Turn the Upper Control Box to the OFF position and remove the key.
2. Attach a chain/cable of sufficient capacity for towing the machine to the front or rear lifting/tie down lugs. Take up the slack in the chain/cable.
3. Locate the Allen head socket screws located in the centre of the two drive (rear) wheels and using a 6 mm Allen key, turn each one clockwise to its full extent. The machine is now in freewheel mode.

⚠ WARNING ⚠

DO NOT leave the machine unattended or attempt to operate the A38E Work Platform until the Brake Release Screws have been re-engaged.

4. When towing is completed, turn both Allen head socket screws in a counter clockwise direction until they rest firmly against the locking circlip.

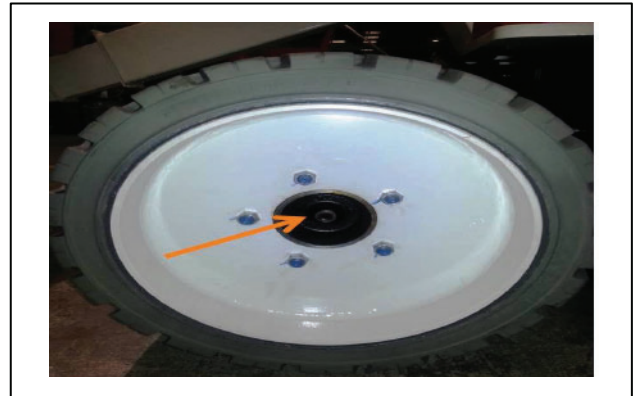


Figure 2-2 : Manual Brake Release

2.7 Storage

No preparation is required for storage when the Work Platform is in regular use. Regular maintenance per *Table 4-1* should be performed. If the work platform is to be placed in long term storage (dead storage) use the following preservation procedure.

PRESERVATION

1. Clean painted surfaces. If the painted surface is damaged, repaint.
2. Fill the hydraulic tank to operating level with the platform fully lowered. Fluid should be visible on the Dip Stick. It is not recommended that the hydraulic fluid be drained.
3. Coat exposed portions of cylinder rods with a preservative such as multipurpose grease and wrap with barrier material.
4. Coat all exposed unpainted metal surfaces with preservative.

BATTERIES

1. Disconnect the batteries.
2. Disconnect the battery leads and secure to the chassis.

⚠ WARNING ⚠

Care should be taken, while disconnecting the battery leads, that a short circuit does not occur. i.e. grounding to the chassis with a spanner.

3. Remove the batteries and place in alternate service. Battery efficiencies are best realised when used consistently.

2.8 Charging

The aerial platform is equipped with a 25 amp battery charger. The battery charger is located in the electrical compartment on the right side of the chassis.

⚠ WARNING ⚠

Batteries give off hydrogen and oxygen that can combine explosively. Death or serious injury can result from a chemical explosion. Charge the batteries only in a well ventilated area away from sparks or flame. Batteries give off hydrogen and oxygen that can combine explosively. Death or serious injury can result from a chemical explosion. Charge the batteries only in a well ventilated area away from sparks or flame.

⚠ CAUTION ⚠

The batteries may be overcharged and/or damaged if the charger is plugged in after the charge cycle is complete. Do not leave the battery charger on for more than 48 hours.

It may take from 1½ to 16 hours to recharge the batteries depending on the amount of discharge. If the charging cycle exceeds 16 hours without the batteries being fully recharged, unplug the charger and have the batteries checked.

- Fully recharge the batteries, immediately after use.
- One charging cycle per day is preferred.
- Fully charged batteries perform best.
- The deeper the discharge, the fewer number of cycles a battery will deliver. Deep discharges deteriorate the battery quicker than light shallow cycles.

An overly discharged battery may need to be cycled a few times before it can fully recover.

If a battery begins to heat before becoming fully charged, it may be necessary to recharge and discharge the battery a few times.

Use the following procedure to charge the batteries.

A38E Work Platform

1. Make sure the battery disconnect inside the electrical compartment is plugged in (refer to Figure 2.3).

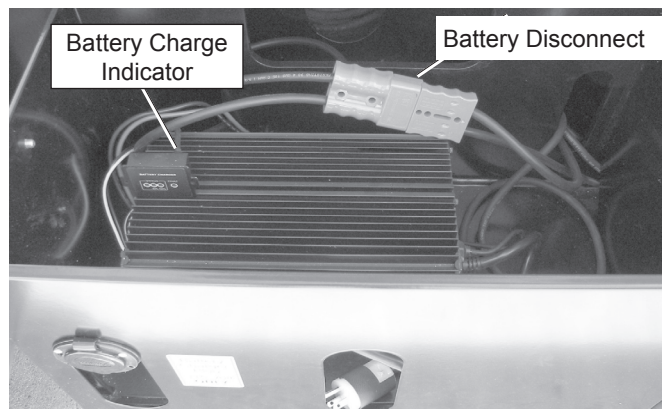


Figure 2.3 – Electrical Compartment

2. Remove the cover on each side of the chassis to access the batteries. Remove the caps from each battery.

Note

Machines can also be supplied with maintenance free batteries, fluid check will not be necessary on this type of battery.

3. Visually check the battery fluid level making sure the level is 3/8" (10 mm) above the plates. If needed, add distilled water.
4. Tightly replace the caps on each battery and replace and latch the battery tray covers.
5. Plug the battery charger into a properly grounded outlet (110 -240 volt AC, 50/60 Hz) using a 3 conductor, 12 gauge (1.5 mm) or larger extension cord. The outlet must be equipped with GFCI protection. The extension cord must be as short as possible and in good electrical condition.

Note

Do not operate any of the aerial platform functions while the battery charger is plugged in.

6. Visually inspect the battery charge indicator (refer to Figure 2.3).
- The charger will turn on three to five seconds after a complete electrical connection is made.
 - The LED charge indicators will be lit while the batteries are charging.

- When the batteries are fully charged, the charge indicator will blink.

⚠ CAUTION ⚠

The batteries may be overcharged and/or damaged if the charger is plugged in after the charge cycle is complete. Do not leave the battery charger on for more than 48 hours.

7. After the charge cycle is complete, unplug the extension cord from the battery charger and allow the batteries to cool.
8. Remove the cover on each side of the chassis to access the batteries. Remove the caps from each battery.

Note

Machines can also be supplied with maintenance free batteries, fluid check will not be necessary on this type of battery.

9. Visually check the battery fluid level making sure the level is 3/8" (10 mm) above the plates. If needed, add distilled water.
10. Tightly replace the caps on each battery

3.0 Introduction

GENERAL FUNCTIONING

⚠ WARNING ⚠

To understand the properties of the A38E Work Platform it is recommended that you refer to the Hydraulic and Electrical Schematics in Section 6. All the information within this Service & Parts Manual should be read thoroughly and fully understood. Before beginning to operate the machine it is also a mandatory requirement to read, fully understand and follow the Operators Manual.

The A38E Lift and Steer functions are operated by utilising a battery powered electric motor which drives a hydraulic pump. The pump supplies oil under pressure to the various platform functions. The oil flow is directed to the different functions by electrically activated solenoid valves. The control of which solenoid valves activate and the rate at which the hydraulic fluid flows is carried by the application of the electrical circuit, and its components, to an ECU.

The Drive function is operated by utilising two drive motors which are controlled by a Electronic Traction Motor Controller.

NOTE:

An Interlock Trigger Switch is an integral part of the Joystick. This must be depressed for the functions to operate. This will energise the Line Contactor and enable electrical control. (This safety feature prevents inadvertent activation of all powered functions, in the case of accidental movement of the Joystick.)

DRIVING

Platform controls provide variable speeds for the drive function through the use of a Joystick. This is achieved using a motor control unit which varies the speed of the two DC electric traction motors. To drive the A38E there are a number of steps which need be taken. First the operator should ensure that neither of the Emergency Stop Buttons are pressed, then the Keyswitch on the ground control panel should be turned to the 'PLATFORM CONTROL' position. Momentarily operate the drive function switch and the A38E will be able to drive.

The machine will then drive at a speed proportional to the angle of the Joy- stick from the neutral

(centre) position, while the Joystick Interlock Switch is depressed. The speed range within which the machine will drive is determined by whether or not the booms are raised. If a boom is raised off the Boom Rest Limit Switch the current to the drive motors will be reduced leading to a significantly slower drive speed. This is a safety feature.

The drive wheels are driven by two DC electric traction motors coupled to two braked gearboxes. When the Joystick is in the neutral position the brake chamber is free of oil and the internal spring within the gearbox maintains the braking pressure. Upon moving the Joystick the brake chambers will receive a flow of pressurised oil which will release the brakes.

STEERING

Platform controls also provide a steering function through the use of 'Rocker' activated Steering Switches in the Joystick. This is achieved by using the P600 which varies the hydraulic flow by altering the voltage to the pump. To steer the A38E there are a number of steps which need be taken.

First the operator should ensure that neither of the Emergency Stop Buttons are pressed, then the Keyswitch ground control Panel should be turned to 'PLATFORM CONTROL' position.

Momentarily operate the drive function switch to drive and the A38E will also be able to steer. To steer the machine the Rocker should be pushed to the left or the right, while the Joystick Interlock Switch is depressed. Steering left or right will energise the steering coils and allow oil to enter the full bore side or annular side of the steering cylinder, thereby turning the wheels in the chosen direction.

NOTE:

Steering is not self-centring. The wheels must be returned to the straight ahead position by operating the Steering Switch.

OPERATING THE BOOMS

Boom functions, including the telescopic and slewing functions, can be operated either from the Platform Controls or the Chassis Controls.

The Platform controls provide variable speeds for the boom functions through the use of a Joystick. This is achieved using an P600 which varies the speed of the motor/pump unit and increases or decreases the flow of oil to the different functions. This control unit receives a control signal from the Joystick on the upper controls, the speed of the motor will increase as the Joystick is pushed further away from the

neutral (centre) position.

It will be noticed that on the Upper Control Box a set of switches are used to alternate functions. Each function will have its corresponding graphic and lamp. This selector switch indicates to the Controller which function is required and by using the Joystick the speed of this selected function can be adjusted.

Note: Machines supplied to Australia require that the operation of the Function Selector switch must be 'held' on until after the Joystick Interlock Switch is depressed. Every time the Joystick Interlock Switch is released, the Function Select and 'hold' sequence must be repeated.

The boom functions on the chassis controls provide proportional control for each function by way of an analog rocker switch, the desired function can be activated by holding on one of four switches on the controls and operating the analog rocker, the the four switches act as both selector & enable switches.

The use of these functions is further explained throughout this Section.

DESIGN FEATURES

The A38E Series Work Platform has the following features:

- The drive speed is limited to a 'creep speed' when operating the Work Platform while the machine is elevated.
- The energy-efficient motor control units provides long battery life and smooth proportional control of the boom and drive functions.
- All cylinders are fitted with hydraulic hose-burst protection interlocks.
- The on-board charger is fully automatic and charges the batteries efficiently and economically. If the work platform starts to become unstable and the Tilt Sensor is activated an alarm will sound in the upper control box. In this situation power is partially cut to the upper controls to prevent any boom movements (i.e. UP, TELE OUT) that might increase instability. An emergency override switch is fitted to allow the booms to be lowered at a controlled speed to bring the machine back to a stable position.
- In the event of a power loss the two Boom Lift Cylinders are fitted with emergency lowering valves which allow the booms to be lowered at a controlled speed by an operator on the ground.
- A Master Cylinder/Slave Cylinder levelling

system ensures that the Platform remains level throughout the entire working cycle of the machine.

- A manual rotation facility is fitted to allow rotation of the Elevating Assembly in the event of power loss.

HOUR METER & BATTERY CHARGE INDICATOR.

The A38E Series Work Platform is equipped with a display in the chassis control panel which displays total hours run & an Indication of remaining battery charge.

LOAD SENSING

The A38E is fitted with a load sensing system designed to comply with the requirements of :
BS EN 280 : 2001

If a load equivalent to 90% of safe working load is lifted an overload lamp will illuminate on the platform control box.

If a load which is greater than the safe working load is present in the basket all machine functions will cease to operate and an acoustic warning will sound. In order to return to normal operation a load equal to or less than the safe working load must be present in the basket and the power must be re-cycled, power can be re-cycled by pushing the emergency stop button and releasing it again.

3.1 Safety Rules and Precautions

⚠ WARNING ⚠

Before using the A38E Work Platform it is imperative to read, understand and follow the following Safety Rules and Precautions.

NEVER operate the machine unless you have been fully trained in its safe use, are medically fit and have read and fully understood these instructions.

NEVER leave the A38E unattended with the Platform in the raised position.

ALWAYS position the machine on firm level ground with a minimum bearing capacity of 550 kN/m² (80 psi).

CHECK that no overhead obstructions exist within the machines range of movement.

DO NOT work within 3 metres (10 feet) of live overhead cables. Set up warning tape barrier at the safe distance.

(THIS MACHINE IS NOT INSULATED).

DO NOT exceed the safe working load of 215 kg, (ANSI 475 lbs)

CE=max. 1 persons Outdoor + Tools 55Kg
2 person Indoor + Tools 135Kg

(ANSI=max. 2 person Indoor/Outdoor)

See specification table on page 1-3 .

NEVER sit, stand or climb on guard rail or midrail of the platform.

NEVER use ladders or scaffolding on the platform.

DO NOT use the machine as a crane or for any other application involving additional loads or forces. The maximum side force must not exceed 200N Outdoors / 400N Indoors, (ANSI = 90 ft. lbs).

DO NOT increase wind loadings by fitting items such as sign boards, flags etc. to the cage or boom.

DISTRIBUTE all loads evenly on the platform. See Table 1-1 for maximum platform load.

NEVER use damaged equipment. (Contact Snorkel Ltd. for instructions).

NEVER attach overhanging loads or increase the size of the working platform.

DO NOT use in winds exceeding 12.5 m/s (28 mph - Beaufort Force 6)

NEVER change or modify operating or safety systems.

INSPECT the machine thoroughly for cracked welds, loose hardware, hydraulic leaks, damaged control cable, loose wire connections and wheel bolts.

NEVER climb down an elevating assembly with platform elevated.

NEVER perform service on or in the elevating assembly while the platform is elevated without first blocking the elevating assembly.

NEVER recharge batteries near sparks or open flame; batteries under charge emit highly explosive hydrogen gas.

SECURE the work platform against unauthorised use by turning Keyswitch off and removing key from switch.

NEVER replace any component or part with anything other than original Snorkel replacement parts without Snorkel's consent.

NEVER leave the machine unattended while the Gearbox Drive is disengaged.

3.2 Controls and Indicators

The controls and indicators for operation of the A38E Work Platform are shown in Figures 3-1 & 3-2. The name and function of each control and indicator are listed in Tables 3-1. The index numbers in the figure correspond to the index numbers in the table. The operator should know the location of each control and indicator and have a thorough knowledge of the function and operation of each before attempting to operate the unit.

Table 3-1: Controls and Indicators***Platform Controller****

INDEX NO.	NAME	FUNCTION
1	Emergency Stop	Cuts all Platform control functions when pushed, twist to release.
2	Platform Level	Operate switch and hold while using joystick to level the platform.
3	Upper Boom	Operate switch to engage Upper Boom lift functions (Up & Down)
4	Low Boom	Operate switch to engage Lower Boom lift functions (Up & Down)
5	Drive	Operate switch to engage Drive functions (Forward & Reverse)
6	Horn	Operate switch and hold to sound the horn.
7	Slew (Rotate)	Operate switch to engage Slew functions (Clockwise & Counter Clockwise)
8	Warning Lamp	Low battery warning lamp
9	Telescope	Operate switch to engage Telescope functions (Extend & Retract)
10	Joystick	Depress deadman switch and select joystick forward or reverse to enable a selected function.
11	Warning Lamp	Overload warning lamp (CE Machines only)
12	Platform Rotate	Operate switch to engage platform rotate function (Clockwise & Counter Clockwise)

Chassis Control

INDEX NO.	NAME	FUNCTION
1	Emergency Stop	Cuts all machine functions
2	Upper Boom	Operate switch and hold to engage and enable Upper Boom lift functions (up & down)
3	Lower Boom	Operate switch and hold to engage and enable Lower Boom lift functions (up & down)
4	Slew (Rotate)	Operate switch and hold to engage and enable Slew functions (clockwise & counter Clockwise).
5	Telescope	Operate switch and hold to engage and enable Telescope functions (extend & retract)
6	Key Switch	Turns the machine OFF/ON and selects Platform or Chassis controls
7	Rocker Switch	Use with "enable" switches to activate the selected function
8	Display	In normal operation displays battery life and hour run. Can also be used to display diagnostics.

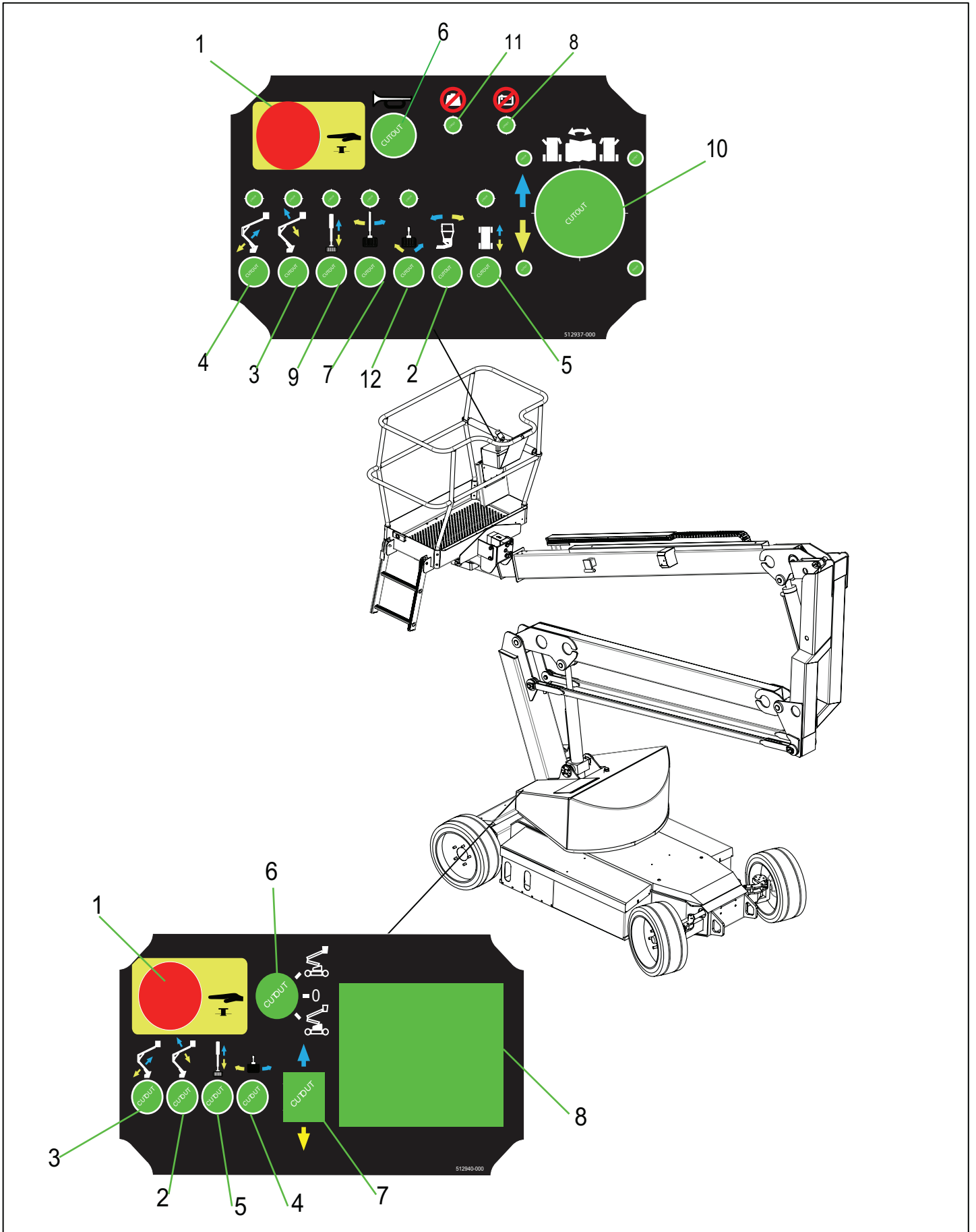


Table 3-1: Controls and Indicators

3.3 Pre-Operation Inspection

⚠ WARNING ⚠

Carefully read, understand and follow all safety rules and operating instructions. Perform the following steps each day before use. **DO NOT** perform service on Work Platform with the platform elevated unless the elevating assembly is properly supported.

1. Remove module covers and inspect for damage, oil leaks or missing parts.
2. Check the level of the hydraulic oil with the platform fully lowered and the Telescopic Boom fully retracted. Oil should be visible on the filler cap dip stick. If necessary top-up using ISO No. 46 hydraulic oil.
3. Check that the electrolyte level in the batteries is correct. (Battery Maintenance, Section 4.3)
4. Verify batteries are charged.
5. Check that the A.C. extension cord has been disconnected from charger.
6. Carefully inspect the entire machine for damage such as cracked welds or structural members, loose or missing parts, oil leaks, damaged cables or hoses, loose connections and tyre damage.
7. Move machine, if necessary, to unobstructed area where machine can be fully elevated.
8. Visually inspect the cylinders, hoses and cables for damage. Check for missing or loose parts.

SYSTEM FUNCTION INSPECTION

9. Turn both Chassis and Platform Emergency Stop switches **ON** (rotate clockwise).
10. Turn Keyswitch on the Lower Control box to the '**LOWER CONTROL SELECTION**'.
11. Using the chassis control switches, fully **ELEVATE** Booms no. 1 & 2 and **EXTEND** the Telescope.
12. **SLEW** the Elevating Assembly through 180 degrees in both directions.
13. Visually inspect the elevating assembly and cage mounting/structure, lift cylinders, cables and hoses for leaks, damage or erratic operation. Check for missing or loose parts such as nuts, bolts and circlips.
14. Test that the Emergency Lowering Valves on each of the Lift Cylinders is operating correctly as detailed in *Section 3.4*. **PUSH** the Emergency Stop Button to identify that functions will indeed cease when depressed.
15. Operate the manual telescopic retraction

system using the Handpump to test that it will work.

16. **LOWER** each boom until the Elevating Assembly is fully stowed. Turn Keyswitch on the Lower Control box to the '**LOWER CONTROL SELECTION**'. Climb into the Platform and check that the Platform is level. If not adjust as shown in the Platform Levelling Section of this manual. Repeat all the above tests from the Platform Controls. Push the Emergency Stop Button to identify that functions will indeed cease when depressed. Bring the machine back to the stowed position and retract the Telescopic Cylinder.
17. **PRESS** the Service Horn to see that it is operational. Select the **DRIVE** function. While pressing the Joystick Interlock Switch slowly **PUSH** the Joystick to **DRIVE FORWARD**, and then **PULL** to **DRIVE REVERSE**, to check for speed and proportional control. The farther you push or pull the Joystick the faster the machine will travel.
18. **PUSH** the Steering Switch **RIGHT** and then **LEFT** to check for steering control.
19. **RAISE** the Elevating Assembly until the Boom Rest Limit Switch is no longer activated and then repeat the Drive Function test. Only low speed ('**CREEP SPEED**') should be available.

The System Function Inspection is then complete.

⚠ WARNING ⚠

If there are any concerns about the safe use or operation of the A38E following this Pre-Operation Inspection **DO NOT USE THE A38E WORK PLATFORM**. Contact your supplier or Snorkel's Product Support Department.

Note: Machines supplied to Australia require that the operation of the Function Selector switch must be 'held' on until after the Joystick Interlock Switch is depressed. Every time the Joystick Interlock Switch is released, the Function Select and 'hold' sequence must be repeated.

3.4 Operation

NOTE: Before operating the A38E Work Platform it is imperative that the Pre-Operation Inspection (Section 3.3) has been completed and any deficiencies have been corrected. The operator must also understand the functions of all the controls before operating the machine.

ELEVATING & LOWERING THE A38E WORK PLATFORM

Before beginning any operation involving the Elevating Assembly the following checks should be carried out. When the A38E has been thoroughly inspected the elevating assembly can then be used.

⚠ WARNING ⚠

LOOK up and around for obstructions before performing the lift function.

ENSURE that the Elevating Assembly is clear of the Chassis before engaging the Slew operation.

DO NOT overload the platform DO NOT operate within 3 metres (10 feet) of any electrical power cables. THIS WORK PLATFORM IS NOT INSULATED.

Cordon off the area within the platform's working area to keep passers-by clear of the booms.

NOTE: Chassis controls are for service use only.

1. Ensure the 'CONTROL SELECTION KEYSWITCH' is selected to 'UPPER CONTROL' and both emergency stop buttons are released (twisted clockwise).
2. Enter Platform through the entrance at the side of the A38E and ensure that the drop bar is in the lowered position. Lock the Entry Step in the raised position.

⚠ WARNING ⚠

Damage to the machine is possible if the Entry Step is not locked in the raised position before operating the machine functions.

3. Before using the machine all local Safety Regulations involving helmets and restraining devices should be observed. Safety harness lanyards, not exceeding 1 m (3 ft.) in length, should be attached to anchor points in cage floor.
4. Select " LOWER BOOM " on function selector switch. Check for overhead obstructions and

when when satisfied squeeze the Joystick Interlock control on.

Slowly move the Joystick forward to **ELEVATE** the lower boom.

The further the joystick is moved, the faster the boom will move. Pressure must be applied to the Interlock at all times while operation is required.

5. Select "UPPER BOOM", "TELESCOPE", "PLATFORM ROTATE" or "SLEW ROTATE" as required using the 'Function Selector Switches' and operate as described above. For boom functions the controls will again be forward for **UP** and backward for **DOWN**.
6. To rotate (**SLEW**) **RIGHT** the Controller Joystick should be moved forward. Conversely to rotate (**SLEW**) **LEFT** move the Controller Joystick backward.
7. To "TELESCOPE" **IN** the Controller Joystick should be moved forward. Conversely to "TELESCOPE" **OUT** move the Controller Joystick backward.
8. Before lowering, check beneath the cage floor for obstructions, operate as described above, moving the Joystick back to lower the Booms.

Note: Machines supplied to Australia require that the operation of the Function Selector switch must be 'held' on until after the Joystick Interlock Switch is depressed. Every time the Joystick Interlock Switch is released, the Function Select and 'hold' sequence must be repeated.

TRAVEL WITH WORK PLATFORM LOWERED

1. Verify that the chassis Emergency Stop Button is in the 'ON' position (turn clockwise) and that the Keyswitch is turned to the 'UPPER CONTROL' position.
2. Climb into the Platform and check that the Platform Emergency Stop Button is in the 'ON' position, and that the Drive function button is depressed. Ensure that the drop bar is in the lowered position and the Entry Step is raised.
3. Check that the route is clear of persons, obstructions, pot holes or ledges and is capable of supporting the wheel loads. Also, check that the clearances above, below and to the side of the Work Platform are sufficient.
4. Grasp the Joystick so that the Interlock Switch is depressed (releasing this Interlock Switch will cut power to the Joystick). Slowly push or

pull the Joystick to **FORWARD** or **REVERSE** to travel in the desired direction. The farther you push or pull the Joystick from the centre the faster the machine will travel.

- To “**STEER**” the A38E activate the Interlock Switch while pushing the Steering Switch **LEFT** or **RIGHT** to turn the wheels. Observe the tyres while manoeuvring to ensure proper direction.

NOTE:

Steering is not self-centring. The wheels must be returned to the straight ahead position by operating the Steering Switch.

TRAVEL WITH WORK PLATFORM ELEVATED

⚠ WARNING ⚠

Travel with platform elevated **ONLY** on firm and level surfaces. Platform motion is exaggerated while travelling on uneven surfaces.

NOTE:

The Work Platform will travel at reduced speed when in the elevated position.

- Check that the route is clear of persons, obstructions, pot holes or ledges and is capable of supporting the wheel loads. Also, check that the clearances above, below and to the side of the Work Platform are sufficient.
- Operate the Drive function switch.
- Grasp the Joystick so that the Interlock Switch is depressed (releasing this Interlock Switch will cut power to the Joystick). Slowly push or pull the Joystick to **FORWARD** or **REVERSE** to travel in the desired direction. The farther you push or pull the Joystick from the center the faster the machine will travel.

⚠ CAUTION ⚠

If the machine comes to a halt and the Tilt Alarm sounds, immediately lower the Platform and move the machine to a level location before re-elevating the Platform.

PLATFORM LEVELLING

NOTE:

The Levelling function will only work when the Boom Rest Limit Switch has been activated i.e. when the

Booms are stowed.

The platform can be levelled from the Upper controls using the levelling function, operate and hold the levelling switch on the upper control box (see fig3-1) while moving the joystick forward or back to level the platform. The switch should be operated in short bursts to level the platform **slowly**.

PLATFORM ROTATE

Some machines are equipped with a platform rotate function. The platform can be rotated 150 degrees, 75 degrees either side of the boom using the following methods depending on machine platform type.

NOTE: Hydraulic platform rotate and manual platform rotate function is an option, machines without these options are fitted with fixed Platforms.

HYDRAULIC PLATFORM ROTATE

- Ensure the ‘**CONTROL SELECTION KEYSWITCH**’ is selected to ‘**UPPER CONTROL**’ and both emergency stop buttons are released (twisted clockwise).
- Enter Platform through the entrance at the side of the A38E and ensure that the drop bar is in the lowered position. Lock the Entry Step in the raised position.

⚠ WARNING ⚠

LOOK up and around for obstructions before performing the platform rotate function. ENSURE that the platform is clear of the Chassis and the Step is in the raised position before engaging the rotate operation.

- Operate the Platform Rotate switch, ensuring the selection light illuminates (refer to figure 3-1).
- Grasp the Joystick so that the Interlock Switch is depressed (releasing this Interlock Switch will cut power to the Joystick).

Note: Machines supplied to Australia require that the operation of the Function Selector switch must be ‘held’ on until after the Joystick Interlock Switch is depressed. Every time the Joystick Interlock Switch is released, the Function Select and ‘hold’ sequence must be repeated.

A38E Work Platform

5. To rotate the “**PLATFORM**” **RIGHT**, the Controller Joystick should be moved forward. Conversely to rotate “**PLATFORM**” **LEFT** move the Controller Joystick backward.
6. Position the Platform perpendicular to the booms when driving or stowing the aerial platform.

MANUAL PLATFORM ROTATE

Turn the hand crank (refer to Figure 3-2) counterclockwise to rotate the platform to the left and clockwise to rotate the platform to the right.

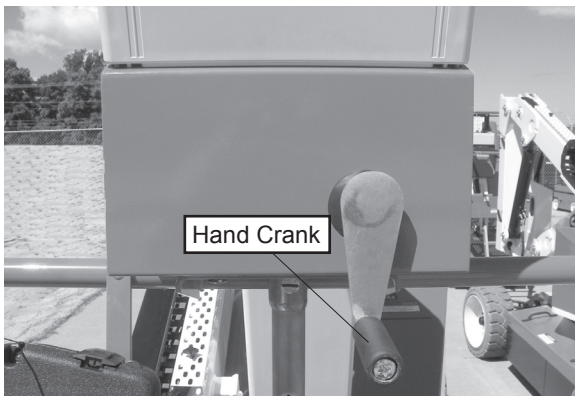


Figure 3-2: Manual Platform Rotator

Position the platform perpendicular to the booms when driving or stowing the aerial platform.

EMERGENCY SITUATIONS & EMERGENCY OVERRIDE

In any emergency situation, the first action to be taken should be to hit the red “Emergency Stop” button for instant cutout of all functions. It will then be required to twist the button clockwise, this releases the cutout and the machine can be operated again.

If the audible Tilt warning alarm sounds, normal control functions will cease to operate. This will be due to the following problem ;

- the machine is out of level i.e. Tilt Sensor has been activated.

In this situation the only machine functions that will operate are descent functions, descend to the ground in a controlled manner and cycle the power (push and release the emergency stop) to restore all functions, move the machine to a level surface and continue with normal operation.

Note that during emergency operation, controls will operate at a fixed, slow speed and will not allow the raising or extending of the Booms.

The Booms can be lowered or retracted.

Emergency Lowering

⚠ CAUTION ⚠

When operating this function, extreme care must be taken to ensure that the person carrying out the task does not become trapped by the structure. **DO NOT** climb down the Elevating Assembly to operate these valves.

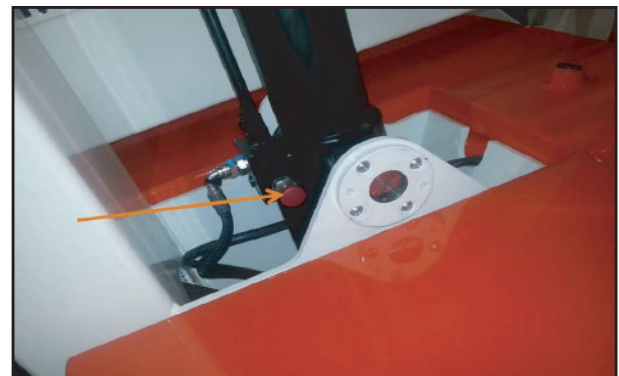
Should the machine become inoperable when elevated, request a person on the ground to lower the platform using the emergency lowering valves. These are red knobs (push type) mounted at the base of the 2 Main Hydraulic Lift Cylinders (See Figure 3-3).

Operate the lower boom first by pushing slowly.

The boom will descend slowly. The speed of descent is controlled by retaining pressure on the valve - ensure a slow controlled rate of descent at all times. Descent can be halted at any time by removing pressure from the red knob.

Repeat the operation if necessary for the upper boom when cylinder is in reach of the ground.

With both main booms lowered fully it should then be possible to leave the platform safely.



Before operating the Emergency Lowering Valves the surrounding area should first be cleared of any potential obstructions. It is also important that when the valve is pushed, it is initially done slowly. This is so that sudden movement will not occur in the Elevating Assembly, leading to a potentially unstable machine.

Figure 3-3: Emergency Lowering

CONTROL FROM GROUND LEVEL

1. Chassis Controls are fitted at the base of the Elevating Assembly. These should be used when no operator is in the platform (for maintenance/ service or inspection purposes), or if the operator has become incapacitated. For further information see Table 3-1.
2. Use the appropriate switch to raise or lower Boom 1, Boom 2, Telescope or rotate as required.

AFTER USE EACH DAY

1. Ensure that the platform is fully lowered.
2. Park the machine on level ground, preferably undercover, secure against vandals, children or unauthorised operation.
3. Turn key switch to **OFF** and remove key to prevent unauthorised operation.
4. Recharge batteries in accordance with the instructions in section 4.2.

MANUAL ROTATION

1. Ensure booms are lowered as far as possible using the emergency lowering valves, and that the Emergency Stop Button is pressed to prevent any accidental powered operation.
2. Apply a 7/8" socket wrench to shaft and turn to rotate elevating assembly.
3. Remove wrench.

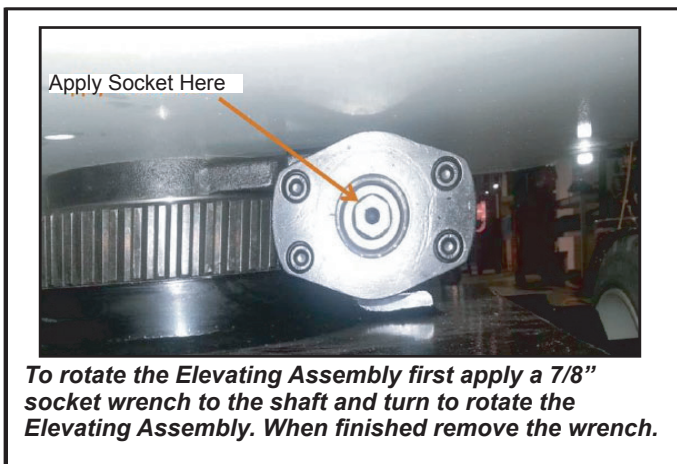


Figure 3-4: Manual Rotation

MANUAL TELESCOPIC RETRACTION (SEE FIGURE 3-5)

In the event of loss of electrical power the Telescopic Cylinder can be retracted as follows:

1. Remove the cover from the chassis body.
2. The Handpump is attached to the Main Manifold Block. Remove the Handpump Handle from the clips on the side of the Chassis and insert into the Handpump Valve as shown in Figure 3-5.
3. Operate handpump to retract the tele cylinder.
4. After use replace the Handpump Handle in the clips provided.
5. Reposition the cover on Chassis.

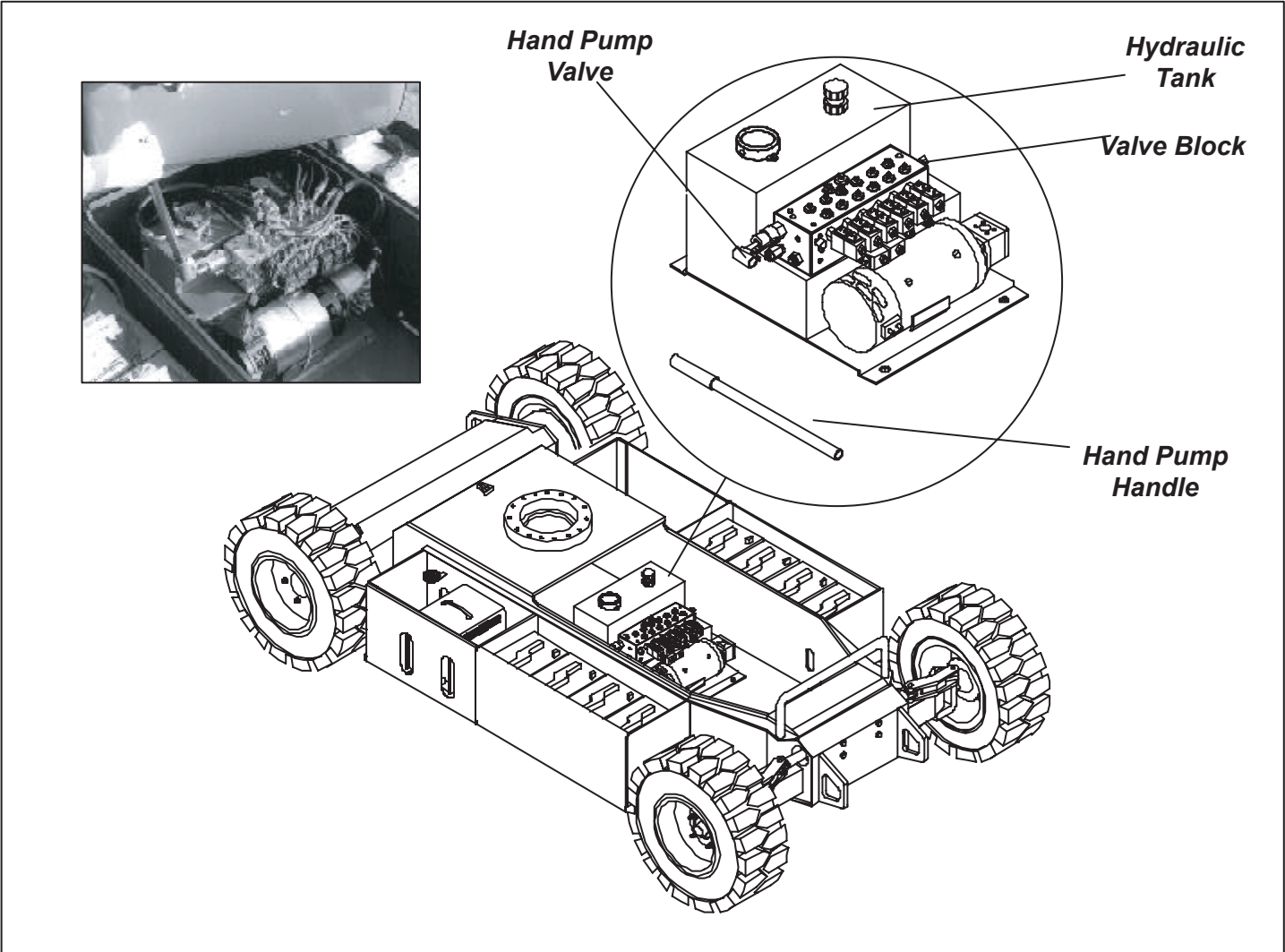


Figure 3-5: Manual Telescopic Retraction

DAILY PREVENTATIVE MAINTENANCE CHECKLIST

MAINTENANCE TABLE KEY

Y = Yes/Acceptable

N = No/Not Acceptable

R = Repaired/Acceptable

PREVENTATIVE MAINTENANCE REPORT

Date: _____

Owner: _____

Model No: _____

Serial No: _____

Serviced By: _____

COMPONENT	INSPECTION OR SERVICES	Y	N	R
Battery	Check electrolyte level.			
	Check battery cable condition.			
Chassis	Check hoses for pinch or rubbing points.			
	Check welds for cracks.			
Control Cable	Check the exterior of the cable for pinching, binding or wear.			
Controller	Check switch operation.			
Drive Motor/Gearbox	Check for operation and leaks.			
Elevating Assembly	Inspect for structural cracks.			
Emergency Hydraulic System	Operate the emergency lowering valve and check for serviceability.			
Entire Unit	Check for and repair collision damage.			
Hydraulic Fluid	Check fluid level.			
Hydraulic Pump	Check for hose fitting leaks.			
Hydraulic System	Check for leaks.			
Labels	Check for peeling, missing, or unreadable labels & replace.			
Platform Deck and Rails	Check welds for cracks.			
Platform Deck and Rails	Check condition of deck.			
Tires	Check for damage.			

NOTES:

**Local Distributor / Lokaler Vertiebshändler / Distributeur local
El Distribuidor local / Il Distributore locale**

EUROPE, MIDDLE EAST

AFRICA & ASIA

PHONE: +44 (0) 845 1550 058

FAX: +44 (0) 845 1557 756

NORTH & SOUTH AMERICA

PHONE: +1 785 989 3000

TOLL FREE: +1 800 255 0317

FAX: +1 785 989 3070

AUSTRALIA

PHONE: +611300 700 450

FAX: +61 2 9609 3057

NEW ZEALAND

PHONE: +64 6 3689 168

FAX: +64 6 3689 164

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www.snorkellifts.com