## ■ Safe Operation

Knowledge of the information in this manual, and proper training, provide a basis for safely operating the S3970RT / S3370RT / S2770RT. Know the location of all the controls and how they operate to act quickly and responsibly in an emergency.

Safety devices reduce the likelihood of an accident. Never disable, modify, or ignore any safety device. Safety alerts in this manual indicate situations where accidents may occur.

If any malfunction, hazard or potentially unsafe condition relating to capacity, intended use, or safe operation is suspected, stop the operation of the S3970RT / S3370RT / S2770RT and seek assistance.

The operator bears ultimate responsibility for following all manufacturers instructions and warnings, regulations and safety rules of their employer and/or any country or regional law.

#### **■** Electrocution Hazards

The S3970RT / S3370RT / S2770RT is an all metal aerial work platform and is not electrically insulated. Do not operate it near electrical conductors. Regard all conductors as being energised. Do not operate outside during a thunderstorm.

## ■ Pre-start Inspection

At the start of each work shift, the S3970RT / S3370RT / S2770RT shall be given a visual inspection and function test. See the Daily Inspection and Maintenance chapter , in this manual for a list of items to inspect and test.

# **AWARNING**

DO NOT operate the S3970RT / S3370RT / S2770RT unless you are trained and authorised, understand the operation characteristics of the S3970RT / S3370RT / S2770RT, and have inspected and tested all functions to be sure they are in proper working order.

# Work Place Inspection and Practices

Do not use the S3970RT / S3370RT / S2770RT as a ground for welding. Ground to the work piece.

Before the S3970RT / S3370RT / S2770RT is used, and during use, check the area in which the S3970RT / S3370RT / S2770RT is to be used for possible hazards such as, but not limited to:

Drop-offs or holes.

- Side slopes.
- Bumps and floor obstructions.
- Debris.
- Overhead obstructions and electrical conductors.
- Hazardous locations.
- Inadequate surface and support to withstand all load forces imposed by the aerial platform in all operating configurations.
- Wind and weather conditions.
- Presence of unauthorised persons.
- Other possible unsafe conditions.

Before the S3970RT / S3370RT / S2770RT is used, determine the hazard classification of any particular atmosphere or location according to ANSI/NFPA 505-1987.

Any S3970RT / S3370RT / S2770RT operated in a hazardous location must be approved and of the type required by ANSI/NFPA 505-1987.

While operating the S3970RT / S3370RT / S2770RT a recommended safety practice is to have trained and qualified personnel in the immediate work area of the S3970RT / S3370RT / S2770RT to:

- Help in case of an emergency.
- Operate emergency controls as required.
- Watch for loss of control by platform operator.
- Warn the operator of any obstructions or hazards that may not be obvious to them.
- Watch for soft terrain, sloping surfaces, drop-offs, etc., where stability could be jeopardized.
- Watch for bystanders and never allow anyone to be under, or to reach through the booms while operating the aerial platform.

# **ADANGER**

Pinch points may exist between moving components. Death or serious injury can result from becoming trapped between components, buildings, structures, or other obstacles. Make sure there is sufficient clearance around the machine before moving the chassis, booms, or platform. Allow sufficient room and time to stop movement to avoid contact with structures or other hazards.

Keep ground personnel from under the platform when the platform is raised.

# 1. Safety

Secure all accessories, containers, tools, and other materials in the platform to prevent them from accidentally falling or being kicked off the platform.

Always look in the direction of travel. Drive with care and at speeds compatible with the work-place conditions. Use caution when driving over rough ground, on slopes, and when turning.

Do not engage in any form of horseplay or stunt driving while operating the S3970RT / S2770RT.

Do not permit riders on the machine anyplace other than on the platform.

Remove all loose objects stored in or on the machine, particularly in the platform. Remove all objects which do not belong in or on the machine.

Never steady the platform by positioning it against another platform.

Do not operate an S3970RT / S3370RT / S2770RT that is damaged or not functioning properly. Do not use the S3970RT / S3370RT / S2770RT until the machine has been repaired by a qualified maintenance person.

Do not operate a S3970RT / S3370RT / S2770RT that does not have all its decals and placards attached and legible.

Watch for bystanders and never allow anyone to be under, or to reach through, the machine and its equipment while operating.

Use the recommended transport device when loading the machine.

## Operation

If you encounter any suspected malfunction of the aerial platform, or any hazard or potentially unsafe condition relating to capacity, intended use, or safe operation, cease operation immediately and seek assistance from management.

Use three (3) points of support when getting on or off the platform (two (2) hands and one (1) foot or a similar set of points). Keep the platform clean.

Maintain a firm footing on the platform floor. Operate the controls slowly and deliberately to avoid jerky and erratic operation. Always stop the controls in neutral before going in the opposite direction.

Do not dismount while the platform is in motion or jump off the machine.

Do not start until all personnel are clearly away from the machine.

Never cover the floor grating or otherwise obstruct your view below. Make sure the area below the platform is free of personnel before lowering.

### ■ Tipover and Falling Hazards

Operate the S3970RT / S3370RT / S2770RT only on a firm, flat, level surface capable of withstanding all load forces imposed by the S3970RT / S3370RT / S2770RT in all operating conditions.

## **ADANGER**

The S3970RT / S3370RT / S2770RT can tip over if it becomes unstable. Death or serious injury can result from a tip-over accident. Do not drive or position the S3970RT / S3370RT / S2770RT platform for elevated use near any drop-off, hole, slope, soft or uneven ground, or other tip-over hazard.

Do not operate the S3970RT / S3370RT / S2770RT from a position on trucks, trailers, railway cars, floating vessels, scaffolds, or similar equipment unless the application is approved in writing by Snorkel.

Care shall be taken to prevent rope, electric cords, and hoses, etc., from becoming entangled in the aerial platform. If the platform or elevating assembly becomes caught, snagged, or otherwise prevented from normal motion by an adjacent structure or other obstacle such that control reversal does not free the platform, remove all personnel from the platform before attempts are made to free the platform using ground controls.

No person shall access or egress from the platform in the elevated position (except in an emergency) unless the requirements of AS2550.10 have been met.

For full requirements refer directly to AS2550.10

Do not exceed the unrestricted platform capacity as indicated on the capacity placard at the entrance to the platform. Do not carry loads from any point outside of the platform.

Make sure that all protective guards, cowlings, and doors are in place and secure. Be sure the guard-rail system, including the gate, is in place and secure.

Do not climb on the guardrails or use ladders, planks, or other devices to extend or increase your work position from the platform.

Do not use the S3970RT / S3370RT / S2770RT as a crane, hoist, or jack,or for any other purpose other than to position personnel, their tools, and materials.

Do not operate the S3970RT / S3370RT / S2770RT in winds, or wind gusts, of 28 mph, 45kph 12.5 m/s) or more.

## **ADANGER**

Do not add banners, flags, screens or shelters etc., to areas of the S3970RT / S3370RT / S2770RT that are exposed to wind forces as this will increase the wind loading and effect stability.

## ■ General Safety Precautions

Do not modify the S3970RT / S3370RT / S2770RT in any way.

When parts or components are replaced, they shall be identical or equivalent to original Snorkel parts or components.

Do not override any of the safety features of the S3970RT / S3370RT / S2770RT.

## ■ Hydraulic System Precautions

The hydraulic system contains hoses with hydraulic fluid under pressure.

## **ADANGER**

Hydraulic fluid escaping under pressure can have enough force to inject fluid into the flesh. Serious infection or reaction can result if medical treatment is not given immediately. In case of injury by escaping hydraulic fluid, seek medical attention at once.

DO NOT place your hand or any part of your body in front of escaping hydraulic fluid. Use a piece of cardboard or wood to search for hydraulic leaks.

Do not attempt repairs to hydraulic systems unless you are trained. Refer to experienced repair personnel for help.

#### Fire Prevention

Never operate your S3970RT / S3370RT / S2770RT near a flame or spark. Hydraulic oil and gasoline are flammable and can explode.

# ■ Engine and Fuel Handling Precautions **ADANGER**

Engine exhaust contains carbon monoxide, a poisonous gas that is invisible and odorless. Breathing engine exhaust fumes can cause death or serious illness. Do not

# run the engine in an enclosed area or indoors without adequate ventilation.

Only refuel your S3970RT / S3370RT / S2770RT outdoors in a clear area void of gas fumes or spilled gas. Never remove the fuel cap or refuel a gasoline engine while the engine is running or hot. ALWAYS allow the engine to cool before refueling. Never allow fuel to spill on hot machine components.

## **ACAUTION**

DO NOT smoke or permit open flames while fueling or near fueling operations.

Maintain control of the fuel filler nozzle when filling the tank.

## **AWARNING**

# ENSURE you use an approved fuel container with appropriate fuel filler nozzle

Do not fill the fuel tank to capacity. Allow room for expansion.

If gasoline is spilled, clean up spilled fuel immediately, push/tow the S3970RT / S3370RT / S2770RT away from the area of the spill and avoid creating any source of ignition until the spilled fuel has evaporated.

Tighten the fuel tank cap securely. If the fuel cap is lost, replace it with an approved cap from Snorkel. Use of a non-approved cap without proper venting may result in pressurization of the tank.

Never use fuel for cleaning purposes.

For diesel engines, use the correct fuel grade for the operating season.

#### Batteries

Charge batteries in a well ventilated area free of flame, sparks, or other hazards that might cause fire or explosion.

# **AWARNING**

Batteries give off hydrogen and oxygen that can combine explosively. Death or serious injury can result from a chemical explosion. Do not smoke or permit open flames or sparks when checking batteries.

Battery acid can damage the skin and eyes. Serious infection or reaction can result if medical treatment is not given immediately. Wear face and eye protection when working near batteries.

# 1. Safety

Batteries contain sulfuric acid that can damage your eyes or skin on contact. Wear a face shield, rubber gloves, and protective clothing when working around batteries. If acid contacts your eyes, flush immediately with clear water and get medical attention. If acid contacts your skin, wash off immediately with clear water.

## ■ Safety Decals and Placards

There are several safety decals and placards on the S3970RT / S3370RT / S2770RT. Their locations and descriptions are shown in this section. Take time to study them.

## **ACAUTION**

Be sure that all the safety decals and placards on the S3970RT / S3370RT / S2770RT are legible. Clean or replace them if you cannot read the words or see the pictures. Clean with soap & water and a soft cloth. Do not use solvents.

You MUST replace a decal or placard if it is damaged, missing, or cannot be read. If it is on a part that is replaced, make sure a new decal or placard is installed on the replaced part. See your Snorkel dealer for new decals and placards.

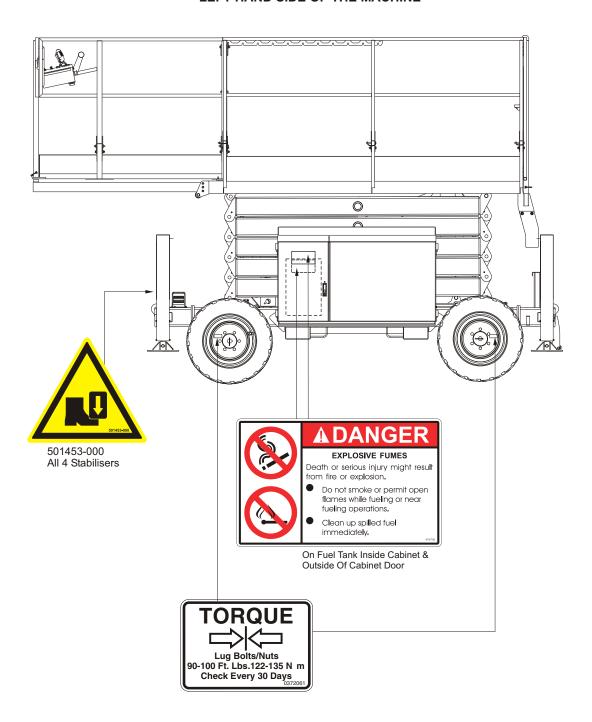
#### Note:

From time-to-time certain Snorkel decals may be deleted, altered or replaced, or new decals may be added in line with new safety regulations or machine specification changes.

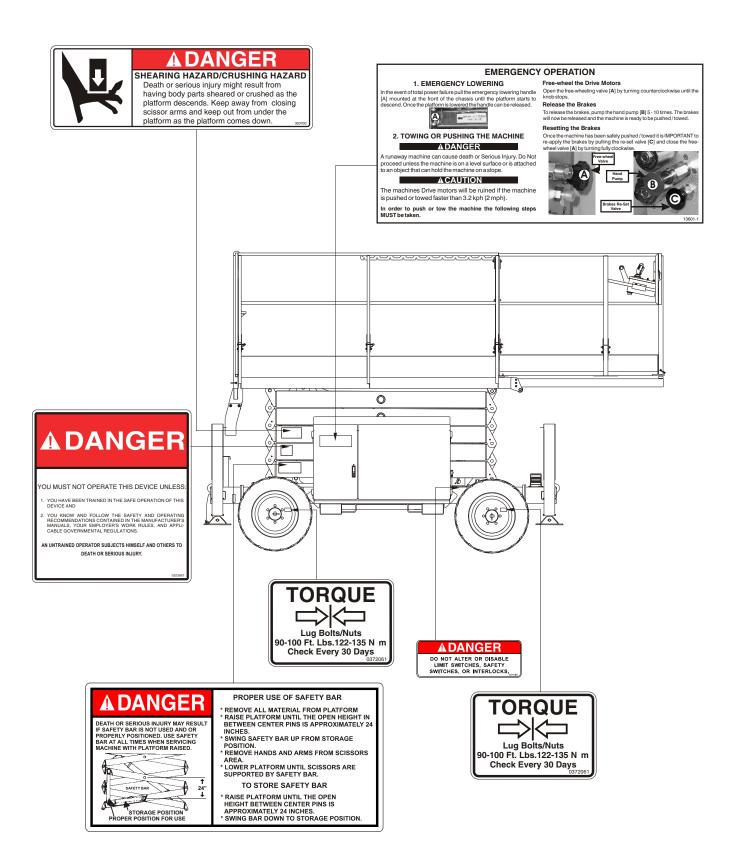
If you are unsure or want to check a particular decal or its placement on the machine contact your nearest Snorkel dealer or the snorkel website.

# ■ Safety Placards and Decals Location

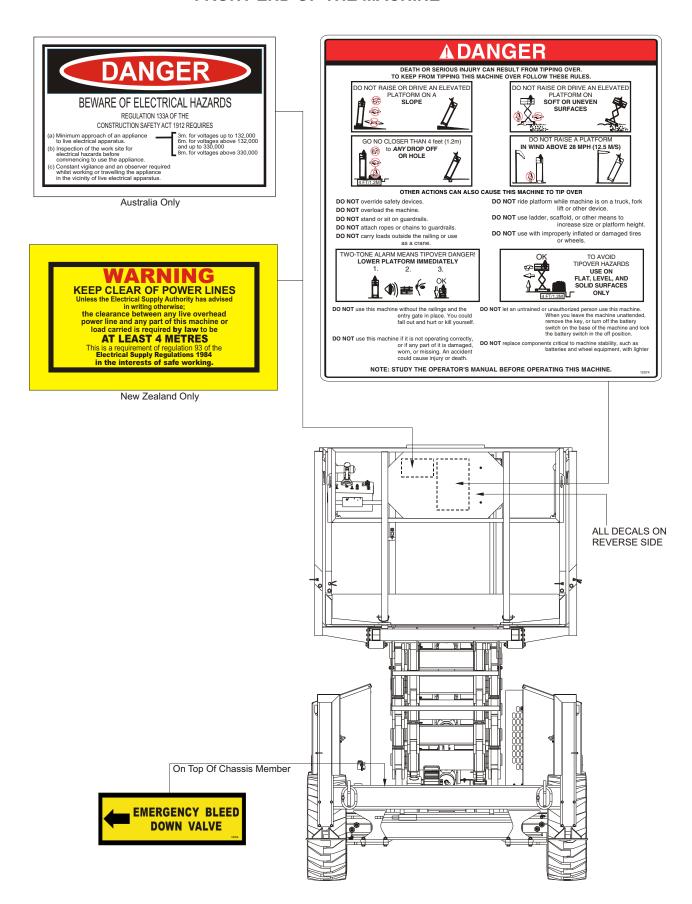
#### **LEFT HAND SIDE OF THE MACHINE**



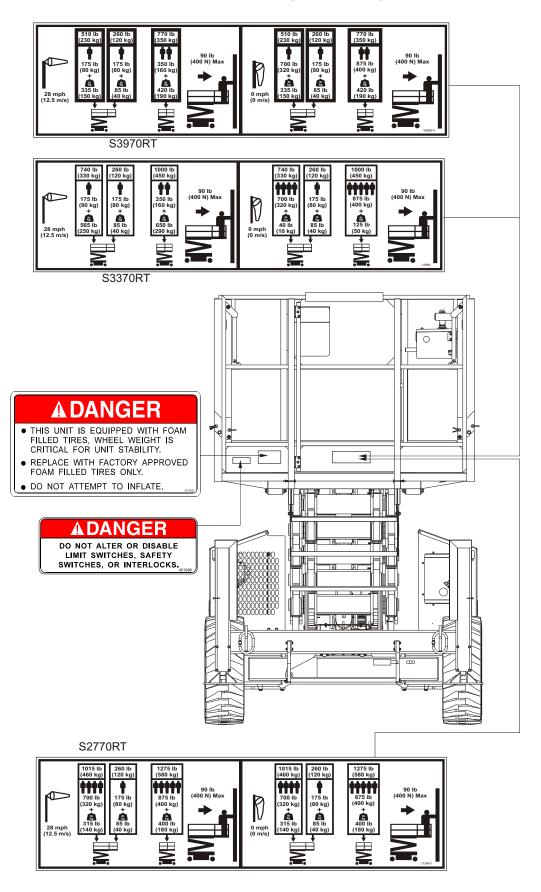
#### **RIGHT-HAND SIDE OF MACHINE**



#### FRONT END OF THE MACHINE



#### **REAR END OF THE MACHINE**



## ■ Safety Device Information

For emergency operation controls and procedures see the Emergency Operation chapter 9, in this manual.

The devices listed in this chapter are safety devices.

They are on the machine to increase safety in the work place for both the operator and other people near the machine.

## **▲WARNING**

Do not by-pass, disable, modify, or ignore any of these devices. Check them carefully at the start of each work shift to see that they are in working order (see Daily Inspection & Maintenance chapter 7). If any is found to be defective, remove the S3970RT / S3370RT / S2770RT from service immediately until a qualified service technician can make repairs.

## ■ Emergency Stop Switches

### ■ At platform control box



Figure 2.1 - Platform Control Box Emergency Stop Switch

Press the large red **EMERGENCY STOP** button in and the entire machine stops, the engine turns off, and nothing moves. This switch must be out (on) to control the S3970RT / S3370RT / S2770RT from the platform (pull the switch and it will pop out).

## ■ At ground control box



Figure 2.2 - Ground Control Box Emergency Stop Switch

Press the red **EMERGENCY STOP** switch cover down, at any time, under any conditions, and the entire machine stops, the engine turns off, and nothing moves. the EMERGENCY STOP switch must be up for anything on the S3970RT / S3370RT / S2770RT to work.

#### Alarms

There are two (2) alarms on the machine. one (1) is located in the platform control box, the other is located in the ground control box.

The alarms are connected in parallel, they both emit the same pattern of sound at the same time. The different alarm sound patterns are shown in the table immediately below and discussed below the table.

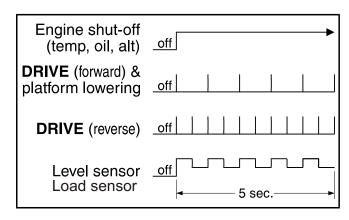


Figure 2.3 - Alarm Sound Patterns

The high-temperature, low oil-pressure, and alternator not-charging alarms are each a continuous tone.

# 2. Safety Devices

The DRIVE (forward) and the platform-lowering alarms beep at one (1) beep per second. DRIVE (reverse) beeps at two (2) beeps per second. The level sensor alarm and load sensing alarm produce a high-low warbling sound.

## ■ Load sensing system

As soon as the scissor stack rises from it's stowed position (a stack stowed switch changes state) the overload protection system becomes active.

• If **90%** of rated capacity is reached in the platform the overload light will illuminate.

This is a **warning** to the operator that the platform is reaching rated capacity.

Normal function will remain and the machine can continue to be used

 If 100% of rated capacity is reached in the platform the overload light will continue to be illuminated and an alarm will sound.

This is a **warning** to the operator that rated capacity has been reached and the platform load must be reduced.

Normal function will remain to allow the platform to be positioned to remove some load from the platform.

#### Note:

The machine should not be operated continuously with the overload alarm sounding.

 If 110% of rated capacity is reached in the platform the overload light will continue to be illuminated and an alarm will continue to sound and all functions will be disabled.

The operator **must remove load** from the platform.

Normal function will resume once the platform load has been reduced below 110% continuously for at least two (2) seconds.



Figure 2.4 - Platform Overload Light

#### Level sensor

The level sensor alarm warns the S3970RT / S3370RT / S2770RT operator that the S3970RT / S3370RT / S2770RT is not level. When you hear this alarm, immediately lower the platform completely down. When the platform is completely down, determine and correct the cause of the tilt before raising the platform again.

#### NOTE

While the alarm is sounding it is not possible to drive the S3970RT / S3370RT / S2770RT nor raise the platform

### Lowering

The lowering alarm warns people near the machine that the platform is coming down and the scissor arm assembly is closing.

## ☐ High temperature

The high-temperature alarm warns you that the engine is overheating. When the alarm sounds you should immediately lower the platform completely down then turn the engine off until the condition that caused the overheating has been corrected. (See Automatic Shut-Offs & Circuit Breakers chapter 5 for more information.)

# Low oil pressure

The low pressure alarm warns you that the engine oil pressure is near the lower limit for safe operation of the engine. When the alarm sounds you should immediately lower the platform completely down then turn the engine off until the condition that caused the low oil pressure has been corrected. (See Automatic Shut-Offs & Circuit Breakers chapter 5 for more information.)

## ☐ Drive (reverse)

The DRIVE (reverse) alarm alerts people that the S3970RT / S3370RT / S2770RT is traveling backward along the ground. This alarm beeps twice as fast as the DRIVE (forward) alarm.

## ☐ Drive (forward)

The DRIVE (forward) alarm alerts people that the S3970RT / S3370RT / S2770RT is traveling forward along the ground. This alarm beeps half as fast as the DRIVE (reverse) alarm.

#### Guardrails

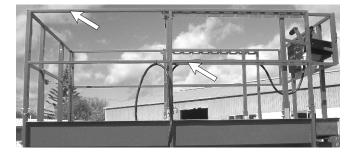


Figure 2.5 - Guardrails

The guardrails help protect you from falling off the platform. Be sure the guardrails are properly installed and that the gate is in place.

## ■ Safety Prop

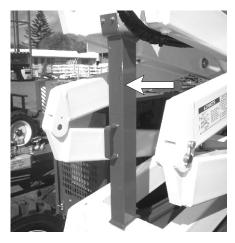


Figure 2.6 - Safety Prop

Always raise the safety prop then lower the scissor-arm assembly onto the safety prop before reaching into the scissor-arm assembly for any reason.

# ■ Swinging Gate

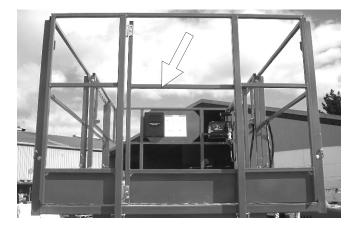


Figure 2.7 - Swinging Gate

The swinging gate should be closed at all times except when someone is entering or leaving the platform.

## ■ Safety Control

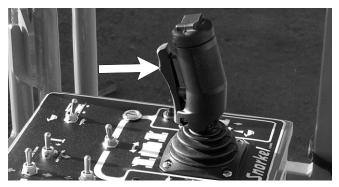


Figure 2.8 - Joystick Safety Control

The safety control must be squeezed and held to activate the joystick. The safety control prevents the joystick from moving the platform if something accidentally pushes the joystick. Do not disable the safety control in any way.

#### Bubble Level

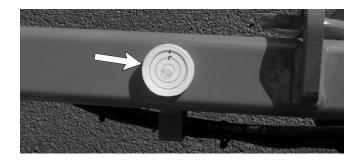


Figure 2.9 - Bubble Level

See the Gauges chapter 4 for a discussion of the bubble level.

# Operator Horn



Figure 2.10 - Operator Horn

# 2. Safety Devices

The operator horn is used primarily to get the attention of people on the ground when you are working aloft. For the horn to work the following switches, on the ground control box, must be set as indicated:

MAIN POWER.....ON
EMERGENCY STOP....ON (up)
SELECTOR.....PLATFORM

## ■ Stabilisers (Option)



Figure 2.11 - Stabilisers

The stabiliser controls are on the upper left side of the platform control box. The stabilisers are used to level the S3970RT / S3370RT / S2770RT (for complete stabiliser operating procedures see the Operation chapter 8).

#### NOTE

The S3970RT / S3370RT / S2770RT must be on a firm surface capable of withstanding all load forces imposed by the aerial platform in all operation conditions before the stabilisers are used.

# ■ Rough Terrain Scissor Interlock Tests

All Snorkel scissor lifts in the Snorkel 'SRT, SR and S/RT Series are fitted with a very important safety feature, a 'Stabiliser/axle/scissor Interlock' system that prevents the stabilisers being moved while the platform is elevated, and prevents the platform being raised if the rear axle is oscillated and the stabilisers are not set or the machine is tilted.

# **AIMPORTANT**

The correct operation of the Stabiliser/scissor Interlock is critical to ensure that the Scissor is operated safely and with minimum risk.

Detailed instructions on how to carry out the tests to ensure that these functions are working correctly are provided at the beginning of the Pre-Operational Inspection chapter in this manual.

## ■ RCD/ELCB AC Outlet (option)

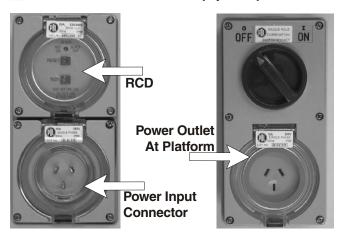


Figure 2.12 - RCD/ELCB AC Outlet

The RCD (Residual Current Device) is located at the ground and will protect against short circuits to earth. When there is a short circuit the RCD will shut down the 230v AC power to the platform outlet. To reset the outlet disconnect the power tool lead from the platform box and reset the RCD at the ground. If the problem persists call a trained service technician.

# ■ Flashing Light (option)

The flashing light alerts people that the S3970RT / S3370RT / S2770RT is present and that the S3970RT / S3370RT / S2770RT is moving. The light flashes at about one (1) flash per second any time the S3970RT / S3370RT / S2770RT engine is running. There is no ON/OFF switch for the flashing light, it cannot be turned off while the S3970RT / S3370RT / S2770RT is running.

# ■ Lanyard Anchor Points (option)

There are four (4) anchors on the floor of the platform, one (1) at the front of the roll-out deck, one (1) at the back of the platform, and one (1) on each side of the platform.

#### NOTE

These anchors are not for lifting or tying down the machine.

You should attach your fall protection to the anchors if work rules require it.