# Snorkel

# Operator's Manual

# SR2770

## Engine Powered
## Diesel – Gasoline
## LPG Fuel


CE

P/N 11669A
September 2005 V7

# LIMITED WARRANTY

Snorkel warrants each new machine manufactured and sold by it to be free from defects in material and workmanship for a period of one (1) year from date of delivery to a Customer or for one year after the machine has been placed in first service in a Dealer rental fleet, whichever comes first. Any part or parts which, upon examination by the Snorkel Service Department, are found to be defective, will be replaced or repaired, at the sole discretion of Snorkel, through its local Authorized Dealer at no charge.

Snorkel further warrants the structural components; specifically, the mainframe chassis, turntable, booms and scissor arms, of each new machine manufactured by it to be free from defects in material and workmanship for an additional period of four (4) years. Any such part or parts which, upon examination by the Snorkel Service Department, are found to be defective will be replaced or repaired by Snorkel through its local Authorized Dealer at no charge; however, any labor charges incurred as a result of such replacement or repair will be the responsibility of the Customer or Dealer.

The Snorkel Service Department must be notified within forty-eight (48) hours of any possible warranty situation during the applicable warranty period. Personnel performing warranty repair or replacement must obtain specific approval by Snorkel Service Department prior to performing any warranty repair or replacement.

Customer and Dealer shall not be entitled to the benefits of this warranty and Snorkel shall have no obligations hereunder unless the “Pre-Delivery and Inspection Report” has been properly completed and returned to the Snorkel Service Department within ten (10) days after delivery of the Snorkel product to Customer or Dealer’s rental fleet. Snorkel must be notified, in writing, within ten (10) days, of any machine sold to a Customer from a Dealer’s rental fleet during the warranty period.

At the direction of the Snorkel Service Department, any component part(s) of Snorkel products to be replaced or repaired under this warranty program must be returned freight prepaid to the Snorkel Service Department for inspection. All warranty replacement parts will be shipped freight prepaid (standard ground) from the Snorkel Service Department or from Snorkel’s Vendor to Dealer or Customer.

## REPLACEMENT PARTS WARRANTY

Any replacement or service part made or sold by Snorkel is not subject to the preceding **Limited Warranty** beyond the normal warranty period of the machine upon which the part was installed.

## THIS WARRANTY EXCLUDES AND SNORKEL DOES NOT WARRANT:

1. Engines, motors, tires and batteries which are manufactured by suppliers to Snorkel, who furnish their own warranty. Snorkel will, however, to the extent permitted, pass through any such warranty protection to the Customer or Dealer.
2. Any Snorkel product which has been modified or altered outside Snorkel’s factory without Snorkel’s written approval, if such modification or alteration, in the sole judgment of Snorkel’s Engineering and/or Service Departments, adversely affects the stability, reliability or service life of the Snorkel product or any component thereof.
3. Any Snorkel product which has been subject to misuse, improper maintenance or accident. “Misuse” includes but is not limited to operation beyond the factory-rated load capacity and speeds. “Improper maintenance” includes but is not limited to failure to follow the recommendations contained in the Snorkel Operation, Maintenance, Repair Parts Manuals. Snorkel is not responsible for normal maintenance, service adjustments and replacements, including but not limited to hydraulic fluid, filters and lubrication.
4. Normal wear of any Snorkel component part(s). Normal wear of component parts may vary with the type application or type of environment in which the machine may be used; such as, but not limited to sandblasting applications.
5. Any Snorkel product that has come in direct contact with any chemical or abrasive material.
6. Incidental or consequential expenses, losses, or damages related to any part or equipment failure, including but not limited to freight cost to transport the machine to a repair facility, downtime of the machine, lost time for workers, lost orders, lost rental revenue, lost profits or increased cost.

This warranty is expressly in lieu of all other warranties, representations or liabilities of Snorkel, either expressed or implied, unless otherwise amended in writing by Snorkel’s President, Vice President-Engineering, Vice President-Sales or Vice President-Marketing.

**SNORKEL MAKES NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION OF THIS LIMITED WARRANTY. SNORKEL MAKES NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND DISCLAIMS ALL LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO INJURY TO PERSONS OR PROPERTY.**

The Customer shall make all warranty claims through its local Authorized Dealer and should contact the Dealer from whom the Snorkel product was purchased for warranty service. Or, if unable to contact the Dealer, contact the Snorkel Service Department for further assistance.

Effective July 1995

## ■ Electrical Hazard Warning

# DANGER

### SR ELEVATING WORK PLATFORMS ARE NOT ELECTRICALLY INSULATED.

If the platform, scissors arm assembly, or any other conductive part of an SR contacts a high-voltage electrical conductor, the result can be **SERIOUS INJURY** or **DEATH** for persons on or near the machine.


### GO NO CLOSER THAN THE MINIMUM SAFE APPROACH DISTANCES (M.S.A.D) - AS OUTLINED IN TABLE 1. AND FIGURE 3., ON THE NEXT PAGE.

Be sure to allow for sag and sway in the wires and the work platform.

If an SR comes in contact with a live electrical conductor, the entire machine can be charged.

If that happens, you should remain on the machine and not contact any other structure or object within reach. That includes the ground, adjacent buildings, poles, and any object not a part of the SR.

Such contact could make your body a conductor to the other object creating an electrical shock hazard resulting in **SERIOUS INJURY** or **DEATH**.

**DO NOT** attempt to enter or leave the SR until you are sure the electricity has been turned off.

If an SR is in contact with a live conductor, the platform operator **MUST** warn others on the ground in the vicinity of the SR to **STAY AWAY** from the machine, since their bodies can also form a path for electricity to ground thus creating an electrical shock hazard with possible **ELECTROCUTION** and **DEATH**.

**DO NOT** attempt to operate SR ground controls when the platform, scissors arm assembly, or any other conducting part of the SR is in contact with electrical wires or if there is an immediate danger of such contact.

Regard all conductors as energized.

Personnel working on or near an SR must be continuously aware of electrical hazards, recognizing that **SERIOUS INJURY** or **DEATH** can result if contact with an electrical wire does occur.

## ■ Minimum Safe Approach Distance

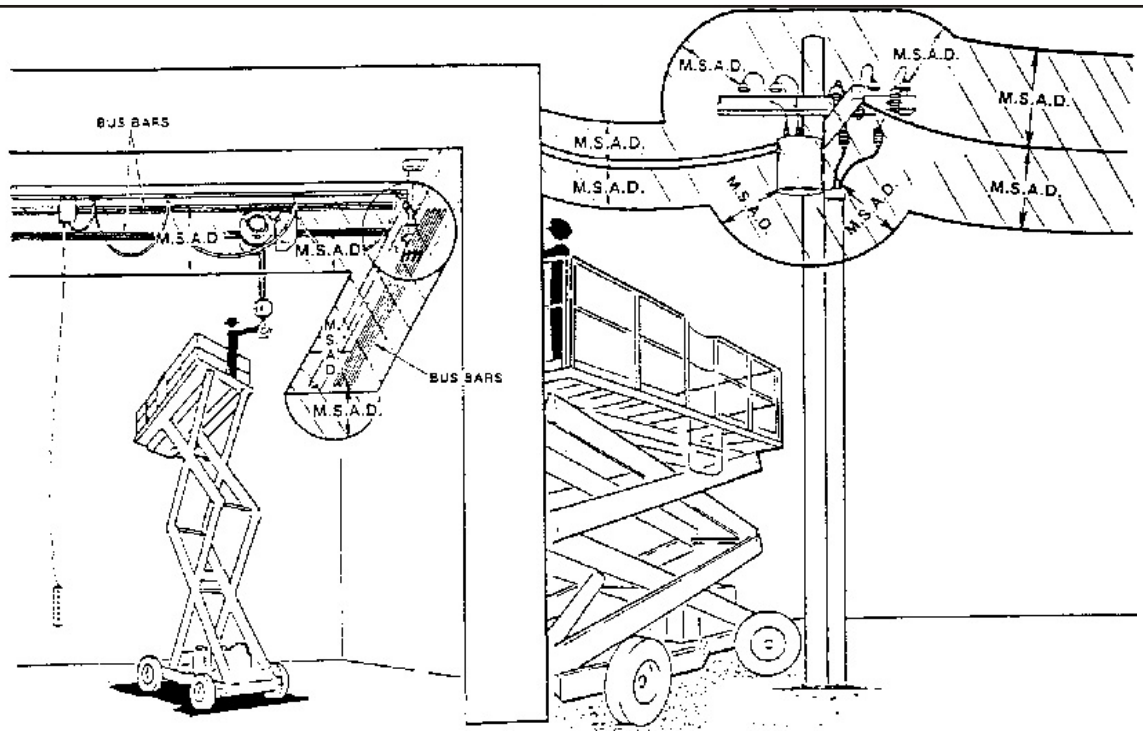
An SR is an all metal **NOT ELECTRICALLY INSULATED**, aerial work platform. **DO NOT** operate it near **ELECTRICAL** conductors. Regard all conductors as being energized. Use the table and illustration below to determine safe clearance from electrical conductors. (Table 1 and Figure 3, below, are from ANSI/SIA A92.6–1990 Standard, reprinted with permission of Scaffold Industry Association.)

### ❑ Table 1 - (M.S.A.D.)

**Minimum Safe Approach Distance**
**to energized (exposed or insulated power lines)**

| Voltage range | Minimum safe approach distance | |
|---|---|---|
| (phase to phase) | (Feet) | (Meters) |
| 0 to 300V | Avoid contact | |
| over 300v to 50kv | 10 | 3.05 |
| over 50kv to 200kv | 15 | 4.60 |
| over 200kv to 350kv | 20 | 6.10 |
| over 350kv to 500kv | 25 | 7.62 |
| over 500kv to 750kv | 35 | 10.67 |
| over 750kv to 1000kv | 45 | 13.72 |

### ❑ Figure 3 - (M.S.A.D.)




Denotes prohibited zone

Danger: - Do not allow machine personnel or conductive materials inside prohibited zone.

- Maintain M.S.A.D. From all energised lines and parts as well as those shown.

- Assume all electrical parts and wires are energised unless known otherwise.

Caution: - Diagrams shown are only for purposes of illustrating M.S.A.D. Work positions, not all work positions.

*The most important chapter in this manual is the safety chapter - Chapter 1. Take time, now, to study it closely. The information in Chapter 1, might save your life, prevent serious injury, or damage to property or the SR2770.*

## ■ Standard SR2770

The standard SR2770 includes the following features:

- Fully proportional one handed joy stick control
- Reliable diesel engine
- Large 1210mm multi position extension deck
- 35% gradeability
- 4 wheel drive with articulating axle
- Hour meter
- Temperature & ammeter gauges
- Easy access side trays for engine & hydraulics
- Lockable hinged covers
- Independently operated hydraulic stabilisers
- Swinging gate

## ■ Options

The following options are available for the SR2770:

- Flashing light
- 110/240V power to platform
- RCD/ELCB Outlet
- Optional AC generator
- Automatic stabilisers
- Alternative power options
  - ❍ Gasoline engine
  - ❍ LPG engine
  - ❍ Combination LPG/Gasoline engine

## ■ Operation Manual

This manual provides information for safe and proper operation of the aerial platform. Read and understand the information in this Operator's manual before operating this machine on a job site.

Additional copies of this manual may be ordered from Snorkel. Supply the model and manual part number from the front cover to assure that the correct manual will be supplied.

All information in this manual is based on the latest product information at the time of publication. Snorkel reserves the right to make product changes at any time without obligation.

## ■ Safety Alerts

A safety alert symbol is used throughout this manual to indicate danger, warning and caution instructions. Follow these instructions to reduce the likelihood of personal injury, property damage or damage to the machine.

The terms danger, warning, and caution indicate varying degrees of personal injury or property damage that can result if the instruction is not followed.

### ⚠DANGER

**Denotes an imminently hazardous situation which, if not avoided, will result in death or serious injury.**

### ⚠WARNING

**Denotes a potentially hazardous situation which, if not avoided, could result in death or serious injury.**

### ⚠CAUTION

**Denotes a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.**

**It may also be used to alert against unsafe practices or action which may result in damage to the SR.**

*Notes*
*Notes are used to provide special information or helpful hints to assist in aerial platform operation, but do not indicate a hazardous situation.*

## ■ Operation

The SR aerial platform has built in safety features and has been factory tested for compliance with Snorkel specifications and industry standards. However, any personnel lifting device can be potentially dangerous in the hands of untrained or careless operators.

Training is vitally important and must be performed under the direction of a QUALIFIED person. You must display proficiency in knowledge and actual operation of the SR before using it on a job site.

Before operation of the SR you must read and understand the operating instructions in this manual as well as the decals, warnings, and instructions on the machine itself.

Before operating the SR you must be AUTHORIZED by the person in charge to do so and the operation of the SR must be within the scope of the machine specifications.

## ⚠WARNING

**The potential for an accident increases when the aerial platform is operated by personnel who are not trained and authorised. Death or serious injury can result from such accidents. read and understand the information in this manual and on the placards and decals on the machine before operating the SR on the job site.**

### ■ Maintenance

Every person who maintains, inspects, tests, or repairs these machines, and every person supervising any of these functions, must be properly trained and qualified to do so.

This Operator's Manual provides a daily inspection procedure that will help you keep your SR in good operating condition.

Do not perform other maintenance unless you are a trained mechanic, qualified to work on the SR. Call qualified maintenance personnel if you find problems or malfunctions.

Do not modify this machine without written approval from the Engineering Department of Snorkel. Modification may void the warranty, adversely affect stability, or affect the operational characteristics of the SR.

### ■ Responsibilities of parties

It is imperative that all owners and users of the SR read, understand, and conform to all applicable regulations. Ultimate compliance to OSHA regulations is the responsibility of the user and their employer.

## ⚠WARNING

**ANSI Standard A92.2-2001clearly identifies requirements of all parties who might be involved with Boom-Supported Elevating Work Platforms.**

**AUSTRALIAN / NZ STANDARD 2550-10 1994 Also identifies the requirements of all parties who might be involved with Boom-Supported Elevating Work Platforms.**

A reprint of the "Manual of Responsibilities for Dealers, Owners, Users, Operators, Lessors and Lessees of ANSI/SIA A92.6-1990 Self Propelled Elevating Work Platforms" is available from Snorkel dealers or from the factory upon request.

Copies are also available from:

Scaffold Industry Association, Inc.,
P.O. Box 1160
Phoenix, AZ 85036-0574 USA

### ■ In summary

- Only trained and authorised operators should be permitted to operate the equipment.
- All manufacturer's operating instructions and safety rules and all employers' safety rules and all OSHA and other government safety rules should be strictly adhered to.
- Repairs and adjustments should be made only by qualified and trained maintenance personnel.
- No modification should be made to the equipment without prior written consent of the Snorkel Engineering Department.
- Make a pre-start inspection of the SR at the beginning of each shift. A malfunctioning machine must not be used.
- Make an inspection of the work place to locate possible hazards before operating the SR.

### ■ Additional information

For additional information, contact your local dealer or Snorkel at:

Snorkel International
2/26 Redfern Street
Wetherill Park NSW 2164
Australia

Snorkel International
PO Box 1041
Levin 5500
New Zealand

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## ■ Safe Operation

Knowledge of the information in this manual, and proper training, provide a basis for safely operating the SR2770. 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 SR 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 SR is an all metal aerial work platform and is not electrically insulated. Do not operate it near electrical conductors. Regard all conductors as being energized. Do not operate outside during a thunderstorm.

### ❑ Minimum safe approach distance

Minimum safe approach distances to energised power lines and their associated parts must be observed wile operating the SR.

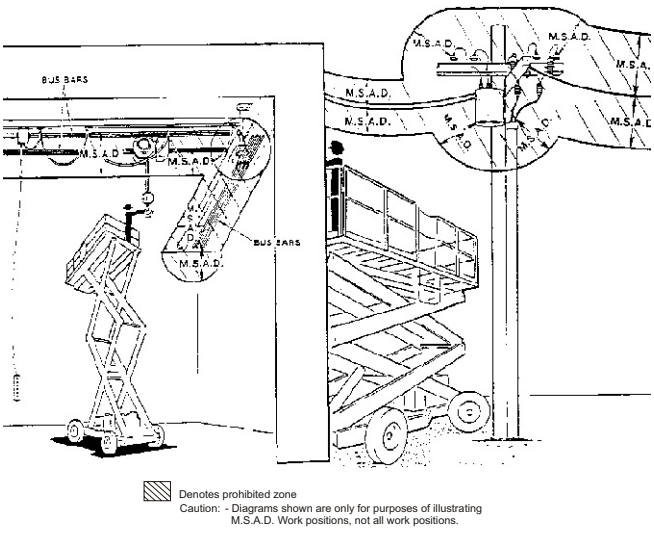



**Figure 1. - Minimum Safe Approach Distance**

# ⚠DANGER

**The SR is not electrically insulated. Death or serious injury can result from contact with, or inadequate clearance from, an energised conductor. Do not go closer than the minimum safe approach distance as defined by ANSI.**

ANSI publications define minimum distances that must be observed when working near bus bars and energised power lines. Figure 1 and Table 1 are reprinted courtesy of the Scaffold industry Association, ANSI/SIA A92.5.

| Voltage Range (Phase to Phase | Minimum Safe Approach Distance | |
|---|---|---|
| | Feet | Metres |
| 0 to 300V | Avoid Contact | |
| Over 300V to 50kV | 10 | 3.05 |
| Over 50kV to 200kV | 15 | 4.60 |
| Over 200kV to 350kV | 20 | 6.10 |
| Over 350kV to 500kV | 25 | 7.62 |
| Over 500kV to 750kV | 35 | 10.7 |
| Over 750kV to 1000kV | 45 | 13.72 |

**Table 1. - Minimum Safe Approach Distance**

## ■ Pre-start Inspection

At the start of each work shift, the SR2770 shall be given a visual inspection and function test. See the “Daily Inspection and Maintenance” chapter 7, in this manual for a list of items to inspect and test.

# ⚠WARNING

**DO NOT operate the SR2770 unless you are trained and authorized, understand the operation characteristics of the SR2770, 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 SR2770 as a ground for welding. Ground to the work piece.

Before the SR2770 is used, and during use, check the area in which the SR2770 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 unauthorized persons.
- Other possible unsafe conditions.

Before the SR2770 is used, determine the hazard classification of any particular atmosphere or location according to ANSI/NFPA 505-1987.

Any SR2770 operated in a hazardous location must be approved and of the type required by ANSI/NFPA 505-1987.

While operating the SR a recommended safety practice is to have trained and qualified personnel in the immediate work area of the SR2770 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.

## ⚠DANGER

**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.

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 SR2770.

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 SR2770 that is damaged or not functioning properly. Do not use the SR until the machine has been repaired by a qualified maintenance person.

Do not operate a SR2770 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 points of support when getting on or off the platform (two hands and one 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 SR only on a firm, flat, level surface capable of withstanding all load forces imposed by the SR2770 in all operating conditions.

### ⚠DANGER

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

Do not operate the SR2770 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.

Under normal working conditions it is best not to transfer from the platform to another structure or vice versa, unless that is the safest way to do the job. Each situation must be judged separately taking the work environment into account. The following guidelines apply:

1. Where possible, place the work platform over a roof or walking structure to do the transfer.
2. Transfer your anchorage from one structure to another before you step across.
3. Remember, you might be departing the work platform to a structure where fall arrest is required.
4. Do not climb over or through the guardrails. Use the platform entrance.

All platform occupants MUST wear and use fall restraint. Attach fall restraints to the platform lanyard anchor points.

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 guardrail 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 SR as a crane, hoist, or jack,or for any other purpose other than to position personnel, their tools, and materials.

Do not operate the SR2770 in winds, or wind gusts, of 28 mph, 45kph 12.5 m/s) or more and do not add anything to the SR2770 that will increase the wind loading (banners, flags, etc.).

## ■ General Safety Precautions

Do not modify the SR2770 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 SR2770.

## ■ Hydraulic System Precautions

The hydraulic system contains hoses with hydraulic fluid under pressure.

### ⚠DANGER

**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 SR near a flame or spark. Hydraulic oil and gasoline are flammable and can explode.

***NOTE:***

*This machine is equipped with an internal combustion engine (in it's standard configuration) and should not be used on or near any unimproved forest-covered, brush-covered or grass covered land unless the engine's exhaust system is equipped with a spark arrester meeting applicable laws. If a spark arrester is used, it*

*should be maintained in effective working order by the operator.*

## ■ Engine and Fuel Handling Precautions

### ⚠DANGER

**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 SR 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.

### ⚠CAUTION

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

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

### ⚠WARNING

**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 SR 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.

### ⚠WARNING

**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.**

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 SR2770. Their locations and descriptions are shown in this section. Take time to study them.

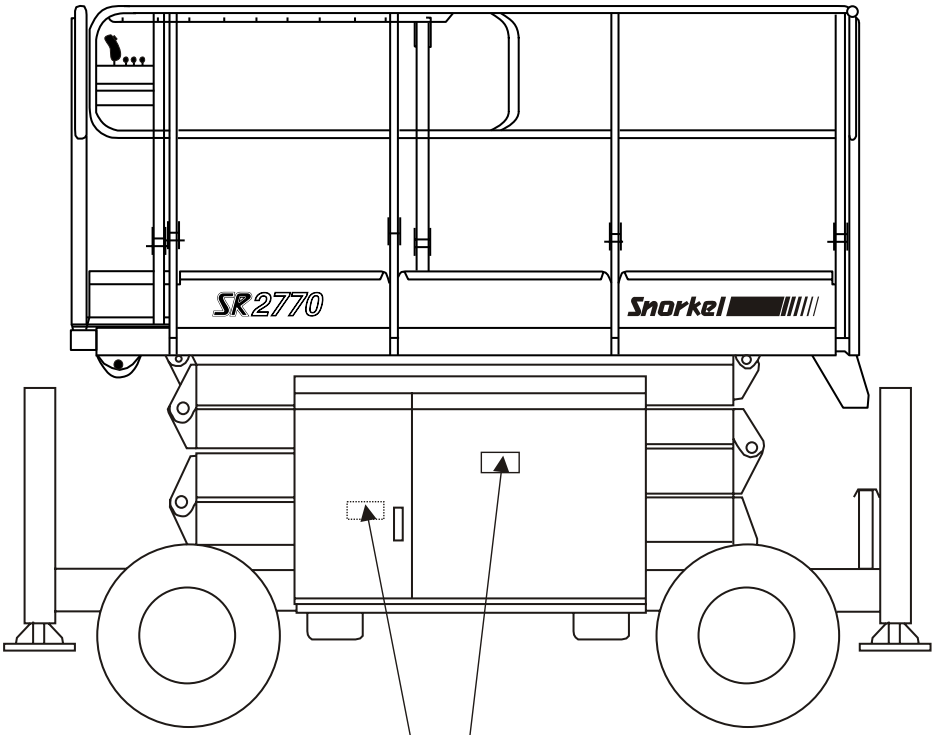
### ⚠CAUTION

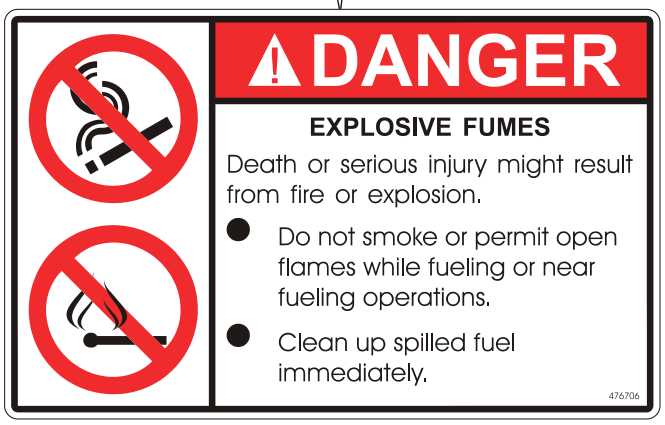
**Be sure that all the safety decals and placards on the SR2770 are legible. Clean or replace them if you cannot read the words or see the pictures. Clean with soap & water and a soft cloth. Do not use solvents.**

**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.**

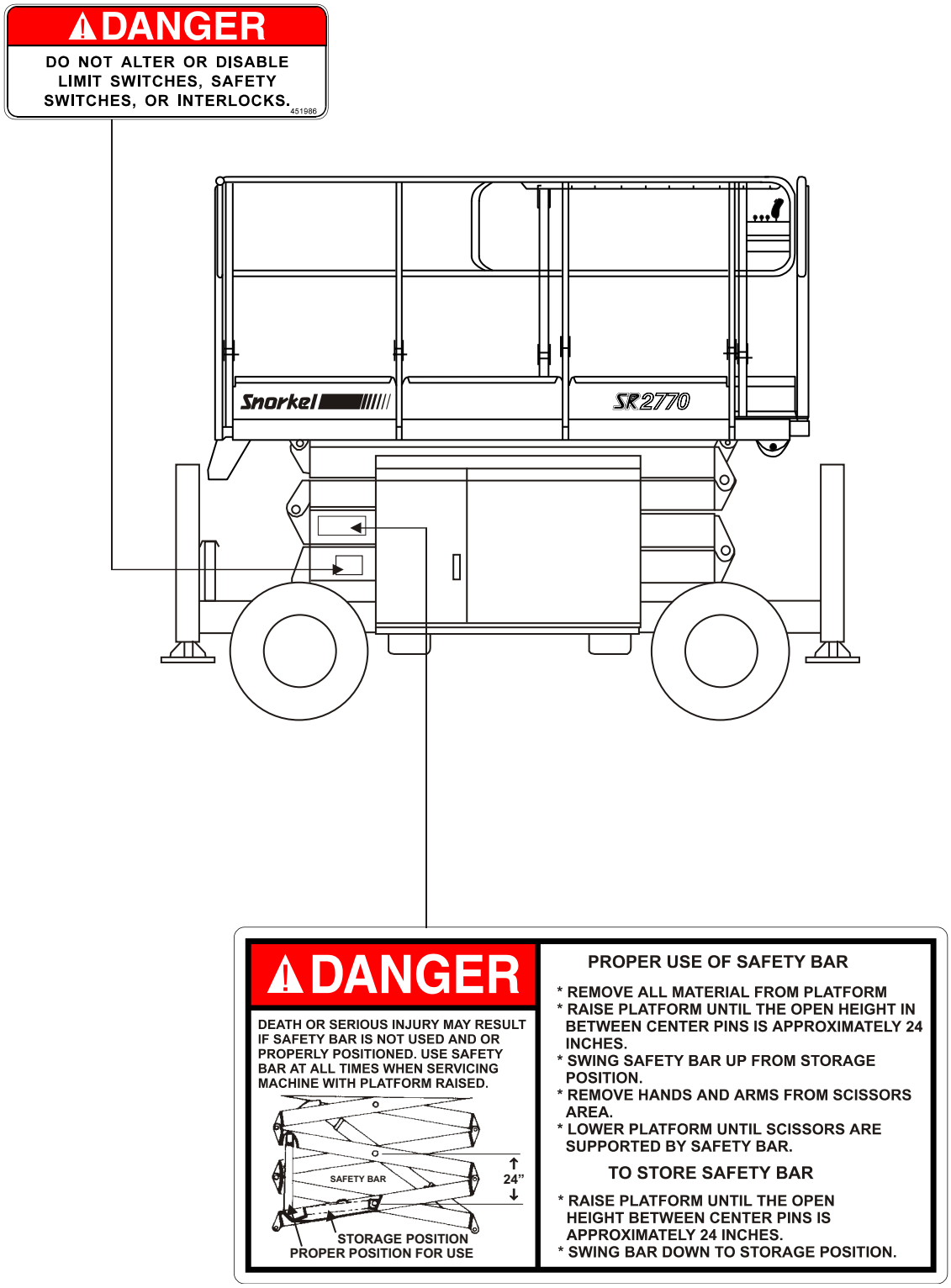
## ■ Safety Placards and Decals Location

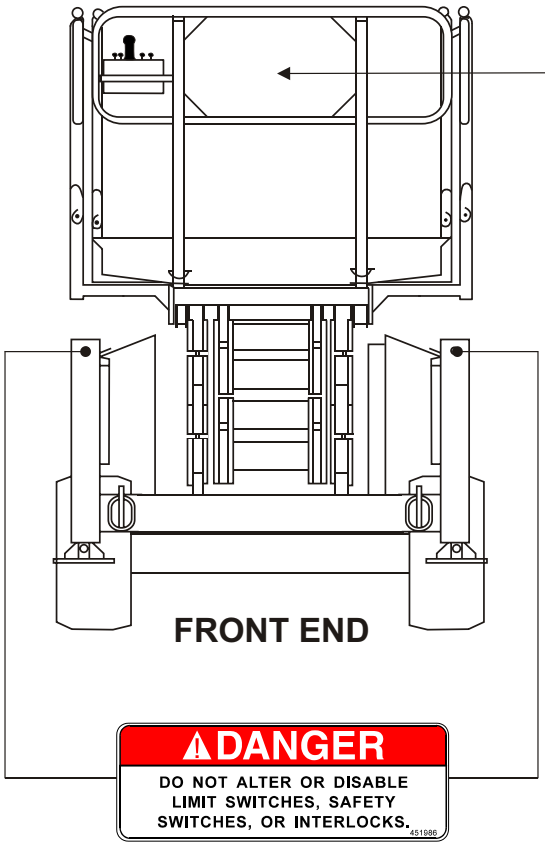
### LEFT-HAND SIDE OF SRT



## RIGHT-HAND SIDE OF SRT






**⚠DANGER**

DO NOT ALTER OR DISABLE LIMIT SWITCHES, SAFETY SWITCHES, OR INTERLOCKS.

451986

**⚠DANGER**

DEATH OR SERIOUS INJURY MIGHT RESULT FROM TIPPING OVER.
TO KEEP FROM TIPPING THIS MACHINE OVER FOLLOW THESE RULES.

DO NOT RAISE OR DRIVE AN ELEVATED PLATFORM ON A **SLOPE**

DO NOT RAISE OR DRIVE AN ELEVATED PLATFORM ON **SOFT OR UNEVEN SURFACES**

GO NO CLOSER THAN 4 feet (1.2m) to ***ANY* DROP OFF OR HOLE**

4 FT

DO NOT RAISE A PLATFORM WHEN IT IS **WINDY OR GUSTY**

**OTHER ACTIONS CAN ALSO CAUSE THIS MACHINE TO TIP OVER**

**DO NOT** override safety devices.
**DO NOT** overload the machine.
**DO NOT** stand or sit on guardrails.
**DO NOT** attach ropes or chains to guardrails.
**DO NOT** carry loads outside the railing or use as a crane.
**DO NOT** ride platform while machine is on a truck, fork lift or other device.
**DO NOT** use ladder, scaffold, or other means to increase size or platform height.
**DO NOT** use with improperly inflated or damaged tires or wheels.

TWO-TONE ALARM MEANS TIPOVER DANGER!
**LOWER PLATFORM IMMEDIATELY**
1. 2. 3. OK

OK
TO AVOID TIPOVER HAZARDS **USE ON FLAT, LEVEL, AND SOLID SURFACES ONLY**

4 FT

**ELECTRICAL SHOCK CAN KILL YOU**

This machine is not electrically insulated. **Keep a safe distance** from power lines and electrical equipment. **Do not** touch any electrical source.

**This machine will not protect you from shock.**

Allow for platform sway, rock, or sag. If voltage is 300 V to 50 kV stay at least 10 feet (3.1m) away. If voltage is more than 50 kV talk with your supervisor or read the operator's manual on this machine for safe distances.

**⚠DANGER**

**DO NOT** use this machine without the railings and the entry gate, chain or bar in place. You could fall out and hurt or kill yourself.

**DO NOT** use this machine if it is not working right, or if any part of it is damaged, worn, or missing. An accident could cause injury or death.

**DO NOT** let an untrained or unauthorized person use this machine. When you leave the machine unattended, remove the key, or turn off the battery switch on the base of the machine and lock the battery switch in the off position.

**DO NOT** replace components critical to machine stability, such as batteries and wheel equipment, with lighter weight or non-factory approved substitutes.

**NOTE: STUDY THE OPERATOR'S MANUAL BEFORE OPERATING THIS MACHINE.**

(both sides of plate)

**⚠DANGER**

- THIS UNIT IS EQUIPPED WITH FOAM FILLED TIRES, WHEEL WEIGHT IS CRITICAL FOR UNIT STABILITY.
- REPLACE WITH FACTORY APPROVED FOAM FILLED TIRES ONLY.
- DO NOT ATTEMPT TO INFLATE.

**SRT2770 PLATFORM RATINGS UNIFORMLY DISTRIBUTED**

RATED LOAD
580kg 1280lbs

RATED WORK LOAD
MAIN 460kg 1015lbs
EXT 120kg 265lbs

EXTENSION RETRACTED
EXTENSION EXTENDED

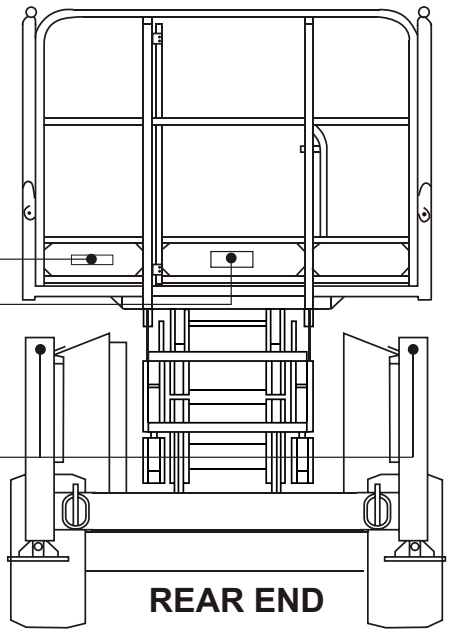
RATED NUMBER OF OCCUPANTS: 5 PERSONS

11346-1

**⚠DANGER**

DO NOT ALTER OR DISABLE LIMIT SWITCHES, SAFETY SWITCHES, OR INTERLOCKS.

451986



## ■ 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 an SR 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” chapter7). If any is found to be defective, remove the SR from service immediately until a qualified service technician can make repairs.**

## ■ Emergency Stop Switches

### ❑ At platform control box

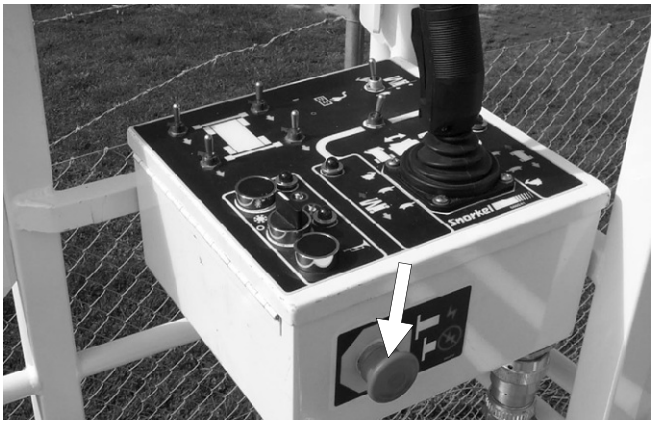


**Figure 2.1 - Platform Control Box Emergency Stop Switch**

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 SR 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 SR to work.

## ■ Alarms

### ❑ Platform control box

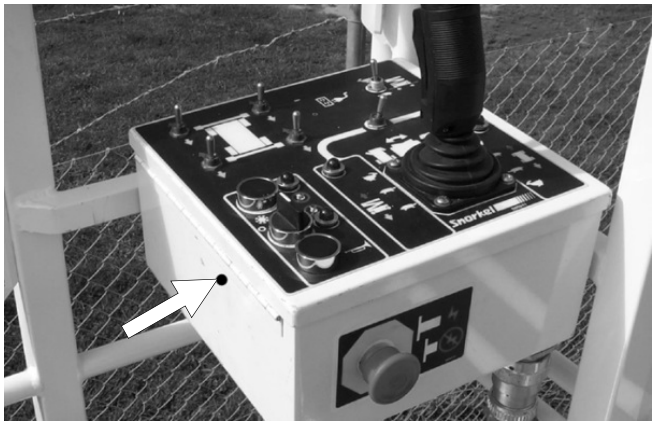


**Figure 2.3 - Platform Control Box Alarm**

There are two alarms on an SR. One is located in the platform control box, the other is located in the ground control box.

### ❑ Ground control box

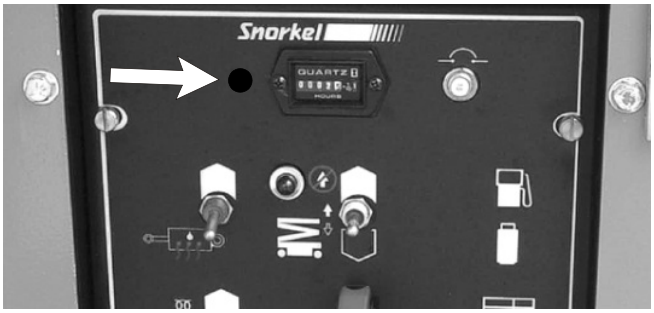



**Figure 2.4 - Ground Control Box Alarm**

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.

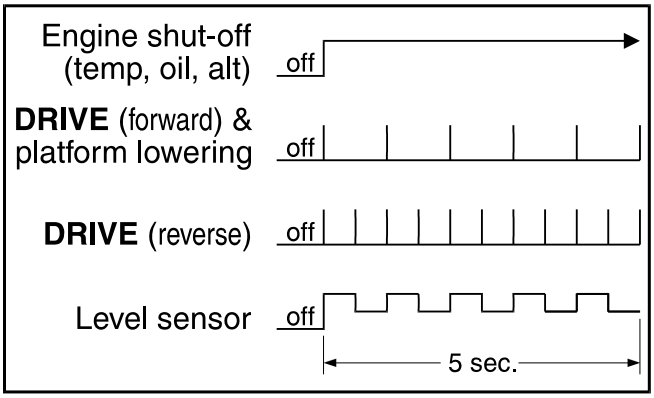



**Figure 2.5 - Alarm Sound Patterns**

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

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

### ❑ Level sensor

The level sensor alarm warns the SR operator that the SR is not level. If the tilt continues to increase, the SR will eventually tip over. 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 SR nor raise the platform*

### ❑ Lowering

The lowering alarm warns people near an SR 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 SR 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 SR is traveling forward along the ground. This alarm beeps half as fast as the DRIVE (reverse) alarm.

## ■ Guardrails


**Figure 2.6 - Guardrails**

The guardrails help protect you from falling off the platform. Be sure the guardrails are properly installed and that the safety chain (or gate) and fasteners are in place.

## ■ Safety Prop

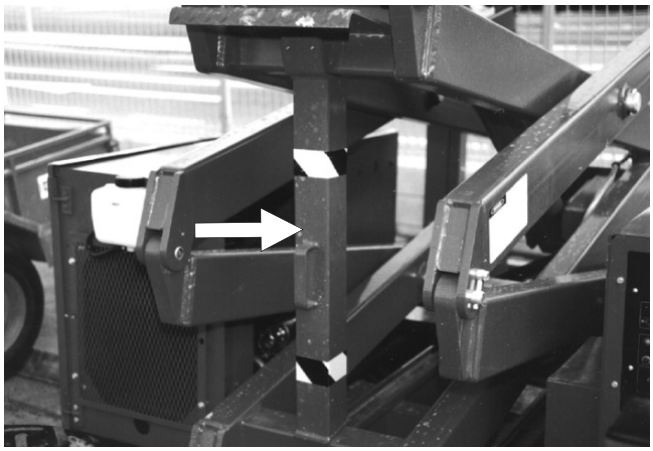


**Figure 2.7 - Safety Prop**

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

## ■ Swinging Gate


**Figure 2.8 - Swinging Gate**

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

## ■ Safety Control

**Figure 2.9 - 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

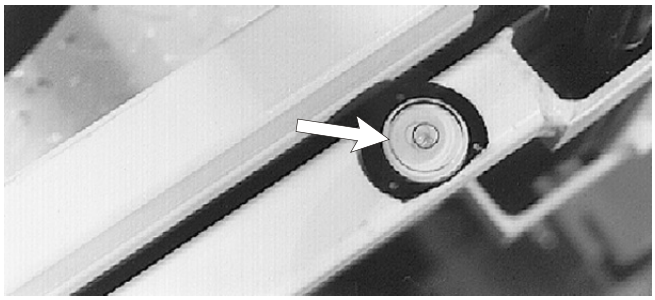


**Figure 2.10 - Bubble Level**

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

## ■ Operator Horn


**Figure 2.11 - Operator Horn**

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


**Figure 2.12 - Stabilisers**

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

***NOTE***

*The SR 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.*

## ■ RCD/ELCB AC Outlet (option)

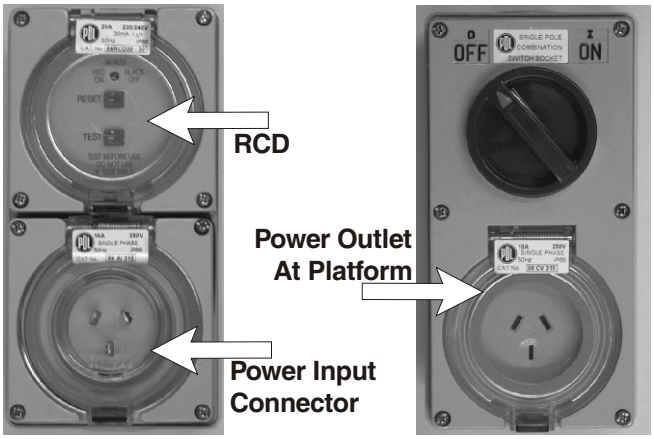



**Figure 2.13 - RCD/ELCB AC Outlet**

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)

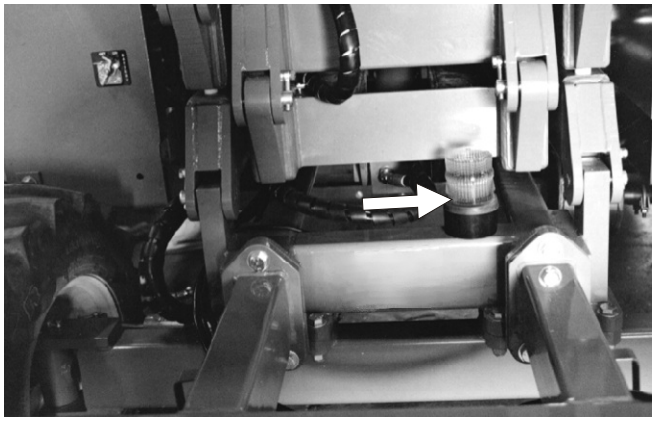


**Figure 2.14 - Flashing Light**

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

## ■ Lanyard Anchor Points (option)

There are four anchors on the floor of the platform, one at the front of the roll-out deck, one at the back of the platform, and one 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.

The SR2770 series machines are scissor-supported elevating work platforms built to conform to the following standards.

OSHA Paragraph 1910.67 Title 29, C.F.R., Vehicle-Mounted Elevating and Rotating Work Platforms - Labour.
OSHA Paragraph 1926.556 Title 29, C.F.R., Aerial Lifts - Construction.
Australian Standard AS1418-10 1996 Elevating Work Platforms.
prEN280 and MACHINERY DIRECTIVE 98/37/CEE

***NOTE:***

*For further details regarding lubricants, maintenance schedules and service please refer to the Maintenance and Repair Parts Manual for this machine.*

## ■ General Specifications, Standard Machines

| SPECIFICATIONS | SR2770 | |
|---|---|---|
| Nominal working height | 10.28m | 33’ 9” |
| Maximum height to basket floor | 8.28m | 27’ 2” |
| Maximum outreach | 1200mm with roll out deck | |
| Speed (when raised) | 0 to 1kph | 0 to 0.64mph |
| Speed (maximum drive) | 0 to 4.5kph | 0 to 2.8mph |
| Maximum width of base | 1.77m | 5’ 9” |
| Safe working load - Main deck (Roll out deck not extended) | 580kg | 1280lbs |
| Safe working load - Main deck<br>Roll out deck extended - R/O deck | 460kg<br>120kg | 1015lbs<br>265lbs |
| Standard colour | White platform. Orange scissors and base | |
| Platform size - [Four foot (1.2m) platform extension retracted] | 2.73 x 1.65m | 8’ 11” x 5’ 5” |
| Collapsed height | 1.7m | 5’ 8” |
| Overall length (with stabilizers) | 3.36m | 11’ 0” |
| Gradeability | 35% | |
| Lift time | 26 seconds | |
| Lower time | 35 seconds | |
| Turning radius (inner) | 2.83m | 9’ 3” |
| Turning radius (outer) | 4.6m | 15’ 1” |
| Insulation rating | Nil | |
| Overall weight | 2800kg | 6272lbs |
| Ground clearance | 370mm | 14.6” |

## ■ Recommended Hydraulic Oil

Shell Tellus 32 or Castrol AWS 32 or similar.

# 3. Specifications

## ■ Engine Data

| Engine Make | Kubota | | | |
|---|---|---|---|---|
| Model | WG750-G | | D905-B | |
| Fuel | gasoline | LPG | Diesel number 2-D | |
| Fuel grade | Unleaded<br>85 octane<br>(motor method<br>**Do not use gasoline blended with methyl alcohol.** | HD5<br>Gas Processors Association Standard 2140<br>Category: special duty propane | ASTM number 2-D<br>ASTM D975<br>Centane number >44<br>(For operating temp. Below 32°F (0°C) use “winterized” number 2-D.) | |
| Coolant | 50% water + 50% ethylene glycol | | | |
| Operating temperature | 180°F - 205°F (82°C - 96°C) | | | |
| Oil Capacity | 3.5 qt USA<br>(3.25 liters) | | 5.2 qt USA<br>(5.1 liters) | 4.2 qt USA<br>(4.0 liters) |
| Oil grade | API: SF, SF/CD | | API: CC/CD/CE | |
| Oil weight | See chart below | | | |
| Running time (one tank of fuel) | A full tank of gasoline, or diesel, will last an entire eight hour shift, under normal working conditions. It normally takes two tanks of LPG per eight hour shift. | | | |

## ■ Engine Oil Charts

### ❑ WG750-G

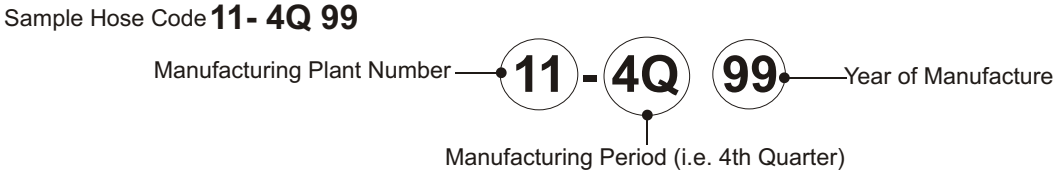
| Ambient temperature | Engine oil weight |
|---|---|
| Above 77°F (25°C) | SAE30 or 10W30 |
| 32°F to 77°F<br>(0°C) to (25°C) | SAE20 or 10W30 |
| 0°F to 32°F<br>(-17°C) to (0°C) | SAE10W or 10W30 |

### ❑ D905-B

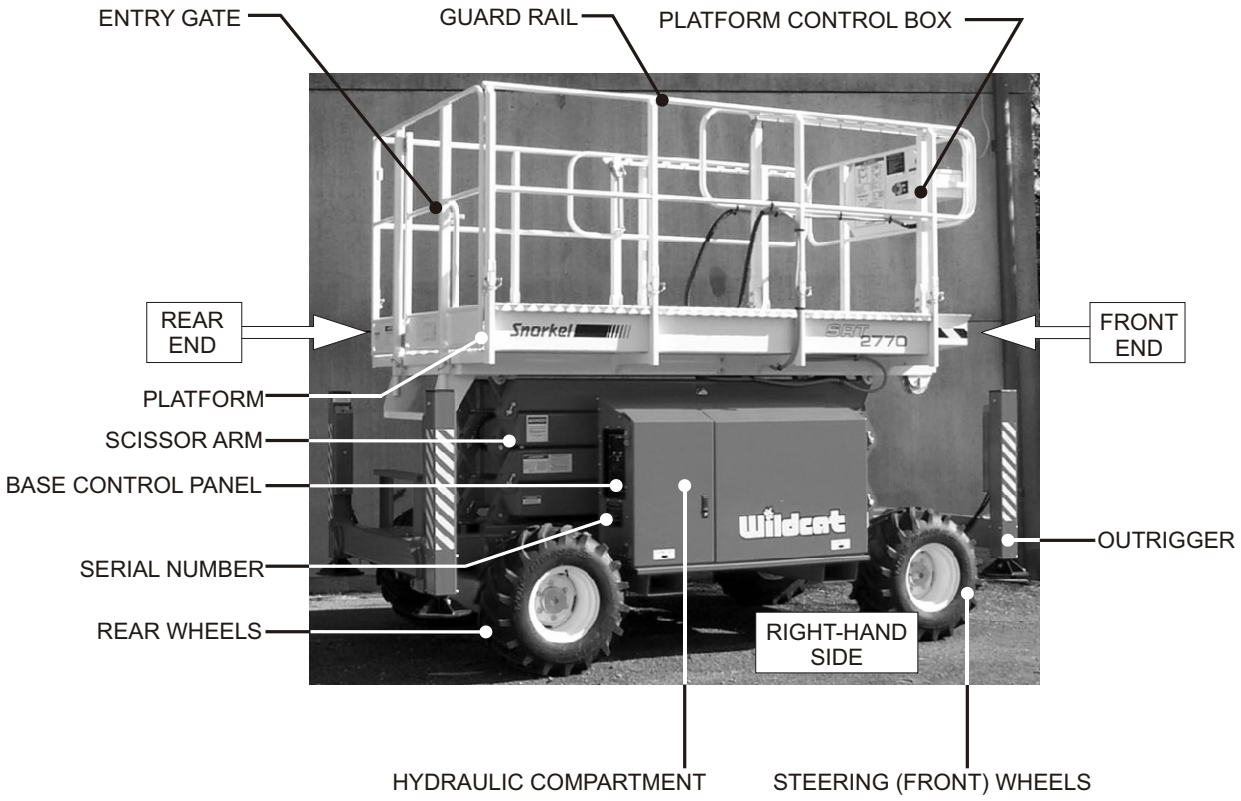
| Ambient temperature | Engine oil weight |
|---|---|
| Above 77°F (25°C) | SAE30 or 10W30<br>10W40 |
| 32°F to 77°F<br>(0°C) to (25°C) | SAE20 or 10W30<br>10W40 |
| Below 32°F (0°C) | SAE10W or 10W30<br>10W40 |

## ■ Hydraulic Hose Age

EN982 Clause 7.3.1 requires the manufacturing date of each hydraulic hose to be clearly visible on the hose.
Hoses used in production of this unit are manufactured by Parker and the manufacturing date is present in a coded format. The key to decode the date format is as follows:



## ■ Nomenclature and Serial Numbers




## ■ Water


**Figure 4.1 - Water Temperature Gauge**

The water gauge is located on the ground control box. It shows the temperature of the water-antifreeze mixture in the engine block. The typical operating-temperature range for Kubota engines is 180°F to 205°F (82°C to 96°C), both diesel and gasoline. (See the “Automatic Shut-Offs & Circuit Breakers ” chapter 5 for more information.)

## ■ Amps


**Figure 4.2 - Ammeter Gauge**

The AMPS gauge shows the electric current from the alternator to the battery. When the engine is running, the needle in the AMPS gauge should not be to the left of “0.” Under normal operating conditions, after the engine has been running for a few minutes, the AMPS gauge should read “0.”

## ■ Engine Oil

Engine oil level is measured with a dipstick. Oil capacities given in the “Specifications” chapter 3 are approximate. True values will vary from machine to machine due to slight variations or modifications during production.

- The oil dipstick is the only way to accurately gauge if the engine oil level is correct.
- Engine oil level should always be between the lines on the dipstick - never above the top line or below the bottom line.

**Gasoline** **Diesel**

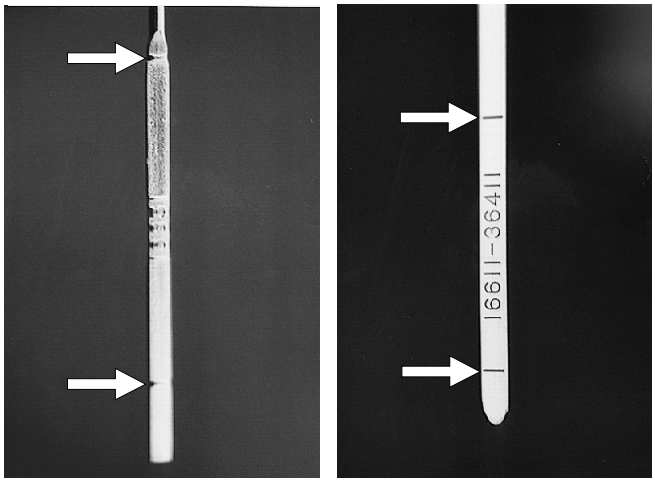



**Figure 4.3 - Oil Dipstick Levels for Gasoline and Diesel Engines**

## ■ Hydraulic Oil Level

**Figure 4.4 - Hydraulic Oil Level**

The hydraulic-oil level gauge is on the side of the hydraulic oil tank. It shows the actual level of oil inside the tank. Read it only when the platform is completely down. Otherwise, the lift cylinders become large reservoirs for hydraulic oil and the oil level in the tank will be low. The oil level should be within ( 0.25 inches, 6.4 mm) of the line.

## ■ Hours


**Figure 4.5 - Hour Gauge**

The HOURS gauge is basically an electric clock. It accumulates time only when the engine is running. The HOURS gauge cannot be reset. An SR-qualified service technician uses it to tell when it is time for the periodic maintenance listed in the Maintenance Manual.

## ■ Fuel Level (option)

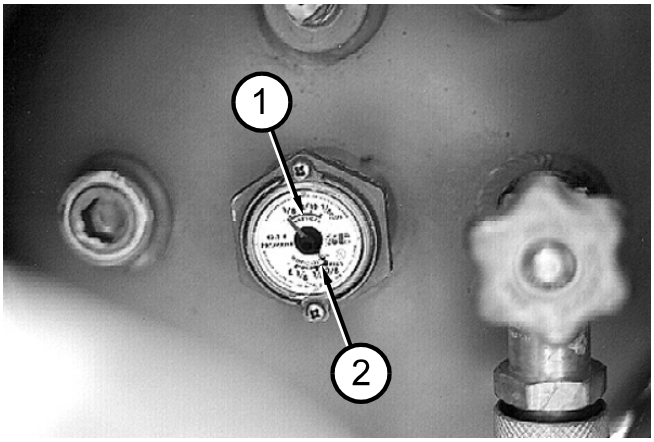



**Figure 4.6 - Fuel Level Gauge**

LPG tanks have two fuel gauges ❶ ❷ on top. One measures correctly when the tank is standing on end (VERTICAL) the other measures correctly when the tank is laying down (HORIZONTAL). Both read in fractions-of-a-full-tank. SR tanks are mounted vertically. Therefore, you should read the VERTICAL ❶ scale (see Figure 4.6).

## ■ Bubble Level (stabiliser machines only)

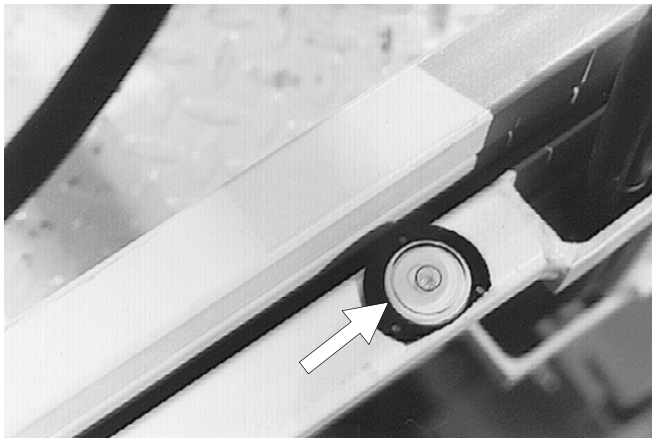


**Figure 4.7 - Bubble Level**

A bubble level is located on the platform side rail, below the platform control box. Watch the bubble level while you set the stabilisers. Lower the stabilisers, one at a time, just enough to center the bubble in the circle on top of the gauge. When the bubble is centered the platform is level and can safely be raised.

## ■ Automatic Shut-offs

### ❑ Level sensor

When the level sensor alarm sounds, automatic interlocks make it impossible to drive the SR or raise the platform. For more complete information see the “Level Sensor” subsection of the “Safety Devices ” chapter.2

### ❑ Engine temperature

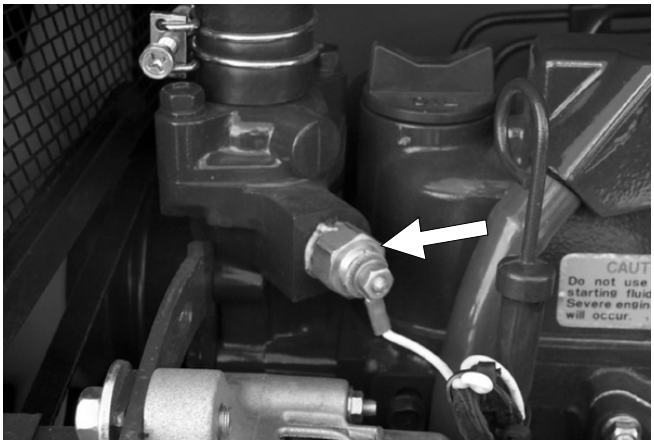


**Figure 5.1 - Engine Temperature Sensor**

There is a temperature sensor in the engine. It measures the temperature of the antifreeze-water mixture as the mixture leaves the top of the radiator and enters the top of the engine. If the temperature reaches 210(F (99(C) an alarm sounds. If the temperature continues to rise, the engine shuts off when the temperature reaches 230(F (110(C). The engine will not restart until the temperature drops below 210(F (99(C).

### ❑ Engine oil pressure

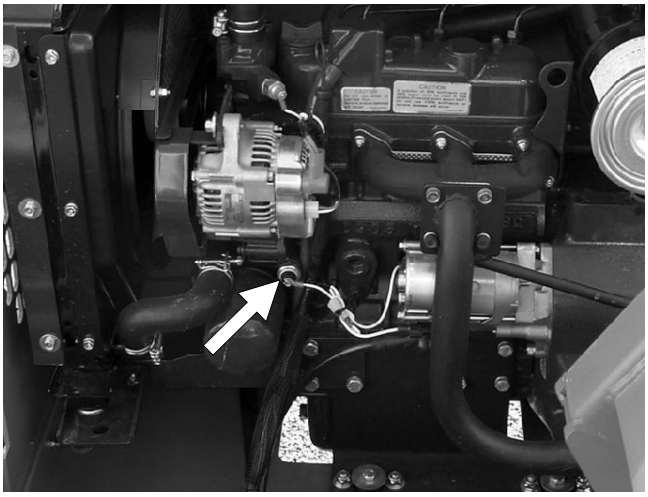


**Figure 5.2 - Engine Oil Pressure Sensor**

There is an oil pressure sensor in the engine. It measures the engine oil pressure at the oil filter. If the pressure falls below a safe operating value the engine shuts off. The engine will restart with low pressure but it will only run a few seconds before it automatically shuts off again.

### ❑ Platform height vs. drive speed

When the platform is over 1.7m (5’ 6") above the ground the drive speed is limited to its slowest speed and the engine revs are also automatically lowered.

### ❑ Dynamic brakes

When you drive an SR down a slope, if the SR begins to coast (outrun the drive motors) the hydraulic system “senses” the coasting condition. The hydraulic drive motors then become hydraulic brakes and the SR is slowed. This action prevents SR’s from speeding down grades.

### ❑ Alternator not charging

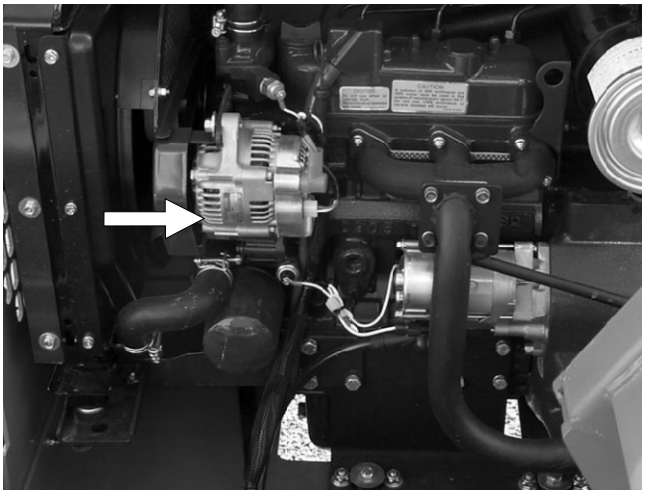


**Figure 5.3 - Alternator Output Shutdown**

When the fan belt breaks, or the alternator output falls below a safe level for other reasons, the engine automatically shuts off and an alarm sounds. As long as the SR battery is charged you can lower the platform, in the usual way, from the platform control box or the ground control box without the engine running.

### ❑ Stabilisers

The SR cannot be driven unless the stabilisers are completely up. If you have just raised the stabilisers but the SR will not drive, double check to be sure all four stabilisers are completely up.

# 5. Automatic Shut-offs and Circuit Breakers

## ■ Circuit Breakers

### ❑ Main breaker


**Figure 5.4 - Main Circuit Breaker**

There is only one circuit breaker, on a standard SR, that is accessible to the operator. Its purpose is to protect the electrical circuits from electrical overloads. When the circuit breaker trips (pops out) push it back in then attempt to use the SR.

If the circuit breaker trips a second time, take the SR out of service and refer the problem to a qualified trained service technician for repair.

### ❑ RCD / ELCB outlet (option)

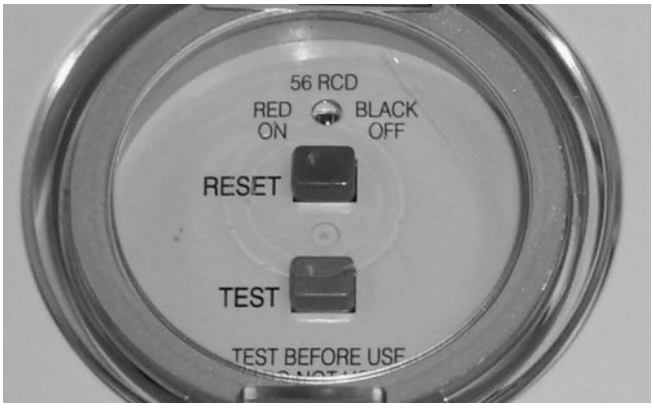



**Figure 5.5 - RCD/ELCB Outlet**

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.

## ■ Controls

This chapter explains what each control does.

This chapter does not explain how to use the controls to produce useful work, refer to the “Operation” chapter 8 for that, after you have read this chapter.

For optional-equipment controls, see the “Options” chapter 11 .

See the “Emergency Operation” chapter 9 for the location of the emergency bleed down control and for correct emergency bleed down procedures.

The main operating functions of an SR can be controlled from the ground control box (1) or the platform control box (2).


**Figure 6.1 - Control Box Locations**

## ■ Hydraulic Compartment

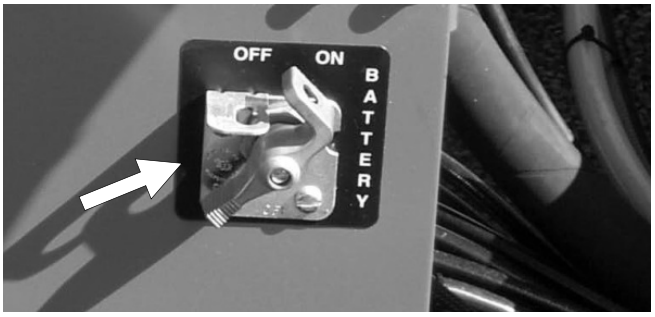



**Figure 6.2 - Battery Switch**

1. **Battery Switch**: This must be ON for the engine to start. When the battery switch is OFF the positive side of the SR battery is disconnected from the electrical system. Lock this switch OFF when the SR is left unattended.

## ■ Ground Control Box

Controls for operating an SR from the ground are located on the right side of the machine on the rear of the hydraulic compartment.

***NOTE 1***

*The number of each control corresponds to Figure 6.3.*

***NOTE 2***

*Some switches and indicators are either not used, or may serve a different purpose depending on the configuration of your machine.*

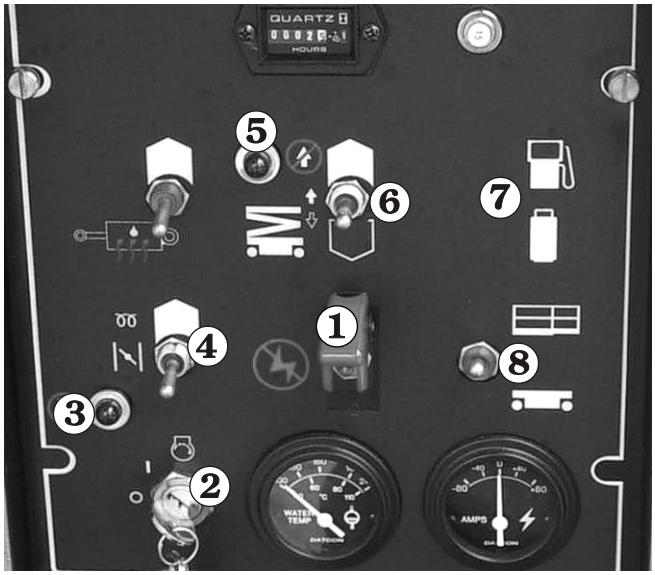



**Figure 6.3 - Ground Control Box Controls**

1. **Emergency Stop**: Press the red switch-cover down, at any time, under any conditions, and the entire machine stops - the engine turns off and nothing moves. This switch must be up for anything on the machine to work.
2. **Key Switch**: This switch works like an automobile ignition switch. Hold the key at the start symbol (extreme clockwise position) until the engine starts then release it to the on position (bar symbol).Turn the key to off (O) if the platform is to stay in one position for a long time. That will turn the engine off and save fuel.
3. **Choke Indicator Light** (gasoline engines only): This light will be lit while you choke the engine (see CHOKE below).
3. **Glow-Plug Indicator Light** (diesel engines only): This light will be on while the glow plugs are on. Wait, about 30 seconds for the light to go out before you try to start a diesel.

4. **Choke** (gasoline engines only): Hold the choke switch up anytime you start a gasoline engine that is at ambient air temperature (a “cold” engine).
4. **Glow Plug** (diesel engines only): This is a momentary contact switch. Press it up then release it just before you start a diesel engine that is at ambient air temperature (a “cold” engine). This action automatically causes glow plugs to come on for 30 seconds to warm the inside top of each cylinder, thus aiding combustion.
5. **Lift Indicator Light**: The platform can be raised only when this light is lit. When this light is not lit the platform will not rise because: the platform is not level, or the stabilisers are not properly set.
6. **Platform Lift/Lower**: Holding this switch up causes the platform to rise. Pushing this switch down causes the platform to lower.
7. **Fuel** (option): Before starting a dual-fuel engine set the FUEL switch to gasoline (up) or LP gas (down) depending on which you want to use. If you select LP gas, be sure to open the valve on top the LP gas tank.
8. **Ground/Platform Selector**: Must be down for the ground control box to work. Must be up for the platform control box to work.

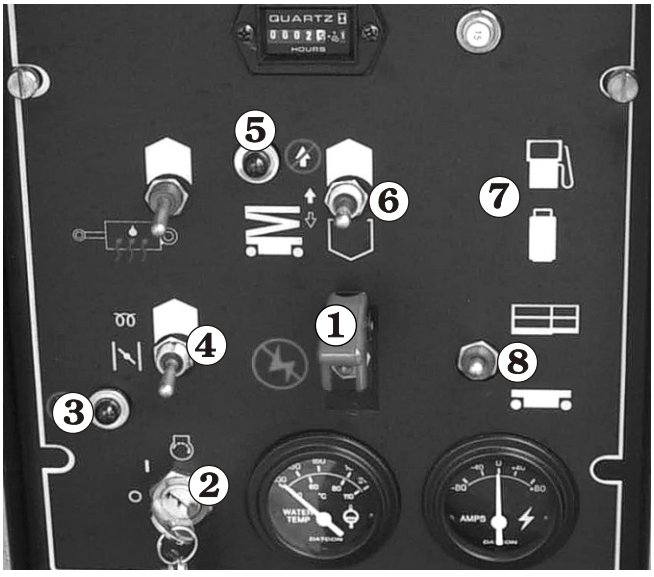



**Figure 6.3 Ground Control Box Controls**

## ■ Platform Control Box

Controls for operating an SR from the platform are located on the platform control box.

***NOTE***

*The number of each control corresponds to Figure 6.4.*

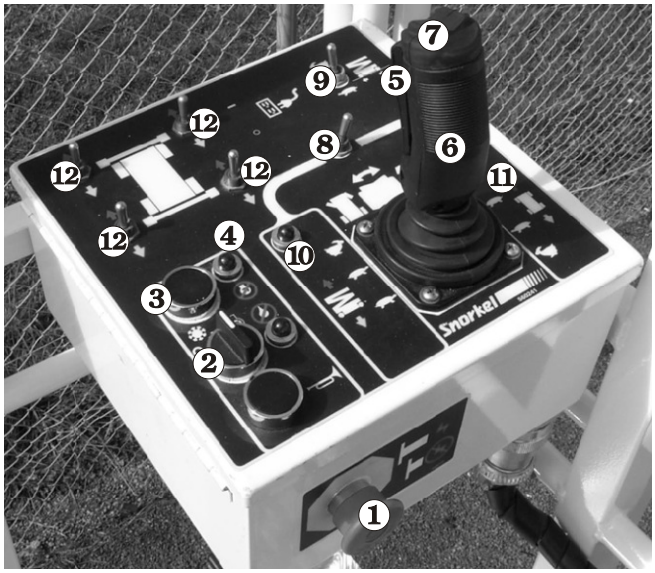



**Figure 6.4 - Platform Control Box Controls**

1. **Emergency Stop**: Press the red button in at any time, under any conditions, and the entire machine stops - the engine turns off and nothing moves. This switch must be out (on) to start and run the SR from the platform control box, pull the switch and it will pop out (on). Press the switch in (off) if the platform is to stay in one position for a long time. That will turn the engine off and save fuel.

***NOTE***

*The EMERGENCY STOP switch on the ground control box overrides the one on the platform control box. If the one on the ground control box is off the SR will not start or run, it does not make any difference whether the one on the platform control box is on or off.*

2. **Start** Turn and hold the switch to the right to start the engine. As soon as the engine starts, release the switch.
3. **Choke** (gasoline engines only): Press and hold the switch in anytime you start a gasoline engine that is at ambient air temperature (a “cold” engine).
3. **Glow-Plug** (diesel engines only): This is a momentary contact switch. Press it up then release it just before you start a diesel engine that is at ambient air temperature (a “cold” engine). This action automatically causes glow plugs to come on for 30 seconds to warm the inside top of each cylinder, thus aiding combustion.

4. **Choke Indicator Light** (gasoline engines only): This light will be lit while you choke the engine.
4. **Glow-Plug Indicator Light** (diesel engines only): This light will be on while the glow plugs are on. Wait for the light to go out before you try to start a diesel.
5. **Safety Control** The SAFETY CONTROL must be squeezed against the JOYSTICK CONTROLLER to activate the joystick controller. If the safety control is not squeezed the joystick controller is inoperative.
6. **Joystick Controller** If the LIFT/DRIVE SELECTOR is set to the left (lift function), pushing the joystick controller forward causes the platform to rise, pulling the joystick controller backward causes the platform to lower. If the LIFT/DRIVE SELECTOR is set to the right (drive function), pushing the joystick controller forward causes the SR to move forward, pulling the joystick controller backward causes the SR to move backward. The further you push or pull the controller the faster the motion (except lowering-it occurs at one speed only).

***NOTE***

*Squeeze the SAFETY CONTROL anytime you use the JOYSTICK CONTROLLER.*

7. **Steering** The rocker switch on top of the JOYSTICK CONTROLLER turns the front wheels left or right depending upon which side of the switch you press.

***NOTE***

*The wheels do not return to straight ahead, after a turn, the way automobile wheels do. You must use the STEERING switch to straighten the wheels after a turn.*

8. **Lift/Drive Selector** When this switch is set to the left the JOYSTICK CONTROLLER becomes a lift/lower controller to raise or lower the platform. When this switch is set to the right the JOYSTICK CONTROLLER becomes a drive controller to drive the SR forward or backward. The SR will not drive and lift at the same time.
9. **Speed** Set the switch to turtle (slow) when you are working in close quarters or if you are new to the machine. Setting the switch to rabbit (fast) doubles the top speed of the SR.
10. **Lift Indicator Light** The platform can be raised only when this light is lit. When this light is not lit the platform will not rise because: the platform is not level, or the stabilisers are not properly set.
11. **Drive Indicator Light** The platform can be driven when this light is lit. When it is not lit the platform will not drive because with the platform raised the base is not level or with the platform raised the axle switches are not set.
12. **Stabilisers** Each switch corresponds to one of the stabilisers. Pull a switch backward to lower an stabiliser, push it forward to raise the stabiliser (see Figure 6.4).

### ❑ Self Levelling Stabilisers (optional)

***Note:***

*Refer to Figure 6.5 below for Automatic Stabiliser Switch operation. All other switch/indicator functions remain the same for the Platform Control Box.*

13 For units fitted with self levelling stabilisers the following applies:
To raise or lower the stabilisers 'automatically' switch 13 is used.

Press switch 13 momentarily (3 - 4 seconds) to lower the stabilisers. The stabilisers will lower and level the platform automatically.

Switch 13 can also be used to raise the stabilisers to the stowed position. To do so press (momentarily) in the raise direction and all the stabilisers will raise automatically.

14 To operate the stabilisers individually switch 14 must be held "ON" (down) while each individual switch 12 is used.

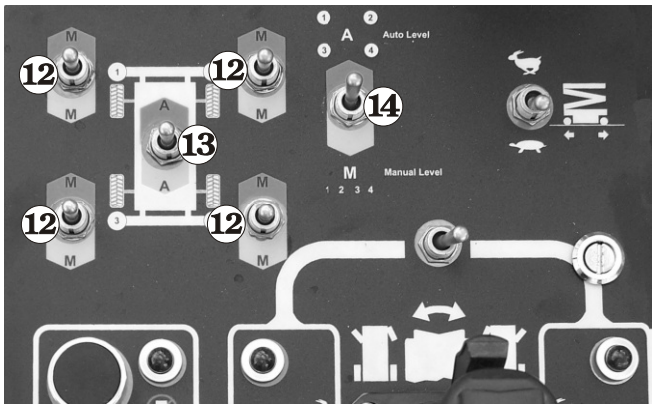



**Figure 6.5 - Automatic Stabiliser Switches**

At the start of each work day (or 8 hour shift), an SR qualified operator must perform the Daily Inspection and Maintenance as listed in the table below.

The purpose of the Daily Inspection and Maintenance is to keep the SR in proper working condition and to detect signs of malfunction at the earliest possible time.

Set the **Key Switch** set to OFF before you begin this inspection.

Defective parts and/or equipment malfunctions jeopardize the safety of the operator and other personnel, and can cause damage to the machine.

## ⚠DANGER

**DO NOT operate an SR that is known to be damaged or malfunctioning.**

**Repair all equipment damage or malfunctions, before placing the SR into service.**

## ■ Daily Inspection and Maintenance Table

| Item | Service Required |
|---|---|
| Fuel level | Visually inspect |
| Fuel filter (diesel engines only) | Visually inspect (condition) |
| Fuel leaks | Visually inspect (hoses and connections etc) |
| Engine oil | Check oil level (between dipstick lines) |
| Engine coolant | Check fluid level and radiator hoses |
| Radiator cap | Visually inspect installation) |
| Swinging gate | Visually inspect (installation, operation) |
| Wiring harnesses and connectors | Visually inspect (installation, operation) |
| Battery terminals | Visually inspect (no corrosion) |
| Hydraulic tank cap | Visually inspect installation) |
| Hydraulic oil level | Check fluid level (at line on side of tank) |
| Hydraulic oil leaks | Visually inspect (hoses,tubes) |
| Tires and wheels | Visually inspect (condition) |
| Bolts and fasteners | Visually inspect (looseness) |
| Structural damage and welds | Visually inspect (welds, cracks, dents) |
| Guardrails | Visually inspect (condition) |
| Lanyard anchorages (option) | Visually inspect (condition) |
| Bubble level on platform | Visually inspect (condition) |
| Guides, rollers and slides | Visually inspect (condition) |
| **START THE ENGINE FROM THE GROUND CONTROL BOX** | |
| Charging system | Check condition (gauge) |
| Level sensor | Check operation |
| Ground controls | Actuate and visually inspect for operation |
| Emergency lowering | Check operation (causes correct motion) |
| Platform controls | Actuate and visually inspect for operation |
| Flashing light (option) | Visually check (operation) |
| RCD / ELCB (option) | Check operation |
| Air filter | Check condition (gauge) |
| Safety prop | Check operation |
| Parking brakes | Check operation |
| Placards, decals, and Operators Manual | Visually inspect (installation and condition) |

The rest of this chapter shows how to perform the inspection and maintenance required for each item in the daily inspection and maintenance table.

## ■ Fuel Level

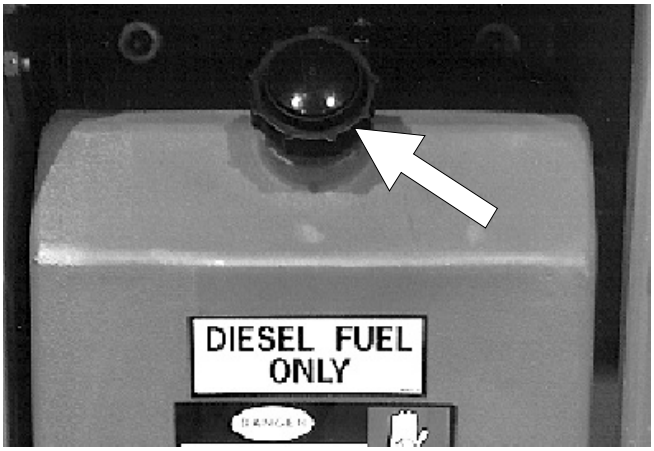



**Figure 7.1 - Fuel Level**

Remove the fuel tank cap. Visually Check to see that the gasoline or diesel tank is full. Replace the tank cap and tighten.

### ❑ (Option - LPG)

To check the fuel read the fuel meter ❹ on top (see Figure 7.2).

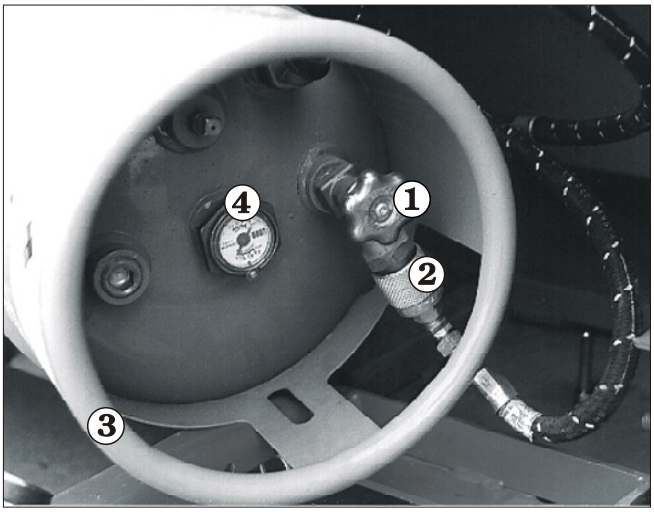



**Figure 7.2 - LPG Fuel Tank Replacement**

To replace an LPG tank:

Close the valve ❶ (see Figure 7.2). Manually disconnect the fuel hose at the knurled ring ❷ . Manually lift the tank ❸ out.

## ■ Fuel Filter (diesel engines only)

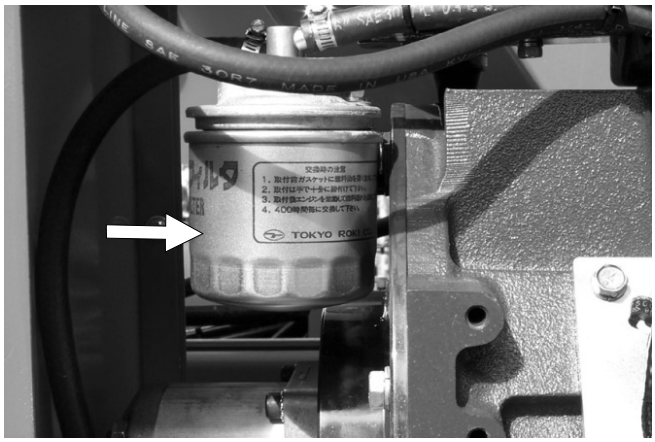


**Figure 7.3 - Fuel Filter**

Visually check to see that there is no water in the bottom of the filter.

## ■ Fuel Leaks

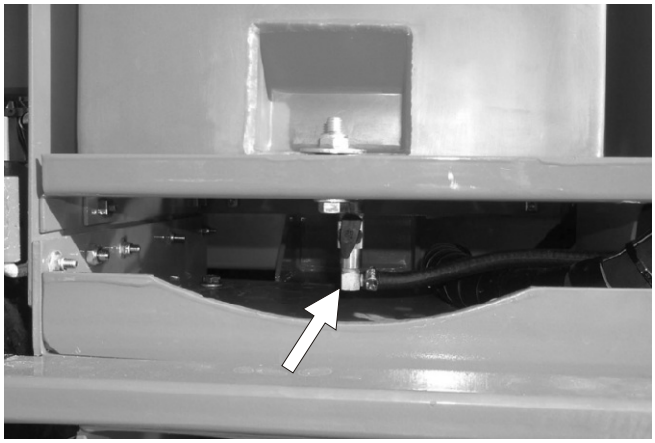


**Figure 7.4 - Fuel Leaks at Tank**

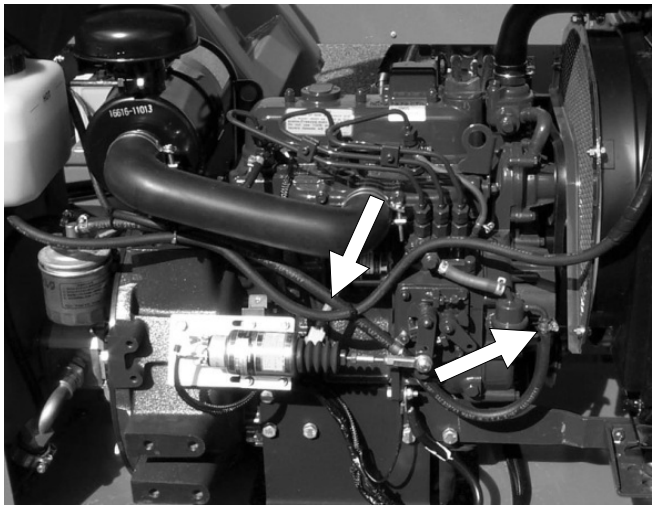


**Figure 7.5 - Fuel Leaks in Hoses & Joints**

Visually inspect the entire length of the fuel line, from the engine to the fuel tank, for leaks.

## ■ Engine Oil

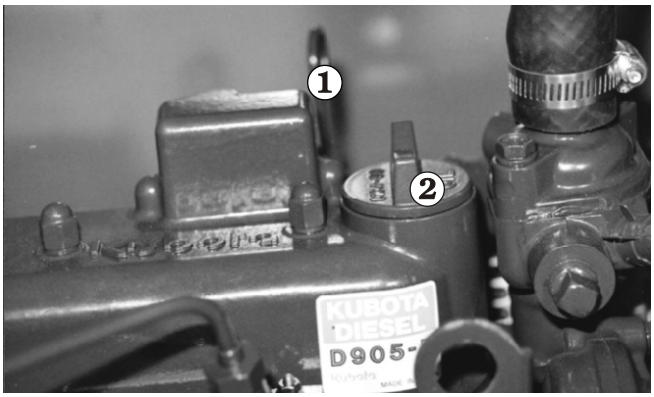



**Figure 7.6 - Engine Oil Level**

Keep the oil level between the marks on the dip-stick ❶ (see Figure 7.6).

The distance between the top and bottom dipstick marks corresponds to about 1 qt. (one liter). Add oil, if needed at the cap ❷ (see Figure 7.6) on top of the engine.

See the “Specifications” chapter 3 for the correct engine oil grade and weight.

## ■ Engine Coolant

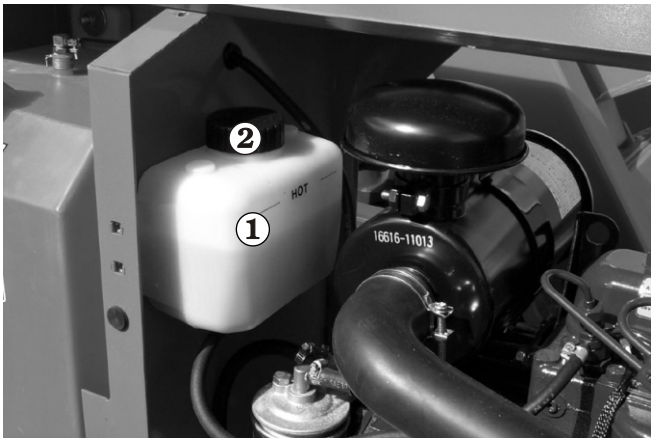



**Figure 7.7 - Engine Coolant Level**

The Kubota engine is liquid cooled. At operating temperatures the coolant should be at the HOT level ❶ (see Figure 7.7). When cold there should be approximately 1 inch (2.5 cm) of coolant in the bottom of the reservoir.

The coolant is half water and half ethylene glycol.

To add coolant:

Turn the engine OFF at the ground control box box KEY SWITCH. Remove the cap ❷ (see Figure 7.7) from the coolant reservoir. Add coolant and replace cap.

## ■ Radiator Cap

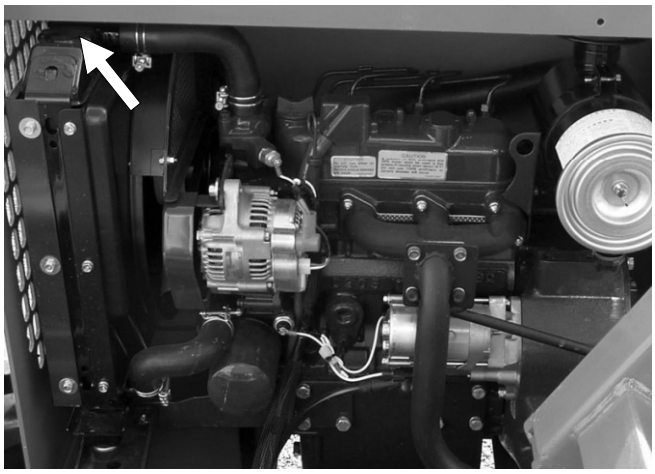


**Figure 7.8 - Radiator Cap**

Visually check to see that the cap is in place and tight.

## ■ Swinging Gate


**Figure 7.9 - Swinging Gate**

Inspect the gate to see that it swings freely, latches securely, and is not deformed in any way.

## ■ Wiring Harnesses and Connectors

Inspect all the wiring harnesses, on the machine, for loose connections, broken wires, and frayed insulation.

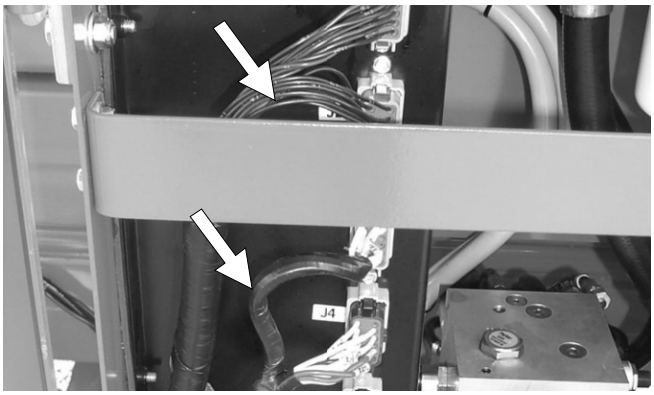



**Figure 7.10 - Wiring Harnesses and Connectors**

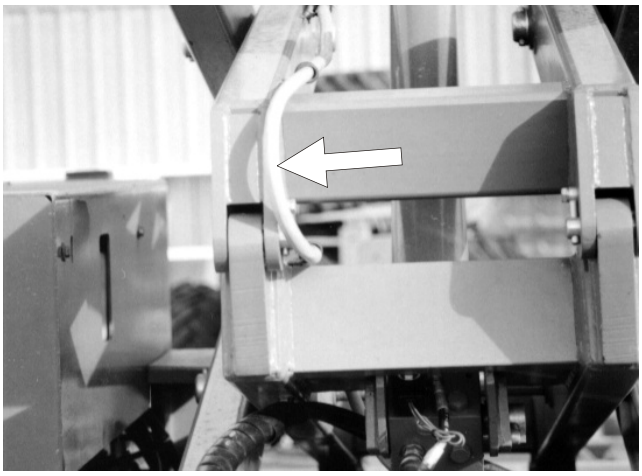


**Figure 7.11 - Wiring Harness in the Scissor Stack**

Pay particular attention to the wiring harnesses that are attached to the scissor stack.

## ■ Battery Terminals

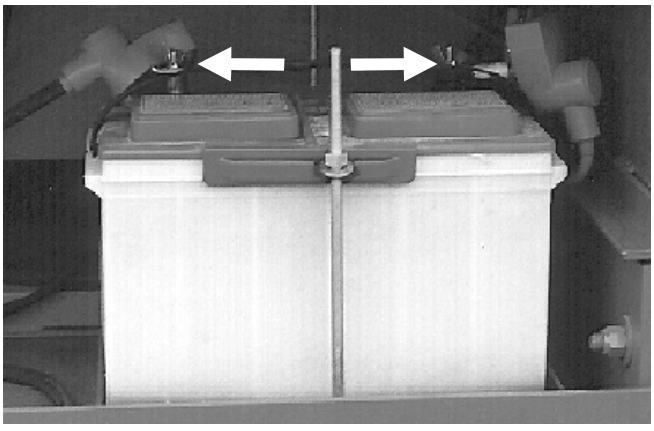


**Figure 7.12 - Battery Terminals**

Battery terminals should be clean and free of corrosion — none of that greenish-white fuzzy stuff.

## ■ Hydraulic Oil Tank

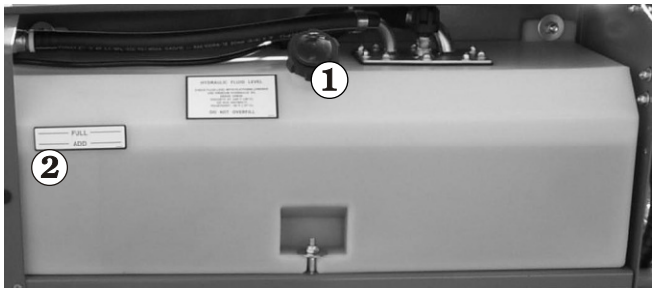



**Figure 7.13 - Hydraulic Oil Tank**

### ❑ Hydraulic tank cap

Check to see that the cap ❶ is in place and is tight (see Figure 7.13).

### ❑ Hydraulic oil level

To check the hydraulic oil level:

Completely lower the platform.

The hydraulic oil level should be at the full level according to the gauge ❷ (see Figure 7.13) . If necessary, add hydraulic oil at the Hydraulic oil tank cap. See the “Specifications” chapter 3 for type and grade of hydraulic oil.

## ■ Hydraulic Oil Leaks

### ⚠DANGER

**Leaking hydraulic oil can cause burns, fires, falls (slipping), cuts, and puncture wounds (if under high pressure). Do not tolerate hydraulic oil leaks. They are dangerous.**

Hydraulic oil leaks are easily visible and can show up anyplace. Visually inspect the entire machine for hydraulic oil. Check the ground under the machine for leaked oil.

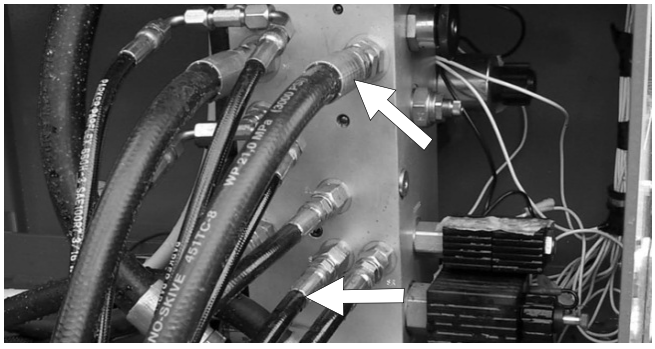


**Figure 7.14 - Check Fittings at Valve**

Check for loose fittings at the valve.

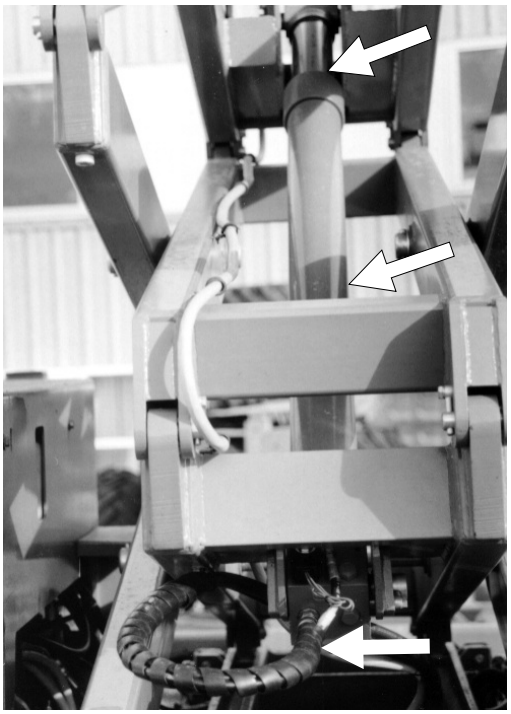


**Figure 7.15 - Check Hydraulic Cylinders**

Pay particular attention to the cylinders, check to see that there is no oil leaking from the seal, also check all hoses that run to the cylinders.

## ■ Tires and Wheels

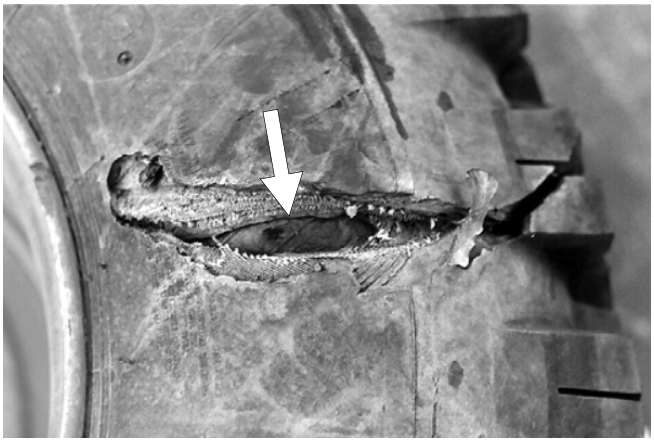


**Figure 7.16 - Tire Condition**

SR tires are foam filled. Punctures of the type caused by bolts, screws, or nails are not a problem.

Look for large holes or long cuts completely through the tire body: holes or cuts where foam is being forced or eroded out of the tire.

Also look for large imbedded objects, such as angle iron, that can rip a tire body open under some conditions.

## ■ Bolts and Fasteners

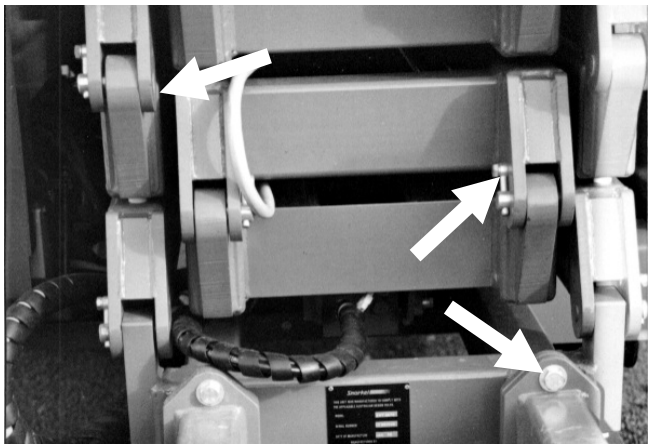


**Figure 7.17 - Bolts and Fasteners**

Visually inspect all fasteners to see that none are missing or obviously loose.

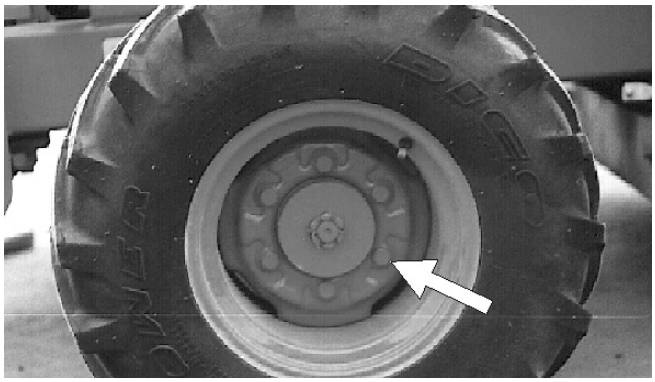


**Figure 7.18 - Wheel Nuts**

Pay particular attention to all of the wheel nuts. None should be visibly loose, missing, or deformed.

## ■ Structural Damage & Welds

**Figure 7.19 - Structural Damage and Welds**

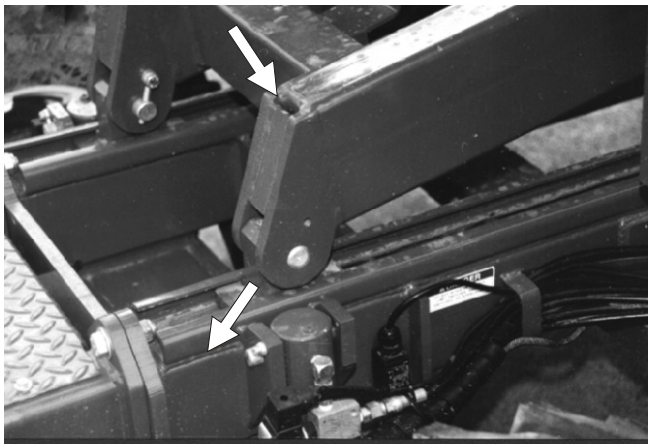


**Figure 7.20 - Structural Damage and Welds**

Visually inspect all welds for cracks, all structural members for deformity, and all sheet metal for dents that could interfere with machine operation.

## ■ Guardrails


**Figure 7.21 - Guardrails**

Pay particular attention to the guardrails. Make sure the guardrails are properly installed, that all the fasteners are in place, and that the swinging gate is in place and works properly.

## ■ Bubble Level (machines with stabilisers)

**Figure 7.22 - Bubble Level**

Visually check to see that the bubble level is not damaged, that it is full of fluid, that the bubble does not exceed the diameter of the center black circle, and the surface on which the bubble level is mounted is not deformed or bent out of level.

## ■ Guides, rollers, and slides

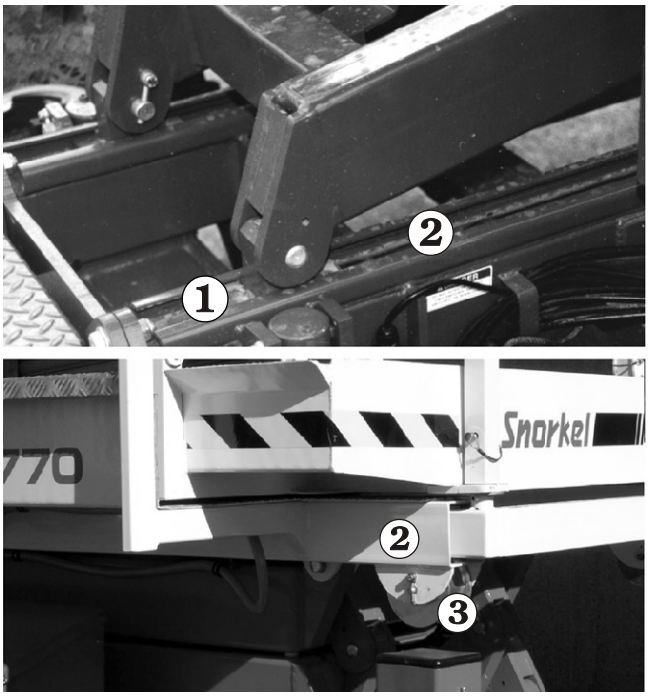



**Figure 7.23 - Guides Rollers and Slides**

Visually check slides (1), and rollers (3) for wear or damage. Be sure that the guides (2) are free of debris and allow the slides and rollers to move smoothly.

## ■ Charging System


**Figure 7.24 - Ammeter Gauge**

With the engine idling, the needle in the AMPS gauge should not be to the left of “0" (left of ”0" is discharging).

***NOTE***

*Leave the engine running for the next step*

## ■ Level Sensor

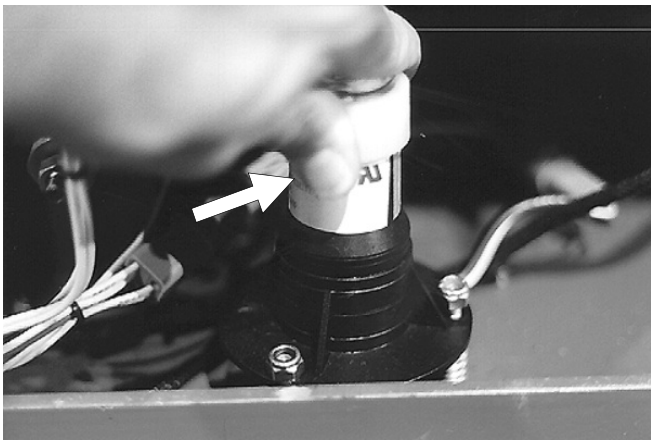


**Figure 7.25 - Level Sensor**

With the SR engine running and scissors raised, push the level sensor to the side as far as possible. The level sensor alarm should sound.

## ■ Ground Controls


**Figure 7.26 - Ground Controls**

Check the Platform Lift/Lower switch ❶ (see Figure 7.26) to see that it is functioning properly by holding the switch up to rise platform and pushing the switch down to lower the platform.

In cold temperatures (below 50(F/10(C ) check to see that the Hydraulic Oil Warm-Up switch ❷ is functioning properly by turning the switch on (up) for 5 to 10 minutes or until the hydraulic oil tank is warm to the touch then turn the switch off (down).

Pay particular attention to the **Emergency Stop** switch ❸ (see Figure 7.26) to see that it turns the SR engine off when struck.

## ■ Emergency Lowering


**Figure 7.27 - Emergency Lowering**

To check the emergency lowering: Raise the platform and turn the engine OFF at the ground control box KEY SWITCH.

Operate the emergency lower by pulling on the cable ❶ (see Figure 7.27) located at the front of the chassis. When the platform is fully lowered release the cable.

## ■ Platform Controls

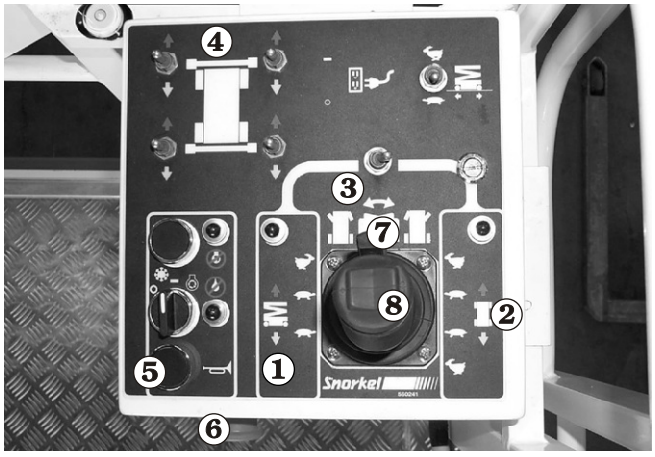



**Figure 7.28 - Platform Controls**

Check all of the lift ❶, drive ❷, steer ❸, and stabiliser (❹, if present) functions from the platform control box to see that they cause the SR to move the way it should (see Figure 7.28). (for correct operating procedures see the “Operation” chapter 8).

Listen for the lowering alarm while the platform is going down. Listen for the motion alarm while the SR is being driven forward. Listen for the back-up alarm while the SR is backing up.

Press the operator horn ❺ (see Figure 7.28) to see that it works.

Pay particular attention to the **Emergency Stop** switch ❻ to see that it turns the engine off when struck (see Figure 7.28).

Pay particular attention to the **Safety Control** ❼ to see that it deactivates the **Joystick Controller** ❽ when the safety control ❼ is released (see Figure 7.28).

## ■ Flashing Light (option)

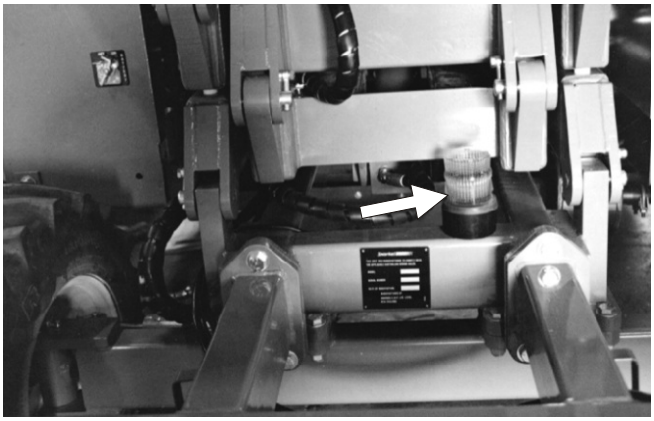


**Figure 7.29 - Flashing Light**

Check to see that the light flashes approximately once a second when the SR engine is running.

## ■ RCD / ELCB (option)

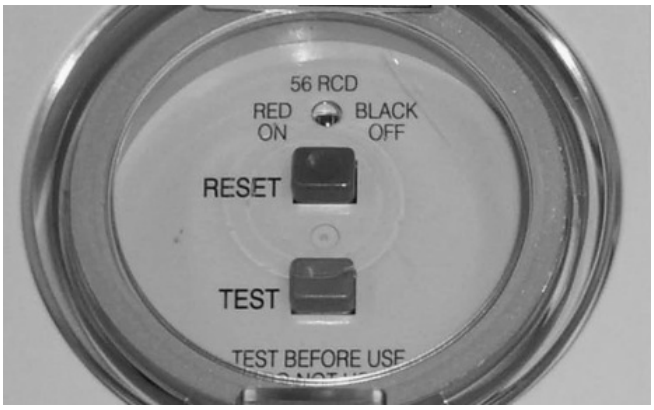



**Figure 7.30 - RCD / ELCB**

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.

## ■ Safety prop

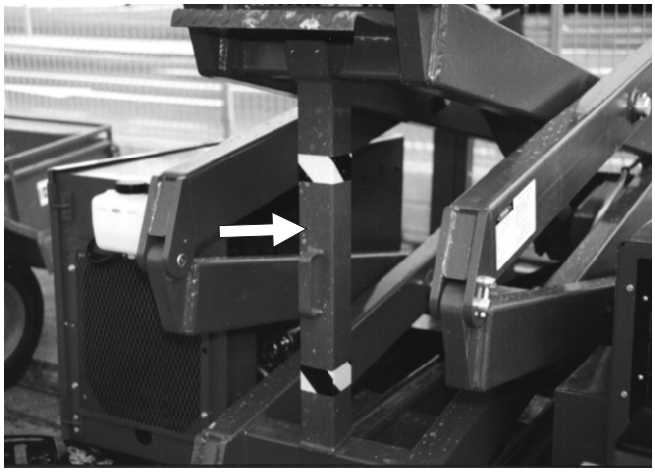


**Figure 7.31 - Safety Prop**

Inspect the safety prop(s) to see that it is present and moves freely.

## ■ Lanyard Anchorages (option)

Check all four lanyard anchorages on the floor of the platform to see that they are present, not deformed, that they move freely, and that they are securely attached to the platform.

## ■ Placards and Decals

Look to see that all placards and decals are in place and legible. Replace any missing or illegible placards or decals before placing the SR into service for the daily work shift.

Decal and placard kits for the SR are available from Snorkel dealers.

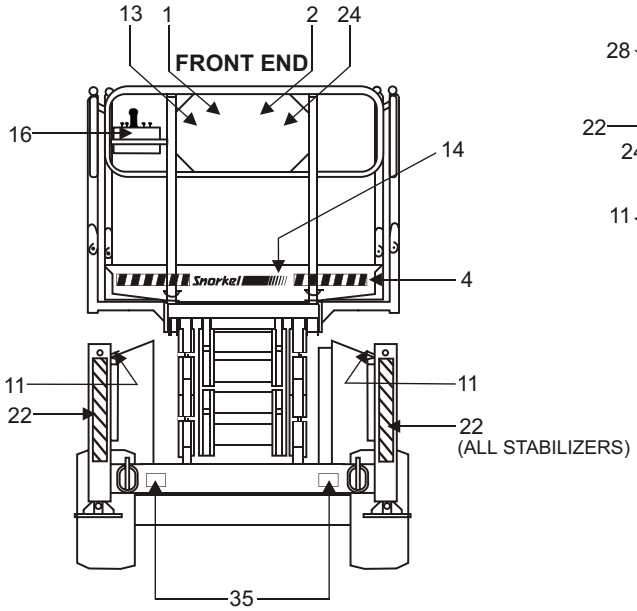
### ❑ Standard placards and decals

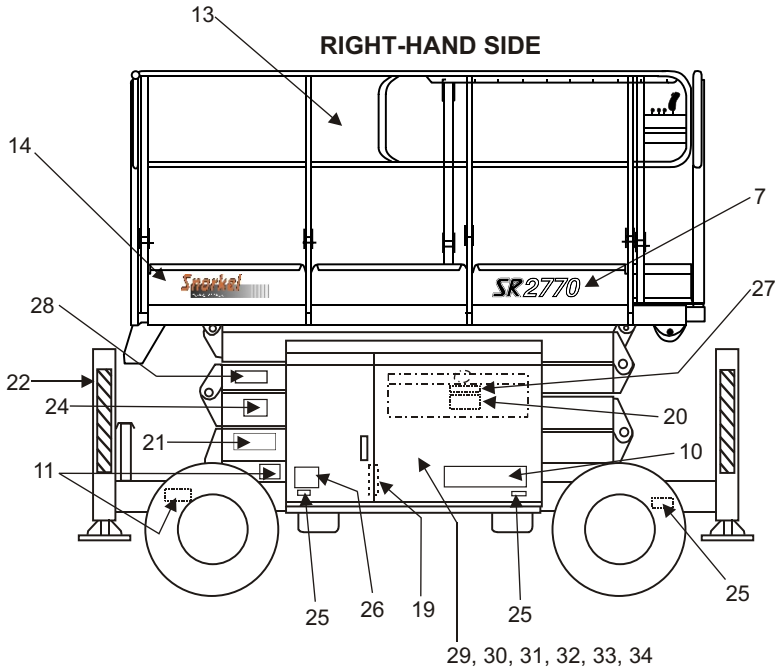
- See page 7 - 11 for the following items:

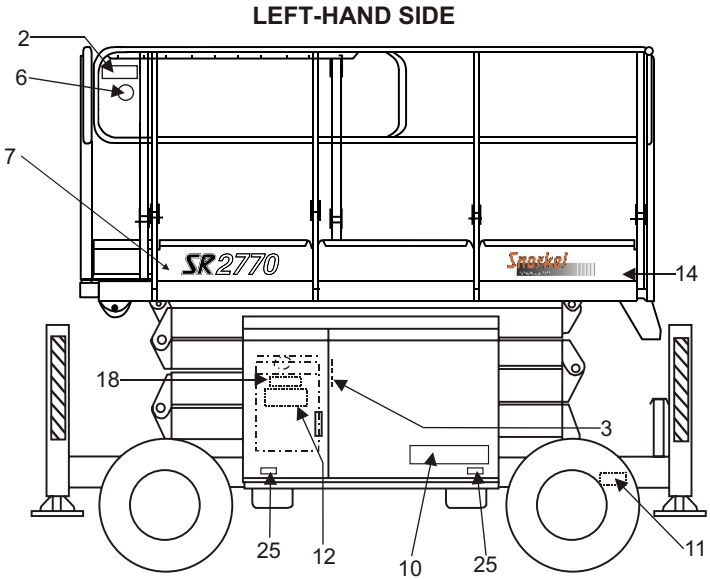
| No | Part No | Description | Req |
|---|---|---|---|
| 1 | 1843 | Decal - Warning, N.Z. only | 1 |
| 2 | 9428 | Decal - Electrical hazard, Australia only | 1 |
| 3 | 9208 | Decal - Water | 1 |
| 4 | 96924-9 | Decal - Warning stripes yellow/black | 4m |
| 5 | 0070901E | Decal - Serial number | 1 |
| 6 | 9751 | Decal - N.Z. made | 1 |
| 7 | 11345-1 | Decal - SR2770 | 2 |
| 8 | 11346-1 | Decal - Rated load | 1 |
| 9 | 0073298 | Decal - Foam tyres | 1 |
| 10 | 459616 | Decal - Wildcat | 2 |
| 11 | 451986 | Decal - Interlocks | 7 |
| 12 | 476706 | Decal - Explosive fumes | 1 |
| 13 | 480658 | Placard - Danger with alarm | 2 |
| 14 | 560239 | Decal - Snorkel logo | 3 |
| 15 | 560240 | Decal - Lower control box | 1 |
| 16 | 560241 | Decal - Upper control box | 1 |
| 17 | 560272 | Decal - Emergency stop upper box | 1 |
| 18 | 605726 | Decal - Diesel fuel | 1 |
| 19 | 007-0420 | Placard - Emergency bleed down | 1 |
| 20 | 451776 | Decal - Hydraulic fluid | 1 |
| 21 | 58365-6 | Decal - Safety bar | 1 |
| 22 | 9223-3 | Decal - Chevron | 4 |
| 23 | 300699 | Decal - Operators checklist | 1 |
| 24 | 0323897 | Decal - Must not operate | 2 |
| 25 | 621486 | Decal - Forklift | 4 |
| 26 | | | |
| 27 | 302950 | Decal - Hydraulic oil level | 1 |

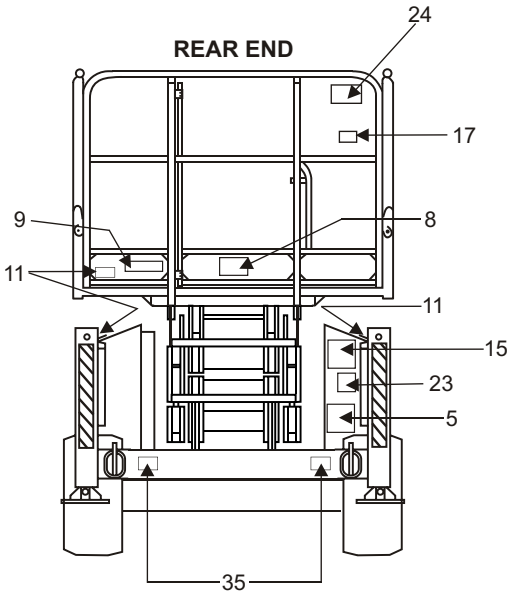
| No | Part No | Description | Req |
|---|---|---|---|
| 28 | 300700 | Decal, shearing hazard | 1 |
| 29 | 11615D | Decal, main manifold block | 1 |
| 30 | 11616D | Decal, stabiliser block | 1 |
| 31 | 11618D | Decal, 4WD block SR2770 | 1 |
| 32 | 11672D | Decal, hydraulic schematic 4WD | 1 |
| 33 | 11673D | Decal, electrical schematic 4WD and 2WD | 1 |
| 34 | 11684D | Decal, emergency operation, emergency lowering | 1 |
| 35 | 0083427 | Decal, lifting/tie down | 4 |

## ❑ Inspection drawing



## ■ Operating Procedures

This chapter explains how to start and run an SR that has either a gasoline or diesel engine. Starting a gasoline engine that is set up to burn LP-only or dual-fuel is also discussed in this chapter. Read and understand all the previous chapters before you begin to operate an SR

## ■ Control Stations

An SR can be started and operated from the ground control box or from the platform control box.

***NOTE***

*The ground control box can override the platform control box at any time. If a person operating the machine from the platform becomes incapacitated, a person on the ground can always take over machine control.*

## ⚠DANGER

**The SR is not Electrically insulated.**

**Death or Serious Injury to operating personnel, can occur if the machine should come into contact with energized electrical wires during operation.**

**DO NOT attempt to operate the SR ground controls if the platform, scissor assembly or any other conducting part of an SR is in contact with energized electrical wires or if there is an immediate danger of such contact.**

***NOTE***

*See the "Electrical Hazard" section, in this manual for a complete explanation of the hazards concerning electricity.*

## ■ Emergency Stopping

To stop an SR, push either **Emergency Stop** switch, at any time on either the ground control box or the platform control box and the entire machine stops and nothing moves.


**Figure 8.1 - Emergency Stop Switch at Ground Control Box**

Ground control box **Emergency Stop** switch location.

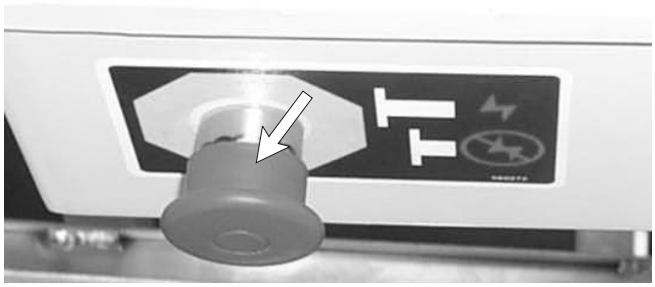


**Figure 8.2 - Emergency Stop Switch at Platform Control Box**

Platform control box **Emergency Stop** switch location.

***NOTE***

*For a complete discussion of the Emergency Stop switches, see , "Controls" chapter 6, and "Emergency Operation" chapter 9, in this manual.*

## ■ Operation Considerations

To use this chapter, first decide whether you will be starting and operating the SR from the ground control box or the platform control box.

Begin at the section entitled "Operating From The Ground control Box" if you intend to start and run the SR from the ground control box.

Begin at the section entitled “Operating From The Platform Control Box” if you intend to start and run the SR from the platform.

### ❑ Fuel type

After you have made the “ground control / platform control” decision you need to know whether the SR has a gasoline or diesel engine. If it has a “gasoline” engine you further need to know whether it is set up to burn LP-only, or dual-fuel (LP or gasoline). If it is set up to burn dual-fuel you have to decide whether to burn gasoline or LP. The simplest way to tell what kind of engine set up you have is to look in the fuel compartment on the left side of the SR — open both fuel compartment doors.

- If the only fuel source you see there is a tank labeled GASOLINE FUEL, the SR has a gasoline engine set up to burn gasoline.
- If the only fuel source you see is a tank labeled DIESEL FUEL, the SR has a diesel engine.
- If the only fuel source you see is one or more LP tanks, the SR has a special gasoline engine set up to burn LP-only.
- If you see a GASOLINE FUEL tank and one or more LP tanks, the SR has a special gasoline engine set up to burn either gasoline or LP.

Once you have determined the type of engine installed and the type of fuel you will burn you should go to the corresponding subsection that explains how to start that type engine. Read the “Table Of Contents” at the front of this manual to see how the different sections and subsections of this chapter are arranged.

## ■ Operating From The Ground Control Box

Before you begin to operate the SR from the ground control box, a qualified operator must perform the “Daily Inspection and Maintenance” as described in chapter 7, of this manual

- **Starting a gasoline, LP-only, or dual-fuel engine**

To start a gasoline, LP-only, or dual-fuel (LP & gasoline) engine from the ground control box do the following:

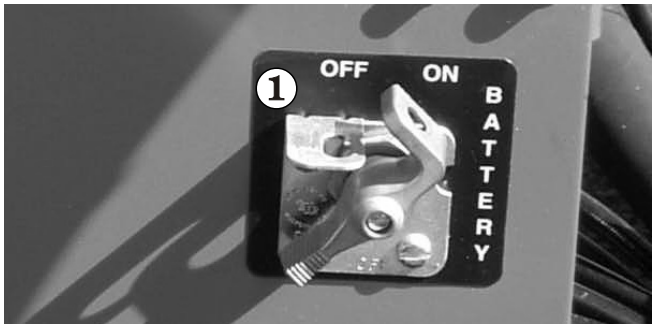



**Figure 8.3**

1. Set the **Battery** switch ❶ (see Figure 8.3) to on.


**Figure 8.4**

2. Set the **Emergency Stop** switch ❷ to on (up).
3. Set the **Ground/Platform Selector** switch ❸ to ground (down) (see Figure 8.4).

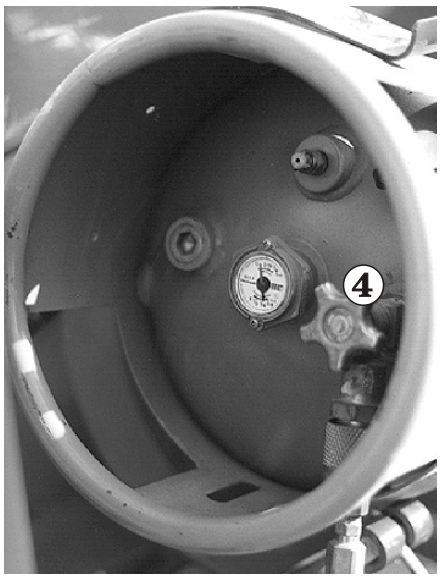



**Figure 8.5**

4. For **LP operation**:
   Completely open the valve ❹ (see Figure 8.5) on top of the LP tank (unscrew counterclockwise until it stops).


**Figure 8.6**

5. For a **dual-fuel engine**:
   Set the **Fuel** switch ❾ to LP fuel ❺ or gasoline fuel ❻, depending on which you want to use (see Figure 8.6).
6. If the engine is cold, press and hold the **Choke** switch ❼ (see Figure 8.6) during the next step.
7. Turn the key ❽ to start and hold it there until the engine starts or for 20 seconds, whichever comes first. When the engine starts, release both the key ❽ and the choke switch ❼ (see Figure 8.6)

## ⚠CAUTION

**If the engine does not start in 20 seconds, turn the key ❽ to off and release the Choke switch ❼ then wait 60 seconds before trying to start the engine again.**

- **Starting a diesel engine**

To start a diesel engine from the ground control box do the following:

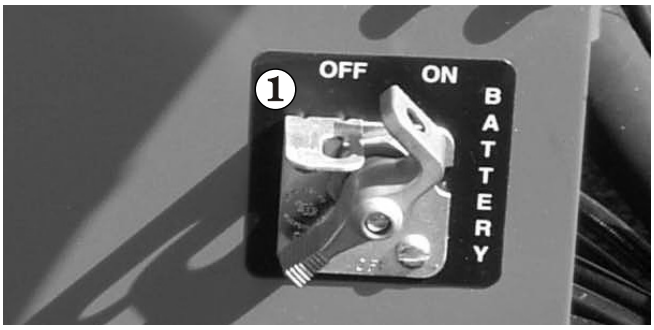



**Figure 8.7**

1. Set the **Battery** switch ❶ to on (see Figure 8.7).


**Figure 8.8**

2. Set the **Emergency Stop** switch ❷ to on (up) (see Figure 8.8).
3. Set the **Ground/Platform Selector** switch ❸ to ground (see Figure 8.8).
4. Turn the key ❹ to on — do not turn the key ❹ to start (see Figure 8.8).
5. If the engine is at ambient temperature, momentarily press the **Glow-Plug** switch ❺. This action will automatically turn the glow-plugs, in the engine, on for 10 seconds. A light ❻ will automatically come on to indicate that the glow-plugs are on (see Figure 8.8).

## ⚠CAUTION

**If the engine does not start in 20 seconds, turn the key ❹ to off then wait 60 seconds before trying to start the engine again with the Glow-Plug switch ❺ and key ❻.**

6. When the light ❻ goes out, turn the key ❹ to start and hold it there until the engine starts or for 20 seconds, whichever comes first. When the engine starts, release the key ❹ (see Figure 8.8).

### ❑ Raising the platform

To raise the platform from the ground control box, do the following:

1. The engine must be running. If not, start it from the ground control box as described above.


**Figure 8.9**

2. To raise the platform, press and hold the **Platform Lift/Lower** switch ❶ up (see Figure 8.9).

***NOTE***

*If the indicator light ❷ is not lit, the platform will not rise because: the chassis is not level, the stabilisers (if present) are not properly set. Correct the problem then continue.*

3. To lower the platform, press and hold the **Platform Lift/Lower** switch ❸ down (see Figure 8.9).

## ■ Operating From The Platform Control Box

Before you begin to operate the SR from the platform control box, a qualified operator must perform the "Daily Inspection and Maintenance" as described in chapter 7, of this manual

- **Starting a gasoline, LP-only, or dual-fuel engine**

To start a gasoline, LP-only, or dual-fuel (LP & gasoline) engine from the platform control box do the following:


**Figure 8.10**

1. Set the **Battery** switch❶ to on (see Figure 8.10).


**Figure 8.11**

2. Set the **Emergency Stop** switch ❷ to on (up) (see Figure 8.11).
3. Set the **Ground/Platform Selector** switch ❸ to platform (up) (see Figure 8.11).

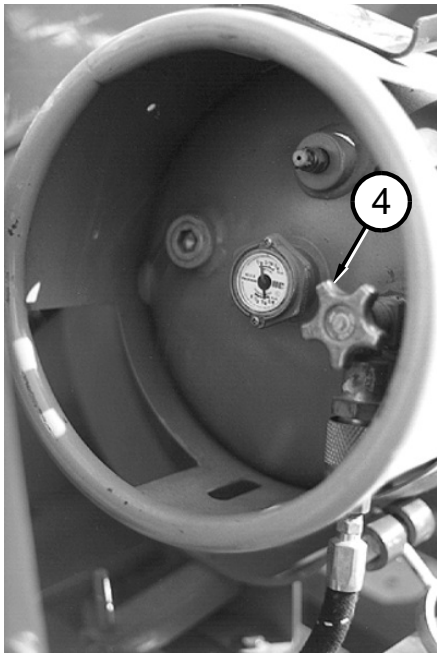



**Figure 8.12**

4. For **LP operation**:
   Completely open the valve ❹ (see Figure 8.12) on top of the LP tank (unscrew counterclockwise until it stops).


**Figure 8.13**

5. For a **dual-fuel engine**:
   Set the FUEL switch ❺ to gasoline ❻ or LP gas ❼, depending on which you want to use (see Figure 8.13).


**Figure 8.14**

6. Enter the platform and close the gate ❽ (see Figure 8.14).

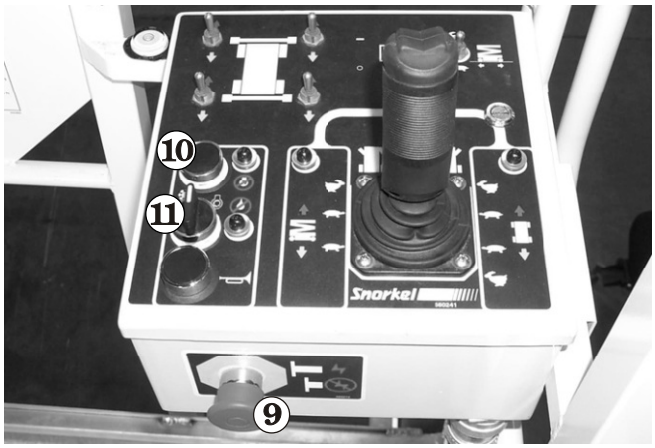



**Figure 8.15**

7. Turn the **Emergency Stop** switch ❾ clockwise and it will pop out (on) (see Figure 8.15).
8. If the engine is cold, press and hold the **Choke** switch ❿ (see Figure 8.15) during the next step.
9. Turn and hold the **Start** switch ⓫ clockwise (to the start position) until the engine starts or for 20 seconds, whichever comes first. When the engine starts, release both the start switch ⓫ and the choke switch ❿ (see Figure 8.15).

## ⚠CAUTION

**If the engine does not start in 20 seconds, release the start switch ⓫ and release the Choke switch ❿ then wait 60 seconds before trying to start the engine again.**

- **Starting a diesel engine**

To start a diesel engine from the platform control box do the following:

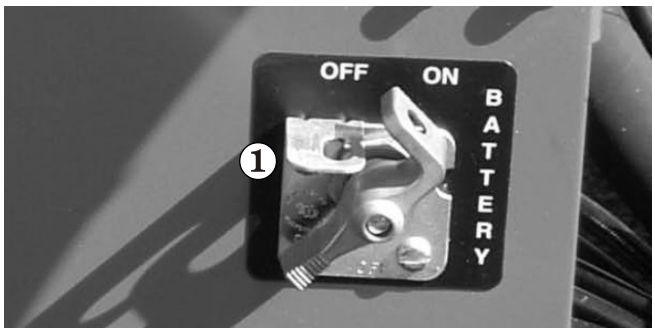



**Figure 8.16**

1. Set the **Battery** switch ❶ to on (see Figure 8.16).


**Figure 8.17**

2. Set the **Emergency Stop** switch ❷ to on (up) (see Figure 8.17).
3. Set the **Ground/Platform Selector** switch ❸ to platform (up) (see Figure 8.17).
4. Turn the key ❹ (see Figure 8.17) to on — do not turn the key ❹ to start.


**Figure 8.18**

5. Enter the platform ❺ and close the gate ❻ (see Figure 8.18).

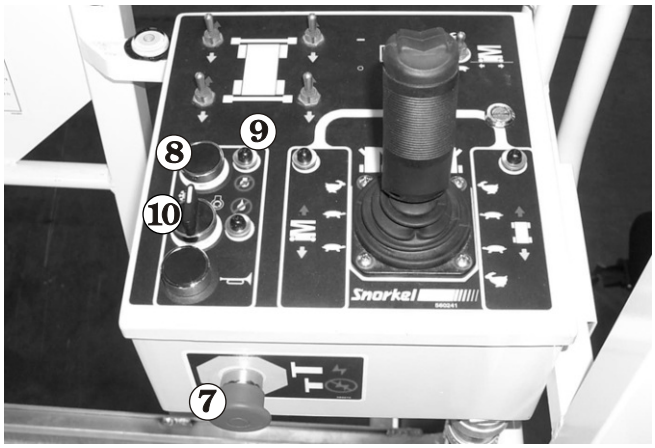



**Figure 8.19**

6. Turn the **Emergency Stop** switch ❼ clockwise and it will pop out (on) (see Figure 8.19).
7. If the engine is at ambient temperature, momentarily press the GLOW-PLUG switch ❽. This action will automatically turn the glow-plugs, in the engine, on for 10 seconds. A light ❾ will automatically come on to indicate that the glow-plugs are on (see Figure 8.19).
8. When the light ❾ goes out, press and hold the START switch ❿ until the engine starts or for 20 seconds, whichever comes first. When the engine starts, release the START switch ❿ (see Figure 8.19).

## ⚠CAUTION

**If the engine does not start in 20 seconds, release the START switch (10) then wait 60 seconds before trying to start the engine again with the GLOW-PLUG (8) and START switches (10).**

### ❑ Driving

1. The engine should be running. If not, start it from the platform control box as described above.

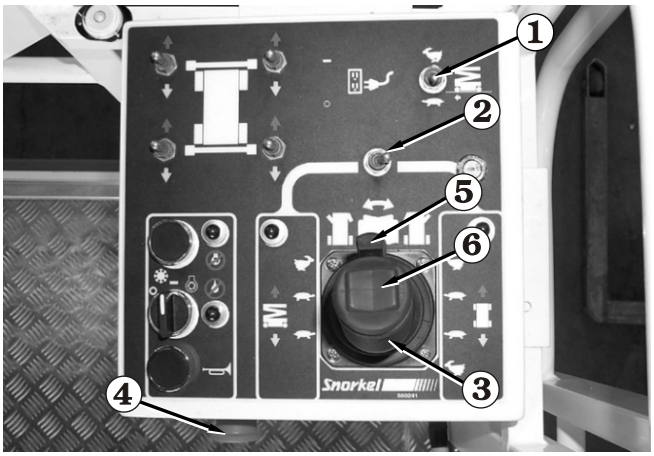



**Figure 8.20**

2. Set the **Speed** switch ❶ to turtle (slow) (see Figure 8.20) if you are going to be driving close to other objects or need to move the SR very slowly for other reasons.

***NOTE***

*Setting the SPEED to rabbit doubles the travel speed. (See the "Specifications" chapter 1 for speeds of different models.)*

3. Set the **Lift/Drive Selector** switch ❷ to drive (right) (see Figure 8.20).

## ⚠WARNING

**The SR is about to move. If you have to make an emergency stop, release the Joystick Controller (3) and sharply strike the Emergency Stop switch (4) straight in.**

**To make a normal stop, slowly move the Joystick Controller ❸ to its "centered" neutral position then release it.**

4. Squeeze and hold the **Safety Control** ❺ against the **Joystick Controller** ❸ (see Figure 8.20).
5. Push the **Joystick Controller** ❸ (see Figure 8.20) slowly forward or pull it slowly backward, depending on which way you want to go. The further you move the joystick the faster the SR moves.
6. To make a right or left turn, press and hold the **Steering** rocker-switch ❻ on top of the **Joystick Controller** ❸ (see Figure 8.20).

***NOTE***

*When you release the **Steering** rocker-switch ❻ the steering wheels remain pointed in the direction you left them. They do not return to "straight ahead" the way automobile wheels do. You will have to press the opposite side of the **Steering** rocker-switch ❻ to return to straight line travel. In tight spots you should stop the SR, turn the wheels the direction you want to go, then, after you have "aimed" the steering wheels, squeeze the **Safety Control** ❺ and move the **Joystick Controller** ❸ slowly forward or backward.*

### ❑ Raising the Platform

To raise the platform from the platform control box do the following:

1. The engine must be running. If not, start it from the platform control box as described above.

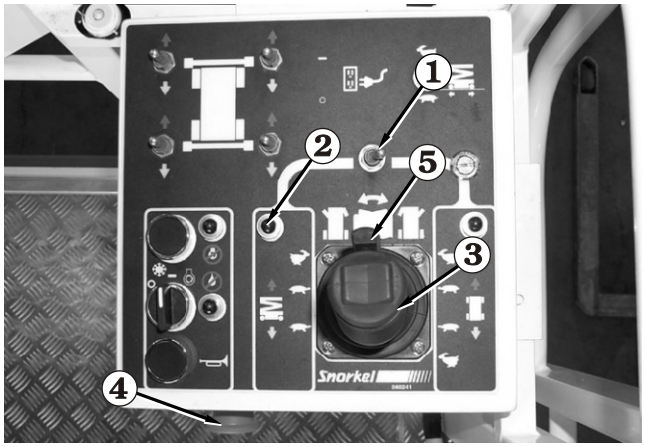



**Figure 8.21**

2. Set the **Lift/Drive Selector** ❶ (see Figure 8.21) to lift (left).

***NOTE***

*If the **Lift Indicator Light** ❷ is not lit, the platform will not go up because: the chassis is not level, the stabilisers (if present) are not properly set, or the articulating axles (if present) are not locked. Correct the problem then continue.*

***NOTE***

*The platform is about to move. If you have to make an emergency stop, release the **Joystick Controller** ❸ and sharply strike the **Emergency Stop** switch ❹ straight in.*

To make a normal stop, slowly move the Joystick Controller ❸ to its “centered” neutral position then release it.

3. Squeeze and hold the **Safety Control** ❺ against the **Joystick Controller** ❸ (see Figure 8.21).
4. Push the **Joystick Controller** ❸ forward to raise the platform, or backward to lower it. The further you push the **Joystick Controller** ❸ forward, the faster the platform rises. There is only one down speed.

## ■ Stabilisers

***NOTE:***

*Using the stabilisers.*

The platform must be fully lowered to enable the stabilisers to operate.

Once the platform is raised the stabilisers cannot be set or adjusted.

Before operating the stabilisers check to see that the ground conditions under the four stabiliser pads (see Figure 8.22) is firm, stable and unobstructed.

## ⚠DANGER

**If the platform is up and the ground compresses unevenly under different stabiliser pads the SR might fall over causing serious injury or death. Check the level bubble frequently during operation. If any movement of the bubble occurs, immediately lower the platform and readjust the stabilisers to re-center the bubble in the ring.**

## ⚠DANGER

**Death or serious injury can result if an SR tips over. Do not use the stabilisers to gain extra working height, they are not designed for that purpose. At least one of the stabilisers should raise the SR above the ground - use the other three to level the SR as necessary.**

When using the stabilisers always check that all four are firmly on the ground before raising the platform.

The SR will not DRIVE unless all four stabilisers are completely raised i.e. If any one of the stabilisers is even slightly lowered the DRIVE function is disabled.

## ■ Setting the stabilisers

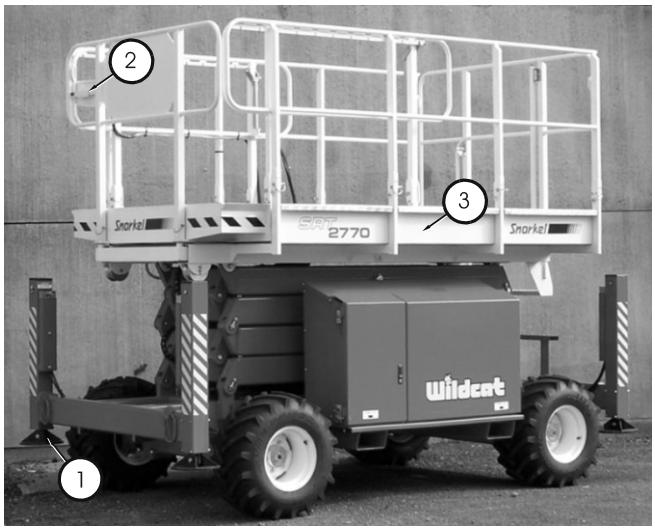



**Figure 8.22**

1. The engine must be running and the SR set for platform control box ❷ operation (see Figure 8.22).

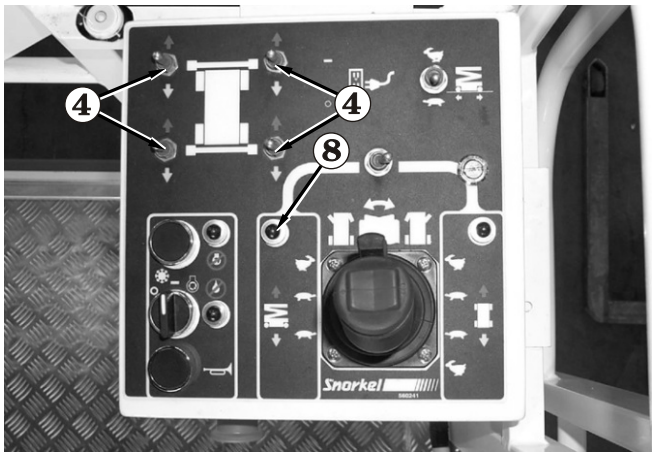



**Figure 8.24**

2. Pull and hold the **Stabiliser** switches ❹ (see Figure 8.24)backward, one at a time, until all four stabiliser pads ❶ (see Figure 8.23) contact the ground.

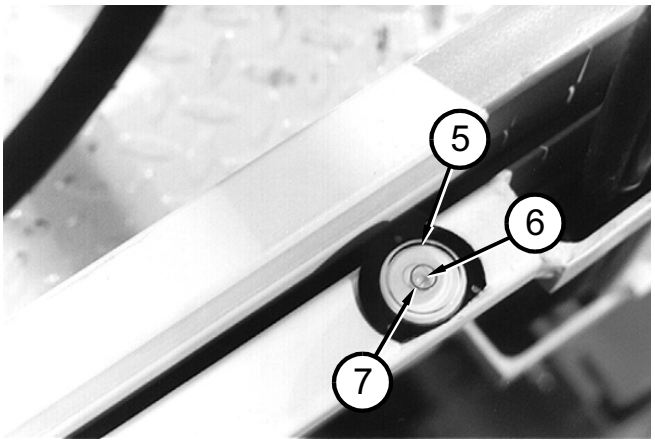



**Figure 8.25**

3. Visually check the bubble level ❺ to determine which stabilisers must be further extended to level the platform ❸ (see Figure 8.25).

***NOTE***

*When the bubble ❻ in the bubble level is in the center of the ring ❼, the platform is level.*

4. Lower the appropriate stabilisers just enough to center the bubble ❺ (see Figure 8.25). When the **Lift Indicator Light** ❽ (see Figure 8.24) comes on, the platform can be safely raised.

### ❑ To raise the stabilisers:

1. Completely lower the platform.

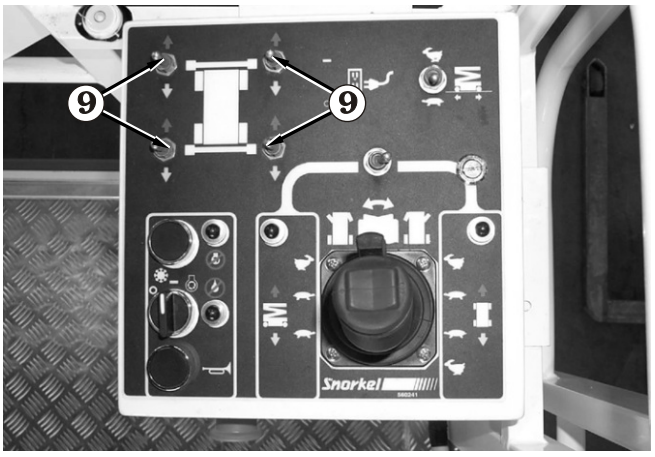



**Figure 8.26**

2. Push and hold the **Stabiliser** switches ❾ forward until all the stabilisers are completely up (see Figure 8.26).

## ■ Self Levelling Stabilisers (Optional)

For units fitted with self levelling stabilisers the following applies.

1. Set switch ❷ to automatic mode (see Figure 8.27).

To raise or lower the stabilisers 'automatically' switch ❶ (see Figure 8.27) is used.

2. Press switch ❶ momentarily (3 - 4 seconds to lower the stabilisers.
   The stabilisers will lower and level the platform automatically.
3. Switch ❶ can also be used to raise the stabilisers to the stowed position. To do so press, momentarily, switch ❶ in the raise direction and all the stabilisers will raise automatically.

***NOTE:***

*If an alarm sounds whilst in the auto mode it indicates the machine cannot auto level due to the terrain conditions.*

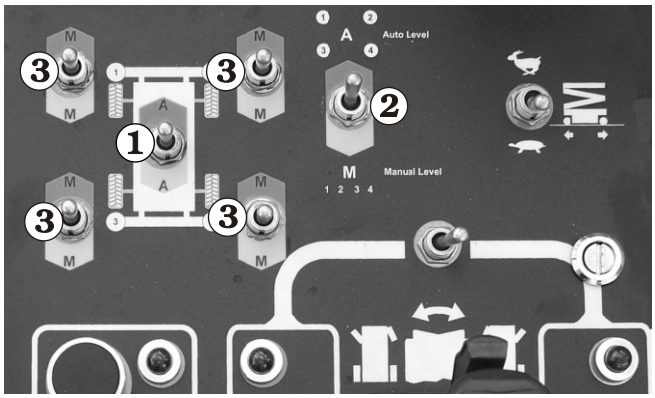



**Figure 8.27**

***NOTE:***

*Although this option is designed to automatically set the stabilisers and level the SRT it is possible to set the stabilisers manually should this be desired*

### ❑ Setting the stabilisers manually

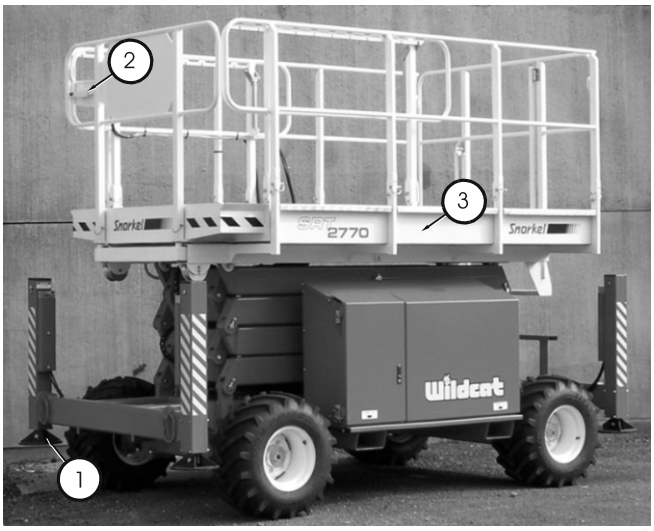



**Figure 8.28**

1. Check to see that the ground under the four stabiliser pads ❶ (see Figure 8.28) is firm, stable, and unobstructed.
2. Completely lower the platform ❸ (see Figure 8.28).
3. The engine must be running and the SR set for platform control box ❷ operation (see Figure 8.28).

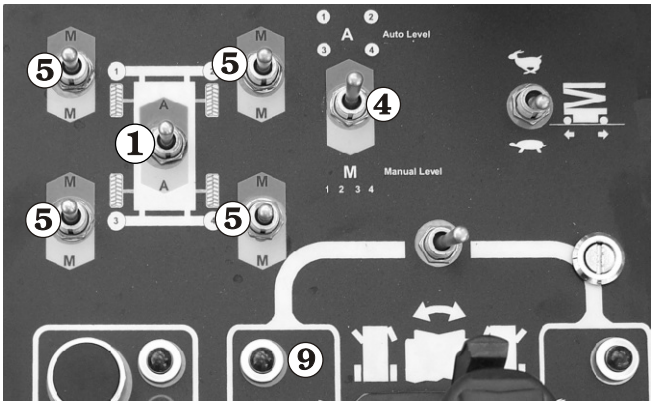



**Figure 8.29**

4. Set switch ❹ to manual mode (see Figure 8.29).
5. Operate each individual switch ❺ (see Figure 8.29) one at a time, until all four stabiliser pads ❶ contact the ground (see Figure 8.28).

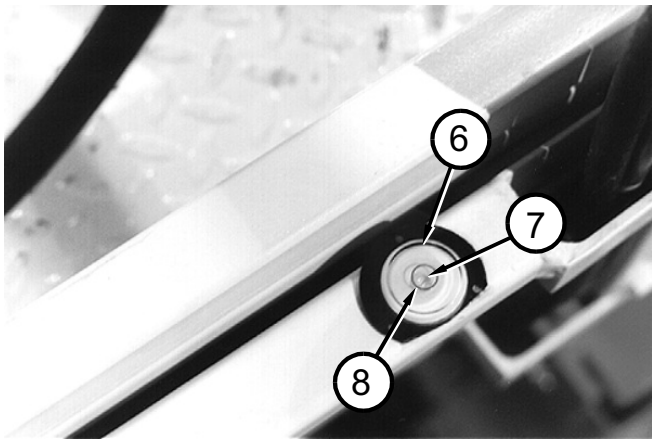



**Figure 8.30**

6. Visually check the bubble level ❻ (see Figure 8.30) to determine which stabilisers must be further extended to level the platform ❸ (see Figure 8.28).

***NOTE***

*When the bubble ❼ in the bubble level is in the center of the ring ❽ the platform is level.*

7. Lower the appropriate stabilisers just enough to center the bubble ❼ (see Figure 8.30). When the **Lift Indicator Light** ❾ (see Figure 8.29) comes on, the platform can be safely raised.

### ❑ Raising the stabilisers manually

1. Completely lower the platform.

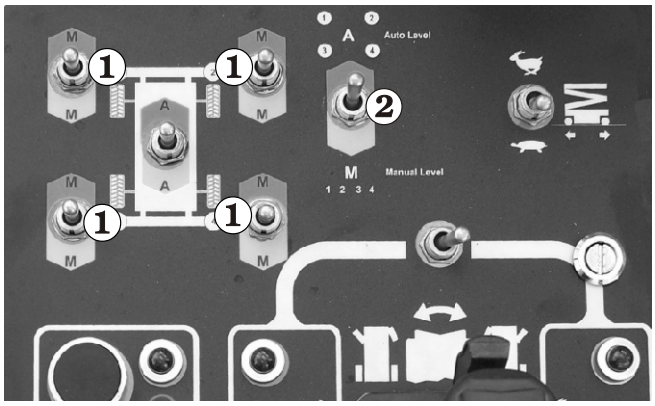



**Figure 8.31**

2. Set switch ❷ to manual mode (see Figure 8.31).
3. Operate each individual switch ❶ (see Figure 8.31) one at a time, until all four stabilisers are completely up.

## ■ Extending The Multi-Position Platform

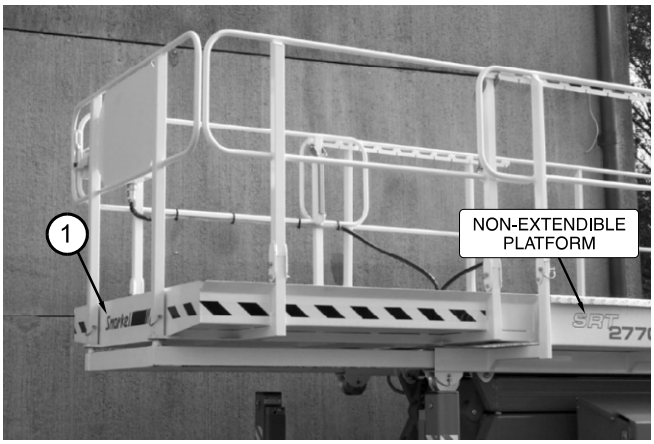



**Figure 8.32**

The MULTI-position extendible platform ❶ (see Figure 8.32) can be securely locked into seven different positions. To move it from one position to the other do the following:

1. Stand on the non-extendible part of the platform and face the front of the machine.

### ⚠WARNING

**The distribution of the RATED WORK LOAD changes when the extendible platform is extended. Read the decal on the toe board at the front of the platform or at the entrance to the platform for safe weight distribution.**

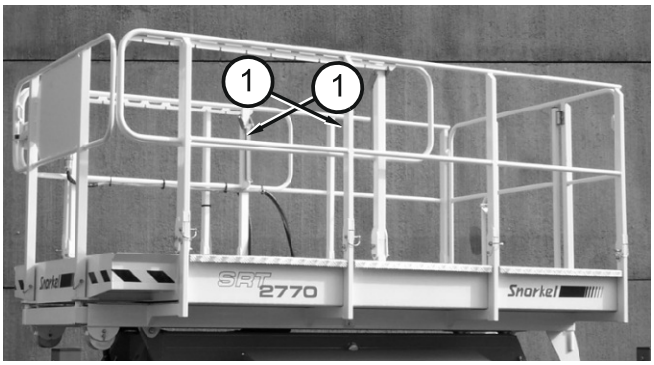



**Figure 8.33**

2. Lift up the deck extension handles ❶ to unlock the deck (see Figure 8.33).


**Figure 8.34**

3. Push or pull the deck extension handles ❸ to move the platform to the desired position (see Figure 8.34).

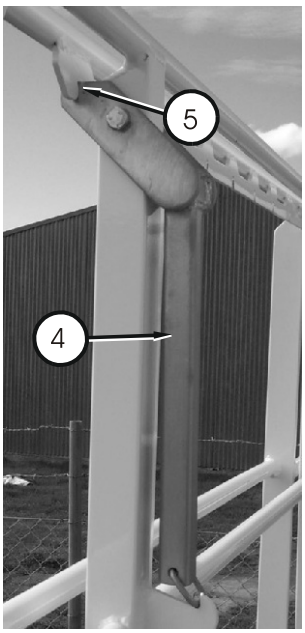



**Figure 8.35**

4. Lower the deck extension handles ❹ and allow the lock ❺ to locate (see Figure 8.35).

## ■ Emergency Operation Procedures

The following procedures are emergency procedures only. **DO NOT** use them for normal operation. Their purpose is to get the platform and operator safely to the ground when the SR will not start or some other problem keeps the platform from lowering in the normal way, or to move the SR a short distance to a safe place when the motor will not start.

There are three forms of emergency operation for the SR.Emergency stop, emergency bleed-down, and pushing.

Each is covered as a separate section below.

## ■ Emergency Stop

There are two Emergency Stop switches on an SR.

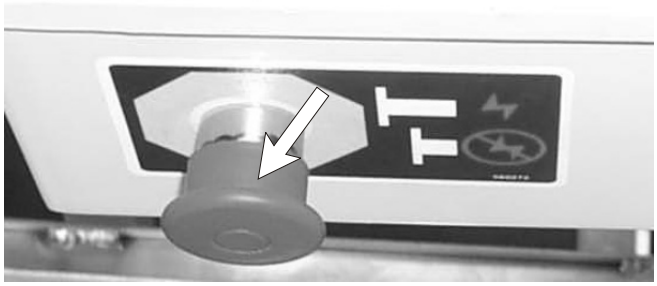


**Figure 9.1 - Platform Control Box Emergency Stop Switch**


**Figure 9.2 - Ground Control Box Emergency Stop Switch**

Push either **Emergency Stop** switch, (see Figures 9.1 and 9.2) at any time, and the entire machine stops, the engine turns off, and nothing moves.

Functionally, the **Emergency Stop** switches do the same thing as turning the **Main Power** switch to off. The **Emergency Stop** switches are designed to be easier to find and faster to use than key switches.

To reset the **Emergency Stop** switch at the platform control box, pull it and and it will pop out (on).

To reset the **Emergency Stop** switch at the ground control box, raise the red switch-cover and push the switch up. The SR engine can then be restarted in the normal way.

## ■ Emergency Bleed-Down

The SR platform can be lowered from the platform control box anytime there is electricity to the platform control box — the SR engine does not have to be running.

If you are working from the platform and the engine dies and cannot be restarted, do the following:

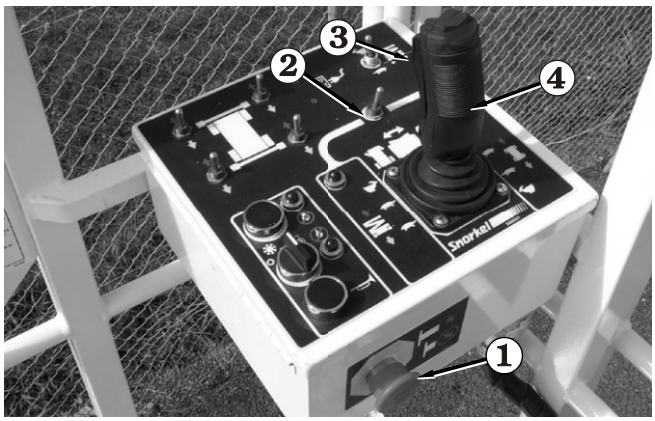



**Figure 9.3**

1. Check to be sure the **Emergency Stop** switch ❶ is pulled out (on) (see Figures 9.1 and 9.3).
2. Set the **Selector** switch ❷ (see Figure 9.3) to the platform function (left).
3. Squeeze the **Safety Control** ❸ and pull the **Joystick Controller** ❹ (see Figure 9.3) back. The platform should lower. If it does not lower, call for help from someone on the ground.

The person on the ground should do the following:

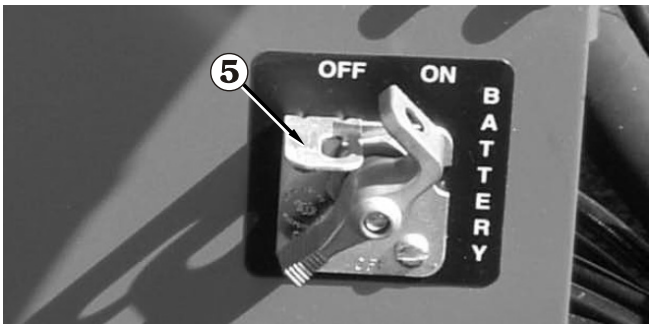



**Figure 9.4**

1. Check to be sure the **Battery** switch ❺ is ON. (See Figure 9.4)

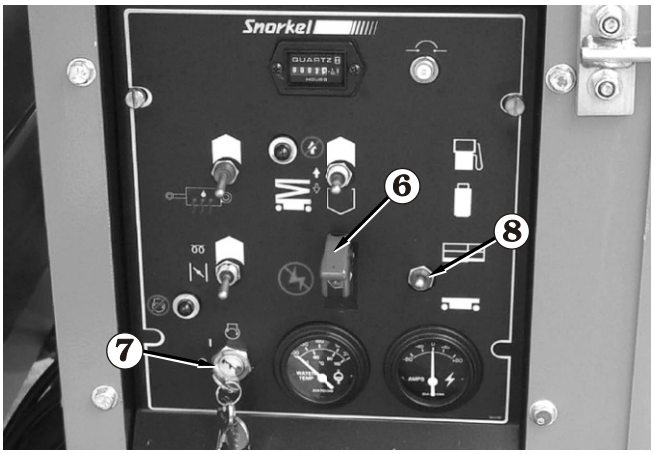



**Figure 9.5**

2. Check to be sure the **Emergency Stop** switch ❻ (see Figure 9.5) is on (up).
3. Check to be sure the **Main Power** switch ❼ is on (see Figure 9.5).
4. Check to be sure the **Selector** switch ❽ is set to platform (up) (see Figure 9.5).
5. If the **Battery** Switch ❺ (see Figure 9.4), **Emergency Stop** ❻, **Main Power** (7), and **SELECTOR** switch ❽ (see Figure 9.5) are all set correctly, and the engine will not start from the platform control box, set the **Selector** switch ❽ to ground (down) and try to lower the platform from the ground control box.

## ⚠DANGER

**Pinching And Crushing Hazard. At the next step the platform will come down and the scissor arms will close. Keep all body parts out of the scissor arms and out from under the platform.**


**Figure 9.6 - Manual Bleed Down Control**

6. If the platform will not lower, the person on the ground will need to use the manual bleed down ❾ (see Figure 9.6) located at the front of the chassis.

   To lower the platform pull on the cable ❾) until the platform is fully lowered.

***NOTE***

*If the platform does not come down, refer the problem to a qualified trained service technician.*

## ■ Pushing / Towing

An SR can be safely pushed or towed by hand on level firm surfaces. To do so:

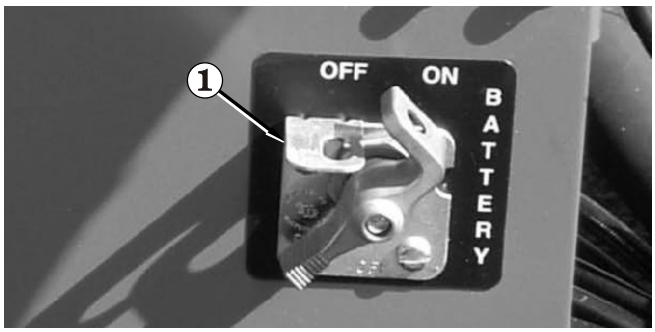



**Figure 9.7**

1. Turn the **Battery** switch ❶ to off (see Figure 9.7).

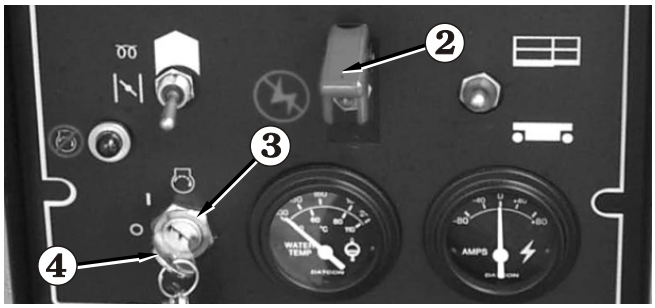



**Figure 9.8**

2. At the ground control box set the EMERGENCY STOP switch ❷ to off, turn the MAIN POWER switch ❸ off and remove the key ❹ (see Figure 9.8).

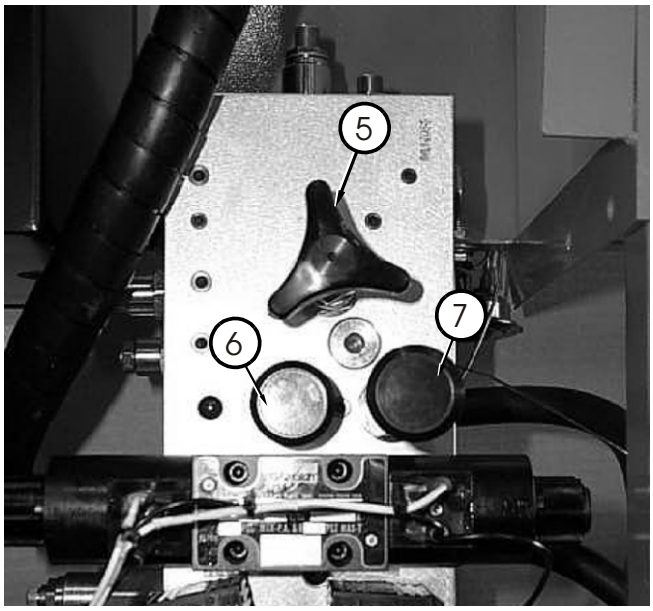



**Figure 9.9**

3. Inside the hydraulic compartment, open the free-wheeling valve ❺ by turning counterclockwise until knob stops.(see Figure 9.9).

## ⚠DANGER

**A runaway SR can cause death or serious injury. At the next step the SR brakes will be released. Do not proceed to the next step unless the SR is on a level surface or the SR is securely attached to another vehicle that has the capacity to safely control the SR on a grade.**

4. To release the brakes, pump the hand pump ❼ 5 - 10 times. (see Figure 9.9).
   The brakes will now be released and the SR is ready to be pushed or towed.

## ⚠CAUTION

**The SR drive motors will be ruined if the SR is pushed (or pulled) faster than 2 mph (3.2 km/hr). Unless personnel safety considerations dictate otherwise, do not push (or pull) faster than 2 mph (3.2 km/hr).**

5. Once the unit has been safely pushed / towed pull the re-set knob ❻ to re-apply the brakes (see Figure 9.9).

The unit is now ready for normal operation.

## ■ Stowing

At the end of each work day (or in preparation for transporting, pushing, lifting, or storage) a qualified operator should put the SR into its stowed position then lock it.

The correct stowed position is shown here.

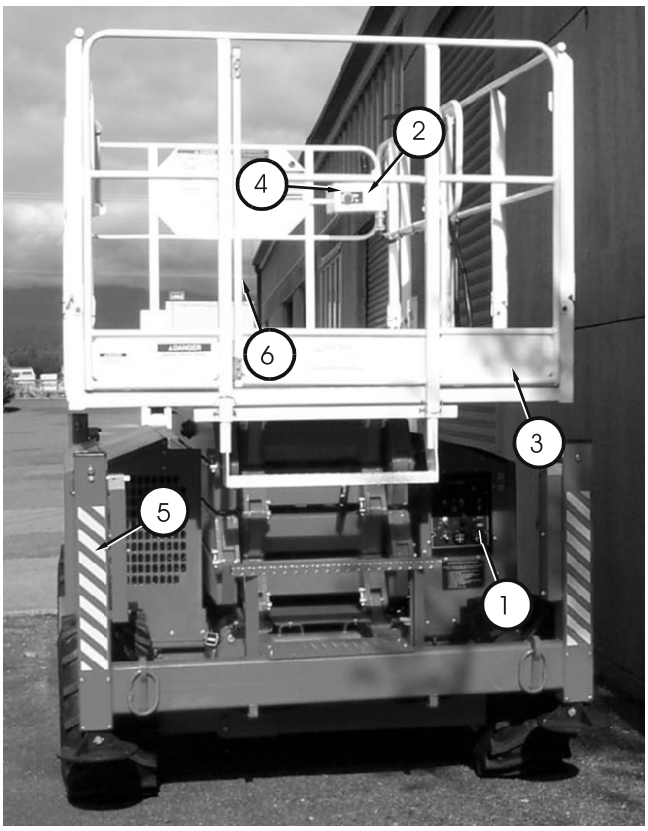



**Figure 10.1 - Correct Stowed Position**

To bring the SR into the **Stowed Position** use the controls on either the ground control box ❶ or the platform control box ❷ to:

1. Fully lower the platform ❸ (see Figure 10.1).
2. **For models with stabilisers**:
   Use the stabiliser controls ❹ to completely raise all four of the stabilisers ❺ (see Figure 10.1).
3. Close the platform entry gate ❻ (see Figure 10.1) and close all the doors on the machine.

To lock an SR:

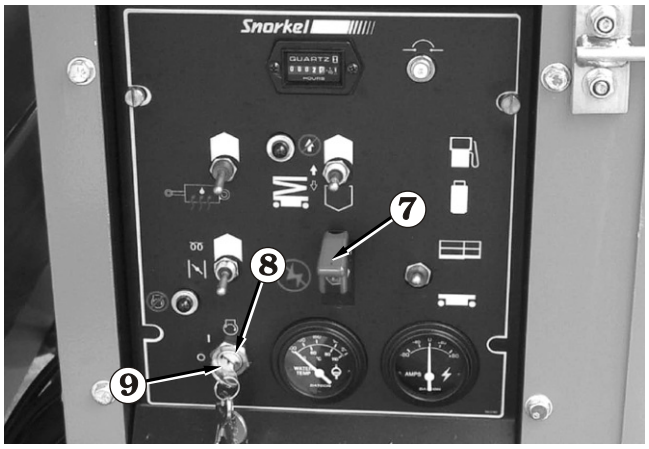



**Figure 10.2**

1. Push the **Emergency Stop** switch ❼ down (OFF) and set the **Main Power** switch ❽ to OFF then remove the key ❾ (see Figure 10.2).

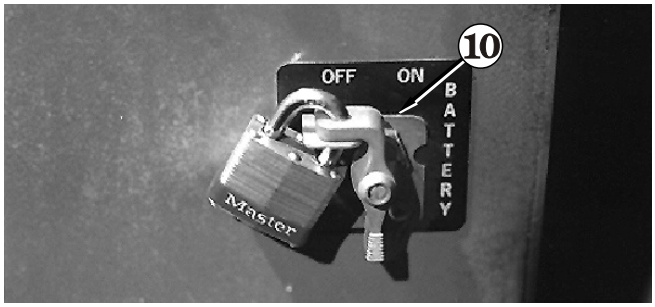



**Figure 10.3**

2. Turn the **Battery** switch ❶❿ OFF and padlock it (see Figure 10.3).

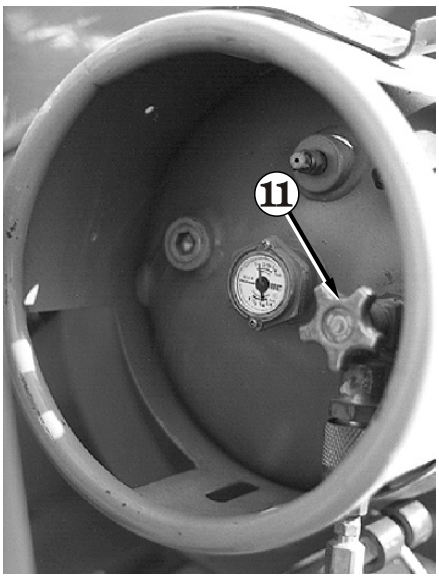



**Figure 10.4**

3. **(Option - LPG) For machines equipped with LPG**:
   Close the valve ❶❶ (see Figure 10.4)on the LPG-tank (completely screwed in).

## ■ Transporting

### ❑ Trailering

**⚠DANGER**

**SR's weigh up to 2800kg (6272lbs) depending on the model. Loading ramps must be able to support that weight. Transport trailers must be able to safely transport that weight.**

**SR brake and drive systems are not designed for grades over 35%. Drive slowly and carefully on all slopes and loading ramps.**

To safely drive an SR onto a transport trailer:

1. Visually inspect the alignment of the loading ramp and the truck or trailer. They should both be on the same straight line.
2. Set the SR ground control box for platform operation.

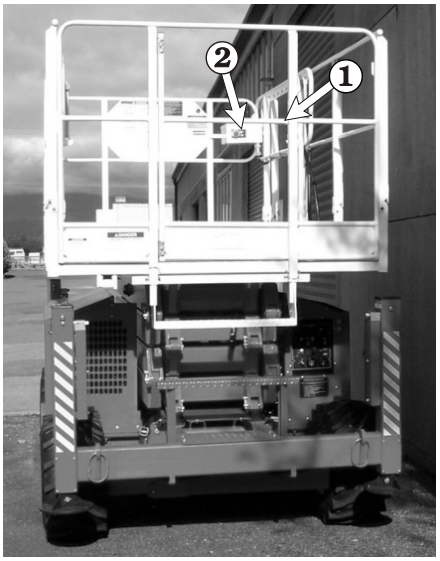



**Figure 10.5**

3. Enter the platform and close the safety gate ❶ (see Figure 10.5).
4. Use the platform controls ❷ (see Figure 10.5) to bring the SR into the STOWED POSITION at the foot of the loading ramp with the steering wheels nearest the ramp.
5. Visually check (from the platform) to be sure the SR is aligned with the ramp and the ramp is still aligned with the truck or trailer. All should be in a straight line.

**⚠DANGER**

**Death or serious injury can result from losing control of an SR during loading or unloading. Always drive up or down a grade with the Speed switch set to turtle (slow).**

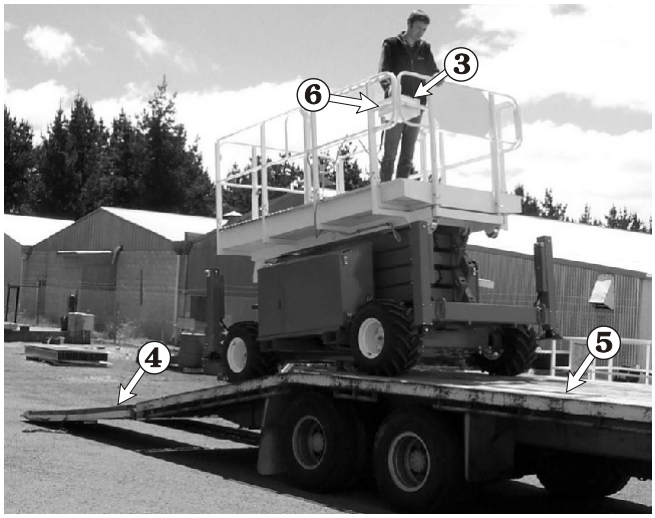



**Figure 10.6**

6. Use the joystick controller ❸ to slowly drive the SR straight onto the ramp ❹ and trailer ❺ (see Figure 10.6).
7. When the SR is in place on the trailer, push the **Emergency Stop** switch ❻ (see Figure 10.6) in (OFF) at the platform control box.
8. Chock the SR wheels.

### ❑ Securing to a Transport Vehicle

This procedure assumes that you have just finished the previous section and that the wheels are chocked.

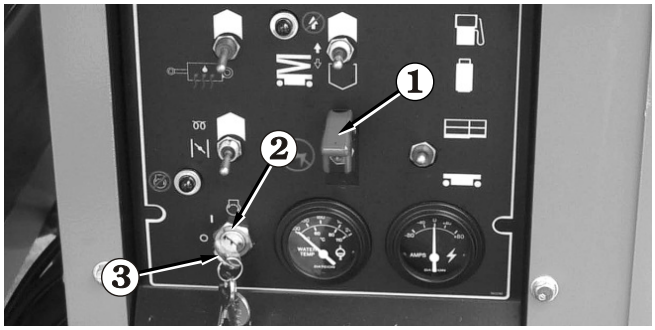



**Figure 10.7**

1. Push the **Emergency Stop** switch ❶ down (OFF) and set the **Main Power** switch ❷ to OFF then remove the key ❸ (see Figure 10.7).

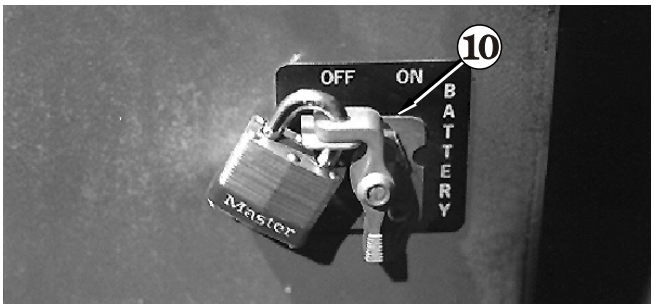



**Figure 10.8**

2. Set the **Battery** switch ❹ (see Figure 10.8) to OFF and padlock it.

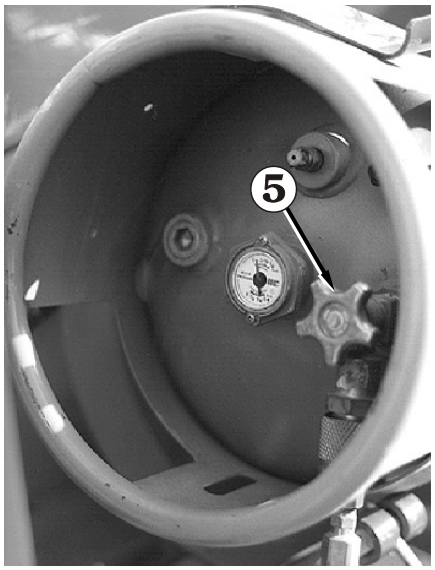



**Figure 10.9**

3. **(Option - LPG) For machines equipped with LPG**:
   Close the valve ❺ (see Figure 10.9) on the LPG tank (completely screwed in).


**Figure 10.10 - Tie-down Lugs**

Always attach chains to the front and back tie-down lugs ❽ (see Figures 10.10 and 10.11).

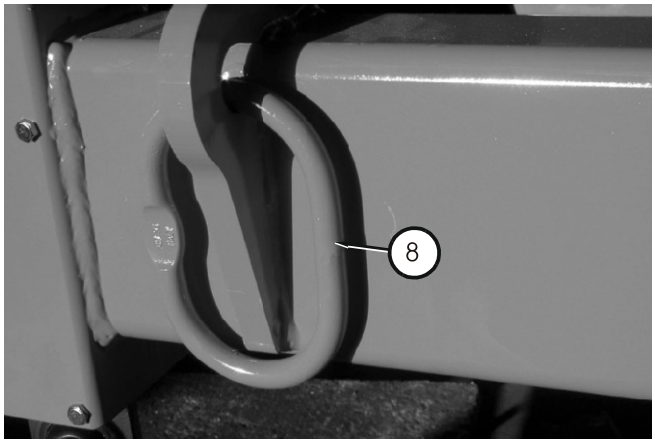



**Figure 10.11 - Tie-down Lugs**

Chocks may be removed at this time, though it is a good idea to leave them in place.

Reverse the above procedure after transporting.

### ❑ Towing

Do not tow an SR. The SR hydraulic-drive motors will be permanently damaged, and rendered useless, by towing speeds.

### ❑ Lifting / Lashing Down

An SR can be safely lifted. However, only a trained qualified service technician should perform lifting.

### ❑ Pushing

An SR can be safely pushed by hand on level, firm surfaces. The procedure for pushing is located in the “Emergency Operation” chapter.9

### ❑ Winching Procedure

1. Locate transport vehicle so that SR 2770 will not roll forward after being loaded.
2. Fully lower platform and retract extension deck.
3. Be sure the machine is centered with the loading ramps and carrier vehicle bed, and that the steering wheels are straight.
4. Attach the winch at the tie down lugs on the front (steer) end of the chassis.
5. Disengage parking brakes and open free-wheeling valve to prevent damage to hydraulic motors. (Refer to procedures outlined for pushing in the “Emergency Operation” chapter 9.
6. Winch machine onto transport vehicle.
7. Close free-wheeling valve and reset parking brakes.
8. Reset the hydraulic system by reversing these procedures.

This chapter lists and explains all the options available for an SR.

## ■ RCD / ELCB Outlet

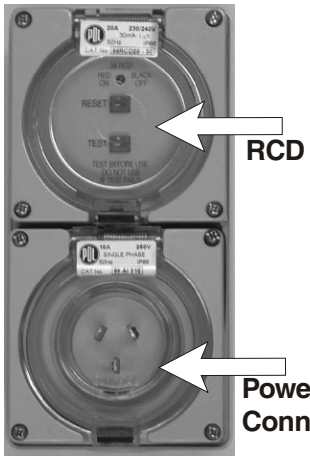



**Figure 11.1 - RCD / ELCB Outlet**

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

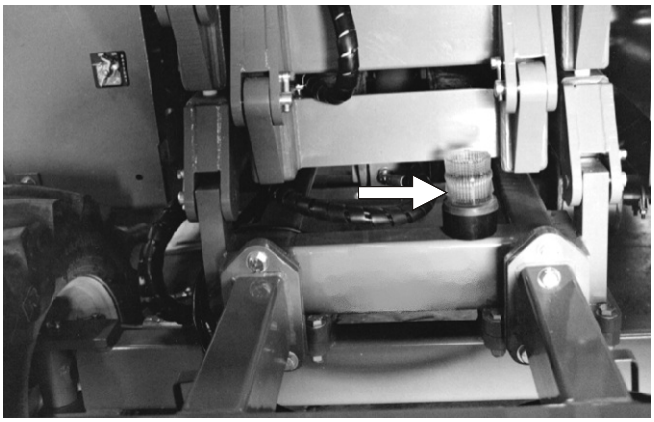


**Figure 11.2 - Flashing Light**

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

## ■ Electrical Outlet

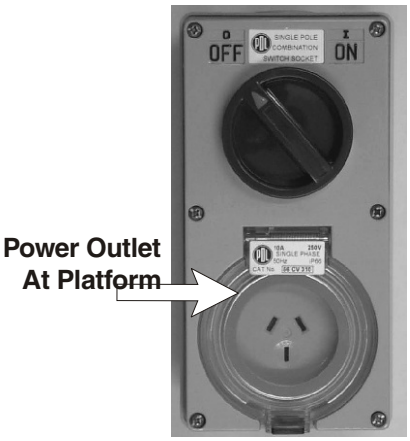



**Figure 11.3 - Electrical Outlet**

The electrical outlet on the platform, and its power cable, are designed to supply 2 kW of continuous duty power to run power tools of various sorts. The power can come from either the optional ac generator, discussed elsewhere in this chapter, or from an electrical source outside the SR. If you use an electrical source outside the SR be sure you disconnect it before you drive the SR away.

## ■ Lanyard Anchor Points

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

***NOTE***

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

***NOTE***

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

## ■ Hazardous Components

The SR may contain the following materials and objects that potentially could become significant fire or environmental hazards during the lifetime of the SR:

1. Antifreeze (ethylene glycol)
2. Battery, lead/acid
3. Diesel fuel
4. Foam in tires
5. Gasoline
6. Hydraulic oil
7. Liquefied petroleum gas
8. Motor oil

The rest of this chapter lists manufacturers' information you will need if you ever have to control any of the above items during an upset or emergency.

### ❑ Antifreeze (UN 1993)

#### ☞ Fire extinguishing media:

Dry Chemical, foam, or $CO_2$.

#### ☞ Special fire fighting procedures:

Water spray may be ineffective on fire but can protect fire fighters and cool closed containers. Use fog nozzles if water is used.

### ⚠DANGER

**DO NOT enter confined fire space without full bunker gear. (Helmet with face shield, bunker coats, gloves & rubber boots). Use a NIOSH approved positive pressure self contained breathing apparatus. Keep container tightly closed. Isolate from oxidizers, heat and open flame.**

#### ☞ Spill or leak:

Small - mop up with absorbent material and transfer to hood.

#### ☞ Waste disposal method:

Small - evaporate until all vapors are gone. Dispose of remainder by legally applicable methods.

### ❑ Battery, Lead/Acid (UN 2794)

#### ☞ Extinguishing media:

Dry chemical, foam, or $CO_2$.

#### ☞ Special fire fighting procedures:

Use positive pressure, self contained breathing apparatus.

#### ☞ Unusual fire and explosion hazards:

Hydrogen and oxygen gases are produced in the cells during normal battery operation.

### ⚠DANGER

**Hydrogen gas is flammable and oxygen supports combustion. These gases enter the air through the vent caps. To avoid the chance of a fire or explosion, keep sparks and other sources of ignition away from the battery.**

#### ☞ Spill or leak:

Remove combustible materials and all sources of ignition. Contain spill by diking with soda ash (sodium carbonate) or quicklime (calcium oxide). Cover spill with either chemical. Mix well. Make certain mixture is neutral then collect residue and place in a drum or other suitable container. Dispose of as hazardous waste.

### ⚠DANGER

**ALWAYS wear acid resistant boots, face shield, chemical splash goggles, and acid resistant gloves when handling acid spills or leaks.**

***NOTE***

***DO NOT*** *release UN-neutralized acid!*

#### ☞ Waste disposal method:

**Sulfuric Acid:** Neutralize as above for a spill, collect residue, and place in a drum or suitable container. Dispose of as hazardous waste.

***NOTE***

***DO NOT*** *flush lead contaminated acid to sewer.*

#### ☞ Waste disposal method

**Batteries:** Send to lead smelter for reclamation following applicable federal, state, and local regulations.

### ❑ Diesel Fuel (NA 1993)

#### ☞ Extinguishing media:

Use water spray, dry chemical, foam, or $CO_2$.

### ☞ Special fire fighting procedures:

Use water to keep fire exposed containers cool. If leak or spill has not ignited, use water spray to disperse the vapors and to provide protection for personnel attempting to stop a leak. Water spray may be used to flush spills away from exposures.

### ☞ Unusual fire and explosion hazards:

Products of combustion may contain carbon monoxide, carbon dioxide, and other toxic materials.

## ⚠DANGER

**DO NOT** enter enclosed or confined space without proper protective equipment including respiratory protection.

### ☞ Spill or leak:

Contain spill immediately in smallest area possible. Recover as much of the product itself as possible by such methods as vacuuming, followed by soaking up of residual fluids by use of absorbent materials.

Remove contaminated items including contaminated soil and place in proper containers for disposal. Avoid washing, draining, or directing material to storm or sanitary sewers .

### ☞ Waste disposal method:

Recycle as much of the recoverable product as possible.

Dispose of non-recyclable material as a RCRA hazardous waste by such methods as incineration, complying with federal, state, and local regulations.

### ❑ Foam In Tires

### ☞ Extinguishing media:

Water, dry chemical, foam, or $CO_2$.

### ☞ Special fire fighting procedures:

Evacuate non emergency personnel to a safe area.

### ☞ Unusual fire and explosion hazards:

Fire fighters should use self contained breathing apparatus. Avoid breathing smoke, fumes, and decomposition products.

Use water spray to drench smoldering elastomer. Product may melt, after ignition, to form flammable liquid.

## ⚠DANGER

Burning produces intense heat, dense smoke, and toxic gases, such as carbon monoxide, oxides of nitrogen, and traces of hydrogen cyanide.

### ☞ Spill or leak:

Pick up and handle as any other inert solid material.

### ☞ Waste disposal method:

Not considered a hazardous material. Dispose of material according to any local, state, and federal regulations.

### ❑ Gasoline (UN 1203)

### ☞ Extinguishing media:

Dry chemical, foam, or $CO_2$.

### ☞ Special fire fighting procedures:

Water may be ineffective to extinguish, but water should be used to keep fire exposed containers cool. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect personnel attempting to stop a leak. Water spray may be used to flush spills away from areas of potential ignition.

### ☞ Unusual fire and explosion hazards:

Highly Flammable. Products of combustion may contain carbon monoxide, carbon dioxide and other toxic materials.

## ⚠DANGER

**DO NOT enter enclosed or confined space without proper protective equipment including respiratory protection.**

### ☞ Spill or leak:

Review fire and explosion hazards before proceeding with clean up. Use appropriate personal protective equipment during clean up. Dike spill. Prevent liquid from entering sewers, waterways, or low areas. Soak up with sawdust, sand, oil dry or other absorbent material. Shovel or sweep up.

Remove source of heat, sparks, flame, impact, friction or electricity including internal combustion engines and power tools. If equipment is used for spill cleanup, it must be explosion proof and suitable for flammable liquid and vapor.

***NOTE***

*Vapors released from the spill may create an explosive atmosphere.*

### ☞ Waste disposal method:

Treatment, storage, transportation and disposal must be in accordance with applicable federal, state, provincial, and local regulations.

## ⚠CAUTION

**DO NOT flush to surface water or sanitary sewer system. By itself, the liquid is expected to be a RCRA ignitable hazardous waste.**

### ❑ Hydraulic Oil (UN 1270)

### ☞ Extinguishing media:

Use water spray, dry chemical, foam, or $CO_2$.

### ☞ Special fire fighting procedures:

Water or foam may cause frothing. Use water to keep fire exposed containers cool. Water spray may be used to flush spills away from exposures.

### ☞ Unusual fire and explosion hazards:

Products of combustion may contain carbon monoxide, carbon dioxide, and other toxic materials.

## ⚠DANGER

**DO NOT enter enclosed or confined space without proper protective equipment including respiratory protection.**

### ☞ Spill or leak:

Contain spill immediately in smallest area possible. Recover as much of the product itself as possible by such methods as vacuuming, followed by soaking up of residual fluids by use of absorbent materials.

Remove contaminated items including contaminated soil and place in proper containers for disposal. Avoid washing, draining or directing material to storm or sanitary sewers .

### ☞ Waste disposal method:

Recycle as much of the recoverable product as possible.

Dispose of non-recyclable material as a RCRA hazardous waste by such methods as incineration, complying with federal, state, and local regulations.

### ❑ Liquefied Petroleum Gas (UN 1075)

### ☞ Extinguishing media:

Water spray. Class A-B-C or BC fire extinguishers.

### ☞ Special fire fighting procedures:

Stop flow of gas. Use water to keep fire exposed containers cool. Use water spray to disperse unignited gas or vapor.

If ignition has occurred and no water available, tank metal may weaken from over heating. Evacuate area. If gas has not ignited, LP gas liquid or vapor may be dispersed by water spray or flooding.

### ☞ Unusual fire and explosion hazards:

Highly Flammable. Products of combustion may contain carbon monoxide, carbon dioxide and other toxic materials.

## ⚠DANGER

**DO NOT enter enclosed or confined space without proper protective equipment including respiratory protection.**

### ☞ Spill or leak:

Keep public away. Shut off supply of gas. Eliminate sources of ignition. Ventilate the area. Disperse with water spray.

Contact between skin and these gases in liquid form can cause freezing of tissue causing injury similar to thermal burn.

***NOTE***

*Vapors released from the spill may create an explosive atmosphere.*

### ☞ Waste disposal method:

Treatment, storage, transportation and disposal must be in accordance with applicable federal, state, provincial, and local regulations.

❑ **Motor Oil (UN 1270)**

### ☞ Extinguishing media:

Use water spray, dry chemical, foam, or $CO_2$.

### ☞ Special fire fighting procedures:

Water or foam may cause frothing. Use water to keep fire exposed containers cool. Water spray may be used to flush spills away from exposures.

### ☞ Unusual fire and explosion hazards:

Products of combustion may contain carbon monoxide, carbon dioxide, and other toxic materials.

## ⚠DANGER

**DO NOT enter enclosed or confined space without proper protective equipment including respiratory protection.**

### ☞ Spill or leak:

Contain spill immediately in smallest area possible. Recover as much of the product itself as possible by such methods as vacuuming, followed by soaking up of residual fluids by use of absorbent materials.

Remove contaminated items including contaminated soil and place in proper containers for disposal. Avoid washing, draining or directing material to storm or sanitary sewers .

### ☞ Waste disposal method:

Recycle as much of the recoverable product as possible.

Dispose of non-recyclable material as a RCRA hazardous waste by such methods as incineration, complying with federal, state, and local regulations.

## ■ Troubleshooting

All of the actions described in this chapter may be performed by an SR operator, a trained and qualified service technician is not required.

The first column, of the following chart, lists some common problems encountered by SR operators.

The second column lists some of the causes for each problem. The third column lists remedies.

## ⚠CAUTION

**Any problem that cannot be fixed by actions listed below should be referred to a trained and qualified SR service technician.**

### ❑ Operator Troubleshooting Chart

| Problem | Cause | Remedy |
|---|---|---|
| Engine will not start. | Battery switch set to off. | Turn battery switch to on. |
| | Emergency Stop switch(es) not on. | Set the ground control Emergency Stop switch to on (up). Also, if you are trying to start at the platform control box you should pull the Emergency Stop switch, at the platform control box, until it pops out (on). |
| | Key switch set to off. | Set the Key switch to on (the bar symbol). |
| | Ground/Platform Selector switch set to wrong location. | If you are trying to start from the ground control box, set the Ground/Platform selector to ground (down). If you are trying to start from the platform, set the selector to platform (up). |
| | Circuit Breaker tripped. | Push the circuit breaker in. |
| | Fuel switch not set correctly. | If you are trying to start a dual-fuel engine be sure the fuel switch is set to the correct fuel. |
| | Out of fuel. | **DANGER:**<br>**Keep flames and lit tobacco away from open fuel tanks.**<br>Remove the cap from the gasoline or diesel tank to see if there is fuel.<br>Check the gauge(s) on top of the LP tank(s). If you are using LP gas, be sure the valve on top of the tank is open. |
| | Clogged air filter. | Visually check the air filter gauge. |
| | Engine oil too thick for ambient temperature. | Check engine oil chart in “Specifications” chapter 3 for correct oil weight. |
| Stabilisers inoperative | Platform not completely down. | Completely lower the platform. |
| All systems sluggish. | Hydraulic oil is too thick. | Check for correct grade of Hydraulic Oil.<br>Allow time for machine to warm up. |
| SR will not drive forward or reverse. | Free-wheeling valve is open. | Close the free-wheeling valve. |

# 13. Operator's Troubleshooting

| Problem | Cause | Remedy |
|---|---|---|
| Platform will not go up or down. | Engine is not running. | Start the engine from the control station where you will operate the SR. |
| | Switches set wrong (Lift Indicator light is lit). | <u>For ground control operation</u>:<br><br>Ground/Platform Selector = Ground<br>Machine/Generator = Machine (if equipped with AC generator)<br><br><u>For platform control box operation</u>:<br><br>Ground/Platform Selector = Platform<br>Machine/Generator = Machine (if equipped with AC generator)<br>Lift/Drive Selector = Lift<br><br>Squeeze and hold the Safety Control then push Joystick Controller forward to go up or pull it backward to go down. |
| | SR is not level. (Lift Indicator light is not lit and the Level Sensor Alarm is sounding). | If the SR has stabilisers use them to level the SR. Otherwise, use adequate shoring to level the SR then chock the wheels to prevent the SR from being driven once the platform is raised. |
| | The Stabilisers (if present) are not properly set. (Lift Indicator light is not lit). | If you are using the stabilisers, one or more of them is not down quite far enough. Lower each stabiliser a few inches more to be sure each is firmly in contact with the ground.<br><br>If you are not using the stabilisers, one or more of them is not fully up. Raise each stabiliser completely up. |
| Platform will not drive forward or reverse when raised. | Unit not level. Articulating axle operated. | Situation normal, lower platform to drive. |

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