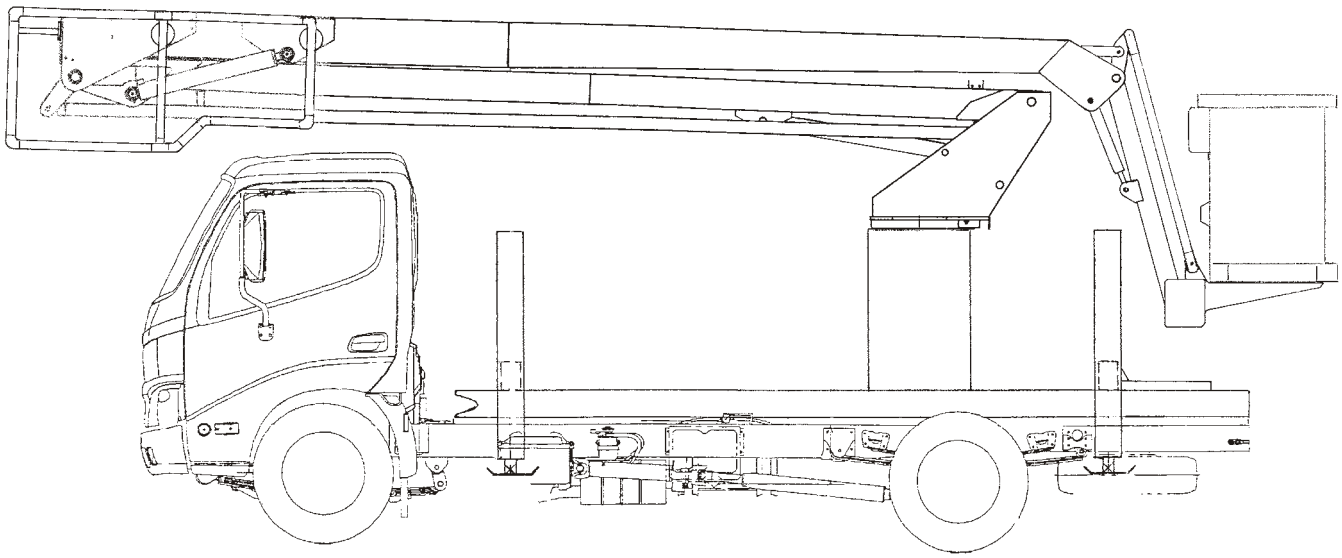
Snorkel
NEW ZEALAND

Operator's Manual

EPV Series

Vehicle Mounted Articulating Boom Aerial Work Platform



P/N 1596A
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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

THE EPV AERIAL WORK PLATFORM IN STANDARD CONFIGURATION IS NOT ELECTRICALLY INSULATED.

If the platform, booms, or any other conductive part of an EPV 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 EPV 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 EPV.

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 EPV until you are sure the electricity has been turned off.

If an EPV is in contact with a live conductor, the platform operator **MUST** warn others on the ground in the vicinity of the EPV 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 EPV ground controls when the platform, booms, or any other conducting part of the EPV 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 EPV 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

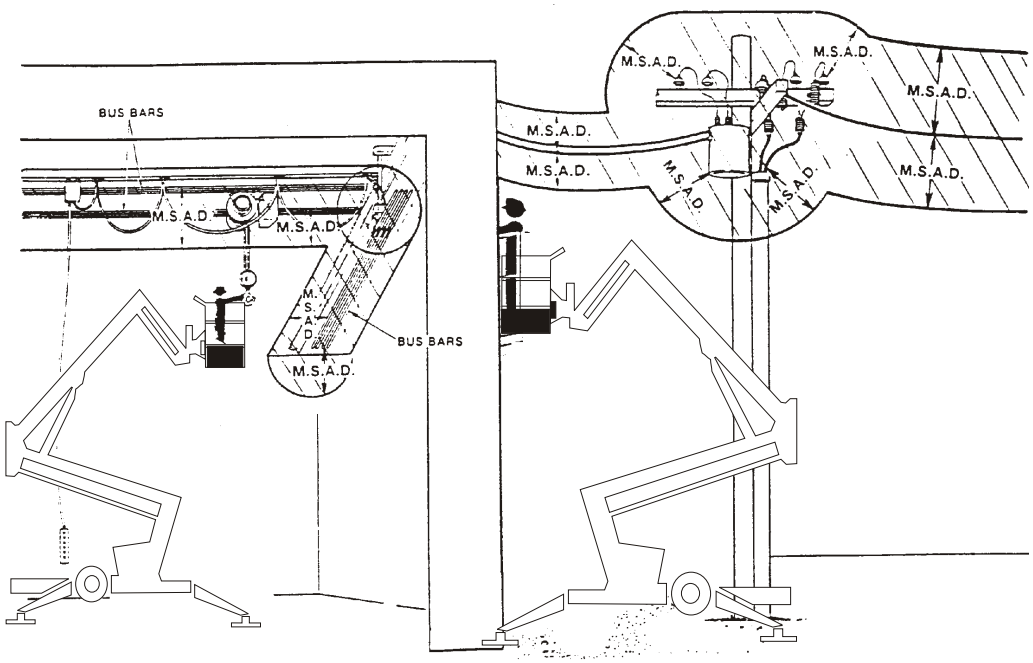
An EPV is an all metal **NOT ELECTRICALLY INSULATED**, aerial work platform. **DO NOT** operate it near **ELECTRICAL** conductors. Regard all conductors as being energized. Use the table and illustration below to determine safe clearance from electrical conductors. (Table 1 and Figure 3, below, are from 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 EPV.

This introduction also contains important information concerning the responsibilities of the owner of this machine

■ 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.

■ Photographs

Photographs are taken to represent the machine and its component parts as clearly as possible. However, there may be minor differences between the photographs and your machine. This represents individual customer preferences and Snorkel's on-going committment to product development.

■ 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 EPV.

⚠IMPORTANT

Denotes important information pertaining to settings, capacities, conditions, which could, if ignored lead to machine damage or future hazardous situations.

It is also used to alert the reader to pay careful attention to a particular passage of text in the manual.

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 EPV 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 EPV before using it on a job site.

Before operation of the EPV 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 EPV you must be AUTHORIZED by the person in charge to do so and the operation of the EPV 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 EPV 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 Operators Manual provides a daily inspection procedure that will help you keep your EPV in good operating condition.

Do not perform other maintenance unless you are a trained mechanic, qualified to work on the EPV. 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 EPV.

■ Responsibilities of parties

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

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Ultimate compliance to OSHA regulations is the responsibility of the user and their employer.

⚠IMPORTANT

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

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

NOTE - Standards

it is the responsibility of the owner to ensure that the person operating the EPV is provided with all the relevant information relating to standards and codes of practice applicable in their region.

❑ In summary

- Only trained and authorised operators should be permitted to operate the equipment.
- All manufacturers 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 EPV 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 EPV.

■ Additional information

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

Snorkel International
PO Box 1041
Levin 5510
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 EPV. 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 EPV 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 EPV is an all metal boom aerial work platform and **is not electrically insulated** in its standard configuration.

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 EPV.

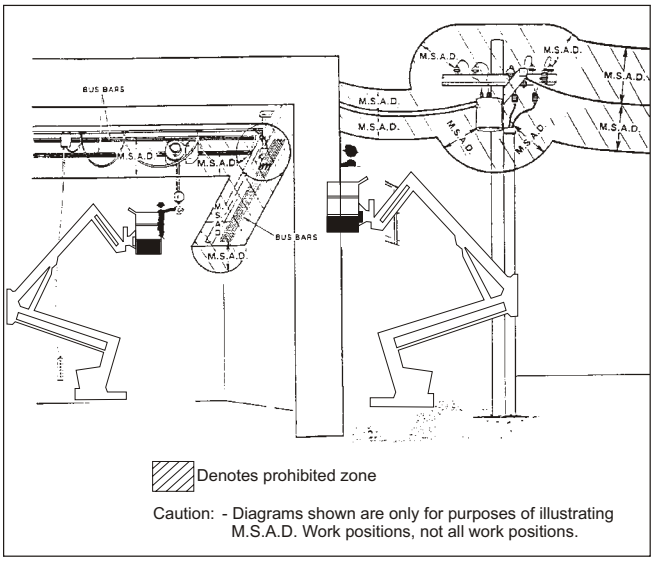


Figure 1. - Minimum Safe Approach Distance ANSI A92.5

⚠DANGER

The EPV 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.

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 ANSI 92.5

Australian Standard AS 2550.10 defines minimum distances that must be observed when working near live aerial conductors up to and including 133kV (see Figure 2).

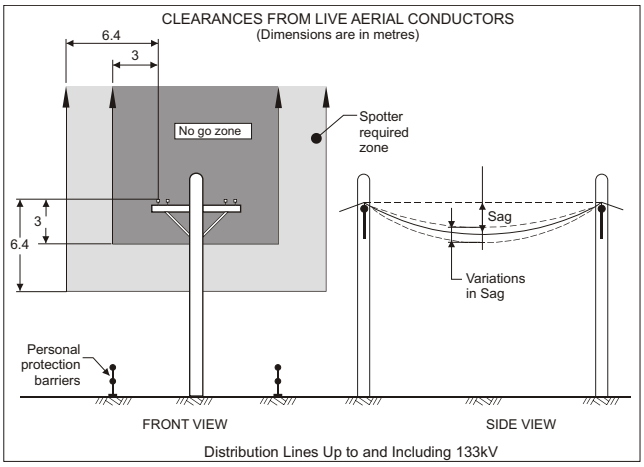


Figure 2 - Minimum Safe Approach Distance AS 2550.10

■ Low Voltage Insulated Machines

The only exception is for EPV's which are specifically built as low voltage insulated machines.

These low voltage insulated machines are insulated to 1000V AC RMS or 1500V DC.

⚠IMPORTANT

If your machine is a low voltage insulated model you will need to ensure that you read the "Low Voltage Insulation Section" at the end of this chapter.

■ Pre-start Inspection

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

⚠WARNING

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

⚠DANGER

NEVER use an EPV that has a known fault or is malfunctioning in any way until the machine has been repaired by a qualified technician.

Operating a machine in faulty condition could result in death or serious injury.

NOTE:

Whilst some of the safety rules and guidelines that follow may not apply specifically to this machine (e.g. references to driving) they are included as part of an overall safety strategy relating to the use of elevating work platforms.

■ Work Place Inspection and Practices

Do not use the EPV as a ground for welding. Ground to the work piece.

Before the EPV is used, and during use, check the area in which the EPV 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 EPV is used, determine the hazard classification of any particular atmosphere or location according to ANSI/NFPA 505.

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

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

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

Do not operate a EPV 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 EPV only on a firm, flat, level surface capable of withstanding all load forces imposed by the EPV in all operating conditions.

⚠DANGER

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

Do not operate the EPV 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 EPV as a crane, hoist, or jack,or for any other purpose other than to position personnel, their tools, and materials.

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

■ General Safety Precautions

Do not modify the EPV 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 EPV.

■ 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 EPV near a flame or spark. Hydraulic oil and gasoline are flammable and can explode.

■ 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 EPV 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 EPV 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.

⚠CAUTION

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.

⚠CAUTION

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 various safety decals and placards on the EPV.

⚠CAUTION

Be sure that all the safety decals and placards on the EPV Series 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.

⚠IMPORTANT

Typically, the majority of EPV machines are destined for the overseas market and leave the factory as a built up subframe only unit.

Final assembly, construction of the deck and mounting on a truck chassis is carried out ex-factory.

The decals are provided as a kit with the machine and placement of these decals is the responsibility of the business involved in mounting the subframe on the truck chassis. They should also provide you with a plan of the decal placement.

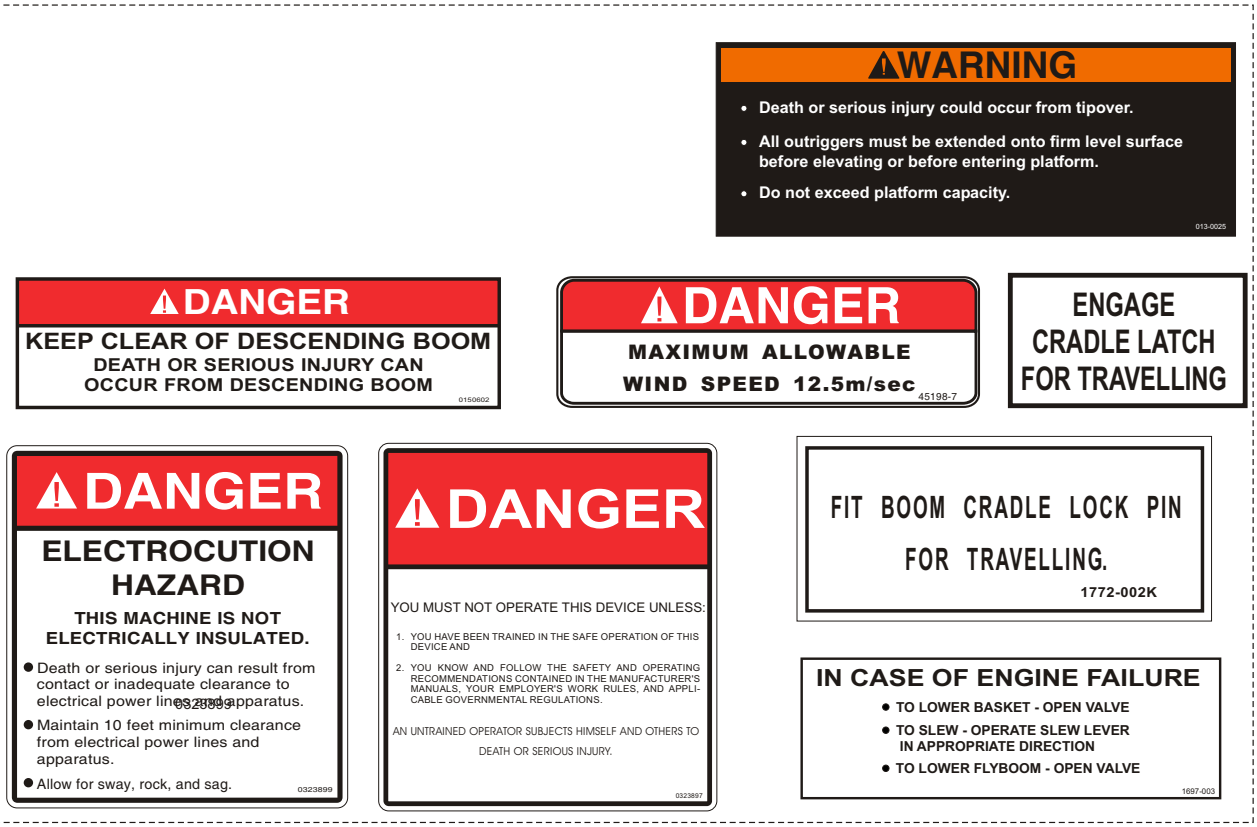
NOTE:

The following page shows the SAFETY decals most commonly used on the EPV although not their positions on the machine.

■ Safety Placards & Decals

PLATFORM DECALS

BASE / COLUMN DECALS



■ Low Voltage Insulation

The low voltage(LV) insulated EPV is insulated to 1000V AC or 1500V DC.

⚠IMPORTANT

If you have not yet read Chapter 1 "Safety" then do so now before you read this chapter.

This chapter only deals with safety issues specifically related to operating an EPV with low voltage insulation.

Chapter 1 covers all other aspects involved in the safe operation of an EPV and is essential reading.

This section does not set out to provide any detail on the safety issues or regulations concerned with the operation of a low voltage insulated EPV around live conductors.

This section is simply intended to alert the operator to general safety issues associated with an LV insulated machine.

■ Owner Responsibility

As stated previously in this manual, providing the operator with safety information and/or training on standards, codes of practice and local authority regulations concerning the operation of this machine is the responsibility of the owner of the machine.

■ Insulation Maintenance

⚠WARNING

The maintenance of the insulation is critically important to maintaining the insulation rating of the LV EPV.

The following are given as general guidelines for ensuring the maintenance of the insulation system.

The issues that are within the scope of the operator are covered in the "Pre-Operational Inspection".

1. Inspection of the interior and exterior insulator surfaces for signs of damage, which may lead to a reduction in dielectric properties.
2. Inspection of cover insulation for signs of cracking or corrosion.

⚠DANGER

Never use a LV EPV that has any damage to any of the insulator surfaces or covers.

3. Routine cleaning of the insulator interior and exterior surfaces of all road grime dust and other contaminants.

   Clean with soap and water and dry with a soft, lint free cloth.

   For contaminants that can not be removed with soap and water use methylated spirits or denatured alcohol followed by soap and water
4. Routine surface conditioning of the insulator surfaces so that the surface remains resistant to moisture.
5. Inspection and replacement as required of all insulation markers or signs (decals - see below).

■ Electrical Safety Certificate

All LV insulated machines are required to carry a certificate of electrical safety. Operators should ensure that there is a current electrical safety certificate for the machine they are using.

⚠DANGER

Never use a LV insulated EPV that does not have a current certificate of electrical safety.

■ Basket Emergency Exit

The LV fibreglass basket is fitted with an escape hatch in the form of a separate panel at the rear of the basket.

■ Earth Point

An earth attachment point is provided on the base of the machine and should be identified by a decal.

■ Safety Decals and Placards

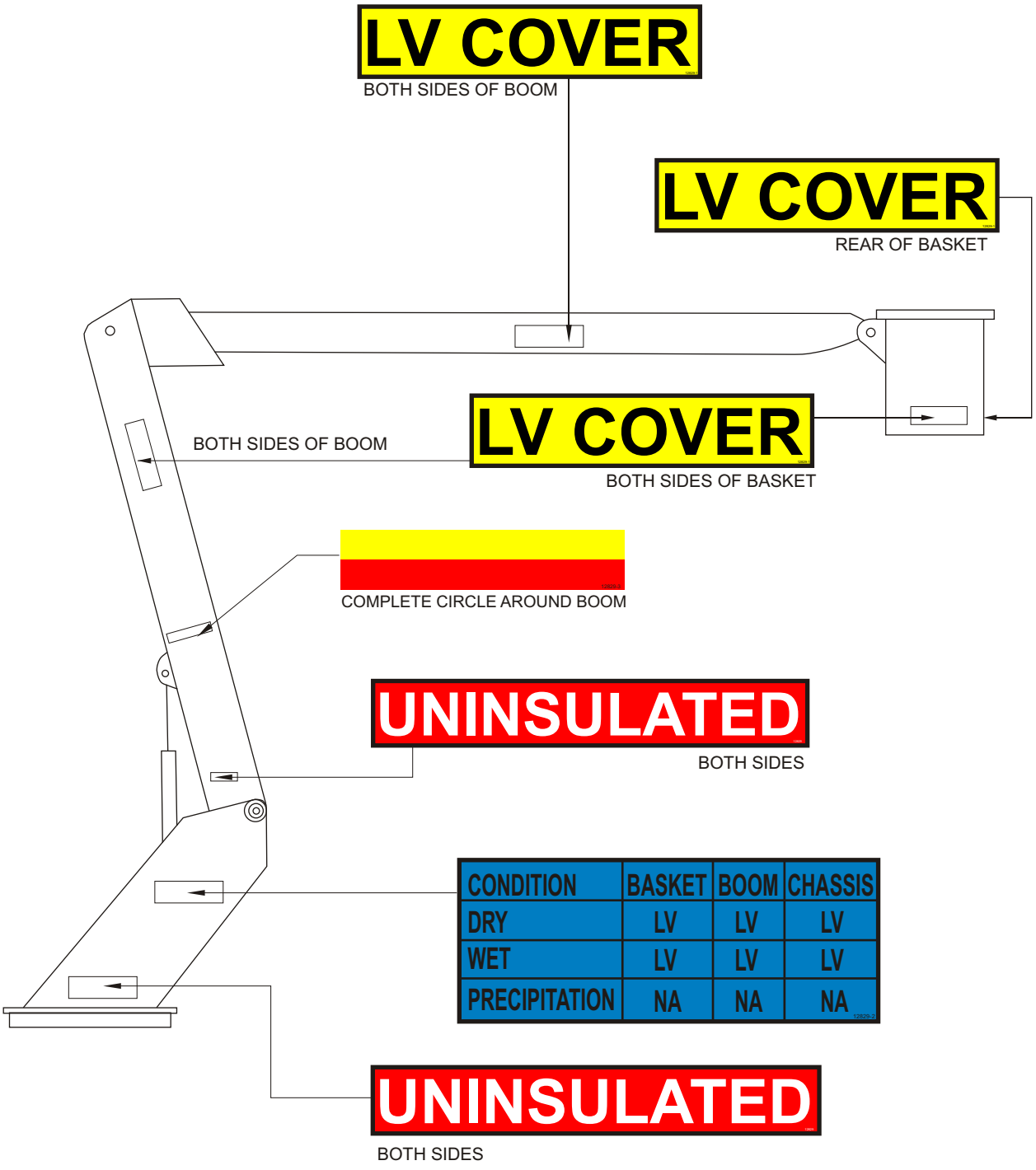
There are a number of safety decals and placards on the LV EPV that are specific to it's low voltage insulation rating. Their approximate locations and descriptions are shown in the sketch on the following page.

⚠CAUTION

Be sure that all the LV safety decals and placards are in place and legible.

Clean or replace them if you cannot read the words or see the pictures. Clean with soap and water and a soft cloth. Do not use solvents.

■ LV Insulation Safety Decals



■ Safety Device Information

For emergency operation controls and procedures see the Emergency Operation chapter 10, in this manual.

The devices listed in this chapter are safety devices.

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

⚠WARNING

Do not by-pass, disable, modify, or ignore any of these devices. Check them carefully at the start of each work shift to see that they are in working order (see Daily Inspection & Maintenance chapter 8). If any is found to be defective, remove the EPV from service immediately until a qualified service technician can make repairs.

■ Emergency Stop Switches

❑ At platform control station

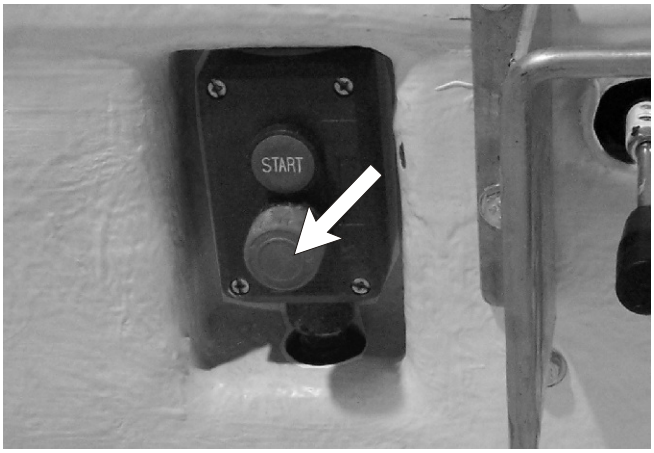


Figure 3.1 - Platform Control Station Emergency Stop Switch

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 EPV from the platform (pull the switch and it will pop out).

❑ At ground control station

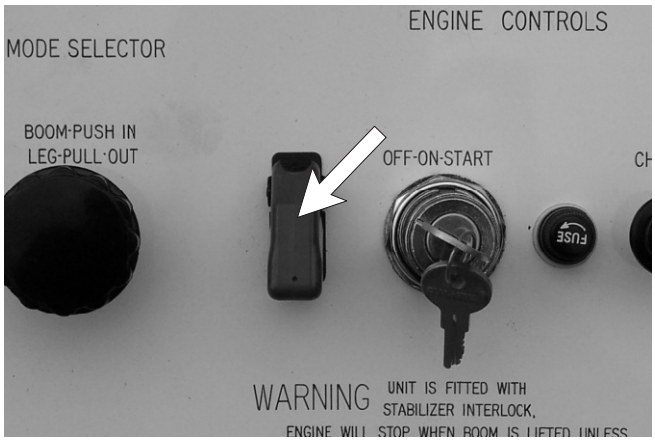


Figure 3.2 - Ground Control Station Emergency Stop Switch

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 EPV to work.

❑ At ground control station Units with PTO

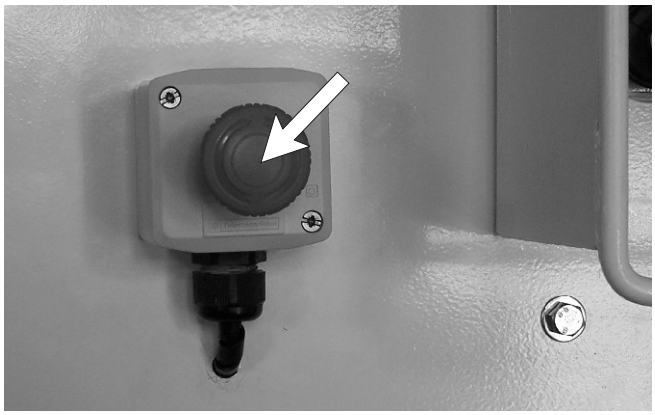


Figure 3.3 - Ground Control Station Emergency Stop Switch - Units with PTO

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 EPV from the platform (pull the switch and it will pop out).

Note:

Depending on individual customer requirements for machine configuration the 'Ground Control Emergency Stop Switch' may be located in a different position to that indicated in the photographs above.

■ Stabilisers

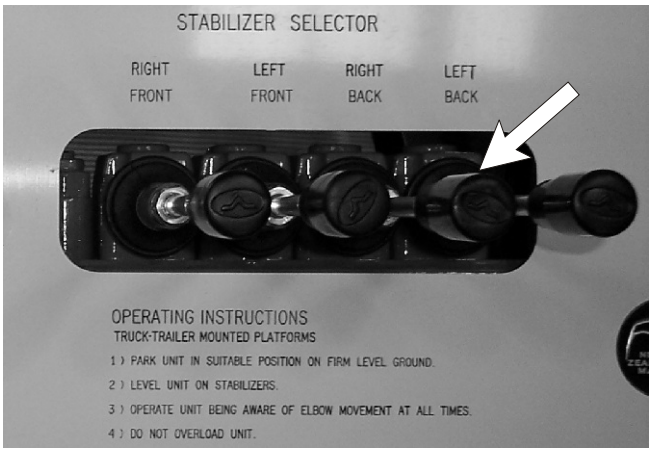


Figure 3.4 - Stabilisers

The stabiliser controls are mounted on the side of the column.

Note - PTO Units:

On units fitted with a PTO the stabilisers are mounted just below the truck deck on the chassis of the truck (see Figure 3.5).

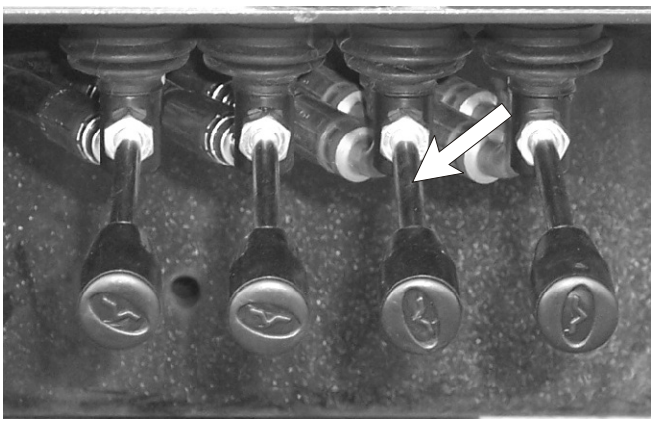


Figure 3.5 - Stabiliser Controls, PTO Units

The stabilisers are used to level the EPV (for complete stabiliser operating procedures see the Operation chapter 9).

NOTE

The EPV 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.

■ Bubble Level

See the Gauges chapter 5 for a discussion of the bubble level.

■ Alarms

If the unit is fitted with a level alarm this will sound if the truck is more than 5° from level.

If the alarm is sounding when setting up, level the truck using the stabilisers.

If the alarm sounds after the booms are raised, the unit will not operate. Use the emergency bleed down function to lower the booms.

Note:

Not all truck units will be fitted with a level alarm. It depends on the configuration of the truck and if it is fitted with a torsion bar or not.

■ RCD/ELCB AC Outlet (option)

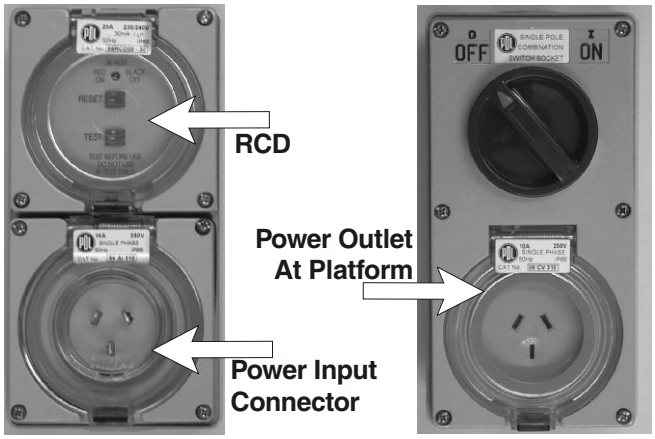


Figure 3.6 - RCD/ELCB AC Outlet

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

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

■ Lanyard Anchor Points

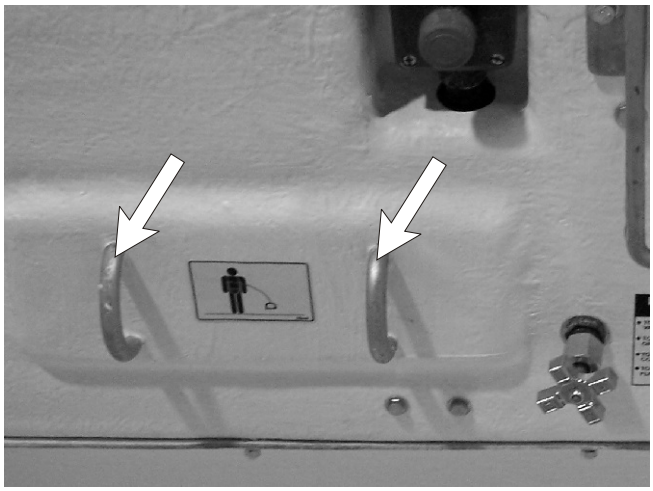


Figure 3.7 - Lanyard Anchor Points

There are two anchors in the platform.

NOTE

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

You should attach your fall protection to the anchors.

■ Engine Shut Down

When a unit is fitted with a PTO, i.e. the pump is driven off the gearbox of the truck they have an INTERLOCK that is wired so that if the truck is put into gear when the PTO is engaged the engine will shut off.

■ Specifications

The Snorkel EPV Series is a boom supported elevating work platform built to conform to all applicable OSHA, ANSI or CSA standards as previously outlined.

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 Elevating Work Platforms.

❑ Recommended Hydraulic Oil

Shell Tellus 32 or Castrol AWS 32 or similar

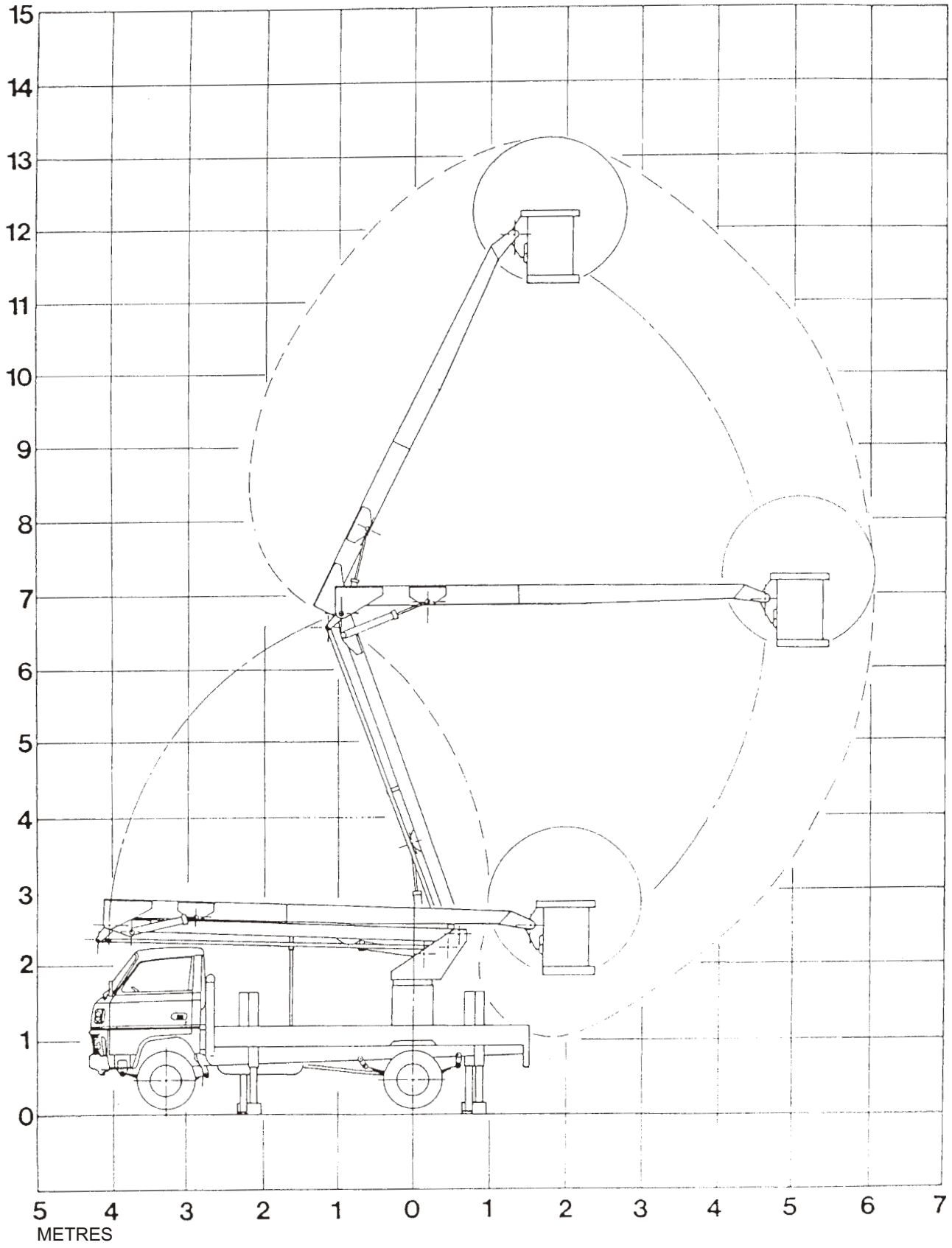
NOTE:

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

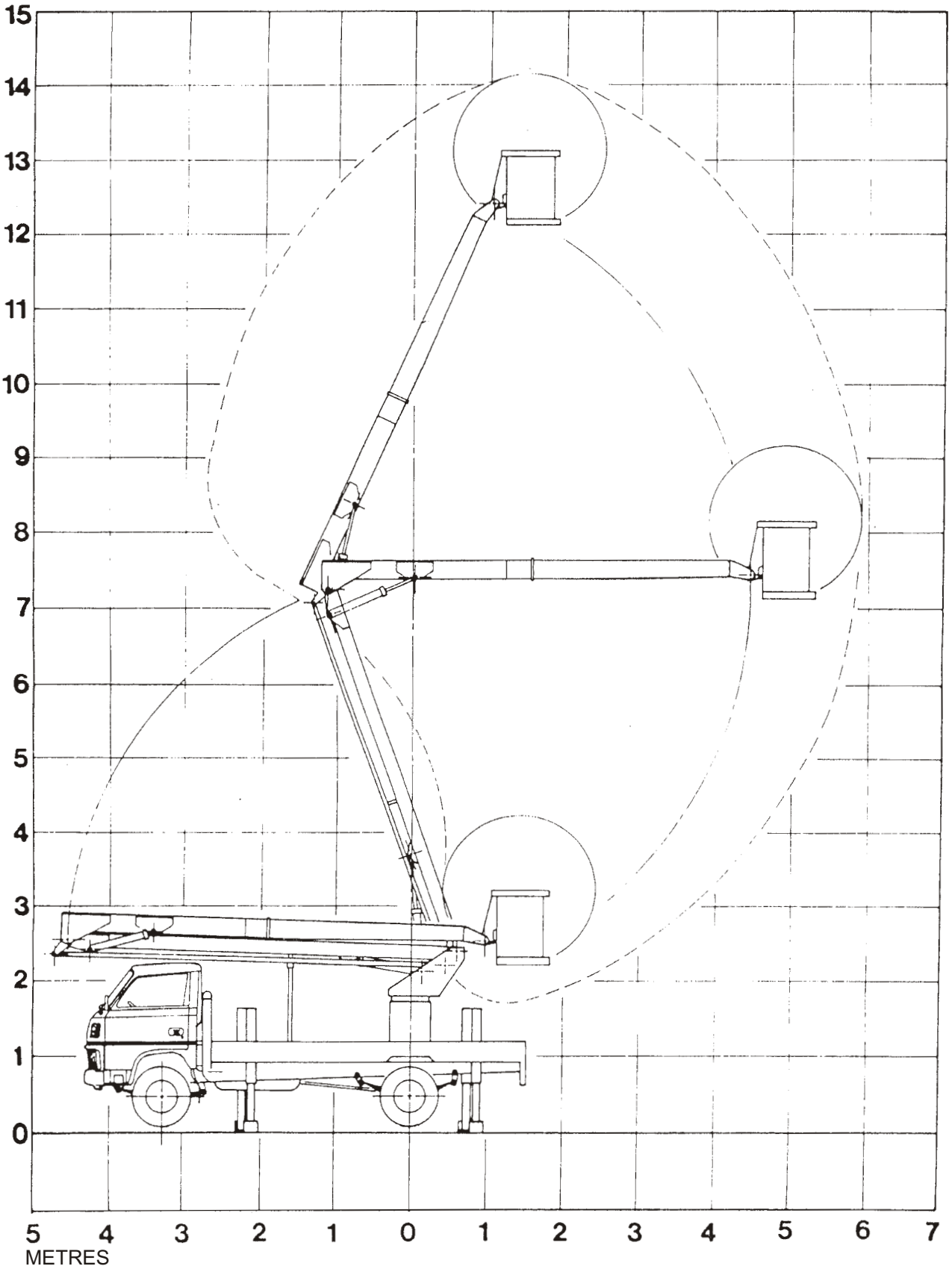
■ General Specifications, EPV Series

SPECIFICATIONS	EPV12-2B	EPV14-2B	EPV16-DB
Nominal working height	12m	14m	15.8m
Maximum height of platform floor	11m	12m	13.8m
Maximum outreach	5.3m	5.1m	7.0m
Maximum outreach height	6.0m	7.0m	9.0m
Maximum width of base	3.2m		
Safe working load	250kg	250kg	200kg
Approximate time to: Fully raise lower boom	55sec		
Approximate time to: Fully raise upper boom (from ground level)	120sec	75sec	75sec
Approximate time for: 360° slew	50sec	50sec	50sec
Platform size	1060 x 610 x 1000mm		

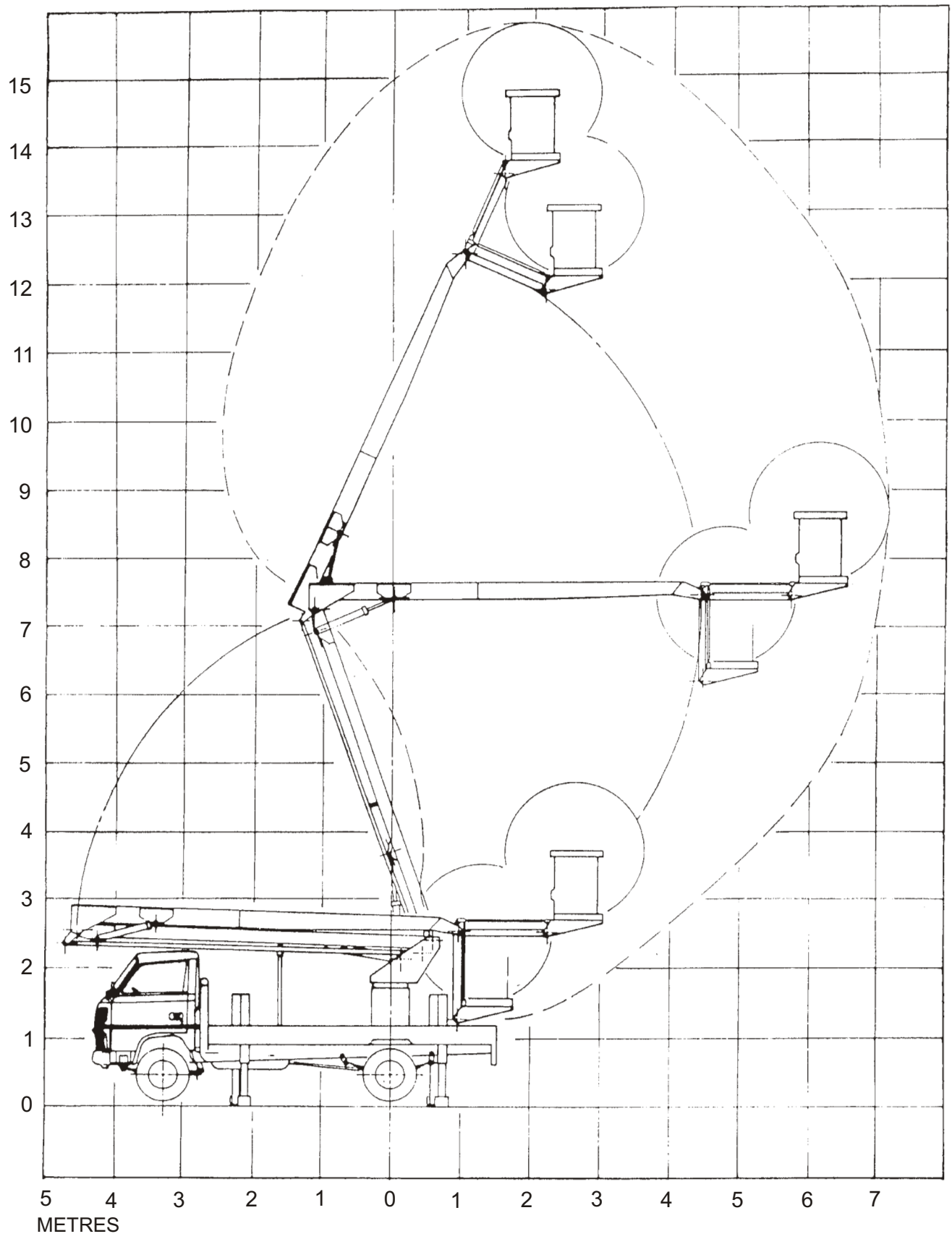
■ EPV12-2B Working Envelope



■ EPV14-2B Working Envelope



■ EPV16-2B Working Envelope



■ Engine Oil

Engine oil level is measured with a dipstick which is combined with the oil filler cap.

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.

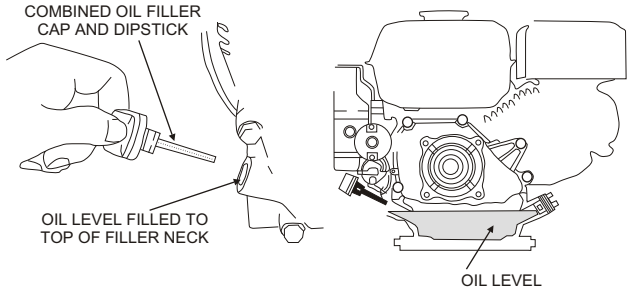


Figure 5.1 - Engine Oil Level

■ Hydraulic Oil Level

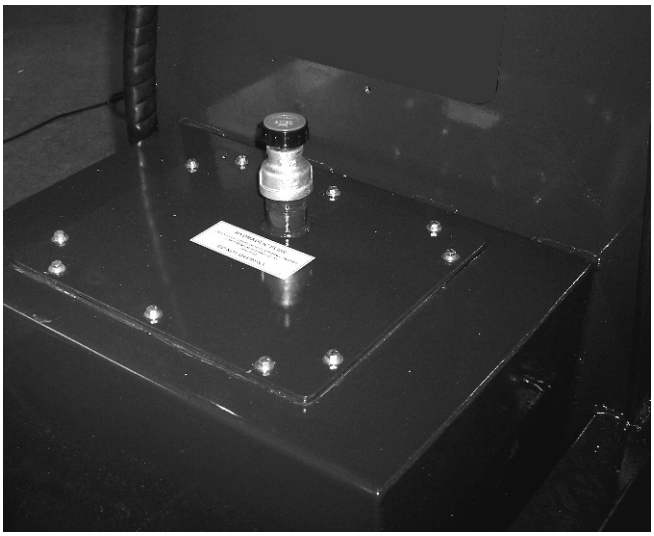


Figure 5.2 - Hydraulic Oil Level

The hydraulic-oil level is measured by means of a dipstick attached to the filler cap. The hydraulic oil level should be measured with the booms fully lowered. The hydraulic oil level should be between the two marks on the dipstick.

The hydraulic oil tank is mounted at the rear of the plinth.

If necessary add hydraulic oil at the filler cap.

■ Bubble Level

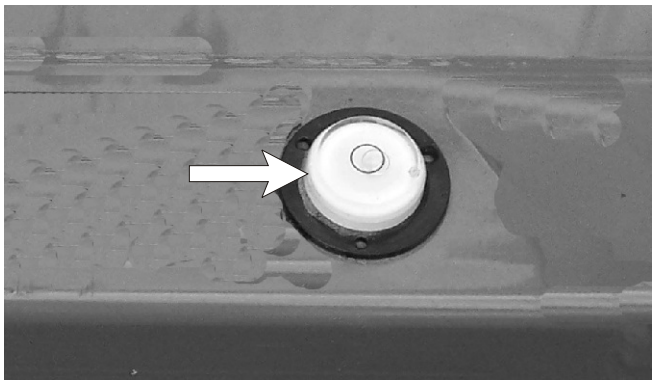


Figure 5.3 - Bubble Level

A bubble level should be located on the edge of the truck deck. Watch the bubble level while you set the stabilisers manually. 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 EPV or raise the platform. For more information see the Level Sensor/Alarms subsection of the Safety Devices 3 chapter.

❑ Interlocks

- Stabilisers

On units fitted with interlocks the stabilisers must be fully extended until the 'blue stripe' is visible. Failure to do this will cause the engine to stop when the boom is raised.

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

- PTO fitted units

When a unit is fitted with a PTO they have an additional interlock that is wired so that if the truck is put into gear when the PTO is engaged the engine will shut off

■ Circuit Breakers

❑ Fuse

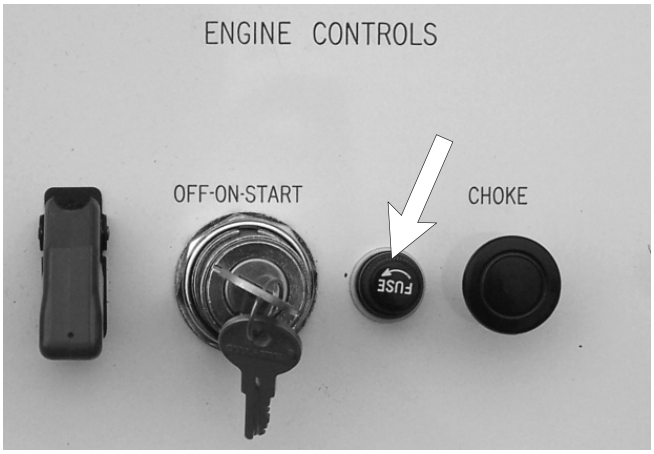


Figure 6.1 - Fuse

There is only one fuse, on a standard EPV, that is accessible to the operator. Its purpose is to protect the electrical circuits from electrical overloads. When the fuse blows, replace it with a fuse of identical rating, then attempt to use the EPV.

If the fuse blows a second time, take the EPV out of service and refer the problem to a qualified trained service technician for repair.

❑ RCD / ELCB outlet (option)

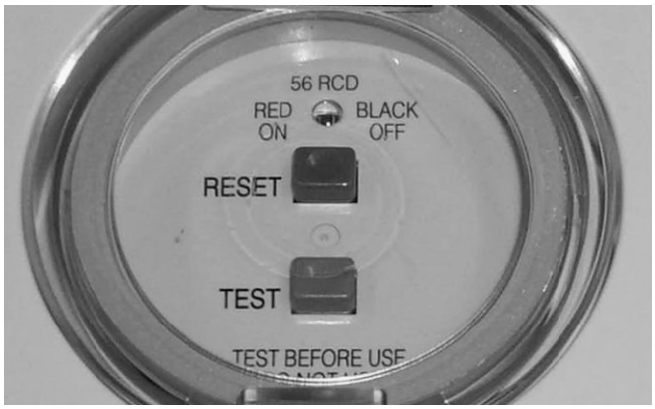


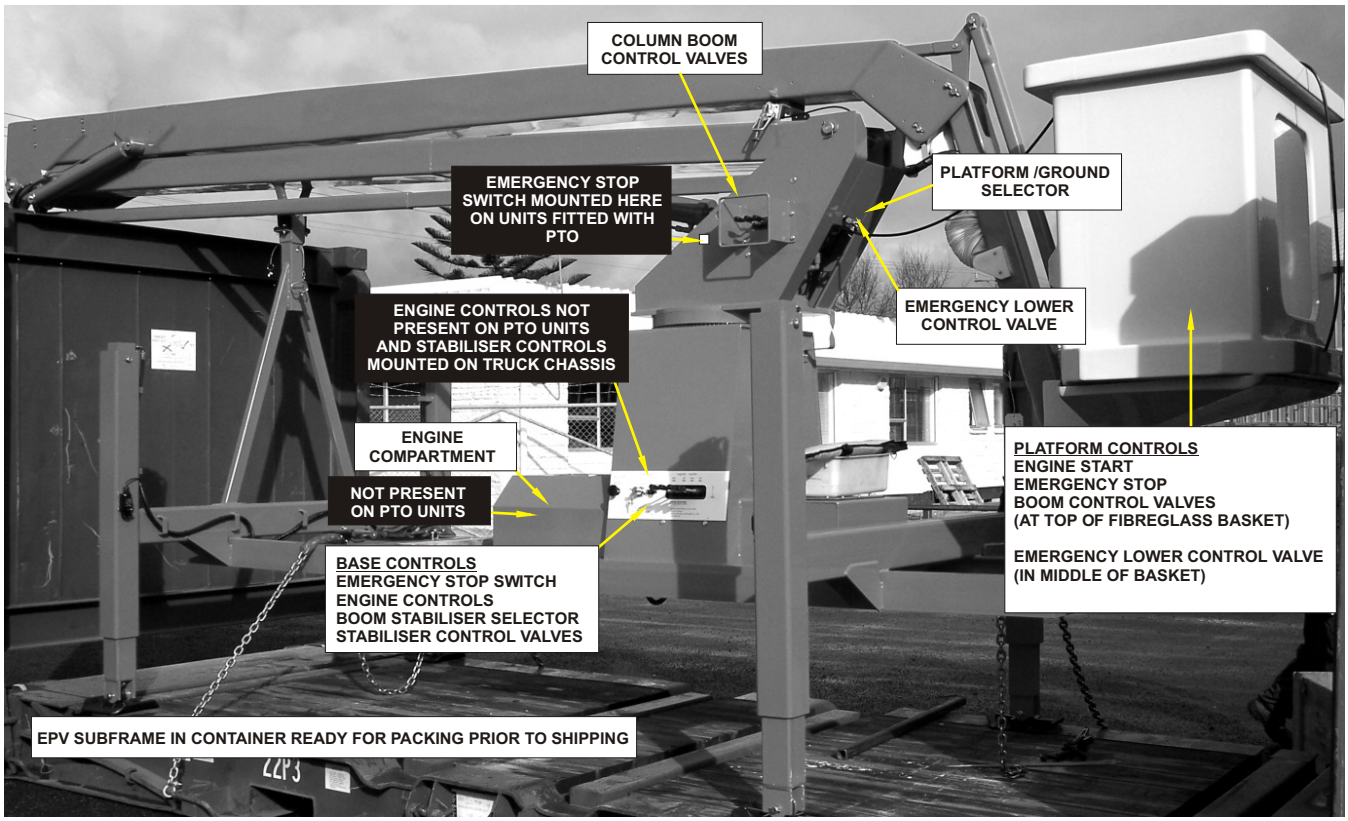
Figure 6.2 - RCD/ELCB Outlet

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.

■ Location of EPV Controls



■ 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 9 for that, after you have read this chapter.

See the Emergency Operation chapter 10 for the location of the emergency bleed down control and for correct emergency bleed down procedures.

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

■ Platform Controls

The platform has the following controls:

- ❍ Emergency stop switch
- ❍ Engine start button
- ❍ Boom valve control levers
- ❍ Emergency lower valve

1. **Emergency Stop:** Press the red button ❶ in at any time, under any conditions, and the entire machine stops - the engine turns off and nothing moves (see Figure 7.1). This button must be out (on) to start and run the EPV from the platform. Press the button in (off) if the platform is to stay in one position for a long time. This will stop the engine and save fuel.

2. **Start Button:** Press this green button ❷ to start the engine from the platform position (see Figure 7.1).

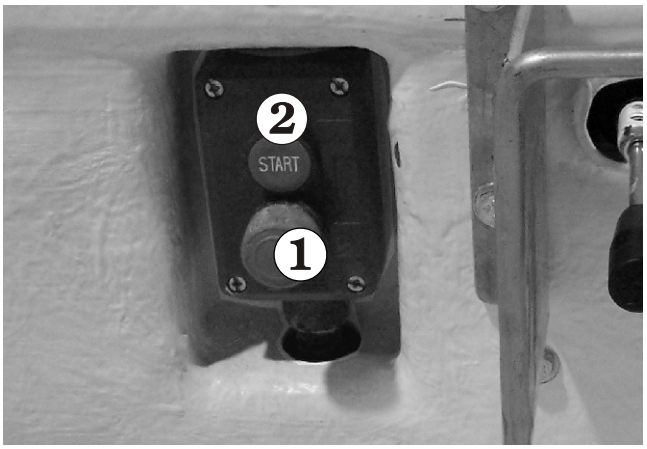


Figure 7.1 - Platform Emergency Stop and Engine Start Controls

3. **Boom Valve Control Levers:** The control functions of the platform valve control levers are:
   - ❶ SLEW right or left
   - ❷ Move the LOWER BOOM up or down
   - ❸ Move the UPPER BOOM up or down
   - ❹ Move the FLY BOOM up or down.

   (see Figure 7.2).

Note - Fly Boom

The fly boom is only available on the EPV16-DB

All lever movement is vertical.
This produces a corresponding up/down movement in the booms for control levers ❷ to ❹, whilst moving lever ❶ up produces a slew to the right and moving lever ❶ down produces a slew to the left.

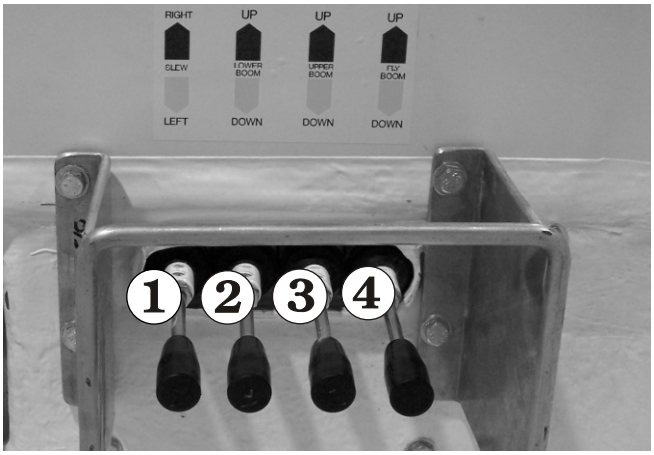


Figure 7.2 - Platform Valve Control Levers

4. **Emergency Bleed Down:** In the event of a control failure or other emergency the platform can be lowered using this valve. Turn the valve counter clockwise to lower the platform to the ground.
   The UPPER boom will begin to lower immediately (see the 'Emergency Operation' chapter for details on emergency lowering procedures).

Figure 7.3 - Platform Emergency Bleed Down Valve.

■ Lower Controls Column Base

- ❍ Emergency stop switch
- ❍ Stabiliser control valves
- ❍ Boom / stabiliser selector
- ❍ Master key switch
- ❍ Choke

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 (on) to start and run the EPV. (see Figure 7.4)

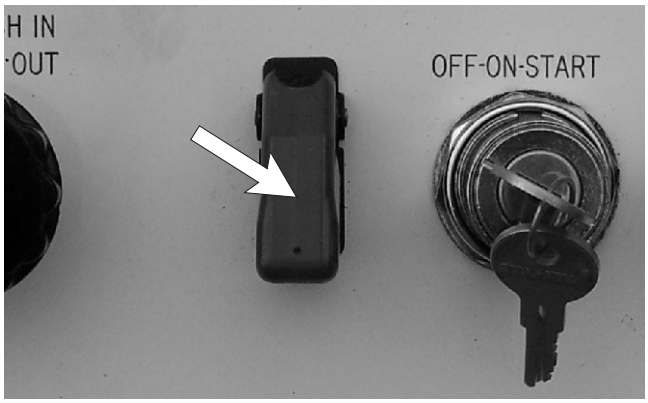


Figure 7.4 - Emergency Stop Switch, Lower Controls

2. **Emergency Stop - PTO Units:** Press the large red button in and the entire machine stops, the engine turns off, and nothing moves (see Figure 7.5). This switch must be out (on) to start and run the EPV (pull the switch and it will pop out).

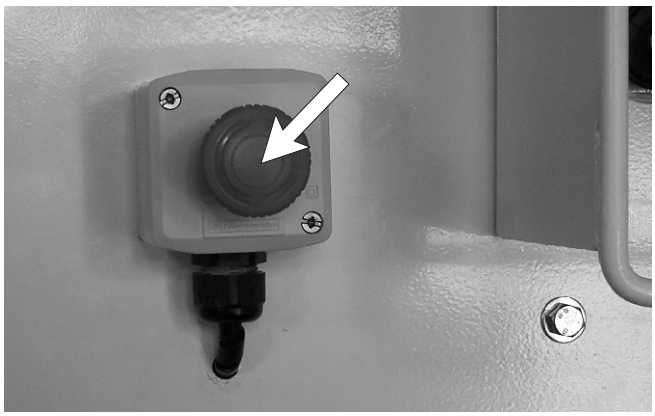


Figure 7.5 - Emergency Stop Switch, Lower Controls - Units with PTO

Note:

The EMERGENCY STOP switch AT the ground control station overrides the one at the platform control station. If the one at the ground control

station is off the EPV will not start or run, it does not make any difference whether the one on the platform control station is on or off.

3. **Stabiliser Control valves:** Moving the levers UP raises the stabilisers whilst pushing the levers DOWN lowers the stabilisers (see Figure 7.6).

Note PTO Units:

On units fitted with a PTO the stabiliser control valves are mounted on the truck chassis (see Figure 7.7).

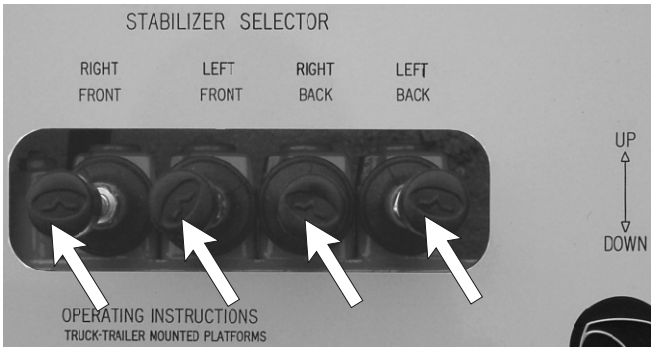


Figure 7.6 - Stabiliser Control Valves

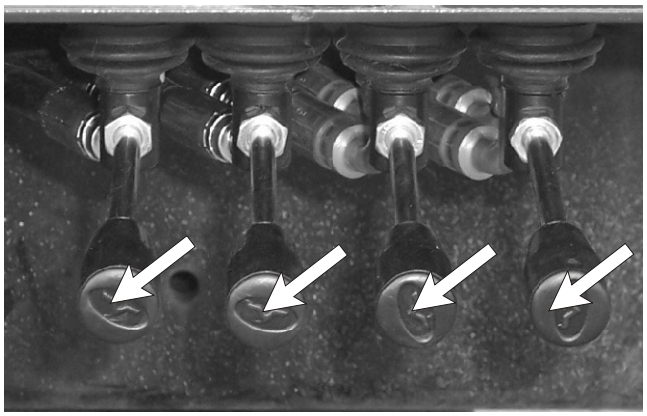


Figure 7.7 - Stabiliser Control Valves, Units Fitted with PTO

4. **Boom / Stabiliser Selector Switch:** Push this switch in to select BOOM operation and pull it out to select STABILISER operation (see Figure 7.8).

Note PTO Units:

On units fitted with a PTO the Boom / Stabiliser selector switch is mounted alongside the stabiliser levers on the truck chassis.

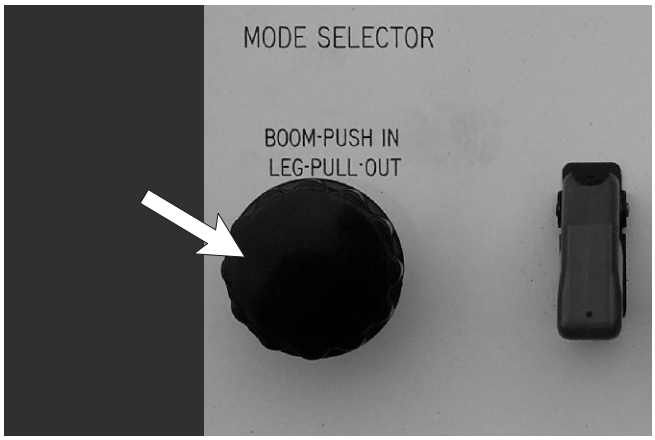


Figure 7.8 - Boom / Stabiliser Selector Switch

5. **Master Key Switch:** This 3 position key switch ❶ (see Figure 7.9) works like an automobile ignition switch (see Chapter 9, Operation for details on engine starting).
6. **Choke Control:** Press this button ❷ to operate (see Figure 7.9) (see Chapter 9, Operation for details on engine starting).

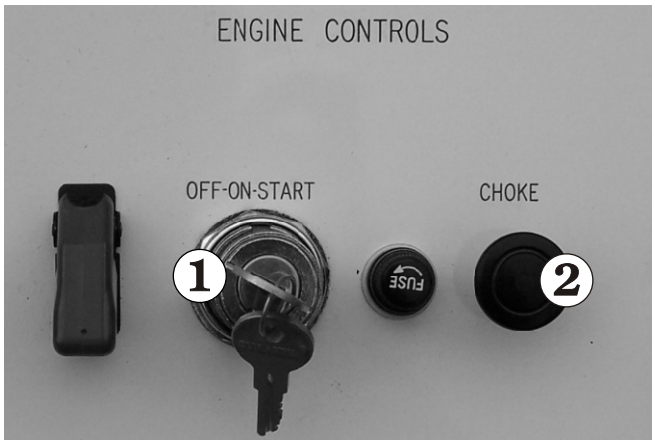


Figure 7.9 - Engine Controls

■ Lower Controls Column Side

❍ Boom controls

1. **Boom Control Valve Levers:** Mounted on the side of the column (see Figure 7.10) the functions of the valve levers are as follows:
   ❶ SLEW right or left
   ❷ Move the LOWER BOOM up or down
   ❸ Move the UPPER BOOM up or down.
   All lever movement is vertical.
   This produces a corresponding up/down movement in the booms for control levers ❷ and ❸ , whilst moving lever ❶ up produces a slew to the right and moving lever ❶ down produces a slew to the left.

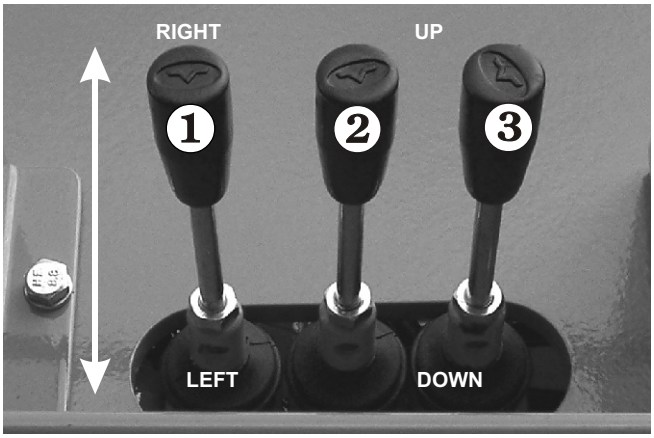


Figure 7.10 - Lower Boom Control Valve Levers

Note - Operator in the Platform

With an operator in the platform these lower control levers should be considered as being for EMERGENCY USE ONLY.

■ Lower Controls Column Rear

- ❍ Emergency lower valve
- ❍ Platform / Ground selector switch

1. **Emergency Bleed Down:** Located at the rear of the column (see Figure 7.11) this valve provides facility to lower the platform in the event of a control failure or other emergency. Turn the valve counter clockwise to open it and lower the platform to the ground.
   The UPPER boom will begin to lower immediately (see the 'Emergency Operation' chapter for details on emergency lowering procedures).

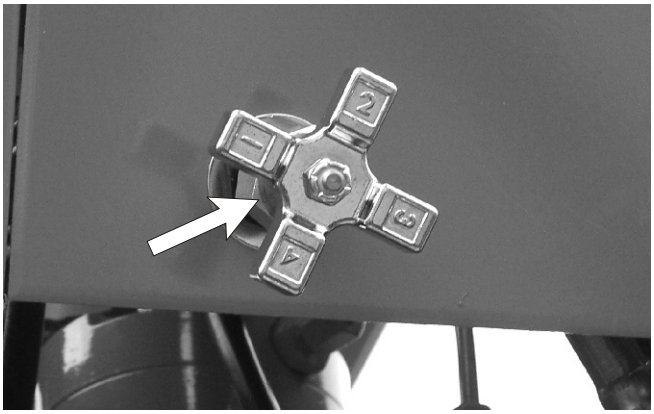


Figure 7.11 - Lower Emergency Bleed Down Valve

2. **Platform / Ground Selector Switch:** Located at the rear of the column (see Figure 7.12) adjacent to the emergency lower valve. Select PLATFORM or GROUND operation. Wichever station is selected, the other becomes inoperative.

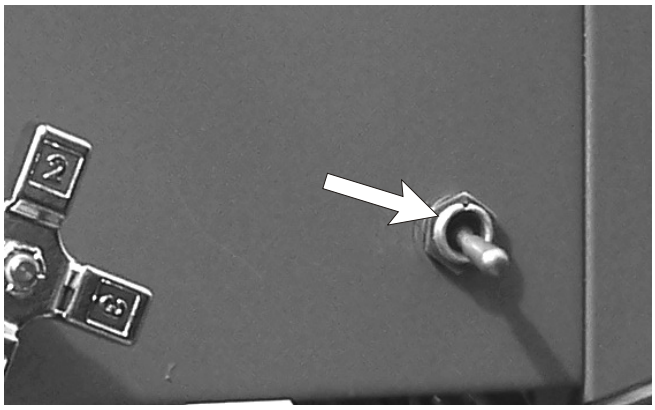


Figure 7.12 - Platform / Ground Selector Switch

At the start of each work day (or 8 hour shift), an EPV qualified operator must perform the Daily Inspection and maintenance (or Pre-Operation Inspection as it is sometimes referred to), as listed in the table below.

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

Set the Key Switch 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 EPV that is known to be damaged or malfunctioning.

Repair all equipment damage or malfunctions, before placing the EPV into service

■ Daily Inspection and Maintenance Table

Item	Service Required
Fuel level*	Visually inspect
Fuel tank cap*	Check to see that cap is tight
Fuel leaks*	Visually inspect (hoses and connections etc)
Engine oil*	Check oil level (between dipstick lines)
Engine cover*	Check that latches are secure
Wiring harnesses and connectors	Visually inspect (installation, operation)
Battery terminals*	Visually inspect (no corrosion)
Battery fluid level*	Visually inspect (covers plates)
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)
Bolts and fasteners	Visually inspect (looseness)
Structural damage and welds	Visually inspect (welds, cracks, dents)
Lanyard anchorages	Visually inspect (condition)
Bubble level	Visually inspect (condition)
Placards, decals, and Operators Manual	Visually inspect (installation and condition)
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	Visually check (operation)
RCD / ELCB (option)	Check operation
Low Voltage Insulated EPV Only	
Insulation covers	Visually inspect (for cracks or damage)
Fibreglass basket	Visually inspect (for cracks or damage)
Fibreglass basket emergency exit hatch	Check operation
Boom insulation covering	Visually inspect (for signs of cracking or corrosion)
Cleanliness	Check all insulated surfaces (including basket) for road grime, dirt, and other contaminants

Note:
If your EPV is driven by a PTO from the truck the inspection items marked with (*) can be bypassed.

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

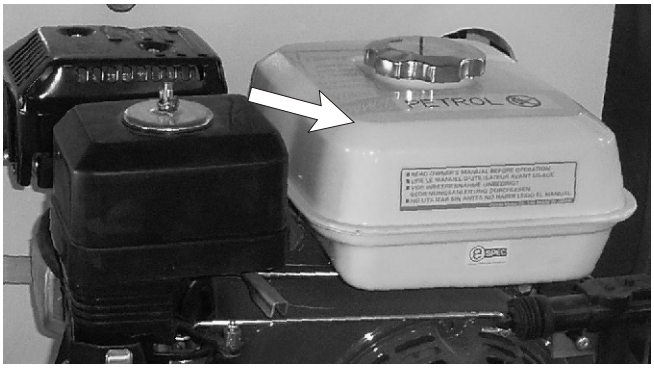


Figure 8.1 - Fuel Level

Visually check to see that the petrol tank is full.

⚠CAUTION

The handling and use of petrol presents a serious risk of fire and explosion if due care is not exercised. Refer to the refueling instructions in the 'Safety Chapter'.

■ Fuel Tank Cap

Figure 8.2 - Fuel Tank Cap

Check that the tank cap is in place and tight.

■ Fuel Leaks

Visually inspect the fuel tank and engine for any sign of fuel leaks.

■ Engine Oil

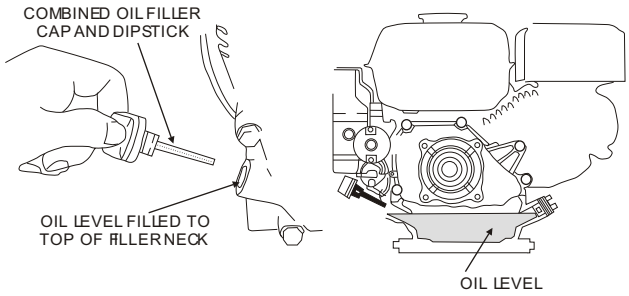


Figure 8.3 - Engine Oil Level

Remove the oil filler cap and wipe the dipstick clean. Insert the dipstick into the oil filler neck, but do not screw it in.If the level is low, fill to the top of the filler neck with the recommended oil.

■ Engine Cover

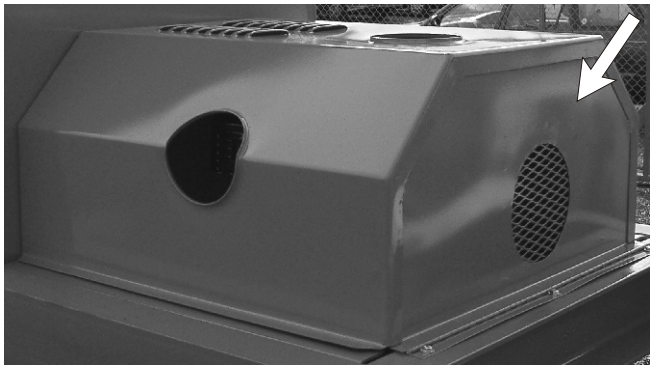


Figure 8.4 - Engine Cover

Ensure that the engine cover is in place and latched securely.

■ Wiring Harnesses and Connectors

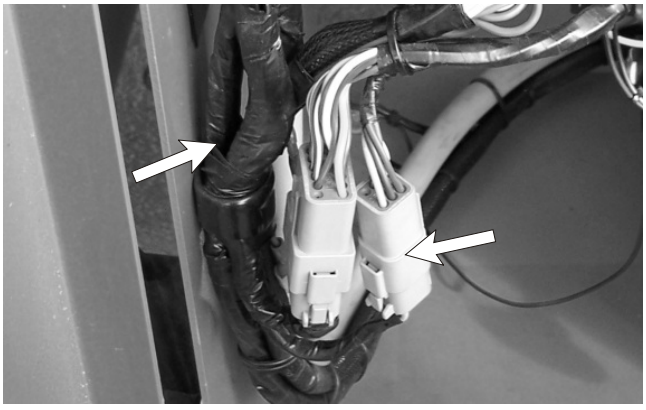


Figure 8.5 - Wiring Harness

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

■ Batteries

❑ Battery Terminals

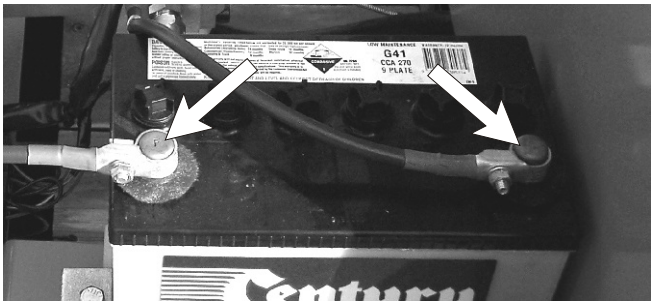


Figure 8.6 - Battery Terminals

Check the condition of the battery terminals to ensure they are clean and free of corrosion and the battery leads firmly attached.

❑ Battery Fluid Level

⚠WARNING

Batteries emit hydrogen and oxygen, elements 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.

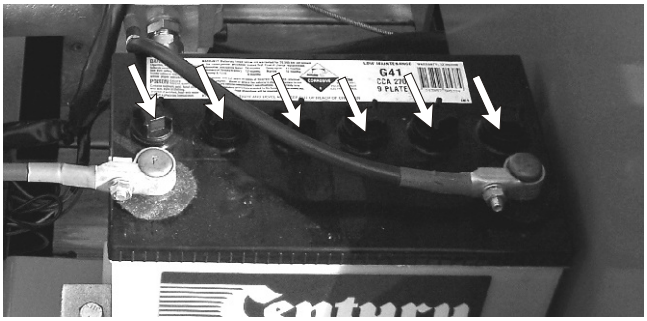


Figure 8.7 - Battery Fluid Level

Remove the caps from the battery and visually check to see that the battery fluid is 1/4 (6 mm) below the bottom of the filler neck inside each hole.

Note

Some units may be fitted with a "maintenance free" battery.

■ Hydraulic Oil Tank

❑ Hydraulic tank cap

Check to see that the cap is in place and is tight .

❑ Hydraulic oil level

To check the hydraulic oil level: Completely lower the platform. Unscrew the tank cap (see Figure 8.8) and withdraw the attached dipstick. The hydraulic oil level should be at the full level according to the dipstick. If necessary, add hydraulic oil at the Hydraulic oil tank filler.

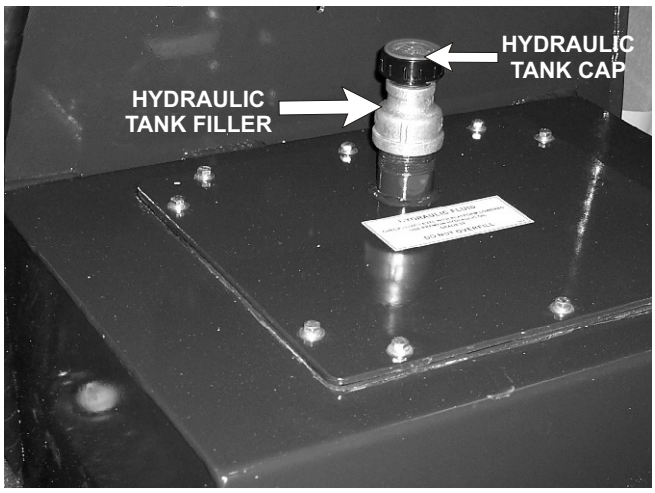


Figure 8.8 - Hydraulic Oil Level

■ 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.

Do not search for leaks with your hand. have a qualified trained maintenance person repair all hydraulic leaks before you operate an EPV.

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.

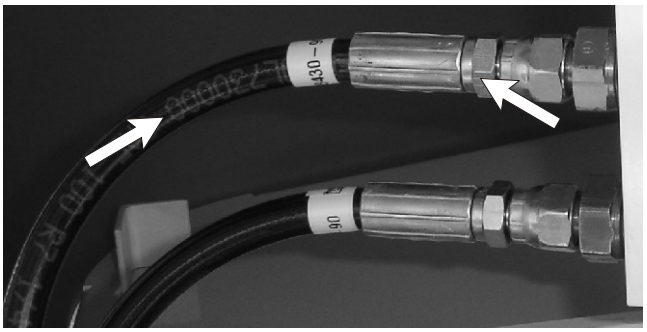


Figure 8.9 - Leaks at Hoses and Fittings

Check all fittings and hoses for leaks. Inspect hoses for signs of damage from chaffing or rubbing against protrusions on the chassis.

Carefully inspect the ends of the upper and lower booms. Leaking oil can run down the inside of the booms and drip out the end.

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.

Have a qualified trained maintenance person repair all hydraulic fluid leaks before you operate an EPV.

■ Bolts and Fasteners

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

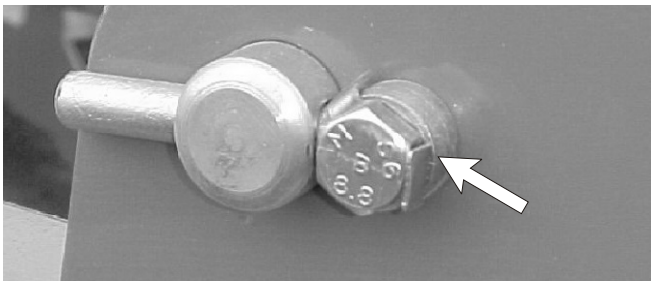


Figure 8.10 - Critical Pin Retainer Bolts

Critical pin retainer bolts have lock tab washers fitted, they should all be present and not damaged in any way.

■ Structural Damage & Welds

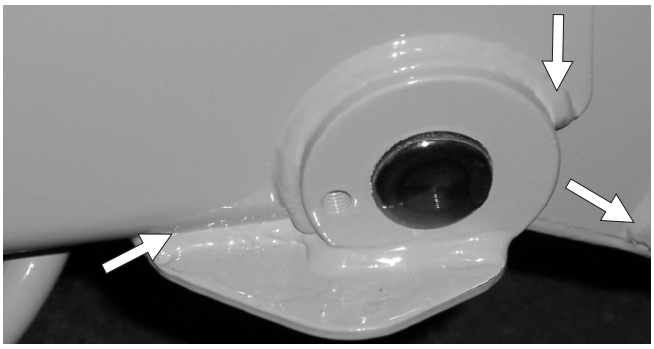


Figure 8.11 - Structural Damage and Welds

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

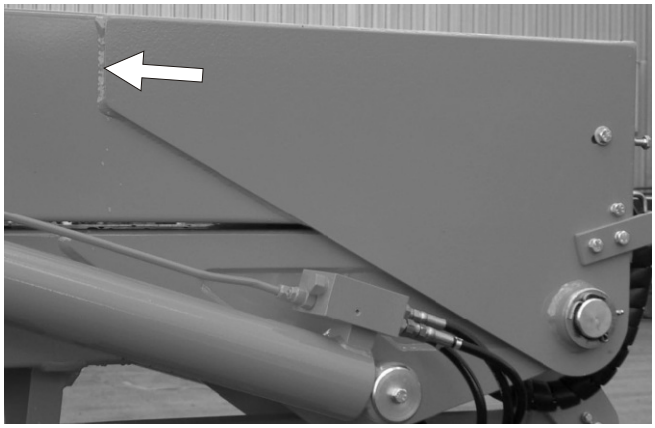


Figure 8.12 - Boom Welds

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.

■ Lanyard Anchors

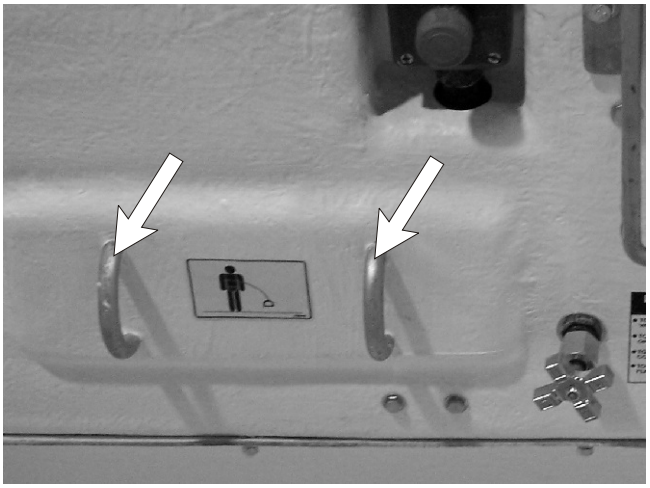


Figure 8.13 - Lanyard Anchors

Visually inspect the lanyard anchor points to see that they are not deformed, damaged or cut off.

■ 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.

Before proceeding with the next section of the pre-operational inspection you will need to start the engine and set the stabilisers. Refer to the Operation Chapter if you need assistance.

■ Ground Controls

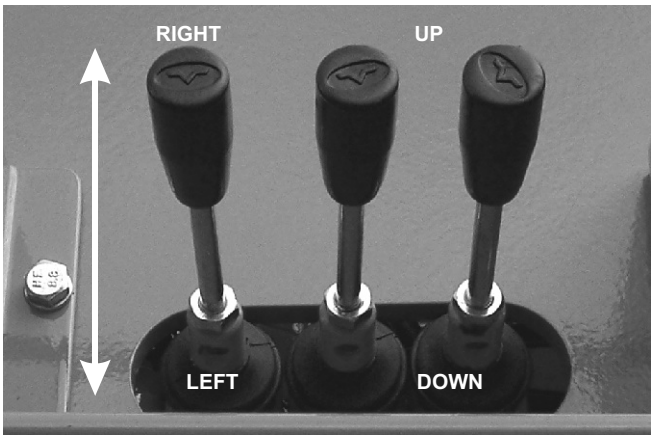


Figure 8.14 - Ground Controls

Set the Platform/Ground selector switch to GROUND.

Check that each of the boom operating valve levers causes the EPV to move the way it should (see Figure 8.14).

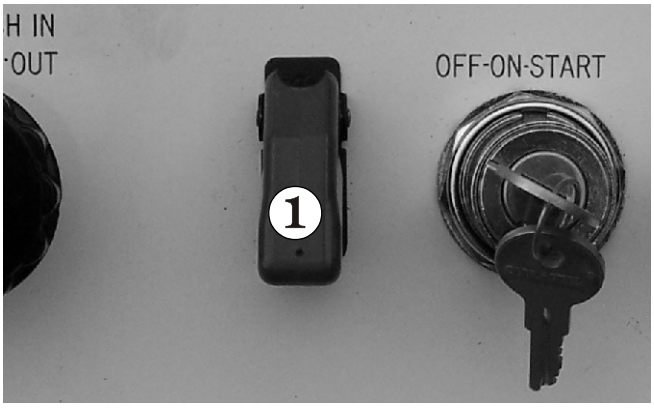


Figure 8.15 - Emergency Stop Switch

Pay particular attention to the Emergency Stop switch ❶ (see Figure 8.15) to see that it turns the EPV engine off when struck.

With the booms raised open the emergency lower valve at the rear of the column.

The Upper Boom should begin to lower immediately.

Operate lower boom and slew levers whilst lowering to check that these operate correctly during an emergency descent.

⚠IMPORTANT

Remember to close the emergency bleed down valve at the completion of this test to ensure proper boom operation.

■ Platform Controls

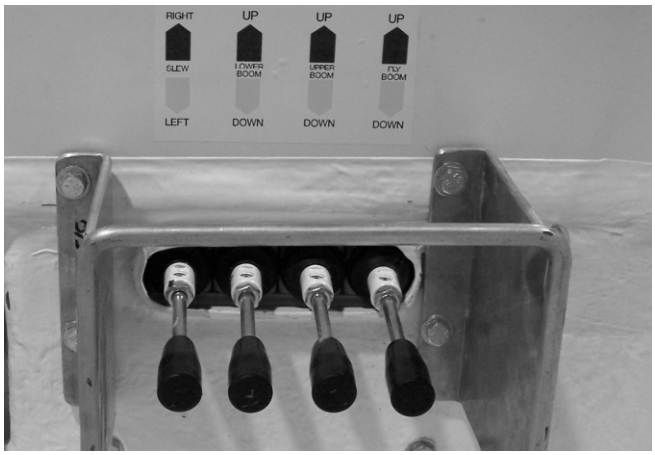


Figure 8.16 - Platform Controls

Set the Platform/Ground selector switch to PLATFORM and enter the platform.

Check that each of the boom operating valve levers causes the EPV to move the way it should (see Figure 8.16).

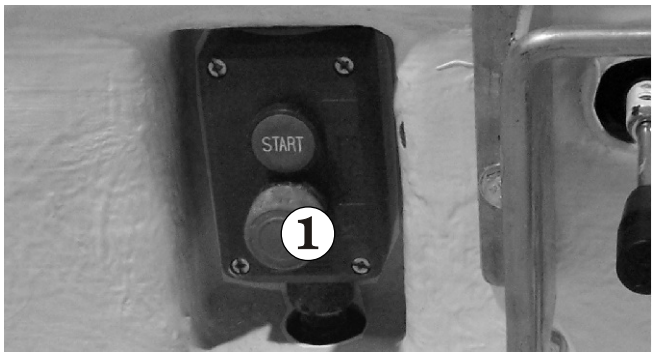


Figure 8.17 - Emergency Stop Switch

Pay particular attention to the **Emergency Stop** switch ❶ to see that it turns the engine off when struck (see Figure 8.17).

With the booms raised open the emergency lower valve in the basket.

The Upper Boom should begin to lower immediately.

Operate lower boom and slew levers whilst lowering to check that these operate correctly during an emergency descent.

⚠IMPORTANT

Remember to close the emergency bleed down valve at the completion of this test to ensure proper boom operation.

■ Flashing Light

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

At the completion of this section of the pre-operational inspection the EPV can be put back into the stowed position or placed into service.

■ RCD / ELCB (Option)

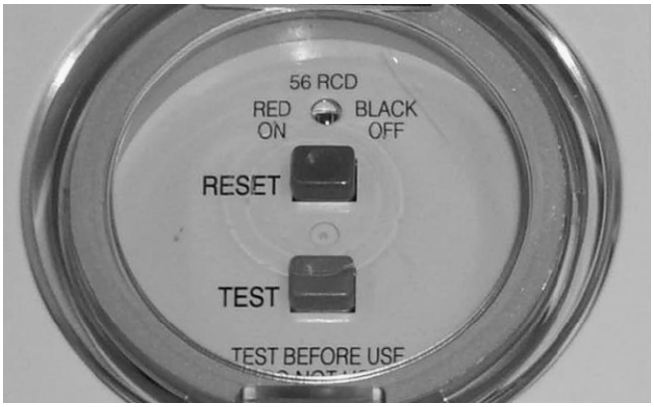


Figure 8.18 - RCD / ELCB

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.

■ Placards and Decals

⚠CAUTION

Be sure that all the decals and placards on the EPV Series 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.

⚠IMPORTANT

Typically, the majority of EPV machines are destined for the overseas market and leave the factory as a built up subframe only unit.

Final assembly, construction of the deck and mounting on a truck chassis is carried out ex-factory.

The decals are provided as a kit with the machine and placement of these decals is the responsibility of the business involved in mounting the subframe on the truck chassis. They should also provide you with a plan of the decal placement.

This Section for LV Insulated EPV Only

■ Low Voltage Insulated EPV

❑ Insulation covers

Inspect all the insulation covers on knuckle joints, cylinders etc. Look for cracks, corrosion, chips or any form of structural damage to the covers.

❑ Fibreglass basket

Inspect the interior and exterior of the basket for any form of damage or corrosion. Look for cracks, especially in the bottom of the basket (which are aften easiest to see from underneath).

Check the operation of the emergency exit door.

❑ Boom insulation covering

Check the boom insulation covering for any signs of cracking or corrosion.

❑ Cleanliness

Check that all insulating surfaces and covers are clean and free from dirt and all other contaminants. Clean with soap and water and dry with a soft, lint free cloth.

For contaminants that can not be removed with soap and water use methylated spirits or denarured alcohol followed by soap and water.

■ Operating Procedures

Read and understand all the previous chapters and the following chapter on Emergency Operation before you begin to operate an EPV.

This chapter explains how to operate an EPV.

Instructions for starting an EPV with a diesel engine are provided here.

■ Control Stations

An EPV can be started and operated from the ground control station or from the platform control station.

There will clearly be some differences in operating procedures with those units that have a PTO rather than the Honda engine.

⚠IMPORTANT

The ground control station can override the platform control station 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 EPV 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 EPV ground controls if the platform, booms or any other conducting part of an EPV 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 EPV, push either Emergency Stop switch, at any time at either the ground control station or the platform control station and the entire machine stops and nothing moves.

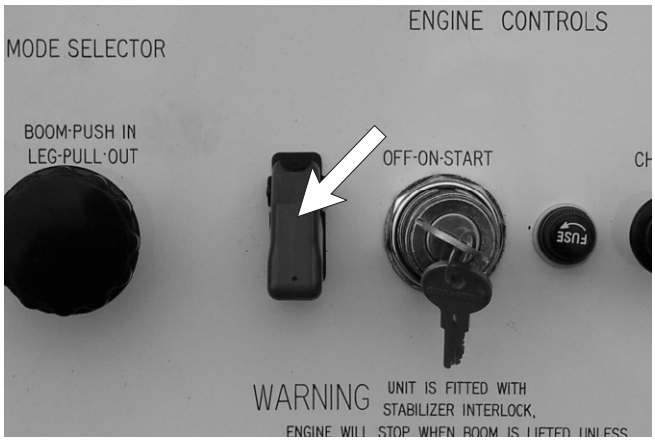


Figure 9.1 - Emergency Stop Switch at Ground Control Station

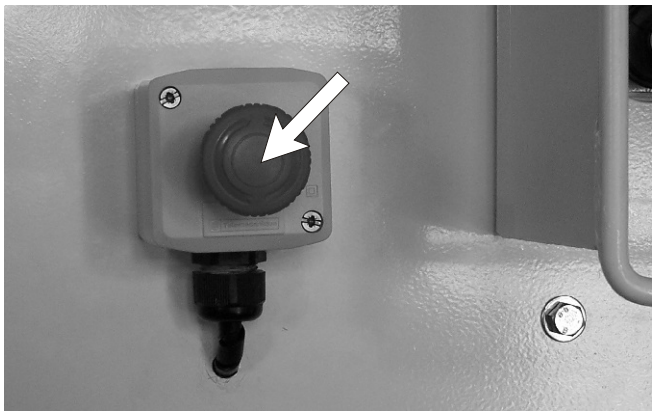


Figure 9.2 - Emergency Stop Switch at Ground Control Station - Units with PTO

Ground control station Emergency Stop switch location.

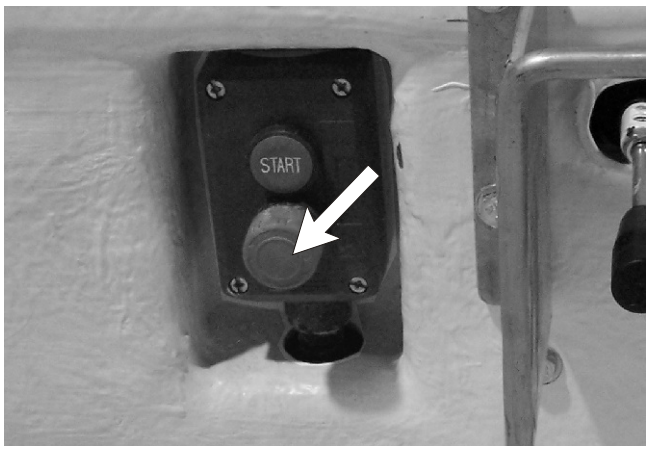


Figure 9.3 - Emergency Stop Switch at Platform Control Station

Platform control station Emergency Stop switch location.

NOTE

For a complete discussion of the Emergency Stop switches, see , Controls chapter 7, and Emergency Operation chapter 10, in this manual.

■ Operating Procedures

■ Preparation of the unit

1. Park the unit in the best position enabling easy access to the object being worked on.
2. make sure the ground on which the vehicle is parked is FIRM - otherwise wheels and or stabilisers may sink causing the unit to overturn.
3. If parking on a hill, the unit must face directly up and down the gradient.
4. Lock the parking brake on the truck and use wheel chocks if necessary.
5. Ensure that the platform emergency stop switch is disengaged (out) (see Figure 9.4).

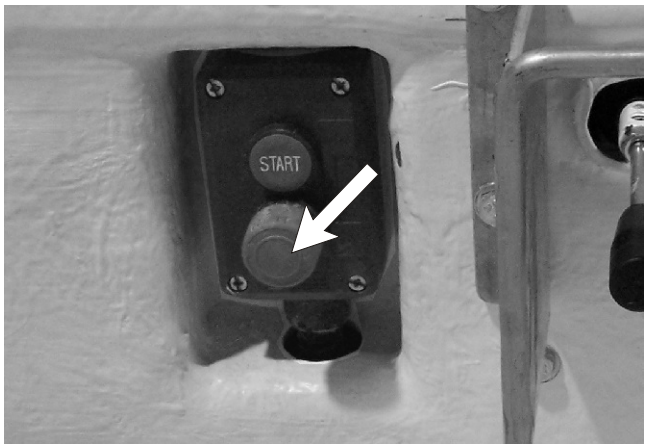


Figure 9.4 - Platform Emergency Stop Switch

■ Unlocking the Booms

The boom pins must be removed and the cradle latch undone before operating the booms.

⚠CAUTION

Failure to remove the boom lock pin and the boom restraining latch before attempting to raise the booms could result in damage to the machine.

6. The boom lock pin must be removed before operating the booms (see Figure 9.5). Remove the pin keeper ❶ from the pin and then remove the pin ❷ from the cradle ❸.

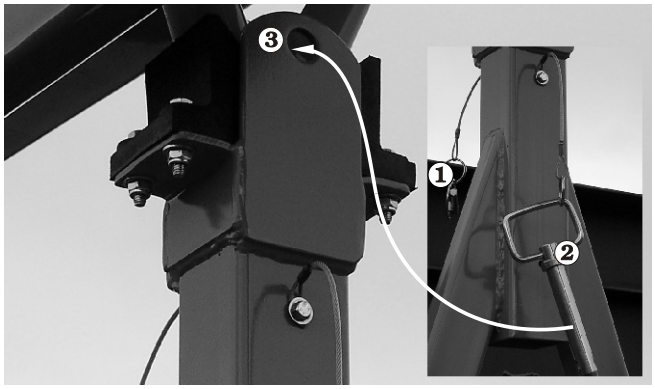


Figure 9.5 - Boom Lock PIn

7. Ensure that the boom restraining latch is also undone (see Figure 9.6).

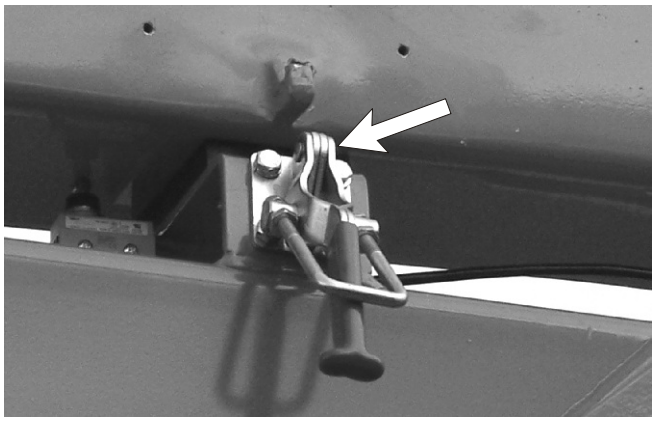


Figure 9.6 - Boom Restraining Latch

■ Starting the Engine

1. Select GROUND on the ground/platform selector switch at the rear of the column (see Figure 9.7).

Figure 9.7 - Ground / Platform Selector

2. Start the engine using the engine controls on the subframe/column (see Figure 9.8).

Note - One Station Only

When either station is selected the other station becomes inoperative - e.g., selecting GROUND makes the PLATFORM controls inoperative.

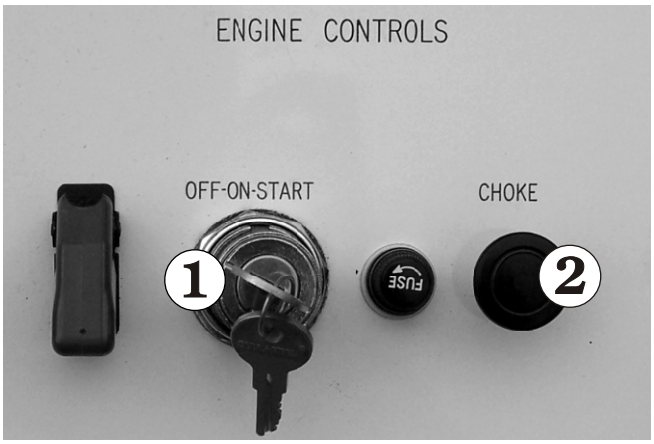


Figure 9.8 - Engine Controls

3. Insert the key ❶ into the MASTER KEY SWITCH and turn the key to on.
4. If the engine is at ambient temperature (cold), hold the CHOKE BUTTON ❷ in throughout the next step.
5. Turn the key to START and hold it there until the engine starts or for a maximum of 6 seconds.
   When the engine starts release the key and choke, if you have used it.

⚠CAUTION

If the engine does not start in 6 seconds, release the key ❶ then wait 60 seconds before trying to start the engine again with the start switch.

Note - Starting on PTO Units

On units fitted with a PTO all that is required is that the truck engine is running and the PTO is ENGAGED.

Note - Alarms

If the unit is fitted with a level alarm this will sound if the truck is more than 5 degrees from level.
If the alarm is sounding when setting up, level the truck using the stabilisers as described in the next section.
If the alarm sounds after the booms are raised, the unit will not operate. Use the emergency bleed down function (see Emergency Operation chapter) to lower the booms and then level the truck using the stabilisers before raising the booms again.

■ Setting the Stabilisers

Note - Using the Stabilisers

Once the booms are raised the stabilisers cannot be set or adjusted.

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

⚠DANGER

If the platform is up and the ground compresses unevenly under different stabiliser pads the EPV 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 re-adjust the stabilisers to re-center the bubble in the ring.

Ensure that the stabiliser foot plates are in full contact with the ground and that they are clear of manhole covers, drains, etc which may collapse.

If the ground is at all soft, steel plates at least 300mm x 300mm x 6mm should be placed under the feet to spread the weight.

This unit is intended for use on hard, level ground and has a very adequate safety factor under these conditions.

⚠CAUTION

Exercise caution when operating on gradients, cambers and uneven ground.

⚠DANGER

Death or serious injury can result if an EPV 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 EPV above the ground - use the other three to level the EPV as necessary.

Note - Interlocks

Interlocks are a series of switches mounted on each stabiliser and the upper and lower booms. These switches detect the position of the stabilisers in relation to the booms and enable the boom to operate only when all stabilisers have been extended.

On units fitted with interlocks the stabilisers must be extended until the 'blue stripe' is visible. Failure to do this will cause the engine to stop

when the booms are raised.
The booms must then be returned to stowed position using the emergency bleed down valve.

1. Pull out the LEG/BOOM SELECTOR SWITCH to select stabiliser operation. (see Figure 9.9)

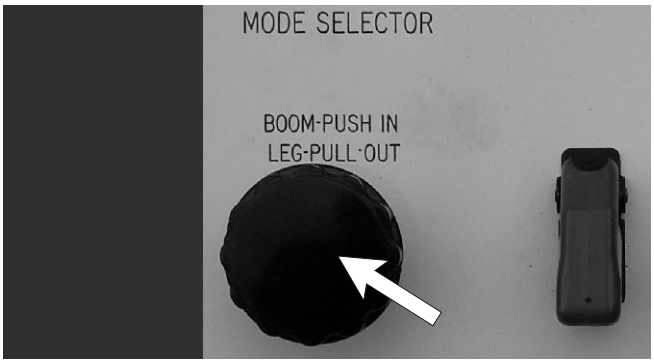


Figure 9.9 - Mode Selector Switch

Note - PTO Units

On units fitted with a PTO this switch is located at the end of the stabiliser valve bank that is mounted to the truck chassis.

2. Lower the stabilisers, selecting the order in which they are to be lowered using the selector valve mounted on the subframe/column (see Figure 9.10).

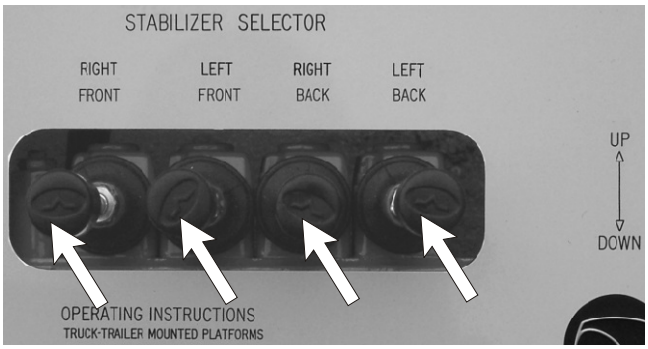


Figure 9.10 - Stabiliser Valve Controls

3. Fully extend all the stabiliser legs until they are firmly on the ground.
4. If the ground is uneven, level up the unit on the stabilisers using the levelling bubble as a guide.

■ Operating the EPV

Now that the motor is running and the stabilisers are set the EPV is ready to begin work.

1. Select PLATFORM on the ground/platform selector switch at the rear of the column (see Figure 9.11).

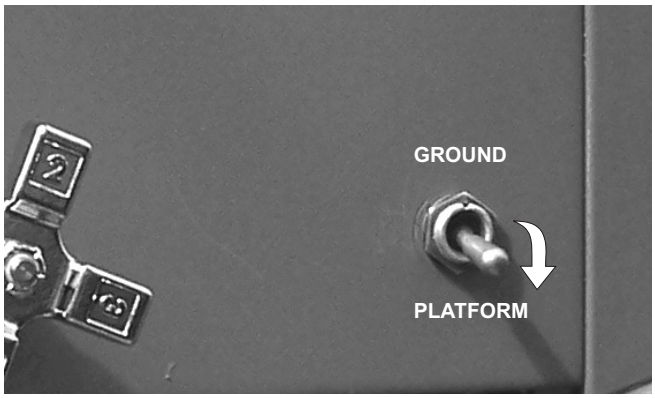


Figure 9.11 - Ground / Platform Selector

2. Enter the platform.
   Access to the platform is gained by climbing the steps on the subframe and the side of the basket.
3. Attach your safety harness to the lanyard anchor points in the basket (see Figure 9.12).

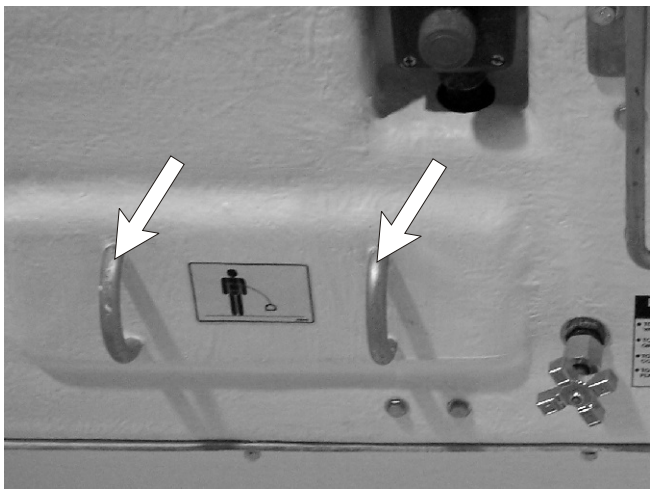


Figure 9.12 - Lanyard Anchor Points

4. You can now use the platform control valves to operate the booms.

With the exception of the fly boom control, which is only available from the platform operation position, the operation of the booms is identical regardless of which set of controls is being used (platform or ground).

❑ Raising and lowering the booms

5. **To Raise the Lower Boom:**
   Push the control lever for the lower boom to the raise position, the lower boom will rise until the control lever is released.
6. **To Lower the Lower Boom:**
   Push the control lever to the down position until the boom begins to lower.

7. **To Raise the Upper Boom:**
   Push the control lever for the upper boom to the up position. The upper boom will rise until it reaches its upper limit, or the control lever is released.
8. **To Lower the Upper Boom:**
   Push the control lever for the upper boom to the down position until the boom begins to lower.

Note

If both main booms are raised they can both be lowered at the same time by pushing both upper and lower boom control levers to the lower position.

9. **To Extend the Fly Boom:**
   Push the control lever for the fly boom to the up position, the fly boom will extend until it reaches its limit, or the control lever is released.
10. **To Retract the Fly Boom:**
    Push the control lever for the fly boom to the down position until the fly boom begins to retract.

❑ Slewing

The booms can be slewed 360° in either direction.

⚠CAUTION

Ensure that the booms are raised clear of the forward boom restraining point before slewing.

When slewing be aware of the position of the knuckle at all times.

To slew push the control lever in the direction required, UP for slew to the RIGHT and DOWN for slew to the LEFT.

■ Over-Centre Valve

All EPV Series units are fitted with an over-centre valve that is mounted on the main knuckle pin between the booms.

The function of this valve is to control the point at which the upper boom reaches its maximum height.

When this valve is activated two things will occur:

1. The upper boom will stop rising automatically.
2. The lower boom will not lower if activated.

When this happens the upper boom must be lowered which will deactivate the over-centre valve thus restoring all normal boom functions.

■ Stowing

At the end of the work shift the EPV should be placed in the stowed position.

1. Ensure both booms are fully lowered and locked into place with the boom lock pin and restraining latch.
2. Ensure all stabilisers are fully retracted.
3. Ensure that no tools or objects are left in the platform or on the tray of the truck that could fall off in transit.

⚠WARNING

DO NOT drive the truck with the booms unstowed or not properly locked down as damage will occur to the booms and the slew mechanism.

It is also probable that serious injury or death could occur to other road users.

■ 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 EPV will not start or some other problem keeps the platform from lowering in the normal way, or to move the EPV a short distance to a safe place when the motor will not start.

There are two forms of emergency operation for the EPV. Emergency stop, and emergency bleed-down.

Each is covered as a separate section below.

■ Emergency Stop

There are two Emergency Stop switches on an EPV.

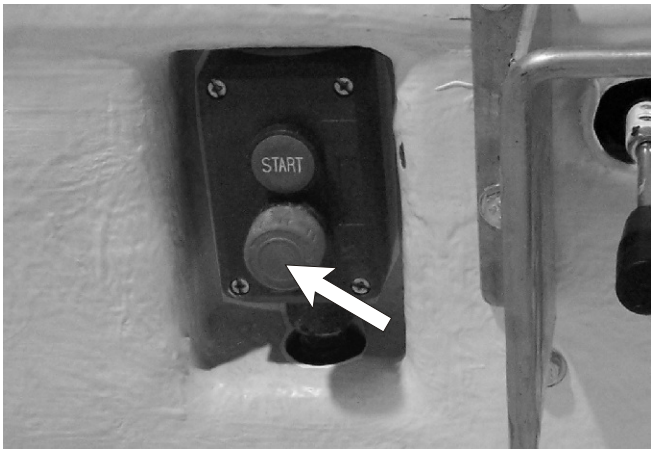


Figure 9.1 - Platform Control Station Emergency Stop Switch

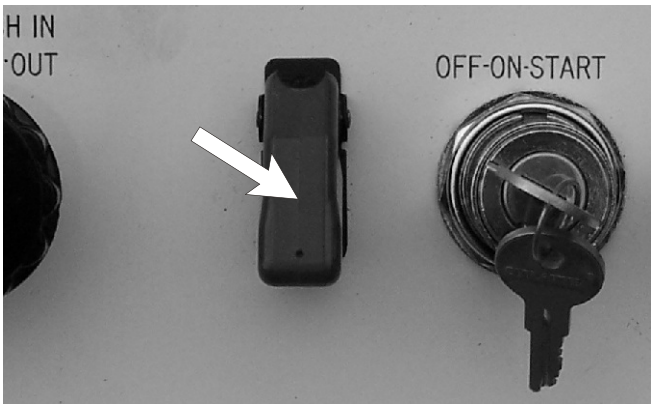


Figure 9.2 - Ground Control Station Emergency Stop Switch

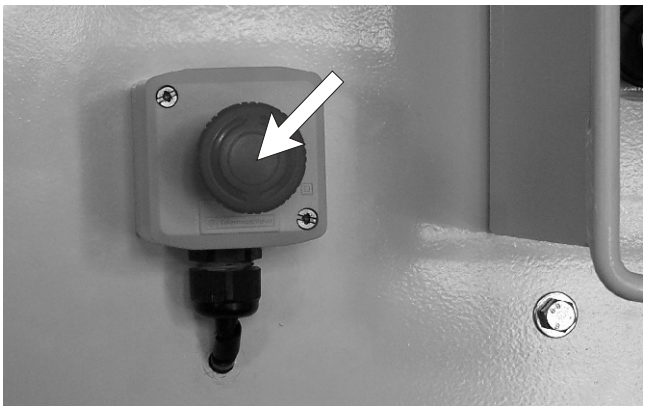


Figure 9.3 - Ground Control Station Emergency Stop Switch - Units with PTO

Push either **Emergency Stop** switch, (see Figures 9.1, 9.2 and 9.3) 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 station (or the ground control station with PTO), pull it and and it will pop out (on). To reset the **Emergency Stop** switch at the non PTO ground control station, raise the red switch-cover and push the switch up. The EPV engine can then be restarted in the normal way.

■ Emergency Bleed-Down

❑ Platform station bleed down valve

The EPV platform can be lowered from the platform station if you are working from the platform and the engine dies and cannot be restarted, do the following:

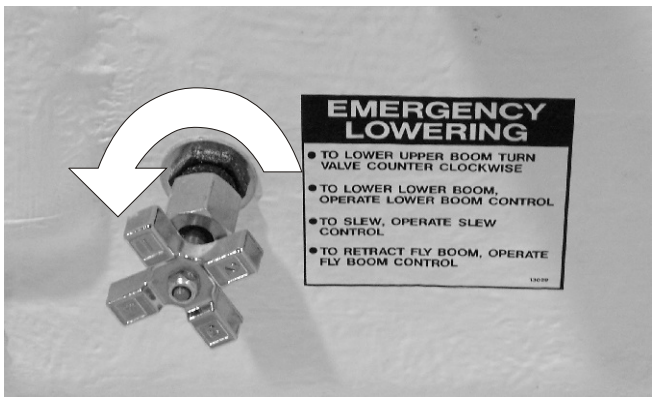


Figure 9.3 - Platform Emergency Lower valve

1. In the event of a control failure or other emergency the platform can be lowered using this valve. Turn the valve (see Figure 9.3) counter clockwise to lower the platform to the ground.
2. The UPPER boom will begin to lower immediately.
3. To lower the LOWER boom operate the lower boom control lever.
4. To SLEW while lowering operate the slew control lever.

Note - Slewing and Lowering

Slewing, and lowering the lower boom during bleed down from the platform must be accomplished before the upper boom is fully lowered.

5. The manual bleed down valve must be closed at the completion of the operation to ensure normal boom operation.

❑ Ground station bleed down valve

In the event of a control failure or other emergency the platform can be lowered from the ground station using this valve. Turn the valve, located at the rear of the column, (see Figure 9.4) counter clockwise to lower the platform to the ground.

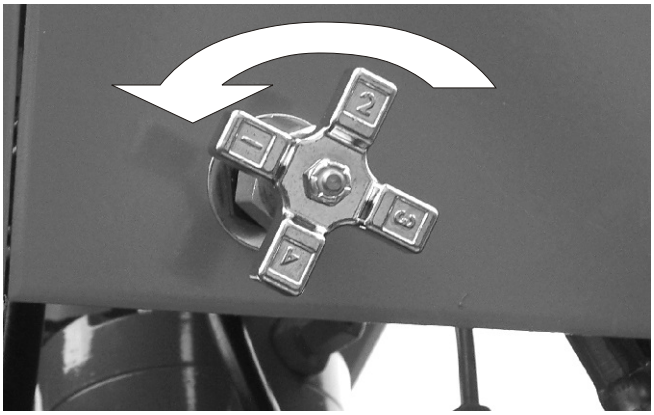


Figure 9.4 - Ground Emergency Lower Valve

1. Select GROUND operation on the platform/ground selector switch at the rear of the column.
2. Turn the valve (see Figure 9.4) counter clockwise to lower the platform to the ground.
3. The UPPER boom will begin to lower immediately.
4. To lower the LOWER boom operate the lower boom control lever.
5. To SLEW while lowering operate the slew control lever.

Note - Slewing and Lowering

Slewing, and lowering the lower boom during bleed down from the platform must be accomplished before the upper boom is fully lowered.

6. The manual bleed down valve must be closed at the completion of the operation to ensure normal boom operation.

■ Hazardous Components

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

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 CO2.

☞ 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 CO2.

☞ 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 CO2.

☞ 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 CO2.

☞ 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 CO2.

☞ 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 CO2.

☞ 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 CO2.

11. Fire Fighting and Chemical Containment

☞ 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 EPV operator, a trained and qualified service technician is not required.

The first column, of the following chart, lists some common problems encountered by EPV 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 EPV 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.
	Out of fuel.	**DANGER:** **Keep flames and lit tobacco away from open fuel tanks.** Remove the cap from the diesel tank to see if there is fuel. 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. Allow time for machine to warm up.

12. 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 EPV.
	Switches set wrong (Lift Indicator light is lit).	<u>For ground control operation</u>: Ground/Platform Selector = Ground <u>For platform control box operation</u>: Ground/Platform Selector = Platform Lift/Drive Selector = Lift
	EPV is not level. (Lift Indicator light is not lit and the Level Sensor Alarm is sounding).	Use the stabilisers to level the EPV.
	The Stabilisers 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. If you are not using the stabilisers, one or more of them is not fully up. Raise each stabiliser completely up.

aerial platform

a mobile device that has an adjustable position platform, supported from ground level by a structure.

ambient temperature

the air temperature of the immediate environment.

ammeter

an instrument for measuring the strength of an electric current in amperes.

authorized personnel

personnel approved as assigned to perform specific duties at a specific location.

base

the relevant contact points of the aerial platform that form the stability support (e.g. wheels, casters, outriggers, stabilisers).

boom

a movable cantilever beam which supports the platform.

center of gravity

the point in the aerial platform around which its weight is evenly balanced.

chassis

the integral part of the aerial platform that provides mobility and support for the booms.

fall restraint

a system that is used while working on a boom lift within the boundaries of platform guardrails to provide restraint from being projected upward from the platform. This system includes a harness or belt, lanyard, and a lanyard anchor. Federal OSHA, ANSI, and Snorkel require the use of additional fall protection beyond the platform guardrails on boom supported aerial platforms.

fall or ground pressure

the maximum pressure, expressed in pounds per square inch, a single wheel concentrates on the floor or ground.

gradeability

he maximum slope that the aerial platform is capable of travel.

ground fault circuit interrupter or residual current detector

a fast-acting circuit breaker that opens to stop electrical circuit flow if it senses a very small current leakage to ground. Also called GFCI or RCD. The GFCI/RCD is used to protect personnel against a potential shock hazard from defective electrical tools or wiring.

guardrail system

a vertical barrier around the platform to prevent personnel from falling.

hazardous location

any location that contains, or has the potential to contain, an explosive or flammable atmosphere as defined by ANSI/NFPA 505.

jib boom

a boom assembly located between the main boom and the platform.

level sensor

a device that detects a preset degree of variation from perfect level. The level sensor is used to sound an alarm if operating on a slope greater than the preset value. It may also (depending on the machine) prevent the it from operating further until it is brought back within the preset parameters.

lower controls

the controls located at ground level for operating some or all of the functions of the aerial platform.

main boom

a boom assembly located between the turntable and the platform or jib boom. The main boom includes the base, intermediate, and tip boom.

maximum travel height

the maximum platform height or the most adverse configuration(s) with respect to stability in which travel is permitted by the manufacturer.

Minimum Safe Approach Distance

the minimum safe distance that electrical conductors may be approached when using the aerial platform. Also called MST

operation

the performance of any aerial platform functions within the scope of its specifications and in accordance with the manufacturers instructions, the users work rules, and all applicable governmental regulations.

operator

a qualified person who controls the movement of an aerial platform.

personal fall arrest system

a fall protection system that is used while working on an unprotected edge (such as a roof top with no guardrail). This system includes a harness, lanyard or other connecting device, a fall arrestor, an energy absorber or decelerator, an anchorage connector, and a secure anchorage such as a building beam, girders or columns. An aerial platform is not a fall arrest anchorage.

platform

the portion of an aerial platform intended to be occupied by personnel with their tools and materials.

platform height

the vertical distance measured from the floor of the platform to the surface upon which the chassis is being supported.

prestart inspection

a required safety inspection routine that is performed daily before operating the aerial platform.

qualified person

a person, who by reason of knowledge, experience, or training is familiar with the operation to be performed and the hazards involved.

rated work load

the designed carrying capacity of the aerial platform as specified by the manufacturer.

stow

to place a component, such as the platform, in its rest position.

turning radius

the raidus of the circle created by the wheel during a 360O turn with the steering wheels turned to maximum. inside turning radius is the wheel closest to the centre and outside turning radius is the wheel farthest from the centre.

turntable

the structure above the rotation bearing which supports the main boom. The turntable rotates about the centerline of rotation.

unrestricted rated work load

the maximum designed carrying capacity of the aerial platform allowed by the manufacturer in all operating configurations.

upper controls

the controls located on or beside the platform used for operating some or all of the functions of the aerial platform.

wheelbase

the distance from the centre of the rear wheel to the centre of the front wheel.

working envelope

the area defined by the horizontal and vertical limits of boom travel that the platform may be positioned in.

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