snorkel

EPV16

Gasoline
Diesel

OPERATION MANUAL

Part Number 13642-1
November 2012 (Rev A)

Serial Number NZ110412 and after

■ Electrical Hazard Warning

DANGER

THE EPV16 AERIAL WORK PLATFORM IS NOT ELECTRICALLY INSULATED.

If the platform, booms, or any other conductive part of an EPV16 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) - SEE BELOW.

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

If an EPV16 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 EPV16.

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 EPV16 until you are sure the electricity has been turned off.

If an EPV16 is in contact with a live conductor, the platform operator **MUST** warn others on the ground in the vicinity of the EPV16 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 the EPV16 ground controls when the platform, booms, or any other conducting part of an EPV16 is in contact with electrical wires or if there is an immediate danger of such contact.

Regard all conductors as energised.

Personnel working on or near an EPV16 must be continuously aware of electrical hazards, recognizing that **SERIOUS INJURY** or **DEATH** can result if contact with an electrical wire does occur.

IMPORTANT - M.S.A.D.

It is the OPERATOR'S responsibility to ensure M.S.A.D., (subject to local regulations and laws), are known and adhered to.

The most important chapter in this manual is "Safety" 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 EPV16.

■ Options

The following options are available for the EPV16:

- Air line to platform
- Dual fuel
- Work lights
- Flashing light
- RCD/ELCB Outlet
- Platform rotator
- Self levelling stabilisers
- Fibreglass basket

■ 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 may also be 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 AUTHORISED 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 Pre-Operational 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

⚠IMPORTANT

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.

⚠IMPORTANT

ANSI Standard A92.2 and AUSTRALIAN / NZ STANDARD 2550-10 clearly identifies 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, codes of practice, and local body regulations 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.

■ Product Warranty

For full terms of your warranty policy refer to the Repair Parts manual, or check with your Snorkel distributor, or check the Snorkel website.

■ Additional information

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

Snorkel New Zealand
PO Box 1041
Levin 5510
New Zealand

Electrical Hazard

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■ Safe Operation

Knowledge of the information in this manual, and proper training, provide a basis for safely operating the EPV16. 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. Do not operate it near electrical conductors. Regard all conductors as being energised. Do not operate outside during a thunderstorm.

■ Pre-start Inspection

At the start of each work shift, the EPV16 shall be given a visual inspection and function test. See the "Daily Inspection and Maintenance" chapter 9, in this manual for a list of items to inspect and test.

⚠WARNING

DO NOT operate the EPV16 unless you are trained and authorised, understand the operation characteristics of the EPV16, and have inspected and tested all functions to be sure they are in proper working order.

⚠DANGER

NEVER use an EPV16 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 EPV16 as a ground for welding. Ground to the work piece.

Before the EPV16 is used, and during use, check the area in which the EPV16 is to be used for possible hazards such as, but not limited to:

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

Before the EPV16 is used, determine the hazard classification of any particular atmosphere or location according to ANSI/NFPA 505-1987.

Any EPV16 operated in a hazardous location must be approved and of the type required by ANSI/NFPA 505-1987.

While operating the EPV a recommended safety practice is to have trained and qualified personnel in the immediate work area of the EPV16 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 EPV16.

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 EPV16 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 an EPV16 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 EPV16 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-ff, hole, slope, soft or uneven ground, or other tip-over hazard.

Do not operate the EPV16 from a position on trucks, trailers, railway cars, floating vessels, scaffolds, or similar equipment unless the application is approved in writing by Snorkel.

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

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

All platform occupants MUST wear and use safety harness. Attach safety harnesss 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 EPV16 in winds, or wind gusts, of 28 mph, 45kph 12.5 m/s) or more.

⚠DANGER

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

■ General Safety Precautions

Do not modify the EPV16 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 EPV16.

■ 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.

NOTE:

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

■ Engine and Fuel Handling Precautions

⚠WARNING

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.

⚠DANGER

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

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

⚠CAUTION

ENSURE you use an approved fuel container with appropriate fuel filler nozzle (see picture below)

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, rubber gloves and protective clothing when working near 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 a number of safety decals and placards on the EPV16. Their locations and descriptions are shown in this section on the following pages. Take time to study them.

⚠CAUTION

Be sure that all the safety decals and placards on the EPV16 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.

Note:

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

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

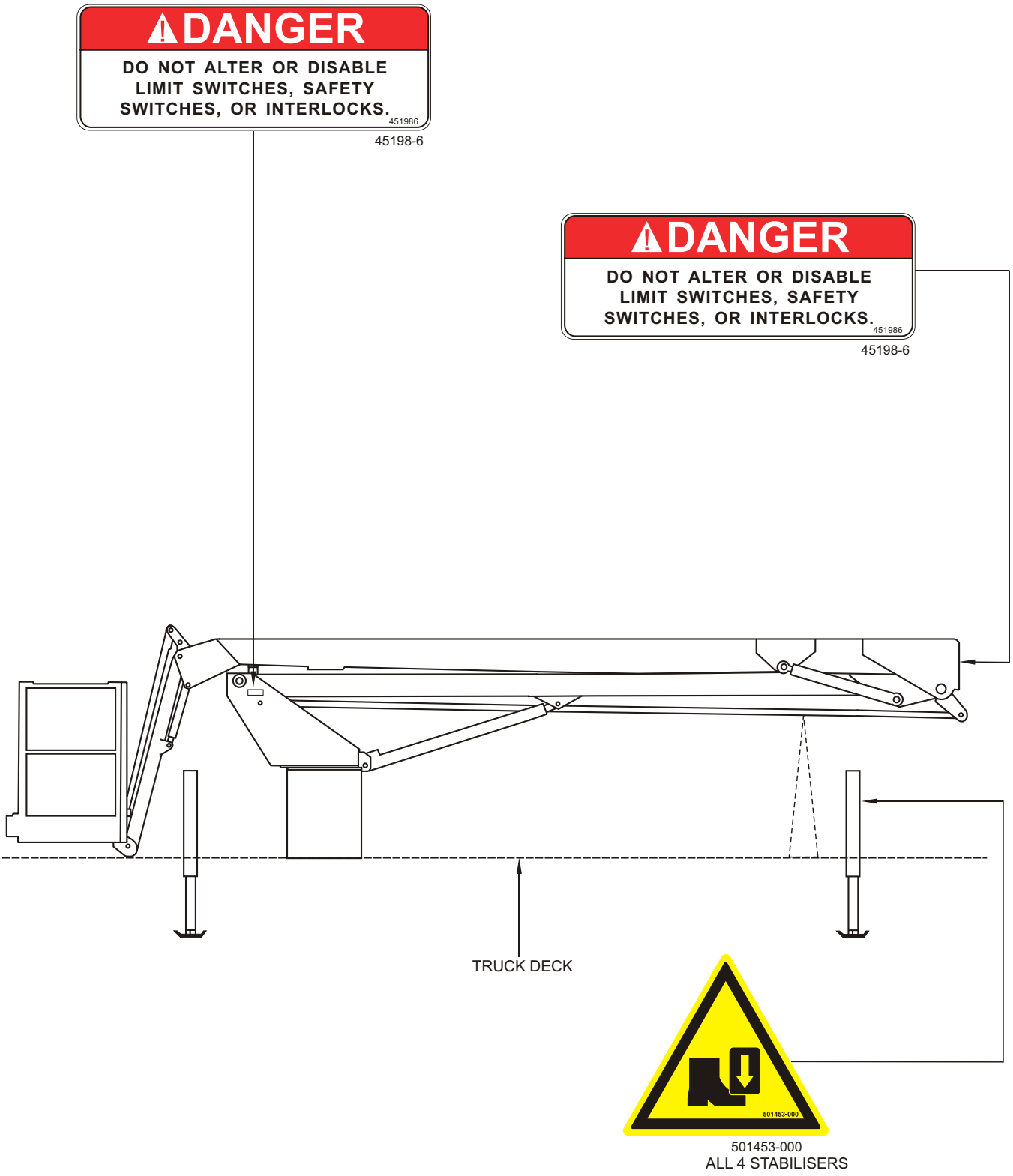
⚠IMPORTANT

Some decals and the placement of these decals may differ from what is shown in the illustrations on the following pages.

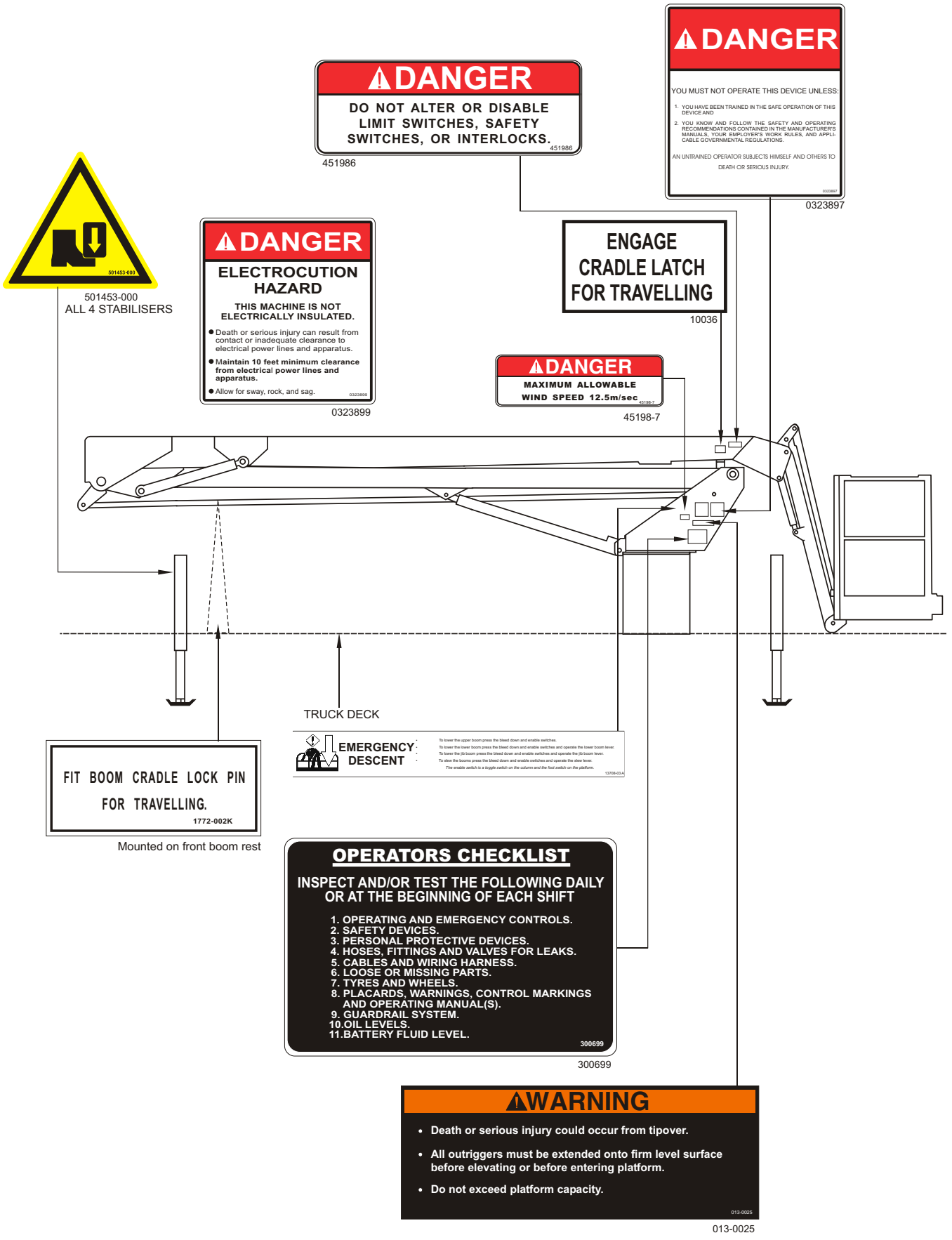
Typically machines that are destined for the overseas market leave the factory as a built up subframe only unit.

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

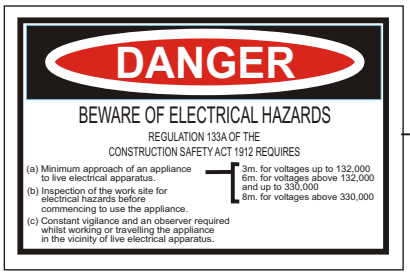
The decals are provided as a kit with the machine but the final placement of these decals is carried out by the business involved in mounting the subframe on the truck chassis.



501453-000
ALL 4 STABILISERS


DANGER
DO NOT ALTER OR DISABLE LIMIT SWITCHES, SAFETY SWITCHES, OR INTERLOCKS.
451986
451986
DANGER
YOU MUST NOT OPERATE THIS DEVICE UNLESS:
1. YOU HAVE BEEN TRAINED IN THE SAFE OPERATION OF THIS DEVICE AND
2. YOU KNOW AND FOLLOW THE SAFETY AND OPERATING RECOMMENDATIONS CONTAINED IN THE MANUFACTURER'S MANUALS, YOUR EMPLOYER'S WORK RULES, AND APPLICABLE GOVERNMENTAL REGULATIONS.
AN UNTRAINED OPERATOR SUBJECTS HIMSELF AND OTHERS TO DEATH OR SERIOUS INJURY.
0323897
0323897
501453-000
501453-000
ALL 4 STABILISERS
DANGER
ELECTROCUTION HAZARD
THIS MACHINE IS NOT ELECTRICALLY INSULATED.
Death or serious injury can result from contact or inadequate clearance to electrical power lines and apparatus.
Maintain 10 feet minimum clearance from electrical power lines and apparatus.
Allow for sway, rock, and sag.
0323899
0323899
ENGAGE CRADLE LATCH FOR TRAVELLING
10036
DANGER
MAXIMUM ALLOWABLE WIND SPEED 12.5m/sec
45198-7
45198-7
TRUCK DECK
EMERGENCY DESCENT
To lower the upper boom press the bleed down and enable switches.
To lower the lower boom press the bleed down and enable switches and operate the lower boom lever.
To lower the jib boom press the bleed down and enable switches and operate the jib boom lever.
To slew the booms press the bleed down and enable switches and operate the slew lever.
The enable switch is a toggle switch on the column and the foot switch on the platform.
13708-03-A
FIT BOOM CRADLE LOCK PIN FOR TRAVELLING.
1772-002K
Mounted on front boom rest
OPERATORS CHECKLIST
INSPECT AND/OR TEST THE FOLLOWING DAILY OR AT THE BEGINNING OF EACH SHIFT
1. OPERATING AND EMERGENCY CONTROLS.
2. SAFETY DEVICES.
3. PERSONAL PROTECTIVE DEVICES.
4. HOSES, FITTINGS AND VALVES FOR LEAKS.
5. CABLES AND WIRING HARNESS.
6. LOOSE OR MISSING PARTS.
7. TYRES AND WHEELS.
8. PLACARDS, WARNINGS, CONTROL MARKINGS AND OPERATING MANUAL(S).
9. GUARDRAIL SYSTEM.
10.OIL LEVELS.
11.BATTERY FLUID LEVEL.
300699
300699
WARNING
Death or serious injury could occur from tipover.
All outriggers must be extended onto firm level surface before elevating or before entering platform.
Do not exceed platform capacity.
013-0025
013-0025

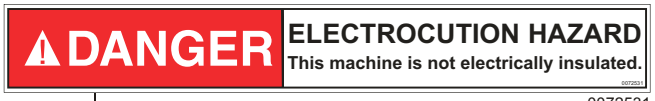
MACHINES WITH ELECTRIC CONTROLS



(Australia Only)

(New Zealand Only)

13030



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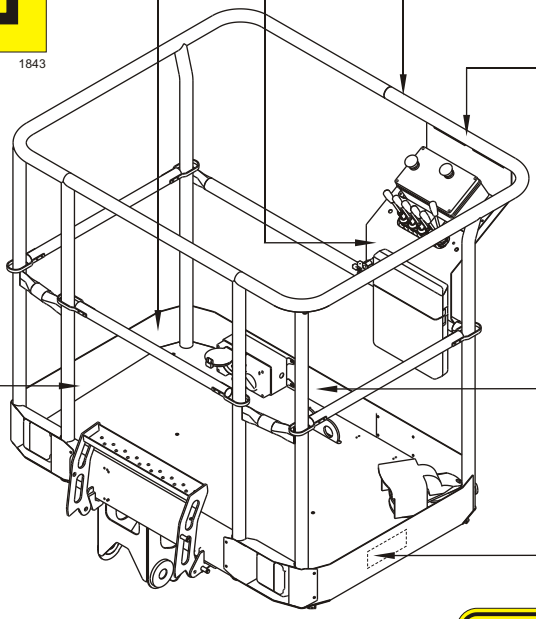

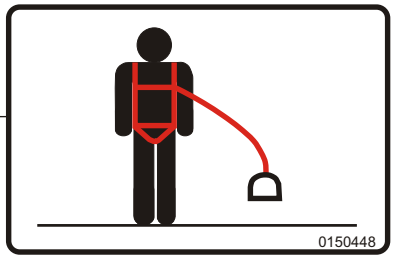

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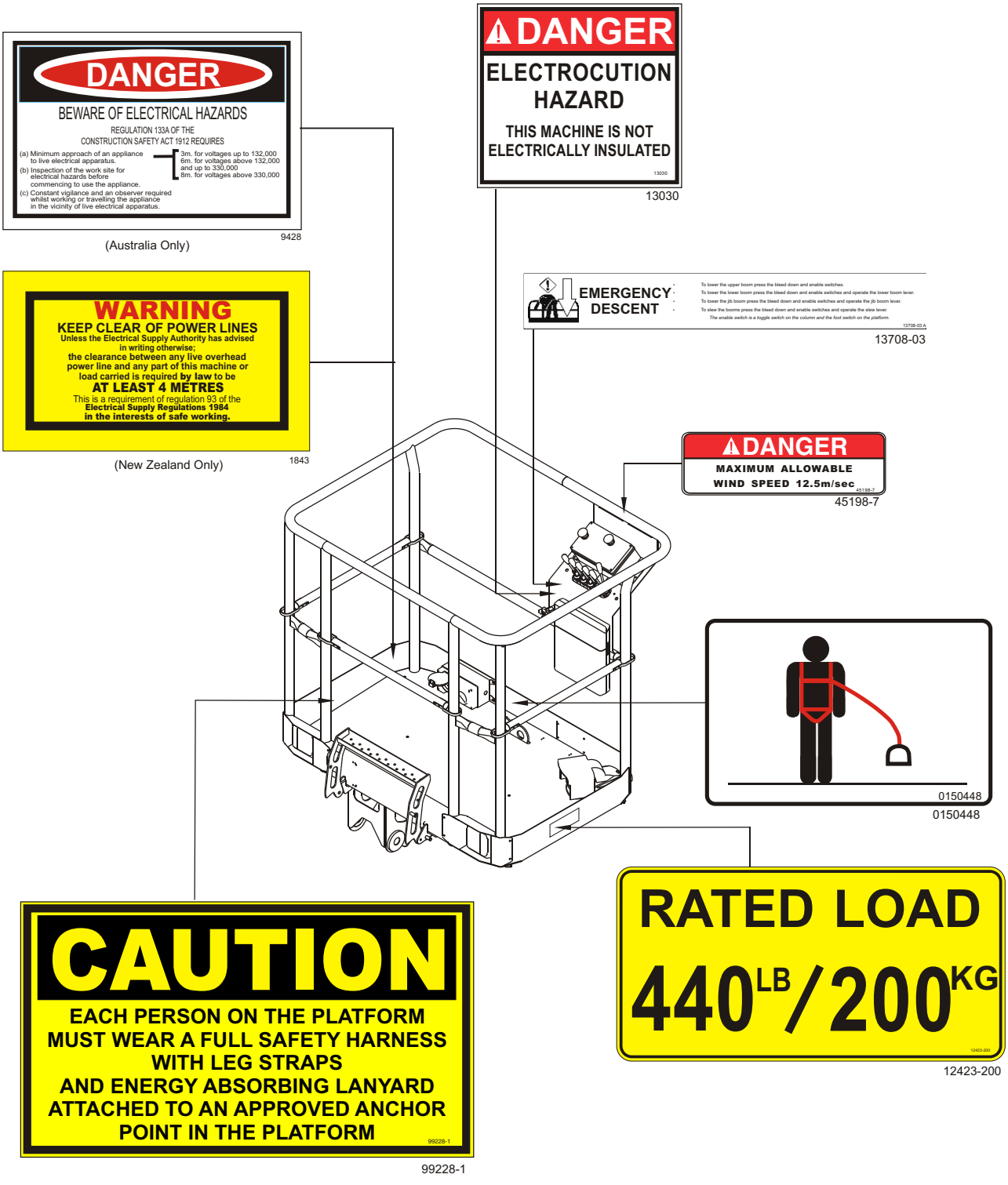
MACHINES WITH HYDRAULIC CONTROLS



The low voltage(LV) insulated EPV16 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 deals only with safety issues specifically related to operating an EPV16 with low voltage insulation.

Chapter 1 covers all other aspects involved in the safe operation of an EPV16 and is essential reading.

This chapter does not set out to provide any detail on the safety issues or regulations concerned with the operation of a low voltage insulated EPV16 around live conductors.

This chapter 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 EPV16.

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 Chapter 9 "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 EPV16 that has any damage to any of the insulator surfaces or covers.

⚠DANGER

The cleanliness of the insulator surfaces are imperative to the correct functioning of the insulator.

Failure to maintain the cleanliness of the insulator could lead to insulator failure and death or serious injury.

3. Before using the machine the insulator surfaces shall be dry, and free from all road grime, dirt, dust and other contaminants.

   When the insulator surfaces require cleaning they should be washed with a mild detergent suitable for fibreglass that leaves no residue and water.

   After washing, the insulator should be dried with a soft lint free cloth.

   Avoid the use of high pressure water blast at close range on the insulator surface as this may drive contaminanta into the surface.
4. A regular maintenance scheme should be developed to ensure the insulator surface is easy to clean and retains the hydrophobicity required e.g. silicon free waxes.
5. Inspection and replacement as required of all insulation markers or signs (decals - see below).

■ Electrical Safety Certificate

All LV 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 EPV16 that does not have a current certificate of electrical safety.

■ Insulation Covering Test

Refer to the Chapter "Insulation Test - LV Machines" in the Repair Parts manual for details concerning this test.

■ Basket Emergency Exit

The LV EPV16 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 identified by a decal.

■ Safety Decals and Placards

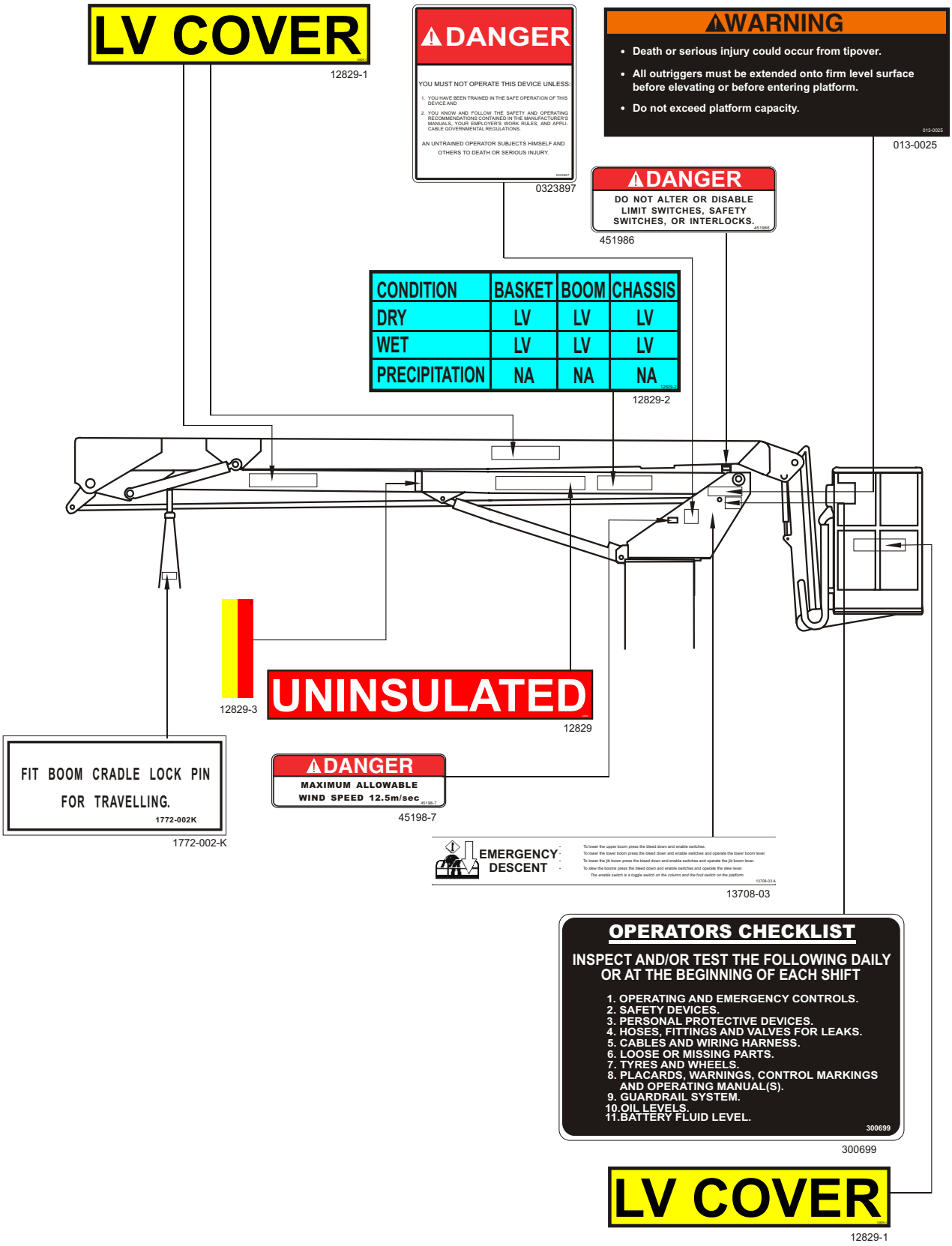
There are a number of safety decals and placards on the LV EPV16. Their locations and descriptions are shown in this section on the following pages. Take time to study them.

⚠CAUTION

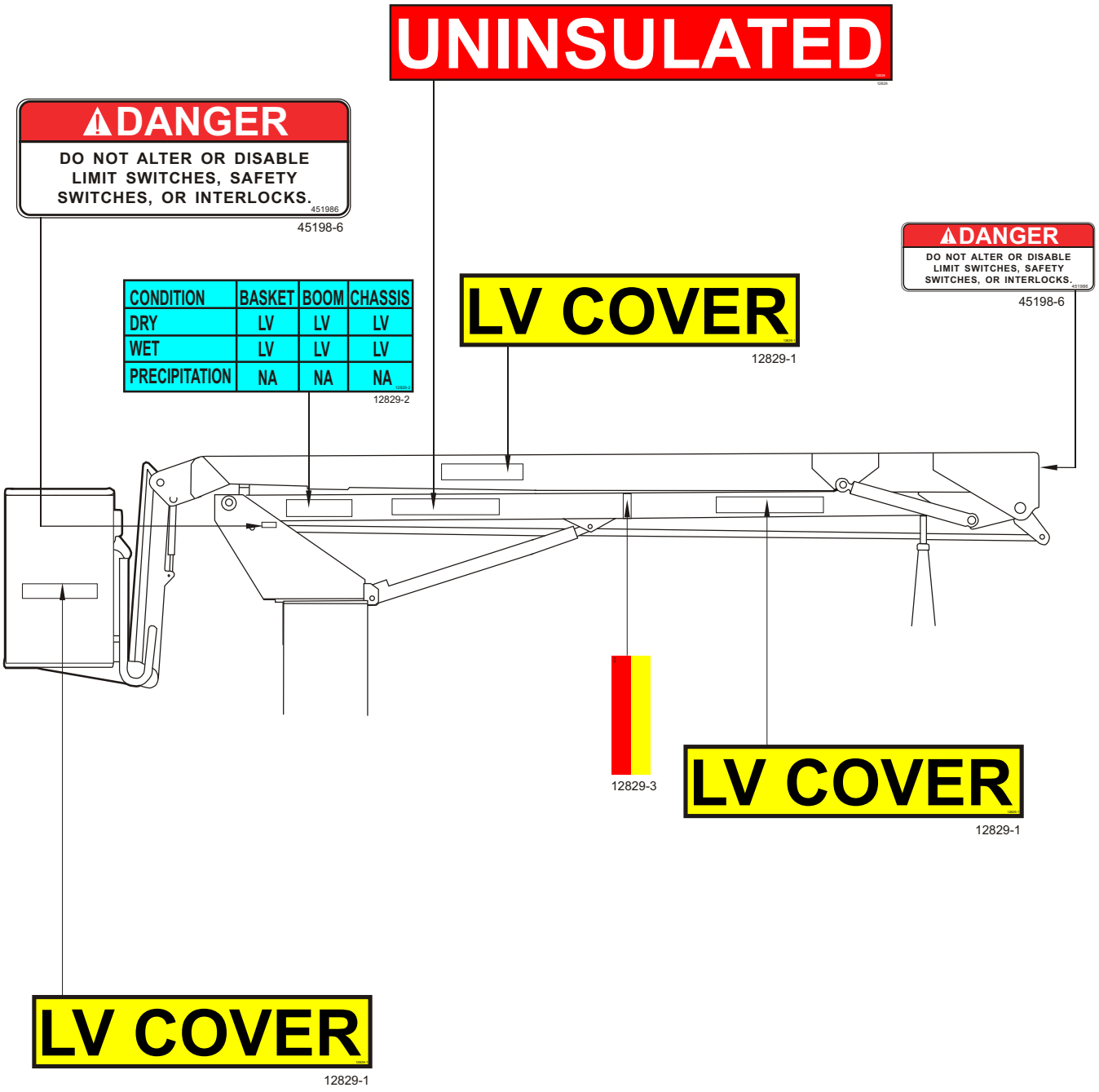
Be sure that all the safety decals and placards on the EPV16 are legible.

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.

LOW VOLTAGE INSULATION MACHINES

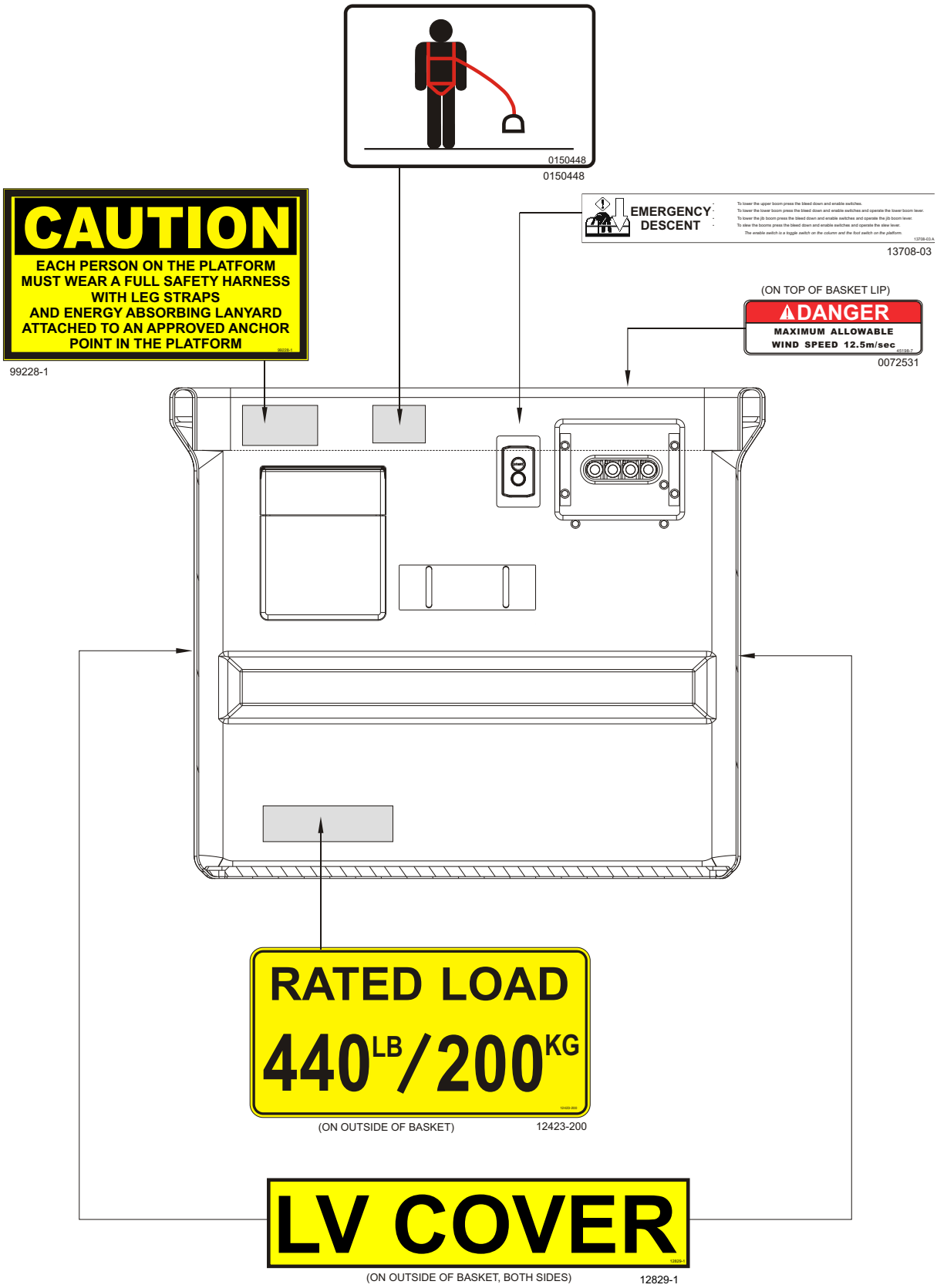


LOW VOLTAGE INSULATED MACHINES



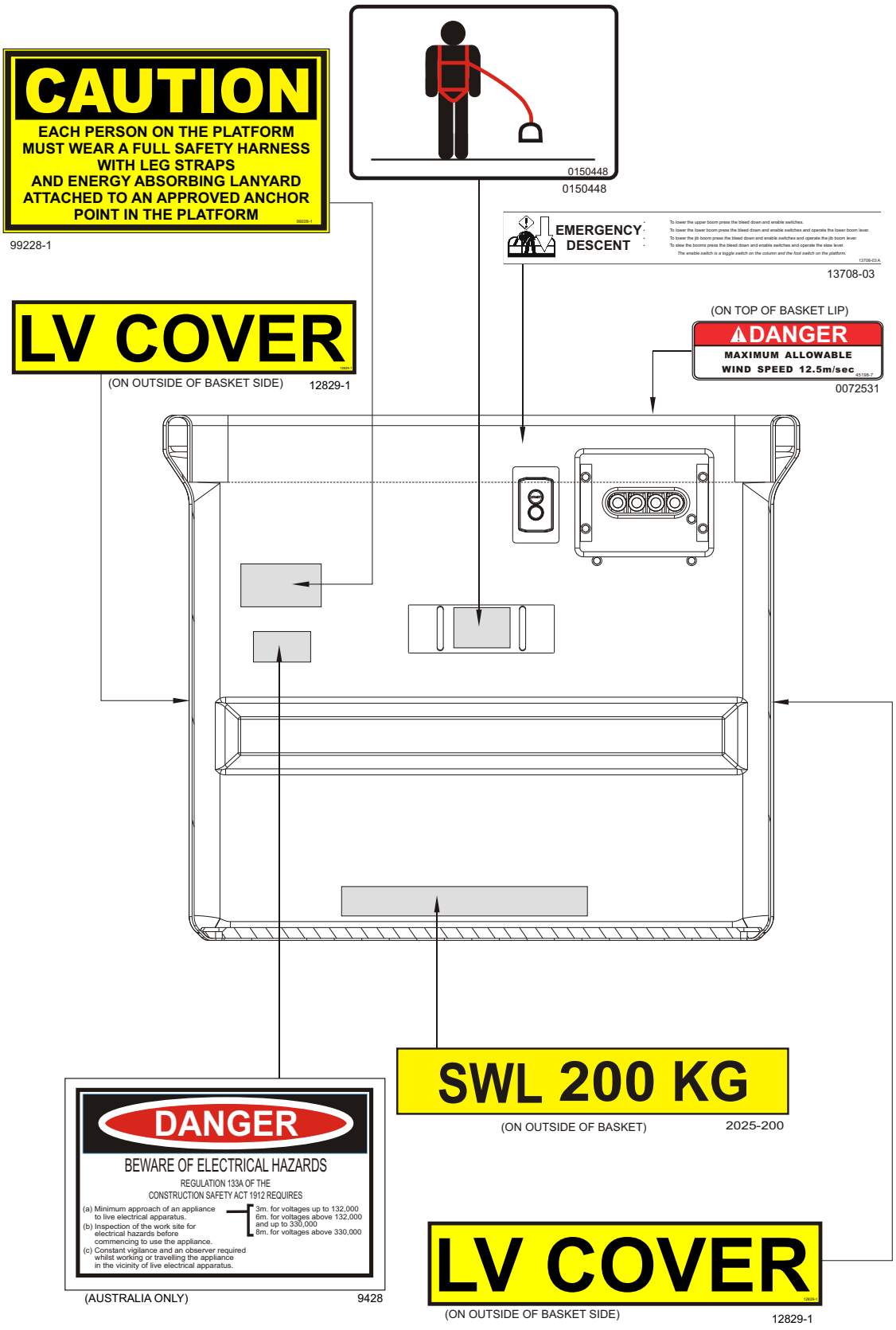
LOW VOLTAGE INSULATED MACHINES

(Fibreglass basket safety decal layout A)



LOW VOLTAGE INSULATED MACHINES

(Fibreglass basket safety decal layout B)



■ Safety Device Information

For emergency operation controls and procedures, see the “Emergency Operation” chapter 11, in this manual.

The devices listed in this chapter are safety devices.

They are on the EPV16 to increase safety in the work place for both the operator and other people near the EPV16.

⚠CAUTION

DO NOT bypass, 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 “Pre-operational Inspection” chapter 9). If any is found to be defective, remove the EPV16 from service immediately until a qualified service technician can make repairs.

■ Emergency Stop Switches Machines with Electric Controls

❑ At ground control box

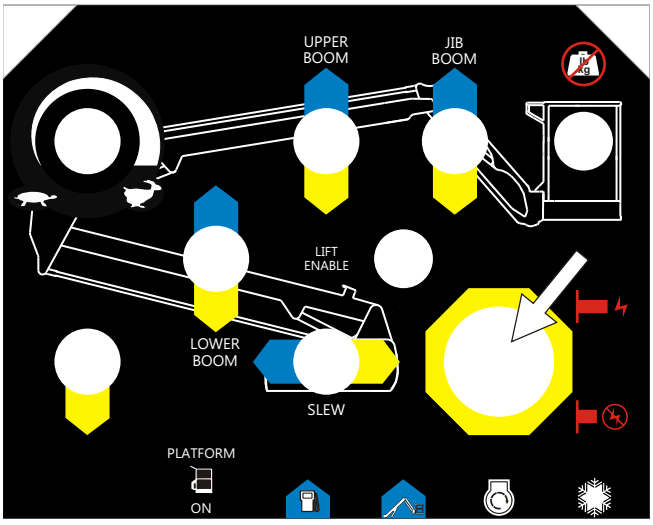


Figure 3.1 - Emergency Stop Switch at Ground Control Box

Press the red **EMERGENCY STOP** button in, at any time, under any conditions, and the entire machine stops, and nothing moves. This switch must be out (on) for anything on the EPV16 to work. Pull the switch and it will pop out (on).

❑ At platform control box

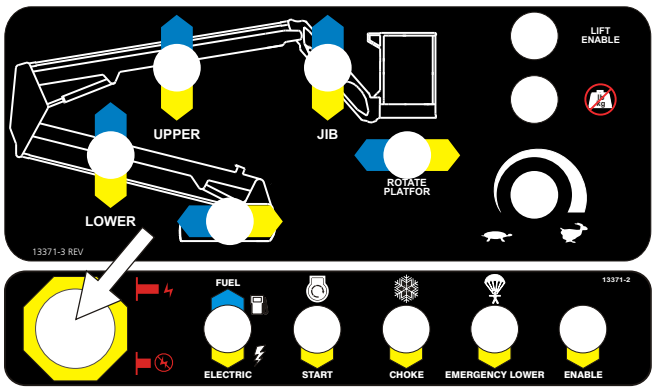


Figure 3.2 - Emergency Stop Switch at Platform Control Box

Press the red **EMERGENCY STOP** button in, at any time, under any conditions, and the entire machine stops, and nothing moves. This switch must be out (on) for anything on the EPV16 to work. Pull the switch and it will pop out (on).

NOTE:

*The ground control box is designed to override the platform control box. If the platform control box **EMERGENCY STOP** switch is in (off) the ground control box can still be used to start and operate the EPV16.*

■ Emergency Stop Switches Machines with Hydraulic Controls

❑ At ground control box

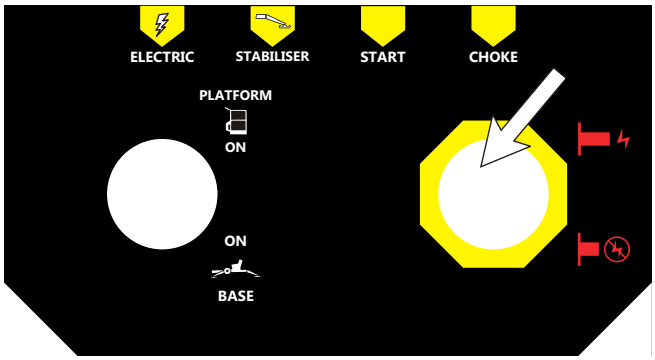


Figure 3.3 - Emergency Stop Switch at Ground Control Box

Press the red **EMERGENCY STOP** button in, at any time, under any conditions, and the entire machine stops, and nothing moves. This switch must be out (on) for anything on the EPV16 to work. Pull the switch and it will pop out (on).

❑ **At platform control box (steel platform)**

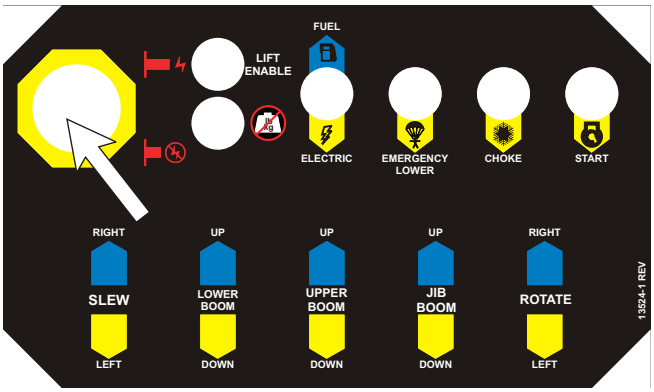


Figure 3.4 - Emergency Stop Switch at Platform Control Box - Steel Platform

❑ **At platform control box (insulated fibreglass platform)**

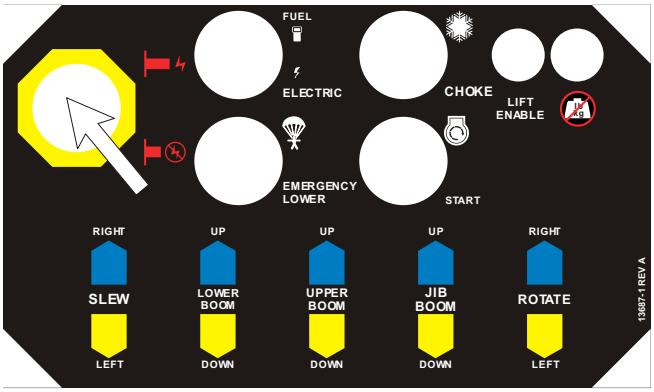


Figure 3.5 - Emergency Stop Switch at Platform Control Box - Fibreglass Platform

❑ **At platform control box (non-insulated fibreglass platform)**

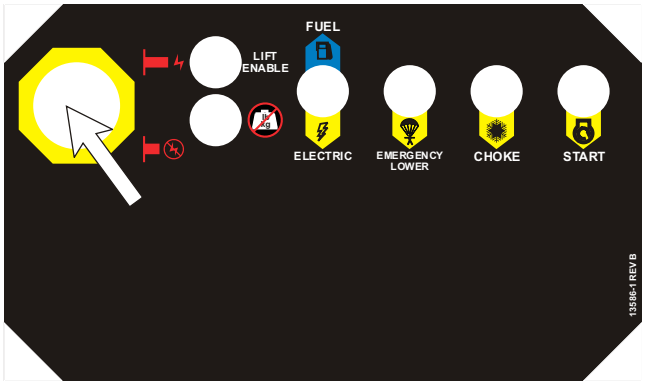


Figure 3.6 - Emergency Stop Switch at Platform Control Box - Non-Insulated Fibreglass Platform

Press the red **EMERGENCY STOP** button in, at any time, under any conditions, and the entire machine stops, and nothing moves. This switch must be out (on) for anything on the EPV16 to work. Pull the switch and it will pop out (on).

NOTE:

*The ground control box is designed to override the platform control box. If the platform control box **EMERGENCY STOP** switch is in (off) the ground control box can still be used to start and operate the EPV16.*

■ Other Safety Devices

❑ **Lanyard anchor points**

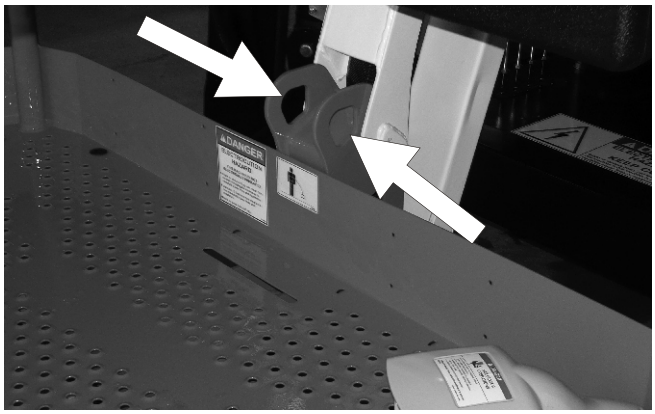


Figure 3.7 - Lanyard Anchor Points - Steel Platform

All personnel on the platform should attach their safety harness lanyards to one (1) of the lanyard anchor points.

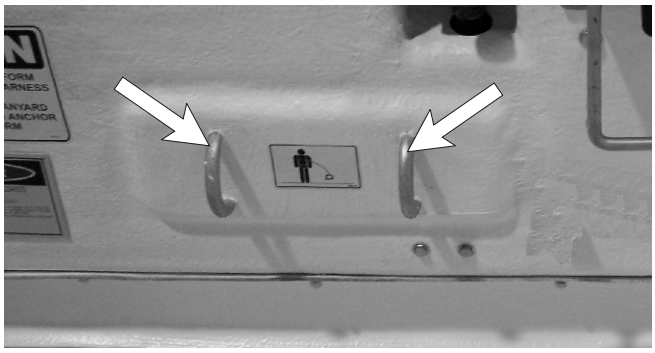


Figure 3.8 - Lanyard Anchor Points - Fibreglass Platform

❑ Gravity gate

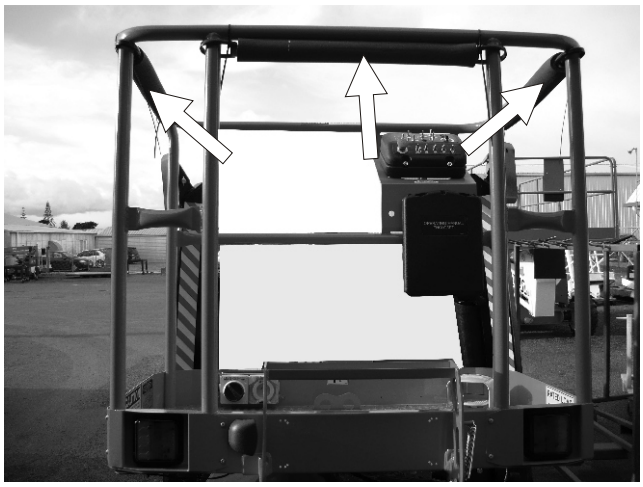


Figure 3.9 - Gravity Gate

The gravity gate is the place in the platform guard-rail system where you should enter and leave the platform. Raise the gate and step under it onto the platform. Once you have entered the platform and attached your safety harness lanyard to an anchor point, check to see that the gravity gate has fallen back into place.

❑ Guardrails

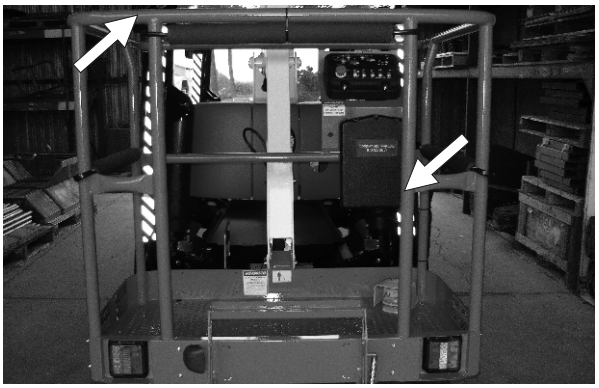


Figure 3.10 - Guardrails

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

❑ 10.9m height restriction kit (Option)

This kit may be fitted to machines manufactured for the Australian market.

It is fitted to restrict the maximum height to the platform floor to 10.9m from the ground. This is to allow the unit to be operated by unlicensed operators in accordance with Australian legislation.

Note:

See the Options chapter page for details concerning this kit.

❑ Enable switch

The enable switch must be operated in conjunction with the boom/platform moving function you select. The purpose of this switch is to prevent the platform from moving if something or someone accidentally pushes one of the boom/platform moving controls.

There are enable 'toggle' switches fitted to both the Upper and Lower Control Boxes for machines with ELECTRIC CONTROLS (see Figure's 3.11 and 3.12).

For machines with HYDRAULIC CONTROLS there is an enable 'toggle' switch fitted to the lower control box only. Platform operation requires the use of the enable 'foot' switch.

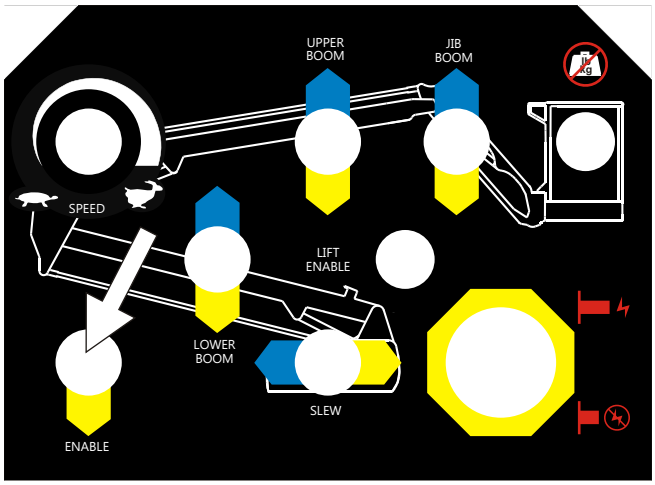


Figure 3.11 - Enable Switch, Machines with Electric Controls, Lower Control Box

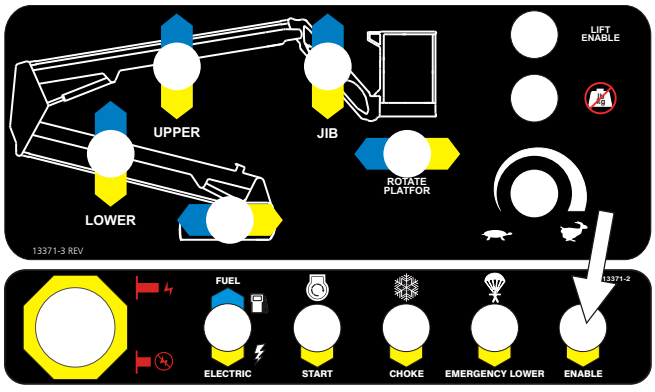


Figure 3.12 - Enable Switch, Machines with Electric Controls, Upper Control Box

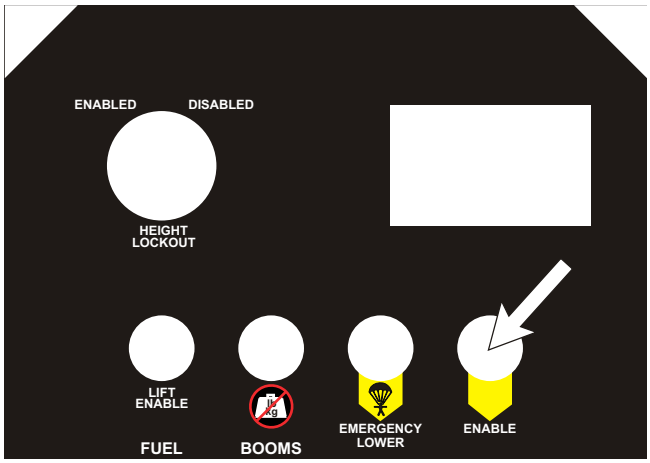


Figure 3.13 - Enable Switch, Machines with Hydraulic Controls, Lower Control Box

❑ Enable switch (foot)

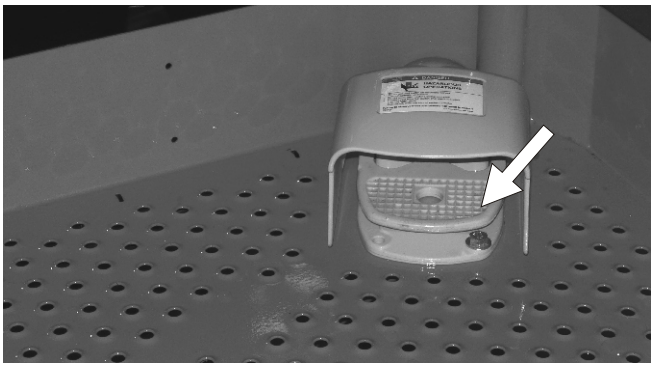


Figure 3.14 - Enable Switch (Foot)

The foot switch performs the same function as the standard enable switch described above. Stepping on the foot switch is an action that must be performed, at the same time as another action, to make the booms/platform move.

NOTE :

If you have the optional 'foot switch' fitted the Enable switches on the Upper Control Box and the Ground Control Box will still function.

❑ Platform Overload Protection

As soon as either boom is raised out of the travel cradle (a boom stowed switch changes state) the overload protection system becomes active.

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

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

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

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

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

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

Note:

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

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

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

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

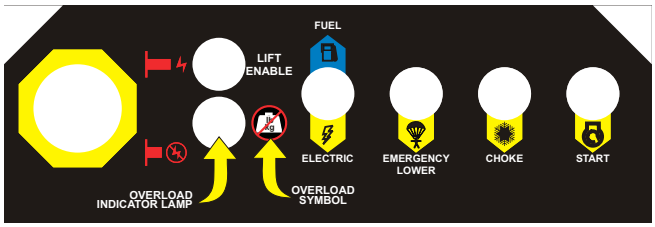


Figure 3.15 - Overload Indicator Lamp and Symbol

❑ Bubble level

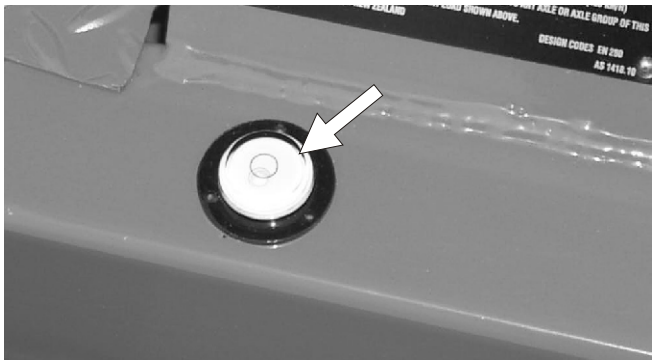


Figure 3.16 - Bubble Level

A bubble level is located on the trailer side rail, beside the outrigger controls. Watch the bubble level while you set the stabilisers. Lower the stabilisers, one (1) 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 be safely raised.

❑ RCD/ELCB AC outlet

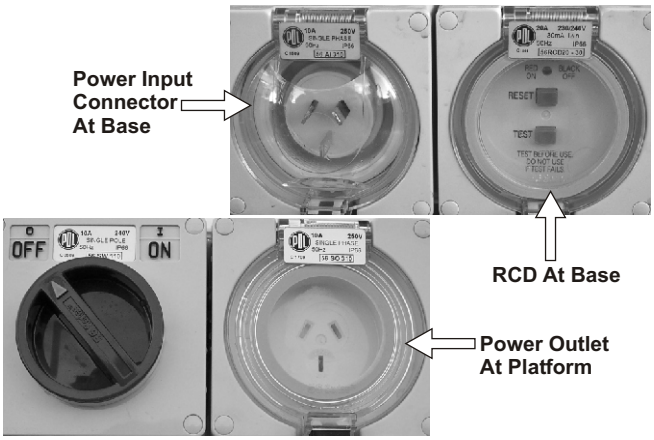


Figure 3.17 - RCD/ELCB AC Outlet

The RCD (Residual Current Device) is located at the base 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 base. If the problem persists call a trained service technician.

❑ Stabiliser/Boom Interlock

This machine is fitted with a very important safety feature, a **Stabiliser/Boom Interlock** system that prevents the booms being elevated to an unsafe position unless all four satabilsers have been correctly set and have made firm contact with the ground.

The same feature also prevents the Stabilisers being operated while either or both Booms are elevated.

⚠IMPORTANT

The correct operation of the Stabiliser/Boom Interlock is critical to ensure that the EPV is operated safely and without risk.

Detailed instructions on how to carry out a test to ensure that this function is working correctly are provided at the beginning of the Pre-Operational Inspection Chapter in this manual.

❑ Flashing light (Option)

The flashing light alerts people that the EPV16 is moving. The light flashes at about one flash per second any time the MASTER KEY switch is on. There is no ON/OFF switch for the flashing light, it cannot be turned off while the EPV16 is running.

The Snorkel EPV16 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.

NOTE:

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

■ General Specifications- Typical

SPECIFICATIONS	EPV16	
Nominal working height	15.8m	51’ 10”
Maximum height to basket floor	13.8m	45’ 3”
Maximum outreach	7.0m	23’
Maximum outreach height	7.9m	22’ 6”
Nominal Maximum width of base	2m	6’ 5”
Safe working load (unrestricted)	200kg	440lbs
Standard colour	Black base / white booms	
Platform size	1200 x 760 x 1100mm Steel	4’ x 2’ 6” x 3’ 7” Steel
Nominal Travelling height	2.8m	9’ 2”
Nominal Overall length	6.75m	22’ 6”
Turntable rotation	360° continuous	
Insulation rating (Optional)	Low Voltage	
Nominal weight	1700kg	3746lb
Maximum chassis inclination	1.5/1.5 degrees	
Maximum allowable force	400N	
Maximum outrigger load	2390kg	5269lbs
* This value will change depending on options fitted and the truck model. The value given is an average. Calculate the value or call Snorkel Service if more accurate values are required by ground conditions		

■ Recommended Hydraulic Oil

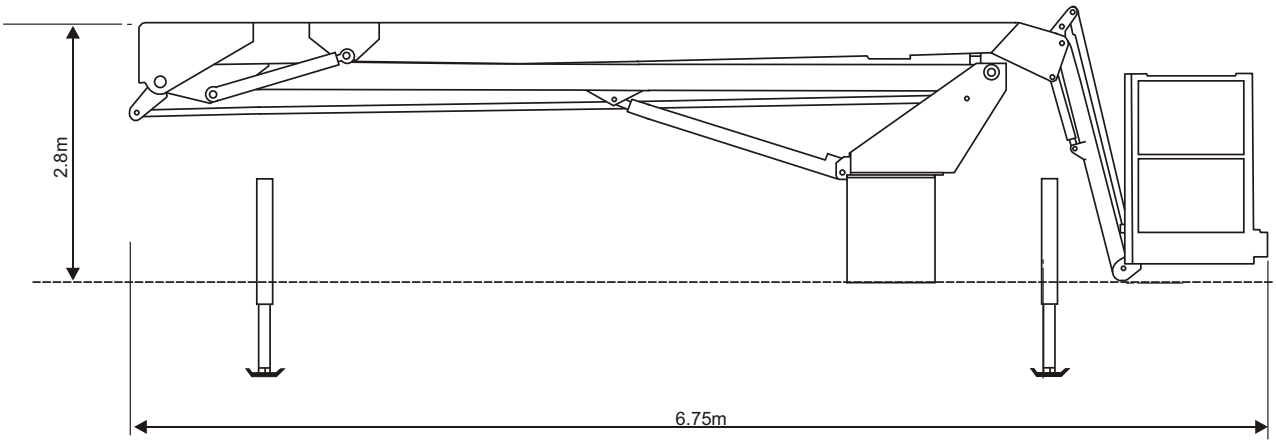
Shell Tellus 32 or Castrol AWS 32 or similar

Chapter 4. Specifications

■ Engine Data

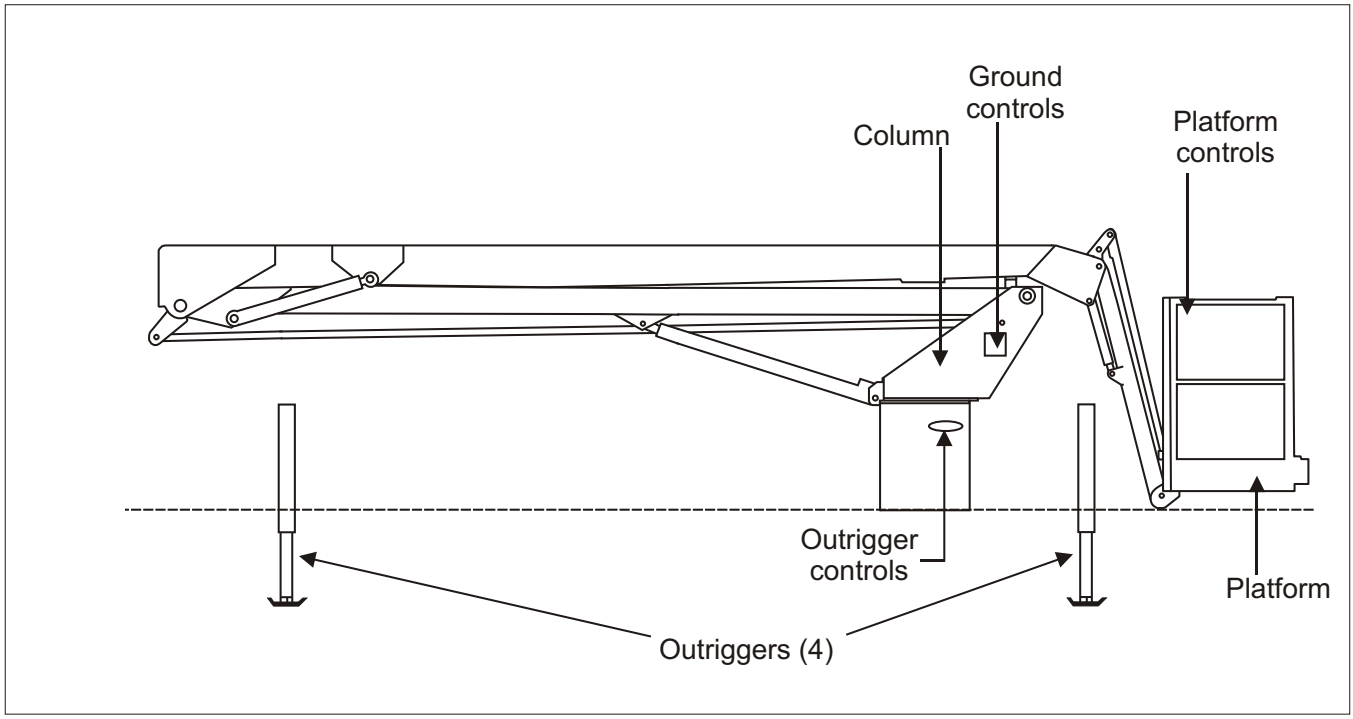
Engine Make	Honda (gasoline)
Model	GX 160
Engine type	4-stroke, over head valve, 1 cylinder
Displacement	163 cm^3 (9.9 cu-in)
Bore x Stroke	68 x 45 mm (2.7 x 1.8 in)
Max. output	4 kW/4,000 rpm
Max. torque	1.1 kg-m (8.0 ft-lb)/ 2500 rpm
Fuel	gasoline
Fuel Grade	automotive gasoline (unleaded or lowleaded preferred)
Fuel consumption	230 g/PSh
Cooling system	Forced air
Ignition system	Transistor magneto
PTO shaft rotation	Counterclockwise
Oil Capacity	0.60 litres (0.60 US qt, 0.53 Imp qt)
Oil Grade	SAE 10W-30

■ Overall Dimensions EPV16

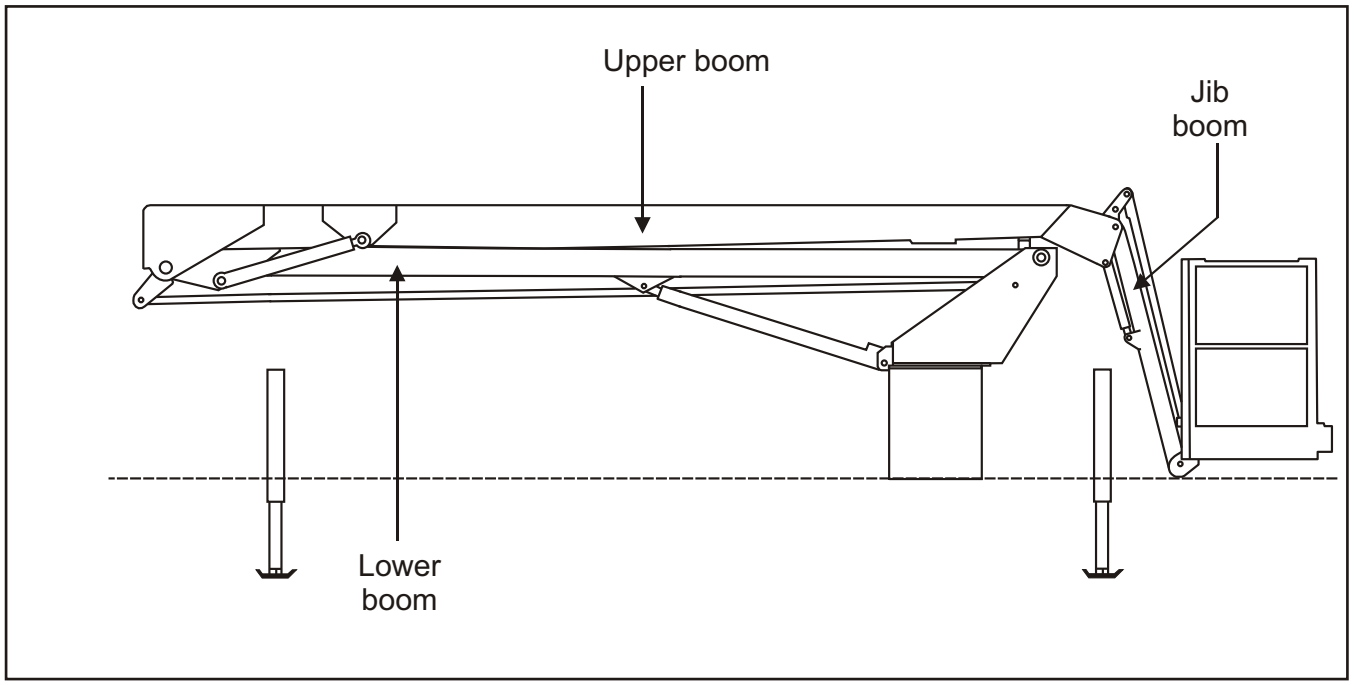


■ Nomenclature And Serial Numbers

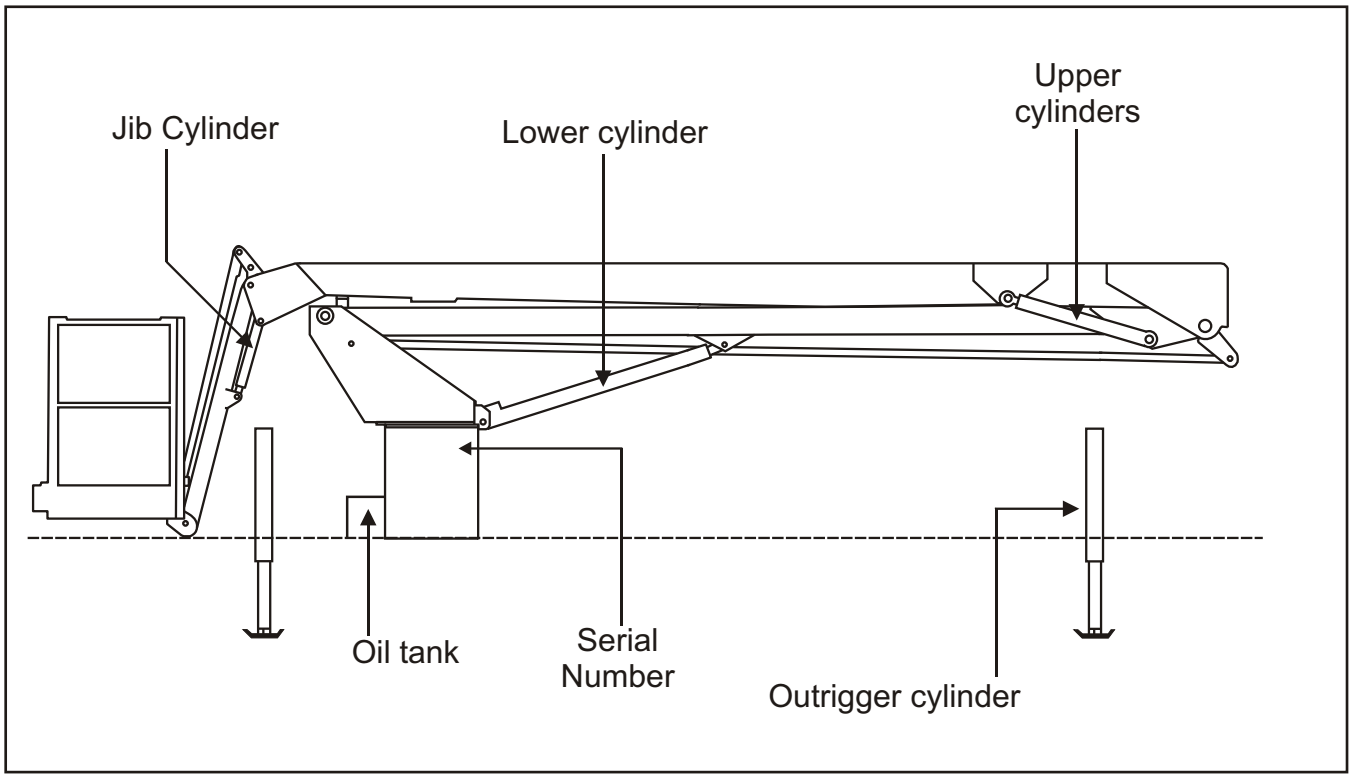
❑ Right side view of machine



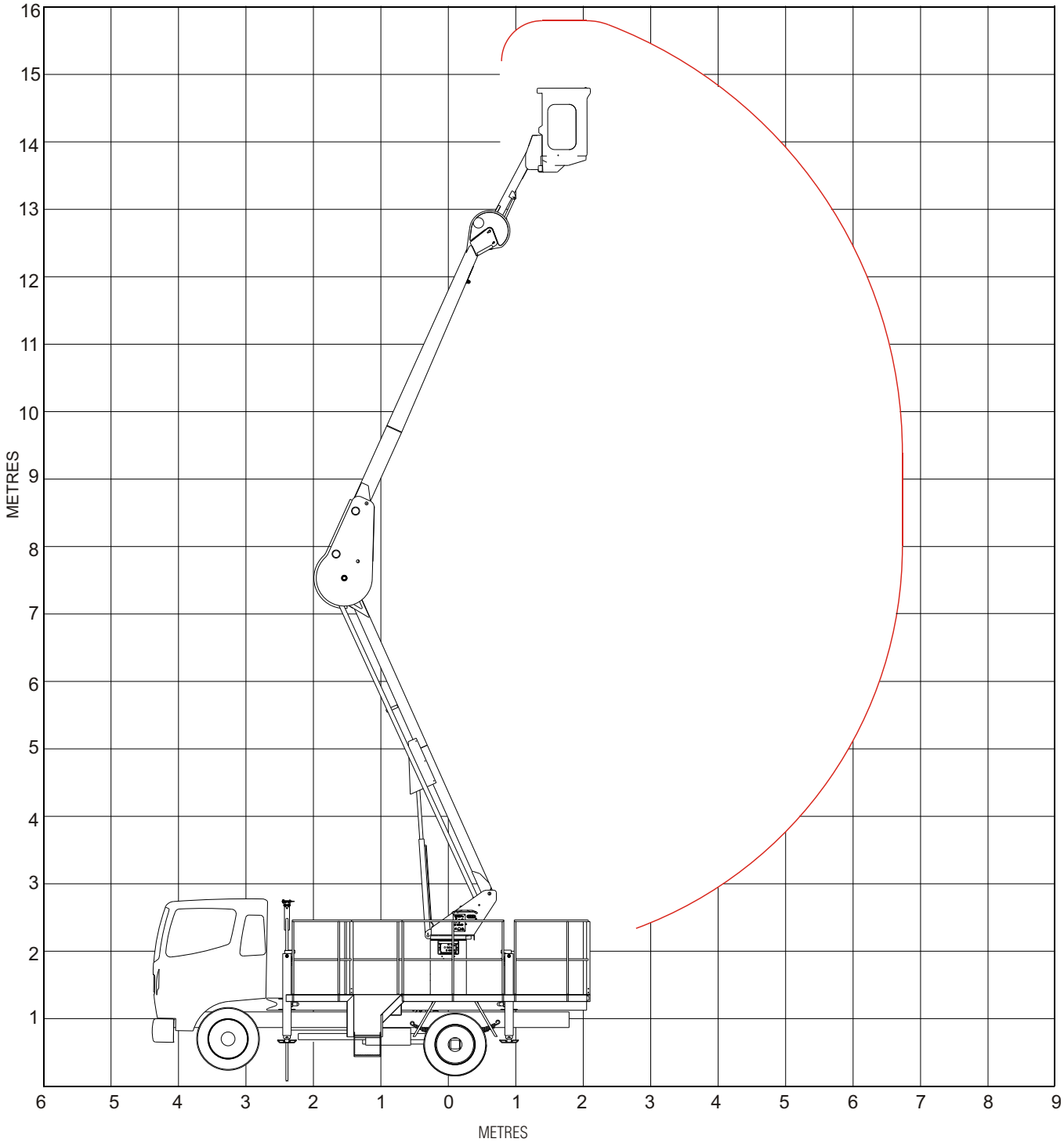
❑ Booms identification



❑ **Left side view of machine**



■ Working Envelope



■ Hourmeter

Figure 4.1 - Hourmeter

The hour meter is basically an electric clock. It accumulates time when the master key switch is turned on. The hour meter cannot be reset. An EPV qualified service technician can use it to tell when it is time for the periodic maintenance listed in the maintenance manual.

■ Level Bubble

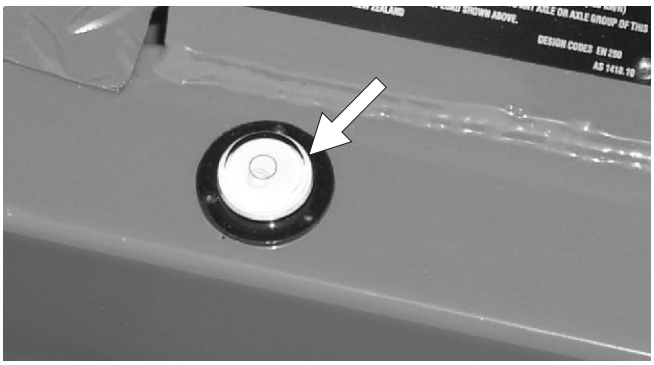


Figure 4.2 - Level Bubble

A level bubble is mounted on the base. Watch the bubble while you set the stabilisers. Lower the stabilisers, front ones first, one (1) at a time just enough to center the bubble in the circle on top of the gauge. When the bubble is central the platform is level and the platform can be safely raised.

■ Hydraulic Oil Level

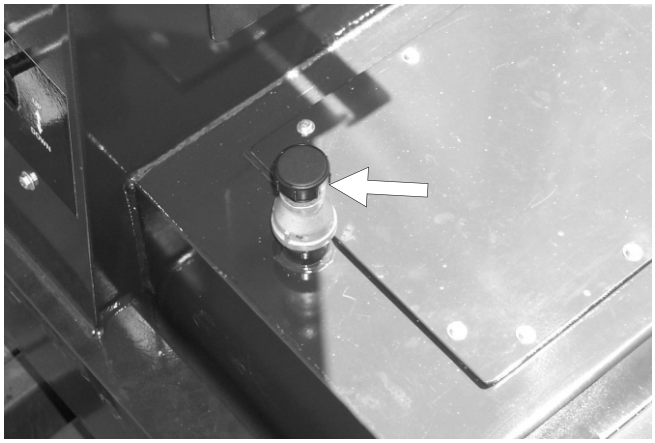


Figure 4.3 - Hydraulic Oil Level

The hydraulic oil level gauge is on the side of the hydraulic oil tank. It shows the actual level of oil inside the tank. Read it only when the booms are fully lowered and stabilisers are raised in the travel position. The oil level should be within + or - 6mm (¼") of the line.

■ RCD/ELCB Outlet (option)

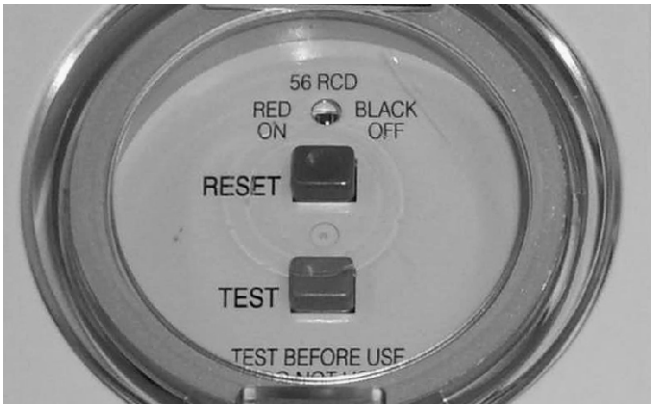


Figure 5.1 - RED/ELCB Outlet

The RCD (Residual Current Device) is located at the base 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 base.

If the problem persists call a trained service technician.

■ Electrical Circuit Protection

There is only one (1) fuse, on a standard EPV16, that is accessible to the operator. Its purpose is to protect the electrical circuits from electrical overloads. When the fuse blows replace it with an identically rated fuse. If the fuse blows a second time, take the EPV16 out of service and refer the problem to a qualified trained service technician for repair.

■ Stabilisers

Figure 5.3 - Stabilisers

The EPV16 booms cannot be raised unless the stabilisers are set and the lift enable light on the lower control box is lit. Once the booms are raised from the stowed position the stabilisers become disabled until the booms are stowed in the travel position.

■ Controls Description

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 10-1 for that after you have read this chapter.

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

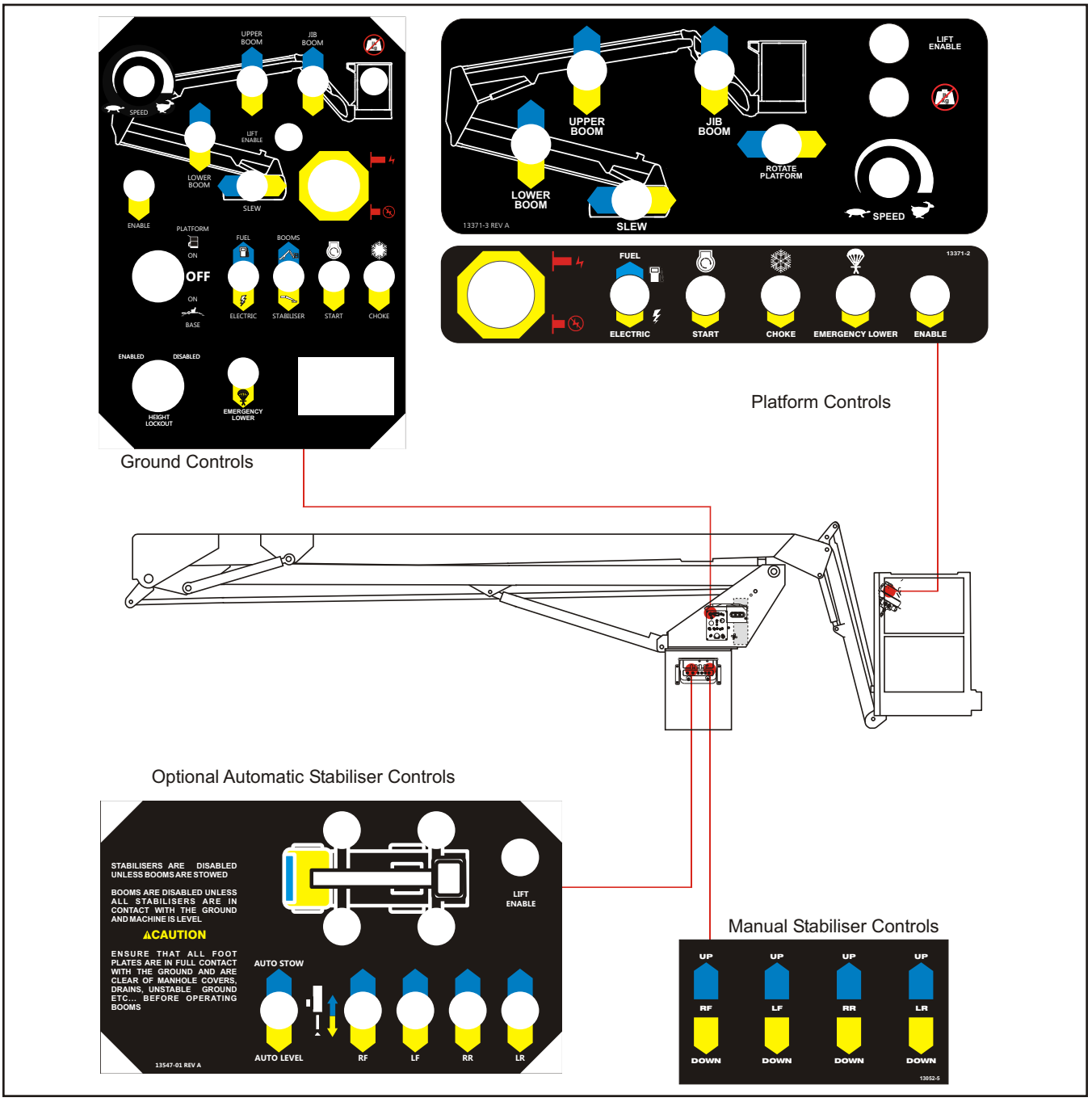
See the “Emergency Operation” chapter 11-1 for the location of the emergency bleed down control and for correct emergency bleed down procedures.

The main operating functions of an EPV16 can be controlled from the ground control box or from the platform control box.

⚠WARNING

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 all personnel stand clear while operating the EPV.

❑ Controls and Control Decal Locations



■ Ground Control Box

Controls for operating the EPV16 from the ground, (lower controls) are located on the right side of the column.

❑ Lower controls:

- ❍ Emergency stop switch
- ❍ Platform/ground selector switch
- ❍ Choke
- ❍ Master key switch
- ❍ Start switch
- ❍ Boom speed switch
- ❍ Stabiliser/boom selector switch
- ❍ Lower boom switch
- ❍ Upper boom switch
- ❍ Jib boom switch
- ❍ Slew switch
- ❍ Lift enable indicator
- ❍ Enable switch
- ❍ Overload indicator
- ❍ Height lockout switch (Option)
- ❍ Fuel / electric selector switch (Option)
- ❍ Emergency lower switch

1. **Emergency Stop**: Press the red EMERGENCY STOP button in, at any time, under any conditions, and the entire machine stops, and nothing moves. This switch must be out (on) for anything on the EPV to work. Pull the switch and it will pop out (on).
2. **Platform/Ground Selector:** Must be in the GROUND position (down) for the ground control box to work. The switch MUST be in the PLATFORM position (up) for the platform control box to work.
   Note: *This switch also acts as the 'master key switch'. Turning the key to the central position and removing the key will effectively disable all operations.*
3. **Choke/Cold Start**: Hold the switch UP while you start an engine that is at ambient air temperature (a "cold" engine). This will choke the engine.
4. **Start Switch**: Press and hold this switch DOWN to operate the starter motor of the EPV16.
5. **Boom Speed**: This control determines how fast the booms move. Set it to SLOW (turtle) until you are very familiar with the way the machine works or if the platform is working in dangerous or cramped surroundings.
6. **Stabliser / Boom Selector Switch**: Must be in Stabliser (outrigger) position (down) for the outriggers to work. Once outriggers are down and set the switch must be placed in the boom (up) position for the booms to work.

Control switches 7 through 10 are the platform moving switches. Each is a three position, momentary contact, normally OFF switch.

7. **Lower Boom** : UP raises the lower boom. DOWN lowers the lower boom.
8. **Upper Boom**: UP raises the upper boom. DOWN lowers the upper boom.
9. **Jib Boom**: UP raises the jib boom. DOWN lowers the jib boom.
10. **Slew**: LEFT rotates the entire turntable and boom to the left. RIGHT rotates the entire turntable and boom to the right.
11. **Lift Enable**: The platform can only be raised when this light is lit. When this light is not lit the platform will not raise because the outriggers are not properly set.
12. **Enable Switch**: The enable switch must be pressed DOWN in conjunction with the boom/platform moving function you select. The purpose of this switch is to prevent the platform/booms from moving if something or someone accidentally pushes one of the boom/platform moving controls. The boom/platform moving switches will not operate unless the enable switch is held down at the same time.
13. **Height Lockout Switch (Option):** This switch (when fitted), limits the maximum height of the boom to 10.9 metres (see Options Chapter)
14. **Overload Indicator**: This indicator illuminates when the platform is overloaded (see Safety Devices Chapter 3 Page 4).
15. **Fuel / Electric Selector Switch (Option)**: This switch (when fitted) allows switching between different motive sources (see Options Chapter).
16. **Emergency Lower Switch:** This switch, when operated in conjunction with the enable switch allows the platform to be lowered to the ground in case of an emergency. (See the "Emergency Operation" Chapter for details on this procedure).

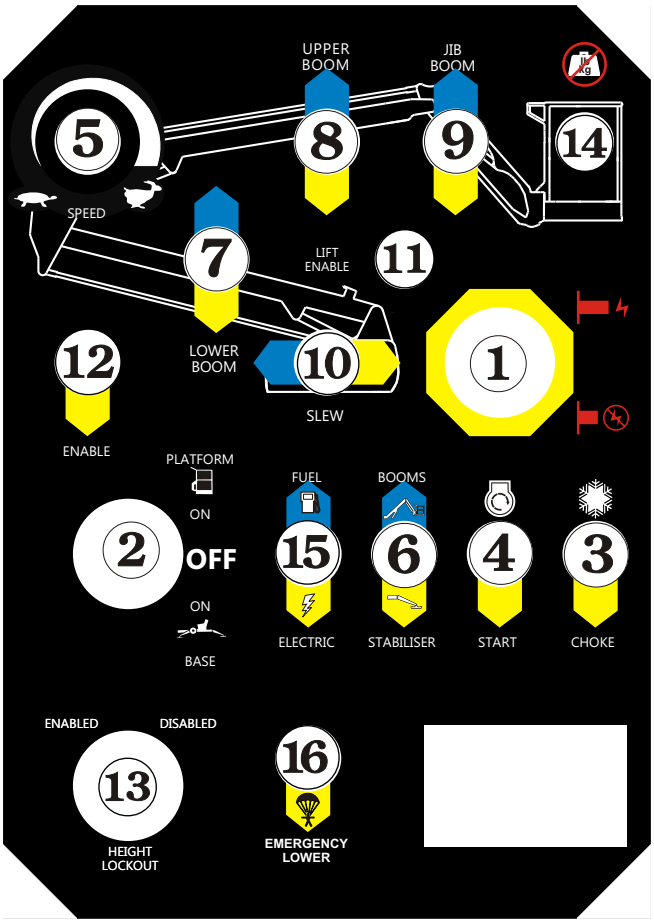


Figure 7.2 - Lower Control Box Controls

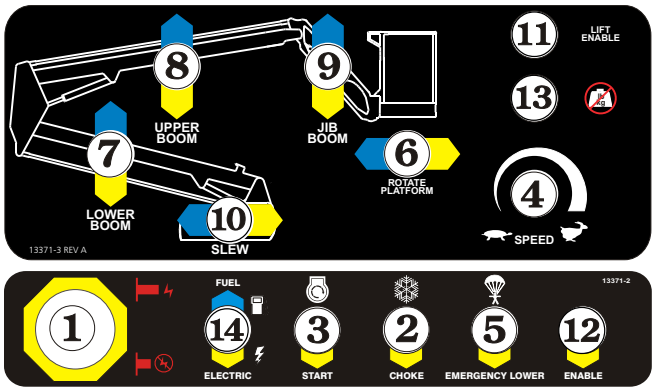
■ Platform Control Box

Controls for operating the EPV16 from the platform (upper controls) are located on the platform control box, with the exception of the foot switch which is on the platform floor.

❑ Upper controls:

- ❍ Emergency stop switch
- ❍ Choke
- ❍ Start switch
- ❍ Boom speed switch
- ❍ Emergency lower switch
- ❍ Platform rotate switch (Option)
- ❍ Lower boom switch
- ❍ Upper boom switch
- ❍ Jib boom switch
- ❍ Slew switch
- ❍ Overload indicator
- ❍ Lift enable indicator
- ❍ Enable switch
- ❍ Fuel / electric selector switch (Option)
- ❍ Foot switch

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



2. **Choke/Cold Start:** Hold the switch UP while you start an engine that is at ambient air temperature (a "cold" engine). This will choke the engine.
3. **Start Switch**: Press and hold this switch DOWN to operate the starter motor of the EPV16.
4. **Boom Speed**: This control determines how fast the booms move. Set it to SLOW (turtle) until you are very familiar with the way the machine works or if the platform is working in dangerous or cramped surroundings.
5. **Emergency Lower**: If the engine stops and cannot be restarted, hold the switch down and this will lower the upper and lower booms (not the jib boom). To slew during emergency lower operate emergency lower and slew switches together.

Items 6 through 10 are the platform moving switches. Each is a three position, momentary contact, normally OFF switch.

6. **Platform Rotate (Option):** LEFT rotates the platform left. RIGHT rotates the platform right.
7. **Lower Boom**: UP raises the lower boom. DOWN lowers the lower boom.
8. **Upper Boom**: UP raises the upper boom. DOWN lowers the upper boom.
9. **Jib Boom**: UP raises the jib boom. DOWN lowers the jib boom.

10. **Slew**: LEFT rotates the entire turntable and boom to the left. RIGHT rotates the entire turntable and boom to the right.
11. **Lift Enable**: The platform can only be raised when this light is lit. When this light is not lit the platform will not raise because the outriggers are not properly set.
12. **Enable Switch**: The enable switch must be pressed DOWN in conjunction with the boom/platform moving function you select. The purpose of this switch is to prevent the platform/booms from moving if something or someone accidentally pushes one of the boom/platform moving controls. The boom/platform moving switches will not operate unless the enable switch is held down at the same time.
13. **Overload Indicator**: This indicator illuminates when the platform is overloaded. (see Safety Devices Chapter 3 page 4).
14. **Fuel / Electric Selector Switch (Option)**: This switch (when fitted) allows switching between different motive sources (see Options Chapter).

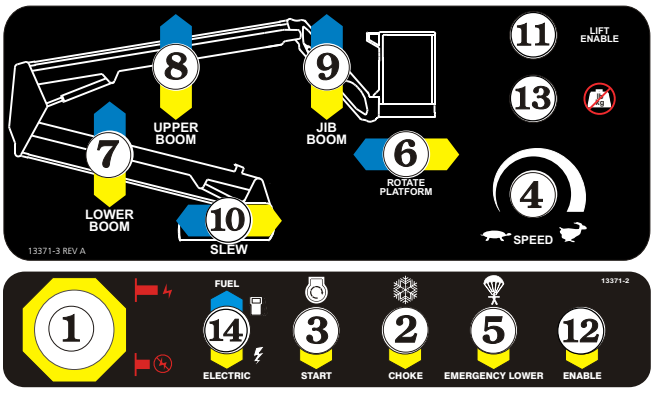


Figure 7.4 - Upper Control Box Controls

15. **Foot Switch**: You must step down on the foot switch, (unless you are using the enable toggle switch ❶❷, on the control box) and hold it down when you use any platform control that causes the platform to move.

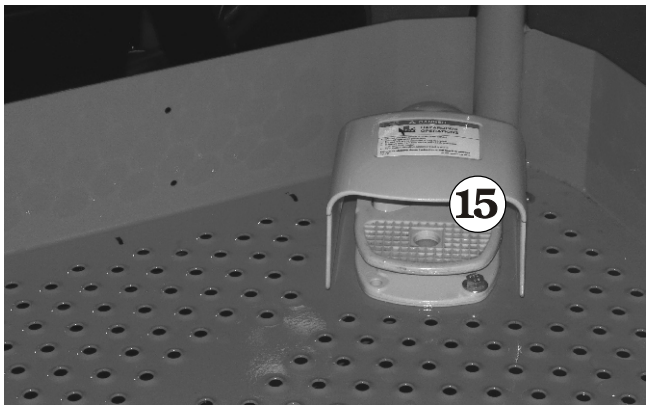


Figure 7.5 - Upper Controls - Enable Switch (Foot)

■ Stabiliser Controls

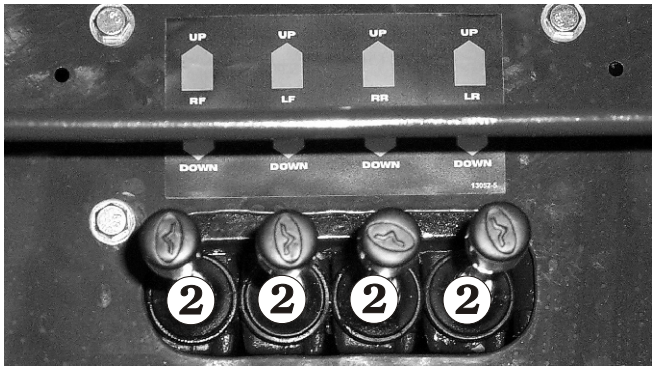


Figure 7.6 - Stabiliser Controls (Manual)

1. **Boom / Stabiliser Switch:** Ensure the boom/stabiliser switch on the lower control box is set to stabiliser (see Item 6 on page 2 of this chapter)
2. **Valve Levers:** Operate the valve levers ❷ to activate the stabilisers and level the machine.
3. **Bubble level:** Use the bubble level to level the machine.

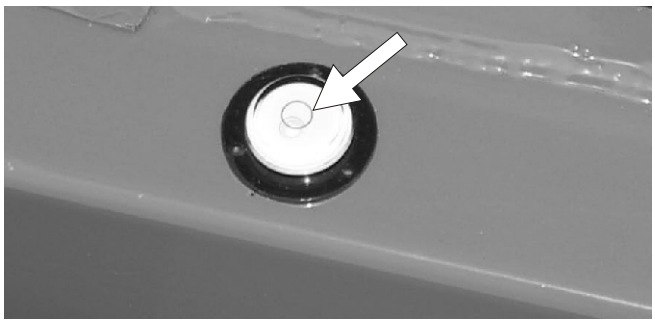


Figure 7.7 - Bubble Level

■ Self Levelling Stabilisers (Option)

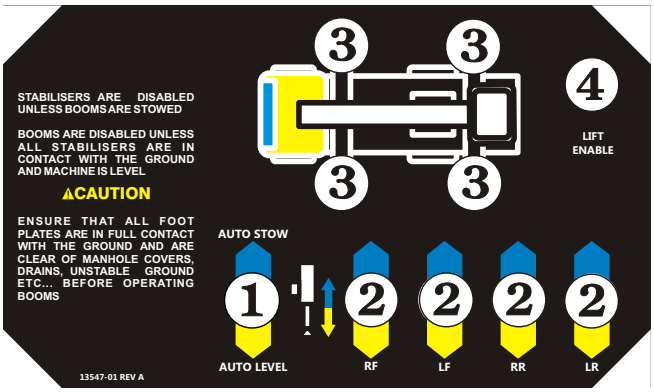


Figure 7.8 - Self Levelling Stabiliser Controls

1. **Auto Level / Stow Switch:** Select either auto level or auto stow, to raise or lower the stabilisers automatically.
2. **Manual Stabiliser Switches:** Operate the manual switches to manually raise or lower individual stabilisers.
3. **Leg Indicator Lights**: Illuminate when the legs are in contact with the ground.
4. **Lift Enable Light**: This is a duplicate of the lift enable light on the lower control box. The platform can only be raised when this light is lit. When this light is not lit the platform will not raise because the stabilisers are not set properly.

Activate the front and rear stabilisers and level the machine using the level bubble adjacent to the control levers.

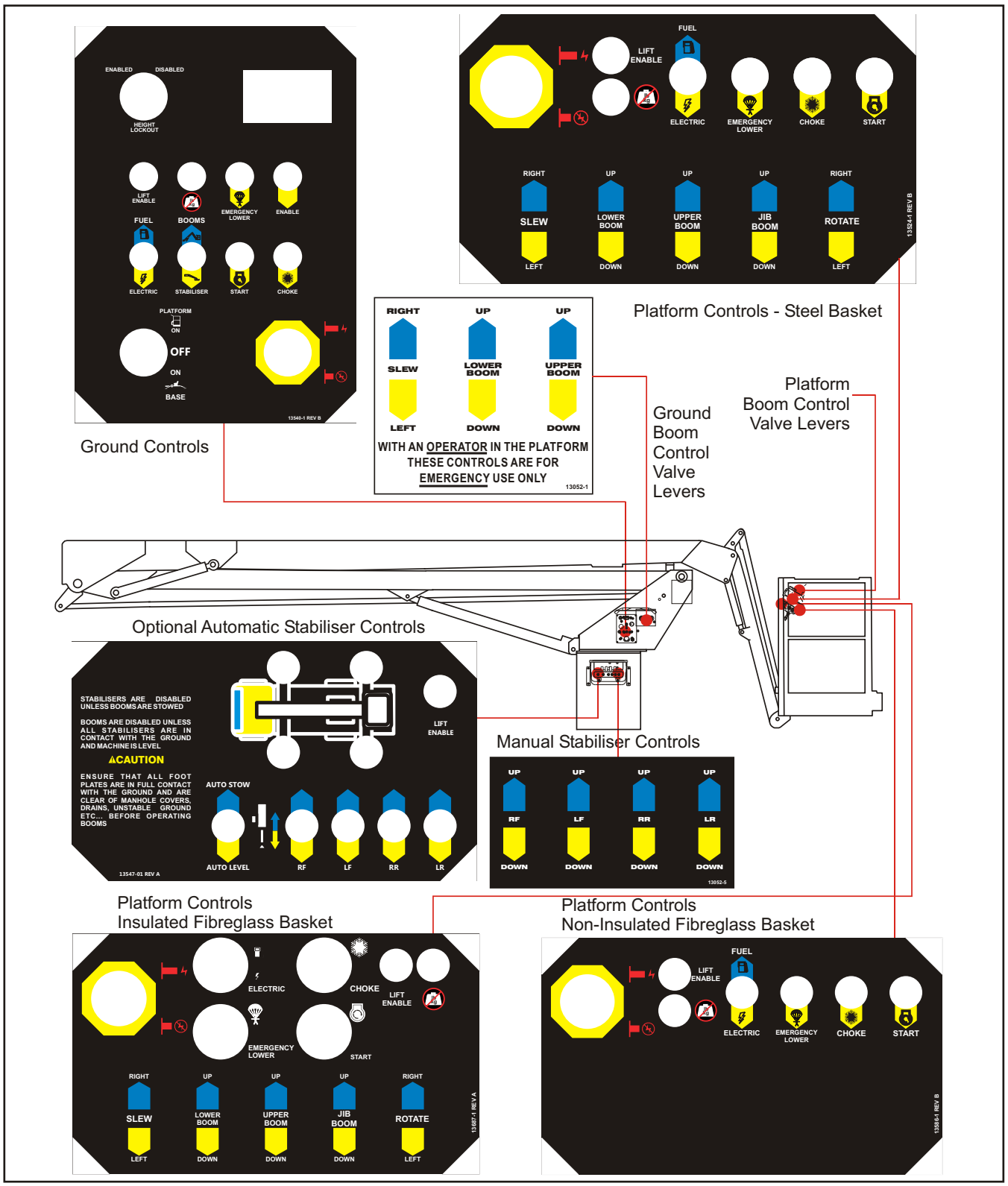
■ Controls Description

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 10-1 for that after you have read this chapter.

For optional equipment controls, see the "Options" chapter.

❑ ControlsandControlID ecalLocations



See the “Emergency Operation” chapter 11-1 for correct emergency bleed down procedures.

The main operating functions of an EPV16 can be controlled from the ground control box or from the platform control box.

⚠WARNING

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 all personnel stand clear while operating the EPV.

■ Ground Control Box

Controls for operating the EPV16 from the ground, (lower controls) are located on the side and rear of the column.

❑ Lower controls:

- ❍ Emergency stop switch
- ❍ Platform/ground selector switch
- ❍ Choke
- ❍ Start switch
- ❍ Stabiliser/boom selector switch
- ❍ Lift enable indicator
- ❍ Enable switch
- ❍ Overload indicator
- ❍ Height lockout switch (Option)
- ❍ Fuel / electric selector switch (Option)
- ❍ Emergency lower switch
- ❍ Valve control lever for lower boom
- ❍ Valve control lever for upper boom
- ❍ Valve control lever for slew

1. **Emergency Stop**: Press the red EMERGENCY STOP button in, at any time, under any conditions, and the entire machine stops, and nothing moves. This switch must be out (on) for anything on the EPV to work. Pull the switch and it will pop out (on).
2. **Platform/Ground Selector switch** : Must be in the GROUND position (down) for the ground control box to work. The switch MUST be in the PLATFORM position (up) for the platform control box to work.
   Note: *This switch also acts as the 'master key switch'. Turning the key to the central position and removing the key will effectively disable all operations.*

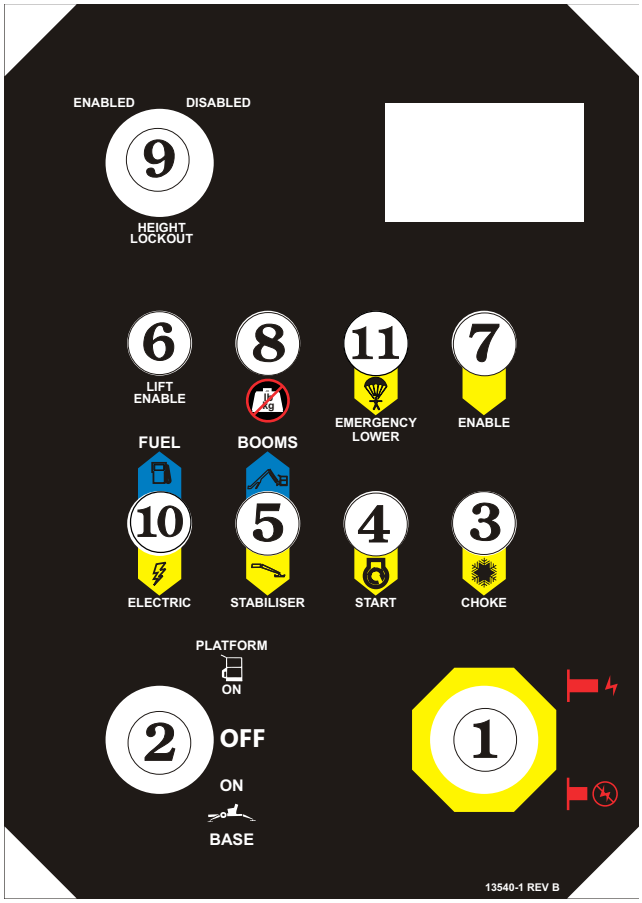


Figure 8.2 - Lower Control Box Controls

3. **Choke/Cold Start**: Hold the switch UP while you start an engine that is at ambient air temperature (a "cold" engine). This will choke the engine.
4. **Start Switch**: Press and hold this switch DOWN to operate the starter motor of the EPV16.
5. **Stabilisers / Boom Selector Switch**: Must be in Stabilisers (outrigger) position (down) for the outriggers to work. Once outriggers are down and set the switch must be placed in the boom (up) position for the booms to work.
6. **Lift Enable Indicator**: The platform can only be raised when this light is lit. When this light is not lit the platform will not raise because the Stabiliser are not properly set.

7. **Enable Switch**: The enable switch must be pressed DOWN in conjunction with the boom/platform moving function you select. The purpose of this switch is to prevent the platform/booms from moving if something or someone accidentally pushes one of the boom/platform moving controls. The boom/platform moving controls will not operate unless the enable switch is held down at the same time.
8. **Overload Indicator**: This indicator illuminates when the platform is overloaded (see Safety Devices Chapter 3 Page 4).
9. **Height Lockout Switch (Option):** This switch (when fitted), limits the maximum height of the boom to 10.9 metres (see Options Chapter).
10. **Fuel / Electric Selector Switch (Option)**: This switch (when fitted) allows switching between different motive sources (see Options Chapter).
11. **Emergency Lower Switch:** This switch, (when operated in conjunction with the enable switch) allows the platform to be lowered in the event of an emergency. See Chapter 11 "Emergency Operation" for details of emergency lowering procedures.
12. **Movement Control Levers**: Control levers 1 through 3 (see Figure 8.3) operate the upper and lower boom and slew control valves.

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

1. **Slew:** LEFT rotates the entire turntable and boom to the left. RIGHT rotates the entire turntable and boom to the right.
2. **Lower Boom** : UP raises the lower boom. DOWN lowers the lower boom.
3. **Upper Boom**: UP raises the upper boom. DOWN lowers the upper boom.

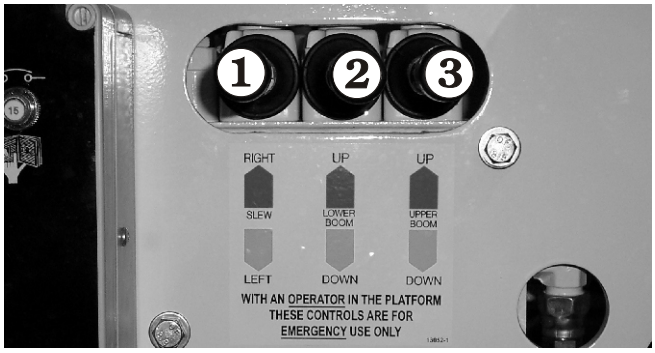


Figure 8.3 - Lower Controls - Movement Control Valve Levers

■ Platform Control Box

❑ Upper controls (steel basket):

- ❍ Emergency stop switch
- ❍ Choke
- ❍ Start switch
- ❍ Lift enable indicator
- ❍ Overload indicator
- ❍ Fuel / electric selector switch (Option)
- ❍ Emergency lower switch
- ❍ Valve control lever for slew
- ❍ Valve control lever for lower boom
- ❍ Valve control lever for upper boom
- ❍ Valve control lever for fly boom
- ❍ Optional Valve control lever for platform rotate
- ❍ Enable switch (Foot)

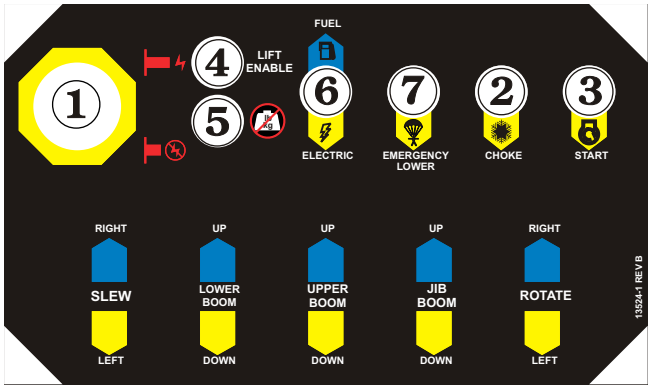


Figure 8.4 - Upper Control Box Controls - Steel Basket

1. **Emergency Stop**: Press the red EMERGENCY STOP button in, at any time, under any conditions, and the entire machine

stops, and nothing moves. This switch must be out (on) to start or run the EPV from the platform control box. Pull the switch and it will pop out (on). Press the switch in (off) if the platform is to stay in one position for a long time. That will turn the engine off and save fuel.

2. **Choke/Cold Start:** Hold the switch UP while you start an engine that is at ambient air temperature (a "cold" engine). This will choke the engine.
3. **Start Switch**: Press and hold this switch DOWN to operate the starter motor of the EPV16.
4. **Lift Enable**: The platform can only be raised when this light is lit. When this light is not lit the platform will not raise because the outriggers are not properly set.
5. **Overload Indicator**: This indicator illuminates when the platform is overloaded (see Safety Devices Chapter 3 Page 4).
6. **Fuel / Electric Selector Switch (Option)**: This switch (when fitted) allows switching between different motive sources (see Options Chapter).

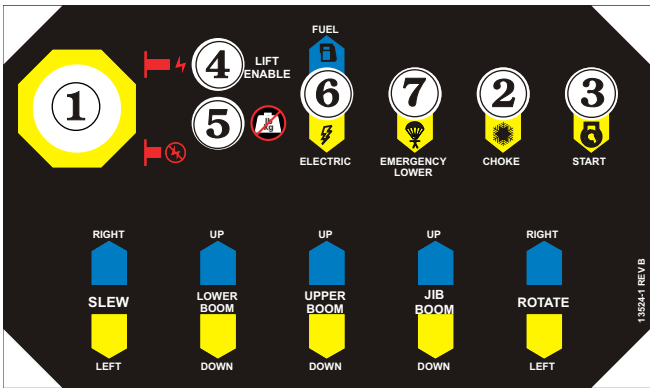


Figure 8.4 - Upper Control Box Controls - Steel Basket

7. **Emergency Lower Switch:** This switch, (when operated in conjunction with the enable switch) allows the platform to be lowered in the event of an emergency. See Chapter 11 "Emergency Operation" for details of emergency lowering procedures.
8. **Platform Movement Levers**: Items 1 through 5 (see Figure 8.5) are the platform moving control levers.

All lever movement is vertical. This produces a corresponding left/right movement for control levers ❶ and ❺, an up/down movement for control levers ❷ and ❸, and an extend/retract movement for control lever ❹.

1. **Slew**: LEFT rotates the entire turntable and boom to the left. RIGHT rotates the entire turntable and boom to the right.
2. **Lower Boom**: UP raises the lower boom. DOWN lowers the lower boom.
3. **Upper Boom**: UP raises the upper boom. DOWN lowers the upper boom.
4. **Jib Boom**: UP raises the jib boom. DOWN lowers the jib boom.
5. **Platform Rotate**: (Option) LEFT rotates the platform left. RIGHT rotates the platform right.

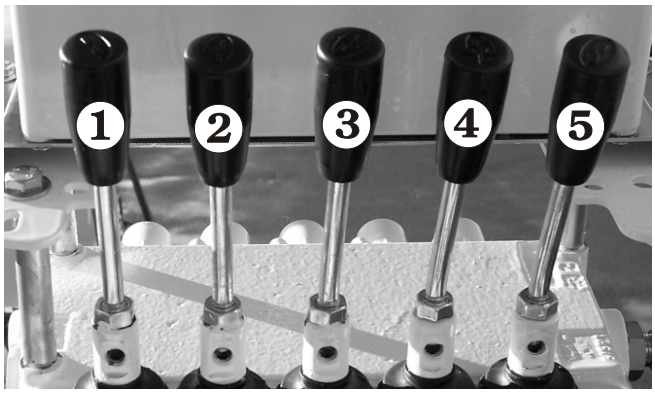


Figure 8.5 - Upper Controls - Platform Movement Control Valve levers - Steel Basket

9. **Enable Foot Switch**: You must step DOWN on the foot switch in conjunction with the boom/platform moving function you select. The purpose of this switch is to prevent the platform/booms from moving if something or someone accidentally pushes one of the boom/platform moving controls. The boom/platform moving controls will not operate unless the enable foot switch is held down at the same time.

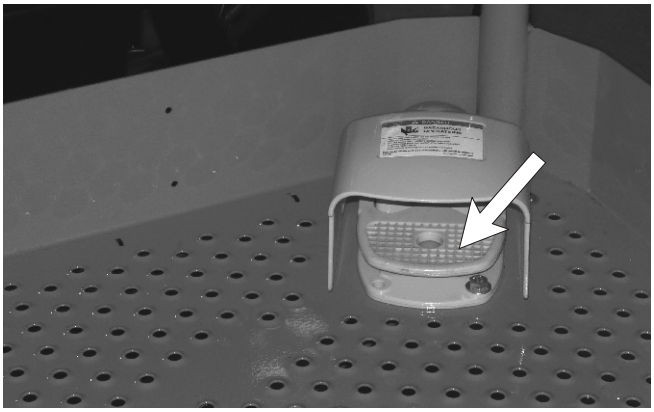


Figure 8.6 - Upper Controls Enable Foot Switch

❑ **Upper controls (non-insulated fibreglass basket):**

- ❍ Emergency stop switch
- ❍ Choke switch
- ❍ Start switch
- ❍ Lift enable indicator
- ❍ Overload indicator
- ❍ Fuel / electric selector switch (Option)
- ❍ Emergency lower switch
- ❍ Valve control lever for slew
- ❍ Valve control lever for lower boom
- ❍ Valve control lever for upper boom
- ❍ Valve control lever for fly boom
- ❍ Optional Valve control lever for platform rotate
- ❍ Enable switch (Foot)

1. **Emergency Stop**: Press the red EMERGENCY STOP button in, at any time, under any conditions, and the entire machine stops, and nothing moves. This switch must be out (on) to start or run the EPV from the platform control box. Pull the switch and it will pop out (on). Press the switch in (off) if the platform is to stay in one position for a long time. That will turn the engine off and and save fuel.
2. **Choke/Cold Start:** Hold the switch DOWN while you start an engine that is at ambient air temperature (a "cold" engine). This will choke the engine.
3. **Start Switch**: Press and hold this switch DOWN to operate the starter motor of the EPV16.
4. **Lift Enable**: The platform can only be raised when this light is lit. When this light is not lit the platform will not raise because the outriggers are not properly set.

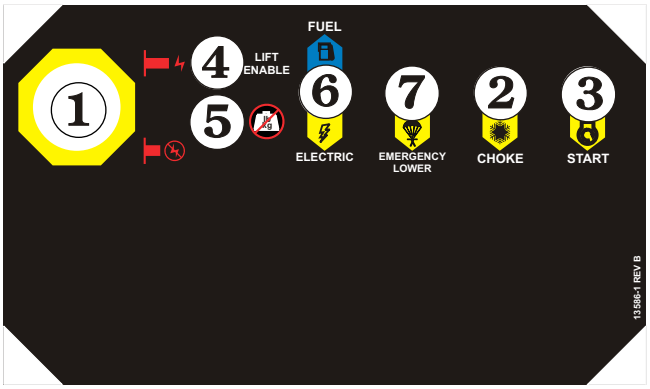


Figure 8.7 - Upper Control Box Controls - Non-Insulated Fibreglass Basket

5. **Overload Indicator**: This indicator illuminates when the platform is overloaded (see Safety Devices Chapter 3 Page 4).
6. **Fuel / Electric Selector Switch (Option)**: This switch (when fitted) allows switching between different motive sources (see Options Chapter).
7. **Emergency Lower Switch:** This switch, (when operated in conjunction with the enable switch) allows the platform to be lowered in the event of an emergency. See Chapter 11 "Emergency Operation" for details of emergency lowering procedures.
8. **Platform Movement Levers**: Items 1 through 5 (see Figure 8.8) are the platform moving control levers.

1. **Slew**: LEFT rotates the entire turntable and boom to the left. RIGHT rotates the entire turntable and boom to the right.
2. **Lower Boom**: UP raises the lower boom. DOWN lowers the lower boom.
3. **Upper Boom**: UP raises the upper boom. DOWN lowers the upper boom.
4. **Jib Boom**: UP raises the jib boom. DOWN lowers the jib boom.
5. **Platform Rotate**: (Option) LEFT rotates the platform left. RIGHT rotates the platform right.

All lever movement is vertical. This produces a corresponding left/right movement for control levers ❶ and ❺, an up/down movement for control levers ❷ and ❸, and an extend/retract movement for control lever ❹.

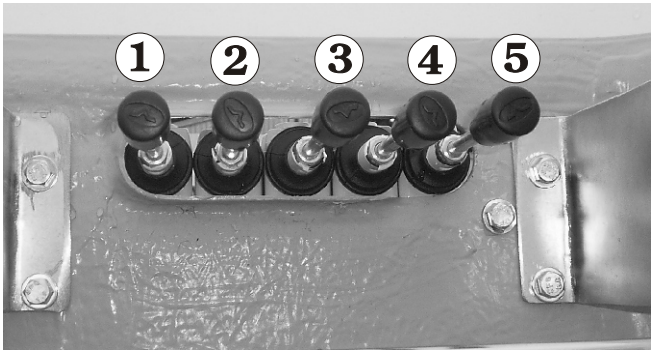


Figure 8.8 - Upper Controls - Non-Insulated Fibreglass Basket, Platform Movement Control Valve levers

9. **Enable Switch (Foot)**:You must step DOWN on the foot switch in conjunction with the boom/platform moving function you select. The purpose of this switch is to prevent the platform/booms from moving if something or someone accidentally pushes one of the boom/platform moving controls. The boom/platform moving controls will not operate unless the enable foot switch is held down at the same time.

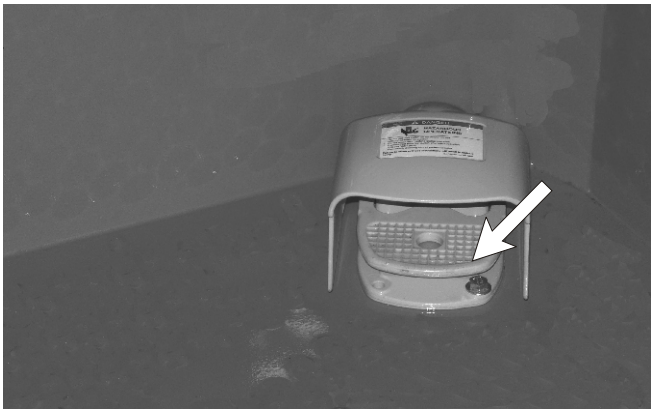


Figure 8.9 - Upper Controls, Enable Foot Switch, Fibreglass Basket

❑ **Upper controls (insulated fibreglass basket):**

- ❍ Emergency stop switch
- ❍ Choke
- ❍ Start switch
- ❍ Lift enable indicator
- ❍ Overload indicator
- ❍ Fuel / electric selector switch (Option)
- ❍ Emergency lower switch
- ❍ Valve control lever for slew
- ❍ Valve control lever for lower boom
- ❍ Valve control lever for upper boom
- ❍ Valve control lever for fly boom
- ❍ Optional Valve control lever for platform rotate
- ❍ Enable switch (Foot)

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

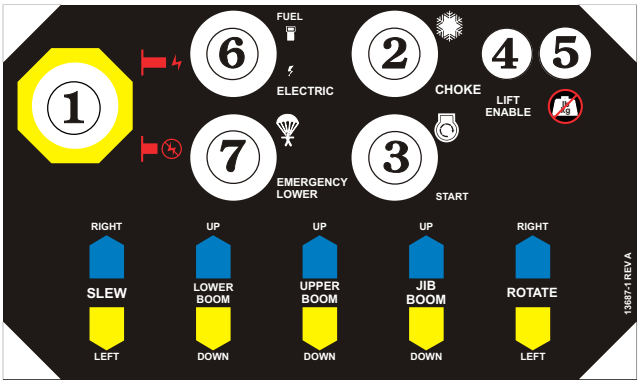


Figure 8.10 - Upper Controls - Insulated Fibreglass Basket

2. **Choke/Cold Start:** Hold the switch DOWN while you start an engine that is at ambient air temperature (a "cold" engine). This will choke the engine.
3. **Start Switch**: Press and hold this switch DOWN to operate the starter motor of the EPV16.
4. **Lift Enable**: The platform can only be raised when this light is lit. When this light is not lit the platform will not raise because the outriggers are not properly set.
5. **Overload Indicator**: This indicator illuminates when the platform is overloaded (see Safety Devices Chapter 3 Page 4).
6. **Fuel / Electric Selector Switch (Option)**: This switch (when fitted) allows switching between different motive sources (see Options Chapter).

7. **Emergency Lower Switch:** This switch, (when operated in conjunction with the enable switch) allows the platform to be lowered in the event of an emergency. See Chapter 11 "Emergency Operation" for details of emergency lowering procedures.
8. **Platform Movement Levers**: Items 1 through 5 (see Figure 8.11) are the platform moving control levers.

All lever movement is vertical. This produces a corresponding left/right movement for control levers ❶ and ❺, an up/down movement for control levers ❷ and ❸, and an extend/retract movement for control lever ❹.

1. **Slew**: LEFT rotates the entire turntable and boom to the left. RIGHT rotates the entire turntable and boom to the right.
2. **Lower Boom**: UP raises the lower boom. DOWN lowers the lower boom.
3. **Upper Boom**: UP raises the upper boom. DOWN lowers the upper boom.
4. **Jib Boom**: UP raises the jib boom. DOWN lowers the jib boom.
5. **Platform Rotate**: (Option) LEFT rotates the platform left. RIGHT rotates the platform right.**(Not shown here)**

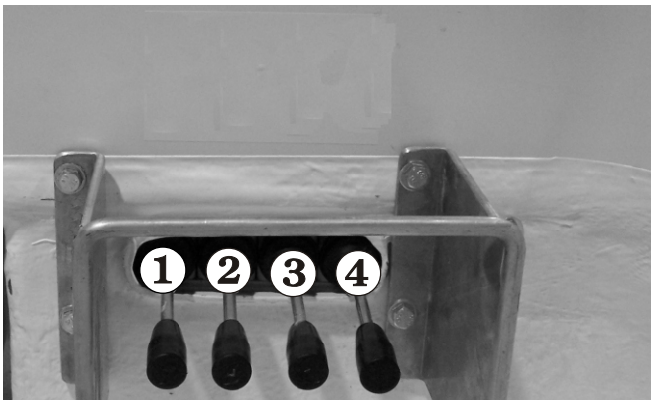


Figure 8.11 - Upper Controls - Insulated Fibreglass Basket, Platform Movement Control Valve levers

■ Stabiliser Controls

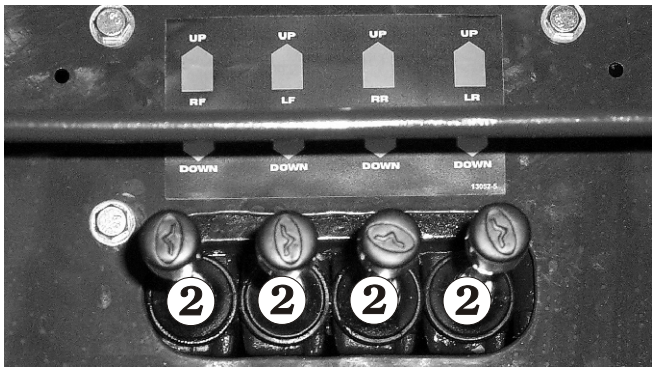


Figure 8.12 - Stabiliser Controls (Manual)

1. **Boom / Stabiliser Switch:** Ensure the boom/stabiliser switch on the lower control box is set to stabiliser (see Item 5 on page 2 of this chapter)
2. **Valve Levers:** Operate the valve levers ❷ to activate the stabilisers and level the machine.
3. **Bubble level:** Use the bubble level to level the machine.

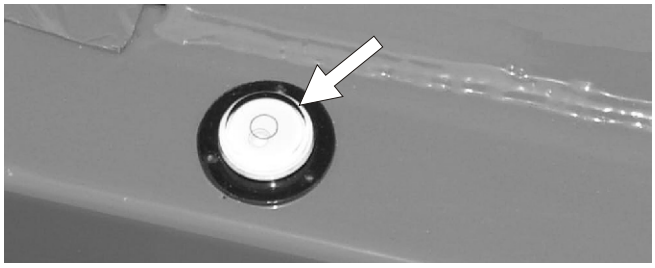


Figure 8.13 - Bubble Level

■ Self Levelling Stabilisers (Option)

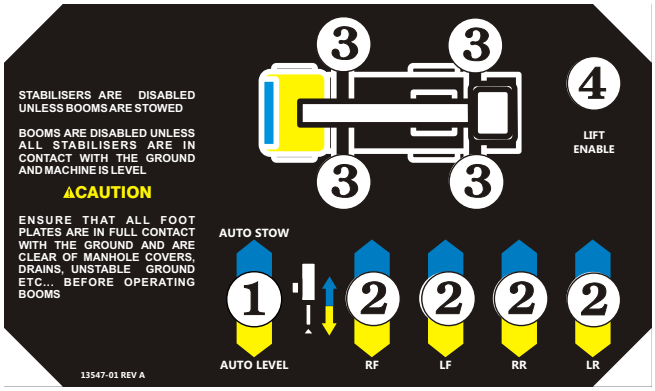


Figure 8.14 - Self Levelling Stabiliser Controls

1. **Auto Level / Stow Switch:** Select either auto level or auto stow, to raise or lower the stabilisers automatically.
2. **Manual Stabiliser Switches:** Operate the manual switches to manually raise or lower individual stabilisers.
3. **Leg Indicator Lights**: Illuminate when the legs are in contact with the ground.
4. **Lift Enable Light**: This is a duplicate of the lift enable light on the lower control box. The platform can only be raised when this light is lit. When this light is not lit the platform will not raise because the stabilisers are not set properly.

Activate the front and rear stabilisers and level the machine using the level bubble adjacent to the control levers.

At the start of each work day (or 8 hour shift), an EPV16 qualified operator must perform the Pre-operational Inspection as listed in the table below.

The purpose of the Pre-operational Inspection is to keep the EPV16 in proper working condition and to detect signs of malfunction at the earliest possible time.

The EPV16 should be in the STOWED POSITION and the **Master Key Switch** set to OFF before you begin this inspection.

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

⚠DANGER

DO NOT operate an EPV16 that is known to be damaged or malfunctioning. Repair all equipment damage or malfunctions, before placing the EPV16 into service.

The rest of this chapter shows how to perform the inspection and maintenance required for each item in the Pre-operational Inspection Table.

■ Pre-operational Inspection Table

Item	Service Required
Stabiliser/boom interlock test	Perform the test to ensure that the system is functioning
Engine fuel level	Look to see that the fuel tank is full
Fuel tank cap	Check to see that the cap is tight
Engine oil level	Check oil level (between dipstick lines)
Fuel leaks	Visually inspect (hoses and connections)
Engine coolant	Check that grills are not blocked
Wiring harnesses	Visually inspect (installation, condition)
Battery terminals	Visually inspect (no corrosion)
Battery fluid level	Check fluid level (1/4" or 6 mm below filler neck)
Hydraulic oil level	Visually inspect level (between lines on dipstick)
Hydraulic oil leaks	Visually inspect (hoses, tubes)
Tires and wheels	Visually inspect (condition)
Bolts and fasteners	Visually inspect (condition)
Structural damage and welds	Visually inspect (weld cracks, dents)
Lanyard anchor points	Visually inspect (condition)
Platform gravity gate	Check condition and operation
Platform guardrails	Visually inspect (condition)
Flashing light (option)	Visually inspect (operation)
Ground control switches	Actuate and inspect for proper operation
Ground control valve levers	Check operation (causes correct motion)
Ground emergency lower valve	Check operation (causes correct motion)
Emergency lower	Check operation (causes correct motion)
Platform control box switches	Actuate and inspect for proper operation
Platform control valve levers	Check operation (causes correct motion)
Platform emergency lower valve	Check operation (causes correct motion)
RCD/ELCB AC outlet (option)	Check operation
Platform work lights (option)	Check operation
Placards and decals	Visually inspect (installation, condition)
Low Voltage Insulated EPV16 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

* For further details on performing insulation tests please refer to the Repair Parts manual

■ Stabiliser/Boom Interlock Test

All machines in the Snorkel 'EPV' Series of Truck Mounted Elevating Work Platforms are fitted with a very important safety feature, a 'Stabiliser/Boom Interlock' system that prevents the booms being elevated to an unsafe position unless all four stabilisers have been correctly set and have made firm contact with the ground.

This same safety feature also prevents the Stabilisers being operated while either or both Booms are elevated.

The correct operation of the Stabiliser/Boom Interlock is critical to ensure that the EPV is operated safely and without risk.

⚠DANGER

To ensure the interlock system is functioning correctly, before operating the EPV the following test MUST BE CARRIED OUT PRIOR TO OPERATION EACH DAY, in conjunction with all other relevant daily pre-operational checks:

1. Position the machine on a firm level surface. Chock the wheels as required, engage the Parking Brake.
2. From the base controls, start the engine and allow it to warm up. Remove the Travel Pins from both the Upper and Lower booms (as applicable to the model).
   Move the Stabiliser/Boom selector switch to 'Boom'.
3. Attempt to raise the Upper Boom; it must not rise out of the boom rest at all.
   Repeat this Step for the Lower Boom. It must not rise at all either.
   If neither of the Booms will rise from the boom rest, proceed to Step 5.

⚠DANGER

4. If either Boom rises from the boom rest and continues to rise higher than approximately **400mm**, **stop the engine immediately!**

   Using the Emergency Lowering valve, lower the Boom into the boom rest, remove the machine from service and affix a Danger Tag warning others that the machine is not to be used. In the first instance contact the owner who will then contact the Snorkel branch or authorised agent to inspect, repair and test the machine before allowing it to be placed back into service.
5. Follow the correct procedure in the Operators manual for setting up the machine on the Stabilisers.
6. When the Stabilisers are correctly set, the green Enable Lamp is lit and the machine is level, move the Stabiliser/Boom selector switch to 'Boom'.
7. From the base controls, raise the Upper Boom (no more than) approximately **400mm** from the boom rest.

⚠IMPORTANT

Move the Stabiliser/Boom selector switch to the 'Stabiliser' position.

8. Using the Stabiliser controls, operate one (1) of the Stabiliser control switches or levers (any one (1)).
   There must be no corresponding movement of the Stabiliser for the switch or lever used.
   If the Stabiliser does not move, lower the Upper Boom back into the boom rest, and repeat Steps 7 and 8 for the Lower Boom.
9. If there is no corresponding movement of the Stabilisers when Steps 7 and 8 are followed for both Booms, the Stabiliser/Boom Interlock circuit is functioning correctly and the machine can now be used safely as per the instructions in the Operators Manual.

⚠DANGER

10. If there is a corresponding movement of *any* of the Stabilisers when Steps 7 and 8 are followed, **stop the engine immediately!**

    Using the Emergency Lowering valve, lower the Boom into the boom rest. Re-start the engine and fully retract all four Stabilisers. Remove the machine from service and proceed as in Step 4.

■ Engine Cover

Figure 9.1 - Engine Cover

The engine is accessed by removing the engine cover. Check that the cover latches (one (1) at each end) are secured properly.

■ Engine Fuel Level

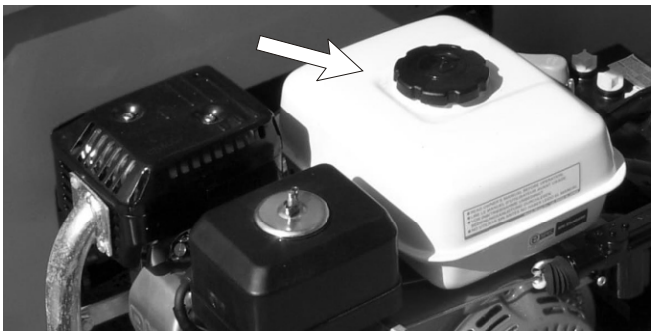


Figure 9.2 - Engine Fuel Level

Visually check to see that the gasoline tank is full. See the “Specifications” chapter 4, fuel for octane and grade.

■ Fuel Tank Cap

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

■ Fuel Leaks

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

■ Engine Oil Level

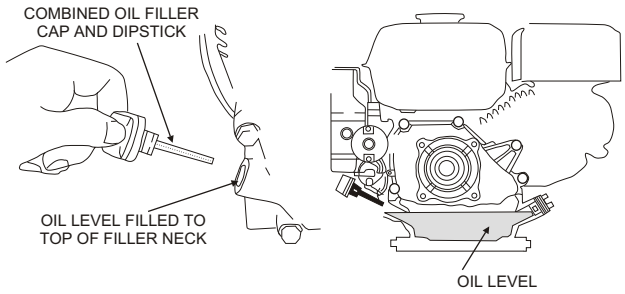


Figure 9.3 - Engine Oil Level

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 oil filler neck with the recommended oil.

See the “Specifications” chapter 4, for the correct engine oil grade and weight.

■ Wiring Harnesses

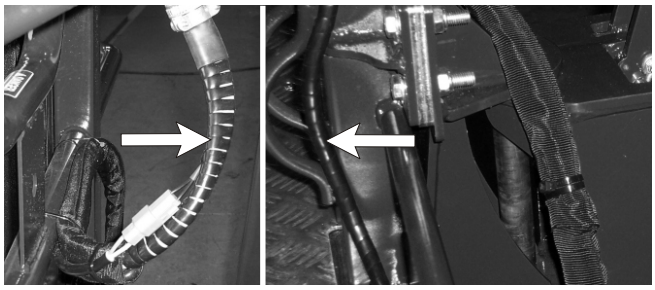


Figure 9.4 - Wiring Harnesses

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

■ Battery Terminals

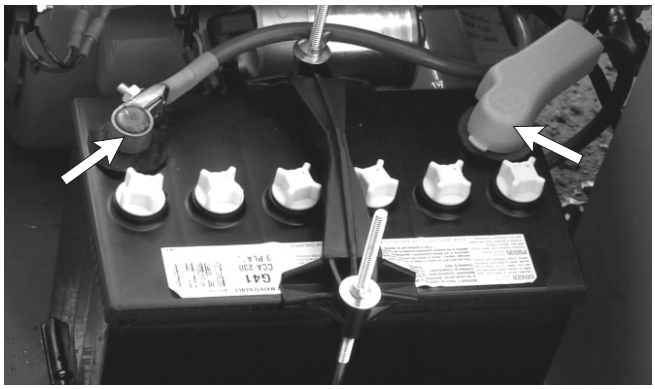


Figure 9.5 - Battery Terminals

Battery terminals should be tight, clean and free of dirt and corrosion.

■ Battery Fluid Level

⚠DANGER

Batteries emit hydrogen and oxygen, elements that can combine explosively.

DO NOT smoke or permit open flames or sparks when checking batteries.

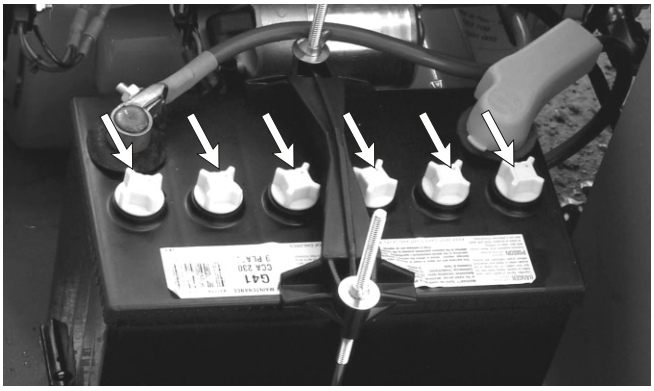


Figure 9.6 - Battery Fluid Level

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.

■ Hydraulic Oil Level

To check the hydraulic oil level:

Completely lower the booms and ensure the stabilisers are in the stowed position.

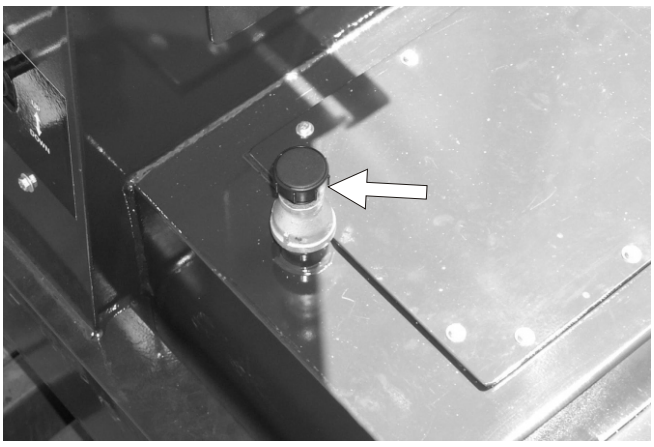


Figure 9.7 - Hydraulic Oil Level

The hydraulic oil level should be between the two marks on the dipstick.

If necessary, add hydraulic oil at the filler cap. See the "Specifications" chapter 4, for type and grade of hydraulic oil.

■ Hydraulic Oil Leaks

⚠DANGER

Leaking hydraulic oil can cause burns, fires, falls (slipping), cuts, and puncture wounds (if under high pressure).Do not search for leaks with your hand. Have a qualified trained maintenance person repair all hydraulic fluid leaks before you operate an EPV16.

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.

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

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

■ Bolts and Fasteners

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

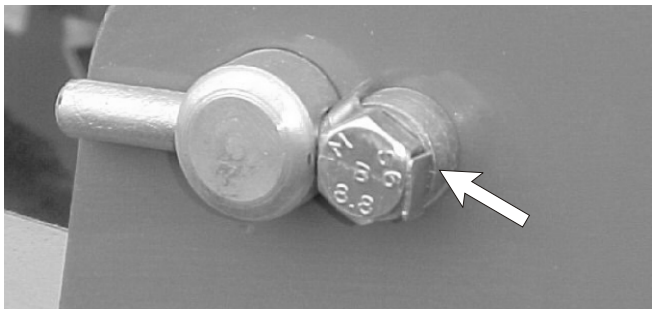


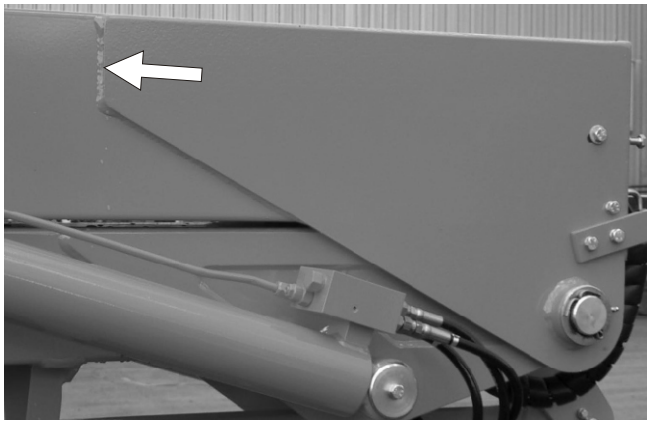
Figure 9.8 - Critical Pin Retainer Bolts

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

■ Structural Damage and Welds

Visually inspect all welds for cracks, all structural members for deformity.

Pay particular attention to the chassis welds



Figures 9.9 - Boom Welds

Closely inspect boom welds all the way around, for cracks.

■ Lanyard Anchor Points

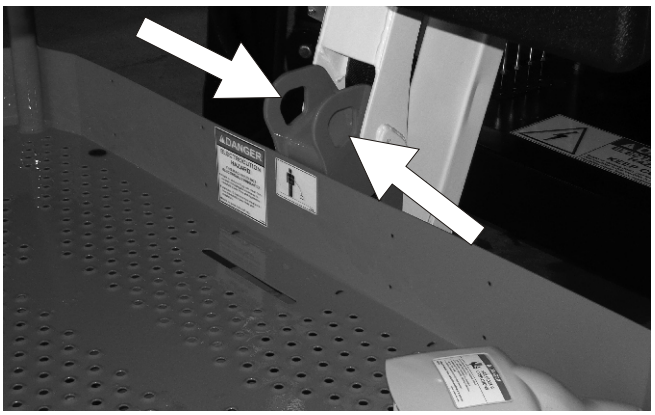


Figure 9.10 - Lanyard Anchor Points - Steel Platform

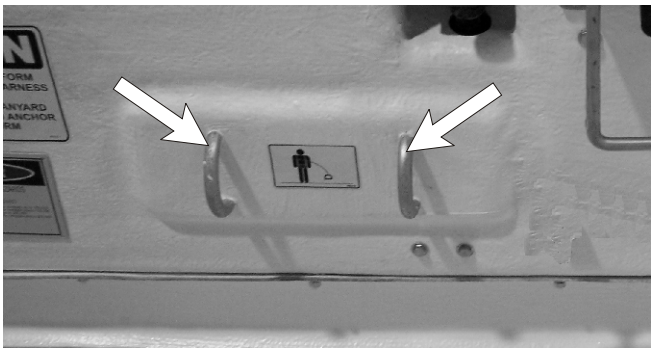


Figure 9.10.2 - Lanyard Anchor Points - Fibreglass Platform

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

■ Platform Gravity Gates

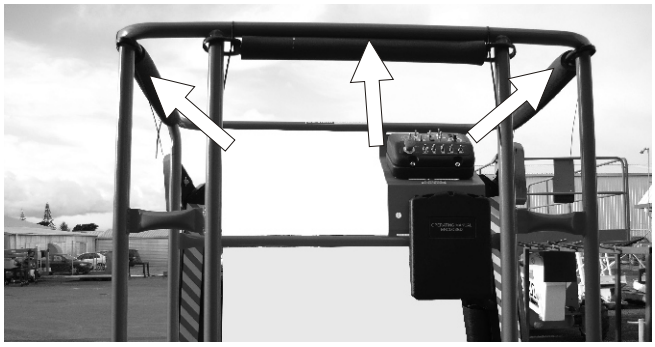


Figure 9.11 - Platform Gravity Gates

Check to see that the three gravity gates are present and function correctly.

■ Platform Guardrails

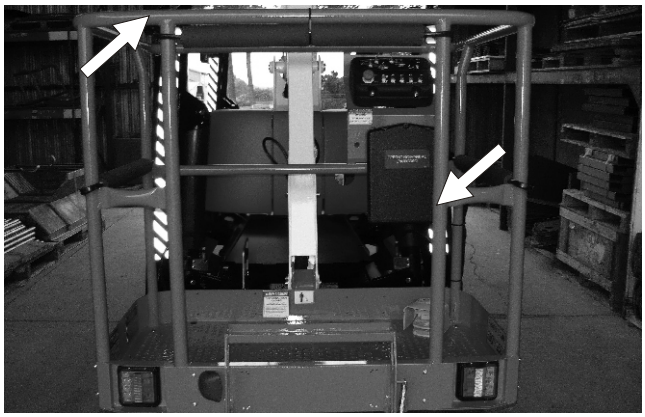


Figure 9.12 - Platform Guardrails

Visually inspect the platform guardrails to see that none of the tubing has been cut out, removed, or deformed in any way. Visually check the guardrail welds to see that none is cracked nor ground down.

■ Flashing Light (option)

Visually check the optional flashing light, to see that the light flashes at approximately one flash per second when the motor key switch is turned on.

---

*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 with this.*

NOTE: - Control Options

If your machine has hydraulic controls go to page 7

■ Ground Control Switches Machines with Electric Controls

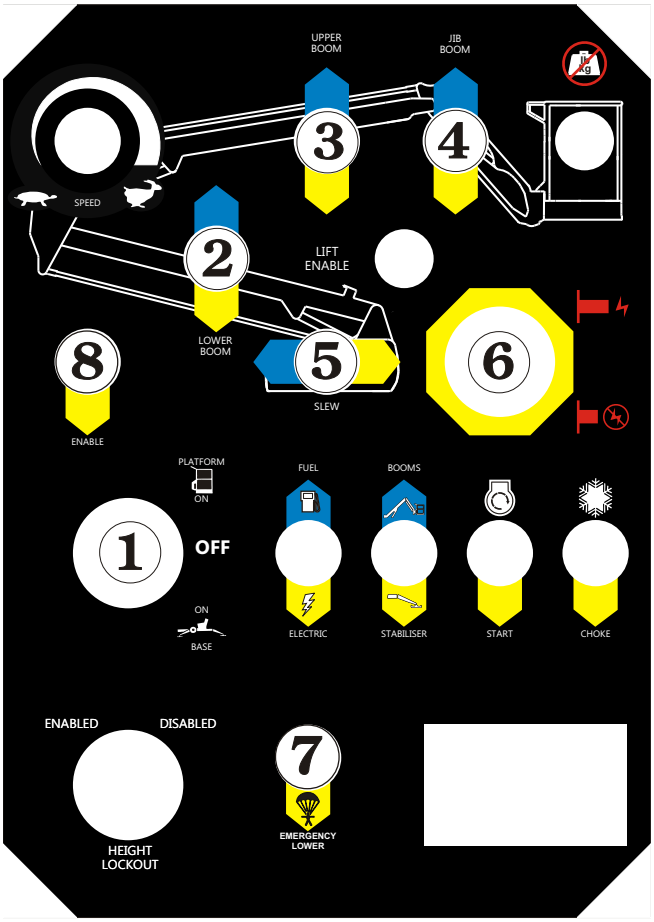


Figure 9.13 - Ground Control Switches

With the Ground/Platform Selector ❶ set to ground/base:
Check that each of the platform moving switches (❷ through to ❺) cause the EPV16 to move the way it should.

Check both positions of each switch.

For correct operating procedures see the “Operation” chapter 10.

NOTE

*Pay particular attention to the **Emergency Stop** switch ❻ to see that it turns the EPV16 engine off when the red button is struck.*

With the booms raised operate the **Emergency Lower Switch ❼** in conjunction with the **Enable Switch ❽.** The booms should begin to lower.

For details on correct emergency lowering operating procedures see “Emergency Operation” chapter 11.

■ Platform Control Switches Machines with Electric Controls

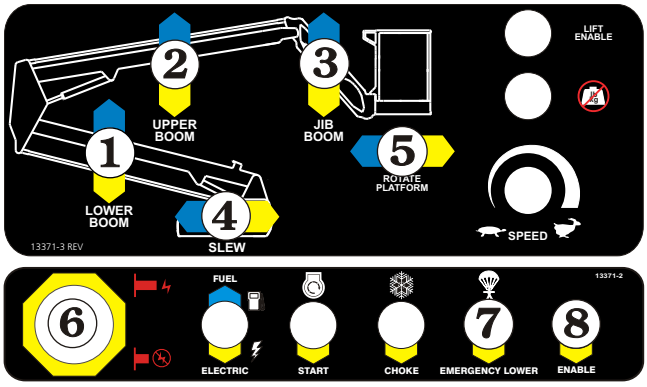


Figure 9.14 - Platform Control Switches

On the ground control box set the **Ground/Platform Selector** to platform.

Check that each of the platform moving switches (❶ through to ❺) cause the platform to move the way it should.

Check both positions of each switch.

For correct operating procedures see the ”Operation” chapter 10.

NOTE

*Pay particular attention to the **Emergency Stop** switch ❻ to see that it turns the EPV16 engine off when struck.*

Pay particular attention to the platform foot switch to see that it deactivates the platform moving switches when the foot switch is not stepped on.

Emergency lower from the upper control box is achieved by operating the **Enable Switch ❽** or depressing the **Foot Switch** whilst operating the **Emergency Lower Switch ❼**

For details on correct emergency lowering operating procedures see “Emergency Operation” chapter 11.

At the completion of the above section the unit can be returned to the stowed position.

■ Ground Control Switches Machines with Hydraulic Controls

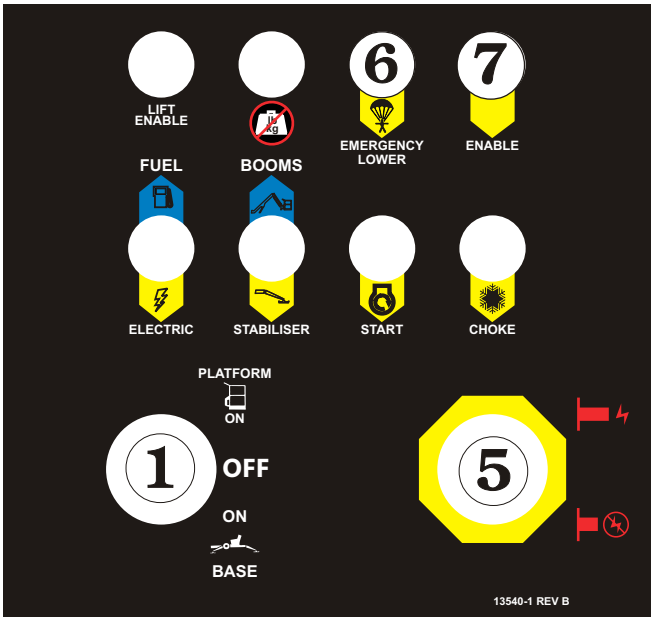


Figure 9.15 - Ground Control Switches

With the Ground/Platform Selector ❶ set to ground:
Check that each of the boom moving valve levers (see Figure 9.16) (❷ through to ❹) cause the EPV16 to move the way it should.

Check the valves in both directions.

For correct operating procedures see the “Operation” chapter 10.

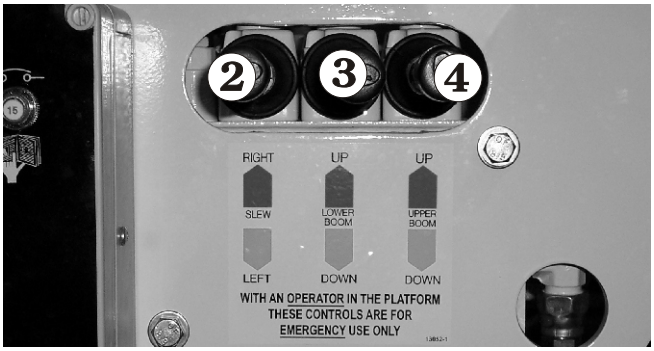


Figure 9.16 - Ground Boom Controls

⚠IMPORTANT

Pay particular attention to the Emergency Stop switch ❺ (see Figure 9.15) to see that it turns the EPV16 engine off when the red button is struck.

With the booms raised operate the **Emergency Lower Switch ❻** in conjunction with the **Enable Switch ❼.** The booms should begin to lower.

For details on correct emergency lowering operating procedures see “Emergency Operation” chapter 11.

■ Platform Control Switches Machines with Hydraulic Controls

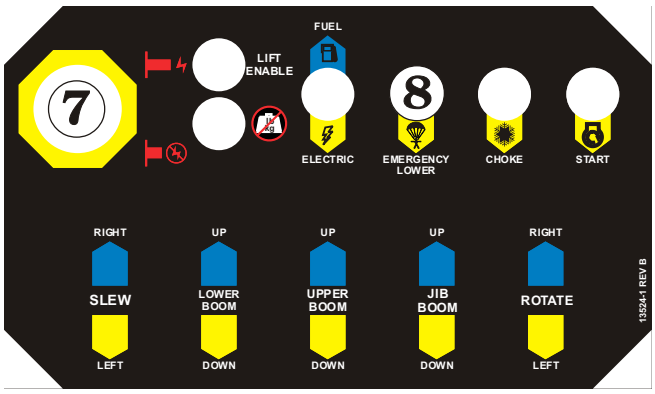


Figure 9.17 - Platform Control Switches, Steel Platform

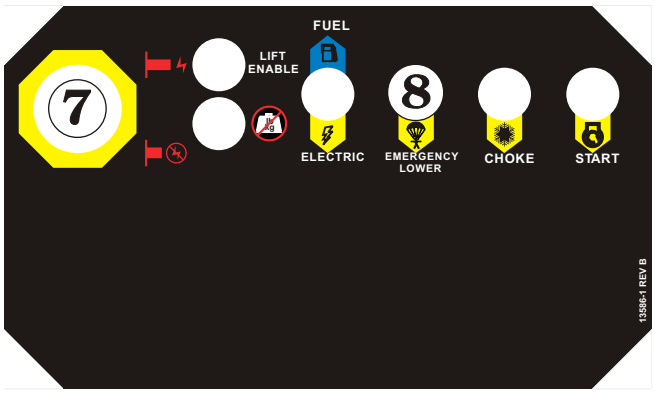


Figure 9.17 - Platform Control Switches, Non Insulated Fibreglass Platform

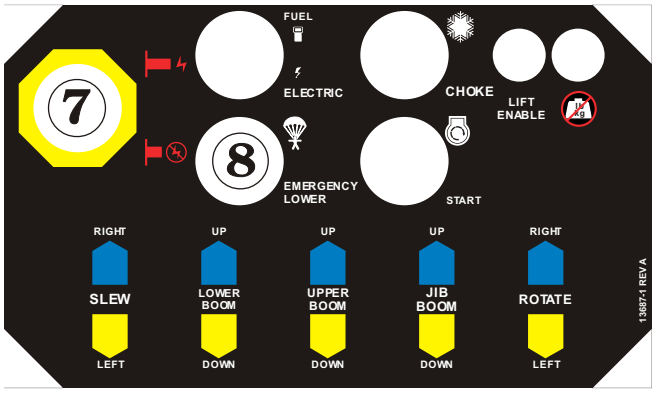


Figure 9.17 - Platform Control Switches, Low Voltage Insulated Fibreglass Platform

On the ground control box set the **Ground/Platform Selector ❶** to platform (see Figure 9.21).

With the Ground/Platform Selector set to platform: Check that each of the boom moving valve levers (see Figure 9.18) (❷ through to ❻) cause the EPV16 to move the way it should.

NOTE - Platform Control Valve Levers:

Depending on the configuration of your machine you may not have a 'Platform Rotate' ❻ control.

Check the valves in both directions.

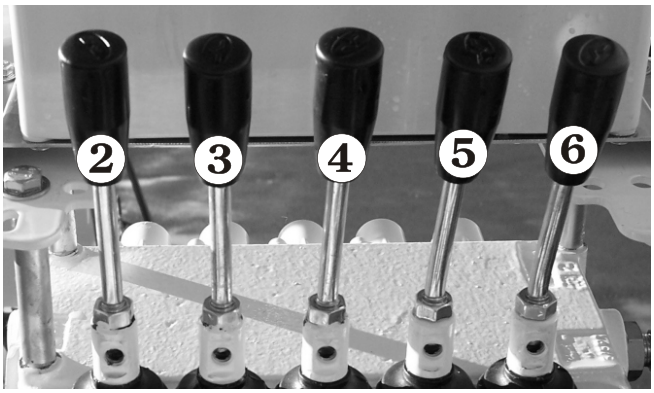


Figure 9.18 - Platform Boom and Basket Controls

For correct operating procedures see the "Operation" chapter 10.

⚠IMPORTANT

Pay particular attention to the Emergency Stop Switch ❼ to see that it turns the EPV16 off when struck (see Figure 9.20)

With the booms raised operate the **Emergency Lower Switch ❻** in conjunction with the **Enable Switch ❼.** The booms should begin to lower.

For details on correct emergency lowering operating procedures see "Emergency Operation" chapter 11.

At the completion of the above section the unit can be returned to the stowed position.

■ AC Outlet RCD/ELCB (option)

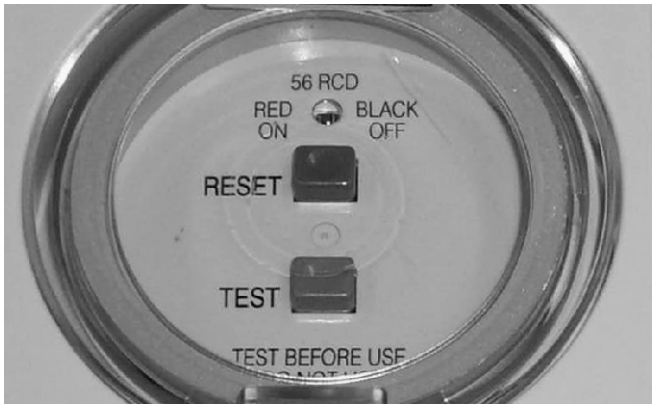


Figure 9.22 - AC Outlet RCD/ELCB

If the EPV16 has this option fitted check the RCD works by connecting a power source to the base inlet and an appliance to the platform outlet.

Push the test button on the RCD/ELCB device and the power outlet at the platform should not work.

⚠CAUTION

RCD/ELCB devices should only be replaced by a qualified electrician.

■ LV Insulated EPV16

⚠IMPORTANT

Refer to the Safety Low Voltage Insulation chapter in this manual and to the Repair Parts manual for further information on the LV machines.

■ 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 often 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 denatured alcohol followed by soap and water.

■ Placards and Decals

Look to see that all placards and decals are in place and legible. Clean dirty or obscured decals with soap and water and a soft lint cloth. Replace any missing or illegible placards or decals before placing the EPV16 into service for the daily work shift.

NOTE:

Owing to manufacturing variances and customer preferences there may be some small differences in the decal layout on specific machines.

NOTE Safety Decals:

Details of the safety decals and their locations are listed in the Safety chapter(s) near the beginning of this manual.

■ Placards and Decals Machines with Electric Controls

Replacement decals and placards for the EPV16 are available from Snorkel dealers.

❑ Standard placards and decals

See pages 9 - 10 and 9 - 11 for the decal list and locations of individual decals.

■ Placards and Decals Machines with Hydraulic Controls

Replacement decals and placards for the EPV16 are available from Snorkel dealers.

❑ Standard placards and decals

See pages 9 - 12 and 9 - 13 for the decal list and locations of individual decals.

■ Placards and Decals Low Voltage Insulated Machines

Replacement decals and placards for the EPV16 are available from Snorkel dealers.

❑ Standard placards and decals

See pages 9 - 14 and 9 - 15 for the decal list and locations of individual decals.

Note:

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

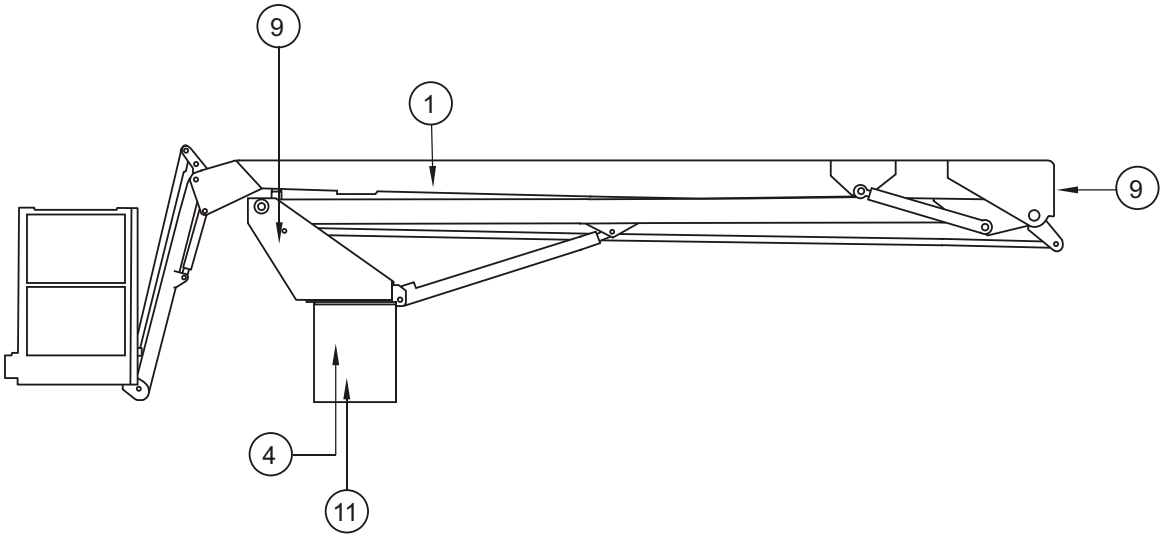
If you are unsure or want to check a particular decal or its placement on the machine contact your nearest Snorkel dealer or the snorkel website.

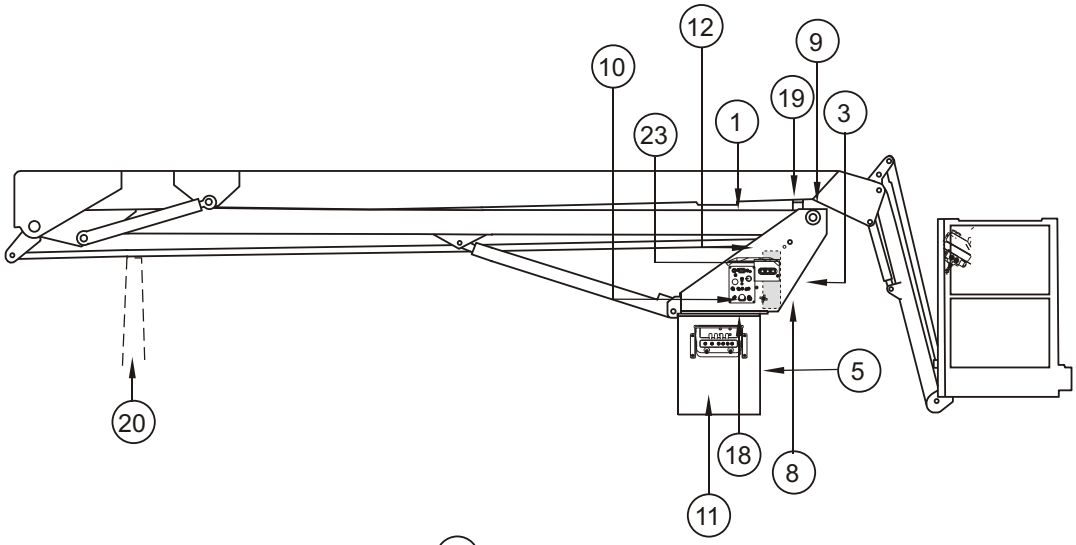
9. Pre-operational Inspection

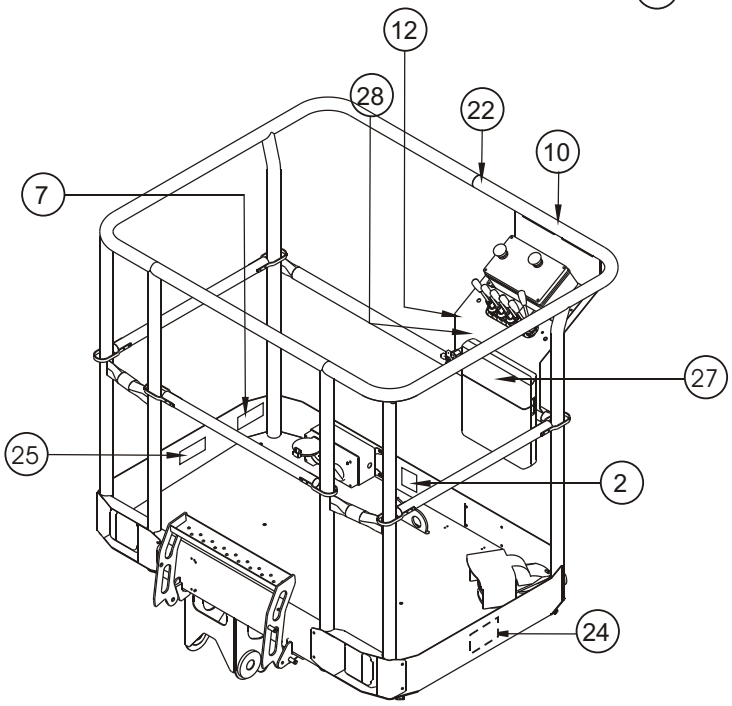
❑ Decal list machines with electric controls

No	Part No	Description	Req
1	511067-000	Decal - Snorkel website	2
2	0150448	Decal - Lanyard attachment	1
3	032-3899	Decal - Electrocution hazard	1
4	12814	Decal - Hydraulic fluid	1
5	12833-2	Serial number plate	1
6	501453-000	Decal - Foot crush hazard	4
7	1843	Decal - Warning, New Zealand only	1
	9428	Decal - Electric hazard, Australia only	1
8	300699	Decal - Operators checklist	1
9	45198-6	Decal - Do not disable limit switch	3
10	45198-7	Decal - Wind speed rating	2
11	569295	Decal - Snorkel 3 logo	2
12	13708-03	Decal - Emergency descent	2
13			
14			
15			
16			
17			
18	12545	Decal - Auto stabiliser operation	1
19	10036	Decal - Cradle latch	1
20	1772-002-K	Decal - Fit boom cradle lock pin	1
21			1
22	0072531	Decal - Decal - Electrocution hazard (before SN NZ070801)	1
23	0323897	Decal - Danger must not operate	1
24	12423-200	Decal - Rated load	1
25	99228-1	Decal - Caution safety harness	1
26			
27	56242-6	Decal - Operator manual enclosed	1
28	13030	Decal - Electrocution hazard (after SN NZ070801)	

❑ **Decal inspection drawing machines with electric controls**





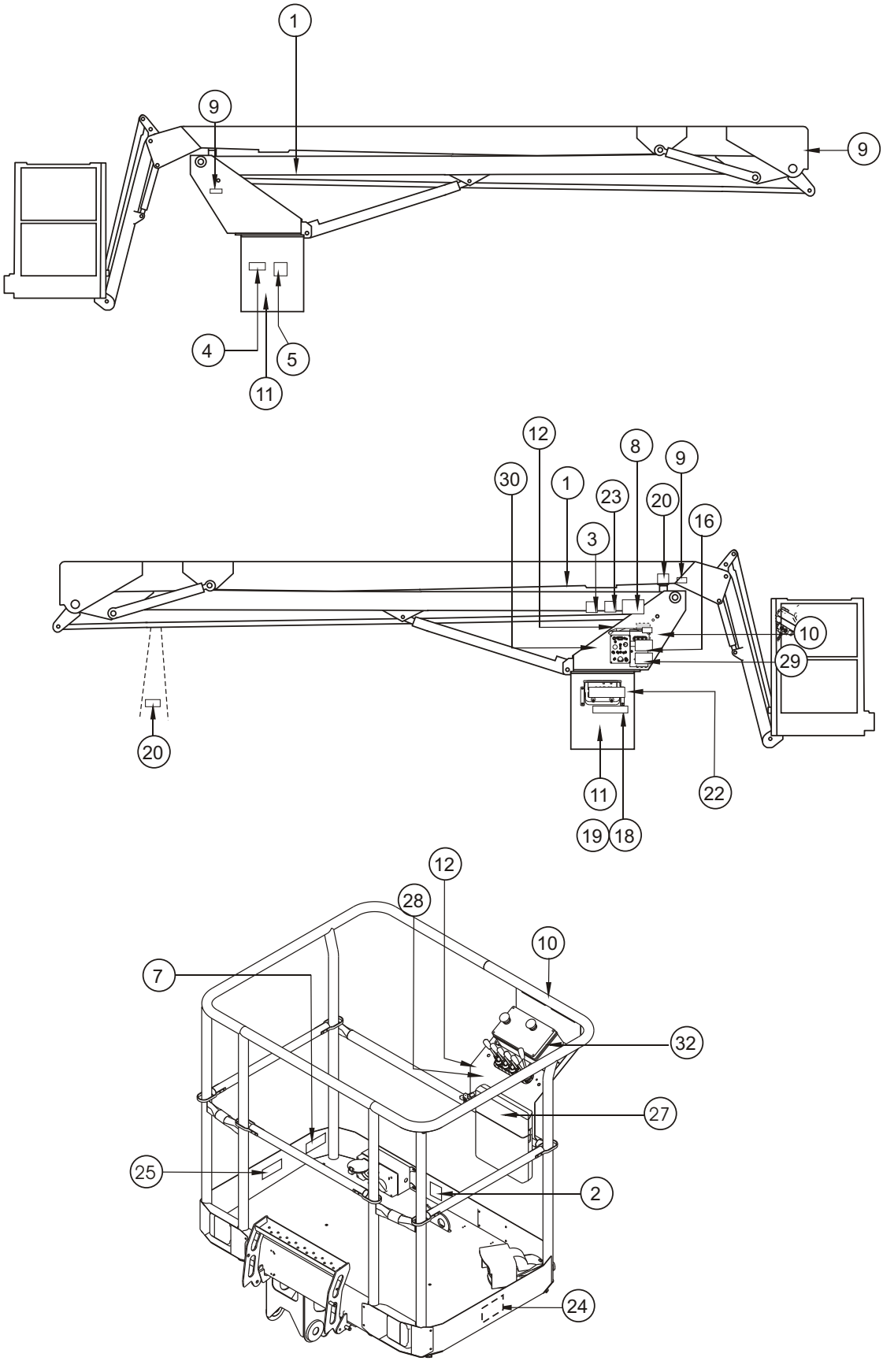


❑ Decal list machines with hydraulic controls

No	Part No	Description	Req
1	511067-000	Decal - Snorkel website	2
2	0150448	Decal - Lanyard attachment	1
3	032-3899	Decal - Electrocution hazard	1
4	12814	Decal - Hydraulic fluid	1
5	12833-2	Serial number plate	1
6			
7	1843	Decal - Warning, New Zealand only	1
	9428	Decal - Electric hazard, Australia only	1
8	300699	Decal - Operators checklist	1
9	45198-6	Decal - Do not disable limit switch	3
10	45198-7	Decal - Wind speed rating	2
11	569295	Decal - Snorkel 3 logo	2
12	13708-03	Decal - Emergency descent	2
13			
14			
15			
16	13052-1	Decal - Lower control valve operation	1
17	9751	Decal - New Zealand made logo	1
18	12545	Decal - Auto stabiliser operation (when fitted)	1
19	013-0025	Decal - Warning with stabilisers	1
20	1772-002-K	Decal - Fit boom cradle lock pin	2
21			
22	13052-5	Decal - Manual stabilisers	1
23	0323897	Decal - Danger must not operate	1
24	12423-200	Decal - Rated load	1
25	99228-1	Decal - Caution safety harness	1
26			
27	56242-6	Decal - Operator manual enclosed	1
28	13030	Decal - Electrocution hazard	

No	Part No	Description	Req
29	13052-4	Decal - In case of function failure	1
30	12877-1	Decal - Lower control box	1
31			
32	12861-1	Decal - Upper control box, non-rotate	1
	12861-2	Decal - Upper control box, rotate	1
33			

❑ **Decal inspection drawing machines with hydraulic controls**

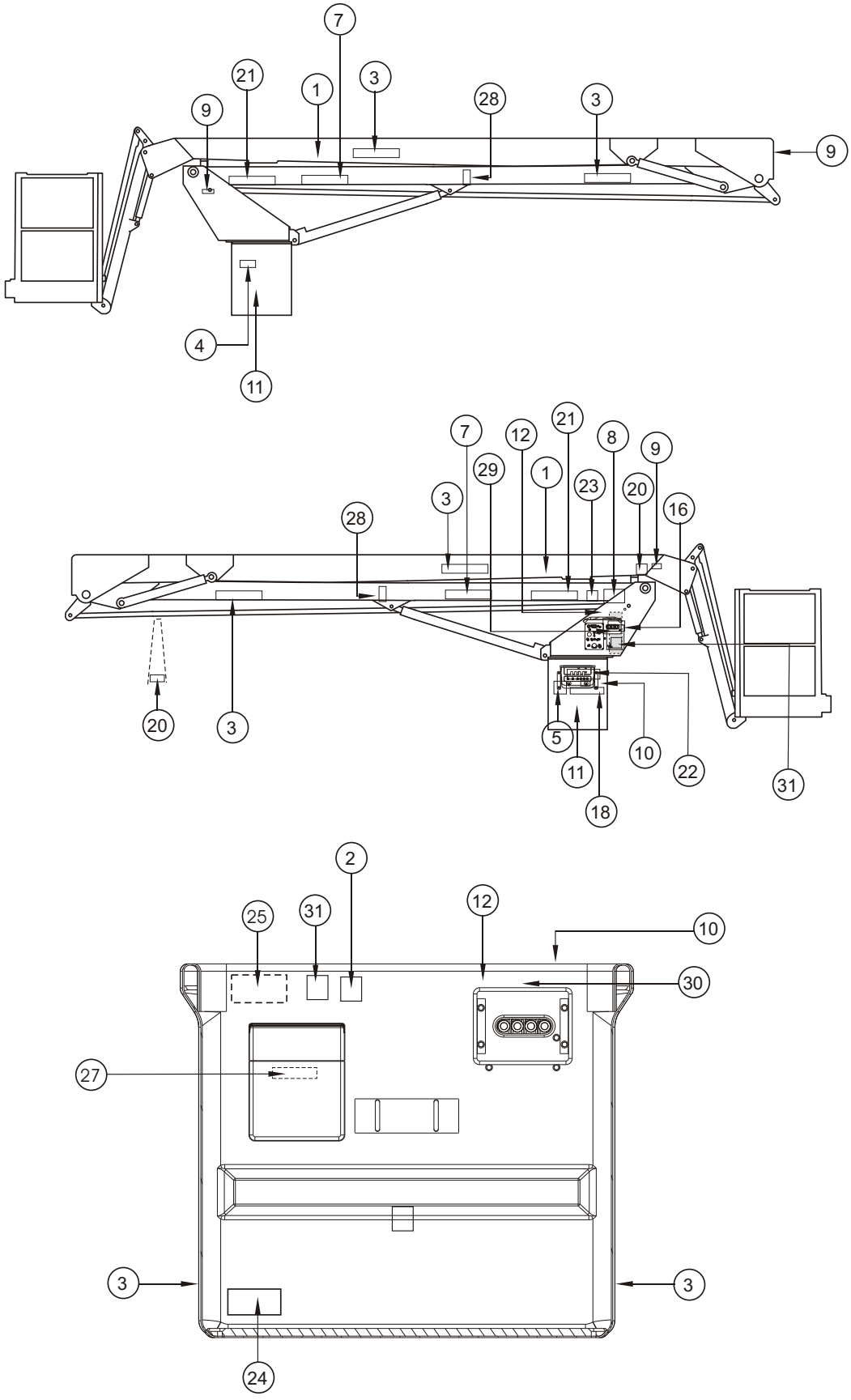


❑ Decal list
low voltage insulated machines

No	Part No	Description	Req
1	511067-000	Decal - Snorkel website	2
2	0150448	Decal - Lanyard attachment	1
3	2829-1	Decal - LV Cover	6
4	12814	Decal - Hydraulic fluid	1
5	12833-2	Serial number plate	1
6			
7	12829	Decal - Uninsulated	2
8	300699	Decal - Operators checklist	1
9	45198-6	Decal - Do not disable limit switch	3
10	45198-7	Decal - Wind speed rating	2
11	569295	Decal - Snorkel 3 logo	2
12			
13			
14			
15			
16	9963	Decal - Lower control valve operation	1
17			
18	12545	Decal - Auto stabiliser operation (when fitted)	1
19			
20	1772-002-K	Decal - Fit boom cradle lock pin	2
21	12829-2	Decal - Condition	2
22	11843	Decal - Manual stabilisers	1
23	0323897	Decal - Danger must not operate	1
24	12423-200	Decal - Rated load	1
25	99228-1	Decal - Caution safety harness	1
26			
27	56242-6	Decal - Operator manual enclosed	1
28	12829-3	Decal - Warning stripes insulated/uninsulated (yellow/red)	

No	Part No	Description	Req
29	12877-1	Decal - Lower control box	1
30	12861-1	Decal - Upper control box, non-rotate	1
	12861-2	Decal - Upper control box, rotate	1
31			

❑ **Decal inspection drawing**
low voltage insulated machines



■ Operating Procedures

This chapter explains how to properly start and operate an EPV16. Read and understand all the previous chapters in this manual before you begin to operate an EPV16.

⚠CAUTION

Do not leave the EPV16 engine running if you are sandblasting. Sand drawn into the air intake can erode engine parts.

■ Control Stations

An EPV16 can be operated from the ground control box or from the platform control box. There are basically two differences between ground control and platform control operations, both are safety related:

1. 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.
2. The stabilisers can only be selected from the ground control station and only when the booms are in the stowed position.

⚠DANGER

The EPV16 is not Electrically Insulated in its standard form.

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

DO NOT attempt to operate the EPV16 ground controls if the platform, booms, or any other conducting part of an EPV16 is in contact with energised 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 EPV16, press the red **EMERGENCY STOP** button in, on either the ground control box or the platform control box

■ Emergency Stopping Machines with Electric Controls

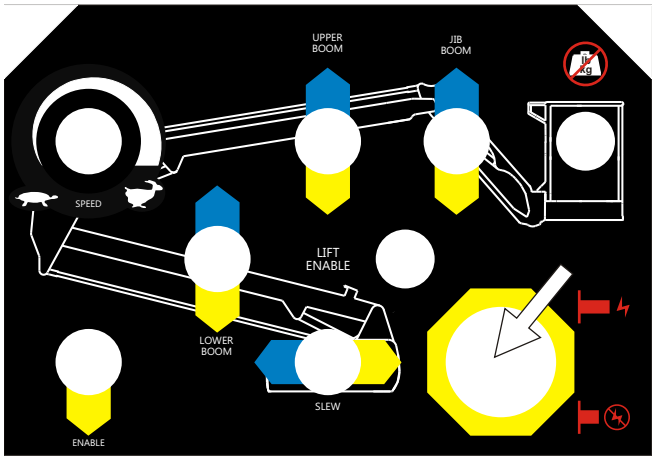


Figure 10.1 - Ground Control Box, Emergency Stop Switch Location.

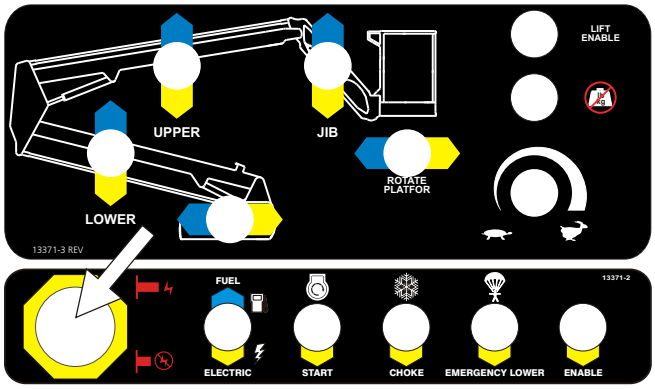


Figure 10.2 - Platform Control Box, Emergency Stop Switch Location.

■ Emergency Stopping Machines with Hydraulic Controls

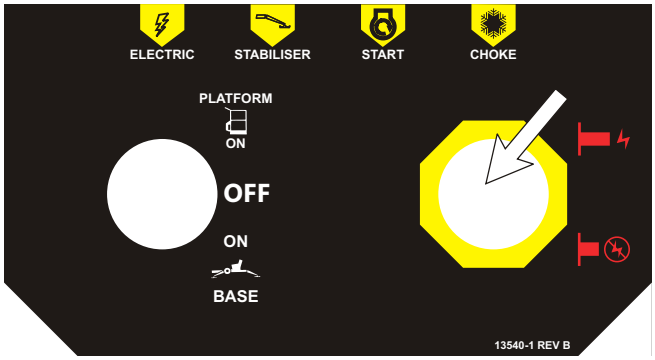


Figure 10.3 - Ground Control Box, Emergency Stop Switch Location

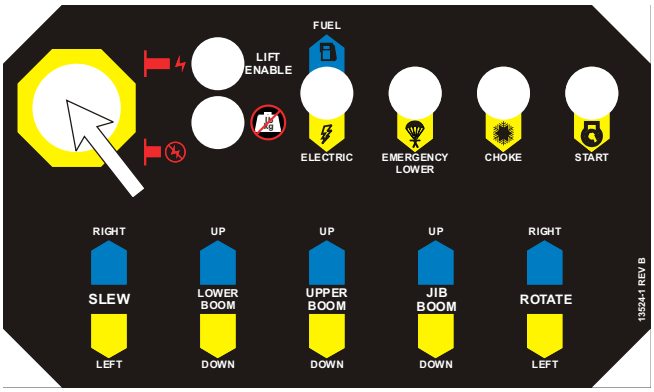


Figure 10.4 - Platform Control Box, Steel Platform, Emergency Stop Switch Location

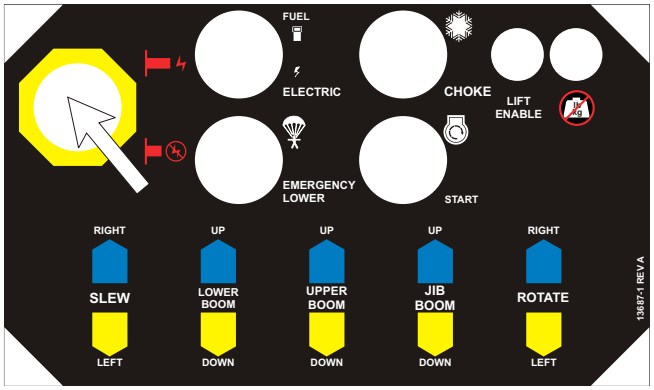


Figure 10.4 - Platform Control Box, Insulated Fibreglass Basket, Emergency Stop Switch Location

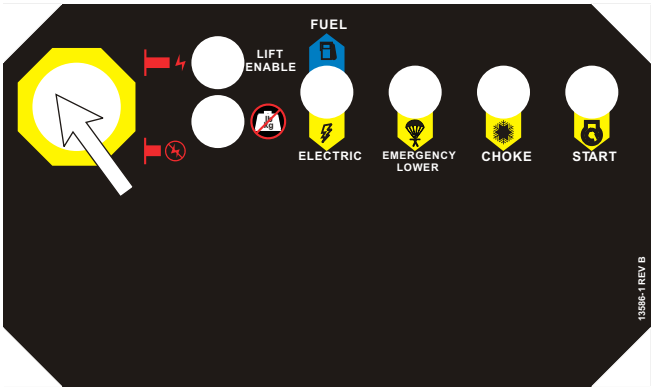


Figure 10.4 - Platform Control Box, Non-Insulated Fibreglass Basket, Emergency Stop Switch Location

NOTE

*For a complete discussion of the **Emergency Stop** switches, see "Controls Electric" chapter 7, and "Controls Hydraulic" chapter 8 in this manual.*

■ Operation Considerations

To use this chapter, first decide whether you will be starting and operating the EPV16 from the ground control box or the platform control box.

Begin either at the section entitled "Starting From Ground Control Box - Machines with Electric Controls", or at the section entitled "Starting From Ground Control Box - Machines with Hydraulic Controls" if you intend to start and run the EPV16 from the ground station.

■ Stabiliser Operation

NOTE: All Stabiliser Operations

The stabilisers will only function when the booms are stowed. Once the booms are raised the stabilisers will not operate.

NOTE: Operating the Stabilisers

Before you can operate the stabilisers you need to start the engine. See "Starting From Ground Control Box" on page 4 for electric controls or page 7 for hydraulic controls.

❑ Using the manual stabiliser valves

Ensure the Boom/Stabiliser Switch (item ❶ on the ground control box) (see Figure 10.5) is set to stabiliser.

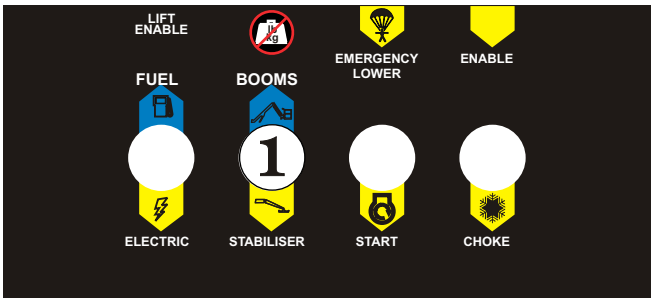


Figure 10.5 - Set Stabiliser/Boom Switch

Activate the stabilisers with the valve levers (downwards). (see Figure 10.6)

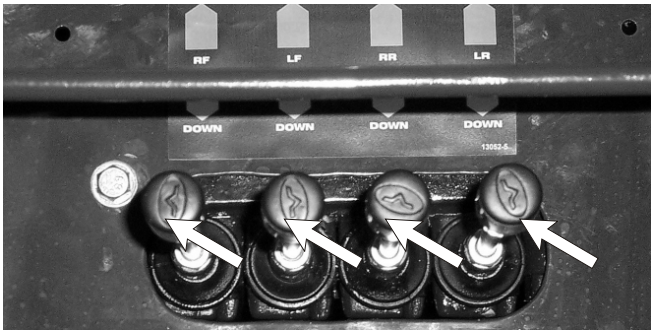


Figure 10.6 - Manual Stabiliser Levers

Lower the front and rear stabilisers and level the machine using the level bubble (see Figure 10.6) adjacent to the control levers.

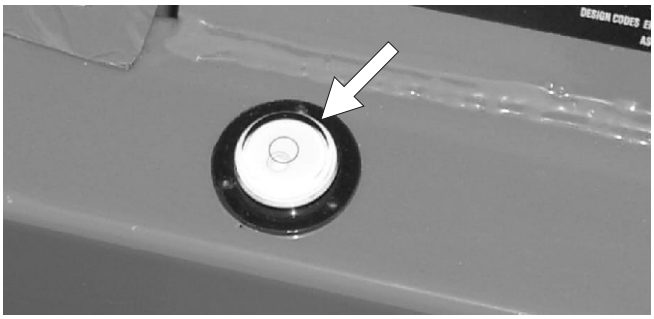


Figure 10.7

⚠WARNING

When levelling the machine in either the manual or automatic mode care is required to ensure that all the foot plates are firmly on the ground, the machine is level and the lift enable light is on before entering the platform.

❑ Raising the manually operated stabilisers

Raising the stabilisers is the reverse of setting the stabilisers.

Ensure that the Boom/Stabiliser Switch is is set to stabiliser.

Raise the stabilisers by activating the individual valve levers (upwards).

■ Self levelling stabilisers (Optional)

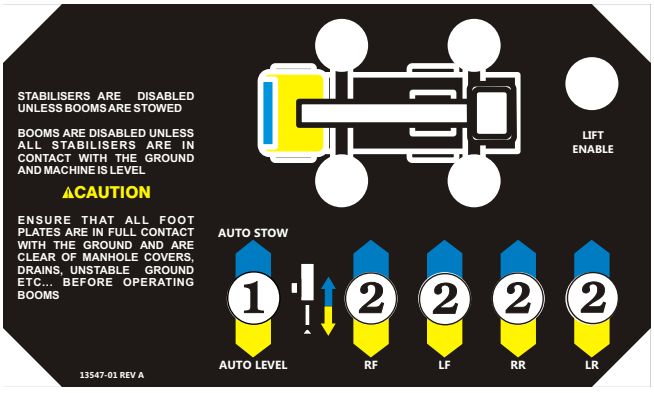


Figure 10.8 - Auto Level Controls

For units fitted with self levelling stabilisers the following applies:

1. Press and hold down down the auto level switch❶

The stabilisers will lower and the machine will "level" automatically.

NOTE:

Switch ❶ is also used to raise the stabilisers to the stowed position. To do so press and hold switch ❶ in the auto stow direction and all the stabilisers will raise automatically to the stowed position.

NOTE:

Although this option is primarily designed to automatically set the stabilisers it is also possible to set the stabilisers manually.

❑ Setting the stabilisers manually

1. Operate each switch ❷ (see Figure 10.8) to raise or lower each stabiliser one (1) at a time. Use the level bubble (see Figure 10.7) to check the machine is level.

⚠WARNING

When levelling the machine in either the manual or automatic mode care is required to ensure that all the foot plates are firmly on the ground, the machine is level and the lift enable light is on before entering the platform.

■ Unlocking the booms

The boom lock pins must be removed before operating the booms (see Figures 10.9 and 10.10).

⚠IMPORTANT

Failure to remove one (1) or both of the boom lock pins before attempting to raise the booms could result in damage to the machine.

Remove the pin keeper ❶ and then remove the pin ❷ from the front boom cradle lock ❸.

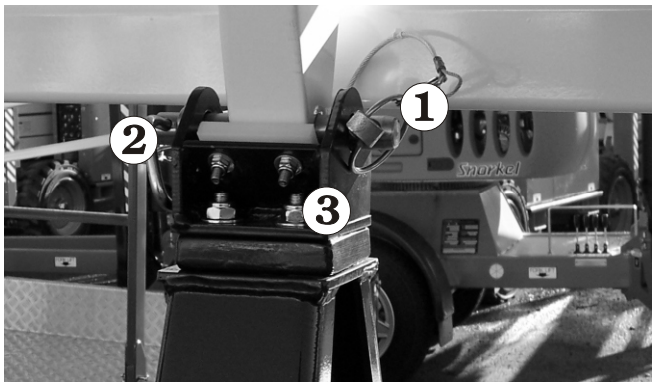


Figure 10.9 - Boom Cradle Lock

Remove the pin keeper ❸ and then remove the pin ❹ from the rear restraining lock. Place the pin in the storage receptacle ❺ provided.

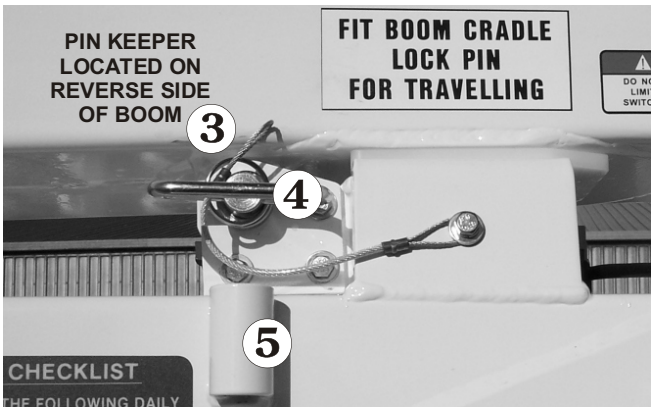


Figure 10.10 - Boom Restraining Lock

Some early production machines will have an earlier style boom restraining latch (see Figure 10.10.2). Lift up the handle and unlatch the hook from the catch

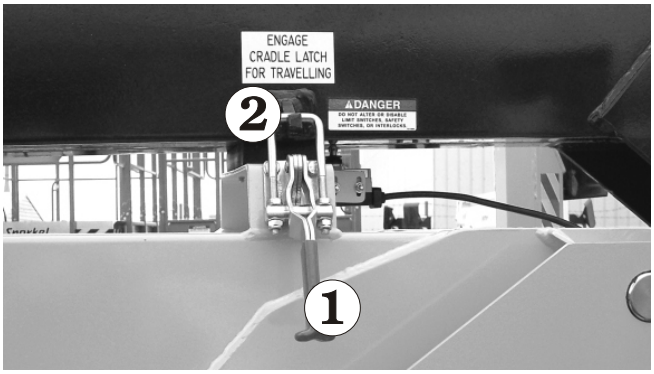


Figure 10.10.2 - Boom Restraining Latch

■ Starting From Ground Control Box Machines with Electric Controls

Before you begin to operate the EPV16 from the ground control box, a qualified operator must perform the "Pre-operational Inspection" as described in chapter 9, of this manual.

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

1. Set the **Emergency Stop** switch ❶ to ON (see Figure 10.11).

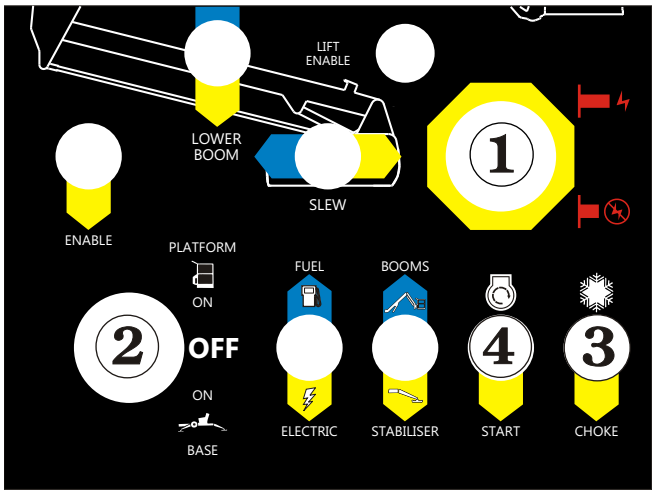


Figure 10.11 - Ground Control Box Starting

2. Insert the key and set the **Platform/Ground Selector** switch ❷ to GROUND (Base) (see Figure 10.11).
3. If the engine is at ambient temperature (cold), hold the **Choke / Cold Start Switch** ❸ (see Figure 10.11) down throughout the next step.
5. Press down on the **Start Switch** and hold it there until the engine starts or for a maximum time of 6 seconds. When the engine starts release the start switch ❹ and the choke switch ❸, if you used it (see Figure 10.11).

⚠CAUTION

If the engine does not start in 6 seconds release the start switch and release the choke. Wait 60 seconds before trying to restart the engine again. Continual cranking of the starter motor will only result in its damage.

The engine should now be running, and the stabilisers need to be set before the EPV16 is ready to begin work.

■ Starting From Platform Control Box Machines with Electric Controls

Before you begin to operate the EPV16 from the platform control box, a qualified operator must perform the "Pre-operational Inspection" as described in chapter 9, of this manual.

To start the engine from the platform control box you must first set some switches on the ground control box, including setting the stabilisers and levelling the machine.
(See page 9-2 for information on setting the stabilisers)

1. Insert the key ❶ into the **Platform / Ground Selector Switch** at the ground control box and select platform (see Figure 10.12).

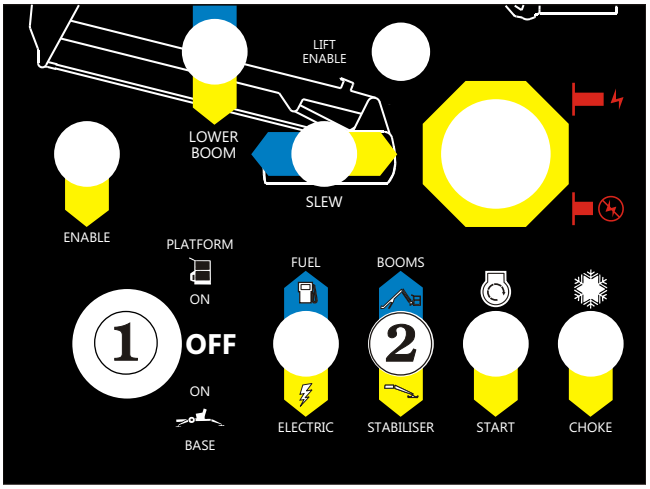


Figure 10.12

2. Set the **Booms/Stabiliser Selector** ❷ to Booms.

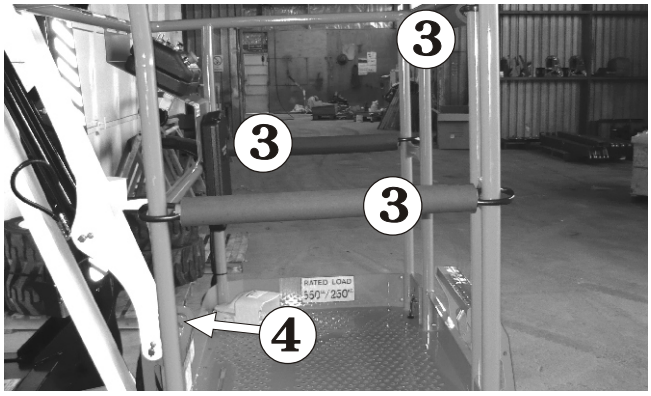


Figure 10.13

3. Enter the platform, close the gravity gate ❸, and attach the lanyard of your safety harness to one (1) of the anchor points ❹ (see Figure 10.13).

Figure 10.14

4. Set the **Emergency Stop** switch ❺ to (ON) (see Figure 10.14).
5. If the engine is at ambient temperature (cold), hold the **Choke Switch** ❻ (see Figure 10.14) down throughout the next step.
6. Press down on the **Start Switch** and hold it there until the engine starts or for a maximum time of 6 seconds. When the engine starts release the start switch ❼ and the choke switch ❻, if you used it (see Figure 10.14).

⚠CAUTION

If the engine does not start in 6 seconds, release the start switch.and release the choke. Wait 60 seconds before trying to restart the engine again. Continual cranking of the starter motor will only result in its damage.

The engine should now be running, and the EPV16 is ready to begin work.

■ Moving The Platform Enable Switches.

⚠IMPORTANT

You must operate one of the ENABLE control switches in conjunction with the platform moving controls.

This is a safety feature to prevent the platform / booms moving if a platform moving switch or controller is accidentally pushed.

Note: Enable Controls

For further details on Enable Controls see Chapter 3 (Safety Devices), and Controls Chapter 7 (Machines with Electric Controls), and Controls Chapter 8 (Machines with Hydraulic Controls).

■ Moving The Platform Machines with Electric Controls

The engine should already be running (as described earlier in this chapter), before you start this section.

⚠DANGER

DO NOT operate near energised electrical conductors. Maintain the (M.S.A.D.), Minimum Safe Approach Distance to energised power lines. See the "Electrical Hazard" section, in this manual for a complete explanation of the hazards concerning electricity. Maintain the

clearances shown on the decal attached to the platform.

⚠WARNING

Be certain that the space into which you are about to move the platform, boom, turntable, and/or chassis is free of obstructions. ALWAYS look in the direction of movement.

⚠WARNING

When you operate from the platform control box, be sure that the lanyard of your safety harness is attached to an anchor point on the platform mount. Also, be sure that platform gate is closed behind you.

❑ From ground control box

Each of the platform movement switches is shown in the following illustration.

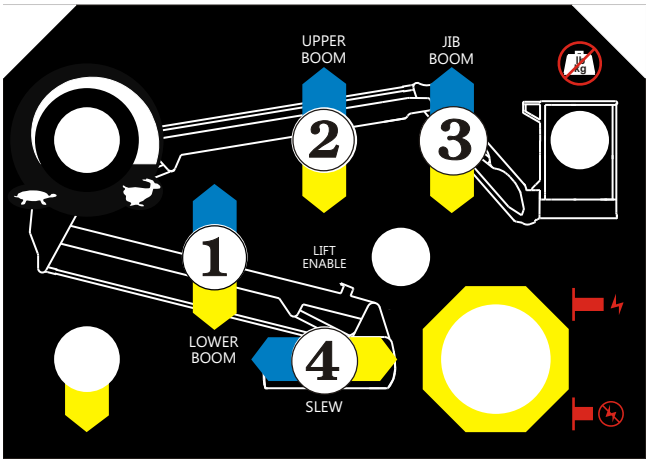


Figure 10.15 - Movement Control, Ground Control Box

These platform moving switches, (❶ through ❹), will produce the following movement.

1. **Lower boom switch:** Moving this switch up will raise the lower boom, whilst pressing it down will cause the lower boom to descend.
2. **Upper boom switch:** Moving this switch up will raise the upper boom, whilst pressing it down will cause the upper boom to descend.
3. **Jib boom switch:** Moving this switch up causes the jib boom to extend whilst pressing it down causes the jib boom to retract.
4. **Slew switch:** Pressing this switch to the right causes the column/boom/platform assembly to rotate to the right, whilst pressing the switch to the left causes the column/boom/platform assembly to rotate to the left.

❑ From platform control box

⚠WARNING

When you operate from the platform control box, be sure that the lanyard of your safety harness is attached to an anchor point on the platform mount.

Each of the platform movement switches is shown in the following illustration.

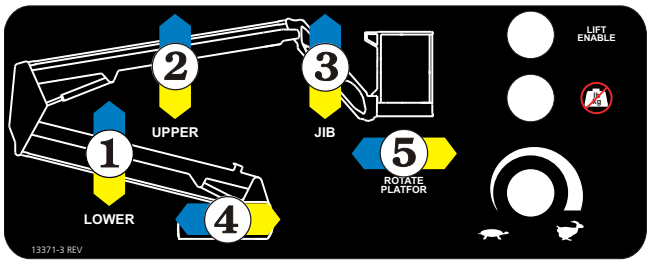


Figure 10.16 - Movement Control, Platform Control Box

You must be stepping on the platform foot switch when you use any of the platform moving switches. The platform foot switch is a **safety feature** to prevent the platform from moving if a platform moving switch, or controller, is accidentally pushed.

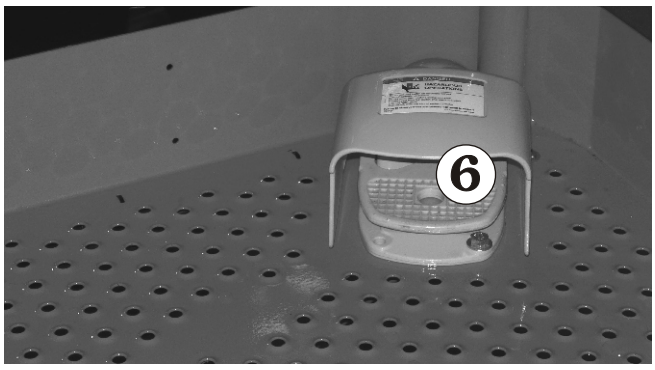


Figure 10.17 - Platform Foot Switch

These platform moving switches, (❶ through ❺), will produce the following movement.

1. **Lower boom switch:** Moving this switch up will raise the lower boom, whilst pressing it down will cause the lower boom to descend.

2. **Upper boom switch:** Moving this switch up will raise the upper boom, whilst pressing it down will cause the upper boom to descend.
3. **Jib boom switch:** Moving this switch up causes the jib boom to extend, whilst moving it down causes the jib boom to retract.
4. **Slew switch:** Pressing this switch to the left causes the column/boom/platform assembly to rotate to the right, whilst pressing the switch to the left causes the column/boom/platform assembly to rotate to the left.
5. **Platform rotate switch:** Pressing the switch to the left causes the 'platform only' to rotate to the left, whilst pressing the switch to the right causes the 'platform only' to rotate to the right.

■ Starting From Ground Control Box Machines with Hydraulic Controls

Before you begin to operate the EPV16 from the ground control box, a qualified operator must perform the "Pre-operational Inspection" as described in chapter 9, of this manual.

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

1. Set the **Emergency Stop** switch ❶ to ON (see Figure 10.18).

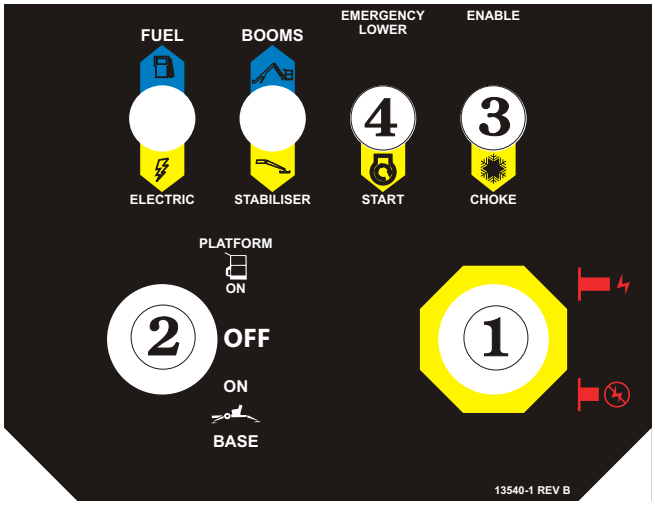


Figure 10.18 - Ground Control Box Starting

2. Set the **Platform/Ground Selector** switch ❷ to GROUND (see Figure 10.18).
3. If the engine is at ambient temperature (cold), hold the **Choke / Cold Start Switch** ❸ (see Figure 10.18) down throughout the next step.
4. Press down on the **Start Switch** and hold it there until the engine starts or for a maximum time of 6 seconds. When the engine starts release the start switch ❹ and the choke switch ❸, if you used it (see Figure 10.18).

⚠CAUTION

If the engine does not start in 6 seconds release the start switch and release the choke. Wait 60 seconds before trying to restart the engine again. Continual cranking of the starter motor will only result in its damage.

The engine should now be running, and the stabilisers need to be set before the EPV16 is ready to begin work (see 'setting the stabilisers' described earlier in this chapter).

■ Starting From Platform Control Box Machines with Hydraulic Controls

Before you begin to operate the EPV16 from the platform control box, a qualified operator must perform the "Pre-operational Inspection" as described in chapter 9, of this manual.

To start the engine from the platform control box you must first set some switches on the ground control box, including setting the stabilisers and levelling the machine.
(See page 9-2 for information on setting the stabilisers)

1. Insert the key ❶ into the **Platform / Ground Selector Switch** at the ground control box and select platform (see Figure 10.19).

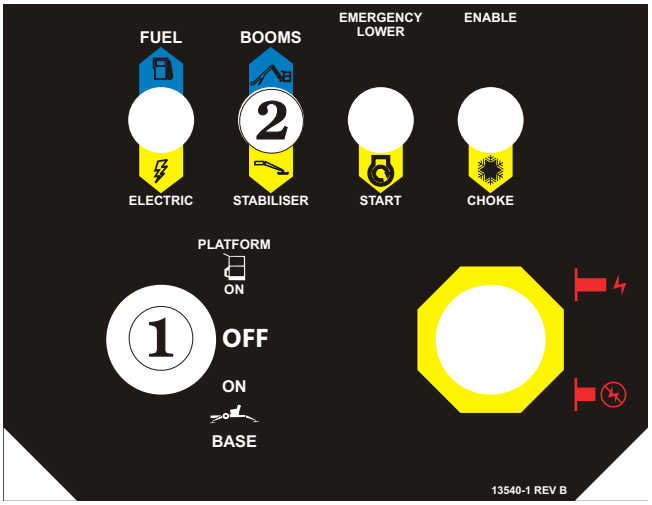


Figure 10.19 - Ground Switch Settings

2. Set the **Booms/Stabiliser Selector** ❷ to Booms (see Figure 10.19).

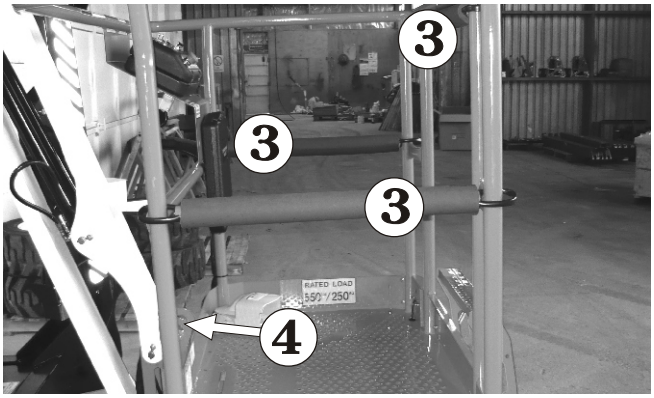


Figure 10.20

3. Enter the platform, close the gravity gate ❸, and attach the lanyard of your safety harness to one of the anchor points ❹ (see Figure 10.20).

4. Set the Emergency Stop switch ❺ to (ON) See Figure 10.21.

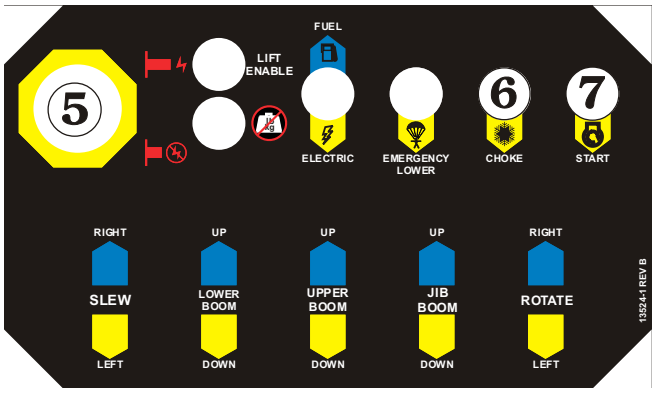


Figure 10.21 - Machines with Steel Platfroms

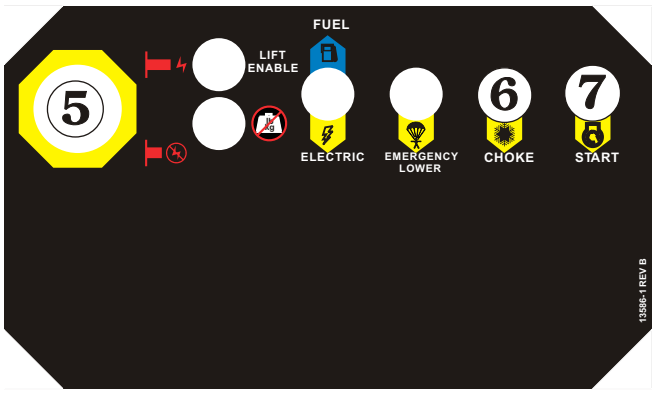


Figure 10.21 - Machines with Non-Insulated Fibreglass Platfroms

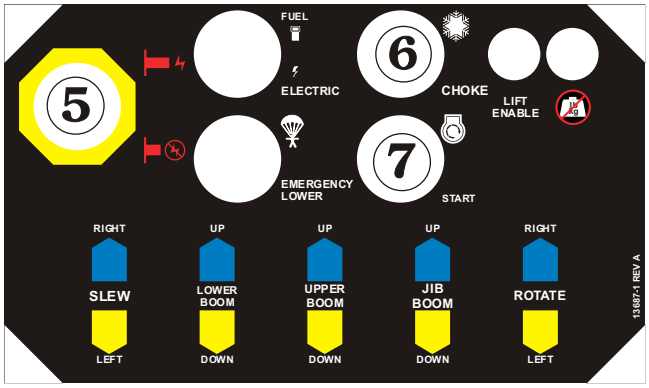


Figure 10.21 - LV Machines with Insulated Fibreglass Platforms

5. If the engine is at ambient temperature (cold), hold the **Choke Switch** ❻ (see Figure 10.21) down throughout the next step.

6. Press down on the **Start Switch** and hold it there until the engine starts or for a maximum time of 6 seconds. When the engine starts release the start switch ❼ and the choke switch ❻, if you used it (see Figure 10.21).

⚠CAUTION

If the engine does not start in 6 seconds, release the start switch.and release the choke. Wait 60 seconds before trying to restart the engine again. Continual cranking of the starter motor will only result in its damage.

The engine should now be running, and the EPV16 is ready to begin work.

■ Moving The Platform Machines with Hydraulic Controls

The engine should already be running (as described earlier in this chapter), before you start this section.

⚠DANGER

DO NOT operate near energised electrical conductors. Maintain the (M.S.A.D.), Minimum Safe Approach Distance to energised power lines. See the "Electrical Hazard" section, in this manual for a complete explanation of the hazards concerning electricity. Maintain the clearances shown on the decal attached to the platform.

⚠WARNING

Be certain that the space into which you are about to move the platform, boom, turntable, and/or chassis is free of obstructions. ALWAYS look in the direction of movement.

⚠WARNING

When you operate from the platform control box, be sure that the lanyard of your safety harness is attached to an anchor point on the platform mount. Also, be sure that platform gate is closed behind you.

❑ From ground control box

Each of the platform movement control levers is shown in the following illustration.

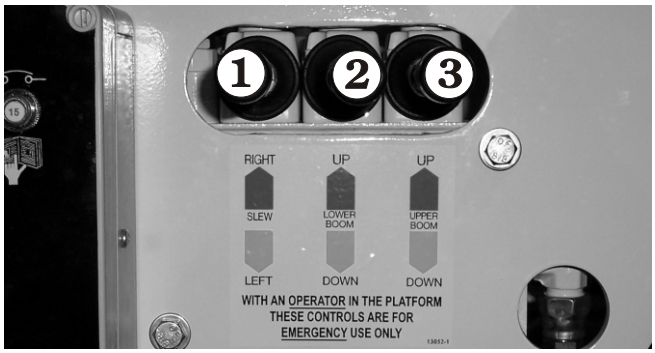


Figure 10.22 - Movement Control, Ground Control Box

All lever movement is vertical. These platform moving levers, (❶ through ❸), will produce the following movement.

1. **Slew lever:** Moving this lever UP causes the column/boom/platform assembly to rotate to the right, whilst pressing the lever DOWN causes the column/boom/platform assembly to rotate to the left.
2. **Lower boom lever:** Moving this lever UP will raise the lower boom, whilst pressing it DOWN will cause the lower boom to descend.
3. **Upper boom lever:** Moving this lever UP will raise the upper boom, whilst pressing it DOWN will cause the upper boom to descend.

❑ From platform control box

⚠WARNING

When you operate from the platform control box, be sure that the lanyard of your safety harness is attached to an anchor point on the platform mount.

Each of the platform movement levers is shown in the following illustration.

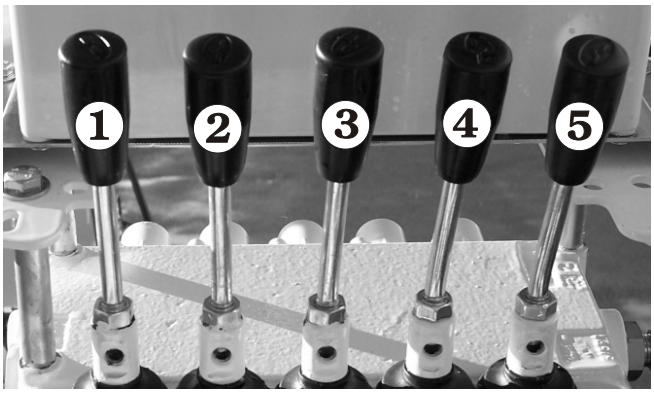


Figure 10.23 - Movement Control, Platform Control Box

All lever movement is vertical. These platform moving levers, (❶ through ❺), will produce the following movement.

1. **Slew lever:** Pressing this lever up causes the column/boom/platform assembly to rotate to the right, whilst pressing the lever down causes the column/boom/platform assembly to rotate to the left.
2. **Lower boom lever:** Moving this lever up will raise the lower boom, whilst pressing it down will cause the lower boom to descend.
3. **Upper boom lever:** Moving this lever up will raise the upper boom, whilst pressing it down will cause the upper boom to descend.
4. **Jib boom lever:** Moving this lever up causes the jib boom to extend, whilst moving it down causes the jib boom to retract.
5. **Platform rotate switch:** Pressing the lever up causes the 'platform only' to rotate to the right, whilst pressing the lever down causes the 'platform only' to rotate to the left.

NOTE - Platform Control Valve Levers:

Depending on the configuration of your machine you may not have a 'Platform Rotate' control.

■ Over-Centre valve

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

When the 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.

■ Securing for Day

At the end of each work day the EPV16 should be returned to the STOWED POSITION and locked as described under “Stowing” in the "Stowing and Transporting" chapter 12.

■ 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 ground when the EPV16 will not start or some other problem keeps the platform from lowering in the normal way.

Note:

If your machine has "Hydraulic Controls" read this section immediately below, if however, your machine has "Electric Controls" go to page 3 of this chapter.

■ Emergency Operation Procedures Machines with Hydraulic Controls

❑ Operation from platform control station hydraulic control machines

Switch settings listed in the two (2) steps below must exist at the ground before emergency operation procedures will work at the platform control box:

➠ Ground control station settings

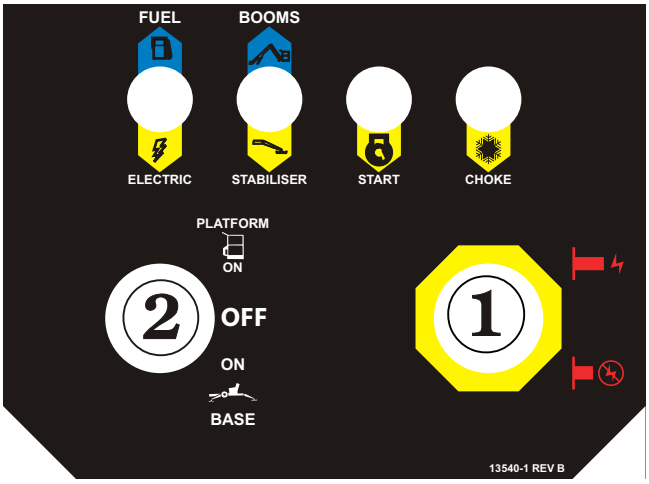


Figure 11.1 - Ground Control Box, Hydraulic Controls

1. The **Emergency Stop** switch ❶ must be (ON) (see Figure 11.1).
2. The **Platform/Ground Selector** switch ❷ (see Figure 11.1) must be set to PLATFORM.

➠ Platform Control Station settings

3. Set the **Emergency Stop** switch ❸ to ON (see Figure 11.2). There will be a slight variance in layout of controls depending on the configuration of your machine.

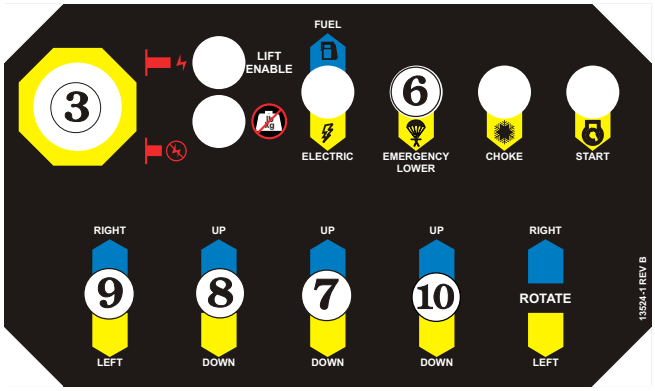


Figure 11.2 - Platform Control Box, Steel Basket, Hydraulic Controls

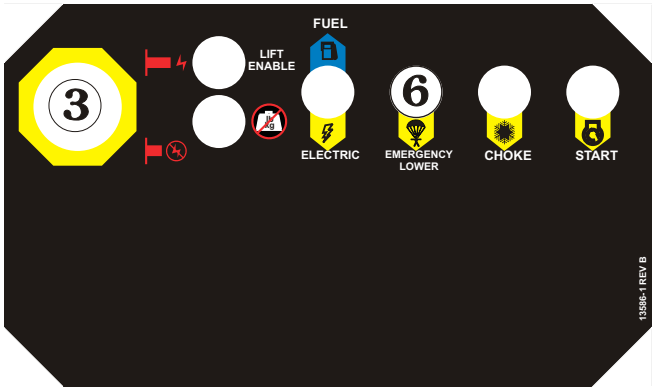


Figure 11.2 - Platform Control Box, Fibreglass Non-Insulated Basket, Hydraulic Controls

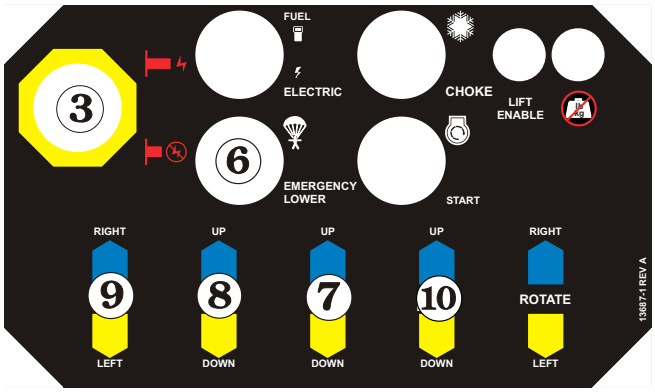


Figure 11.2 - Platform Control Box, Low Voltage Machines, Hydraulic Controls

⚠IMPORTANT

The EPV16 has an ENABLE switch fitted to the Upper & Lower control boxes. (see Chapter 6 for a full explanation of the operation of this switch).

Hydraulic machines will be fitted with a FOOT OPERATED ENABLE switch.
On those machines fitted with the foot switch option, both the switch on the control box and the foot switch perform the same function.

However it is assumed that for units fitted with a foot switch this will be the preferred method of operation.

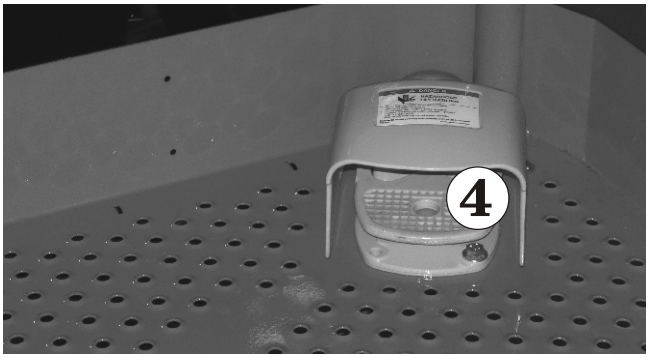


Figure 11.3 - Enable Switch (Foot)

4. Step on the platform foot switch ❹ (see Figure 11.3).
5. Whilst still operating the enable switch, press and hold the **Emergency Lower** switch ❻ down and the upper boom will begin lowering.
6. To operate other functions during the emergency lower the following switches must be operated together.
   Enable ❺ or ❹ (foot switch - Figure 11.3)
   Emergency Lower ❻
   As soon as these switches are operated the upper boom will begin descending. If another function is desired it must be selected before the boom has reached the rest position
   e.g. Upper or Lower Boom ❼ or **❽**
   Slew ❾

NOTE:

When emergency lowering, it is only possible to Slew or lower the Jib Boom whilst the Upper boom is lowering.

❑ Operation from ground control station hydraulic control machines

Emergency operation from the ground is very similar to emergency operation from the platform.

Ground control station settings

1. The **Emergency Stop** switch ❶ must be (ON) (see Figure 11.4).
2. The **Platform/Ground Selector** switch ❷ (see Figure 11.4) must be set to GROUND.

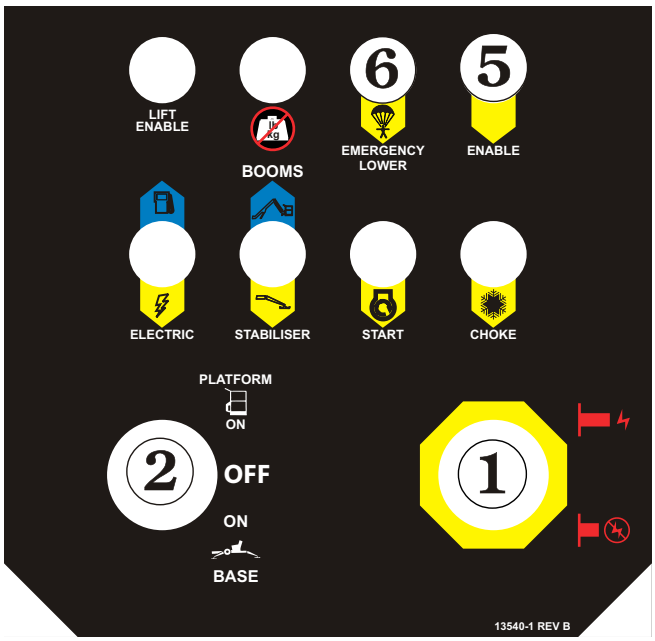


Figure 11.4 - Ground Controls, Machines with Hydraulic Controls

3. Operate the Enable switch ❺ by pressing the switch down and hold it down .
4. Whilst still operating the enable switch, press and hold the **Emergency Lower** switch ❻ down and the upper boom will begin lowering.
5. To operate other functions during the emergency lower the following switches and/or valve levers must be operated together.
   Enable ❺ Emergency Lower ❻
   As soon as these switches are operated the upper boom will begin descending. If another function is desired it must be selected before the boom has reached the rest position
   e.g. Upper or Lower Boom ❼ or **❽**
   Slew ❾

■ Emergency Operation Procedures Machines with Electric Controls

❑ Operation from platform control station electric control machines

Switch settings listed in the two (2) steps below must exist at the ground before emergency operation procedures will work at the platform control box:

➠ Ground control station settings

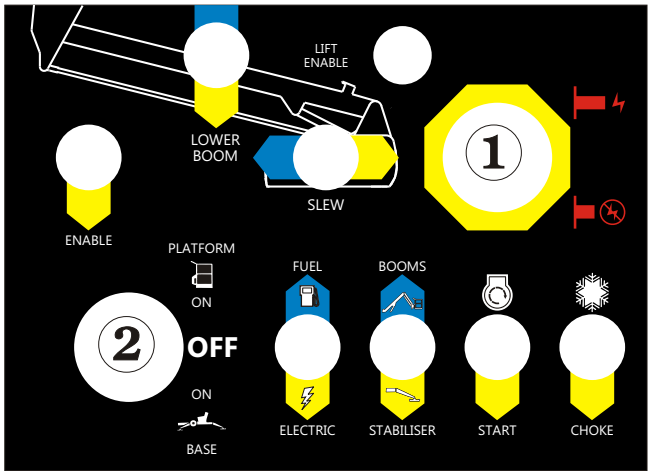


Figure 11.5 - Ground Control Box, Electric Controls

1. The **Emergency Stop** switch ❶ must be (ON) (see Figure 11.5).
2. The **Platform/Ground Selector** switch ❷ (see Figure 11.5) must be set to PLATFORM.

➠ Platform Control Station settings

3. Set the **Emergency Stop** switch ❸ to ON (see Figure 11.6).

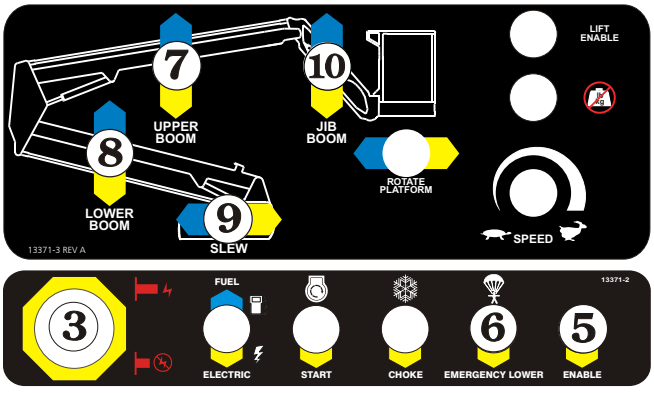


Figure 11.6 - Platform Control Box, Electric Controls

⚠IMPORTANT

The EPV16 has an ENABLE switch fitted to the Upper & Lower control boxes. (see Chapter 6 for a full explanation of the operation of this switch).

Some machines may also be fitted with a FOOT OPERATED ENABLE switch.
On those machines fitted with the foot switch option, both the switch on the control box and the foot switch perform the same function.

If the FOOT OPERATED ENABLE SWITCH option is installed on your machine go to Step 4 - otherwise go to Step 5.

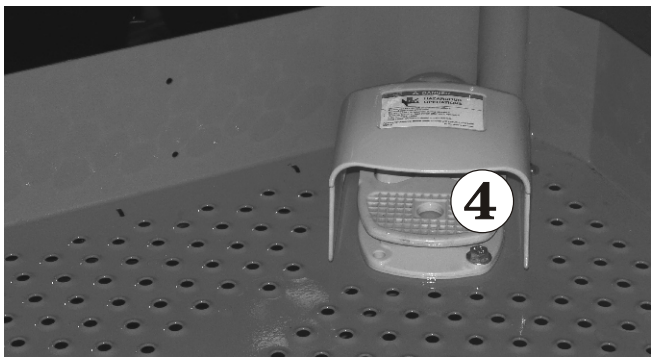


Figure 11.7 - Enable Switch (Foot)

4. Step on the platform foot switch ❹ (see Figure 11.7).
   Go to Step 6.
5. Operate the Enable switch ❺ by pressing the switch down and hold it down .
6. Whilst still operating the enable switch, press and hold the **Emergency Lower** switch ❻ down and the upper boom will begin lowering.
7. To operate other functions during the emergency lower the following switches must be operated together.
   Enable ❺ or ❹ (foot switch - Figure 11.7)
   Emergency Lower ❻
   As soon as these switches are operated the upper boom will begin descending. If another function is desired it must be selected before the boom has reached the rest position
   e.g. Upper or Lower Boom ❼ or **❽**
   Slew ❾

NOTE:

When emergency lowering, it is only possible to Slew or lower the Jib Boom whilst the Upper boom is lowering.

❑ Operation from ground control station electric control machines

Emergency operation from the ground is very similar to emergency operation from the platform.

Ground control station settings

1. The **Emergency Stop** switch ❶ must be (ON) (see Figure 11.8).
2. The **Platform/Ground Selector** switch ❷ (see Figure 11.8) must be set to GROUND.

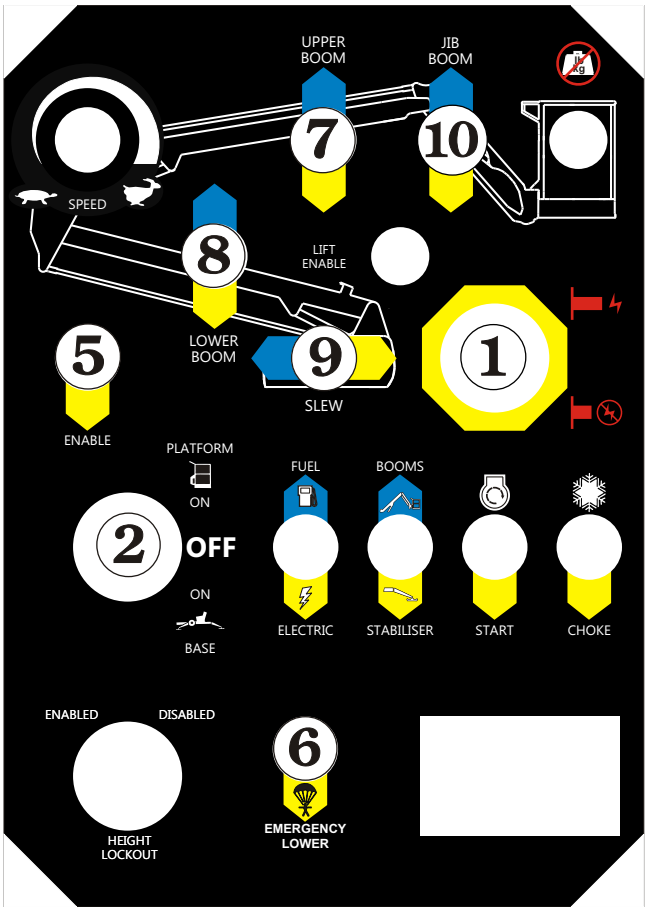


Figure 11.8 - Ground Controls, Machines with Electric Controls

3. Operate the Enable switch ❺ by pressing the switch down and hold it down .
4. Whilst still operating the enable switch, press and hold the **Emergency Lower** switch ❻ down and the upper boom will begin lowering.
5. To operate other functions during the emergency lower the following switches must be operated together.
   Enable ❺ Emergency Lower ❻
   As soon as these switches are operated the upper boom will begin descending. If another function is desired it must be selected before the boom has reached the rest position
   e.g. Upper or Lower Boom ❼ or **❽**
   Slew ❾

■ Stowing

At the end of each work day (or in preparation for lifting or storage) a qualified operator should put the EPV16 into its stowed position then lock by placing the boom lock pin in position and engaging the cradle latch.

❑ **The correct stowed position is shown here.**

Figure 12.1 - Stowed Position

To bring the EPV16 into the STOWED POSITION use the controls on the ground control box or platform control box to:

1. Fully lower all booms.
2. Align the lower boom travel lock with the boom rest ❸ mounted to the drawbar.
3. Insert the lower boom pin ❶ in place (see Figure 12.2) and ensure the pin keeper ❷ is correctly locked in place through the boom pin.

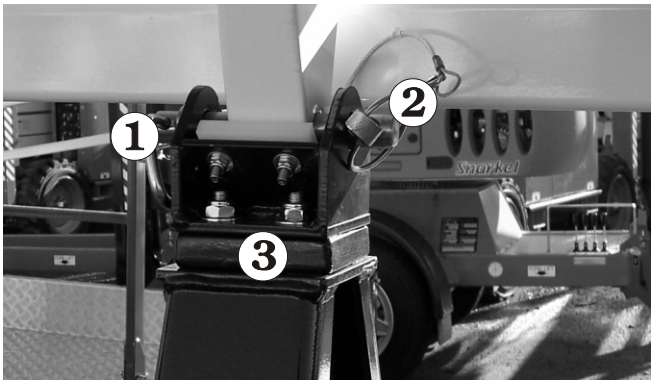


Figure 12.2 - Lower Boom Cradle Lock

4. Insert the upper boom restraining lock pin ❸ and ensure the pin keeper ❹ is correctly locked in place (see Figure 12.3).

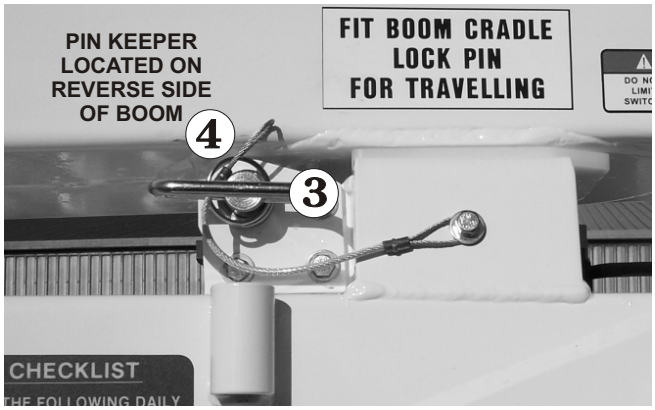


Figure 12.3 - Upper Boom restraining Lock

NOTE:

Some early production machines will have an earlier style upper boom restraining latch (see Figure 12.3.3)

4b. Attach the boom restraining latch ❶ and pull down the handle ❷ to the locked position.

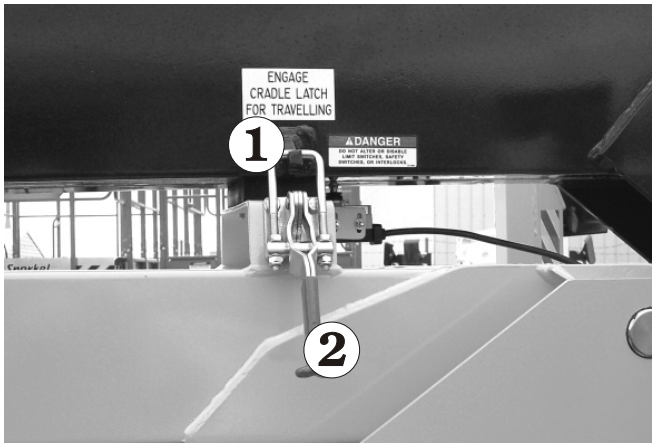


Figure 12.3.3 - Upper Boom Restraining Latch

If using the upper controls go now to the ground controls and:

4. Switch the **Ground / Platform** selector to ground.
5. Set the **Booms / Stabiliser** selector to stabiliser.
6. Using the stabiliser controls raise the stabilisers.
7. Set the **Master Key** switch on the ground control box to off and remove the key.

■ Hazardous Components

Snorkel products may contain materials and objects that potentially could become significant fire or environmental hazards during the lifetime of the machine.

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

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

❑ Antifreeze (UN 1993)

☞ Fire extinguishing media:

Dry Chemical, foam, or CO_2.

☞ Special fire fighting procedures:

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

⚠DANGER

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

☞ Spill or leak:

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

☞ Waste disposal method:

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

❑ Battery, Lead/Acid (UN 2794)

☞ Extinguishing media:

Dry chemical, foam, or CO_2.

☞ Special fire fighting procedures:

Use positive pressure, self contained breathing apparatus.

☞ Unusual fire and explosion hazards:

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

⚠DANGER

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

☞ Spill or leak:

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

⚠DANGER

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

NOTE

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

☞ Waste disposal method:

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

NOTE

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

☞ Waste disposal method

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

❑ Diesel Fuel (NA 1993)

☞ Extinguishing media:

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

☞ Special fire fighting procedures:

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

☞ Unusual fire and explosion hazards:

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

⚠DANGER

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

☞ Spill or leak:

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

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

☞ Waste disposal method:

Recycle as much of the recoverable product as possible.

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

❑ Foam In Tires

☞ Extinguishing media:

Water, dry chemical, foam, or CO_2.

☞ Special fire fighting procedures:

Evacuate non emergency personnel to a safe area.

☞ Unusual fire and explosion hazards:

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

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

⚠DANGER

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

☞ Spill or leak:

Pick up and handle as any other inert solid material.

☞ Waste disposal method:

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

❑ Gasoline (UN 1203)

☞ Extinguishing media:

Dry chemical, foam, or CO_2.

☞ Special fire fighting procedures:

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

☞ Unusual fire and explosion hazards:

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

⚠DANGER

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

☞ Spill or leak:

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

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

NOTE

Vapors released from the spill may create an explosive atmosphere.

☞ Waste disposal method:

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

⚠CAUTION

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

❑ Hydraulic Oil (UN 1270)

☞ Extinguishing media:

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

☞ Special fire fighting procedures:

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

☞ Unusual fire and explosion hazards:

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

⚠DANGER

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

☞ Spill or leak:

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

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

☞ Waste disposal method:

Recycle as much of the recoverable product as possible.

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

❑ Liquefied Petroleum Gas (UN 1075)

☞ Extinguishing media:

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

☞ Special fire fighting procedures:

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

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

☞ Unusual fire and explosion hazards:

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

⚠DANGER

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

☞ Spill or leak:

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

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

NOTE

Vapors released from the spill may create an explosive atmosphere.

☞ Waste disposal method:

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

❑ Motor Oil (UN 1270)

☞ Extinguishing media:

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

☞ Special fire fighting procedures:

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

☞ Unusual fire and explosion hazards:

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

⚠DANGER

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

☞ Spill or leak:

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

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

☞ Waste disposal method:

Recycle as much of the recoverable product as possible.

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

■ Troubleshooting

All of the actions described in this chapter may be performed by an EPV16 operator, a trained and qualified service technician is not required.

The first column, of the following chart, lists some common problems encountered by EPV16 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 EPV16 service technician.

❑ Operator Troubleshooting Chart

Problem	Cause	Remedy
Engine will not crank.	1. Flat battery.	Replace / charge battery.
	2. Electrical circuit protection fuse has blown.	Rplace the fuse, then try to start the engine. If it will not start, refer the problem to a qualified service technician.
	3. Loose battery terminals .	Tighten battery leads at battery.
Engine cranks but will not start.	1. Out of fuel.	Fill the engine with the correct type / grade of fuel.
	2. Fuel tap off.	Locate fuel tap on engine and turn to ON.
Engine runs but no outrigger function.	1. Leg / boom switch in lower control box incorrectly set	Switch to **Stabilisers** to operate stabilisers.
Engine runs but no boom function.	1. Speed control set too SLOW. Electric Controls only	Turn **Speed Control** C.W. until function starts.
	2. Stabilisers not set correctly.	All stabilisers must be set on firm ground before boom functions will operate.
	3. Lack of hydraulic oil.	A. Check hydraulic system for leaks. B. Top up the oil tank with the correct type / grade of hydraulic oil.
Bleed down at platform inoperative. Electric Controls only	1. Flat battery.	A. Charge / replace the battery.

▶ 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.

▶ authorised 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 arrest system

is the form of fall protection which involves the safe stopping of a person already falling. The system includes:

A - Anchorage - a fixed structure to which the components of the system are rigged.

B - Body Wear - a full body harness worn by the person (referred to as a "safety harness" in this manual).

C - Connector - a subsystem component connecting the harness to the anchorage, such as a lanyard.

D- Deceleration Device - a subsystem component designed to dissipate the forces associated with a fall arrest event.

▶ fall restraint

is the form of personal fall protection which prevents persons who are in a fall hazard area from falling. The system includes:

A - Anchorage - a fixed structure to which the components of the system are rigged.

B - Body Wear - a full body harness worn by the person (referred to as a "safety harness" in this manual).

C - Connector - a subsystem component connecting the harness to the anchorage, such as a lanyard. The lanyard is short enough that the person can not reach the fall hazard.

▶ 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

the primary fall protection system to eliminate the fall hazard. The system includes Toe boards, Midrail, Toprail and uprights.

▶ 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.

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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