



Workplace Health and Safety Queensland

Information guide – Rural industry

30. Maintenance, inspection and repair of banana and orchard industry elevating work platforms (EWPs)

This guide discusses the type, frequency and coverage of inspections for EWP used in the banana and orchard industries to ensure they are maintained and repaired to be safe.

Requirements for relevant persons who are responsible for EWP use include:

- inspection, maintenance and repair to be carried out by competent persons
- recording of experience and training levels of competent persons
- different competent persons may undertake different inspections, maintenance and repair work depending on level of competency or independent assessment required
- conduct frequent inspections to meet Australian Standards or as specified by the manufacturer, and
- recording of all inspections.

Competent person

A person who is competent to perform an inspection or other task for a control measure is a person who has acquired through training, qualifications or experience, the knowledge and skills to do the task in a safe way. This includes knowledge of relevant Australian Standards, codes of practice, and legislation.

For daily and routine inspection of EWPs, a competent person could be a worker who has been trained in the requirements for the inspections (e.g. use of the checklists and operator manuals).

For annual and major inspections or for major repairs, the competent person is likely to be the manufacturer, an engineering tradesperson or a professional engineer. The more detailed the inspection the higher the skill level required by the competent person.

An engineering tradesperson could be:

- an agricultural or heavy vehicle mechanic
- diesel fitter
- fitter and turner (experienced in mobile plant)
- light vehicle mechanic (experienced in mobile plant), or
- boilermaker for structural and welding inspections or repairs (Note: 3E welding certificate required for welding on structural components).

Inspection type, frequency and record keeping

Types of inspections to be carried out on EWPs at specified intervals are:

- pre-operational or daily checks
- routine and pre-harvest inspections
- annual or third party inspections, and
- major inspections.

Information on these should be provided in the manufacturer's operation and maintenance manual for the EWP.

Records of any maintenance inspections as well as any repairs undertaken are to be kept. For major structural repairs, information obtained from the manufacturer or a competent person must be recorded. Initial selection of an EWP should take into account:

- operating environment.
- frequency of use, and
- loading.

These factors will determine also frequency and level of inspection and maintenance requirements.

Higher knowledge is required to identify areas that require detailed inspection or to determine when non-destructive testing methods such as dye penetrant testing for detecting cracks is to be used.

Pre-operational or daily checks

Pre-operational checks should be completed by the operator prior to using the EWP. Records of these should be kept and a process for reporting faults is to be available to operators. A list of pre-operational checks is provided in Table 1.

The pre-operational inspection is to check the EWP is fit for the work to be completed. It is a quick check of the items listed in the table or as recommended by the manufacturer or competent person.

The checklist and process for completing the pre-operational checks should be undertaken as part of the operator's familiarisation training and variations for different models of EWP used should be discussed. Records of this training are to be kept (see Rural Fact Sheet 29, *Safe operation of banana and orchard industry elevating work platforms (EWPs)*).

Routine and pre-harvest inspections

Frequency of routine inspections should be based on the frequency and severity of use and may incorporate servicing of the EWP e.g. oil and filter changes. Inspections should be completed at periods not exceeding three months unless the EWP has been out of service.

For example, if an EWP is stored during the off season, it should be inspected prior to resuming service.

A EWP operated in harsh conditions and/or in a continuous daily manner, is likely to require routine inspections more often than every three months. Refer to the manufacturer's maintenance manual for further information.

Routine inspection may not require stripping of the major components of the EWP but where covers and guards prevent access to items requiring inspection, lubrication, measurement or adjustment, these covers are to be removed as part of the inspection.

These must be replaced before the plant is deemed to be operational. Routine inspection should be more thorough than the daily checks. In addition to covering the same items it should include:

- normal servicing
- tasks specified by the manufacturer, for example:
 - lubrication of pins and bushes
 - measurement of free play in pins and bushes, and
 - adjustment of levelling rods and linkages.

The routine and pre-harvest inspection checklist attached (Table 2) can be used as a basis for this type of inspection. The checklist can be copied and when completed, kept as records of routine inspections.

Annual or third party inspections

Annual or third inspections are assessments conducted by an automotive or engineering tradesperson who is independent of the operation of the EWP.

These inspections are to ensure the EWP is safe for continued service. In addition to visual inspection, the use of non-destructive testing (NDT - crack testing) may be required to identify any structural faults that are not easily detectable. The use of NDT will depend on the frequency of use and the history of the particular EWP model. If it is known a particular model develops cracks in a certain area, NDT may be done during the annual inspection to be sure no cracks develop. Use of NDT during an annual inspection needs to be done in consultation with your chosen third party inspector.

If your workshop staff are employed to service and inspect your plant (e.g. EWPs, tractors, ATVs, trucks, utilities etc), you should implement a policy specifying who is the designated person for annual inspections of EWPs. Records of the training, experience and qualifications should be kept of the person who undertakes annual inspections.

This person must be someone who does not normally operate the EWP and is provided with the following authorities to:

- i) request an EWP be provided for inspection
- ii) withdraw an EWP from service if repairs are required.

Attachment A contains an example of an annual or third party inspection checklist.

Major inspections

Major inspections are a strip, thorough inspection and re-build of the EWP at the end of the design life. The design life should be 10 years as stipulated by the Australian Standard AS 1418.10 *Cranes, hoists and winches – Elevating work platforms*. The manufacturer will have specified the frequency of use and severity of loading when considering the design life requirement of the standard. Major inspections should be conducted in accordance with the criteria in AS 2550.10 *Cranes, hoists and winches – Safe use – Mobile elevating work platforms*.

If actual use and loading are greater than the original design, the major inspection may be required prior to the ten-year limit. A major inspection must be accompanied by a report that outlines work undertaken, methods of assessment used and qualifications of the person/s involved.

Example: Continuous use at 95 per cent of rated capacity is likely to require a major inspection sooner than 10 years.

The history of annual inspections helps determine when a major inspection may be required. It indicates when major mechanical and structural repairs are most often required on a particular model. For example after eight years, one model may always require crack repairs on the base section of the boom and crack repairs to the chassis. This information could be used to determine that at seven years a major inspection should be undertaken on that model.

Major inspections include:

- stripping of all mechanical components for measurement and replacement as required, and
- checking of all structural components for cracks, corrosion and damage.

Further information on the inspection and component specification should be available from the manufacturer or alternately, seek advice from a professional engineer about completing the inspection.

Any replacement components and fittings must be as specified by the manufacturer or be equivalent in material and design. If a redesign of fittings or components is proposed, advice should be first sought from the manufacturer or a professional engineer before undertaking the modification.

Record keeping

The responsible person should keep records of EWP operation, maintenance, structural inspections and training of workers for the following time periods:

- pre-operation checklist— one year
- pre-harvest and routine inspection and
- maintenance—life of machine
- third party mechanical and structural inspections—life of machine
- EWP operator training—duration of employment.

Table 1: Pre-operational checks of an EWP

Pre-operational checks completed	Checks undertaken by the operator each day before first use
	<ol style="list-style-type: none"> 1. Engine and hydraulic oil levels. 2. Tyre inflation pressures and general condition of tyres. 3. Hydraulic hose system for leaks (look for fresh oil stains on ground) and for pipes and hoses to be secured to prevent damage. 4. Grease/oil pivot points and moving parts where applicable. 5. Platform gate locking systems. 6. Condition of padding on the platform top rail to prevent impact injury. 7. Wheel nut tension. 8. Condition and tension of chains and sprockets (if applicable). 9. Fuel level. 10. Exhaust for damage/holes that may contribute to excessive noise. 11. All controls, linkages and cables to be free from damage and operate smoothly and freely (e.g. engine speed, forward/reverse, luffing and slewing, steering controls). 12. Travel brakes are operational. 13. Visually check stress areas such as boom mounts and boom and stabiliser bars for signs of cracking and fatigue.

Note: Routine inspections should be carried out at no greater than three month frequency. Inspections should be more frequent for EWPs operating in a continuous daily manner or under harsh conditions

Table 2: Routine and pre-harvest inspection checklist for an EWP

Item	Type of check		Date Comp.
	Visual	Functional	
Check fluid levels, engine oil, hydraulic oil, coolant, fuel.	X		
Check exhaust for damage or holes that may contribute to excessive noise.	X		
Visually check hydraulic system, hoses and pipes for leaks (look for fresh oil stains on ground), check pipes and hoses are secured to prevent damage.	X		
Check tyre inflation pressures, condition of tyres and wheels and wheel nut tension.	X		
Grease or lubricate pivot points and moving parts as required.	X		
Check platform gate locking systems.	X	X	
Check condition of padding on the platform top rail to prevent impact injury.	X		
Check all controls, linkages and cables are free from damage, return to neutral and operate smoothly and freely (e.g. engine speed, forward/reverse, luffing and slewing, steering, emergency stop and emergency lower controls).	X	X	
Check placards, decals, warnings and control markings are fitted and readable. Check manual is available.	X		
Visually check stress areas such as welds on the boom mounts, boom section, hydraulic cylinder mounts, basket mounts and levelling bars for signs of cracking.	X		
Check pivot pins are secure and retainers are fitted.	X		
Check for loose or missing parts.	X		
Check wiring and cables are secured to prevent damage, check battery is secure.	X		
Check drive system is operational including brakes are working.	X	X	

More information

Further information is available from www.worksafe.qld.gov.au or by calling the WHS Infoline on 1300 369 915.

Attachment A: EWP annual or third party inspection checklist

Type and model:	Manufacture date:	
Serial No or ID No:		
Owner's details:	Manufacturer's details (if known):	
	Supplier's details (if known):	
	Safe Working Load:	kg
Date of inspection:	Safe Working Incline:	degrees
Inspected by:	Max. Platform height:	m
Items to be checked	Satisfactory / Unsatisfactory	Repairs / Comments
Basket		
Check Rails and Gate.		
Padding in good condition and secure		
Check for corrosion.		
Clear of debris.		
Controls		
Marking of control directions.		
Check control cables/linkages are secure and free from damage.		
Controls operate freely and return to neutral.		
Protected from accidental operation.		
Lowering control at ground level.		
Slope indicator/alarm fitted.		
Emergency stop provided.		
Hydraulic Systems		
Hose burst protection fitted to boom cylinder.		
Hoses secured against damage.		
Flexible hoses in good condition.		
Steel lines in good condition.		
Check for leaks.		
Cylinders are secure and free from damage.		
Check pumps are secure.		
Oil tank is secure and free from damage.		
Structure		
Any cracks including cleaning or removal of covers as required		
Boom		
Levelling bar		
Chassis		
Boom pivot post/frame		
Pins and pin bosses		
All hydraulic cylinder mounts		

Items to be checked	Satisfactory / Unsatisfactory	Repairs / Comments
Slew ring		
Basket mount		
Tank brackets		
Steering linkages and cylinders		
Suspension pivots/shackles		
All welds		
Corrosion.		
Broken or loose bolts		
General		
Tyres and rims for damage		
Tyre pressure		
Missing or loose wheels nuts		
Pins and bushes for wear		
Retainers are fitted to pins		
Fluid levels and services are up to date (filter cleaning or replacement etc)		
Pins have been greased		
Engine for fluid leaks		
Exhaust for holes and loose brackets or clamps		
Operation		
Run machine and check for correct operation of all controls including emergency stop, return to neutral and emergency boom lowering valve		
Details of items that must be repaired before returning to service:	Repairs completed by:	
Details of work to be scheduled:	Date to be completed by	
Next service due:		
Next routine inspection due: Note: No more than 3 months from the date of this inspection		
Details entered into log by:		
Additional comments:		