

Tyre maintenance and refueling practices

VIDEO SUPPORTING GUIDE





Version Control

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REFUELLING A TYRE HANDLER

Learning outcomes

By the end of this guide, participants will:

- Increase their knowledge of Tyre Handling Operational Procedures
- Increase their knowledge of Correct Maintenance Procedures of a Tyre handler
- Know how to safely refuel Tyre Handlers
- Have a thorough understanding of the potential consequences of not refuelling Tyre Handlers correctly

Your contact for questions and support is your Otraco Zero Harm and Training Manager or contact at info@otraco.com.

Disclaimer

This Supporting Guide has been developed to assist users of Otraco Off-Road-Tyre Handlers. The information provided in this application is general guidance only.

This Supporting Guide is not intended to be a substitute for legal advice and/or technical advice etc. The specific factual circumstances of each situation must be considered when using this Supporting Guide. You and your business should obtain legal and/or technical advice as necessary. Whilst the makers of this Supporting Guide have taken all reasonable care to obtain information from reliable resources, the makers are not responsible and will not be liable for any errors or omissions in the information in this Supporting Guide. The information in this Supporting Guide is correct as at the date of publication.



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How to use this trainer guide

1	Introduction to Otraco International
<p>Otraco International is a World class vehicle and Off-The-Road (OTR) tyre management company. A subsidiary of Downer, Otraco operates across more than 60 mine sites, on over three continents, with an 800 strong workforce.</p> <p>Onsite OTR and light mobile equipment (LME) tyre maintenance teams provide 24-hour operational support for customers in some of the most remote regions of Australia, New Zealand, Southern Africa and Chile. Our onsite teams undergo industry leading training at Otraco's Training Centre. Incorporating competency-based delivery and assessment, our training programs comprise on-the-job training, workshops and classroom learning. All programs are delivered through Otraco's Enterprise Registered Training Organisation 51112. Turning knowledge into value, our onsite teams work closely with customer teams to develop a strong site culture of tyre awareness. This includes units of competencies for 'How to use a Tyre Handler'.</p> <p>Machine downtime due to tyre maintenance is kept to a minimum by scheduling tyre work whenever possible and by having highly-trained service technicians using fit-for-purpose tools and fully documented work procedures. In addition, Otraco's servicing methods undergo continuous process improvement to increase safety and extend machine availability.</p> <p>This Supporting Guide has been created by Otraco International as part of an Enforceable Undertaking entered into with the New South Wales Resources Regulator in relation to an alleged contravention of the <i>Work Health and Safety Act 2011</i> (NSW) regarding an incident that occurred at the Mt Arthur Mine on 10 August 2017. Further detail of the incident is provided below.</p>	
2	Interested parties to these videos and event
<ul style="list-style-type: none"> • Internal workforce and users of tyre handlers in normal operations • External organisations that use tyre handlers in day to day operations • Registered Training Organisations that deliver the AURKTJ006 training package • Members of the public for adult learning opportunities • Regulatory bodies including State and Territory work health and safety regulators 	
3	Operational Procedures
Critical Risk Management	



Pre-Start Inspection

Ensuring safe operations of a Tyre Handler begins with a full Pre-Start Inspection.

It is important to be thorough when completing a Pre-Start Inspection as this can:

- Reduce the potential exposure to risk during operation,
- Identify, document and categorise defects,
- Apply the correct monitoring or tag out procedure on defects in high risk categories,
- Communicate operational information and potential hazards by reporting Pre-Start information to your supervisor.

Maintaining regular inspections will ensure that each Tyre Handler is fit for purpose, properly maintained and above all, safe to use.

Job Hazard Analysis

Prior to commencing any tyre handling job, you must inspect the work area to make sure it's suitable and that any hazards have been identified and controlled. As a team, you should complete a Job Hazard Analysis or JHA by:

- Identifying any hazards in the work area that could affect Tyre Handler operation. Things like:
 - weather conditions,
 - adequate lighting,
 - other vehicle interaction,
 - pedestrian interaction,
 - the effect of gravity on uneven ground,
 - crush points in confined areas, and
 - any obstacles, including overhead obstructions.
- Identify effective controls for these hazards, and
- In cases where a hazard is identified but can't be effectively controlled or removed, utilise demarcation equipment to set up an exclusion zone.

Maintenance Procedures

When the Tyre Handler is running, all attachment functions should be tested to ensure they are working as they should. This includes:

- Grab and release,
- Arm Rotation,
- Hand Rotation,
- Lift and lowering of the boom, and
- The tilt attachment

Operational Procedures

During the operation of Tyre Handling equipment, clear communication with others working in the area is vital to safe and efficient operations. When operating a tyre handler, use techniques such as:

- Using a horn blast to announce you are about to start work,
- Always using a spotter as a guide for tyre or wheel fittings,
 - The spotter should always be in a position where they can be seen by the operator,
 - The spotter must remain outside the exclusion zone.

Effective communication between the spotter and operator should be maintained at all times including positive communications using hand signals and radio equipment. Correct usage of these hand signals is vital, make sure you and others on site are familiar with these hand signals.

At the completion of Tyre Handling work, ensure that the Tyre Handler is parked in the designated area with the attachment flat on the ground. The operator should exit the Tyre Handler using three points of contact, isolate the machine and chock the wheels to make the machine fundamentally stable.

4	Correct Maintenance Procedures
Correct Maintenance Procedures	
<p>Maintenance is an essential part of safety and consists of the following activities:</p> <ul style="list-style-type: none"> • Prestart checks • Refuelling • Frequent greasing • Schedules servicing • Rebuilds <p>If maintenance procedures are not followed there can be serious safety issues, particularly around</p> <ul style="list-style-type: none"> • Brake failure • Structural integrity • Hydraulic failure 	
Maintenance Requirements	
<p>The maintenance schedule of equipment is unique to each piece of equipment and should be in line with the original equipment manufacturers OEM recommendations.</p> <p>Maintenance requirements can be broken down into seven main elements:</p> <ol style="list-style-type: none"> 1. Identification of critical components 2. Visual inspection of the tyre handler <ol style="list-style-type: none"> a. At the start and end of every shift b. Complete Otraco's digital prestart form 3. Periodic lubrication <ol style="list-style-type: none"> a. In line with OEM recommendations 4. Periodic minor inspections <ol style="list-style-type: none"> a. Performed monthly 5. Periodic major services <ol style="list-style-type: none"> a. Performed by Otraco maintenance personnel or OEM 6. Periodic structural inspections <ol style="list-style-type: none"> a. NDT scheduled at specific intervals by Otraco maintenance personnel or a specialist with relevant expertise 7. Refuelling <ol style="list-style-type: none"> a. When required by those trained to do so b. Never use fast fill system with an open attachment 	
Asset Management Tool (AMT)	
<p>Records of all maintenance should be kept in a Contract Management system like AMT which records all maintenance undertaken and schedules future maintenance.</p>	



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Refuelling Tyre Handlers

Critical Risk Management

Refuelling Tyre Handlers may seem like a simple job but if not done the correct way, with the correct equipment and training you can not only cause serious injury, but it can be life threatening to you and others.

You should never refuel a Tyre Handler or other plant if you are not trained to do so. Each site will have different rules, procedures and refuelling equipment. You will need permission from your supervisor before refueling, to confirm that you have the appropriate training and will follow site procedures.

There are common rules for refuelling tyre handling equipment which apply to all sites, the most important of these is using the correct refuelling system. Never use a refueling system which is incompatible with the equipment you are attempting to refuel.

Prior to beginning any refueling, you should properly identify the refuelling system which your tyre handler requires, these can be:

- Standard flow nozzle like those found at petrol stations which cut off automatically when the tank is full, and
- Fast fill gun types, which come in two forms and both operate with an automatic shut off:
 - Non-pressurised,
 - Pressurised, if used incorrectly this type can overflow and spill fuel, so proper training is essential.

Never use a fast fill system with an open attachment. If you are unsure about the fast fill system in use, stop work and ask you supervisor.

Operational Procedures

Refuelling a tyre handler should only occur in the designated refuelling bay, and before bringing the tyre handler in, there are certain things you must check:

- The refuelling bay must be more than ten metres from any flame,
- There can be no electrical infrastructure within six metres,
- Inspect the floor of the refueling bay for any contaminants and clean up as required, for example fuel or oil spills,
- There can't be any rags or combustible material on or around the Tyre Handler,
- Check that all firefighting equipment is in its correct location. You must also have spill kits available and know how to use them,
- The entrance must be clear of other equipment or vehicles,
- You must not smoke in the refuelling bay or within 10m of refueling area depending on the site rules.

Once you are satisfied that the refueling bay is setup correctly you can move the Tyre Handler into the refuelling bay. A second person can help you maneuver the machine into the correct position, whilst always maintaining a line of sight and direct, positive communication. Follow site procedure to shutdown and isolate the machine and exit it using three points of contact.

Make sure that only necessary people are in the area prior to beginning refuelling and if you need to, set up barricades to keep the area clear.

Familiarise yourself with the location of the fuel pump isolation points, and where to turn on and shut off the fuel pump. When you are ready to begin refueling, follow these steps:

- Check the fuel cap seal for any damage. If you see any damage, you must not proceed with refueling and must tag the machine out of service and notify your supervisor.
- Make sure the fuel delivery handle has an automatic shut off and begin refueling. **Never** lock open the delivery system with a wedge.
- When the Tyre Handler is full, shut off and isolate the pump and refit the fuel cap correctly.
- Return delivery lines and all other equipment to their approved storage positions.
- If there are any spills, clean them up immediately and put any oily rags and waste in the oily rag bin.
- If you have set up barricading, remove it and store it correctly.
- Once the refueling area is tidy and everything is appropriately stored away, follow the startup procedure for the Tyre Handler.

6	Introduction to the incident that occurred
<p>On 10 August 2017 a 29-year-old tyre technician (TT) suffered serious burns to his face, neck, torso and arms at a mining operation in NSW. The TT was in the process of refuelling a Hyster tyre handler at the site refuelling station at the time the incident occurred.</p> <p>During the refuelling process, the TT collected the free flow adaptor from inside the refuelling station, attached it to the refuelling hose end and placed the nozzle into the fuel tank. He then moved to inside the switch room shed to activate the pump and start filling the tyre handler.</p> <p>Due to an increased flow rate of the fuel through the small nozzle, the hose end has ejected out of the tyre handler refuelling point, causing fuel to splash onto the hot engine and onto the TT. The fuel ignited from coming into contact with the tyre handler’s hot engine resulting in the machine and the TT becoming engulfed in flames.</p> <p>The TT removed his shirt, which was alight and ran towards a nearby drainage culvert. He lay face down in the culvert to extinguish the flames. The TT ended up with severe burns to his face, neck, torso and arms.</p> <p><i>N.B. The NSW Resources Regulator has put together a video which describes the event in detail. The video can be found on YouTube by using this link</i></p>	
7	Videos that this guide supports
<ul style="list-style-type: none"> a. ‘Mt Arthur Incident Video’ b. ‘Operational Procedures Video’ c. ‘Correct Maintenance Procedures Video’ d. ‘Refuelling Tyre Handlers Video’ 	
8	General Risk management practices
Job Hazard Analysis (JHA’s)	
<p>A JHA is used as a formal risk assessment process and is used as part of demonstrating compliance with the applicable health and safety laws and regulations. It is a process where the risks and hazards associated with each step in a particular task are identified, and control measures that will eliminate those hazards and risks, or if it is not reasonably practicable to eliminate the hazards and risks, minimise them so far as is reasonably practicable are identified, documented and implemented to eliminate or minimise, so far as is reasonably practicable, the risk to people, property, plant, equipment, facilities and the environment.</p> <p><u>Why do we use JHAs?</u></p> <ul style="list-style-type: none"> a. To identify and control risks/hazards b. Avoid injuries c. Avoid equipment/property damage d. Avoid environmental damage, and e. Improve task planning and develop the “best way” of completing the task. 	
Identifying hazards	



A 'hazard' is anything that has the potential to cause harm to a person. The best way to manage a hazard is to remove it.

If a hazard cannot be removed, then controls need to be identified, applied and maintained to manage the risk to which workers are exposed.

Prestart inspections

A pre-start inspection is a standard procedure and involves a routine examination of a piece of equipment by its operator. This is standardised via a documented checklist that can be verified as completed. Whether it be a light vehicle, heavy vehicle, mobile plant or tools, pre-start inspections are an important task with safety implications. A pre-start inspection can potentially be the difference between life and death.

Defect reporting

A comprehensive defect reporting and management process means that operators can be proactive about discovering, reporting and resolving vehicle and equipment defects in a timely manner. This can keep workers safer and ensure operations are being effectively managed by reducing equipment downtime.