

Company Name:	Equipment/Job Identification: TIRE CHANGER Type of Equipment: MOBILE TIRE BOOM TRUCK Make: Model: Year: Use:
Mine Name:	
Date of Analysis: MARCH 14-16, 2006	

Pre-Assessment

- **List pre-requisites here**

- Part 46 Training
- Company Policy
- Manufacturer's Manuals
- Operator's Crane Safety Manual
- PPE
- DVD/Video (Blind Spots Can Kill)
- Video (Pathways to Safety (Surface))
- In-House Service Technician Training
- OSHA Compliance Training

Duty 1: Start of Day

Learner will demonstrate how to conduct a safe and thorough start of the day activities. Learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. Thorough and safe start of the day activities includes the following job steps:

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
Clock in		1		
• Be on time		1		
• Be ready to work		1		
• Have proper attire		1		Work boots, uniform, gloves, safety glasses

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
Check with service manager		1		
<ul style="list-style-type: none"> • Ask about pending jobs 		1		Review if additional work is needed at previously assigned sites
<ul style="list-style-type: none"> • Ask about new jobs 		1		Customer
<ul style="list-style-type: none"> • Get location of jobs 	Loss of productivity – Need to know where you are going	2		
<ul style="list-style-type: none"> ○ Get directions to job site 		1		
<ul style="list-style-type: none"> ○ Obtain work and service orders 		1		
<ul style="list-style-type: none"> ○ Log start time 		1		
<ul style="list-style-type: none"> • Obtain supplies needed 	Loss of productivity – Need to have proper supplies to do necessary job	2		Tire size, brand of tire, wheel position, obtain tire, load onto truck, secure tire (chain and binder or ratchet strap), ensure load is evenly distributed

Duty 2: Pre-op Service Truck Inspection

Learner will demonstrate how to conduct a safe and thorough pre-operational inspection. Learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. A thorough pre-operational inspection includes the following job steps:

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/ Notes/Comments
		1=Important 2=Very Important 3=Critical		
Check service truck for supplies	Loss of productivity – Need to have proper supplies to do necessary job	2		Refer to supply checklist O-rings, valves, repair materials, lubricants (properly mark closed containers), and hardware
Check equipment and tools		1		
• Check bead breaker and rams		1		Oil leaks, broken parts, bent parts
• Check Air/Hydraulic pumps and jacks		1		Leaks, fluid level, fittings, connectors
• Check Cribbing		1		Hardwood – all assorted sizes
• Check Wheel chocks		1		2 sets
• Check Hand tools		1		
○ Check wrenches		1		
○ Check hammer		1		
• Check Pneumatic tools		1		
○ Check impact wrenches		1		
○ Check impact sockets		1		
○ Check buffer		1		
○ Check grinder	Grinder can move violently if wheel is placed on the ground	2		Grinder has to be laid upside down until wheel stops spinning

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/ Notes/Comments
		1=Important 2=Very Important 3=Critical		
○ Check drill		1		
• Check tire irons		1		
• Check chains, slings and binders		1		
Examine Service Truck				
• Conduct DOT pre-trip inspection	Potential delays due to enforcement activities, service truck may not be safe to drive	2		See Service Truck Inspection Report
• Check fluid levels	Failure to check these items could cause severe damage to the service truck and could be a safety issue, could stop you from getting to the work site. IT IS COMPANY POLICY!	2		Washer fluid, engine oil, compressor oil, power steering, brake fluid, coolant, accessories hydraulic fluid, AT fluid, fuel gauge
Check PTO		1		
• Engage PTO		1		
Examine crane	Crane failures to could cause a fatality. You are handling a very heavy load	3		See Crane Manual
• Check Hoses	Crane failures to could cause a fatality. You are handling a very heavy load	3		
• Check Cylinders	Crane failures to could cause a fatality. You are handling a very heavy load	3		
• Check Fastenings	Crane failures to could cause a fatality. You are handling a very heavy load	3		Welds, gussets, base plate bolts, pins Always replace parts with OEM parts, Grade 8 or better

Duty 3: Site Survey

Learner will demonstrate how to conduct a safe and thorough survey of the site where work will be conducted. Learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. A thorough understanding and knowledge of correct procedures in doing a site survey includes the following job steps:

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/ Notes/Comments
		1=Important 2=Very Important 3=Critical		
Follow and obey all customer/ site rules	Could lose customer if regulations are violated. Their rules are there for a reason, probably previous injuries or accidents	3		
Stop at office				
<ul style="list-style-type: none"> Get site specific training 	This training provides you information you need to do your job and alert you to hazards you may encounter on the mine site	3		Fines, delays, poor customer relations, personal injury, loss of production for both sides
<ul style="list-style-type: none"> Get directions to location of equipment to be serviced 		1		
Put on proper personal protective equipment	PPE prevents you from being injured. It's company policy in most cases and law	3		Discuss putting on PPE prior to leaving service truck. Some companies may require additional PPE
Travel to equipment requiring service		1		
Establish communication with machine operator if applicable	Visibility is very limited from this big equipment, there is a strong possibility a machine could run right over your service truck	3		Make sure to establish communication with the machine operator before approaching equipment

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/ Notes/Comments
		1=Important 2=Very Important 3=Critical		
Park service truck		1		
<ul style="list-style-type: none"> • Set park brake 	Zero potential for unexpected movement. Many fatalities happen because failure to set brake	2		
<ul style="list-style-type: none"> • Chock or turn wheels to berm 	Zero potential for unexpected movement.	2		
<ul style="list-style-type: none"> • Engage flashers or warning lights 	Because of size of equipment you need to be seen to avoid serious injury	2		
Ensure equipment is lock-out/tag-out	Zero potential for unexpected movement	3		Lock and tag, lock door, remove key, safety cone on seat , always use 3-point contact when entering/exiting service truck or equipment
Chock equipment to be serviced	Zero potential for unexpected movement	3		
Walk around equipment to be serviced and observe area	Potential for electrocution Alert you to other hazards that maybe around the equipment you are going to service	3		Electric overhead wires, underground piping, surface water, surface wiring, soft ground, highwall, traffic lanes, personnel movement,
Determine if replacement tire is correct size and application		1		Failure to determine early enough could be wasting time and productivity

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
Determine if equipment can be serviced at this location		1		If there is any safety issues ask the company to move the equipment. <u>Do not position yourself between the highwall and equipment to be serviced.</u>
Determine if you are familiar on this type of particular equipment or wheel assembly. If you are not: STOP!	If you are not familiar with or have not been trained on this particular type of equipment or wheel assembly type	3		Do Not Proceed Any Further! Contact Your Supervisor
Position your service truck				
<ul style="list-style-type: none"> Position boom parallel to tire to be serviced 	Failure to position your service truck parallel will make it much more difficult to handle the tire and do the work that needs to be accomplished. Could cause undue stress on the boom.	2		
<ul style="list-style-type: none"> Keep service truck as far away as practical 	Keeping service truck away from the equipment being serviced eliminates pinch points and possible injury and more escape room	2		More distance is better
Park service truck		1		
<ul style="list-style-type: none"> Set park brake 	Potential for possible movement of truck	3		
<ul style="list-style-type: none"> Engage PTO and set fast idle switch 		1		
<ul style="list-style-type: none"> Engage flashers or warning lights 	Because of size of equipment you need to be seen to avoid serious injury	2		

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
<ul style="list-style-type: none"> • Chock or turn wheels to berm 	Zero potential for unexpected movement.	2		
<ul style="list-style-type: none"> • Set outriggers 	Without the outriggers set, could cause service truck to roll over when using boom	3		See Operator's Crane Safety Manual
Place safety cones around work area	Work area must be cordoned off so no one else can enter work area	2		Company Policy

Duty 4: Jacking/Cribbing

Learner will demonstrate how to conduct a safe and thorough process in jacking and cribbing of the equipment. Learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. A thorough knowledge and understanding of jacking and cribbing the equipment includes the following job steps:

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
Articulating equipment must be pinned or locked in place	Zero potential for unexpected movement, equipment could move while jacking if this pin is not in place	3		Could also shift while trying to remove the tire
Remove cribbing from service truck and place near jacking point		1		Use proper lifting techniques Wear gloves when handling cribbing
Jack or support only at manufacturer's specified locations	Could cause serious damage to equipment or serious injury if not jacked and cribbed at proper location	3		This information has to be obtained site personnel
Begin building two cribs		1		One for the jack and one for support. A crib means to stagger direction of the blocking material for strength and stability
Build jacking crib to within height of jack		1		Cribbing procedures may change depending on the design of equipment being serviced. If jack starts to tilt you need to reposition cribbing

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/ Notes/Comments
		1=Important 2=Very Important 3=Critical		
Build support crib as high as possible to support point of the equipment to be serviced		1		
Raise jack enough to insert the final support crib		1		Must be high enough to remove old tire, take into consideration the tread depth on new tire
Lower jack until equipment rests on support crib	Jacks can kick out and cribbing can collapse causing the equipment to slide toward you	3		Leave jack in place but equipment must rest on support crib
Visually inspect the crib after the equipment is lowered for stability	This is to make sure the crib will hold the weight of the equipment	3		
Gently nudge the equipment with your boom arm and observe cribbing from movement	This is a final test to ensure the cribbing is stable and will support the equipment	3		THIS IS A POINT OF NO RETURN, ONCE YOU START TO CHANGE THE TIRE, IF THE CRIBBING BECOMES UNSTABLE, YOU ARE IN BIG TROUBLE.
Remove the valve core to deflate tire		1		Never try to service an inflated tire. For maximum productivity while tire is deflating take this opportunity to set up necessary tools for the job

Duty 5: Dismount Tire

Learner will demonstrate how to conduct a safe and thorough procedure of dismounting tires. Learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. A thorough and safe procedure of dismounting tires includes the following job steps:

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/ Notes/Comments
		1=Important 2=Very Important 3=Critical		
Run a wire through the valve to be sure all sure tire is completely deflated	Inflated tires can be like a bomb and could cause fatal or serious injury. Deflation disarms the bomb.	3		
Remove necessary tools from the service truck		1		Tools will vary with the types of assemblies. (Refer to TIA Service Manual for proper tools)
Break the front bead far enough to remove the lock ring and the O-ring		1		
Remove lock ring and O-ring		1		
Insert bead breaker tool into the bead breaker notch in bead seat band and set adjustment screw		1		
Use bead breaker tool to remove bead seat band from front bead	If bead breaker tool is not installed properly, could kick out and cause serious injury or death	3		When using bead breaker tool operator must stay out of trajectory of tool

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/ Notes/Comments
		1=Important 2=Very Important 3=Critical		
Remove bead seat band and front flange ring from wheel assembly		1		
Lay the wheel components on the ground on top of cribbing materials on one end for cleaning		1		Lay on cribbing to prevent injury from falling or rolling. This prevents additional dirt on components
Move bead breaker to back of rim		1		
Break back bead	If bead breaker tool is not installed properly, could kick out and cause serious injury or death	3		When using bead breaker tool, operator must stay out of trajectory of tool. Be aware of brake lines, hydraulic lines on the equipment being serviced.
Place sling on boom		1		Examine sling for defects
Move boom and sling over center of tire		1		
Adjust sling snugly around tire	Sling not adjusted correctly could slip causing tire to fall resulting in serious injury or fatality	3		Caution: You may not always be able to use a sling on all equipment.
Lift the weight of the tire off the rim while retracting the boom to remove tire from wheel	Failure to lift the weight off the tire of the rim could cause jerking or unexpected movement	2		This must be done gradually to avoid equipment shift and tire snagging and moving suddenly. Be sure rear flange ring is not stuck to tire before removing tire completely from wheel

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/ Notes/Comments
		1=Important 2=Very Important 3=Critical		
Whenever handling tires with boom never position yourself between the tire and the equipment being serviced and the service truck	Unexpected movement of the tire could cause crushing or fatal injury	3		Crane trucks have more than one set of controls to allow you to operate crane from a safe position
Keep tire as close to the ground as possible when moving tire with boom	Unexpected fall of tire could cause serious injury or serious damage to equipment	3		
Set the tire safely to side	Unexpected fall of tire could cause serious injury or serious damage to equipment	3		If tire must remain standing, lean, block and chock securely to prevent movement
Lay down tire if possible		1		
Clean and inspect rim base for cracking, deterioration and distortion	Defective rim bases could cause the wheel to explode when inflated	3		Remove all rust, corrosion, dirt, or debris from wheel and all components
Pay close attention to lock ring and O-ring gutter	Gutters must be cleaned properly for lock ring to seat correctly	3		O-ring must seat properly for the tire to retain air
Look at wheel components identification stamping to make sure they match	For wheels to be safe all components must match. Never mismatch wheel components	2		If there is a question on component matching contact your supervisor
Replace complete valve assembly		1		Leaking valves can cause loss of productivity and redo and customer dissatisfaction
Replace any damaged, bent, severely rusted or corroded component	Most rim explosions are caused by damaged, bent, severely rusted or mismatched parts and can cause serious injury or fatality	3		

Duty 6: Mount Tire

Learner will demonstrate how to conduct a safe and thorough process of mounting the tire. Learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. A thorough process of mounting tires includes the following job steps:

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
Remove new tire from service truck utilizing boom and bead hook		1		
Lean the tire against service truck and chock securely in place	Unexpected fall of tire could cause serious injury or serious damage to equipment	3		
Remove bead hook		1		
Install tire sling around tire snugly	Sling not adjusted correctly could slip causing tire to fall resulting in serious injury or fatality	3		Caution: You may not always be able to use a sling on all equipment.
Inspect replacement tire for damage		1		
Examine the inside of tire for water, debris and any foreign material	Anything in the tire could cause damage and down time	2		
Inspect and lubricate tire beads with an approved tire lubricant		1		
Lubricate wheel with an approved lubricant		1		
Align inside flange ring with lock where applicable	Not done properly the first time it will have to be done over	2		
Move boom and sling over top of replacement tire		1		

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
Adjust sling snugly around tire	Sling not adjusted correctly could slip causing tire to fall resulting in serious injury or fatality	3		Caution: You may not always be able to use a sling on all equipment.
Using boom to move tire to wheel		1		
Center tire and proceed to boom out and push tire on rim		1		
Remove sling		1		
Hold tire in place with boom		1		
Install flange ring		1		
Lubricate bead seat band and install		1		
Lubricate and install new O-ring	Lubrication must be used – Failure to use could cause leak and pinch O-ring	2		Install proper size and thickness O-ring
Install lock ring	Must be seated properly in gutter to prevent explosion and/or ejection	2		Warning: Never reuse a sprung or bent lock ring. Replace it!
Visually inspect components for proper alignment and debris free		1		

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
Place boom snugly against the machine but not so tight as to push the equipment off the block or to prevent proper seating	Flying lock rings have caused numerous injuries and fatalities	3		Never stand in trajectory while inflating tire. Use boom as a restraining device in case lock ring flies off during inflation.
Remove valve core and begin inflating tire with remote control inflation device		1		Never stand in trajectory while inflating tire
Observe proper seating of lock ring assembly during initial inflation	This is your final chance to ensure assembly is properly seated and locked	3		If the bead or rings are not seating or locking properly, deflate the tire before making any adjustment
Install valve core after beads and rings are seated		1		
Inflate tire to recommended pressure	Improper inflation could make equipment unstable or cause tire failure	2		Don't guess, use a calibrated gauge, check with the company maintenance department, or look-up in manual
Replace and tighten securely the valve cap		1		
Swing boom back over bed of service truck		1		
Jack up the equipment slightly and start removing cribbing		1		
Lower equipment in reverse manner from raising equipment		1		

Duty 7: End of Job Activities

Learner will demonstrate how to conduct a safe and thorough end of job activities. Learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. A thorough and safe process in conducting end of job activities includes the following job steps:

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
Repack cribbing onto service truck and secure		1		
Clean all tools and return all tools and materials to proper place on service truck		1		
Load and secure old tire to bed of service truck	Could cause serious injury or death if tire shifts or falls off the service truck	3		DOT regulations require all loads be secured. Personal fine and possibly prison
Return boom to stow position and tie down if necessary		1		
Clean debris from service truck bed if necessary		1		
Retract the outriggers		1		
Disengage the PTO and shut down fast idle switch		1		
Remove chock from customer's equipment		1		
Remove lock out/tag out, cone on seat		1		
Complete paper work	Job is not complete until paper work is complete and accurate	3		Hours, position, unit number, make of machine, check tread depth, customer signature, mileage
Return keys to equipment		1		

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/ Notes/Comments
		1=Important 2=Very Important 3=Critical		
Notify customer equipment is ready to be returned to service		1		
Make one last walk around to make sure all tools are picked up and cabinets are closed securely and your cones are properly stowed and work area has been cleaned	If you drive away without all of your tools you will not be able to do the next job. Failing to secure closed cabinets items, tools could fall out of service truck causing an accident or injury	2		Always leave the work area as clean or cleaner than it was when you arrived

Duty 8: End of Day Activities

Learner will demonstrate how to conduct a safe and thorough end of day activities. Learner will also explain the job duties, why they are conducted, any associated risk, and how to implement appropriate controls. A thorough process of conducting end of day activities includes the following job steps:

Job Steps	Importance Narrative (Consider Safety, Production, Maintenance)	Importance Ranking	Satisfactory or Needs Work	Procedures/Risk Resolution/Notes/Comments
		1=Important 2=Very Important 3=Critical		
Remove old tire from bed of service truck		1		Use same procedure as you would at the job site
Mark tire with customer's name and disposition		1		Retread, repair, scrap
Complete paper work and hand in	Paper work not complete, job is not complete	3		
Report any maintenance issues or problems with your service truck		1		
Replenish service supplies if time permits		1		
Clock out		1		