

Caterpillar 777

All Tire Positions - Vertical Demount and Mount

Scope



This Safe Work Procedure ('A') outlines the steps required to perform a 'Vertical' tire demount and mount on **the front and rear inner positions** of a Caterpillar 777 haul truck.

This procedure includes demounting tires from and mounting tires on:

- 5-Piece assemblies,
- 6-Piece IGLR (Integral Gutter Lock Ring) assemblies.

The steps in this Safe Work Procedure must be adhered to by all Kal Tire team members as the minimum acceptable standard and may only be carried out by Team Members who have been properly trained for this task.

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1. Responsibilities

Site Supervisor:

- It is the responsibility of the site supervisor to verify the correct implementation and permanent application of this work procedure at their location.
- It will also be their responsibility to ensure that team members have the current version of this procedure available to them as contained within the Kal Tire "Learning Management System" (LMS).

Team Members:








- It is the responsibility of all team members to comply fully with the provisions of this Safe Work Procedure.
- Only Kal Tire personnel who are trained and competent to perform this task may be authorized to do so.
- If you are not trained for this task you **MUST** work under the direct supervision of a team member who is.
- If any team member detects a risky condition or action that could be potentially hazardous you must stop and control the hazard before proceeding.
- At all times use the appropriate personal protective equipment required for the activity.

Assess the jobsite for hazards. Implement controls for all hazards identified. No production goal or activity justifies exposing personnel to uncontrolled hazards that could inflict damage to people, property or the environment.

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2. Personal Protective Equipment

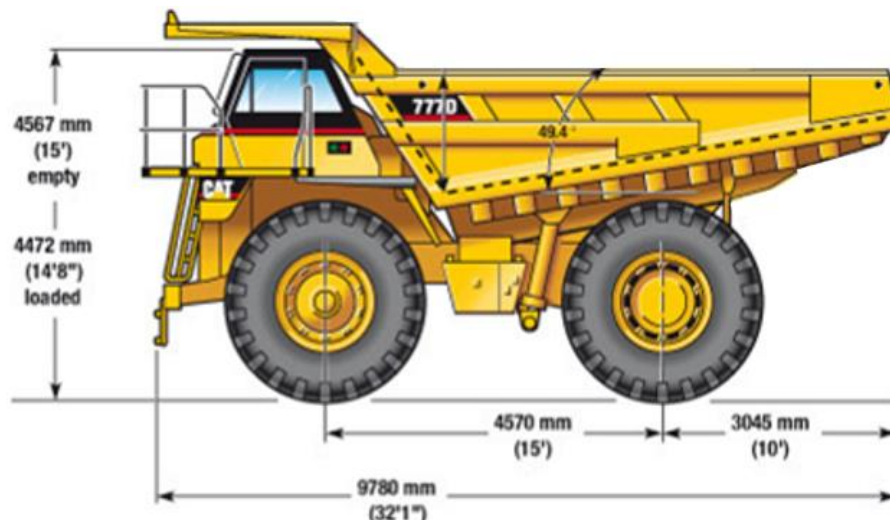
						
Hard Hat	Hearing Protection	Safety Glasses	Safety Boots	Safety Gloves	High Visibility	Personal Lock Out

3. Technical Information

Caterpillar 777: Nominal payload - 90 Metric Tonnes / 99 Short Tons (1 Short ton = 2,000 lbs).

Weight distribution (Approx.)	Empty			Loaded at maximum GVW		
	%	Kgs.	Lbs.	%	Kgs.	Lbs.
Front axle	46	34,617	76,452	33	54,336	119,790
Rear axle	54	40,637	89,748	67	110,318	243,210
Total (wet, 50% fuel)		75,254	166,200		164,654	363,000

Recommended Tire & Wheel Fitment	2700R49 (49" x 19.5")	
	Kgs.	Lbs.
Tire Weight (approx.)	1,360	2,992
Wheel Weight (Base Only) MES / HDT	452	996
Wheel Weight (Complete Assembly) MES / HDT	726	1,601
Total Weight (Tire & Wheel Assembly) MES / HDT (approx.)	2,083	4,593



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- ➔ Team Members operating tooling and equipment MUST be trained and signed off as competent to the Kal Tire standard as contained within the LMS.
- ➔ Trainees must never use tooling or equipment unless authorized to do so.
- ➔ All tooling and equipment MUST be inspected before and after use to ensure it is in good working condition.

- Personal Lock Out / Tag Out
- Wheel Chocks
- Calibrated pressure gauge
- Remote inflation tool / muffling device
 - I-401 or equivalent (shown below)
 - Haltec 310 (shown below)
- Bead lubricant and brush
- Angle grinder with wire wheel or wire brush (requires face shield)
- Tire handler
- Soft face / dead blow hammer
- Heavy gauge wire
- Lock ring bars
- Valve accessories (below)
- Wrenches (valve hardware)
- Disc grinder (requires face shield)
- 49" O-ring
- Pliers
- Screwdriver
- Knife or Scissors
- Hydraulic Jack and Support Stand minimum capacities:
 - Front – 30 Tonne (33 Ton)
 - Rear – 30 Tonne (33 Ton)
 - (= 87.5% of empty axle weight)
- Hydraulic power pack
- Hydraulic ram / bead breaker
- Pressure Washer (if available)
- Soap spray (leak testing)
- Wheel, rim and component profile gauges






Haltec 310 inflator

I-401 Large Bore Inflator
with Clip-on Chuck

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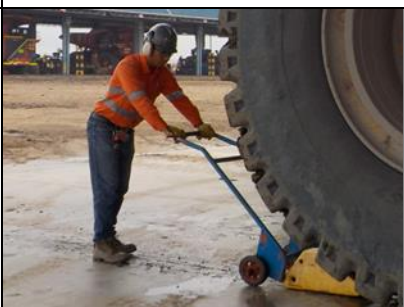
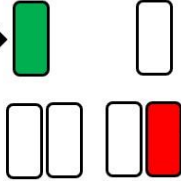
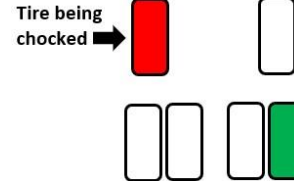






5. Task Preparation

1		<ul style="list-style-type: none"> Inspect the work area. Perform the appropriate Field Level Risk Assessment (FLRA) or site specific personal risk assessment.
		<div>  <p>Failing to perform an inspection and a FLRA may result in injury or incidents.</p> </div> <div>  <p>Identify and control any hazards. Review your FLRA if conditions change or new hazards are encountered.</p> </div>

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Task Preparation (continued)

6		<ul style="list-style-type: none"> Turn the Battery Isolation Switch to the 'OFF' position. Close the Isolation Point cover (if equipped). Apply a lock-out scissor clamp and personal isolation lock and tag to the Battery Isolation Switch or the Isolation Point cover (shown). <div>  Working on vehicles that are not isolated correctly may result in fatalities. <div>  Always isolate before working on vehicles. All personnel working on the vehicle MUST apply their own lock. </div> </div>
7		<ul style="list-style-type: none"> Perform a test start of the vehicle (cab ignition key) to confirm that the vehicle will not start after the lock has been applied. <p>IMPORTANT – The isolation of the vehicle shall remain in effect until the task is completed. No 'live testing' (e.g., de-isolating the vehicle to operate the TPMS – Tire Pressure Monitoring System) shall occur during the task.</p> <div>  Working on vehicles that are not isolated correctly may result in fatalities. <div>  Confirm that the isolation has been successful before commencing any work. </div> </div>
8		<ul style="list-style-type: none"> Fit wheel chocks to both sides of the tire located on the <u>opposite</u> side and axle of the tire being raised. <div> <div> <p>Tire being raised →</p>  <p>← Tire being chocked</p> </div> <div> <p>Tire being chocked →</p>  <p>← Tire being raised</p> </div> </div>
9		<ul style="list-style-type: none"> Cordon off the work area with high visibility traffic cones, caution tape, signage, or other suitable method. <div>  Personnel not involved with the task may be injured by the tire maintenance activities. <div>  Cordon off the work area to prevent personnel from entering the work area and being exposed to tire maintenance hazards. </div> </div>
10		<ul style="list-style-type: none"> Check for overhead hazards of mud or ice build-up under box and wheel wells. <div>  Ice and mud can dislodge and strike personnel below. <div>  Wash or knock down potential hazard as part of your Field Level Risk Assessment. </div> </div>

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Task Preparation (continued)

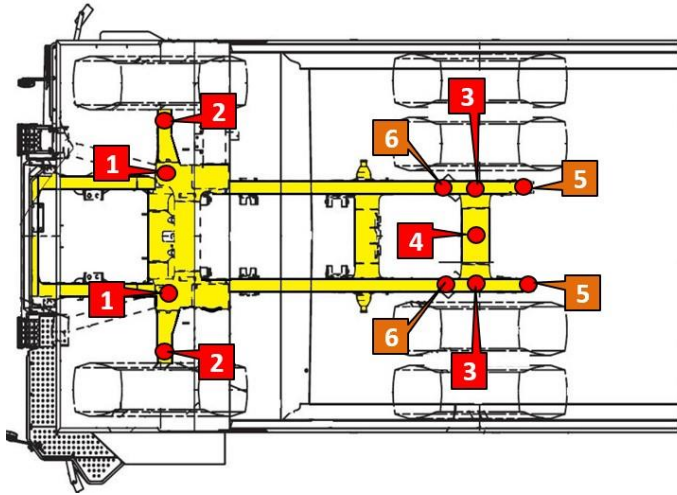
11		<ul style="list-style-type: none"> Check around the unit for possible fluid leaks that could present a slipping hazard. Look for any damage to equipment that could be a hazard such as loose metal or sharp edges. <div> <div></div> <div> Slipping hazards. Cutting or puncture hazards. </div> <div></div> <div> Report any significant leaks or damage to the appropriate maintenance personnel. </div> </div>
12		<ul style="list-style-type: none"> Identify the design and configuration of the wheel/ rim assembly that is installed. <ul style="list-style-type: none"> Taper Fit / Standard Components 5-Piece / 6 Piece / 8-Piece
13		<ul style="list-style-type: none"> Inspect ALL tire/wheel positions for any damage or any abnormalities prior to commencing the scheduled job. Check pressures, tread depths and brand numbers for accuracy. Note all inspection findings, actions and priority codes for each wheel position as required in the TOMS process (or applicable tire tracking software).
14		<ul style="list-style-type: none"> Check that the tire / wheel that is going to be deflated does not have any damage or abnormalities that may present additional risks to the normal deflation process. Refer to Safe Work Practice P-14 Deflating Tires, if necessary. <div> <div></div> <div> If additional hazards exist, cordon off the work area to prevent unknowing personnel from entering. </div> <div></div> <div> If required, conduct a hazard assessment to determine the safest method to deflate the tire. </div> </div>
15		<ul style="list-style-type: none"> Record all tire and wheel data as required. Brand numbers, serial numbers, tread depths and tire descriptions are typical examples of information required.

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6. Jack the Vehicle

1



Approved Jack and Support Stand Locations

1	Front axle beam – left or right side
2	Front suspension strut, left or right side
3	Method 1 - Rear axle, left or right side
4	Method 1 - Rear axle – centre
5	Method 2 – Rear suspension housing, left or right side
6	Method 2 – Rear axle housing support, left or right side

a) Jack the Front Tires

1



- Position a minimum 30 Tonne (33 Ton) jack under **Location 2** (front suspension strut) on the side that the wheel/tire is being removed.
- Operate the jack to lift the vehicle until there is sufficient clearance for the front tire to be removed and refitted.



Using jacks or stands with a capacity less than what is required can result in overloading and failure of equipment.



Never use jacks or stands that are less than the minimum load capacity, as shown in Section 4.

2



- Position a minimum 30 Tonne (33 Ton) support stand (or blocks) under **Location 1** (front axle beam) on the side that the wheel/tire is being removed.



The jack must not be used to support the unit.



Only use approved engineered safety stands or blocking that is rated for the task.

3



- Place a layer of rubber between the stand and the vehicle to reduce slippage. *(Note – rubber not required if using composite material blocks)*
- Lower the jack so that the stand takes the full weight of the vehicle.
- For added stability, leave the jack in contact with the jacking point.
- Apply the jack load locking device or rings, if available.


















The vehicle may slip on the metal stand during the task.



A layer of rubber can reduce the risk of slipping.







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b) Jack the Rear Tires – Method 1			
1		<ul style="list-style-type: none"> Position a minimum 30 Tonne (33 Ton) jack under Location 3 (rear axle) on the side that the wheel/tire is being removed. Operate the jack to lift the vehicle until there is sufficient clearance for the tires to be removed and refitted. 	
		 Using jacks or stands with a capacity less than what is required can result in overloading and failure of equipment.	 Never use jacks or stands that are less than the minimum load capacity, as shown in Section 4.
2		<ul style="list-style-type: none"> Position a minimum 30 Tonne (33 Ton) support stand under Location 4 (center of rear axle). 	
		 The jack <u>must not</u> be used to support the unit.	 Only use approved engineered safety stands or blocking that is rated for the task.
3		<ul style="list-style-type: none"> Place a layer of rubber between the stand and the vehicle to reduce slippage. (<i>Note – rubber not required if using composite material blocks</i>) Lower the jack so that the stand takes <u>the full weight of the vehicle</u>. For added stability, leave the jack in contact with the jacking point. Apply the jack load locking device or rings, if available. 	
		 The vehicle may slip on the metal stand during the task.	 A layer of rubber can reduce the risk of slipping.
c) Jack the Rear Tires – Method 2			
1		<ul style="list-style-type: none"> Position a minimum 30 Tonne (33 Ton) jack under Location 5 (rear axle suspension housing) on the side that the wheel/tire is being removed. Operate the jack to lift the vehicle until there is sufficient clearance for the tires to be removed and refitted. 	
		 Using jacks or stands with a capacity less than what is required can result in overloading and failure of equipment.	 Never use jacks or stands that are less than the minimum load capacity, as shown in Section 4.
2		<ul style="list-style-type: none"> CAUTION: Jacking point on the suspension casting <u>must be equipped</u> with a flat surface of sufficient size to securely contact the mating surface of the jack load cap. 	
		 Placing a jack or stand load cap under an angled surface can cause the jack or stand to be ejected and strike workers.	 Check that the lifting surface is flat and level before attempting to lift or support the vehicle.

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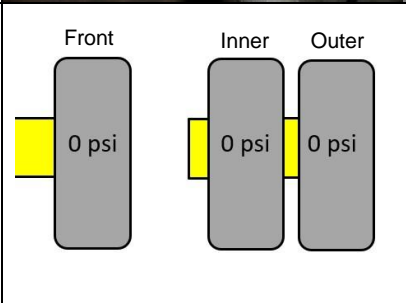
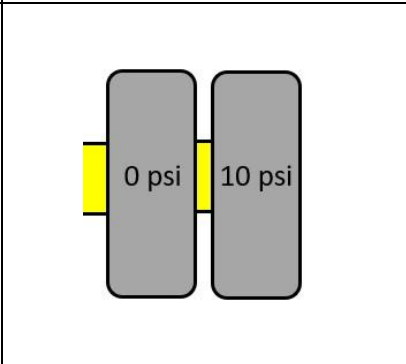




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c)	Jack the Rear Tires – Method 2 (<i>continued</i>)		
3		<ul style="list-style-type: none"> Position a minimum 30 Tonne (33 Ton) support stand under Location 6 (rear axle housing support). 	
4		<ul style="list-style-type: none"> Place a layer of rubber between the stand and the vehicle to reduce slippage. (<i>Note – rubber not required if using composite material blocks</i>) Lower the jack so that the stand takes <u>the full weight of the vehicle</u>. For added stability, leave the jack in contact with the jacking point. Apply the jack load locking device or rings, if available. 	<div>  <div> The jack <u>must not</u> be used to support the unit. </div> </div> <div>  <div> Only use approved engineered safety stands or blocking that is rated for the task. </div> </div>
		<div>  <div> The vehicle may slip on the metal stand during the task. </div> </div> <div>  <div> A layer of rubber can reduce the risk of slipping. </div> </div>	

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7. Demount a Front or Rear Inner Tire

1		<ul style="list-style-type: none"> • Clean the valve assembly threads with a wire brush to enable the inflation-deflation tool to be installed correctly. • Install the valve inflation / deflation tool with tag line and muffler system to the <u>front tire</u> or <u>both dual rear tires</u> that are being demounted.
		<div> <div>  <p>Severe injury could occur if the inflator assembly blows off the valve stem under pressure.</p> </div> <div>  <p>Clean and check the valve threads prior to attaching the inflation-deflation tool.</p> </div> </div>
2		<p>If a FRONT or both REAR INNER and OUTER tires are being demounted:</p> <ul style="list-style-type: none"> • Deflate the tire (or tires) to zero (0) psi.
3		<p>If the REAR OUTER assembly is being removed and the REAR INNER tire is being demounted:</p> <ul style="list-style-type: none"> • Deflate the REAR INNER tire to zero (0) psi. • Deflate the REAR OUTER to the 10psi Safe Handling Pressure (or up to 30 psi in cold climates as described in Safe Work Practice P-14 Deflating Tires and Safe Handling Pressures).
4		<ul style="list-style-type: none"> • To remove the REAR OUTER complete assembly, refer to Safe Work Procedure CAT 777-B All Positions (Complete Assembly) Removal and Installation.
5		<p>If a REAR INNER tire is being demounted:</p> <ul style="list-style-type: none"> • Secure the rock ejector out of the way so that it will not interfere with the removal of the inside tire. • Site Specific Tooling MUST be used. (Rock ejector stand option shown in the photo).
		<div> <div>  <p>Do NOT stand on the arm of the manipulator or climb on the tire to secure the rock ejector.</p> </div> <div>  <p>Always use the appropriate tooling and work platforms when securing the rock ejector.</p> </div> </div>

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




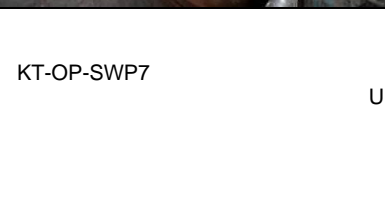
Demount a Front or Rear Inner Tire *(continued)*

<div>6</div> 	<ul style="list-style-type: none"> Remove the deflation tool. Run heavy gauge wire through the valve stem to clear any blockages and ensure complete deflation. <div> <div>⚠️</div> <div>Never stand in front of a blocked stem. The release of compressed air and debris can cause serious injury.</div> </div> <div> <div>✓</div> <div>Wear appropriate PPE to protect against debris being released from the valve stem.</div> </div>
<div>7</div> 	<ul style="list-style-type: none"> Use the manipulator to apply inward pressure on the sidewall of the tire (or the flange) to expose the O-ring and lock ring. NEVER apply forward pressure while clamping the tread as the grip may slip and cause serious pinch point injury. <div> <div>⚠️</div> <div>The vehicle may be pushed and fall from the stand.</div> </div> <div> <div>✓</div> <div>Avoid excessive pushing to prevent displacement or damage to the support stand.</div> </div>
<div>8</div> 	<p>Secure the manipulator.</p> <ul style="list-style-type: none"> Check that the tire manipulator is secure and will not release the inward pressure on the assembly. Check that the O-ring and lock ring are easily accessible. <div> <div>⚠️</div> <div>Severe pinch point hazard if the inward pressure is released when personnel are removing the lock ring and O-ring.</div> </div> <div> <div>✓</div> <div>Always apply inward pressure directly on the sidewalls or flange.</div> </div>
<div>9</div> 	<ul style="list-style-type: none"> Wheeled Manipulators - Apply handbrake and chock tires. Truck Mounted Cranes - Apply E-Stop or turn controls to the 'OFF' position. <div> <div>⚠️</div> <div>Severe pinch point hazard if the inward pressure is released when personnel are removing the lock ring and O-ring.</div> </div> <div> <div>✓</div> <div>NEVER operate the controls of the manipulator or crane when personnel are positioned between the tire and the manipulator.</div> </div>
<div>10</div> 	<ul style="list-style-type: none"> Use lock ring bars to dislodge the lock ring from the groove. Lower the lock ring to the ground. <div> <div>⚠️</div> <div>Pinch Points – NEVER place hands near the lock ring split when lowering or moving the lock ring.</div> </div> <div> <div>✓</div> <div>If you cannot lower the lock ring safely on your own, acquire assistance from a second team member.</div> </div>

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Demount a Front or Rear Inner Tire *(continued)*

11		<ul style="list-style-type: none"> Use a transporter to move the lock ring from the working area to a safe location for cleaning and inspection. If a transporter is not available, use a Gap Wrap to cover the two ends when handling it.
		<div> <div>  <p>The manual handling (including rolling them) of lock rings can result in serious finger injuries.</p> </div> <div>  <p>Use a lock ring transporter, whenever possible. Use Gap Wraps to cover the ends if a transporter is not available.</p> </div> </div>
12		<ul style="list-style-type: none"> Use a tire bar, pliers, or screwdriver to remove the O-ring.
		<div> <div>  <p>Fingers may be crushed if the bead seat band moves unexpectedly.</p> </div> <div>  <p>NEVER use your fingers to remove the O-ring.</p> </div> </div>
13		<ul style="list-style-type: none"> Cut the O-ring to prevent re-use.
		<div> <div>  <p>O-rings left on the floor are a tripping hazard.</p> </div> <div>  <p>Never re-install used O-rings. Dispose of the O-ring correctly into the rubber bin.</p> </div> </div>
14		<ul style="list-style-type: none"> Reposition the arms of the manipulator from the sidewall to the tread. Secure the tire firmly in the arms of the manipulator. Apply slight outward pressure to aid in breaking the back bead.
		<div> <div> <p>NEVER pull on the tire to dislodge the back bead.</p> </div> <div> <p>Avoid excessive outward pressure to prevent displacement or damage to the support stand.</p> </div> </div>
15		<ul style="list-style-type: none"> Unseat the back bead and flange by using the correct hydraulic bead breaker or ram. <p>Refer to SWI-502 Hydraulic Rams or SWI-505 (5-Piece) Bead Breakers, for further details if necessary.</p>
		<div> <div> <p>Holding onto a pressurized hydraulic line with your hands may result in serious injury if the line bursts.</p> </div> <div> <p>NEVER hold onto a hydraulic line that is pressurized.</p> </div> </div>

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Demount a Front or Rear Inner Tire *(continued)*

16		<ul style="list-style-type: none"> With Taper Fit Hardware (Example - TSR), the back flange ring and bead seat band may remain seated when the tire is pushed off the back section. In this case, leave the tire part way on the wheel and use a soft metal hammer or hydraulic device to dislodge the flange ring. <div> <div></div> <div>The TSR flange ring contains stored energy and <u>can fly off with tremendous force</u> without warning.</div> <div></div> <div>Ensure the TSR back flange is loose before removing the tire from the assembly.</div> </div>
17		<ul style="list-style-type: none"> Remove the tire from the wheel and place it out of the way in a safe, suitable location away from the working area. <div> <div></div> <div>Poor visibility.</div> <div></div> <div>Remain in full view of the operator and stay clear of the manipulator.</div> </div>
18		<ul style="list-style-type: none"> Place the tire horizontally on the ground. Use a hydraulic bead breaker to separate the bead seat band and flange from the tire bead. <p>Refer to Safe Work Instruction SWI-505 (5-Piece) Bead Breakers, for further details if necessary.</p> <div> <div></div> <div>Bead breakers can fly off unexpectedly and strike personnel.</div> <div></div> <div>Stand well back from hydraulic tools during operation, wait until the hydraulic pressure has been released before approaching.</div> </div>
19		<ul style="list-style-type: none"> Use the tire manipulator to remove the flange and bead seat band from the tire. Place components out of the way in a safe, suitable location away from the working area. <div> <div></div> <div>Handle with care. Manipulator pads can damage metal surfaces of components.</div> <div></div> <div>Inspect for damage, use a grinder to remove any burrs that could damage a tire or wheel components.</div> </div>
20		<p>For 5-Piece assemblies:</p> <ul style="list-style-type: none"> Use the tire manipulator to remove the back flange and place it in a safe, suitable location away from the working area. All wheel hardware must be removed from the wheel so that proper cleaning and inspection of the back section and flange can occur.

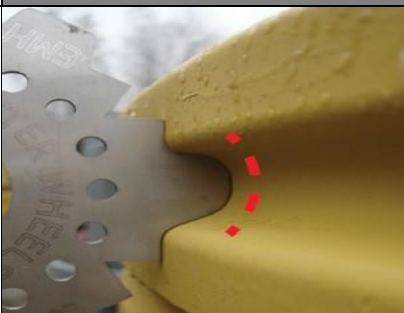






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Demount a Front or Rear Inner Tire *(continued)*

<div>21</div> 	<p>For IGLR (6-Piece) assemblies:</p> <ul style="list-style-type: none"> Remove the back section O-ring. <div> <div>  <p>O-rings left on the floor are a tripping hazard.</p> </div> <div>  <p>Never re-install used O-rings. Dispose of the O-ring correctly into the rubber bin.</p> </div> </div>
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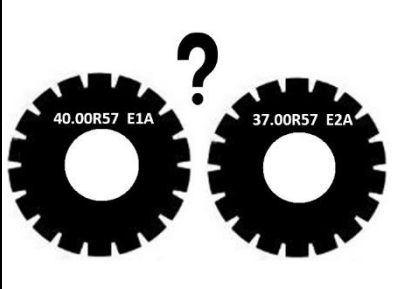


8. Preparation for Mounting

<div>1</div> 	<ul style="list-style-type: none"> Best practice throughout the cleaning and inspection of all rim, wheel, and components is to utilize the appropriate profile gauges to ensure proper <u>component matching</u> (and) help to identify <u>any excessively worn, bent or distorted items</u>. Any component that is excessively worn or out of range of acceptable tolerances must be removed from service. As such, each location must have clear guidelines in place for all acceptable tolerances and have this clearly communicated to all team members.
<div>2</div> 	<ul style="list-style-type: none"> Inspect each component carefully looking for faults (cracks, damage, distortion, wear or oxidation). Debris in the grooves will lead to improper seating of components. <div> <div>  <p>Faulty components can result in assembly failure, causing injury or death.</p> </div> <div>  <p>Do not use any components that are faulty. Discard them so they cannot be re-used.</p> </div> </div>
<div>3</div> 	<ul style="list-style-type: none"> Clean all areas of the wheel / rim base with a stiff wire brush, wire wheel or pressure washer. Inspect the wheel / rim base for cracks, damage, distortion or excessive wear. <div> <div>  <p>The use of cleaning tools can cause dust particles, debris and excessive noise.</p> </div> <div>  <p>Use a face shield and hearing protection when operating a buffing wheel or pressure washer.</p> </div> </div>

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All Tire Positions - Vertical Demount and Mount


Preparation for Mounting (*continued*)

<div>4</div> 	<ul style="list-style-type: none"> • Clean the bead seat band with a stiff wire brush, wire wheel or pressure washer. • Inspect the bead seat band for faults (cracks, damage, distortion or excessive wear). <div>  <p>Worn or damaged bead seat bands can result in assembly failure, causing injury or death.</p> </div> <div>  <p>Thoroughly clean and inspect the bead seat band. Discard and replace if faulty.</p> </div>
<div>5</div> 	<ul style="list-style-type: none"> • Clean the flanges with a stiff wire brush, wire wheel or pressure washer. • Inspect the flanges for faults (cracks, damage, distortion or excessive wear). • Remove any metal burrs that can damage the tire or adjacent components. <div>  <p>Worn or damaged flanges can result in assembly failure, causing injury or death.</p> </div> <div>  <p>Thoroughly clean and inspect the flanges. Discard and replace if faulty.</p> </div>
<div>6</div> 	<ul style="list-style-type: none"> • Clean the lock ring with a stiff wire brush, grinder or pressure washer. • Inspect for faults (cracks, damage, distortion or excessive wear). <div>  <p>Worn or damaged lock rings can result in assembly failure, causing injury or death.</p> </div> <div>  <p>Thoroughly clean and inspect the lock rings. Discard and replace if faulty.</p> </div>
<div>7</div> 	<ul style="list-style-type: none"> • Inspect the valve hardware to ensure that components are secure and in good working condition. • Inspect the valve, valve extensions, spud and base for correct seating and signs of cracks or wear. • Replace if there any signs of wear or damage. <div>  <p>A faulty valve or extension can result in extensive damage to the tire.</p> </div> <div>  <p>Clean and tighten or replace if damaged or worn.</p> </div>
<div>8</div> 	<p>Obtain the correct tire size, ply rating and type of tire to be mounted.</p> <ul style="list-style-type: none"> • Check that the tire to be mounted is correct for the wheel assembly and vehicle. <div>  <p>Mounting the incorrect size, ply and type of tire can result in serious injury or equipment failure.</p> </div> <div>  <p>Refer to the site-specific MAP (Maintenance Activity Planner) or TMP (Tire Management Plan) for details, if unsure.</p> </div>

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All Tire Positions - Vertical Demount and Mount









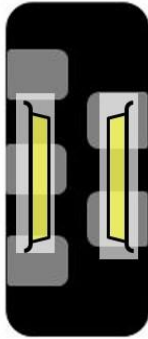
Preparation for Mounting (continued)

9		<p>Position the tire for cleaning and inspection.</p> <p><u>Always</u> secure the tire or tire assembly first before working on it. Secure the tire or tire assembly using the options provided in Safe Work Practice P-28:</p> <ul style="list-style-type: none"> Place the tire in a certified tire inspection stand. Place the tire horizontally on the ground. Lean the tire on a horizontal tire or approved blocking. Lean the tire (20" – 25" only) against a vehicle or structure and secure it with wheel chocks.
10		<p>WARNING:</p> <p>NEVER clean, inspect or prepare a tire or tire assembly that is held vertically by a manipulator.</p> <p>The tire could fall from the manipulator or the rim components could fall from the tire and cause fatal injuries.</p>
11		<ul style="list-style-type: none"> Inspect the inside and outside of the tire being fitted to make sure it is free from foreign objects or damage. Remove all water and debris.
		<p>Tire failure could occur if any damage or foreign objects are present.</p>
		<p>Inspect for damage and remove all foreign objects, water and debris.</p>
12		<ul style="list-style-type: none"> Add tire additive if required to do so, as per manufacturer recommendations.
		<p>Rim corrosion could result if tire additive is not added.</p>
		<p>Add the correct quantity and quality of tire additive to the tire.</p>
13		<ul style="list-style-type: none"> Lubricate the tire beads using a non-petroleum-based lubricant.
		<p>The incorrect type and quantity of bead lubricant can result in damage to the tire bead rubber.</p>
		<p>Use the correct type and quantity of lubricant as per site specifications.</p>

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All Tire Positions - Vertical Demount and Mount

Preparation for Mounting (*continued*)







14		<p>For 5-Piece assemblies:</p> <ul style="list-style-type: none"> Use the tire manipulator to place a flange (only) on the back section of the wheel / rim. Lubricate the back section of the rim where the tire bead will seat. <div>  <p>Handle with care. Manipulator pads can damage metal surfaces of components.</p> </div> <div>  <p>Inspect for damage, use a grinder to remove any burrs that could damage a tire or components.</p> </div>
15		<ul style="list-style-type: none"> Lubricate the <u>gutter section</u> and <u>O-ring groove</u>. Keep the <u>lock ring groove</u> free of lubrication.
16		<p>For IGLR (6-Piece) assemblies (if applicable):</p> <ul style="list-style-type: none"> Lubricate the back section O-ring groove <u>ONLY</u>. Install the back section O-ring (<u>DRY</u>) and then <u>lubricate</u> (the O-ring) once it is in place. <div>  <p>The wheel components may index and cause damage or O-ring leakage during operation.</p> </div> <div>  <p>Do not lubricate the tapered mating surfaces of the components.</p> </div>
17	<div>  <p>Pre-mounted for 5-Piece wheel/rim</p> </div> <div>  <p>Pre-mounted for 6-Piece or 8-Piece wheel/rim</p> </div>	<p>IMPORTANT: Pre-mounted components in tires</p> <p>Having the components (bead seat band and flange) already pre-mounted into the tire is considered 'Best Practice' and can provide the following benefits:</p> <ul style="list-style-type: none"> Reduces equipment downtime by having the tires and components 'ready to go' and install as one unit. Reduces the likelihood of components falling from the tire while it is being manipulated. Helps to ensure that taper fit components are seated correctly. Helps to ensure that beads do not get 'hung' or damaged when mounting and seating components vertically. <p>To pre-mount components, follow the steps outlined in:</p> <ul style="list-style-type: none"> (OTR-007) Mount Tires on Multi-Piece Assemblies – Horizontal. (OTR-006) Demount Tires on Multi-Piece Assemblies – Horizontal.

If components are not pre-mounted in the tire, use Option 1, 2 or 3:


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All Tire Positions - Vertical Demount and Mount




Option 1 - Press-fit the tire onto the components using a mounting stand

18 a		<ul style="list-style-type: none"> Place the flange and bead seat band on a tire mounting stand. Lubricate outside circumference of bead seat band.
	 <p>Handle with care. Manipulator pads can damage metal surfaces of components.</p>	 <p>Use a grinder to remove any burrs that could damage a tire or wheel components.</p>
18 b		<ul style="list-style-type: none"> Lower the tire onto the bead seat band and flange and press down on the tire to seat the components. If mounting the tire to a 6- or 8-Piece wheel/rim, turn the tire over and repeat the above process to install a second bead seat band and flange. Go to Section 9.
	 <p>When lifting the tire, there is the potential for the bead seat band and flange to slip out of the tire bead.</p>	 <p>Lift slowly and keep all personnel away from the potential fall hazard.</p>

Option 2 - Press-fit the bead seat band and flange ring into the tire




19		<ul style="list-style-type: none"> Lubricate the outside circumference of bead seat band. Place the bead seat band and flange into the tire. Press fit the bead seat band into the tire. If mounting the tire to a 6- or 8-Piece wheel/rim, turn the tire over and repeat the above process to install a second bead seat band and flange. Go to Section 9.
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Option 3 - Lift the components onto the wheel with the manipulator













20 a		<p>For IGLR (6-Piece) assemblies:</p> <ul style="list-style-type: none"> Use the tire manipulator to place the <u>bead seat band and flange</u> on the back section of the wheel / rim. Lubricate the outside of the bead seat band where the tire bead will seat.
20 b		<p>For 5-Piece or IGLR (6-Piece) assemblies:</p> <ul style="list-style-type: none"> Place the tire onto the wheel / rim. Lubricate the outer circumference of the bead seat band. Install the <u>outer flange and bead seat band</u> onto the wheel / rim.
	 <p>Handle with care. Manipulator pads can damage metal surfaces of components.</p>	 <p>Inspect for damage, use a grinder to remove any burrs that could damage a tire or components.</p>

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All Tire Positions - Vertical Demount and Mount

20 c		<ul style="list-style-type: none"> Reposition the manipulator pads and apply inward pressure on the sidewall of the tire or the flange to expose the O-ring and lock ring grooves. NEVER apply forward pressure while grasping the tread as the grip may slip and cause serious pinch point injury. Go to Step 3, Section 9.
	 The vehicle may be pushed and fall from the stand.	 Avoid excessive inward pressure to prevent displacement or damage to the support stand.


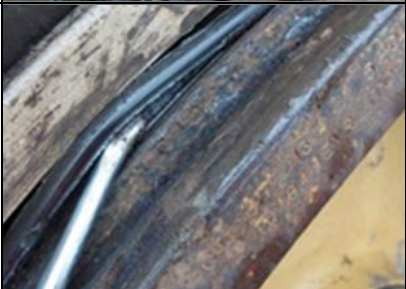










9. Mount a Front or Rear Inner Tire

1		<ul style="list-style-type: none">Mount the tire (with pre-mounted components) onto the wheel / rim.
	 The bead seat band and flange can dislodge from the tire unexpectedly.	 Do <u>NOT</u> stand between the tire and manipulator while the tire is being positioned on the wheel / rim.
2		<ul style="list-style-type: none"><u>Reposition the manipulator pads</u> and apply inward pressure on the sidewall of the tire or the flange to expose the O-ring and lock ring grooves.NEVER apply forward pressure while grasping the tread as the grip may slip and cause serious pinch point injury.
	 The vehicle may be pushed and fall from the stand.	 Avoid excessive inward pressure to prevent displacement or damage to the support stand.
3		<ul style="list-style-type: none">Check that the tire manipulator is secure and will not release the inward pressure on the assembly.Check that the O-ring and lock ring are easily accessible.
	 Fingers can be crushed if the inward pressure is released when personnel are installing the lock ring and O-ring.	 Always apply inward pressure directly on the sidewalls or flange.
4		<ul style="list-style-type: none">Wheeled Manipulators - Apply handbrake and chock tires.Truck Mounted Cranes - Apply E-Stop or turn controls to the “OFF” position.
	 Fingers can be crushed if the inward pressure is released when personnel are installing the lock ring and O-ring.	 NEVER operate the controls of the manipulator or crane when personnel are positioned between the tire and the manipulator.

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All Tire Positions - Vertical Demount and Mount

Mount a Front or Rear Inner Tire *(continued)*

5		<ul style="list-style-type: none"> Obtain the correct size O-ring from stock. Always use a NEW O-ring. Lubricate the O-ring with a non-petroleum-based lubricant. <p>NOTE: The O-ring can be also placed into position after the lock ring is installed, either method is acceptable.</p>
6		<ul style="list-style-type: none"> Place the O-ring into O-ring groove. Use a tire bar or screwdriver to assist with O-ring placement. <div>  Fingers can be crushed if the inward pressure is released when personnel are installing the lock ring and O-ring.  Keep your fingers outside of the bead seat band pinch point area at all times. Use a tire bar or screwdriver to install the o-ring. </div>
7		<ul style="list-style-type: none"> Place the lock ring split into the lock ring groove with the lock ring split at either the 11:00 or 1:00 position. <div>  Pinch Points – NEVER wrap your fingers around the lock ring.  Always use <u>open</u> palms to hold and apply inward pressure to the lock ring. </div>
8		<ul style="list-style-type: none"> Use lock ring bars to pry the lock ring over the wheel edge and into the lock ring groove. Tap the lock ring with a soft metal or dead blow hammer to ensure proper seating. <div>  Pinch Points – NEVER wrap your fingers around the lock ring.  Always use <u>open</u> palms to hold and apply inward pressure to the lock ring. </div>
9		<ul style="list-style-type: none"> Check that all personnel are clear of the manipulator and tire assembly. Remove the tire manipulator to release the inward pressure on the assembly. <div>  The tire and/or manipulator arms may move suddenly when inward pressure is released.  Keep all personnel clear of the area when releasing inward pressure on the tire. </div>

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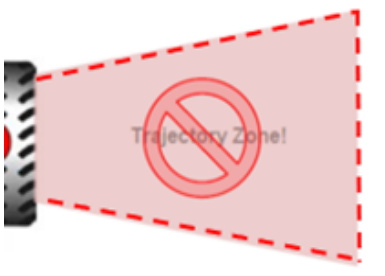


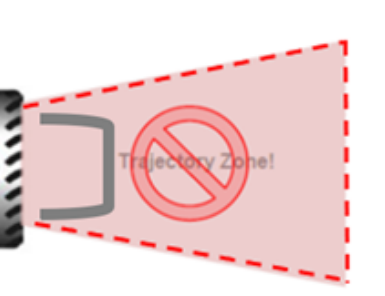






All Tire Positions - Vertical Demount and Mount

Mount a Front or Rear Inner Tire <i>(continued)</i>		
10		<p><u>If a REAR INNER tire has been mounted:</u></p> <ul style="list-style-type: none"> Return the rock ejector to its resting position. Place the site specific tooling (rock ejector stand) in the appropriate location.
		<div> <div>  <p>Do NOT stand on the arm of the manipulator or climb on the tire to release the rock ejector.</p> </div> <div>  <p>Always use the appropriate tooling and work platforms when releasing the rock ejector.</p> </div> </div>
11		<p><u>If a FRONT tire was mounted, go to Section 10.</u></p> <p><u>If a REAR INNER tire was mounted:</u></p> <ul style="list-style-type: none"> The INNER tire must first be inflated to a maximum of 10 psi before an OUTER complete assembly can be installed. Refer to Section 10 to safely inflate the INNER tire to 10 psi. Once the REAR INNER tire has been inflated to 10psi, refer to SWP Cat 777-B to install a complete assembly.

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All Tire Positions - Vertical Demount and Mount




10. Inflate the Tire

1		<ul style="list-style-type: none"> • STOP - Perform a visual inspection of all components to ensure correct matching and fitment <u>prior to</u> inflation. • For additional information refer to P-15 Inflating and Re-Inflating Tires.
		<div>The tire assembly may disassemble and strike personnel causing fatal injuries.</div> <div>  Do NOT inflate a tire with any concerns of component matching, fitment or seating. </div>
2		<ul style="list-style-type: none"> • Check the work area is secure prior to beginning the inflation process. • Identify and cordon off the tire's inflation trajectory zone. • For additional information on the Trajectory Zone refer to P-15 Inflating and Re-Inflating Tires.
		<div>The tire assembly may disassemble and strike personnel causing fatal injuries.</div> <div>  NEVER stand or allow others to stand in the trajectory zone during the inflation process. </div>
3		<ul style="list-style-type: none"> • Place the tire manipulator in front of the tires trajectory zone to function as an inflation barrier. • Be sure to leave enough room for a technician to safely access the lock ring assembly for a pre- and post-inspection of the components.
		<div>Failure to restrain a tire during inflation can result in serious injury and possible death.</div> <div>  NEVER inflate a tire and wheel/rim assembly that is not restrained by one of the methods described in P-15 Inflating and Re-Inflating Tires. </div>
4		<ul style="list-style-type: none"> • Select the correct inflator device for the type of valve assembly. • Install the inflator device securely onto the valve assembly and remove the valve core or core housing (as applicable).
5		<ul style="list-style-type: none"> • The extension hose <u>must</u> be of sufficient length to allow you to remain outside of the trajectory zone during inflation. • The remote inflation device must allow you to control the air flow, check the pressure, and expel air pressure from outside of the trajectory zone.
		<div>The tire assembly may disassemble and strike personnel causing fatal injuries.</div> <div>  Personnel shall not enter the trajectory zone while the tire is being inflated (after the components have been seated). </div>

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All Tire Positions - Vertical Demount and Mount












Inflate the Tire (continued)

6		<ul style="list-style-type: none"> Inflate the tire to a maximum of 10 psi while tapping the lock ring using a soft metal or dead blow hammer to seat the wheel components correctly. Turn off the supply of air to the tire.
		<div>  10 PSI - Maximum pressure for verifying the correct seating of wheel components within the trajectory zone. </div> <div>  Stop if you detect anything abnormal. Deflate the tire remotely and re-assess. </div>

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All Tire Positions - Vertical Demount and Mount






Inflate the Tire *(continued)*

11		IMPORTANT <ul style="list-style-type: none">During the inflation of the tire:<ul style="list-style-type: none">Listen for abnormal sounds such as popping, snapping or escaping air, indicating a possible structural failure.Look for any bulges or deformations on the tire.If there are any unusual noises, escaping air, or deformations, remotely <u>deflate</u> the tire immediately and re-assess the situation.	
12		When the tire(s) has reached 20% above the recommended cold inflation pressure: <ul style="list-style-type: none">Turn off the air supply and disconnect the air line.Deflate the tire(s) back down to the recommended cold inflation pressure.Keep out of the trajectory zone during deflation.	
		Noise hazard during deflation.	 Be sure to use the remote muffler system to reduce noise levels whenever possible.
13		<ul style="list-style-type: none">Inspect the distance between the flange edge and the molded guide ribs 360° on both sides of the tire's sidewall to ensure the beads are consistently seated.If abnormal, deflate and reseal the beads and components.	
		Incorrectly seated beads can result in tire failure during the operation of the vehicle.	 Do not release the vehicle for operation if the beads are not seated correctly.
14		<ul style="list-style-type: none">Replace the core housing.Disconnect the remote inflation device.It is now acceptable to remove the inflation barrier.	
		Severe injury could occur if the inflator assembly blows off the valve stem under pressure.	 Remain out of the line of fire from the stem when installing the core housing.
15		<ul style="list-style-type: none">Check for air leaks using a spray of soapy water on the valve assembly.If any air leaks are discovered, they MUST be rectified.Install the valve cap after leak testing.	

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All Tire Positions - Vertical Demount and Mount







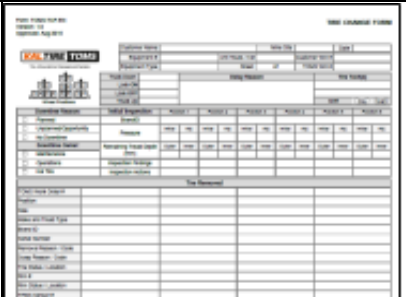
11. Completing the Task

1		<ul style="list-style-type: none"> Perform a walk-around check of the vehicle.
2		<ul style="list-style-type: none"> Operate the jack to raise the vehicle off the stand. If required, remove spacers or load holding rings from the jack and place in the correct storage location.
3		<ul style="list-style-type: none"> Remove the stand and place in the correct storage location. Lower the jack and place in the correct storage location.
4		<ul style="list-style-type: none"> STOP Perform a walk-around check on the vehicle being serviced. Check all tooling and equipment has been removed and placed in a safe location. Confirm that all tires on the unit are at the correct air pressure and that the vehicle is fit for service. Report any potential concerns immediately to the relevant department.
5		<ul style="list-style-type: none"> Remove all personal safety locks and hasps. Keep the isolation switch in the "OFF" position and wheel chocks in place until the equipment operator arrives to move the vehicle.
		<div>  <p>Failing to remove your lock or removing someone else's will result in a breach of isolation regulations.</p> </div> <div>  <p>All Team Members present must remove their own lock. Do not remove any unidentified locks. Notify your manager.</p> </div>

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All Tire Positions - Vertical Demount and Mount

Completing the Task *(continued)*

6		<ul style="list-style-type: none"> • Provided it is safe to do so, release the vehicle being serviced back to the client. • If you are in doubt, STOP and ask your Supervisor or client representative for further assistance. <div>  Injury to personnel or equipment damage may occur if the vehicle has any other faults. <div>  Never release any vehicle with a potential concern, report all concerns immediately. </div> </div>
7		<ul style="list-style-type: none"> • Clean and inspect all tools and equipment and return them to their correct storage location. <div>  Faulty or damaged tooling could result in injury to personnel. <div>  Report any defects or concerns to your Supervisor immediately. Tag OUT OF SERVICE any defective tooling or equipment. </div> </div>
8		<ul style="list-style-type: none"> • Report to the Manager / Supervisor that the task is complete. • Record and Inform Management of any potential concerns. • Ensure all tire change data required is correct and handed in.

Document Control

Version number	6	Approval Date:	1 February 2024
Maintained by:	Operations Process	Next Review Date:	1 February 2027