TRAILER TONGUE AND WINCH REPLACEMENT

PROCEDURE REQUIREMENTS:

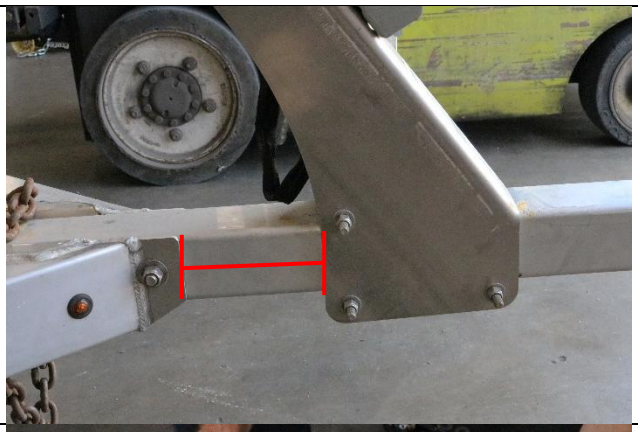
- Minimum of two people is required
- Verification of the correct replacement tongue and winch (Use tape measure)
- Reading the procedure completely before performing
- Performing each step in the order listed

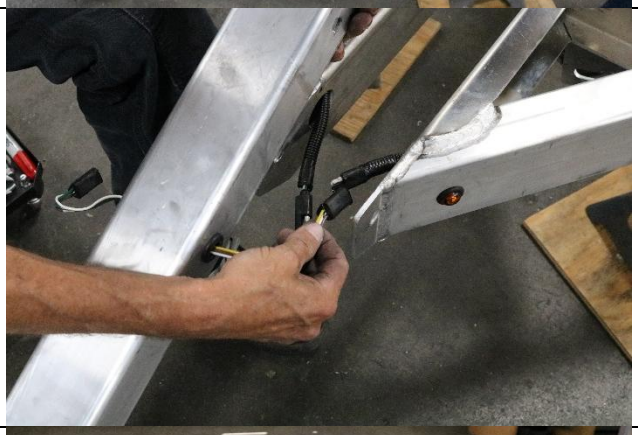
TOOLS NEEDED:

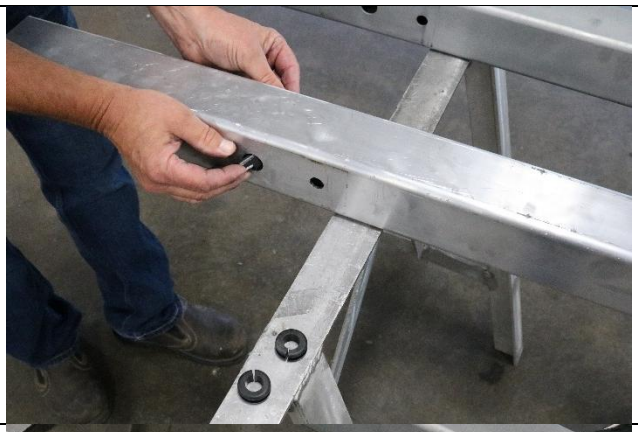
- Impact Wrench
- 9/16 Wrench and Socket
- 3/4 Wrench and Socket
- Wheel Chocks
- Locking Pliers or Clamp
- Jack Stands
- Drive Ratchet
- Sawhorses
- Wire Hook
- Clear Adhesive Tape
- Tape Measure

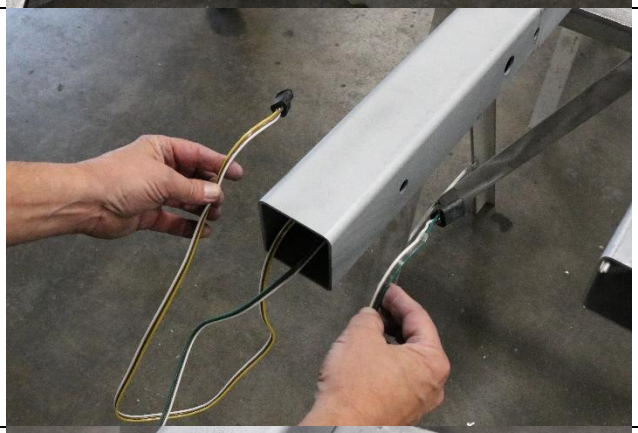
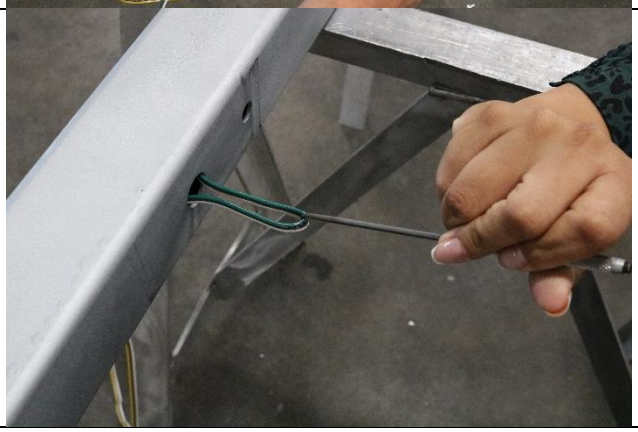
Step 1. Before beginning work, visually inspect the trailer for any potential safety hazards. If no hazards are found, place wheel chocks on both sides of the tires to prevent the trailer from moving while work is being performed.	

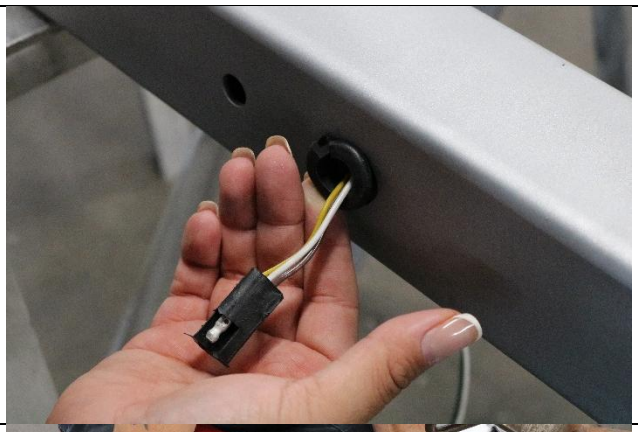
Step 2. Once the wheels have been secured, use the front jack to raise the trailer high enough to position two jack stands underneath, as shown. Lower the trailer until the jack stands support part of the trailer's weight, but do not lower it completely onto the stands.	
Step 3. At the rear of the trailer tongue, use a wrench and a ratchet with a socket to remove the nuts and bolts securing the keel roller. Keep all removed hardware together to make reinstallation easier. <u>If using new hardware, apply anti-seize to the threads to prevent galling.</u>	
Step 4. After removing the keel roller, use a wrench and a ratchet with a socket to remove the nut from the bolt that secures the trailer tongue to the side frame. Do not remove the bolt.	
Step 5. At this point, fully lower the trailer onto the jack stands by lowering the front jack. Then, release the winch strap and unhook it from the bow eye.	

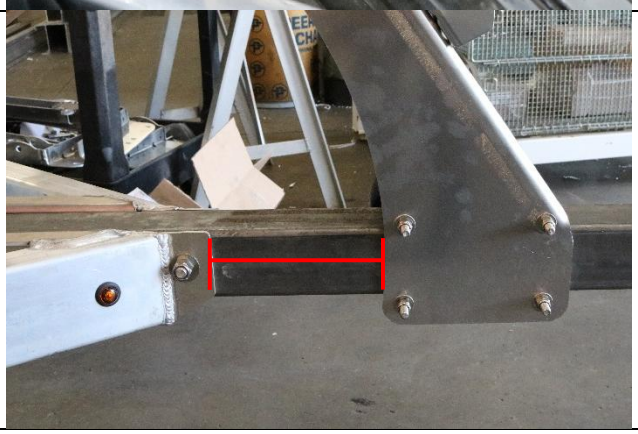
Step 6. Using an impact wrench with a socket, and a wrench, remove the winch mounting bolts. Before removing the winch, measure the distance between the winch case and the front of the trailer frame. Use this measurement as a reference when installing the new winch.		
Step 7. Remove the coupler using the impact wrench with a socket and a wrench.		
Step 8. Remove the safety chains with 9/16 socket and wrench.		
Step 10. At this point, the trailer tongue should have all components removed, as shown above.		

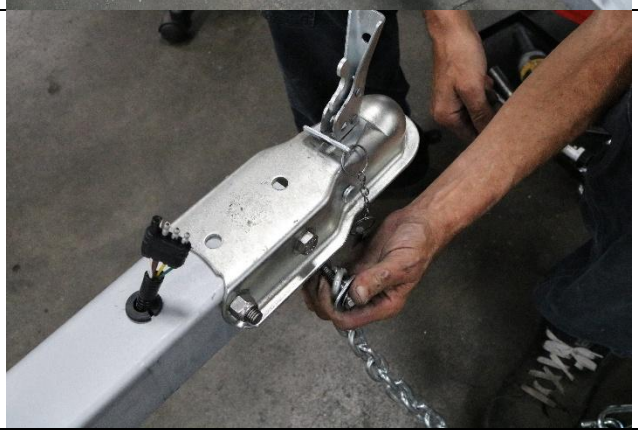
Step 11. Using an impact wrench with a socket and a wrench, loosen the front bolt securing the trailer tongue. Do not remove the bolt.		
Step 12. Remove the rear trailer tongue bolt that was loosened in Step 4.		
Step 13. Remove the front trailer tongue bolt that was loosened in Step 11. Carefully pull the trailer tongue outward to expose the wiring harness, then disconnect the harness from the wiring inside the side frame.		
Step 14. Place the trailer tongue on two sawhorses to provide a stable, flat work surface and allow access for removing the wiring harness.		

Step 15. Remove the grommets from the outside of the trailer tongue and set them aside. Then push the remaining wiring and connectors back into the trailer tongue.		
Step 16. Once the wiring harness has been pushed inside the trailer tongue, carefully pull it out through the opposite end, as shown. Take care not to damage the wiring harness during removal.		
Step 17. Apply clear adhesive tape to the end of the galvanized steel replacement tongue where it will touch the trailer frame. Then pierce the tape at the wiring opening to allow the harness to pass through.		
Step 18. Insert the wiring harness connector ends into the front of the galvanized trailer tongue, one connector at a time. Feed each connector through carefully to avoid damaging the wiring.		

Step 19. To make feeding the wiring harness easier, stand the trailer tongue upright so the connector ends can drop to the bottom by gravity.		
Step 20. Feed the wiring harness into the trailer tongue until the single connector extends just beyond the end of the tongue, as shown.		
Step 21. At the rear of the trailer tongue, locate the two connector ends. Route the **yellow** connector through the left opening and the **green** connector through the right opening, as shown.		
Step 22. Use a wire hook to assist in routing the wires through both openings. Ensure to not puncture or tear the wires.		

Step 23. Once the wiring has been routed through the openings, push any excess wiring back into the trailer tongue, leaving only the connector ends exposed. Reinstall the grommets removed earlier.		
Step 24. Move the wired trailer tongue to the trailer and reconnect the wiring harness to the corresponding connectors. Ensure each connector is matched to the correct wire color.		
Step 25. Reinstall the rear bolt and washer removed earlier. Do not install the nut or tighten the bolt at this time.		
Step 26. Use wide locking pliers or a clamp to pull the two side frame together so the rear nut can be installed and the front bolt can be inserted. While tightening the clamp, ensure the wiring inside the trailer tongue is not pinched or exposed.		

Step 27. Once the frame is aligned, install the nut on the front bolt to hold everything together.		
Step 28. With both bolts and all corresponding hardware installed, tighten all fasteners with impact until resistance is felt or the tool switches to impact mode. Use hand tools to turn the lock nut 1/4” turn.		
Step 29. Reinstall the keel roller using the original hardware and the same tools used during removal.		
Step 30. Install the new winch, ensuring it is fully seated against the boat's bow eye. Position it using the previously recorded measurement, then tighten the mounting hardware with an impact until resistance is felt or the tool switches to impact mode. Use hand tools to turn the lock nut 1/4” turn. Release the winch strap, attach it to the bow eye, and tighten the strap until snug.		

Step 31. Reinstall the jack using the original hardware removed earlier. Tighten all hardware with the impact until resistance is felt or the tool switches to impact mode. Use hand tools to turn the lock nut 1/4” turn.	
Step 32. Visually inspect the trailer to ensure all fasteners are tightened and no safety hazards are present. Use the jack to raise the trailer, then remove the jack stands once they are clear of the frame.	
Step 33. Reinstall the coupler and safety chains using the original hardware removed earlier. Verify that all required hardware is installed and securely fastened, and confirm that all wired connections are functioning properly.	

NOTICE: Upon completion of the work, please contact Michelle Johannsen at mjohannsen@midwestindustries.com to arrange compensation for your labor.