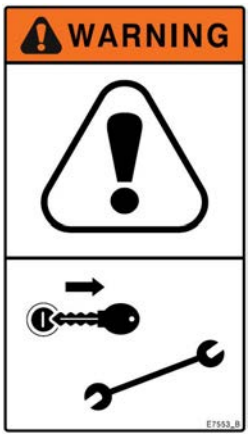
Installation and Use of the 2-Speed Power Shift Gearbox AMX690T and AMX850T

Shut down the tractor and remove the key before repairing, servicing, lubricating or cleaning the machine.

Relieve all hydraulic pressure in the hoses. Disconnect the hydraulic hoses from the tractor before going near the machine.

Securely block the machine to avoid any movement while doing the work.



Remove

1. Lift the PTO guard (1), see *Figure 1*.

2. Disconnect the driveline (2) from the tractor to the bearing, see *Figure 1*.
   a. Remove the driveline.
   b. Keep the driveline for re-use.

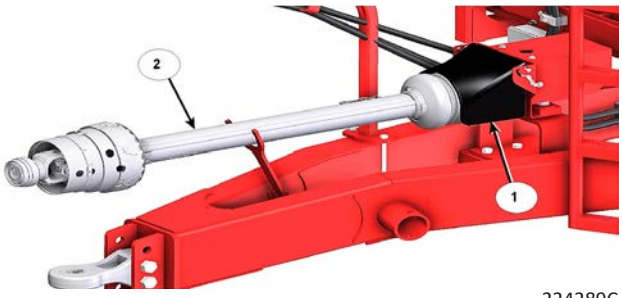


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Figure 1: Remove the Tractor Driveline

3. Remove the fasteners (3) holding the rear driveline shield (4), see *Figure 2*.
   a. Discard the shield (4) and fasteners (3).

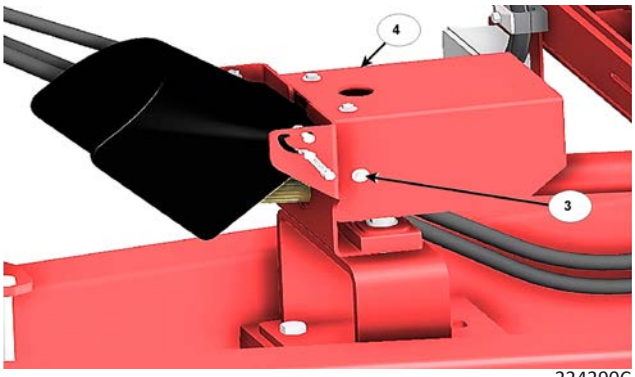

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Figure 2: Remove the Rear Driveline Shield

4. Release the bearing lock collar (5) on the driveline, see *Figure 3*.

5. Remove the fasteners (6) holding the bearing to the mount plate, see *Figure 3*.
   a. Discard the fasteners.

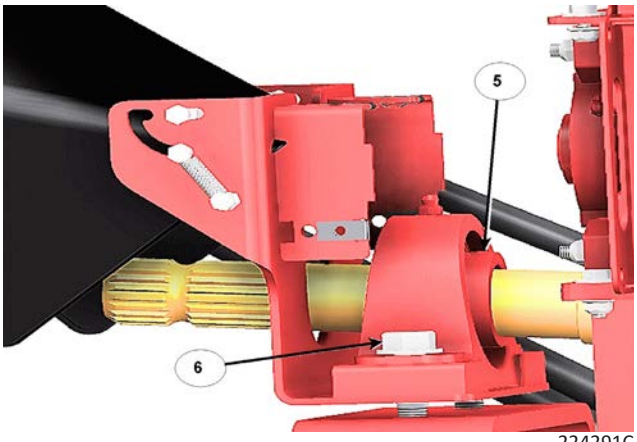

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Figure 3: Release the Bearing Lock Collar

6. Slide the bearing and shield mount with the shield off the driveline.
   a. Discard the PTO shield, the shield mount and the bearing.
7. Loosen the driveline fasteners (1) from the front screw planetary splined shaft, see *Figure 4*.
8. Remove the driveline out from the front of the machine.
   a. Discard the driveline.
9. At the front hitch, remove the fasteners (2) holding the bearing support (3), see *Figure 5*.
   a. Discard the fasteners.
10. Remove the bearing support (3), see *Figure 5*.
    a. Discard the bearing support.

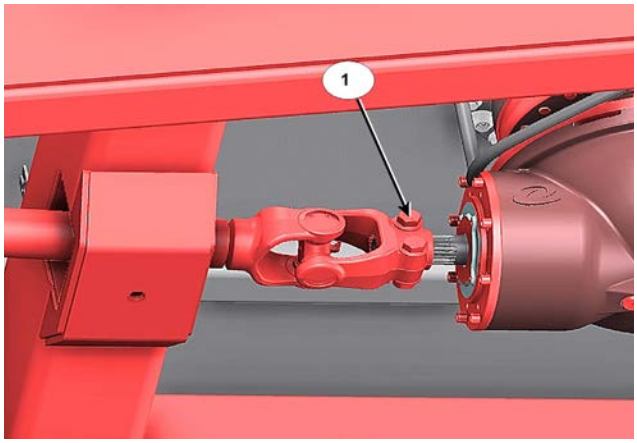

Figure 4: Remove the Driveline from the Machine
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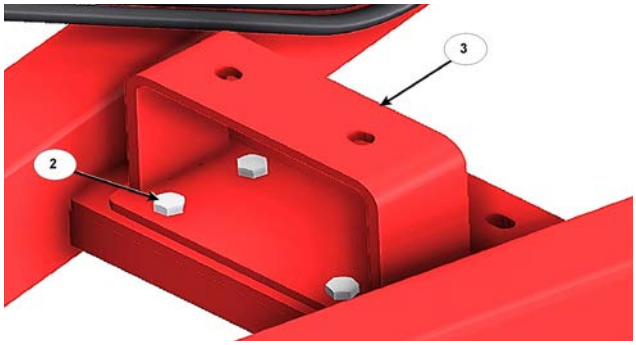

Figure 5: Remove the Fasteners & Bearing Support
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Install

1. Fasten the gearbox mount onto the base plate between the hitch frame tubes.
   a. Align the holes on the bottom of the gearbox mount with the holes in the base plate between the frame members. Ensure that the curved side of the mount is facing towards the front of the hitch.
   b. Place a ⅝" flat washer over a ⅝" x 2-¼" hex bolt, and place through each of the 4 holes.
   c. Place a ⅝" flange lock nut onto each bolt and tighten.

2. Place the 2-speed power shift gearbox (1) onto the mount (2) with the PTO guard (3) facing toward the front of the hitch, see *Figure 6*.

   a. Note: The gearbox weighs approximately 302 lbs (137 kg). Be sure to use appropriate lifting straps and lifting devices.

3. Fasten the 2-speed power shift gearbox (1) to the mount (2) using 8 M14 x 25 grade 8.8 hex bolts (4), see *Figure 6*.

   a. Torque to 100 ft/lbs (136 Nm) and use blue Loctite.

   b. Note: The hydraulic hoses (not shown in *Figure 6*) may need to be unsecured and moved in order to fasten the gearbox to the mount.

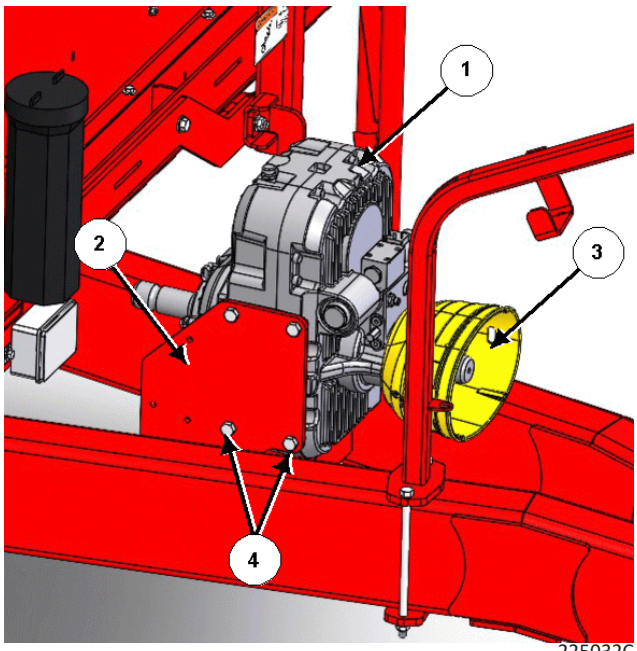

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Figure 6: Fasten gearbox to the mount

4. Fasten the controller (1) to the gearbox mount, see *Figure 7*.

   a. Align the holes on the controller with the holes on the gearbox mount.

   b. Place a ¼" x 2-¾" hex bolt (2) through both holes.

   c. Place a ¼" flange lock nut onto each bolt and tighten.

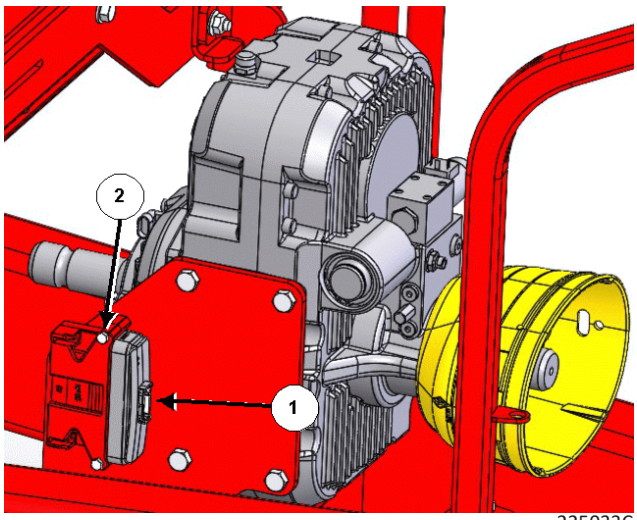

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Figure 7: Fasten the controller to the mount

5. Attach the driveline to the splined shaft of the gearbox and to the screw planetary, see *Figure 8*.

   a. Pass the driveline through the opening in the machine frame to the screw planetary.

   b. Tighten the driveline fasteners (1) to the front screw planetary splined shaft.

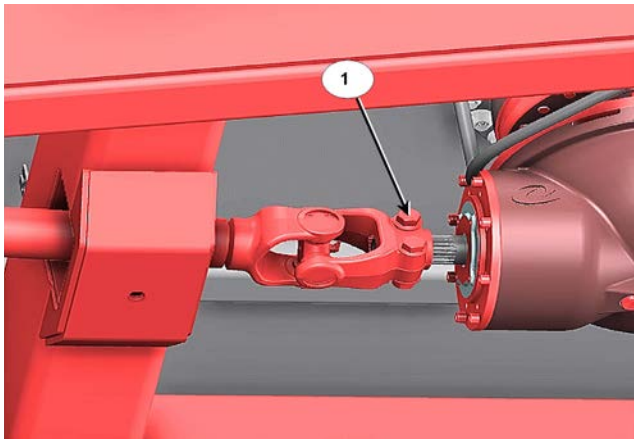

Figure 8: Attach the Driveline to the Screw Planetary
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6. Fasten the driveline shield (1) to the 2-speed power shift gearbox, see *Figure 9*.

   a. Align the holes on the shield with the holes on the gearbox.

   b. Place a 5⁄16" flat washer over a M8 x 20 grade 8.8 hex bolt (2), and place through both holes. Torque the bolts to 18 ft-lbs (24 Nm).

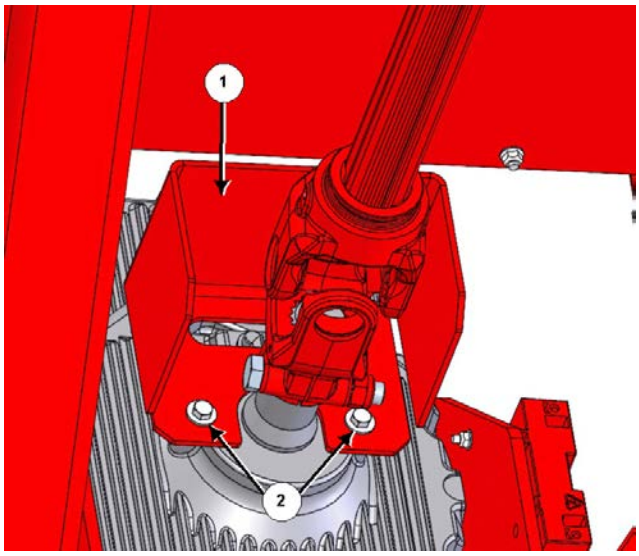

Figure 9: Fasten the driveline shield to the gearbox
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7. Connect the tractor PTO shaft to the splined shaft of the gearbox, see *Figure 10*.

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Figure 10: Connect the PTO to the gearbox

8. Connect the appropriate ends (2) on the implement wiring harness (1) to the 2-speed power shift gearbox, see *Figure 12*.

   a. Connect the end labeled 'Controller' to the controller (1), the end labeled 'Valve' to the connector clutch engagement (2) on the gearbox, and the end labeled 'Speed Sensor' to the RPM sensor (3) on the gearbox, as per *Figure 11*.

   b. Route the connections towards the front of the unit, and secure as necessary.

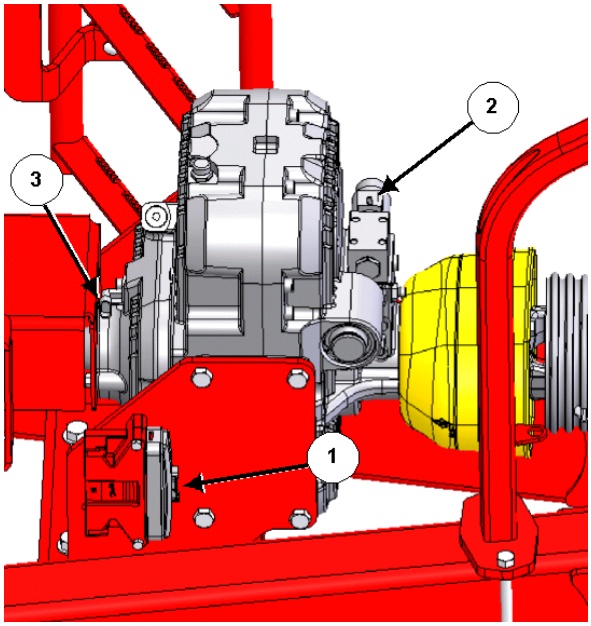

Figure 11: Connect the implement wiring harness to the gearbox

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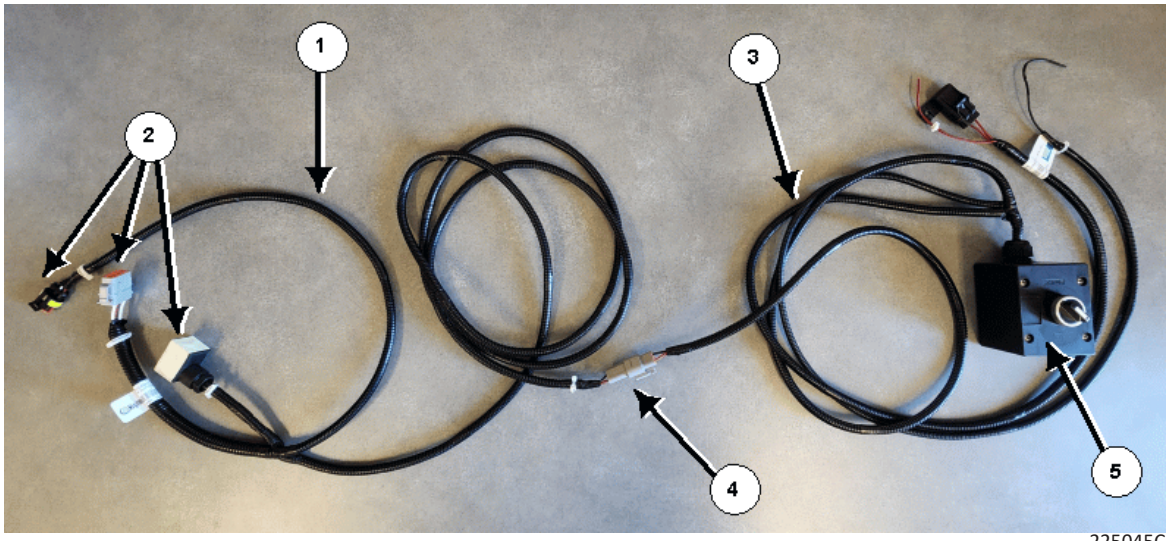

Figure 12: Implement and Cab wiring harnesses

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9. Connect the implement wiring harness (1) to the cab wiring harness (3) along the hitch, see *Figure 12*.

   a. Connect the end labeled 'Main' (4) on the implement wiring harness with the correct end on the cab wiring harness.

   b. Route the connections and switch (5) into the cab of the tractor, securing as necessary. Ensure the wires are routed in a way as to not interfere or come in contact with moving parts.

10. Connect the cab wiring (3) harness to keyed power in the tractor cab, see *Figure 12*.

11. If desired, attach the mounting bracket to the switch box using 2 #8 - 32 X ¾" screws and #8 nuts, and mount in the tractor.

12. Affix the provided decal onto the switch box as per *Figure 13*.

Figure 13: In-cab switch with decal

How to use the 2-Speed Power Shift Gearbox

1. Check the oil level in the gearbox, see *Figure 14*.
   a. The gearbox is typically shipped with **no oil** in it. Do not operate without confirming there is oil in the gearbox.
   b. Oil should be showing in the sight glass (1).
   c. If needed, fill the gearbox with Universal Tractor Transmission Oil (UTTO) through the port at the top of the gearbox (2).
      i. Fill the gearbox with approximately 4.1 Liters (4.3 US quarts) of UTTO.

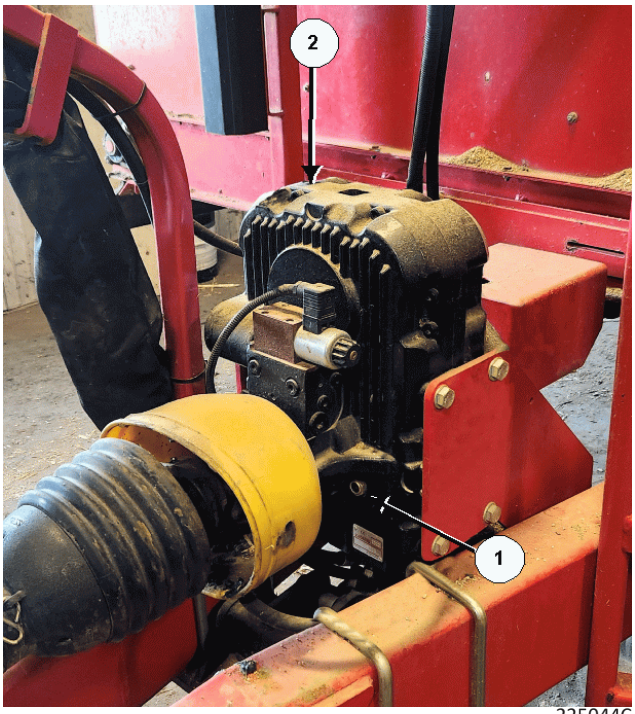

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Figure 14: Check the oil in the gearbox

2. Use the in-cab switch to control shifting from low to high speeds, see *Figure 15*.
   a. The switch positions are indicated on the decal.
   b. The gearbox always starts in low range, but it can be shifted to high range at any time, without requiring the PTO to be stopped.
      i. Note: The gearbox controller will prevent shifting to high range if the PTO input rpm is too low (typically, less than 350 rpm).
   c. The low range reduces the screw rpm by 33% from the PTO speed.
      i. Low range is often used for all mixing, and reduces fuel usage.
   d. The high range is the same speed as the PTO of the tractor.
      i. High range is often used for tub clean-out.

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Figure 15: In-cab switch