SERVICE BULLETIN

System	Date of Issue	Bulletin Number	Bulletin Type
Odyne Systems	05/10/19	00029C	☒ **Field Service Action** ☐ **Technical Service Bulletin** ☐ **Technical Service Advisory**

Title: MOTOR COMPANION FLANGE UPGRADE

Issue: Potentially loose Traction Motor Companion Flange bolts / Lovejoy set screws causes vibration which may result in damage to the Traction Motor.

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Applies To:

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Note: Complete update 00029C using updated split flange (PN. 40664) and Parts kit (PN. 90011 specified in 00029C.

Special Tools or Software Required:

Where Available	Type of Tool	Equipment Description
	N/A	

Action:

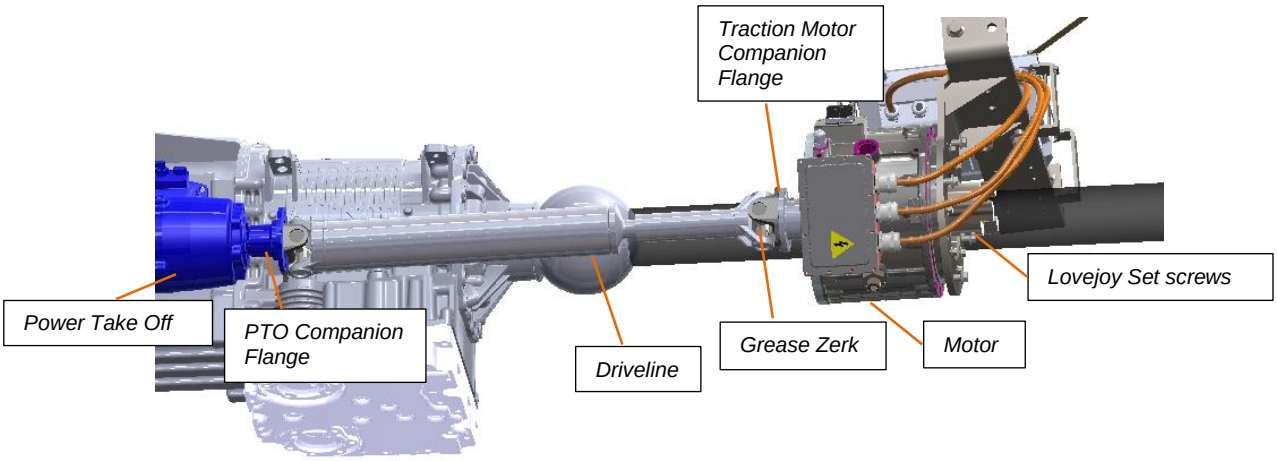
Remove Driveline from Traction Motor and install updated companion flange and ¼" hardened washer on bolt for Traction Motor Companion Flange(s).

Remove Lovejoy set screws and reinstall with Blue Loctite and torqued to 49 ft. pounds. (Do one screw at a time)

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Service Procedure:

Reference: The diagram below shows the relative positions of the Odyne PTO (Power Take Off), Driveline, Flanges, and Motor.



Overview Diagram

Before Starting Procedure: Disconnect hybrid Battery, remove key from ignition and store in a safe place.

Driveline Removal

1. Unbolt and remove driveline from truck.

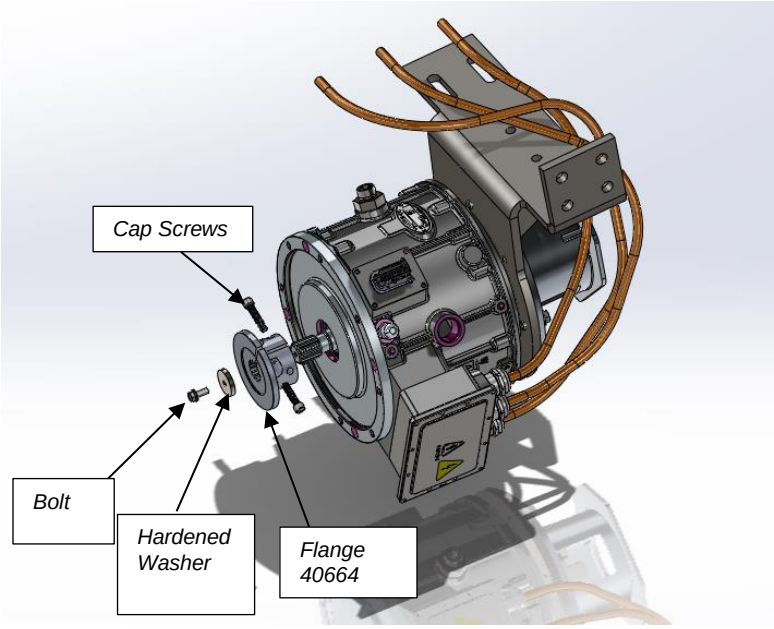
Traction Motor Companion Flange Hardware Replacement

1. Remove the companion flange, and M8 bolt and washer from the motor shaft, and discard the washer, flange, and bolt.
2. Replace the companion flange part number 40664.
3. Install ¼" hardened washer.
4. Apply Red Loctite to bolt threads.
5. Install bolt into threaded end of motor shaft and torque to 20 Ft. Pounds.

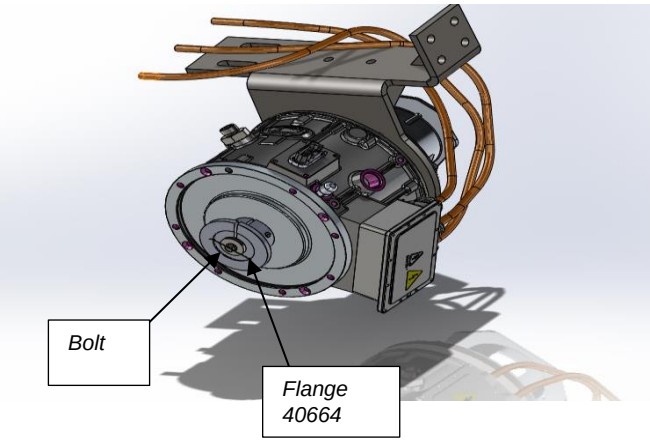
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6. Pull flange up tight against the hardened washer. Torque two cap screws on the flange to 43 ft. pounds after Blue Loctite is applied to threads. Return Screws to original locations.

Overview Diagram



7. Re-mark the head of the traction motor companion flange bolt and washer after torqued as shown below.



Bolt and Washer: Marked

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Checking Alignment (both vertical and horizontal)

Specification:

1. Optimally, the PTO flange face and the motor flange face should be parallel with 0 degree difference between the measurements of each flange.

2. Because of space restraints and limitations to drilling the chassis hole, the preference is that the flanges are between 0.0 and 0.3 degree; the maximum difference allowed is 1.0 degree.

Procedure:

1. Place an inclinometer (digital level) on the PTO flange and record the value. You will only be able to measure it vertically until other tools have been developed.

2. Compare this value with the value written on or near the PTO (or possibly written on the frame near the PTO), note any differences.

3. In some cases, the PTO flange angle may be written on the frame closer to the cab but still near the PTO, and in other cases, the angle might be covered in dirt or on a hard to see surface.

4. Place an inclinometer on the Motor flange and record the value.

5. In some cases the motor flange angle might be written on the frame near the motor or in some cases the angle might be covered in dirt or on a hard to see surface.

6. For horizontal alignment take measurements from the motor/inverter bracket to the nearest Cross member and make sure they are equal.

Correcting Alignment:

1. Support the electric motor with a hydraulic jack.

2. Remove one chassis bolt from the motor inverter bracket to chassis connection.

3. Remove the same bolt on the opposite side to create a pivot axis (see examples “a” through “d” below).

    a. Bottom forward hole on the driver side = Bottom forward hole on the passenger side.

    b. Bottom rearward hole on the driver side = Bottom rearward hole on the passenger side.

    c. Top forward hole on the driver side = Top forward hole on the passenger side.

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d. Top rearward hole on the driver side = Top rearward hole on the passenger side, proceed to method 2, step 16.

4. Once a suitable new frame hole location is found, use the Motor Bracket as a guide and mark/punch a new hole on each side on the inside of the chassis frame rail.

5. Use the same hole on opposite side to create a pivot axis (see examples “a” through “d” below).

   a. Bottom forward hole on the driver side = Bottom forward hole on the passenger side.

   b. Bottom rearward hole on the driver side = Bottom rearward hole on the passenger side.

   c. Top forward hole on the driver side = Top forward hole on the passenger side.

   d. Top rearward hole on the driver side = Top rearward hole on the passenger side.

6. Drill a pilot hole (1/8”) from the inside of the frame rail at each of the 2 marked locations.

7. Using a frame drill and the pilot holes, drill an M16 clearance hole (41/64”) from the outside of the frame rail at each of the 2 pilot holes.

8. Place hardware in these two holes Blue Loctite, tighten, and torque Chassis Rail Hardware to 121 foot pounds.

9. Loctite and tighten to 121 foot pounds any other motor/inverter bracket to frame hardware that was removed.

10. Use the inclinometer to verify that the motor is approximately 0.3 degree over PTO.

11. Reinstall drive shaft.

    (METHOD 2)

12. Slot one pair of the chassis mounting holes in the motor/inverter bracket.

    a. Determine which existing pair of holes will be the pivot axis.

    b. The other pair of holes in use will be slotted.

    c. For pivoting up:

       i. Upper holes are preferred for slotting and should have material toward the front of the truck removed to allow the motor/inverter bracket to pivot up.

       ii. Lower holes are not preferred for slotting but if necessary the material should be removed going toward the rear of the truck allowing the motor/inverter bracket to pivot upward.

    d. For pivoting down:

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i. Upper holes are preferred for slotting and should have material toward the back of the truck removed to allow the motor/inverter bracket to pivot down.

ii. Lower holes are a second choice for slotting the material should be removed going toward the front of the truck allowing the motor/inverter bracket to pivot down.

13. It will likely be necessary to weld a spacer into place on the motor inverter bracket to ensure that the motor/inverter bracket stays at this new location.

14. Once a suitable new motor/inverter slot location is found, use the previously used Chassis hole as a guide and mark the material to be removed using the chassis frame rail as a guide.

15. Repeat the previous step on the opposite side (see examples “a” through “d” below).

    a. Bottom forward hole on the driver side = Bottom forward hole on the passenger side.

    b. Bottom rearward hole on the driver side = Bottom rearward hole on the passenger side.

    c. Top forward hole on the driver side = Top forward hole on the passenger side.

    d. Top rearward hole on the driver side = Top rearward hole on the passenger side.

16. Remove the motor/inverter bracket if necessary.

17. Drill or machine out the slots that were marked in the previous step.

18. Replace the motor/inverter bracket if necessary.

19. Replace the pivot axis bolts if necessary.

20. Place hardware in the two new slots Blue Loctite, tighten, and torque Chassis Rail Hardware to121 foot pounds.

21. Apply Loctite and tighten to 121 foot pounds any other motor/inverter bracket to frame hardware that was removed.

22. Use the inclinometer to verify that the motor is approximately 0.3 degree over PTO.

23. Rotate motor shaft until the set screws on the Lovejoy are facing the tooling access window.

24. Remove one set screw at a time and replace it with Blue Loctite applied, and 48 foot pounds of torque.

25. Reinstall drive shaft.

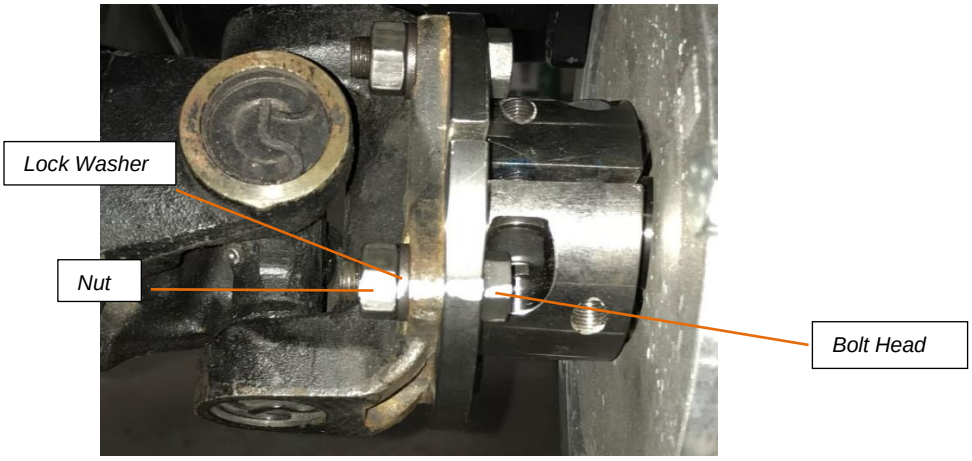
26. Grease Driveshaft Zerk locations.

27. Follow regular maintenance intervals stated in owner’s manual.

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Reinstall Driveline

1. Apply Red Loctite to the four driveline bolts.
2. Install the bolts securing the driveline to the motor companion flange, and torque to 63 Ft-Lbs. Installation Tip: Feed the bolt from the flange side, and feed the lock washer and nut from the driveline side.
3. Re-mark the head of each of the four driveline bolts and nuts after torqued, as shown below.

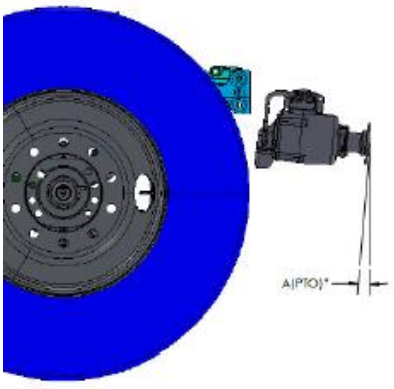


Driveline to Companion Flange Bolts: Marked

4. Align driveline per Odyne Driveline alignment Service Procedure:

Proper alignment of the drive line is necessary to ensure optimal functionality of the hybrid system.

Overview:





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Parts Required:

Part Number	Description	Quantity
Shop Supply	Red Loctite	1
Shop Supply	Blue Loctite	1
90011	Parts kit	1
40664	Traction Motor Companion Flange	1

Warranty Information:

Code	Description	Time
00029C	Motor Companion Flange Upgrade	1.0

Odyne Service Support Resources:

To request technical assistance, contact ServiceSupport@Odyne.com.
To request parts, contact Parts@Odyne.com.

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