



INSTRUCTION TO SERVICE

ITS: 6623	
SECTION:	204 Rear Suspension
WRITTEN BY:	Tyler Omichinski
SUBJECT:	Inspect Rear Axle Hub Spindle Nuts

ITS6623

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PROCEDURE:

☞ **NOTE:** The results of this inspection must be recorded in the inspection sheet found at the end of this document and submitted to your New Flyer Regional Product Support Manager.

Part A: Inspection of Hub Spindle Nut

☞ **NOTE:** The initial inspection of the spindle nut may be done with the rear wheels installed and the bus on the ground.

1. Turn the Master Run switch to the “Run” position. Turn the main battery disconnect switch to the “ON” position.
2. Record the vehicle unit number, vehicle mileage, and date of inspection on the inspection sheet. Note if the “ABS Fail” indicator light is active on the driver’s display.
3. Turn the Master Run switch to the “Stop” position. Turn the main battery disconnect switch to the “OFF” position.

☞ **NOTE:** Perform the inspection below on both rear wheel ends.

4. To aid in reassembly, on the rear wheel hub, mark the orientation of the axle shaft flange relative to the wheel hub housing with a torque stripe or similar mark.
5. Remove and discard the 10 bolts which hold the axle flange to the hub. Remove the axle shaft. Use absorptive pads or similar to control gear oil spills as required. Refer to Fig. 1.

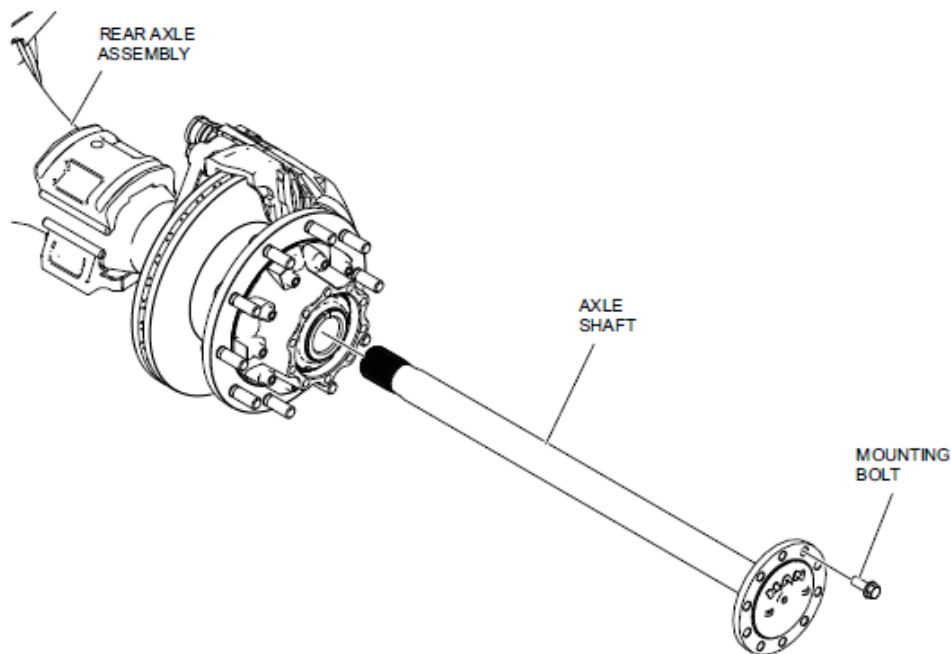


Figure 1: Rear axle shaft and mounting bolts



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6. Inspect the rear axle spindle nut and washer and locate the torque marks. Note if the torque marks extended from the spindle nut to the washer are misaligned. Record the results on the inspection sheet. Refer to Fig. 2 for examples of unacceptable and acceptable torque marks.



Figure 2: Exemplar spindle nut torque marks



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7. Inspect the staking mark on the spindle nut. The staking mark should extend into the spindle groove so that it will engage the spindle threads if the nut becomes loose. Record the results on the inspection sheet. Refer to Fig. 3 for unacceptable and acceptable staking marks.



Figure 3: Exemplar staking marks

- NOTE:** Once all inspections are complete, review the results for each wheel. If the original torque marks were found misaligned, the spindle nut must be replaced; proceed to Part B: Replacing Spindle Nut. If the original torque marks are aligned, the axle shaft can be reinstalled; proceed to Part C: Reinstalling Axle Shaft.

Part B: Replacing Spindle Nut

- ☞ **NOTE:** Complete this procedure for each wheel end where the spindle nut torque marks were found misaligned.
- ☞ **NOTE:** If the standard rear axle repair tools are used, the wheels must be removed to replace the spindle nut. Modified tools may be available which may allow the wheels to remain in place.
8. Raise the bus so that no weight is being carried on the wheel end to be repaired. Raise the bus in accordance with the New Flyer Service Manual.
 9. Inspect the brake rotor and brake pads for wear per the criteria in the New Flyer Service Manual. Inspect the rear wheel seal area for the presence of oil leaks. Replace damaged parts as required.
 10. Ensure the wheel hub can spin freely by hand.
 11. Use a round punch to knock out the existing staking mark so that the spindle threads are not damaged when the spindle nut is removed.
 12. Using appropriate tooling, remove the spindle nut. Retain and tag the spindle nut with the bus number and wheel end. Refer to the New Flyer Service Manual for detailed instructions.
 13. Install a new spindle nut (NF P/N 6392549) using appropriate tooling. Torque the nut to 1200 N.m. (885 ft-lbs). Spin the hub as torque is applied.
 14. Stake the spindle nut in accordance to the standard shown in Fig. 2 using a blunt chisel. Ensure the staking mark would engage the spindle threads if the nut were to rotate. Avoid staking the nut too deeply so that the spindle threads are not damaged.
 15. Apply a new torque stripe across the spindle nut and washer shown in Fig. 4.

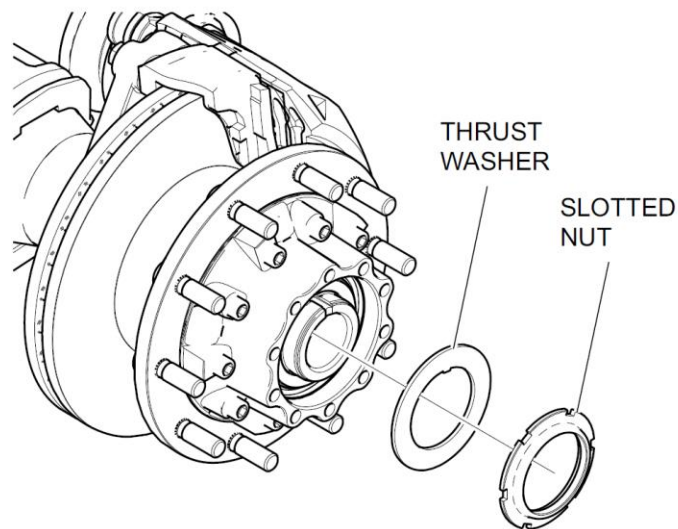


Figure 4: Rear wheel hub spindle nut installation



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16. Perform a wheel hub play inspection per the directions in the New Flyer Service Manual. If total movement exceeds 0.010 inch (0.25 mm) remove and inspect the wheel bearings for wear. Replace worn components as necessary.
17. If removed, reinstall wheels and lower coach in accordance with the New Flyer Service Manual.
18. Proceed to Part C: Reinstalling Axle Shaft.

Part C: Reinstalling Axle Shaft

NOTE: Complete this procedure for each wheel end.

19. If the spindle nut is not already sufficiently staked, use a rounded chisel to stake the spindle nut collar to specification. Refer to Fig. 2.
20. Remove all sealant from the axle hub and axle flange mating faces using a razor blade, scraper, or abrasive pad.
21. Apply a thin coat of Loctite 518 sealant (NF P/N 6357944) to the mating face of the hub.
22. Install the axle shaft into the rear axle. If the hub nut has not been replaced in Part B, use the alignment mark applied in Step 5 as a guide for reassembly.
23. Install 10 new mounting bolts (NF P/N 6407909) in the axle flange. Torque the bolts to 360 N.m. (266 ft-lb.). Apply a torque stripe to all bolts.
24. Turn the main battery disconnect switch to the "ON" position.
25. Forward the completed inspection sheet to your New Flyer Regional Product Support Manager.



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LABOUR ESTIMATE

	Operation	Men	Hours	Labour Time M X HR
1	Part A and C: Inspect spindle nuts and reinstall axle shafts	1	1.0	1.0
2	Part B: Replace spindle nuts (per wheel end)	1	1.0	1.0

PARTS REQUIRED

Item	Part Number	Description	Qty. per Coach	Units	Notes
1	6392549	NUT, SLOTTED M100 X 1.5	2	EA	As required
2	6357944	SEALANT, LOCKTITE 518 - 50 ML	0.1	EA	As required
3	6407909	SCREW, LOCK M16 x 1.5 x 40 LG.	20	EA	

SPECIAL TOOLS REQUIRED

Item	Description	Qty. per Coach	Units	Notes
1	New Flyer Xcelsior Rear Axle Tools	1	EA	



Rear Axle Spindle Nut Inspection Sheet

Bus Number	
Mileage	
Date Of Inspection	
Inspector Initials	

Was the "ABS Fail" light active?	Yes	No
S/S Wheel End		
Were the torque stripes aligned?	Yes	No
Was the spindle nut adequately staked?	Yes	No
Was the spindle nut replaced? (If torque marks misaligned)	Yes	No
Was the spindle nut re-staked? (If not adequately staked)	Yes	No
C/S Wheel End		
Were the torque stripes aligned?	Yes	No
Was the spindle nut adequately staked?	Yes	No
Was the spindle nut replaced? (If torque marks misaligned)	Yes	No
Was the spindle nut re-staked? (If not adequately staked)	Yes	No

Comments (signs of damage, extra parts required, etc.):

NOTE: The completed inspection sheet must be forwarded to your New Flyer Regional Product Support Manager.