WHEEL BEARING/CENTRAL TIRE INFLATION SYSTEM (CTIS) SEAL REPLACEMENT

Conditions

- << HyperProc: Brakes caged (intermediate and rear axle wheel bearing/CTIS seals only) Location: FMTV10.M04-11A. M04-11A>>
- << HyperProc: Wheel removed. Location: FMTV10.M04-01.M04-01>>
- << HyperProc: Differential spider assembly removed. Location: FMTV20.M10-02.M10-02>>

Tools

- << HyperText: Tool Kit, Genl Mech Location: FMTV20.APPNDX-C.ITEM45>>
- << HyperText: Gloves, Rubber Location: FMTV20.APPNDX-C.ITEM13>>
- << HyperText: Goggles, Industrial Location: FMTV20.APPNDX-C.ITEM15>>
- << HyperText: Trestle, Motor Vehicle Maintenance Location: FMTV20.APPNDX-C.ITEM46>>
- << HyperText: Jack, Hydraulic, Hand Location: FMTV20.APPNDX-C.ITEM21>>
- << HyperText: Wrench, Torque, 0-175 lb-ft Location: FMTV20.APPNDX-C.ITEM60A2>>
- << HyperText: Socket, Socket Wrench Location: FMTV20.APPNDX-B.ITEM72>>
- << HyperText: Wrench Set, Socket Location: FMTV20.APPNDX-C.ITEM48>>
- << HyperText: Seal Driver, CTIS Location: FMTV20.APPNDX-E.E21>>
- << HyperText: Wheel Hub Grease Seal Driver Location: FMTV20.APPNDX-E.E22>>
- << HyperText: Wheel Bearing Shim Tool Rest Location: FMTV20.APPNDX-E.E13>>
- << HyperText: Gage, Depth, Micrometer Location: FMTV20.APPNDX-C.ITEM10>>
- << HyperText: Test Set, Electronic Systems Location: FMTV20.APPNDX-B.ITEM77>>

Material

- << HyperText: Rag, Wiping Location: FMTV20.APPNDX-D.ITEM48>>
- << HyperText: Tape, Duct Location: FMTV20.APPNDX-D.ITEM63>>
- << HyperText: Solvent, Dry Cleaning Location: FMTV20.APPNDX-D.ITEM61>>
- << HyperText: Grease, Automotive and Artillery (GAA) Location: FMTV20.APPNDX-D.ITEM21>>
- << HyperText: Seal Assembly CTIS (2) Location: FMTV20.APPNDX-G.ITEM618>>
- << HyperText: Seal Assembly Hub Location: FMTV20.APPNDX-G.ITEM336>>

Personnel

- (2)

Reference Material

- << HyperText: FIGURE 147 2.5 TON FRONT AXLE AND WHEEL END ASSEMBLY Location: TM9-2320-391/ 392-24P.RPSTL.Fig147>>

Follow-On

- << HyperProc: Install differential spider assembly. Location: FMTV20.M10-02.S03>>
- << HyperProc: Install wheel. Location: FMTV10.M04-01.M04-01>>
- << HyperProc: Start engine Location: FMTV10.M02-17.M02-17>>
- Road test vehicle and check for proper steering operation and excessive wheel end vibration.
- << HyperProc: Shut down engine Location: FMTV10.M02-17 M02-17>>.

• Check for oil leaks around wheel end assembly.

a. Removal.

WARNING

Wheel drum weighs approximately 90 lb (41 Kg). Use the aid of an assistant to help remove wheel drum. Failure to comply may result in injury to personnel.

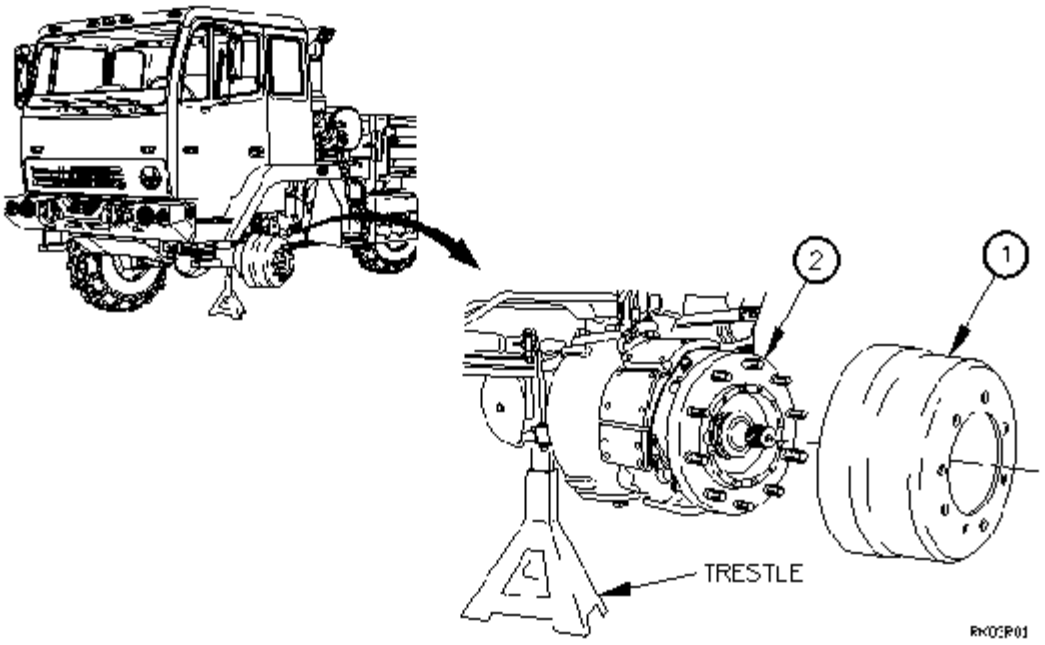
CAUTION

Outer wheel bearings and inner wheel bearings are not interchangeable. Not position of each wheel bearing during removal to ensure correct placement during installation. Failure to comply may result in damage to equipment.

NOTE

All wheel bearings and CTIS seals are removed the same way. Left front axle shown.

1. Remove wheel drum (1) from wheel end hub (2).

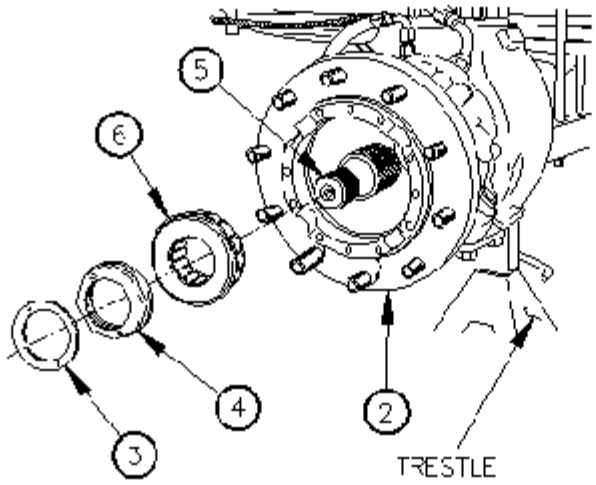


NOTE

Number of shims may vary on each wheel end.

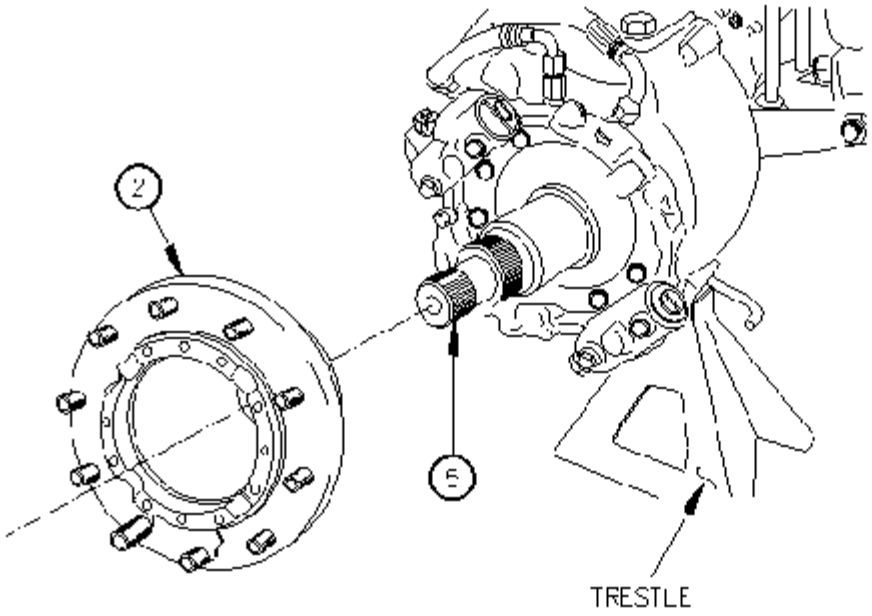
2. Remove shim (s) (3) and wheel bearing nut (4) from spindle (5).

3. Remove outer wheel bearing cone (6) from wheel end hub (2).



PK03902

4. Remove wheel end hub (2) from spindle (5).



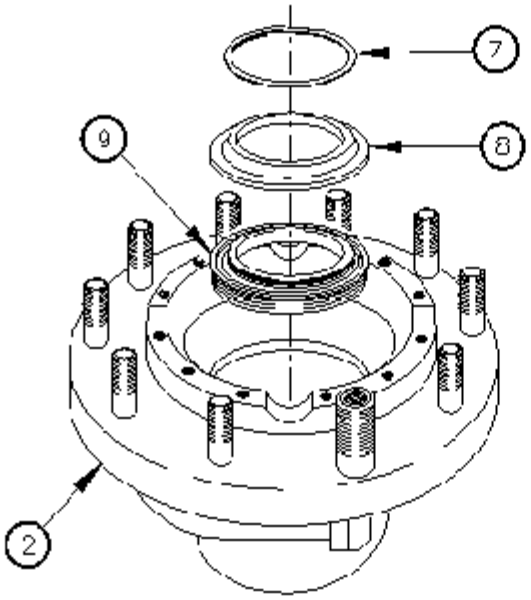
PK03903

5. Remove CTIS seal retaining ring (7) from wheel end hub (2).

CAUTION

Tap CTIS seal from opposite side of wheel end hub.
Failure to comply may result in damage to equipment.

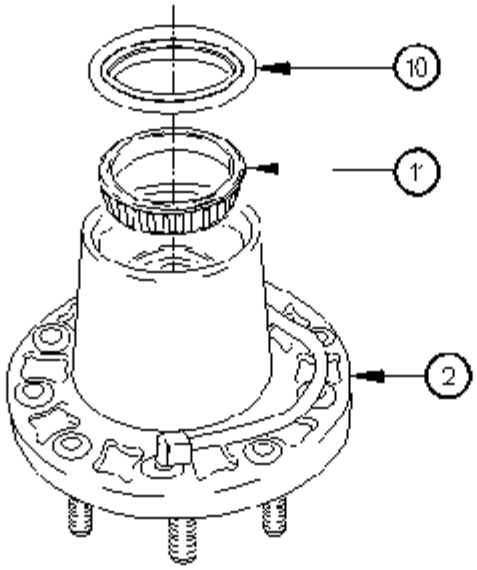
6. Remove CTIS seal guide (8) and CTIS seal (9) from wheel end hub (2). Discard CTIS seal.



PK03809

7. Remove hub seal (10) from wheel end hub (2). Discard hub seal.

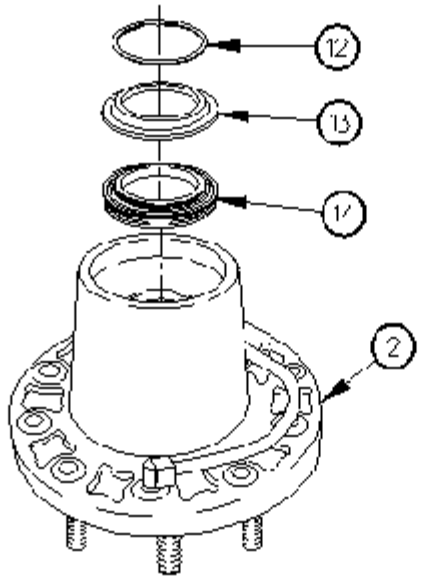
8. Remove inner wheel bearing cone (11) from wheel end hub (2).



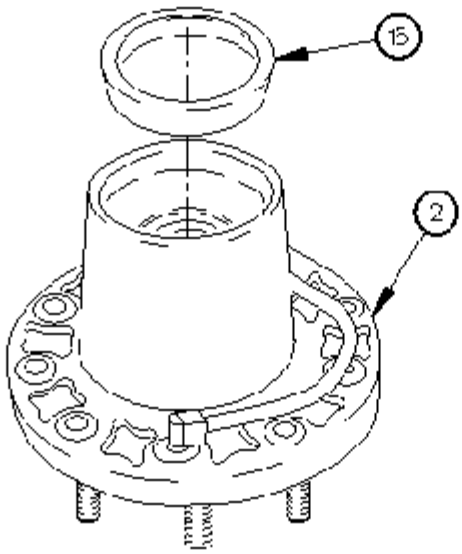
PK03805

9. Remove CTIS seal retaining ring (12) from wheel end hub (2).

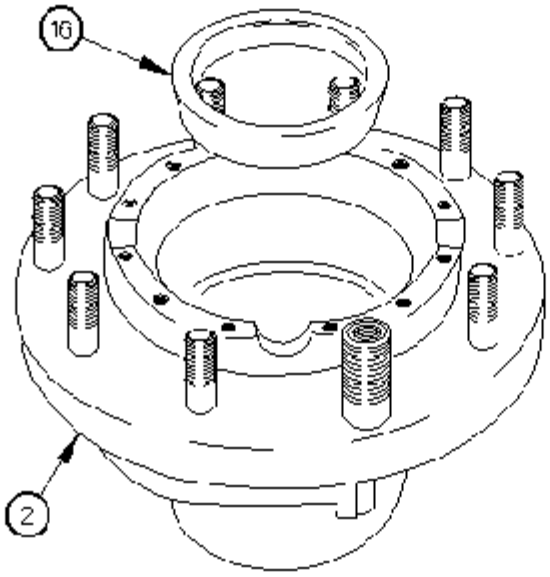
10. Remove CTIS seal guide (13) and CTIS seal (14) from wheel end hub (2). Discard CTIS seal.



11. Remove cup (15) from wheel end hub (2).



12. Remove cup (16) from wheel end hub (2).



b. Cleaning/Inspection.

WARNING

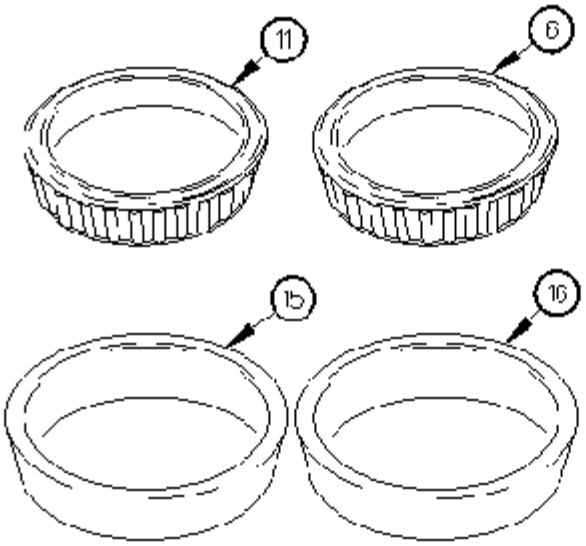
Dry cleaning solvent (P-D-680) is TOXIC and flammable. Wear protective goggles and gloves; use only in well ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type I dry cleaning solvent is 100° F (38° C) and for Type II is 130° F (50° C). Failure to comply may result in serious injury or death to personnel.

If personnel become dizzy while using dry cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention. Failure to comply may result in injury to personnel.

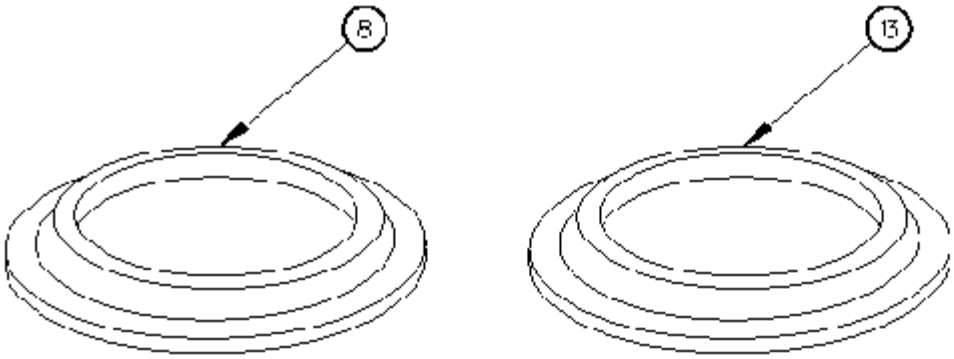
NOTE

Thoroughly clean all metal parts with dry cleaning solvent and dry with wiping rag prior to inspection.

1. Inspect inner wheel bearing cone (11), outer wheel bearing cone (6), cup (15), and cup (16) for scoring, pitting, corrosion, and excessive wear. Replace both wheel bearing cones and cups if either fails visual inspection.



2. Inspect two CTIS seal guides (8 and 13) for nicks or cracks.



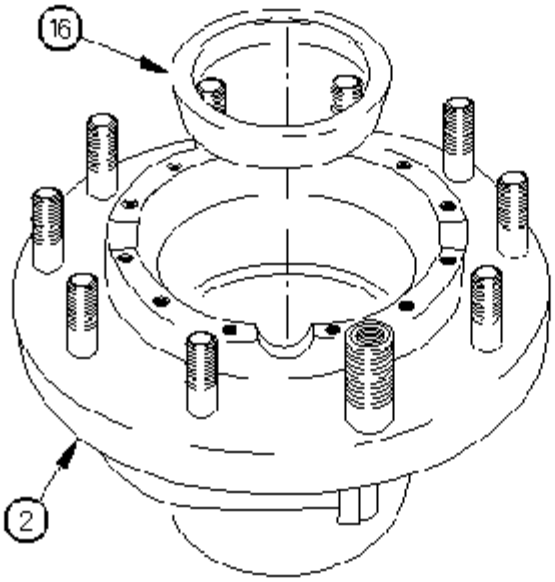
RK03803

c. Installation.

NOTE

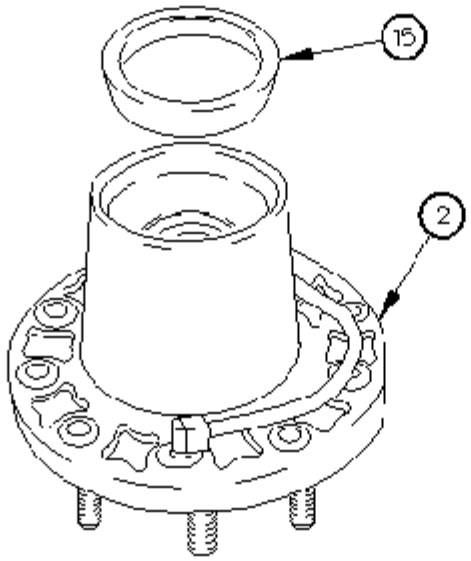
All wheel bearings and CTIS seals are installed the same way. Left front axle shown.

1. Install cup (16) in wheel end hub (2).



RK03808

2. Install cup (15) in wheel end hub (2).



RK03R07

CAUTION

CTIS seal guide must be installed bevel side up. Failure to comply may result in damage to equipment.

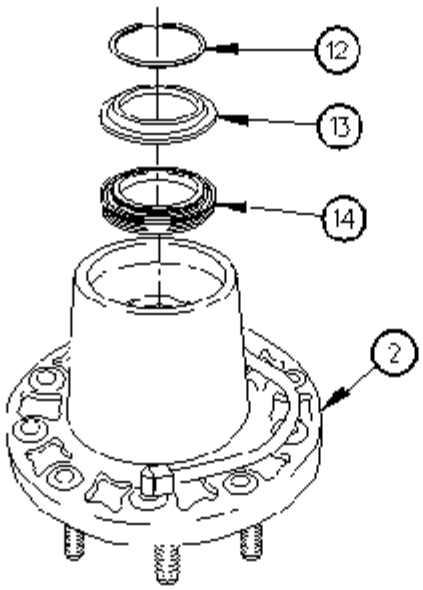
NOTE

Install CTIS seal bevel side down, lipped side up.

NOTE

Install CTIS seal guide bevel side up.

3. Install << HyperText: CTIS seal (14) Location: FMTV20.APPNDX-G.ITEM618>> and CTIS seal guide (13) in wheel end hub (2).
4. Install CTIS seal retaining ring (12) in wheel end hub (2).

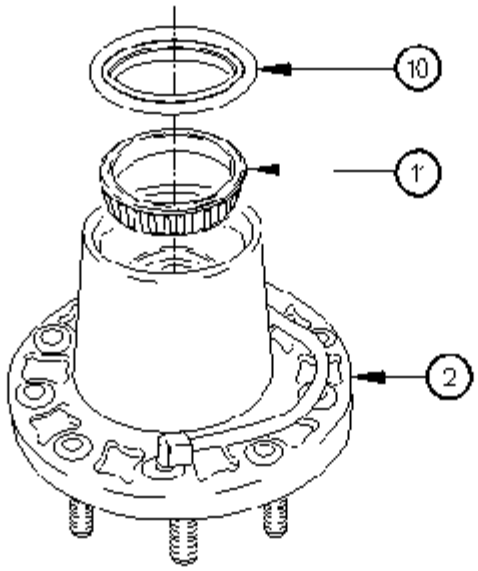


RK03R10

5. Pack inner wheel bearing cone (11) with grease.

6. Install inner wheel bearing cone (11) in wheel end hub (2).

7. Install << HyperText: hub seal (10) Location: FMTV20.APPNDX-G.ITEM616>> in wheel end hub (2).



RK03905

NOTE

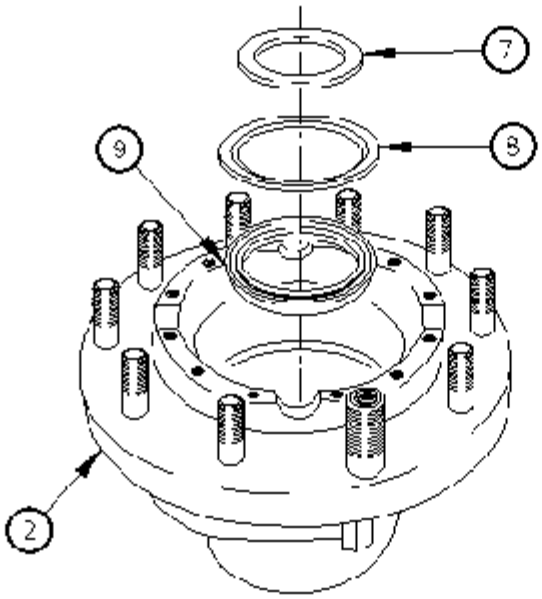
Install CTIS seal bevel side down, lipped side up.

NOTE

Install CTIS seal guide bevel side up.

8. Install << HyperText: CTIS seal (9) Location: FMTV20.APPNDX-G.ITEM618>> and CTIS seal guide (8) in wheel end hub (2).

9. Install CTIS seal retaining ring (7) in wheel end hub (2).



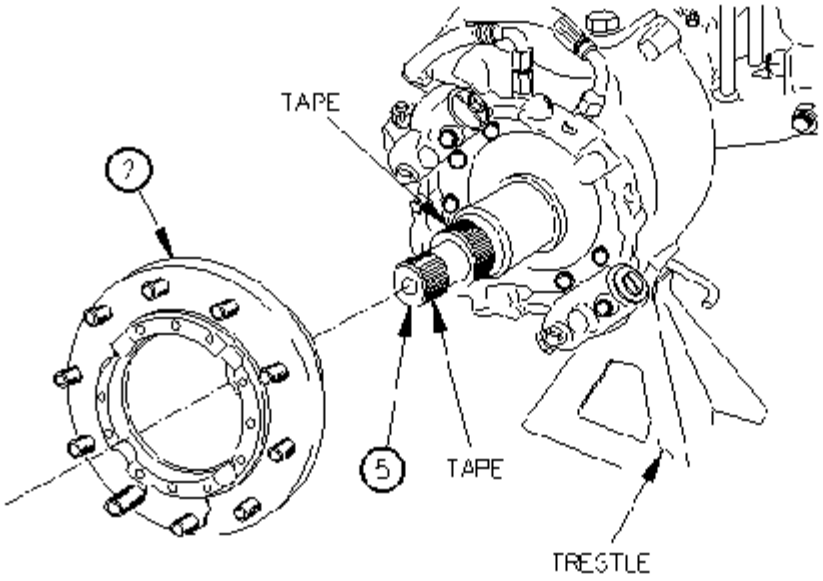
RK03R11

10. Apply two wraps of duct tape on splined and threaded portions of spindle (5).

CAUTION

Use care when installing wheel end hub assembly on spindle. Failure to comply may damage CTIS seal and cause early failure of CTIS seals.

11. Install wheel end hub (2) on spindle (5).



12. Remove duct tape from spindle (5).
13. Install outer wheel bearing cone (6) in wheel end hub (2).
14. Position wheel bearing nut (4) on spindle (5).

CAUTION

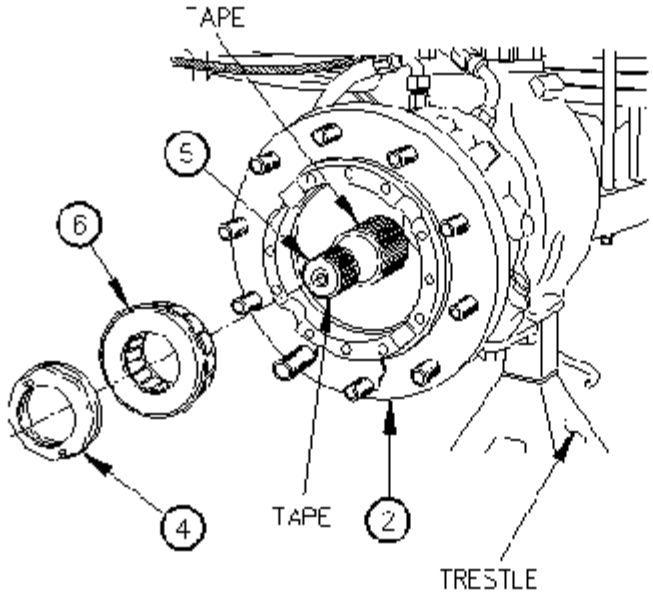
Rotate wheel end hub to the left and to the right while tightening wheel bearing nut. Failure to comply may result in damage to equipment

15. Tighten wheel bearing nut (4) to 50 lb-ft (68 N•m).
16. Loosen wheel bearing nut (4) one quarter turn (90- degrees).

CAUTION

Do not tighten wheel bearing nut more than 10-20 lb-ft (14-27 N•m). Failure to comply may result in damage to equipment.

17. Tighten wheel bearing nut (4) to 10-20 lb-ft (14-27 N•m).



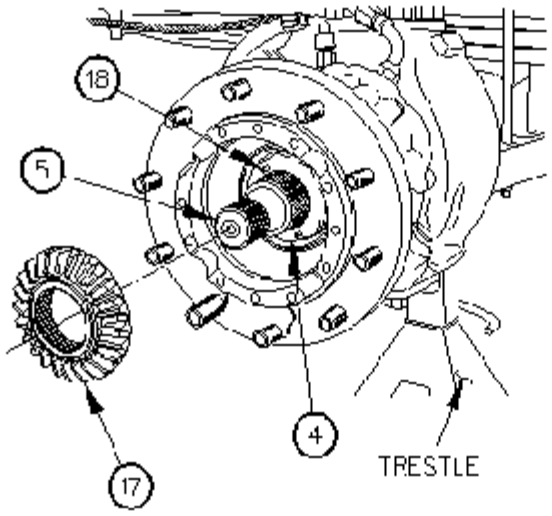
18. Install inner bevel side gear (17) on spindle (5).

CAUTION

If alignment pins on wheel bearing nut do not line up with alignment holes on inner bevel side gear, loosen wheel bearing nut until pins and holes are aligned. Do not loosen wheel bearing nut more than one spline tooth. Failure to comply will result in damage to equipment.

19. Align pins (18) on wheel bearing nut (4) with alignment holes in inner bevel side gear (17).

20. Remove inner bevel side gear (17) from spindle (5).



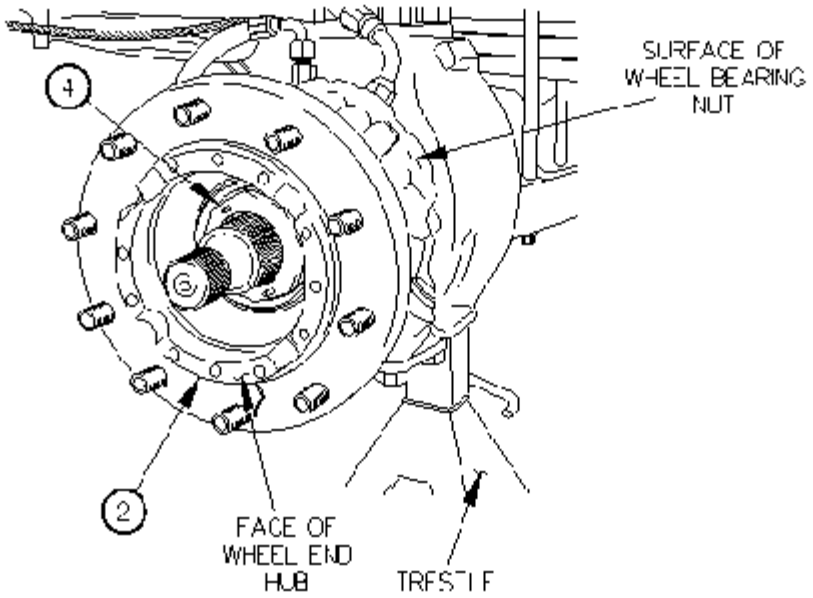
NOTE

Record measurement taken in step (21).

NOTE

Steps (21) through (24) are not required when packing wheel bearings for Preventive Maintenance Checks and Services (PMCS).

21. Measure depth from surface of wheel bearing nut (4) to face of wheel end hub (2).



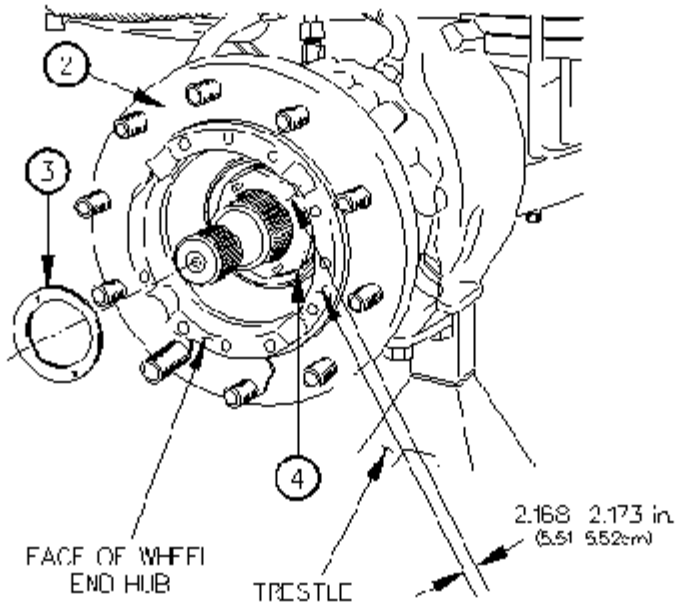
22. Install wheel end shim (s) (3) on wheel bearing nut (4).

CAUTION

Measurement from surface of shims to face of wheel end hub must be 2.168-2.173 in. (55.07-55.19 mm). Failure to comply may result in damage to equipment.

23. Measure distance from surface of shim (s) (3) to face of wheel end hub (2).

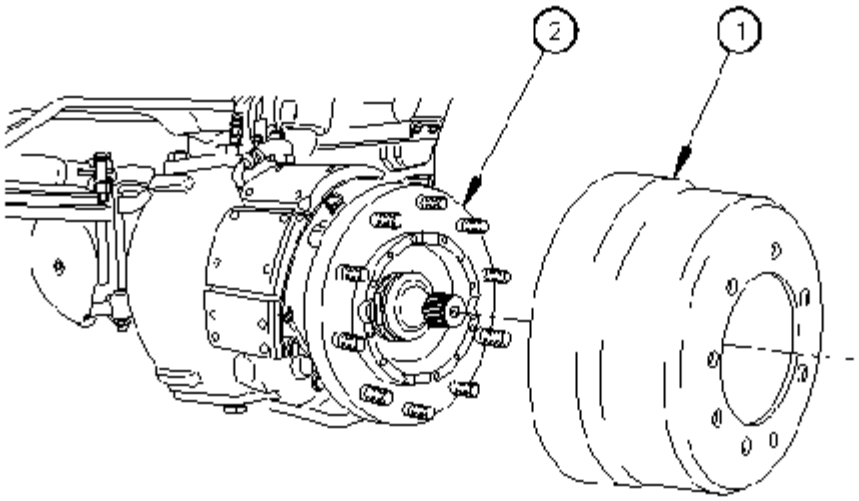
24. Add or remove shim (s) (3) as required to obtain measurement of 2.1678-2.173 in. (55.07-55.19 mm).



WARNING

Wheel drum weighs approximately 90 lb (41 Kg). Use the aid of an assistant to help remove wheel drum. Failure to comply may result in injury to personnel.

25. Install wheel drum (1) on wheel end hub (2).



END OF WORK PACKAGE.