

TM2053 - 27C ZTS and 35C ZTS Excavator Repair Propel Gearbox Disassemble and Assemble—35C ZTS

Propel Gearbox Disassemble and Assemble—35C ZTS

Disassemble Propel Gearbox

1. [See Propel Gearbox Remove and Install—27C ZTS and 35C ZTS](#) for gearbox and motor removal. (Group 0250.)
[See Propel Gearbox Operation](#) for a cross-section of Propel Gearbox—35C ZTS. (Group 9020-05.)
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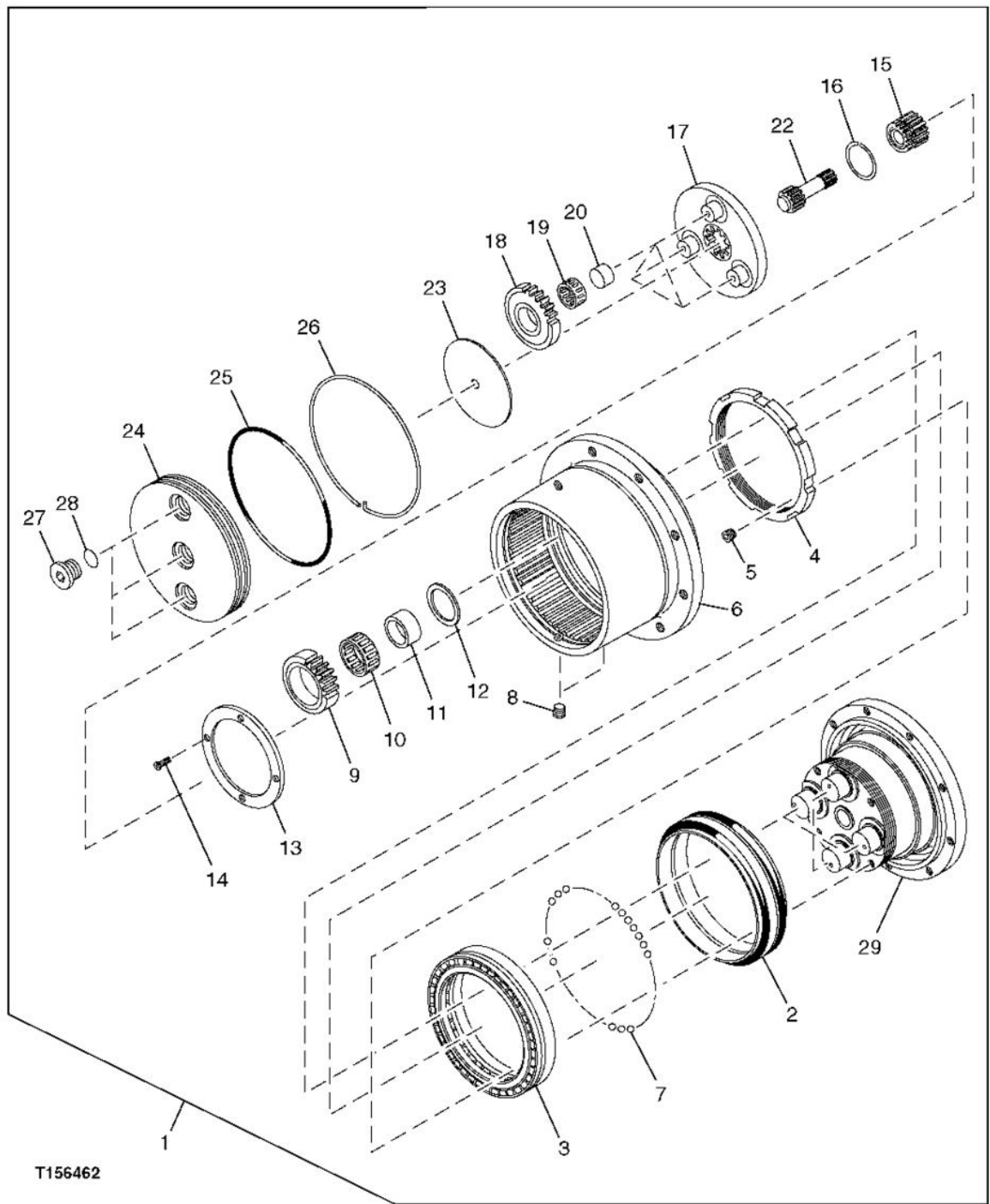
2.



CAUTION:

Heavy component; use a hoist.

Item	Measurement	Specification
Propel Gearbox—35C ZTS		
Propel Gearbox and Motor	Weight	44 kg (97 lb) approximate



T156462-UN: Propeller Gearbox Exploded View—35C ZTS

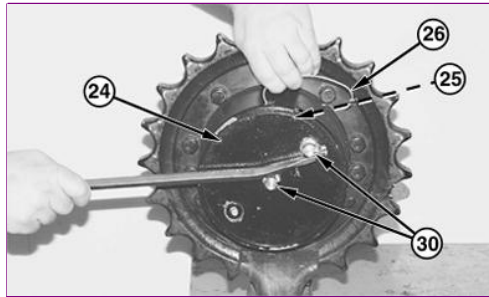
LEGEND:

- 1 - Propeller Gearbox
- 2 - Metal Face Seal
- 3 - Bearing
- 4 - Bearing Nut (Retainer)
- 5 - Plug
- 6 - Ring Gear (Housing)
- 7 - Steel Ball (132 used)
- 8 - Pipe Plug (2 used)
- 9 - Second Planet Gear (4 used)
- 10 - Needle Bearing (4 used)
- 11 - Bearing Race (4 used)
- 12 - Thrust Washer (4 used)
- 13 - Thrust Washer
- 14 - Cap Screw
- 15 - Second Planet Sun Gear
- 16 - Snap Ring
- 17 - First Planet Carrier
- 18 - First Planet Gear (3 used)
- 19 - Needle Bearing (3 used)
- 20 - Bearing Race (3 used)
- 21 - Not Used
- 22 - Input Shaft and First Planet Sun Gear

- 23 - Thrust Washer
- 24 - Cover
- 25 - O-Ring
- 26 - Wire (Retainer)
- 27 - Plug (3 used)
- 28 - O-Ring
- 29 - Propel Motor Housing and Second Planet Carrier

Remove plugs (27) and O-rings (28) to drain oil. Approximate capacity is 0.5 L (0.5 qt).

3. Remove pipe plug (8) located on the side of ring gear at cover end.



4. T163455-UN: Cover-to-Ring Gear Wire (Retainer)

LEGEND:

- 24 - Cover
- 25 - O-Ring
- 26 - Wire (Retainer)
- 30 - Fitting (2 used)

Install fittings (30) into holes.

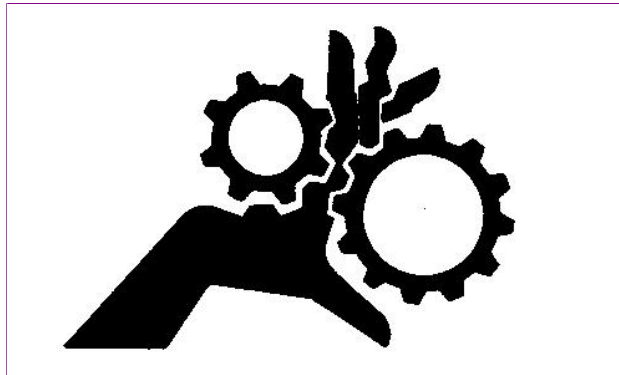
5. Turn cover (24) until the end of wire (26) is visible through hole. Continue turning the cover, pulling the wire out through the hole.
6. Remove cover and O-ring (25).
7. Remove thrust plate (23).

- 8.



CAUTION:

Planet gears can turn. Keep fingers away from gears.



T6639GK-UN: Keep Fingers Away From Gears

Remove input shaft (22).

Remove parts for first planet carrier and gears (17—20), second planet sun gear (15), and second planet gears (9—14). Keep parts for each planet gear together.

9. Remove the sprocket.
10. Remove pipe plug (8) located on the side of ring gear adjacent to the sprocket mounting flange.
Remove the 132 steel balls (7) through the hole.
11. Push the housing (29) and bearing (3) out of ring gear using a shop press or three M12 x 1.75 cap screws installed in the sprocket mounting flange and tighten against the housing. To protect the housing, use steel plates between the end of cap screws and housing.

12. **IMPORTANT:**

Metal face seals can be reused if they are not worn or damaged. A used seal must be kept together as a set because of wear patterns on seal ring face.

Remove the metal face seals (2) from ring gear and housing. Keep seal rings together as a matched set with a piece of clean cardboard between them to protect the seal ring face.

[See Inspect Metal Face Seals](#) to determine if seals can be reused. (Group 0130.)

13. Remove plugs (5). Remove bearing nut (4) using a spanner wrench or ST3313 Special Tool.
14. Remove bearing (3) from housing for replacement only. Bearing is a press fit.

NOTE:

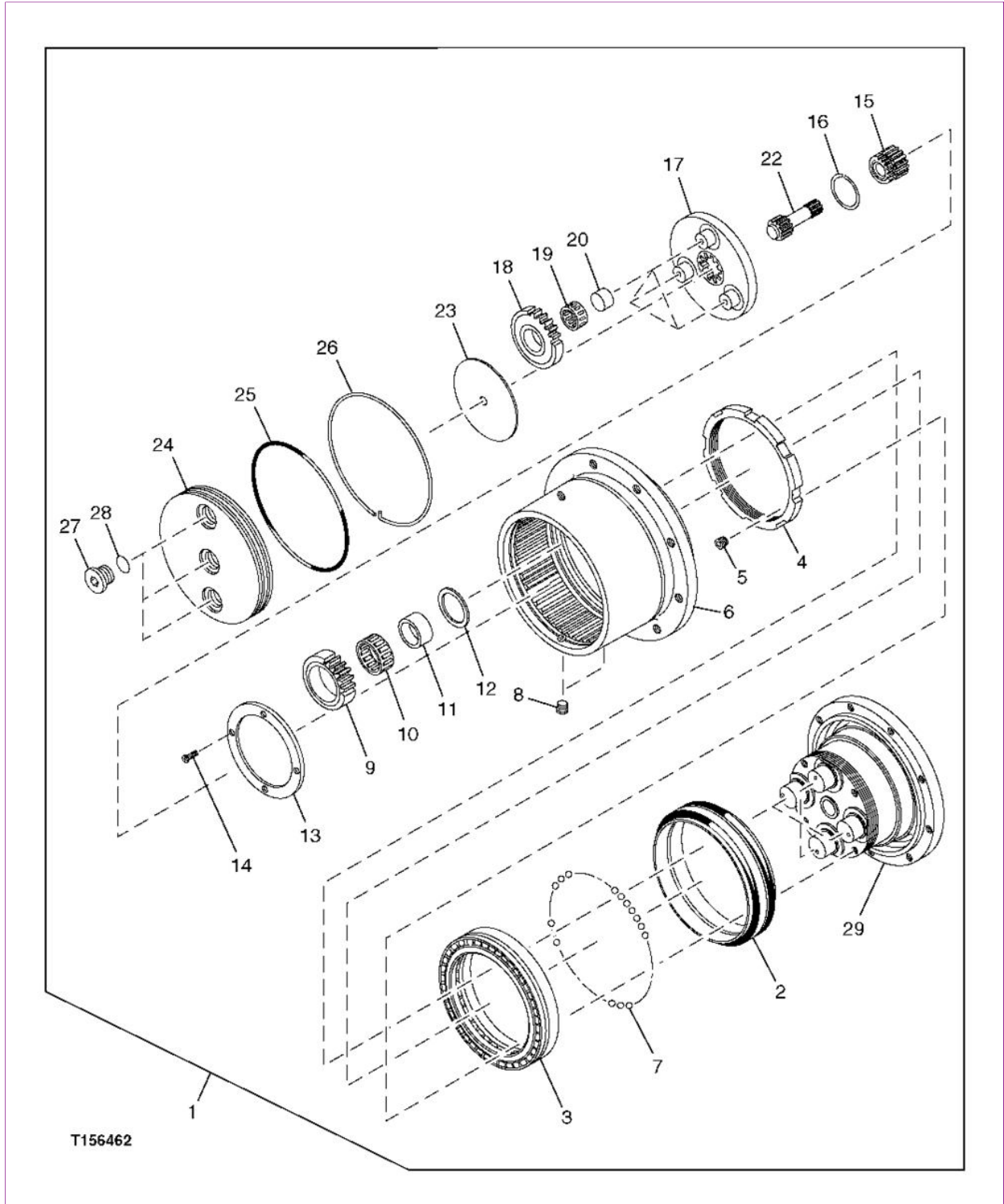
A new bearing should be installed if removed.

15. [See Propel Motor Disassemble and Assemble—35C ZTS](#) for motor disassembly. (Group 0260.)

Assemble Propel Gearbox

1. [See Propel Gearbox Operation](#) for a cross-section of Propel Gearbox—35C ZTS. (Group 9020-05.)

[See Propel Motor Disassemble and Assemble—35C ZTS](#) for motor assembly. (Group 0260.)



2. T156462-UN: Propel Gearbox Exploded View—35C ZTS

LEGEND:

- 1 - Propel Gearbox
- 2 - Metal Face Seal
- 3 - Bearing
- 4 - Bearing Nut (Retainer)
- 5 - Plug

- 6 - Ring Gear (Housing)
- 7 - Steel Ball (132 used)
- 8 - Pipe Plug (2 used)
- 9 - Second Planet Gear (4 used)
- 10 - Needle Bearing (4 used)
- 11 - Bearing Race (4 used)
- 12 - Thrust Washer (4 used)
- 13 - Thrust Washer
- 14 - Cap Screw
- 15 - Second Planet Sun Gear
- 16 - Snap Ring
- 17 - First Planet Carrier
- 18 - First Planet Gear (3 used)
- 19 - Needle Bearing (3 used)
- 20 - Bearing Race (3 used)
- 21 - Not Used
- 22 - Input Shaft and First Planet Sun Gear
- 23 - Thrust Washer
- 24 - Cover
- 25 - O-Ring
- 26 - Wire (Retainer)
- 27 - Plug (3 used)
- 28 - O-Ring
- 29 - Propeller Motor Housing and Second Planet Carrier

Install bearing (3) so the thicker edge of outer race is towards the threaded end of housing (29).

3. Tighten bearing nut (4) to specifications using spanner wrench or ST3313 Special Tool.

Item	Measurement	Specification
Propeller Gearbox—35C ZTS		
Bearing-to-Housing Bearing Nut	Torque	196 ±10 N·m (144 ± 7.2 lb-ft)

4. Tighten plug (5) to specification.

Item	Measurement	Specification
Propeller Gearbox—35C ZTS		
Bearing Nut-to-Housing Plug	Torque	14.7 N·m (132 lb-in.)

5. **IMPORTANT:**

The metal face seal O-rings and their seat surfaces must be clean, dry, and oil free so the O-rings do not slip.

Thoroughly clean O-rings, seat surfaces in housing (29), ring gear (6), and seal rings using volatile, non-petroleum base solvent and lint-free tissues.

6. Install O-rings on seal rings. Check that O-ring is not twisted.

7. **NOTE:**

A volatile, non-petroleum base solvent or talcum powder can be used as a lubricant. Solvent must not damage the O-ring or leave an oil residue.

Apply equal pressure with fingers at four equally spaced points on seal ring face. Seal must "pop" down into place so O-ring is tight against seal bore and seal ring is installed squarely.

8. Wipe finger prints and foreign material off seal ring face using clean oil and lint-free tissues.
9. Apply a thin film of clean oil on each seal ring face.
10. Install ring gear onto bearing and housing. Tap around the top edge of ring gear using a soft-faced hammer to seat the ring gear on bearing.
11. Install the 132 steel balls (7) through hole and into the groove in bearing and ring gear.
12. Apply pipe sealant to threads of pipe plug (8). Tighten plug to specification.

Item	Measurement	Specification
Propeller Gearbox—35C ZTS		
Pipe Plug to Ring Gear	Torque	7.9 N·m (70 lb-in.)

13. Install thrust plates (12), races (11), needle bearings (10), and second planet gears (9) onto pins.
14. Install thrust washer (13).

Apply thread lock and sealer (low strength) to threads of cap screw (14). Tighten cap screws to specifications.

Item	Measurement	Specification
Propeller Gearbox—35C ZTS		
Thrust Washer-to-Housing Cap Screw	Torque	6.1 N·m (54 lb-in.)

15. Install snap ring (16) on second planet sun gear (15). Install sun gear.
 16. Install races (20) and needle bearings (19).
 17. Install first planet gears (18) so the flat side is against machined surface of first planet carrier (17).
 18. Install input shaft (22).
 19. Install thrust plate (23).
 20. Install O-ring (25) on cover (24). Apply grease to O-ring.
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