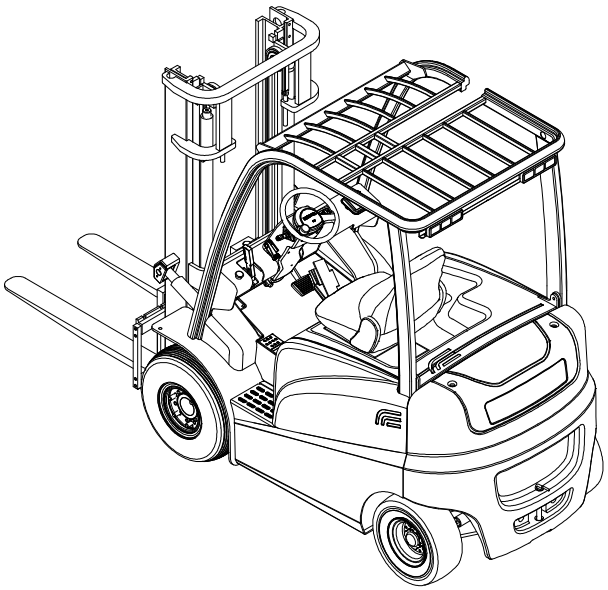
UTILEV®

1.5T–3.5T 4-Wheel Electric Counterbalanced Forklift Truck

UT15PFE-UT35PFE

Service Manual



Part 76502794 (R2)

The Service Manuals are updated on a regular basis, but may not reflect recent design changes to the product. Updated technical service information may be available from your local authorized UTILEV® distributor. Service Manuals provide general guidelines for maintenance and service and are intended for use by trained and experienced technicians. Failure to properly maintain equipment or to follow the instructions contained in the Service Manual or from your local authorized distributor could result in damage to the products, personal injury, property damage or death.

Ref. Manual Dated (01/2015)

Foreword

This manual covers the components, operation, and servicing of the 1.5T-3.5T 4 Wheel Electric forklift truck. To ensure safe operation of this truck, it is important to read and understand the contents of this manual.

Only qualified service personnel should perform maintenance on this truck.

Product specifications in this manual may vary from your actual truck due to periodic improvements in design. Please contact your Utilev dealer if you have any questions or comments regarding this manual.

This electric four-wheel forklift truck has passed the requirements for, and is approved for operation in countries adhering to CE regulations.

MODELS

Model	Drive Controller	Pump Controller	Rated Capacity(t)/ Load Center(mm)
UT15PFE-UT18PFE	Curtis 1234	Curtis 1234	1.5 / 500，1.8 / 500
UT20PFE-UT25PFE	Curtis 1236	Curtis 1234	2.0 / 500，2.5 / 500
UT30PFE	Curtis 1236	Curtis 1236	3.0 / 500
UT35PFE	Curtis 1238	Curtis 1236	3.5 / 500

WARNING

Indicates a condition that can cause immediate death or injury!

CAUTION

Indicates a condition that can cause property damage!

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1. Drive system

The drive system consists of motor, reduction gearbox, drive axle, brake, tires, rims and other components.

The reduction gearbox is a two stage reduction gearbox, namely a cylindrical helical gear and a planetary hub reduction with a compact structure.

The brakes are shoe type. Please refer to Parts Manual for relevant parts of the braking system for details.

1.1 AC Motor

Model	Drive motor	Pump motor
UT15PFE-UT18PFE	See Parts Manual	See Parts Manual
UT20PFE-UT25PFE	See Parts Manual	See Parts Manual
UT30PFE-UT35PFE	See Parts Manual	See Parts Manual

CAUTION

AC motors are considered maintenance free with no commutators and brushes. AC motors should be checked daily for dust and debris.

1.2 Reduction gearbox

The reduction gearbox is a double reduction gearbox, namely a cylindrical helical gear and a planetary hub reduction, with a compact structure.

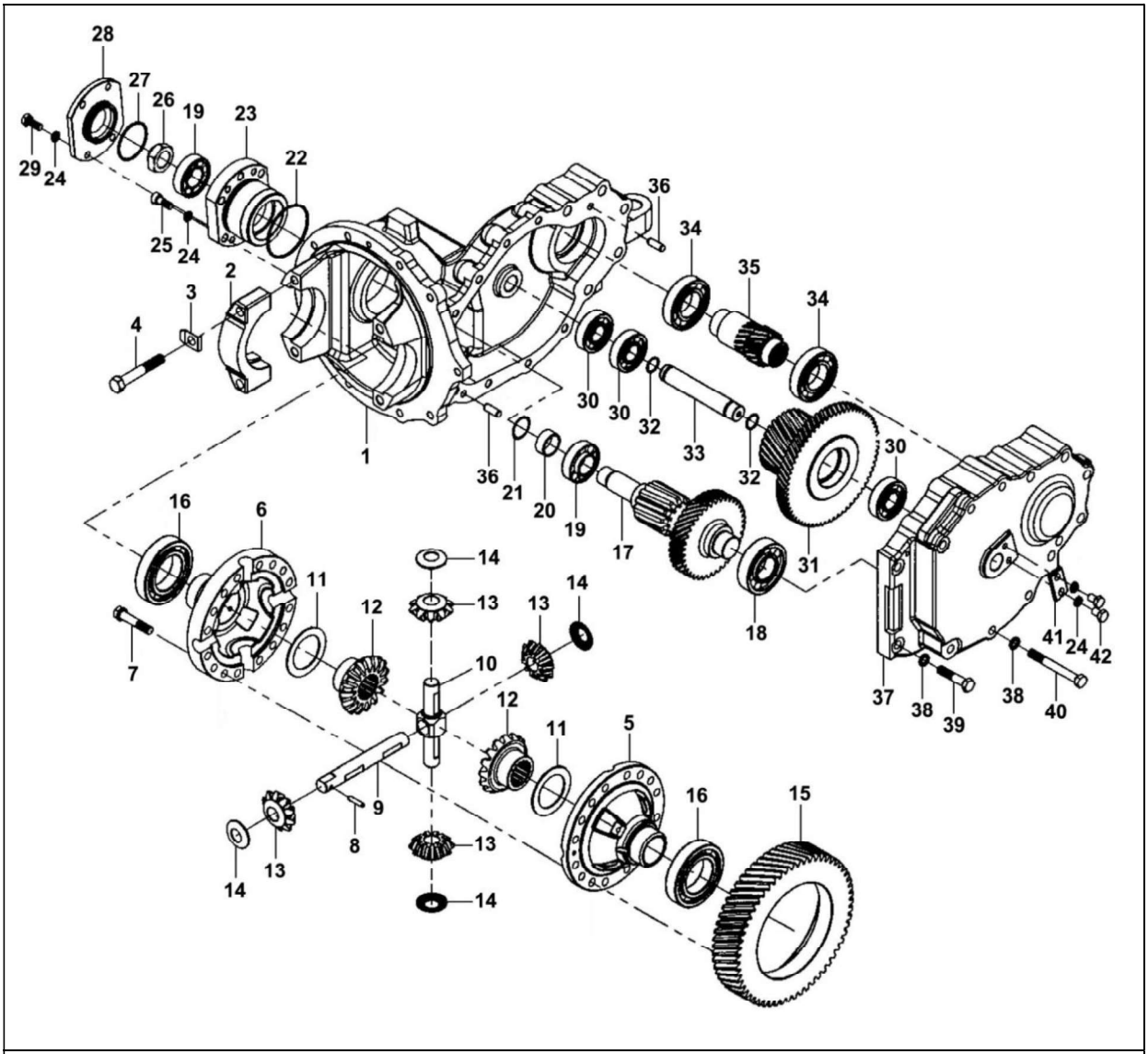

Fig. 1-1 Gear Box

1. Transmission Housing	2. Bearing Seat	3. Locking Plate	4.Bolt
5. Differential housing,R.H.	6. Differential Housing,L.H.	7. Bolt	8. Pin
9.Pinion Gear Shaft	10.Pinion Gear Shaft	11.Washer	12.Half shaft gear
13.Planetary Gear	14.Thrust Washer	15.Big Ring Gear	16.Bearing
17.Double Gear Shaft	18.Bearing	19.Bearing	20.Bushing
21.Shim	22.O-Ring	23.Bearing Seat	24.Washer
25.Bolt	26.Locknut	27.O-Ring	28.Bearing cap
29.Bolt	30.Bearing	31.Double gear	32.O-Ring
33.Shaft	34.Bearing	35.Pinion	36.Pin
37.Transmission Housing	38.Washer	39.Bolt	40.Bolt
41.Locating Plate	42.Bolt		

Condition	Possible Cause	Corrective action
Loud impact noise when travelling and changing direction	• Excessive gear clearance	Adjust
	• High gear wear	Replace
Gear Noise when Travelling	• Low oil level in the gearbox	Add gear oil
	• Excessive gear clearance	Adjust
	• High gear wear	Replace

1.3 Drive axle

1.3.1 Data

Forklift Model		1.5t-1.8t	2.0t - 2.5t	3.0t - 3.5t
Drive axle type		Full-floating, drive axle is directly mounted to the frame, front-wheel drive		
Tire inflation pressure	MPa	0.79	0.90	
Rotation starting tension of hub at the hub bolt	N	10-29		
Axial clearance of wheel bearing	mm	Less than 0.08		
Weight	kg	125 - 130	195 - 198	202 - 208

1.3.2 Troubleshooting

Fault	Possible Cause	Corrective Action
Abnormal noise	Loose bolts between drive axle and the truck frame.	Tighten
	Loose wheel nut.	Tighten
	Worn or damaged inner hub bearing.	Replace
	Improper adjustment of inner hub bearing.	Adjust
	Worn axle shaft spline.	Replace
	Inadequate lubrication.	Fill/ lube/ grease
Wheel Wobble	Loose wheel nut.	Tighten
	Damaged wheel.	Replace
	Inner hub bearing damage.	Replace
	Loose bolts between drive axle and the truck frame.	Tighten
	Improper adjustment of inner hub bearing.	Adjust
	Improper tire pressure.	Adjust
Leaking Fluid	Worn or damaged drive axle oil seal.	Replace Seal
	Improperly installed main transmission.	Replace Gasket
	Loose oil drain plug.	Tighten

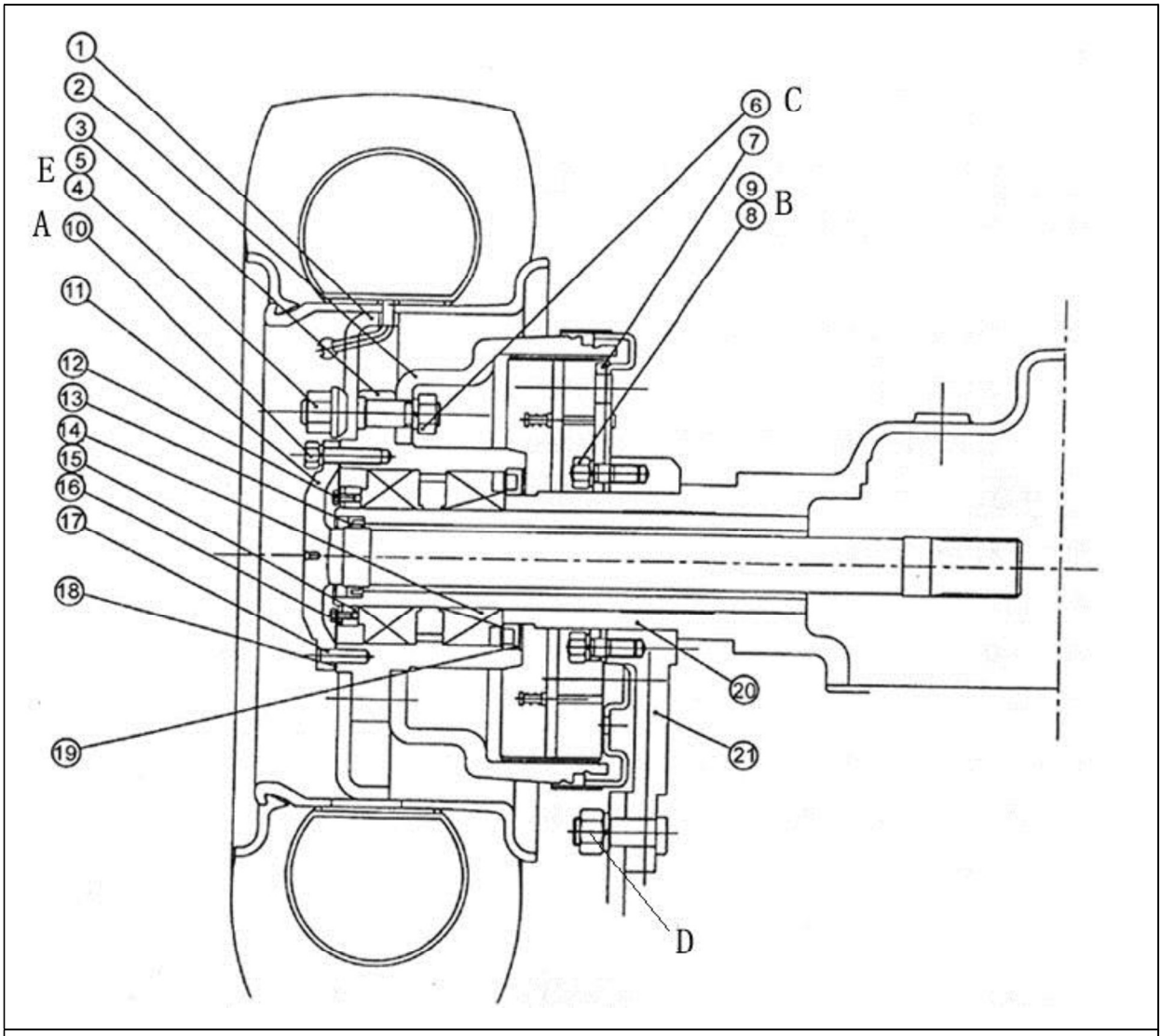

Fig.1-2 Drive Axle (2pc Hub & Drum)

1. Wheel	2. Brake Drum	3. Wheel Hub	4.Wheel Nut	5. Wheel Hub Bolt
6. Bolt	7.Brake Assy	8. Washer	9.Bolt	10.Half-Axle Nut
11. Axle Shaft	12.Bolt	13.Oil Seal	14.Taper Roller Bearing	15.Adjusting Nut
16.Lock Nut	17.Pin	18.Paper Shim	19.Oil Seal	20.Axle Housing
21.Support				

Tightening torque: N.m

Item	1.5t-1.8t	2t-3.5t
Axle Shaft Bolt Ⓐ	38-50	58-78
Brake plate Bolt Ⓑ	76-107	118-147
Nut connecting brake drum and hub Ⓒ	260-347	324-373
Bolt and nut connecting support plate and truck body Ⓓ	260-347	324-373
Wheel nut Ⓔ	157-176	363-490

1.3.3 Removal and installation of drive axle assembly

WARNING

- **Be careful during removal and installation of drive axle. The Axle is heavy and can cause serious injury. Use appropriate capacity lifting equipment to avoid injury.**

（1）Raise front end of forklift truck and support frame with wooden blocks.
（2）Remove mast assembles.
（3）Slightly raise axle with a hoist and place wooden blacks under differential gear carrier and transmission case.
（4）After placing a pan under axle case, loosen oil plug, drain oil from axle case.
（5）Disconnect brake nuts from left and right cylinders. (see Figure 1-3).

CAUTION

- **Plug brake tube openings to prevent oil from flowing out**.

（6）Disconnect brake cable at hand brake lever.
（7）Remove front wheels.
（8）Remove axle shaft.
（9）Support driving axle with wire ropes and lifting device.
（10）Remove bolts securing axle mounting bracket to frame. (see Figure 1-4).
（11）Remove nuts securing axle case to differential gear carrier. (see Figure1-5).
（12）Remove driving axle assembly.

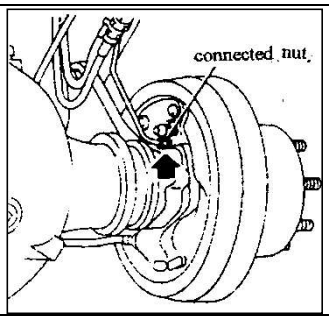

Fig. 1-3

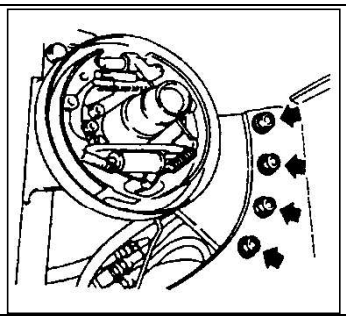

Fig. 1-4

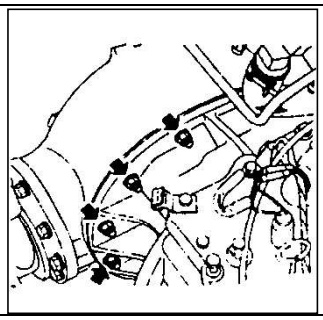

Fig. 1-5

（13）Remove brake drum then remove wheel hub.
（14）Remove axle mounting bracket and brake component from axle tube.
（15）Remove oil seal from axle tube.
（16）To install driving axle assembly in the reverse order of removal. Observe the following:
① When installing axle mounting bracket and brake component, apply a coat of calcium grease to axle tube.
② Apply 1/3-2/3 of volume of calcium grease to wheel hub then install them on axle tube.
③ Install oil seal with its part number facing to the inside of forklift truck.
④ Install drain plug after cleaning it and covering it with seal tape (PVC, white).
⑤ Replenish axle case with gear oil. Tighten vent plug after clearing.**

Gear oil GL-5 85W/90	1.5t - 1.8t	4.5 L
	2.0t - 3.5t	6.0 L

**** Vent plug must be cleaned frequently to prevent the pressure in the axle housing from increasing.**