CATERPILLAR*

Disassembly and Assembly

416D, 420D, 424D, 428D, 430D, 432D, 438D and 442D Backhoe Loaders Power TrainMedia Number -RENR3578-12Publication Date -01/04/2010Date Updated -13/04/2010

i01380368

Transmission (Direct Drive) - Disassemble

SMCS - 3030-015-DD ; 3066-015

Disassembly Procedure

Required Tools				
Tool	Part Number	Part Description	Qty	
Α	1U-5750	Engine Stand	1	
В	6V-2157	Link Bracket	1	
С	98-9152	Puller Assembly	1	
С	5F-7465	Puller	1	
С		3/8inch x 6inch Bolt	2	
D	4C-3652	Spring Compressor	1	
Е	1U-6405	Puller	1	
F	4C-3802	Puller	1	
G	8H-0663	Puller	1	
G	5F-7465	Puller	1	
Н	8B-7551	Puller	1	

Н	6V-3010	Puller	1
Ι	137-8102	Spring Compressor	1
J	4C-3089	Puller	1
K	1P-1859	Snap Ring Pliers	1

Start By:

A. Remove the transmission. Refer to Disassembly and Assembly, "Transmission (Direct Drive) - Remove".

NOTICE

Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

Refer to Special Publication, NENG2500, "Caterpillar Tools and Shop Products Guide" for tools and supplies suitable to collect and contain fluids on Caterpillar products.

Dispose of all fluids according to local regulations and mandates.

Note: Cleanliness is an important factor. Before the disassembly procedure, the exterior of the component should be thoroughly cleaned. This will help to prevent dirt from entering the internal mechanism.

Note: The transmission will be disassembled in major components. The major components will then be disassembled.



g00728888

1. Install transmission (1) on tooling (A).



Illustration 2

g00728895

2. Remove Implement pump drive shaft (2) from transmission (1).



Illustration 3

g00728902

3. Remove plug (3). Drain the transmission oil into a suitable container. The capacity of the transmission is 11.3 L (3 US gal).



g00728906

4. Remove bolt (6), washer (5), and yoke (4).



Illustration 5

g00728913

5. Attach tooling (B) to case (7). Attach a suitable lifting device to tooling (B). Remove fourteen bolts (8). Remove case (7) from the transmission. The weight of case (7) is 42 kg (94 lb).

(Direct Drive) Output Shaft (Front)



g00728940

1. Remove front output shaft (9).



Illustration 7

g00728943

2. Use tooling (C) in order to remove bearing cone (10).



3. Use tooling (E) in order to remove bearing cone (11) and gear (12).



Illustration 9

g00728945

4. Remove two roller bearings (13), spacer (14), needle bearing (15), and thrust washer (16).



Illustration 10

g00728948

5. Remove retainer (17) and clutch pack (18).



g00728950

6. Use a suitable press and tooling (D) in order to compress spring (19). Use tooling (K) in order to remove snap ring (20) .



Illustration 12

g00728952

7. Remove snap ring (20), retainer (21), and spring (19).



g00728953

8. Release piston (22) by blowing shop air into the lube passage, as shown.



Illustration 14

g00729060

9. Use a seal pick in order to remove the seals from piston (22).

(Direct Drive) Output Shaft (Rear)



Illustration 15

g00729062

1. Remove screws (24) from each of the gearshift rods (23).



g00729064

2. Remove plug (25).



Illustration 17

g00729196

3. Remove plug (25), O-ring (26), two springs (27), and three balls (28). Remove two gearshift rods (23) from shift forks (29) .



g00729197

4. Use tooling (E) in order to remove bearing (30), gear (31), and gear (32).



Illustration 19

g00729198

5. Remove bearings (33), spacer (34), and synchronizer (35).



6. Use tooling (F) in order to remove bearing (36) and gear (37). Remove synchronizer (38).



g00729200

7. Use tooling (K) in order to remove snap ring (39). Remove gear (40) and housing (41).



8. Use tooling (E) in order to remove gear (42).

(Direct Drive) Shaft

1. Remove the shaft by hand for disassembly.



g00729202

2. Use tooling (G) in order to remove bearings (43) and (44).

(Direct Drive) Reverse Shaft

1. Remove the reverse shaft by hand for disassembly.



Illustration 24

g00729204

2. Use tooling (G) in order to remove bearings (45) and (46).

(Direct Drive) Input Shaft

1. Remove the input shaft by hand for disassembly.



g00729207

2. Use tooling (H) in order to remove bearing (47).



Illustration 26

g00729208

3. Use tooling (K) in order to remove snap ring (48). Remove spacer (49), needle bearing (50), and gear (51).



4. Remove retainer (52) and clutch pack (53).



Illustration 28

g00729213

5. Use tooling (I) and a suitable press in order to compress spring (55). Use tooling (K) in order to remove snap ring (54). Remove the retainer and spring (55).



Illustration 29

g00729257

6. Release piston (56) by blowing shop air into the lube passage, as shown.



g00729258

7. Use a seal pick in order to remove the seals from piston (56).



Illustration 31

g00729260

8. Use tooling (J) in order to remove bearing (57) and gear (58).



- 9. Remove gear (59) from the clutch pack.
- 10. Repeat Steps 4 through 7 for the remainder of the input shaft.

Transmission Case



Illustration 33

g00729262

Note: Record the measurement and placement of the shims behind the bearing cups in order to aid in assembly.

1. Remove bearing cups (60), (61), (62), (63), and (64).

Copyright 1993 - 2017 Caterpillar Inc. All Rights Reserved. Private Network For SIS Licensees.