MAIO 1974

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FORM NO. REG00892-01

FOR USE IN SERVICE MANUAL:
D4D TRACTOR (SA), REG00784

RUTHZIL TRATOR COMERCIAL DE PEÇAS LTDA 11 97083-6812 ROLANDO

Disassembly & Assembly

D4D Tractor Power Train

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INTRODUCTION

This publication has instructions and procedures for the subject on the front cover. The information, specifications, and illustrations in this publication are on the basis of information that was current at the time this issue was written.

The "Alphabetical Index" is a list of all components and service operations in this manual section. It gives page numbers and also the operations numbers as found in the "Service Index".

The "Service Index" is a list of all component operations found in this manual section. All operations in the column "Component Operation" are removal and installation instructions, unless other descriptions are given for the operation. The arrangement of the components in this list is by location on the machine or engine. The column "Other Needed Operations" gives the number of all other component operations that are necessary to do the respective job.

Correct operation, maintenance, test and repair procedures will give this product a long service life. Before starting a test, repair or rebuild job, the serviceman must read the respective sections of the Service Manual, and know all the components he will work on.

Your safety, and the safety of others, is at all times very important. When you see this symbol ⊕ or this symbol ⚠ in the manual, you must know that caution is needed for the procedure next to it. The symbols are warnings. To work safely, you must understand the job you do. Read all instructions to know what is safe and what is not safe.

It is very important to know the weight of parts. Do not lift heavy parts by hand. Use a hoist. Make sure heavy parts have a good stability on the ground. A sudden fall can cause an accident. When lifting part of a machine, make sure the machine has blocks at front and rear. Never let the machine hang on a hoist, put blocks or stands under the weight.

When using a hoist, follow the recommendation in the manual. Use correct lift tools as shown in illustrations to get the correct balance of the component you lift. This makes your work safer at all times.

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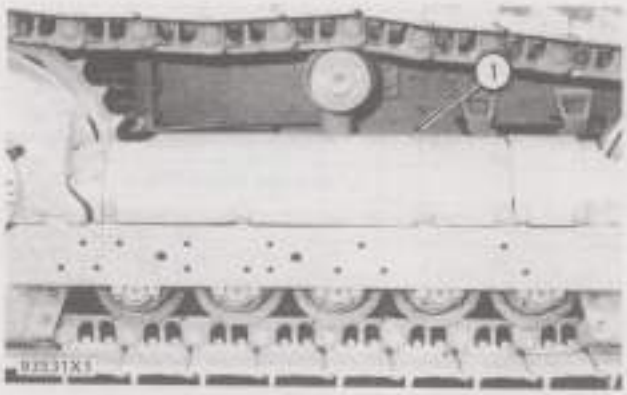
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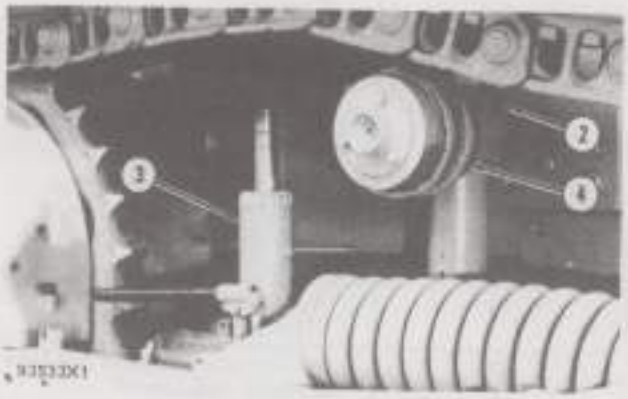
TRACK CARRIER ROLLERS

REMOVE TRACK CARRIER ROLLERS 11–4154

WARNING: The adjuster cylinder for the track is under high hydraulic pressure. Do not visually inspect the relief valve to see if grease is being released. Check the adjuster cylinder to see that it moves to the rear into the front pilot for the recoil springs. Use this warning any time that the track is loosened or tightened.

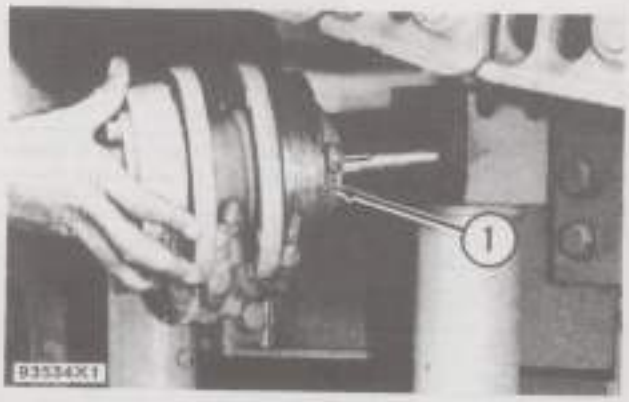
1. Loosen the track. Remove guard (1) from the track roller frame.
2. Put hydraulic jack (3) and block in position under the track. Lift the track off of the track carrier roller.
3. Remove four bolts (2).
4. Remove the track carrier roller (4).





INSTALL TRACK CARRIER ROLLERS 12–4154

1. Put the track carrier roller (1) in position in the bracket.
2. Install the four bolts in the bracket.
3. Remove the hydraulic jack and block.
4. Make an adjustment to the track. See TRACK ADJUSTMENT in LUBRICATION AND MAINTENANCE GUIDE.

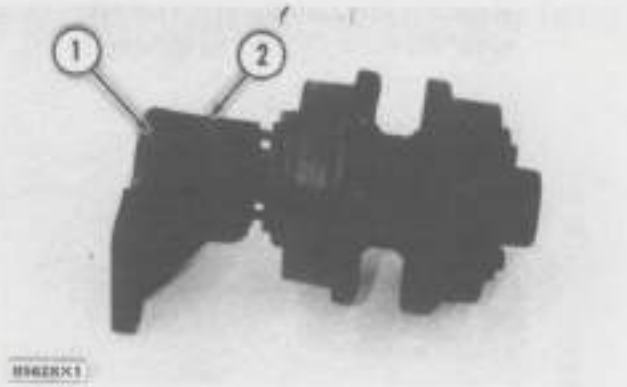


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TRACK CARRIER ROLLERS

DISASSEMBLE TRACK CARRIER ROLLERS 15–4154

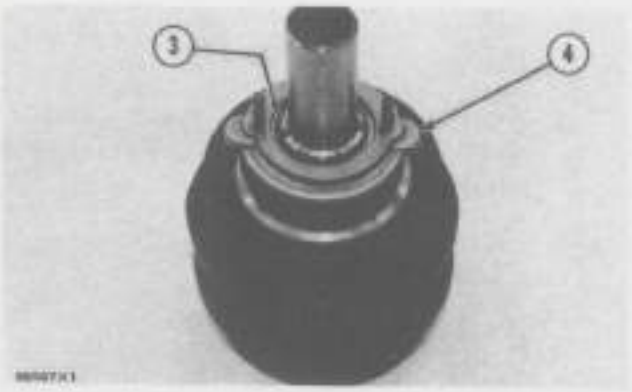
Tools Needed		A	B
1P2321	Puller	1	
8B7560	Step Plate	1	
8B7548	Puller Assembly		1
8H663	Bearing Pulling Attachment		1
8H684	Ratchet Box Wrench		1
9S9155	Spacer		1



start by:

a) remove track carrier rollers

1. Loosen bolts (1) and remove bracket (2) from the shaft.



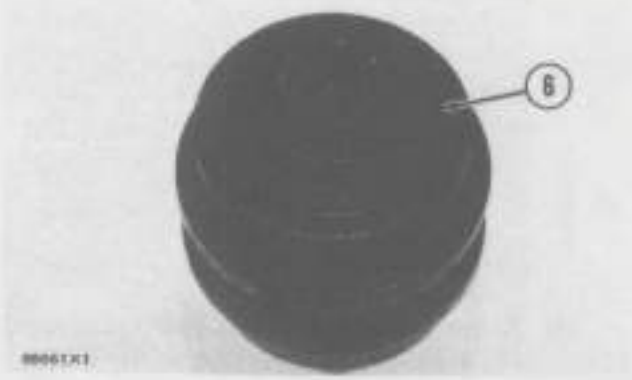
2. Remove spiral snap ring (3). Remove collar (4) from the roller.

3. Remove the Duo-Cone Seal from the collar and support.



4. Install two 1/4"–20NC forged eyebolts in support (5). Remove the support from the roller.

5. Remove the O-ring seal from the support.

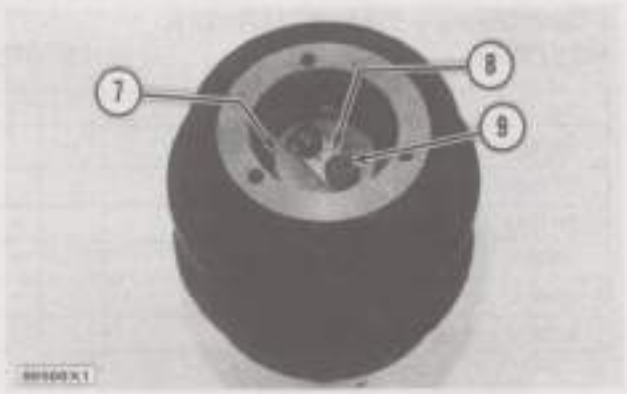


6. Remove the three bolts that hold cover (6) to the roller. Remove the cover from the roller. Remove the O-ring seal from the cover.

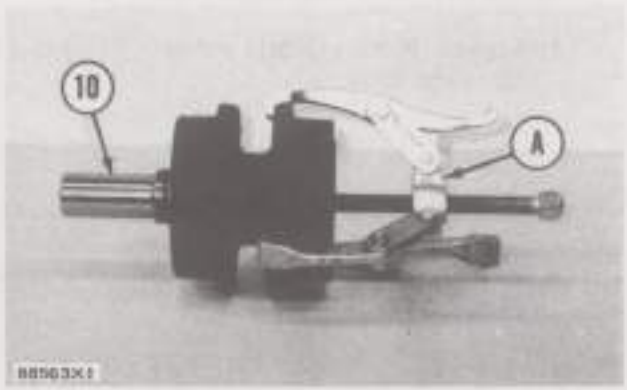
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TRACK CARRIER ROLLERS

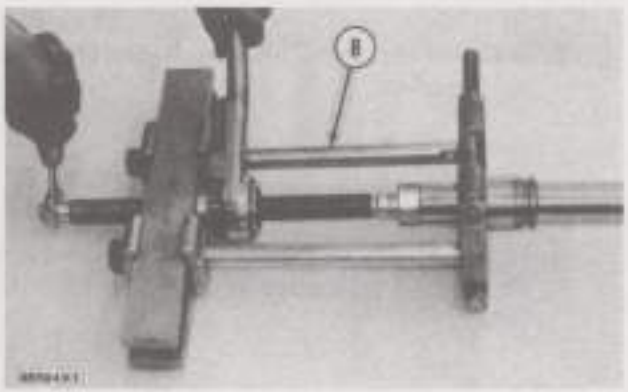
7. Remove the two bolts (9), lock (8), and plate (7) from the end of the shaft.



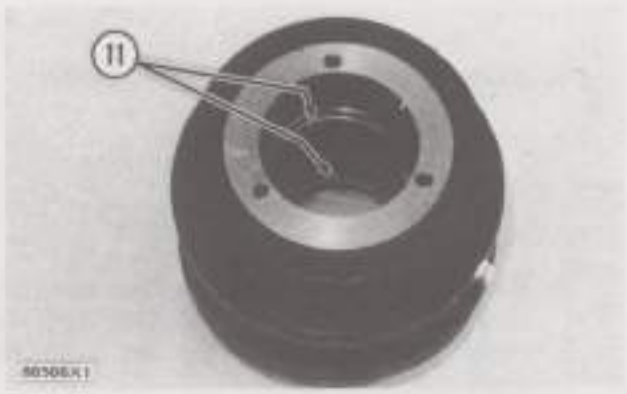
8. Install tooling (A) and remove shaft (10) from the roller. Remove the O-ring seal from the shaft.



9. Remove the bearing cone from the shaft with tooling (B).

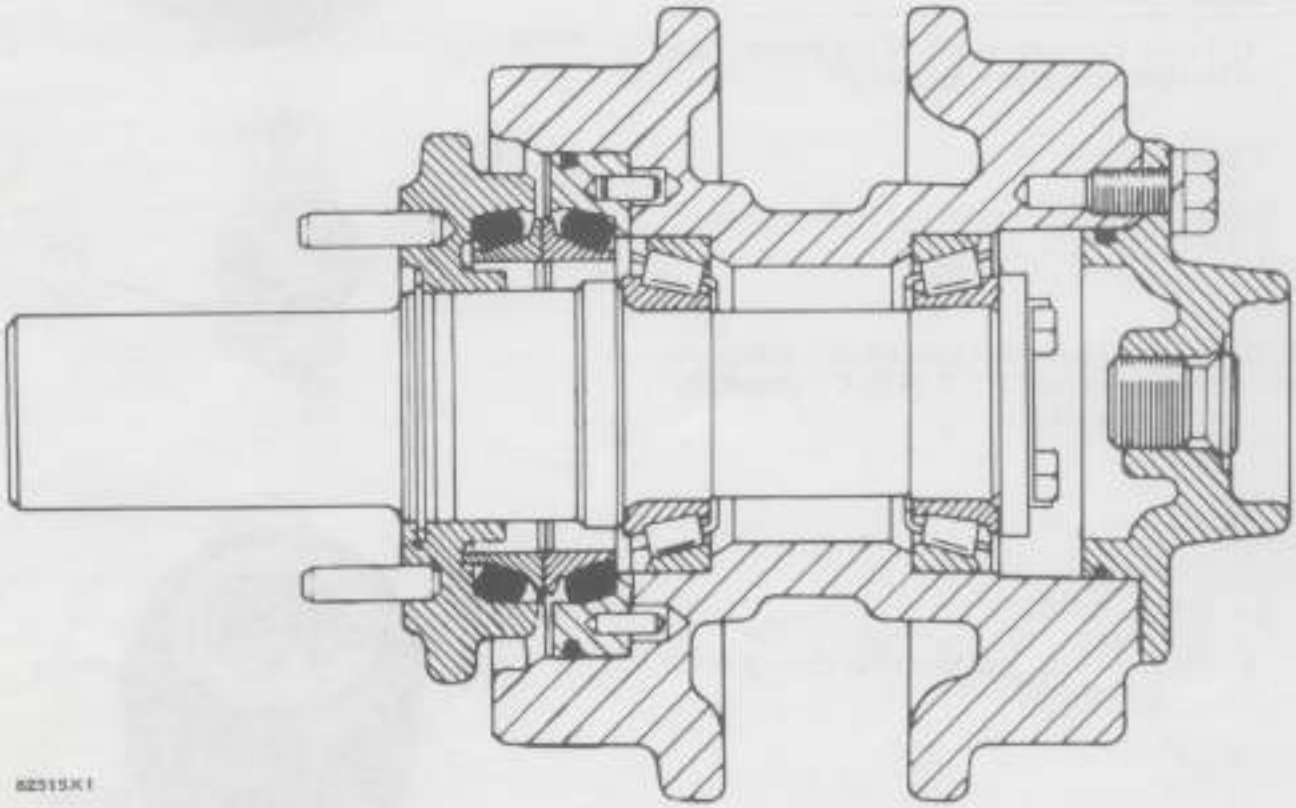


10. Remove the two bearing cups (11) from the roller with a hammer and punch.



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TRACK CARRIER ROLLERS



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TRACK CARRIER ROLLERS

ASSEMBLE TRACK CARRIER ROLLERS 16--4154

Tools Needed		A	B
8B7548	Puller Assembly	1	
8H663	Bearing Pulling Attachment	1	
8H684	Ratchet Box Wrench	1	
5H9978	Screw	1	
8B7560	Step Plate	1	
5M2196	Seal Installer		1

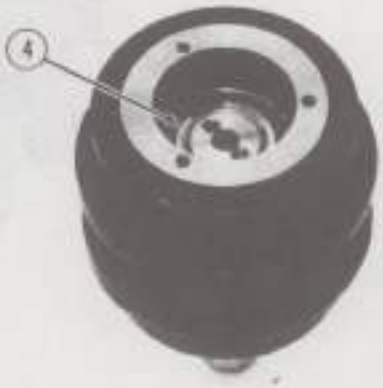
1. Lower the temperature of the bearing cups (1). Install the cups in the roller.



2. Heat bearing cone (2) in oil to a maximum temperature of 275°F (135°C). Install the cone on shaft (3).



3. Install the shaft and bearing in the roller.



4. Heat bearing cone (4) in oil to a maximum temperature of 275°F (135°C). Install the cone on the shaft.



5. Install plate (5), lock (6), and bolts (7) in the end of the shaft.

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TRACK CARRIER ROLLERS

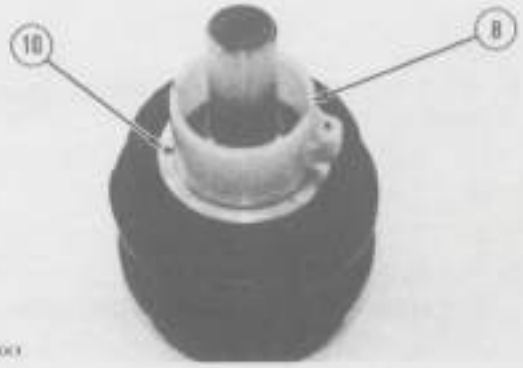
6. Put O-ring seal (9) in a mixture of soap and water. Install the seal on cover (8). Put the cover in position on the roller. Install the three bolts that hold the cover in place.

7. Put the O-ring seal for support (10) in a mixture of soap and water. Install the seal on the support. Make sure the dowels on the support are in alignment with the dowel holes in the roller and install support (10) in the roller.

8. Install the Duo-Cone seal in the support and collar with tool (B).

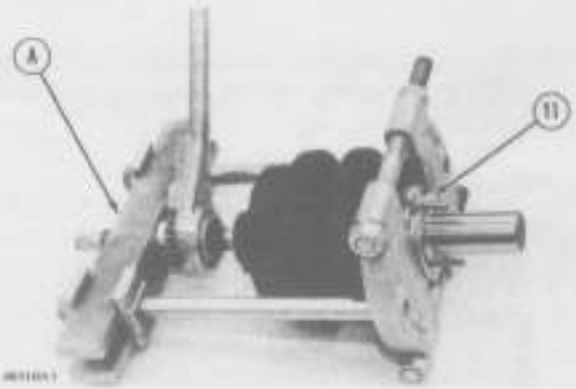


NOTE: The rubber seals and all surfaces that make contact with the seals must be clean and dry. After installation of the seals, put oil on the contact surfaces of the metal seals.



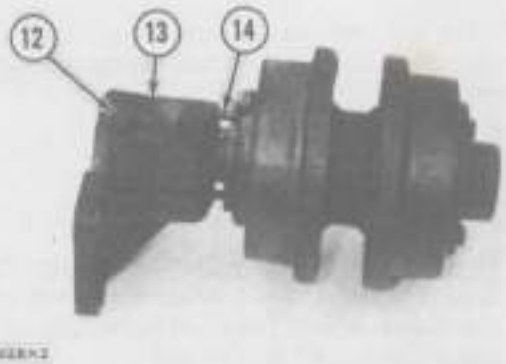
9. Put the O-ring seal for the shaft in a mixture of soap and water. Install the seal on the shaft.

10. Install collar (11) on the shaft. Install tooling (A) on the roller. Put the Duo-Cone seal under compression with tooling (A) until the spiral snap ring can be installed on the shaft. Install the snap ring.



11. Make sure dowels (14) are in alignment with the holes in the bracket. Put bracket (13) in position on the shaft. Tighten bolts (12).

12. Put the roller in position with the shaft in a vertical position. Remove the plug from the end of the shaft. Put 1 pint (.5 liter) of oil in the roller. Install the plug. Tighten the plug to a torque of 125 ± 15 lb.ft. (17.29 ± 2.1 mkg).



13. After the roller has been installed, loosen bolts (12). Move the roller in or out to put the roller in alignment with the track. Tighten the bolts.

end by:

a) install track carrier rollers

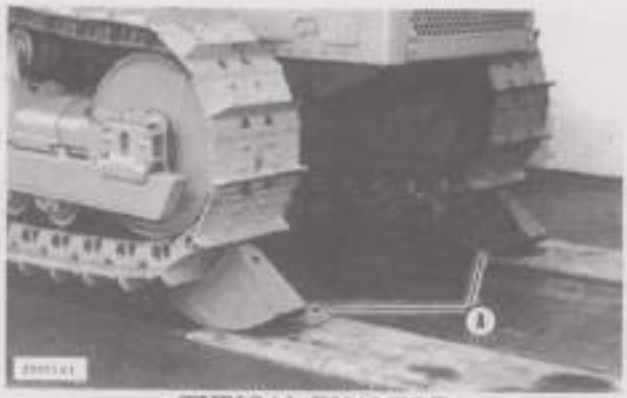
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TRACK ROLLERS

REMOVE TRACK ROLLERS 11–4180

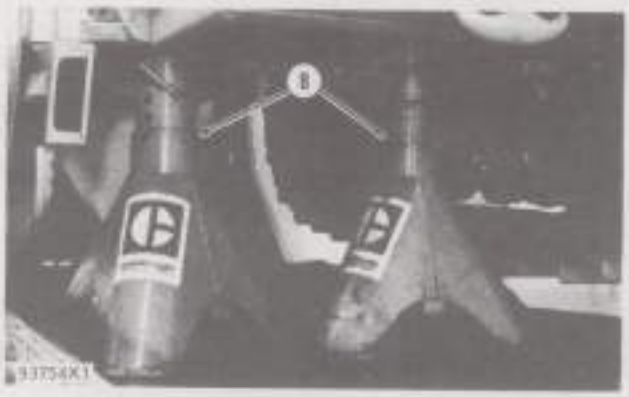
Tools Needed		A	B
9S27	Lift Assembly	4	
8S7460	Stand		4
8S7611	Tube		4
8S7615	Pin		4

NOTE: The track is removed from the right side of the machine for better illustration of tooling (B) position.



TYPICAL EXAMPLE

1. Start the machine. Move the machine forward on tooling (A).



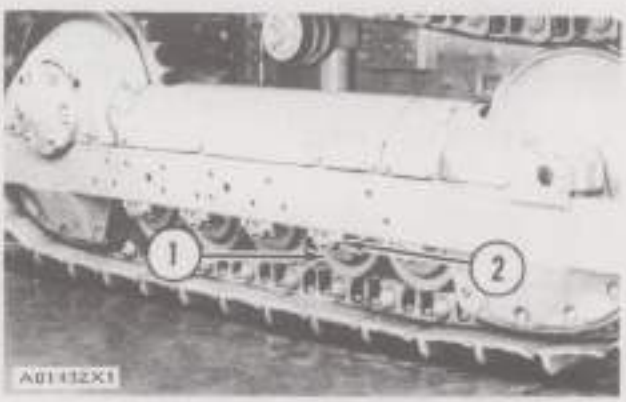
2. Put tooling (B) in position under the equalizer spring on both sides of the machine.

3. Move the machine backward up on tooling (A). Put tooling (B) in position under the steering clutch case.



4. Tighten the track until it is against the track roller.

NOTE: Do not tighten the track too tight. Damage to the seals in the track adjusting mechanism can result.



5. Remove four bolts (2). Loosen the track. Lower roller (1) and remove it from under the track roller frame. The weight of the track roller is 85 lb. (39 kg).

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TRACK ROLLERS

INSTALL TRACK ROLLERS 12–4180

Tools Needed		A	B
9S27	Lift Assembly	4	
8S7460	Stand		4
8S7611	Tube		4
8S7615	Pin		4



1. Put the track roller (1) in position on the track.

2. Tighten the track until the track roller is against the track roller frame.

3. Install the four bolts. Tighten the bolts to a torque of 125 ± 5 lb.ft. (17.3 ± 0.7 mkg).

4. Put tooling (A) in front of the tracks. Start the machine. Move tracks forward up on tooling (A). Remove tooling (B) from both sides of the equalizer spring. Put tooling (A) at the rear of the tracks. Move machine backward up on tooling (A). Remove tooling (B) from under the steering clutch case. Move the machine forward off of tooling (A).

5. Make an adjustment to the tracks. See TRACK ADJUSTMENT in LUBRICATION AND MAINTENANCE GUIDE.

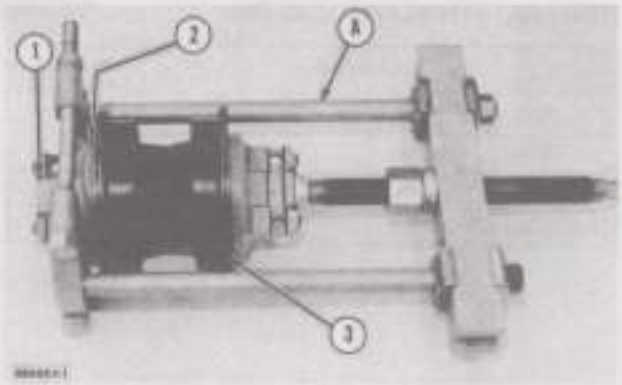
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TRACK ROLLERS

DISASSEMBLE TRACK ROLLERS 15–4180

Tools Needed		A
1H3107	Puller Assembly	1
1H3108	Leg	2
1H3110	Bearing Puller Attachment	1
9S9154	Step Plate	1

start by:
a) remove track rollers



1. Remove the plug from the end of the shaft. Remove the oil from the roller.

2. Install tooling (A) on roller (3). Put collar (2) under compression until ring (1) can be removed. Remove the ring from the shaft.

3. Remove tooling (A) from the roller. Remove collar (2). Remove the O-ring seal from the shaft.

4. Remove the Duo-Cone seal from the collar and bushing. Put identification on the seals to prevent mixing at assembly.

5. Follow Steps 2 through 4 and remove the ring, collar, O-ring seal, and Duo-Cone seal from the other end of the roller.

6. Remove the six bolts (4) from each side of the roller.

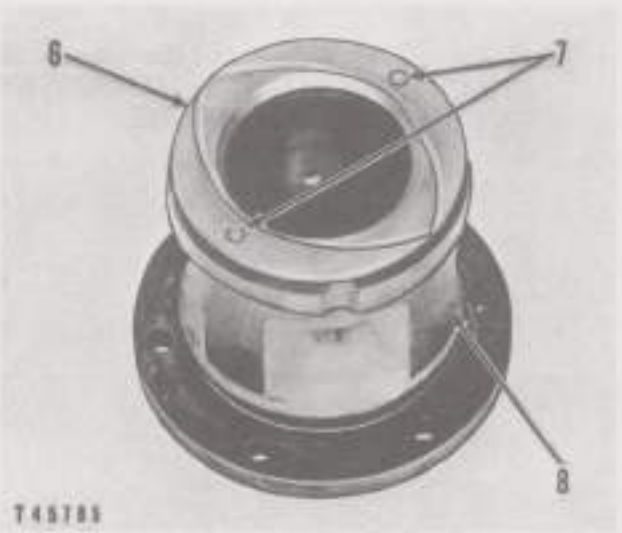
7. Remove the two bushings and shaft (5) from the roller with a press.

NOTE: See TRACK ROLLER SPECIFICATIONS in POWER TRAIN SPECIFICATIONS.

8. Remove bushing (6) from bushings (8) with a press.

9. Cut pins (7) off even with the bushing. Make the surface of the bushing smooth with a file.

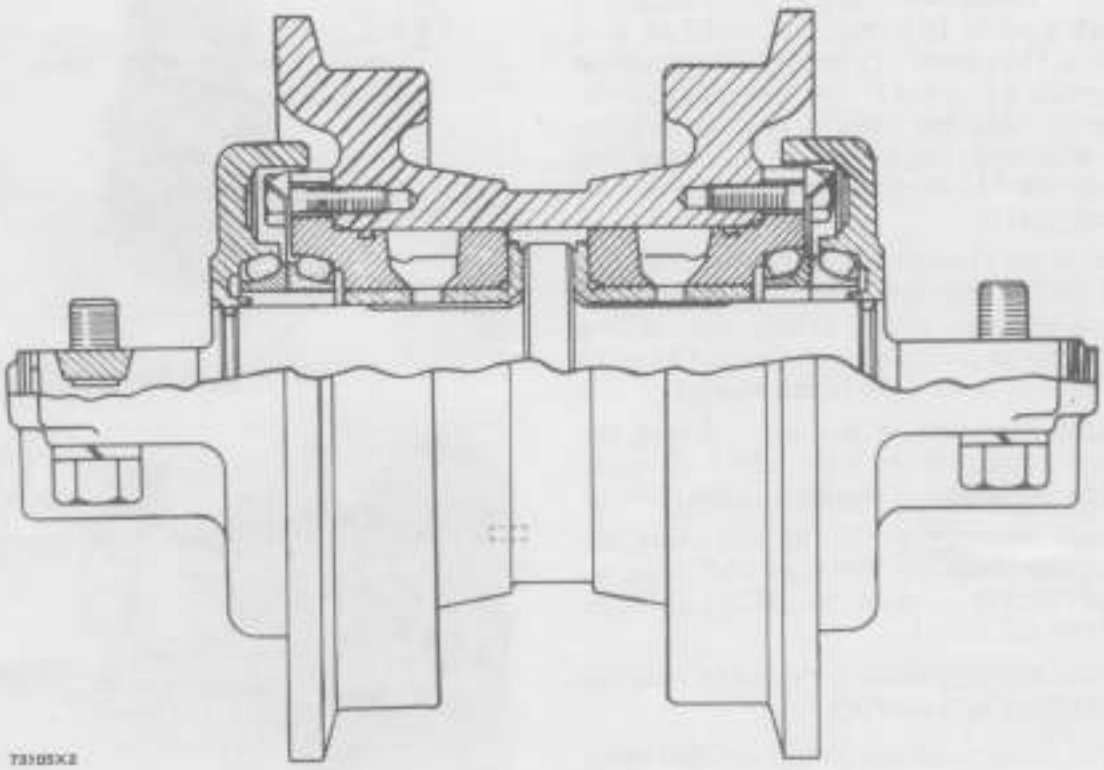




TYPICAL EXAMPLE

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TRACK ROLLERS

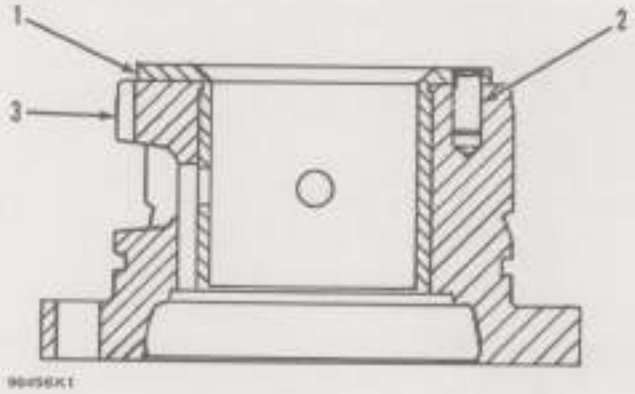


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TRACK ROLLERS

ASSEMBLE TRACK ROLLERS 16–4180

Tools Needed		A	B	C	D	E
FT578	Bushing Alignment Tool Group	1				
8S2328	Indicator Group		1			
5M2196	Seal Installer			1		
1H3107	Puller Assembly				1	
1H3118	Leg				2	
1H3110	Bearing Puller Attachment				1	
9S9154	Step Plate				1	
5M2080	Nozzle Assembly					1



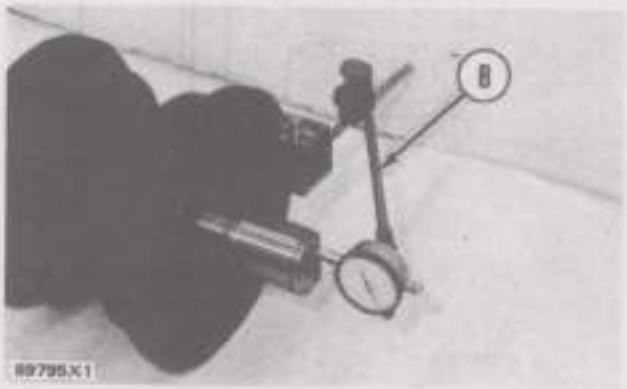
1. Put the oil holes in the bushings in alignment. Install bushings (1) in bushings (3) with a press. Drill two .297 in. (7.54 mm) holes 180° apart .75 in. (19.05 mm) deep through bushings (1) and into bushings (3). Do not drill the holes through the lubrication grooves on bushings (1). Install two new pins (2) even with the outside face of bushings (1).
2. Install the O-ring seals on the bushings. Put oil on the seals and contact surfaces of the bushings and roller. Install one of the bushings in the roller with tooling (A) and a press. Install the bolts in the bushing.
3. Install the shaft in the roller. Install the other bushing in the roller with tooling (A) and a press. Install the bolts in the bushing.
4. Install indicator group (B) and check the clearance between the shaft and bushings. The clearance must be .020 ± .009 in. (0.51 ± 0.23 mm).
5. Install the Duo-Cone seals in the bushings and collars with tool (C).

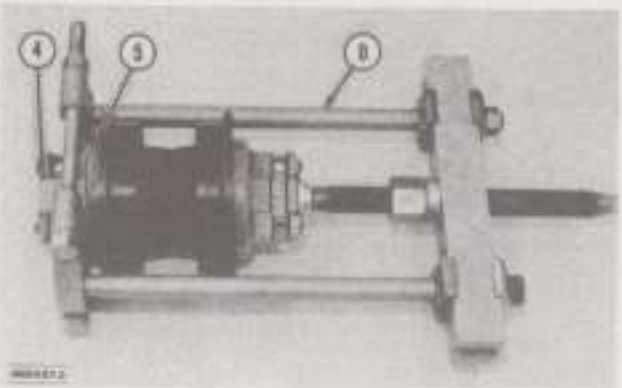
NOTE: The rubber seals and all surfaces that make contact with the seals must be clean and dry. After installation of the seals, put oil on the contact surfaces of the metal seals.

6. Install the O-ring seals on the shaft. Put oil on the seals and install the collars.
7. Install tooling (D). Put collar (5) under compression. Install ring (4). Install ring on opposite end of roller with same procedure.
8. After installation of the roller, remove plug and install nozzle (E). Fill the roller with oil. Install the plug and tighten it to a torque of 125 ± 15 lb.ft. (17.3 ± 2.1 mkg). end by:
   a) install track rollers



TYPICAL EXAMPLE





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EQUALIZER SPRING

REMOVE EQULAIZER SPRING 11–7205

Tools Needed		A
8S7610	Base Assembly	2
8S7650	Cylinder	2
8S7615	Pin	2
356224	Pump Group	1

start by:
a) remove crankcase guard (rear)

1. Remove guards (1) from both sides of the machine.

2. Remove nuts and bolts (3) from sleeves (4). Remove sleeves from both sides of the machine.

3. Install tooling (A) on the main frame behind the equalizer spring.

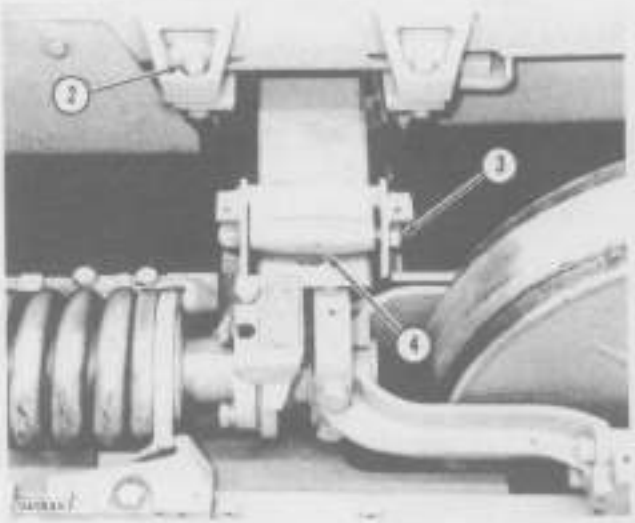
4. Put a floor jack in position, under the equalizer spring.

5. Remove the four bolts and nuts (2) from each side of the equalizer spring.

6. Lift the front of the machine with tooling (A) until the engine crankcase clears the saddle. Weight of the front of the machine is 2700 lb. (1224 kg).

7. Lift the equalizer spring with the floor jack until the ends of the equalizer spring clear the retaining brackets. Turn the equalizer spring to the side and remove it. Weight of the equalizer spring is 250 lb. (113.4 kg).







TYPICAL EXAMPLE

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EQUALIZER SPRING

INSTALL EQUALIZER SPRING 12–7205

Tools Needed		A
857610	Base Assembly	2
857650	Cylinder	2
857615	Pin	2
356224	Pump Group	1



1. Put the equalizer spring in position on the retaining brackets.

2. Install the four bolts and nuts on each side of the equalizer spring. Remove the floor jack.

3. Lower the machine down until the equalizer spring is on the track roller frame.

4. Install the two sleeves, bolts and nuts.

5. Install the two guards over the hydraulic track adjusters. Remove tooling (A).

end by:
a) install crankcase guard (rear)

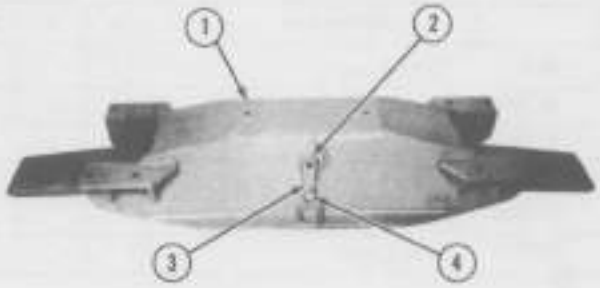
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EQUALIZER SPRING

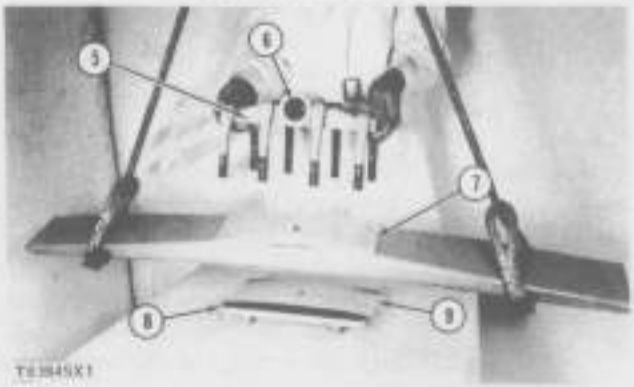
DISASSEMBLE EQUALIZER SPRING 15–7205

start by:
a) remove equalizer spring

1. Remove the two bolts (4) and washer (3) from the saddle.
2. Remove pin (2) from saddle.
3. Fasten a hoist to the saddle (1). Weight of the saddle is 66 lb. (29.9 kg). Remove the saddle.
4. Remove the eight nuts and washers from the plate assembly (5). Remove the plate assembly.
5. Remove liner (7).
6. Remove liner (9) from plate (8).
7. Remove two bearings (6) from plate assembly.



TYPICAL EXAMPLE



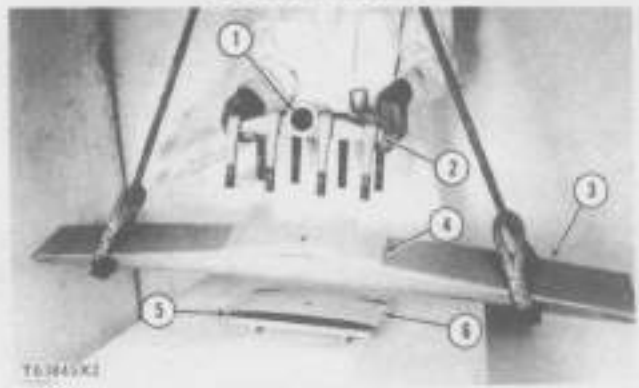
TYPICAL EXAMPLE

ASSEMBLE EQUALIZER SPRING 16–7205

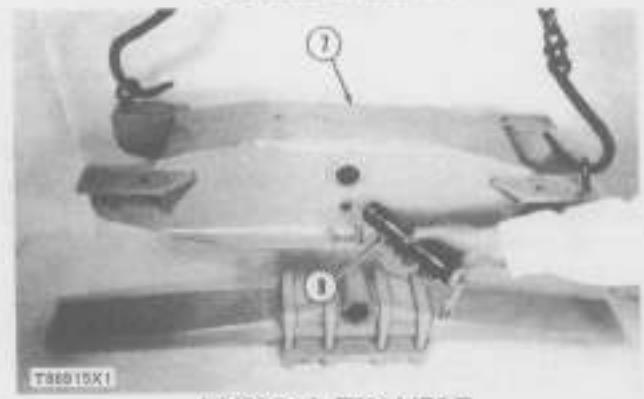
Tools Needed		A
1P529	Handle	1
1P457	Drive Plate	1

1. Use tooling (A) to install two bearings (1) in plate assembly.
2. Put liner (6) on plate (5).
3. Fasten a hoist to plate (3). Put plate (3) on plate (5). Put liner (4) in position on plate.
4. Install plate assembly (2).
5. Install the eight washers and nuts that hold plate assembly (2) to plate (5). Tighten the nuts to a torque of 150 ± 20 lb.ft. (20.7 ± 2.8 mkg). Tighten the nuts again to a torque of 290 ± 25 lb.ft. (40.1 ± 3.5 mkg).
6. Fasten a hoist to the saddle (7). Put the saddle (7) in position on the plate assembly.
7. Install pin (8).
8. Install the washer and bolts that hold the pin in position.

end by:
a) install equalizer spring



TYPICAL EXAMPLE



TYPICAL EXAMPLE

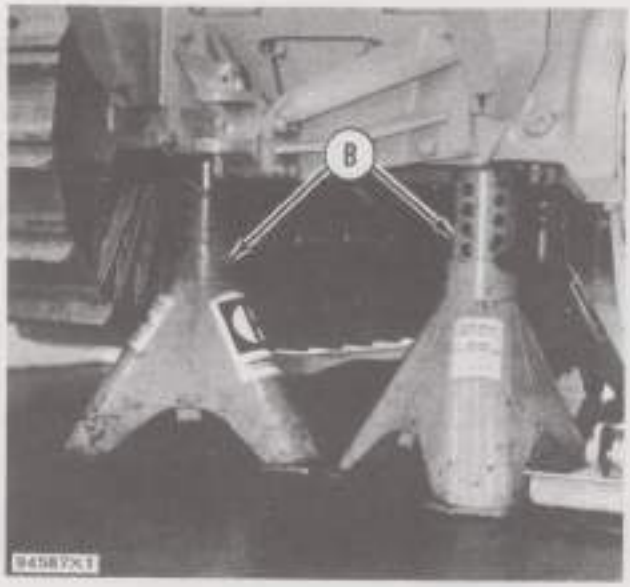
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TRACKS

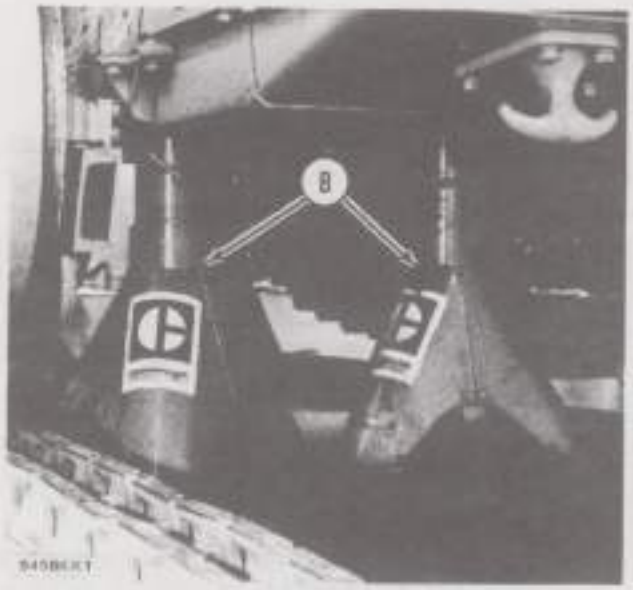
SEPARATION OF TRACKS

Tools Needed		A	B	C
9S27	Lift Assembly	4		
8S7460	Stand		4	
8S7611	Tube		4	
8S7615	Pin		4	
1F3490	Press Arrangement			1
9S5800	Pump Group			1

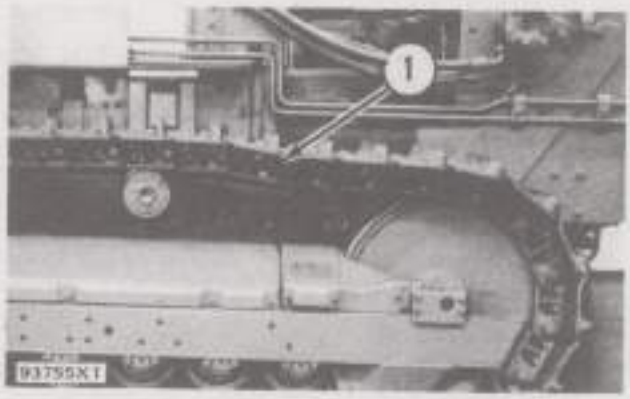
NOTE: Track is removed for better illustration of tooling (B) position.



1. Start engine. Back machine up on tooling (A). Put tooling (B) in position under steering clutch case. Move machine forward until weight of machine is on tooling (B). Put tooling (B) under equalizer spring on both sides of the machine. Move tracks backward until the weight of the machine is on tooling (B).



2. Move the track until the master pin (1) is in position between the track carrier roller and the front idler.

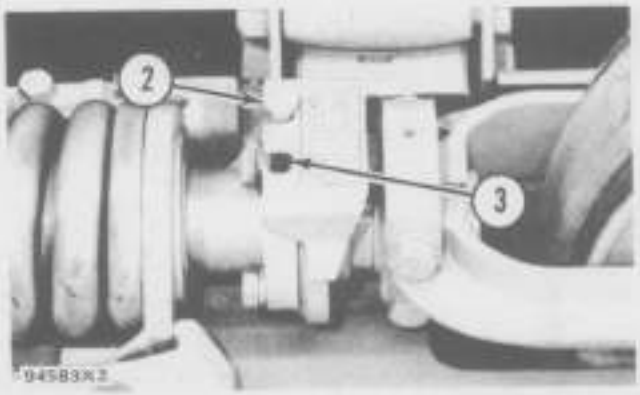


⚠ WARNING: Make sure the hydraulic pressure in the track adjusting mechanism is completely released and the cylinder can be moved to the rear into the front pilot for the recoil spring before making a separation of the track. The hydraulic cylinder can have pressure in it even though the track is loose enough to remove the master pin.

https://tractormanualz.com/

TRACKS

3. Remove the guards from over the hydraulic track adjuster.



4. Remove all dirt that can prevent the front idler from moving to the rear of the machine.

⚠ WARNING: Do not visually inspect relief valve or fill valve to see if grease is coming out of the track adjuster. Look to see that the track is loosened.

5. Loosen relief valve (2) one turn. If track does not loosen, loosen fill valve (3) one turn. Move the track forward and backward. Loosen relief valve until it makes contact with the guard. Loosen fill valve until it makes contact with the guard.



6. Install tooling (C) and remove master pin, seal washer, and spacers.

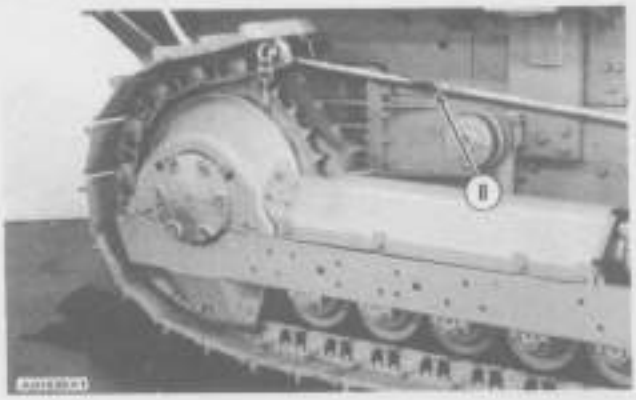
7. Move the track forward and backward to clear the machine.

CONNECTION OF TRACKS

Tools Needed		A	B	C	D	E	F	G	H
1P3545	Tool Group	1							
1P3533	Carrier Bar		1						
1P3532	Block Assembly			1					
1P3530	Tool Group				1				
1P3490	Press Arrangement					1			
9S5800	Pump Group					1			
1P7402	Coupling Tool Group						1		
9S27	Lift Assembly							4	
8S7460	Stand								4
8S7611	Tube								4
8S7615	Pin								4



1. Install tool (A) in track link and sprocket.
2. Start engine. Move sprocket forward until track is pulled up on sprocket and the end of the track is forward of a vertical line through the center of the sprocket. Remove tooling (A).

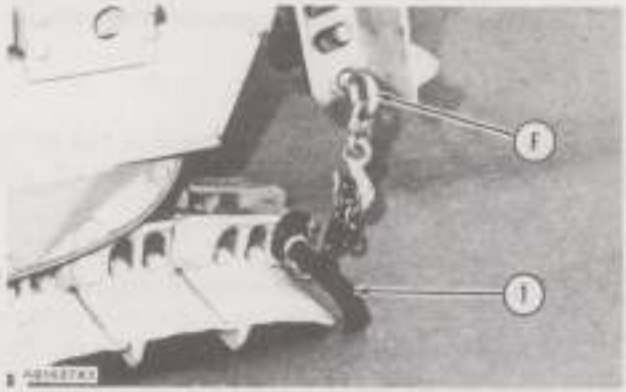


3. Install tool (B) between the first bushing in the link and the sprocket.
4. Move the sprocket forward. Use tool (B) to guide the track over the track carrier roller and front idler.

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TRACKS

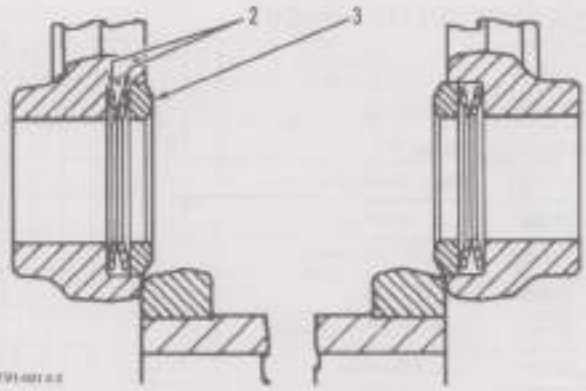
5. Install tooling (F) and pin (1) from tooling (A) between links in end of track.



6. Move the track forward until bottom link is below a horizontal line through the sprocket. Put tool (C) in position under the track. Remove tooling (F) and pin (1).

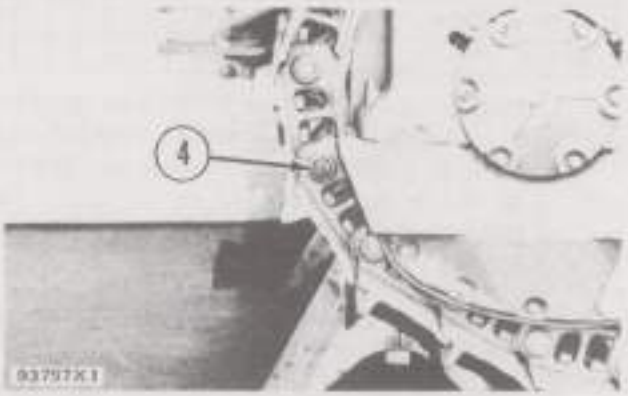


7. Install seal washers (2) and spacers (3) in counterbore as shown. Use tooling (D) to hold the washers and spacers in position.



8. Move the track backward until the washers and spacers are held in place by a track link. Remove tooling (D).

9. Move the track backward. Install a 5F9447 Pin (4) from tooling (E).



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TRACKS

10. Move track forward until pin (4) is in position between the track carrier roller and the front idler. Put tooling (E) in position and install master pin. Remove tooling (E).



11. Put tooling (G) in front of the tracks. Start the engine and move the tracks forward on tooling (G). Remove tooling (H) from the front of the machine. Move the machine backward up on tooling (G). Remove tooling (H) from under the steering clutch case. Remove tooling (G) from the rear and front of the machine.

12. Tighten the relief valve to a torque of 25 ± 5 lb.ft. (3.5 ± 0.7 mkg). If the fill valve was loosened, tighten it to a torque of 25 ± 5 lb.ft. (3.5 ± 0.7 mkg).

13. Make an adjustment to the track. See TRACK ADJUSTMENT in LUBRICATION AND MAINTENANCE GUIDE.

14. Install the guard over the hydraulic track adjuster.

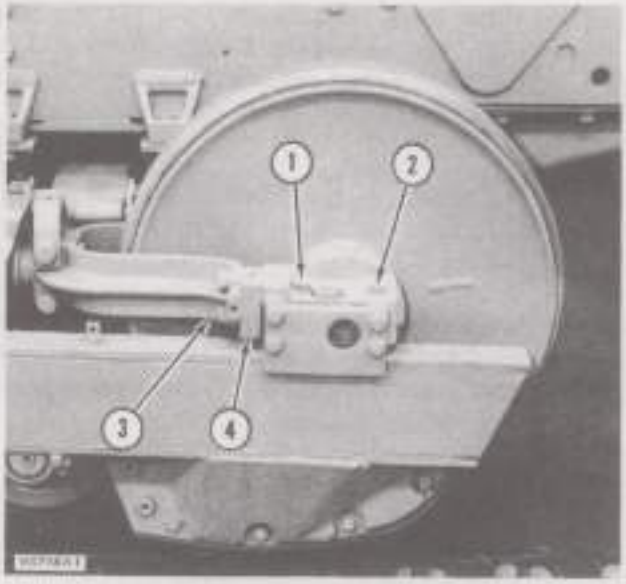
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FRONT IDLERS

REMOVE FRONT IDLERS 11–4159

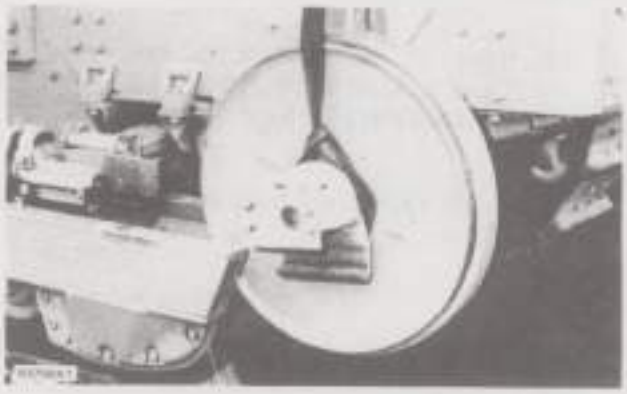
start by:
a) separation of track

1. Loosen bolts (1) and (2) on both sides of front idler.



2. Remove four bolts (3).

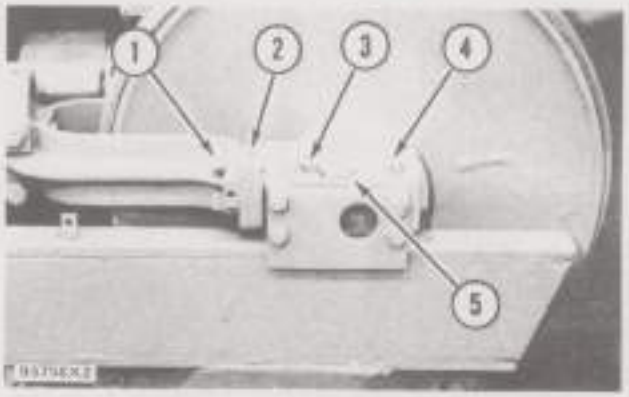
3. Pull the front idler forward and remove two spacers (4).



4. Fasten a hoist to the front idler. Weight of the front ilder is 275 lb. (135.74 kg). Remove front idler.

5. Remove the plate assemblies and plates from the right hand and left hand bearings.

INSTALL FRONT IDLERS 12–4159



1. Install the plates and plate assemblies in the right hand and left hand bearings.

2. Fasten a hoist to the front idler. Put the front idler in the correct position on the track roller frame.

3. Install spacers (2) between yoke and front idler. Install four bolts (1).

4. Tighten bolts (3) and (4) to a torque of 40 lb.ft. (5.5 mkg).

5. Use a hammer and hit lock pin (5) until it makes a seat in the correct position.

6. Tighten bolts (3) and (4).

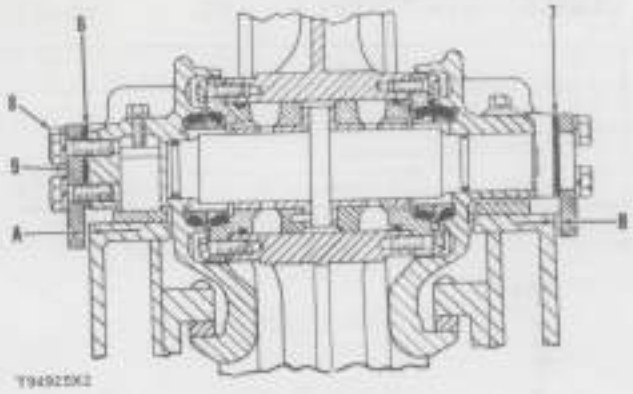
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FRONT IDLERS

7. Check dimensions (A) and (B). Dimensions (A) and (B) must be .06 in. (1.52 mm). Use shims (6) and (7) as needed for correct alignment of front idler and track roller frame.

8. Remove bolts (8) and plate (9). Install shims as needed. Install plate (9) and bolts (8).

end by:
a) connection of track



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FRONT IDLERS

DISASSEMBLE FRONT IDLERS 15–4159

Tools Needed		A
955800	Pump Group	1
8B7548	Puller Assembly	1
7F9540	Hydraulic Puller	1
FT750	Puller Plate	1

start by:
a) remove front idler



1. Put front idler (3) in position on blocks.

2. Remove bolt and washer from lock.

3. Install bolt back in lock. Use a hammer and punch to remove lock from bearing (4).

4. Remove bolts (1), plate (2), and shims from bearing (4).

5. Use tooling (A) to remove bearing from shaft.



6. Remove the Duo-Cone seal from the bearing and the bushing. Put identification on the seals to prevent mixing at assembly.

7. Remove bolts (5) that hold bushing to front idler.

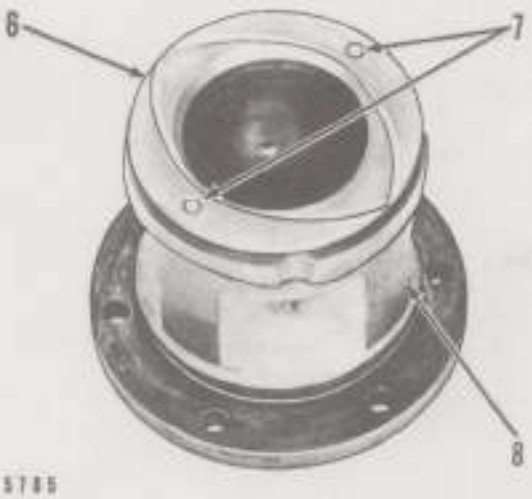


8. Turn the front idler over. Do Steps 1 through 7 on opposite side of front idler.

9. Remove the bushings and shaft from the front idler with a press. Remove the O-ring seals from the shaft.

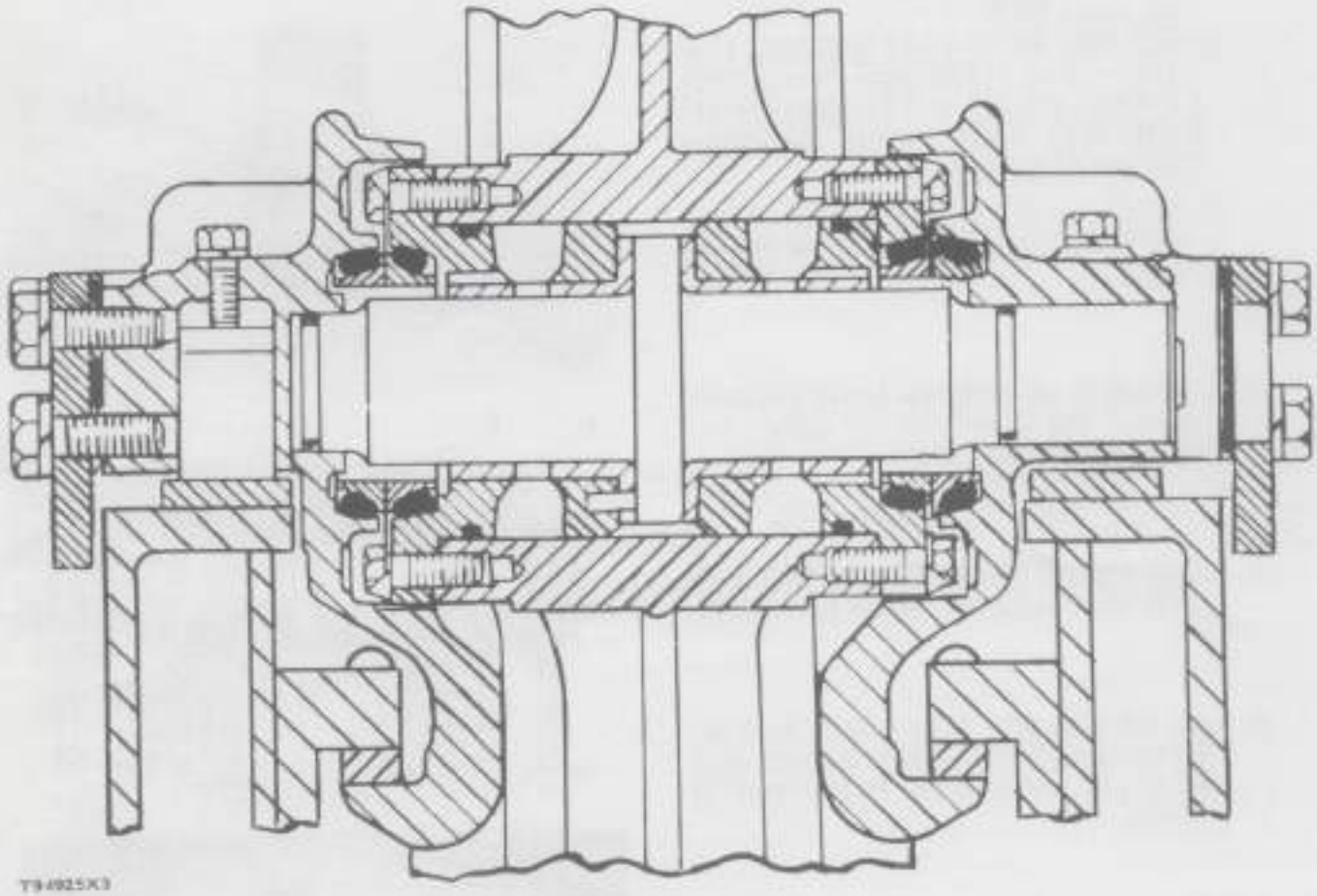
10. Remove bushing (6) from bushing (8) with a press.

11. Cut pins (7) off even with the face of the bushings. Make the surface of the bushings smooth with a file.



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FRONT IDLERS



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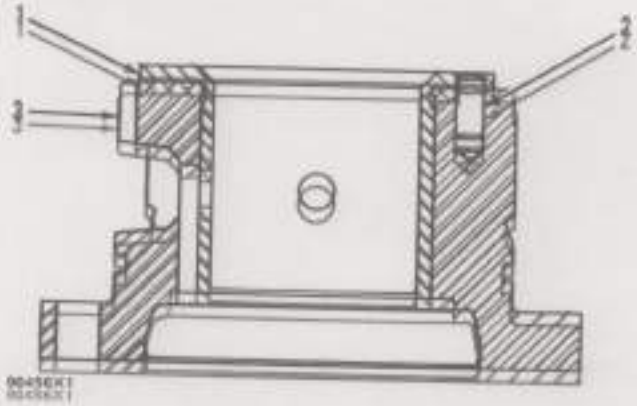
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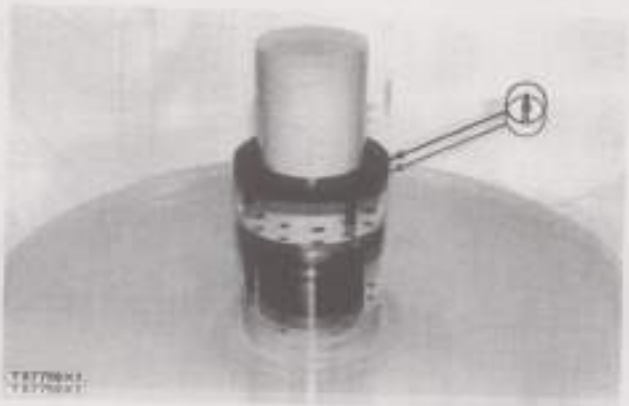
FRONT IDLERS

ASSEMBLE FRONT IDLERS 16-4150

Tools Needed		A	B	C	D
FT628	Bushing Alignment Tool Group	1			
8S2328	Dial Test Indicator Group		1		
5M2196	Seal Installer			1	
5M2989	Nozzle Assembly				1

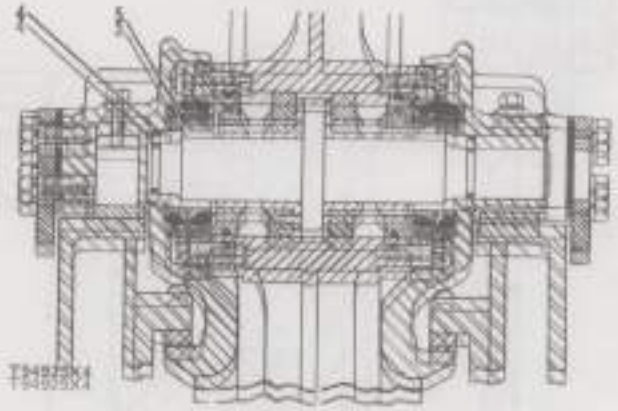
1. Install bushing (1) in bushing (3) as follows:
   a) Put the oil holes in the bushings in alignment. Install bushing (1) into bushing (3) with a press.
   b) Drill two .297 in. (7.54 mm) holes 180° apart .75 in. (19.05 mm) deep through bushings (1) and into bushings (3). Do not drill holes through lubrication grooves on bushing (1).
   c) Install two new pins (2) in each bushing even with the outside face of the bushing (1).





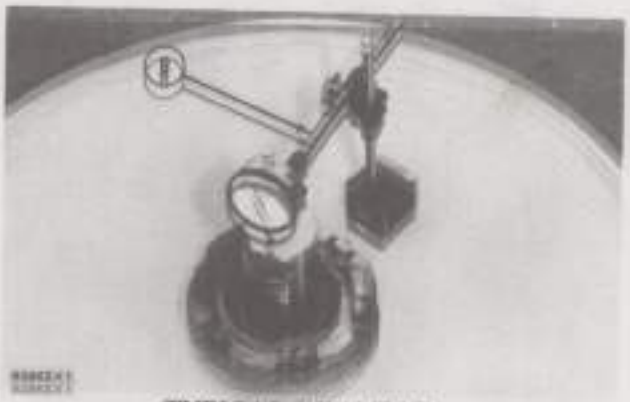
2. Inspect seals on bushings. Install new seals as needed. Put oil on seals and contact surfaces of bushings and idler.

3. Install one of the bushings in idler with tooling (A). Install the bolts in the bushing.



4. Turn the idler over. Install shaft (5) in the bushing. Install the other bushing with tooling (A) and a press. Install bolts in bushings.

5. Install tool group (B) and check end clearance between shaft and bushings. The clearance must be .028 in. (0.71 mm) maximum .010 in. (0.25 mm) minimum.



6. Inspect O-ring seal (4). Install a new seal as needed. Put oil on the seal.

TYPICAL EXAMPLE

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FRONT IDLERS

7. Install Duo-Cone seal in bearing and bushing with tool (C).



NOTE: The rubber seals and all surfaces that make contact with seals must be clean and dry. Put oil on seals after installation. Put oil on contact surfaces of metal seals.

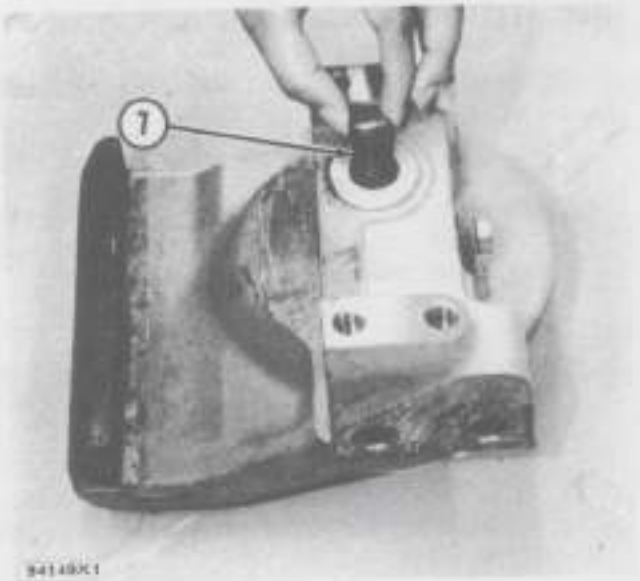
8. Put 4S9416 Anti-Seize compound on the contact surfaces of the shaft and bearings. Install bearing (6). Make sure groove in shaft is in alignment with the hole in the bearing.



9. Put 4S9416 Anti-Seize compound on lock. Install the lock in the bearing. Install the washer and bolt. Tighten the bolt to a torque of 40 lb.ft. (5.5 mkg). Hit the lock with a hammer and punch. Tighten the bolt again.

10. Turn front idler over and do Steps 7 through 10 on opposite side of front idler.

11. Put the front idler in position so the shaft is in a vertical position. Remove plug (7). Install nozzle (D) and fill front idler with oil. Remove nozzle and install plug. Tighten plug to a torque of 125 ± 15 lb.ft. (17.3 ± 2.1 mkg).

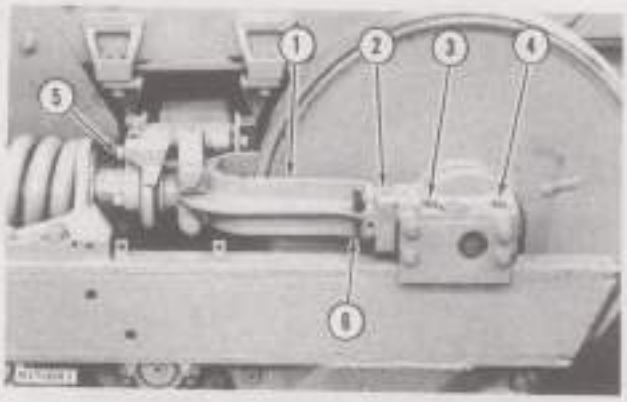


end by:
a) install front idler

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FRONT IDLER ROD ASSEMBLIES

REMOVE FRONT IDLER ROD ASSEMBLIES



start by:
a) separation of track

1. Loosen bolts (3) and (4) on both sides of front idler.

2. Remove four bolts (6) from rod assembly. Remove spacer (2).

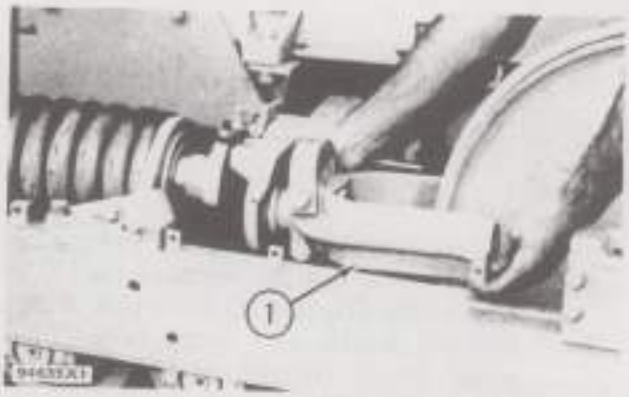
3. Pull the front idler forward to the front of the track roller frame.

4. Remove bolts (5) that hold hydraulic track adjuster to rod assembly (1).

5. Remove rod assembly (1).

6. Check the seal and ring in the hydraulic track adjusting cylinder. If parts have damage, use new parts for replacement.

INSTALL FRONT IDLER ROD ASSEMBLIES



1. Install a new ring and seal in the hydraulic track adjuster.

2. Put the rod assembly (1) in position on the hydraulic track adjuster. Install the bolts that hold the rod assembly in position.

3. Push the front idler in position. Install the spacer and four bolts that hold the front idler to the rod assembly.

4. Make sure the front idler is in the correct position on the track roller frame. See INSTALL FRONT IDLERS.

end by:
a) connection of tracks

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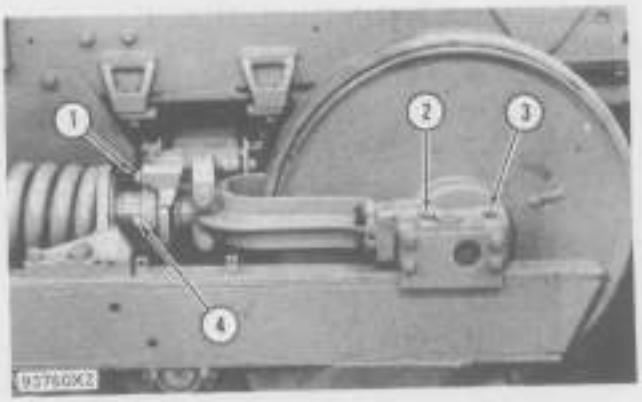
HYDRAULIC TRACK ADJUSTERS

REMOVE HYDRAULIC TRACK ADJUSTERS 11–4157

start by:
a) separation of track

1. Loosen bolts (2) and (3). Remove bolts (1) from hydraulic track adjuster.

2. Pull the front idler and rod assembly forward. Remove hydraulic track adjuster (4) from pilot of recoil spring.



INSTALL HYDRAULIC TRACK ADJUSTER 12–4157

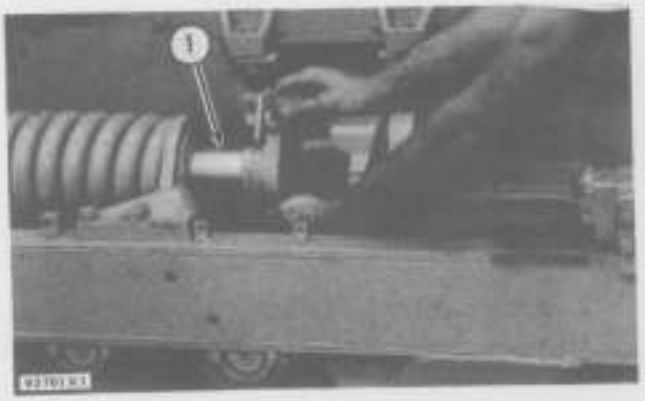
1. Make sure the inside diameter is free of oil and dirt.

2. Put SAE 30 oil on the outside of the cylinder.

3. Put the cylinder (1) in the pilot of the recoil spring.

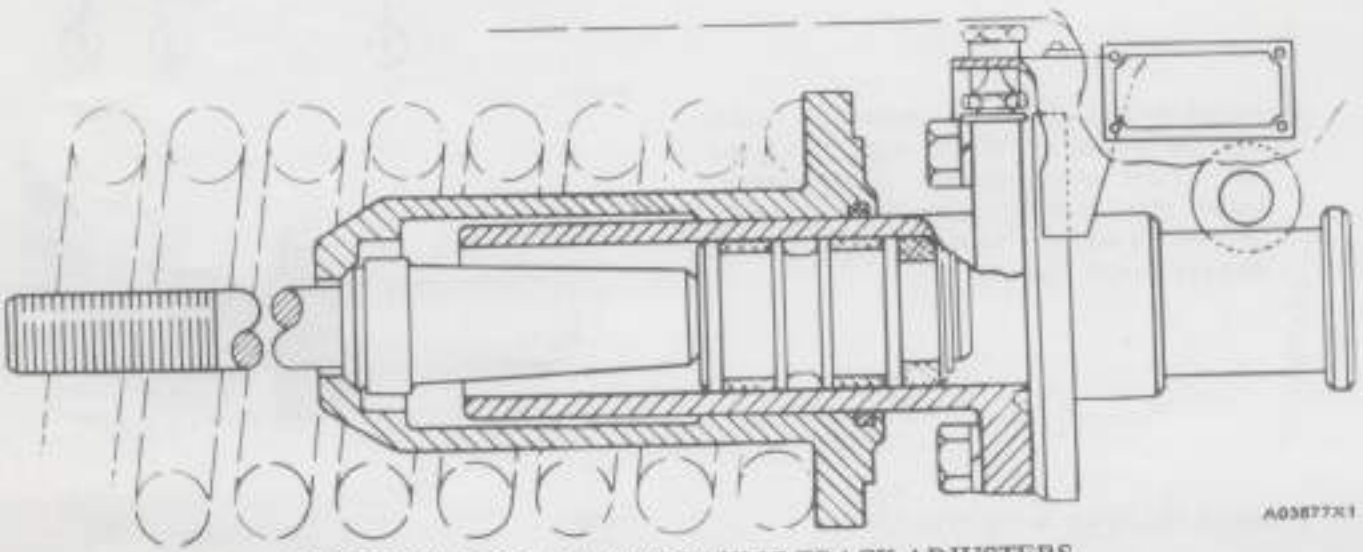
4. Push the front idler and rod assembly in position against the hydraulic track adjuster.

5. Install the bolts that hold the rod assembly to the hydraulic track adjuster.



NOTE: See LUBRICATION AND MAINTENANCE GUIDE for the correct procedure to fill hydraulic track adjuster and make an adjustment to the track tension.

end by:
a) connection of tracks



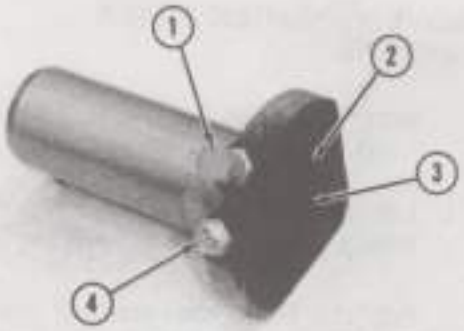
RECOIL SPRINGS AND HYDRAULIC TRACK ADJUSTERS

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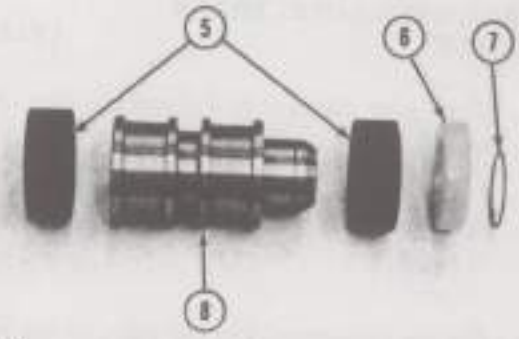
HYDRAULIC TRACK ADJUSTERS

DISASSEMBLE HYDRAULIC TRACK ADJUSTER 15–4157

start by:
a) remove hydraulic track adjusters



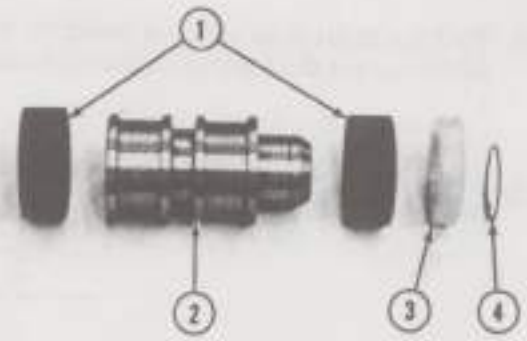
1. Remove fill valve (4) and washer from cylinder. Remove relief valve (1) and washer from cylinder. Remove the ring (2) and seal (3) from the cylinder.



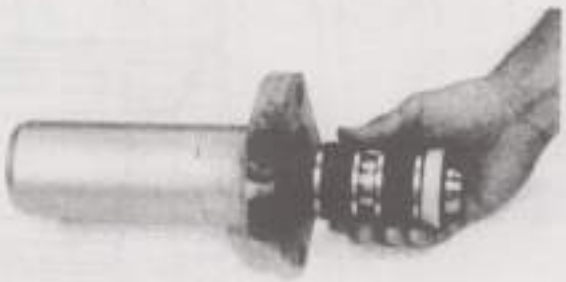
2. Remove piston (8) from cylinder. Remove ring (7) and seal (6) from piston. Remove two rings (5) from piston.

ASSEMBLE HYDRAULIC TRACK ADJUSTERS 16–4157

1. Make sure all of the parts of the hydraulic track adjusters are clear and free from dirt.



2. Install two rings (1) on piston (2). Make sure the separation of the rings are turned 180° apart when installed on the piston. Install seal (3) with sealing lip toward ring (4). Install seal (3) with sealing lip toward ring (4). Install ring (4).



3. Install the piston in the cylinder.

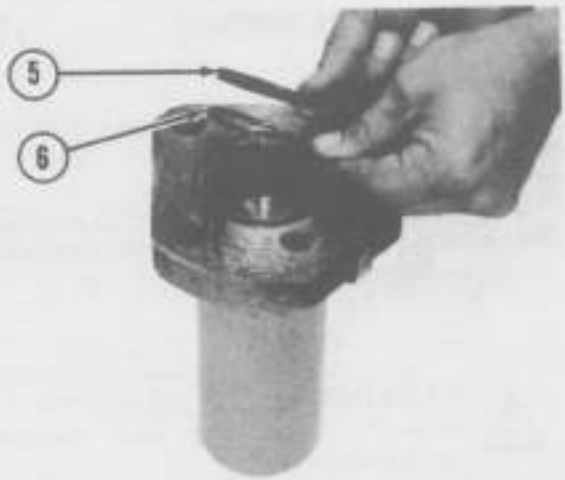
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HYDRAULIC TRACK ADJUSTERS

4. Install seal (5) in cylinder. Put clean oil on seal (5). Install ring (6) in cylinder with chamfer toward cylinder.

5. Install a washer (7) and fill valve (9) in cylinder. Install a washer (7) and relief valve (8) in cylinder.

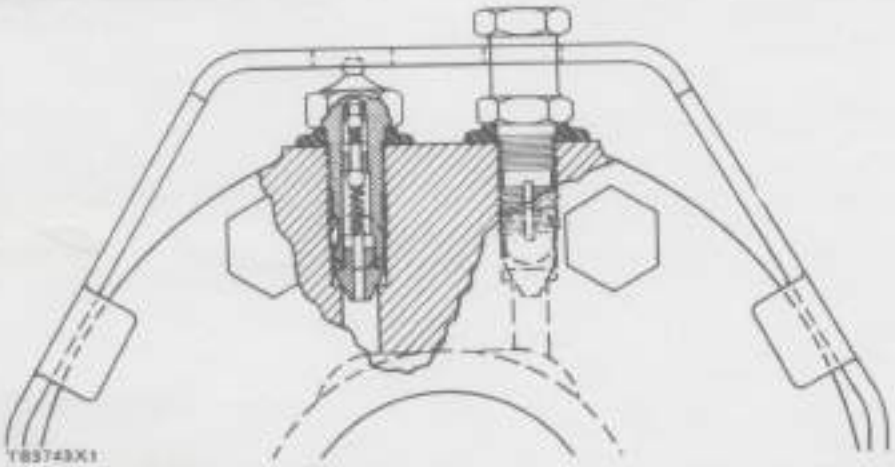
end by:
a) install hydraulic track adjuster



94061X1



94064X1



183743X1

HYDRAULIC TRACK ADJUSTERS (FILL VALVE AND RELIEF VALVE)

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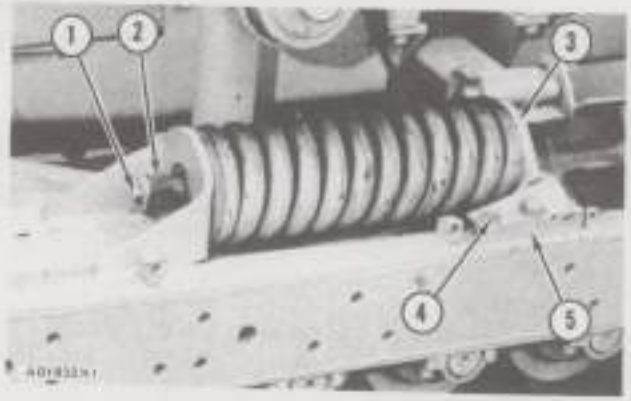
RECOIL SPRINGS

REMOVE RECOIL SPRINGS 11–4158

start by:

a) remove hydraulic track adjusters

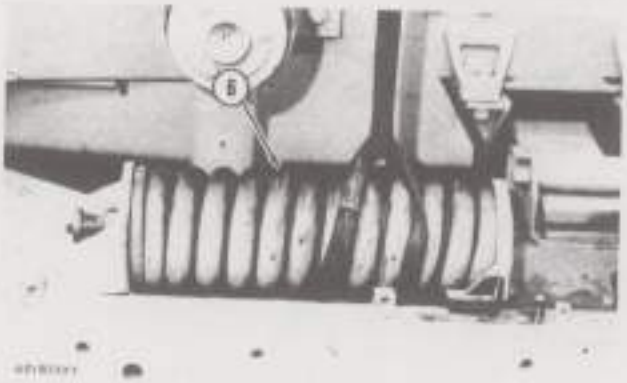
1. Loosen bolt (1). Turn nut (2) clockwise until the front pilot (3) is not against the two stops (5).



⚠ WARNING: Do not remove recoil spring until the pressure has been released from against stops.

2. Remove bolts (4) and washers from two stops (5). Remove stops.

3. Fasten a hoist to the recoil spring. Weight of recoil spring is 200 lb. (90.72 kg). Remove recoil spring (6).



INSTALL RECOIL SPRING 12–4158

1. Fasten a hoist to the recoil spring. Put the recoil spring in position in the track roller frame.

2. Install two stops (2), bolts (1) and washers.

3. Loosen the nut on the recoil spring. Install the bolt and washer in the end of the stud.

end by:

a) install hydraulic track adjusters



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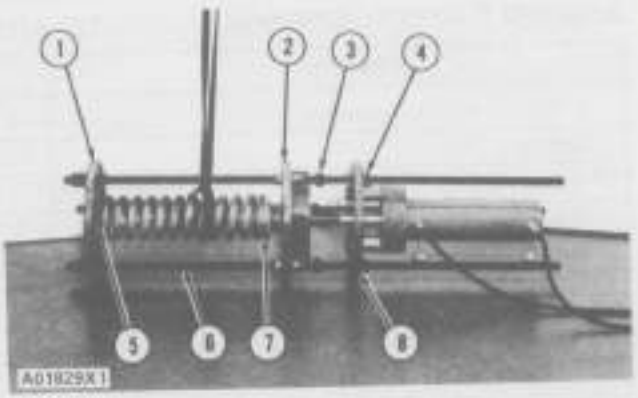
RECOIL SPRINGS

DISASSEMBLE RECOIL SPRINGS 15–4158

Tools Needed		A
FT577	Spring Compressor	1
3K9770	Nut	12
5F9891	Bolt	2
958900	Cylinder Group	1
955800	Pump Group	1

start by:

a) remove recoil springs



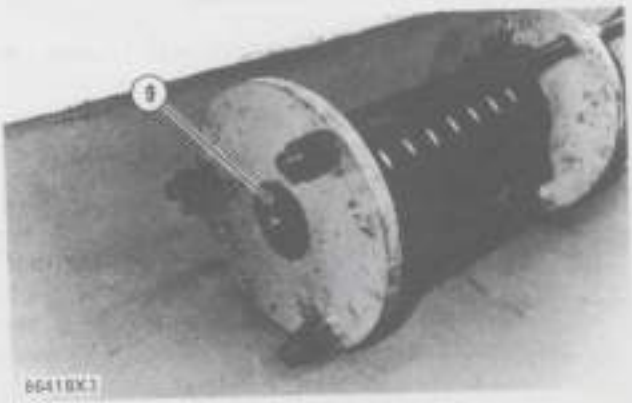
WARNING: the recoil spring is assembled with a force of several tons. The correct tooling and procedure must be used during disassembly of the recoil spring.

1. Disassemble the spring with tooling (A) as follows:

   a) Fasten a hoist to the recoil spring. Put the spring in position between plates (1) and (2). Put the centers of pilots (5) and (7) in alignment with centers of plates (1) and (2). Operate the hydraulic cylinder enough to hold the spring in place.

   b) Make an adjustment to nuts (3) so the distance between plates (1) and (2) is the same as each of the three legs (6).

   c) Turn nuts (4) until there is 1 in. (25.4 mm) between nuts (3) and plate (8).

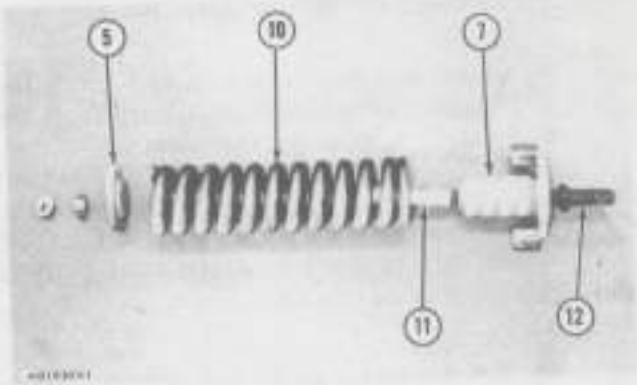


WARNING: The distance between the plates must be the same at each leg at all times to prevent the spring from twisting and coming out of tooling (A).

   d) Put the spring under enough compression to remove nut (9). Remove nut (9).

   e) Slowly release the compression on the spring.

   f) Turn nuts (4) and move plate (8) and cylinder away from the spring. Put spring under compression. Turn nuts (3) until they are 1 in. (25.4 mm) from plate (8). Slowly release compression on the spring.



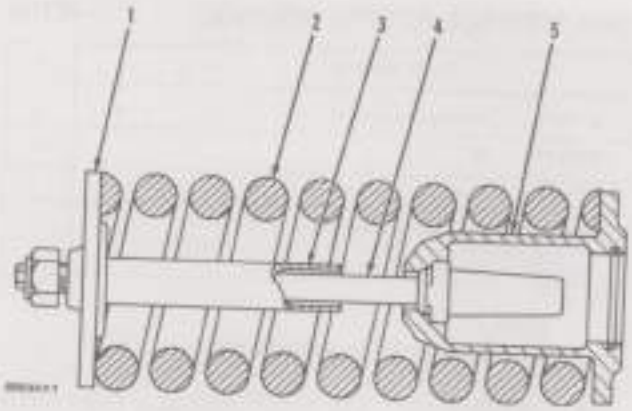
2. Fasten a hoist to the spring. Remove the spring (10), pilot (5), pilot (7), sleeve (11), and bolt (12) from tooling (A). Weight of the spring is 75 lb. (34.02 kg).

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RECOIL SPRINGS

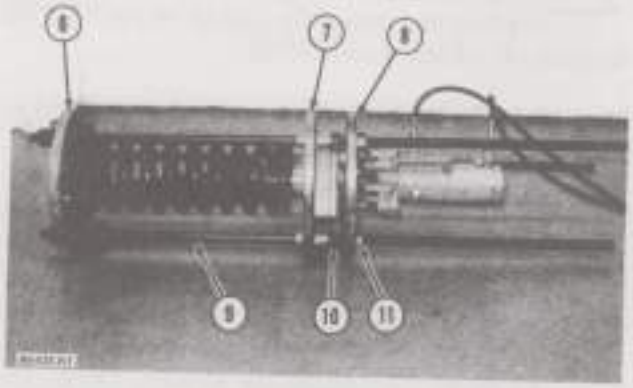
ASSEMBLE RECOIL SPRINGS 16–4158

Tools Needed		A
FT577	Spring Compressor	1
3K9770	Nut	12
5F8691	Bolt	2
958900	Cylinder Group	1
955800	Pump Group	1

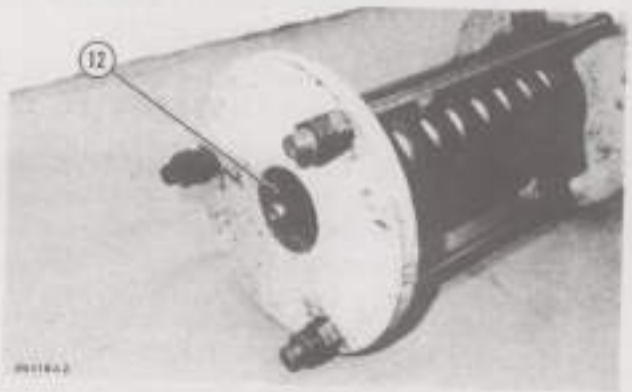


WARNING: The recoil spring must be assembled with a force of several tons. The correct tooling and procedure must be used during assembly of the recoil spring.

1. Assemble the recoil spring with tooling (A) as follows:
   a) Install pilot (5) into spring (2). Install bolt (4) in pilot (5). Put sleeve (3) on the bolt.
   b) Fasten a hoist to the spring. Put the spring, pilot, bolt, and sleeve in position between plates (6) and (7). Put pilot (1) between plate (6) and the end of the spring. Put the centers of pilots (1) and (5) in alignment with the centers of plates (6) and (7). Operate the hydraulic cylinder enough to keep the spring in place.
   c) Make an adjustment to nuts (11) so the distance between plates (6) and (7) is the same at each of the three legs (9).



WARNING: The distance between the plates must be the same at each leg at all times to prevent the spring from twisting and coming out of tooling (A).



   d) Put the spring under compression. Make sure that bolt (4) is in alignment with the holes in pilot (1) and plate (6). Turn nuts (10) until they are against plate (7).
   e) Move plate (8) and the cylinder toward the spring. Put the spring under compression until the distance between the outer surfaces of pilots (1) and (5) is 18.25 in. (463.55 mm). Install nut (12) on the bolt.
   f) Fasten a hoist and remove the recoil spring from tooling (A).

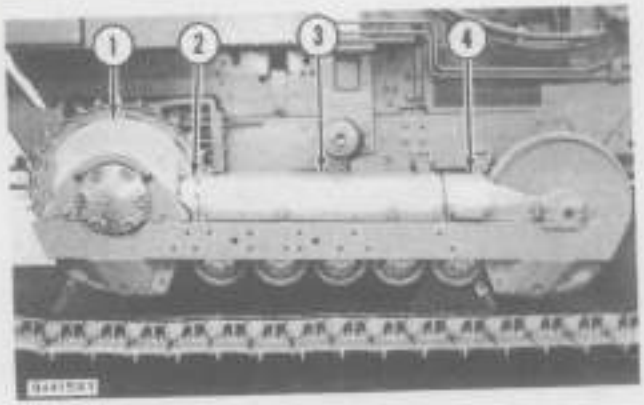
end by:
   a) install recoil springs

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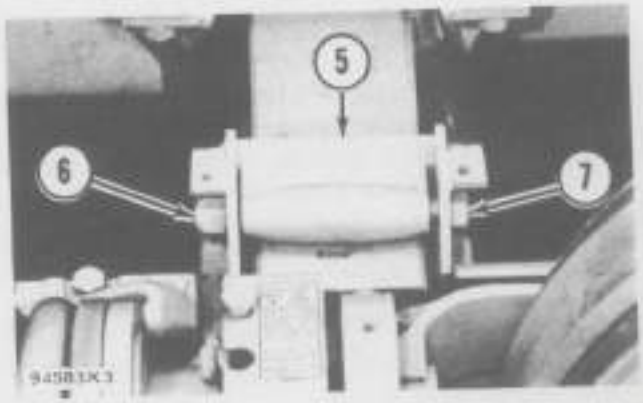
TRACK ROLLER FRAMES

REMOVE TRACK ROLLER FRAMES 11-4151

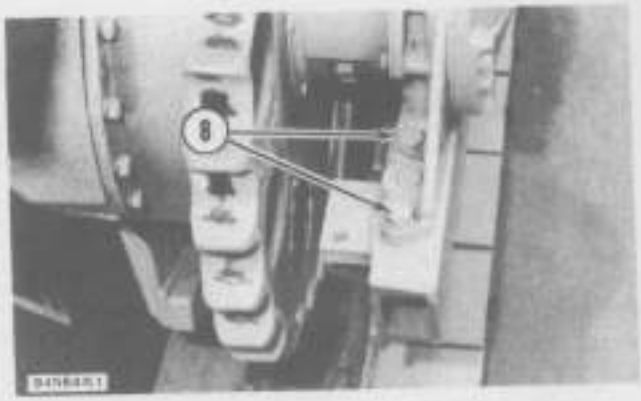
start by:
a) separation of tracks



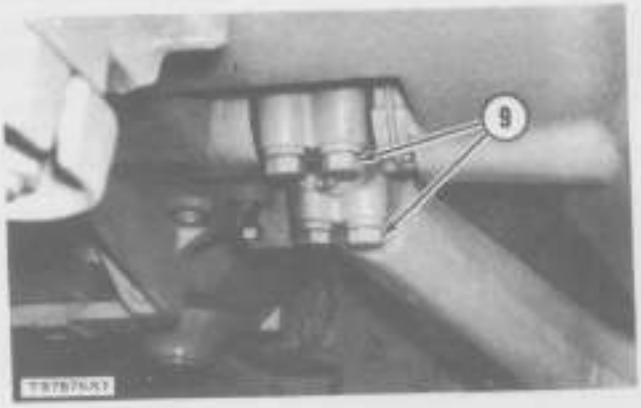
1. Remove the four guards (1), (2), (3), and (4) from the track roller frame.



2. Fasten a hoist to the track roller frame to hold the weight of it. Weight of the track roller frame is 1700 lb. (771.1 kg).



3. Remove the bolt (7), nut (6), and sleeve (5) from over the equalizer spring.



4. Remove the four bolts (8) and washers from the support assembly.

5. Remove four bolts (9) and washers from the rear of the track roller frame.

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TRACK ROLLER FRAMES

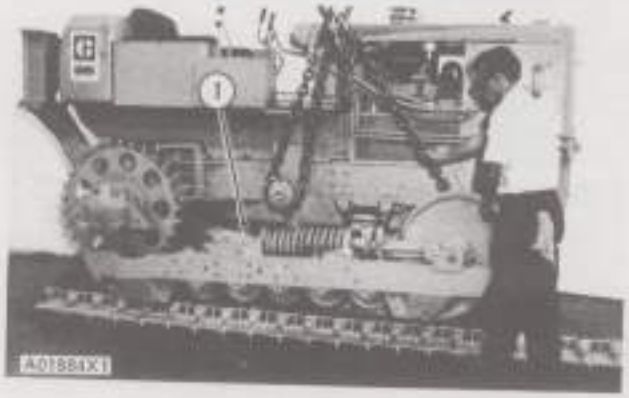
6. Remove the track roller frame (10).



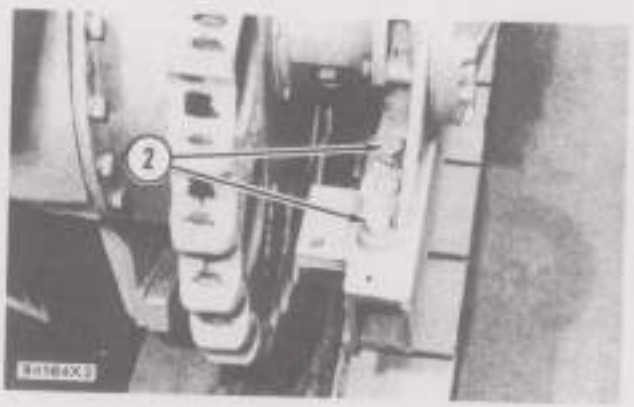
7. Remove the cap assembly from top of the sprocket shaft. Remove the bearing shell from the cap assembly. Remove the bearing shell from the rear brace assembly of the track roller frame.

INSTALL TRACK ROLLER FRAMES 12–4151

1. Put 9M3710 Anti-Seize Compound on both bearing shells. Put one bearing shell in the cap assembly and the other bearing shell in the rear brace assembly of the track roller frame.

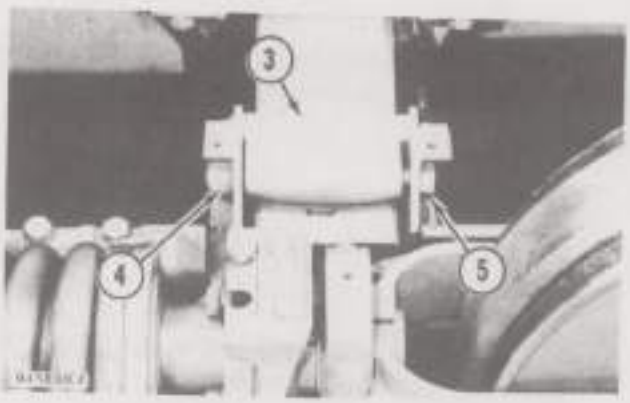


2. Fasten a hoist to the track roller frame. Put the track roller frame in position on the sprocket shaft, the equalizer spring, and the support assembly.



3. Put 9M3710 Anti-Seize Compound on the four bolts (2) that hold the track roller frame to the support assembly. Install the four bolts (2).

4. Install the sleeve (3), bolt (5), and nut (4) over the equalizer spring.



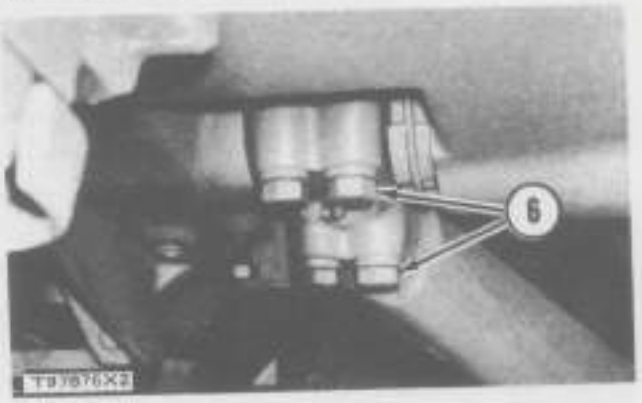
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TRACK ROLLER FRAMES, ALIGMENT OF TRACK ROLLER FRAMES

5. Put 9M3710 Anti-Seize Compound on bolts (6). Install the four bolts (6) in their correct positions.
6. Tighten the bolts to a torque of 195 ± 18 lb.ft. (26.9 ± 2.5 mkg).
7. Remove the hoist from the track roller frame.
8. Install the four guards over the track roller frame.

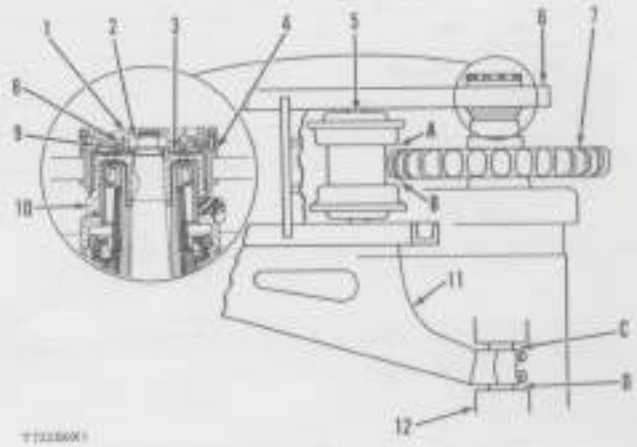
end by:

a) connection of tracks



ALIGNMENT OF TRACK ROLLER FRAMES 24–4151

1. When installing the track roller frame (6), make sure the track rollers (5) are in alignment with the sprocket (7). The track roller frame is in the correct position when dimensions (A) and (B) are the same and dimensions (C) and (D) are the same. The track must not make contact with either outside surface of the sprocket (7) or the track rollers (5).



2. Make an adjustment to the track roller frame as follows:
   a) Remove cap (1) from outer bearing assembly (4), lock (8), nut (2), and retainer (9).
   b) Add shims (3) between retainer (9) and holder assembly (10). By adding shims, dimensions (B) and (C) get smaller.
   c) By removing shims, dimensions (A) and (D) get smaller.
   d) Add or remove shims until dimensions (A) and (B) are the same and dimensions (C) and (D) are the same.
   e) Install the retainer (9) and nut (2). Tighten nut (2) to a torque of 350 ± 50 lb.ft. (48.4 ± 6.9 mkg). Install the lock (8) and cap (1).

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SPROCKET ASSEMBLIES

REMOVE SPROCKET ASSEMBLIES 11-4164

Tools Needed		A	B	C
1P2322	Puller Assembly	1		
8B7561	Step Plate	1		
FT664	Spacer	1		
7F9306	Wrench		1	
4B6090	Yoke		1	
FT628	Spacer		1	
5F9306	Arm			3
5F9684	Adapter			1
5F9888	Coupling			1
5F9892	Pin			1
1P8583	Adapter			1
9S8900	Cylinder Group			1
3S6224	Hydraulic Pump			1

start by:

a) remove track roller frame

1. Remove bolts (1) and washers from cap (3). Remove cap (3).

2. Remove bolts (2) and washers from guard (4). Remove guard (4).

3. Remove lock (5) and nut (7) from sprocket shaft.

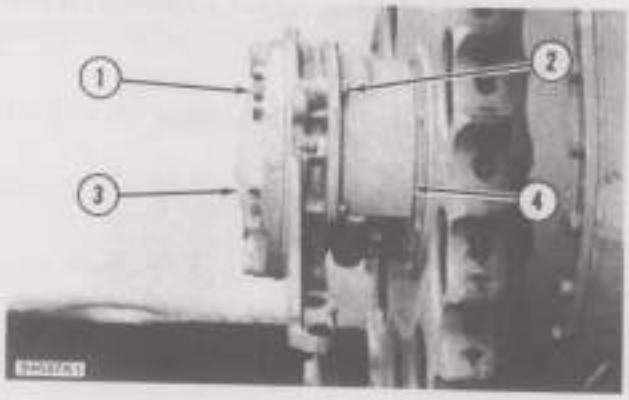
4. Remove retainer assembly (6).

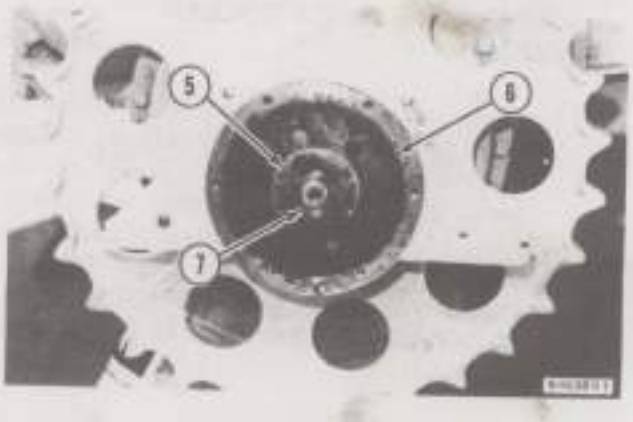
5. Remove shims (8) and support assembly (9).

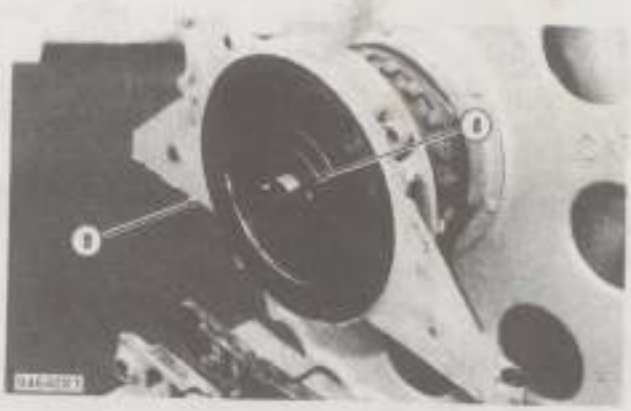
6. Remove the bolt and the lock from the holder assembly.

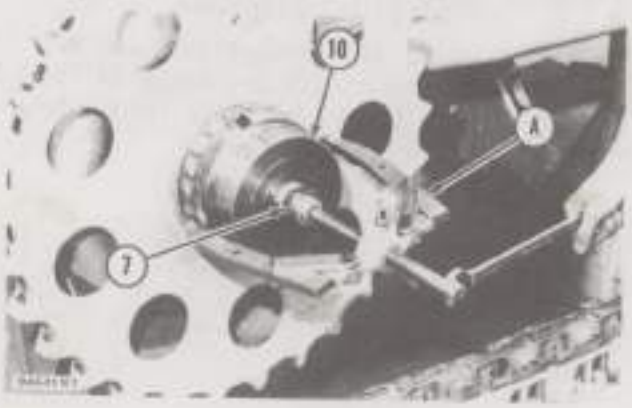
7. Install the spacer from tooling (A) on the sprocket shaft. Install nut (7) on sprocket shaft. Make sure there is space between the nut and the spacer.

8. Use tooling (A) to remove holder assembly (10).





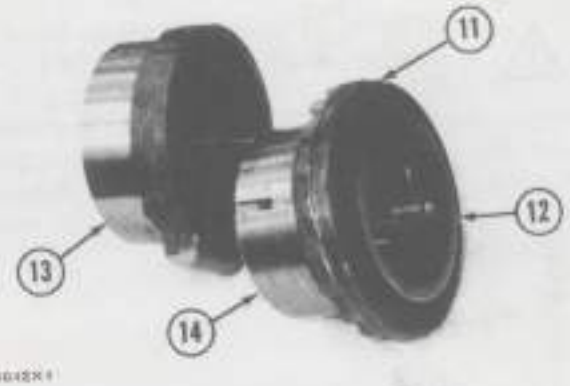




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SPROCKET ASSEMBLIES

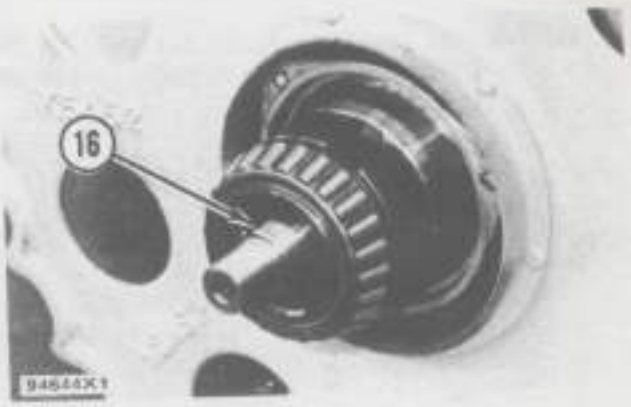
9. Remove cage assembly (14) from holder assembly (13). Remove Duo-Cone seal (12) from nut (11). Remove nut (11) from cage assembly.



10. Remove Duo-Cone seal (15) from sprocket assembly. Put identification on seals to prevent mixing at assembly.



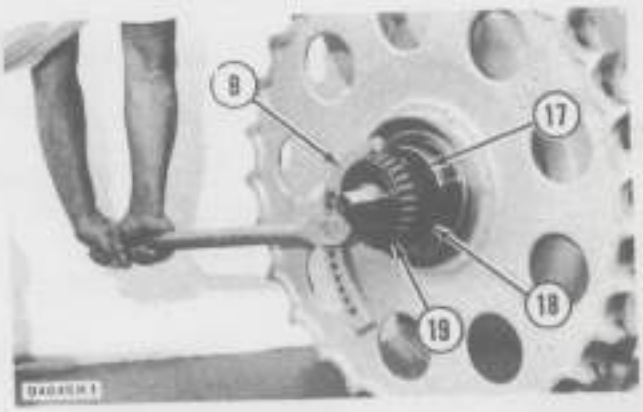
11. Bend the lock (tab) up out of the groove in the nut. Remove key (16) from sprocket shaft.



12. Remove nut (19) and bearing cone (18) as follows:

a) Use wrench from tooling (B) to move the bearing cone off the hub. Turn the nut counterclockwise. Move the bearing cone enough until the yoke from tooling (B) can be installed between the nut and bearing cone. The yoke will prevent damage to the bearing cone.

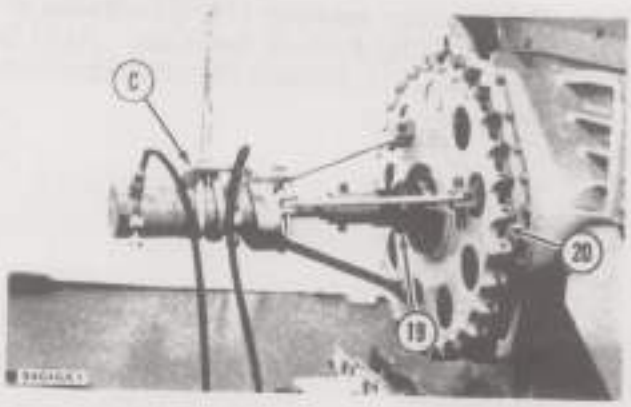
b) Turn the nut with tooling (B) counterclockwise until the bearing cone is off of the hub. Remove nut and lock (17) from sprocket shaft.



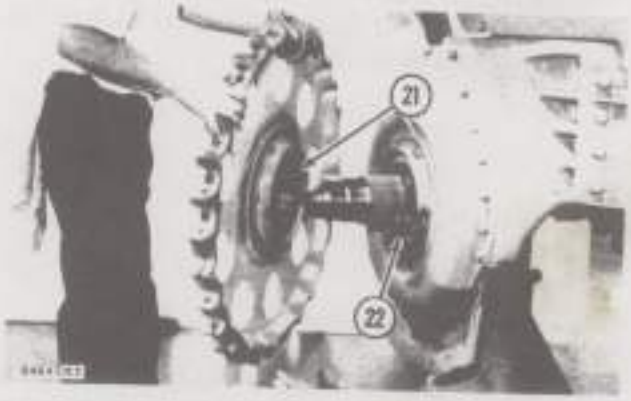
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SPROCKET ASSEMBLIES

WARNING: The sprocket is installed with a pressure of 20 to 25 tons (18.1 – 22.7 M tons). It is important that nut (19) is in the correct position on the hub to prevent the sprocket (20) from coming off the sprocket shaft. Put nut (19) in position until there is a distance of 1/2" in. (12.7 mm) between nut (19) and the sprocket (20).

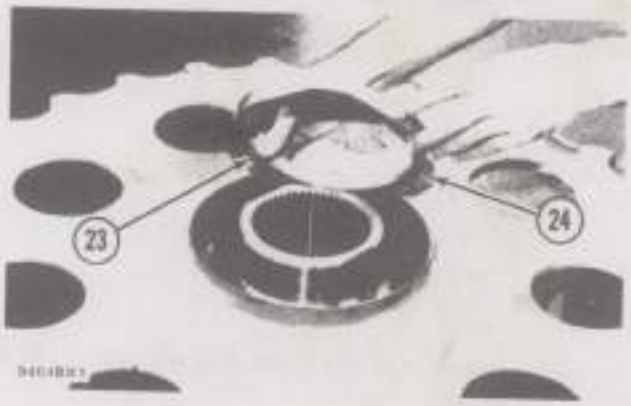


13. Install tooling (C). Remove sprocket (20).



14. Remove the nut from the hub. Fasten a hoist to the sprocket. Weight of the sprocket is 155 lb. (70.3 kg). Remove the sprocket.

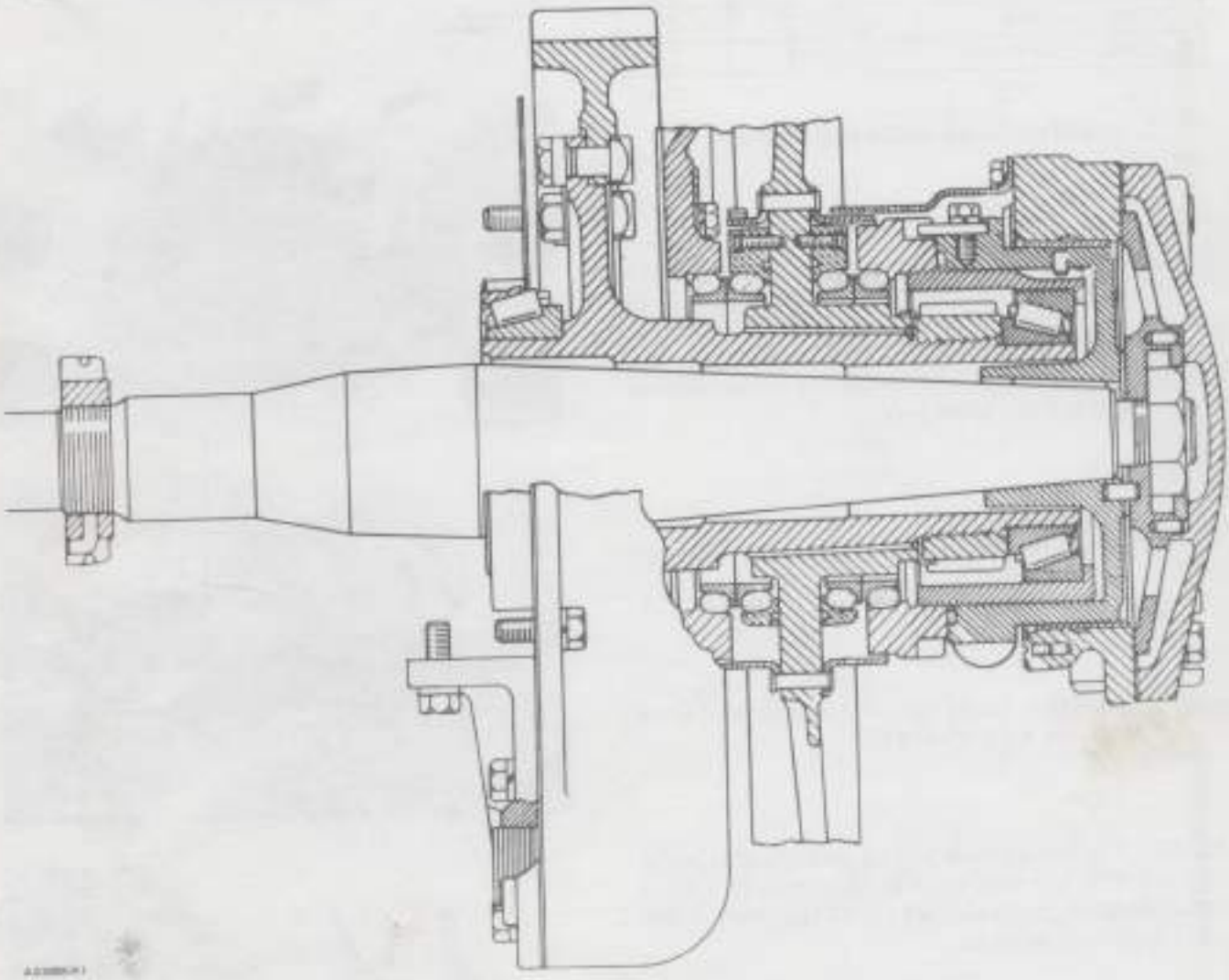
15. Remove Duo-Cone seals (21) and (22). Put identification on the seals to prevent mixing at assembly.



16. Remove the three screws from retainer (24). Remove retainer. Remove seal (23) from retainer. Check the seal for damage. Turn the sprocket over and remove the retainer and the seal.

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SPROCKET ASSEMBLIES



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SPROCKET ASSEMBLIES

INSTALL SPROCKET ASSEMBLIES 12–4164

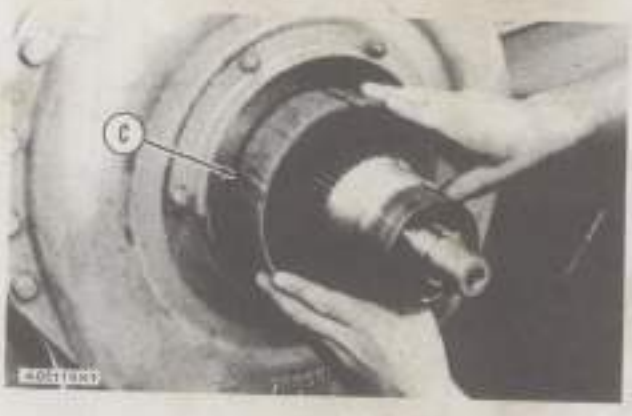
Tools Needed		A	B	C
5F9884	Adapter	1		
5F9888	Coupling	1		
5F9892	Pin	1		
7F5288	Pusher Group	1		
1P5583	Adapter	1		
9S8900	Cylinder Group	1		
3S6224	Hydraulic Pump	1		
7F9306	Wrench		1	
1S8966	Seal Installer			1



1. Install new seals in the two retainers.



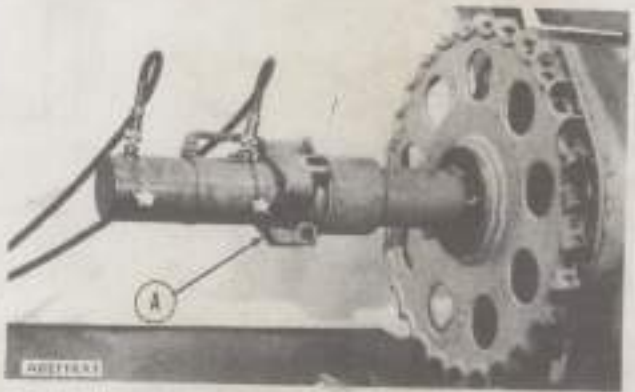
2. Put 1P808 Multipurpose Grease on the seals. Put the retainer (1) and seal in position in the sprocket. Install the three screws that hold the retainer in position. Turn the sprocket over and install the other retainer and seal the same way.



3. Install the Duo-Cone seal in the sprocket with tooling (C).

4. Install the Duo-Cone seal in the final drive gear case with tooling (C).

NOTE: The rubber seals and all surfaces that make contact with the seals must be clean and dry. After installation of the seals, put oil on the contact surfaces of the metal seals.

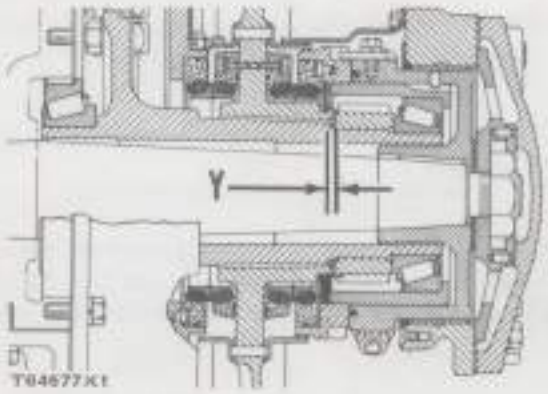


5. Fasten a hoist to the sprocket. Put the sprocket in position and install tooling (A). Install the sprocket with a pressure of 20 to 25 tons (18.1 to 22.7 M tons). Remove tooling (A).

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SPROCKET ASSEMBLIES

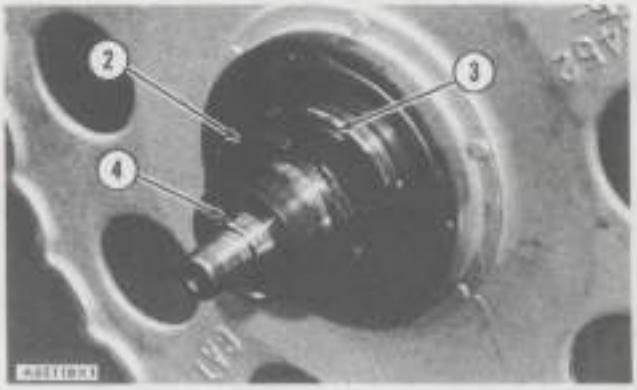
6. Check dimension (Y) after installing the sprocket. Dimension (Y) is expected to be .12 ± .06 in. (3.1 ± 1.5 mm).



7. Install the Duo-Cone seal in the sprocket with tooling (C).



NOTE: The rubber seals and all surfaces that make contact with the seals must be clean and dry. After installation of the seal, put oil on the contact surface of the metal seal.



8. Install lock (3) and nut (2) on hub. Tighten the nut to a torque of 350 ± 50 lb.ft. (48.4 ± 6.9 mkg). Bend the lock (tab) down in the groove of the nut. Install key (4) in the sprocket shaft.



9. Heat bearing cone (5) in oil to a maximum temperature of 275°F (135°C). Install the bearing cone on the hub as shown.

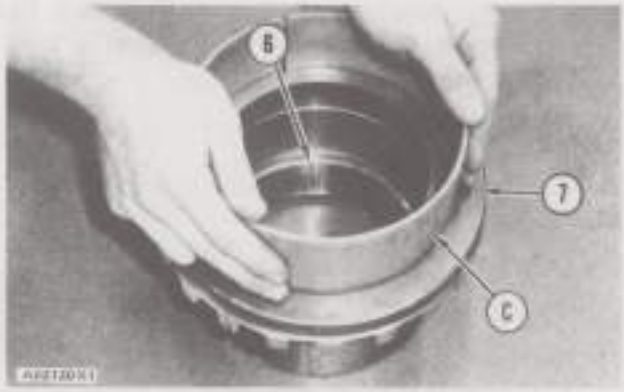
https://tractormanualz.com/

SPROCKET ASSEMBLIES

10. Install the bearing cup (6) in cage assembly. Install nut (7) on cage assembly.

11. Install the Duo-Cone seal in the nut with tooling (C).

NOTE: The rubber seal and all surfaces that make contact with the seals must be clean and dry. After installation of the seal, put oil on the contact surface of the metal seal.



12. Put the cage assembly in the holder assembly.

13. Put 1P808 Multipurpose Grease on the seal of the cage assembly. Put the cage assembly and the holder assembly as a unit on the sprocket shaft.



14. Put support assembly (8) on holder assembly. Install shims (9) on location dowels in holder assembly. See ALIGNMENT OF TRACK ROLLER FRAMES for correct thickness of shims.

15. Install retainer (10) and nut (11). Tighten nut to a torque of 350 ± 50 lb.ft. (48.4 ± 6.9 mkg). Put the lock (12) on the dowels of the retainer.

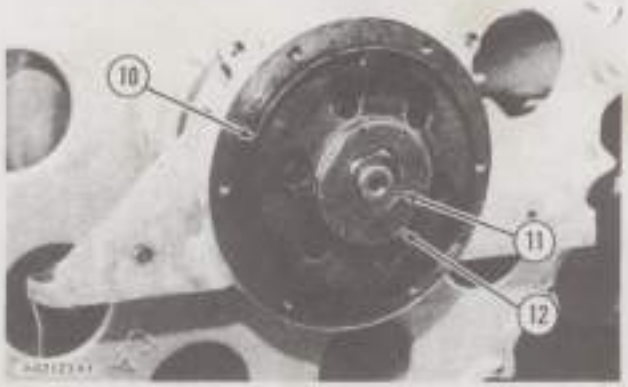
16. Install the lock and bolt in the holder assembly.

17. Install the guard over the holder assembly.



18. Put the cap over the retainer assembly. Install the six bolts that hold the cap in position.

19. Make an adjustment to the final drive sprocket and hub bearings. See LUBRICATION AND MAINTENANCE GUIDE.



end by:
a) install track roller frame

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FINAL DRIVE CASES, GEARS, AND HUBS

REMOVE FINAL DRIVE CASES, GEARS, AND HUBS 11–4059, 4055, 4054

Tools Needed		A	B	C	D
8B7554	Bearing Cup Puller Attachment	1			
1S5188	Legs	2			
8B7552	Bolt	1			
T774	Step Plate	1			
3B7084	Puller		1		
3B7080	Screws		2		
FT862	Plate			1	
2B4027	Yoke			1	
2H6024	Spacer			1	
5F9879	Adapter			1	
5F9306	Arm			2	
9S8900	Cylinder Group			1	
3S6224	Hydraulic Pump			1	
8B7548	Puller Assembly				1
8B7550	Leg				2
8H684	Ratchet Box Wrench				1
8H663	Bearing Pulling Attachment				1
9S9155	Spacer				1
8B7560	Step Plate				1







start by:
a) remove sprocket assemblies

1. Remove the oil from the final drive cases.

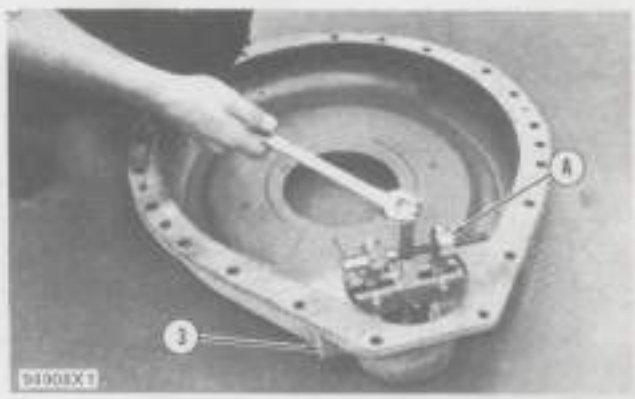
2. Remove twenty bolts (1) from case.

3. Install two 3/8"–16 NC forcing screws in the case. Move the case (2) away from the steering clutch case until two eyebolts and nuts can be installed.

4. Install two 1/2"–13 NC eyebolts and nuts in the case. Fasten a hoist to the case. Weight of the case is 96 lb. (43.5 kg). Remove case and gasket.

5. Install a 6–40 screw in dowel (3). Remove dowel.

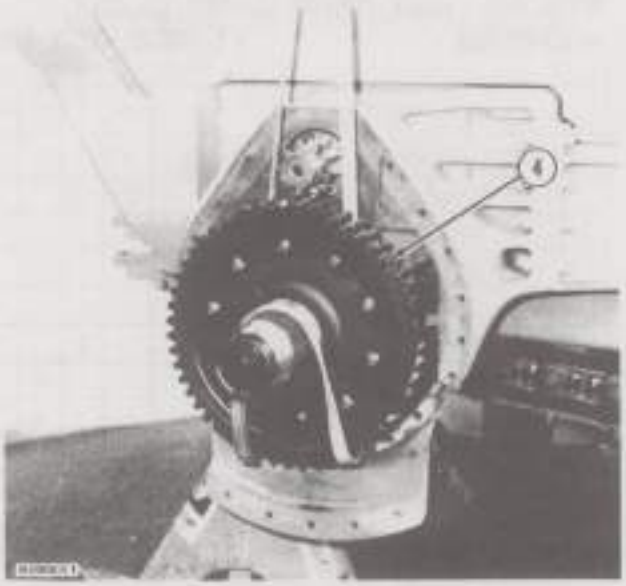
6. Use tooling (A) to remove bearing race.



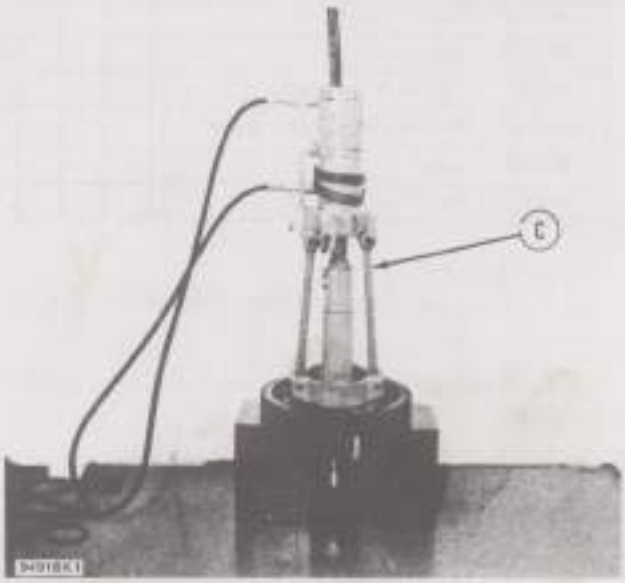
https://tractormanualz.com/

FINAL DRIVE CASES, GEARS, AND HUBS

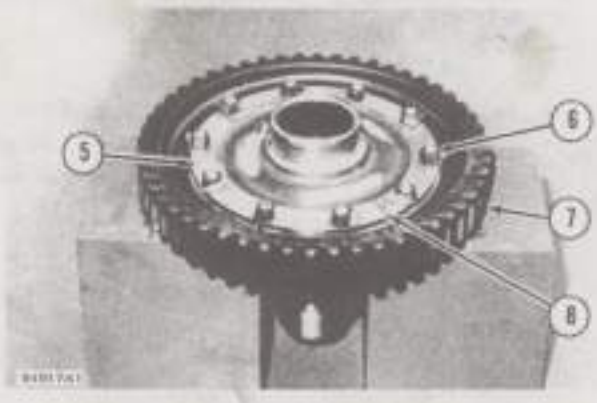
7. Fasten a hoist to the gear and hub (4). Weight of the gear and hub is 125 lb. (56.7 kg). Remove the gear and hub from the sprocket shaft.



8. Put the gear and hub on wood blocks. Use tooling (C) to remove the bearing cone from the hub.



9. Bend locks (5) down. Remove bolts and nuts (6) that hold the hub to the gear.

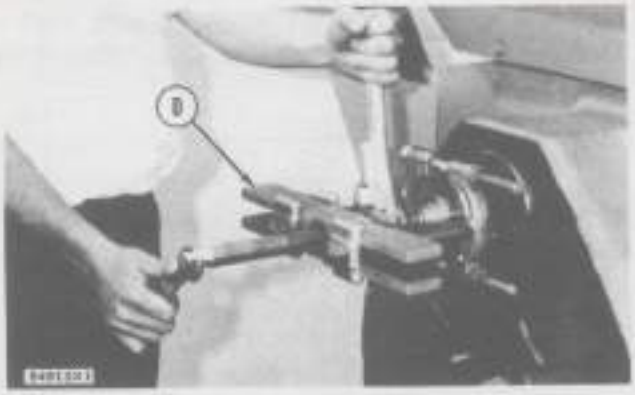


10. Remove hub (8) from gear (7).

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FINAL DRIVE CASES, GEARS, AND HUBS

11. Use tooling (D) to remove the bearing race from the pinion shaft.





12. Use tooling (B) to remove the bearing cup from the steering clutch case.

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FINAL DRIVE CASES, GEARS, AND HUBS

INSTALL FINAL DRIVE CASES, GEARS AND HUBS 12–4059, 4055, 4054

Tools Needed		A
1P532	Handle	1
1P508	Drive Plate	1
1P484	Drive Plate	1

1. Heat bearing race (1) in oil to a maximum temperature of 275°F (135°C). Put the bearing race on the bevel pinion shaft with the larger diameter of the bearing race as shown.



2. Lower the temperature of the bearing cup. Install the bearing cup (2) in the steering clutch case as shown. Make sure the bearing cup is even with the machined surface of the steering clutch case.



3. Put the hub (3) in position in the gear (4). Install the bolts, locks, and nuts that hold the hub to the gear. Tighten the nuts to a torque of 195 ± 18 lb.ft. (26.9 ± 2.5 mkg). Bend the locks up on the nuts.



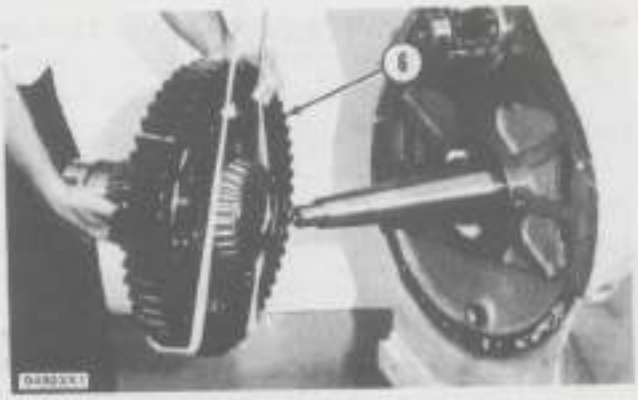
4. Heat the bearing cone (5) in oil to a maximum temperature of 275°F (135°C). Put the bearing in position on the hub.



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FINAL DRIVE CASES, GEARS, AND HUBS

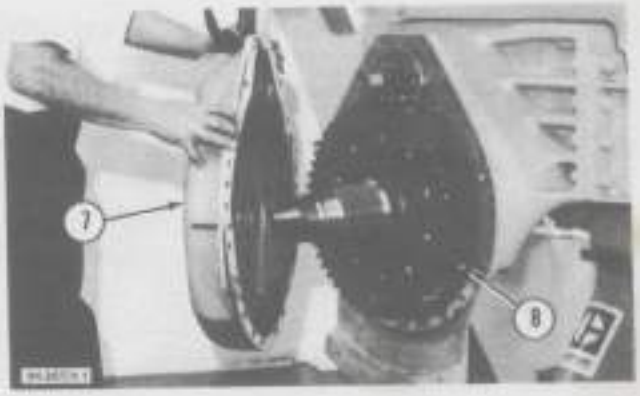
5. Fasten a hoist to the gear and hub (6). Put clean oil on the bearing cone and bearing race. Put the gear and hub in position in the bearing cup and on the pinion shaft.



6. Put the hole in bearing race in alignment with the hole in the case. Use tooling (A) to install the bearing race in the case. Install the dowel that holds the bearing in position in the case.



7. Install two guide pins (8) in the steering clutch case as shown. Fasten a hoist to case (7). Put a new gasket between the case and the steering clutch case. Put the case in position on the guide pins and hub. Remove the hoist and push the case against the steering clutch case. Install the twenty bolts that hold the case in position.



8. Fill the final drive cases with oil to the correct level. See LUBRICATION AND MAINTENANCE GUIDE.

end by:
a) install sprocket assemblies

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SPROCKET SHAFTS

REMOVE SPROCKET SHAFTS 11–4058

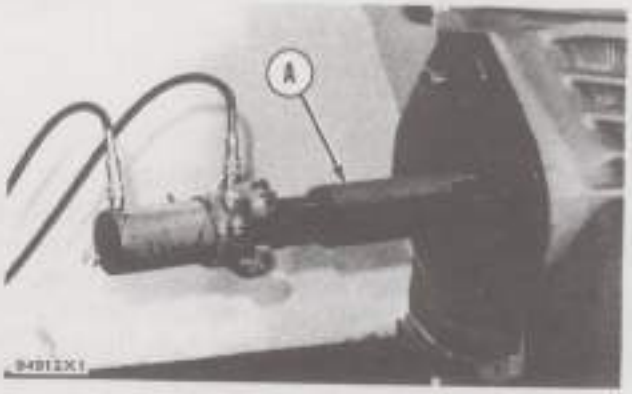
Tools Needed		A
5F9890	Sprocket Shaft Puller Group	1
5F9884	Adapter	1
5F9892	Pin	1
5F9888	Adapter	1
9S8900	Cylinder Group	1
356224	Hydraulic Pump	1

start by:

a) remove final drive cases, gears, and hubs



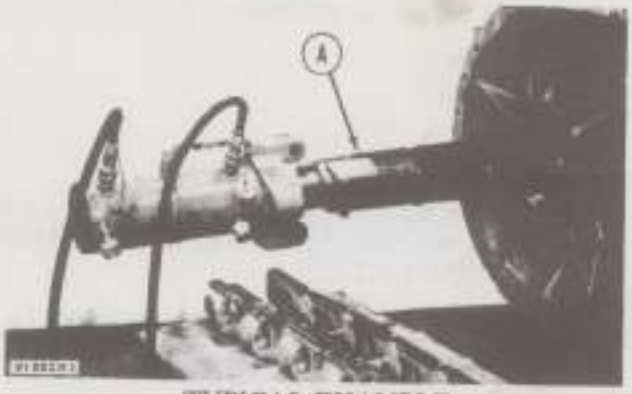
1. Remove the ring and pin from nut (1). Remove nut (1) from sprocket shaft.



2. Use tooling (A) to remove the sprocket shaft from the steering clutch case.

INSTALL SPROCKET SHAFT 12–4058

Tools Needed		A
1P3054	Adapter	1
1P3052	Link	6
7B2499	Ring	16
6H4158	Pin	8
1P3053	Adapter	1
5F9884	Adapter	1
5F9882	Pin	1
5F9888	Adapter	1
9S8900	Cylinder Group	1
356224	Hydraulic Pump	1



TYPICAL EXAMPLE

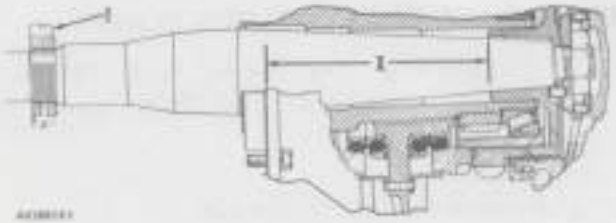
1. Put the sprocket shaft in the bore of the steering clutch case with the key (slot) groove up. Put the nut in the bore of the steering clutch case.

2. Use tooling (A) to install the sprocket shaft in the steering clutch case.

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SPROCKET SHAFTS

NOTE: When installing the sprocket shaft, the pressure must be against the sprocket shaft only. Make sure the piston of the cylinder is not in the end of travel position. If the piston of the cylinder is in its end of a travel position before the sprocket shaft is in its correct position, remove one 1P3052 Link from each side of tooling (A). Put pressure on the shaft again.



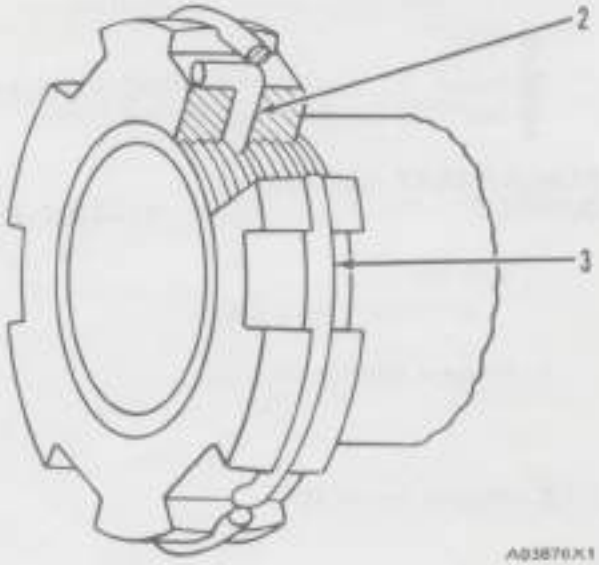
3. With the pressure still on the sprocket shaft, tighten nut (1). Measure dimension (X). Dimension (X) must be 9.5 ± .062 in. (241.3 ± 1.57 mm).

4. After nut (1) is tight, hold it in position as follows:

   a) In one of the grooves of nut (1), drill a .312 in. (7.92 mm) hole through the nut and .62 in. (15.7 mm) deep in the shaft. Install pin (2) in the hole. Install ring (3) to hold pin (2) in position.

end by:

a) install final drive cases, gears, and hubs



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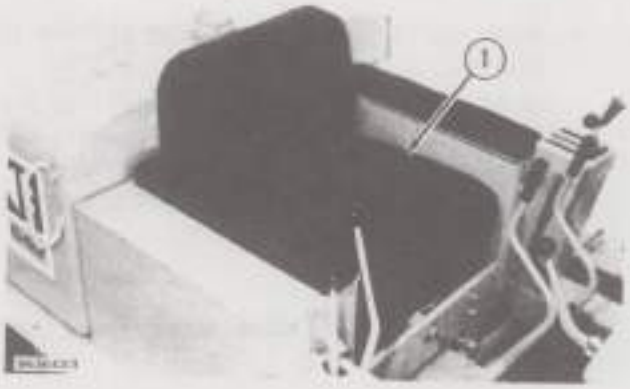
FLOOR PLATES, SEAT AND FRONT SUPPORT

REMOVE AND INSTALL FLOOR PLATES



1. Remove the twenty-two bolts (1) and washers that hold the floor plates in position.
2. Remove the floor plates (2).
3. Put the floor plates in position on the tractor.
4. Install the twenty-two washers and bolts that hold the floor plates in position.

REMOVE SEAT AND FRONT SUPPORT 11–7307, 7321



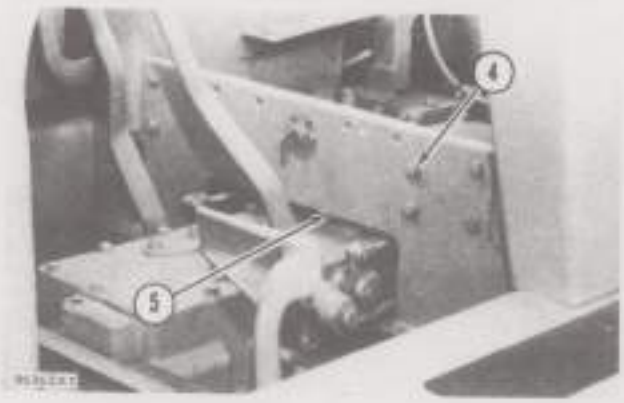
start by:
a) remove floor plates

1. Remove seat cushion (1).
2. Remove bolts (3).
3. Remove back cushion (2).



4. Remove the two battery cable assemblies from the switch.
5. Remove six bolts (4) and washers from front support. Remove front support (5).

INSTALL SEAT AND FRONT SUPPORT 12–7307, 7321



1. Put the front support in position. Install the six bolts and washers that hold the front support in position. Connect the two battery cable assemblies to the switch.
2. Install the back cushion.
3. Install the seat cushion.

end by:
a) install floor plates

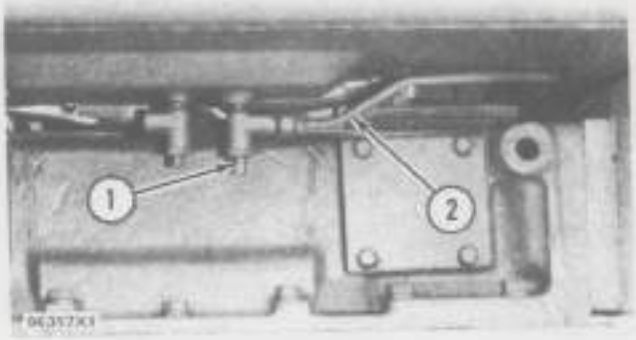
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FUEL TANK

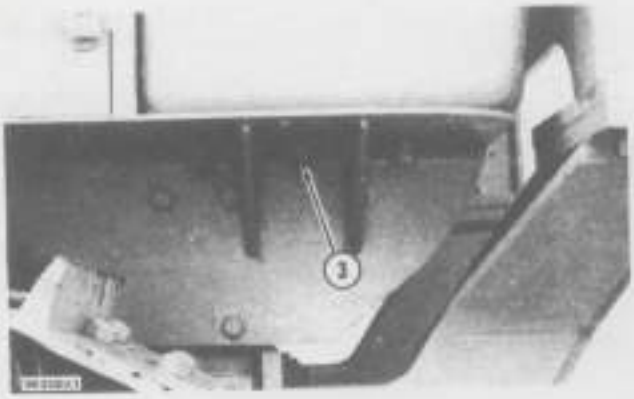
REMOVE FUEL TANK 11–1273

start by:
a) remove seat and front support

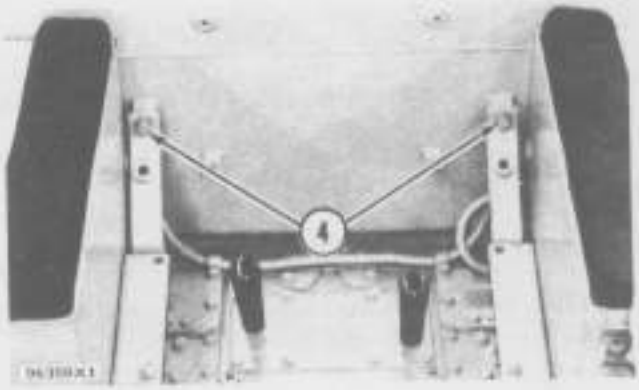
1. Turn the valve assembly (1) to the "OFF" position.



2. Disconnect the fuel line (2) from the valve assembly.



3. Remove three bolts (3) and washers from each side of the tractor.



4. Remove two bolts (4) and washers from the fuel tank.



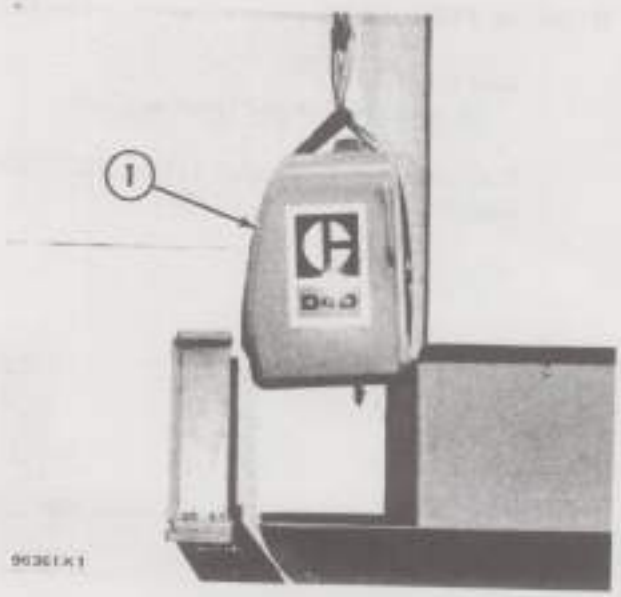
5. Fasten a hoist to the fuel tank. Weight of the fuel tank is 250 lb. (113.4 kg) empty. Remove the fuel tank.

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FUEL TANK

INSTALL FUEL TANK 12–1273

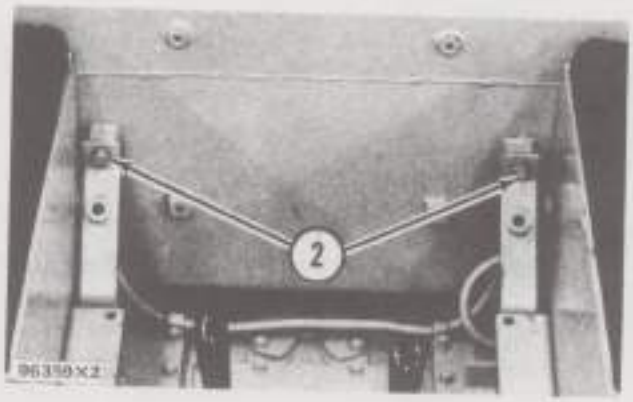
1. Fasten a hoist to the fuel tank. Put the fuel tank (1) in position on the fenders.



2. Install the two bolts (2) and washers in the fuel tank.

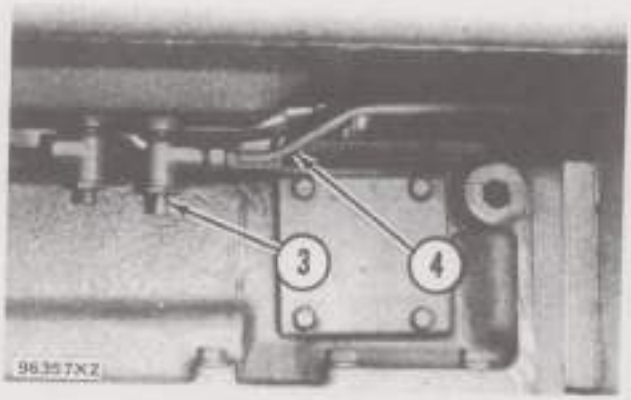
3. Install the six bolts that hold the fuel tank to the fenders.

4. Connect fuel line (4) to the valve assembly (3).



5. Turn valve assembly (3) to the "ON" position.

NOTE: Turn the valve assembly counterclockwise until pressure is felt against the full open seat.

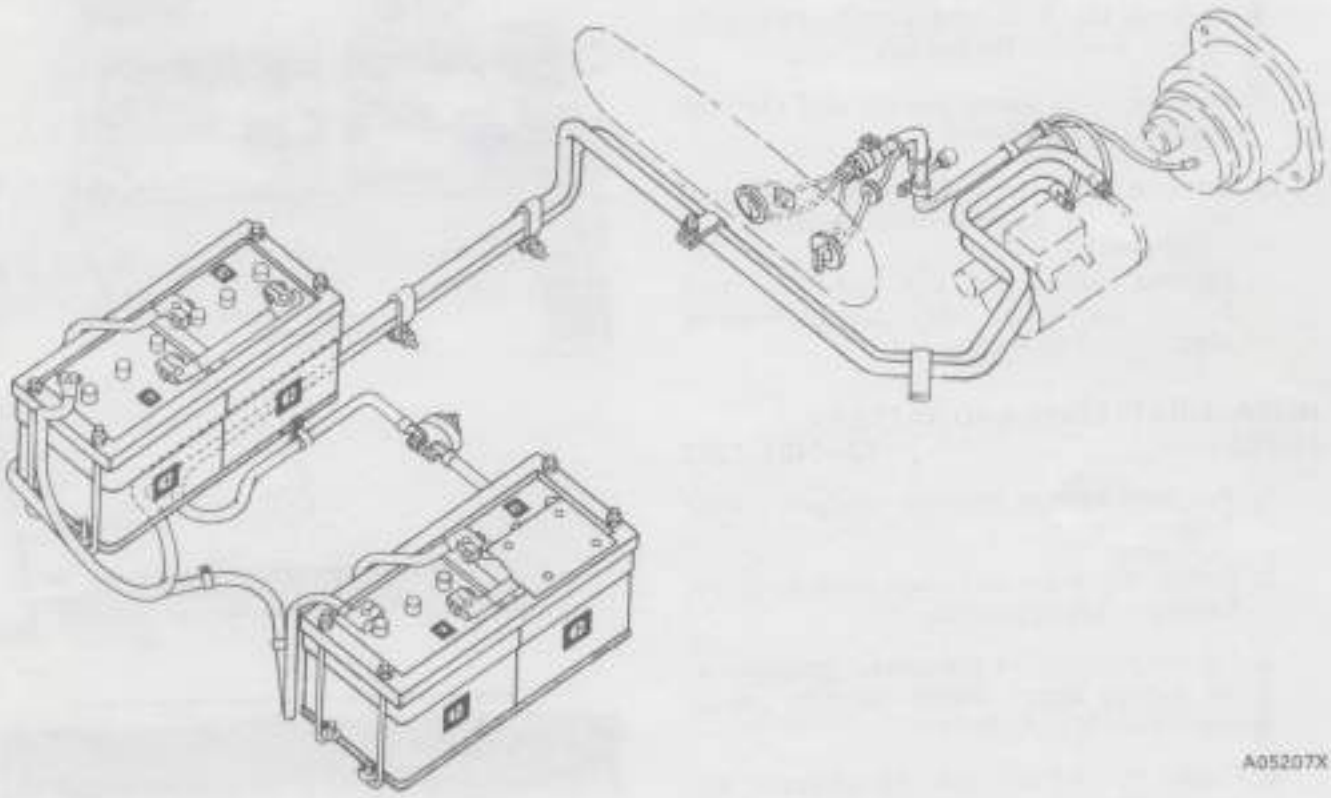


end by:

a) install seat and front support

https://tractormanualz.com/

BATTERIES AND BATTERY BOXES



A05207X1

https://tractormanualz.com/

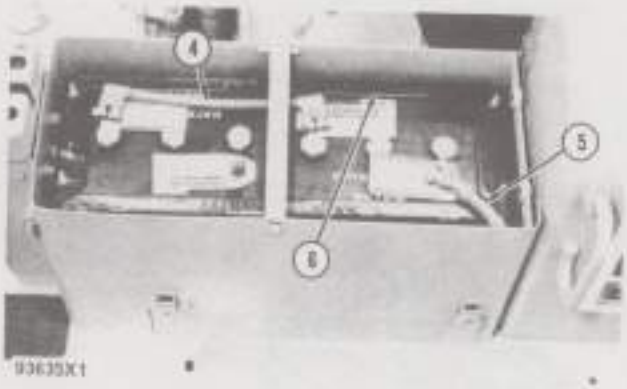
BATTERIES AND BATTERY BOXES

REMOVE BATTERIES AND BATTERY BOXES 11–1401, 7257

start by:
a) remove seat and front support

1. Disconnect the directional control shift rod (3) from the bellcrank assembly on the transmission.
2. Remove two cushions (1) from the battery boxes.
3. Remove the clips (2) that hold the battery cable assemblies in position.
4. Remove the bolts and nuts that hold the battery boxes to the fenders.
5. Remove cable assemblies (4) and (5) from batteries in both boxes.
6. Remove frame assemblies (6) from batteries in both boxes. Remove the batteries.
7. Remove four bolts (7) and nuts from battery box on left side of tractor. Remove both battery boxes.

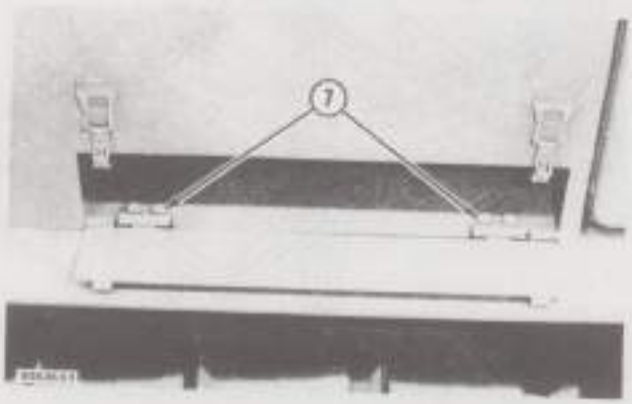




INSTALL BATTERIES AND BATTERY BOXES 12–1401, 7257

1. Put both battery boxes in position on the fenders.
2. Install the bolts and nuts that hold the battery boxes in position.
3. Put the batteries in the correct positions in the battery boxes. Install the cable assemblies in the battery boxes.
4. Fasten the battery cable assemblies to the steering clutch cover with the clips.
5. Connect the cable assemblies to the batteries.
6. Connect the directional control rod to the bellcrank assembly on the transmission.
7. Install the two cushions on the battery boxes.

end by:
a) install seat and front support



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STEERING CLUTCH CONTROLS

REMOVE STEERING CLUTCH CONTROLS 11–4106

start by:
a) remove seat and front support
b) remove batteries and battery box
c) remove fuel tank

1. Remove the bolts and washers that hold covers (5), (6) and (7) in position. Remove the covers.

2. Disconnect the two rods from levers (2) and (4).

3. Remove two rods (1) and two levers (3).

4. Remove two anchors (8) and (10) by pulling up and turning forward.

5. Loosen nuts on bolts (11). Remove the bolts.

6. Remove nuts (9) from two grease fittings.

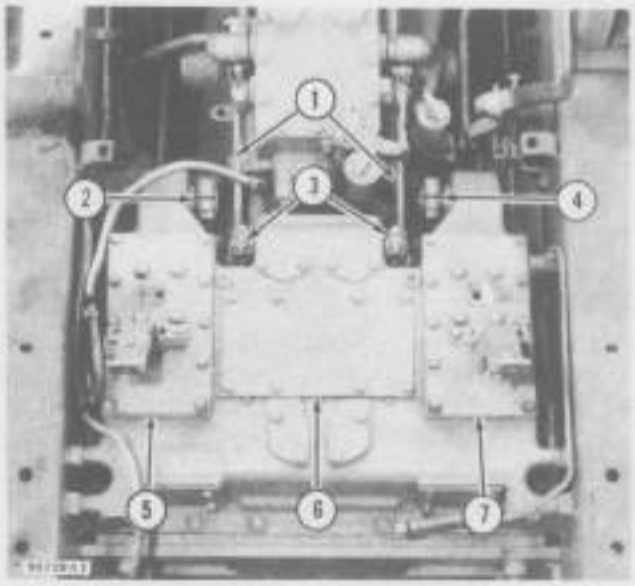
7. Remove two screws (12) and (13).

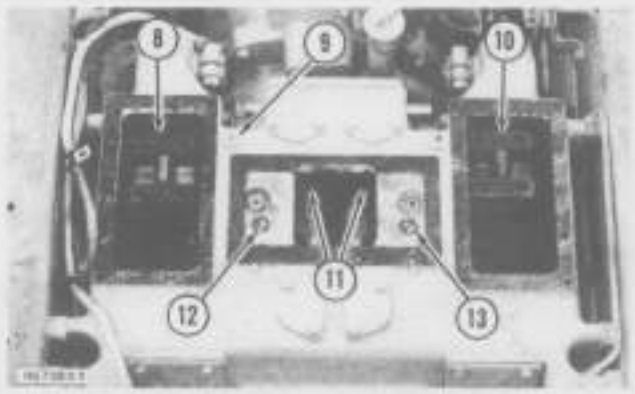
8. Install a 3/8"–16 NC bolt and nut in pin (14). Remove two pins.

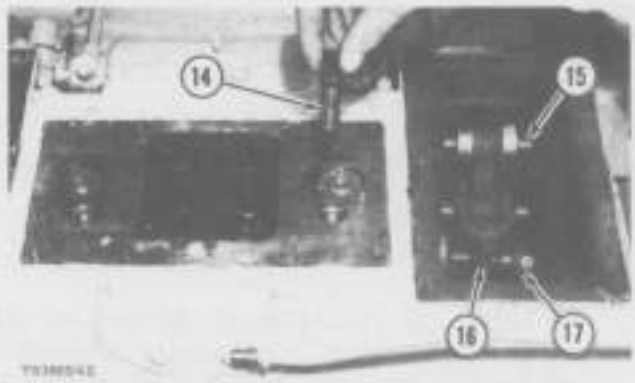
9. Remove locknuts and nuts (17) from the two rod ends (16). Remove the two rod ends.

10. Remove four pins (15) from the two anchors.

11. Remove the twenty bolts and washers that hold the steering clutch controls to the steering clutch case.



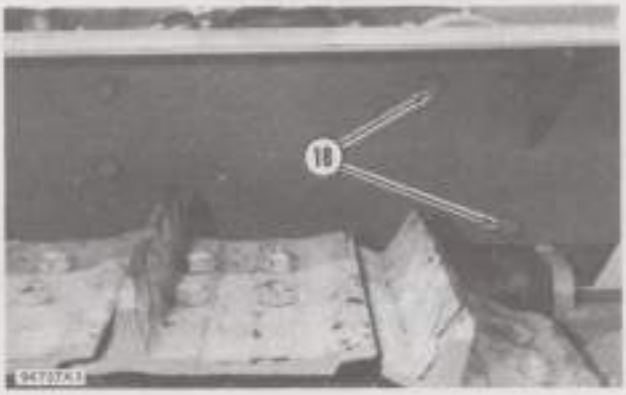




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STEERING CLUTCH CONTROLS

12. Remove five bolts (18) from each side of the tractor.



13. Install two 3/8"–16 NC forged eyebolts in the steering clutch controls. Fasten a hoist to the steering clutch controls. Weight of steering clutch controls is 200 lb. (90.7 kg). Remove steering clutch controls (19).



NOTE: Do not pull grease fittings off the hoses when removing the steering clutch controls.

INSTALL STEERING CLUTCH CONTROLS 12–4106

1. Fasten a hoist to the steering clutch controls. Put the steering clutch controls (1) in position on the steering clutch case.



NOTE: Make sure grease fittings are in the correct position in the steering clutch control case.

2. Install the twenty bolts and washers that hold the steering clutch controls in position. Tighten the bolts to a torque of 85 ± 10 lb.ft. (11.8 ± 1.4 mkg).

3. Install five bolts (2) in each side of the tractor.



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STEERING CLUTCH CONTROLS

4. Install pins (5) in both anchors.

5. Put 5P960 Lubricant on the round surfaces of the two rod ends.

6. Install the two rod ends (6), nut and lock-nut (7).

7. Install a 3/8"–16 NC bolt and nut in pin (4) as shown. Put 1P808 Multipurpose Grease on the bearings. Install two pins (4).

8. Install nuts (3) on both grease fittings.

9. Install two anchors (8) and (9).

10. Install two screws (10) and (11).

11. Install nuts on two bolts (12). Install two bolts (12) in steering clutch control case.

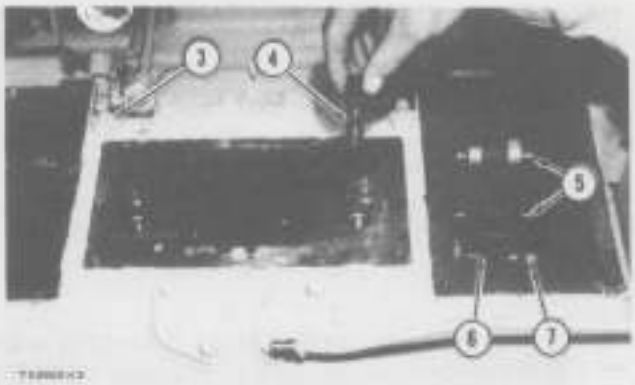
12. Install two levers (15) and two rods (13).

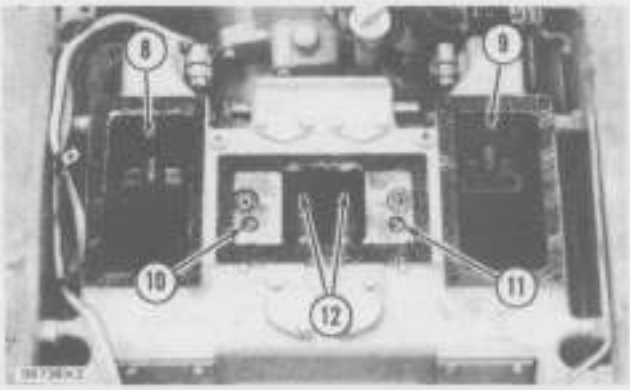
13. Connect the two rods to levers (14) and (16).

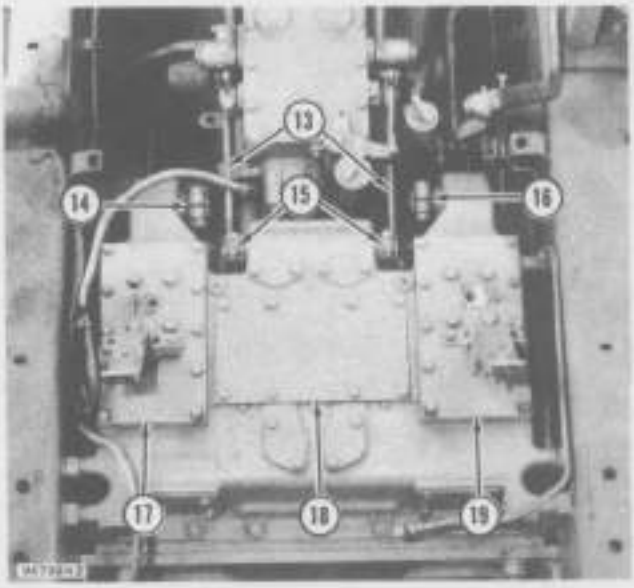
14. Install covers (17), (18), and (19).

15. Make an adjustment to the steering clutch controls. See ASSEMBLE STEERING CLUTCH CONTROLS.

end by:
a) install fuel tank
b) install batteries and battery boxes
c) install seat and front support





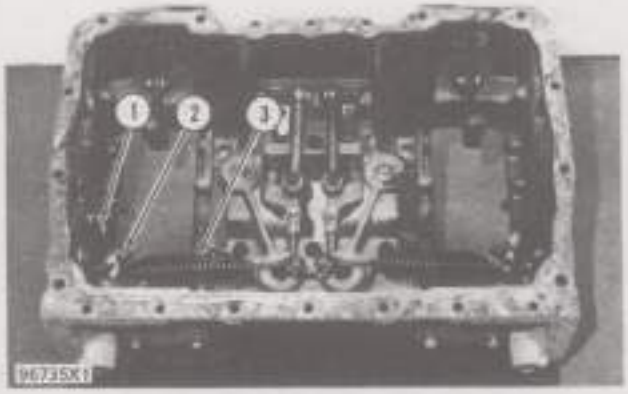


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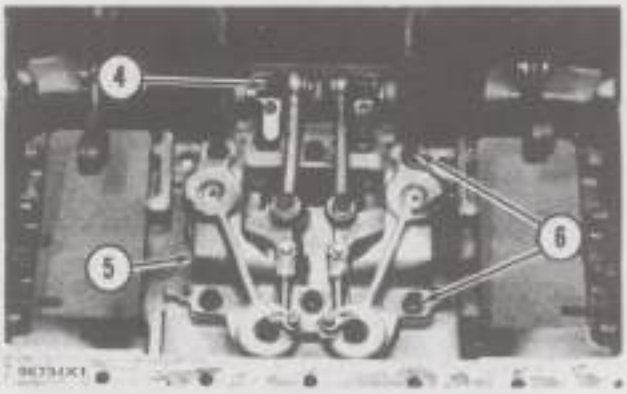
STEERING CLUTCH CONTROLS

DISASSEMBLE STEERING CLUTCH CONTROLS 15–4106

start by:
a) remove steering clutch controls

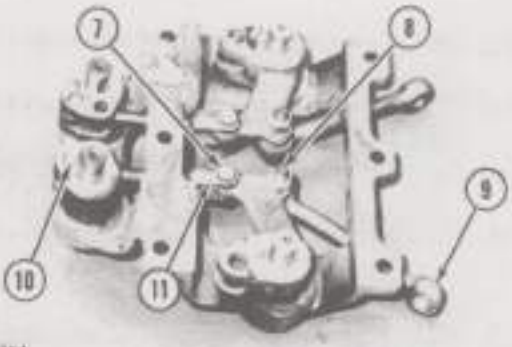


1. Loosen locknuts and nuts (2) on both sides. Remove two springs (3). Remove locknuts, nuts and two anchors (1).



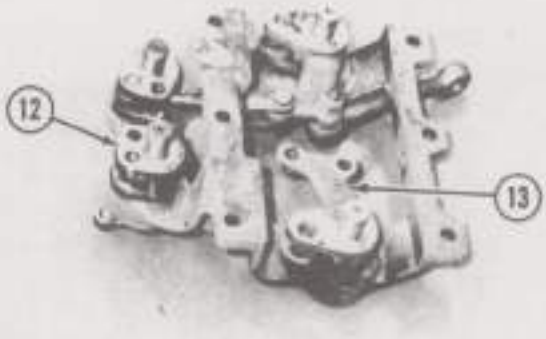
2. Remove six bolts (6) and washers.

3. Remove two bolts (4), washers and nuts from both rods. Remove support (5).



4. Remove nut and bolt (8) from bellcrank. Remove the bushing and rod (9).

5. Remove cotter pin and pin (7) from bellcrank.



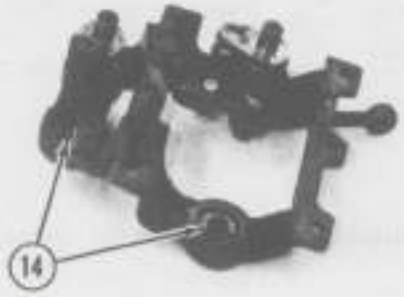
6. Remove pin (10) and rod (11).

7. Remove the nut, lock and pin from shaft (12). Remove shaft (12). Remove bellcrank (13).

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STEERING CLUTCH CONTROLS

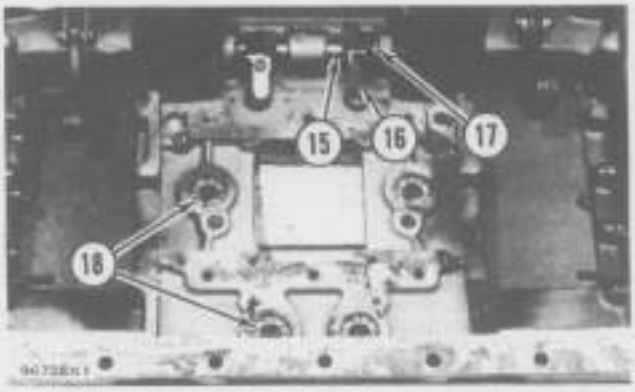
8. Remove bearing rollers and bearing races (14) from support.



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9. Follow the same procedure (Steps 1 through 8) to disassemble the other side of the support.

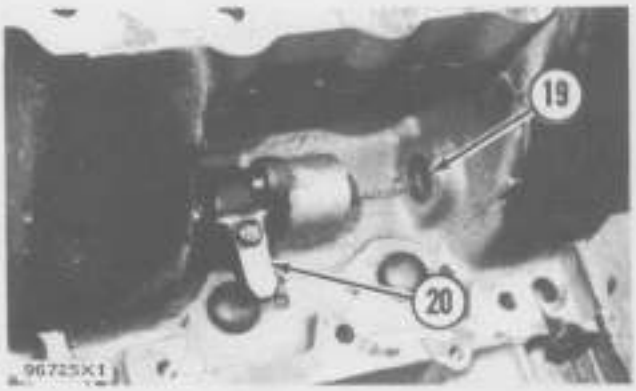
10. Remove four bearing rollers and bearing races (18) from cover.



11. Remove nut and bolt from lever (16).

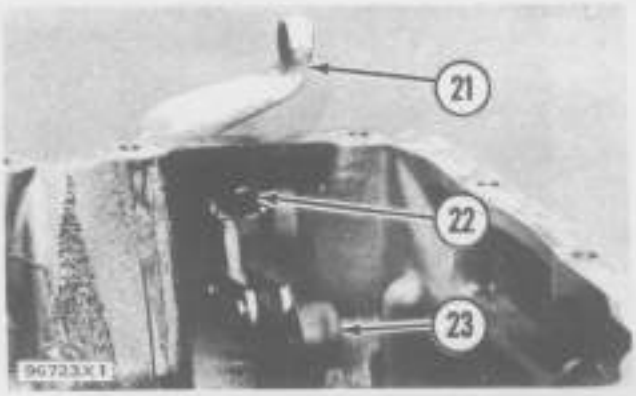
12. Remove lever (16), rod (15), key and spacer (17) from cover.

13. Remove two bearings (19) from cover.



14. Follow same procedure (Steps 11 through 13) to remove left hand lever (20).

15. Remove bolt (22). Pull lever (21) out of cover. Remove lever (23) and links as a unit. Remove the bearings from the cover.



16. Remove the left hand lever from the other side of the cover. Remove left hand levers and link from cover as a unit.

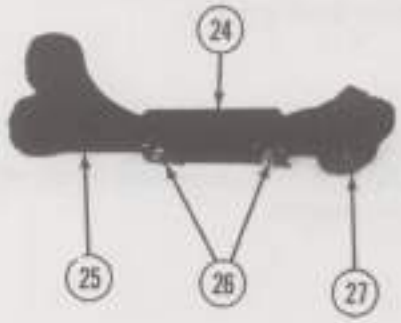
17. Remove the bearings from the cover.

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STEERING CLUTCH CONTROLS

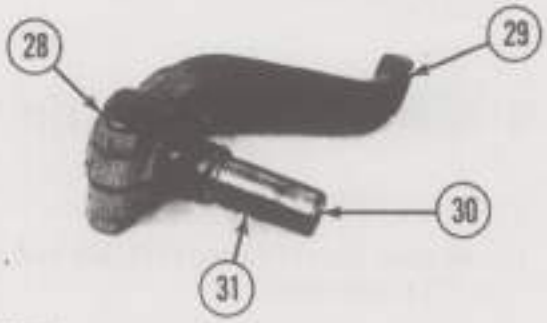
18. Remove two cotter pins and pins (26) from links (24). Remove lever (25) and lever (27).

19. Disassemble the left hand levers and links.



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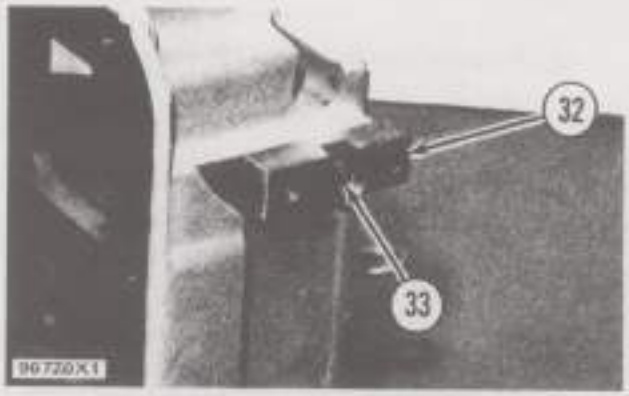
20. Remove bolt and nut (28) from right hand lever (29). Remove shaft (30) and key (31).



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21. Disassemble left hand lever.

22. Remove two bolts (33), washers, and spacers (32) from cover.



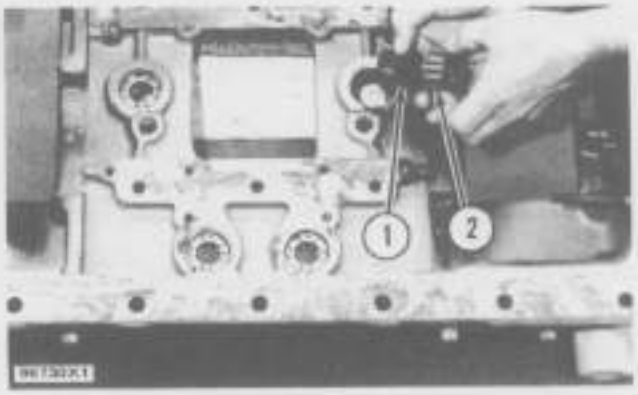
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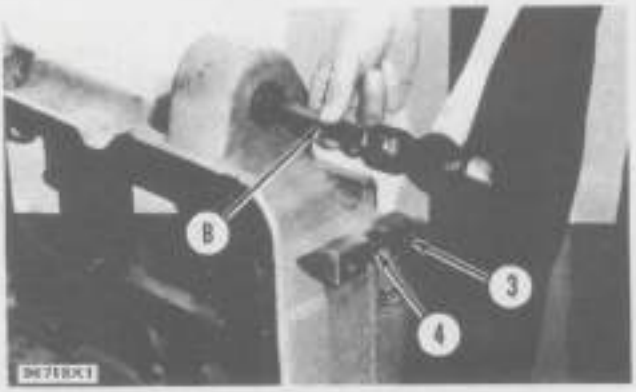
STEERING CLUTCH CONTROLS

ASSEMBLE STEERING CLUTCH CONTROLS 16-4106

Tools Needed		A	B	C
1P529	Handle	1	1	1
1P461	Drive Plate	1		
1P464	Drive Plate	1		
1P462	Drive Plate		1	
1P472	Drive Plate		1	1
1P466	Drive Plate			1

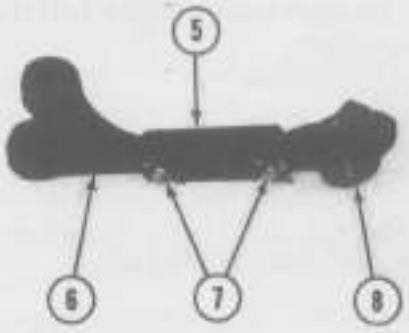


1. Put 1P808 Multipurpose Grease on the bearing rollers and bearing races.



2. Install four bearing races (1) and four bearing rollers (2).

3. Use tooling (B) to install the four bearings in the cover.



4. Install spacer (3), bolt (4), and washer. Do not tighten bolt. Spacer must turn freely.

5. Put lever (6) and lever (8) between two links (5). Install two pins (7). Install cotter pins in two pins (7).

6. Assemble the left hand levers and links as in Step 5.



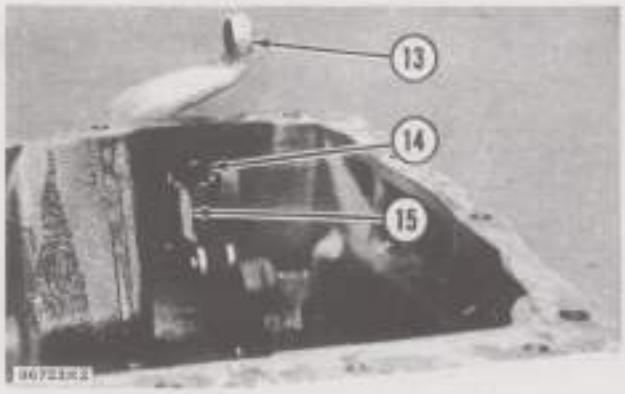
7. Put shaft (11) in lever (10). Install bolt and nut (9). Install key (12) in shaft (11).

8. Assemble left hand shaft and lever as in Step 7.

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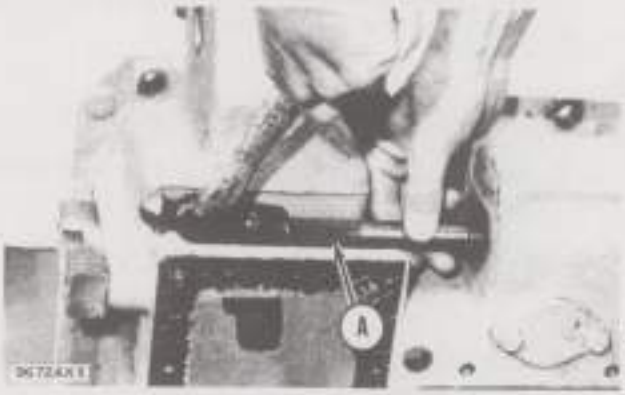
STEERING CLUTCH CONTROLS

9. Put lever (15) and link in position in the cover. Install shaft and lever (13). Install bolt (14).

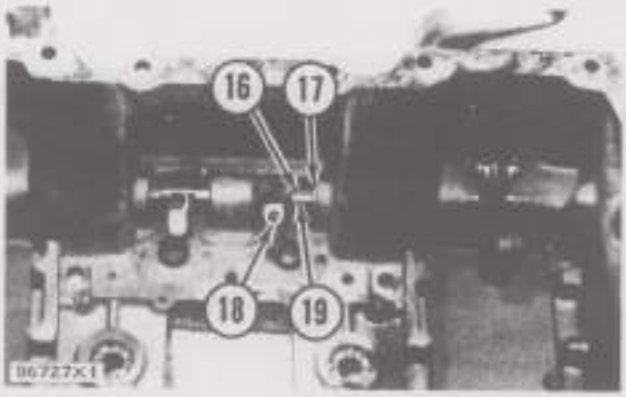


10. Install left hand levers and links in cover. Install left hand shaft and lever.

11. Use tooling (A) to install the four bearings in the cover. Put 1P808 Multipurpose Grease on the bearings.

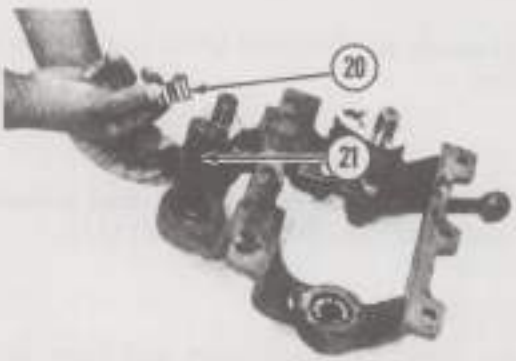


12. Install shaft (19) in cover. Put spacer (17) on shaft. Install key (16) and lever (18) on shaft. Put the lever in the correct position on the shaft and install the bolt that holds it in position.



NOTE: The left side of the support is assembled for better illustration of the parts.

13. Put 1P808 Multipurpose Grease on the bearing race and bearing roller.

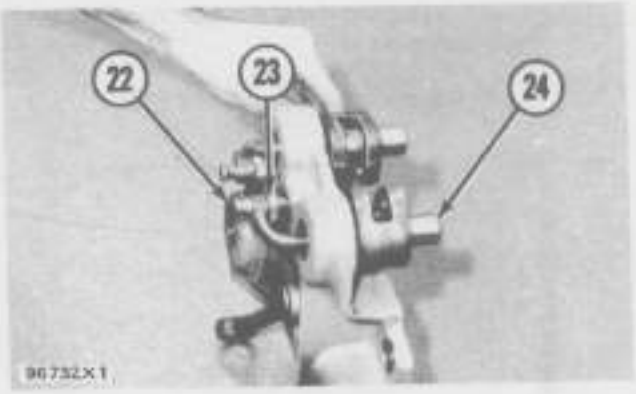


14. Install two bearing races (21) and bearing rollers (20).

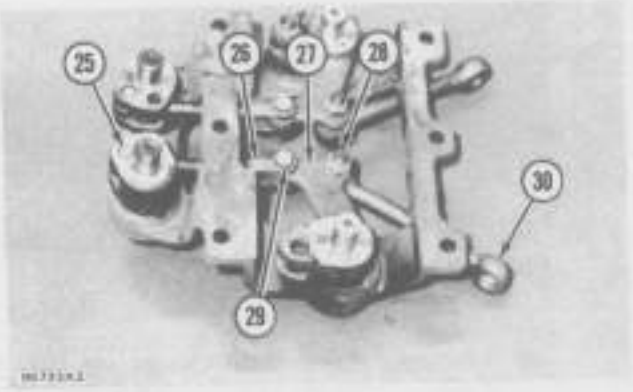
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STEERING CLUTCH CONTROLS

15. Put shaft (24) in position in support. Install nut (23), lock, and screw (22). Bend lock over on nut.



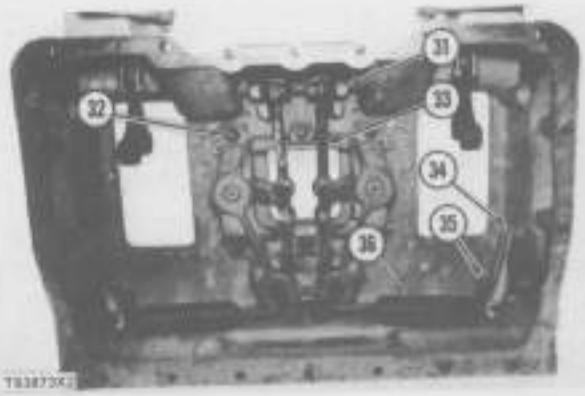
16. Install bellcrank (27). Put rod (26) in position. Install pins (25), pin (29) and cotter pin. Put rod (30) in position. Install bolt (28) and nut.



17. Put the support in position in the cover. Make sure support is down all of the way.



18. Install six bolts (32) and washers. Connect two rods (33) to levers. Install two bolts and nuts (31). Put two anchors (34) in position and install nut and locknut (35). Install two springs (36).



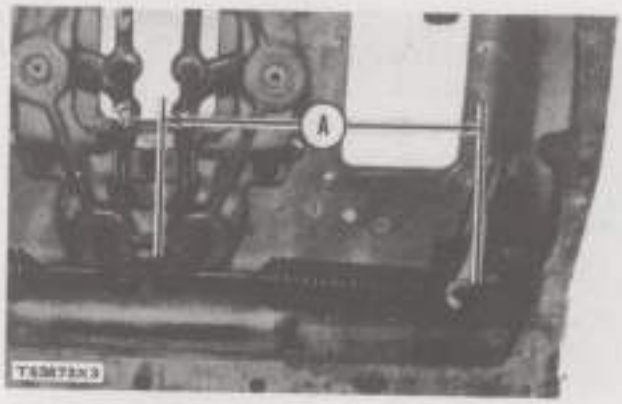
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STEERING CLUTCH CONTROLS

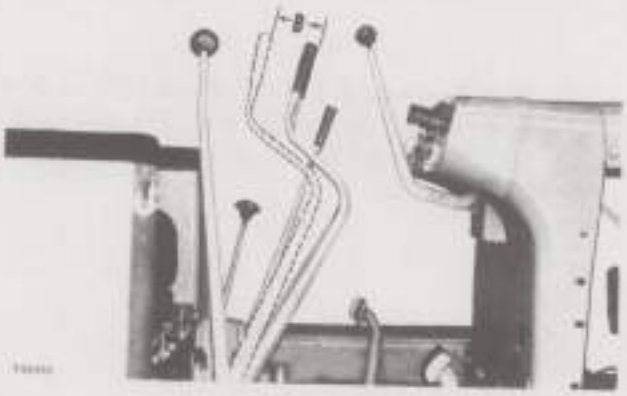
19. Make an adjustment to the spring pressure as follows:

    a) Loosen locknut and nut (35).

    b) Turn nut (35) until dimension (A) is 10.80 ± .12 in. (274.3 ± 3.0 mm).



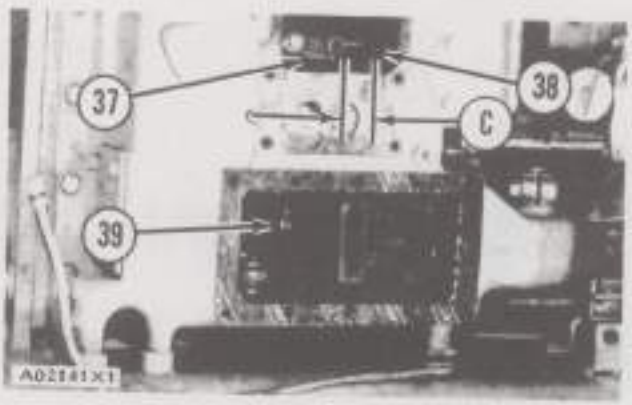
20. Install steering clutch controls.



21. Make an adjustment to the steering clutch controls as follows:

    a) Turn nut (39) until dimension (B) is 2.50 – 3.50 in. (63.5 – 88.9 mm). Dimension (B) is measured at the top of the lever with the handle removed. Dimension (B) is the distance between the free forward position of the lever and the position of the lever when the steering clutch starts to release.

    b) Put the steering clutch in an engaged position. Turn bolt (38) until dimension (C) is .90 – .98 in. (22.9 – 24.9 mm). Dimension (C) is the distance between bolt (38) and the front edge of the bellcrank (37).

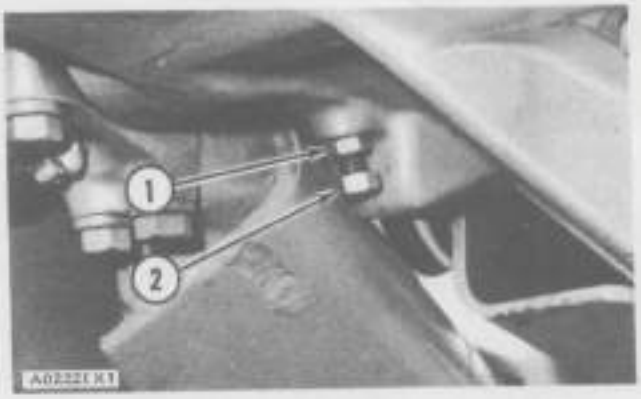


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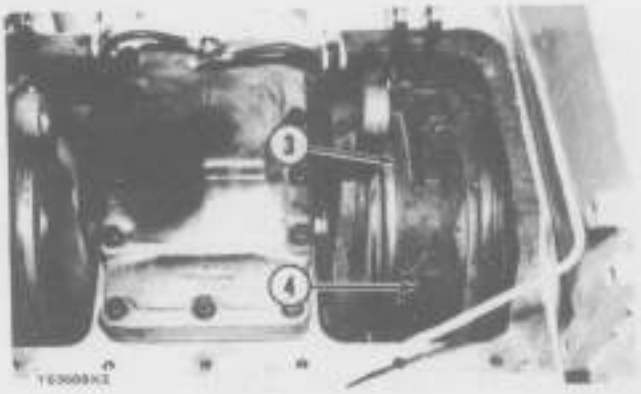
BRAKE BANDS AND LININGS

REMOVE BRAKE BANDS AND LININGS 11–4110

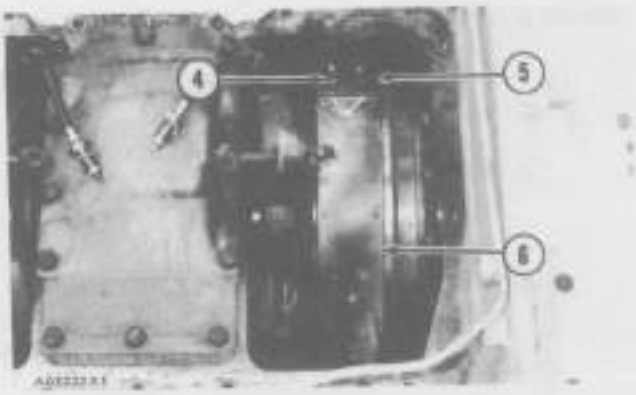
start by:
a) remove steering clutch controls



1. Loosen nut (1). Remove screw (2) from the bottom of the steering clutch case.



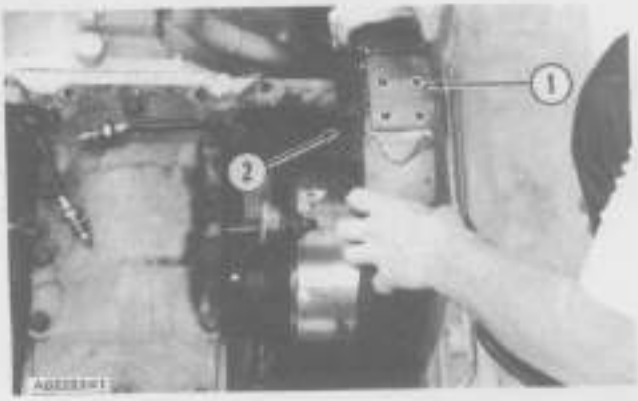
2. Remove four nuts (4) and washers. Remove band assembly (3).



3. Turn band assembly (6) toward rear of tractor. Remove four nuts (4) and washers.

4. Remove band assembly (5) and band assembly (6).

INSTALL BRAKE BAND AND LININGS 12–4110



1. Put two band assemblies (1) and (2) together. Install the four bolts, washers, and nut that hold the band assemblies together. Do not tighten nuts.

2. Put the band assemblies in position on the drum of the steering clutches. Tighten the nuts that hold the two band assemblies together. Turn the band assemblies forward until they are under the drum.

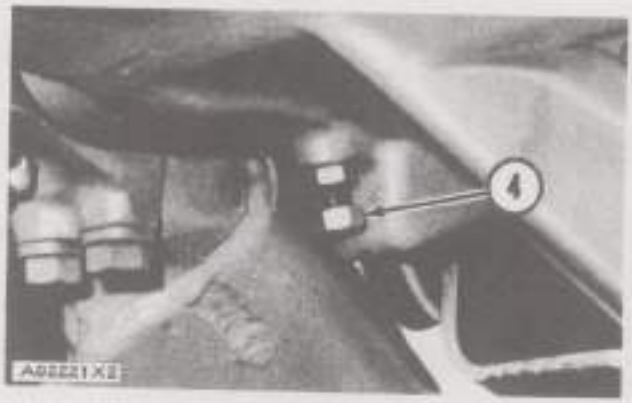
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BRAKE BANDS AND LININGS

3. Put band assembly (3) in position on the drum and the other band assemblies that are in position. Install the four bolts, washers, and nuts.



4. Put screw (4) and nut in the steering clutch case.



5. Make an adjustment to the band assemblies and brake pedals. See ADJUST BRAKE BANDS AND LININGS.

end by:
a) install steering clutch

BRAKE ADJUSTMENT 25–4110

1. Make an adjustment to the brake bands and linings as follows:

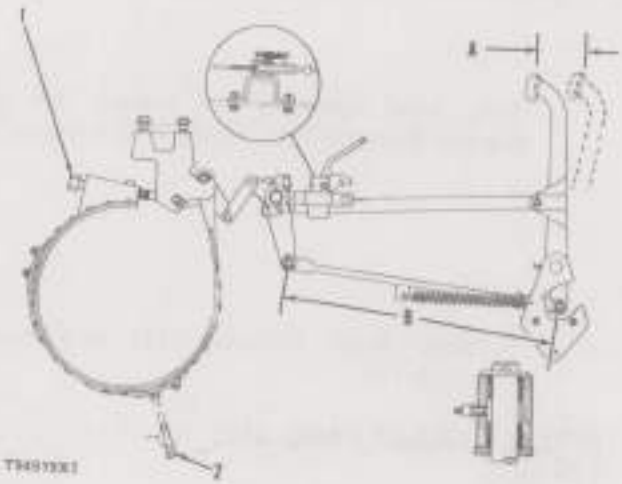
a) Assemble rod to a length of dimension (B) which is 20.00 to 20.08 in. (508.00 to 510.03 mm).

b) Make sure the brake pedals are in a released position. Tighten nut (1) until the band assemblies make contact with the drum of the steering clutches.

c) Loosen locknut on screw (2). Turn screw clockwise until it makes contact with the band assemblies.

d) Loosen screw (2) one turn. Fasten locknut on screw (2).

e) Loosen nut (1) three turns or until dimension (A) is 3 in. (76.2 mm) minimum.



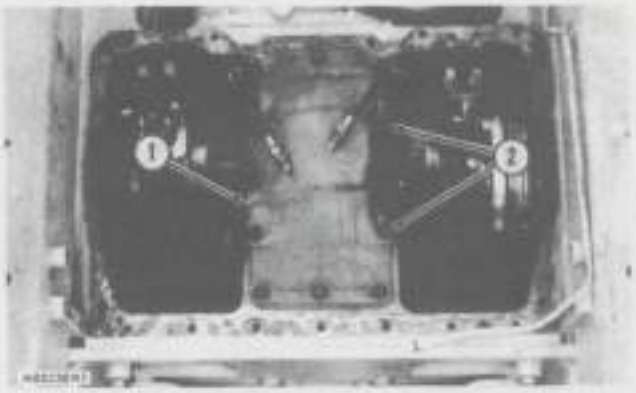
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STEERING CLUTCHES

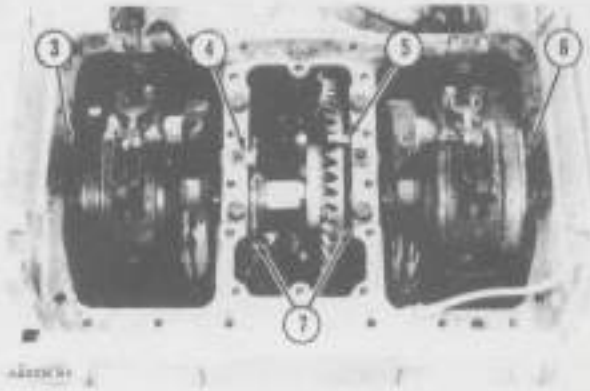
REMOVE STEERING CLUTCHES 11–4109

Tools Needed		A
8S8303	Wrench	1

start by:
a) remove steering clutch controls



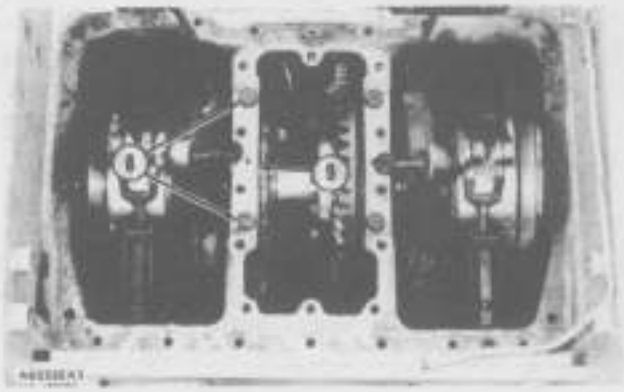
1. Remove the oil from the bevel gear case.



2. Remove bolts (2) and washers from cover. Remove cover (1) and gasket.

3. Remove fourteen bolts (3) and (6) from both flanges.

NOTE: Turn the tracks for removal of all the bolts.



4. Remove the bolt and lock from lock (4). Remove the lock. Remove the bolt and lock from deflector (5). Remove the deflector.

5. Use tool (A) to loosen two nuts (7).



6. Remove two bolts (8) and washers from each cap (9). Remove the two caps (9).

7. Remove the two rod ends from the two yokes. Install two 1/2"–13 NC forged eye-bolts in the yokes. Fasten a hoist to the steering clutches. Weight of steering clutches are 475 lb. (215.5 kg). Remove steering clutches.

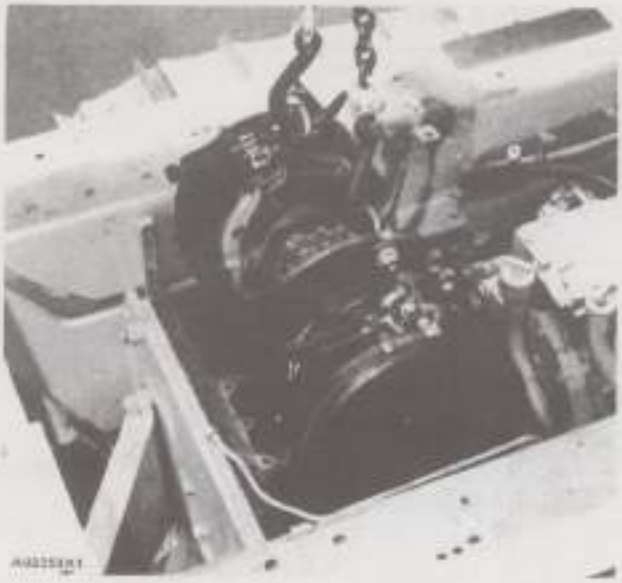
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STEERING CLUTCHES

INSTALL STEERING CLUTCHES 12–4109

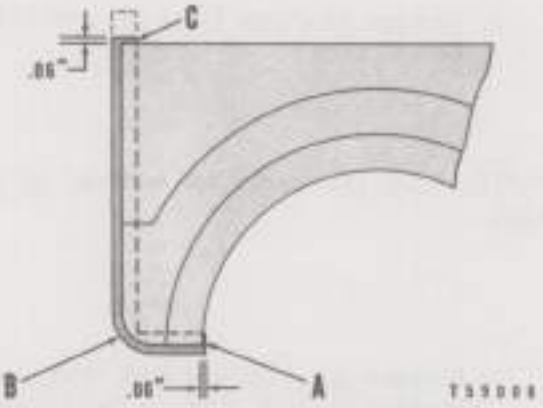
Tools Needed		A
8S8303	Wrench	1

1. Fasten a hoist to the steering clutches. Put the steering clutches in the correct position in the steering clutch case. Remove the hoist. Install the rod ends in the yokes.



CAUTION: Make sure the balls on the ends of the two yokes are in position in the sockets of the steering clutch case. Make sure the notch in each bearing cage is facing in an "UP" position.

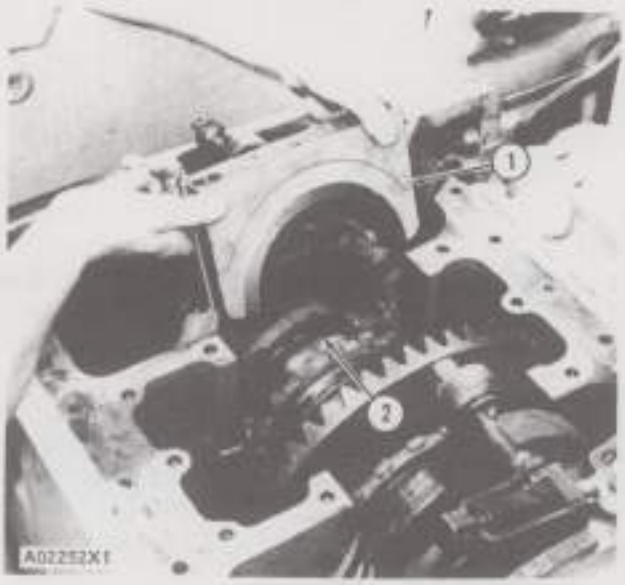
2. Install new seals in the two caps as follows:



a) Make sure the two caps are clean and dry.

b) Put the seal in the groove of the cap at point (A). Work the seal around point (B) to point (C). Do not pull on the seal. Make sure the seal is in the groove by working the seal from point (C) back to point (A).

c) Put a light amount of liquid soap on the wall in the steering clutch case where the seals make contact. Do not let the liquid soap get in the groove of the caps.



3. Put the bevel gear into position in relation to the bevel pinion to prevent damage to seal (2).

4. Put the two caps (1) in position in the steering clutch case. Do not cause damage to the seals in the caps.

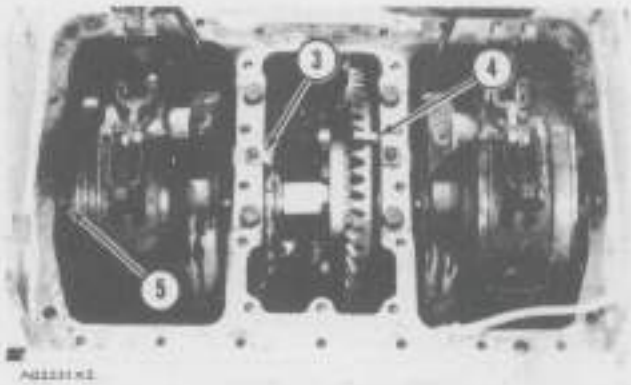
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STEERING CLUTCHES

CAUTION: Make sure dowels in the caps are in the notches of the bearing cages before tightening down bolts.

5. Install the bolts and washers that hold the caps in position.

NOTE: If the seal is .25 in. (5.3 mm) above the top surface of the cap, the seal installation must be done again. After final installation trim the ends of the seal at points (A) and (C) to .06 in. (1.5 mm).



6. Make an adjustment to the bevel gear bearing preload. See BEVEL GEAR AND PINION SETTINGS.

7. Make adjustments to the gear tooth contact setting and gear clearance (backlash). See BEVEL GEAR AND PINION SETTINGS.

8. Install the bolts (5) and washers that hold the flanges to the drums of the steering clutches.

9. Install the lock (3) and deflector (4).

10. Install the gasket and cover over the bevel gear.

11. Fill the bevel gear case with oil to the correct level. See LUBRICATION AND MAINTENANCE GUIDE.
end by:
    a) install steering clutch controls

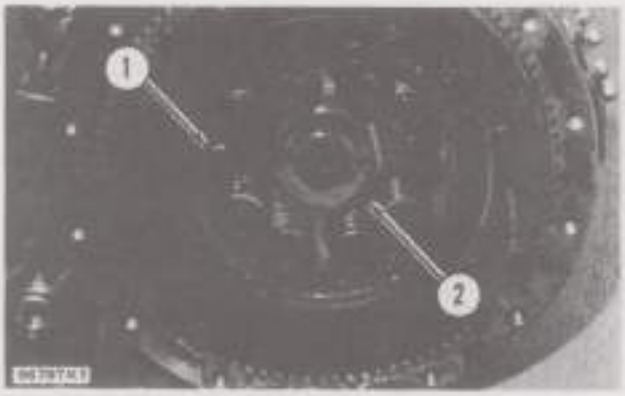
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STEERING CLUTCHES

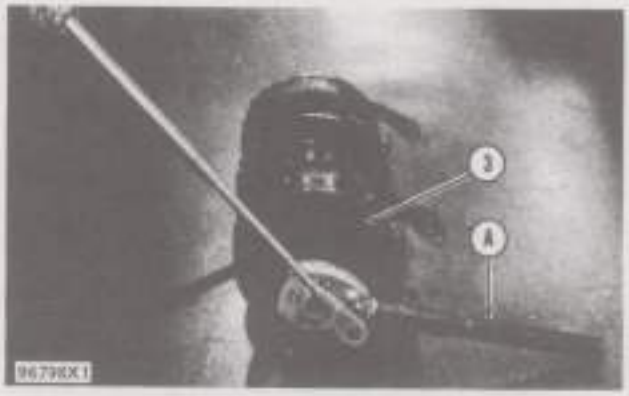
DISASSEMBLE STEERING CLUTCHES 15–4109

Tools Needed		A	B	C
754135	Torque Multiplier	1		
887548	Puller Assembly		1	1
887556	Adapter		2	2
7F9540	Puller Assembly		1	1
955800	Pump Group		1	1
887561	Step Plate		1	1
7S8431	Plate			1

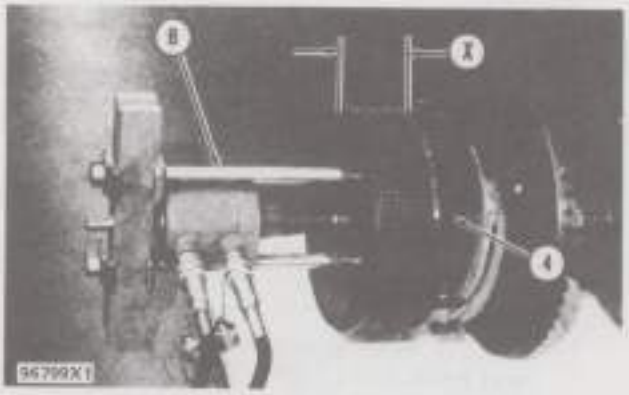
start by:
a) remove steering clutches



1. Remove two bolts (1), washers and lock (2).

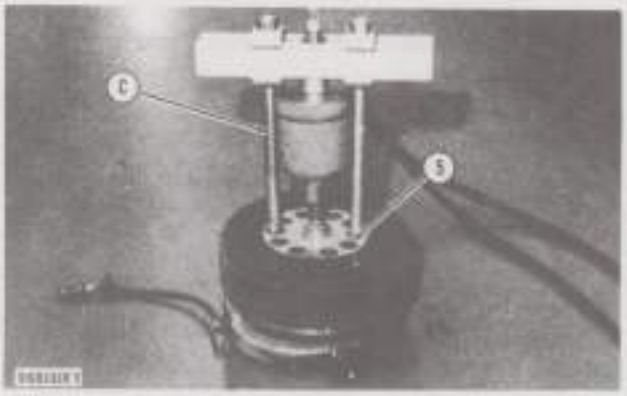


2. Install two 1/2"–13 NC bolts (3) in the drum as shown. Put tool (A) on the nut. Install a bar on the two bolts (3) as shown. Loosen the nut. Remove tool (A). Do not take the nut off the bevel gear shaft. Put the nut in position on the bevel gear shaft so there is a distance of .25 in. (6.53 mm) between the nut and the face of the drum. Remove the brake bands and linings. Remove the drum.



3. Use tooling (B) to loosen the plate assembly (4). Remove tooling (B). Remove plate assembly (4). Weight of the plate assembly is 120 lb. (54.43 kg).

NOTE: Measure the total thickness of the discs and disc assemblies of the clutch assembly. The minimum thickness (X) is 2.63 in. (66.80 mm). If dimension (X) is less than 2.63 in. (66.80 mm), install new discs and disc assemblies.



4. Install tooling (C) as shown. Put pressure on springs and remove locks (5). Release pressure and remove tooling (C).

NOTE: The flange of the 7F9540 Puller Assembly will have to be ground off a small amount at two locations to permit installation of the legs for the tooling (C).

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STEERING CLUTCHES

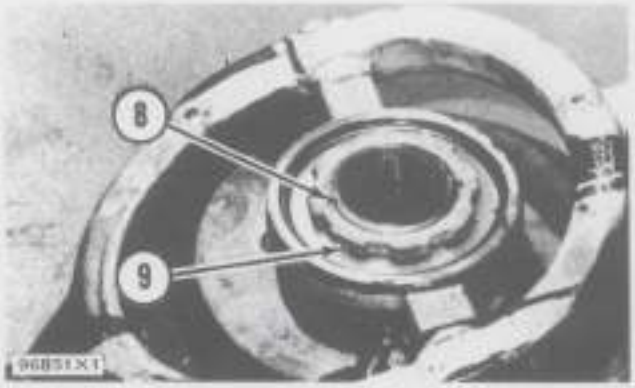
5. Remove a retainer (6) and two springs (7) from each of the eight studs.



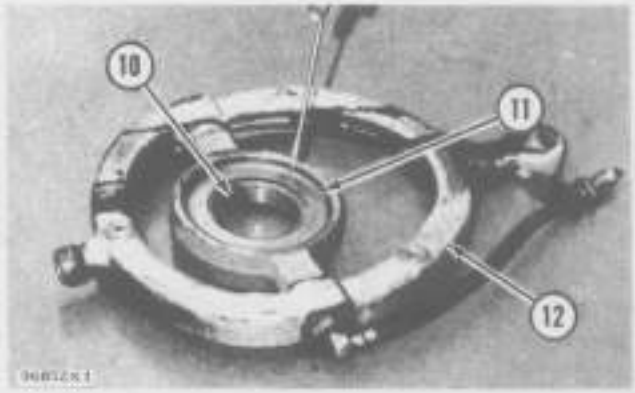
6. Remove the drum and disc assemblies.



7. Remove two screws (8). Remove nut (9). Remove yoke from drum.



8. Remove ring (11) from cage. Remove the other ring and bearing (10) from the cage.

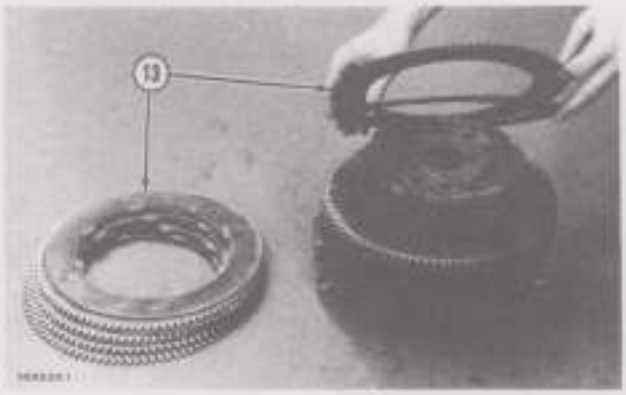


9. Check the yoke (12) and hose for damage and wear. If the parts are worn, use new parts for replacement.

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STEERING CLUTCHES

10. Remove discs (13) from the drum.



NOTE: Put identification on the discs to prevent mixing at assembly. If the same discs are used at assembly, install them in the drum in the same order to prevent fast wear. The discs will wear better if they are moved from the top to the bottom of the clutch assembly with the same faces up. New discs can be installed with any face up.

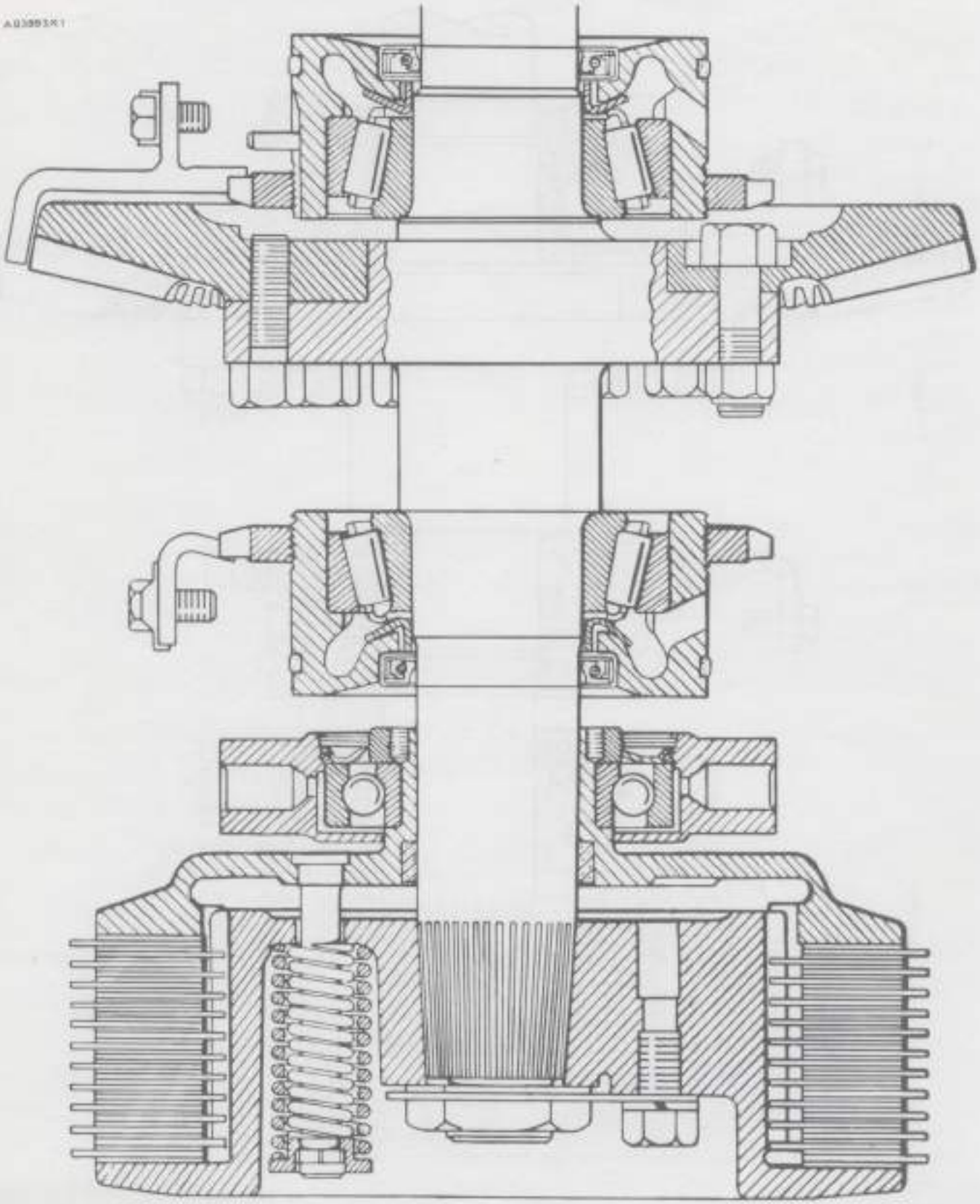
11. Put plate assembly (14) on the bevel gear shaft. Check the clearance between the shaft and the bearing in the plate assembly. The clearance must not be more than .020 in. (0.5 mm). If the clearance is more install a new bearing.



12. Disassemble the other side of the steering clutches, following the procedure in Steps 1 through 11.

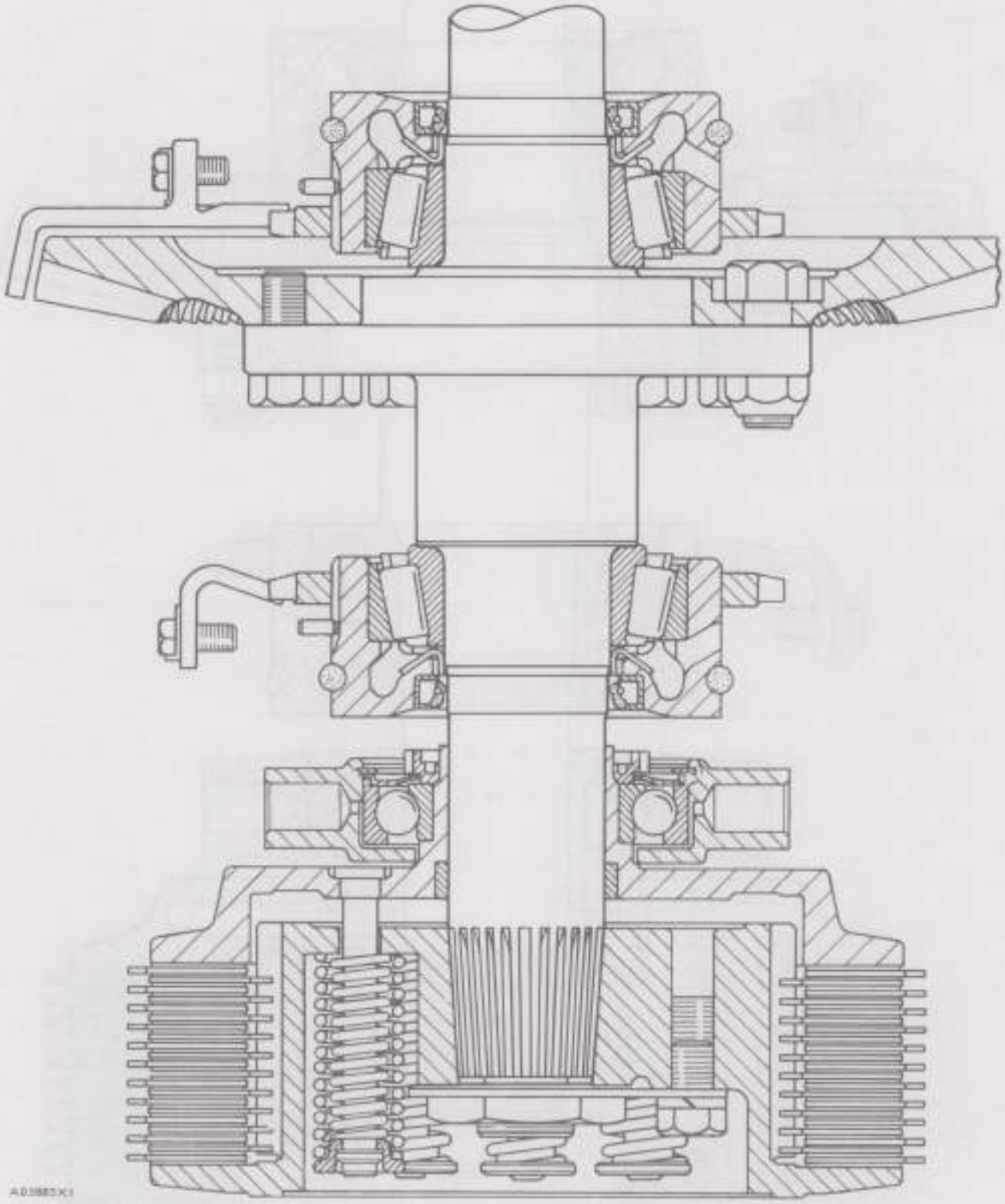
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STEERING CLUTCHES (DIRECT DRIVE AND SPECIAL APPLICATION)



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STEERING CLUTCHES (POWER SHIFT)



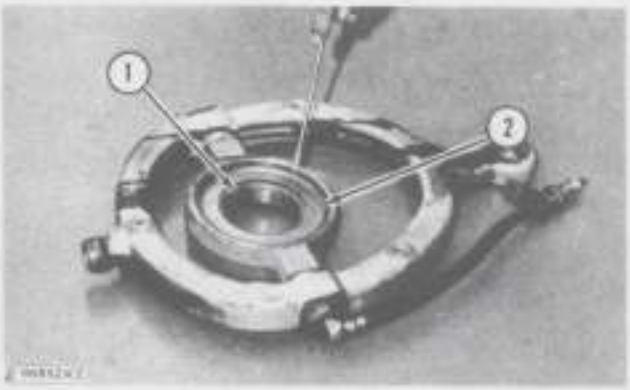
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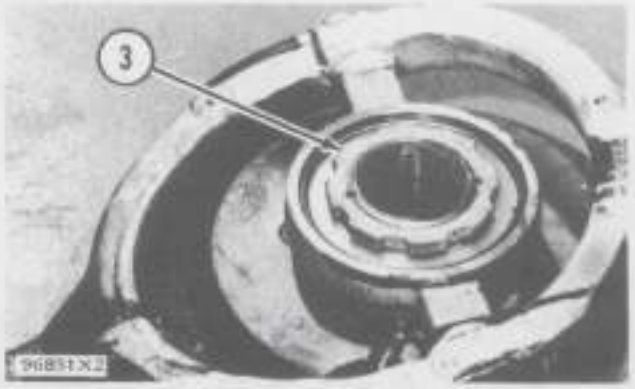
STEERING CLUTCHES

ASSEMBLE STEERING CLUTCHES 16–4109

Tools Needed		A	B	C
8B7548	Puller Assembly	1		
8B7556	Adapter	2		
7F9540	Puller Assembly	1		1
9S5800	Pump Group	1		1
7S8431	Plate	1		
7S4135	Torque Multiplier		1	
7M7236	Adapter Group			1



1. Install bearing (1) in the cage of the yoke. Install the ring on bearing. Install ring (2).

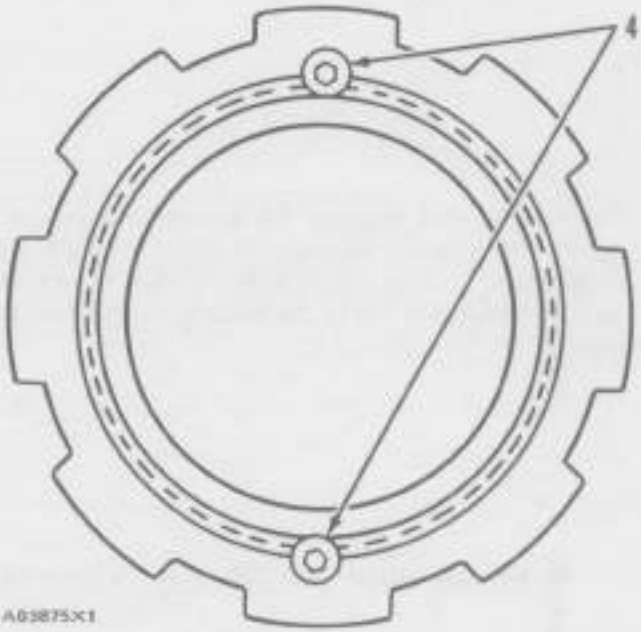


NOTE: The bearing must be installed in the correct position. The inner race of the bearing is installed next to the rings.

2. Put the yoke in position on the drum. Install nut (3). Tighten nuts (3) to a torque of 250 ± 50 lb.ft. (34.6 ± 6.9 mkg).

3. Drill two 13/64 in. (5.16 mm) holes .38 in. (9.6 mm) deep opposite each other on the separation line of the nut and plate assembly.

4. Use a 1/4"–20–3B NC thread tap to tap both holes .31 in. (7.9 mm) deep. Install two screws (4).



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STEERING CLUTCHES

5. Put drum (6) on plate assembly (7) as shown.



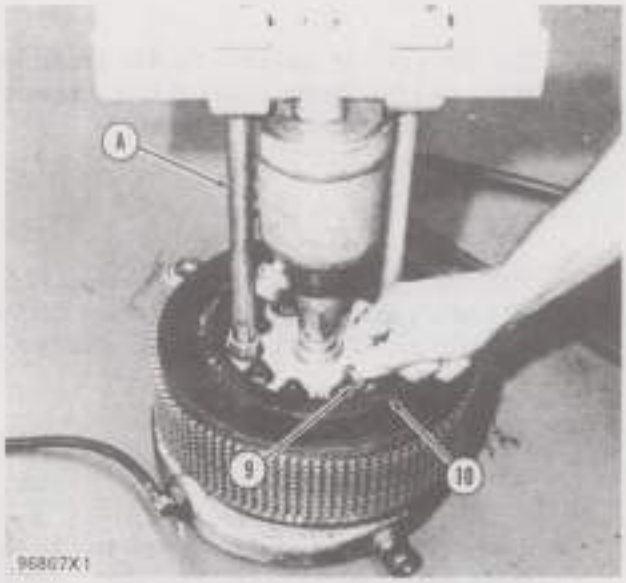
6. Install discs (5) in the drum. Make sure discs are installed in the correct order.

7. Put drum (8) in clutch assembly.



8. Put the two springs and retainers on each stud of the plate assembly. Install tooling (A). Put pressure on the springs and retainers until locks (9) can be installed on the studs.

CAUTION: Put pressure on springs and retainers slowly to prevent damage to plate (7S8431) in tooling (A). Hit each stud with a hammer to make sure the locks (9) are in the correct position on the studs.



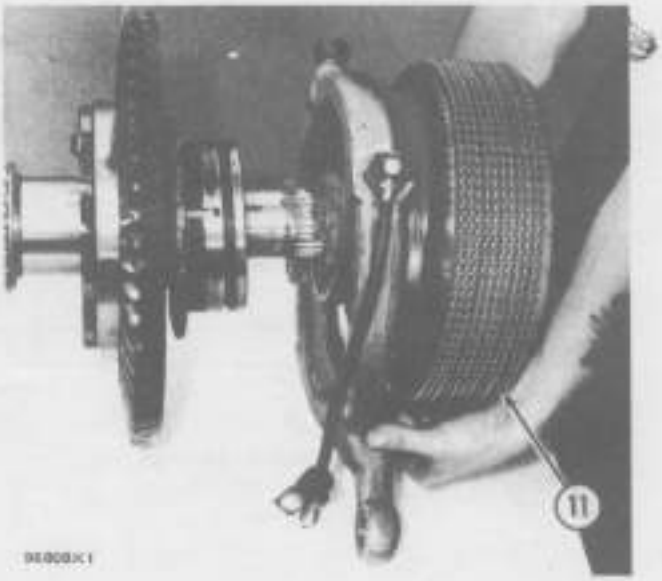
9. Remove drum (10) from clutch assembly.

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STEERING CLUTCHES

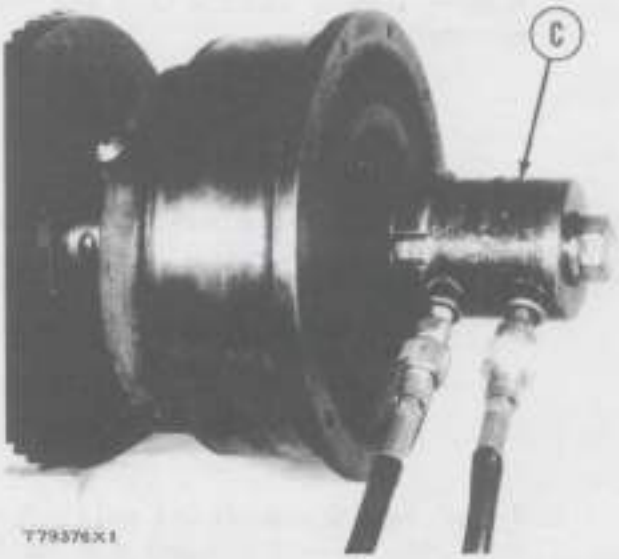
10. Put the clutch assembly (11) on the bevel gear shaft.

NOTE: Make sure the bevel gear shaft is clean and dry.



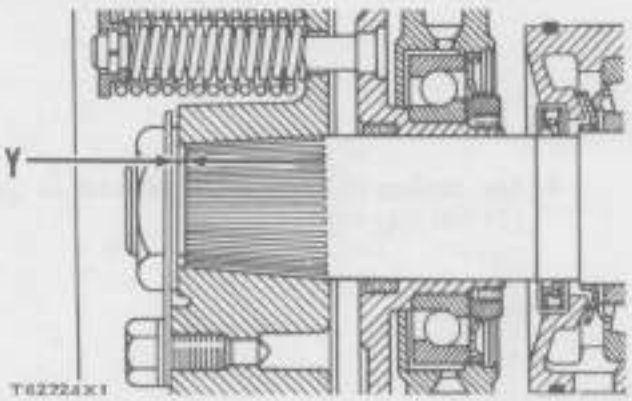
11. Install tooling (C). Install the clutch assembly on the bevel gear shaft with a force of 15-20 tons (16.3 – 18.1 M tons).

12. Remove tooling (C). Measure dimension (Y). Dimension (Y) must be .22 ± .03 in. (5.6 ± 0.8 mm).



13. Install the brake bands and linings on the drum. Put the drum in the clutch assembly. Install the nut on the end of the bevel gear shaft. Install two 1/2"–13 NC bolts in the drum. Put a bar between the bolts. Use tool (B) to tighten the bolts to a torque of 250 ± 50 lb.ft. (34.5 ± 6.9 mkg).

14. Install the lock and two bolts.



15. Assemble the other side of the steering clutches. Follow procedure in Steps 1 through 15.

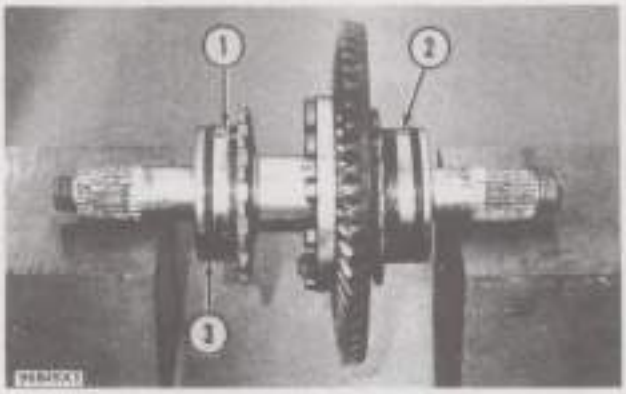
end by:
a) install steering clutches

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BEVEL GEAR AND SHAFT

DISASSEMBLE BEVEL GEAR AND SHAFT 15–3256

Tools Needed		A	B
887548	Puller Assembly	1	
887549	Leg	2	
887551	Bearing Puller Attachment	1	
7F9540	Puller Assembly	1	
9S5800	Pump Group	1	
L1774	Spacer		1



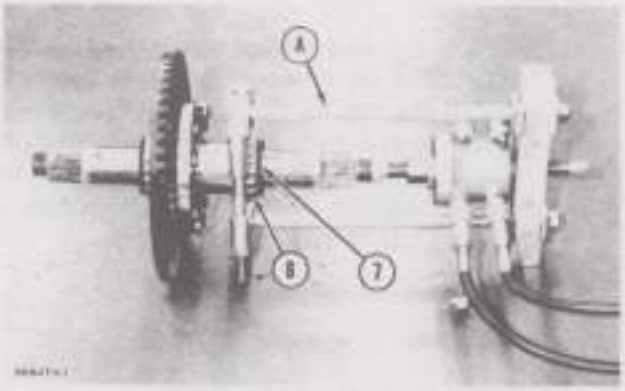
start by:
a) remove steering clutches



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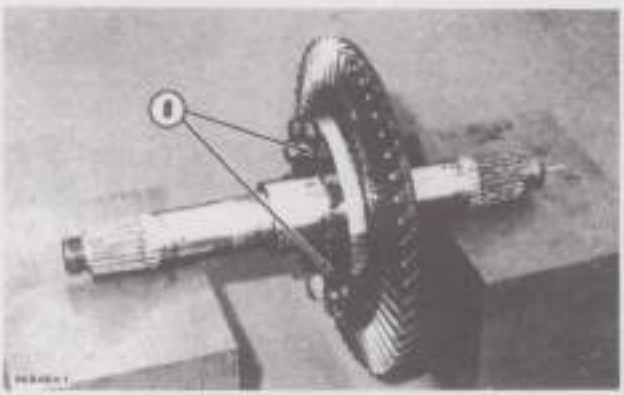
1. Remove steering clutches from the bevel gear shaft.

2. Remove two bearing cages (1) and (2) from the bevel gear shaft. Check seal (3) on both cages for damage. If seals are worn, use new parts for replacement.



3. Remove bearing cup (4) and seal (5) from both cages. If seal is damaged or if bearing cup is worn, use new parts for replacement.

4. Use tooling (A) to remove the bearing cone (6) and thrower (7).

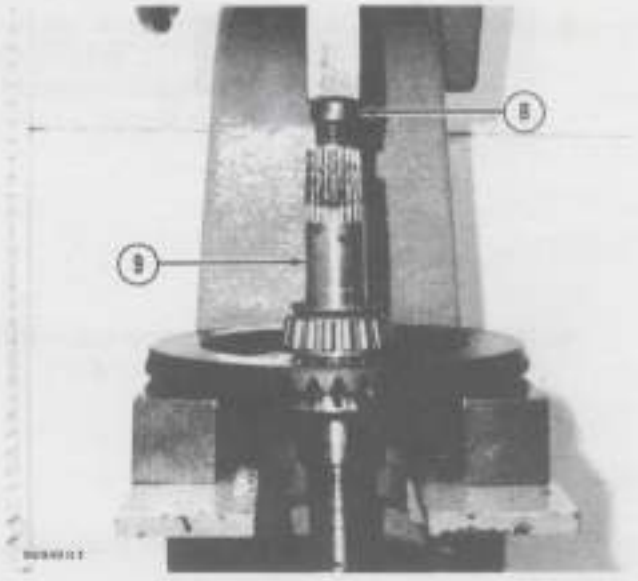


5. Remove twelve bolts (8) from bevel gear.

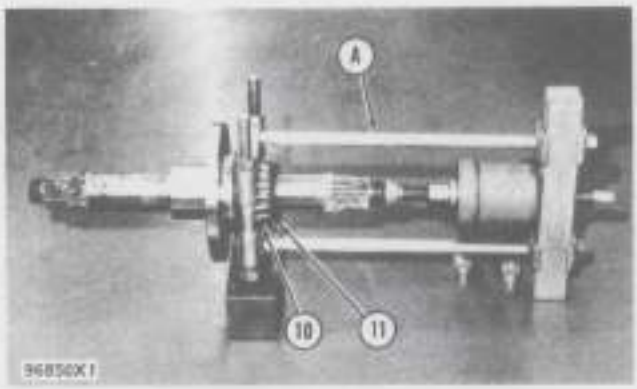
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BEVEL GEAR AND SHAFT

6. Use an arbor press and tool (B) to push shaft (9) out of the bevel gear.



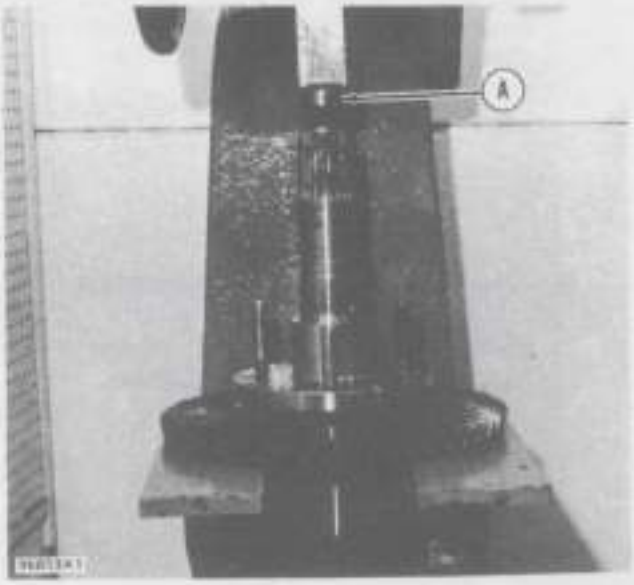
7. Use tooling (A) to remove bearing cone (10) and thrower (11) from shaft.



ASSEMBLE BEVEL GEAR AND SHAFT 16–3256

	Tools Needed	A
L1774	Spacer	1

1. Install three guide pins in the shaft. Use an arbor press and tool (A) to push the shaft into the bevel gear.

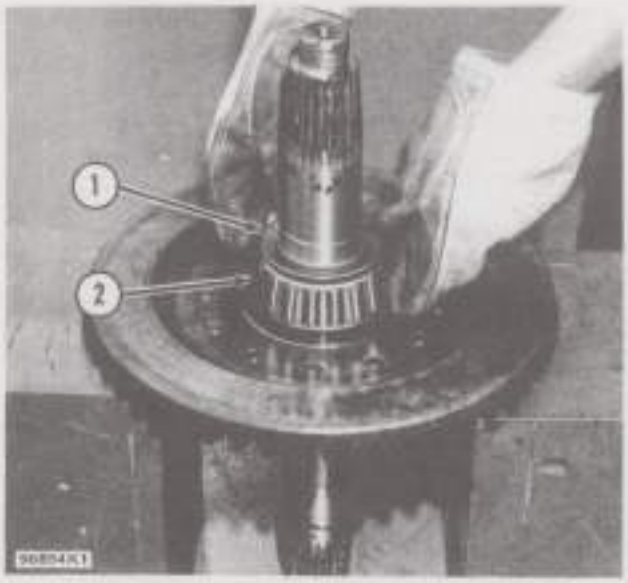


2. Install the twelve bolts that hold the bevel gear to the shaft. Tighten the bolts to a torque of 220 ± 20 lb.ft. (30.4 ± 2.8 mkg).

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BEVEL GEAR AND SHAFT

3. Heat the two bearing cones (2) in oil to a maximum temperature of 275°F (135°C). Install the bearing cones and throwers (1) on each side of bevel gear as shown.



4. Install seals (4) in both bearing cages with the lip of the seal facing the bearing cup.

5. Install new seals (3) on both bearing cages.

6. Lower the temperature of bearing cups. Install the bearing cups (5) in the two bearing cages as shown.



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7. Put clean oil on the lip of the seals in both bearing cages. Put the bearing cages on the shaft.



96846X2

8. Install the steering clutches on the shaft.

end by:
a) install the steering clutches

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BEVEL GEAR AND PINION SHAFT SETTINGS (DIRECT DRIVE, SPECIAL APPLICATION & POWER SHIFT)

BEVEL GEAR SHAFT BEARING PRELOAD

Tools Needed		A
8S8303	Wrench	1

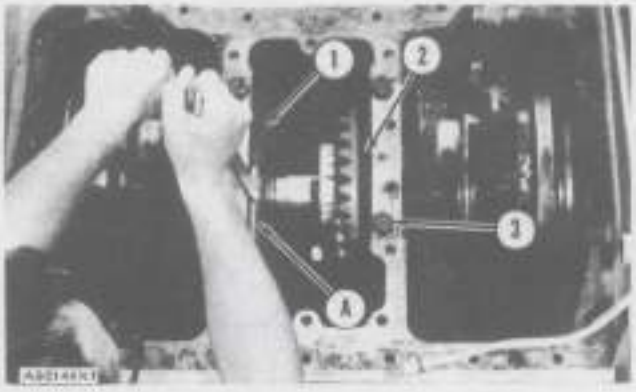
1. Make an adjustment to the bevel gear shaft bearings as follows:
   a) Put the bevel gear in the approximately correct gear clearance (backlash) position.

NOTE: The gear clearance (backlash) is .005 – .011 in. (0.13 – .028 mm).

   b) Tighten nuts (1) and (2) with tool (A). Put nut (2) in alignment with the lock.
   c) Tighten four bolts (3). Back the four bolts off two turns.

NOTE: Turn the bevel gear when doing Steps d and e.

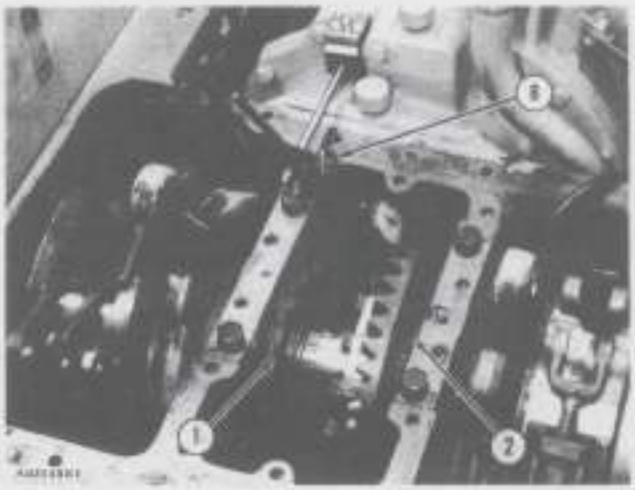
   d) Using tooling (A), tighten nut (1) to a torque of 150 – 200 lb.ft. (20.7 – 27.6 mkg). Turn nut (1) backward until it is loose.
   e) Tighten nut (1) until the nut is in alignment with the lock.



GEAR CLEARANCE (BLACKLASH) ADJUSTMENT

Tools Needed		A	B
8S8303	Wrench	1	
8S2328	Dial Test Indicator Group		1

1. Make an adjustment to the bevel gear for the correct gear clearance (backlash) as follows:
   a) Put tooling (B) in position as shown.
   b) Use a wood block to stop the bevel gear from turning.
   c) Put the finger of tooling (B) on a gear tooth of the bevel pinion shaft. Turn the bevel pinion shaft backward and forward and check the indications. The difference in the indications is the amount of gear clearance (backlash). Check the indications in four positions on the bevel gear. The smallest indication is used for the gear clearance (backlash) dimension.
   d) If the indication is too large at the position of the smallest dimension, loosen nut (1) with tool (A) and tighten nut (2) the same amount that nut (1) was loosened.



   e) To increase the amount of gear clearance (backlash), use tool (A) and loosen nut (2). Tighten nut (1) the same amount nut (2) was loosened.

NOTE: The bevel gear shaft bearing preload will be the same if both nuts (1) and (2) are turned the same amount.

   f) Turn nuts (1) and (2) until the nearest notch in both nuts are in alignment with the two locks.
   g) Tighten the four bolts that hold the two caps in position.

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BEVEL GEAR AND BEVEL PINION SHAFT SETTINGS (DIRECT DRIVE, SPEICIAL APPLICATION & POWER SHIFT)

LOCATION OF THE BEVEL PINION SHAFT

1. After bevel gear bearing preload and gear clearance (backlash) adjustments have been made, check the tooth contact setting between the bevel gear and bevel pinion shaft as follows.

   a) Put a small amount of prussian blue, red lead or paint on the bevel gear teeth. Turn the bevel pinion shaft and check the marks made on the bevel gear teeth.

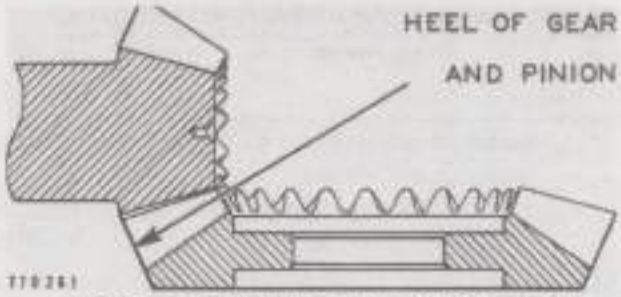
   b) With no load, correct tooth setting will be shown. The area of contact starts near toe of gear and goes 30% up the length of the tooth. With this setting, when load is put on the gear it will be over the correct area of teeth.

   c) If the bevel pinion shaft is too far away from the bevel gear, short toe contact will be the result as shown. The teeth of the bevel pinion shaft will be in contact with toe ends of convex faces (part that makes a curve toward outside), and top edge of heel end of concave faces (part that make a curve inside). To correct this, add shims between bevel pinion shaft and bearing cage of transmissions. Check gear clearance (backlash) and tooth contact again.

   d) If the bevel pinion shaft is too near to the center of the bevel gear, short heel contact will be the result as shown. The teeth of the bevel pinion shaft will be in contact with the toe ends of concave faces (part that makes a curve toward the inside) and the heel ends of convex faces (part that makes a curve toward the outside). To correct this, move the pinion shaft away from the bevel gear by removing shims between the bearing cage of the transmission and bevel pinion shaft. After doing this, check the gear clearance (backlash) and tooth contact again.

NOTE: Several adjustments must be made for the correct tooth contact setting. If the gear clearance (backlash) is changed, the tooth contact setting will change.

2. Remove all of the prussian blue, red lead or paint from the bevel gear and bevel pinion shaft.



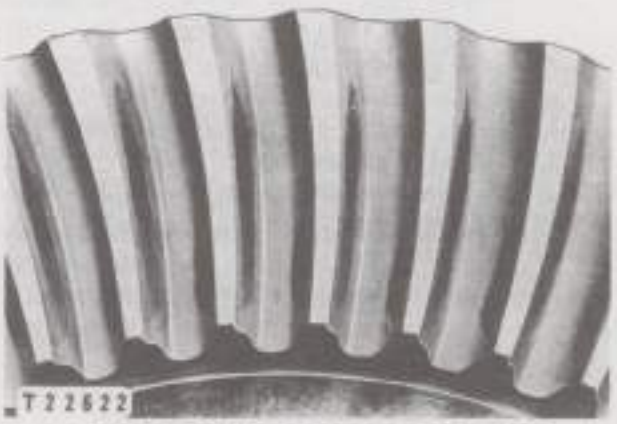
ALIGNING BEVEL GEAR AND PINION



CORRECT TOOTH CONTACT SETTING



SHORT TOE CONTACT SETTING



SHORT HEEL CONTACT SETTING

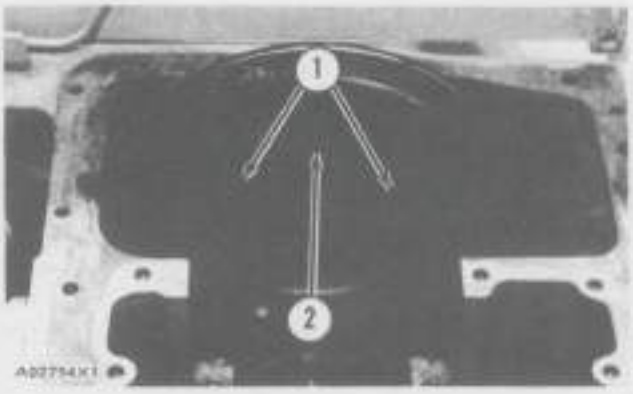
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FINAL DRIVE PINIONS AND FLANGES

REMOVE FINAL DRIVE PINIONS AND FLANGES 11–4057 & 4091

Tools Needed		A
8F3672	Plate	1
1D4600	Bolt	2
7F9540	Puller Assembly	1
3S6224	Hydraulic Pump	1

start by:
a) remove steering clutches



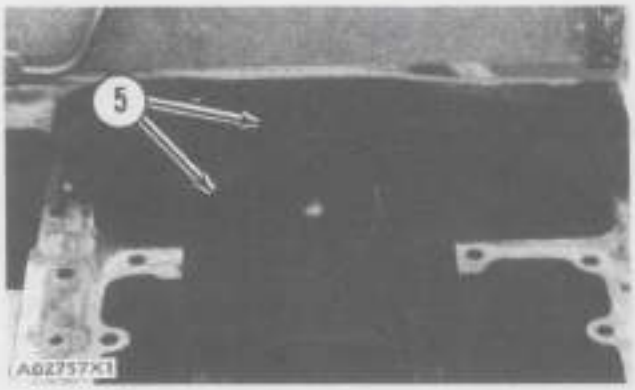
1. Remove two bolts (1) and lock (2).



2. Loosen nut (4) until there is a distance of .25" (6.3 mm) between the nut and the flange.

3. Use tooling (A) to remove the flange (3).

NOTE: Make sure the nut is on the final drive pinion shaft before removing the flange. The flange is installed with great pressure.



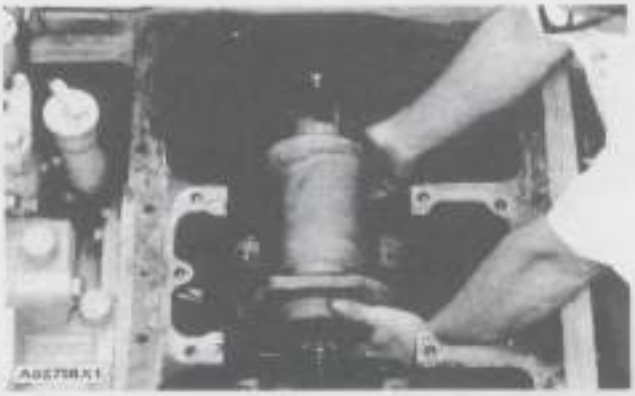
4. Remove tooling (A), nut (4) and flange (3).

5. Remove six bolts (5) and washers from retainer.

6. Remove the cage and final drive pinion as a unit.

INSTALL FINAL DRIVE PINIONS AND FLANGES 12–4057 & 4091

Tools Needed		A
7F9540	Puller Assembly	1
7M7238	Adapter Group	1
3S6224	Hydraulic Pump	1



1. Install a new gasket on the cage. Put the cage and bevel pinion shaft in position in the steering clutch case.

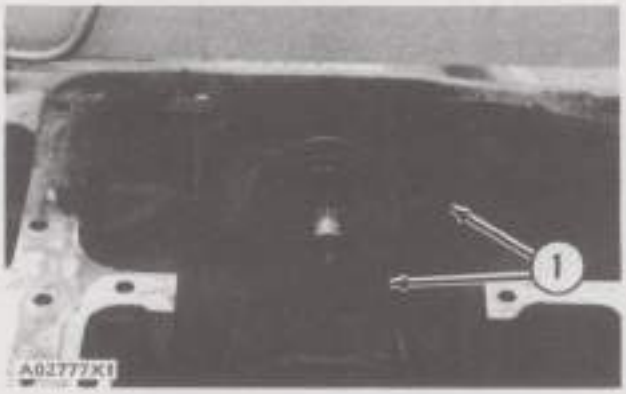
NOTE: Make sure the groove in the retainer and the hole in the cage are in alignment with each other and facing down.

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FINAL DRIVE PINIONS AND FLANGES

2. Install six bolts (1) and washers. Tighten the bolts to a torque of 42 ± 5 lb.ft. (5.8 ± 0.7 mkg).

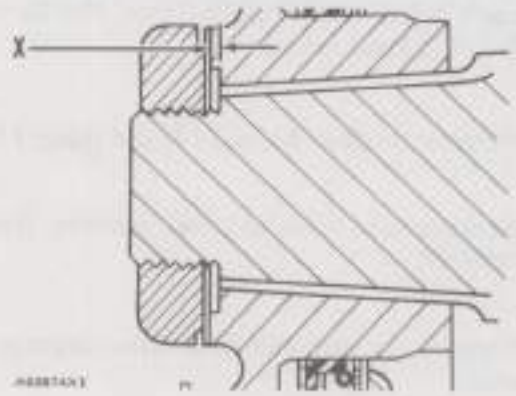
NOTE: Make sure the splines on the bevel pinion shaft are clean and dry.



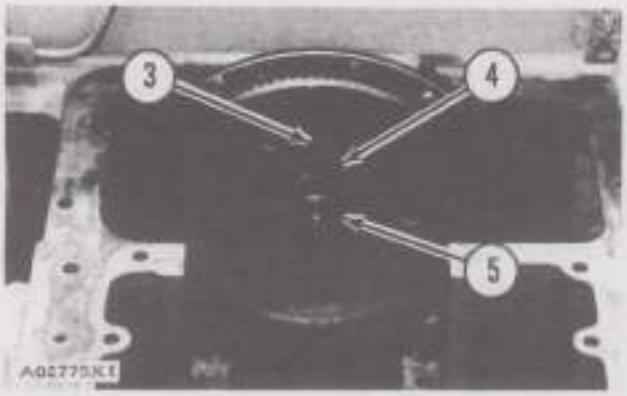
3. Put flange (2) on the splines of the bevel pinion shaft. Install tooling (A) and push the flange on with a pressure of 15 to 20 tons (13.7 – 18.1 M tons).



4. Remove tooling (A) and measure distance (X). Distance (X) is expected to be .12 ± .03 in. (3.0 ± 0.76 mm).



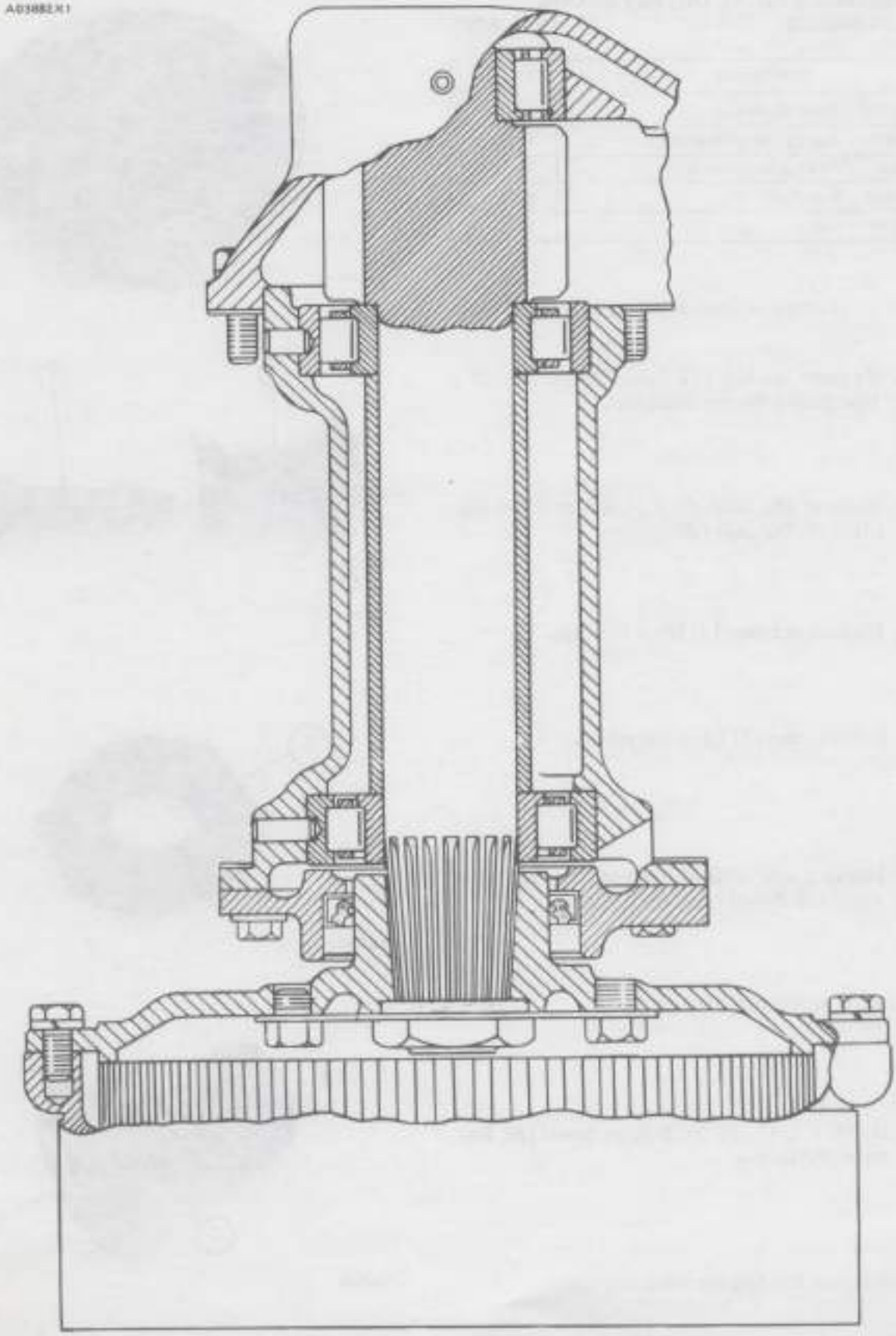
5. Install nut (5). Tighten the nut to a torque of 300 ± 40 lb.ft. (41.5 ± 5.5 mkg). Install lock (4) and two bolts (3). Tighten the bolts to a torque of 180 ± 20 lb.ft. (24.9 ± 2.8 mkg).



end by:
a) install steering clutches

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FINAL DRIVE PINIONS AND FLANGES

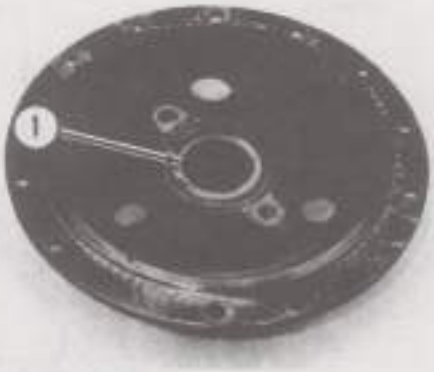


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FINAL DRIVE PINIONS AND FLANGES

DISASSEMBLE FINAL DRIVE PINIONS AND FLANGES 15–4057, 4091

Tools Needed		A	B
8B7548	Puller Assembly	1	1
8B7551	Bearing Puller Attachment	1	1
8H684	Ratchet Box Wrench	1	1
8B7560	Step Plate	1	1
8B7549	Leg	2	



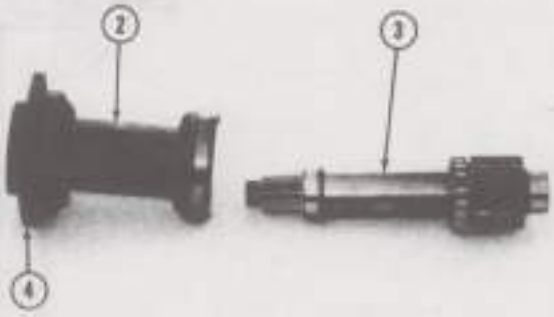
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start by:

a) remove final drive pinions and flanges

1. Remove gasket (1) from flange. Install a new gasket during assembly.

2. Remove the final drive pinion and bearings (3) from the cage (2).



A02760X1

3. Remove retainer (4) from the cage.

4. Remove seal (5) from the retainer.



A02762X1

5. Install a 1/4"–20 NC bolt in dowel (7). Remove the dowel from the cage.

6. Remove bearing (8).



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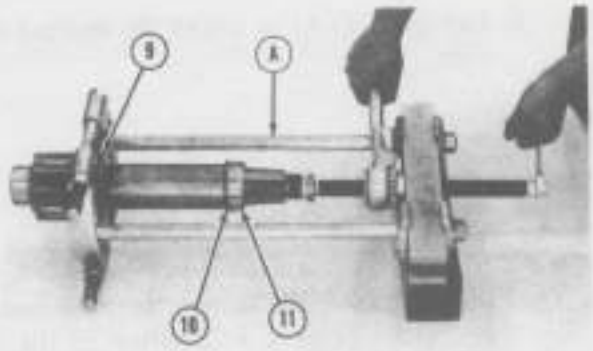
7. Install a 1/4"–20 NC bolt in dowel (6). Remove the dowel.

8. Remove the bearing from the cage.

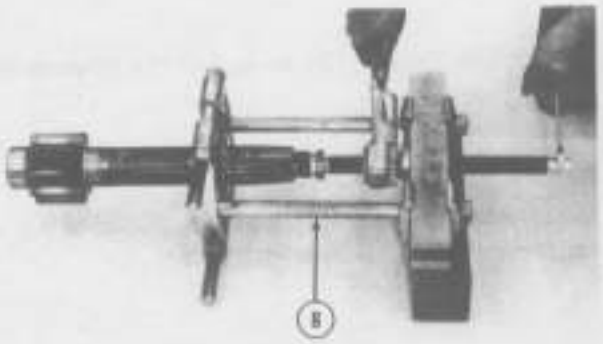
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FINAL DRIVE PINIONS AND FLANGES

9. Use tooling (A) to remove bearing (9), spacer (10) and race (11) from shaft.



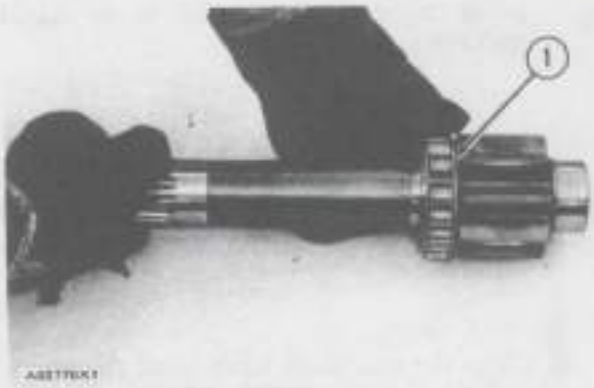
NOTE: Tooling (A) must be changed in order to remove the bearing from final drive pinion all of the way.



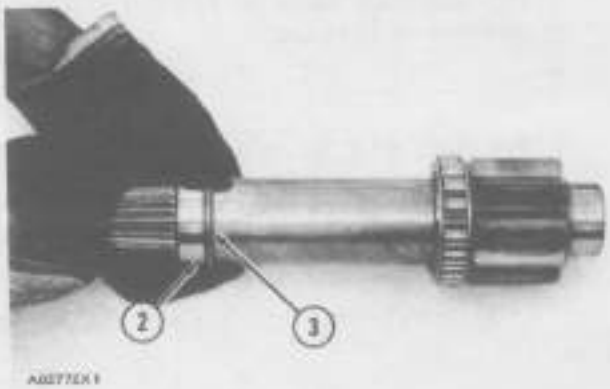
10. Remove tooling (A). Install tooling (B) and remove the bearing from the bevel pinion shaft.

ASSEMBLE FINAL DRIVE PINIONS AND FLANGES 16–4057, 4091

Tools Needed		A	B	C
1P531	Handle	1	1	1
1P523	Drive Plate	1	1	
1P491	Drive Plate	1		
1P513	Drive Plate		1	
1P516	Drive Plate			1



1. Heat bearing (1) in oil to a maximum temperature of 275°F (135°C). Install the bearing on the bevel pinion shaft as shown.

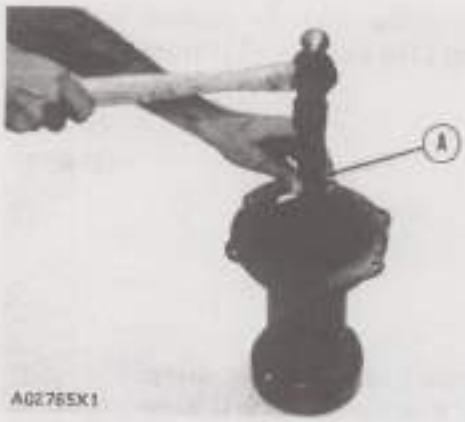


2. Heat bearing race (2) in oil to a maximum temperature of 275°F (135°C). Install spacer (3) and bearing race on bevel pinion shaft as shown.

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FINAL DRIVE PINIONS AND FLANGES

3. Use tooling (A) to install the bearing in the cage.



NOTE: Make sure the hole in the bearing is in alignment with the hole in the cage.

4. Install a 1/4"–20 NC bolt in the dowel that holds the bearing in position in the cage. Install the dowel.

5. Use tooling (B) to install the bearing in the cage.



NOTE: Make sure the hole in the bearing is in alignment with the hole in the cage.

6. Install a 1/4"–20 NC bolt in the dowel that holds the bearing in position in the cage. Install the dowel.

7. Use tooling (C) to install the seal in the retainer. Install the seal with the lip of the seal facing the cage.



8. Clean the machined surfaces of the retainer and the cage. Put 7M7260 Liquid Gasket on the machined surfaces. Put the retainer in position on the cage.

9. Put clean SAE 30 oil on the lip of the seal. Install the bevel pinion shaft in the cage.



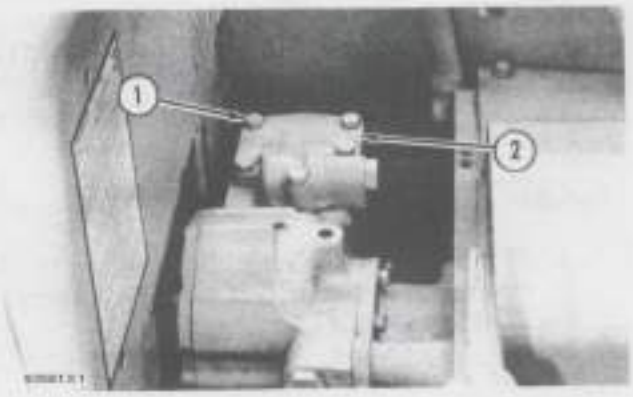
end by:

a) install final drive pinions and flanges

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TRANSMISSION OIL FILTER (POWER SHIFT)

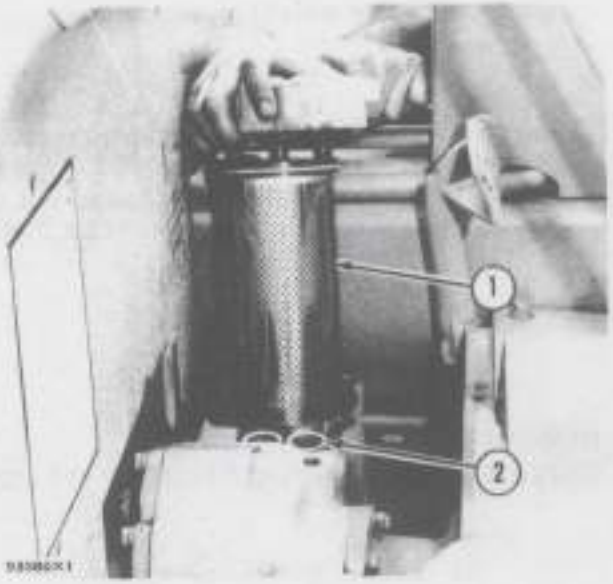
REMOVE TRANSMISSION OIL FILTER (POWER SHIFT) 11–3179



start by:
a) remove floor plates

1. Remove five bolts (1) from transmission oil filter. Remove the transmission oil filter (2).
2. Check the two seals in the case of the torque converter. If the seals have damage, use new parts for replacement.

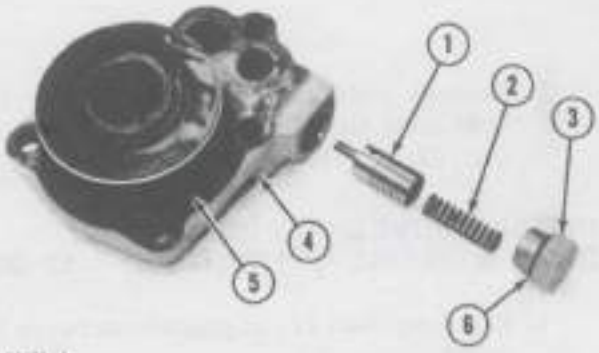
INSTALL TRANSMISSION OIL FILTER (POWER SHIFT) 12–3179



1. Put two seals (2) in position in the case of the torque converter.
2. Install the transmission oil filter (1).
3. Install the five bolts that hold the transmission oil filter in position.

end by:
a) install floor plates

DISASSEMBLE TRANSMISSION OIL FILTER (POWER SHIFT) 15–3179



start by:
a) remove transmission oil filter

1. Remove the nut that holds the element assembly to the cover. Remove the element. Remove the stud from the cover.
2. Remove plug (3), seal (6), spring (2) and valve spool (1) from cover (4).
3. Check seal (5) for damage. If the seal has damage, use new parts for replacement.

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TRANSMISSION OIL FILTER (POWER SHIFT), DRIVE SHAFT (DIRECT DRIVE & SPECIAL APPLICATION)

ASSEMBLE TRANSMISSION OIL FILTER (POWER SHIFT) 16–3179

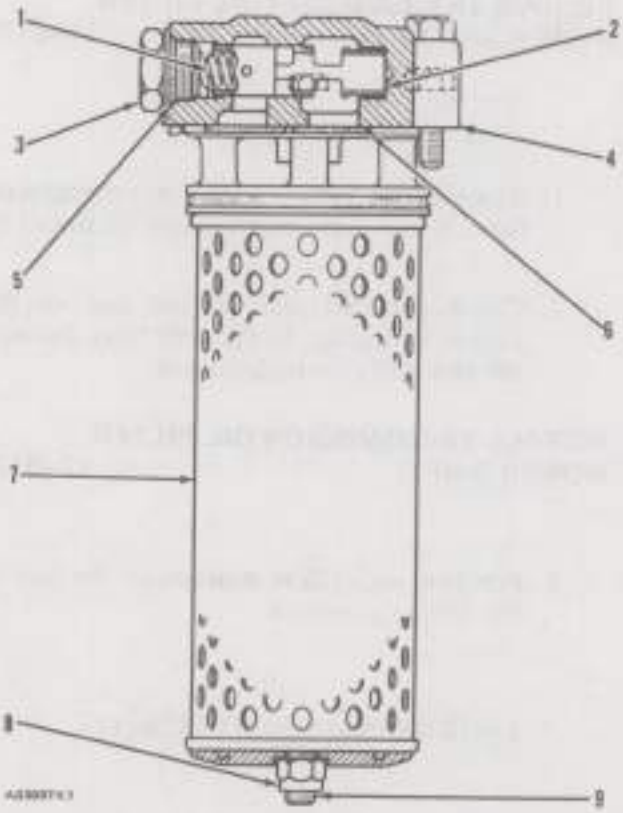
NOTE: Make sure the parts of the transmission oil filter are clean and free from dirt.

1. Put clean SAE 30 oil on the parts of the cover (4). Install valve spool (2), spring (1), seal (5) and plug (3).

2. Install a new seal (6) on the cover.

3. Install stud (9) in cover. Tighten the stud to a torque of 40 ± 5 lb.ft. (5.5 ± 0.7 mkg). Install a new element (7). Install nut (8). Tighten nut to a torque of 10 ± 2 lb.ft. (1.38 ± 0.28 mkg).

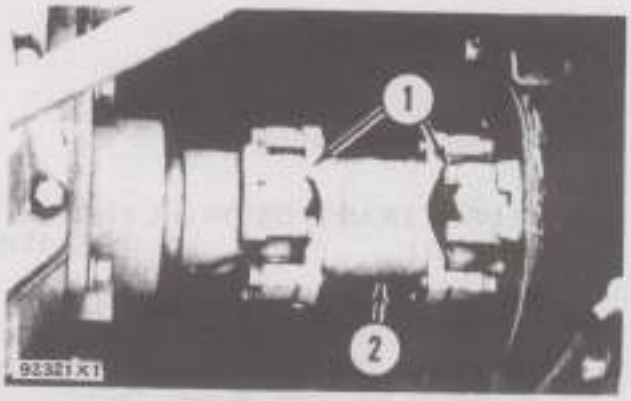
end by:
a) install transmission oil filter



REMOVE DRIVE SHAFT (DIRECT DRIVE & SPECIAL APPLICATION) 11–3253

start by:
a) remove floor plates

1. Remove eight bolts (1) and washers that hold drive shaft in position. Remove drive shaft (2).

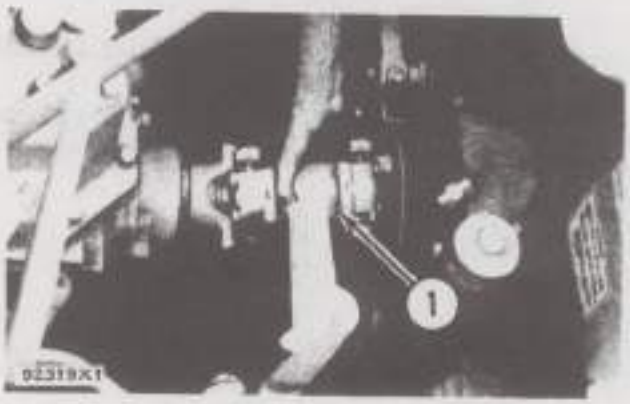


INSTALL DRIVE SHAFT (DIRECT DRIVE & SPECIAL APPLICATION) 12–3253

1. Put drive shaft (1) in position between two yokes.

2. Install eight bolts and washers.

3. Tighten bolts to a torque of 23 ± 3 lb.ft. (3.2 ± 0.41 mkg).



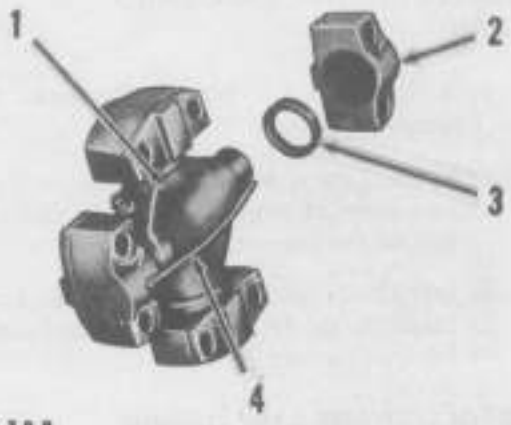
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DRIVE SHAFT (DIRECT DRIVE & SPECIAL APPLICATION)

DISASSEMBLE DRIVE SHAFT (DIRECT DRIVE & SPECIAL APPLICATION 15–3253 & 3251

start by:
a) remove drive shaft

1. Remove the four bolts that hold the spider and bearing assembly to the yoke.
2. Remove strap (4) from both bearings (2).
3. Remove bearings (2) and seals (3) from spider (1).
4. Check bearings for damage or wear. If bearings have damage or wear, use new parts for replacement.



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ASSEMBLE DRIVE SHAFT (DIRECT DRIVE & SPECIAL APPLICATION) 15–3253 & 3251

1. Install new seals on the spider.
2. Put 1P808 Multipurpose Grease in the bearings. Install bearings on the spider.
3. Install the spider and bearing assembly on the yoke. Install the bolts that hold the spider and bearing assembly in position. Tighten the bolt to a torque of 24 – 27 lb.ft. (3.3 – 3.7 mkg).

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CRANKCASE GUARD (REAR)

REMOVE CRANKCASE GUARD (REAR) 11–7151

1. Remove two bolts (1) from rear of crankcase guard.
2. Put a floor jack in position under the crankcase guard. Remove the two bolts from each side of the crankcase guard.
3. Lift the crankcase guard until the two front brackets are free. Push the crankcase guard back and lower it.



INSTALL CRANKCASE GUARD (REAR) 12–7151

1. Put the crankcase guard on the floor jack.
2. Lift the crankcase guard until the front brackets can be connected.
3. Install the two bolts that hold the rear of the crankcase guard in position.
4. Install the two bolts on each side of the crankcase guard.
5. Remove the floor jack.



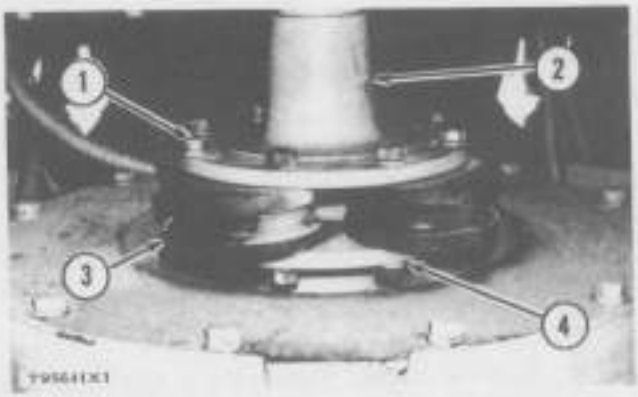
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FLEXIBLE COUPLING DRIVE (POWER SHIFT)

REMOVE FLEXIBLE COUPLING DRIVE 11–3252

start by:
a) remove floor plates
b) remove crankcase guard (rear)

1. Remove sixteen bolts (1) and washers from flange and flange assembly.
2. Remove four joints (3).
3. Remove six bolts and washers that hold the flange in position. Remove flange (4).
4. Remove flange assembly (2) from converter shaft.

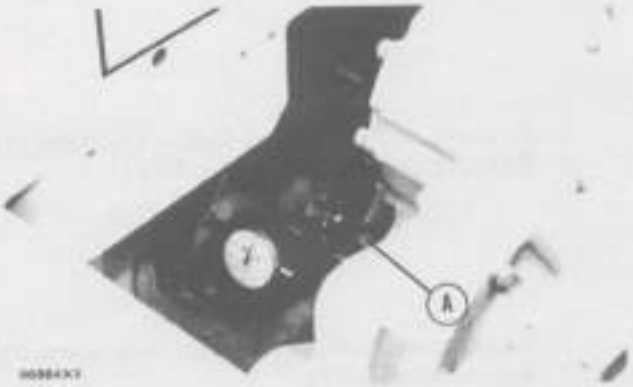


INSTALL FLEXIBLE COUPLING DRIVE (POWER SHIFT) 12–3252

Tools Needed		A
862328	Dial Test Indicator Group	1

1. Fasten tooling (A) to the converter shaft with a clamp. Put the universal attachment of tooling (A) on the outside diameter of the flange as shown. Put the indicator on zero. Turn the converter shaft one complete turn. Check the indicator setting every 90°. The total indicator reading must not be more than .080 in. (2.03 mm). If the readings are not correct, remove or add shims under the engine rear support.
2. Put the universal attachment of tooling (A) on the machined surface of the flange between bolt holes. Put the indicator on zero. Turn the converter shaft one complete turn. Check the readings every 90°. The total indicator readings must not be more than .026 in. (0.66 mm). If the readings are not correct, loosen the bolts that hold the engine in position. Move the engine from one side to the other side. Check the readings again. If necessary, move the engine several times to get the correct readings. Remove tooling (A).
3. Install the flange assembly on the converter shaft.
4. Put the four joints between the flanges and flange assembly. Install the sixteen bolts and washers. Tighten the bolts to a torque of 80 ± 5 lb.ft. (11.1 ± 0.69 mkg).

end by:
a) install crankcase guard (rear)
b) install floor plates



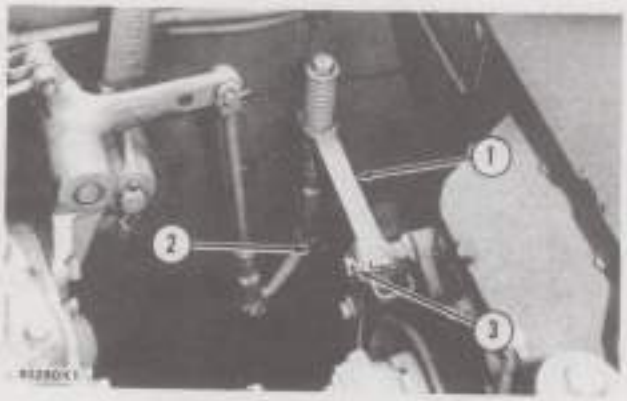


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FLYWHEEL CLUTCH BRAKE (DIRECT DRIVE & SPECIAL APPLICATION)

REMOVE FLYWHEEL CLUTCH BRAKE (DIRECT DRIVE & SPECIAL APPLICATION) 11–3058

start by:
a) remove floor plates



1. Remove cotter pin and pin (2) from rod end.

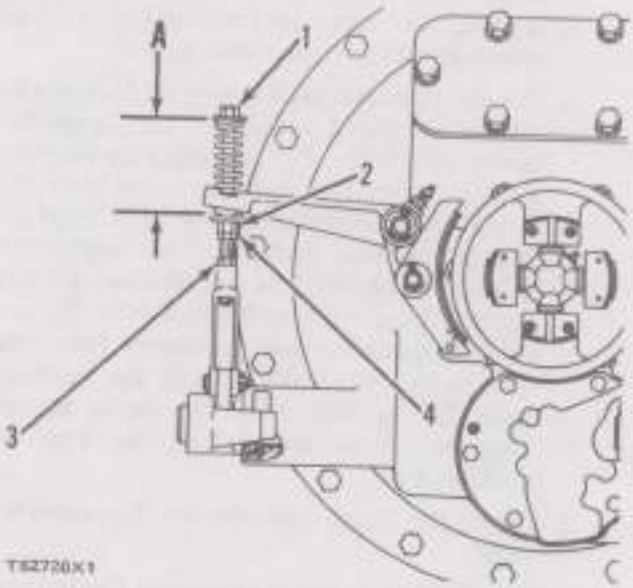
2. Remove cotter pin and washer (3) from pin. Remove flywheel clutch brake (1).



3. Remove four rivets (4) from shoe assembly. Remove facing (5).

INSTALL FLYWHEEL CLUTCH BRAKE (DIRECT DRIVE & SPECIAL APPLICATION) 12–3058

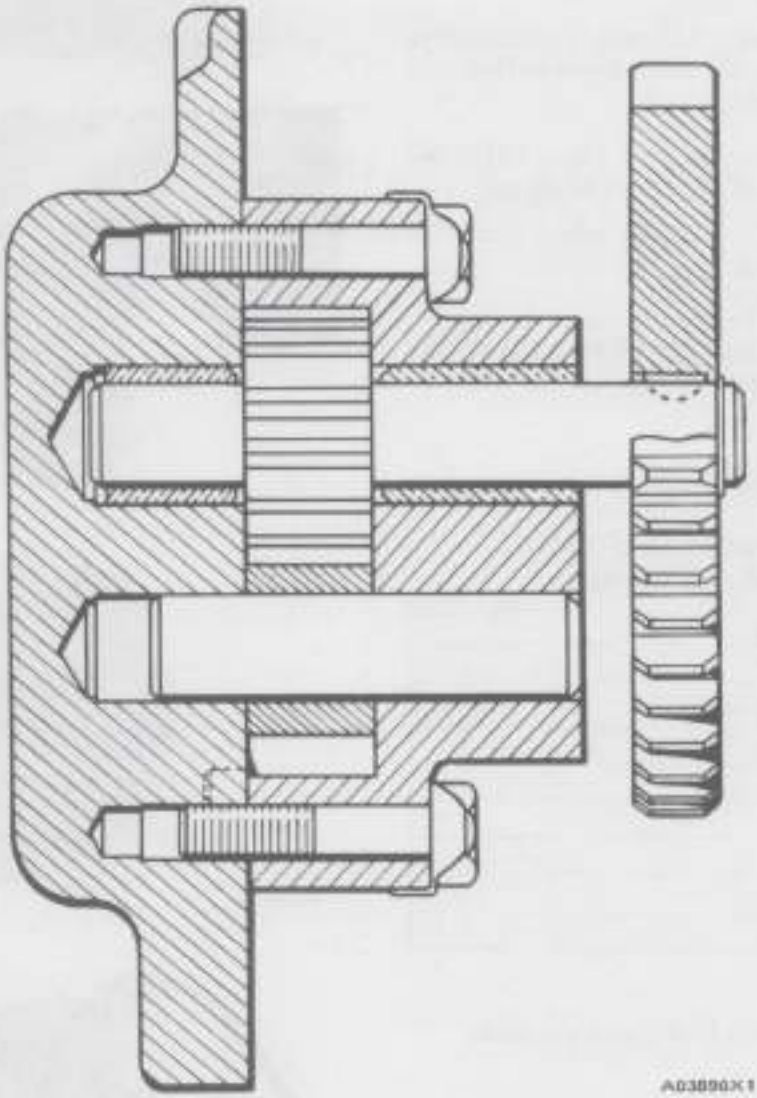
1. Install a new facing on the shoe assembly.
2. Put the flywheel clutch brake in position over the brake drum and on the pin.
3. Install the pin, washers, and two cotter pins that hold the flywheel clutch brake in position.
4. Make an adjustment to the flywheel clutch brake as follows:
   a) Release the flywheel clutch.
   b) Loosen nut (4). Turn nut (2) until dimension (A) is 3.44 in. (87.38 mm). Tighten nut (4).
   c) Loosen nut (3). Put the flywheel clutch control lever in the forward position. Turn bolt (1) until facing makes contact with the brake drum.
   d) Release the flywheel clutch control lever. Turn bolt (1) clockwise two turns. Tighten nut (3).



end by:
a) install floor plates

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FLYWHEEL CLUTCH OIL PUMP (DIRECT DRIVE & SPECIAL APPLICATION)

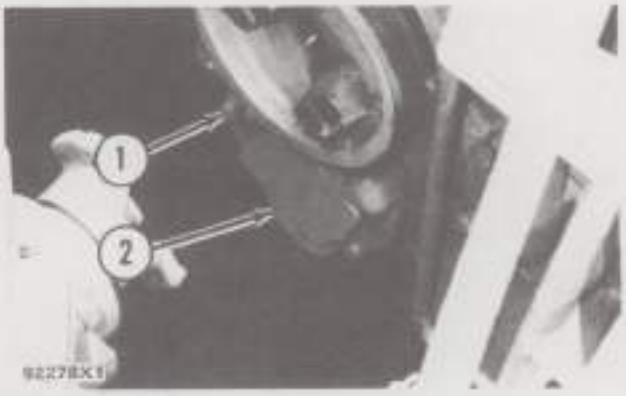


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FLY WHEEL CLUTCH OIL PUMP (DIRECT DRIVE & SPECIAL APPLICATION)

REMOVE & INSTALL FLYWHEEL CLUTCH OIL PUMP (DIRECT DRIVE & SPECIAL APPLICATION) 10–3056



start by:
a) remove floor plates

NOTE: Drive shaft is removed for better illustration.

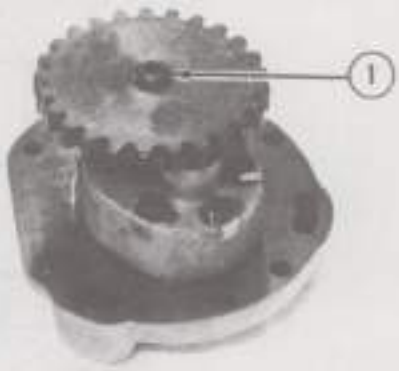
1. Remove oil from flywheel clutch.
2. Remove five bolts (1) and washers from flywheel clutch oil pump. Remove flywheel clutch oil pump (2).
3. Put the flywheel clutch oil pump (2) in the correct position in the flywheel clutch.
4. Install the five bolts and washers that hold the pump in position.
5. Fill the flywheel clutch with oil to the correct level. See LUBRICATION AND MAINTENANCE GUIDE.



end by:
a) install floor plates

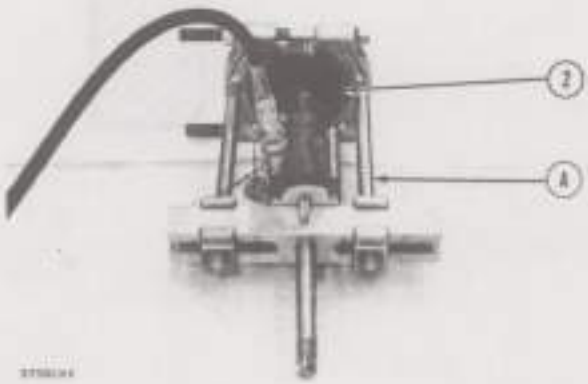
DISASSEMBLE FLYWHEEL CLUTCH OIL PUMP (DIRECT DRIVE & SPECIAL APPLICATION) 15–3056

Tools Needed		A
8H663	Bearing Puller Attachment	1
5F7369	Leg	2
1P820	Puller Group	1
3H485	Plate	4
1B4207	Nut	2
9S5800	Pump Group	1
9S9155	Spacer	1



start by:
a) remove flywheel clutch oil pump

1. Remove ring (1) from gear.

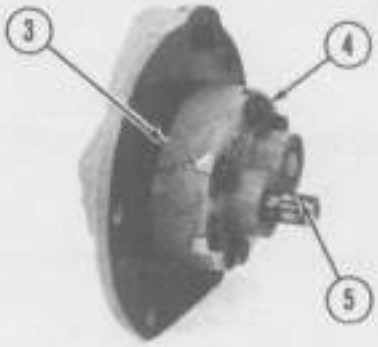


2. Use tooling (A) to remove gear (2).

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FLYWHEEL CLUTCH OIL PUMP (DIRECT DRIVE & SPECIAL APPLICATION)

3. Remove key (5) from gear.



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4. Remove six bolts (4) and locks from body. Remove body (3).

5. Remove gear (6) and gear (7) from body.

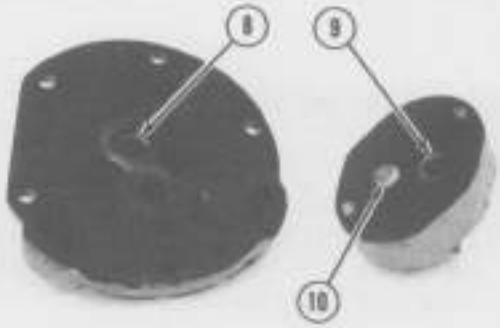


97584X1

6. Remove shaft (10) and bushings (8) and (9) from body and support.

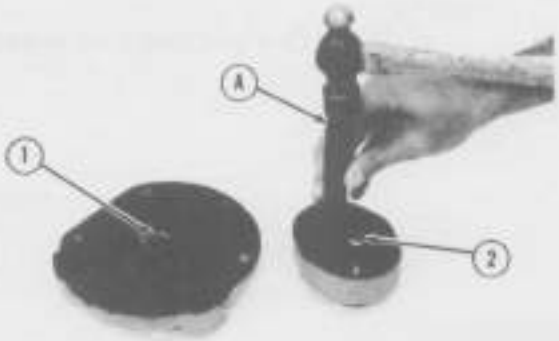
ASSEMBLE FLYWHEEL CLUTCH OIL PUMP (DIRECT DRIVE & SPECIAL APPLICATION) 16–3056

Tools Needed		A
1P529	Handle	1
1P460	Drive Plate	1
1P456	Drive Plate	1



97585X1

1. Use tooling (A) to install bushing (1) in support and bushing in body. Install shaft (2).



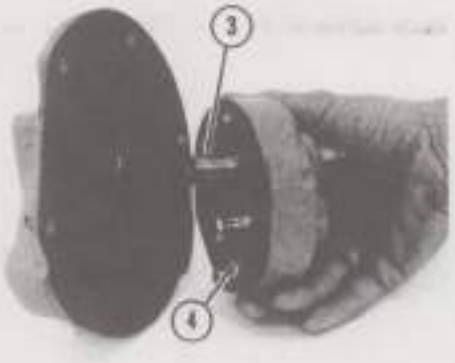
97586X1

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FLYWHEEL CLUTCH OIL PUMP (DIRECT DRIVE & SPECIAL APPLICATION)

2. Put clean SAE 30 oil on the bushings and shaft.

3. Install gear (3) and gear (4) as shown.

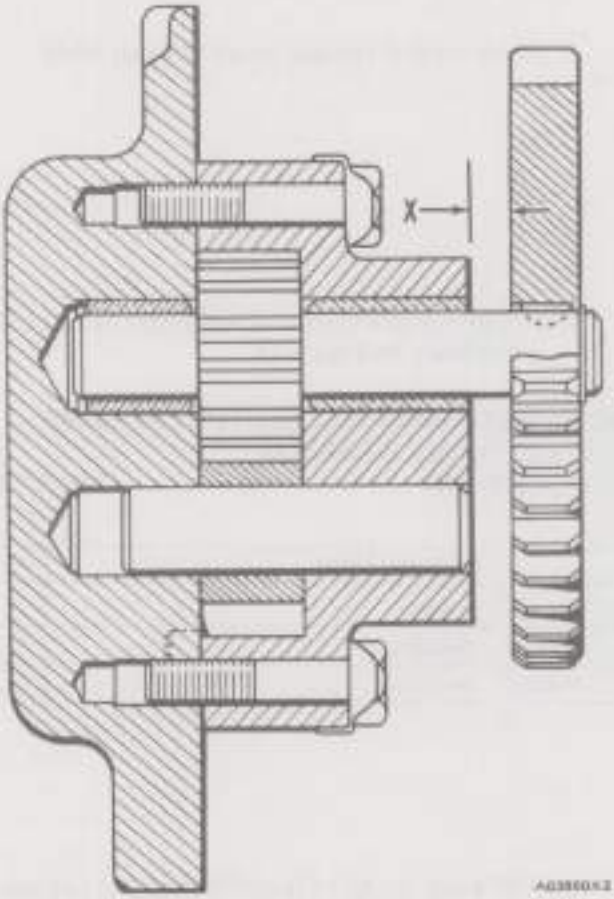


4. Put the body in position on the support.

5. Install the six locks and bolts that hold the body to the support. Bend the locks over the bolts.

6. Put the key in the shaft.

7. Heat the gear to a maximum temperature of 750°F (398°C). Push the gear on the shaft with a press. Check the distance between the gear and the body. Dimension (X) must by .281 in. (7.1mm).



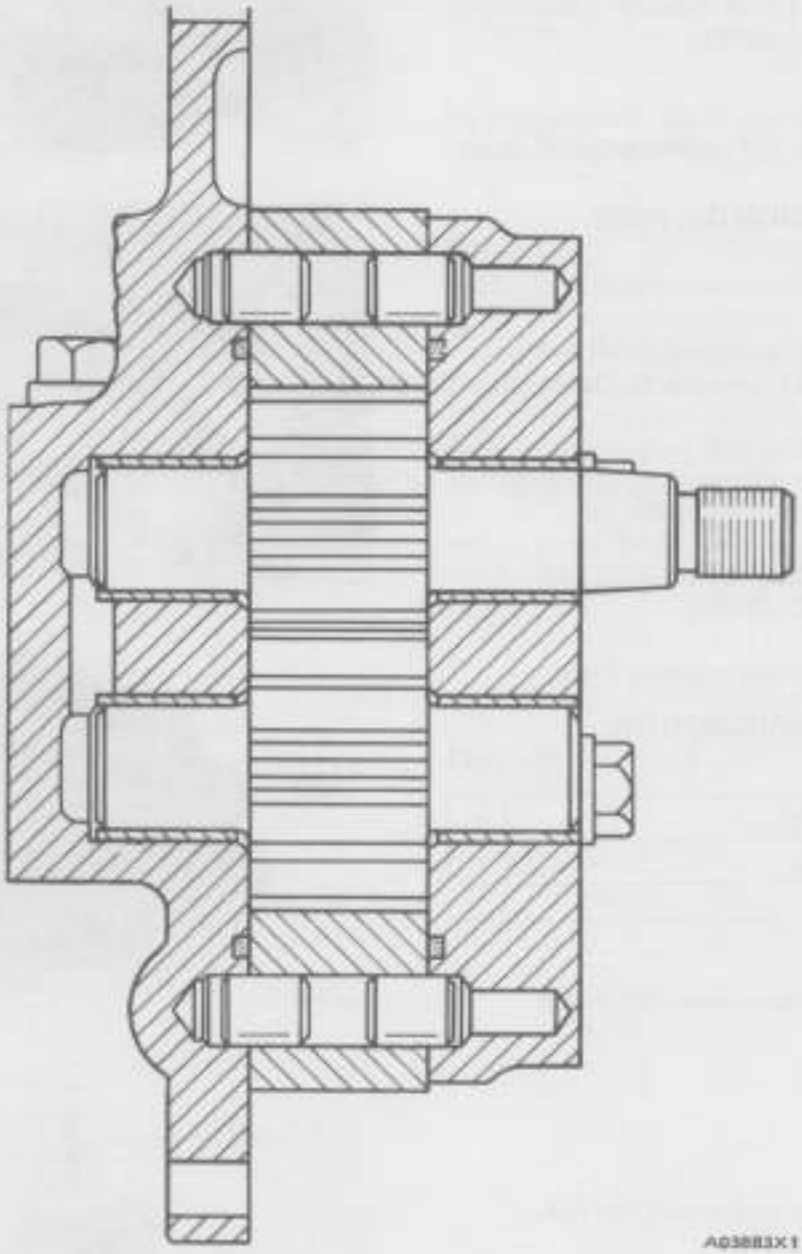
8. Install the ring on the shaft.

9. Put clean SAE 30 oil in the flywheel clutch oil pump. The flywheel clutch oil pump must turn freely by hand.

end by:
a) install flywheel clutch oil pump

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TRANSMISSION OIL PUMP (POWER SHIFT)



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TRANSMISSION OIL PUMP (POWER SHIFT)

REMOVE TRANSMISSION OIL PUMP (POWER SHIFT) 11–3153

start by:
a) remove flexible coupling drive

1. Remove the oil from the transmission.
2. Remove eight bolts (1) and washers from transmission oil pump. Remove transmission oil pump (2) and gasket.

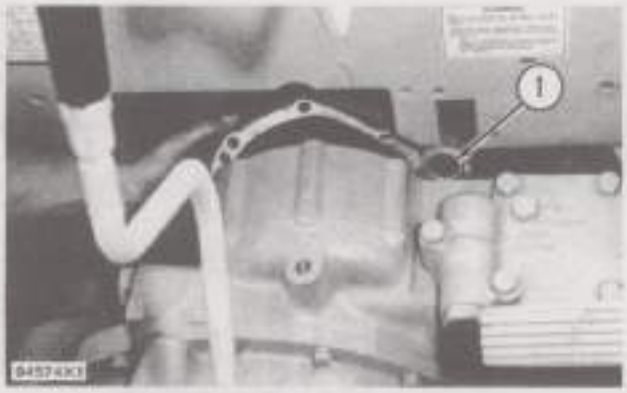


NOTE: Make sure the seal in the transmission oil pump is removed with the transmission oil pump.

INSTALL TRANSMISSION OIL PUMP (POWER SHIFT) 12–3153

1. Fill the transmission oil pump with clean SAE 30 oil.
2. Install seal (1) in transmission oil pump.
3. Put a new gasket between the transmission oil pump and torque converter. Put the transmission oil pump in position. Install the eight bolts and washers that hold the transmission oil pump in position.
4. Fill the transmission with SAE 30 oil to the correct level. See LUBRICATION AND MAINTENANCE GUIDE.

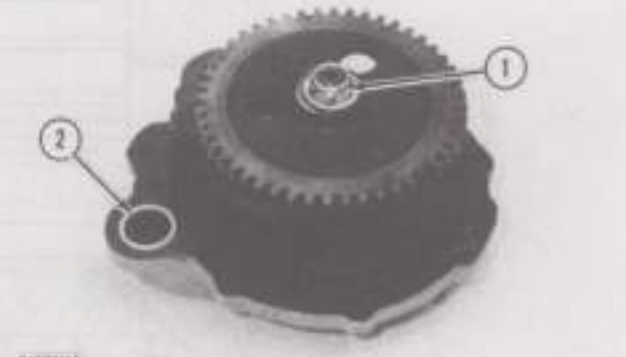
end by:
a) install flexible coupling drive



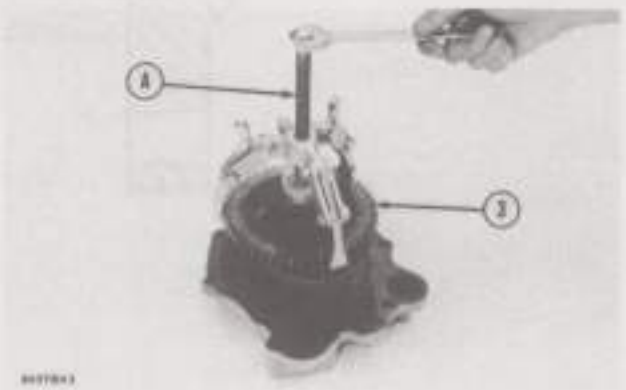
DISASSEMBLE TRANSMISSION OIL PUMP 15–3153

Tools Needed		A
1P2320	Puller Assembly	1
8B7560	Step Plate	1

start by:
a) remove transmission oil pump



1. Remove nut (1), washer and seal (2).



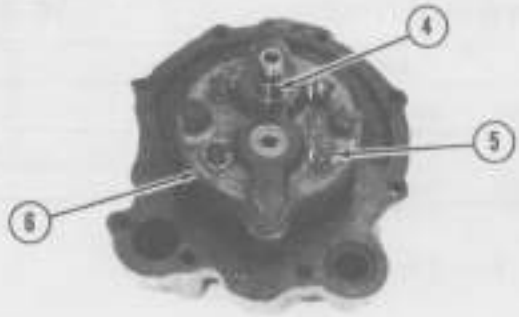
2. Use tooling (A) to remove gear (3).

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TRANSMISSION OIL PUMP (POWER SHIFT)

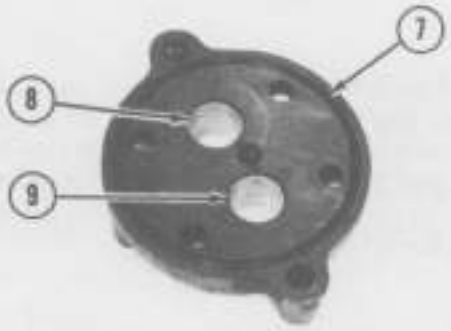
3. Remove key (4).

4. Remove four bolts (5) and washer from cover. Remove cover (6).



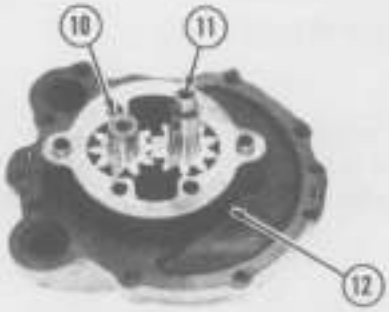
5. Remove seal (7) from cover.

6. Remove two bearings (8) and (9) from cover.



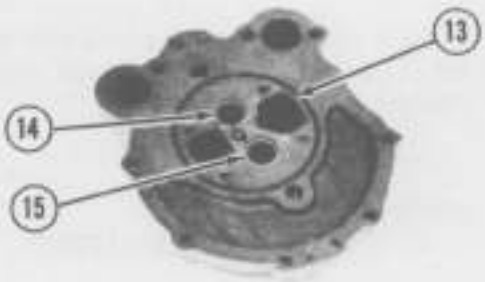
NOTE: Check seal (7) for damage. If seal has damage, use new parts for replacement.

7. Remove gears (10) and (11) from the base. Remove body (12) from base.



8. Remove seal (13) from base.

9. Remove two bearings (14) and (15) from base.



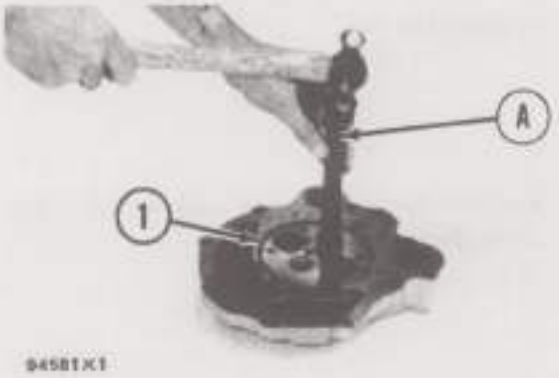
NOTE: Check seal (13) for damage. If seal has damage, use new parts for replacement.

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TRANSMISSION OIL PUMP (POWER SHIFT)

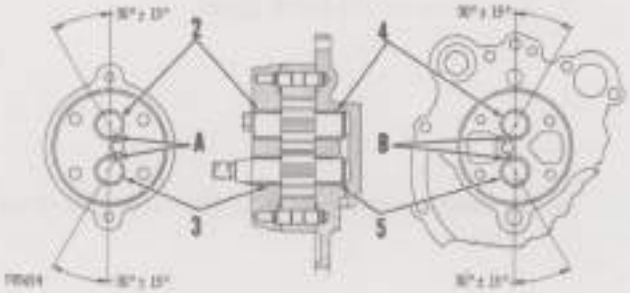
ASSEMBLE TRANSMISSION OIL PUMP (POWER SHIFT) 16–3153

Tools Needed		A
1P529	Handle	1
1P461	Drive Plate	1
1P463	Drive Plate	1



1. Install a new seal (1) in base.

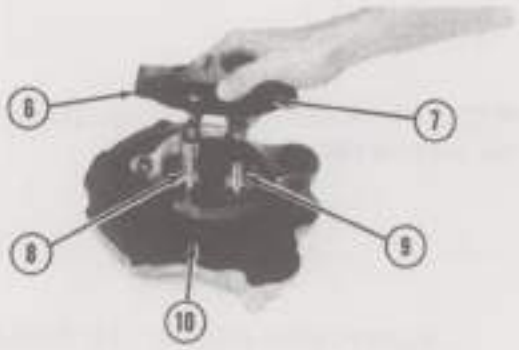
2. Use tooling (A) to install the bearings in the base and the cover.



NOTE: Install bearings (2), (3), (4) and (5) so the joints (A) and (B) of the bearings are at an angle 30°±15° from a vertical line through the bores in the base and cover. The bearings are installed .062 in. (1.57 mm) below the machined surfaces of the base and cover.

3. Install gears (8) and (9) in base as shown.

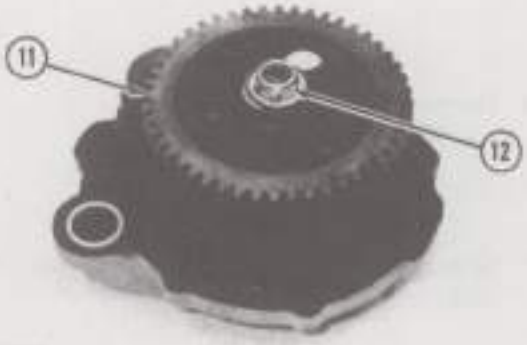
4. Install body (10).



5. Install a new seal (7) in cover. Put cover (6) in position on body. Install the four bolts and washers that hold the cover in position.

6. Install the key in gear (8).

7. Install gear (11), washer and nut (12).



8. Fill the transmission oil pump with SAE 30 oil. The transmission oil pump must turn freely by hand.

end by:
a) install transmission oil pump

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FLYWHEEL CLUTCH AND HUB (DIRECT DRIVE & SPECIAL APPLICATION)

REMOVE FLYWHEEL CLUTCH AND HUB (DIRECT DRIVE & SPECIAL APPLICATION) 11–3052

Tools Needed		A	B
FT797	Lifting Bracket	1	
8B7554	Puller Assembly		1
8B7560	Step Plate		1
5F7345	Screw		1

start by:

a) remove drive shaft
b) remove flywheel clutch brake
c) remove crankcase guard (rear)

1. Release the flywheel clutch.

2. Remove the oil from the flywheel clutch.

3. Remove springs (4) and (5) from brake pedals. Disconnect rod (2) and (3) from brake pedals. Remove the pins and washers from the brackets that hold the brake pedals in position. Remove the two brake pedals.

4. Remove the two bolts and washer from yoke (1). Remove the O-ring and yoke (1).

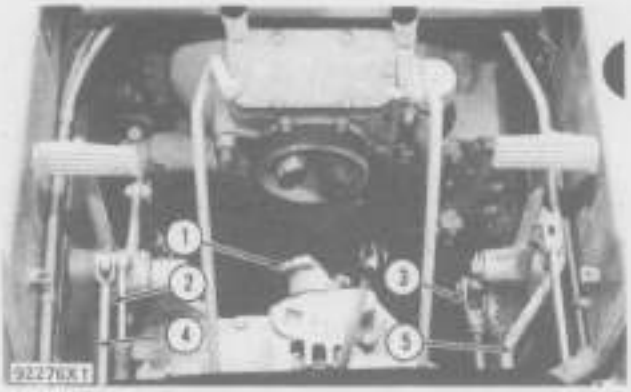
5. Remove the eight bolts and washers that hold the ring of the flywheel clutch to the flywheel. Turn the engine flywheel to remove the eight bolts.

NOTE: It can be necessary to install a 1/2"–13 NC forcing screw in the ring of the flywheel clutch to move the ring away from the flywheel.

6. Remove the bolts (6) and washers that hold the flywheel clutch cover to the flywheel housing.

7. Install tool (A) on the flywheel clutch as shown. Install two 1/2"–13 NC forcing screws in the flywheel clutch cover. Move the flywheel clutch cover away from the flywheel housing. Put a wire around the back of the clutch group. Fasten the wire to the two forcing screws. This will prevent the clutch group from coming off the clutch shaft.

8. Remove the flywheel clutch (7). Weight of the flywheel clutch is 325 lb. (147.4 kg).









TYPICAL EXAMPLE

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FLYWHEEL CLUTCH AND HUB (DIRECT DRIVE & SPECIAL APPLICATION)

9. Remove disc assembly (9).



10. Remove plate (8).

11. Remove the other disc assembly from the flywheel housing.



12. Remove three bolts (10), locks and retainers from hub. Remove hub (11).



13. Use tooling (B) to remove bearing outer race from flywheel.



14. Remove ring, bearing inner race and roller assembly (12) and ring (13) from hub.

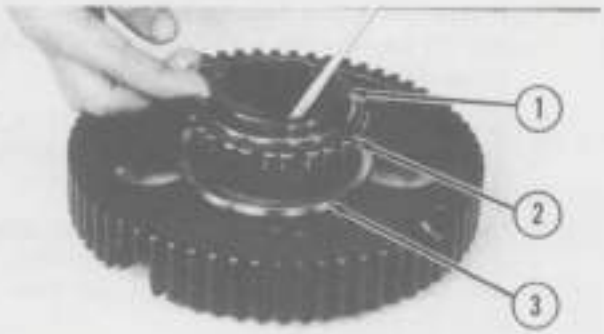
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FLYWHEEL CLUTCH AND HUB (DIRECT DRIVE & SPECIAL APPLICATION)

INSTALL FLYWHEEL CLUTCH AND HUB (DIRECT DRIVE & SPECIAL APPLICATION) 12–3052

Tools Needed		A
FT797	Lifting Bracket	1

1. Put ring (3) on hub.



2. Install bearing inner race and roller assembly (2) and ring (1) on hub.



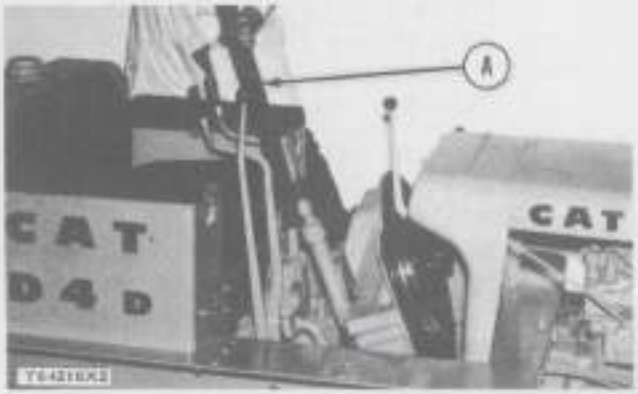
3. Lower the temperature of bearing outer race (5). Install bearing outer race in flywheel.

4. Put hub (4) in position on flywheel. Install the three retainers, locks and bolts that hold hub in position.



5. Install disc (7), plate (6) and disc in flywheel.

6. Put two 1/2"–13 NC forcing screws in the cover of the flywheel clutch. Put a wire over the back of the clutch group and around the forcing screws. Fasten tooling (A) to the flywheel clutch. Put the flywheel clutch in position. Make sure the splined shaft of the flywheel clutch is in alignment with the splines in the hub. Remove the wire and two forcing screws. Push the flywheel clutch cover against the flywheel housing. Install four bolts to hold the flywheel clutch in position. Remove tooling (A). Make sure the holes in the ring of the flywheel clutch are in alignment with the holes in the flywheel.



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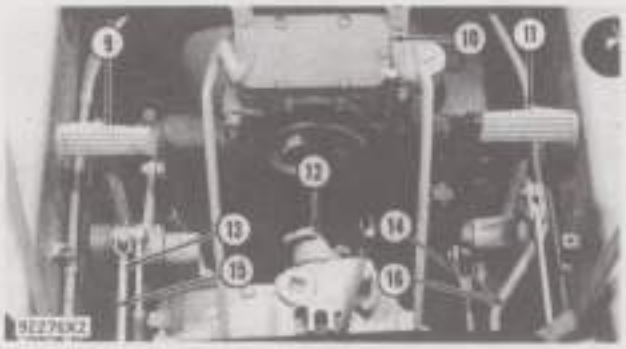
FLYWHEEL CLUTCH AND HUB (DIRECT DRIVE & SPECIAL APPLICATION)

7. Install the other fifteen bolts (8) that hold the flywheel clutch cover to the flywheel housing.
8. Install the eight bolts and washers in the ring of the flywheel clutch. Turn the engine flywheel to install the bolts and washers.
9. Put 8S6747 No. 3 Gasket Sealer on gasket and cover (10). Install gasket and cover. Install the six bolts and washers that hold the cover in position.
10. Install yoke (12). Install the O-ring, retainer, lock and two bolts that hold the yoke in position.
11. Install two brake pedals (9) and (11). Connect rods (13) and (14) to brake pedals. Connect two springs (15) and (16) to brake pedals.
12. Fill the flywheel clutch with oil to the correct level. See LUBRICATION AND MAINTENANCE GUIDE.

end by:

a) install crankcase guard (rear)
b) install flywheel clutch brake
c) install drive shaft





FLYWHEEL CLUTCH ADJUSTMENT 25–3052

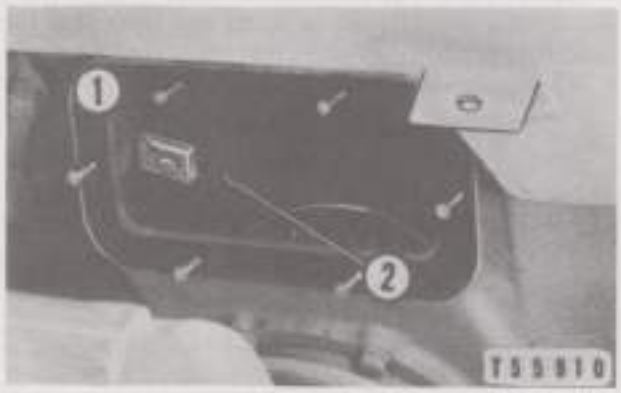
1. Make an adjustment to the flywheel clutch as follows:

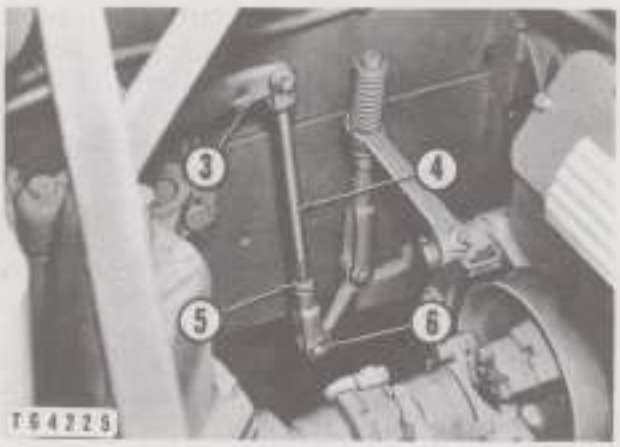
a) Remove the cover from the flywheel clutch.

b) Turn the engine flywheel until locknuts (1) can be seen. Loosen locknut (1) two turns. Make sure the plate under the locknut is loose. Turn the flywheel 180°. Loosen the other locknut (1) two turns.

c) Turn ring (2) until a force of 35 – 45 lb. (15.88 – 20.41 kg) pull is on the control lever of the flywheel clutch. Tighten locknuts (1). Install the cover on the flywheel clutch.

d) Pull the control lever of the flywheel clutch back. Loosen locknut (5). Remove pin (6) and turn rod end (4) clockwise or counterclockwise until the control lever is in vertical position with pin (6) installed. Tighten locknut (5). Tighten locknut (5). Make sure rod (4) is connected to lever (3) as shown.





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FLYWHEEL CLUTCH AND HUB (DIRECT DRIVE & SPECIAL APPLICATION)

DISASSEMBLE FLYWHEEL CLUTCH (DIRECT DRIVE & SPECIAL APPLICATION) 15–3052

start by:
a) remove flywheel clutch

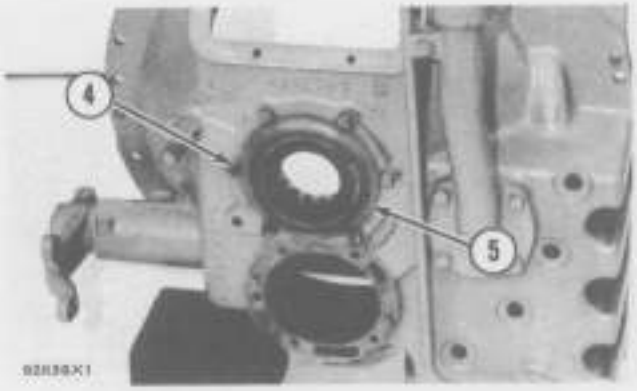


1. Put the flywheel clutch on wood blocks as shown. Remove the wire and two forcing screws from the cover of the flywheel clutch.



2. Remove shaft (1).

3. Install two 1/2"–13 NC forged eyebolts and nuts in cover (3). Fasten a hoist to the cover. Remove cover (3). Weight of cover is 170 lb. (77.1 kg).



4. Remove the flywheel clutch oil pump (2) from the cover.

5. Remove six bolts (4) and washers from cage (5). Use a soft hammer to remove cage from cover. Remove the cage.



6. Remove seal (6) from cage. Remove seal (7) from cage.

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FLYWHEEL CLUTCH (DIRECT DRIVE & SPECIAL APPLICATION)

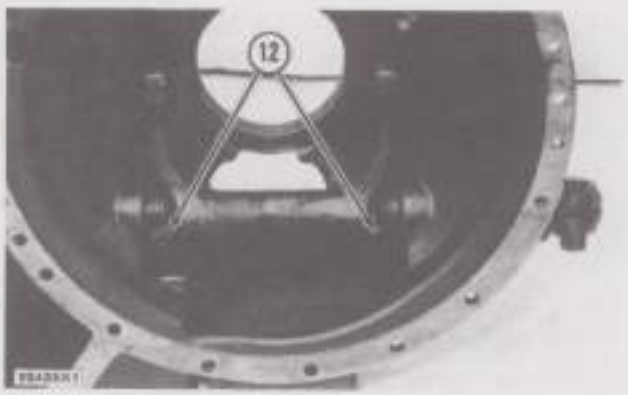
7. Remove six bolts (8), locks and cover (9) from cage.



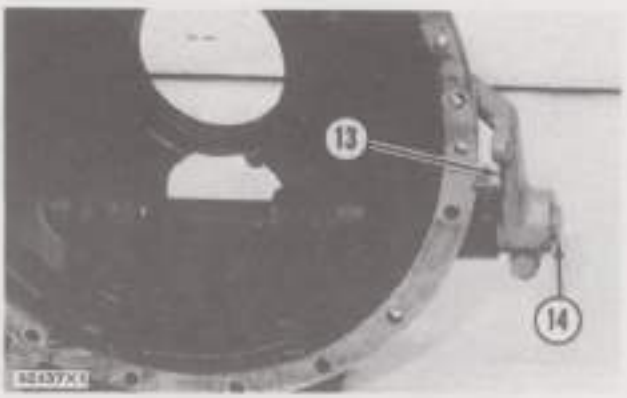
8. Remove ring (10) and bearing (11) from cage.



9. Loosen two bolts (12) in yoke.



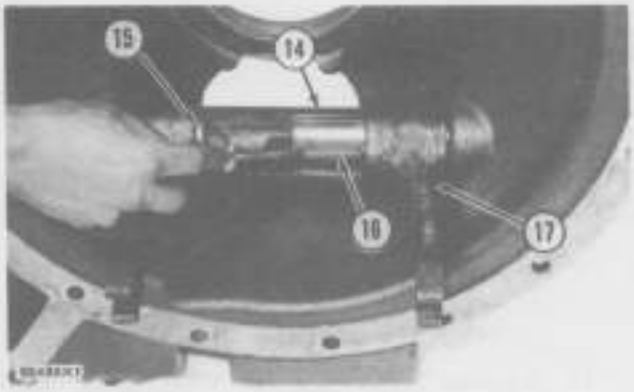
10. Pull the yoke forward as shown. Remove lever (13) and key from shaft (14).



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FLYWHEEL CLUTCH(DIRECT DRIVE & SPECIAL APPLICATION)

11. Push shaft (14) in as shown. Remove key (16).



12. Install a 3/8"–16 NC bolt in shaft (15). Pull shaft (15) out and remove the key from the shaft. Remove the shaft and yoke (17).



13. Remove the four bolts and two locks from gear (18). Remove gear (18) and washer (19).



14. Remove retainers, locks and springs from four studs (20).



15. Install two 1/2"–13 NC forged eyebolts in bracket. Fasten a hoist to the bracket. Weight of the bracket is 65 lb. (29.48 kg). Remove bracket (21).

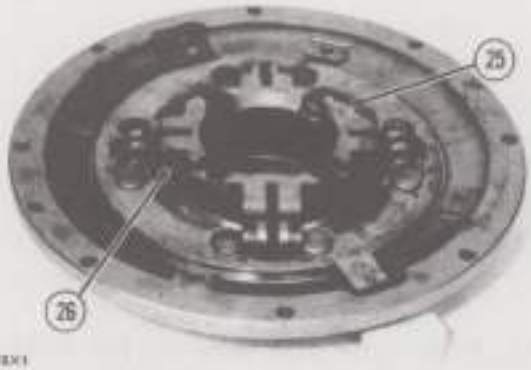
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FLYWHEEL CLUTCH (DIRECT DRIVE & SPECIAL APPLICATION)

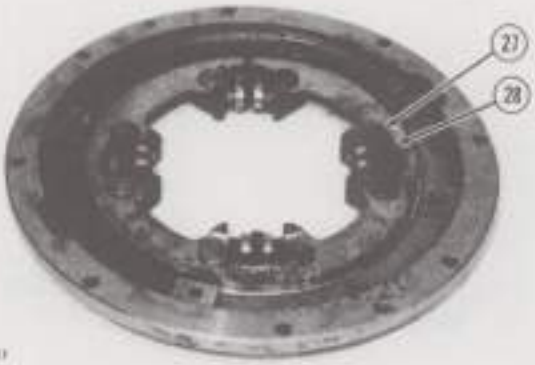
16. Remove plate assembly (22) and four studs (24) from plate.



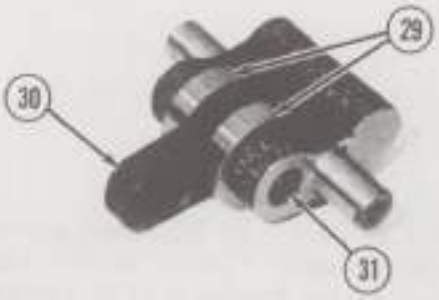
17. Remove two bearings (23) from plate assembly.



18. Remove four pins (26) from collar. Remove collar (25).



19. Remove four links (28) and eight pins (27) from ring. Remove pins (27) from links (28).



20. Remove pin (31). Remove two rollers (29) and link (30). Disassemble the other three links.

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FLYWHEEL CLUTCH (DIRECT DRIVE & SPECIAL APPLICATION)

21. Remove nut from lock assembly (33). Remove lock assembly (33) and plate. Remove plate assembly and plate from the other side of the bracket. Remove ring (32) from bracket.

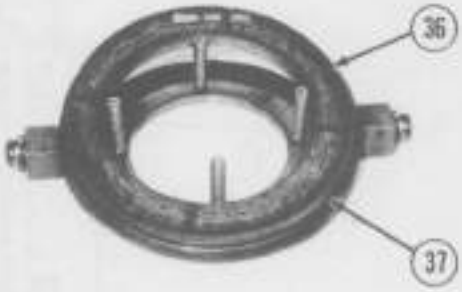


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22. Remove four bolts (34) and locks from collar. Remove collar (35).

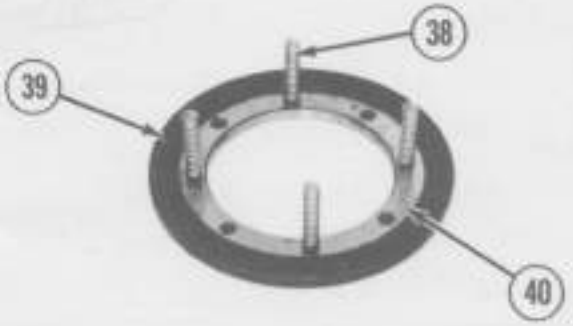


23. Remove washer (36) and collar (37).



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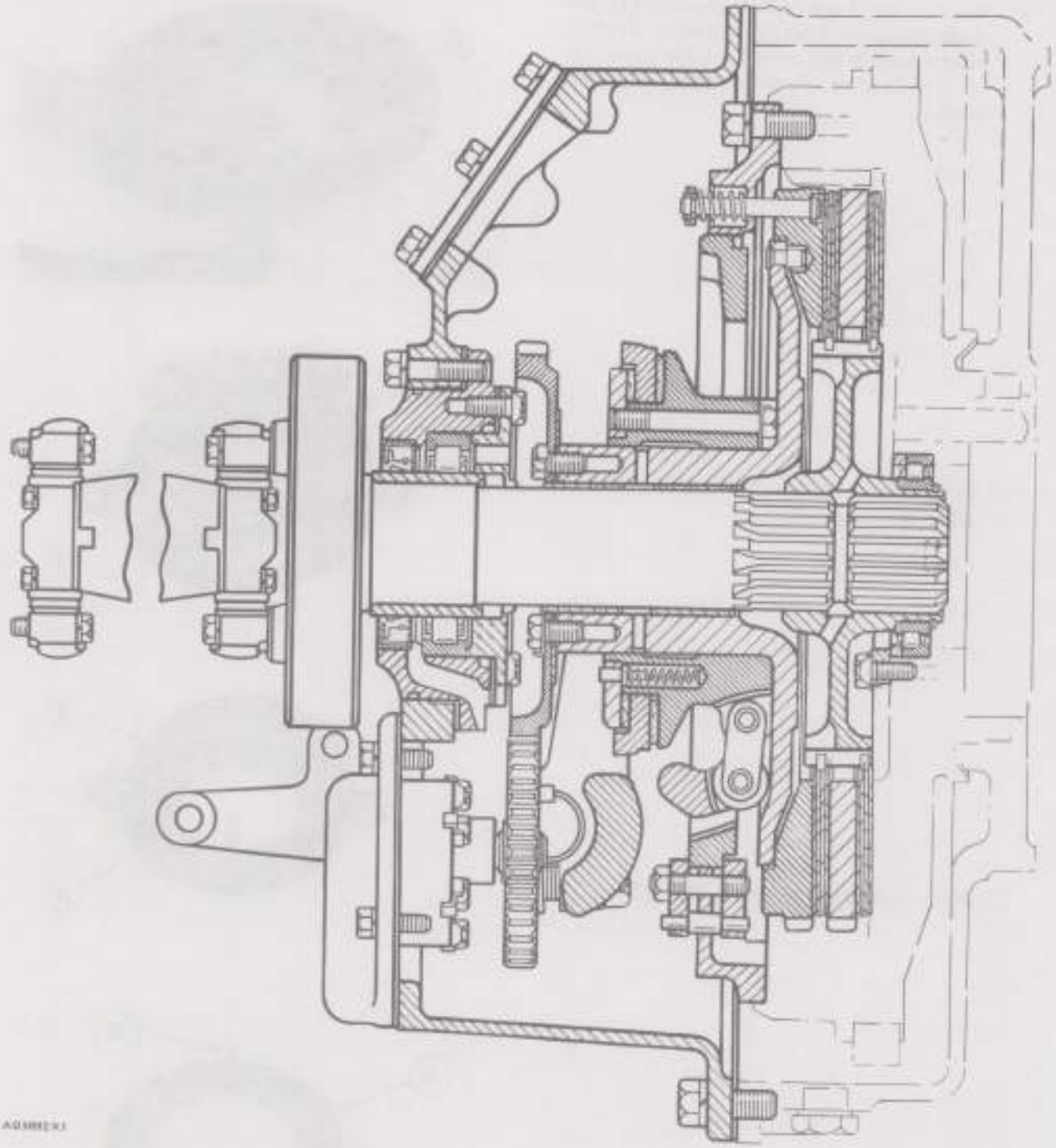
24. Remove washer (39), springs (38), pins and washer (40) from washer.



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FLYWHEEL CLUTCH (DIRECT DRIVE & SPECIAL APPLICATION)

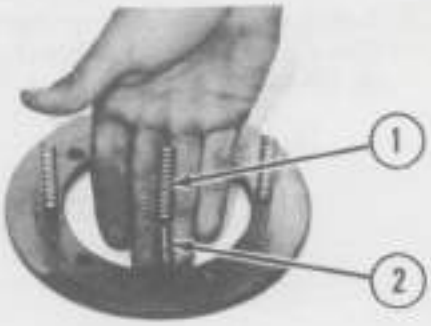


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FLYWHEEL CLUTCH (DIRECT DRIVE & SPECIAL APPLICATION)

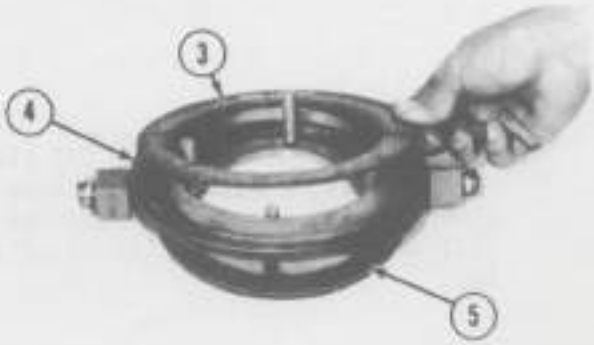
ASSEMBLE FLYWHEEL CLUTCH (DIRECT DRIVE & SPECIAL APPLICATION) 16–3052

Tools Needed		A	B	C
1P531	Handle	1	1	1
1P487	Drive Plate	1		
1P486	Drive Plate	1		
1P517	Drive Plate		1	
1P511	Drive Plate			1



92410X1

1. Install four pins (2) and four springs (1) in washer.



92413X1

2. Install washer (5), collar (4) and washer (3).



92411X1

3. Put collar (6) in position on the four pins. Install the four bolts and locks that hold the collar (6) to washer (3).



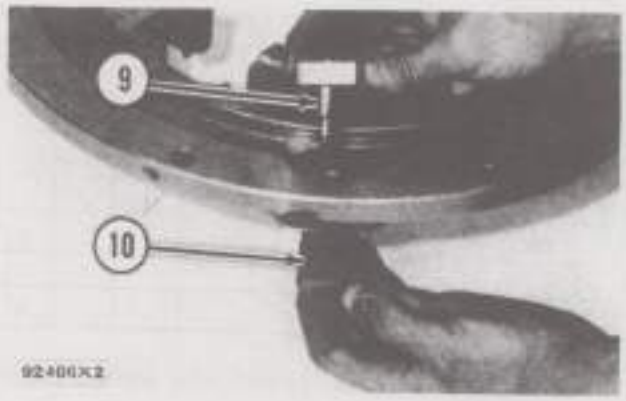
92665X1

4. Put ring (7) in bracket (8) as shown.

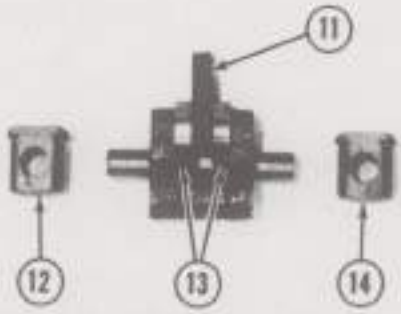
https://tractormanualz.com/

FLYWHEEL CLUTCH (DIRECT DRIVE & SPECIAL APPLICATION)

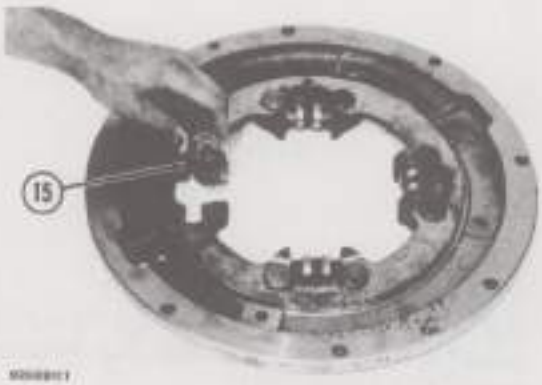
5. Install the two lock assemblies (9) and two plates (10) in the bracket. Install the nuts on the two lock assemblies.



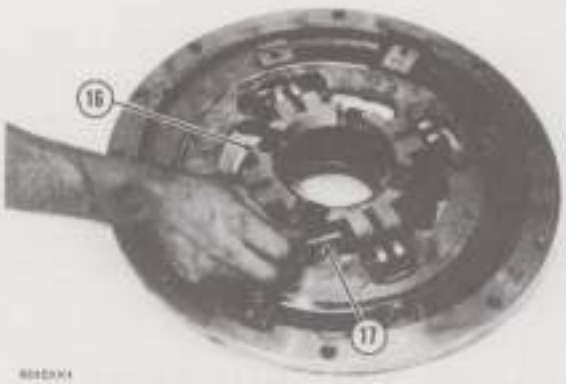
6. Put the two rollers (13) and link (11) in position. Install the pin that holds the rollers and link in position. Install two pins (12) and (14). Assemble the other three links.



7. Put four links (15) in position in ring as shown.



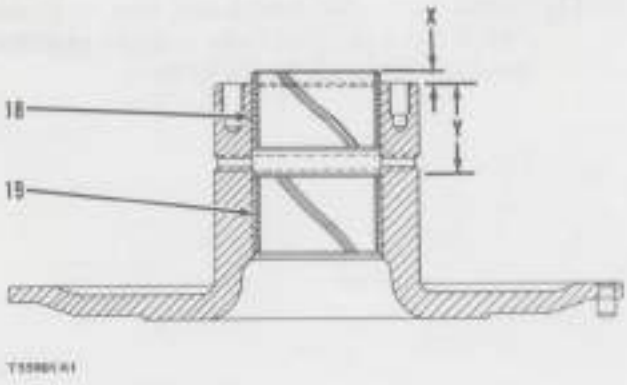
8. Put the collar (16) in position in the ring. Install four pins (17).



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FLYWHEEL CLUTCH (DIRECT DRIVE & SPECIAL APPLICATION)

9. Install bearings (18) and (19) in plate assembly. Install bearing (19) to a depth of dimension (Y). (Y) is 1 13/16" (46.03 mm). Install bearing (18). Measure dimension (X). (X) must be 1/4" (6.35 mm) to let oil move through the hole in the plate assembly. Use tooling (A) and a press to install the bearings.



T55901A1

10. Install four studs (21) in plate (22). Put the plate assembly (20) in position on the plate.



11. Install two 1/2"–13 NC forged eyebolts in the bracket. Fasten a hoist to the bracket. Put the bracket in position on the plate assembly. Install the springs, retainers and locks on the four studs. Remove the hoist and eyebolts.





12. Install washer (23).

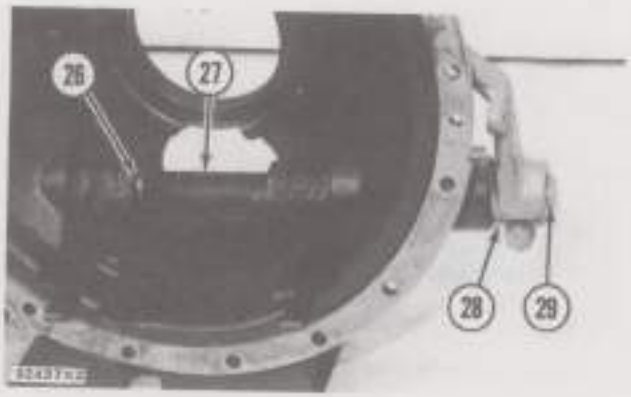
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FLYWHEEL CLUTCH (DIRECT DRIVE & SPECIAL APPLICATION)

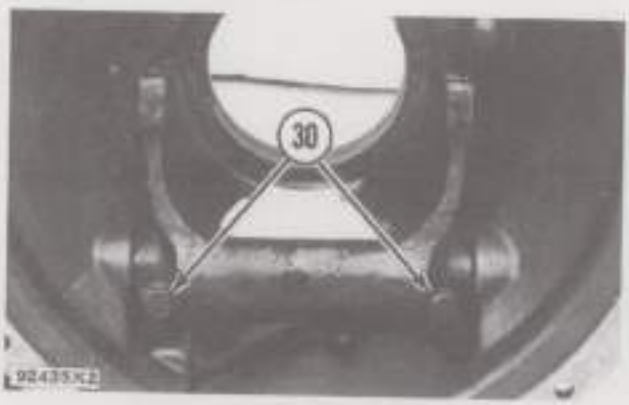
13. Install gear (24). Install the two locks and four bolts (25) that hold gear in position. Bend the locks up on the bolts.



14. Put the yoke (27) in the position shown. Install shaft (26) and key. Install shaft (29) and key. Install key and lever (28) on end of shaft (29).



15. Turn the yoke up in the position shown. Tighten two bolts (30).



16. Use tooling (B) to install the bearing in cage.



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FLYWHEEL CLUTCH (DIRECT DRIVE & SPECIAL APPLICATION)

17. Install ring (31) in the cage. Put cover (32) in position on the cage. Install the six bolts and locks that hold the cover in position.



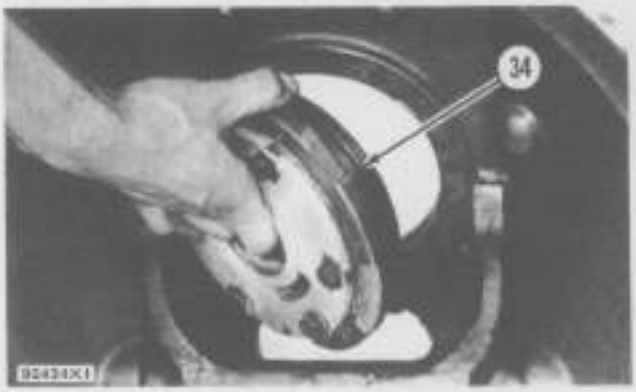
92841X1

18. Use tooling (C) to install seal (33) in the cage with the lip of seal toward the bearing in the cage.



92430X1

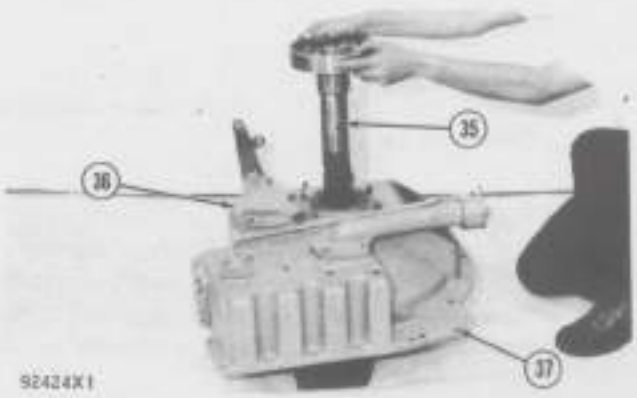
19. Install seal (34) on cage. Put the cage in position in the cover. Install the six bolts and washers that hold the cage in position.



92434X1

20. Fasten a hoist to the cover. Put cover (37) in position on the clutch group. Make sure the blocks on the collar are in the correct position in the yoke. Install shaft (35).

21. Install flywheel clutch oil pump (36).



92424X1

end by:
a) install flywheel clutch

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TORQUE CONVERTER (POWER SHIFT)

DISASSEMBLE TORQUE CONVERTER (POWER SHIFT) 15–3100

Tools Needed		A
1P531	Handle	1
1P504	Drive Plate	1

start by:

a) remove torque converter, power shift transmission, and transfer gears as a unit

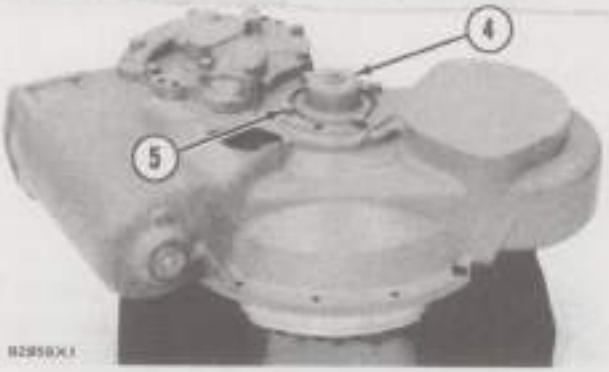


1. Remove eight bolts (1) from housing.



2. Remove fifteen bolts (2) and washers from housing.

3. Install two 1/2"–13 NC forged eyebolts and nut in the housing. Fasten a hoist to the housing. Use two 3/8"–16 NC forcing screws to make a separation of the housing and carrier assembly. Remove the housing (3). Weight of the housing is 75 lb. (34.02 kg).



4. Turn the torque converter over and put it on wood blocks as shown.

5. Remove cover (4). Remove four bolts (5) and washers.



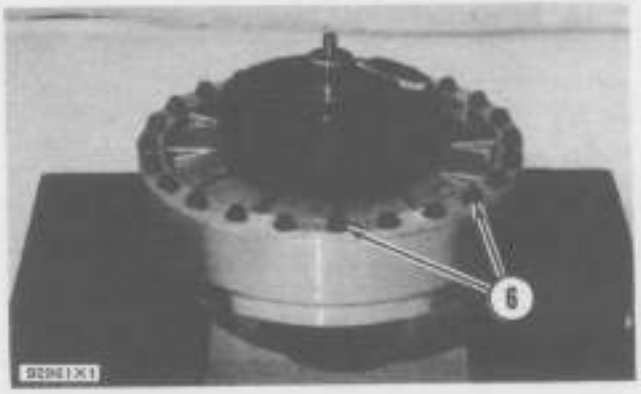
6. Install two 3/8"–16 NC forged eyebolts in the cover assembly.

7. Use two 3/8"–16 NC forcing screws to make a separation of the cover assembly from the torque converter. Remove cover assembly. Weight of cover assembly is 150 lb. (68 kg).

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TORQUE CONVERTER (POWER SHIFT)

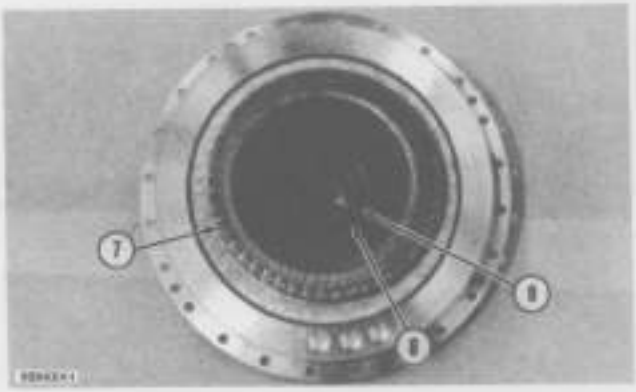
8. Turn the torque converter over and put it on wood blocks.



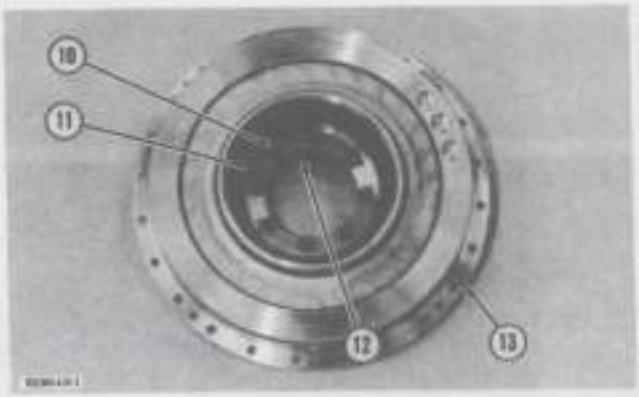
9. Remove twenty-four bolts (6) and washers from impeller wheel.



10. Install two 5/16"–18 NC forcing screws in the wheel. Make a separation of the wheel from the housing. Remove the wheel from the housing.



11. Remove six bolts (8) and two plates (9) from guide wheel assembly. Remove guide wheel (stator) assembly (7).



12. Remove eight bolts (10) and two plates (11). Remove cage assembly (12). Remove impeller wheel (13).

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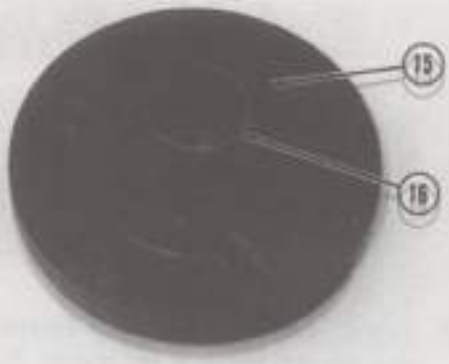
TORQUE CONVERTER (POWER SHIFT)

13. Remove bearing (14) from cage.

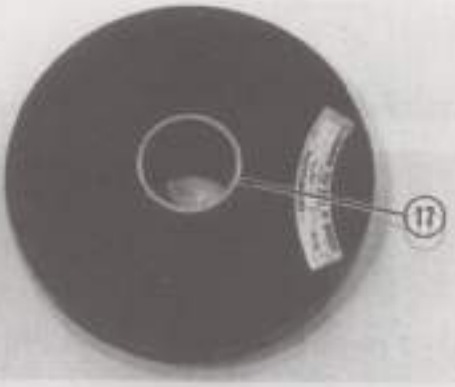


92965X1

14. Remove four pins (15) from carrier assembly. Remove sleeve (16).



15. Remove bearing (17) from carrier assembly.



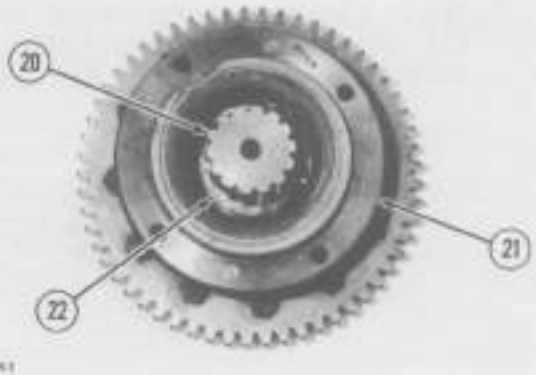
16. Loosen twelve bolts (19) in flange. Remove turbine wheel (18) from housing. Remove the flange and cage from the housing.



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TORQUE CONVERTER (POWER SHIFT)

17. Remove ring (22). Use a soft hammer to remove flange (20) from cage (21).



18. Remove seal (23) from cage. Remove seal (24) from cage.



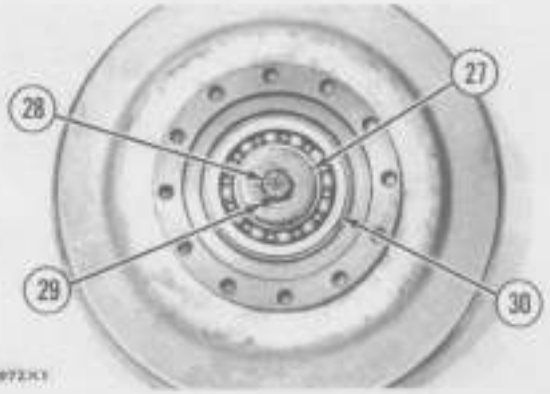
92870X1

19. Remove ring (26) from cage. Remove bearing (25) from cage.



92871X1

20. Remove bolt (28) and retainer (27) from the carrier.



21. Remove ring (30). Remove pin (29) from the shaft assembly.

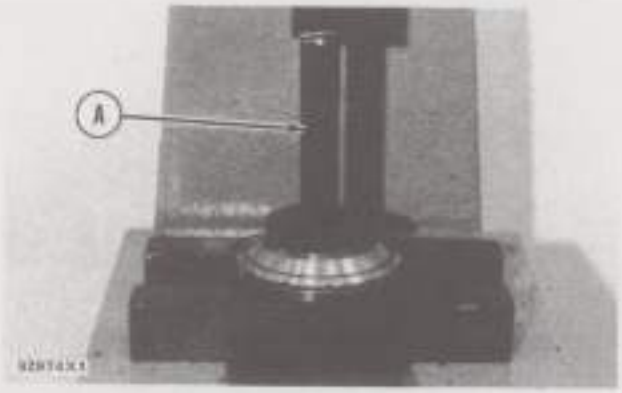
https://tractormanualz.com/

TORQUE CONVERTER

22. Use an arbor press to remove shaft assembly (31) from the carrier and the turbine wheel. Remove the ring from the shaft assembly.

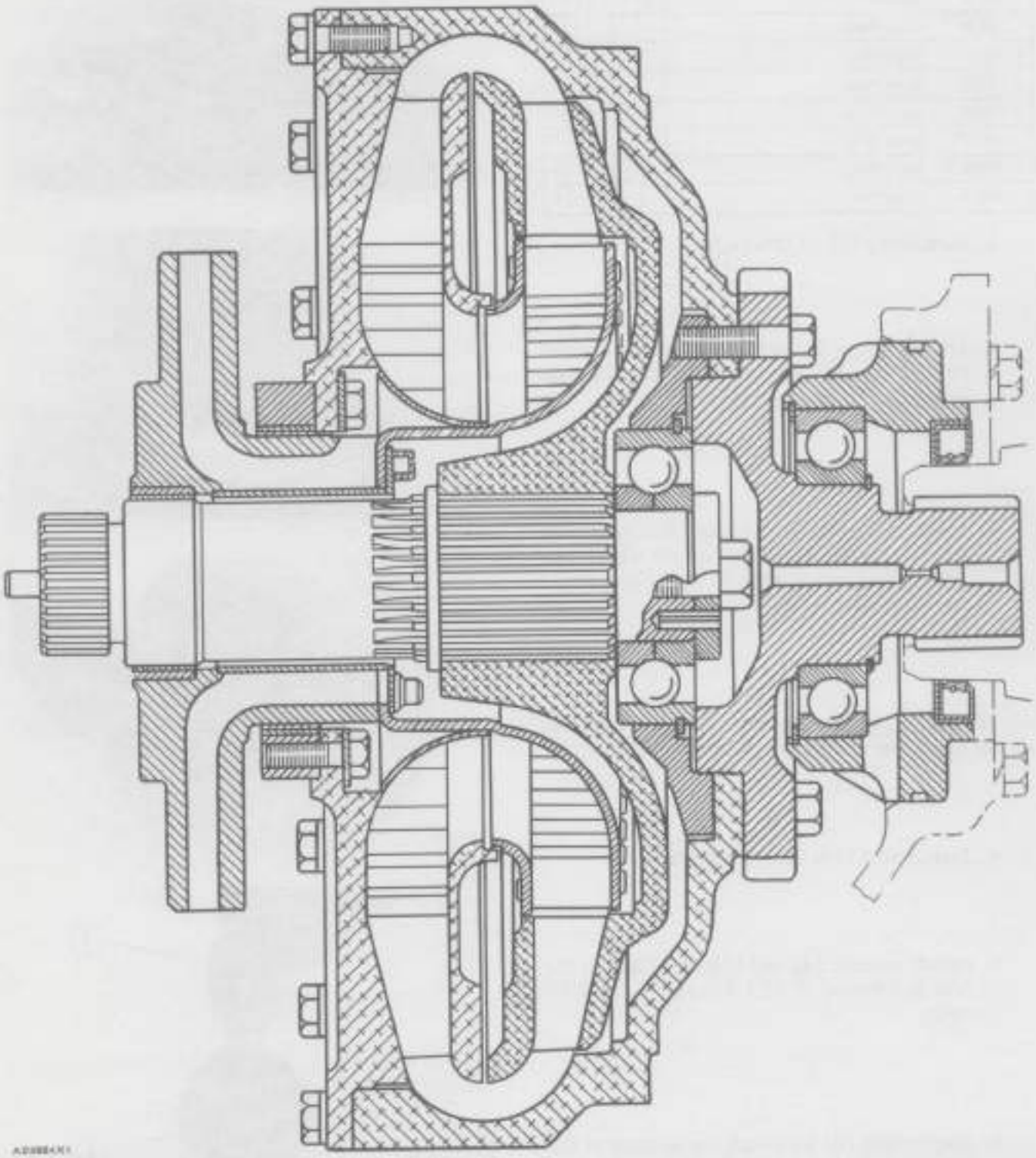


23. Use tooling (A) to push the bearing out of the carrier.



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TORQUE CONVERTER

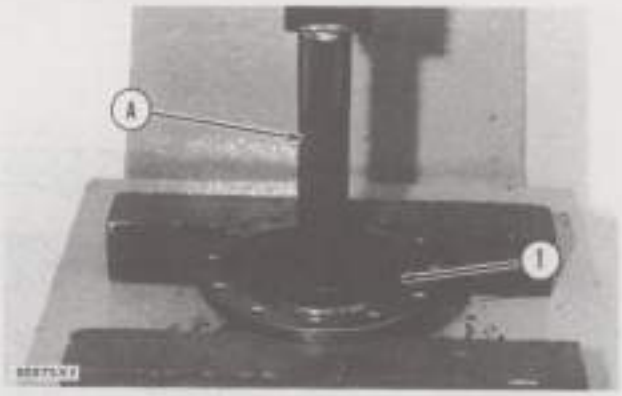


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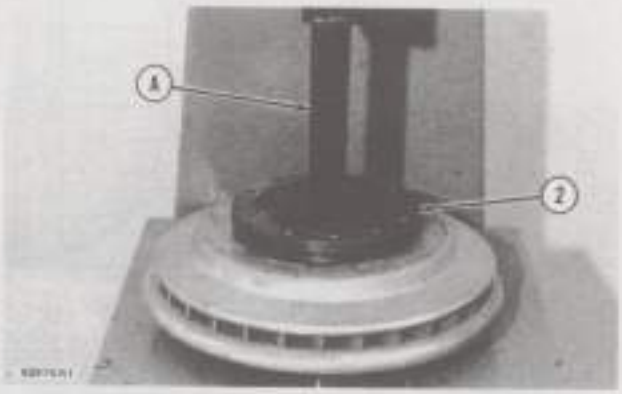
TORQUE CONVERTER (POWER SHIFT)

ASSEMBLY TORQUE CONVERTER (POWER SHIFT) 16–3100

Tools Needed		A	B	C	D	E
1P532	Handle	1	1	1	1	1
1P504	Drive Plate	1			1	
1P481	Drive Plate		1			
1P512	Drive Plate		1			
1P505	Drive Plate			1		
1P507	Drive Plate				1	
1P484	Drive Plate					1
1P478	Drive Plate					1

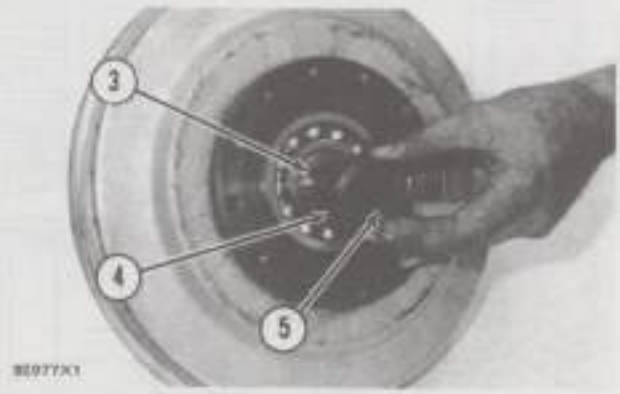


1. Install ring (1) on bearing.



2. Use tooling (A) and a press to install the bearing in the carrier. Push the bearing down until it stops on the ring.

3. Install the ring on the shaft assembly. Put the shaft assembly in the turbine wheel. Use tooling (A) and a press to install carrier (2) on the shaft assembly.



NOTE: Make sure the turbine wheel is on the ring on the shaft assembly after pushing on the carrier.

4. Install pin (3) in shaft assembly.



5. Install retainer (4) and bolt (5). Tighten the bolt to a torque of 81 ± 4 lb.ft. (11.2 ± 0.55 mkg).

6. Use tooling (B) to install the bearing in the cage. Install a new seal (6) on the cage.

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TORQUE CONVERTER (POWER SHIFT)

7. Use tooling (C) to install the lip type seal in the cage. Install the seal with the lip toward the bearing in the cage.



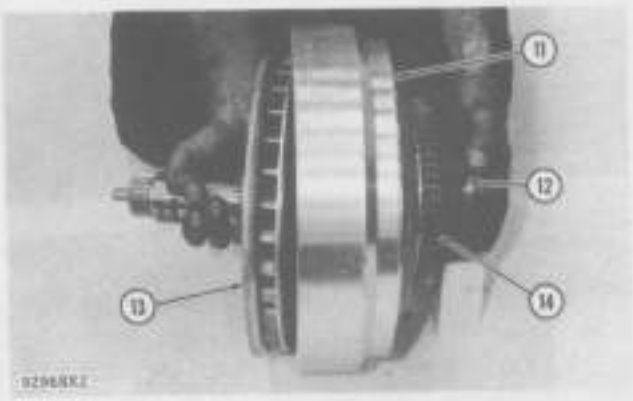
8. Install the ring (7) in the cage.



9. Put twelve bolts (9) in the flange as shown. Install cage (10) on flange. Install ring (8) on flange.



10. Put flange (14) and cage in housing (11). Tighten twelve bolts (12) to a torque of 36 ± 2 lb.ft. (5.0 ± 0.28 mkg).



11. Put the turbine wheel (13) and shaft assembly in the housing.

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TORQUE CONVERTER (POWER SHIFT)

12. Lower the temperature of the bearing. Use tooling (D) to install the bearing in the cage assembly (15).



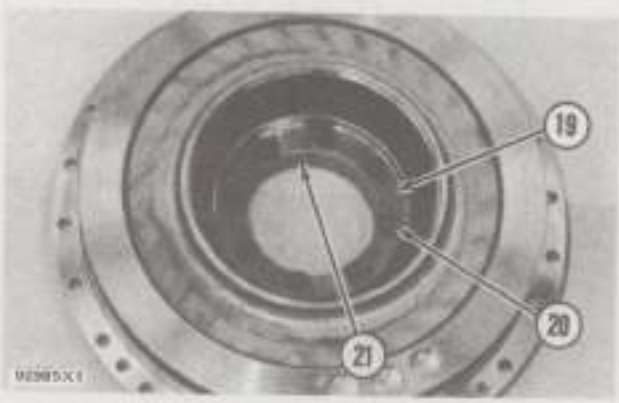
13. Use tooling (E) to install the bearing in carrier assembly (16).



14. Install four pins (17) in the carrier assembly. Install sleeve (18) in carrier assembly. Bend the lock down on the sleeve.



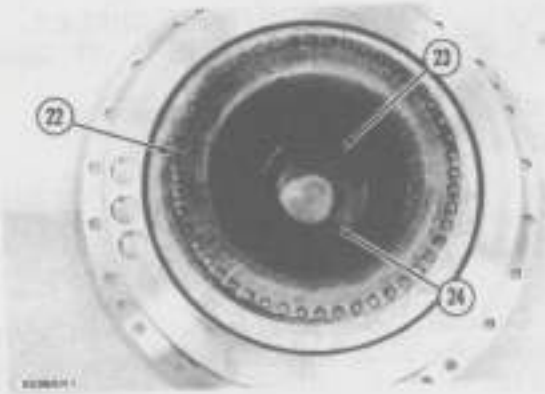
15. Put cage (21) in the impeller wheel. Install two plates (19) and eight bolts (20). Tighten the bolts to a torque of 20 ± 1 lb.ft. (2.8 ± 0.14 mkg).



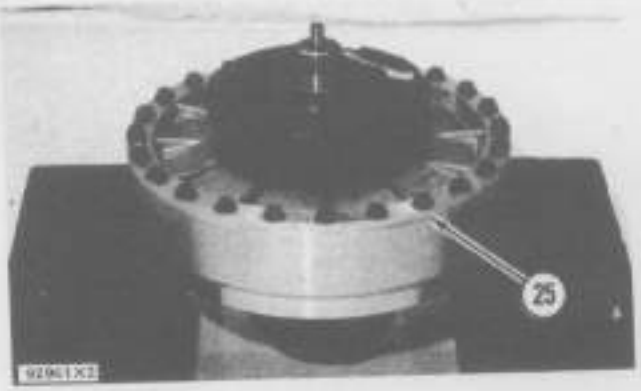
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TORQUE CONVERTER (POWER SHIFT)

16. Put guide wheel (stator) assembly (22) in position in the impeller wheel. Install two plates (23) and six bolts (24). Tighten the six bolts to a torque of 20 ± 1 lb.ft. (2.8 ± 0.14 mkg).



17. Install impeller wheel (25) in the housing. Install the twenty-four bolts and washers. Tighten the bolts to a torque of 20 ± 1 lb.ft. (2.8 ± 0.14 mkg).



18. Turn the torque converter over and put it on wood blocks. Fasten a hoist to the cover assembly. Put the cover assembly in position on the torque converter. Install the four bolts and washers that hold the cover assembly to the torque converter.

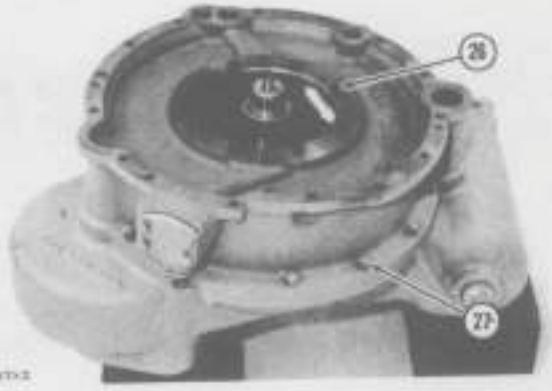


19. Turn the cover assembly and torque converter over. Put the cover assembly on wood blocks. Fasten a hoist to the housing. Put the housing and seal in position on the cover assembly. Install eight bolts (26). Tighten the bolts to a torque of 36 ± 2 lb.ft. (5.0 ± 0.28 mkg).

20. Install fifteen bolts (27) and washers.

end by:

a) install torque converter, power shift transmission and transfer gears as a unit



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GEARSHIFT CONTROLS (DIRECT DRIVE & SPECIAL APPLICATION)

REMOVE GEARSHIFT CONTROLS (DIRECT DRIVE & SPECIAL APPLICATION) 11–3070

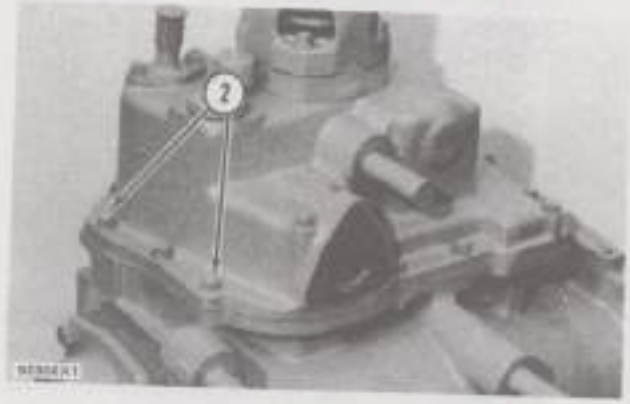
start by:

a) remove seat and front support

NOTE: Gearshift controls can be removed with the transmission in the tractor. The transmission is removed for better illustration.



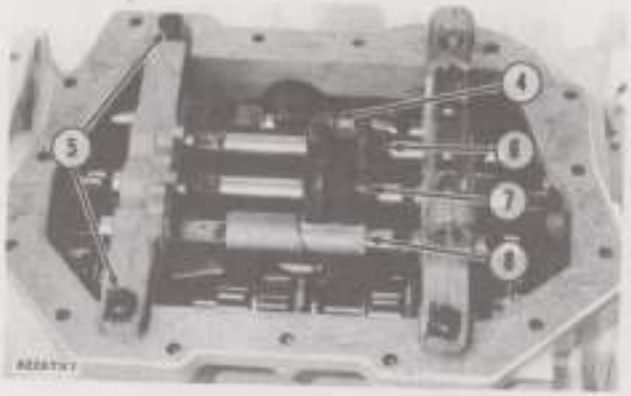
1. Remove three bolts (1) and washers from bearing. Remove the bearing and shaft.



2. Remove fifteen bolts (2) and washers from cover.



3. Fasten a hoist to the cover. Weight of the cover is 65 lb. (29.5 kg). Remove cover (3) and gasket.



4. Put four forks (4), (6), (7), and (8) in the positions shown. The forks can be moved by hand.

5. Remove four bolts (5) and locks. Remove the forks.

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GEARSHIFT CONTROLS (DIRECT DRIVE & SPECIAL APPLICATION)

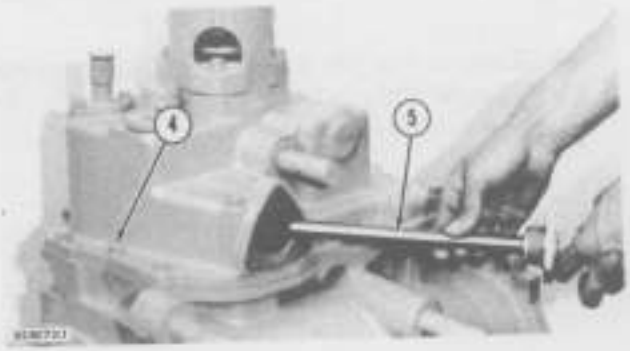
INSTALL GEARSHIFT CONTROLS (DIRECT DRIVE & SPECIAL APPLICATION) 12–3070

1. Put forks (2) in position in the transmission. Install the four locks and bolts (3).



2. Fasten a hoist to the cover. Put cover (1) and gasket in position on the transmission.

3. Install fifteen bolts (4) and washers in the cover. Install shaft (5) and bearing. Install the three bolts and washers that hold the bearing in position.



end by:
a) install seat and front support

DISASSEMBLE GEARSHIFT CONTROLS (DIRECT DRIVE & SPECIAL APPLICATION) 15–3070

start by:
a) remove gearshift controls



1. Remove four nuts (2) from the housing. Remove housing (1).



2. Pull gate assembly (3) up and turn it 90°. Remove it from the cover.

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GEARSHIFT CONTROLS (DIRECT DRIVE & SPECIAL APPLICATION)

3. Remove cover (4) and spring (5) from lever.



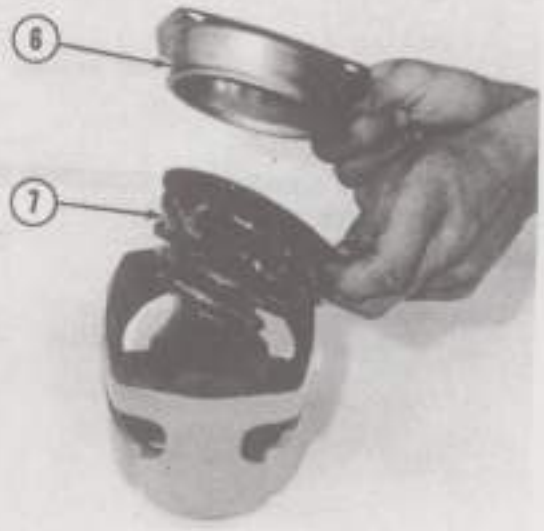
92348X1

4. Remove the pin with a punch and hammer. Remove the pin from the gate assembly. Remove the lever from the gate assembly.



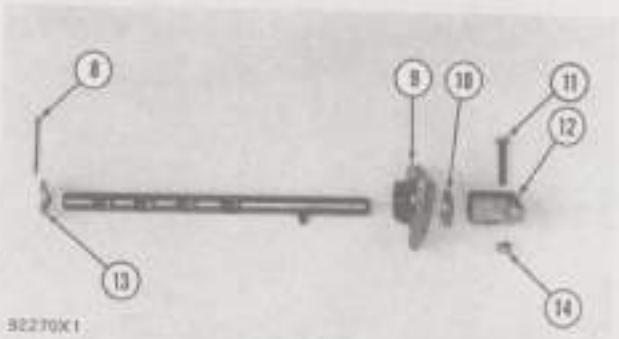
92346X1

5. Remove ring (6) and boot (7) from cover.



92347X1

6. Remove bolt (11) and nut (14) from lever (12). Remove the lever from the shaft. Remove washer (10) and bearing (9) from shaft. Remove cotter pin (8) and washer (13) from shaft. Remove the seal from bearing (9).

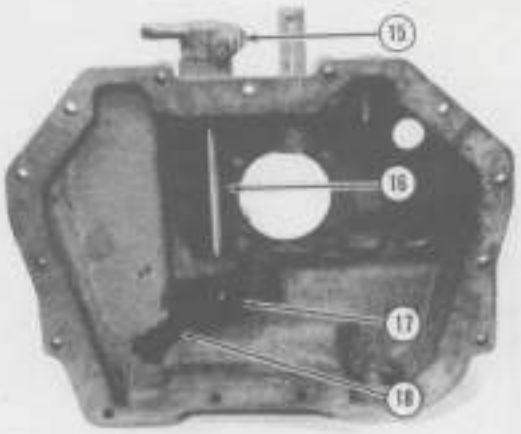


92270X1

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GEARSHIFT CONTROLS (DIRECT DRIVE & SPECIAL APPLICATION)

7. Loosen bolt (17). Use a soft hammer and hit lever (18) down until shaft (16) can be removed. Remove lever (15) from shaft.



8. Remove two bolts (19) and locks from retainer (20). Remove the retainer.

9. Remove four springs (22) and plungers (23) from the front bracket. Remove the front bracket.

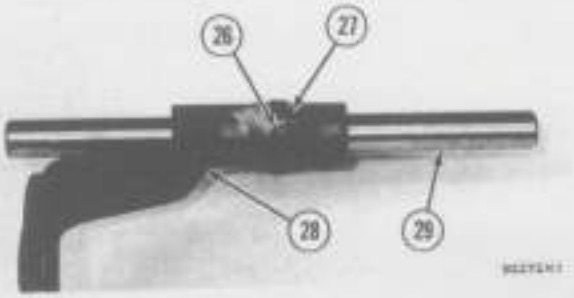


92266X1

10. Remove two bolts (21) and locks from lock (25). Remove rear bracket (24).



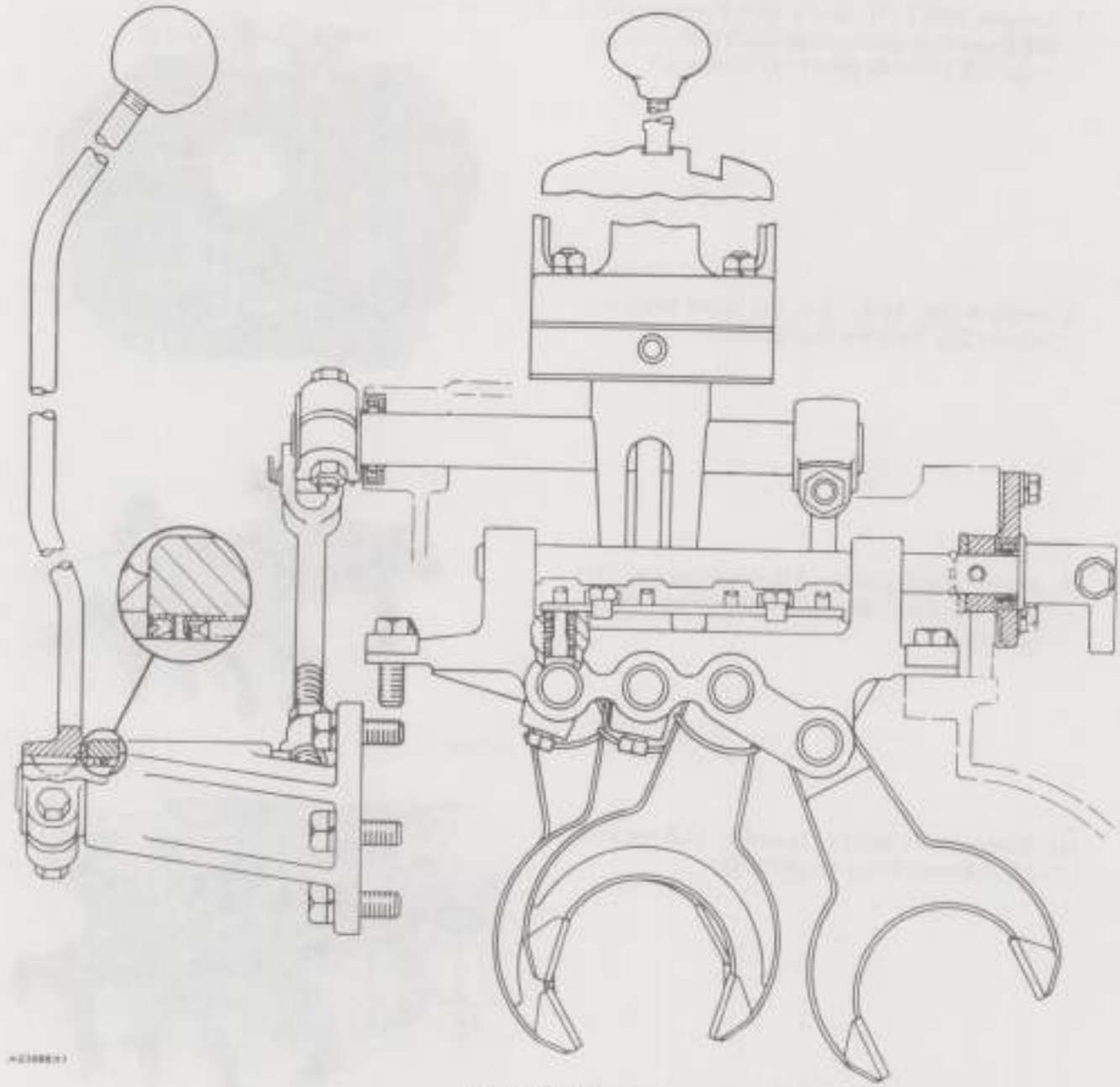
NOTE: The four shafts and forks disassemble with the same procedures.



11. Remove wire (27). Remove bolt (26). Slide fork (28) off of shaft (29). Disassemble the other three forks and shafts.

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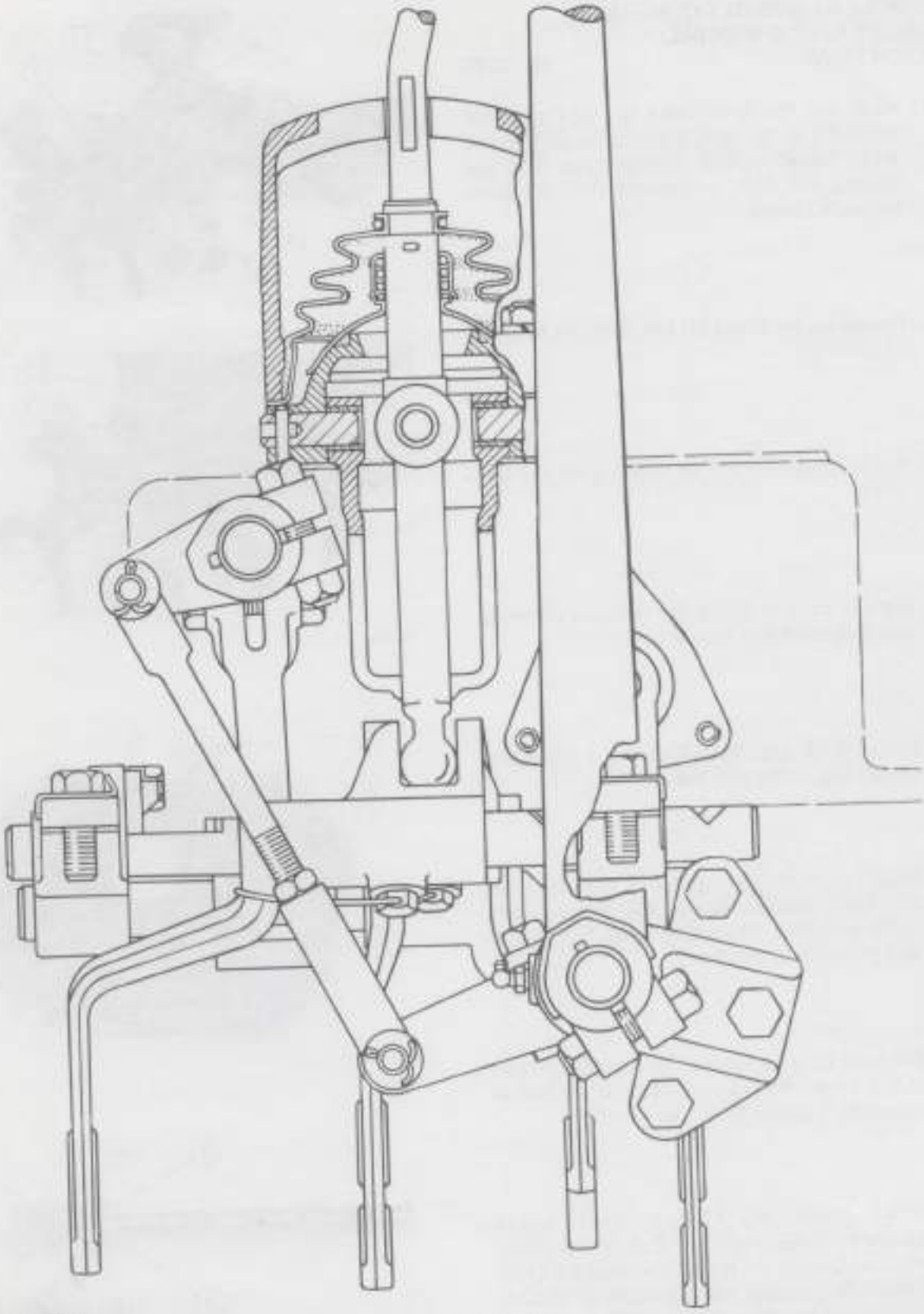
GEARSHIFT CONTROLS (DIRECT DRIVE & SPECIAL APPLICATION)



END VIEW

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GEARSHIFT CONTROLS (DIRECT DRIVE & SPECIAL APPLICATION)



AG3889X1

SIDE VIEW

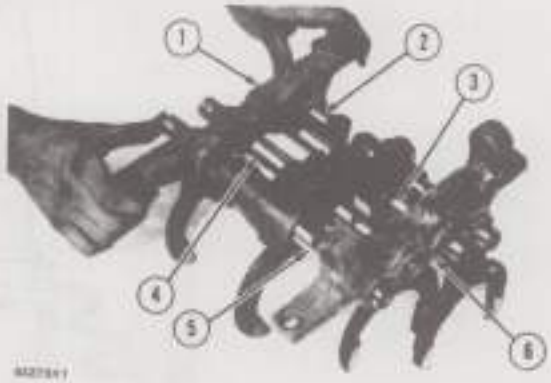
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GEARSHIFT CONTROLS (DIRECT DRIVE & SPECIAL APPLICATION)

ASSEMBLE GEARSHIFT CONTROLS (DIRECT DRIVE & SPECIAL APPLICATION)

16–3070

1. Assemble the four forks and shafts. Install the shaft in the fork. Tighten the bolt in the fork. Install a wire through the bolt and around the fork to prevent the bolt from becoming loose.



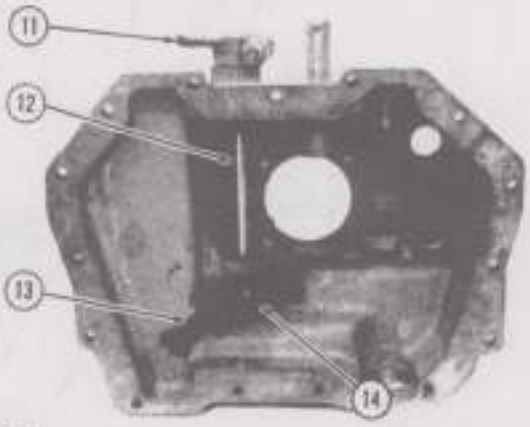
2. Install shafts (2), (3), (4), and (5) in front bracket (6).



3. Put rear bracket (1) in position on the four shafts.

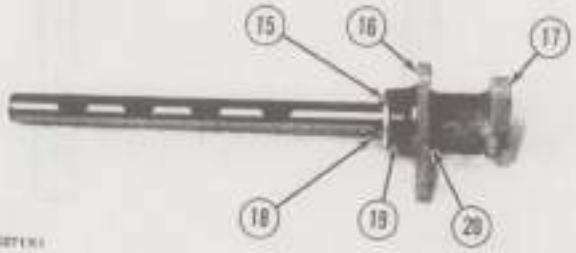
4. Put the four shafts in the position shown in the front and rear brackets.

5. Install lock (8). Install the two locks and bolts (10) in the rear bracket.



6. Install four plungers (9) and springs (7) in the front bracket. Install the retainer, two locks and two bolts that hold the springs and plungers in position.

7. Put lever (11) on shaft (12). Install the shaft in the cover. Install lever (13) on the end of the shaft. Tighten bolt (14).



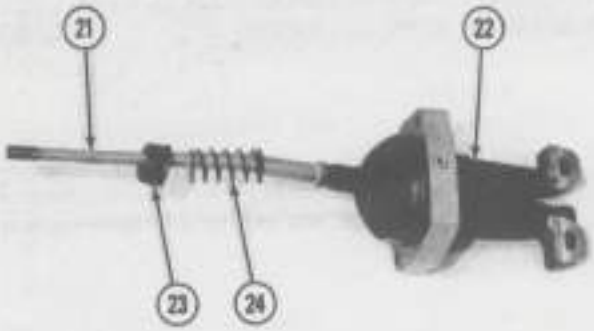
8. Install cotter pin (18) in shaft. Install washer (15) and pin (19). Put 1P808 Multipurpose Grease on the seal in bearing (16). Install the bearing on the shaft as shown. Install washer (20) and lever (17).

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GEARSHIFT CONTROLS (DIRECT DRIVE & SPECIAL APPLICATION)

9. Put the boot and ring in the housing.

10. Install lever (21) in gate assembly (22). Install the two pins that hold the lever in position.



11. Install spring (24) and cover (23).

12. Put the gate assembly and lever in the cover. Install cover (25). Install the four washers and nuts that hold the cover in position.



end by:
a) install gearshift controls

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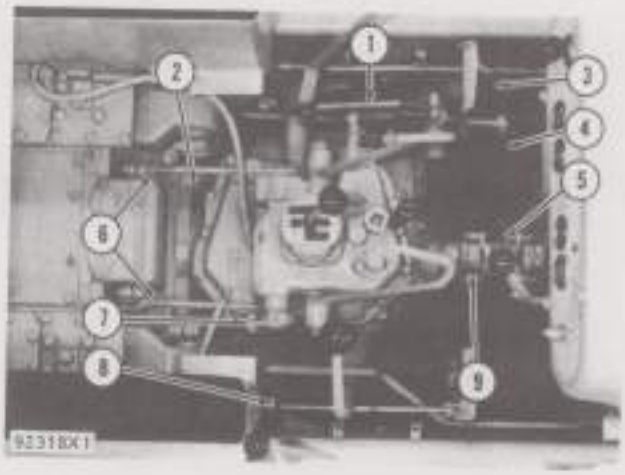
TRANSMISSION (DIRECT DRIVE & SPECIAL APPLICATION)

REMOVE TRANSMISSION (DIRECT DRIVE & SPECIAL APPLICATION) 11–3050

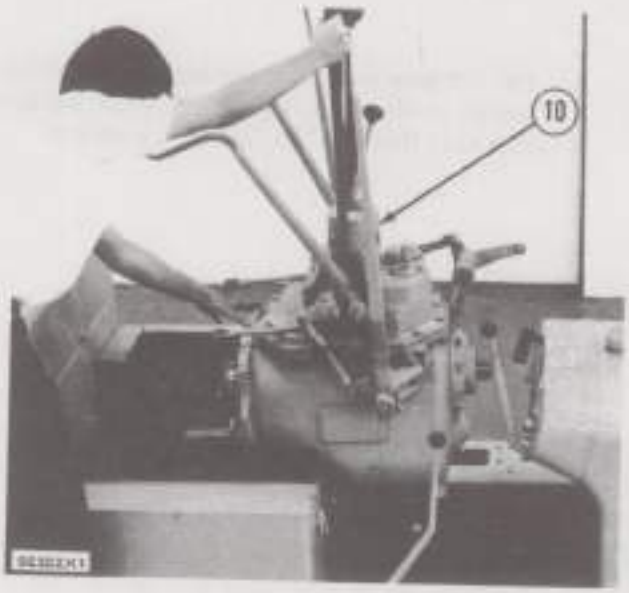
start by:

a) remove seat and front support

1. Remove the oil from the transmission and bevel gear case.



2. Remove rod (1) from the lever. Disconnect two rods (6) at the steering clutch control. Disconnect the rod from lever (7). Remove two brake pedals (3). Remove ratchet (8). Disconnect rod (4) from the lever. Remove drive shaft (5) and yoke (9).



3. Remove seven of the ten bolts (2) and washers from the transmission.

4. Fasten a hoist to the transmission. Weight of the transmission is 500 lb. (226.8 kg). Remove the last three bolts and washers from the transmission. Remove transmission (10).

INSTALL TRANSMISSION (DIRECT DRIVE & SPECIAL APPLICATION) 12–3050

1. Fasten a hoist to the transmission.
2. Install a new seal between the transmission and bevel gear case.
3. Put the transmission in the correct position in the bevel gear case.

NOTE: If a new pinion shaft is installed in the transmission, new shims must be installed between the bearing cage and case of the transmission. See BEVEL GEAR AND BEVEL PINION SHAFT SETTINGS for the correct adjustment of the pinion shaft.

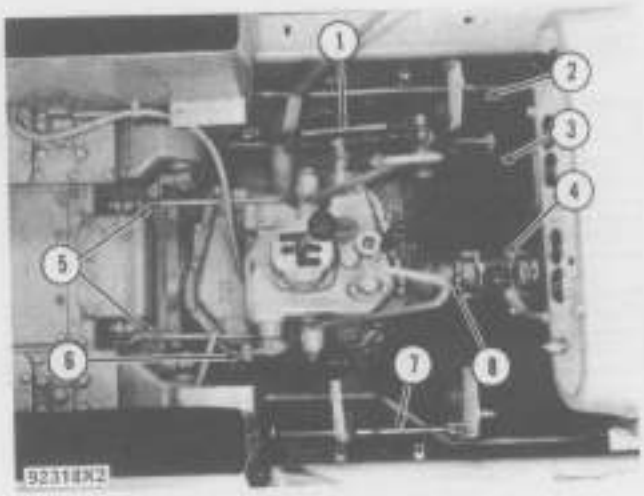


4. Install the ten bolts and washers that hold the transmission in position. Remove the hoist.

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TRANSMISSION (DIRECT DRIVE & SPECIAL APPLICATION)

5. Connect the rod to lever (6). Connect two rods (5) to the levers on the steering clutch control.
6. Install two brake pedals (2). Install ratchet (7) and connect it to brake pedal. Install rod (1). Connect rod (3) to lever. Install yoke (8) on the transmission. Install drive shaft (4).
7. Fill the transmission and bevel gear case with SAE 30 oil to the correct level. See LUBRICATION AND MAINTENANCE GUIDE.



end by:

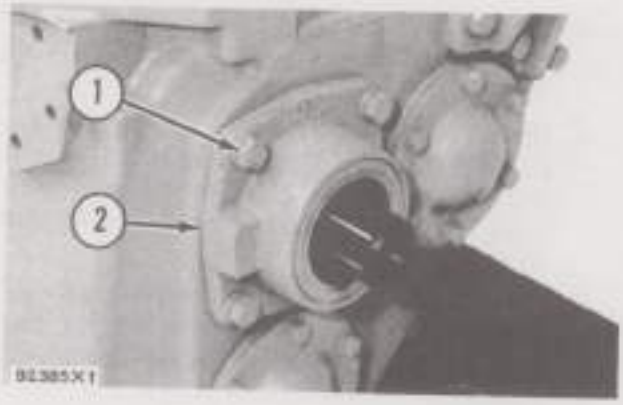
a) install seat and front support

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TRANSMISSION (DIRECT DRIVE & SPECIAL APPLICATION)

DISASSEMBLE TRANSMISSION (DIRECT DRIVE & SPECIAL APPLICATION) 15--3050

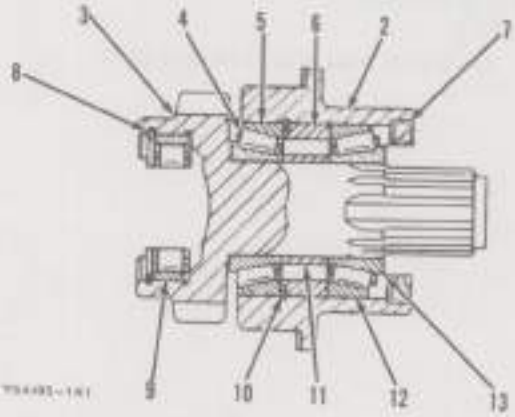
Tools Needed		A	B
887548	Puller Assembly	1	
887560	Leg	2	
887557	Adapter	2	
887560	Step Plate	1	1
8H684	Ratchet Box Wrench	1	
8H700	Puller Assembly		1



start by:

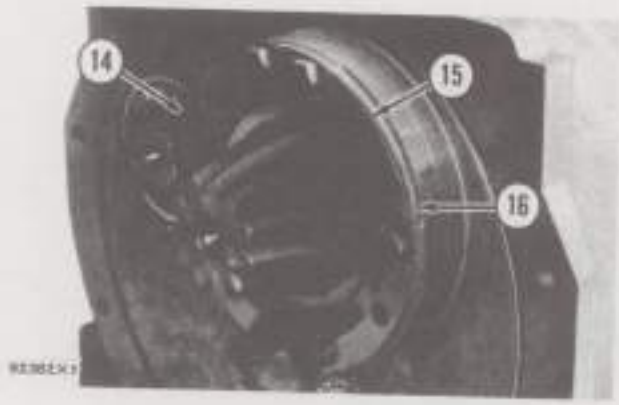
a) remove transmission (direct drive & special application)
b) remove gearshift controls

1. Remove four bolts (1) and washers from cage. Remove cage (2) and gasket.



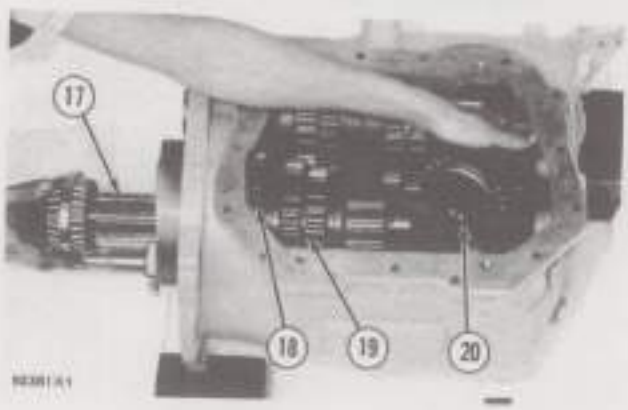
2. Push pinion (3) out of cage (2). Remove ring (8) from the pinion. Remove bearing race and roller (9) from the pinion. Remove seal (7) from the cage.

NOTE: Put identification on bearing cups and bearing cones to prevent mixing during assembly.



3. Remove bearing cup (12) and bearing cone (13). Remove bearing cup spacer (6) and bearing cone spacer (11). Remove ring (10).

4. Remove bearing cup (5) and bearing cone (4). If bearing cups and bearing cones have wear, use new parts for replacement.



5. Remove seven bolts (14) and two locks (15). Remove retainer (16).

6. Pull shaft (17) out of the cage. Remove gears (18), (19) and (20) from transmission. Remove shaft (17) from transmission.

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TRANSMISSION (DIRECT DRIVE & SPECIAL APPLICATION)

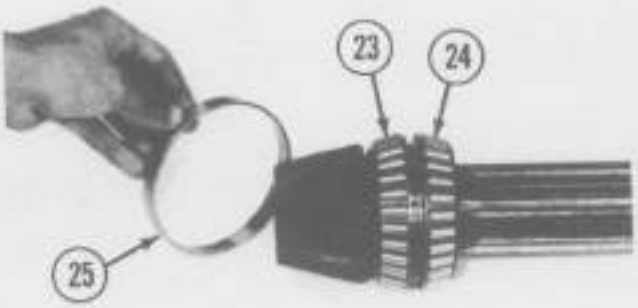
7. Remove cage (21) and shims from transmission case.



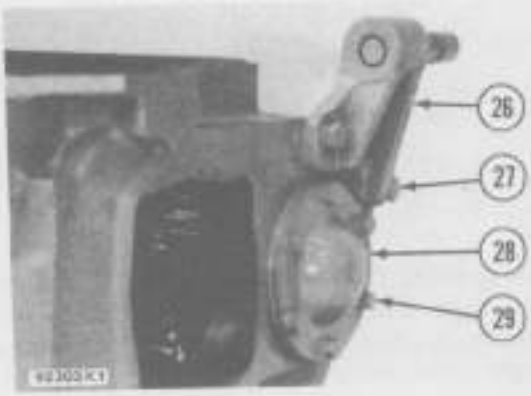
8. Remove bearing cup (22) from the cage.



9. Remove bearing cup (25) from the shaft. Use an arbor press to remove bearing cones (23) and (24) from shaft.



10. Remove six bolts (29) and washers from cover (28). Remove the cover.

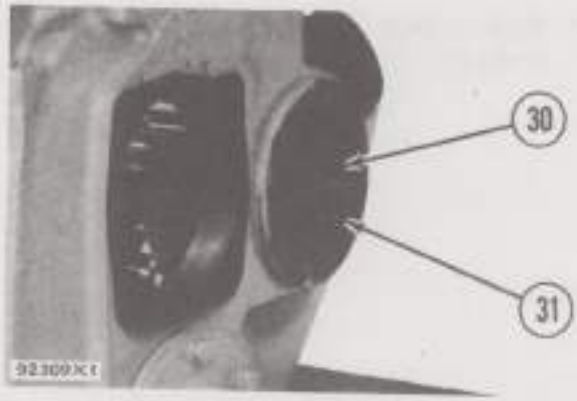


11. Remove three bolts (27) and washers from bracket (26). Remove the bracket.

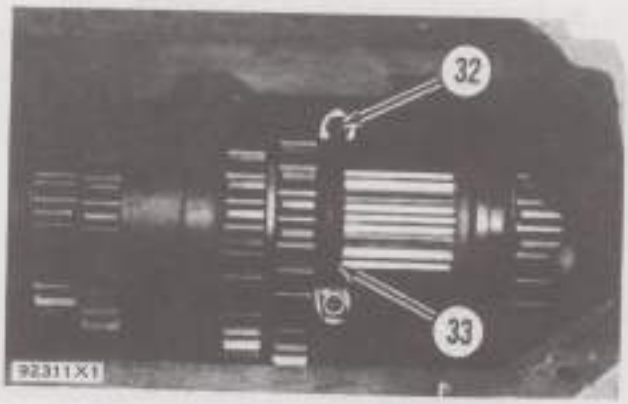
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TRANSMISSION (DIRECT DRIVE & SPECIAL APPLICATION)

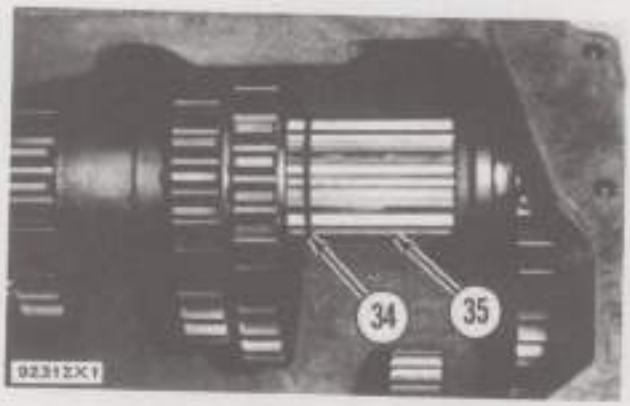
12. Remove two bolts (30), also lock and retainer (31) from the shaft.



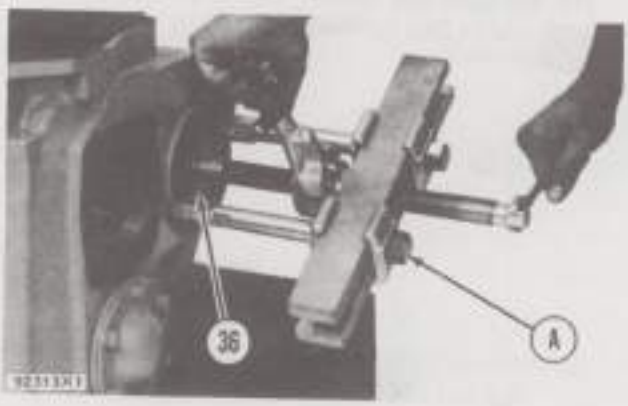
13. Remove two bolts (32) and locks from collar (33). Remove the collar.



14. Slide ring (34) out of the groove on shaft (35).



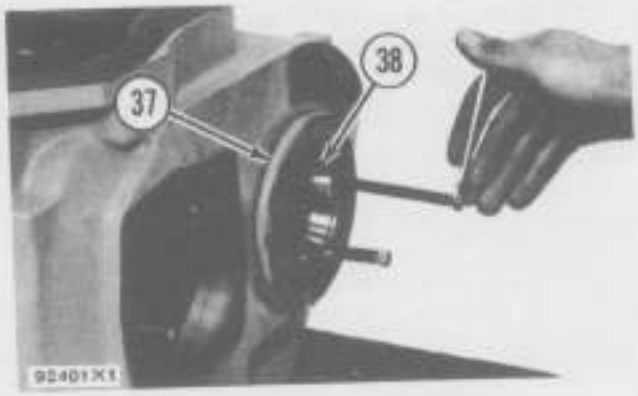
15. Use tooling (A) to push shaft (35) out of the cage. Bearing cone (36) will come off the shaft when pushing the shaft out of the cage.



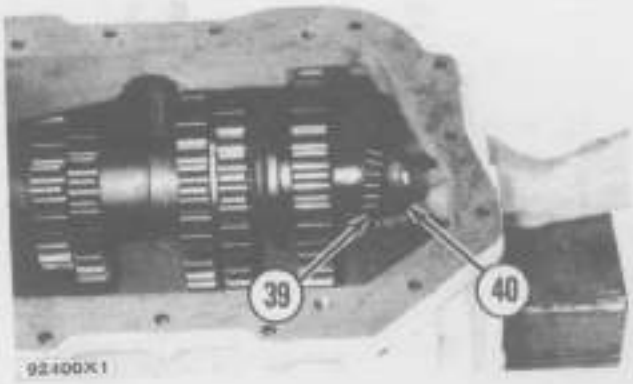
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TRANSMISSION (DIRECT DRIVE & SPECIAL APPLICATION)

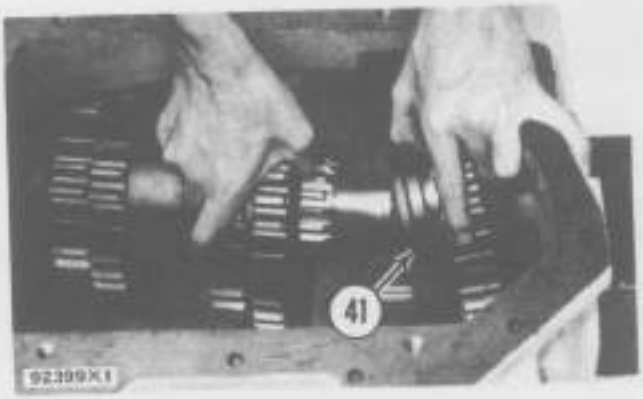
16. Install two 3/8"–16 NC forcing screws in cage (37). Remove the cage from the transmission case. Remove bearing cup (38) from the cage. Remove the O-ring from the cage.



17. Remove ring (40) and bearing cone (39) from the shaft.

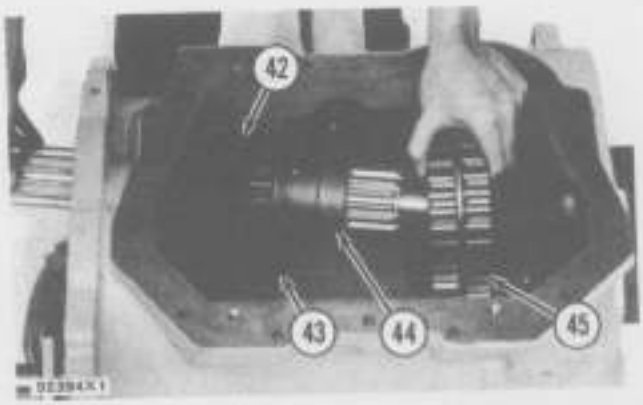


18. Remove gear (41) from the shaft.



19. Remove ring (34) from the shaft.

20. Remove gear (45) and spacer (44) from the shaft.



21. Remove gear (43) and gear (42) from the shaft.

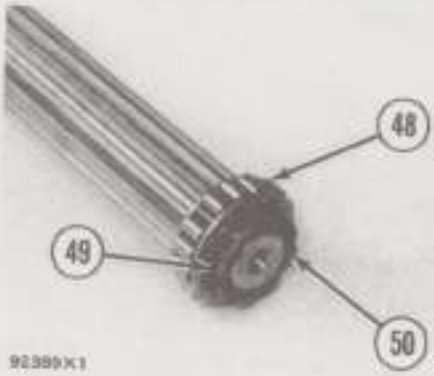
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TRANSMISSION (DIRECT DRIVE & SPECIAL APPLICATION)

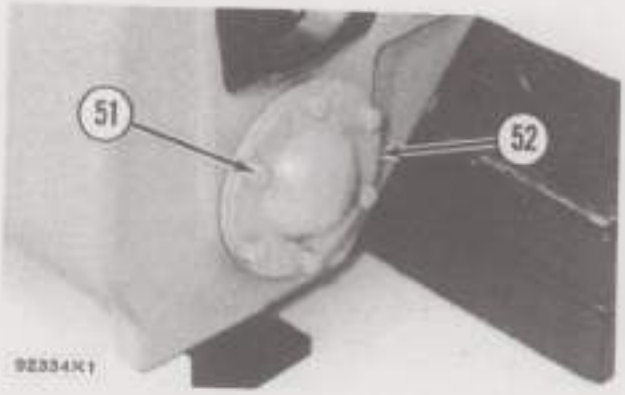
22. Remove spacer (47) and gear (46) from the shaft. Remove the shaft from the transmission case.



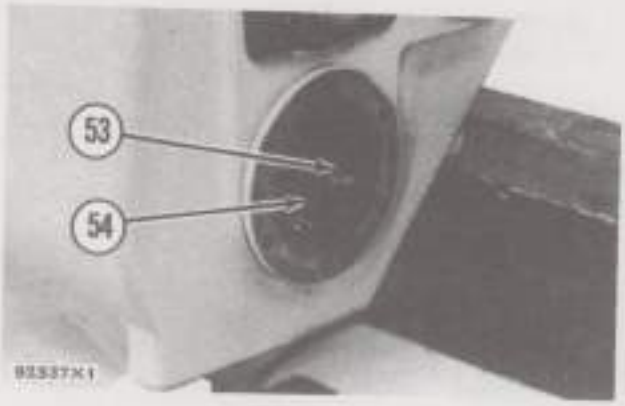
23. Remove ring (49) from nut (50). Remove the nut and roller bearing (48) from the shaft.



24. Remove six bolts (51) and washers from cover (52). Remove the cover.



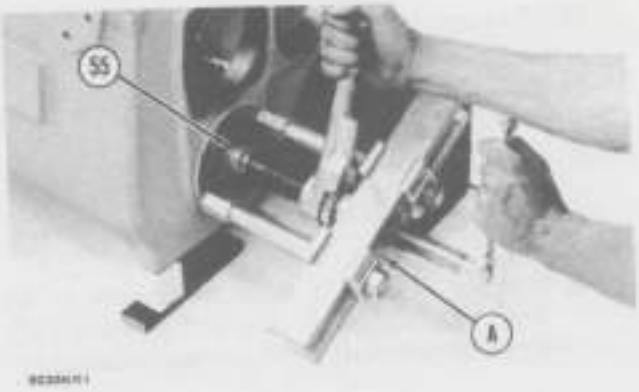
25. Remove two bolts (53), also lock and retainer (54) from the shaft.



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TRANSMISSION (DIRECT DRIVE & SPECIAL APPLICATION)

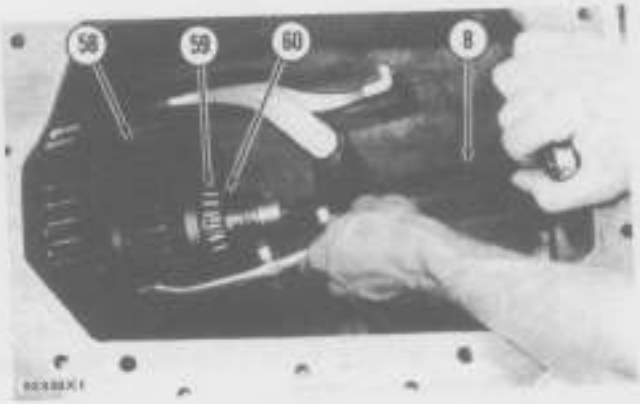
26. Use tooling (A) to push the shaft and remove roller bearing (55) from the cage.



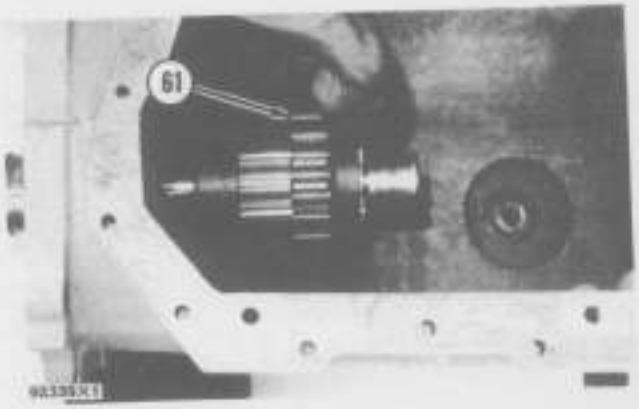
27. Install two 3/8"–16 NC forcing screws in cage (57). Remove the cage from the transmission case. Remove bearing cup (56) from cage. Remove the O-ring from the cage.



28. Use tooling (B) to remove gear (58), bearing cone (59) and ring (60) from the shaft.



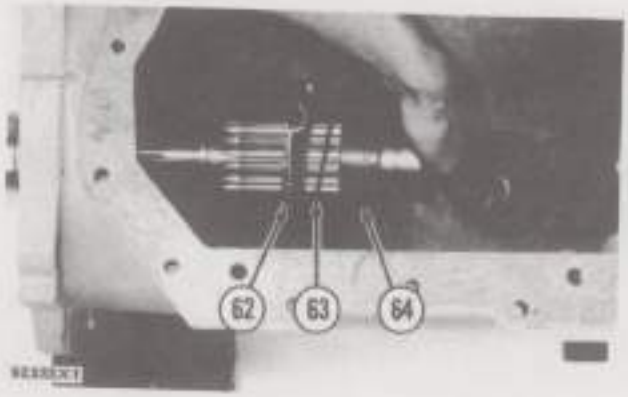
29. Remove gear (61) from the shaft.



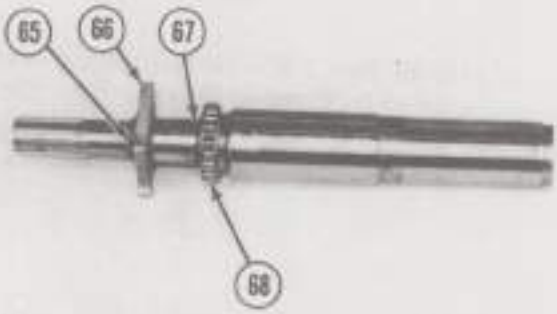
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TRANSMISSION (DIRECT DRIVE & SPECIAL APPLICATION)

30. Remove spacer (64) from the shaft.

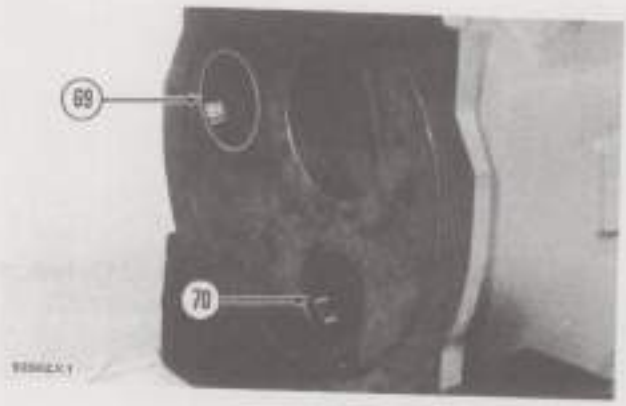


31. Remove ring (63) from the groove in the shaft. Remove the ring and thrower (62). Remove the shaft from the transmission.



32. Remove ring (65) from shaft. Remove thrower (66).

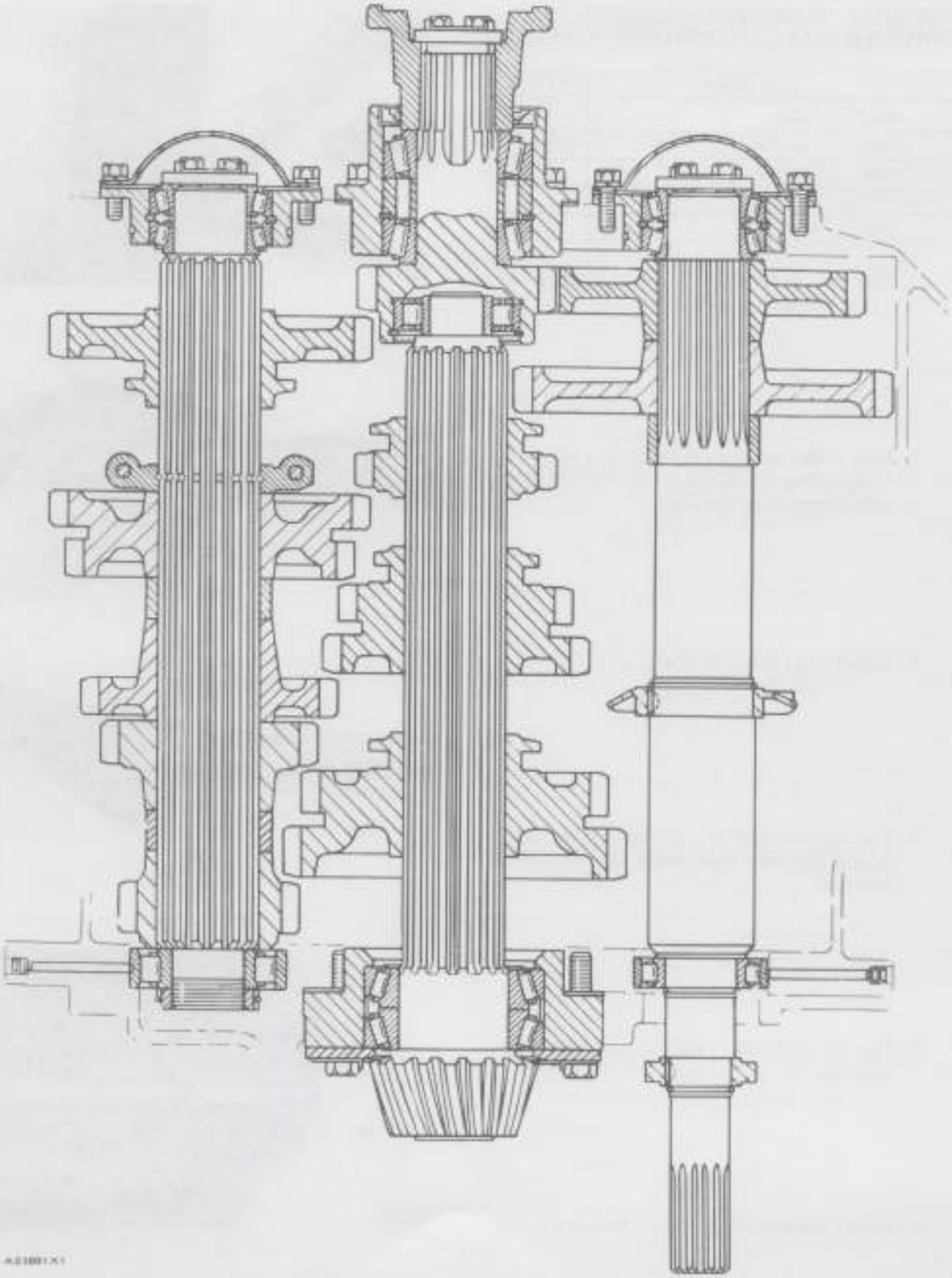
33. Remove ring (67) from shaft. Remove roller bearing (68).



34. Remove bearing races (69) and (70) from the transmission case.

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TRANSMISSION (DIRECT DRIVE & SPECIAL APPLICATION)



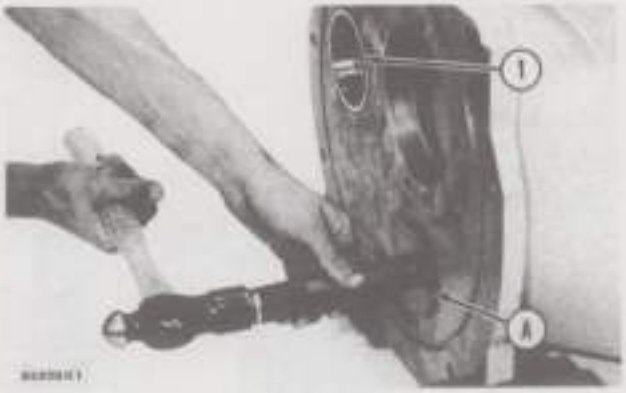
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TRANSMISSION (DIRECT DRIVE & SPECIAL APPLICATION)

ASSEMBLE TRANSMISSION (DIRECT DRIVE & SPECIAL APPLICATION) 16–3050

Tools Needed		A	B	C
1P531	Handle	1	1	1
1P501	Drive Plate	1		
1P496	Drive Plate		1	
1P511	Drive Plate			1
1P491	Drive Plate			1

1. Use tooling (A) to install two bearing races (1) in the transmission case.

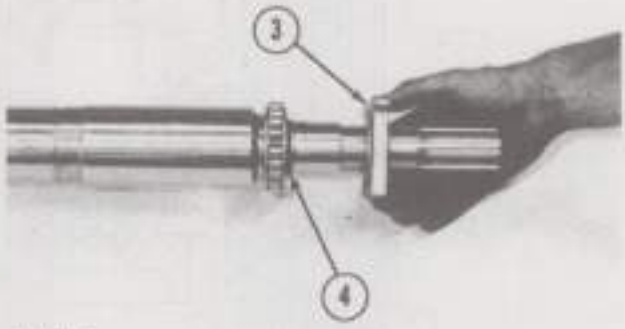


2. Heat roller bearing (2) in oil to a maximum temperature of 275°F (135°C). Install the roller bearing on the shaft.



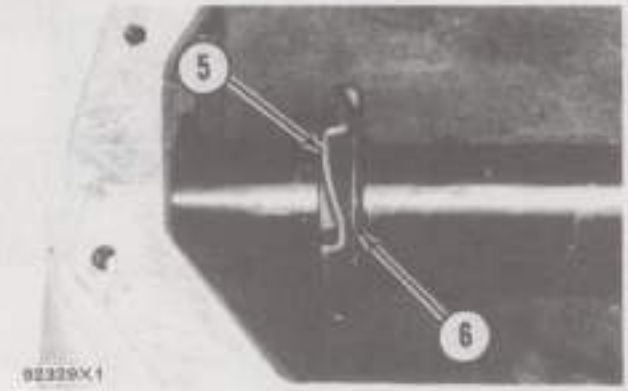
3. Install ring (4) on the shaft.

4. Put thrower (3) in position on the shaft. Install the ring that holds the thrower in position.



5. Put the shaft into position in the transmission case.

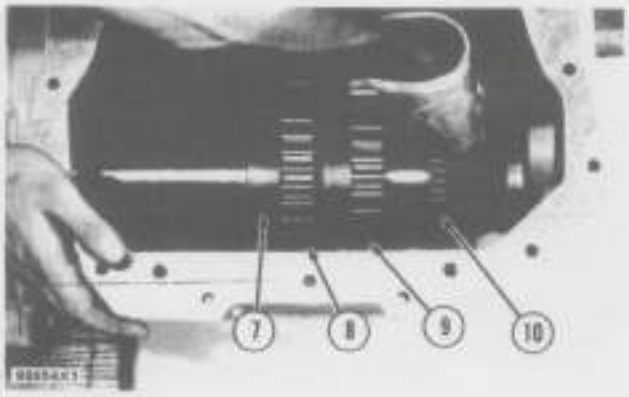
6. Install thrower (5) as shown. Install ring (6).



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TRANSMISSION (DIRECT DRIVE & SPECIAL APPLICATION)

7. Pull the shaft part of the way out of the transmission case.



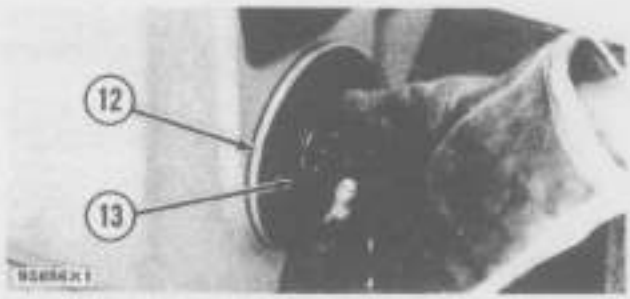
8. Install spacer (7), gear (8) and gear (9).

9. Heat bearing cone (10) in oil to a maximum temperature of 275°F (135°C). Install the bearing cone as shown. Install the ring on the shaft.



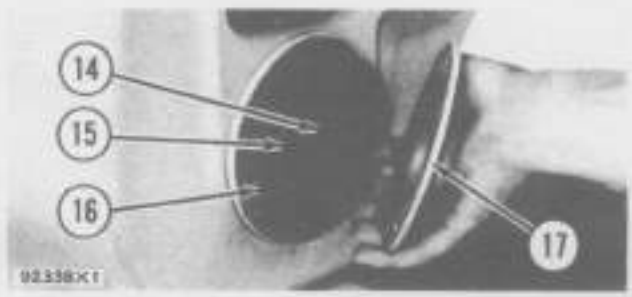
10. Use tooling (B) to install the two bearing races in the cage. Install a new O-ring seal (11).

11. Put a small amount of 1P808 Multipurpose Grease on the O-ring seal on the cage. Put cage (12) into position in the transmission case. Put the end of the shaft in the cage.



12. Heat bearing cone (13) in oil to a maximum temperature of 275°F (135°C). Install the bearing cone on the end of the shaft.

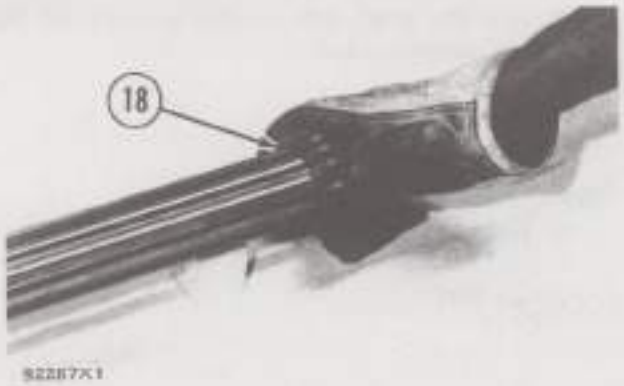
13. Install retainer (15), lock and two bolts (14). Install gasket (16) and cover (17). Install the six bolts and washers that hold the cover and cage in position. Tighten the bolts to a torque of 35 ± 3 lb.ft. (4.8 ± 0.4 mkg).



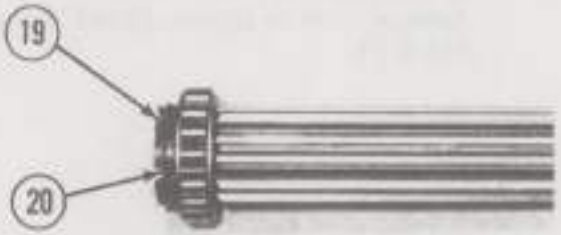
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TRANSMISSION (DIRECT DRIVE & SPECIAL APPLICATION)

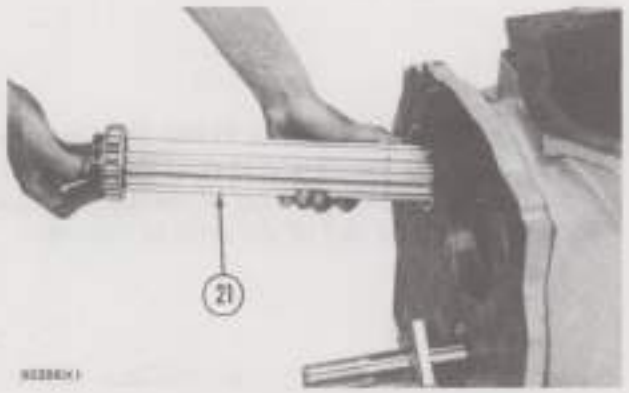
14. Heat roller bearing (18) in oil to a maximum temperature of 275°F (135°C). Install the bearing on the shaft.



15. Install nut (19) on the end of the shaft. Drill a .094 in. (2.39 mm) diameter hole .25 in. (6.35 mm) in depth in a groove of nut (19) and into the shaft. Install ring (20) in the hole and in the groove on the shaft.



16. Put shaft (21) part of the way into the transmission case.



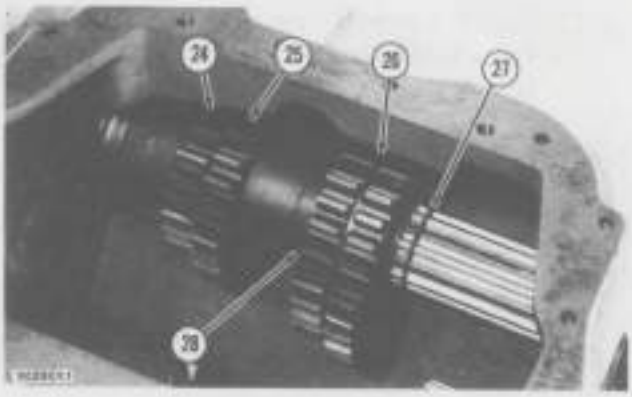
17. Install gear (23) and spacer (22) on the shaft.



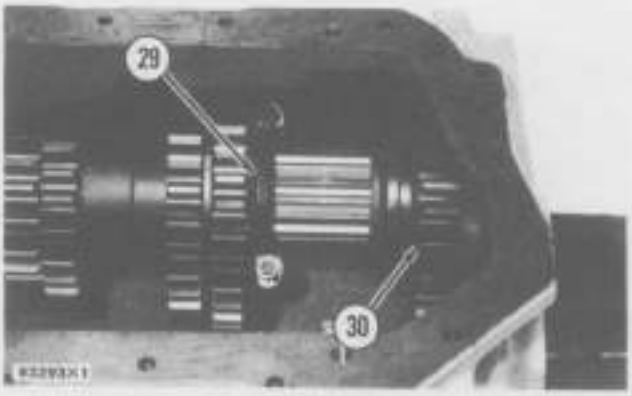
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TRANSMISSION (DIRECT DRIVE & SPECIAL APPLICATION)

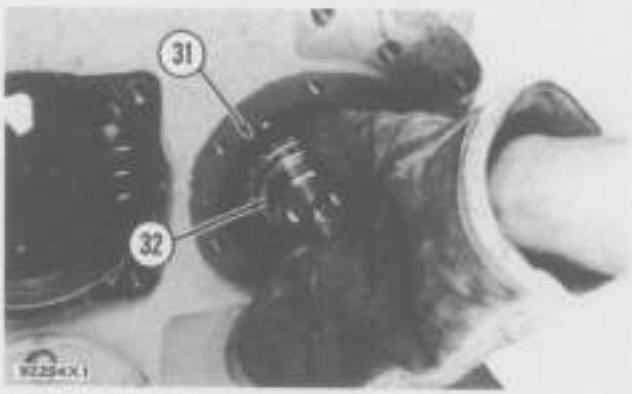
18. Install gear (24), gear (25), spacer (28), gear (26) and ring (27) on the shaft.



19. Install gear (30) on the shaft.



20. Put collar (29) in position on the shaft over ring (27). Install the two bolts, locks and nuts that hold the collar in position.



21. Heat bearing cone (31) in oil to a maximum temperature of 275°F (135°C). Install the bearing cone and ring (32) on the shaft.



22. Use tooling (B) to install the two bearing cups in cage (33).

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TRANSMISSION (DIRECT DRIVE & SPECIAL APPLICATION)

23. Install a new O-ring seal (34) on the cage. Put a small amount of 1P808 Multipurpose Grease on the O-ring seal. Put the cage in position in the transmission case.

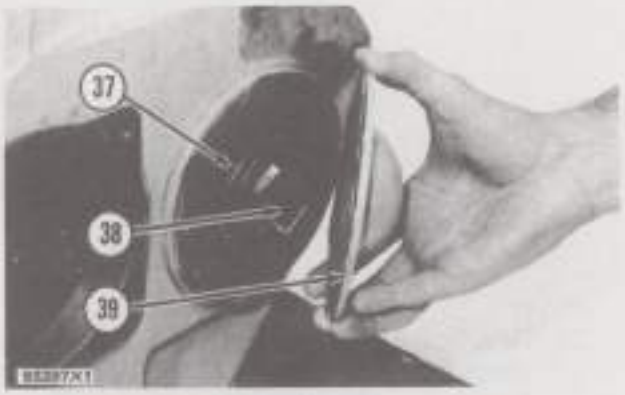


24. Temporarily install two bolts (36) in the cage to hold it tight against the transmission case.



25. Heat bearing cone (35) in oil to a maximum temperature of 275°F (135°C). Install the bearing cone on the shaft.

26. Remove the two bolts from the cage.



27. Install retainer (37), lock and two bolts (38) in the shaft.

28. Put cover (39) and gasket in position on the cage. Install the six bolts and washers that hold the cover and cage in position. Tighten the bolts to a torque of 35 ± 3 lb.ft. (4.8 ± 0.4 mkg).

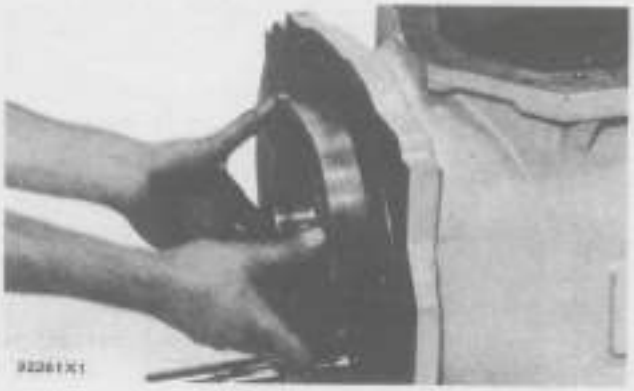


29. Install bearing cup (40) in the cage. Make sure the bearing cup is installed against the counterbore in the cage.

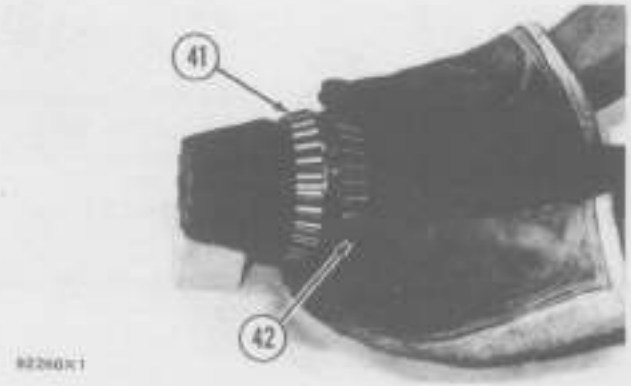
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TRANSMISSION (DIRECT DRIVE & SPECIAL APPLICATION)

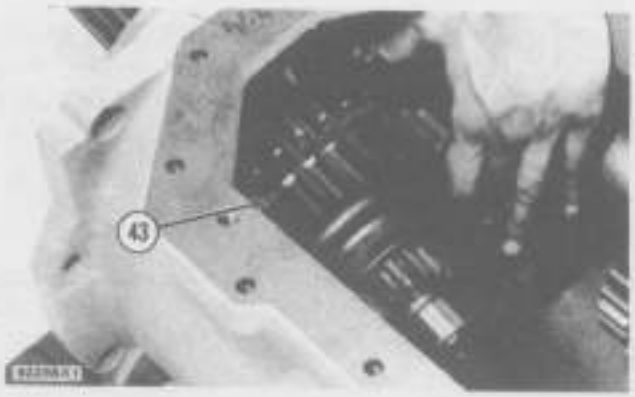
30. Temporarily install the cage in the transmission case. Use two bolts as guides for installing the cage.



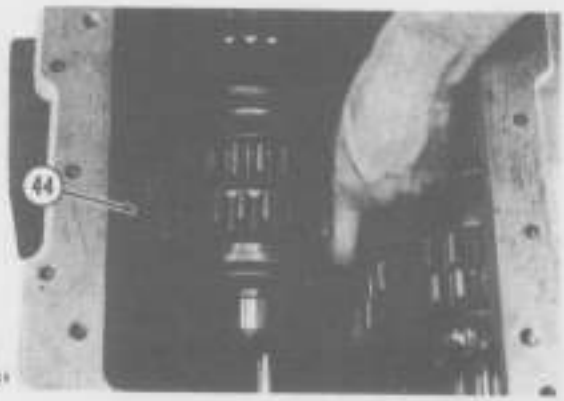
31. Heat the bearing cones (41) and (42) in oil to a maximum temperature of 275°F (135°C). Install the bearing cones on the shaft as shown.



32. Put the shaft in the transmission case. Install gear (43) on the shaft as shown.



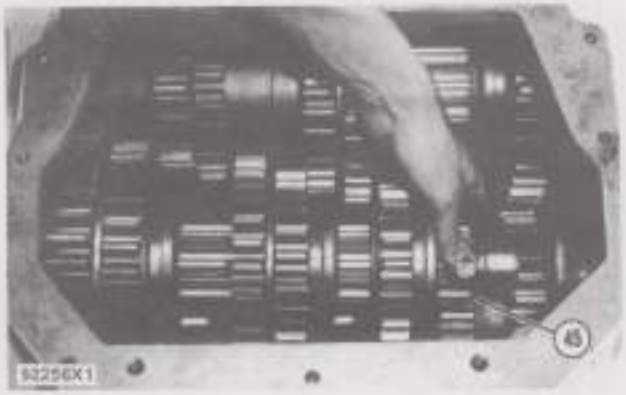
33. Install gear (44) on the shaft.



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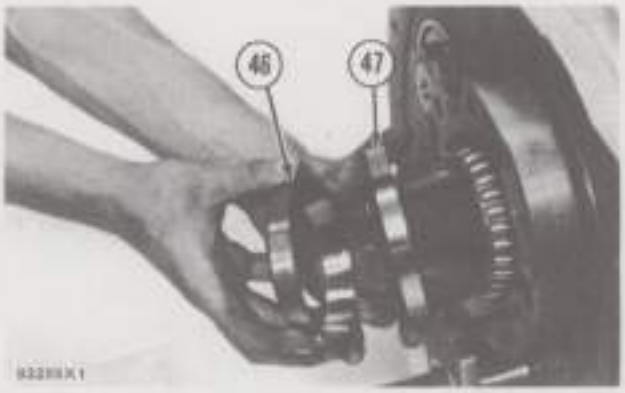
TRANSMISSION (DIRECT DRIVE & SPECIAL APPLICATION)

34. Install gear (45) on the shaft.



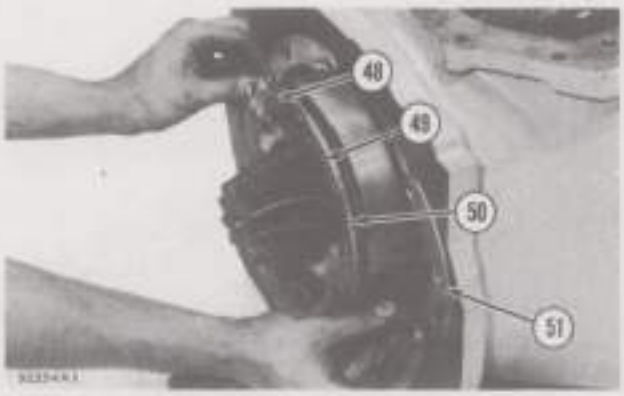
NOTE: Make sure all of the gears in the transmission are in the positions shown.

35. Push the shaft all of the way into the transmission. Install ring (47) and bearing cup (46) in the cage.



36. Pull the cage away from the transmission case. Install shims (51) behind the cage.

37. Install the retainer (50), two locks (49) and eight bolts (48) in the cage.



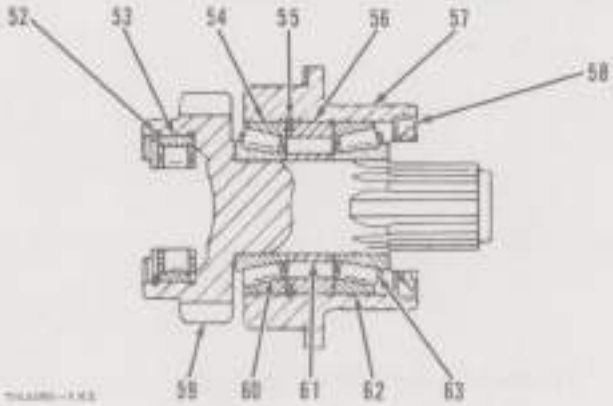
38. Install ring (55) in cage (57). Push bearing cup (54) into the cage as shown. Push spacer (56) and bearing cup (62) in cage as shown.

39. Heat bearing cone (60) to a maximum temperature on 275°F (135°C). Install the bearing cone and spacer (61) on the pinion (59).

40. Put the pinion (59) into the cage in the position shown. Heat bearing cone (63) to maximum temperature of 275°F (135°C). Install the bearing cone on the pinion.

41. Install bearing (53) and ring (52).

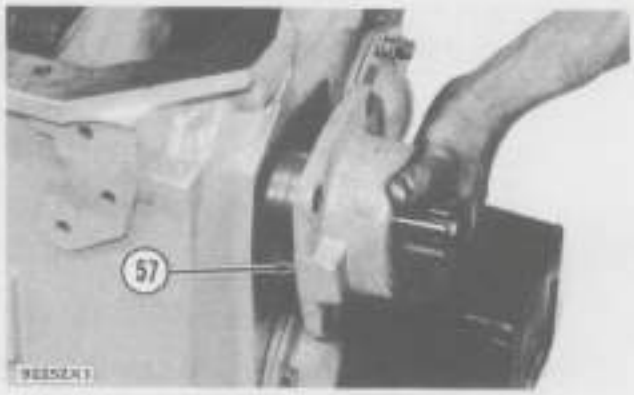
42. Install seal (58) with the lip of the seal toward the inside of the cage.



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TRANSMISSION (DIRECT DRIVE & SPECIAL APPLICATION)

43. Put the gasket, pinion and cage (57) into position in the transmission case.



44. Install the four bolts and washers that hold the pinion and cage in position. Tighten the bolts to a torque of 85 ± 5 lb.ft. (11.8 ± 0.7 mkg).

45. Install bracket (64).



46. Install the three bolts and washers that hold the bracket in position.

end by:

a) install transmission (direct drive & special application)

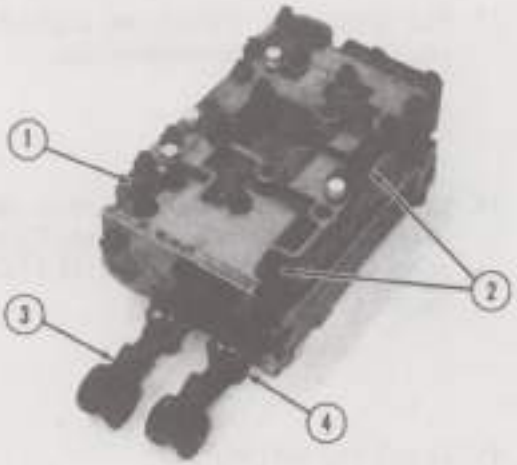
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TRANSMISSION HYDRAULIC CONTROLS (POWER SHIFT)

DISASSEMBLE TRANSMISSION HYDRAULIC CONTROLS (POWER SHIFT) 15–3152 & 3157

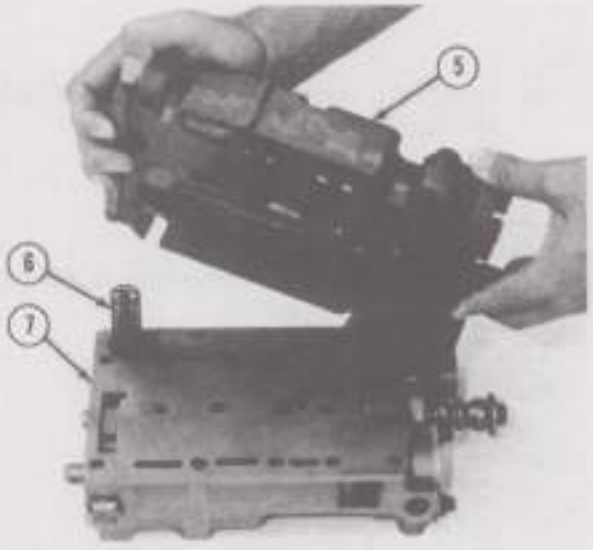
start by:

a) remove transmission hydraulic controls. See DISASSEMBLE TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)



1. Remove two links (4) and two levers (3) from the two valve spools.

2. Remove eighteen bolts (2) and washers from the pressure control valve.

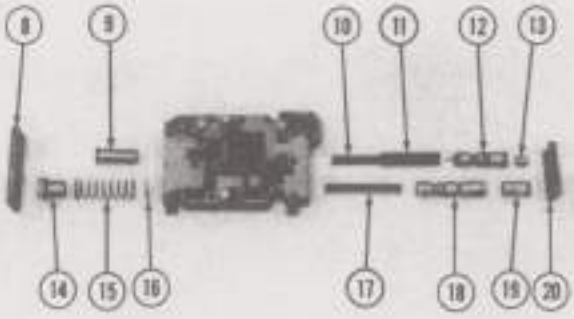


3. Remove ring (1) from the poppet.

4. Remove pressure control valve (5).

5. Remove poppet and spring (6).

6. Remove plate (7).



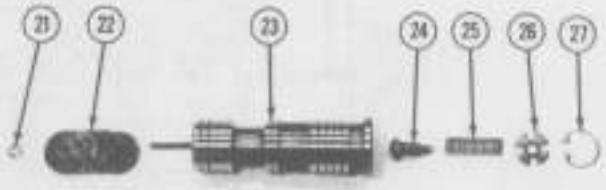
7. Remove the three bolts from cover (8). Remove the cover and seal. Remove piston (9). Remove plug (14) and seal. Remove spring (15) and washer (16).

8. Remove the four bolts from plate (20). Remove the plate. Remove stop (19), valve spool (18), and spring (17) from the pressure control valve. Remove slug (13), valve spool assembly (12), spring (11), and spring (10).

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TRANSMISSION HYDRAULIC CONTROLS (POWER SHIFT)

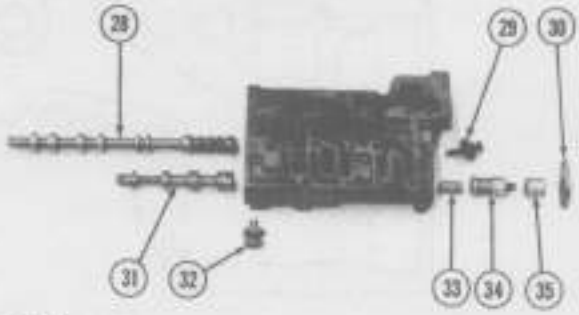
9. Disassemble valve spool assembly (12) as follows:
   a) Remove ring (27) from valve spool (23). Remove retainer (26), spring (25), and plungers (24) from the valve spool.
   b) Remove ring (21). Remove spacers (22) from valve spool (23).



10. Remove bolt (29) and two washers. Remove valve spool (28).

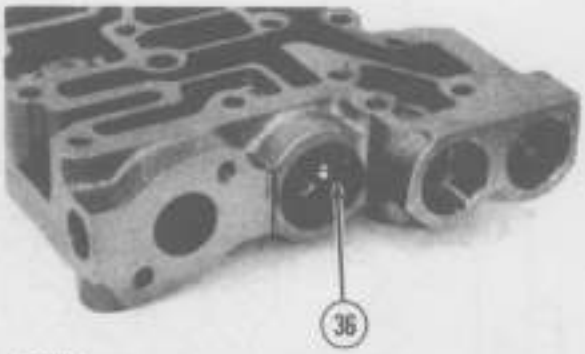
11. Remove the two bolts from cover (30). Remove the cover.

12. Remove plug (32) and lock from the selector valve body. Remove valve spool (31).



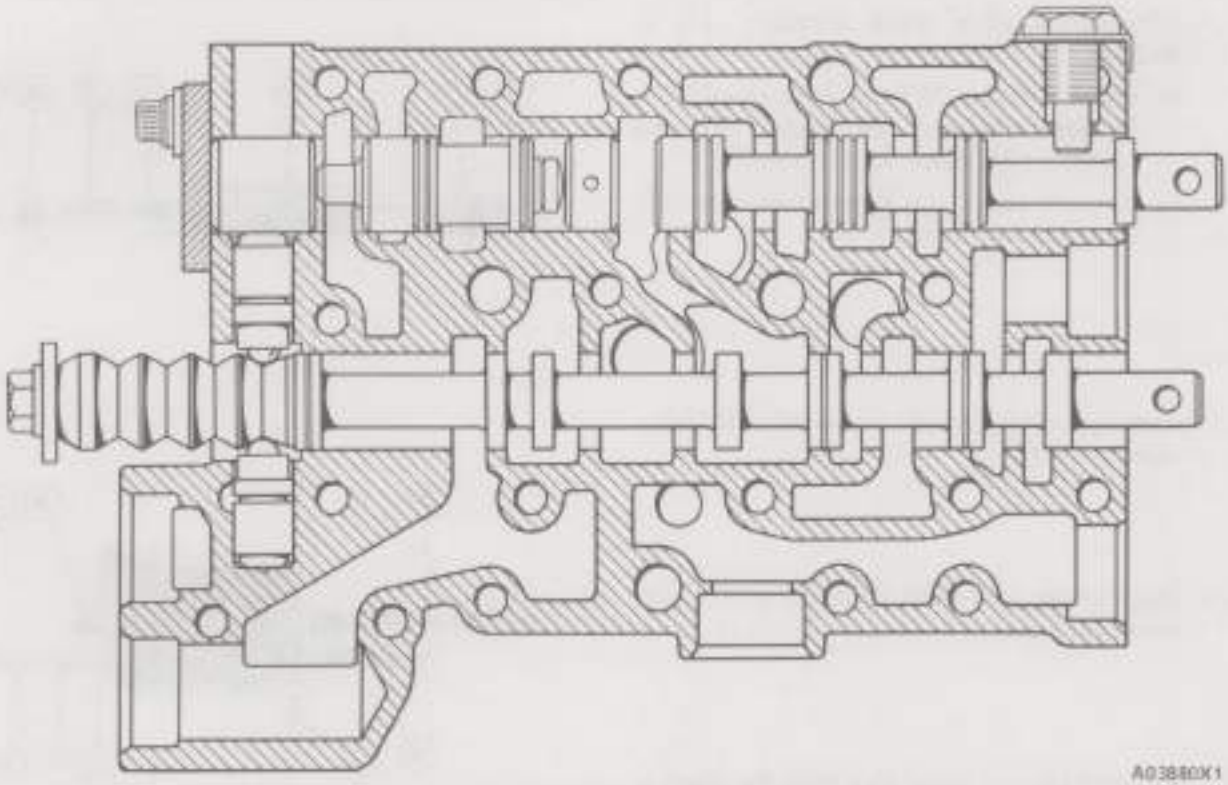
13. Remove stop (35), valve spool (34), and slug (33) from the selector valve body.

14. Remove two detent assemblies (36) from the selector valve body.



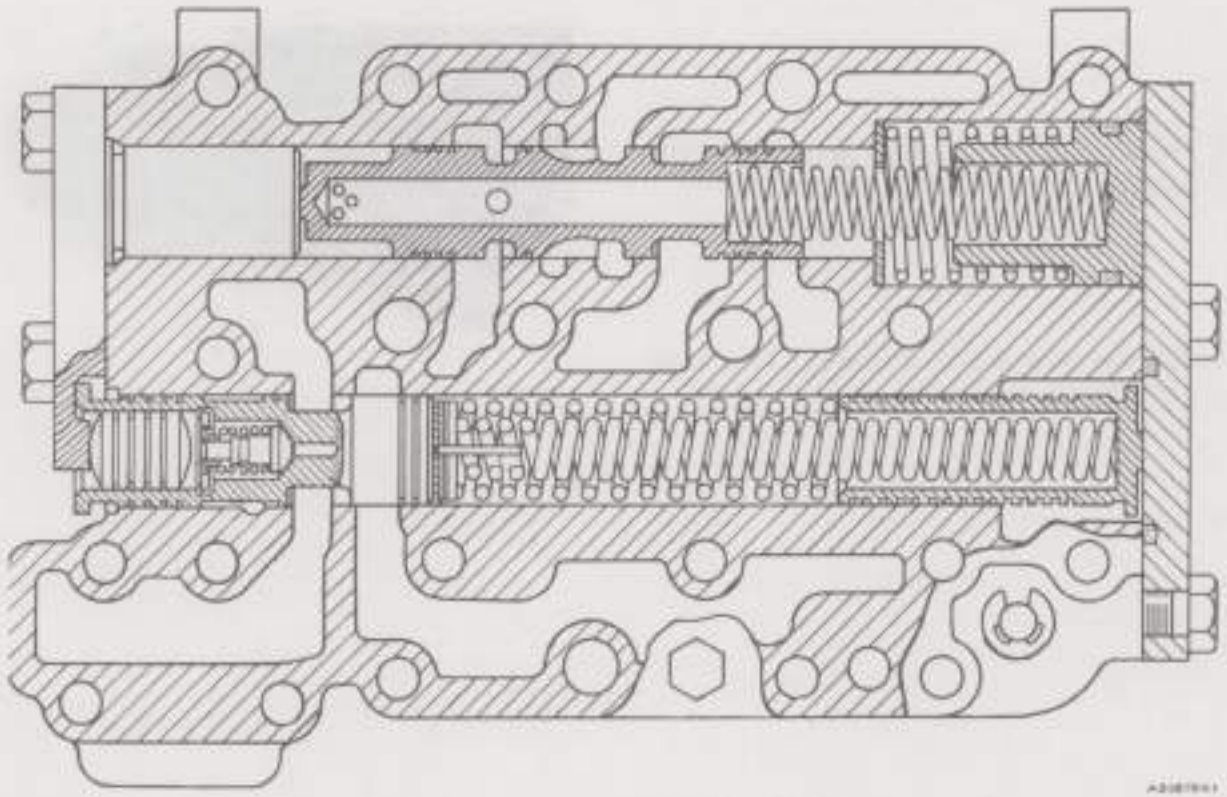
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TRANSMISSION HYDRAULIC CONTROLS (POWER SHIFT)



A03880X1

SELECTOR CONTROL VALVE



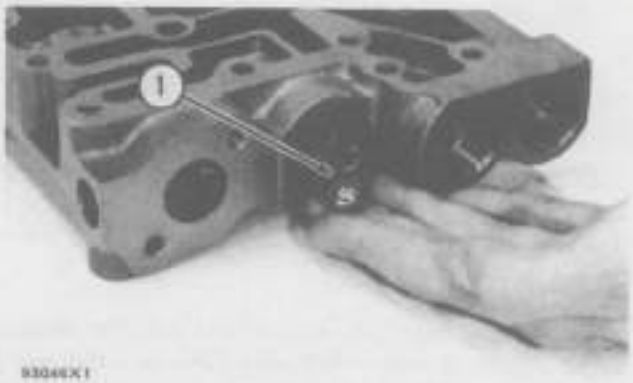
PRESSURE CONTROL VALVE

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TRANSMISSION HYDRAULIC CONTROLS (POWER SHIFT)

ASSEMBLE TRANSMISSION HYDRAULIC CONTROLS (POWER SHIFT) 16–3152 & 3157

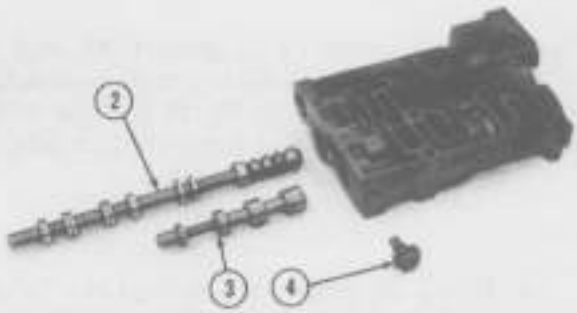
NOTE: Make sure all of the parts of the transmission hydraulic controls are clean and free of dirt. Put small amount of SAE 30 oil on all parts.



93046X1

1. Install two detent assemblies (1) in the selector valve body.

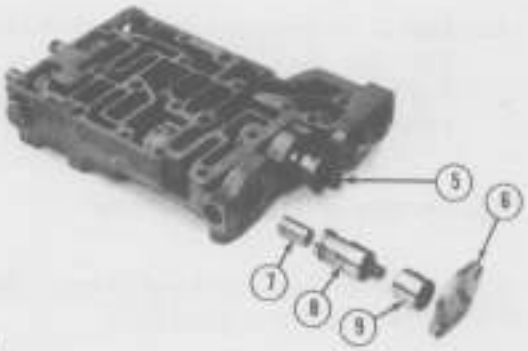
2. Install valve spool (2) and valve spool (3) into the selector valve body. Install plug (4) and lock.



93047X1

3. Install bolt (5) and two washers in the valve spool. Tighten the bolt to a torque of 22 ± 3 lb.ft. (3.0 ± 0.4 mkg).

4. Put slug (7) in valve spool (8). Install the valve spool in the selector valve body. Install stop (9). Put cover (6) in position on the selector valve body. Install the two bolts that hold the cover in position.

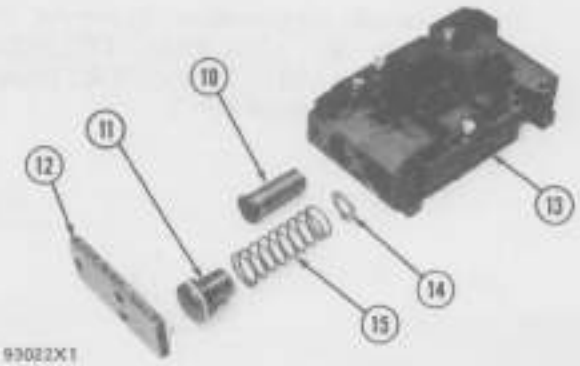


93048X1

5. Install piston (10) into pressure control body (13).

6. Install washer (14) and spring (15).

7. Put a new seal on plug (11). Install the plug in the pressure control body.



93022X1

8. Put a new seal in cover (12). Put the cover in position on the pressure control body.

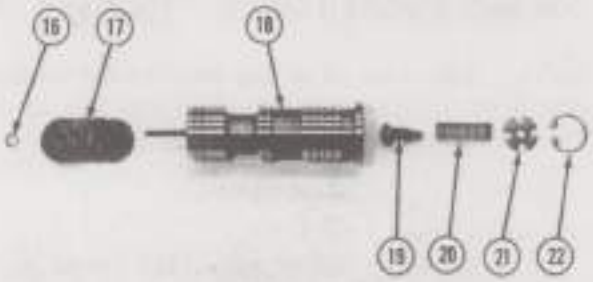
9. Install the three bolts that hold the cover in position. Tighten the bolts to a torque of 35 ± 3 lb.ft. (4.8 ± 0.4 mkg).

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TRANSMISSION HYDRAULIC CONTROLS (POWER SHIFT)

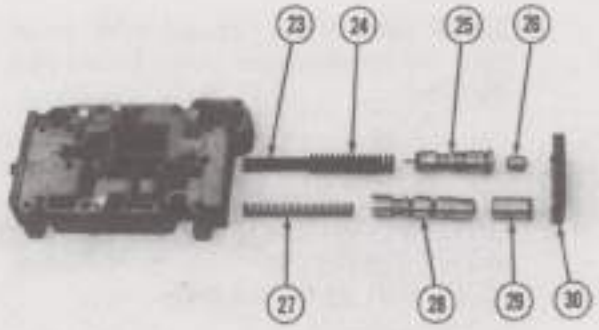
10. Put spacers (17) on valve spool (18). Install ring (16).

11. Install plunger (19), spring (20), and retainer (21). Install ring (22) in the valve spool.



12. Install springs (23) and (24) into the pressure control body. Put slug (26) in valve spool assembly (25). Install the valve spool assembly.

13. Install spring (27), spool (28), and stop (29). Put cover (30) in position on the pressure control body. Install the four bolts in the cover. Tighten the bolts to a torque of 35 ± 3 lb.ft. (4.8 ± 0.4 mkg).

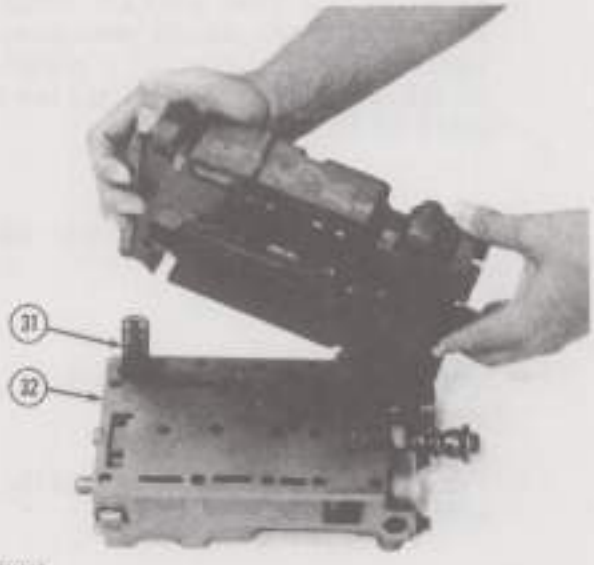


14. Install the poppet and spring (31). Put plate (32) in position on the selector control valve. Install the pressure control valve.

15. Install the eighteen bolts and washers that hold the pressure control valve to the selector control valve. Tighten the bolts to a torque of 22 ± 3 lb.ft. (3.0 ± 0.41 mkg).

16. Install the ring on the poppet.

17. Install the two levers and links on the spools of the selector control valve.



end by:

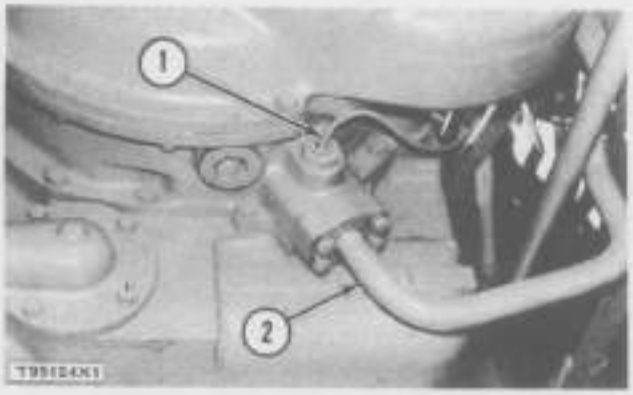
a) install transmission hydraulic controls See ASSEMBLE TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

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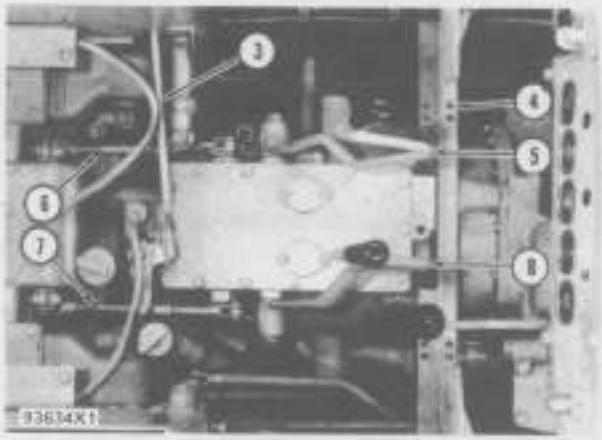
TORQUE CONVERTER, TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

REMOVE TORQUE CONVERTER, TRANSMISSION, AND TRANSFER GEARS AS A UNIT 11–3100 & 3176

start by:
a) remove seat and front support
b) remove flexible coupling drive

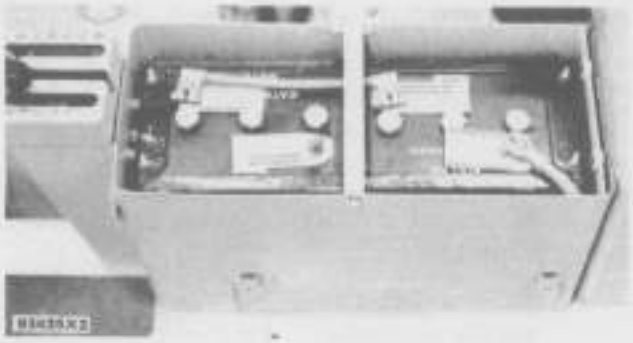


1. Remove the oil from the transmission and the bevel gear case.



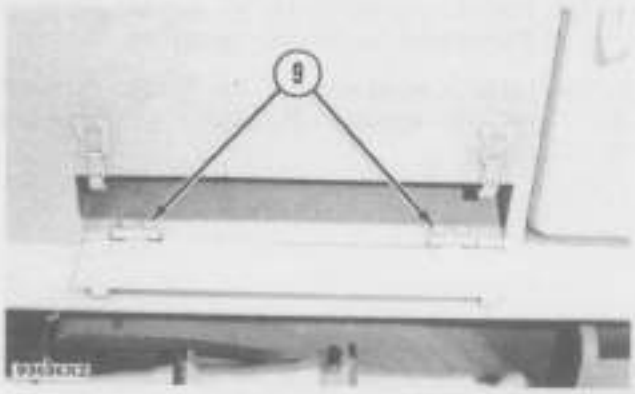
2. Remove line (1) and tube (2) from torque converter.

3. Disconnect rods (6) and (7) from steering clutch levers (5) and (8). Remove steering clutch levers (5) and (8). Remove rods (6) and (7).



4. Disconnect rod (3) from the bellcrank.

5. Remove support (4) from the tractor.



6. Remove the batteries from the battery box. Remove all the nuts and bolts that hold the battery box to the fender.

7. Remove four bolts (9) and nuts from the battery box. Put the battery box and directional control column on the track of the machine.

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TORQUE CONVERTER, TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

8. Remove tubes (12), (16), and (20) from the transmission.

9. Disconnect springs (13) and (18) from brake pedals (14) and (19). Remove rods (11) and (17). Remove ratchet (21) and the two brake pedals.

10. Remove cover (15) from the transmission oil filter. Put plugs in the case to prevent foreign material going in the torque converter or transmission.

11. Remove six of the ten bolts (10) from the transfer gear case.

12. Install two 3/4"–10 NC forged eyebolts in the transmission case. Fasten a hoist to the transmission. Weight of the unit is 1100 lb. (499 kg).

13. Put a floor jack in position under the transmission and remove the last four bolts from the transfer gear case. Pull the unit out of the bevel gear case and lower the floor jack.

NOTE: The transmission will be at an angle.

14. Remove the transmission.

15. Install a 3/4"–10 NC forged eyebolt in the case of the torque converter.

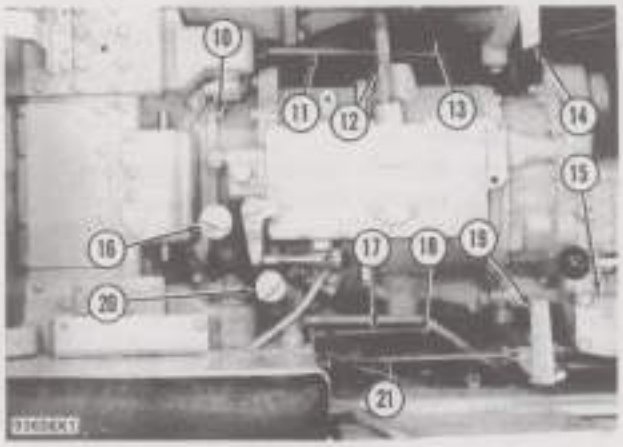
16. Remove tube (23) from the transmission and torque converter.

17. Fasten a hoist to the torque converter. Weight of the torque converter is 300 lb. (136 kg).

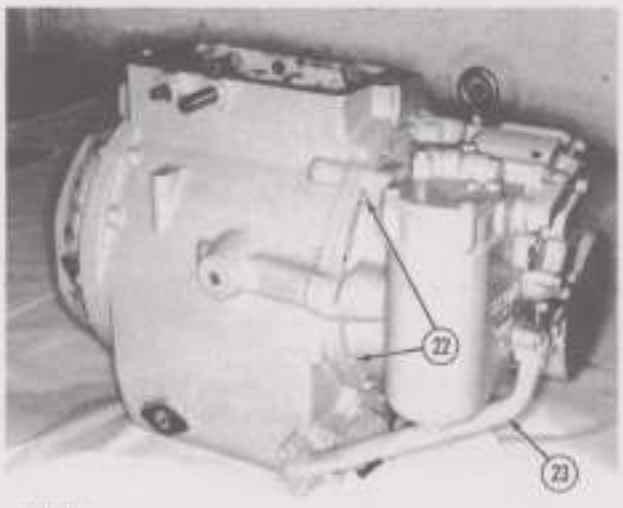
18. Remove fifteen bolts (22) and washers from torque converter.

19. Install two 3/8"–16 NC forcing screws in the case of the torque converter.

20. Make a separation of the torque converter and transmission. Remove the torque converter.





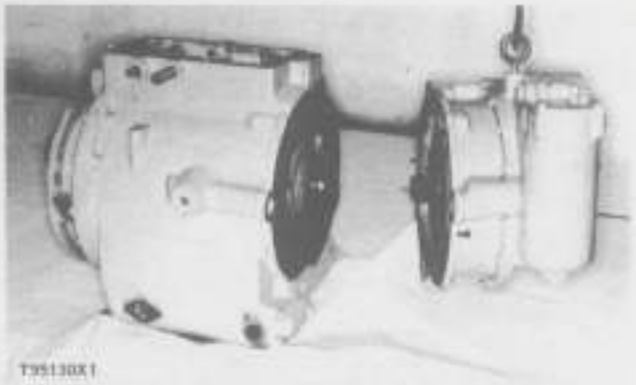


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TORQUE CONVERTER, TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

INSTALL TORQUE CONVERTER, TRANSMISSION, AND TRANSFER GEARS AS A UNIT 12–3100 & 3176

1. Install a 3/4"–10 NC forged eyebolt in the torque converter case. Fasten a hoist to the torque converter. Put the torque converter in position on the transmission.

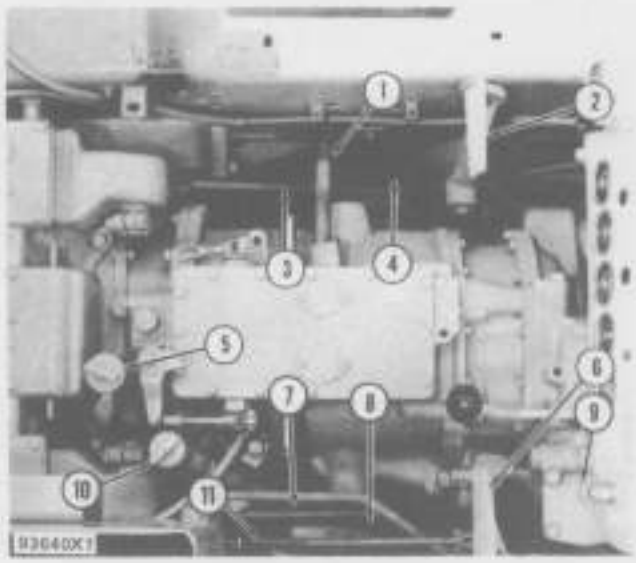

T95130X1

2. Install the fifteen bolts and washers that hold the torque converter in position. Connect the oil tube to the transmission and torque converter.

3. Install two 3/4"–10 NC forged eyebolts in the transmission case. Fasten a hoist to the unit. Lower the unit in the tractor at an angle. Put a floor jack under the transmission. Lift the unit with the floor jack until it is level. Push the unit into the bevel gear case. Install the ten bolts and washers that hold the unit to the bevel gear case.


93638X1

NOTE: If a new pinion shaft is installed in the transmission, new shims must be installed between the bearing cage and transfer gear case. SEE BEVEL GEAR AND BEVEL PINION SHAFT SETTINGS for the correct adjustment of the pinion shaft.



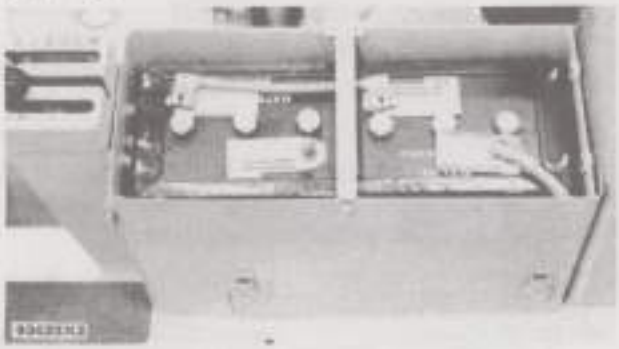
93640X1

4. Install tube (1). Install the two brake pedals (2) and (6). Connect rods (3) and (7) to the brake pedals. Connect the two springs (4) and (8) to the brake pedals. Install tubes (5) and (10) on the transmission. Install ratchet (11). Install cover (9) on transmission oil filter.

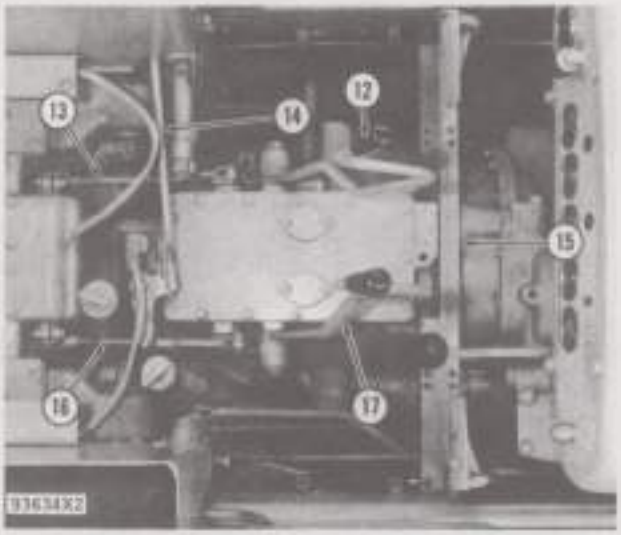
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TORQUE CONVERTER, TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

5. Put the battery box and directional control column in position on the fender. Install the bolts and nuts that hold the battery box in position. Install the batteries and cables. See BATTERIES AND BATTERY BOXES for the correct installation.

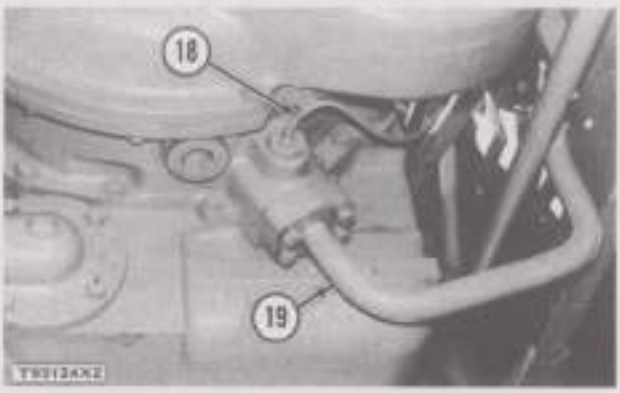


6. Install the steering clutch levers (12) and (17). Connect rods (16) and (13) to the steering clutch controls and the steering clutch levers. Connect rod (14) to the bell-crank. Install support (15) between the fenders.



7. Connect tube (19) to the torque converter. Install line (18) in the torque converter.

8. Fill the transmission and bevel gear case to the correct level with SAE 30 oil. See LUBRICATION AND MAINTENANCE GUIDE.



end by:

a) install flexible coupling drive
b) install seat and front support

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TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

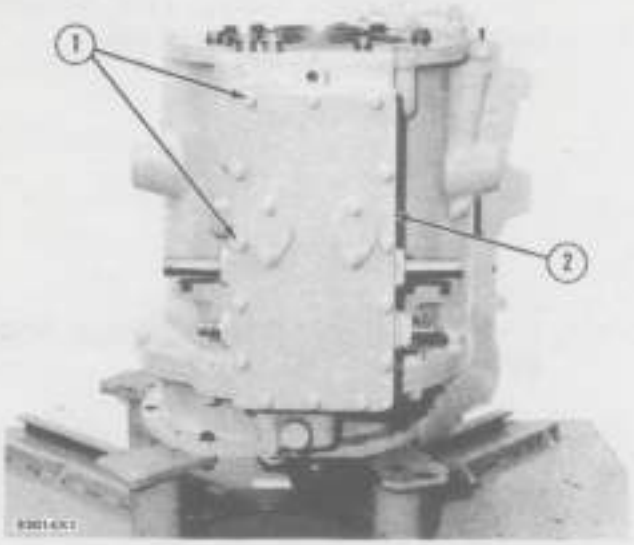
DISASSEMBLE TRANSMISSION AND TRANSFER GEARS (POWER SHIFT) 15–3176

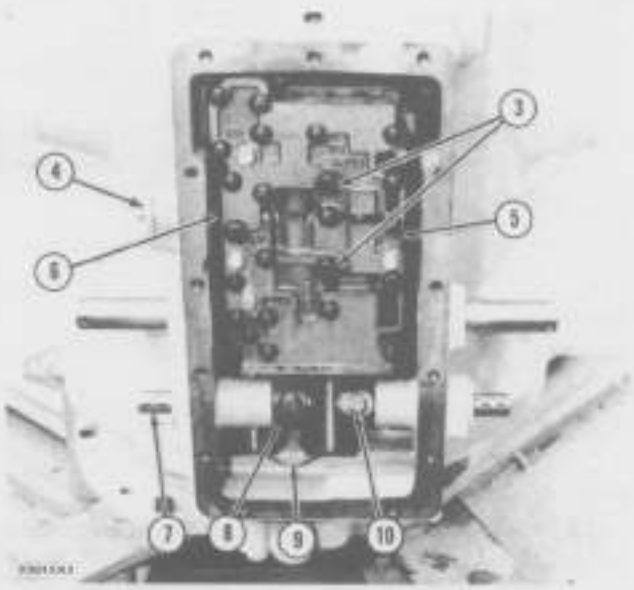
Tools Needed		A	B	C	D	E	F	G
1P2420	Transmission Repair Stand	1						
FT833	Locking Plier		2					
1P531	Handle			1				
1P511	Drive Plate			1				
1P496	Drive Plate			1				
1P532	Handle				1	1		
1P522	Drive Plate				1			
1P497	Drive Plate				1			
1P527	Drive Plate					1		
1P523	Drive Plate					1		
887548	Puller Assembly						1	
8H683	Bearing Puller Attachment						1	
8H684	Ratchet Box Wrench						1	
T774	Step Plate						1	
556401	Spacer							2

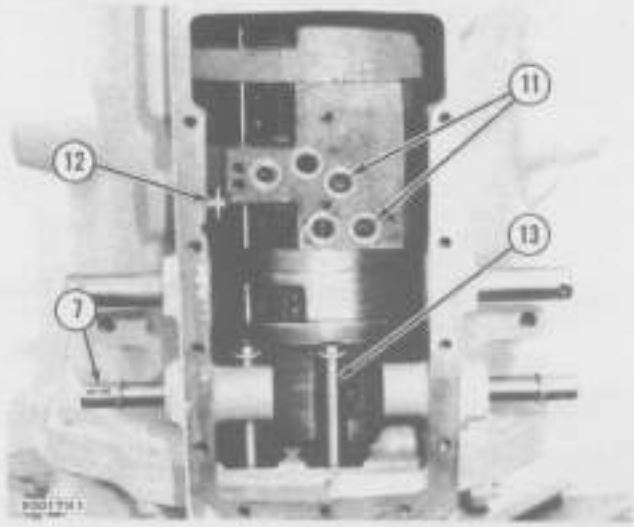
start by:

a) remove torque converter, transmission and transfer gears as a unit

1. Put the transmission and transfer gears on stand (A).
2. Remove fourteen bolts (1) and washers from cover (2). Remove the cover and gasket.
3. Remove clip (9) from the two sleeves.
4. Remove the two sleeves from the top of the hydraulic control.
5. Remove two bolts (10) from the levers.
6. Slide two shafts (7) out of the transmission case far enough to remove levers (8).
7. Remove cover (4).
8. Remove ring (6) from the sleeve in the side of the hydraulic control. Remove the sleeve.
9. Remove four bolts (3) and washers from the hydraulic control. Remove hydraulic control (5).
10. Remove five O-rings (11). Remove two sleeves (13) and two shafts (7) from transmission case.
11. Remove sleeve (12) from transmission case.



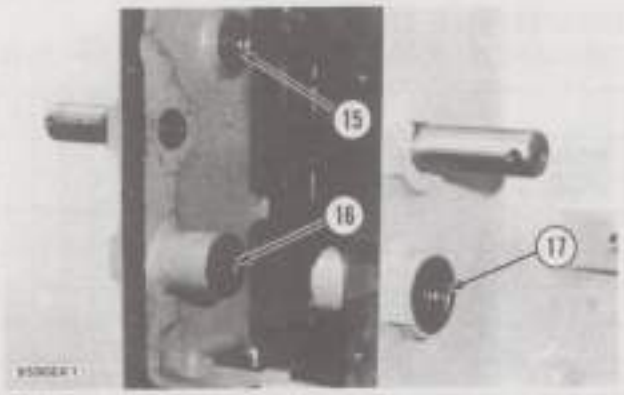




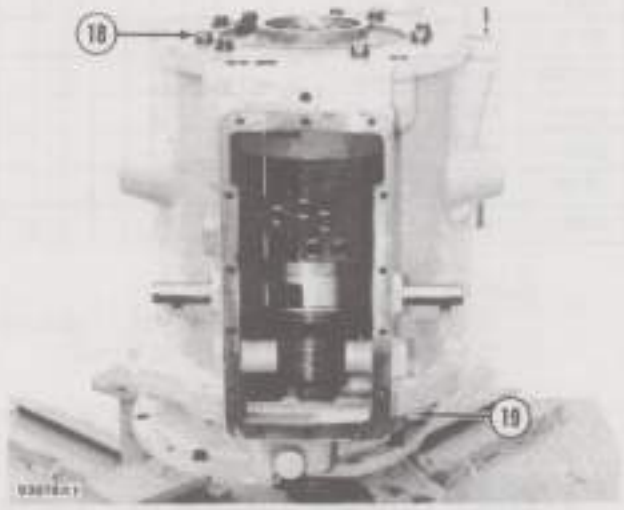
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TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

12. Remove two seals (17) from the transmission case. Remove bushings (16). Remove bushing (15) from transmission case.

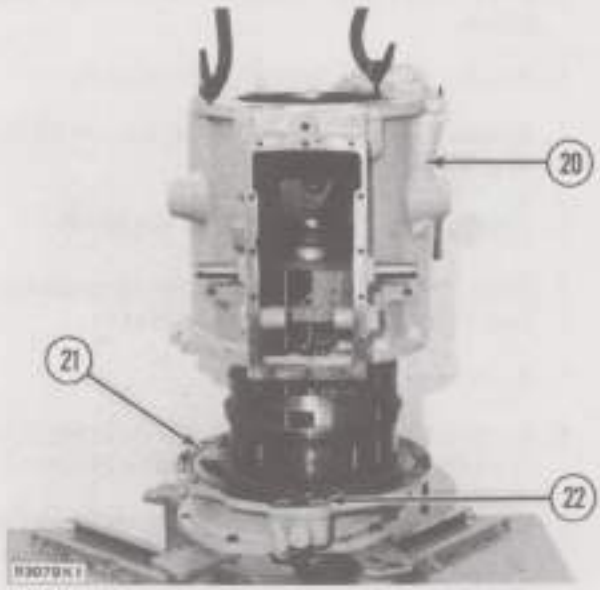


13. Remove nine bolts (18) and washers from the transmission case.



14. Remove twelve bolts (19) and washers that hold the transfer case to the transmission case.

15. Install two 1/2"–13 NC forged eyebolts in the transmission case. Fasten a hoist to the transmission case (20). Remove the transmission case. Weight of the transmission case is 200 lb. (90.72 kg).

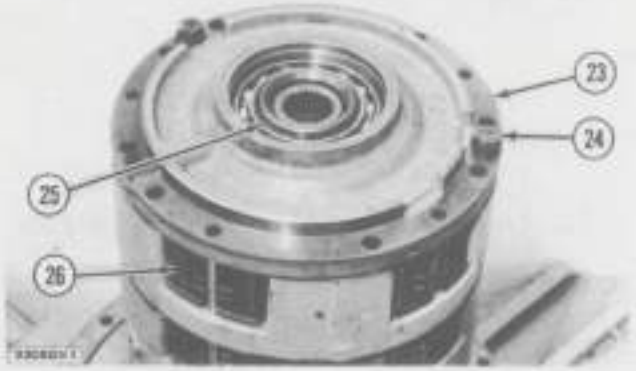


16. Remove two seals (22) and seal (21) from the transfer gear case.

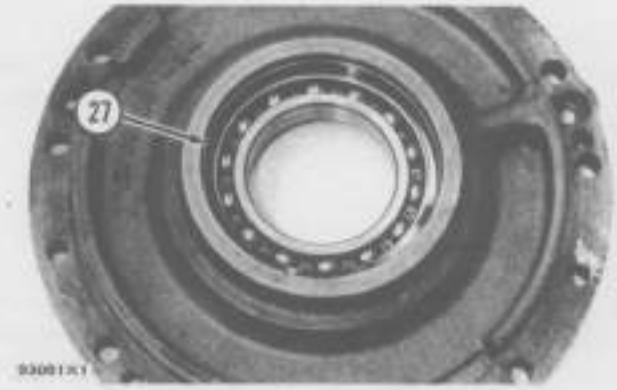
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TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

17. Remove two bolts (24) and washers from plate (23). Remove ring (25). Remove plate (23) and ten springs (26) from the piston.



18. Remove ring (27) from plate.



19. Use tooling (C) to remove the bearing from the plate.



20. Remove five discs (28) and four plates (29) from No. 1 clutch housing. Remove gear (31).



21. Remove piston (30) from No. 1 clutch housing. Remove the ring from the piston. Remove No. 1 clutch housing (32). Remove the ring from No. 1 clutch housing.

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TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

22. Remove carrier assembly (33).



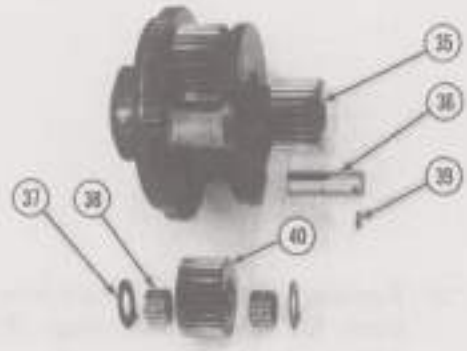
23. Remove five pins (34) from No. 2 and No. 3 clutch housing.

24. Use a hammer and a punch to push the pins in the pins that hold the gear in the carrier assembly.



25. Remove shaft (36) from the carrier assembly. Remove gear (40). Remove two washers (37) and two bearings (38) from gear (40). Remove pin (39) from shaft (36).

26. Remove shaft (35) from the carrier assembly.



27. Remove the other two gears from the carrier assembly. Follow the procedure in Steps 25 and 26.

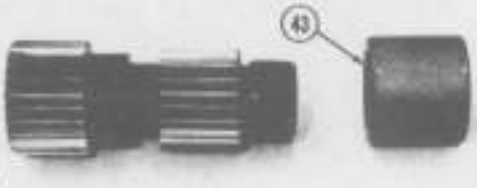
28. Remove rings (41) and (42) from the carrier.



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TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

29. Remove collar (43) from shaft.



30. Use a hammer and a punch to push the two pins (44) down even with the machined surface of gear (47).

31. Put ring (45) under compression and remove gear (47).

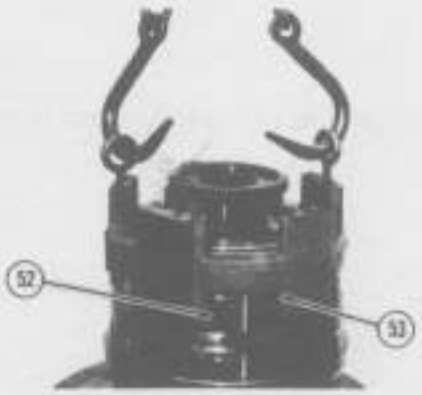


32. Remove bolt (46) and three washers (48) from the carrier assembly.

33. Remove four discs (49) and three plates (50) from the No. 2 and No. 3 clutch housing. Remove piston (51) from No. 2 and No. 3 clutch housing. Remove the ring from the piston.



34. Install two 1/2"–13 NC forged eyebolts in the No. 2 and No. 3 clutch housing. Fasten a hoist to the No. 2 and No. 3 clutch housing. Install tooling (B) (locking plier) to hold piston (53) in the No. 2 and No. 3 clutch housing. Remove the No. 2 and No. 3 clutch housing. Weight of the No. 2 and No. 3 clutch housing is 80 lb. (36.3 kg). Remove tooling (B) and piston (53) from the No. 2 and No. 3 clutch housing. Remove the ring from the piston. Remove the two rings from the No. 2 and No. 3 clutch housing.

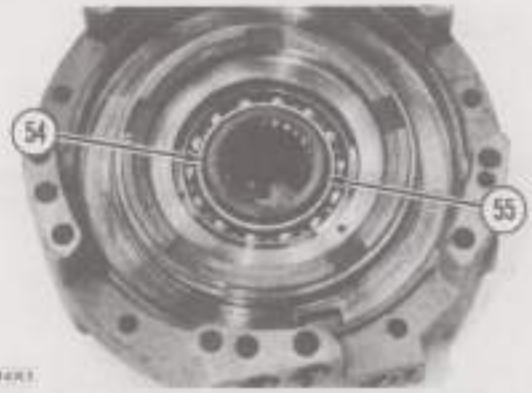


35. Remove ten springs (52).

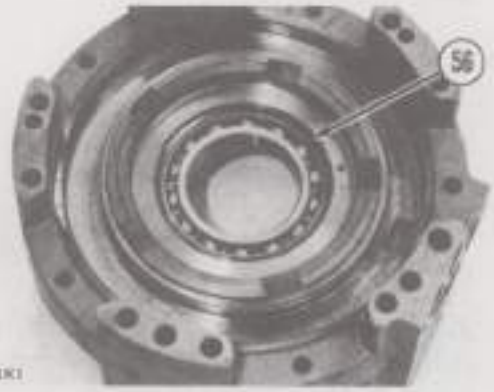
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TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

36. Remove ring (54) from carrier assembly (55). Slide the carrier assembly out of the No. 2 and No. 3 clutch housing.



37. Remove ring (56) from the No. 2 and No. 3 clutch housing.



38. Turn the No. 2 and No. 3 clutch housing over as shown.



39. Use tooling (E) to remove the bearing.



40. Use a hammer and a punch to push the pin down in the carrier assembly.

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TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

41. Remove shaft (57). Remove gear (60) and two washers (62). Remove two bearings (59) from the gear. Remove pin (58) from shaft (57). Remove ring (61) from the carrier.



42. Remove three discs (63) and two plates (64) from No. 4 clutch housing.



43. Remove piston (65) from No. 4 clutch housing. Remove the ring from the piston. Remove the ring from the No. 4 clutch housing.



44. Remove carrier assembly (66).

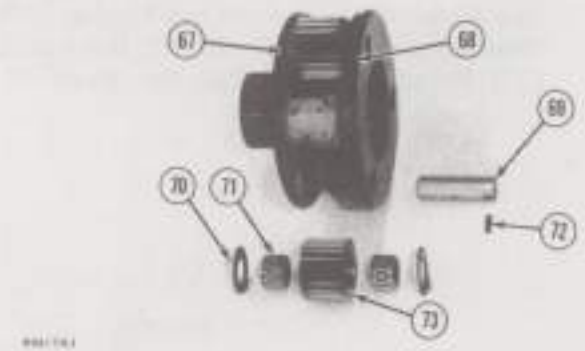


45. Use a hammer and a punch to push the pin down all of the way until it stops.

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TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

46. Remove shaft (69). Remove gear (73) and two washers (70). Remove two bearings (71) from gear (73). Remove pin (72) from shaft (69).



47. Remove rings (67) and (68) from the carrier.



48. Remove shaft (75) from the carrier. Remove five pins (74) from No. 4 clutch housing.



49. Remove ring (76). Remove gear (77). Remove No. 4 clutch housing (78) and piston (79). Remove the ring from the piston.



50. Remove two discs (80) and one plate (81) from plate (83).

51. Remove gear (82) and plate (83) from the carrier.

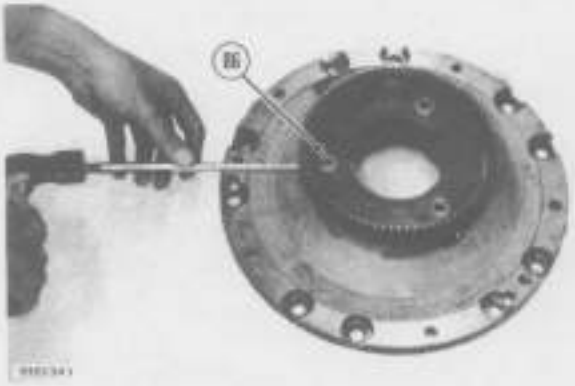
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TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

52. Remove ten bolts (84) and washers from the carrier (85). Remove the carrier.



53. Use a hammer and a punch to push the pin into shaft (86). Remove shaft (86) from the carrier. Remove the gear and two washers from the carrier. Remove the bearing from the gear.

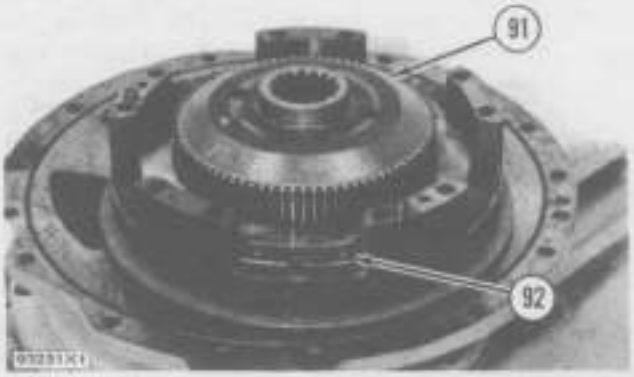


54. Remove the other two gears from the carrier. Follow the same procedure as in Step 53.

55. Remove ten springs (87). Remove three discs (88) and two plates (90) from No. 5 clutch housing. Remove five pins (89) from No. 5 clutch housing.



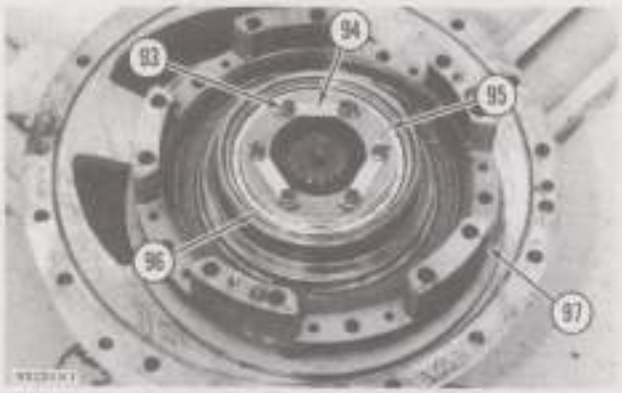
56. Remove gear (91). Remove piston (92) from No. 5 clutch housing. Remove The ring from the piston. Remove the ring from the No. 5 clutch housing.



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TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

57. Remove six bolts (93) and three locks (94). Remove retainer (95). Remove ring (96) from No. 5 clutch housing.

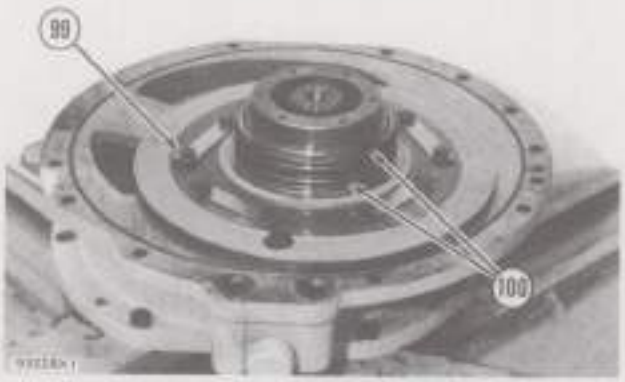


58. Remove No. 5 clutch housing.

59. Remove bearing (98) from No. 5 clutch housing.



60. Remove eight bolts (99) and locks from the manifold assembly. Remove rings (100) from the manifold assembly.



61. Install two 3/8"–16 NC forcing screws in the manifold assembly (101). Remove the manifold assembly from the transfer gear case and shaft.

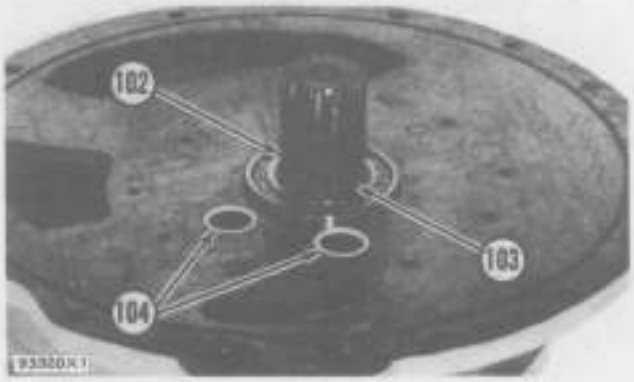


62. Remove the transfer gear case from stand (A).

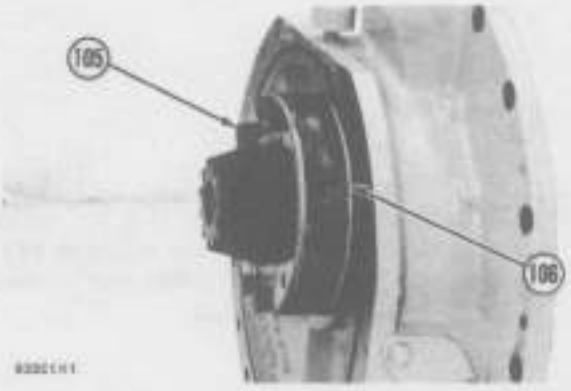
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TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

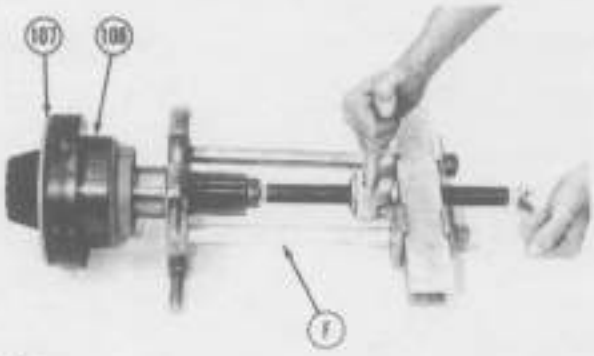
63. Remove two seals (104) from the transfer gear case. Remove rings (102) and (103) from the shaft.



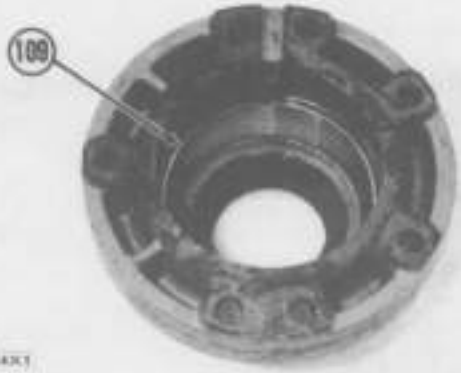
64. Remove seven bolts (105) and locks from the case. Pull the cage and pinion shaft out of the transfer gear case. Remove shim packs (106). Put identification on the shim packs to prevent mixing at assembly.



65. Use tooling (F) to remove the roller bearing from the pinion shaft.



66. Remove cage (108) and retainer (107) from the pinion shaft.

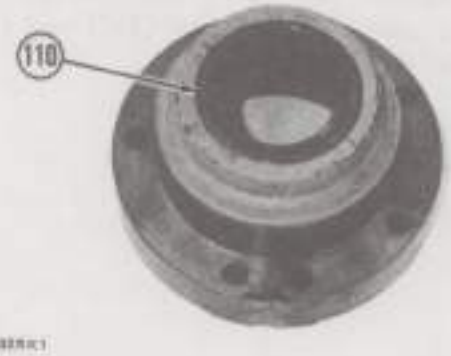


67. Remove bearing race (109) from the cage.

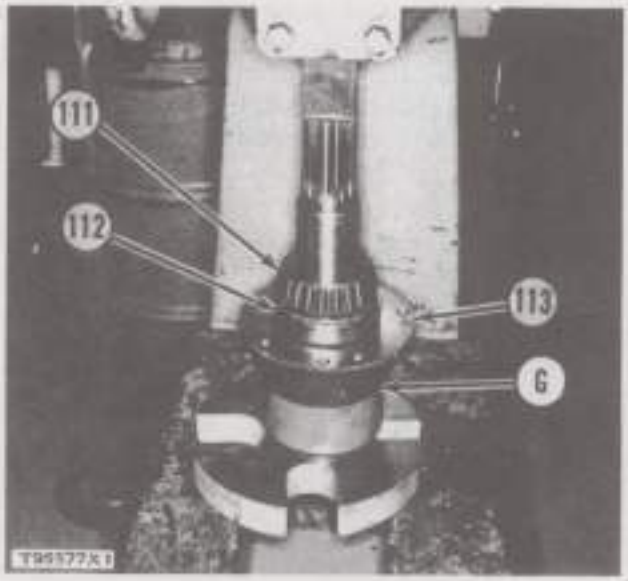
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TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

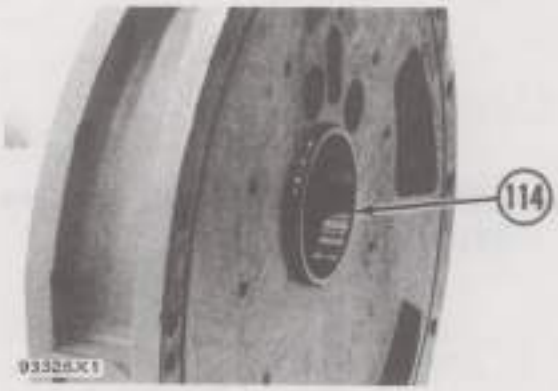
68. Remove seal (110) from the cage.



69. Use a press and tooling (G) to remove bearing cup (112) and bearing cone (111) from the pinion shaft. Remove retainer (113) from the pinion shaft.

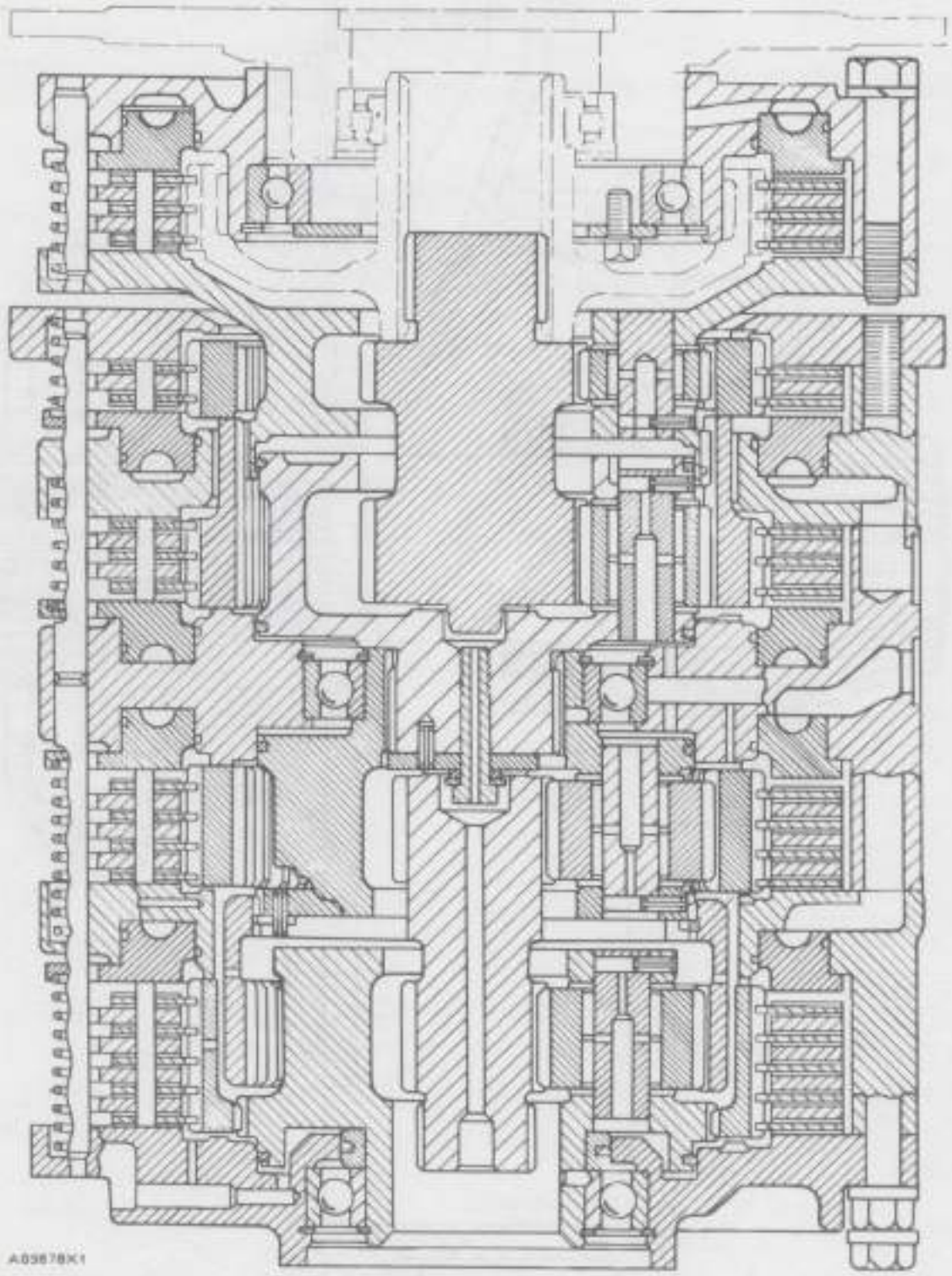


70. Remove bearing race (114) from the transfer gear case.



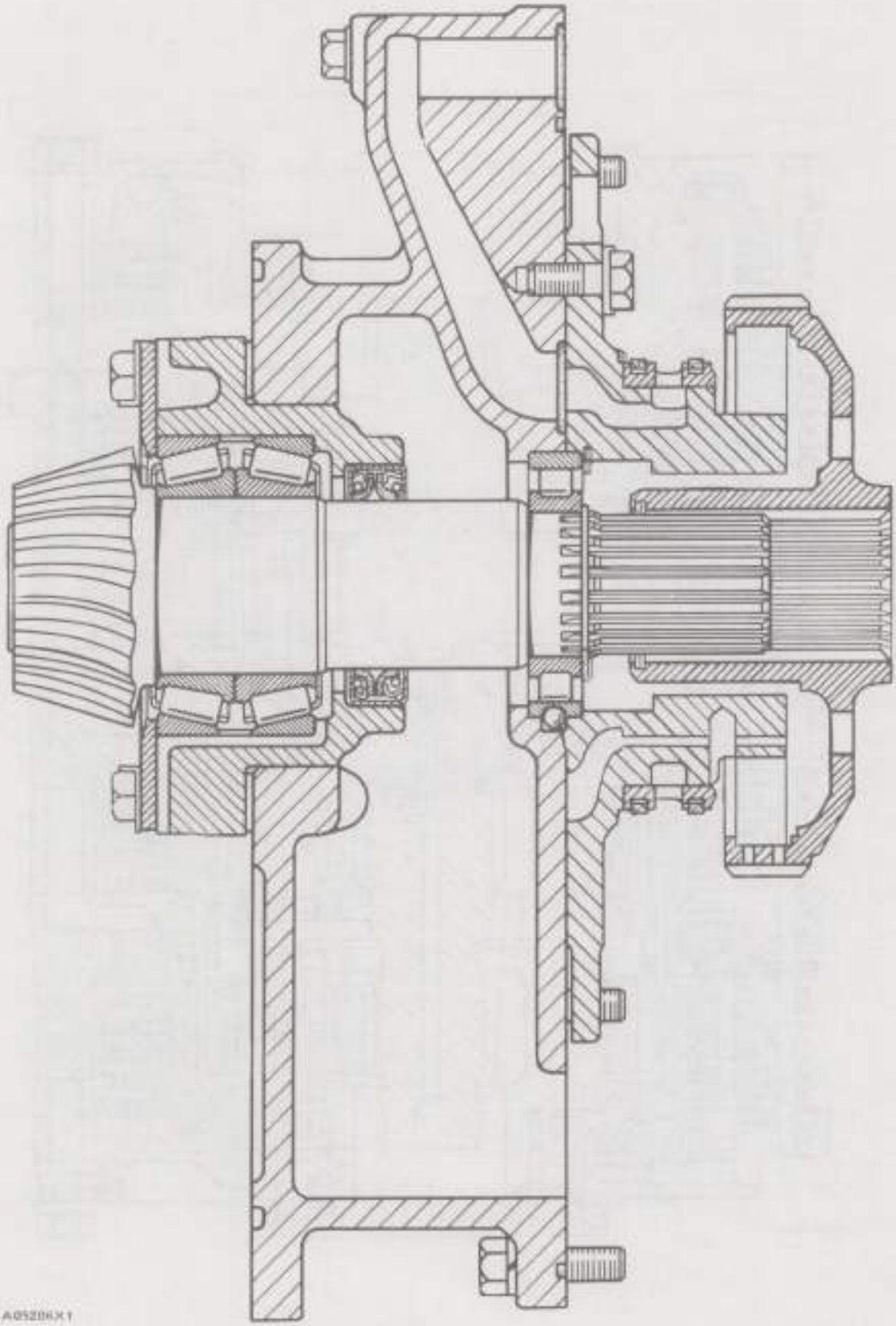
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POWER SHIFT TRANSMISSION



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TRANSFER GEARS (POWER SHIFT)



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TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

ASSEMBLE TRANSMISSION AND TRANSFER GEARS (POWER SHIFT) 16–3176

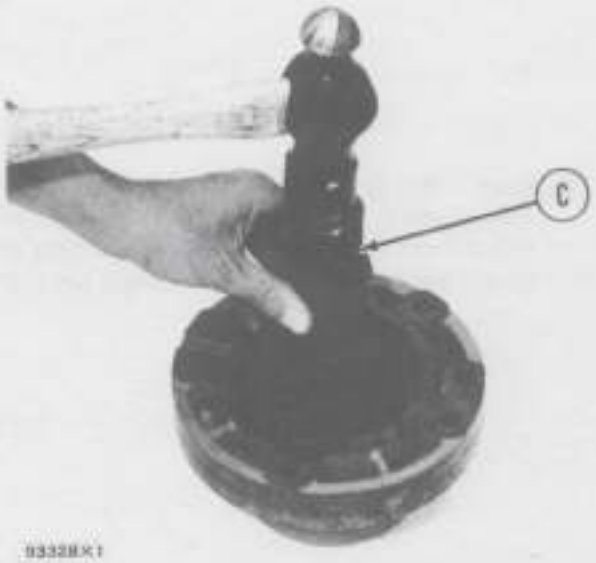
Tools Needed		A	B	C	D	E	F	G	H	J
1P2420	Transmission Repair Stand	1								
1P532	Handle		1	1	1	1	1			
1P504	Drive Plate		1							
1P521	Drive Plate			1						
1P503	Drive Plate				1					
1P513	Drive Plate				1					
FT833	Locking Plier									2
1P527	Drive Plate					1				
1P523	Drive Plate					1				
1P522	Drive Plate						1			
1P497	Drive Plate						1			
1P531	Handle							1		
1P496	Drive Plate							1		
1P511	Drive Plate							1		
1P529	Handle								1	
1P467	Drive Plate								1	
1P459	Drive Plate								1	

1. Use tooling (B) to install the seal in the cage.



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2. Use tooling (C) to install the bearing race in the cage.

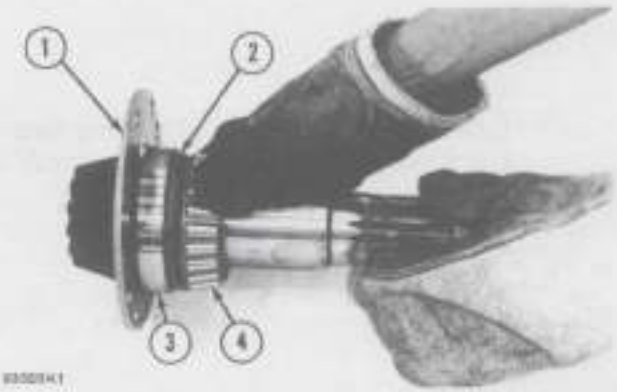


93328X1

3. Put retainer (1) in position on the shaft.

4. Put bearing cup (3) on the pinion shaft. Heat bearing cone (2) in oil to a maximum temperature of 275°F (135°C). Install the bearing cone on the pinion shaft.

5. Heat bearing cone (4) in oil to a maximum temperature of 275°F (135°C). Install the bearing cone on the pinion shaft as shown.

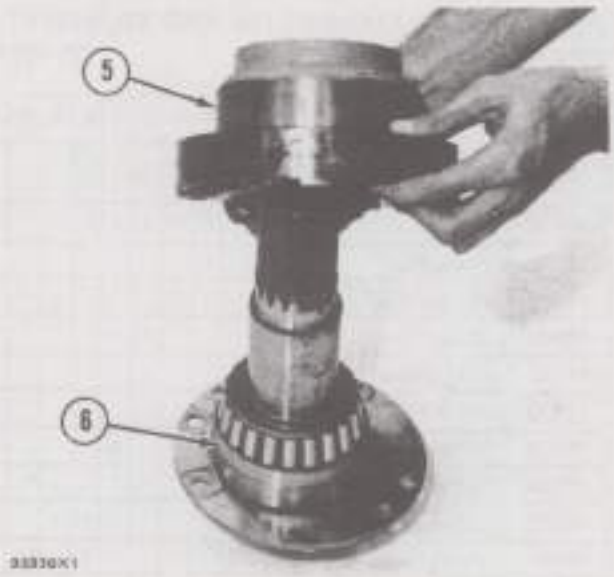


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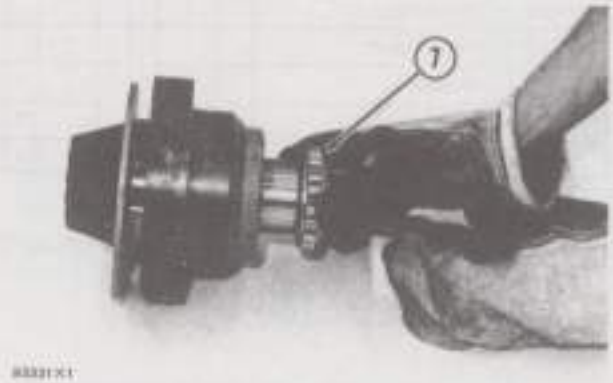
TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

6. Put ring (6) in position on the pinion shaft.

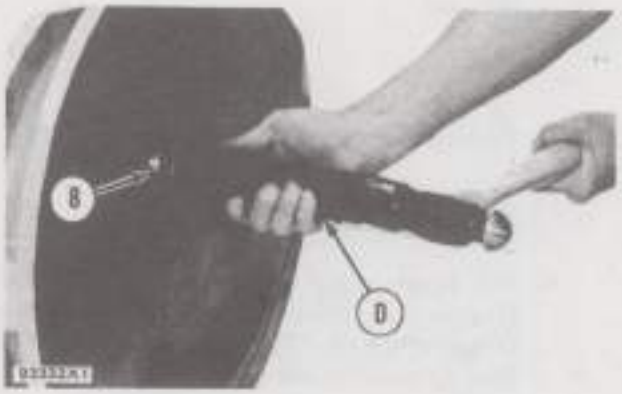


7. Put a small amount of SAE 30 oil on the seal. Slide cage (5) on the pinion shaft.

8. Heat roller bearing (7) in oil to a maximum temperature of 275°F (135°C). Put the roller bearing on the pinion shaft with the round edge of the inner race facing the cage.



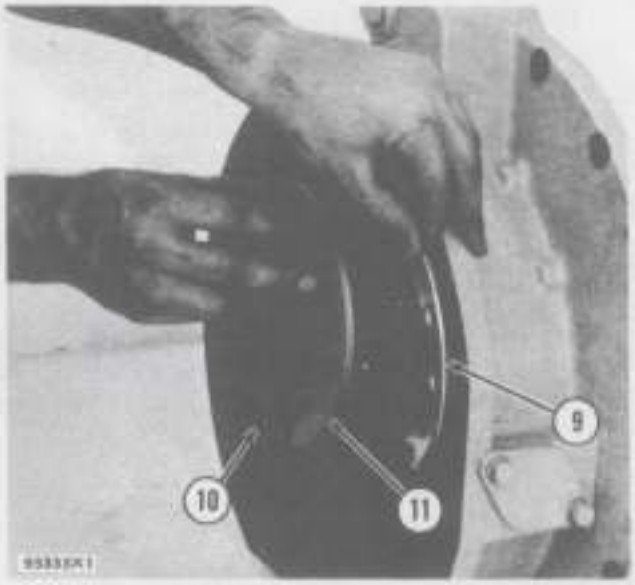
9. Lower the temperature of bearing race (8). Use tooling (D) to install the bearing race in the transfer gear case.



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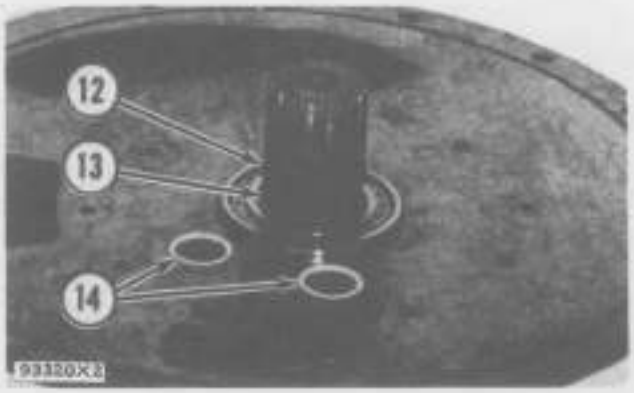
TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

10. Put the cage and pinion shaft in the transfer gear case. Put two shim packs (9) in the correct position behind the cage. Put two locks (11) in position on the cage and install two bolts (10) to hold the unit in position.



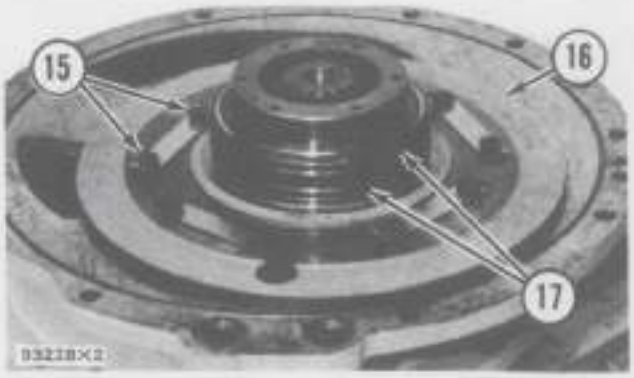
11. Install the other five bolts in the cage. Bend the locks up on the bolts.

12. Install rings (12) and (13) on the pinion shaft. Install two new seals (14) in the transfer gear case. Put a small amount of SAE 30 oil on the seals.



13. Put the transfer gear case on tooling (A).

14. Install two rings (17) on the manifold assembly.



15. Put the manifold assembly (16) in position on the transfer gear case. Install the four locks and eight bolts (15). Bend the locks up on the bolts.

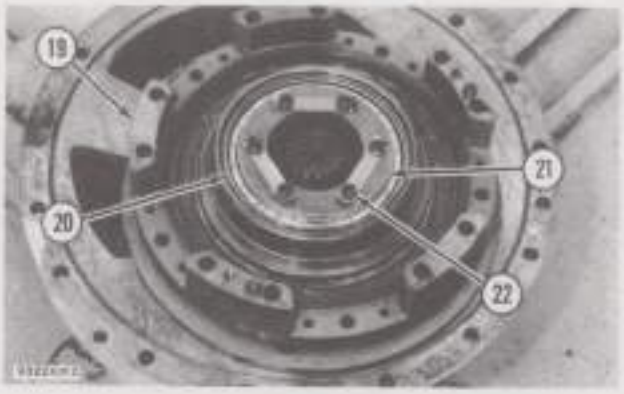
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TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

16. Use tooling (E) to install the bearing in No. 5 clutch housing.



17. Put No. 5 clutch housing (19) in position on the manifold assembly. Install ring (20). Put retainer (21) in position. Install the three locks and six bolts (22).



18. Install the ring in the No. 5 clutch housing. Install the ring on piston (24). Put a small amount of SAE 10 oil on the two rings. Install piston (24) in No. 5 clutch housing. Do not cause damage to the rings when installing the piston.



19. Install gear (23).

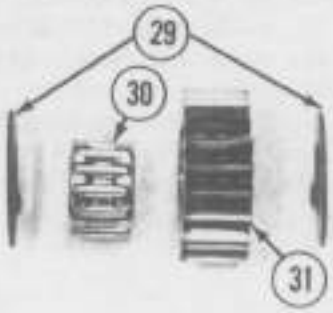


20. Install five pins (26) in the No. 5 clutch housing. Put ten springs (25) in position. Install the three discs (27) and two plates (28) in the correct order shown. Put a small amount of SAE 10 oil on both sides of the plates before installing.

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TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

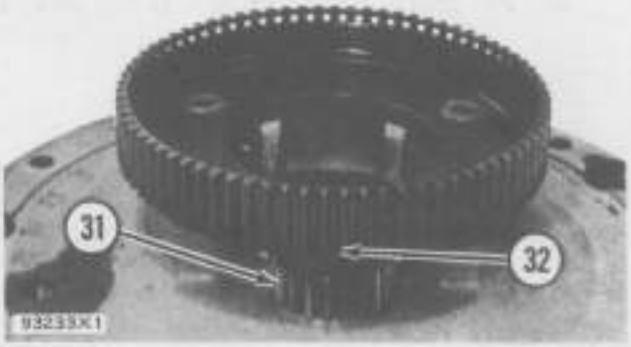
21. Put SAE 30 oil on bearing (30). Put the bearing in gear (31). Put a washer (29) on on each side of the gear.



93224X1

22. Put gear (31) into position in the carrier. Install the pin that holds the gear in position.

23. Use a hammer and punch to install pin (32).



93233X1

24. Put the carrier in position on the No. 5 clutch housing. Install the two bolts and washers that hold the carrier in position.



93231X1

25. Put plate (33) in position on the No. 5 clutch housing. Install gear (34).

26. Install two discs (35) and one plate (36) with a disc on both sides of the plate. Put SAE 10 oil on both sides of the plate.



93234X1

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TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

27. Install the ring on piston (41). Install the ring in No. 4 clutch housing (37). Put SAE 10 oil on the rings. Install ten springs (39) on the plate. Put piston (41) in position in No. 4 clutch housing. Do not cause damage to the rings when installing the piston. Put the piston and No. 4 clutch housing in position on the ten springs and plate.

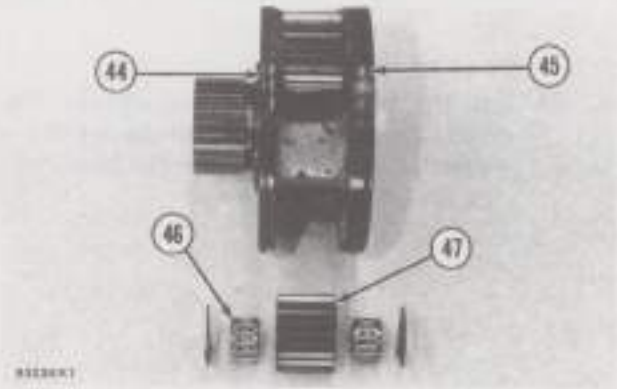


28. Put gear (38) in position. Install ring (40).

29. Install shaft (43) and five pins (42).

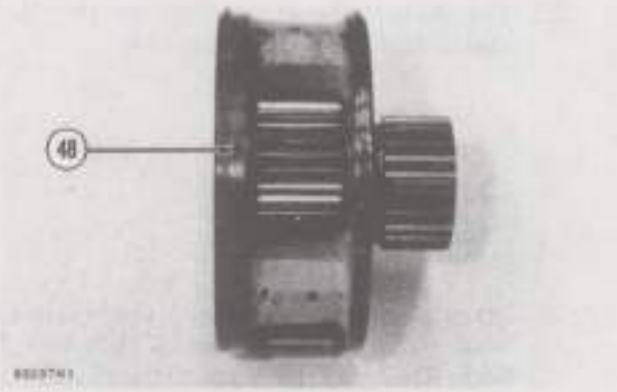


30. Install rings (44) and (45) on the carrier assembly.



31. Put SAE 30 oil on two bearings (46). Put the two bearings in gear (47). Put the gear and two washer, one on each side of the gear, in the carrier assembly.

32. Install pin (48) that holds the gear in the carrier assembly with a hammer and punch.



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TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

33. Put carrier assembly (51) into position in the gear. Install five pins (52) in No. 4 clutch housing and into the plate. Install the three discs (49) and two plates (50) as shown starting with a disc first.



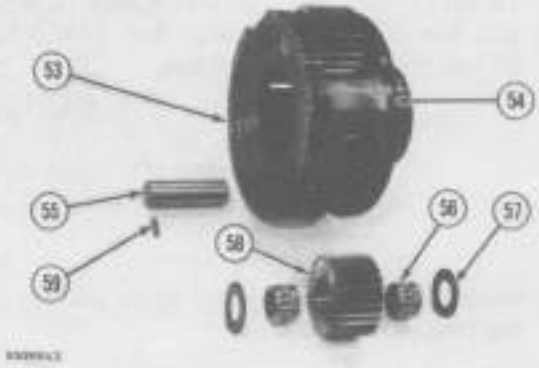
34. Install the ring in No. 2 and No. 3 clutch housing.

35. Use tooling (F) to install the bearing in the No. 2 and No. 3 clutch housing. Make sure the bearing is against the ring.



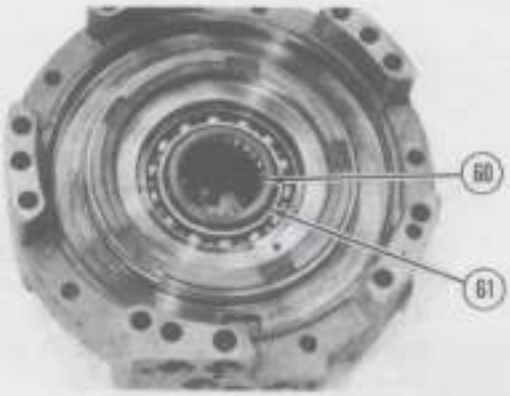
36. Put SAE 30 oil on the two bearings (56). Install the two bearings in gear (58). Put gear (58) and two washers (57) in position in carrier (53). Install shaft (55). Use a hammer and punch to install pin (59) into carrier (53).

37. Install the other two gears. Follow procedure in Step 36.



38. Install ring (54) on carrier.

39. Put carrier assembly (60) in the No. 2 and No. 3 clutch housing as shown making sure the ball in the carrier assembly is in alignment with the groove (slot) in the bearing. Install ring (61).



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TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

40. Install a new ring in piston (63). Put SAE 10 oil on the ring. Install a new ring in No. 2 and No. 3 clutch housing (62). Put the piston in the No. 2 and No. 3 clutch housing. Use tooling (J) to hold the piston in position.



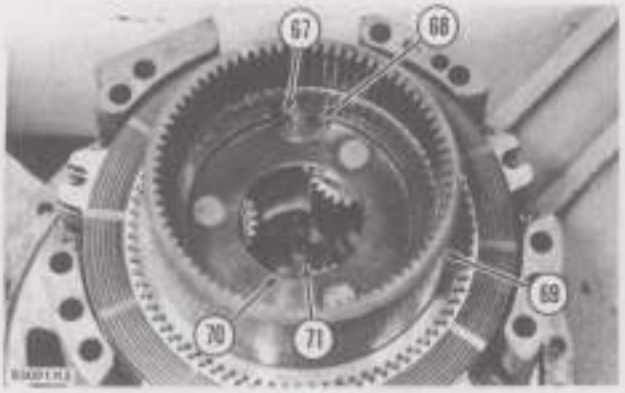
41. Install two 1/2"–13 NC forged eyebolts in No. 2 and No. 3 clutch housing. Fasten a hoist to the clutch housing. Put the No. 2 and No. 3 clutch housing in position on No. 4 clutch housing. Remove the hoist and tooling (J).



42. Install a new ring on piston (64). Put SAE 10 oil on the ring. Put a new ring in No. 2 and No. 3 clutch housing. Put SAE 30 oil on the ring. Install the piston.



43. Install four discs (65) and three plates (66) starting with a disc first.

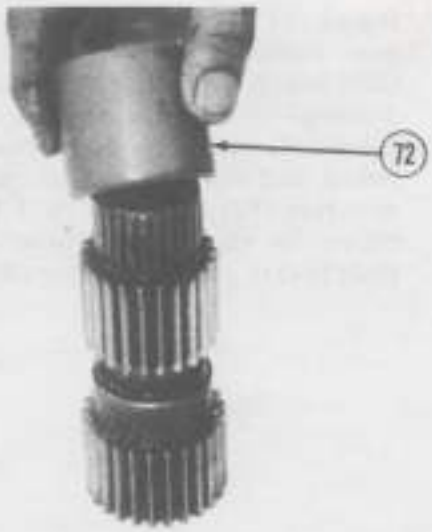


44. Put ring (68) on the carrier assembly. Put ring (68) under compression. Install gear (69). Release the compression on the ring. Install the two pins (67). Install three washers (70) and bolt (71) in the carrier assembly. Tighten the bolt to a torque of 34 ± 3 lb.ft. (4.7 ± 0.28 mkg).

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TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

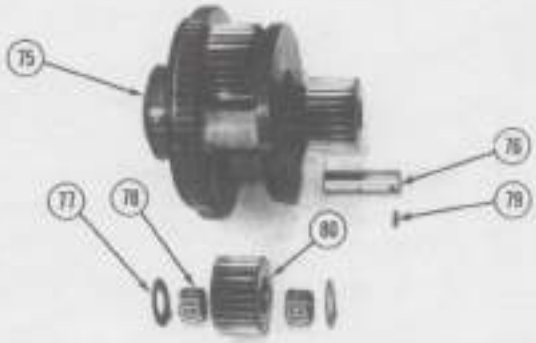
45. Install collar (72) on shaft.



46. Install two rings (73) and (74) on the carrier.



47. Put SAE 30 oil on the two bearings (78). Put the two bearings in gear (80). Install gear (80) and two washers (77) in carrier (73). Install shaft (76). Use a hammer and punch to install pin (79) in the carrier.



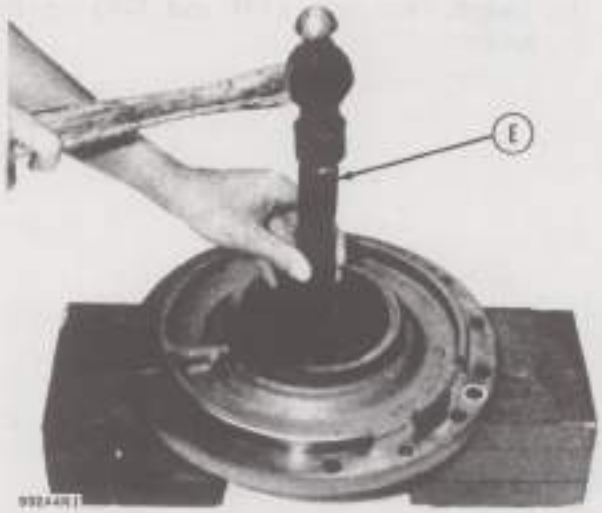
48. Install the other two gears. Follow procedure in Step 47.

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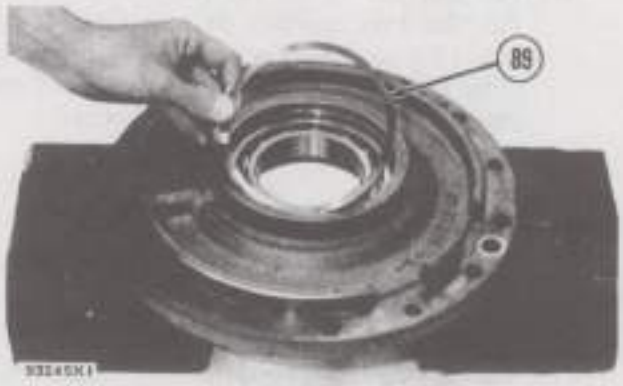
TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

49. Put carrier assembly (83) in position in the gear. Install five pins (87) and ten springs (88). Install a new ring (86) in No. 1 clutch housing (85). Put SAE 10 oil on the ring. Put the No. 1 clutch housing in position on the No. 2 and No. 3 clutch housing. Install a new ring (82) on piston (81). Put SAE 10 oil on the ring. Install piston (81). Install shaft (84) in carrier assembly (83).





50. Use tooling (E) to install the bearing in the plate.

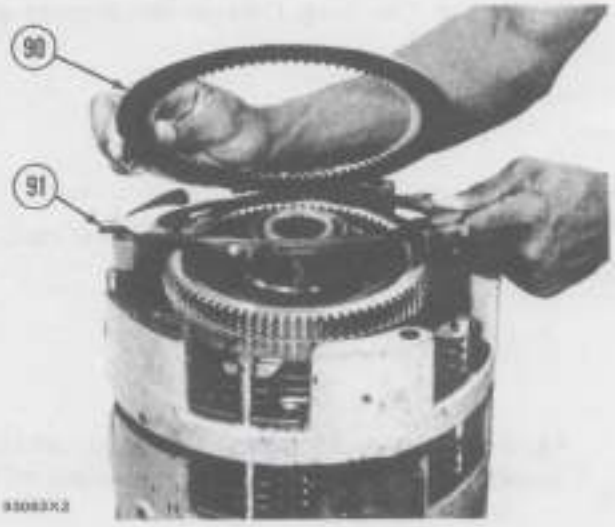


51. Install ring (89) in the plate.

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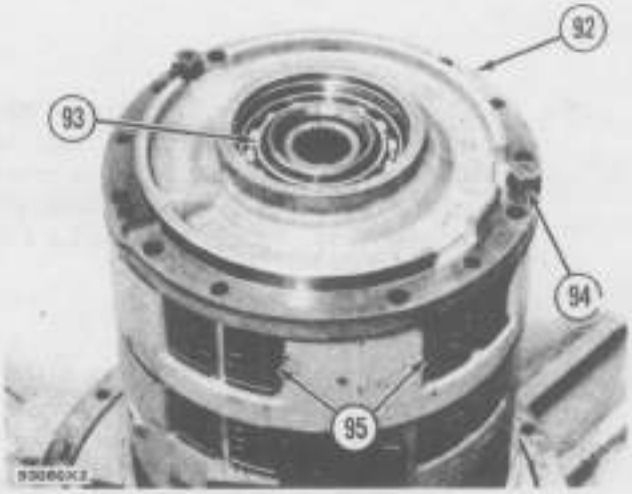
TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

52. Install five discs (90) and four plates (91) in the No. 1 clutch housing starting with a disc.

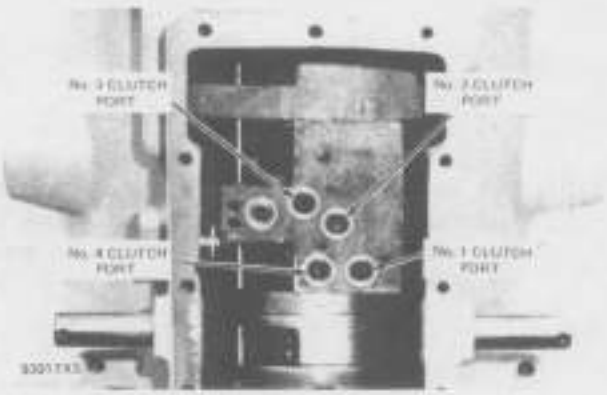


53. Put ten springs (95) in position. Install two bolts (94) and washers. Tighten the bolts to a torque of 85 ± 5 lb.ft. (11.8 ± 0.7 mkg).

NOTE: Make sure the marks on all the clutch housings and two plates are in alignment with one another.



54. Check the operation of each piston before installing the transmission case. Put oil in all the clutch ports. Use an FT834 clutch testing nozzle and air with a pressure of 100 to 150 psi (7.03 – 10.55 kg/cm²) to check the movement of the pistons. The movement of the pistons is approximately .080 – .200 in. (2.03 – 5.08 mm). If the pistons do not move, the rings on the pistons are not sealing or the rings are broken. Disassemble the transmission to find the cause.



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TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

56. Install two seals (98) in the transfer gear case.

57. Install seal (97) on the transfer gear case.

58. Fasten a hoist to the transmission case (96). Put the transmission case in position on the transfer gear case.

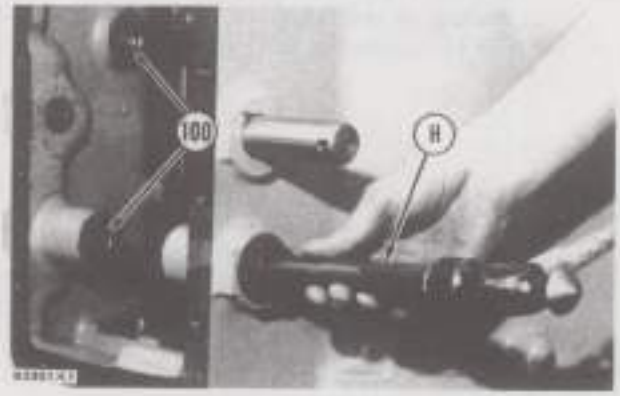


59. Install nine bolts (99) and washers in transmission case. Install the twelve bolts and washers that hold the transmission case to the transfer gear case. Tighten the bolts (99) to a torque of 85 ± 5 lb.ft. (11.8 ± 0.7 mkg).



60. Use tooling (H) to install three bushings (100) in the transmission case.

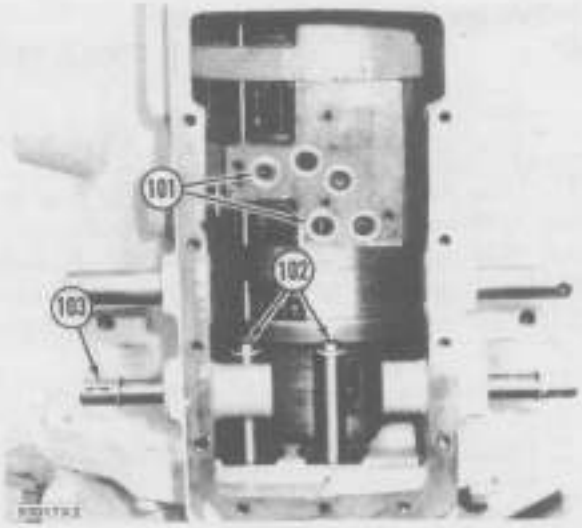
61. Use tooling (H) to install the seals in the transmission case. Install the seals with the lip edge toward the inside of the transmission case.



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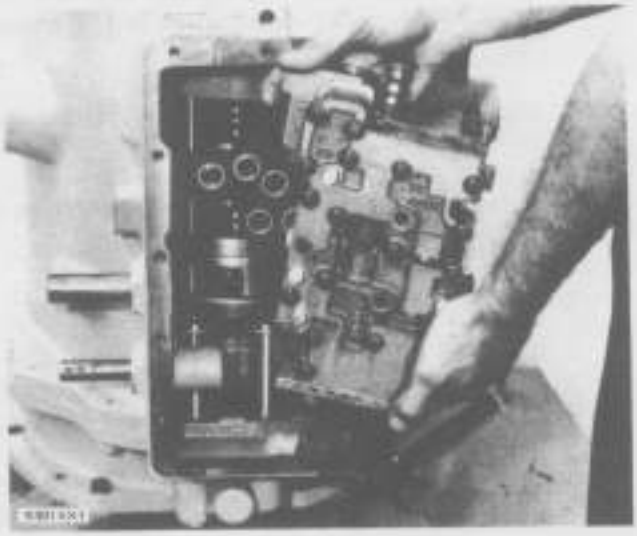
TRANSMISSION AND TRANSFER GEARS (POWER SHIFT)

62. Install five O-rings (101). Put SAE 30 oil on the O-rings. Put new O-rings on the two sleeves (102). Put SAE 30 oil on the O-rings. Install the two sleeves in the transmission case. Slide two shafts (103) into the transmission case.



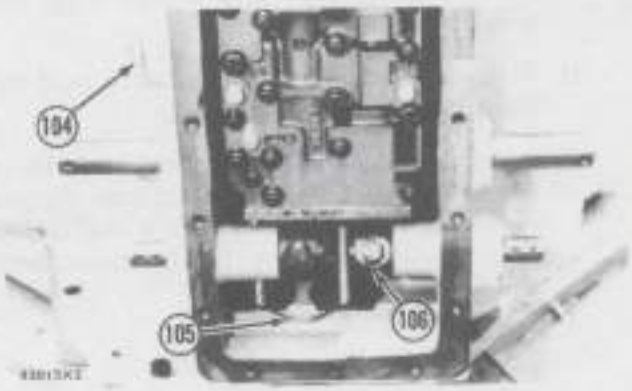
63. Put the hydraulic control in position in the transmission case. Install the four bolts and washers that hold the hydraulic control in position. Tighten the bolts to a torque of 35 ± 5 lb.ft. (4.8 ± 0.7 mkg).

64. Slide the two shafts into the two levers (106). Install the two bolts. Tighten the bolts to a torque of 35 ± 5 lb.ft. (4.8 ± 0.7 mkg). Install clip (105).



65. Put a new O-ring on the sleeve that goes in the side of the hydraulic control. Put SAE 30 oil on the O-ring. Install the sleeve. Install cover (104) and gasket. Install the ring on the sleeve. Install the two sleeves and O-rings in the top of the hydraulic control.

66. Install the cover and gasket over the hydraulic control. Install the fourteen bolts and washers that hold the cover in position.



end by:

a) install torque converter, transmission and transfer gears as a unit

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HYDRAULIC TANK AND DASH (POWER SHIFT)

REMOVE HYDRAULIC TANK AND DASH

11–5056 & 7451

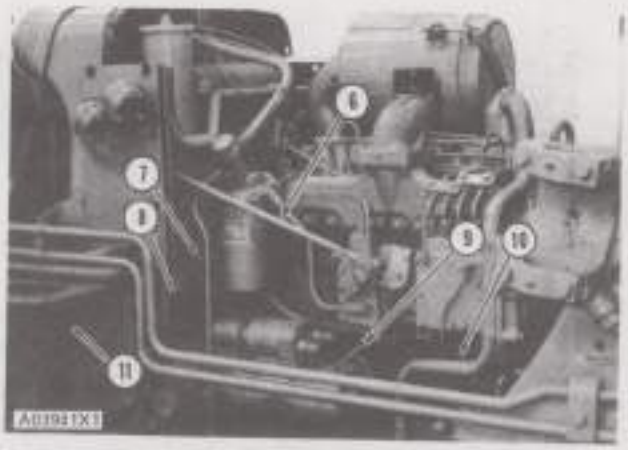
start by:

a) remove hood

NOTE: The removal and installation of the hydraulic tank and dash on a direct drive tractor is typical to the power shift tractor. Follow the same removal and installation procedures for the direct drive tractor.

1. Remove the oil from the hydraulic tank.
2. Disconnect tubes (1) and (3) from the hydraulic tank.
3. Remove engine coolant until it is below the level of the water temperature line. Remove water temperature line (2).
4. Disconnect oil pressure line (4) from the cylinder block.
5. Remove bolts (5) and washers from the base of the hydraulic tank.
6. Disconnect rod (6) from lever.
7. Remove wires (9) from the starter and wires (10) from the alternator. Put identification on the wires to prevent mixing during assembly.
8. Disconnect rods (7) and (8) from the levers.
9. Remove bolts (11) and washer from the base of the hydraulic tank.
10. Remove the bolts and washers that hold the front floor plate to the dash.
11. Install two 3/8"–16 NC forged eyebolts in the dash. Fasten a hoist to the dash. Weight of dash and hydraulic tank as a unit is 300 lb. (136 kg). Remove the hydraulic tank and dash as a unit.







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HYDRAULIC TANK AND DASH (POWER SHIFT)

INSTALL HYDRAULIC TANK AND DASH

12–5056 & 7451

1. Fasten a hoist to the hydraulic tank and dash. Put the hydraulic tank and dash in position in the tractor.

2. Install bolts (6) and washers that hold the base of the hydraulic tank to the fenders.

3. Connect rod (1) to the lever.

4. Connect rods (2) and (3) to the two levers.

5. Connect wires (4) to the correct position on the starter.

6. Connect wires (5) to the correct position on the alternator.

7. Install the bolts and washers that hold the front floor plate to the dash.

8. Connect tubes (7) and (9) to the hydraulic tank.

9. Connect the water temperature line (8) to the cylinder head.

10. Connect oil pressure line (10) to the cylinder block.

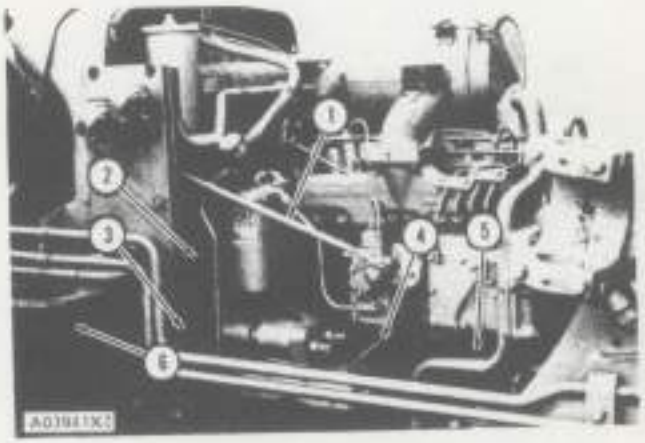
11. Install bolts (11) and washers that hold the dash to the fender.

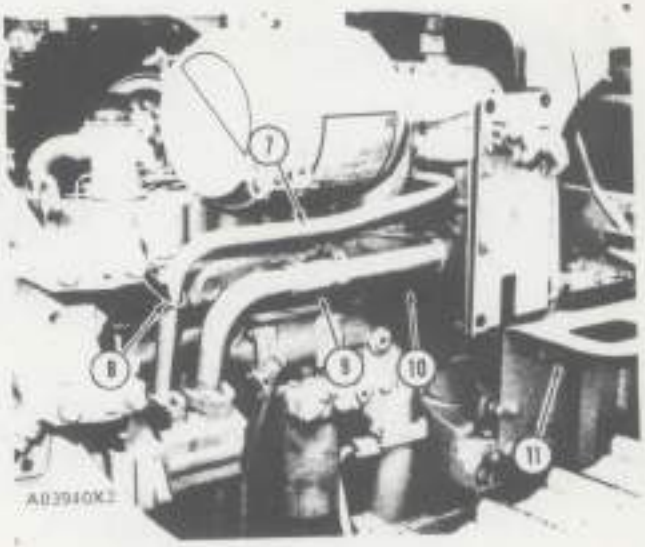
12. Fill the hydraulic tank with oil. See LUBRICATION AND MAINTENANCE GUIDE.

13. Fill the cooling system with coolant to the correct level. See LUBRICATION AND MAINTENANCE GUIDE.

end by:
a) install hood







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