

Product: TRACK-TYPE TRACTOR

Model: D4D TRACK-TYPE TRACTOR 97F

Configuration: D4D TRACTOR / DIRECT DRIVE / 97F01819-UP (MACHINE) POWERED BY 3304 ENGINE

Disassembly and Assembly 54 TOWING WINCH

Media Number -SEN7363-00

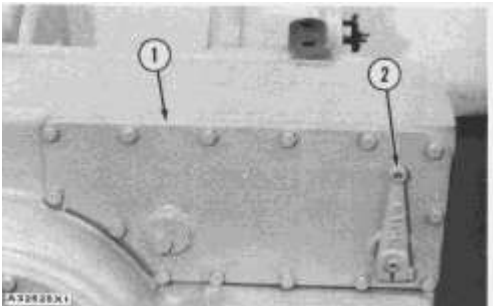
Publication Date -01/03/1976

Date Updated -12/10/2001

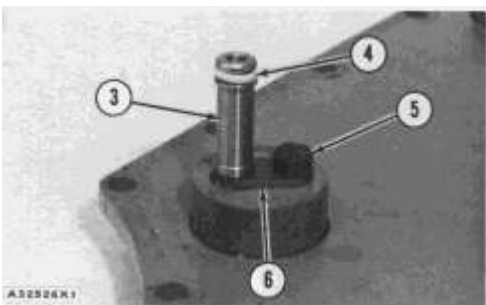
Control Valve

SMCS - 5170-16; 5170-11; 5170-12; 5170-15

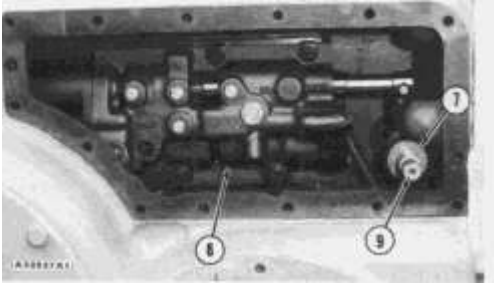
Remove Control Valve



1. Loosen the bolt and remove lever (2).
2. Remove cover assembly (1).



3. Remove bolt (5) and clip (6).
4. Remove sleeve (3). Remove two O-ring seals (4) from sleeve (3).
5. Remove the seal and the bearing from cover assembly (1).



6. Remove washer (7).

7. Remove the bolts and remove control valve (8).

8. Remove shaft and lever assembly (9). Hold washer on back of shaft (9) so it will not drop in case.

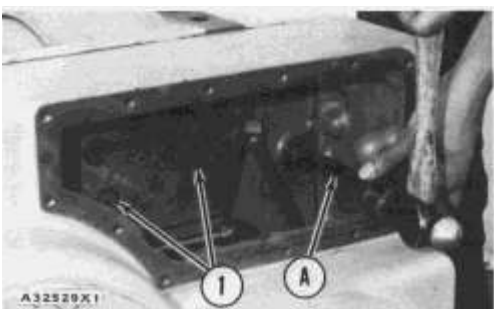


9. Fill the bearing in the case assembly with grease and use a .75 in. (19.05 mm) diameter shaft to force the bearing from the case assembly.

10. Remove six O-ring seals (10).

Install Control Valve

| Tools Needed | | A |
|--------------|-------------|---|
| 1P529 | Handle | 1 |
| 1P459 | Drive Plate | 1 |
| 1P470 | Drive Plate | 1 |

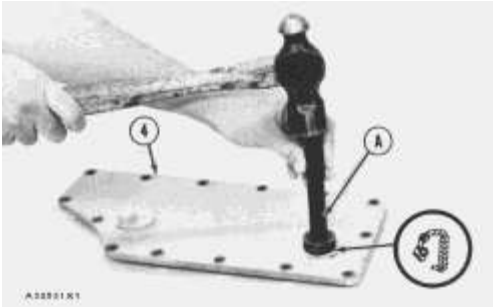


1. Install new O-ring seals (1) in the manifold.

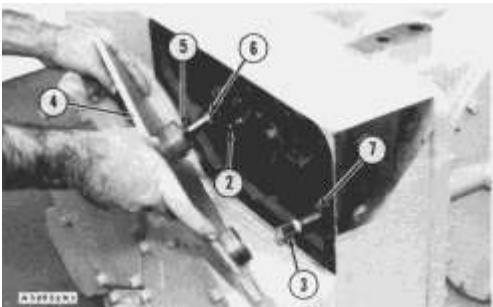
2. Use tooling (A) and install the bearing in the case assembly.



3. Install the washer on back of shaft (3) and install shaft (3).
4. Install control valve (2) and tighten bolts.



5. Put 7M7260 Liquid Gasket material in bore of cover assembly (4). Use tooling (A) and install the seal in cover assembly (4) with lip of seal toward inside.
6. Use tooling (A) and install the bearing in cover (4).

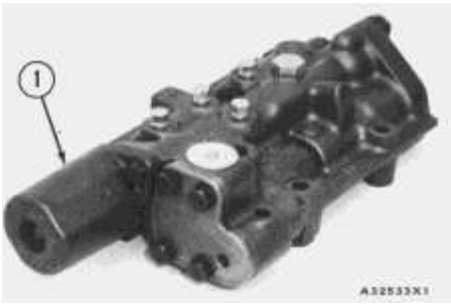


7. Install new O-ring seals on sleeve (6). Install sleeve (6) in cover (4). Install the clip on sleeve (6) and tighten bolt (5).
8. Install washer (7) on shaft (3).
9. Install a new gasket and install cover assembly (4). Make sure sleeve (6) goes in bore of control valve (2) and shaft (3) is free to move.
10. Tighten bolts and install the control lever.

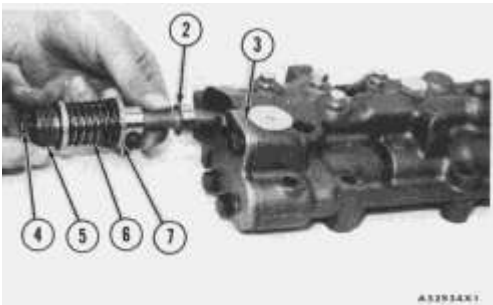
Disassemble Control Valve

start by:

- a) remove control valve



1. Remove cover (1).



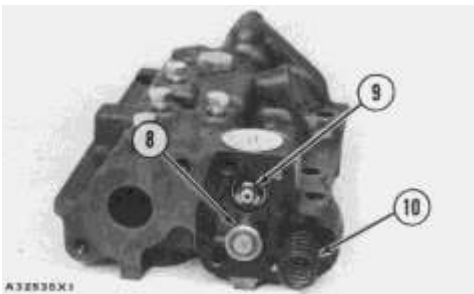
2. Remove valve spool (2).

3. Remove bolt (4) and the two washers from valve spool (2).

4. Remove spring (5) and the spacer from valve spool (2).

5. Remove the two washers, spring (6) the sleeve and washer (7) from valve spool (2).

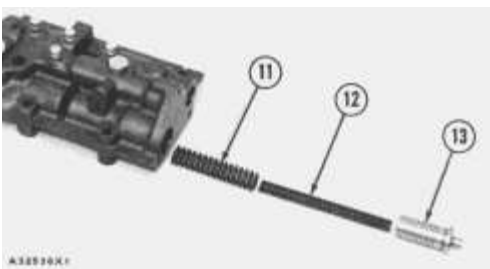
6. Remove cover (3).



7. Remove valve spool (8) and the shims.

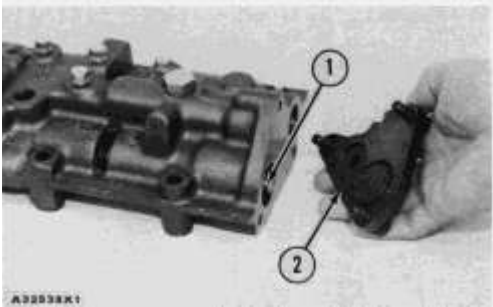
8. Remove spring (10) and the plunger.

9. Remove valve assembly (9).



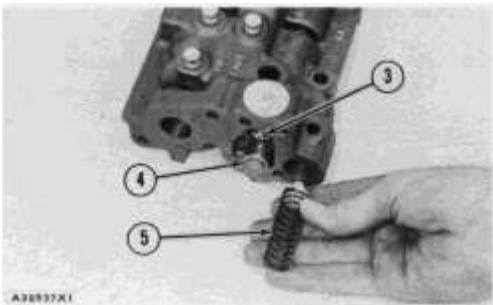
10. Remove the cover and remove piston (13), spring (12) and spring (11).

Assemble Control Valve



1. Install the two springs and piston (1) in the control valve body.

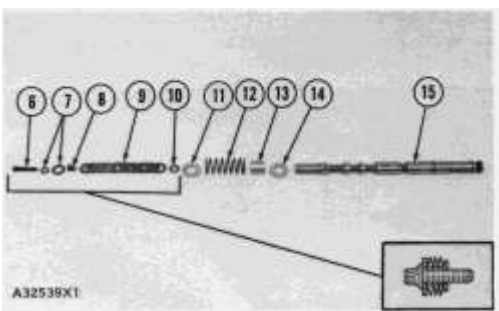
2. Install a new O-ring seal in cover (2) and install cover (2) on the control valve body. Tighten bolts to 22 ± 3 lb. ft. (30 ± 4 N·m).



3. Install the shims and valve spool (4) in the control valve body.

4. Install valve assembly (3).

5. Install the plunger and spring (5). Install the cover. Tighten bolts to 22 ± 3 lb. ft. (30 ± 4 N·m).



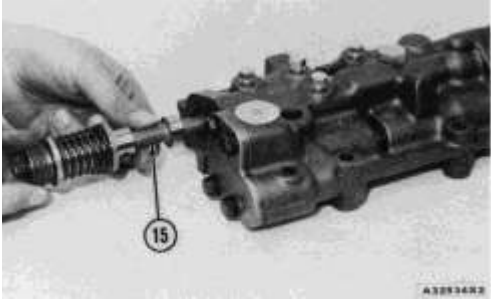
6. Starting with the smaller washer, install washers (7) on bolt (6).

7. Install spacer (8) on bolt (6).

8. Install spring washers (9) and washer (10) on bolt (6) with the outer edges of the spring washers in contact with each other.

9. Install washer (14), sleeve (13), spring (12) and washer (11) on valve spool (15).

10. Install bolt (6) in valve spool (15).



11. Install valve spool (15) and the cover on the control valve body. Tighten bolts to 22 ± 3 lb. ft. (30 ± 4 N·m).

end by:

a) install control valve

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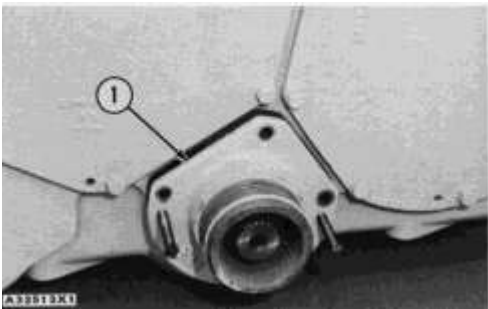
Publication Date -01/03/1976

Date Updated -12/10/2001

Input Gear

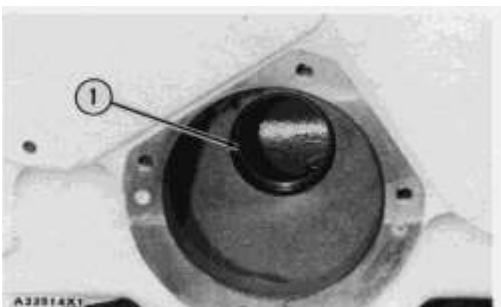
SMCS - 5166-16; 5166-11; 5166-12; 5166-15

Remove Input Gear

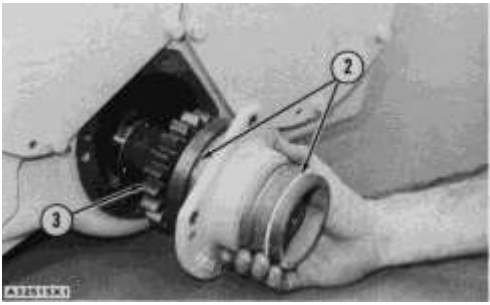


1. Remove the bolts from input shaft cage (1). Remove input gear assembly with two 3/8"-16 NC forcing screws.
2. Remove the O-ring seals from input shaft cage.

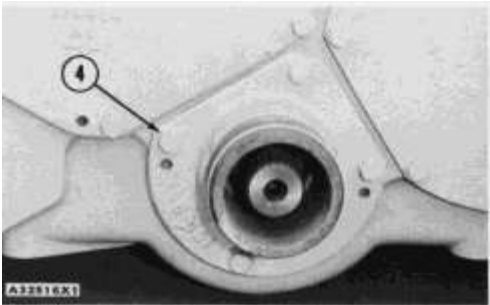
Install Input Gear



1. Inspect ring (1) in case. Make a replacement if necessary.



2. Install new O-ring seals (2) on the input gear cage.
3. Install input gear assembly (3) in case.



4. Tighten bolts (4).

NOTICE

Be certain that the teeth of the input gear and the input clutch engage correctly before the bolts are tightened to prevent damage.

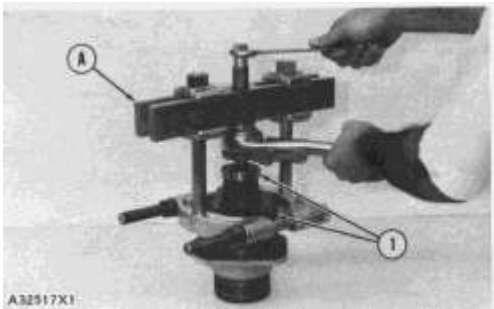
Disassemble Input Gear

| Tools Needed | A | B |
|-----------------------------------|---|---|
| 8B7548 Puller Assembly | 1 | 1 |
| 8B7550 Leg | 2 | |
| 5H9976 Screw | 1 | |
| 8H684 Ratchet Box Wrench | 1 | 1 |
| 8B7551 Bearing Pulling Attachment | 1 | |
| 9S9155 Spacer | 1 | |
| 8H663 Bearing Pulling Attachment | | 1 |
| 8B7560 Step Plate | | 1 |

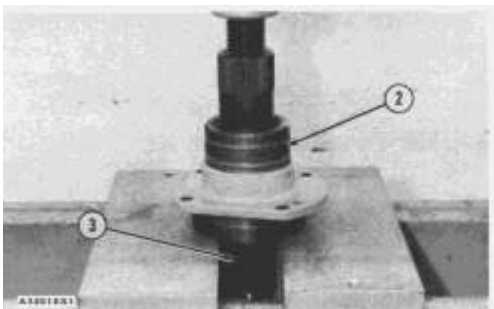
start by:

a) remove input gear

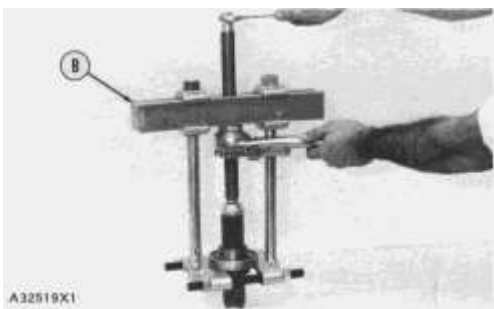
1. Remove the bolt and washer that hold bearing in position.



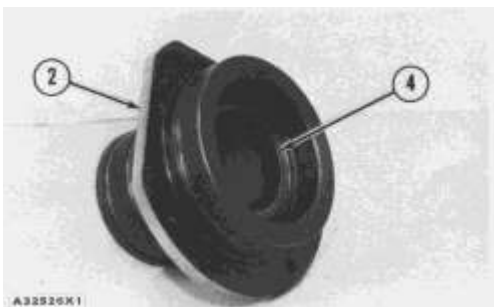
2. Remove gear and bearing (1) as a unit with tooling (A).



3. Use a press and remove the bearing and shaft (3) from cage (2).



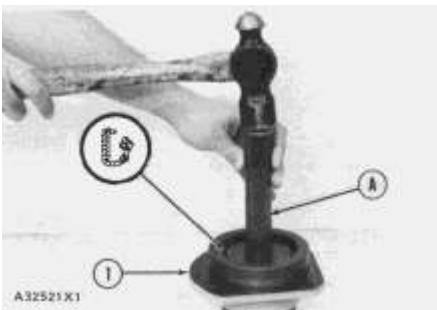
4. Remove the bearing from the shaft with tooling (B).



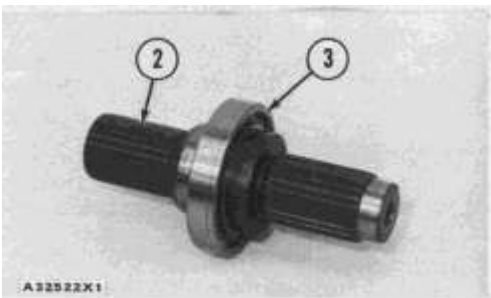
5. Remove seal (4) from cage (2).

Assemble Input Gear

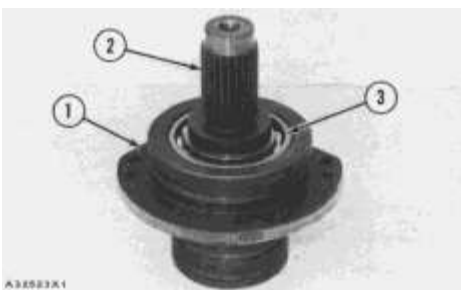
| Tools Needed | | A |
|--------------|-------------|---|
| 1P531 | Handle | 1 |
| 1P480 | Drive Plate | 1 |
| 1P495 | Drive Plate | 1 |



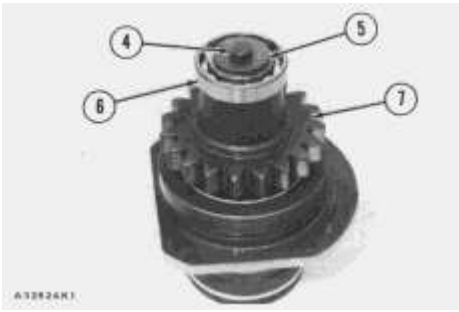
1. Use tooling (A) and install the lip-type seal with lip of the seal toward the inside when cage (1) is installed on the winch.



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



3. Install shaft (2) and bearing (3) in cage (1).



4. Install gear (7) on shaft (2).

5. Heat bearing (6) in oil to a maximum temperature of 275° F (135° C). Install bearing (6) on shaft (2).

6. Install washer (5) and tighten bolt (4).

end by:

a) install input gear

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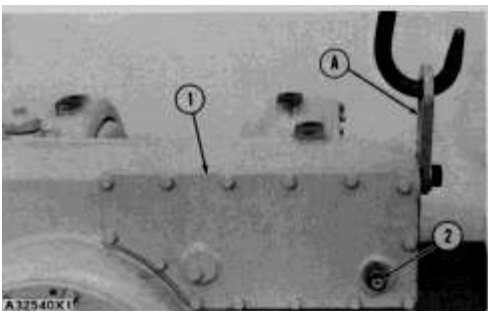
Date Updated -12/10/2001

Input Clutch

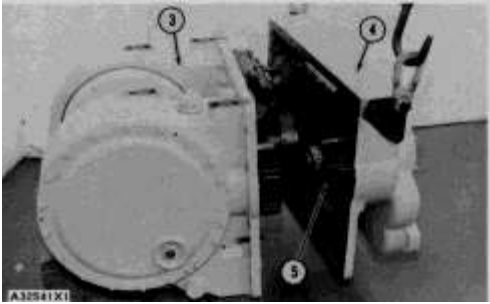
SMCS - 5166-16; 5166-11; 5166-12; 5166-15

Remove Input Clutch

| Tools Needed | | A | B | C |
|--------------|--------------------------------|---|---|---|
| FT522 | Bracket | 2 | | |
| 8B7548 | Puller Assembly | | 1 | 1 |
| 1P7461 | Leg | | | 2 |
| 5P4808 | Adapter | | 2 | 2 |
| 8B7554 | Bearing Cup Pulling Attachment | | 1 | 1 |
| 8H684 | Ratchet Box Wrench | | 1 | 1 |
| 8B7549 | Leg | | 2 | |
| 7S7786 | Leg | | 2 | |



1. Install tool (A) and fasten a hoist to the case.
2. Remove cover (1) and the washer on shaft (2).

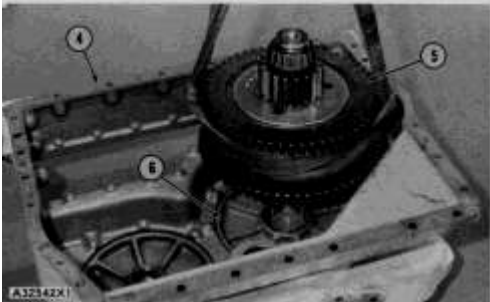


3. Remove the bolts and use two forcing screws 1/2"-13 NC \times 2 1/2 in. long to make a separation of case (4) from case assembly (3).

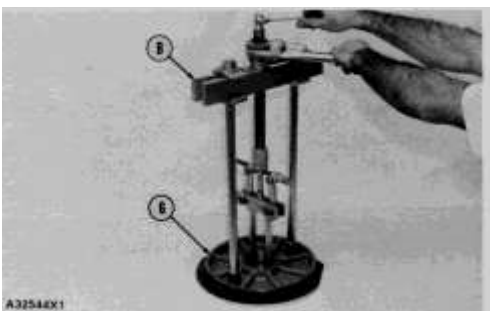
NOTICE

Clutch assembly (5) and case (4) are removed as a unit from case assembly (3). Do not tilt case (4) backward because clutch assembly (5) is free to fall out of case (4).

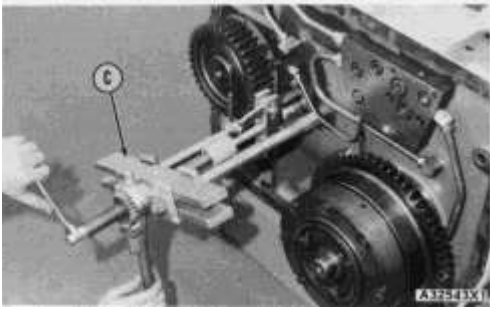
4. Put case (4) face down on wooden blocks.
5. Fasten hoist and remove clutch assembly (5) from case (4). Weight of clutch assembly is 90 lb. (40.8 kg).



6. Use two 3/8"-16 NC forcing screws and remove cage (6) and the shims. Keep the shims together for installation.



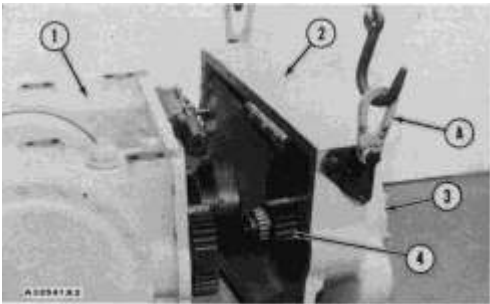
7. Remove the O-ring seal from cage (6).
8. Remove the bearing cup from the cage assembly with tooling (B).



- Remove the bearing cup from the case assembly with tooling (C).

Install Input Clutch

| Tools Needed | | A |
|--------------|---------|---|
| FT522 | Bracket | 1 |



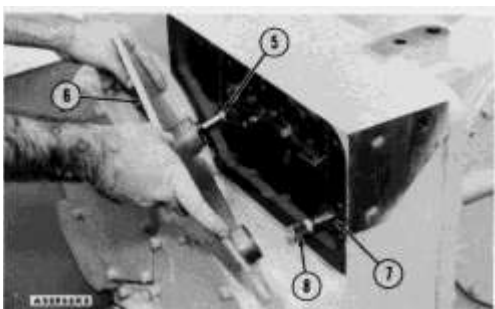
- Clean the gasket material from the surfaces of the case assembly (1) and case (2).
- Lower the temperature of the bearing cups. Install the bearing cups in cage (3) and case assembly (1).
- Install the shims and cage (3) in case (2) without the O-ring seal.

NOTICE

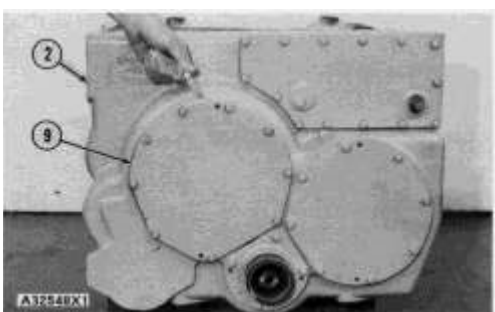
Shims must be installed so that the input clutch shaft has clearance when installed in the case assembly to prevent damage to cage (3) and case assembly (1).

- Use a hoist and install clutch assembly (4) in case (2). Make sure the gear teeth of the clutch assembly and the input gear engage and the clutch assembly bearing seats in cage (3).
- Put 7M7260 Liquid Gasket material on the surfaces of case assembly (1) and case (2).
- Install tool (A) and fasten a hoist to case (2).

7. Put case (2) and clutch assembly (4) in position on case assembly (1). Make sure all gear teeth engage and the bearing of the clutch assembly seats in the bearing cup in case assembly (1). Tighten the bolts.



8. Install washer (7) on shaft (8). Install a new gasket and install cover (6) on the case. Make sure sleeve (5) fits in control valve before the bolts are tightened.



9. Remove cage (9) and the shims. Install cage (9) and tighten the bolts evenly to a torque of 5 lb. in. (.576 N·m).

10. Measure the gap between cage (9) and case (2) at four equally spaced locations with a feeler gauge and make a note of the measurements.

11. Remove cage (9) and install a new O-ring seal on cage (9).

12. Install shims that are the same thickness as the average gap measured plus .003 to .005 in. (0.76 to .127 mm). Install cage (9) and the shims. Tighten bolts evenly.

Disassemble Input Clutch

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