

Fig. 68 Install Spacer (2 & 3 to 1 Ratio)

11A. For 1.50 to 1.00 units only.

1. Install bearing spacer, front cone, sun gear, and oil baffle into reduction housing and retain with five 7/16-14 x 7/8 hex head bolts, (Fig. 66).
2. Install rear snap ring on output shaft and slide pinion carrier assembly splines over output shaft and install a snap ring in front of carrier in output shaft groove, (Fig. 67).
3. Install output shaft into reduction housing and replace coupling and shaft nut. Tightening output shaft nut will draw parts into position.

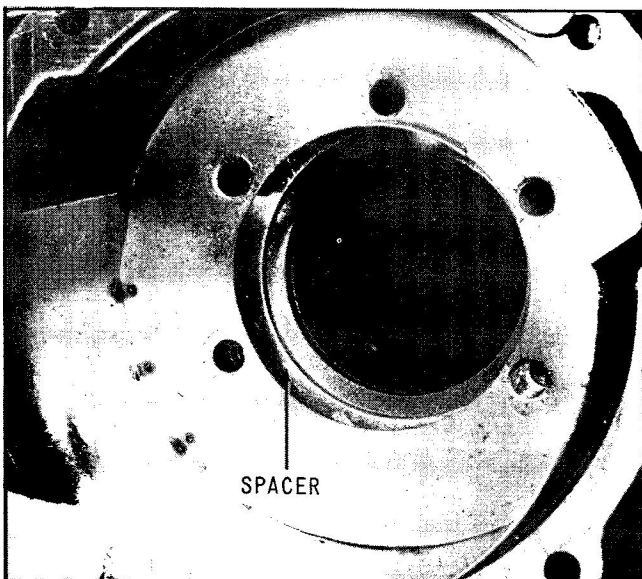


Fig. 69 Install Oil Baffle (2 & 3 to 1 Ratio)

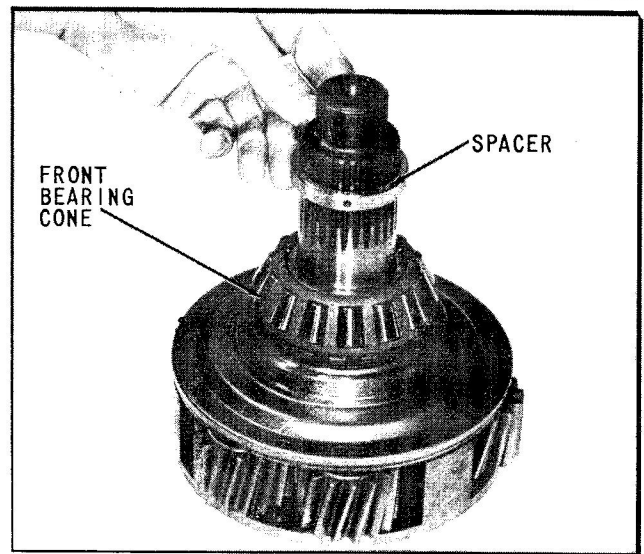


Fig. 70 Install Bearing and Spacer (3 to 1 Ratio)

11B. For 2.00 to 1.00 units only.

1. Install oil baffle spacer and oil baffle into reduction housing, using five 7/16-14 x 7/8 hex head bolts to retain, (Figs. 68 and 69). Torque bolts.
2. Install ring gear hub and snap ring into ring gear, (Fig. 31).
3. Replace snap ring in rear groove of output shaft. Slide splines of ring gear hub over splines of shaft and install snap ring in front groove of shaft, (Fig. 71). Hub and shaft splines will assemble in one position only.

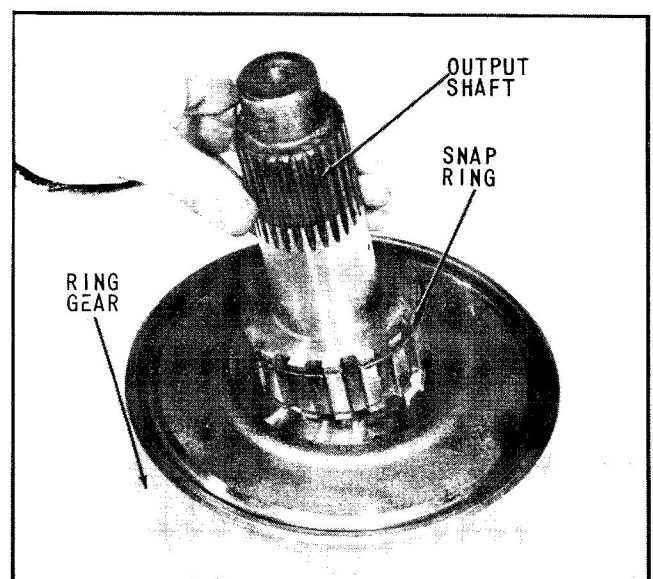


Fig. 71 Assemble Output Shaft to Ring Gear (2 to 1 Ratio)

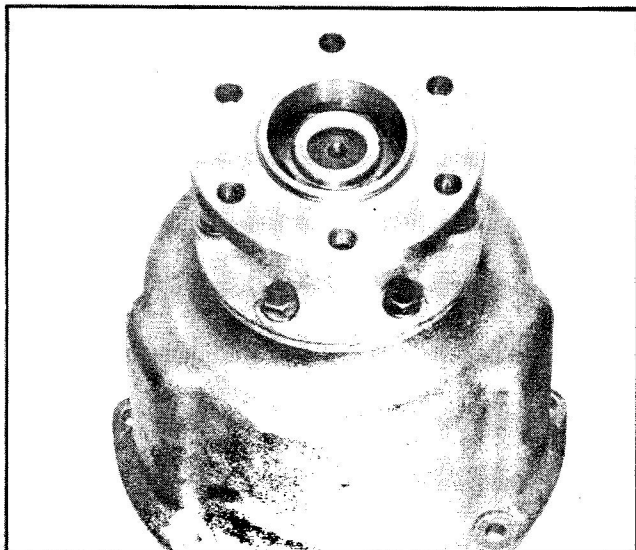


Fig. 72 Coupling and Nut Installed

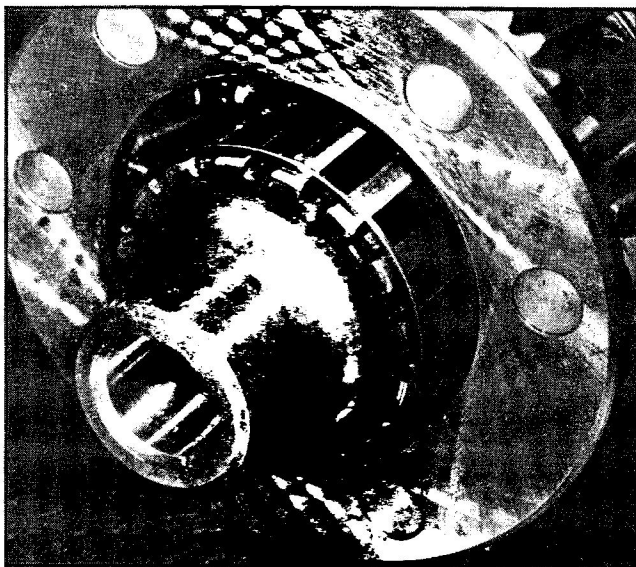


Fig. 73 Assemble Carrier and Output Shaft
(3 to 1 Ratio)

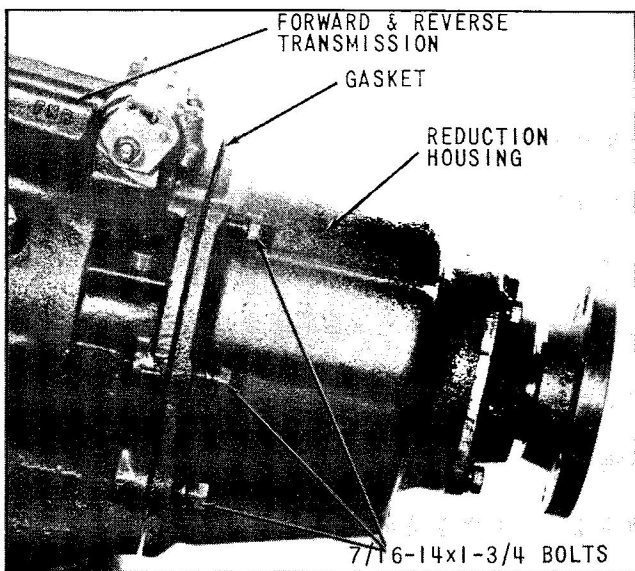


Fig. 74 Assemble Reduction Housing to
Transmission

4. Install front bearing cone and inner race over output shaft, then bearing spacer over shaft and seat into position, (Fig. 72).
5. Install output shaft into reduction housing and replace coupling and output shaft nut. Tightening nut will draw bearing and shaft into position, (Fig. 72).

11C. For 3.00 to 1.00 units only.

1. Install oil baffle spacer and oil baffle into reduction housing and replace the five 7/16-14 x 7/8 hex head bolts, which retain oil baffle (Figs. 68 and 69). Torque bolts.
2. Install snap ring in front groove of output shaft, install carrier over splines of shaft and install snap ring in rear groove of shaft to retain carrier, (Fig. 73). The carrier and shaft splines will assemble in one position only.
3. Install front bearing cone and spacer over output shaft and against bearing, (Fig. 70).
4. Install output shaft into reduction housing and replace coupling and output shaft nut. Tightening output shaft nut will draw bearing and shaft into position, (Fig. 72).

TO ASSEMBLE REDUCTION HOUSING AND ATTACHED PARTS TO FORWARD AND RE- VERSE TRANSMISSION

1. Install reduction housing to case gasket on rear of transmission and assemble the reduction housing and all parts, which have been assembled into it, over parts, which are attached to forward and reverse transmission, and with a gentle twisting of the coupling to align gears, complete the assembly by installing the six 7/16-14 x 1-3/4 hex head bolts to retain reduction unit to forward and reverse transmission, (Fig. 74).

SERVICE PRECAUTIONS AND INSTRUCTIONS

SERVICE REQUIREMENTS

Modern hydraulic transmissions require good servicing, if they are to function properly. Knowledge of all transmission components, oil cooler, cooler lines and connections, hydraulic circuits and all external controls is necessary to insure reliable, dependable, economical and trouble free operation.

Good service starts with knowledge. The most important factor for good servicing is cleanliness. Hydraulic valves and transmission parts have very close tolerances and small particles of dirt or lint will cause valves to stick or may cause damage to hydraulic sealing surfaces of transmission components. Good service requires careful workmanship and a craftsman's attitude. Take nothing for granted and check everything.

CHECKING AND CLEANING COOLER

Flush all oil and dirt from external oil lines and oil cooler before installing a new or an overhauled transmission. This is especially necessary if a damaged transmission, contaminated by wear particles, was permitted to run and the contaminated oil circulated through cooler circuits.

SHIFT LINKAGE

Adjust and check linkage after all installations and at other times when transmission functioning indicates a need for linkage adjustment. Transmission will operate properly only if the shift lever is located with the ball poppet fully seated in the hole in the side of shift lever.

CHECKING AND CHANGING FLUID

Check fluid level when transmission is at operating temperature and a short time after stopping engine. Drain oil once per season and refill with fluid. Type "A" suffix "A" automatic transmission fluid is recommended because it

has suitable lubricating characteristics as well as properties needed for use in the hydraulic system. Low oil level should be reason to check for leakage from external fittings and around seals and gaskets.

INTERNAL LEAKS

Leakage may be caused by many factors. Look, when checking for leaks, for broken sealing rings (cast iron or rubber), scratched surfaces, loose bolts, foreign particles between mating surfaces or surfaces which are not flat. Surfaces may be lapped to correct flatness. Damaged seals and sealing rings may be replaced. Torque loose bolts.

CHECKING PRESSURES

Use test gauges when trouble shooting. Gauges must be accurate to be of any value. Check the various hydraulic oil pressures by installing suitable gauges (a 0 to 200 PSI gauge for clutches, 0 to 100 for cooler, and 0 to 50 for lube) in the outlets indicated in (Figs. 2 and 3). Clutch pressures should be between 115 and 140 PSI when engine speed is 2000 and sump temperature is from 140 to 190 F. Check reverse clutch when shift lever is in reverse position and forward clutch pressure when shift lever is in forward position. Check lube and cooler at any time; however it is not normally a check that is required except when special problems shows a need for further checking cooler or lube problems. Lube pressure should be showing on the gauge at idle speeds above 450 ERPM and will reach a maximum of 20 PSI. Cooler will normally run between 20 and 30 PSI; however when cold oil and high speeds are encountered, pressures may exceed 65 PSI.

A pressure 5 PSI below normal usually indicates leakage in that circuit being tested. Low pressure in all circuits indicates leakage in portion of circuit common to all circuits or a weak pump, stuck regulator valve or restrictions in pump circuit.

REQUESTS FOR SERVICE INFORMATION

Service questions can not be intelligently answered, without a complete knowledge of the nature of the problem, the model number of the transmission involved and all pertinent information. The following list includes information that should always be included when writing or phoning for assistance:

1. Model number and date purchased.
2. Serial number
3. Transmission ratio
4. Engine used with transmission
5. Type of equipment in which used
6. Describe symptoms
7. Is transmission operative in forward
8. Is transmission operative in reverse
9. Does transmission slip in forward
10. Does transmission slip in reverse
11. Where from full mark was oil level

12. Was transmission noisy (describe)
13. What was transmission line pressure (see manual and check)
14. Did transmission lock-up
15. Was excessive heat noted at or near time of failure (describe)
16. Was shift lever correctly positioned by ball poppet ball in all positions
17. Was anything peculiar noticed prior to failure (describe)
18. What type of oil is being used
19. Is an oil cooler properly connected to transmission

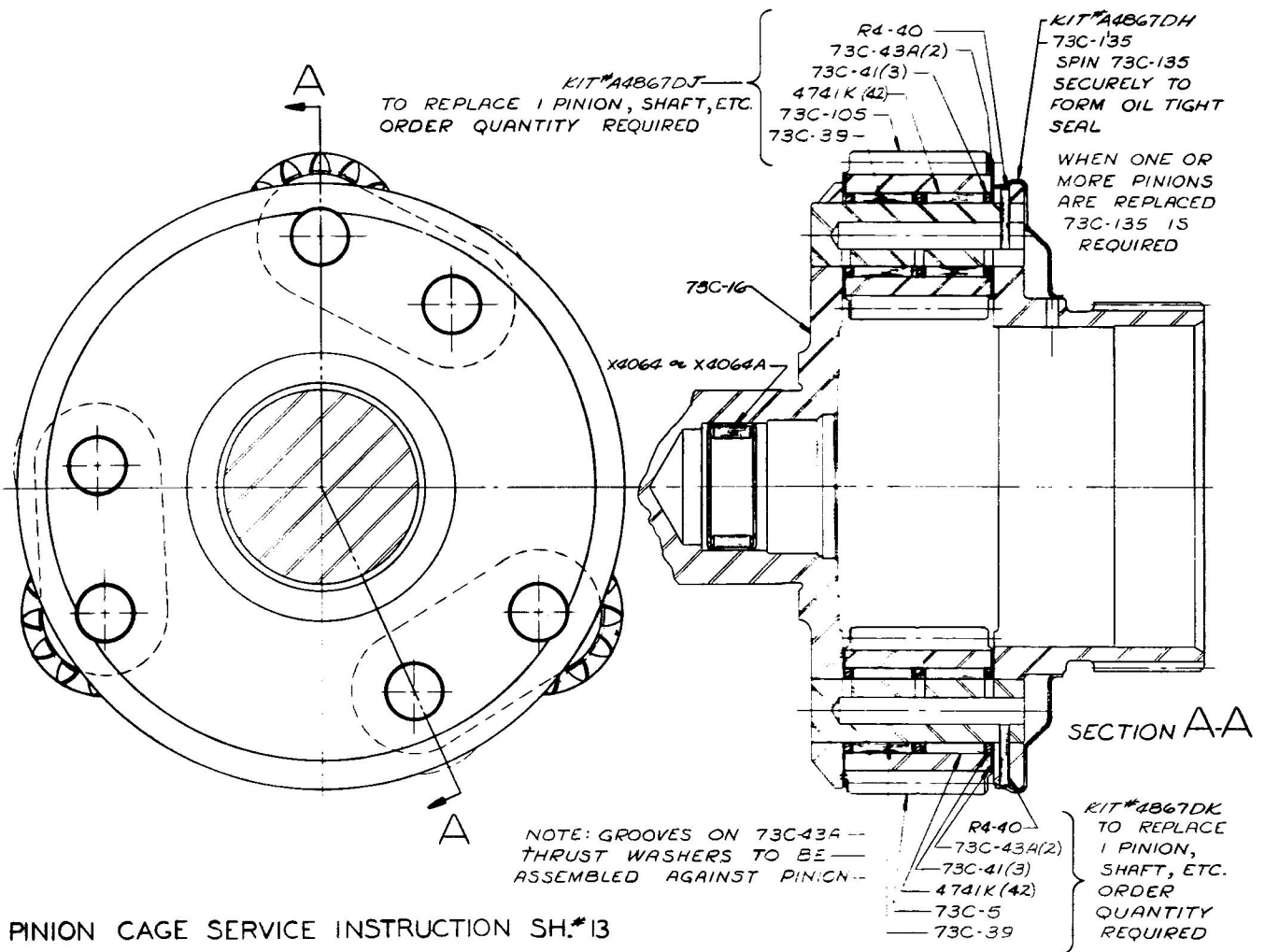
If model or serial number can not be read from name tag, look for it on sales contract or ask your dealer. The service manual will identify some models clearly; however when all efforts fail, include all information that would help identify your transmission.

REPAIR KITS FOR MODEL 73C

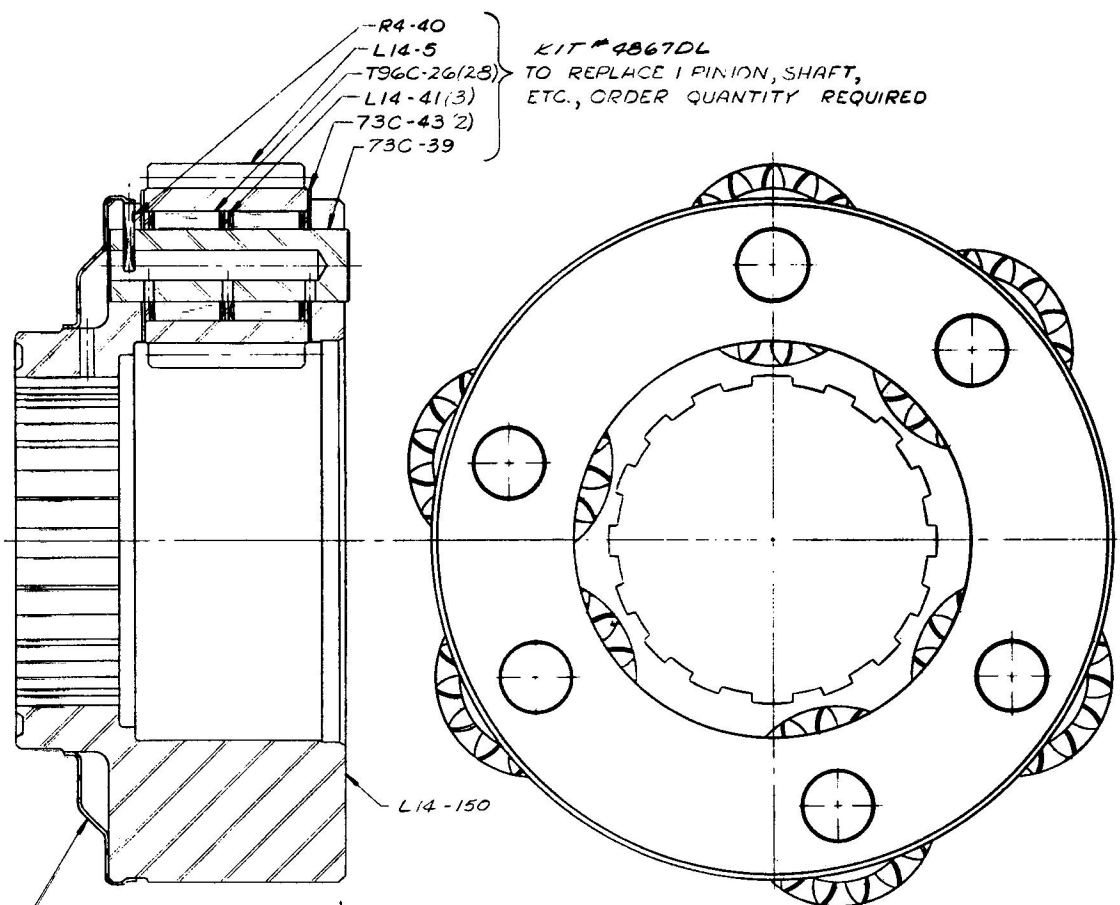
PART NO.	PART NAME	QUAN.	PART NO.	PART NAME	QUAN.
SMALL PARTS REPAIR KIT KIT NO. A4867DW			FORWARD CLUTCH REPAIR KIT KIT NO. A4867DX		
73C-144	GASKET-CASE & ADAPTER	1	5L-67	CLUTCH PRESSURE PLATE	1
73C-146	GASKET-CASE, REAR	1	5C-A66	CLUTCH INNER PLATE ASSEMBLY	7
73C-147	GASKET-BEARING RETAINER, REDUCTION & DIRECT DRIVE	1	3-176A	CLUTCH PLATE	7
71-14	GASKET-VALVE COVER	1	REVERSE CLUTCH REPAIR KIT KIT NO. A4867DY		
71C-62	OIL SEAL, PUMP	1	72-176	OUTER PLATE	3
LI4-110	OIL SEAL, REAR	1	72-A66B	INNER PLATE	4
3-61	GASKET-FRONT PUMP	1	73C-71	PRESSURE PLATE	2
4805A	SEAL RING, REVERSE CLUTCH PISTON	1	71-97	REVERSE CLUTCH PRESSURE PLATE SPRING	12
4804G	SEAL RING, REVERSE CLUTCH CYLINDER	1	4622F	DOWELL PIN	3
3-46	SEAL RING, FORWARD CLUTCH PISTON	1	NEEDLE BEARING KIT KIT NO. A4867DZ		
3-44	SEAL RING	1	4840T	ADAPTER TORRINGTON BEARING	1
3-34	SEAL RING	1	4840R	TORRINGTON BEARING	1
4804R	SEAL RING	1	4832B	NEEDLE BEARING RACE	1
4806A	SEALING RING	1	4830D	NEEDLE BEARING	1
4806R	SEALING RING	2	4832A	NEEDLE BEARING RACE	1
4822A	SNAP RING	2	4832	NEEDLE BEARING RACE	1
4959A	SNAP RING	1	4830C	NEEDLE BEARING	1
4751	SNAP RING	1			
4746	SNAP RING	1			
4765B	SNAP RING	2			
4745E	SNAP RING	1			
73C-15	RING GEAR HUB THRUST WASHER	1			
4804H	"O" RING, SELECTOR VALVE	1			
453632	POPPET BALL	1			
71-42	POPPET SPRING	1			
4873	#9 KEY, PUMP	1			
71-97	REVERSE CLUTCH PRESSURE PLATE SPRING	4			
4622F	DOWELL PIN, REVERSE CLUTCH	3			
4775T	MAIN SHAFT NUT	1			
4652KK	SPACER, DIRECT DRIVE ONLY	1			

TROUBLE ANALYSIS CHART

PROBLEM	POSSIBLE CAUSE	CORRECTION
NO FORWARD OR REVERSE	Low oil level Oil pump not functioning Low oil pressure due to leakage Shift valve incorrectly positioned Broken shafts (input or output) Cavitation of propeller Broken propeller	Fill to proper level Repair pump or drive key Find and repair leak Adjust shift linkage Replace broken parts Use slower engine speed or change prop Repair or replace
NO FORWARD	Shift valve incorrectly positioned Forward clutch failed Leakage in clutch circuit Reverse clutch not releasing	Adjust linkage Repair Find and repair leak Repair
NO REVERSE	Reverse clutch failed Leakage in reverse clutch circuit Forward clutch not releasing Shift valve incorrectly positioned	Repair Find and repair Repair Adjust Linkage
NO NEUTRAL	Shift valve incorrectly positioned Reverse clutch not releasing Forward clutch not releasing	Adjust linkage Repair Repair
VALVE BUZZ OR NOISE	Air in hydraulic system Low oil level Air leak on suction side of pump Restrictions in oil passages Restricted oil screen Sticky valves	Running will remove air Add oil to full mark Find and repair Remove restrictions Clean and replace Clean valve and add clean oil
UNIT OVERHEATS	Cooler oil restricted in cooler Cooler oil restricted in lines Cooler water restricted	Reverse flush cooler Reverse flush lines Reverse flush cooler and lines



PINION CAGE SERVICE INSTRUCTION SH.#13



73C-135 ~ SPIN 73C-135 SECURELY TO FORM
OIL TIGHT SEAL.

WHEN ONE OR MORE PINIONS ARE REPLACED

73C-135 IS REQUIRED KIT #A4867DH PINION CAGE SERVICE INSTRUCTIONS #14

TORQUE SPECIFICATIONS

PART NO.	APPLICATION	TORQUE LBS. FT.
179857	BEARING RETAINER & OIL BAFFLE SPACER	42-50
191641	REDUCTION SUN GEAR & BEARING RETAINER	42-50
179860	BEARING RETAINER-REAR	42-50
4911	ADAPTER TO CASE	27-37
179822	PUMP TO ADAPTER	17-22
179793	VALVE COVER	8-11
115729	CONTROL LEVER (NUT)	8-11
179861	REDUCTION HOUSING TO TRANSMISSION CASE	42-50
4775T	MAIN SHAFT NUT	160-220
444592	DRAIN PLUG	25-35
71-2A 195	DIPSTICK	10-15

SPECIFICATIONS SUMMARY

	AS1-		AS2-		AS5-		AS7-	
	73C	73CR	73C	73CR	73C	73CR	73C	73CR
*INPUT ROTATION	cw	ccw	cw	ccw	cw	ccw	cw	ccw
*OUTPUT ROTATION-FORWARD	cw	ccw	cw	ccw	cw	ccw	ccw	cw
REDUCTION RATIO-FORWARD	1.00:1.00		1.50:1.00		3.00:1.00		2.00:1.00	
REDUCTION RATIO-REVERSE	.88:1.00		1.32:1.00		2.64:1.00		1.76:1.00	
TRANSMISSION WEIGHT-DRY	135 LBS.		185 LBS.		185 LBS.		185 LBS.	
OIL CAPACITY-LEVEL	1.6 QUARTS		2 QUARTS		2 QUARTS		2 QUARTS	
OIL CAPACITY-15° INCLINED	1.5 QUARTS		2.2 QUARTS		2.2 QUARTS		2.2 QUARTS	
*As viewed from rear of transmission looking forward.								
A white name plate will be used on all Model 73C transmissions.								
NOTE: Oil capacity does not include oil needed for transmission cooler and external oil lines.								

TRANSMISSION FLUID & LUBRICATION REQUIREMENTS

TYPE "A" SUFFIX "A" AUTOMATIC TRANSMISSION FLUID is recommended because it has suitable lubricating characteristics as well as properties needed for use in the hydraulic system.