

ROCKWELL-STANDARD CORPORATION
TRANSMISSION AND AXLE DIVISION
DETROIT 32, MICHIGAN

TECHNIC AID

TANDEM DRIVE UNITS

UNBUSHED DIFFERENTIAL PINIONS

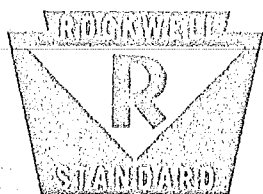
We have released for production and service replacement unbushed differential pinions for tandem drive units. These pinions are processed with lubricote #2. (This results in a dark grey color.)

The unbushed pinions are interchangeable with the bushed pinion assemblies and may also be used with the original spiders.

Part numbers for spiders to be used with the unbushed pinions will not change although they will also be processed with lubricote #2.

The tabulation below lists original pinions, unbushed pinions, and their respective spiders for all tandem models affected.

<u>AXLE MODEL</u>	<u>ORIGINAL PINION WITH BUSHING</u>	<u>NEW UNBUSHED PINION</u>	<u>SPIDERS</u>
SW-3456	A-2233-W-127	2233-Q-147	3278-H-8
SW-3458	A-2233-W-127	2233-Q-147	3278-H-8
SW-457 Original	A-2233-W-127	2233-Q-147	3278-H-8
SQW	A-2233-X-128	2233-U-47	3278-Y-103
SW-457 Bolted Gear	A-2233-X-128	2233-U-47	3278-Y-103
SW-460 Bolted Gear	A-2233-X-128	2233-U-47	3278-Y-103
SFD-4600 & SFDD	A-2233-X-128	2233-U-47	3278-T-46
SFD-4700 & SFDD	A-2233-X-128	2233-U-47	3278-T-46
SFD-4701 & SFDD	A-2233-X-128	2233-U-47	3278-T-46
SFD-461, SD-462	A-2233-X-128	2233-U-47	3278-T-46
SD-436	A-2233-X-128	2233-U-47	3278-T-46
SW-3000, SW-3003	A-2233-A-131	2233-T-72	3278-P-16
SBD-1555	A-2233-A-131	2233-T-72	3278-N-40
SW-457 Block Gear	A-2233-F-136	2233-Q-147	3278-H-8
SW-460 Block Gear	A-2233-F-136	2233-Q-147	3278-H-8
SW-3010, SW-3022	A-2233-B-132	2233-A-79	3278-T-46
SW-3013	A-2233-B-132	2233-A-79	3278-T-46
SD-451, SD-454	A-2233-C-133	2833-C-3	3878-D-4
SD-450	A-2233-C-133	2833-C-3	3878-D-4
SD-461	A-2233-T-436	2233-R-408	3278-T-46
SLD, SLDD, SLHD, SQHD	A-2233-H-112	2233-Y-103	3278-H-86
SQD, SQDD, SRD, SRDD	A-2233-J-114	2233-W-101	3278-F-84
SDHD, SFHD	A-2233-F-110	2233-A-105	3278-Z-104



ROCKWELL-STANDARD CORPORATION
TRANSMISSION AND AXLE DIVISION
DETROIT 32, MICHIGAN

TECHNIC AID

REAR AXLES

SINGLE REDUCTION, DOUBLE REDUCTION
AND TWO-SPEED DOUBLE REDUCTION
SINGLE AXLE DRIVE UNITS

UNBUSHED DIFFERENTIAL PINIONS

We have released for production and service replacement unbushed differential pinions for single axle drive units. These pinions are processed with Lubricote No. 2 (This results in a dark grey color.)

The unbushed pinions are interchangeable with the bushed pinion assemblies and may be used with the original spiders.

Part numbers for spiders to be used with the unbushed pinions will not change although they will also be processed with Lubricote No. 2.

The tabulation below lists original pinions, new unbushed pinions, and their respective spiders for all single axle models affected.

SINGLE REDUCTION

<u>AXLE MODEL</u>	<u>ORIGINAL PINION & BUSHING ASSEMBLY</u>	<u>NEW UNBUSHED PINION</u>	<u>SPIDERS</u>
53400 Series	A-2233-N-92	2233-W-75	3278-T-72
E-100	A-2233-F-110	2233-A-105	3278-Z-104
E-102	"	"	"
E-105	"	"	"
E-150	"	"	"
E-155	"	"	"
F-104	"	"	"
F-105	"	"	"
F-106	"	"	"
F-140	"	"	"
F-142	"	"	"
F-146	"	"	"
F-147	"	"	"
L-100	A-2233-H-112	2233-Y-103	3278-H-86
L-101	"	"	"
L-110	"	"	"
L-140	"	"	"
L-143	"	"	"
H-120 Special	"	"	"

SINGLE REDUCTION (Cont'd)

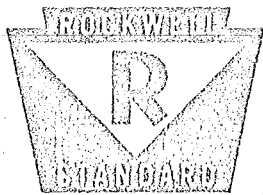
<u>AXLE MODEL</u>	<u>ORIGINAL PINION & BUSHING ASSEMBLY</u>	<u>NEW UNBUSHED PINION</u>	<u>SPIDERS</u>
Q-100	A-2233-J-114	2233-W-101	3278-F-84
Q-101	"	"	"
Q-110	"	"	"
QT-140	"	"	"
R-100	A-2233-K-115	2233-U-99	3278-A-79
R-101	"	"	"
R-110	"	"	"
R-111	"	"	"
R-112	"	"	"
R-113	"	"	"
R-120	"	"	"
RT-140	"	"	"
53589	A-2233-N-116	2233-Z-104	3278-T-72
53596	"	"	"
53597	"	"	"
53599	"	"	"
H-100	A-2233-N-118	2233-M-117	3278-D-82
H-101	"	"	"
H-102	"	"	"
H-110	"	"	"
H-120	"	"	"
H-140	"	"	"
H-141	"	"	"
H-150	"	"	"
H-151	"	"	"
H-153	"	"	"
H-156	"	"	"
66700 Series	A-2233-W-127	2233-Q-147	3278-H-8
65350	A-2233-A-131	2233-T-72	3278-P-16
65351	"	"	"
65354	"	"	"
65355	"	"	"
65356	"	"	"
65357	"	"	"
65743	"	"	"
65456	A-2233-B-132	2233-A-79	3278-D-4
65457	"	"	"
C-100	A-2233-D-134	2233-A-140	3278-C-107
B-150	A-2233-E-135	2233-T-124	3278-L-64
H-150 Special	A-2233-L-454	2233-G-449	3278-D-82
BH-150 "			
J-151 Series	A-2233-M-455	2233-H-450	3278-H-80
J-153	"	"	"
Q-100 Special	A-2233-N-456	2233-F-448	3278-F-84

DOUBLE REDUCTION

<u>AXLE MODEL</u>	<u>ORIGINAL PINION & BUSHING ASSEMBLY</u>	<u>NEW UNBUSHED PINION</u>	<u>SPIDERS</u>
7318	A-2233-N-92	2233-W-92	3278-T-72
I-200	A-2233-H-112	2233-Y-103	3278-H-86
I-202	"	"	"
LT-201	"	"	"
Q-200	A-2233-J-114	2233-W-101	3278-F-84
Q-201	"	"	"
QT-200	"	"	"
QT-201	"	"	"
QT-230	"	"	"
QT-235	"	"	"
R-200	A-2233-K-115	2233-U-99	3278-A-79
R-201	"	"	"
R-220	"	"	"
R-230	"	"	"
R-235	"	"	"
RT-240	"	"	"
S-200	"	"	"
U-200	"	"	"
H-200	A-2233-N-118	2233-M-117	3278-D-82
H-201	"	"	"
7573	A-2233-X-128	2233-U-47	3278-T-46
7574	"	"	"
7575	"	"	"
7576	"	"	"
7577	"	"	"
7578	"	"	"
7579	"	"	"
7580	"	"	"
7581	"	"	"
7582	"	"	"
76714	"	"	"
76715	"	"	"
76744	A-2233-C-133	2233-C-3	3878-D-4
76785	"	"	"
76790	"	"	"
7578 Special	A-2233-T-436	2233-R-408	3278-T-46
74876	A-2233-R-460	2233-W-413	3878-B-2
74878 through	"	"	"
74882	"	"	"
R-3100	"	"	"
R-2090	"	"	"
75350	"	"	"
75351	"	"	"
75356	"	"	"
75357	"	"	"

TWO-SPEED DOUBLE REDUCTION

<u>AXLE MODEL</u>	<u>ORIGINAL PINION & BUSHING ASSEMBLY</u>	<u>NEW UNBUSHED PINIONS</u>	<u>SPIDERS</u>
E-300	A-2233-N-92	2233-W-75	3278-T-72
E-300	A-2233-F-110	2233-A-105	3278-Z-104
E-301	"	"	"
E-302	"	"	"
L-300	A-2233-H-112	2233-Y-103	3278-H-86
L-301	"	"	"
L-302	"	"	"
L-340	"	"	"
L-343	"	"	"
L-352	"	"	"
L-361	"	"	"
LT-300	"	"	"
LT-301	"	"	"
LT-302	"	"	"
LT-310	"	"	"
Q-300	A-2233-J-114	2233-W-101	3278-F-84
Q-301	"	"	"
Q-350	"	"	"
Q-370	"	"	"
Q-380	"	"	"
Q-390	"	"	"
Q-395	"	"	"
L-350	"	"	"
L-351	"	"	"
L-371	"	"	"
QT-300	"	"	"
QT-340	"	"	"
QT-350	"	"	"
QT-365	"	"	"
R-300	A-2233-K-115	2233-U-99	3278-A-79
R-301	"	"	"
R-350	"	"	"
R-380	"	"	"
R-390	"	"	"
R-395	"	"	"
RT-340	"	"	"
RT-343	"	"	"
RT-360	"	"	"
RI-365	"	"	"
S-300	"	"	"
U-300	"	"	"
H-300	A-2233-N-118	2233-M-117	3278-D-82
H-301	"	"	"
H-302	"	"	"
H-320	"	"	"
H-340	"	"	"
H-342	"	"	"
H-343	"	"	"
H-350	"	"	"
I-370	"	"	"
I-371	"	"	"
E-371	"	"	"
E-372	"	"	"



ROCKWELL-STANDARD CORPORATION
TRANSMISSION AND AXLE DIVISION
DETROIT 32, MICHIGAN

TECHNIC AID

INTER-DIFFERENTIAL PART NUMBERS ORIGINAL AND NEW SQDD's AND SLDD's

We are now using a common inter-axle differential for the SQDD and SLDD forward drive units. Accordingly the various components of the new SQDD's are interchangeable with similar parts in the new SLDD's. However all the components of the new SQDD are different from and cannot be interchanged with similar parts in the original SQDD. Similarly many of the parts will not interchange between the new and original SLDD.

The following information will help identify original and new assemblies as well as the components that are different.

SQDD

Original SQDD assemblies are stamped E-473 and new assemblies are stamped R-512 on the inspection cover pad on the top of the drive unit.

<u>Part Name</u>	<u>Original SQDD</u>	<u>New SQDD</u>
Diff. Carrier & Cap Assembly	A1-3800-E-473	A2-3800-R-512
Inter. Diff. Carrier & Cup Assembly	A-3875-N-378	A-3875-C-419
" " Cover Oil Seal Assembly	A-1805-V-152	A-1805-D-212
" " " & Oil Seal Assembly	A-3866-N-638	A-3866-M-715
" " " & Stud Assembly	A-3876-B-262	A-3876-G-293
" " Case Assembly	A-3835-P-328	A-3235-S-435
" " " Insert (only)	2847-X-492	2847-F-526
" " " Bolt	10-X-502	10-X-631
" " Assembly	A2-3835-P-328	A1-3235-S-435
" " Pinion & Bushing Ass'y.	A-3891-A-755	A-3891-I-915
" " " Bushing (only)	1825-X-180	1825-D-136
" " " Shaft	3880-D-706	3880-C-705
" " " " Lock	2847-N-586	2847-M-585
" " Gear (Rear)	3892-C-1251	3892-X-1506
" " Gear (Front)	3892-D-1252	3892-W-1505
" " Clutch Collar	3897-M-923	3897-E-993
" " " " Washer	1829-V-620	1829-V-646
" " " " Snap Ring	1854-C-211	1854-A-209
" " " " " Retainer	3897-M-949	3897-L-1312
" " Shifter Shaft	2843-R-278	2843-Y-389
" " " Collar	3897-N-924	3897-M-1313
" " " " Lockring	1229-M-1105	1229-G-1099
" " " Yoke	3897-K-1155	3897-L-1156
" " " Shaft Nut	N-58	13-X-111
Bevel Pinion & Quill Ass'y. (Matched Sets only)	A-35503	A-35527
" Gear (Matched Sets only)	3889-L-272	3889-L-272

SQDD Continued

Part Name	Original SQDD	New SQDD
Inter. Diff. Carrier Shim (.003)	2803-L-1442	2803-Z-1534
" " " " (.005)	2803-M-1443	2803-A-1535
" " " " (.031)	2803-N-1444	2803-B-1536
" " " Cover Gasket	2808-D-680	2808-D-706
" " Case and Cover Gasket	2808-J-686	2808-A-807
" " Bearing	ND-5212	ND-5211
" " " Spacer	None	1244-J-660
" " Shift Fork	2849-X-180	2849-N-196
Through Shaft	3880-X-622	3880-B-704
Input Shaft Companion Flange	A1-3280-G-1957	A-3280-F-2190
" " " "	A1-3280-N-2094	A-3280-C-2213
" " " "	A1-3280-C-2161	A-3280-B-2212
" " " Yoke	A-3897-L-1000	A-3280-F-2216
" " " "	A-3280-L-2144	
" " " "	A1-3280-P-2096	A-3280-K-2273
" " " "	A-3280-H-2166	A-3280-E-2215
" " " "	A1-3280-J-2168	A-3280-D-2214

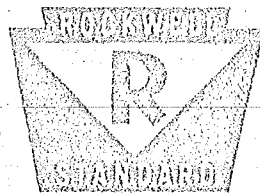
SLDD

The following table of part numbers for the SLDD inter-axle will eliminate any error when ordering service replacement parts for the original assemblies and the new assemblies. Both the original SLDD's and the new SLDD's are stamped X-492 on the inspection cover pad on the top of the drive unit. The X-492 is preceeded by an A, B, or C number. All A numbers and B numbers through B43 plus B45,47,49,51,53,54,55,77 and 80 are of the original SLDD. Other B numbers not listed and all C numbers or subsequent letter numbers are of the new SLDD.

Part Name	Original SLDD	New SLDD
Inter. Diff. Carrier Assembly	A-3875-Q-381	A-3875-C-419
" " Case Assembly	A1-3235-L-506 	A-3235-V-438
" " " Bolt	10X-504	10X-631
" " Assembly	A-3235-L-506 	A1-3235-V-438
" " Pinion & Bushing Assembly	A-3891-K-791	A-3891-E-915
" " " Shaft	3880-Q-615	3880-C-705
" " " " Lock	2847-E-525	2847-M-585
" " Gear (Rear)	3892-R-1344	3892-X-1506
" " Gear (Front)	3892-S-1345	3892-W-1505
" " Clutch Collar Snap Ring Retainer	3897-H-996	3897-L-1312
" " Shifter Shaft	2843-N-326	2843-Y-389
" " " Collar	3897-F-994	3897-M-1313
" " " " Lockring	1229-M-1105	1229-G-1099

You will note that the new SQDD and the new SLDD inter-axle differential now employ the same parts, with the exception of the inter-axle differential case assembly. This engineering change was brought about to make the two inter-axle differential units more versatile with the interchangeability of component parts.

ARROW DENOTES CHANGE



ROCKWELL-STANDARD CORPORATION
TRANSMISSION AND AXLE DIVISION
DETROIT 32, MICHIGAN

TECHNIC AID

TANDEM AXLES REPLACEMENT BALL AND BUSHING ASSEMBLIES FOR TORQUE ROD ENDS

FIELD SERVICE REPLACEMENT OF BALL AND BUSHING ASSEMBLIES FOR TORQUE ROD ENDS

SBD-1555	SFD-4600 & 4640	SFD-450	SW-3000	SLD	SRD
SD-454	SFDD-4600 & 4640	SFD-454	SW-3002	SLDD	SRDD
SD-452	SFD-154	SFD-460	SW-3003	SQD	SUD
SD-3000	SFD-155	SW-452	SW-3010	SQDD	SUDD
SD-3010	SFD-156	SW-456	SW-3012	SQW	
SD-3020	SFD-157	SW-460	SW-3013		

We have available O and S Ball and Bushing Assemblies and Rubber Mounted Ball and Bushing Assemblies for the above model tandems. These assemblies are inter-changeable with each other.

O and S TYPE		RUBBER TYPE	
Original Ass'y	Current Assembly	Original Ass'y	Current Assembly (High Compression Type)
*A-2297-Z-546	A-2297-J-868	*A-2297-V-620	A-2297-J-1050
A-2297-A-547		A-2297-C-601	
A-2297-C-549		A-2297-D-602	
A-2297-D-550		A-2297-E-603	
A-2297-V-776		*A-2297-J-738	A-2297-L-1052
A-2297-X-778		*A-2297-K-739	A-2297-H-1048
*A-2297-Z-806	A-2297-K-895	*A-2297-Q-745	A-2297-K-1051

INSTALLATION

Torque Rod assemblies may have bushings assembled with the taper or pin either in the same or opposite directions. Replacement bushings must be installed in the like manner. A sleeve slightly smaller than the rod end bore, which will bear against the bushing shell should be used. Press the bushings out and in with an arbor press or a small hydraulic press.

NOTE: Press only on bushing retainer or shell.

*No longer available for production or service.

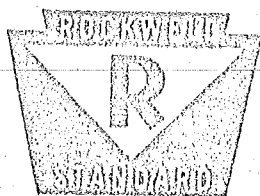
The following chart denotes interchangeability by tandem model:

TANDEM MODEL

O AND S ASSEMBLY

RUBBER ASSEMBLY

SD 462	}	A-2297-J-868	A-2297-J-1050
SFD & SFDD 4600 (EARLIER MODELS)			
SFD & SFDD 4640 (EARLIER MODELS)			
SFD 450			
SFD 454			
SFD 460			
SW 452	}	A-2297-J-868	A-2297-J-1050
SW 456			
SW 460			
SFD & SFDD 4600 (LATER MODELS)			
SFD & SFDD 4640 (LATER MODELS)			
SD 3000	}	A-2297-D-550	A-2297-E-603
SW 3002			
SW 3003			
SFD 157-DPII-P			
SBD-1555 (New Style Brackets)			
SFD-157-II		A-2297-C-549	A-2297-D-602
SLD & SLDD		A-2297-X-778	A-2297-H-1048
SQD & SQDD		A-2297-V-776	A-2297-L-1052
SQW		A-2297-V-776, X-778	A-2297-L-1052, H-1048
SBD-1555 (Old Style Brackets)	}	A-2297-D-550, C-549	A-2297-E-603, D-602
SFD-156			
SW-3000		A-2297-D-550, J-868	A-2297-E-603, J-1050
SFD-154	}	A-2297-C-549, A-547	A-2297-D-602, C-601
SFD-156			
SD-3010	}	A-2297-A-547, C-549, D-550	A-2297-C-601, D-602, E-603
SD-3020			
SW-3010			
SW-3012			
SW-3013			
SRD & SRDD	}	A-2297-J-868, K-895	A-2297-J-1050, K-1051
SUD & SUDD			



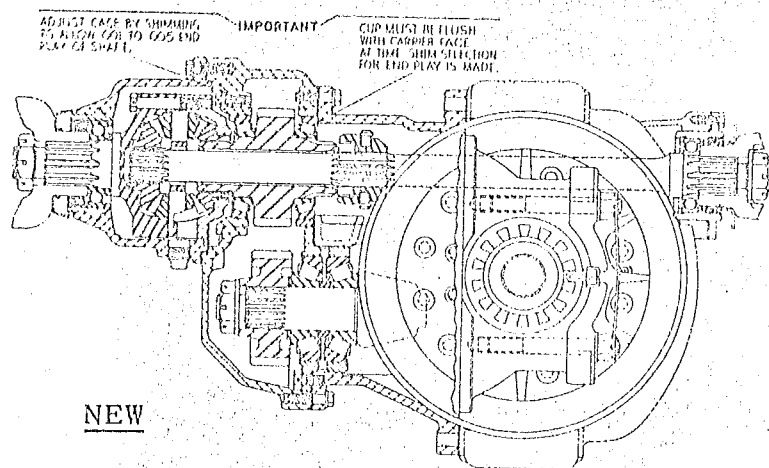
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TRANSMISSION AND AXLE DIVISION
DETROIT 32, MICHIGAN

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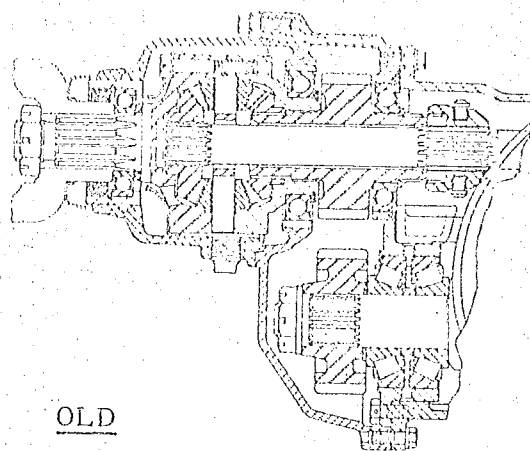
SLHD and SQHD
TANDEM DRIVE UNITS

INCORPORATING TAPERED BEARINGS IN "ALUMINUM" DRIVE UNITS

We have released a new "Aluminum" version of the SLHD and SQHD Tandem in which the Upper Helical Gear, in the forward carrier, is mounted on tapered roller bearings.



NEW



OLD

The earlier drive units can be reworked to incorporate tapered bearings by installing the following parts:

MPS-1204

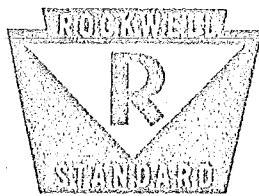
<u>Part</u>	<u>Pieces</u>	<u>Part Number</u>	<u>Remarks</u>
Adapter case	1	3280-C-3253	
Upper Helical Gear	1	3892-P-2044	
Upper Helical Gear Rear Bearing Cup	1	29630	
Upper Helical Gear Bearing	2	29675	
Tapered Bearing Cage Assembly	1	A-3226-C-237	Contains forward bearing cup
Shims (.003")	(As Required)	2203-R-3008 2203-S-3009	Use shims to obtain .001-.005" endplay in gear assembly
Capscrew	6	S-269-D	Use soft lockwire to secure

<u>Part</u>	<u>Pieces</u>	<u>Part Number</u>	<u>Remarks</u>
Inter-Axle Differential Case Ass'y	1	A3-3235-R-564	Forward and Rear Case halves with bushing in rear half.
Inter-Axle Differential Rear Side Gear	1	2234-B-340	Longer hub than old side gear
Adapter & Carrier Gasket	1	2208-H-450	
Inter-Axle and Adapter Gasket	1	2208-E-447	
Shift housing Gasket	1	2208-D-446	

Other information pertaining to this type drive unit can be found in Rockwell-Standard Field Maintenance Manual No. 5-A.

SERVICE

In assembly, tighten bearing cage capscrews to 35-40 lb. ft. torque and insert lockwire.



ROCKWELL-STANDARD CORPORATION
TRANSMISSION AND AXLE DIVISION
DETROIT 32, MICHIGAN

TECHNIC AID

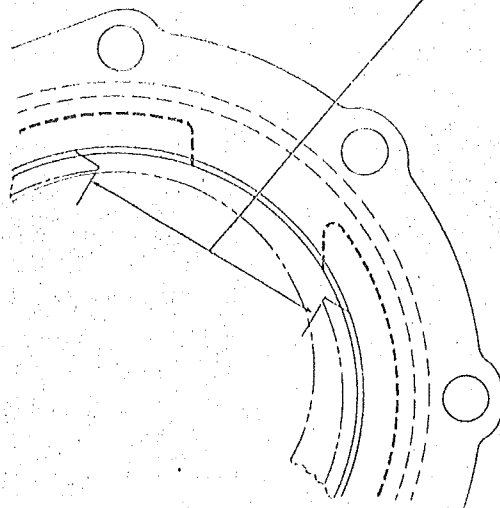
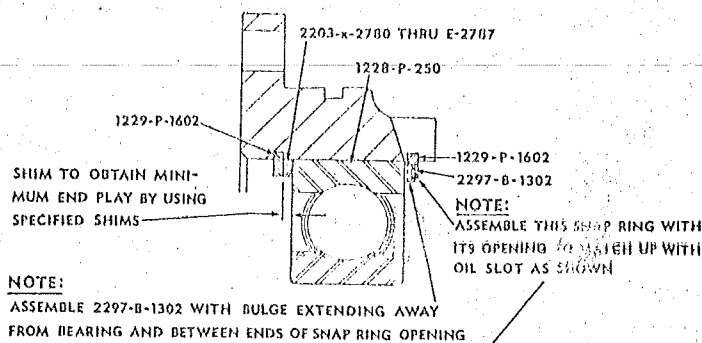
SRHD AND SSHD TANDEM DRIVE UNITS

NEW INPUT BEARING CAGE

We have redesigned the Input Bearing Cage of the SRHD and SSHD forward rear axle to improve lubrication of the input bearing. The improved lubrication is accomplished by an oil slot in the cage which picks up splashed differential oil and channels it into the oil baffle.

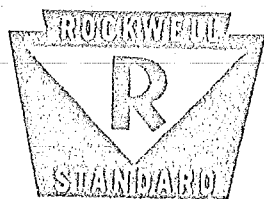
In making the changeover the following parts must be installed:

QTY.	NEW PART NUMBER	DESCRIPTION	OLD PART NUMBER	REMARKS
1	3226-Z-182	Input Bearing Cage	Same	Added oil slot
1	2297-B-1302	Oil Baffle		New part added to catch oil for input bearing
2	1229-P-1602	Lockring	Same	Opening widened to correspond with oil slot in cage
1	2203-X-2780 thru E-2787	Shims	Same	No change
1	1228-P-250	Ball Bearing	Same	No change



SERVICE

- A. Install new inner 1229-P-1602 Lockring in the bearing cage. Position the opening toward the oil slot in the cage.
- B. Place the 2297-B-1302 Oil Baffle in the cage with the bulge between the opening in the lockring.
- C. Using a suitable driver, install the 1228-P-250 Ball Bearing.
- D. Position one (1) Bearing Shim against the Ball Bearing. Select a Shim (2203-X-2780 thru E-2787) which will provide a minimum of bearing endplay.
- E. Install the outer 1229-P-1602 Lockring in the cage and check the bearing endplay.



ROCKWELL-STANDARD CORPORATION
TRANSMISSION AND AXLE DIVISION
DETROIT, MICHIGAN 48232

TECHNIC AID

SRHD AND SSHD TANDEM DRIVE UNITS

IMPROVED INPUT BEARING CAGE AND COVER

We have released a redesigned input bearing cage and a new cover, plus a seal assembly. The combination of the two parts will improve the clamping of the forward ball bearing of the SRHD and SSHD carrier assemblies in the forward rear axle.

A changeover kit is available from Rockwell-Standard Service Parts Department.

MPS 1217

<u>QUANTITY</u>	<u>NEW PART NUMBER</u>	<u>DESCRIPTION</u>	<u>OLD PART NUMBER</u>
1	3226-M-351	Input Shaft Cage	3226-Z-182
1	→ 1205-N-768	Cage "O" Ring	
1	A-3266-K-219	Cover & Seal Assy.	
1	1205-A-911	Cover "O" Ring	
1	1228-P-250	Ball Bearing	1228-P-250
2 As Req'd.	2203-G-4089	Shim .003 "	
4 As Req'd.	2203-H-4090	Shim .005 "	
7	S-2712-1	Capscrews	

SERVICE

For complete assembly and disassembly instructions see Rockwell-Standard Field Maintenance Manual No. 5B except assemble bearing in cage as follows:

1. Clean bearing bore and bearing O.D. with locquic primer. Let dry for 3 minutes.
2. Apply a bead of grade A (10-1) loctite around bearing bore and bearing O.D.

3. Push (or press) bearing in place.

ADJUSTING SHIMS

1. With cage and bearing in place, install cover and oil seal assembly (minus shims) over input shaft cage. Make sure cover assembly seats flat on bearing.

2. Insert capscrews and washers, and finger tighten the capscrews.

3. Check gap with feeler gauge. Subtract .003 " - .006 " from the amount of gap. This will be the thickness of the shims to be used (Figure 1).

→ Arrow denotes change.

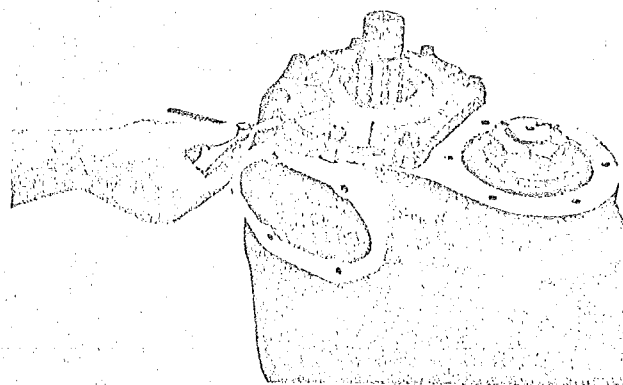


Figure 1

4. Remove the capscrews, washers and cover assembly.

5. Position shims on cover and place rubber "O" ring over the cover pilot next to the shims, (Fig. 2).*

6. With shims and seal in place, install cover in bearing cage.

7. Install capscrews and washers and tighten to 60-77 lb. ft.

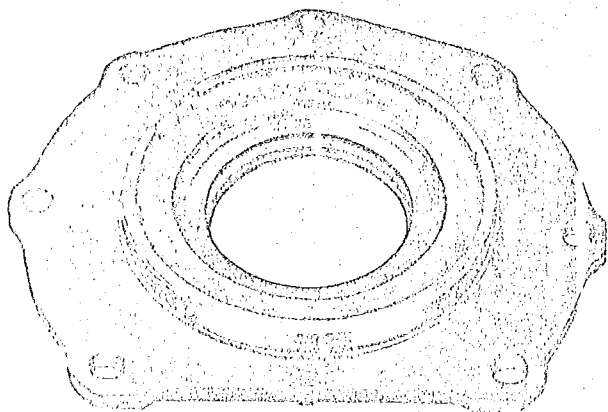


Figure 2

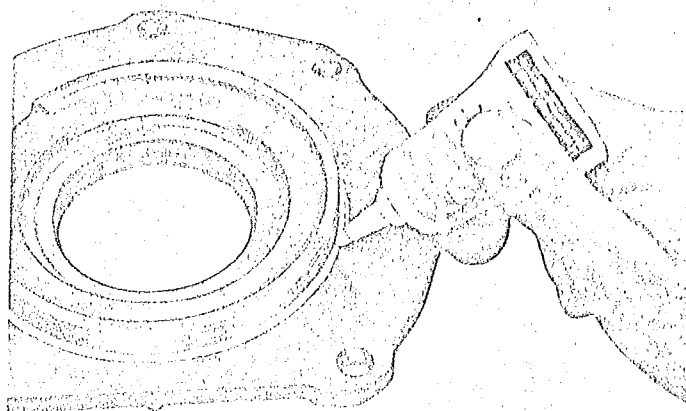


Figure 3

*This seal is available from the Rockwell-Standard Service Parts Dept. under part number 1205-A-911 or it may be procured from other sources. The size is 5.239 inside diameter and .070 diameter cross section. In a pinch, a 3-1/2 to 4 I.D. x .103 or a 2-5/8 to 3 I.D. x .139 "O" ring may be substituted. In an emergency, a satisfactory seal may be formed from RTV Silastic (room temperature vulcanizing silicone rubber) which is available in small tubes accompanied by a tapered plastic applicator.

If RTV Silastic is being used, cut applicator at point where it measures approximately 1/8 inch across the outside. Apply a uniform bead of Silastic in the corner at the cover pilot and the face of the shim. Hold the end of the applicator at a 45° angle against the pilot (Figure 3) and the shim and use it as a forming tool while squeezing the tube. (Do not apply "extra" Silastic as this will merely complicate disassembly at a later date.) Allow the Silastic to set for one to two hours to obtain a partial cure.



ROCKWELL-STANDARD CORPORATION

TRANSMISSION AND AXLE DIVISION

DETROIT, MICHIGAN 48232

TECHNIC AID

REAR AXLE SERIES

DIFFERENTIAL CASE AND GEAR BOLTS

Differential case and gear attaching bolts are available as service parts for all axle models listed below. Use of the bolts greatly facilitates servicing these units in the field and eliminates the need for special equipment necessary to correctly cold upset rivets.

<u>AXLE MODEL SINGLE REDUCTION</u>	<u>NEW SERVICE BOLT</u>	<u>NUT</u>	<u>LOCKWIRE OR COTTER</u>	<u>ORIGINAL RIVET</u>
51500 Series	199-F-3194	N-26-1	LW-1610	RV-7610
53500 Series	15X-663	N-58-1	" "	RV-7712
B-100, B-101	15X-776	N-27-1	" "	RV-7712
B-150 (Split Type)	15X-778	N-26-1	" "	RV-7612
BH-150 (Split Type)	15X-667	N-28-1	" "	RV-7812
C-100	15X-776	N-27-1	" "	RV-7712
D-100	15X-775	N-28-1	" "	RV-7812
E-100, E-102, E-105	15X-775	N-28-1	" "	RV-7812
E-150, E-155, (Split Type)	15X-775	N-28-1	" "	RV-7812
F-104, F-105, F-106, F-142, F-146	15X-775	N-28-1	" "	RV-7812
H-100, H-101, H-102, H-110, H-140, H-141, H-143	15X-667	N-28-1	" "	RV-7812
H-150, H-151, H-153, H-156 (Split Type)	15X-667	N-28-1	" "	RV-7812
*H-120	15X-786	N-210-1	" "	RV-71014
*L-100, L-101, L-110	15X-786	N-210-1	" "	RV-71013
*L-141, L-142, L-143, L-144, L-146	15X-786	N-210-1	" "	RV-71013
Q-100, Q-101, Q-110, Q-111, Q-130	15X-786	N-210-1	" "	RV-71014
QT-140, QT-141, QT-143, QT-160	15X-786	N-210-1	" "	RV-71014
+R-100, Through R-160	15X-964	N-210-1	" "	RV-71016

*See bottom of Page 3 for service on the original rivet.

+NOTE: Use Washer No. 1229-U-1503 under nut.

DOUBLE REDUCTION AND TWO SPEED DOUBLE REDUCTION

E-350, E-370	15X-729	N-29-1	" "	RV-7915
G-341, G-346	15X-729	N-29-1	" "	RV-7915
H-340, H-341, H-342, H-343, H-350, H-370	15X-727	N-210-1	" "	RV-71016
L-340, L-341, L-343, L-350, L-351, L-352	15X-727	N-210-1	" "	RV-71016
QT-340, QT-341, QT-360, QT-365	15X-779	N-210-1	" "	RV-71016
RT-240, RT-340, RT-360, RT-365	15X-777	N-210-1	" "	RV-71024
R, S, and U-200	15X-656	N-29-1	K-2410	RV-7928
R-230, R-235	15X-656	N-29-1	K-2410	RV-7928
R-390, R-395	15X-777	N-210-1	LW-1610	RV-71024
7500 Series	15X-655	N-29-1	K-2410	RV-7926
79744 Series	199-F-3184	N-210-1	LW-1610	RV-71028

SERVICE DISASSEMBLE ORIGINAL PARTS

1. Mark differential case halves so they can be correctly aligned at reassembly.
2. Separate the differential case assembly and remove spider, spider pinions, side gears and thrust washers.
3. Accurately center punch each rivet in the center of the formed head. In single reduction axles, center punch gear side of head.
4. Drill through rivet head using sizes as noted:

B-150 (Split Type)	11/32" dia.	H-120	17/32" dia.
51500 Series	" "	L-100, L-101, L-110	" "
		L-141, L-142, L-143, L-144, L-146	" "
B-100, B-101	13/32" dia.	R-230, R-235	" "
C-100	" "	R, S and U-200	" "
		7500 Series	" "
BH-150 (Split Type)	15/32" dia.		
D-100	" "	H-340, H-341, H-343	19/32" dia.
E-100, E-102, E-105	" "	H-350, H-370	" "
E-150, E-155, (Split Type)	" "	L-340, L-341, L-343	" "
F-104, F-105, F-106	" "	L-350, L-351, L-352	" "
F-142, F-146	" "	Q-100, Q-101, Q-110	" "
H-100, H-101, H-102, H-110	" "	Q-111, Q-130	" "
H-140, H-141, H-143	" "	R-100 through R-160	" "
H-150, H-151, H-153	" "	QT-140, QT-141, QT-143, QT-160	" "
H-156 (Split Type)	" "	QT-340, QT-341, QT-365	" "
53500 Series	" "	RT-240	" "
		RT-340, RT-360, RT-365	" "
E-350, E-370	17/32" dia.	R-390, R-395	" "
G-341, G-346	" "	79744 Series	" "

5. Drive the rivets from the holes with a suitable drift.

REASSEMBLE THE PARTS

Clean and inspect all parts of the differential assembly and replace worn or damaged parts. Thrust washers, side gears and pinions must be replaced in sets.

1. Spot face bolt holes of single reduction cases on side opposite gear to have flat nut seat as follows:

<u>MODEL</u>	<u>SPOT FACE DIAMETER</u>	<u>SPOT FACE TO FLANGE THICKNESS</u>
51500 Series	1"	Clean up only
53500 Series	1-1/8"	Clean up only
B-100, B-101	1"	Clean up only
B-150 (Split Type)	7/8"	Clean up only
BH-150 (Split Type)	1-1/8"	1/2"
C-100	1"	Clean up only
D-100, E-100, E-102, E-105	1-1/8"	15/32"
E-150, E-155 (Split Type)	1-1/8"	15/32"
F-104, F-105, F-106, F-142, F-146	1-1/8"	15/32"
H-100, H-101, H-102, H-110, H-140, H-141	1-1/8"	1/2"
H-150, H-151, H-153, H-156 (Split Type)	1-1/8"	1/2"
H-120, L-100, L-101, L-110	1-3/8"	1/2"
L-141, L-142, L-143, L-144, L-146	1-3/8"	1/2"
Q-100, Q-101, Q-110, Q-111, Q-130	1-3/8"	9/16"
QT-140, QT-141, QT-143, QT-160	1-3/8"	9/16"
R-100 through R-160	1-3/8"	19/32"

Double reduction and two speed double reduction do not require spot face.

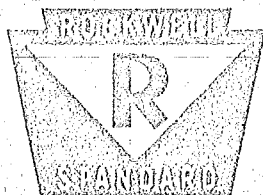
2. Assemble drive gears to the flange halves of single reduction cases, inserting bolts from the gear side. Tighten nuts to specified torque carefully aligning nut slot with bolt hole. Do not back off nuts. Lock nuts in place.
3. Apply ROCKWELL-STANDARD specified rear axle lubricant to differential parts and install in case halves. Hold assembly together with four equally spaced case bolts and nuts.
4. Rotate gear nest to be sure it turns freely. If gears bind or stick, disassemble and inspect for cause.
5. Similarly assemble the parts of double reduction differential, inserting the bolts so the nuts will be on the deeper recessed side of the gear. Bolt heads should be on bevel gear side of 79744 differentials.
6. Install balanced of bolts and tighten nuts to specified torque.

<u>BOLT SIZE</u>		<u>LBS. FT. TORQUE</u>	
<u>O.D.</u>	<u>THREADS</u>	<u>MIN.</u>	<u>MAX.</u>
3/8"	24	43	56
7/16"	20	67	87
1/2"	20	105	135
1/2"	20 (with Allen Socket Type Head)	92	118
9/16"	18	148	190
5/8"	18	210	270

Torques given apply to parts coated with machine oil; for dry (or "as received") parts increase torque 10%; for parts coated with multi-purpose gear oil decrease torque 10%.

*Axles with the asterisk now employ gears and cases with 5/8" bolt holes. Service will no longer stock original gears with 9/16" holes. Follow instructions below for reworking original cases to suit new gears.

1. To assure proper reaming of 9/16" holes, assemble drive gear to the flange halve of case by temporarily installing 2 (9/16") bolts at opposite sides of case.
2. Line ream or drill case to .625 dia.
3. Install 15-X-786 bolts in holes reamed and draw up snug to hold gear and case in position while the two temporary bolts are removed and these holes are reamed.
4. Install bolts and nuts in 2 remaining holes and continue with service procedure as previously outlined in "Reassemble the parts".



ROCKWELL-STANDARD CORPORATION

TRANSMISSION AND AXLE DIVISION

DETROIT, MICHIGAN 48232

TECHNIC AID

TANDEM AXLE SERIES

DIFFERENTIAL CASE AND GEAR BOLTS

Differential case and gear attaching bolts are available as service replacement parts for the above model tandem axles. Use of the bolts greatly facilitates servicing these units in the field and eliminates the need for special equipment necessary to correctly cold upset rivets.

We will continue to use rivets in production assemblies of these tandems.

<u>TANDEM MODEL</u>	<u>NEW SERVICE</u> <u>BOLT</u>	<u>NUT</u>	<u>LOCKWIRE</u> <u>OR COTTER</u>	<u>ORIGINAL</u> <u>RIVET</u>
SLD & SLDD	15X-668	1227-M-455	K-2410	17-X-148
SFD & SFDD-4600-4640 also SFD-SFDD-4700 & 4740				
SFD-460, SD-462, SD-472	15X-655	N-29-1	K-2410	RV-7925
SUD & SUDD	15X-656	1227-N-586	K-2410	RV-7926
SBD-1555	15X-662	N-510-1	LW-1620	RV-71014
SDHD Fwd Rear & Rear Rear				
SFHD Fwd Rear & Rear Rear	15X-775	N-28-1	LW-1620	RV-7812
SHHD & SHHDA	15X-667	N-28-1	LW-1620	RV-7812
*SLHD Fwd Rear & Rear Rear				
*SQHD Fwd Rear & Rear Rear	15X-786	N-210-1	LW-1620	RV-71013
SRHDA Fwd Rear & Rear Rear	15X-786	N-210-1	LW-1620	RV-71014
*SSHHD Fwd Rear & Rear Rear	15X-964	N-210-1	LW-1620	RV-71016
SW-456 Series	15X-656	1227-N-586	LW-1620	RV-7932

*See bottom of Page 2 for service on the original rivet.

*Note: Use washer No. 1229-U-1503 under nut.

SERVICE

1. Mark differential case halves so they can be correctly aligned at reassembly.
2. Accurately center punch each rivet in center of formed head. In single reduction axles, center punch side head.
3. Drill through rivet head using sizes as noted:

SDHD, SFHD, SHHD & SHHDA

15/32" dia.

SFD & SFDD-4600 & 4640, SFD-460, SD-462, SD-472, SLD, SLDD,
SFD & SFDD-4700 & 4740 & SW-456, SUD, & SUDD

17/32" dia.

SBD-1555, SRHD, SSHD, SLHD & SQHD

19/32" dia.

4. Drive the rivets from the holes with a suitable drift.

REASSEMBLE THE PARTS

Clean and inspect all parts of the differential assembly and replace worn or damaged parts. Thrust washers, side gears and pinions must be replaced in sets.

1. Spot face bolt holes on single reduction cases, side opposite gear, to clean up for flat nut seat.

SDIID & SFHD 1-1/8" Dia.

SBD, SIIID & SQHD

1-3/8" Dia.

Double reduction cases do not require spot face.

2. Assemble drive gears to the flange halves of single reduction cases, inserting bolts from the gear side. Tighten nuts to specified torque carefully aligning nut slot with bolt hole. Do not back off nuts. Lock nuts in place.
3. Apply Rockwell-Standard specified rear axle lubricant to differential parts and install in case halves. Hold assembly together with four equally spaced case bolts and nuts.
4. Rotate gear nest to be sure it turns freely. If gears bind or stick, disassemble and inspect for cause.
5. Similarly assemble the parts of double reduction differentials, inserting the bolts so the nuts will be on the deeper recessed side of the gear.
6. Install balance of bolts and tighten the nuts to specified torque.

<u>BOLT SIZE</u>		<u>LBS. FT. TORQUE</u>	
<u>O.D.</u>	<u>THREADS</u>	<u>MIN.</u>	<u>MAX.</u>
1/2"	20	105	135
1/2"	20 (With Allen Socket Type Head)	92	118
9/16"	18	148	190
5/8"	18	210	270

Torques given apply to parts coated with machine oil; for dry (or "as received") parts increase torque 10%; for parts coated with multi-purpose gear oil decrease torques 10%.

*Axles with the asterisk now employ gears and cases with 5/8" bolt holes. Service will no longer stock original gears with 9/16" holes. Follow instructions below for reworking original cases to suit new gears.

1. To assure proper reaming of 9/16" holes, assemble drive gear to the flange halve of case by temporarily installing 2 (9/16") bolts at opposite sides of case.
2. Line ream or drill case to .625 dia.
3. Install 15-X-786 bolts in holes reamed and draw up snug to hold gear and case in position while the two temporary bolts are removed and these holes are reamed.
4. Install bolts and nuts in 2 remaining holes and continue with service procedure as previously outlined in "Reassemble the parts".

ROCKWELL-STANDARD COMPANY

TRANSMISSION AND AXLE DIVISION

DETROIT, MICHIGAN 48232

TECHNIC AID

TANDEM DRIVE UNITS

SLHD, SQHD, PR-401, PR-403

(FORWARD REAR AXLES)

NEW CHANGE OVER KITS WITH 1/2" ADAPTER CASE MOUNTING HOLES

We have released for service replacement on forward rear axles of the above listed Tandem Drive Units new inter-axle differential and adapter case change over kits with 1/2"- 13 threaded mounting holes.

The new inter-axle differential and adapter case assemblies are interchangeable as a complete assembly with original parts on current production SLHD, SQHD, PR-401 and PR-403 Tandem Drive Units. However, earlier drive units having 15/32" adapter case mounting holes in the carrier will have to be drilled out to 17/32" to accept the new parts.

The following three (3) MPS Kits are available for changeover and supersede the original MPS Kits as listed below and in Technic Aid, Section 3, Aid #53 (8th supplement).

KIT No. MPS 1391

<u>PART NAME</u>	<u>NEW PART</u>	<u>OLD PART</u> (KIT No. MPS 1144)	<u>REMARKS</u>
Inter-axle Differential & Adapter Case Assembly	A7-3280-V-2518	A5-3280-V-2518	Complete assembly containing new Upper Helical Gear and new Inter-axle Differential. 1/2"- 13 mounting holes in adapter case.
Thru Shaft	3280-Z-2522	3280-Z-2522	
Clutch Collar	3280-X-2520	3280-X-2520	
Pinion Drive Gear	3892-E-1825	3892-E-1825	
Adapter Case to Carrier Gasket	2208-J-608	2208-H-450	New Gasket with 1/2" Holes
Shift Housing Gasket	2208-D-446	2208-D-446	
Carrier to Adapter Case Capscrews	S-28811-1 (8 req.)		New 1/2" - 13 Capscrews req. for change over and Replaces 7/16" - 14 Capscrews
	15x-1055 (2 req.)		
Washer	1229-C-1511 (10 req.)		
Instruction Tag	1199-J-2766		

KIT No. MPS 1393 (Supersedes KIT No. MPS 1147)

Contains same parts as KIT No. MPS 1391 less 3280-Z-2522 Thru Shaft.

FOR PR-401 AND PR-403 AXLES

KIT No. MPS 1392 (incorporating double row ball bearing in Thru Shaft Rear Cage).

<u>PART NAME</u>	<u>NEW PART</u>	<u>OLD PART</u> (KIT No. MPS 1145)	<u>REMARKS</u>
Inter-axle Differential & Adapter Case Assembly	A7-3280-V-2518	A5-3280-V-2518	Complete assembly containing new Upper Helical Gear and new Inter-axle Differential. 1/2" - 13 mounting holes in adapter case.
Thru Shaft	3280-J-2558	3280-J-2558	
Clutch Collar	3280-X-2520	3280-X-2520	
Pinion Drive Gear	3892-E-1825	3892-E-1825	
Adapter case to Carrier Gasket	2208-J-608	2208-H-450	New Gasket with 1/2" Holes
Shift Housing Gasket	2208-D-446	2208-D-446	
Thru Shaft Rear Cage, Oil Seal & Bearing Assembly	A-3226-H-190	A-3226-H-190	
Thru Shaft Rear Cage Gasket	2208-C-445	2208-C-445	
Companion yoke deflector	2297-T-982	2297-T-982	
Carrier to Adapter Case Capscrews	S-28811-1 (8 req.)		New 1/2" - 13 Capscrews req. for change over and
	15-X-1055 (2 req.)		Replaces 7/16" - 14 Capscrews
Washer	1229-C-1511 (10 req.)		
Instruction Tag	1199-J-2766		

SERVICE

The new tapered bearings should be adjusted to .001" - .005" endplay. To change the amount of endplay in the assembly, alter the shim pack located under the bearing cage. The bearings in new A7-3280-V-2518 assembly are pre-set to specifications.

For further information on Single Reduction Tandem Drive Units refer to Rockwell-Standard Field Maintenance Manual #5C.

ROCKWELL-STANDARD COMPANY

TRANSMISSION AND AXLE DIVISION

DETROIT, MICHIGAN 48232

TECHNIC AID

REAR AXLES

H-162, H-163, H-262, H-362
L-100, L-145, L-146A, L-148, L-161
L-245, L-246A, L-261, L-345
L-346A AND L-371

CHANGE NOTICE NEW DIFFERENTIAL NEST

We have changed our method of tooth cutting of differential pinions and side gears for the above mentioned rear axles.

The new differential "nest" is interchangeable as a complete assembly with the original differential "nest", however individual pinions and side gears are not. The new parts can be identified by the following part numbers.

NOTE: We have set-up the following Service Kit numbers to facilitate ordering replacement parts.

H-162 AND H-163
L-100 THRU L-161

<u>PART NAME</u>	<u>ORIG. PART</u>	<u>QTY</u>	<u>SERVICE KIT-315</u>	<u>SERVICE KIT-317</u>
Diff. Pinion	2233-Y-103	4	2233-U-151	2233-U-151
Pinion Thrust Washer	1229-R-1032	4	1229-R-1032	1229-R-1032
Diff. Side Gear	2234-F-266	2	2234-X-310	2234-X-310
Side Gear Thrust Washer	1229-T-1034	2	1229-T-1034	1229-T-1034
Diff. Spider	3278-H-86	1	NONE	3278-H-86

H-262 AND H-362
L-245 THRU L-371

<u>PART NAME</u>	<u>ORIG. PART</u>	<u>QTY</u>	<u>SERVICE KIT-315</u>	<u>SERVICE KIT-319</u>
Diff. Pinion	2233-Y-103	4	2233-U-151	2233-U-151
Pinion Thrust Washer	1229-R-1032	4	1229-R-1032	1229-R-1032
Diff. Side Gear	2234-F-266	2	2234-X-310	2234-X-310
Side Gear Thrust Washer	1229-T-1034	2	1229-T-1034	1229-T-1034
Diff. Spider	3278-P-146	1	NONE	3278-P-146

SERVICE

For further information on Rear Axle Drive Units refer to Rockwell-Standard Field Maintenance Manuals #5, #6 and #7.