



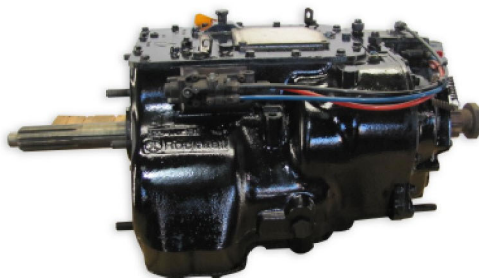
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Rockwell Meritor "G Platform" 9 Speed M-15G9A-D15 Parts Manual

Pro Gear and Transmission presents ZF Meritor's Platform "G" 9-Speed M-15G9A-D15 Transmission Parts Manual to assist in identifying your Rockwell - Meritor transmission.

If you need any assistance identifying the correct transmission unit for your truck and equipment, contact your Rockwell - Meritor transmission part specialists at Pro Gear and Transmission.

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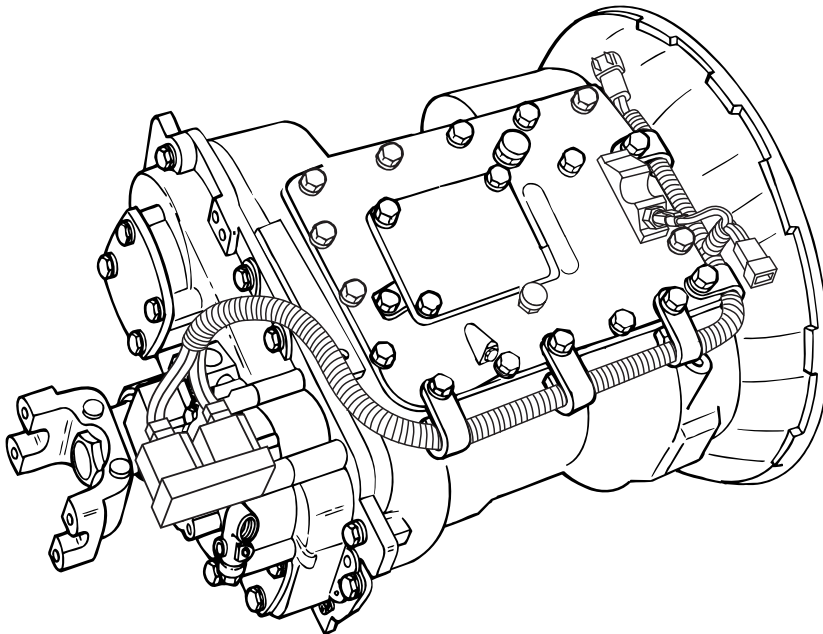
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9- and 10-Speed Transmissions Platform "G"

Parts Book PB-20146



Pro Gear & Transmission, Inc.

906 W Gore St

Orlando, FL 32805

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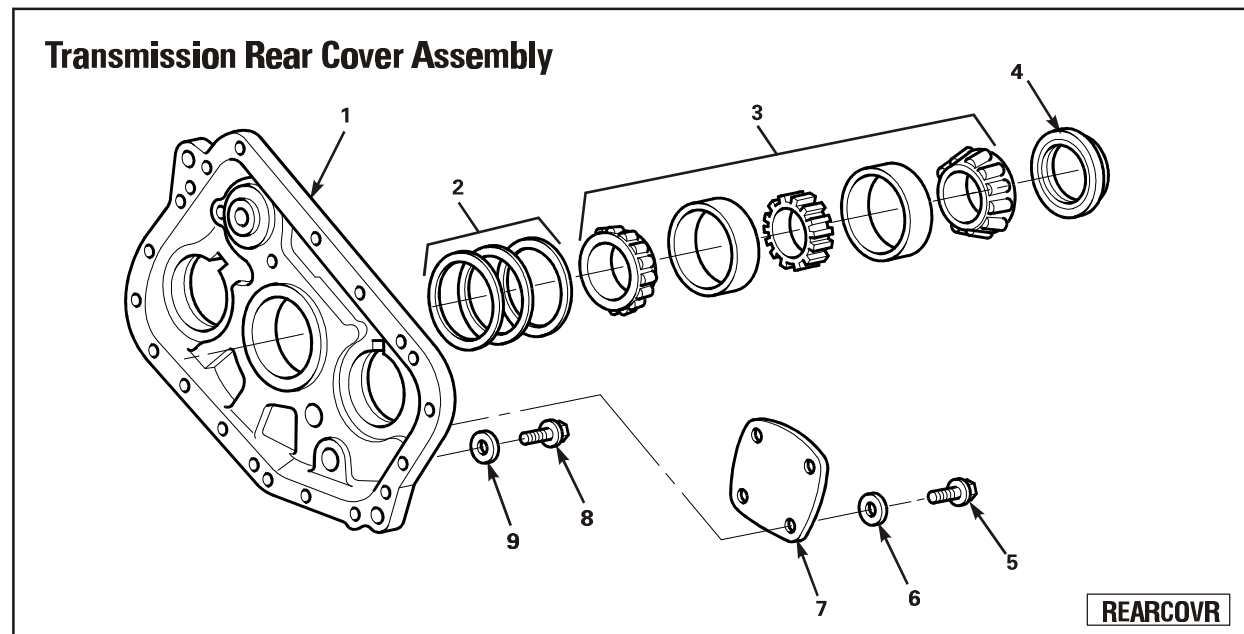


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How To Use This Parts Book

This parts book contains information for ZF Meritor's Platform "G" nine- and ten-speed transmissions. Each component table in this catalog contains the following information:

- ① **Item** The numbers in the **Item** column correspond to the numbers in the illustration that identify parts.
- ② **Quantity (Qty.)** The numbers in the **Quantity** column indicate the parts required in each component.
- ③ **Part** The number that corresponds to the item you will order
- ④ **Description** Designates the part name



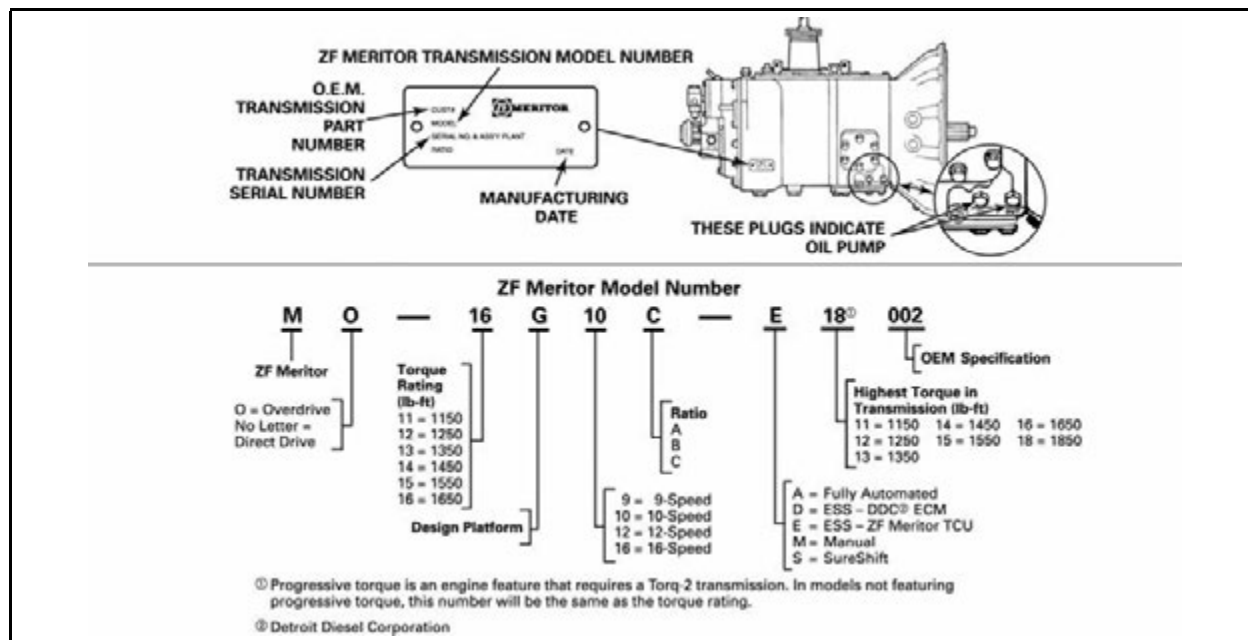
Transmission Rear Cover Assembly — 9- and 10-Speed

① Item	② Qty.	③ Part Number	④ Description
1	1	3293-Q-1109	Cover, Rear
2	NSS	2803-D-2968	Output Bearing Selective Spacer (Blue), Used on Serial Numbers LB-00011318 and Below. NOTE: Replace with same color spacer.
	NSS	2803-F-2970	Output Bearing Selective Spacer (Green), Used on Serial Numbers LB-00011318 and Below. NOTE: Replace with same color spacer.
	NSS	2803-E-2969	Output Bearing Selective Spacer (Yellow), Used on Serial Numbers LB-00011318 and Below. NOTE: Replace with same color spacer.
3	1	A1-1228-J-1414	Bearing Assembly, Output
4	1	A-1205-V-2596	Oil Seal Assembly
5	8	10X-1660	Bolt/Capscrew (Auxiliary Countershaft Bearing Cover)
6	8	1229-B-1666	Flat Washer (Bearing Cover)
7	2	3266-D-1278	Cover, Bearing Auxiliary, Countershaft Rear 9 and 10
8	18	10X-1659	Bolt/Capscrew, 3/8"-16 UNC-2A x 1-1/2"
9	18	1229-B-1666	Flat Washer

Introduction



Transmission Model Number Identification



Transmission Model Numbers

Platform "G" transmissions are available in three shift system configurations:

1. Platform "G" Electric Over Air (EOA) — Standard Version
2. Platform "G" Engine Synchro Shift (ESS) with Detroit Diesel (DDC) ECM **1** and ZF Meritor TCU **2**
3. Platform "G" SureShift

Transmission Description	Electric-Over-Air (EOA)	Engine Synchro Shift (ESS)		SureShift
	G Platform Standard Version	DDC ECM 1	ZF Meritor TCU 2	
9-Speed Direct Drive, A Ratio	M-15G9A-M15	M-15G9A-D15	M-15G9A-E15	M-15G9A-S15
9-Speed Overdrive, A Ratio	MO-14G9A-M14	MO-14G9A-D14	MO-14G9A-E14	MO-14G9A-S14
9-Speed Overdrive, B Ratio	MO-15G9B-M15	MO-15G9B-D15	MO-15G9B-E15	MO-15G9B-S15
10-Speed Direct Drive, A Ratio	M-15G10A-M15	M-15G10A-D15	M-15G10A-E15	M-15G10A-S15
10-Speed Overdrive, A Ratio	MO-16G10A-M16	MO-16G10A-D16	MO-16G10A-E16	MO-16G10A-S16
10-Speed Overdrive, C Ratio	MO-16G10C-M18	MO-16G10C-D18	MO-16G10C-E18	MO-16G10C-S18

1 DDC ECM = Detroit Diesel Company Engine Control Module

2 TCU = ZF Meritor Transmission Control Unit

How to Read Transmission Serial Numbers

First Two Letters

LB = New

Second Two Digits

Year manufactured: For example, 99 = 1999; 00 = 2000; 01 = 2001

Last Digits

Number at Manufacture

Sample:

LB	00	011318
New	2000	Number at Manufacture

NOTE: The letters **LR** or **FLR** at the beginning of a serial number indicate a reman transmission.

Transmission Replacements

Remanufactured (REMAN) Transmissions

ZF Meritor offers remanufactured (REMAN) transmissions when you require a complete transmission replacement. REMAN transmissions come equipped in four basic configurations.

Call ArvinMeritor's Worldwide Aftermarket at 888-725-9355 to order a ZF Meritor REMAN transmission.

- Standard top cover with an oil pump
- Standard top cover without an oil pump
- Forward top cover with an oil pump
- Forward top cover without an oil pump

How to Determine the Correct REMAN Transmission Number

1. Record the transmission model printed on the identification plate. The identification plate is mounted to the transmission.
2. Remove the two sets of torque rating digits and the OEM specification number.

Example:

MO-16 G10C-E 18 002 → MO-G10C-E

3. Add the correct top cover designation to the end of the model number.
 - Add "S" for a standard top cover
 - Add "F" for a forward top cover
 - Add "X" for SureShift

Example: MO-G10C-ES

4. If the transmission has an oil pump, add "P" to the end of the model number.

Example: MO-G10C-ESP

5. Add "R" at the end of the model number to designate a REMAN transmission.

Example: MO-G10C-ESPR

Transmission Sealants

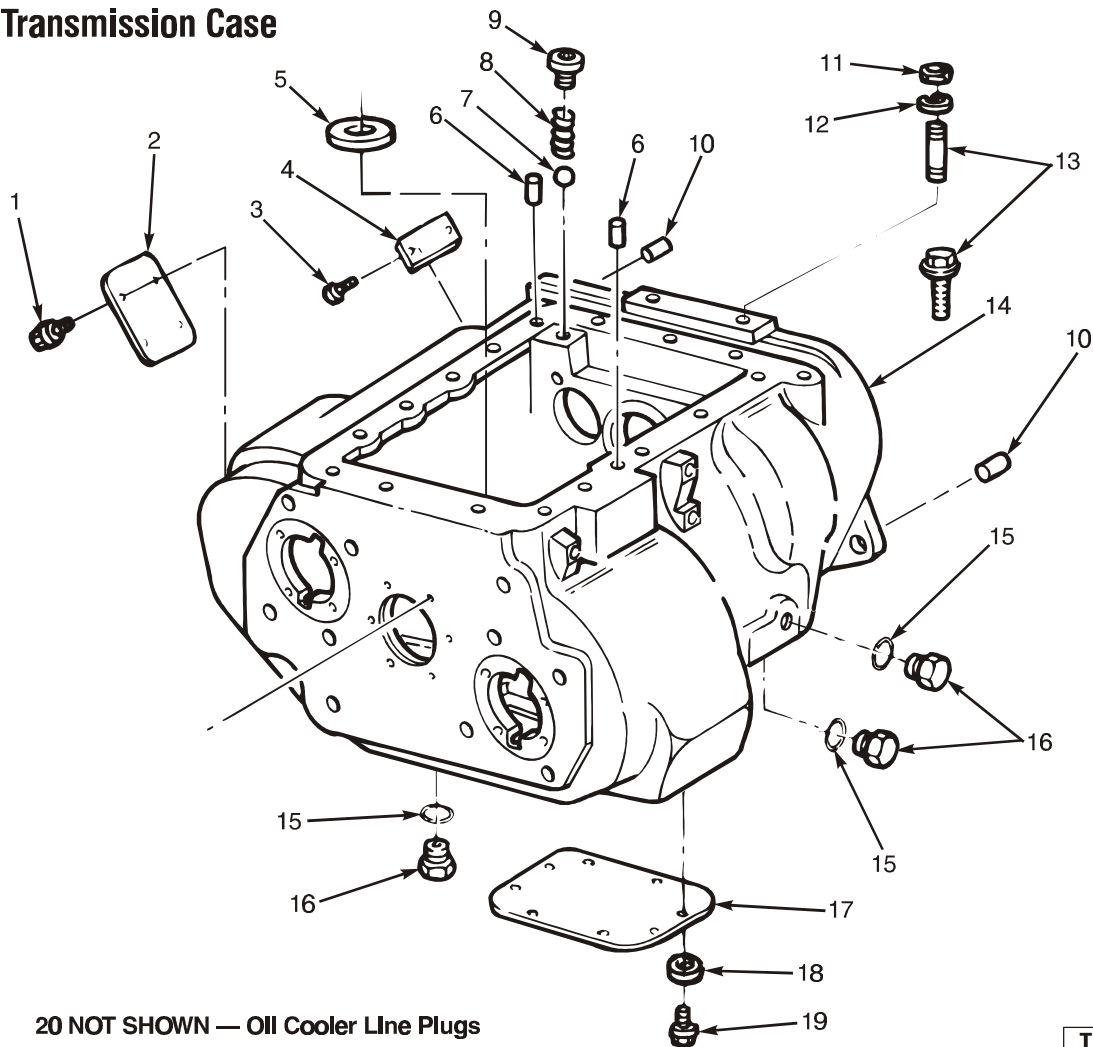


CAUTION

All transmissions use Loctite® MasterGasket™ Sealant #00203 or Loctite #5699 Ultra Gray Flange Sealant. Other gasket material can cause leaks. Damage to the transmission may result.

Qty.	Part Number	Description
NLA	2297-C-5905	Loctite Master Gasket Sealant #00203, Use 2297-A-7021
1	2297-A-7021	Loctite #5699 Ultra Grey Flange Sealant
1	2297-B-6112	Loctite Thread Locker 222

Transmission Case



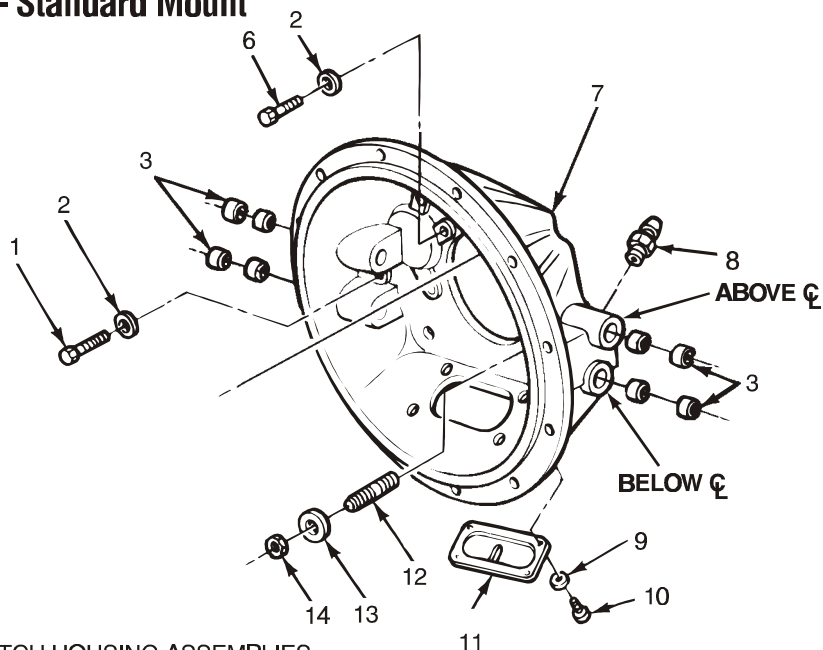
Transmission Case

Item	Qty.	Part Number	Description	Kit #
1	6	10X-1446	Special Screw, 3/8"-16 UNC-2A x 1" Flanged (PTO)	
2	1	3266-B-1120	Cover (6 Bolt PTO)	
3	2	17X-1030	Rivet, Pop (Identification Plate)	
4	1	2297-B-6554	Name Plate	
5	4	2297-Y-5849	Magnet (Transmission Case)	
6	2	43X-1193	Dowel	
7	1	2297-R-6986	Ball, Range Shift Detent	
8	1	2258-F-1332	Spring, Range Shift Detent	
9	1	1250-R-1266	Plug, Range Detent	
10	2	43X-1150	Dowel (Rear Cover)	
11	OPT	N-110-1	Nut, 5/8"-18 (Rear Support Bracket)	
12	OPT	WA-410-1	Lock Washer (Rear Support Bracket)	
13	OPT	SN-1017-1	Stud, 5/8" x 2-1/8" (Rear Support Bracket)	
	OPT	SN-1019-1	Stud, 5/8" x 2-3/8" (Rear Support Bracket)	
	OPT	10X-1510	Special Screw, 1-1/4" x 5/8"-11 UNC Flanged Capscrew	
	OPT	10X-1511	Special Screw, 1-1/2" x 5/8"-11 UNC Flanged Capscrew	
	OPT	10X-1512	Special Screw, 1-3/4" x 5/8"-11 UNC Flanged Capscrew	
14	1	A-3294-A-1041-S*	Assembly, Transmission Case SureShift (with Internal Oil Pump), includes Magnets, Drain Plugs and PTO Covers.	5421
	1	A-3294-B-1042-S*	Assembly, Transmission Case ESS TCU (without Internal Oil Pump), includes Magnets, Drain Plugs and PTO Covers.	5418
	1	A-3294-C-1043-S*	Assembly, Transmission Case ESS TCU (with Internal Oil Pump), includes Magnets, Drain Plugs and PTO Covers.	5419
	1	A-3294-P-1031-S*	Assembly, Transmission Case Manual and ESS DDC (without Internal Oil Pump), includes Magnets, Drain Plugs and PTO Covers.	5416
	1	A-3294-P-1056-S†	Assembly, Transmission Case Manual and ESS DDC (with Internal Oil Pump), includes Magnets, Drain Plugs and PTO Covers.	
	1	A-3294-Q-1032-S*	Assembly, Transmission Case Manual and ESS DDC (with Internal Oil Pump), includes Magnets, Drain Plugs and PTO Covers.	5417
	1	A-3294-Q-1057-S†	Assembly, Transmission Case SureShift (with Internal Oil Pump), includes Magnets, Drain Plugs and PTO Covers.	
	1	A-3294-S-1059-S†	Assembly, Transmission Case ESS TCU (with Internal Oil Pump), includes Magnets, Drain Plugs and PTO Covers.	
16	3	1205-Y-1039	O-Ring	
	NLA	A-1250-J-1128	Plug Assembly (Drain or Fill) with O-Ring 1-1/16"-12 UN-2A, Replaced by A-1250-T-1294	
	NLA	A-1250-P-1186	Plug Assembly, Magnetic (Drain or Fill) with O-Ring 1-1/16"-12 UN-2A, Replaced by A-1250-T-1294	
	3	A-1250-T-1294	Plug Assembly, Lube Identification Tag	
17	1	3266-C-1121	Cover (8 Bolt PTO)	
18	8	1229-E-1513	Flat Washer	
19	8	S-276-A-2	Cap Screw (PTO), 7/16"-14 UNC-2A x 3/4"	
20	2	A-1250-H-1126	Oil Cooler Line Plugs	

† For 1850 input torque and above.

* For 1650 input torque and below.

Clutch Housing Assembly — Standard Mount



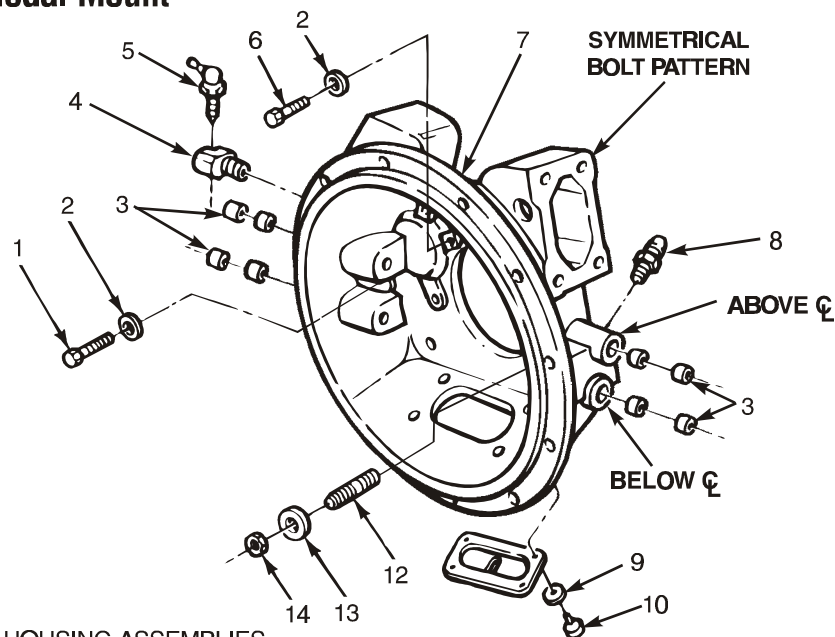
NOTE: ALL CLUTCH HOUSING ASSEMBLIES INCLUDE THE BUSHINGS, THE COVER, THE FASTENERS AND THE ZERK FITTINGS.

CHA0001

Clutch Housing Assembly — Standard Mount

Item	Qty.	Part Number	Description
1	2	S-2828-A-2	Bolt/Capscrew, 1/2"-13 UNC-2A x 3-1/2"
2	4	1229-C-1511	Flat Washer
3	4	1225-X-1194	Bushing
6	2	S-2812-A-2	Bolt/Capscrew, 1/2"-13 UNC-2A x 1-1/2", Replaced by 10X-1669
7	1	A-3282-Z-1040	Clutch Housing Assembly, SAE#1 (Above Centerline Pull)
	1	A-3282-E-1045	Clutch Housing Assembly, SAE#1, Iron (Below Centerline Pull)
	1	A-3282-V-1036	Clutch Housing Assembly, SAE#1, Aluminum (Above Centerline Pull)
	1	A-3282-F-1046	Clutch Housing Assembly, SAE#1, Aluminum (Below Centerline Pull)
	1	A-3282-D-1044	Clutch Housing Assembly, SAE#2, Iron (Above Centerline Pull)
	1	A-3282-P-1082	Clutch Housing Assembly, Volvo Hydraulic Only
8	2	1199-H-1620	Oil Fitting, Zerk
9	4	1229-B-1666	Flat Washer
10	4	S-265-A-2	Bolt/Capscrew, 3/8"-16 UNC-2A x 5/8"
11	1	3266-H-1048	Cover, Clutch Housing
12	6	4X-1837	Stud
13	6	1229-U-1503	Flat Washer, 5/8"
14	6	N-110-1	Nut, 5/8"-18

Clutch Housing Assembly — Nodal Mount

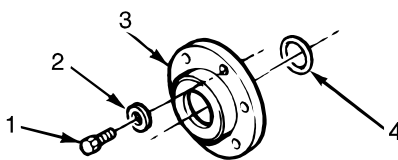


NOTE: ALL CLUTCH HOUSING ASSEMBLIES INCLUDE THE BUSHINGS, THE COVER, THE FASTENERS AND THE ZERK FITTINGS.

CHA0002

Clutch Housing Assembly — Nodal Mount

Item	Qty.	Part Number	Description
1	2	S-2828-A-2	Bolt/Capscrew, 1/2"-13 UNC-2A x 3-1/2"
2	4	1229-C-1511	Flat Washer
3	4	1225-X-1194	Bushing
4	1	1199-Q-901	Elbow
5	1	1199-B-3226	Oil Fitting, Zerk
6	2	S-2812-A-2	Bolt/Capscrew, 1/2"-13 UNC-2A x 1-1/2", Replaced by 10X-1669
7	1	A-3282-X-1038	Clutch Housing Assembly, SAE#1, Iron (Above Centerline Pull)
	1	A-3282-G-1047	Clutch Housing Assembly, SAE#1, Iron (Below Centerline Pull)
	1	A-3282-B-1042	Clutch Housing Assembly, SAE#1, Aluminum (Above Centerline Pull)
	1	A-3282-H-1048	Clutch Housing Assembly, SAE#1, Aluminum (Below Centerline Pull)
8	1	1199-H-1620	Oil Fitting, Zerk
9	4	1229-B-1666	Flat Washer
10	4	S-265-A-2	Bolt/Capscrew, 3/8"-16 UNC-2A x 5/8"
11	1	3266-H-1048	Cover, Clutch Housing
12	6	4X-1837	Stud
13	6	1229-U-1503	Flat Washer, 5/8"
14	6	N-110-1	Nut, 5/8"-18

**Input Shaft
Bearing
Retainer****SBR0001****Input Shaft Bearing Retainer**

Item	Qty.	Part Number	Description
1	6	S-2610-A-2	Bolt/Capscrew, 3/8"-16 UNC x 1-1/4"
2	6	1229-B-1666	Flat Washer
3	1	3105-K-1155	Retainer
4	NSS	1205-T-2308	Oil Seal (For Shipping Purposes Only. Remove prior to installation.)

Oil Pump Assembly — Integral Mounting (Serial No. LB9105150 & Above)

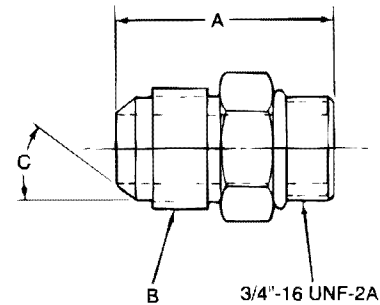
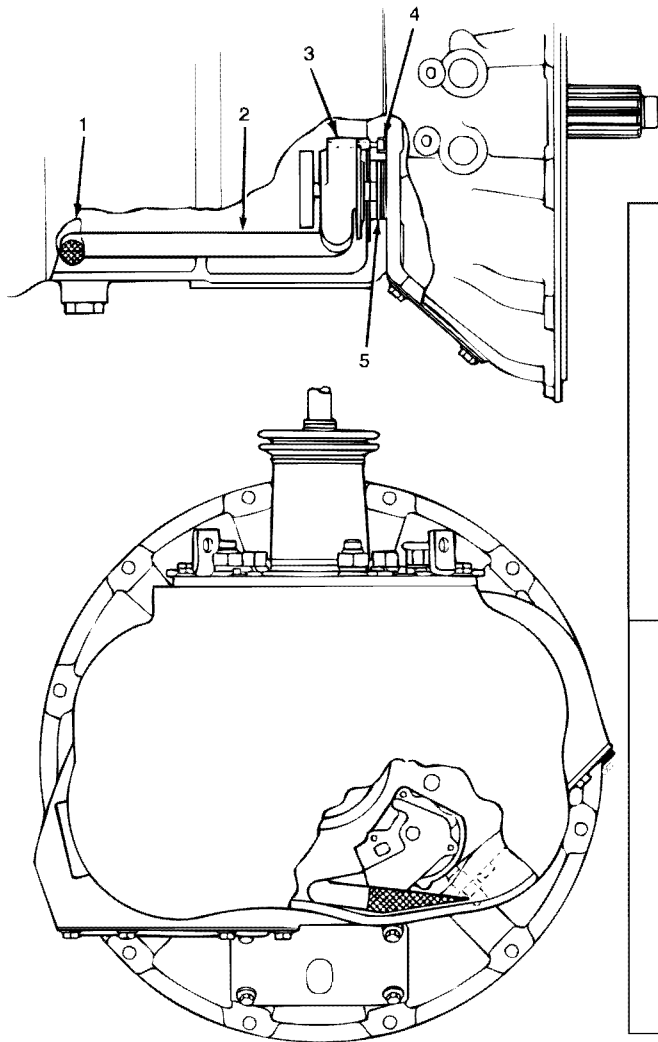


Figure X

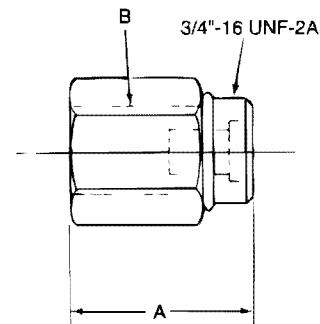


Figure Y

Kits 5276, 5277, 5278 and 5279 — Oil Pump Fittings for Outlet and Return Ports (Serial No. Above LB9105149 Only — Current Production)

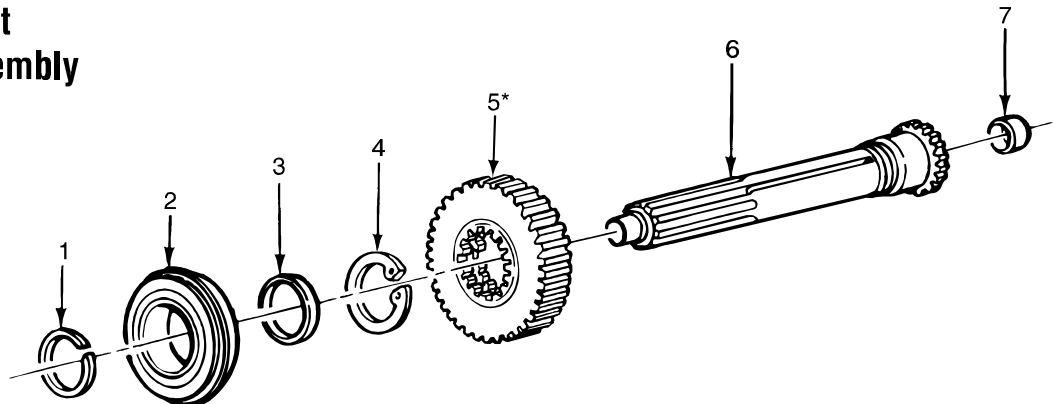
Kit Number (Qty. 2 ea.)	Meritor Part Number	Dimension A (mm)	Dimension B	Dimension C	Figure
5276	A-2206-Z-1040	1.48" (37.59)	3/4"-16 UNF-2A	37 Degrees	Y
5262/5277	A-2206-G-1073	1.57" (40.00)	1/2"-14 NPTF	—	Y
5278	A-2206-K-1077	1.69" (42.93)	7/8"-14 UNF-2A	45 Degrees	X
5279	A-2206-R-1084	1.58" (40.13)	7/8"-14 UNF-2A	37 Degrees	X

OPA0002

Oil Pump Assembly — Integral Mounting

Item	Qty.	Part Number	Description
1	1	2255-Z-1118	Bracket (for Inlet Suction Tube)
	NLA	S-264-A-1	Bolt/Capscrew, Replaced by S-264-A-2
	1	S-264-A-2	Bolt/Capscrew, 3/8"-16 x 1/2" (for Bracket — not pictured)
2	1	A-3196-A-1067	Tube Assembly (Pipe/Suction with Screen)
	1	5X-1157	O-Ring (Tube — not pictured)
3	1	A-3303-N-1028	Pump Assembly (Includes Drive Gear)
4	3	10X-1532	Special Screw, 1/4"-20 x 1-1/2" Allen Head
	OPT	A-1250-H-1126	Plug Assembly (Used in shipping — not pictured)
5	1	5X-1156	O-Ring

Input Shaft Assembly



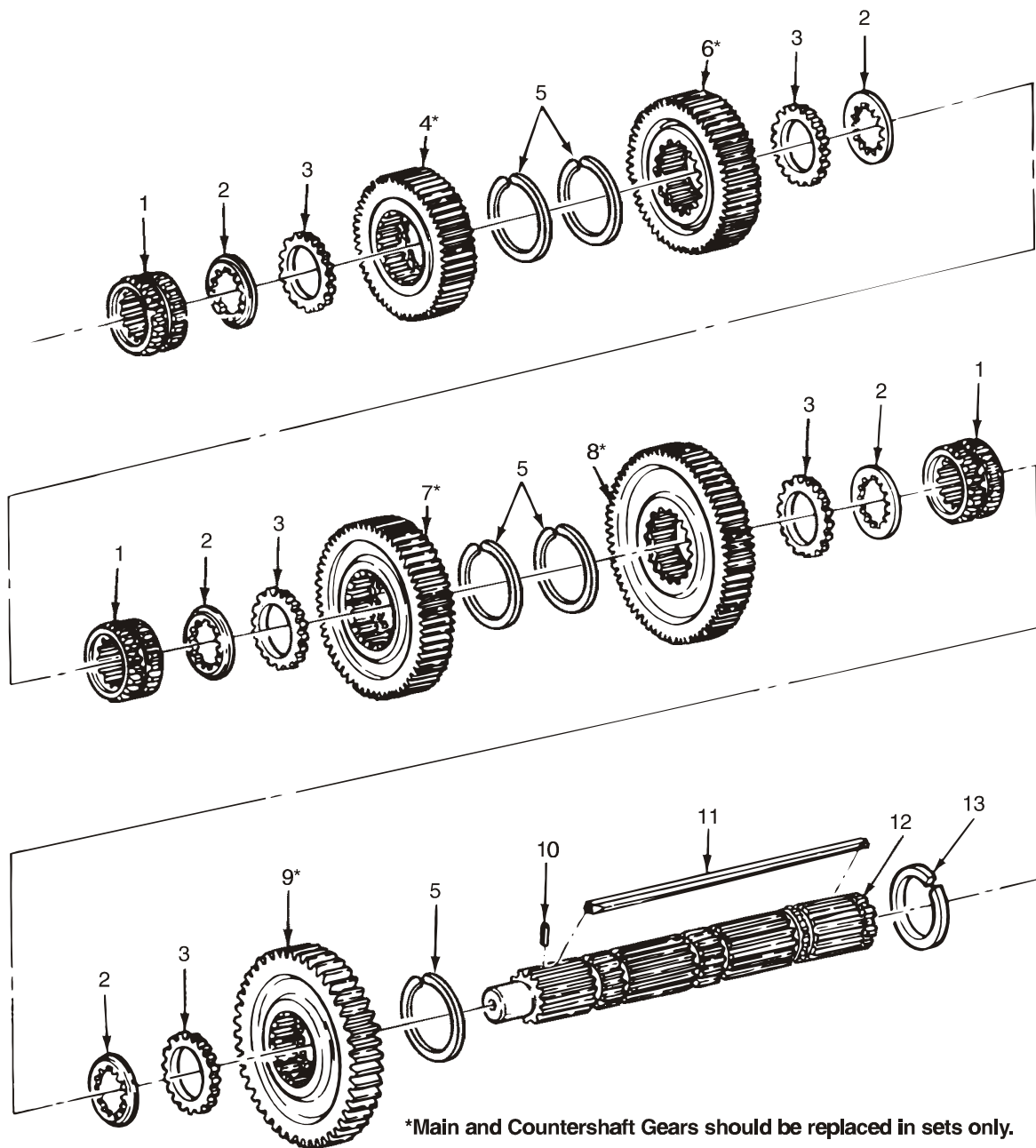
*Main and Countershaft Gears should be replaced in sets only.

ISA0001

Input Shaft Assembly

Item	Qty.	Part Number	Description	Kit #
1	1	1229-W-4339	Snap Ring	5367
2	1	1228-G-1203	Ball Bearing	
3	1	1244-J-2194	Spacer, Use with Shaft A-3297-B-1380	5367
4	1	1229-C-4657	Snap Ring (Main Drive Gear), for Service use 1229-X-4418	5367
5	1	3892-W-5015	Main Shaft Gear, Drive (50 Teeth) Direct 10A and 9A	
	1	3892-V-5144	Main Shaft Gear, Drive (54 Teeth) 9	
	1	3892-F-5232	Main Shaft Gear, Drive (60 Teeth) Overdrive 10A and 9A	
	1	3892-M-5473	Main Shaft Gear, Drive (54 Teeth) 10 Overdrive C ratio	
6	1	A-3297-B-1380	Input Shaft Assembly, 2" Pull Type (includes 1225-A-1171 Bushing)	5367
7	1	1225-A-1171	Bushing (Main Shaft)	

Main Shaft Assembly

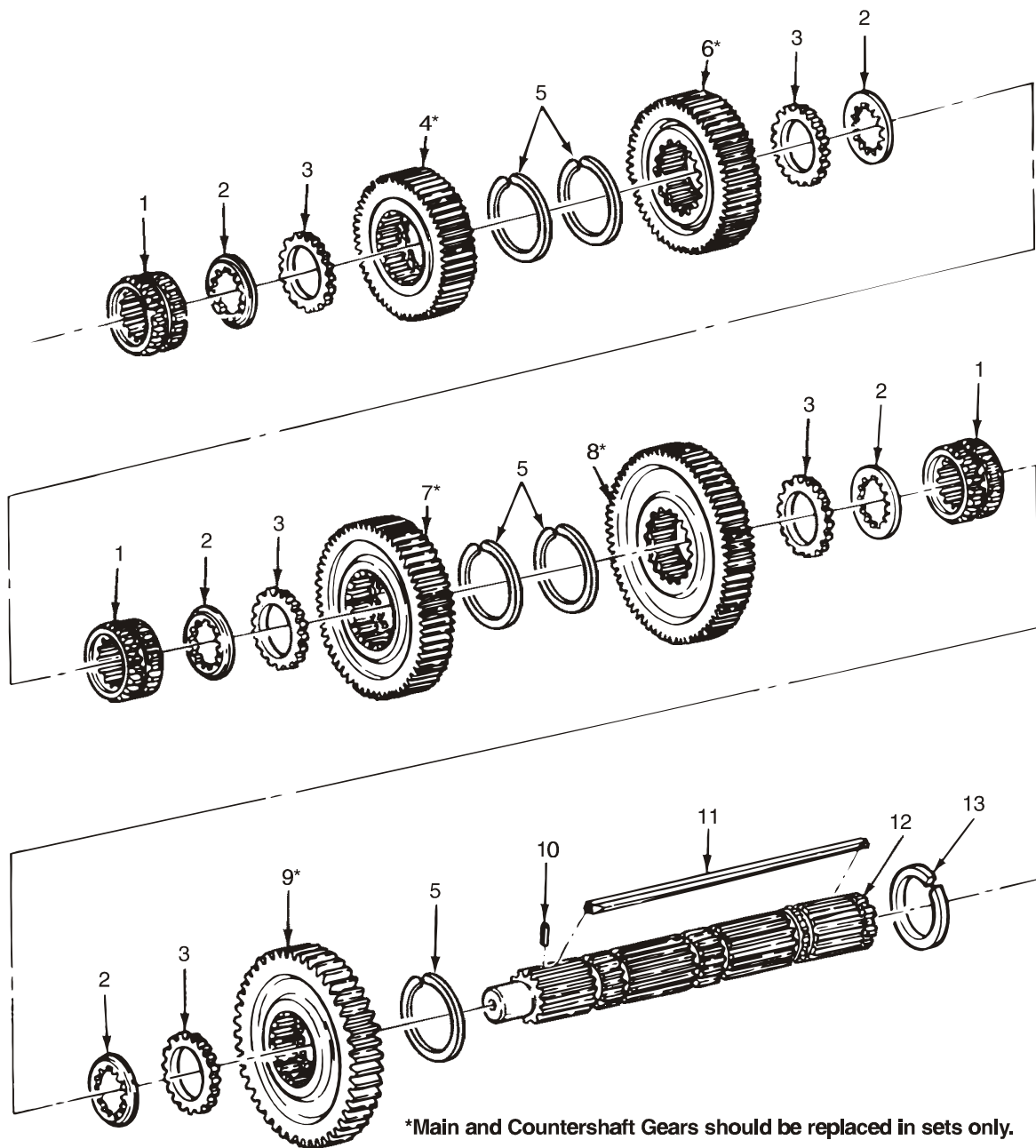


MSA0001

Main Shaft Assembly — 9-Speed Direct Drive

Item	Qty.	Part Number	Description	Kit #
1	3	3107-G-1073	Clutch Collar	
2	AR	42X-1457	Thrust Washer (6.92 mm - Yellow)	5394, 5363
	AR	42X-1458	Thrust Washer (7.02 mm - White), Required in Reverse Gear	5394, 5363
	AR	42X-1459	Thrust Washer (7.11 mm - Red)	5394, 5363
3	5	1244-M-2041	Spacer (Main Shaft Gears)	5394, 5363
4	1	3892-F-5232	Main Shaft Gear, 3rd (60 Teeth)	
5	5	1229-W-4625	Snap Ring (Main Shaft Gears)	5394, 5363
6	1	3892-G-5025	Main Shaft Gear, 2nd (60 Teeth)	
7	1	3892-E-5023	Main Shaft Gear, 1st (64 Teeth)	
8	1	3892-C-5021	Main Shaft Gear, Low (46 Teeth), Requires 3297-K-1259 Countershaft	
9	1	3892-L-5030	Main Shaft Gear, Reverse (48 Teeth), Requires 3297-K-1259 Countershaft	
10	1	43X-1158	Pin (Roll)	5394, 5363
11	1	16X-1028	Key (Main Shaft)	5394, 5363
12	1	3297-J-1336	Main Shaft	5363
13	1	1229-W-4339	Snap Ring (Main Shaft Key)	5394, 5363

Main Shaft Assembly



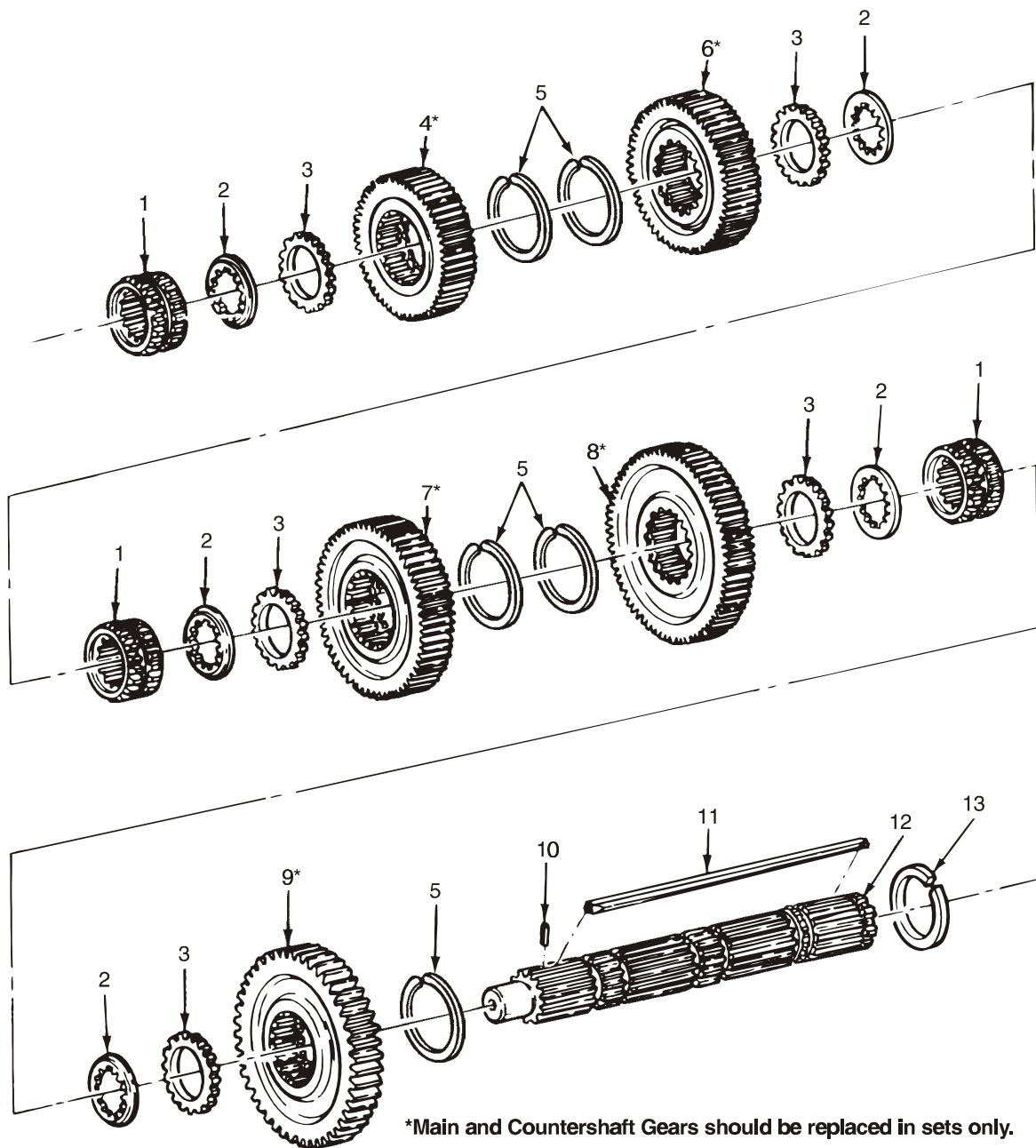
*Main and Countershaft Gears should be replaced in sets only.

MSA0001

Main Shaft Assembly — 9-Speed Overdrive “A” Ratio

Item	Qty.	Part Number	Description	Kit #
1	3	3107-G-1073	Clutch Collar	
2	AR	42X-1457	Thrust Washer (6.92 mm - Yellow)	5394, 5363
	AR	42X-1458	Thrust Washer (7.02 mm - White), Required in Reverse Gear	5394, 5363
	AR	42X-1459	Thrust Washer (7.11 mm - Red)	5394, 5363
3	5	1244-M-2041	Spacer (Main Shaft Gears)	5394, 5363
4	1	3892-W-5015	Main Shaft Gear, 4th (50 Teeth)	
5	5	1229-W-4625	Snap Ring (Main Shaft Gears)	5394, 5363
6	1	3892-G-5025	Main Shaft Gear, 2nd (60 Teeth)	
7	1	3892-E-5023	Main Shaft Gear, 1st (64 Teeth)	
8	1	3892-C-5021	Main Shaft Gear, Low (46 Teeth), Requires 3297-K-1259 Countershaft	
9	1	3892-L-5030	Main Shaft Gear, Reverse (48 Teeth), Requires 3297-K-1259 Countershaft	
10	1	43X-1158	Pin (Roll)	5394, 5363
11	1	16X-1028	Key (Main Shaft)	5394, 5363
12	1	3297-J-1336	Main Shaft	5363
13	1	1229-W-4339	Snap Ring (Main Shaft Key)	5394, 5363

Main Shaft Assembly

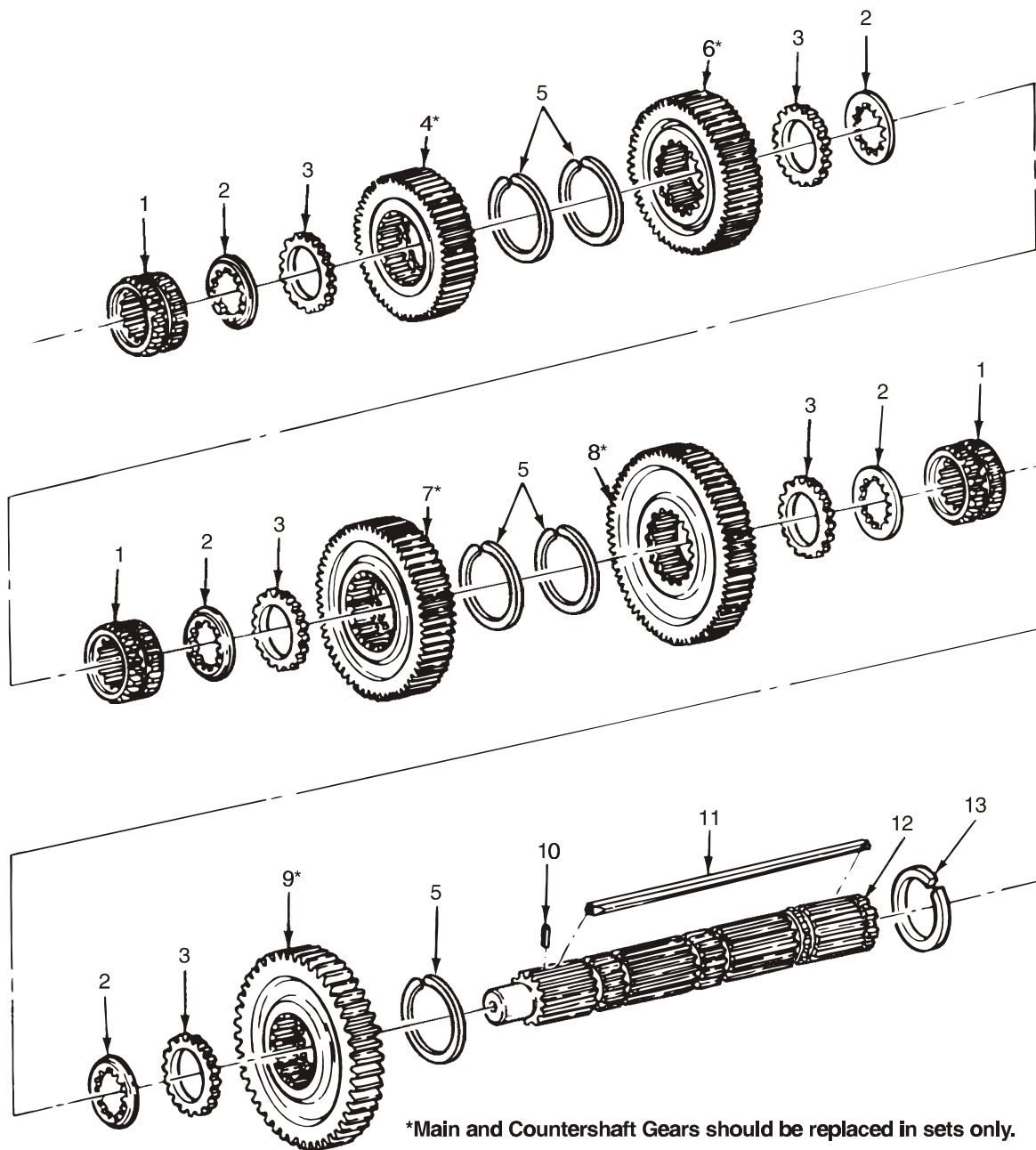


MSA0001

Main Shaft Assembly — 9-Speed Overdrive “B” Ratio

Item	Qty.	Part Number	Description	Kit #
1	3	3107-G-1073	Clutch Collar	
2	AR	42X-1457	Thrust Washer (6.92 mm - Yellow)	5394, 5363
	AR	42X-1458	Thrust Washer (7.02 mm - White), Required in Reverse Gear	5394, 5363
	AR	42X-1459	Thrust Washer (7.11 mm - Red)	5394, 5363
3	5	1244-M-2041	Spacer (Main Shaft Gears)	5394, 5363
4	1	3892-B-5150	Main Shaft Gear, 4th (46 Teeth)	
5	5	1229-W-4625	Snap Ring (Main Shaft Gears)	5394, 5363
6	1	3892-Z-5148	Main Shaft Gear, 2nd (54 Teeth)	
7	1	3892-X-5146	Main Shaft Gear, 1st (62 Teeth)	
8	1	3892-C-5021	Main Shaft Gear, Low (46 Teeth), Requires 3297-K-1259 Countershaft	
9	1	3892-L-5030	Main Shaft Gear, Reverse (48 Teeth), Requires 3297-K-1259 Countershaft	
10	1	43X-1158	Pin (Roll)	5394, 5363
11	1	16X-1028	Key (Main Shaft)	5394, 5363
12	1	3297-J-1336	Main Shaft	5363
13	1	1229-W-4339	Snap Ring (Main Shaft Key)	5394, 5363

Main Shaft Assembly



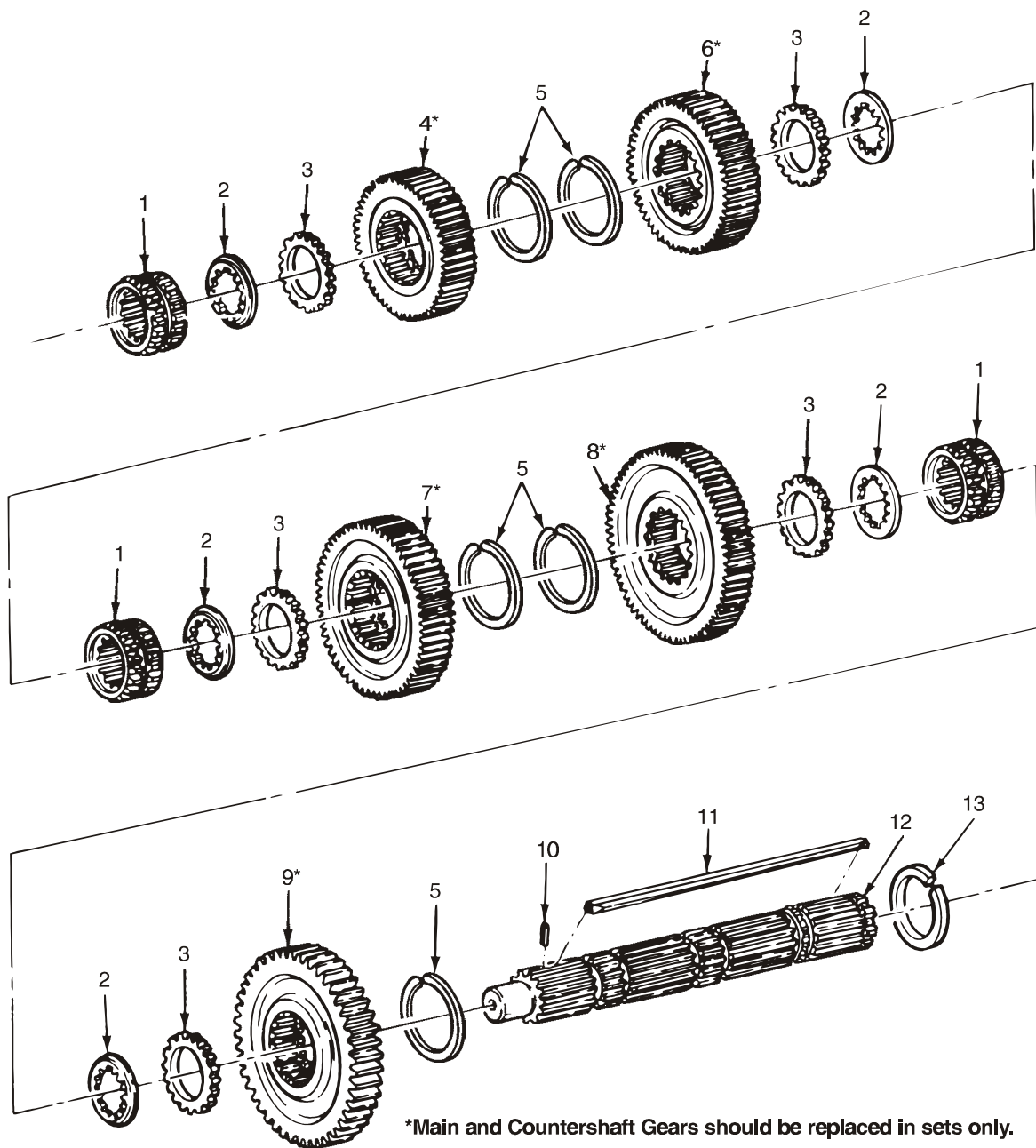
*Main and Countershaft Gears should be replaced in sets only.

MSA0001

Main Shaft Assembly — 10-Speed Direct Drive

Item	Qty.	Part Number	Description	Kit #
1	3	3107-G-1073	Clutch Collar	
2	AR	42X-1457	Thrust Washer (6.92 mm - Yellow)	5394, 5363
	AR	42X-1458	Thrust Washer (7.02 mm - White)	5394, 5363
	AR	42X-1459	Thrust Washer (7.11 mm - Red)	5394, 5363
3	5	1244-M-2041	Spacer (Main Shaft Gears)	5394, 5363
4	1	3892-J-5028	Main Shaft Gear	
5	5	1229-W-4625	Snap Ring (Main Shaft Gears)	5394, 5363
6	1	3892-G-5025	Main Shaft Gear, 3rd (60 Teeth)	
7	1	3892-M-5395	Main Shaft Gear, 2nd	
8	1	3892-F-5414	Main Shaft Gear, 1st, Requires 3297-N-1366 Countershaft	
9	1	3892-L-5030	Main Shaft Gear, Reverse (48 Teeth), Requires 3297-N-1366 Countershaft	
10	1	43X-1158	Pin (Roll)	5394, 5363
11	1	16X-1028	Key (Main Shaft)	5394, 5363
12	1	3297-J-1336	Main Shaft	5363
13	1	1229-W-4339	Snap Ring (Main Shaft Key)	5394, 5363

Main Shaft Assembly



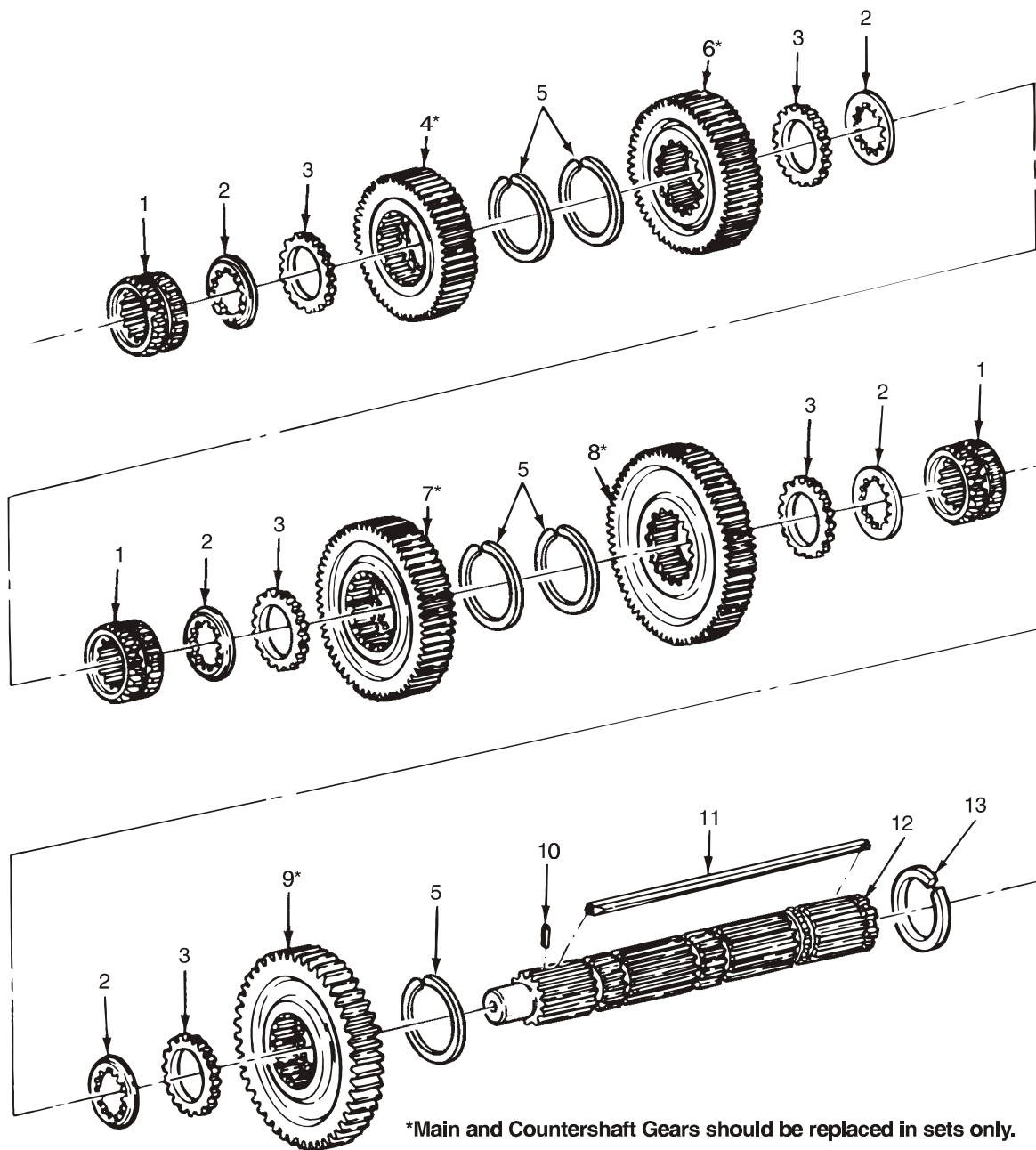
*Main and Countershaft Gears should be replaced in sets only.

MSA0001

Main Shaft Assembly — 10-Speed Overdrive “A” Ratio

Item	Qty.	Part Number	Description	Kit #
1	3	3107-G-1073	Clutch Collar	
2	AR	42X-1457	Thrust Washer (6.92 mm - Yellow)	5394, 5363
	AR	42X-1458	Thrust Washer (7.02 mm - White)	5394, 5363
	AR	42X-1459	Thrust Washer (7.11 mm - Red)	5394, 5363
3	5	1244-M-2041	Spacer (Main Shaft Gears)	5394, 5363
4	1	3892-W-5015	Main Shaft Gear, 5th (50 Teeth)	
5	5	1229-W-4625	Snap Ring (Main Shaft Gears)	5394, 5363
6	1	3892-G-5025	Main Shaft Gear, 3rd (60 Teeth)	
7	1	3892-M-5395	Main Shaft Gear, 2nd (64 Teeth)	
8	1	3892-F-5414	Main Shaft Gear, 1st (66 Teeth), Requires 3297-N-1366 Countershaft	
9	1	3892-L-5030	Main Shaft Gear, Reverse (48 Teeth), Requires 3297-N-1366 Countershaft	
10	1	43X-1158	Pin (Roll)	5394, 5363
11	1	16X-1028	Key (Main Shaft)	5394, 5363
12	1	3297-J-1336	Main Shaft	5363
13	1	1229-W-4339	Snap Ring (Main Shaft)	5394, 5363

Main Shaft Assembly

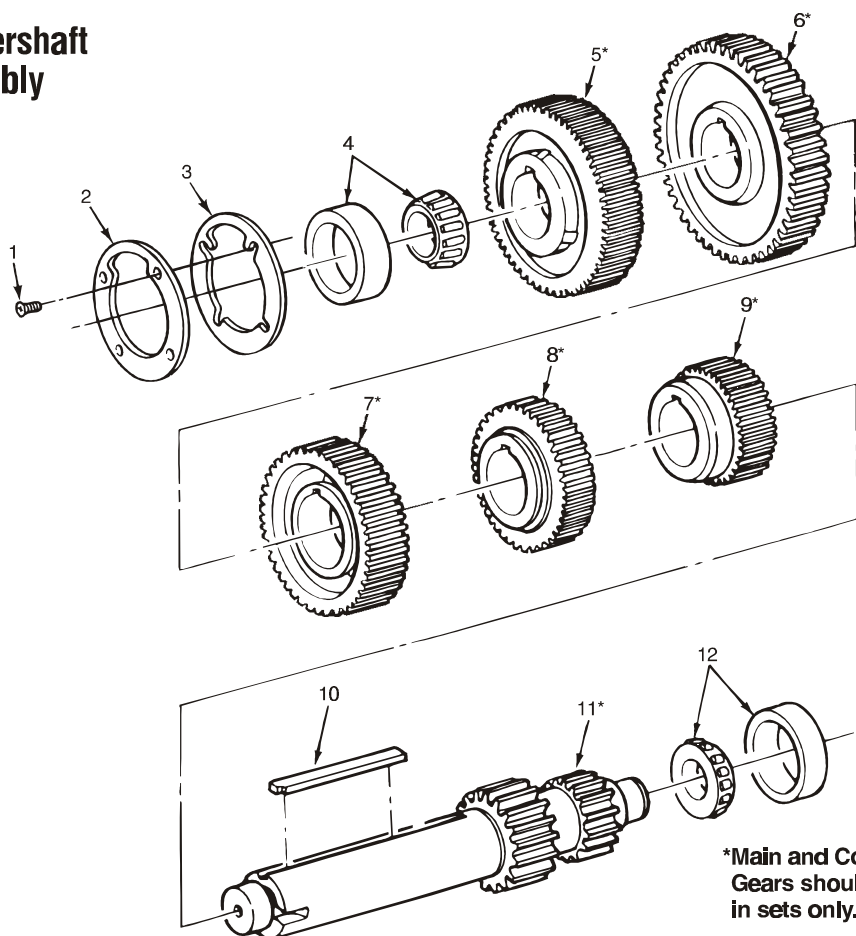


MSA0001

Main Shaft Assembly — 10-Speed Overdrive “C” Ratio

Item	Qty.	Part Number	Description	Kit #
1	3	3107-G-1073	Clutch Collar	
2	AR	42X-1457	Thrust Washer (6.92 mm - Yellow)	5394, 5363
	AR	42X-1458	Thrust Washer (7.02 mm - White)	5394, 5363
	AR	42X-1459	Thrust Washer (7.11 mm - Red)	5394, 5363
3	5	1244-M-2041	Spacer (Main Shaft Gears)	5394, 5363
4	1	3892-N-5474	Main Shaft Gear, 5th (52 Teeth)	
5	5	1229-W-4625	Snap Ring (Main Shaft Gears)	5394, 5363
6	1	3892-Q-5477	Main Shaft Gear, 3rd (62 Teeth)	
7	1	3892-R-5478	Main Shaft Gear, 2nd (64 Teeth)	
8	1	3892-F-5414	Main Shaft Gear, 1st (66 Teeth), Requires 3297-N-1366 Countershaft	
9	1	3892-L-5030	Main Shaft Gear, Reverse (48 Teeth), Requires 3297-N-1366 Countershaft	
10	1	43X-1158	Pin (Roll)	5394, 5363
11	1	16X-1028	Key (Main Shaft)	5394, 5363
12	1	3297-J-1336	Main Shaft	5363
13	1	1229-W-4339	Snap Ring (Main Shaft Key)	5394, 5363

Main Countershaft Assembly

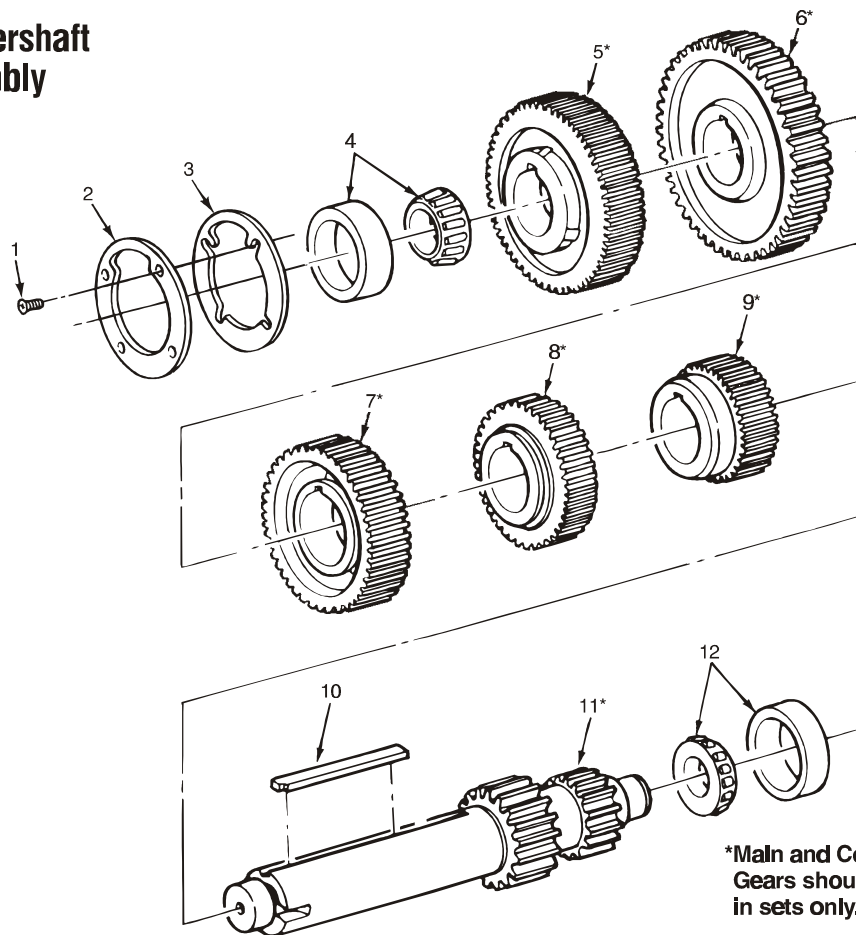


MCA0002

Main Countershaft Assembly — 9-Speed Direct Drive

Item	Qty.	Part Number	Description
1	8	10X-1537	Special Screw
2	2	3105-E-1175	Retainer, Countershaft Front Bearing
3	AR	Kit 5364	Service Kit, Shim Kit, Main Countershaft Front Bearing
4	2	A-1228-T-1346	Bearing Assembly, Cup and Cone (Main Countershaft Front)
5	2	3892-Q-5035	Countershaft Gear, Drive (66 Teeth)
6	2	3892-U-5013	Countershaft Gear, PTO (45 Teeth)
7	2	3892-Y-5017	Countershaft Gear, 3rd (59 Teeth)
8	2	3892-S-5011	Countershaft Gear, 2nd (43 Teeth)
9	2	3892-A-5019	Countershaft Gear, 1st (33 Teeth)
10	2	16X-1031	Key (Countershaft), Replaced by 16X-1040
		16X-1040	Key (Countershaft)
11	2	3297-K-1259	Countershaft (16/17 Teeth)
12	2	A-1228-S-1345	Bearing Assembly, Cup and Cone (Main Countershaft Rear)

Main Countershaft Assembly

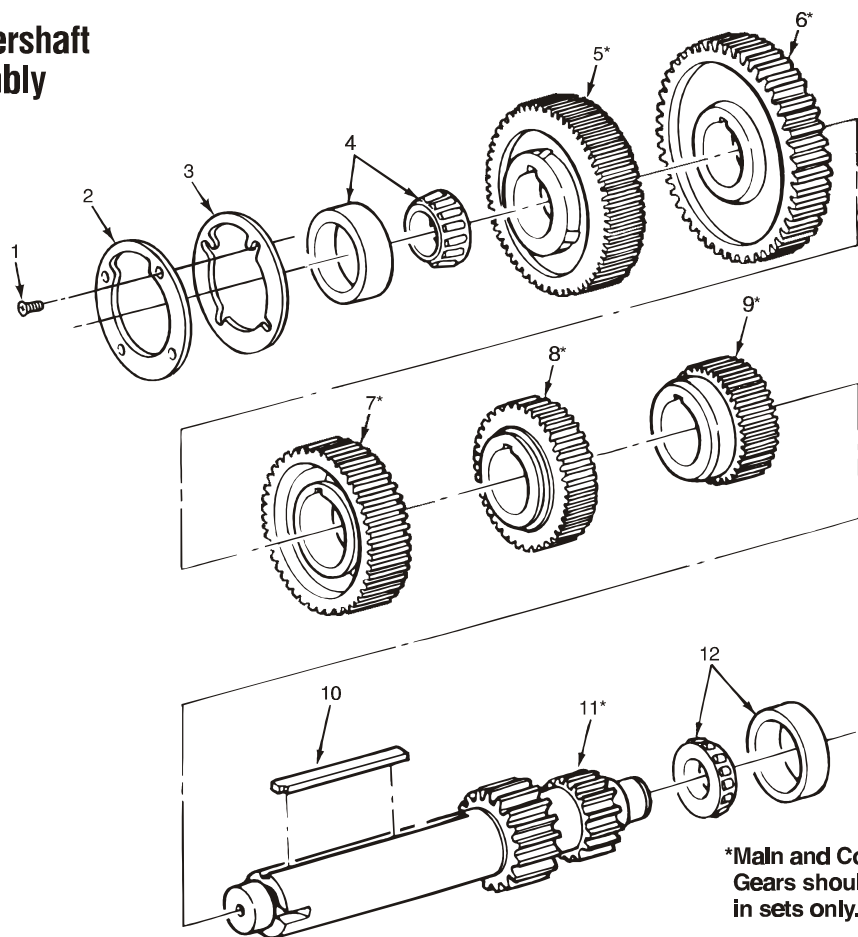


MCA0002

Main Countershaft Assembly — 9-Speed Overdrive "A" Ratio

Item	Qty.	Part Number	Description
1	8	10X-1537	Special Screw
2	2	3105-E-1175	Retainer, Countershaft Front Bearing
3	AR	Kit 5364	Service Kit, Shim Kit, Main Countershaft Front Bearing
4	2	A-1228-T-1346	Bearing Assembly, Cup and Cone (Main Countershaft Front)
5	2	3892-K-5159	Countershaft Gear, Drive (59 Teeth)
6	2	3892-U-5013	Countershaft Gear, PTO (45 Teeth)
7	2	3892-H-5156	Countershaft Gear, 4th (66 Teeth)
8	2	3892-S-5011	Countershaft Gear, 2nd (43 Teeth)
9	2	3892-A-5019	Countershaft Gear, 1st (33 Teeth)
10	2	16X-1031	Key (Countershaft), Replaced by 16X-1040
		16X-1040	Key (Countershaft)
11	2	3297-K-1259	Countershaft (16/17 Teeth)
12	2	A-1228-S-1345	Bearing Assembly, Cup and Cone (Main Countershaft Rear)

Main Countershaft Assembly



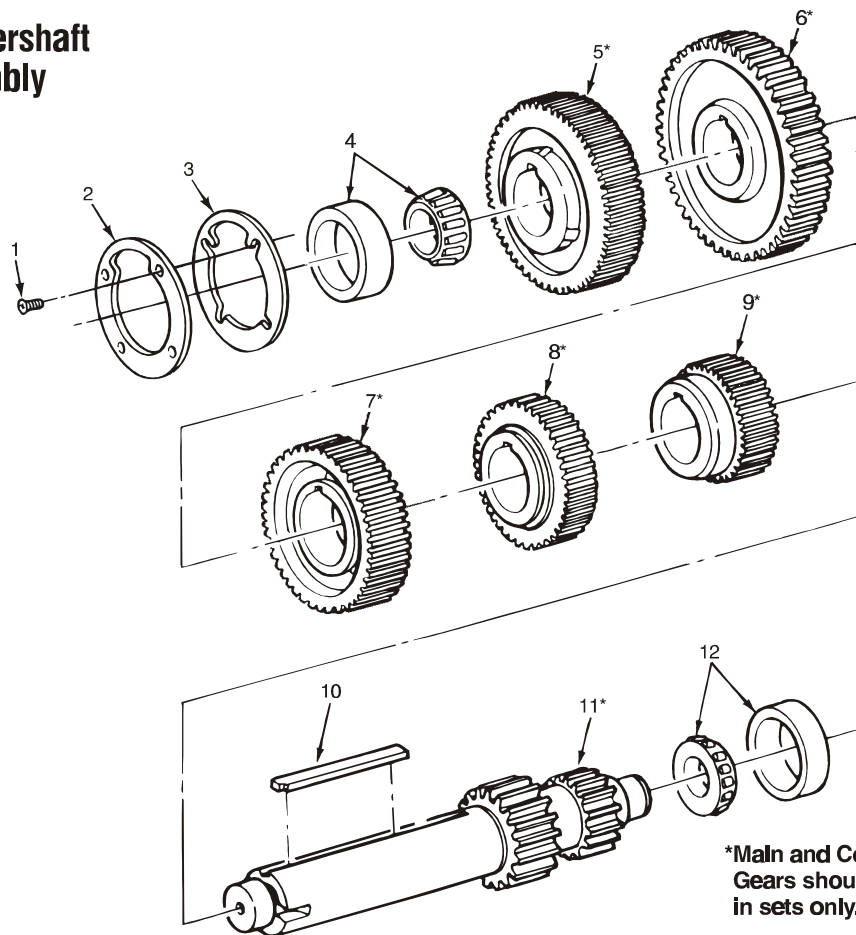
*Main and Countershaft Gears should be replaced in sets only.

MCA0002

Main Countershaft Assembly — 9-Speed Overdrive "B" Ratio

Item	Qty.	Part Number	Description
1	8	10X-1537	Special Screw
2	2	3105-E-1175	Retainer, Countershaft Front Bearing
3	AR	Kit 5364	Service Kit, Shim Kit, Main Countershaft Front Bearing
4	2	A-1228-T-1346	Bearing Assembly, Cup and Cone (Main Countershaft Front)
5	2	3892-M-5135	Countershaft Gear, Drive (62 Teeth)
6	2	3892-U-5013	Countershaft Gear, PTO (45 Teeth)
7	2	3892-T-5142	Countershaft Gear, 4th (73 Teeth)
8	2	3892-R-5140	Countershaft Gear, 2nd (44 Teeth)
9	2	3892-P-5138	Countershaft Gear, 1st (36 Teeth)
10	2	16X-1031	Key (Countershaft), Replaced by 16X-1040
		16X-1040	Key (Countershaft)
11	2	3297-K-1259	Countershaft (16/17 Teeth)
12	2	A-1228-S-1345	Bearing Assembly, Cup and Cone (Main Countershaft Rear)

Main Countershaft Assembly

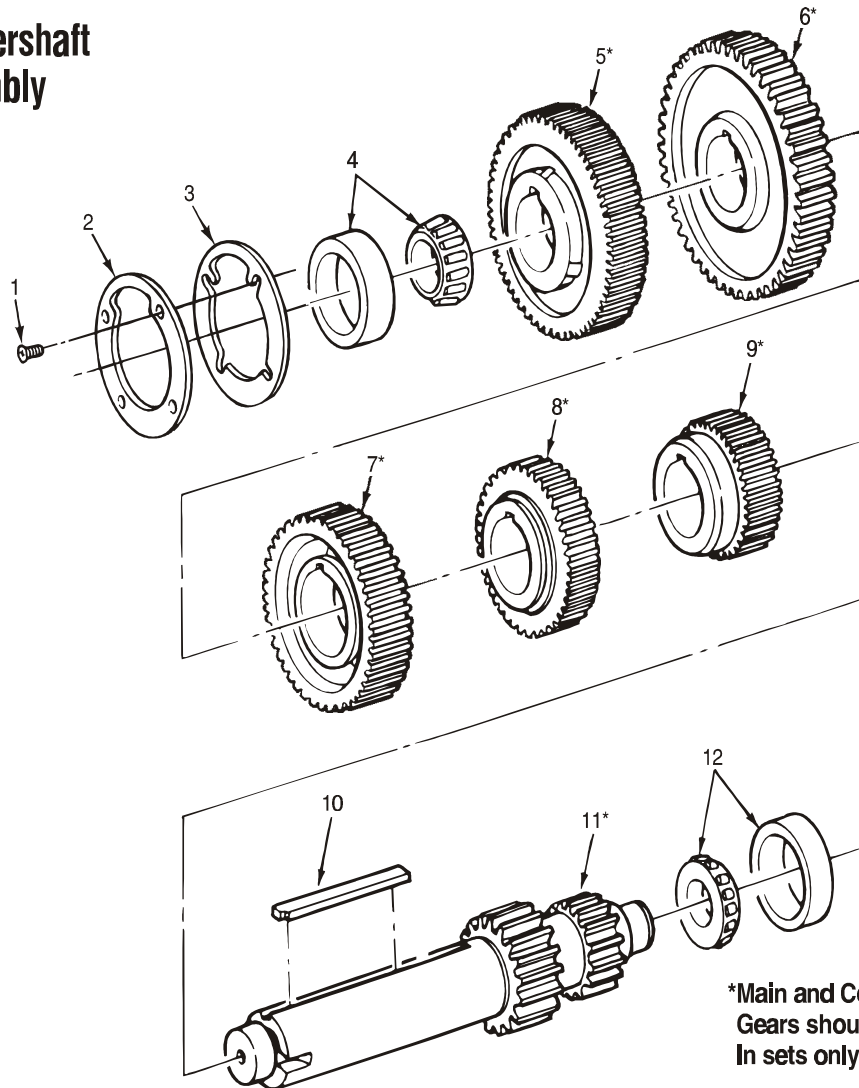


MCA0002

Main Countershaft Assembly — 10-Speed Direct Drive

Item	Qty.	Part Number	Description
1	8	10X-1537	Special Screw
2	2	3105-E-1175	Retainer, Countershaft Front Bearing
3	AR	Kit 5364	Service Kit, Shim Kit, Main Countershaft Front Bearing
4	2	A-1228-T-1346	Bearing Assembly, Cup and Cone (Main Countershaft Front)
5	2	3892-Q-5035	Countershaft Gear, Drive (66 Teeth)
6	2	3892-U-5013	Countershaft Gear, PTO (45 Teeth)
7	2	3892-Y-5017	Countershaft Gear, 4th (59 Teeth)
8	2	3892-S-5011	Countershaft Gear, 3rd (43 Teeth)
9	2	3892-N-5396	Countershaft Gear, 2nd (34 Teeth)
10	2	16X-1031	Key (Countershaft), Replaced by 16X-1040
		16X-1040	Key (Countershaft)
11	2	3297-N-1366	Countershaft (17/26 Teeth)
12	2	A-1228-S-1345	Bearing Assembly, Cup and Cone (Main Countershaft Rear)

Main Countershaft Assembly

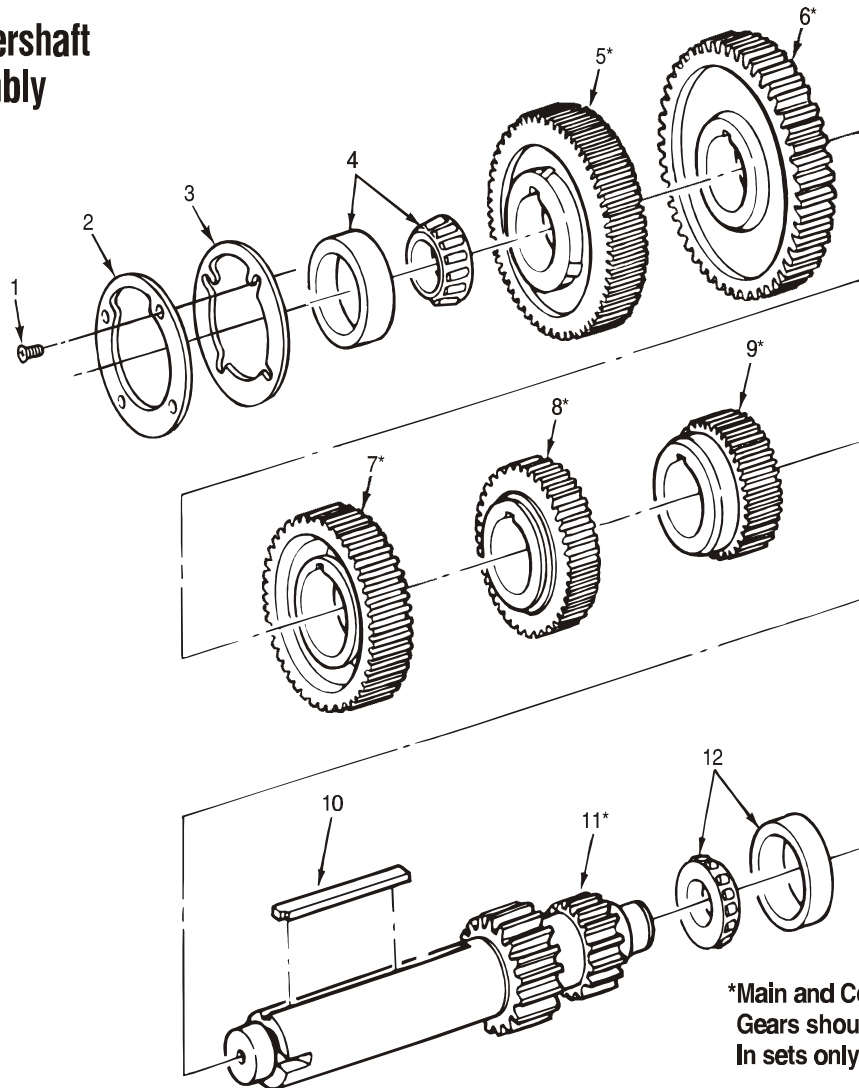


MCA0002

Main Countershaft Assembly — 10-Speed Overdrive “A” Ratio

Item	Qty.	Part Number	Description
1	8	10X-1537	Special Screw
2	2	3105-E-1175	Retainer, Countershaft Front Bearing
3	AR	Kit 5364	Service Kit, Shim Kit, Main Countershaft Front Bearing
4	2	A-1228-T-1346	Bearing Assembly, Cup and Cone (Main Countershaft Front)
5	2	3892-K-5159	Countershaft Gear, Drive (59 Teeth)
6	2	3892-U-5013	Countershaft Gear, PTO (45 Teeth)
7	2	3892-H-5156	Countershaft Gear, 5th (66 Teeth)
8	2	3892-S-5011	Countershaft Gear, 3rd (43 Teeth)
9	2	3892-N-5396	Countershaft Gear, 2nd (34 Teeth)
10	2	16X-1031	Key (Countershaft), Replaced by 16X-1040
		16X-1040	Key (Countershaft)
11	2	3297-N-1366	Countershaft (26/17 Teeth)
12	2	A-1228-S-1345	Bearing Assembly, Cup and Cone (Main Countershaft Rear)

Main Countershaft Assembly



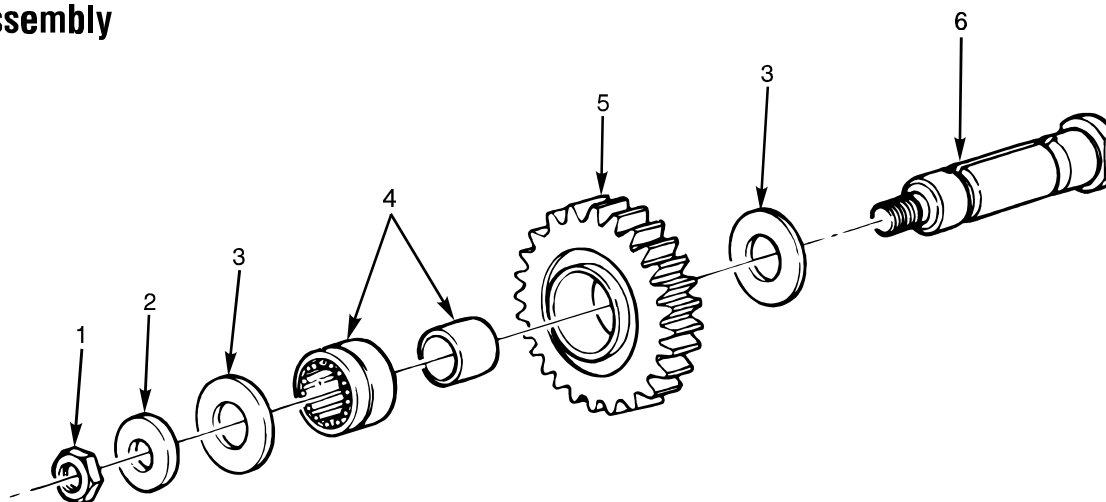
***Main and Countershaft
Gears should be replaced
In sets only.**

MCA0002

Main Countershaft Assembly — 10-Speed Overdrive “C” Ratio

Item	Qty.	Part Number	Description
1	8	10X-1537	Special Screw
2	2	3105-N-1236	Retainer, Countershaft Front Bearing
3	AR	Kit 5364	Shim Kit, Main Countershaft — Front Bearing 1650 Input Torque and Under
	AR	Kit 5438	Shim Kit, Main Countershaft — Front Bearing 1850 Input Torque and Above
4	2	A-1228-T-1346	Bearing Assembly, Cup and Cone (Main Countershaft — Front) 1650 Input Torque and Below
	2	A-1228-B-1484	Bearing Assembly, Cup and Cone (Main Countershaft — Front) 1850 Input Torque and Above
5	2	3892-S-5479	Countershaft Gear, Drive (55 Teeth) 1650 Input Torque and Below
	2	3892-J-5678	Countershaft Gear, Drive (55 Teeth) 1850 Input Torque and Above
6	2	3892-U-5013	Countershaft Gear, PTO (45 Teeth)
7	2	3892-V-5482	Countershaft Gear, 5th (73 Teeth)
8	2	3892-T-5480	Countershaft Gear, 3rd (46 Teeth)
9	2	3892-U-5481	Countershaft Gear, 2nd (34 Teeth)
10	2	16X-1040	Key (Countershaft)
11	2	3297-W-1453	Countershaft (26/17 Teeth)
12	2	A-1228-S-1345	Bearing Assembly, Cup and Cone (Main Countershaft Rear)

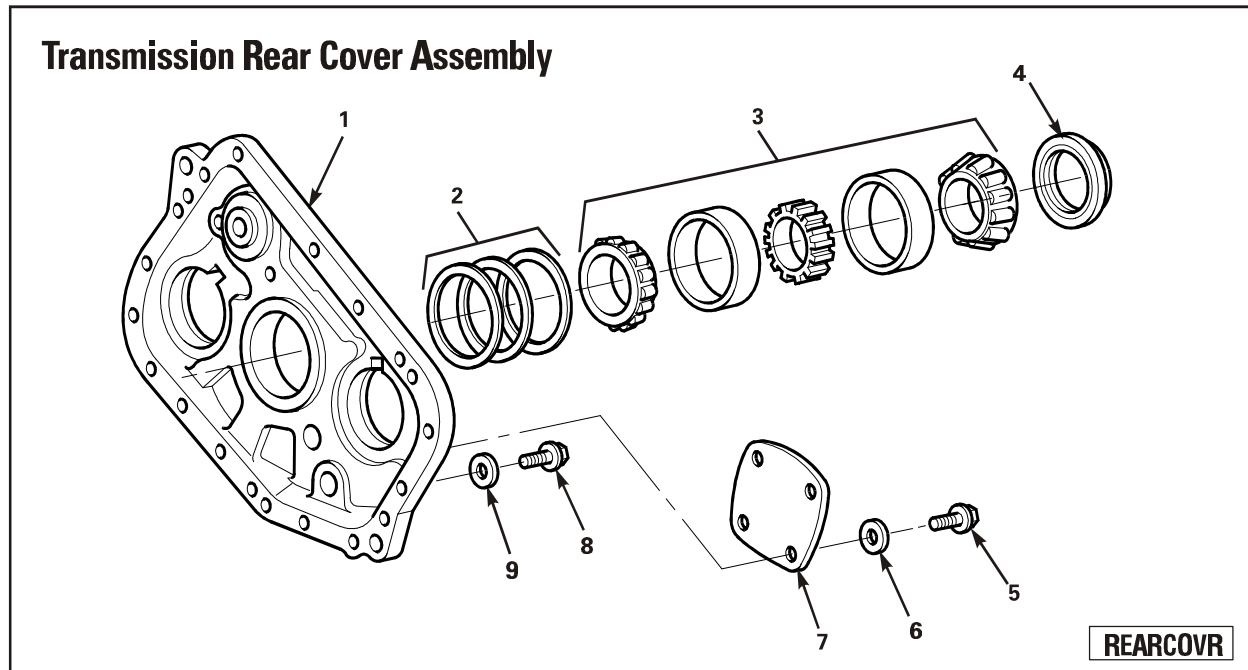
Reverse Idler Assembly



RIA0001

Reverse Idler Assembly

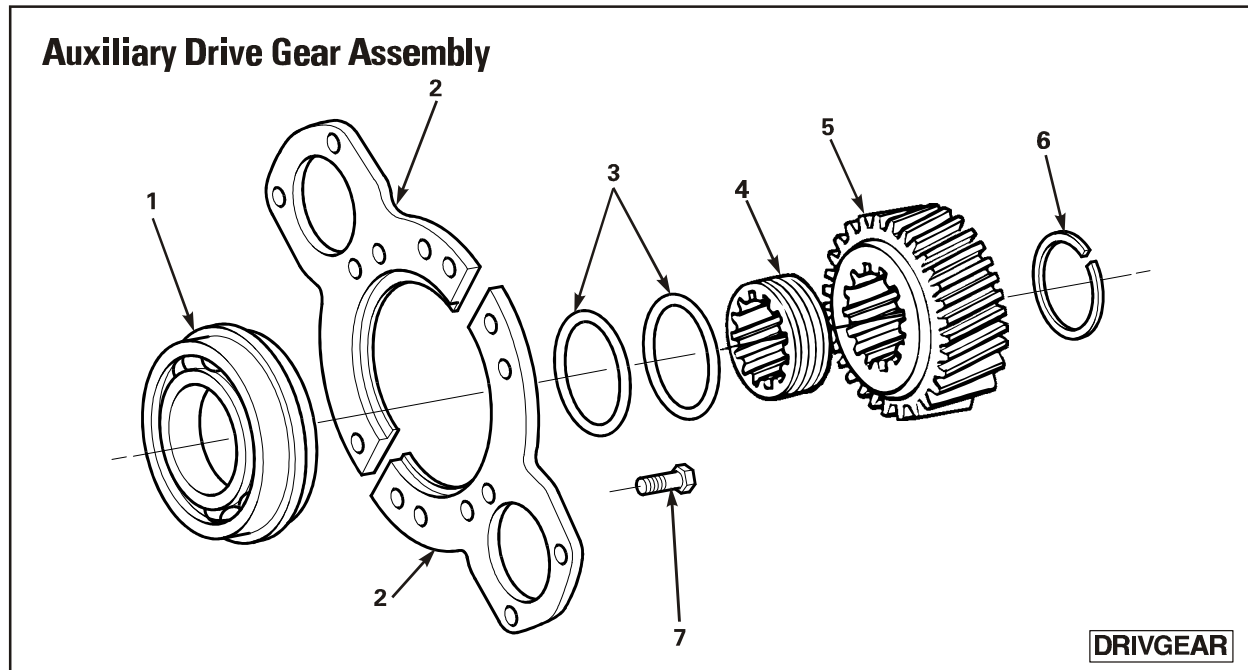
Item	Qty.	Part Number	Description
1	2	NL-110-1	Lock Nut (Reverse Idler Shaft)
2	2	1229-N-1626	Flat Washer
3	4	42X-1258	Thrust Washer
4	2	A-1228-E-1175	Bearing Assembly (Includes: 1228-E-1175, Needle Bearing and 2297-S-5765, Inner Bearing Race)
5	2	3892-N-5032	Idler Gear, Reverse (28 Teeth)
6	2	3198-D-1070	Idler Shaft (Reverse)



Transmission Rear Cover Assembly

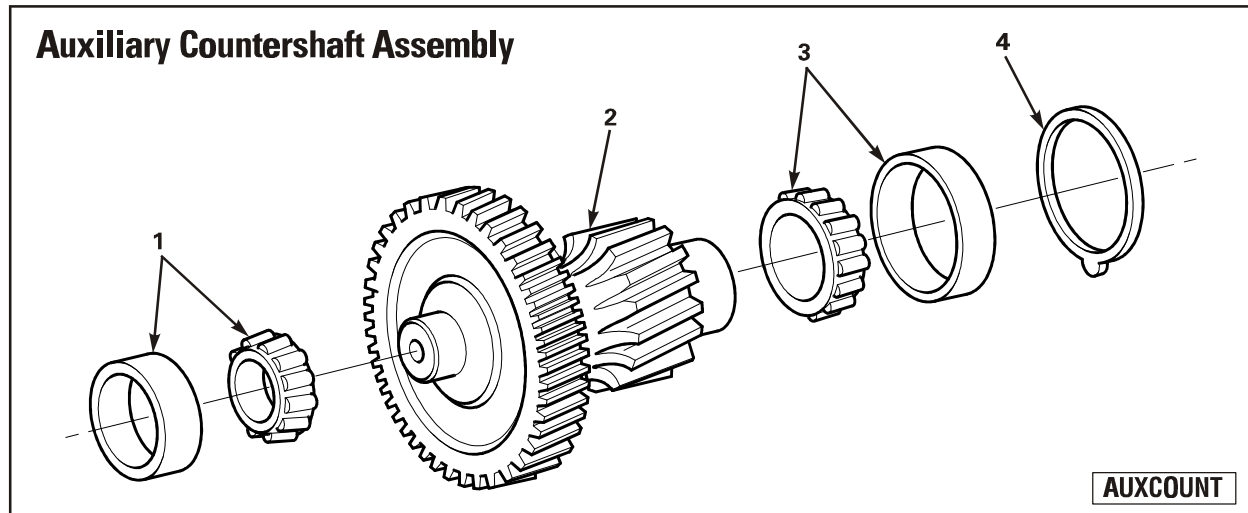
Item	Qty.	Part Number	Description
1	1	3293-Q-1109	Cover, Rear
2*	1	Kit 5391	Output Bearing Selective Spacer (Blue), Used on Serial Numbers LB-00011318 and Below. NOTE: Replace with same color spacer.
	1	Kit 5391	Output Bearing Selective Spacer (Green), Used on Serial Numbers LB-00011318 and Below. NOTE: Replace with same color spacer.
	1	Kit 5391	Output Bearing Selective Spacer (Yellow), Used on Serial Numbers LB-00011318 and Below. NOTE: Replace with same color spacer.
3	1	A1-1228-J-1414	Bearing Assembly, Output (Includes speedo rotor)
4	1	Kit 5389	Oil Seal Assembly
5	8	10X-1660	Bolt/Capscrew (Auxiliary Countershaft Bearing Cover)
6	8	1229-B-1666	Flat Washer (Bearing Cover)
7	2	3266-D-1278	Cover, Bearing Auxiliary, Countershaft Rear 9 and 10
8	18	10X-1659	Bolt/Capscrew, 3/8"-16 UNC-2A x 1-1/2"
9	18	1229-B-1666	Flat Washer

* Not needed with replacement rear covers.



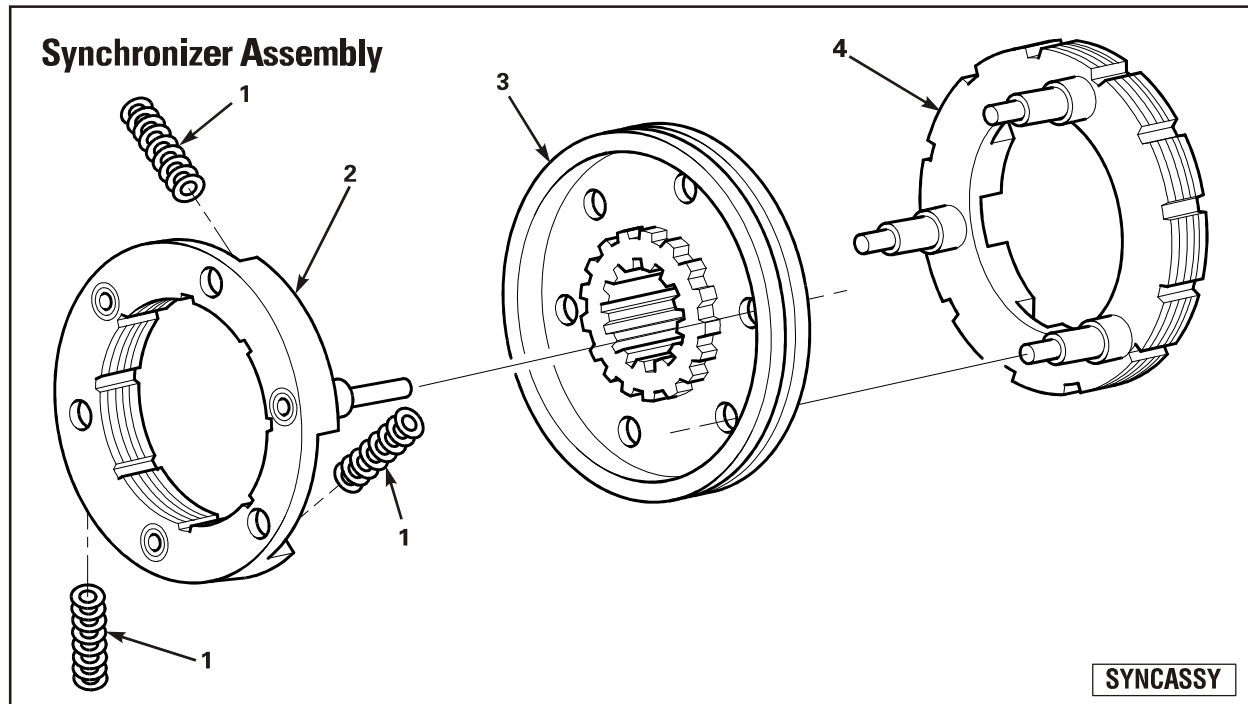
Auxiliary Drive Gear Assembly

Item	Qty.	Part Number	Description
1	1	A-1228-H-1204	Bearing Assembly (Ball)
2	2	3105-Y-1195	Retainer, Rear Main Bearing
3	2	5X-1069	O-Ring
4	1	2245-W-1219	Sleeve
5	1	3892-G-5519	Auxiliary Gear, Drive (38 Teeth) All except 10-Speed Overdrive "C" Ratio
	1	3892-F-5518	Auxiliary Gear, Drive (42 Teeth) 10-Speed Overdrive "C" Ratio Only
6	1	1229-W-4339	Snap Ring
7	10	S-268-2	Bolt/Capscrew, 3/8"-16 UNC-2



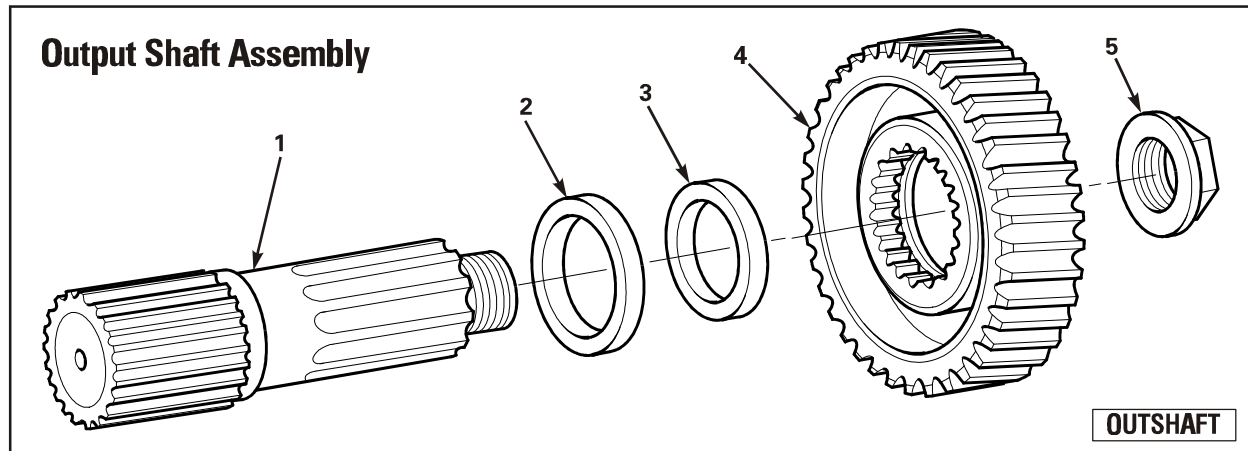
Auxiliary Countershaft Assembly

Item	Qty.	Part Number	Description	Kit #
1	2	A-1228-S-1345	Bearing Set	
2	2	3297-K-1415	Auxiliary Countershaft, 9 Direct and 9 Overdrive "A" Ratio	
	2	3297-J-1414	Auxiliary Countershaft, 9 Overdrive "B" Ratio and Direct	
	2	3297-T-1398	Auxiliary Countershaft, 10 Direct and 10 Overdrive "A" Ratio and Direct	
	2	3297-S-1397	Auxiliary Countershaft, 10 Overdrive "C" Ratio	
3	2	A-1228-S-1345	Bearing Set	
4	AR	Kit 5404	Kit — Spacer Washer, Auxiliary Countershaft Selective	



Synchronizer Assembly

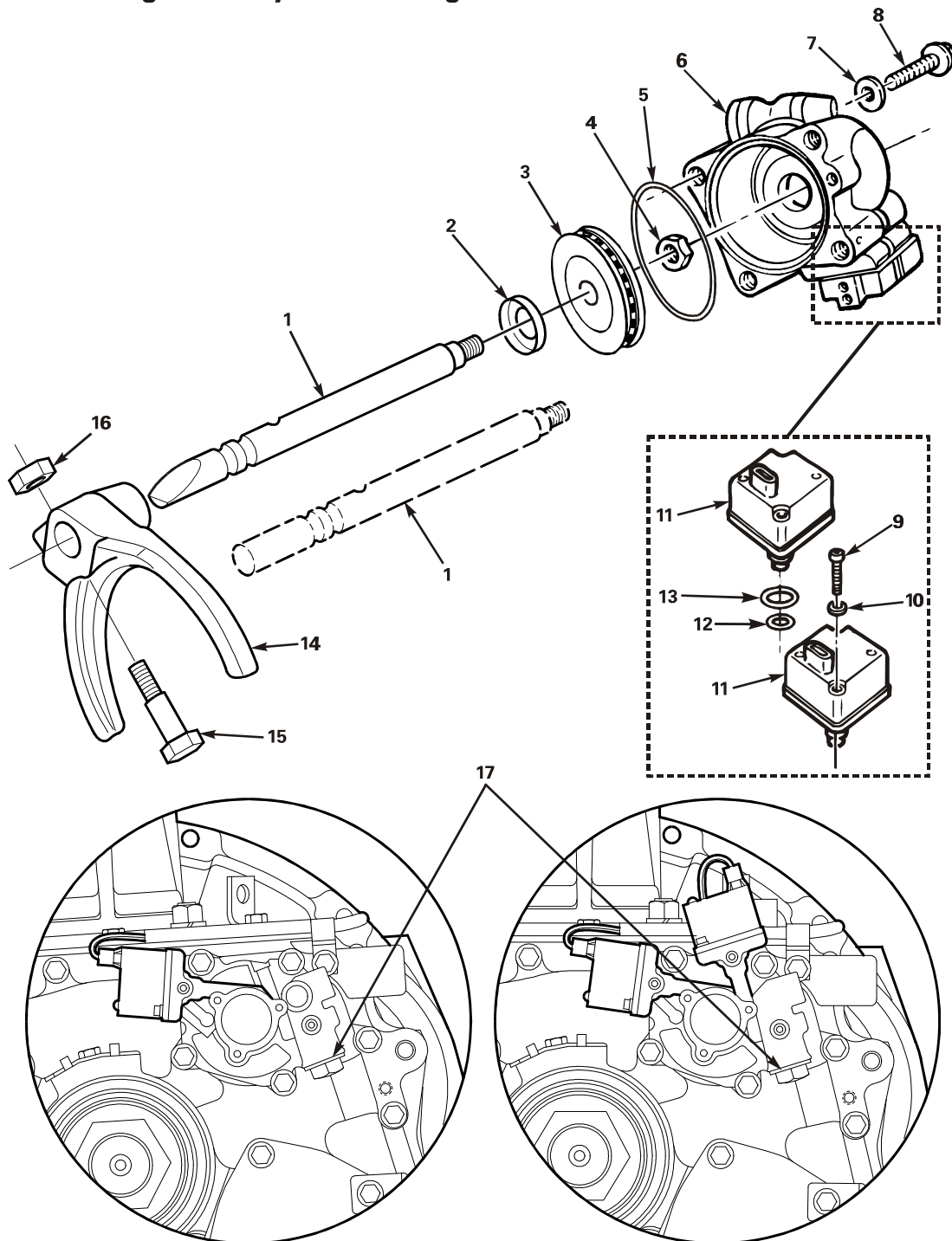
Item	Qty.	Part Number	Description	Kit #
1	3	2258-Z-1144	Spring	5289, 5270
2	1	A-3203-Z-1014	Synchro Assembly (High), Not Sold Separately	5289, 5270
3	1	3107-S-1111	Collar, Not Sold Separately	5289
4	1	A-3203-R-1006	Synchro Assembly (Low), Not Sold Separately	5289, 5270



Output Shaft Assembly

Item	Qty.	Part Number	Description
1	1	3297-N-1418	Output Shaft
2	1	1244-W-2103	Spacer (Output Shaft)
3	1	1244-X-2104	Spacer (Output Bearing)
4	1	3892-E-5517	Auxiliary Low Gear (58T), 10 speed A and C ratio
	1	3892-H-5598	Auxiliary Low Gear (66T), 9 speed B ratio
	1	3892-J-5600	Auxiliary Low Gear (60T), 9 speed A ratio
5	1	1227-T-1554	Nut, Flanged (Yoke)

Piston Housing Assembly/Air Filter Regulator



INLINE CONFIGURATION

"V" CONFIGURATION

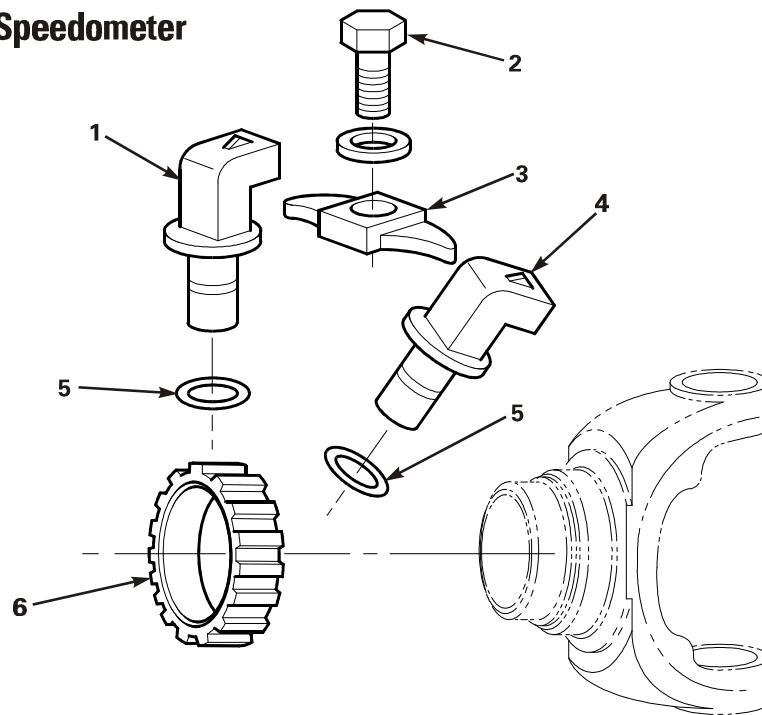
PISTHOUS

Piston Housing Assembly/Air Filter Regulator

Item	Qty.	Part Number	Description	Kit #
1	1	2244-W-1167	Range Shaft (Service with 2244-R-1188)	
	1	2244-R-1188	Range Shaft	
2	1	1205-G-2607	Seal, Oil, Shaft (Auxiliary Housing)	5401
3	1	2230-J-1310	Piston Assembly	5401
4	1	1227-S-1570	Nut	5401
5	1	5X-1217	O-Ring (Range Piston Housing Cover Seal)	5401
6†	NLA	A1-3280-H-9602	Piston Housing with Air Filter Regulator ("V" Configuration), NLA	5403
		A1-3280-R-9716	Piston Housing with Air Filter Regulator (Inline Configuration)	5403 (inc 5400, 5401), 5436 (inc 5400, 5401)
7	4	1229-B-1666	Flat Washer	
8	4	10X-1670	Bolt/Capscrew	5436 (inc 5401)
9	4	10X-1623	Screw, Solenoid/Piston Housing Cover	5436 (inc 5401)
10	4	WA-43Z	Flat Washer	5436 (inc 5401)
11	2	A-3280-F-9392	Solenoid Assembly (Includes 5X-1207 and 5X-1092 O-Rings)	5436 (inc 5401)
12	4	5X-1207	O-Ring, Solenoid	5401
13	2	5X-1092	O-Ring, Solenoid	5401
14	1	3296-Q-1161	Range Shift Fork	
15	1	10X-1534	Bolt	
16	1	NL-25-1	Lock Nut	
17	1	A-3280-G-9610S	Air Filter Regulator	5400

† Replace with Kit 5403.

Electronic Speedometer

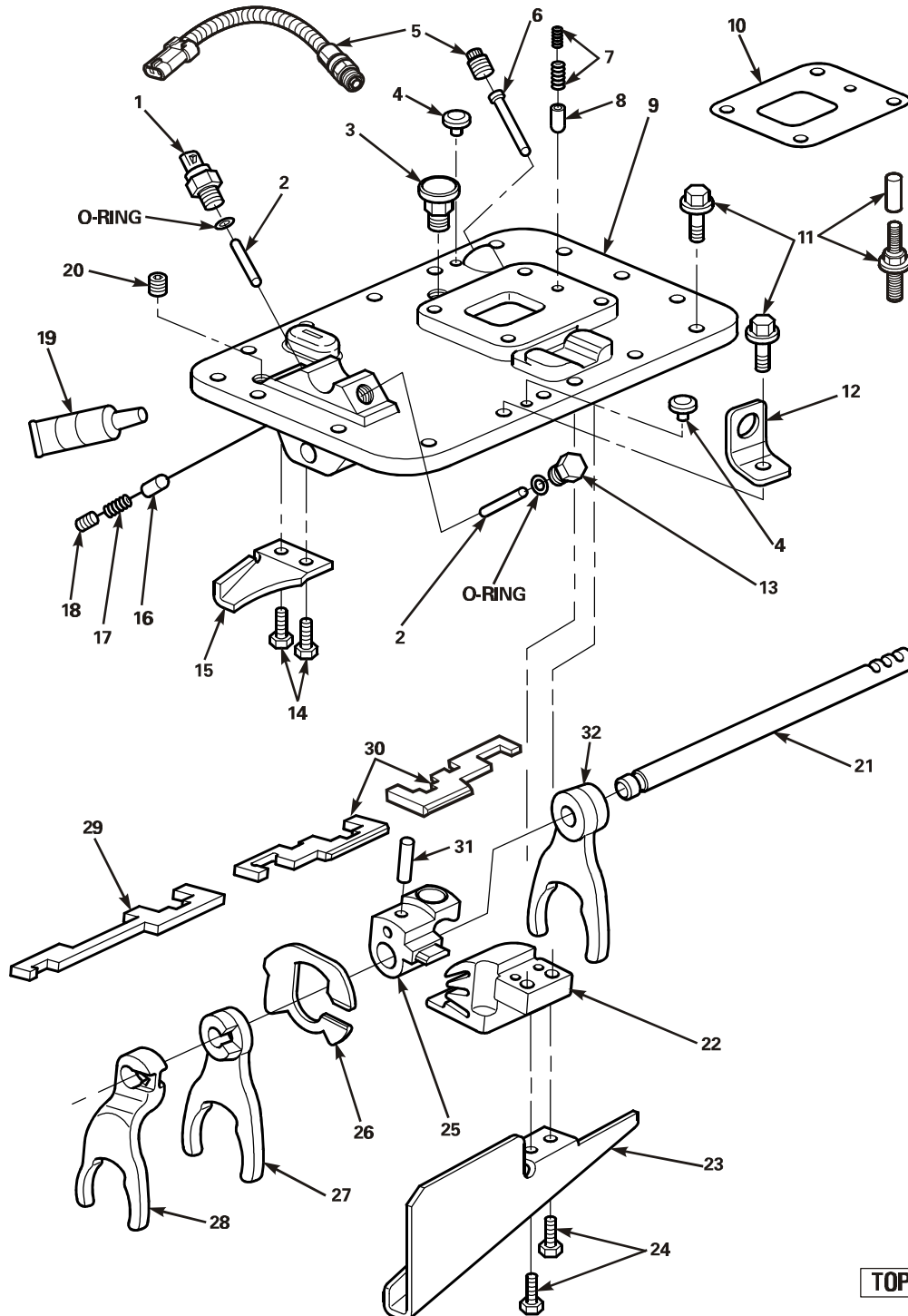


ELCTSPED

Electronic Speedometer

Item	Qty.	Part Number	Description	Kit #
1	1	A-3280-G-9575	Two Lead Speedometer Sensor	5392
2	1	S-264-1	Speedometer Sensor Bracket Bolt	
3	1	2255-T-1268	Speedometer Sensor Tie Down Bracket	
4	1	A-3280-H-9576	Four Lead Speedometer Sensor	
5	1	5X-1134	O-Ring	
6	NSS	2297-X-7278	Speedometer Rotor, Included in A1-1228-J-1414	

Top Cover Assembly — Standard Direct (Manual) Electric Over Air



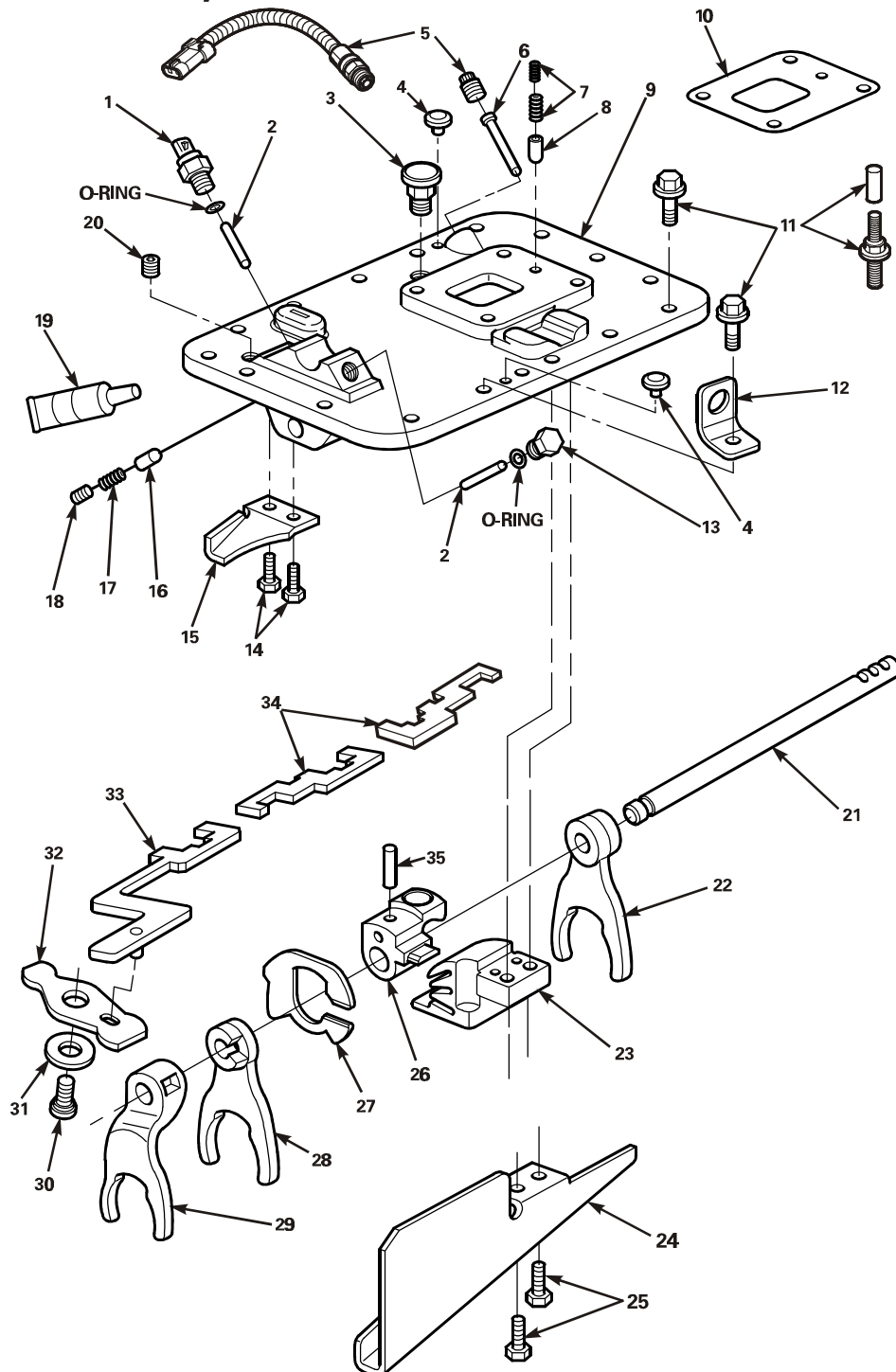
TOPCVRSD

Top Cover Assembly — Standard Direct (Manual) Electric Over Air

Item	Qty.	Part Number	Description	Kit #
1	1	A-3280-W-9409	Switch Assembly, Neutral	
2	2	43X-1210	Pin, Neutral Actuator	
3	1	A-1199-P-1394	Breather Assembly	
4	2	1250-Q-1265	Plug, Jack Screw	
5	1	1250-D-1252	Plug	
	1	A-2297-Q-8285	Reverse Switch (Optional), Volvo Only	
6	1	43X-1208	Pin, Reverse Actuator	
7	NLA	2258-P-1368	Spring, Rail Detent (Pink), Replaced by 2258-V-1452	5441
	NLA	2258-T-1424	Spring, Rail Detent (Argosy Only), Replaced by 2258-B-1458	5441
	1	2258-V-1452	Spring, Rail Detent (Standard) Black	
	1	2258-W-1453	Spring, Rail Detent (Optional Heavy — Volvo and International) (Use with 2258-V-1452) Blue	
	1	2258-B-1458	Spring, Rail Detent (Optional Light — Argosy) Purple	
8	NLA	43X-1207	Pin, Rail Detent, Replaced by 42X-1247	5441
	1	42X-1247	Pin, Rail Detent	
9	NLA	A1-3293-Y-1117-S	Top Cover Assembly, Replaced by A2-3293-T-1138-S	
	1	A2-3293-T-1138-S	Top Cover Assembly	
10	1	2208-H-1152	Gasket, Shift Tower	
11	16	10X-1657	Bolt, Top Cover	
	16	A-2297-V-8290	Stud and Protective Cap (Optional)	
12	2	2297-P-5840	Lifting Hook	
13	1	A-1250-H-1126	Plug Assembly, Neutral	
14	2	S-244-A-1	Screw, Hex Socket Head Cap	
15	1	2205-W-1011	Scoop, Oil	
16	1	43X-1203	Pin, Reverse Detent	
17	1	2258-Q-1369	Spring, Reverse Detent (Grey)	
18	1	26X-1032	Screw, Reverse Detent Set	
19	A/R	2297-U-6417	Loctite Sealant	
20	1	P-46	Plug, Lube Return	
21	1	2244-F-1176	Rail, Shift	
22†	NLA	A-3280-N-9608	Shift Housing Assembly	
	1	A-3280-G-9809	Shift Housing Assembly	
23	1	3221-C-1017	Scoop, Oil	
24	2	10X-1667	Screw, Hex Socket Head Cap	
25†	NLA	2245-A-1223	Shift Sleeve	
	1	2245-M-1235	Shift Sleeve	
26†	NLA	3280-L-9606	Plate, Interlock	
	1	3280-C-9805	Plate, Interlock	
27†	NLA	3296-K-1259	Fork, Mid Shift	
	1	3296-S-1319	Fork, Mid Shift	
28	1	3296-M-1261	Fork, High Shift	
29†	NLA	2244-C-1173	Bar, High Connecting	
	1	2244-H-1204	Bar, High Connecting	
30†	NLA	2244-B-1172	Bar, Low/Mid Connecting	
	1	2244-F-1202	Bar, Low Connecting	
	1	2244-G-1203	Bar, Mid Connecting	
31	1	43X-1214	Pin	
32	1	3296-J-1258	Fork, Low Shift	

† Requires new top cover assembly A2-3293-T-1138-S. New components will not interchange on the old top covers.

Top Cover Assembly — Standard Overdrive (Manual) Electric Over Air



TOPCVRSO

Top Cover Assembly — Standard Overdrive (Manual) Electric Over Air

Item	Qty.	Part Number	Description	Kit #
1	1	A-3280-W-9409	Switch Assembly, Neutral-In Gear	
2	2	43X-1210	Pin, Neutral Actuator	
3	1	A-1199-P-1394	Breather, Assembly	
4	2	1250-Q-1265	Plug, Jack Screw	
5	1	1250-D-1252	Plug	
	1	A-2297-A-8285	Reverse Switch (Optional), Volvo Only	
6	1	43X-1208	Pin, Reverse Actuator	
7	NLA	2258-P-1368	Spring, Rail Detent (Pink), Replaced by 2258-V-1452	5441
	NLA	2258-T-1424	Spring, Rail Detent (Argosy Only), Replaced by 2258-B-1458	5441
	1	2258-V-1452	Spring, Rail Detent (Standard) Black	
	1	2258-W-1453	Spring, Rail Detent (Optional Heavy — Volvo and International) (Use with 2258-V-1452) Blue	
	1	2258-B-1458	Spring, Rail Detent (Optional Light — Argosy) Purple	
8	NLA	43X-1207	Pin, Rail Detent, Replaced by 42X-1247	5441
	1	42X-1247	Pin, Rail Detent	
9	NLA	A1-3293-X-1116-S	Top Cover Assembly, Replaced by A3-3293-T-1138S	
	1	A3-3293-T-1138S	Top Cover Assembly	
10	1	2208-H-1152	Gasket, Shift Tower	
11	16	10X-1657	Bolt, Top Cover	
	16	A-2297-V-8290	Stud and Protective Cap (Optional)	
12	2	2297-P-5840	Lifting Hook	
13	1	A-1250-H-1126	Plug Assembly, Neutral	
14	2	S-244-A-1	Screw, Hex Socket Head Cap	
15	1	2205-W-1011	Scoop, Oil	
16	1	43X-1203	Pin, Reverse Detent	
17	1	2258-Q-1369	Spring, Reverse Detent (Grey)	
18	1	26X-1032	Screw, Reverse Detent Set	
19	A/R	2297-U-6417	Loctite Sealant	
20	1	P-46	Plug, Lube Return	
21	1	2244-E-1176	Rail, Shift	
22	1	3296-J-1258	Fork, Low Shift	
23†	NLA	A-3280-N-9608	Shift Housing Assembly	
	1	A-3280-G-9809	Shift Housing Assembly	
24	1	3221-C-1017	Scoop, Oil	
25	2	10X-1667	Screw, Hex Socket Head Cap	
26	NLA	2245-A-1223	Shift Sleeve, Replaced by 2245-M-1235	
	1	2245-M-1235	Shift Sleeve	
27†	NLA	3280-L-9606	Plate, Interlock	
	1	3280-C-9805	Plate, Interlock	
28†	NLA	3296-K-1259	Fork, Mid Shift	
	1	3296-S-1319	Fork, Mid Shift	
29	1	3296-N-1262	Fork, High Shift	
30	1	2244-U-1165	Screw, Socket Head Shoulder	
31	1	1229-T-4752	Spacer, Rocking Lever	
32†	NLA	2247-K-1493	Lever, Rocking	
	1	2247-Z-1534	Lever, Rocking	
33†	NLA	A-2244-D-1174	Bar, High Connecting (Includes Pin 43X1197 — Not Sold Separately)	
	1	A-2244-J-1206	Bar, High Connecting (Includes Pin 43X1197 — Not Sold Separately)	
34†	NLA	2244-B-1172	Bar, Low/Mid Connecting	
	1	2244-F-1202	Bar, Low Connecting	
	1	2244-G-1203	Bar, Mid Connecting	
35	1	43X-1214	Pin	

† Requires new top cover assembly A3-3293-T-1138-S. New components will not interchange on the old top covers.

This exploded view diagram illustrates the assembly of a mechanical component, likely a pump or valve. The central part is a large rectangular base plate (13) with a central square opening. Various components are shown being assembled onto this base plate, including:

- Top Assembly:** A curved hose (6) connects to a fitting (1). A small O-RING (23) is shown near the fitting. A small cap (4) is shown being inserted into a hole in the base plate. A small pin (5) is shown being inserted into a hole in the base plate. A small pin (7) is shown being inserted into a hole in the base plate. A small pin (8) is shown being inserted into a hole in the base plate. A small pin (9) is shown being inserted into a hole in the base plate. A small pin (10) is shown being inserted into a hole in the base plate. A small pin (11) is shown being inserted into a hole in the base plate. A small pin (12) is shown being inserted into a hole in the base plate. A small pin (14) is shown being inserted into a hole in the base plate. A small pin (15) is shown being inserted into a hole in the base plate. A small pin (16) is shown being inserted into a hole in the base plate. A small pin (17) is shown being inserted into a hole in the base plate. A small pin (18) is shown being inserted into a hole in the base plate. A small pin (19) is shown being inserted into a hole in the base plate. A small pin (20) is shown being inserted into a hole in the base plate. A small pin (21) is shown being inserted into a hole in the base plate. A small pin (22) is shown being inserted into a hole in the base plate. A small pin (24) is shown being inserted into a hole in the base plate. A small pin (25) is shown being inserted into a hole in the base plate. A small pin (26) is shown being inserted into a hole in the base plate. A small pin (27) is shown being inserted into a hole in the base plate. A small pin (28) is shown being inserted into a hole in the base plate. A small pin (29) is shown being inserted into a hole in the base plate. A small pin (30) is shown being inserted into a hole in the base plate. A small pin (31) is shown being inserted into a hole in the base plate. A small pin (32) is shown being inserted into a hole in the base plate. A small pin (33) is shown being inserted into a hole in the base plate. A small pin (34) is shown being inserted into a hole in the base plate. A small pin (35) is shown being inserted into a hole in the base plate.
- Bottom Assembly:** A large rectangular plate (27) is shown being inserted into a hole in the base plate. A small pin (28) is shown being inserted into a hole in the base plate. A small pin (29) is shown being inserted into a hole in the base plate. A small pin (30) is shown being inserted into a hole in the base plate. A small pin (31) is shown being inserted into a hole in the base plate. A small pin (32) is shown being inserted into a hole in the base plate. A small pin (33) is shown being inserted into a hole in the base plate. A small pin (34) is shown being inserted into a hole in the base plate. A small pin (35) is shown being inserted into a hole in the base plate.

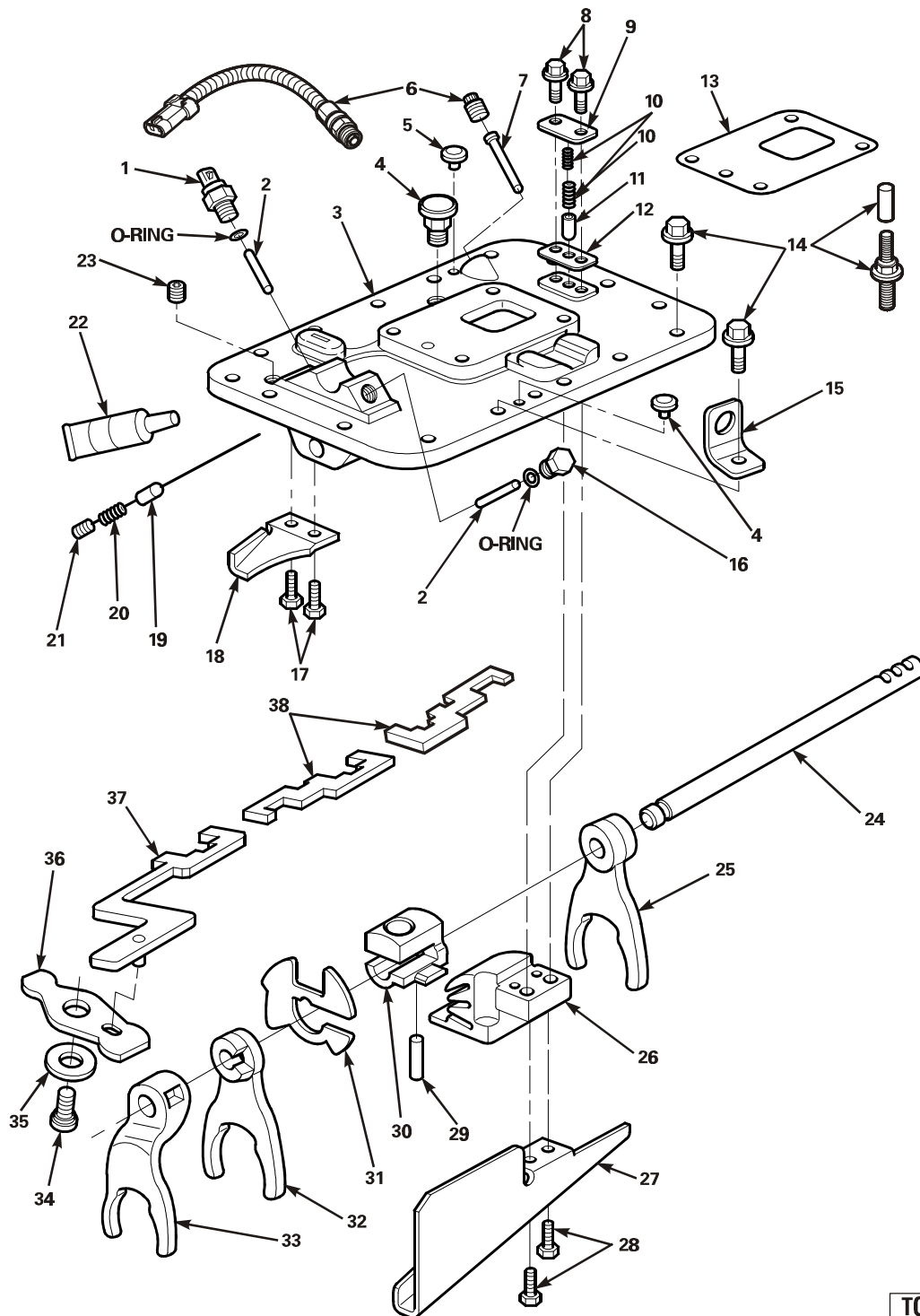
 The diagram includes two labels: "O-RING" pointing to part 23 and "O-RING" pointing to part 2.

Top Cover Assembly — Forward Direct (Manual) Electric Over Air

Item	Qty.	Part Number	Description	Kit #
1	1	A-3280-W-9409	Switch Assembly, Neutral-In Gear	
2	2	43X-1210	Pin, Neutral Actuator	
3	NLA	A1-3293-V-1114-S	Top Cover Assembly, Replaced by A2-3293-R-1136-S	
	1	A2-3293-R-1136-S	Top Cover Assembly	
4	1	A-1199-P-1394	Breather Assembly	
5	2	1250-Q-1265	Plug, Jack Screw	
6	1	1250-D-1252	Plug	
	1	A-2297-Q-8285	Reverse Switch (Optional), Volvo Only	
7	1	43X-1208	Pin, Reverse Actuator	
8	2	10X-1446	Bolt, Rail Detent Strap	
9	1	2205-H-1126	Strap	
10	NLA	2258-P-1368	Spring, Rail Detent (Pink), Replaced by 2258-V-1452	5441
	NLA	2258-T-1424	Spring, Rail Detent (Argosy Only), Replaced by 2258-B-1458	5441
	1	2258-V-1452	Spring, Rail Detent (Standard) Black	
	1	2258-W-1453	Spring, Rail Detent (Optional Heavy — Volvo and International) (Use with 2258-V-1452) Blue	
	1	2258-B-1458	Spring, Rail Detent (Optional Light — Argosy) Purple	
11	NLA	43X-1207	Pin, Rail Detent, Replaced by 42X-1247	5441
	1	42X-1247	Pin, Rail Detent	
12	1	2208-G-1151	Gasket, Rail Detent	
13	1	2208-H-1152	Gasket, Shift Tower	
14	16	10X-1657	Bolt, Top Cover	
	16	A-2297-V-8290	Stud and Protective Cap (Optional)	
15	2	2297-P-5840	Lifting Hook	
16	1	A-1250-H-1126	Plug Assembly, Neutral	
17	2	S-244-A-1	Screw, Hex Socket Head Cap	
18	1	2205-W-1011	Scoop, Oil	
19	1	43X-1203	Pin, Reverse Detent	
20	1	2258-O-1369	Spring, Reverse Detent (Grey)	
21	1	26X-1032	Screw, Reverse Detent Set	
22	A/R	2297-U-6417	Loctite Sealant	
23	1	P-46	Plug, Lube Return	
24	1	2244-E-1175	Rail, Shift	
25	1	3296-J-1258	Fork, Low Shift	
26†	NLA	A-3280-N-9608	Shift Housing Assembly	
	1	A-3280-G-9809	Shift Housing Assembly	
27	1	3221-C-1017	Scoop, Oil	
28	2	10X-1667	Screw, Hex Socket Head Cap	
29	1	43X-1214	Pin	
30†	NLA	2245-Y-1221	Shift Sleeve	
	1	2245-N-1236	Shift Sleeve	
31†	NLA	3280-K-9605	Plate, Interlock	
	1	3280-D-9806	Plate, Interlock	
32†	NLA	3296-K-1259	Fork, Mid Shift	
	1	3296-S-1319	Fork, Mid Shift	
33	1	3296-M-1261	Fork, High Shift	
34†	NLA	2244-C-1173	Bar, High Connecting	
	1	2244-H-1204	Bar, High Connecting	
35†	NLA	2244-B-1172	Bar, Low/Mid Connecting	
	1	2244-F-1202	Bar, Low Connecting	
	1	2244-G-1203	Bar, Mid Connecting	

† Requires new top cover assembly A2-3293-R-1136-S. New components will not interchange on the old top covers.

Top Cover Assembly — Forward Overdrive (Manual)



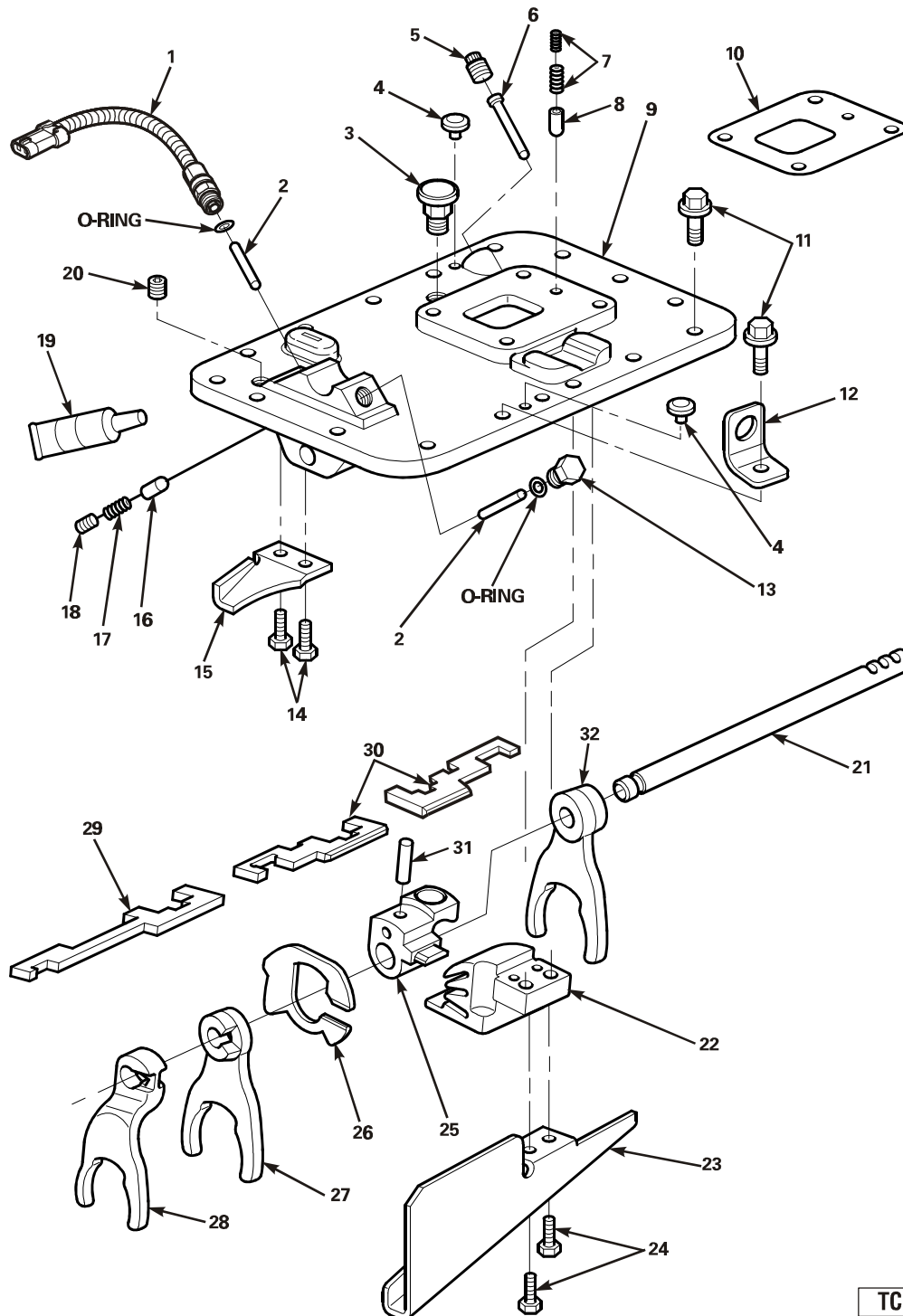
TOPCVRFO

Top Cover Assembly — Forward Overdrive (Manual) Electric Over Air

Item	Qty.	Part Number	Description	Kit #
1	1	A-3280-W-9409	Switch Assembly, Neutral-In Gear	
2	2	43X-1210	Pin, Neutral Actuator	
3	NLA	A1-3293-U-1113-S	Top Cover Assembly, Replaced by A3-3293-R-1136S	
	1	A3-3293-R-1136S	Top Cover Assembly	
4	1	A-1199-P-1394	Breather Assembly	
5	2	1250-Q-1265	Plug, Jack Screw	
6	1	1250-D-1252	Plug	
	1	A-2297-Q-8285	Reverse Switch (Optional), Volvo Only	
7	1	43X-1208	Pin, Reverse Actuator	
8	2	10X-1446	Bolt, Rail Detent Strap	
9	1	2205-H-1126	Strap	
10	NLA	2258-P-1368	Spring, Rail Detent (Pink), Replaced by 2258-V-1452	5441
	NLA	2258-T-1424	Spring, Rail Detent (Argosy Only), Replaced by 2258-B-1458	5441
	1	2258-V-1452	Spring, Rail Detent (Standard) Black	
	1	2258-W-1453	Spring, Rail Detent (Optional Heavy — Volvo and International) (Use with 2258-V-1452) Blue	
	1	2258-B-1458	Spring, Rail Detent (Optional Light — Argosy) Purple	
11	NLA	43X-1207	Pin, Rail Detent, Replaced by 42X-1247	5441
	1	42X-1247	Pin, Rail Detent	
12	1	2208-G-1151	Gasket, Rail Detent	
13	1	2208-H-1152	Gasket, Shift Tower	
14	16	10X-1657	Bolt, Top Cover	
	16	A-2297-V-8290	Stud and Protective Cap (Optional)	
15	2	2297-P-5840	Lifting Hook	
16	1	A-1250-H-1126	Plug Assembly, Neutral	
17	2	S-244-A-1	Screw, Hex Socket Head Cap	
18	1	2205-W-1011	Scoop, Oil	
19	1	43X-1203	Pin, Reverse Detent	
20	1	2258-Q-1369	Spring, Reverse Detent (Grey)	
21	1	26X-1032	Screw, Reverse Detent Set	
22	A/R	2297-U-6417	Loctite Sealant	
23	1	P-46	Plug, Lube Return	
24	1	2244-F-1176	Rail, Shift	
25	1	3296-J-1258	Fork, Low Shift	
26†	NLA	A-3280-N-9608	Shift Housing Assembly	
	1	A-3280-G-9809	Shift Housing Assembly	
27	1	3221-C-1017	Scoop, Oil	
28	2	10X-1667	Screw, Hex Socket Head Cap	
29	1	43X-1214	Pin	
30†	NLA	2245-Y-1221	Shift Sleeve	
	1	2245-N-1236	Shift Sleeve	
31†	NLA	3280-K-9605	Plate, Interlock	
	1	3280-K-9806	Plate, Interlock	
32†	NLA	3296-K-1259	Fork, Mid Shift	
	1	3296-S-1319	Fork, Mid Shift	
33	1	3296-N-1262	Fork, High Shift	
34	1	2244-U-1165	Screw, Socket Head Shoulder	
35	1	1229-T-4752	Spacer, Rocking Lever	
36†	NLA	2247-K-1493	Lever, Rocking	
	1	2247-Z-1534	Lever, Rocking	
37†	NLA	A-2244-D-1174	Bar, High Connecting (Includes Pin 43X1197 — Not Sold Separately)	
	1	A-2244-J-1206	Bar, High Connecting (Includes Pin 43X1197 — Not Sold Separately)	
38†	NLA	2244-B-1172	Bar, Low/Mid Connecting	
	1	2244-F-1202	Bar, Low Connecting	
	1	2244-G-1203	Bar, Mid Connecting	

† Requires new top cover assembly A3-3293-R-1136-S. New components will not interchange on the old top covers.

Top Cover Assembly — Standard Direct (ESS)



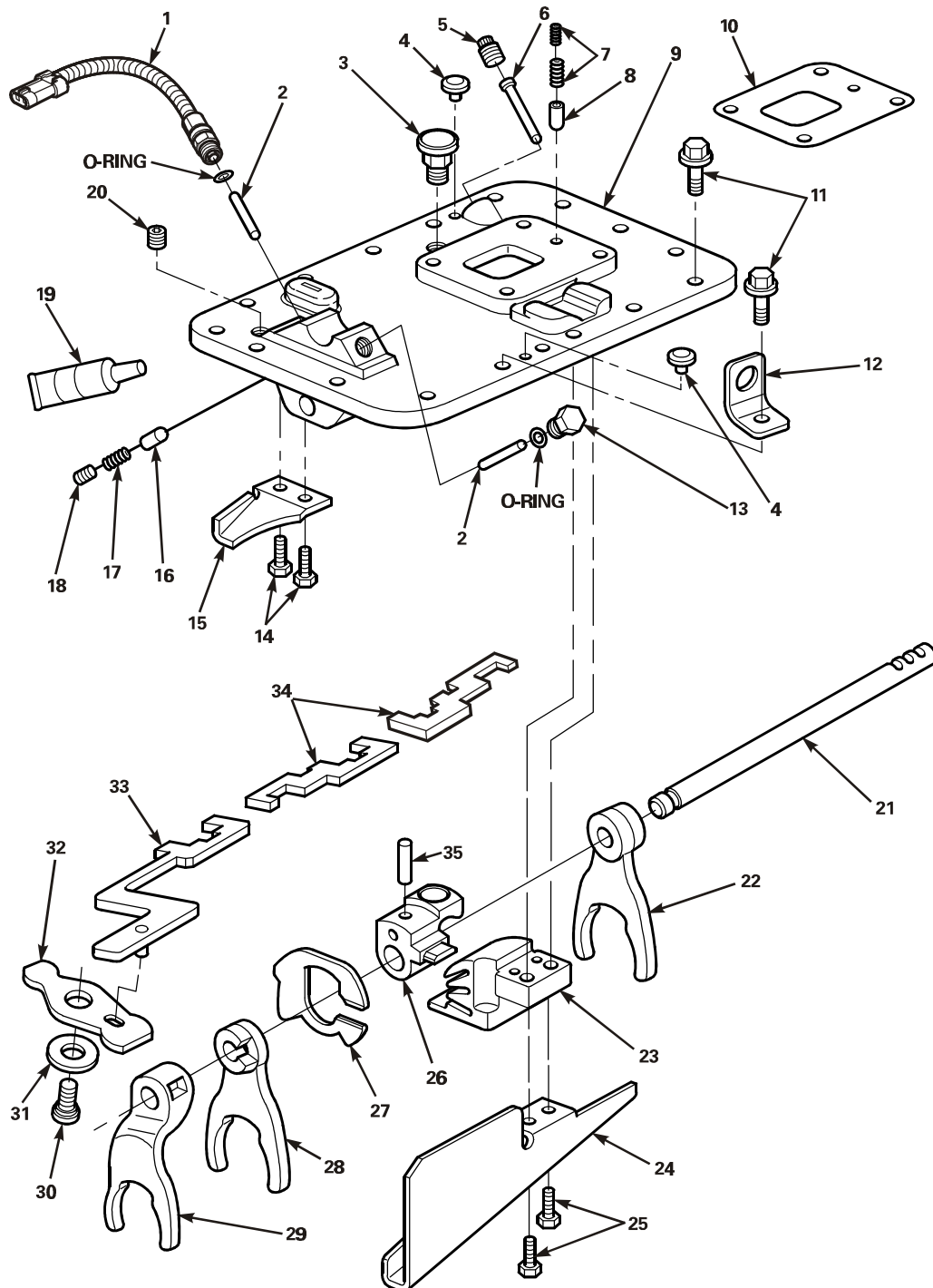
TCSDESS

Top Cover Assembly — Standard Direct (ESS)

Item	Qty.	Part Number	Description	Kit #
1	1	A-3280-J-9396	Switch Assembly, ESS Neutral-In Gear	
2	2	43X-1210	Pin, Neutral Actuator	
3	1	A-1199-P-1394	Breather Assembly	
4	2	1250-Q-1265	Plug, Jack Screw	
5	1	1250-D-1252	Plug	
6	1	43X-1208	Pin, Reverse Actuator	
7	NLA	2258-P-1368	Spring, Rail Detent (Pink), Replaced by 2258-V-1452	5441
	NLA	2258-T-1424	Spring, Rail Detent (Argosy Only), Replaced by 2258-B-1458	5441
	1	2258-V-1452	Spring, Rail Detent (Standard) Black	
	1	2258-W-1453	Spring, Rail Detent (Optional Heavy — Volvo and International) (Use with 2258-V-1452) Blue	
	1	2258-B-1458	Spring, Rail Detent (Optional Light — Argosy) Purple	
8	NLA	43X-1207	Pin, Rail Detent, Replaced by 42X-1247	5441
	1	42X-1247	Pin, Rail Detent	
9	NLA	A-3293-Y-1117-S	Top Cover Assembly, Replaced by A2-3293-T-1138S	5429
	1	A-3293-T-1138-S	Top Cover Assembly	
10	1	2208-H-1152	Gasket, Shift Tower	
11	16	10X-1657	Bolt, Top Cover	
12	2	2297-P-5840	Lifting Hook	
13	1	A-1250-H-1126	Plug Assembly, Neutral	
14	2	S-244-A-1	Screw, Hex Socket Head Cap	
15	1	2205-W-1011	Scoop, Oil	
16	1	43X-1203	Pin, Reverse Detent	
17	1	2258-Q-1369	Spring, Reverse Detent (Grey)	
18	1	26X-1032	Screw, Reverse Detent Set	
19	A/R	2297-U-6417	Loctite Sealant	
20	1	P-46	Plug, Lube Return	
21	1	2244-E-1175	Rail, Shift	
22†	NLA	A-3280-N-9608	Shift Housing Assembly	
	1	A-3280-G-9809	Shift Housing Assembly	
23	1	3221-C-1017	Scoop, Oil	
24	2	10X-1667	Screw, Hex Socket Head Cap	
25†	NLA	2245-A-1223	Shift Sleeve	
	1	2245-M-1235	Shift Sleeve	
26†	NLA	3280-L-9606	Plate, Interlock	
	1	3280-L-9606	Plate, Interlock	
27†	NLA	3296-K-1259	Fork, Mid Shift	
	1	3296-S-1319	Fork, Mid Shift	
28	1	3296-M-1261	Fork, High Shift	
29†	NLA	2244-C-1173	Bar, High Connecting	
	1	2244-H-1204	Bar, High Connecting	
30†	NLA	2244-B-1172	Bar, Low/Mid Connecting	
	1	2244-F-1202	Bar, Low Connecting	
	1	2244-G-1203	Bar, Mid Connecting	
31	1	43X-1214	Pin	
32	1	243296-J-1258	Fork, Low Shift	

† Requires new top cover assembly A2-3293-T-1138-S. New components will not interchange on the old top covers.

Top Cover Assembly — Standard Overdrive (ESS)



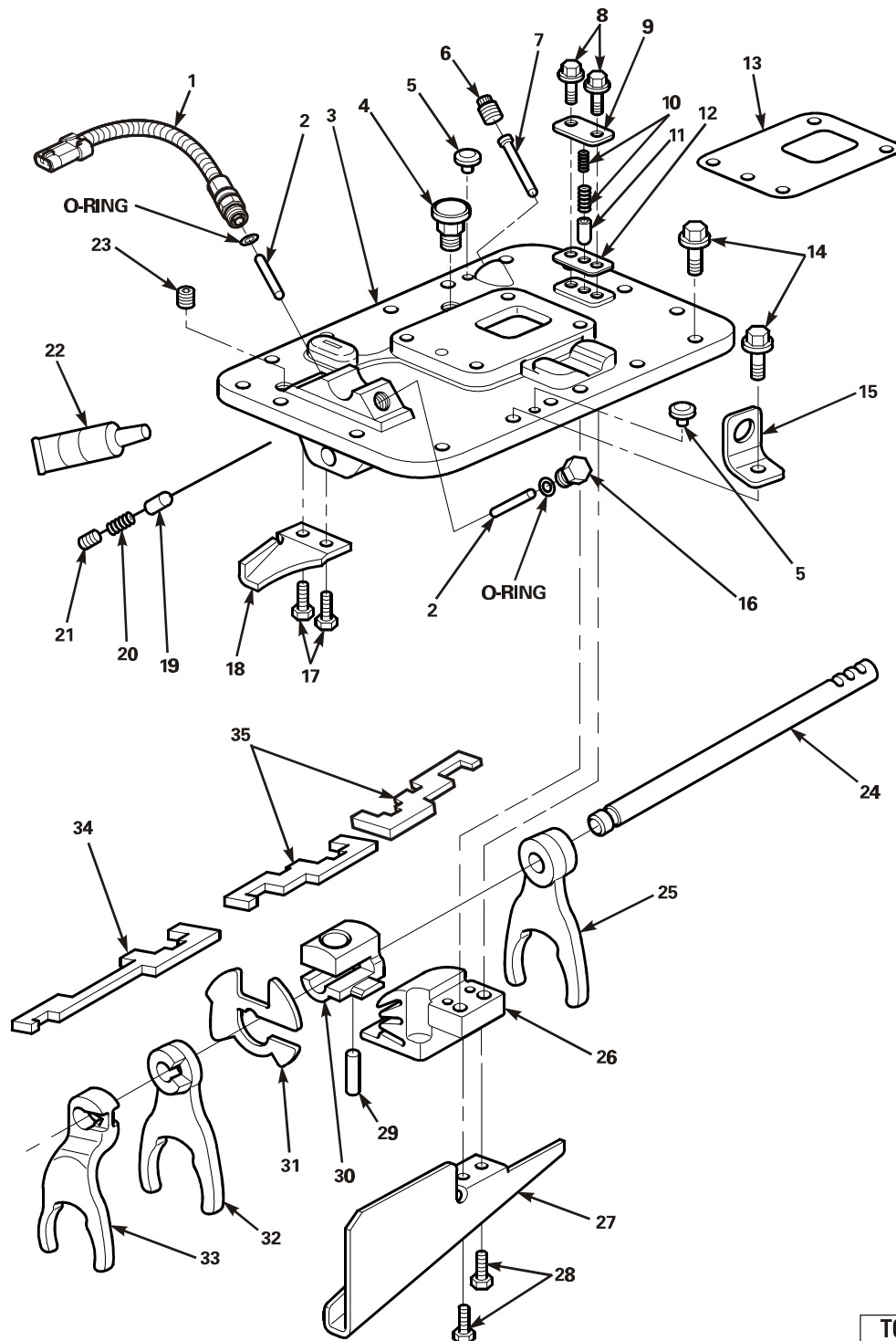
TCSOESS

Top Cover Assembly — Standard Overdrive (ESS)

Item	Qty.	Part Number	Description	Kit #
1	1	A-3280-J-9396	Switch Assembly, ESS Neutral-In Gear	
2	2	43X-1210	Pin, Neutral Actuator	
3	1	A-1199-P-1394	Breather, Assembly	
4	2	1250-Q-1265	Plug, Jack Screw	
5	1	1250-D-1252	Plug	
6	1	43X-1208	Pin, Reverse Actuator	
7	NLA	2258-P-1368	Spring, Rail Detent (Pink), Replaced by 2258-V-1452	5441
	NLA	2258-T-1424	Spring, Rail Detent (Argosy Only), Replaced by 2258-B-1458	5441
	1	2258-V-1452	Spring, Rail Detent (Standard) Black	
	1	2258-W-1453	Spring, Rail Detent (Optional Heavy — Volvo and International) (Use with 2258-V-1452) Blue	
	1	2258-B-1458	Spring, Rail Detent (Optional Light — Argosy) Purple	
8	NLA	43X-1207	Pin, Rail Detent, Replaced by 42X-1247	5441
	1	42X-1247	Pin, Rail Detent	
9	NLA	A-3293-X-1116-S	Top Cover Assembly, Replaced by A1-3293-T-1138S	
	1	A1-3293-T-1138-S	Top Cover Assembly	
10	1	2208-H-1152	Gasket, Shift Tower	
11	16	10X-1657	Bolt, Top Cover	
12	2	2297-P-5840	Lifting Hook	
13	1	A-1250-H-1126	Plug Assembly, Neutral	
14	2	S-244-A-1	Screw, Hex Socket Head Cap	
15	1	2205-W-1011	Scoop, Oil	
16	1	43X-1203	Pin, Reverse Detent	
17	1	2258-Q-1369	Spring, Reverse Detent (Grey)	
18	1	26X-1032	Screw, Reverse Detent Set	
19	A/R	2297-U-6417	Loctite Sealant	
20	1	P-46	Plug, Lube Return	
21	1	2244-E-1175	Rail, Shift	
22	1	3296-J-1258	Fork, Low Shift	
23†	NLA	A-3280-N-9608	Shift Housing Assembly	
	1	A-3280-G-9809	Shift Housing Assembly	
24	1	3221-C-1017	Scoop, Oil	
25	2	10X-1667	Screw, Hex Socket Head Cap	
26†	NLA	2245-A-1223	Shift Sleeve	
	1	2245-M-1235	Shift Sleeve	
27†	NLA	3280-L-9606	Plate, Interlock	
	1	3280-C-9805	Plate, Interlock	
28†	NLA	3296-K-1259	Fork, Mid Shift	
	1	3296-S-1319	Fork, Mid Shift	
29	1	3296-N-1262	Fork, High Shift	
30	1	2244-U-1165	Screw, Socket Head Shoulder	
31	1	1229-T-4752	Spacer, Rocking Lever	
32†	NLA	2247-K-1493	Lever, Rocking	
	1	2247-Z-1534	Lever, Rocking	
33†	NLA	A-2244-D-1174	Bar, High Connecting (Includes Pin 43X1197 — Not Sold Separately)	
	1	A-2244-J-1206	Bar, High Connecting (Includes Pin 43X1197 — Not Sold Separately)	
34†	NLA	2244-B-1172	Bar, Low/Mid Connecting	
	1	2244-F-1202	Bar, Low Connecting	
	1	2244-G-1203	Bar, Mid Connecting	
35	1	43X-1214	Pin	

† Requires new top cover assembly A1-3293-T-1138-S. New components will not interchange on the old top covers.

Top Cover Assembly — Forward Direct (ESS)



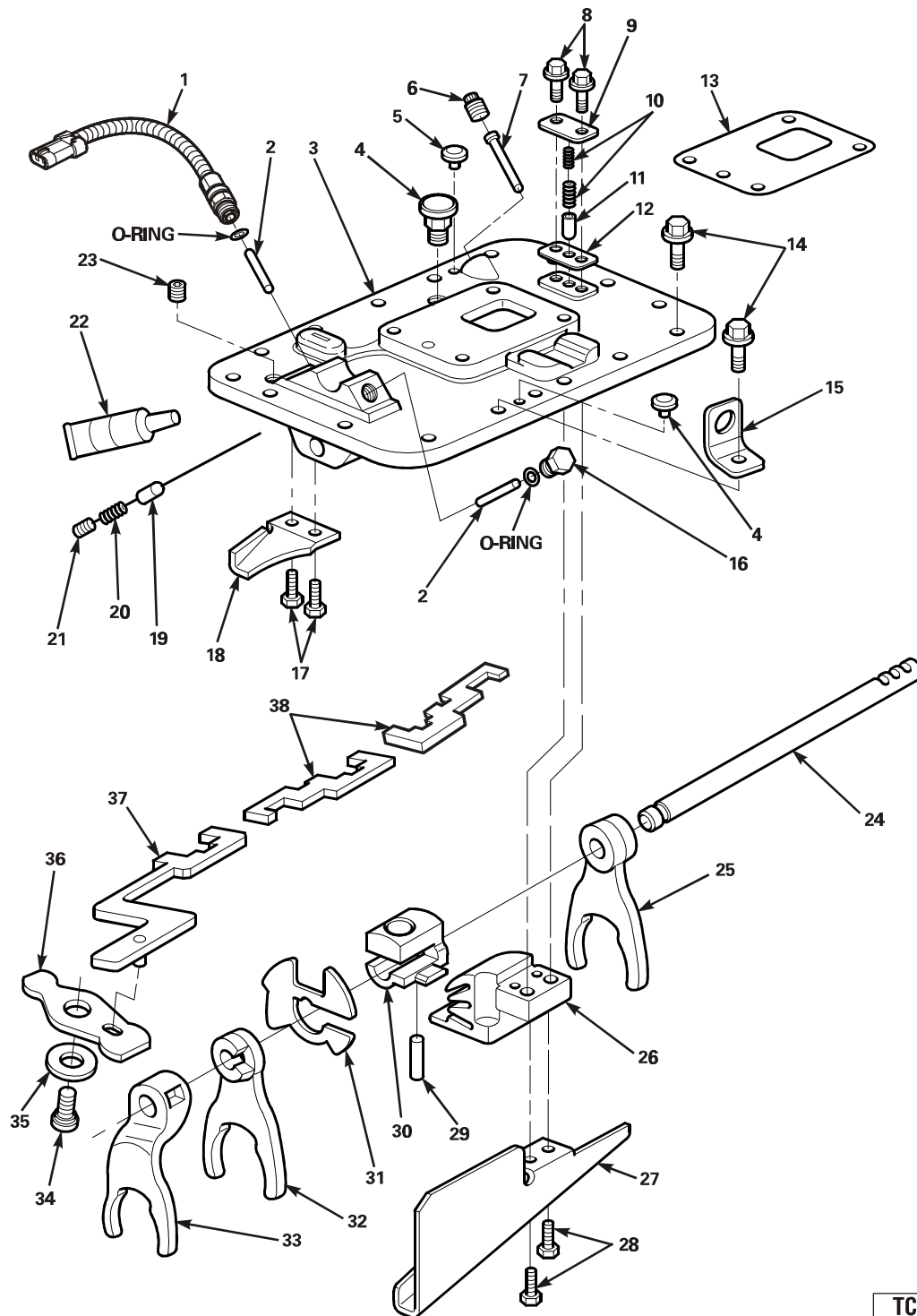
TCFDESS

Top Cover Assembly — Forward Direct (ESS)

Item	Qty.	Part Number	Description	Kit #
1	1	A-3280-J-9396	Switch Assembly, ESS Neutral-In Gear	
2	2	43X-1210	Pin, Neutral Actuator	
3	NLA	A-3293-V-1114-S	Top Cover Assembly, Replaced by A-3293-R-1136S	
	1	A-3293-R-1136-S	Top Cover Assembly	
4	1	A-1199-P-1394	Breather Assembly	
5	2	1250-Q-1265	Plug, Jack Screw	
6	1	1250-D-1252	Plug	
7	1	43X-1208	Pin, Reverse Actuator	
8	2	10X-1446	Bolt, Rail Detent Strap	
9	1	2205-H-1126	Strap	
10	NLA	2258-P-1368	Spring, Rail Detent (Pink), Replaced by 2258-V-1452	5441
	NLA	2258-T-1424	Spring, Rail Detent (Argosy Only), Replaced by 2258-B-1458	5441
	1	2258-V-1452	Spring, Rail Detent (Standard) Black	
	1	2258-W-1453	Spring, Rail Detent (Optional Heavy — Volvo and International) (Use with 2258-V-1452) Blue	
	1	2258-B-1458	Spring, Rail Detent (Optional Light — Argosy) Purple	
11	NLA	43X-1207	Pin, Rail Detent, Replaced by 42X-1247	5441
	1	42X-1247	Pin, Rail Detent	
12	1	2208-G-1151	Gasket, Rail Detent	
13	1	2208-H-1152	Gasket, Shift Tower	
14	16	10X-1657	Bolt, Top Cover	
15	2	2297-P-5840	Lifting Hook	
16	1	A-1250-H-1126	Plug Assembly, Neutral	
17	2	S-244-A-1	Screw, Hex Socket Head Cap	
18	1	2205-W-1011	Scoop, Oil	
19	1	43X-1203	Pin, Reverse Detent	
20	1	2258-Q-1369	Spring, Reverse Detent (Grey)	
21	1	26X-1032	Screw, Reverse Detent Set	
22	A/R	2297-U-6417	Loctite Sealant	
23	1	P-46	Plug, Lube Return	
24	1	2244-E-1175	Rail, Shift	
25	1	3296-J-1258	Fork, Low Shift	
26†	NLA	A-3280-N-9608	Shift Housing Assembly	
	1	A-3280-G-9809	Shift Housing Assembly	
27	1	3221-C-1017	Scoop, Oil	
28	2	10X-1667	Screw, Hex Socket Head Cap	
29	1	43X-1214	Pin	
30†	NLA	2245-Y-1221	Shift Sleeve	
	1	2245-N-1236	Shift Sleeve	
31†	NLA	3280-K-9605	Plate, Interlock	
	1	3280-D-9806	Plate, Interlock	
32†	NLA	3296-K-1259	Fork, Mid Shift	
	1	3296-S-1319	Fork, Mid Shift	
33	1	3296-M-1261	Fork, High Shift	
34†	NLA	2244-C-1173	Bar, High Connecting	
	1	2244-H-1204	Bar, High Connecting	
35†	NLA	2244-B-1172	Bar, Low/Mid Connecting	
	1	2244-F-1202	Bar, Low Connecting	
	1	2244-G-1203	Bar, Mid Connecting	

† Requires new top cover assembly A-3293-R-1136-S. New components will not interchange on the old top covers.

Top Cover Assembly — Forward Overdrive (ESS)



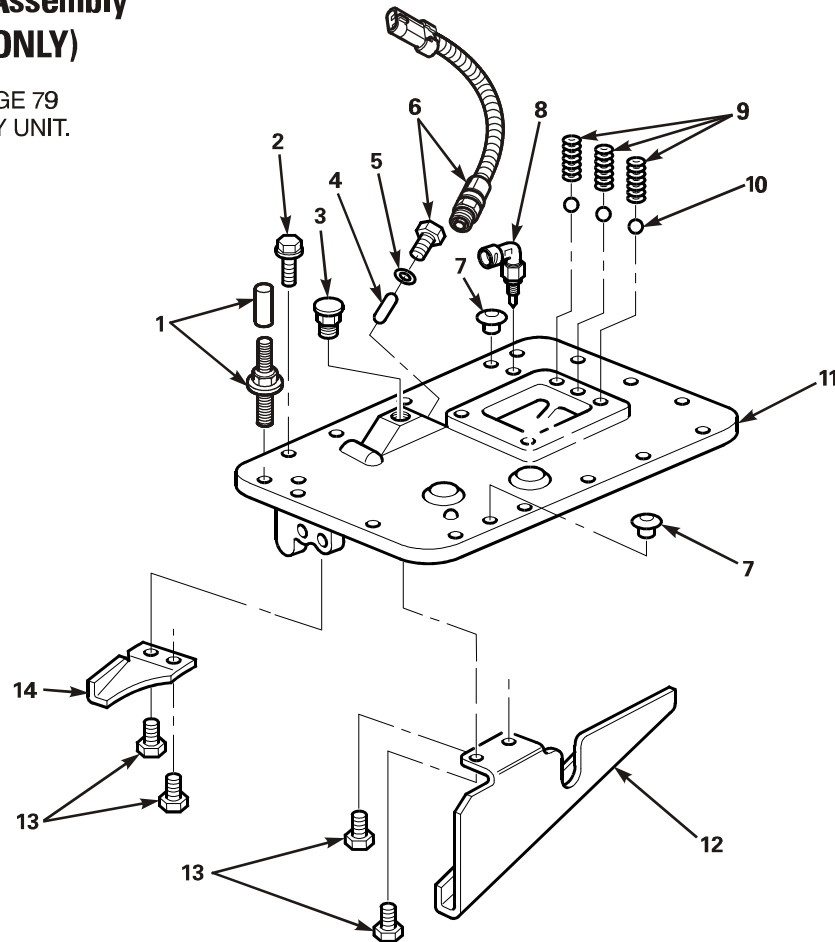
Top Cover Assembly — Forward Overdrive (ESS)

Item	Qty.	Part Number	Description	Kit #
1	1	A-3280-J-9396	Switch Assembly, ESS Neutral-In Gear	
2	2	43X-1210	Pin, Neutral Actuator	
3	NLA	A-3293-U-1113-S	Top Cover Assembly, Replaced by A1-3293-R-1136S	
	1	A1-3293-R-1136-S	Top Cover Assembly	
4	1	A-1199-P-1394	Breather Assembly	
5	2	1250-O-1265	Plug, Jack Screw	
6	1	1250-D-1252	Plug	
7	1	43X-1208	Pin, Reverse Actuator	
8	2	10X-1446	Bolt, Rail Detent Strap	
9	1	2205-H-1126	Strap	
10	NLA	2258-P-1368	Spring, Rail Detent (Pink), Replaced by 2258-V-1452	5441
	NLA	2258-T-1424	Spring, Rail Detent (Argosy Only), Replaced by 2258-B-1458	5441
	1	2258-V-1452	Spring, Rail Detent (Standard) Black	
	1	2258-W-1453	Spring, Rail Detent (Optional Heavy — Volvo and International) (Use with 2258-V-1452) Blue	
	1	2258-B-1458	Spring, Rail Detent (Optional Light — Argosy) Purple	
11	NLA	43X-1207	Pin, Rail Detent, Replaced by 42X-1247	5441
	1	42X-1247	Pin, Rail Detent	
12	1	2208-G-1151	Gasket, Rail Detent	
13	1	2208-H-1152	Gasket, Shift Tower	
14	16	10X-1657	Bolt, Top Cover	
15	2	2297-P-5840	Lifting Hook	
16	1	A-1250-H-1126	Plug Assembly, Neutral	
17	2	S-244-A-1	Screw, Hex Socket Head Cap	
18	1	2205-W-1011	Scoop, Oil	
19	1	43X-1203	Pin, Reverse Detent	
20	1	2258-O-1369	Spring, Reverse Detent (Grey)	
21	1	26X-1032	Screw, Reverse Detent Set	
22	A/R	2297-U-6417	Loctite Sealant	
23	1	P-46	Plug, Lube Return	
24	1	2244-E-1175	Rail, Shift	
25	1	3296-J-1258	Fork, Low Shift	
26†	NLA	A-3280-N-9608	Shift Housing Assembly	
	1	A-3280-G-9809	Shift Housing Assembly	
27	1	3221-C-1017	Scoop, Oil	
28	2	10X-1667	Screw, Hex Socket Head Cap	
29	1	43X-1214	Pin	
30†	NLA	2245-Y-1221	Shift Sleeve	
	1	2245-N-1236	Shift Sleeve	
31†	NLA	3280-K-9605	Plate, Interlock	
	1	3280-D-9806	Plate, Interlock	
32†	NLA	3296-K-1259	Fork, Mid Shift	
	1	3296-S-1319	Fork, Mid Shift	
33	1	3296-N-1262	Fork, High Shift	
34	1	2244-U-1165	Screw, Socket Head Shoulder	
35	1	1229-T-4752	Spacer, Rocking Lever	
36†	NLA	2247-K-1493	Lever, Rocking	
	1	2247-Z-1534	Lever, Rocking	
37†	NLA	A-2244-D-1174	Bar, High Connecting (Includes Pin 43X1197 — Not Sold Separately)	
	1	A-2244-J-1206	Bar, High Connecting	
38†	NLA	2244-B-1172	Bar, Low/Mid Connecting	
	1	2244-F-1202	Bar, Low Connecting	
	1	2244-G-1203	Bar, Mid Connecting	

† Requires new top cover assembly A1-3293-R-1136-S. New components will not interchange on the old top covers.

Top Cover Assembly (SureShift ONLY)

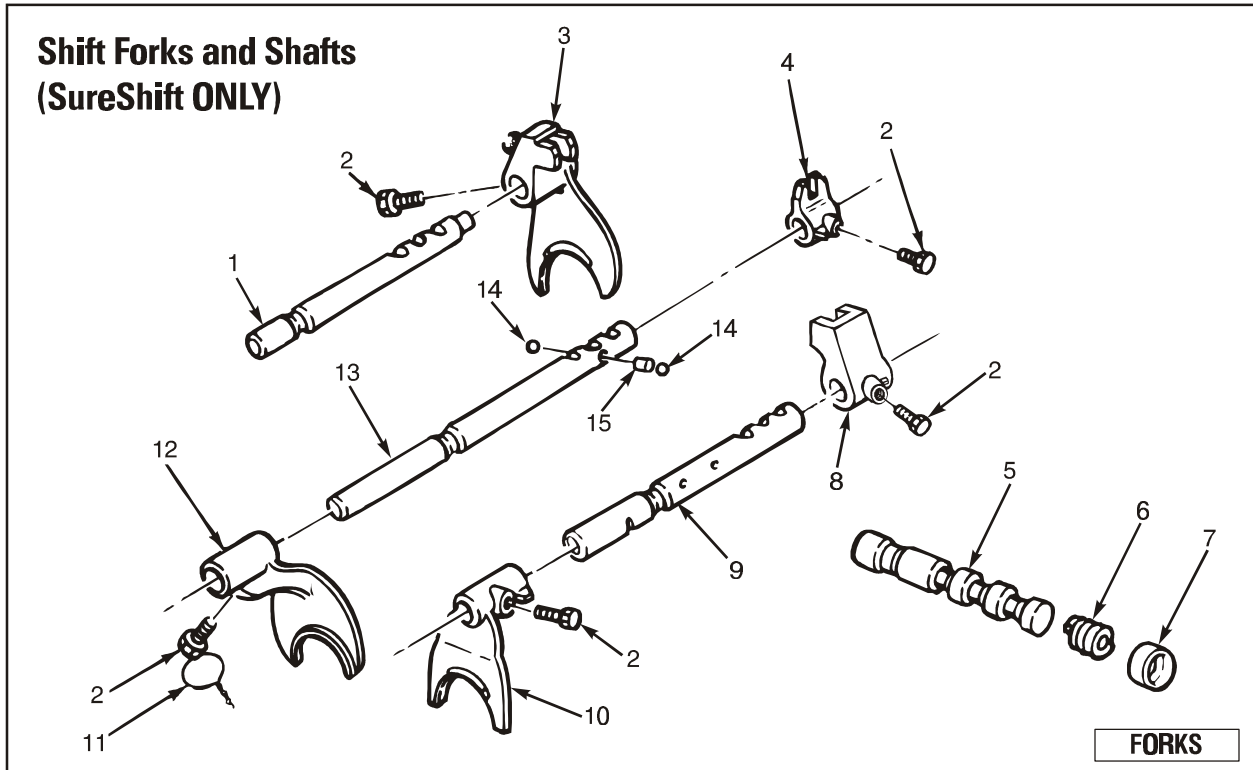
NOTE: SEE PAGE 79
FOR X-Y UNIT.



Top Cover Assembly (SureShift ONLY)

Item	Qty.	Part Number	Description	Kit #
1	11	A-2297-V-8290	Stud and Protective Cap (Volvo Only), Also use 5 of Part Number 10X-1657	
2	16	10X-1657	Screw, Flange Head	
3	1	A-1199-P-1394	Breather Assembly	
4	2	43X-1190	Pin, Actuator	
5	2	5X-1091	O-Ring	
6	2	A-1250-H-1126	Plug Assembly (Includes 5X-1091 O-Ring)	
7	2	1250-Q-1625	Plug (For Jack Screw Holes)	
8	1	A-2297-R-7298	Range Position Sensor	
9	3	2258-D-1278	Spring, Detent	5362
	1	2258-E-1409	Spring, Rail Detent (Argosy Only)	
10	3	2297-R-6986	Ball, Detent	5362
11	1	A-3293-Z-1092	Assembly, Top Cover (Standard)	
12	1	3221-U-1009	Oil Scoop	
13	4	S-244-A-1	Bolt/Capscrew, 1/4"-20 UNC-2A x 1/2"	
14	1	2205-W-1011	Oil Scoop	

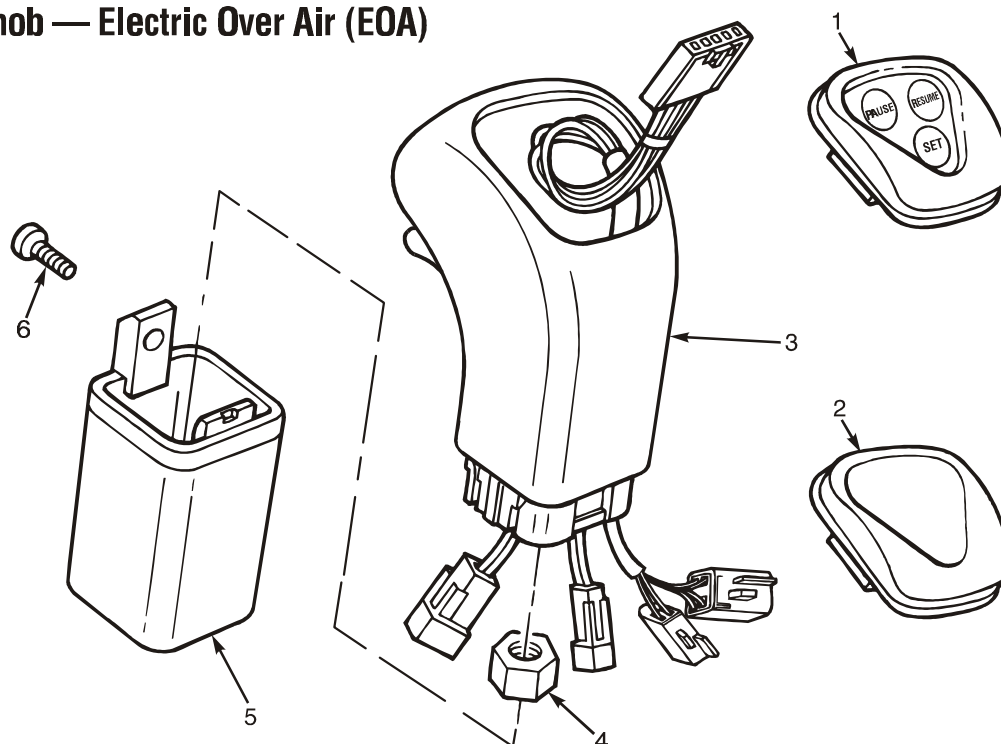
Shift Forks and Shafts (SureShift ONLY)



Shift Forks and Shafts (SureShift ONLY)

Item	Qty.	Part Number	Description
1	1	2244-J-1128	Shift Shaft (Low/Reverse)
2	5	26X-1011	Set Screw, NOTE: Requires Loctite® 242 (ZF Meritor Part Number 2297-E-4295, 50 ml tube), or equivalent and lockwire
3	1	3296-Z-1248	Shift Fork Assembly (Low/Reverse), Standard Cover
4	1	2245-T-1060	Sleeve (Mid), Standard Cover
5	1	2244-K-1155	Shift Shaft, Neutral Check
6	1	2258-D-1330	Spring, Neutral Checkshaft
7	1	1250-W-1271	Plug, Expansion
8	1	2245-P-1134	Sleeve (High)
9	1	2244-L-1130	Shift Shaft (High)
10	1	3296-K-1129	Shift Fork (High)
11	5	1254-P-1030	Lock Wire
12	1	3296-H-1126	Shift Fork (Mid)
13	1	2244-K-1129	Shift Shaft (Mid)
14	2	2297-R-5764	Ball (Shift Interlock)
15	1	43X-1184	Pin (Interlocking)

Shift Knob — Electric Over Air (EOA)



NOTE: WIRING HARNESS BETWEEN KNOB AND THE TRANSMISSION/ENGINE ECU IS SUPPLIED BY THE OEM.

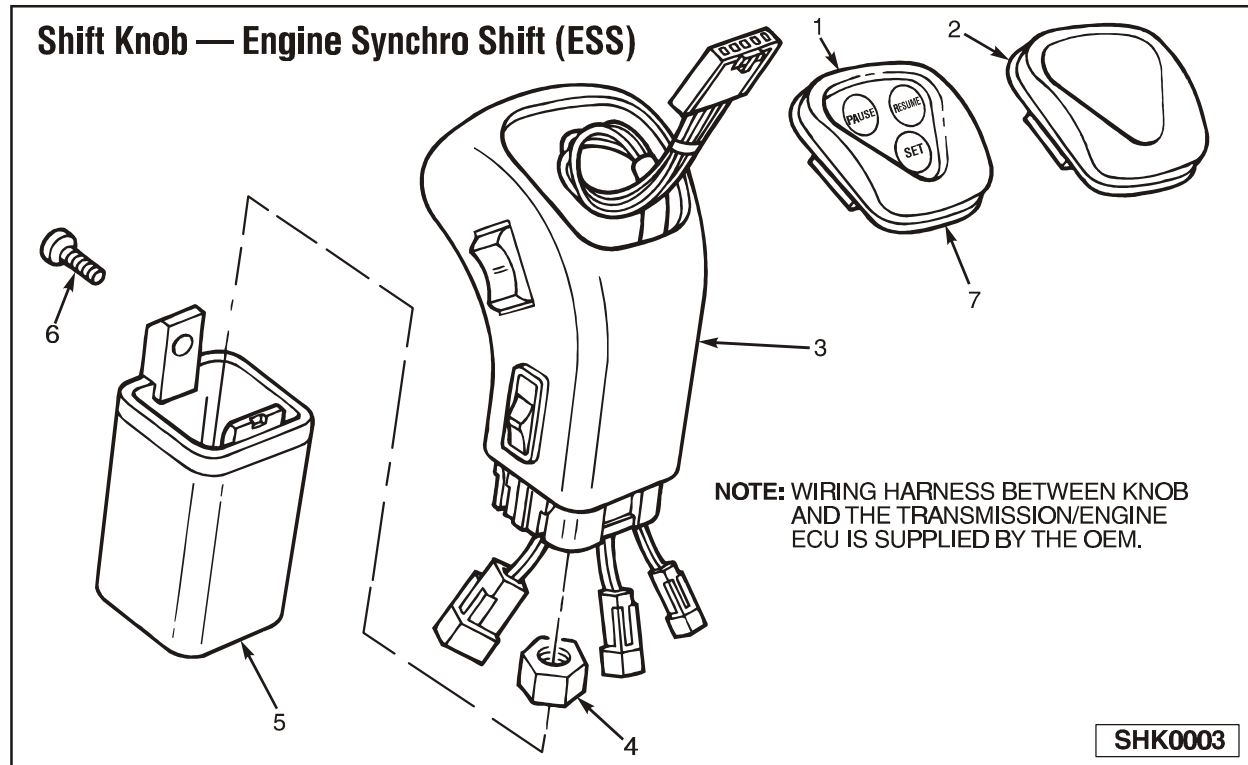
SHK0004

Shift Knob — Electric Over Air (EOA), available with optional Shift-n-Cruise

Item	Qty.	Part Number	Description
1†	1	A-2297-L-7058	Switch Assembly, Shift-n-Cruise (Optional)
	1	A-2297-C-7413	Switch Assembly, Shift-n-Cruise (Optional)
2*	1	A-2297-W-7609	Shield, Lens Cap
	1	A-2297-D-7414	Shield, Lens Cap
3	1	A-3280-C-9467	Shift Knob, Assembly
	1	A-3280-D-9468	Shift Knob, Assembly, with Shift-n-Cruise (Optional)
	1	A-3280-E-9469	Shift Knob, Assembly, Volvo Only
	1	A-3280-F-9470	Shift Knob, Assembly, with Shift-n-Cruise, Volvo Only (Optional)
4	1	N-68-1	Jam Nut
5	1	2245-P-1186	Shroud, Skirt
6	1	10X-1625	Special Screw

† Old Style (part still in use) — There is also a new style A-2297-C-7413.

* Old Style (part still in use) — There is also a new style A-2297-D-7414.



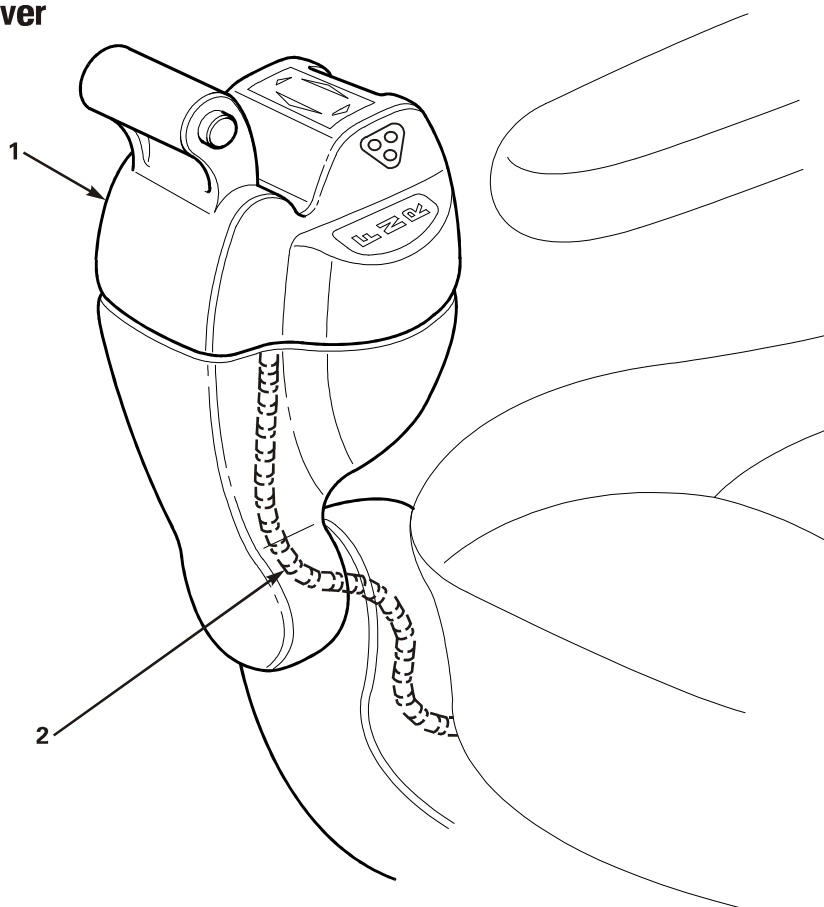
Shift Knob — Engine Synchro Shift (ESS)

Item	Qty.	Part Number	Description
1†	1	A-2297-L-7058	Switch Assembly, Shift-n-Cruise
	1	A-2297-C-7413	Switch Assembly, Shift-n-Cruise
2*	1	A-2297-W-7609	Shield, Lens Cap
	1	A-2297-D-7414	Shield, Lens Cap
3	1	A-3280-K-9397	Shift Knob, ESS (without Cruise Control), Includes; 2245-P-1186 and 10X-1625
	1	A-3280-L-9398	Shift Knob, ESS (with Cruise Control), Includes; 2245-P-1186 and 10X-1625
4	1	N-68-1	Jam Nut
5	1	2245-P-1186	Shroud, Skirt
6	1	10X-1625	Special Screw

† Old Style (part still in use) — There is also a new style A-2297-C-7413.

* Old Style (part still in use) — There is also a new style A-2297-D-7414.

Shift Lever

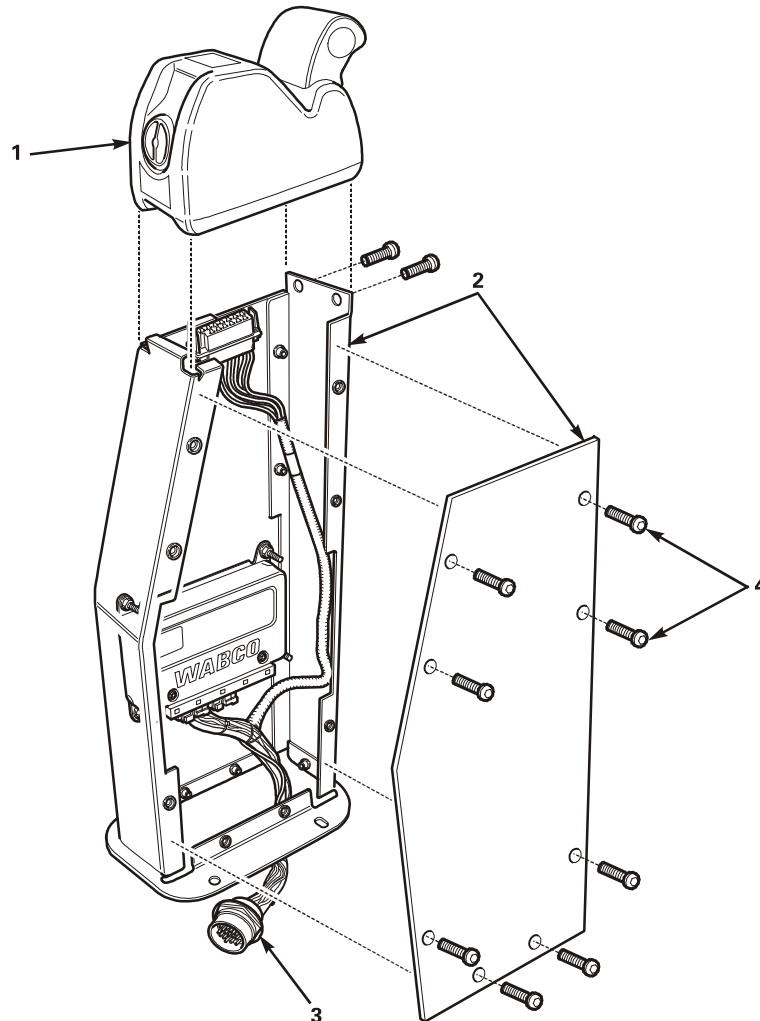


SHIFTER

Shift Lever

Item	Qty.	Part Number	Description
1	1	A-2297-N-7294	Shift Lever with Shift-n-Cruise Speed Control
	1	A-2297-C-7361	Shift Lever without Shift-n-Cruise Speed Control
2	1	A-2297-Y-7383	Wiring Harness with Shift-n-Cruise Speed Control
	1	A-2297-E-7389	Wiring Harness without Shift-n-Cruise Speed Control

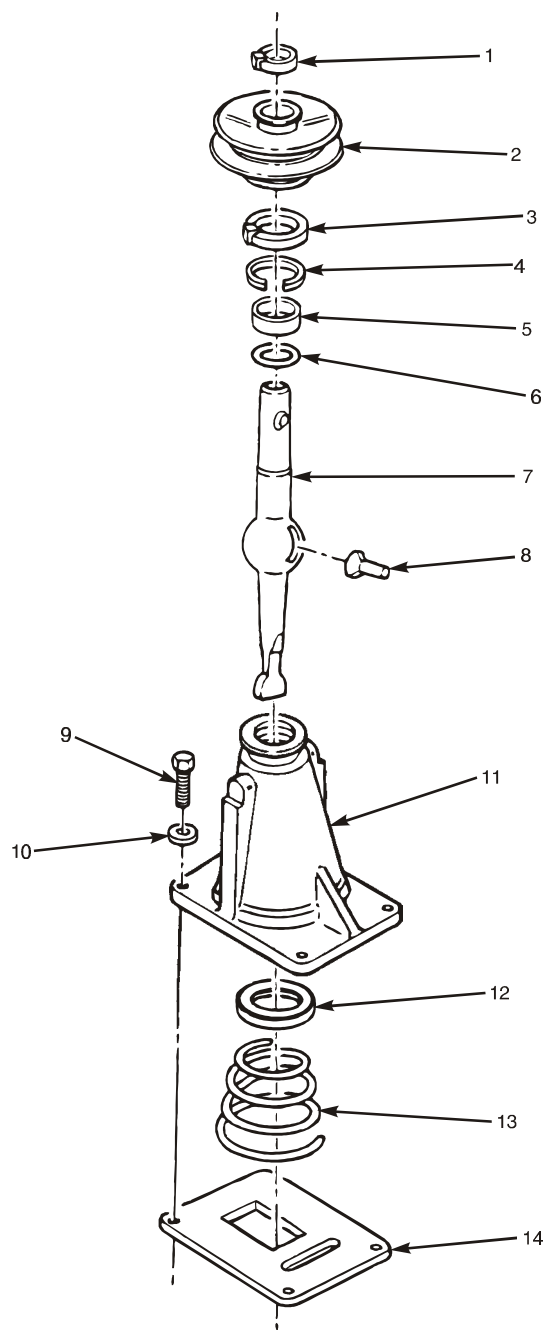
Pedestal Shifter



Pedestal Shifter

Item	Qty.	Part Number	Description
1	1	A-2297-N-7294	Shift Module, with Cruise Control
	1	A-2297-C-7361	Shift Module, without Cruise Control
2	1	A-3305-M-1469	Stamping Assembly
3	1	A-2297-J-8278	Wiring Harness, with Cruise Control
	1	A-2297-K-8279	Wiring Harness, without Cruise Control
4	18	41X-1566	Screw — Special (Socket Button Head Cap Screw)

Cast Iron Shift Tower Assembly

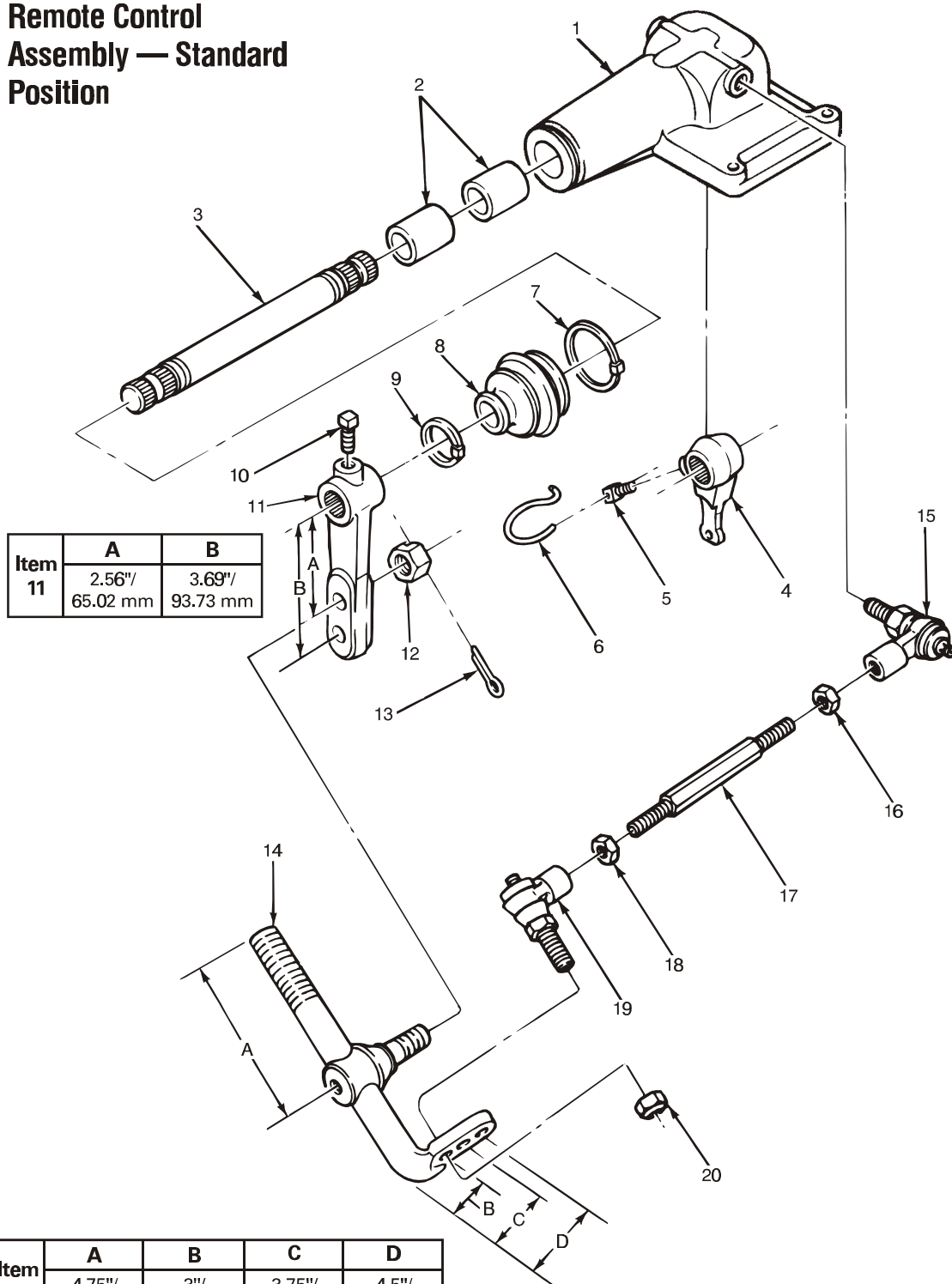


IST0002

Cast Iron Shift Tower Assembly

Item	Qty.	Part Number	Description	Kit #
1	1	3237-N-66	Strap	
2	1	2260-B-1146	Boot	
3	1	3237-H-294	Strap	
4	1	1229-F-4660	Ring, Retainer	
5	1	2214-V-1166	Ring, Inner	
6	1	5X-1201	O-Ring	
7	1	2247-M-1313	Lever, Low	
	1	2247-G-1463	Lever, Mid	
	1	2247-N-1314	Lever, High	
8	1	43X-1188	Pin	
9	1	S-2610-A-2	Bolt/Capscrew, 3/8"-16 UNC x 1-1/4"	
10	1	1229-B-1666	Flat Washer	
11	1	A1-3280-J-9318	Shift Housing Assembly, Low	5368
	1	A1-3280-T-9458	Shift Housing Assembly, Mid	5386
	1	A1-3280-L-9320	Shift Housing Assembly, High	5369
12	1	3105-B-1198	Retainer, Spring	
13	1	2258-B-1328	Spring	
14	1	3208-N-1080	Gasket	

Remote Control Assembly — Standard Position

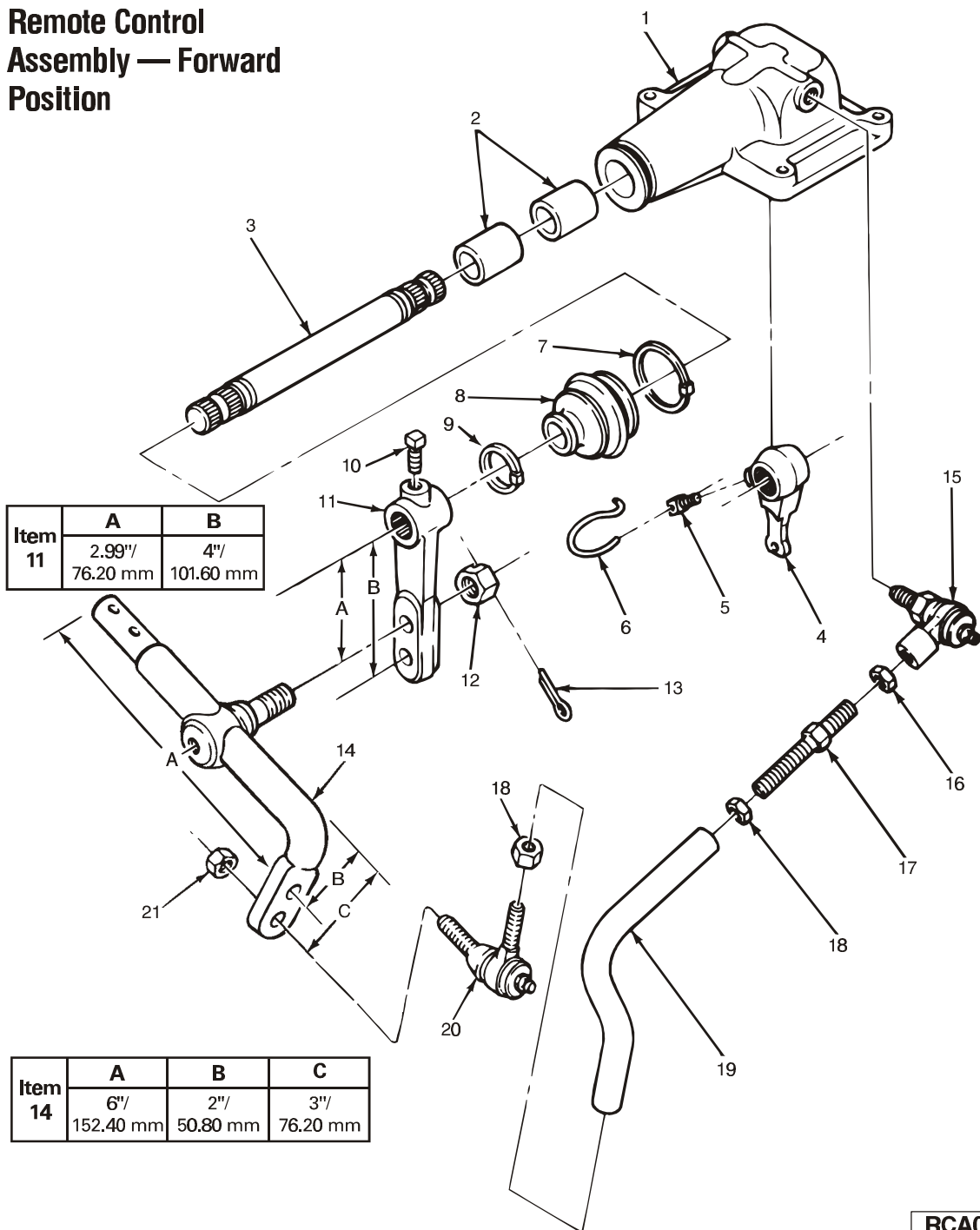


RCA0004

Remote Control Assembly – Standard Position

Item	Qty.	Part Number	Description
1	1	A1-3280-E-8741	Remote Control Housing, Standard Position
2	2	1225-P-1186	Bushing
3	1	2244-Y-1065	Shift Shaft, 11-1/4"
4	1	2247-K-1077	Inner Shift Lever
5	1	10X-1521	Set Screw
6	1	LW-1310	Lock Wire
7	1	3237-H-294	Strap
8	1	2260-R-1032	Boot
9	1	3237-N-66	Strap, Cable Tie
10	1	10X-1522	Set Screw
11	1	2247-M-1079	Outer Shift Lever
12	1	N-18-1	Nut
13	1	K-238	Pin, Cotter
14	1	A-2247-F-1098	Lever Assembly, Selection
15	1	A-2110-M-1001	Ball Socket, Assembly
16	1	1227-F-1384	Jam Nut
17	1	2297-B-6060	Rod, Adjusting
18	1	N-68-1	Jam Nut
19	1	A-2110-N-1002	Ball Socket, Assembly
20	1	NL-28-1	Lock Nut

Remote Control Assembly — Forward Position

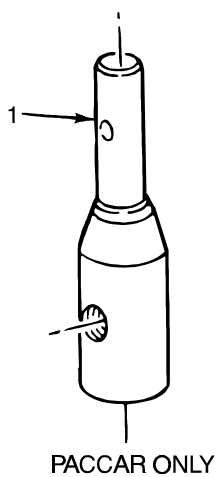
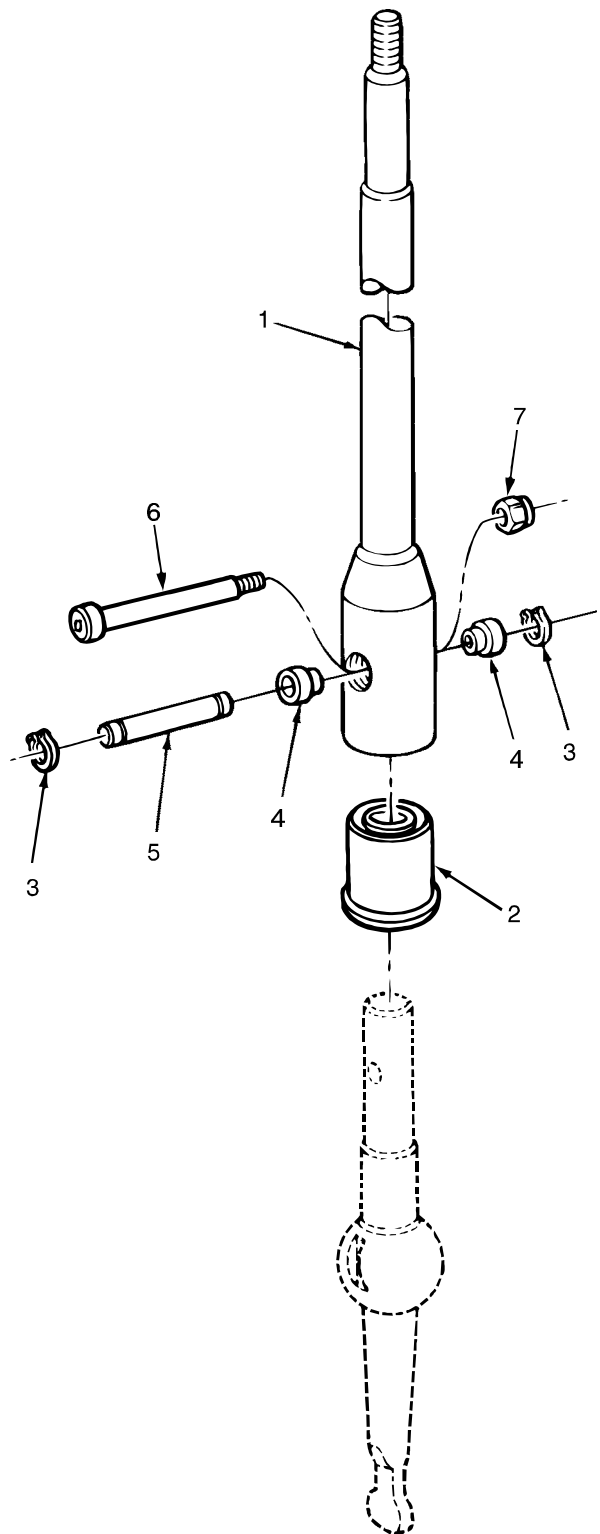


RCA0005

Remote Control Assembly — Forward Position

Item	Qty.	Part Number	Description
1	1	3280-G-8743	Remote Control Housing, Forward Position
2	2	1225-P-1186	Bushing
3	1	2244-K-1077	Shift Shaft
4	1	2247-K-1077	Inner Shift Lever
5	1	10X-1521	Set Screw
6	1	LW-1310	Lock Wire
7	1	3237-H-294	Strap, Cable Tie
8	1	2260-R-1032	Boot
9	1	3237-N-66	Strap, Cable Tie
10	1	10X-1522	Set Screw
11	1	2247-N-1080	Outer Shift Lever
12	1	N-18-1	Nut
13	1	K-238	Pin, Cotter
14	1	A-2247-G-1099	Lever Assembly, Selection
15	1	A-2110-M-1001	Ball Socket, Assembly
16	1	1227-F-1384	Jam Nut
17	1	2297-D-6062	Rod, Adjusting
18	2	N-68-1	Jam Nut
19	1	2297-E-6063	Rod, Adjusting
20	1	A-2110-P-1004	Ball Socket, Assembly
21	1	NL-28-1	Lock Nut

Isolator Assembly — Straight Lever

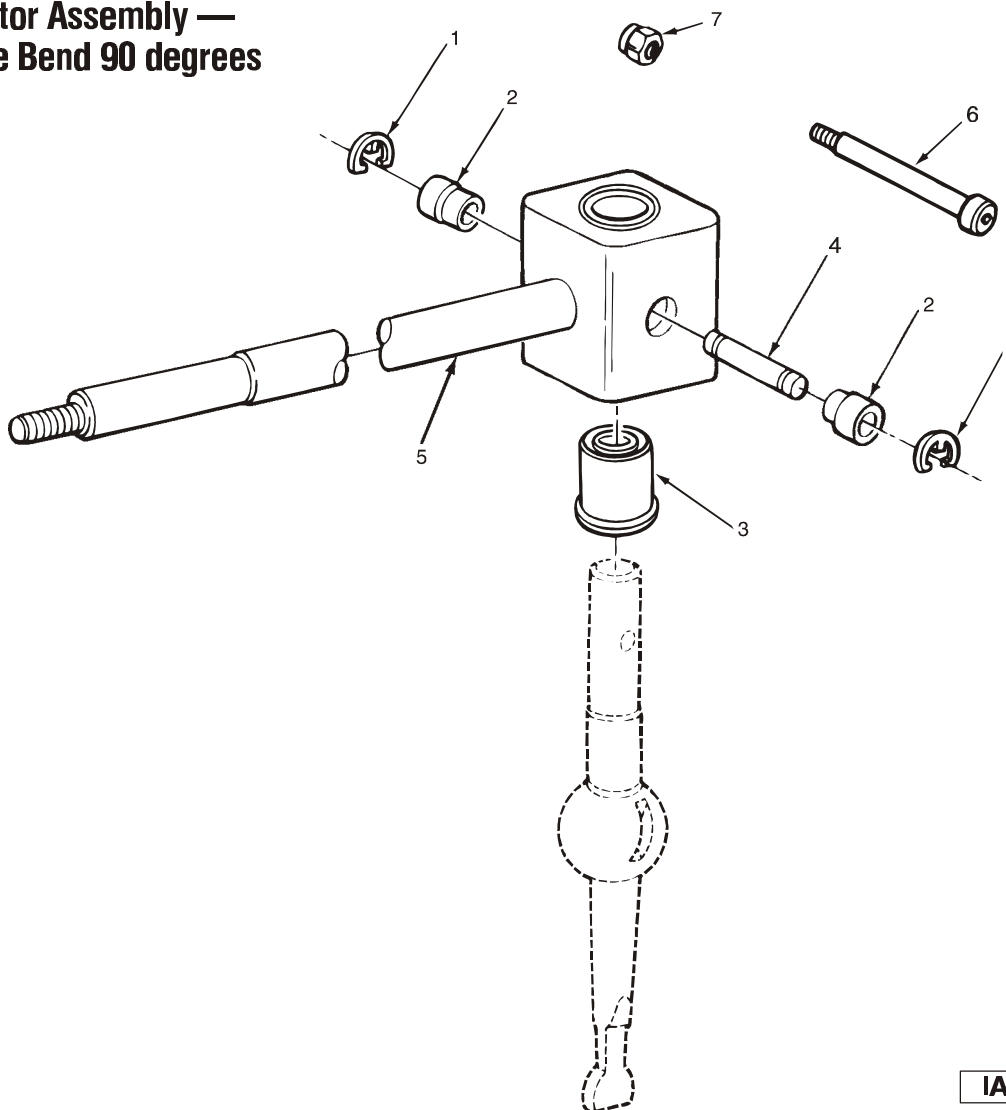


IAS0001

Isolator Assembly — Straight Lever

Item	Qty.	Part Number	Description	Kit #
1	1	A-2247-X-1142	Lever Assembly (Isolated), 24"/60.96 cm — Measure Hole Centerline to Top NOTE: These are straight shift levers and may need to be bent to match application. For specific lever take part number from level or see Truck Line setting ticket. Includes 2245-J-1076 Sleeve	
	1	A-2247-T-1190	Lever Assembly (Isolated), 32"/81.28 cm — Measure Hole Centerline to Top NOTE: These are straight shift levers and may need to be bent to match application. For specific lever take part number from lever or see Truck Line setting ticket. Includes 2245-J-1076	
	1	A-3268-H-1646	Adapter Assembly (Isolated), for PACCAR Non-Isolated Hollow Lever. Includes 2245-J-1076	
2	1	2245-J-1076	Sleeve (Isolator Bushing)	5278 (inc 5237)
3	1	1229-T-4336	Snap Ring, Clip	5237
4	2	1225-B-1198	Bushing	
5	1	43X-1174	Pin	5237
6	1	10X-1611	Bolt/Capscrew	5237
7	1	1227-Q-1525	Nut	5237

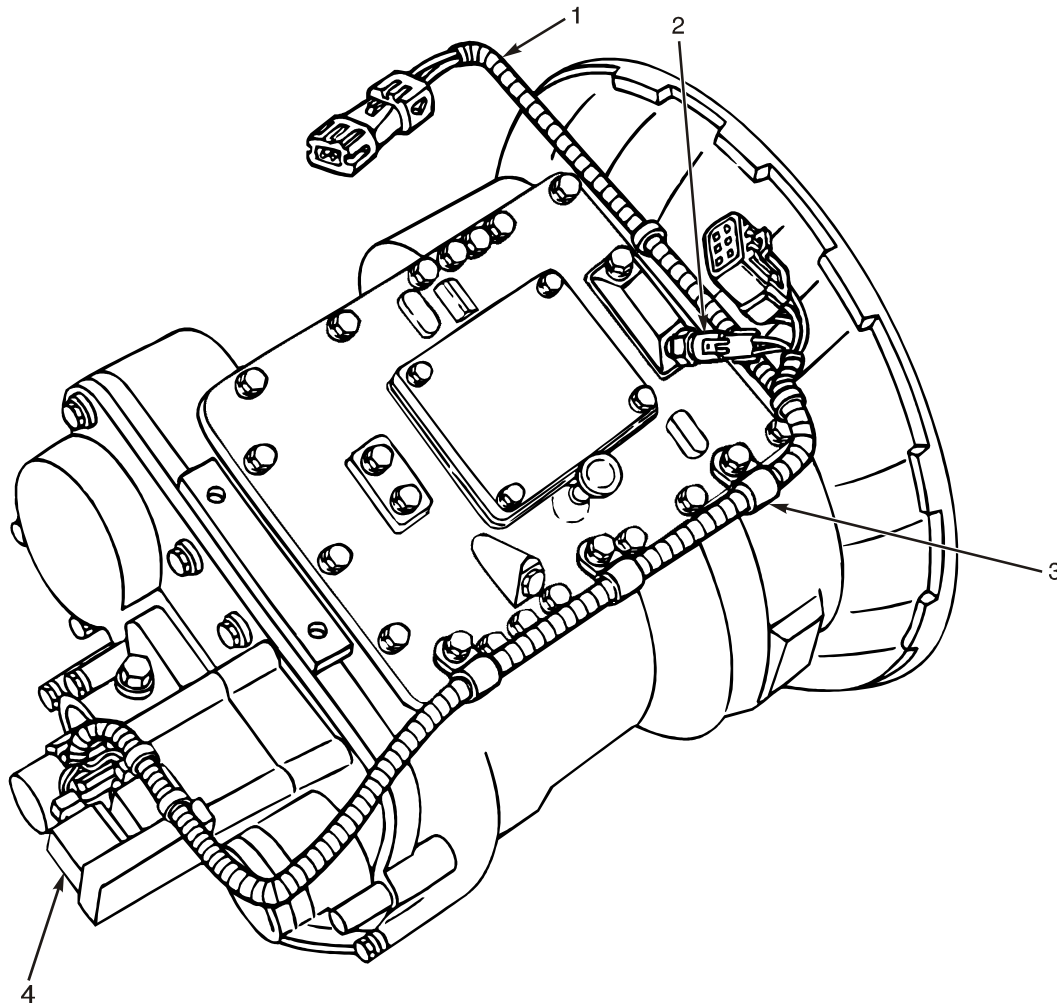
Isolator Assembly — Close Bend 90 degrees



Isolator Assembly — Close Bend 90 degrees

Item	Qty.	Part Number	Description	Kit #
1	2	1229-T-4336	Snap Ring	5237
2	2	1225-B-1198	Bushing	
3	1	2245-J-1076	Sleeve (Isolator Bushing)	5378 (inc 5237)
4	1	43X-1174	Pin	5237
5	1	A-2247-Y-1143	Lever Assembly (Isolated), 30"/76.20 cm — Measure Hole Centerline to End NOTE: Requires bending to match application.	
6	1	10X-1611	Bolt/Capscrew	5237
7	1	1227-Q-1525	Nut	5237

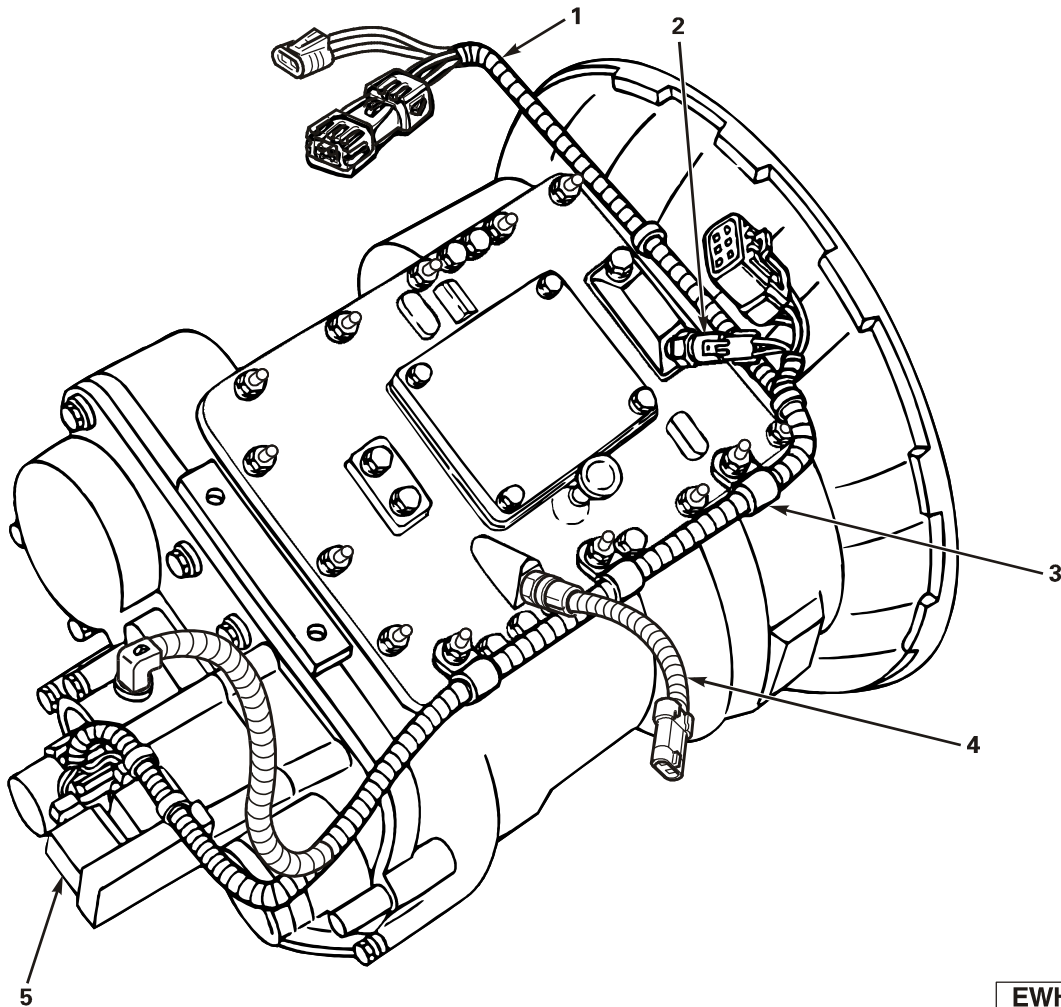
Wire Harness — Platform “G” (Standard)


EWH0002

Wire Harness — Platform “G” (Standard)

Item	Qty.	Part Number	Description	Kit #
1	1	A-2297-Q-7219	Wire Harness, Transmission	5431
2	1	A-3280-W-9409	Switch Assembly, EOA, Neutral Position (Includes 5X-1091 O-Ring)	
3	7	2257-G-1229	Clip, Wiring Harness, Replaced by 2257-Y-1273	
	6	2257-Y-1273	Clip, Wiring Harness	
4	2	A-3280-F-9392	Solenoid Assembly (Includes 5X-1207 and 5X-1092 O-Rings)	5436

Wire Harness — Platform "G" (Standard) Volvo Only

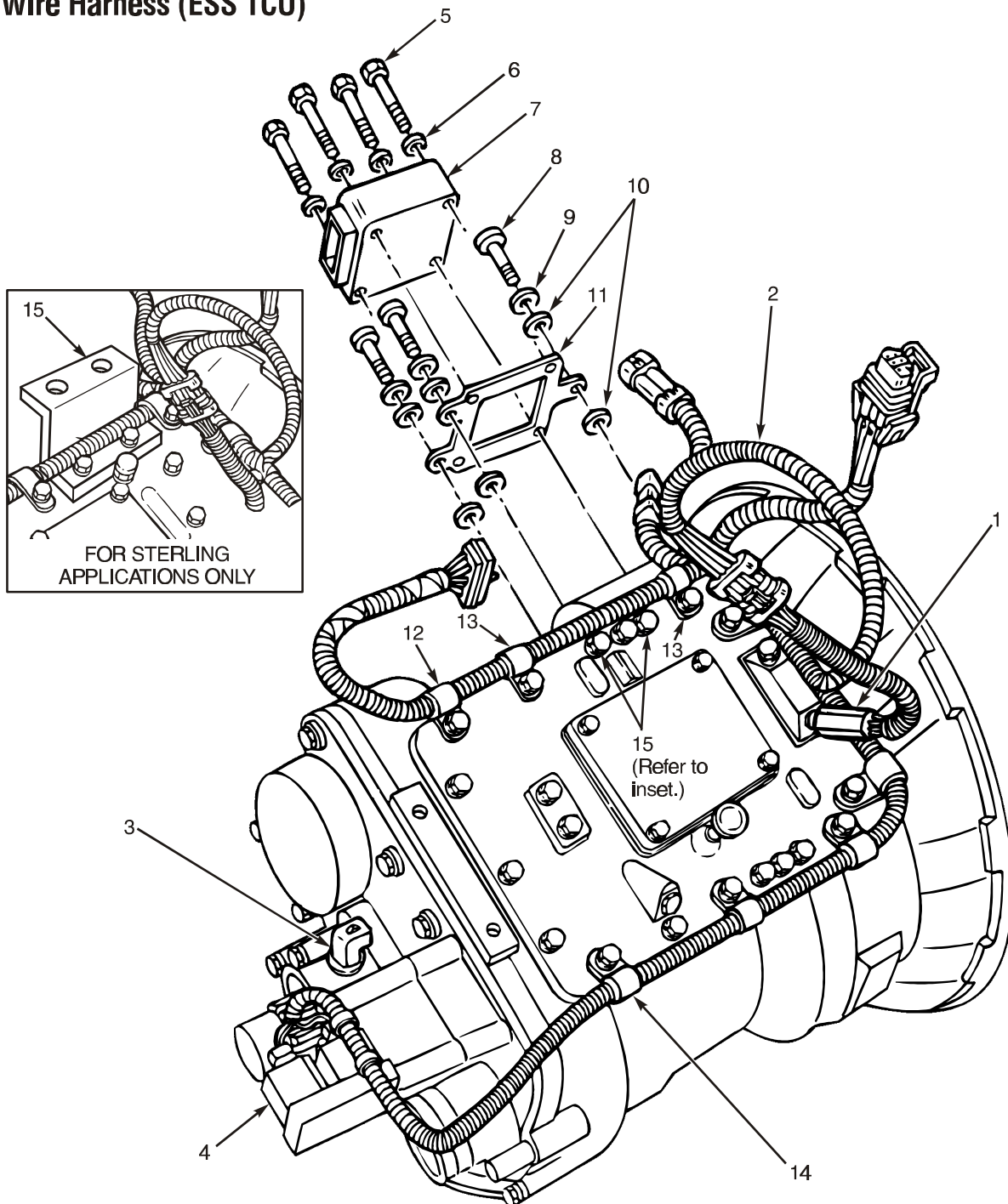


EWH0004

Wire Harness — Platform “G” (Standard) Volvo Only

Item	Qty.	Part Number	Description
1	1	A-2297-R-8286	Wire Harness, Transmission
2	1	A-3280-W-9409	Switch Assembly, EOA, Neutral Position (Includes 5X-1091 O-Ring)
3	7	2257-G-1229	Clip, Wiring Harness, Replaced by 2257-Y-1273
	6	2257-Y-1273	Clip, Wiring Harness
4	1	A-2297-Q-8285	Neutral Switch Assembly
5	2	A-3280-F-9392	Solenoid Assembly (Includes 5X-1207 and 5X-1092 O-Rings)

Wire Harness (ESS TCU)

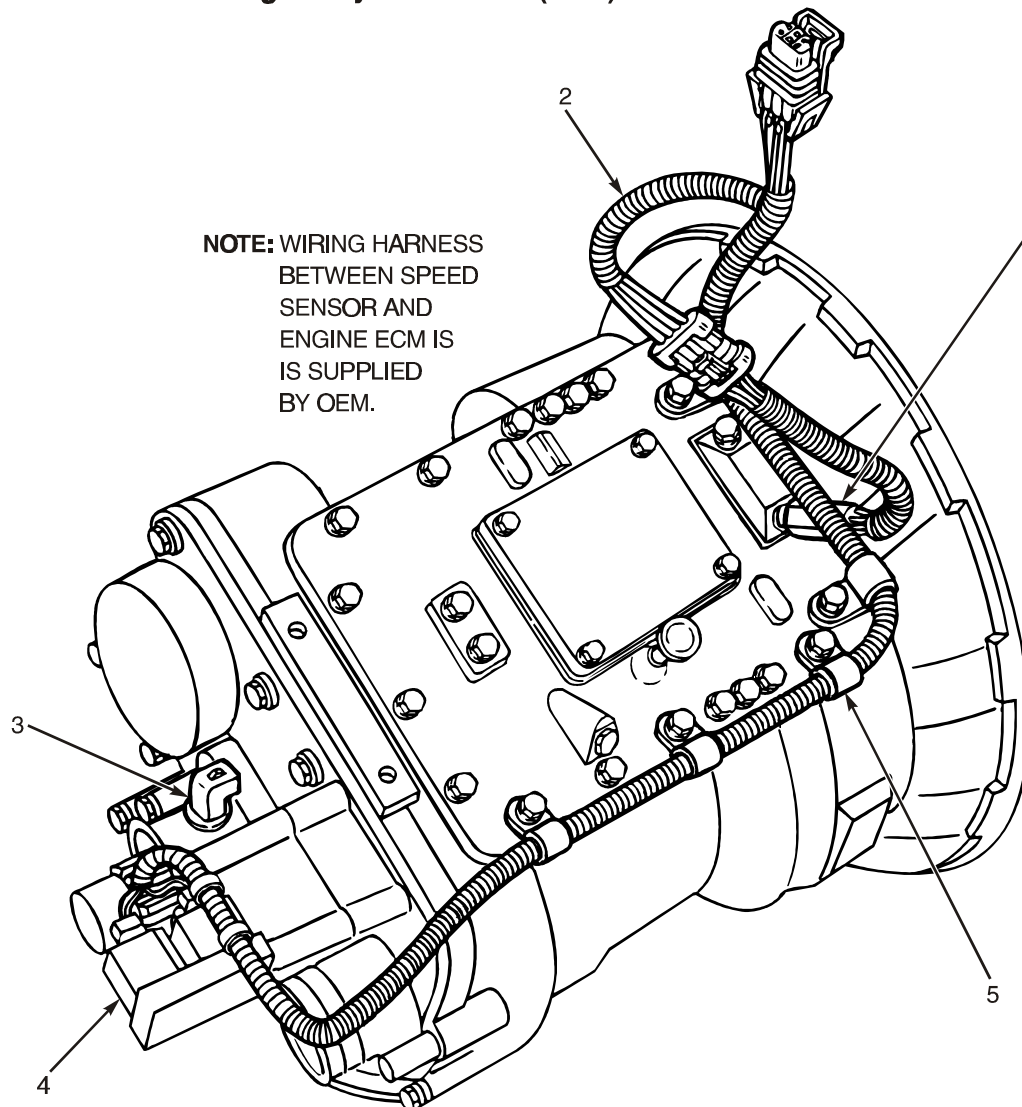


EWH0003

Wire Harness (ESS TCU)

Item	Qty.	Part Number	Description
1	1	A-3280-J-9396	Switch Assembly, ESS (Includes 5X-1091 O-Ring)
	1	5X-1091	O-Ring
2	1	A-2297-R-7272	Assembly, Wiring Harness
3	1	A-3280-A-9413	Sensor, Speedometer (Includes 1205-T-1268 O-Ring)
	1	1205-T-1268	O-Ring
4	2	A-3280-F-9392	Assembly, Solenoid (Includes 5X-1207 and 5X-1092 O-Rings)
5	4	S-2422A-2	Bolt, 0.250-20 x 2.75-inches
6	4	WA-34	Washer, Flat
7	1	A-2297-M-7423	Controller, Transmission, 9-Speed Direct — A ratio
	1	A-2297-N-7424	Controller, Transmission, 9-Speed Overdrive — A ratio
	1	A-2297-P-7426	Controller, Transmission, 9-Speed Overdrive — B ratio
	1	A-2297-Q-7427	Controller, Transmission, 10-Speed Direct — A ratio
	1	A-2297-R-7428	Controller, Transmission, 10-Speed Overdrive — A ratio
	1	A-2297-S-7429	Controller, Transmission, 10-Speed Overdrive — C ratio
8	3	15X-1812	Screw, Shoulder
9	3	1299-B-1666	Washer, Flat
10	6	1225-F-1306	Bushing, Isolater
11	1	3305-V-1348	Plate
12	1	2257-G-1229	Harness J-Clip, 3/8-inch, Replaced by 2257-Y-1273
	6	2257-Y-1273	Clip, Wiring Harness
13	2	2257-Z-1248	Harness J-Clip, 3/4-inch
14	7	2257-Y-1247	Harness J-Clip, 1/2-inch
15	1	Supplied by OEM	Clutch Return Spring Bracket (Sterling Applications Only. Refer to Sterling for part information.)

Wire Harness — Engine Synchro Shift (ESS)

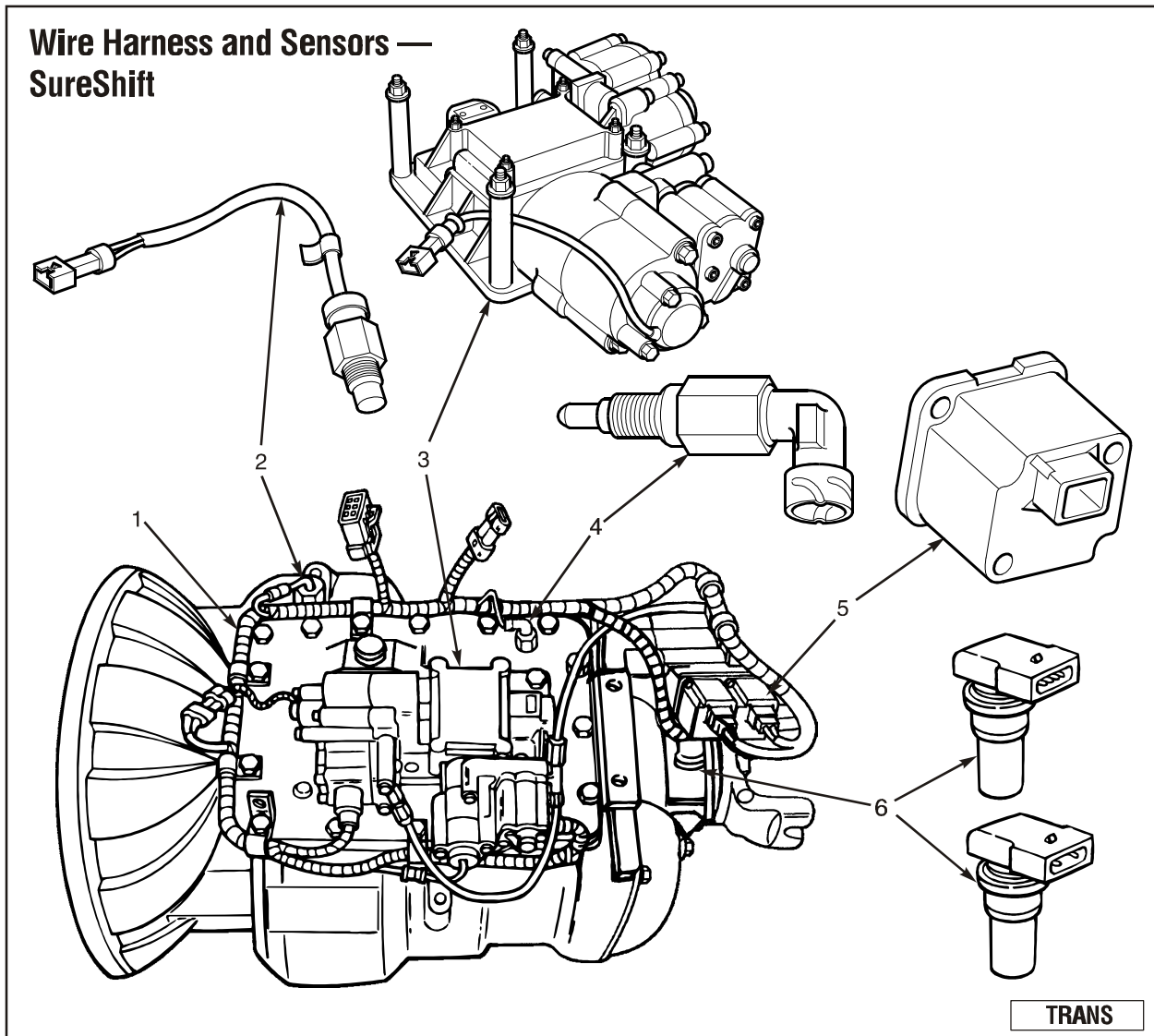


EWH0001

Wire Harness — Engine Synchro Shift (ESS)

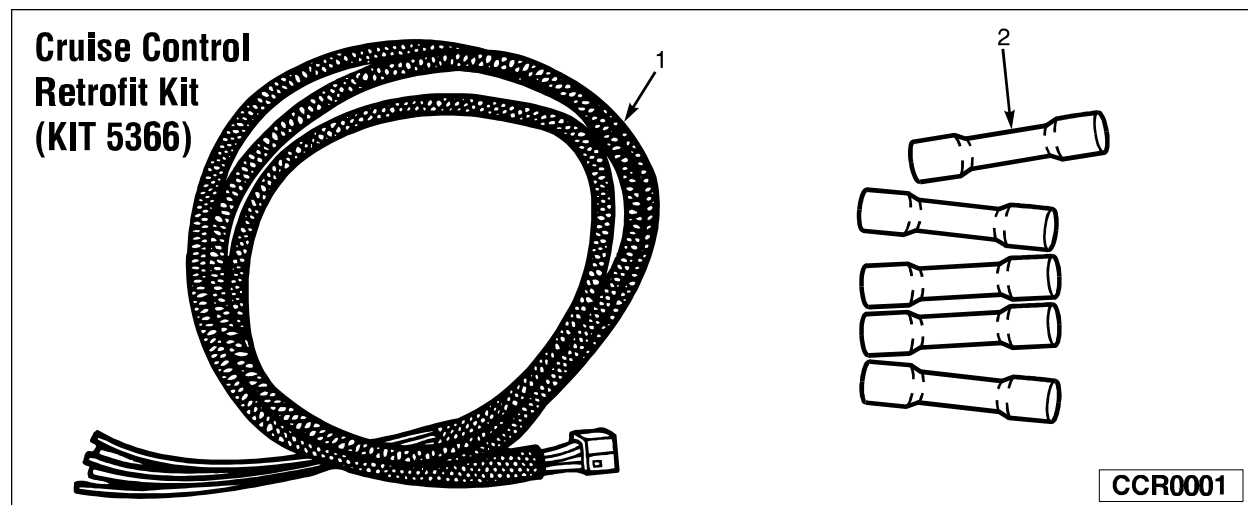
Item	Qty.	Part Number	Description	Kit #
1	1	A-3280-J-9396	Switch Assembly, ESS (Includes 5X-1091 O-Ring)	
	1	5X-1091	O-Ring	
2	1	A-2297-U-7197	Wire Harness, Assembly	5432
3	1	A-3280-A-9413	Speedometer Sensor (Includes 1205-T-1268 O-Ring)	
	1	1205-T-1268	O-Ring	
4	2	A-3280-F-9392	Solenoid Assembly (Includes 5X-1207 and 5X-1092 O-Rings)	
5	6	2257-G-1229	Clip, Wiring Harness, Replaced by 2257-Y-1273	
	6	2257-Y-1273	Clip, Wiring Harness	

Wire Harness and Sensors — SureShift



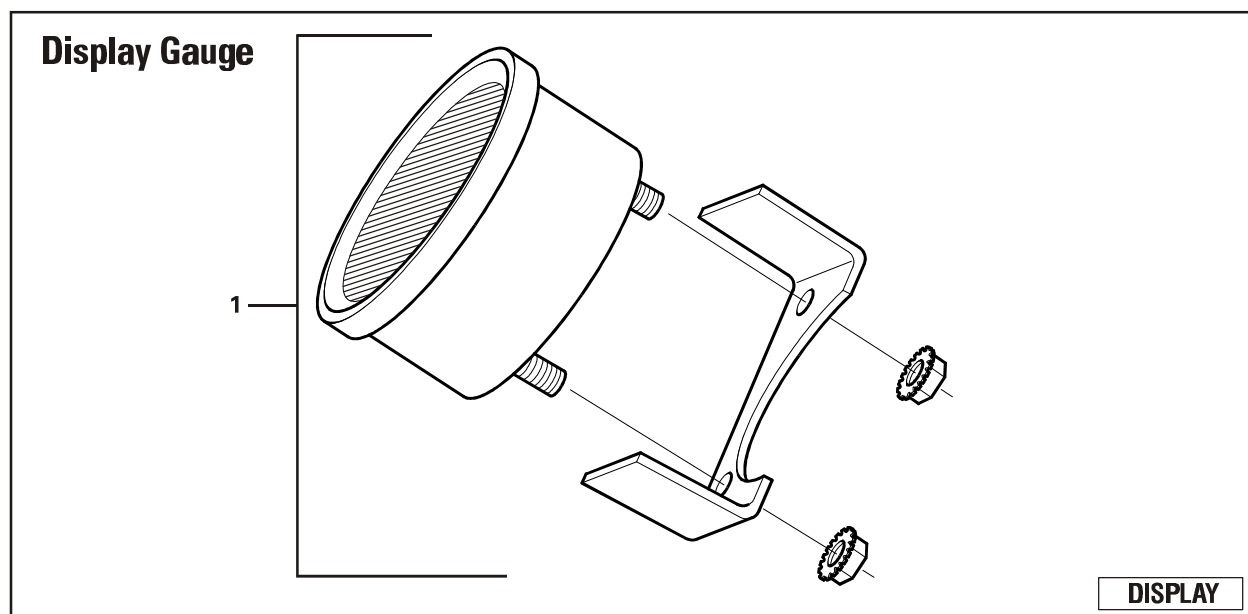
Wiring Harness and Sensors — SureShift

Item	Qty.	Part Number	Description	Kit #
1	1	A-2297-J-7498	Wiring Harness	5434
2	1	A-3280-A-9413	Speed Sensor	
3	1	A-2297-Q-7297	X-Y Unit	
4	1	A-2297-R-7298	Range Sensor	
5	2	A-3280-F-9392	Range Shift Solenoids	
6	1	A-3280-G-9575	Speed Sensor, 2-Pin	5392 for Navistar
	1	A-3280-H-9576	Speed Sensor, 4-Pin	



Cruise Control Retrofit Kit (Kit 5366)

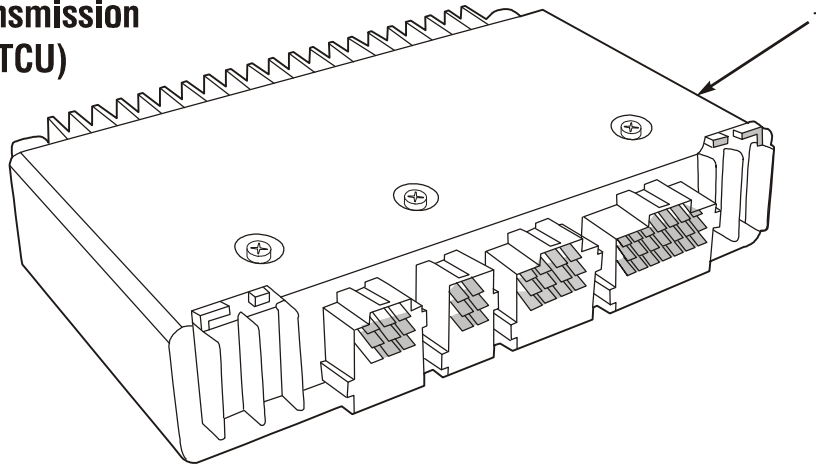
Item	Qty.	Part Number	Description
1	1	A-2297-F-7078	Wiring Harness, Cruise Control Retrofit
2	5	2297-J-7082	Connector Tubes, "Butt Splice"



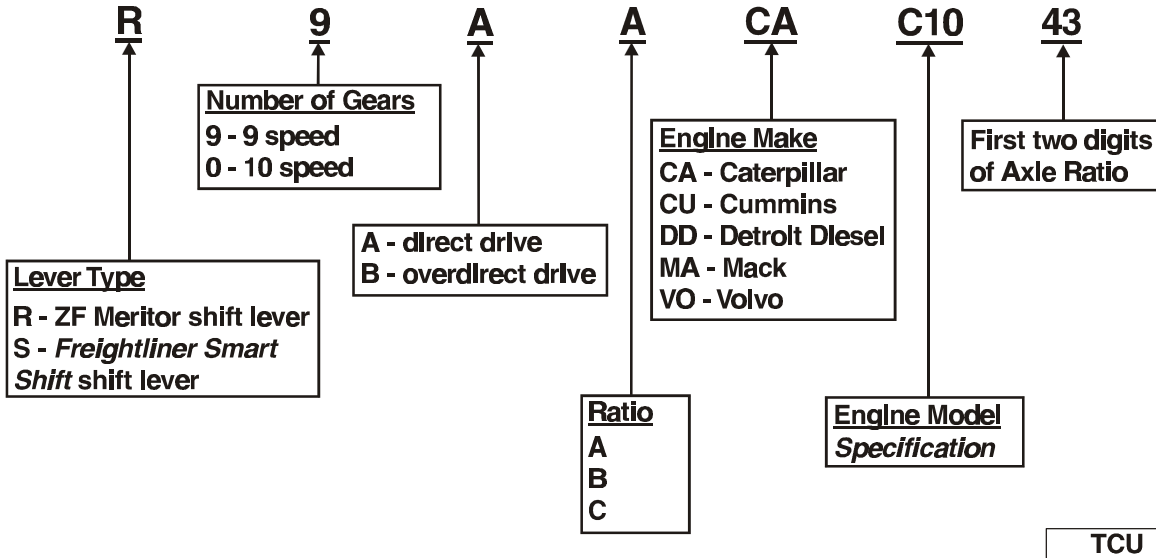
Display Gauge

Item	Qty.	Part Number	Description
1	1	A-6000-Y-1299	ZF Meritor Display Gauge

SureShift Transmission Control Unit (TCU)



SureShift TCU - Service - Part Numbers



SureShift Transmission Control Unit (TCU)

Item	Qty.	Part Number	Description
1	1	Feature Based*	SureShift Transmission Control Unit (TCU)

*Contact ArvinMeritor's Aftermarket Services at 888-725-9355 with engine make, engine model, transmission model, axle ratio and lever type (Freightliner SmartShift or ZF Meritor SureShift lever).

Cab Shift Labels (Manual) — 9-Speed Transmission

9-Speed Transmission

Upshifting

- Start with range selector in DOWN position
- Shift LO-1-2-3-4
- Raise range control while in 4th
- Shift to 5-6-7-8

Downshifting

- Shift 8-7-6-5
- Move range control DOWN while in 5th
- Shift 4-3-2-1-LO

DO NOT MOVE RANGE CONTROL WHILE MOVING IN REVERSE

Standard

RANGE CONTROL

2297-T-6104

9-Speed Transmission

Upshifting

- Start with range selector in DOWN position
- Shift LO-1-2-3-4
- Raise range control while in 4th
- Shift to 5-6-7-8

Downshifting

- Shift 8-7-6-5
- Move range control DOWN while in 5th
- Shift 4-3-2-1-LO

DO NOT MOVE RANGE CONTROL WHILE MOVING IN REVERSE

Standard

RANGE CONTROL

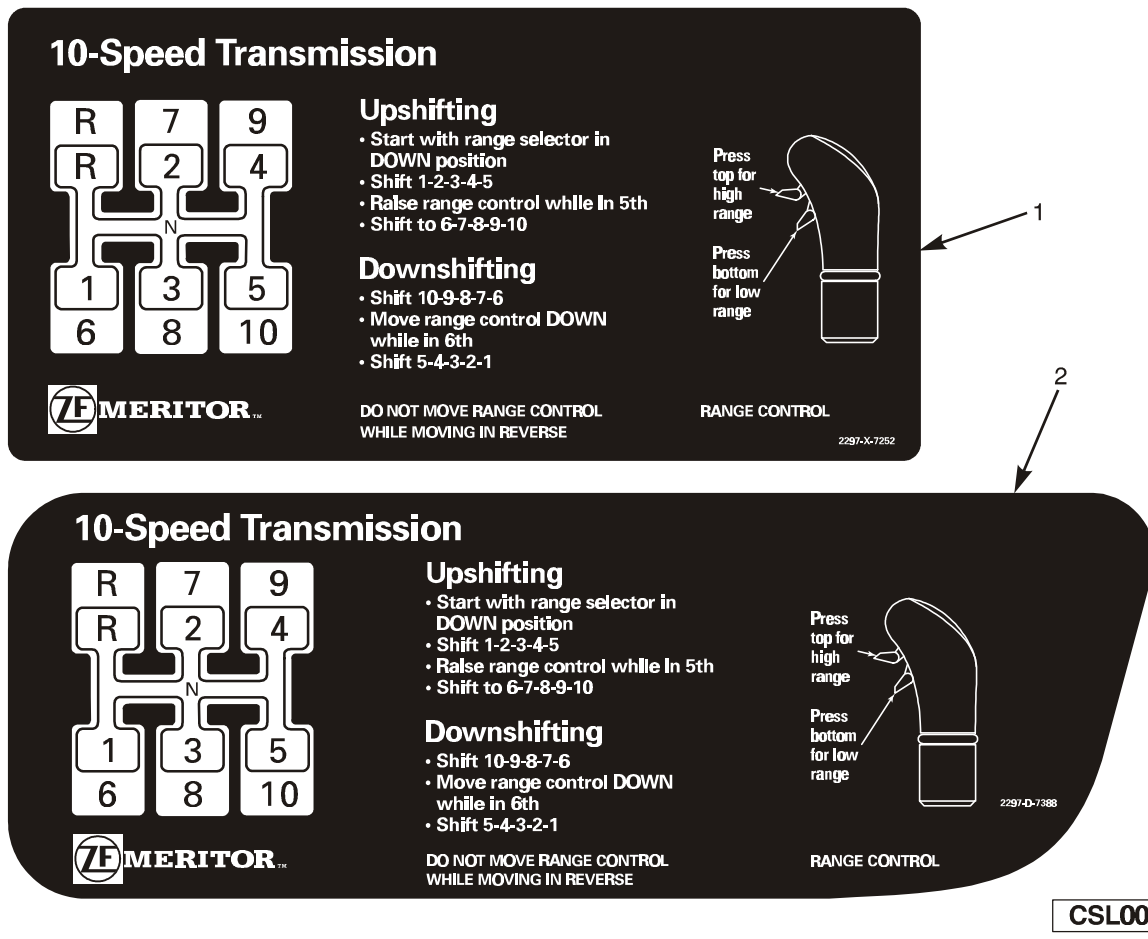
2297-Z-7384

CSL0016

Cab Shift Labels (Manual) — 9-Speed Transmission

Item	Qty.	Part Number	Description
1	1	2297-T-6104	Decal, Cab Shift Label (Square)
2	1	2297-Z-7384	Decal, Cab Shift Label (Oval)

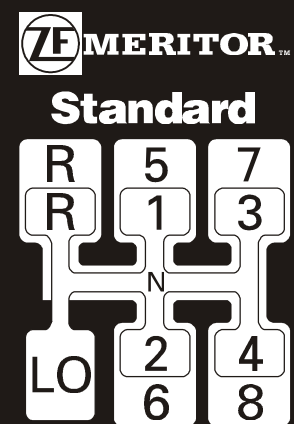
Cab Shift Labels (Manual) — 10-Speed Transmission



Cab Shift Labels (Manual) — 10-Speed Transmission

Item	Qty.	Part Number	Description
1	1	2297-X-7252	Decal, Cab Shift Label (Square)
2	1	2297-A-7388	Decal, Cab Shift Label (Oval)

Cab Shift Labels (ESS and ESS TCU) — 9-Speed Transmission



9-Speed Transmission

ENGINE SYNCHRO SHIFT

TO ACTIVATE ESS:

- Turn system switch **ON**
- Depress clutch pedal
- Select starting gear

TO UP-SHIFT:

- Fully depress shift intent switch **UP** and release
- Immediately move lever to **NEUTRAL**
- Let engine synchronize
- Move lever into higher gear 1-2-3-4-5-6-7-8

TO DOWN-SHIFT:

- Fully depress shift intent switch **DOWN** and release
- Immediately move lever to **NEUTRAL**
- Let engine synchronize
- Move lever into lower gear 7-6-5-4-3-2-1-LO

CLUTCH USE:

- Use clutch only for starting and stopping
- Depressing clutch **disables** engine synchronization
- System **OFF** requires use of clutch for shifting

SHIFT INTENT SWITCH

- **UPSHIFT**
– Fully depress top
- **DOWNSHIFT**
– Fully depress bottom

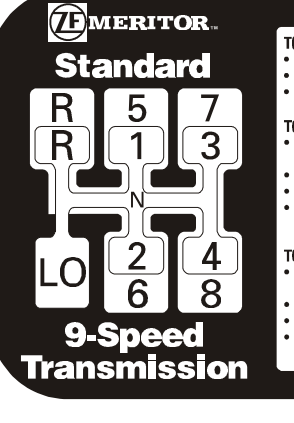
SYSTEM SWITCH

NOTE: System switch **OFF** activates manual control.

- Preselect shift intent switch **DOWN** for low range.
- Preselect shift intent switch **UP** for hi range.
- Do not select range in **NEUTRAL**. Preslect in gear.
- Do not range shift while moving in **REVERSE**.

Refer to TP-95130 for more information

2297-A-7125



9-Speed Transmission

ENGINE SYNCHRO SHIFT

TO ACTIVATE ESS:

- Turn system switch to **ON**
- Depress clutch pedal
- Select starting gear

TO UP-SHIFT:

- Fully depress shift intent switch **UP** and release
- Immediately move lever to **NEUTRAL**
- Let engine synchronize
- Move lever into higher gear 1-2-3-4-5-6-7-8

TO DOWN-SHIFT:

- Fully depress shift intent switch **DOWN** and release
- Immediately move lever to **NEUTRAL**
- Let engine synchronize
- Move lever into lower gear 7-6-5-4-3-2-1-LO

CLUTCH USE:

- Use clutch only for starting and stopping
- Depressing clutch **disables** engine synchronization
- System **OFF** requires use of clutch for shifting

NOTE: System switch **OFF** activates manual control.

- Preselect shift intent switch **DOWN** for low range.
- Preselect shift intent switch **UP** for hi range.
- Do not select range in **NEUTRAL**. Preslect in gear.
- Do not range shift while moving in **REVERSE**.

2297-Q-7245

CSL0013

Cab Shift Labels (ESS and ESS TCU) — 9-Speed Transmission

Item	Qty.	Part Number	Description
1	1	2297-A-7125	Decal, Cab Shift Label (Square)
2	1	2297-Q-7245	Decal, Cab Shift Label (Oval)

Cab Shift Labels (ESS and ESS TCU) — 10-Speed Transmission

ENGINE SYNCHRO SHIFT

2297-B-7126

10-Speed Transmission

TO ACTIVATE ESS:

- Turn system switch **ON**
- Depress clutch pedal
- Select starting gear

TO UP-SHIFT:

- Fully depress shift intent switch **UP** and release
- Immediately move lever to **NEUTRAL**
- Let engine synchronize
- Move lever into higher gear 2-3-4-5-6-7-8-9-10

TO DOWN-SHIFT:

- Fully depress shift intent switch **DOWN** and release
- Immediately move lever to **NEUTRAL**
- Let engine synchronize
- Move lever into lower gear 9-8-7-6-5-4-3-2-1

CLUTCH USE:

- Use clutch only for starting and stopping
- Depressing clutch **disables** engine synchronization
- System **OFF** requires use of clutch for shifting

SHIFT INTENT SWITCH

• **UPSHIFT**
– Fully depress top

• **DOWNSHIFT**
– Fully depress bottom

SYSTEM SWITCH

NOTE: System switch **OFF** activates manual control.

- Preselect shift intent switch **DOWN** for low range.
- Preselect shift intent switch **UP** for hi range.
- Do not select range in **NEUTRAL**. Preslect in gear.
- Do not range shift while moving in **REVERSE**.

2297-B-7126

Refer to TP-95130 for more information

ENGINE SYNCHRO SHIFT

2297-R-7246

10-Speed Transmission

TO ACTIVATE ESS:

- Turn system switch to **ON**
- Depress clutch pedal
- Select starting gear

TO UP-SHIFT:

- Fully depress shift intent switch **UP** and release
- Immediately move lever to **NEUTRAL**
- Let engine synchronize
- Move lever into higher gear 2-3-4-5-6-7-8-9-10

TO DOWN-SHIFT:

- Fully depress shift intent switch **DOWN** and release
- Immediately move lever to **NEUTRAL**
- Let engine synchronize
- Move lever into lower gear 9-8-7-6-5-4-3-2-1

CLUTCH USE:

- Use clutch only for starting and stopping
- Depressing clutch **disables** engine synchronization
- System **OFF** requires use of clutch for shifting

NOTE: System switch **OFF** activates manual control.

- Preslect shift intent switch **DOWN** for low range.
- Preslect shift intent switch **UP** for hi range.
- Do not select range in **NEUTRAL**. Preslect in gear.
- Do not range shift while moving in **REVERSE**.

SHIFT INTENT SWITCH

• **UPSHIFT**
– Fully depress top

• **DOWNSHIFT**
– Fully depress bottom

SYSTEM SWITCH

NOTE: System switch **OFF** activates manual control.

- Preselect shift intent switch **DOWN** for low range.
- Preselect shift intent switch **UP** for hi range.
- Do not select range in **NEUTRAL**. Preslect in gear.
- Do not range shift while moving in **REVERSE**.

2297-R-7246

Refer to TP-95130 for more information

CSL0015

Cab Shift Labels (ESS and ESS TCU) — 10-Speed Transmission

Item	Qty.	Part Number	Description
1	1	2297-B-7126	Decal, Cab Shift Label (Square)
2	1	2297-R-7246	Decal, Cab Shift Label (Oval)

Cab Shift Labels (SureShift)

Operating ZF Meritor's SureShift™ Transmission

When to Use the Clutch Pedal

- To stop and start
- If the buzzer sounds and the forward/neutral/reverse (FNR) display flashes.

Forward Gear Start

- **First Gear Start:** Press the **FUNCTION BUTTON**. Move the shift lever forward. Release the shift lever and the **FUNCTION BUTTON**.
- **Second Gear Start:** Move the shift lever forward, then release it.
- **Third Gear Start:** Move the shift lever forward two times then release it.
- **After Selecting a Gear:** Push the clutch pedal to the end of travel. Slowly release the clutch pedal.

Reverse Gear Start

- Press the **FUNCTION BUTTON**. Move the shift lever backward. Release the shift lever and the **FUNCTION BUTTON**.
- **After Selecting a Gear:** Push the clutch pedal to the end of travel. Slowly release the clutch pedal.

Upshifting

- Move the shift lever forward, then release it.

Downshifting

- Move the shift lever backward, then release it.

"Skip Shifting"

- Press and hold the **FUNCTION BUTTON** while shifting.

Shifting Into Neutral

- Press the release and **NEUTRAL BUTTON**.



2297-L-7422

1

Operating ZF Meritor's SureShift™ Transmission

When to Use the Clutch Pedal

- To stop and start
- If the buzzer sounds and the forward/neutral/reverse (FNR) display flashes.

Forward Gear Start

- **First Gear Start:** Press the **FUNCTION BUTTON**. Move the shift lever forward. Release the shift lever and the **FUNCTION BUTTON**.
- **Second Gear Start:** Move the shift lever forward, then release it.
- **Third Gear Start:** Move the shift lever forward two times, then release it.
- **After Selecting a Gear:** Push the clutch pedal to the end of travel. Slowly release the clutch pedal.

Reverse Gear Start

- Press the **FUNCTION BUTTON**. Move the shift lever backward. Release the shift lever and the **FUNCTION BUTTON**.

- **After Selecting a Gear:** Push the clutch pedal to the end of travel. Slowly release the clutch pedal.

Upshifting

- Move the shift lever forward, then release it.

Downshifting

- Move the shift lever backward, then release it.

"Skip Shifting"

- Press and hold the **FUNCTION BUTTON** while shifting.

Shifting Into Neutral

- Press and release the **NEUTRAL BUTTON**.



2297-K-7421

2

LABELS

Cab Shift Labels (SureShift)

Item	Qty.	Part Number	Description
1	1	2297-L-7422	Cab Shift Label (Oval Shaped)
2	1	2297-K-7421	Cab Shift Label (Rectangular Shaped)

Lubricant Label

1 →

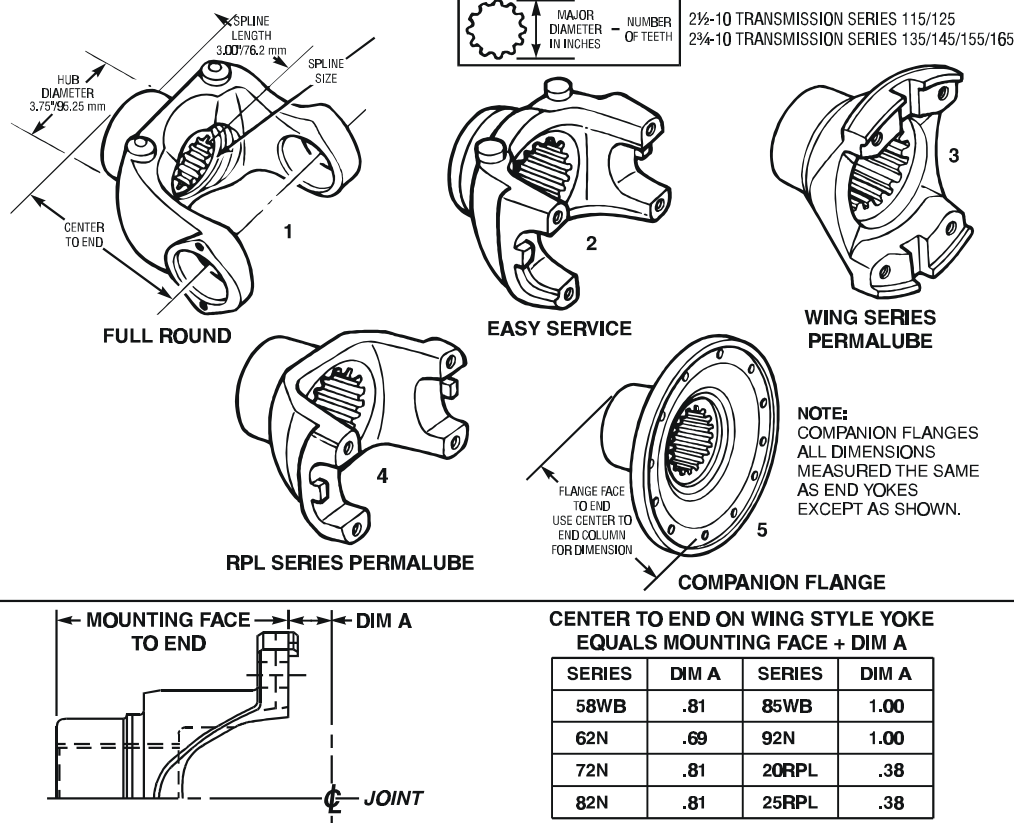

Part No. 2297-N-6904
LUBLABEL
Lubricant Label

Item	Qty.	Part Number	Description
1	1	2297-N-6904	Decal, NOTICE — Extended Drain Lubricant

Output Yokes



Yokes



ZF Meritor Transmission Series	Spline Size Dia."-Teeth	Spline Length	Hub Dia.	Center to End	Engineering Number	Series	Style	Item
115/125	2-1/2"-10	3.00"/76.2 mm	3.75"/95.25 mm	5.62"/142.75 mm	17NYS40-125A	17N	1710 FR with Deflector	1
115/125	2-1/2"-10	3.00"/76.2 mm	3.75"/95.25 mm	6.03"/153.16 mm	176NYS40-14A	176N	1760 FR with Deflector	
115/125	2-1/2"-10	3.00"/76.2 mm	3.75"/95.25 mm	5.88"/149.35 mm	18NYS40-4A	18N	1810 FR with Deflector	
135/145	2-3/4"-10	3.00"/76.2 mm	3.75"/95.25 mm	5.75"/146.05 mm	17N46931X	17N	1710 FR with Deflector	
135/145	2-3/4"-10	3.00"/76.2 mm	3.75"/95.25 mm	5.75"/146.05 mm	176NYS44-4A	176N	1760 FR with Deflector	
135/145	2-3/4"-10	3.00"/76.2 mm	3.75"/95.25 mm	6.06"/153.92 mm	18NYS44-4A	18N	1810 FR with Deflector	2
115/125	2-1/2"-10	3.00"/76.2 mm	3.75"/95.25 mm	5.62"/142.75 mm	17TYS40-144 (F)	17T	1710 EZ with Deflector	
115/125	2-1/2"-10	3.00"/76.2 mm	3.75"/95.25 mm	6.03"/153.16 mm	176TYS40-14A	176T	1760 EZ with Deflector	
115/125	2-1/2"-10	3.00"/76.2 mm	3.75"/95.25 mm	5.88"/149.35 mm	18TYS40-4A	18T	1810 EZ with Deflector	
135/145	2-3/4"-10	3.00"/76.2 mm	3.75"/95.25 mm	5.75"/146.05 mm	17TYS44-10A (F)	17T	1710 EZ with Deflector	
135/145	2-3/4"-10	3.00"/76.2 mm	3.75"/95.25 mm	5.97"/151.64 mm	176TYS44-4A	176T	1760 EZ with Deflector	3
135/145	2-3/4"-10	3.00"/76.2 mm	3.75"/95.25 mm	6.06"/153.92 mm	18TYS44-4A	18T	1810 EZ with Deflector	
115/125	2-1/2"-10	3.00"/76.2 mm	3.75"/95.25 mm	4.43"/112.52 mm*	72NYS40-99A	72N	72N (Wing) with Deflector	
115/125	2-1/2"-10	3.00"/76.2 mm	3.75"/95.25 mm	4.75"/120.65 mm*	82NYS40-28A	82N	82N (Wing) with Deflector	
115/125	2-1/2"-10	3.00"/76.2 mm	3.75"/95.25 mm	4.31"/109.47 mm*	85WBYS40-34A	85WB	85WB (Wing) with Deflector	
115/125	2-1/2"-10	3.00"/76.2 mm	3.75"/95.25 mm	4.26"/108.20 mm*	92NYS40-40A	92N	92N (Wing) with Deflector	4
135/145	2-3/4"-10	3.00"/76.2 mm	3.75"/95.25 mm	4.50"/114.30 mm*	85WBYS44-1A	85WB	85WB (Wing) with Deflector	
135/145	2-3/4"-10	3.00"/76.2 mm	3.75"/95.25 mm	4.84"/122.94 mm*	92NYS44-22A	92N	92N (Wing) with Deflector	
115/125	2-1/2"-10	3.00"/76.2 mm	3.75"/95.25 mm	5.65"/143.51 mm*	20WYS40-2A	RPL20	RPL20 with Deflector	
115/125	2-1/2"-10	3.00"/76.2 mm	3.75"/95.25 mm	5.15"/130.81 mm*	25WYS40-2A	RPL25	RPL25 with Deflector	
135/145	2-3/4"-10	3.00"/76.2 mm	3.75"/95.25 mm	5.09"/129.29 mm*	20WYS44-2A	RPL20	RPL20	5
135/145	2-3/4"-10	3.00"/76.2 mm	3.75"/95.25 mm	5.09"/129.29 mm*	25WYS44-2A	RPL25	RPL25	
115/125	2-1/2"-10	3.00"/76.2 mm	3.75"/95.25 mm	3.62"/91.95 mm*	5WCS40-40A	5W	8 Hole	
115/125	2-1/2"-10	3.00"/76.2 mm	3.75"/95.25 mm	3.62"/91.95 mm*	5WCS40-41A	5W	12 Hole	
135/145	2-3/4"-10	3.00"/76.2 mm	3.75"/95.25 mm	4.06"/103.12 mm*	5WCS44-3A	5W	12 Hole	

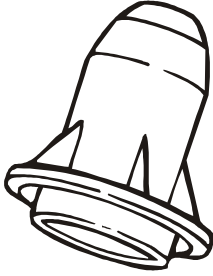
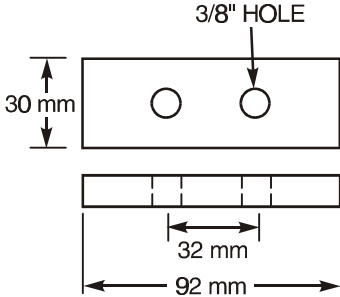
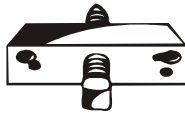
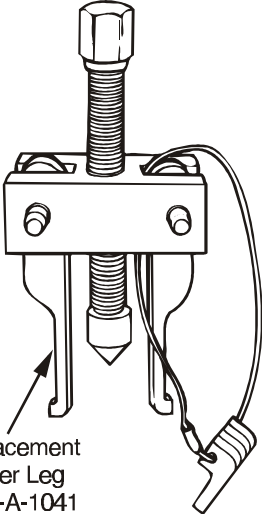
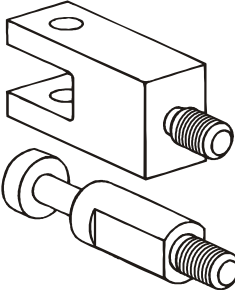
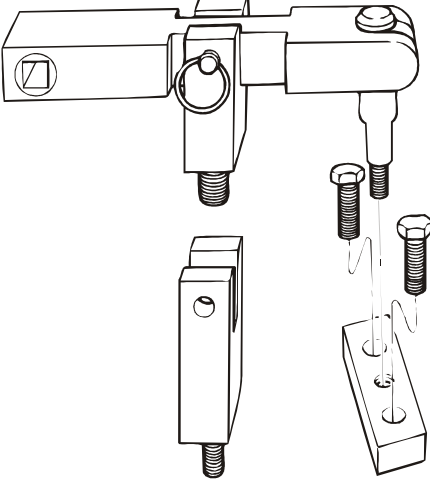
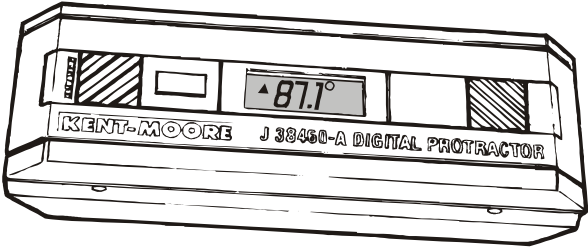
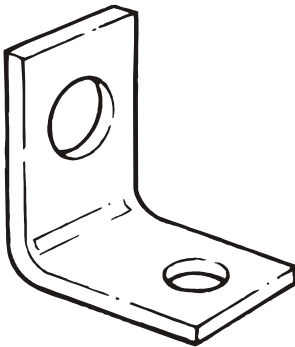
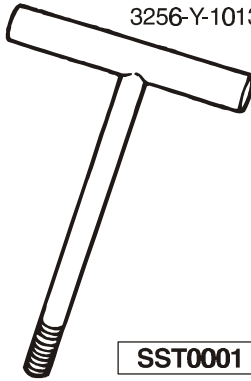
(F) = Forged Version

*Wing and RPL yokes are face to end. See table for C/E Dims.

OTY0001

Yokes

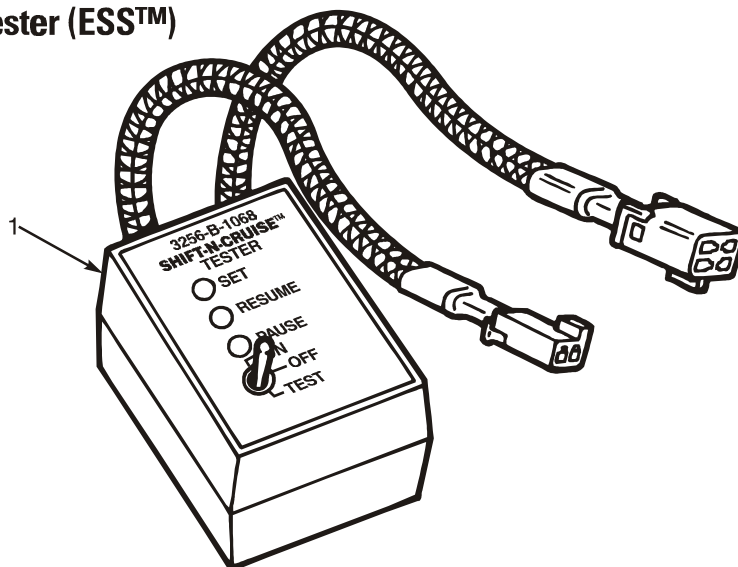
Item	Qty.	Part Number	Description
1	1	17NYS40-125A	Yoke Assembly, Full Round
	1	176NYS40-14A	Yoke Assembly, Full Round
	1	18NYS40-4A	Yoke Assembly, Full Round
	1	17N46931X	Yoke Assembly, Full Round
	1	176NYS44-4A	Yoke Assembly, Full Round
	1	18NYS44-4A	Yoke Assembly, Full Round
2	1	17TYS40-144 (F)	Yoke Assembly, Easy Service
	1	176TYS40-14A	Yoke Assembly, Easy Service
	1	18TYS40-4A	Yoke Assembly, Easy Service
	1	17TYS44-10A (F)	Yoke Assembly, Easy Service
	1	176TYS44-4A	Yoke Assembly, Easy Service
	1	18TYS44-4A	Yoke Assembly, Easy Service
3	1	72NYS40-99A	Yoke Assembly, Wing Series Permalube
	1	82NYS40-28A	Yoke Assembly, Wing Series Permalube
	1	85WBYS40-34A	Yoke Assembly, Wing Series Permalube
	1	92NYS40-40A	Yoke Assembly, Wing Series Permalube
	1	85WBYS44-1A	Yoke Assembly, Wing Series Permalube
	1	92NYS44-22A	Yoke Assembly, Wing Series Permalube
4	1	20WYS40-2A	Yoke Assembly, RPL Series Permalube
	1	25WYS40-2A	Yoke Assembly, RPL Series Permalube
	1	20WYS44-2A	Yoke Assembly, RPL Series Permalube
	1	25WYS44-2A	Yoke Assembly, RPL Series Permalube
5	1	5WCS40-40A	Yoke Assembly, Companion Flange
	1	5WCS40-41A	Yoke Assembly, Companion Flange
	1	5WCS44-3A	Yoke Assembly, Companion Flange

1. Seal Driver 3256-Z-1014A 	2. Retainer Plate, Holding Cover Tool 3305-W-1141 	3. Countershaft Pusher 3256-D-1044 
4. Bearing Puller A-3256-W-1037  Replacement Puller Leg 3256-A-1041	5. 3/8" Countershaft Adaptor 3256-T-1060 	6. End Play Checker A-3256-C-1043 
7. Digital Protractor RI EP 1 	8. Lifting Bracket 2297-P-5840 	9. T-Handle Tool 3256-Y-1013  SST0001

Special Service Tools (Manual)

Item	Qty.	Part Number	Description
1	1	3256-Z-1014A	Seal Driver, Fits all models.
2	1	3305-W-1141	Retainer Plate, Holding Cover Tool
3	1	3256-D-1044	Tool, Countershaft Pusher
4	1	A-3256-W-1037	Tool, Bearing Puller
	1	3256-A-1041	Tool, Puller Leg, Replacement
5	1	3256-T-1060	Tool, 3/8" Countershaft Adaptor
6	1	A-3256-C-1043	Tool, End Play Checker Assembly
7	1	RIEP1	Tool, Digital Protractor
8	1	2297-P-5840	Hook, Lifting
9	1	3256-Y-1013	Tool, T-Handle

Shift-n-Cruise™ Tester (ESS™)

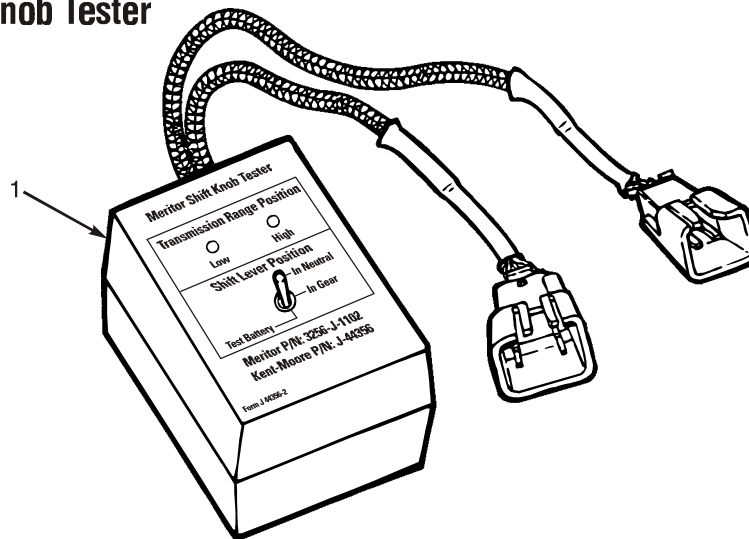


SCT0001

Shift-n-Cruise™ Tester (ESS™)

Item	Qty.	Part Number	Description
1	1	3256-B-1068	Tool, Tester, Shift-n-Cruise™

EOA Shift Knob Tester



SKTESTER

EOA Shift Knob Tester

Item	Qty.	Part Number	Description
1	1	3256-J-1102	Meritor Shift Knob Tester

Kit 5237

Part Number	Qty.	Description	Replaces
1225-B-1198	2	Shift Lever Kit	
10X-1611	1		
1227-Q-1525	1		

Kit 5270

Part Number	Qty.	Description	Replaces
2258-Z-1144	3	Synchro Kit Less Collar	
A-3203-Z-1014	1		
A-3203-R-1006	1		

Kit 5289

Part Number	Qty.	Description	Replaces
A-3203-Z-1014	1	Synchro Kit — Complete	
A-3203-R-1006	1		
2258-Z-1144	3		
3107-S-1111	1		

Kit 5363

Part Number	Qty.	Description	Replaces
1229-W-4625	5	Main Shaft	
43X-1158	1		
16X-1028	1		
1229-W-4339	1		
3297-J-1336	1		
42X-1457	5		
42X-1458	5		
42X-1459	5		
1244-M-2041	5		

Kit 5364

Part Number	Qty.	Description	Replaces
2803-R-2826	2	Front Countershaft Bearing Shims	Kit 5330
2803-S-2827	2		
2803-W-2831	1		
2803-C-2837	1		

Kit 5368

Part Number	Qty.	Description	Replaces
A1-3280-J-9318	1	Shift Tower Assy. — Low	Kit 5300
Kit 5237	1		
3208-N-1080	1		
S-2610A-1	4		
1229-B-1666	4		

Kit 5369

Part Number	Qty.	Description	Replaces
A1-3280-L-9320	1	Shift Tower Assy. — High	Kit 5299
Kit 5237	1		
3208-N-1080	1		
S-2610A-1	4		
1229-B-1666	4		

Kit 5378

Part Number	Qty.	Description	Replaces
2245-J-1076	1	Isolator and Shift Lever Kit	
TP 9732	0		
1225-B-1198	2		
10X-1611	1		
1227-Q-1525	1		

Kit 5386

Part Number	Qty.	Description	Replaces
A1-3280-T-9458	1	Shift Tower Assy. — Mid	
Kit 5237	1		
3208-N-1080	1		
S-2610A-1	4		
1229-B-1666	4		

Kit 5389

Part Number	Qty.	Description	Replaces
A-1205-V-2596	1	Rear Seal Assy.	Kit 5365
TP 94108	0		

Kit 5391

Part Number	Qty.	Description	Replaces
2803-D-2968	1	Kit — Output Bearing Spacers For Serial Numbers LB00011318 and Below	
2803-E-2969	1		
2803-F-2970	1		

Kit 5392

Part Number	Qty.	Description	Replaces
A-3280-G-9575	1	Kit — Speedo, Sensor, Shim — Navistar	
2803-N-3004	1		

Kit 5394

Part Number	Qty.	Description	Replaces
42X-1457	5	Main Shaft Hardware	
42X-1458	5		
42X-1459	5		
1244-M-2041	5		
1229-W-4625	5		
1229-W-4339	1		
43X-1158	1		
16X-1028	1		

Kit 5400

Part Number	Qty.	Description	Replaces
A-3280-G-9601-S	1	Kit — Air Filter	

Kit 5401

Part Number	Qty.	Description	Replaces
1205-G-2607	1	Range Cylinder Seal Kit	
2230-J-1310	1		
5X-1217	1		
1227-J-1570	1		
5X-1207	2		
5X-1092	2		

Kit 5403

Part Number	Qty.	Description	Replaces
A-3280-R-9716	1	Kit — Piston Housing	Kit 5402 Includes Air Filter Regulator
Kit 5401	1		

Kit 5404

Part Number	Qty.	Description	Replaces
1229-A-4759	2	Kit — Selective Washer (Auxiliary Countershaft)	Kit 5390
1229-B-4760	2		
1229-C-4761	2		
1229-D-4762	2		
1229-E-4763	2		
1229-F-4764	2		
1229-G-4765	2		
1229-H-4766	2		
1229-J-4768	2		
1229-K-4769	2		
1229-L-4770	2		

Kits



Kit 5405

Part Number	Qty.	Description	Replaces
Kit 5404	1	Kit — Shims and Selective Washers	
Kit 5329	1		
Kit 5364	1		

Kit 5406

Part Number	Qty.	Description	Replaces
5X-1134	2	Kit — Rebuild	
1205-Y-1039	3		
1225-A-1171	1		
1227-T-1554	1		
A-1228-E-1175	2		
1228-G-1203	1		
2258-Z-1144	3		
1205-G-2607	1		
2230-J-1310	1		
5X-1217	1		
1227-J-1570	1		
2258-F-1332	1		
2297-R-6986	1		
5X-1069	2		
Kit 5389	1		
A-1228-H-1204	1		
A1-1228-J-1414	1		
A-1228-T-1346	2		
A-1228-S-1345	4		
A-1228-U-1347	2		
Kit 5329	1		
Kit 5364	1		
Kit 5404	1		
NL-110-1	2		
N-L25-1	1		

Kit 5407

Part Number	Qty.	Description	Replaces
5X-1134	2	Kit — Overhaul	
1205-Y-1039	3		
1225-A-1171	1		
1227-T-1554	1		
A-1228-E-1175	2		
1228-G-1203	1		
2258-Z-1144	3		
1205-G-2607	1		
2230-J-1310	1		
5X-1217	1		
1227-J-1570	1		
2258-F-1332	1		
2297-R-6986	1		
5X-1069	2		
Kit 5389	1		
A-1228-H-1204	1		
A1-1228-J-1414	1		
A-1228-T-1346	2		
A-1228-S-1345	4		
A-1228-U-1347	2		
Kit 5329	1		
Kit 5364	1		
Kit 5404	1		
NL-110-1	2		
N-L25-1	1		
3107-G-1073	1		
Kit 5400	1		
Kit 5367	1		

Kit 5412

Part Number	Qty.	Description	Replaces
A4-3293-Q-1109-S	1	Kit — Rear Cover Assembly (9 Speed — A Ratio), SureShift and SmartShift	
NP357215	2		
NP449281	2		
1229-W-4339	1		
3892-G-5519	1		
1227-T-1554	1		
3266-D-1278	2		
10X-1660	8		
Kit 5404	1		

Kit 5413

Part Number	Qty.	Description	Replaces
A5-3293-Q-1109-S	1	Kit — Rear Cover Assembly (9 Speed — B Ratio), SureShift and SmartShift	
NP357215	2		
NP449281	2		
1229-W-4339	1		
3892-G-5519	1		
1227-T-1554	1		
3266-D-1278	2		
10X-1660	8		
Kit 5404	1		

Kit 5414

Part Number	Qty.	Description	Replaces
A6-3293-Q-1109-S	1	Kit — Rear Cover Assembly (10 Speed — A Ratio), SureShift and SmartShift	
NP357215	2		
NP449281	2		
1229-W-4339	1		
3892-G-5519	1		
1227-T-1554	1		
3266-D-1278	2		
10X-1660	8		
Kit 5404	1		

Kit 5415

Part Number	Qty.	Description	Replaces
A7-3293-Q-1109-S	1	Kit — Rear Cover Assembly (10 Speed — C Ratio), SureShift and SmartShift	
NP357215	2		
NP449281	2		
1229-W-4339	1		
3892-F-5518	1		
1227-T-1554	1		
3266-D-1278	2		
10X-1660	8		
Kit 5404	1		

Kit 5416

Part Number	Qty.	Description	Replaces
A-3294-Q-1031-S	1	Kit — Main Case (Without Pump Machining) (EOA and Detroit Diesel ESS)	

Kit 5417

Part Number	Qty.	Description	Replaces
A-3294-R-1032-S	1	Kit — Main Case (With Pump Machining) (EOA and Detroit Diesel ESS)	

Kit 5418

Part Number	Qty.	Description	Replaces
A-3294-B-1042-S	1	Kit — Main Case (Without Pump Machining) (ESS with ZF Meritor TCU)	

Kit 5419

Part Number	Qty.	Description	Replaces
A-3294-C-1043-S	1	Kit — Main Case (With Pump Machining) (ESS with ZF Meritor TCU)	

Kit 5420

Part Number	Qty.	Description	Replaces
A-3294-Z-1040-S	1	Kit — Main Case (Without Pump Machining) (SureShift and SmartShift)	

Kit 5421

Part Number	Qty.	Description	Replaces
A-3294-A-1041-S	1	Kit — Main Case (With Pump Machining) (SureShift and SmartShift)	

Kit 5422 — Replaced by A3-3293-R-1136-S

Kit 5423 — Replaced by A2-3293-R-1136-S

Kit 5424 — Replaced by A3-3293-T-1138-S

Kit 5425 — Replaced by A2-3293-T-1138-S

Kit 5426 — Replaced by A1-3293-R-1136-S

Kit 5427 — Replaced by A-3293-R-1136-S

Kit 5428 — Replaced by A1-3293-T-1138-S

Kit 5429 — Replaced by A-3293-T-1138-S

Kit 5430

Part Number	Qty.	Description	Replaces
A-2297-C-7491	1	Kit — Wiring Harness (7 Pin Connector) (EOA Transmissions)	
2257-Y-1273	5		

Kit 5431

Part Number	Qty.	Description	Replaces
A-2297-Q-7219	1	Kit — Wiring Harness (6 Pin Connector) (EOA Transmissions)	
2257-Y-1273	5		

Kit 5432

Part Number	Qty.	Description	Replaces
A-2297-U-7197	1	Kit — Wiring Harness (ESS Detroit Diesel)	
2257-Y-1273	5		

Kits



Kit 5433

Part Number	Qty.	Description	Replaces
A-2297-H-7496	1	Kit — Wiring Harness (ESS ZF Meritor TCU)	
2257-Y-1273	5		
2257-Z-1248	2		

Kit 5434

Part Number	Qty.	Description	Replaces
A-2297-J-7498	1	Kit — Wiring Harness (SureShift and SmartShift)	
2257-Y-1273	5		
2257-Z-1248	1		

Kit 5436

Part Number	Qty.	Description	Replaces
A-3280-R-9716	1	Kit — Range Cylinder (Piston Hsg) and Solenoid	Kit 5435
P-42Z-S	5		
5X-1217	1		
10X-1670	4		
A-3280-F-9392	2		
10X-1623	4		
WA-43Z	4		
Kit 5401	1		

Kit 5441

Part Number	Qty.	Description	Replaces
2258-P-1368	1	Kit — Rail Detent Spring and Pin (Standard and Forward Position — Overdrive and Direct Drive — Single Rail)	
2258-T-1424	1		
43X-1207	1		

10X-1446	5, 47, 49, 55, 57
10X-1510	5
10X-1511	5
10X-1512	5
10X-1521	67, 69
10X-1522	67, 69
10X-1532	10
10X-1534	39
10X-1537	24, 25, 26, 27, 29, 31
10X-1611	71, 72, 93, 94
10X-1623	39, 100
10X-1625	60, 61
10X-1657	43, 45, 47, 49, 51, 53, 55, 57, 58
10X-1659	33
10X-1660	33, 97, 98
10X-1667	43, 45, 47, 49, 51, 53, 55, 57
10X-1669	6, 7
10X-1670	39, 100
1199-B-3226	7
1199-H-1620	6, 7
1199-Q-901	7
1205-G-2607	39, 95, 96, 97
1205-T-1268	77, 78
1205-T-2308	8
1205-Y-1039	5, 96, 97
1225-A-1171	11, 96, 97
1225-B-1198	71, 72, 93, 94
1225-F-1306	77
1225-P-1186	67, 69
1225-X-1194	6, 7
1227-F-1384	67, 69
1227-J-1570	95, 96, 97
1227-Q-1525	71, 72, 93, 94
1227-S-1570	39
1227-T-1554	37, 96, 97, 98
1228-E-1175	32
1228-G-1203	11, 96, 97
1229-A-4759	95
1229-B-1666	6, 7, 8, 33, 39, 65, 93, 94
1229-B-4760	95
1229-C-1511	6, 7
1229-C-4657	11
1229-C-4761	95
1229-D-4762	95
1229-E-1513	5
1229-E-4763	95
1229-F-4660	65
1229-F-4764	95
1229-G-4765	95
1229-H-4766	95
1229-J-4768	95

1229-K-4769	95
1229-L-4770	95
1229-N-1626	32
1229-T-4336	71, 72
1229-T-4752	45, 49, 53, 57
1229-U-1503	6, 7
1229-W-4339	11, 13, 15, 17, 19, 21, 23, 34, 93, 95, 97, 98
1229-W-4625	13, 15, 17, 19, 21, 23, 93, 95
1229-X-4418	11
1244-J-2194	11
1244-M-2041	13, 15, 17, 19, 21, 23, 93, 95
1244-W-2103	37
1244-X-2104	37
1250-D-1252	43, 45, 47, 49, 51, 53, 55, 57
1250-Q-1265	43, 45, 47, 49, 51, 53, 55, 57
1250-Q-1625	58
1250-R-1266	5
1250-W-1271	59
1254-P-1030	59
1299-B-1666	77
15X-1812	77
16X-1028	13, 15, 17, 19, 21, 23, 93, 95
16X-1031	24, 25, 26, 27, 29
16X-1040	24, 25, 26, 27, 29, 31
176NYS40-14A	88, 89
176NYS44-4A	88, 89
176TYS40-14A	88, 89
176TYS44-4A	88, 89
17N46931X	88, 89
17NYS40-125A	88, 89
17TYS40-144	88, 89
17TYS44-10A	88, 89
17X-1030	5
18NYS40-4A	88, 89
18NYS44-4A	88, 89
18TYS40-4A	88, 89
18TYS44-4A	88, 89
20WYS40-2A	88, 89
20WYS44-2A	88, 89
2205-H-1126	47, 49, 55, 57
2205-W-1011	43, 45, 47, 49, 51, 53, 55, 57, 58
2208-G-1151	47, 49, 55, 57
2208-H-1152	43, 45, 47, 49, 51, 53, 55, 57
2214-V-1166	65
2230-J-1310	39, 95, 96, 97
2244-B-1172	43, 45, 47, 49, 51, 53, 55, 57
2244-C-1173	43, 47, 51, 55
2244-E-1175	47, 51, 53, 55, 57
2244-E-1176	45
2244-F-1176	43, 49
2244-F-1202	43, 45, 47, 49, 51, 53, 55, 57

2244-G-1203	43, 45, 47, 49, 51, 53, 55, 57
2244-H-1204	43, 47, 51, 55
2244-J-1128	59
2244-K-1077	69
2244-K-1129	59
2244-K-1155	59
2244-L-1130	59
2244-R-1188	39
2244-U-1165	45, 49, 53, 57
2244-W-1167	39
2244-Y-1065	67
2245-A-1223	43, 45, 51, 53
2245-J-1076	71, 72, 94
2245-M-1235	43, 45, 51, 53
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2245-P-1186	60, 61
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2245-W-1219	34
2245-Y-1221	47, 49, 55, 57
2247-G-1463	65
2247-K-1077	67, 69
2247-K-1493	45, 49, 53, 57
2247-M-1079	67
2247-M-1313	65
2247-N-1080	69
2247-N-1314	65
2247-Z-1534	45, 49, 53, 57
2255-T-1268	41
2255-Z-1118	10
2257-G-1229	73, 75, 77, 78
2257-Y-1247	77
2257-Y-1273	73, 75, 77, 78, 99
2257-Z-1248	77, 99
2258-B-1328	65
2258-B-1458	43, 45, 47, 49, 51, 53, 55, 57
2258-D-1278	58
2258-D-1330	59
2258-E-1409	58
2258-F-1332	5, 96, 97
2258-P-1368	43, 45, 47, 49, 51, 53, 55, 57, 100
2258-Q-1369	43, 45, 47, 49, 51, 53, 55, 57
2258-T-1424	43, 45, 47, 49, 51, 53, 55, 57, 100
2258-V-1452	43, 45, 47, 49, 51, 53, 55, 57
2258-W-1453	43, 45, 47, 49, 51, 53, 55, 57
2258-Z-1144	36, 93, 96, 97
2260-B-1146	65
2260-R-1032	67, 69
2297-A-7021	3
2297-A-7125	84
2297-A-7388	83

2297-B-6060	67
2297-B-6112	3
2297-B-6554	5
2297-B-7126	85
2297-C-5905	3
2297-D-6062	69
2297-E-4295	59
2297-E-6063	69
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2297-K-7421	86
2297-L-7422	86
2297-N-6904	87
2297-P-5840	43, 45, 47, 49, 51, 53, 55, 57, 91
2297-Q-7245	84
2297-R-5764	59
2297-R-6986	5, 58, 96, 97
2297-R-7246	85
2297-S-5765	32
2297-T-6104	82
2297-U-6417	43, 45, 47, 49, 51, 53, 55, 57
2297-X-7252	83
2297-X-7278	41
2297-Y-5849	5
2297-Z-7384	82
25WYS40-2A	88, 89
25WYS44-2A	88, 89
26X-1011	59
26X-1032	43, 45, 47, 49, 51, 53, 55, 57
2803-C-2837	93
2803-D-2968	94
2803-E-2969	94
2803-F-2970	94
2803-N-3004	94
2803-R-2826	93
2803-S-2827	93
2803-W-2831	93
3105-B-1198	65
3105-E-1175	24, 25, 26, 27, 29
3105-K-1155	8
3105-N-1236	31
3105-Y-1195	34
3107-G-1073	13, 15, 17, 19, 21, 23, 97
3107-S-1111	36, 93
3198-D-1070	32
3208-N-1080	65, 93, 94
3221-C-1017	43, 45, 47, 49, 51, 53, 55, 57
3221-U-1009	58
3237-H-294	65, 67, 69
3237-N-66	65, 67, 69
3256-A-1041	91
3256-B-1068	92

3256-D-1044	91
3256-J-1102	92
3256-T-1060	91
3256-Y-1013	91
3256-Z-1014A	91
3266-B-1120	5
3266-C-1121	5
3266-D-1278	33, 97, 98
3266-H-1048	6, 7
3280-C-9805	43, 45, 53
3280-D-9806	47, 55, 57
3280-G-8743	69
3280-K-9605	47, 49, 55, 57
3280-K-9806	49
3280-L-9606	43, 45, 51, 53
3293-Q-1109	33
3296-H-1126	59
3296-J-1258	43, 45, 47, 49, 51, 53, 55, 57
3296-K-1129	59
3296-K-1259	43, 45, 47, 49, 51, 53, 55, 57
3296-M-1261	43, 47, 51, 55
3296-N-1262	45, 49, 53, 57
3296-Q-1161	39
3296-S-1319	43, 45, 47, 49, 51, 53, 55, 57
3296-Z-1248	59
3297-J-1336	13, 15, 17, 19, 21, 23, 93
3297-J-1414	35
3297-K-1259	24, 25, 26
3297-K-1415	35
3297-N-1366	27, 29
3297-N-1418	37
3297-S-1397	35
3297-T-1398	35
3297-W-1453	31
3305-V-1348	77
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3892-A-5019	24, 25
3892-B-5150	17
3892-C-5021	13, 15, 17
3892-E-5023	13, 15
3892-E-5517	37
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3892-F-5414	19, 21, 23
3892-F-5518	34, 98
3892-G-5025	13, 15, 19, 21
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3892-H-5156	25, 29
3892-H-5598	37
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3892-M-5395	19, 21
3892-M-5473	11
3892-N-5032	32
3892-N-5396	27, 29
3892-N-5474	23
3892-P-5138	26
3892-Q-5035	24, 27
3892-Q-5477	23
3892-R-5140	26
3892-R-5478	23
3892-S-5011	24, 25, 27, 29
3892-S-5479	31
3892-T-5142	26
3892-T-5480	31
3892-U-5013	24, 25, 26, 27, 29, 31
3892-U-5481	31
3892-V-5144	11
3892-V-5482	31
3892-W-5015	11, 15, 21
3892-X-5146	17
3892-Y-5017	24, 27
3892-Z-5148	17
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42X-1247	43, 45, 47, 49, 51, 53, 55, 57
42X-1258	32
42X-1457	13, 15, 17, 19, 21, 23, 93, 95
42X-1458	13, 15, 17, 19, 21, 23, 93, 95
42X-1459	13, 15, 17, 19, 21, 23, 93, 95
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43X-1184	59
43X-1188	65
43X-1190	58
43X-1193	5
43X1197	53, 57
43X-1203	43, 45, 47, 49, 51, 53, 55, 57
43X-1207	43, 45, 47, 49, 51, 53, 55, 57, 100
43X-1208	43, 45, 47, 49, 51, 53, 55, 57
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43X-1214	43, 45, 47, 49, 51, 53, 55, 57
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