



AUTO GEAR

'SYRACUSE' 4-SPEED MANUAL TRANSMISSION

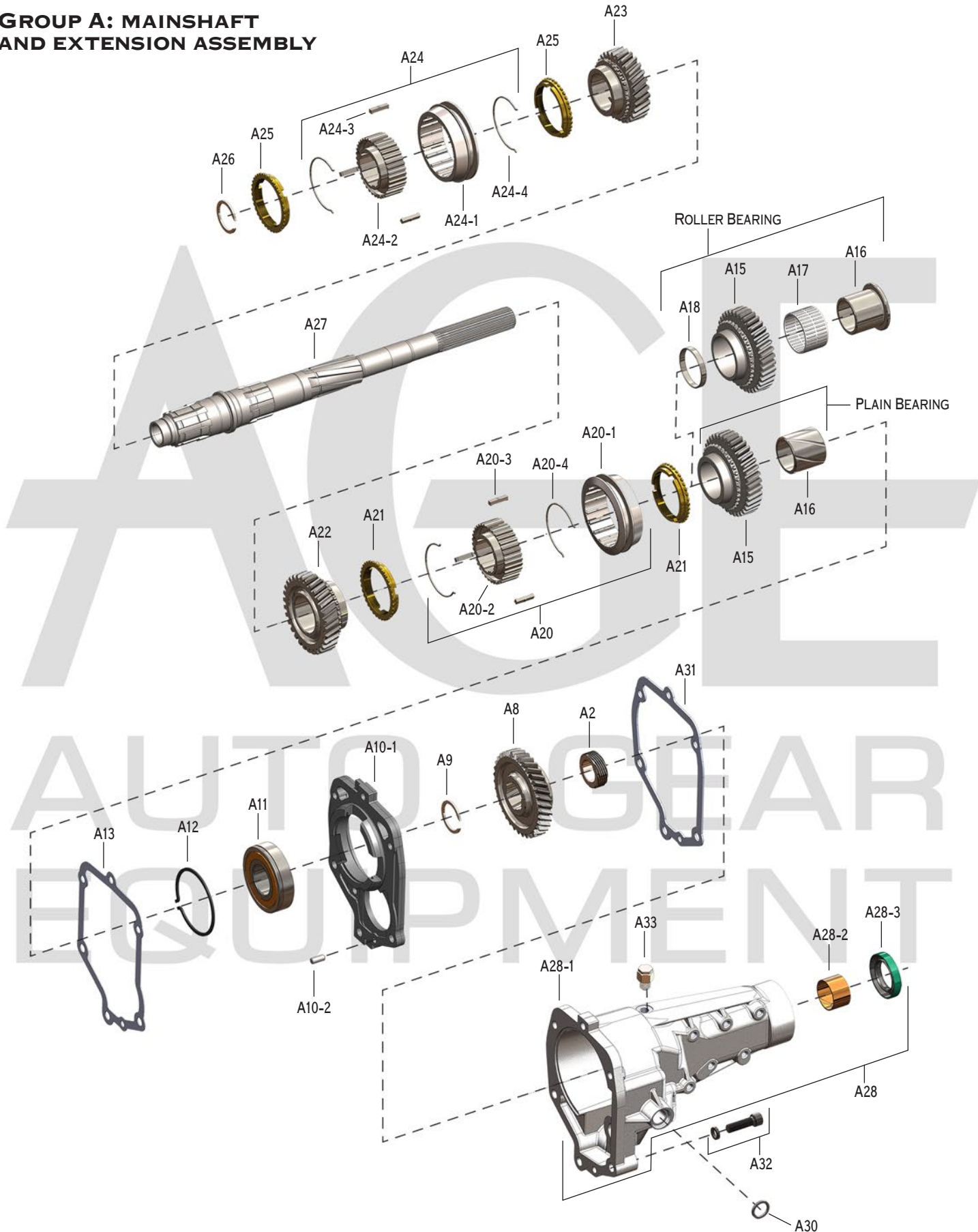
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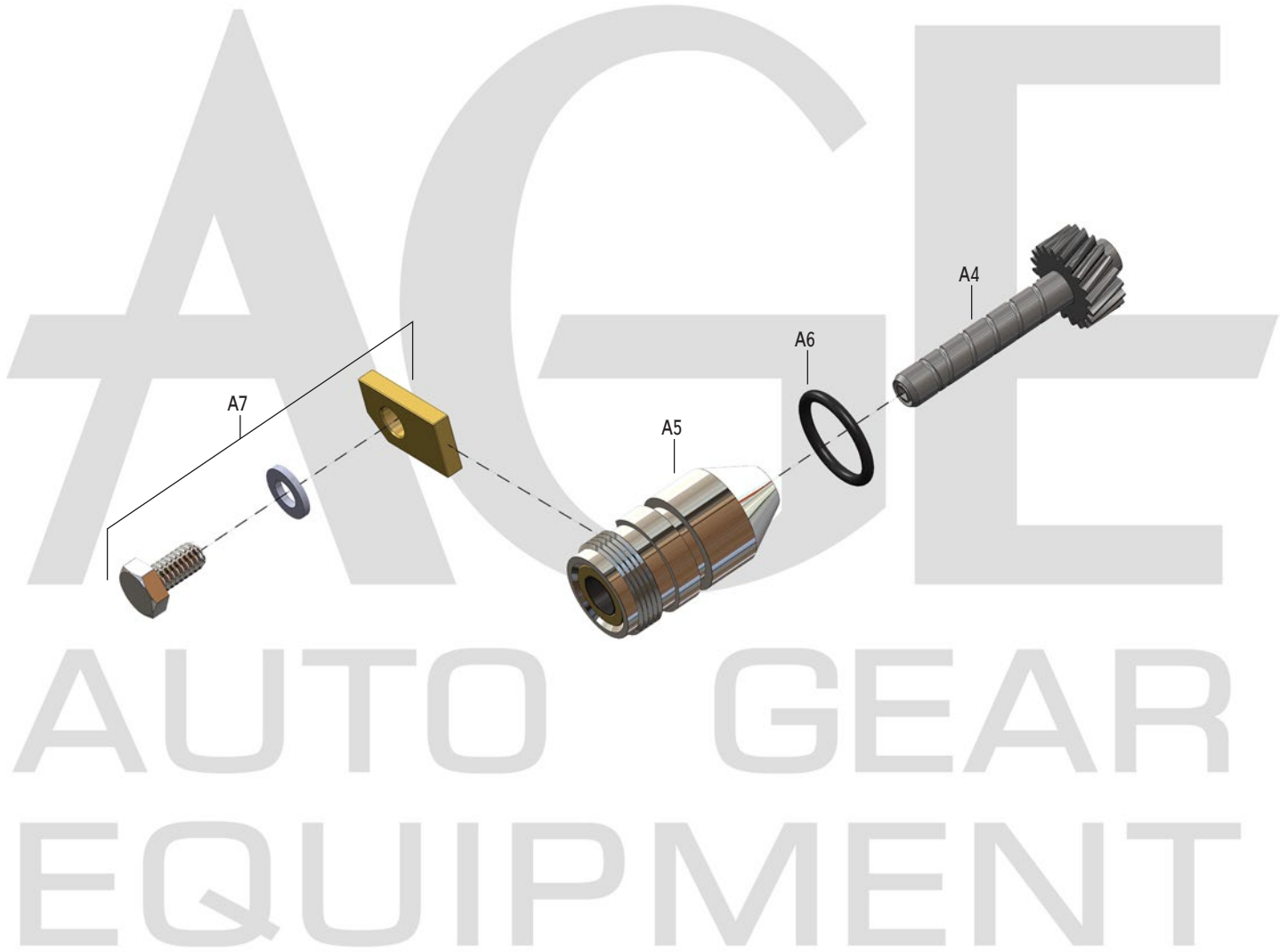
AUTO GEAR 'SYRACUSE' 4-SPEED

GROUP A: MAINSHAFT AND EXTENSION ASSEMBLY



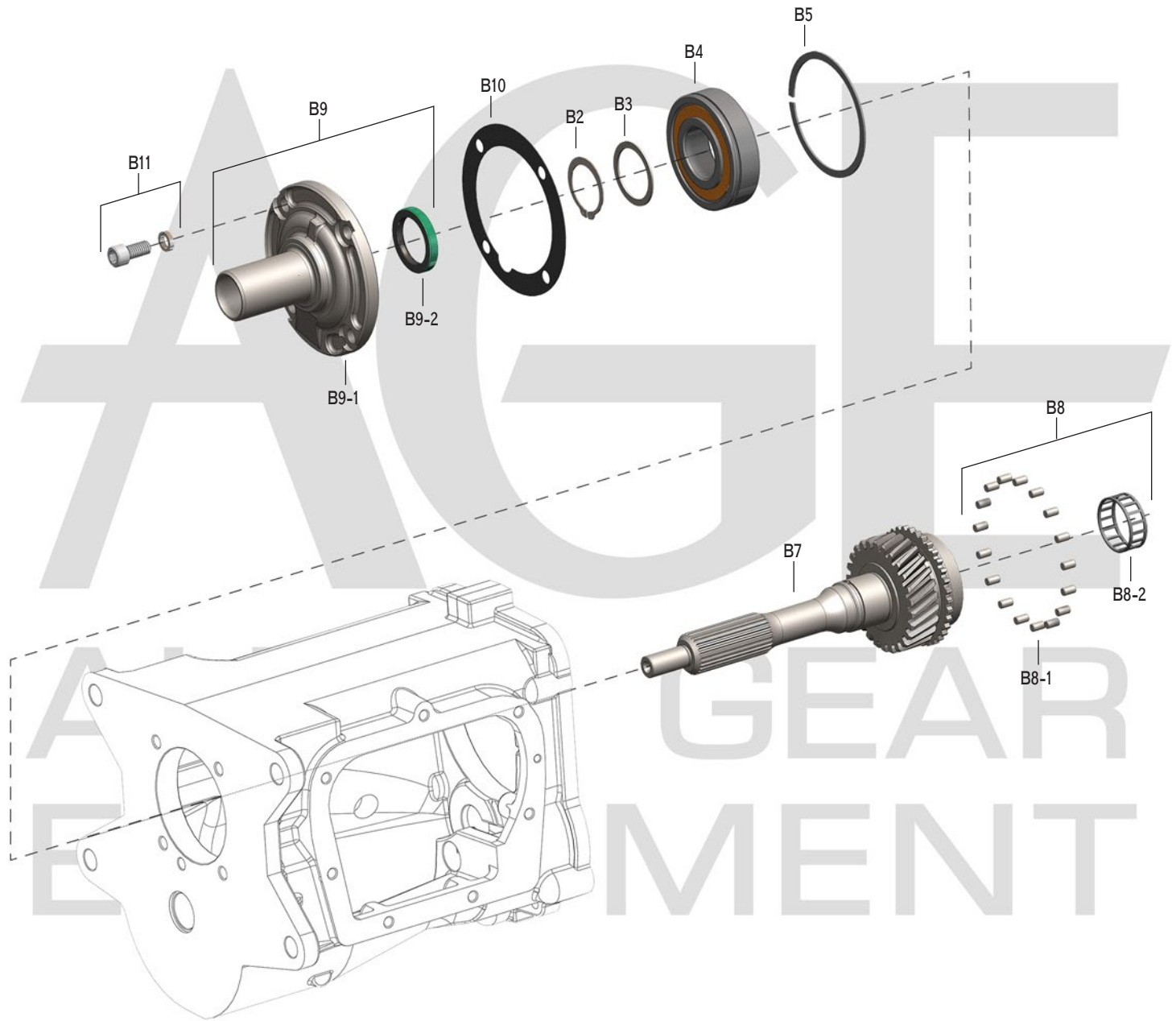
AUTO GEAR 'SYRACUSE' 4-SPEED

GROUP A: MAINSHAFT AND EXTENSION ASSEMBLY (SPEEDOMETER PARTS)



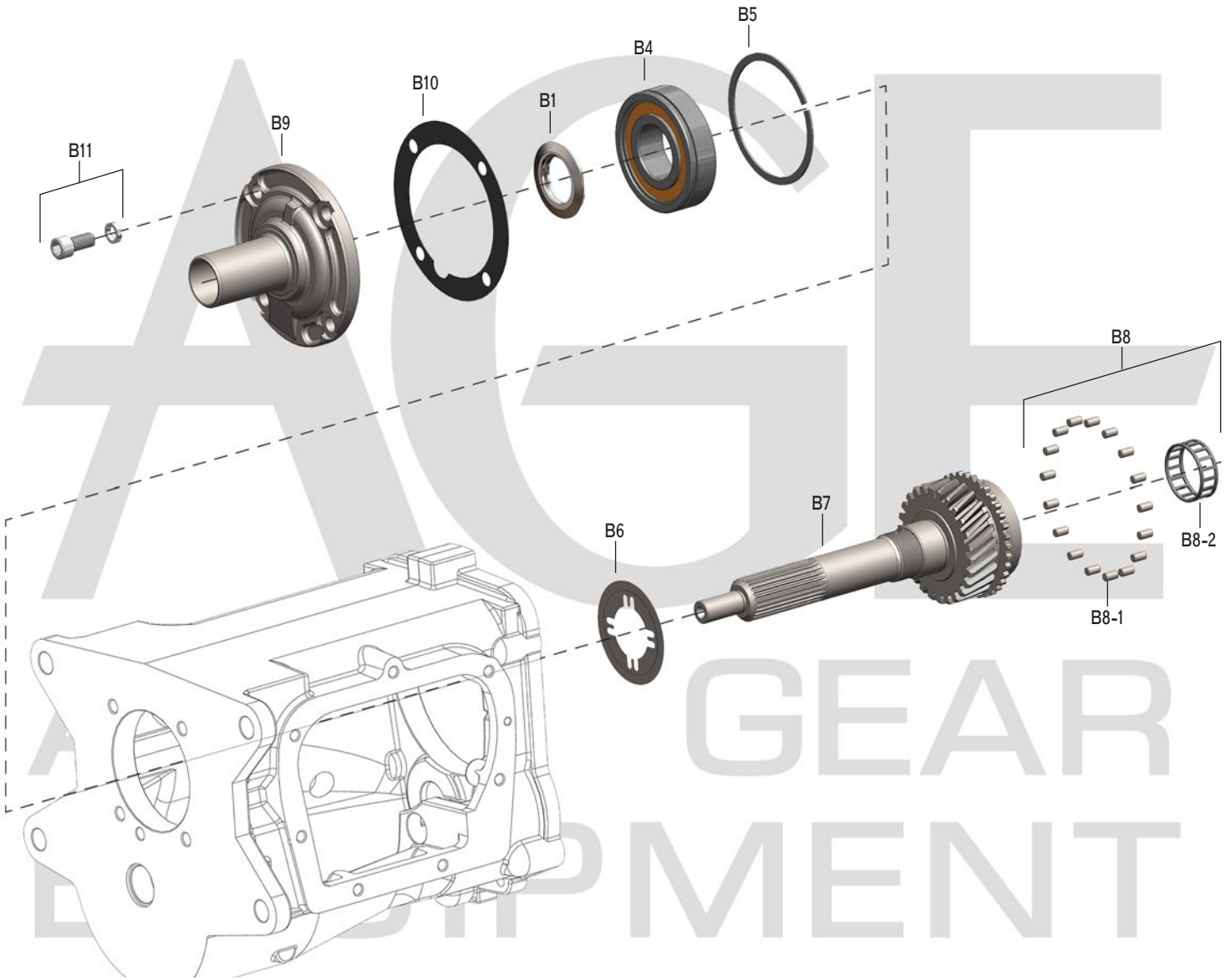
AUTO GEAR 'SYRACUSE' 4-SPEED

GROUP B: MAINDRIVE AND RETAINER (OILSEAL MAINDRIVE)



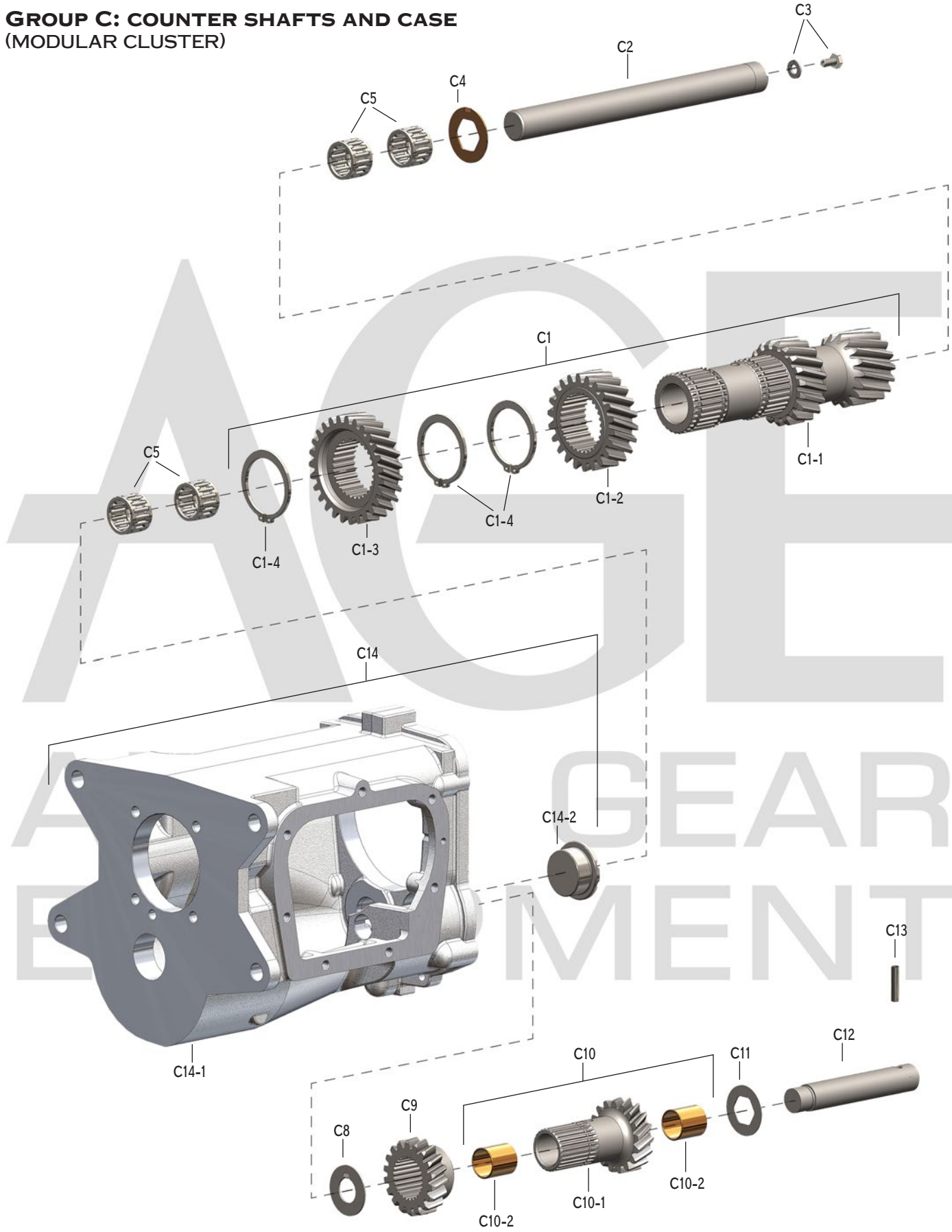
AUTO GEAR 'SYRACUSE' 4-SPEED

GROUP B: MAINDRIVE AND RETAINER (NUT-RETAINED MAINDRIVE)



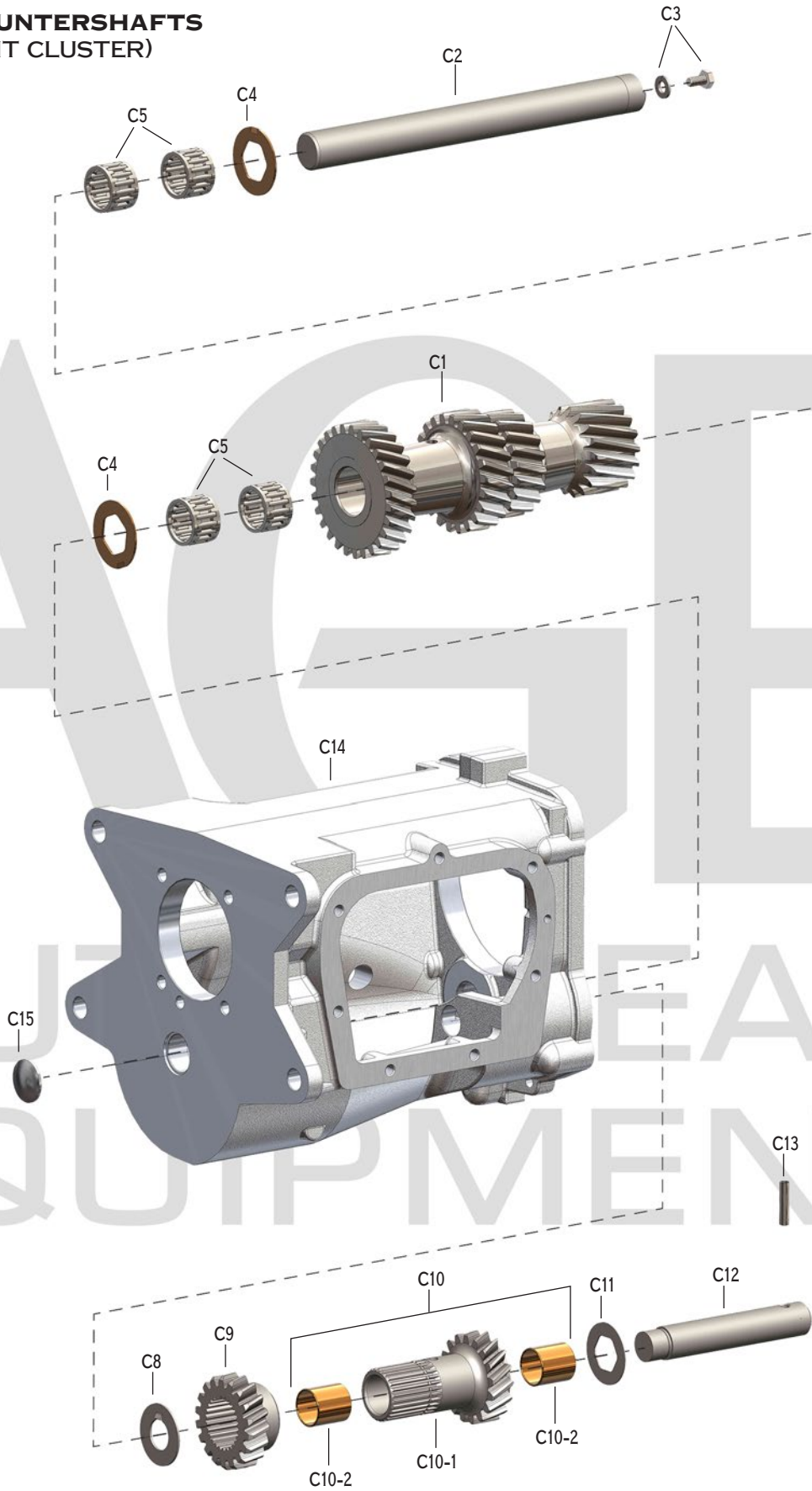
AUTO GEAR 'SYRACUSE' 4-SPEED

GROUP C: COUNTER SHAFTS AND CASE (MODULAR CLUSTER)



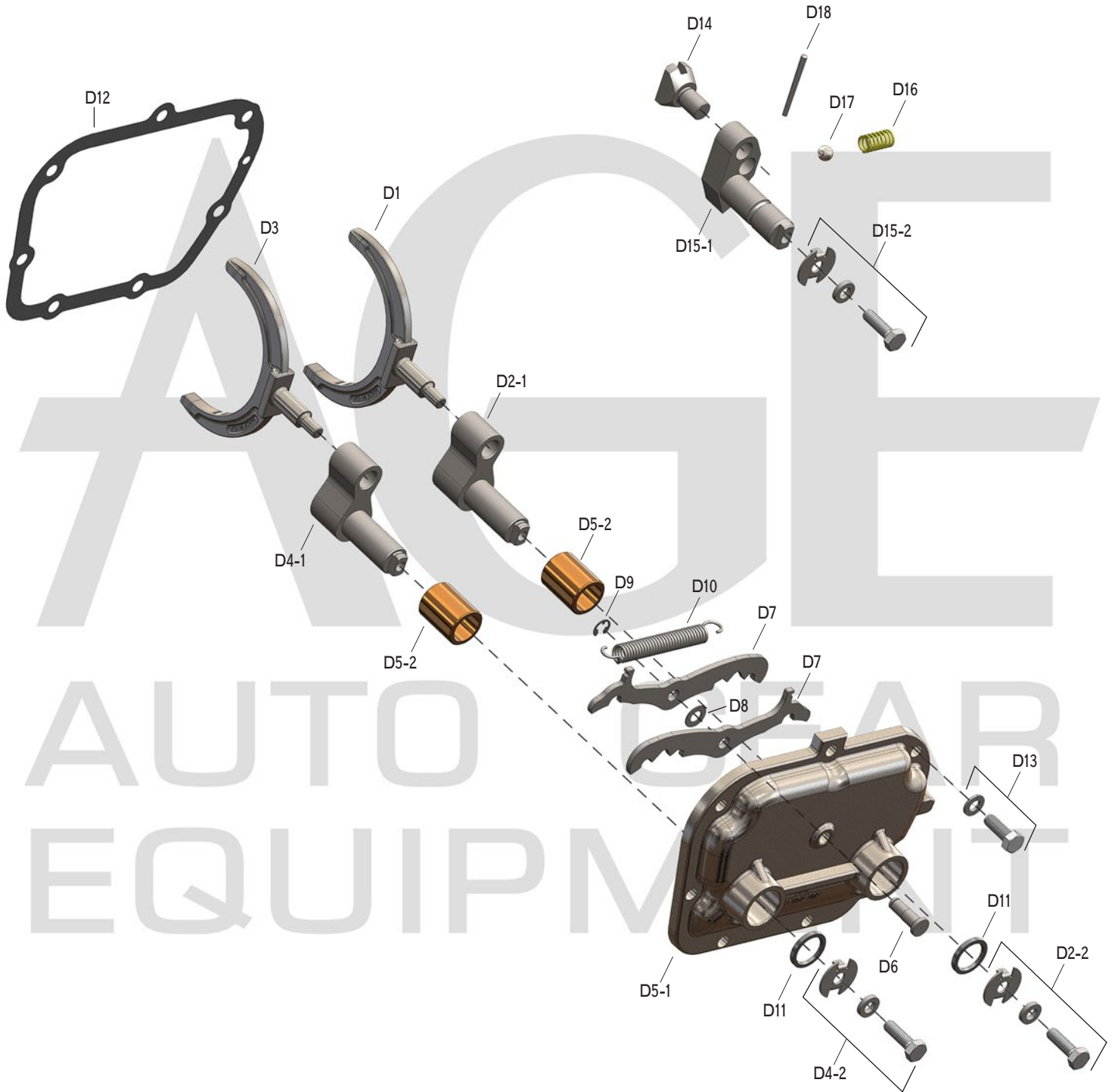
AUTO GEAR 'SYRACUSE' 4-SPEED

GROUP C: COUNTERSHAFTS AND CASE (UNIT CLUSTER)



AUTO GEAR 'SYRACUSE' 4-SPEED

GROUP D: INTERNAL SHIFT LINKAGE



AUTO GEAR 'SYRACUSE' 4-SPEED

Is this the list for me? If you have a gearbox with a metal tag secured beneath the top center shift cover fasteners or one with a case whose casting says 'SYRACUSE' on the passenger side, you're in the right place. However, if you're looking to upgrade your current GM 'Muncie' four speed and wonder what's available, most 'Syracuse' parts are legacy compatible alone or in affordable 'do it yourself' kits, so this is your list, too.

How do I read it? All Auto Gear parts lists follow a single format with items organized into logical 'groups', 'Mainshaft', 'Maindrive', 'Countershaft', etc. Within each group items are presented in almost disassembly sequence, 'almost' because the less frequently interesting castings and fasteners are always listed at the bottom of the group. So you can also use the list and exploded views to answer 'Where's it go?' questions.

Assemblies, such as synchronizers, or items that are typically serviced alone, such as synchronizer rings, are identified by a left-justified letter and number ('A20' or 'A21', for example). Items contained in assemblies, such as synchronizer hubs, are identified by the indented letter and number of the assembly followed by a 'dash number' ('A20-2', for example). Purchasing the assembly is the same as purchasing all the indented items in the quantities shown as required.

The left most column—the 'data' column—provides dimensional, descriptive or application information, most of which should be easily understood. There are three instances where help might be needed.

First, to keep the lists of gear item applications short, we use '*' as a 'wild card', that is, to stand for any single digit other than zero (0). For example, '**6' could be shorthand for '126', or '236' or '316', but not for '006'.

Second, consider a maindrive gear described as 'L22-s36T'. This is decoded as a left hand helical gear having 22 driving teeth and 36 straight clutching teeth, all present. Again, a mainshaft described as 's8-8-r6-s27T'. This is decoded as, front to rear, 8 straight splines in two places (for the synchronizer hubs), 6 right hand splines (for the helical reverse) and 27 straight splines (for the slip yoke). Finally, a sliding clutch described as 's18(36)T'. Read this as a 36 spline clutch having 18 splines removed, or 18 splines on a 36 spline circle.

Third, where useful information such as a casting or vendor number can be read directly from the part, '#' precedes the markings to look for. So '#18-065-901' tells us about a case with casting '18-065-901'.

AUTO GEAR 'SYRACUSE' 4-SPEED



OEM part numbers, where shown in the next to right most column, indicate that the Auto Gear part number in the right most column is a direct replacement, although the design may be different or improved.

Notes are scattered throughout. Left-justified notes apply to everything within the item whose description they follow. Indented notes within an item record apply to the line or, when indicated, lines above. 'NSS' abbreviates 'not sold separately'.

SERVICE KITS

For your convenience we've organized collections of items commonly serviced together into Service Kits and, to make clear what parts are in each kit, we've identified the kit and the parts contained by a unique symbol (^, #, %, & or @) found after the item description.

K1	OVERHAUL KIT ^	
	27 SPLINE MAINSHAFTS: LOW REV BEARINGS	18-410-044
	32 SPLINE MAINSHAFTS: LOW REV BEARINGS	18-410-045
	<i>NOTE: Use these TWO (2) kits where sustained revs do not exceed 6000.</i>	
	27 SPLINE MAINSHAFTS: HIGH REV BEARINGS	18-410-044-1X
	32 SPLINE MAINSHAFTS: HIGH REV BEARINGS	18-410-045-1X
	<i>NOTE: Use these TWO (2) kits where sustained revs exceed 6000.</i>	
	K1-1 BEARING/OILSEAL KIT #	
	<i>NOTE: Ball bearings, oilseals and (if used) Maindrive Bearing Nut for ONE (1) transmission.</i>	
	27 SPLINE MAINSHAFTS: LOW REV BEARINGS	18-410-042
	32 SPLINE MAINSHAFTS: LOW REV BEARINGS	18-410-043
	<i>NOTE: Use these TWO (2) kits where sustained revs do not exceed 6000.</i>	
	27 SPLINE MAINSHAFTS: HIGH REV BEARINGS	18-410-042-1X
	32 SPLINE MAINSHAFTS: HIGH REV BEARINGS	18-410-043-1X
	<i>NOTE: Use these TWO (2) kits where sustained revs exceed 6000.</i>	
	K1-2 SYNCHRONIZER KIT %	
	<i>NOTE: Synchronizer rings, struts and springs for ONE (1) transmission.</i>	
	ALL	18-410-041
	K1-3 SMALL PARTS KIT &	
	<i>NOTE: Rollers and unit cages, thrust washers, spacers, and snaprings for ONE (1) transmission. In gearboxes intended for the street or track we use unit cage ('needle') bearings at both ends of the countershaft. They're mechanically more efficient and easier to assemble. For drag applications, however, we want more bearing capacity under first gear and use traditional loose rollers at that location only. Our Small Parts Kit contains the parts for both.</i>	
	ALL	18-410-046
	K1-4 GASKET SET @	
	<i>NOTE: Gaskets and Speedometer Adapter O-Ring for ONE (1) transmission.</i>	
	ALL	18-455-103

AUTO GEAR 'SYRACUSE' 4-SPEED



GROUP A: MAINSHAFT AND EXTENSION ASSY

A2 SPEEDOMETER CIRCLE GEAR

DID YOU KNOW? There's a trick to counting Speedometer Circle Gear teeth—each tooth crosses the end of the gear once. So count around, not front-to-back. During the 'Muscle Car' era, GM used two Speedometer Circle Gears, both with eight (8) teeth but differing in outside diameter, to support the range of tire and axle combinations. Early 'Syracuse' production followed this practice. GM's 'Post Muscle' solution eliminated these, substituting new seven (7) and nine (9) tooth gears of the larger (1.84) outside diameter. This approach is more flexible, supported by the continued availability of original equipment pencil gears, and current 'Syracuse' practice. If your gearbox has the smaller (1.76) outside diameter gear and speedometer drive service is required, we recommend upgrading. To learn more about speedometer drive hardware download AGE print 18-110-xxx.

L8T STEEL: 1.76" OUTSIDE DIAMETER	3708 145	18-110-003
L7T STEEL: 1.84" OUTSIDE DIAMETER		18-110-006
L8T STEEL: 1.84" OUTSIDE DIAMETER	3708 144	18-110-007
L9T STEEL: 1.84" OUTSIDE DIAMETER		18-110-010

NOTE: These FOUR (4) gears have 30mm bore: used with 27 spline mainshaft.

L7T STEEL: 1.84" OUTSIDE DIAMETER		18-110-008
L8T STEEL: 1.84" OUTSIDE DIAMETER	3978 758	18-110-009
L9T STEEL: 1.84" OUTSIDE DIAMETER		18-110-011

NOTE: These THREE (3) gears have 35mm bore: used with 32 spline mainshaft.

A4 SPEEDOMETER PENCIL GEAR

NOTE: Speedometer Pencil Gears are not included in the basic gearbox assembly and are listed here for convenience.

L22T GREEN NYLON	3860 345	3860 345
L23T BLACK NYLON	3860 346	3860 346
L24T YELLOW NYLON	3860 347	3860 347
L25T ORANGE NYLON	3860 348	3860 348

NOTE: These FOUR (4) gears used with 1.76" outside diameter circle gears. See the master note to A2.

L17T PURPLE NYLON	3987 917	3987 917
L18T BROWN NYLON	3987 918	3987 918
L19T NATURAL NYLON	3987 919	3987 919
L20T BLUE NYLON	3987 920	3987 920
L21T RED NYLON	3987 921	3987 921
L22T SILVER NYLON	3987 922	3987 922

NOTE: These SIX (6) gears used with 1.84" outside diameter circle gears

A5 SPEEDOMETER ADAPTER ASSY

NOTE: Speedometer Adapters are not included in the basic gearbox assembly and are listed here for convenience.

ALL	345 215	345 215
A5-1 SPEEDOMETER ADAPTER		
ALL	NSS	NSS
A5-2 SPEEDOMETER ADAPTER OILSEAL		
ALL	NSS	NSS

A6 SPEEDOMETER ADAPTER O-RING @

NOTE: Speedometer Adapter O-Rings are not included in the basic gearbox assembly and are listed here for convenience.

ALL	3708 146	0-141-006
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A7 SPEEDOMETER ADAPTER FASTENERS

NOTE: Speedometer Adapter Fasteners are not included in the basic gearbox assembly and are listed here for convenience.

LOCKPLATE	3708 148	3708 148
1/4-20 X 5/8 HHCS		
1/4 LOCKWASHER		

A8 MAINSHAFT REVERSE GEAR

R35-R6T	3831 748	WT297-36
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A9 MAINSHAFT BEARING/SHAFT SNAPPING &

ALL	AS REQ.	3831 755	3831 755
ALL	AS REQ.	3831 756	3831 756
ALL	AS REQ.	3831 757	3831 757
ALL	AS REQ.	3831 758	3831 758
ALL	AS REQ.	3831 759	3831 759

AUTO GEAR 'SYRACUSE' 4-SPEED



A10	MAINSHAFT BEARING SUPPORT ASSY		3831 752	18-672-003
	#18-172-902: DUCTILE IRON			
A10-1	MAINSHAFT BEARING SUPPORT			
	#18-172-902: DUCTILE IRON		NSS	NSS
A10-2	DOWEL PIN			
	5/16 X1		NSS	0-043-011
A11	MAINSHAFT BEARING #			
	NACHI #6308-2NSE9NR: CONTACT SEALS			0-130-020
	<i>NOTE: use where sustained revs do not exceed 6000.</i>			
	NTN #6308LLBNR/2AS: NON-CONTACT SEALS			0-130-023
	<i>NOTE: use where sustained revs exceed 6000.</i>			
A12	MAINSHAFT BEARING/SUPPORT SNAPRING & ALL		3831 749	2-139-003
A13	MAINSHAFT BEARING SUPPORT GASKET @ ALL		3911 900	18-045-103
A15	MAINSHAFT 1ST GEAR			
	<i>NOTE: We use 'Plain Bearing' to describe the design where the Mainshaft 1st Gear runs directly on the Mainshaft 1st Gear Sleeve, and 'Roller Bearing' when a unit cage ('needle') bearing separates the two. We avoid the term 'Bushing' as some would say a bushing is used in either case.</i>			
	L36-S36T: M20/21 W/ PLAIN BEARING			18-080-025
	L36-S36T: M22 W/ PLAIN BEARING			18-080-026
	L34-S36T: M23 W/ PLAIN BEARING			18-080-027
	L36-S36T: M20/21 W/ ROLLER BEARING			WT297-12D
	<i>NOTE: Mainshaft 1st Gear Kit 18-410-032 (items A15-16-17-18) may also be used.</i>			
	L36-S36T: **1/**2 GEARBOXES W/ ROLLER BEARING			18-080-024
	<i>NOTE: Mainshaft 1st Gear Kit 18-410-014 (items A15-16-17-18) may also be used.</i>			
	L34-S36T: **3/**4/**5/**6 GEARBOXES W/ ROLLER BEARING			18-080-028
	<i>NOTE: Mainshaft 1st Gear Kit 18-410-039 (items A15-16-17-18) may also be used.</i>			
A16	MAINSHAFT 1ST GEAR SLEEVE			
	PLAIN BEARING DESIGN			18-103-003
	ROLLER BEARING DESIGN			18-103-002
A17	MAINSHAFT 1ST GEAR BEARING			
	ROLLER BEARING DESIGN			0-132-012
A18	MAINSHAFT 1ST GEAR BEARING SPACER			
	ROLLER BEARING DESIGN			18-053-001
A20	MAINSHAFT 1ST/2ND SYNCHRONIZER ASSY			
	<i>DID YOU KNOW? 'Torque-lock' describes a design where the Clutch splines are relieved ('back tapered') behind the pointing; under load the sliding clutch is pulled into the clutch ring. 'Torque-lock' clutches shift slower and accelerate clutch, clutch ring and shift fork wear, but may enable a worn gear to serve a little longer. If tight tolerances are maintained (as they are in Auto Gear parts) they will otherwise be unnecessary. Lightweight (18 spline) clutches shift faster at higher revs, support 'slick shifting' as delivered, and are standard in current 'Syracuse' production.</i>			
	36 SPLINE W/O TORQUE-LOCK		3924 112	18-590-011
	36 SPLINE W/ TORQUE-LOCK			18-590-013
	18 SPLINE HIGH SPEED			18-590-015
A20-1	CLUTCH			
	36 SPLINE W/O TORQUE-LOCK		3743 480	T85B-15
	36 SPLINE W/ TORQUE-LOCK			T85B-15A
	18 SPLINE HIGH SPEED			18-089-001
	<i>NOTE: This ONE (1) clutch is superfinished.</i>			
A20-2	HUB			
	8 SPLINE W/O IDENTIFICATION GROOVE		NSS	18-090-002
	<i>NOTE: Nitrided. Used with 36 spline clutches w/o torque-lock.</i>			
	8 SPLINE W/ IDENTIFICATION GROOVE			18-090-003
	<i>NOTE: Nitrided and tumble deburred. Used with 36 spline torque-lock clutches and all 18 spline clutches.</i>			
A20-3	STRUT %			
	ALL	REQ. 3	3915 050	3915 050
	<i>NOTE: For service use Strut and Spring Kit 297K.</i>			
A20-4	SPRING %			
	ALL	REQ. 2	3920 775	3920 775
	<i>NOTE: For service use Strut and Spring Kit 297K.</i>			

AUTO GEAR 'SYRACUSE' 4-SPEED



A21 MAINSHAFT 1ST/2ND SYNCHRONIZER RINGS %

DID YOU KNOW? Synchronizers and Synchronizer Rings are typically the most critically engineered components in a modern manual-shift automotive transmission. Very small differences in angles, dimensions, machining accuracy or materials here can make very large differences in durability or performance. As the savings to be had are small and the costs might be large, this is not a good place to economize. Contact us if you'd like to know more.

S36T: FORGED	REQ. 2	3880 850	WT297-14D
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A22 MAINSHAFT 2ND GEAR

L29-S36T: 006/007 GEARBOXES (M21W/M21Y)			WT297-21C
L30-S36T: 004/005 GEARBOXES (M20/M21)		3831 746	18-080-018
L28-S36T: **6 GEARBOXES			18-080-031
L29-S36T: 002/003/008 GEARBOXES (M22W/M22X/M22Z)		18-080-020	
L29-S36T: **2/**5 GEARBOXES			18-080-020
L30-S36T: **1/**3/**4 GEARBOXES		3879 999	18-080-019
L30-S36T: 001 GEARBOXES (M22)			

A23 MAINSHAFT 3RD GEAR

L29-S36T: 007 GEARBOXES (M21Y)			WT297-11C
L29-S36T: 006 GEARBOXES (M21W)			WT297-11D
L30-S36T: 004/005 GEARBOXES (M20/M21)		3831 747	18-080-007
L25-S36T: 008 GEARBOXES (M22Z)			18-080-012
L25-S36T: *3* GEARBOXES			18-080-012
L26-S36T: 002/003 GEARBOXES (M22W/M22X)			18-080-009
L26-S36T: *2* GEARBOXES			18-080-009
L27-S36T: 001 GEARBOXES (M22)		3880 845	18-080-008
L27-S36T: *1* GEARBOXES		3880 845	18-080-008

A24 MAINSHAFT 3RD/4TH SYNCHRONIZER ASSY

DID YOU KNOW? 'Torque-lock' describes a design where the Clutch splines are relieved ('back tapered') behind the pointing; under load the sliding clutch is pulled into the clutch ring. 'Torque-lock' clutches shift slower and accelerate clutch, clutch ring and shift fork wear, but may enable a worn gear to serve a little longer. If tight tolerances are maintained (as they are in Auto Gear parts) they will otherwise be unnecessary. Lightweight (18 spline) clutches shift faster at higher revs, support 'slick shifting' as delivered, and are standard in current 'Syracuse' production.

36 SPLINE W/O TORQUE-LOCK		3924 112	18-590-012
36 SPLINE W/ TORQUE-LOCK			18-590-014
18 SPLINE HIGH SPEED			18-590-016

A24-1 CLUTCH

36 SPLINE W/O TORQUE-LOCK		3743 480	T85B-15
36 SPLINE W/ TORQUE-LOCK			T85B-15A
18 SPLINE HIGH SPEED			18-089-001

NOTE: This ONE (1) clutch is superfinished.

A24-2 HUB

8 SPLINE W/O IDENTIFICATION GROOVE		NSS	18-090-002
8 SPLINE W/ IDENTIFICATION GROOVE			18-090-003

NOTE: Nitrided and tumble deburred. Used with 36 spline torque-lock clutches and all 18 spline clutches.

A24-3 STRUT %

ALL	REQ. 3	3915 050	3915 050
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NOTE: For service use Strut and Spring Kit 297K.

A24-4 SPRING %

ALL	REQ. 2	3920 775	3920 775
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NOTE: For service use Strut and Spring Kit 297K.

A25 MAINSHAFT 3RD/4TH SYNCHRONIZER RINGS %

DID YOU KNOW? Synchronizers and Synchronizer Rings are typically the most critically engineered components in a modern manual-shift automotive transmission. Very small differences in angles, dimensions, machining accuracy or materials here can make very large differences in durability or performance. As the savings to be had are small and the costs might be large, this is not a good place to economize. Contact us if you'd like to know more.

S36T: FORGED	REQ. 2	3880 850	WT297-14D
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A26 MAINSHAFT 3RD/4TH SYNCHRONIZER SNAPRING & ALL

		3831 741	3831 741
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AUTO GEAR 'SYRACUSE' 4-SPEED



A27	MAINSHAFT		
	27 SPLINE: LIGHTWEIGHT	3915 087	18-171-001
	32 SPLINE: LIGHTWEIGHT	3979 759	18-171-002
A28	MAINSHAFT EXTENSION ASSY		
	27 SPLINE		18-566-003
	<i>NOTE: For service use Extension Kit 18-410-021.</i>		
	32 SPLINE		18-566-004
	<i>NOTE: For service use Extension Kit 18-410-022.</i>		
A28-1	MAINSHAFT EXTENSION		
	ALL	NSS	NSS
A28-2	MAINSHAFT BUSHING #		
	27 SPLINE	NSS	0-127-001
	32 SPLINE	NSS	0-127-002
A28-3	MAINSHAFT OILSEAL #		
	27 SPLINE: CHICAGO RAWHIDE #15041	1243 402	15041CR
	32 SPLINE: CHICAGO RAWHIDE #18992	8626 009	18992CR
A28-4	BREATHER PORT PLUG		
	1/4-18 NPT	444 576	444 576
	<i>NOTE: On gearboxes with Maindrive Oilseals, REMOVE AND FIT A BREATHER . FAILURE TO DO SO MAY CAUSE LEAKS. On gearboxes with Maindrive Nuts, DO NOT FIT A BREATHER—the transmission vents through the Maindrive Retainer. If confused or concerned, contact us—proper venting varies with chassis and application.</i>		
A28-5	SHIFTER SUPPORT PORT SCREWS		
	3/8-16 X 1/2 HHCS	REQ. 2	179 835
			179 835
	<i>NOTE: These TWO (2) screws seal the unused shifter mounting holes on 27 spline extensions. FAILURE TO REINSTALL THESE DURING INSTALLATION MAY CAUSE LEAKS.</i>		
A30	REVERSE SHIFT LEVER OILSEAL #		
	CHICAGO RAWHIDE #7410	3831716	0-044-012
A31	MAINSHAFT EXTENSION GASKET @		
	ALL	3911 901	18-045-104
A32	MAINSHAFT EXTENSION FASTENERS		
	3/8-16 X 2 SHCS	REQ. 3	0-183-013
	3/8 HIGH-COLLAR LOCKWASHER	REQ. 3	0-047-009
	7/16-14 X 2 SHCS	AS REQ.	0-183-011
	7/16-14 X 2-1/2 SHCS	AS REQ.	0-183-014
	7/16 HIGH-COLLAR LOCKWASHER	REQ. 3	0-047-010
A33	BREATHER		
	LUBE DEVICES #AV102		0-572-002

AUTO GEAR 'SYRACUSE' 4-SPEED



GROUP B: MAINDRIVE AND RETAINER

B1	MAINDRIVE BEARING NUT # 10 SPLINE MAINDRIVES		591 150	591 150
B2	MAINDRIVE BEARING/SHAFT SNAPRING 26 SPLINE MAINDRIVES			0-139-029
B3	MAINDRIVE BEARING SPACER 26 SPLINE MAINDRIVES			4652U
B4	MAINDRIVE BEARING # NACHI #6307-2NSENK: CONTACT SEALS <i>NOTE: use where sustained revs do not exceed 6000.</i> NTN #6307LLBNR/2AS: NON-CONTACT SEALS <i>NOTE: use where sustained revs exceed 6000.</i>			0-130-019 0-130-022
B5	MAINDRIVE BEARING/CASE SNAPRING ALL		2830 050	0-139-005
B6	MAINDRIVE OIL SLINGER ALL	AS REQ.	3925 692	18-036-001
B7	MAINDRIVE GEAR <i>NOTE: Maindrives with '18-' or '33-' part numbers have Auto Gear design heads that move the synchronizer cone rearward .030", narrowing the gap found on the fourth gear side of GM production without adding shims or creating mainshaft pilot interference. Maindrives with 'AWT' or 'WT' part numbers have the original GM design.</i>			
	L21-S36T: 004/006 GEARBOXES 10 SPLINE		3925 689	18-085-005
	L21-S36T: 004/006 GEARBOXES 26 SPLINE		3978 772	AWT297-16C
	<i>NOTE: These TWO (2) maindrives are used in M20 or M21W gearboxes.</i>			
	L26-S36T: 005/007 GEARBOXES 10 SPLINE		3925 690	AWT297-16
	L26-S36T: 005/007 GEARBOXES 26 SPLINE		3978 773	AWT297-16D
	<i>NOTE: These TWO (2) maindrives are used in M21 or M21Y gearboxes.</i>			
	L22-S36T: 008/3** GEARBOXES 10 SPLINE			18-085-011
	L22-S36T: 008/3** GEARBOXES 26 SPLINE			18-085-012
	L24-S36T: 002/2** GEARBOXES 10 SPLINE			18-085-009
	L24-S36T: 002/2** GEARBOXES 26 SPLINE			18-085-010
	L26-S36T: 001/003/1** GEARBOXES 10 SPLINE		3925 691	18-085-007
	L26-S36T: 001/003/1** GEARBOXES 26 SPLINE		3978 761	WT297-16Z
	<i>NOTE: These SIX (6) maindrives are used in M22 or M23 family gearboxes.</i>			
	<i>NOTE: These TEN (10) maindrives have oil threads and are retained by a nut.</i>			
	L22-S36T: 008/3** GEARBOXES 26 SPLINE			33-085-007
	L24-S36T: 002/2** GEARBOXES 26 SPLINE			33-085-006
	L26-S36T: 001/003/1** GEARBOXES 26 SPLINE			33-085-005
	<i>NOTE: These THREE (3) maindrives are used with an oilseal, are retained by a snapring and spacer, and are used in M22 or M23 family gearboxes.</i>			
B8	MAINSHAFT PILOT BEARING ASSY ^ ALL		9419 248	JV44-1419
B8-1	MAINSHAFT PILOT ROLLERS & ALL	REQ. 17	NSS	NSS
B8-2	MAINSHAFT PILOT ROLLER CAGE ALL		NSS	NSS

AUTO GEAR 'SYRACUSE' 4-SPEED



B9 MAINDRIVE RETAINER (ASSY)

DID YOU KNOW? GM's Maindrive Retainer retaining hex head capscrews (HHCS) can interfere with the clutch housing during installation if the flats are not oriented properly. To make things easier on the small (4.685" flange) GM retainers we use socket head capscrews (SHCS) and counterbore the retainer to recover the axial clearance lost over the taller SHCS assemblies.

#18-027-901: 4.685" FLANGE GM **3915 020** **18-027-005**

NOTE: Upgrade kit 18-027-005-1x can be used (includes B10 Maindrive Retainer Fasteners).

#18-027-902: 4.850" FLANGE FORD **18-027-006**

#18-027-902: 5.125" FLANGE GM **18-027-003**

NOTE: These THREE (3) retainers are used with maindrives threaded for a nut.

#18-027-901: 4.685" FLANGE GM **18-527-003**

NOTE: Upgrade kit 18-527-003-1x can be used (includes B10 Maindrive Retainer Fasteners).

#18-027-902: 4.850" FLANGE FORD **18-527-004**

#18-027-902: 5.125" FLANGE GM **18-527-002**

NOTE: These THREE (3) retainer assemblies are used with maindrives ground for an oilseal.

B9-1 MAINDRIVE RETAINER

#18-027-901: 4.685" FLANGE GM **18-027-007**

#18-027-902: 4.850" FLANGE FORD **18-027-008**

#18-027-902: 5.125" FLANGE GM **18-027-004**

NOTE: These THREE (3) retainers are used with maindrives ground for an oilseal.

B9-2 MAINDRIVE OILSEAL

CHICAGO RAWHIDE #12363 **3987 936** **0-044-001**

B10 MAINDRIVE RETAINER GASKET @

DID YOU KNOW? The amount gaskets compress changes with fastener torque and ambient humidity. Gaskets also 'relax' slightly after installation; whenever possible, retorque gasket control fasteners 24 hours after assembly. Regarding the Maindrive Retainer Gasket, use the thinnest new gasket providing positive Maindrive Gear Assembly float when compressed by 0.003-.004". Torquing a gasket too thin will usually crack the Maindrive Retainer.

.015" THICK **18-045-105**

.030" THICK **3915 019** **18-045-101**

B11 MAINDRIVE RETAINER FASTENERS

3/8-16 X1-1/4 SHCS **REQ. 4** **0-183-017**

3/8 HI-COLLAR L'WASHER **REQ. 4** **0-047-009**

NOTE: These TWO (2) items are used with 4.685" flange Maindrive Retainers.

3/8-16 X1-1/4 HHCS **REQ. 4** **179 841** **179 841**

3/8 LOCKWASHER **REQ. 4** **103 321** **103 321**

NOTE: These TWO (2) items are used with 4.850" and 5.125" flange Maindrive Retainers.

AUTO GEAR 'SYRACUSE' 4-SPEED



GROUP C: COUNTERSHAFTS AND CASE

C1 COUNTERSHAFT CLUSTER GEAR (ASSY)

NOTE: Auto Gear 'Syracuse' gearboxes use two different Countershaft Cluster Gear designs. For general use in street and casual competition all four gears are machined on the forging; this lowers the cost, but limits the range of ratios that can be offered and damage to any one gear ruins the entire cluster. We call these 'unit' Countershaft Cluster Gears. For governed competition or use behind the largest street motors the Countershaft Drive Gear and Countershaft 3rd Gear are assembled onto the Countershaft 1st/2nd Gear; at a higher cost, this offers the widest possible range of gearsets, reduces the cost of service and changing ratios, and permits the targeted use of alloys. We call these 'assembled' or 'modular' Countershaft Cluster Gears. Which do I have? If you have an Auto Gear assembled gearbox, take a look at the metal tag under the top center shift cover screw. If it starts '1800' you have a unit Countershaft Cluster Gear, if not, your Countershaft Cluster Gear is assembled. Refer to 'Identifying your Syracuse Gearbox' to learn how these tags can be decoded. No tag? We probably didn't build your gearbox. Contact your vendor or remove the shift cover and count teeth.

R25-22-19-17T: 004 GEARBOXES (M20)	3905 463	18-077-005
R25-23-20-17T: 006 GEARBOXES (M21W)		WT297-8J
R27-22-19-17T: 005 GEARBOXES (M21)	3905 465	WT297-8D
R27-29-20-17T: 007 GEARBOXES (M21Y)		WT297-8H
R27-22-19-17T: 001 GEARBOXES (M22)	3905466	18-077-001
R27-23-20-17T: 003 GEARBOXES (M22X)		WT297-8F
R29-23-20-17T: 002 GEARBOXES (M22W)		18-077-003
R31-24-20-17T: 008 GEARBOXES (M22Z)		18-077-004

NOTE: These Eight (8) items are unit Countershaft Cluster Gears. Those with '18-' part numbers have an integrated Countershaft Roller Tube and Auto Gear's 'barrel form' shaft for greater rigidity. All others have General Motors original design and require the spacer tube.

R.***.***.***T: *** GEARBOXES** **18-567-XXX**

NOTE: For assembled Countershaft Cluster Gears the part number for the Countershaft Cluster Gear Assy includes the Gearbox Assembly code from the tag. For example, if your gearbox tag begins '18-000-332-' you have a '332' gearbox and your Countershaft Cluster Gear Assembly is 18-567-332. The same idea applies to the gears from which the cluster is assembled.

C1-1 COUNTERSHAFT 1ST/2ND GEAR

S30-30-R19-17T: **1 GEARBOXES		18-067-001
S30-30-R20-17T: **2 GEARBOXES		18-067-002
S30-30-R19-16T: **3 GEARBOXES		18-067-003

NOTE: Service with 18-067-004.

NOTE: These THREE (3) Countershafts are machined from SAE 8620 equivalent steel.

DID YOU KNOW? Auto Gear gears are manufactured in Italy and 'SAE' steels are usually only available from North American mills. In Europe and Asia other standards, like Germany's 'DIN', apply. In most cases these alternatives offer steels mechanically interchangeable with but not identical to the SAE.

S30-30-R19-16T: **4 GEARBOXES		18-067-004
S30-30-R20-16T: **5 GEARBOXES		18-067-005
S30-30-R21-16T: **6 GEARBOXES		18-067-006

NOTE: These THREE (3) Countershafts are machined from SAE 9310 equivalent steel.

C1-2 COUNTERSHAFT 3RD GEAR

R22-S30T: *1* GEARBOXES		18-070-010
R23-S30T: *2* GEARBOXES		18-070-020
R24-S30T: *3* GEARBOXES		18-070-030

C1-3 COUNTERSHAFT DRIVE GEAR

R27-S30T: 1** GEARBOXES		18-070-100
R29-S30T: 2** GEARBOXES		18-070-200
R31-S30T: 3** GEARBOXES		18-070-300

C1-4 COUNTERSHAFT SNAPRING

AMERICAN RING #471-050X3	REQ. 3	0-139-031
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C2 COUNTERSHAFT

NOTE: Because there is no key or lockplate provided, under stress original equipment design Countershafts will 'walk' toward the clutch housing and may displace the Countershaft Plug. To prevent this, and to provide the means to remove the countershaft from 'thrust button' cases, 'Syracuse' transmissions 'anchor' the countershaft to the Mainshaft Bearing Support with a HHCS assembly. For adding this feature to your gearbox download AGE print 18-068-xxx.

ALL	3864 850	18-068-014
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C3 COUNTERSHAFT FASTENERS

3/8-16 X 1-1/2	179 843	179 843
3/8 LOCKWASHER	103 321	103 321

C4 COUNTERSHAFT THRUST WASHERS & STEEL-BACKED BRONZE

AS REQ.	3864 860	18-193-001
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AUTO GEAR 'SYRACUSE' 4-SPEED



C5	COUNTERSHAFT ROLLERS & LOOSE ROLLERS	REQ. 112	435 847	C407Q
	<i>NOTE: Standard to 10-15-11, optional for all. Lowest cost but run hotter and are less easily assembled.</i>			
	UNIT CAGES	REQ. 4		18-132-001
	<i>NOTE: Standard from 10-15-11, optional for all. Run cooler and are more easily assembled.</i>			
C6	COUNTERSHAFT ROLLER SPACERS & ALL	AS REQ.	3864 856	18-053-004
C7	COUNTERSHAFT ROLLER TUBE ALL	AS REQ.	3912 195	3912 195
	<i>NOTE: Not used with Countershaft Cluster Gear Assemblies or '18-' prefix Countershaft Cluster Gears.</i>			
C8	IDLER GEAR THRUST WASHER (FRONT) & ALL		3834 739	18-193-003
C9	IDLER GEAR (FRONT)			
	L18-S27T: M20/21		3831 762	18-084-002
	L18-S27T: M22		3879 997	18-084-003
	L17-S27T: M23			18-084-008
C10	IDLER GEAR ASSY (REAR)			
	L17-S27T		3831 764	18-584-001
C10-1	IDLER GEAR (REAR)			
	ALL		NSS	NSS
C10-2	IDLER GEAR BUSHING			
	ALL	REQ. 2	NSS	NSS
C11	IDLER GEAR THRUST WASHER (REAR) & ALL		3834 739	18-193-005
C12	IDLER SHAFT ALL		3831 761	WT297-35
C13	IDLER SHAFT LOCKPIN & OPTIONAL OPTIONAL		590 832 456 722	590 832 456 722
C14	CASE (ASSY)			
	#18-065-901: THRUST WASHER DESIGN			18-065-002
	#18-065-901: THRUST BUTTON DESIGN			18-565-001
C14-1	CASE			
	#18-065-901: THRUST BUTTON DESIGN			18-065-004
C14-2	COUNTERSHAFT THRUST BUTTON THRUST BUTTON DESIGN			18-193-004
C15	COUNTERSHAFT PLUG ^ THRUST WASHER DESIGN			0-113-011
C16	FILL PLUG 3/4-14 SOCKET HEAD W/O MAGNET			0-052-012
C17	DRAIN PLUG 3/4-14 SOCKET HEAD W/ MAGNET			0-052-013

AUTO GEAR 'SYRACUSE' 4-SPEED



GROUP D: INTERNAL SHIFT LINKAGE

D1	1ST/2ND SHIFT FORK INVESTMENT CAST STEEL		3831 717	18-096-005
D2	1ST/2ND SHIFT LEVER ASSY UNIVERSAL DESIGN			18-598-001-2X
D2-1	1ST/2ND SHIFT LEVER ALL		NSS	NSS
D2-2	1ST/2ND SHIFT LEVER FASTENERS RETAINER			18-040-001
	<i>NOTE: Use Retainer with 'long slot' (1969-74) external levers, discard otherwise.</i>			
	5/16-24 X 1 HHCS			0-183-019
	5/16 LOCKWASHER		103 320	103 320
D3	3RD/4TH SHIFT FORK INVESTMENT CAST STEEL		3831 717	18-096-005
D4	3RD/4TH SHIFT LEVER ASSY UNIVERSAL DESIGN			18-598-001-2X
D4-1	3RD/4TH SHIFT LEVER ALL		NSS	NSS
D4-2	3RD/4TH SHIFT LEVER FASTENERS RETAINER			18-040-001
	<i>NOTE: Use Retainer with 'long slot' (1969-74) external levers, discard otherwise.</i>			
	5/16-24 X 1 HHCS			0-183-019
	5/16 LOCKWASHER		103 320	103 320
D5	SHIFT COVER ASSY (PARTIAL) #18-097-902: BUSHING DESIGN			18-597-005
	<i>NOTE: Replaces Needle Bearing Design Shift Cover 18-597-002.</i>			
D5-1	SHIFT COVER #18-097-902: BUSHING DESIGN		NSS	NSS
	<i>NOTE: Replaces Needle Bearing Design Shift Cover 18-597-002.</i>			
D5-2	SHIFT LEVER BUSHING ALL	REQ. 2		18-127-001
D5-3	DOWEL PIN 3/16 X 1/2			0-043-010
D6	DETENT LEVER PIVOT ALL			18-043-002
D7	DETENT LEVERS ALL	REQ. 2	3905 462	18-014-001
D8	DETENT LEVER WASHER ALL		NSS	18-047-001
D9	DETENT LEVER RETAINING C-CLIP ALL			0-139-020
D10	DETENT SPRING ALL		3831 718	18-156-002
D11	SHIFT LEVER OILSEAL # CHICAGO RAWHIDE #7410	REQ. 2	3831 716	0-044-012
D12	SHIFT COVER GASKET @ ALL		3831 705	18-045-106
D13	SHIFT COVER FASTENERS 5/16-18 X 3/4 HHCS	REQ. 7	179 816	179 816
	5/16 TOOTHED L'WASHER	REQ. 7	114 605	114 605

AUTO GEAR 'SYRACUSE' 4-SPEED



D14	REVERSE SHIFT FORK ALL	3832 786	18-096-003
D15	REVERSE SHIFT LEVER ASSY UNIVERSAL DESIGN		18-598-002-2X
D15-1	REVERSE SHIFT LEVER ALL	NSS	NSS
D15-2	REVERSE SHIFT LEVER FASTENERS RETAINER		18-040-001
	<i>NOTE: Use Retainer with 'long slot' (1969-74) external levers, discard otherwise.</i>		
	5/16-24 x 1 HHCS		0-183-019
	5/16 LOCKWASHER	103 320	103 320
D16	REVERSE DETENT SPRING ALL	3773 017	3773 017
D17	REVERSE DETENT BALL 3/8 GRADE 200 STEEL	453 593	453 593
D18	REVERSE SHIFT LEVER TAPER PIN & ALL	103 566	103 566
	<i>NOTE: Replaces shorter pin 103565, which is harder to remove. (If, in freeing, the small end of the longer pin 'mushrooms' you can easily grind off the excess to prevent damage to the casting in removal.)</i>		