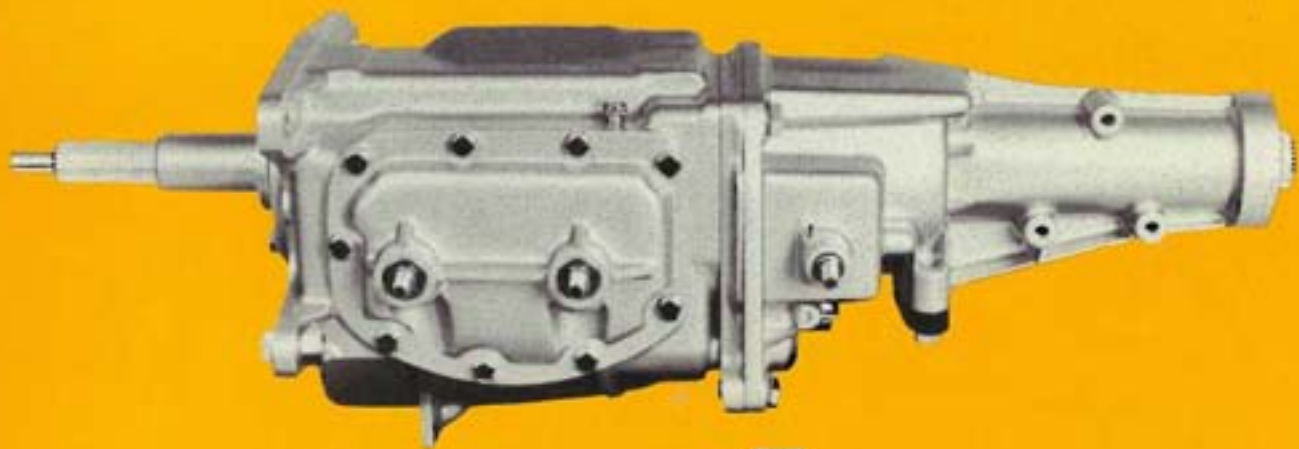


WARNER GEAR

T110



AUTO GEAR

Sports

\$4



November 1989

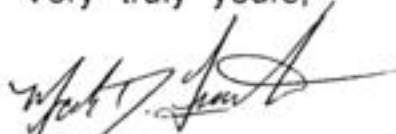
Gentlemen:

You may already know AUTO GEAR COMPANY as a supplier of quality manual transmission gears and parts for cars and trucks.

You may not know that AUTO GEAR SPORTS is a new unit concentrating on high-performance and specialty gear products: Borg-Warner and Doug Nash transmissions and gears, Richmond and Zoom rear end gears, and more.

Competitive prices, deep inventory, and knowledgeable people are an AUTO GEAR tradition. Whether a long time customer or a new friend, I look forward to putting AUTO GEAR SPORTS to work for you.

Very truly yours,



Mark D. Livingston
AUTO GEAR SPORTS

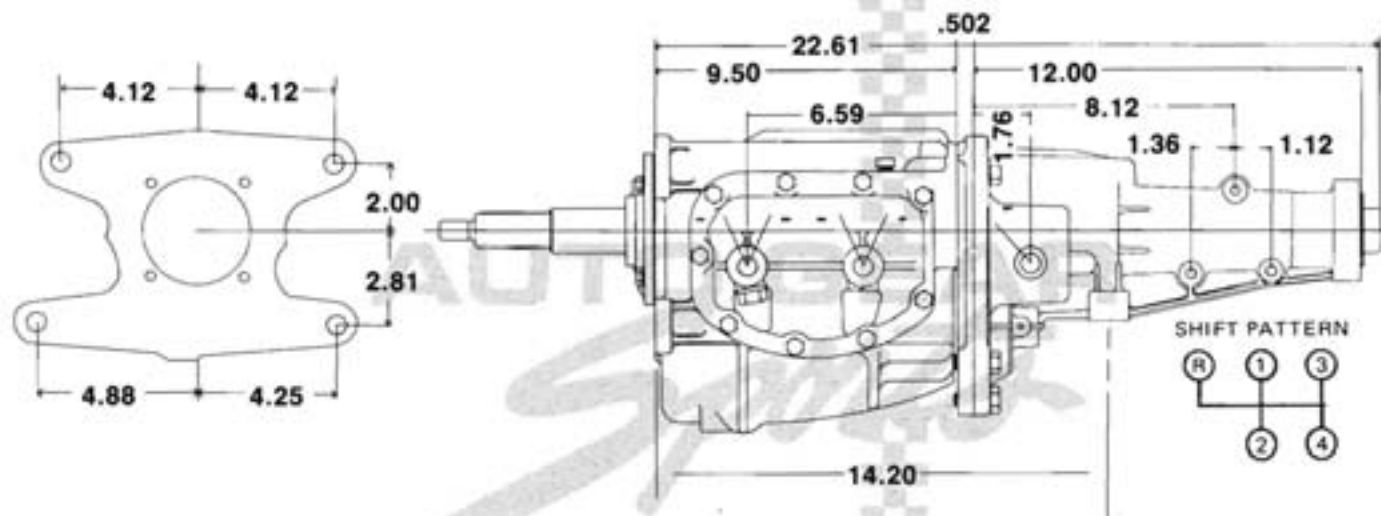
WARNER GEAR T10

In 1957 the Warner T10 gave the Corvette a high-performance four-speed manual equal to those in English and Continental sportscars.

Throughout the 'Muscle Car' era synchronization in all forward gears, enormous strength, and continuous development, made it the transmission of choice.

Today the Warner T10 remains the most reliable and least expensive transmission for high horsepower applications.

Every manufacturer used it, but first and last the Warner T10 was GM's muscle gearbox. The parts list covers 1974-88 Corvette, Camaro, and Firebird (parts availability for other applications is incomplete: we invite your inquiries). The service notes cover all applications.



Replacing earlier GM transmissions is easy. Use the 1974-82 assemblies. Compare overall length, speedometer gears, and:

For 1957-71 Warner T10 and GM Muncie (with 10 spline clutch and 16 or 27 spline mainshaft) use a 26 spline clutch and 32 spline mainshaft yoke.

For 1971-74 GM Muncie (with 26 spline clutch and 32 spline mainshaft) no changes are necessary.

WARNER GEAR T10 (GENERAL MOTORS)

COMPLETE TRANSMISSION ASSY

(NOTE: 1974-76 assemblies use 1/4-20 speedo screw and 7/16-14 crossmember bolts.
1977-88 assemblies use M6-1.0 speedo screw and M10-1.5 crossmember bolts.
1974-79 assemblies use a thrust washer behind the rear idler gear assembly.
1980-88 assemblies use a thrust bearing behind the rear idler gear assembly)

2.43 low w/ 7T speedo	(1974-76)	361658	.....*	13-04-000-058
2.43 low w/ 7T speedo	(1977-79)	460861	.....*	13-04-000-066
2.43 low w/ 7T speedo	(1980)	14000361	.....	13-04-000-070
2.43 low w/ 8T speedo	(1974-76)	346361	.....*	13-04-000-051
2.43 low w/ 8T speedo	(1977-79)	460859	.....*	13-04-000-064
2.43 low w/ 8T speedo	(1980)	14000359	.....	13-04-000-068
2.64 low w/ 7T speedo	(1974-76)	361657	.....*	13-04-000-057
2.64 low w/ 7T speedo	(1977-79)	460860	.....*	13-04-000-065
2.64 low w/ 7T speedo	(1980)	14000360	.....	13-04-000-069
2.64 low w/ 8T speedo	(1974-76)	346359	.....*	13-04-000-050
2.64 low w/ 8T speedo	(1977-79)	464862	.....	13-04-000-063
2.88 low w/ 8T speedo (32 spline yoke)	(1980-82)	14020828	.....	13-04-000-072
2.88 low w/ 9T speedo (27 spline yoke)	(1982)	14036171	.....	13-04-000-075
2.88 low w/ 9T speedo (32 spline yoke)	(1982)	14030831	.....	13-04-000-076
3.42 low w/ 8T speedo (aluminum case)	(1980-82)	14008203	.....	13-04-000-071
3.42 low w/ 8T speedo (iron case)	(1980-82)	14020829	.....	13-04-000-073
3.42 low w/ 9T speedo (aluminum case)	(1980-82)	14024966	.....	13-04-000-074
2.88 low w/ overdrive (307 rear brg)	(1984)	14053641	.....
2.88 low w/ overdrive (308 rear brg)	(1985)	14091362	.....
2.88 low w/ overdrive (308 rear brg)	(1986)	14105925	.....
2.88 low w/ overdrive (308 rear brg)	(1987-88)	10065221	.....

GROUP A: MAINSHAFT

A1 Speedometer Circle Gear				
L7T green nylon		361002	.....	13-04-110-003
L8T blue nylon		6260705	.....	13-04-110-002
L9T white nylon		14038093	.....	13-04-110-004
A2 Speedometer Circle Gear Snapping				
all	req.2	3709351	.....	4734
A3 MAINSHAFT REVERSE GEAR				
S39-s32T: w/o overdrive	(1974-79)	360804	.....*	13-04-070-001
S39-s32T: w/o overdrive	(1980-82)	14024321	.....	13-04-070-002
S39-s32T: w/ overdrive	(1984-88)	14081174	.....
A4 Mainshaft Bearing/Shaft Snapping				
0.087"	as req.	3709351	.....	4734
0.090"	as req.	3709352	.....	4734A
0.093"	as req.	3709353	.....	4734B
0.096"	as req.	3709354	.....	4734C
0.099"	as req.	3709355	.....	4734D
0.102"	as req.	3709356	.....	4734E
A5 Mainshaft Bearing/Shaft Spacer				
all		3709350	.....	4652U

WARNER GEAR T10 (GENERAL MOTORS)

A6 MAINSHAFT BEARING SUPPORT ASSY			
w/o overdrive: aluminum	(1974-82)	3931531	AT10-107A
w/o overdrive: iron	(1980-82)	14024313	13-04-672-001
w/ overdrive	(1984)	14081177	
w/ overdrive	(1985-88)	14091353	
A6-1 MAINSHAFT BEARING SUPPORT			
w/o overdrive: aluminum	(1974-82)	NSS	T10-107A
w/o overdrive: iron	(1980-82)	NSS	13-04-172-001
w/ overdrive	(1984)	NSS	
w/ overdrive	(1985-88)	NSS	
A6-3 Dowel Pin			
all		NSS	10-00-043-008
A7 MAINSHAFT BEARING			
w/o overdrive	(1974-82)	907458	10-00-130-004
w/ overdrive	(1984)	907458	10-00-130-004
w/ overdrive	(1985-88)	9441624	
A8 Mainshaft Bearing/Support Snapping			
w/o overdrive	(1974-82)	3911967	4829
w/ overdrive	(1984)	3911967	4829
w/ overdrive	(1985-88)	14091354	
A9 Mainshaft Bearing Support Gasket			
w/o overdrive	(1974-82)	3787721	T10-145.5C
w/ overdrive	(1984-88)	14081165	
A10 Mainshaft Bearing Support Fasteners			
1/2-13 x 1-1/8 hex head bolt			4737D
A11 Mainshaft 1st Gear Thrust Washer			
w/o overdrive	(1974-82)	6260715	13-04-193-002
w/ overdrive	(1984)	6260715	13-04-193-002
w/ overdrive	(1985-88)	14091352	
E2 MAINSHAFT 1ST GEAR			
L34-s36T		360803	13-04-080-004
L30-s36T		14013082	13-04-080-023
A13 Mainshaft 1st Gear Sleeve			
all		6260712	13-04-103-001
A14 1ST/2ND SYNCHRONIZER ASSY			
stamped strut design			
cast strut design		14101337	13-04-590-010
A14-1 1ST/2ND SYNCHRONIZER ASSY			
stamped strut design			13-04-590-001
cast strut design			13-04-590-009
A14-1a Clutch			
stamped strut design			T10-15
cast strut design			13-04-089-005
A14-1b Hub			
all			13-04-090-008
A14-1c Strut			
stamped strut design	req.3	3709306	T858-13
cast strut design	req.3	3870793	T16-13
A14-1d Spring			
stamped strut design	req.2	3709349	T91A-26
cast strut design	req.2	3870810	4682AJ
A14-2 1ST/2ND SYNCHRONIZER RING			
s36T	req.2	360812	13-04-091-002
E3 MAINSHAFT 2ND GEAR			
L25-s36T		474035	13-04-080-001

WARNER GEAR T10 (GENERAL MOTORS)

E4 MAINSHAFT 3RD GEAR

L22-s36T	474034	T10S-11
L20-s36T	3931524	T10U-11
L21-s36T	14024322	13-04-080-019

A17 3RD/4TH SYNCHRONIZER ASSY

stamped strut design .....	.....	.....
cast strut design	14101338	13-04-590-008

A17-1 3RD/4TH SYNCHRONIZER ASSY

stamped strut design .....	.....	AT10-2.5
cast strut design .....	.....	13-04-590-007

A17-1a Clutch

stamped strut design .....	.....	T10-15
cast strut design .....	.....	13-04-089-005

A17-1b Hub

stamped strut design .....	.....	T10-2.5
cast strut design .....	.....	13-04-090-007

A17-1c Strut

stamped strut design	req.3	3709306	T85B-13
cast strut design	req.3	3870793	T16-13

A17-1d Spring

stamped strut design	req.2	3709349	T91A-26
cast strut design	req.2	3870810	4682AJ

A17-2 3RD/4TH SYNCHRONIZER RING

s36T	req.2	360812	13-04-091-002
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A18 3rd/4th Synchronizer Snapping

0.087"	as req. ...	3709351	4734
0.090"	as req. ...	3709352	4734A
0.093"	as req. ...	3709353	4734B
0.096"	as req. ...	3709354	4734C

A19 MAINSHAFT

s6-10-32-32T: w/o overdrive	(1974-82)	6260713	13-04-171-005
s6-10-32-27T: w/o overdrive	(1982) ..	14053394	13-04-171-007
s6-10-32-32T: w/ overdrive	(1984-88)	14081170 .....	.....

A20 MAINSHAFT EXTENSION (ADAPTER) ASSY

(NOTE: 1974-76 extensions use 1/4-20 speedo screw and 7/16-14 crossmember bolts. 1977-88 extensions use M6-1.0 speedo screw and M10-1.5 crossmember bolts. REFER TO SERVICE NOTES)

#13-04-066-903: 32 spline mainshaft ...	(1974-76)	360809	*13-04-566-001
#13-04-066-903: 32 spline mainshaft ...	(1977-79)	.....	*13-04-566-003

(NOTE: these TWO (2) IRON extensions used with thrust washer supported idler)

#13-04-066-905: 32 spline mainshaft ...	(1980-82)	14013088	13-04-566-005
#13-04-066-906: 27 spline mainshaft ...	(1982) ..	14055005	13-04-566-006

(NOTE: these TWO (2) ALUMINUM extensions used with thrust bearing supported idler)

#	: w/ overdrive	(1984-88)	14082724
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A20-1 MAINSHAFT EXTENSION (ADAPTER)

#13-04-066-903: 32 spline mainshaft ...	(1974-76)	NSS	13-04-066-001
#13-04-066-903: 32 spline mainshaft ...	(1977-79)	NSS	13-04-066-003
#13-04-066-905: 32 spline mainshaft ...	(1980-82)	NSS	13-04-066-005
#13-04-066-906: 27 spline mainshaft ...	(1982) ..	NSS	13-04-066-006
#	: w/ overdrive	(1984-88)	NSS

A20-2 Mainshaft Bushing

32 spline mainshaft	(1974-82)	NSS	10-00-127-002
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(NOTE: production bushing reamed in place. For service use 3978765)

27 spline mainshaft	(1982) ..	NSS	R10H-77
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(NOTE: production bushing reamed in place. For service use 6260048)

A21 MAINSHAFT OILSEAL

32 spline mainshaft	(1974-82)	6260707	T22-110A
27 spline mainshaft	(1982) ..	14053338	10-00-044-015

WARNER GEAR T10 (GENERAL MOTORS)

A22 Mainshaft Extension Gasket			
w/o overdrive	(1974-82)	3787720	T10-146A
w/ overdrive	(1984-88)	14081178	
A23 Mainshaft Extension Fasteners			
7/16-14 x 1-1/8 hex head bolt	req.2		179859
1/2-13 x 1-7/8 hex head bolt	req.3		179888
<i>(NOTE: these TWO (2) items used on 1974-82 assemblies w/o overdrive)</i>			

GROUP B: MAINDRIVE AND RETAINER

B1 Mainshaft Pilot Bearing			
all	req.16	9423039	T85G-26
B2 Mainshaft Pilot Bearing Washer			
all		389677	T85G-25
E5 MAINDRIVE GEAR			
L21-s36T: 9.00" long		360807	13-04-085-006
L20-s36T: 9.00" long		360814	13-04-085-016
L17-s36T: 9.00" long		14024319	13-04-085-023
L19-s36T: 9.00" long		14024318	13-04-085-022
B4 MAINDRIVE BEARING			
all		908216	10-00-130-005
all		9441907	
B5 Maindrive Bearing/Case Snapping			
all		2830050	T90A-6.5
B6 Maindrive Bearing/Shaft Spacer			
all		3709350	4652U
B7 Maindrive Bearing/Shaft Snapping			
0.087"	as req.	3709351	4734
0.090"	as req.	3709352	4734A
0.093"	as req.	3709353	4734B
0.096"	as req.	3709354	4734C
0.099"	as req.	3709355	4734D
B8 MAINDRIVE RETAINER			
#T89C-6A: 9.00" maindrive		360806	13-04-027-001
B9 MAINDRIVE OILSEAL			
CR#12363		3987936	T89C-54
B10 Maindrive Retainer Gasket			
all		1359473	T858-145C
B11 Maindrive Retainer Fasteners			
5/16-18 x 7/8 hex head bolt	req.4		179817
5/16 lockwasher	req.4		114605

GROUP C: COUNTERSHAFTS AND CASE

E1 COUNTERSHAFT CLUSTER GEAR			
R27-23-20-18T		360805	13-04-077-009
R28-23-20-18T		360810	13-04-077-008
R31-25-20-16T		14024316	13-04-077-016
R29-24-20-18T		14024317	13-04-077-017
C2 COUNTERSHAFT			
all		6260711	13-04-068-001
all		14105969	
C3 Countershaft Thrust Washer			
all	req.2	6260714	13-04-193-001

WARNER GEAR T10 (GENERAL MOTORS)

C4 Countershaft Rollers				
all	req.112	435847		T86-166
C5 Countershaft Roller Spacers				
all	req.6	6260709		13-04-053-004
all	req.6	474037		
C6 Countershaft Roller Tube				
all		6260708		13-04-053-003
all		474036		
C7 Countershaft Key				
all		124545		103905
C9 Idler Gear (Front) Thrust Washer				
all		3774909		T10-88A
C10 IDLER GEAR (FRONT)				
L16-s27T	(1974-79)	3936254		*T10T-10
L16-s27T	(1980-88)	14024315		13-04-084-005
L15-s27T	(1980-88)	14024314		13-04-084-004
C11 IDLER GEAR ASSY (REAR)				
S19-s27T: used w/ thrust washer	(1974-79)	3774905		AT10-34C
S19-s27T: used w/ thrust bearing	(1980-82)	14024320		13-04-584-002
S19-s27T: w/ overdrive	(1984-88)	14081171		
C11-1 IDLER GEAR (REAR)				
S19-s27T: used w/ thrust washer	(1974-79)	NSS		T10-34C
S19-s27T: used w/ thrust bearing	(1980-82)	NSS		13-04-084-003
S19-s27T: w/ overdrive	(1984-88)	NSS		
C11-2 Idler Gear Bushing				
all	req.2	NSS		T10-85A
C12 Idler Gear Snapping				
all		3774910		4821A
C13 Idler Gear (Rear) Thrust Washer				
all	(1974-79)	3870799		T16-32
C14 Idler Gear (Rear) Thrust Bearing				
w/o overdrive	(1980-82)	361143		4830G
w/ overdrive	(1984-88)	9441010		
C15 Idler Gear (Rear) Thrust Race				
w/o overdrive	(1980-82)	14013087		11-20
w/ overdrive	(1984-88)	14082798		
C16 IDLER SHAFT				
all		3746277		T10-35
C17 Idler Shaft Lockpin				
all		456876		456876
C18 Idler Shaft Lockpin Plug				
all				4572W
C19 CASE				
#13-04-065-903: aluminum	(1974-82)	6260710		13-04-065-003
#13-04-065-904: iron	(1980-82)	14034921		13-04-065-004
# : w/ overdrive	(1984-88)	14081162		
C20 Filler/Drain Plug				
w/ magnet	req.2	3968034		10-00-052-021
C21 Breather				
all				10-00-072-002

WARNER GEAR T10 (GENERAL MOTORS)

GROUP D: INTERNAL SHIFT LINKAGE

D1 1ST/2ND SHIFT FORK			
#13-04-096-902	360088	.....	13-04-096-002
D2 1ST/2ND SHIFT LEVER ASSY			
w/o overdrive	(1974-76) 360087	.....	13-04-598-009
w/o overdrive	(1977-82) 474031	.....	13-04-598-012
w/ overdrive	(1984-88) 14081168	.....
D2-1 1st/2nd Shift Lever			
all	NSS	.....	T10-40A
D2-2 1st/2nd Shift Shaft			
w/o overdrive	NSS	.....	13-04-122-005
w/o overdrive	NSS	.....	13-04-122-007
w/ overdrive	NSS	.....
D3 3RD/4TH SHIFT FORK			
#13-04-096-902	360088	.....	13-04-096-002
D4 3RD/4TH SHIFT LEVER ASSY			
w/o overdrive	(1974-76) 360086	.....	13-04-598-008
w/o overdrive	(1977-82)		13-04-598-013
w/ overdrive	(1984-88) 14081169	.....
D4-1 3rd/4th Shift Lever			
all	NSS	.....	T10-40
D4-2 3rd/4th Shift Shaft			
w/o overdrive	NSS	.....	13-04-122-005
w/o overdrive	NSS	.....	13-04-122-007
w/ overdrive	NSS	.....
D5 INTERLOCK SLEEVE			
1.01025" long	as req. ... 360089	.....	13-04-103-002
1.01175" long	as req. ... 360090	.....	13-04-103-003
1.01325" long	as req. ... 360091	.....	13-04-103-004
1.01475" long	as req. ... 360092	.....	13-04-103-005
1.01625" long	as req. ... 360093	.....	13-04-103-006
1.01775" long	as req. ... 360094	.....	13-04-103-007
1.01925" long	as req. ... 360095	.....	13-04-103-008
1.02075" long	as req. ... 360096	.....	13-04-103-009
1.02225" long	as req. ... 360097	.....	13-04-103-010
1.02375" long	as req. ... 360098	.....	13-04-103-011
1.02525" long	as req. ... 474032	.....	13-04-103-012
1.02675" long	as req. ... 474033	.....	13-04-103-013
D6 Interlock Pin			
all	3709315	.....	T858-87
D7 Detent Spring			
all	3709310	.....	T858-42
D8 Detent Ball			
all	req.2	.....	453593
D9 SHIFT LEVER OILSEAL			
all	req.2	.....	6260717
			T90A-108
D10 SHIFT COVER			
#13-04-097-901			13-04-097-003
#13-04-097-901	360811	.....	13-04-097-004
D11 Shift Cover Gasket			
all	3709316	.....	T858-115
D12 Shift Cover Fasteners			
5/16-18 x 3/4 hex head bolt	req.9	.....	9424877
			179816

WARNER GEAR T10 (GENERAL MOTORS)

D13 REVERSE SHIFT FORK			
w/o overdrive	(1974-82)	3743478	T10-24
w/ overdrive	(1984-88)	14081173	
D14 REVERSE SHIFT LEVER ASSY			
w/o overdrive: 32 spline mainshaft	(1974-82)	6260716	13-04-598-003
w/o overdrive: 27 spline mainshaft	(1982) ..	14053395	13-04-598-014
w/ overdrive	(1984-88)	14081175	
D14-1 Reverse Shift Lever			
all	NSS		T10-41
D14-2 Reverse Shift Shaft			
w/o overdrive: 32 spline mainshaft	NSS		13-04-122-003
w/o overdrive: 27 spline mainshaft	NSS		13-04-122-008
w/ overdrive	NSS		
D15 Reverse Shift Lever Taper Pin			
all			103565
D16 Detent Spring			
all		3773017	T10-42
D17 Detent Ball			
all		453593	453593
D18 SHIFT LEVER OILSEAL			
w/o overdrive: 32 spline mainshaft	(1974-82)	5696537	3-188
w/o overdrive: 27 spline mainshaft	(1982) ..	6260717	T90A-108
w/ overdrive	(1984-88)	6260717	T90A-108

GROUP E: VARIABLE GEARSET

	T10S RATIO	T10W RATIO	T10CC RATIO	T10Z RATIO
1ST	2.43	2.64	2.88	3.42
2ND	1.61	1.75	1.91	2.28
3RD	1.23	1.34	1.34	1.46
4TH	1.00	1.00	1.00	1.00
REV	2.35	2.55	2.78	3.51

E1 COUNTERSHAFT CLUSTER GEAR			
R27-23-20-18T	R28-23-20-18T	R29-24-20-18T	R31-25-20-16T
13-04-077-009	13-04-077-008	13-04-077-017	13-04-077-016
360805	360810	14024317	14024316
E2 MAINSHAFT 1ST GEAR			
L34-s36T	L34-s36T	L34-s36T	L30-s36T
13-04-080-004	13-04-080-004	13-04-080-004	13-04-080-023
360803	360803	360803	14013082
E3 MAINSHAFT 2ND GEAR			
L25-s36T	L25-s36T	L25-s36T	L25-s36T
13-04-080-001	13-04-080-001	13-04-080-001	13-04-080-001
474035	474035	474035	474035
E4 MAINSHAFT 3RD GEAR			
L27-s36T	L27-s36T	L21-s36T	L20-s36T
T10S-11	T10S-11	13-04-080-019	T10U-11
474034	474034	14024322	3931524
E5 MAINDRIVE			
L21-s36T	L20-s36T	L19-s36T	L17-s36T
13-04-085-006	13-04-085-016	13-04-085-022	13-04-085-023
360807	360814	14024318	14024319
E6 IDLER GEAR (FRONT)			
L16-s27T	L16-s27T	L16-s27T	L15-s27T
*T10T-10	*T10T-10	13-04-084-005	13-04-084-004
3936254	3936254	14024315	14024314

WARNER GEAR T10 KITS AND SPECIAL PARTS

Small parts kits contain the snaprings, thrust washers, loose roller bearings and spacers required when rebuilding your transmission. When halfway done you realize a snapring can't be reused you'll appreciate the kit. **For ALL Warner T10 applications.**

SMALL PARTS KIT

all w/o mainshaft thrust flange	(1957-65)	SP10-50
all w/ mainshaft thrust flange	(1965-74)	SP10P-50
<i>(NOTE: this ONE (1) kit used with 0.88" diameter countershaft)</i>		
all w/ mainshaft thrust flange	(1974-84)	SP10W-50
<i>(NOTE: this ONE (1) kit used with 1.00 diameter countershaft)</i>		
Corvette w/ overdrive	(1984)	SP10W-50
Corvette w/ overdrive	(1985-88)	

Gasket sets contain the paper gaskets to complete your rebuild. Substituting RTV sealant may reduce or eliminate required clearances. **For ALL Warner T10 applications.**

GASKET SET

all w/o overdrive	(1957-82)	T10-55
Corvette w/ overdrive	(1984-88)	

Ball bearings with plastic retainers can't handle racing temperatures. These special bearings have steel retainers and special inner races developed specifically for the T10. **For ALL Warner T10 applications.**

MAINDRIVE BEARING

all	(1957-88)	10-00-130-005
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MAINSHAFT BEARING

all w/o overdrive	(1957-84)	10-00-130-004
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Stock sliding clutches are for stock transmissions. Special clutches may be better for race or high powered street applications. **For ALL Warner T10 applications.**

SLIDING CLUTCHES

stock design (w/o back taper splines)		T85B-15
<i>(NOTE: this ONE (1) clutch used with hollow struts T85B-13)</i>		
stock design (w/o back taper splines)		13-04-089-005
torque lock design (w/ back taper splines)		13-04-089-006
<i>(NOTE: these TWO (2) clutches used with solid struts T16-13)</i>		
power shift design (18 spline)		T10N-15
<i>(NOTE: this ONE (1) clutch may be used with or without synchronizer rings. NOT FOR STREET APPLICATIONS)</i>		

Worn or broken struts can cause shift problems. Synchronizer repair kits contain three struts and two springs to repair one synchronizer. **For ALL Warner T10 applications.**

SYNCHRONIZER REPAIR KITS

hollow struts		13-04-410-001
solid struts		13-04-410-002

WARNER GEAR T10 SERVICE PROCEDURE

GENERAL

Do not open a healthy transmission except for pre-race inspection or to change ratios. Improper rebuilding may damage the assembly. List all symptoms and study the troubleshooting guide before opening the unit. Use proper tools on a clean bench. Carefully follow the procedure, refrain from using unnecessary force, and work at a sensible speed.

LUBRICANTS AND SEALANTS

Choose an operating lubricant to meet the vehicle service cycle. Follow manufacturer recommendations or (for racing) common practice for your form of competition.

Use the operating lubricant to lubricate the running surfaces of all gears and bushings during assembly.

Retain loose rollers, thrust washers, and spacers with petroleum jelly during assembly. **Do not use grease.** Grease provides inadequate lubrication and will not dissolve in oil.

Apply sealing cement to all through bolts, fill and drain plugs, and idler shaft cup plug during assembly.

When called for, use gaskets to seal mating parts. Substituting RTV sealant may reduce or eliminate required clearances.

DISASSEMBLE

Follow the manufacturers recommended procedure to remove the transmission from the vehicle. *Threading TWO (2) STUDS in the upper mounting holes will support the transmission and protect the clutch disc .*

If not done previously, drain the lubricant.

Shift the transmission into neutral. Remove the shift cover assembly, gasket, and fasteners.

Remove the maindrive retainer, gasket, and fasteners.

Remove the reverse shift lever taper pin by driving toward the rear.

Remove the extension assembly, gasket, and fasteners. Use a soft hammer to free the extension, pulling the reverse shift lever assembly outward to separate the reverse shift fork and mainshaft reverse gear.

Remove the rear idler gear, rear idler thrust race and bearing (washer on some models).

Remove the speedometer circle gear and mainshaft reverse gear.

Remove the mainshaft and mainshaft bearing support as an assembly.

WARNER GEAR T10 SERVICE PROCEDURE

Remove the mainshaft pilot rollers and synchronizer ring.

Remove the front idler gear and front idler gear thrust washer.

Remove the maindrive bearing/shaft snapping and spacer. Carefully press the maindrive into the case and remove.

Remove the maindrive bearing assembly by tapping from the inside of the case outward.

Drive the countershaft toward the rear and remove. Remove the countershaft cluster gear assembly and separate the countershaft thrust washers, rollers, roller spacers, roller tube, and countershaft cluster gear.

From the mainshaft assembly, remove the 3rd/4th synchronizer snapping, 3rd/4th synchronizer assembly, and mainshaft 3rd gear (*also thrust bearing, 2nd gear, and synchronizer ring on flangeless 1957-65 assemblies*).

With the pilot end down, support the mainshaft assembly under the mainshaft bearing support. Spread the mainshaft bearing/support snapping and press the mainshaft assembly through the support.

With the pilot end down, support the mainshaft assembly under the mainshaft 2nd gear (*synchronizer hub on flangeless 1957-65 assemblies*). Remove the mainshaft bearing/shaft snapping and spacer. Press the mainshaft through and separate the mainshaft bearing, mainshaft 1st gear and sleeve, 1st/2nd synchronizer assembly, and mainshaft 2nd gear.

From the extension assembly, remove the idler shaft lockpin plug. Drive the idler shaft lockpin into the idler shaft clearance hole and remove the shaft and pin. Remove the reverse shift fork. Drive the reverse shift lever assembly inwards and remove the lever, detent ball, and detent spring.

CLEAN AND INSPECT

Wash the case, extension, mainshaft bearing support, shift cover, and maindrive retainer thoroughly inside and out, removing all dirt, metal, and loose contaminants. Inspect all mating surfaces for dings and burrs and remove where found.

Wash the ball bearings in cleaning solvent. Blow out with dry compressed air while slowing turning the bearings by hand. **Do not allow the bearings to spin.** Lubricate and inspect. Replace the bearings if rough, noisy, or excessively loose.

Inspect all loose rollers, thrust washers, and spacers for wear and replace if necessary. Replace all spread or twisted snaprings. Use new parts (from a small parts kit) whenever possible.

Inspect the countershaft for wear and replace if pitted or worn.

WARNER GEAR T10 SERVICE PROCEDURE

Inspect all gears for missing, broken, or damaged teeth and replace if necessary. Small chips and blemishes can be blended with a die grinder to reduce induced noise. Replace any heat damaged ("blued") gear or shaft.

Inspect the synchronizer rings and gear cones for complete clutching teeth without burrs. The rings should have straight (not flared or 'bell mouthed') strut pockets, fit the mating cones without rocking, and leave a gap when pressed tight. The gear cones should not show excessive polish, but have a uniform taper without ridges. Replace if necessary.

Inspect the synchronizers for broken, distorted, or worn struts. Hubs should be without burrs, and with straight strut pockets. Replace if necessary.

Remove and discard old oilseals and gaskets.

ASSEMBLE

Press maindrive bearing on maindrive. Assemble maindrive bearing/shaft spacer and retain with the thickest snapping that will go on (*endplay should not exceed 0.005"*). Some early assemblies used a left-handed nut which should be tightened and staked.

Assemble the countershaft cluster gear assembly. Retain the countershaft roller tube, rollers, and roller spacers in the gear with petroleum jelly. Lock each roller track by installing the last roller endwise.

Rest the case with the side opening up. Place the countershaft thrust washer tangs in the notches provided and retain with petroleum jelly.

Carefully, set the countershaft cluster gear assembly in the case without disturbing the countershaft thrust washers. **Do not install the countershaft at this time.**

Pass the maindrive assembly through the side opening and gently tap into place. Retain with the maindrive bearing/case snapping.

Place the countershaft cluster gear assembly in mesh with the maindrive. Install the countershaft key and press in the countershaft until flush with rear of case. *The countershaft cluster gear must spin freely and endplay must not exceed 0.025".*

Assemble the synchronizers. The 1st/2nd synchronizer assembly (*10 spline*) is correctly assembled when the clutch taper faces 1st gear and the long hub faces 2nd gear. The 3rd/4th synchronizer assembly (*6 spline*) is correctly assembled when the clutch taper and the long hub face the maindrive.

Assemble the mainshaft 2nd gear, synchronizer ring, and 1st/2nd synchronizer assembly (*synchronizer only on flangeless 1957-65 assemblies*) on the mainshaft. Press the mainshaft 1st gear bushing until seated against the synchronizer hub. Assemble a second synchronizer ring, mainshaft 1st gear, and mainshaft 1st gear thrust washer on the mainshaft. *Insure that the oil grooves on the thrust washer face 1st gear and the synchronizer struts fall in the ring strut pockets.*

WARNER GEAR T10 SERVICE PROCEDURE

Press the mainshaft bearing tightly against the mainshaft shoulder. Assemble the mainshaft bearing/shaft spacer and retain with the thickest snapping that will go on (*endplay should not exceed 0.005"*).

From the front of the mainshaft assemble the mainshaft 3rd gear, synchronizer ring, and 3rd/4th synchronizer assembly (*also synchronizer ring, 2nd gear, and thrust bearing on flangeless 1957-65 assemblies*). Retain with a **narrow** (0.087") snapping.

Assemble the mainshaft bearing support on the mainshaft. Spread the mainshaft bearing/support snapping and press the mainshaft assembly downward until the snapping relaxes in the bearing groove.

Assemble the mainshaft reverse gear with the shift flange toward the rear.

Assemble the speedometer circle gear and retain. Early General Motors assemblies use a press-fit steel gear which should be driven until centered 4-1/2" behind the rear face of the mainshaft bearing support.

Stand the case upright, resting on the front face with maindrive down.

Assemble the mainshaft pilot rollers in the maindrive and retain with petroleum jelly. Place the remaining synchronizer ring on the maindrive cone and the mainshaft bearing support gasket on the case. Place the front idler thrust washer and front idler gear on the case idler boss.

Lower the mainshaft assembly into the case. Turn the maindrive synchronizer ring until the struts fall in the strut pockets. Install and tighten the mainshaft bearing support bolt.

Assemble the rear idler gear through the mainshaft bearing support, engaging the front idler gear already in the case. Place the mainshaft extension gasket on the support.

Press the idler shaft into the extension. Retain with the idler shaft lockpin and seal the opening with the idler shaft lockpin plug. Assemble the rear idler gear thrust race and bearing (washer only on some assemblies) on the idler shaft and retain with petroleum jelly.

Shift both synchronizers to neutral (*centered clutches*).

Assemble the detent ball, detent spring, reverse shift lever assembly and reverse shift fork in the extension. **Do not install the reverse shift lever taper pin until the extension is installed.**

Pull the reverse shift lever assembly outwards and toward the extension front. Start the extension onto the mainshaft until the reverse shift fork will fall in the reverse gear flange. Push the reverse shift lever assembly inward and toward the rear as the extension seats. Install and tighten the extension bolts.

WARNER GEAR T10 SERVICE PROCEDURE

Line up the groove on the reverse shift lever assembly with the extension hole and press in the reverse shift lever taper pin.

Assemble the maindrive retainer, maindrive oilseal, and gasket. Install and tighten the retainer bolts.

Place forks in each sliding clutch groove. With the shift levers in neutral, assemble the shift cover and shift cover gasket on the forks and seat against the case. Install and tighten the cover bolts. **Check that all ranges are present and that the levers will overshift slightly in all gears before installing the transmission in the vehicle.**

Follow the manufacturers recommended procedure to install the transmission in the vehicle. *Threading TWO (2) STUDS in the upper mounting holes will support the transmission and protect the clutch disc .*

FILL THE TRANSMISSION WITH LUBRICANT BEFORE DRIVING.

TORQUE VALUES (clean new fasteners)

		initial	recheck
Maindrive Retainer Bolts ...	5/16-18 x 7/8	15-20 lb ft ..	18-10 lb ft
Shift Cover Bolts	5/16-18 x 3/4	15-20 lb ft ..	18-10 lb ft
Extension Housing Bolts ...	7/16-14 x 1-1/8 ...	20-30 lb ft ..	14-21 lb ft
Extension Housing Bolts ...	1/2-13 x 1-7/8 ...	35-45 lb ft ..	25-32 lb ft
Bearing Support Bolt	1/2-13 x 1-1/8	30-40 lb ft ..	21-28 lb ft
Drain Plug .....	.....	15-25 lb ft ..	
Fill Plug .....	.....	25-35 lb ft ..	

(NOTE: Recheck torque after 24 hours to meet minimum values marked %.)



WARNER GEAR T10 TROUBLESHOOTING

ALL GEARS MISSING BUT SPEEDOMETER FUNCTIONS

- (1) Broken mainshaft or driveshaft yoke

ALL GEARS MISSING AND SPEEDOMETER DOES NOT FUNCTION

- (1) Broken maindrive or clutch

ALL INDIRECT GEARS MISSING/DIRECT GEAR PRESENT

- (1) Broken teeth on maindrive or countershaft cluster

ALL INDIRECT GEARS PRESENT/DIRECT GEAR MISSING

- (1) Broken clutching teeth on maindrive or sliding clutch

ONLY ONE GEAR MISSING/OTHERS PRESENT

- (1) Broken teeth on mainshaft gear or countershaft cluster
- (2) Broken clutching teeth on mainshaft gear or sliding clutch

TRANSMISSION LOCKED IN ALL GEARS

- (1) Worn or bent shift fork
- (2) Worn or broken synchronizer rings
- (3) Worn or broken detent spring
- (4) Worn or broken interlock

TRANSMISSION LOCKED IN ALL GEARS BUT ONE

- (1) Seized mainshaft gear

PERSISTENT MAINSHAFT OILSEAL LEAK

- (1) Worn universal joint
- (2) Bent or unbalanced driveshaft assy
- (3) Worn mainshaft bushing



WARNER GEAR T10 TROUBLESHOOTING

NOISE WITH THE TRANSMISSION IN NEUTRAL

- (1) Low oil level or improper oil used
- (2) Worn bearings
- (3) Worn countershaft thrust washers
- (4) Loose material in transmission
- (5) Worn or spread case

NOISE IN ALL GEARS (QUIETEST IN FOURTH)

- (1) Low oil level or improper oil used
- (2) Worn bearings
- (3) Broken or damaged maindrive or countershaft drive teeth

NOISE IN ONE OR MORE INDIRECT GEARS

- (1) Broken or damaged mainshaft gear or countershaft gear teeth
- (2) Broken or missing snaprings, washers, or spacers

GEAR CLASH IN SHIFTING

- (1) Clutch not releasing fully
- (2) Bound clutch pilot bushing or bearing
- (3) Worn synchronizer rings or mating gear cones
- (4) Worn or broken synchronizer struts
- (5) Broken or missing synchronizer rings

HARD SHIFTING

- (1) Worn or bent external shift linkage
- (2) Worn or broken synchronizer struts
- (3) Broken or missing synchronizer rings
- (4) Excessively heavy oil used

JUMPS OUT OF FOURTH (DIRECT) GEAR

- (1) Misaligned transmission case or clutch housing
- (2) Low oil level or improper oil used
- (3) Worn clutch pilot bearing or bushing
- (4) Worn clutching teeth or sliding clutch
- (5) Worn or broken detent spring
- (6) Worn or bent shift fork
- (7) Excessive maindrive endplay
- (8) Worn maindrive bearing

JUMPS OUT OF ONE OR MORE INDIRECT GEARS

- (1) Low oil level or improper oil used
- (2) Worn mainshaft pilot or pilot rollers
- (3) Worn clutching teeth or sliding clutch
- (4) Worn or broken detent spring
- (5) Worn or bent shift fork
- (6) Excessive mainshaft endplay
- (7) Worn mainshaft bearing

