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

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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.)

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GROUP A: MAINSHAFT

#### A1 Speedometer Circle Gear
- LT green nylon | 361002 | 13-04-110-003
- LT blue nylon | 6260705 | 13-04-110-002
- LT white nylon | 14038093 | 13-04-110-004

#### A2 Speedometer Circle Gear Snapring
- req.2 | 3709351 | 4734

#### A3 MAINSHAFT REVERSE GEAR
- S39-s32T: w/o overdrive | (1974-79) | 360804 | *13-04-070-001 |
- S39-s32T: w/ overdrive | (1984-88) | 14081174 |

#### A4 Mainshaft Bearing/Shaft Snapring
- 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

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#### 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 Snapring

| 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 | 47370 |

#### A11 Mainshaft 1st Gear Thrust Washer

| w/o overdrive             | (1974-82) | 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      | 14101337 | 13-04-590-010 |
| cast strut design         |         |             |

#### A14-1 1ST/2ND SYNCHRONIZER ASSY

| stamped strut design      | 13-04-590-001 |
| cast strut design         | 13-04-590-009 |

| A14-1a Clutch             | T10-15  |
| cast strut design         | 13-04-089-005 |

| A14-1b Hub                | 13-04-090-008 |
| all                      |             |

| A14-1c Strut              | req.3   | 3709306 | T858-13 |
| cast strut design         | req.3   | 3870793 | T16-13  |
| A14-1d Spring             | 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 ...... T105-11
L20-s36T ....................................... . 3931524 ..... T10U-11
L21-s36T ....................................... . 14024322 .... 13-04-080-019

A17 3RD/4TH SYNCHRONIZER ASSY

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

A17-1 3RD/4TH SYNCHRONIZER ASSY

stamped strut design ....................................... . 14101338 .... 13-04-590-007

A17-1a Clutch
cast strut design ........................................ . 13-04-089-005

A17-1b Hub
cast strut design ........................................ . 13-04-090-007

A17-1c Strut
stamped strut design ....................................... . 3709306 ... T85B-13

A17-1d Spring
stamped strut design ....................................... . 3709349 ... T91A-26

A17-2 3RD/4TH SYNCHRONIZER RING

s36T ................................ req.2 360812 ...... 13-04-091-002

A18 3rd/4th Synchronizer Snapring

0.087" ........................................ as req. 3709351 4734
0.093" ........................................ as req. 3709352 4734A
0.096" ........................................ as req. 3709355 4734B

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

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

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

A20-2 Mainshaft Bushing

32 spline mainshaft ........................................ (1974-82) NSS ... 10-00-127-002

(Note: production bushing reamed in place. For service use 3978765)

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
(NOTE: these TWO (2) items used on 1974-82 assemblies w/o overdrive)

GROUP B: MAINDRIVE AND RETAINER

B1 Mainshaft Pilot Bearing
all ...................................... req.16 ...... 9423039 ...... T85G-26
B2 Mainshaft Pilot Bearing Washer
all ...................................... req.16 ...... 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 Snapring
all ...................................... 2830050 ...... T90A-6.5
B6 Maindrive Bearing/Shaft Spacer
all ...................................... 3709350 ...... 4652U
B7 Maindrive Bearing/Shaft Snapring
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
CR12363 ................................ 3987936 ...... T89C-54

B10 Maindrive Retainer Gasket
all ...................................... 1359473 ...... T85B-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 ........................................... 124546 ...... 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 Snapring
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/o overdrive (1984-88) 9441010
C15 Idler Gear (Rear) Thrust Race
w/o overdrive (1980-82) 14013087 ...... 11-20
w/o 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
#2: 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
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/ 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/ overdrive .................................................. NSS ........... 13-04-122-007

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) 474031 ........ 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

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 ........ 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 .................................................. 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

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<td>REV</td>
<td>2.35</td>
<td>2.55</td>
<td>2.76</td>
<td>3.51</td>
</tr>
</tbody>
</table>

E1 COUNTERSHAFT CLUSTER GEAR
  R27-23-20-18T 13-04-077-009 360805
  R28-23-20-18T 13-04-077-008 360810

E2 MAINSHAFT 1ST GEAR
  L34-s36T 13-04-080-004 360803
  L34-s36T 13-04-080-004 360803
  L34-s36T 13-04-080-004 360803

E3 MAINSHAFT 2ND GEAR
  L25-s36T 13-04-080-001 474035
  L25-s36T 13-04-080-001 474035
  L25-s36T 13-04-080-001 474035

E4 MAINSHAFT 3RD GEAR
  L27-s36T T10S-11 474034
  L27-s36T T10S-11 474034
  L27-s36T T10S-11 474034

E5 MAINDRIVE
  L21-s36T 13-04-085-006 360807
  L20-s36T 13-04-085-006 360814
  L19-s36T 13-04-085-006 360814

E6 IDLER GEAR (FRONT)
  L16-s27T *T10T-10 3936254
  L16-s27T *T10T-10 3936254
  L16-s27T *T10T-10 3936254

* Indicates customer order number.
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

<table>
<thead>
<tr>
<th>Type</th>
<th>Years</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>all w/o mainshaft thrust flange</td>
<td>(1957-65)</td>
<td>SP10-50</td>
</tr>
<tr>
<td>all w/ mainshaft thrust flange</td>
<td>(1965-74)</td>
<td>SP10P-50</td>
</tr>
<tr>
<td>(NOTE: this ONE (1) kit used with 0.88&quot; diameter countershaft)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>all w/ mainshaft thrust flange</td>
<td>(1974-84)</td>
<td>SP10W-50</td>
</tr>
<tr>
<td>(NOTE: this ONE (1) kit used with 1.00 diameter countershaft)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corvette w/ overdrive</td>
<td>(1984)</td>
<td>SP10W-50</td>
</tr>
<tr>
<td>Corvette w/ overdrive</td>
<td>(1985-88)</td>
<td>SP10W-50</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Type</th>
<th>Years</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>all w/o overdrive</td>
<td>(1957-82)</td>
<td>T10-55</td>
</tr>
<tr>
<td>Corvette w/ overdrive</td>
<td>(1984-88)</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Type</th>
<th>Years</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>all</td>
<td>(1957-88)</td>
<td>10-00-130-005</td>
</tr>
</tbody>
</table>

MAINSHAFT BEARING

<table>
<thead>
<tr>
<th>Type</th>
<th>Years</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>all w/o overdrive</td>
<td>(1957-84)</td>
<td>10-00-130-004</td>
</tr>
</tbody>
</table>

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

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

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

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>hollow struts</td>
<td></td>
<td>13-04-410-001</td>
</tr>
<tr>
<td>solid struts</td>
<td></td>
<td>13-04-410-002</td>
</tr>
</tbody>
</table>


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 snapring 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 snapring, 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 snapring 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 snapring 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 snapring 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 snapring.

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 snapring 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") snapring.

Assemble the mainshaft bearing support on the mainshaft. Spread the mainshaft bearing/support snapring and press the mainshaft assembly downward until the snapring 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)

<table>
<thead>
<tr>
<th>Fastener Type</th>
<th>Initial Torque</th>
<th>Recheck Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maindrive Retainer Bolts</td>
<td>5/16-18 x 7/8</td>
<td>15-20 lb ft</td>
</tr>
<tr>
<td>Shift Cover Bolts</td>
<td>5/16-18 x 3/4</td>
<td>15-20 lb ft</td>
</tr>
<tr>
<td>Extension Housing Bolts</td>
<td>7/16-14 x 1-1/8</td>
<td>20-30 lb ft</td>
</tr>
<tr>
<td>Extension Housing Bolts (bear)</td>
<td>1/2-13 x 1-7/8</td>
<td>35-45 lb ft</td>
</tr>
<tr>
<td>Bearing Support Bolt</td>
<td>1/2-13 x 1-1/8</td>
<td>30-40 lb ft</td>
</tr>
<tr>
<td>Drain Plug</td>
<td></td>
<td>15-25 lb ft</td>
</tr>
<tr>
<td>Fill Plug</td>
<td></td>
<td>25-35 lb ft</td>
</tr>
</tbody>
</table>

*(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