



**SILVER SPORT**  
*Transmissions*

# 1967 – 1972 GM C-10 Truck

## MAGNUM 6-SPEED INSTALLATION MANUAL

FOLLOW FACTORY SERVICE MANUAL (FSM) RECOMMENDED SAFETY PRECAUTIONS. TRANSMISSION REMOVAL AND INSTALLATION IS A LABOR INTENSIVE JOB, WHICH CAN RESULT IN SERIOUS INJURY OR DEATH IF CAUTION IS NOT TAKEN. PLEASE BE CAREFUL PERFORMING THIS JOB, OR HAVE A PROFESSIONAL PERFORM THE JOB FOR YOU. REFER TO FSM FOR ADDITIONAL DETAILS OF THE PROCEDURES BELOW, AS REQUIRED.

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Before you start:

Test drive the vehicle, if possible, before you begin. Pay attention to noise and vibration and record your observations. At the end of the installation, perform another test drive to compare results.

It is also a good idea to measure engine driveline angle and driveshaft operating angles for your existing transmission to use as a comparison to the new angles after the MAGNUM is installed.

You should also verify the parts you received. Compare the received items to the detailed invoice provided in your shipment.

## **PLEASE READ ALL INSTRUCTIONS BEFORE INSTALLATION**

In addition to these instructions, you should receive the following instructions based on your order, **if applicable**:

1. All kits – MAA-00101 Inspection and Correction of Bellhousing to Crankshaft Runout.
2. Hydraulic Kit Instructions for GM: MAG-00402 (FTE style) or MAG-00404 (RAM style - MAGNUM).
3. MAA-00801 – T56 Magnum Installation General Guidelines

**NOTE:** Transmission **must** be test shifted before installation. Due to jostling during shipping, some transmissions will not shift properly when removed from the box. Please make sure that the gear selector will move into each of the shift gate positions while rotating the input shaft and checking for output shaft rotation. If the input shaft will not turn, slide a clutch disc over the input shaft and jerk the clutch disc left and right to break it free. If this does not correct the issue, call Silver Sport Transmissions at **888-609-0094** for help.

**THIS CANNOT BE CORRECTED WITH THE TRANSMISSION INSTALLED IN THE CAR!**  
**TEST SHIFT FIRST!**

### A. REMOVE EXISTING EQUIPMENT

1. Disconnect negative (-) battery cable.
2. Remove breather assembly and fan shroud.
3. Remove distributor cap if the engine is a small block.
4. Place shifter in neutral. Remove shift boot and lever.
5. Remove console, if equipped.
6. Raise car securely on lift or jack stands. 18 inches or more of working room is recommended.
7. Remove exhaust, as required, for working clearance.
8. Unbolt starter and set aside.
9. Remove clutch linkage at torque arm to clutch fork.
10. Remove bellhousing dust cover.
11. Disconnect driveshaft from differential and remove from car.

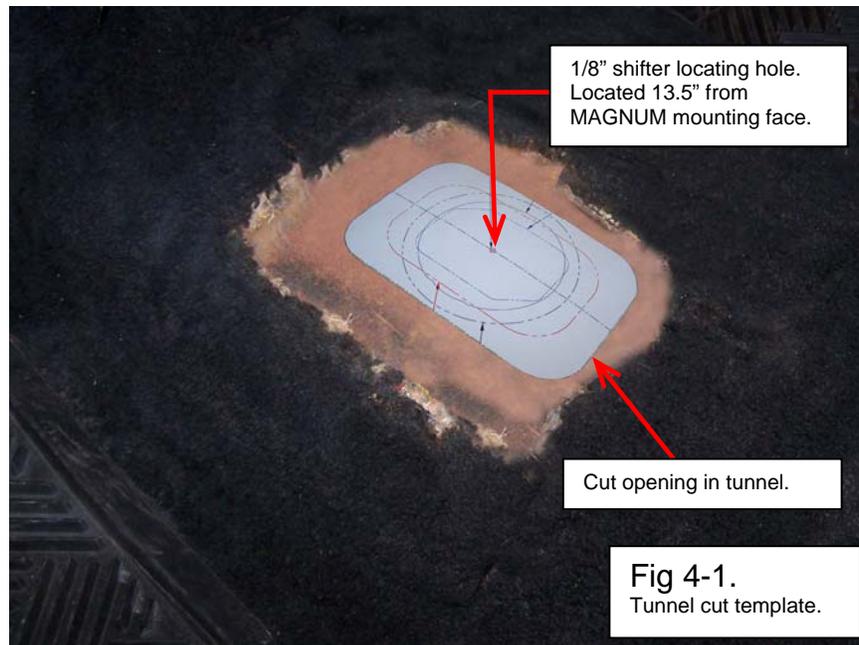
12. Remove shifter assembly.
13. Remove speedometer cable.
14. Disconnect reverse lamp wiring.
15. Secure rear of engine with a hydraulic jack.
16. Unbolt transmission isolator from the crossmember and remove crossmember.
17. Secure transmission (jack recommended) and unbolt from bellhousing, then move rearward and remove from vehicle.
18. Remove bellhousing and clutch unit.
19. Inspect flywheel ring gear teeth (no cracks, chips, wear), and friction surface (no cracks). Silver Sport Transmissions strongly suggests removing flywheel and having it resurfaced, then dynamically balanced at a reputable automotive machine shop **unless** the engine was externally balanced with the flywheel installed.
20. Remove manual transmission pilot bushing.

## B. TUNNEL MODIFICATION

Some tunnel modification will be required to install the MAGNUM transmission to the proper driveline angle to obtain acceptable driveshaft operating angles.

Due to variation in dimensions on these cars from the factory, some cars might need an additional tunnel modification to achieve the correct driveline angle.

1. Remove the front seats and carpet.
2. Temporarily attach Quick Time (QT) bell housing to the engine.
3. From rear face of bell housing (transmission mounting face), measure 13.5" on driveline centerline and mark center location on underside of tunnel. Drill 1/8" dia shifter locating hole thru tunnel.
4. Cut out the paper shifter hole cutting template TMG-04101 for the shifter boot that will be installed. Place the paper template on the top of tunnel to align with the 1/8" dia shifter locating hole and tape to tunnel. See Fig 4-1.
5. Mark the area to be cut by tracing around the template area. Carefully cut the shifter opening area thru the tunnel.
6. If shifter hole location does not lineup with previously installed shifter, use body metal BMG-04101 to cover existing hole and provide new shifter hole location.



### C. TEST FITMENT

1. Temporarily attach Quick Time (QT) bell housing with engine backing plate, without clutch components, to the engine. Verify dowel pin full diameter exposed length is greater than 3/8" to assure that Quick Time bell housing will be accurately positioned with the Quick Time engine block plate installed.
2. Using SST gauge plate TIA-00200 for the QT bell housing, check bell housing bore runout and adjust if necessary using replacement offset dowel pins. See bell housing alignment instructions MAA-00101.
3. Temporarily install T56 Magnum transmission to bell housing using bolts from Hardware Pack HWG-PACK A T56. For added clearance for offset shifter stub to clear tunnel hole when transmission is being installed, place transmission into 5<sup>th</sup> or REV gear.

**NOTE: DO NOT REMOVE SHIFTER TOWER FROM SHIFTER BASE PLATE to gain clearance for installation. Shift stub seal in shifter base plate could be damaged or not properly fitted on lower stub lever if tower is reinstalled on shifter base plate.**

4. Install isolator mount to transmission using (2) M10-1.5 x 30mm Lg bolts and lock washers from hardware pack HWG-PACK H.
5. Raise engine high enough to install crossmember ends over frame rails.

6. Lower engine to rest isolator on crossmember.
7. Verify 1/8 to 1/4" minimum clearance between MAGNUM and tunnel. An easy way to check areas that you cannot see is to use a length of rubber hose that is 1/4" outside diameter. Loop it over the transmission at the bellhousing and see if you can slide it all the way to the tail housing. If the transmission has less than 1/4" clearance at any point in the tunnel, you may be able to "massage" the tunnel with a hammer and dolly to prevent cutting the tunnel.
8. This would be a good time to take the driveline measurement per the driveline instruction sheet so that the new SST driveshaft can be ordered. See MAA-00100 form in the customer info pack.
9. Remove all components installed for test fit.

#### D. INSTALL NEW EQUIPMENT

1. Clean all mating engine surfaces and dowel pins. For Quick Time bell housing, be sure to install engine block plate prior to installing flywheel.
2. Install new flywheel and flywheel bolts torqued to factory spec. Be sure to tighten bolts in alternating cross pattern sequence.
3. Install new pilot bearing assembly into crankshaft using a socket of similar diameter to the bearing and a rubber mallet.
  - a. **NOTE:** The pilot bearing is designed to be a slight press fit in the bore, and the pilot bearing hole is not always sized correctly in some crankshafts. Your pilot bearing OD should be between one-half of a thousandth and two thousandths of an inch (0.0005" - 0.002") larger than the ID of the hole in your crankshaft. If outside of this range, a different pilot bearing is required, or your crankshaft or pilot bearing may be modified to fit. Contact your local parts store or machine shop for a suitable replacement or to modify your existing parts. See Fig. 6-1.



Fig 6-1.  
Pilot bearing

(TRANSMISSION SIDE SHOWN)

4. Using clutch alignment tool, attach clutch disc and pressure plate to flywheel. Install each bolt with medium thread locking compound only finger tight on the first round, then incrementally tighten each one in a star pattern sequence until all are snug. Torque each one in the same sequence to 35 lb-ft.
  - a. **NOTE: When installing the pressure plate and clutch disk onto the flywheel, NEVER use power or air tools. Using power or air tools will cause the flanges of the pressure plate to distort. This will in turn cause uneven pressure plate finger heights, which will lead to inconsistent or unsuccessful clutch releases.**
  - b. See MAA-05000 clutch installation instructions for more details.
5. At this point, install a SST Hydraulic system (available separately) following instructions provided.
6. Install bellhousing to engine, while making sure there are no hoses, cables, or wires caught between the bellhousing and engine block. Torque the fasteners to the specification found in your factory service manual or Quick Time instructions.

**IMPORTANT !!! Refer to MAA-00101 Inspection and Correction of Bellhousing to Crankshaft Runout**

It is an absolute **requirement** that **runout** is **checked** and **corrected PRIOR** to installing the transmission. The runout specification for all of Silver Sport's kits is **0.005" (5 thousandths of an inch) MAXIMUM**. You **MUST** document the results **PRIOR** to installation of transmission and keep these measurements recorded in a safe place for your transmission warranty. Silver Sport's Customer Service will need this information if a warranty issue arises.

7. It will be easier to add transmission fluid at this point before completing the final installation of T56 Magnum transmission. See MAA-00801. The fill plug is on the left side of the transmission midway up the case. Use pipe sealant - but do not over tighten the tapered pipe plug until head is flush with boss. Be sure to use shipping plug installed into rear seal to prevent fluid loss during installation.

**NOTE: DO NOT REMOVE SHIFTER TOWER FROM SHIFTER BASE PLATE to add ATF fluid. Shift stub seal in shifter base plate could be damaged or not properly fitted on stub lever if tower is reinstalled on shifter base plate.**

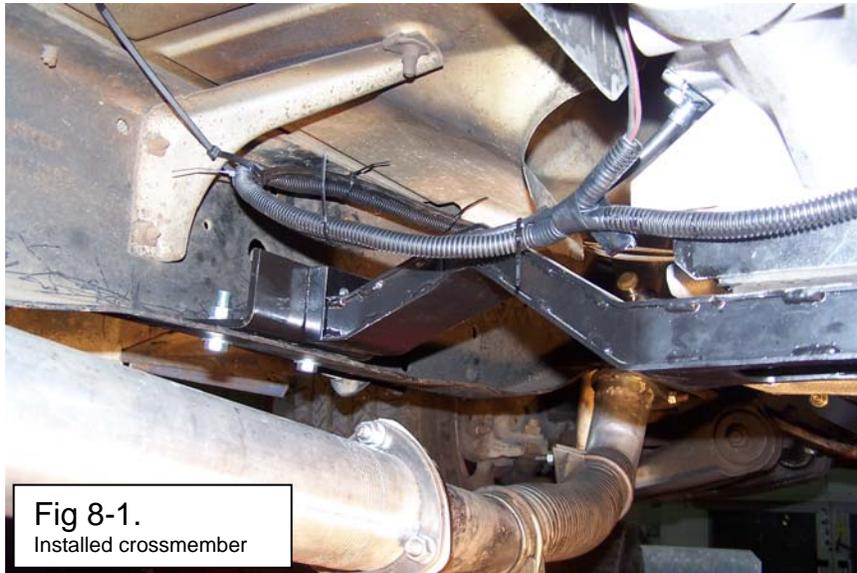
8. When installing transmission, use caution when inserting the input shaft into the clutch disc and pilot bearing. Do not allow weight of transmission to rest on assembly until fully engaged (doing so can misalign disc or damage pilot bearing).

**DO NOT UNDER ANY CIRCUMSTANCES use the transmission-to-bellhousing bolts to draw/pull the transmission up to the bellhousing! This could damage the input shaft of the transmission and is not covered by Silver Sport Transmissions' Warranty.** If the transmission will not slide up to the bellhousing, there is a problem. Stop and call Silver Sport Transmissions for a consultation

**NOTE:** If the transmission stops approximately 1/2" away from seating fully against the bellhousing, install and **finger-tighten** bellhousing to transmission bolts. Connect clutch linkage and depress pedal lightly while pushing transmission forward to facilitate alignment of clutch disk to input shaft and pilot bearing. **DO NOT** force the transmission into engagement – damage to the pilot bearing may result. Tighten bellhousing to engine bolts once the transmission is seated against the bellhousing.

9. Raise engine high enough to install crossmember over frame rails using 3/8-16 NC x 1-1/4" Lg bolts with flat washers and lock washers from hardware pack HWG-PACK C10.





10. Attach crossmember to isolator mount with (2) M10-1.5 x 30mm Lg bolts, flat washers, and lock washers from hardware pack HWG-PACK B.
11. Remove shipping plug and insert slip yoke fully until touching transmission seal rubber dust boot. Set driveshaft into position at differential and seat u-joints into differential pinion yoke. Make certain all parts are clean and properly assembled.
12. Install straps and torque to factory specs: 17 lb-ft for 1310/1330 U-bolts; 24 lb-ft for 1350 U-bolts (excessive torque can distort bearing cap leading to premature failure). Double check your assembly.
13. This would be a good time to double check driveline operating angles to confirm front and rear angles are within recommended values. Adjust as necessary.
14. Splice backup light harness into original harness. The backup light switch is on the right side of the main case.
15. The reverse lockout solenoid needs to be wired to be energized when shifting into REV. This can be done in one of two ways:
  - a) Wire solenoid pigtail into the brake light circuit so the reverse lockout solenoid is energized when the brakes are applied. The reverse solenoid is at the rear of the transmission near the top of the extension housing. One wire from the reverse lockout solenoid pigtail must be grounded and can be connected to the crossmember.
  - b) Wire solenoid pigtail into the optional ELAP-T56RLO lockout control module. See instructions included with the module kit.

16. Install new speedo cable per MAA-00102. Wrap tape around speedometer cable ends to prevent damage and keep them clean while routing new speedometer cable to transmission. Remove rubber plug from the speedometer cable port on left side (see photo right) and install new speedometer cable with gear, clip and o-ring (HWA-PACK S) into transmission case. Install cable retainer bolt and tighten bolt to 4 lb.-ft. Connect cable to speedometer.



17. Install exhaust.
18. Bolt on shifter handle with 3/8"-24 x 1" bolts and washers provided (HWA-PACK L). Use medium strength threadlocking compound. Torque to 25 lb.-ft. Confirm shifter motion through all gears.
19. Install front carpet and seat(s).
20. Install shifter boot and retainer ring.
21. Connect tachometer drive cable to distributor (if equipped).
22. Connect throttle linkage to carburetor.
23. Install distributor cap and breather.
24. Tighten fan shroud if it was loosened earlier.
25. Reconnect the negative (-) battery cable.



## E. QUALITY CHECK

It is important you confirm your work:

1. All bolts tightened to specifications
2. Full fill transmission fluid. Do not over tighten plug until head is flush with boss. This is tapered pipe plug.
3. Driveshaft fully assembled at both ends. Minimum 1/4" clearance around moving parts.
4. Shifter operates smoothly through all gears.
5. No vibration at idle speed, upper RPM or highway speed.

## F. FINAL INSPECTION AND START UP PROCEDURE

- Start engine and let idle for 2 minutes.
- Slowly rev engine in neutral and listen for odd noises. Feel for vibration in driveline.
- With clutch disengaged, shift through all gears. Do not shift into reverse at RPM higher than idle.
- Test drive at low speeds and low RPMs. Gradually test higher RPMs, then higher speeds.
- If you experience a vibration at cruising speeds, it may be necessary to adjust the rear end angle to achieve the correct driveshaft angle. Please refer to factory manuals for measurement and adjustment methods.

- If you experience a vibration at zero speed, as you rev up engine with clutch released, a faulty flywheel/clutch plate balance may exist. If vibration occurs when depressing the clutch pedal only a release bearing may be faulty.
- Reverse is synchronized and uses a reverse lockout solenoid wired into the reverse lockout module to ensure the vehicle is stopped prior to engaging reverse.
- Drive easy for 500 mile break-in period.
- Change oil at 30,000 miles.
- Spare parts are available from SST or an authorized TREMEC distributor.

## H. SPECIFICATIONS

- Do not exceed input torque  
700 lb-ft in 4<sup>th</sup> gear

- Gear ratios:

	CLOSE		WIDE
1 <sup>st</sup>	2.66	1 <sup>st</sup>	2.97
2 <sup>nd</sup>	1.78	2 <sup>nd</sup>	2.10
3 <sup>rd</sup>	1.30	3 <sup>rd</sup>	1.46
4 <sup>th</sup>	1.00	4 <sup>th</sup>	1.00
5 <sup>th</sup>	0.80	5 <sup>th</sup>	0.74
6 <sup>th</sup>	0.63	6 <sup>th</sup>	0.50

### CONTACT INFORMATION

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**ENJOY YOUR SILVER SPORT  
TRANSMISSION SYSTEM!**

FLUID CAPACITY: (approximately 3 quarts, 21 ounces)

**TREMEC HighPerformance ManualTransmissionFluid** is endorsed by Tremec for use in all aftermarket high performance Tremec brand manual transmissions. **Dexron III Automatic Transmission Fluid (ATF) and Mobil 1 ATF are the only other fluids approved by Tremec.**

The proper fill level is achieved when the oil reaches the fill plug hole.