



**SILVER SPORT**  
*Transmissions*

# **1970 – 1981 GM F2-Body**

**CAMARO  
FIREBIRD  
TRANS AM**

## **T56 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 T56 Magnum is installed. Using an angle finder or digital level, measure the transmission angle, front differential, rear differential, front driveshaft, and rear driveshaft. The most reliable place to get the engine/transmission measurement is from the machined vertical face that the rear seal goes into at the back of the tailhousing. Record this measurement for future reference. 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 throw out bearing kit – Hydraulic Kit Instructions for GM MAG-00402 (FTE style) or MAG-00404 (RAM style).
3. MAA-00801 – T56 Magnum Installation General Guidelines

**NOTE:** This 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 assistance.

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

## A. REMOVE EXISTING EQUIPMENT

1. Disconnect negative (-) battery cable.
2. Place transmission in neutral. Remove shifter knob and boot.
3. Remove console. Note location and orientation of all components and wiring.
4. Remove front seats and carpet.
5. Remove engine cooling fan and fan shroud.
6. Remove breather assembly & ignition cluster cover/distributor cap from engine.
7. Raise car securely on lift or jack stands.
8. Loosen exhaust at manifold pipe.
9. Unbolt starter and set aside.
10. Remove drive shaft at rear differential pinion yoke and remove from car.
11. Remove bell housing dust cover/inspection cover.
12. Remove linkage pin & clip at torque arm to clutch fork.
13. Remove shifter assembly.
14. Remove speedometer cable.
15. Remove exhaust pipes as required for working clearance and permit engine to drop.
16. Unbolt transmission isolator and remove crossmember.

17. Loosen brake cable lines and secure for working clearance.
18. Disconnect backup switch wiring.
19. Secure rear of engine with hydraulic jack.
20. Secure transmission (jack recommended) and unbolt 4 speed transmission from bellhousing, then move rearward in vehicle and remove.
21. Remove manual transmission bellhousing, clutch pressure plate and clutch disk.
22. Remove manual transmission clutch fork and release bearing from bellhousing. Inspect release bearing, fork, and pivot ball stud for wear. Contact Silver Sport Transmissions for replacement or repair.
23. Inspect flywheel ring gear teeth (no cracks, chips, wear), and friction surface (no cracks). Silver Sport Transmissions strongly suggests removing flywheel and having it surfaced, then dynamically balanced at a reputable automotive machine shop **unless** the engine was externally balanced with the flywheel installed.
24. Remove the manual transmission pilot bushing.

## B. TUNNEL MODIFICATION

Because the T56 Magnum transmission is much larger than factory original manual or automatic transmission, major tunnel modification will be required to install the T56 Magnum transmission to the proper driveline angle to obtain acceptable driveshaft operating angles. It is important to use the Silver Sport Transmission supplied tunnel cutting template and the body metal supplied in the kit. Using the following directions, the T56 Magnum can be installed and still retain use of the original factory manual console if desired.

### 1. Factory AUTOMATIC

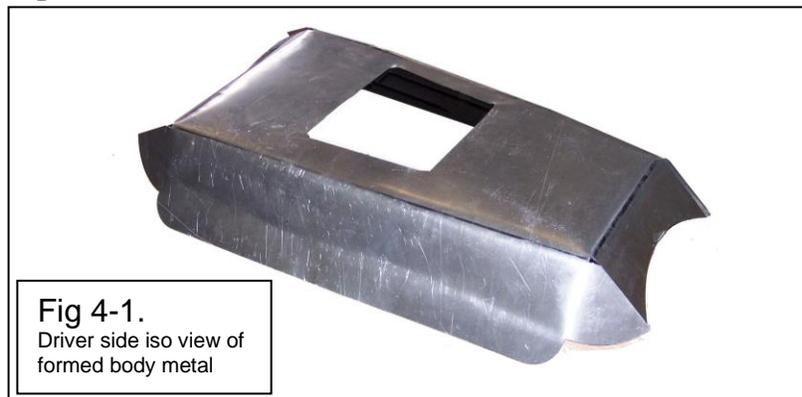
**NOTE: 1970-72 factory automatic cars will require a replacement 4 spd console top plate if the original automatic console is going to be used.**

**1973-81 factory automatic cars will require a replacement 4 spd console assembly if an original style console is desired.**

- a. Cutout the tunnel cut template as per the instructions printed on template TMG-02101. Position the template over the original tunnel positioned front to rear at 29.5" from RFB (Rear Face of Block) when using QT bell housing or 30.4" per template TMG-02103, sht 1, when using original bell housing and adapter plate.
- b. Tape template to floor. Mark area to cut.
- c. Carefully cut the area marked and remove template. See Fig 3-1 for top view of finished tunnel hole cut with T56 Magnum installed (reference only).

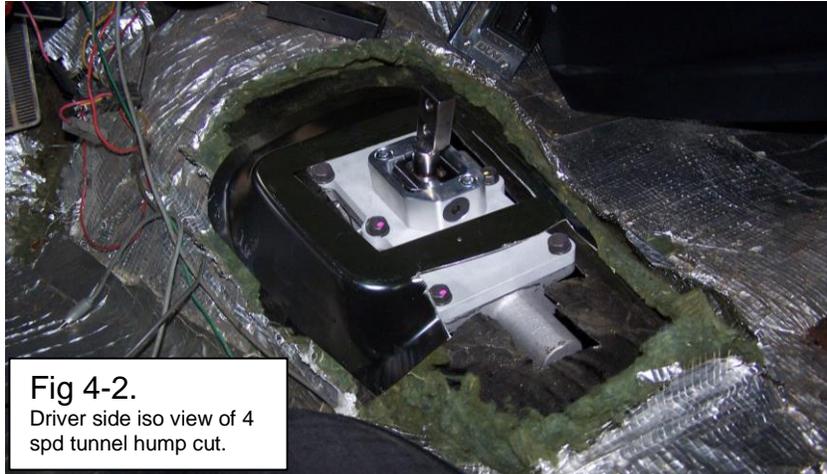


- d. Form the new tunnel body metal by bending and aligning tabs. The body metal will need to be custom fitted to match the contour around the newly cut opening in your tunnel. The final shape of new tunnel body metal should look similar to picture shown in Fig 4-1.



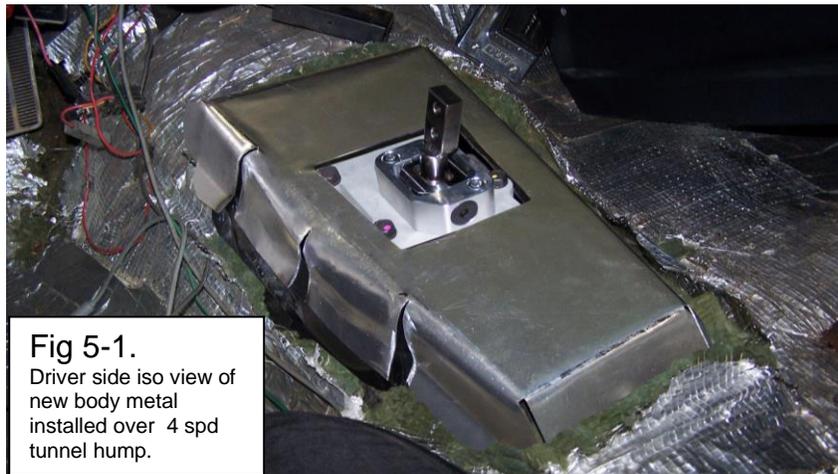
## 2. Factory MANUAL

- a. Cutout the tunnel cut template and as per the instructions printed on template TMG-02102, sht 1. Position the template over the original tunnel aligned with original 4 spd shifter hole, positioned front to rear at 29.5" from RFB (Rear Face of Block) when using QT bell housing or 30.4" per template TMG-02104, sht 1, when using original bell housing and adapter plate.
- b. Tape template to floor. Mark area to cut.
- c. Carefully cut the areas marked and remove template. See Fig 4-2 for top view of finished tunnel hole cut with T56 Magnum installed (reference only).



**Fig 4-2.**  
Driver side iso view of 4  
spd tunnel hump cut.

- d. Cutout the body metal bend paper pattern from sheet 2 of the tunnel cutting template. Align it over the flat tunnel body sheet metal BMG-01501 and tape it in place. Mark the end points of the (3) notch cutouts and along the driver side of the body metal and cut out notches from body metal.
- e. Form the new tunnel body metal by bending and aligning tabs. The body metal will fit over the modified 4 spd hump will need to be custom fitted to match the contour around your tunnel and the original 4 spd tunnel hump. The final shape of new tunnel body metal should look similar to picture shown in Fig 5-1.

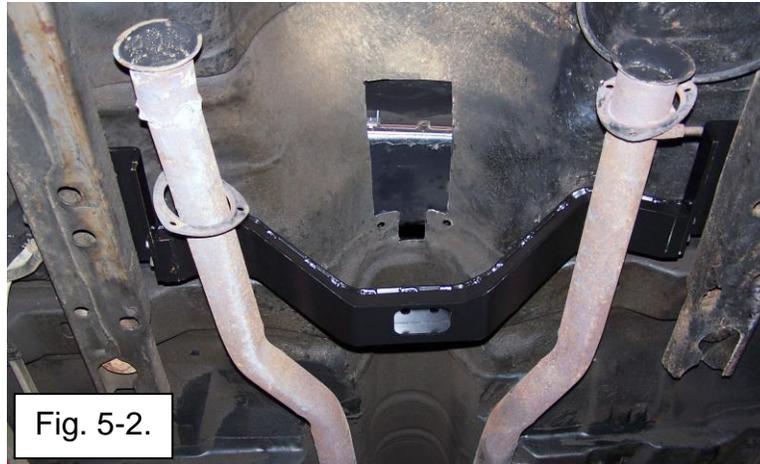


**Fig 5-1.**  
Driver side iso view of  
new body metal  
installed over 4 spd  
tunnel hump.

3. Once the new body metal has been formed and fitted to your tunnel, a trial fit for T56 Magnum clearance should be done before permanently attaching the new tunnel body metal.
4. Mark location of formed tunnel body metal to floor.
5. Temporarily attach bell housing, without clutch components, to the engine.
6. Temporarily install T56 Magnum transmission to bell housing using bolts from Hardware Pack HWG-PACK A T56.

**NOTE: Do not remove shifter tower from shifter base plate to gain clearance for installation. Shift stub seal in base plate could be damaged or not properly located when tower is reinstalled on base plate.**

7. Attach isolator mount to transmission using Hardware Pack HWG-PACK H. Using jack, raise rear of engine/transmission as far as possible to allow crossmember to be installed. See Fig. 5-2 for view of installed crossmember from front underside of tunnel (T56 Magnum removed to show crossmember).



8. Position crossmember perch area under isolator and lower transmission to rest on crossmember. Keep transmission secured to jack – there is no need to install the crossmember to isolator bolts for this clearance fit check.
9. Verify 1/8-1/4" minimum clearance between T56 Magnum and tunnel.
10. 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.
11. Remove crossmember and the transmission in order to gain access to complete final tunnel installation.
12. Attach formed tunnel body metal to car using rivets, screws, or by welding.
13. Apply body sealer LORD Fuser 803DTM Metal Sealer or equivalent around perimeter joint to prevent water intrusion. Paint exposed sheet metal surfaces for corrosion protection.

## C. INSTALL NEW EQUIPMENT

***Before installing, please note that if you are using an Oldsmobile engine, not all crankshafts on factory automatic cars were machined to accept a pilot bearing. The crankshaft will need to be machined or you could purchase an adapter and shorten the input shaft.***

1. Clean all mating engine surfaces and dowel pins. 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 installed. Reposition or replace with longer dowel pins if necessary.
2. **If using Quick Time bell housing, be sure to install engine block plate prior to installing flywheel.** Install new flywheel and flywheel bolts torqued to factory spec. Be sure to tighten bolts in alternating pattern sequence.

3. Install new pilot bearing assembly into crankshaft using a socket of similar diameter to the bearing and a rubber mallet. **The side with the needle roller bearing grease seal faces the transmission. No additional grease is needed.** Gently tap bearing fully into crankshaft until bearing face is flush with crankshaft face. Pilot bearing is designed to be light press fit (.0005" - .002" press). Replace or modify pilot bearing if necessary.



CHEVROLET PILOT BRG.

PONTIAC PILOT BRG.

PBG-00104A Used with Adapter Plate

**\*\*\*\*\*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. Lower rear of engine as far as possible (required for new transmission installation).

**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 Silver Sport 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.

6. With the bellhousing still removed from the engine, install clutch fork and release bearing in the bellhousing if using mechanical clutch linkage. *The tips of the clutch fork and the spring fingers on the rear side of the clutch fork **both fit inside** the groove on the release bearing.*



7. 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.
8. 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.
9. At this point either install the clutch pedal rod, "Z" bar mounts, "Z" bar, retainer springs, and pushrod. If using a SST Hydraulic system (available separately) follow instructions provided, MAG-00402.
10. When installing T56 Magnum 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).
11. **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' Technical Support at 888-609-0094 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.

12. Once the transmission is fully seated by hand against the bellhousing, fasten with bolts provided (HWG-PACK A T56).
13. Raise up engine/transmission until transmission contacts the top of the tunnel.
14. If not already installed after tunnel clearance check, attach rubber isolator mount to transmission using M10-1.5 x 30 bolts and lock washers (HWG-PACK H).
15. Repeating the same procedure as before for installing crossmember (Section B – Steps 7-8), place your crossmember on the frame rails so that perch mounting slots lines up with the new isolator mount holes. Lower transmission fully onto crossmember, and attach to mount with hardware pack HWG-PACK B. Confirm no interference to car body or noise will occur as the driveline moves under load.

16. Attach the crossmember to the frame using your original hardware.
17. 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.
18. 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.
19. 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.
20. Install E-brake cable. Adjust tension per factory specs.
21. Reinstall bell housing dust cover/inspection cover and starter.
22. Connect clutch linkage - do not preload release bearing. Adjust linkage as required.
23. Splice backup light harness into original harness. The backup light switch is on the right side of the main case.
24. 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.
25. Re-install and tighten exhaust.
26. Install new speedo cable per MAA-00102.
27. 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.

**Speedometer gear will have resistance when turning after assembled**



28. Bolt on upper shift handle with 3/8"-24 x 1" bolts and washers provided (HWA-PACK L). Use medium strength thread locking compound. Torque to 25 lb-ft. Confirm shifter motion through all gears.
29. Install lower shift boot (SBG-762), upper shift boot (SBG-G7590), shift boot retainer (SBG-754) and carpet.
30. Install front console (if equipped) and front seats.
31. Install new 6 speed shift pattern plate.
32. Install shifter boot and retainer ring, and/or console if equipped.
33. Connect throttle linkage to carburetor.
34. Install distributor cap and breather.
35. Tighten fan shroud if it was loosened earlier.
36. Reconnect the negative (-) battery cable.

## 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.



*Silver Sport Transmissions is dedicated to your satisfaction and enjoyment of this product. Please send us pictures of your car along with a testimonial of how you rate this product. We will be posting many customer feedback letters and pictures on our web-site and catalogs.*

## D. 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 brake light wiring to ensure the vehicle is stopped prior to engaging reverse.
- Drive easy for 500 miles break-in period.
- Change oil at 30,000 miles.
- Spare parts are available from SST or an authorized TREMEC distributor.

## E. 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>	0.80
6 <sup>th</sup>	0.63	6 <sup>th</sup>	0.63

### 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. Dexron III is recommended for the first 500 mile break in.** The proper fill level is achieved when the oil reaches the fill plug hole.