



SILVER SPORT Transmissions

GENERAL INSTALLATION (MANUAL TRANS)

MAGNUM - 6 SPEED CONVERSION 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 FACTORY SERVICE MANUAL FOR ADDITIONAL DETAILS OF THE PROCEDURES BELOW, AS REQUIRED.

FOR BOLT TORQUE SPECIFICATIONS, REFER TO YOUR FACTORY SERVICE MANUAL.

The material herein is the intellectual property of Silver Sport Transmissions ("SST") and is to be used by SST customers or their authorized installers for the sole purpose of installing SST-supplied transmissions and related parts. Under no circumstances shall the manual or any portion thereof be copied, duplicated, distributed or incorporated in any written or printed document without the express written approval of Silver Sport Transmissions.

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.

In addition to this manual, you should have received instructions for checking your bellhousing runout. **The bellhousing runout must be checked (and corrected if necessary) for Tremec's warranty coverage.**

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 – MAG-00402 Hydraulic Kit Instructions for GM
3. All Kits - MAA-00100 – Driveshaft Measuring Procedure
4. MAA-00201 – Automatic to Manual Conversion, General Guidelines

Your invoice lists the individual hardware packs and where they are used.

A. REMOVE EXISTING EQUIPMENT

1. Disconnect negative (-) battery cable.
2. Remove shifter knob and boot. Place shifter in neutral.
3. Remove console, if equipped.
4. Raise car securely on lift or jack stands. 6 ton stands are taller and will give you more working room under the car.
5. Make a reference angle measurement on the frame of the vehicle, marking the spot the measurement was taken. Measure the transmission angle for use in determining the correct elevation and driveline angle of the new transmission. The most reliable place to get the 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.
6. Remove clutch linkage at torque arm to clutch fork.
7. Remove bellhousing dust cover and starter.
8. Remove driveshaft at rear differential and remove from transmission.
9. Remove shift lever and shifter assembly components.
10. Remove breather assembly distributor cap from engine (if applicable). Big block vehicles may need the fan shroud loosened as fan blades may contact it as the engine is lowered in the back during transmission removal.

11. Remove throttle linkage.
12. Remove speedometer cable.
13. Disconnect reverse lamp wiring.
14. Secure rear of engine with hydraulic jack.
15. Remove exhaust, as required, for working clearance and to permit the engine to drop.
16. Unbolt transmission from the bellhousing mount (if applicable), or unbolt from crossmember and remove crossmember.
17. Secure transmission (jack recommended) and unbolt from bellhousing, then move rearward in vehicle and remove from vehicle.
18. Remove bellhousing, clutch pressure plate and clutch disc.
19. Remove clutch fork and release bearing from bellhousing. Inspect release bearing, fork, and pivot ball stud for wear. Contact Silver Sport Transmissions or your local parts supplier if replacements are needed.
20. 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.
21. Remove pilot bushing using removal tool (not supplied).
22. Clean mounting surface of engine and dowel pins.

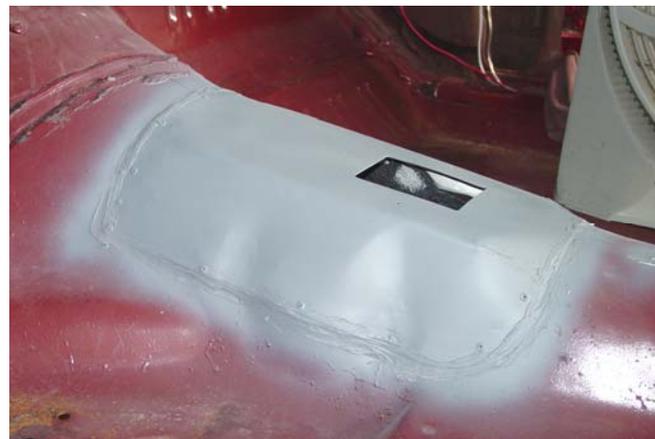
B. VEHICLE PREPARATION

1. If you are converting from an automatic transmission or from a column-shift vehicle, first you must cut the shifter hole. To locate the shifter hole, use the following procedure:
 - (a) Measure the transmission from the bellhousing mounting face to the center of the shift lever, including offset from the centerline (if any).
 - (b) Temporarily install the bellhousing to the engine (clutch unit not required) and raise the engine to approximate final elevation.
 - (c) Transfer the shifter location to the underside of the transmission tunnel by measuring from the transmission mounting face of the bellhousing rearward down the underside of the transmission tunnel, and mark the shift lever location, including any offset.
 - (d) Measure the rectangular section of the shift tower, and transfer this to the underside of the transmission tunnel. Drill pilot holes and cut out the required area.

NOTE: Confirm that nothing is in the way, inside or under the vehicle, during cutting.
2. Some vehicles will require additional tunnel modification in order to get the transmission high enough in the tunnel. If modification is required, the top of the tunnel will typically need to be squared off somewhat and possibly raised higher. In order to determine if modification is needed, temporarily install the bellhousing

(clutch unit not required) and transmission on to the engine and begin to raise into place. When the transmission contacts the underside of the tunnel, measure the transmission angle as you did in Step A-5 above. You want the new transmission to be very close to the same angle as the original one, in order to preserve the driveline geometry.

3. If the new transmission (jacked all the way up) is higher than your original, lower the new transmission to the same angle as your old transmission, and check for clearance around the transmission case. You should have at least 1/4 inch of clearance everywhere. If your new transmission is not high enough, then some modification is necessary. You may be able to create enough clearance by dimpling the tunnel in the spots that the transmission touches. If you need to raise the transmission significantly, then it may be necessary to cut out a portion of the tunnel and raise it to create clearance.
4. Using a paint marker, mark the tunnel around the area of the transmission needing removal and remove the material. Raise the transmission into place and measure again from the center of the output shaft straight up to the top center of the tunnel. Several attempts may be required to fully determine the area to be removed and permit the transmission to sit at the proper height.
5. Once the opening is made, a cardboard (or other stiff material) template can be made to cover and overlap the area. The template will be used to cut a repair patch from 20 gauge sheet metal to cover the opening. Additional slits in the sheet metal at the appropriate locations will assist in folding and shaping the sheet metal. Remove the transmission and bell housing.
6. Install the sheet metal, seam seal and paint. Below are photos of a typical tunnel modification with new sheet metal installed:



7. If your vehicle uses a crossmember to support the transmission, you will now need to modify the crossmember and/or its mounting points on the frame. In some vehicles, you will only need to slide the crossmember backwards or forwards on the frame rails and drill new holes in the frame. Some vehicles may require that you modify the crossmember perch, and others will require that you section the crossmember and move the center portion in one or more directions.

8. Temporarily reinstall the transmission in the car (no clutch assembly necessary). Install the isolator mount onto the transmission, and test-fit the crossmember to determine what modifications are necessary. Return to these instructions when the crossmember has been modified for proper fitment with the new transmission at the correct angle.

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.

C. TRANSMISSION INSTALLATION

NOTE: To obtain proper driveline angle (the angle measured in step 4 during disassembly), the transmission tunnel will need to be modified to permit the T56 MAGNUM transmission to be raised into the tunnel. The T56 MAGNUM transmission, is much larger and longer than the original standard transmission.

1. **TREMEC High Performance Manual Transmission Fluid** 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 use of ANY other fluid will void your warranty.** The proper fill level is achieved when the oil reaches the fill plug hole (approximately 3 quarts, 21 ounces). Silver Sport Transmissions recommends that the fluid be replaced after the first 500-1000 miles of normal driving, and then every 30,000 miles thereafter.
2. Install new pilot bearing assembly using a socket of similar diameter to the bearing and a rubber mallet. Gently tap bearing fully into crankshaft until bearing face is flush with crankshaft face.

NOTE: 1. The side with the needle roller bearing rubber seal faces the transmission. 2. If pilot bearing OD is larger than crankshaft ID by more than 0.002", a different pilot bearing is required. The pilot bearing holes in some crankshafts are not sized consistently. The pilot bearing is designed to be a slight press fit in the bore. 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 Silver Sport Transmissions or your local parts store for a suitable replacement.



3. **Check bellhousing face parallelism using height gauge (not supplied; your local machine shop can inspect this). Faces should be within 0.002" parallel. If out of specification, bellhousing should be surfaced (milling) – SST or your local machine shop can perform this service. If a bellhousing problem exists (i.e. cracks, excessive runout, worn/damaged bore, etc.) several styles of new bellhousings are available from SST.**
4. **Install the bellhousing and inspect for proper alignment to crankshaft using dial indicator or test indicator (SST can provide these tools at extra cost). See MAA-00101 provided with your literature package. Make sure to send your runout data to Silver Sport Transmissions in order for your warranty to be valid. Mark offset dowel pins position, if used, using paint marker and carefully remove bellhousing.**
5. Using clutch alignment tool, attach clutch and pressure plate to flywheel. Install each bolt only finger tight on the first round, then incrementally tighten each one in an alternating sequence until all six are snug. Then tighten each one in the same alternating sequence to 35 lb.-ft.

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. See MAA-05000 clutch installation instructions for more details.

NOTE: If using a diaphragm-style pressure plate, it will be necessary to remove the large over-center spring from the clutch pedal. The over-center spring can hold the clutch disengaged or cause unusual fluctuations at the clutch engagement and release points. If using a three-finger style pressure plate, the over-center spring will be retained.

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 same groove on the release bearing.* If you purchased the SST hydraulic system with your transmission, the hydraulic release bearing will already be installed and you will not be using a clutch fork.
7. Install bellhousing to engine, while making sure that 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.

8. Reinstall the adapter plate (if applicable), previously removed from the front of the T56 MAGNUM transmission, on the bellhousing using the flathead screws provided.
9. 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.
10. Install transmission on engine using caution while engaging input shaft in clutch disc and pilot bearing. Do not allow weight of transmission to rest on assembly until fully engaged (doing so can misalign disk or damage pilot bearing). Turn output slip yoke, as required to facilitate engagement into clutch disk. If engagement is approximately 1/2 inch short, install and lightly tighten (35 ft-lb) bellhousing to transmission bolts, connect clutch linkage and depress the clutch pedal lightly while pushing transmission forward to facilitate alignment of clutch disc to input shaft and pilot bearing. **DO NOT** force the transmission into engagement – damage to bearing may result.

11. Complete transmission installation and install on a tailhousing mounted crossmember. Due to transmission weight, a crossmember mount is required.
12. Confirm no interference to car body (or noise will occur).
13. Remove tailshaft plug, if present, and install driveshaft.
14. Reinstall bellhousing inspection cover and starter.
15. Connect clutch linkage - do not preload release bearing. Adjust linkage as required. If using a SST hydraulic system (available separately) follow instructions provided.
16. Some 6 speed transmissions use a mechanical speedometer output and others use an electrical output. The electronic speedometer output requires a signal transducer, available separately (P/N ELA-0015) and separately available connector pigtail for the transmission to convert the pulse signals to mechanical output. Install signal transducer per manufacturer's instructions. The mechanical speedometer output requires a gear insert also available from SST.
17. Splice backup light harness into original harness. The backup light switch is on the right side of the main case. The reverse lockout solenoid needs to be wired into the brake light circuit (power from the brake light circuit ahead of turn signal flasher then to ground, polarity unimportant) so the reverse lockout solenoid is energized when the brakes are applied. The reverse lockout solenoid is at the rear of the transmission near the top of the transmission tailshaft case. These connector pigtails are available from Silver Sport Transmissions.
18. Bolt on shifter handle with bolts and washers provided. Use medium strength threadlock compound. Torque to 25ft-lb. Confirm shifter motion through all gears.
19. Install rubber boot/retainer ring.
20. Check clutch adjustment. Should be about 1 inch of free travel in the clutch pedal. (Threaded adjuster rod between clutch fork and linkage)
21. Connect throttle linkage to carburetor.
22. Install distributor cap and breather (if applicable).
23. Reinstall exhaust system.
24. Reconnect battery negative (-) cable.

D. QUALITY CHECK

It is important you confirm your work:

1. All bolts tightened to specifications
2. Full fill transmission fluid.
3. Driveshaft fully assembled at both ends. Minimum 1/2 inch clearance around moving parts.
4. Shifter operates smoothly through all gears.
5. No vibration at idle speed, upper RPM's or highway speed. It is a good idea to drive the car before beginning installation in order to determine a baseline reference of vibration and noise.

E. 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.

F. SPECIFICATIONS

- Do not exceed input torque
700 lb-ft in 4th gear

- Gear Ratios

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

CONTACT INFORMATION

SILVER SPORT TRANSMISSIONS
2250 STOCK CREEK BOULEVARD
ROCKFORD, TENNESSEE 37853-3043

Phone: (865) 609-8187
Toll Free: (888) 609-0094
Fax: (865) 609-8287

WWW.SHIFTSST.COM

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**ENJOY YOUR SILVER SPORT
TRANSMISSION SYSTEM!**

FLUID CAPACITY: (approximately 3 quarts, 21 ounces)

Tremec **H**igh **P**erformance **M**anual **T**ransmission **F**luid 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.**