



# SILVER SPORT *Transmissions*

## MOPAR B-BODY 1962-1970



## TKO 5-SPEED MANUAL TO MANUAL

## TRANSMISSION 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 (FSM) 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 – Inspection and Correction of Bellhousing to Crankshaft Runout MAA-00101
2. Automatic to Manual conversion, General Guidelines MAA-00201
3. Manual Pedal Installation Instructions MAM-01501
4. Floor Hump Sheet Metal Installation Instructions MAM-00401
5. Hydraulic Kit Instructions for MOPAR MAM-00201

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

**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 six possible positions while rotating the input shaft and checking for output shaft rotation. The rubber sleeve may need to be removed from the output shaft to allow it to turn more easily (see photo on page 5). If the input shaft will not turn, slide the 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 **865-609-8187 extension 118** for further instructions.

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

## A. REMOVE FACTORY 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. Remove front seats and carpet.
7. Raise car securely on lift or jack stands. 6 ton stands are usually taller and will give you more room under the car. Eighteen inches or more of working room is recommended.
8. Unbolt the idler arm from the K frame and pull center link downward.
9. Remove exhaust, as required, for working clearance.
10. Remove clutch linkage at torque arm to clutch fork.
11. Unbolt starter and set aside.
12. Remove bellhousing dust cover.
13. Disconnect driveshaft from differential and remove from car.
14. Remove shifter assembly.
15. Remove speedometer cable.
16. Secure rear of engine with hydraulic jack.
17. Unbolt transmission isolator from the crossmember and remove crossmember.
18. Secure transmission (jack recommended) and unbolt from bellhousing, then move rearward and remove from vehicle.
19. Remove bellhousing and clutch unit.
20. Remove clutch fork and release bearing from bellhousing. Inspect fork and pivot for wear. Contact Silver Sport Transmissions or your local parts supplier if replacements are needed.
21. 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.
22. Remove pilot bushing using removal tool (not supplied).
23. If you did not purchase a new bell housing from Silver Sport Transmissions with your transmission system, you will need to send your factory bell housing to SST for modification. Write the RMA number you were given on the inside and outside of the bellhousing with a permanent marker. If you do not have an RMA number, please call Silver Sport Transmissions' Customer Service at **865-609-8187 extension 118** to obtain one. Please, DO NOT send your bell housing to SST without marking it with an RMA number!

## B. SHEET METAL INSTALLATION AND TEST FITMENT

**NOTE:** 1966 to 1970 automatic equipped vehicles and manual column shift vehicles require different floor tunnel sheet metal and will need Instruction Sheet MAM-00401 to aid in sheet metal installation.

1. For 1962 to 1965 cars with factory four speed tunnel:
  - i. A template is provided to cut a hole in the top of the tunnel to the right and forward of the original shifter hole. The template also has information on it regarding bending the flat sheet metal provided with the kit.
  - ii. Cut out the template and place on the tunnel as indicated. See photos on next page.
  - iii. Mark the perimeter of the area to be cut out and remove the template. Cut out the tunnel as marked to make a new shift opening.

- iv. Bend the new sheet metal as indicated on the template drawing.
- v. Install the new sheet metal by centering the left side over the original tunnel hump, and centering the right hand opening in the new metal over the opening just cut in the tunnel.
- vi. Go to Step 3 below.

1962-1965 CUTTING TEMPLATE INSTALLED



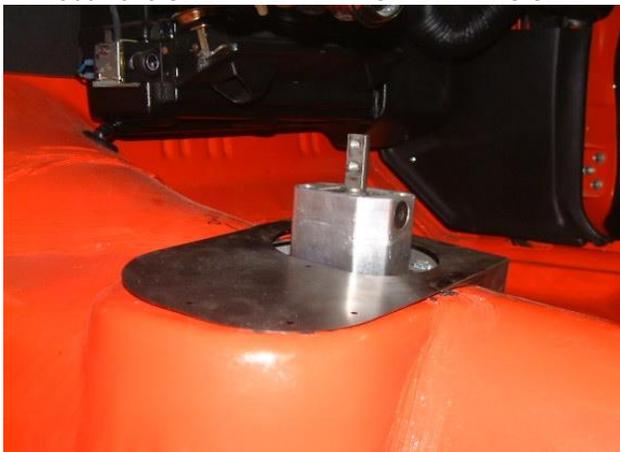
1962-1965 SHEET METAL INSTALLED



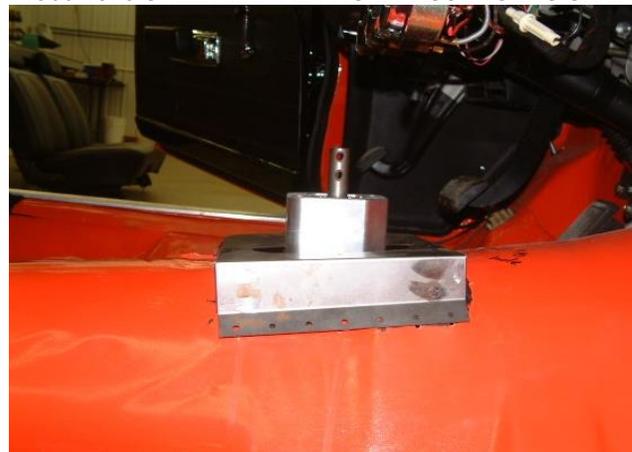
2. For 1966 to 1970 cars with factory four-speed tunnel:

- i. Place the new floor seal plate/shifter hump on the tunnel so that the flat seal plate portion is over the original shifter opening. Align the holes in the left side of the new seal plate with the original shift boot screw holes and fasten using the original screws. See photos below.
- ii. The opening in the new tunnel portion provides the pattern for the new shifter hole. Use a scribe or marker to trace the inner perimeter of the new shifter hole on the floor tunnel.
- iii. Remove the seal plate and cut the new hole 1/8" or so outside of the area you marked.
- iv. Reinstall the seal plate.

1966-1970 SHEET METAL FROM DRIVERS SIDE



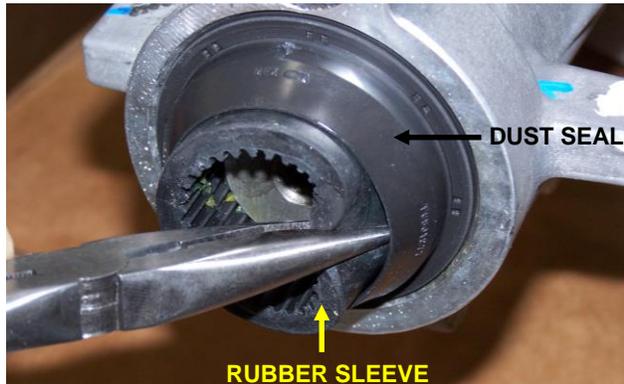
1966-1970 SHEET METAL FROM PASSENGERS SIDE



3. Complete by permanently attaching new metal by welding or other secure method. Use a seam sealer such as 3M Fast 'n Firm or equivalent between new and old metal. Paint both sides for corrosion protection. If large gaps exist between old and new metal, urethane foam can be used as a filling agent, then trimmed and painted after drying.

## C. TRANSMISSION INSTALLATION

1. Reinstall the rubber sleeve on the output shaft if it was removed during test shifting to help prevent fluid leakage during the installation. Fill transmission with 2 quarts, 20 ounces of transmission fluid. **GM Synchronesh (part #88900333; formerly part #12345349) or Pennzoil (part #3501) is the recommended fluid and will provide the best shift quality. DEXRON/MERCON ATF (non-synthetic) and Mobil 1 ATF are the ONLY other fluids approved by Tremec. The use of ANY other fluid will void your warranty.** Silver Sport Transmission recommends that the fluid be replaced after the first 500-1000 miles of normal driving, and then every 30,000 miles thereafter. It is acceptable to use the less-expensive DEXRON/MERCON fluid for the break-in period and then replace it with GM Synchronesh.
2. Remove your original pilot bushing or bearing (if equipped) using a pilot bearing removal tool. Clean the inside of the **larger** diameter recess in your crankshaft hub. This recess is the pilot bore for the nose of an automatic transmission torque converter. The new custom pilot bearing assembly will fit into this larger recess; **an original equipment style pilot bushing or bearing will not work with the SST 5 speed.** Install the new SST pilot bearing assembly using a bearing driver or a socket of similar diameter to the outer bronze bushing of the new bearing assembly. Make sure the bearing assembly is installed with the needle roller bearing protruding out towards transmission (see photo below). Gently tap bearing fully into crankshaft until the outer bearing face is flush with crankshaft face.



3. Install bellhousing and inspect for proper alignment to crankshaft using dial indicator or test indicator (SST can provide these tools at extra cost). See "Inspection and Correction of Bellhousing To Crankshaft Alignment" provided with your literature package. Make sure to record your runout data in a safe place, as it will be required in the event of a warranty issue. Mark offset dowel pin position if used to correct bellhousing runout, and carefully remove bellhousing.
4. Using the provided clutch alignment tool, attach clutch disc (1 1/8" x 26 spline) 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:** 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.

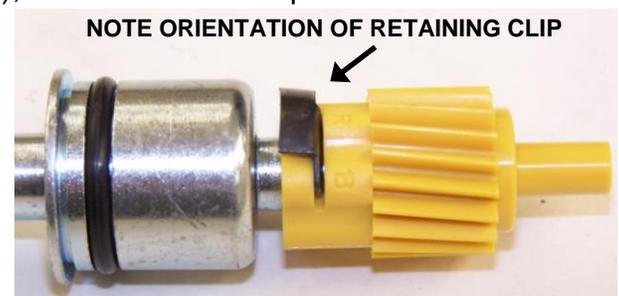
5. Lower rear of engine as far as possible (required for new transmission installation).
6. With the bellhousing still removed from the engine, install clutch fork and new SST release bearing in the bellhousing if using mechanical clutch linkage. **An original equipment style release bearing will not fit the SST 5 speed.** 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.

**NOTE:** Make sure you have the correct clutch fork for your car and engine. Check length by fully engaging the fork in the pivot bracket and release bearing, with the pushrod disconnected from the clutch fork. Verify that the pushrod is aligned with the fork eyelet. Silver Sport Transmissions can provide a new clutch fork, pivot, and boot kit if needed.

7. Install bell housing 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 factory specification.
8. Install transmission, using 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). The rubber tailshaft sleeve may be temporarily removed and the slip yoke inserted in order to rotate the tailshaft, as required, to facilitate engagement into clutch disk. **DO NOT** draw the transmission up to the bellhousing by tightening the transmission-to-bellhousing bolts before the transmission is fully seated into the bellhousing!

**NOTE:** If the transmission stops approximately ½ inch 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.

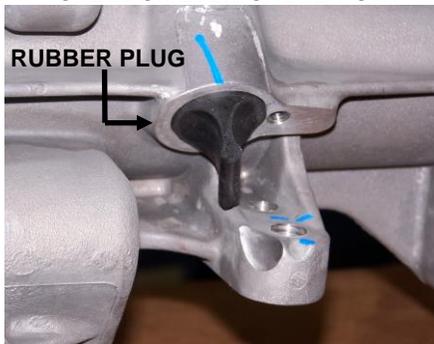
9. Once the transmission is fully seated by hand against the bellhousing, fasten with 7/16" x 1 ½" bolts and washers provided (HWM-PACK A) and torque to 50 lb.-ft.
10. Raise up engine/transmission until transmission contacts the top of the tunnel.
11. Attach the rubber isolator mount to transmission with 1/2"-13 x 1-1/2" bolts and washers provided (HWM-PACK D).
12. Install new crossmember using your original hardware to attach to the frame. Lower transmission fully onto crossmember, and attach mount to crossmember with 3/8" flat washers, lockwashers and nuts (HWM-PACK B). Confirm that there is no interference to car body, or noise will occur as the driveline moves under load. Confirm shifter is centered in new tunnel hole.
13. Make sure that the rear axle is loaded with the normal weight of the car, and take your driveshaft measurements as described on your Driveshaft Measuring Procedure sheet. Call your measurements in to our Customer Service department at 865-609-8187 extension 118.
14. Once you receive your new driveshaft, the rubber tailshaft sleeve **MUST** be removed (see step C-1 and photo on pg. 5). Install driveshaft by inserting the slip yoke into the rear of the transmission first. Then position the rear U-joint in the differential U-joint saddles. It may be helpful to be able to turn the rear wheels. Install rear straps and torque to factory specs. Make certain all parts are clean and properly assembled.
15. Reinstall bellhousing inspection cover and starter.
16. Connect clutch linkage - do not preload mechanical release bearing. Adjust linkage as required. If using a SST hydraulic system (available separately), follow instructions provided.
17. 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 (see photo next page) and insert 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.



**NOTE:** The TKO 500 and 600 also have provision for electronic speedometer output. The speed sensor is located on the passenger side of the transmission, directly opposite the mechanical speedometer output. The sensor is a standard two wire Ford, sine wave output, with 12 pulses per revolution of tailshaft. This equates to roughly 24,000 to 42,000 pulses per mile depending on axle ratio and tire size. For reference, a 26" tire with a 3.73 gear will produce 34,738 pulses per mile. Please refer to your speedometer's installation instructions or contact the speedometer manufacturer for information on connecting and calibrating your electronic speedometer.

18. The reverse light switch is located on the driver's side of the main case, and is a black-bodied switch with two studs. The switch is a normally open, non-directional switch that will complete the lighting circuit when the transmission is in reverse. SST has provided a two-wire harness with your kit that will attach to the 5 speed reverse light switch. It can be spliced into your car's wiring harness in place of your original switch that was mounted to your 4 speed shift linkage.

SPEEDOMETER CABLE PORT



ELECTRONIC SPEED SENSOR



REVERSE LIGHT SWITCH



19. Tighten exhaust.  
 20. Attach idler arm to K-frame.  
 21. Bolt on shifter handle with 3/8"-24 x 1" bolts and washers provided (HWA-PACK L). Use medium strength threadlock compound. Torque to 25 lb.-ft. Confirm shifter motion through all gears.  
 22. Install carpet and front seats.  
 23. Install shifter boot and retainer ring, and/or console if equipped.  
 24. Install distributor cap if it was removed earlier.  
 25. Install breather assembly and fan shroud.  
 26. Reconnect the negative (-) battery cable.

## FINAL INSTALLATION STEPS

1. If you did not fill the transmission with fluid before installation, remove the fill plug on the passenger's side of the transmission and fill with 2 quarts, 20 ounces of transmission fluid, or until fluid runs out of the fill hole with the vehicle level. **GM Synchronesh (part #88900333; formerly part # 12345349) or Pennzoil (part #3501) is the recommended fluid and will provide the best shift quality. DEXRON/MERCON ATF (non-synthetic) and Mobil 1 ATF are the ONLY other fluids approved by Tremec. The use of ANY other fluid will void your warranty.** 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. It is acceptable to use the less-expensive DEXRON/MERCON fluid for the break-in period and then replace it with GM Synchronesh. Reinstall the fill plug after adding fluid.
2. Start engine and allow it to idle for a few minutes.
3. Check for leaks while warming up.
4. Slowly rev engine in neutral and listen for any unusual sounds or vibration.
5. Shift through all forward gears with the clutch disengaged (clutch pedal depressed).
6. Do not shift into reverse above idle speed or while moving, reverse is not synchronized. Shifting into reverse may require shifting into a forward gear first to prevent grinding.
7. Test drive at low speeds and low RPM.
8. Gradually increase engine RPM and vehicle speed.
9. Compare this test drive to the pre-installation test drive.
10. Drive conservatively for the first 500-1000 miles for transmission break-in.
11. If you experience vibration at highway speeds, verify that there is no body contact with the new transmission. If there is no contact, the vibration may be due to an incorrect driveline angle. Many cars came from the factory with a positive pinion angle (pinion pointed slightly up), and it may be necessary to make some adjustments. Much has been written about driveline angles and how to determine them, and there is a lot of great information available online from multiple websites. If you need further help with your driveline angle, call Silver Sport Transmissions' Customer Service at 865-609-8187 extension 118.

## SPECIFICATIONS AND MAINTENANCE

**GM Synchronesh (part #88900333; formerly part # 12345349) or Pennzoil (part #3501) is the recommended fluid and will provide the best shift quality. DEXRON/MERCON ATF (non-synthetic) and Mobil 1 ATF are the ONLY other fluids approved by Tremec. The use of ANY other fluid will void your warranty.** 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. It is acceptable to use the less-expensive DEXRON/MERCON fluid for the break-in period and then replace it with GM Synchronesh or Pennzoil.

FLUID CAPACITY: 2 QUARTS, 20 OUNCES (U.S.)

DO NOT EXCEED MAXIMUM  
INPUT TORQUE:

- TKO 500: 500 lb.-ft. in 4<sup>th</sup> gear
- TKO 600: 600 lb.-ft. in 4<sup>th</sup> gear

GEAR RATIOS:

- TKO 500
  - 1<sup>ST</sup> 3.27
  - 2<sup>ND</sup> 1.98
  - 3<sup>RD</sup> 1.34
  - 4<sup>TH</sup> 1.00
  - 5<sup>TH</sup> 0.68
- TKO 600
  - 1<sup>ST</sup> 2.87
  - 2<sup>ND</sup> 1.89
  - 3<sup>RD</sup> 1.28
  - 4<sup>TH</sup> 1.00
  - 5<sup>TH</sup> 0.64  
(0.82 OPTIONAL)

### CONTACT INFORMATION

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SALES EXTENSION: 113

CUSTOMER SERVICE AND TECH SUPPORT  
EXTENSION: 118

[WWW.SHIFTSST.COM](http://WWW.SHIFTSST.COM)

*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 WEBSITE AND BROCHURES.*

**ENJOY YOUR SILVER SPORT  
TRANSMISSION SYSTEM!**