SILVER SPORT Transmissions

1992-2002 RX7 MAGNUM TRANSMISSION INSTALLATION INSTRUCTIONS

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.

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. MAI-00101 MAZDA RX7 Hydraulic Master kit manual.

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

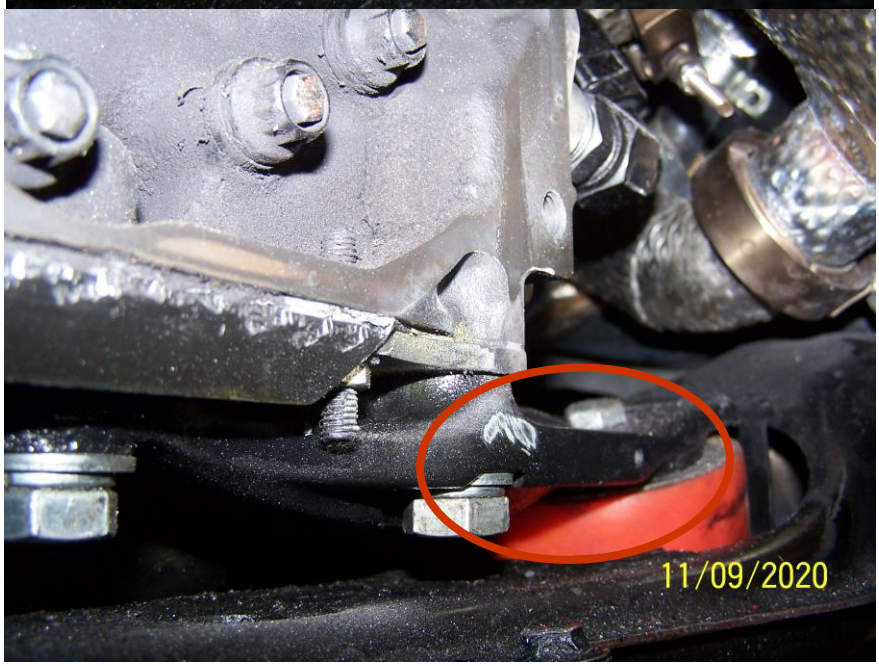
A. REMOVE EXISTING EQUIPMENT

1. Disconnect negative (-) battery cable.
2. Remove shifter knob. Place shifter in neutral.
3. Remove shifter console trim panel.
4. Remove shifter from the transmission.
5. Raise car securely on lift or jack stands. 6 ton stands are taller and will give you more working room under the car.
6. 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.
7. Remove exhaust, as required, for working clearance and to permit the engine to drop.
8. Remove the PPF from transmission and differential if still attached.
9. Remove the slave cylinder from the transmission bellhousing.
10. Remove the starter.
11. Remove the dust cover from the bottom of the transmission.
12. Rotate the engine around top get to the clutch bolts and unbolt the clutch from the flywheel.
13. Remove driveshaft at rear differential and remove from transmission.
14. Disconnect speedometer and reverse lamp wiring.
15. Secure rear of engine with hydraulic jack.
16. Unbolt transmission from the 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. 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.
20. Remove pilot bushing using removal tool (not supplied).
21. Clean mounting surface of engine and dowel pins.

B. TRANSMISSION INSTALLATION

NOTE: To obtain proper driveline angle (the angle measured in step 6 during disassembly), the transmission tunnel will need to be 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. The motor mounts will need to be modified/trimmed to provide clearance for the bellhousing block plate. You may need to remove them to get enough clearance for the block plate to sit flush.



2. Use a straight edge across the mounting face of the bellhousing on the engine to make sure the block plate and the bellhousing will sit flush. **This could greatly effect your bellhousing runout measurements!**

3. **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. **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.
4. 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. 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. Then install the pilot bearing seal.

5. **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, warn/damaged bore, etc.) several styles of new bellhousings are available from SST.**
6. **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.**

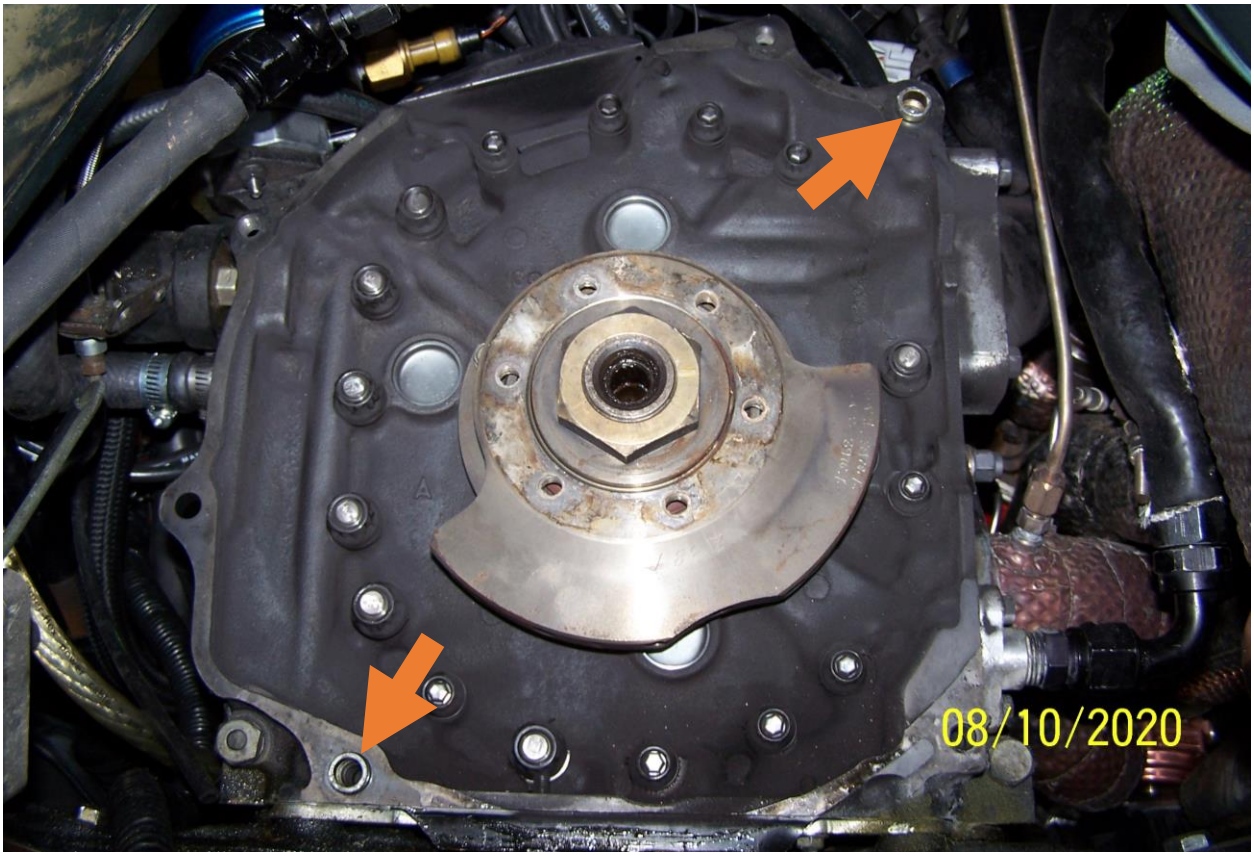
IMPORTANT !!! Refer to MAA-00101 Inspection and Correction of Bellhousing to Crankshaft Runout

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. 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.

8. Follow the directions to set up the proper distance for your hydraulic throughout bearing.
9. 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. The two bolts provided in the kit will be used in the 2 dowel hole locations.

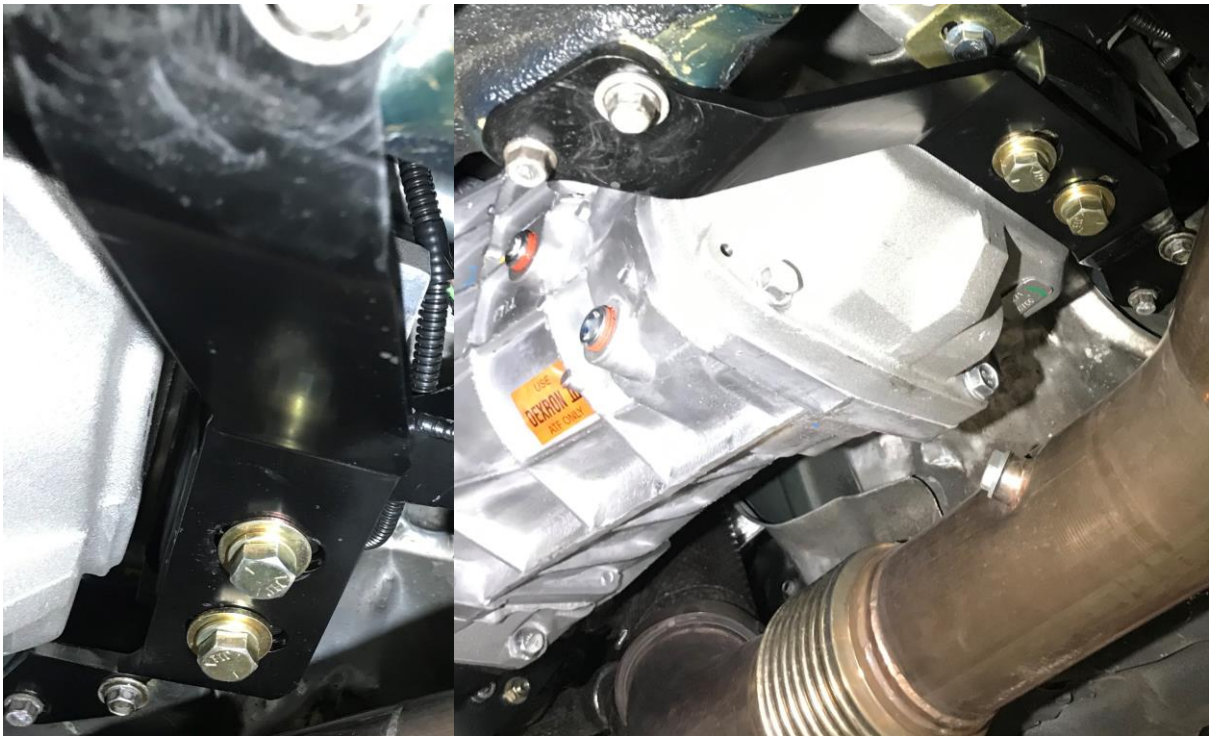


10. It will be easier to add transmission fluid at this point before completing the final installation of T56 Magnum transmission. See MAA-00801. The fill plug is on the left side of the transmission midway up the case. Use pipe sealant - but do not over tighten the tapered pipe plug until head is flush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

12. Index starter to the correct position. Take care to clearance the starter to clear the bellhousing bolt. Install starter to bellhousing.

13. 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 hydraulic 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.
14. Install transmission mount to transmission using the hardware provided.

15. Install transmission crossmember using your original bolts.



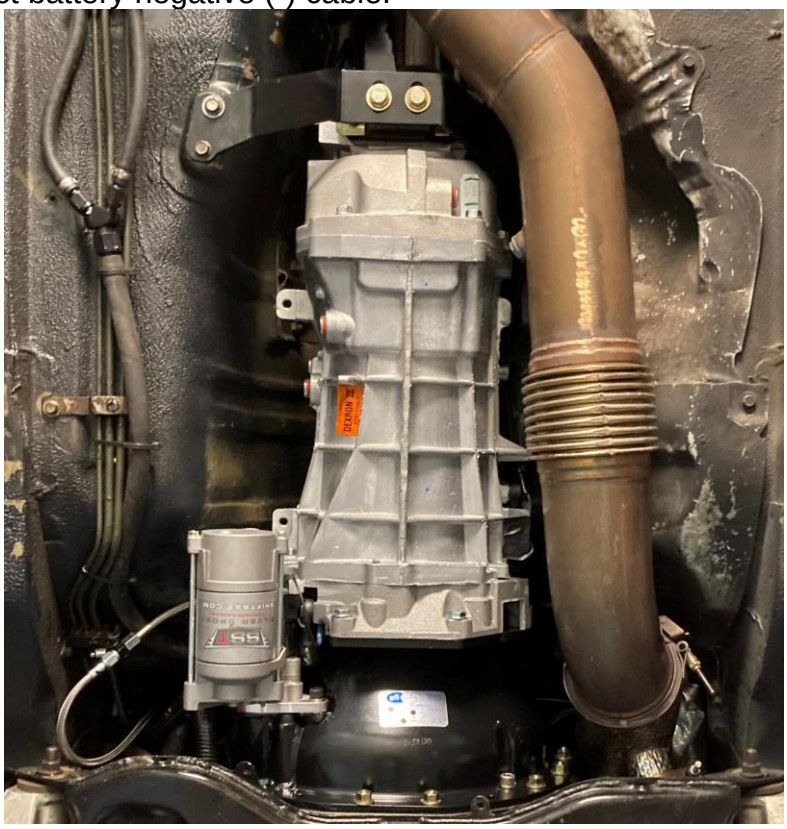
16. Confirm no interference to car body (or noise will occur).
17. Remove tailshaft plug, if present, and install driveshaft.
18. Connect clutch hydraulic line.
19. Some 6 speed transmissions use a mechanical speedometer output and others use an electrical output. The electronic speedometer output requires 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.
20. Splice backup light harness into original harness. The backup light switch is on the right side of the main case.
21. The reverse lockout solenoid needs to be wired into a reverse lockout control module. Follow the wiring instructions provided with your reverse lockout module. The connector pigtails and reverse lockout modules are available from Silver Sport Transmissions.

22. Install rubber boot/retainer ring.

23. Bolt on shifter handle with bolts and washers provided. Use medium strength threadlock compound. Torque to 25ft-lb. Confirm shifter motion through all gears.
24. Reinstall shifter trim panel.

25. Check clutch adjustment. Should be about 1 inch of free travel in the clutch pedal. (Threaded adjuster rod between clutch fork and linkage)
26. Reinstall exhaust system.

27. Reconnect battery negative (-) cable.



C. 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.

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

CONTACT INFORMATION

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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!

FLUID CAPACITY: (approximately 3 quarts, 21 ounces)

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