



B M 40509 Automatic Shifter Bracket and Lever Kit Instruction Manual

[Home](#) » [b m](#) » B M 40509 Automatic Shifter Bracket and Lever Kit Instruction Manual 



Performance & Off-Road

INSTALLATION INSTRUCTIONS

Part No. 40509

BRACKET & LEVER KIT FOR

FORD AOD TRANSMISSIONS

and B&M 3-SPEED, REAR-CABLE-EXIT SHIFTERS

Contents

- [1 INTRODUCTION](#)
- [2 SAFETY WARNINGS](#)
- [3 PARTS LIST](#)
- [4 INSTALLATION](#)
- [5 SERVICE TRANSMISSION WITH FLUID](#)
- [6 OPERATION](#)
- [7 Documents / Resources](#)

INTRODUCTION

This bracket and lever kit allows the use of B&M 3-speed, rear-cable-exit shifter with Ford AOD transmissions.

NOTE: Although the AOD is a 4-speed transmission, it has only three forward shifter positions, so a 3-speed shifter must be used.

Before starting, take the time to read and understand these instructions.

NOTES

- It is necessary to drain the transmission fluid and drop the pan to install the new selector lever. You will need 7-10 quarts of transmission fluid (depending on pan depth), and a new pan gasket. A new transmission filter is

also recommended.

- Installation requires better-than-average mechanical knowledge and skills. If this job is beyond your abilities, seek the services of a qualified technician.
- If you do not understand any part of these instructions, please call B&M Technical Support at (866) 464-6553 for assistance.
- The instruction photos show a transmission on a work stand, not installed in a vehicle.

SAFETY WARNINGS

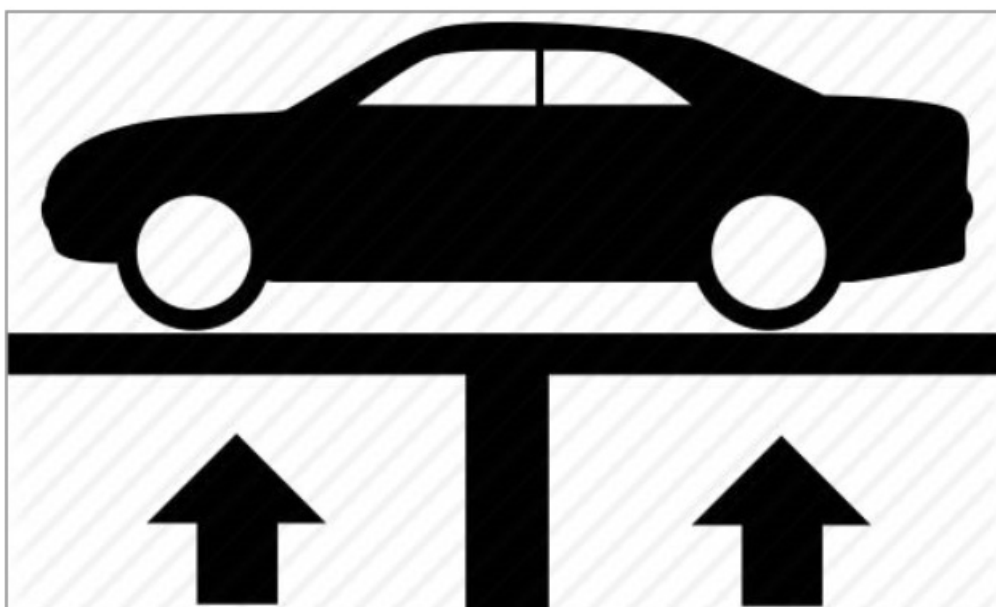
- **WORK SAFELY!** For maximum safety, perform this installation on a clean, level surface, with the engine turned off. Chock the wheels to prevent vehicle movement. To avoid bodily injury or vehicle damage, do not begin work until you are confident that the vehicle is safely secured and will not move.
- **AVOID SERIOUS INJURY OR DEATH BY CRUSHING!** If you have to raise the vehicle to work under it, securely support it on a lift or jack stands. NEVER work under a vehicle that is supported only by jacks!

PARTS LIST

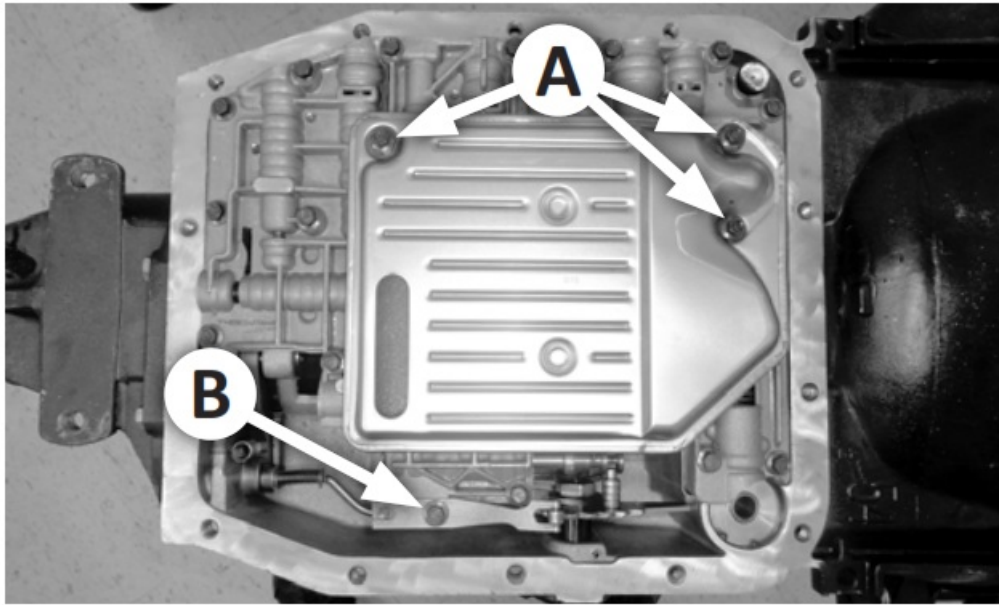


DESCRIPTION	QTY
SELECTOR LEVER, AOD	1
BRACKET, CABLE, AOD, REAR EXIT	1
SWIVEL, CABLE	1
PIN, COTTER 1/16" x 1"	1
SEAL, THROTTLE SHAFT	1
SPACER, 7/16" I.D. x 1/4" L	2
BOLT, M8-1.25 x 25	2

INSTALLATION

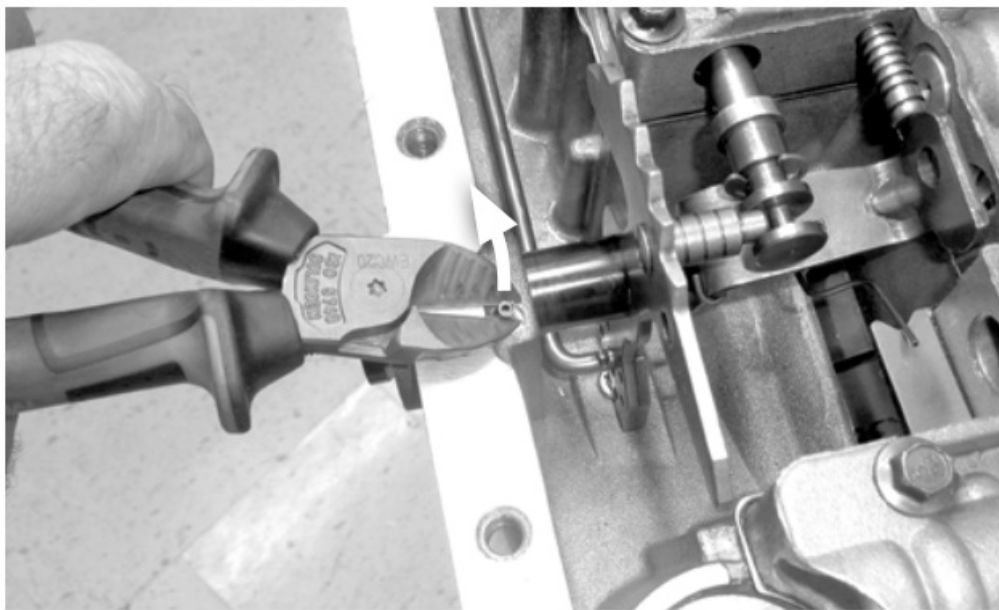


1. Raise the vehicle up to a suitable working height using either a lift, or a jack and jack stands. Disconnect the shift linkage from the selector lever. Remove the throttle lever from the transmission, and let it hang loose from the linkage.
- 2.



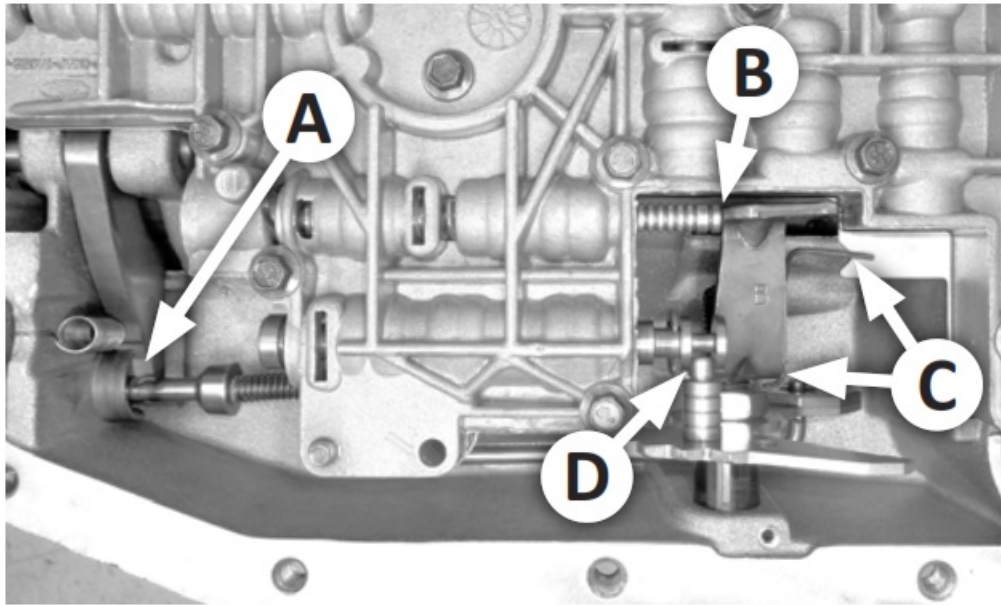
Drain and remove the transmission oil pan (14 bolts). Then remove the filter (3 screws “A”) and detent spring (1 screw “B”).

NOTE: If your oil pan does not have a drain plug, consider installing B&M Drain Plug Kit 80250 for quicker, cleaner fluid servicing.

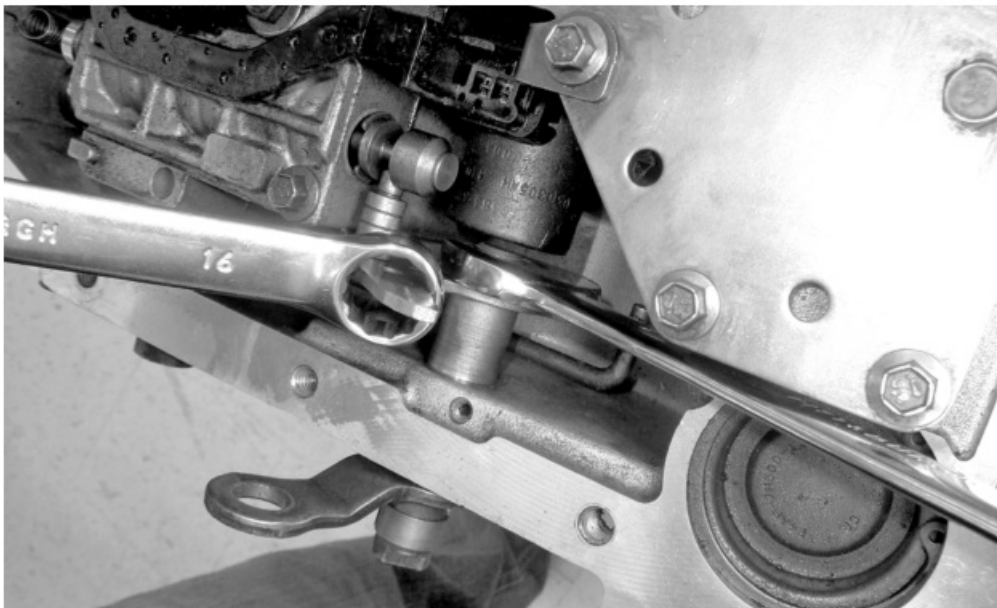


3. Use diagonal cutters to remove the selector shaft retaining pin from the case. (Protect the case flange with a rag.)

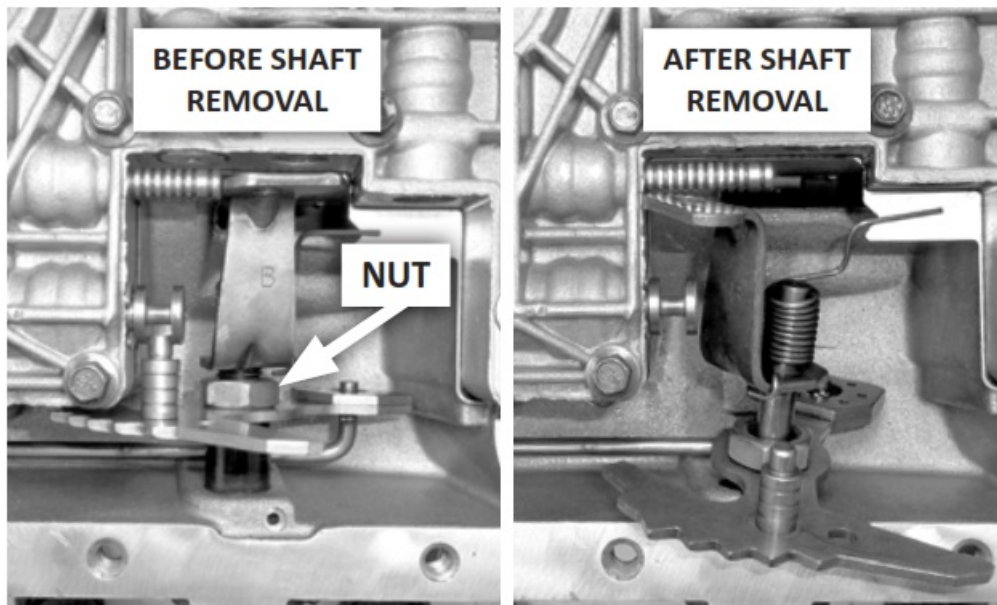
CAUTION: Work the diagonal cutters against the case for leverage. Do not cut the pin!



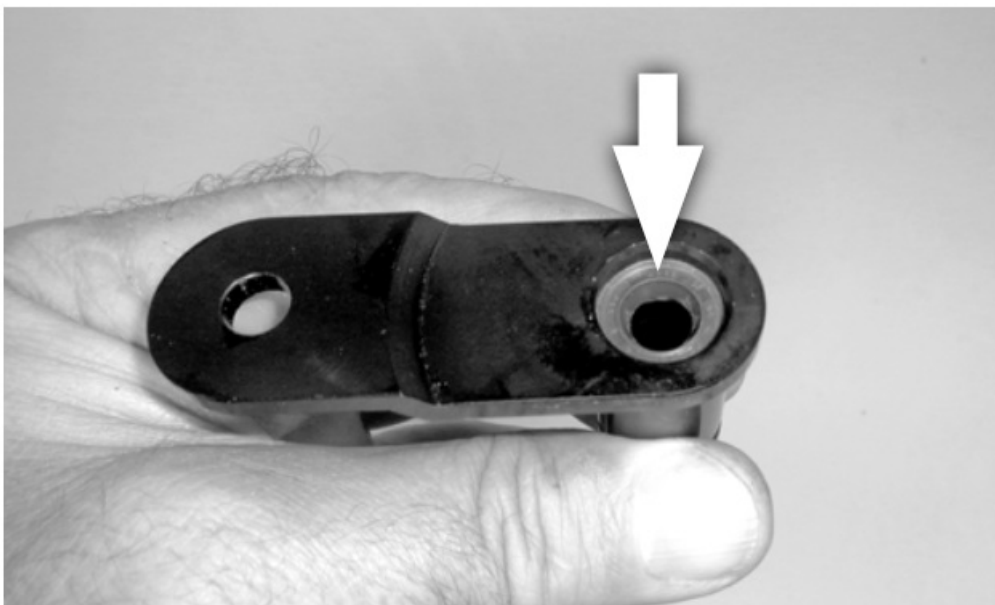
4. Before removing the selector lever, note the following for reassembly:
- A. the end of the park operating rod is inserted in the case opening behind the park pawl;
 - B. the inner throttle lever cam pushes against the throttle valve plunger;
 - C. where the ends of the throttle lever spring are situated; and
 - D. the inner selector lever's engagement with the selector valve.



5. Loosen the selector shaft nut with a 21mm wrench, and a smaller box wrench hooked over the inner selector lever.



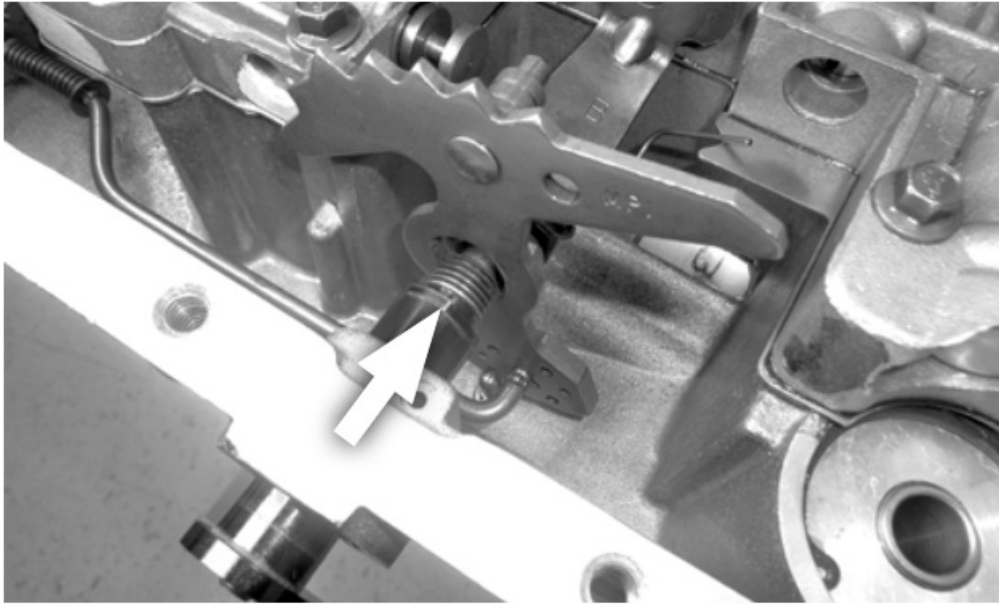
6. Pull the selector lever out of the case, leaving the inner throttle lever and shaft, and the inner selector lever, in place.



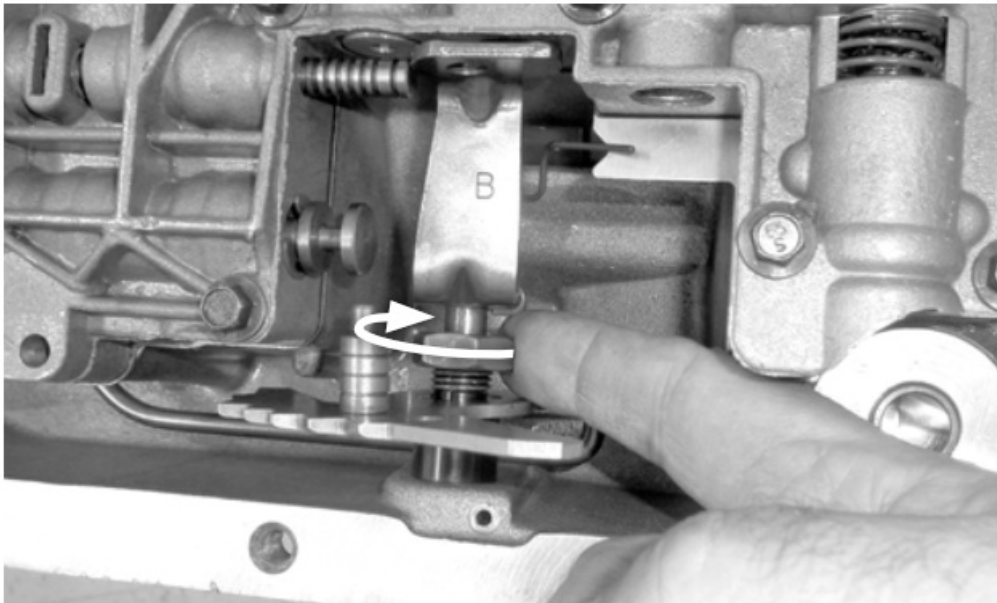
7. Lubricate the throttle shaft seal with transmission fluid, and press it fully into the B&M selector lever, with its open face pointed into the shaft.

CAUTION: Protect the threaded end of the shaft to avoid damaging the threads.

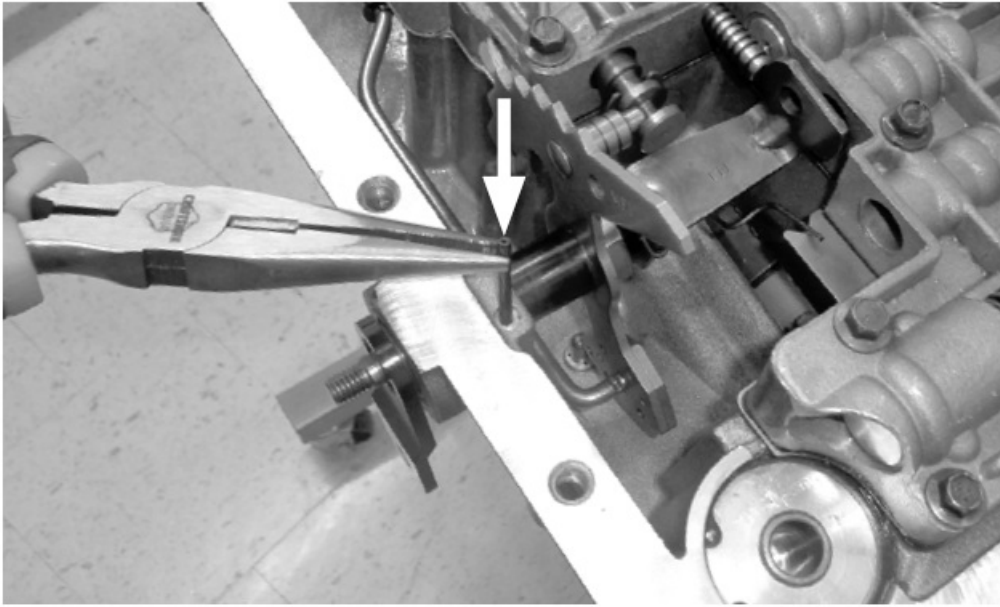
8. When installing the selector lever (next step), verify the following (per photo at Step 4):
- A. the end of the park operating rod is inserted in the case opening behind the park pawl;
 - B. the inner throttle lever cam pushes against the throttle valve plunger;
 - C. the ends of the throttle lever spring are situated properly; and
 - D. the inner selector lever engages properly with the selector valve.



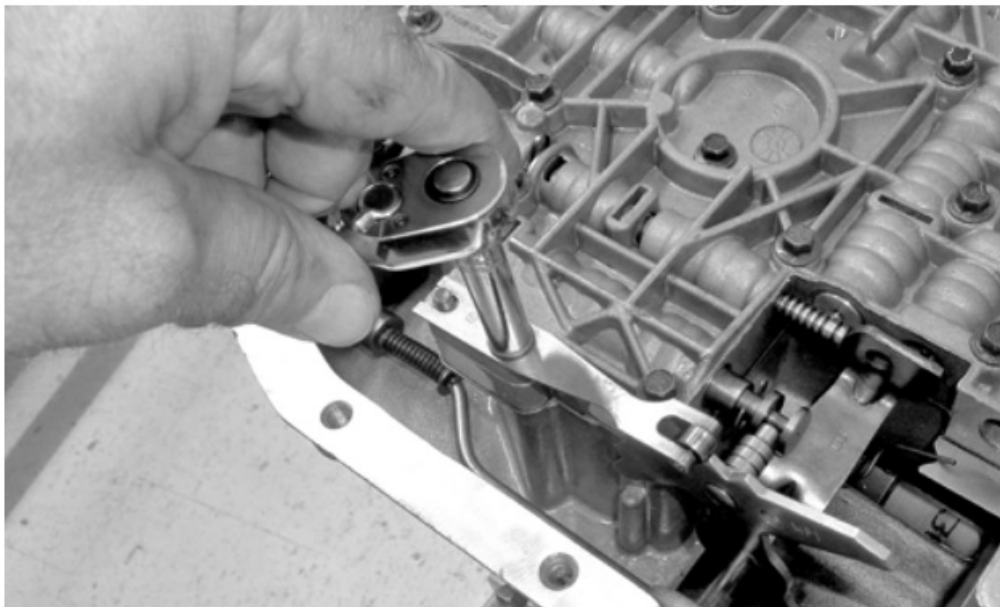
9. Lubricate the B&M selector shaft and the shaft seal (in the transmission case) with transmission fluid, and insert the selector lever shaft into the case over the throttle lever shaft, with the lever arm pointed UP. Align the flats on the end of the shaft with the flats in the inner selector lever, and insert the end of the shaft into the lever.



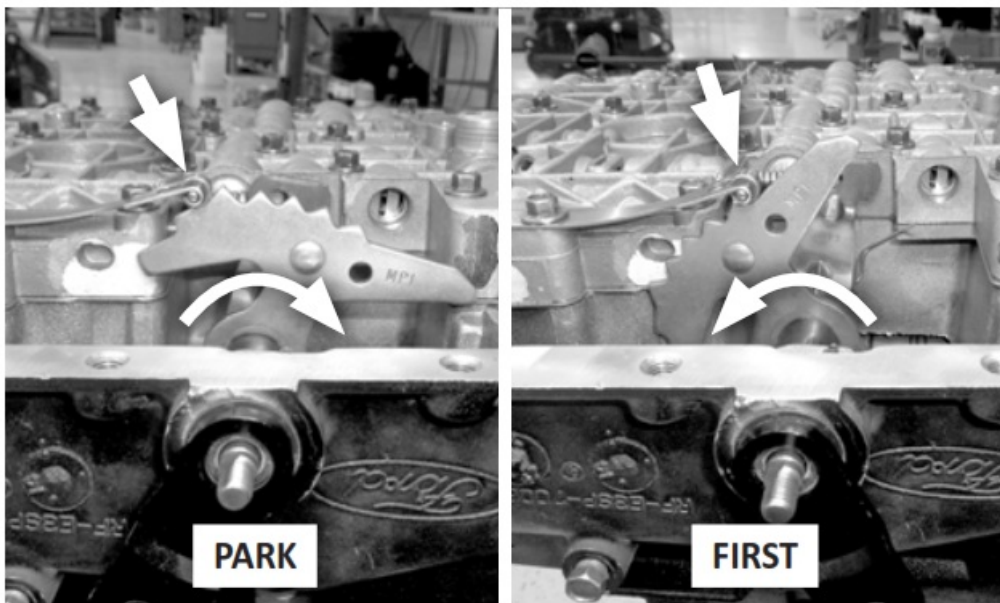
10. Thread the nut onto the shaft, being mindful of the park rod, the throttle lever and plunger, the throttle lever spring, and the selector lever and valve.
CAUTION: When fully inserted, the retaining pin protrudes about 1/8" above the case. Do not drive the pin flush to the case!



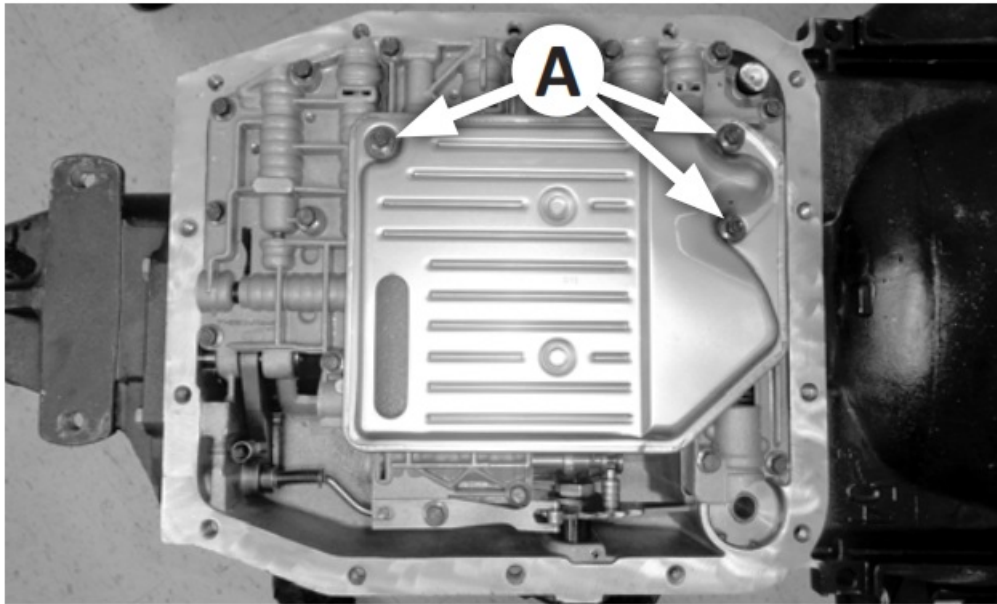
11. Carefully reinstall the retaining pin, engaging the selector shaft groove and the pin, and gently tapping the pin into place. Then tighten the selector shaft nut.



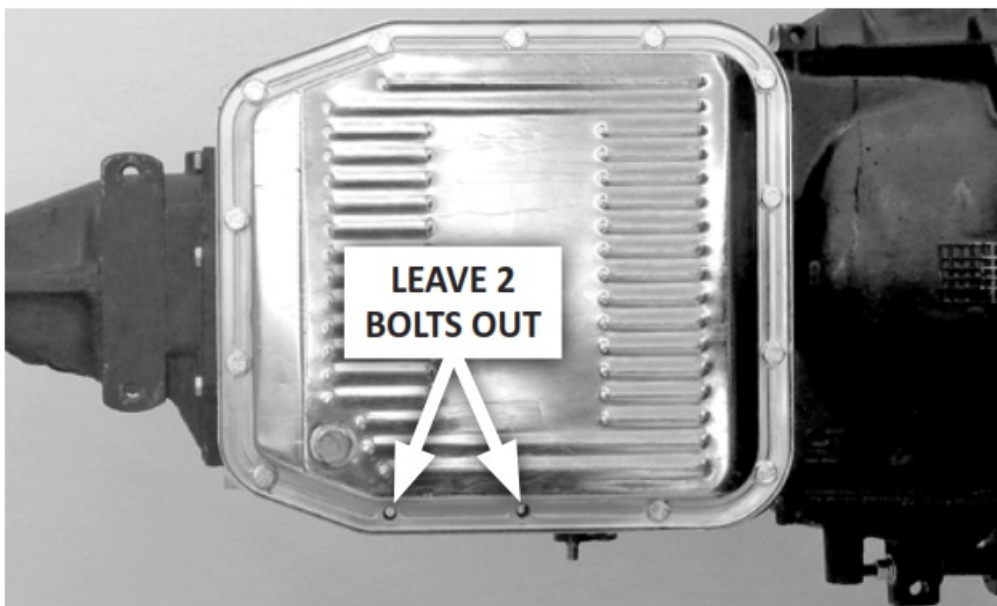
12. Install the detent spring (1 screw).



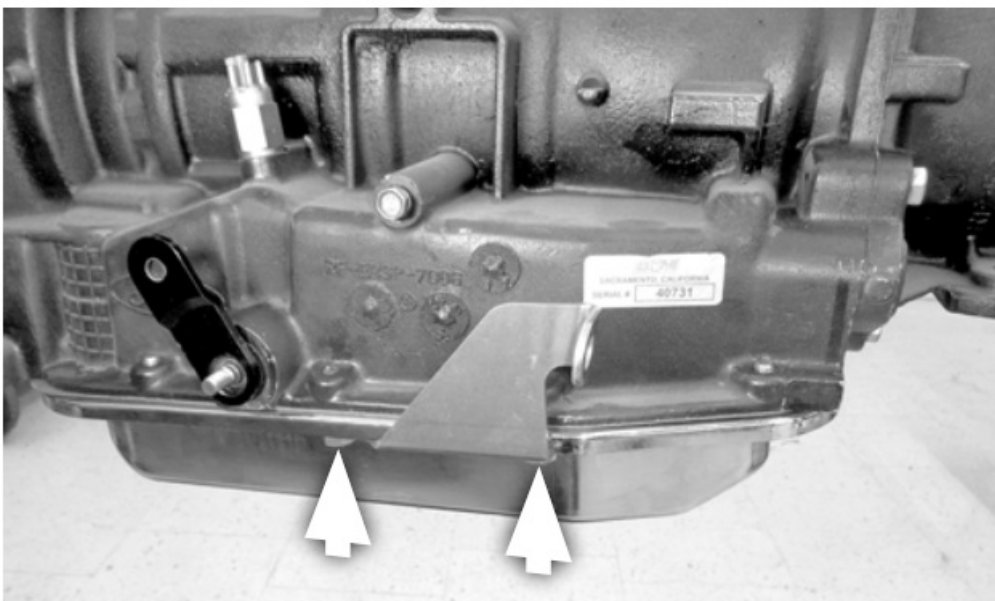
13. Verify that the selector lever moves freely through all positions, and that the park operating rod moves with it. Verify that the throttle lever moves freely, and that it pushes against the throttle valve plunger.



14. Install the oil filter (3 screws "A").



15. Install the pan and new gasket using 12 of the 14 the original bolts. Leave out the 2 bolts shown (behind the selector shaft) for the cable bracket.



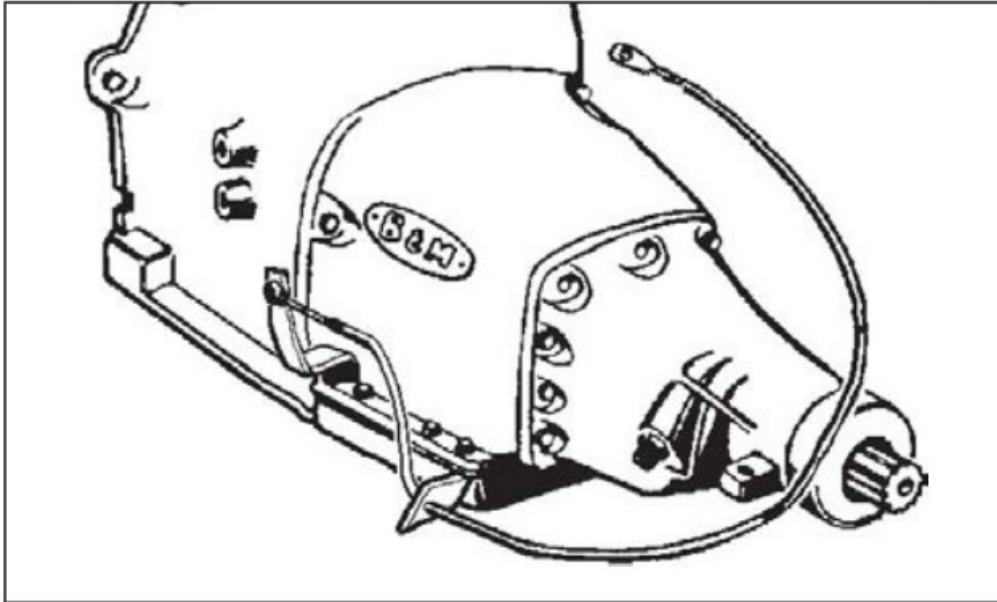
16. Install the cable bracket with the 2 supplied M8-1.25 x 25 bolts. For sheet-metal pans, use the 2 spacers between the pan and bracket. (Spacers are not used with cast aluminum pans.) Tighten all pan bolts to 12-16

ft-lbs.

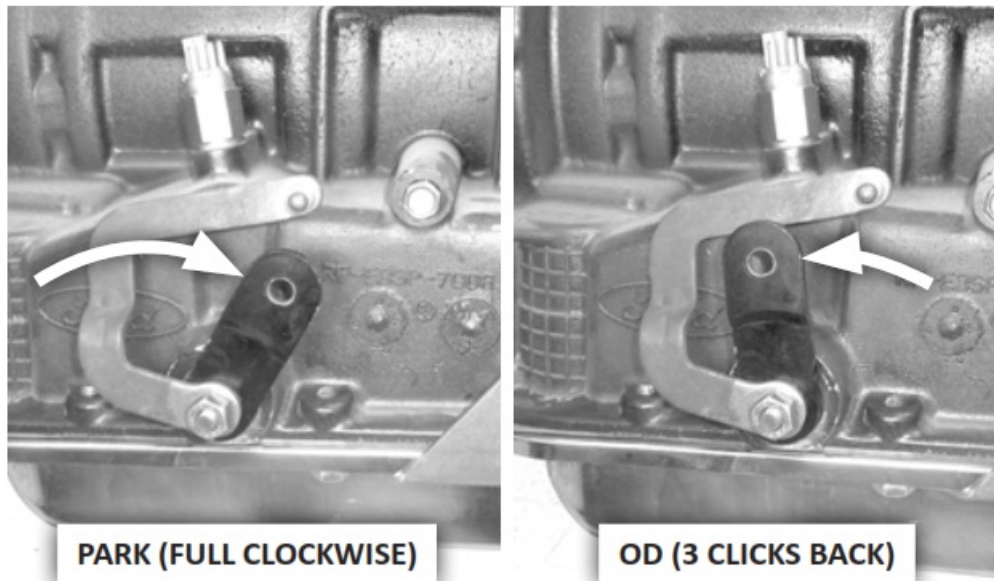
CAUTION: Do not over-tighten the bolts, or the pan gasket may be damaged!

17. Reinstall the throttle lever and nut on the throttle valve shaft. Verify that the throttle linkage is configured the same as it was before it was removed.

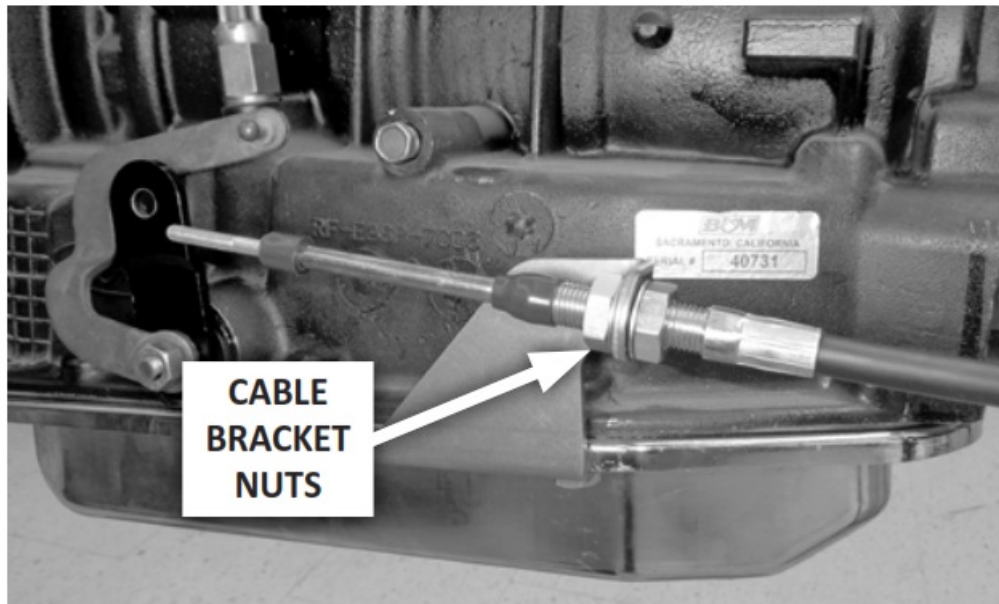
CAUTION: The throttle linkage must be connected and operating on all transmissions using automatic valve bodies, or transmission damage will result.



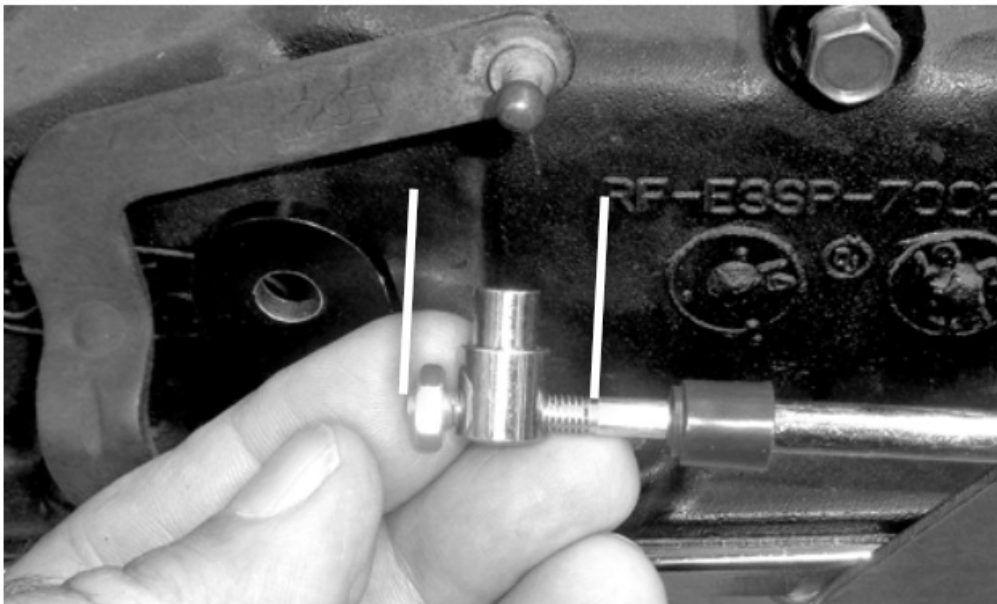
18. Route the shifter cable from the shifter to the transmission according to the shifter's instructions.



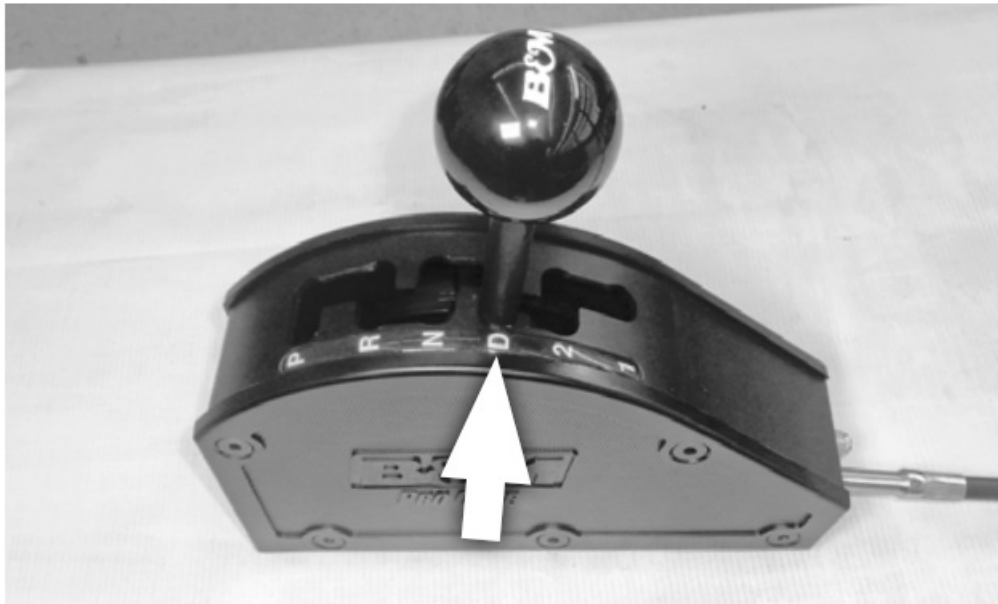
19. Move the selector lever to PARK (fully clockwise), then move it to OD (3 clicks back).



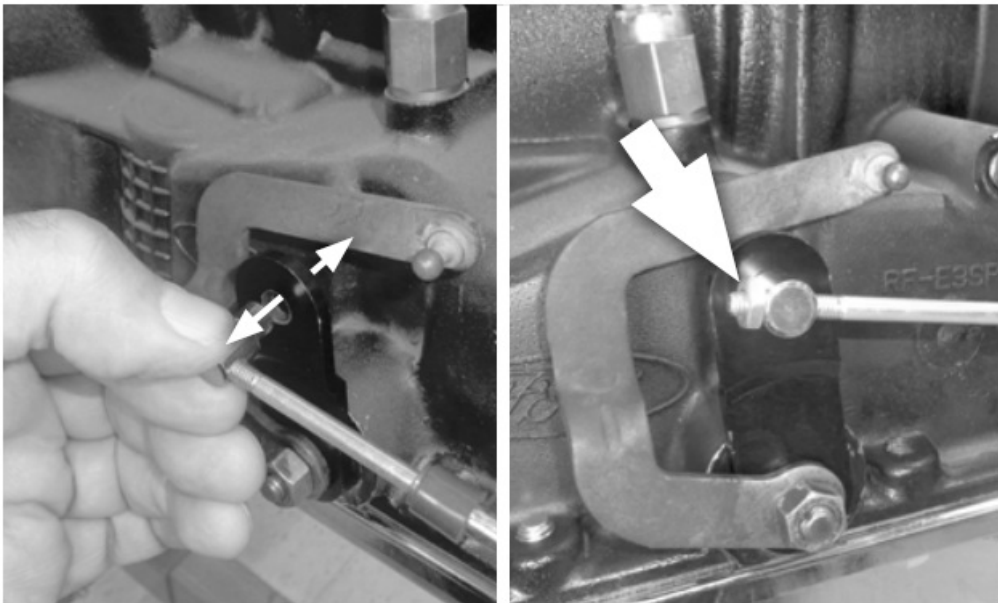
20. Attach the shifter cable to the cable bracket. First remove the small jam nut, both plastic dust boots, and one large nut and lock washer, from the cable. Then insert the cable through the cable bracket, reinstall the lock washer and nut (loosely, to allow room for adjustment), and reinstall the dust boots.



21. Thread the swivel onto the cable to about the middle of the threaded section, then reinstall (but do not yet tighten) the jam nut.
22. Adjust the shifter cable as described below.



A. With the selector lever still in DRIVE (from Step 19) and the shifter in the DRIVE (or 3) position, adjust the cable bracket nuts (and swivel, if necessary) until the swivel slips freely in and out of the selector lever hole.



B. Gradually tighten the cable nuts against the bracket while continuing to check the fit of the swivel in the selector lever. Then with the swivel inserted in the selector lever, lightly snug the jam nut.

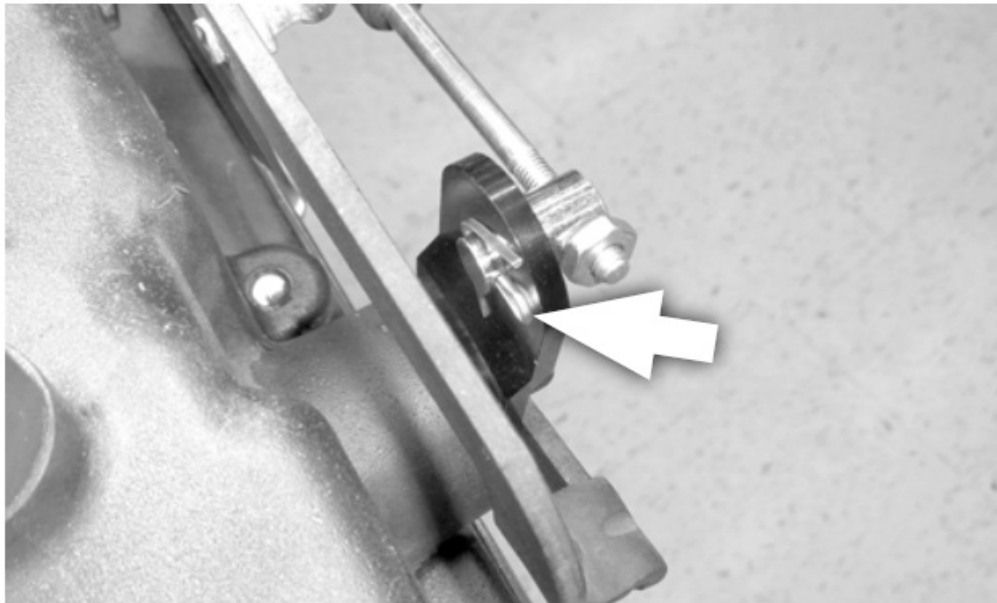
C. With the swivel still in the selector lever, move the shifter to NEUTRAL, and check the fit of the swivel in the selector lever. The swivel should slip freely in and out of the hole. If not, adjust the cable bracket nuts (and swivel, if necessary) per Step B.

D. Repeat for both SECOND and REVERSE gears.

E. Move the shifter to FIRST, and check the fit of the swivel. There may be a slight drag in FIRST. This is normal; do not adjust the cable.

CAUTION: If you encounter restricted movement or any other problem during this process, DO NOT FORCE THE SHIFTER. Doing so may damage the cable, the shifter and / or the transmission. Simply return to Step A and re-check each step.

23. The cable is correctly adjusted when the swivel slips freely in and out of the lever in REVERSE through SECOND gears, with a possible slight drag in FIRST. Verify that the two cable bracket nuts, and the cable swivel jam nut, are tight. Also verify that the vehicle does not roll with the transmission in PARK.



24. Secure the swivel to the selector lever with the cotter pin. Operate the shifter through all the gear positions, verifying that it operates correctly.

SERVICE TRANSMISSION WITH FLUID

CAUTION: Avoid foaming and overheating! Do not overfill!

1. With the vehicle sitting on level ground, add 5 quarts of B&M Trick Shift, or your transmission's specified fluid .
2. Start the engine, and run the shifter slowly through its entire range and back. With the engine still running and the shifter in NEUTRAL, check the fluid level. Also check for pan leaks.
3. Each time you add fluid, run the shifter slowly through its entire range, then recheck the fluid level with the engine running and shifter in NEUTRAL.
4. Add fluid as needed to bring the level to the COLD LOW mark on the dipstick.
5. Take the vehicle for a short drive (5-10 mins.) to bring the transmission up to operating temperature.
6. Stop the vehicle on level ground, and run the shifter slowly through the entire gear range.
7. Fluid level should be between the HOT LOW and HOT FULL marks with the transmission at operating temperature, the vehicle on level ground, the engine running, and the shifter in NEUTRAL.
8. If not, gradually add fluid, run the shifter through its range, and recheck until the fluid level is between the HOT LOW and HOT FULL marks. Also check for pan leaks.

OPERATION

Although the AOD is a 4-speed transmission, its selector lever has only three forward positions: OD, 2 and 1. On a B&M automatic shifter, these positions are DRIVE (or 3), 2 and 1.

For normal street driving (with the shifter in DRIVE or 3), the transmission is in OD, and will automatically shift between all four forward gears (including 4th / Overdrive), depending on vehicle speed.

With the shifter in 2, the transmission will automatically shift between its first three forward gears (1st through 3rd / Direct Drive), depending on vehicle speed.

With the shifter in 1, it will automatically shift between 1st (Low) and 2nd Gears, depending on vehicle speed.

Shifting from DRIVE (or 3) to 2 will always shift the transmission from 4th / OD to 3rd Gear, and shifting to 1 will shift the transmission to either 2nd or 1st (Low) Gear.

KEEP THESE INSTRUCTIONS FOR FUTURE REFERENCE

B&M Performance & Off-Road maintains a highly-trained technical service department to answer your technical questions, provide additional product information and offer various recommendations.



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www.bmracing.com

Technical Support (866) 464-6553

Documents / Resources



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