Installation Instructions
Holeshot 2400 Torque Converter

Fits: 1967-1981 Chrysler, Dodge, Plymouth
w/Torqueflite A727 Automatic Transmission
Catalog # 10415

WORK SAFELY! For maximum safety, perform this installation on a clean, level surface and with the engine turned off. Place blocks or wedges in front of and behind both rear wheels to prevent movement in either direction.

CAUTION: To avoid any possibility of bodily injury or damage to vehicle, do not attempt installation until you are confident that the vehicle is safely secured and will not move.

IMPORTANT NOTES

This B&M Non-Lockup Converter will not fit 1978 and later Torqueflite transmissions originally equipped with lock-up converters.

1971 and later engines with cast iron crankshafts require external balance weights. Using a B&M Torque Converter with one of these engines will require installation of a counter balanced B&M flexplate to prevent excessive and damaging vibration.

INTRODUCTION

The torque converter in your automatic transmission is a unique device and must perform several functions:

1. It must provide slip at idle so the engine does not stall when the vehicle is stopped and the engine is running.

2. It multiplies torque while the vehicle is accelerating. The typical torque multiplication of a torque converter is about 2:1, when the vehicle is stopped. This means that the torque converter is actually doubling engine torque during initial acceleration. As the vehicle speed increases the torque multiplication decreases to 1.0:1. Some performance converters have stall torque multiplication as high as 2.6:1.

3. The torque converter must have as little slippage as possible under normal driving conditions so the engine operates efficiently.

4. The torque converter must have reverse coupling to slow the vehicle when you downshift to second or low. Traveler torque converters are designed to give maximum deceleration for improved engine braking.

All of the above functions occur automatically under various operating conditions. The torque converter is a simple and yet complex driveline component. Improper installation will result in poor performance and possible damage to the torque converter and/or transmission. This torque converter can be installed in a few hours by carefully following the installation instructions.

NOTE:
Burrs and dirt are the number one enemies of an automatic transmission. Cleanliness is very important. Avoid getting dirt or foreign particles in the transmission or torque converter.
Make sure the oil cooler and cooler lines are clean. **The cooler and cooler lines should be back flushed if there was a previous transmission or converter failure.**

Automatic tranmissions operate at temperatures between 150F and 250F. It is suggested that the vehicle be allowed to cool for a few hours to avoid burns from hot oil and parts. The vehicle should be off the ground for ease of installation. Also, have a box or pan handy to put bolts in os they won't be lost, and a drain pan to catch oil. MAKE SURE THE VEHICLE IS FIRMLY SUPPORTED!
We suggest you rent a transmission jack from a rental yard to remove the transmission as the transmission/converter assembly is heavy. A regular floor jack may be used if a tranmsission jack is unavailable.

Due to variations between different car models, exact instructions for every vehicle cannot be provided. These instructions are sufficient for all vehicle installations. You may find it necessary to disconnect and lower exhaust pipes during transmission removal.

1. Drain the oil pan. This will make less of a mess during transmission removal. Some models of Torqueflites have drain lugs. If yours has a drain plug, remove it and allow the fluid to drain, then install the drain plug back into the pan. If you do not have a drain plug, you should consider installing a B&M Drain Plug Kit, #80250, while the transmission is out of the vehicle. If your transmission does not have a drain plug, loosen the oil pan bolts to allow the fluid to drain. After the fluid has drained, snug the oil pan back into place. You may wish to service your transmission while changing the converter.

2. Remove the drive shaft. Be careful not to damage the smooth bushing diameter on slip yoke models. Do not let the cups fall off the U-joint crosses. You may lose some of the needle bearings if the cups fall on the ground. It is a good idea to tape the cups to the U-joint cross, so they won't fall off. Now is a good time to clean and inspect your U-joints.
4 Wheel Drive Models: Remove the front driveshaft also.

3. Disconnect the throttle pressure linkage. Loosen the pinch bolt on the throttle lever and pry the linkage off the throttle pressure shaft. Disconnect the rod connecting the throttle pressure bellcrank to the carburetor and allow it to hang free. Disconnect the shifter as follows:

Column Shift Models ('66 and later): Loosen the pinch bolt on the shift lever and pre the linkage off the shift lever shaft. Allow linkage to hang free.

Console Shift Models ('66 and later): Loosen the pinch bolt on the shift lever and pry the linkage off the shift lever shaft. Allow the linkage to hang free. Remove the two nuts and remove the shifter pivot arm from the extension housing.

'70 and later vehicles with Locking Steering Columns: Unbolt the bellcrank pivot from the transmission bellhousing mounting point and allow the park lock linkage to hang free.

4 Wheel Drive Models: Remove the knob from the transfer case shift lever.

4. Disconnect the speedometer cable.

5. Disconnect the oil cooler lines. Use a fitting wrench, if available, to avoid damage to the compression nuts. We recommend that the oil cooler lines be flushed out to remove any foreign particles trapped in the cooler. Cooler lines should be flushed in both directions with solvent and air under pressure.

6. Remove the dipstick and tube assembly. Remove the torque converter access cover bolts and access cover. Remove the flexplate to converter bolts. Use an engine rotating tool or starter motor to “bump” each bolt into position.

7. Disconnect the neutral safety wiring. Pull the wiring connector off the neutral safety switch and let it hang free.

8. Remove the starter motor assembly and tie it up out of the way. On some vehicles, it is difficult to remove the starter completely, so it is easier to simply support it out of the way.

9. Support the transmission with a jack. Remove the transmission rear mount bolts. Raise the transmission slightly and remove the crossmember. Be sure the transmission jack supports the transmission on a wide area so you don’t crush the oil pan.

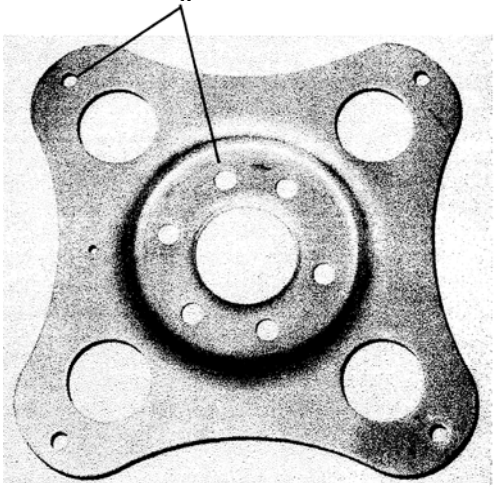
10. Remove any engine to transmission straps your vehicle may have (usually found on vans and trucks). Remove the bellhousing bolts. Some “A” engines will require oil filter removal to remove one transmission bolt. Lower the transmission until the engine is supported. Pull the transmission back slightly away from the engine. Make sure the converter stays with the transmission. Lower the transmission/converter assembly and remove from the vehicle.

CAUTION: 4 Wheel Drive Vehicles – The transmission/converter transfer case assembly is heavy. Exercise care during removal.

11. Pull the converter off the front of the transmission. Some oil will leak out at this time. If you plan to store your original torque converter, drain it and cover the impeller hub opening to prevent entry of dirt.

12. Inspect your engine block. Make sure there are no burrs that will prevent the transmission from bolting down flat against the engine. File off any burrs that may be present. Dowel pins should stick out of the engine block a minimum of ½” for proper engagement. Insufficient dowel pin engagement can cause front seal and/or bushing failure due to improper engine/transmission alignment. Bellhousing bolts alone will not align the transmission properly.

13. Inspect your flexplate. Check for distortion, excessive warpage or worn/elongated bolt holes. The flexplate should not be bowed backwards. Distorted flexplates should be replaced.



Check for cracks, distortion and warpage

14. Check the bolt pattern on your B&M torque converter and make sure it matches your flexplate.

NOTE: One mounting hole is offset so the converter will only line up in one position. There are three bolt patterns used by Chrysler depending on the engine:

Wedge Type A-727: Four-5/16” bolts on an 11-1/8” diameter circle.
Hemi Type A-727: Four-7/16” bolts on a 10” diameter circle.
340-360 A-727 & A-904 Type: Four-5/16” bolts on a 10” diameter circle.

If your stock flexplate does not match up to the bolt pattern on your B&M torque converter, you will have to replace your flexplate. You may have to enlarge your original flexplate holes to accept larger bolts, if necessary. Use a drill size 1/32” larger than the bolt diameter and deburr the holes after drilling.

Converter & Part Number	Bolt Patter on B&M Converter	Flexplate and Modifications
Traveler 10402 (12”) A-727	5/16” x 11-1/8” B.C.	Stock flexplate or B&M flexplate
Holeshot 2400 10415 (11”) A-727	5/16” x 11 1/8” B.C. or 5/16” x 10” B.C.	Stock flexplate or B&M flexplate
Holeshot 3000 10425 (10”) A-727	7/16” x 10” B.C. or 3/8” x 10” B.C.	Drill stock flexplate or B&M flexplate
TorkMaster2000 10416 (11”) A-727	5/16” x 11 1/8” or 5/16” x 10” Diameter	Stock flexplate or B&M flexplate

IMPORTANT NOTE: Chrysler began producing cast-iron crankshafts in 1971. These crankshafts require external balance weights (which are normally attached to the torque converter) to balance the engine. B&M Torque Converters are dynamically balanced without any crankshaft balancing weights and cannot be directly substituted for an externally balanced torque converter or severe vibrations will occur.

B&M manufactures counter balanced flexplates for these applications which allow the use of a B&M converter with a cast iron crankshaft equipped engine.

Inspect your stock torque converter. If there are one or more balance weights spot welded between two drive lugs on the front of the converter, you must use one of the following flexplates for proper engine balance.

B&M Flexplate Part Number	Application
10234	1971-76 340 C.I.D. TF 904
10235	1971-76 340 C.I.D. TF 727
10236	1971-92 360 C.I.D. TF 727
10237	1972 & later 383 C.I.D. TF 727
10237	1972 & later 400 C.I.D. TF 727
10237	1973 & later 400 C.I.D with cast crank (A-120) TF 727
10238	1975 & later 440 C.I.D. with forged crank (A-134) TF 727
10239	1971-92 360 C.I.D. TF 904
10241	1993-95 360 C.I.D. TF 904
10242	1993-95 360 C.I.D. TF 727

NOTE: 1975 and later vans come from the factory with engine timing marks stamped on the outside diameter of the torque converter. This timing mark is visible through a hole in the bellhousing of the transmission. Since B&M torque converters do not have these timing marks, van owners will have to use the timing marks on the harmonic balancer on the front of the engine to check engine timing.

15. Install the flexplate onto the crankshaft if you have removed or replaced it. When properly installed, the flexplate is offset towards the engine. Install the flexplate to crankshaft bolts and torque to 55 ft.lb.

16. Install the B&M torque converter agains the crankshaft and flexplate. The converter should fit the crank snugly with no excessive slop. A Tight fit may indicate burrs or rust in the pilot diameter of the crank. This can be cleaned with some emery paper or a file. If your flexplate is new or in good condition, the converter may not contact the flexplate before it bottoms in the crankshaft. A 1/16”-1/8” gap is normal. When the flexplate to converter bolts are tightened, the flexplate will bow backwares slightly and hold the torque converter against the crankshaft.

17. Install the new pump seal supplied with the converter. Lubricate the front pump seal with ATF or grease. Pour 1 quart of B&M Trick Shift ATF into the B&M torque converter so there will be some lubrication on initial start up. If B&B Trick Shift ATF is unavailable, use the factory recommended fluid.

18. Install the B&M torque converter onto the transmission. Push and rotate the converter to engage the input shaft, reaction shaft and oil pump rotors. Place a straightedge across the face of the transmission bellhousing. Measure the distance from the face of the bellhousing to the face of the torque converter drive lug. The drive lug mush be at least ½” inside the bellhousing. A measurement of less that ½” indicates the torque converter is not fully engaged in the transmission. (Except for race torque converters specially built for applications using a motor plate, subtract the thickness of your motor plate from the ½” dimensions for proper measurement). Continue to rotate and turn the converter to obtain full engagement. If you install the transmission without full converter engagement, you will damage the oil pump and/or converter.

19. Place the transmission in position on the transmission jack. Be sure the jack supports the transmission on a wide area so you don’t crush the pan. Install the transmission/torque converter against the engine. The transmission should engage dowel pins and sit flat against the engine block with hand pressure only. If the transmission will not sit flat against the engine, the converter is not installed into the transmission all the way or there is some interference problem. Do not attempt to pull the transmission up against the engine with the bellhousing bolts as this can cause transmission and/or torque converter damage.

20. Once the transmission is in position against the engine, install the transmission bellhousing bolts and tighten 25-30 ft.lb. At this point, the torque converter should spin freely. A tight converter indicates improper pump engagement, badly burred crankshaft or distorted flexplate. This condition must be corrected before going any further. Install the engine to the bellhousing straps if your vehicle is so equipped.

21. Inspect the rubber transmission mount. Worn, cracked or oil soaked transmission and/or engine mounts should be replaced. Raise the transmission and install the crossmember and transmission mount bolts securely. Install the starter motor. Install the starter bolts and tighten securely. Connect the neutral safety switch wire or connector.

22. Install four flexplate to converter bolts. After the first bolt is installed snugly, use the engine rotating tool or starter motor to “bump” each bolt location into place. The bolt pattern on the flexplate is keyed so the converter can only install one way. After all bolts are in place, tighten the bolts to the following specifications: 5/16” to 20-25ft.lb., 3/8” to 30-35ft.lb., 7/16” to 40-45ft.lb. Install the converter access plate and tighten the bolts to 8ft.lbs.

23. Install the dipstick and tube assembly. Use a small amount of sealer at the O-ring to prevent leaks. Connect the oil cooler lines. Use a fitting wrench on the compression nuts to avoid damage to the nuts and hold the fittings with a wrench while tightening the compression nuts to 75lb.in.

24. Connect the speedometer cable:
’62-’65: Push the speedometer cable assembly into the extension housing. Install a bolt and tighten to 150lb.in.
’66 and later: Push the speedometer cable into the speedometer housing and tighten the sleeve.

25. Connect the shifter:
Rod Shifters, All (’66 and later): Align the shift lever over the shift shaft on the transmission. Tap the lever down into position and engage flat on the shift shaft. Tighten pinch the bolt securely. Place the shifter in the Park position. Loosen the pinch bolt on the shifter rod (located on the end of the rod, away from the transmission) and let the rod seek its own position. Tighten the pinch bolt and check the feel of the shifter. The detent (gear) position should be close enough to the stops in Neutral and Drive so that the shift selector lever will not remain out of the detent position when place against the stop and released.
’70 and later vehicles with locking steering column: Install the bellcrank pivot into the mounting stud on the bellhousing and tighten securely.
4Wheel Drive Models: Install the knob on the transfer case shift lever.

26. Install the throttle pressure bellcrank onto the bellhousing and tighten the bolt securely. Install the throttle lever over the throttle pressure shaft and tighten the pinch bolt securely.

NOTE: All vehicles with a full automatic valve body must run the throttle pressure linkage or sever transmission damage will result.

27. Install the driveshaft. Make sure the U-joint cups are installed properly. Tighten the U-joint bolts and nuts securely.

28. Lower the vehicle but keep the rear wheels off the ground, if possible. Add 4 quarts (A-904) or 6 quarts (A-727) of B&M Trick Shift to the transmission. If Trick Shift is unavailable use the factory recommended fluid.

WARNING: DO NOT start the engine before putting fluid into the transmission. Failure can occur in a matter of seconds.

29. Start the engine and place the shifter in the Neutral position. Add fluid until the oil level is between the Add and Full marks. Shift the transmission though all gear positions. If the rear wheels are off the ground, allow the transmission to shift through all the gears several times. Place the selector in Neutral and check the fluid level. Do Not Overfill. This can cause foaming and overheating. Check for leaks at the cooler lines, etc.

OPERATING RECOMMENDATIONS

Torque Converter Performance

The torque converter is a component of the automatic transmission however it must be properly matched to the engine for maximum performance.

A torque converter reacts to torque. The more torque you put to the converter the better your performance. However, this torque must match the operating RPM of the converter. To make a converter operate properly, your engine must make sufficient bottom-end torque. You cannot build an engine for an automatic transmission the same way you would build an engine for a 4-speed because the operating ranges are different. Your engine must be built to produce as much bottom-end and mid-range torque possible for your operating conditions. This is especially important for good street performance. Do not make the mistake of over-camming your engine. You should limit camshaft duration to 270° @ .050 for street engines and 290° @ .050 for race engines. We also suggest you run the cam 2°-4° advanced. Small CFM carburetors give better bottom-end response. Be careful not to over carburate your engine.

Since most people discuss torque converters in terms of stall speed, the following chart will give you an idea of the stall speed increase or decrease you can expect from your B&M torque converter compared to a stock torque converter.

CONVERTER	**INCREASE**
Traveler	300-400 RPM
Holeshot2000	600-800 RPM
Holeshot3000	1000-1200 RPM

This is a general guide and should be used as an approximation only. A specific stall speed cannot be guaranteed because of the many variables involved in each engine/vehicle combination. If you are experiencing difficulties with your converter selection, the following items can contribute to low stall speeds:

Light Cars	Low Torque Output	Very high compression ratios
Poor rear brakes	Long duration camshafts	Larger throttle bore carburetors
Multiple carburetion	Retarded cam timing	Carburetor secondary linkage
High-ram Manifolds		

Low stall speeds, poor throttle response, sluggish performance and high idle speed requirements indicate poor bottom-end torque characteristics which should be corrected to obtain maximum converter performance.

Modified torque converters are installed to improve performance and durability no available from a stock torque converter. Heavy Duty and racing applications impose higher loads and greater heat dissipation that stock operating conditions. The following recommendations are provided so you can obtain maximum performance and benefit from your B&M torque converter.

Oil Cooling: The factory heat exchanger is usually inadequate for Heavy Duty and/or Racing applications. B&M Oil Coolers are recommended for performance applications **(See Back Page)**. Heat is the major enemy of automatic transmissions and a cooler will prolong the life of your transmission.

DRIVING TECHNIQUES

Traveler:

Traveler torque converters should be driven like a stock converter. Stall speeds and converter slip will coincide with torque demand and adjust automatically. Additional decelerations will be noticed during manual downshifts.

Holeshot:

Holeshot converters are designed for street performance and should not be considered as a low cost race converter. Under normal driving conditions Holeshot torque converters will function like stock converters with some additional slip. High stall speeds are available at torque demand. The best standing start acceleration performance is usually obtained by “stalling” the converter at 1500-2000 rpm with the brakes locked just prior to launching the car. Bank the throttle and release the brake pedal at the instant of launch. Marginal traction situations ay require you to “drive the car out” or feel for traction with the gas pedal as you leave the starting line. Remember, Holeshot torque converters are designed for street performance and occasional drag strip use. Race cars need Race converters.

Maintenance:

Street Use: Change the fluid and filter every 10,000-12,000 miles. This will also help the life of the transmission. Check the torque converter bolts or nuts every 20,000-24,000 miles.

Ballooning:

Ballooning is the expansion of the torque converter along the axis of rotation (front to back). This is caused by high rpm use and/or continuous wide open throttle stall speeds. A ballooned converter can lose thrust washer piloting and must be cut open for repair. You can check for ballooning by measuring the end play clearance of the stator and turbine. You will have to make a hooked tool to grab the stator or turbine. Maximum stator or turbine end play is .050 inch. If the stator or turbine play exceeds .050 inch the converter will have to be repaired.

Cracks and Leaks:

Leaks can be caused by several reasons. The most common are front seal failure and cracks.

Front seal failure can be caused by one of the following: improperly installed seal (damaged during installation), converter misalignment, worn pump bushing or won impeller hub. A ballooned converter can have a slightly bent impeller hub. Inspect the pump bushing when you replace the seal. Check the dowel pins in the engine block for sufficient engagement.

Cracks can develop in the welds surrounding the impeller and pilot hubs or perimeter weld from stress and vibration. If a crack occurs in these areas, we recommend you return it for repair.

IMPORTANT: RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE

Technical Service

A highly trained technical service department is maintained by Hurst Performance to answer your technical questions, provide additional product information and offer various recommendations.

Technical service calls, correspondence, and warranty questions should be directed to:

B&M Racing & Performance Products

(707) 544-4761

www.bmracing.com