Introduction

This guide covers adaptation of newer Jeep four- and five-speed transmissions 1941-1979 Jeeps with Bronco Dana Models 18 & 20 transfer cases. This kit is only intended for Jeeps that have the length necessary to accommodate these longer transmissions, which include the AX15, NV3550, NSG370, T176, T4, T5, TF999 and AW4.

Note to the Installer

This document and the use of any Novak products assumes safe and adequate working knowledge of the automotive systems involved. Vehicular repair, upgrade and conversion work can be among the most difficult of automotive mechanical and electrical tasks and it is upon the customer to ascertain whether they are working within their expertise or whether they should acquire assistance. Because Novak has no control over the customer's project procedures, Novak instructions and recommendations do not constitute a warranty of fitness, applicability or compatibility with the customer's particular project. Novak cannot determine the skill level of the customer and/or the installer of Novak products, nor can Novak publish all of the information on fundamentals that an installer should know before attempting these advanced procedures. While every attempt at informational accuracy has been made, these instructions and any recommendations therein are for guidance only. This guide is not intended to replace the service manual specific to your vehicle. It is not possible to document the wiring, routing and specific system details of every vehicle and the installer should obtain and use both their vehicle's manual and the engine or transmission donor vehicle's manual in conjunction with these instructions.

Your Legal Requirements

Novak products and procedures are intended and recommended for off-road use only and installation on a vehicle for use on public roads could violate laws within your jurisdiction. Additionally, installation of Novak products may adversely affect the warranty coverage on your vehicle.

This guide is not meant to explain, interpret nor notify the installer any laws concerning vehicle changes, engine conversions and the emissions systems surrounding them. It is the installer's responsibility to know and understand their local, state and national legal requirements and regulations and to make their installation conform to emission and vehicle safety demands of the jurisdictions in which the vehicle may operate. Novak does not recommend nor condone the disabling or modification of the vehicle or any system within it that could render it out of conformance with any laws in which the vehicle may be licensed or operate. Neither Novak Conversions nor its directors, principles nor employees are responsible for any changes made to your vehicle.

If you are performing a powertrain conversion and if your vehicle requires a referee inspection, you may wish to establish a rapport with them and discuss your plans and seek advice and approval from them prior to commencing your modifications.

These instructions and the products and procedure described herein are offered only in accordance with the Novak policies and limitations found: http://www.novak-adapt.com/about/policies.htm, which may supersede and prevail over these policies.

Transmission Possibilities

The Novak #1520 adapter is 1.4" long. While this is very compact for a twin-bearing adapter, the mating transmissions may prove long for some early Jeeps. For your reference, some combined lengths include:

AX15, 15.9" (+ 7-1/2" bellhousing*)
NV3550, 15.9" (+ 7-1/2" bellhousing*)
NSG370, 23.4" (integrated bellhousing*)
T176, 15.9" (+6-3/4" bellhousing*)
T5, 16.9" (+6-3/4" bellhousing*)
TF999, 24.15"
AW4, 26.75"

Most of these lengths will not be appropriate for early CJs (pre-1972) with short wheelbases, unless the engine is a V6 and has been installed in as far forward a manner as possible.

*AMC / Jeep bellhousings. May vary slightly when adapted to GM or other bellhousings.

Transfer Case Versions

All 1966-1977 Ford Bronco D20 transfer cases are compatible with this adapter assembly.

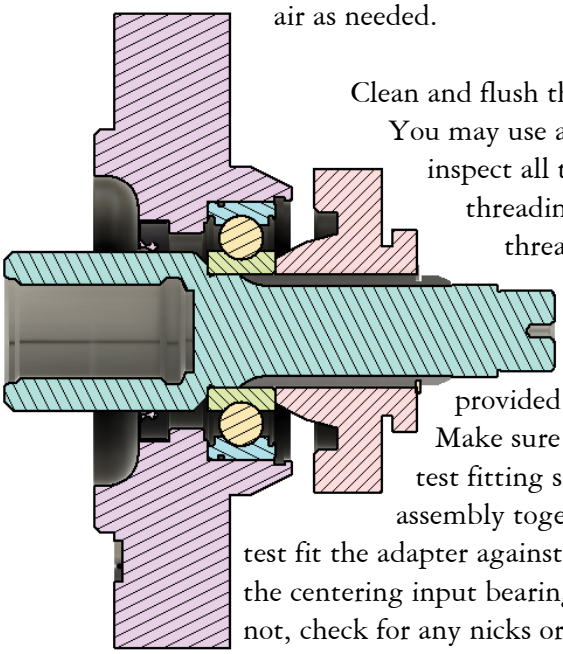
Assembly Procedure

Transfer Case Fasterner removal

If you've not already done so, remove any bolts and studs that remain in the Dana transfer case. This may be done with double nuts and wrenches, or with locking pliers.

Clean All Mating Surfaces, Splines & Threads

Clean all adapter mating surfaces on the rear face of thetransmission as well as the transfer case input, being careful not to contaminate either of their internals with any particles. It may be necessary to razor off old gasket material and sealants. The mounting face of the transfer case my have accumulated a considerable amount of rust and dirt. File or sand flat if required. Follow up with a solvent, rag and compressed air as needed.



Clean and flush the transfer case input gear spline bore using solvent and compressed air. You may use a small wire brush to clean the splines and any rust on them. Clean and inspect all transmission and transfer case face threads. It may be necessary to run a threading tap for clean-up. In the event of severely damaged threads, thread repair inserts might be required.

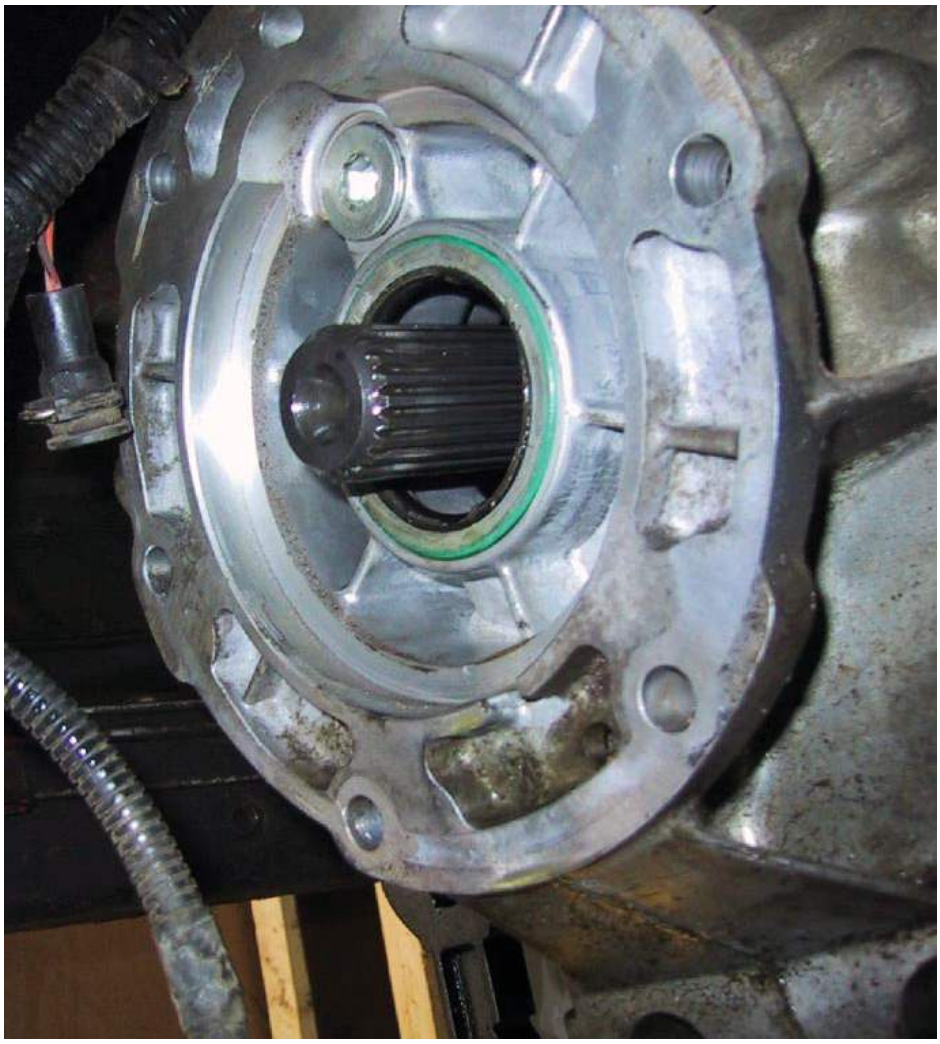
Adapter Test Fitment

Trial fit the adapter to the rear of the transmission case, leaving the provided gasket off to make certain the adapter mates up easily and squarely. Make sure they fit firmly together by hand and with minimal resistance. At this test fitting stage or final assembly, never use the adapter bolts and force to bring the assembly together as this can fracture any adapter flange and void the warranty. Then, test fit the adapter against the front face of the Dana transfer case. It should locate squarely onto the centering input bearing retainer and slide flatly against the transfer case input face. If it does not, check for any nicks or burrs and rectify as appropriate with a flat file or other means.

Spline Shaft Test Fitment

Before the assembling of either your transmission or transfer case, test fit the transmission output shaft into the Dana input gear to test for proper spline count and fit. Make sure they slide nicely together and by hand. The splines should slide together and have essentially no lash.

If you are working with a Warn or other aftermarket overdrive assembly, test fit the overdrive planetary hub in like fashion as above. Note that some of these overdrives have featured broached splines with radiused or chamfered corners. Check fitment here carefully and contact Novak if there is any interference and we'll assist anywhere we can.



Adapter to Transmission Installation

Your adapter has been pre-assembled at our facility with its internal oil seal and we've included a new transmission gasket and Dana transfer case face gasket.

Once you've determined your transfer case clocking angle using the various threaded hole choices, thread the provided 3/8" stud fasteners to through the adapter into the transmission case. We recommend the use of Permatex® Loctite Blue 243 thread locking compound.

Install the supplied gasket ove rthe studs. Fit the adapter to the transmission flange and install the lock washers, then nuts, tightening them in a crossing pattern in three successive stages until you've achieved 38 ft. lbs. of torque.

Transfer case instalation

The Transfer case needs 13 roller bearings installed into the receiving pocket of the transfer case gear. Use grease to hold them in place.

Install your D20 input gear onto the adapter shaft and lock it into place with your stock snap ring. Install the Gasket with a thin film of Sealant on both sides of the gasket.

Shifter

We recommend the JB fab twin stick shifters for this kit. Kits EB20J T5 or EB20T T5 depending on your transfer case shifter type.

Conclusion

We suggest that you keep these instructions for future reference. There is no final word to our instruction packages. You are also welcome to submit your suggestions, ideas and images that you think we should include here which may help future conversion installers.