HOW LOW CAN YOU GO?



Dual Transfer Cases for Early Broncos

by **COLE QUINNELL**
PHOTOGRAPHY: COLE QUINNELL

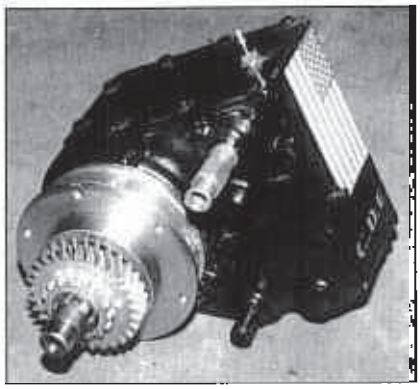
In "Klune-V Bronco T-Case" (Apr. '98), we brought you the story of a Toyota transfer case mated to a Dana 20 to give early Broncos incredible gearing. Now we're going to add a few more chapters by introducing early Bronco owners to another double-transfer case option for their off-road steed.

The Cold Duck system from Wild Horses sandwiches a modified Dana 20 between your Bronco's transmission and 20. You don't have to make any modifications to your transmission (in fact you can leave it in the vehicle in most applications); the stock crossmember is retained in the factory location, and the increase in length of the transfer case combination isn't that drastic. You will need a new front driveshaft and to have the rear shortened, and the Cold Duck transfer case is rotated slightly requiring a 2-inch body lift for floorpan clearance.

You can either supply a Model 20 for Wild Horses to convert into a Cold Duck 'case, or you can buy one outright from them. Installation is extremely easy and can be handled by most shadetree mechanics as well as by Wild Horses.

With the Cold Duck system installed, your vehicle has two rock-solid transfer cases with functioning high and low ranges. With the '66-'72 Model 20s, the 2.46:1 low-range gears combine for a 6.05 low-range. If this isn't good enough, O'Brien's 4-Wheel West offers 4.86:1 low gearsets for the Bronco Model 20.

To check the fitment and simplicity of this system, we went to Wild Horses and photographed the installation of a Cold Duck system in a '71 Bronco.



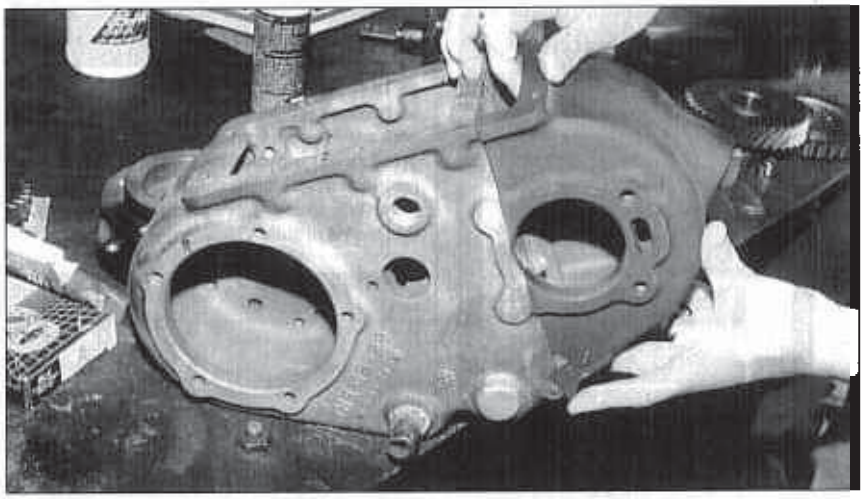
1 The Cold Duck dual-transfer case system uses a modified Model 20 installed between the transmission and existing transfer case. The Cold Duck comes with everything needed for installation; the only prerequisite for a Bronco is a body lift to provide adequate floor clearance.



4 Second, a catch can (optional) is installed at the end of the breather tube. Oil will creep into the can, especially at highway speeds, but it will drain back when the vehicle's speed decreases.



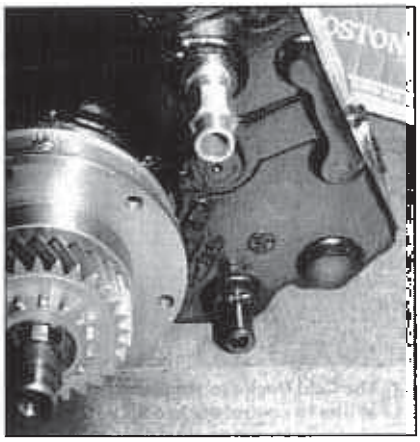
6 The Cold Duck 'case comes complete, so all that needs to be done is prepping the exiting Model 20. The input shaft was removed from the 20, and the provided studs were installed. Silicone was used in place of a gasket here, and plenty of lithium grease was used to hold the 13 roller bearings in place.



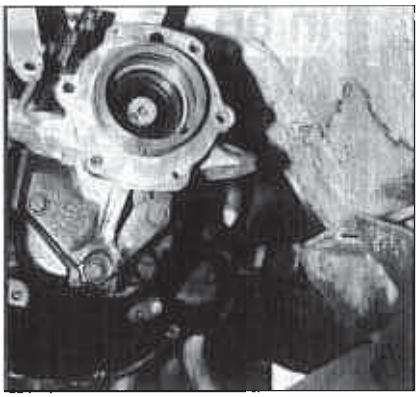
2 The Cold Duck Model 20 is a shortened Bronco 'case. The end of the housing containing the front output is whacked off, and a plate is welded in place. A new inspection plate is also fabricated.



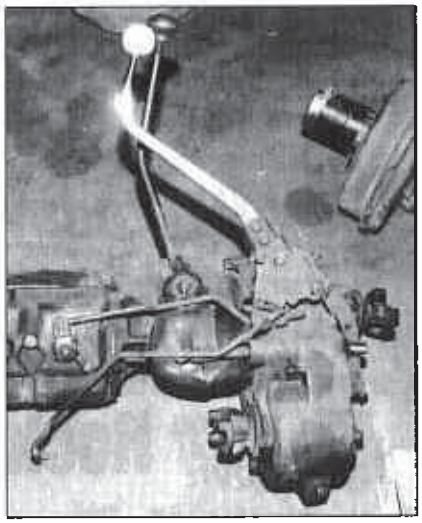
7 The Cold Duck transfer case bolted up to the original Model 20 with the adapter and input shaft that came already installed. The Cold Duck is rotated about 160 degrees for adequate driveshaft clearance.



3 The gearbox holds nearly as much fluid as a stock Model 20, but with its smaller inside volume, it requires some external help with oil control. First, a hose is installed to allow oil to drain back to the bottom of the case.



5 Installation is relatively simple. The Model 20 must be removed from the vehicle, although the transmission can usually stay in place. The tranny in this Bronco is a three-speed with an aftermarket floor shifter. The crew at Wild Horses hadn't installed a Cold Duck behind a three-speed before, so the transmission was removed so everything could be mocked up on a workbench. The Cold Duck system doesn't require any mods to the transmission and will install behind any Ford tranny, including the popular NP435.



8 The aftermarket shifter for the three-speed transmission created a couple of problems for Wild Horses. The rear shifter brackets usually bolt to the rear of the Model 20, but this location isn't available with the Cold Duck 'case in place. The front bracket also needed modification.

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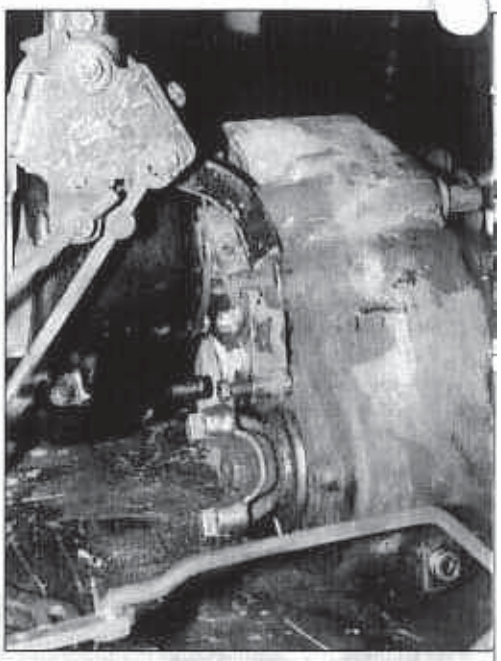
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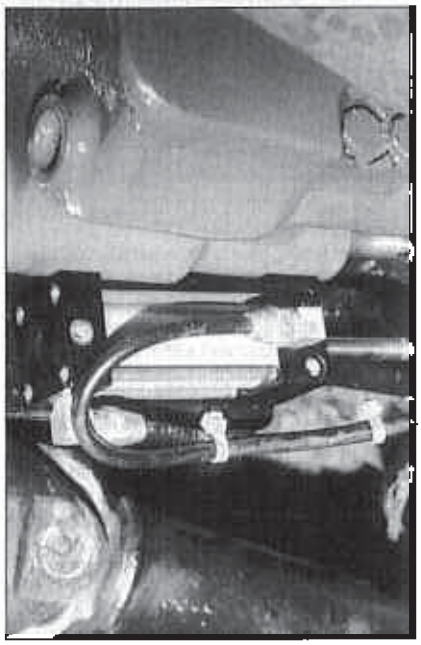
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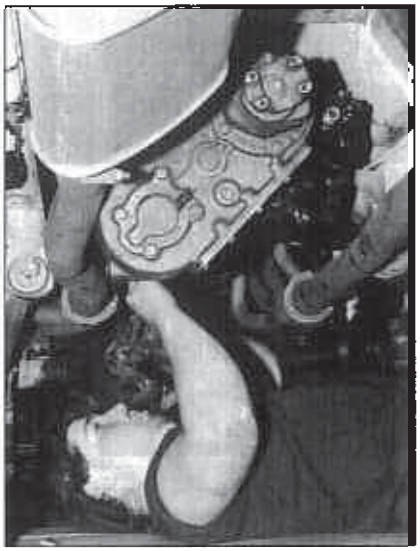
9 The crew tried several alternatives before finding that the rear bracket could line up with a bolt in the front of the Model 20. The bracket was trimmed slightly to fit behind the factory transfer-case shifter linkage. Since Ford four-speeds have integral shift linkage, this isn't a problem.



10 The Cold Duck system comes with a dual shifter to control the two transfer cases. For a J-shifter Model 20, a triple-stick setup can be used. The dual sticks mount to the transmission adapter and require modification of original transfer-case shift linkage. Wild Horses is working on a shifter combination with equal-length sticks.



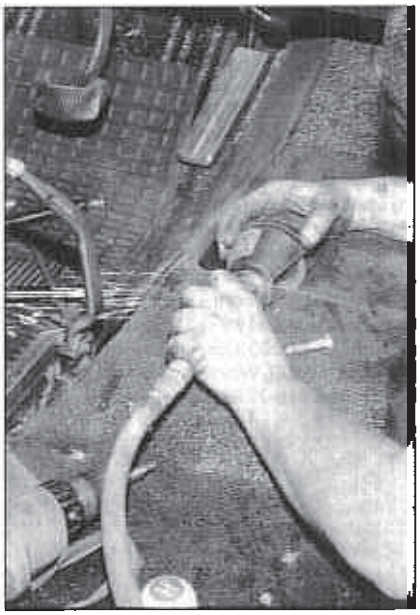
11 Another shifting option is an air shifter for those with on-board air. Wild Horses can provide a parts list, and parts can be found at most industrial-supply outlets. This retains the factory shifter for the Model 20 and engages the Cold Duck 'case with an air solenoid.



13 With the transfer cases bolted together, Wild Horses installed the assembly under the Bronco. The crossmember mounts in the stock location, and the rear driveshaft output is moved back about 6⅝ inches. This Bronco had just enough room between the exhaust, but alterations are often necessary.



12 The original crossmember needs a notch cut in the front-facing edge. Measuring from the driver side, make two cuts straight down at 13 and 15½ inches from the edge of the crossmember. Trim down to the bottom of the flat portion.



14 Finally, a new shifter hole is cut in the floor. Essentially, the existing transfer case shifter hole needs to be enlarged by cutting along the rear of the opening 3¼ inches toward the passenger side and 3 inches forward. This small hole fits the additional shifter. Wild Horses offers small rubber boots to install over the shifters for a clean finished look.

SOURCES

Denny's Driveshaft Service Inc.
Dept. 4WOR
1189 Military Rd.
Kenmore, NY 14217
800/955-1872 order
716/875-6640 tech line

O'Brien's 4 Wheel West
Dept. 4WOR
1302 Hidden Ct.
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