

Installation Manual for your NWF BlackBox



Important Note: Not all Transfer Cases use the same length Input Shaft, when test fitting the BlackBox to the Transfer Case make sure the BlackBox mates to the Transfer case with no gap. The most common problem people run into is the Input Shaft of their Transfer Case is too long and will bottom out against the rear Output Bearing before the BlackBox is fully seated. The most common gap to see is 3/4 of an inch.

If your Input is too long the remedy is to cut the input shaft of the transfer just enough so the BlackBox mates to the Transfer Case without the input bottoming out on the bearing, or running our 3/4" Spacer.

Preparing the Transmission:

Step 1:

Measure the length that your transmission's output shaft sticks out past the adapter. The output shaft must be flush with the mounting adapter. The maximum the output shaft may stick past the mounting adapter in a BlackBox set-up is 1/4". If your transmission originally had a NP231/241 no output shaft modification is necessary.



Step 2:

If the output shaft sticks out past the mounting adapter by more than $\frac{1}{4}$ " remove excess shaft with a disc grinder as shown in picture below. Be sure to cut slowly as not to heat up the shaft too much.



Test Fitting the BlackBox to the Transmission:

Step 1:

You are now ready to Test Fit your BlackBox onto the Transmission. Slide the BlackBox onto your Transmission without any gaskets to make sure there will be no interference when it comes time to install. If there are no interferences you can continue onto step 3. (Note: It is not necessary to actually bolt it to the transmission using studs at this point.)



Step 2:

If you encountered interference between the BlackBox and Transmission determine what the problem is. Some problems include, Governor inside Ford Transmissions may hit, output shaft of transmission is too long (return to preparing Transmission).

Step 3:

Your test fit of the BlackBox to the Transmission is now complete. You can now remove the BlackBox from the back of the transmission and move onto test fitting the BlackBox to the Transfer Case.

Test Fitting the BlackBox to the Transfer Case:

Step 1:

Install the supplied 3/8" NC Studs into the Transfer Case or mounting adapter (Fig. 8 Cases) using a medium strength thread locking compound.



Step 2:

Slide supplied mounting bracket onto studs making sure the shift rail opening is lined up with the shift rail.



Step 3:

Determine the Wide Set hole spacing on the BlackBoxes output side. Slide the BlackBox onto the Transfer Case making sure the wide spacing of the transfer case lines up with the wide spacing of the BlackBox. The BlackBox should mate up to the mounting foot and the transfer case with no gaps between the three.

Mounting the BlackBox to the Transmission:

Step 1:

You will need to determine how you want your Transfer Case Clocked. For a stock clocking position you will be using the middle of the 5 different clocking holes on the BlackBox (Red Lines in Picture). If you want your Transfer Case to sit in a stock location install the supplied (6) 3/8 NC studs into the holes marked in the picture. (Note: These are interference studs and DO NOT require any locking compound.)



If you wish to clock your transfer case Clockwise (Viewing from the front) re-position the studs Counter Clockwise from the center position. (Purple Lines in Picture)

If you wish to clock your transfer case Counter Clockwise (Viewing from the front) re-position the studs Clockwise from the center position. (Green Lines in Picture)

To get the proper Clocking this will require some trial and error to get the transfer case where you want it to be sitting. Best way to achieve this will be to mount the BlackBox with No gasket to the transmission using which location you think will work best, then slide the Transfer Case onto the back of the BlackBox. Keep doing this until you have the Proper Clocking.

Once you have determined the clocking position you want to use, test fit the Transfer Case on the BlackBox with the mounting bracket, set the bottom of the bracket so it is flat in comparison to the transmission mounting Surface. Make a note of where the mounting bracket is in comparison to the Transfer Case. (Note: The Mounting Bracket will only work up to 10 degrees of clocking after that point modifications will have to be made to the bracket.)

Step 2:

Clean the mating surface of the Transmission and BlackBox well. Install the Appropriate Gasket and/or Black RTV.

Step 3:

Slide the BlackBox onto the Transmission and tighten with the supplied (6) 3/8 NC Nuts.



Mounting the Transfer Case to the BlackBox:

Step 1:

Clean the mating surface of the Transfer Case. Install the Appropriate Gasket and/or Black RTV.



Step 2:

Clean the Mounting Bracket and apply a thin layer of Black RTV on it as well as the already installed gasket. Install Mounting Bracket in the already determined position from Step 1 of Mounting the BlackBox to the Transmission.



Step 3:

Clean the BlackBox mating surface as well as the Mounting Bracket surface (Unless already cleaned) apply a thin layer of Black RTV on both the Mounting Bracket and BlackBox, install the supplied round gasket to the Mounting Bracket using the studs to make sure all the holes line up. Verify that the BlackBox and transfer case mate together with no gap. Trim the shaft if necessary outlined in "Step: 1"

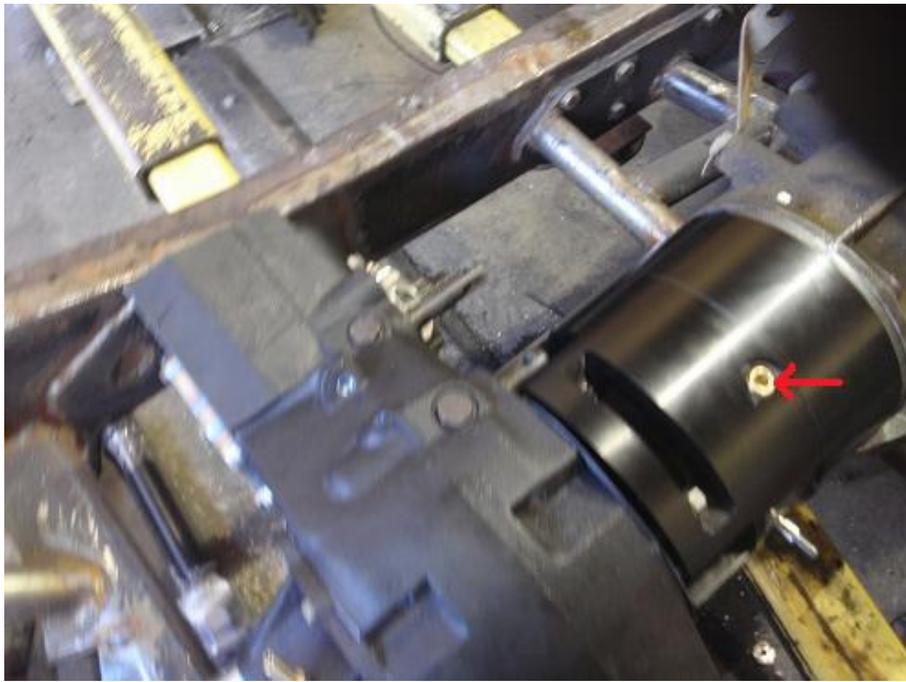
You can now install the Transfer Case onto the BlackBox, tighten down with the supplied (6) 3/8 NC Stover Nuts.



Final Installation Steps:

Step 1:

The BlackBox is shipped with (3) brass 3/8" NPT plugs. Remove the one that is orientated closest to the top. Tighten the 2 remaining brass plugs into the case.



Step 2:

Fill the BlackBox with 3/4 Quart of 80/90w via the plug that was removed in step 1. Now thread in the supplied brass breather fitting into the same hole. Extend the breather by attaching a rubber hose (not included) to the breather fitting and clamping it. A good place to route it is up to the top of your engine bay.

Fill Your Transfer Case to OEM Spec.

Step 3:

Install the Cable Shifter onto the BlackBox. The instructions to do this are found back in the Installation Manual Section.

Step 4:

You are required to fabricate a cross member which properly supports the BlackBox/Transfer Case Assembly using the Mounting Bracket. Failure to do so could result in broken parts on your BlackBox, Transfer Case, and drive train.

Step 5:

You have completed the BlackBox install into your vehicle.