Ford C-4 Automatic Transmission Case / Oiling Modifications.

The following tips apply to most C-4 transmission cases. You should strip the case bare and clean it with solvent to properly perform these modifications.




The number 9 thrust bearing rides against the back of the main case, this bearing is prone to failure due to lack of lubrication. The solution is to drill a small hole in the case which connects to the cooler return oil passage. All C-5 cases are drilled in this manner, and hence do not generally loose this bearing. The case is shown undrilled in the picture at left with a red dot for reference. I use a 1/8" drill bit for this operation. be careful not to go too deep. You only want to go just deep enough to connect to the oil galley. Shown at right is the new number 9 thrust bearing with a hole drilled to match the case. Take care to ensure that the hole in the bearing aligns with the hole in the case.





Ford C-4 Automatic Transmission Servo Modifications.

The modification shown below is not necessary for most transmissions. It is better to try an "H" code servo first. Also, aftermarket servos are available. This mod applies full line pressure to the servo cover gasket. A high quality gasket must be used. It is also advisable to use an aftermarket billet servo cover to avoid leakage due to cover flex.

These are the parts which make up the Intermediate servo.
They are bolted into the right hand side of the case.
From left to right [Return spring, Piston, Cover].




The servo piston has two o-rings, Apply [smaller] and Release [Larger].



Remove the o-ring from the small diameter side of the piston.



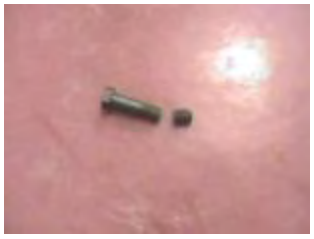
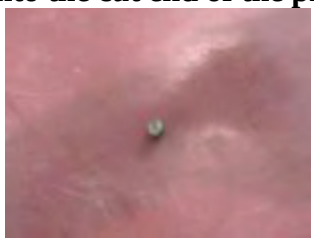
Using a die grinder or a file, cut three notches in the small side of the piston.
Be extra careful not to damage the large diameter portion of the piston.
This will dramatically increase the apply pressure on the intermediate band.




The next part of this modification requires that you plug the vent hole in the side of the case next to the Servo bore. Start by running a 3/8-16 NC taper tap about 5/8" into the hole.




Next cut about 1/2" off the end of a 3/8-16 bolt and use a file or sawblade to cut a screwdriver slot into the cut end of the plug as shown.

Apply some "Lock-Tite" to the plug and install it in the case. It is important That the plug does not protrude past the surface.




To finish things up, install the servo as you normally would: spring, piston, gasket, and cover.

I would like to thank the members of the fordmuscle.com bulletin board (especially TimR and Gregaust) for their help and information regarding the C-4 Transmission and these modifications.

Ford C-4 Automatic Transmission
General Information

Go to the C-4 mods Page. (Added 6/8/2003)

The Ports in the Case of a Ford C-4 and their function.
This is from the bottom of the trans looking up.

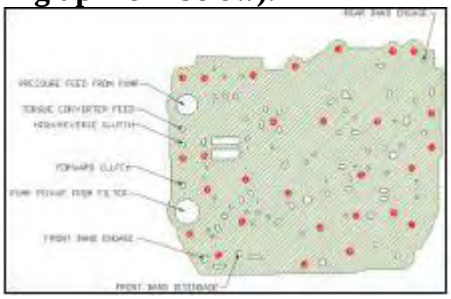
The upper valve body (looking up from below).




The Lower valve body (looking down from above).




The Seperator plate (looking up from below).

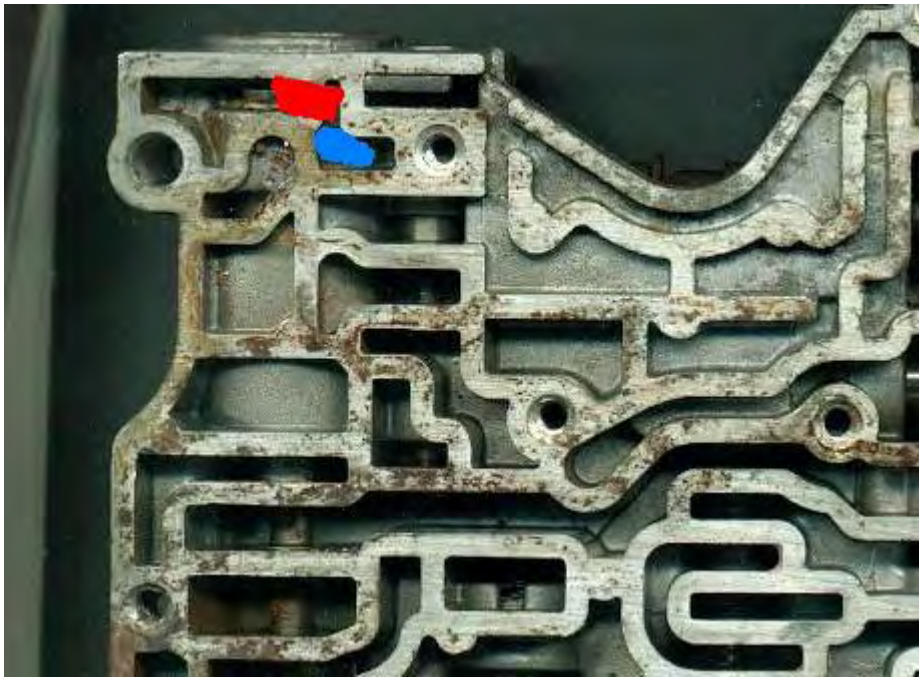



Download the above drawing: AutoCAD 2000 DWG AutoCAD R14/LT98 DXF

The Seperator plate (looking down from above).



Modifications:



[quote]
The red area is where I cut the valvebody to keep the reverse boost from working.
The blue area should just drain to the pan.
I have had a pressure gauge on the tranny since I did the mod and the pressure stays the same in all gears now.
[quote] Mario428 of FordMuscle.com

This is a scanned article from Super Ford Magazine. the text is hard to read, so I transcribed it to txt files.

Page4.jpg
Page4.txt

Page5.jpg
Page5.txt

Page6.jpg
Page6.txt
Thanks to Just Strokin from FordMuscle.com for the article.

Ford C-4 Automatic Transmission Valve Body Modifications. (Stage 1)

When working with the valve body, keep in mind that there are many sharp surfaces to cut your fingers on. Also, work in a very clean environment and be careful not to lose any of the small parts such as balls and springs.

The following tips apply to all 1970 and newer valve bodies except the "Pinto" style units. Be sure to correctly identify your valve body before attempting any modifications.

Remove the filter and pickup from the valve body.




Remove the pressure relief spring and valve.




Seperate the upper and lower halves of the valve body, and the seperator plate. Lower (shown at left) and Upper (shown at right)





Next, modify the intermediate servo accumulator valve. This valve is located in the upper corner of the valve body as shown in the photo at left. Remove the parts (cap, valve, and spring) from the valve body as shown in the middle photo. Install the valve and spring in reverse order as shown in the photo at right.





Remove the ball from the location in the lower valve body indicated in the image at left. Also remove the rubber plug from the location in the upper valve body indicated in the image at right. These mods also help to firm the shift.




After cleaning the parts with solvent, dry them with compressed air.
Re-assemble the valve body and seperator plate using a new gasket and be sure you don't leave out the balls indicated below in the lower (left image) and upper (right image) halves of the valve body.




Before installing the new filter, remember to drop the pressure relief valve and and spring back into the lower half of the valve body.




Ford C-4 Automatic Transmission Valve Body Modifications. (Stage 2)

When working with the valve body, keep in mind that there are many sharp surfaces to cut your fingers on. Also, work in a very clean environment and be careful not to lose any of the small parts such as balls and springs.

The following tips apply to all 1970 and newer valve bodies except the "Pinto" style units. Be sure to correctly identify your valve body before attempting any modifications.

Remove the filter and pickup from the valve body.




Remove the pressure relief spring and valve.




Seperate the upper and lower halves of the valve body, and the seperator plate.
Lower (shown at left) and Upper (shown at right)





The first modification is to enlarge two holes in the seperator plate.
This will firm up the shift. The two holes are indicated in yellow.
Use a 1/8" drill bit to open them up, then de-burr them by hand.




Next, modify the intermediate servo accumulator valve. This valve is located

in the upper corner of the valve body as shown in the photo at left. Remove the parts (cap, valve, and spring) from the valve body as shown in the middle photo. Install the valve and spring in reverse order as shown in the photo at right.

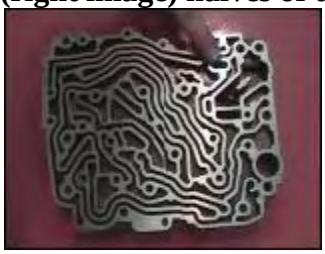




Remove the ball from the location in the lower valve body indicated in the image at left. Also remove the rubber plug from the location in the upper valve body indicated in the image at right. These mods also help to firm the shift.




After cleaning the parts with solvent, dry them with compressed air.
Re-assemble the valve body and seperator plate using a new gasket and be sure you don't leave out the balls indicated below in the lower (left image) and upper (right image) halves of the valve body.




Before installing the new filter, remember to drop the pressure relief valve and and spring back into the lower half of the valve body.




Ford C-4 Automatic Transmission Valve Body Modifications. (Stage 3)

When working with the valve body, keep in mind that there are many sharp surfaces to cut your fingers on. Also, work in a very clean environment and be careful not to lose any of the small parts such as balls and springs.

The following tips apply to all 1970 and newer valve bodies except the "Pinto" style units. Be sure to correctly identify your valve body before attempting any modifications.

Remove the filter and pickup from the valve body.




Remove the pressure relief spring and valve.




Seperate the upper and lower halves of the valve body, and the seperator plate.
Lower (shown at left) and Upper (shown at right)



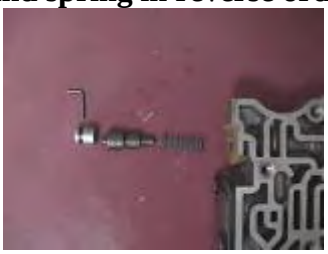


The first modification is to enlarge two holes in the seperator plate.
This will firm up the shift. The two holes are indicated in yellow.
Use a 3/16" drill bit to open them up, then de-burr them by hand.




Next, modify the intermediate servo accumulator valve. This valve is located

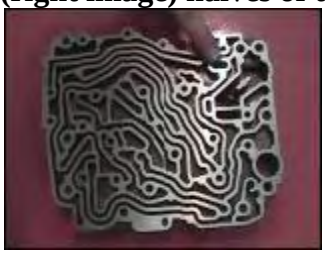
in the upper corner of the valve body as shown in the photo at left. Remove the parts (cap, valve, and spring) from the valve body as shown in the middle photo. Install the valve and spring in reverse order as shown in the photo at right.


Remove the ball from the location in the lower valve body indicated in the image at left. Also remove the rubber plug from the location in the upper valve body indicated in the image at right. These mods also help to firm the shift.




After cleaning the parts with solvent, dry them with compressed air.
Re-assemble the valve body and seperator plate using a new gasket and be sure you don't leave out the balls indicated below in the lower (left image) and upper (right image) halves of the valve body.




Before installing the new filter, remember to drop the pressure relief valve and and spring back into the lower half of the valve body.




Ford C-4 Automatic Transmission Valve Body Modifications. (Stage 4)

When working with the valve body, keep in mind that there are many sharp surfaces to cut your fingers on. Also, work in a very clean environment and be careful not to lose any of the small parts such as balls and springs.

The following tips apply to all 1970 and newer valve bodies except the "Pinto" style units. Be sure to correctly identify your valve body before attempting any modifications.

Remove the filter and pickup from the valve body.




Remove the pressure relief spring and valve.




Seperate the upper and lower halves of the valve body, and the seperator plate.
Lower (shown at left) and Upper (shown at right)



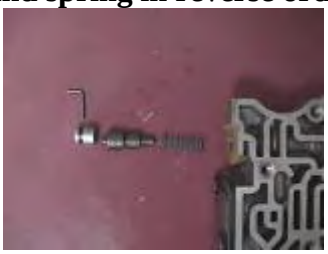


The first modification is to enlarge two holes in the seperator plate.
This will firm up the shift. The two holes are indicated in yellow.
Use a 5/32" drill bit to open them up, then de-burr them by hand.



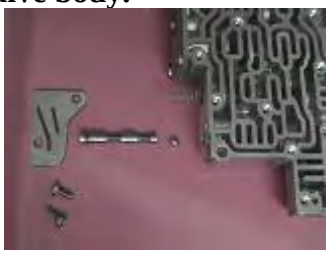

Next, modify the intermediate servo accumulator valve. This valve is located

in the upper corner of the valve body as shown in the photo at left. Remove the parts (cap, valve, and spring) from the valve body as shown in the middle photo. Install the valve and spring in reverse order as shown in the photo at right.

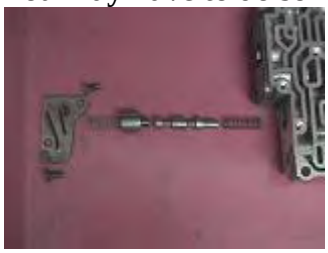
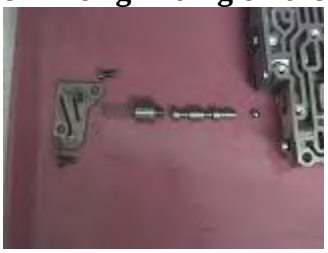




Located in the opposite corner of the valve body is the cutback valve. Remove the valve from the bore as shown in the middle picture. Discard any springs found in the bore and add a 1/4" steel ball bearing before installing the valve (see the photo at right). You may have to grind the end of the valve to allow it to sit flush with the face of the valve body.





Under the same cover plate as the cutback valve are the transition valve and the 2-3 backout valve. Remove these valves in the order shown at left below. Discard both springs, and install a 1/4" steel ball bearing before the valves. You may have to do some minor grinding on the end of the valves so they sit flush.

Remove the ball from the location in the lower valve body indicated in the image at left. Also remove the rubber plug from the location in the upper valve body indicated in the image at right. These mods also help to firm the shift.




After cleaning the parts with solvent, dry them with compressed air. Re-assemble the valve body and seperator plate using a new gasket and be sure you don't leave out the balls indicated below in the lower (left image) and upper (right image) halves of the valve body.




Before installing the new filter, remember to drop the pressure relief valve and and spring back into the lower half of the valve body.




Ford C-4 Automatic Transmission Valve Body Modifications. (Stage 5)

When working with the valve body, keep in mind that there are many sharp surfaces to cut your fingers on. Also, work in a very clean environment and be careful not to lose any of the small parts such as balls and springs.

The following tips apply to all 1970 and newer valve bodies except the "Pinto" style units. Be sure to correctly identify your valve body before attempting any modifications.

Remove the filter and pickup from the valve body.




Remove the pressure relief spring and valve.




Seperate the upper and lower halves of the valve body, and the seperator plate.
Lower (shown at left) and Upper (shown at right)





The first modification is to enlarge two holes in the seperator plate.
This will firm up the shift. The two holes are indicated in yellow.
Use a 3/16" drill bit to open them up, then de-burr them by hand.




Next, modify the intermediate servo accumulator valve. This valve is located

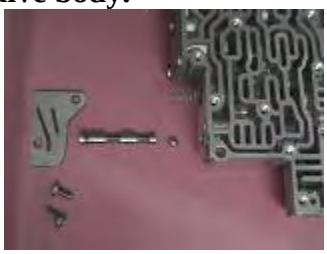
in the upper corner of the valve body as shown in the photo at left. Remove the parts (cap, valve, and spring) from the valve body as shown in the middle photo. Install the valve and spring in reverse order as shown in the photo at right.



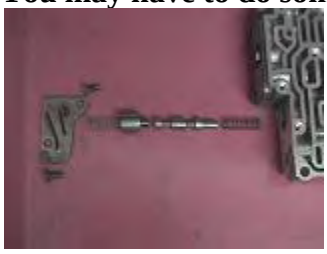
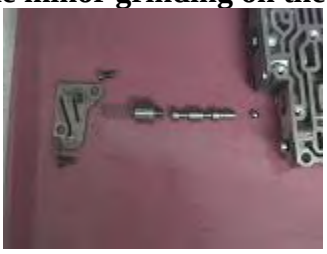


Located in the opposite corner of the valve body is the cutback valve. Remove the valve from the bore as shown in the middle picture. Discard any springs found in the bore and add a 1/4" steel ball bearing before installing the valve (see the photo at right). You may have to grind the end of the valve to allow it to sit flush with the face of the valve body.





Under the same cover plate as the cutback valve are the transition valve and the 2-3 backout valve. Remove these valves in the order shown at left below. Discard both springs, and install a 1/4" steel ball bearing before the valves. You may have to do some minor grinding on the end of the valves so they sit flush.

Remove the ball from the location in the lower valve body indicated in the image at left. Also remove the rubber plug from the location in the upper valve body indicated in the image at right. These mods also help to firm the shift.




After cleaning the parts with solvent, dry them with compressed air. Re-assemble the valve body and seperator plate using a new gasket and be sure you don't leave out the balls indicated below in the lower (left image) and upper (right image) halves of the valve body.




Before installing the new filter, remember to drop the pressure relief valve and and spring back into the lower half of the valve body.