



Installation Instructions for Model 4500 Shaft Kits

1. First step in the process is to remove the original throttle shafts. This is a fairly simple mechanical procedure, however there are a number of precautions that will be noted in these instructions to alert you to potential problem areas. After removing the carburetor from the engine be certain to drain all the fuel from the bowls.
2. Back out both idle mixture speed screws. These are located on the main body directly behind the throttle lever 90 degree tab.
3. **CAUTION:** The original throttle plate screws are staked into place to prevent loosening. This staking compresses the threads protruding beyond the throttle shaft. The safest process is to remove all of the threads until almost flush with the shaft. This can be accomplished with a small hand file. These screws are brass so it doesn't take very long to remove the excess threads. The easiest way to remove these threads is to hold the throttle wide open making it easier to keep the file parallel to the shaft. Other methods can be used to remove the threads, such as an air sander, however, these remove the threads very quickly so precede with due caution to prevent making contact with the shaft.
4. Turn the carburetor upside down, securing the air horn to prevent damage to the vent tubes.
5. Remove the Allen Head screws securing the intermediate linkage components on both throttle shafts. This Allen Head is 5/32" and may be difficult to remove as the thread may have a thread lock coating. If the resistance is too great to loosen the screw by hand, use a small propane torch or similar heat source to liquefy the thread lock coating. Once heated it should be fairly easy to remove the screws. Set these screws aside for re-use. Once the intermediate linkage screws are removed the throttle shafts will work independently of each other.
6. Using the correct size Phillips head screwdriver, remove the throttle plate screws. When removing the screws you will feel a little bit of resistance as the end of the threads begin to enter the throttle shaft. This is normal. If, however, you feel a great deal of resistance do not attempt to "force" the screw out, file the threads a little more as all the staking has not been removed.
7. With the throttle plate screws removed, you can now remove the throttle plates. Since the original throttle shaft "sandwiches" the throttle plate, it takes some patience to pull the plates out of the shaft. With the throttle wide open, attempt to pull the throttle plate from the bottom of the shaft. **NOTE:** The throttle plates have a flat cut on each side of the plate that align with the shaft. It is important to pull the plate straight as the flats reduce the plate diameter. If the plate turns, that is does not remain perpendicular to the shaft, the diameter becomes greater, making removal more difficult.
8. If the plates cannot be pulled because they are too tight, try lightly tapping the top of the plate with a small screwdriver handle or similar piece you can maneuver through the top side of the carburetor. We emphasize lightly because the throttle plates have a beveled edge which can be distorted with too much force. With time and patience the throttle plates can eventually be removed from the shaft.
9. Once the plates have been removed, locate the throttle shaft return spring. The spring has a 90 degree bend that keeps tension on the spring. When removing the throttle shaft lift this tab so the spring doesn't snap back as it disengages the main body.
10. Transfer the spring from the original shaft to the new throttle shaft, note the hole location where the original spring tab is positioned. Remove the original pump cam and set aside for installation later.
11. As you install the new throttle shaft be certain to feed the shaft through the intermediate linkage which may have fallen out of place once the original shaft was removed. You can position the intermediate linkage collar with a small screw driver or needle nose pliers. Push the spring tab forward as the throttle shaft is close to its final position. Gently release the spring once it has cleared the pad on the main body.
12. With the throttle shaft in position, rotate the shaft to wide open, insert the throttle plate into the relief cut in the shaft for the plate. **NOTE:** Position the throttle plate so the number stamped into the plate is up (toward the top of the carburetor) and on the metering block side of the main body. If you look at the plate from the top of the carburetor you can see the number stamped in the plate and it will be forward of the shaft. It is easier to do one shaft at a time in this process.
13. Using the new throttle plate screws provided, use a #15 Torx screwdriver to position the screw into the throttle plate hole and engage the threads in the throttle shaft. Start each screw into the shaft but do not tighten.

14. Turn the carburetor over, then place a drop of thread lock liquid in each throttle plate screw hole. This will enable the thread lock to penetrate the threads in the shaft.
15. Tighten the screws until the head just makes contact with the plate, then back it off ¼ turn. Open the throttle shaft and by quickly releasing the lever allow the shaft to snap closed by the spring. This helps center the plates in the bores. Slightly tap the leading edge of the plate (forward of the shaft) with a screwdriver handle.
16. Apply thread lock liquid to the intermediate linkage Allen Head cap screw. Install this screw, thread in but do not tighten. Leave a little gap between the head and intermediate linkage collar.
17. Holding the throttle lever in one hand, move the throttle shaft in and out of the main body. Try to position the shaft so it is half way between this distance. Look at the intermediate collar to check for clearance on either side to the main body. If the gap on one side looks wider, try to reposition the shaft so the gap is more uniform.
18. Tighten the throttle plate screws and the intermediate linkage screw. Check for free throttle operation. The operation should be free and smooth. If not, loosen the screws and repeat steps 15 thru 17.
19. Repeat the above process for the other shaft.
20. Install the accelerator pump cams. Operate the throttle to be certain the operation is smooth and closes with the throttle shaft springs.
21. Re-set the idle speed screws. **NOTE:** The throttle shafts should be opened the same amount primary and secondary. Open the throttle shaft until the transfer slot is visible. Back the idle speed screw off ¼ turn. This will be a good baseline setting that can be fine tuned once it is on the engine. When adjusting the idle speed, turn both shafts an equal amount.

This is an involved process but not too complicated if the above instructions are followed.

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