Front Disc Brake Kit
#3002-3005 Date 8/9/18

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Parts list:

2 - Hub and Rotors	**2 - Spindles**
1 - Loaded Right Caliper	**1 - Loaded Left Caliper**
1 - Right Caliper Bracket	**1 - Left Caliper Bracket**
2 - Spindle Seals (early) (installed in back of spindles)	**2 - Spindle Seals (late style)**
2 - Hub Seals	**1 - Proportioning Valve (Optional)**

Hardware:

1 EA. Instructions	**2 EA. Caliper Hoses**
12 EA. 3/8" x 1 1/2" NF Grade 8 Bolts	**12 EA. 3/8" Lock Washers**
2 EA. Caliper Bolts	**2 EA. 7/16" x 1/2" NF Grade 8 Bolts**
2 EA. 7/16" External Lock Washers	**2 EA. 3/8"x 1 1/2" Fender Washers**

Fitting & Hardware Kit for Proportioning Valve (Optional)

2 EA. 5/16"-18x2" cap screws	**2 EA. 5/16" lock nuts**	**2 EA. 5/16" washers**
1 EA. 258302	**1 EA. 258350**	**1 EA. 120300**
1 EA. 123300	**1 EA. 123400**	**1 EA. 258340**
1 EA. 258403	**1 EA. Proportioning Valve Instructions**	

Tools:

1. 13/16" Star Wrench	**2. 5/32" Allen Wrench**	**3. Snap Ring Pliers**
4. Spindle Nut Socket	**5. 1/2" Drive Ratchet**	**6. 5/8" Wrench or Socket**
7. 9/16" Socket w 5" Extension	**8. 3/8" Allen Wrench**	**9. 3/8" Brake line Wrench**
10. 7/16" Wrench	**11. Hammer**	**12. Torque Wrench**
13. 2 Jack Stands	**14. Jack**	**15. Hand Held Grinder**

Beginning the Conversion:

1. Begin the conversion by supporting the front axle on a pair of substantial jack stands.
2. Then remove the tires and wheels.
3. Next remove the locking hubs.
4. Using the special spindle nut wrench remove the spindle nuts and the hub brake drum. Set the hub and the brake drum to the side and cover them to avoid dirt getting in and contaminating the bearings.
5. Undo the brake line where the hard line from the wheel cylinder attaches to the flex hose. A good idea at this point is to have a plug of some sort to insert in the now open brake line so that brake fluid will not drain out all over the floor. It is also easier to bleed the system later if you haven't allowed the brake lines to drain.
6. Remove the six 3/8" bolts that hold the spindle and brake backing plate to the steering knuckle.
7. With the bolts out remove the spindle and the brake backing plate.

NOTE: Sometimes there are camber shims between the spindle and the knuckle. If this is the case then mark their position so they can be reinstalled later.

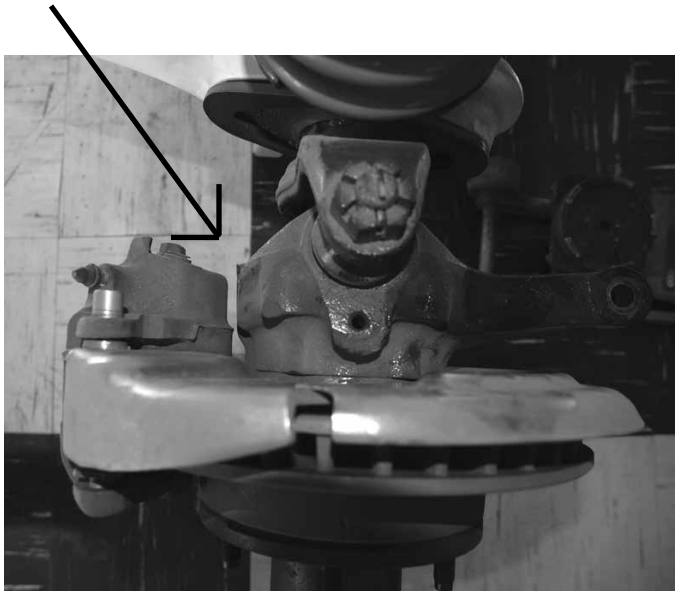
8. Next undo the inner hard brake line from the wheel cylinder flex line which is still in place, and again devise some manner of plugging the line to keep to keep the brake fluid from draining out.
9. Remove the flex line bracket that is fastened to the steering knuckle and the flex line and discard.
10. The inner flex line brackets, the ones bolted to the axle bump stops must be slightly modified. Specifically they must be bent inward approximately as much as they bend outward in their stock form.
11. The hard brake line must then be carefully bent to align with the new location of the brackets.

12. One final thing must be done before reassembly. The Ford steering knuckle does not quite have enough clearance on the back side for the GM brake caliper. A small amount of grinding with a heavy body sander or grinder on the fattest part of the knuckle backside where the limiter bolt is will take care of the problem. If there is any doubt about where to do the grinding, assemble the spindle, caliper holder and caliper as per the following instructions and note where the caliper and knuckle interfere with one another. (See pic #1) The caliper is a floating caliper, this means is there must be approximately 1/8" space between the caliper and steering knuckle when completely bolted up; therefore allowing no interference as the brake pads wear. Failure to grind this material for caliper clearance is the number one cause of poor braking performance. Here is an easy way to check to make sure you have ground enough. Once the kit is completely assembled look straight down over the top of the rotor and see if you have clearance between the caliper and knuckle. Recheck this after bleeding the brakes and after your initial test drive. If the caliper hits the knuckle it will become ineffective. Sometimes one caliper will have clearance and the other won't this will cause hard pulling to one side.
13. Start the reassembly by bolting the spindles and caliper brackets in place with the new 3/8" bolts and lock washers. See pic #2 for caliper oreintation. **The new spindles come with a seal pressed into the back (for early style outer axles), if this is not what your old spindle looks like then remove this seal and use the rubber V-type seal (for late style outer axles) that is also supplied. It should be just like the one on your existing outer axles. We also supply a new nylon spacer (for late style outer axles only) which replaces the stock brass spacer located at the base of the outer stub axles. Install this spacer with the beveled section against the base of the axle.**
15. Next transfer the bearings from your drum assemblies to the hub and rotor assemblies (or install new bearings) and install the hub and rotor assembly onto the spindle.
16. Installing the spindle nuts in the same fashion as they were installed on the drum brake assembly. The first spindle nut will have a washer locating dowel; make sure the dowel faces out when installing the nut. Next place the washer on the spindle make sure it sits flat on the first spindle nut. If it does not sit flat take it out turn it around and try installing it again. It must sit flat on the nut. Install the outer nut.
17. (For stock locking hubs only) Now install the bearing shield, large spring and inner portion of the freewheeling hub into the end of the hub and rotor assembly. At this point it should become obvious that the inner portion of the free wheeling hub will not go far enough onto the stub axle to get the retaining snap ring on. It will in fact go on only so far as to become approximately flush with the end of the stub axle.
18. Using the 7/16" bolt, star lock washer, and "fender" flat washer tighten the bolt with washers into the threaded hole in the end of the axle (stock axles only). The 7/16" bolt, star lock washer, and "fender" flat washer then takes the place of the outer axle snap ring and works quite nicely without interfering with the function of the locking hub. If your stub axles do not have the threaded hole in the end you will need to use Aftermarket locking hubs. With the aftermarket hubs you will not need the snap ring or fender washer. WH stocks Warn and Mile Marker locking hubs.
19. Finish installing the hub and rotor assembly by fastening the outer portion of the locking hub in place.
20. Install the GM caliper with new brake pads onto the caliper holder bracket. Make sure the bleed screw is at the top of the caliper when installing.
21. Route the brake flex hose between the spring and the stock location (see pic #3) and fasten the end of it into the relocated flex hose bracket.
22. Thread the hard brake line into the end of the flex hose and tighten.
23. Do steps 24-28 if you are using a stock master cylinder. If you have power brakes or hydro boost move to step 29.
24. The residual check valve, which keeps approximately 10lbs. of residual pressure on a drum brake system, must be removed from the back half of the master cylinder. The back half of the master cylinder is the part that controls the front brakes. To accomplish this first remove the brake line where it screws into the back half of the master cylinder.
25. Then, carefully thread a #6 sheet metal screw two or three turns into the brass seat found inside the master cylinder where the brake line screws into it.
26. Use a pair of pliers and carefully pull the brass seat out of the master cylinder.
27. Behind the brass seat you will find a small spring with a rubber cap on it. This is the residual check valve. Remove and discard it.
28. Reinstalling the brass seat.
29. Bleed the system.

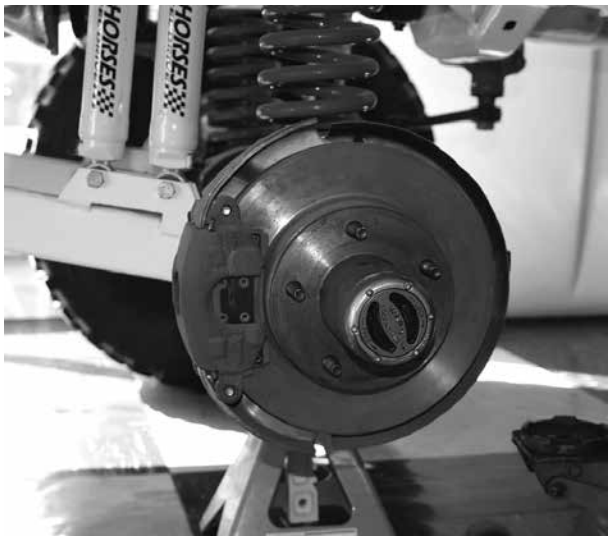
NOTE: When combining disc and drum brakes we recommend using a pressure differential, metering, and proportioning valve. P/N 3037 valve. P/N 3039 fitting kit. Or the adjustable proportioning valve #3034

Check your grinding of the knuckle by looking down from above the front end makeing sure you have clearance for the caliper to move in as the outer pad wears. These are floating calipers they can not be allowed to hit the knuckle. If they hit the brakes will not operate properley.

Note: photo at right shows caliper bracket with mud sheild. Your caliper brackets may or may not have the mud shield.



Caliper mounting should be at the 9 o' clock position on the passenger side and the 3 o' clock position on the driver side.



Be sure to mount calipers with the bleed screws up. The brake hoses should be mounted up and then into the bracket on the front end. DO NOT mount the hose back and into the bracket because it could rub on the tire or wheel. Double check hose install by turning wheels full right and full left while watching the hose. Make sure there is no interfearance anywhere.