

# ADVANCE ADAPTERS INC.

P.O. Box 247, 4320 Aerotech Center Way  
Paso Robles, CA 93447  
Telephone: (800) 350-2223 Fax: (805) 238-4201

## P/N: 403300

New Item: (1/04)  
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Page Rev. Date: 06-03-21

## DANA 300 TWIN STICK SHIFTER KIT

### KIT CONSISTS OF:

No:	Qty	Part No.	Description
1	2	300386	SET SCREW-ATLAS SHIFTER FORK
2	1	302060	BOOT- TWIN STICK
3	1	302062	SHIFTER STICKER- STD ATLAS SHIFTER L-N-H
4	1	302063	BOOT RING- ATLAS TWIN STICK
5	2	302083	KNOB- BULK WITH STICKER RECESS
6	2	303121	NUT-1/2-13 HX JAM BLACK ZINC
7	1	403301	SHAFT- D300 SHIFT RAIL FRONT
8	1	403302	SHAFT- D300 SHIFT RAIL REAR
9	1	403303	BRACKET- D300 SHIFTER
10	2	403304	SHAFT- D300 SHIFTER PIVOT
11	4	403305	HEIM LINKS DANA 300 TWIN STICK
12	2	403307	LEVER- D300 SHIFTER
13	4	*403309	BUSHING DANA 300 TWIN STICK
14	2	403310	ROD END-FEMALE right hand 3/8- 24
15	2	403311	ROD END-MALE right hand 3/8- 24
16	2	722523	1/4 USS FLAT WASHER PLTD.
17	6	723101	NUT 5/16 -18 PLATED
18	2	723103	LOCK WASHER 5/16 PLATED
19	1	723110	S.H.C.S. 5/16 -18 X 3/4 LG
20	4	723151	5/16 -18x 1/2 THR. 3/8 DAI 3/4L S-BOL
21	1	723152	5/16 -18 X 1-1/4 S.H.S.S. - CUP PT.
22	4	723719	HEX JAM NUT 3/8 -24 PLATED
23	2	723755	S.H.C.S. 3/8 -16 X 4 LG black oxide

\* BUSHINGS ARE A PRESS FIT INTO THE SHIFT HANDLE BASE.

**NOTE:** This kit requires one of the shift rails to be modified when using it with a 4:1 low gear set. We do not offer a shift rail with this modification already made to it.

**Optional item: P/N 303150AA**  
Aluminum shift knobs  
(Black Knobs with machined letters)

### NOTE:

This assembly will require the installation of new shift rails into your transfer case. This kit allows the Dana 300 to be shifted to the following configurations: 2WD High, 4WD High, 4WD Low, Rear Low, and Front Low. Refer to the exploded assembly view on the following pages for part identification and part assembly.

**This is a universal-type kit that may require the handles to be bent for specific applications. Transfer cases kept with a stock rotation will require the shifter handles to be bent.**



**SPECIAL NOTE:** The components packaged in this kit have been assembled and machined for specific type of conversions. Modifications to any of the components will void any possible warranty or return privileges. If you do not fully understand modifications or changes that will be required to complete your conversion, we strongly recommend that you contact our sales department for more information. This instruction sheet is only to be used for the assembly of Advance Adapter components. We recommend that a service manual pertaining to your vehicle be obtained for specific torque values, wiring diagrams and other related equipment. These manuals are normally available at automotive dealerships and parts stores.

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### INSTALLATION OF SHIFT RAILS (PARTS #403301 & 403302):

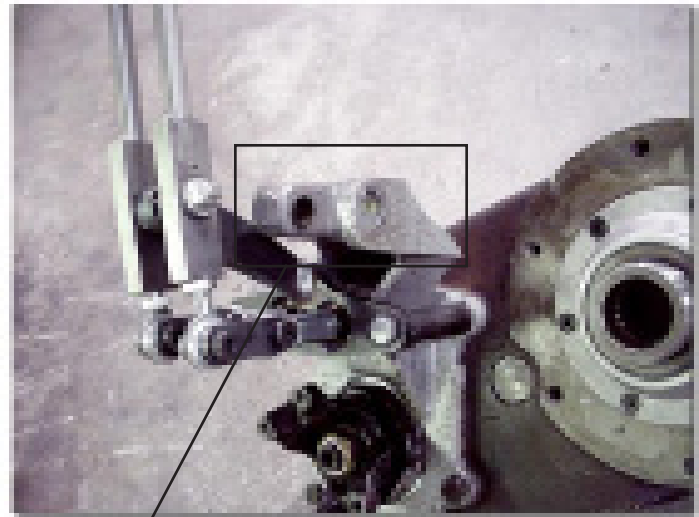
The new shift rails must be installed before continuing on to the remaining instructions. The following is a general guide that outlines how to install the new shift rails included in this kit. Refer to a service manual for specifics on replacing shift rails. It is necessary for the transfer case be removed from the vehicle for the required disassembly. While not required for the installation of this kit, rebuilding the Dana 300 while it is apart may be a good idea if it has not been done recently. We offer a Dana 300 rebuild kit under **Part No. 400300**.

1. Remove the Dana 300 pan.
2. Unbolt the cluster shaft retainer and press out the cluster shaft.
3. Remove the cluster gear, making sure to not misplace any of the loose needle bearings.
4. Remove the set screws out of both shift forks.
5. Carefully remove both shift rails out the front of the transfer case, being careful not to misplace the balls and springs. Before you set the shift rails down, mark them for identification.
6. **DO NOT REMOVE THE INTERLOCK PILLS!** If the interlock pills are removed, the transfer case will shift into Low and High at the same time and transfer case damage will result!
7. Using the specific information in the service manual, install the new shift rails into the correct location. (Refer to the old shift rails to determine which is the front and which is the rear.)
8. USING BLUE LOCTITE, reinstall the shift fork set screws.
9. Reinstall the cluster gear, needle bearings, cluster shaft, cluster shaft retainer, and pan.

### INSTALLATION OF SHIFT LINKAGE:

Once the shift rails are in place, continue on to the shift linkage installation. Note that the original pivot location was cast into the front output casting and can be cut off for a cleaner looking installation. (This is necessary for some Dana 300 transmission adapters to increase transmission clearance.)

1. Bolt the shifter bracket (#403303) to the front output casting using the supplied fasteners, #723755, and #723110.
2. Thread on the 3/8-24" jam nuts and 3/8" female heim joints onto the end of the shift rails.



*Cut off this portion (optional)*

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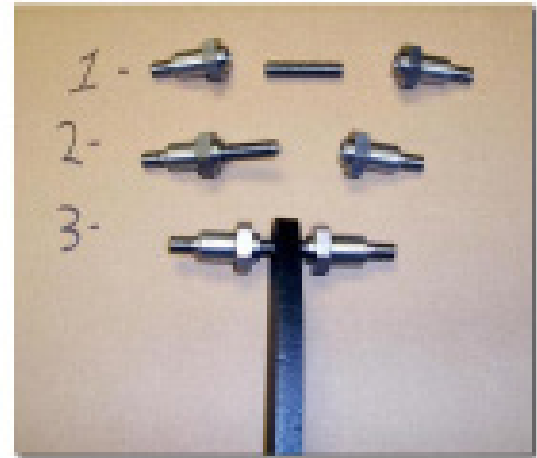
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## DANA 300 TWIN STICK SHIFTER KIT

### INSTALLATION OF SHIFT LINKAGE PIVOT

1. Thread the 5/16"-18 set screw into one of the pivot shafts. Now insert the stud & pivot shaft through the large hole in the shifter bracket and thread the second pivot shaft into the same stud, and tighten (see photo right).
2. Press a pivot bushing (P/N 403309) into both sides of both shift handles using a mallet.



Thread set screw into first pivot shaft, insert into bracket and thread into second pivot shaft.

### PRE-ASSEMBLY

Thread a 3/8"-24 jam nut onto the 3/8" male heim joint, and thread the heim joint into the bottom of the pivot block. Now repeat for the second, jam nut, heim joint, and pivot block.

### IN VEHICLE - ASSEMBLY

1. Reinstall the transfer case into the vehicle.
2. Slide shift handles onto pivot shaft and **CHECK FLOORBOARD CLEARANCE**. Depending on the rotation that you have the Dana 300 set to, the handles may point to the passenger or driver's side of the vehicle. It may be necessary to bend the shift handles close to the pivot block to get the shifter handles to point in the desired direction.



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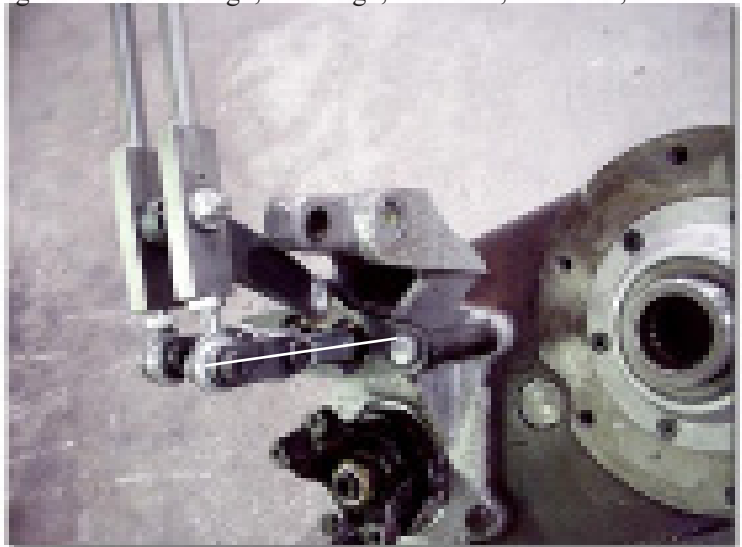
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## DANA 300 TWIN STICK SHIFTER KIT

3. Check that the existing hole in the floor will be large enough for the new shifters. If additional room is needed, cut/grind the hole in the floor to the correct shape. Be careful not to cut the hole too large so that the shift boot ring will no longer cover the hole.
4. Now you may paint the shift handles the desired color. Take care not to get paint onto the pivot bushings because paint may cause a tight fit or binding.
5. Slide a shifter handle onto a pivot shaft with the handle offset pointing outward, followed by the included 1/4" flat washer, 5/16" lock washer and then fasten with a 5/16"-18 nut. Repeat for the second shifter handle.
6. Fasten the female (shift rail) heim joint to the male (shifter handle) heim joint using the shoulder bolts and the heim joint, link plates. Use the 5/16"-18 nut to retain the assembly. Repeat for the second shifter handle.
7. Now check to verify that the handles are vertical when the transfer case is in neutral and parallel to each other. If the shift handles are not orientated properly, unbolt the heim joint link plates and adjust the position of the female heim joint on the shift rail. Use the jam nut to secure it in the desired position. Reattach the heim joint link plates and check your results.
8. Shift the transfer case through the following configurations: 2wd High, 4wd High, 4wd Low, 2wd Low, Rear Low, and Front Low. The shifter handles should not be closer than approximately 1" to the body in any of the shifter positions. The frame and body will flex while driving and can cause the transfer case to pop out of gear or cause shifter binding if sufficient clearance does not exist.
9. Once the transfer case shifts properly and has sufficient body to handle clearance, it is now time to fasten the shifter boot. Insert the included boot ring into the shifter boot and slide the boot down over both shifter handles. Determine the proper location for the boot. Use self tapping screws to fasten the boot and ring to the floor of the vehicle.
10. The last step is to thread the 1/2"-13 jam nuts and shift knobs onto the shifter handles.



Notice parallel alignment of female heim joint and link plate.

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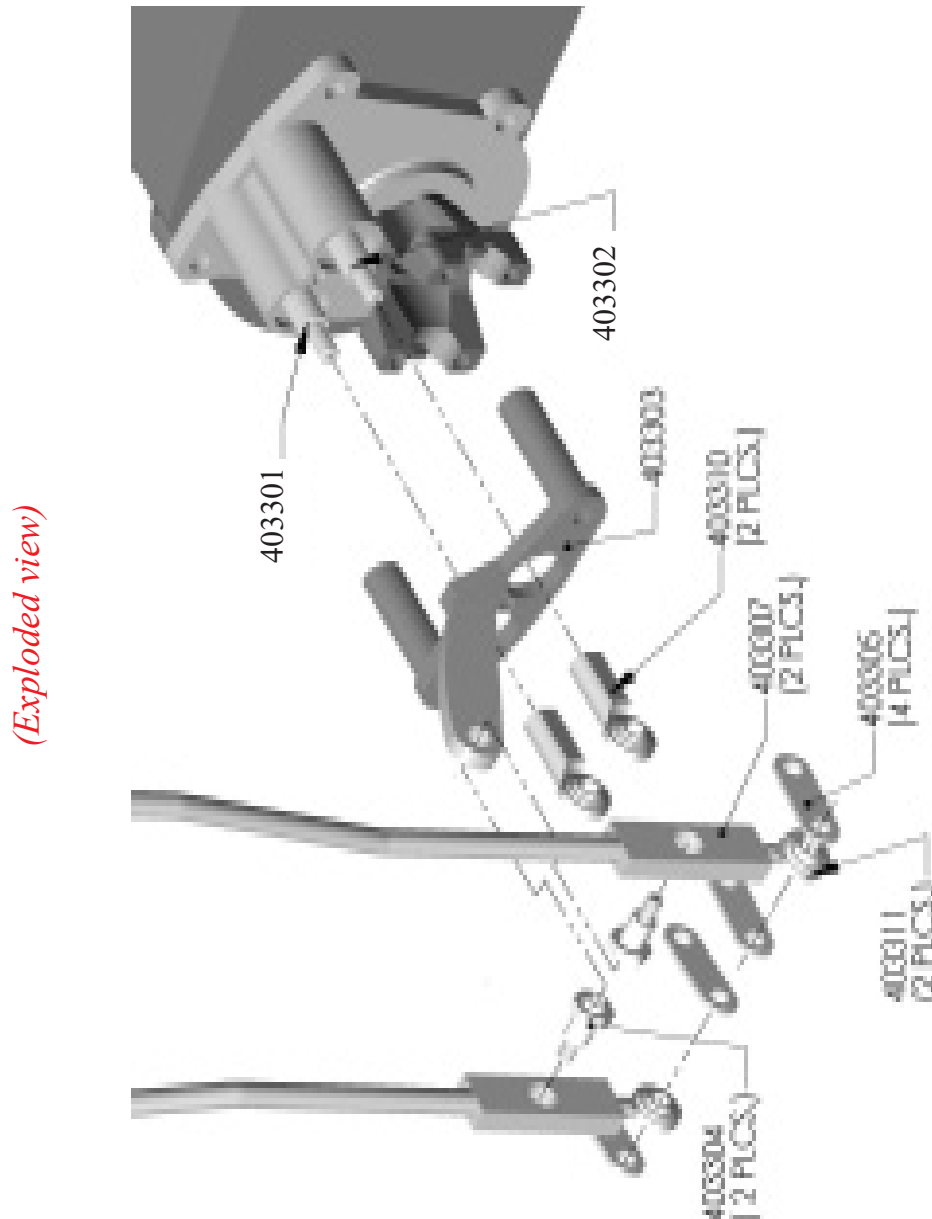
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