ADVANCE ADAPTERS INC.

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P/N: 301550

Page Rev. Date: 06-20-12

ATLAS II SHIFT FORK REPLACEMENT

KIT CONSISTS OF:

No.	Qty	Part No.	Description
1.	1	301378A	ATLAS II SHIFT FORK
2.	1	301378B	ATLAS II SHIFT FORK
3.	4	300383	ATLAS IISHIFT FORK PADS
4.	2	300386	SHIFT FORK SET SCREW
5.	2	300358	O-RING FOR CLUSTER SHAFT
6.	1	301400	ATLAS II ACESS PAN GASKET

The Atlas transfer case has under gone some shifter fork changes since its inception. The first shift forks used in the Atlas were equipped with non heat treated material. These shift forks had a tendency to bend after a period of time. Since the bent shift fork would not allow the shifter slider to fully engage the drive cogs of the gear, this would allow the transfer case to pop out of gear We changed the shift fork material on cases numbered 81 & up to a special heat treated alloy. This shift fork proved to be the fix for the early style Atlas shift fork.

We have recently experienced a few of these newer style shift forks breaking. The shift fork was designed as a two piece component. The physical fork is spot welded to a steel bushing. This steel bushing is then fastened to the shift rail. The breakage that occurred on the few shift forks we've seen occurred at the weld. Since these forks are made from a heat treated material, a beefier welds would not be the answer because it just softens the metal like the early shift forks. We opted to add a gusset to the shift fork which moves the torsional shifting load away from the weld. This latest version shift fork in now a cast iron fork and this fork is the ultimate for strength; however, this fork upgrade should not be done unless a shift fork problem exists.

WHY FORKS BREAK:

The Atlas was designed to lower your gears and give you a reliable transfer case. The few units that have actually broken shift forks were being used in extreme vehicles, competing in rock crawling competitions. Since time is a factor at these events, the Atlas is being worked hard and shifted hard. The shifting design of the Atlas starts with the shifter slider. This component (shown below) has a taper on the splines (this shifter slider is known as a torque lock slider). When shifted onto a gear that is under power from the drivetrain, this torque lock slider actually pulls the slider onto the gear. When trying to shift the transfer case out of gear in this situation, you're basically opposing the torque of the engine and the taper of the slider with the Atlas shift assembly. The shift fork is then trying to overcome the torque of the engine which is locking the torque lock slider to the Atlas gear. Therefore, to shift the Atlas transfer case under these conditions and to actually get the unit to shift you would have to use extreme force and inevitably break something, the shift fork being the most likely candidate. This locking mechanism on the Atlas also applies when a vehicle front axle is binding, putting torque on the front driveshaft and thus locking the slider on the gear.

This photo shows the tapper of the splines on the shifter slider.

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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FORK INSTALLATION PROCEDURES:

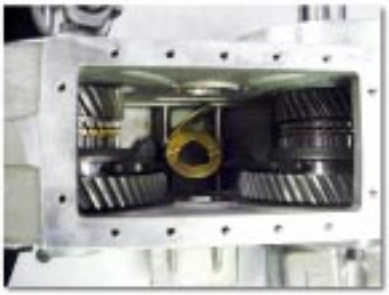
1. If possible, remove the transfer case from the vehicle.
2. Remove drain plug and drain oil.
3. Remove (14) torque head bolts and remove the inspection cover. Clean the surface of any debris.



4. Remove the cluster pin retaining the bolts.
5. Remove the cluster pin from the unit.
6. Remove the cluster gear. ***Note:*** Use special care not to drop the bearings from inside the gear.



7. Remove the two thrust washers from inside the case.
8. You should now have access to the shift fork set screws, which need to be removed.
9. Remove the three bolts from the shifter control.

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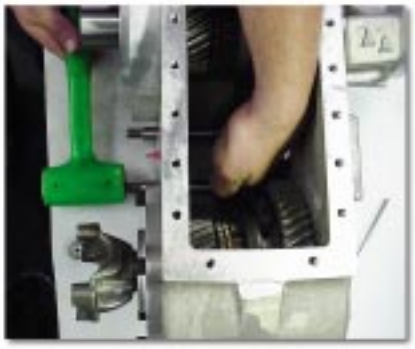
10. Using a plastic dead blow hammer, use one hand to support the Atlas shift forks inside the case to prevent binding on the shift rails and the other hand on the hammer *lightly* tapping the shift rails from the front of the case. This provides a easy way of pulling the shifter control from the Atlas case. Once the shift control is removed, clean both the case and shifter control mating surfaces.



11. Remove old forks and install new forks.

12. Use Loctite 518 to reseal the shifter control to the Atlas case. Insert the shift rail into the back side of the case and guide them through the new shift fork inside the Atlas. Once installed, bolt the shifter control into position with the three bolts and torque to 25 ft./lbs.
13. Align the shifter set screw holes on the shifter fork with the matching hole on the shift rod. Install the set screw with Loctite 242 and torque to 15 ft./lbs.

14. Install the cluster gear, thrust bearings and cluster pin. Two new o-rings have been provided for the cluster pin. Be careful that the thrust washers are properly aligned between the inside of the case and cluster gear.
15. Install the two cluster pin bolts and seal washers to retain the cluster pin in its proper location. Torque these bolts to 16 ft./lbs.
16. Install the new pan gasket and inspection cover. Torque (14) bolts to 10 ft./lbs.
17. Replace the drain plug, fill with oil, and reinstall unit back into vehicle.

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