

# ADVANCE ADAPTERS, INC.

4320 Aerotech Center Way, Paso Robles, CA 93446

## ASSEMBLY INSTRUCTION SHEET

Page Rev. Date: **05-15-08**

**P/N ARF32**

## ATLAS FRONT 32 SPL.OUTPUT ASSEMBLY

### P/N: ARF32 Rebuild unit upgrade

<u>Qty</u>	<u>Part No.</u>	<u>Description</u>
1	300103	FRONT RETAINER
1	300105	BEARING CAP
1	300105S	SHIM PACK (3 SIZES)
1	300110	SEAL RETAINER
1	300123	32 SPLINE FRT. OUTPUT
2	300358	O-RING CLUSTER SHAFT
2	300359	SCREW, CLUSTER SHAFT
1	300385	O-RING SHIFTER CAP
2	300386	SET SCREW SHIFT FORK
1	300393	FRONT THRUST WASHER
1	300490	O-RING HOUSING
1	300513	TAPPER ROLLER BEARING
1	301400	PAN GASKET
14	301401	PANTORX BOLTS
4	722505	S.H.C.S. 1/4"-20 x 1/2"
5	723730	S.H.C.S. 3/8"-16 x 1-1/4"
1	AT001	ATLAS MANUAL

### **WARNING:**

You will notice that there is no yoke included with this kit. You may be required to obtain a yoke from Advance Adapters. If you are supplying your own yoke, make sure that there is no interference between the outer edge of the yoke and the cage of the taper bearing in the front of the Atlas. If an incorrect yoke is torqued without checking, damage WILL occur to the transfer case. Please call Advance Adapters @ 800-350-2223 if there are any questions.

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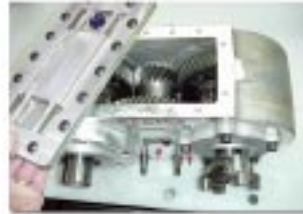
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### FORK INSTALLATION PROCEDURES:

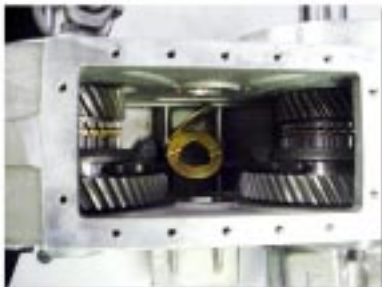
1. Remove the transfer case from the vehicle.
2. Remove the drain plug and the drain oil.
3. Remove (14) torx head bolts and remove the inspection cover. Clean the surface of any debris.



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 an 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 the forks from the case. (Note: If you have Atlas case #1929 or earlier and have not upgraded your shifter forks, this is an ideal time to install new shift forks, P/N 301550).



12. Remove the 5 bolts from the front output shaft retainer and the 4 rear bearing cap bolts. Remove the front assembly from the Atlas case. **Note:** The low range gear, bearing, spacer, and rear bearing will be left in the case.



13. Remove the front yoke nut and front retainer. Remove the bearing and spacer. The gear and needle bearing can then be removed.



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14. Next, remove the shifter slider, the synchronizer springs, the synchronizer dogs and the brass rings. These components need to be reinstalled back onto the new 32 spline front output shaft.



#### Assembly hint

Hold the output shaft in your hand, you want to have the three notches over you thumb and fore finger. Slip slider over the shaft and drop in the three syncro dogs. Roll the spring onto the two of the dogs and then snap it into the third and flip shaft over and repeat this step.



15. Once the slider and synchronizer parts are installed on the new shaft. You'll need to install the caged needle bearing back onto the new output shaft along with the high range gear. A new spacer has been included in the kit which fits between the high range gear and the new tapered roller bearing. You can now install the new front retainer over the shaft assembly. Install the new seal washer and the new front yoke with the nut. Torque the nut to 150 ft./lbs. We have also included a new o-ring for the aluminum housing, and this should also be installed now.



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16. Take the tapered roller bearing race and tap the rear race flush with the case. Take the new front assembly and turn it over (as shown below) and install the caged needle bearing for the low gear on the shaft. Insert the new assembly into the Atlas case. As the front assembly is being installed, slip the low gear onto the rear portion of the shaft and onto the needle bearing.



17. With the front assembly further into the case, install the original spacer and the original tapered bearing. This assembly will then pilot into the bearing race located in the back of the transfer case.

18. Once the shaft assembly is fully installed, line the 5 retainer bolt holes up with the case and install the 5 fasteners. Make sure you put a dab of RTV blue silicone on the threads and tighten. When you draw up the five front retainer bolts, the race in the rear of the case will be pushed out slightly.

19. We have included a new bearing cap and assorted shims because this is how the tapered bearings are set to the correct tolerance. The different shim thicknesses have been provided to accept different bearing thicknesses. The fewer the shim used, the "looser" the bearings are pre-loaded. Ideally, with the rear cap installed you want approximately 10 inch./lbs. of drag when turning the front output assembly. We recommend measuring the stickout with a depth micrometer, then use the bearing cap/shim stack-up that is closest to that measurement. Once the proper cap is found, use Loctite 518 on the mating surfaces and tighten the 4 Allen bolts.



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20. Use Loctite 518 to reseal the shifter control to the Atlas case. Insert the shift rails into the back side of the case and guide them through the shift forks inside the Atlas. Once installed, bolt the shifter control into position with the three bolts and torque to 25 ft./lbs.
21. Align the shifter set screw hole 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.



22. Install the cluster gear, thrust bearings, and cluster pin. Two new o-rings have been provided for the cluster pin. Be careful to make sure that the thrust washers are properly aligned between the inside of the case and cluster gear.
23. 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.
24. Install the new pan gasket and inspection cover. Torque (14) bolts to 10 ft./lbs.
25. Replace the drain plug, fill with oil, and reinstall the unit back into the vehicle.

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Helpful hints for installing the Atlas cluster gear.

Grease the back sides of the thrust washers and set the washers into the case, ensure that the tabs of the thrust washers fit the slots of the Atlas case. The grease help hold the thrust washers in place while the cluster is installed.

Install the cluster pin on one side just enough to hold one on the thrust washers in place, the other washer once the cluster is installed slip your finger into the hole retaining the washer in place. If the washer falls down you will have to remove the gear and repeat the process. Many times the washer will fall half way down and prevent the cluster pin from going in. After you succeed in the installation do a visual check from the access pan to verify the washers are in place.



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