

# ATLAS

## TRANSFER CASE

### APPLICATION GUIDE

- ⚙️ SPECIFICATIONS
- ⚙️ STANDARD APPLICATIONS
- ⚙️ CUSTOM APPLICATIONS
- ⚙️ FREQUENTLY ASKED QUESTIONS
- ⚙️ OPERATING INSTRUCTIONS



ATLAS 2 SPEED



ATLAS 4 SPEED



# Booklet No. AT011

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This eleventh edition of the Advance Adapters Atlas manual has been prepared to assist you in the general information regarding the Atlas transfer case as well as installation recommendations. The Atlas Transfer Case is sure to change the way your vehicle performs off-road. You will benefit greatly by understanding the Atlas characteristics and how to apply them for the ultimate in trail performance! If you should have any questions or comments, please feel free to contact our sales staff.

The information in this guide is constantly being updated and we ask that you verify any information that may be critical to your application. Please **REREAD** the **OPERATING INSTRUCTIONS** once you have completed your installation.

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### LIMITED WARRANTY:

Atlas transfer cases are guaranteed against defects in workmanship and materials *for the life* of the original purchaser and is non-transferable. This lifetime guarantee covers and is limited to gear sets and castings. The remainder of the unit (i.e. shafts, bearings, gaskets, hardware) is covered by our limited 1-year warranty.

This warranty begins from the date the unit is shipped from Advance Adapters. The lifetime and limited guarantees are voided (as determined by Advance Adapters, Inc.) by misuse, abuse, improper maintenance or alterations of the product. These guarantees DO NOT cover any labor, shipping, normal wear or any other unforeseen event that may occur due to failure of a unit.

Advance Adapters reserves the right to repair or replace any product. All returns must be sent prepaid and have a **Return Authorization Number (RGA#)**. Please call the sales department for assistance. **WARRANTY IS VOID** if the proper gear lubricants are not used and proper oil levels are not kept, and/or the product has not been properly installed and instructions have not been followed.

**SPECIAL NOTE:** This manual has been put together with the best possible information available to us. Advance Adapters cannot accept the responsibility for vehicles and applications that are not standard. The contents of this brochure have been proofread before printing to minimize errors. We cannot be held responsible for errors overlooked. Please feel free to contact us with any suggestions or comments you may have regarding any portion of this manual. The information that you provide us could be useful in assisting other customers.

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# Atlas Specifications

## ATLAS 2 SPEED

### CASE:

Material .....356-T6 Heat Treated Aluminum  
Weight.....110 lbs. (dry)

### INTERNAL COMPONENTS:

Gears .....Helical Cut  
Bearings .....Needle & Taper Rollers  
Synchronizers .....Borg Warner  
Available Input Shaft Splines: 10, 21, 23, 25, 27, 28,  
29, 31, 32, 34, 35  
Rear Shaft .....H.D., 32 Spline,  
Front Output .....26 Spline or 32 Spline

### RATIOS:

Low Range: .....2.0:1 or 3.0:1 or 3.8:1 or  
4.3:1 or 5.0:1 or 6.0:1  
High Range.....1:1

### LUBRICATION:

Quarts .....Liters  
2.0 .....1.89

### LENGTH COMPARISON:

\*Atlas Short tail 11.8" NP 231, 20.5"  
\*Atlas Long tail 13.8" NP241 Rock Trac T/C, 15-1/4"  
Dana 300, 12"

\*The lengths of the Atlas transfer cases listed above are measured with the longest yoke installed on the output shaft. See Page 23 for more Atlas length information.

## ATLAS 4 SPEED

### CASE:

Material .....356-T6 Heat Treated Aluminum  
Weight.....125 lbs. (dry)

### INTERNAL COMPONENTS:

Gears .....Helical Cut  
Planetary Assy .....6 Pinion Helical design  
Bearings .....Needle & Taper Rollers  
Synchronizers .....Borg Warner  
Available Input Shaft Splines: 21, 23, 27, 29, 31, 32, 34  
Tail Shaft .....H.D., 32 Spline,  
Front Output .....32 Spline

### RATIOS:

Low Range .....2.0:1, 2.72:1, & 5.44:1 or  
2.72:1, 3.8:1, & 10.34:1  
High Range.....1:1

### LUBRICATION:

Quarts .....Liters  
2.5 .....2.36

### LENGTH COMPARISON:

\*Atlas Short tail 15" NP 231, 20.5"  
\*Atlas Long tail 17" NP241 Rock Trac T/C, 15-1/4"  
Dana 300, 12"

**"THE BEST OFFROAD PRODUCT EVER MADE!"**

Rugged, dependable & high quality are all words that have been used to describe our ATLAS transfer case. Walker Evans has been using it successfully in his Rock Crawler for over 3 years now. Quality runs throughout our product line. If you are in the market for low gearing, stronger trannies and transfer cases, please give us a call. We can even put complete packages together for your specific needs!

**ADVANCE ADAPTERS INC.**

[www.atlas-tc.com](http://www.atlas-tc.com)

Beginning with this issue you will find a couple of Atlas quotations posted throughout this manual - quotes from rock crawling competitors and legendary individuals in the 4WD industry to the offroad hobbyist.

We want to hear from you too. Tell us your opinions & experiences, and you might just get quoted in the issues to come!

For complete testimonials & links and to submit your story, visit the Atlas website from any one of these addresses:

[www.atlastransfercase.net](http://www.atlastransfercase.net)  
[www.atlas-tc.com](http://www.atlas-tc.com)  
[www.gotatlas.com](http://www.gotatlas.com)

# Atlas information and accessories

**Oil Specification:** The Atlas is shipped DRY. Before operating your Atlas, please fill with the recommended gear lubricant (Amsoil MTG GL-4 or Torco MTF GL-4). If you are unable to find these lubricants, one of the following synthetic oils can be substituted: Castrol Syntec 5w-50, Valvoline 20w-50 or Mobil 1 Synthetic 15w-50.

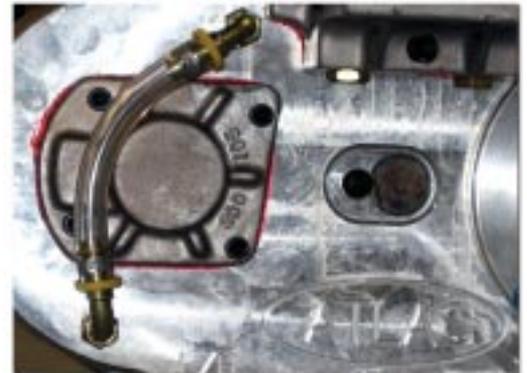


The recommended oil capacity for the Atlas 2 speed is 2 quarts and the Atlas 4 speed is 2-1/2 quarts. The Atlas does not offer any type of 'weep hole' to verify the oil level. Therefore, we have supplied your unit with a site tube to aid in determining the correct fluid level. Once the required two quarts are put into the Atlas, we recommend marking the oil level on the site tube. We like to use a small zip tie as a oil level marking device. **Note:** When the Atlas is overfilled with more than the recommended levels, it will cause the unit to vent the extra oil out the breather.

The 4 Speed should be filled while on the bench and after installing the sight tube. **After adding the oil, tip the transfer case onto the input shaft so that the rear yoke points straight up.** This establishes the correct amount of oil in the separate planetary reservoir of the Atlas 4 speed.

Atlas oil levels should be monitored frequently. The oil site tube should be marked to indicate proper oil level for the Atlas at the rotation installed in your vehicle. The oil should be drained and replaced at intervals of 20,000 miles or less.

**Atlas 2 and 4 speed Replacement Site Tubes:** We carry replacement parts for the Atlas site tube. The site tubes are offered with two thread parts to fit the Atlas case. Early cases were drilled and tapped for the 1/2" pipe fittings and the later cases for 1/4" pipe fittings. The complete kit with the 1/2" pipe fittings is [P/N 301601](#), and the kit for the 1/4" pipe fittings is [P/N 301600](#). We also offer the individual fittings if a complete kit is not needed.



**Breather, Hose & U-Bolts:** Normally a new breather and breather hose is required to properly vent an Atlas 2 or 4 speed transfer case. We can now supply you these items along with additional Atlas oil for the first oil change. U-bolt kits for the standard yokes are also listed below.

#### Breather & Breather hose

[P/N X11320](#) 2SP Atlas kit  
[P/N X11324](#) 4SP Atlas kit

#### U-Bolt kits (includes two u-bolts)

[P/N X11340](#) 1310 U-Bolt kit  
[P/N X11341](#) 1350 U-Bolt kit  
[P/N X11342](#) 1410 Strap kit

#### Atlas Aluminum Knobs:

[P/N 303150](#) 2.75" L-N-H standard labeled  
[P/N 303151](#) 3.75" long standard labeled  
[P/N 303152](#) 2.75" H-N-L reversed labeled



**Body Mounts:** When installing an Atlas in some vehicles, floorboard clearance can become an issue. We now offer Daystar's Comfort Ride body lifts for most applications. The Jeep TJs and YJs can be installed without a lift but the extra 1" provided for these vehicles aids in the installation process. Call for applications and pricing.



# Atlas 2 Speed DESCRIPTION

Through the analysis of other successful transfer case designs, we have manufactured a rugged, all gear-driven transfer case. Combining the latest in CAD/CAM technology and years of in-house CNC machining capabilities, the Atlas transfer case is sure to bring you the utmost in dependability and performance.

The Atlas is available for both left and right hand vehicle applications with centered rear differentials. The solid, one-piece case design is manufactured from 356-T6 heat-treated aluminum alloy. This material is also used for the structural access cover and all other exterior components. The massive gears are helical cut and synchro-equipped for quiet performance and "shift-on-the-fly" capability. These gears are supported by needle bearing elements, precision matched to strong 8620 shafts. The ruggedly designed output shafts are amply supported by tapered roller bearings. The Atlas also features a unique twin stick design to deliver crisp, quiet operation.



The Atlas transfer case offers you the ability to customize the transfer case to your vehicle. We offer several upgrades, options, and different configurations for this transfer case. Listed on the following pages is all the information to make your custom "made-to-order" Atlas the ultimate gear driven transfer case.

# Atlas 4 Speed DESCRIPTION

The 4SP has essentially two parts. The first is the reduction housing. This housing holds a planetary assembly that has a gear ratio of 2.72:1 when in "low" range, and a 1:1 in "high" range. It has one shifter coming out of the top to select the desired range. The planetary is not a synchronized shift-on-the-fly design and must be operated when the vehicle is stopped. (The main case still retains the shift-on-the-fly capability just like the standard Atlas). The reduction housing shifter is designed for a cable or an electric shift option.

The second part of the 4SP may look the same as the standard Atlas, but it does have some differences. The main case of the 4SP is the same raw casting, but has some machining variations to make it into a 4SP. The main case functions independently from the front reduction housing and retains all of the normal Atlas features (front and rear outputs controlled independently, and the "front only" option). All of the gears, with the exception of the input, are the same. The front output uses all of the same parts along with the cluster. The rear output shaft has been radically changed and different bearings have been utilized in some spots.

The strength of this unit is not an issue. We use a planetary assembly that was originally run in a NP241-HD transfer case. The six planetary setup has proven its durability and has been used in countless heavy-duty vehicles. Other attributes to the planetary assembly include a very quiet operation, easy shifting, and low rolling resistance. When all of this is put in front of a legendary Atlas Transfer Case, you get the best combination of gear ratios and reliability.

The 4SP units will fit nearly all applications that the standard Atlas will bolt to. These will include spline counts of 21, 23, 27, 29, 31, 32 and 34. The unit has a circular bolt pattern on the front, identical to the one found in Jeep vehicles. We have a variety of different adapters available to retrofit the 4SP into nearly any application. The twin sticks for the main unit can be either the standard linkage or the cable linkage. The standard linkage is offered in a variety of custom packages available for particular vehicles and can be modified to fit many custom applications. The installation of an Atlas 4 speed should be nearly the same as the standard Atlas 2 speed. The Atlas 4 speed is just a bit longer.



**We do not recommend flat towing vehicles equipped with the 4 speed due to the additional trust and needle bearings used in the planetary housing.**

# Atlas ratio selection

The Advance Adapters Atlas gear-driven transfer cases are the ultimate in gearing and strength. These units are the solution for combining both on and offroad performance. From its inception in 1996, we have had numerous inquiries to fit the Atlas into a wide spectrum of vehicles. Today the Atlas has been installed in both full and down size vehicles such as Jeeps, Broncos, Explorers, Dodge, Chevy & Ford Trucks. These units can be found in daily driven vehicles, all the way up to the extreme rock crawling vehicles. When you want or need peace of mind on the trail, in the rocks, on the sand, or in the mud, the Atlas is the transfer case for you.

## RATIO OPTIONS:

Since there are numerous engine, transmission, and axle combinations, the need for various transfer case gearing options has increased. The 2 speed Atlas transfer case now has 6 different low gearing options to suit the needs of your driving habits and your drivetrain components. Along with these 6 different ratio options, we are now producing our new 4 speed Atlas transfer case. The 4 speed Atlas gives you 3 low ranges & 1 high range - a few more choices when it comes to 4-wheeling. You can now have the ultra low gearing for rock crawling, a low range gear for trail use, and mid range for sand and mud. Whether you're looking at the 2 speed Atlas or the 4 speed Atlas, your ratio options will be diverse.

The wide variety of Atlas gear ratio options have been designed to accommodate any type of drivetrain combination. Please be aware that the lower the final drive ratio gets, the harder it is to stop the vehicle when in gear. Larger brakes will be required to slow the vehicle. Shifting the transmission into neutral on an automatic or depressing the clutch on a manual will be required to bring your vehicle to a complete stop.

### Atlas 2 Speed Ratios

- 2.0:1 : This unit is more of a stock ratio found in most early full size trucks.
- 3.0:1 : This unit is popular in numerous applications.
- 3.8:1 : The Atlas 3.8 is a good choice for the avid 4-wheeler since this low gear ratio is ideal for moderate to some extreme rock crawling.
- 4.3:1 : This unit is popular in numerous applications.
- 5.0:1 : This unit is popular in numerous applications.
- 6.0:1 : This unit is the most popular for smaller engine vehicles that need to get the engine RPM's higher to obtain engine performance.

### Atlas 4 Speed Ratios

1.0:1 / 2.00:1 / 2.72:1 / 5.44:1

OR

1.0:1 / 2.72:1 / 3.8:1 / 10.34:1

With any of the Atlas ratios equipped in your 4WD, you have the opportunity to select a sensible ring and pinion gear ratio for great street performance. Combined with a low-geared crawl ratio of your choice, your vehicle will have the ultimate combination. This allows you to compete with the most well-equipped vehicle, but then be able to cruise comfortably down paved roads. If you are serious about on and offroad performance and dependability, then demand one of the Advance Adapters Atlas transfer cases.

"The Atlas transfer case has done more for extreme off road driving than any aftermarket product produced."

-Craig Stumph,  
Original Founder of UROC  
[www.craigstumphracing.com](http://www.craigstumphracing.com)

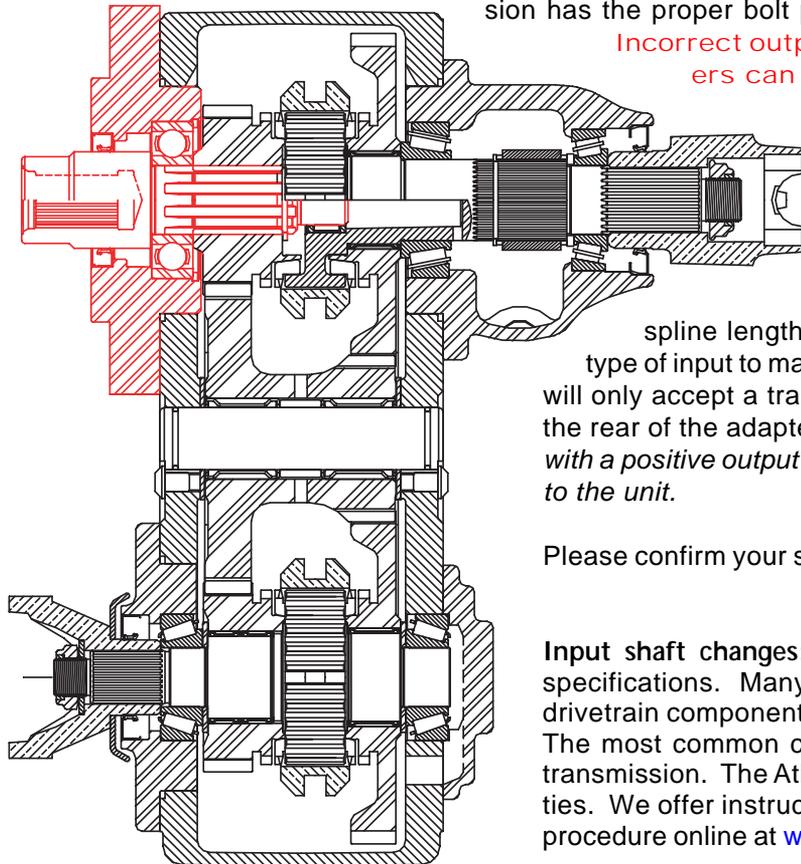


The Atlas 2 speed (left) & Atlas 4 speed (far right) in comparison to the NP231 (center) with a fixed yoke kit

# Atlas Front Input Shaft

The Atlas is designed to fit numerous types of transmissions. The multitude of Atlas inputs are designed to fit to various stock transmission output shaft splines. Depending on the transmission of your choice, the Atlas can be bolted to the transmission using either a stock adapter or one of our transfer case adapter housings. When using a transmission out of a 2WD vehicle or even with some 4WD transmissions, you may be required to install a complete adapter kit which would include a new output shaft. This requirement is due to either the length of the output shaft or the length of the stock adapter being too long for your application.

The following pages list the different available input splines for the Atlas. You must make sure that your transmission has the proper bolt pattern and proper output shaft stickout length.



**Incorrect output shaft lengths or improper indexing adapters can cause internal damage to the unit, voiding the warranty.** Please read the following information to verify the correct application.

The Atlas 2 speed diagram (left) has a highlighted section in red. This highlighted portion of the Atlas 2 speed is similar to what is shown under each input spline option on the following pages.

These inputs show the recommended mating spline length requirements. The Atlas 4 speed has a similar type of input to mate to the transmission; however, the Atlas 4 speed will only accept a transmission output shaft stickout that is flush with the rear of the adapter. *Installing the Atlas 4 speed to a transmission with a positive output shaft stickout past the adapter will cause damage to the unit.*

Please confirm your spline engagement to avoid any problems.

**Input shaft changes:** Each Atlas is custom built to fit your vehicle specifications. Many times we find that customers end up changing drivetrain components, which then also requires changes to the Atlas. The most common change is the input shaft spline to match a new transmission. The Atlas input can be changed without too much difficulties. We offer instructions that can be sent to you or you can view the procedure online at [www.atlastransfercase.net](http://www.atlastransfercase.net).

Some additional components will be required when changing input shafts.

## Parts required to change out to a new front input:

- |  |                                   |
|--|-----------------------------------|
| (1) 300499 - Input seal for 29, 31, 32, 34 & 35 splined input shafts     | (1) 716453 - Snapping             |
| (1) 300500 - Input seal for 10, 21, 23, 25, 27 & 28 splined input shafts | (6) 723730 - Front retainer bolts |
| (1) 300490 - O-ring for input ring                                       | (1) 301400 - Access cover gasket  |
| (1) 300510 - Sealed bearing  | (1) 716455 - Snapping             |
| (2) 300358 - Cluster pin o-rings   |                                   |

The input shafts have undergone one change over the years which was the internal spline of the drive gear that fastens to the shaft. The splines that have been used are a 6 spline and a 32 spline. We have made it fairly simple to identify which application you have by adding a "G" to the four digit serial number of each case that has the 32 spline drive gear requirements.

**Atlas 2 speed inputs:** Add an "A" at the end of these numbers if your Atlas serial number has a "G" at the beginning.

- |                                |                          |                               |
|--------------------------------|--------------------------|-------------------------------|
| 300012 - Long 23 spline input  | 300112 - 23 spline input | 300117 - 27 spline input      |
| 300013 - Short 23 spline input | 300113 - 29 spline input | 300118 - 28 spl. long input   |
| 300014 - Nissan 32 spl. input  | 300114 - 10 spline input | 300118S - 28 spl. short input |
| 300034 - 34 spline input       | 300115 - 31 spline input | 300119 - 21 spline input      |
| 300111 - 35 spline input       | 300116 - 32 spline input | 300120 - 25 spline input      |

The input shafts for the Atlas 4 speed are modified stock New Process inputs. We have machined these inputs to accept a double needle bearing. The 4 speed case requires the disassembly of the planetary housing. Instructions for this change can be sent to you or viewed online at [www.atlastransfercase.net](http://www.atlastransfercase.net). The only 4 speed input that you are not able to change is the 31 spline. This input requires a larger bearing and a front housing machined just for this 31 spline input. If you wish to change to a 31 spline or from a 31 spline to something else, a new planetary housing is required. All other input changes can be done by ordering the two needle bearings listed below and a new input gear.

**Parts required to change out to a new front input:**

- (1) [340361](#) - Input bearing
- (1) [340362](#) - Input bearing
- (1) [340407](#) - Snap ring

**Atlas 4 speed inputs:**

- |  |   |  |
|--|---|--|
| <a href="#">340321</a> - 21 spline input       | <a href="#">340324</a> - Long 23 spline input | <a href="#">340332</a> - 32 spline input |
| <a href="#">340322</a> - Short 23 spline input | <a href="#">340327</a> - 27 spline input      | <a href="#">340334</a> - 34 spline input |
| <a href="#">340323</a> - 23 spline input       | <a href="#">340329</a> - 29 spline input      |  |

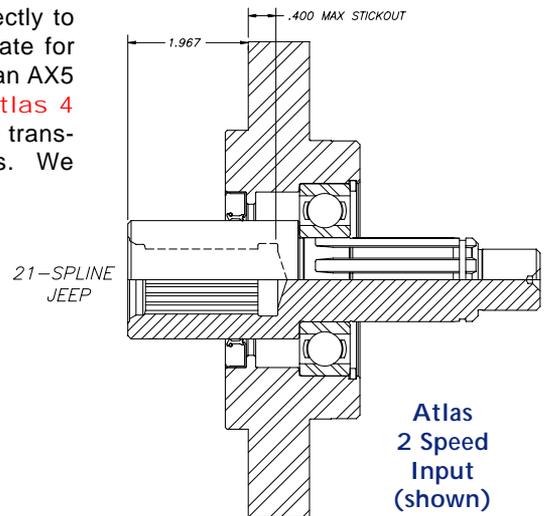
**JEEP 21 SPLINE:**

The 21 spline Atlas was designed to fit Jeeps that were originally equipped with a 4 cylinder (and some 6 cylinders). Jeeps 1987 & up (with a 4 and some 6 cyl.) used 1 of 3 transmissions: the AX5, the Peugeot or AW4. The output shaft on these transmissions are either flush or protrude approximately a 1/2" from the stock transmission adapter. The AW4 transmission was most commonly found in the early Jeep Cherokees. All 4 cylinders and most 4.0L 6 cylinder non-high output engines seem to be 21 spline transmissions; however, we recommend verifying the spline count on these transmission applications. The Jeep high output 4.0L 6 cylinder with the AW4 should be a 23 spline output shaft. NOTE: The 21 splines on these transmissions are very small in diameter, and thus we have seen the stock output shaft break on many engine converted vehicles.

When coupling an Atlas to these transmissions, the factory adapter is used. Due to the different output stickout lengths, vehicles equipped with a Peugeot and AW4 will require a 1/2" spacer plate to obtain proper spline engagement. In 1997, late model AX5 transmissions were changed to have an output shaft that protrudes a 1/2" from the stock tailhousing. Although this transmission can bolt directly to the Atlas 2 speed transfer case, we recommend using the 1/2" spacer plate for transfer case shifter clearance. This spacer plate should only be used on an AX5 that has a 1/2" output shaft stickout. **Failure to use this plate on a Atlas 4 speed will cause damage to the Atlas.** Stock Jeeps with the 21 spline transmission were coupled only to left side drop (driver's side) transfer cases. We offer the Atlas in a 21 spline left hand case configuration only.

The Atlas 21 spline transfer cases can be ordered in any low gear ratio offered for a 2 speed Atlas. The 4 speed Atlas is also an option for this spline count.

- Left Side Front Driveshaft Atlas 2 Speed: [P/N A21L](#)
- Left Side Front Driveshaft Atlas 4 Speed: [P/N A4-21L](#)
- Note:** The Atlas 4 speed will only accept a flush output shaft stickout.
- 1/2" Spacer Adapter: [P/N AS-8610](#)



**JEEP & DODGE 23 SPINE::**

**STOCK JEEP TRANSMISSIONS:**

Stock Jeep transmissions 1980 & up with a 6 cylinder or larger engine were normally equipped with a 23 spline output shaft (except Peugeot). Since the Atlas was designed as a Jeep heavy-duty, low-g geared transfer case replacement, it will bolt up directly to the stock Jeep transmission tailhousing that is equipped with the 23 spline output shaft. In these year Jeeps, the stock transfer cases used were both a driver's side (left hand drop) and passenger side (right hand drop) front driveshaft. The units listed accommodate both stock transfer case configurations.

Some of the later model Grand Cherokees with the A518, A500 & AW4 transmission will have some spline depth interference. On these applications, you may be required to use our spacer adapter [P/N AS-0404](#). **Failure to use this plate (when necessary) will cause damage to the Atlas.**

The Atlas 23 spline transfer cases can be ordered in any low gear ratio offered for a 2 speed Atlas. The 4 speed Atlas is also an option for this spline count.

Left Side Front Driveshaft Atlas 2 Speed: [P/N A23L](#) Right Side Front Driveshaft Atlas 2 Speed: [P/N A23R](#)  
Left Side Front Driveshaft Atlas 4 Speed: [P/N A4-23L](#) Right Side Front Driveshaft Atlas 4 Speed: [P/N A4-23R](#)

*Note: The Atlas 4 speed will only accept a flush output shaft stickout.*

1" Spacer: [P/N AS-0404](#)

3/4" Spacer: [P/N AS-8603](#)

1/2" Spacer: [P/N AS-8610](#)

### JEEP 42RLE TRANSMISSION:

This automatic overdrive transmission was used in Jeep Wranglers from 2003 through 2008. This transmission was used in both the Jeep TJ and JK. Jeep JKs require a longer input housing on the Atlas which will add one inch to the length of a 2 speed case assembly. This added length in the JK provides better clearance for the shifters and makes the Atlas 2 speed close to the same length as the NP241 transfer case that is being removed.

The 4 speed application is the same for both the TJ and JK. We have installed several Atlas 4 speeds to this transmission. The rear section of this transmission has the same circular bolt pattern with a 23 spline output. The 23 spline output shaft of this transmission has a short spline length, requiring a short input on the Atlas 4 speed. The standard 23 spline input length on an Atlas will not work on this transmission.

Left Side Front Driveshaft Atlas 2 Speed: [P/N A23LS](#) (Jeep TJ)

Left Side Front Driveshaft Atlas 2 Speed: [P/N A23JK](#) (Jeep JK)

Left Side Front Driveshaft Atlas 4 Speed: [P/N A4-23LS](#) (TJ & JK)

*Note: The Atlas 4 speed will only accept a flush output shaft stickout.*

### JEEP 45RFE TRANSMISSION:

The 45RFE transmission was used in 1999 to 2004 WJ Grand Cherokees with the 4.7 V8 and a NP247 transfer case. This transmission was also used in 2002 & newer Dodge Durango and Dakotas with a 4.7 V8. This transmission had a 1" recessed output shaft from the rear of the transmission. We offer the Atlas transfer case with a longer input shaft to couple to the 45RFE shorter transmission shaft length.

Left Side Front Driveshaft Atlas 2 Speed: [P/N A23LL](#)

Left Side Front Driveshaft Atlas 4 Speed: [P/N A4-23LL](#)

*Note: The Atlas 4 speed will only accept a flush output shaft stickout.*

### Additional 23 Spline Transmissions:

The transmission output shaft length or Atlas input shaft length cannot be determined by transmission model only. The following are some transmission models that may differ from the 23 spline data:

2004 ZJ 4.7L - 5-45RFE NV247 stock transfer case (approx. 1" recessed output shaft)  
Requires "Long" Atlas 23 input

2004 Ram 5.7L - 5-45RFE NV244 stock transfer case (approx. 1/4" output shaft stickout with 1.55" spline)  
Requires "Short" Atlas 23 input

2001 Ram - 45RFE NV231 stock transfer case (approx. 1/2" output shaft stickout with 2.0" spline)  
Requires "STD" Atlas 23 input & [AS-8603](#)

2004 Durango - 5-45RFE (3/8" to 1/2" output shaft stickout)  
Requires "STD" Atlas 23 input & [AS-8603](#)

2005 Manual Jeep 6 speed - NSG-370  
23 spline Wrangler 4 cyl. & 6 cyl.  
4.459, 2.614, 1.723, 1.2, 1.0, .838 & R4.06  
(output shaft approx .210" positive stickout)  
"Honsel" is cast into passenger side  
Requires "STD" Atlas 23 input & [AS-8610](#)

*Note: The Atlas 4 speed will only accept a flush output shaft stickout.*



### ADAPTED TRANSMISSIONS TO A STOCK JEEP TRANSFER CASE:

The transfer case adapters we manufacture to fit the GM or Ford transmissions in a Jeep are usually designed to retain the stock Jeep transfer case input spline. Since stock 1980 & up Jeeps were normally equipped with a 23 spline input, the

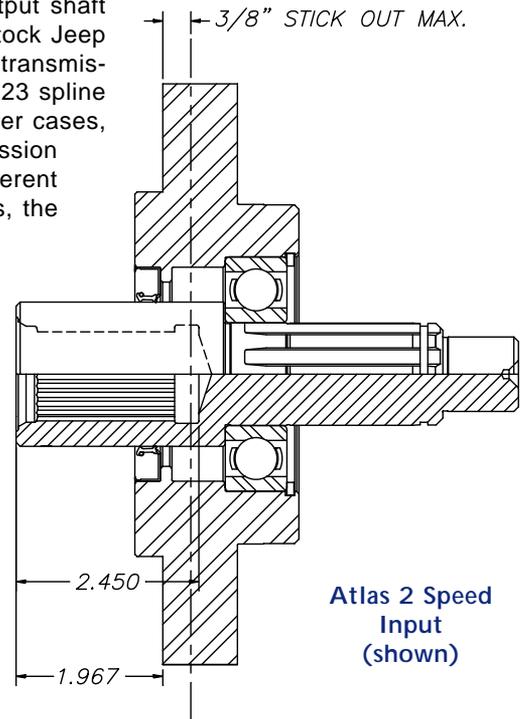
9  
Front Input shafts

adapters we manufacture require you to change the stock transmission output shaft with a modified shaft from us. These modified shafts basically mimic the stock Jeep output splines. If your vehicle was previously converted with a GM or Ford transmission to the stock Jeep transfer case, then the Atlas you'll need would be a 23 spline unit. There are a few exceptions. For example: On some Dana 300 transfer cases, the transfer case input spline has been changed to match the stock transmission output shaft. If you have an adapter that does this, we offer the Atlas with different splined inputs to fit these stock GM and Ford output shafts. In most cases, the Atlas fits up to the same adapter as did the Dana 300.

### STOCK DODGE TRANSMISSIONS:

Most Dodge 4WD transmissions are also equipped with a 23 spline output shaft. The Dodge NV4500 is probably the most popular Dodge transmission that we see coupled to the Atlas. The Dodge 4WD NV4500 (1993-2000) has a 23 spline output shaft and has the correct tailhousing to bolt directly to the 23 spline Atlas transfer case. Dodge also has a heavy-duty version of the NV4500 transmission that was bolted up to a Cummins diesel engine. This transmission, along with the 2001 & newer gas version NV4500 transmission, was equipped with a 29 spline output shaft. We offer an Atlas input spline for these heavy-duty and late model transmissions (See the 29 Spline section for more information). Besides the NV4500, Dodge also used a lighter duty 5-speed called the NV3500 and a few different automatic transmissions. Since these transmissions are not as popular as the NV4500, we do not have a lot of experience coupling the Atlas to them. We don't foresee any major problems with regard to the rotation of the Atlas as long as the transmission is a 4WD model and that it was originally coupled to a New Process transfer case. We also know that the output shaft is a 23 spline; however, an area of concern is the output shaft length. If bolting an Atlas to the NV3500 or to an automatic, spline length and spline engagement should be checked.

23-SPLINE  
JEEP



### GM & DODGE 29 SPLINE:

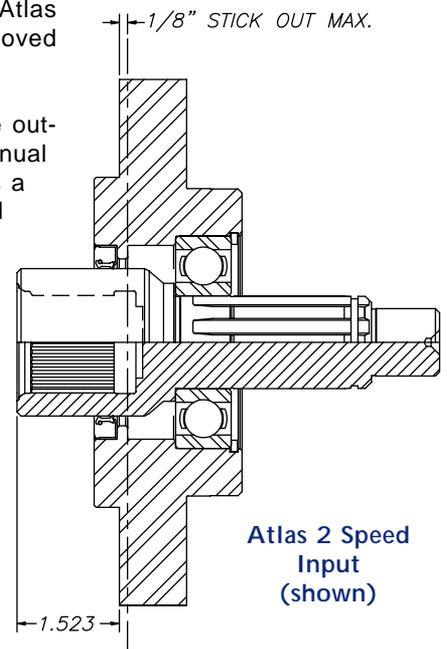
The 29 spline Atlas was designed to fit the 4WD Dodge heavy-duty NV4500 transmission and the 2001 & newer gas version NV4500 transmissions. When coupling an Atlas to this transmission, the stock Dodge 4WD tailhousing can be retained. The Dodge tailhousing bolt pattern is shown on the rotation Option #1 found on Page 18.

When using an Atlas left hand drop transfer case, the stock Dodge tailhousing requires the removal of the stock transfer case shifter bosses. The removal of these two bosses provide the necessary Atlas shifter clearance. NOTE: The seal in this stock tailhousing must also be removed because it will interfere with the Atlas input.



Another transmission that uses the 29 spline output shaft and fits up to the Atlas is the ZF manual 6 speed (ZF S6-650). This transmission is a 29 spline when coupled to the Duramax and the 8.1L. The Allison 4WD 5 and 6 speed automatic is also a 29 spline transmission when coupled to the same Duramax and the 8.1L. These transmissions can be directly mounted to the Atlas transfer case. The Atlas must be equipped with a special case rotation for these applications.

29-SPLINE  
DODGE NV4500



- Left Side Front Driveshaft Atlas 2 Speed: P/N A29L
- Right Side Front Driveshaft Atlas 2 Speed: P/N A29R
- Left Side Front Driveshaft Atlas 4 Speed: P/N A4-29L
- Right Side Front Driveshaft Atlas 4 Speed: P/N A4-29R

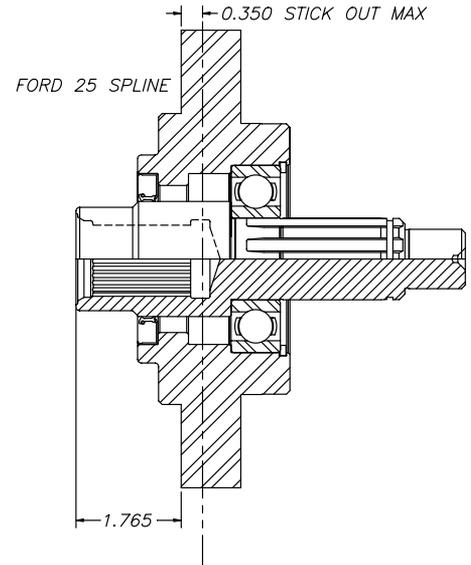
Note: The Atlas 4 speed will only accept a flush output shaft stickout.

## FORD 25 SPLINE:

The 25 spline Atlas was designed to fit *only* the Bronco IIs, Ford Rangers, and Explorers. The stock transmissions used in these vehicles were normally coupled to a Borg Warner 1350 transfer case. The bolt pattern on the face of the B/W 1350 is a 5-bolt pattern, which we mirror on the Atlas transfer case. Fitting an Atlas into these vehicles will require either a body lift (such as the Daystar mounts we offer on Page 4) or modifications to the stock crossmember. The rotation of the Atlas is identical to stock. The Atlas 2 speed is the only unit available for these transmissions:

Left Side Front Driveshaft Atlas 2 Speed: [P/N A25L](#)

Photo of a stock Ford tailhousing. All Ford Explorers, Rangers, and Bronco IIs have the same bolt pattern and splines when coupled to a 1350 transfer case. The adapters we manufacture for these vehicles to fit the C4 and AOD would also have this same pattern.

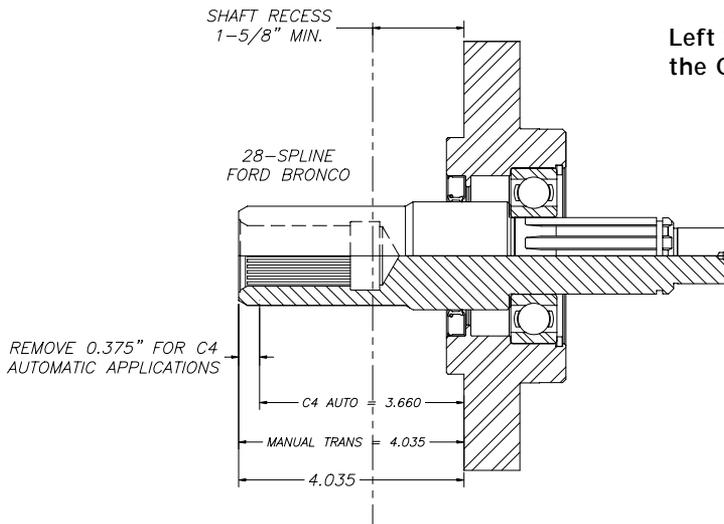


## FORD 28 SPLINE:

The 28 spline Atlas was designed to fit *only* the 1966-77 Broncos. The stock transmissions used in these vehicles were normally coupled to a Dana 20 transfer case. The bolt pattern on the face of the Dana 20 is a 6-bolt hex pattern, which we mirror on the Atlas transfer case. The rotation options of the Atlas into these vehicles are 42 degrees (which is stock), 35 degrees (for additional ground clearance), and 28 degrees (requires some internal frame modifications). NOTE: When bolting the Atlas up to an automatic C4 transmission, we offer a shorter Atlas input shaft to avoid spline run-out. When using a NP435 or T18 transmission (with one of our adapter housings), the threaded portion of the transmission output shaft must be removed. The Atlas 2 speed is the only unit available for these transmissions:

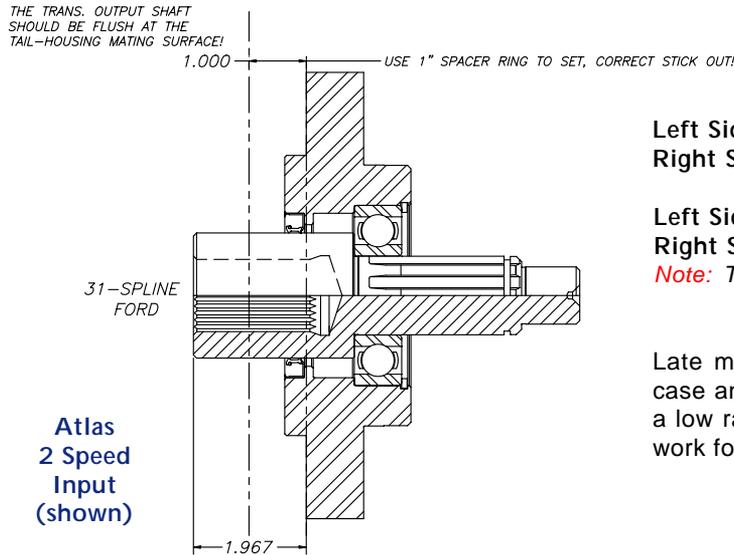
Left Side Front Driveshaft Atlas 2 Speed: [P/N A28L](#)

Left Side Front Driveshaft Atlas 2 Speed for the C4 transmission: [P/N A28LS](#)



## FORD 31 SPLINE:

The 31 spline Atlas was designed to fit the 4WD Full Size Ford transmissions. The stock transmissions used in these vehicles were normally coupled to either a NP205, NP208 or Borg Warner 1356. The bolt pattern on these transmission tailhousing adapters is identical to a stock Jeep. Ford used various output shaft stickout lengths. **Caution** should be used in order to avoid the spline portion of the shaft from "bottoming out" in the Atlas input shaft. Some applications that have an output shaft stickout past the tailhousing will require a 1" spacer adapter, **P/N AS-0404**. The Atlas units available for these transmissions are as follows:

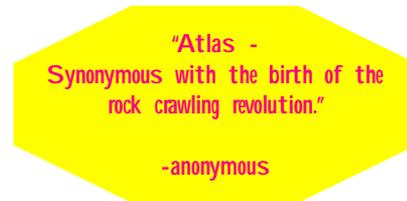


Left Side Front Driveshaft Atlas 2 Speed: **P/N A31L**  
 Right Side Front Driveshaft Atlas 2 Speed: **P/N A31R**

Left Side Front Driveshaft Atlas 4 Speed: **P/N A4-31L**  
 Right Side Front Driveshaft Atlas 4 Speed: **P/N A4-31R**

*Note: The Atlas 4 speed will only accept a flush output shaft stickout.*

Late model full size Fords with the Borg Warner 4406 transfer case and the vacuum activated electric lock front axle will require a low range switch on the Atlas shift housing and some electrical work for the front axle.



## FORD 34 SPLINE:

The 34 spline Atlas was designed to fit the 2004 & newer 5R110 (Torqueshift) transmission. This 4WD transmission has the speed sensor in the transmission tailhousing, so when ordering the Atlas tailhousing, a speedometer hole plug is required. The 2004-2005 5R110 torqueshift is a 5 speed automatic that was used in the E250-350 and F250-450. The gear ratios are 3.09, 2.20, 1.538, 1.096, 1.00, .712 & R2.88. To install an Atlas using the stock 4WD tailhousing, you will be required to use a 1" spacer, **P/N AS-0404**.

Left Side Front Driveshaft Atlas 2 Speed: **P/N A34L**  
 Right Side Front Driveshaft Atlas 2 Speed: **P/N A34R**

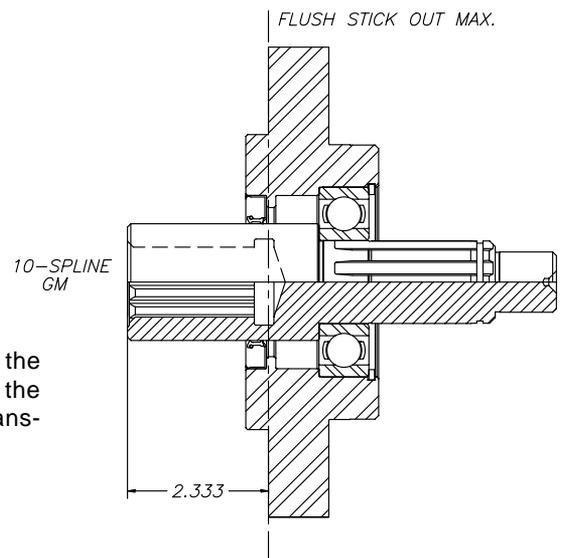
Left Side Front Driveshaft Atlas 4 Speed: **P/N A4-34L**  
 Right Side Front Driveshaft Atlas 4 Speed: **P/N A4-34R**

*Note: The Atlas 4 speed will only accept a flush output shaft stickout.*

## GM 10 SPLINE:

The 10 spline Atlas input was designed to fit *only* the 4WD version of the SM465 transmission. This output shaft protrudes approximately 2-1/2" from the rear of the transmission. When coupling an Atlas to this transmission, you will need one of our adapter housings, the SM465 gasket, and fasteners to bolt the casting to the transmission (**P/N 51-9807**). This adapter housing measures 3-1/2" long and is the shortest adapter that we offer for the SM465. The Atlas 2 speed is the only unit available for this transmission. Due to the adapter length and the transmission size, the cable shifters are not recommended for this transmission/transfer case combination.

Left Side Front Driveshaft Atlas 2 Speed: **P/N A10L**  
 Right Side Front Driveshaft Atlas 2 Speed: **P/N A10R**



## GM 27 SPLINE:

The 27 spline Atlas was designed for transmissions with a 27 spline output. The TH350, Powerglide, 700R, and 4L60E transmissions are the most common GM transmissions equipped with this 27 spline output. These transmissions have various output shaft stickout lengths depending on the vehicle that the transmission was originally removed from.

Left Side Front Driveshaft Atlas 2 Speed: [P/N A27L](#)      Right Side Front Driveshaft Atlas 2 Speed: [P/N A27R](#)  
 Left Side Front Driveshaft Atlas 4 Speed: [P/N A4-27L](#)      Right Side Front Driveshaft Atlas 4 Speed: [P/N A4-27R](#)

*Note: The Atlas 4 speed will only accept a flush output shaft stickout.*

**TH350 4WD:** When obtaining a TH350 out of a 4WD vehicle, the output shaft will protrude approximately 1" from the rear square flange of the transmission. An adapter housing ([P/N AS-6800](#)) can be purchased from us to use this transmission with this stock 27 spline 4WD output shaft.



**TH350 2WD:** When obtaining a TH350 out a 2WD vehicle, be aware that there are three different stickout lengths: 6, 9 & 12 inches. These transmissions would be better suited to either switch to a 4WD TH350 output shaft and use the adapter housing listed above, or use [P/N 50-6300](#) (3.6" long), or [50-6802](#) (1.5" long). Both of these kits require the installation of a new output shaft which switches the output spline to a 23 spline (See the 23 Spline section).

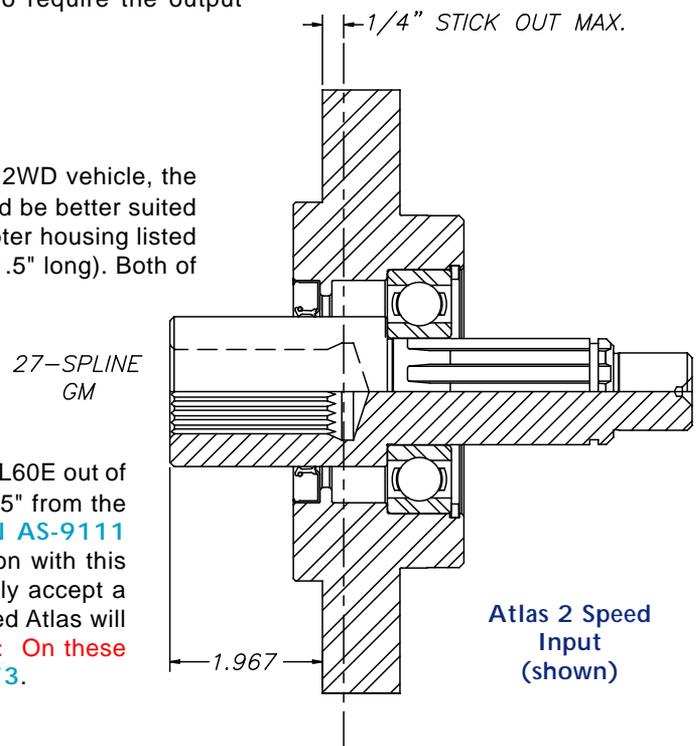
**POWERGLIDE:** The Powerglide automatic transmission has gained popularity in rock crawling vehicles. We offer a new cast aluminum adapter and crossmember mount designed to couple the Powerglide to the Atlas transfer case ([Part No. 50-9200](#)). The adapter kit requires a shorty 27 spline output shaft to be use when coupling the Powerglide to the Atlas. Two sources to obtain this shaft would be Hughes Performance or B & M.



**700R & 4L60 4WD:** When obtaining a 700R or 4L60 out of a 4WD vehicle, the output shaft should have a stickout length of 2.75" from the rear square flange of the transmission. Adapter housing [P/N AS-9111](#) (2.5" long) can be purchased from us to use these transmissions with this stock 27 spline 4WD output shaft. The Atlas 4 speed will only accept a flush output shaft stickout, so using this adapter with a 4 speed Atlas will also require the output shaft to be shortened slightly.

**700R & 4L60 2WD:** When obtaining a 700R out of a 2WD vehicle, the stock output shaft will be too long. These transmissions would be better suited to either switch to a 4WD 700R output shaft and use the adapter housing listed above, or use [Part No. 50-6303](#) (3.6" long), or [50-9102](#) (1.5" long). Both of these kits require the installation of a new output shaft which switches the output spline to a 23 spline (See the 23 Spline section).

**4L60E 4WD w/non-removable Bhsg:** When obtaining a 4L60E out of a 4WD vehicle, the output shaft stickout length should be 2.75" from the rear square flange of the transmission. Adapter housing [P/N AS-9111](#) (2.5" long) can be purchased from us to use this transmission with this stock 27 spline 4WD output shaft. The Atlas 4 speed will only accept a flush output shaft stickout, so using this adapter with a 4 speed Atlas will also require the output shaft to be shortened slightly. **Note: On these transmissions, you must use a reluctor kit, Part No. 716073.**



### 4L60E 2WD & 4WD w/non-removable Bhsg:

When obtaining a 4L60E out of a 2WD vehicle, the stock output shaft will be too long; or if you have a 4WD transmission and would like to use an adapter housing with the reluctor as part of the kit, you can purchase [Part No. 50-0404](#) (4.6" long). This kit requires the installation of a new output shaft which switches the output spline to a 23 spline (See the 23 Spline section). This kit also incorporates a reluctor ring and sensor for proper transmission operation.

**4L60E 4WD w/Removable BHSG:** When obtaining a 4L60E out of a 4WD vehicle, the output shaft stickout length should be 4.438" from the rear hex bolt flange of the transmission. We offer [P/N 50-0405](#) which adapts the hex bolt pattern to a square bolt pattern. This adapter also provides a reluctor sensor and clamp-on reluctor ring. Adapter housing [P/N AS-9111](#) (2.5" long) can be purchased from us to use this transmission with the stock 27 spline 4WD output shaft. The Atlas 4 speed will only accept a flush output shaft stickout, so using this adapter with a 4 speed will also require the output shaft to be shortened slightly.

**4L60E 2WD w/Removable BHSG:** When obtaining a 4L60E out of a 2WD vehicle, the stock output shaft will be too long. To use this transmission, you will be required to use [P/N 50-0405](#) which adapts the hex bolt pattern to a square bolt pattern. This adapter also provides a reluctor sensor and clamp-on reluctor ring. To couple this tranny to the Atlas transfer case, you will then need adapter [P/N 50-9102](#) (1.5" long). This kit requires the installation of a new output shaft, switching the output shaft spline to a 23 spline (See the 23 Spline section).

### SHORTY 4L60E ADAPTER w/Removable for the ATLAS 2 Speed:

We are proud to offer the shortest overdrive automatic transmission and transfer case combination on the market today. Our new kit is designed for the late model 4L60E transmission with a removable bellhousing. To obtain the adapter length of only .600" we had to manufacture a new transmission output shaft. This shaft is shorter than any other stock shaft made. We mate this assembly with a custom Atlas 2 speed input ring which doubles as the adapter housing, directly coupling the Atlas 2 speed to the 4L60E transmission. The kit also includes a new crossmember support which bolts between the transmission and transfer case, [P/N 50-9300](#). The overall transmission length will vary slight depending on the version of 4L60E transmission obtained.



1996-2000 Truck Gen. II V8 - 6.315" bellhousing (22.336" O.A.L.)  
2001-2006 Truck Gen. III V8 - 6.945" bellhousing (22.966" O.A.L.)  
*Compared to a TH350 w/adapter of 23.000" or a 700R with our 50-9102 adapter at 24.875".*

This new kit uses a 23 spline output shaft made out of 300M material. We sell the adapter in a kit or we also offer a complete transmission with our output shaft already installed. Please call for complete package pricing.

### SHORTY 4L60E ADAPTER w/Removable for the ATLAS 4 Speed:

We also offer a shorty adapter for the Atlas 4 speed. The adapter length of 1.625" is shorter than any of our other adapter options. This new kit, [P/N 50-9305](#), will use a 23 spline output shaft made out of 300M material. We will also be offering a complete

transmission with our output shaft already installed. Please call for updated information and complete package pricing.



**STOCK GM ADAPTER:** If you are using a stock 700R or 4L60E 4WD adapter housing, you will have the correct index diameter; however, this stock adapter will require some modifications. GM used a different bolt pattern rotation on their adapter housing. One or two holes on the housing (depending on a right or left hand drop transfer case) must be re-drilled to match the Atlas bolt pattern. The other problem encountered was the rotation that this housing set the Atlas. Refer to rotation Option #4 on Page 19. If a different rotation is desired than what is shown, the stock adapter housing would have to be completely re-drilled. This could then present casting interference problems.

## GM 32 SPLINE:

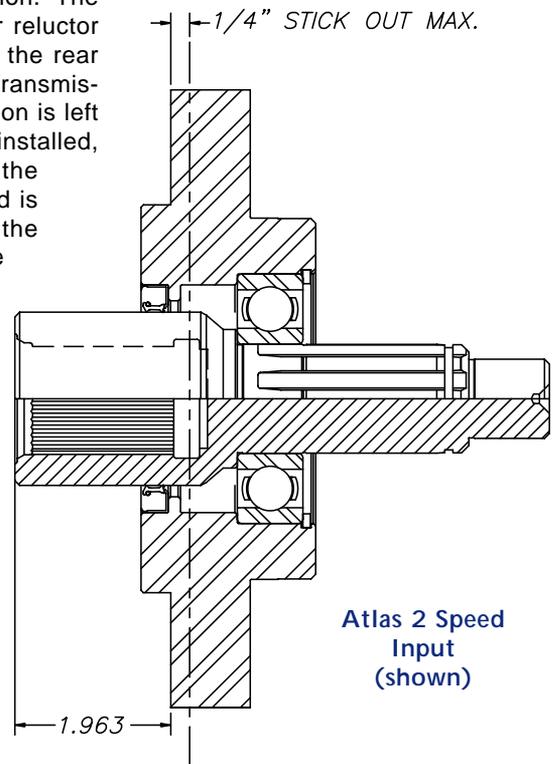
**TH400:** The 32 spline Atlas was primarily designed for the GM TH400 transmission with a 32 spline output shaft. One of the biggest problems with the TH400 transmission is that it was used in numerous vehicles, which required numerous output shaft lengths. We estimate there are 7 different output lengths that the TH400 has been equipped with over the years in both 2WD and 4WD applications. We cannot fit all of the stock output shaft lengths; however, the Adapter Selection Chart on Page 30 will assist you with the adapters we do offer. If you do not find an adapter housing to fit the output shaft you have, you may be required to change out the output shaft or use one of the different spacer adapters to fit your shaft length.

**4L80E:** This transmission was designed by GM to replace the GM TH400 transmission. Like the TH400, the 4L80E has a 32 spline output shaft. The major difference of the 4L80E is that the transmission index diameter is different than the TH400. We have seen 5 different output shaft lengths that were used in the 4L80E transmission. The Selection Chart on Page 30 lists the adapter plates that would be used only with the 4WD 4L80E transmission. If you have a 4L80E that has a longer output shaft stickout and the length matches an adapter we have listed under the TH400 section, we can modify a TH400 adapter to work on the 4L80E transmission.

The 4L80E transmission is normally equipped with an internal reluctor ring on both the transmission input shaft and output shaft. The computer takes both of these readings for the proper shifting and operation of this transmission. We have always ignored the reluctor ring requirement for this transmission since it is internally regulated. We have now learned that the rear reluctor ring is not always installed into the transmission. The basic rule of thumb is 4WD transmissions up to 1996 should have a rear reluctor ring in the main transmission case. All 2WD transmissions should have the rear reluctor in the main transmission case. The 1997 & newer 4WD 4L80E transmissions have a sensor provision; however, the reluctor ring in the transmission is left out. Since this transmission is expensive to rebuild and have a reluctor installed, we now offer a reluctor ring on the adapter housing. The reluctor on the adapter for a Atlas 2 speed is (P/N 50-6409), and for the Atlas 4 speed is (P/N 50-6410). These kits will always provide a 1-to-1 reading on the output even if the transfer case is in low gear. The VSS reluctor in the tailhousing is also an option, but it would require a low range switch to be integrated into the computer system.

Note: The information on years and models of the 4L80E transmission mentioned in the above section was obtained from various sources. You should always verify what your transmission is equipped with before beginning a conversion, especially with the 4L80E transmission.

32-SPLINE  
GM



**GM NV4500 4WD:** The GM NV4500 4WD transmission can also be coupled to the Atlas. The stock GM adapter housing has the right index diameter for the transfer case; however, the bolt pattern is incorrect. We have found it easier to use a stock Dodge tailhousing or our replacement Dodge housing, P/N 51-0205. Either one of the 6.300" long adapters coupled with our 1-5/8" spacer adapter, Part No. 51-0220, allows you to use the stock GM 32 spline output shaft.

**STOCK GM ADAPTER:** If you are using a stock TH400, 4L80E or NV4500 4WD adapter housing, you will have the correct index diameter; however, this stock adapter will require some modifications. GM used a different bolt pattern rotation on their adapter housing. One or two holes on the housing (depending on a right or left hand drop transfer case) must be re-drilled to match the Atlas bolt pattern. The other problem encountered was the rotation that this housing set the Atlas. Refer to rotation Option #4 on Page 19. If a different rotation is desired than what is shown, the stock adapter housing would have to be completely re-drilled. This would then present casting interference problems.

The Atlas units available for all these transmissions are as follows:

Left Side Front Driveshaft Atlas 2 Speed: P/N A32L      Right Side Front Driveshaft Atlas 2 Speed: P/N A32R  
Left Side Front Driveshaft Atlas 4 Speed: P/N A4-32L      Right Side Front Driveshaft Atlas 4 Speed: P/N A4-32R

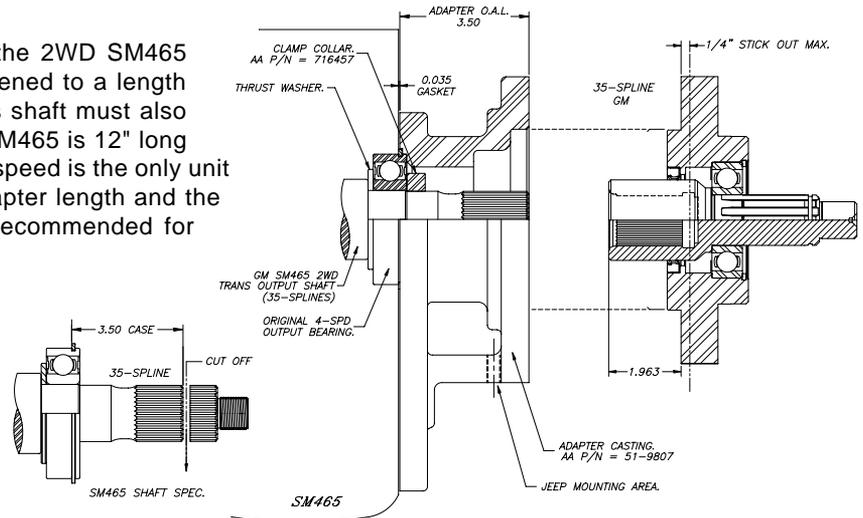
**Note:** The Atlas 4 speed will only accept a flush output shaft stickout.

## GM 35 SPLINE:

The 35 spline Atlas was designed to fit *only* the 2WD SM465 transmission. This output shaft must be shortened to a length of 3.5" from the rear of the transmission. This shaft must also be locked into position with a set collar. The SM465 is 12" long and offers a 6.58:1 1st. gear ratio. The Atlas 2 speed is the only unit available for this transmission. Due to the adapter length and the transmission size, the cable shifters are not recommended for this transmission/transfer case combination.

Left Side Front Driveshaft  
Atlas 2 Speed: [P/N A35L](#)

Right Side Front Driveshaft  
Atlas 2 Speed: [P/N A35R](#)



## DIVORCED ATLAS:

The "Divorce Mounted Atlas Transfer Case" has been created to give you all of the great gearing options, parts availability, and strength features to vehicles that require a remote mounted transfer case. Early vehicles sometimes ran this type independent transfer case. It was attached to the powertrain by a small drive shaft coming from the transmission. This transfer case functioned identical to others and had a front and rear driveshaft. The entire transfer case assembly was hung from the frame on a crossmember-type mount. The Divorced Atlas can be built as either a right or left drop unit. The shifters and crossmember are sold as a separate kit to fit the transfer case. When ordering yokes for this unit, 3 are required.

The mount plate included in our kit will give you the rigid mounting location for supporting this gear box to the frame. Prothane bushings and all hardware are included in this kit. It is necessary that you fabricate a support bracket from our transfer case mount to the frame rails of your vehicle. Please be aware that this new mount bracket is very rigid and should be able to withstand the extreme twisting load that the gearing of the Atlas transfer case creates. Keep in mind that a good amount of frame flex may be generated in severe offroading conditions.

We only offer the divorced units in the 2 speed configuration.

Left Side Front Driveshaft Atlas 2 Speed: [P/N AD32L](#)  
 Left Drop Case Mount and Cable Shifters: [P/N 303025L](#)  
 Right Side Front Driveshaft Atlas 2 Speed: [P/N AD32R](#)  
 Right Drop Case Mount and Cable Shifters: [P/N 303026R](#)



"There are only a few products in off-road that truly changed the face of the industry..the Atlas transfer case is at the top of that very short list, and more than 15 years after it's introduction is STILL the transfer case of choice. We have eight competition and trail vehicles in the Red Bull RockCrawling Team garage. Seven of them have an Atlas. Banging gears, bashing rocks, stalling the engine because the tires are so bound that they can't possibly turn...Don't sweat it, we've got an Atlas!"

-Dustin Webster, Red Bull RockCrawling Team

## Toyota Tacoma, Tundra, and T100:

Toyota Tacoma 1995 & 1/2 to 2004 with both the automatic and manual transmission and a 4 cylinder or the V6 can now have an Atlas 2 speed transfer case installed. This also includes the Tundra (2000 to 2004 V6 & V8) or the T100. We use a 3/8" adapter plate that couples the Atlas to your transmission. We offer the Atlas in either a left or right drop, left being for stock installations. The Toyota transmission either had a 23 spline or 26 spline stock output shaft. Our spud shafts couple to either one of these splines and then provides a Jeep 23 spline output. The Atlas would need to be ordered as one of the following units:

Left Side Front Driveshaft Atlas 2 Speed: P/N A23L  
Right Side Front Driveshaft Atlas 2 Speed: P/N A23R

The Atlas 4 speed can also be used in these vehicles with the addition of a 1/2" spacer. Since we have not had any 4 speed Toyota install requests at print time, we are not aware of any problems with the extra length of this transfer case.

## NISSAN Titan, Frontier, Xterra:

The Nissan Titan, Frontier, and Xterra are applications suitable for the Atlas transfer case. The Atlas fits the automatic transmission and couples directly to the Nissan output shaft. We manufacture a new input shaft for the Atlas to couple to the Nissan transmission output shaft. The Nissan transmission requires an adapter plate to bolt on the Atlas, Part No. 50-1114. The Atlas 2 speed transfer case is the only configuration for Nissans. A complete detailed installation for the Nissan Xterra or Frontier can be found online at [www.atlastransfercase.net](http://www.atlastransfercase.net).

Left Side Front Driveshaft Atlas 2 Speed: P/N A32LNT

## NISSAN Hard Body/Pathfinders:

The Nissan Hard body and Pathfinders were offered with two engine options - a 4 or 6 cylinder engine. The 4 cylinder had a transmission the was equipped with a 24 spline output shaft, and the V6 had a 30 spline transmission output shaft. We only offer an adapter to fit the 30 spline transmission to the Atlas transfer case. This adapter is a three plate design with a spud shaft that requires the Atlas to be built with a Ford 31 spline input. The adapter kit P/N 50-1115 is 3.750" long to move the Atlas back far enough to clear the stock crossmember. Currently, the Atlas 2 speed is the only transfer case recommended for this application, as the 4 speed Atlas would probably be too long of an assembly length. This kit retains the stock transmission support. The universal cable shifters would be the best option for this application.

Left Side Front Driveshaft Atlas 2 Speed: P/N A31L

## FJ CRUISER :

With all the hype on the new FJ Cruiser, we knew it wouldn't be long before the requests came in for drivetrain swaps. Although it does require a bit of modifying, the option of both the Atlas 2 and 4 speed transfer case is now available to fit to the stock transmission. Our adapter kit part number is 50-5715. This kit comes with an adapter plate and spud shaft. The shaft allows the FJ Cruiser transmission to bolt up to the Atlas 23 spline transfer case. We recommend using a cable shifter due to the center console configuration in the FJ Cruiser.

Left Side Front Driveshaft Atlas 2 Speed: P/N A23L  
Right Side Front Driveshaft Atlas 2 Speed: P/N A23R

Left Side Front Driveshaft Atlas 4 Speed: P/N A4-23L  
Right Side Front Driveshaft Atlas 4 Speed: P/N A4-23R

*Note: The Atlas 4 speed will only accept a flush output shaft stickout.*



## OE, Military & Special Applications:

We are committed to offer the you the best transfer case available. It is for this reason that the Atlas is the transfer case used in a production built vehicle for the off-road enthusiast. This manufacturer uses the Atlas because of its reputation and years of reliability. The Atlas has also been used in several military prototype vehicles and is currently in use in an overseas production vehicle. This military application is why we now offer the Atlas with a 300M output upgrade. The vehicle is approximately 12,500 lbs., requiring the added strength to the output shaft. The Atlas has been flawless in these applications.

*As you can see, we are very receptive to new applications for the Atlas, and we are always willing to make changes if needed to fit new applications. If you do not see an Atlas exactly to fit your needs, please contact us directly.*

# Atlas Rotation Options

When coupling an Atlas to one of the various stock transmissions or to one of our adapter housings, you will have a number of choices as to the degree of rotations. The drawings that follow represent the stock Jeep and Advance Adapters tailhousing bolt patterns. Once you have identified the bolt pattern on your adapter housing, you can then select from the degree of rotation options listed along side your tailhousing bolt pattern. These degree of rotations are approximate. The rotation on your application may vary 1 to 2 degrees.

We also get quite a few requests for installing the Atlas at a zero degree (or flat) rotation. We offer this option in both a right and left hand case application. This option requires us to machine the case with a different bolt pattern for the Atlas input ring. This case option should only be used if your goal is a flat rotation.

**P/N 301100LF** - Left drop Atlas 2sp flat rotation

**P/N 301101RF** - Right drop Atlas 2sp flat rotation

**P/N 341100LF** - Left drop Atlas 4sp flat rotation

**P/N 341101RF** - Right drop Atlas 4sp flat rotation

If a *flat rotation* case is not requested, the Atlas is assembled with the standard case configuration. The rotation options are as follows:



Right Hand Drop Configuration



Left Hand Drop Configuration

## OPTION #1

This stock transmission bolt pattern is found on transmissions that were originally bolted to a Dana 300 transfer case.

This stock transmission bolt pattern is also found on some Jeep transmissions when bolted to a New Process transfer case that had a stock rotation of 23 degrees.

**Atlas 2sp  
Left Side Front Driveshaft**

**Possible Rotations**

- 17 degrees
- 24 degrees
- 31 degrees
- 38 degrees

**Atlas 2sp  
Right Side Front Driveshaft**

**Possible Rotations**

- 4 degrees
- 11 degrees
- 18 degrees
- 25 degrees

**Atlas 4sp  
Left Side Front Driveshaft**

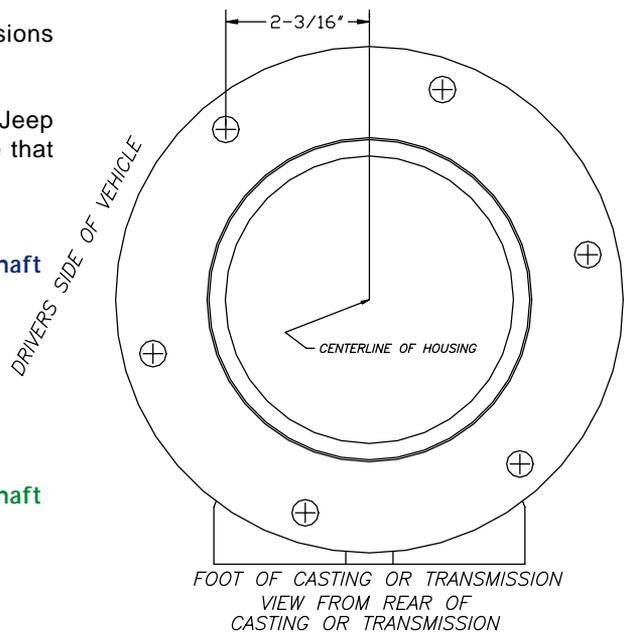
**Possible Rotations**

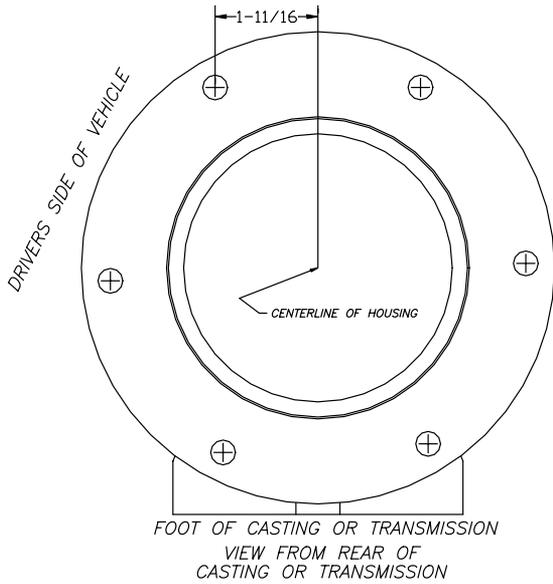
- 17 degrees
- 24 degrees
- 31 degrees
- 38 degrees

**Atlas 4sp  
Right Side Front Driveshaft**

**Possible Rotations**

- 12 degrees
- 19 degrees
- 26 degrees
- 33 degrees





## OPTION #2

This stock transmission bolt pattern is found on some Jeep transmissions when bolted to a New Process transfer case that had a stock rotation of 13 degrees.

**Atlas 2sp  
Left Side Front Driveshaft**  
Possible Rotations  
7 degrees  
14 degrees  
21 degrees  
28 degrees

**Atlas 2sp  
Right Side Front Driveshaft**  
Possible Rotations  
14 degrees  
21 degrees  
28 degrees  
35 degrees

**Atlas 4sp  
Left Side Front Driveshaft**  
Possible Rotations  
7 degrees  
14 degrees  
21 degrees  
28 degrees

**Atlas 4sp  
Right Side Front Driveshaft**  
Possible Rotations  
23 degrees  
30 degrees  
37 degrees  
44 degrees

## OPTION #3

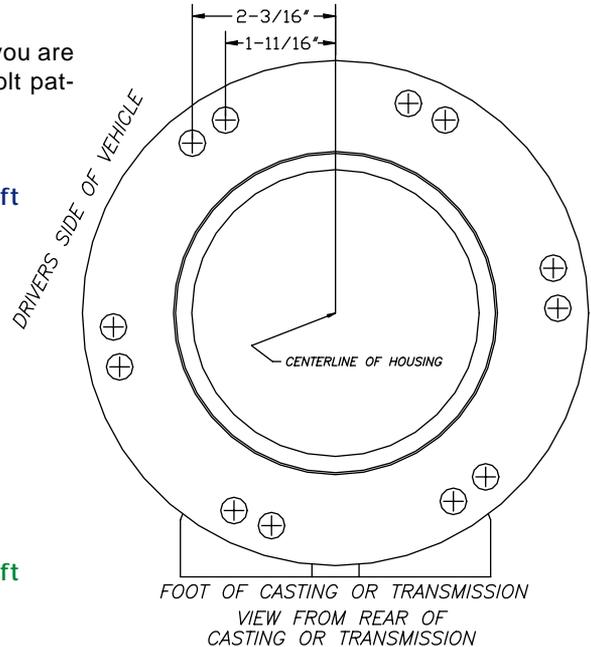
This bolt pattern is found on *most* of our adapter housings. If you are currently using one of our castings equipped with the dual bolt pattern, you will have the following rotation options:

**Atlas 2sp  
Left Side Front Driveshaft**  
Possible Rotations  
7 degrees  
14 degrees  
17 degrees  
21 degrees  
24 degrees  
28 degrees  
31 degrees  
38 degrees

**Atlas 2sp  
Right Side Front Driveshaft**  
Possible Rotations  
4 degrees  
11 degrees  
14 degrees  
18 degrees  
21 degrees  
25 degrees  
28 degrees  
35 degrees

**Atlas 4sp  
Left Side Front Driveshaft**  
Possible Rotations  
7 degrees  
14 degrees  
17 degrees  
21 degrees  
24 degrees  
28 degrees  
31 degrees  
38 degrees

**Atlas 4sp  
Right Side Front Driveshaft**  
Possible Rotations  
12 degrees  
19 degrees  
23 degrees  
26 degrees  
30 degrees  
33 degrees  
37 degrees  
44 degrees



### Special Adapter Rotations

**Shorty 4L60E Adapter**  
Left STD Case 10, 20 & 30 degrees  
Left Flat Case 2 & 12 degrees  
Right STD Case 12 degrees  
Right Flat Case 4 degrees

## OPTION #4

**Stock Chevy Tailhousings**  
Possible Right Front Driveshaft Rotations  
(without re-drilling housing)  
5 degrees

**Stock Chevy Tailhousings**  
Possible Left Front Driveshaft Rotations  
(without re-drilling housing)  
37 degrees

# Tail housing Options

## REAR TAILHOUSING OPTION:

### Standard Atlas Tailhousing

The standard Atlas transfer case comes with a rear tailhousing that accepts a stock Jeep speedometer from Jeep vehicles 1987 & newer. Atlas units ordered for earlier Jeeps or other vehicles can order a mechanical drive speedometer housing. This housing is the same as an early style Jeep. To connect to this housing, a special cable fitting may be necessary. The speedometer provision on the Atlas also allows you to calibrate your speedometer for tire and gearing changes. The chart on **Page 24** lists these options. The Atlas 2 speed tailhousing is **P/N ALT32** and the Atlas 4 speed tailhousing is **P/N A4LT32**. If a speedometer is not needed, the speedometer access hole can be plugged by using **P/N 300621**.



### HD Atlas Tailhousing with 300M output shaft

The HD Atlas rear tailhousing is basically the same as the standard housing with the exception on the output shaft. The output shaft in this tailhousing is manufactured out of 300M steel. This was introduced into our product line for a special aftermarket military vehicle. This high grade steel shaft is 130% stronger than our standard output. This kit is not necessary for most applications; however, for extreme horsepower and torque this Atlas HD tailhousing may be for you. The HD tailhousing is only available for the Atlas 2 speed at an additional cost, **P/N ALT32HD**.

### Atlas Short Tailhousing (No Speedometer)

Since rock crawling events have become steadily & increasingly popular, so have the requests for additional Atlas upgrades.



The rock crawling industry has ventured into shorter drivetrains and light weight rear engines combinations. With these newer combinations, we were prompted to build a shorter Atlas tailhousing. This new tailhousing is 2" shorter than the standard Atlas tailhousing. It is designed for trail or competition use **only** since it does not provide provisions for any type of speedometer. This new tailhousing can be retrofitted to any Atlas case by ordering **P/N 301499R**. If you're ordering a new case, this item can be included on a new Atlas 2 speed by using **P/N AST32**; and if you're ordering a new Atlas 4 speed, the tailhousing part number is **P/N A4ST32**.

Not recommended for street use.

### VSS Tailhousing (No Speedometer)

Vehicle speed sensors (VSS) are mandatory for computer controlled engines and transmissions. The VSS sends information to the vehicle computer system for both engine and automatic transmission operations. Early Chevys up to 1992 used a computer that required a D.C. square wave input into the computer. These early computer system requirements could be fed by either a special speedometer drive or a reluctor ring. Chevys 1993 & newer required a A.C. sine wave. This sine wave creates a voltage that increases with vehicle speed. The only way that this voltage can be generated is through a reluctor ring mounted to either the transmission or transfer case shafts. This information was obtained from various sources, so please verify your requirements before doing any vehicle modifications.

Our tailhousing allows a sensor and reluctor to be installed in place of the speedometer drive. Our Atlas tailhousing had to have some slight pattern changes to incorporate this new feature. To add this option to an existing transfer case would require the purchase of a new tailhousing. This new option was primarily developed so that the Atlas could be installed into a newer Chevy 4WD vehicle. When ordering this tailhousing with an Atlas, we also include a standard shift control unit that is drilled and tapped to accept a low range switch. This allows the Chevy computer to re-calibrate the output shaft signal when in low range. Note: The Chevy computer may require some wiring and computer program changes for the different low ratios.

On Vehicles with computer controlled engine swaps, this tailhousing kit can provide the proper VSS signal when using a manual transmission. Vehicles with a computer controlled engine swap and an automatic transmission requiring a VSS *should not* use this tailhousing option *unless* a low range switch is installed and the computer program is modified. When installing this type of engine and automatic transmission combination, we highly recommend a reluctor ring location in the adapter or the transmission. This will give the engine computer system a correct 1-to-1 reading in or out of low range.

The VSS tailhousing kit we offer is [P/N AVT32L](#).

If you have installed a newer GM engine into a Jeep with a manual transmission, you may want to retain the Jeep speedometer but the GM engine needs the 40 pulse reluctor to function correctly. The standard Atlas transfer case tailhousing should be retained and one of our TruPulse kits should be used. We offer a reluctor kit that fits on all of our Atlas tail housings. This kit is an externally mounted unit that provides the True 40 Pulse required for the computer system. The reluctor ring gets mounted to the transfer case yoke. The kit is offered in several yoke styles. Note: These kits will not work with a flange yoke.

**TruPulse Kits:**

[P/N 50-5040](#) with a 1310 non C.V.

[P/N 50-5041](#) with a 1310 C.V.

[P/N 50-5042](#) with a 1350 non C.V.

[P/N 50-5043](#) with a 1410 non C.V.

*"The Atlas affords our teams the maneuverability to complete courses on the worlds most demanding terrain."*

*-"Big" Rick Klein  
W.E. Rock Events Pres. & CEO*

## Front Output Options:

The Atlas was originally designed with a 26 spline front output shaft. As the Atlas gained popularity and a rock solid reputation for strength, the owners of rigs with high horse-powered engines, long wheelbase, larger tires, and vehicles with higher G.V.W. ratings began requesting this transfer case for offroad performance and reliability. A longer wheelbase or higher G.V.W. vehicle classification simply means less weight transfer toward the rear of the vehicle under operating load; therefore, more strength demand is put upon the front output shaft. The large tires and higher horse-powered engines also put more stress on the front output shaft when in 4WD. A larger 32 spline front output shaft, capable of handling higher load ratings, is the solution.



The 32 spline upgrade can be identified by a 4 bolt front output seal retainer

We now require you to specify the spline count of your Atlas transfer case, either a 26 spline or 32 spline front output shaft. The 26 spline was designed for vehicles with stock engines, a G.V.W. of 5,000 lbs., and up to a 35" tire size. The 32 spline front output should be used if your vehicle requirements exceed this rule of thumb listed above. The larger 32 spline shaft will accept larger and stronger front yoke assemblies commonly found in larger class vehicles (half-ton to one ton trucks). The choice between the two splines can also be affected by your driving habits. The 26 spline shaft in a stock vehicle can break if the vehicle is abused or power is applied while the tires are bound up while offroading.

- 26 Spline Front Output Shaft Kit: [AF26](#)      26 spline front output
- 32 Spline Front Output Shaft Kit: [AF32](#)      32 spline front output



We also offer a kit to retrofit an Atlas from a 26 spline to a 32 spline front output. This upgrade kit can also be installed into any previously built Atlas. Instructions are provided online for mechanically inclined individuals to perform this upgrade.

- 32 Spline Upgrade Kits for **used** Atlas Units: [ARF32](#)  
32 spline front output. (Yoke is sold separately)



Front Yoke Options

# Yoke Options And Interchangeable Yokes

With the Atlas transfer case being such a diverse case fitting into such a wide variety of vehicles, naturally we needed a variety of available transfer case yokes. The yokes we offer are for the 26 spline front output shaft and the 32 spline front and rear outputs shafts. The yokes that follow are listed in 3 different ways: 1st column is when ordering a new Atlas; 2nd column is when you're ordering a replacement yoke for an Atlas which would include a new seal, seal washer, and nut; and the 3rd column is just the yoke by itself. The last two columns include our seal number plus the Chicago Rawhide seal number.

## ATLAS YOKE OPTIONS:

Yoke Series & Spline	Yoke P/N's for A New Atlas:	Replacement Atlas Yoke P/N's:	Individual Yokes:	AA Seal P/N's	C/R Seal P/N's
Front Yokes 26 Spline:		(INCL. SEAL, NUT, & WASHER)			
1310 series (C.V.)	P/N A1310CV26	P/N AY1310CV26	P/N 300481	P/N 300501	15635
1310 series (non-C.V.)	P/N A1310-26	P/N AY1310-26	P/N 300477	P/N 300501	15635
Front & Rear Yokes 32 Spline:					
1310 series (C.V.)	P/N A1310CV	P/N AY1310CV	P/N 300475	P/N 300502	18817
1330 series (C.V.)	P/N A1330CV	P/N AY1330CV	P/N 300369	P/N 300502	18817
1310 series (non-C.V.)	P/N A1310	P/N AY1310	P/N 716295	P/N 300473	21164
1350 series (non-C.V.)	P/N A1350	P/N AY1350	P/N 300472	P/N 300473	21164
1350 series (C.V.)	P/N A1350CV	P/N AY1350CV	P/N 300485	P/N 300473	21164
1410 series (non-C.V.)	P/N A1410	P/N AY1410	P/N 300483	P/N 300473	21164
Flange Yokes 32 Spline					
1310/1330/1350 series (CV & non-C.V.)	P/N AF1300	P/N AFY1300	P/N 300470	P/N 300473	21164
1410 series (non-C.V.)	P/N AF1410	P/N AFY1410	P/N 300471	P/N 300473	21164

### Companion yokes for the flange yokes listed above -

1310, 1330 & 1350 C.V. and non-C.V. flange yoke. Spicer companion yoke numbers are as follows:

(1310 C.V., P/N 211229x), (1310 non-C.V., P/N 2-2-939), (1330 C.V. - P/N 211631x), (1330 non-C.V., P/N 2-2-1369), (1350 C.V., P/N 212024x), (1350 non-C.V., P/N 3-2-1579).

1410 non C.V. flange yoke. Spicer companion yoke number is 3-2-439 (1410 non-C.V.)

Flange yoke may require the companion flange bolts to be installed through the yoke before the yoke is installed onto the transfer case. This depends on the series of companion yokes used. If the flange yoke is currently installed on your transfer case, you may be required to first loosen the yoke retaining nut, pull the yoke away from the transfer case enough to install the companion flange bolts. Once the bolts are in place, a new lock nut should always be installed and torqued to 150 ft./lbs. to secure the yoke to the transfer case.

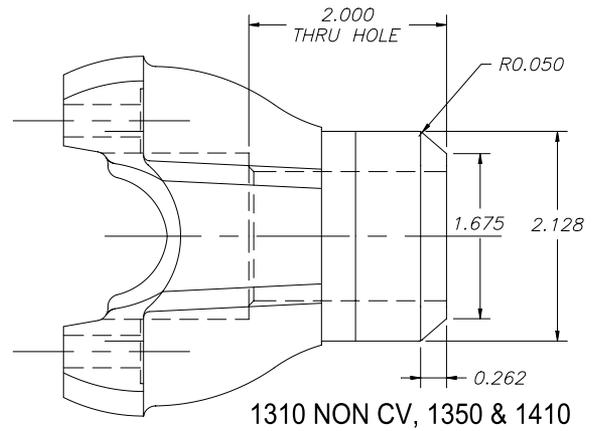
If any yoke nut is ever removed from the shaft for any reason, it should always be replaced with a new one. When installing a new yoke, the rubber seal washer should be used along with a small amount of silicon to prevent oil leakage down the shaft splines.

**NOTE: Flange yokes that are installed onto a new Atlas transfer case are not fully torqued. The nuts must be torqued after the Atlas is installed into your vehicle.**



**Yoke Modifications:** Changing the style of yokes on the Atlas transfer case may require your new yoke to be modified. When installed on an Atlas, the yoke will load up against a tapered roller bearing. Some yokes require a chamfer to be machined to clear the cage of this bearing. The yoke drawing shows the required machining on these yokes.

**NOTE:** If you replace the front 26 spline yoke with any of the yokes listed, the nut that retains the yoke has a torque specification of 130-135 ft./lbs. When replacing the front or rear 32 spline yoke with any of the yokes listed above, the nut that retains the yoke has a torque specifications of 150-155 ft./lbs.



### OPTIONAL YOKES THAT WE DO NOT STOCK -

Front Yokes for 26 Spline shaft:

- 1330 series (non-C.V.) Spicer P/N 2-4-3571 & C/R # 15635
- 1350 series (non-C.V.) Spicer P/N 3-4-5751 & C/R # 15635
- (There are no C.V. yokes available on these series)

Front & Rear Yokes for 32 Spline shafts:

- 1330 series (non-C.V.) Spicer P/N 2-4-5521 & C/R # 21164

## Exact Atlas Lengths

Atlas OAL length with the Yoke list	Atlas 2 speed STD. tailhousing	Atlas 2 speed Short tailhousing	Atlas 4 speed STD. tailhousing	Atlas 4 speed Short tailhousing
716295	13.405"	11.380"	16.631"	14.606"
300475	13.842"	11.817"	17.068"	15.043"
300470	12.224"	10.199"	15.450"	13.425"
300472	13.467"	11.442"	16.693"	14.668"
300483	13.655"	11.630"	16.881"	14.856"
300485	14.027"	11.815"	17.066"	15.041"
300471	12.092"	10.067"	15.318"	13.293"

## U-Joints

Spicer series#	"D"- Dia of cap (in)	"E"-width across caps (in)	Part# (non-C.V.)	Std Spicer U-bolt Part
1310	1.062"	3.219"	5-153X	2-98-94X
1330	1.062"	3.625"	5-213X	3-94-58X
1350	1.188"	3.625"	5-178X	3-94-18X
1410	1.188"	4.188"	5-160X	3-94-18X
1480	1.375"	4.188"	5-188X	3-94-28X

# Speedometer Options

The Atlas long tailhousing is the only housing that offers a speedometer option (sold separately). The Atlas long tailhousing is designed to fit a stock Jeep (1987 & up) mechanical driven speedometer housing. These housings generate a pulse that operates the speedometer. Vehicles requiring a cable connection for the speedometer can order [P/N 301506](#) as part of the Atlas order. This speedometer housing is from a 1983 to 1986 Jeep CJ. The speedometer gear is not included with this housing, but by using the charts that follow you can select the correct gear for your tire size and axle ratio. Some of these gears are hard to come by, so we may not offer the gear for your application.



If your stock cable does not fit this speedometer housing or if you require additional speedometer connections, then we recommend that you contact Nevada Speedometer at (775)358-7422.

- [P/N 301506](#) Speedometer housing
- [P/N 300630](#) Replacement seal and O-ring

If a long tailhousing is needed but you do not want a speedometer, we also offer a plug for the tailhousing. If your application does not require any speedometer connections, order [P/N 300621](#) speedometer hole plug.



The late model Jeep TJs with the Rock Trac 241J transfer case used a tone ring and sensor for the speedometer pickup source. This combination is not able to be used on the Atlas tailhousing. The Atlas only accepts the mechanically driven TJ Speedometer. This NP231 style speedometer will work the same as the later model tone ring and sensor. One advantage is the mechanical unit is easy to modify when larger tires or different ring and pinions are used. The charts that follow offer different drive gear part numbers to calibrate your speedometer. This speedometer assembly is offered under [P/N 300640](#). The speedometer gear is not included with this housing assembly.

TIRE DIAMETER	(Fig. E) AXLE GEAR RATIOS							
	5.38	5.13	4.88	4.56	4.10	3.73	3.55	3.07
44"	32T	31T	29T	27T				
42"	34T	32T	30T	28T				
40"	35T	34T	32T	30T	27T			
39"	36T	34T	33T	31T	28T			
38"	37T	35T	34T	31T	28T	26T		
37"	38T	36T	35T	32T	29T	26T		
36"	39T	37T	36T	33T	30T	27T		
35"	40T	38T	37T	34T	31T	28T	27T	
33"		41T	39T	36T	33T	30T	28T	
32"			40T	37T	34T	31T	29T	
31"			41T	39T	35T	32T	30T	26T
30"				40T	36T	33T	31T	27T
29"				41T	37T	34T	32T	28T
28"					38T	35T	33T	29T

(Fig. F)

## CHRYSLER SPEEDOMETER DRIVE PART NUMBERS

SHORT GEARS			LONG GEARS			
Part Number	TEETH	COLOR	Part Number	TEETH	COLOR	OLD JEEP P/N
52067628	28T		52068148	26T	RED	
52067629	29T		52068149	27T	WHITE	
52067630	30T		52068150	28T		
52067631	31T		52068151	29T	BLACK	J3212729
52067632	32T	BLACK	52068152	30T	YELLOW	J3212730
52067633	33T	YELLOW	52068153	31T	GREEN	J3212731
52067634	34T	GREEN	Discontinued	32T	BLACK	J3212732
52067635	35T	ORANGE	52068155	33T	YELLOW	J3212733
52067636	36T	RED	52068156	34T	GREEN	J3212734
52067637	37T		52068157	35T	ORANGE	J3212735
52067638	38T	BLUE	52068158	36T	RED	J3212736
52067639	39T	GREEN	52068061	39T	GREEN	J3212221
52067640	40T	ORANGE	52068062	40T	ORANGE	J3230222
52067641	41T	RED	2538941	41T	RED	53001488
52067642	42T	WHITE	2538942	42T	WHITE	53001489
52067643	43T	BLUE				

The Chrysler part numbers listed above are becoming limited in supplies from the dealership. We now carry these speedometer gears. Some of these gears are standard Chrysler, some are used/recondition ones, and some are imports. The availability of all these gears is day to day. If we do not have your required gear in stock, we may not be able to provide an estimated delivery time. Our aftermarket suppliers are working towards making most of these gears as they become more scarce from Chrysler.

Most of gears that we offer below are imported gears and may require a small modification. On some of these gears, the square hole on the shaft of the gear may be a snug fit to the speedometer cable. If this is true in your application, you may be required to sand or file on the square stock at the end of the speedometer cable to fit the gear. However, most of them fit fine and do not require this modification.

## ADVANCE ADAPTERS SPEEDOMETER DRIVE PART NUMBERS

### SHORT GEARS

300637-28	300637-36
300637-29	300637-37
300637-30	300637-38
300637-31	300637-39
300637-32	300637-40
300637-33	300637-41
300637-34	300637-42
300637-35	300637-43

### LONG GEARS

300620-26	300620-34
300620-27	300620-35
300620-28	300620-36
300620-29	300620-39
300620-30	300620-40
300620-31	300620-41
300620-32	300620-42
300620-33	

## Toyota Speed Sensor:

This kit allows you to retain the factory Toyota Vehicle Speed Sensor when installing an Atlas Transfer Case. A speedometer cable is used with a sensor housing to remote mount the VSS that was originally installed in the Toyota transfer case. This kit is sold under [P/N 300605](#).



## Low Range Switch:

A low range switch and pigtail is also available from us for the Atlas transfer case. This switch is from a stock Jeep TJ. The switch can be used for an indicator light or a low range switch. The sensor is [P/N 300378](#). The male plug is [P/N 300378-C](#) and the female switch is [P/N 300378-F](#).



P/N 300378



P/N 300378-F

(The female plug is used mainly for the Atlas 4 speed electric shifter)

P/N 300378-C

## Atlas Shift Indicator & JK Low Range Switch:

We are now in the process of developing a shifter indicator assembly for the Atlas transfer case. This will allow for a shifter indicator inside the vehicle. The new switch will indicate all driving features of the Atlas and provide you feedback if the unit is not engaged into gear. We are designing this to be a retrofit unit for all Atlas transfer cases we have produced.

The JK stock transfer case is equipped with a new style shift indicator switch. This stock switch feeds information to the Jeep computer system. The switch turns off the ESP traction control system when in 4WD, and on a Rubicon JK it allows the stock lockers to be engaged when shifting into the low range 4WD. With the twin stick design of the Atlas, we could not provide the correct information for the Jeep computer. The new Atlas control module that is currently being designed will allow the Jeep computer system to receive the necessary feedback to operate the ESP traction control system and the lockers on Rubicon vehicles.

[P/N 346001](#) - Control Module

[P/N 346003](#) - L.E.D. Shift Indicator

[P/N 346005](#) - Digital Shift Indicator

[P/N 346007](#) - Shift Indicator Kit

"We've been using an Atlas transfer Case since its inception. We've broken practically everything on our competition vehicle at least once, except for the transfer case. Atlas transfer cases have never let us down."

-Erik "Camo" Linker  
VP Sales & Marketing  
[Pirate4x4.com](http://Pirate4x4.com)

# 2 SPEED Shifter Options

We have designed several different shifters to fit various vehicle applications. If your specific vehicle application is not listed, a universal right or left hand shifter should be used. Areas of consideration on any installation are vehicle console and floorboard clearances. These shifters have been designed mainly around stock vehicles. Vehicles with body lifts greater than 1" may require more than the usual modifications for proper fit of the shift handles. All twin stick shifters, with the exception of the cable shifter, are included at no additional cost when an Atlas is purchased.

## SHIFTER SOLD WITH AN ATLAS

P/N 303000L	5.5" Left Universal Atlas shifter	P/N 303005L	ZJ 6" Left Atlas shifter
P/N 303001R	5.5" Right Universal Atlas shifter	P/N 303006L	Explorer/Bronco II shifter
P/N 303002L	TJ Automatic Atlas shifter	P/N 303007L	XJ AW4 Atlas shifter
P/N 303002U	TJ Universal Atlas shifter	P/N 303008L	JK shifter (additional cost of <b>\$215.00</b> )
P/N 303003L	TJ AX15 Atlas shifter	P/N 303009	Cable shifter (additional cost of <b>\$215.00</b> )
P/N 303004L	Bronco Atlas shifter	P/N 303020	TJ Cable shifter (additional cost of <b>\$255.00</b> )

## ATLAS SHIFTER SOLD SEPARATELY

P/N 303000LA	5.5" Left Universal Atlas shifter	P/N 303006LA	Explorer/Bronco II shifter
P/N 303001RA	5.5" Right Universal Atlas shifter	P/N 303007LA	XJ AW4 Atlas shifter
P/N 303002LA	TJ Automatic Atlas shifter	P/N 303008LA	JK shifter (cost of <b>\$345.00</b> )
P/N 303002UA	TJ Universal Atlas shifter	P/N 303009A	Cable shifter (cost of <b>\$345.00</b> )
P/N 303003LA	TJ AX15 Atlas shifter	P/N 303020A	Cable shifter (cost of <b>\$385.00</b> )
P/N 303004LA	Bronco Atlas shifter	P/N 303020R	Cable shifter (cost of <b>\$355.00</b> )
P/N 303005LA	ZJ 6" Left Atlas shifter		

Atlas non-cable shifters sold separately are **\$138.00**

## DIVORCED ATLAS SHIFTER & SUPPORT

P/N 303025L	Left drop Divorced case shifter and support mount	<b>\$375.00</b>
P/N 303026R	Right drop Divorced case shifter and support mount	<b>\$375.00</b>



## ATLAS SHIFTER CONTROLS

The Atlas is used in a wide variety of applications. We are seeing more rear engine applications now than ever before. One problem with a rear engine application is that the rear tailhousing of the Atlas is now facing the front of the vehicle. When the Atlas is shifted in 2WD high, the power is distributed to the front axle - which makes the vehicle hard to control at higher speeds. Our solution to this problem is to change the shifter control on the Atlas case. This allows the Atlas to be shifted into 2WD high putting the power to the front output shaft of the Atlas which is connected to the rear axle. You still have all of the same shifter options as you do with any stock Atlas case.

P/N 301510 - Left drop shifter (fits right drop case)

P/N 301511 - Right drop shifter (fits left drop case)

### Atlas Shifter Knobs Option:

The Atlas twin stick shifter kit comes with two standard black knobs. Make your Atlas installation look cool with these new billet aluminum knobs. Knob sets come in two heights. P/N 303150 is 2-3/4" tall and P/N 303151 is 3-3/4" tall. The 2-3/4" knobs are also available in a reversed shift pattern for certain cable shifter installations under P/N 303152. All sets are priced at \$42.95.



P/N 303150

P/N 303152

## 4 SPEED Shifter OPTIONS MAIN CASE.

We have designed several different shifters to fit various vehicle applications. If your specific vehicle application is not listed, the universal shifter should be used. Areas of consideration on any installation are vehicle console and floorboard clearances. These shifters have been designed mainly around stock vehicles. Vehicles with body lifts greater than 1" may require more than the usual modifications for proper fit of the shift handles. All twin stick shifters, with the exception of the cable shifter, are included at no additional cost when an Atlas is purchased.

The 4 speed shifters are basically the same as the standard Atlas shifters except for the extension tube and shift rail connecting links which are longer to compensate for the added length of the transfer case.

### SHIFTER SOLD WITH AN ATLAS 4 SPEED

- P/N 344000 Universal Atlas 4 speed Right or Left shifter
- P/N 344002 TJ Automatic Atlas 4 speed shifter
- P/N 344003 TJ Manual Atlas 4 speed shifter
- P/N 344004 Bronco Atlas 4 speed shifter
- P/N 344005 ZJ Atlas 4 speed shifter
- P/N 344006 Explorer and Bronco II Atlas 4 speed shifter
- P/N 344007 XJ Atlas 4 speed shifter
- P/N 344008 JK Atlas 4 speed shifter (additional cost of \$215.00)
- P/N 303009-4 Cable Shifter (additional cost of \$215.00)
- P/N 303020-4 TJ Cable Shifter (additional cost of \$255.00)

### 4 SPEED REDUCTION HOUSING SHIFTER:

The planetary reduction portion of this box is a non-synchronized unit. **YOU MUST COME TO A COMPLETE STOP BEFORE SHIFTING THE PLANETARY.**

For the manual transmission, the shifting procedure should be to stop the vehicle then shift the planetary. If the shift is unsuccessful, then feather the clutch as you pull on the shift lever. The unit should slide easily into gear.

For an automatic transmission, the shifting procedure should be to stop the vehicle. Shift the transmission to neutral and then quickly shift the planetary. If you pause, the transmission output shaft will accelerate while the planetary is between gears. If the shift is not immediately successful, then shut off the engine while the transmission is still in neutral. Once the engine is shut off, complete the shift of the planetary unit. Restart your engine while the transmission is still in neutral.

## Cable Shifter:



This shifter provides a linkage system that can be mounted to the floorboard of the vehicle. This single handle shifter has a front-to-rear movement and only requires a small clearance hole in the floorboard. It requires you to route the cable so that it does not interfere with the driveshafts or other moving components. We also recommend that you keep the cable away from the exhaust as much as possible. The location of the shifter on the floorboard can vary. On Jeeps with a full console like the TJs, we have found that this shifter fits nicely besides the emergency brake towards the driver's seat. We've also had customers install the shifter between the drivers door and their seat. The floorboard just needs three holes drilled through and a small oval slot for the handle.

P/N 344020 - Cable Shifter left drop Atlas 4 speed

P/N 344020R - Cable Shifter right drop Atlas 4 speed



Jeep TJ without a console



Jeep TJ 4 speed shifter located between the E-brake and the console (left) and the 4 speed cable routed on a Jeep TJ (right)



## SHIFTER ADJUSTMENT:



**Electric Shifter:** This electric shifter is mounted to the top of the Atlas 4 speed case. The unit is shifted by using a toggle switch which could be mounted anywhere in the vehicle. Our kit includes all electrical components that should be needed for a complete installation. The electrical parts are not shipped assembled so that the wiring can be custom tailored to your particular installation. A complete wiring diagram is included that illustrates how the switch and actuator need to be connected.

On automatic transmission applications, this kit also includes a relay that gets connected to your automatic transmissions neutral safety switch. This only allows the Atlas reduction to be shifted while the transmission is in neutral.

On manual transmission applications, care should be taken that the electric shifter switch is not operated by accident. For safety reasons, an optional disarm switch should be installed. This disarm switch is especially recommended if other people will be driving your vehicle.

The electric shifters are sold separately from the cost of the Atlas 4 speed.

P/N 344021 - Electric Shifter left drop Atlas 4 speed

P/N 344021R - Electric Shifter right drop Atlas 4 speed

# Atlas Adapter Selection Chart

The information listed below is to aid in the selection of the proper Atlas transfer case for the transmission you've selected. On certain transmission applications, we've listed a couple of options when coupling the transmission to the transfer case. The different options usually come about from different adapter lengths, giving you the choice for a longer or shorter drivetrain. With the diversity of adapters we offer, we could actually offer up to 5 or 6 ways to couple some of the different transmissions to the 11 different Atlas input shafts; however, we are trying to simplify the choices and applications. This chart along with the Atlas input spline information listed on the preceding pages should help with your Atlas transfer case selection.

ATLAS TRANSFER CASE ADAPTER SELECTION CHART FOR GM, FORD, JEEP & DODGE MANUAL & AUTO TRANSMISSIONS	ADAPTER KIT, ADAPTER HOUSING OR STOCK HOUSING	ATLAS INPUT SPLINE	ATLAS TRANSFER CASE ADAPTER SELECTION CHART FOR GM, FORD, JEEP & DODGE AUTOMATIC TRANSMISSIONS	ADAPTER KIT, ADAPTER HOUSING OR STOCK HOUSING	ATLAS INPUT SPLINE
GM SM420 4 SPEED 10.5" CASE LENGTH	50-9702 (2) 5.25" ADAP.	23	GM TH350 2WD TRANS. 21.5" CASE LENGTH	50-6300 (2,3) 50-6802 (3)	23 23
GM SM465 4WD 10 SPL. 12" CASE LENGTH	51-9807 (7) 3.5" ADAPTER	10	GM TH350 4WD TRANS. 21.5" CASE LENGTH	50-6304 (2) AS-6800 (5)	23 27
GM SM465 2WD 35 SPL. 12" CASE LENGTH (NOTE 9)	51-9807 (4,7) 3.5" ADAPTER	35	GM TH400 2WD TRANS. SHAFT STICKOUT OF 5" (NOTE 9)	51-6400 (4)	32
FORD T & C 4 SPEED O.D. 10.25" CASE LENGTH (4WD trans)	STOCK (5,8)	31 OR 28	GM TH400 4WD TRANS. SHAFT STICKOUT OF 1.5" (NOTE 9)	AS-6401 (5)	32
FORD & JEEP T98 4 SPEED 11.87" CASE LENGTH	50-7503 (3,7) 3.25" ADAP.	23	GM TH400 4WD TRANS. SHAFT STICKOUT OF 2.5" (NOTE 9)	AS-6401 & AS-0404 (5)	32
JEEP T18 4 SPEED 11.87" CASE LENGTH	50-7502 (3,7) 3.25" ADAP.	23	GM 4L80 & 4L80E 4SP TRANS. USE GM 4WD SHAFT (NOTE 9)	51-6408 & see Page 14 (5)	32
FORD T18 4 SPEED 11.87" CASE LENGTH	50-7500 (3,8,7) 3.25" ADAP.	23	GM 700R / 4L60 O/D 4 SPEED 23.375" CASE LENGTH 2WD TRANS	50-9102 (3)	23
FORD T19 4 SPEED 11.87" CASE LENGTH	50-6501 (3,8,7) 3.25" ADAP.	23	GM 700R / 4L60 O/D 4 SPEED 23.375" CASE 4WD TRANS	AS-9111 (5)	27
FORD NP435 4 SPEED 10.87" CASE LENGTH	50-3801 (3,8,7) 4.25" ADAP.	23	GM 4L60E 2WD & 4WD 23.375" CASE LENGTH	50-0404 (3)	23
1980 to 1986 STOCK JEEP TRANSMISSIONS	STOCK ADAPTER	23	GM 4L60E 4WD TRANS. 23.375" CASE LENGTH	AS-9111 (5,10)	27
1987 & NEWER STOCK JEEP TRANS 21 SPL. OR 23 SPL.	STOCK (7) ADAPTER	21 OR 23	GM 4L60E 2WD W / REMOVABLE BELLHOUSING	50-0405 & 50-9102 (3)	23
GM NV4500 4WD 32 SPL. 12.375" CASE LENGTH	51-0205 (5) 51-0220	32	GM 4L60E 4WD TRANS. W / REMOVABLE BELLHOUSING	50-0405 & AS-9111	27
DODGE NV4500 4WD 23 SPL. 12.375" CASE LENGTH	STOCK (5,7) 6.3" ADAPTER	23	GM 4L60E 4WD TRANS. SHORTY W / REMOVABLE BELLHOUSING	50-9300 (3) 50-9305 (3)	23
DODGE NV4500 4WD 29 SPL. 2001 TRANS	STOCK (5,7) 6.3" ADAPTER	29	FORD C4 3 SPEED TRANS. REPLACING A BRONCO DANA 20	STOCK (5,8)	28
FORD ZF 4WD TRANS.	STOCK (1,5,7)	31	FORD C4 3 SPEED TRANS. ALL OTHER VEHICLES	50-8100 (3)	23
GM MUNCIE 4 SPEED 10" CASE LENGTH	50-6000 (2,3,7) 5" ADAPTER	23	SHORTY C4 FORD TRANS. ALLISON 1000 TRANS.	50-2903/2905 STOCK	27 29S
NP203 ADAPTER	50-8810	10	FORD AOD EARLY 4SP 4WD 1987 & EARLIER 2WD TRANS	STOCK (1,5,7) 50-2902 (3,7)	31 23
GM ZF 6SP S6-650 TRANS	STOCK	29S	FORD AOD LATE 4 SP 4WD 1988 & UP 2WD TRANS	STOCK (1,5,7) 50-2901 (3,7)	31 23
TACOMA TRANS 23 SPLINE	50-5710	23	FORD C6 3 SP. TRANS. 20" CASE LENGTH	STOCK (1,5,7)	31
TACOMA TRANS 26 SPLINE	50-5711	23			
POWERGLIDE (automatic)	50-9200	27			
NISSAN TITAN (automatic)	50-1114	32NT			
Toyota Crawler Box to Atlas Case	50-5915	23	FORD EXPLORER/RANGER/BRONCO II STOCK JEEP AUTOMATICS	STOCK (5) STOCK (1,5)	25 21 or 23

- (1) OUTPUT SHAFT MAY NEED TO BE SHORTENED OR A SPACER ADAPTER MAY NEED TO BE USED. See Page 31.  
 (2) THIS KIT USES A SPUD SHAFT  
 (3) NEW OUTPUT SHAFT MUST BE INSTALLED  
 (4) USES A STOCK 2WD OUTPUT SHAFT  
 (5) USES A STOCK 4WD OUTPUT SHAFT  
 (6) THIS KIT SHOULD BE USED IN CONJUNCTION WITH A 700R KIT  
 (7) THE CASTING IN THIS KIT ONLY HAS ONE ROTATION AVAILABLE  
 (8) THIS TRANSMISSION, IF CURRENTLY ADAPTED TO A BRONCO DANA 20 TRANSFER CASE, CAN USE AN ATLAS 28 SPLINE TRANSFER CASE AS A DIRECT BOLT UP TO THE TRANSMISSION ADAPTER.  
 (9) THE OUTPUT SHAFT MUST BE SHORTENED TO BE A FLUSH STICKOUT WITH THE BACK SIDE OF THE ADAPTER HOUSING.  
 (10) A RELUCTOR RING AND SENSOR KIT MUST BE PURCHASED, P/N 716073



**SM465 Adapter Parts Required:**  
 (1) **51-9807** Adapter Housing  
 (1) **716515** SM465 Gasket  
 (7) **723723** 3/8" H.H.C.S.  
 (1) **723711** 3/8" Stud Bolt  
 (8) **723704** 3/8" Lock Washer  
 (1) **723701** 3/8"-16 Nut  
**In addition, the 35 spline SM465 Requires:**  
 (1) **716457** Set Collar

**P/N AS-6800** - Includes a 1.5" adapter, an o-ring, 4 metric and 4 standard socket head cap screws.



**P/N AS-6401** - Includes a 1.25" adapter, a gasket, and 6 standard socket head cap screws.



**P/N AS-9111** - Includes a 2.5" adapter, an o-ring, 4 metric and 4 standard hex head cap screws. (adapter not shown)



**4.25" TH400 ADAPTER HOUSING:**  
 (1) **51-6400** Adapter Housing  
 (1) **716510** Gasket  
 (6) **723723** 3/8"-16 x 1-1/2" H.H.C.S.  
 (6) **723704** 3/8" Lockwashers



**Dodge NV4500 4WD Requires:**  
 A stock Dodge tailhousing.  
 23 spline transmissions retain the stock seal in this housing.  
 29 spline transmissions require this seal to be removed.

**GM NV4500 4WD Requires:**  
 (1) **51-0205** Adapter hsg.  
 (8) **720028** S.H.C.S.  
 (1) **51-0220** 1.625" spacer  
 (6) **723766** S.H.C.S.

**ALLISON & GM ZF S6-650 TRANSMISSION:**  
 When coupling to these transmission, a special drilled case is required. When coupled to the Allison transmission, the shifters for the Atlas will require some modifications. Cable shifters cannot be used on the Allison transmission.



**GM 4L80E 4WD Requires:**  
 (1) **51-6408** Adapter housing  
 (1) **50-6409** 1.625" Reluctor kit  
 (6) **720028** S.H.C.S.

**Spacer Adapters:**

**P/N AS-0404** - Includes a 1" spacer adapter, 6 longer studs, 6 lockwashers, and 6 nuts.

**P/N AS-8603** - Includes a 3/4" spacer adapter and 6 bolts.

**P/N AS-8610** - Includes a 1/2" spacer adapter, 6 longer studs, 6 lockwashers, and 6 nuts.



**GM NP203 REDUCTION BOX:**

If you're looking for the ultimate low gear option, we offer an adapter that couples a NP203 reduction box in front of the Atlas transfer case. This NP203 must be coupled to a TH350, 700R-4, TH400 or SM465. Transfer case linkage, crossmember, and floorboard modifications are necessary. **P/N 50-8810** couples the Atlas to this NP203 reduction box. The input of the Atlas must be equipped with a 10 spline shaft. The length of the NP203 and adapter to the Atlas is 10.0" long.

# Custom Build Your Atlas 2 Speed Transfer Case

<b>1. GEAR RATIO</b> <span style="float: right;">PAGE 6</span>		
ATLAS20		
ATLAS30		
ATLAS38		
ATLAS43		
ATLAS50 INCLUDES THE AF32 KIT		
ATLAS60 INCLUDES THE AF32 KIT		
<b>2. INPUT SPLINE &amp; CASE CONFIGURATION</b> <span style="float: right;">PAGES 7-17</span>		
LEFT DROP	RIGHT DROP	
A10L	A10R	
A21L		
A23L	A23R	
A23LL		LONG INPUT
A23LS		JEEP 42RLE TRANS
A23JK		JEEP JK's
A23L4L60 *	A23R4L60 *	SHORT 4L60E INPUT
A25L		
A27L	A27R	
A28L		
A28LS		C4 TRANSMISSION
A29L	A29R	
A31L	A31R	
A32L	A32R	
A35L	A35R	
A32LNT		NISSAN TITAN
A34L	A34R	FORD 34 SPL.
AD32L	AD32R	DIVORCED UNIT
*Must have a VSS tailhousing or a TruPulse kit		
<b>3. CASE ROTATION OPTIONS</b> <span style="float: right;">PAGES 18-19</span>		
301100LF	MUST MINUS (1) 301100	
301101RF	MUST MINUS (1) 301101	
Divorced Atlas must use a standard case		
<b>4. TAILHOUSING OPTIONS</b> <span style="float: right;">PAGE 20-21</span>		
ALT32	STANDARD TAILHOUSING	
AST32	SHORT TAILHOUSING	
AVT32L	VSS TAILHOUSING (\$75.00)	
ALT32HD	300M OUTPUT SHAFT (\$345.00)	
<b>5. FRONT OUTPUT SHAFT OPTIONS</b> <span style="float: right;">PAGE 21</span>		
AF26	26 SPLINE FRONT OUTPUT	
AF32	32 SPLINE FRONT OUTPUT (\$100.00)	
Skip this item on Atlas 5.0 & 6.0 units		

<b>6. YOKE OPTIONS (list rear output 1st)</b> <span style="float: right;">PAGES 22-23</span>	
A1310-26	26 SPLINE YOKE (non C.V.)
A1310CV26	26 SPLINE YOKE
A1310	32 SPLINE YOKE (non C.V.)
A1310CV	32 SPLINE YOKE
A1330CV	32 SPLINE YOKE
A1350	32 SPLINE YOKE (non C.V.)
A1350CV	32 SPLINE YOKE (\$65.00)
A1410	32 SPLINE YOKE (non C.V.)
AF1300	32 SPLINE FLANGE YOKE (\$120.00)
AF1410	32 SPLINE FLANGE YOKE (\$120.00)

<b>7. SPEEDOMETER OPTIONS</b> <span style="float: right;">PAGE 24-26</span>	
301506	*MECH. SPEEDOMETER HOUSING (\$35)
300621	SPEEDOMETER HOLE PLUG
300640	*ELEC. SPEEDOMETER (TJ)(\$66.10)
*Does not include the speedometer drive gear. See Page 25.	

<b>8. SHIFTER OPTIONS SOLD W/ ATLAS</b> <span style="float: right;">PAGE 27</span>	
303000L	UNIVERSAL LEFT
303001R	UNIVERSAL RIGHT
303002L	TJAUTOMATIC
303002U	TJ UNIVERSAL
303003L	TJ MANUAL
303004L	BRONCO
303005L	ZJ
303006L	EXPLORER
303007L	XJ
303008L	JK SHIFTER (\$215.00)
303009	UNIVERSAL CABLE (\$215.00)
303020	TJ CABLE SHIFTER (\$255.00)
303025L	DIVORCED CASE SHIFTER & MOUNT (\$375.00)
303026R	DIVORCED CASE SHIFTER & MOUNT (\$375.00)

<b>9. SHIFT CONTROL OPTIONS</b> <span style="float: right;">PAGE 28</span>	
301510	LEFT SHIFTER MUST MINUS (1) 301511
301511	RIGHT SHIFTER MUST MINUS (1) 301510

<b>10. TRANSFER CASE ADAPTERS</b> <span style="float: right;">PAGES 30-31</span>	
Application may require an adapter (See Adapter chart)	



"Not only is the Atlas a part I don't have to worry about breaking, it also changed the way I drive making me more competitive and maneuverable off-road.

Did I mention I love to front-burn?"

-Jason Scherer  
2006 & 2007 Pro-Rock  
Unlimited Class  
Champion

# Custom Build Your Atlas 4 Speed Transfer Case



<b>1. GEAR RATIO</b>		<b>PAGE 6</b>
ATLAS4-20	(1:1 * 2.0:1 * 2.72:1 * 5.44:1)	
ATLAS4-38	(1:1 * 2.72:1 * 3.8:1 * 10.34:1)	
<b>2. INPUT SPLINE &amp; CASE CONFIGURATION</b>		<b>PAGES 7-17</b>
LEFT DROP	RIGHT DROP	
A4-21L		
A4-23L	A4-23R	
A4-23LL		LONG 23 SPLINE
A4-23LS		JEEP 42RLE TRANS
A4-27L	A4-27R	
A4-29L	A4-29R	
A4-31L	A4-31R	
A4-32L	A4-32R	
A4-34L	A4-34R	FORD 34 SPL.
<b>3. CASE ROTATION OPTIONS</b>		<b>PAGES 18-19</b>
341100LF	MUST MINUS (1) 341100	
341101RF	MUST MINUS (1) 341101	
<b>4. TAILHOUSING OPTIONS</b>		<b>PAGES 20-21</b>
A4LT32	STANDARD TAILHOUSING	
A4ST32	SHORT TAILHOUSING	
A4VT32	VSS TAILHOUSING (\$75.00)	
<b>5. YOKE OPTIONS (list rear output 1st)</b>		<b>PAGES 22-23</b>
A1310	32 SPLINE YOKE (non C.V.)	
A1310CV	32 SPLINE YOKE	
A1330CV	32 SPLINE YOKE	
A1350	32 SPLINE YOKE (non C.V.)	
A1350CV	32 SPLINE YOKE (\$65.00)	
A1410	32 SPLINE YOKE (non C.V.)	
AF1300	32 SPLINE FLANGE YOKE (\$120.00)	
AF1410	32 SPLINE FLANGE YOKE (\$120.00)	
<b>6. SPEEDOMETER OPTIONS</b>		<b>PAGE 24-26</b>
301506	NOT NEEDED ON 1987 & NEWER JEEPS	
300621	SPEEDOMETER HOLE PLUG	
300640	*ELECTRONIC SPEEDOMETER (TJ)	
*Does not include the speedometer drive gear. See Page 25.		
<b>7. SHIFTER OPTIONS SOLD W/ ATLAS</b>		<b>PAGE 28</b>
344000	UNIVERSAL RIGHT or LEFT	
344002	TJAUTOMATIC	
344003	TJMANUAL	
344004	BRONCO	
344005	ZJ	
344006	EXPLORER, BRONCO II	
344007	XJ	
344008	JK (\$215.00)	
303009-4	UNIVERSAL CABLE (\$215.00)	
303020-4	TJ CABLE SHIFTER (\$255.00)	

<b>8. REDUCTION HOUSING SHIFTER OPTIONS</b>		<b>PAGE 29</b>
CABLE SHIFTER ARE INCLUDED IN ATLAS 4 SPEED PRICE		
344020	CABLE SHIFT Left Drop REDUCTION BOX	
344020R	CABLE SHIFT Right Drop REDUCTION BOX	
ELECTRIC SHIFTER ARE <i>NOT</i> INCLUDED IN THE ATLAS 4 SPEED PRICE.		
344021	ELECTRIC SHIFT Left Drop REDUCTION BOX	
344021R	ELECTRIC SHIFT Right Drop REDUCTION BOX	
<b>9. TRANSFER CASE ADAPTERS</b>		<b>PAGES 30-31</b>
Application may require an adapter (See Adapter chart)		



# COMMON Installation MISTAKES

This section highlights a few of the areas that we commonly see mistakes made during the installation of an Atlas 2 and 4 speed. These mistakes will cost you time and money. Most problems occur because the installation is rushed or procedures overlooked. Other errors happen because the instructions were not read or followed.

The most common mistake is having a transmission output shaft that is too long or does not have long enough splines. A shaft that has either one of these problems can bottom out or not engage enough into the Atlas input. Most times, this interference is not noticed until the transfer case is being installed. Most installers get the transfer case near to the mating flange, but find they are lacking roughly 1/16 of an inch between the two gear boxes coming together. They push, pull & rotate to mate the two boxes, then decide to put the nuts on the stud of the transfer case to pull the units together. The transfer case, whether being a 2 speed or 4 speed, is now damaged: the 2 speed having a broken front housing snap ring, and the cage needle bearing of the 4 speed having been pre-loaded. **Running the units in this state will cause complete destruction of the unit.** In short, both units will need disassembly to fix the problem.



The easiest fix is prevention. If the gear boxes do not slide together completely when installing, remove the transfer case and measure the shaft lengths. Refer back to this application guide to the input section for spline engagement lengths. The Atlas is a precision built transfer case. **DO NOT FORCE TOGETHER** even if it's a small gap between the transmission and transfer case.

The second, most common mistake or problem is the cable shifter adjustments and installation. We now offer several custom and universal cable shifters to fit the Atlas 2 and 4 speed transfer cases. The instructions highly recommend installing the shifters to the Atlas while the transfer case is outside the vehicle. This will allow you the opportunity to fine tune the linkage while viewing the movement of both the handle and the shift rail. Adjustments to the linkage could be a half turn of a certain nut. If the Atlas & shifters are installed, that nut is hard to get a wrench on and you could spend a lot of time trying to get it adjusted correctly. Incorrect adjustments to the linkage will make the Atlas hard to shift, and we have seen some cables actually break because of driver trying to force a mis-adjusted shifter.

The last area of concern is more of a precaution, not an installation mistake. After an Atlas was installed, we have seen a couple of transfer cases that have experienced rear output shaft bearing failure. The Timkin bearings require custom shimming for each Atlas built. The tolerance is .001" which is the recommendation from Timkin. The units we've seen failure on have been new installations (having less than 10 to 20 miles on the unit) and in a vehicle that was flat-towed. **We now recommend that a new unit must have the break-in fluid replaced, which is after the first 500 driving miles.** This allows the bearing to seat properly to the bearing race. It also allows the oil to circulate through the unit to lubricate areas that were assembled with assembly lube. **If you plan on flat-towing, we actually prefer that you remove the driveshafts from the vehicle. This eliminates any possible chance of bearing failure on your Atlas 2 speed due to lack of oil circulation. PLEASE NOTE that under absolutely no circumstance should an Atlas 4 speed be flat-towed without removing the driveshafts. Damage to the planetary assembly and the additional needle bearings will occur.**

# Installation Procedures For All Vehicles

Before the actual installation begins, you should read the installation and operating procedures of your new transfer case. Please verify that ALL features such as input spline and case configuration (left or right hand drop) are correct. Also inspect the unit for any damage that may have occurred during shipping. This section of the manual deals with the general installation procedures of the Atlas. Specific installation instructions for many vehicles are also on our website at [www.atlastransfercase.net](http://www.atlastransfercase.net) or provided for you with your unit. **Please read all instructions before installing.**

## LUBRICATION

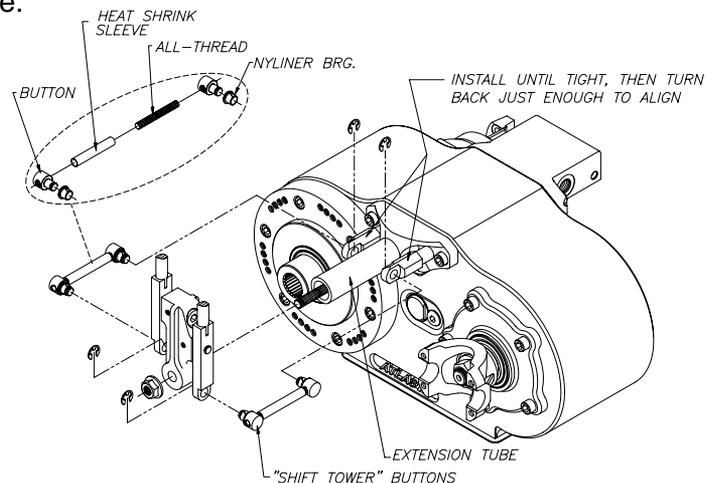
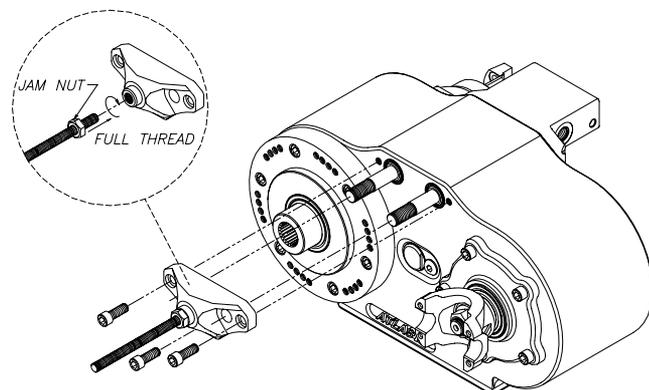
This unit is shipped DRY. Before operating your Atlas, please fill with the recommended gear lubricant (Amsoil MTG GL-4 or Torco MTF GL-4). If you are unable to find these lubricants, one of the following synthetic oils can be substituted; Castrol Syntec 5w-50, Valvoline 20w-50 or Mobil 1 Synthetic 15w-50. We have found these synthetic lubricants acceptable if the recommended oil is not available.

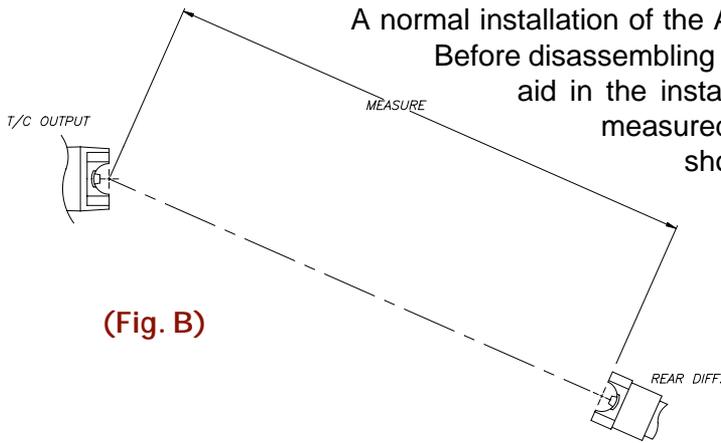
The recommended oil capacity is 2 quarts in the Atlas 2 speed and 2-1/2 quarts for the Atlas 4 speed transfer case (**make sure to tip the Atlas 4 speed unit onto the input shaft to provide oil into the planetary reservoir**). The Atlas does not offer any type of 'weep hole' to verify the oil level. Therefore, we have supplied your unit with a site tube to aid in determining the correct fluid level. Once the required two quarts are put into the Atlas, we recommend marking the oil level on the site tube. We like to use a small zip tie as a oil level marking device. **Note:** When the Atlas is overfilled beyond the recommended levels, it will cause the unit to vent the extra oil out the breather.



## PREPARATION

Now is a good time to familiarize yourself with the shifter components. Pre-assembly of the shifter items will help a great deal with the final installation. Unpack the shifter and install the shifter base. Use RTV Blue silicone to seal the bolt threads. Pre-assemble the rest of the components. Detailed shifter assembly instructions can be found in The Final Installation section. Once the shifter has been properly setup, remove it from the transfer case (leaving the triangular 3 bolt base on the unit). The Atlas must be installed into the vehicle without the shifters attached. On Atlas 4 speed units, the cable or electric shifter on the reduction housing must be installed before installing the Atlas into your vehicle.





(Fig. B)

A normal installation of the Atlas transfer case should take around 6 to 8 hours. Before disassembling your vehicle, the undercarriage should be cleaned to aid in the installation process. Stock driveline lengths should be measured with your vehicle on the ground. The measurement should be taken as illustrated on Fig. B. Retain these measurements for later use.

The Atlas offers up to 4 different rotations depending on the application. We offer the same rotation as stock on all units. The other rotations are provided for either additional ground clearance or unique applications. Vehicles using one of our adapters with the dual bolt patterns have 8 rotation

options. Before removing your stock transfer case, an angle finder can be used to obtain the rotation of your stock transfer case.

Your vehicle can now be raised for the necessary removal of the driveshafts, skid pan, and the stock transfer case. Note: Please make sure your vehicle is supported securely!

**Recommended Equipment:** A floor jack to support the transmission and engine when the crossmember is removed, and a transmission jack for raising and lowering the transfer cases.

By unbolting and removing your stock transfer case, you should have your transfer case adapter and output shaft exposed. The adapter housing transfer case mating flange should be cleaned of any debris. Double check the output shaft splines of your transmission and verify the stickout length. Make sure the Atlas has the same spline and that the length of the transmission output isn't too long for the Atlas input. (Refer to the Atlas Input Shaft section for more information).



The Atlas should now be test-fitted into the vehicle. The Atlas should index onto the spline of your transmission and up to the adapter housing. While holding the Atlas securely in place, rotate the transfer case to the desired rotation for your vehicle. Locate a stock hole on the adapter housing. Using a marker, mark the outside of the Atlas index ring. This will help to identify the rotation pattern. Check for tunnel clearance, front driveshaft clearance, and shifter clearance with the Atlas in this new rotation. **Note:** On many of the YJ, TJ, and CJ vehicles, a minor modification to the tunnel area will allow you to mount the Atlas at a higher rotation with little or no crossmember modifications. (Refer to the specific vehicle application for more details).

Once this is done, remove the Atlas from the vehicle. Locate the mark on the index ring of the Atlas transfer case. The bolt patterns on the transfer case index ring are relative. In other words, whatever hole you've selected will be the same all the way around the index ring. Using the stud bolts provided, install them in the chosen pattern rotation. These studs are stock New Process items and are a restrictive fit into the front of the Atlas. If you are using a spacer adapter that requires longer bolts or stud bolts, they should be installed using 242 Loctite. Install the studs so that they have full thread engagement in the transfer case adapter ring. **DO NOT PRELOAD THE STUDS INTO THE ATLAS INPUT RING!**

**TIP:** Before the final bolt up, we have found it easier to equip the Atlas with all the necessary components. For example: Shift indicator switch, speedometer, site tube, and drain plug, etc.

The Atlas was shipped with numerous red plastic caps to keep contaminants out of the unit. At this point in time, all caps should have been removed and all components should be properly installed.

# The Final Installation

Apply a very thin film of RTV Blue silicone to your transfer case adapter mating surface. Aligning the studs with the adapter holes and the transmission output shaft with the Atlas input, the Atlas should slide completely onto the transmission mating surface. There should not be any GAP between the two units! If they do not meet, then you have an interference problem! Refer to the Atlas Input Shaft section for the recommended transmission shaft lengths. **DO NOT PULL THE TWO UNITS TOGETHER WITH THE FASTENERS.** This will cause internal damage to the unit. Possible problems may be too long of an output shaft or on some Jeep 21 & 23 spline transmissions, a spacer adapter may be necessary. If you are in doubt regarding your interference problem, please call!

The recommended nuts have been provided to secure the Atlas to your adapter. With the Atlas now secure, check again for proper clearances such as driveshaft, floorboard, skid pan, and exhaust, etc.

## DRIVELINE MODIFICATIONS

You will normally need driveline modifications when installing the Atlas transfer case. What we have found that works well is either adding or subtracting (depending on the application) the measurements of the Atlas from the stock length of your transfer case.

**REAR MEASUREMENT:** To determine the new length for the rear driveline, simply measure from the face of the transfer case to the face of the rear output yoke (Fig. C). Write that measurement down.

Take the same type of measurement of the Atlas. With that in mind, consider the following example.

*Rear Measurement Example (Fig. C):* This stock transfer case measured (on our example) 16.8". When subtracting that measurement from the Atlas measurement of 13.8", you have a difference of 3.0". Since the Atlas is 3.0" shorter than your stock transfer case, your rear driveshaft would then need to be lengthened 3.0". This difference is now added to the measurement taken from your stock driveline, as recommended in the Preparation section. You would now have your new rear driveshaft length.



(Fig. C)



(Fig. D)

**FRONT MEASUREMENT:** Measure the stock transfer case from the front yoke face to the surface of where the transfer case bolts to the adapter housing (Fig. D). Write that measurement down.

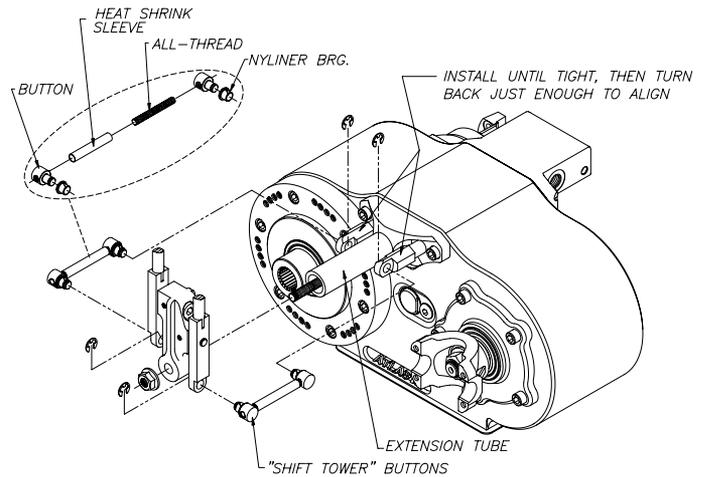
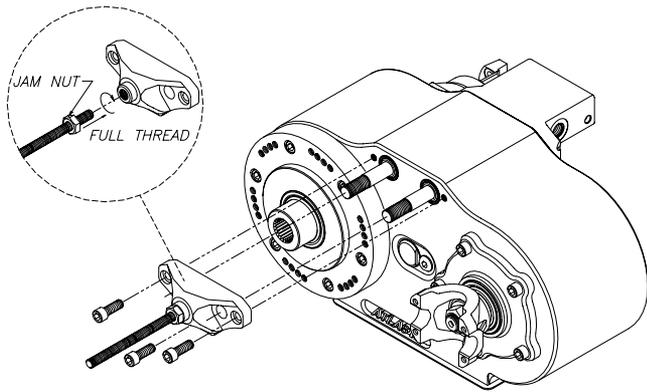
The front yoke on the various stock transfer cases can either be a positive measurement (protrudes out from the adapter input face), or a negative measurement (recessed inward from the adapter input face). Most gear-driven transfer cases will have a positive yoke measurement, and most chain-driven transfer cases will have a negative yoke measurement. The Atlas

measures approximately 2" positive offset from the face of the front yoke to the transmission adapter input.



Stock driveshaft (top) vs. new fixed yoke driveshafts





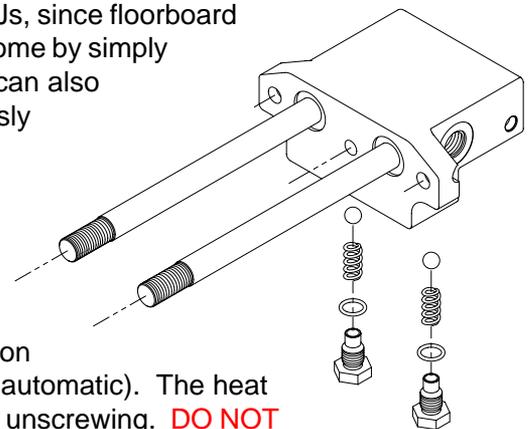
**Atlas shifter problem check list:** When installing the twin stick shifters, there are a few key areas that must be addressed. One of the most common difficulties we hear is that "my unit isn't shifting fully into one of the gear ratios". Incorrect adjustment of the shift handles to the linkage rods is normally the cause. With both shift rods in neutral, the linkage rod (connected to the shift handles) must be parallel with the aluminum shift tower. Refer to the photo left.

Another concern that we've heard is that "my Atlas seems to be hard to shift". This problem could be one of two areas. The brass shift rod ends that the shifter linkage rods connect to are too tight, causing a binding effect on the shifter linkage. The brass shift rod ends should be installed until tight, then loosened enough to align to the shifter button. The second area

to check is the Atlas shift rail detents. These detents are controlled with a ball and spring set. On new units, you can back off the brass set screws located on the shifter boss about a 1/4 turn, allowing an easier shift. As the unit is operated, these components will seat in. After the first service, the brass set screws should be tightened 1/4 turn to return them to their original position. See illustration bottom right.

If a unit has a tendency to pop out of gear, an area to check is proper floorboard clearance in relation with the shift handles. This problem mainly occurs on Jeep TJs, since floorboard modifications are required. Most reported problems have been overcome by simply providing additional clearance. The problem of popping out of gear can also be caused by incorrect alignment of the shifter handles as previously discussed and/or a unit in which the detent set screws have been loosened.

The last of the most common dilemmas we hear is that "the shifter linkage came apart while in operation". The area in question is the all-thread linkage rods. These rods fit into the two shift buttons. To prevent the all-thread from unscrewing out of the shift buttons, a portion of the heat shrink tubing should have been installed (o-rings on a TJ automatic). The heat shrink tubing or o-rings act as a jam nut to prevent the all-thread from unscrewing. **DO NOT** use a jam nut on these linkage rods because it will cause binding of the shifter linkage.



#### 4 SPEED REDUCTION HOUSING SHIFTER INSTALLATION:

The 4 speed shifter installation is provided on the instruction sheet that is included with your 4 speed shifter kit.

## BREATHER INSTALLATION:



The stock transfer case breather hose should be replaced with a 3/8" fuel hose and connected to the brass elbow located on top of the Atlas. A new breather should be installed on the opposite end of this hose and mounted to the firewall. A free flowing atmospheric breather typically found in earlier model vehicles or used on differentials is best. On later model Jeeps, the stock breather is very restrictive. This stock breather is for lighter viscosity oils such as the ATF used in the stock transfer case. If this breather is not replaced, oil will blow out into the engine compartment. We offer new breather kits listed on Page 4.

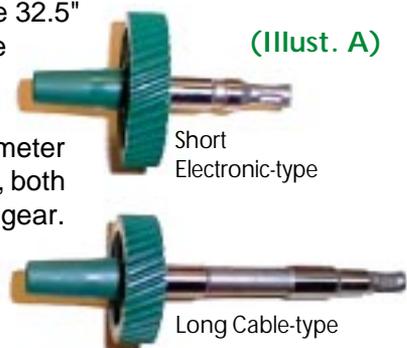
## SPEEDOMETER INSTALLATION:

We can supply a cable-type speedometer drive unit for all applications other than Jeeps 1987 to current. The 1987 and newer Jeeps will use the original speedometer drive that came stock. You will simply have to remove it from your New Process transfer case and install it into your new Atlas. It is recommended that you replace the o-ring and seal that we have included with the Atlas package. On older Broncos, Bronco IIs, Explorers and Rangers, a speedometer cable fitting adapter must be used to connect the Atlas speedometer drive to your speedometer cable. *Nevada Speedometer* (Ph# 775-358-7422) should have the necessary parts to assist you in this manner. The newest Jeep that used a New Process 241 transfer case picked up the speed from the axles, and the speedometer hole in the Atlas can be plugged.

On engine converted vehicles, caution should be used. If your engine has been converted to a newer Chevy, Ford or Chrysler and is computer controlled, it may also require a vehicle speed sensor. The speed sensor is usually connected at the speedometer. Each manufacturer has designed their own unique way of obtaining this computer input. If your vehicle has any computer requirements, you will need to take this into consideration. If you are wanting to install the Atlas into a Chevy, Ford or Chrysler vehicle, the computer requirements mentioned will also apply. Once you've taken into consideration your specific requirements, the speedometer cable can now be connected. Note: Listed in the Tailhousing Options section on Pages 20-21 are a few of the VSS output components we offer.

**Speedometer Calibration:** There are two factors that affect your speedometer reading; actual tire diameter and axle gear ratio. The actual tire diameter is usually different than what is printed on the side wall of your tire. For example: A 33 x 11.5 x 15 tire (depending on the brand), may actually measure 32.5" in diameter. Tire sizes vary greatly among the manufacturers. Even the same tire from the same manufacturer can vary as much as 7% in diameter.

The speedometer charts that follow will assist you in obtaining the right speedometer drive gear **(Illust. A)**. As you can see there are two types of speedometer gears, both long and short. We measured them by the overall length of the speedometer gear. Long being 4.3" and short being 2.2". The speedometer housings that accept these gears are not interchangeable. For example: If your stock vehicle had a 2.2" gear, you cannot put a 4.3" gear onto that speed-o-drive housing.



If you are installing an Atlas in a 1987 or newer Jeep and have not changed your tire size or your axles, your stock speedometer drive gear would remain the same. However, if a new axle ratio and/or tire size is considered, see **Fig. E** on Page 24. We offer many stock gear options for your speedometer housing, some being in limited supply. Listed on the bottom of Page 25 are the gears we offer. If your axle ratio and tire size requires a different combination, see **Fig. E & Fig. F**. Please contact your local Jeep dealership or refer to the gears that we offer.

When installing a speedometer gear with either 39, 40, 41 or 42 teeth, the gear and the housing must be installed separately. These are all large diameter speedometer gears. By first installing the gear into the tailhousing you will be able to tilt the gear shaft up allowing you to position the gear past the Atlas output shaft. Once this gear is in place, the speedometer housing must be aligned with the speedometer gear shaft and indexed into the tailhousing. When installing the speedometer housing, lube the o-ring that contacts the Atlas tailhousing with a bit of oil. This will prevent the o-ring from being nicked upon installation or rotation, causing this housing to leak.

**Speedometer Problems:** No matter what speedometer gear you use, you must make sure that the teeth of the speedometer gear have proper contact with the Atlas output shaft. The speedometer housing can be rotated to achieve proper contact. *Note:* There are three rotation possibilities. Many of the Jeep speedometer housings offer index numbers that reference to the gear tooth count. By lining up the retainer clip with the proper index number, the speedometer gear will work properly. If your housing does not have these index numbers, proper engagement can be obtained by rotating the speedometer housing until the speedometer gear meshes with the output shaft. The slots on the housing will then line up with the retainer clip. If this is not done, the speedometer will not engage properly.



**TJ Speedometer Installation:** The Jeep TJ speedometer is a tight clearance fit to the Atlas shift control. One option for clearance is to plug in the connector while the speedometer is rotated away from the shift control, and then rotate the assembly back into position for the speedometer gear engagement. The other option is to keep the white portion of the speedometer rotated 180 degrees from where it would normally be and use a washer under the bolt head to retain this part of the speedometer in place.

### SHIFT INDICATOR:

The transfer case shift indicator (if applicable) should be connected. Make sure wires and/or hoses have proper body clearance and are not bound in any way. For more information, see the specific vehicles applications.

### DRIVESHAFTS & CROSSMEMBER / SKID PAN:

You should now install your modified driveshafts. Trial fit your crossmember or skid pan, noting any modifications that may be necessary. The Atlas is equipped with a drain plug located on the inspection cover. You may wish to cut an access hole in your crossmember/skid plate for easy access. Once the modifications are made, install the crossmember/skid plate securely to the frame and the rubber support to the crossmember/skid plate.

### LUBRICATION:

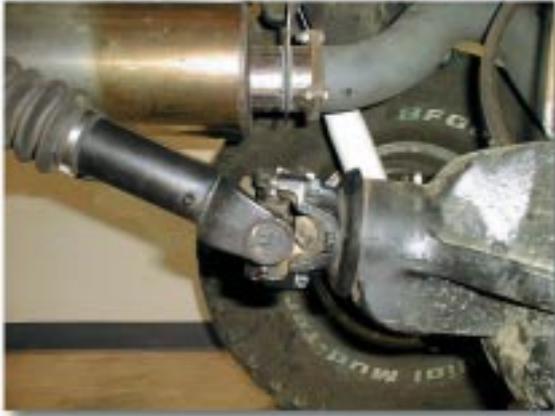
Before lowering your vehicle, fill your Atlas with the (Amsoil MTG GL-4 or Torco MTF GL-4) oil provided. By using a hand pump, connect the hose end to the upper fitting of the site tube to fill the Atlas to the recommended oil level. Once this is completed, re-secure the upper site tube fitting to the Atlas. If you are unable to find this oil brand locally, we offer it under [P/N 303200](#), or you can use one of the following synthetic oils as a substitute until the correct oil is found: Castrol Syntec 5w-50, Valvoline 20w-50 or Mobil 1 Synthetic 15w-50.

### VISUAL INSPECTION:

Once the vehicle is back on the ground, the transfer case area should be inspected to verify that all fasteners and components relating to the transfer case are properly attached.

A visual inspection should be made with regard to driveline angles and clearance. New and unwanted noises are most often related to poor driveshaft angles! **C.V.** driveshaft combinations must be set so that the differential yokes are in-line with the driveshaft under normal operating load. **Non-C.V.** driveshaft combinations must be set so that the pinion yoke angles match the transfer case output yoke angles under normal operating load. Remember to allow for (spring wrap) if you have leaf springs. The front pinion will dive downward under load and the rear pinion will rise upward. There are many different spring rates on the market, so this may take some tweaking to eliminate a poor driveshaft condition. (For examples, see photos on the following page).

The Atlas transfer case is a close tolerance design. If you feel any vibration at all in the shift handles, suspect improper driveshaft angles!



Rear (too low).  
Will not raise enough for C.V.!



Rear (correct).  
Perfect for C.V.

## Operating Your New Atlas

The Atlas has internal shifter interlocks that prevent the unit from being mis-shifted. The knobs on the Atlas Twin Stick are to assist you with identifying the rear output and the front output.

For **2WD High**, in which the vehicle should first be tested, the knob labeled "Rear" will be in the high position and the "Front" knob should be in the neutral position. After a few miles in 2WD High, we recommend that you shift the "Front" shifter knob into High, putting you in 4WD High. (On manual locking hubs, to achieve any type of 4WD, your hubs must be locked). *The "Front" shifter handle should shift smoothly in and out of neutral and High.* **IF THE SHIFTER DOES NOT ENGAGE EASILY, DO NOT FORCE IT.** (Your linkage may need to be adjusted). When you are shifting out of 4WD high, the "Front" knob *must always* be disengaged first. If the shifter feels tight or sticky, press in the clutch or shift to neutral (automatic transmission), or simply straighten the front wheels. The vehicle should be moving forward when shifting the Atlas.



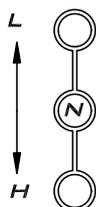
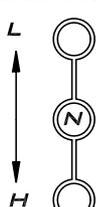
When shifting into **Low range**, REMEMBER the following: The vehicle should be at a slow roll forward, no faster than 5 miles an hour. Speeds faster than recommended could cause personal injury (like unloading the rear payload into the front seats!), or damage to the drivetrain (which is not only embarrassing but expensive!). The Atlas has the unique feature of 2WD low with the rear axle or the front axle. At any time while driving in low ratio, you can disengage either the front or rear by shifting the respective handle into neutral.

**Shifting an Atlas with an Automatic transmission:** While the vehicle is slowly moving forward, place the transmission into neutral and engage the front or rear control into Low. The Atlas is a synchronized shift design, which means synchro sets have been added to SPEED MATCH the gear and shaft relationship. If you are stopped with no forward motion and the unit will not shift, place the *transmission* in Drive or Reverse then back to neutral, then attempt to shift the Atlas. **DO NOT FORCE THE ATLAS INTO GEAR.**

**Shifting an Atlas with a Manual transmission:** While the vehicle is slowly moving forward, depress the clutch and engage the front or rear control into Low. **DO NOT FORCE THE ATLAS INTO GEAR or HOLD PRESSURE ON THE SHIFT LEVERS WHILE RELEASING THE CLUTCH.**

As you become accustomed to the operations of the Atlas, and the unit accumulates miles, the shifting will become easier. We have illustrated the shift knob locations to obtain the different gear ranges.

## ***SHIFT POSITIONS***

<i><b>PATTERN</b></i>	<i><b>NEUTRAL (TOWING)</b></i>	<i><b>2WD HIGH</b></i>	<i><b>4WD HIGH</b></i>	<i><b>2WD LOW (REAR)</b></i>	<i><b>4WD LOW</b></i>	<i><b>2WD LOW (FRONT)</b></i>
<i><b>FRONT OUT-PUT CONTROL</b></i>	<i><b>FRONT</b></i>	<i><b>FRONT</b></i>	<i><b>FRONT</b></i>	<i><b>FRONT</b></i>	<i><b>FRONT</b></i>	<i><b>FRONT</b></i>
						
<i><b>REAR OUT-PUT CONTROL</b></i>	<i><b>REAR</b></i>	<i><b>REAR</b></i>	<i><b>REAR</b></i>	<i><b>REAR</b></i>	<i><b>REAR</b></i>	<i><b>REAR</b></i>
						

## TWIN STICK SHIFT POSITIONS

- Neutral:** Both the "rear" and "front" knobs in the "N" position.
- 2WD High:** The "rear" knob in "H" position and the "front" knob in "N" position.
- 4WD High:** The "rear" knob in "H" position and the "front" knob in "H" position.
- 4WD Low:** The "rear" knob in "L" position and the "front" knob in "L" position.
- 2WD Low:**
- (Rear Drive ONLY) The "rear" knob in "L" position and the "front" knob in "N" position.
  - \*(Front Drive ONLY) The "rear" knob in "N" position and the "front" knob in "L" position.

**\*Special Note:** With the front in 2WD low, the torque is distributed 100% to the front axle. Combined with the low gearing in the transfer case, these factors can cause undue strain on your front axles. This should only be used for quick tight turns in loose soil conditions. The only shift position that is not available is Front 2WD high.

**4 Speed Atlas Reduction Housing:** This is a non-synchronized shifted unit. To shift the reduction housing portion of the Atlas, the vehicle should come to a complete stop and the transmission must be in a neutral position. Once the vehicle is stopped, you can then engage or disengage the planetary gearing. The shifting of this unit is designed for either a cable shifter or an electric shifter.

The electric shift option on the 4 speed with an automatic transmission requires the unit to be wired to a relay. The relay is tied into the neutral switch on the transmission, which only allows the electric shifted portion of this unit to be shifted when the transmission is in neutral. The shifter kit come complete with the installation instructions and components required for this installation.

# Operating Considerations

The low gear reduction of the transfer case will help to ease you through the toughest terrain you can find. The essentials of good 4-wheeling is the sheer ability to maneuver at a safe speed while retaining your line of attack on the course in front of you. The slower rate of approach will not only keep you in the seat, but also keep the tires on the ground for the best possible performance.

If you are considering the Atlas or have purchased one already, it is sure to change the way you 4-wheel.

## KNOW YOUR LIMITS!

Please begin with mild terrain and experiment safely to your new level of potential.

The low reduction will not only slow you to a tactical approach, but will also increase the expected output of your current equipment. Your response from the accelerator may surprise you. The crawl ratio is a torque multiplication. In some transfer case replacements, it can be an increase of more than twice that of the original potential.

## KEY CONSIDERATIONS:

**Brakes:** On flat ground, with the brakes applied and the transfer case in low, you will notice deeper squat in the suspension as you shift your automatic transmission into gear. If you have large disk brakes (front and rear), you will be well equipped to control the increase in torque. If you have drum brakes or a set of stock vehicle brakes (front and rear), you might find it hard to stop the vehicle when the transfer case is in its low range gear. There are many aftermarket brake upgrade kits out on the market. For serious off-roading, this upgrade should be considered.

**Differentials:** You are sure to find your weakest link! If you are not sure about the capacity of your current equipment, you may want to consult with an expert in this field! Research any 4WD magazine for the various sources of manufacturers and distributors.

## TOWING

The Atlas 2 speed has been flat-towed for a distance of 300 miles and no problems were encountered. At this time, we can only recommend flat-towing at this maximum distance. After 300 miles of travel, the vehicle should be started. With the transmission in gear and the Atlas in neutral, let the vehicle idle for 5-10 minutes. This will circulate the oil in the Atlas and allow for proper lubrication. We recommend that the Atlas should have at least 500 driving miles on it before you flat-tow, allowing the bearings to break in.

When a vehicle is being towed with the Atlas 2 speed, both shift levers should be in the Neutral position. Our experience regarding the transmission towing position are as follows (please also verify in your owners manual what the vehicle manufacturer recommends):

Automatic transmissions should be left in park                      Manual transmissions should be left in any gear

**If you plan on flat-towing an Atlas 2 speed equipped vehicle and do not wish to stop to circulate the oil, we actually prefer that you remove the driveshafts from the vehicle. This will prevent any damage that may occur to the internal components due to lack of normal oil circulation.**

The Atlas 4 speed *should never be flat-towed without removing the driveshafts*. The planetary unit, the additional trust bearings, and caged needle bearings do not receive the normal oil flow as they would under normal driving conditions and, therefore, damage will occur.

## MAINTENANCE

Atlas oil levels should be monitored frequently. The oil site tube should be marked to indicate proper oil level for the Atlas at the rotation installed in your vehicle. The oil should be drained and replaced at intervals of 20,000 miles or less. **Note:** If your primary use is extreme offroading, you may consider intervals as frequent as every engine service.

# Frequently Asked Questions

## Questions & Answers

### **QUESTION: Why does my Atlas blow oil out the vent tube/breather?**

**Answer:** Too much fluid will cause foaming at high speeds. Foaming oil expands and fills the entire cavity, which forces fluid out the tube; or the breather hose may be restrictive, causing the Atlas to build up pressure. On late model Jeeps, we have found that you must replace the restrictive breather (located on the firewall) with a free flowing atmospheric vent. This vent is typically found in earlier model vehicles. The stock vent was for lighter viscosity oils such as the ATF.

### **QUESTION: Why does my Atlas pop out of gear?**

**Answer:** Check for shift lever interference around the floor and dust boot. Make any additional clearance modifications needed. Engine and transmission mount combinations vary in rigidity, allowing some with more movement than others. The "TJ" support is by far the softest we have seen.

### **QUESTION: How should the unit be flat-towed? And how is the unit oiled?**

**Answer:** For flat-towing recommendations, please refer to the towing subheading in the Operating section of this manual. In reference to lubrication: The Atlas gears are supported on the shaft by a full complement of needle bearings. This design allows for less friction to develop in the unit. As long as the proper oil level is maintained while driving the vehicle, proper lubrication to these bearings is being achieved.

### **QUESTION: Where is the .090" shim?**

**Answer:** This question only relates to YJ customers. The .090" shim is the white washer that is included with the shift indicator plug. (The .090" washer is installed with the indicator plug on the Atlas shifter housing). The reason we use this shim is that Jeep used a couple of different shift indicator switches. To simplify our assembly and inventory, all of the Advance Adapters shift housings are machined alike. The .090" shim sets the proper height for your application. Refer to your instruction sheet provided with the Atlas transfer case.

### **QUESTION: Does the Atlas have provisions for a P.T.O. unit?**

**Answer:** No. We find very few P.T.O. units being used today. Therefore, the Atlas does not have provisions for a P.T.O. However, some transmission models do include this capability if you need this compatibility.

### **QUESTION: My Atlas seems to be noisy and has a rattling that resonates up through the handles. What is the cause?**

**Answer:** We have had a few customers that have complained of different noises. In every unit we've inspected, we still have not been able to find any type of problem with the Atlas itself. With our experience at this time, most noises originate with improper driveline angles. If you feel any vibration at the shift levers, your pinion angles need attention! Refer to the Final Installation section under the subheading Visual Inspection for driveline information.

### **QUESTION: My Atlas seems to be hard to shift. Why?**

**Answer:** It could be one of two reasons. First, the linkage could be binding. You may need to inspect for possible trouble areas. Refer to the Final Installation section under the subtitle Shifter Problem Checklist for more information. Second, the Atlas has shift rail detents, controlled with a ball and spring set. You can back off the brass set screws located on the shifter boss about a 1/4 turn, allowing an easier shift. As the unit is operated, components will seat in. After the first service, the brass set screws should be tightened 1/4 turn to return them to their original position.

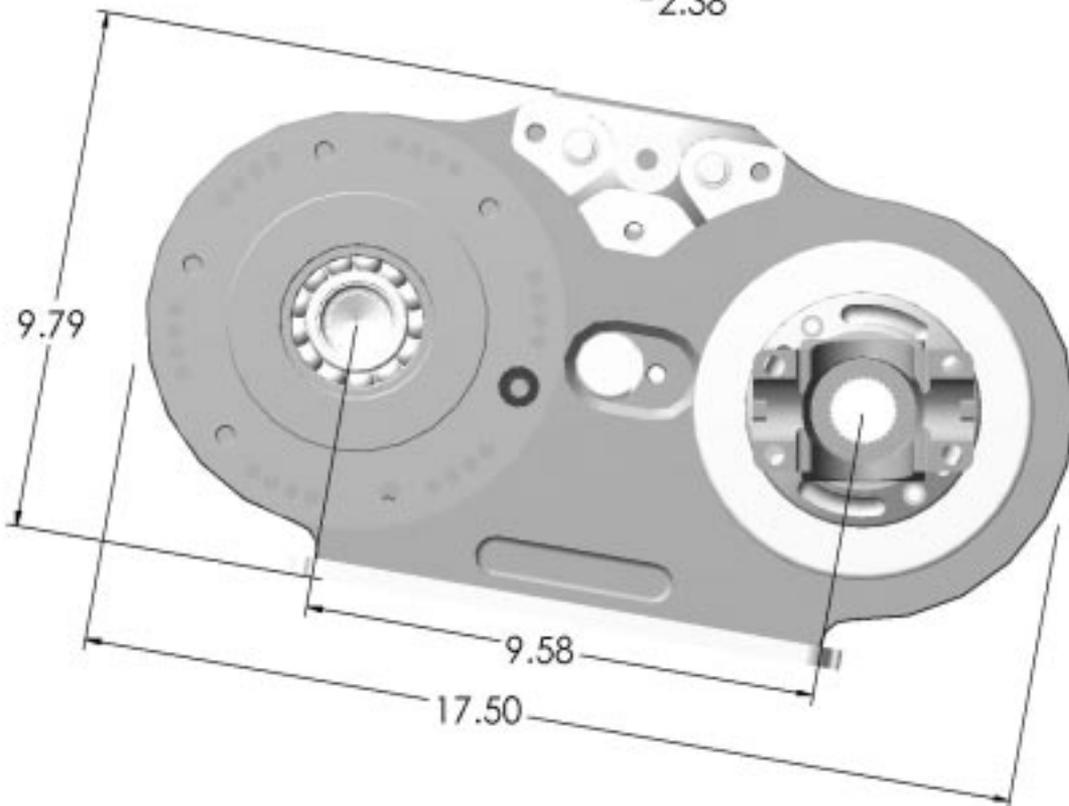
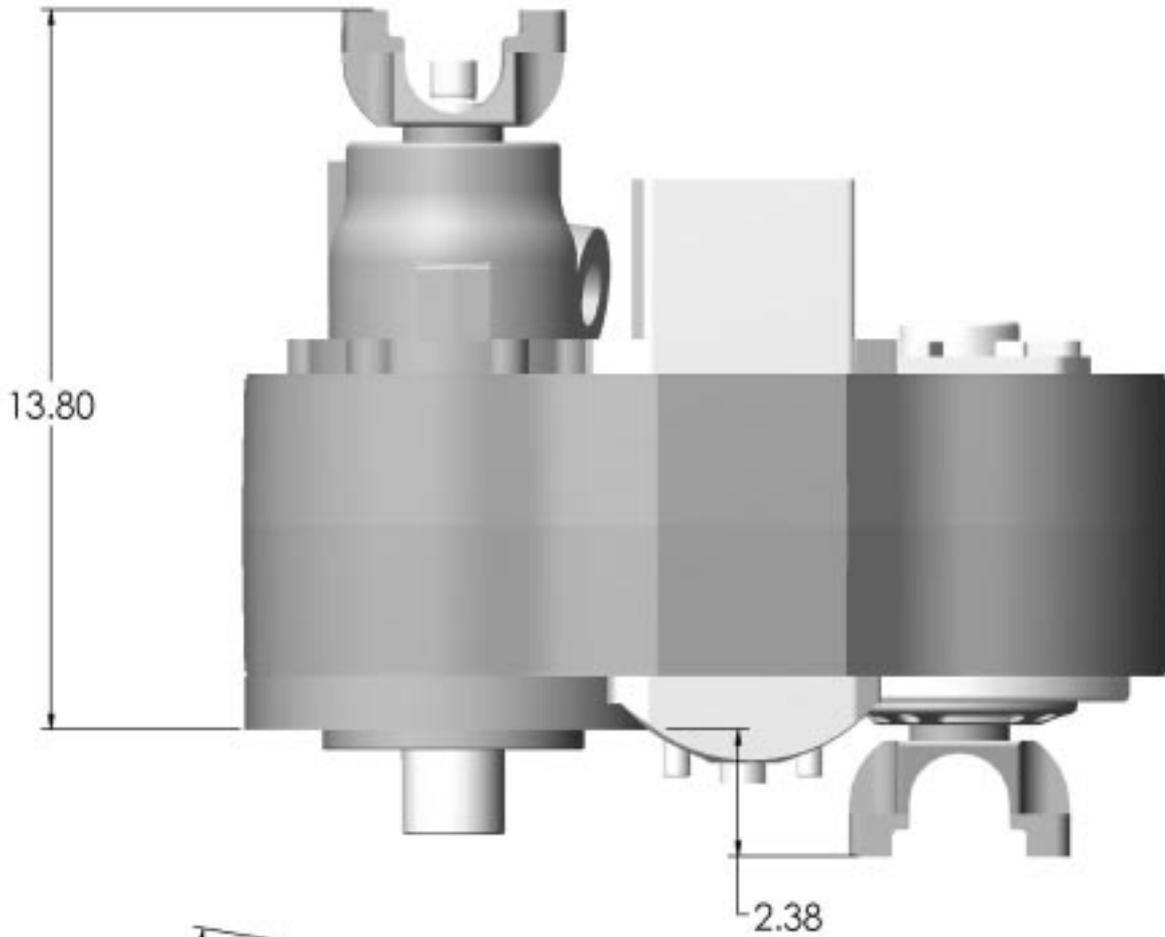
### **QUESTION: Can I change my Atlas gears to a higher or lower ratio?**

**Answer:** This option is available; however, the parts & labor necessary may not be cost effective. New gears would be required. Items such as bearings, seals, and gaskets would need to be replaced. And shipping and labor costs would also apply. We can quote you on the cost of an upgrade, or the other recommendation we could offer is that you sell your current Atlas and purchase a new one with the desired ratio.

### **QUESTION: How long has the Atlas been around and how many miles have you heard put on a unit?**

**Answer:** The Atlas has been in production since 1996, so it has quite a number of proven years on the market. We've heard of several customers who have well over 100,000 miles on their units and still going strong.

# Atlas 2 SPEED Dimensions



46 The Atlas measures approximately 14" from the center of the input to the outside edge of the main case.  
aTLAS 2 sPEED dIMENSIONS

# Atlas 4 SPEED Dimensions

