

# Mag-Hytec

4/1/06

## Installation Recommendations

### **Dodge 12-9.25**

Please read entirely before installing this new differential cover

#### **TOOLS REQUIRED**

1/2 socket wrench and driver (for removing the old cover)  
1/4 allen bit with a 3/8 ratchet drive (1/4 allen key is furnished)  
3/16 allen bit with a 3/8 ratchet drive (3/16 allen key is furnished)  
3/8 drive torque wrench  
Gasket scraper  
Smooth flat file by 8 to 12 in. long  
Oil drain pan (minimum 8 Qt. capacity)  
New gear lube API Spec. GL-5, MT -1 ("**LE**" 607 for severe service and extreme HD applications and temperatures of -20 to 230 deg. F). ("**LE** 992075-140 Synthetic" for warranty reasons and extreme low and high temperatures of -50 to 280 deg. F). The Stuart Friction Modifier bottled by Torco Co. (for "limited slip" differentials only) 4 oz. per 3 qts. of gear oil. The "**LE**" Gear Oil and the **Friction Modifier** can be purchased at **Mag-Hytec**.

#### **PARTS CONTENT**

<u>Number</u>	<u>Quantity</u>	<u>Item</u>
1.	1	Mag-Hytec Differential cover with <u>O-ring ARP 568-275</u> (installed)
2.	12	5/16-18 stainless allen cap screws ( <b>Torque 16 ft. lbs.</b> )
3.	14	5/16 stainless AN washers
4.	1	Drain plug assembly with magnet and <u>O-ring ARP 568-910</u> (installed)
5.	1	Dipstick assembly with magnet and <u>O-ring ARP 568-910</u> (installed)
6.	1	Oil level reference plug with <u>O-ring ARP 586-904</u> (installed)
7.	1	1/8 pipe plug (for optional temperature sender not included) Dipstick, Drain plug, Reference plug and 1/8 pipe plug ( <b>Torque to 30 in. lbs</b> )

#### **A word of caution to the installer / vehicle owner:**

The **Mag-Hytec** cover is designed to fit the factory Dodge axles as supplied as original equipment. However, in some applications, or because of the use of certain factory options and/or after market equipment, there may be clearance problems between your **Mag-Hytec** cover and other vehicle systems (specifically some rear sway bars). It may be necessary to install spacers or shims to lower the sway bar. It is the responsibility of the vehicle owner/cover installer to ensure that no other vehicle component comes in contact with the **Mag-Hytec** cover. **Contact with any vehicle component, or the making of any modification to the Mag-Hytec cover, automatically voids the warranty. Mag-Hytec assumes no liability, expressed or implied, for damage or injury to persons or property.**

## DODGE 12-9.25

### Installation:

Note: For some installations, removing the spare tire may provide better access to the work area. However, it is not necessary in every case. The installer should determine if there is adequate work space prior to starting the installation.

1. Park your vehicle on level ground and apply the parking brake.
2. Position a drain pan under the differential to catch the old gear lube.
3. Remove the 12 existing bolts, starting at the bottom.
4. Using a gasket scraper, start at the bottom of the cover and carefully (so as not to gouge the housing metal) insert between the existing cover and -gear-housing and pry the old cover off.
5. Allow all of the old gear lube to drain.
6. Using a gasket scraper, carefully remove all of the old gasket material (dried silicone) from the housing.
7. Use clean lint free rags to wipe down the remaining oil from inside the housing and to clean the housing gasket surface. The surface must be clean and flat for the **Mag-Hytec's** O-ring to seal.
8. Before installing the new **Mag-Hytec** cover, check the gasket matting surface on the differential housing for dents, irregularities, or gouges. Should any exist, carefully remove the high spots using a smooth flat file. **BE CAREFUL NOT TO "ROUND OFF" THE FLAT GASKET SURFACE.**
9. Using gear lube, apply a thin layer of oil to the Mag-Hytec cover O-ring.
10. Position the cover by aligning the bolt holes and start one of the new stainless steel allen cap screws and stainless steel washers at the top bolt hole and continue around the bolt pattern until all 12 bolts and washers are installed "finger tight."
11. Using a 1/4 hex bit and 3/8 drive torque wrench, torque the stainless allen cap screws to **(16 ft. lbs.)** in a "cross tight" pattern.
12. **Check** the drain plug, oil reference plug, and 1/8 pipe plug for tightness. If you are going to install a temperature sender, do so at this time. Remove the 1/8 pipe plug and install the sender in its place. **Be Sure To Use LPS All Purpose Anti-Seize or equal On The Sender's Pipe Threads. "TIGHTEN" all three: DRAIN PLUG, OIL REFERENCE PLUG and 1/8 PIPE PLUG TO (30 in. lbs) DO NOT OVER TIGHTEN.**
13. Remove the dipstick assembly and add in the new gear lube. Your new cover will take approximately 5 qts. to fill (bottom of axle) for the **Dodge 12-9.25**. There are two marks on your dipstick. The bottom mark represents the minimum fill line and the top mark is the maximum fill line. **YOUR OIL LEVEL SHOULD BE BETWEEN THESE LINES.** Note.: when checking the oil level, remember to thread the dipstick-assembly in by hand until it is snug against the O-ring. Remove the dipstick assembly and check the level. If the oil level is at the full line, apply a thin film of oil to the dipstick assembly O-ring and reinstall. Tighten snugly to **(30 in. lbs)**. **DO NOT OVER TIGHTEN THE ASSEMBLY.** Drive at least 25 miles and check oil level. If you have a special application vehicle, or your vehicle has been modified or "lifted" and the axle has been rotated, you will have to establish the correct oil level for your vehicle as the dipstick marks as supplied by **Mag-Hytec** will not apply. **The high oil level is the top line on the Dipstick (The bottom of the axle). The low oil level is the bottom line on the dipstick (the bottom inside of the axle tube).** Once you have established the correct level, scribe a reference line on your dipstick for future reference and fill the differential.
14. If you have a "limited slip "differential, be sure to add the appropriate amount of friction modifier. We have had excellent results with the Stuart Friction Modifier product sold under many private labels can be purchased at Dodge, Ford or **Mag-Hytec** and it is compatible with the "LE" and Amsoil gear lubes. One 4 oz. bottle per 3 qt's. of gear oil (**TWO 4 OZ. CONTAINERS SHOULD PROVIDE THE DESIRED RESULTS**).

## DODGE 12-9.25

### Maintenance:

The **Mag-Hytec** cover is constructed of high quality aircraft aluminum and has a powder-coated finish. The bolts and washers are stainless steel. These components require no maintenance.

From time to time you may wish to check the oil level and monitor the wear in your differential. With the **Mag-Hytec** cover, this can easily be accomplished by removing the dipstick assembly using a 1/4 allen wrench. You will probably notice some "fuzzy" metallic particles on the magnetic end of the dipstick. This is normal wear. Wipe the dipstick clean and reinstall **by hand** until it bottoms out on the O-ring. Remove the dipstick and check the oil level. If the level is between the high and low marks on the dipstick, apply a thin film of oil on the dipstick assembly O-ring and reinstall the assembly snugly. **(30 in. lbs) DO NOT OVER TIGHTEN.**

We suggest you follow the manufacturer's recommendations for the gear lube drain intervals. You may change your gear lube without removing the **Mag-Hytec** cover. Park your vehicle on level ground with the parking brake applied. Position a drain pan under the drain plug located at the bottom of the pan, and remove the drain plug assembly. You may notice "fuzzy" metallic particles on the magnetic drain plug. This is normal wear. (If you notice any larger chips of metal on the magnetic portion of the plug, further inspection should be performed. We suggest that this inspection be performed by a professional mechanic who specializes in drive train components.) Remember to clean the drain plug assembly prior to reinstallation. Apply a thin layer of oil to the drain plug O- ring and reinstall.

**(30 in. lbs) DO NOT OVER TIGHTEN.** Follow the procedure for filling the differential.

Should it become necessary to remove your Mag-Hytec cover for any reason, the Mag-Hytec cover O-ring may be reused. **DO NOT USE ANYTHING TO "PRY" THE COVER FROM THE DIFFERENTIAL HOUSING. THIS WILL DAMAGE THE O-RING.** If you have damaged the O-ring, you may obtain a replacement by calling 818-786-8325. If you need to reinstall the cover and no O-ring is available, you may run a bead of RTV silicone or use a gasket on the **Mag-Hytec's** matting surface face and reinstall the cover in the conventional manner.

During your vehicle's use, you may come in contact with water above the axle seals or above the axle breather. You should inspect your gear lubricant at the earliest opportunity. Do so by following the oil level check procedure. If water is detected, follow the drain procedure and refill your differential following the fill procedure.

We at **Mag-Hytec** invite your comments and suggestions. We are continually looking for better ways to provide the highest level of products and service for our customers. You may submit your comments and suggestions by writing or calling our office at:

### **Mag-Hytec**

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(818) 786-8325  
[www.Mag-Hytec.com](http://www.Mag-Hytec.com).

# NOTICE

## For All Dana Covers

### And can be used for, Pre Installation Instruction for other Differentials, and Trans cases

As you remove your existing factory-supplied, stamped steel, cover or pan, you may notice that the Dana differential casting has a 5116 letter stamped in the gasket area. This stamping can be any letter, and is found on both left and right sides of the differential casting. In some instances, there may also be a number of digits stamped at the bottom or top of the case.

These stamped letters and numbers are factory markings that are applied by hand. Some stampings are deeper than others. If the Mag-Hytec cover's O-ring goes across a deeply stamped letter, the cover could potentially weep oil.

To check for a potential leak, you should do a quick visual examination of the Mag-Hytec O-ring to the differential housing fit. As an additional check, you may wish to try the "grease test." To do so, use the cardboard flat that is enclosed. Using the Mag-Hytec cover, place the cover on the cardboard flat and trace around the cover with a marker. On the inside of the marker line, take your grease gun and shoot about six to eight shots of grease around the inside of the line. Smooth the grease out so that there is a thin film of grease in the area of the O-ring. Set the cover down on the grease and move it in a small circular motion two or three times. Use two pins or use a short piece of threaded stock and slip or screw in the threaded holes on the left and right side of the case. This is to locate cover in the right place. Press the cover to the differential case and move side to side and up and down. Take it off and you will have the path of the O-ring. If the O-ring goes over a letter, number, or flaw, we suggest you do one of two things:

1. **Recommended:** Use a metal-epoxy (trade name, J.B. Weld) sold in most hardware stores. Mix it per the instructions and apply it so that there is a slight build up in the area of the flaw. Let it dry overnight, then file smooth. You are now ready to install the cover.
2. **Alternative:** If you are in a hurry, use Permatex Ultra Black R1V. Put a very thin film over the flaw. Then install the cover.

#### PS

We have found some differential cases that were machined off center of the case and the holes were very close to the inside edge of the case on one side. If you have a case like this, it is impossible for the O-ring to seal.

**S0 in that area only use a thin coat of RTV gasket sealer.**