



**Installation Manual v1.0:  
Sterling 12 Bolt 10.25 & 10.5 ATS Protector Differential Cover  
Ford 1986-2007 F250, F350, E250, E350 w/ Single Rear Wheel, 2x4 & 4x4  
Applications**

**Please read all instructions before installation.**

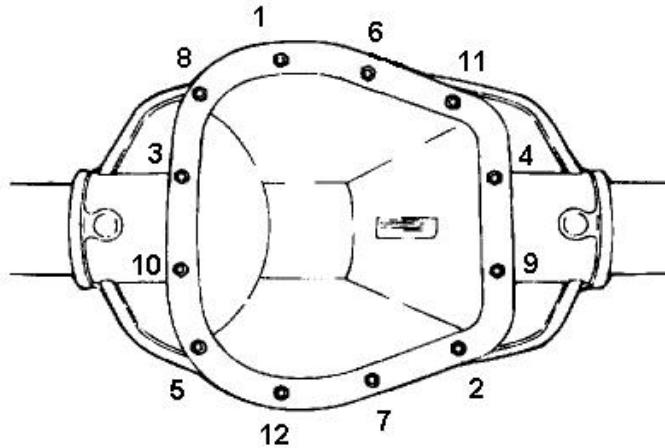
**For some installations, removing the spare tire may provide better access to the work area. It is not necessary in every case. The installer should determine if there is adequate workspace prior to starting the installation.**



**Figure 1: Sterling 10.25 & 10.5 ATS Protector Differential Cover Kit**

1. Please make sure no parts are missing out of the ATS Protector Differential Cover kit. A complete corresponding list of parts can be found on page 6. The bag pictured contains all hardware necessary for installation.
2. Park vehicle on level ground and apply the parking brake.
3. Position drain pan under differential cover to catch old gear oil.

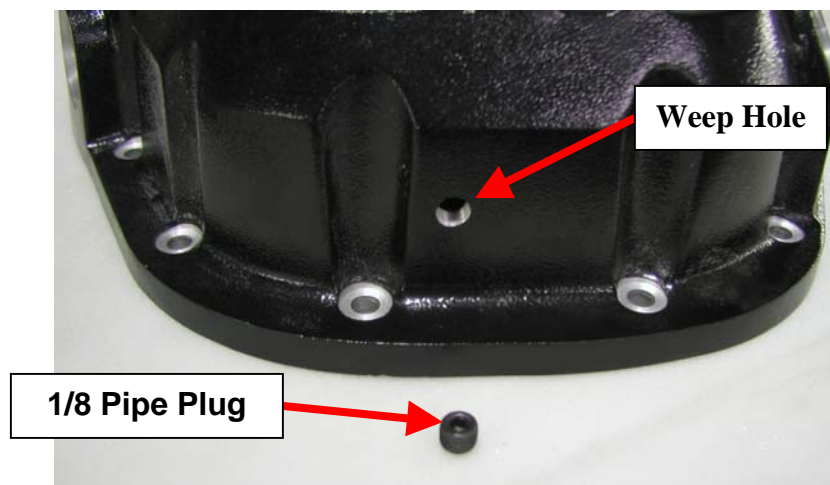
4. Remove 11 out of 12 existing bolts, starting at bottom of differential cover. Loosen the remaining bolt 3-4 threads. This will keep differential cover from falling into gear oil.
5. Using a gasket scraper, start at bottom of factory differential cover and carefully (so as not to gouge differential housing metal) insert between existing cover and differential housing and pry factory cover off differential.
6. Allow gear oil to drain. Inspect for debris (as metal in the oil is an early sign of potential failure within differential). Remove last bolt and cover.
7. Using a gasket scraper, carefully remove remaining gasket material from differential housing.
8. Before installing new ATS Protector cover, check machined gasket surface on differential housing for dents, irregularities, or gouges. Should any exist, carefully remove high spots using a smooth flat file. **Take care not to round off flat gasket surface.**
9. Align new gasket with holes on ATS Protector differential cover and place a stainless allen cap screw through a top hole on both differential cover and gasket.
10. Position cover on housing by aligning bolt holes and start threading stainless steel allen cap screw into top bolt hole and continue around bolt pattern until all 12 bolts are installed finger tight.
11. Using a hex bit and 3/8 drive torque wrench, torque cap screws to **22 ft-lbs** in a cross tight pattern as shown in *Figure 2*.



**Torque cap screws to 22 ft-lbs**

**Figure 2: Cross Tight Pattern and Torque Specifications**

12. Check drain plug for tightness. If loose, torque drain plug to **15 ft-lbs**.
13. Remove fill plug from top of differential cover and 1/8 pipe plug from weep hole if installed. Fill differential through fill plug hole at top of ATS Protector differential cover. Fill differential until gear oil begins to leak out of weep hole. If no weep hole is present, add 7 quarts of gear oil. If vehicle is equipped with a limited slip differential, add 6.75 quarts of gear oil. Use SAE 75W-90 gear oil.



**Figure 3: Weep Hole and 1/8 Pipe Plug**

14. If vehicle is equipped with a limited slip differential, add appropriate amount and correct type of friction modifier. Stuart Friction Modifier is a

good choice and is available under many other private labels. It is available at both Dodge and Ford dealerships and is compatible with LE and Amzoil gear lubes. One 4oz bottle per 3 quarts of gear oil. Two 4oz containers typically are enough.

15. If you plan to install a temperature sender, do so at this time and set aside the 1/8 pipe plug. If not, install pipe plug in side of ATS Protector differential cover. Be sure to use LPS all-purpose anti-seize or equivalent on the pipe threads. Torque 1/8 pipe plug and fill plug to **15 ft-lbs** or until snug.
16. Pour used gear oil into approved container and dispose of fluid at appropriate recycling facility or participating local parts store.

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

The ATS Protector differential cover is designed to fit the factory Ford Sterling axles as supplied as original equipment. However, in some applications, or because of the use of certain factory options and/or aftermarket equipment, clearance problems can occur between the ATS Protector differential 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 no other vehicle component comes in contact with the ATS Protector differential cover.

**Contact with any vehicle component, or the making of any modifications to the ATS Protector differential cover, automatically voids the warranty. ATS Diesel Performance assumes no liability, expressed or implied, for damage or injury to persons or property. Additionally, if incorrect amount of fluid is added to differential subsequently resulting in failure, ATS Diesel Performance cannot be held liable for damages.**

## **Bill of Materials**

1. ATS Protector Differential Cover 3068-402-100
2. Gasket (CarQuest p/n P38155TC)
3. Hardware Bag
  - (12) Stainless Steel Cap Screws (5/16-18 x 7/8)
  - (12) 5/16 Washers (not pictured)
  - (1) 1/8 Pipe Plug
4. Fill Plug
  - (1) Fill Plug
  - (1) O-Ring
5. Magnetic Drain Plug
  - (1) Drain Plug
  - (1) O-Ring

Not Pictured:

6. Instruction Manual 3068-402-900 – INST