

HOW TO PORT AND POLISH THE THROTTLE BODY ON YOUR 1996-1998 3800 SERIES II CAMARO OR FIREBIRD ENGINE

INTRODUCTION

The following instructions explain how to port and polish the throttle body on your 1996-1998 3800 Series II Camaro or Firebird engine. These instructions are for Camaro or Firebird owners with mild mechanical ability.

DESCRIPTION

The throttle body is the inlet into the engine; it controls the throttle, the idle speed of the car, and lets air into the engine. The stock throttle body of 1996-1998 3800 Series II Camaro or Firebird engines is very restrictive, with a large pillar in the center of the airflow. You can gain approximately five lb/min of airflow by removing this center post. Added airflow means more power, you can expect an increase of approximately 10 horsepower (HP) and 10 foot-pounds (ft-lbs) of torque at the flywheel from this modification.

MATERIALS REQUIRED

- 3/8" Electric Drill
- Dremel Electric Hobby Tool & Buffing Attachments
- Snap Ring Pliers
- Hacksaw
- Phillips Head Screwdriver
- 3/8" Collet Grinding Stones
- Sandpaper (220-Grit & 400-Grit)
- Tripoli Metal Polishing Compound
- Spray Lubricant (ex. WD-40)
- Carburetor Cleaner

-DANGER-

THE THROTTLE BODY IS A CRUCIAL PART OF THE ENGINE. MANY ELECTRONIC SENSORS ARE LOCATED IN THIS PART OF THE ENGINE, INCLUDING THE MASS AIR FLOW SENSOR AND THROTTLE POSITION SENSOR. ANY MODIFICATIONS TO THIS AREA MUST BE TAKEN VERY SERIOUSLY TO NOT AFFECT THE PERFORMANCE OF YOUR ENGINE. IF DONE INCORRECTLY, THIS MODIFICATION COULD CAUSE YOUR CAR TO RUN INCORRECTLY OR POSSIBLY DAMAGE YOU ENGINE. THESE INSTRUCTIONS ARE ONLY INTENDED TO BE USED AS A GUIDE AND SHOULD BE CARRIED OUT AT YOUR OWN RISK.

INSTRUCTIONS

SECTION 1: DISASSEMBLY

1. Remove the snap ring retaining the mass airflow (MAF) screen with the snap ring pliers. **GENTLY** remove the MAF screen from the throttle body. Be careful not to damage the screen. Reference figure 1.
2. Remove the two retaining bolts on the MAF sensor on the of the throttle body. Reference figure 1.
3. **GENTLY** remove the MAF sensor. Be extremely careful when handling the MAF sensor; this unit is very delicate.
4. Remove the two retaining screws on the butterfly valve with the Phillips head screwdriver. Reference figure 2.
5. Turn the throttle assembly to the full open position so that the butterfly valve is fully horizontal. Hold it open.
6. Remove the butterfly valve by pulling straight out on the disk. It should slide out easily, if it sticks, use some of the lubricant on the valve and try again. Clean the valve with some carburetor cleaner.
7. Remove the two retaining screws on the center post retaining the brass plate. Discard the brass plate. Reference figure 2.

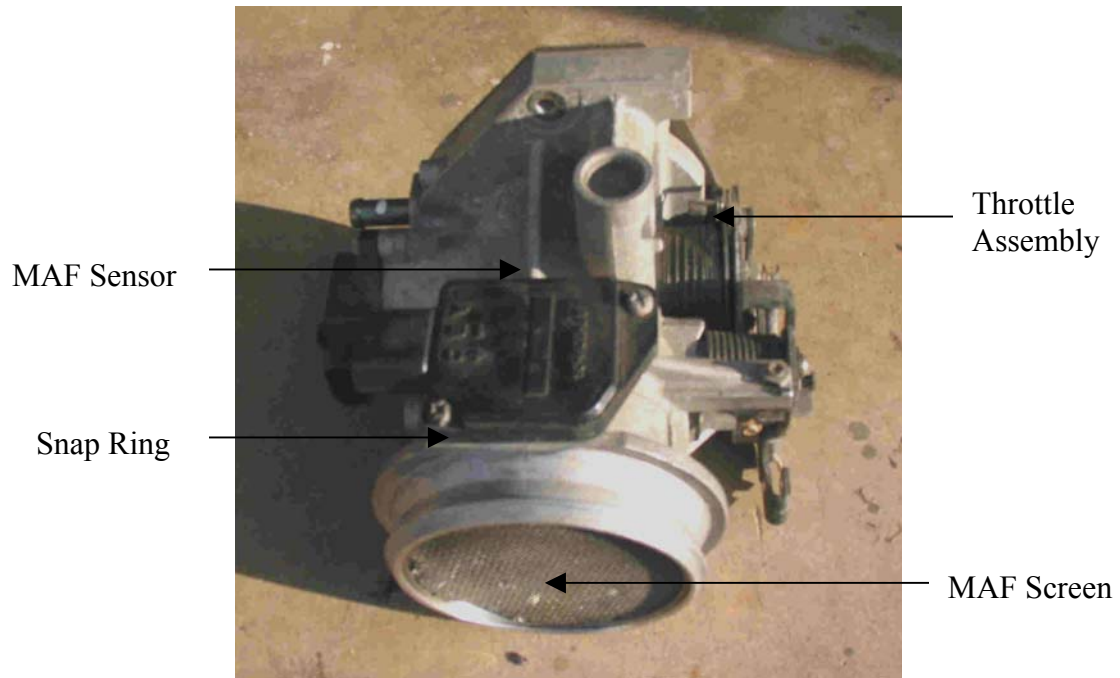


Figure 1: Exterior of Throttle Body

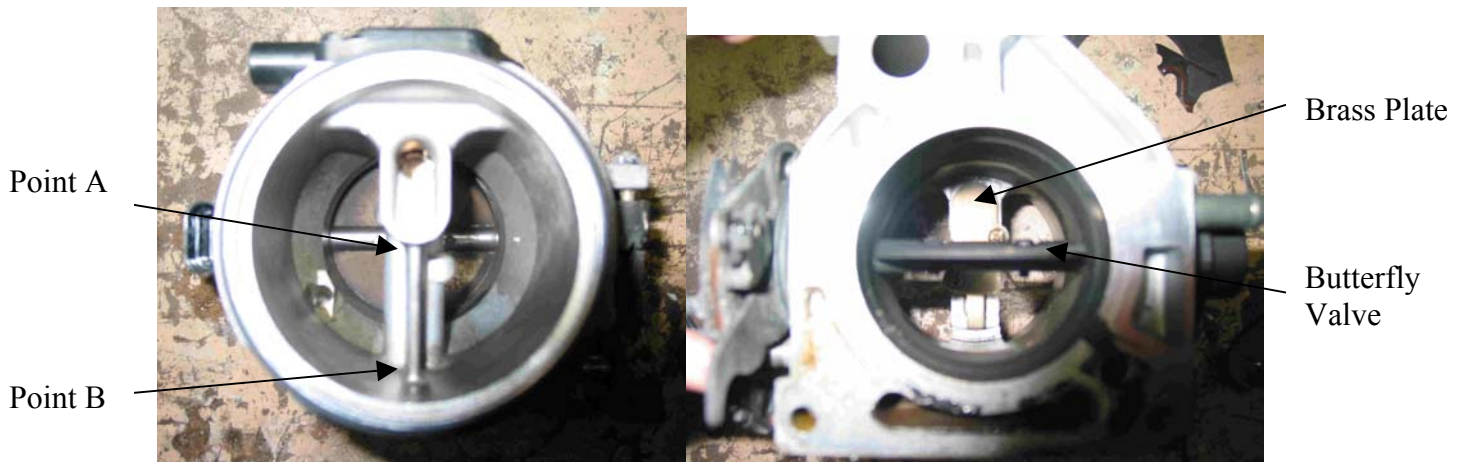


Figure 2: Interior of Throttle Body before Porting and Polishing

SECTION 2: REMOVING THE BOTTOM OF THE CENTER POST

1. Use the hacksaw and saw through the post at Point A and Point B in figure 2. Using lubricant on the blade of the hacksaw will help in this step.
2. Use the 3/8" electric drill and the grinding stones to smooth out the edges of the cuts you made in step one. The edges should not contain any sharp edges, but be slightly rough to the touch.
3. Use the 220-grit sandpaper and sand down the areas addressed in step two. After sanding with the 220-grit sandpaper, continue sanding with the 400-grit until the areas are smooth to the touch.
4. Your finished product should look similar to figure 3 without a mirror shine.

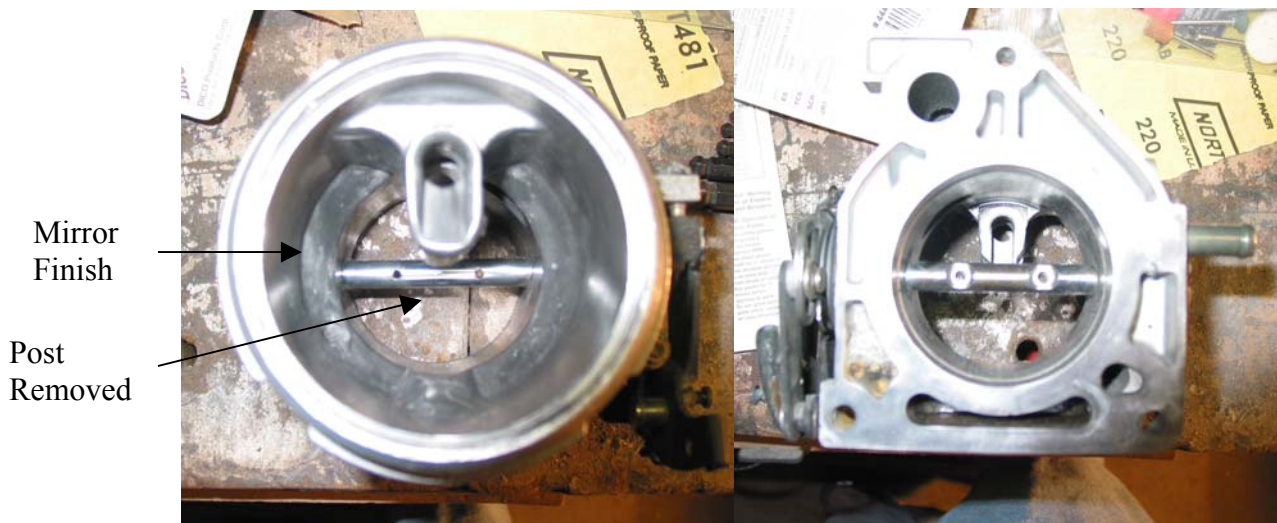


Figure 3: Interior of Throttle Body after Porting and Polishing

SECTION 3: POLISHING THE INSIDE OF THE THROTTLE BODY

1. Attach a small buffing wheel to the Dremel electric hobby tool.
2. Apply a small amount of the Tripoli metal polishing compound to the buffing wheel.
3. Use the buffing wheel to buff the entire interior of the throttle body to a mirror finish, reapply more compound whenever necessary.

SECTION 4: REASSEMBLY

1. To reassemble the throttle body, reverse steps 1 thru 6 of section 1.