SATURN®

2001 Coupe

New Product
Participant Guide

S0320109

Table of Contents

Section 1

Introduction

2001 Coupe New Product Participant Guide

Course Purpose

The 2001 S-Series Coupe New Product Participant Guide was published to provide you with 2001 S-Series Coupe vehicle product information, service procedures, and service parts changes. We encourage the service technicians at your Retail facility to view the enclosed *2001 Coupe New Product Video*. This guide was designed to supplement the material covered in the video. It is recommended that you use it to take notes while you watch the video.

To receive credit for reviewing the video and guide, you will need to complete the 2001 Coupe New Product Skills Test located in Section 7 of this guide. To register your answers, Call 1-800-828-2112 and enter prompt 1 for Technical Assistance. If you complete the 2001 Coupe New Product Skills Test within the specified time frame, you will receive a tool box plaque and certificate.

IMPORTANT: You must be registered as an ACTIVE SVTC Technician for your facility as of January 1, 2000 in order for the system to recognize and give you credit for this program. Here are the instructions on how to phone in your answers:

- Call the Saturn Retail Assistance Center at 1-800-828-2112.
- After the automated system answers, Press 1, which will connect you to the Saturn Technical Assistance Center.
- The system will welcome you and then prompt you to enter your five digit Retail Code and Social Security Number.
- From the choices offered, Press 9 – this will connect you to the 2001 Coupe Training Program. The system will now prompt you on how to enter your responses.
- After you have entered all of your responses the first time, the system will ask you to verify your answers. You must complete this verification step in order for the system to accept your answers.

NOTE: The phone-in system will be available to accept your responses from February 7, 2000 through April 7, 2000. To receive credit, responses must be phoned in during this time frame. The answers to these questions will be available by calling back into the phone system, using the same series of prompts, after April 7, 2000. The answers will remain available until April 14, 2000.

Course Structure

The course content will cover new components, theory of operation, and service procedures. The course content is provided below:

Exterior Panels

- New Service Procedure for Removing and Replacing Exterior Panels

Vehicle Headlamp Aiming Device or (VHAD)

Wiper System

- New Wiper System Components
- Wiper Arm Puller Tool
- Electrical Diagnostics

Secondary Air Injection System

- System Components
- System Operation
- System Diagnostic

Transaxle Information

- Transaxle Fluid
- Automatic Transaxle Torque Converter Housings

Training Objectives

At the end of this module, you will be able to:

- Identify new components for 2001 S-Series Coupe.
- Identify new diagnostic procedures for 2001 S-Series Coupe.
- Identify new service and replacement procedures for 2001 S-Series Coupe.

NOTES:

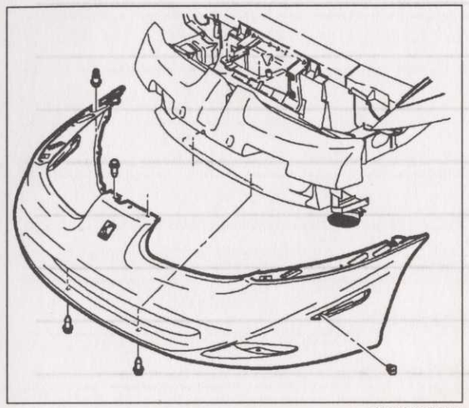
Section 2

Exterior Panels

2001 Coupe New Product Participant Guide

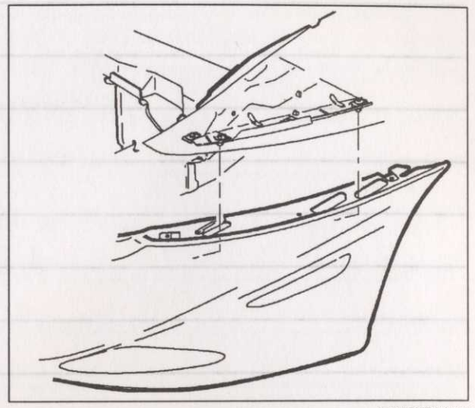
Notes:

Front Fascia



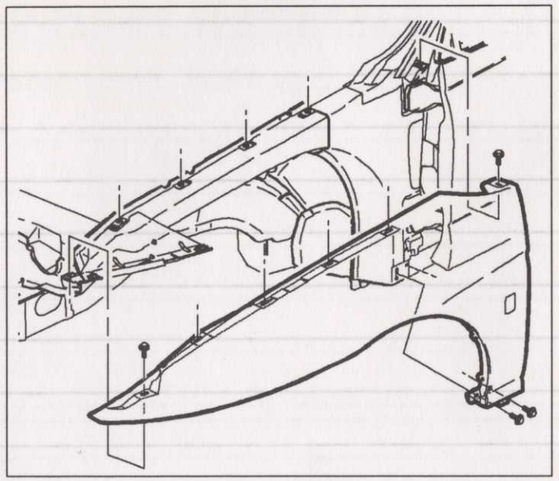
SMGEP65375AD1

Front Fascia Installation



SMGEP67291AC1

Fender Installation



SMGEP65377AC1

The Saturn Coupe has evolved a step further for 2001. Most of the exterior panels have been redesigned to make the profile appear more aerodynamically aggressive. The front fascia and hood have a totally new look that emphasizes the new highly styled headlamp assemblies. The body side panels have had a significant change, which now nicely blends side characteristics into the all-new integrated rear spoiler.

While these new features result in a significant visual impact, these changes really have a minimum impact to the servicing of the vehicle.

The redesigned hood is more robust in design and no longer requires the anti-flutter bumpers.

Front Fascia

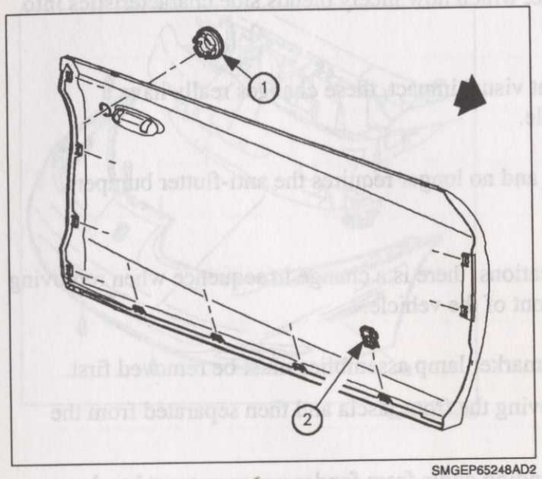
Due to changes in component and fastener locations, there is a change in sequence when removing and replacing various components from the front of the vehicle.

1. Before removing the front fascia, the side marker lamp assemblies must be removed first.
2. The fog lamps are left in place while removing the front fascia and then separated from the assembly after it is off of the vehicle.
3. Install fascia ends over shoulder bolts extending down from fender upper support bracket assembly. Holes in fascia are slotted to allow for installation without removing bolts.

Front Fender

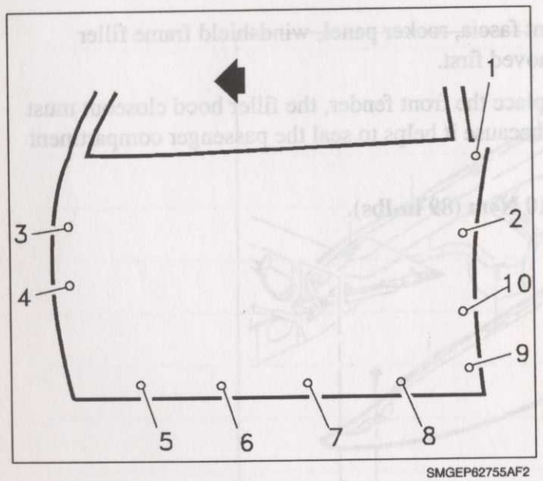
1. Front fender removal requires that the front fascia, rocker panel, windshield frame filler panel, and headlamp assemblies to be removed first.
2. It is important to note that anytime you replace the front fender, the filler hood closeout must be replaced. This is a “one time use” part because it helps to seal the passenger compartment from moisture and fumes.
3. The panel fasteners should be torqued to **10 N•m (89 in-lbs)**.

Door Structure



SMGEP65248AD2

Torque Sequence



SMGEP62755AF2

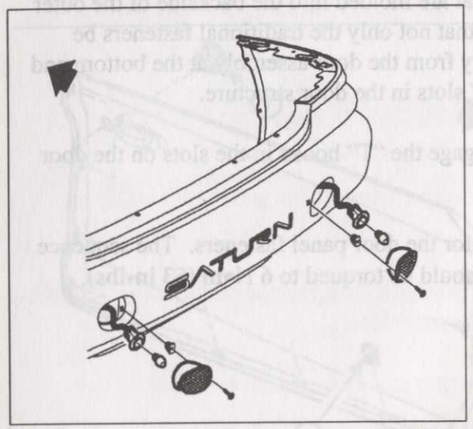
Front Door Outer Panel

The outer door panel is now retained to the door assembly in a new way. The upper portion of the panel is retained to door assembly with "T" hooks that are molded into the backside of the outer door panel. Outer door panel removal now requires that not only the traditional fasteners be removed, but also the panel has to be held out slightly from the door assembly at the bottom and then slid up to disengage the "T" hooks from the "T" slots in the door structure.

When reinstalling the outer door panel, be sure to engage the "T" hooks in the slots on the door structure first before installing any of the fasteners.

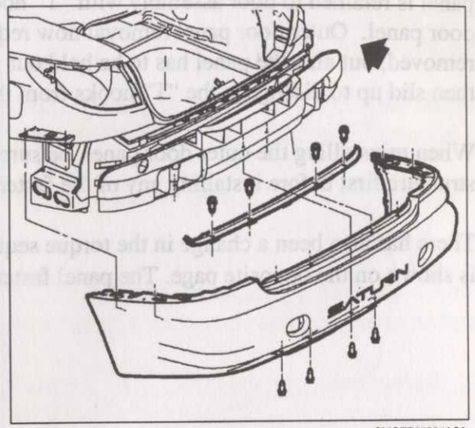
There has also been a change in the torque sequence for the door panel fasteners. The sequence is shown on the opposite page. The panel fasteners should be torqued to **6 N•m (53 in-lbs)**.

Remove Back up Lamps



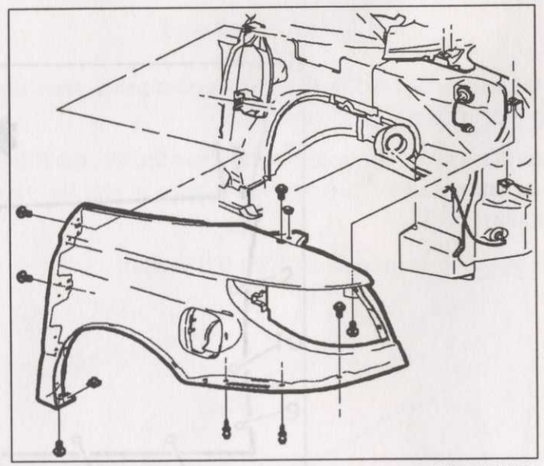
SMGEP83526AA2

Rear Fascia Removal



SMGEP65364AC2

Rear Quarter Panel Removal



SMGEP77112AB2

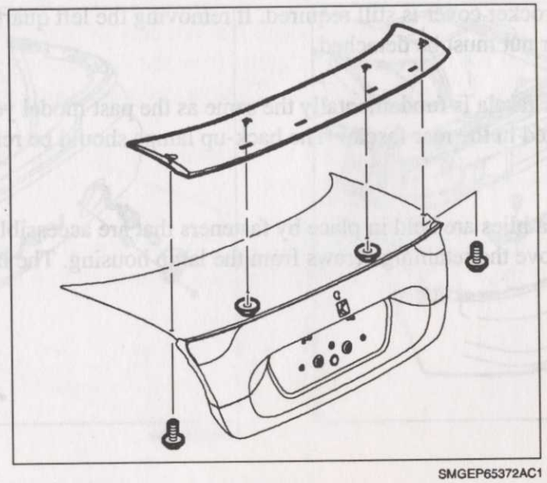
Rear Fascia Removal

For the removal of the rear quarter outer panel, the removal of the rear fascia, tail lamps, wheelhouse liner, and rocker cover is still required. If removing the left quarter panel, filler cap tether and latch retainer nut must be detached.

The removal of the rear fascia is fundamentally the same as the past model year except the back-up lamps are now located in the rear fascia. The back-up lamps should be removed before the rear fascia is removed.

The back-up lamp assemblies are held in place by fasteners that are accessible from the underside of the rear fascia. Remove the retaining screws from the lamp housing. The lamp will then pull out from the fascia.

Spoiler



SMGEP65372AC1

Rear Spoiler

The spoiler is now integrated into the rear compartment lid and blends into the rear quarter panels. All SC1 and SC2 Saturn S-Series Coupes will now have spoilers. Because the spoiler is a continuation of bodyline features, alignments of the trunk lid and spoiler are critical to maintain the visual impact of the styling. Always be aware of the proper gap and flushness of the spoiler to the rear compartment lid.

Notes:

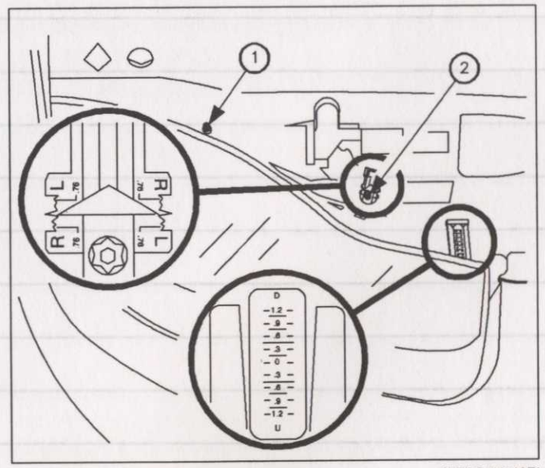
Section 3

Vehicle Headlamp Aiming Device (VHAD)

2001 Coupe New Product Participant Guide

Notes:

Vehicle Headlamp Aiming Device (VHAD)



1. **Horizontal Adjustment**
2. **Vertical Adjustment**

The new design headlamps continue to use the integrated vehicle headlamp aiming device (VHAD). If the customer believes that the headlamps are misaligned, attempt to correct the alignment using this procedure first. If this procedure does not correct the alignment refer to "Screen Method" in the Body / Electrical Volume I Service Manual

To adjust the vertical or horizontal headlamp aim using the VHAD procedure, the vehicle should be situated as follows:

1. Place vehicle on a level surface.
2. Wheels and tires should be on the ground with vehicle positioned at normal ride height.
3. If the vehicle has just been lowered from a lift or other raised position, roll vehicle back and forth to settle the suspension.
4. Fill the vehicle fuel tank. VHAD calibrations account for this weight.
5. Inflate tires to recommended pressure.
6. Check to make sure the spare tire is in the vehicle.
7. Place an approximately 72 kg (160-lb.) occupant or weight in driver seat.
8. Include any other regularly carried cargo in vehicle.
9. And finally, of course, the vehicle must be completely assembled with all components and accessories to ensure the vehicle is at its full weight.

NOTICE: Do not tamper with the bubble level calibration screw. Movement of this screw will destroy basic lamp aim calibration.

IMPORTANT: If adjustment is unattainable, other vehicle components or sheet metal may need to be replaced or repaired.

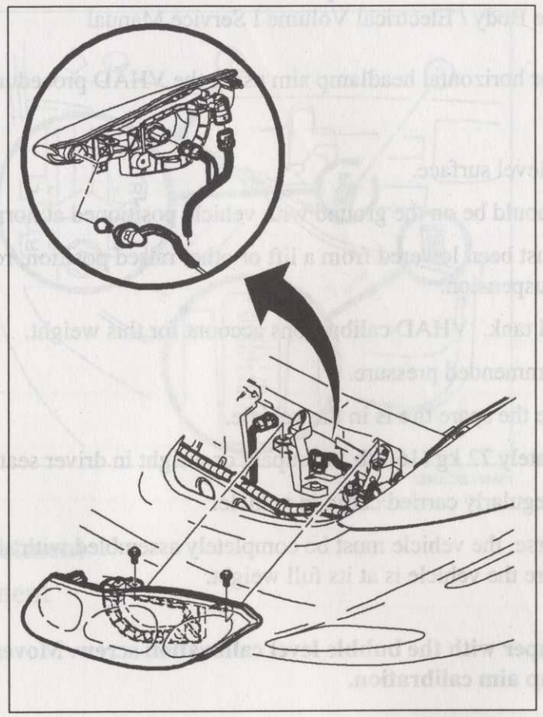
Vertical Aim

All headlamp aiming adjustment screws require an E8 Torx® socket or nut driver. The vertical adjustment screw is the outer screw and is located behind the headlamp assembly. Turn this adjustment until the vertical indicator bubble centers itself at 0°. To accommodate customer preferences, most state inspection requirements will allow a vertical aim deviation of up to .76°, plus or minus, as indicated by the vertical aim scale on the VHAD.

Horizontal Aim

The horizontal adjustment screw is on the end of the headlamp assembly closest to the center of the vehicle. This adjustment does not use a bubble; instead a pointer and scale are used. Adjust the horizontal screw until the pointer is at the 0° mark. Once again, to accommodate customer preferences, most state inspection requirements will allow a horizontal aim deviation of up to .76° left or right.

Headlamp Removal



SMGEP65430AE1

Front Turn Signal Bulb

The headlamp assembly will have to be removed in order to gain access to the front turn signal bulb.

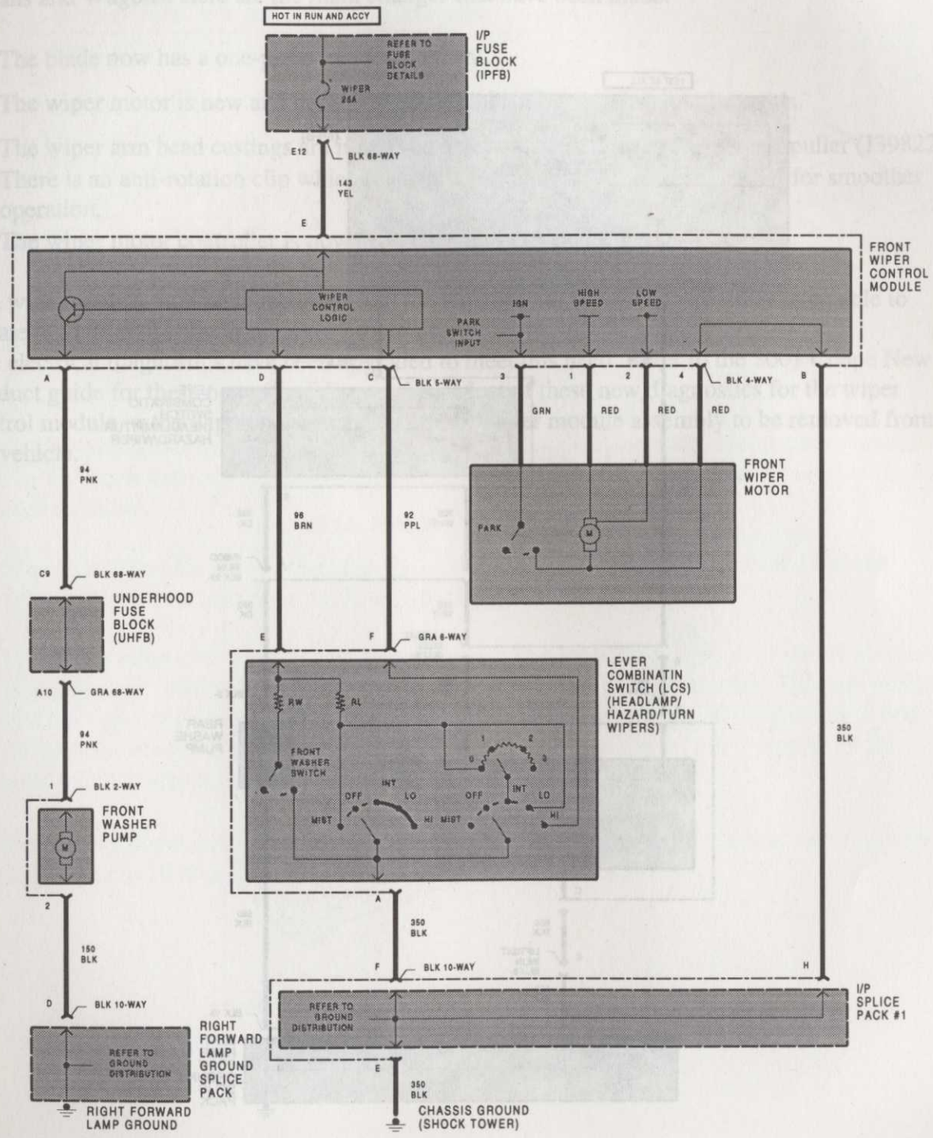
Notes:

Section 4

Wiper/Washer System

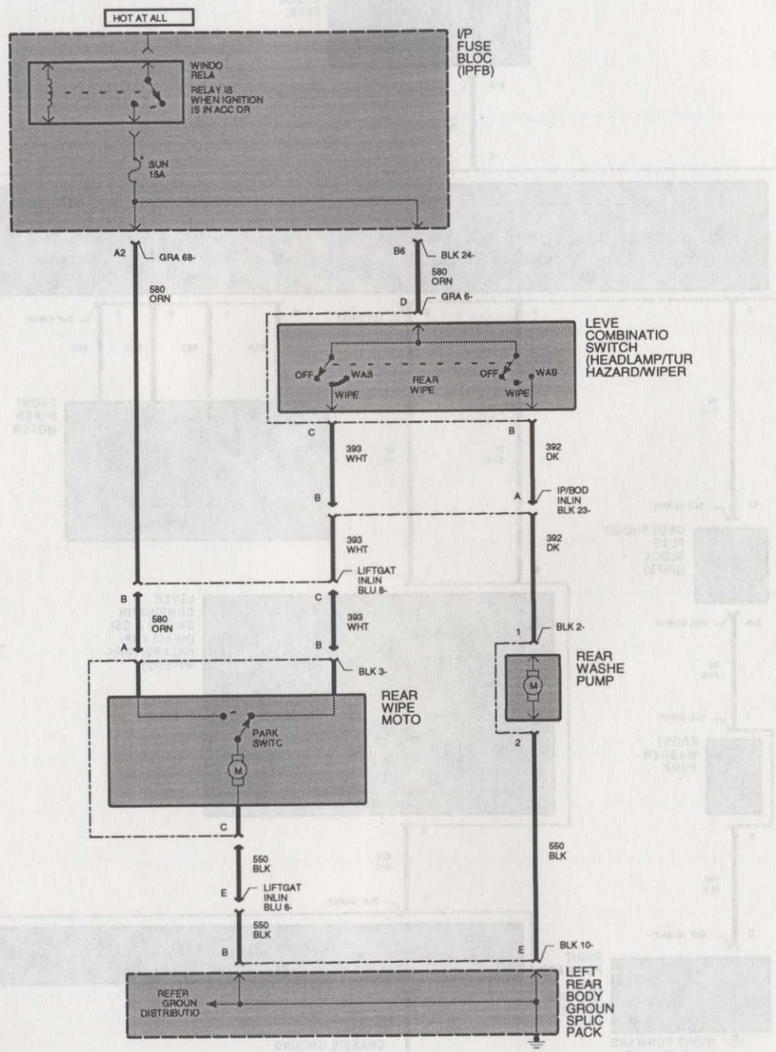
2001 Coupe New Product Participant Guide

Wiper/Washer Schematic - Front



SMELC84491AA1

Wiper/Washer Schematic - Rear



SMELC82079AB

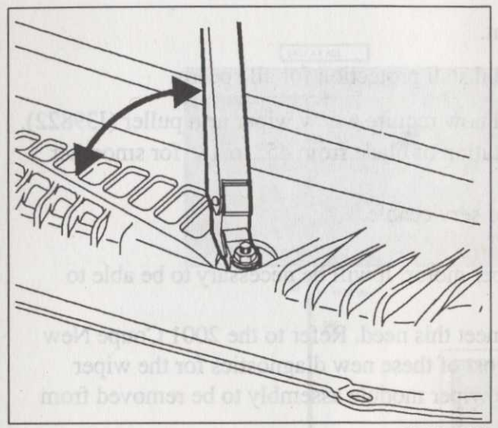
Wiper System

The wiper system has been revised for the 2001 S-Series Coupe and certain 2000 S-Series Sedans and Wagons. Here are the main changes that have been made:

- The blade now has a one-piece molded element.
- The wiper motor is new and has internal thermal stall protection for all speeds.
- The wiper arm head castings are improved and now require a new wiper arm puller (J39822).
- There is an anti-rotation clip which reduces rotation of blade from 45° to 18° for smoother operation.
- The wiper motor controller is now separate and serviceable.

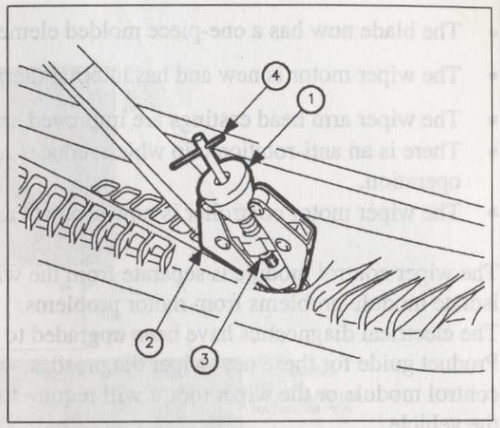
The wiper control module is separate from the wiper motor. It will be necessary to be able to isolate module problems from motor problems.
The electrical diagnostics have been upgraded to meet this need. Refer to the 2001 Coupe New Product guide for these new wiper diagnostics. Most of these new diagnostics for the wiper control module or the wiper motor will require the wiper module assembly to be removed from the vehicle.

Wiper Arm Mid Wipe Position (45°)



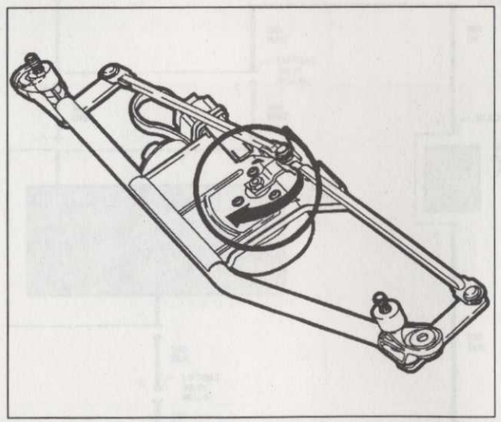
SMVIS84039AA2

Wiper Arm Removal Tool



SMVIS84044AA4

Wiper Motor Crank Arm



SMVIS65694AC2

Wiper Arm Removal

Because of the slightly different shape of the wiper module assembly, the first few steps of the removal process have been revised. Let's cover the changes to this procedure.

1. The wiper arms must be at mid-wipe position (45°), prior to the removal of the wiper arm nuts.
2. Remove the wiper arms using the new wiper arm puller tool (J39822).
   2.1 Place wiper arm puller tool over wiper arm head.
   2.2 Tighten cone nut ① to secure puller jaws ② under wiper arm head.
   2.3 Align screw ③ over wiper arm pivot shaft and tighten T-handle ④ to remove arm.

Front Wiper Module and Motor Assembly Removal and Installation

The steps for removing wiper module assembly are the same as prior model years.

1. As a helpful reminder, the wiper module assembly removal can be aided by positioning the wiper motor crank arm at the 12 o'clock position for removal of the wiper module. To position the motor crank arm, turn in a clockwise direction using a wrench.

NOTICE: The wiper system must be put into the park position with wiper motor crank arm in 9 o'clock before arms are installed. If wiper system is not parked, arms may contact painted surfaces.

2. When installing the wiper arms after the module assembly has been reinstalled into the vehicle; Note: that the driver's side uses the longer blade.

3. Locate the reference "Tick" mark, toward the center, in the lower portion of the windshield blackout strip. Position the blade over the "Tick" mark during installation. This will ensure that the wiper will sweep within the proper area and park correctly. On the passenger side, position the blade assembly at the tick mark located close to the A- pillar portion of the windshield blackout strip.

4. The wiper arm retaining nuts are of the "one time use" type. Always use new wiper arm nuts and torque to **30 N•m (22 ft-lbs)** when installing wiper arms.

Notes:

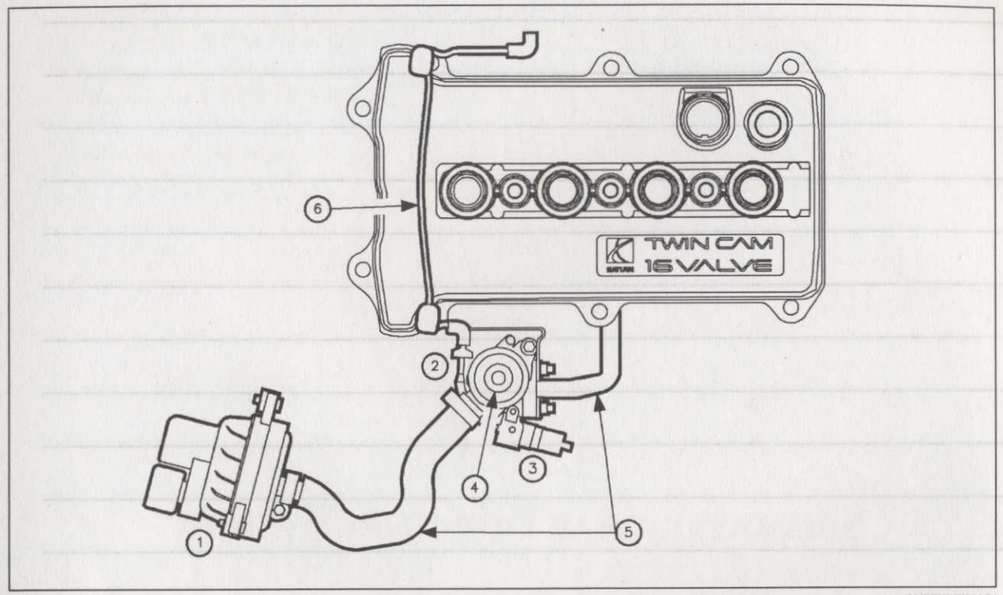
Section 5

Secondary Air Injection System

2001 Coupe New Product Participant Guide

Notes:

Air Injection Reactor (AIR) System



SMPEN76730AC1

An Air Injection Reactor (AIR) system will be standard on all 2001 S-Series vehicles, regardless of the engine option, for all 50 states. This system was first introduced in 1999 on DOHC Low Emission vehicles for California.

For those of you not yet familiar with this system, here is a quick overview:

The AIR system is used to reduce hydrocarbons (HC), carbon monoxide (CO), and oxides of nitrogen (NO_X) exhaust emissions during engine start-up when the catalytic converter is not yet hot. By heating up the catalytic converter quickly, the conversion of exhaust emissions to carbon dioxide (CO_2) water can occur sooner.

The AIR system consists of the following components:

- Electric Air Pump (1)
- Check Valve (2)
- Air Pump Solenoid (3)
- Combination Valve (4)
- Air Pipe and Hose (5)
- Vacuum Hose (6)
- AIR Pump Relay located in the Underhood Fuse Block (UHFB)
- Powertrain Control Module (PCM)

The PCM controls the air pump operation. The air pump will only operate for a maximum of 60 seconds. The PCM will monitor the following inputs to determine air pump system operation.

- Battery Voltage
- Engine Coolant Temperature
- Intake Air Temperature
- Engine RPM
- Manifold Absolute Pressure
- Air Flow

When air is required in the exhaust manifold:

- PCM turns the air pump on by providing the ground for the air pump relay. The air pump relay then closes, providing power to the air pump.
- The PCM directs the airflow to the manifold by providing the ground for the air pump solenoid.
- With the air pump solenoid energized, manifold vacuum is allowed to pass to the combination valve.
- Manifold vacuum opens the combination valve and allows compressed air from the air pump to pass into the exhaust manifold.
- The combination valve is called a combination valve because it also has a reed type check valve which prevents exhaust gas from flowing back into the air pump.

Since the PCM directly controls the operation of the air pump system, it will also monitor the system operation.

IMPORTANT: DTC P0410 will set if the oxygen sensor does not see a lean condition during air pump operation. If DTC P0413, P0414, and P0418 are set, you should diagnose those codes prior to diagnosing DTC P0410.

- DTC P0413, P0414, and P0418 are all electrical operation DTCs for the secondary air system.

As always refer to the appropriate service manual for complete diagnostic information.

IMPORTANT: Be aware that the AIR pump makes a noise similar to that of a handheld hair dryer during the short period of time it operates.

Section 6

Transaxle Information

2001 Coupe New Product participant Guide

Notes:

Transaxle Fluid

Starting with the 2001 S-Series Coupe, a new Saturn transaxle fluid is being introduced.

This new fluid is formulated to improve shift feel and allow the service interval to be increased to 100,000 miles (160934 km) when recommended.

The new part number is 21005856 and supercedes part number 21005966.

This fluid should be used to service all Saturn **S-Series** vehicles.

Here are some other important notes:

- If it is mixed with the previous fluid or with Dexron® III, the maintenance interval and shift feel will be negatively affected.
- At this time, Saturn Service Engineering is not aware of any equivalent substitutes from other suppliers.
- This Saturn ATF **must not be used** in the L-Series vehicle or damage will occur.

The 2001 Coupe maintenance schedule for the transaxle fluid is as follows:

Change fluid and filter every 100,000 miles (160934 km) unless the vehicle is primarily operated under any of the following conditions:

- Hot weather where temperatures regularly reach 32°C (90°F) or higher
- Heavy city traffic
- In hilly or mountainous terrain
- When doing frequent trailer towing
- If used in taxi, police, or delivery service

If any of the above conditions apply, the recommended service interval is every 50,000 miles (80467 km).

IMPORTANT: Saturn recommends new ATF for all S-Series transaxles whether automatic or manual.

Automatic Transaxle Service Parts

SSPO has changed the way automatic transaxle torque converter housings are packaged for service. Formerly, the housings were supplied to service with a few components already installed into the housing. This was true for all models except the newest version where a second design oil pump wear plate was included loose in the box so that the technician could install this plate for those applications where it was required.

Now all torque converters housings will be released for service as kits. All parts associated with the torque converter housing will have to be installed by the technician. The labor time guide has been revised to reflect this additional operation

New part numbers 21005851 and 21005852 will replace part numbers 21003343 and 21001711 respectively and 21005867 replaces 21005943 which is the kit that includes the second design oil pump wear plate.

Notes:

Section 7

New Product Skills Test

2001 Coupe New Product Participant Guide

Notes:

To receive credit for reviewing the video and guide, complete the 2001S-Series Coupe New Product Skills Test located in this section. To register your answers, call **1-800-828-2112 and enter prompt 1 for Technical Assistance.** If you complete the 2001 S-Series New Product Skills Test within the specified time frame, you will receive a tool box plaque and certificate.

IMPORTANT: You must be registered as an ACTIVE SVTC Technician for your facility as of January 1, 2000 in order for the system to recognize you and give you credit for this program. Here are the instructions on how to phone in your answers:

- Call The Saturn Retail Assistance Center at 1-800-828-2112.
- After the automated system answers, Press 1, which will connect you to the Saturn Technical Assistance Center.
- The system will welcome you and then prompt you to enter your five digit Retail Code and Social Security Number.
- From the choices offered, Press 9 – this will connect you to the 2001 Coupe Training Program. The system will now prompt you on how to enter your responses.
- After you have entered all of your responses the first time, the system will ask you to verify your answers. You must complete this verification step in order for the system to accept your answers.

NOTE: The phone-in system will be available to accept your responses from February 7, 2000 through April 7, 2000. To receive credit, responses must be phoned in during this time frame. The answers to these questions will be available by calling back into the phone system, using the same series of prompts, after April 7, 2000. The answers will remain available until April 14, 2000.

POST TEST

A. Front fender removal requires _____ to be removed first.

1) front fascia
2) rocker panel
3) headlamp assemblies
4) all the above

B. When must the filler hood closeout be replaced?

1) It does not require replacement
2) When replacing the fender with a new fender
3) When removing and reinstalling the same fender
4) Both 2 and 3

C. The outer door panel is now retained to the door assembly with _____.

1) t-hooks
2) push pins
3) snaps
4) glue

D. The alignment of trunk lid and spoiler are critical to maintain because of _____.

1) proper gap
2) visual impact of the styling
3) flushness of the spoiler to the rear compartment lid
4) all the above

E. If the VHAD procedure does not correct the alignment, what method is used?

1) Side ways Method
2) Level Method
3) Screen Method
4) None of the above

F. Tampering with the bubble level calibration screw will:

1) Destroy basic lamp aim calibration.
2) Adjust the basic lamp aim calibration.
3) Require an E8 Torx® socket or nut driver.
4) Not destroy basic lamp aim calibration.

G. The wiper arm removal requires _____.

1) screwdriver
2) pliers
3) special tool number J39822
4) hammer

H. The wiper arms must be at what position prior to removal?

1) Must be at 5°
2) Must be at 45°
3) Must be at 90°
4) Must be at 0°

I. The wiper system must be put into the park position with wiper motor crank arm at 9 o'clock position before arms are installed. If not _____.

1) The motor will be out of time.
2) The wiper arms will come lose.
3) Wiper arms may contact painted surfaces.
4) The wiper arm will be off center.

J. The wiper arm retaining nuts:

1) Must be torqued to 90 N•m (66ft-lbs)
2) Can be reused
3) Are used one time only
4) Must be torqued to specifications and then turned an additional 90°

K. The PCM will monitor the following input to determine air pump system operation:

1) Battery Voltage
2) Engine RPM
3) Engine Coolant Temperature
4) All the above

L. If DTCs P0410, P0413, P0414, or P0418 are set:

1) Diagnose P0413, PO414, and PO418 first
2) Diagnose P0410 first
3) Does not matter
4) None of the above

M. What prevents exhaust gas from back feeding into the air pump?

1) Reed Valve
2) In-Line Filter
3) PCM
4) By-Pass Valve

N. Saturn new transaxle fluid is being introduced to improve _____ ?

1) line pressure
2) service interval
3) shift feel
4) both 2 and 3

Notes: