Auto Dismantlers Guide
to
Recycling Mercury Switches
and
Mercury Lamps

Prepared by
Department of Environmental Protection
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MERCURY – WHY BOTHER?

Mercury in Maine's environment is a problem, particularly for infants and young children. Exposure to mercury can permanently harm the developing brain and nervous system. The Environmental Protection Agency estimates that 630,000 infants are born every year in the United States with unsafe levels of mercury in their blood.

Mercury emissions from human activity contribute to the problem. Sources include commonly used products that contain mercury. For example, fluorescent lamps sold in the U.S. in 2001 are reported to contain over 9 tons of mercury. Mercury is released when the lamps break, as inevitably happens when they are put in the trash. Although each lamp has only a few milligrams of mercury, over two million of them are sold in Maine every year.

In the case of motor vehicles, mercury is released when scrapped vehicles are shredded and smelted to make recycled steel. The Maine DEP estimates that motor vehicles in Maine currently contain about 1500 pounds of mercury in convenience light and ABS switches. Most of this mercury eventually will be released to the air unless these switches are removed before the vehicles are crushed.

This is why the Maine Legislature created a program to get these switches out before vehicles are flattened for recycling. Under the program, auto dismantlers and automakers share responsibility. Your role as a dismantler or salvage yard operator is to remove the switches and store them for recycling.

To help offset your removal costs, automakers will recycle the switches and pay you $4 for each switch for which you record a vehicle identification number on your tracking log.

Contact us

We welcome your questions, comments, suggestions and corrections. Call us at 1-800-452-1942. Ask for the Automobile Mercury Switch Removal Coordinator.

Maine law requires that you recycle mercury switches and lamps

Automobile switches and headlamps

Maine law requires that mercury switches and mercury headlamps be removed before a motor vehicle is flattened or crushed. The mercury switches must be recycled. The headlamps may be recycled or placed in your parts inventory for re-sale.

Fluorescent lamps

The fluorescent lamps used in your office and other buildings also must be recycled. Because fluorescent lamps contain mercury, it is **illegal** to put them in the trash. Lamps that have been replaced must be stored to prevent breakage and sent intact to a lamp recycler.

The following pages provide guidance on:

Removal of mercury light switches

Which vehicles have mercury light switches?

Passenger cars and pickups. Mercury light switches are common in U.S. made passenger cars and pickups. Prior to 2003, they were used for convenience lights on hoods, trunks, and vanity mirrors on visors. **Mercury switch information for specific brands and model years are listed in Table 1 on pages 4 and 5.**

As a general rule, you should assume there is a mercury switch in hood or trunk convenience lights on:

- Model year 2002 or older GM vehicles;
- Model year 2001 or older Ford vehicles;
- Model year 1998 or older Chrysler vehicles; and
- Model year 1999 or older foreign-made vehicles, except **BMW, Mitsubishi, Nissan, Subaru, Honda and Toyota did not use mercury light switches in any of their vehicles.**

Some Volvo models may contain mercury light switches in the vanity mirror visor units (see Table 1 for models).

Model year 2000 and later vehicles may have a label on the driverside doorpost that indicates if the vehicle has a mercury light switch. The use of mercury switches in convenience lights ended for all makes beginning with model year 2003.

NOTE. Automakers may have used a non-mercury, ball bearing switch in some vehicle light assemblies in the late 1990s. The ball bearing switches are the same size and shape as the mercury switch - both look like a small silver bullet. The only way to tell them apart is to shake them; the ball bearing type rattles.

YOU DO NOT NEED TO COLLECT BALL-BEARING SWITCHES, nor are automakers under any obligation to reimburse you for them. Based on available information, we do not expect you to find many of them in the current vehicle fleet. Our understanding is that the ball-bearing switch is available only as a replacement part.

Table 1: Make, Model and Model Year of Vehicles Reported to Have Mercury Switches in Convenience Lighting Assemblies

Make	Model	Model years used
Hood and/or Trunk Convenience Lighting Assemblies:		
Audi (Volkswagen)	Audi 100	1977 - 1988
	Audi 200	1980 - 1988
Chrysler (Chrysler, Dodge, Eagle, Jeep Plymouth)	Assume all vehicles equipped with convenience light assemblies	1998 and older
Ford (Ford, Lincoln, Mercury, Mazda, Merkur, Volvo) Cars potentially containing both hood and truck switches	Ford Mustang, Ford Crown Victoria, Mercury Grand Marquis, Lincoln Town Car	2000 and older
	Ford, Lincoln, Mercury and Merkur cars (except those listed above)	1996 and older
	Volvo (may be glass switches)	1991 and older
Ford (Ford, Lincoln, Mercury, Mazda, Merkur, Volvo) Trucks, SUVs and Vans with hood switches	All Ford, Lincoln, Mercury trucks, SUVs and Vans except: 1999 MY and newer Ford Econoline, Ford Windstar, Ford Ranger, Mercury Villager	2001 and older
	Mazda Navajo	1993 - 1997
	Mazda B-Series Pick-up (Ranger/B-Series phased out of Hg switches with 1999 MY)	1995 - 1999
General Motors (Buick, Cadillac, Chevrolet, GMC, Oldsmobile, Pontiac, Saturn, Saab)	Assume all vehicles	1998 and older
	All vehicles <u>except</u>: Chevrolet Astro, Chevrolet Silverado, GMC Safari, GMC Sierra	1999
	<u>Only</u> the following vehicles with under hood lights: Cadillac Escalade, Chevrolet Blazer, Chevrolet Corvette, Chevrolet Express, GMC Denali, GMC Envoy, GMC Jimmy, GMC Savana, Oldsmobile Bravada and; Trunk lights: Chevrolet Cavalier, Pontiac Sunfire	2000

Table 1 continued:

Make	Model	Model years used
Hood and/or Trunk Convenience Lighting Assemblies cont.:		
General Motors (Buick, Cadillac, Chevrolet, GMC, Oldsmobile, Pontiac, Saturn, Saab)	Only the following vehicles under hood lights: Chevrolet Blazer, Chevrolet Express, GMC Envoy, GMC Jimmy, GMC Savana, Luxury G-Van, Oldsmobile Bravada and; Trunk lights: Chevrolet Cavalier, Pontiac Sunfire	2001
	Only the following vehicles under hood lights: Chevrolet Blazer, Chevrolet Express, Chevrolet S-10 Crew Cab, GMC Savana, GMC Sonoma Crew Cab, Luxury G-Van	2002
Porsche (all under hood lights)	924	1976 - 1985
	924S	1986 - 1988
	944	1982 - 1988
	944S	1987 - 1988
	944S2	1989 - 1991
	944 Turbo	1986 - 1991
	928	1978 - 1983
	928S	1980 - 1983
	928S/S4	1984 - 1990
Vanity Mirror Switch:		
Volvo	Volvo (except 240)	1986 - 1991

How do I remove mercury light switches?

Removal is quick and easy. It takes one to two minutes per switch if done at the same time you remove fluids, batteries and other wastes that require special handling.

Maine law requires that you remove all fluids, refrigerants, batteries and mercury switches from any scrap vehicle within 180 days of receiving the vehicle for scrap.

Step 1: Remove the convenience light assembly from vehicle

(a.) Locate the small lighting fixture on the underside of the vehicle hood or trunk. The mercury switch itself may be in the base of the fixture or along the wiring harness leading to the fixture.

(b.) Disconnect and properly dispose of the battery.

(c.) Cut the power supply wire at the base of the fixture.

(d.) Remove any fasteners in order to separate the entire fixture from the vehicle.

Step 2: Break down the light assembly to recover the switch

(a.) Use hand tools to remove or open the snap, latch or clip that holds the assembly together. A flat head screwdriver usually is all that is needed. When the assembly is open, remove the mercury switch, which resembles a bullet as shown below.

(b.) Remove the mercury switch and put it in the bucket provided for this purpose (see page 25 of this document)

NOTE: If the switch is highly corroded or visibly damaged, put it in a hard plastic jar like a peanut butter jar before placing it in the bucket.

(c.) Put the rest of the fixture in the regular trash.

(d.) In a few car models, the light assembly is molded such that the mercury bullet is not easily removed. DO NOT TRY TO REMOVE THE BULLET BY HAMMERING OR SAWING as this could damage the casing and release the mercury. If the bullet cannot easily be separated from the assembly, remove as many parts of the assembly as you can and put the rest of the assembly with the mercury bullet in the storage bucket.

Step 3: Complete the Mercury Switch Log.

Use the log sheet in Appendix B to keep track of the number of switches in the storage bucket. The log sheet includes a column for the Vehicle Identification Number (VIN). You must record the VIN of each vehicle from which you remove mercury switches in order to receive the $4 switch bounty from automakers (see page 26).

NOTE: Appendix A illustrates Steps 1 and 2 for several different types of convenience light assemblies.

Important note about Volvo and Audi mercury switches!

The mercury switches in Volvo and Audi convenience lights are unique in that the mercury usually is encased in glass rather than metal. Special care should be taken when removing these switches to avoid breaking the glass and spilling the mercury. DO NOT MIX GLASS SWITCHES IN THE COLLECTION BUCKET WITH THE METAL-ENCASED MERCURY SWITCHES FROM OTHER VEHICLES. If you do and the glass breaks, the entire bucket of switches will be contaminated and must then be handled as hazardous waste. To avoid this costly result, manage glass switches as follows:

- Put the switch in a plastic bag.
- Put the bag and switch in a rigid plastic container that can be sealed such as a plastic peanut butter jar. A recycled food storage container with a screw top or snap-on lid will do.
- Other glass-encased switches can be stored in the same container. Use sawdust, cat litter or other packing material to minimize the risk of breakage.
- Store the container in the 5-gallon screw-top bucket provided by the DEP (see page 25).

Volvo stopped using mercury convenience light switches after model year 1991. Prior to that, the switches were used in Volvo hood and trunk lights at least as far back as model year 1975. You also may find mercury switches in vanity mirror lights on 1986 though 1991 Volvos (except Volvo 240). Audi reportedly used the glass mercury switches in engine compartment lights on its 1988 and earlier vehicles.

Removal of mercury switches in anti-lock braking systems

Anti-lock braking systems (ABS) on some 4-wheel drive vehicles contain mercury switches. The switches are in a g-force sensor that detects deceleration and takes the vehicle out of 4-wheel drive during slipping.

Which vehicles have ABS sensors with mercury switches?

Not all vehicles with ABS have g-force sensors that contain mercury switches. Several other automakers, including Mitsubishi and Subaru, phased out the use of mercury switches in ABS in the mid-90s.

BMW, General Motors, Toyota and Volkswagen did not use mercury switches in the ABS G-Force sensors.

USE OF MERCURY SWITCHES WAS PHASED OUT IN ALL VEHICLES AS OF MODEL YEAR 2004.

The table 2 lists the make, model and model year of vehicles reported to have mercury-containing g-force sensors. The sensors contain two or three mercury switches.

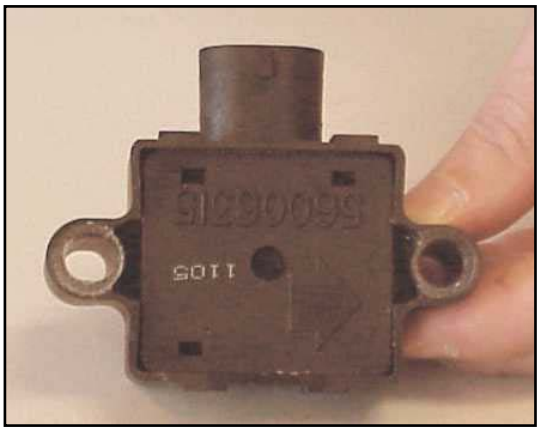
Table 2: Make, Model and Model Year of Vehicles Reported to Have Mercury Switches in ABS G-Force Sensors.

Make	Model	Model years used
Audi	Audi 80/90	1987 – 1993
	Audi 100/Avant	1987 – 1993
	Audi V8	1989 – 1995
	Audi 200	1987 – 1991
	Audi Coupe quattro	1987 - 1992
Chrysler	Dodge Stealth 4WD	1992 - 1996
	Jeep Cherokee	1992 - 2001
	Jeep Grand Cherokee	1993 - 2001
	Jeep Wrangler	1992 - 2003
Ford	Bronco	1993 - 1997
	Explorer	1993 - 2002
	Mercury Mountaineer	1997 - 2002
	4x4 Ranger pickup	1995 - 2001
Mazda	B-Series pickup	1995 - 2001
	Navajo	1993 - 2002
Mitsubishi	3000 GT 4WD	1991 - 1994
	Eclipse 4WD	1991 - 1993
	Expo 4WD / Expo LVR 4WD	1991 - 1993
	Galant 4WD	1990 - 1992
Nissan	4x4 Pathfinder	1996
Subaru	Impreza M/T* AWD	1993 - 1996
	Legacy M/T* AWD	1990 - 1995

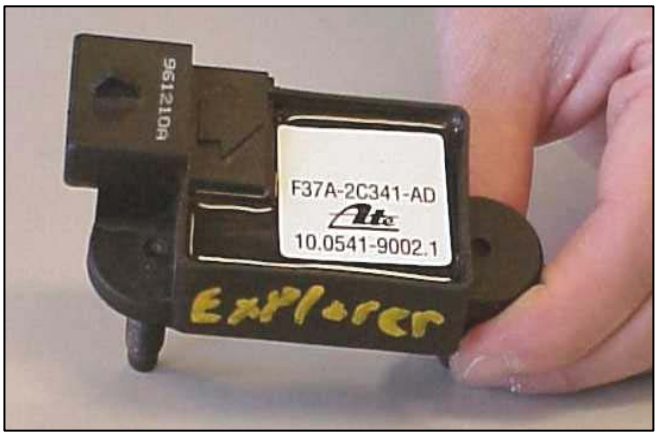
* Manual transmission

How do I find and remove the ABS g-force sensors?

What do they look like? ABS g-force sensors consist of two or three mercury switches embedded in plastic. The sensors are about 2 to 3 inches long by about 1½ to 2 inches wide. The entire component with mounting bolts weighs about 3 to 4 ounces. Important Note: ABS wheel speed sensors located in wheel units do not contain mercury and should not be removed. Only the ABS control modules should be removed. ABS control modules are normally housed in other areas of the vehicle. Please see removal instructions for specific vehicle types.

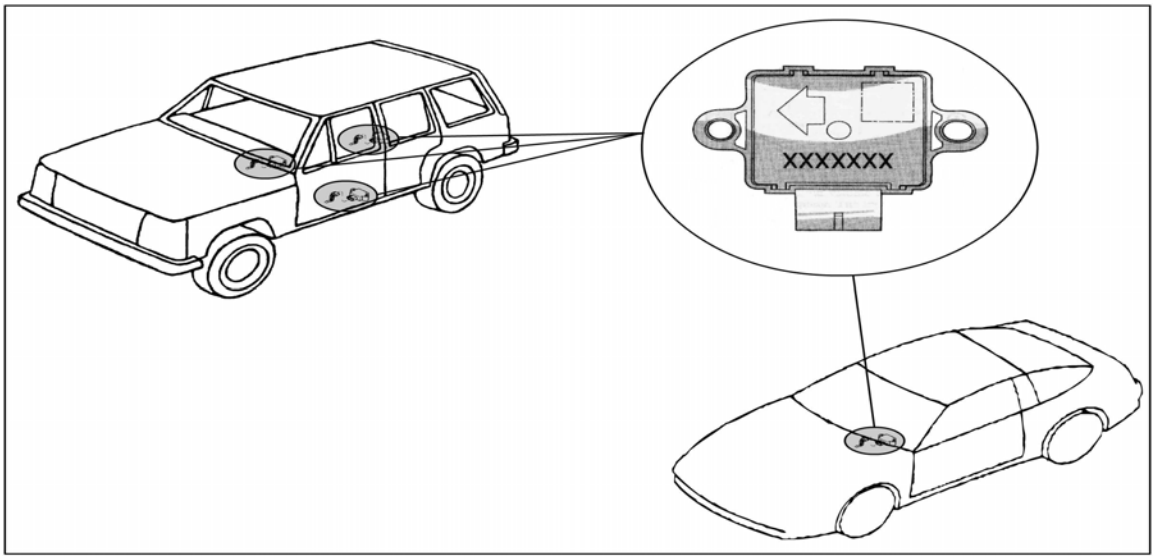


ABS g-force sensor—Jeep



ABS g-force sensor—Ford

Where are they located? The diagram below shows the three locations where the ABS g-force sensor commonly is found: the drive tunnel; below the rear seat on the floor pan; and on the left frame rail, directly below the driver.



How do I remove the sensor? The removal procedure varies as described below depending on the vehicle model. Estimated average removal time is 5-7 minutes if done in conjunction with fluid removal; 15 minutes if the vehicle is not already on a lift.

General Procedure for removing ABS G-Force Sensor

1. Confirm vehicle is equipped with ABS.
2. Disconnect the battery.
3. Locate the ABS G-Force sensor on the vehicle (varies on different vehicles).
4. Remove the sensor.
5. Collect and recycle the sensor with care.

Note: Please do not attempt to remove the switches from the sensor.

Vehicle Specific procedures for removing ABS G-Force Sensors

Audi: ABS sensor removal procedure for: 1987–1993 Audi 80/90; 1987–1993 Audi 100/Avant; 1989–1995 Audi V8; 1987–1991 Audi 200; 1987–1992 Audi Coupe Quattro

1. Remove rear seat bottom and locate ABS Sensor mounted in the middle under seat on seat support.
2. Disconnect the harness connector from switch mounting hardware.
3. Remove the securing nuts to release the sensor.

Chrysler: ABS sensor removal procedure for 1992–1996 Dodge Stealth 4WD

1. Locate the ABS G-Force Sensor under the center floor console.
2. Remove center floor console.
3. Disconnect the harness connector.
4. Remove the two bolts to release the sensor.

ABS sensor removal procedure for 1992–2001 Jeep Cherokee

1. Fold the rear seat assembly forward for access to the sensor.
2. Locate the ABS G-Force Sensor.
3. Disconnect the harness connector.
4. Remove the two bolts to release the sensor.

ABS sensor removal procedure for 1993–2001 Jeep Grand Cherokee

1. Fold rear seat assembly forward and roll back the carpeting to gain access to the sensor.
2. Locate the ABS G-Force Sensor.
3. Disconnect the harness connector.
4. Remove the two bolts to release the sensor.

ABS sensor removal procedure for 1992–2003 Jeep Wrangler

1. From the driver's side, lift carpet back in front of console/shifter.
2. Locate the ABS G-Force Sensor in front of the console/shifter mounted to a bracket on the floor pan.
3. Disconnect the harness connector.
4. Remove the two bolts to release the sensor.

Ford/ Mazda/ Mercury: ABS sensor removal procedure for: 1993-1997 Ford Bronco; 1993–2002 Ford Explorer & Mazda Navajo; 1995–2001 4x4 Ford Ranger & Mazda B-Series Pickup; and 1997–2002 AWD Mercury Mountaineer

1. Raise and support the vehicle.
2. Locate the ABS G-Force Sensor on the left frame rail, directly below the driver.
3. Remove the two nuts.
4. Unclip the fuel filter from the vehicle frame (on some models).
5. Disconnect the harness connector.
6. Remove ABS G-Force Sensor.

Mitsubishi:

ABS sensor removal procedure for 1991 -1994 3000 GT 4WD; 1991 – 1993 Eclipse 4WD; 1991 – 1993 Expo 4WD / Expo LVR 4WD; and 1990 – 1992 Galant 4WD (1995 model year and beyond do not contain mercury ABS switch assemblies):

1. Locate the ABS G-Force Sensor under the center floor console.
2. Remove the center floor console.
3. Disconnect the harness connector.
4. Remove the two bolts to release the ABS G-Force sensor.

Nissan: ABS sensor removal procedure for 1996 4x4 Pathfinder

1. Locate the ABS G-Force Sensor under the center floor console.
2. Remove the center floor console.
3. Disconnect the harness connector.
4. Remove the two bolts to release the ABS G-Force sensor.

Subaru: ABS sensor removal procedure for:

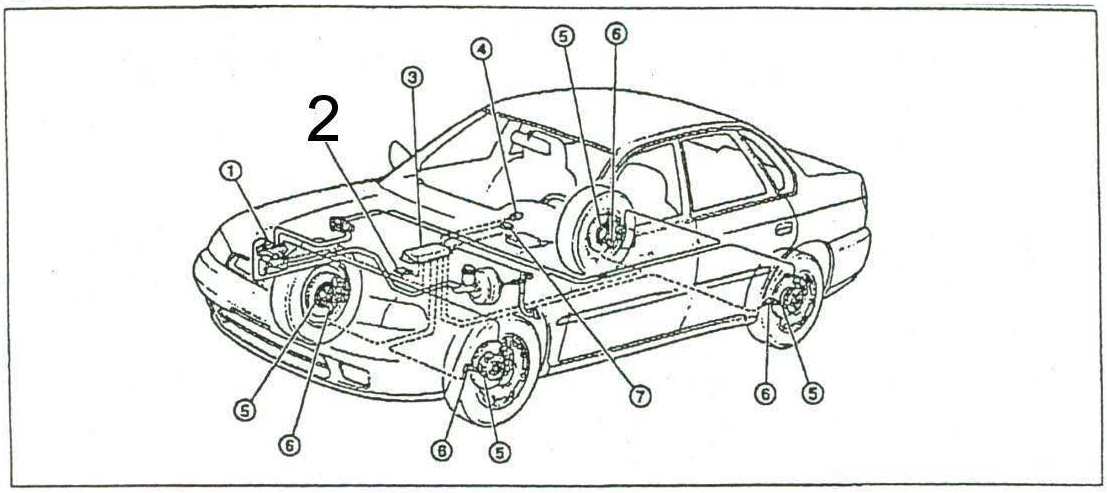
1990–1995 Subaru Legacy with 5MT AWD; and
1993–1996 Subaru Impreza with 5MT AWD

1. Locate the ABS G-Force Sensor on the right front wheel apron.
2. Disconnect the harness connector from the switch and mounting hardware (two screws).

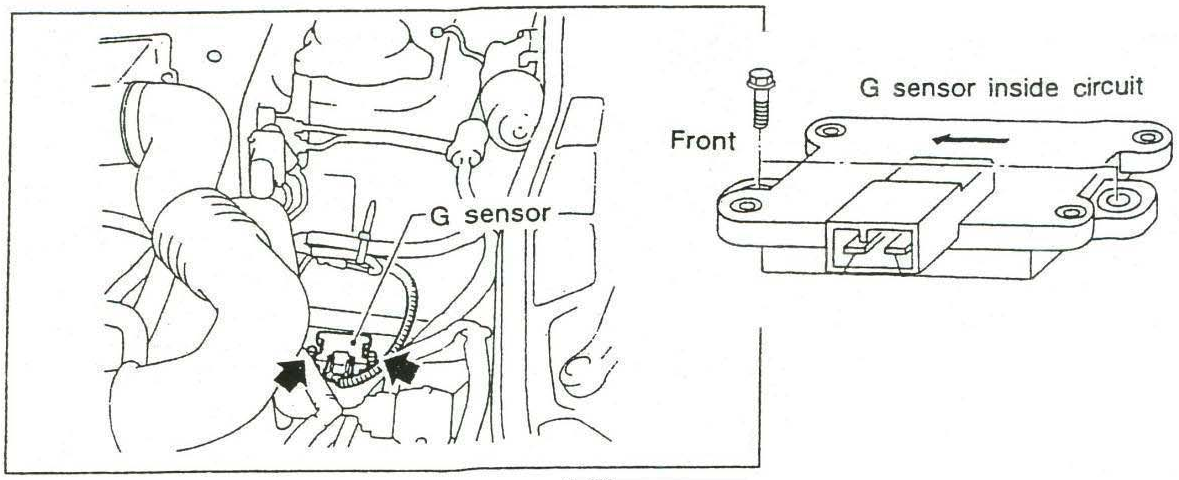
See illustration for ABS G-Force Sensor removal on Subaru models on the next page.

Location of ABS g-sensor on Subaru vehicles

The ABS G sensor on Subaru vehicles is located on the right wheel apron as shown below. See previous page for affected models.



1. Hydraulic control unit
→ 2. G-sensor (AWD MT model)
3. A.B.S. control module
4. Warning light
5. Tone wheel
6. A.B.S. sensor
7. Diagnosis connector



Hg-7B

What do I do with the mercury ABS sensor after removing it?

- Put the sensor in the same bucket provided by the DEP for storing the mercury bullets from light switches. Store the bucket as described on pages 25 and 26 until you are ready to transport the switches for recycling.
- Using the Mercury Switch Log sheet from Appendix B, record the VIN of the vehicle from which the sensor was removed and note it is an ABS g-sensor in the column.

Removal of other mercury switches

Convenience light fixtures and ABS sensors account for 99% of the mercury switch usage in motor vehicles. However, mercury switches have been used in other automotive applications from time to time. For example:

- Audi, Mercedes-Benz, Toyota/Lexus and Volvo used mercury acceleration sensors for air bags in some vehicles manufactured before 1993.
- About one percent of the mercury switches supplied to North American automakers in 1996 were for ride control systems, with each system containing 2 to 4 switches to adjust the vehicle suspension during cornering. Information on which U.S. made vehicles have this mercury application is not available.
- Some after-market security systems and cruise control units have mercury switches.

If you encounter any of these mercury applications, remove the switch, record the VIN and switch usage (e.g. air bag, ride control, security system) on the log sheet, and put the switch in the collection bucket.

Removal of mercury switches in acceleration sensors in air bags

Which vehicles have the air bag crash sensor modules with mercury switches?

Audi, Mercedes-Benz, Toyota and Volvo manufactured vehicles during the model years from 1984 to 1993 that contained air bag crash sensor modules with mercury switches.

There is only one air bag crash sensor module in a vehicle, typically containing two mercury switches.

Table 3: Make, Model and Model Year of Vehicles Reported to Have Mercury Switches in Air bag Crash Sensor Modules.

Make	Model	Model years used
Audi	Audi 80/90	1989 – 1993
	Audi 100/200	1989 – 1993
	Audi V8	1990 – 1991
	Audi Coupe	1990 - 1991
	S4	1992
Mercedes-Benz	C Class (earlier versions were Model 190)	1986 - 1990
	E Class	1986 - 1990
	S Class	1984 - 1990
Toyota	Celica	1990 – 1993
	MR2	1991 – 1993
	Supra	1990 – 1993
Lexus	ES 250	1990 – 1991
	LS 400	1990 – 1992
Volvo	All Models Except 240	1987
	All Models	1988 – 1992
	240	1993

How do I find and remove the Air bag Crash Sensor Module?

IMPORTANT: Mercury switches are contained only in the air bag crash sensor module section of the air bag system. Mercury switches are not found in air bag inflation units that are typically found in steering wheels, instrument or dash panels, some seat backs, or in the roof as side curtain air bags.

WARNING: The air bag inflation units contain pyrotechnic devices that inflate the air bag during a crash. Removing them requires special training.

Only the air bag crash sensor modules should be removed and placed in the bucket.

General Procedure for Removing Air Bag Crash Sensor Module

1. Confirm vehicle is equipped with air bag deployment system.
2. Disconnect the battery.
3. Locate the air bag crash sensor module on the vehicle (varies on different vehicles).
4. Remove the module. Place the entire assembly in the collection bucket. Note: Please do not attempt to remove the switches from the module.
5. Collect and recycle the sensor with care.

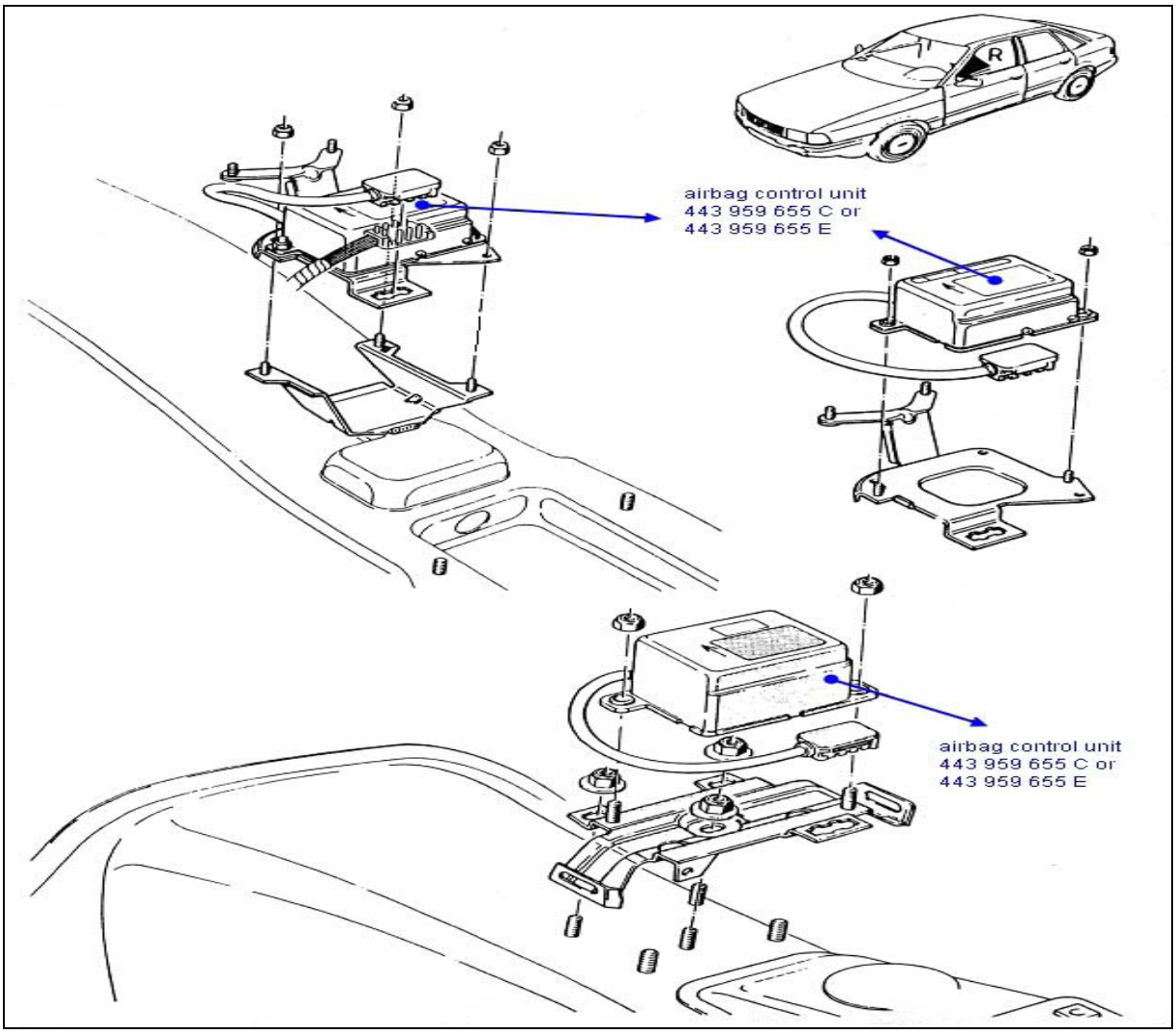
The locations where the air bag crash sensor modules are commonly found are under the center console on the drive line tunnel, on the floor pan below the driver's seat or behind the glove box.

Audi: Air bag sensor module removal procedure for:

1989–1993 Audi 80/90; 1989 – 1993 Audi 100/200;
1990 – 1991 Audi V8; 1990 – 1991 Audi Coupe; 1992 Audi S4

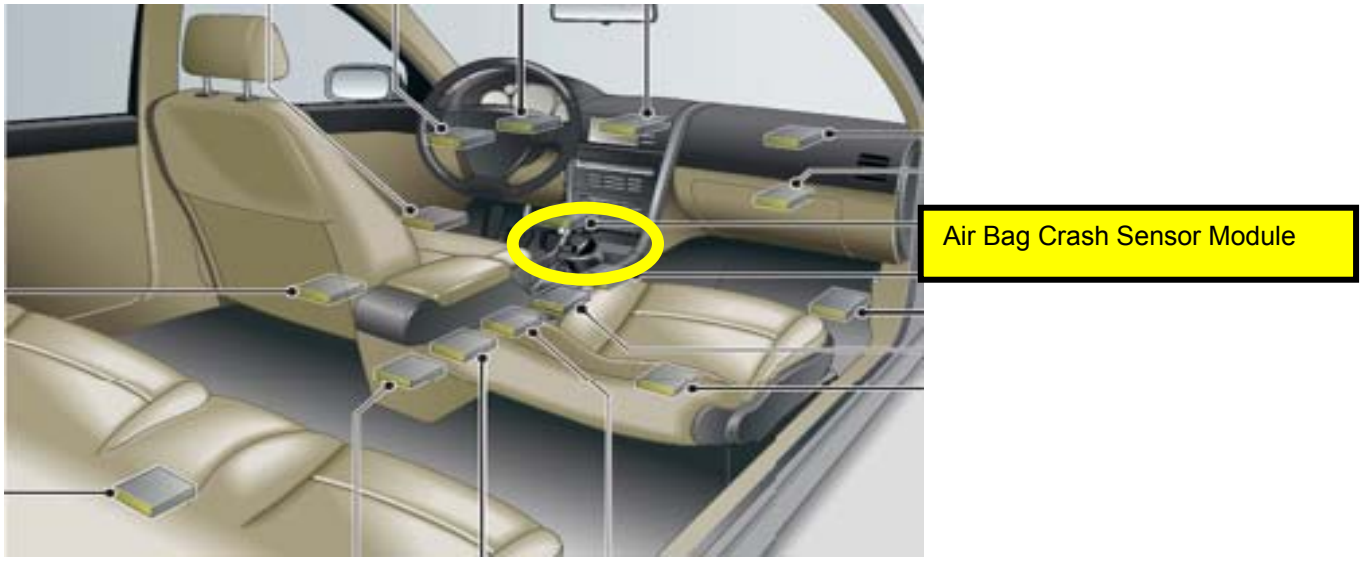
1. Disconnect the battery
2. Remove center console to expose the air bag crash sensor module in front of the shift lever.
3. Remove the air bag crash sensor module as shown below.

Audi air bag crash sensor module:



<u>Mercedes-Benz:</u> Air bag sensor module removal procedure for:
1986–1990 C Class (earlier versions were marked as Model 190);
1986–1990 E Class; 1984–1990 S Class:

1. Disconnect the battery.
2. Locate the air bag crash sensor module is behind the ash tray and in front of the gear shift.
3. Remove the air bag crash sensor module.



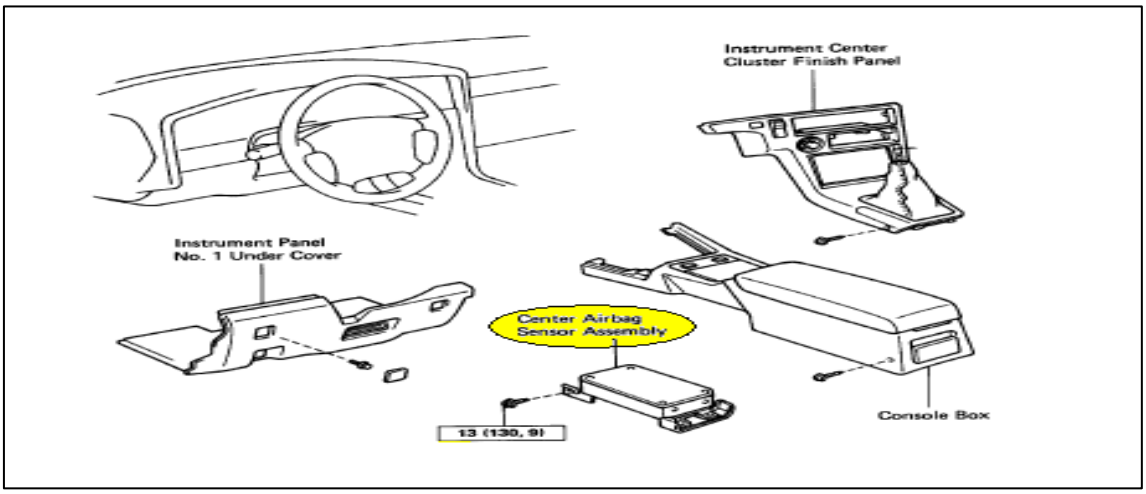
<u>Toyota:</u> Air bag sensor module removal procedure for: 1990–1993 Toyota Celica; 1990–1993 Toyota Supra; 1990–1991 Lexus ES 250.

1. Disconnect the battery
2. Locate the center air bag crash sensor module assembly under the center floor console toward the rear
3. Remove center floor console assembly
4. Disconnect the harness connector
5. Remove the four bolts to release the center air bag crash sensor module assembly.

Air bag sensor module removal procedure for 1991 – 1993 Toyota MR2; 1990 – 1992 Lexus LS 400.

1. Disconnect the battery
2. Locate the center air bag crash sensor module assembly under the center floor console toward the front
3. Remove the radio assembly and heater control
4. Disconnect the harness connector
5. Remove the four bolts to release the center air bag crash sensor module assembly.

Toyota air bag crash sensor module:

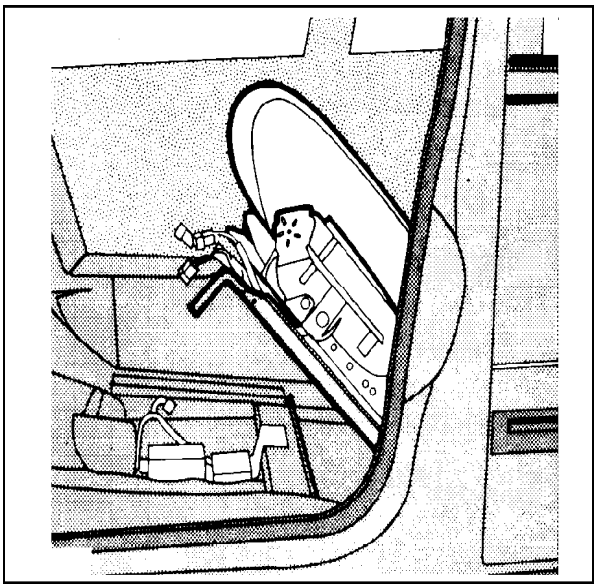


<u>Volvo:</u> Air bag sensor module removal procedure for:
1987 All Volvos except 240; 1988–1992 All Volvos; 1993 Volvo 240.

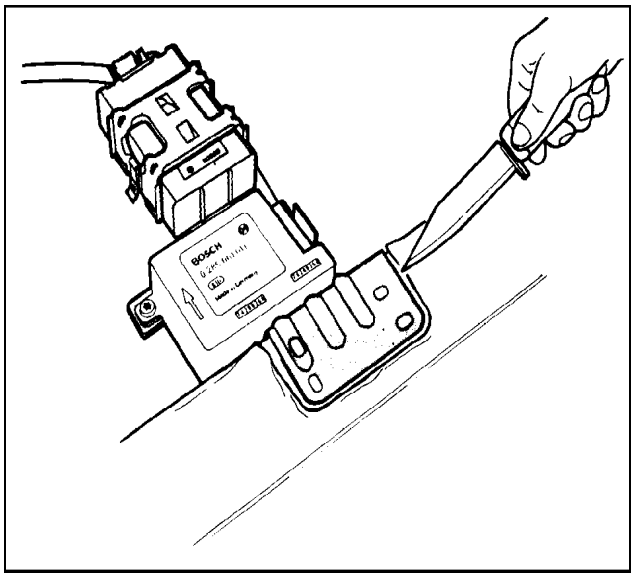
1. Disconnect the battery
2. The air bag crash sensor module is located under the driver's seat
3. Unbolt the driver's seat and tilt backward Lift carpet and remove heating duct
4. Use knife to cut tape around bracket and remove the air bag crash sensor module.

Volvo air bag crash sensor module:

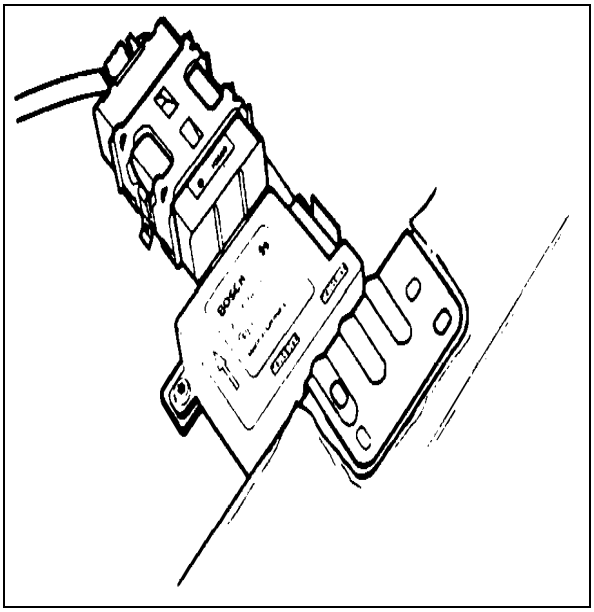
3. Unbolt the driver's seat:



5. Use knife to cut tape around bracket:



4. Lift carpet and remove heating duct:



Which vehicles other than passenger vehicles have mercury switches?

Trucks. International Truck and Engine Company used two mercury switches to operate luggage compartment lights on its model 5000 and 9000 trucks (one per each luggage compartment). Freightliner and Volvo also had a mercury switch located under the bunk that housed the parking heater. Many trucks, including those made by Mack, Freightliner, International, Kenworth, Peterbuilt and Volvo, also had a mercury hood tilt switch for idle control**. If you are in the truck salvage business, please contact us at 1-800-452-1942 for specific guidance on how to locate, remove and recycle any mercury switches from trucks.**

Recreational vehicles (RVs). Fleetwood Enterprises reports that RV cutaway vans using model year 2001 and earlier Chevrolet chassis have mercury switches in under-hood lights. Most RV gas ovens also have a mercury flame sensor, and mercury switches may be present in older RV home thermostats, leveling systems and antenna controls. All of these mercury switches must be removed before the vehicle is crushed for recycling. **If your salvage or dismantling business handles RVs, please contact us at 1-800-452-1942 for specific guidance on how to locate and remove any mercury switches from RVs.**

How do I recycle mercury switches once they have been removed?

- **Storage.** Place the switches in the 5-gallon, screw top plastic bucket provided by DEP. On the bucket's "Universal Waste" label, identify the contents as "motor vehicle switches." Under "Accumulation Start Date," mark the month, day and year you first put switches in the bucket.

  Keep the bucket in a lockable storage area out of the weather and keep the container closed. On the outside of the storage area, hang the "Universal Hazardous Waste Storage" sign provided by DEP.

- **Log.** Use the Mercury Switch Log in Appendix B to keep track of how many switches are in the bucket and to record the VIN of the vehicles from which you remove switches. We recommend the log be kept on a clipboard in the switch storage area.

  DO NOT ACCUMULATE MORE THAN 4000 SWITCHES before taking them for recycling as described in the next bullet. If you exceed this limit, you will be considered a large quantity generator and additional rules apply.

- **Transport for recycling.** Take the switches to one of the two Wesco consolidation facilities listed on the next page. Wesco will arrange to have them recycled at no charge to you. You can use your own vehicle to transport the switches, but keep them in the collection bucket provided by the DEP. <u>You must take the switches to Wesco within 3 years of the Accumulation Start Date even if the bucket is not full. In the unlikely event that you fill the bucket in less than 3 years, you must take the switches to Wesco within 90 days after the bucket is filled.</u> You can turn a partially-filled bucket in at any time to receive your bounty payment.

  On the day you transport the switches to Wesco, mark the date (the "Accumulation End Date") on the bucket label and complete the lines at the top of the Mercury Switch Log sheets by recording the following information: the location— Portland or Bangor—of the Wesco facility you use; the date; and the total number of switches in the bucket. Sign the certification statement at the bottom of each log sheet and give them to Wesco. Keep a copy for your records.

Switch consolidator. Automakers have hired Wesco Distribution to consolidate the switches for recycling. Wesco will accept switches at the following two locations:

80 Farm Road
Bangor, Maine 04401

327 Marginal Way
Portland, Maine 04010

Wesco asks that you call Jim Baines at (207) 478-1911 before transporting switches to either facility.

- **Bounty payment.** Provided you supply the VIN of the source vehicle, automakers will compensate you as follows:
  - $4 for each mercury light switch; and
  - $8 for each mercury ABS sensor or air bag crash sensor module.

  You will receive a voucher from Wesco for the switches you turn in. You can expect payment 4-6 weeks after delivering the switches to Wesco.

- **Replacement storage container**. If Wesco does not give you a new storage bucket or you need a replacement bucket for another reason, call the DEP at 1-800-452-1942 and ask for the Automobile Mercury Switch Removal Coordinator. Before you begin accumulating switches again, you will need a new bucket with the Universal Waste Label. If you do not receive a new bucket from Wesco, please call the Automobile Mercury Switch Removal Coordinator to arrange to pick one up or arrange to have one delivered.

How do I recycle mercury-containing lamps?

Maine law requires that you recycle all mercury-added lamps. These include fluorescent lamps - like the 4-foot tubes commonly used in office and shop lighting - and mercury vapor or high intensity discharge (HID) lamps often used for flood lighting. HID lamps also are used in some vehicle headlights. It is illegal to put spent fluorescent or HID lamps in the trash or to crush a car that contains HID headlamps. An HID headlamp can be placed in your parts inventory for resale. Otherwise, they must be stored for recycling along with the fluorescent lamps from your shop.

Which vehicle makes and models have mercury headlamps?

Most vehicle headlamps are mercury free. However, HID headlamps contain a small amount of mercury inside an arc tube. HID headlamps are a recent development, usually offered as an options package. The table on page 30 lists vehicle models that may have HID headlamps as standard or optional equipment.

How do I remove the HID lamp?

CAUTION: The high intensity discharge system produces high voltage and current. In order to reduce the risk of severe shocks and burns, the battery negative cable must be disconnected before removal of the HID headlamp.

1. Disconnect the battery.
2. Disconnect all electrical connections to the headlamp light assembly.
3. Locate and remove the housing that contains the headlamp and arc tube.
4. Handle the headlamp with care to avoid breaking the arc tube and releasing the mercury.

What are the requirements for storing and recycling fluorescent tubes and HID headlamps?

KEEP LAMPS SAFE – DO NOT BREAK THEM!

1. Place spent fluorescent lamps in appropriate storage boxes to keep them safe from breakage. Boxes specifically designed to protect 4-foot fluorescent tubes can be obtained from the universal waste management and recycling companies listed in Appendix D.
2. HID headlamps, if they are not placed in your parts inventory for resale, should be wrapped in newspaper or other protective wrapping and stored in a rigid cardboard box or plastic bucket.
3. Write "Waste Lamps" on the storage box.
4. Place the lamp storage boxes in the same storage area used for mercury switches, or in another area out of the weather where the lamps will be safe from damage and can be easily inspected. Do not let the storage boxes get wet.
5. If you do not use the same storage area used for switches, be sure the lamp storage area has a sign saying "Waste Lamp Storage" or "Universal Hazardous Waste Storage".
6. The first time you put lamps in a box, write the Accumulation Start Date on the box.
7. Each time you put lamps in the storage boxes, enter the lamp type and number using the Mercury Lamp Log in Appendix C. To keep the log handy, we recommend putting it on a clipboard with the Mercury Switch Log Sheet and hanging the clipboard on the wall of the storage area.
8. Do not store boxes more than 5 feet high (to avoid crushing those below).
9. Make sure the storage area is locked when not in use.
10. When a box is full or has a broken lamp, seal all openings with wide tape that has good adhesive properties. Duct tape is not a good choice because it comes loose with time. Write the date - the Accumulation End Date - on the box.

11. Ship the lamps for recycling within 90 days of the Accumulation End Date (the date you seal the box) or within one year of the Accumulation Start Date, whichever is longer. You have several shipment options:

    - You may be able to take the lamps to a municipal collection shed. Call your town office or city hall to see if this option is available.
    - You can take the lamps to one of the universal waste management and recycling businesses listed in Appendix D; or
    - You can call one of the Appendix D businesses and arrange for them to pick up the lamps at your facility.

Motor vehicles that may have HID headlamps

Make	Model	Model year
Audi	A4, A6, A8, S4, TT	1997-2003
BMW	All	Not available
Daimler Chrysler	Chrysler Pacifica	2003
	Dodge Viper	2003
	300 M Special	2002-2003
Ford	Focus Special Edition	2003
	Lincoln (all models)	2003
GM	Cadillac	1998-2003
	Envoy	1998-2001
Honda	S2000	2001-2003
	Acura	2000-2002
Jaguar	All	2002-2003
Land Rover	All	2002
Mercedes Benz	All	2000-2003
Mitsubishi	Lancer Evolution	2003
Nissan	Altima	2002-2003
	Infiniti	1999-2003
	Maxima	2002-2003
	Murano	2003
	350 Coupe convertible	2003
Porsche	Boxster	1997-2003
	911	1996-2003
Saab	9-5	2002
Toyota	Lexus	1998-2003
Volkswagen	Beetle	2000
Volvo	XC90	2003

NOTE: This listing is not a complete listing because reporting the use of mercury headlamps only began in 2001. Other vehicles not on this list may have HID headlamps. Check the doorpost on model year 2002 or later vehicles for a label indicating whether the vehicle has these lamps. The label, if present, usually will be on the driverside doorpost. In a few Ford models (Explorers, Mountaineers and Lincoln Aviators), this label may be on the passenger side doorpost.

What if a lamp or switch breaks? How do I clean up a mercury spill?

CAUTION!

Spills and releases of universal waste can be hazardous to your health. If you do not feel confident with your ability to safely clean up a mercury spill, we recommend you hire a professional environmental contractor to do the cleanup. They have the specialized equipment needed to test the spill area for residual contamination and make sure it is safe.

Spill reporting

All mercury spills from switches must be reported immediately by calling the DEP hotline at **1-800-452-4664**. Mercury releases from lamps must be reported only if you break more that 10 lamps at one time.

Spill cleanup

Follow the guidelines below to clean up a mercury spill.

Note: *Mercury clean up kits are available on the market and are recommended. The following guidelines presume that you have not purchased a spill kit.*

<u>All spills</u>

- Block off the immediate area to prevent any accidental tracking of the mercury. Lower the heat and increase cooling and ventilation in the spill area.
- Avoid skin contact with mercury or surfaces that have been contaminated with mercury. Always wear safety glasses and disposable rubber gloves.
- Thoroughly wash your hands and face after cleanup is complete.

<u>Lamp breakage</u>

- Place the broken lamps in a sealable hard plastic or metal container (or if the broken lamps are in their storage box, simply seal the box).
- Scoop or wipe up as much of the broken glass as possible using cardboard and place the cardboard and any other clean-up equipment in the container.
- Wipe the spill area thoroughly with a wet sponge. Place sponge in the waste container.

- Seal the container and store with your unbroken lamps for shipment to a recycler along with your unbroken lamps.

Leaking or broken switches

The risk of a mercury spill from automotive switches is small. The mercury is encased in a durable metal capsule. In the unlikely event you rupture the capsule, we recommend the following clean-up steps:

- Place the broken switch in a sealable hard plastic or metal container.
- Using cardboard, scoop up as much of the mercury as possible and place it in the container.
- Go over the area with masking tape or duct tape to pick up small particles of mercury.
- Wipe the spill area thoroughly with a wet sponge.
- Put the sponge, tape, cardboard and any other material used to clean up the spill in the container.
- Seal the container and arrange for disposal. The container must be handled as hazardous waste, which means that it must be given to a licensed hazardous waste transporter. Some of the businesses listed in Appendix D may be able to provide this service. Or call the DEP Mercury Switch Removal Coordinator at (207) 287-2651 for a list of other hazardous waste transporters.

Special precautions

- **Never use a broom or vacuum to clean up the spill.** Use disposable items (e.g., rags, cardboard, duct tape, sponges) for cleanup.

- Sweeping will spread the mercury, making it harder to collect, and will contaminate the broom.

- Vacuuming a mercury spill will cause the mercury to be dispersed into the air where it can be inhaled. The mercury also sticks to the metal parts of the vacuum and will be discharged every time the vacuum is used. This poses a serious health risk and should be avoided. Once a vacuum has been contaminated with mercury, the only sure way to avoid spreading the contamination is to discard the vacuum.

Appendix A

Step-by-Step Removal Instructions for Chrysler, GM and Ford Hood and Trunk Lighting Assemblies Volvo Vanity Mirror Light

[Call the DEP Mercury Switch Removal Coordinator at 1-800-452-1942 for copy of Appendix A. Color laminated versions of the instructions are also available for use in the shop.]

Appendix B

Mercury Switch Log Sheet

Use this sheet to keep track of the number of switches you remove from motor vehicles

Name of your business: _____

Address: _____

_____

Contact person: _____ Ph: _____

Switch transport. When the collection bucket is full or within 3 years after first placing switches in the bucket, you must take the switches to WESCO Recycling at either of the following locations:

- ☐ WESCO Recycling, 80 Farm Rd, Bangor
- ☐ WESCO Recycling, 327 Marginal Way, Portland

BEFORE YOU GO:

- Call Jim Baines at (207) 478-1911 so Wesco staff will expect your arrival.
- Fill in the switch totals in the space provided below.
- REMEMBER TO TAKE THE SIGNED LOG SHEETS WITH YOU.

Number of switches removed (Use tick marks like this /// to keep track of the number of switches in the storage bucket)	
Light switches	**ABS sensors**

Total light switches _____
Total ABS sensors x 2 _____
TOTAL switches _____

By signing below**,** I certify that the switches are from motor vehicles dismantled in Maine.

Signature: _____

Printed name: _____ Date: _____

VIN	# of Hg switches

VIN	# of Hg switches

Appendix C

Waste Lamp Log

Name of your business: _____

Location: _____

Mail address: _____

_____

Contact person: _____ Ph: _____

Lamp consolidation or central accumulation facility:

_____

Location: _____

_____

Date of transport: _____

Lamp Type	# of lamps
HID headlamps	
4’ fluorescent tube	
Other mercury lamps	

Appendix D

Universal Waste Management and Recycling Companies

Updated February 26, 2008

The following list is not necessarily a complete list of universal waste management and recycling companies. The DEP, by providing this list does not imply that the companies listed are in compliance with applicable laws, nor does this list represent an endorsement. A generator should personally evaluate the services and compliance status of any company hired to handle any wastes generated by their facilities.

Clean Harbors Environmental Services, Inc.
17 Main Street
South Portland, ME 04106
(207) 799-8111
www.cleanharbors.com

C M Laboratories, Inc
One Commercial Road
Scarborough, ME 04074
(207) 883-8395

Complete Recycling Solutions, LLC
#1 Father DeValles Blvd.
Fall River, MA 02723
(508) 402-7700 or (866) 277-9797
www.crsrecycle.com

Conservation Lighting
84D Warren Avenue
Westbrook, ME 04092
(800) 696-4709
www.conliteinc.com

Enco Container Services
4 Wilder Drive, Unit 7
Plaistow, NH 03865
(800) 355-4479
www.encocontainer.com

ENPRO Services, Inc
106 Main Street
South Portland, ME 04106
(207) 799-8600 or (888) 795-1400
www.enpro.com

Environ Services, Inc.
18 Gorham Industrial Parkway
Gorham, ME 04038
(207) 854-8228
www.environservices.com

Environmental Projects, Inc.
155-F Lewiston Rd.
Gray, ME 04039
(207) 657-2400 or (877) 846-0447
www.envprojects.com

Evergreen Waste Systems
22 Target Circle
Bangor, ME 04401
(207) 942-1930
www.evergreenwaste.com

Evolve Technologies Corp.
10 Lancy Street
Pittsfield, ME 04967
(888) 315-9007
www.evolvetechcorp.com

General Chemical Corporation
133 Leland Street
Framingham, MA 01702
(508) 872-5000
www.generalchemical.com

Gilman Electrical Supply
53 Main Street
Newport, ME 04953
(800) 439-7937 or (207) 368-4306

Lifecycle Partners, LLC
14 Continental Blvd.
Merrimack, NH 03054
(603) 262-9266 ext. 105
www.lifecyclepartners.com

Maine Labpack, Inc.
248 Preble Street
South Portland, ME 04106
(207) 767-1933
www.mainelabpack.com

Northeast Lamp Recycling, Inc.
250 Main Street
East Windsor, CT 06088
(860) 292-1992
www.nlrlamp.com

NOVA Recycling
512 Wolfboro Road
Stetson, ME 04488
(207) 296-2400

Pine Tree Waste
Locations: Hamden, Houlton, Scarborough, Waterville and West Bath
(888) 857-0800
www.casella.com

Recycle First
100 Maine Street, Suite 222
Dover, NH 03820
(603) 516-3717
www.recyclefirst.com

Riverside Recycling Facility
910 Riverside Street
Portland, ME 04103
(207) 874-8467 or (207) 797-6200

Safety Kleen Corporation
86 US Highway, Route 202
Leeds, ME 04263
(207) 933-4496
www.safetykleen.com

Troiano Waste Services, Inc.
P. O. Box 3541
Portland, ME 04104-3541
(207) 767-2070 or (800) 310-2070

UniWaste Services Corp.
125 Aviation Avenue, Suite 4
Pease International Tradeport
Portsmouth, NH 03801
(866) 522-7711 or (603) 422-7711
www.uniwaste.com

Veolia Environmental Services
398 Cedar Hill Street
Marlborough, MA 07152
(800) 354-2382
www.veoliaes.com

Veolia Special Services
218 Canton Street
Stoughton, MA 02072
(800) 478-6055
www.veoliaes.com

Wesco Distribution
80 Farm Road or 327 Marginal Way
Bangor, ME 04401 Portland, ME 04101
(800) 432-7969 (800) 442-6736
www.wescodist.com

Wuf Technologies
7 South State Street
Concord, NH 03301
(603) 224-7959
www.wuftech.com