



1. Description

This procedure describes the repair, replacement, and inspection of an instrument panel. Welding and adhesive repair information is included for all types of commonly used plastics.



2. Purpose

The purpose of this procedure is to provide industry-accepted requirements for performing high-quality repair of instrument panels. This procedure is intended for use by professionals who are qualified through training and experience.



3. Referenced Documents

The following documents are considered part of this procedure by reference.

3.1 Procedures

- EL11 Troubleshooting
- HM01 Hazardous Materials
- IP11 Gauges And Instrument Cluster
- PR01 Plastic Repair, Welding
- PR11 Plastic Repair, Adhesive
- PS01 Personnel Safety
- RE21 Airbag Systems
- RE31 Tensioners, Seat Belt
- SR21 Steering Column

3.2 Other Information

- Equipment-specific information
- Product-specific information
- Recycled parts information
- Vehicle-specific repair information



4. Equipment And Material Requirements

4.1 Plastic Welding Equipment

Use plastic welding equipment and materials as described in **PR01**.

4.2 Plastic Adhesive Materials

Use plastic adhesive materials as described in **PR11**.



5. Damage Analysis

5.1 General Damage

Inspect instrument panels for these types of damage:

- visible damage
- improper previous repairs
- damaged mounting locations or fasteners
- dents or tears in a vinyl padded dash
- damaged reinforcement or braces
- damage caused by an airbag deployment (see **RE21**)

It may be necessary to remove the instrument panel to inspect the reinforcement and panel braces.

Determine whether the instrument panel is to be repaired or replaced. Verify the availability of replacement parts. Padded dash covers often can be repaired. See **9.1–9.3**. Discuss the expected appearance and durability with the vehicle owner.

Some vehicle makers require replacement of the instrument panel after deployment of a passenger-side airbag. Follow the vehicle maker's recommendations.



6. Personnel Safety

6.1 General Safety

General safety information is in **PS01**.

6.2 Plastic Repair Safety

Plastic repair safety information is in **PR01** or **PR11**.

6.3 Airbag Safety

Airbag safety information is in **RE21**.



7. Environmental Safety

7.1 Hazardous Materials

Hazardous material safety information is in **HM01**.



8. Vehicle Protection

8.1 Instrument Panel And Adjacent Areas

To protect the instrument panel and adjacent areas:

- Avoid damaging the instrument panel during removal, storage, and installation.
- Make sure there is enough working space when removing or installing the instrument panel.
- Use care when removing or installing fasteners.
- Protect the seats and carpets from damage during instrument panel removal and reinstallation.

8.2 Electronic Parts

To protect computers and other sensitive parts from damage:

- Follow the vehicle maker's recommendations for recording and resetting electronic memories.
- Ensure that the ignition is in the LOCK position, and the key is removed.
- Disconnect and isolate the negative battery cable, and disarm the passive restraint system. Follow the vehicle maker's recommendations.
- Protect modules, connectors, and wiring from dirt, heat, static electricity, and moisture.
- Loosen or remove any wiring harnesses or electrical parts that could be damaged during the repair process.



9. Repair Procedure

9.1 Padded Dash Cover Dent Removal

To remove a surface dent from a vinyl, padded dash cover:

1. Remove the instrument panel, if required for access to the repair area. See **9.4**.
2. Soak the dent with water for about 30 seconds. Keep the area moist. Do not wipe dry.
3. Heat around the dent with a heat gun. Move the heat gun in a circular motion, about 300 mm (12") from the surface. Work from the outside in. Heat the area to about 50° C (130° F), or until it is too uncomfortable to touch. Do not overheat the vinyl.
4. If the dent does not come out while heating, massage the pad from outside the dent inward to force the material toward the center of the dent. The area may have to be reheated and massaged more than once.
5. Once the dent is out, cool the area quickly with a damp sponge.
6. Reinstall the instrument panel, if it was removed. See **9.5**.

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9. Repair Procedure (cont'd)

9.2 Adhesive Repair Of A Padded Dash Cover

To repair a tear or cut in a vinyl, padded dash cover, using two-part adhesive:

- 1. Remove the instrument panel, if required for access to the repair area. See 9.4.
- 2. Clean the repair area with pH-neutral soap and water. Blow or wipe dry. Follow the adhesive maker's recommendations. Do not allow water to stand on the damaged area or soak into the foam padding.
- 3. Clean the repair area with a plastic cleaner. Blow or wipe dry. Follow the adhesive maker's recommendations. Do not allow solvents to stand on the damaged area or soak into the foam padding.
- 4. Sand any broken or loose material. Sand through the vinyl covering into the foam padding, if required. Featheredge the repair areas as much as possible.
- 5. Make sure the damaged part and the repair materials are within the product maker's recommended temperature range.
- 6. Clean the repair area.
- 7. Thoroughly mix the proper two-part adhesive to the recommended ratio, or use the mixing applicator provided.
- 8. Apply the mixed adhesive. Follow the product maker's recommendations.
- 9. Allow the adhesive to cure, or force-dry it as recommended by the product maker. Allow the adhesive to cool.
- 10. Block-sand the adhesive to the surrounding contour. Avoid overheating the adhesive.
- 11. Apply the recommended primer.
- 12. Retexture the surface, if applicable. Follow the product maker's recommendations.
- 13. Refinish the part following the paint or vehicle maker's recommendations for refinishing plastic parts.
- 14. Reinstall the instrument panel, if it was removed. See 9.5.

9.3 Welding Repair Of A Padded Dash Cover

To repair a tear or cut in a vinyl, padded dash cover, using plastic welding:

- 1. Remove the instrument panel, if required for access to the repair area. See 9.4.
- 2. Clean the repair area with pH-neutral soap and water. Blow or wipe dry. Do not allow soap and water to be absorbed by the foam padding.
- 3. Clean the repair area with a plastic cleaner. Blow or wipe dry. Do not allow the cleaner to be absorbed by the foam padding. Avoid spreading contaminants over the repair area.
- 4. If the damaged area is brittle from sun damage, warm it with a heat gun and remove the brittle edges until undamaged vinyl is reached.
- 5. Widen the crack to at least 6 mm ($\frac{1}{4}$ ") and undercut the foam to expose more vinyl. Featheredge the vinyl as much as possible.
- 6. Rough up the area about 6 mm ($\frac{1}{4}$ ") around the taper.
- 7. Remove all remaining dust and reclean the surface.

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9. Repair Procedure (cont'd)

- 8. Set the airless welder to the proper temperature for urethane. Do not use a hot-air welder. Allow the welder to preheat to the proper temperature. Follow the welder maker's recommendations.
- 9. Select a urethane welding rod.
- 10. Turn the welder so the shoe is facing up and feed the filler rod slowly through the feed tube. Start the weld at the bottom of the groove. Overfill the repair taper with the melted rod.
- 11. Smooth the weld, leaving a slightly raised area over the repair taper. Smooth the filler rod out at least 6 mm ($\frac{1}{4}$ ") on each side of the repair taper.
- 12. Quick-cool the weld with cold, clean water. Add more filler if the weld shrinks too much.
- 13. Sand away any excess filler.
- 14. Rough up the vinyl about 50–125 mm (2–5") on each side of the weld.
- 15. Apply the recommended plastic repair filler for vinyl. Some plastics may require the use of a special primer before the filler is applied. Follow the product maker's recommendations.
- 16. Block-sand the filler material and featheredge to the surrounding contour. If any filler is sanded through, apply a skim coat and re-sand.
- 17. Apply the recommended sealer.
- 18. Retexture the surface, if applicable. Follow the product maker's recommendations.
- 19. Refinish the part following the paint or vehicle maker's recommendations for refinishing plastic parts.
- 20. Reinstall the instrument panel, if it was removed. See 9.5.

9.4 Instrument Panel Removal

To remove an instrument panel:

- 1. Follow the vehicle maker's recommendations for recording and resetting electronic memories.
- 2. Disconnect and isolate the negative battery cable and disarm the passive restraint system. Follow the vehicle maker's recommendations.
- 3. Protect seats, carpets, and other interior parts from damage.
- 4. Make sure the passive restraint system is disabled before disconnecting the driver and passenger airbag connectors. Follow the vehicle maker's recommendations.
Note: On some vehicles the passenger-side airbag must be removed before removing the instrument panel.
- 5. Remove the glove box, adjacent trim or kick panels, radio and entertainment units, heater control unit, etc., if required for access and to prevent damage.
- 6. Lower or remove the steering column, if required. Ensure that the clock spring is centered before repositioning or removing the steering column.
- 7. Disconnect the gauge or cluster wiring harness, if required.
- 8. Disconnect any remaining wiring, ducts, hoses, cables, etc.

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9. Repair Procedure (cont'd)

- 9. Remove the fasteners holding the instrument panel and carefully remove the instrument panel from the vehicle. Replace any damaged or one-time fasteners with the same type, grade, and size.
- 10. Remove any remaining moldings and trim that must be replaced.
- 11. Inspect the reinforcement and panel braces. Replace as needed.

9.5 Instrument Panel Installation

To install a repaired or replacement instrument panel:

- 1. Install any moldings or trim that cannot be installed after the installation of the instrument panel.
- 2. Reconnect the wiring, ducts, hoses, cables, etc.
- 3. Position the instrument panel in place and reinstall the fasteners. Torque the fasteners to the vehicle maker's recommendations.
- 4. Reinstall any parts removed for access.
- 5. Reinstall the steering column and center the clock spring.
- 6. Install the remaining brackets, adjacent panels, moldings, and trim. Follow the vehicle maker's recommendations. If the fasteners are being replaced, use fasteners that are the same size, type, and strength as the original fasteners. Ensure that all coatings and spacers are installed to prevent galvanic corrosion.
- 7. Torque all fasteners to the vehicle maker's recommendations.
- 8. Reconnect the battery.
- 9. Reset electronic memories and re-activate the passive restraint system. Follow the vehicle maker's recommendations.



10. Use Of Recycled (Salvage) Parts

10.1 Condition Of Salvage Parts

Do not install a salvage instrument panel having any of these defects:

- unrepairable damage
- damage caused by an airbag deployment
- damaged or missing mounting locations
- improper previous repairs
- evidence of fire damage

Determine if the salvage instrument panel can be repaired to restore its appearance and durability. Replace any damaged or corroded mounting hardware. Plan to transfer or replace parts such as the instrument cluster, gauges, trim panels, glove box, etc.

10.2 Preparation Of Salvage Parts

To prepare a salvage instrument panel for installation:

- Make any necessary repairs.
- Clean the part to remove dirt, wax, etc.



11. Inspection And Testing

11.1 Inspection Of A Repaired Or Replaced Instrument Panel

After installation or repair, inspect an instrument panel for these conditions:

- proper position
- proper finish appearance and texturing
- proper installation of all trim and fasteners
- fasteners torqued to the vehicle maker's recommendations
- proper routing of electrical wiring
- proper operation of all electrical circuits
- proper operation of all instruments, gauges, and warning lamps
- proper illumination and control of instrumentation
- proper operation of all switches and controls

Road-test the vehicle to identify any squeaks and rattles.

Correct any defects.