

COLLISION REPAIR INFORMATION

FOR THE TOYOTA DEALER

TITLE: WELDING HIGH STRENGTH
STEEL (H.S.S.)

PAGE 1 of 5

SECTION: WELDING BULLETIN #27

MODELS: ALL TOYOTA MODELS

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In today's body shop environment high strength steel (H.S.S.) body parts are frequently welded during collision damage repairs. Typical uses for H.S.S. are the front cross member, front body outer pillar, floor side member and door side impact protection beam. Because H.S.S. is used in these areas of potential high stress, repairs must be done properly to maintain the structural integrity of the vehicle.

Two types of H.S.S. are used. Solution hardened H.S.S. is used for door panels, hood outer panel, etc., while precipitation hardened H.S.S. is used for door impact beams and bumper reinforcements. It is not necessary to distinguish solid solution hardened steel from ordinary steels for repair purposes.

The location of H.S.S. parts can be found in the Toyota Repair Manual for Collision Damage under the Body Panel Construction section. A sample chart from the 1987 Camry Collision Repair Manual is on page 3 of this bulletin. A list of available Toyota Collision Repair manuals is on page 4.

REPAIR GUIDELINES

H.S.S. and ordinary steel parts in Toyota vehicles are welded using the same methods. The following precautions apply:

- Use either spot welding or MIG/MAG (shield gas) welding. MIG/MAG (shield gas) welding should only be done by an experienced body shop person.
- Only braze body components previously brazed at the factory and as indicated in the Toyota Repair Manual for Collision Damage.
- Do not use an oxy-acetylene torch for fusion welding auto bodies. The large heat affected zone may destroy galvanized coatings and cause excessive panel distortions. In addition, an oxy-acetylene torch will reduce the strength and increase the brittleness of H.S.S.

REFERENCE MATERIALS

The following manuals should be readily available in the body shop:

- Toyota Fundamental Body Repair Procedures Manual
- Complete set of Toyota Repair Manuals for Collision Damage

TOOLS

Proper tools are mandatory for H.S.S. repair. Tools include:

- MIG/MAG welder
- Spot welder
- H.S.S. spot weld cutter that will cut 8mm and 10mm holes
- Air saw
- Plasma cutter
- Air power chisel with panel cutter
- Hole punch
- Head protector
- Dust mask
- Face protector
- Vise grip pliers
- Weld through primer (see page 5 of this bulletin)
- Ear plugs
- Car cover for glass and interior

WELDS

Four types of welding are required in the repair of Toyota vehicles:

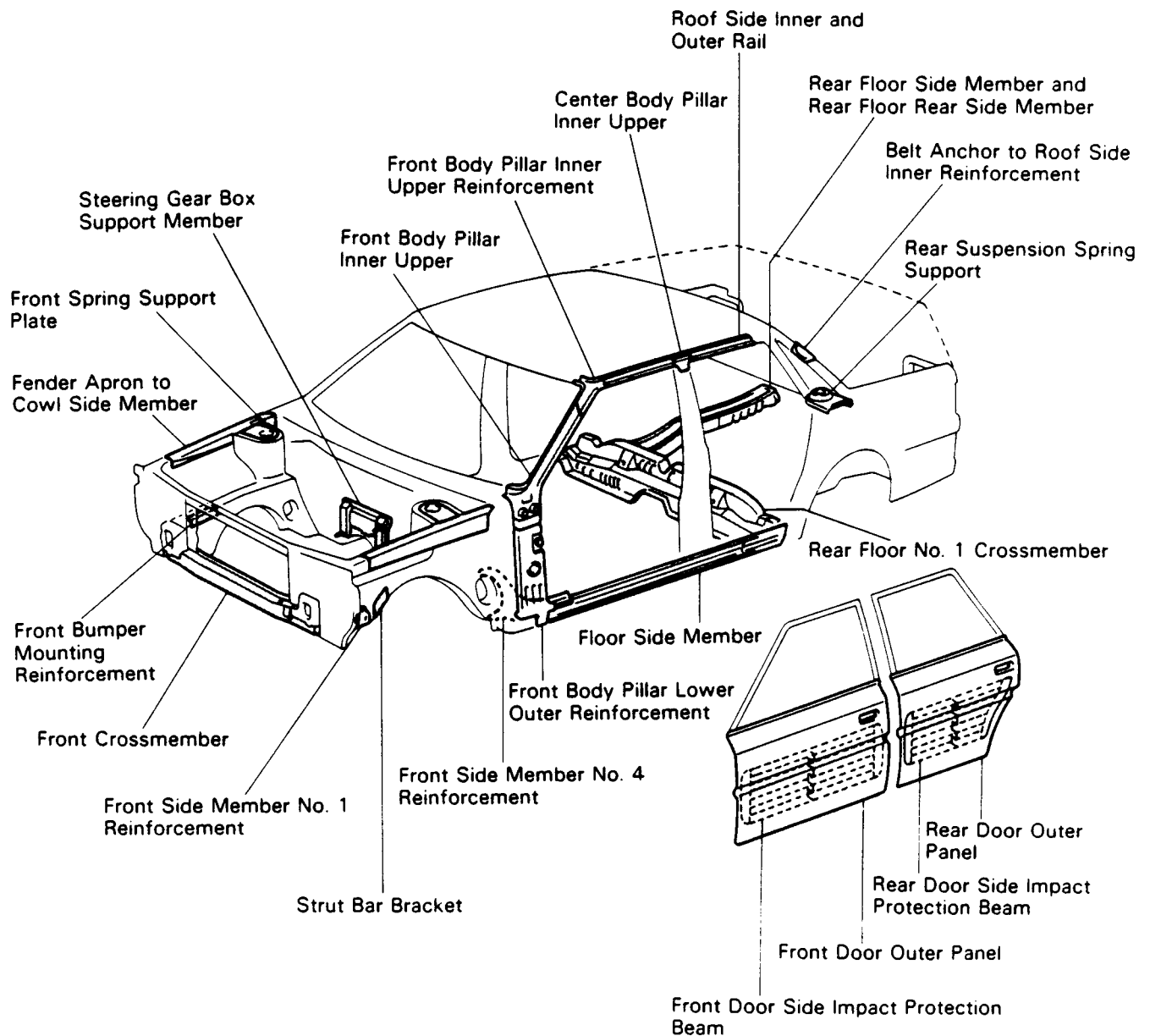
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| • Spot | • Continuous |
| • Plug | • Braze |

Technicians doing repair work must be proficient in doing all four types of welding since all four are used in various locations throughout the vehicle. The Toyota Repair Manuals for Collision Damage show the location and type of welds that must be used. The correct number and type of welds must be used to ensure structural integrity.

PROCEDURE

The complete in-depth procedure for welding H.S.S. and ordinary steel can be found in the Toyota Fundamental Body Repair Procedures manual for the applicable vehicle. The basic procedure requires:

- | | |
|-------------------------------|-------------------------------|
| 1. Removal of auxiliary parts | 4. Position new parts |
| 2. Removal of damaged parts | 5. Welding |
| 3. Prepare new parts | 6. Finishing of welded areas. |

BODY PANEL CONSTRUCTION — High Strength Steel (H.S.S.) Parts

TOYOTA SERVICE PUBLICATIONS

PART NUMBER	DESCRIPTION
3643-8E	Fundamental Painting Procedures
BRM00-2E	Fundamental Collision Repair
3643-1E	Tercel 2WD
3643-2E	Tercel 4WD
3643-4E	Corolla 83-87
36182	Celica/Supra 82-86
BRM00-1E	Celica 86-88
BRM00-5E	Supra 86-88
3643-3E	Camry 83-86
36118	Cressida 81-84
3644-1E	Cressida 85-88
3644-2E	Cressida Wgn. 85-88
3644-oA	MR2 85-88
BRM00-3E	Van 84-87
BRM01-1U	Tercel Coupe 87-88
BRM01-0U	Camry 87
BRM00-7U	Tercel Sedan 87-88
BR012	Corolla 88
BRM00-6E	FX/FX 16 87-88
BRM00-9E	Supra Sport Roof 86-88
BRM00-8E	MR2 T-Roof 85-88

You may order these on your TDN through the non-parts ordering system.

WELD-THROUGH PRIMER SUPPLIERS *

1. HTP "Cold Galvanizing Compound"
Part No. 12022
HTP America, Inc.
261 Woodwork Lane
Palatine, IL 60067
2. TTE "Dan-Prime"
Transnational Technology Enterprises, Inc.
3541 Old Conejo Road, #107
Newbury Park, CA 91320
3. Anchor Brand "Spray-Galv"
NASCO
Welding Equipment and Safety Supplies
Chicago, IL
4. 3M "Weld-Thru Coating"
Part No. 051131-05913
3M Automotive Trades Division
St. Paul, MN
5. Kent "Spotweld Primer"
Part No. 50190
Kent Industries
4500 Euclid Ave.
Cleveland, OH 44103

* There may be other sources for this material that are not listed here.