

ETI Tool Tech 2014

OEM Collision Programs



eastside_industries

42m



♥ bigc0605, naugy86kelly, _tito, campos_collision, bucket328

eastside_industries Glued on without fitting the door? Yep. #usa #visegrip #3mpanelbond #hondaaccord



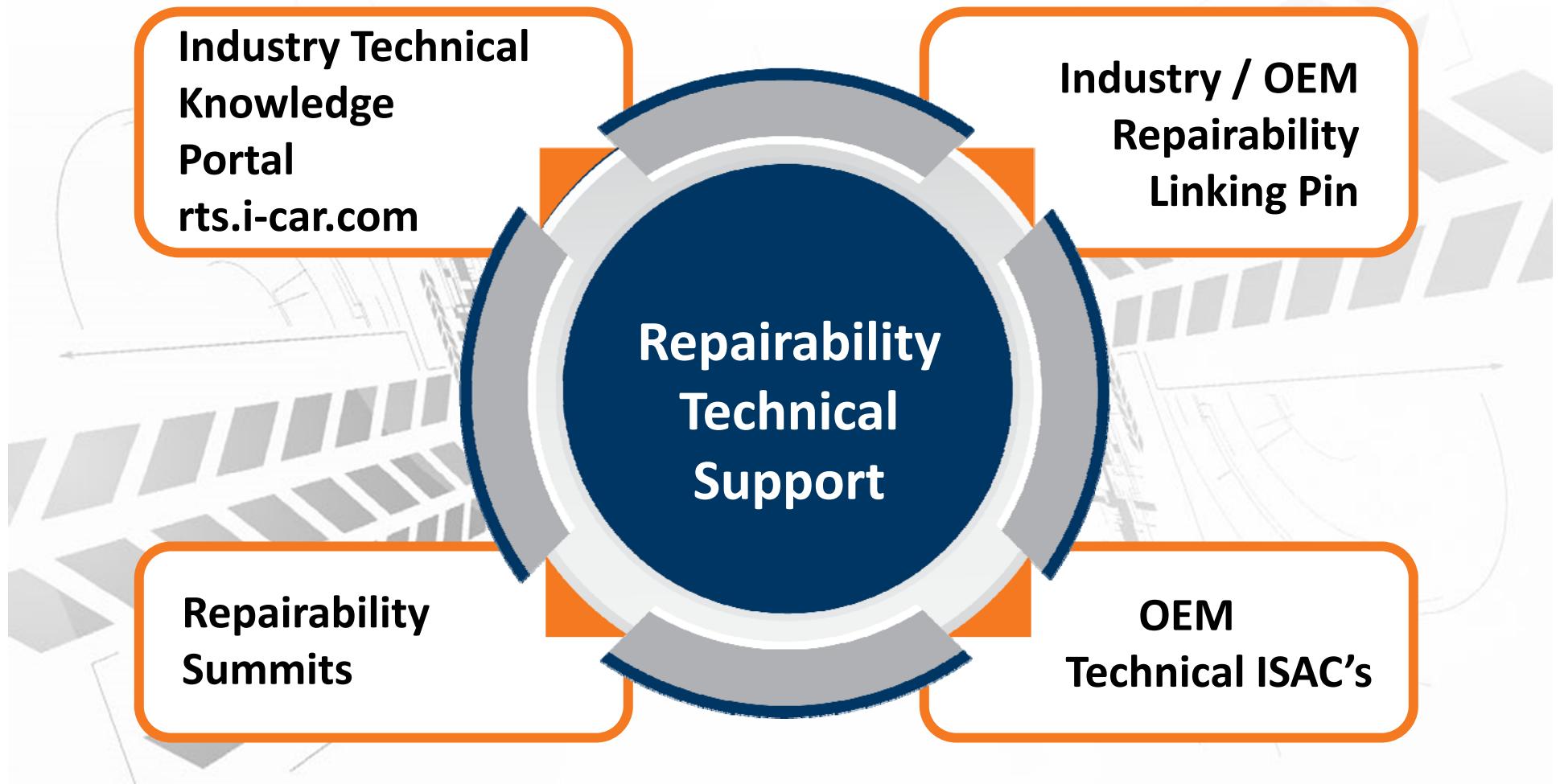
Repairability Technical Support (RTS)

Steve Marks

Industry Technical Support Manager
I-CAR Tech Center, Appleton, WI.



I-CAR® Repairability Technical Support (RTS)



OEM Information Matrix



**REPAIRABILITY
TECHNICAL SUPPORT**

INITIATIVE

OEM Technical Information Matrix

REV 01/14

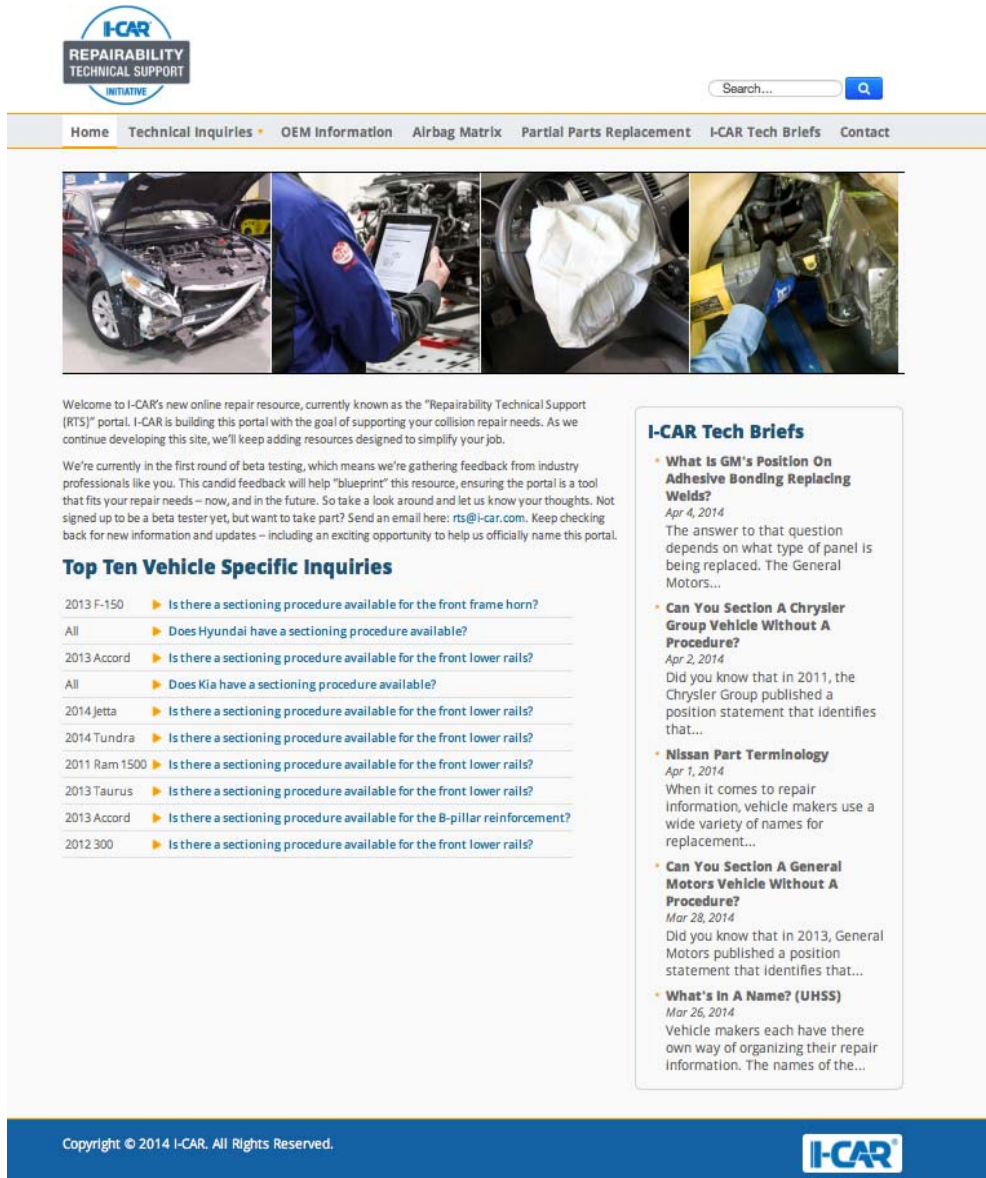
Y = Yes
 DNU = Do Not Use
 N = No Information Available
 Gray = I-CAR Researching Published
 OEM Information

USA ONLY

	Acura	Audi	BMW	Buick	Cadillac	Chevrolet	Chrysler	Dodge	Fiat	Ford	GM	Honda	Hyundai	Infiniti	Jaguar	Jeep	Kia	Land Rover	Lexus	Lincoln	Mazda	Mercedes-Benz	Mini	Mitsubishi	Nissan	Porsche	Ram	Scion	Smart Car	SRT	Subaru	Tecla	Toyota	Volkswagen	Volvo
Body Construction Materials Identification	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Collision Repair Information Not Released in US Market	Y	Y	Y		Y	Y	Y					Y	Y	Y					Y	Y		
Body Construction Material Repair Guidelines	Y	Y	Y	Y	Y	Y	Y			Y	Y	Y		Y	Y	Y			Y	Y	Y				Y	Y	Y					Y	Y		
Foams, Sealers, and Adhesive Locations and Product Requirements	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y		Y	Y	Y			Y	Y	Y				Y	Y	Y					Y	Y		
Partial Service Part / Assembly Replacement Procedures at Factory Seam	Y					Y						Y														N									
Structural Sectioning Procedures		Y	Y	Y	Y	Y	Y	Y		Y	Y			Y	Y	Y			Y	Y	Y				Y	Y	Y						Y	Y	
Outer Body Panel Sectioning Procedures	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y		Y	Y	Y			Y	Y	Y				Y	Y	Y					Y	Y		
Collision Repair Attachment Methods, Description, and Equipment Requirements	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y		Y	Y	Y			Y	Y	Y				Y	Y	Y					Y	Y		
Weld-Through Primer Required	Y	Y		Y	Y	Y	DNU	DNU		Y	Y	Y		Y	Y	Y	DNU		Y	Y	Y				Y	Y	DNU						Y	Y	
Corrosion Protection Methods and Material	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y		Y	Y	Y			Y	Y	Y				Y	Y	Y					Y	Y		
Stationary Glass Adhesives - Flange Prep Requirements	Y											Y										N													
Adhesives May Be Used to Replace Welds on Exterior Body Panels if Not Specified in Model-Specific Manual	DNU	DNU	DNU	Y	Y	Y				N	Y	DNU	N					DNU	N	N				N	DNU							DNU	DNU		
Collision Information Website Access	FDM A	DMA	DMA	FDMA	FDMA	FDMA	FDMA	FDMA	FDMA	DMA	FDMA	FDMA	DMA	DMA	DMA			DMA	DMA	DMA	DMA	DMA	DMA	DMA	A	FDMA	DMA	DMA	FDMA	DMA	N	DMA	DMA	DMA	
F = Free D = Daily/Multi-Day M = Monthly A = Annually N = None																																			
Comply to ALL SAE J2376 Information Requirements																																			

- A deliverable from the 2013 I-CAR Repairability Summits
- Lists the required elements essential for a safe and complete repair
- Quick reference showing the information each OEM provides
- I-CAR researching and populating fields based on the OEM collision repair information sites

RTS.I-CAR.COM



The screenshot shows the homepage of the RTS.I-CAR.COM website. At the top is the I-CAR Repairability Technical Support Initiative logo. Below it is a navigation bar with links: Home, Technical Inquiries, OEM Information, Airbag Matrix, Partial Parts Replacement, I-CAR Tech Briefs, and Contact. A search bar is located to the right of the navigation bar. Below the navigation bar is a row of four images: a car with a damaged front end, a person using a tablet, an airbag deployed, and a car being lifted by a jack. Below the images is a welcome message and a call to action for beta testing. To the left is a section titled 'Top Ten Vehicle Specific Inquiries' with a list of questions. To the right is a section titled 'I-CAR Tech Briefs' with a list of articles.

I-CAR
REPAIRABILITY
TECHNICAL SUPPORT
INITIATIVE

Search...

Home Technical Inquiries OEM Information Airbag Matrix Partial Parts Replacement I-CAR Tech Briefs Contact

Welcome to I-CAR's new online repair resource, currently known as the "Repairability Technical Support (RTS)" portal. I-CAR is building this portal with the goal of supporting your collision repair needs. As we continue developing this site, we'll keep adding resources designed to simplify your job.

We're currently in the first round of beta testing, which means we're gathering feedback from industry professionals like you. This candid feedback will help "blueprint" this resource, ensuring the portal is a tool that fits your repair needs – now, and in the future. So take a look around and let us know your thoughts. Not signed up to be a beta tester yet, but want to take part? Send an email here: rts@i-car.com. Keep checking back for new information and updates – including an exciting opportunity to help us officially name this portal.

Top Ten Vehicle Specific Inquiries

2013 F-150	► Is there a sectioning procedure available for the front frame horn?
All	► Does Hyundai have a sectioning procedure available?
2013 Accord	► Is there a sectioning procedure available for the front lower rails?
All	► Does Kia have a sectioning procedure available?
2014 Jetta	► Is there a sectioning procedure available for the front lower rails?
2014 Tundra	► Is there a sectioning procedure available for the front lower rails?
2011 Ram 1500	► Is there a sectioning procedure available for the front lower rails?
2013 Taurus	► Is there a sectioning procedure available for the front lower rails?
2013 Accord	► Is there a sectioning procedure available for the B-pillar reinforcement?
2012 300	► Is there a sectioning procedure available for the front lower rails?

I-CAR Tech Briefs

- **What Is GM's Position On Adhesive Bonding Replacing Welds?**
Apr 4, 2014
The answer to that question depends on what type of panel is being replaced. The General Motors...
- **Can You Section A Chrysler Group Vehicle Without A Procedure?**
Apr 2, 2014
Did you know that in 2011, the Chrysler Group published a position statement that identifies that...
- **Nissan Part Terminology**
Apr 1, 2014
When it comes to repair information, vehicle makers use a wide variety of names for replacement...
- **Can You Section A General Motors Vehicle Without A Procedure?**
Mar 28, 2014
Did you know that in 2013, General Motors published a position statement that identifies that...
- **What's In A Name? (UHSS)**
Mar 26, 2014
Vehicle makers each have their own way of organizing their repair information. The names of the...

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I-CAR

- Currently beta site
- Full scale launch - TBD
- Assist Industry access the available information NOT building a data base as reported by some
- Information IS available but not easily found
- Tech Inquiries searchable
- Tech Briefs
- Partial part replacement search

Sample Template - Honda Repair Information

[Home](#)
[Technical Inquiries](#)
[OEM Information](#)
[Airbag Matrix](#)
[Partial Parts Replacement](#)
[I-CAR Tech Briefs](#)

[Contact](#)

[Honda and Acura Body Repair News](#)

[Honda and Acura Technical Info](#)

[Honda/I-CAR Training](#)

[Honda Collision for Consumers](#)

[Acura Vehicles Website](#)

[Honda and Acura I-CAR News](#)

[Honda and Acura Position Statements](#)

[Acura/I-CAR Training](#)

[Honda Vehicles Website](#)

Video: "Accessing Honda Body Repair Manual"
This video shows how to access vehicle-specific Honda and Acura Body Repair Manuals on their website.

Top Honda Tech Inquiries

Year	Make	Model	Question
2009	Honda	Accord	Is there a sectioning procedure available for the front lower rails?
	Honda	All	What does Honda say about repairing damaged bumper reinforcements?
	Honda	All	Where can I find Honda collision repair information?
2002	Honda	CR-V	Is there a replacement procedure available for the rear body panel?
2013	Honda	Civic	Is there a sectioning procedure available for the inner quarter panel?
	Honda	All	What does Honda say about using a recycled outer unside and reinforcement?
2010	Honda	CR-V	Is there a sectioning procedure available for the front lower rails?
2012	Honda	Odyssey	Is there a sectioning procedure available for the front lower rails?
2011	Honda	Pilot	Is there a sectioning procedure available for the front lower rail?
2013	Honda	CR-V	Does Honda allow the trunk floor (spare tire well) to be replaced using welds at the front and rear edges and adhesive bonding along the rear rails?

[Search All Honda Technical Inquiries](#)

[Search All Acura Technical Inquiries](#)

[Honda Partial Replacement Matrix](#)

[Acura Partial Replacement Matrix](#)

[Honda Airbag Matrix](#)

[Acura Airbag Matrix](#)

Honda and Acura Body Repair News

2011 Odyssey New Model Body Repair information

Body Repair News

October 2011

2011 Odyssey New Model Body Repair Information

SAFETY: This publication contains a summary of the body and chassis technology that may affect safety and structural integrity. Please refer to the appropriate section of this body repair manual for complete repair information. It is available for purchase at [www.hondarepair.com](#).

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New Model Body Technology	Page 1
Body Panel Replacement	Page 2
Body Panel Reinforcement	Page 3
Body Panel Replacement and Reinforcement	Page 4
Body Panel Replacement and Reinforcement	Page 5

OVERVIEW OF BODY FEATURES

2011 Odyssey New Model Body Features

1. Reinforced front end structure (engine and transmission) for improved safety.
2. Reinforced rear end structure (engine and transmission) for improved safety.
3. Reinforced side structure (engine and transmission) for improved safety.
4. Reinforced rear end structure (engine and transmission) for improved safety.
5. Reinforced rear end structure (engine and transmission) for improved safety.

2013 Accord New Model Body Repair information

Body Repair News

October 2013

2013 Accord New Model Body Repair Information

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2014 Accord Plug-in & Hybrid New Model Body Repair

Body Repair News

October 2014

2014 Accord Plug-in & Hybrid New Model Body Repair Information

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2013 RDX New Model Body Repair information

Body Repair News

November 2013

2013 RDX New Model Body Repair Information

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2014 MDX New Model Body Repair information

Body Repair News

November 2014

2014 MDX New Model Body Repair Information

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2014 RLX New Model Body Repair information

Body Repair News

November 2014

2014 RLX New Model Body Repair Information

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ProFirstTM

Collision
Repair
Facility

Recognized by American Honda Motor Co., Inc.

ProFirst Body Shop Recognition Program

Program Purpose:



Promote the **correct, complete, and safe repair** of Honda and Acura vehicles.

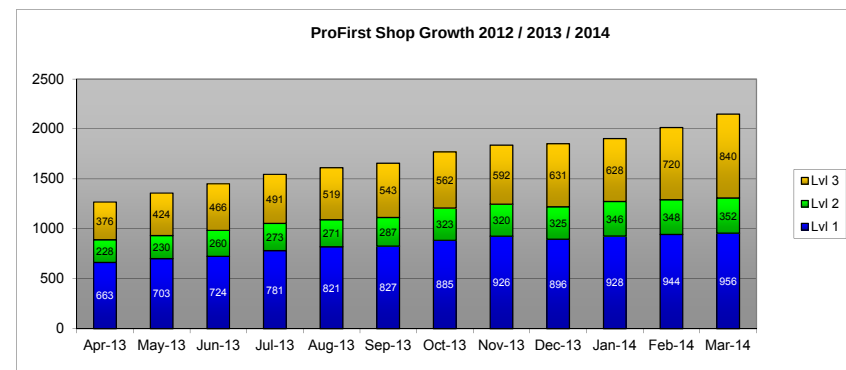
Provide support to those collision repair businesses who have demonstrated a commitment to a **high level of customer care** and satisfaction.

Launch Date:

October 17, 2012

As of April 18, 2014:

Almost 2200 shops registered
Over 800 shops qualify



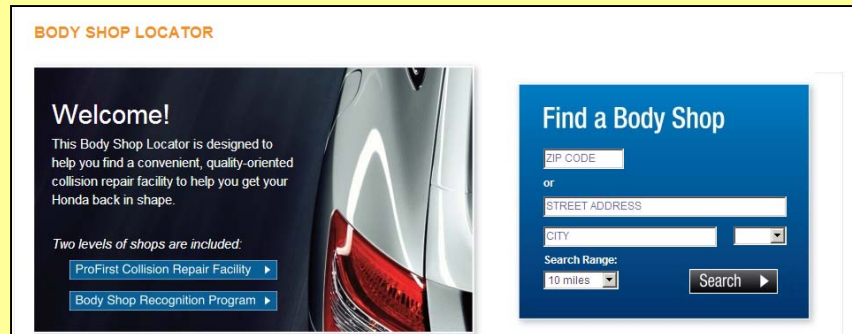
Steady growth over time.

ProFirst Body Shop Recognition Program



Plaque
suitable for
public
display

Program Benefits



A place on AH's shop locator site



Free access to Honda and Acura service and repair information



Access to the ProFirst logo for advertising

Free access to
Honda and
Acura parts
catalogs

SECTION		SECTION
BODY / AIR CONDITIONING	Illustration	
ENGINE MOUNTS	0.41	
FRONT SUB-FRAME - REAR BEAM	0.43	
FRONT BULKHEAD - B-SHIELD	0.48	
FLOOR - INNER PANEL	0.4910	
OUTER PANEL - ROOF PANEL	0.4920	
FRONT FENDERS	0.50	
ENGINE HOOD	0.51	
FRONT WINDSHIELD	0.52	
REAR WINDSHIELD - QUARTER WINDOWS	0.5210	
FRONT DOOR WINDOW - REGULATOR	0.53	
FRONT DOOR LOCKS - OUTER HANDLE	0.5310	
FRONT DOOR PANELS	0.5320	
REAR DOOR WINDOW - REGULATOR	0.54	
REAR DOOR LOCKS - OUTER HANDLE	0.5410	
REAR DOOR PANELS	0.5420	
TAILGATE	0.55	
A/C COMPRESSOR	0.57	
A/C CONDENSER	0.58	
A/C HOSES - PIPES	0.60	
A/C SENSOR	0.61	

ProFirst Body Shop Recognition Program

Program Requirements



Be an I-CAR Gold Class shop



At least one person in the shop must have completed the HON01e class.



Use OEConnection's Collision Link software. Generate a minimum average of 4 parts transactions per month.

ProFirst Body Shop Recognition Program

Program Enrollment

ProFirst™

American Honda's official recognition program for Honda and Acura dealer and independent collision facilities.

PROGRAM PURPOSE

The purpose of ProFirst is to promote the correct, correct use of Honda and Acura vehicles and to provide support to those collision repair businesses who have demonstrated a commitment to a high level of customer care and satisfaction.

PROGRAM AMENITIES

Program amenities include:

- A handsome display plaque
- A listing on American Honda's body shop locator site
- Use of the ProFirst logo for advertising
- Free online access to valuable Honda and Acura information including parts catalogs, parts and service bulletins, and collision and mechanical repair manuals

The ProFirst website takes care of the majority of administrative duties

profirst.honda.com

[REGISTER NOW](#)

[LEARN MORE](#)

[SHOP LOCATOR](#)

Registered Members Log In

User Name

Password



[Forgot Password?](#)

Industry Interaction



Founding member
and current Chair

Society of Collision
Repair Specialists
Corporate Sponsor



Collision Industry
Conference
Ongoing participant



Industry website administered and
supported by OE Roundtable

Consumer website created
and supported by OE
Roundtable

crashrepairinfo.com



NATIONAL AUTOMOTIVE SERVICE TASK FORCE

Collision Committee Co-Chair



OE Exhibitor 2014

Preview of Coming Attractions

Coming in 2015.....



Broadening the scope....

Increasing the opportunities...



Body Repair Program

Tesla Motors | Service Engineering

1 May 2014

Body Repair Program

Global Network of Support

Tesla Motors has established Authorized Body Shops to support Service Centers

- **72 North American Service Centers**
 - 76 Authorized Body Shops
- **23 European Service Centers**
 - 20 Authorized Body Shops
- **5 APAC Service Centers**
 - 10 Authorized Body Shops



Body Repair Program

Properly Repaired Vehicles

The Tesla Model S is constructed out of 95% Aluminum. The body structure is assembled using adhesive, resistance spot welding, riveting, and MIG welding. The challenge is having properly trained body shops that can restore Tesla vehicles to pre-accident condition.

- **Parts**

- ☐ Direct Ordering
- ☐ Restrictions on Structural & Safety Parts
- ☐ Parts Discount

- **Training**

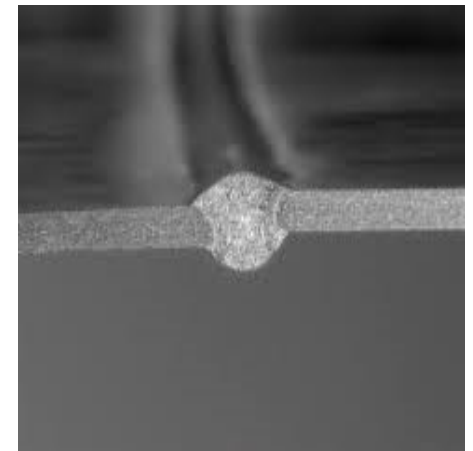
- ☐ Factory Trained

- **Tools**

- ☐ Vital for proper repairs

- **Factory Support**

- ☐ Direct link to Engineering

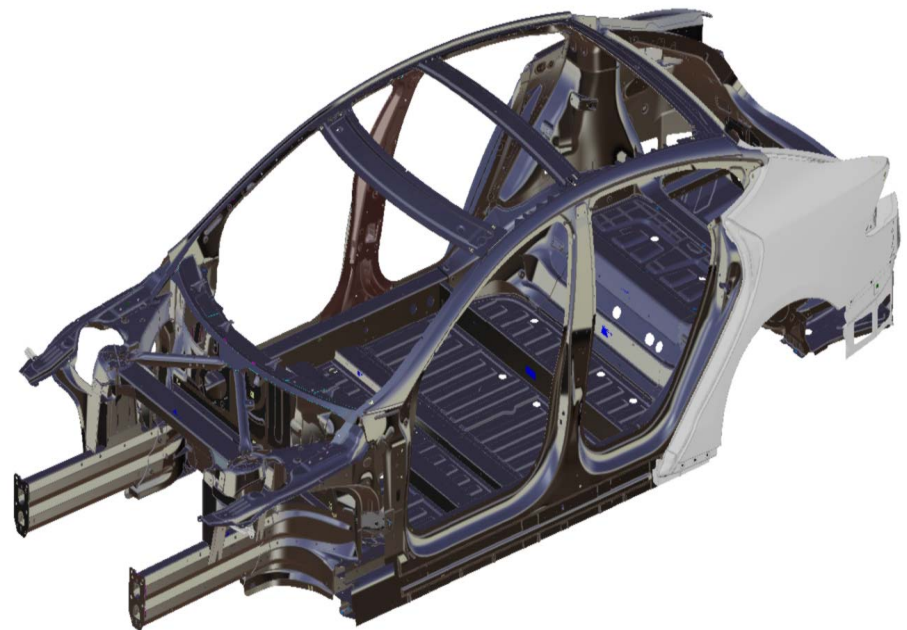


Body Repair Program

Tool Requirements

All Authorized Body Shops are equipped to repair any level of collision damage.

- **Tesla Mandatory Tools**
- **Rivet Tools**
- **ALU MIG Welders**
- **Frame Bench Systems**
- **Fume & Dust Extraction, Vacuum**
- **Dedicated Aluminum Hand Tools**



ETI 2014 Technical Review

Body/Collision Repair



Toyota Motor Sales, U.S.A., Inc.
Technical & Body Training
Development Department

Joseph P. DiDonato
Collision Training Administrator
joseph_didonato@toyota.com

April 30 & May 1st, 2014

Current Technology

- **Advance High-Strength Steel**
- **Laser Screw Welding**
- **Panel Bonding**
- **Collision Avoidance**
- **Park/Lane Assist**
- **Blind Spot Monitor**
- **Heads-up display**
- **Plastic PC roof (Prius V)**
- **Entune/Bespoke**
- **Dynamic Radar Cruise**
- **Rear Window Curtain Airbag**
- **Scratch Resistant Clear**
- **Many more**

Summary: Body & Paint Update

TIS: Technical Information Systems

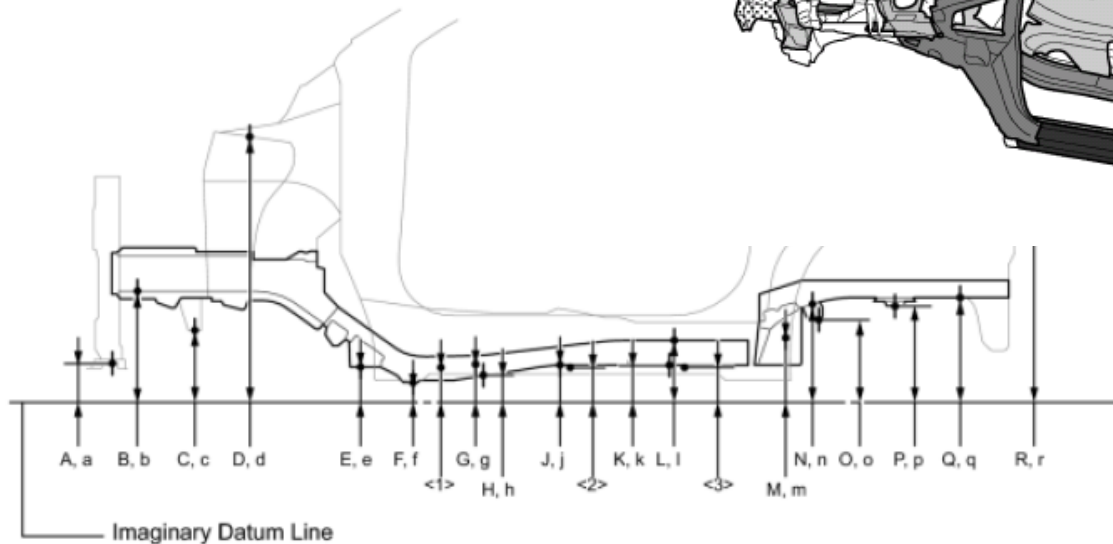
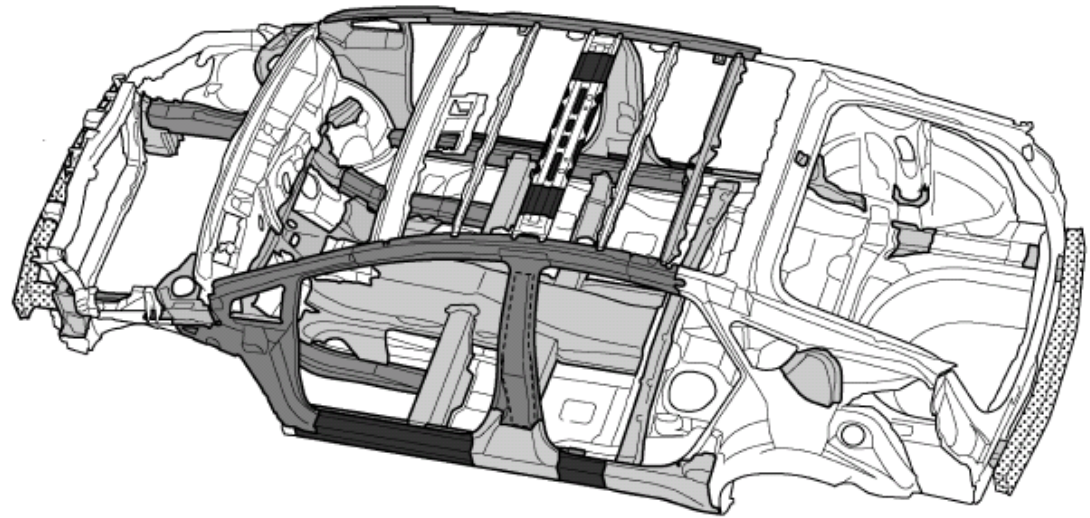
www.techinfo.toyota.com

2014 Toyota/Lexus/Scion

IS 250/350, Corolla

Technical Training:

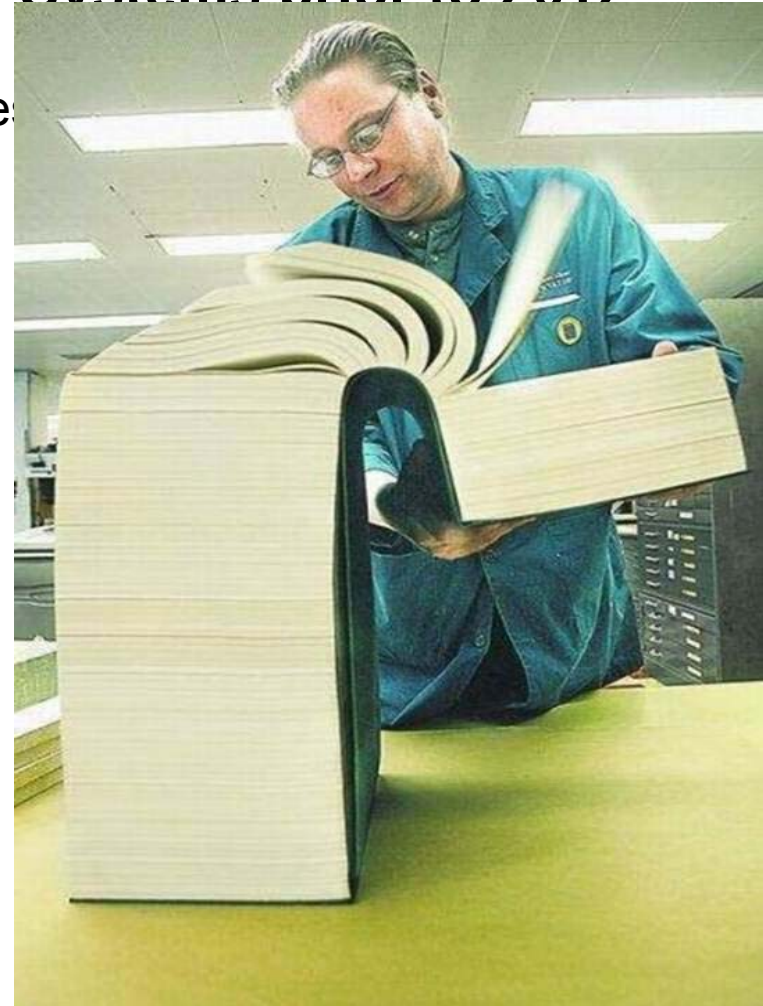
www.crrtraining.com



TIS: Technical Information Systems prior to 2012



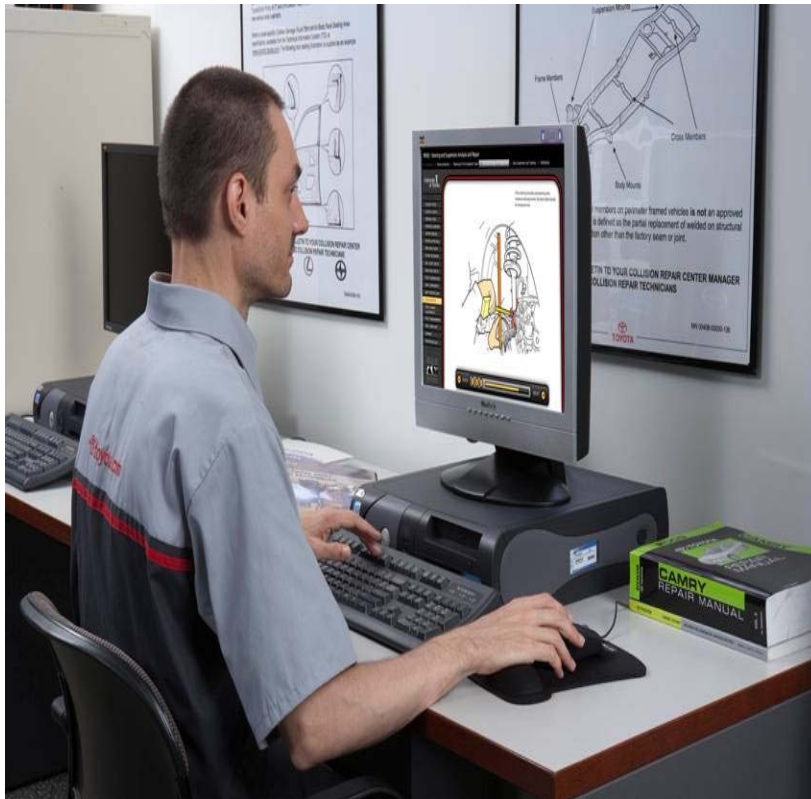
copies



TIS Technician hard bound manuals no longer available after 2011

www.techinfo.toyota.com

- Training
- Access to Organized Information



**TOYOTA**
APPROVED 

**LEXUS**
APPROVED 

New Product Announcement

For more information or to order, call toll-free: 1-800-368-6787

techstream **LITE** *Factory Service Information and Diagnostics for your shop!*

MODEL NO. TSLITESW01

Introductory SPECIAL
\$1,345.00

MODEL NO. TSLITESW01

The Techstream LITE Kit (TSLITESW01) Includes:

Mongoose MFC Interface by Drew Technologies
A high-performance J2534 vehicle interface module that connects a PC directly to the OBD-II connector.

- Operates with factory Techstream scan tool software to diagnose most 1996 and later Toyota/Lexus/Scion models.
- Compatible with most computers including netbooks.

Warranty: 12 Months from date of shipment to be free from physical defects in material and workmanship under normal use.

One Year Subscription to TIS

- Technical Library
- Techstream Software & Reprogramming Calibrations

IDENTIFIX 
Direct-Hit Access for Toyota/Scion/Lexus vehicles

\$245.00
Total Savings
with Introductory Special!

\$495 Value - Mongoose MFC Interface
+ \$1,095 Value - One Year TIS Professional Diagnostic Subscription
= \$1,590 Combined Total Value
if all components are purchased separately.

Disclaimers: (1) Any PC used must meet minimum requirements. PC not included; (2) Product information and pricing are subject to change without notice. Prices noted are in U.S. dollars. (3) All marks are that of their respective holders.

For additional details, visit <https://techinfo.toyota.com>
*See page 2 for Technical Information and Minimum PC Requirements >>

www.techinfo.toyota.com


TECHNICAL INFORMATION SYSTEM


TOYOTA


SCION


LEXUS

Subscriber Login

User Name: ☐ Remember Me

Password:



Forgot [User Name](#) or [Password](#)?

Need An Account?

Access to TIS is available on a subscription basis. Click the Subscribe button above for more details.

Already Have An Account?

Choose a link above to manage your current TIS account.

TIS Featured Information

[Click here](#) for a tutorial on our Technical Information System.

Access to vehicle security information is provided for security professionals registered with the NASTF Vehicle Security Professional Registry. For more information [click here](#).

What Is TIS

The Technical Information System or TIS is your service support source for all Toyota produced vehicles marketed in North America. TIS includes all of the vital information you'll need to effectively service most **1990 and later** Toyota products. The table below summarizes the features of each subscription level. TIS is available in three different levels.

TIS Library	Standard	Professional Diagnostic	Security Professional
Service Bulletins			
Repair Manuals			
Wiring Diagrams			
Other Technical Information			
Diagnostics / Reprogramming			
Techstream Scantool Software			
ECU Calibrations			
Identifix Direct-Hit			
Security			
Key Codes			
Immobilizer / Smart Reset			

Professional Resources











Factory Service Information and Diagnostics for your shop!
 Need an inexpensive solution for diagnosing & repairing Toyota, Scion, and Lexus vehicles? The NEW Techstream Lite Kit allows you to use your own PC with Techstream Software.

[>>Learn More About Techstream Lite](#)
[>>Scantools & Vehicle Reprogramming](#)

Find a Dealership near you for a full selection of Genuine Parts and Accessories.

[>>Learn More](#)

Beyond service information, several additional resources are available to assist in the service of Toyota, Scion, and Lexus vehicles. Follow the links below for more details.

[>>Special Service Tools](#)
[>>Technical Training & Printed Materials](#)
[>>Emergency Response & Hybrid Information](#)

COLLISION REPAIR INFORMATION

FOR THE COLLISION REPAIR PROFESSIONAL

TITLE: WELDING PRECAUTIONS & SUBSTITUTION
SECTION: BODY COMPONENT REPLACEMENT BULLETIN #88 (PAGE 1 of 2)
MODEL: ALL TOYOTA, LEXUS, and SCION
DATE: DECEMBER 2011

Welding specifications for body components are published in model-specific Collision Damage Repair Manuals for all Toyota, Lexus, and Scion vehicles. Welded component installation may require a combination of welding methods including:

- GTAW (Gas Tungsten Arc Welding)
- GMAW (MIG) (Gas Metal Arc Metal Inert Gas - Welding)
- Arc Brazing (Brazing)

The STRS/W method best replicates factory attachment methods and when performed correctly, offers the following advantages over GMAW/MIG plug welding:

- Equipment is readily available in most markets
- Comparable to factory welding methods and appearance
- Does not produce ultraviolet radiation
- Reduces heat effects and associated hot spots
- Reduces the emission of metal grinding particles and fumes
- Reduces the emission of sparks
- Reduces air contamination from burnt coatings

STRS/W may be substituted for GMAW/MIG plug welds, however, STRS/W substitution should match factory weld size, strength and application.

Appearance alone will not validate the strength of a weld. Weld strength may be validated by timing the welds and performing destructive testing. Timing the welds and destructive tests must be performed on metal of the same thickness and composition as that of the component being replaced.



PLEASE ROUTE THIS BULLETIN TO YOUR COLLISION REPAIR CENTER
MANAGER AND COLLISION REPAIR TECHNICIAN



TITLE: BODY SECTIONING
SECTION: STRUCTURAL BULLETIN #22
MODEL: ALL TOYOTA, LEXUS, and SCION
DATE: REVISED - FEBRUARY 2012

Body Sectioning With Salvage Parts

Body sectioning is generally performed by joining portions of vehicles that have sustained severe damage, where a presumed salvagable portion of one vehicle is joined to another. This practice can compromise overall vehicle quality, crashworthiness, and occupant safety.



Body sectioning with the use of any weld on salvage components is not an approved repair procedure for Toyota, Lexus, and Scion vehicles.

Body sectioning is not approved for the following reasons:

- Quality of salvage components cannot be certified or verified.
- Installation of welds can reduce strength and safety from the original design.
- Body and drivetrain components can exhibit poor fit and alignment.
- Squeaks, rattles, wind noise, and water leaks can occur.
- Extensive corrosion potential can occur.

Refer to Collision Repair Information Bulletin #160 "Use of Non-CEM Parts on Toyota Vehicles" for other important information regarding the use of salvage and aftermarket parts.

PLEASE ROUTE THIS BULLETIN TO YOUR COLLISION REPAIR CENTER
MANAGER AND COLLISION REPAIR TECHNICIAN



TITLE: WELDING ULTRA-HIGH STRENGTH STEEL
SECTION: STRUCTURAL BULLETIN #174
MODEL: 2010 PRIUS -
DATE: AUGUST 2009

Toyota has incorporated the use of Ultra-High Strength Steel (UHSS) for rocker panel reinforcements in the body construction of the 2010 Prius. UHSS increases occupant cabin strength and rigidity. The strength rating for these UHSS components is 980 MPa (Vega Recast), which has unique replacement welding requirements.

Welding specifications and steel strength ratings are documented in model-specific Collision Damage Repair Manuals. Because the use of UHSS is on the increase, always refer to vehicle-specific "Structural Outlines" for locations of UHSS body components.

The following is an excerpt from repair manual recommendations on this topic.

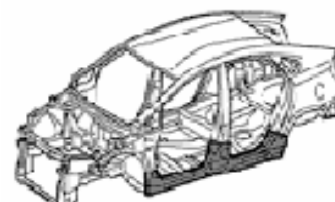
#1: For welding 980 MPa Ultra-High Strength Steel, when two panels are joined:

Squeeze-Type Resistance Spot Welding	Passage	794 (31.6) (31.6)
	Weld Current	10,000 Amperes
	Weld Time	16 Cycles (0.22 Seconds)
Gas Metal Arc Metal Inert Gas Plug Welding	Hole Diameter	12 mm (0.39 in.)
	Wire Type	MIGAS 18 ER70S-2
	Shielding Gas	75-80% Argon - 25-20% CO ₂

#2: For plug welding 980 MPa Ultra-High Strength Steel when two or more panels are joined:

Gas Metal Arc Metal Inert Gas Plug Welding	Plug Diameter	12 mm (0.39 in.)
	Wire Type	MIGAS 18 ER70S-2
	Shielding Gas	75-80% Argon - 25-20% CO ₂

Since some variations may be necessary, consult STRS/W technical manual and feature welders with visual and destructive tests for specific application.

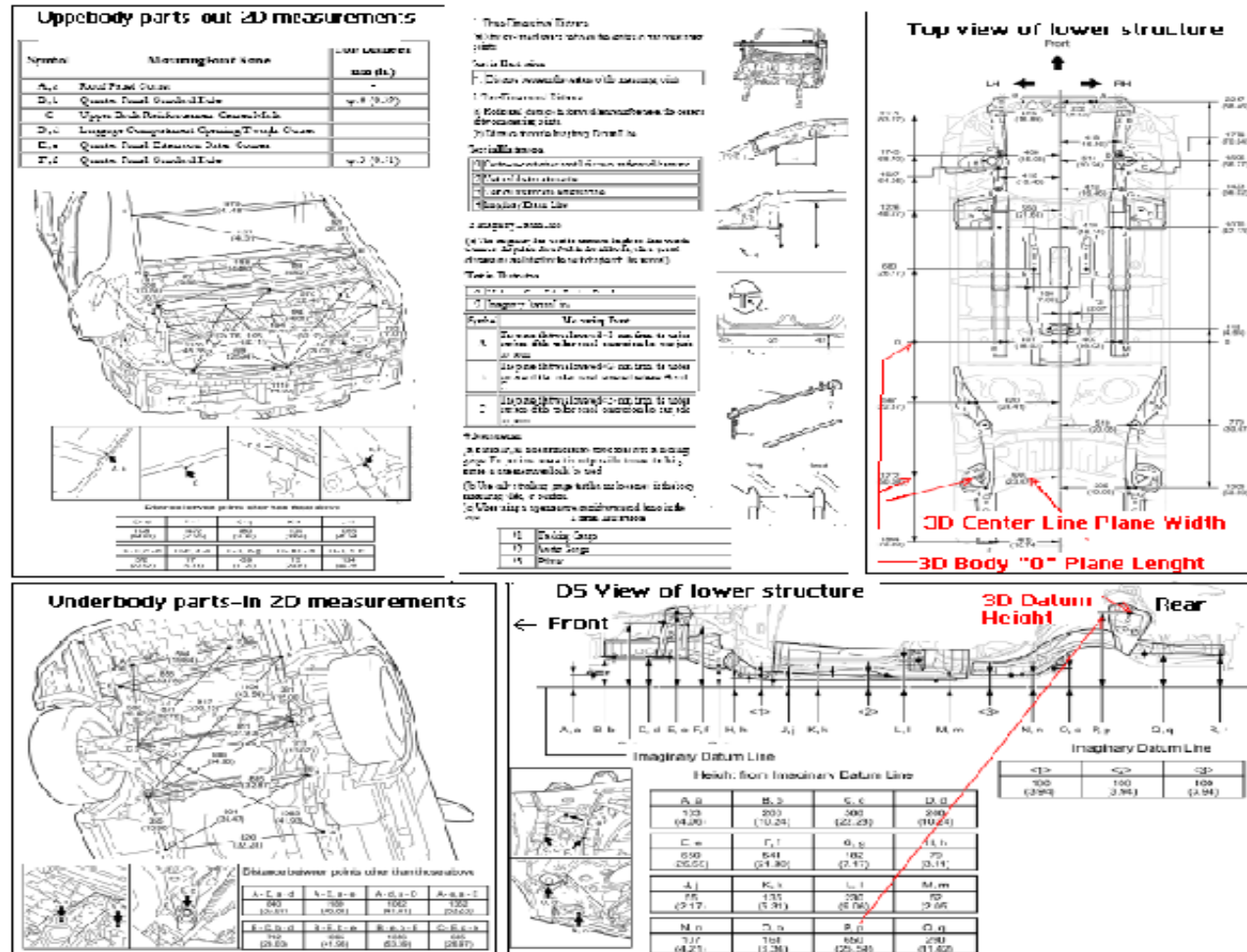


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MANAGER AND COLLISION REPAIR TECHNICIAN



Dimensional Data since 1990 available from Toyota

OEM Factory model
Specific 2 and 3
Dimensional frame &
body specifications
are available in TIS
as soon as the model
Is available for sale.



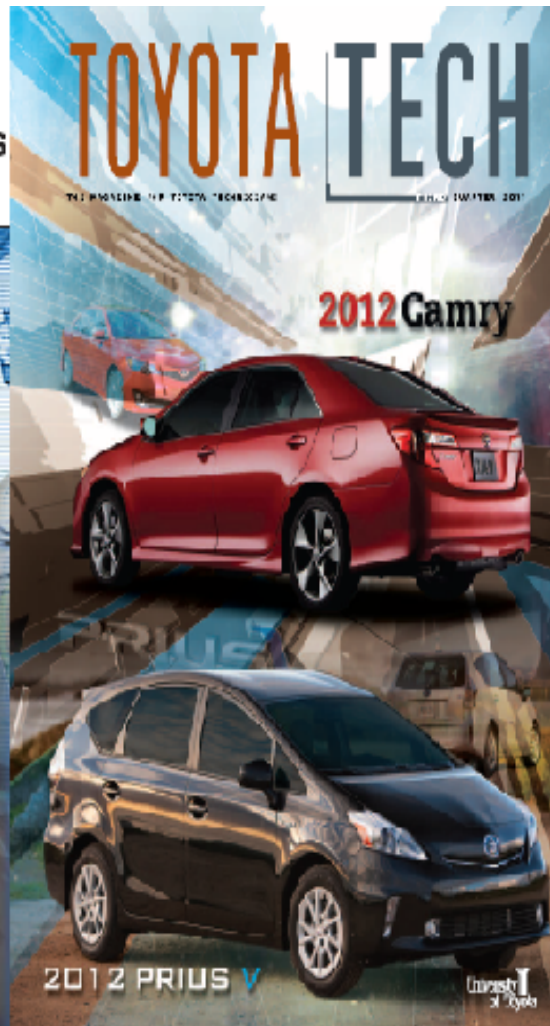
Technician Repair Manuals, Hand Books, Quarterly Magazines, QRG, TSB, NCF, Owners Manuals, Electrical Wiring Diagrams, Etc.



Advanced Painting Techniques



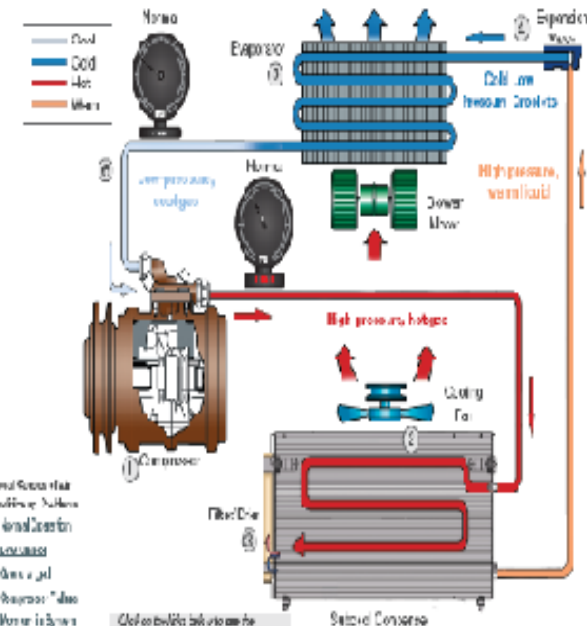
TOYOTA Collision Repair and Refinish Training



Air Conditioning System Diagnosis Quick Reference

Normal Operation

1. The compressor pressure differential is high. The high pressure is too high. The low pressure is too low. The compressor is not working properly.
2. The cooling fan pressure differential is too high. The fan is not working properly.
3. The refrigerant level is low. The refrigerant level is too low. The refrigerant level is too high.
4. The condenser pressure differential is too high. The condenser is not working properly.
5. The evaporator pressure differential is too high. The evaporator is not working properly.
6. The expansion valve pressure differential is too high. The expansion valve is not working properly.



Typical Signs that
Indicate a Problem
with the System

- Low pressure
- High pressure
- Low temperature
- High temperature
- Low flow
- High flow
- Low efficiency
- High efficiency

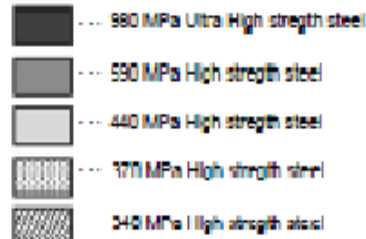
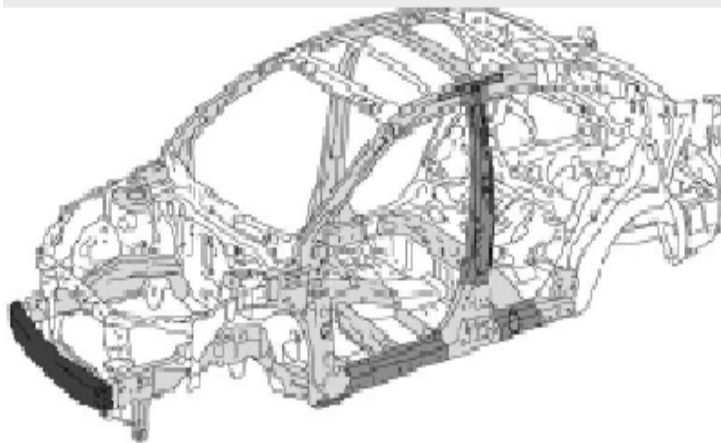
Check the system for
leaks and other problems

Refrigerant

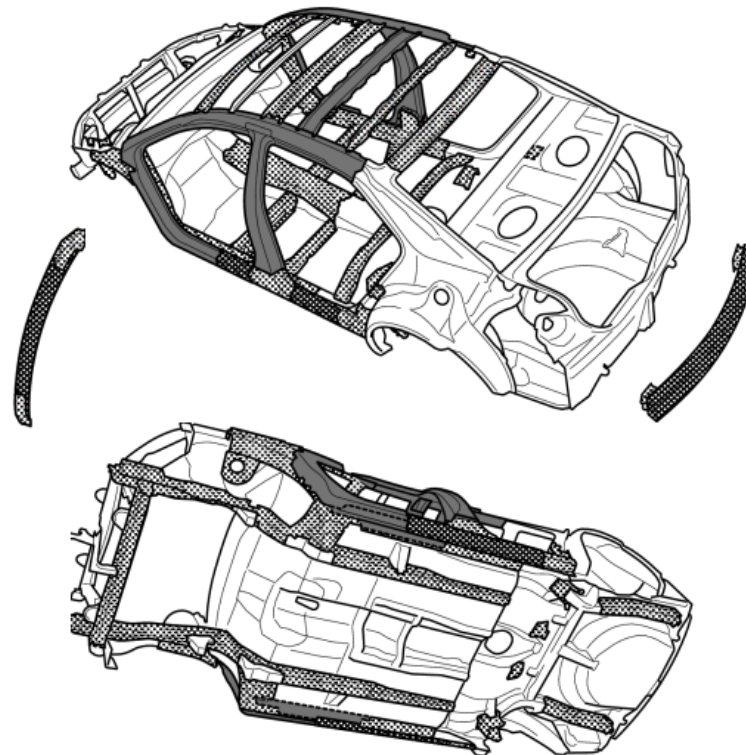
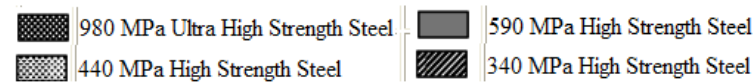
Structural Changes in Body Construction

- 2013 vs. 2014 Toyota Corolla Structural Differences

2013 Corolla Structural outline



2014 Toyota Corolla Structural Steel Outline



Structural Changes in Body Construction

- Lexus IS 2013 vs.2014
- Steel Differences

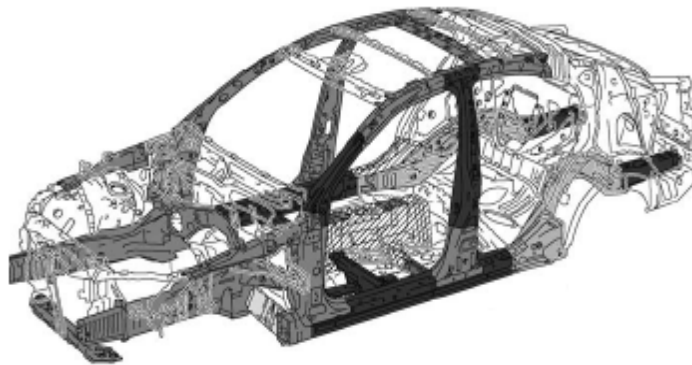
Last Modified: 6-28-2013	6.4 F	Doc ID: RM00000006500ZX
Model Year: 2014	Model: IS350	Prod Date Range: [04/2013 -
Title: INTRODUCTION: ABOUT THIS VEHICLE: STRUCTURAL OUTLINE; 2014 MY IS250 IS350 [04/2013 -]		

Text in Illustration

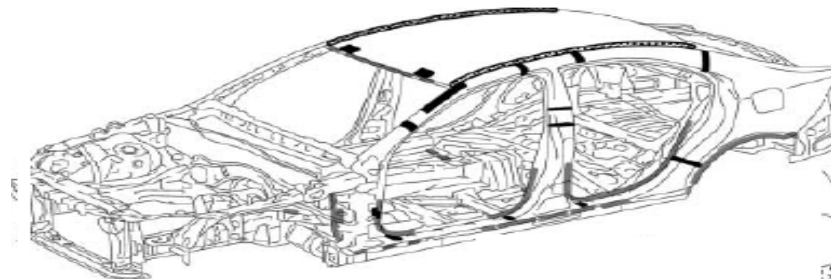
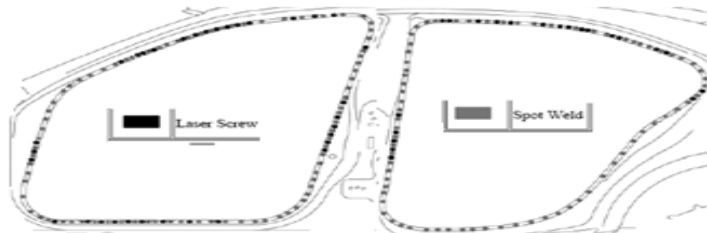
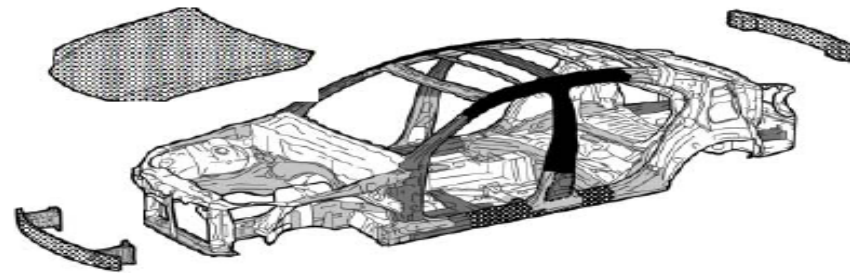
STRUCTURAL OUTLINE

	1500 MPa Ultra High Strength Steel		980 MPa Ultra High Strength Steel
	590 MPa High Strength Steel		440 MPa High Strength Steel
	340 MPa High Strength Steel		Aluminum

2013 Lexus IS250/350 Structural outline

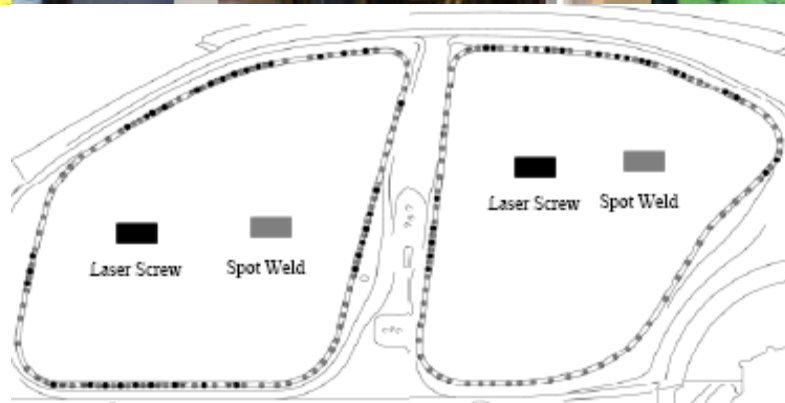
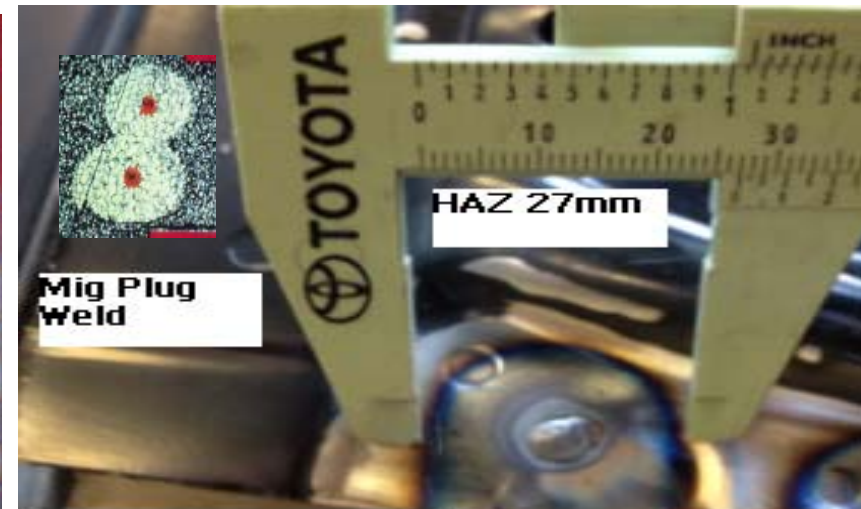
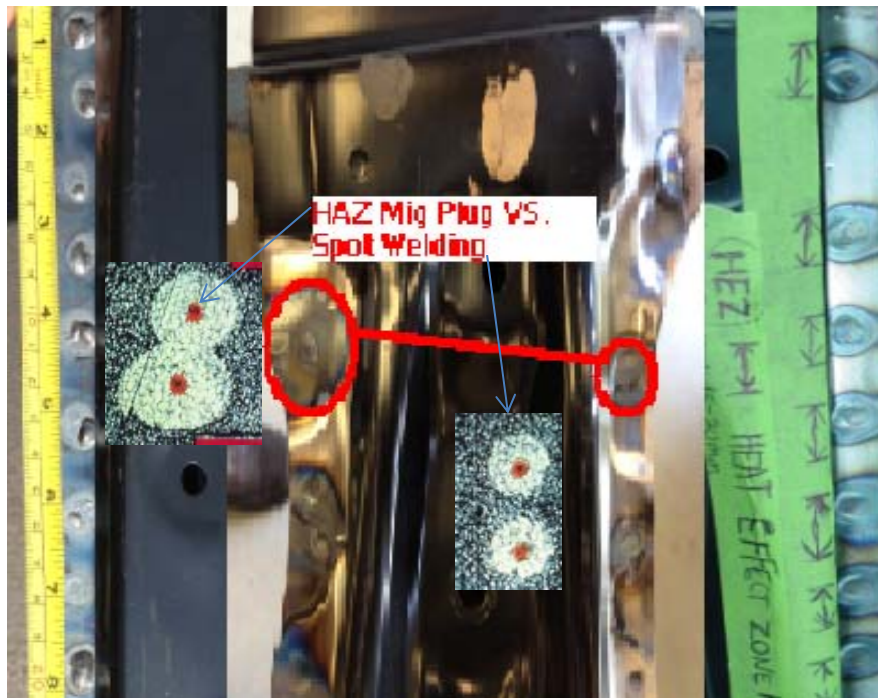


	... 590MPa High strength steel
	... 440MPa High strength steel
	... 390MPa High strength steel
	... 370MPa High strength steel
	... 340MPa High strength steel



	Foamed Sealing Material Application Areas		Adhesive
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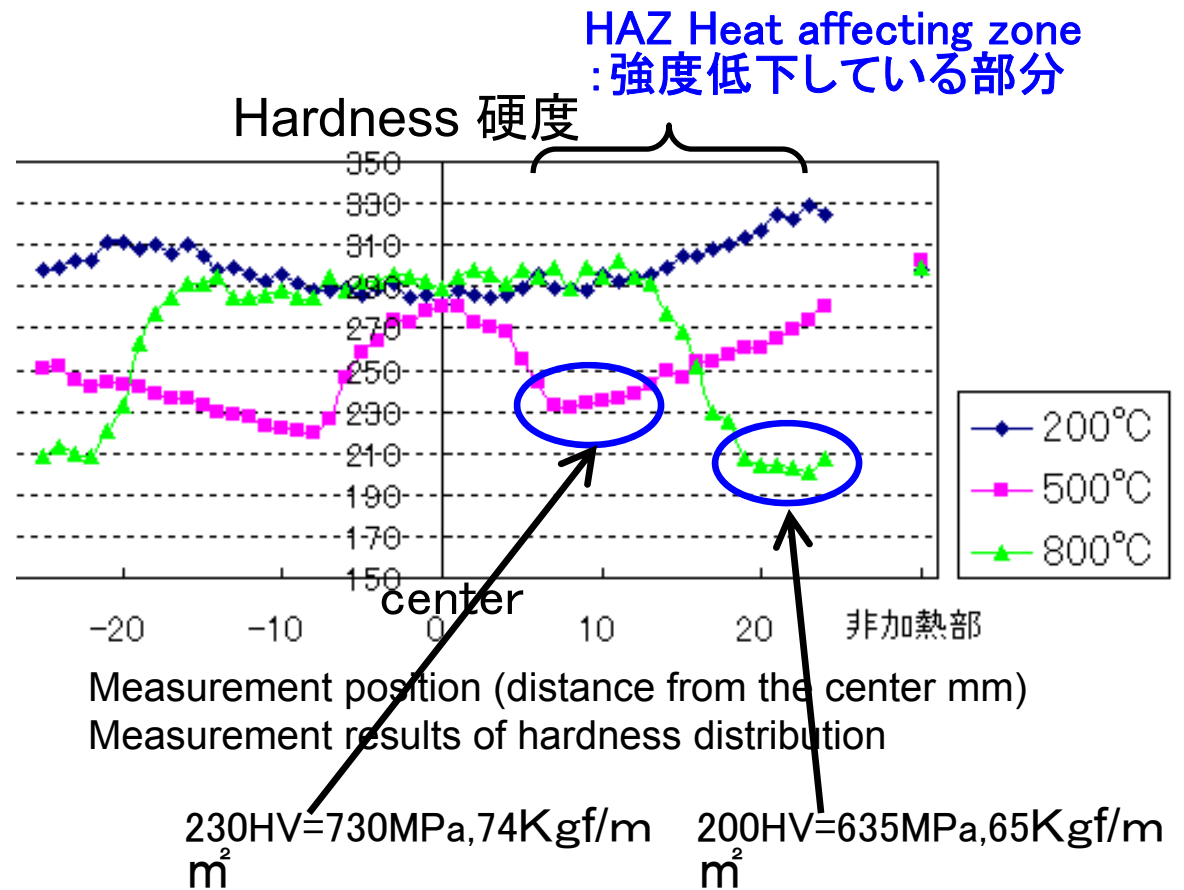
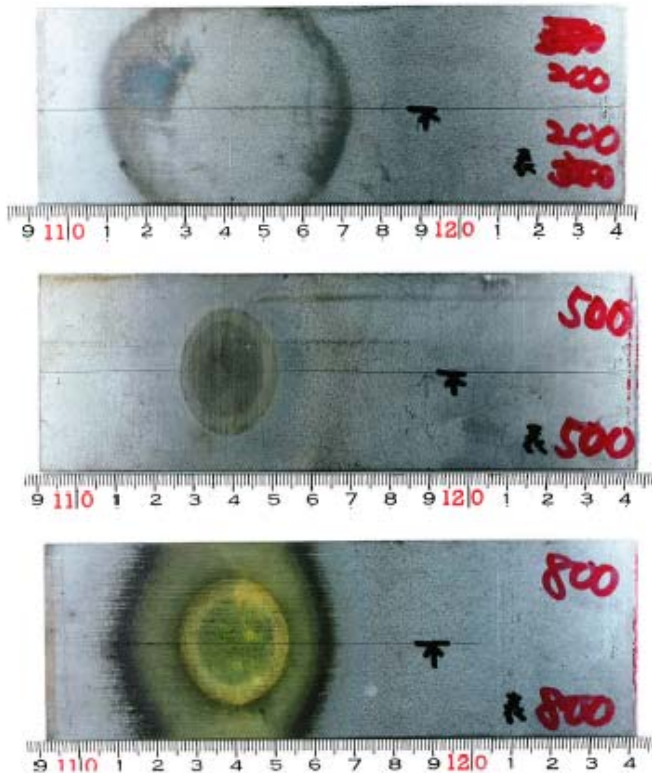
Welding methods changing due to the increase usage of UHSS.



Prohibition of heat repair

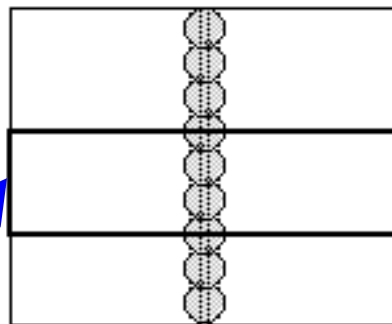
Hardness of steel plates affected by heat

■ Strength deterioration of steel plates



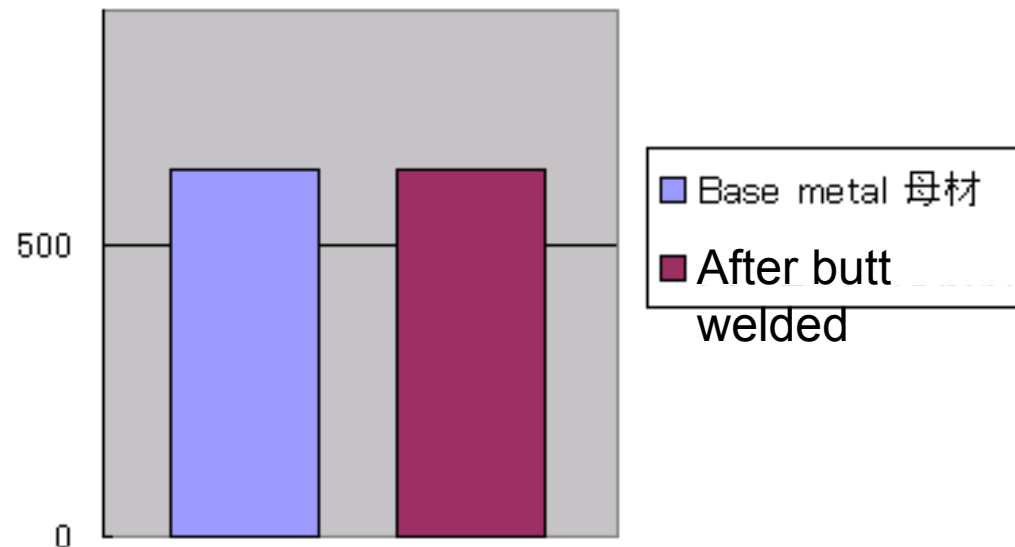
Prohibition Strength after butt welding

Reference



Butt welding

590MPa High strength steel

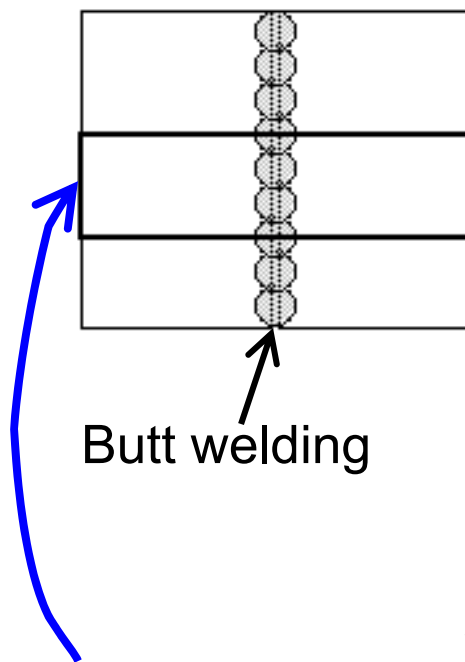


- when butt welded, the strength is secured at the same level as the base metal.
- Provide the instructions for parts approved by TMC design dept.

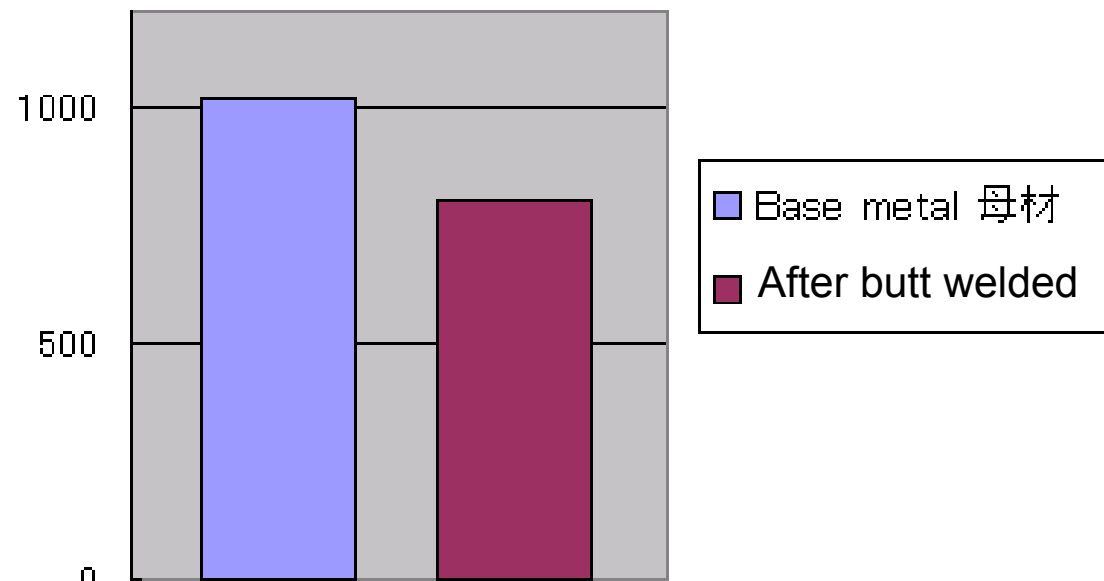
The steel plate is cut in the same size as the non welded plate and the tensile strength is measured for comparison.

Prohibition of Strength after butt welding

The steel plate is cut in the same size as the non welded plate and the tensile strength is measured for comparison.



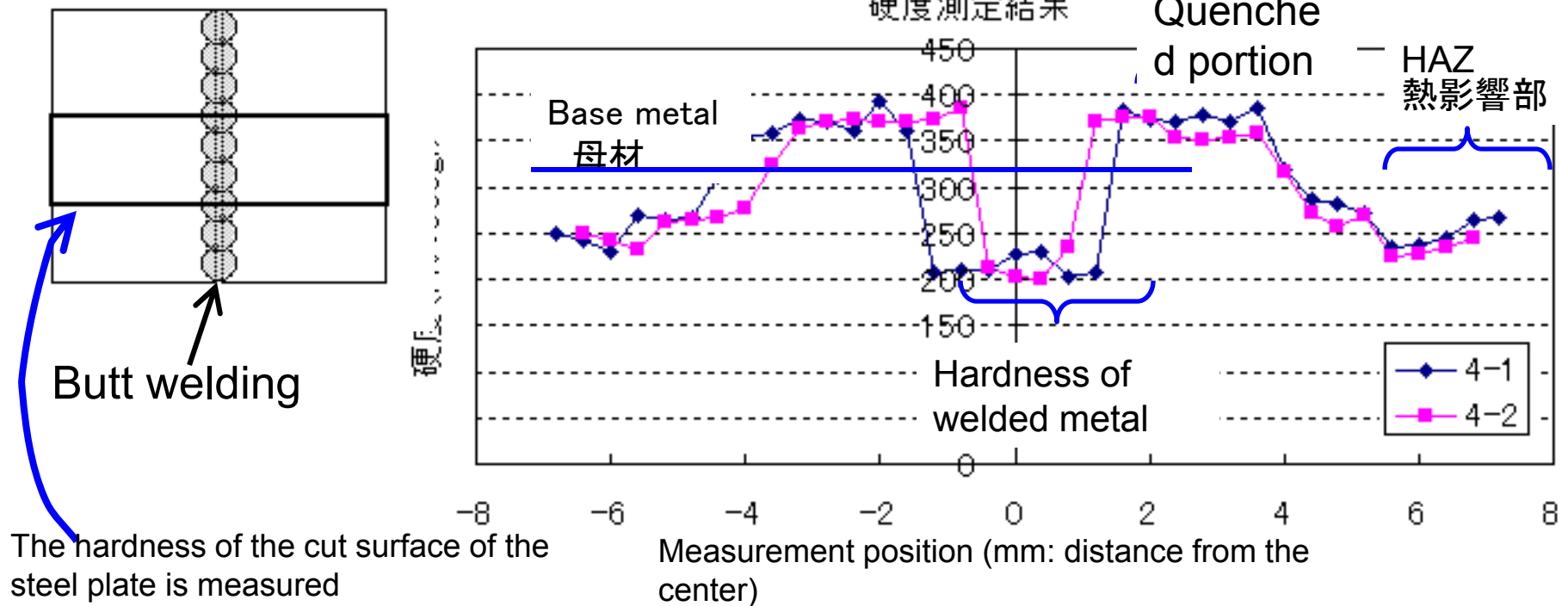
980MPa Ultra high strength steel



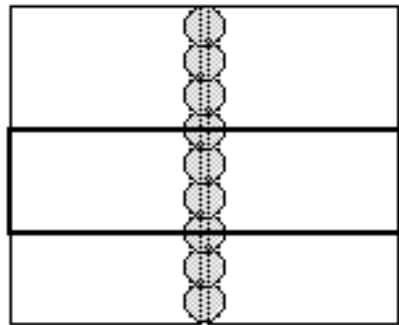
The strength of the steel plate deteriorates by 22%, when the plate is butt welded.

Prohibition of Strength after butt welding

980MPa Ultra high strength steel



Prohibition of butt welding Strength after butt welding



Butt welding



Welding operation meeting welding conditions Spot welding

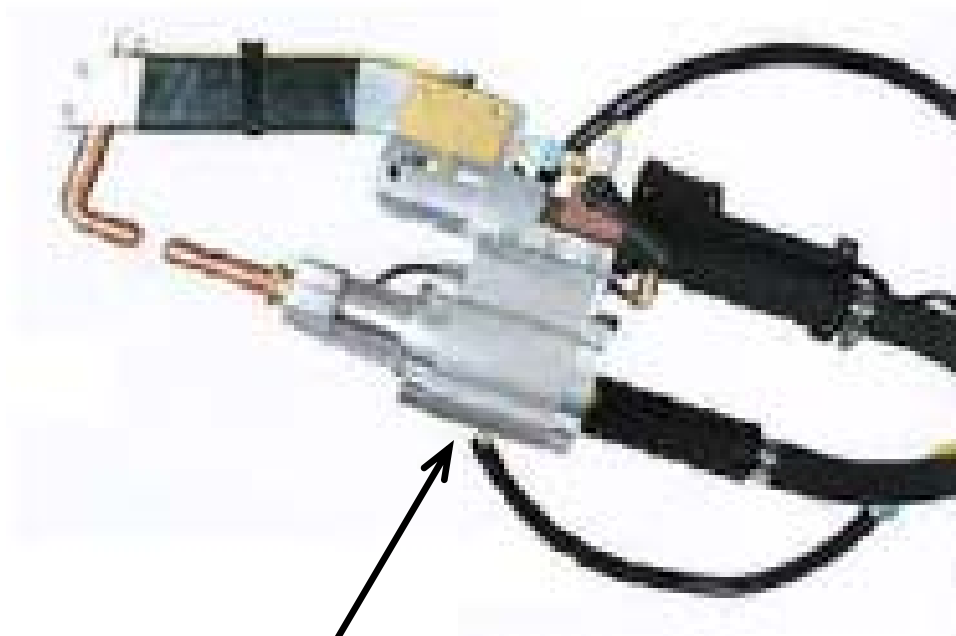
A manual type spot gun: Low amperage & welding pressure



Does not meet requirements for structural welding !!!!

Welding operation meeting welding conditions Spot welding

A spot gun having an air cylinder



Air cylinder

Welding operation meeting welding conditions

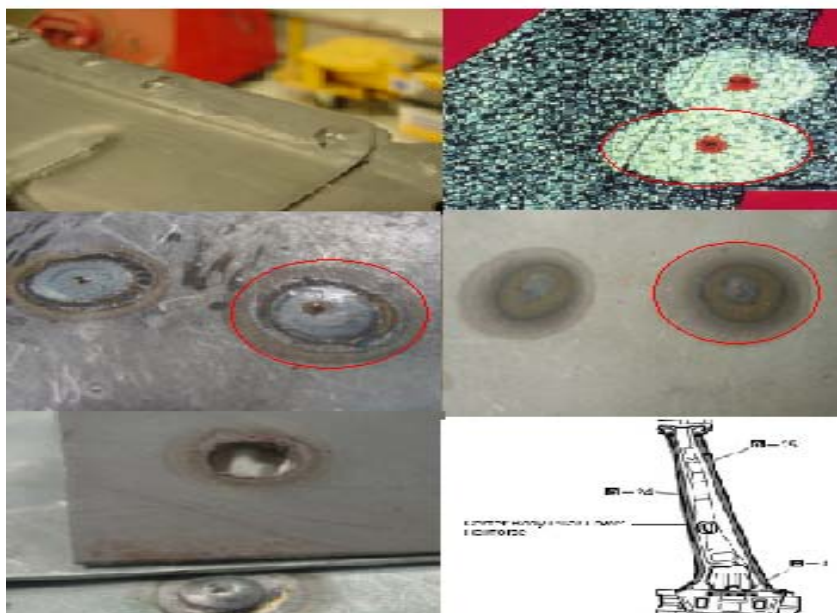
Spot welding: welding conditions and weld strength

RWMA (Resistance Welder Manufacturers Association)

Spot welding conditions for mild steel plates

(RWMAのデータを補正)

①⑦ Thickne SS		電極 ②		最良条件(Aクラス)					中等条件(Bクラス)					普通条件(Cクラス)				
		max	min	⑤ 通電 時間	加圧力	溶接 電流	ナゲット 径	⑥ せん断 強さ ±14%	⑤ 通電 時間	加圧力	溶接 電流	ナゲット 径	⑥ せん断 強さ ±17%	⑤ 通電 時間	加圧力	溶接 電流	ナゲット 径	⑥ せん断 強さ ±20%
		φ d	φ D															
mm	in	φ mm		サイクル	kN	A	φ mm	kN	サイクル	kN	A	φ mm	kN	サイクル	kN	A	φ mm	kN
0.4	0.016	3.2	10	5	1.2	5,200	4.0	1.8	10	0.8	4,500	3.6	1.6	20	0.4	3,500	3.3	1.3
0.5	0.021	4.8	10	6	1.4	6,000	4.3	2.4	11	0.9	5,000	4.0	2.1	24	0.5	4,000	3.6	1.8
0.6	0.024	4.8	10	7	1.5	6,600	4.7	3.0	13	1.0	5,500	4.3	2.8	26	0.5	4,300	4.0	2.3
0.8	0.031	4.8	10	8	1.9	7,800	5.3	4.4	15	1.3	6,500	4.8	4.0	30	0.6	5,000	4.6	3.6
1.0	0.040	6.4	13	10	2.3	8,800	5.8	6.1	20	1.5	7,200	5.4	5.4	36	0.8	5,600	5.3	5.3
1.2	0.047	6.4	13	12	2.7	9,800	6.2	7.8	23	1.8	7,700	5.8	6.8	40	0.9	6,100	5.5	6.5
1.6	0.062	6.4	13	16	3.6	11,500	6.9	10.6	30	2.4	9,100	6.7	10.0	52	1.2	7,000	6.3	9.3
1.8	0.070	8.0	16	18	4.1	12,500	7.4	13.0	33	2.8	9,700	7.1	11.8	58	1.3	7,500	6.7	11.0
2.0	0.078	8.0	16	20	4.7	13,300	7.9	14.5	36	3.0	10,300	7.6	13.7	64	1.5	8,000	7.1	13.1
2.3	0.094	8.0	16	24	5.8	15,000	8.6	18.5	44	3.7	11,300	8.4	17.7	77	1.8	8,600	7.9	16.9
3.2	0.125	9.5	16	32	8.2	17,400	10.3	31.0	60	5.0	12,900	9.9	28.5	105	2.6	10,000	9.4	26.7
4.0	0.158	11.0	19	50	10.0	19,000	11.6	42.0	90	6.3	14,300	11.2	41.0	155	3.4	11,000	10.6	35.0
5.0	0.197	12.7	22	70	13.0	21,200	14.5	66.0	120	8.0	16,000	12.7	60.0	210	4.4	12,500	12.0	48.0



STRSW (Squeeze Type Resistance Spot Welding)

STRSW is no longer restricted to light gauge sheet metal. 40oz/ft gauges of high strength and coated steel currently used in underbody structures can now be welded providing testing is performed ensure weld quality and strength is obtained.

Body Shop, Collision & Refinishing Service Equipment

TOYOTA APPROVED

Section 8

Welders/Welding Systems & Metalworking Equipment:

This is an introduction to White's Welding Systems & Metalworking Equipment. Within this section you will find Inverter Welders, Spot Welders, MIG Welders, Welding Systems and other Metalworking Equipment. Some things to consider when shopping for this type of equipment would be:

- New cars does use boron, HSLA, and other high-strength steels. If you don't have an inverter welder yet, there are several high quality inverter welders in this program. Get one with at least 50,000 amperes welding current.
- Weak electrical power sources are common in the U.S., which creates big problems when using 3 phase non-inverter spot welders. Inverter welder technology's small demand on the incoming power is a huge advantage.
- MIG Welders - Many today use advanced computerized technology to constantly synchronize the wire speed with current and voltage to achieve the best results from each every weld operation. A handy option is to select continuous, step, or pulse/sensless mode. Can't make should offer complete adjustment settings for the technician's preference, the thickness of the metal, and the welding job itself.

COLLISION REPAIR INFORMATION FOR THE COLLISION REPAIR PROFESSIONAL

TITLE:	WELDING APPLICATIONS AND RESTRICTIONS	
SECTION:	BUILT COMPONENT REPLACEMENT	BULLETIN #151 (PAGE 1 OF 4)
MODELS:	ALL TOYOTA, LEXUS, and SCION	
DATE:	SEPTEMBER 2011	

Welding specifications for body components are published in model-specific Collision Damage Repair Manuals for all Toyota, Lexus, and Scion vehicles. Welded component installation may require a combination of welding methods including:

- SHW (Squeeze Type Resistance Spot Welding)
- GMAW/MIG (Gas Metal Arc/Metal Inert Gas Welding)
- Air Arcing (Riveting)

The STRSW method best replicates factory attachment methods, and when performed correctly, offers the following advantages over GMAW/MIG plug welding:

- Equipment is readily available in most markets
- Comparable to factory welding methods and appearance
- Uses no propane, gas, or other hazardous
- Reduces heat effect (burnt and corrosive hot spots)
- Reduces the emission of metal grinding particles when finishing
- Reduces the emission of stray sparks
- Reduces airborne contamination from burnt coatings

STRSW may be substituted for GMAW/MIG plug welds, however, STRSW substitutions should match factory weld size, strength and appearance.

Appearance alone does not indicate the strength of a weld. Weld strength must be validated by using the proper and performing destructive testing. Turning the welder and destructive tests must be performed on metal of the same thickness and composition as that of the component being replaced.



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Toyota Motor Sales, U.S.A, Inc.



Toyota is the OEM leaders in Hands on Collision & Refinish Training. 1000 Technicians Annually.

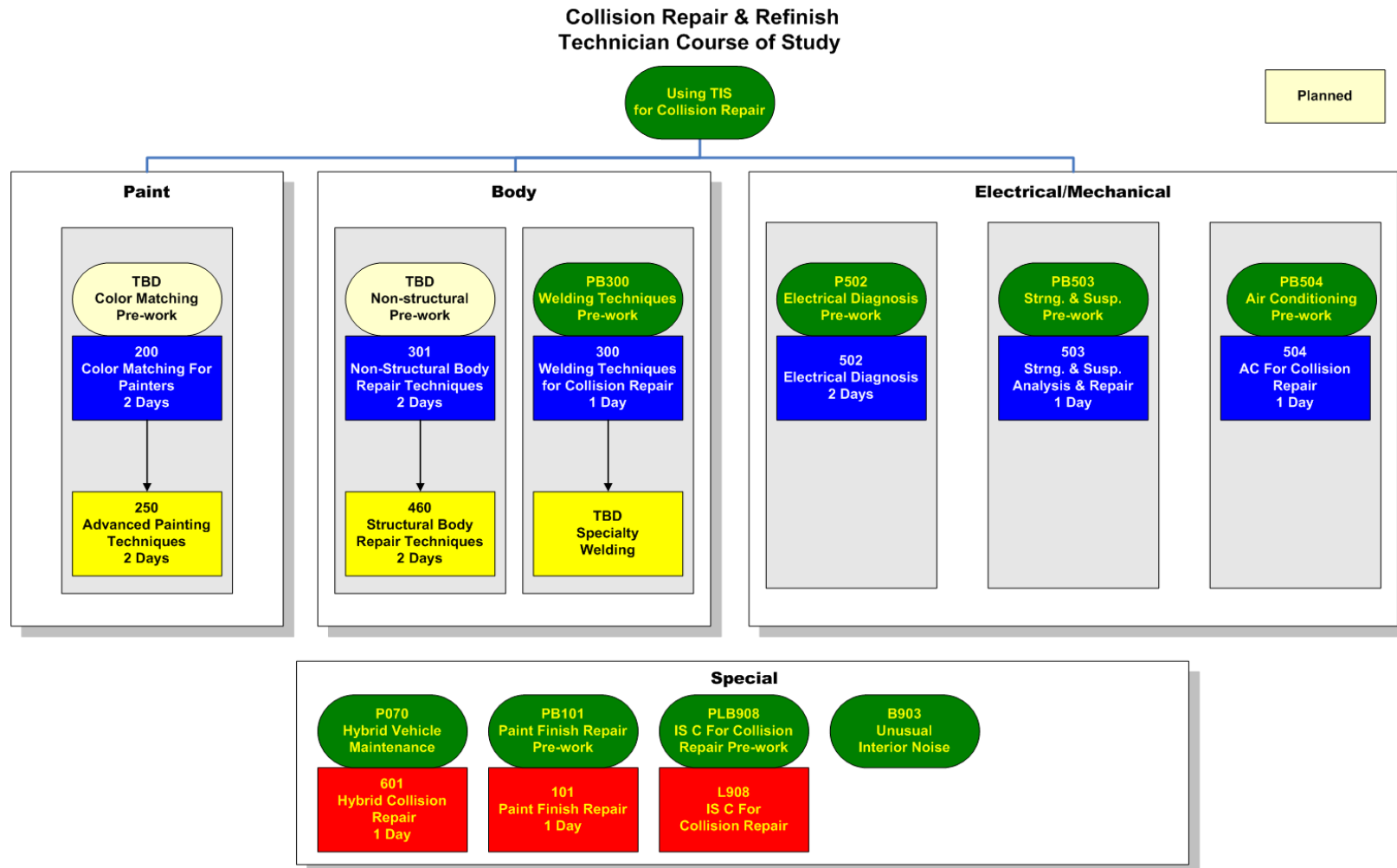


COLLISION REPAIR & REFINISH

Fix-it-Right/Fix-it-Smart with Toyota hands on Factory Training !

Three Guilds are available to the Collision Repair Professional.

Paint, Body, Mechanical/Electrical



CRR Training Groups E-Learning & Instructor Led (12)

- **Refinishing**

❖ Paint finish repair	(1)	PFR, 101
❖ Color Matching for Painters	(2)	CMFP,200
❖ Advanced Painting Techniques	(2)	APT,250

- **Collision Repair**

❖ Welding Techniques	(1)	WTFCR,300
❖ Non-Structural Body Repairs	(2)	NSBRT,301
❖ Structural Body Repairs	(2)	SBRT,460

- **Electrical/Mechanical**

❖ Electrical Diagnosis	(2)	BEDR,502
❖ Steering and Suspension	(1)	SSAR,503
❖ Air Conditioning	(1)	ACCR,504

- **Special Subjects**

❖ Hybrid Collision Repair	(1)	HCR,601
❖ Advance Hybrid Repair	(1)	AHCR,602
❖ Lexus IS C Retractable Roof	(1)	IS-C,908

Toyota U.S.A. Training Instructors & Locations

Joe DiDonato

Chris Risdon



TMS North America H.Q.

Torrance, CA

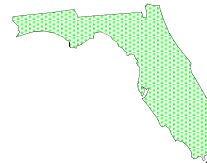
W. Coast Training Center



James Meyer

Caldwell, New Jersey

N. E. Coast Training Center



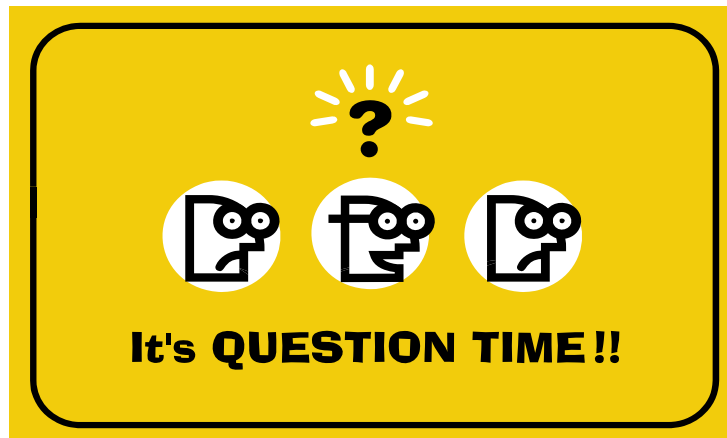
Dan Hodges

Jacksonville, FL

S.E. Coast Training Center
Jacksonville Community College

Any Questions?

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Technical & Body Training Development

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