



Project B

Autobody Repair

SECONDARY / POST-SECONDARY

Project B Sectioning project

Time : 6 hours

In this project the student will have to remove a B-Pillar panel from a Toyota RAV 4 and replace it with a new part. This project will be separate in 6 steps:

1. Marking the cutlines
2. Removal of damaged B-Pillar panel on vehicle
3. Preparation of replacement part
4. Surface preparation for assembly process
5. Fitment of sectioning joints
6. Assembly process

In all the steps there will be stop checks that will require an evaluation from the judges. Make sure to make all the stop checks otherwise it cannot be evaluated and will receive a mark of zero. Follow the procedure and make sure that all the steps are completed and are of good quality.

PPE must be worn at all times.

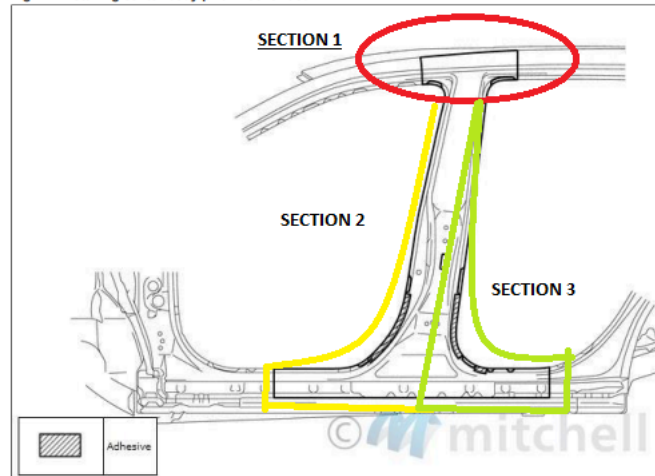
The B-Pillar will contain 3 cutlines and will be separated into 3 sections on the panel around it.

Refer to the following image.

Fig. 1: Identifying center body pillar



Fig. 12: Installing center body pillar—continued



• Weld the center body pillar outer to the vehicle side. See Figs. 13 and 14.

Section 1 **Section 2** **Section 3** = Section 1 Section 2 Section 3

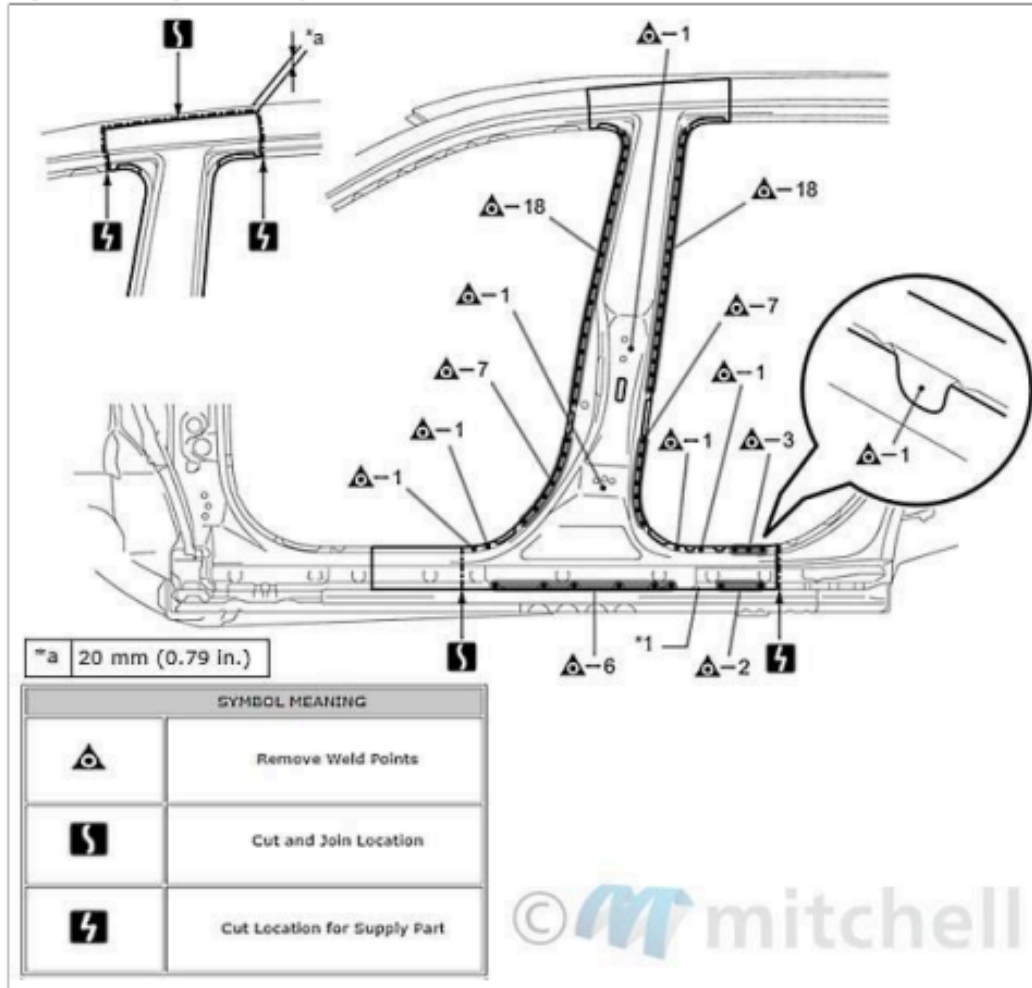
Make sure to apply the correct assembly process to the correct section.

Step 1

- Mark all the cutlines on both damaged B-Pillar on vehicle and on the replacement part.

STOP judge marking

Fig. 3: Removing center body pillar—continued



Step 2

- Grind our drill all the spotwelds in all 3 sections.
- Separate all the spotwelds around the B-Pillar panel
- Make all 3 cuts on the cutlines

Note: You can cut further than the cutline and trim it off on correct measurement after. Make sure not to damage the inner panel of the vehicle while removing spotwelds or making the cuts.

STOP judge marking

Step 3

- Make all 3 cuts on the cutlines of replacement part.

Fig. 12: Installing center body pillar—continued

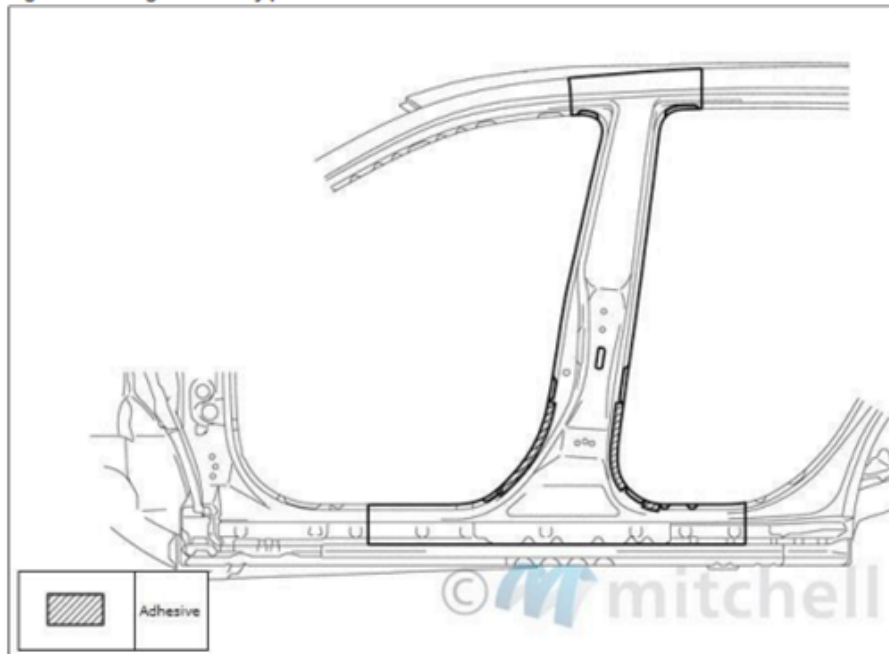
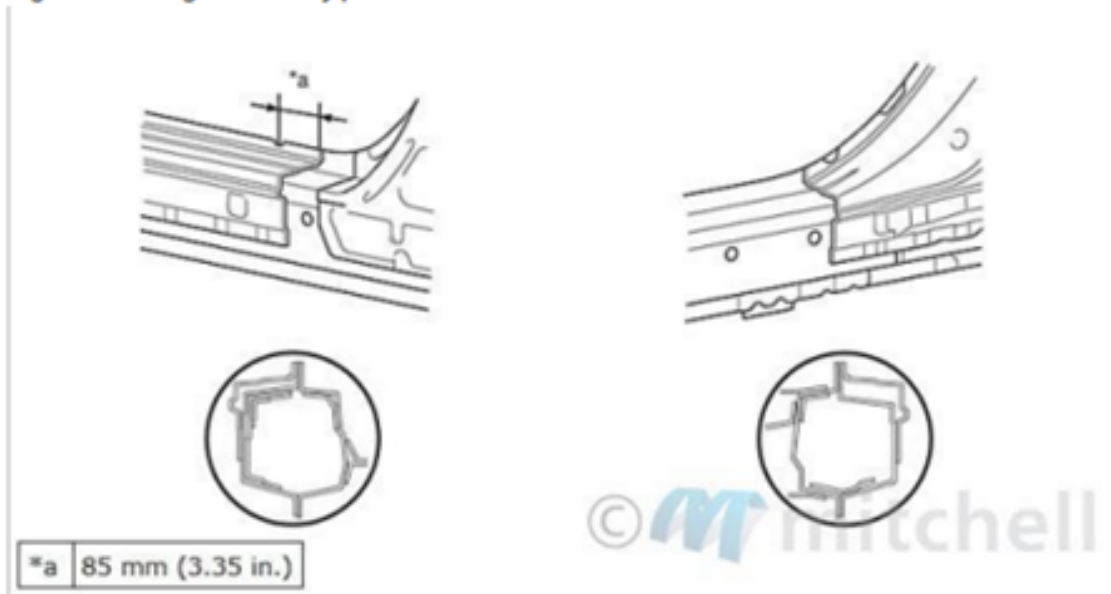


Fig. 4: Removing center body pillar—continued



Note: You can cut further than the cutline and trim it off on correct measurement afterwards.

STOP judge

Step 4

- Prepare on all the flanges of replacement part and vehicle, the surface preparation required for the assembly process.

Section 1

Surface preparation: Bare metal on exterior side of both flanges and weld thru primer on the inside of both flanges.

Fig. 13: Installing center body pillar—continued

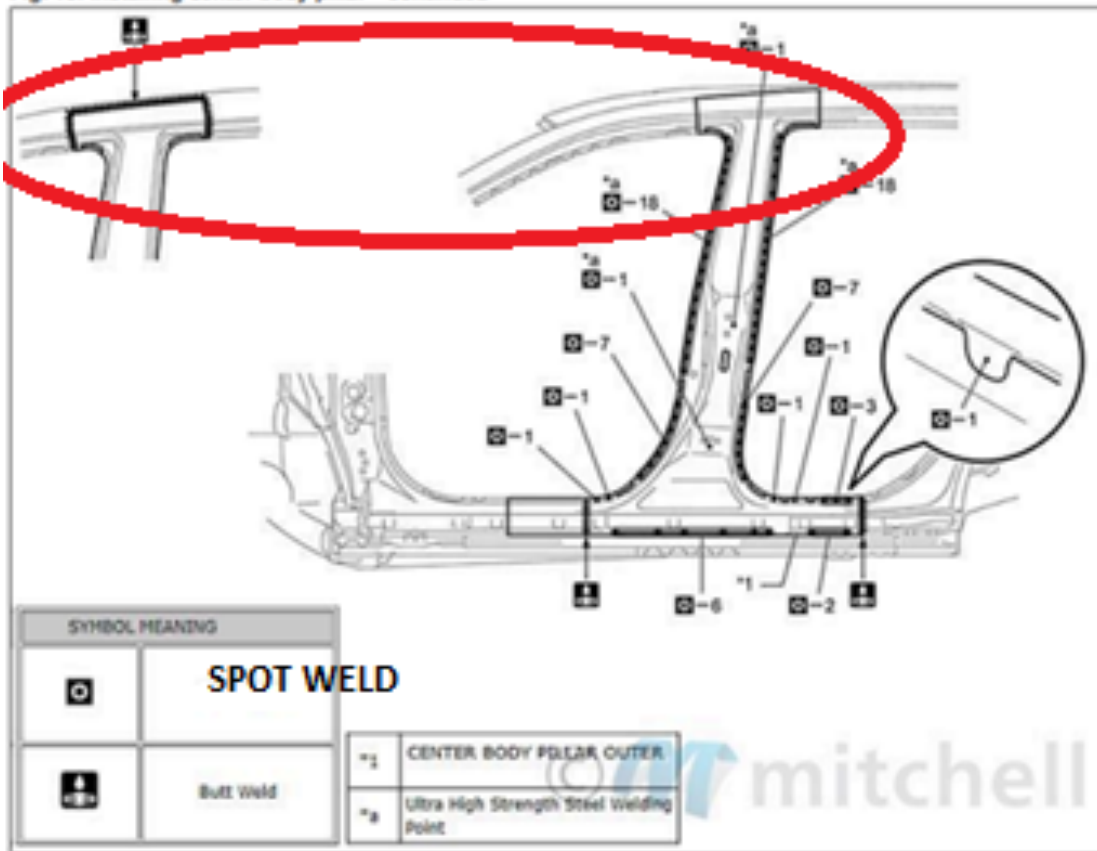
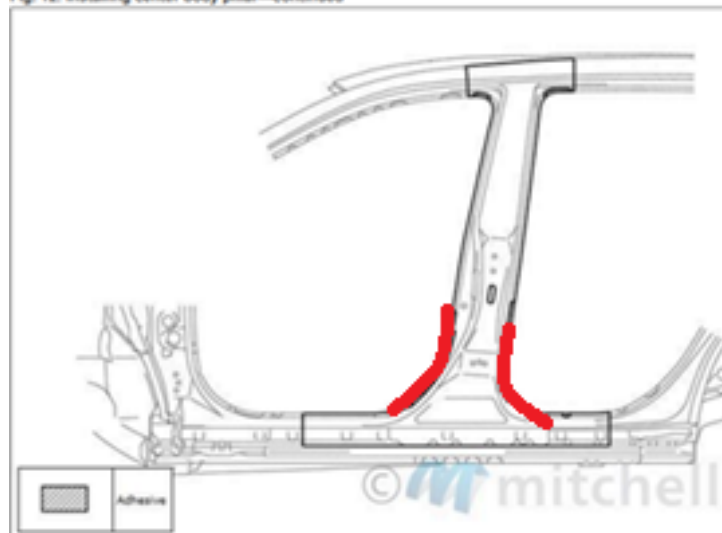







Fig. 12: Installing center body pillar—continued



INSTALLATION

SYMBOL MEANING	
	Spot Weld
	Plug Weld
	Plug Weld
	Plug Weld
	Butt Weld

- (a) Inspect the fitting of the related parts around the new parts before welding. This affects the appearance of the finish.
- (b) Temporarily install the new parts and measure each part of the new parts in accordance with the body dimension diagram. (See the body dimensions)
- (c) Apply adhesive (3M™ Automix™ Panel Bonding Adhesive #8115).

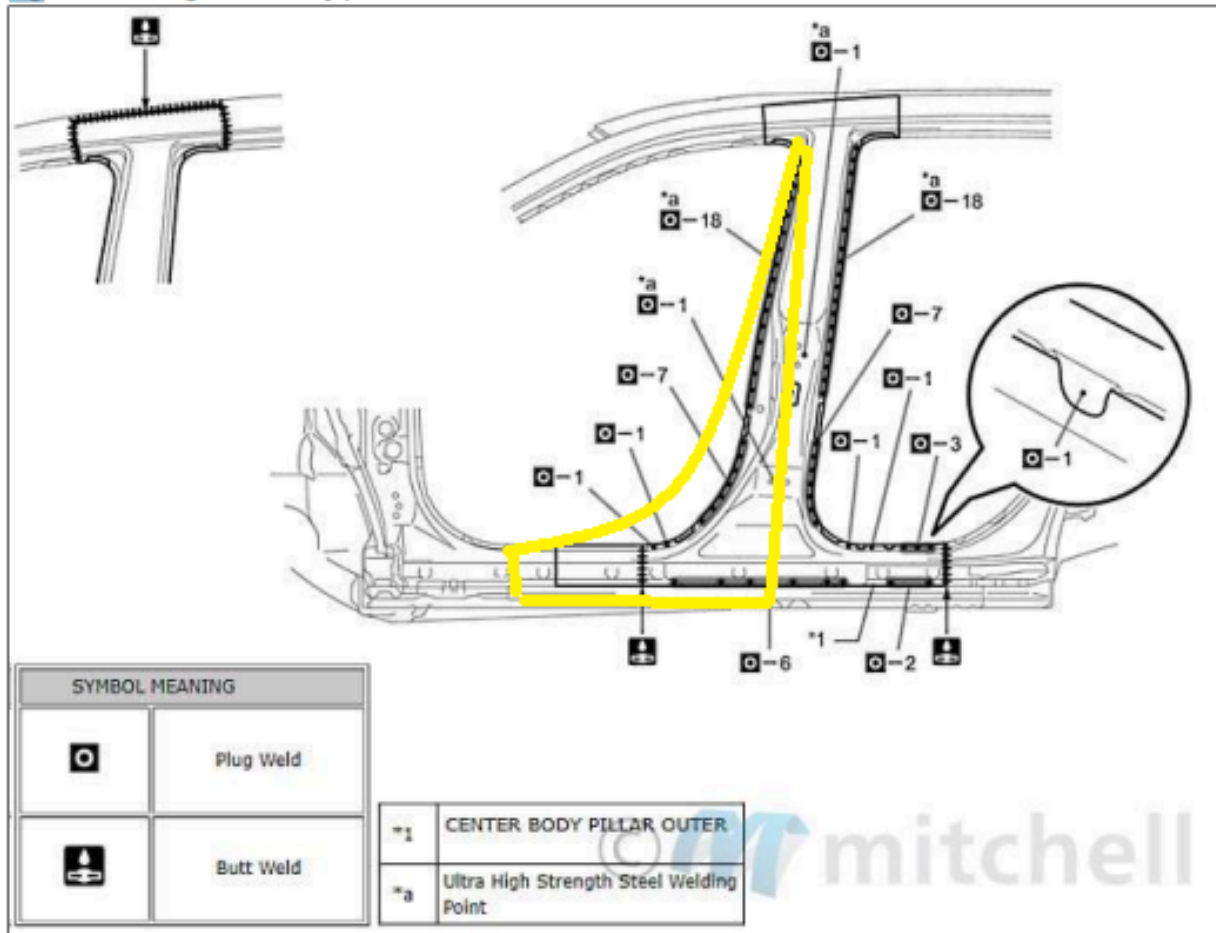
HINT:

- Do not apply adhesive around the plug welding points.
- Minimize squeeze out in plug welding areas.

Section 2

Surface preparation: Bare metal on both interior flanges.

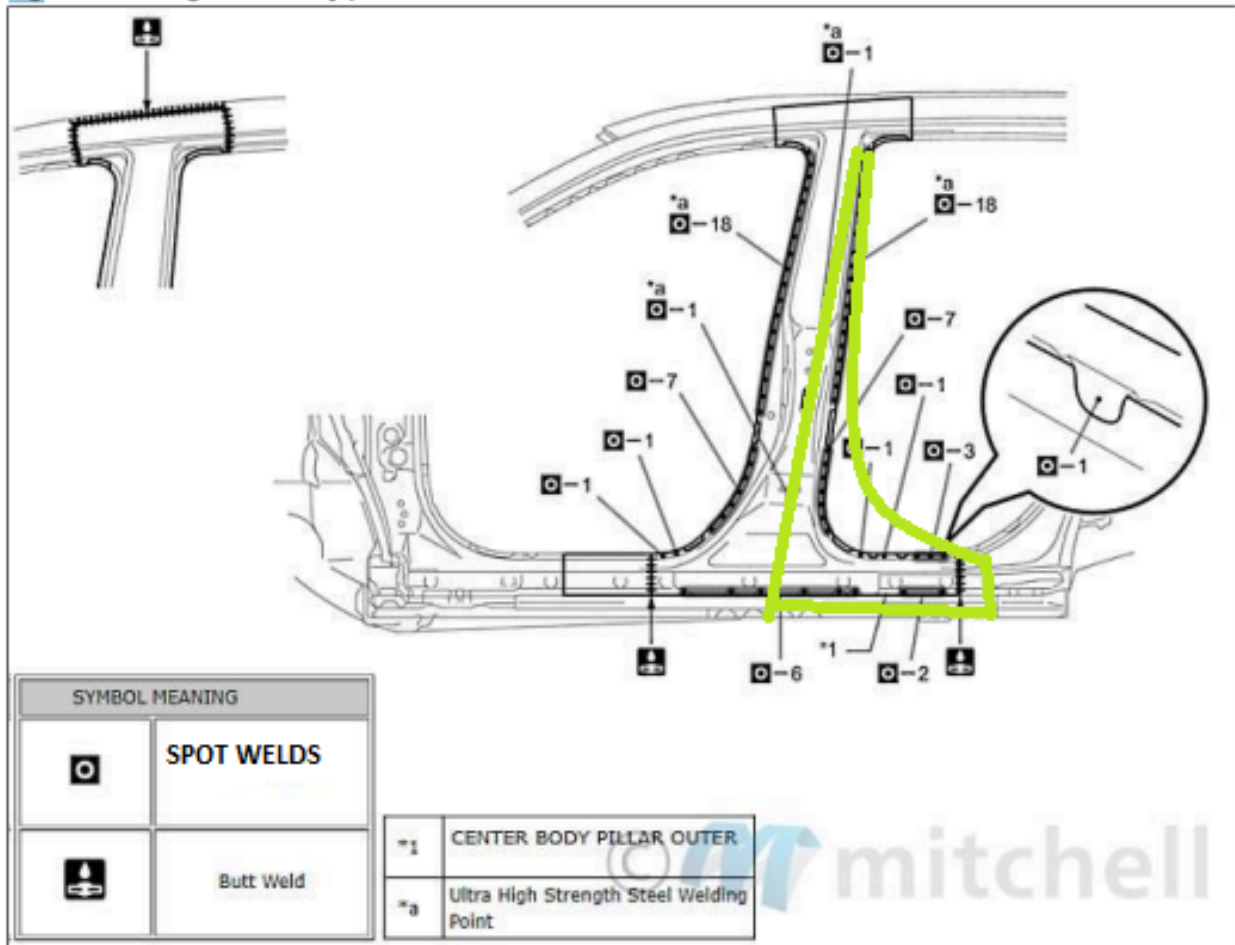
Fig. 13: Installing center body pillar—continued



Surface preparation: 8mm hole on the exterior flange and bare metal, weld thru primer on interior flange.

STOP judge marking

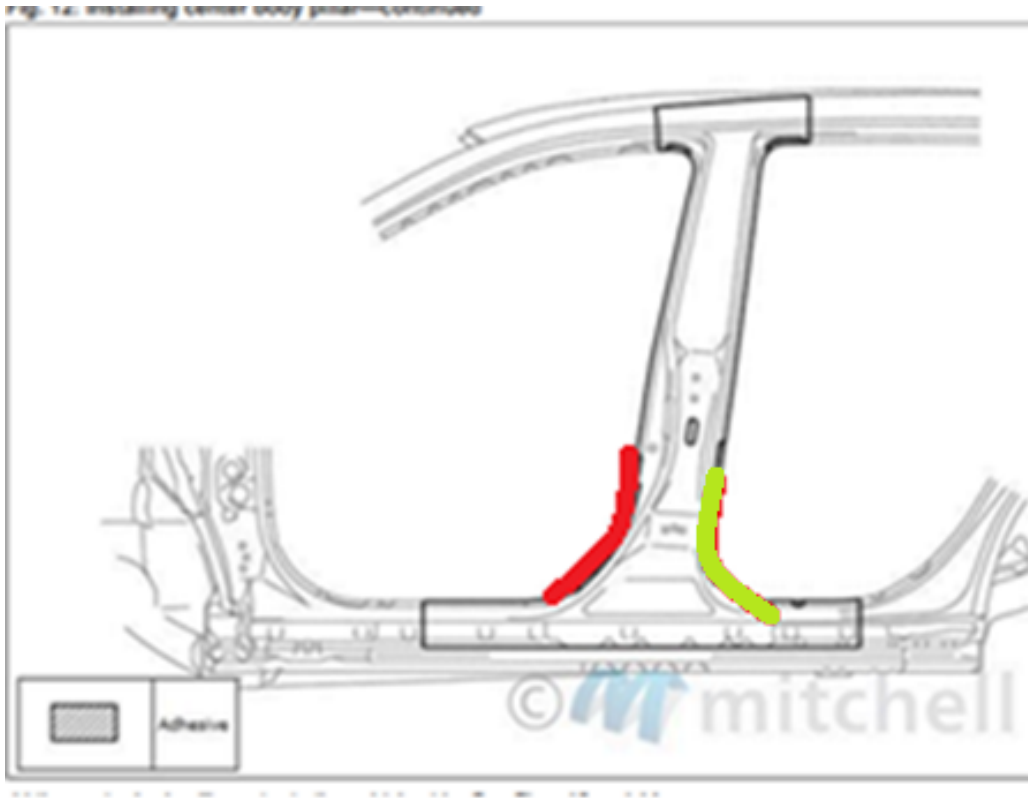
Fig. 13: Installing center body pillar—continued



STEP 5

- Fit your replacement part on the vehicle. Trim off any excess metal left. Adjust the replacement B-Pillar butt weld with vehicle. Maximum tolerance of root gap is 1mm gap.

STOP judge marking



- Apply adhesive on vehicle and replacement part and spread it on section 2

STOP judge marking

Install and Clamp the B-Pillar on the vehicle

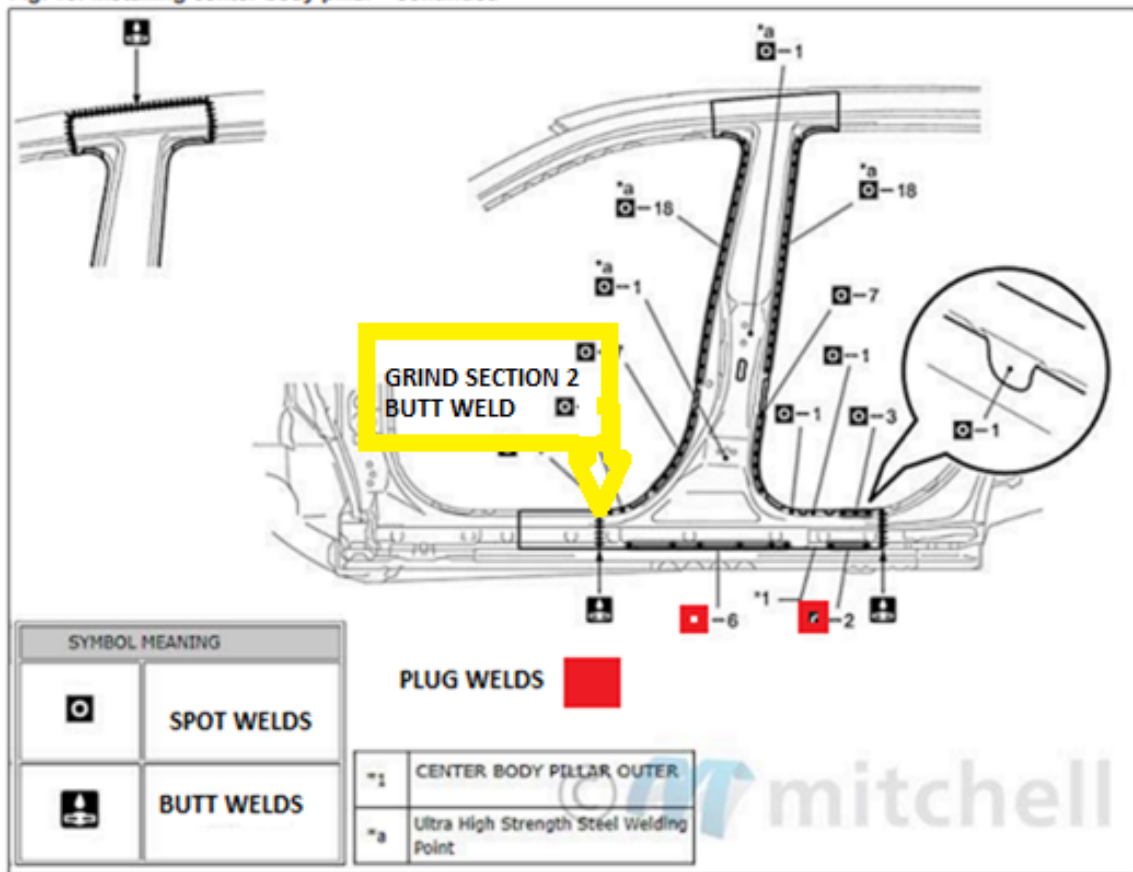
- Set up your welding machine on scrap metal
- Butt weld all 3 cutlines
- Spot weld section 2

Plug weld lower pillar only

STOP judge marking

- Grind weld of cutline 2.

Fig. 13: Installing center body pillar—continued



Follow the welding conditions below when welding ultra high strength steel to assure sufficient weld strength when welding 3 panels or more together including 1500 MPa ultra high strength steel.

Fig. 14: Installing center body pillar—continued

*a: Plug weld	Plug diameter	8-10 MM
	Wire type	AWS A5.18 ER70S-3
	Shield gas	Metal active gas

STOP judge marking

