

# GENERAL REPAIR INSTRUCTIONS

## Work Precautions

### SAFETY

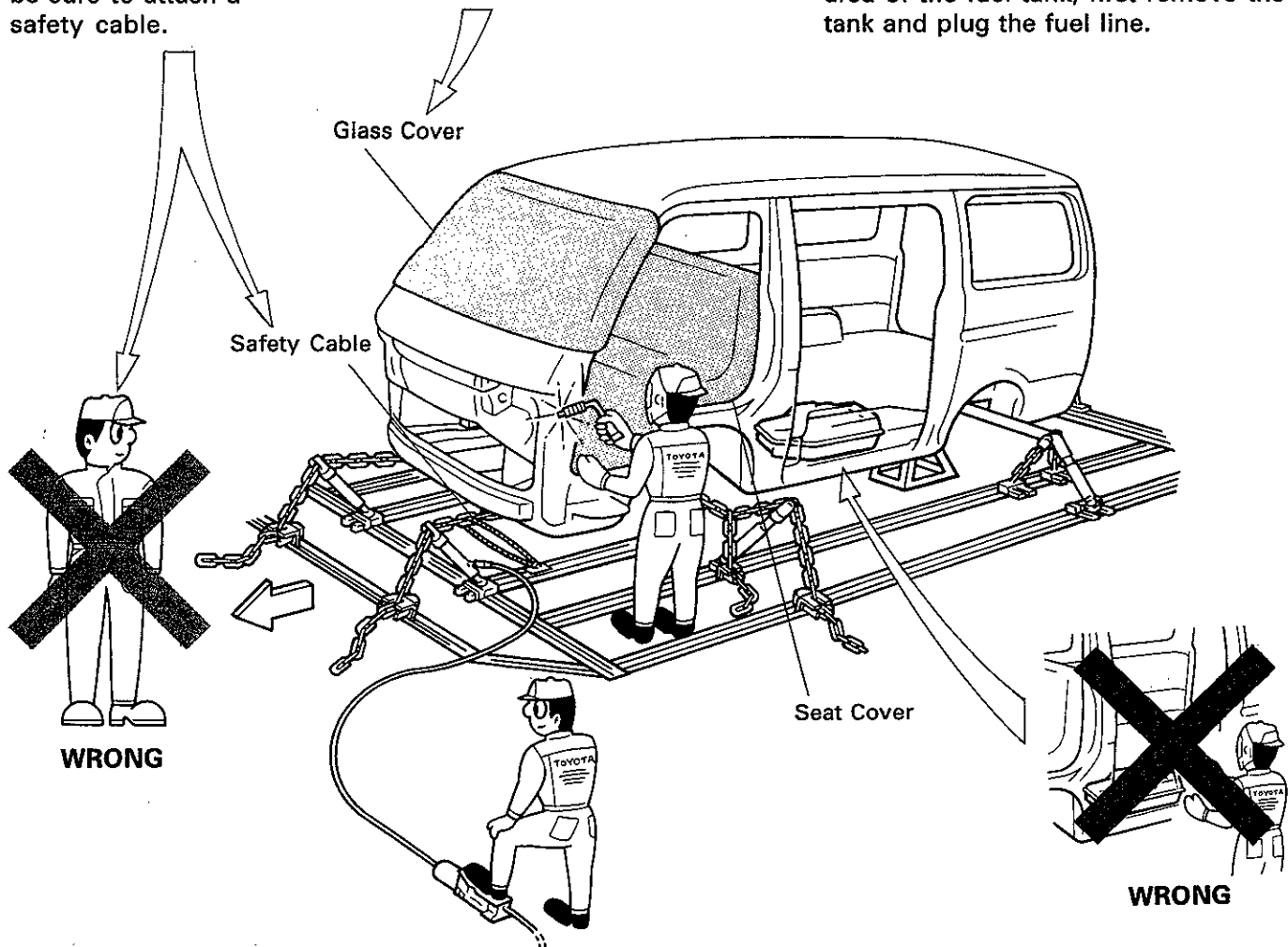
Never stand in direct line with the chain when using a puller on the body or frame, and be sure to attach a safety cable.

### VEHICLE PROTECTION

When welding, protect the painted surfaces, windows, seats and carpet with heat-resistant, fire-proof covers.

### SAFETY

1. Before performing repair work, check for fuel leaks. If a leak is found, be sure to close the opening totally.
2. If it is necessary to use a frame in the area of the fuel tank, first remove the tank and plug the fuel line.



### SAFETY WORK CLOTHES

In addition to the usual mechanic's wear, cap and safety shoes, the appropriate gloves, head protector, glasses, ear plugs, face protector, dust-prevention mask, etc. should be worn as the situation demands.

### HAND TOOLS

Keeping your hand tools in neat order improve your work efficiency.

Dust-Prevention Mask



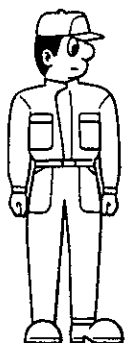
Face Protector



Eye Protector



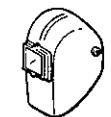
Safety Shoes



Welder's Glasses



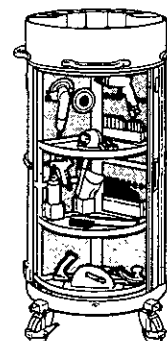
Ear Plugs



Head Protector



Welder's Gloves



Body Mechanic Stand

## Proper and Efficient Work Procedures

### REMOVAL

#### REMOVAL OF ADJACENT COMPONENTS

When removing adjacent components, apply protective tape to the surrounding body and your tools to prevent damage.

*HINT: See "Handling Precautions on Related Components" on page IN-6.*

#### NUMBER OF SPOT WELDS AND PANEL POSITIONS

The number of spot welds and the panel positions to be removed are shown for your reference.

*HINT: See "Symbols" on page IN-4, 5.*



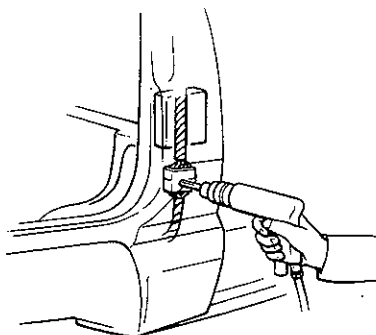
#### PRECAUTIONS FOR DRILLING OR CUTTING

Check behind any area to be drilled or cut to insure that there are no hoses, wires, etc., that may be damaged.

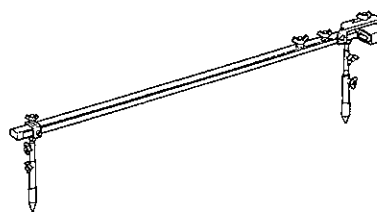
*HINT: See "Handling Precautions on Related Components" on page IN-6.*

#### PRE-REMOVAL MEASURING

Before removal or cutting operations, take measurements in accordance with the dimension diagram. Always use a puller to straighten a damaged body or frame.

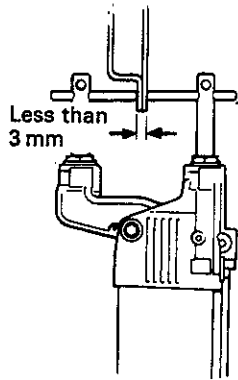


**WRONG**



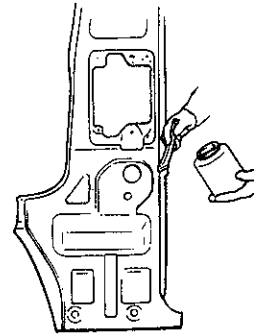
## PREPARATION FOR INSTALLATION

### SPOT WELD POINTS

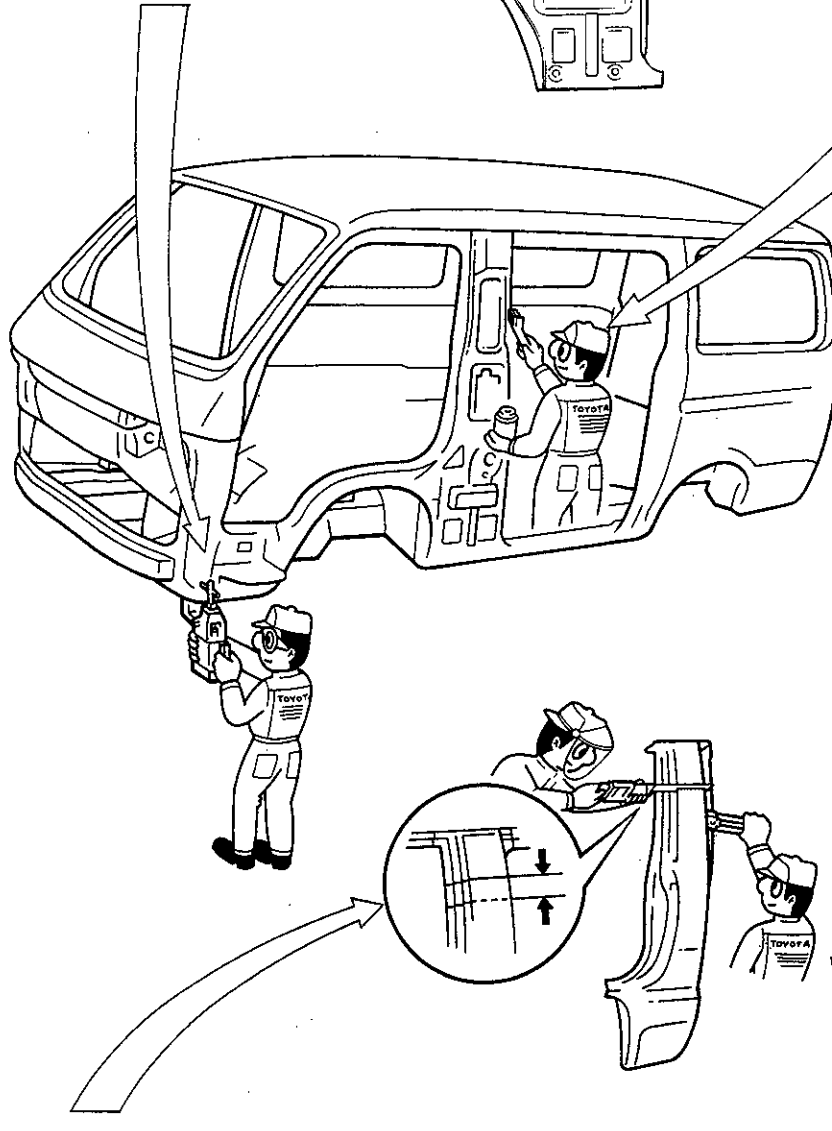


When welding panels with a combined thickness of over 3 mm (0.12 in.), use a MIG (Metal Inert Gas) welder for plug welding.  
**HINT:** Spot welding will not provide sufficient durability for panels over 3 mm (0.12 in.) thick.

### APPLICATION OF WELD-THROUGH PRIMER (SPOT SEALER)



Remove the paint from the portion of the new parts and body to be welded, and apply weld-through primer.  
**HINT:** See "ANTI-RUST TREATMENT" on page AR-2.



### ROUGH CUTTING OF JOINTS

For joint areas, rough cut the new parts, leaving 20 – 30 mm (0.79 – 1.18 in.) overlap.

### MAKING HOLES FOR PLUG WELDING

For areas where a spot welder cannot be used, use a puncher or drill to make holes for plug welding.

#### REFERENCE:

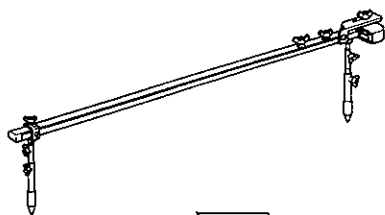
mm (in.)

Thickness of welded portion	Size of plug hole
1.0 (0.04) under	5 (0.20) $\phi$ over
1.0 (0.04) – 1.5 (0.06)	6.5 (0.26) $\phi$ over
1.5 (0.06) over	8 (0.31) $\phi$ over

## INSTALLATION

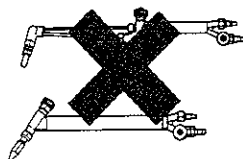
### PRE-WELDING MEASUREMENTS

Always take measurements before installing underbody or engine components to insure correct assembly. After installation, confirm proper fit.



### WELDING PRECAUTIONS

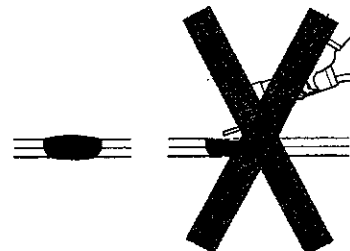
1. The number of welding spots should be as follows.  
Spot weld: 1.3 x No. of manufacturer's spots.  
Plug weld: More than No. of manufacturer's plugs.



**WRONG**

### POST-WELDING REFINISHING

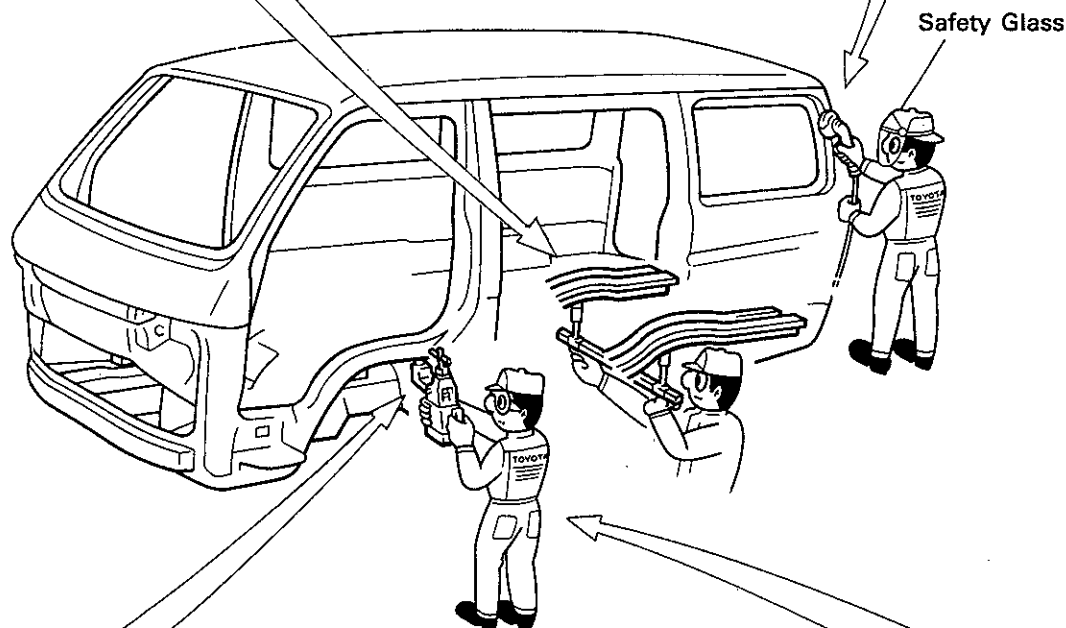
1. Always check the welded spots to insure they are secure.
2. When smoothing out the weld spots with a disc grinder, be careful not to grind off too much as this would weaken the weld.



**WRONG**

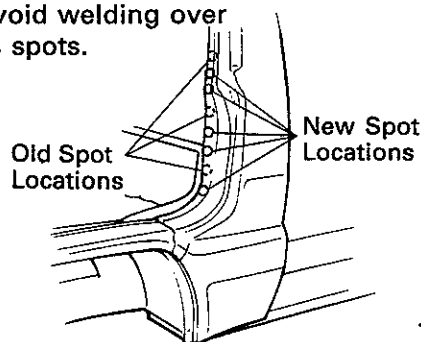
2. Plug welding should be done with a MIG (Metal Inert Gas) welder. Do not gas weld or braze panels at areas other than specified.

**OKAY**



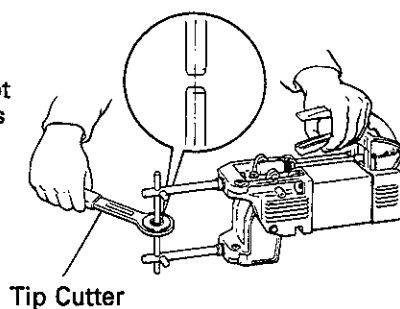
### SPOT WELD LOCATIONS

Try to avoid welding over previous spots.



### SPOT WELDING PRECAUTIONS

1. The shape of the welding tip point has an effect on the strength of the weld.
2. Always insure that the seams and welding tip are free of paint.



## ANTI-RUST TREATMENT

When replacing body panels, always apply body sealer, anti-rust agent or undercoat according to the requirements of your country.

**HINT:** For further details, see the description given in Section AR of this manual.

### BODY SEALER

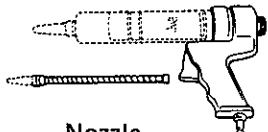
Apply body sealer to the required areas.



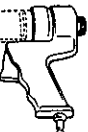
Cartridge Type



Tube Type

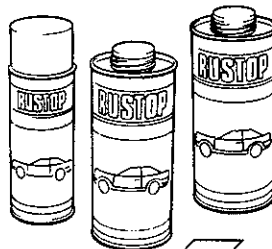


Nozzle



Air Gun

### ANTI-RUST AGENT (WAX)



Apply anti-rust agent to following sections.

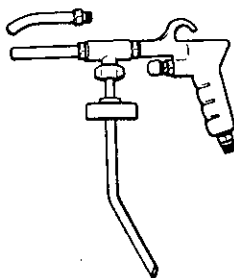
- Inside of the hems of the doors and hood.
- Around the hinges of the doors and hood.
- Inside of the welded parts with boxed cross-section.



Undercoating (Oil base)



Undercoating (Water base)



Spray Gun

### UNDERCOAT

Apply undercoat to the underbody and wheel housings.