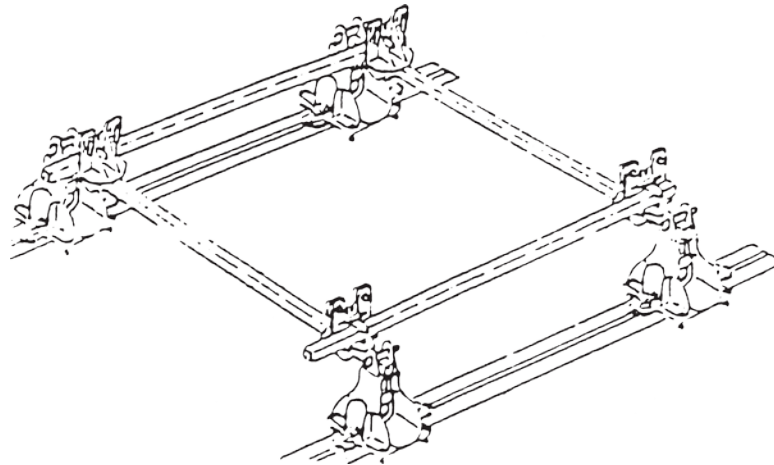


CHAINLESS ANCHORING SYSTEM USER MANUAL

Introduction	2
Setting up the Chainless Anchoring System	5
Set up Procedure	6
Using the Mobility Wheels	12
Removing a car from the Chainless Anchoring System	13
Anchoring Problems and Solutions	14
Anchoring To Weak Pinchwelds	16
Anchoring with Obstructions on the Pinchweld	16
Anchoring with Very Short Pinchwelds	16
Anchoring To Offset Pinchwelds.....	17
Anchoring Wide Body Vehicles	18
Anchoring Cars with Sill Damage.....	19
Parts Diagrams and Listing	22



Wedge Clamp Systems Inc. 170-21320 Gordon Way, Richmond, BC V6W 1J8
Tel: (604) 207-9595 | Fax: (604) 207-9593 | Toll Free: 1-800-615-9949

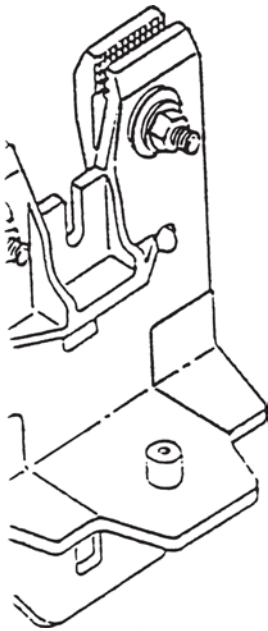
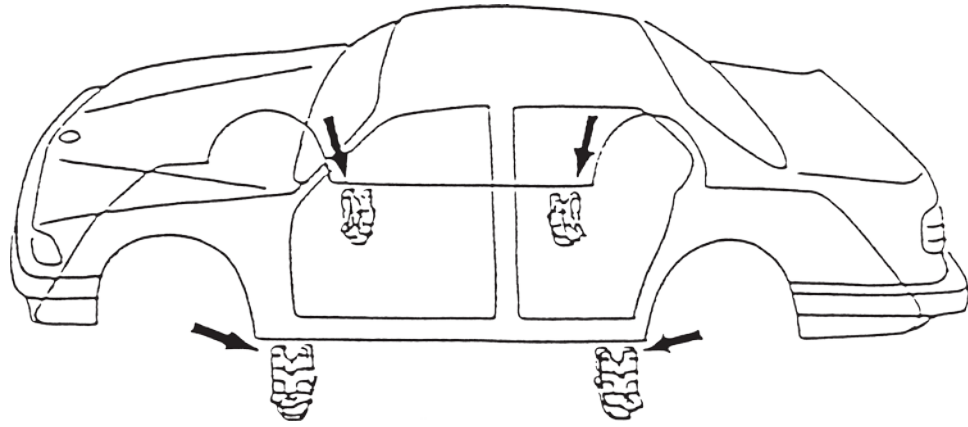
INTRODUCTION

This section explains how to mount a car on the Wedge Clamp Anchoring System. The anchoring system is designed to let you make multiple pulls to a car without changing the anchoring attachments and without damaging the car in the pulling process.

An important component of the Wedge Clamp System is the specially designed pinchweld clamps. These four anchoring clamps are identical and are designed to anchor the car at the lower corners of the passenger compartment torque box area. These clamps secure the car by its pinchweld flange - the 1 to 2 cm deep flange under most unibody vehicle sill (rocker) panels. This pinchweld flange usually consists of two or more layers of sheet metal which are connected to the main structural areas of the car. (For vehicles without pinchweld flanges refer to the following section “Anchoring Problems and Solutions” on Page 13 for information on anchoring these cars).

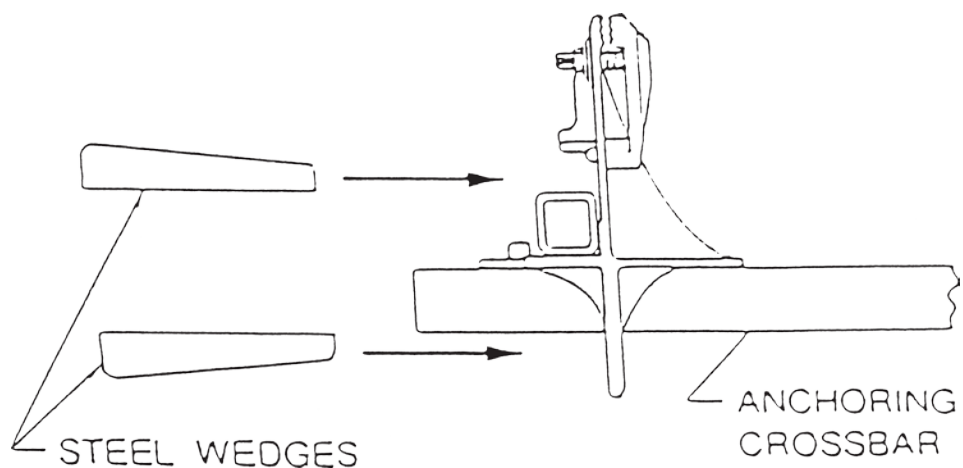


WARNING: Serious damage or injury can occur if a vehicle is not anchored securely for pulling. It is your responsibility to evaluate the car and determine the safest anchoring method. Always check the anchoring points during pulling to be sure that the car remains securely anchored.



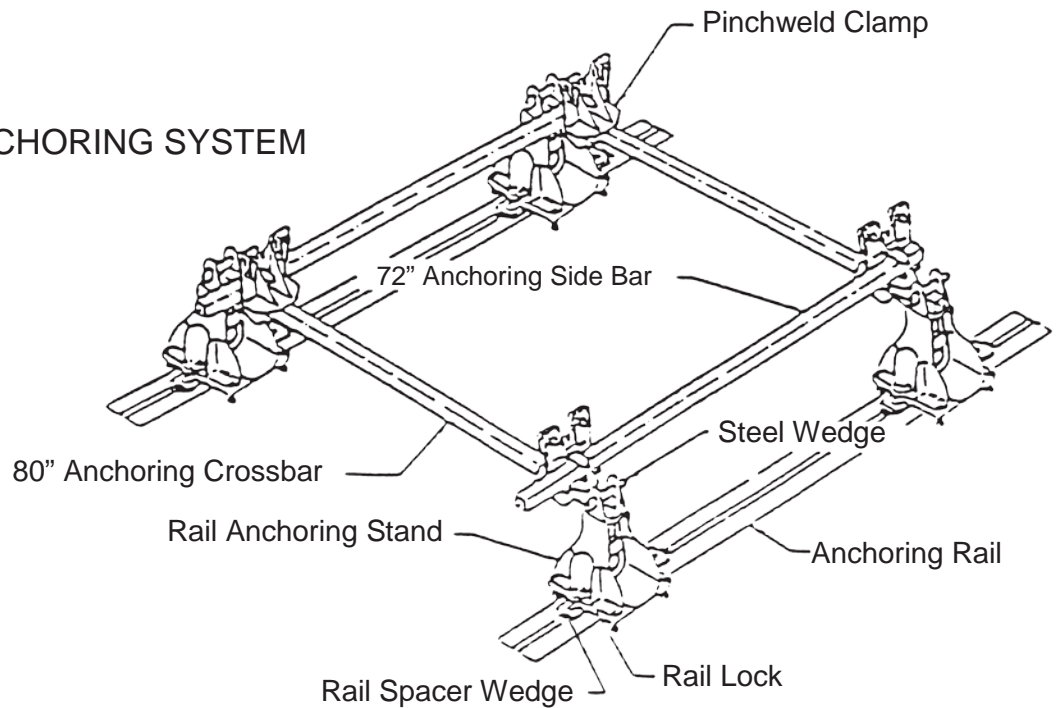
The pinchweld clamp is not a continuous clamp – the jaws cover an area of 200 mm with a 75 mm cutout in the center. This cutout allows the clamp to fit around obstructions such as fender bolts, flanges, etc. The two smaller jaws allow for a greater biting force than a single large jaw. The clamp is constructed from a special high strength ferriferous steel allowing it to be made light in weight without losing strength.

The four pinchweld clamps are held in a rigid anchoring framework with the four steel anchoring bars and wedges which secure the clamps to these bars. The clamp bodies have wide mounting flanges and are cast in a precision mold to keep the clamps square to the anchoring bar frame.



The Wedge Clamp System is available in two different anchoring options: the chain anchoring system, and the chainless anchoring system. The difference between these two systems is the way the anchoring system is secured to the floor. The chainless system fastens to the floor with cast aluminum stands which attach to rails on the floor. The chain system fastens to the floor with lengths of chain and chain cinches which attach to floor anchor pots.

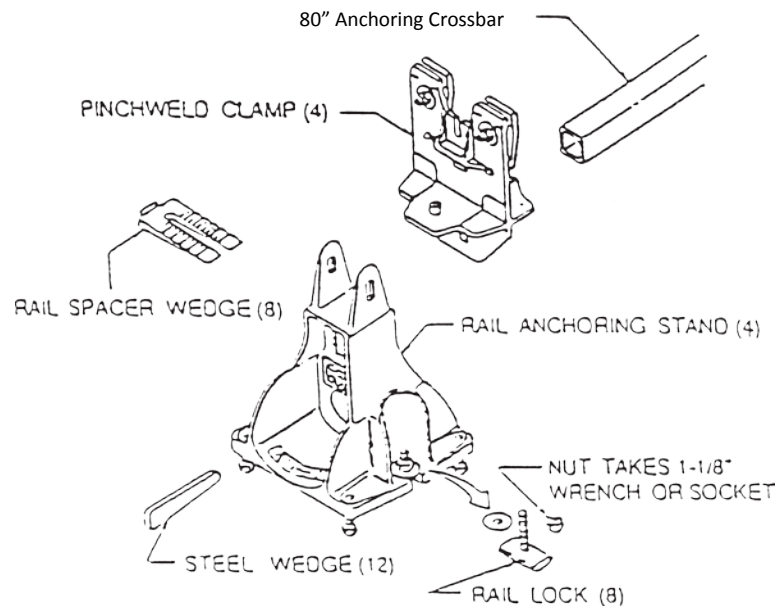
CHAINLESS ANCHORING SYSTEM



SETTING UP THE CHAINLESS ANCHORING SYSTEM

The chainless anchoring system consists of the following components:

Quantity	Description
4	pinchweld clamp
2	anchoring crossbar – 80"
2	anchoring side bar – 72"
12	steel wedge
4	chainless anchoring stand
8	rail lock
8	chainless rail spacer wedge
2	anchoring rail, bevelled & slotted



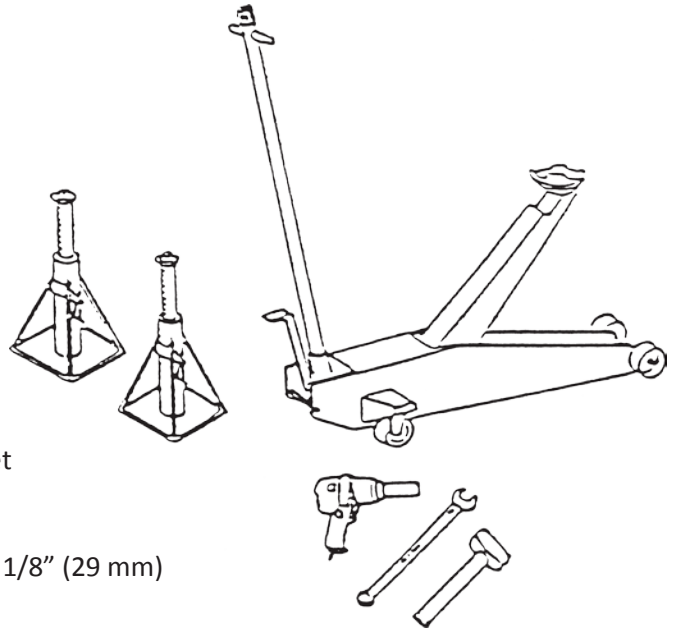
An overview of the steps needed to mount a car on the chainless anchoring system are:

- Install the pinchweld clamps on the car
- Install the anchoring crossbars
- Lower the anchoring crossbars onto the rail anchoring stands
- Install the anchoring side bars
- Lock the anchoring bars to the stands
- Tighten the anchoring stands to the rails

Detailed procedures and important information to know about mounting a car on the chainless anchoring system follows in this section. If you have problems mounting the car on the anchoring system refer to the following section "Anchoring Problems and Solutions" on Page 13.

Tools Required

1. Floor jack
2. 2 - safety stands
3. Air wrench with a 3/4" socket
4. Hammer (3 lbs or 1.5 kg)
5. Open or box end wrench – 1 1/8" (29 mm)

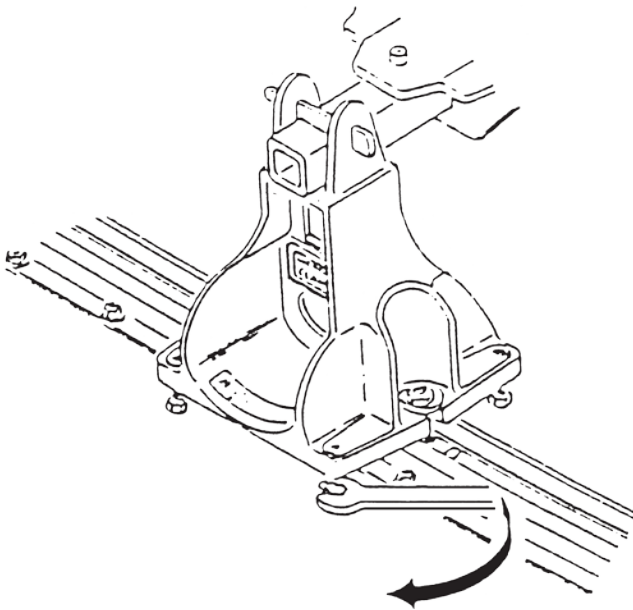


Set Up Procedure

When setting up the Anchoring System for the first time it is important that you check for uneven floor conditions. This is done by positioning the anchoring stands over the floor rails approximately where they would normally be used when anchoring a car.

Adjust the leveling bolts at the bottom of the anchoring stands until about two threads (5mm) are showing on the top side of the stand base. (If you are using anchoring rails which are flush-mounted into the concrete then the bolts on the anchoring stands thread in from the top of the stand. Turn them into the thread holes until about two threads are protruding from the bottom side of the base.)

Place the two anchoring crossbars (80") between each left and right hand pair of anchoring stands. You can determine uneven floor conditions by standing at one end of the repair bay and sighting across the two anchoring crossbars to determine if the two are parallel to each other. Adjust the bolts at the bottom of the low anchoring stand as shown until both the forward and rear anchoring crossbars are running parallel to each other.

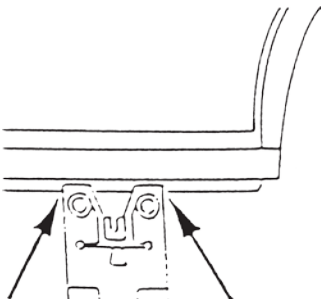
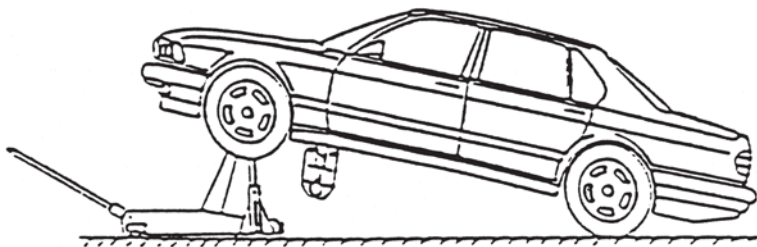


Chainless Anchoring System Uneven Floor Adjustment

If you find that a significant adjustment was required to make the two crossbars parallel then you should remember which stand goes at each end of the anchoring rails to maintain the bolt adjustment you have made for future anchoring setups. In any event, it is useful to check that the crossbars are parallel by sighting along the bars after completing each anchoring setup on the vehicle. Re-adjust the bolts on the stands to make the crossbars parallel if necessary.

1. Install the front pinchweld clamps:

- a) Center vehicle between the left and right anchoring rails.
- b) Raise the front end of the car and place the safety stands underneath.



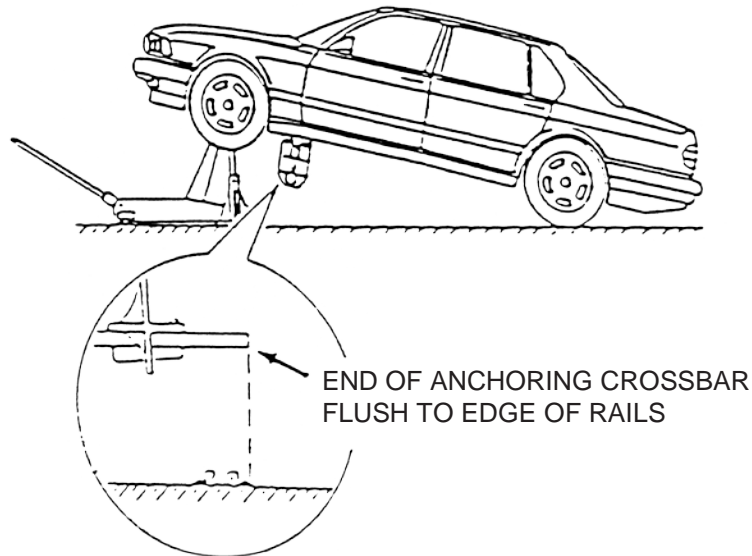
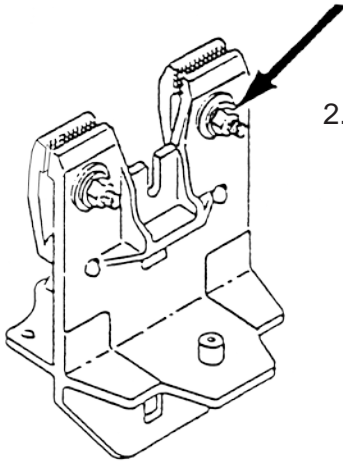
- c) Check for strongest location on the pinchweld to secure the pinchweld clamp (for the forward clamp this is usually the extreme forward location on the pinchweld.) Do not clamp onto fuel or brake lines and other obstructions along the pinchweld area. NOTE: If the vehicle does not have pinchweld flanges see "Anchoring Vehicles With No Pinchweld and No Frame", on Page 19.
- d) Make sure clamps are bottomed out evenly on the pinchweld flange from one side to the other.

The top of the pinchweld clamp should be placed up against the bottom of the sill (rocker) panel. On some vehicles this may not be possible. In these cases be certain that the clamps are up as high as possible and are level with the bottom of the sill (rocker) panel. It is important that the clamps are positioned at the same height on both sides of the car.

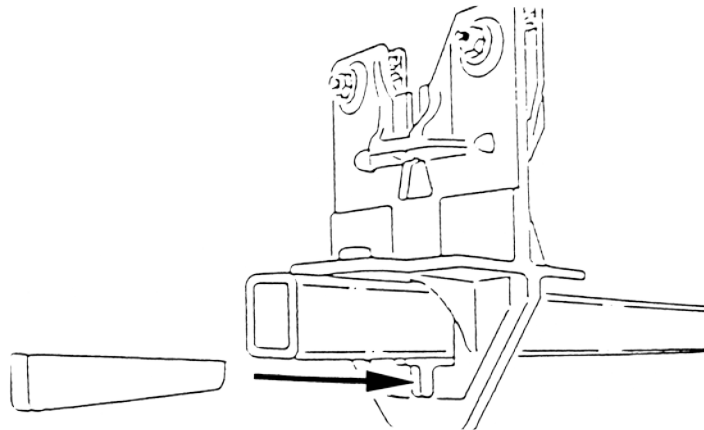
- e) Tighten clamp jaws with air wrench a little tighter than a wheel nut, approximately 90 ft. lbs. (120 N.m) of torque.
- f) Repeat on opposite side. The pinchweld clamps should be positioned along the pinchweld within 1 inch (2.5 cm) of each other, from side to side.

2. Install the anchoring crossbars:

- a) Slide the 80" anchoring crossbar through the square hole in the bottom of the pinchweld clamp and center the bar so that ends are flush to the outside edge of floor rails.



- b) Insert wedges into the slot between the clamp and the underside of the anchoring crossbar. The flat side of the wedge always goes against the bar. Hammer the wedge into place firmly with a 3 lb. hammer.

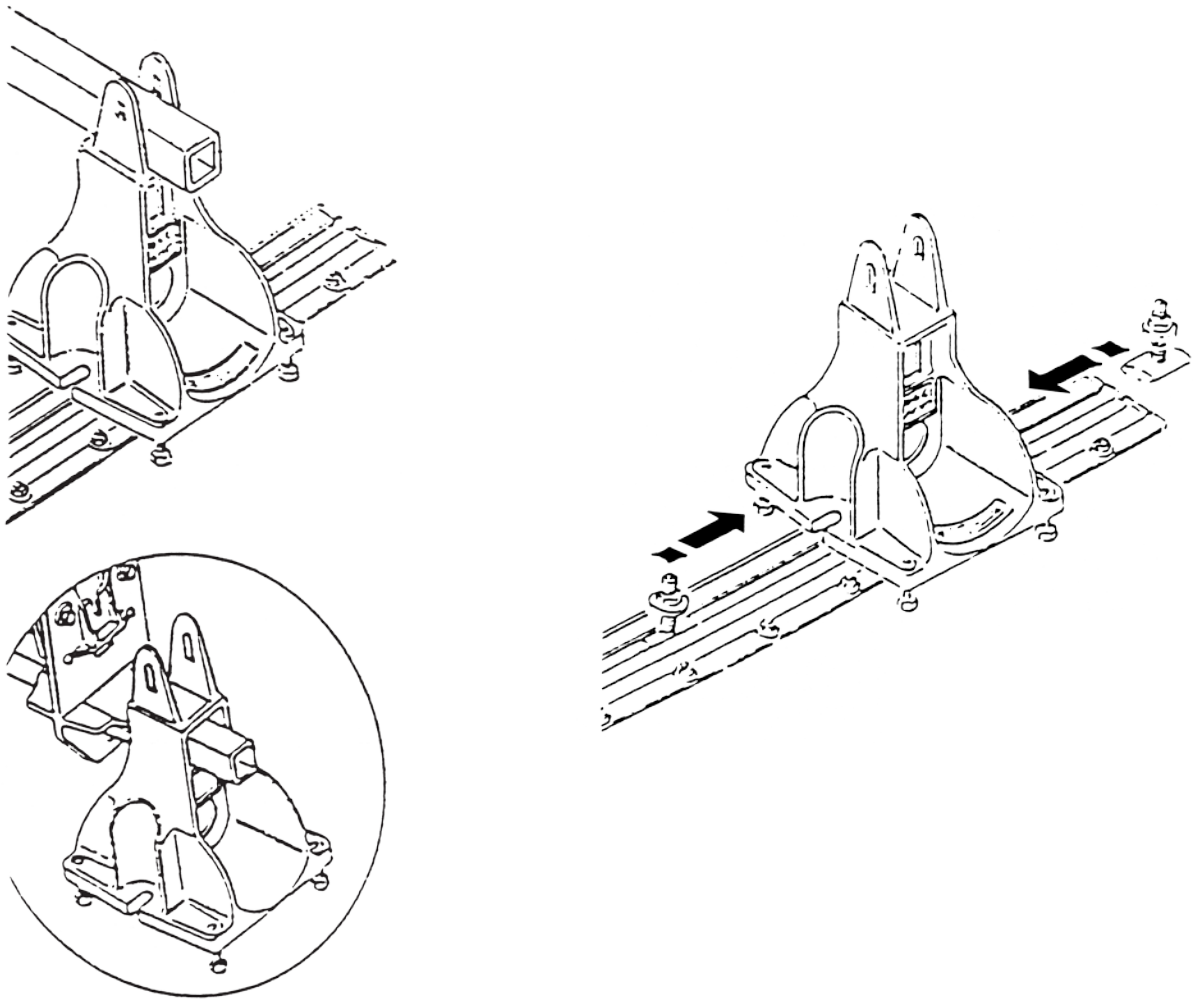


3. Install anchoring stands:

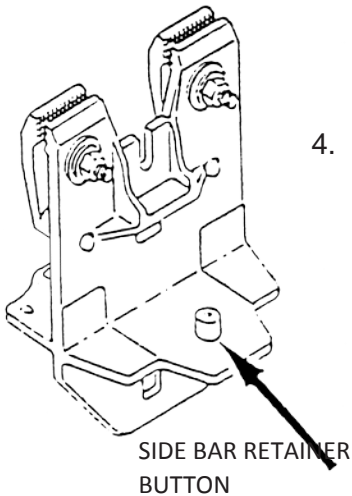
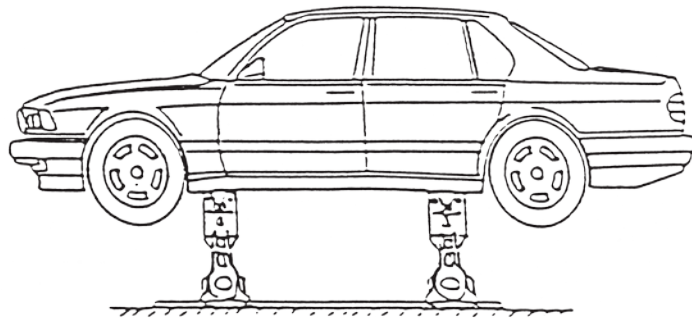
- a) Position the anchoring stands under the anchoring crossbar. Always position the Chainless Anchoring Stands so that the bolt adjustment is correct to counteract for any uneven floor conditions as described on Page 5.

NOTE: If your floor jack does not raise the vehicle high enough to allow the anchoring stand under the end of the anchoring crossbar, then hang the stands on the ends of the anchoring crossbar (as shown at the left) by the hole in the stand. Lower the vehicle and raise again by jacking under the center of the anchoring crossbar. The anchoring stand can then be placed under the anchoring crossbar and the vehicle lowered onto the top of the stand.

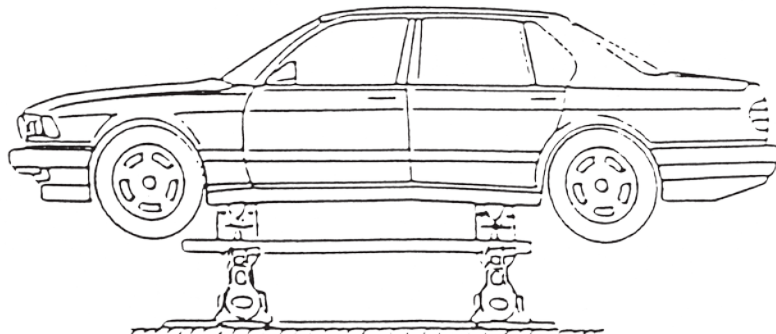
- b) Insert the rail locks into the anchoring rails and into the short slots in the base of the anchoring stands to align stands with the anchoring rails. Do not insert the rail spacer wedges beneath the anchoring stand yet.



- c) Remove the safety stands and lower the car onto the anchoring stands.
- d) Raise the rear end of the vehicle and repeat same process as at the front:
- place the rear clamps on the car positioned on the pinchweld within 1" of the clamp on the other side of the car.
 - insert the 80" anchoring crossbar through the clamps
 - lower the car onto the support stands



4. Install the 72" anchoring side bars between the front and rear clamps on either side. These bars should drop in easily between the clamp body and the anchoring side bar retainer button on the clamp flange. If the bars do not drop in easily the car may have offset pinchwelds or may have sill damage. If the anchoring side bar can be forced into place behind the retainer button by pushing on the bar then do so and wedge the bar into place. If this is not possible then see "Anchoring Cars With Offset Pinchwelds" on Page 16, or "Anchoring Cars with Sill Damage" on Page 21.



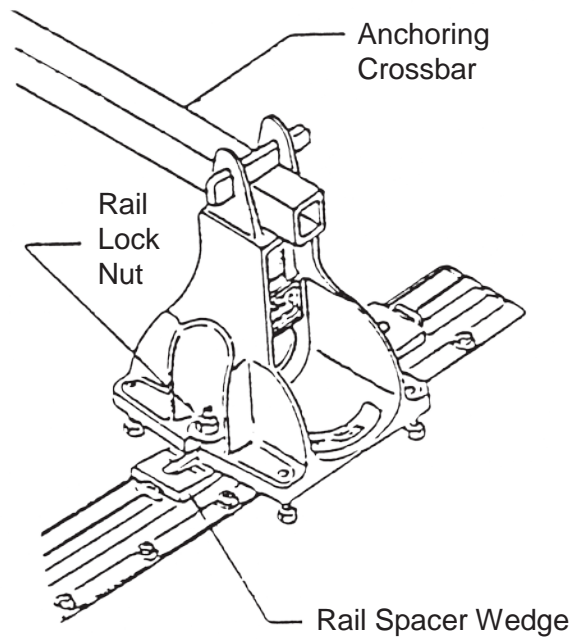
5. Hammer wedges firmly into place between the top side of the anchoring side bars and the clamps. Remember that the flat side of the wedge always goes against the bar.



6. Install wedges through the top of the anchoring stand – to lock in the anchoring crossbars and hammer into place.

CAUTION: Before disassembling the anchoring system you must first remove the wedges at the top of the anchoring stands, otherwise sill damage will occur.

7. Insert the rail spacer wedges between the anchor stands and the floor rail – insert by hand until snug and then tighten rail lock nuts firmly with $1\frac{1}{8}$ " (29 mm) wrench.



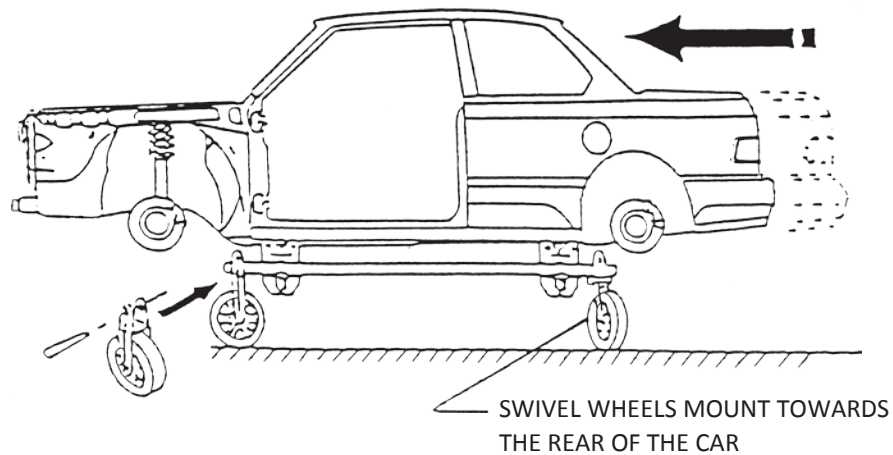
The car is now anchored and you are ready for pulling.

Using the Mobility Wheels

A car can be moved while mounted on the Wedge Clamp System by using the mobility wheels. To install the wheels remove the wedges from the top of the anchoring stands, and raise an end of the car. Wedge the mobility wheels onto the anchoring side bars. Always install the two swivelling wheels away from the heavier end (engine end) of the vehicle. Remove the anchoring stands and lower the vehicle onto the mobility wheels.



WARNING: Be sure that the wedges which secure the mobility wheels to the anchoring side bars are hammered in securely. Always install the two steerable swivel wheels AWAY from the heavier end (engine end) of the vehicle. The car may tip forward if the swivel wheels are installed at the heavier end of the vehicle.



REMOVING A CAR FROM THE ANCHORING SYSTEM

To remove a car from the anchoring system, reverse the set up procedure by following the instructions below.

Chainless Anchoring System



1. Loosen the rail lock nuts and remove the rail spacer wedges from all four anchoring stands.
2. **IMPORTANT!** Remove the wedges from the top of the anchoring stand on all four stands so that the cross bars may rotate freely on the anchoring stands before jacking or lowering the car.
3. Remove the wedges on the 72" anchoring side bars between the front and rear clamps and remove the bars.
4. Raise the rear end of the car. Remove the anchoring stands and remove the wedges and the 80" anchoring crossbar. Remove the rear set of pinchweld clamps. Lower the car and repeat the same procedure at the front end of the car.

ANCHORING PROBLEMS AND SOLUTIONS

This section describes procedures for handling special anchoring situations with vehicle models that are difficult to anchor, vehicles without pinchweld flanges, or vehicles with certain damage conditions in the pinchweld area.



WARNING: Serious damage or injury can occur if a vehicle is not anchored securely for pulling. It is your responsibility to evaluate the car and determine the safest anchoring method. Always check the anchoring points during pulling to be sure that the car remains securely anchored.

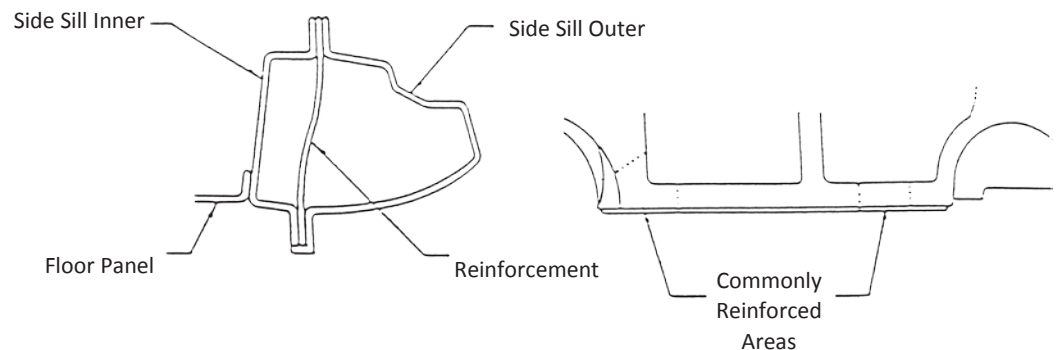
With the hundreds of different unibody models on the road today there is no single procedure for securely anchoring all of these vehicles. Many car manufacturers provide no proper anchoring points for collision repairs. The pinchweld flange that is formed beneath the sill (rocker) panels where key structural components are welded together is usually a reliable point to anchor a unibody car. However even this pinchweld flange does not exist on all models.

In order to handle as many different cars as possible, Wedge Clamp has developed some special procedures and vehicle adapters. Anchoring procedures covered in this section are:

- Anchoring To Weak Pinchwelds
- Anchoring with Obstructions on the Pinchweld
- Anchoring with Very Short Pinchwelds
- Anchoring to Offset Pinchwelds
- Anchoring Mercedes Benz and Honda/Acura Models
- Anchoring Wide Body Vehicles
- Anchoring Cars with Sill Damage

Anchoring to Weak Pinchwelds

Pinchwelds vary from car to car. Some have good strength for heavy sideway pulls but not for down pulls. On other cars, the pinchwelds might be strong at the front but weak at the rear. Careful examination can usually determine what the limitations of the car's pinchwelds are. Look for at least three layers of metal coming together on the edge of the pinchweld flange. The figure to the left shows a cutaway of a reinforced pinchweld section. Look for spot welds along the outside of the sill to indicate possible inner layers of metal.



After examining the metal thickness and strength of the pinchweld, you can locate the pinchweld clamps accordingly. The 1988 and 1989 Toyota vans, for example, cannot be secured by the pinchweld flanges.

Anchoring with Obstructions on the Pinchweld

The Wedge Clamp pinchweld clamp has been specifically designed to fit around obstructions and at the same time provide maximum holding strength. It may be necessary to remove fuel lines, etc. out of the way before clamping the pinchweld flange. In some cases it may be necessary to remove fender bolts and even pull the bottom of the fender out from the car in order to fit the pinchweld clamp in the strongest location. In very difficult obstruction situations, it is possible to remove one of the jaws on the clamp so that the clamp is anchoring the vehicle with only one jaw (see "Anchoring Cars with Very Short Pinchwelds" below).

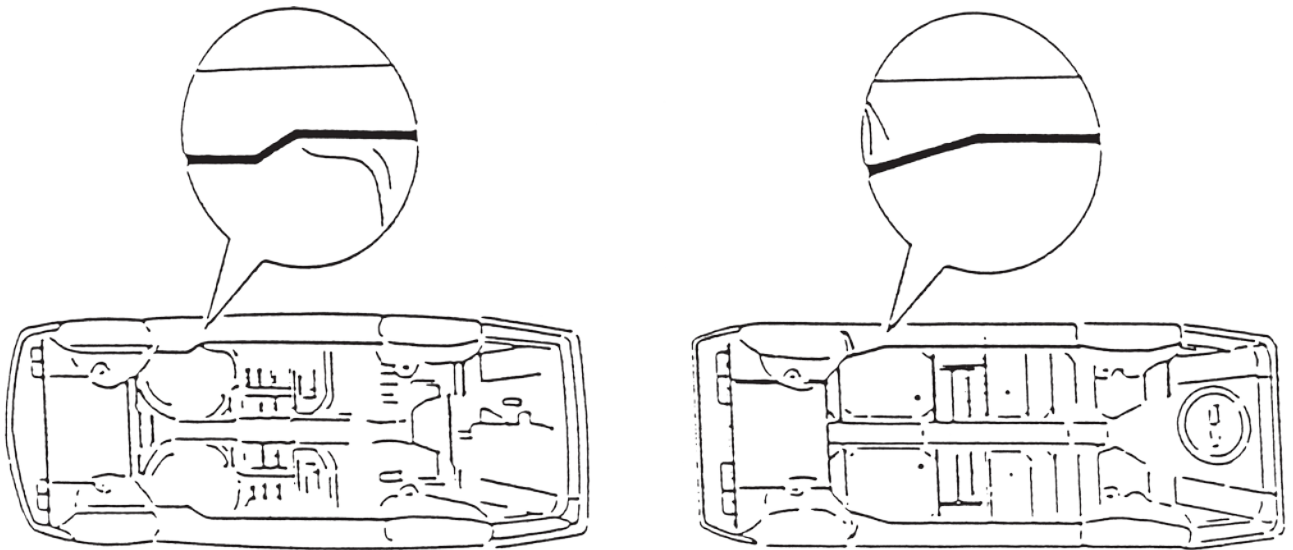
NOTE: Care should be taken not to clamp over drain contours on some pinchwelds thereby pinching them shut.

Anchoring with Very Short Pinchwelds

On some vehicle models, the pinchwelds are very short (such as on the Chevrolet Sprint and Honda Accord). It is necessary to remove one of the jaws on each clamp so that only one jaw is holding the pinchweld. This method has been tested under various conditions and has been found to hold satisfactorily.

Anchoring to Offset Pinchwelds

If the pinchwelds do not run in straight line for their full length it is said that a vehicle has offset pinchwelds. The left and right pinchwelds may angle in towards the center of the car at one end or the other, or have a sudden step inward at one point along the sill (rocker) panel. Examples of such pinchwelds are shown in the diagrams below. In these cases, the anchoring side bars will not drop into place and slide easily between the clamp body and the bar retainer button because the forward and rearward clamps will not be in line with each other.



To install the anchoring side bars:

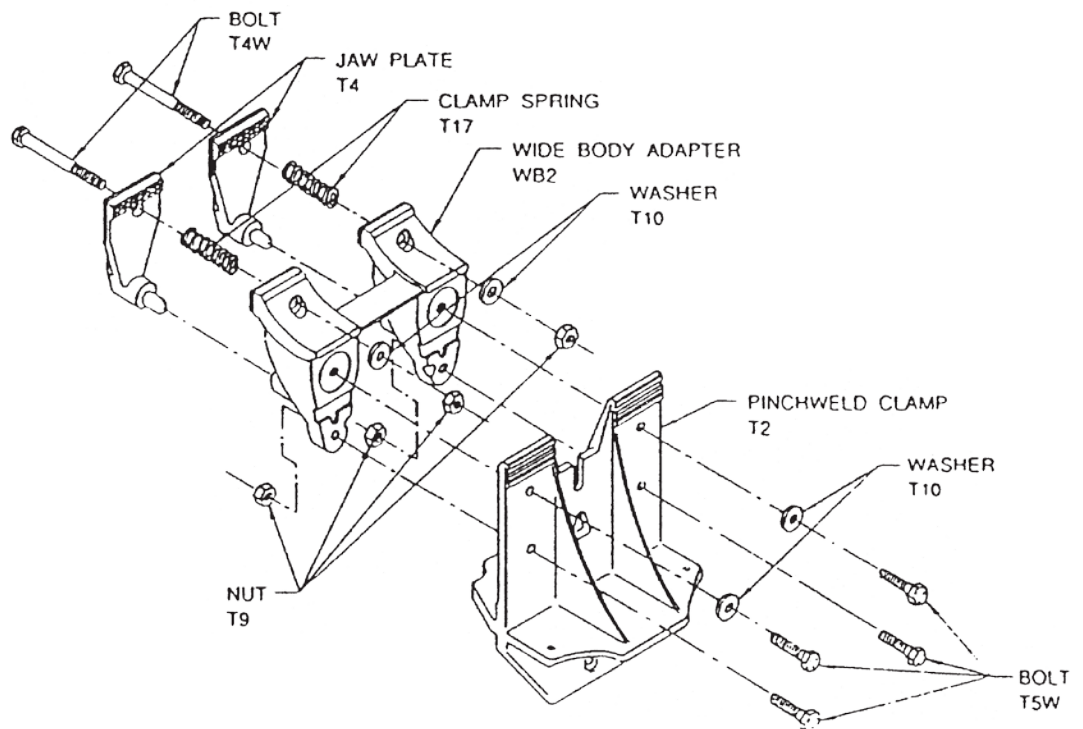
1. Install the front pinchweld clamps as normal. If pinchweld clamps are at an odd angle and there is no apparent sill damage, there is no need to be alarmed, this is common with some vehicles.
2. After all four pinchweld clamps have been installed and you are ready to place the anchoring side bars into position, place the anchoring side bar in the front (or the odd angled) pinchweld clamp first and insert the wedge to lock the bar into place against this clamp. Then place your foot on the opposite end of the anchoring side bar and push in until the anchoring side bar fits into the other pinchweld clamp behind the retainer button. Now wedge the bar firmly into place the usual way.

NOTE: In some cases it may be necessary to remove the retainer button on the clamp flange. If this is so, make sure that the anchoring side bar is up against and touching the pinchweld clamp body. Then wedge the bar firmly into place.

NOTE: If the car has had sill damage refer to “Anchoring Cars with Sill Damage” on page 21.

Anchoring Wide Body Vehicles

For extra wide bodies vehicles (usually of the van type) Wedge Clamp has developed adapter brackets for the pinchweld clamps. Each adapter extends the pinchweld clamp by approximately 4" (100 mm) to widen the anchoring system 8" (200 mm). Examples of vehicles which require these brackets are the Ford Aerostar vans and the General Motors Astro vans. The Wide Body Adapter Brackets can be ordered from your Wedge Clamp dealer or by specifying Wedge Clamp Part No. 15000. The wide body adapter assembly is shown below.



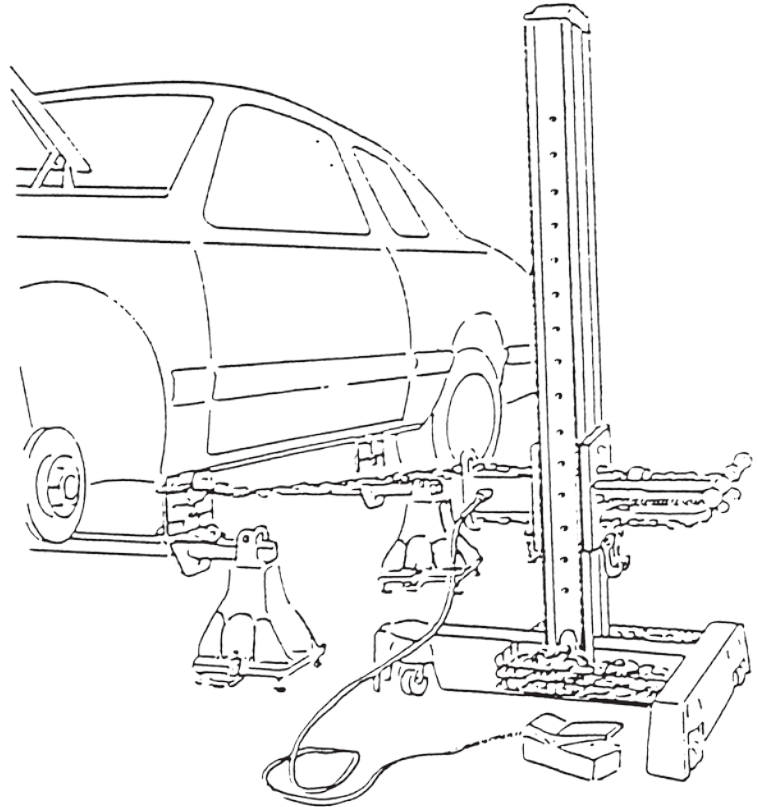
To install these brackets, simply remove the two jaws from the pinchweld clamp. Using the bolts provided, bolt the adapter bracket to the outside face of the clamp with the bolts coming through from the inside. Now bolt the two jaws onto the bracket. The pinchweld clamps may be installed to the vehicle as normal.

Anchoring Cars with Sill Damage

This procedure is used for fitting the Wedge Clamp Anchoring System to a vehicle that has received minor sill damage:

Anchoring cars with Minor Sill Damage

1. Raise the front of the vehicle and attach pinchweld clamps to a section of the pinchweld flange if possible. Ignore the angle of the clamp on the damaged side.
2. Slide the anchoring crossbar through both clamps and wedge the bar into place on the undamaged side firmly. Place the wedges through the clamps on the damaged side from the inside of the car pointing out so that the pinchweld clamp can slide on the anchoring crossbar.
3. Raise the rear of the car and repeat the same process as for the front.
4. Install the anchoring side bar on the undamaged side.
5. Tighten down the anchoring stands on the undamaged side. With the chainless system, wedge the anchoring crossbar firmly to the anchoring stand.
6. Repair the damaged side by pulling on the pinchweld clamp. This may be done by wrapping a chain around the clamp up high against the pinchweld.



7. After the repair has been done a comparison check with the undamaged side can be done by measuring from an underneath control point to the edge of the pinchweld.
8. Set up the remainder of the anchoring system as normal.

Anchoring Cars with Major Sill Damage

When the sill (rocker) area of the car has been so severely damaged that the pinchweld clamps cannot be bolted to the sill on the damaged side of the vehicle use the following procedure:

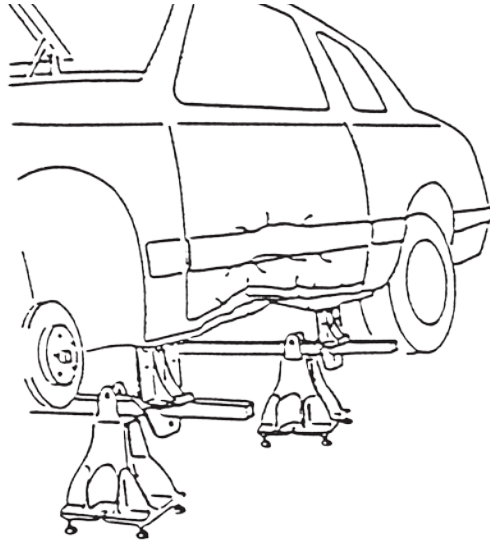
1. Raise one end of the vehicle and place the pinchweld clamp on the undamaged side of the car.
2. Slide the anchoring crossbar through this clamp, and on the damaged side place the pinchweld clamp on the bar beneath the car inboard of the sill (rocker) area. Wedge the clamp firmly in place.

NOTE: On the chainless system, insert the wedges between the pinchweld clamps and the anchoring crossbars from the inside pointing out.

3. Lower the car so that the weight of the car is resting on the pinchweld clamps. On the damaged side allow the bottom of the vehicle's floor pan to rest on top of the pinchweld clamp.

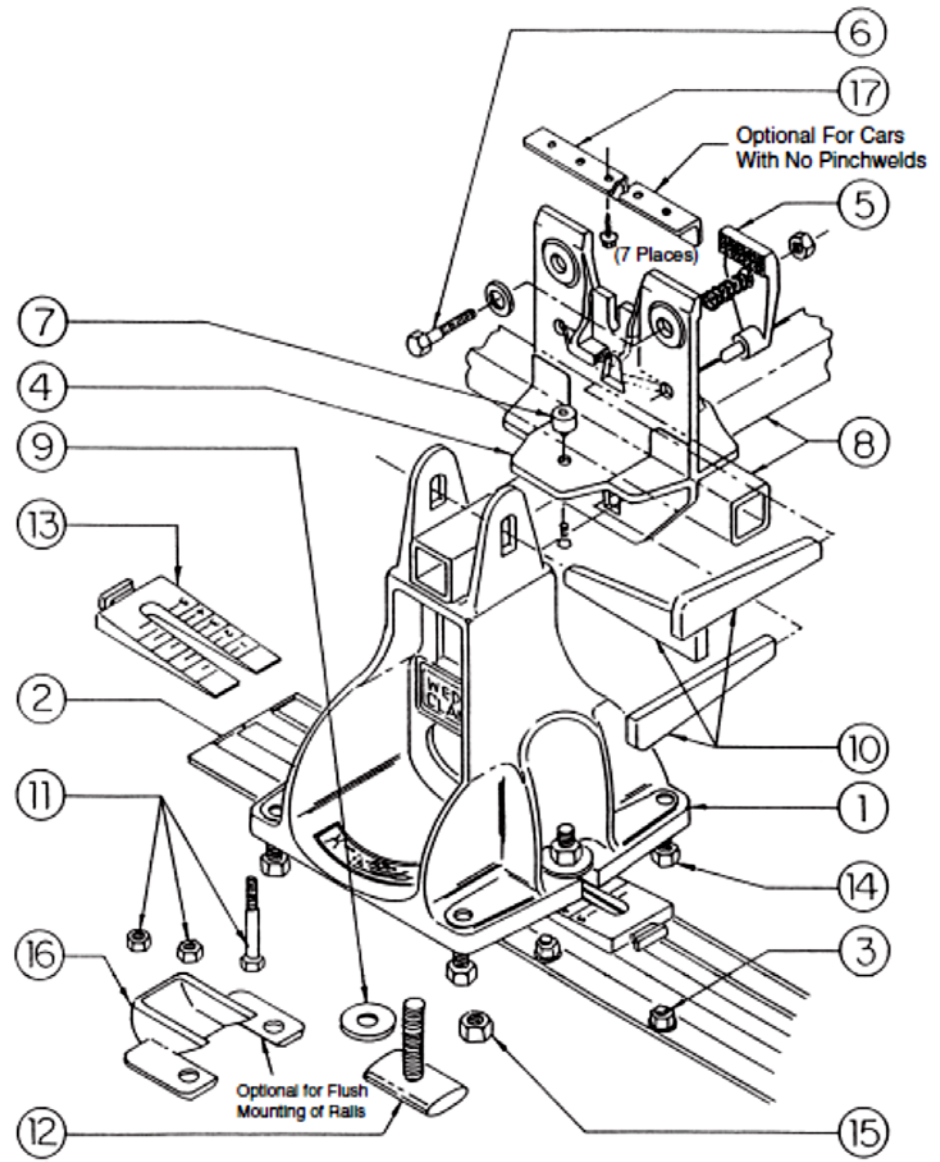
NOTE: On the damaged side it may be convenient to place the anchoring stand on the inside of the pinchweld clamp so that the working area near the sill will be unobstructed.

4. Jack up the rear of the vehicle and repeat the process:
 - place the pinchweld clamp on the undamaged side of the vehicle;
 - slide the anchoring crossbar through the clamp on the undamaged side, and wedge the pinchweld clamp on the bar on the damaged side; and
 - lower the car onto the anchoring stand.
5. Drive the wedges through the top of the anchoring stands on the undamaged side.
6. Repairs to the damaged sill (rocker) area can now be done. The clamps on the undamaged side of the vehicle will secure the vehicle while pulling is done on the damaged side.



Replacing a Sill (rocker) Panel

NOTE: In situations where the sill (rocker) panel needs to be replaced, mount the pinchweld clamp on the crossbar facing inwards (i.e. reversed 180) on the damaged side and remove the clamp jaws. Position the clamps on the damaged side so that the half jaw of the clamp is as near as possible to the inside of the pinchweld flange. Allow the car to rest on the half jaw. You may then proceed to perform repairs and cut away the old sill (rocker) panel and weld on a new panel. The jaws can be refitted to hold the new sill (rocker) panel in place for welding. (Note that the anchoring side bar can be mounted on the inside of the clamps so that the Pivot Measuring Systems can be mounted.)



Ref	Part#	QPS	Description
1	17603	4	Chainless Anchor Stand
2	17900	2	Anchoring Rail Bevelled End (1pc)
3			Anchoring Bolts
4	17004	4	Clamp Body
5	17005	8	Jaw Plate
6	09068	8	Clamp Bold, Spring, Nut Washer
7	17006	4	Retainer Button
8	17102	2	Anchoring Crossbar (72" long)
	17103	2	Anchoring Crossbar (80" long)
9	16064	8	Rail Lock Washer
10	20060	12	Wedge
11	16066	72	Flush Mounting Bolt
12	17604	8	Rail Lock
13	17605	8	Rail Spacer Wedge
14	16063	16	3/4" NC X 2 3/4" Bolt
15	16012	8	3/4" NC Nut
16	17902		Rail Bevelled End Clean Cut
17	15100		No-Pinchweld Adapter Kit (Optional)

Wedge Clamp Systems Inc.'s management welcomes your comments and suggestions on any of our products. We are committed to developing longstanding relationships with our customers, therefore, your input is invaluable and will help us improve and develop the best possible products. Please feel free to contact us with any comments and/or suggestions on any of our products or services at the address below. We thank you for choosing the Wedge Clamp System.

WEDGE CLAMP SYSTEMS INC.
170 - 21320 Gordon Way
Richmond, B.C. 6W 1J8

Toll Free Factory Support: . . 1-800-615-9949
Tel: (604) 207-9595
Fax: (604) 207-9593