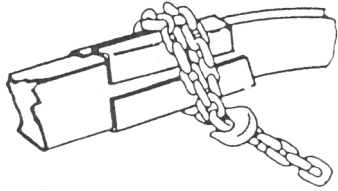
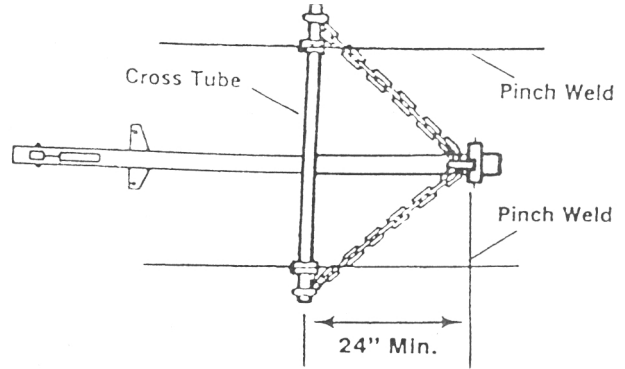


# 10 Ton Body Straightener Instructions

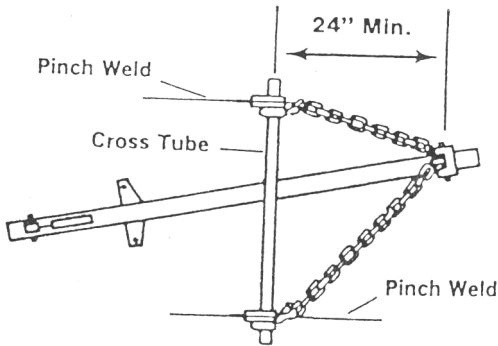
Frames and bodies are bent and distorted by collision with a relatively large area of the car bearing the impact. However, the correction procedure utilizes powerful, concentrated loads at key points which can cause local crushing of frame members, etc., if these points are not properly padded to spread the load over a large area. Illustrations of recommended anchoring procedures are shown below for efficient use of the underbody anchoring system.



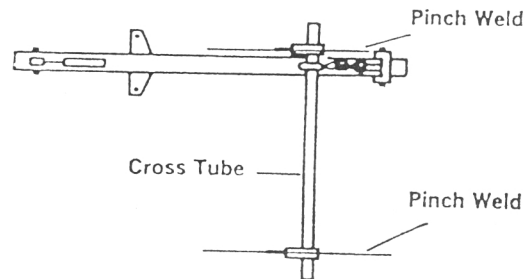
Box frames and channel sections should be padded with short pieces of angle iron to prevent damage to the corner of the section when a chain is wrapped around the frame section.



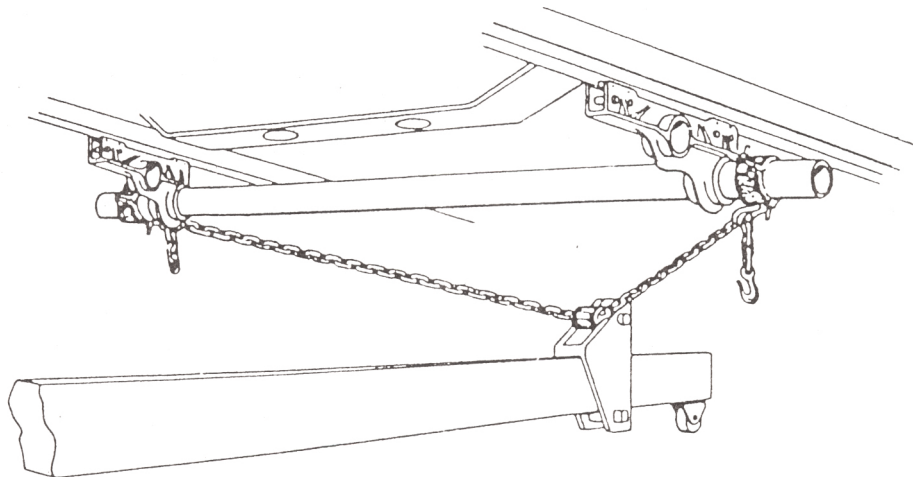
Proper anchoring for a heavy fore and aft pull utilizes the underbody anchoring system as shown here.



For a diagonal pull, the underbody anchoring system provides attachment to both rocker panels, for better efficiency and less damage. The anchoring loads are spread across both side of the car.

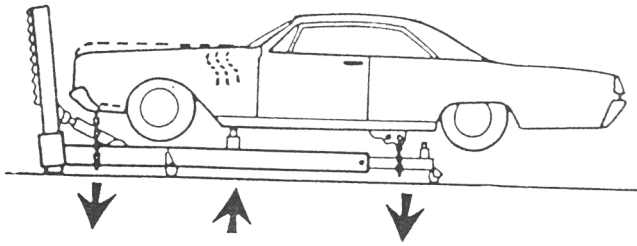


For pulling on one side only, it is best to attach the cross tubes to both rocker panels. Anchor your Dozer to the cross tube. This will prevent undue rolling of the underbody clamps in the pinch weld.



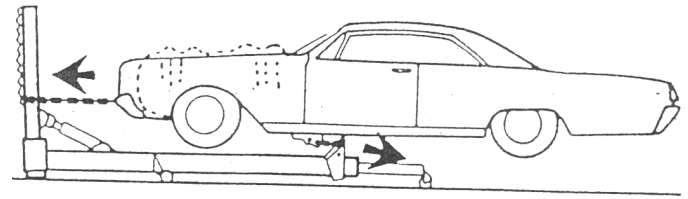
The underbody anchoring system fastens to the pinch welds and provides full load capability plus versatility in positioning your Dozer portable body and frame straightener.

# Use These Basic Hook-Ups for Correction...



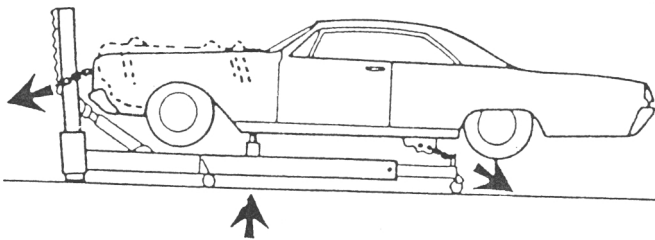
## Hook-Up for Sag or Kick-Up

With the car firmly supported on safety stands, place your Dozer under the frame rail to be corrected. Anchor the end of the Dozer beam to the frame rail at rear of passenger compartment or use the underbody clamps and fasten to the pinch weld. Anchor the frame horn to the Dozer beam at the front. Place a hand jack or Porto-Power unit on the Dozer beam under the low area to raise it.



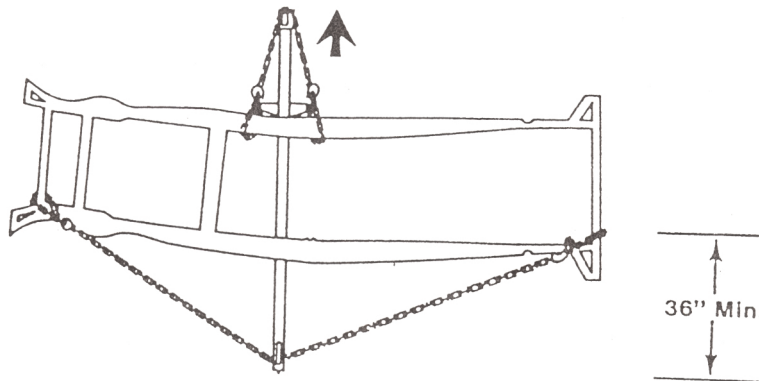
## Hook-Up for Mash

This basically is a pulling and stretching operation. With the car firmly supported on safety stands, place your Dozer under the frame rail to be corrected. Anchor the Dozer to the frame or the pinch weld with underbody clamps. Use a frame horn pull plate or clamp on the front rail and pull the frame straight forward. The inner pan may be pulled at the same time you pull the rail.



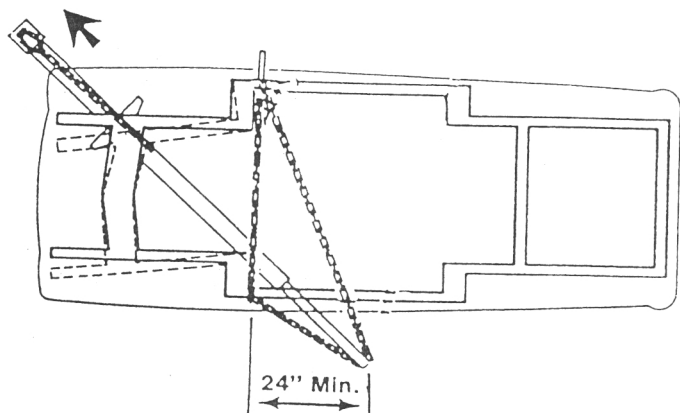
## Hook-Up for Mash with Sag

Attach the anchor post of your Dozer to the underside of the car, near the rear wheels, using chain or the underbody anchoring system. Place a block or jack between the Dozer beam and cowl. Chain the front of the frame horn to the Dozer pivot arm so that you pull the frame horn forward and downward simultaneously.



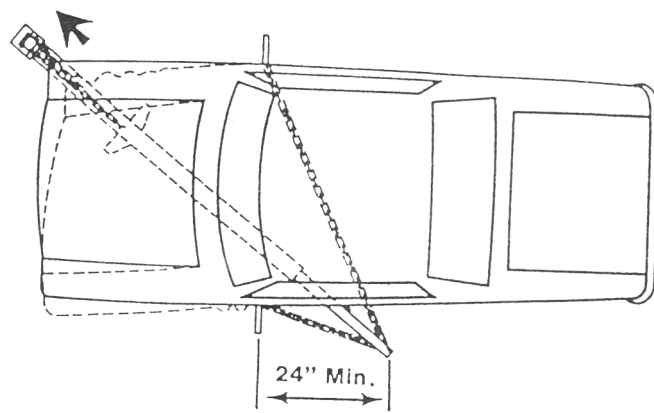
## Hook-Up for Center Sway

The above illustration shows a common hook-up to remove center sway from a ladder frame. This same arrangement can be used for other types of frames, but the frame side rails should be tied together by chain in order to move both rails at the same rate. The underbody anchoring system can be used for unitized construction by placing one set near the cowl and another set near the rear extremity of the rocker panels. The car should be well supported, on safety stands and cross-tubes. When attaching to the frame with chain, the frame should be protected by the use of short pieces of angle iron to pad the corners where the chain wraps around frame section. Many times the multi-pull Dozer hook or the cross section pull system can be used for attaching to the car structure.



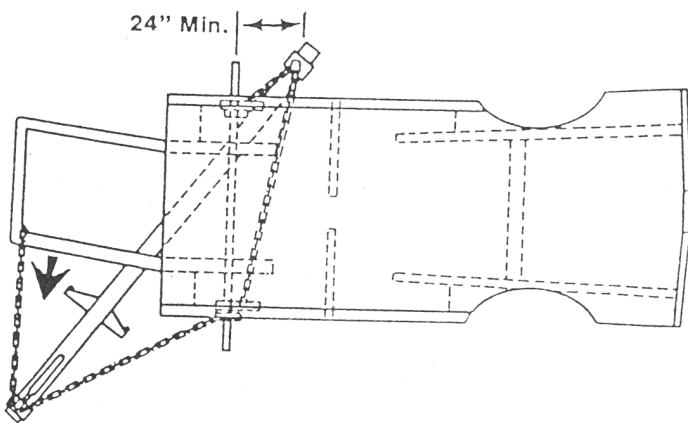
### Hook-Up for Sway with Mash Perimeter Frame

The hook-up shown above will move the frame horns both forward and sideways simultaneously; thereby correcting combination damage in a single hook-up. The Dozer should be positioned nearly fore-and-aft for heavy mash with slight side sway and should be positioned nearly crosswise of the car for heavy side sway and light mash. For really tough pulls, the frame rails or rocker panels should be tied together to provide the best anchor and avoid damaging the structure at the anchor point. Use of the underbody anchoring system allows nearly any direction of pull to be made by adjusting the length of chain and the position of the Dozer anchor post on this chain.



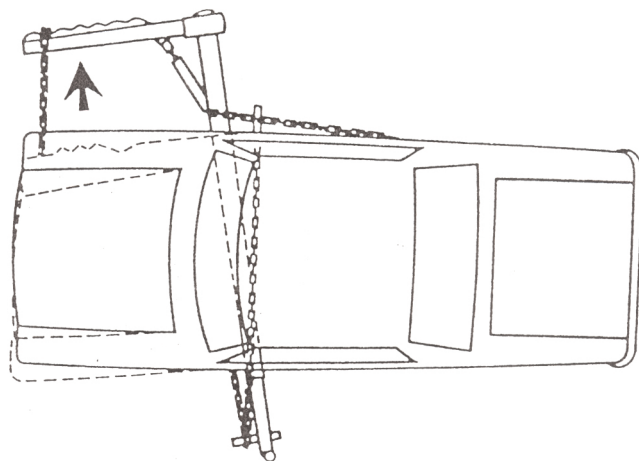
### Hook-Up for Sway and Mash Unitized Body

This hook-up is the same as for the perimeter frame except for anchoring to the underbody. The unitized underbody generally is strongest through the rocker panel area. A heavy pull can be obtained by using underbody clamps and the underbody anchoring system on the rocker pinch welds. Both rocker panels will support the side component of the pull. Multiple clamps may be needed at the frame horn and inner pan forward edge to move the entire forward section as a unit.



### Alternate Hook-Up for Front End Sway

Place your Dozer diagonally as shown and anchor it to the rocker panel pinch weld with underbody anchoring system or anchor it to the frame. The pivot arm first is chained to the frame rail or underbody anchor to prevent the Dozer from swinging forward under the load. Then a pulling chain is attached to the front end to provide a direct sideways pull. Both the holding chain and the pulling chain should be attached at the pivot arm at the same location to avoid tipping of the Dozer while the pull is being made.

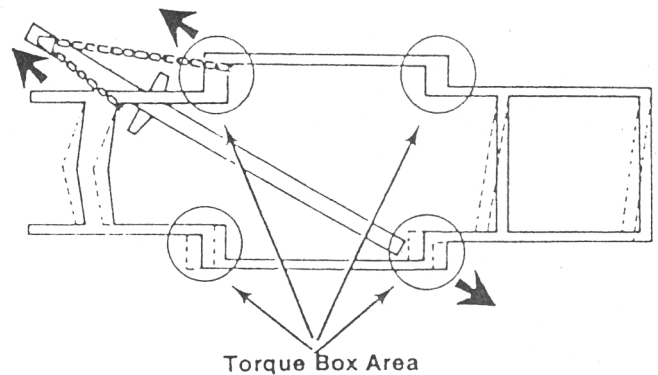


### Hook-Up for Front End Sway

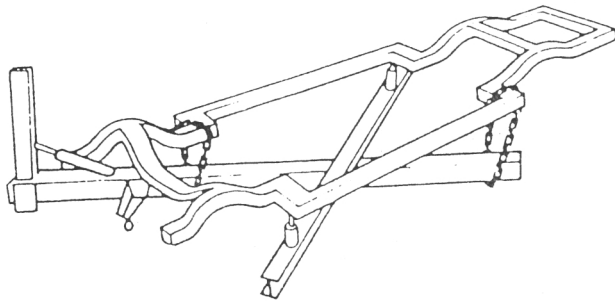
To obtain a direct side movement of the front end, use a hook-up as shown above. Place your Dozer on its side and anchor it to the rocker pinch welds or to the frame. This will prevent rotation of the main beam while the pivot arm pulls horizontally sideways. The underbody anchoring system should be used to resist the side load through both rocker panels. This system can be used with unitized construction and also for anchoring with frame type construction.

# Long Pulls Correct Cars in a Diamond Condition

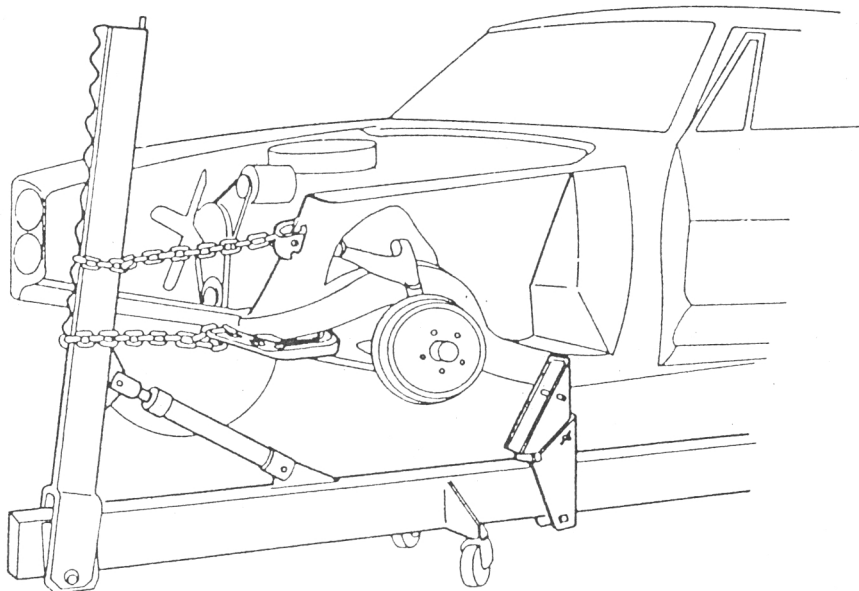
While unitized cars seldom go into an overall diamond condition, it does happen frequently with perimeter and ladder type construction. The accompanying diagram indicates the general positioning of your Dozer for correcting a perimeter frame. The anchor post is placed against a corner of the frame as illustrated. The pivot arm is attached diagonally opposite the front cross member, the frame horn or frame rail. Pads, hooks or clamps should be used to prevent crushing or distortion of the frame sections. On cars which have side rails which are quite light, it may be necessary to tie the front torque box to the rear torque box since all loads for the length of the rail must be carried by this side rail.



## Twist Damage Can be Repaired Easily



Twist seldom occurs without considerable other damage being present. However, for those instances where it does appear independently, a structural I-beam approximately 10ft long is placed across the main beam of your Dozer. Jacks are placed on the ends of this cross beam to lift the low corners of the car. Meanwhile the Dozer beam remains diagonally opposite with the high corners of the car chained down to it, as shown in the diagram. The jack and chain loads should be made at the sturdiest part of the frame, such as torque boxes. Sufficient blocking should be used on the jack saddle to prevent damage to the lower surface of the car.



### **WARNING!**

Clamp slippage, chain slippage or sheet metal tearing can cause the accidental release of chains when under load. Chains accidentally released when under load can cause severe body injury. For your safety DO NOT stand directly in line with the chain when it is under load.