

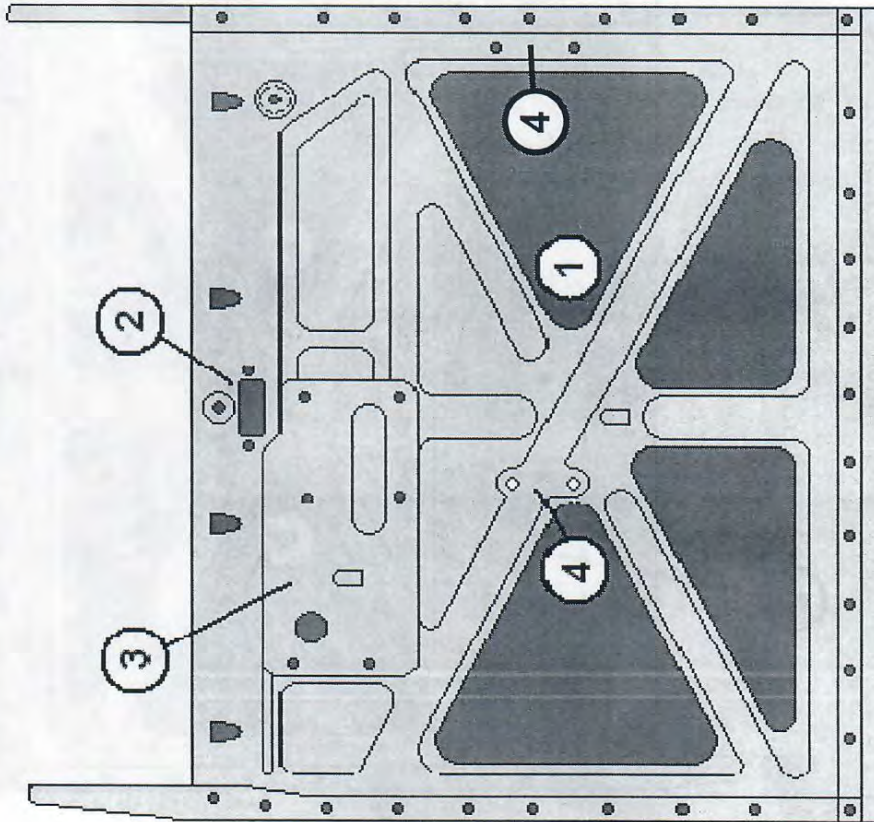
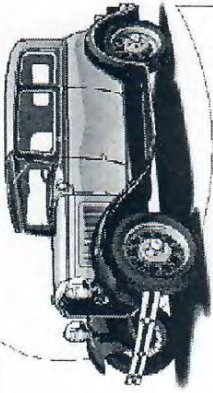
BOB BIDONDE

Bob Bidonde is a Mechanical Engineer in the Aerospace Industry, wherein he honed his technical sketching abilities. Some of Bob's designs have gone to the Moon on the Apollo Lunar Module, and some are keeping America safe in the Navy's F-14 Tomcat fighter, and in the Coast Guard's HU-25A Surveillance Aircraft. Along with his wife Kathy, they enjoy touring in their restored 1931 Deluxe Coupe that Bob bought in 1962. In 1993 Kathy bought Bob a 190A Victoria Coupe that Bob is currently restoring to Touring Class judging standards. Kathy says that she wants a Model A with a back seat so they can take family and friends along on tours, but Bob says Kathy really wants the Victoria for more luggage space when they tour to the New England Model A Ford Meets, and occasionally to national meets. Both agree that the Victoria's back seat is ideal for their grandchildren, Scott, Michael and Patrick.

Bob's technical sketches have been published in the Model A Ford Judging Standards and Restoration Guidelines, in the Restorer and Model A News magazines, and in the Model A Ford Club of Long Island's Rumble Sheet newsletter. In the 1970s Bob published "The Model A Shop Notebook," a booklet containing his sketches of various Model A Ford parts and assemblies. Again in 1993 Bob published another booklet, "Installing A Model B Engine Into A Model A." Since 1971, Bob has been an active member of the Model A Ford Club of Long Island, holding the offices of President, Director, Activities Vice President, Technical Vice President, and Editor. Bob is also a member of the Greater Baltimore Region Model A Ford Club, the International Victoria Association, MARC and MAFCA.

Listed below are 33 of Bob Bidonde's drawings:

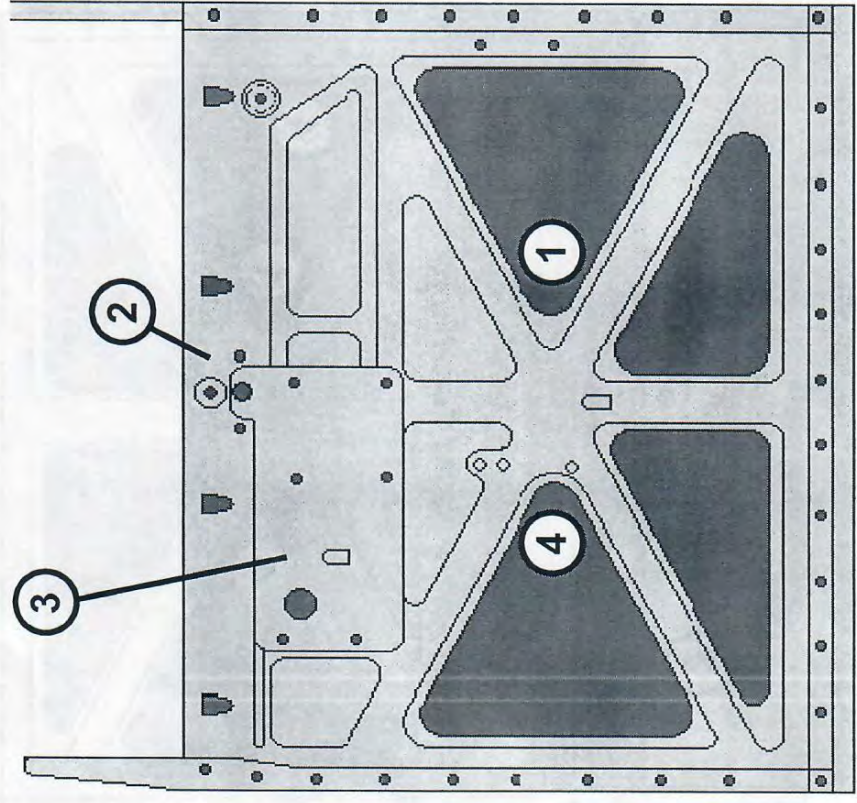
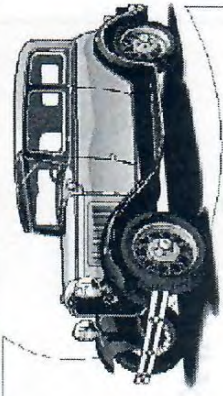
There are 3 variations of in the inner door panels shown as **Doors A, B and C** in the next few pages. The change dates are unknown. Victoria doors fit the 400A Convertible Sedan, but not all variations may be correct for the 400A.



Distinguishing Features

1. Stiffening rib pattern at the center differs from Doors B & C.
2. Cutout at the interior door handle location differs from Doors B & C.
3. Shape of the panel at the window regulator differs from Doors B & C.
4. Two window stop brackets of the 2 mounting hole type.

Refer to the April 1999 Issue of the Victoria Association's Bustle newsletter, Page 7, Figure 1 for a photo of this door.

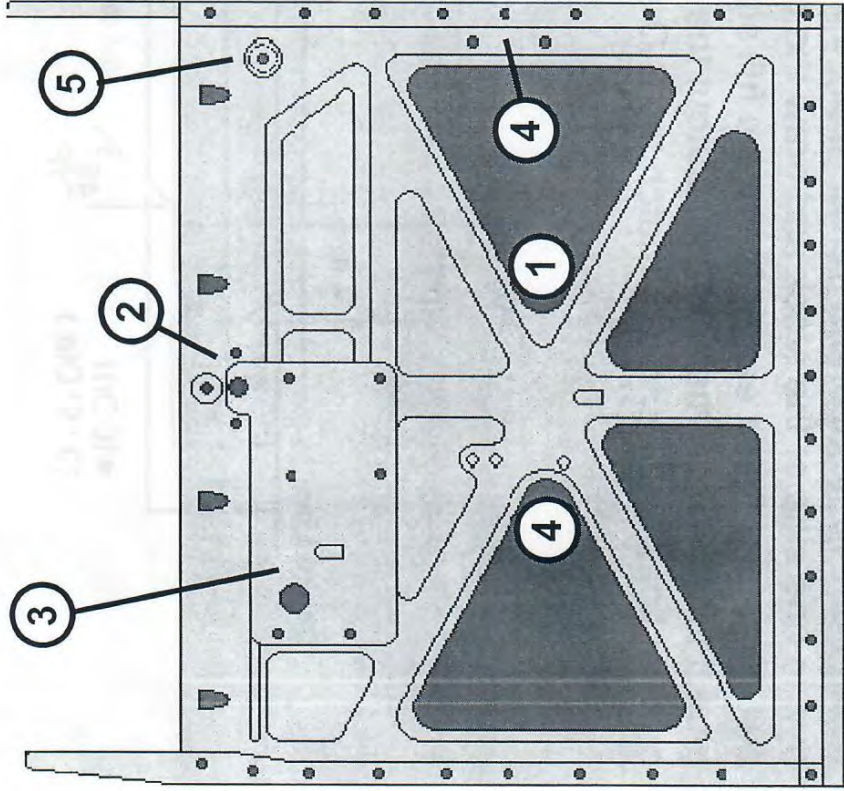
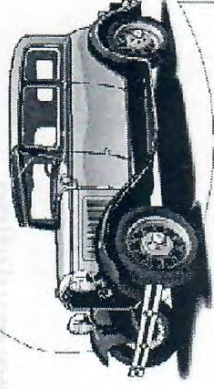


Distinguishing Features

1. Stiffening rib pattern at the center is the same as Door C.
2. Cutout at the interior door handle location is the same as Door C.
3. Shape of the panel at the window regulator is the same as Door C.
4. One window stop bracket – 3 mounting hole type.

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Door Variation B



Distinguishing Features

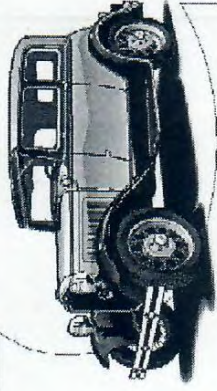
1. Stiffening rib pattern at the center is the same as Door B.
2. Cutout at the interior door handle location is the same as Door B.
3. Shape of the panel at the window regulator is the same as Door B.
4. Two window stop brackets – one 3-hole & one 2-hole mounting.
5. Location of exterior door handle mechanism attachment is unique.

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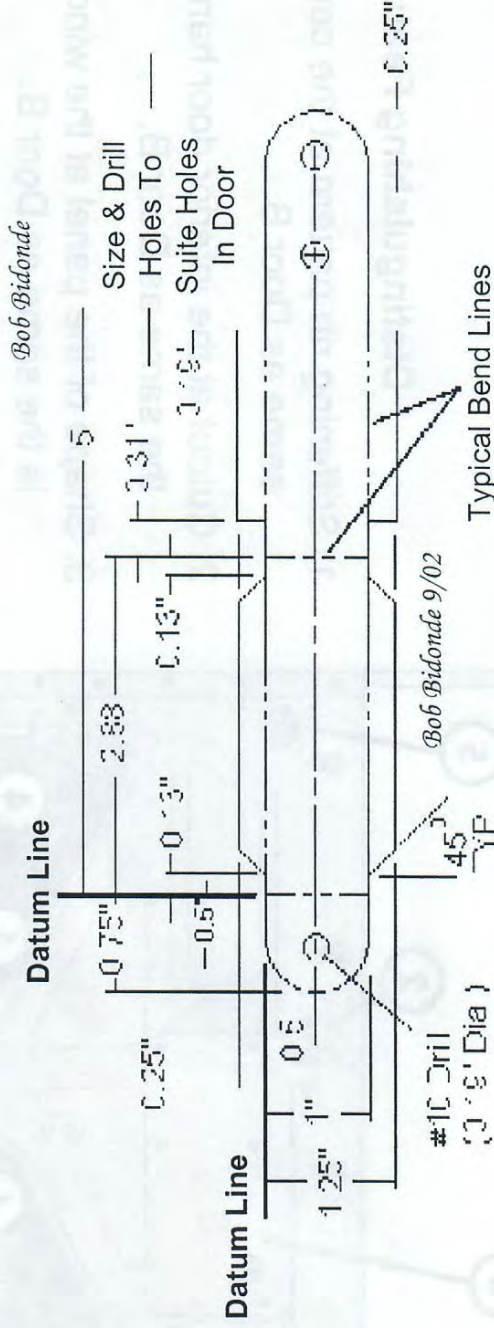
Door Variation C

B4 Model A Ford

190A Victoria Door Window Stop Bracket



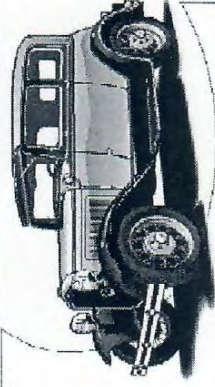
Make from 18-gage sheet metal. Apply a double coat of machinist's dye to one side of the stock and draw the flat pattern with a scratch awl. You may find it easier to draw a full size pattern on paper and glue it to the sheet metal stock. Cutout the metal pattern along the outside lines and bend it to match the 3-D sketch.



3-Hole Stop Bracket Flat Pattern

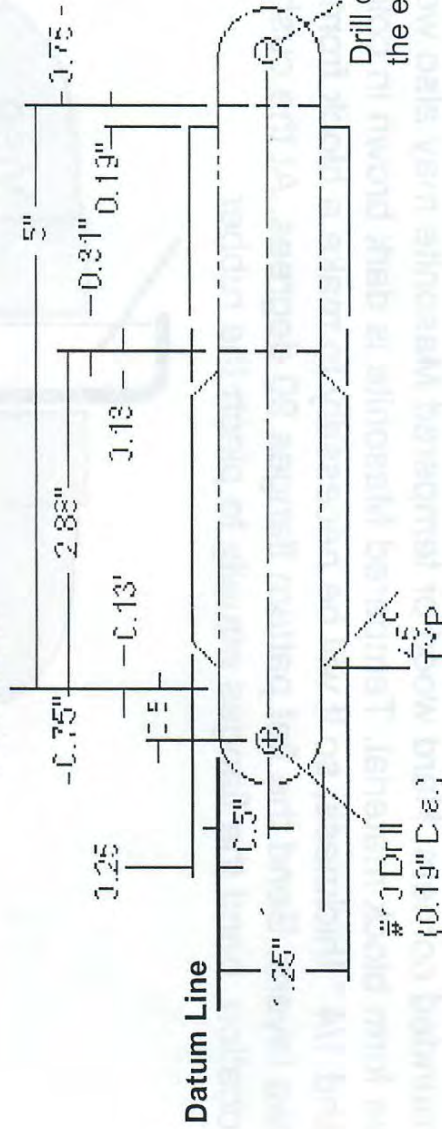
(One required for Doors B & C)

Measure all dimensions from the **Datum Lines** to minimize tolerance accumulation.



Make from 18-gage sheet metal. Apply a double coat of machinist's dye to one side of the stock and draw the flat pattern with a scratch awl. You may find it easier to draw a full size pattern on paper and glue it to the sheet metal stock. Cutout the metal pattern along the outside lines and bend it to match the 3-D sketch.

Datum Line

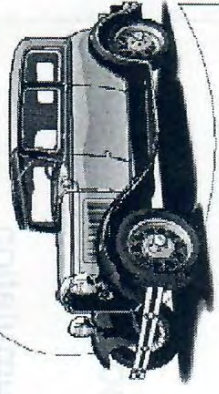


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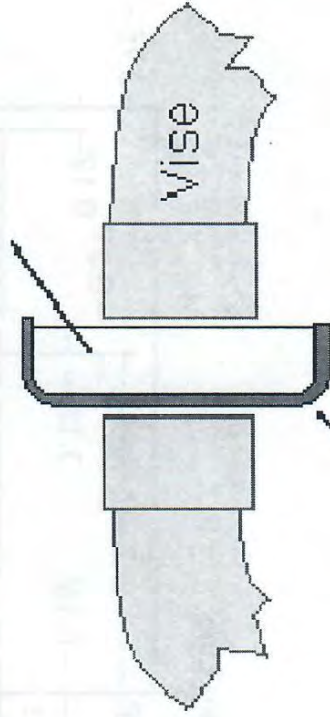
2-Hole Stop Bracket Flat Pattern

(Two required for Door A & one for Door C. Not used on Door B)

Measure all dimensions from the Datum Lines to minimize tolerance accumulation.



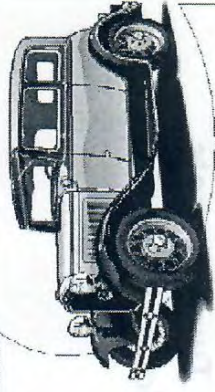
Make a forming block from 0.25" thick x 1" wide steel stock with rounded corners. Hard wood or tempered Masonite may also work as form block material. Tempered Masonite is dark brown in color, and 1/4 " thickness, so it will be necessary to make a block from two layers. Bend the flat pattern flanges 90 degrees. At the cushion location, bend the flanges equally to pinch the rubber



Bracket

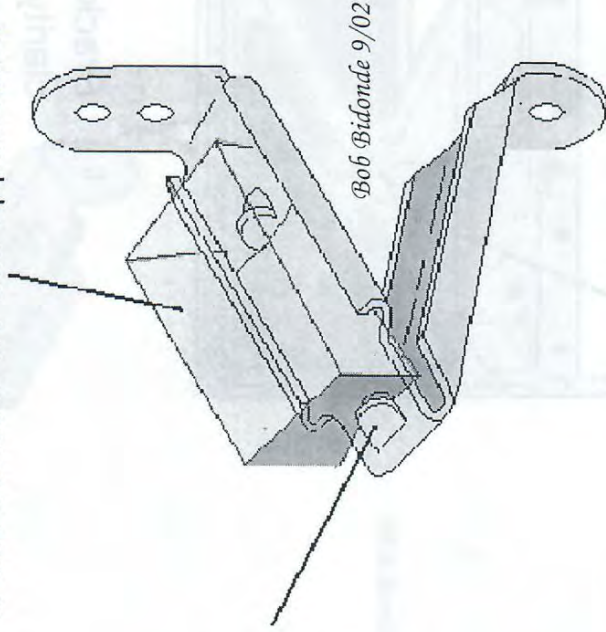
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Stop Bracket Forming Tip



Make the black rubber cushion (B-46570) 1" wide x 1.38" long x 0.5" high. The cushion appears in the Ford Automotive Hardware & Trimming Supplies, 1928 – 1938. Foam rubber is not suitable for this application.

Originally the cushion was secured by two raised tabs in the bracket. In lieu of the tabs, and after painting the bracket, glue the rubber to in place



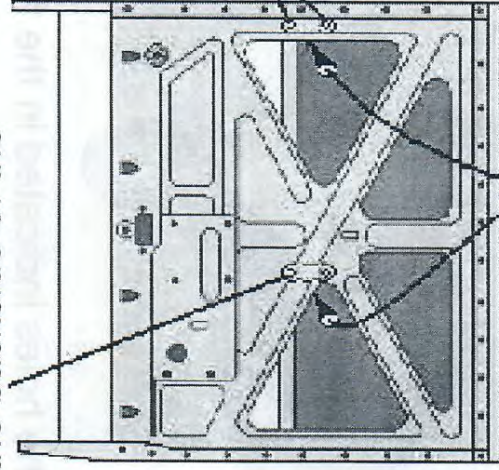
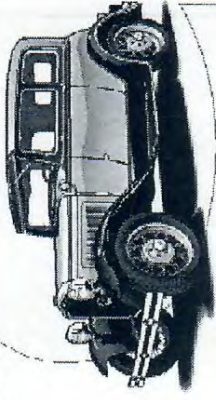
Fit the bracket to the door and drill the holes indicated in the flat patterns. After fitting, clean, prime and paint the bracket black. Glue the rubber to the bracket after painting because solvents in the paint will degrade the rubber.

Stop Bracket Assembly
(Typical of both types)

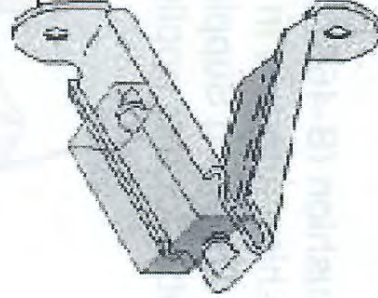
B8 Model A Ford

190A Victoria Door Window Stop Installation

Originally this bracket was riveted to the blind side of the inner door panel before the door was assembled. The solid steel rivets are 3/16" diameter with round tails on the nearside. For restoration, substitute blind rivets or 10 -32 round or pan head screws with nuts and lock washers because the backside of the inner is not accessible to buck solid rivets.



10-32 Brass round head screw, head near side, lock washer & nut



Bracket shown rotated for clarity. Tabs with holes bear against the backside of the inner door panel. Two brackets are used in this door style.

When installed, this end points to the outside

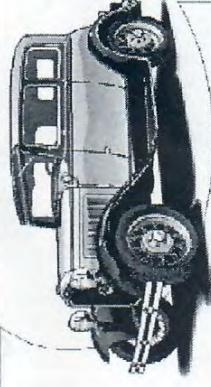
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Stop Bracket Installation For Door Style A

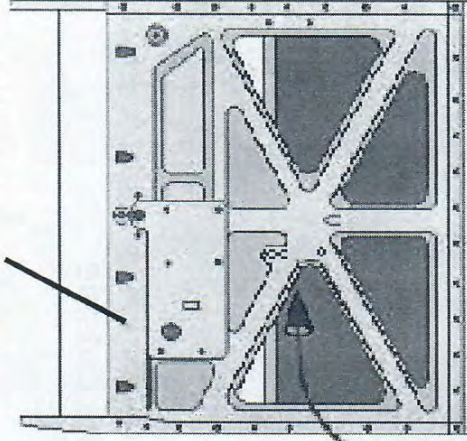
Originally this bracket was riveted to the blind side of the inner door panel before the door was assembled. The solid steel rivets are 3/16" diameter with round tails on the nearside. For restoration, substitute blind rivets or 10 -32 round or pan head screws with nuts and lock washers because the backside of the inner is not accessible to buck solid rivets.

Bracket shown rotated for clarity. Tabs with holes bear against the backside of the inner door panel.

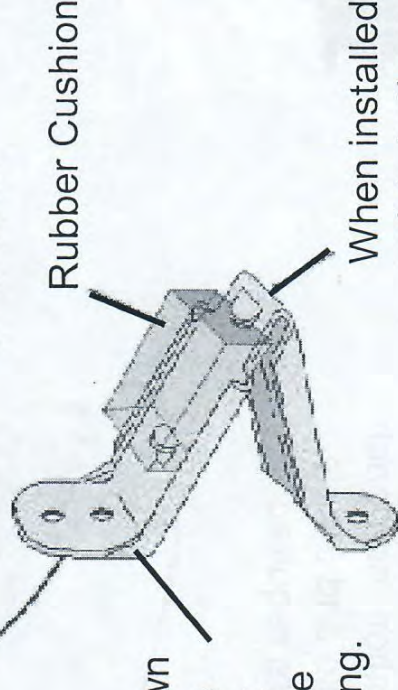
The original bracket shown has gussets to stiffen the attachment tabs. The flat patterns provided omit the gussets for ease of forming.



Inner Door Panel



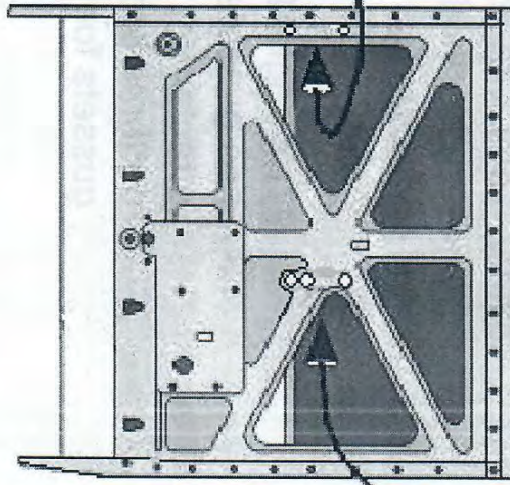
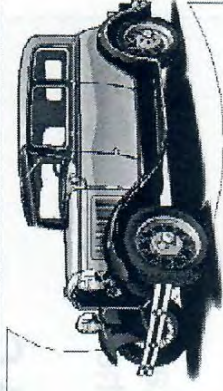
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Rubber Cushion

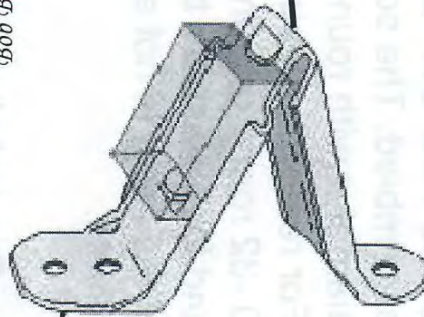
When installed, this end points to the outside

Stop Bracket Installation Typical of Door Styles B & C



In this variation, one each of the 2-hole and 3-hole brackets are required

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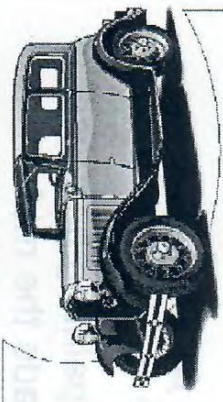
When installed, this end points to the outside

Brackets shown rotated for clarity. Tabs with holes bear against the backside of the inner door panel. Two brackets are used in this door style.

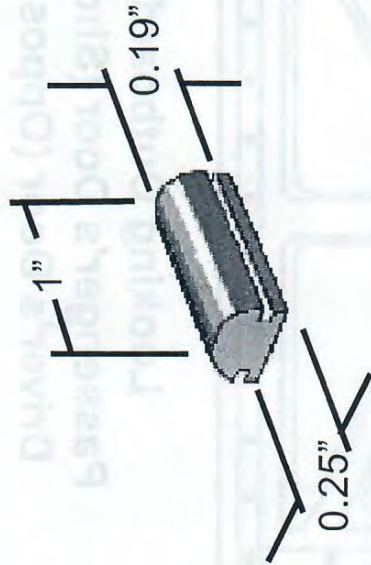
Stop Bracket Installation Variation For Door Style C

B11 Model A Ford

190A Victoria Door Glass Bumpers

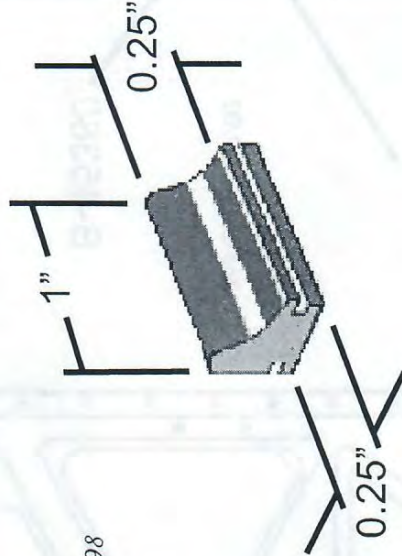


B-46044 Rubber Door Bumper, black rubber, fits into a slot in the garnish molding

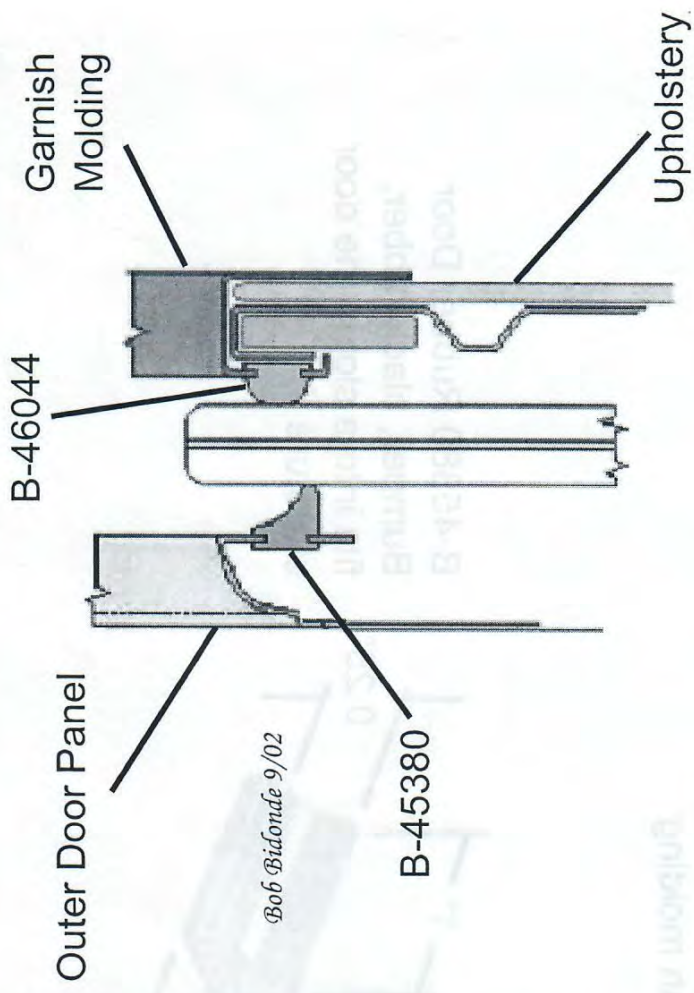
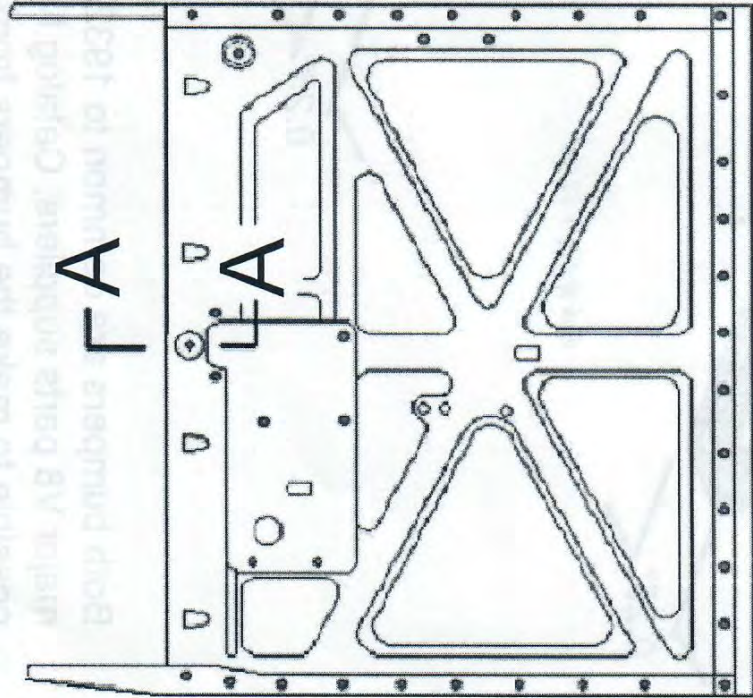
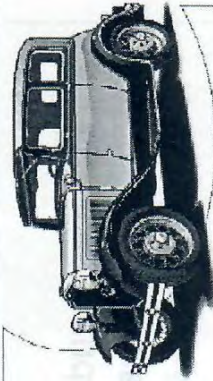


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B-45380 Rubber Door Bumper, black rubber, fits into a slot in the door structure



Both bumpers are common to 1932 - 1935 Fords, and may be bought from one of the major V8 parts suppliers, Catalog Numbers B-7021444 & B-7021452. It is also possible to make the bumpers from windshield wiper blade rubber of appropriate size.

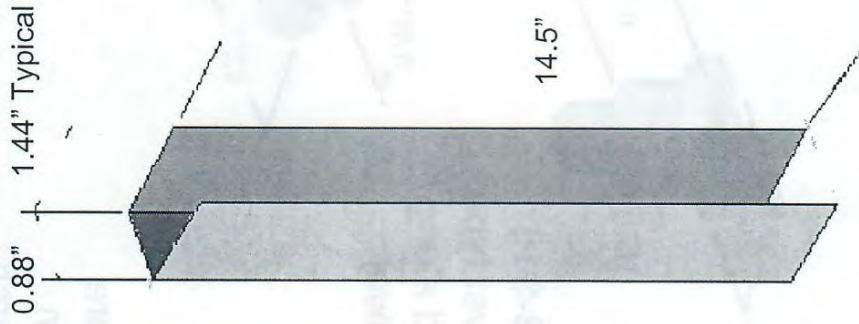
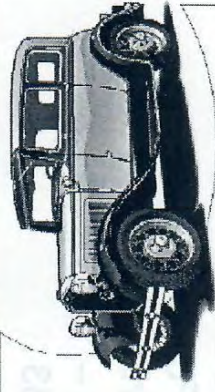


**Looking Outboard
Passenger's Door (Shown)
Driver's Door (Opposite)**

Section A - A

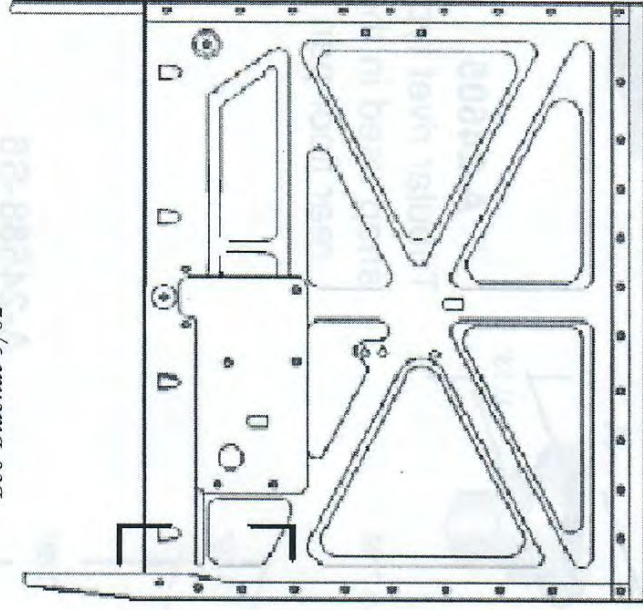
Install the bumpers after painting because paint solvents will degrade the rubber.

There are two of these channels per car, one in each door. Originally, the channel was spot welded to the door structure. These channels hold the window glass felt.



Make the channel from 22 to 25 gage steel sheet metal (approximately 0.02" thick).

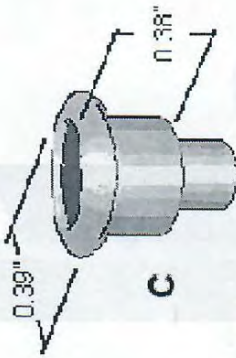
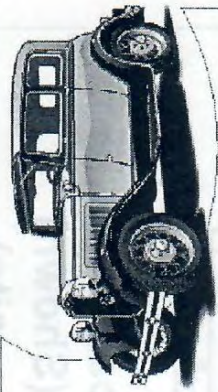
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B B

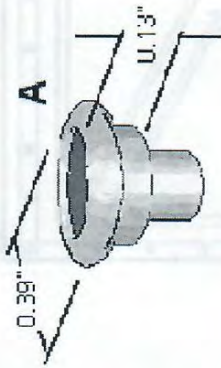
**Looking Outboard
Passenger's Door (Shown)
Driver's Door (Opposite)**

Section B - B



A-24593-S15

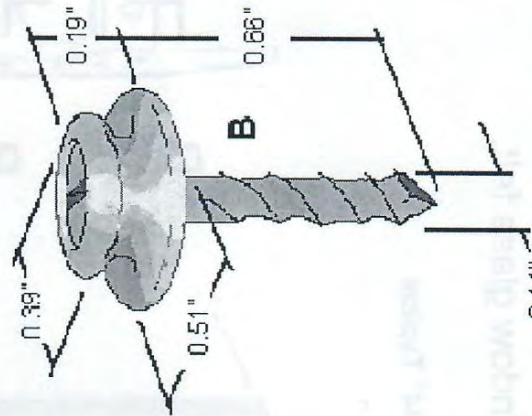
Tubular rivet type snap used along the firewall



A-24605

Tubular rivet type snap used in the rear floor pan

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A-24588-S6

Drive screw type snap used along the wood body side rails. This snap appears in Ford's

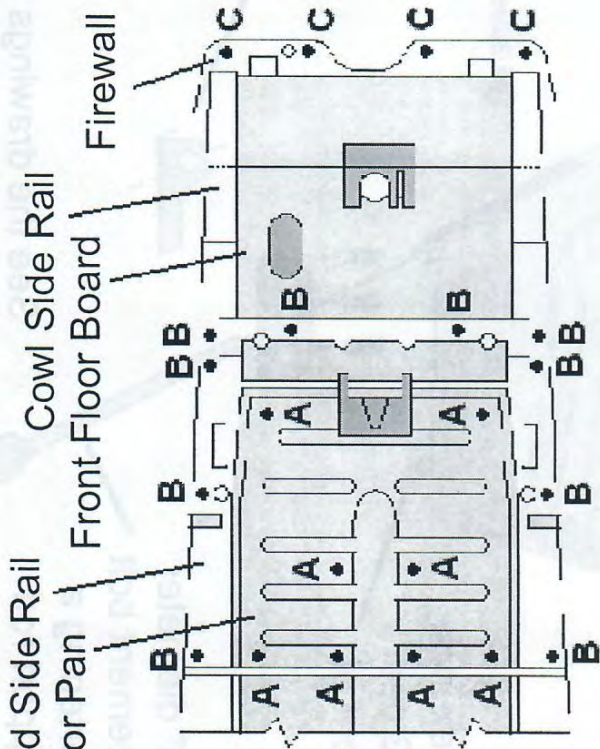
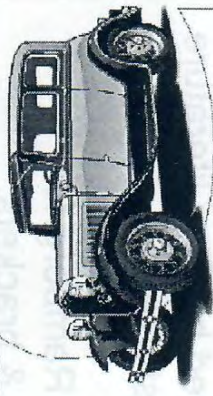
"Automotive Trimming Supplies, 1928 - 1938",

Page 133

Dimensions shown are measurements from original snaps in a March 1931 190A Victoria.

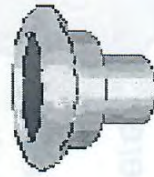
B15 Model A Ford

190A Victoria Carpet Snap Locations



Victoria Floor Plan

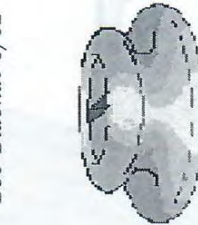
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A

A-24605

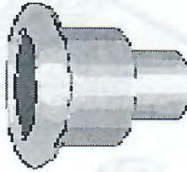
(8 per car)



B

A-24588-S6

(10 per car)



C

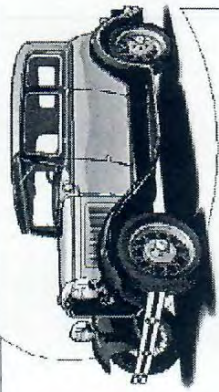
A-24593-S15

(4 per car)

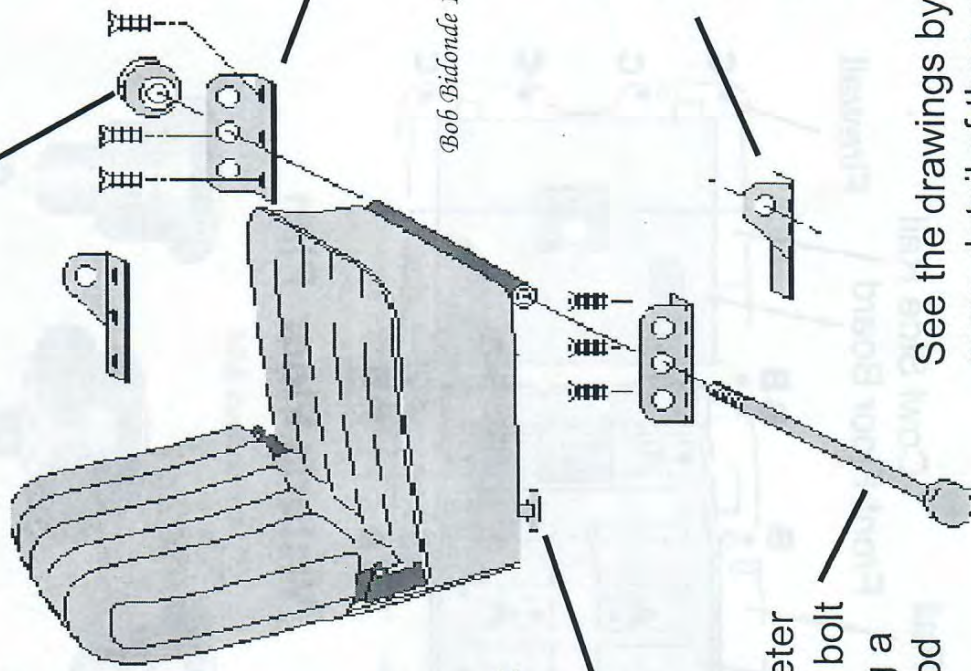
B16 Model A Ford

190A Victoria Front Seats

The style of seat shown was used from the beginning of production through July 1931 when the seat design changed to incorporate a ratchet type adjustment mechanism. There is a slight size difference between the driver's and the passenger's seat. These seats are common to the 180B Deluxe Phaeton.



Windshield knob on the inboard side of the seat secures the hinge rod



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3-hole brackets on the driver's seat and some passenger's seats

Threaded foot with a hex lock nut and plain washer, 2 per seat, enables adjustment of the seat angle

One-hole brackets on the passenger's seat, but some cars have 3-hole brackets. The passenger's seat was not touted by Ford literature as adjustable

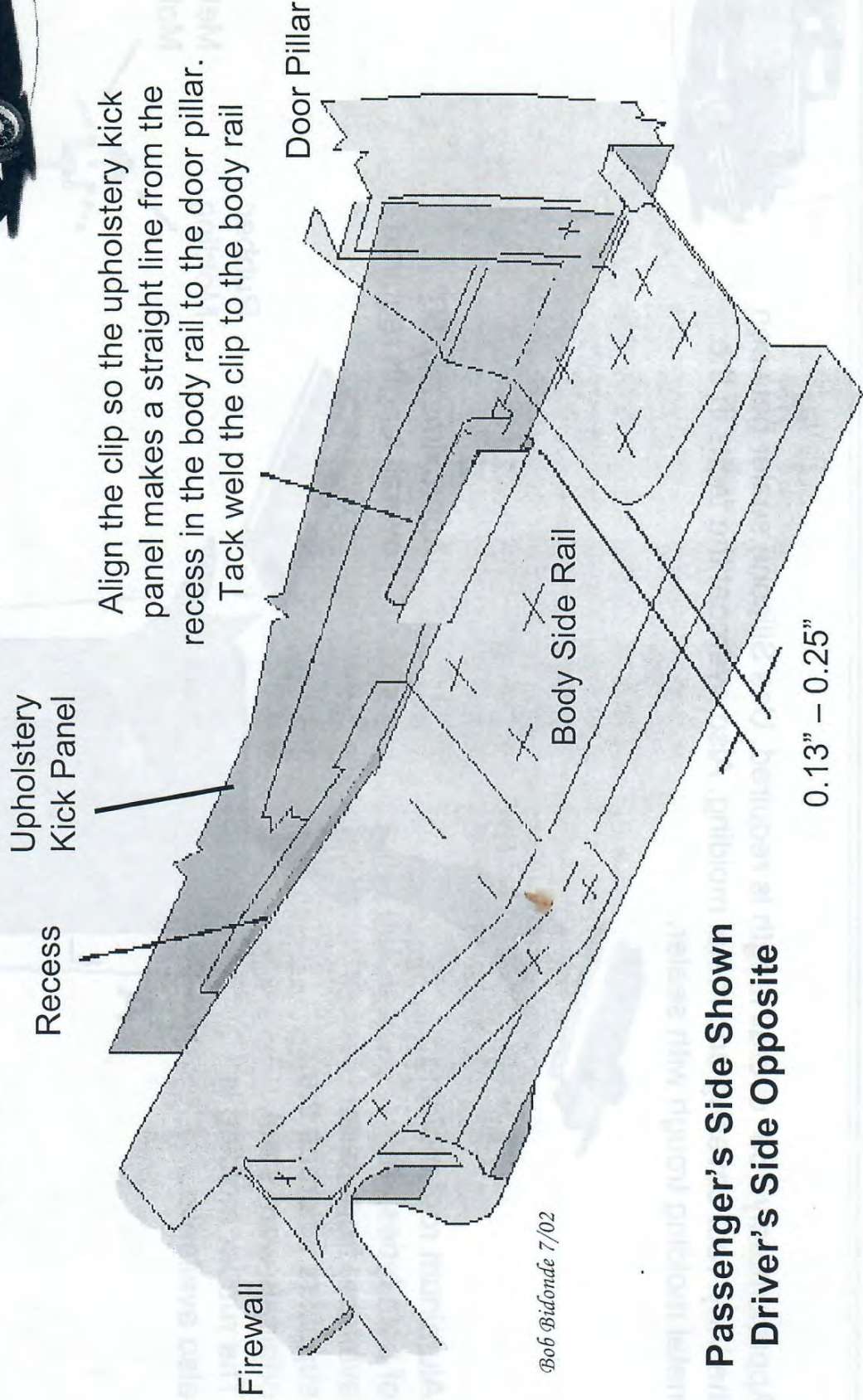
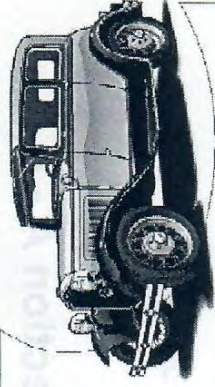
The hinge rod is 5/16" diameter carriage bolt. A replacement bolt can be made by shortening a Model A radiator support rod

See the drawings by Anders Ramberg for more detail of the seat hinge & brackets.

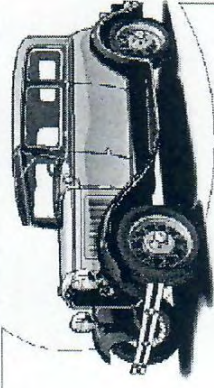
B17 Model A Ford

190A Victoria Kick Panel Clip

The clip locating dimension was measured in an original 190A Victoria. However, the clip installation is typical of 1930 - '31 Model A Fords.

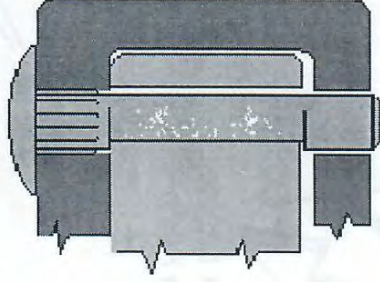


**Passenger's Side Shown
Driver's Side Opposite**



Model A Ford

A worn pin has a ridge near the bottom that makes pin removal very difficult. If the pin does not budge, try using a rivet gun with a pointed bit. Drive the bottom of the pin upward.



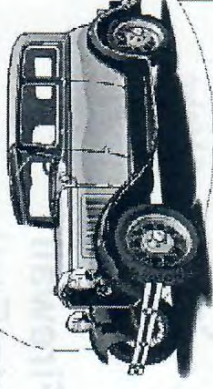
Worn Pin

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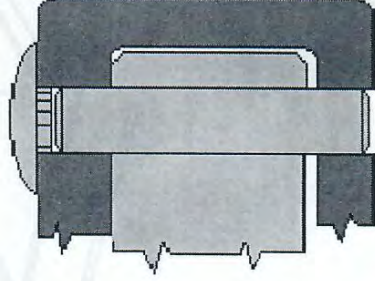
A steel roll pin, as used in modern car door hinges, can be used in the Model A provided the pin holes are not too out of round. A roll pin is actually a spring that acts diametrically to align the hinge holes. Before installation, the roll pin will be slightly larger than the holes. As shown, use the head of an original pin for an authentic appearance. Secure the head in place with a thread locking adhesive.



Replacement Roll Pin



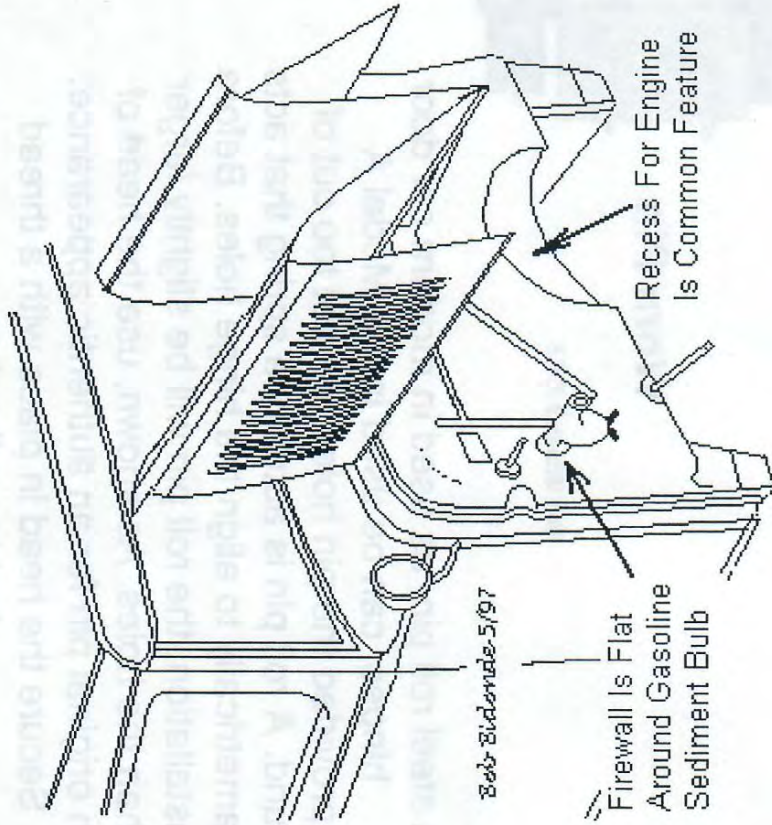
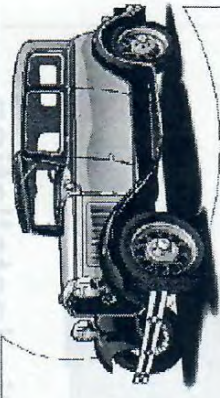
The wall thickness of the roll pin should be substantial. Pins are typically available at automotive parts stores.



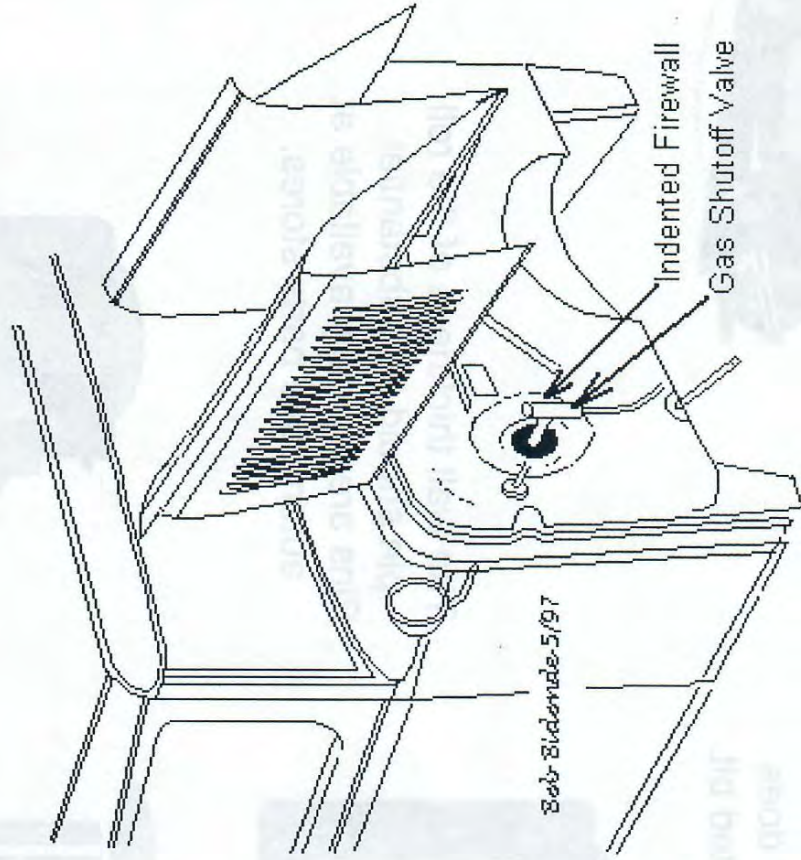
Roll Pin Installation

B20 Model A Ford

1930 – '31 Production Firewalls



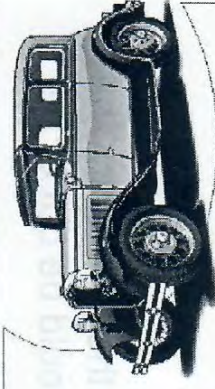
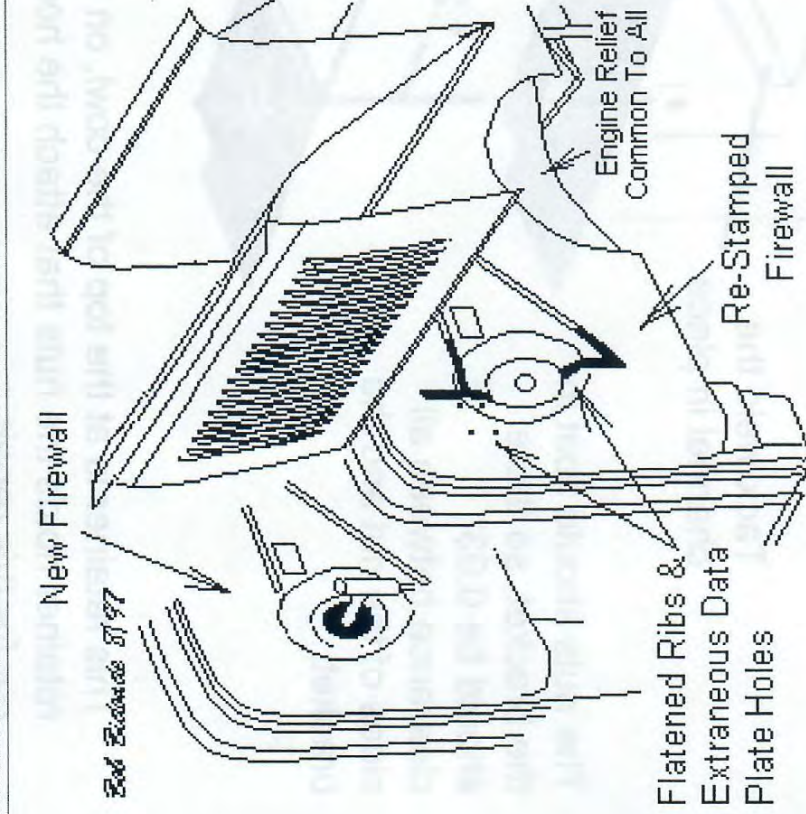
Flat Firewall
(1930 to Approximately April '31)



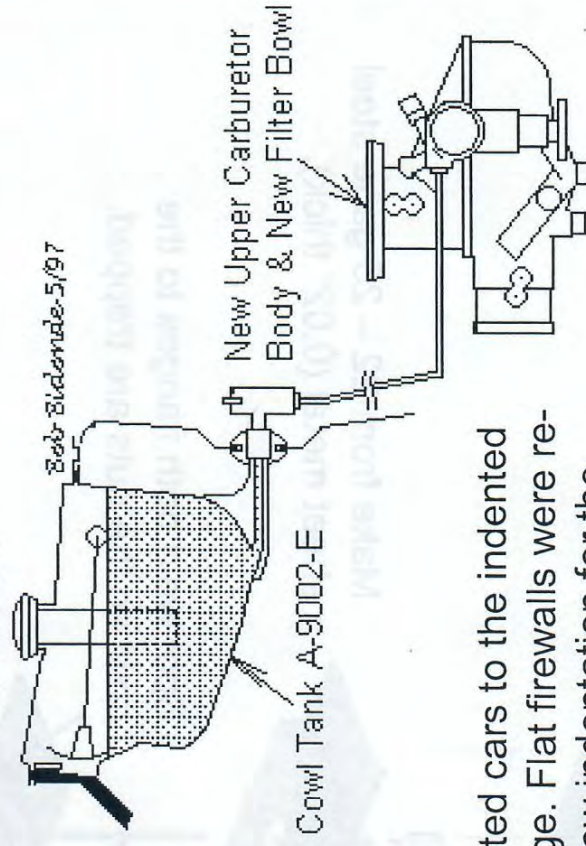
Indented Firewall
(April 1931 to End)

B21 Model A Ford

1931 Re-Stamped Firewall



The design change to the indented firewall was necessary to incorporate a new fuel tank, gasoline shutoff valve and the side bowl Zenith Carburetor.

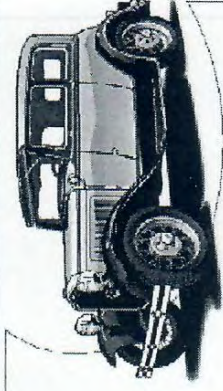


Dealers and likely assembly branches converted cars to the indented firewall to accommodate the fuel system change. Flat firewalls were re-stamped by the factory to incorporate the new indentation for the gasoline shutoff valve. Re-stamped firewalls differ from production units in that portions of stiffening ribs were flattened in the re-stamping process. Re-stamped firewalls also have extraneous data plate holes.

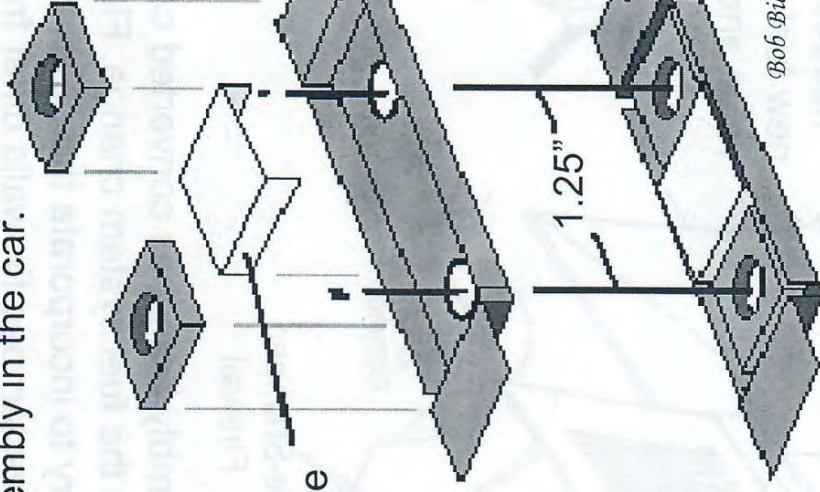
Indented Firewall
(April 1931 to End)

B22 Model A Ford

Hood Hinge Retainer Cage Nut Assembly



12 – 24 Square Nuts. Test fit the screws in the nuts before installing the assembly in the car.



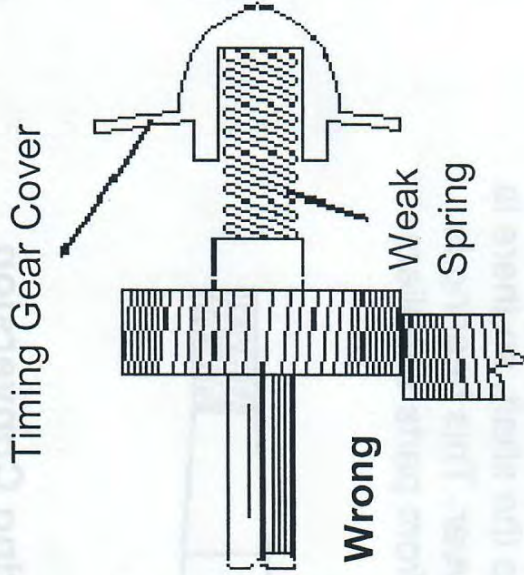
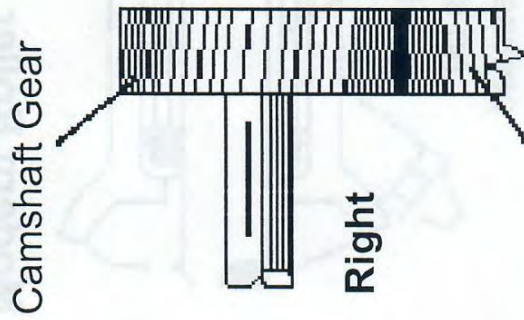
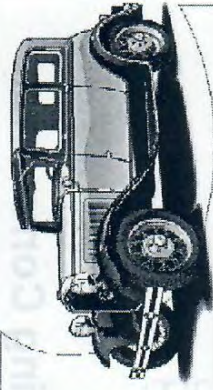
Tack weld the channel in place

Make from 22 – 25 gage steel sheet metal (0.02" thick).

The nuts should float in the bracket, so there should be 0.03" clearance between all sides of the nut and the bracket.

Spot weld both flanges to the cowl so the nuts are trapped.

This retainer is at the top of the cowl, on the inside surface, obscured by the gas tank. The retainer holds the nuts that attach the hood hinge fitting. The gas tank should be out of the car for this repair.



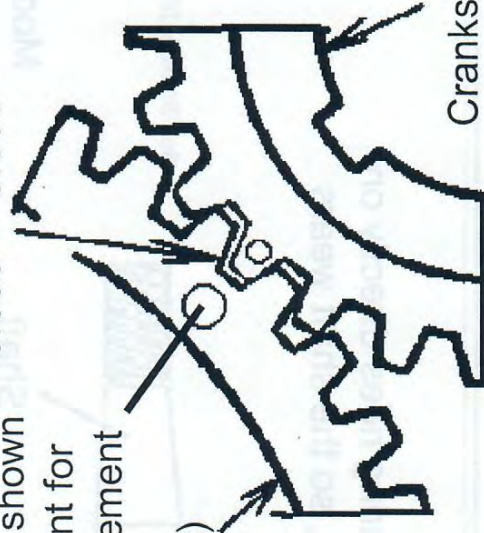
A weak spring allows the camshaft to move back & forth making a knocking noise often mistaken for engine bearing knock. Movement of the camshaft also wears the distributor – oil pump drive gear assembly.

Crankshaft Gear

Clearance between teeth is backlash and should be

0.003" – 0.005"

Timing gear marks shown in proper alignment for timing gear replacement

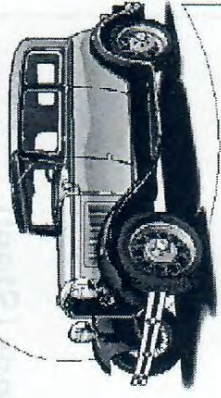


Camshaft Gear (Non-Metallic)

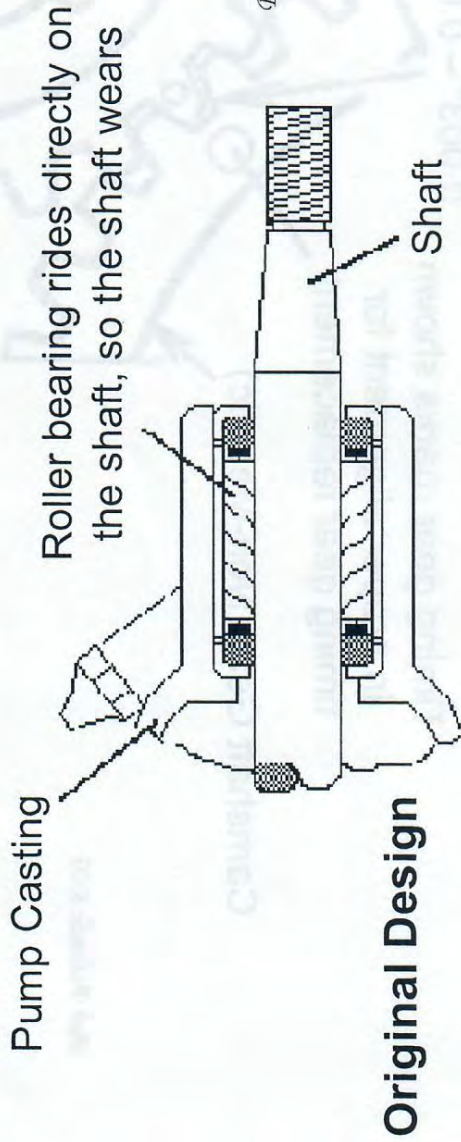
Crankshaft Gear (Steel)

B24 Model A Ford

Water Pump Front Bearings

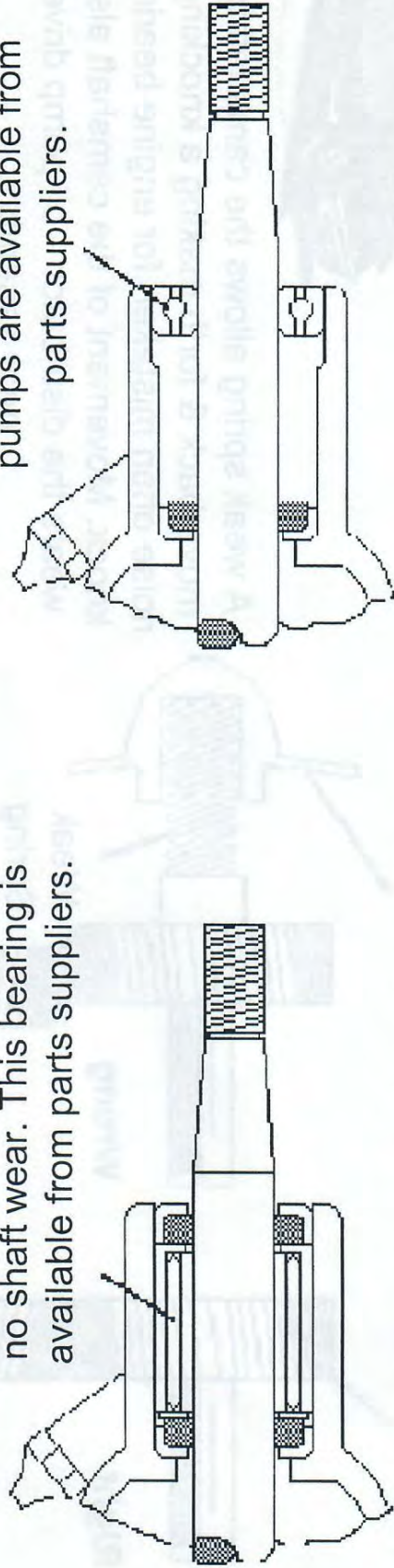


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Modern ball bearing is a press fit in the pump casting and onto the shaft. There is no wear on the shaft, and no fore-aft play. Roller bearing pumps are available from parts suppliers.

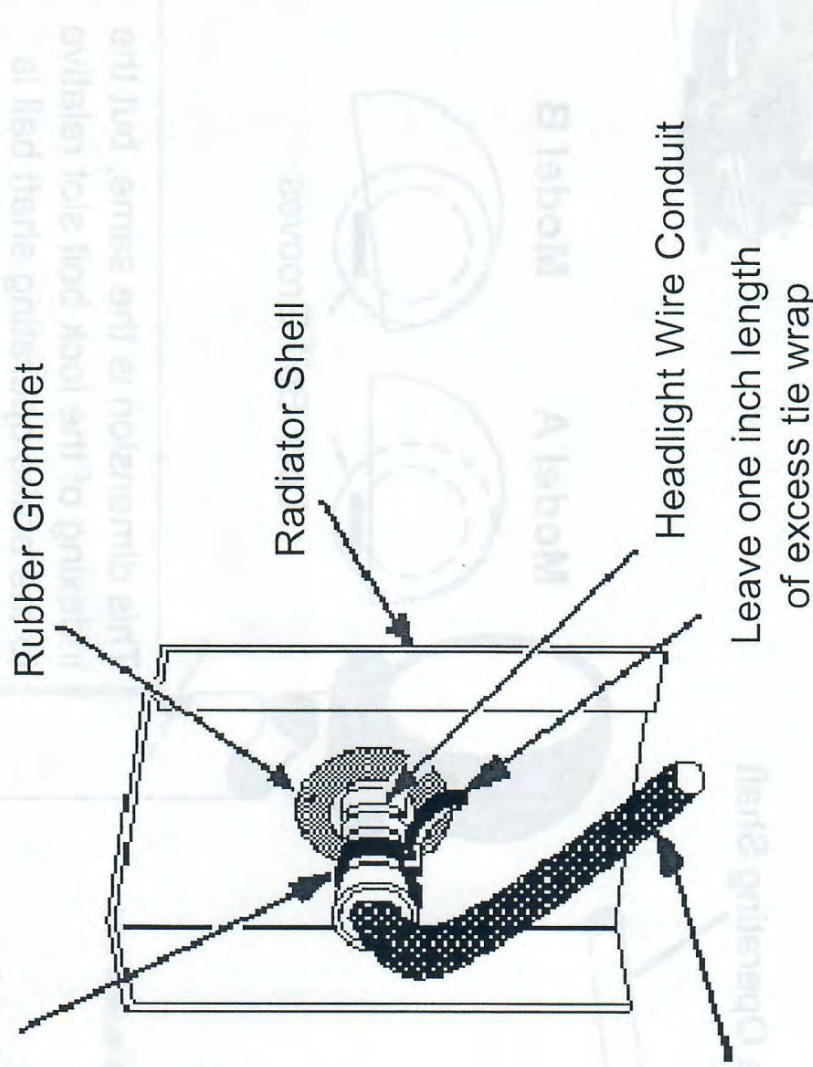
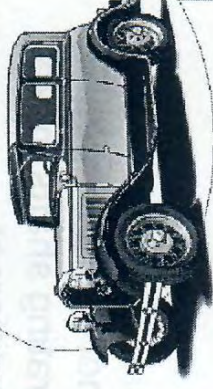
Modern roller bearing has a race pressed onto the shaft, so there is no shaft wear. This bearing is available from parts suppliers.



Modern Roller Bearing Conversion

Modern Ball Bearing Conversion

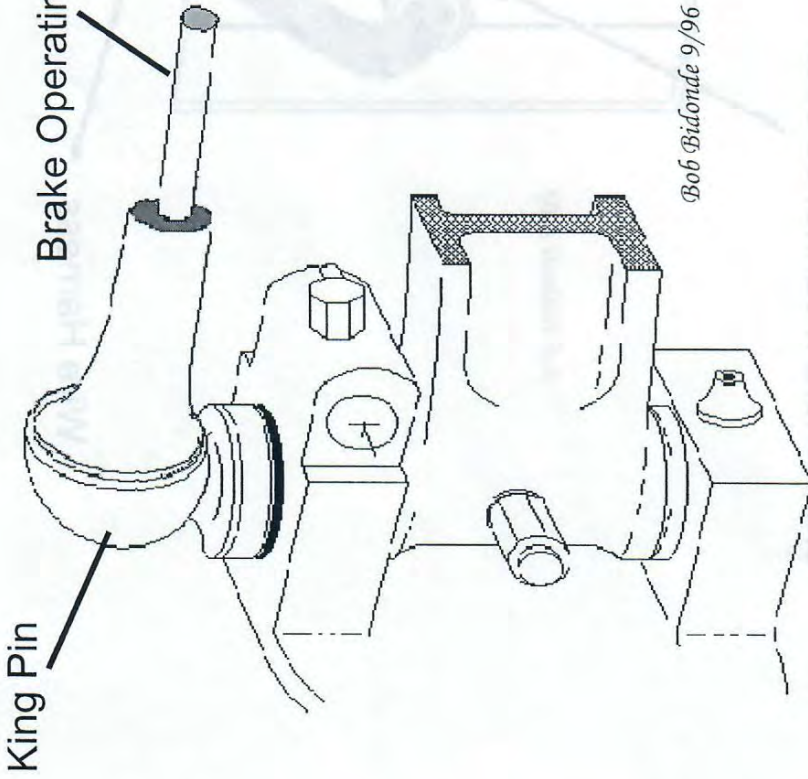
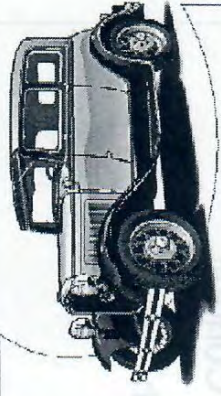
To prevent the headlight wire conduit from slipping out of the radiator shell grommet, put a plastic tie wrap on the conduit inside the shell where it cannot be seen



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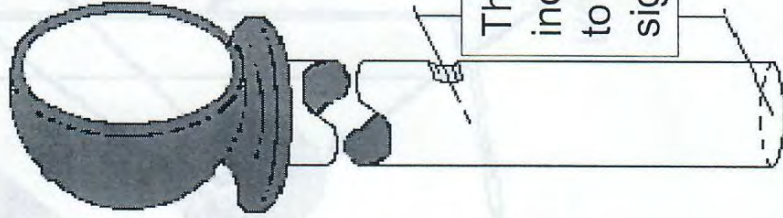
B26 Model A Ford

King Pins



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Excessive play in the king pins due to wear adversely affects operation of the front brakes, steering, and may produce an unsafe suspension shimmy.



Model A

Model B

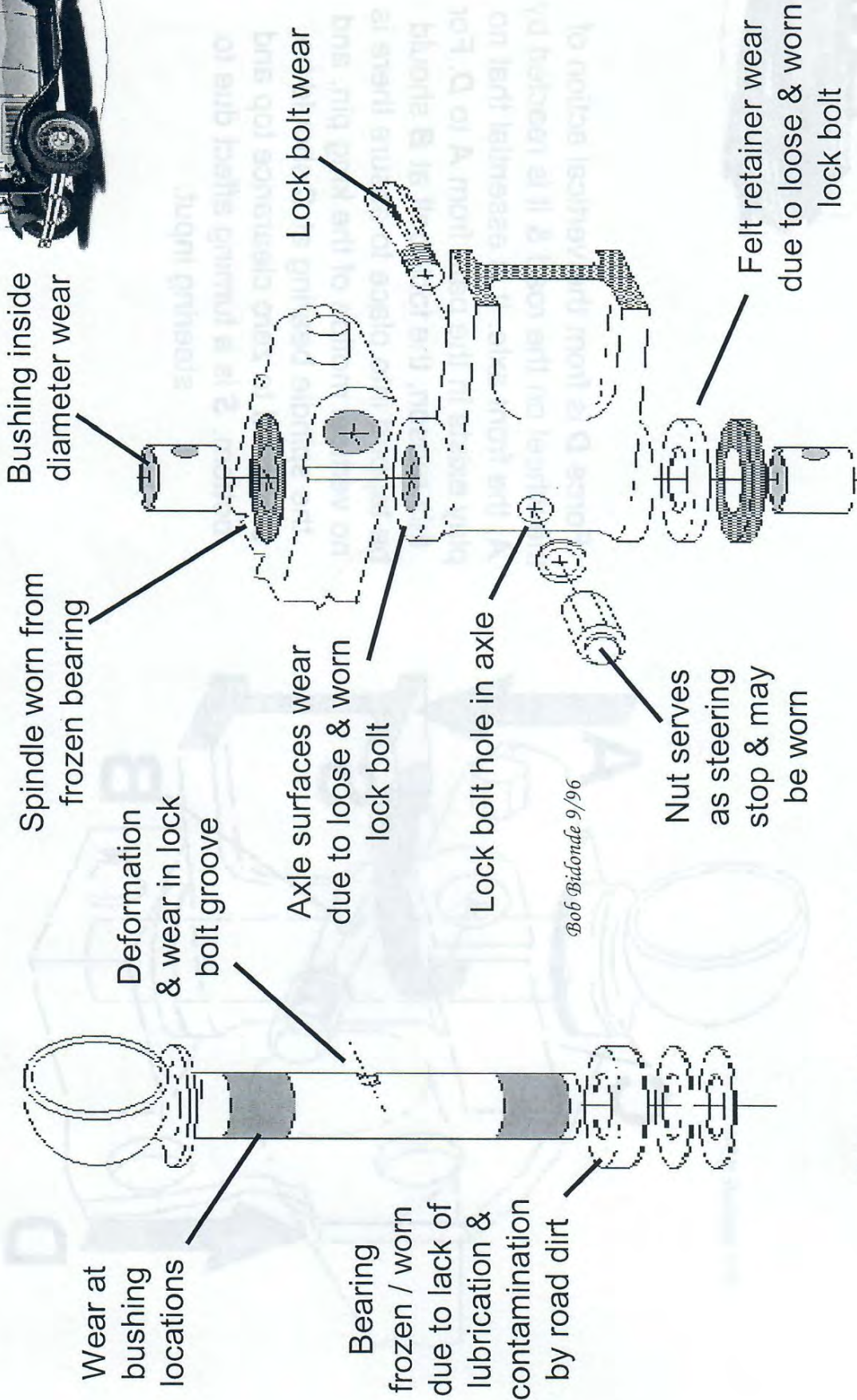
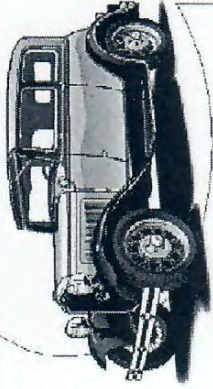
Lock Bolt Grooves

This dimension is the same, but the indexing of the lock bolt slot relative to the brake operating shaft ball is significantly different

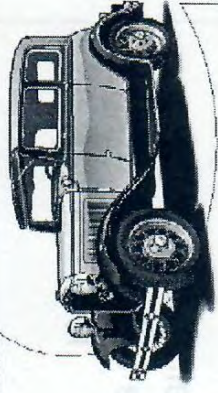
Model A & Model B king pins are not interchangeable because the angle the brake operating shafts make with the lock bolt slot are different.

B27 Model A Ford

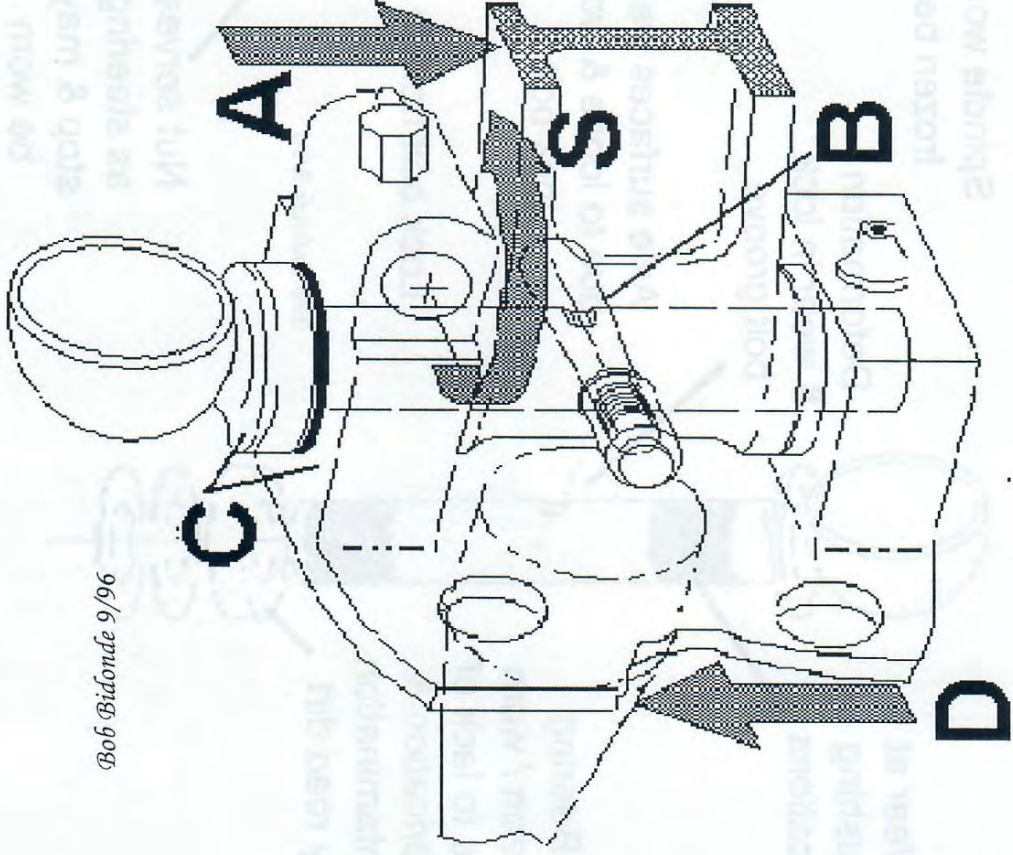
King Pin Wear



Where to Find Wear

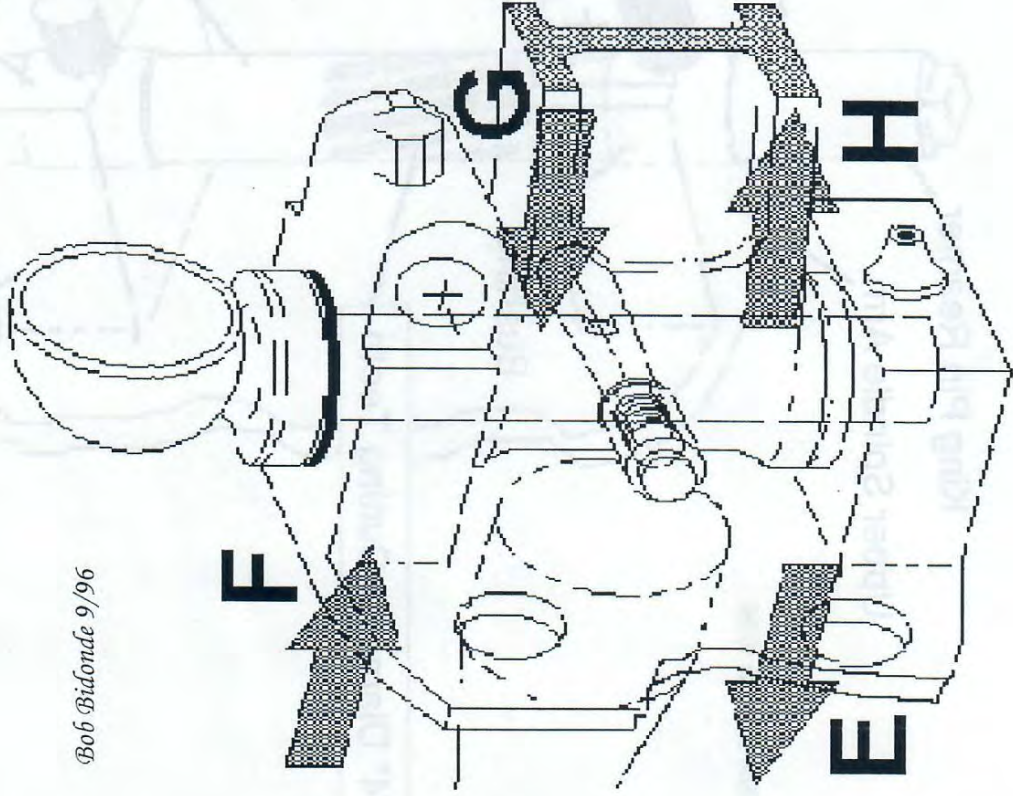
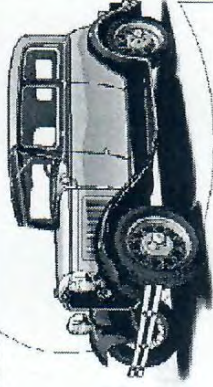


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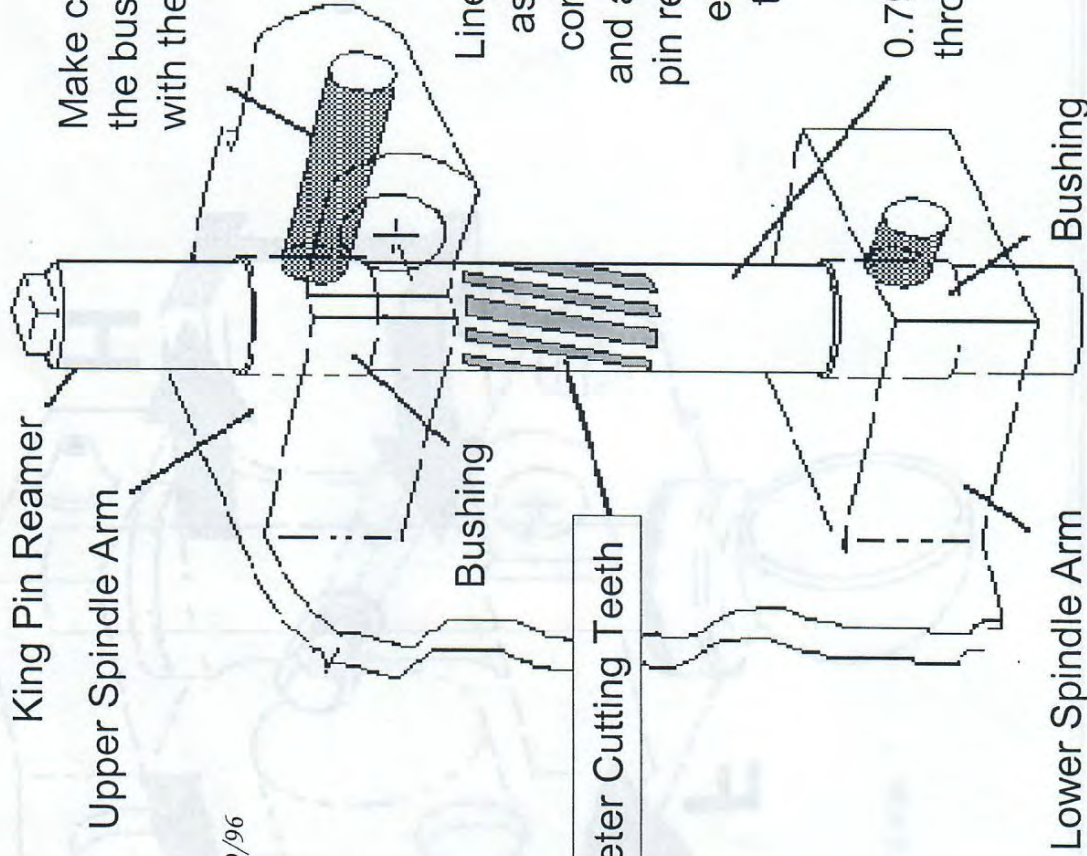
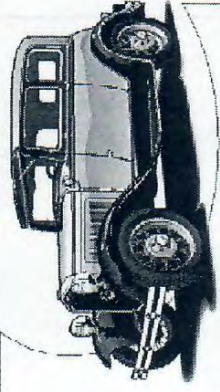


Force **D** is from the vertical action of the wheel on the road & it is reacted by **A**, the front axle. It is essential that no play exists in the path from **A** to **D**. For this reason, the lock bolt at **B** should be tapped into place to assure there is no vertical motion of the king pin, and the spindle bearing at **C** should be shimmed to zero clearance top and bottom. **S** is a turning affect due to steering input.

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Forces **E** & **F** are the horizontal affects of the wheel on the road typical when turning, and when driving on crowned or banked roads. These forces are reacted by the front axle at **G** & **H**. It is essential that no significant play exists in the paths between **F** & **G** and **E** & **H**. This is why the bushings are reamed for a precision fit of the king pin.



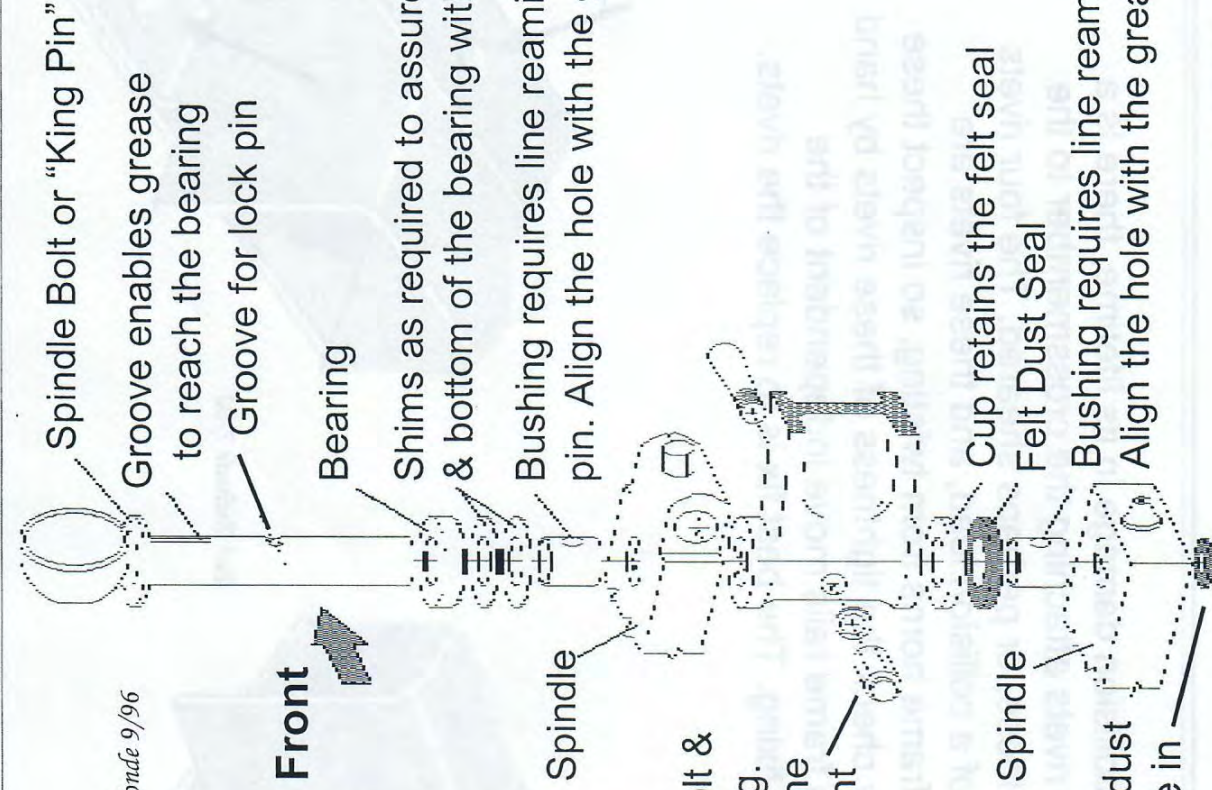
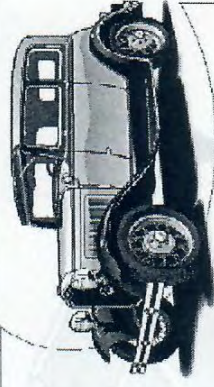
Make certain the hole in the bushing lines up with the grease fitting

Line reaming of the king pin bushings assures that both bushings have a common inside diameter center line, and a precision fit to the king pin. A king pin reamer is a specialty tool that is long enough to engage both bushings throughout the cutting process.

0.790" diameter pilot fits through uncut bushing

0.814" Diameter Cutting Teeth

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See drawings by Howard Barnes for parts list.

Special nut retains the lock bolt & also is the stop to limit steering. The spindle should contact the bolt before the tire hits the front brake rod

Often forgotten felt washer is a dust seal for brake operating pin hole in backing plate

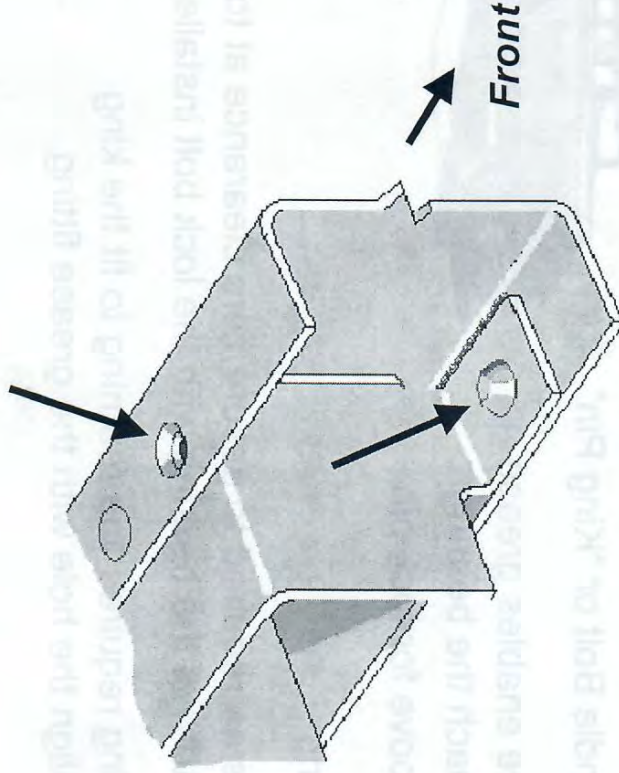
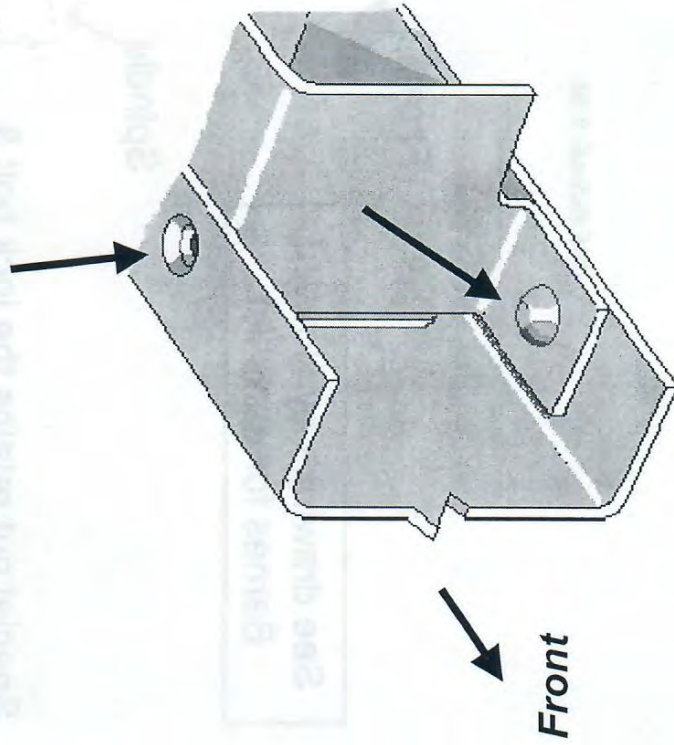
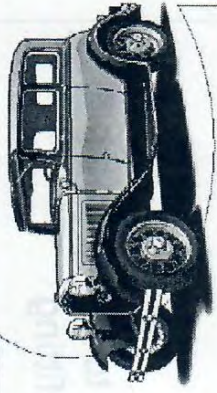
Bushing requires line reaming to fit the king pin. Align the hole with the grease fitting

Cup retains the felt seal
Felt Dust Seal

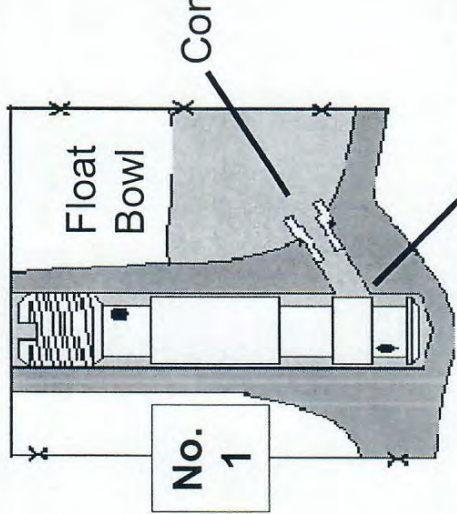
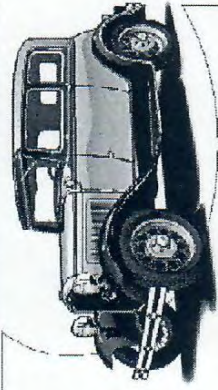
B32 Model A Ford

Front Crossmember Tip

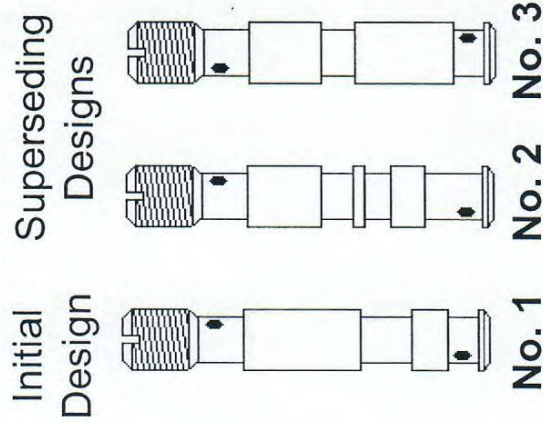
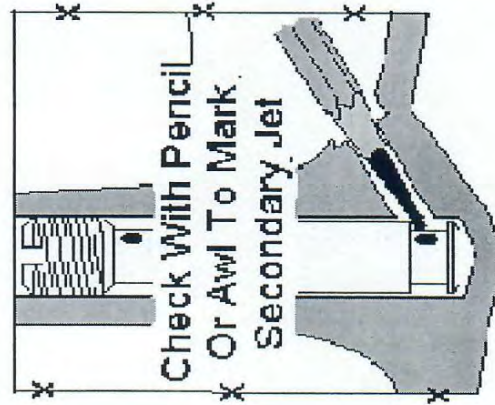
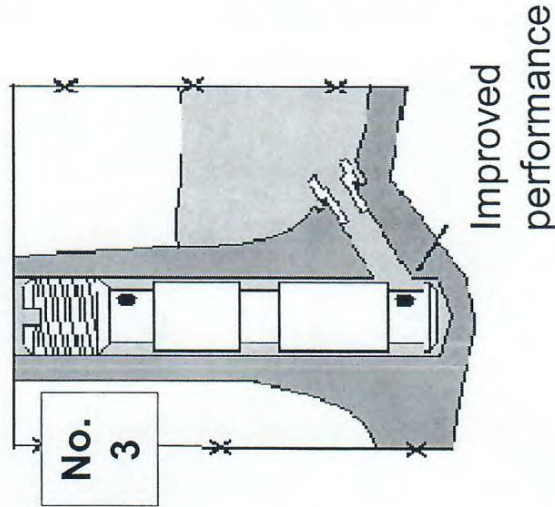
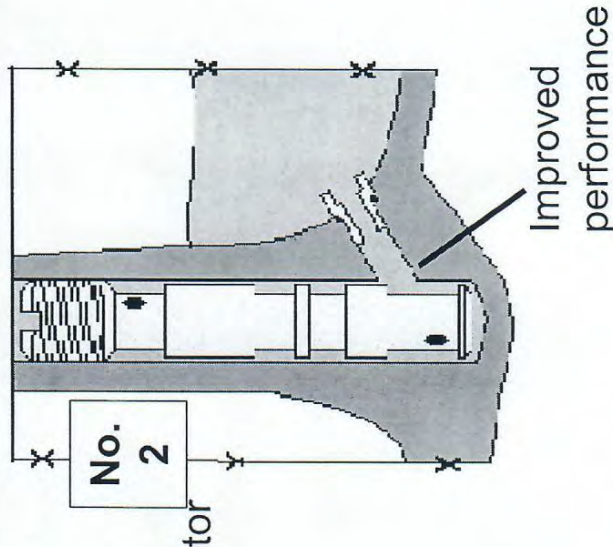
If your Model A had front end collision damage in its lifetime, there is a good chance that some of the rivets attaching the crossmember to the frame side rails have become loose, or perhaps sheared. The four rivets highlighted will take the brunt of a collision load, and these rivets are essential to stabilize the front frame horns from twisting, so inspect these rivets closely. You can visually check the tightness of these rivets by hand twisting the frame horns. If the frame rails move independent of the crossmember, the rivets need fixing. The best fix is to replace the rivets.



Bob Bidonde 7/02



Poor performance because the secondary well blocks the compensator jet



Three Styles of A-9545