FRAME AND BODY MOUNTINGS

PONTIAC AND TEMPEST

FRAME

The frame is of swept hip perimeter design (Fig. 2-1) for easier servicing. It also permits use of a simplified two-joint propeller shaft and exhaust system.

Frames are supplied by various manufacturers. All convertibles are equipped with A.O. Smith frames while all other models utilize frames built by both A.O. Smith and Parrish Pressed Steel.

Frames can be identified by the number of holes located at left front outer side bar in steering gear mounting area (Fig. 2-2).

The perimeter frame has two advantages: first, the body comes down over the frame and forms an integrated structure with body sheet metal contributing greatly to the strength of the car; secondly, although the body and frame strengthen each other, there is no metal-to-metal contact, because they are connected by means of rugged butyl rubber body mounts which isolate the driver and passenger from engine, transmission drive-line, and road disturbances.

The dimensions given in (Fig. 2-3) may be used in checking frames. Dimensions for X, Y, and Z are not given, but are used merely to illustrate points for taking diagonal measurements for checking squareness of frame. Holes or rivet heads are located on the frame at approximate terminal point of arrowheads, and can be used for this purpose.

Of the seven basic frames used by Pontiac, four are for the 121" wheelbase vehicles, and three for the 124" wheelbase vehicles.

The convertible, hardtop, 124" wheelbase sedan, station wagon and Grand Prix frames are essentially the same as other corresponding wheelbase frames but have the center side rail fully boxed for additional stiffness.

Five different frames of two wheelbases are used on Tempest models; all 4-door styles and station wagons are 116" and all 2-door styles 112". The basic frame for the sedans and station wagons has a fully boxed front section and open 'C' section center side rails extending to the rear hip area. The convertible frame is of heavier metal thickness and has a boxed section front and center side rail with an additional inner side bar stiffener (boxed section) beginning at the rear wheelhouse (number six body bolt) and extending rearward to the rear impact bar attaching bolts. The frame for 4-door hardtop models is similar to the standard frame, but with added metal thickness.

LIFTING PONTIAC CARS WITH HOISTS

Lifting can be accomplished without adapters when using drive-on or twin-post type hoists, with hoists or lifts making contact with front suspension lower arms or rear axle. Since the frame is perimeter type, some hoists designed to contact side rails require adapters to raise the car without damage to parts of exhaust system, body, floor, etc. Suppliers of original lifting equipment should have information on adapters to use with Pontiac cars. Fig. 2-4 shows proper lift point locations.

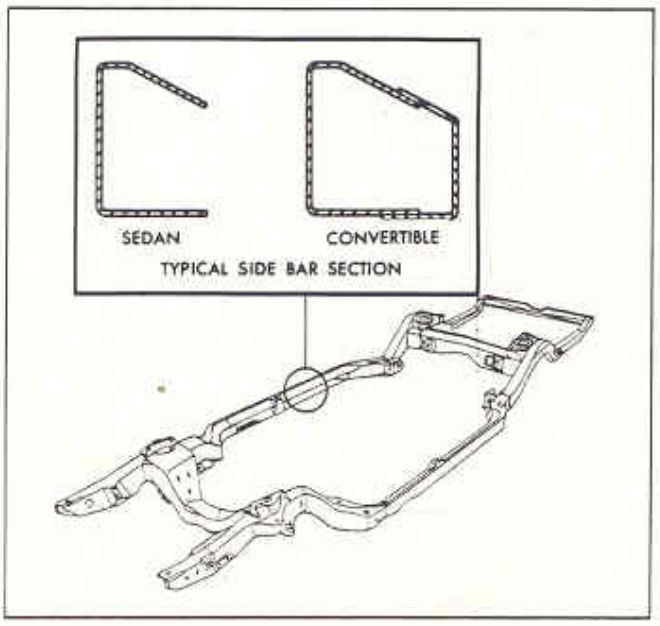


Fig. 2-1 Typical Perimeter Design Frame

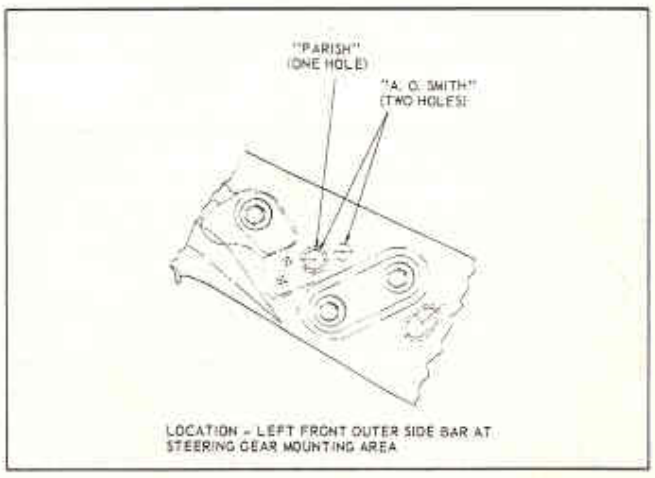
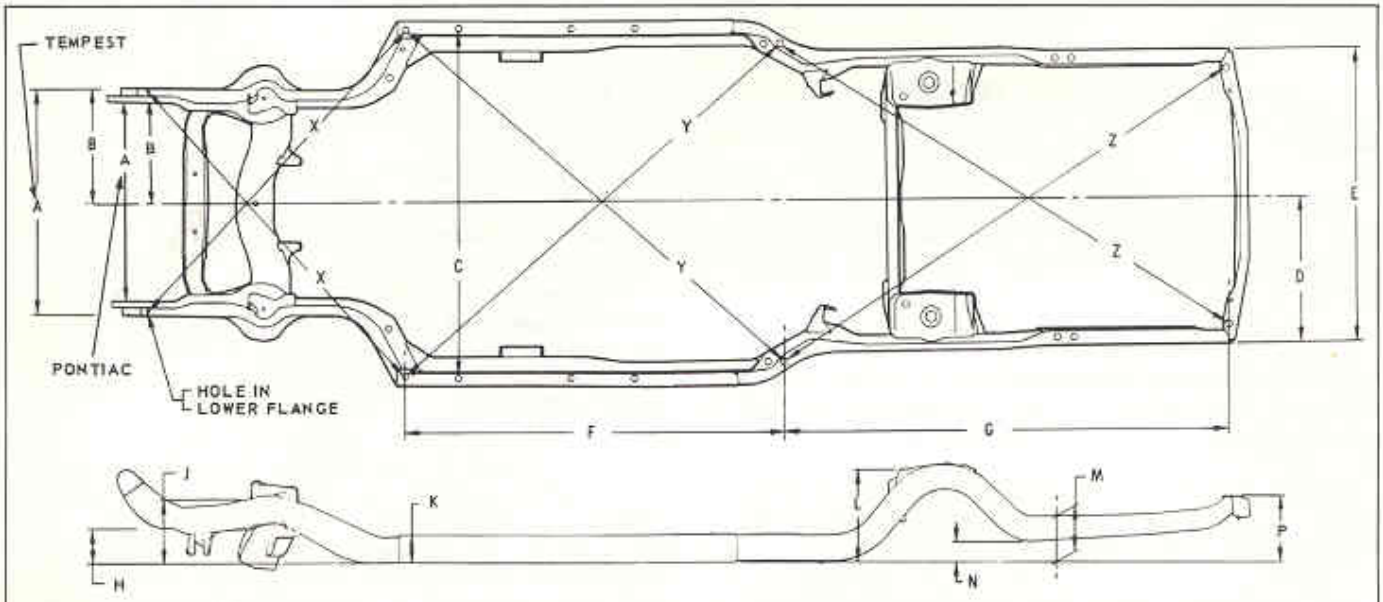


Fig. 2-2 Frame Alignment Identification



PONTIAC

BODY STYLES	A	B	C	D	E	F	G	H	J	K	L	M	N	P
5211, 5269	38.40	19.20	60.20	25.32	50.64	68.10	78.64	6.64	11.51	4.75	16.03	7.79	3.52	11.08
5287, 5239	38.40	19.20	60.20	25.34	50.68	68.10	78.64	6.64	11.51	4.75	16.03	7.79	3.52	11.08
5267	38.40	19.20	60.20	25.34	50.68	68.10	78.64	6.64	11.51	4.78	16.06	7.84	3.53	11.08
5235, 5245 5635, 5645 6245	38.40	19.20	60.20	25.34	50.68	68.10	78.64	6.64	11.51	4.75	16.03	7.79	3.52	11.08
5639, 5669 5687, 6239 6287	38.40	19.20	60.20	25.34	50.68	68.10	85.64	6.64	11.51	4.78	16.06	7.83	3.53	11.11
6267	38.40	19.20	60.20	25.34	50.68	68.10	85.64	6.64	11.51	4.78	16.06	7.83	3.53	11.11
6657	38.40	19.20	60.20	25.34	50.68	68.10	78.64	6.64	11.51	4.75	16.03	7.79	3.52	11.08

TEMPEST

BODY STYLES	A	B	C	D	E	F	G	H	J	K	L	M	N	P
3369, 3569, 3539, 3739	41.30	20.65	52.36	21.59	43.18	66.19	68.18	7.03	11.05	4.30	12.24	7.91	4.59	10.63
3327, 3537 3527, 3727 3737, 4237	41.30	20.65	52.36	21.59	43.18	62.19	68.18	7.03	11.05	4.30	12.24	7.91	4.59	10.63
3535, 3935	41.30	20.65	52.36	21.59	43.18	66.19	74.38	7.03	11.05	4.30	12.24	7.91	4.59	9.43
3567, 3767 4267	41.34	20.67	52.36	21.59	43.18	62.19	68.18	7.05	11.05	4.30	12.24	7.91	4.59	10.63

Fig. 2-3 Frame Alignment Chart

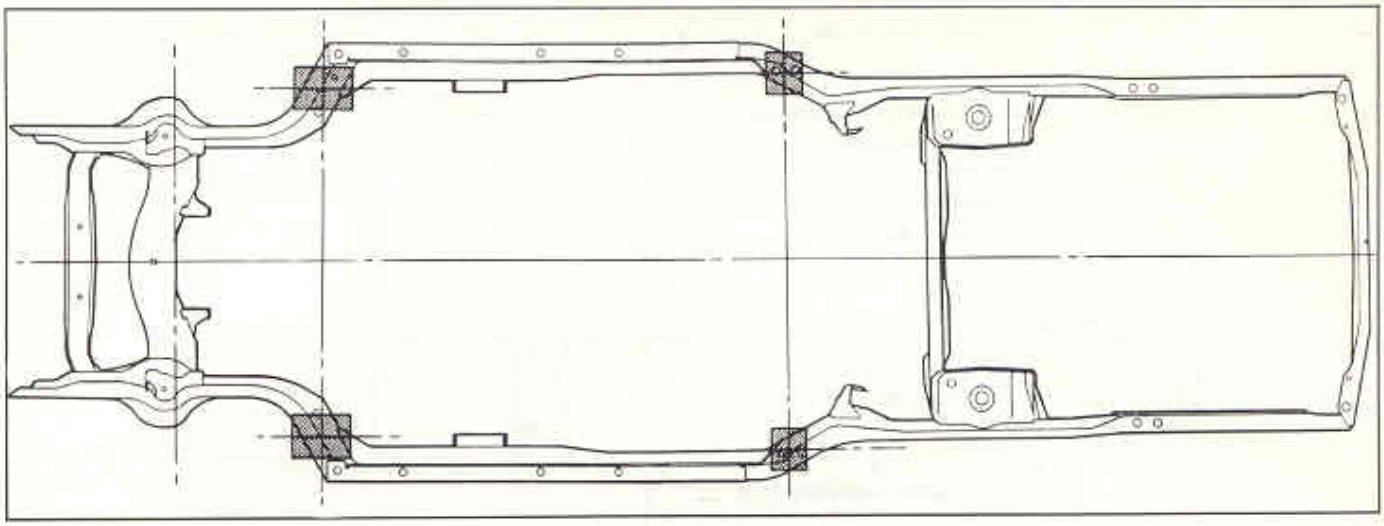


Fig. 2-4 Lift Point Locations

BODY TO FRAME MOUNTINGS

With the use of a perimeter frame, noise isolation from the body is accomplished with soft butyl-rubber mounts, see Figures 2-5 and 2-6.

FIREBIRD

UNDERBODY ALIGNMENT

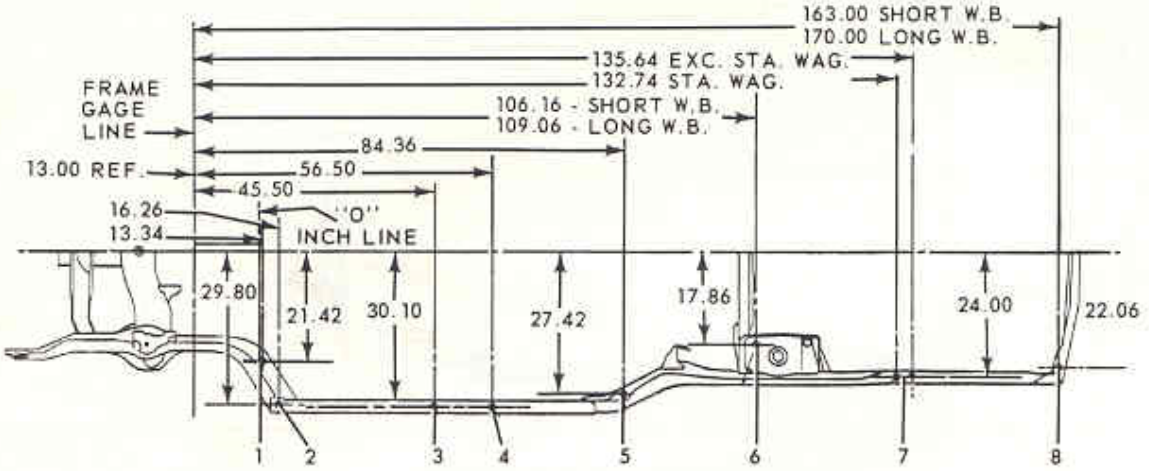
Firebird bodies are of unitized construction. A partial frame supports the front end sheet metal, front suspension, engine and other mechanical components. Unitized construction demands that underbody components be properly aligned to ensure correct suspension location. In the event of collision damage it is important that the underbody be thoroughly checked and, if necessary, realigned in order to accurately establish suspension locations.

To assist in checking alignment of the underbody components, repairing minor underbody damage or locating replacement parts, the following underbody dimensions and alignment checking information is presented.

For additional information see Section 3 of the Fisher Body Service Manual.

REFERENCE POINT DIMENSIONS

Dimensions to gauge holes are measured to dead center of the holes and flush to adjacent surface metal unless otherwise specified. The master gauge holes adjacent to the No. 1 body mount (Fig. 2-7) and in the side rails near the rear spring front attachment are key locations and should be used wherever possible as a basis for checking other reference points.



MODELS	#1 BOLT INNER	#1 BOLT OUTER	#3 BOLT	#4 BOLT	#5 BOLT R.H.	#5 BOLT L.H.	#7 BOLT	#8 BOLT	#9 BOLT
5211, 5269 D/F35	B	B	B	B	–	–	B	B	B
5235, 5245, 5635, 5645, 6245	A	A	A	A	F	H	A	A	A
5639, 5669, 5287, 5687, 6287, 6239, 5239, D/F35	B	B	F	F	–	–	B	B	B
6267	D	D	D	D	F	H	D	D	D
5211, 5269 W/F35	B	B	A	A	F	H	B	B	B
6240, 6250, 6290	D	D	D	D					
6657	A	A	A	A	–	–	A	A	A
5639, 5669, 5287, 6287, 6239, 5239, 5687 W/F35	B	B	F	F	F	H	B	B	B
5267	D	D	D	D	–	–	D	D	D

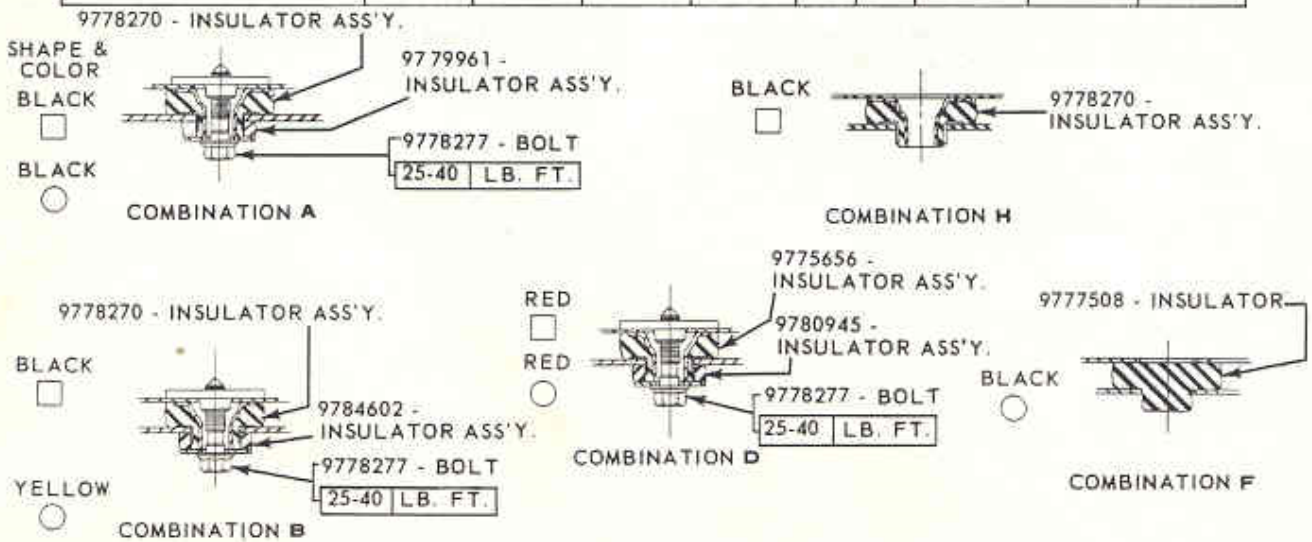
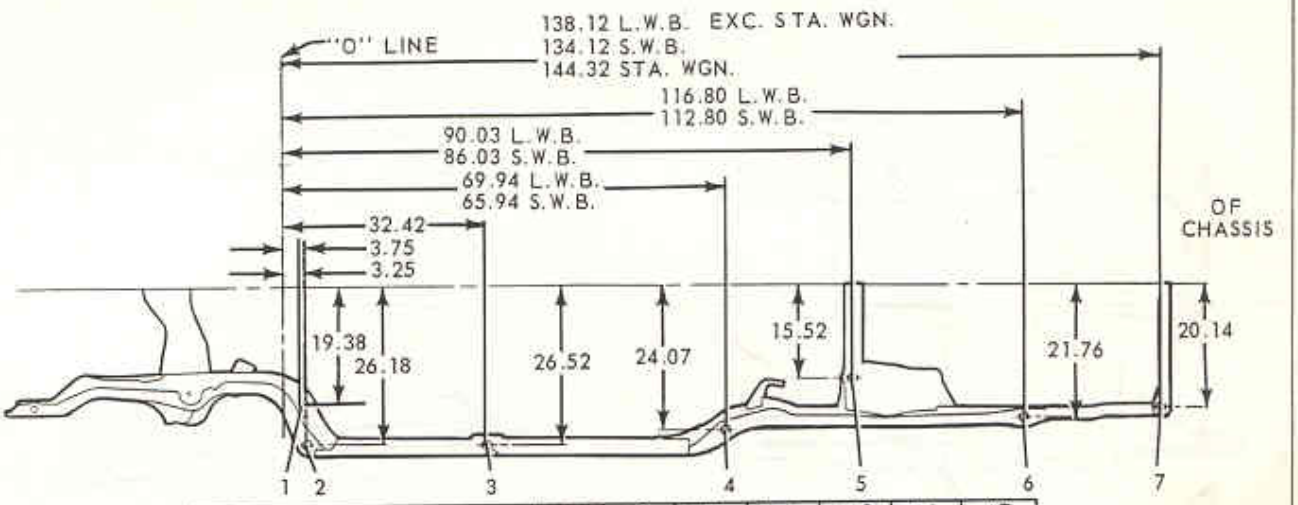
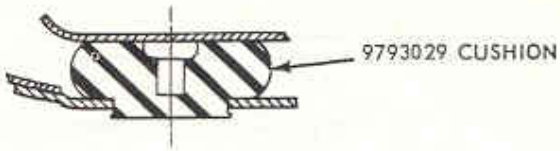


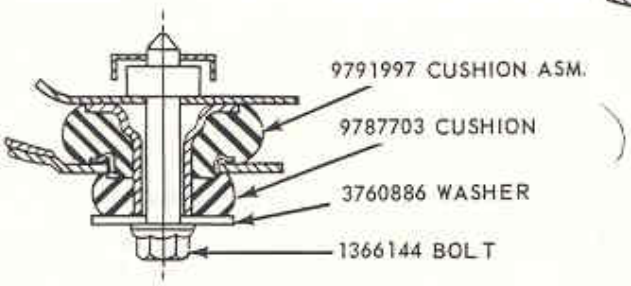
Fig. 2-5 Pontiac Body Bolts and Frame Gauge Line Dimensions



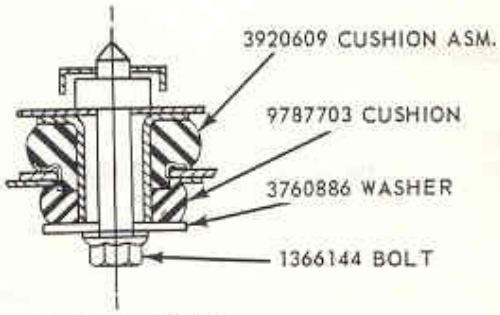
MODELS	#1 BOLT	#2 BOLT	#3 BOLT	#4 BOLT	#5 BOLT	#6 BOLT	#7 BOLT
3535, 3567, 3767, 3935, 4267	A	A	C	A	E	A	D
3327, 3527, 3537, 3727, 3737, 4227, 4237	B	A	C	E	E	A	D
3369, 3539, 3569, 3739	B	A	C	A	B	A	D



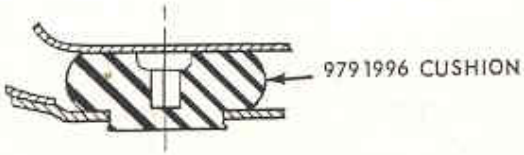
COMBINATION **E**



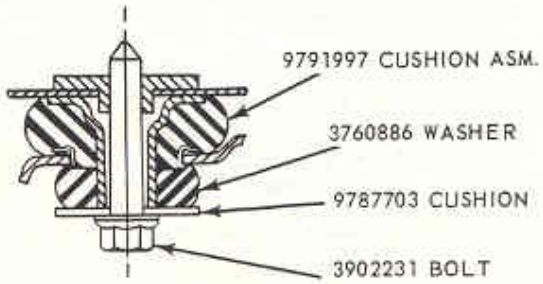
COMBINATION **A**



COMBINATION **D**



COMBINATION **B**



COMBINATION **C**

Fig. 2-6 Tempest Body Bolts and Frame Gauge Line Dimensions

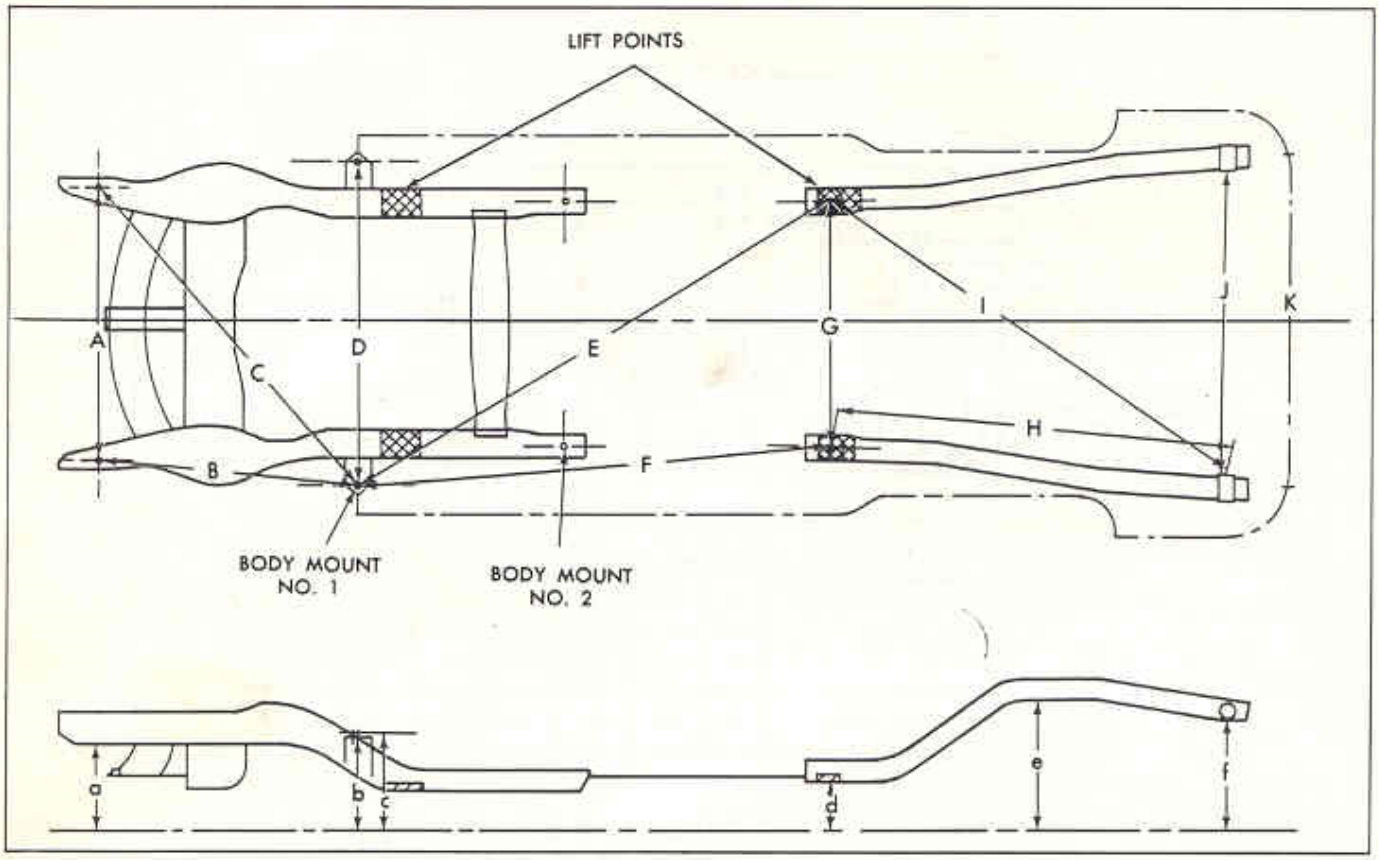


Fig. 2-7 Firebird Checking Dimensions, Lift Points and Body Bolt Locations

HORIZONTAL DIMENSIONS (Fig. 2-7)

Fig. Ref.	Dimension	Location
A	38 3/16"	Rear edge at centerline of 1" gauge hole.
B	34 15/16"	Rear edge at centerline of gauge hole and center of master gauge hole adjacent to No. 2 body mount on same side of frame.
C	54 1/8"	Rear edge at centerline 1" master gauge hole adjacent to No. 1 body mount in opposite side of frame.
D	44 9/16"	Center of master gauge hole adjacent to No. 1 body mount.
E	75 7/8"	Center of master gauge hole adjacent to No. 1 body mount and center of master gauge hole in side rail on opposite side of body.
F	65 1/4"	Center of master gauge hole adjacent to No. 1 body mount and center of master gauge hole in side rail on same side of body.
G	33 1/2"	Center of master gauge hole in side rail.
H	55 3/16"	Center of master gauge hole in side rail and a point at inboard edge of same side rail at centerline of shackle bolt hole (Fig. 2-8).
I	66 11/16"	Center of master gauge hole in side rail and a point at inboard edge of opposite side rail at centerline of shackle bolt hole (Fig. 2-8).
J	42 7/8"	Inboard edge of side rail at centerline of shackle bolt hole (Fig. 2-8).
K	44 7/8"	Center of rear bumper lower attaching bolts.

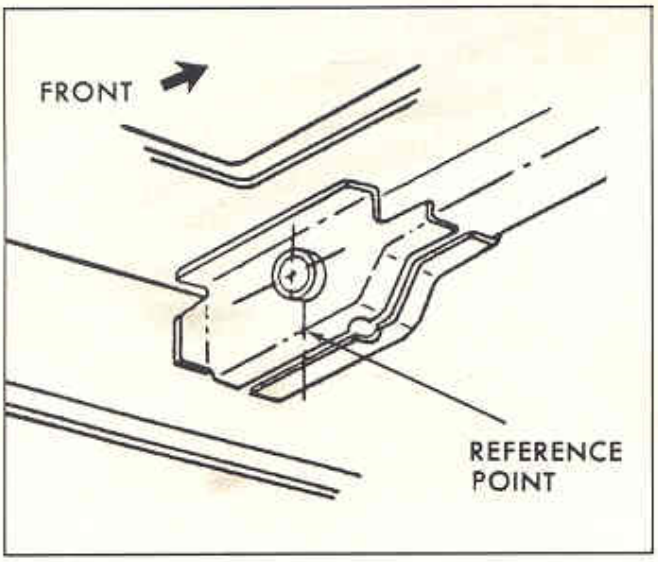


Fig. 2-8 Side Rail at Spring Rear Shackle Hole

VERTICAL DIMENSIONS (Fig. 2-7)

Fig. Ref.	Dimension	Location
a	11 15/16"	1" gauge hole at front of frame.
b	13"	Master gauge hole adjacent to No. 1 body mount in frame.
c	13 13/16"	Master gauge hole adjacent to No. 1 body mount on body.
d	6 15/16"	Master gauge hole in side rail.
e	11 3/4"	Lower surface of side rail at kick up either side of rear axle housing.
f	15 11/16"	Lower surface of side rail at centerline of shackle bolt hole.

LIFTING

Lifting can be accomplished without adapters when using a drive-on hoist or with a twin-post type hoist by making contact with front suspension lower control arms and rear wheels. Since there is a bolted on stub frame in front and welded side rails at the rear, the car may also be lifted at the points illustrated in Fig. 2-7. Proper adapters must be used to prevent damage to the various parts of the underbody. Caution should be exercised so as not to nick the rear springs.

BODY VIBRATION DAMPENERS

All convertible styles contain four body vibration dampers, one of which is mounted at each corner

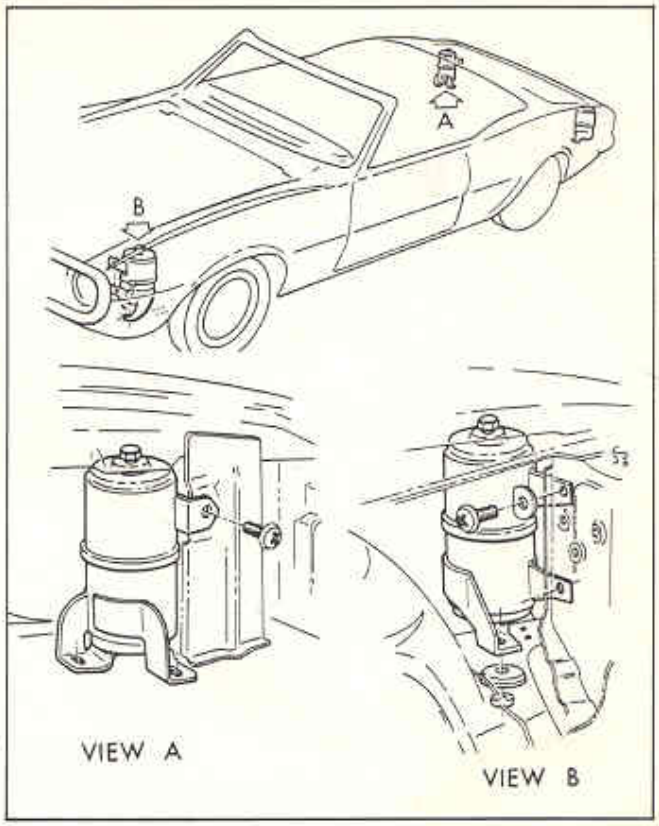


Fig. 2-9 Body Damper Locations

of the vehicle as shown in Fig. 2-9. Rear dampers are mounted to the vertical quarter panel brace and floor pan; from dampers are mounted to the radiator support.

FLOOR PAN REINFORCEMENT

Convertible styles have a bolt on floor pan reinforcement as shown in Fig. 2-10. It is of stamped steel and straddles the drive shaft tunnel.

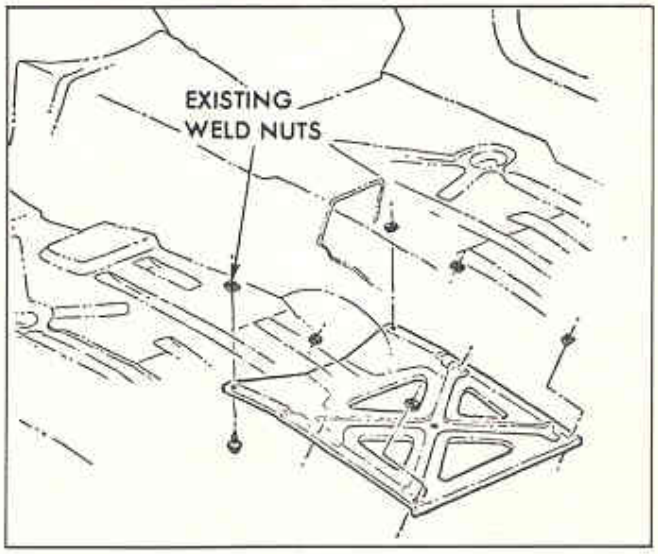


Fig. 2-10 Convertible Floor Pan Reinforcement