1975-80 H-Body Underbody Alignment Information

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1975-78 Fisher Body Service Manuals

Section 3

UNDERBODY

INDEX

Underbody Alignment – "H" Bodies

GENERAL BODY CONSTRUCTION

The "H" series bodies are of unitized construction. On "H" bodies, integral front and rear frame side rails support the bolt-on front end sheet metal, front and rear suspension systems and other mechanical components. Unitized construction demands that underbody components be properly aligned to assure 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 proper dimensions.

Since each individual underbody component contributes directly to the overall strength of the body, it is essential that proper welding, sealing, rust-proofing techniques be observed during service operations. The underbody components should be rust-proofed whenever body repair operations which destroy or damage the original rust-proofing are completed. When rust-proofing critical underbody components, it is essential that a good quality type of air dry primer be used (such as corrosion resistant zinc chromate or equivalent material). It is not advisable to use combination type primer-surfacers.

There are many classifications of tools that may be employed to correct the average collision damage situation including frame straightening machines, lighter external pulling equipment and standard body jacks.

ALIGNMENT CHECKING

An accurate method of determining the alignment of the underbody utilizes a measuring tram gage. The tram gage required to perform all recommended measuring checks properly must be capable of extending to a length of 90 inches. At least one of the vertical pointers must be capable of a maximum reach of 18 inches.

Dimensional checks indicated in the upper portion of Figure 3-5 are calculated on a horizontal plane parallel to the plane of the underbody. Precision measurements can be made only if the tram gage is also parallel to the plane of the underbody. This can be controlled by setting the vertical pointers on the tram gage according to the dimensional checks shown in the lower portion of Figure 3-5. For actual dimensions, see applicable charts in text.

A proper tramming tool is essential for analyzing and determining the extent of collision misalignment present in underbody construction.

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.

REFERENCE POINT DIMENSIONS – (Fig. 3-5)

Dimensions to gage holes are measured to dead center of the holes and flush to adjacent surface metal unless otherwise specified. The master gage holes forward of the shock absorber housing in the front side rails on the "H" body are key locations and should be used whenever possible as a basis for checking other reference points.

HORIZONTAL DIMENSIONS – "H" BODIES – "11-15-77" Styles (Fig. 3-5)

Fig. Ref.	Dimension	Location
A	33-1/4"	Between leading outboard surfaces of front frame rails.
B	33-1/4"	From center of 3/4" master gage hole in lower surface of front rail (approximately 4" forward of shock absorber housing) to leading outboard lower edge of opposite side rail.
C	12-5/8"	From center of 3/4" master gage hole in front side rail to leading outboard lower edge of same rail.
D	26-9/16"	From center of 3/4" master gage hole in right hand front rail to inboard surface of left hand front rail at steering gear forward lower mounting bolt hole (see Fig. 3-7).

E	28”	From center of 3/4" master gage hole in left hand front rail to inboard surface of right hand front rail at steering idler arm lower bolt hole (see Fig. 3-6). Note: Reference points at steering gear and idler arm locations are NOT of equal distance from the vehicle centerline.
F	27-3/4”	Between centers of 3/4" master gage holes in front rails.
G	21-7/16”	Between centers of lower front suspension attaching bolt holes in shock absorber housing (see Fig. 3-6).
H	30-1/4”	Between centers of either front or rear upper suspension attaching bolt holes in shock absorber housing (see Fig. 3-6).
I	25”	Between centers of lower rear suspension attaching bolt holes (forward surface) in shock absorber housing (see Fig. 3-6).
J	40-15/16”	From center of 3/4" master gage hole in front rail to lower corner of step near the rear of same rail (see Fig. 3-6).
K	42-3/4”	Between front rails at lower corner of step (see Fig. 3-6).
L	83-1/16”	From center of 3/4" master gage hole in front rail to forward end of oblong shipping hook hole in rear rail on same side of body.
M	77-1/4”	From front lower surface of shock absorber housing, centered on suspension lower front attaching bolt hole to forward end of the oblong shipping hook hole in rear rail on same side of body (see Fig. 3-7).
N	43”	From lower corner of step at rear of front rail to forward end of the oblong shipping hook hole in real rail on same side of body (see Fig. 3-6).
O	37-1/2”	Between centers of oblong shipping hook holes in rear rails.
P	36-1/16”	Between inboard surfaces of rear lower suspension arm mounting locations in rear rails (see Fig. 3-8).
Q	28-3/4”	From the forward end of the oblong shipping hook hole in rear rail to forward edge on center of 1-1/2" oblong hole in floor pan reinforcement at rear spring on same side of body.
R	16-5/8”	From the forward end of the oblong shipping hook hole in rear rail to outboard surface of inboard portion of the upper suspension mounting bracket on same side of body (see Fig. 3-8).
S	17-7/8”	From the forward end of the oblong shipping hook hole in rear rail to inboard surface of outboard portion of the upper suspension mounting bracket on same side of body (see Fig. 3-8).
T	35”	Between forward edge on center of 1-1/2" oblong holes in floor pan reinforcement at rear springs.
U	29-5/8”	From forward edge on center of 1-12” oblong hole in floor pan reinforcement at rear spring to the centerline of the 5/8” lower outboard bumper attaching holes (see Fig. 3-9).

V	49-1/8”	Between centers of the outboard 5/8” rear bumper attaching holes in rear cross bar (see Fig. 3-9).

VERTICAL DIMENSIONS – "H" BODIES – "11-15-77" Styles (Fig. 3-5)

Fig. Ref.	Dimension	Location
a	6-7/8"	Leading outboard lower edge of side rail (see Fig. 3-6).
b	7-13/16"	Left side – center of steering gear lower forward attaching bolt hole (see Fig. 3-7).
	9-7/16"	Right side – center of steering idler arm lower attaching bolt hole (see Fig. 3-6).
c	7-1/8"	Left side – lower surface of front rail adjacent to 3/4" master gage hole.
	7-1/2"	Right side – (same location as above).
d	12-5/8"	Center of upper front suspension attaching location on shock absorber housing (see Fig. 3-6).
e	1-5/16"	From front lower surface of shock absorber housing, centered on suspension lower front attaching bolt hole (see Fig. 3-6).
f	11"	Center of upper rear suspension attaching location on shock absorber housing (see Fig. 3-6).
g	1-1/16"	Lower corner of step near end of front side rail (see Fig. 3-6).
h	1-9/16"	Lower surface of rear rail adjacent to forward end oblong shipping hook hole.
k	15-5/16"	Lower surface of floor pan reinforcement at rear spring adjacent to 1-1/2" oblong hole.
m	1-3/4"	Center of rear suspension lower control arm mounting location (see Fig. 3-8).
n	7-5/8"	Center of rear suspension upper control arm mounting location (see Fig. 3-8).
o	9-1/16"	Lower surface of rear cross bar at center line of lower outboard bumper attaching 5/8" hole.

HORIZONTAL DIMENSIONS – "H" BODY – "07, 27" Styles (Fig. 3-10)

Fig. Ref.	Dimension	Location
A	33-1/4"	Between leading outboard surfaces of front frame rails.
B	33-1/4"	From center of 3/4" master gage hole in lower surface of front rail (approximately 4" forward of shock absorber housing) to leading outboard lower edge of opposite side rail.
C	12-5/8"	From center of 3/4" master gage hole in front side rail to leading outboard lower edge of same rail.
D	26-9/16"	From center of 3/4" master gage hole in right hand front rail

		to inboard surface of left hand front rail at steering gear forward lower mounting bolt hole (see Fig. 3-7).
E	28”	From center of 3/4" master gage hole in left hand front rail to inboard surface of right hand front rail at steering idler arm lower bolt hole (see Fig. 3-6).
		Note: Reference points at steering gear and idler arm locations are NOT of equal distance from the vehicle centerline.
F	27-3/4”	Between centers of 3/4" master gage holes in front rails.
G	21-7/16”	Between centers of lower front suspension attaching bolt holes in shock absorber housing (see Fig. 3-6).
H	30-1/4”	Between centers of either front or rear upper suspension attaching bolt holes in shock absorber housing (see Fig. 3-6).
I	25”	Between centers of lower rear suspension attaching bolt holes (forward surface) in shock absorber housing (see Fig. 3-6).
J	40-15/16”	From center of 3/4" master gage hole in front rail to lower corner of step near the rear of same rail (see Fig. 3-6).
K	42-3/4”	Between front rails at lower corner of step (see Fig. 3-6).
L	83-1/16”	From center of 3/4" master gage hole in front rail to forward end of oblong shipping hook hole in rear rail on same side of body.
M	77-1/4”	From front lower surface of shock absorber housing, centered on suspension lower front attaching bolt hole to forward end of the oblong shipping hook hole in rear rail on same side of body (see Fig. 3-7).
N	43”	From lower corner of step at rear of front rail to forward end of the oblong shipping hook hole in real rail on same side of body (see Fig. 3-6).
O	37-5/8”	Between centers of oblong shipping hook holes in rear rails.
P	36-1/4”	Between inboard surfaces of rear lower suspension arm mounting locations in rear rails (see Fig. 3-8).
Q	29-3/32”	From the forward end of the oblong shipping hook hole in rear rail to forward edge of center of 1-1/2" oblong hole in floor pan reinforcement at rear spring on same side of body.
R	N/A	
S	N/A	
T	32-55/64”	Between forward edge on center of 1-1/2" oblong holes in floor pan reinforcement at rear springs.
U	30-7/8”	From forward edge on center of 1-12” oblong hole in floor pan reinforcement at rear spring to the centerline of the 5/8” lower outboard bumper attaching holes (see Fig. 3-9).
V	28-3/4”	Between centers of the outboard 5/8” rear bumper attaching holes in rear cross bar (see Fig. 3-9).

VERTICAL DIMENSIONS – "H" BODY – "07, 27" Styles (Fig. 3-10)

Fig. Ref.	Dimension	Location
a	6-7/8"	Leading outboard lower edge of side rail (see Fig. 3-6).
b	7-13/16"	Left side – center of steering gear lower forward attaching bolt hole (see Fig. 3-7).
	9-7/16"	Right side – center of steering idler arm lower attaching bolt hole (see Fig. 3-6).
c	7-1/8"	Left side – lower surface of front rail adjacent to 3/4" master gage hole.
	7-1/2"	Right side – (same location as above).
d	12-5/8"	Center of upper front suspension attaching location on shock absorber housing (see Fig. 3-6).
e	1-5/16"	From front lower surface of shock absorber housing, centered on suspension lower front attaching bolt hole (see Fig. 3-6).
f	11"	Center of upper rear suspension attaching location on shock absorber housing (see Fig. 3-6).
g	1-1/16"	Lower corner of step near end of front side rail (see Fig. 3-6).
h	1-9/16"	Lower surface of rear rail adjacent to forward end oblong shipping hook hole.
k	15-5/16"	Lower surface of floor pan reinforcement at rear spring adjacent to 1-1/2" oblong hole.
m	1-3/4"	Center of rear suspension lower control arm mounting location (see Fig. 3-8).
n	7-9/32"	Center of rear suspension upper control arm mounting location (see Fig. 3-8).
o	10-21/64"	Lower surface of rear cross bar at center line of lower outboard bumper attaching 5/8" hole.
		NOTE: Misprint in 1975 Manuals/Supplements incorrectly lists measurement as 10-21/54".

HORIZONTAL DIMENSIONS – "H" BODY – "07 and 27" Styles (Fig. 3-10)

Fig. Ref.	Dimension	Location
A	33-1/4" (844.6 mm)	Between leading outboard surfaces of front frame rails.
B	33-1/4" (844.6 mm)	From center of 3/4" (19.1 mm) master gage hole in lower surface of front rail (approximately 4" (101.6 mm) forward of shock absorber housing) to leading outboard lower edge of opposite side rail.
C	12-5/8" (320.7 mm)	From center of 3/4" (91.1 mm) master gage hole in front side rail to leading outboard lower edge of same rail.
D	26-9/16" (674.7 mm)	From center of 3/4" (91.1 mm) master gage hole in right hand front rail to inboard surface of left hand front rail at steering gear forward lower mounting bolt hole (see Fig. 3-7).
E	28" (711.2 mm)	From center of 3/4" (91.1 mm) master gage hole in left hand front rail to inboard surface of right hand front rail at steering idler arm lower bolt hole (see Fig. 3-6). Note: Reference points at steering gear and idler arm locations are NOT of equal distance from the vehicle centerline.
F	27-3/4" (704.9 mm)	Between centers of 3/4" (91.1 mm) master gage holes in front rails.
G	21-7/16" (544.5 mm)	Between centers of lower front suspension attaching bolt holes in shock absorber housing (see Fig. 3-6).
H	30-1/4" (768.4 mm)	Between centers of either front or rear upper suspension attaching bolt holes in shock absorber housing (see Fig. 3-6).
I	25" (635 mm)	Between centers of lower rear suspension attaching bolt holes (forward surface) in shock absorber housing (see Fig. 3-6).
J	40-15/16" (1039.8 mm)	From center of 3/4" (91.1 mm) master gage hole in front rail to lower corner of step near the rear of same rail (see Fig. 3-6).
K	42-3/4" (1085.9 mm)	Between front rails at lower corner of step (see Fig. 3-6).
L	83-1/16" (2109.8 mm)	From center of 3/4" (91.1 mm) master gage hole in front rail to forward end of oblong shipping hook hole in rear rail on same side of body.
M	77-1/4" (1962.2 mm)	From front lower surface of shock absorber housing, centered on suspension lower front attaching bolt hole to forward end of the oblong shipping hook hole in rear rail on same side of body (see Fig. 3-7).

N	43” (1092.2 mm)	From lower corner of step at rear of front rail to forward end of the oblong shipping hook hole in real rail on same side of body (see Fig. 3-6).
O	37-5/8” (955.7 mm)	Between centers of oblong shipping hook holes in rear rails.
P	36-1/4” (920.8 mm)	Between inboard surfaces of rear lower suspension arm mounting locations in rear rails (see Fig. 3-8).
Q	29-3/32” (739 mm)	From the forward end of the oblong shipping hook hole in rear rail to forward edge of center of 1-1/2” (38.1 mm) oblong hole in floor pan reinforcement at rear spring on same side of body.
R	N/A	
S	N/A	
T	32-55/64” (834.6 mm)	Between forward edge on center of 1-1/2” (38.1 mm) oblong holes in floor pan reinforcement at rear springs.
U	30-7/8” (784.2 mm)	From forward edge on center of 1-12” (38.1 mm) oblong hole in floor pan reinforcement at rear spring to the centerline of the 5/8” (15.9 mm)lower outboard bumper attaching holes (see Fig. 3-9).
V	28-3/4” (730.3 mm)	Between centers of the outboard 5/8” (15.9 mm) rear bumper attaching holes in rear cross bar (see Fig. 3-9).

VERTICAL DIMENSIONS – "H" BODY – "07 and 27" Styles (Fig. 3-10)

Fig. Ref.	Dimension	Location
a	6-7/8" (174.6 mm)	Leading outboard lower edge of side rail (see Fig. 3-6).
b	7-13/16" (198.4 mm)	Left side – center of steering gear lower forward attaching bolt hole (see Fig. 3-7).
	9-7/16" (239.7 mm)	Right side – center of steering idler arm lower attaching bolt hole (see Fig. 3-6).
c	7-1/8" (181 mm)	Left side – lower surface of front rail adjacent to 3/4" (91.1 mm) master gage hole.
	7-1/2" (190.5 mm)	Right side – (same location as above).
d	12-5/8" (320.7 mm)	Center of upper front suspension attaching location on shock absorber housing (see Fig. 3-6).
e	1-5/16" (33.3 mm)	From front lower surface of shock absorber housing, centered on suspension lower front attaching bolt hole (see Fig. 3-6).
f	11" (279.4 mm)	Center of upper rear suspension attaching location on shock absorber housing (see Fig. 3-6).
g	1-1/16" (27 mm)	Lower corner of step near end of front side rail (see Fig. 3-6).
h	1-9/16" (39.7 mm)	Lower surface of rear rail adjacent to forward end oblong shipping hook hole.
k	15-5/16" (388.9 mm)	Lower surface of floor pan reinforcement at rear spring adjacent to 1-1/2" (38.1 mm) oblong hole.
m	1-3/4" (44.5 mm)	Center of rear suspension lower control arm mounting location (see Fig. 3-8).
n	7-9/32" (184.9 mm)	Center of rear suspension upper control arm mounting location (see Fig. 3-8).
o	10-21/64" (262.3 mm)	Lower surface of rear cross bar at center line of lower outboard bumper attaching 5/8" (15.9 mm) hole.
		NOTE: Misprint in 1975 Manuals/Supplements incorrectly lists measurement as 10-21/54".

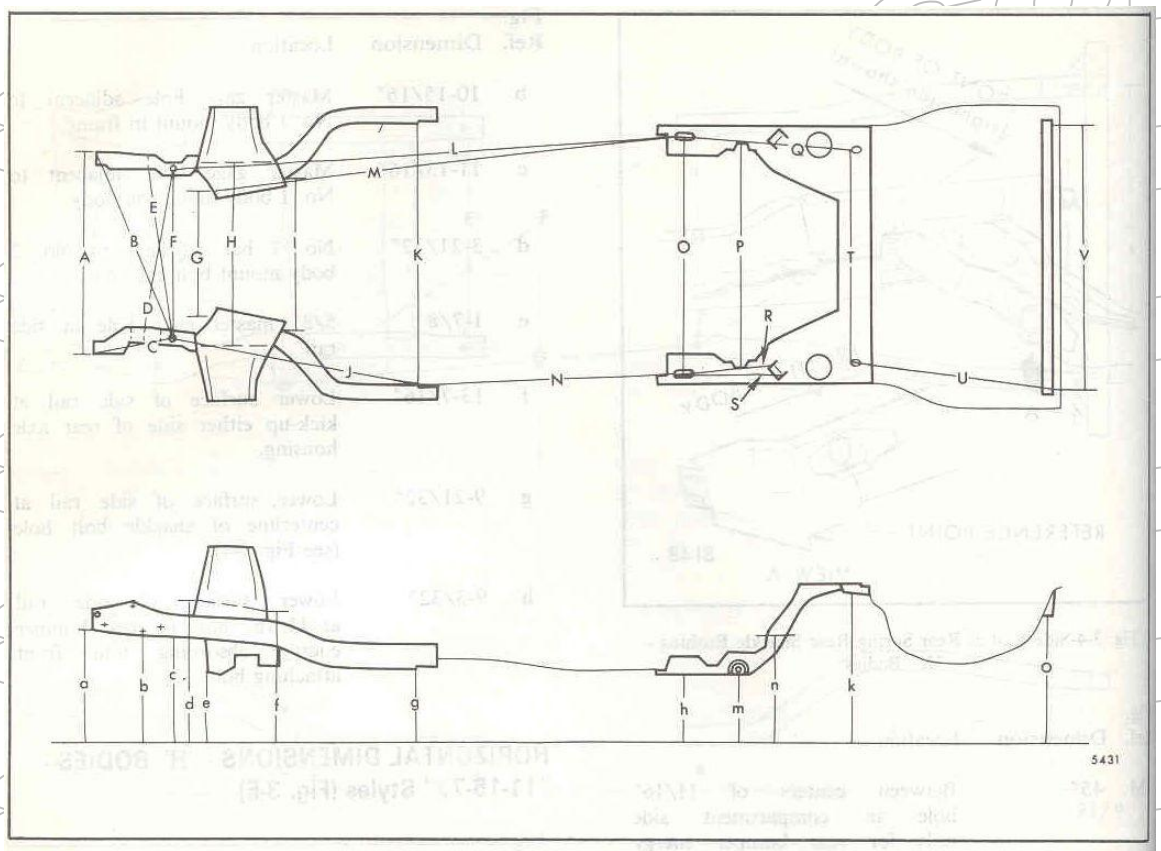

Fig. 3-5-Horizontal and Vertical Checking Dimensions - "H-11-15-77" Styles

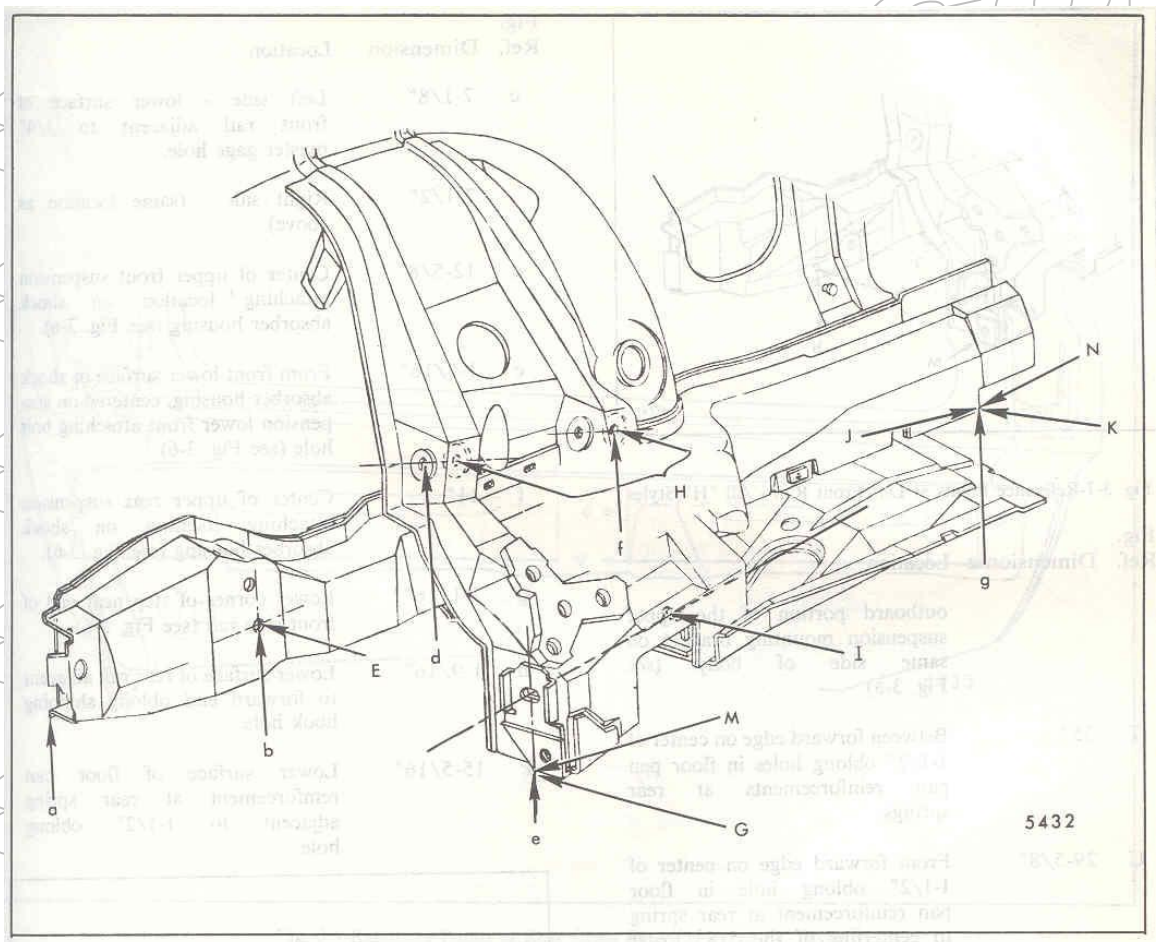

Fig. 3-6-Reference Points at Right Front Rail - All "H" Styles

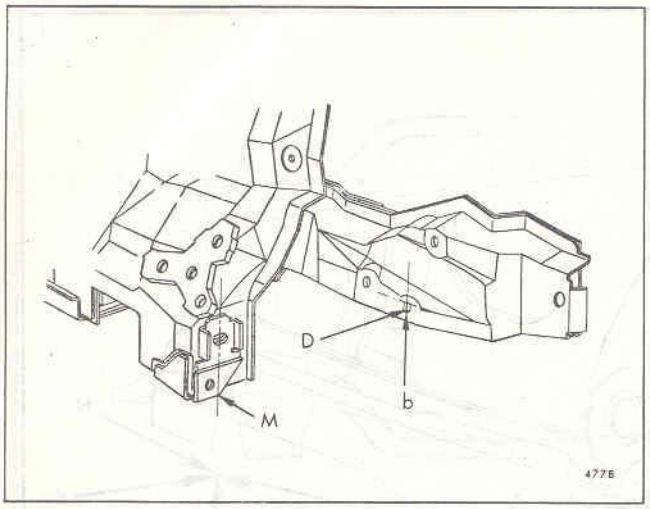

Fig. 3-7-Reference Points at Left Front Rail - All "H" Styles

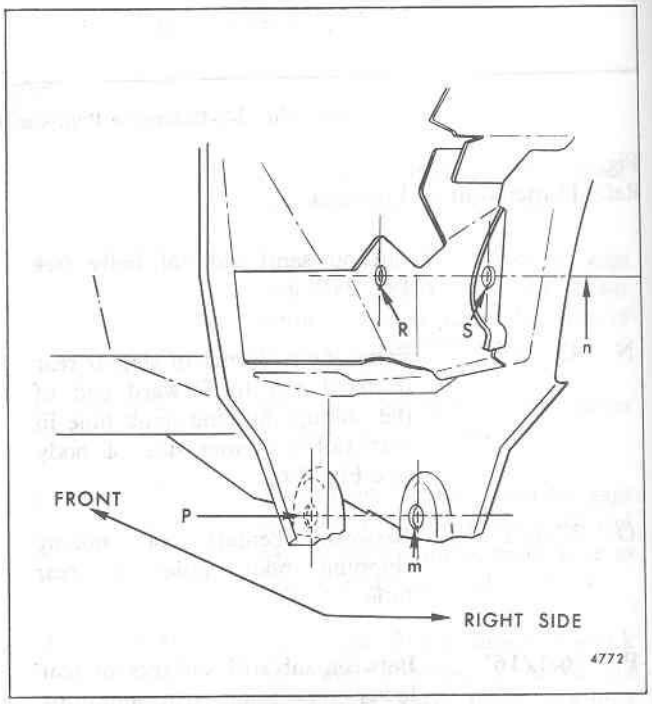

Fig. 3-8-Reference Points at Rear Suspension Area - "H-11-15-77" Styles

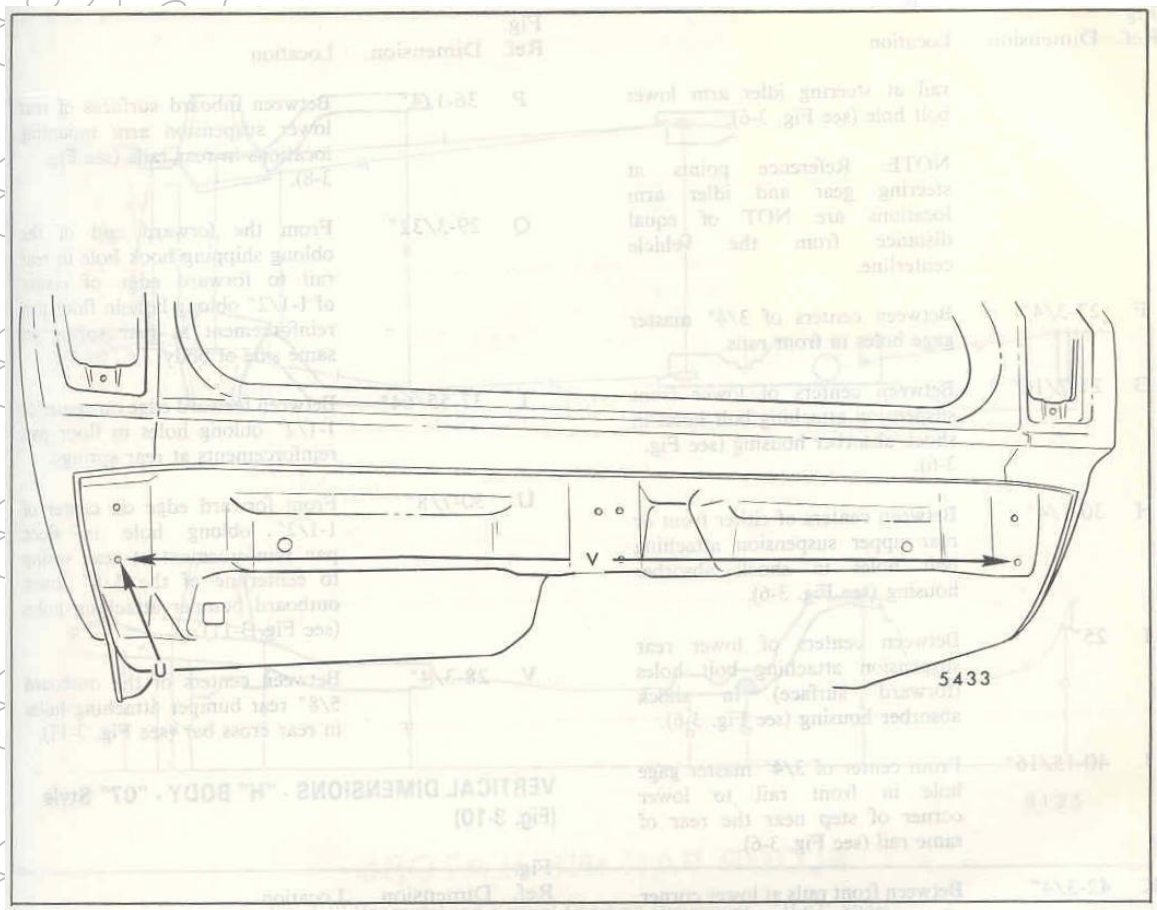

Fig. 3-9-Reference Points at Rear Cross Bar - "H-11-15-77" Styles

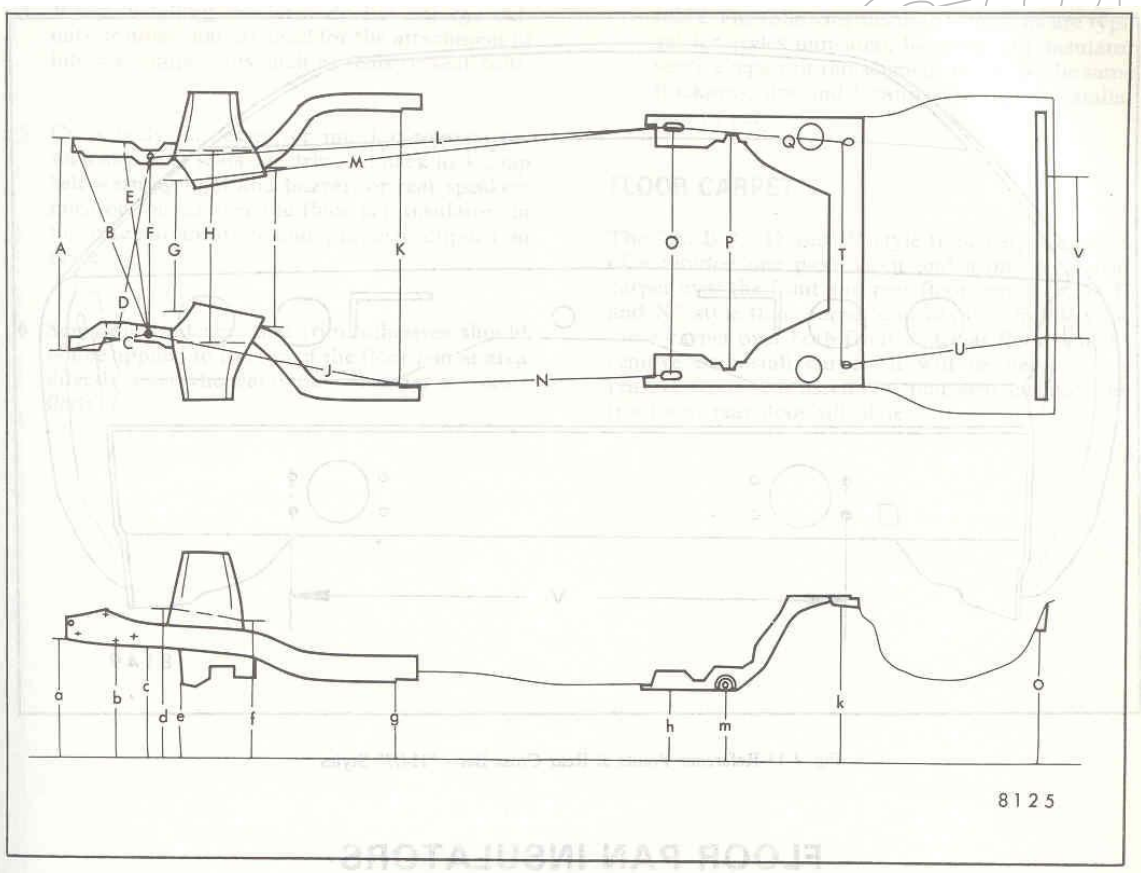

Fig. 3-10-Horizontal and Vertical Checking Dimensions - "H-07" Styles

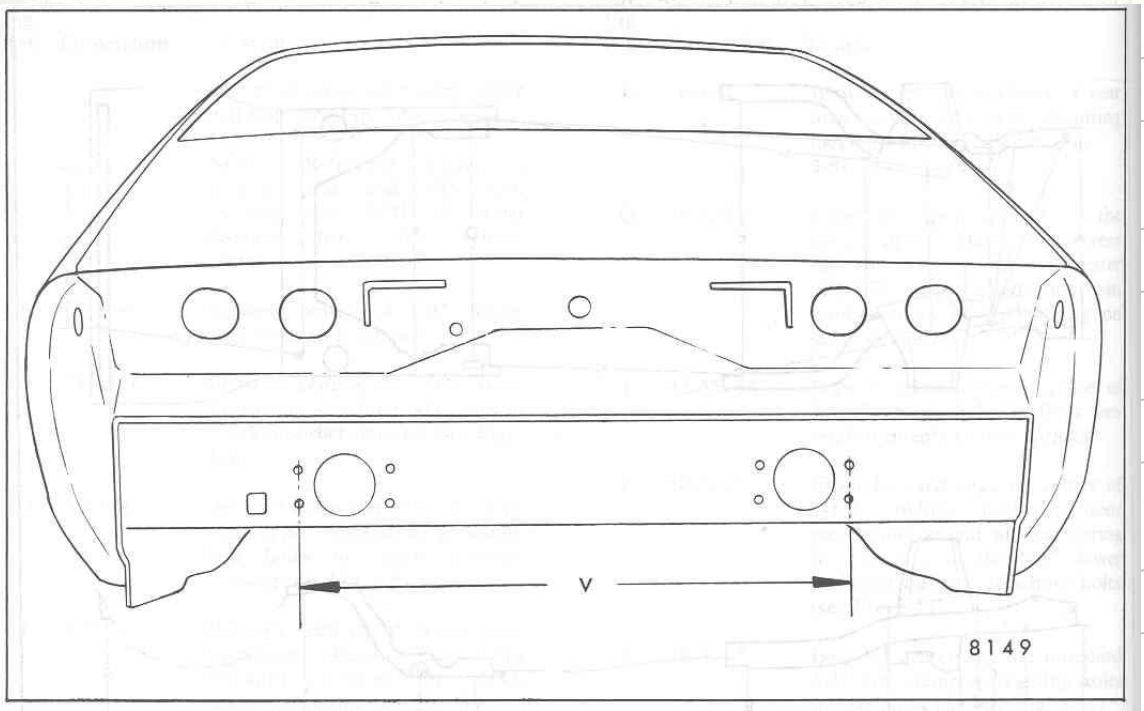

Fig. 3-11-Reference Points at Rear Cross Bar - "H-07" Styles