

# STRAIGHT AXLE SAFETY

Noland Adams

Safety is a boring subject. Yet it's important; so much so that we would all suffer without proper safety.

I've been on a number of safety committees at work. There, workers are forced to utilize programs designed to help them prevent accidents. I know the contempt and distaste for safety programs and those who suggest them. We have several helpful safety tips for early Corvette owners; some quite serious. The thoughtful straight-axle owner would be well-advised to heed the warnings contained in this article.

1. There is a possibility of the hood falling and bopping a head or crushing a finger. To prevent this, holes were drilled on the sides of the hood prop. By installing a bolt in the hole, you can be safer.

I know that I have seen this in a Chevrolet publication. Yet, I have been unable to locate it. Jim Dawson found it in the 1967 service manual:

## HOOD PROP SAFETY RETENTION FEATURE

"When extended under hood service operations are anticipated, the hood prop track and slide should be secured by placing a 1/4" bolt and nut through the existing holes. This will prevent accidental closing of the hood that could result in a serious injury."

In an emergency, just about anything will work. A ball point pen, a stick, lots of makeshift items. Just don't get hurt.

### Fire Safety Applies Here...

2. Fire is a problem with older cars; Corvettes are no exception. wiring becomes worn and frayed. Fuel leaks are much more common. These, along with backfires, are the common causes of fires. Worse, if the fire gets hot enough, the fiberglass body itself may support combustion and burn all by itself.

Preparation is the key, for not all fires are a "common" type. Like most emergencies, they begin at the worst possible time, so be ready for anything. Let's examine one such unexpected fire.

Several years ago in California, a 1961 was under restoration. The car was in good condition, so it got a "frame on" restoration. The body was repaired and primed, and the rebuilt instruments were replaced. All that remained was to paint the body and install the interior trim and exterior chrome.

Then someone noticed that the gas tank was leaking. At that point, it was an easy task to remove the tank and get it repaired. The car was parked in the driveway beside the house. A drop light was brought out to assist locating the bolts on the tank hold down straps. The owner and a friend soon had the leaking tank loose, and it was lifted out

of the body. However, in the process, the drop cord was knocked loose. As the light hit the driveway, the bulb broke, and a small fire started.

Now, the owner is holding the partially full tank, but he has a big problem. Does he replace the tank — just above the fire — or does he move it away and come back to fight the fire? He decided to move the tank to a safe spot, then return.

In the meantime, the other guy is running around looking for some way to put out the fire. The only thing he can find is a faucet - but no hose. Now, he is looking for a hose, as the fire grows quickly. Finally, a hose is located and connected. But wait... don't turn on the water yet; there's live electrical wires in the broken light bulb. More delay, as the drop cord is unplugged. Finally, they turn on the hose and put out the fire.

The repaired and ready-to-paint body was ruined: a real disaster. It was burned from the windshield area back to the rear of the top lid cover. All the rebuilt instruments and the main part of the body were badly burned beyond recovery.

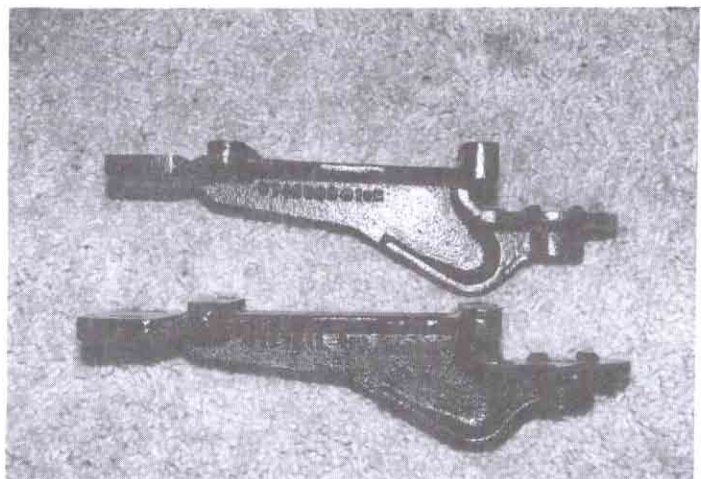
These guys were lucky; they located a complete '61 body. After a lot of time and money, the body was replaced, and the Corvette was saved to again be enjoyed someday.

If they had just had the garden hose connected to the faucet and ready to go, this disaster could have been prevented. Every Corvette should carry a fire extinguisher, period!

In addition, being ready for such disaster is just good sense. For one thing, complete Corvette bodies are really getting hard to locate, so be careful.

### Cracks DO Occur In Steering and Frame Brackets...

3. Last summer, Laurie Ames backed his 1954 Corvette



**IDLER ARM BRACKETS:** The rear boss is thicker on later versions.

*(Continued on page 7)*

(Continued from Page 6)

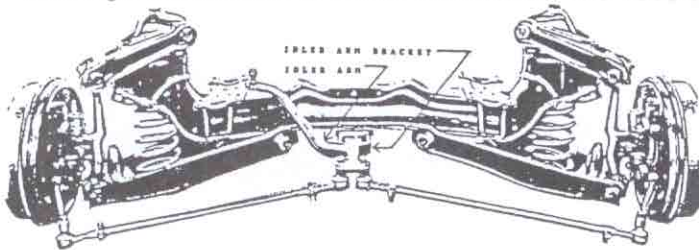
## STRAIGHT AXLE SAFETY

out of the garage. He was headed for a car show 20 miles away, but he would not make the trip. As he pulled away from the curb, the car's steering suddenly stopped operating. The steering wheel turned, but the front wheels would not respond.

Upon examination, Laurie found that the cast iron part that bolts to the underside of the front crossmember was broken. The tie rods were still connected, flopping around uselessly. It was something that neither one of us had seen, so we thought it was an isolated case.

First, we should identify this part. It's proper name is "Bracket, steering idler third arm." There were three different brackets used on 1953 to 1962 Corvettes. Part number 3706024 was used from 1953 to 1955; this number is forged on the side in depressed characters.

The 1956 and 1957 bracket was 3727511; this number was forged on the side in raised characters. The 1958 to



THE 1953 TO 1962 FRONT END FROM THE REAR, SHOWING THE IDLER ARM AND BRACKET

1962 bracket was part number 3742688; this number is also forged on the side in raised characters. Part number 3742688 is also available as a reproduction, which may be identified by the forged number 3742688 or 3742888 and the letters "TMS."

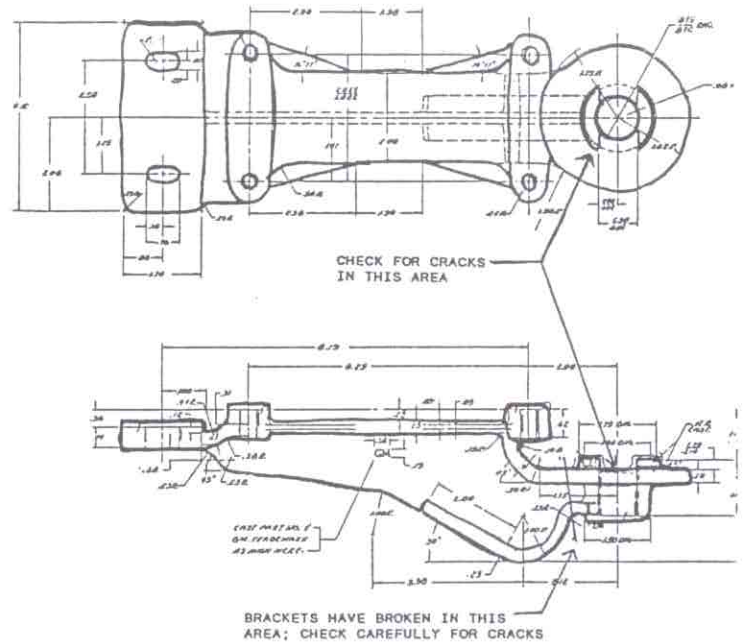
The thickness of the rear flange of the later bracket is the difference. The two early (1953 to 1957) brackets has a thinner flange (about 5/8"); the later bracket has a thicker rear flange (one inch).

There was also a variation in the arm (arm assembly, steering idler and third). The part used from 1953 to 1955 was 3706001, with the forged number 3706023. In 1956, the part number changed to 3737261, no forged number given. This design was change into 1956, and is known as the 1956 1st design. This changeover point is not known.

The 1956 2nd design used a different arm, part number 3733215, forged number 3733438. This 1956 2nd design was also carried over into and through 1957 production.

In 1958, the part number remained the same, 3733215, but the arm's forging number changed to 3731801. This 3722125/3731801 armed continued to be used to the end of 1962 production.

Since the rear flange of the later part is thicker, that would change the whole angle of the tie rods and steering idler arm. It appears that the brackets and arms are matched,



and early parts cannot be mixed with later parts and still function properly.

So much for part and forging numbers. Let's identify the part further. It mounts under the front crossmember directly under the center of the radiator. If the steering is equipped with a quick steering adapter, the adapter is an extension that bolts onto the idler arm; the tie rod ends are relocated to holes in the extension.

The bracket mounts to the front crossmember; the idler arm rotates in a large circular bearing located at the rear end of the bracket. Every time the steering wheel is rotated, the front tires are turned back and forth to steer the car. Tremendous pressures are placed on the arm, bearing, and bracket. These stresses can build up and cause the bearing housing portion of the bracket to break. *And I mean break right off, causing complete loss of steering, and the car goes who-knows-where.*

Also, this idler arm and idler arm bracket are too convenient in some ways. *When jacking the car up with a floor jack, the lift pad is often positioned under the rear end of the bracket. The entire weight of the front end may be lifted by this means. **STARTING NOW - TODAY - NO STRAIGHT AXLE CORVETTE FRONT END IS EVER TO BE LIFTED BY PLACING A FLOOR JACK UNDER THE IDLER ARM BRACKET.*** If in doubt, double check to be sure you understand the problem. Call someone if you don't; **this is a very important safety item!!**

We now know of two complete failures (breaks), and another which showed cracks around the bracket's load-bearing area. We have just begun checking these brackets for cracks, so who knows what we'll find. We must all check this item at once, in order to avoid a complete steering failure. We are all grateful that Laurie Ames wasn't just pulling off the freeway off ramp when his idler arm bracket broke.

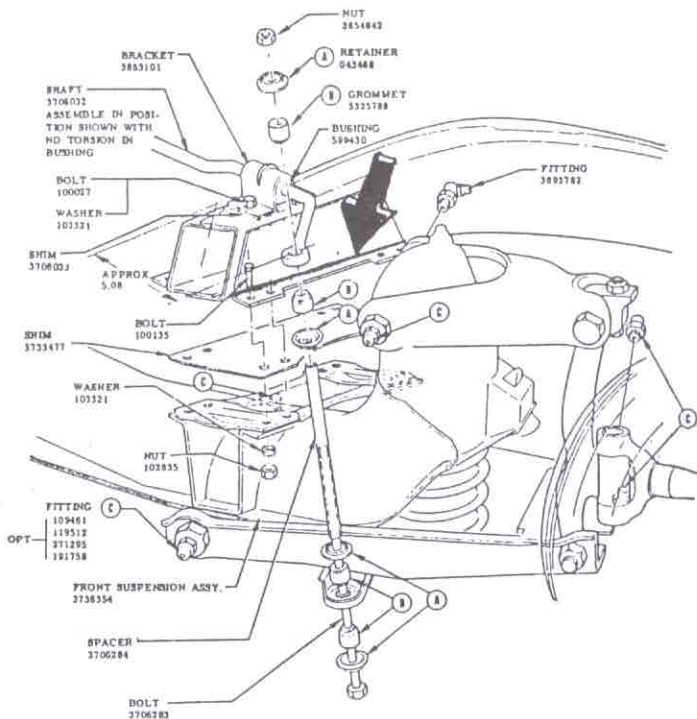
(Continued on page 8)

(Continued from Page 7)

## STRAIGHT AXLE SAFETY

When and where will yours fail? Such parts crack before they break. **Inspect yours before you drive it again.**

**4. Frame bracket cracks:** While examining Bill Harm's '53 frame (#264) for another project, Bill mentioned the cracks he had found. He was first alerted by another friend, Ken Weichmann, who had found cracks on his '57 frame first.



**THE ARROW POINTS TO THE BENT AREA OF THE FRAME BRACKET WHERE CRACKS MAY BE LOCATED.**

These cracks are in the corners of the front frame bracket. This bracket is riveted to the sides of the frame: it is bent 90 degrees, with its lower edges flush to the bottom of the frame. If you have a 1956 to 1962 Corvette, a tapered aluminum shim (one per side) is placed between the front crossmember and this bracket.

The brackets on some cars are cracking lengthwise in the middle of the 90 degree bend. The best cure seems to be the one used by Bill Harm. That is, weld the bracket securely from the backside. The original cracks may still show, but the bracket is firmly attached. Welding from the top side would be successful, but it would show, and it might interfere with installation of the front crossmember mounting bolts.

We know of no real problems here; that is, no front ends have dropped off to our knowledge. However, everyone with a chassis under restoration should check the front frame bracket for cracks.

Since this is an easy area to examine, everyone can look at their own car, running or not. Just how one would go

about repairing a cracked bracket on a running car might be tough. How much would you remove to feel safe? The entire fuel system? Members are invited to share their experiences and solutions.

### Watch Out for Hot Spots...

**5. This is an important item, but not a safety hazard like the others.** This only applies to certain carbureted 1956 to 1962 Corvettes, so the 6-cylinder and fuelie owners can go away.

This is a situation that does not normally happen to a Corvette under restoration. However, when the car is shown outdoors, it is somewhat normal to open the hood to show off the powerplant. It is also normal to leave the hood open for an hour or more.

If the sun is behind the car, the air cleaner collects the sun and focuses it on the underside of the hood. The black paint on the hood tends to absorb the concentrated sun's rays. The hood heats up, and the paint on the top side of the hood can be scorched and blistered.

I remember a white '62 on display several years ago. No one noticed this problem until an ugly bubbled arc several inches long was burned into the paint. Just when the owner wanted the car to look its best, disaster struck.

For many years now, owners have been making covers for the air cleaner top. This can be anything that doesn't harm the air cleaner finish. I have seen pieces of colored, towel-like fabric with the club's emblem sewed on the top. This is an attractive way to avoid damaging the hood's exterior paint.

Most judges are aware of the air cleaner's ability to focus the sun on the hood. Under these conditions, I have never known a judge to deduct for an air cleaner cover. In reality, it does take awhile for heat to build up. I guess at ten minutes as a safe margin. Any longer, and you'd better close the hood or cover the air cleaner.

### Straight Axle Safety Notes

Just as we were getting ready to print this issue, we heard of more 1953-62 safety problems. We talked to Joe Malicka of Country Corvettes in Kansas, (913) 886-7531. Joe has had many broken and cracked front frame brackets. Joe recalled one frame that had three of the eight bolt mounting areas broken: when the front crossmember was removed, those three just fell off! So, there are some serious safety problems here. Joe has a quantity of spare used brackets, so he just changes brackets.

He had never seen a broken or cracked idler and third arm bracket, but he is going to watch from now on. To my surprise, he knew of two idler arms that had broken on the drag link end! So, it looks like all those old cast iron parts are beginning to age. Let's take the time to check all the cast iron steering parts for stress cracks, a sign of future failure if not corrected first.

—Noland