

INTER-ORGANIZATION LETTERS ONLY

G. S. S. 006



TO	Mr. M. S. Rosenberger	ADDRESS	Engineering Department
FROM	Mr. F. C. Burrell	ADDRESS	Engineering Department
SUBJECT	Corvettes	DATE	April 9, 1956

The Corvettes as raced at Sebring, Florida, March 24, 1956 were deficient in many items which should be corrected.

The most noticeable item was carburetion. Due to the physical construction of the carburetors, the gasoline surges back and forth in the float bowl and causes extreme mixture variations. This condition is most noticeable on sharp turns and very critical when a sharp right is followed immediately by a sharp left. Also a poor condition exists on long high-speed turns. Various methods have been tried to correct this malfunction. These methods include changing float level, changing jet size, changing venting methods and changing air cleaners. Nothing effects a cure. Sometimes a change will correct one condition but make another worse. One perfect fix was discovered however. This was to remove the floats and make fixed level chambers of the float bowls. This eliminated all cornering problems and made the carburetion as near perfect as could be wanted. However, a problem was encountered at part throttle due to the excess fuel being flowed through the carburetors that had to be returned to the fuel tank. Many theories have been advanced as to how the poor carburetion can be cured. Some of these theories should be investigated and enough time taken to effectively cure the carburetion deficiencies.

Next to carburetion the transmission caused the most trouble. The standard transmission is entirely unsuited for racing, however, by correcting some things the transmission can be used until something better is available. The transmission weaknesses are primarily in the cluster shaft, thrust washers, the synchronizer and shifting mechanism. Using higher quality thrust washers will fix that problem. The synchronizer will require considerable work and the shift mechanism should be redesigned to be heavier. Considerable trouble was also encountered with oil leakage from transmission into clutch.

Other items needing attention are as follows:

The generators on all Corvettes are not properly positioned so that the drive pulleys are not in alignment. This causes the drive belts to come off. Even with the generators lined up the belts still come off at extremely high speeds. This was corrected by using 1/2" wide truck pulleys with the 3/8" wide belt. This causes the belt to ride deep in the groove and helps keep it in place.

The starter solenoid caused considerable trouble by sticking and allowing the starter to keep running after the engine was started. The trouble was caused by plastic insulation becoming soft and allowing the windings to short and cause the solenoid to stay engaged. Heat shields were in place but were not effective. Better insulation would correct this trouble or a complete fix would be to make up a mechanical linkage with a foot pedal and eliminate the electric controls entirely.

Considerable trouble was encountered with engine mounting bolts coming loose. Lock nuts and wire was necessary to keep them tight. Larger screws would be a help at rear mount on the transmission. The front engine mount is held in place by the water pump and any looseness causes loss of water. Tight fitting studs placed in the top two holes would help keep this mount tight and would also greatly facilitate assembly.

Hood latches will not hold. Hood is always coming loose. A different type latch with positive locking action should be adapted. The front hood hinges will not stay in adjustment and allows the front of hood to rise above front of body.

Accelerator pedal needs two fixes.

1. A wider pad with shoulder on each edge should be used to keep pedal from slipping off rod.
2. The hinge should be reinforced as it is too weak and gets sloppy after short usage.

Rear spring clips should be made from heavier material or should be bolt-on type of heavy construction.

Further development work should be done on rear suspension to improve axle hop and car handling. Elimination of the extra shock absorber if possible by relocating present shock to a better position.

Rear wheel bearings should be of heavier construction. Two failures were encountered by bearings splitting on ball race.

The Air Scoops on outside of rear fenders were very effective in putting air on rear brakes, however, they were very vulnerable to damage due to extending out from side of body. An alternate location should be worked out that would give best cooling with least possibility of damage and dirt pick-up.

Brakes were very effective but the large diameter master cylinder made the pedal pressure too high for a long race. The standard size master cylinder should be used and some method devised to make automatic or quick adjustments of brakes. Possibly, a power operated device could be developed to give low pedal with light pressure.

Faster steering would be an advantage. The present ratio gives about 3 1/2 turns of steering wheel lock-to-lock. Increasing the ratio to give 2 1/2 turns lock-to-lock would be much better. A shorter idler arm would help in this direction.

The Rear Main engine bearing thrust surface was not adequate to carry the load of continued clutch operation at high engine speed. Increasing the oil supply to rear thrust face helped considerably. Further investigation should be made to get proper amount of oil without excess.

Thermostat housing hose connections should have a bulge at edge to keep hose from sliding off.

Fuel line from fuel pump to filter should be 3/8 instead of 5/16.

Ignition wire bracket at generator needs redesign to reduce possibility of wire burning.

Flexible type dip stick gave incorrect readings. The truck type being rigid would be more suitable.

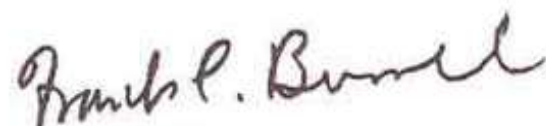
Temperature indicator for oil and water should be of precision type durable enough to stand rough usage.

Some objection has been raised to steering wheel location. Some people want the wheel further ahead, others want it back. A decision should be made and all wheels put in that location. A movable wheel would be very useful.

Self locking nuts were necessary on many places such as rear engine mount cross member, exhaust manifold studs, front engine mount screws, etc.

The rear spring front hanger I bolts had to be drilled and pinned to keep the nuts on.

Rear spring U bolts were double nutted.


F. C. Burrell
Engineering Department

FCB/mpk

INTER-ORGANIZATION LETTERS ONLY

2-2-5-100



TO	Mr. M. S. Rosenberger	ADDRESS	Engineering Department
FROM	Mr. R. N. Krieter	ADDRESS	Engineering Department
SUBJECT	S. R. Options	DATE	March 14, 1956

cc: Messrs: H. F. Barr
R. F. Sanders (2)
W. R. Mackenzie
N. H. McCuen
C. M. Rubly
J. T. Rausch
W. C. Bunting
C. Brooker
File

The following is a list of the items which have been selected to assist the production Corvette in competition racing.

Items which are not covered under Regular Production Options or Corvette Production should be released as soon as possible.

U.P.C. Group 1 - Body

1. Canvas Cockpit Covers for Right and Left Hand sides.
2. Small Racing Windshields.
3. Special Plastic Rear Brake Air Ducts.

U.P.C. Group 2 - Frame

None

U.P.C. Group 3 - Front Suspension

1. Halibrand Front Hubs.
2. H. D. Spindles.
3. H. D. Steering Knuckles.
4. H. D. Front Wheel Bearings.
5. H. D. Front Coil Springs 340 lbs/in.
6. H. D. 3/4" Front Stabilizer Bar, with Steel Bushings at Frame Attachment.
7. H. D. 1 3/8" Front Shock Absorbers and Attaching Brackets.

U.P.C. Group 4 - Rear Suspension

1. Halibrand Axle Shafts and Rear Hubs.
2. Special Wheel Bearing Retainers.
3. 1 3/8" Shock Absorbers.
4. Special Racing Cam and Lever Auxiliary Shock Absorbers and attachment.
5. Heavy Duty Rear Springs and H. D. Spring Clips.
6. Rear Axle Vent relocated.
7. Wide Base Rear Spring Rear Shackles.
8. Rear Axle Ratios of the following:-

3.08:1
3.27:1
3.55:1
3.70:1
4.11:1

Rear Axles also incorporate Hy Torque Differential, Lubrited Gears, Eleco 28 Lubricant and Ring Gear Oil Baffle.

U.P.C. Group 5 - Brakes

1. Front and Rear Cast Iron Finned Drums.
2. 2 1/2" Metallic Facing on Fronts.
3. 2" Metallic Facings on Rears.
4. Vented Front and Rear Flange Plates.
5. 7/8" Diameter Rear Wheel Cylinders.
6. 1 1/8" Diameter Master Cylinder.
7. Reworked Parking Brake Idler lever.
8. Relocation of Parking Brake Cable to Frame Anchor.

U.P.C. Group 6 - Engine

1. Racing Type Air Cleaner
2. Heavy Duty Clutch (Load 1900 - 2200 lbs.)
3. Oil Pan Shelf Baffle.
4. Hard Rubber Engine Mounts.
5. R.P.O. #1449 Engine Assembly.
6. 5.00" Generator Pulley and Dual Belt Drive Pulleys.

U.P.C. Group 7 - Transmission

1. Regular Production Corvette Close Ratio Transmission (2.2:1 Ratio) incorporating special Sealed Bearing, Rear Vent, and welded synchronizer ring.

U.P.C. Group 8 - Fuel and Exhaust

1. Dual Exhaust System with larger tail pipes, less restricted Mufflers and tail pipes coming out ahead of rear wheels.
2. Large Gasoline Tank 37 1/2 gallon Capacity.
Special Gasoline Cap
Special Gasoline Tank Metering Unit.
Folding Top is deleted.
3. Fuel Switch Pressure Light #1507276 and Wiring Harness #2967276.
4. Flexible Fuel Lines and Dual Electric Pumps.

U.P.C. Group 9 - Steering

1. Steering Gear and Mast Jacket assembly to be 3" shorter than production.
2. Heavy Duty Steering linkage such as Tie Rod Ends, Tie Rods, Pitman Arm, Drag Link, 3rd Arm and Bracket, etc.

U.P.C. Group 10 - Wheels and Tires

1. 15 x 5 1/2" Magnesium Wheels (sets of 5 - 8 or 12)
2. 7.10/7.60 x 15 Racing Tires and Tubes.

U.P.C. Group 11 - Sheet Metal and Hood
None

U.P.C. Group 12 - Electrical

1. Tachometer recalibrated for 5.00" Generator Pulley.
2. Auxiliary Driving Lights.

U.P.C. Group 13 - Radiator

1. Heavy Duty Tube and Fin Radiator.
2. 13 lb. Pressure Cap.
3. Heavy Duty Radiator Hoses.

U.P.C. Group 14 - Miscellaneous

1. Tool Kit and Tire Changing tools to be in car during race.
2. Remove Rear Bumpers.

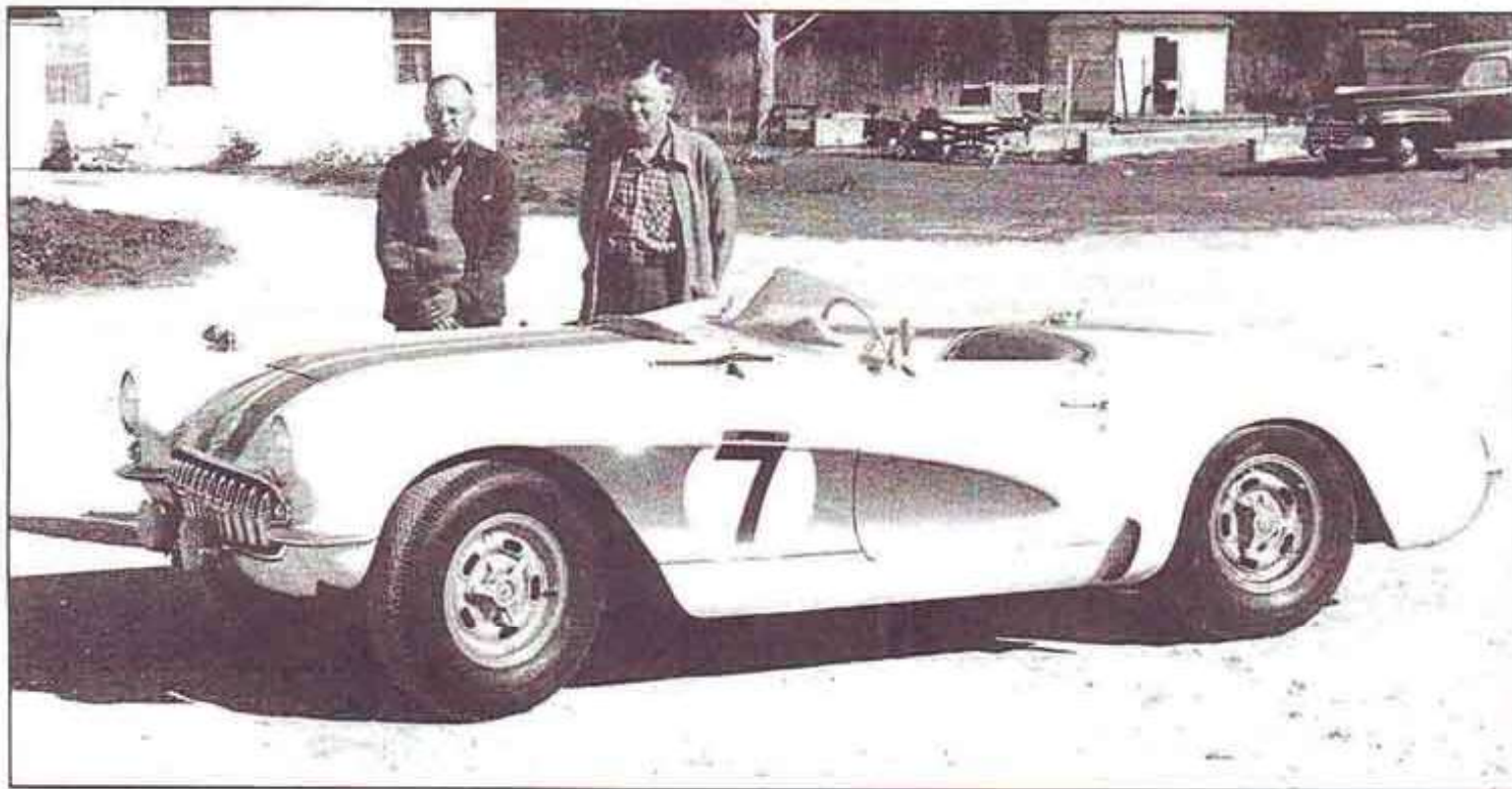
U.P.C. Group 80 - Accessories

1. Seat Belts.
2. Hood Straps.
3. Trunk Lid Straps.

Rudolf N. Krieter

Rudolf N. Krieter
Engineering Department

RNK/mpk



Frank Burrell (left) and M.S. "Rosey" Rosenberger with 1956 Sebring car #7. Photo by Dick Irish taken two days after the 1956 Sebring race.

WHO SAID GM WASN'T INTO RACING?

By Mike Ernst

Photos Courtesy Halibrand Engineering

The 1957 Automobile Manufacturer's Association (AMA) ban on racing initially imposed a chilling effect on Chevrolet and Corvette racing except for interested privateers who had working capital. As time went on, that ban had less and less effect throughout the GM corporate world until it was reimposed on the Grand Sport program. The year 1962 was probably the least-restricted of any. Admit it or not, GM was involved in racing. If you knew the right people, or had the right name, parts, information, technical assistance and other perks were available to you that were available to no one else.

Recent information concerning 1962, supplied to the NCRS by an anonymous but well-placed source within GM, has opened a whole new world. Would you believe?

- **Self-adjusting heavy-duty brakes, on all four wheels, that adjusted when the car was braking forward.**
 - **A 37-gallon fiberglass gas tank.**
 - **A second front stabilizer bar for racing use.**
- And how about this:
- **Halibrand wheels, axles, hubs, and knock-offs, available over the counter from GM with regular seven-digit GM part numbers.**

Believe it? Believe it!! In fact, let me tell you all about it.

My article in *The Corvette Restorer Magazine*, Volume 14, Number 4, detailed the secondary front stabilizer, its application and usage, so that will not be dealt with here. This article will detail the Halibrand wheels. Future issues will include articles on the 37-gallon gas tank option and the self-adjusting heavy-duty brakes.

A Chevrolet "Engineering Change Recommendation" (hereafter referred to as the ECR) dated 12/5/61, lists the four above items (stabilizer bar, gas tank, self-adjusting brakes, and Halibrands), and under "Reason for proposed changes" indicates "To provide Corvette heavy duty operation package for service."

What initiated this action? "*Letter from Mr. Z. Arkus-Duntov to Mr. W. T. Burwell dated 11/28/61.*" That's pretty impressive -- Zora writes a letter on November 28, indicating "we need this stuff", and by December 5, it's happening! The expeditious manner in which the projects were handled are explained by the note that indicates "*NOTE: The above units must be released by December 31, 1961.*" By what date do you suppose those parts had to be in the parts books to be accepted for the 1962 race season by SCCA? Take a wild guess!

Obviously these parts were not, suddenly, beginning to be developed at this time by GM. They had been on the burner for quite some time. Although the gas tank was fiberglass, an identical tank, formed in metal, was already utilized in 1956 by the Chevrolet team effort at Sebring headed by John Fitch. The ECR notation (Note 4) indicates: "*Release Halibrand Aluminum wheels, front hubs, axle shaft and spinner nuts as a service unit for 800.*" (This unit existed in 1956 but was canceled in 1957.)

A call to Halibrand Engineering, which happens to have its corporate headquarters only eight miles from my house, placed me in contact with Mr. Wayne Mitchell. Mr. Mitchell was extremely helpful, hunting through old file folders, catalogs, etc. (*Halibrand Engineering is at 9344 Wheatlands Road, Santee, California 92071; 619-562-7930*) He also indicated they have run a reproduction run of wheels for the AC Cobras, and are contemplating such a run for the Grand Sport wheels and the old Corvettes if the interest warrants it.

At this time, I haven't been able to verify which of the parts on the ECR actually were approved by the SCCA and which were not. It appears that for the FIA races in 1962, at least, the Halibrand wheels were NOT approved, as all 12 Corvette entrants in the 12 hours of Sebring and at Daytona were shod with steel wheels. Although they were apparently not approved for the 1962 racing season, the Halibrand axles, hubs, spinners, and wheels were available over the counter through Chevrolet in 1962, with part numbers different than the 1956-57 wheels. Although the design was

(continued on next page)

1957-1959 Heavy-Duty Brakes & Suspension (RPO-684)

By Ray Masciarella
and David Bartush

This article is designed to aid those individuals restoring heavy-duty brake and suspension Corvettes built from 1957 through 1959, otherwise known as Regular Production Option (RPO) 684. There has been very little written on this subject. We have attempted to compile as much accurate information as possible. It's taken nearly two years and has been difficult. We have avoided speculation. If we are not sure any information is correct, we have indicated so.

These old street fighters went through many changes primarily because they were raced, and verification of component parts has been difficult to ascertain from surviving cars. This article attempts to set forth the different major components used in RPO-684 cars. Where no reference is made to a specific part, one can assume the standard part was used. We must give one warning: this article is based on very scant GM documentation, help from knowledgeable friends, and personal inspection of a handful of cars. It should not be considered authoritative, but merely informative.

The heavy-duty brake and suspension package was initially developed and installed on the 1956 SR (special race) Corvettes. Only a handful of these cars were built, and they were generally not available to the public. Nineteen-fifty-seven was the first year these items were truly available as a regular production option. It was entitled "Heavy Duty Brakes and Suspension." Since

Chevrolet was pushing fuel injection, the RPO-684 package was primarily available with high-performance fuel-injected cars, but it could also be ordered with the dual-four-barrel 270 horsepower engine. Positraction was a mandatory option and it seems most cars had the 15x5.5K wide-base wheels, although it apparently was not mandatory. Early 1957 RPO-684 equipped Corvettes may not have had wide wheels because this option, RPO-276, was apparently not released until April of 1957.

The chart below shows the RPO-684 numbers produced by transmission and rear axle combinations:

1957

<i>Transmission/Axle Ratio</i>	<i>Number Produced</i>
3 speed/3:70:1	2
3 speed/4:11:1	10
3 speed/4:56:1	3
4 speed/3:70:1	10
4 speed/4:11:1	17
4 speed/4:56:1	6
1957 Total	48

1958

3 speed/3:70:1	5
3 speed/4:11:1	4
3 speed/4:56:1	3
4 speed/3:70:1	26
4 speed/4:11:1	79
4 speed/4:56:1	27
1958 Total	144

1959

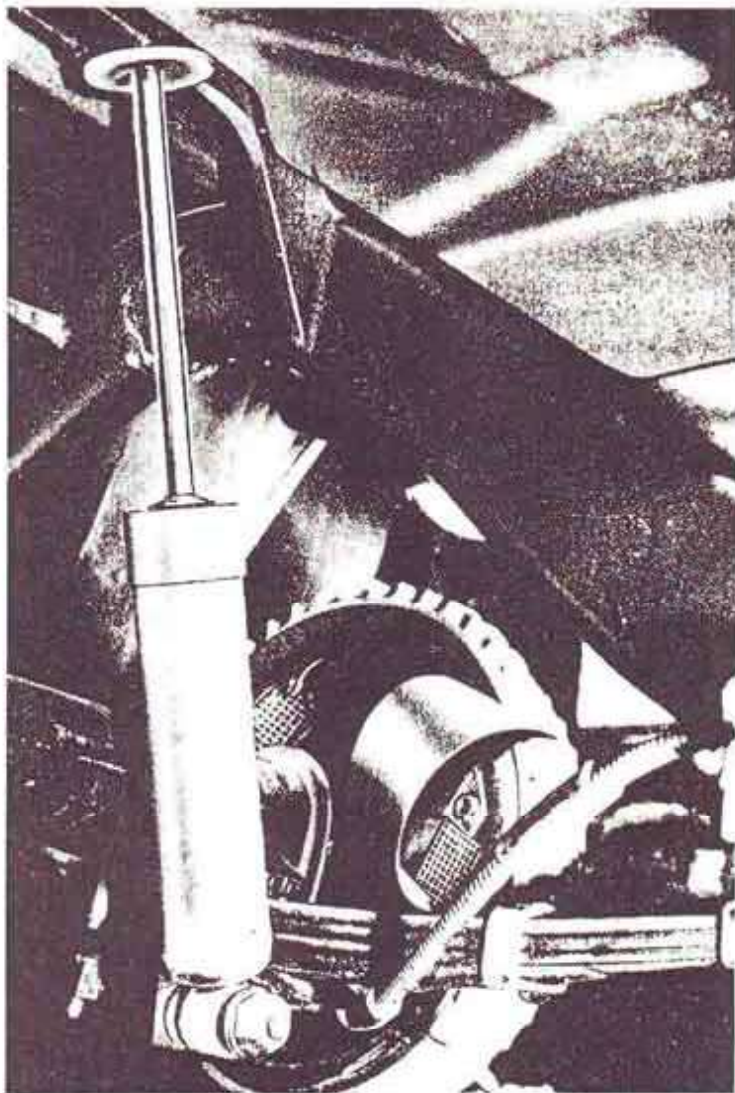
4 speed/3:70:1	26
4 speed/4:11:1	88
4 speed/4:56:1	28
1959 Total	142

- *Source: Chevrolet Passenger Car Production figures prepared by Engineering Product Information Department.*
- *Note: 1957 was the only year the package was available with three different engine options: RPO-579B 283 horsepower FI; RPO-579E 283 horsepower FI with Air Box; and RPO-469C 270 horsepower with dual-four-barrels and high-lift cam. Forty-three RPO-579E Air Box cars were produced. Of the remaining five, it is believed four were FI 283 hp. and one was 270 hp. 2x4.*

On September 12, 1956, Chevrolet approved the release of the heavy-duty brake and suspension and Positraction options in a memo to the Engineering Department. It directed Engineering to "clear the way so that this material can be released as soon as possible." Interestingly, the memo directed these options be released as three separate packages: a suspension package, a brake package, and a Positraction package. The memo did not assign RPO numbers. It might have been Chevy's intention to release a heavy-duty suspension package without an upgraded braking package under RPO-581. However, records show no RPO-581 cars were ever produced, and the brake and suspension package was eventually incorporated for release under RPO-684.

This memo shows Chevrolet relied heavily on the engineering developments of the 1956 SR cars when it designated heavy-duty brakes and suspension as regular production option 684 in 1957. The memo suggested the package include SR brake drums modified to fit the production wheel, organic brake lining material (cerametallic), and high-temperature-resistant wire brake pull back springs. All of these features were developed during the 1956 race/experimental programs. The memo concluded "with these additions, the Corvette could easily be converted to racing."

Surviving car research shows the production of these cars actually began some time around February of 1957, long before the "air box" and 4-speed options were available. Several cars have been found in the VIN 2200-2400 range. In addition, a couple of special cars were built in November of 1956, but they were probably test or Sebring cars, and not production cars built in St.



GM photo of rear suspension showing vented backing plate with scoop, finned drum, rear spring and heavy-duty shock (1957 SR style). Note the upper shock mount is standard design, making this car an early 1957.

Louis. While the suspensions were similar, the braking system on these "special cars" was substantially different.

The initial package consisted of heavy-duty front and rear suspension assemblies and a special brake system, but no body duct work. Chevrolet information given to the Automobile Manufacturer's Association (AMA) shows this option was initially available "with or without air intake ducts for air cooled brakes." However, we believe none of the initial production cars had duct work because the only early cars that have surfaced were lacking the duct work system. Also, the 1957 Assembly Instruction Manual

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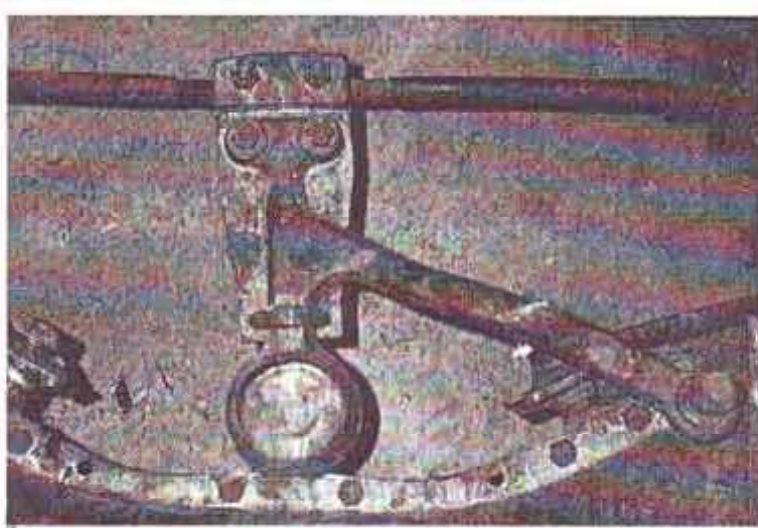


Photo #1 - Quick steering adapter.

shows the duct work was not released as part of the package until March 25, 1957. This would indicate it was developed for use at Sebring in 1957 and was hurriedly listed in the Factory Assembly Instruction Manual in order to qualify for use as a regular option on the production Corvette race cars.

Each component of the front suspension assembly was shot peened. It used a 13/16" diameter stabilizer bar compared to a 5/8" diameter standard bar. This provided for better control in hard cornering. Early 1957 cars may have used the standard stabilizer bar bushing (PN 599430) with the holes enlarged by hand to accommodate the larger bar. In July of 1957, Chevy serviced bushings with the correct size hole (PN 3746605). Another handling feature was the addition of a quick steering adapter which reduced the overall steering ratio from 21:1 to 16.3:1. The quick steering adapter reduced the number of wheel turns from 3.9 to 3.25 (Photo 1).

The shock absorbers were made by Delco and were a direct double-acting type. Initially, they were hydraulic, but the rear shocks changed to a gas-filled version in mid-1959. Both the front and rear shocks used 1-3/8" diameter pistons. Based upon our surviving car, we believe the front lower shock retainers for RPO-684 cars were the same as the standard version. A version has surfaced with an offset hole which theoretically would provide for better clearance. It was used

on the 1956 SR cars because the shocks had "hats" on the top of the shafts. This shock retainer cured an interference problem the SR cars encountered when the "hat" would rub against the front coil spring under severe use. Our research of blueprints shows this retainer was probably not used for RPO-684. In addition, heavy-duty parts lists found do not indicate the use of these retainers.

The rear shock mounting brackets initially were the same as the standard version. However, they changed on April 1, 1957. The Standard upper bracket was completely removed, and a new bracket was welded below the crossmember (Photo 2). The standard lower bracket was used, but the inner area near the shock mounting stud was ground flat removing 1/4" of material (Photo 2). This change probably cured a shock interference problem discovered under severe use.

Heavier front and rear springs were incorporated into the package. Both were shot peened and heat treated. The front springs were made of chrome alloy steel. Below is a comparison between the standard and heavy-duty front springs.

	Heavy Duty	Standard
Gauge636"	.547"-.553"
Coils	8.75 total	9.75 total
	6.94 active	7.94 active
Height	11.18 free	13.45 free
Deflection Rate (at spring) ..	.550#/inch	300#/inch
Deflection Rate (at wheel) ..	.200#/inch	10#/inch

These springs were painted black and had four grey paint dabs on the lower four coils for identification purposes. However, the paint dabs may not be visible after installation because the entire front suspension was painted chassis black after its sub-assembly, according to the assembly blueprint.

The rear springs were a semi-elliptic consisting of five leaves. Compare the springs:

	Heavy Duty	Standard
Total Leaf Thickness	1.458	1.159
Rate	145-155#/inch	115#/inch
Inserts	none	fabric lining
Clamps	6 steel-riveted	3 bands

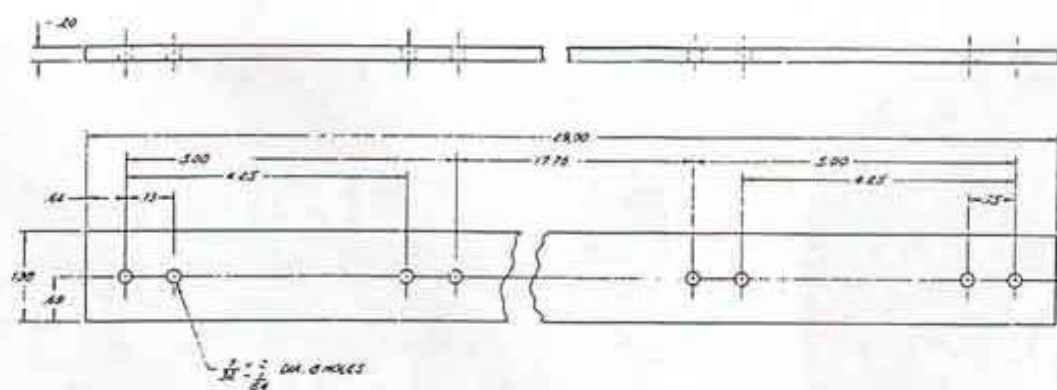
The leaves were held together with six riveted steel clamps. These clamps had holes punched through their ends (Photo 2). The bottom of each

A close-up photograph of a mechanical assembly, likely a pump or engine component. The image shows a large circular gear or flywheel with a central shaft and various connecting rods and levers. A black arrow points to a specific part of the mechanism, possibly a valve or a control lever. The image is somewhat blurry and has a high-contrast, almost painterly quality.

Photo #2

The special brake system was built around ceramic-metallic, segmented linings which were

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Other manufacturers' operations are not covered by this rule. Examples include the production of castings, forgings, and other metal parts.

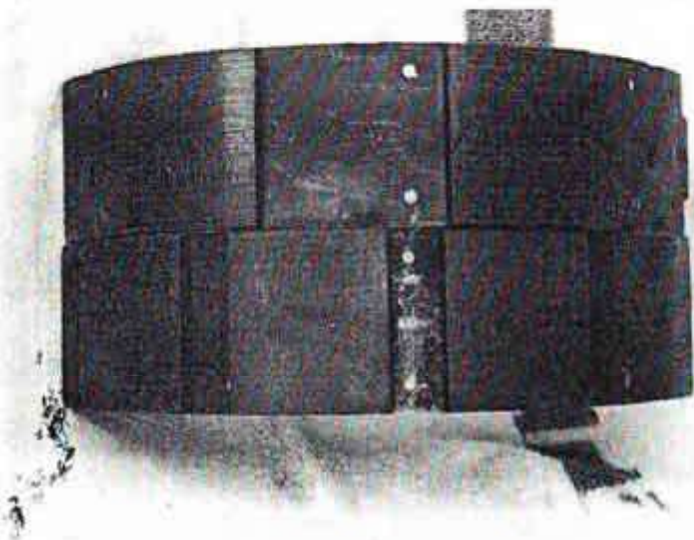


Photo #3

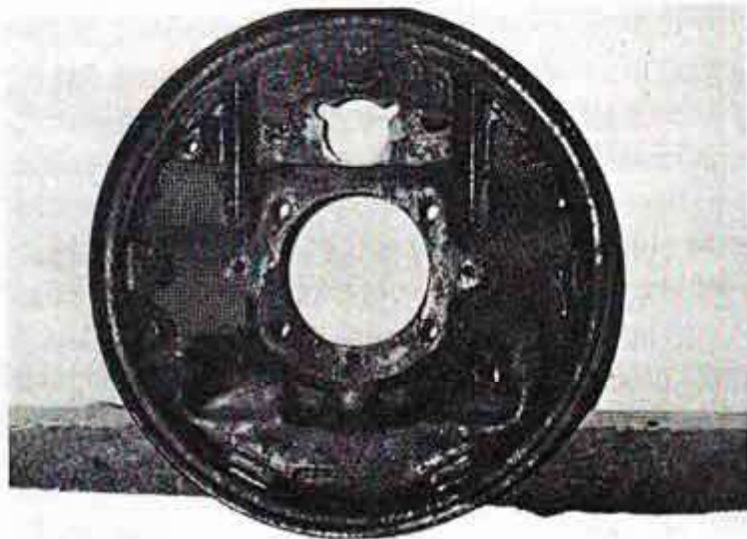


Photo #6



Photo #4



Photo #7

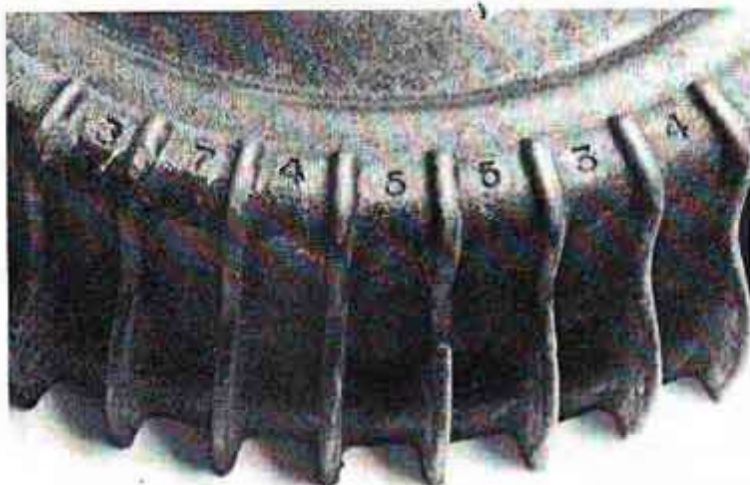
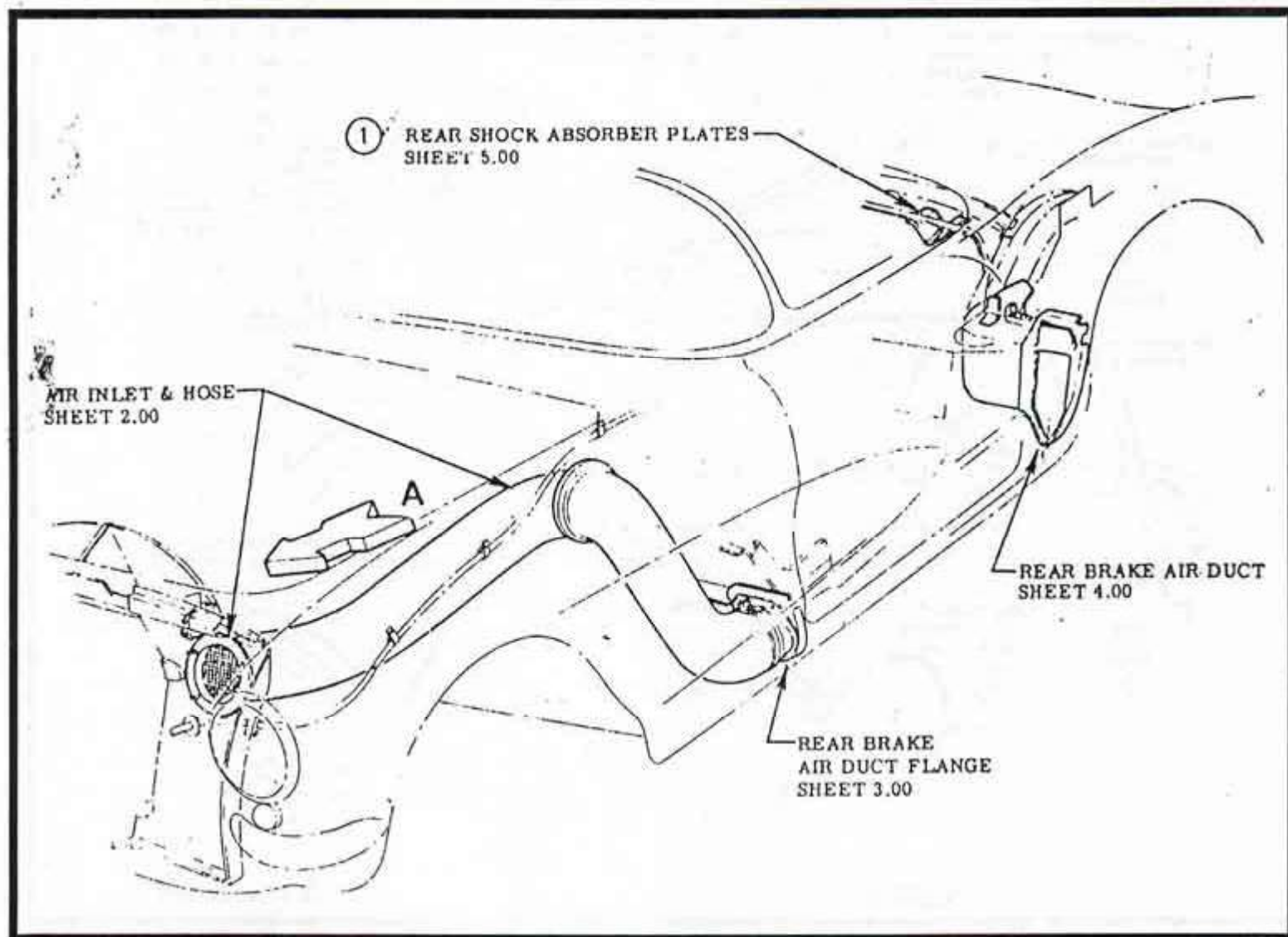


Photo #5



Photo #8



The 1957 style brake ducting is depicted above; 1958 design at far right (opposite page).

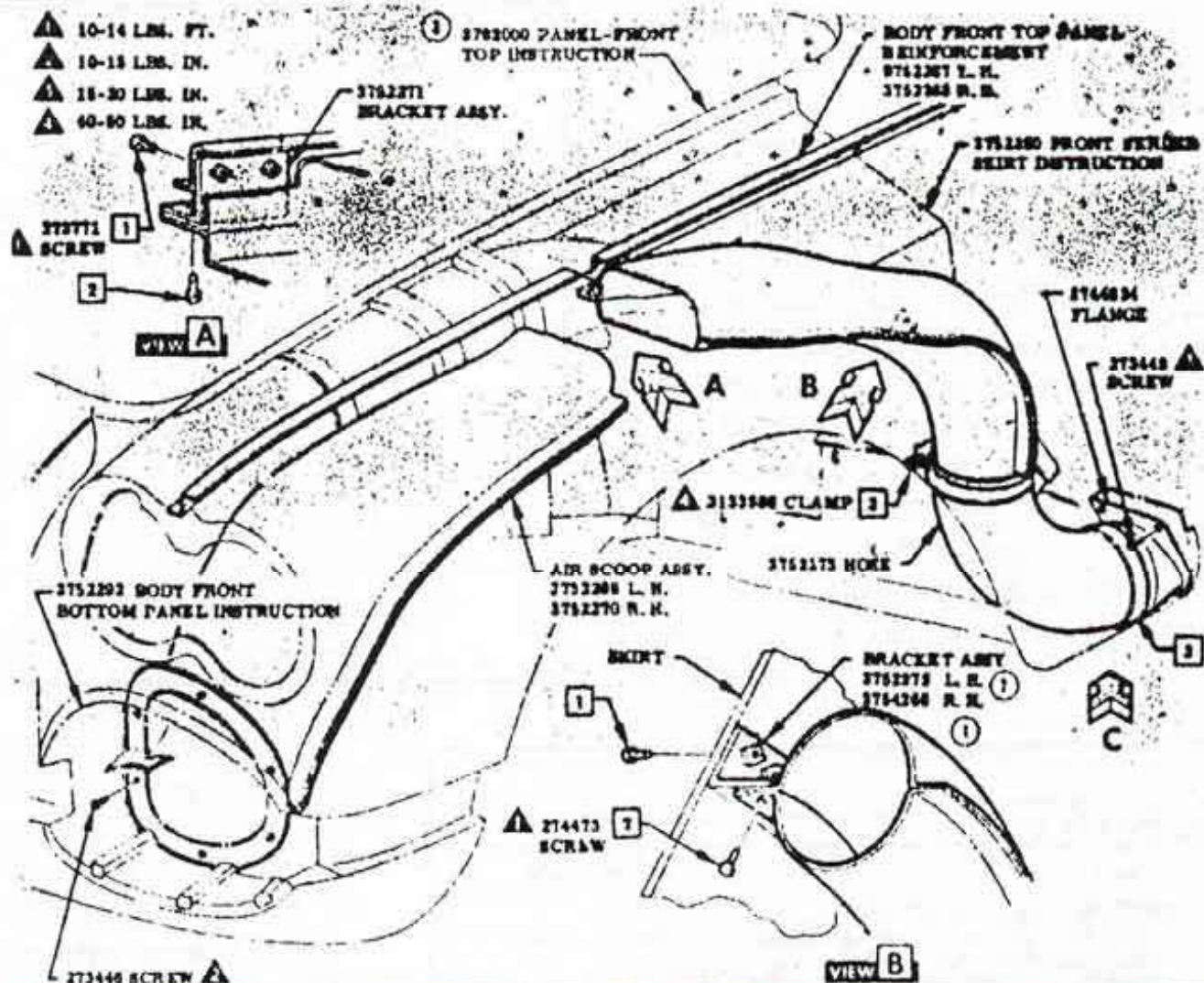
When placed side by side, these cylinders appear externally to be the same size as the standard, but they were actually bored to only 7/8". The wheel cylinders may have changed in 1959 to the RPO-687 style. Their casting number is 5450996.

Special finned drums, 11" in diameter, were used in conjunction with vented backing plates.

The fins on the drum wrapped around its face (Photos 4 & 5), and the backing plates had a fine screen over the vent (Photo 6). Sometime during 1959, the drums and backing plates may have changed to the RPO-687 style. The fins on these later drums did not wrap around the face (Photo 7), and the screen over the vented portion of the backing plate was wider (Photo 8). Interestingly, all drums, both front and rear for all years, RPO-684 or RPO-687, had the same casting number: 3745534. We can only speculate as to why the

drums and backing plates changed. The fins on the initial drums may have interfered with various wheel applications. The screens on the backing plates may have been enlarged so they would not clog easily. The RPO-687 items were introduced for the 1960 model year.

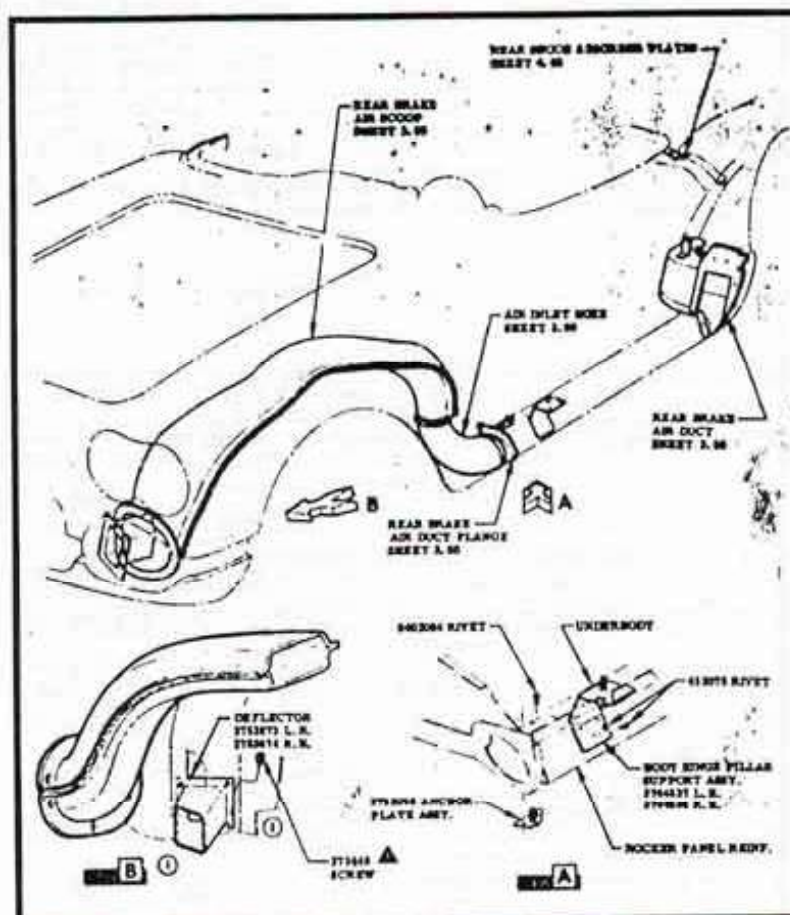
The front backing plates were a design borrowed by Chevrolet engineering from one of its GM sister companies and not specially produced for the 684 package. The vent holes were cut by hand and screens were spot braised on the backing plate to keep rocks and other foreign objects from entering the drum area. The bolt spacers used to attach the heavy-duty backing plates to the steering knuckle were 1/8" longer than the standard spacers. The rear backing plates also have a washer welded around the anchor pin hole to accommodate the RPO-684 anchor pin. This



compensation was probably required because the backing plates were borrowed from another GM division and rework was required in order to properly fit the rear linings.

Scoops were attached to the backing plate to provide directed air flow for cooling. The front scoops were made of rubber so not to interfere with the crossmember in cornering. The rear were formed metal. This rear scoop may have again been changed in 1959 to the narrower design used in RPO-687. The earlier rounder-type may have interfered with the torsion bar that first became available in 1959. When delivered, the scoops were in the trunk of the car and the backing-plate vent openings were covered with metal plates. Chevy suggested these plates be used during street driving to keep water and dirt out of the drum and shoe area.

(continued on next page)



Still more running changes occurred to the 1958 duct work system after its release. First, an Engineering Change Recommendation (ECR #4671) was issued October 10, 1957, requiring the removal of the auxiliary (front) rear spring bumper because it interfered with the rear brake duct. The 1958 Assembly Instruction Manual drawing was revised on December 6, 1957, reflecting this change. Second, the bracket which attached the duct work to the inner fender was changed on November 18, 1957. Initially, the same bracket was used for both sides. After the change, a new bracket (part number 3754266) was used for the right-hand duct. Finally, on February 25, 1958, two deflectors were added behind the grille area which forced a better air flow towards the front wheel brake backing plates.

Chevy Engineering continued to test the 1958 brake system. In July of 1958, an ECR (#3265) was issued eliminating the rear brake duct work system because Proving Ground tests showed "insufficient beneficial air cooling with duct to warrant the extra cost." As a result, the rear duct work was eliminated, leaving only the front backing plate air deflectors in the center grill area. This reduced the price of the option to \$425.05 for 1959 from \$780.10 in 1957-58. Eventually, the air deflectors were eliminated on July 10, 1959, which left the RPO car* as it first appeared in early 1957; with no duct work whatsoever.

Be careful when restoring the duct work system on any car. The assembly instruction manuals do not accurately reflect how the duct work was installed on production cars. We have intentionally not provided these details in this article for two reasons. First, the duct work generally does not need to be restored. Second, providing the details may encourage counterfeiting. Suffice it to say if the installation of the duct work looks homemade and doesn't exactly conform with the instruction manual drawings, it's probably correct.

In July of 1957, Chevrolet made available a heavy-duty brake and suspension kit. The part number was 3751096, and the kit contained nearly every part needed to convert a '56-'57 car with standard brakes and suspension to one with

heavy-duty brakes and suspension. This may explain why some standard cars appear to be heavy-duty brake cars upon initial glance. Some of these parts were also sold separately, and, if desired, parts could be used on a standard car of any model year.

The competition package was just what every "lead-foot" needed to go racing. Chevy warned this option was designed for competitive events or extremely high-speed driving. Not only did it provide a hard ride, but the brakes were completely ineffective when cold - just the opposite of standard brakes. In fact, heavy-duty brakes exhibited some tendency to be erratic even when hot. Before these cars left the factory, a warning card was taped to the right side of the windshield and stated "this car is not intended for street use." Owners were encouraged to use standard linings for everyday street use. For the front brakes, Chevy suggested use of Oldsmobile brake shoes, part number 566060, and Chevrolet brakes shoes, part number 3752920, for the rear.

We hope this article is helpful. These cars may have gone through other factory running changes we're not aware of, so merely use this article as a guide. It is often difficult to determine exactly how these cars were equipped, because they went through so many modifications for racing once they were delivered to their owners.

Finally, John Amgwert, Mike Hunt, and others deserve a big thanks for supplying us with some of the information referenced herein. Without their help and guidance, this article would not be possible. If anyone knows something we don't, or if we've missed something (which would not surprise us), please let us know.

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* For a definition of the term "RPO car", be sure to see the Judging Chairman's Message elsewhere in this issue.