FEDERAL ROLE IN TRAFFIC SAFETY

HEARINGS

BEFORE THE

SUBCOMMITTEE ON EXECUTIVE REORGANIZATION

OF THE

COMMITTEE ON GOVERNMENT OPERATIONS

UNITED STATES SENATE

EIGHTY-NINTH CONGRESS

SECOND SESSION

EQUIPMENT DEFECTS OR FAILURES 1960-66, INCLUDING CORRECTION EFFORTS AND RECALL CAMPAIGNS

DECEMBER 1966

APPENDIX

Printed for the use of the Committee on Government Operations

U.S. GOVERNMENT PRINTING OFFICE

76-624 WASHINGTON : 1967

SENATE COMMITTEE ON GOVERNMENT OPERATIONS*

JOHN L. McCLELLAN, Arkansas, *Chairman*

HENRY M. JACKSON, Washington
SAM J. ERVIN, JR., North Carolina
ERNEST GRUENING, Alaska
EDMUND S. MUSKIE, Maine
ABRAHAM RIBICOFF, Connecticut
FRED R. HARRIS, Oklahoma
ROBERT F. KENNEDY, New York
LEE METCALF, Montana
JOSEPH M. MONTOYA, New Mexico
KARL E. MUNDT, South Dakota
CARL T. CURTIS, Nebraska
JACOB K. JAVITS, New York
MILWARD L. SIMPSON, Wyoming

JAMES R. CALLOWAY, *Chief Clerk and Staff Director*
ARTHUR A. SHARP, *Staff Editor*

SUBCOMMITTEE ON EXECUTIVE REORGANIZATION

ABRAHAM RIBICOFF, Connecticut, *Chairman*

JOHN L. McCLELLAN, Arkansas
ERNEST GRUENING, Alaska
ROBERT F. KENNEDY, New York
FRED R. HARRIS, Oklahoma
JOSEPH M. MONTOYA, New Mexico
JACOB K. JAVITS, New York
MILWARD L. SIMPSON, Wyoming
CARL T. CURTIS, Nebraska

*Membership increased to 15 in the 90th Congress by the appointment of Senators Hansen, Wyoming, and Baker, Tennessee, to the committee. Both Senators were subsequently appointed to the subcommittee by the chairman. Senator Simpson retired at the end of the 89th Congress.

CONTENTS

DOMESTIC CAR MANUFACTURERS

	Page
Telegram of Senator Abraham Ribicoff to General Motors, Ford, Chrysler, and American requesting defect data	1
General Motors Corp	1
Ford Motor Co	35
Chrysler Corp	65
American Motors Corp	70
Statement of Senator Ribicoff on release of domestic automobile defect data	78

FOREIGN CAR MANUFACTURERS

Letter of Senator Ribicoff to foreign car manufacturers requesting defect data	79
Alfa Romeo	79
Aston Martin Lagonda	83
BMC (British Motor Corporation)	87
BMW (Bavarian Motor Works)	89
Datsun	90
Ford	93
Fiat	94
Jaguar	96
Mercedes-Benz	98
Opel-Vauxhall (General Motors Corp.)	108
Peugeot	109
Porsche	111
Renault	113
Rover	122
Rolls-Royce	123
Saab	133
Simca-Rootes (Chrysler Corp.)	134
Standard-Triumph	135
Toyota	138
Volkswagen	144
Volvo	149
Statement of Senator Ribicoff on release of foreign car defect data	152

NOTE

The material in this document concerning domestic manufacturers was submitted to the Subcommittee on Executive Reorganization in response to the request of the chairman, and was released to the public and the press on May 6, 1966. The material on foreign automobiles was prepared by the subcommittee in order that data of domestic and foreign manufacturers would be readily comparable.

Technical service bulletins and related material transmitted to the subcommittee by the foreign car manufacturers and by American Motors Corp. have been forwarded to the U.S. Traffic Safety Agency, where they are available to the public.

FEDERAL ROLE IN TRAFFIC SAFETY

(Pursuant to S. Res. 186, 89th Cong.)

U.S. SENATE,
SUBCOMMITTEE ON EXECUTIVE REORGANIZATION,
COMMITTEE ON GOVERNMENT OPERATIONS,
Washington, D.C.

Telegram by Senator Ribicoff to General Motors, Ford, Chrysler, and American Motors

APRIL 5, 1966.

Would you please furnish me with a complete listing of all bulletins, notices, and other correspondence to your dealers or owners relating to product or equipment defect or failure since 1960.

Have introduced amendments to S. 3005 requiring future submission of such information to appropriate Federal officials. Your cooperation regarding this request would be appreciated.

ABRAHAM RIBICOFF,
U.S. Senator.

GENERAL MOTORS CORP.

GENERAL MOTORS CORP.,
Detroit, May 5, 1966.

HON. ABRAHAM A. RIBICOFF,
U.S. Senate, Washington, D.C.

DEAR SENATOR RIBICOFF: You asked in your telegram of April 5 for a complete listing of all communications to our dealers or owners "relating to product or equipment defect or failure since 1960." We understand that you mean by this a listing of all bulletins regarding the recall for modification of passenger cars.

I am forwarding with this letter a listing of 171 correction efforts or "recall campaigns" which occurred over the 7 model years beginning with 1960. During this period our five domestic car divisions produced an average of 38 separate lines per year. These lines involved 1,031 different models and production totaled more than 23 million cars. I should like to point out that many recall campaigns are related solely to the comfort and convenience of the customer and the efficient operation of the vehicle. Most campaigns involved relatively few cars which in some instances never left the dealers' facilities and were still in their hands at the time of recall.

We regard these campaigns as evidence of General Motors' efforts to assure the integrity of its cars and the comfort and safety of all who use them and to pursue that responsibility both before and after a car is sold. This letter provides an opportunity for us to set forth clearly our long-term policy and determination to insure the satisfactory performance of our products.

At General Motors, our policies and procedures regarding defects which may appear in our automobiles are based on the following:

(1) It has always been and is today our objective to design and build sound, durable, and reliable vehicles. Even though our technology is far better today than it was 10 years ago, we realize it is not possible to assure that every car off the production line is a perfect vehicle. We now manfacture passenger cars which average about 14,000 parts each. Many of these are moving parts such as wheels, brakes, gears, valves, pistons, switches, electrical components, and other critical items.

In addition to the great variety of models and lines already mentioned, the large number of options and accessories available to our customers still further complicates the problem. It is hardly surprising, under these circumstances, that imperfections sometimes crop up—as they do even in a space flight system where the total efforts of thousands of engineers, scientists, and technicians are concentrated on a single unit.

(2) We establish careful quality control and testing programs designed to prevent defects. These programs begin in the laboratory up to 3 or 4 years before production of a given model automobile is ever approved, subjecting parts and assemblies to a great variety of strength and durability tests. In additional tests, parts to be evaluated are incorporated in prototype cars which are then operated under a variety of conditions at our proving grounds and on highways. Immediately after a model goes into production, random vehicles are sent to our proving ground at Milford, Mich., where they are operated night and day over every variety of road in our 36,000-mile durability run. This run covers as much distance in about 5 months as the average car owner does in 3 years over every type of road. Driving conditions in this test are much more severe than the average motorist would encounter.

Nevertheless, defects do occur. Many are such that they only become apparent under very special conditions—as, for example, at one particular temperature and humidity point, or when driven at one particular speed over a certain type of road surface.

(3) Historically we have recognized that we bear a responsibility not only for searching out actual or potential defects in our automobiles, but also for correcting these defects at no cost to the owner under our policy and warranty program. We, therefore, collect continuous information regarding the performance and reliability of our products, not only through laboratory testing, plant inspections, engineering checks and extensive tests at our proving grounds, but also through communications with our field offices, our dealer organizations, our suppliers, and the owners themselves.

(4) Our warranty program guarantees that in the event of any failure for which the company is responsible during the first 2 years

of ownership or 24,000 miles of operation, whichever comes first, the correction is at GM's expense. This warranty has been in effect since 1962, when its coverage was doubled from our 1961 warranty of 1 year or 12,000 miles. Prior to 1961 our written warranty was 90 days or 4,000 miles. (General Motors' warranty covers the entire automobile except the tires, which are warranted by the tire manufacturer.)

(5) Finally, when we detect a product failure which, in the opinion of the responsible engineering, manufacturing, and service groups, requires a recall campaign even though the cars may have been in the hands of their owners for many months, we take steps to insure that appropriate corrections are made just as soon as it is physically possible. The moment a defect is discovered, our engineers set to work to find its cause. Next, they determine the proper remedy, design any parts that may be necessary and change production techniques that may be involved. If new parts are required for the correction, they are sent to the field as soon as they can be fabricated. At the same time, steps are taken to initiate prompt action on the part of the dealers.

These procedures are designed to identify promptly the need for making product corrections, to establish how the corrections should be made, to communicate to the dealer and, if necessary through him to the owner, advising on the need for the change; and to follow up with the dealer to make sure that the change is in fact made.

Where field corrections are necessary, the program is known as a "campaign change." This means that an owner's car will be recalled to a dealership for inspection and/or modification. Product recall campaigns are usually generated by reports from dealers and our field personnel which are evaluated by the engineering change committees of the divisions. Product campaigns are also generated by problems which may be exposed by durability and engineering tests conducted at our laboratories, proving grounds, and elsewhere. In still other cases campaigns are started because it was found that a GM plant or a supplier may have produced, even if only for a short period of time, a certain part not up to our quality standards.

Our procedures on campaign changes have been continuously improved over the years. While in the past these procedures varied slightly from one division to another, in the interest of gaining companywide uniformity a standardized procedure has been adopted by all General Motors divisions. These procedures are as follows:

(1) All information relating to any suspected product defect is carefully reviewed by engineering change committees in our various divisions. These committees are made up of the divisional department heads involved, and thus contain senior technical people. The committees advise the general manager of the division of problems requiring campaign consideration. They submit to him all pertinent information and make recommendations. The general manager in turn decides whether to initiate a campaign and approves the action taken.

(2) Once it has been determined that a product defect has been uncovered and should be corrected, and as soon as correction procedures have been devised and replacement parts made available, the

division notifies all dealers with a special bulletin which describes the problem and explains what remedial action is necessary.

(3) Attached to the dealer bulletin on recall campaigns relating to safety are two suggested letters. The dealer sends the first letter to advise all owners of the condition and asks them to bring their cars in for the correction. He is also provided with a list of the serial numbers of all automobiles affected by the change, so that he can tell which buyers have cars needing the modification.

He is also urged to telephone the owners and make appointments to have the corrective work done. The dealer sends the second letter by certified mail to those owners who have failed to bring their cars in for correction within 30 days after the original notification.

(4) A further step to expedite a safety campaign calls for sending to dealers two punched data-processing cards for each affected vehicle. One of these cards is to be used by dealers to advise their respective divisions that the first contact with the owner has been made, to enable the company to determine which dealers are not promptly processing the program. Appropriate action can then be taken by the field organization. The second card is to be forwarded by the dealer to General Motors after the change has been made, and the company will then pay the dealer for the work.

Publicity recently has been given to some of the campaign changes by various auto manufacturers. The factors which are involved are illustrated by some of the General Motors campaigns:

(*a*) On August 13, 1965, a dealer reported a field failure of 15- by 6-inch wheels on some LeSabre and Wildcat series Buick cars produced at one of the assembly plants. The wheels involved were shipped to Buick for analysis. The problem was investigated immediately and identified in a meeting with the supplier. A bulletin was issued on August 27, 1965. Wheels were made available and shipped to dealers with instructions to replace all wheels on the vehicles involved. Sixty days after the campaign was started, more than 90 percent of the affected cars had been corrected. Total number of cars involved was 11,282. Current records show 11,257 have been corrected to date.

(*b*) While there had been no customer complaints or reports from the field, GM Proving Ground tests disclosed interference between the body floor pan longitudinal reinforcement and the rear brake pipe of the 1966 Chevrolet four-door hardtop sedan. A campaign was started immediately, on April 29, 1966. While it is necessary to check 295,000 cars, on the basis of the number of cars already checked we expect that only one-half of 1 percent or 1,475 cars will require change. Dealers have been furnished serial lists of cars to be inspected, with instructions to rotate the rear brake pipe clip 180 degrees to assure adequate clearance. If contact was found the instructions called for replacement of the brake pipe.

(*c*) On October 29, 1963, our Pontiac Division started a campaign to correct deficiencies affecting 2,052 cars produced at our Doraville, Ga., plant. It had been discovered that some vehicles had been built during a specific period with a wrong ball joint assembly in the upper control arm assembly. Dealers receiving cars from that plant were

asked to inspect all cars possibly involved. Every unit was located and the corrections made.

(*d*) On January 21 of this year, our Oldsmobile Division began a campaign to correct the right rear wheel spindle nut on 608 vehicles. There was a possibility on these vehicles of improper torquing of the right rear spindle nut. The campaign is to date 95 percent completed.

Most campaign changes take a considerable amount of time and effort to complete, and require the responsible cooperation of both owner and dealer. Even with the serial number in hand, the dealer frequently cannot trace the present whereabouts of the vehicle if the owner has moved away or if the ownership of the vehicle has been transferred one or more times. Even when owners are located and are urged by letter and by followup telephone calls to bring in their cars, many simply fail to do so. Despite these difficulties, 21 of our recall campaigns since 1960 have been 100 percent completed; 41 more campaigns have been completed between 95 and 100 percent; 40 campaigns between 85 and 90 percent; and 24 campaigns between 70 and 85 percent. Of the 171 campaigns in the past 7 model years, 105 or 61.4 percent involved 5,000 or fewer cars.

In light of these problems and to effect improvements in the future, we are now developing procedures under which each car division would be responsible for notifying each owner of record, by certified mail, at his last known address in the event of a recall campaign. Campaigns are never officially closed until they are completed; modifications will be made throughout the life of the affected automobiles at no expense to the customer. Also, an owner need not take his car for modification to the dealer from whom he purchased it. If more convenient, he may take it to any other franchised dealer handling the same make of car.

Of significance in this connection are the 30 training centers which General Motors operates across the Nation. These centers, established some 12 years ago, are strategically located at points of greatest dealer and vehicle population. The principal purpose of these centers is to train dealer service personnel in proper maintenance procedures for GM products. Every General Motors dealer in the United States has a particular training center to which he can send his service personnel, generally within easy driving distance. Therefore, problems requiring special training can be handled effectively. We can thus make sure that properly qualified personnel will be available in our dealerships to help carry out campaigns and provide essential service.

We all seek continuing improvement in the automobiles Americans drive and we also seek continuing improvement in the procedures we follow to make this possible. At General Motors we have made many changes over the years in our programs to this end. As we see opportunities for further improvements and innovations we will not hesitate to put them in effect.

I am sure, Senator, that this is consistent with your own concern for progress in traffic safety, and your concern is shared and appreciated by us all.

Sincerely,

J. M. ROCHE.

INFORMATION LETTERS AND BULLETINS

Date: September 29, 1959.
Division: Oldsmobile.
Bulletin No.: 60–W–4.
Subject: Warranty and policy parts to be returned by dealers.
Advises dealers relative to the return of parts by dealers to certain suppliers furnishing components to the Oldsmobile Division.
Date: February 19, 1960.
Division: Oldsmobile.
Bulletin No.: 60–W–10C.
Subject: Delco Electronic service accounts appointments and terminations.
Contains additions or deletions to the directory listing the Delco Electronic service accounts.
Date: September 25, 1963:
Division: Oldsmobile.
Bulletin No.: 64–W–5.
Subject: Warranty adjustment subsequent owners.
Provides dealer instructions to obtain Owner Protection Plan Booklet information for owners who purchase used cars.
Date: October 3, 1963.
Division: Oldsmobile.
Bulletin No.: 64–W–6.
Subject: Modification of 1964 engines for overseas operation.
Advises dealers of proper modifications to vehicles that travel in countries where gasoline fuels are of a low octane rating.
Date: April 21, 1965.
Division: Oldsmobile.
Bulletin No.: 65–W–1.
Subject: Warranty repair claims United Motors Service items form 726 UMS Olds.
Provides dealers with information to properly prepare the form to be used when work is done by a United Motors Service repair station.
Date: October 5, 1960.
Division: Buick.
Bulletin No.: 321.
Subject: 1,000 mile inspection allowance—1961 Buick Special.
Describes the allowance that will be paid to Buick dealers for performing the 1,000 mile inspection.
Date: April 28, 1961.
Division: Buick.
Bulletin No.: 351.
Subject: New tires for Special Series—6.50 x 13.
Describes the advantages of a new tire that is available for Special Series Buick automobile.
Date: January 2, 1963.
Division: Buick.
Letter.
Subject: Parts scrapping procedures.
Describes the proper procedure of preparing warranty parts for examination and scrapping by the Buick representative.
Date: April 12, 1963.
Division: Buick.
Letter.
Subject: Special drive line tools.
Describes a new service kit that can be ordered for all models of the drive line to replace a number of kits which have been used in the past.
Date: June 11, 1965.
Division: Buick.
Bulletin No.: 65101A.
Subject: 1965 gear ratios, speedometer gears and gear adaptors.
Describes for the general information of dealer service people, the various combinations of speedometer gears used on various models with different transmission and tire options.

Date: November 16, 1960.
Division: Pontiac.
Bulletin No.: 60–11.
Subject: Tempest engine tie-down straps.
Advises the dealers that cars are equipped with special shipping straps and to be sure to remove straps before delivering to the customer.
Date: October 9, 1962.
Division: Pontiac.
Bulletin No.: 63–1.
Subject: 1963 Pontiac and Tempest new car pre-delivery and 60 day or 2,000 mile inspection and adjustment check sheets.
Describes the new check sheets and how to use them.
Date: September 1, 1964.
Division: Chevrolet.
Bulletin No.: 63–18.
Subject: Chevrolet certified technician program.
This bulletin pertains to a recognition dinner and awards for dealer technicians who have successfully fulfilled the requirements for certification in 1963.
Date: November 1, 1963.
Division: Chevrolet.
Bulletin No.: 63–878.
Subject: Guardian maintenance film "The Only Difference."
This bulletin was issued to stimulate active dealer participation in the Guardian Maintenance program through the use of a motion picture which was developed to illustrate the importance of Owner Relations in the overall concept of Guardian Maintenance.
Date: July 19, 1962.
Division: Cadillac.
Bulletin No.: 987.
Subject: AFA credit memorandum shows status of all claims processed.
This bulletin covers procedural changes in adjustment claim procedure on credit memorandums to dealers.
Date: February 15, 1963.
Division: Cadillac.
Bulletin No.: 63–3.
Subject: Training on acrylic spot repair and refinishing.
Announces a training program at the General Motors Training Centers for body shop painters on new repair techniques.
Date: March 13, 1963.
Division: Cadillac.
Bulletin No.: 63–6.
Subject: New Cadillac service decals.
Describes new service and parts decals available to dealers.
Date: January 17, 1964.
Division: Cadillac.
Bulletin No.: 18.
Subject: Extended policy on 1963 heater core leaks.
This policy covers a special no-charge repair policy to owners of 1963 Cadillac cars for an additional 12 months or 12,000 miles beyond the standard vehicle warranty.
Date: November 12, 1965.
Division: Cadillac.
Bulletin No.: D–37.
Subject: Cadillac claim form.
Announces the release of a combination claim and repair order form to reduce the quantity of detail involved in warranty claims processed.
Date: September 1, 1964.
Division: Pontiac.
Bulletin No.: 65–1.
Subject: 1965 service information and flat-rate binders.
Advises dealer that the supplier of flat rate binders had started shipping and urges dealers service people to properly file information for quick reference.

Date: January 25, 1965.
Division: Pontiac.
Bulletin No.: 65–18.
Subject: Special paint.
Advises dealers that cars ordered with special paint will have a quart can of paint placed in the rear compartment of the car.
Date: April 21, 1965.
Division: Pontiac.
Bulletin No.: 65–12.
Subject: Pontiac UMS warranty form—form 726UMS.
Describes the procedure for the preparation of forms and the handling of repairs by United Motors Service distributor repair outlets.
Date: September 16, 1965.
Division: Pontiac.
Bulletin No.: 65–21.
Subject: Credit statement notations on return AFA's.
Advises dealers relative to having proper information on their AFA forms to expedite the issuing of credit and to prevent forms becoming lost.
Date: August 10, 1961.
Division: Chevrolet.
Bulletin No.: 61–714.
Subject: Master material return list.
This bulletin lists the effective warranty parts which are to be returned to the M.R. rooms in accordance with the instructions of the policies and procedures of the Service Department.
Date: October 24, 1961.
Division: Chevrolet.
Bulletin No.: 61–884.
Subject: Outside rear view mirror.
Mirrors are to be returned to the M.R. room. Mirrors which have been replaced due to the ball joint not holding adjustment and bearing a stamped "HL" on the underside of the base should be returned to Hall Lamp Company.

CHEVROLET MOTOR DIVISION LISTING OF PRODUCT BULLETINS—PASSENGER CAR RECALL CAMPAIGNS—1960 THROUGH 1966 PASSENGER CAR MODELS TO DATE

1960 MODEL YEAR

(Corvair heater relay installation)

Bulletin date: December 1, 1959.
Series: Corvair—All models.
Addition of a solenoid relay in the fuel solenoid circuit would prevent the possibility of fuel entering the combustion chamber in the event of any interruption in the electrical circuit to the combustion blower. This change involved 46,869 cars and dealers were requested to install a heater relay on all heater-equipped Corvairs built prior to a specified serial number. While accurate data is not available at this late date, it is believed that most cars were inspected and corrected.

1961 MODEL YEAR

(Rear wheel suspension outer front mounting support—Corvair)

Bulletin date: October 11, 1960.
Series: Corvair—All models.
The 1961 Corvair rear suspension crossmember front mounting supports were attached to the engine compartment side rails by three spot welds and two gas welds on each side of sufficient strength to hold the assembly under ordinary operation. Assembly plant checks indicated that a few early cars could have inadequate spot welds which could cause noise at the joint. This change could have involved 4,691 cars and dealers who received these cars were requested to call them in to inspect welds and correct if necessary. Many dealers did not report when only an inspection was necessary, but according to our records welds were corrected on 2,637 cars.

(Thermo-modulated fan—348 cubic inch engine)

Bulletin date: November 16, 1960.
Series: Chevrolet
A five-blade fan with a thermo-modulated clutch was specified for use with the 348 cu. in. engine for quiet operation and improved cooling at low speeds. Due to production difficulties, this assembly was not available until mid October, 1960. Engines built prior to this date had a substitute fan installed. When the specified fans became available, dealers were provided serial lists of units involved and requested to replace the substitute fan on approximately 12,000 cars. *Completion data on this 1960 replacement program is no longer available.*

(Reworking transmission-to-axle housing gasket 3-speed Corvair models)

Bulletin date: February 21, 1961.
Series: Corvair—All models.
An interim change in the axle housing resulted in the oil return holes in the transmission-to-axle housing gasket being mispositioned. Dealers who received the 1,800 Corvairs involved were requested to rework the gasket to prevent low mileage axle failures due to lack of lubrication. No completion records are available on this campaign but it is is estimated that 95 to 100% of the cars involved were corrected.

(Intermediate steering shaft and lower coupling assembly inspection)

Bulletin date: April 21, 1961.
Series: Chevrolet—All models.
The steering intermediate shaft and lower coupling installed in about 10% of vehicles produced up to 3-10-61 or 12,190 cars may not have provided sufficient clamping effort to properly retain the coupling to the steering gear worm-shaft. This program required the inspection of the 121,900 cars and dealers who received them were requested to call them in to make a visual inspection and replace any incorrect assemblies discovered. From our dealer reports of the cars they inspected, 2,776 units needed replacement.

1962 MODEL YEAR

(None)

1963 MODEL YEAR

(Front brake shoe anchor pin)

Bulletin date: October 12, 1962.
Series: Chevy II—All models.
Based on a spot inspection of 148 cars produced before September 11, 1962, eleven anchor pins were found to be excessively torqued which could have resulted in eventual anchor pin failure during a panic stop. Dealers were advised of the serial numbers of 1,363 vehicles which were called in for replacement and proper torquing of front brake shoe anchor pin assembly. Our records indicate that 1,273 cars were corrected.

(Super Sport console bracket attaching screw to brake line interference)

Bulletin date: January 9, 1963.
Series: Chevrolet—Super Sport model.
A possible interference condition existed between the console bracket right rear attaching screw and the right rear brake line. Dealers were furnished serial numbers of the 18,485 vehicles involved and were requested to correct interference by breaking off the end of the screw projecting through the floor pan. The brake line was also inspected for interference and replaced if damage had occurred. According to our records, 17,456 cars were inspected and corrected if necessary.

(Contaminated brake fluid—Kansas City units)

Bulletin date: February 14, 1963.
Chevrolet and Chevy II—All models.
Units involved were suspected of having brake fluid contaminated with engine oil which would have a detrimental effect on wheel and master cylinder

rubber cups. Dealers were provided serial numbers of the 288 units involved and they were called in for necessary corrections. Correction included instructions on proper flushing and cleaning of the complete brake system and replacement of wheel and master cylinder rubber cups and valve and seat. According to our records, all cars were corrected.

(Fuel injection modification)

Bulletin date: April 11, 1963.
Series. Corvette fuel injection models.
Two early field reports were received of engine stalling when declutching with closed throttle above 40 miles per hour. Dealers were provided serial numbers of the 1,547 units involved and requested to call them in for installation of fuel injection modification kits. According to our records, 1,224 cars were corrected.

(RPO Z06 brake option)

Bulletin date: April 11, 1963.
Series: Corvette—All models.
Early units with a special preformance brake option were subject to erratic operation under some high speed driving conditions. Dealers were requested to call in the 104 units involved, and modify the brake assembly by installing new front brake flange plates, brake shoes and drums. According to our records, 97 cars were corrected.

1964 MODEL YEAR

(Chevy II and Chevelle axle shaft revision)

Bulletin Date: October 11, 1963.
Series: Chevy II and Chevelle—All models.
Rear axle shafts on some early production units were noted with a seam or lap joint in the bearing area due to improper heat treat. This condition could have involved 2,385 units. Dealers who had received these cars were requested to call them in for replacement of axle shafts. According to our records, 2,228 cars were corrected.

(Chevelle 6-cylinder accelerator linkage)

Bulletin date: October 25, 1963.
Series: Chevelle—All models.
Dealers requested to inspect accelerator pedal rod end for proper angle. Incorrect angle would permit additional pedal travel beyond carburetor wide open throttle position, resulting in possible linkage deflection. The change involved 75 cars and dealers who had received them were furnished with serial numbers and requested to replace incorrect linkage. According to our records, 73 cars were corrected.

(V–8 engine water temperature sending unit)

Bulletin date: October 25, 1963.
Series: Chevelle—All models.
Some standard and Super Sport water temperature cylinder block sending units could possibly have been mixed which would result in improper temperature readings. Involved were 306 cars and dealers who received them were advised to call them in for visual inspection and replace any incorrect units. Some dealers did not report where only a visual inspection was involved. According to our records, 282 cars were corrected.

(Chevelle steering shaft "U" joint)

Bulletin date: October 25, 1963.
Series: Chevelle—All models.
It was determined that about 6% of early production Chevelle steering shaft couplings may have been improperly positioned which could result in distortion of the fabric joint. Dealers inspected the 1,204 cars involved for this condition and corrected those cases where coupling was mispositioned. Fabric joints were to be replaced if damaged. According to our records, 1,158 cars were inspected and correction made if necessary.

(Chevelle tie rod clamps)

Bulletin date: October 25, 1963.
Series: Chevelle—All models.
Tie rod clamp interference with stabilizer was reported on 9 cars. This condition was possible during a period involving 956 cars. Dealers were advised to call in these cars and reposition tie rod clamp bolts if necessary to eliminate interference. According to our records 927 cars were inspected and corrections made as necessary.

(Chevelle mast jacket sleeve seal)

Bulletin date: October 25, 1963.
Series: Chevelle—All models.
Some cases were reported of cold air leaks or wind noise at the steering mast jacket. A listing of the 1,162 cars involved was furnished to dealers along with instructions to correct those cars with this condition by applying sealer. According to our records, 1,140 cars were corrected.

(Chevelle brake pipe interference)

Bulletin date: October 25, 1963.
Series: Chevelle—All models.
Possible brake line interference was reported on a few cars between the Powerglide shift rod and main tee to rear brake line. The 2,268 units involved were called in, inspected for proper clearance and corrected when necessary. According to our records, 2,170 cars were corrected.

(Contaminated rear axle lubricant—Flint assembly plant—Vehicles without positraction axle)

Bulletin date: November 7, 1963.
Series: Chevrolet—All models.
One-half of the vehicles produced during one week's production at the Flint Plant had the rear axle assembly filled with contaminated lubricant which would cause objectionable gear noise and pinion bearing failure at low mileage. Dealers were notified of the 3,768 cars involved and instructed to drain and flush the rear axle and refill with proper lubricant. According to our records, 1,738 cars were corrected.

(Chevelle front and rear suspension revisions)

Bulletin date: December 16, 1963.
Series: Chevelle—All models.
During early production, 1964 Chevelle rear control arm retaining nuts were changed from nuts with lockwashers to new design lock nuts. On these same early units, there was also the possibility that some units had incorrect front upper control arms installed. The change involved 7,025 cars and the dealers who received them were requested to install and properly torque the new design rear control arm retaining nuts. Cars were also inspected for correct front upper control arms which were replaced if necessary. According to our records, 6,921 cars were corrected.

(Wiring harness sealing and routing)

Bulletin date: February 25, 1964.
Series: Chevelle—All models.
Some cases of water entry through the wiring harness connectors and accessory wire grommet into the junction block and chassis connectors were reported from the field. Condition particularly noted on station wagons. Dealers were provided with serial numbers of the 20,500 cars to be called in and sealing instructions to prevent connector corrosion and possible shorted wiring harness. According to our records, 16,786 cars were corrected.

(Convertible top hoses)

Bulletin date: April 14, 1964.
Series: Chevrolet convertible.
Factory inspection revealed that a few cars were built which may have improperly positioned folding top upper hoses that could break when the top was

lowered. Dealers were furnished with serial numbers of the 205 cars involved and requested to reposition these hoses if required. According to our records, all cars were corrected.

(Front brake hoses—Wilmington production)

Bulletin date: May 28, 1964.
Series: Chevrolet—All models.
Field reports indicated a possible condition of front brake hoses being twisted on vehicles built during a limited production period so that contact to front brake drum on full turn might occur. Dealers were notified to call in the 19,664 units involved, inspect for condition and correct if necessary. According to our records, 19,195 cars were corrected.

(Interference of Powerglide transmission control rod swivel with brake line and/or clip)

Bulletin date: June 29, 1964.
Series: Chevelle—Except El Camino and Super Sport.
The Baltimore Plant reported the improper installation of the automatic transmission control rod swivel which could cause it to rub the rear wheel brake pipe on some vehicles. Dealers were notified to call in the 422 units affected for inspection of swivel installation and correct for inadequate clearance when necessary. According to our records, 407 cars were corrected.

(Splitting of front upper control arm retaining nut)

Bulletin date: July 28, 1964.
Series: Chevelle—All models.
It was determined by Quality Control that about 20% of the front upper control arm retaining nuts, received from suppliers, were of substandard quality and might split. Dealers were notified to call in 14,041 possibly affected cars for replacement of poor quality nuts. According to our records, 10,963 cars were corrected.

(Defective part—Lower control arm strut rod)

Bulletin date: September 1, 1964.
Series: Chevy II—All models.
Quality Control at Willow Run Asembly Plant reported that some units may have been assembled with lower control arm strut rods that were cracked at one end. Dealers were notified that 153 affected units were to be called in, and according to our records, all but two were corrected.

1965 MODEL YEAR

(Corvair relay rod-to-pitman arm attachment)

Bulletin date: September 17, 1964.
Series: Corvair—All models.
A plant audit indicated that on some early 1965 Corvairs produced at Willow Run, the castellated nut at relay-to-pitman arm attachment may have been overtorqued and stripped. Serial lists of the 375 cars involved were provided to dealers who were requested to remove the nut, inspect the threads, replace as necessary and torque to 30 ft. lbs. According to our records, 367 cars were corrected.

(Brake modification)

Bulletin date: September 18, 1964.
Series: Corvette—All models.
On 521 early 1965 Corvettes, possible manufacturing deficiencies in the front and rear brake calipers necessitated their replacement. Replacement front and rear calipers were shipped to dealers involved prior to announcement day, for installation before delivery of the cars to customers. The replacement was made on 519 cars, according to our records.

(Steering coupling—tilt wheel option)

Bulletin date: October 13, 1964.
Series: Chevrolet—All models.
Early 1965 Chevrolets with tilt-wheel option were assembled with the steering shaft coupling improperly positioned and/or with inadequate torque on the retaining bolts. Serial lists of the 853 cars involved were provided to dealers, along with instructions for checking assemblies and correcting as necessary. According to our records, 804 of these cars were corrected.

(Brake pedal clevis pin retaining clip loose or missing)

Bulletin date: October 26, 1964.
Series: Chevrolet—All models.
During a Quality Control audit at the St. Louis Plan about 10% of the cars were noted with incorrectly installed or missing brake pedal clevis pins. Serial lists of the 3,510 cars involved were provided to dealers so that they could promptly check all units produced during that period, and correct as necessary. According to our records, 3,397 cars were corrected.

(Front brake crossover pipe—W/409-inch engine)

Bulletin date: October 28, 1964.
Series: Chevrolet—All models.
On production Chevrolets, with 409 engine, there was the possibility that the front crossover brake pipe was routed too close to the exhaust manifold. Serial lists were provided to dealers of the 64 affected units which were to be checked and corrected as necessary. According to our records, 62 cars were corrected.

(Steering arm inspection, 1965—Buffalo Manufacturing)

Bulletin date: October 30, 1964.
Series: Chevrolet—All models.
The Wilmington Assembly Plant reported three cases of cracked steering arms on early production cars. The crack was evident by visual inspection. Dealers were advised of the serial numbers of the 35,314 cars that could have been involved, and requested to visually inspect and replace any cracked arms. While the records show 1,317 cars corrected, it is believed that almost all cars were inspected because of the minor nature of the inspection procedure.

(Heater hose strap rework (right and left sides))

Bulletin date: November 9, 1964.
Series: Corvair—All models.
On early production 1965 model cars a plastic strap was used to retain the heater hoses. Breakage of this strap could allow the heater hoses to rub against the solenoid terminal and wear through the hose. Dealers were informed of serial numbers of the 15,002 cars affected and asked to call cars in and install a metal retaining strap. 402 corrections were reported by dealers. However, it is estimated that a high percentage of dealers did not report on corrections because of the simple hose repositioning procedure.

(Cylinder head nut torque)

Bulletin date: November 19, 1964.
Series: Corvair—All models.
Field reports advised of loss of troque on rocker arm studs and cylinder head stud nuts on early Corvair engines. This could have resulted in eventual gasket failures if corrective action, which included a special torquing procedure, was not taken. Dealers were asked to retorque the studs on 23,583 cars that could have been involved as these cars came in for service. Dealers reported 5,045 corrections. It is estimated that many more were corrected as a result of related replacements of cylinder head gaskets.

(Possible grounding of the battery positive cable)

Bulletin date: November 20, 1964.
Series: Corvair—All models.
On cars built prior to October 28, the battery positive cable was located so that grounding to the front engine shield was possible. Dealers were provided with serial number breakpoints and advised to modify the 18,596 cars that might be affected. Correction involved revisions in routing and relocation of the battery harness in the engine shield grommet. This was a minor correction which was not reported by most dealers. Our records show 920 cases corrected.

(Incorrect battery cable—Fremont production)

Bulletin date: November 20, 1964.
Series: Chevelle—All models.
On 323 early 1965 Chevelle V-8's built at the Fremont Plant, positive battery cables of insufficient length were installed. This resulted in interference between the cable and fuel pump and the possibility of insulation rub-through and an eventual direct short. Serial lists were provided to the dealers who were requested to call in possibly affected cars and replace the cable. According to our records, 293 cars were corrected.

(Rear upper control arm—Framingham production)

Bulletin date: December 11, 1964.
Series: Chevrolet—All models.
The Framingham Plant built 166 Chevrolets with the 327 or 409 engines, without the additional rear axle left upper control arm which is used on these models. Serial lists were furnished to dealers who were requested to install the additional control arm, and according to our records, 165 cars were corrected.

(Disc brake guide pin)

Bulletin date: February 1, 1965.
Series: Corvette—All models.
On a few 1965 Corvettes there was the possibility of loss of brake action due to lack of proper retention of the retainer clip at the outboard end of the brake shoe retaining pin. A new brake retainer pin entered production early in the model year. Serial lists of 4,198 possibly involved cars were provided to dealers. It was requested that all Corvettes produced prior to the production change be modified to include the new pin. The modification was made on 4,137 cars, according to our records.

(Oil level gage—Van Nuys production)

Bulletin date: March 16, 1965.
Series: Corvair—All models.
The Van Nuys Assembly Plant produced 486 Corvairs with incorrect engine oil dip sticks which indicated from one to two quarts low. Dealers were furnished with a listing of cars involved and instructions showing dimensions for the correct and incorrect dip stick. The correct dip sticks were then installed in 451 of the cars, according to our records.

(Front suspension upper control arm nuts—Baltimore production)

Bulletin date: April 7, 1965.
Series: Chevelle—All models.
The Baltimore Assembly Plant built 172 Chevelles with incorrect front upper control arm attaching nuts which would not retain proper torque. Dealers were furnished serial numbers and requested to call in cars involved and install proper design nuts. On the possibly affected cars, the correction was made on 145, according to our records.

(Front upper control arm bolt—Fremont production)

Bulletin date: April 7, 1965.
Series: Chevelle—All models.
The Fremont Plant built 351 units with front upper control arm attaching bolts which possibly had insufficient strength. The suspected bolts were identi-