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If you're new to the Corvette hobby or to the various online Corvette forums, you've probably heard or seen the term "A.I.M." tossed around in discussions about what parts are required or how things are supposed to be assembled.

Although it may seem like just another one of many mysterious acronyms, it's not; it's one of the most important technical references you can have in your classic Corvette technical library.

WHAT IS THE A.I.M.? "A.I.M." is the abbreviation for "Assembly Instruction Manual," which was the document supplied to the assembly plant by Chevrolet Engineering as an assembly aid. It contains graphic illustrations of how all the parts are to be assembled, all the fasteners and torques, part numbers, special or mandatory assembly sequences, adhesives, sealers, lubricants, and functional test requirements and processes.

The Assembly Manual was compiled, published, and distributed by the Chevrolet Engineering Graphics Department. An "initial issue" complete manual was produced for the beginning of each new model year, several copies of which were supplied to each assembly plant.

The A. I.M. is a terrific source of graphics and specific Engineering information, but we need to understand that it was a living document, frequently revised, and that no particular reprinted AI.M. represents any car built at a given point in time. Individual sheets were revised regularly when new parts replaced existing parts, when parts were cancelled or removed, when a system was redesigned as a running change, or when illustrations revised or updated.

Having spent most of my working career in assembly plants, beginning as a production foreman and working my way through the ranks as a general foreman, superintendent, production manager, and plant manager in numerous Chevrolet (and later, GM Assembly Division, and even later, Chrysler) assembly plants, I know the Assembly Manual system pretty well, and reviewing it would be helpful to those not familiar with how to take advantage of this excellent reference source.

This month’s article will explain how the A.I. M. is organized into logical part groupings, how to recognize changes and dates, and how the A.I.M. was used day to day in the plant. We’ll cover the process that was used for implementing running changes during the production year and how the Assembly Manual was involved in that system.

HOW IS THE MANUAL ORGANIZED? To those who have never worked with the Assembly Manual, it may seem confusing, which explains the occasional comments I see online like "I can'(find anything in that Assembly Manual." GM had an elegantly simple system for organizing the manual so it aligned with the Engineering releasing procedure, which grouped like parts together. Without getting into the gory details, the Assembly Manual is separated into two major sections - the "base car" parts section, and the "option parts" section.

THE "BASE CAR" SECTION: The first half of the manual contains only those parts required to build a "base car" (a car ordered with no extra-cost options - only the standard equipment). These parts are broken down into systems called "UPC Groups." UPC is short for "Uniform Parts Classification," which is the system GM used to classify parts, as follows:

UPC 0: General Information, Vehicle Shipping List, and lubricants, sealers, and adhesives.
UPC 1 Bolt & Weld: Birdcage Welding and Body Construction
UPC 1 Asm: Body Trim & Hardware UPC 2 Frame
UPC 3 Front Suspension
UPC 4 Rear Suspension and Driveshaft UPC 5 Brakes
UPC 6 Engine
UPC 7 Clutch and Transmission UPC 8 Fuel & Exhaust
UPC 9 Steering
UPC 10lires & Wheels
UPC 11/13 Radiator, Grille and Front End UPC 12 Electrical

UPC 14 Bumpers & Miscellaneous

The UPC Group number is shown in the center of the title block at the bottom of each sheet, with that group's sheet number directly below it. When referring to a given sheet while talking or posting to someone else who also has an Assembly
Manual, use the UPC number and Sheet number (i.e., UPC 6, Sheet A3), not the page number printed at the top or bottom of the sheet. The various suppliers who have photocopied various generations of Assembly Manuals have each "numbered" their versions, and the page numbers from one supplier's manual won't be the same as that page in another supplier's manual. The UPC Group number and sheet number, however, will almost always match.

THE "OPTIONS" SECTION: The second half of the Assembly Manual contains all the parts for the extra-cost options, and is organized by the RPO (Regular Production Option) sales code assigned to each option. The RPO codes are a letter and two numbers, like C60 air conditioning, M20 4-speed transmission, etc.

GM also broke option codes down into like categories as well, by letter, as follows:
A: Body Interior B: Body Exterior
C: Heating, Ventilation,
and Air Conditioning 0: Exterior Ornamentation F: Suspension
G: Rear Axle
J: Brakes
K: Ignition
l: Engines
M: Transmissions N: Steering
P: Wheels & Tires T: Electrical
U: Electrical
V: Electrical
Y: Seat Belts
z: Special Equipment Packages

The options section of the manual is arranged alphabetically by RPO codes; A31 Power Windows is at the front, U69 Radio at the rear, etc. The alpha-numeric option codes didn't start until 1963; prior to that, the option codes were three-digit numbers, and the options section in those manuals is arranged numerically ..

HOW DO I FIND SOMETHING? Some UPC and Option sections have many pages; instead of paging through all the sheets in one section to find a part or assembly, use the "Index Sheet" at the beginning of each section. This sheet has an illustration and a listing of which parts are on which sheet in that section (Sheet A2, Sheet B6, etc.).

WHY AREN'T All THE INDIVIDUAL PARTS SHOWN? Only the parts that were received ready to install at St. Louis are shown in the Assembly Manual. Individual parts of assemblies (like wheel bearings and races that were part of front knuckle and rear trailing arm assemblies, etc.) aren't shown, as the assembly plant didn't deal with them. The best sources of information for items that were part of a complete assembly are the Chassis Service Manual, the Chassis Overhaul Manual, and the P &A30 Corvette Parts Book, which show the detail breakdown and cutaway drawings of such assemblies.

WHY AREN'T ALL THE OPTION PART NUMBERS SHOWN? In many cases, the sheets for option parts won't show all the specific optional part numbers, especially if they actually install the same as the similar "base car" part, using the same fasteners. These are called out with the words "assembles same as production," or with a half-filled circle symbol on the index sheet at the beginning of the section in the case where assembly is the same, but there is a long list of part numbers distinguished only by colors or other characteristics that don't affect the assembly process.

Occasionally you'll find the half-filled circle symbol with a note that says "Assembles same as production, see Bill of Material for part numbers." The "Bill of Material" is the master Engineering parts list, with every part number required to build any and all combinations of cars and options, and has never been available outside of GM.

Similarly, you'll find some parts identified on the sheet not with a part number, but with a "chart number" instead. This is particularly true of interior trim parts that are physically identical, but differ only in color or minor configurations. The "chart" was released by Engineering, and listed the individual part numbers for different configurations of the same part, depending on the trim combination number or other options. For instance, there were 32 different part numbers of consoles (eight for 4-speeds with manual windows, eight for 4-speeds with power windows, eight for Powerglides with manual windows, and eight for Powerglides with power windows). Rather than list all 32 console part numbers on the A.I.M. sheet, it just refers to the chart part number. The chart information was used on the line to select the correct part depending on that car's trim color and options.

WHAT'S ALL THAT STUFF AT THE BOTTOM OF THE SHEET? The top of the sheet is pretty straightforward - each part number is shown with an item number reference to the illustration, and if it's a fastener, the little triangle next to the part number refers to the torque spec at the extreme lower left of the illustration.

The lower portion of the sheet is the "title block," which shows the history of the sheet, the references from which it was created, and the sheet's revision history. The left side of the title block shows the title, the model number (19000 series for Corvette), the date the sheet was completed, the date it was released for publication, the initials of the illustrator and the checker, and references to other sheets in the same group or to Engineering layouts from which the information was taken to create the sheet. The center of the title block shows the UPC Group and the sheet number within that group. The right side of the title block is the revision record for the sheet, showing the date, illustration symbol reference, what was revised, the ECR (Engineering Change Request) number that authorized the change, and the illustrator and checker who revised the sheet.

The revision record tells the history of that sheet since its initial release (the date in the far lower left of the title block). Each change is numbered sequentially, and when the revision block is filled, the next change starts again at the top, with the previous revision notes eliminated. Occasionally you'll see "Redrawn and Redesigned," which wipes out all previous sheet history and starts the revision record allover again at that point. The date of a revision almost
i never indicates the date the change actually took place on the line; it just shows when the sheet was revised, which could have been well ahead of or well after the part change occurred in production at the assembly plant. We'll talk more about how running changes were actually implemented on the line and the process that supported them in a later article.

WHO USED THE MANUAL IN THE PLANT? The master copy of the Assembly Manual was kept in the Reliability Supervisor's office, and was maintained by his specifications engineers, who worked directly with plant floor production supervision and inspectors on quality and specifications issues. Each production foreman had an A.I.M. binder at his desk with only the A.I.M. sheets that affected the operations performed in his area, and it was kept up to date by the specifications engineer assigned to his area. Other complete copies were used by the Material and Industrial Engineering departments for part tracking and changes in on-line assembly operations.

When a sheet was revised, the specs engineer inserted the new sheet in the production foreman's binder, and threw away the previous sheet; all Production cared about was how to build the car today, not how it was supposed to be built last month. The master copy in the Reliability Office was the only one that was complete, with all sections, and was kept up to date as revisions occurred.

As Corvette hobbyists, we're extremely fortunate to have the Assembly Instruction Manual documentation, even though they were, at the time, "living documents," and the copies we have don't necessarily represent any particular Corvette as built at a specific point during a model year. At least we have them as formal documents for every model year from 1956-up; our fellow Ford and Mopar enthusiasts have literally *zero* factory documentation to work with, and they'd *love* to have anything like our Assembly Manuals .