

discovered that yield insights into Corvette production and assembly.

What's a Build Sheet?

This article references four terms used to describe the type of production documents commonly discovered today and includes tank sticker, build sheet, broadcast copy and manifest. Hobbyists probably adopted the terms *tank sticker* and *build sheet* because they literally describe the document type. The tank sticker got its name because it is found on the gas tank. Initially, it was the Corvette order copy and later (post-1973) it became the manifest. While it's not known when GM introduced the term *manifest* in automotive assembly, that term is used interchangeable with *broadcast sheet*. Build sheets probably came into being to describe tank stickers not found on the gas tank and other production documents discovered as restorers began to take Corvettes apart for repair, restoration, and maintenance.

For the purpose of this article, *tank sticker* refers to a Corvette order copy or manifest glued to the gas tank, a practice known to have occurred from 1967-82. *Broadcast copy* refers to production documents (either the body broadcast copy or chassis broadcast copy) found on or associated with Corvettes assembled prior to 1973. Not many of these are around. A manifest is a one-page multi-part document with printed broadcast codes for body and chassis used in both St Louis and in

Bowling Green. *Build sheet* is used generically to reference any copy of the manifest found on a Corvette whether its glued to the tank or discovered under the carpet. It's also used to reference early production documents, the broadcast copy for either body or chassis. These are all assembly plant documents in contrast to the Corvette order copy, which is a sales document. Ironically, the National Corvette Museum markets a service providing "build sheets" for Bowling Green-built Corvettes, but plant engineers use the term *manifest*.

Late Model Build Sheets

The extensive study of mid-year production documents, the exception control letter system, trim tags, and vehicle identification number tags (VIN) used to document the 1963-67 model years carries forward to the early years of C3 production 1968-72. However beginning in 1973, we see evidence of subtle but significant changes that took place in process engineering and automotive production at the St Louis Corvette assembly plant, which persisted through the balance of C3 production. For example, if we consider solely production documents, sometime during or after 1973 we find the following changes from previous Corvette production:

- use of Protect-O-Plate warranty plate ended
- single one-sheet landscape-format manifest introduced
- use of ECLs ended with transition to broadcast codes



Figure 2 – Engine dress assembly line 1981. Note build sheet hung on chain above engine. Photo Courtesy of Michael Hanson

Prior to 1973, two broadcast sheets (build sheets) were used on the assembly line—one for body and the other for chassis. With the 1973 production year, the broadcast copies were combined into a single document (a manifest) and replaced the Corvette order copy on the gas tank. The layout was landscape (11 x 8) and information was read from left to right. (Figure 1) In contrast, the broadcast copy was a portrait layout (8 x 11). Once the VIN was assigned during body build, the multi-part manifest (at least seven copies) was separated and the various copies distributed to the assembly lines such as

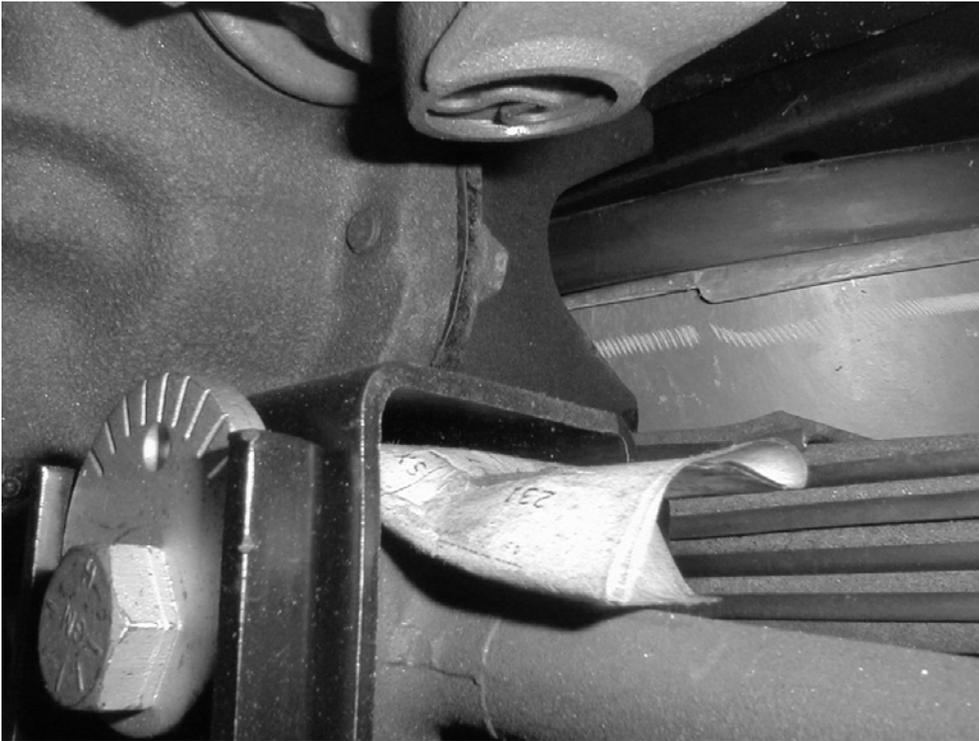


Figure 3 – 1978 Silver Anniversary build sheet tucked on top of strut bracket

trim, chassis, engine dress (Figure 2) and final inspection. It is these copies owners continue to discover as they perform repairs or inspect a vehicle removed from mothballs.

Where Are Build Sheets Found?

Today, owners still discover build sheets stuffed away from the late '70s. And it's amazing the places these build sheets are discovered. For example, in 2004 at the Charlotte Regional, an owner with both a '78 Pace Car and Silver Anniversary (low-mileage) was looking underneath one vehicle and discovered a build sheet folded and tucked on the topside of the strut support bracket (Figure 3, next page). Owners have learned that other places to search for these rare production documents include under carpeting, between speedometer and tach, and even inside seats! The quality of these finds is superb! Of course the traditional location remains the gas tank, but visitors to Corvette online forums often ask where else they could find the DNA of their classic Corvettes.

Understanding Corvette DNA

Build sheets are unique Corvette production documents because they contain broadcast codes for those regular production options (RPO)

the original buyer specified when the Corvette was ordered. Today as we study well-preserved late model C3s, in particular 1978 Pace Cars, we see labels with their broadcast codes (and part numbers) that match-up precisely with the codes broadcast on the vehicle's build sheet. These codes include ink stamps as well as those codes stamped with a die set.

The manifest is a preprinted multi-part production document with a series of boxes, printed production data, a list of RPOs, and delivery information such as dealer name, dealer code, zone, car line (Chevrolet), assembly plant, and destination charges. Pro-

duction data include the part broadcast code and an abbreviated description printed in a box.

Boxes organize production data on the manifest. Not all boxes are used and some were reassigned between 1973 and 1982, but most conveyed the same information throughout this period. For example, Box 39 is reserved for carburetors, described as *CARB* on the manifest, and reveals a broadcast code such as *BJM*, which was called out for an L82 M38-equipped '78 Corvette. Or consider Box 31 reserved for the alternator. Its description reads *ALTER & PULLEY*. In Figure 1, we see broadcast code *WP*, which called out the 63-amp alternator with ink stamp *WP* for air-condition-equipped models. Likewise, Box #91 *EMISSION* calls out a printed emission label with code *DW* for a smog pump-equipped L82. The manifest also lists the engine suffix, transmission, and axle codes that reconcile with part codes if they've remained the same since assembly.

In addition to the broadcast codes, the build sheet lists the RPOs ordered by the customer such as RPO L82, RPO C60 (A/C), RPO B2Z (25th Anniversary Paint), etc. The manifest instructs factory workers how to build a base Corvette. When options were ordered, the RPO calls out the

part for a particular option by replacing the broadcast code for a base part with the broadcast code of an optioned part.

For example, consider radiators for the 1978 model year and four different applications, using only two-part numbers used in 1978. On the passenger side along the tank, a metal tag reveals the two-letter broadcast code for the radiator installed which matches the cooling requirements for that particular vehicle. Base L48s, regardless of transmission or A/C, were equipped with the base radiator GM #3035558 called out with the MK code. However, if you ordered RPO ZN1 trailer package, the L48 was equipped with GM #3035856 RPO V0, a heavy-duty radiator. The same radiator was called out when L82 was ordered with either A/C or ZN1. But order an L82 without either of these two options, and it was

equipped with the base radiator. The coolant lines remained plugged for the dual-purpose radiator when four-speed was specified. (See Figure 1, Box 56) Complicated...but the manifest confirms the original cooling configuration. Regardless of a Corvette's journey, the manifest documents original configuration.

Related C3 Documentation Differences

Ironically as data processing took a more prominent role in production, VIN assignment still took place on the factory floor identified by the contrast in font style that appears on the build sheet. On those build sheets studied, the VIN is typed, along with key codes, using a manual typewriter. A small station was setup at the end of the paint booth where VIN was assigned, riveted to the driver's side windshield post, and key codes assigned. Box 9 (top right corner) illustrates the

ENGINE NO. 12345678		TRANSMISSION NO. 98765432		BODY NUMBER 19572		VIN 1Z87485	
FRONT CONTROL ARMS 99		REAR CONTROL ARMS AHY AHY NFI		WHEELS 81 8		TIRE 296 96	
SPEEDOMETER CMS-- 5WB-22GRAT		PUMP 65		PUMP & PULLEY WP		CRANK & PULLEY BX AK	
BATTERY 402		FUEL INJ. SYSTEM 93 65		AIR FILTER 946004959		VALVE COVER CO	
WHEELS 20		TIRE OYSGRY		VIN 66967045		BODY # FB	
COLOR 1Z87		PAINT 18		HA HL US		LIC PLATE MNT	
FUEL ECON AAA-YAA		BPR/CD JKBA		GVWR 4158		CAWR F 1878 R 2280	
CITY CHEVROLET COMPANY P.O. BOX 18705 CHARLOTTE 16-140		T4C971		ST. LOUIS PLANT		ST. LOUIS, MISSOURI	
CITY CHEVROLET COMPANY 5101 S. INDEPENDENCE BLVD. MEMPHIS		16 140		CAR LINE CHEVROLET		STATEMENT OF ACCEPTANCE BY CARRIER	
110 SHIPPED TO		111 DATE SHIPPED		112 BOUNDING		113 CAR & LOAD NUMBER	
114		115		116		117	
118		119		120		121	
122		123		124		125	
126		127		128		129	
130		131		132		133	
134		135		136		137	
138		139		140		141	
142		143		144		145	
146		147		148		149	
150		151		152		153	
154		155		156		157	
158		159		160		161	
162		163		164		165	
166		167		168		169	
170		171		172		173	
174		175		176		177	
178		179		180		181	
182		183		184		185	
186		187		188		189	
190		191		192		193	
194		195		196		197	
198		199		200		201	
202		203		204		205	
206		207		208		209	
210		211		212		213	
214		215		216		217	
218		219		220		221	
222		223		224		225	
226		227		228		229	
230		231		232		233	
234		235		236		237	
238		239		240		241	
242		243		244		245	
246		247		248		249	
250		251		252		253	
254		255		256		257	
258		259		260		261	
262		263		264		265	
266		267		268		269	
270		271		272		273	
274		275		276		277	
278		279		280		281	
282		283		284		285	
286		287		288		289	
290		291		292		293	
294		295		296		297	
298		299		300		301	
302		303		304		305	
306		307		308		309	
310		311		312		313	
314		315		316		317	
318		319		320		321	
322		323		324		325	
326		327		328		329	
330		331		332		333	
334		335		336		337	
338		339		340		341	
342		343		344		345	
346		347		348		349	
350		351		352		353	
354		355		356		357	
358		359		360		361	
362		363		364		365	
366		367		368		369	
370		371		372		373	
374		375		376		377	
378		379		380		381	
382		383		384		385	
386		387		388		389	
390		391		392		393	
394		395		396		397	
398		399		400		401	
402		403		404		405	
406		407		408		409	
410		411		412		413	
414		415		416		417	
418		419		420		421	
422		423		424		425	
426		427		428		429	
430		431		432		433	
434		435		436		437	
438		439		440		441	
442		443		444		445	
446		447		448		449	
450		451		452		453	
454		455		456		457	
458		459		460		461	
462		463		464		465	
466		467		468		469	
470		471		472		473	
474		475		476		477	
478		479		480		481	
482		483		484		485	
486		487		488		489	
490		491		492		493	
494		495		496		497	
498		499		500		501	
502		503		504		505	
506		507		508		509	
510		511		512		513	
514		515		516		517	
518		519		520		521	
522		523		524		525	
526		527		528		529	
530		531		532		533	
534		535		536		537	
538		539		540		541	
542		543		544		545	
546		547		548		549	
550		551		552		553	
554		555		556		557	
558		559		560		561	
562		563		564		565	
566		567		568		569	
570		571		572		573	
574		575		576		577	
578		579		580		581	
582		583		584		585	
586		587		588		589	
590		591		592		593	
594		595		596		597	
598		599		600		601	
602		603		604		605	
606		607		608		609	
610		611		612		613	
614		615		616		617	
618		619		620		621	
622		623		624		625	
626		627		628		629	
630		631		632		633	
634		635		636		637	
638		639		640		641	
642		643		644		645	
646		647		648		649	
650		651		652		653	
654		655		656		657	
658		659		660		661	
662		663		664		665	
666		667		668		669	
670		671		672		673	
674		675		676		677	
678		679		680		681	
682		683		684		685	
686		687		688		689	
690		691		692		693	
694		695		696		697	
698		699		700		701	
702		703		704		705	
706		707		708		709	
710		711		712		713	
714		715		716		717	
718		719		720		721	
722		723		724		725	
726		727		728		729	
730		731		732		733	
734		735		736		737	
738		739		740		741	
742		743		744		745	
746		747		748		749	
750		751		752		753	
754		755		756		757	
758		759		760		761	
762		763		764		765	
766		767		768		769	
770		771		772		773	
774		775		776		777	
778		779		780		781	
782		783		784		785	
786		787		788		789	
790		791		792		793	
794		795		796		797	
798		799		800		801	
802		803		804		805	
806		807		808		809	
810		811		812		813	
814		815		816		817	
818		819		820		821	
822		823		824		825	
826		827		828		829	
830		831		832		833	
834		835		836		837	
838		839		840		841	
842		843		844		845	
846		847		848		849	
850		851		852		853	
854		855		856		857	
858		859		860		861	
862		863		864		865	
866		867		868		869	
870		871		872		873	
874		875		876		877	
878		879		880		881	
882		883		884		885	
886		887		888		889	
890		891		892		893	
894		895		896		897	
898		899		900		901	
902		903		904		905	
906		907		908		909	
910		911		912		913	
914							

pre-printed portion 1Z8748S (top) and the typewritten portion of the VIN (bottom) in Figure 1 and 4.

Once Key Codes and assigned VIN were typed onto the manifests, they were distributed to each assembly line. It would not be until production moved to Bowling Green that VINs were pre-assigned (upstairs) before production began on the body.

The trim and body paint tag as a production document further underscores the point that 1968-72 production techniques differ from later C3 production. The trim tag station was moved some time during 1975-76 model year to accommodate the need for space to match the increase in production during the mid to late '70s. The station was moved between paint booths 1 and 2. As a result, body build tags for Corvettes prior to 1975 were not painted, while trim tags after 1975-76 were painted after the primer coat and first paint coat. Not surprisingly, a relationship exists between trim tags and build sheet. The build sheet lists RPO code for paint and interior referenced on the trim tag. It also populates the manifest with the broadcast codes for matching interior parts such as carpet, seat belts, steering wheel, steering column, and related trim.

What disappears from build sheets after 1973 is the scribbled reference to the three-digit body shop job number. The job number was assigned for a vehicle and body panels marked as they were prepared for assembly. This job number was also hand written on the Corvette order copy with the chassis copy glued to the gas tank. It appears that by the mid-seventies, this practice was discontinued. However, the job number was still used throughout C3 on body panels to track companion panels through the body shop.

Late model C3s should be the best-documented Corvette models among the first three generations, but much needs to be researched, studied, and documented. We know the application of process engineering techniques took on a greater role in the mid-'70s and included the increased use of data processing to improve productivity while maintaining production costs.

The publication of this article hopefully will stir passion for discovery, discussion for teasing

topics of personal interest, and publication of new information that will contribute to the body of knowledge for the late-model series of the third generation. Students of C3 production documents are encouraged to flip the traditional perspective 180 degrees. Instead of peering forward from the 1968-72 production period, glance backward from Bowling Green production to the early methods of the St Louis assembly plant. Given this perspective, three distinctive periods can be arbitrarily outlined and used to set a course for study of C3 production documents.

These periods are distinguished as

1968-72 evidenced by use of

- Corvette order copy as the first tank sticker
- Protect-O-Plate
- exception control letter codes
- body broadcast copy and chassis broadcast copy

1973-81 evidenced by the use of

- single page multi-copy manifest
- chassis copy of the manifest glued to the gas tank
- more prominent use of broadcast codes

1981-82 evidenced by

- VIN assignment prior to body build
- expanded use of data processing and first use of bar codes
- manifest copies saved and sold by the National Corvette Museum

Much can be learned from the study of late model production documents. Our knowledge of 1968-72 Corvette production documents must not allow us to fall into complacency but rather serve as a source of inspiration to search, study, and document the balance of C3 production.

The author and *The Corvette Restorer* thank Ed and Cindy Foss of Roanoke, Indiana, for permitting the use of these very unique production documents used in this article.

Tom Russo
410 32nd Avenue North
Myrtle Beach, SC 29577
hunt4cleanair@earthlink.net
843-626-3182
Membership# 22903