

December 13, 1990

To: Rex Debolt
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Re: Part Numbers for Hardware

Effective this date, HAL Communications will use the following Part Numbering scheme for all hardware.

HAL has traditionally not assigned Part Numbers to screws, nuts, washers, etc. These items have been treated as "production supplies" and expensed. Other hardware such as spacers and special items have been given part numbers.

The original 1/6/78 HAL Part Number Standard defined the "400-xxxxx" number series for all hardware. This has not been followed closely. Prior to 1988, someone (?) established a new part number series at "880-xxxxx" for screws and nuts and entered these numbers into the inventory computer. However, the numbers have not been used except when labeling parts bins. This later work is contrary to the standard and needs to be corrected. The "880-xxxxx through "899-xxxxx" series must be reserved for Configuration Control of computer software items. Therefore, all present computer entries and references to these entries in "Group 880" (sub-assembly lists, for example) must be changed.

To assure complete Configuration Control over our manufacturing, we must start generating complete parts lists for each product, assembly, and sub-assembly - including specific hardware required. If used correctly, this will greatly reduce the chances for confusion over which items are used in which products and which items must be ordered when building each product. Costing may continue to treat these items as "Production Supplies" and a per-piece count of stock is not required - it is in general still not cost-effective. However, parts lists should indicate the correct part numbers and quantities required for each manufacturing work unit.

The "400-xxxxx" section of the HAL Parts Numbering Standard (12/13/90 edition) is attached, with the example sections amplified.

At this date, computer entry and part number assignment for parts used in the ST-8000A is most critical. These changes should be made immediately. Other parts should be added as time permits. This is a BIG change and will take some time to completely implement.

G. W. Henry
Configuration Manager EXTRACTED HARDWARE GUIDE (From 12/13/90 Part Number

Standard)

400 - xxxxx HARDWARE (Revised 12/13/90)

410 - aabbc Screws, Steel, CAD-2 Plating (CAD)

aa = body & thread: 04=4-40, 06=6-32, 10=10-32

bb = length in 16ths": 05 = 5/16" long

c = head style: 0 = slotted, round-head

1 = Phillips, round-head

2 = slotted, flat-head

3 = Phillips, flat-head

9 = Special Head/Color

Examples: 410-04053 = 4-40 x 5/16" Phil Flat-Hd

410-10160 = 10-32 x 1" Slot Round-Hd

410-06241 = 6-32 x 1.5" Phil Round-Hd

411 - aabbc Screws, Stainless Steel (SS)

"aabbc" as above

Examples: 411-04041 = 4-40 x 1/4" Phil Round-Hd

411-06049 = 6-32 x 1/4" BLK Phil T-Hd

415 - aadee Nuts, Steel, CAD-2 Plating (CAD)

aa = body style: as for screws

d = 0

ee = style: 0 = standard hex nut

1 = hex nut with integral lockwasher
("KEP" nut)

2 = Special (e.g. thumb-nut)

Examples: 415-04000 = 4-40 Hex Nut

415-04001 = 4-40 KEP Nut

415-06002 = 6-32 Thumb-Nut (Brass)

416 - aadee Nuts, Stainless Steel (SS)

"aadee" as above

Example: 416-06000 = 6-32 SS Hex Nut

420 - aafgg Washers, Steel, CAD Plated

aa = screw size clearance: as for screws

f = type: 0 = flatwasher

1 = internal star lockwasher

2 = external star lockwasher

3 = split lockwasher

4 = insulating washer

gg = thickness: 00 = "standard" & lockwashers

xx = non-standard thickness in
.01" increments

Examples: 420-10000 = No. 10 FL-Wash, Std Thick
420-06003 = No. 6 Insul Wash, .032" T
420-04001 = No. 4 Int Star Lock Wash
420-10003 = No. 10 Split Lock Wash

421 - aafgg Washers, Stainless Steel

"aafgg" as above

Example: 421-06000 = No. 6 FL-Wash, SS, Std

422 - aaxxx Solder Lugs

aa = screw size clearance; as for screws

xxx = 000 or as required

Example: 422-06000 = No. 6 Ang Solder Lug

425 - aahhi Spacers

aa = screw size as above: (00 = no thread)

hh = length in 16th inch increments

i = type: 0 = No thread

1 = Threaded

2 = Male-Female (M-F) Thread

3 = Insulating

4 = Hinged

Ex: 425-04051 = 4-40 x 5/16" Threaded Spacer

425-06063 = 6-32 x 3/8" M-F Spacer

425-06144 = 6-32 x 7/8" Hinged Spacer

425-06160 = No. 6 x 1" Non-threaded Spacer

430 - xxxxx Metal Angle Brackets

"xxxxx" related to Mfg P/N

Ex: 430-00248 = Small Angle Bracket #248

440 - xxxxx Batteries and Plastic Parts

"xxxxx" related to Mfg P/N

Ex: 440-00114 = AAA Battery

440-00600 = Card Guide # -600

440-00330 = CK05 Capacitor Spacer

450 - xxxxx Miscellaneous Hardware

"xxxxx" related to Mfg P/N

Additional Guidelines:

1. Included Hardware:

Some parts (such as switches and some connectors) are supplied with hardware. In this case, the part (switch) and its supplied accessories are cataloged and inventoried as a set under the number of the major part. Do not create additional part numbers or catalog entries for such included parts.

2. Related, but Not Included Hardware:

Some parts (such as DB-25 connectors) required associated hardware but that hardware is not included and must be ordered separately. In this case, new computer entries and inventory storage must be created for these accessory items. If the accessory items are hardware, the part number should be in the appropriate "400-xxxxx" series and not in the category of the related item. This procedure has not been closely followed in the past and it will require time to adjust these entries.

3. Use of Categories "440-" and "450-":

The "440-" category has been grossly abused in the past. It presently includes batteries, CK05 spacers, cable ties, cables clamps, card ejectors, rubber feet, and even one nylon spacer! Batteries may also be found in Section "850" and spacers in "425". This will require correction at some future date.

For the present, let's use caution before dumping an item into "440" or "450"!

4. Reminder - New Part Number Assignment:

Part Number assignment must originate under Configuration Control. In general, this means that Rex Debolt will create the Source Control or Specification Control Drawing and assign a part number. For Computer Products, Linda Scott will assign part numbers. However, all creation of new part numbers must also be approved by the Configuration Manager before a new part number may be entered into the inventory or purchasing computer systems.

The "Master Bible" for definition of all HAL parts resides in Configuration Control. Certified current copies are available in the multi-binder Parts Books in inventory. This inventory set of books should serve as the master parts reference catalog for all HAL employees. Sub-versions of the list are created for use by purchasing, but the master set of binders is the primary reference source.

G. W. Henry

Configuration Manager