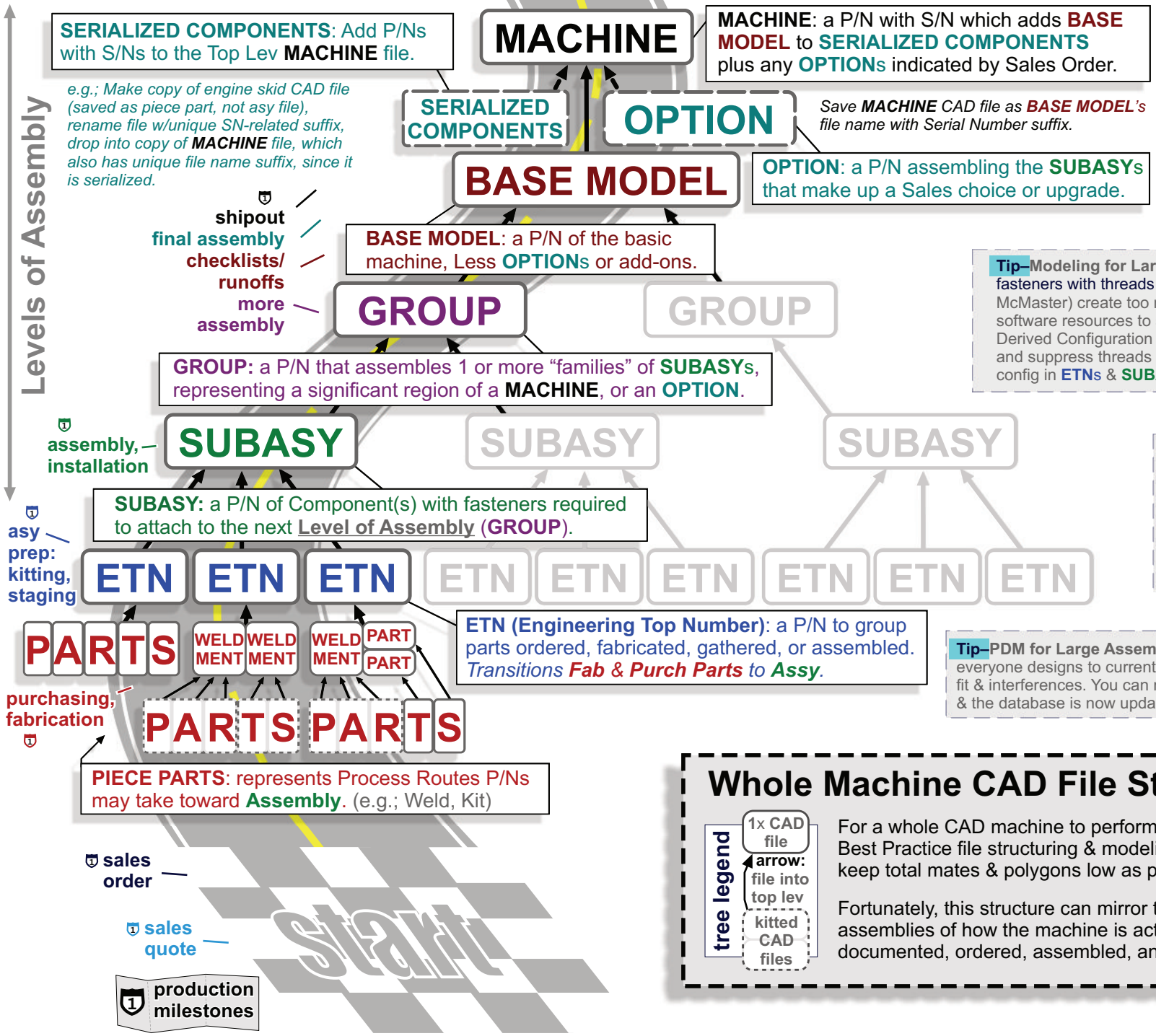
REFERENCE: **Stable Whole Machine CAD File Structure:** Make your CAD BOM validate, create & update your ERP BOM. KKB 20170318



SERIALIZED COMPONENTS: Add P/Ns with S/Ns to the Top Lev **MACHINE** file.

*e.g.; Make copy of engine skid CAD file (saved as piece part, not asy file), rename file w/unique SN-related suffix, drop into copy of **MACHINE** file, which also has unique file name suffix, since it is serialized.*

MACHINE: a P/N with S/N which adds **BASE MODEL** to **SERIALIZED COMPONENTS** plus any **OPTION**s indicated by Sales Order.

*Save **MACHINE** CAD file as **BASE MODEL**'s file name with Serial Number suffix.*

OPTION: a P/N assembling the **SUBASY**s that make up a Sales choice or upgrade.

BASE MODEL: a P/N of the basic machine, Less **OPTION**s or add-ons.

GROUP: a P/N that assembles 1 or more "families" of **SUBASY**s, representing a significant region of a **MACHINE**, or an **OPTION**.

SUBASY: a P/N of Component(s) with fasteners required to attach to the next **Level of Assembly** (**GROUP**).

ETN (Engineering Top Number): a P/N to group parts ordered, fabricated, gathered, or assembled. *Transitions **Fab** & **Purch Parts** to **Assy**.*

PIECE PARTS: represents Process Routes P/Ns may take toward **Assembly**. (e.g.; Weld, Kit)

Tip–Modeling for Large Assemblies: Asy Models struggle solving more than 2-300 Mates per file. Ideally, your **BASE MODEL** will have no more than 6-12 **GROUPs** to Mate. (3x Mates ea. = 18-36 total) **Mantra:** *No Floating Parts.*

Tip–Modeling for Large Assemblies: Part Models of fasteners with threads and other fine details (like from McMaster) create too many polygons for computing & software resources to support in large asys. Create a Derived Configuration named "**_SIMPLE**" for such parts, and suppress threads & unnecessary detail; use that config in **ETN**s & **SUBASY**s to increase performance.

Tenets to Model By:

- **1 ERP P/N = 1 CAD File**
  To represent a purchased asy, save Asy file as Part file.
- **Every ERP P/N gets a Model, Every Model gets a Drawing.**
  Save catalog pages of purch parts as PDFs if no 3D model.

Tip–PDM for Large Assemblies: Check In Daily. Make sure everyone designs to current geometry. This cuts waste of bad fit & interferences. You can re-check out your files immediately, & the database is now updated for everyone else.

Whole Machine CAD File Structure

tree legend: 1x CAD file; arrow: file into top lev; kitted CAD files

For a whole CAD machine to perform without crashing, Best Practice file structuring & modeling is required to keep total mates & polygons low as possible.

Fortunately, this structure can mirror the sub-assemblies of how the machine is actually sold, documented, ordered, assembled, and supported.