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White Paper

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ASME Y14.35 restrictions on revising or changing copies of drawings.

Since WWII, military activities have been "changing" copies of drawings acquired from contractors in the belief that "The government bought the drawings, and we can change them any way we want to". That belief is in error whenever the government did not buy the drawing originals (masters from which copies are made), and the government attempts to change mere copies that were acquired from contractor entities. No activity, whether government or commercial, can change a mere copy of a drawing, as the copy is just that – a mere copy. Only the drawing original can be changed, and only by the current design activity of that drawing.

When engineering drawings are procured by a government activity, the drawings are bought in one of two categories: original or a copy.

(a) When original drawings are acquired by DoD, the ownership of the original and responsibility for its maintenance transfers in its entirety to a specific DoD entity. The contractor absolves itself entirely of all responsibility and ownership upon delivery and completion of the contract. The contractor that prepared the drawing no longer has any authority or responsibility for the drawing, and only the government activity owning and responsible for the original drawing can change the drawing.

(b) If the government buys a mere copy of a drawing with unlimited rights to use it any way it wishes, the government still cannot change the mere copy because the only correct procedure to revise or change any drawing is to revise the original. A mere copy of a drawing cannot be recognized as an original, and to revise or change a mere copy is to pretend, incorrectly, that the original has been revised or changed. A practice of revising or changing mere copies of drawings sets up conflicting configurations between the current design activity contractor and the government. Items made to conflicting or unintended configurations can be acquired, and have been in the past.

Importantly, when the government buys a copy of a drawing, the government does not own "the" drawing, as government personnel commonly believe. Rather, the government merely owns "a specific copy" of the drawing that was delivered to the government. Further, that copy is a mere snapshot of the original drawing as it existed at the time of delivery to the government and completion of the contract. The original drawing may continue to be revised and changed during the life cycle of the equipment supported by the drawings

The DFARS is pointed to as mandating that the government can modify drawings that are “unlimited rights”:

Per DFARS 252.227-7013(a)(16)

(16) “Unlimited rights” means rights to use, modify, reproduce, perform, display, release, or disclose data in whole or in part, in any manner, and for any purpose whatsoever, and to have or authorize others to do so.

The above DFARS term applies to more data than drawings, and “modify” can apply more directly to Tech Orders and other forms of data. Modifying data in the form of drawings is a special case.

The above DFARS term “modify” suggests that the government can modify, revise, or change drawings that it acquires from contractors when the contract requires those drawings to be delivered with “unlimited rights”. But the procedure of “modifying” still must conform to configuration management practices. When the government buys original drawings, the government may of course directly revise or change the original drawings. However, if the government buys mere copies of drawings with unlimited rights, and the original drawings remain with the contractor, then the government must follow procedures to change the originals. The procedure must include a government process to arrange for the drawing’s current design activity to revise or change the original drawings, and then acquire a copy of the revised or changed drawing to be delivered to the government requiring activity.

The government seems to recognize that they cannot revise mere copies of limited or unlimited rights drawings. A revision advances the revision letter of a drawing. A change, in the form of an “Advance Engineering Change Order”, does not. One attempt in 1968 to revise (advance the revision letter) was soon withdrawn when a later revised copy was acquired, and the two different drawings bearing the same revision letter produced such a dilemma that it was never tried again at that government entity.

Some have suggested, and some have tried, to avoid revising or changing a copy of a contractor drawing by replacing the contractor drawing (and part) with a government drawing (and part number). That never works as intended, as the change in drawing number and part number must be authorized by the contractor’s next higher contractor drawing. The intended change cannot occur as the non-revised next higher drawing does not allow it. Further, adding a government drawing and part to the configuration would require complex cross authorization and coordination during the life cycle of the end item.

The government practice of revising or changing copies of contractor drawings must end, as the practice loses configuration management of end items, and is becoming increasingly dangerous to DoD missions. EXAMPLES:

- (a) In about 1996, at a meeting on Air Force engineering data, an Air Force representative to the meeting stated that an AF general was "furious" that configuration management was lost on the B-52 and C-135 series. The AF simply did not know what was installed on their aircraft.
- (b) In about 1996, an AF engineer made a change to the control panel of one (or more) B1 aircraft, adding a switch, lighting, and wiring. The engineer created and added a Rockwell part number without Rockwell knowledge or assignment. The engineer said they had to do it this way because it cost too much money to have Rockwell do it.
- (c) In about 1997, an engineering data specialist was shown a two million dollar automated test equipment stand that was to check out the B-1B. The specialist was told that if the AF unilaterally changed the wiring anywhere on the aircraft without going through Rockwell channels, the automated test stand would become a "two million dollar piece of junk". (See "b" above).
- (d) In about 1980, an AF engineer made a change to the KC135 boom using an AF AECO. The purpose was to save shop personnel some work. The shop person wanted to save time resealing a long length of wire that ran along the boom. He wanted the wire cut in the middle of the boom and connectors placed on the cut. That way he only had to reseal the wire on half of the boom. When the engineer's AECO went through, one person visited the engineer and asked:
 - 1. What designators did you assign the male and female connectors?
 - 2. What new numbers did you assign to the two new wires?
 - 3. Did you make a new Tech Order diagram page number and what is its number? One page shows the old diagram configuration and the new page will show the new diagram and the new wire numbers.
 - 4. Which booms are you modifying? Per your AECO, you've just retrofitted the entire KC-135 fleet.
 - 5. The cost for revising the Tech Orders is high.
 - 6. Since you've changed the boom's configuration, are you going to assign a new PIN for it?
 - 7. The cost of this mod is high enough, you probably should have run this through the CCB to get funding and a project number. Did you do that?

NOTE: The engineer did virtually nothing except fill out an AECO with minimal information, and seriously regretted having prepared the AECO. These types of "not thinking through all the processes and requirements" is very common, and too often very alarming.

Some may suggest, due to the above discussion, that the government buy original drawings on all future contracts. The government simply does not have the expertise, knowledge, and processes to maintain drawings and end items without the assistance of contractor experts. The Army does more buying of original drawings, but still contracts out to "design agents" for their design and maintenance. Such practice may work for small items of army equipment, but not for aircraft.