



Aerospac
Systems Division

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PSE Decoupled Shroud
Qualification Status List
(Apollo 15, 16, and Spare)

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1.0 INTRODUCTION

This technical memo is in response to CCP-275, task 11, item a (JC931/L611-70/T94 (0S0019E); Letter Clyatt to Fava), and supports the QTRR activity for the decoupled shroud. The purpose of this report is to reflect the qualification rationale and summarize the qualification test plan for the decoupled shroud and inner shroud Qual Models.

2.0 DISCUSSION

2.1 QUALIFICATION RATIONALE

The Qualification Test Program for Apollo 15, Apollo 16, and Spare is shown in Figure 1 and is described in detail with individual test procedures for Stowage (TP TBD), Mass Properties (TP TBD), Rise to Altitude (TP TBD), Shock (TP TBD), Vibration (TP TBD), Qual Model Deployment (TP TBD), and Thermal Vacuum (TP TBD).

The shroud design as used on earlier flights has been modified wherein the skirt has been shortened and is now called the inner shroud. The outside or external shroud is a new design and is called the decoupled shroud. The decoupled shroud will be stowed in the LM by use of a mounting bracket assembly.

A design verification test (DVT) was used to provide early test data in order to prove the adequacy of the basic design and to provide confidence for the successful completion of Qualification Testing. The DVT model testing (stowage, vibration, deployment and T/V) was completed on 25 February 1971.

2.2 QUALIFICATION ACCEPTANCE CRITERIA

The acceptance criteria for the decoupled shroud, its mounting bracket assembly and inner shroud during the PSE passive thermal control (PTC) system qualification will be as stated in each test procedure for the parameters so noted in paragraph 2.1, and provides adequate confidence of successful performance as based on:



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1. The PSE PTC system meeting stowage requirements.
2. The PSE PTC system meeting mass property requirements.
3. The PSE PTC system surviving simulated mission environments in rise to altitude, shock, and vibration.
4. Successful deployment of the PSE sensor and PTC system such that proper leveling, alignment, and thermal protection may be accomplished.
5. The PSE PTC system meeting thermal vacuum requirements.

3.0 COMMENTS

3.1 COMPARISON OF QUAL AND FLIGHT CONFIGURATIONS

The Qual and Flight Configurations are identical. Figure 5 is a drawing tree for the Decoupled Shroud. The inner shroud is modified from assembly P/N 2338016 and upon modification is identified as assembly 2364626-501. The mounting bracket assembly, P/N (TBD), is a modification of that used in DVT testing, modified to meet the defined LM interface.

3.2 FLIGHT ACCEPTANCE TESTING

Flight hardware shall be tested in accordance with Figure 2 wherein successful system performance is based on:

- (1) The PTC system meeting stowage requirements.
- (2) The PTC system meeting mass property requirements.
- (3) The PTC system meeting vibration requirements.
- (4) The PTC system meeting thermal vacuum requirements.



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3.3 QUALIFICATION TEST RESULTS

Test results are as follows:

TEST	ACCEPT DATE
Stowage	TBD
Mass Properties	TBD
Rise to Altitude	TBD
Shock	TBD
Vibration	TBD
Deployment	TBD
Thermal Vacuum	TBD

3.4 BASIC PROGRAM

Hardware is provided for One Qual System (Figure 1), One Flight System (Figure 2), and One Training Model.

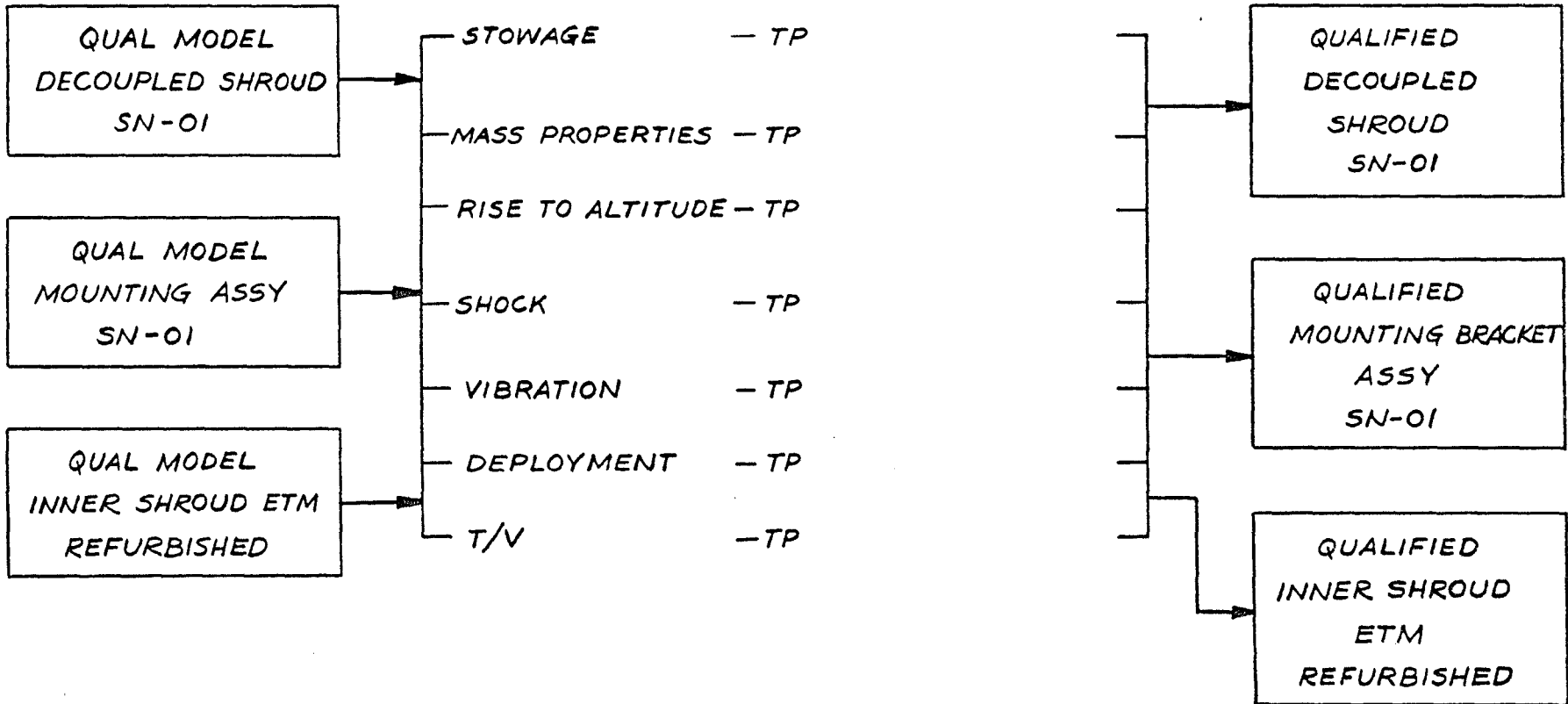
3.5 OPTION I

At the customer's option hardware will be provided for one flight system (Figure 3) and one training model.

3.6 OPTION II

At the customer's option hardware will be provided for one flight system (Figure 4).

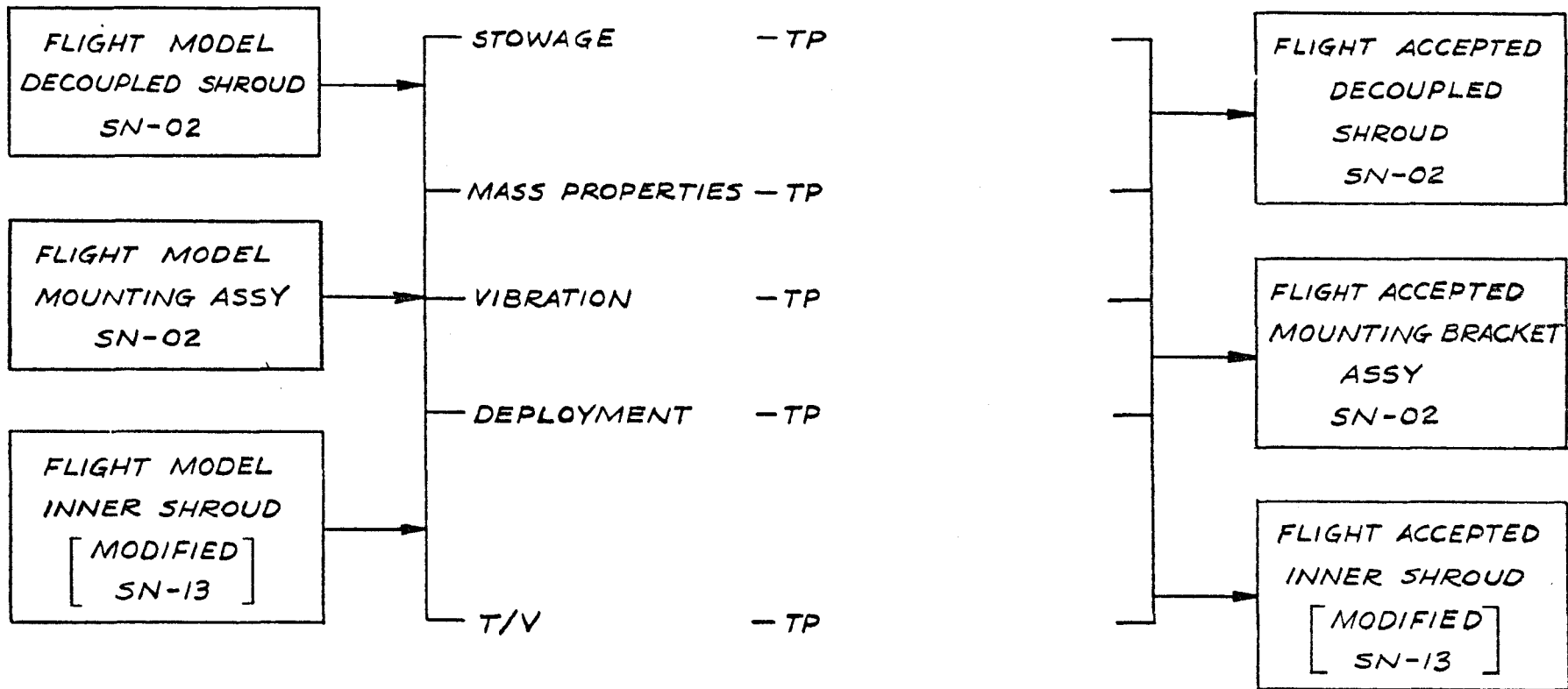
QUAL TESTS



BASIC PROGRAM - QUAL MODEL

FIGURE 1

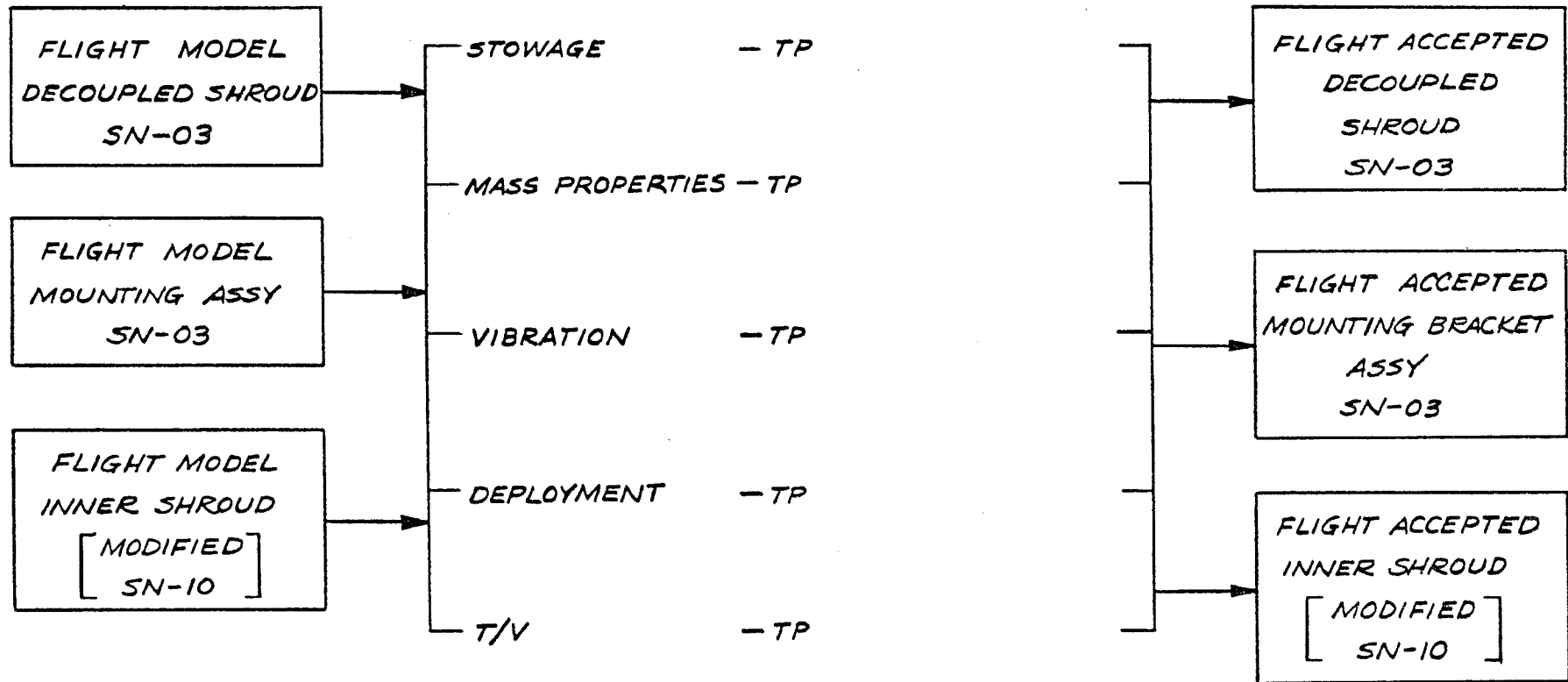
FLIGHT ACCEPTANCE TESTS



BASIC PROGRAM - FLIGHT MODEL

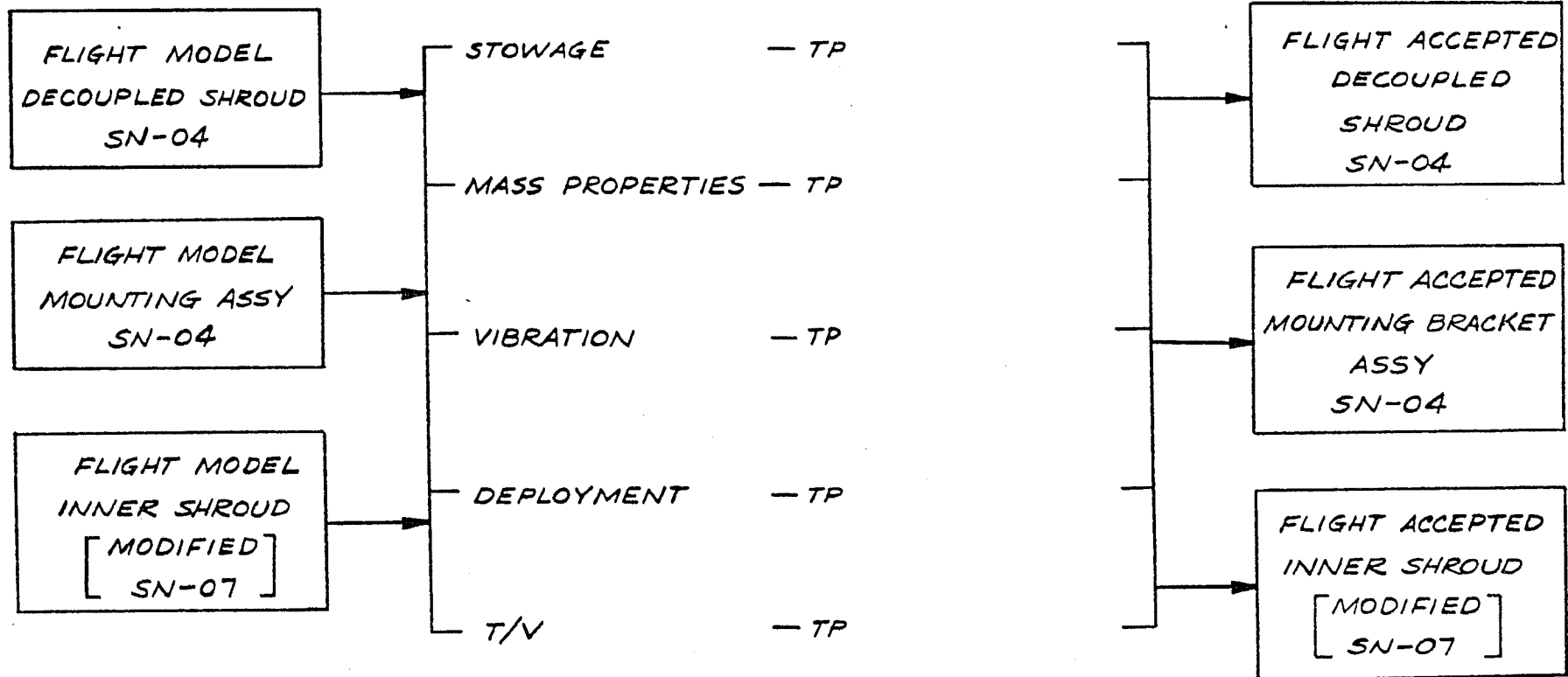
FIGURE 2

FLIGHT ACCEPTANCE TESTS



OPTION I - FLIGHT MODEL
FIGURE 3

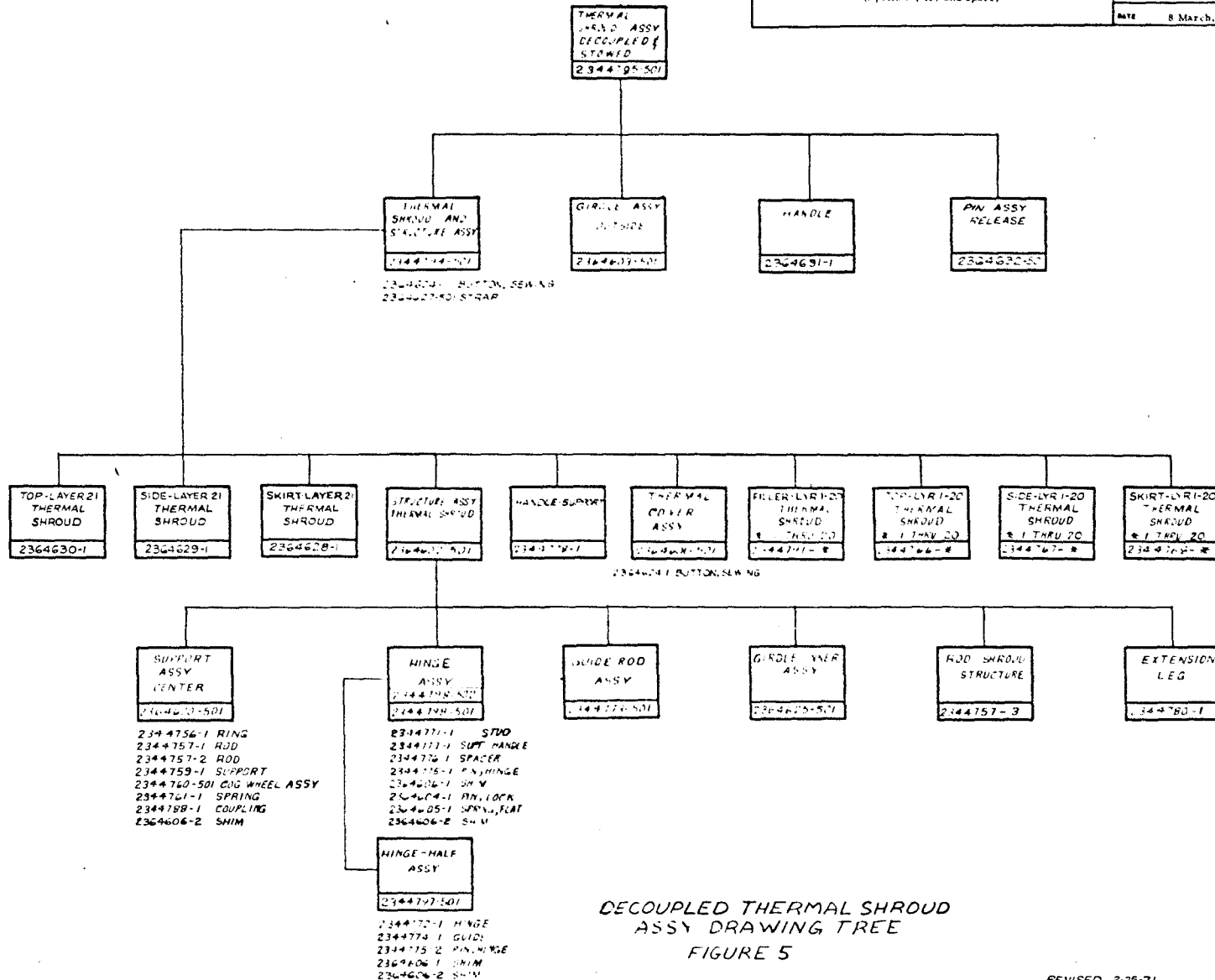
FLIGHT ACCEPTANCE TESTS



OPTION II - FLIGHT MODEL
FIGURE 4

PSF Decoupled Shroud
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DECOUPLED THERMAL SHROUD
ASSY DRAWING TREE
FIGURE 5

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