



U.S. Department  
of Transportation  
**Research and  
Special Programs  
Administration**

400 Seventh St., S.W.  
Washington, D.C. 20590

NOV 9 2000

Mr. Fawzi Mhemedi  
The Boeing Company  
P.O. Box 7922  
Canoga Park, CA 91309-7922

Ref. No: 00-0301

Dear Mr. Mhemedi:

This is in response to your August 15, 2000 letter and subsequent telephone conversation with Mr. Charles Hochman of the Office of Hazardous Materials Technology, requesting clarification on the packaging requirements for pyrophoric liquids under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). Specifically, you have asked if your packaging configuration meets the requirements contained in § 173.181(b).

You correctly stated that § 173.181(b) requires "inner receptacles having positive screwcap closures adequately gasketed". Based on our review of your design, we agree that the plug and retainer used to secure the burst diaphragms meet the screwcap closure requirement and the 300 psig burst diaphragms meet the adequately gasketed requirement in § 173.181(b).

I trust this answers your inquiry. If you need additional assistance, do not hesitate to contact us.

Sincerely,

Delmer F. Billings  
Chief, Standards Development  
Office of Hazardous Materials Standards




The Boeing Company  
6833 Canoga Ave.  
P.O. Box 7822  
Canoga Park, CA 91309-7822

LaValle  
173.181 (b)

Pyrophoric Materials

Date: 8/15/00

To: CHARLES HAWKMAN <sup>Hochman</sup>

Location: DOT

Fax: (202) 366-3012

Telephone: (202) 366-4545

Pages: 3 (Including cover sheet)

From: FAWZI MHEMEDI

Location: BOEING/ROCKETDYNE

Fax: (818) 586-7220

Telephone: (818) 586-1413

Packaging  
00-0301

Subject: Need urgent ruling on interpretation of Title 49 CFR paragraph 173.181, Pyrophoric materials, with regard to Boeing/Rocketdyne hypergol canisters packaging requirements

Per your recent telecon with our packaging engineer, Diana Fairbank, we need a ruling on whether we can ship our hypergol canisters within wooden boxes, as indicated in the Title 49 CFR paragraph 173.181 (b). Attached are drawings showing our hypergol canister design and the outer can packaging. The hypergol liquid (no more than 6 cubic inches) is contained in metal canisters (inner receptacles) which have 300 psig burst diaphragms on both ends; these diaphragms also perform the gasket function and are held in place by a retainer on one end and by a plug on the other end, both of which are torqued to more than 500 in-lbs. We consider these plugs/retainers to satisfy the "positive screw cap closure" requirement, but would like your ruling on whether the 300 psig burst diaphragms meet the "adequately gasketed" requirement.

The outer metal cans, in which the hypergol canisters are enclosed, are sealed using a "Dixie Model 24 Power Sealer", or equivalent. Essentially, these cans are sealed like soup cans -- a can opener is needed to open them. Cushioning within the outer can and within the wooden box would be accomplished with Vermiculite.

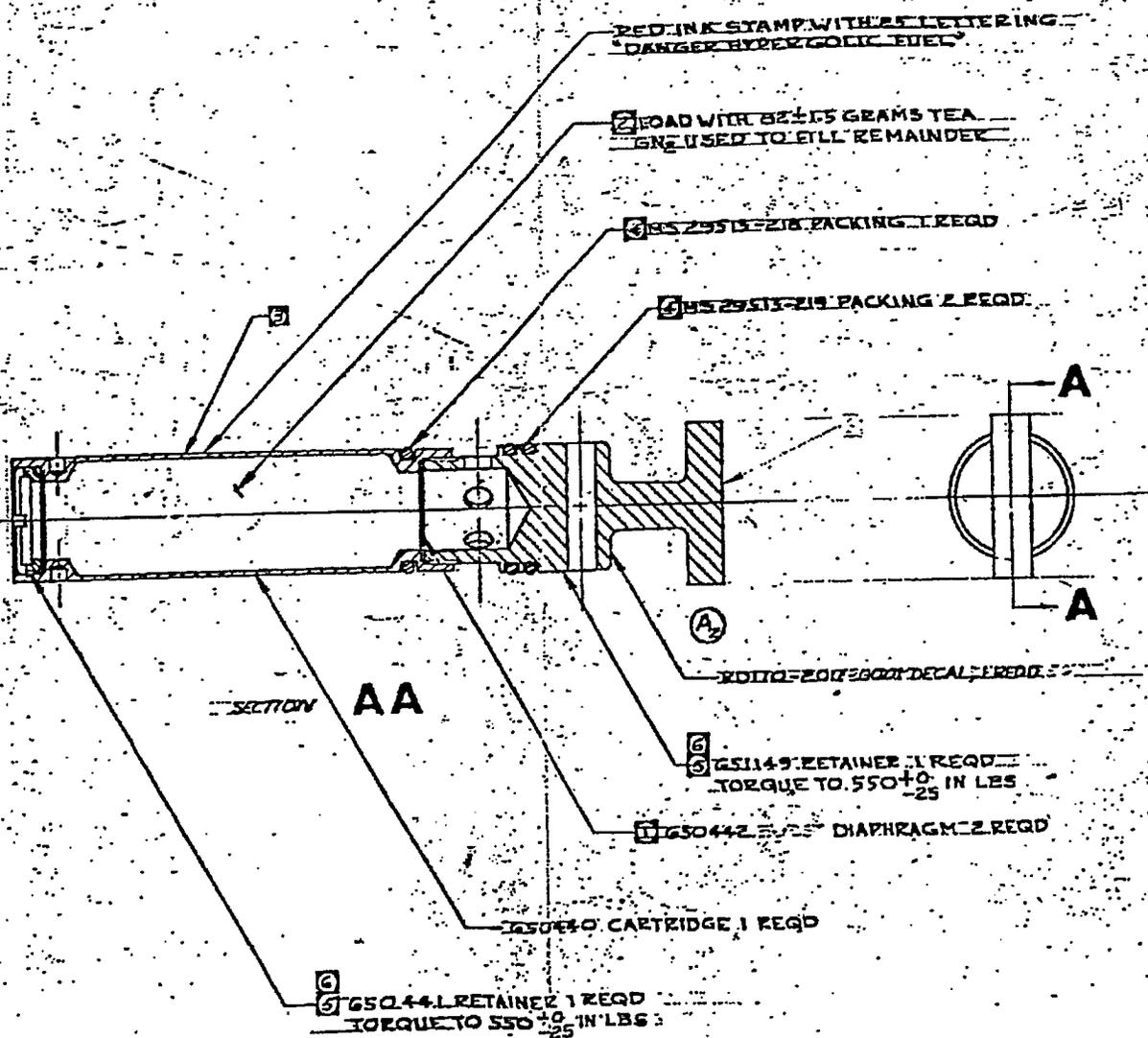
In summary, we would like your assessment of whether our hypergol canister design allows us to use wooden boxes (max of 4 canisters per box) for shipment. As this shipping query is an urgent matter for us, a quick response would be much appreciated.

If we can ship using wooden boxes, we would like to request approval for use of a smaller number of test samples, as is allowed in Title 49 CFR paragraph 178.601. Drop test validity will not be affected by performing the flat top, bottom, and side drops on the same test sample given the configuration of our container. Relief from the number of test containers would be a financial help in this matter.

Thanks,

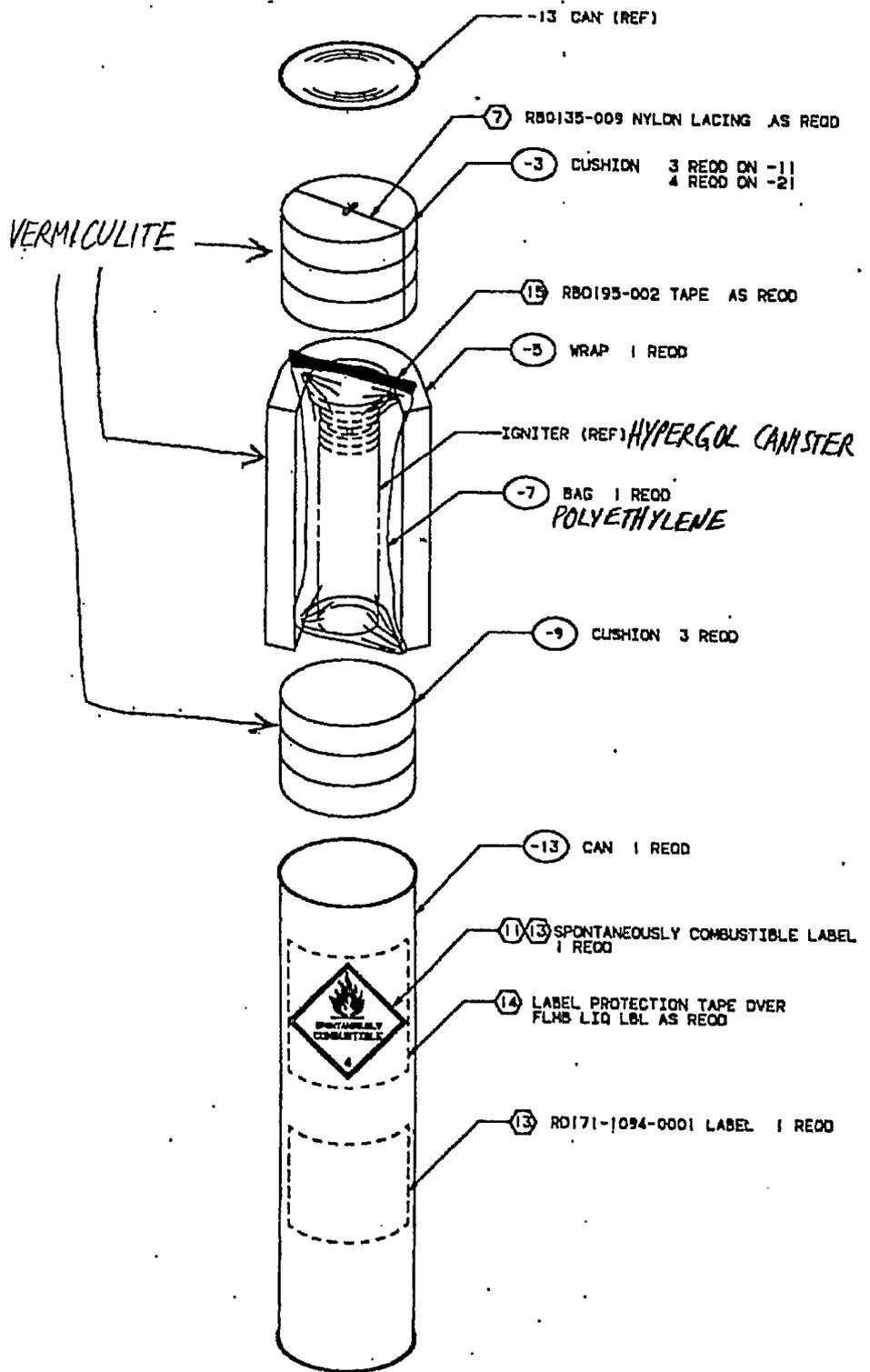
Fawzi Mhemedi

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- ① 9. DOWN CORNING FS12B ALLOWABLE ALTERNATE FOR RBO 140-012.
  - ② 8. LUBRICATE THREADS AND RETAINER-TO-DIAPHRAGM BEARING SURFACES WITH RBO 140-012 LUBRICANT PER RA0112-002, METHOD 'A' FOR THDS & METHOD 'E' FOR RETAINER BEARING SURFACES.
  - ③ 7. LUBRICATE PER RAD12-002 FOR RP-1 & HYPERGOL SERVICE METHOD J.
  - ④ FOR LIST OF MATERIAL SEE LM BEARING CORRESPONDING PART NO. SEE LM BEARING.
  - ⑤ 5. IDENTIFY PER RAD01-002 DO NOT IMPRESSION STAMP.
  - ⑥ 4. TRIETHYLALUMINUM PER SPEC RA02151G.
  - ⑦ 3. ORIENTATION OF DIAPHRAGM: COINED SIDE OUT.
  - ⑧ 2. ACCEPT & ASSEMBLE PER RA0210-315.
  - ⑨ 1. PACKAGE PER RA0210-315.
- NOTE: UNLESS OTHERWISE SPECIFIED

BHELD HOLE TOLERANCES	DIMENSIONS PRIOR TO FINISH TOLERANCES EXCEPT AS NOTED	DATE 12-5-60	
		BY: [Signature]	CHKD: [Signature]
20 20 20-0.005	✓	20 20 20-0.005	20 20 20-0.005
20 20 20-0.005	✓	20 20 20-0.005	20 20 20-0.005
20 20 20-0.005	✓	20 20 20-0.005	20 20 20-0.005
20 20 20-0.005	✓	20 20 20-0.005	20 20 20-0.005



-11, -21 CAN ASSY

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