



U.S. Department  
of Transportation

**Pipeline and  
Hazardous Materials Safety  
Administration**

SEP 27 2006

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

Mr. Robert D. Howerton, Ph.D.  
2582 Wood Trail Lane  
Decatur, GA 30033

Ref. No. 06-0200

Dear Dr. Howerton:

This is in response to your electronic transmission requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) as they pertain to the rebuilding of accumulators. Specifically, you ask for a procedure whereby you would notify and receive corroboration from the U.S. Department of Transportation (DOT) or a third party that the rebuilt accumulators can withstand at least 5,000 psi, and that the pressure test apparatus that you are building is capable of testing the accumulators at the required pressure. Additionally, you ask about exceptions under the HMR applicable to transporting accumulators, and whether any records are required to be maintained for the rebuilt accumulators.

Under the HMR, if your rebuilt accumulators meet the requirements in § 173.306(f)(1) through (f)(4)(iv), you are not required to submit supporting documentation to the DOT. The DOT does not verify test results nor does it approve pressure test apparatus for accumulators meeting the above requirements; however, you may elect to receive substantiation from a third party. As stated in § 173.306(f)(5), if the accumulators do not meet the requirements in § 173.306(f)(1) through (f)(4)(iv), you must apply for an approval in accordance with Subpart H of Part 107 before the accumulators may be transported.

With respect to exceptions applicable to accumulators, you state that the accumulators meet the requirements in § 173.306(f)(3). Provided the accumulators have a charging pressure exceeding 200 psig at 70° F, the articles are not required to be labeled (except for transportation by air) and are additionally excepted from specification packaging requirements provided the articles meet the requirements in § 173.306(f)(2) through (f)(3)(ii). These accumulators are not accepted from the HMR's shipping paper requirements by any mode of transportation.

In response to your question asking whether any records are required to be maintained, § 173.306(f)(4)(iv) requires a written quality assurance program to be maintained at each facility at which the accumulators are manufactured. As specified in § 173.306(f)(4)(iii), the program must monitor parameters controlling burst strength, burst mode and performance in a fire situation.



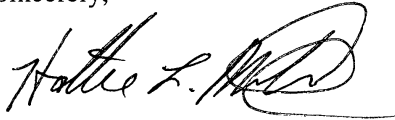
060200

173.306(f)(3)

Finally, we note that you referenced "Nitrogen, compressed," UN1066 in your letter. When selecting a proper shipping name, the name that most appropriately describes the article or material being transported must be chosen. Hydraulic accumulators containing non-liquefied, non-flammable gas, and non-flammable liquids are most appropriately described as "Accumulators, pressurized, hydraulic," UN3164. Pneumatic accumulators containing non-liquefied, non-flammable compressed gas are most appropriately described as "Accumulators, pressurized, pneumatic," UN3164.

I hope this information is helpful. Please contact this office if you need additional assistance.

Sincerely,

A handwritten signature in black ink, appearing to read "Hattie L. Mitchell". The signature is fluid and cursive, with a large, sweeping flourish at the end.

Hattie L. Mitchell  
Chief, Regulatory Review and Reinvention  
Office of Hazardous Materials Standards

Robert D. Howerton  
2582 Wood Trail Lane  
Decatur, GA 30033  
404-343-6307

McIntyre  
§172.101  
§173.306(f)(3)  
Cylinders  
06-0200

August 23, 2006

Mr. Edward T. Mazzullo  
Director, Office of Hazardous Materials Standards  
U.S. DOT/PHMSA (PHH-10)  
Washington, DC 20590-001

Dear Mr. Mazzullo:

It is my intention to establish in the near future a business that offers the service of rebuilding Rolls-Royce (and Bentley) hydraulic accumulators. (The accumulators in question were installed on the Rolls-Royce Silver Shadow series, which were manufactured in the years from 1970 to 1980 roughly. They have an internal volume of 27 cubic inches and are charged with 1000 psi of nitrogen gas.)

With this intention in mind, I quickly became aware that the nitrogen charged accumulators constituted a hazardous material and for that reason I completed recently your Hazardous Materials Transportation Training Modules. I conscientiously completed all the quizzes and passed them with an average score of around 85%, so I feel that I am generally well acquainted with your rules and regulations.

Applying the knowledge I acquired I looked up Nitrogen, Compressed in the HMT and noted in column 8A that exceptions were cited in §173.306. Here I noted that my product came under category (f) (3) and would be exempt from labeling and general packaging requirements (we have no intention of shipping the product by air) so long as i) it was shipped as an inside package; ii) it was tested after being rebuilt at a pressure of 3,000 psi and iii) it was designed with a burst pressure of not less than 5,000 psi. I also noted that there was no exemption from your shipping paper requirements when shipped by rail or truck. I trust you will not disagree with these (paraphrased) requirements.

I am a graduate engineer with both a bachelor's degree from Swarthmore College and a Ph. D. from Georgia Tech. Until recently I was a licensed Professional Engineer in the State of Georgia (I let the license lapse) and I have practiced as an engineer for over 40 years. I've used this experience to accomplish two relevant tasks: first of all, I have carefully measured a typical Rolls-Royce accumulator and carried out metallurgical testing on the device and in a 44 page report I have established that the accumulator has a burst pressure

of at least 13,000 psi; and secondly, I have designed and am in the process of fabricating a pressure testing apparatus capable of testing each accumulator at a pressure of 3,000 psi after it is rebuilt.

So the two principal questions that I address to you are:

1. How can I establish with the DOT that the accumulator I intend to rebuild can withstand at least 5,000 psi? Can I submit my report to your experts for corroboration? Or can I submit the report to a qualified third party and then what are the procedures needed to transmit the conclusions of the third party to the DOT? In sum where do I go from here?
2. How can I establish with the DOT that the pressure test apparatus that I am building is capable of testing the accumulators at the required pressure of 3,000 psi? I can submit drawings and photographs of the device. (The photographs will show a hydraulic pressure gage.) And what records of each test do I have to keep?

I will have some more questions at a future date but these are the paramount questions at this time. I will greatly appreciate your giving me the guidance that I need here.

Best regards,

Robert D. Howerton, Ph.D.