



U.S. Department
of Transportation

**Pipeline and
Hazardous Materials Safety
Administration**

MAR 30 2007

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

Mr. Robert A. Stewart
UPS Component Shop Supervisor
UPS Hydrostatic Shop
UPS Aircraft Maintenance Hangar
750 Grade Lane
Louisville, KY 40213

Ref. No.: 07-0059

Dear Mr. Stewart:

This is in reference to your March 9, 2007 letter in which you again ask about possible tolerance requirements for the permanent expansion reading for the calibrated cylinder.

As stated in my February 15, 2007 letter (ref. No.: 07-0002), the cylinder requalifier must use a calibrated cylinder or other approved method to verify the accuracy of the test equipment system. When the calibrated cylinder is pressurized, the test equipment must be verified as accurate within $\pm 1.0\%$ of the calibrated cylinder's pressure and the corresponding expansion value shown on the cylinder calibration certificate. When the pressure is released, this calibration process requires that the calibrated cylinder exhibit no permanent expansion as specifically stated in § 180.205(g)(4).

I hope this information is helpful. Please contact us if you have additional questions.

Sincerely yours,

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



070059

180.205 (g)(4)

March 7, 2007

VIA UPS NEXT DAY AIR

Office of Hazardous Materials Standards
Regulatory Review and Reinvention
Hattie Mitchell, Chief
400 7th St., S.W.
Washington, DC 20590

Mitchell
3180.205 (g)(4)
Cylinders
07-0059

Ref. No.: 07-0002

Dear Ms. Mitchell:

Thank you for your response dated February 15, 2007. However, it appears that your interpretation of 49 CFR 180.205 (g)(4) contradicts the definitions of the required accuracy and resolution of the device, as detailed in 49 CFR 180.205 paragraphs (g)(2) and (g)(3)(ii). It would be extremely beneficial to get a written definition of the tolerance requirements of the device in order for our operations to fully comply with the regulations. This is the fourth time that I have questioned this "double standard" on the tolerance requirements of the device that do not pertain to certain readings (i.e. the permanent expansion reading of the calibrated cylinder). Again please clarify specifically when the stated tolerances apply, and when they do not apply. And for any reading to which the stated tolerance requirements do not apply, please provide the tolerance requirement for that reading. I was unable to determine the tolerance requirement for the permanent expansion reading based on the letter you provided.

According to your letter the calibrated cylinder must show no permanent expansion. "When the pressure is released, the EID must show (0)cc." Does that mean 0.0cc? You said, "If the 'pressure' [I believe you mean 'expansion'] fails to return to zero (0) cc, the test system has not proven to be accurate." This appears to contradict the first sentences in this paragraph.

(g)(4) The test equipment must be verified to be accurate within <plus-minus>1.0% of the calibrated cylinder's pressure and corresponding expansion values. This may be accomplished by bringing the pressure to a value shown on the calibration certificate for the calibrated cylinder used and verifying that the resulting total expansion is within <plus-minus>1.0% of the total expansion shown on the calibration certificate. Alternatively, calibration may be demonstrated by bringing the total expansion to a known value on the calibration certificate for the calibrated cylinder used and verifying that the resulting pressure is within <plus-minus>1.0% of the pressure shown on the calibration certificate. The calibrated cylinder must show no permanent expansion. The retester must demonstrate calibration in conformance with this paragraph (g) to an authorized inspector on any day that it retests cylinders. A retester must maintain calibrated cylinder certificates in conformance with Sec. 180.215(b)(4).

Questions:

1. Are you stating that the tolerances in 49 CFR 180.205 (g)(4) should be 0.0% not $\pm 1.0\%$?
2. If the EID is allowed $\pm 1.0\%$ accuracy, and the Calibrated cylinder is used to prove this accuracy ($\pm 1.0\%$ of the total expansion value of the Calibrated Cylinder), then according to 49 CFR 180.205 paragraph (g)(3)(ii) and 49 CFR 180.205 paragraphs (g)(4), what are the tolerance requirements of the device that do not pertain to certain readings (i.e. the permanent expansion reading of the calibrated cylinder).
3. According to 180.205(g)(2) and (3), the EID is required to have a readability to within 1% of the Total Expansion, and an accuracy of $\pm 1.0\%$ of the Total Expansion. However, according to your letter, the EID must show zero (0cc) permanent expansion, in other words $\pm 0.0\%$ tolerance. Please answer the following questions specifically and explain your answers:
 - a. How can we be held to an accuracy and readability requirement that is higher than the device, itself, is required to have? (i.e. 0.0cc Permanent Expansion reading for a device that is allowed $\pm 1.0\%$ deviation.)
 - b. Why are we being penalized for using higher quality equipment? These readings would not even be seen on a system using a burette. On a burette type machine, the increments would be 0.5cc, and the operator would record 0.0cc for anything less than 0.5cc. It is only because we have invested in higher quality, digital equipment that these readings can even be detected. These readings are smaller than the required resolution and accuracy requirements of the device, and would never be seen on the old burette type equipment. This lack of understanding of technical specifications for resolution and accuracy by PHMSA is penalizing users who invest in higher quality equipment. If our machine was capable of reading in 0.001cc increments, would you penalize us for 0.001cc deviations? How far are you going to take this foolishness?

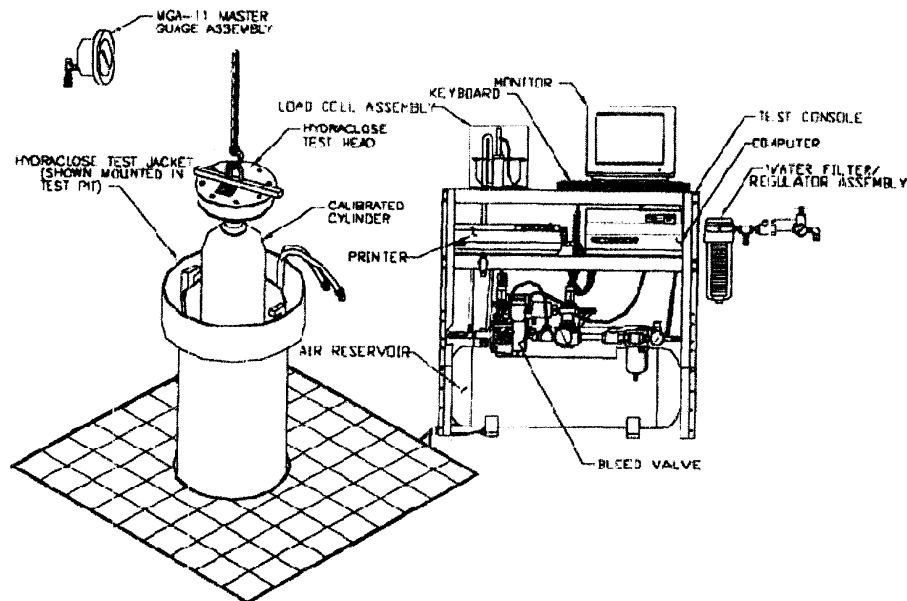
The following information quantifies the calibration of our high precision test system capable of reading to 0.1cc through its full range, and the associated days in question. The information also verifies the system was in tolerance according to 49 CFR 180.205 paragraph (g)(3)(ii) and 49 CFR 180.205 paragraphs (g)(4).

49 CFR 180.205 (g)(2) The pressure indicating device of the testing apparatus must permit reading of pressures to within 1% of the minimum prescribed test pressure.

2.1 RECORTEST/OPEN (A) System Components

The advanced design of the Recortest/Open (A) Test System is the culmination of fifteen years of research and development in the field of computer controlled hydrostatic test systems. Each component of the Recortest/Open (A) Test System has been carefully designed to streamline the cylinder re-qualification process. Collectively, the components of the Recortest/Open (A) Test System work together to provide unparalleled speed, accuracy and simplicity of operation. The primary Recortest/Open (A) test system components are discussed in detail in Sections 2.1 through 2.6. Standard Recortest/Open (A) System specifications are as follows:

Test Pressure Range:	0 to 10,000 psig
Expansion Test Results:	0.1 cc increments
Cylinder Throughput:	10 to 20 cylinders (2640 cu. in. ea.) per hour
Warranty:	1 Year, see warranty terms



The total expansion of our calibrated cylinder is 52.5 cc, the required accuracy of the device would be +/- 0.5 cc (1% of the total expansion), (52.0 to 53.0) as per the specified accuracy of the device, detailed in 180.205(g)(3)(ii). According to 49 CFR 180.205 (g)(3)(ii) and your letter, our Calibrated Cylinder was with in the $\pm 1.0\%$ accuracy limit. On the following dates: 1/26/06, 1/30/06, & 3/3/06 & 3/3/06.

(g)(3)(ii) The expansion-indicating device, as part of the retest apparatus, gives a stable reading of expansion and is accurate to 1.0% of the total expansion of any cylinder tested or 0.1 cc, whichever is larger. The expansion-indicating device itself must have an accuracy of <PLUS-MINUS0.5%, or better, of its full scale.

Exhibit Number #5 Test Record date 1/26/06

Calibrated cylinder pressure test at 3000 psi, pressure returned to "0" after test.

Test record, date Number of cylinders Perm expansion +1.0% of system accuracy
 January 26, 2006 (3 cylinders retested) 0.4cc 0.8%

U.S. DOT/PHMSA/OHME/CE
REPORT NUMBER: 06434025
EXHIBIT NUMBER: 5
PAGE 1 OF 1

Atlanta-1 001101000000 UPS
 750 GRADE LANE
 LOUISVILLE, KY 40213

HIGH PRESSURE CYLINDER RE-TEST REPORT

PPF - Pass Visual, Passed X Perm, Passed REE
 PFA - Pass Visual, Abort X Perm, Abort REE

FAN - Failed Visual, Abort X Perm, Abort REE
 FFA - Pass Visual, Fail X Perm, Abort REE

PPF - Pass Visual, Pass 10% Perm, Fail REE

Disposition Code:

DOT/CTC Registration #????

Test Date: 01/26/2006

SUPERVISOR SIGNATURES:

[Signature]

DATE: 1/26/06

I hereby certify that all the following tests were made under my supervision and in accordance with DOT/CTC regulations.

Test #	Time	Operator	Serial #	Cylinder Size	Gas Service	Cylinder RFG. #/Date	Rating	Pressure Test Unit	Actual Unit	Test Time	Total Perm	Expansion		REE Source	Disp	Repart	
												Perm	Elas				
1	13:10	AUT	SCC83060700C	CAL-CYL ✓	D-2	3000	3000	3002	30	✓	52.0	0.4	0.0	52.4	200.0	PPP	CAL VER ✓
2	13:25	AUT	ST24342	8.50x29	D-2	CDYME 94/2001	3MT-1850	2467	2485	30	120.0	0.0	0.0	120.0	164.9	PPP	SR1127351
3	13:28	AUT	ST24342 ✓	8.50x29	D-2	CDYME 08/2001	3MT-1850	3004	3097	30	160.0	0.0	0.0	160.0	164.9	PPP	SR1127351 ✓
4	13:39	AUT	794013	8.50x29	D-2	PST 12/1998	3MT-1850	2467	2480	30	135.0	0.0	0.0	135.0	179.0	PPP	SR1127346 ✓
5	13:42	AUT	794013 ✓	8.50x29	D-2	PST 12/1998	3MT-1850	3084	3104	30	171.0	0.0	0.0	171.0	179.0	PPP	SR1127346 ✓
6	13:51	AUT	ST11762	8.50x29	D-2	OHME/AB 07/2000	3MT-1850	2467	2486	30	131.0	0.0	0.0	131.0	172.2	PPP	SR1127439
7	13:54	AUT	ST11762 ✓	8.50x29	D-2	OHME/AB 07/2000	3MT-1850	3084	3096	30	163.0	0.0	0.0	163.0	172.2	PPP	SR1127439 ✓

Exhibit Number #6 Test Record date 1/30/06

Calibrated cylinder pressure test at 3000 psi, pressure returned to "0" after test.

Test record, date Number of cylinders Perm expansion +1.0% of system accuracy
 January 30, 2006 (2 cylinders retested) 0.2cc 0.4%

U.S. DOT/PHMSA/OHME/CE
REPORT NUMBER: 06434025
EXHIBIT NUMBER: 6
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AIRCRAFT MAINTENANCE/UPS
 750 GRADE LANE
 LOUISVILLE, KY 40213

HIGH PRESSURE CYLINDER RETEST REPORT

PPF - Pass Visual, Passes X Perm, Passed REC FFA - Failed Visual, Abort X Perm, Abort REC PPF - Pass Visual, Pass 10X Perm, Fail REC
 PFA - Pass Visual, Abort X Perm, Abort REC PFA - Pass Visual, Fail X Perm, Abort REC

DOT/CTC Registration #???? Test Date: 01/30/2006 SUPERVISOR SIGNATURES: Ritasart DATE: 1/30/06

I hereby certify that all the following tests were made under my supervision and in accordance with DOT/CTC regulations.

Test #	Time	Serial #	Cylinder Size	Gas Service	Cylinder Mfg. Date	Rating	Pressure		Expansion Total Perm	Expansion XPerm	Expansion Elas	REC	Dispi Source	Remark		
							Test	Actual								
1	14:26	SDC0060700C	CAL-CYL			3000	3013	50	53.0	0.2	0.4	52.8	200.0	PPP	CAL-VER	
AMJ		UPS					PSI	PSI					N/A			
2	14:33	398832	8.50X29	U-2	PST	3NT-1850	2467	2485	30	130.0	0.0	0.0	130.0	172.2	PPP	SR127576
AMJ		UPS					PSI	PSI					CVL			
3	14:37	398832	8.50X29	U-2	PST	3NT-1850	3004	3098	30	165.0	0.0	0.0	165.0	172.2	PPP	SR127576
AGZ		UPS					PSI	PSI					CVL			
4	14:46	ST17956	8.50X29	U-2	COYME	3NT-1850	2467	2481	30	132.0	0.0	0.0	132.0	169.1	PPP	SR127574
AMJ		UPS					PSI	PSI					CVL			
5	14:50	ST17956	8.50X29	U-2	COYME	3NT-1850	3004	3097	30	166.0	0.0	0.0	166.0	169.1	PPP	SR127574
AMJ		UPS					PSI	PSI					CVL			

Exhibit Number #8 Test Record date 3/3/06

Calibrated cylinder pressure test at 3000 psi, pressure returned to "0" after test.

Test record, date **Number of cylinders** **Perm expansion** **+1.0% of system accuracy**
 March 3, 2006 (4 cylinders retested) 0.2cc 0.4%

U.S. DOT/PHMSA/OHME/CE
REPORT NUMBER: 06434025
EXHIBIT NUMBER: 8
PAGE 1 OF 1

AIRCRAFT MAINTENANCE/UPS
 751 GRADE LANE
 LOUISVILLE, KY 40213

HIGH PRESSURE CYLINDER RETEST REPORT

PPF - Pass Visual, Passed X Perm, Passed REE FFA - Failed Visual, Abort X Perm, Abort REE PPF - Pass Visual, Pass 100 Perm, Fail REE
 PFA - Pass Visual, Abort X Perm, Abort REE PFA - Pass Visual, Fail X Perm, Abort REE

DOT/CTC Registration #7777 Test Date: 03/02/2006 SUPERVISOR SIGNATURES: *[Signature]* DATE: 3/3/06

I hereby certify that all the following tests were made under my supervision and in accordance with DOT/CTC regulations.

Test #	Time / Serial #	Cylinder Size	Gas Service	Cylinder MFG. Date	Rating	Pressure		Test Time	Total Perm	Expansion		REE	Disp Source	Remark		
						Test Unit	Actual Unit			SPerm	Class					
1	09:07	SCC0306738C	CAL-CYL	B-2	3AA699C	3000	3009	30	52.8	0.2	6.4	52.6	200.0	PPF	CAL VCR	
KAH	UPS					PSI	PSI									
2	09:15	ST35003	0.50X29	0-2	06/2003	3HT-1850	2467	2480	30	126.0	6.0	6.0	126.0	176.1	PPF	SR1134343
KAH	UPS					PSI	PSI									
3	09:16	ST35003	0.50X29	0-2	08/2003	3HT-1850	3084	3086	30	166.0	7.0	4.2	155.0	176.1	PPF	SR1134343
KAH	UPS					PSI	PSI									
4	09:27	ST13850	0.50X29	0-2	08/2000	3HT-1850	2467	2483	30	127.0	6.0	6.0	127.0	169.1	PPF	SR1135130
KAH	UPS					PSI	PSI									
5	09:30	ST13850	0.50X29	0-2	08/2000	3HT-1850	3084	3092	30	160.0	6.0	6.0	160.0	169.1	PPF	SR1135130
KAH	UPS					PSI	PSI									

Exhibit Number #9 Test Record date 3/3/06

Calibrated cylinder pressure test at 3000 psi, pressure returned to "0" after test.

Test record, date **Number of cylinders** **Perm expansion** **+1.0% of system accuracy**
 March 3, 2006 (4 cylinders retested) 0.2cc 0.4%

U.S. DOT/PHMSA/OHME/CE
REPORT NUMBER: 06434025
EXHIBIT NUMBER: 9
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AIRCRAFT MAINTENANCE/UPS
 750 GRADE LANE
 LOUISVILLE, KY 40213

HIGH PRESSURE CYLINDER RETEST REPORT
 PPP - Pass Visual, Passed I Perm, Passed REE FAA - Failed Visual, Abort I Perm, Abort REE PFF - Pass Visual, Pass IOT Perm, Fail REE
 PAA - Pass Visual, Abort I Perm, Abort REE PFA - Pass Visual, Fail I Perm, Abort REE
 DOT/CTC Registration #0000 Test Date: 03/03/2006 SUPERVISOR SIGNATURES: *[Signature]* DATE: 3/3/06

I hereby certify that all the following tests were made under my supervision and in accordance with DOT/CTC regulations.

Test #	Time	Serial #	Cylinder Size	Gas Service	Cylinder Mfg. Date	Rating	Pressure		Test Time	Total Perm	Expansion	REE Source	Disposal	Remarks
							(Test Unit)	(Actual Unit)						
1	09:47	SCC030607900	CAL-CVL	O-2		3000	3015	30	00.0	0.0	0.0	205.0	PPP	VAL VER ✓
2	09:56	923211	8.50X29	O-2		3000	2867	30	126.0	0.0	0.0	126.0	PPP	3R1135706
3	09:58	923211	8.50X29	O-2	09/1989	3000	3084	30	159.0	0.0	0.0	159.0	PPP	3R1135706
4	10:04	ST57084	8.50X29	O-2	09/1989	3000	2467	30	130.0	0.0	0.0	130.0	PPP	3R1135712
5	10:07	ST57084	8.50X29	O-2	09/2003	3000	3084	30	164.0	0.0	0.0	164.0	PPP	3R1135712
6		UPS			09/2003	3000	3102	30						

We urgently need to receive an explanation of the tolerance requirements of the EID device that do not pertain to certain readings (i.e. the permanent expansion reading of the calibrated cylinder). Additionally, we request that the probable violations on PHMSA Case No. 06-0257-CRS-CE be dropped, otherwise we may need to consider a formal hearing in accordance with 49 CFR 107.319.

I hope we can resolve this matter as expeditiously as possible in order for us to efficiently operate our business and remain compliant with the regulations.

Best Regards,

A handwritten signature in black ink, appearing to read "Robert A. Stewart". The signature is written in a cursive, somewhat stylized font.

Robert A. Stewart
UPS Component Shop Supervisor
UPS Hydrostatic Shop (RIN number G305)
UPS Aircraft Maintenance Hangar
750 Grade Lane
Louisville, KY 40213
Telephone: (502)-359-8274
Fax: (502)-359-7277