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FAX COVER PAGE

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REFER TO:	LIGO-~~T980123~~ T980102-00-B
SUBJECT:	Althouse's latest VAT valve peak torque data, FYI

NUMBER OF PAGES FAXED INCLUDING THIS COVER SHEET:	6

Sender: wea@acrux.ligo.caltech.edu (Unverified)
te: Tue, 28 Jul 1998 15:25:03 -0700
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om: Bill Althouse <althouse_w@ligo.caltech.edu>
bject: Torque measurements on 10" VAT gate valves at LHO
: wea@ligo.caltech.edu
me-Version: 1.0

e torque measurements for 10" valves mounted on the beam tube are
mpiled in the attached table valvetorques.pdf. The measurements with the
ld torque wrench" (module Y2 only) use the same setup as used for the lab
asurements reported in the earlier memo (LIGO-L980395-01.pdf). The "new
rque wrench" measurements use a more sensitive (75 in-lb full scale)
rque wrench and a 1" socket modified to fit over the valve handle and
ign the torque wrench axis with the lead screw axis on the valve. The
libration factor relating these two is empirically determined in the
ble on the last two pages of the attachment, using measurements on the
o valves available on the bench. The best value for this factor is
ew"/"old" = 1.25.

the new measurements of the valves on Y2, note that the valve at Y26
ows particularly puzzling behavior, with significantly increased torques
7/16 and 7/17 measurements (above our earlier recommended threshhold
iterion), but on 7/20 back to numbers consistent with the first
asurements. On 7/16, Kerry confirmed that this valve still leaked
verely. The valve at Y22 showed a similar increase but remained high on
20.

asurements on 7/23 checked all valves on Y1 and X2. X1 was under vacuum
the time so only two valves were checked. X1 is currently being
r-released and we can check the rest of the X1 valves tommorrow.

] "valvetorques.pdf" DATA, 9844 bytes

LHO 10" GATE VALVE TORQUE MEASUREMENTS version 7/28/98 wea

	Port:	S/N	old torque wrench <---------- 7/8/98 ---------->									new torque wrench <---------- 7/16/98 ---------->												new torq <---------- 7.			
End	Y29	F10-95970/0014	13	15	16	10	12	15	16	10	10	20	19	20	19													
	Y28	F10-95970/0010	10	10	7	10	11	11	9			16	16	16	16													
	Y27	F10-95970/0020	6	8	9	8	9	10				12	12	11	12													
→	Y26	F10-95970/0044	13	11	13	14	14	15	15			17	22	23	23	24	24	25	25	26	26	25	26			28	26	26	27
	Y25	F10-95970/00xx	20	20	20	20	20	20				30	28	28	26	27	28	28										
	Y24	F10-95970/0033	18	18	17	17	18	18				20	20	21	21													
	Y23	F10-95970/0024	20	20	20	19	20	20	19	20	20	26	26	26	26													
→	Y22	F10-96075/0002	13	14	13	13	13	14	13	13	14	17	18	19	19	20	21	21	22	22	22					21	27	26	24
Mid	Y21	F10-95970/0001	10	10	13	13	15	7	11	11		15	14	15														
station	Y19	F10-95970/0006																										
	Y18	F10-95970/0048																										
	Y17	F10-95970/0021																										
	Y16	F10-95970/0017																										
	Y15	F10-95970/0038																										
	Y14	F10-95970/0032																										
	Y13	F10-95970/0046																										
	Y12	F10-95970/0015																										
Corner	Y11	F10-95970/0026																										
station	X11	F10-95970/0009																										
	X12	F10-95970/0036																										
	X13	F10-95970/0008																										
	X14	F10-95970/0039																										
	X15	F10-95970/0040																										
	X16	F10-95970/0045																										
	X17	F10-95970/0041																										
	X18	F10-95970/0035																										
Mid	X19	F10-95970/0004																										
station	X21	F10-95970/0011																										
	X22	F10-95970/0029																										
	X23	F10-95970/0043																										
	X24	F10-95970/0037																										
	X25	F10-95970/0018																										
	X26	F10-95970/0002																										
	X27	F10-95970/0013																										
	X28	F10-95970/0023																										
End	X29	F10-95970/0005																										

LHO 10" GATE VAL

	Port:	ue wrench /17/98 ---------->	<---------- new torque wrench 7/20/98 ---------->	<---------- new torque wrench 7/23/98 ---------->	Comments:
End	Y29		20 20 21 20 20		
	Y28		27 27 28 28 28 27		severe chatter
	Y27		12 12 12 12 12		
	Y26	27 27 28 28	16 17 16 16 17 16		
	Y25		29 30 29 30 27 28 26 27 26 27 27		
	Y24		20 21 21 21 21 22 21 22 22 22		
	Y23		25 26 26 26 26 27 27 28 28 28 28		
	Y22	23 24 24 23	20 20 22 24 24 24 24 23		
Mid	Y21		15 15 15 15 14		
station	Y19			12 12 11	
	Y18			15 15 16 16	
	Y17			20 20 21 21	
	Y16			15 15 16 15 16 18 16 17	binding feel
	Y15			22 21 21 21 21	
	Y14			23 23 24 25 25 26	chatters like Y28
	Y13			18 18 18 19	
	Y12			19 19 20	
Corner	Y11			23	
station	X11				closed
	X12				closed
	X13				closed
	X14				closed
	X15			22 22 22	chatters
	X16				closed
	X17				closed
	X18				closed
Mid	X19			41 41 45 47 49 53 48 52	chatters
station	X21			33 34 34 35	
	X22			22 22 22	
	X23			33 32 31	chatters like Y28
	X24			34 35 36 35 36	
	X25			16 15 15	chatters like Y28
	X26			12 13 12 12	
	X27			12 12 13	chatters like Y28
	X28			11 11 11	chatters like Y28
End	X29			22 22 25 28 27 26 27	

		old torque wrench <---------- 7/13-15/1998 ---------->						new torque wrench <---------- 7/24/98 ---------->														
Lab spare 1	F10-96975/0016																							
	3:00 side	26	25	27	24	23	25	30	30	30	31	30	31	31	30	30	30	30	30	31	30			
	12:00, 9:00 side	21	19					25	23	23	24	24	24	25	24	24	24							
Lab spare 2	F10-95970/0034																							
	3:00 side	21	24	23				29	29	29	29	29	29	29										
	9:00 side	18	18	18				24	24	24	24	25	25	24	25	25								

		old torque wrench <--- 7/28/98 --------->										new torque wrench <---------- 7/28/98 ---------->												
Lab spare 1	F10-96975/0016																							
	3:00 side	26	26	27	25	25	26	26	25	26	25	33	33	32	32	32								
	9:00 side	20	20	20	21	20	21	20	20	21	21	25	25	25	25	25	27	26	26	25	27			
Lab spare 2	F10-95970/0034																							
	3:00 side	25	25	25	26	25	25	26	25	26	25	31	32	33	31	31	30	31	30					
	9:00 side	21	20	20	20	20	21	21	22	22	21	27	26	26	26	27	27	27	27	28	27			

	7/14 ave.	7/24 ave.	ratio
Lab spare 1			
	25	30	1.20
	20	24	1.18
Lab spare 2			
	23	29	1.29
	18	24	1.34

	old ave.	new ave.	ratio
Lab spare 1			
	26	32	1.26
	20	25	1.24
Lab spare 2			
	25	31	1.22
	21	27	1.28