

**From:** Fry, Michael (Houston)  
**Sent:** Monday, April 26, 2010 2:35 AM  
**To:** Boughton, Geoff (Houston)  
**Subject:** Fw: BOP hose registry workbook

**Attachments:** subsea work book (4).xls

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From: Kent, James (Houston)  
To: Fry, Michael (Houston)  
Sent: Sun Apr 25 21:31:06 2010  
Subject: BOP hose registry workbook

James Kent

Rig manager asset

Deepwater Horizon

Office 832-587-8534

Mob.281-687-7188

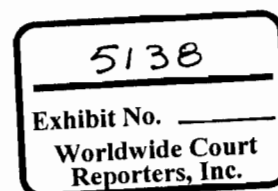
The pessimist complains about the wind.

The optimist expects it to change.

The leader adjusts the sails.

John Maxwell

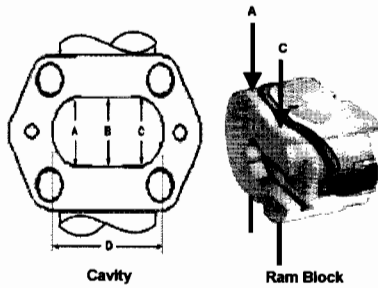
CONFIDENTIAL



TRN-INV-01270976

**Horizon Ram Cavity and Ram Block Measurement History**

For a Cameron 15 K 3/4" Ram Preventer



Measurements Recorded 05/03/06															
WO #	Lower Pipe Rams			Middle Pipe Rams			Upper Pipe Rams			Double Vee Shear Rams			Blind Shear Rams		
Inches	3-1/2 to 6-5/8			3-1/2 to 6-5/8			3-1/2 to 6-5/8								
Ref.	Cavity	Block	Clearance	Cavity	Block	Clearance	Cavity	Block	Clearance	Cavity	Block	Clearance	Cavity	Block	Clearance
A - Port			0.017			0.018			0.017						0.018
B - Port															
C - Port															
D - Port			0.015			0.014			0.010						0.017
A - Stbd			0.011			0.019			0.019						0.017
B - Stbd															
C - Stbd															
D - Stbd			0.016			0.015			0.015						0.016
Notes:															

Measurements Recorded 07/19/06															
WO#	Lower Pipe Rams			Middle Pipe Rams			Upper Pipe Rams			Double Vee Shear Rams			Blind Shear Rams		
Inches	3-1/2 to 6-5/8			3-1/2 to 6-5/8			3-1/2 to 6-5/8								
Ref.	Cavity	Block	Clearance	Cavity	Block	Clearance	Cavity	Block	Clearance	Cavity	Block	Clearance	Cavity	Block	Clearance
A - Port			0.011			0.019			0.019						
B - Port															
C - Port															
D - Port			0.016			0.015			0.015						
A - Stbd			0.017			0.018			0.017						
B - Stbd															
C - Stbd															
D - Stbd			0.015			0.018			0.015						

Measurements Recorded 07/14/07															
WO#	Lower Pipe Rams			Middle Pipe Rams			Upper Pipe Rams			Double Vee Shear Rams			Blind Shear Rams		
Inches	3-1/2 to 6-5/8			3-1/2 to 6-5/8			3-1/2 to 6-5/8								
Ref.	Cavity	Block	Clearance	Cavity	Block	Clearance	Cavity	Block	Clearance	Cavity	Block	Clearance	Cavity	Block	Clearance
A - Port			0.025			0.028			0.031						0.035
B - Port															
C - Port															
D - Port			0.010			0.013			0.010						0.029
A - Stbd			0.025			0.030			0.029						
B - Stbd															
C - Stbd															
D - Stbd			0.009			0.014			0.010						
NOTE:															

Measurements Recorded 12/25/08															
WO #	Lower Pipe Rams			Middle Pipe Rams			Upper Pipe Rams			Double Vee Shear Rams			Blind Shear Rams		
Inches	3-1/2 to 6-5/8			3-1/2 to 6-5/8			3-1/2 to 6-5/8								
Ref.	Cavity	Block	Clearance	Cavity	Block	Clearance	Cavity	Block	Clearance	Cavity	Block	Clearance	Cavity	Block	Clearance
			0.025			0.030			0.021						0.032
			0.011			0.016			0.013						0.014
			0.029			0.037			0.020						0.035
			0.017			0.019			0.014						0.017
Notes:															

Measurements Recorded 08/31/09															
WO #	Lower Pipe Rams			Middle Pipe Rams			Upper Pipe Rams			Double Vee Shear Rams			Blind Shear Rams		
Inches	3-1/2 to 6-5/8			3-1/2 to 6-5/8			3-1/2 to 6-5/8								
Ref.	Cavity	Block	Clearance	Cavity	Block	Clearance	Cavity	Block	Clearance	Cavity	Block	Clearance	Cavity	Block	Clearance
			0.025			0.029			0.250						0.031
			0.008			0.012			0.120						0.140
			0.033			0.030			0.260						0.290
			0.010			0.016			0.130						0.130
Notes:															

LAST UPDATED: 02/26/10

LAST UPDATED: February-10

HYDRAULIC FUNCTION NUMBER	FUNCTION NAME	PART NUMBER	DATE CHANGED LAST			SEMS SHOPPED		
			Pod # 1	Pod # 2	Pod # 3	SEM #1	SEM #2	SEM #3
			OVERHAULED 04/09	OVERHAULED 09/08	OVERHAULED 01/07			
	Hydraulic valves and Regulators							
	VALVE	DESCRIPTION	PART NUMBER	Pod # 1	Pod # 2	Pod # 3		
		LMRP					09/09 TO PRESENT	
5	LOWER ANNULAR REG	309532-01	6/15/2009	09/25/09	4/14/2006			
3	UPPER ANNULAR REG.	309532-01	10/21/2008	09/25/09	4/13/2006			
14	LOWER ANN. CLOSE	309915-03	1/4/2005	09/03/06	5/21/2006			
13	LOWER ANN. OPEN	309915-03	11/3/2005	09/19/06	3/15/2006			
12	UPPER ANN. CLOSE	309915-03	12/13/2007	12/14/06	3/16/2006			
11	UPPER ANN. OPEN	309915-03	11/12/2007	11/26/07	3/15/2006			
31/32	C/K CONN. PRIMARY	309470-02	3/6/2007	08/01/05	7/10/2006			
33/34	C/K CONN. SEC.	309470-02	3/6/2007	08/01/05	7/11/2006			
35/36	MUD BOOST	309470-02	3/18/2006	08/02/05	7/11/2006			
37/38	C/K ISOLATION	309470-02	3/18/2006	08/02/05	7/8/2006			
25/26	INNER BLEED	309470-02	3/6/2007	03/06/07	7/10/2006			
27/28	OUTER BLEED	309470-02	3/18/2006	03/06/07	7/10/2006			
54	LMRP CONN. GASKET	309470-02	3/6/2007	03/06/07	7/11/2006			
47/48	WELLBORE P/T CONN.	309470-02	3/18/2006	07/08/05	7/11/2006			
7	LMRP CONN. REG	656002-08	8/19/2006	09/25/09	12/19/2005			
17/18	LMRP CONN.	656002-07	5/21/2008	01/26/06	7/6/2006			
31	LMRP CONN. SEC.	656002-07	1/12/2007	08/05/05	4/12/2006			
63	WELLHEAD CONN REG	656002-08	5/23/2008	12/29/06	2/3/2010			
79/80	WELLHEAD CONN.	656002-07	5/24/2008	06/08/06	1/15/2006			
81	WELLHEAD CONN. SEC	656002-07	1/12/2007	12/29/06	4/10/2006			
61	POD MANIFOLD REG	309532-01	6/13/2005	12/29/08	7/5/2006			
71/72	CASING SHEAR RAM	2185014-04	12/21/2004	09/25/09	5/10/2006			
65/66	SHEAR/BLIND RAM	2185014-04	5/15/2007	07/15/07	7/5/2006			
75/76	UPPER PIPE RAM	2185014-04	11/10/2003	01/08/06	5/17/2006			
77/78	MIDDLE PIPE RAM	2185014-04	11/10/2003	01/30/06	5/17/2006			
91/92	UPPER OUTER CHOKE	309470-02	3/6/2007	07/01/05	7/10/2006			
93/94	UPPER INNER CHOKE	309470-02	7/8/2005	06/11/06	7/10/2006			
95/96	LOWER OUTER CHOKE	309470-02	3/6/2007	07/02/05	10/7/10/06			
97/98	LOWER INNER CHOKE	309470-02	7/8/2005	07/01/05	7/10/2006			
83/84	UPPER OUTER KILL	309470-02	3/3/2007	07/01/05	7/10/2006			
85/86	UPPER INNER KILL	309470-02	7/8/2005	07/02/05	7/10/2006			
87/88	LOWER OUTER KILL	309470-02	7/8/2005	07/01/05	7/9/2006			
89/90	LOWER INNER KILL	309470-02	3/6/2007	07/02/05	7/9/2006			
111/112	WELLHEAD CONN. GAS.	309470-02	8/6/2005	06/30/05	7/9/2006			
109/110	STACK STING. SEAL	309470-02	8/6/2005	08/02/05	7/9/2006			
107/108	STACK STINGER	309470-02	3/6/2007	08/01/05	7/9/2006			
	R.O.V.	2185053-03	1/30/2006	06/30/05	5/4/2006			
70	ST LOCKS	309915-03	1/4/2005	12/24/06	8/30/2006			
67/68	LOWER PIPE RAMS (TEST)	2185014-04	12/24/2006	01/30/06	5/4/2006			
82	STACK ACC. CHARGE	21865611	8/6/2005	07/31/05	5/4/2006			
	POD PILOT REGULATOR	251195-02	3/30/2008	06/09/06				
		SEM batteries replaced	04/25/09					
		SEM batteries replaced		10/13/09				
		SEM batteries replaced			11/04/07			
	Description	Location	Date	Changed	Last			
	Solenoids	Pie	Pod 1	Pod 2	Pod 3			
S-85	Upper Inner Kill Open	1A	01/21/09	05/29/08	02/01/10			
S-86	Upper Inner Kill Close	1B	01/21/09	12/26/08	01/07/07			
S-87	Lower Outer Kill Open	1C	01/21/09	05/29/08	02/01/10			
S-88	Lower Outer Kill Close	1D	01/21/09	05/29/08	02/01/10			
S-105	BLANKED OFF	PLUG						
S-106	BLANKED OFF	PLUG						
S-3A	Upper Annular Regulator Increase	2A	01/21/09	05/29/08	01/07/07			
S-3B	Upper Annular Regulator Decrease	2B	01/21/09	05/29/08	01/07/07			
S-5A	Lower Annular Regulator Increase	2C	01/21/09	05/29/08	11/03/07			
S-5B	Lower Annular Regulator Decrease	2D	01/21/09	05/29/08	01/07/07			
S-7A	LMRP Conn. Regulator Increase	2E	01/21/09	12/26/08	01/07/07			
S-7B	LMRP Conn. Regulator Decrease	2F	01/21/09	05/29/08	01/07/07			
S-11	Upper Annular Open	3A	01/21/09	05/29/08	02/01/10			
S-12	Upper Annular Close	3B	01/21/09	01/31/10	02/01/10			
S-13	Lower Annular Open	3C	01/21/09	05/29/08	01/07/07			
S-14	Lower Annular Close	3D	01/21/09	01/31/10	01/07/07			
S-15	BLANKED OFF	PLUG						
S-57	LMRP Accumulator Dump Dump	3F	01/21/09	05/29/08	02/01/10			
S-49	Pod Select Pilot Open	4A	01/21/09	12/26/08	01/07/07			
S-54	LMRP Conn. Gasket Release Release	4B	01/21/09	05/29/08	01/07/07			
S-55	Spare	PLUG						
S-56	Pod Locks	4D	01/21/09	05/29/08	01/07/07			
S-31	LMRP Conn. Secondary Unlatch	4E	01/21/09	05/29/08	01/07/07			
S-33	Choke & Kill Conn. Secondary Unlatch	4F	01/21/09	05/29/08	01/07/07			
S-35	Mud Boost Valve Open	5A	01/21/09	01/31/10	02/01/10			
S-36	Mud Boost Valve Closed	5B	01/21/09	05/29/08	02/01/10			
S-39	BLANKED OFF	PLUG						
S-40	BLANKED OFF	PLUG						
S-41	BLANKED OFF	PLUG						
S-46	Conduit Flush Open	5F	01/21/09	05/29/08	01/07/07			
S-47	Wellbore P/T Sensor Conn Extend	6A	01/21/09	12/26/08	01/07/07			
S-48	Wellbore P/T Sensor Conn Retract	6B	01/21/09	05/29/08	01/07/07			
S-50	LMRP Stinger Extend	6C	01/21/09	05/29/08	01/07/07			
S-51	LMRP Stinger Retract	6D	01/21/09	05/29/08	01/07/07			
S-52	LMRP Stinger Seals Energize	6E	01/21/09	05/29/08	01/07/07			
S-53	LMRP Stinger Seals De-Energize	6F	01/21/09	05/29/08	01/07/07			

LAST UPDATED: 02/26/10

LAST UPDATED: February-10

HYDRAULIC FUNCTION NUMBER	FUNCTION NAME					SEMS SHOPPED
S-111	Wellhead Conn. Gasket Hold	7A	01/21/09	05/29/08	01/07/07	
S-112	Wellhead Conn. Gasket Release	7B	01/21/09	05/29/08	01/07/07	
S-19	Choke & Kill Conn Primary Unlatch	7C	01/21/09	05/29/08	09/06/09	
S-20	Choke & Kill Conn Primary Latch	7D	01/21/09	12/26/08	01/07/07	
S-37	Choke & Kill Isolation Valve Open	7E	01/21/09	05/29/08	01/07/07	
S-38	Choke & Kill Isolation Valve Close	7F	01/21/09	05/29/08	01/07/07	
S-107	Stack Stinger Extend	8A	01/21/09	05/29/08	01/07/07	
S-108	Stack Stinger Retract	8B	01/21/09	05/29/08	01/07/07	
S-109	Stack Stinger Seals Energize	8C	01/21/09	05/29/08	01/07/07	
S-110	Stack Stinger Seals De-Energize	8D	01/21/09	05/29/08	02/01/10	
S-103	High Pressure Shear Close	8E	01/21/09	05/29/08	01/07/07	
S-95	Lower Outer Choke Open	9A	01/21/09	05/29/08	01/07/07	
S-96	Lower Outer Choke Close	9B	01/21/09	01/31/10	01/07/07	
S-97	Lower Inner Choke open	9C	01/21/09	12/26/08	01/07/07	
S-98	Lower Inner Choke Close	9D	01/21/09	05/29/08	01/07/07	
S-99	High Pressure Casing Shear Close	9E	01/21/09	05/29/08	01/07/07	
S-101	Stack Accum Dump Dump	9F	01/21/09	05/29/08	01/07/07	
S-91	Upper Outer Choke Open	10A	01/21/09	05/29/08	01/07/07	
S-92	Upper Outer Choke Close	10B	01/21/09	05/29/08	01/07/07	
S-75	Upper Pipe Ram Open	10C	01/21/09	12/26/08	01/07/07	
S-76	Upper Pipe Ram Close	10D	01/21/09	05/29/08	01/07/07	
S-77	Middle Pipe Ram Opne	10E	01/21/09	05/29/08	01/07/07	
S-78	Middle Pipe Ram Close	10F	01/21/09	05/29/08	01/07/07	
S-61A	Pod Manifold Regulator Pilot Increase	11A	01/21/09	05/29/08	01/07/07	
S-61B	Pod Manifold Regulator Pilot Decrease	11B	01/21/09	05/29/08	01/07/07	
S-63A	Wellhead Conn Regulator Pilot Increase	11C	01/21/09	05/29/08	01/07/07	
S-63B	Wellhead Conn Regulator Pilot Decrease	11D	01/21/09	05/29/08	01/07/07	
S-65	B/S Ram Open	11E	01/21/09	05/29/08	01/07/07	
S-66	B/S Ram Close	11F	01/21/09	05/29/08	01/07/07	
S-67	Lower Pipe Ram Open	12A	01/21/09	05/29/08	01/07/07	
S-68	Lower Pipe Ram Close	12B	01/21/09	05/29/08	01/07/07	
S-69	Spare	PLUG				
S-70	ST Locks Lock	12D	01/21/09	12/26/08	01/07/07	
S-71	Casing Shear Ram Open	12E	01/21/09	05/29/08	01/07/07	
S-72	Casing Shear Ram Close	12F	01/21/09	05/29/08	01/07/07	
S-79	Wellhead Conn Primary Unlatch	13A	01/21/09	05/29/08	01/07/07	
S-80	Wellhead Conn Primary Latch	13B	01/21/09	05/29/08	01/07/07	
S-81	Wellhead Conn Secondary Unlatch	13C	01/21/09	05/29/08	01/07/07	
S-82	Stack Accumulator Charge	13D	01/21/09	12/26/08	01/07/07	
S-83	Upper Outer Kill Open	13E	01/21/09	05/29/08	01/07/07	
S-84	Upper Outer kill Close	13F	01/21/09	05/29/08	01/07/07	
S-17	LMRP Connector Primary Unlatch	14A	01/21/09	05/29/08	01/07/07	
S-18	LMRP Connector Primary Latch	14B	01/21/09	05/29/08	01/07/07	
S-21	Accumulator Charge Pilot	14C	01/21/09	05/29/08	01/07/07	
S-22	BLANKED OFF	PLUG				
S-23	BLANKED OFF	PLUG				
S-24	BLANKED OFF	PLUG				
S-25	Inner Bleed Open	15A	01/21/09	05/29/08	01/07/07	
S-26	Inner Bleed Close	15B	01/21/09	05/29/08	01/07/07	
S-27	Outer Bleed Open	15C	01/21/09	05/29/08	01/07/07	
S-28	Outer Bleed Close	15D	01/21/09	12/26/08	01/07/07	
S-29	Yellow Pilot Supply Open	15E	01/21/09	05/29/08	01/07/07	
S-30	BLANKED OFF	PLUG				
S-89	Lower Inner Kill Open	16A	01/21/09	05/29/08	02/01/10	
S-90	Lower Inner Kill Close	16B	01/21/09	05/29/08	01/07/07	
S-42	Yellow Pod Conduit Supply Open	16C	01/21/09	05/29/08	01/07/07	
S-43	Blue Pod Conduit Supply Open	16D	01/21/09	05/29/08	01/07/07	
S-93	Upper Inner Choke Open	16E	01/21/09	05/29/08	01/07/07	
S-94	Upper Inner Choke Close	16F	01/21/09	05/29/08	02/01/10	
S-73	Spare	PLUG				
S-74	Spare	PLUG				
S-58	Blue/Yellow Pilot Supply Dump Open	17C	01/21/09	05/29/08	01/07/07	
S-115	BLANKED OFF	PLUG				
S-116	BLANKED OFF	PLUG				
			01/21/09	05/29/08	01/07/07	
S-121	Autoshear Arm	18A	01/21/09	05/29/08	01/07/07	
S-122	Autoshear Disarm	18B	01/21/09	05/29/08	01/07/07	