PROCEDURE VARIATION SHEET ref. N°: PVS - 01

Test Procedure Ref.:	Page Revised:	Paragraph Revised:
PDS-PR-CGS-013 Issue2	36	18.4

Description of Change:

The following sentence

WAS:

The Running Torque (Locking Torque) of each screws shall be measured verifying if it is into the Running Torque Limits. The Final Torque considered to tighten the screw shall be calculated summing the measured running torque and the maximum seating torque

IS:

The Running Torque (Locking Torque) of each screws shall be measured verifying if it is into the Running Torque Limits. The Final Torque considered to tighten the screw shall be calculated summing the measured running torque and the mean seating torque

Reason for Change:

The seating torque shall be taken in the middle of the range.

CONCURRENCE

Test Cond.	QA	System Eng.		Customer
F. Duo'	E. Francini	S. Alia		
Date 30/7/2009	Date 30/7/2009	Date 30/7/2009		Date

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PROCEDURE VARIATION SHEET ref. N°: PVS - 02

Test Procedure Ref.:	Page Revised:	Paragraph Revised:
PDS-PR-CGS-013 Issue2	42	18.4

Description of Change:

The step 1.3, 1.4 and 1.5 have ~~not~~ been performed. THE 30/7/2009

Check of the final torque has been performed before the vibration test start for all the 50 (fifty) screws.

Remarks column of annex A to PDS-RP-CGS-118 report the sentence torque check performed, signature and date.

Reason for Change:

The PDS has been constrained to the IF plate tightening the screws at the right torque the 30/07/2009 a simple check of the torque ~~is enough and unnecessary screwing and unscrewing operations, that can increase the risk to damage helicoils, are avoided~~ HAS BEEN PERFORMED AFTER THE TRANSPORTATION, TO BE SURE THAT NOTHING ACCURED. ~~BEFORE THE TRANSPORTATION DURING THE~~

CONCURRENCE

Test Cond.	QA	System Eng.		Customer
F. Duo'	E. Francini			
Date 3/8/2009	Date 03/08/09	Date 3/8/09		Date

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PROCEDURE VARIATION SHEET ref. N°: PVS - 03

Test Procedure Ref.:	Page Revised:	Paragraph Revised:
PDS-PR-CGS-013 Issue2	30	18.2.1

Description of Change:

A MONO AXIAL ACCELEROMETER HAS BEEN ADDED IN THE CENTER OF THE FIXTURE (SENSIBLE DIRECTION Y)
NAME OF THE ACCELEROMETER IS MP10, SEE PAGE 4 OF ANNEX B.

Reason for Change:

MONITOR THE BEHAVIOUR OF THE FIXTURE IN ITS CENTRAL AREA.

CONCURRENCE

Test Cond.	QA	System Eng.		Customer
F. Duo'				
Date 3/8/2009	Date 03/08/09	Date 03/08/09		Date

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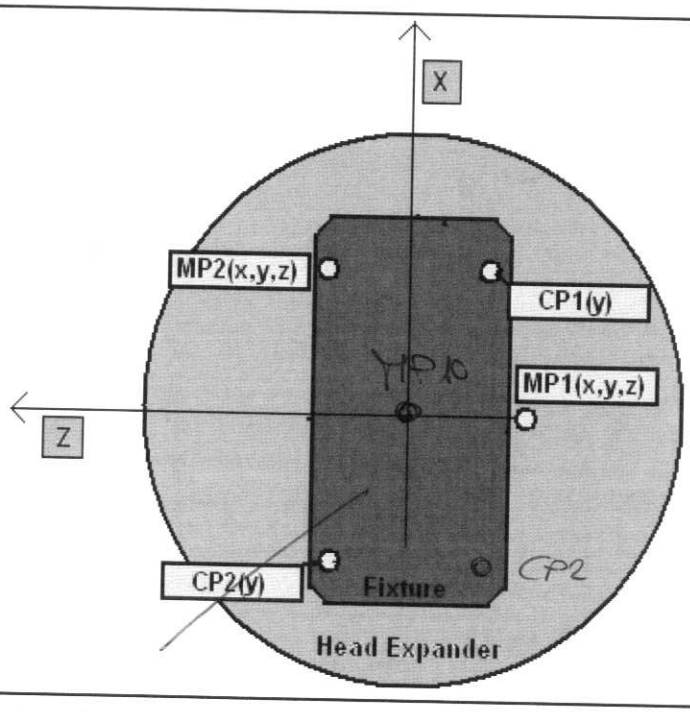
PVS-03 ANNEX B TO PDS-RP-CGS-118 PAGE 4/12

18.2 INSTRUMENTATION PLAN – Y AXIS

18.2.1 FIXTURE CALIBRATION UNLOADED – Y AXIS

Instrumentation for Fixture Calibration (Unloaded) - X axis					
CP/MP ID	SENSITIVITY AXIS			Position	REMARKS
	X	Y	Z		
CP1		1		Fixture	
CP2		1		Fixture	
MP1	1	1	1	Head Expander	
MP2	1	1	1	Fixture	
MP10	/	/	1	FIXTURE	
TOTAL	2	4	~~2~~ 3	~~8~~ 9	

CP = Control Point
MP = Measure Point



Tab 18-4- Instrumentation for Fixture Calibration (Unloaded) - Y axis

SEE PVS-03 MP10 ADDED

See PVS-04

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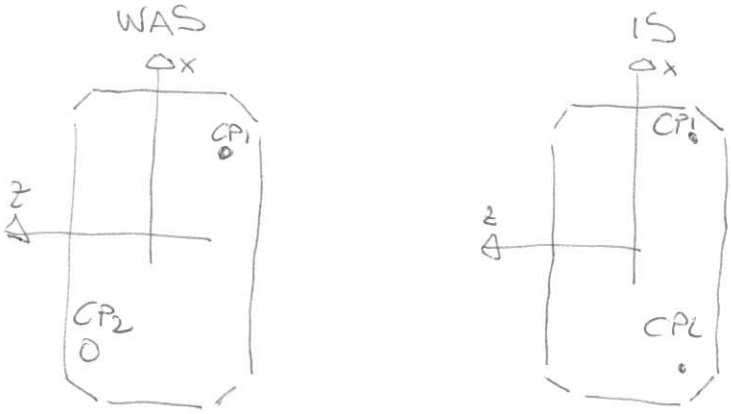
PROCEDURE VARIATION SHEET ref. N°: PVS - 04

Test Procedure Ref.:	Page Revised:	Paragraph Revised:
PDS-PR-CGS-013 Issue2	30	18.2.1

Description of Change:

CONTROL ACCELEROMETER "CP2" HAS BEEN MOVED.



Reason for Change:

THE REASON OF THE REALLOCATION OF THE CP2 IS TO HAVE A BETTER CONTROL OF THE SHAKER TABLE. WITH THE CP2 IN THE "WAS" POSITION WAS NOT POSSIBLE TO COMPLETE THE SWEEP

CONCURRENCE

Test Cond.: F. Duo'	QA	System Eng.:		Customer
Date 3/8/2009	Date 03/08/09	Date 03/08/09		Date

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PROCEDURE VARIATION SHEET ref. N°: PVS - 05

Test Procedure Ref.:	Page Revised:	Paragraph Revised:
PDS-PR-CGS-013 Issue2	46 to 48 55 to 57 64 to 66	3.2, 3.3, 4.2., 4.3, 5.2, 5.3

Description of Change:

FIXTURE LOADED RESONANCE SEARCH AND PDS ~~VIBRATION~~ RESONANCE ~~TEST~~ SEARCH BEFORE VIBRATION TESTS ~~[illegible]~~ (ACC AXIS)

WAS	IS
TWO DIFFERENT STEPS	ONE SINGLE STEP

Reason for Change:

IT IS NOT NECESSARY PERFORM THE FIXTURE LOADED ~~RE~~ R.S. AND PDS R.S. BEFORE VIBE TEST IN TWO DIFFERENT STEPS BECAUSE THERE ARE ENOUGH CHANNELS TO RECORD THE RESPONSES OF ALL ACCELEROMETERS IN ONE STEP.

CONCURRENCE

Test Cond. F. Duo'	QA	System Eng.		Customer
Date 03/08/09	Date 03/08/09	Date 3/08/09		Date

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PROCEDURE VARIATION SHEET ref. N°: PVS - 06

Test Procedure Ref.:	Page Revised:	Paragraph Revised:
PDS-PR-CGS-013 Issue2	49 - 50	3.4 - 3.5

Description of Change:

The input random spectrum WAS: (y AXIS)

MWL Spectrum

All Axes	20 Hz	0.01 g^2/Hz
	20-80 Hz	+3 dB/Octave
	80-500 Hz	0.04 g^2/Hz
	500-2000 Hz	-3 dB/Octave
	2000 Hz	0.01 g^2/Hz
	Overall = 6.8 Grms	

IS:

NOTCHED SPECTRUM

LOW LEVEL	
20	6,31e-4
80	2,52e-3
230	2,52e-3
330	5,05e-4
550	5,05e-4
570	1,26e-4
800	1,26e-4
810	1,558e-3
2000	6,31e-4
f [Hz]	PSD [g²/Hz]
gRMS = 1,60	

FULL LEVEL	
20	1e-2
80	4e-2
230	4e-2
330	8e-3
550	8e-3
570	2e-3
800	2e-3
810	2,47e-2
2000	1e-2
f [Hz]	PSD [g²/Hz]
gRMS = 5,58	

Reason for Change:
On the base of the resonance search results the transfer function for the random input has been calculated for each accelerometer in the direction of the excitation.
The output PSD for these accelerometers on the unit have been calculated multiplying the transfer function by the MWL input.
The foreseen accelerometer response (gRMS) for the sensors listed below exceed the limit 6.8+/-10% gRMS:
MP3y = 3,57 MP5y = 9,85
The notched spectrum is above the MEFL for all the range of frequency so the notching is in line with the rules of chapter 11 of PDS-PR-CGS-013 Issue2.
The foreseen accelerometers response due to the input notched spectrum (gRMS) is:
LOW LEVEL: MP3 = 1,85 MP5 = 1,58
FULL LEVEL: MP3 = 7,36 MP5 = 6,34

CONCURRENCE

Test Cond. F. Duo'	QA	System Eng.		Customer
Date 4/8/2009	Date 04/08/09	Date 4/8/09		Date

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PROCEDURE VARIATION SHEET ref. N°: PVS - 07

Test Procedure Ref.:	Page Revised:	Paragraph Revised:
PDS-PR-CGS-013 Issue2	52 to 55	3.6.8, 4.1 ÷ 4.2

Description of Change:

UNLOADED FIXTURE R.S. ALONG X HAVE NOT BEEN PERFORMED

THE UUT HAS NOT BEEN REMOVED FROM THE FIXTURE

STEPS 3.6.8
4.1.2
4.1.4
4.1.5
4.1.6
4.2.1
4.2.2

HAVE NOT BEEN PERFORMED

Reason for Change:

FIXTURE AND ADAPTATION PLATES ARE EXITED IN PLANE. IN THIS DIRECTION NO RESONANCE EXPECTED IN THE RANGE OF FREQUENCY OF INTEREST.

CONCURRENCE

Test Cond. F. Duo'	QA	System Eng.		Customer
Date 04/08/09	Date 04/08/09	Date 04/08/09		Date

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PROCEDURE VARIATION SHEET ref. N°: PVS - 08

Test Procedure Ref.:	Page Revised:	Paragraph Revised:
PDS-PR-CGS-013 Issue2	58 - 58	4.4.4 - 4.5.4

Description of Change:

FOR THE LOW LEVEL THE MAX OUTPUT gRMS FOR THE ACCELEROMETERS IN THE EXCITATION DIRECTION WAS IS

$\leq 1.7 \pm 10\%$ gRMS ≤ 1.8 gRMS

FOR THE FULL LEVEL THE MAX OUTPUT gRMS FOR THE ACCELEROMETERS IN THE EXCITATION DIRECTION WAS IS

$\leq 6.8 \pm 10\%$ gRMS ≤ 7.6 gRMS

Reason for Change:

THE AMPLIFICATION FACTOR ~~OF~~ THE UNIT IS << THAN THE AMPLIFICATION FACTOR CONSIDERED IN THE FE ANALYSIS. THE DIFFERENCE ~~OF~~ OF THE RECORDED gRMS ON THE ACCELEROMETERS W.R.T. THE EXPECTED LEVELS CAN BE CONSIDERED NEGLIGIBLE.

CONCURRENCE

Test Cond. F. Duo'	QA	System Eng.		Customer
Date 04/08/09	Date 04/08/09	Date 4/8/09		Date

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PROCEDURE VARIATION SHEET ref. N°: PVS - 09

Test Procedure Ref.:	Page Revised:	Paragraph Revised:
PDS-PR-CGS-013 Issue2	61 to 64	4.6.8 - 5.1 - 5.2

Description of Change:

UNLOADED FIXTURE R.S. ALONG Z HAVE NOT BEEN PERFORTED

THE UUT HAS NOT BEEN REMOVED FROM THE FIXTURE

STEPS

4.6.8
5.1.2
5.1.4
5.1.5
5.1.6
5.2.1
5.2.2

HAVE NOT BEEN PERFORTED.

Reason for Change:

FIXTURE AND ADAPTATION PLATES ARE EXCITED IN PLANE. IN THIS DIRECTION NO RESONANCE EXPECTED IN THE RANGE OF FREQUENCY OF INTEREST.

CONCURRENCE

Test Cond.	QA	System Eng.		Customer
F. Duo'				
Date 4/08/03	Date 04/08/09	Date 4/8/09		Date

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PROCEDURE VARIATION SHEET ref. N°: PVS - 10

Test Procedure Ref.:	Page Revised:	Paragraph Revised:
PDS-PR-CGS-013 Issue2	67 - 68	5.4. - 5.5.

Description of Change:

The input random spectrum (Z Axis)
WAS:

MWL Spectrum

All Axes	20 Hz	0.01 g^2/Hz
	20-80 Hz	+3 dB/Octave
	80-500 Hz	0.04 g^2/Hz
	500-2000 Hz	-3 dB/Octave
	2000 Hz	0.01 g^2/Hz
	Overall = 6.8 Grms	

IS:

NOTCHED SPECTRUM

FULL ~~LOW~~ LEVEL

20	1e-2
80	4e-2
220	4e-2
250	2,5e-2
300	2,5e-2
420	9,33e-3
700	9,54e-3
715	1,2e-2
2000	4,3e-3
f [Hz]	PSD [g^2/Hz]
gRMS = 4,77	

LOW ~~FULL~~ LEVEL

20	6,31e-4
80	2,524e-3
220	2,524e-3
250	1,577e-3
300	1,577e-3
420	5,887e-4
700	6,019e-4
715	7,571e-4
2000	2,713e-4
f [Hz]	PSD [g^2/Hz]
gRMS = 1,2	

Reason for Change:
On the base of the resonance search results the transfer function for the random input has been calculated for each accelerometer in the direction of the excitation.
The output PSD for these accelerometers on the unit have been calculated multiplying the transfer function by the MWL input.
The foreseen accelerometer response (gRMS) for the sensors listed below exceed the limit 6.8+/-10% gRMS:
MP3 = 10,42 gRMS, MP4 = 10,24 gRMS, MP5 = 8,24 gRMS, MP6 = 11,30 gRMS
The notched spectrum is above the MEFL for all the range of frequency so the notching is in line with the rules of chapter 11 of PDS-PR-CGS-013 Issue2.
The foreseen accelerometers response due to the input notched spectrum (gRMS) is:
LOW LEVEL: MP3 = 1,71 gRMS, MP4 = 1,66 gRMS, MP5 = 1,38 gRMS, MP6 = 1,82 gRMS
FULL LEVEL: MP3 = 6,73 gRMS, MP4 = 6,61 gRMS, MP5 = 5,50 gRMS, MP6 = 7,24 gRMS

CONCURRENCE

Test Cond. F. Duo'	QA	System Eng.		Customer
Date 05/08/09	Date 05/08/09	Date 5/8/09		Date

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PROCEDURE VARIATION SHEET ref. N°: PVS - 11

Test Procedure Ref.:	Page Revised:	Paragraph Revised:
PDS-PR-CGS-013 Issue2	68	5.5.4

Description of Change:

FOR THE FULL LEVEL THE MAX OUTPUT gRMS FOR THE ACCELEROMETERS IN THE EXCITATION DIRECTION

WAS	IS
≤ 6,8 ± 10%	≤ 7,6

Reason for Change:

THE AMPLIFICATION FACTOR OF THE UNIT IS << THAN THE AMPLIFICATION FACTOR CONSIDERED IN THE FE ANALYSIS. THE DIFFERENCE OF THE RECORDED gRMS ON THE ACCELEROMETERS W.R.T. THE EXPECTED LEVELS CAN BE CONSIDERED NEGLIGIBLE.

CONCURRENCE

Test Cond. F. Duo'	QA	System Eng.		Customer
Date 05/08/09	Date 05/08/09	Date 5/8/09		Date

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