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Appendix 1: Investigation Committee forming Resolution

الجمهورية العربية الليبية الشعبية الاشتراكية العظمى
اللجنة الشعبية العامة للمواصلات والنقل
مصلحة الطيران المدني
قرار رقم (87) لسنة 1378 هـ ر . ج 2010 مسيحي
بتتآن لتشكل لجنة تحقيق

أمين اللجنة الإدارية ...

– بعد الإطلاع على قانون الطيران المدني رقم 6 لسنة 1373 و.ر.
– وعلى قرار اللجنة الشعبية العامة رقم 35 لسنة 1371 و.ر. ، بشأن إنشاء مصلحة الطيران المدني.
– وعلى قرار الأمين المساعد لشئون الخدمات رقم (1294) لسنة 1371 و.ر. ، بشأن إصدار الهيكل التنظيمي واللوائح المالية والإدارية لمصلحة الطيران المدني.
– وعلى قرار أمانة اللجنة الشعبية العامة رقم 66 لسنة 2010 مسيحي ، بشأن تسمية أمين وأعضاء اللجنة الإدارية لمصلحة الطيران المدني.
– وعلى ما عرضه الاح مدير ادارة السلامة الجوية بالمصلحة

قــــــــــــا
مادة (1)

تشكل لجنة تحقيق على النحو التالي :

رئيسا	1. ناجي رمضان ضوء
عضوا	2. بشير محمد عبدالله
عضوا	3. احمد ابولقاسم جوال
عضوا	4. عبدالواحد محمد ابوشعاليه
عضوا	5. امحمد عمر العلافي
عضوا	6. عميد / ابولقاسم عمار احمد
عضوا	7. عميد / رمضان العكروبي القوقارشي
عضوا	8. عبدالسلام رضوان النقي
عضوا	9. عمران سالم الارباح
عضوا	10. عبدالحكيم النيتوري تارس
عضوا	11. طيار / عبدالله خليفة نصر

مادة (2)

تبولى اللجنة المشكلة بموجب المادة الاولى من هذا القرار التحقيق في موضوع حادث تحطم الطائرة التابعة للخطوط الجوية الافريقية رحلة رقم (771) القادمة من جنوب افريقيا بتاريخ 2010/5/12 مسيحي، بمطار طرابلس العالمي وذلك لمعرفة العوامل والاسباب التي ادت الى وقوع الحادث وتحديد الجهات المسؤولة عن حدوثه.

مادة (3)

يجوز للجهات الدولية والتابعة للدول ذات العلاقة بالحادث المشاركة في كافة مراحل التحقيق بصفه استشارية وهي :

1. مكتب التحقيق الفرنسي
2. شركة الأيرباس
3. هيئة السلامة الهولندية
4. مكتب التحقيق بجمهورية جنوب افريقيا
5. هيئة سلامة النقل الامريكينة

مادة (4)

على اللجنة تقديم تقرير بما يتم التوصل اليه متضمنا أسباب الحادث والظروف التي احاطت به ونتائجه والأدلة والمعلومات الجوهرية التي بنيت عليها نتيجة التحقيق مشفوعا بتوصياتها بالخصوص.

مادة (5)

يعمل بهذا القرار اعتباراً من تاريخ صدوره وعلى الجهات المختصة تنفيذه كلاً فيما يخصه.

محمد محمد سليمان
رئيس اللجنة الوطنية للمصحة



صدر في 13/5/2010
بمقر اللجنة الوطنية للمصحة
طرابلس

APPENDIX 2 : Transcript of the SSCVR

FOREWORD

The following is the transcript of the elements which were understood from the work on the SSCVR recording. This transcript contains conversations between crew members, radiotelephonic messages and various noises corresponding, for example, to the movement of selectors or to alarms.

The reader's attention is drawn to the fact that the recording and transcript of a SSCVR are only a partial reflection of events and of the atmosphere in a cockpit. Consequently, the utmost care is required in the interpretation of this document.

The voices of crew members are heard via the different channels of the SSCVR (CAM and headset microphone). They are placed in separate columns for reasons of clarity. Two other columns are reserved for others exchange (ex: cabin crew members, other Aircraft, ATC communications,...) and sounds and alarms heard via the CAM.

UTC	Timing synchronized with SSFDR / ATC communications
SV	Synthetic voice
→	Communications with ATC
(@)	Sound heard on the CAM channel
()	Word or group of words in parentheses are doubtful
(word)	Word or group of words in italic and in parentheses are the Arabic words in letter
[word]	Word or group of words between hooks are translated from the Arabic
(*)	Word or group of words not understood

UTC Time	Captain	First Officer	ATC, other aircraft, other voices	Remarks, sounds
03:26:02	TPI A 771 Salamo Alikum (السلام عليكم)		Alaikum Asalam Nharek Mobarek	
03:26:05			(عليكم السلام نهارك مبارك) Squawk 4032	
03:26:08	4032 On the squawk level 400 GRT 35 Inshaa Allah (أن شاء الله) TPI 03		Roger	
03:26:43			AAW 771 Radar contact 55 miles south of position GRT FL 400 clearance to TPI present position direct to 10 mile final Rwy 09 to locater approach to report when ready for descent TPI wind is calm vis 6 km sky clear T19/17 on the QNH 1008	
03:27:11	Copied AAW 771 TPI GRT direct to 10 miles to TW RWY 09 and copied the weather 1009 1008 call you for descent Inshaa Allah (إن شاء الله)			
03:27:26			Inshaa Allah (إن شاء الله) A721 request your mach number?	
03: 27:49				Cpt A721 we are .79 and we can descent at any time sir

03:30:55			Roger able to increase your speed A765 request your mach Number	
03: 27:04				A721 Mafish Moshkela marra wahda tebina nenzlu hat tawa ma- endish Moshkela
03:28:04			A765 request your Mach Number?	
03:28:10				1.77 A765
03:28:13				ATIS (WEATHER) wind is calm vis 6 km sky clear T19/17 on the QNH 1008
03:28:47			A771 your Mach Number?	
03:28:48	iewa (ايوه) Go ahead 771		A771 TPI	
03:28:54	Inshaa Allah (إن شاء الله)		Keep Mach .80	
03:28:58			A 721 to Increase your mach .80	
03:29:00				Confirm A721 increasing .80
03:32:56				Confirm A721 increasing .80 Stand by A721
03:33:10	A771 requesting descent		A721 Stand by	
03:33:20			A771 Stand by for descent	

03:33:42	Roger			clear down FL080 with Rate of descent 2000, or more A721
03:34:07			A721 descent to FL080 Rate of descent 2000 per minute, or more	
03:34:11	Down to FL 090 rate of descent 2000 feet A771 Thank you			
03:34:48			A771 descent to FL090 Rate of descent 2000 feet, A765 TPI reduce mach 0.74 A737 reduce 0.74	Thanks A lot 0.74 reduce A765 74 A737 reducing
03:35:01			Say Again 771	
03:35:27	Confirm Temperature 22 A771		2000 ft/min	
03:35:34	Temperature Bellahi (بالله) confirm		19 captain	
03:35:40	Elharara (الحرارة) Temperature 22			
03:35:45	Shukran			Sbah Elkhair Yousef (صباح الخير يوسف)
03:35:52				
03:35:55	Khair Nharek Mubarek (خير (نهارك مبارك)			
03:36:00				Ali yousef Maak (علي يوسف معاك)
03:36:05				A765Requesting descent
03:36:08			A765 descent to FL 110 rate of descent 1500 ft	

03:36:17				Descent FL 110 1500 ft A765
03:37:33				A737 requesting descent ATIS (WEATHER) wind is calm vis 6 km sky clear T19/17 on the QNH 1008
03:37:42			A737 descent FL 120 RATE OF Descent 1500 FT	Descent to 120 1500 ft/min A737
03:37:58			Affirm	
03:38:04	Flight watch A771 Salmu Alekom (السلام عليكم)			
03:38:15	A771 Estimating block 04:05 with 93 pax onboard			
03:38:25				F.W 0405 93 Pax onboard safe landing on ground happy back Insha Allah
03:38:26			A721 your indicate speed? Roger indicate speed again Lao samaht (لو سمحت) Roger A771your indicate speed	A721 we are 310 indicated and we are doing 4000 per min at the 315 now

03:38:48				
03:38:50	270			
03:38:52	Ok I will increase 300		Able to increase 300 please	

03:38:55	Roger		Affirm	
03:39:10			A765 speed 280	Speed 280 A765
-----			A737 reduce to 280	A737 say again speed please
-----			280 for A737 will be number 4	
03:39:27				Number 4 reducing to 280
03:39:31			A765 you are number 3	
-----				Number 3 A765
03:39:37			A771 increase 300 you are number 2	
03:39:42	Copied A771			
03:39:45			A721 keep speed 310 you are number 1	
03:39:51				A721 keeping speed 310 copied
03:41:00			A771 Continue descent to fl 090 rate 2000 or more	
03:41:08	With rate of descent 2000 or more down to 90 A771			
03:41:22				TPI Salamualekum (السلام عليكم) A703
03:41:27			Wa alekum Asalm (السلام عليكم) A703 squawk 4001	
03:41:32				4001 coming down

03:41:37				TPI Salamualekum A681 360 Approaching YAGOUT TPI Insha Allah 04:20
03:41:44			Wa alekum Asalm (و عليكم السلام) A681 radar contact present position direct mis to join mis 1A arrival for Rwy 09 TW clearance mis limit wind is calm vis 6km sky clear T 19/D17 QNH 1008	
03:42:02				All copied mis 1A TW 09 direct mis 1008 A681
03:42:12				TPI morning QTR 550 follow FL280
03:42:17			Good morning QTR550 radar contact you are approaching YAGOUT fl 280 clear TW locater using Rwy 09 via mis 1A arrival TPI wind is clam visibility 6 km sky clear T19/D17 QNH 1008	
03:42:38				Copied QTR550 clear to TW via mis 1A Arrival
03:42:53			A703 radar contact 25 miles to DRJE fl 290 clearance to TW using Rwy 09 via IZD 1A arrival TPI wind is clam visibility 6 km sky clear T19/D17 QNH 1008	

03:43:14				Thank you copied for landing TW using Rwy 09 via IZD 1A Expecting locator approach and weather copied 1008 A703
03:43:28			A771 confirm 3300 knots	
03:43:33	I do confirm Sir			
03:43:35			Break A765 confirm reducing 280	
03:43:41				We have already 275----- ----- A765
03:43:...			Under stood speed 280 for A765	(A765) 280
03:43:50			Roger	TPI A703 request -----
03:43:54			Go ahead Please	
03:44:00			Will advice you later I call you back	A703 position direct 10 miles TPI
03:44:08				
03:44:14			Sbah Anoor A791 squawk 4002	(A703) Okay thank you
03:44:19				TPI Sabah alkhair A791 FI 370
03:44:31			A765 present position to proceed 17 mile to TPI	Squawk 4002 A791
03:44:46			Affirmative	Confirm we proceed 17 mile final from TPI A765
03:44:49			Khouy Maalaish (brother Never mind)	(A765)

03:44:51				(A765) Marhaba (hello)
03:44:53	ALHAIDRY	GAMAL,..GAMAL ALHAIDRY		(A753) Tariq
03:45:08			A703 present position direct to 10 miles final Rwy 09	

03:45:19				Ok from present position direct to 10 miles on final Rwy 09 A703
03:45:28		DILOG	A791 radar contact 30 miles --- FL370 clearance TW using Rwy09 via IZD arrival TPI wind is clam visibility 6 km sky clear T19/D17 QNH 1008	
03:45:46				Copied A791
03:46:05				A765 we still maintain rate speed of 1500
03:46:11			Afriqiyah calling you unreadable	
03:46:16				A765 we still maintain rate speed of 1500 /min
03:46:20			Roger	
03:46:22			A765 continue with rate of descent 2000ft	

03:46:31			A721 re-clear 4000 with QNH	Rate of 2000 ft A765
03:46:34				Clear down altitude 4000ft QNH 1008 A721

03:46:38			Affirm	
03:46:39			A771 continuo descent to FL070	
03:46:43	70 A771			
03:46:55			A771 increase your speed	
-----	Geddash (how much?)	Increase your speed		
-----	Increasing 210 now			
03:47:03	310		A765 speed 250	Speed 250 A765
03:47:19			A703 request your top of descent	
-----				(A703) will at time 0358 Inshaa Allah
03:47:28			Break A791 your top of descent	
03:47:32				0404 A791
03:47:37			Roger	
03:47:47			A791 Amend clearance present position direct to 15 miles TPI	
03:47:53				Direct 15 miles from TPI(A971)
03:47:58			Affirm	
03:48:03		100		
03:48:34			A721 continue descent altitude 2000ft clear for locater approach TW inbound	

03:48:41				Shokran Clear for approach will call TW inbound A721
03:48:49	A771 requesting lower			
03:48:52			A771 I call you back within 2 min due to minimum safe altitude and present position direct TW	
03:49:01	La! La! Khaliha			
03:49:03	Ok present position direct TW A771			
03:49:06	Maderhash Khaliha Heki Hadia			
03:49:13				Flight watch A721
03:49:20				(flt wtch) Go ahead
03:49:21				(A721)Belaahi low samahet low feh emkania nebo wheelchair one wheelchair upon arrival
03:49:48	Speed at star Ao! Sorry 1008 activate approach			
03:49:54		kuleha (all) Reducing speed!		
03:50:04		Ma Yebesh Enzelna mushkala heki		

03:50:17			A765 Continue descent to FL080 2000ft or more	
03:50:25				80 080 2000ft or more A765
03:50:33			A771 descent to Fl correction to altitude 5000ft with QNH	
03:50:39	5000ft QNH1008 A771			
03:50:44	checked	5000ft blue		
03:50:53			A765 speed 220	
03:50:57				Speed two twenty A765
03:51:06			A737 continue descent to FL070	
03:51:10				----- A737
03:51:36				Flight watch Aslamu alikum Sabah Alkhair A681
03:51:41		Speed at star		
03:51:42	Checked			
03:51:43				TPI A791
03:51:49			Go ahead station calling	
03:51:51				A791 we have another A airways 25 miles ahead of mine and if you? We can -----reduce speed to allow him to descent

03:52:05			Copy continue with normal speed	
03:52:09				(791) Thank you
03:52:14			A702 descent FL 110 to expedite through 370 descending	
03:52:20				All clear down level 110 call clear of 370 A703
03:52:41			A771 your indicate speed	
03:52:45	Reducing to 270 knots Sir			
03:52:48			Whed minkum Zayd Ya enta Ya howa Ana Aateta A765 220 Wenta 270 hwa report overcome eleven o'clock position otherwise he will proceed TW for hold	
03:53:03	Any way we are maintaining 5000ft 270 knots speed requesting lower please			
03:53:10			Maintain 5000ft due to minimum safe altitude Break A765 report your indicate speed	
03:53:16				(A765)We are reducing 220 we have now 230 knots reducing
03:53:23	Dowa zayda ydwi fi dowa Zayda			
03:53:26		ywari fi flahta		
-----	Aah!			
03:53:27			A765 minimum clean speed to avoid hold	

03:53:31			A771 re-cleared 4000ft	Aah! Copied A765
03:53:36				
03:53:39	4000ft 771 Afriqiyah			
03:53:43			A721 turning inbound confirm	
03:53:45				I confirm A721
03:53:49			Contact TWR 118.1 hamd Allah Ala salama	
03:53:52				Allah esalmik baka Allah fik
03:54:07	(captain breathing)			
03:54:13	Checked			
03:54:13	(captain breathing)			
03:54:20				A765 80
03:54:24			A765 continue descent altitude 4000ft	
03:54:29				Descent 4000ft 1008 A765
03:54:36			A771 re-cleared 2000ft with QNH	
03:54:41	2000ft with QNH A771 Shoof shnoo speed mtaana low samahet			
-----		5746!!!.....		

03:54:48	Khleah		bennsba liek enta applying, laken A765 he didn't applying my instruction about the speed hwa 11 o'clock position yaeni twa yoataber ena hwa wasel qablek Atenah 17miles watenah speed maa hada yaeni !	
03:55:03	(captain breathing)			Wallahi benesba le 765 It's not it's impossible A765 to be on time. Ala elaqall to be on time Once we are maanaha fi hada traffic elakher.. that's it
03:55:14			Nahna hawelna nsaed alkul to avoid delay. Anyhow unrestricted speed continue descent altitude 2000ft report field in sight for visual	
03:55:20				(A765) To whom Aatit speed bellahi hada.
03:55:26		Free speed No restriction		
03:55:27	No restriction			
03:55:32		Speed Managed		SV: Two thousand five hundred
03:55:33		Radio Altimeter alive		
03:55:35	Checked			
03:55:39	Jamal Alhaidary [This]? (HADA)	<i>Yaa Alhaidary</i>		
03:56:39		[Give us] (ATENA) Flaps one		

03:57:14		Clear locator approach [we]? (Hanay)		
03:57:16	[Ok] (BAHI)			
03:57:17	[We How]? (Hanai Kaif)			
03:57:18		Locator approach clear		
03:57:19	[yeah]			
03:57:21	One thousand four hundred			
03:57:22	Blue			
03:57:35	[Let us do it what is the Name ... it is better Nav Approach. It's approved as you know](RAHOOO)			خلينا ندير شنسماها خير راهوو
03:57:40		[Yes ok (BAHI AADEE)]		باهي عادي
03:57:41			ATC : Afriqayah seven seven one Clear for locator approach runway zero nine	
03:57:45	→ Clear for locator approach runway zero nine Afriqayah seven seven one			
03:57:49	Ok			
03:57:51	Track F P A	[Established les us say now ok ok]		باهي ... باهي خلينا توا
03:57:52		I will do it. [When] Establish (BES)		
03:58:22		Flaps two		

03:58:26		Speed Alt star		
03:58:27	Checked			
03:58:35		Landing gear down		
03:58:37				
03:58:46	[Give it to the approach now or this] (ATIHA LAH AL APPROCH TWAA OW KAN HADAAAA)			
03:58:47		[OK] (YAHH)		
03:58:50			ATC: Afriqayah seven seven one field in sight confirm	
03:58:52		Already passed one thousand four hundred		
03:58:55	→ Seven seven one established inbound Sir			
03:58:56		Final approach		
03:58:58			ATC : Roger contact tower one one eight decimal one (*) Allahmdo alallh salama	
03:59:00	→ One one eight one salam allikoum			
03:59:01		Ok Flapssss		

03:59:11	→ Tripoli Tower Afriqayah seven seven one fully established approaching Tango Whiskey now			
03:59:12		Flaps full		
03:59:16		Landing check list please		
03:59:19			ATC : Afriqayah seven seven one good morning continue approach report runway in sight	
03:59:26	→ Roger Sir			
03:59:28		Ok go around altitude		
03:59:30	Two thousand set			
03:59:32		Minus three degrees Sir	AAW 721: Yousef ?	
03:59:33	→ [Yes] (Aiwa)		AAW721: Seven two one just landed runway zero nine just about فيه شوية low patches	
03:59:43	[What's going on]? (Shenow fihe)?			SV: One thousand
03:59:44		Low fog low fog		
03:59:46	→ Ok [Thank you] (Shukran)		AAW721: (AFwan)	
03:59:47		One thousand stabilized		
03:59:51	Cabin crew			
03:59:52		Advised		
03:59:52	Auto Thrust			

03:59:53		Speed		
03 h 59:55	ECAM Memo			
03:59:55		Landing no blue		
03:59:56	Ok			
04:00:01		Overhead Tango Whisky now		
04:00:02	→ Tango Whisky inbound Afriqayah seven seven one I'll call you runway in sight Inshaa Alla			
04:00:08			ATC: Roger	
04:00:10	→ Confirm clear to land if we have the runway in sight?			
04:00:13			ATC: Affirmative clear to land wind calm	
04:00:16	→ Thank you Sir			
04:00:21	Ok one above.....			
04:00:22	Above [now](Twa)	[You see]? (<i>Shof too</i>)		SV: Hundred above
04:00:24	Continue			SV: Five hundred
04:00:26	.	Continue		
04:00:30				SV: Minimum
04:00:32				SV: Four hundred
04:00:36		I'll go around Captain Ahh?		
04:00:40				SV: Three hundred

04:00:42	.	Three hundred		SV: Too low terrain
04:00:43	Go around go around go around			(@) Cavalry charge (Auto pilot disconnect warning)
04:00:44		Go around		SV: Too low terrain
04:00:45		Flaps		
04:00:46				SV: Too low terrain
04:00:48		Flaps		
04:00:51	Ok			
04:00:53	Landing gear			
04:00:54		Landing gear		
04:00:55	→ Tripoli Afriqayah seven seven one...			
04:00:56		Flaps		
04:00:57		Flaps Captain?		
04:00:59	→ We are making a go around Sir			
04:01:01		Flaps		
04:01:02	Speed	Flaps zero		SV: Minimum
04:01:04				Triple click
04:01:05				SV: Four hundred

04:01:07				SV: Don't sink
04:01:08		Activate Approach phase		SV: Don't sink
04:01:09				SV: Too low terrain
04:01:10		Flaps Captain		
04:01:11	(*)		No!	SV: Pull up
04:01:12				SV: Pull up
04:01:13		(<i>Ya Rab</i>)	(<i>Khaira</i>)	SV: Pull up (@) Continuous repetitive Chime (Master warning)
04:01:14		(<i>Ach Hadouina</i>)		(@) Sound similar to impact
04:01:15	End of recording			

APPENDIX 3: Nav. Aids Calibration Report



Commercial-In-Confidence



The VOR should be subject to another flight check after the new terminal building has been completed and all construction plant and material has been removed from the site. This flight check will determine the level of interference caused by reflections from the new terminal building as a permanent obstacle.

Hopefully the amplitude of interference will be reduced to within the ICAO defined tolerances and the VOR returned into service.

If the amplitude of interference remains outside the ICAO limits then the VOR may have to be upgraded to a "Doppler" version or relocated to a new site away from all large obstructions, power lines and other unwanted reflecting surfaces. This would be subject to a more detailed site survey to assess the best option.

Please do not hesitate to contact us should you requires any further information or clarification.

Yours Sincerely

A handwritten signature in dark ink, appearing to read "David Bartlett".

David Bartlett
Director
PCR (UK) Ltd

Registered in England No.5547569

Notam Table Data

1/1

2010.06.23-08:58:16 UTC

/A0101/10 NOTAMR A0033/10

Q)HLLL/QNVLF/IV/BO/AE/000/999/

A)HLLT B)1002211047 C)PERM

E)INTERFERNCE FROM SIGNAL BEING EXPERIENCED DURING CURRUNT AIRPORT
DEVELOPMENT WORK (TPI VOR SHOULD BE USED WITH CAUTION)

Report No. 0911_ILS_HLLT_27	Date: 26-11-09	Facility: TRIPOLI	Aid Under Inspection ILS_27
Type of Check Routine	Aircraft Registration G-FCSL	AirMaster System / Software Version S/N 001 Ver 1.0.0.8	GroundMaster System / Software Version S/N 001 Ver 1.0.0.7

Weather Conditions

NIL

Promulgated procedure check was [Satisfactory / Unsatisfactory]*




Performance of navigation aids associated with the ILS approach procedure

Satisfactory

During instrument approaches any facility irregularities were [Satisfactory / Unsatisfactory]*

A [Commission / Annual / Routine / Special]* Flight inspection of the above facility was carried out in accordance with FCS Ltd Exposition

The performance of this facility [Conforms / Does NOT conform]* to the standards specified or as promulgated

Signed: 	Signed: 	Signed: 
Date: 26-11-09	Date: 26-11-09	Date: 26-11-09
LCAA: Mohamed Etwes	Captain: Stuart Rawlinson	Flight Inspector Nick Whitehouse

* - Delete as appropriate