****

DEFECT/INCIDENT INVESTIGATION REPORT (DIR)

****

TO	:	QAM (Safety)	DIR REF	:	DIR ATR-01-17
CC	:	DCA, HQA, QAM (Coordinator), QAM (MW), HOE (MW)	ASR REF	:	Nil
			OR REF	:	MW/MOR/ATR/2415

****

ACFT TYPE	:	ATR72-212A	ACFT REGN	:	9M-MWD
FLT NO	:	MH 3823	SECTOR	:	KCH-MZV
DATE	:	13 Aug 2015	MR1 NO	:	61259777
ATA	:	56	STATUS	:	Closed
DESCRIPTION	:	Windshield	PART NO	:	NP158801-3
SERIAL NO	:	8263H2812	TSF	:	15124
POSITION	:	L/H	CSF	:	22117

****

NOTE : **(STRICTLY CONFIDENTIAL AND FOR INTERNAL CIRCULATION ONLY) ACTION PARTIES TO RECOMMENDATIONS – PLEASE PROVIDE RESPONSE WITHIN 14 DAYS FROM DATE OF ISSUE**

****

1. **TYPE OF INCIDENT**

1.1 Flight diversion – Windshield Crack.

2. **DESCRIPTION OF INCIDENT**

2.1 MASwings ATR72-212A which operated MH 3823 on 13th Aug 2015 from Kuching airport (KCH) to Mulu airport (MZV) was diverted to Bintulu station (BTU) due to the left-hand side (LHS) windshield cracked in flight while cruising at 15000 feet.

2.2 The crew decided to divert the flight to BTU in view that MZV does not have engineering facility.

3. **MAINTENANCE ACTION**

3.1 Inspection performed revealed that the external ply was cracked whereas the inner ply did not suffer any damages.

3.2 The defect was deferred as per ATR72 MEL 56-11-1 and the aircraft was released to service following the completion of the paperwork.

3.3 The aircraft returned to BKI station and the LHS windshield were replaced promptly as per ATR JIC 56-11-00. MR2 Z76040 refers.

3.4 A pressurization test was carried out after the replacement of the windshield.

3.5 As a precautionary action, the window heat controller P/N: 624992-3 @ S/N: 624992-02344 was replaced as well.

3.6 Following to the rectification activity, the aircraft was rendered serviceable and were released to service.

4. INVESTIGATION / FINDINGS

4.1 The windshield S/N: 8263H2812 was installed onto the aircraft at the assembly line during the manufacturing process and it has clocked approximately six (06) years when the crack occurred.

4.2 The window heat controller strip report was obtained and the report has indicated that it did not pass the bench test however, the repairer confirmed that the faulty window heat controller did not contribute to the crack of the windshield outer ply.

4.3 The windshield is an on-condition item and there were nil Maintenance Planning Data requirement on this item.

4.4 There was a total of 03 removal in Year 2015, 01 removal in year 2016 and zero removal in Year 2017.

4.5 Malaysia Airlines Technical Services Department issued a Technical Service Instruction (TSI) reference TSI/72/WF/13/038 to call out for the inspection of the weather seal at every A check in year 2013. The TSI was to be repeated at every A check.

4.6 In general, there are only 3 primary factors that would cause the windshield to crack i.e. a faulty window heat controller, fault within the heating element of the windshield or the moisture ingress in between the windshield ply.

4.7 In the course of this investigation, a faulty heat controller resulting in the windshield crack has been ruled out as per the result of the bench test as reflected in para 4.2 above.

4.8 The fault in the heating element of the windshield is considered remote and unlikely.

4.9 The only other likely cause of the windshield crack is the moisture ingress.

4.10 TSI/72/WF/13/038 was carried out on 9M-MWD on the 7th July 2015 which was approximately one (01) month prior to the incident. During the inspection as per the TSI, it was found that the outer moisture seal was eroded at several spots. The seal repair was carried out as required.

4.11 It is believed that moisture had entered the windshield ply prior to the discovery of the eroded seal as per the above mentioned TSI.

4.12 Prior to the TSI being performed on 07 JUL 2015, it was also performed on 11 APR 2017 with satisfactory results i.e. no seal deterioration and/or sealant repair being performed.

4.13 Considering the drop in the cases of windshield crack between year 2015 and 2016, it is deduced that the accomplishment of the TSI at every A Check i.e. 500 hours is sufficient to mitigate such an event.

5. CONCLUSION

5.1 Moisture ingress is believed to be the most likely cause of the windshield to crack.

6. RECOMMENDATION

6.1 The current TSI and its interval was found adequate in addressing the issue of windshield crack.

- For info.

6.2 LAEs are to be reminded to be vigilant during the inspection in ensuring any sealant deterioration to be repair adequately and promptly to avoid moisture ingress and trap.

- Action HQA

****

RAISED BY : Desmond Chong
DATE : 28 April 2017

APPROVED BY : Yeow Soon Lee
DATE : 9 May 2017

****

RELEASE UNDER THE AUTHORITY OF THE HEAD QUALITY ASSURANCE

****