
SERVICE BULLETIN

Multi-Purpose Flight Recorder Types: D51615-102

SECTION I: PLANNING INFORMATION

1. Applicability

This Service Bulletin is applicable to the following Multi-Purpose Flight Recorder (MPFR) Type:

D51615-102, See Table 1 for effectivity

This Service Bulletin only applies to units with an ETSO listed in Table 1.

This Service Bulletin does not cover units that may be affected outside the serial number ranges specified in Table 2.

Reason

During crash damaged data recovery of MPFRs installed on five helicopters involved in accidents when the aircraft were submerged in water, corrosion was detected on the pins of memory devices inside the recorder. These units required "special techniques" to recover the data, which are not permitted in the Minimum Operational Performance Specifications (MOPS). The corrosion is due to a chemical reaction between the fire insulation material, when partially dissolved in water, and the iron content within the pins of the memory device. The conformal coating on the memory module can, under certain circumstances, be insufficient to protect the device pins from the corrosive solution. This problem has been isolated to the second generation "GEN2" memory modules fitted to the MPFR. The subsequent GEN3 memory modules use a different conformal coating process and are protected from corrosion.

The corrective action requires these GEN2 memory modules fitted to MPFR recorders to be replaced with the GEN3 version.

2. General

Data retrieval from MPFRs fitted with GEN2 memory recovered from accidents involving water submersion has been 100% successful. Furthermore, additional testing and analysis has been performed to develop data recovery methods using special techniques that involve removal of memory devices from the printed circuit

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board and if necessary disassembly of the memory device itself to read out the recorded data.

Penny & Giles Aerospace Ltd will work with the operator to schedule the upgrade of the GEN2 crash protected memory module in the affected serial number range at the earliest opportunity in the following circumstances:-

- During the 72-month mandatory maintenance check as detailed in the Component Maintenance Manual (CMM) 31-34-22 and Product Instruction Manual (PIM422-I).
- Within the next aircraft major maintenance cycle effective from April 2019 onwards.
- Any units currently not installed in aircraft shall only be installed after the unit has been upgraded to GEN3.
- Alternatively, it will be incorporated in any unit that has been sent in for general repair or upgrade.

More information regarding data recovery using special techniques is available in the Crash Damaged Recovery Equipment Operating Manual PIM456-O November 2017, which can be obtained from the manufacturer see "Contact Information" further below.

3. Approval

Issued by Penny & Giles Aerospace Limited under the terms of the Company's international Quality Approvals.

4. Manpower

Not applicable.

5. Material, Cost and Availability

Direct costs to replace GEN2 memory modules with GEN3 will be covered by Penny & Giles Aerospace Ltd.

6. Tooling, Price and Availability

Not applicable.

7. Weight and Balance

Not affected.

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8. Electrical Load Data

Not affected.

9. References

Component Maintenance Manual for the Multi-Purpose Flight Recorder (MPFR) Type D51615-1XX, CMM 31-34-22.

Multi-Purpose Flight Recorder Types D51615-XXX or D51615-XXX-090 Installation and Operating Manual, PIM422-I.

Crash Damaged Recovery Equipment Operating Manual, PIM456-O November 2017.

Minimum Operational Performance Specification (MOPS) for Flight Data Recorder Systems ED-55.

Minimum Operational Performance Specification (MOPS) for Cockpit Voice Recorder Systems, ED-56A.

Minimum Operational Performance Specification (MOPS) for Crash Protected Airborne Recorder Systems ED-112.

SECTION 2: CONTACT INFORMATION

For further information in relation to this modification, please contact the following:

Customer Support

Penny & Giles Aerospace Limited

15 Enterprise Way,

Aviation Park West,

Bournemouth International Airport,

Christchurch,

Dorset, BH23 6HH

United Kingdom

Telephone: +44. 1202.043400

Email: CSAerospace@curtisswright.com

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Table 1 - Multi-Purpose Flight Recorder ETSO Effectivity List

Part Number D51615-102:

000023-001	003747-004 to 005	007763-001 to 005, 007	387760-001 to 004	91601-001 to 005
000023-003 to 005	003766-002 to 003	007849-001 to 009	388172-001 to 003	92197-002 to 003
000109-001 to 005	003776-001	007850-001, 003 to 009	388227-001 to 003	92274-001
000110-001 to 005	003776-004 to 006	008351-001 to 002	388228-001	92274-003 to 006
000206-001 to 005	004040-001 to 009	008573-001 to 006	388279-001	93593-001 to 003
000207-002 to 005	004125-001 to 003	008739-001 to 007	388648-001 to 006	93612-001 to 006
000283-001 to 005	004498-002 to 006	008740-001 to 004	388699-001 to 005	93984-001 to 005
000502-001 to 010	004686-002 to 003	008740-006 to 008	388775-001	A00347-001 to 005
000576-001 to 005	004762-001 to 008	008819-001 to 011	388776-001 to 005	A00467-001
000672-001 to 005	004763-001	008964-001	388913-001 to 005	A01197-001 to 002
000673-001 to 005	004863-001	009104-001 to 002	389080-001	A01811- 001
000729-001 to 002	004864-001	009104-004 to 006	389081-001	A02330-001
000729-004 to 005	004865-001 to 004	009490-001	389082-001 to 005	A02354-001 to 002
001078-001	005004-001 to 006	009490-003 to 004	389139-001 to 004	A03096-001 to 002
001078-003 to 005	005005-001 to 005	009491-001 to 002	389140-001 to 005	
001152-001 to 005	005146-001	009633-001 to 005	389351-001	
001360-001 to 005	005264-001, 002 003, 005, 006	009634-001 to 008	389352-001, 002, 004 to 006	
001361-001 to 004	005264-008	009892-001	389353-001 to 003	
001432-001 to 003	005265-001 to 002	299009-004	389520-001	
001432-005	005406-001	340001-002	389521-001 to 008	
001433-001 to 002	005407-001 to 006	347004-001	389522-001 to 002	
001433-004 to 005	005460-001 to 004	348005-002 to 003	390338-001	
001614-001 to 002	005519-001 to 003, 005 to 008	348005-005	390439-001	
001614-004 to 005	005520-001 to 005	354005-002	390513-001 to 005	
001615-001	005672-001	354005-004 to 005	391814-001	
001615-003 to 004	005725-001 to 003	355007-003	392088-001 to 005	
001615-006, 008 to 010	005782-001 to 002	357003-001 to 005	392221-001 to 002	
001664-001 to 005	005783-001 to 002	359005-004	392306-001	
001708-002	005823-001 to 008	360004-004 to 005	392404-001	
001769-001 to 005	005824-001	363009-004	392404-003 to 004	
001770-001 to 005	005825-001 to 002	367003-002	392482-001	
001836-001, 002, 003, 005	005921-001	369004-001 to 005	392635-001 to 003	
001927-001 to 010	005963-001	370019-001 to 004	392681-001 to 002	
002004-001 to 003	005963-003 to 004	370020-001 to 005	392810-002, 003, 005, 006	
002004-005	006130-001 to 007	386007-001 to 002	392857-001 to 002	
002071-001	006185-001 to 002	386072-001 to 005	392910-001	
002071-003 to 005	006186-001 to 004	386073-001	393018-002 to 003	
002439-001, 002, 003, 005	006278-001 to 004, 006 to 009	386074-001 to 002	393088-001	
002440-001, 003 to 005	006479-001	386075-001 to 006	393166-001 to 003	
002483-001 to 005	006480-001 to 003	386229-001 to 003	393899-002 to 004	
002539-001 to 005	006568-001 to 005	386230-001 to 008	393924-002 to 003	
002604-001, 002, 004, 005	006619-001 to 002	386338-001	393925-001 to 002	
002720-001	006677-001 to 008	386424-001	393926-001	
002720-003 to 005	006734-001 to 003	386619-001 to 006	394870-001 to 005	
002721-001 to 005	007034-001 to 003	386620-001 to 006	394984-001 to 002	
002722-001, 002, 003, 005	007169-002 to 003	386730-001 to 005	395105-001	
002878-001 to 005	007254-001	386731-001 to 005	395171-001 to 003	
003292-002 to 005	007310-001	387231-001 to 004	91196-001 to 005	
003298-001	007311-001 to 004	387487-001 to 002	91197-002	
003642-001 to 005	007410-001 to 005	387488-001	91197-004	
003746-001 to 006	007608-001 to 006	387666-001	91198-004	
003747-001 to 002	007676-001 to 009	387666-003, 004, 006	91558-003 to 005	

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Table 2 - Multi-Purpose Flight Recorder Non ETSO Effectivity List

This Service Bulletin does not apply to these units.

Part Number D51631.E

000030-001, 002, 006	005409-001 to 005	369008-001 to 006	391889-001 to 005	93485-001 to 005	95029-001 to 005	95678-001 to 005
000114-001 to 006	005462-001 to 005	371004-001 to 006	391935-001 to 005	93486-001 to 005	95030-001 to 005	95706-001 to 005
000288-001 to 006	005476-001	386011-001 to 010	391970-001 to 005	93487-001 to 005	95041-001 to 005	95707-001 to 005
00030-003 to 005	005522-001 to 005	386141-001 to 010	392096-001 to 005	93500-001 to 005	95044-001 to 005	95732-001 to 005
000841-001 to 006	005582-001 to 005	386179-001 to 010	392097-001 to 005	93501-001 to 010	95103-001 to 002	95739-001 to 005
001236-001, 003 to 005	005676-002 to 005	386359-001 to 005	392224-001 to 005	93511-001 to 010	95114-001 to 005	95740-001 to 005
001237-002	005677-001 to 005	386785-001 to 020	392225-001	93540-001 to 010	95115-001 to 005	95741-001 to 005
001362-001 to 006	005728-001 to 005	386837-001 to 005	392271-001 to 005	93551-001 to 010	95116-001 to 005	95759-001 to 005
001363-001 to 006	005784-001 to 005	386971-001 to 010	392308-001 to 005	93559-001 to 010	95141-001 to 005	95760-001 to 005
001435-001 to 006	005827-001 to 005	387138-001 to 005	392348-001 to 005	93578-001 to 005	95142-001 to 005	95761-001 to 005
001436-001 to 006	005876-001 to 005	387187-001, 003 to 005	392447-001 to 005	93579-002 to 005	95143-001 to 005	95775-001 to 005
001515-001 to 006	005922-001 to 005	387713-001 to 005	392486-001 to 005	93623-001 to 005	95144-001 to 005	95776-001 to 005
001516-001 to 006	005964-001 to 005	387841-001 to 010	392532-001 to 005	93633-001 to 005	95158-001 to 005	95777-001 to 003
001619-001 to 006	006037-001 to 005	388582-001 to 005	392578-001 to 005	93656-001 to 010	95159-001 to 005	95797-001 to 005
001665-001 to 006	006087-001 to 005	388702-001 to 005	392684-001 to 005	93676-001 to 005	95160-001 to 005	95798-001 to 005
001666-001 to 006	006131-001 to 005	388703-001 to 005	392746-001 to 005	93677-001 to 005	95178-001 to 005	95827-001 to 005
001716-001 to 006	006132-001 to 005	388783-001 to 005	392812-001 to 005	93678-001 to 005	95179-001 to 005	95837-001 to 007
001717-001 to 006	006188-001 to 005	388784-001 to 005	392860-001 to 005	93680-001 to 005	95185-001 to 007	95929-001 to 005
001772-001 to 006	006236-001 to 005	388878-001 to 005	392912-001 to 005	93681-001 to 004	95210-002 to 005	
001840-001 to 006	006280-001 to 005	389084-001 to 005	39379-001, 004	93682-001 to 005	95211-001 to 005	
001841-001 to 006	006482-001 to 005	389141-001 to 010	39777-001 to 005	93757-001	95222-001 to 005	
001929-001 to 006	006483-001 to 005	389466-001 to 005	90441-001, 004	93778-001 to 005	95223-001 to 005	
001930-001 to 006	006484-001 to 005	389527-001 to 005	91439-001 to 006	93779-001 to 005	95241-001 to 005	
002007-001 to 006	006569-001 to 005	389528-001 to 005	91440-002 to 006	93780-001 to 005	95242-001 to 005	
002008-001 to 006	006621-001 to 005	389529-001 to 005	92264-001 to 005	93781-001 to 005	95243-001 to 005	
002073-001 to 006	006679-001 to 005	389608-001 to 005	92331-001 to 005	93782-001 to 005	95244-001 to 005	
002074-001 to 006	006736-001 to 005	389609-001 to 005	92332-001 to 005	93821-021 to 025	95245-001 to 005	
002135-001 to 006	006841-001 to 005	389610-001 to 005	92333-001 to 005	93822-001 to 005	95246-001 to 005	
002136-002, 006	006935-001 to 005	389714-001 to 005	92334-001 to 005	93823-001 to 005	95247-001 to 005	
002137-001, 003 to 006	007036-001 to 005	389757-001 to 005	92335-001 to 005	93824-001 to 005	95274-001 to 005	
002443-001 to 006	007104-001 to 005	389758-001 to 006	93353-001 to 005	93825-001 to 005	95275-001 to 005	
002487-001 to 006	007172-001 to 005	390071-001 to 004	93354-001 to 005	93826-001 to 005	95276-001 to 005	
002540-001 to 006	007173-001 to 005	390130-001 to 005	93355-001 to 005	93827-001 to 005	95277-001 to 005	
002605-001, 003 to 006	007257-001 to 007	390208-001 to 005	93356-001 to 005	93828-001 to 005	95552-001 to 005	
002649-001 to 006	007313-001 to 005	390209-001 to 005	93378-001 to 005	93829-001 to 005	95553-001 to 005	
002650-001 to 006	007314-001 to 005	390210-001 to 005	93379-001 to 005	93870-001 to 005	95554-001 to 005	
002724-001 to 006	007411-001 to 005	390345-001 to 005	93380-001 to 005	93871-001 to 005	95555-001 to 005	
002725-001 to 006	007476-001 to 010	390346-001 to 005	93414-001 to 005	93872-001 to 005	95573-001 to 005	
002726-001 to 005	007538-001 to 005	390445-001 to 005	93415-001 to 005	93873-001 to 004	95574-001 to 002	
002879-001 to 006	007609-001 to 005	390346-001 to 005	93416-001 to 005	93874-001 to 005	95586-001 to 005	
002880-001 to 006	007682-001 to 010	390445-001 to 005	93417-001 to 005	93875-001 to 005	95587-001 to 004	
002881-001 to 006	007764-001 to 010	390346-001 to 005	93418-001 to 005	93904-001 to 005	95588-001 to 005	
002882-001, 003, 005, 006	007855-001 to 015	390445-001 to 005	93419-001 to 005	93905-001 to 005	95606-001 to 005	
002985-001 to 006	007856-001 to 010	390514-001 to 002	93428-001 to 005	93906-001 to 005	95607-001 to 005	
002986-001 to 006	007858-001 to 010	390515-001 to 005	93429-001 to 005	93948-001 to 005	95608-001 to 005	
004070-001 to 005	008356-001 to 020	390599-001 to 005	93430-001 to 005	93949-001 to 005	95609-001 to 005	
004180-001 to 005	008584-001 to 010	390867-001 to 005	93431-001 to 005	93950-001 to 005	95610-001 to 005	
004225-001 to 005	008822-001 to 005	390964-001 to 005	93433-001 to 005	93974-001 to 005	95611-001 to 005	
004297-001 to 005	008967-001 to 005	391458-001 to 005	93434-001 to 005	93975-001 to 005	95612-001 to 005	
004503-001 to 005	008968-001 to 005	391459-001 to 005	93435-001 to 005	93976-001 to 005	95613-001 to 005	
004941-001 to 005	009119-001 to 005	391582-001 to 005	93451-001 to 005	93977-001 to 005	95638-001 to 005	
005008-001 to 005	009495-001 to 005	391628-001 to 005	93452-001 to 005	93978-001 to 005	95639-001 to 005	
005009-001 to 005	009496-001 to 005	391629-001 to 005	93453-001 to 005	93979-001 to 003, 005	95640-001 to 005	
005010-001 to 005	009638-001 to 005	391672-001 to 005	93454-001 to 005	93985-001 to 005	95641-001 to 005	
005090-001 to 005	009687-001 to 005	391673-001 to 005	93455-001 to 005	93986-001 to 005	95642-001 to 005	
005091-001 to 005	009744-001 to 005	391710-001 to 005	93456-001 to 005	93987-001 to 005	95655-001 to 005	
005147-001 to 005	009817-001 to 005	391711-001 to 004	93464-001 to 005	93988-001 to 005	95656-001 to 005	
005267-001 to 005	009897-001 to 010	391767-001 to 005	93465-001 to 005	95006-001 to 005	95657-001 to 005	
005268-001 to 005	009898-001 to 010	391768-001 to 005	93466-001 to 005	95019-001 to 005	95665-001 to 005	
005269-001 to 005	359007-002	391771-005	93471-001 to 005	95020-001 to 005	95666-001 to 005	
005362-001 to 005	359121-003	391819-001 to 005	93472-001 to 005	95021-001 to 005	95676-001 to 005	
005408-001 to 005	366006-006	391888-001 to 005	93473-001 to 005	95028-001 to 005	95677-001 to 005	

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Table 2 - Multi-Purpose Flight Recorder Non ETSO Effectivity List

This Service Bulletin does not apply to these units.

Part Number D51615-112

002485-001 to 004	005360-001, 002	0114, 0118, 0120 to 0122
002810-001	006234-001 to 005	386485-001 to 005
003295-001	006678-001 to 005	

Part Number D51615-122

000025-001	386077-001 to 005	391453-001 to 003
000208-001, 003, 004	386138-001 to 006	91269-003/R
000449-001 to 006	386139-001 to 005	91394-001 to 005
004223-001	387015-001, 002	91455-001, 002
006735-001	387232-001	93580-001 to 005
007102-001 to 004	388414-001,002	93723-001 to 005
009814-001 to 003	388959-001	93724-001 to 005
009815-002 to 006	390339-001, 002	93725-001 to 005
208-002	391099-001, 002	

Part Number D51638-001

007174-001 to 004

Part Number D51676

391674-001 to 007	95169-001 to 005
393338-001	95271-003, 004
95168-001, 002	

Part Number SA110303-1

005227-001
91634-001 to 003