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PMA #: 43-570-1131-01,-02-QDF01-01

END ITEM EFFECTIVITY:

X	X	X
OV102	OV103	OV104

MODEL NO/NAME: 570-1131 (KBC), OMS/RCS HYPERGOLIC QUICK
DISCONNECT/FILTER ASSEMBLY SET

SUBSYSTEM: OMS/RCS

PART NUMBER:	PART NAME:	REFERENCE DESIGNATION:	QTY.:
GW70-421131-001	Hypergolic quick Disconnect/Filter Assembly (246 Couplings Total)	QDF01	1
GW70-421131-007	Hypergolic quick Disconnect/Filter Assembly (182 Couplings Total)	QDF01	1

CRITICALITY NUMBER: 2

FUNCTION: Provides interface QD connection between the orbiter OMS/FRCS
Panel-Service Wells and hypergolic supply facility.

CRITICAL FAILURE MODE: External leakage.

CAUSE: Mechanical degradation.

FAILURE EFFECT ON:

- (A) END ITEM: Surface degradation.
- (B) INTERFACING SUBSYSTEM(S): Potential damage to interfacing systems due to the corrosive nature of fuel.
- (C) ORBITER: Damage to vehicle thermal protection system (TPS).
- (D) PERSONNEL: Personnel should not be in the immediate vicinity during loading operations. Any personnel in the surrounding area are required to be equipped in SCAPE suits. Exposure to any uncontained fuel is minimized by the (GN2) purge of the ground half lines prior to demating.

HAZARDS: Vehicle and possibly personnel exposure to uncontained fuel.
Potential ignition source. Extensive damage to vehicle TPS system.

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Page 10 of 16**ACCEPTANCE RATIONALE**

DESIGN: Per MC276-0018, the quick disconnect assembly is constructed of materials which are compatible with the operating media. The ground half couplings (GHC) transfer hypergolics to the airborne fill coupling half (AHC). The GHC is supported by a scupper which also provides containment for hypergolic leakage/ spills during servicing and demating operations.

TEST: Per MC276-0018, the quick disconnect assembly was proof pressure tested to 525 psi (maximum operating pressure 350 psi).

INSPECTION: On an annual basis, and prior to usage, the unit is inspected for damaged fittings or other physical defects that could adversely affect operation. Before installation, QD poppets and latching fingers are visually inspected for foreign materials and GHC nose seals are verified to be free from nicks, scratches, and cuts (Reference Preventive Maintenance OMI's V6G14 and V2323, OMD VUWMO-1 and OMI's V1031 and V1180).

Per OMI V6G14, in-place preventive maintenance is performed quarterly on both the oxidizer and fuel quick-disconnect assemblies at the Pad 207 and 107 foot levels.

OPERATION: Each time the quick disconnect/filter set is connected to the OMS/RCS pods, a leak check at operating pressure (350 ± 10 psig) is required (OMI's V1031 and V1180 require a leak check per OMI V3567).

If an emergency shutdown is required, Appendix Z of the OMI in use is initiated (Reference OMI's V2323, V1031, V3567 and V1180).

DETECTION: Visible leakage, venting noises, toxic vapor.

CORRECTIVE ACTION: Isolation and replacement.

FAILURE HISTORY: Per the FRACA database, no failure history was reported for this mode.