



Meggitt Fuelling Products

Avery-Hardoll
Whittaker Controls

Environmental pit box GBMY5050 M2 series

Maintenance manual with spare parts list

Publication ref L005
Issue 3 February 2004

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AMENDMENT RECORD

AMENDMENT/ ISSUE NO.	CHAPTER/ PAGE	REASON	DATE

Avery–Hardoll Limited

It is the aim of Avery–Hardoll Limited to maintain a policy of continuous progress and for this reason reserve the right to modify specifications without notice. This manual provides the information required to install, service and overhaul the equipment. Although every effort has been made to ensure absolute accuracy, Avery–Hardoll Limited does not hold itself responsible for any inaccuracies that may be found.

HEALTH AND SAFETY AT WORK ACT 1974

REFERENCE: CHAPTER 37, PART 1, SECTION 6

Avery–Hardoll Limited take every care to ensure that, in accordance with the above Act, our products, as far as is reasonably practical in an industrial environment, are when operated and maintained in accordance with the appropriate manual, safe without risk to health.

PRODUCT SAFETY

In the interest of safety it is strongly recommended by Avery–Hardoll Limited that the following details receive strict attention.

For the Purpose of Definition, the word PRODUCT applies to any product sold by Avery–Hardoll Limited.

- 1 The Product is used only with fluids stated as acceptable by Avery–Hardoll Limited.
- 2 The Product, whilst in service, must not be subjected to pressures greater than the Maximum Working Pressure or tested to pressures greater than the Test Pressure as specified in the manual.
- 3 The Product must only be coupled/connected to equipment considered acceptable by Avery–Hardoll Limited.
- 4 The Product must be handled using the lifting handles where fitted, or in accordance with the manual.
- 5 The Product must not be misused or handled in any way liable to cause damage.
- 6 The Product must be inspected for any signs of damage prior to use e.g. cracks, damaged seals, seized or tight operating mechanisms.
- 7 The Product must be subjected to a regular maintenance programme, either in accordance with the manual or as agreed with Avery–Hardoll Limited.
- 8 Only technically competent personnel should repair or maintain the Product and only parts supplied by Avery–Hardoll Limited may be used.
- 9 Products covered by warranty may not be modified in any way without prior written permission of Avery–Hardoll Limited.
- 10 Products not in service, must be stored in a clean area, and should not be subjected to excessive temperature, humidity, sunlight, or strong artificial light. Products should be protected to prevent damage or the ingress of foreign matter.
- 11 Where applicable, attention should be drawn to dangers resulting from the generation of static electricity in product flow lines. We strongly recommend account is taken of BS5958 parts 1 and 2.
- 12 This equipment is not suitable for use with Liquid Petroleum Gas (L.P.G).

WARNINGS

DO NOT HANDLE O-RING SEALS IF THEIR MATERIAL APPEARS CHARRED, GUMMY OR STICKY. USE TWEEZERS AND WEAR NEOPRENE OR PVC GLOVES. DO NOT TOUCH ADJACENT PARTS WITH UNPROTECTED HANDS. NEUTRALIZE ADJACENT PARTS WITH A SOLUTION OF CALCIUM HYDROXIDE. IF THE DEGRADED MATERIAL OR ADJACENT PARTS TOUCH THE SKIN, DO NOT WASH OFF WITH WATER, SEEK IMMEDIATE MEDICAL AID FOR POSSIBLE CONTAMINATION WITH HYDROFLUORIC ACID. HYDROFLUORIC ACID IN CONTACT WITH SKIN HAS DELAYED SYMPTOMS OF CONTAMINATION. IT IS EXTREMELY TOXIC.

DO NOT EXCEED PRESSURES AND TEMPERATURES QUOTED OR SERIOUS INJURY AND COMPONENT FAILURE MAY OCCUR.

NO SOLVENTS, CLEANING AGENTS, GREASES OR OTHER MATERIALS ARE TO BE USED ON INTERNAL SURFACES IN CONTACT WITH FUEL. CLEANING IS TO BE CARRIED OUT USING CLEAN AVIATION FUEL ONLY.

WORK MUST BE CARRIED OUT ONLY BY SUITABLY QUALIFIED PERSONNEL.

PRIOR TO COMMENCING WORK, ENSURE THAT ALL AIRPORT/COMPANY SAFETY PROCEDURES HAVE BEEN COMPLIED WITH.

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Health and safety at work act
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Contents and Associated publications (this page)

Chapters

- 1 Introduction
- 2 Technical description
- 3 Specification
- 4 Installing the Environmental Pit Box
- 5 Inspection, Maintenance and Overhaul
- 6 Spare Parts

ASSOCIATED PUBLICATIONS

Manual No. TP0004 – UVMY1000 Under Hydrant Valve

Manual No. TP0015 – PVMY1100 Hydrant Pit Valve

Manual No. TP0035 – PVMY1000 Hydrant Pit Valve

Manual No. TP0036 – PVMY2000 Hydrant Pit Valve

Chapter 1

INTRODUCTION

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2	Application	
3	Unit Identification	
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1 GENERAL

1.1 With protection of the environment in mind and with the co-operation of one of the major international oil companies, Avery-Hardoll have developed a truly environmentally friendly hydrant pit box.

2 APPLICATION

2.1 Designed specifically to prevent any fuel spillage in the pit from escaping and contaminating the surrounding area, the two piece construction of the pit provides a large welded inner catchment area with over 0.3 cubic metre capacity below the seal. The design allows for a very large ground movement, 25 mm (1") vertically and 50 mm (2") horizontally, without affecting valve operation and preventing stress or damage to the riser pipe.

A high level positive seal fitted between the inner and outer sections of the box ensures that any fuel you see in the pit is the total spillage and not simply the residue of a larger spillage.

The position of the seal allows ease of inspection and replacement with no requirement for special tools or hydrant depressurisation.

The lightweight aluminium pit lid is designed to withstand the maximum loads modern aircraft can apply while still being easily removed for operation.

3 UNIT IDENTIFICATION

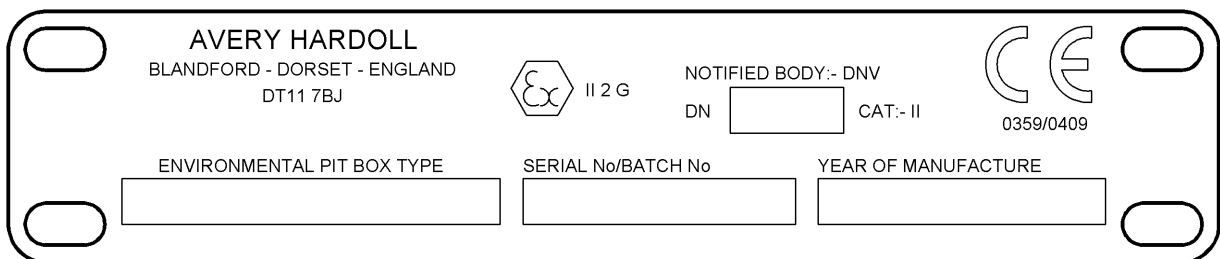


Fig 1.1 Identification Label

Chapter 2

TECHNICAL DESCRIPTION**CONTENTS**

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1 ENVIRONMENTAL PIT BOX

- 1.1 The Environmental Pit Box is designed as an environmentally safe enclosure for Hydrant Fuelling Valves and Under Hydrant Valves.
- 1.2 The Pit Box consists of two main parts, a large welded inner base flange surrounded by an outer protective steel shell
- 1.3 A large seal is fitted between the inner and outer shells to provide an environmentally safe, leak proof fuel spill catchment area.
- 1.4 A lightweight lid provides protection from weather and ingress of dirt. It is fitted with a seal and tether and is able to withstand the weight of modern aircraft.

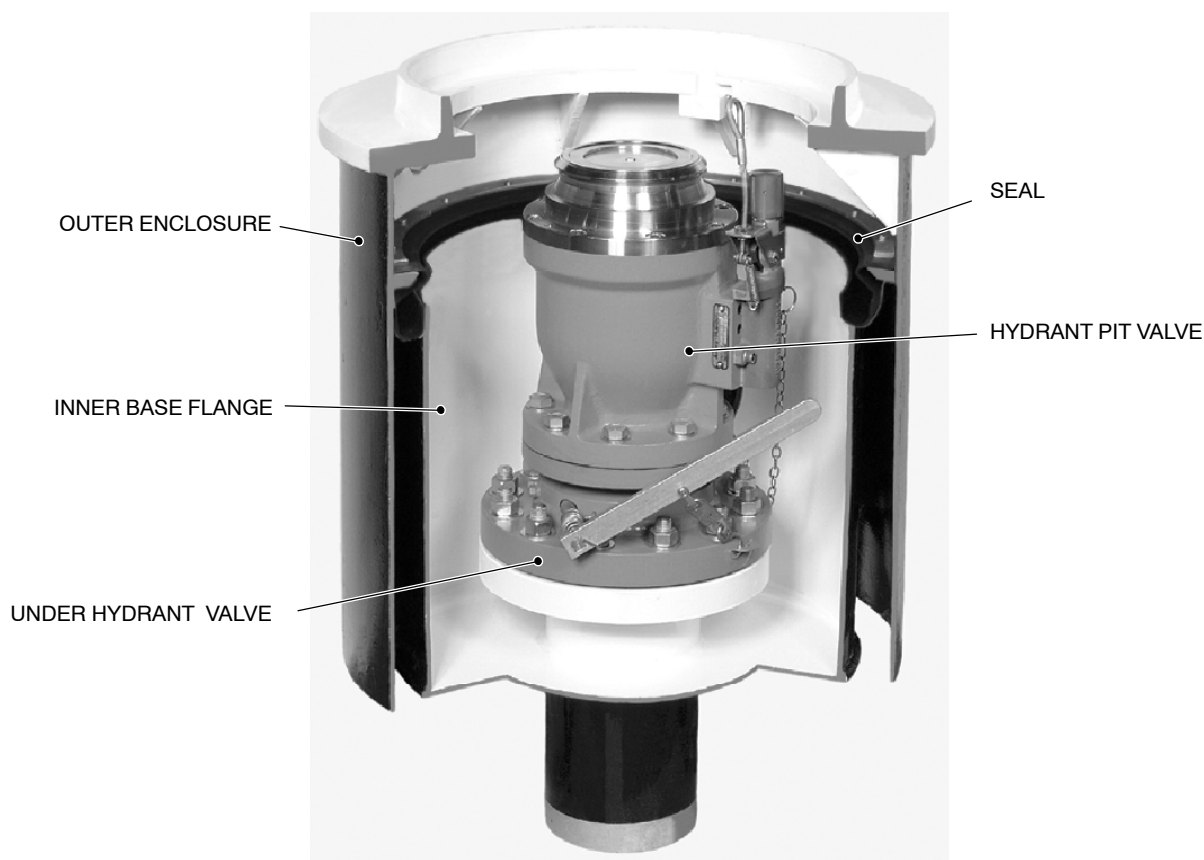


Fig 2.1 Environmental Pit Box with Under Hydrant Valve and Fuelling Valve

Chapter 3

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WARNING

DO NOT EXCEED PRESSURES AND TEMPERATURES QUOTED IN THIS CHAPTER OR SERIOUS INJURY AND COMPONENT FAILURE MAY OCCUR.

1 STANDARDS

1.1 The Environmental Pit Box is built to comply with the following standards:

ATEX Approval
PED CAT 2

2 MATERIALS

2.1 Components in contact with fuel are manufactured from the following materials:

Main Body Fabrications:

Carbon Steel

Environmental Seal:

Nitrile Rubber

Lid Seal:

Nitrile Rubber

3 OPERATING ENVIRONMENT

3.1 The system into which this equipment is fitted is to be designed to offer the protection from overpressurisation and overheating above the working parameters stated below.

3.2 The following units and ancillaries are operational under the following conditions:

Maximum safe working pressure (gauge)	19 bar (275 psi)
Test pressure (gauge)	24 bar (348 psi)
Max. working temperature	70 deg C (158 deg F)
Min. working temperature	-40 deg C (-40 deg F)

4 STORAGE LIFE

4.1 Storage life of units is 3 years, limited by deterioration of seals and O-rings only.

5 DIMENSIONS AND WEIGHT

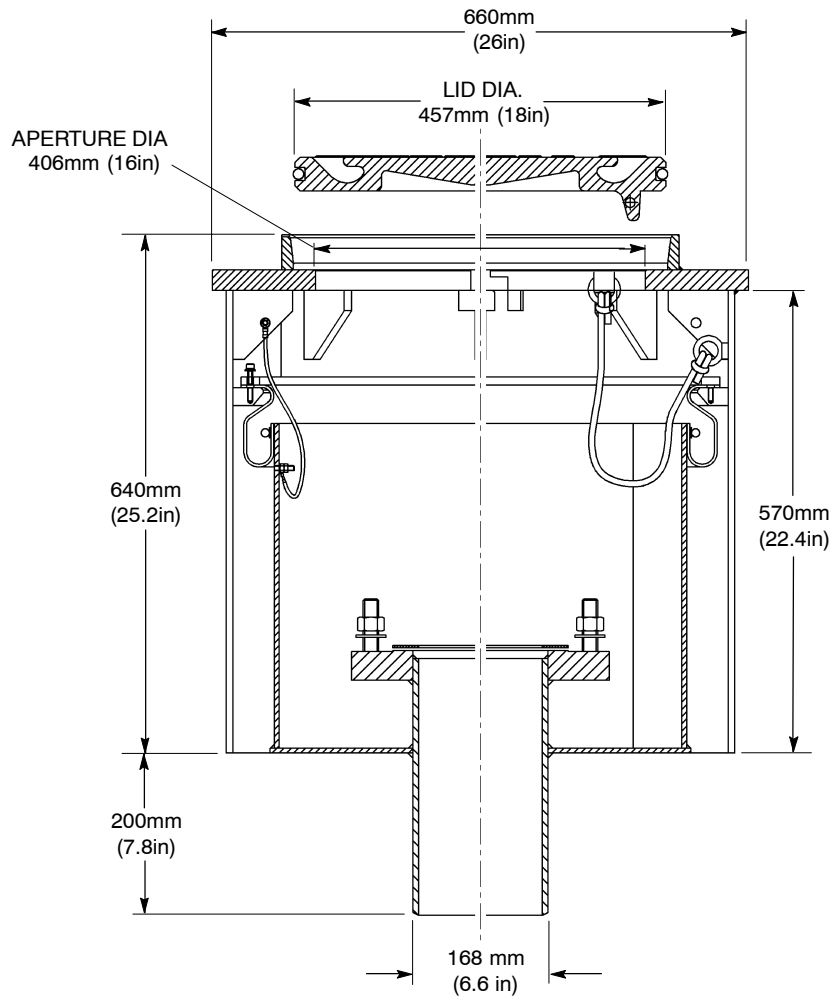


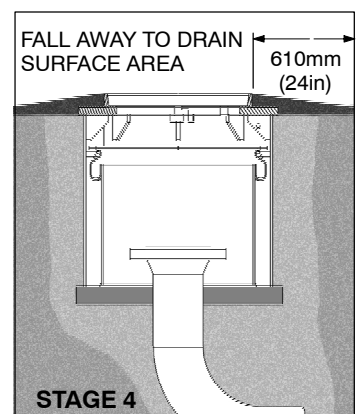
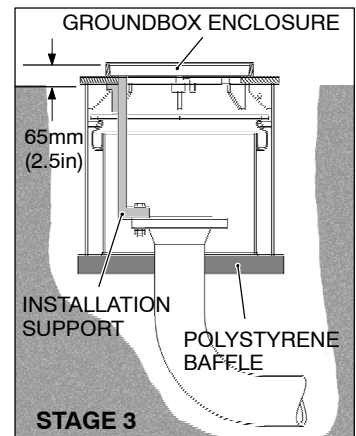
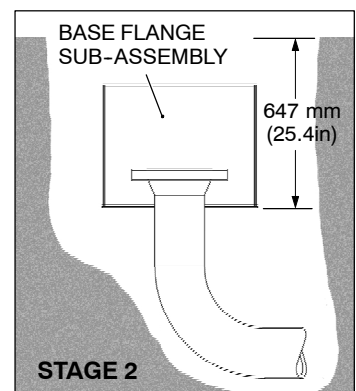
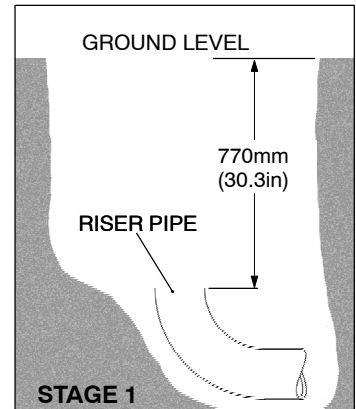
Figure 3.1 Dimensions

Gross Weight 82 kg (180 lb)

Chapter 4

INSTALLING THE ENVIRONMENTAL PIT BOX**Installation of Pit Box Assembly**

- 1 Refer to the Figures opposite. Install base flange sub-assembly in accordance with Stages 1 and 2.
- 2 Prepare an expanded polystyrene baffle, approx. 50 mm thick x 665 mm diameter (2 x 26 in.) allowing for riser pipe. Position under pit box to prevent ingress of concrete / dirt into space between ground box enclosure and base flange sub-assembly.
- 3 From the installation support kit, assemble the three large supports to their brackets in the nominal (notched) position if assembling directly to riser pipe flange, and secure with the washers and bolts supplied.
- 4 Install the three supports onto the base flange, spaced equally around the flange circumference. Secure with bolts and nuts. Tighten using special spanner (Chap 5, Fig 5.1).
- 5 Position ground box enclosure over base flange sub-assembly, to rest on the support brackets, **orientated so that the bonding lead connections align with each other**. Carefully position the lower part of the environmental seal over the inner box rim. Top of ground box to be 65 mm (2.5 in.) above ground level, as shown in Stage 3.
- 6 Check pit box assembly for correct level.
- 7 Install a temporary cover (eg wood) over the pit box cover opening prior to casting concrete, to prevent concrete entering pit box. Carefully pour concrete to encase the outer enclosure (see Stage 4).
- 8 After concrete has set, remove temporary cover and the three supports with brackets. If supplied, install blanking flange and gasket.
- 9 Check the installation of the environmental seal making sure the seal is clean and free of any debris. Fit the two band clamps one above the other and about 2mm from the inner box rim. The clamp buckles should be orientated at approximately 180 degrees to each other. Take care not to drop objects into space between inner and outer box sections.
- 10 The band clamps should be tightened using a 1/4in drive 8mm socket, universal joint at least 100mm extension bar and a 1/4in drive ratchet.
- 11 Install bonding lead (Item 7) to studs on inner and outer box sections. Secure with washers (Items 8, 10) and nuts (Item 9).
- 12 Clean out the pit box chamber.
- 13 Connect the lid tether assembly (item 6), between cover (item 3) and pit box.
- 14 Orientate the Pit Valve such that the pilot valve assembly is approximately 180 degrees from the pit box tether eyebolt to avoid entanglement.
- 15 Fit cover assembly to pit box. **Make sure the tether does not entangle with any internal equipment.**



Chapter 5

INSPECTION, MAINTENANCE AND OVERHAUL**CONTENTS**

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1	General	
2	Routine Inspection and Maintenance	
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1 GENERAL**WARNING**

DO NOT HANDLE O-RING SEALS IF THEIR MATERIAL APPEARS CHARRED, GUMMY OR STICKY. USE TWEEZERS AND WEAR NEOPRENE OR PVC GLOVES. DO NOT TOUCH ADJACENT PARTS WITH UNPROTECTED HANDS. NEUTRALIZE ADJACENT PARTS WITH A SOLUTION OF CALCIUM, HYDROXIDE. IF THE DEGRADED MATERIAL OR ADJACENT PARTS TOUCH THE SKIN, DO NOT WASH OFF WITH WATER, SEEK IMMEDIATE MEDICAL AID FOR POSSIBLE CONTAMINATION WITH HYDROFLUORIC ACID. HYDROFLUORIC ACID IN CONTACT WITH SKIN HAS DELAYED SYMPTOMS OF CONTAMINATION. IT IS EXTREMELY TOXIC.

WORK MUST BE CARRIED OUT ONLY BY SUITABLY QUALIFIED PERSONNEL.

PRIOR TO COMMENCING WORK, ENSURE THAT ALL AIRPORT/COMPANY SAFETY PROCEDURES HAVE BEEN COMPLIED WITH.

- 1.1 Before dismantling any unit ensure that all special tools, materials and replacement parts are available. Only Avery-Hardoll supplied parts and special tools are to be used.
- 1.2 On completion of overhaul, and during installation, units should be checked for any leakage.

2 ROUTINE INSPECTION AND MAINTENANCE**WARNING**

NO SOLVENTS, CLEANING AGENTS, GREASES OR OTHER MATERIALS ARE TO BE USED ON INTERNAL SURFACES IN CONTACT WITH FUEL. CLEANING IS TO BE CARRIED OUT USING CLEAN AVIATION FUEL ONLY.

2.1 Weekly

Clear the EPB of any residual rain water, fuel and debris and dispose of according to local environmental policies.

If rain water is regularly present in the Pit Box, renew the lid seal.

Check integrity of Pit Box lid tether

2.2 Annually

Check integrity of all seals.

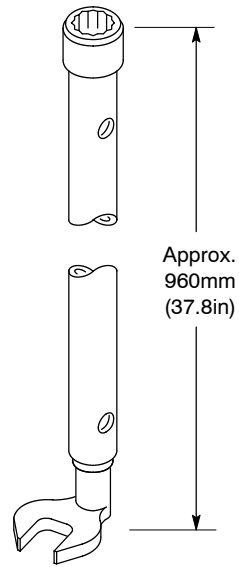
Check the Pit Box lid for cracks and any general damage that may affect the secure closing of the lid. If any cracks are detected the lid is to be replaced.

NOTE:

The above maintenance frequencies are the minimum recommended but local company instructions must be observed.

All seals to be replaced after a 5 year period.

3 SPECIAL TOOLS AND MATERIALS



GBMY5006 30mm AF

Figure 5.1 Special Spanner

Chapter 6

SPARE PARTS CATALOGUE**CONTENTS**

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1	General		
2	Spare parts details		
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6.1	Environmental Pit Box Assembly		2

1 GENERAL

- 1.1 Only parts supplied by Avery-Hardoll are to be used to repair this equipment.
- 1.2 When ordering spare parts please quote the following information:
- (a) Publication number and issue
 - (b) Fig/Item number
 - (c) Part number and description
 - (d) Quantity

2 SPARE PARTS DETAILS

- 2.1 The following tables of spare parts also contain the relevant attaching parts, i.e. screws, washers, nuts, etc, which may fail as a result of repeated removal and insertion.

NOTES

- (1) '+' in the Fig/Item column indicates Item is not illustrated.
- (2) 'REF' in the Qty column indicates Item is for reference purposes only and is **not available** as a spare.
- (3) '*' in the Fig/Item column indicates Item is recommended as a spare part

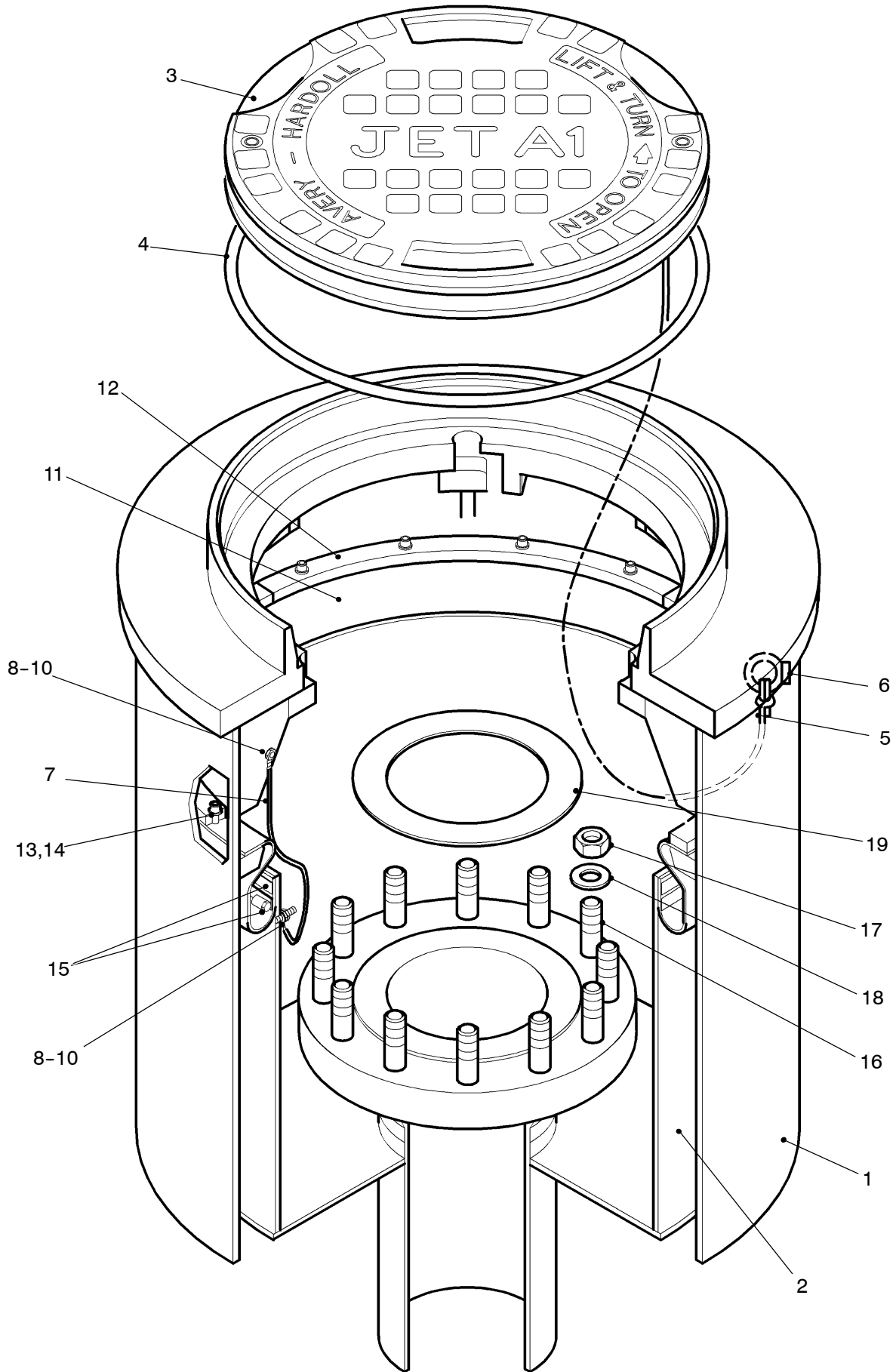


Fig 6.1 Environmental Pit Box Assembly

SPARE PARTS IDENTIFICATION (FIG 6.1)

Item	Part Number	Description	Qty
-	GBMY5050M2	Ground Box Assy, fitted with M20 Studs	
1	Not spared	. Ground Box Enclosure	
2	Not spared	. Base Flange sub-assy	
3	GBMZ5056	. Ground Box Cover Assy.	
4	GBRZ5029	. . Lid Seal, Nitrile	1
5	ZAPZ0254-1	. Lid Tether Assembly	1
6	ZASZ0040-1	. Collar, Eyebolt, BS529 PT.1	1
7	GBMZ5004	. Bonding Lead	1
8	ZW8205M06A	. Washer, M6, ext s/proof	2
9	ZN1001M06A	. Nut, M6,	4
10	ZW2201M06A.	. Washer, M6, plain	2
11	S4895-4	. Environmental seal	1
12	GBSZ5055	. Clamp Ring (4 sections)	1
13	ZS3225M06025A	. Screw M6 x 25 Skt Cap Head	16
14	ZW2201M06A.	. Washer, M6, plain	16
15	S4895-11	. Band Clamp Assembly	2
16	GBSZ5027	. Stud M20	12
17	ZN3201M20A	. Nut, M20	12
18	ZW4002M20A	. Washer, M20 plain	12
19	GBFZ3291	. Gasket, Flange	1

Optional extras

GBMY3005	Extended Combination Spanner (See Chap 5, Fig 5.1)
GBMY5009	Installation Kit, for aligning the two chambers of the assembly (See Chapter 4 Installation, Stage 3)

