
**FPU® SYSTEMS OPERATION MANUAL
BOH PORTABLE DRAWER MODULE (PDM)
(INCLUDING REPAIR PARTS & SPECIAL TOOL LIST)
BOH FPU Field Pack-up Units**



BOH PORTABLE DRAWER MODULE (PDM)

BOH FPU® Systems
BOH ENVIRONMENTAL LLC
14520 Avion Parkway, Suite 220
Chantilly, VA 20151
POC Doug Cresap (985) 674-0725
<http://www.bohfpusystems.com>

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WARNING SUMMARY

This warning summary contains general safety warnings and hazardous materials warnings that must be understood and applied during operation and maintenance of this equipment. Failure to observe these precautions could result in serious injury or death to persons using equipment.

WARNING



Do not allow the PDM system to swing if using an overhead lift. Always ensure an appropriate sling and lifting points are used in lifting the Module. Always use properly sized forklift, crane, or lifting device. Failure to comply could cause injury, death or damage to the equipment.

WARNING



Use extreme caution when moving BOH PDM Portable Drawer Module units into a transport vehicle or system. Make sure all PDM Portable Drawer Module connectors latches and straps are properly seated and locked, secure with ratchet straps before movement of the PDM Portable Drawer Module. Failure to comply could cause serious injury, death, or damage to the equipment.



Standard forklift principles apply when working on the PDM Portable Drawer Module. When working with ground guides during loading or unloading of a module, never move the PDM Portable Drawer Module into the FPU container while the ground guide is between the fork, PDM Portable Drawer Module, and the FPU container. Serious injury could occur if the ground guide is pinned between the forklift and the FPU container. Forklift operators must maintain visual contact with their ground guides at all times.



Always follow standard forklift procedures. A tilt hazard exists when forklift operators try to lift a partially loaded container from the wrong side. Always lift with the forklift tines in the fork pockets provided in the base. A tilt situation exists when the heaviest part of the load is out on the tips of the tines, or on uneven ground while traveling. Operators should always keep loads low and close to the forklift carriage. Operators should never travel when the load is in the fork's extended position.

WARNING



The PDM Portable Drawer Module and PDM Modules and their contents are heavy and could cause injury if they fall onto or strike personnel. A tilt hazard exists when the drawer is either not latched or frames have not been secured with the ratchet straps. As a rule, always work on one drawer at a time. Never have more than one drawer extended in the full open position at a time, especially if loaded with material. Personnel should never stand on a drawer.

WARNING



Use extreme caution when stacking drawer units into a combination system. Never attempt to lift drawers while they are in their frames. Always separate the drawers from the frames when stacking the system. Two personnel are required when lifting empty drawers into and out of the frames. Four personnel are required when lifting drawers that contain stored material into and out of the drawer frames. Make sure all latches are properly seated and locked secure. Failure to comply could cause serious injury. Failure to follow proper connection procedures may result in damage to the equipment and/or stored material.

WARNING SUMMARY

This warning summary contains general safety warnings and hazardous materials warnings that must be understood and applied during operation and maintenance of this equipment. Failure to observe these precautions could result in serious injury or death to persons using equipment.

WARNING



When using a crane to lift the PDM, insure the proper sling and sling point are used. Do not allow the system to swing if using an overhead lift. Always use properly sized forklift, crane, or lifting device. Failure to comply could cause injury, death or damage to the equipment.

WARNING



The module drawers, shelves and their contents are heavy and could cause injury if they fall onto or strike personnel. A tilt hazard exists when the module drawer is extended, but not locked down by the ratchet straps. As a rule, always work on one drawer at a time. Never have more than one drawer extended in the full open position at a time, especially if loaded with material. Personnel should never stand on a drawer. Failure to comply could cause injury, death or damage to the equipment.

WARNING



Always inspect the working areas, insure that the front, rear and sides are free of oils, lubricants, and other potentially slippery substances. The module drawers may be used to store various forms of lubricants, and other potentially slippery substances. Keeping the drawers and the work area around the module clean is important to prevent spillage and slippery surfaces.

WARNING



The module drawers and shelves can be heavy and awkward to handle by a single person. This is especially true of the larger components. The movement of these items is a two-person operation for empty drawers and four personnel for drawers with stored material. Assistance is required from one or more personnel to separate and remove drawers from the frame of each assembly. DO NOT remove or lift drawers with their frame, injury to personnel will result. A forklift and MHE support is required to load and unload the PDM Portable Drawer Module into and out of the BOH FPU container systems and other transport vehicles.

WARNING



Protective gloves should be worn when handling metal parts in high temperatures. Failure to wear gloves may result in burning or blistering of the skin upon contact.

WARNING



Protective gloves should be worn when handling metal parts in below freezing temperatures. Failure to wear gloves may result in skin freezing to the metal upon contact and cause tearing of the flesh when attempting to pull away from the metal.

GENERAL WARNINGS



HEAVY PARTS - heavy object on human figure shows that heavy parts present a danger to life or limb.



HEAVY PARTS - heavy object pinning human figure against wall shows that heavy, moving parts present a danger to life or limb.



HEAVY PARTS - hand with heavy object on top shows that heavy parts can crush and harm.



HEAVY PARTS - foot with heavy object on top shows that heavy parts can crush and harm.



SLICK FLOOR - wavy line on floor with legs prone shows that slick floor presents a danger for slipping or falling.



HEAVY OBJECT - human figure stooping over heavy object shows physical injury potential from improper lifting technique.



CRYOGENIC - hand in block of ice shows that the material is extremely cold and can injure human skin or tissue.



HOT METAL SURFACES- Metal surfaces may become hot in extreme heat areas; prolonged contact may cause burning or blistering of the skin.

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REPORTING ERRORS & IMPROVEMENTS

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. Please let us know if you find any mistakes or if you know of a way to improve the procedures. You may send in your recommended changes by E-mail directly to: dcresap@bohfpusystems.com. A reply will be furnished directly to you.

Approved for public release; distribution is unlimited.

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Group Numbers

- 00 PDM MODULE SYSTEM
- 01 PDM Modules #01 Through # 04
 - 0101 Module Assembly
 - 0102 Drawers Assembly
 - 010201 Drawer Seals
 - 010202 Drawer Dividers
 - 0103 PDM Case Assembly
 - 0104 PDM Tray Assembly

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REAR MATTER

BOH PRODUCT WARRANTY
Metric Conversion Chart

HOW TO USE THIS MANUAL

This manual contains general information, operating instructions, Preventative Maintenance Checks and Services (PMCS), and maintenance/repair instructions for the PDM Portable Drawer Module Units.

Front matter consists of front cover, warning summary, title block, table of contents, "how to use this manual" pages, and provides information on the PDM and its associated equipment. Chapter 1 provides equipment description and data as well as the theory of operation. Chapter 2 provides instructions for operating under usual and unusual conditions. Chapter 3 contains troubleshooting procedures authorized at the Operator and Unit level. Chapter 4 contains Preventative Maintenance Checks and Services (PMCS) and Operator Maintenance Instructions. Chapter 5 contains Unit Maintenance Instructions. Chapter 6 contains the Maintenance Allocation Chart (MAC); it also includes the Repair Parts & Special Tools List (RPSTL) that identifies parts or tools unique to the operation and maintenance of the PDM.

Manual Organization and Page Numbering

This manual is divided into six major chapters that detail the topics mentioned above. Within each chapter are work packages covering a wide range of topics. Each work package is numbered sequentially at page 1, and has its own page numbering scheme that is independent of the page numbering used by other work packages. Each page of a work package has a page number of the form "XXXX YY-ZZ", where "XXXX YY" is the work package number (e.g. 0010 00 is work package 10) and "ZZ" represents the number of the page within that work package. Blank pages will be labeled "This page was intentionally left blank".

Finding Information

The Table of Contents permits the reader to quickly find information in the manual. The reader should start here first when looking for a specific topic. The Table of Contents lists the topics contained within each chapter and the work package sequence number where it can be found.

Types of notations

Warnings - Warnings are posted immediately prior to text covering any area that would present a situation that may result in injury or death. Compliance is mandatory.

Cautions - Cautions will be found on the same page and preceding the text covering any area that would present a situation that may result in damage to equipment.

Notes - Notes will precede text covering an area with the intent to alter normal procedures for unique situations or equipment, or point out areas of special concern.

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CHAPTER 1

**INTRODUCTORY INFORMATION
WITH
THEORY OF OPERATION**

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**INTRODUCTORY INFORMATION WITH THEORY OF OPERATION
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GENERAL INFORMATION

SCOPE

Equipment Covered

This technical manual contains instructions for the operation, preventative maintenance, and recommended Unit/Direct Support corrective maintenance for the Boh PDM Module Systems and the associated equipment.

Type of Manual

This is an Operator, Unit and Direct Support, Operation and Maintenance Manual.

Equipment Name, Part Number and NSN

BOH Standard FPU Module Table

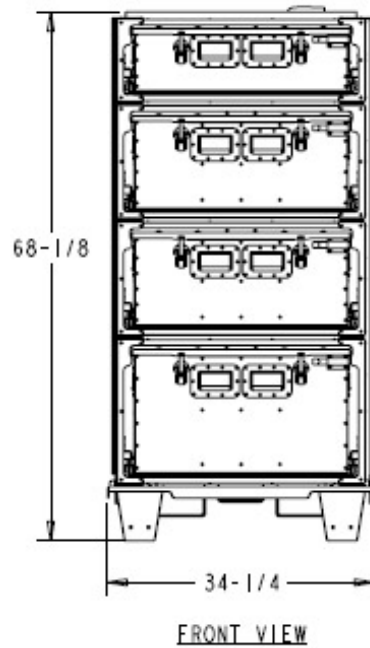
PDM Portable Drawer module	PART NUMBER	NSN
PORTABLE DRAWER MODULE #1 GREEN	15003201-001	8145-01-588-3672
PORTABLE DRAWER MODULE #1 TAN	15003201-002	8145-01-588-3672
PORTABLE DRAWER MODULE #2 GREEN	15003202-001	8145-01-588-3677
PORTABLE DRAWER MODULE #2 TAN	15003202-002	8145-01-588-3677
PORTABLE DRAWER MODULE #3 GREEN	15003203-001	8145-01-588-3678
PORTABLE DRAWER MODULE #3 TAN	15003203-002	8145-01-588-3678
PORTABLE DRAWER MODULE #4 GREEN	15003204-001	8145-01-588-3688
PORTABLE DRAWER MODULE #4 TAN	15003204-002	8145-01-588-3688
END of TABLE		

PDM Description

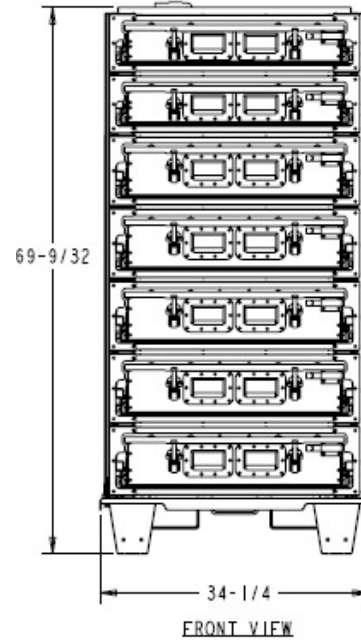
The PDM is available in 4 configurations, with skeletal cases of various sizes, a pallet base, drawer trays that slide, and drawer divider sets for small and bulk storage configurations. Each unit can be tailored to meet individual Supply/Maintenance/ Logistical Support needs. The system has the ability to operate in fixed facilities or field environments in either its uploaded or downloaded configuration. The PDM provides flexible transportability for supply support activities. The PDM Modules come in two color variations: Forest Green and Desert Sand.

PDM Configurations

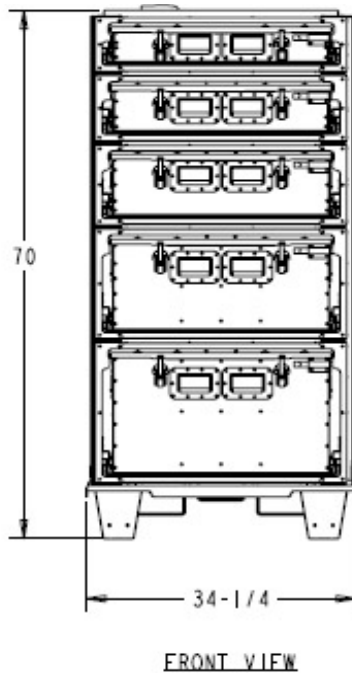
PDM CONFIGURATION #1



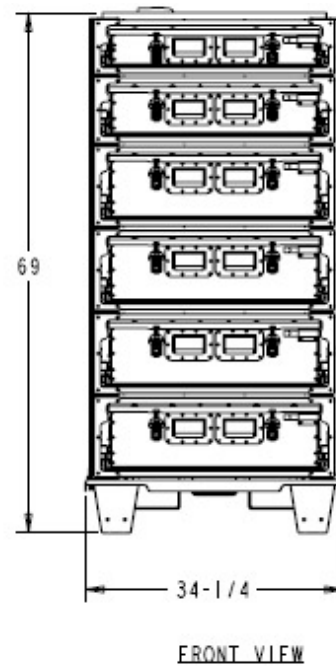
PDM CONFIGURATION #2



PDM CONFIGURATION #3



PDM CONFIGURATION #4



END OF WORK PACKAGE

INTRODUCTORY INFORMATION WITH THEORY OF OPERATION
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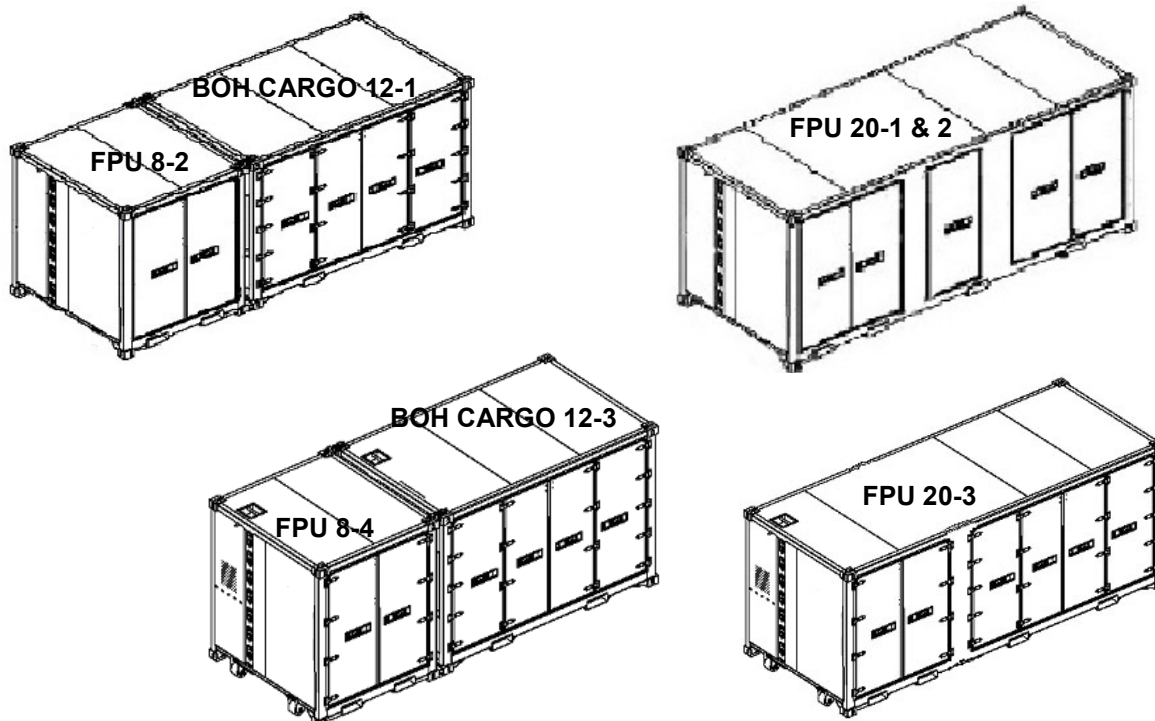
THEORY OF OPERATION

PDM Description

The PDM is available in 4 configurations, with skeletal cases of various sizes, a pallet base, drawer trays that slide, and drawer divider sets for small and bulk storage configurations. Each unit can be tailored to meet individual Supply/Maintenance/ Logistical Support needs. The system has the ability to operate in fixed facilities or field environments in either its uploaded or downloaded configuration. The PDM provides flexible transportability for supply support activities. The PDM Modules come in two color variations: Forest Green and Desert Sand. PDM Modules are designed to stand alone or to be loaded and secured within the FPU-8/12 or FPU-20 series containers.

Compatible Shipping Containers System

BOH FPU Cargo Container Systems are a durable standardized storage and transport system capable of rapidly mobilizing material. These systems can be configured to store and transport small, medium, large, palletized and bulk material. The FPU-8-2/BOH-CARGO-12-1 (Combination), FPU-8-4/BOH-CARGO-12-3 (Combination), FPU-20-1 & FPU-20-2 and FPU-20-3 containers are side-load containers. These container systems are ISO Certified and CSC Safety Approved and can be stacked nine high onboard commercial or MSC container ships. FPU-8-2/BOH-CARGO-12-1 (Combination) has a maximum capacity of 36,000 lbs., the FPU-8-4/BOH-CARGO-12-3 has a maximum capacity of 37,000 lbs., the FPU-20-2 has a maximum capacity of 33,000 lbs. FPU-20-1 has a maximum capacity of 52,900 lbs. and the FPU-20-3 has a maximum capacity of 37,000 lbs. The BOH FPU containers come in two color variations: Forest Green and Desert Sand.

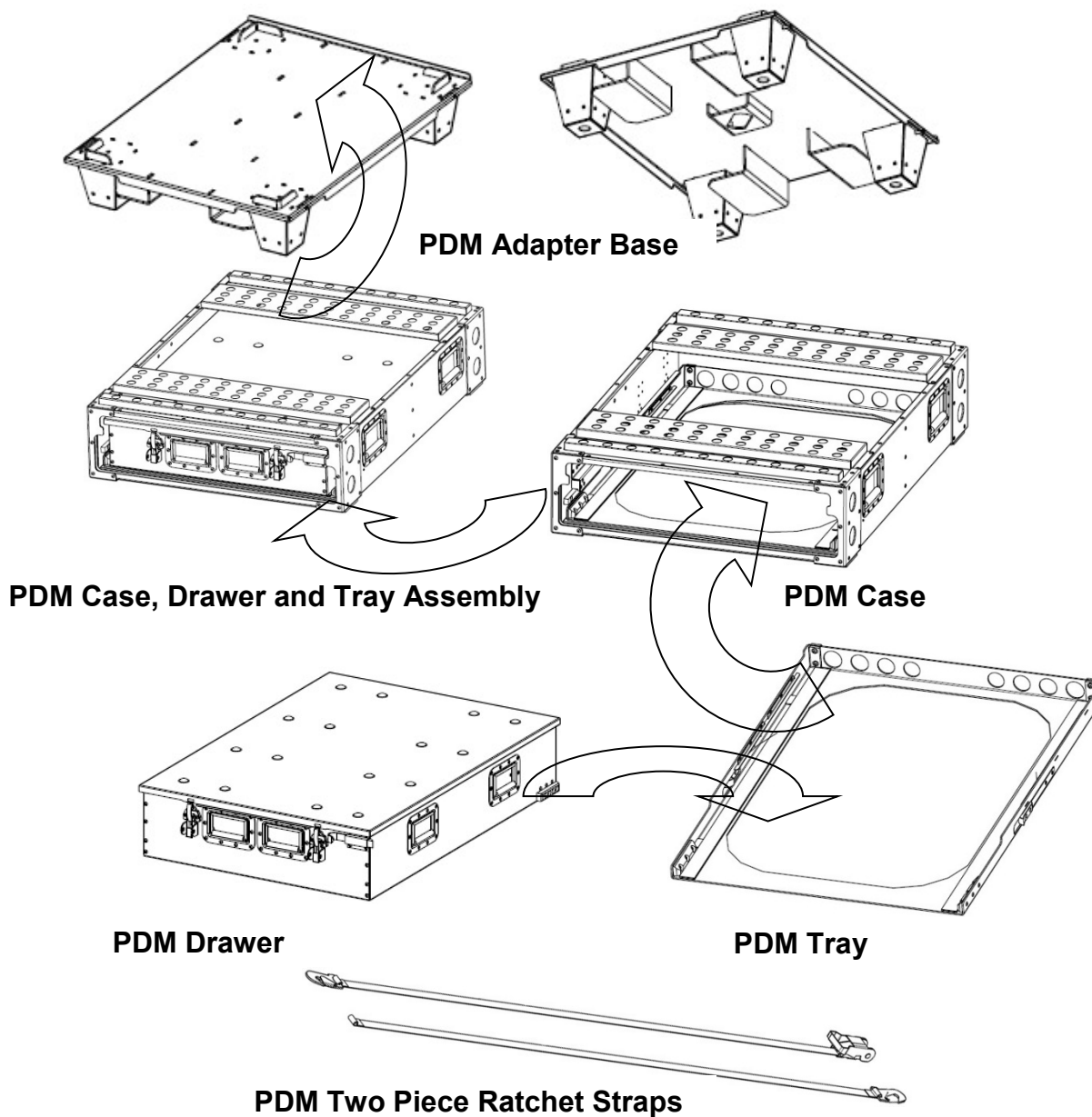


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Equipment Characteristics, Components and Accessories

PDM Module Components Breakdown



Components description

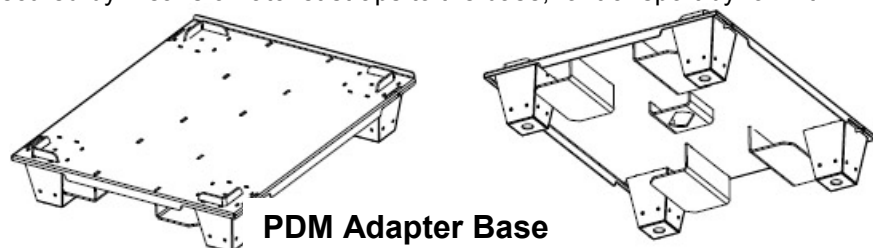
The PDM module has handle drawers for removal from the sliding tray.



The cases can be rearranged in a configuration tailored to specific needs.



The cases are secured by means of ratchet straps to the base, for transport by forklift.



REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your PDM needs improvements in design and/or performance, let us know. Send us a description of the recommended change to dcresap@bohfpusystems.com.

CORROSION PREVENTION AND CONTROL (CPC)

It is our understanding that Corrosion Prevention and Control (CPC) is a continuing concern for the military. While corrosion is typically associated with rusting of metals, it can also include deterioration of other material, such as rubber and plastic. Unusual cracking, softening, swelling, or breaking of these materials may be a corrosion problem.

All units must adhere to their specific corrosion maintenance plan. At a minimum, equipment should be inspected for corrosion on a quarterly basis (monthly if equipment is operated/stored in a high salt air environment). If corrosion is discovered, consult your unit/installation corrosion control manager to schedule repair. It is important that any corrosion problem with the FPU be reported so that the problem can be corrected and improvements can be made to prevent the problem in the future.

PREPARATION FOR STORAGE OR SHIPMENT

All preventative maintenance checks and services should be performed on the FPU and its components prior to any storage or shipment.

RECEIVING THE FPU INVENTORY

Unpacking and Inventory of PDM Components upon Initial Receipt

With the PDM containers downloaded, check the equipment against the packing list. Report any discrepancy to your supervisor.

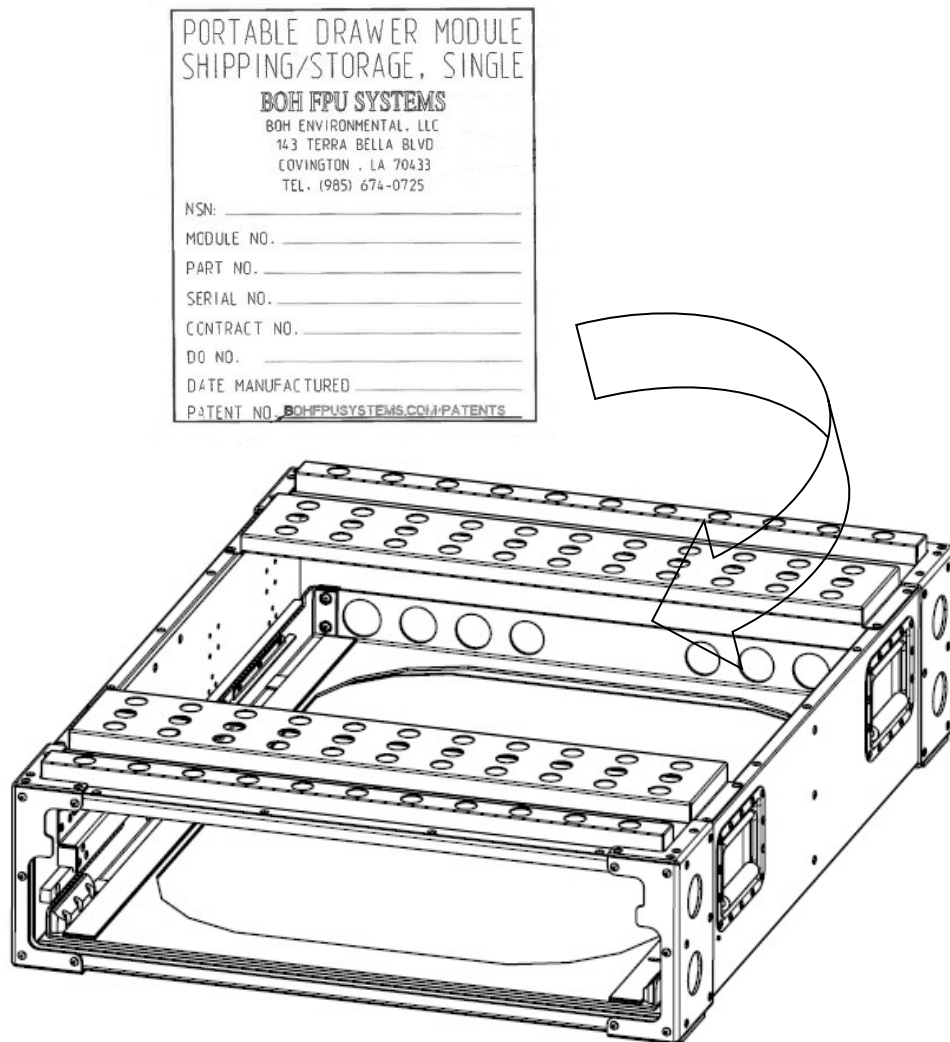
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EQUIPMENT DATA LABELS, IDENTIFICATIONS, MARKINGS AND AIRLIFT CERTIFICATIONS

PDM DATA TAGS

The PDM data tags are located on the back of each case.



AIRLIFT CERTIFICATIONS

FPU Containers

Certified by U.S. Air Force for transport on C-130, C-5 and C-17 aircraft (18 July 2001)



DEPARTMENT OF THE AIR FORCE

HEADQUARTERS AERONAUTICAL SYSTEMS CENTER (AFMC)
WRIGHT-PATTERSON AIR FORCE BASE, OHIO

MEMORANDUM FOR Defense Industrial Supply Center
Attn: Maureen Leiter
700 Robbins Ave Bldg 3 Section A
Philadelphia PA 19111

18 July 2001

FROM: ASC/ENFC (ATTLA)
2530 Loop Road West
Wright Patterson AFB, OH 45433-7101

SUBJECT: Air Transport Certification of BOH Environmental Field Pack-up Units (FPU-8 Series)

1. The subject Field Pack-up Units, FPU-8-1 and FPU-8-2, are steel containers measuring 84" L x 96" W x 92" H. The container has recessed pocket doors along its length and has ISO corner fittings on all eight corners. Up to four specialized storage/shipping modules may be mounted inside each FPU.
2. The above subject FPU-8-1 and FPU-8-2 are herewith approved for air transport aboard USAF C-130, C-141, C-5, and C-17 aircraft with the following provisions.
 - a. Maximum container weight shall not exceed 18,000 lbs. The specialized modules should not exceed 2,000 lbs each. Payload within the container may be in the modules or attached to the tie-down rings on the container floor.
 - b. The container shall be carried on a standard 463L HCU-6/E cargo pallet. Shoring at least 3/4" thick shall be placed between the container bottom and the pallet upper surface to distribute the load on the pallet and avoid point loading contact by the corner fittings or any projecting edge members. Shoring area requirements will vary with container weight and type of transport aircraft. For the maximum weight container, the shoring area shall equal the area of the container bottom.
 - c. The container shall be restrained to 3 G fwd, 2 G up, and 1.5 G aft & lateral using chains through the corner fittings. If the container weight exceeds 13,000 lbs, the container will require additional restraint directly to the aircraft floor after it is loaded onto the aircraft. The shipper shall certify that the cargo within the container is capable of withstanding these forces in addition to a potential 4.5 G download. The shipper shall also certify that the cargo within the container can withstand a potential in-flight rapid decompression of up to 8.3 psi within 1/2 second without endangering the aircraft or personnel in the cargo compartment. The container doors may be open during flight.
 - d. Any hazardous materials must be prepared and certified for airlift in accordance with AFJMAN 24-204/TM 38-250. This memo is not to be considered an approval for shipping hazardous materials, which must be granted separately. The servicing aerial port can assist in this regard.
3. A copy of this certification should accompany the containers when processed for air shipment.
4. The point of contact (refer to file 2001.06.11) is the undersigned at DSN 785-2330 or 937-255-2330. Additional POCs are Mark Kuntavanish at 5-8039, or Caroline Buckley at 5-9647.


JAMES E. LEGER
Aerial Delivery Group

cc:
HQ AMC/D OV
USA MTMC/TEA

Internal Air Transport Certification for 20-ft containers

FPU-20-2 containers are approved for air transport aboard C-130, C-17 and C-5 USAF aircraft as "20-foot ISO Containers certified by the Convention for Safe Containers (CSC)". See Internal Air Transport Certification issued by ATTLA dated 29 June 2016 (file number 2008.09.15 Rev 6).

BOH FPU CARGO CONTAINER and CSC Data Plates

The BOH ISO data plates are affixed to the right-hand (curb side) doors of each container, below the door handles. This plate identifies information required for transport aboard ship. The ABS data plate is located adjacent to the ISO data plate. This plate identifies special requirements information for use during transport aboard ship.

FPU™ SHIPPING / STORAGE CONTAINER SYSTEM	
MANUFACTURER	PATENT HOLDER / PRIME CONTRACTOR
ADVANCED CONTAINMENT SYSTEMS INC. 8720 LAMBRIGHT HOUSTON, TX 77075 TEL. (713) 967-0356 FAX. (713) 967-0356	BOH FPU SYSTEMS BOH ENVIRONMENTAL, LLC 148 TERRA BELLA BLVD COVINGTON, LA 70439 TEL. (985) 674-0725
NSN	8145-01-654-0930 8150-01-598-3223
MODEL NO.	ECASL CONFIG 1 FPU 20-3
MANUF. PIN	75000001-002 15002003-002
PATENT NO.	BOHFPUYSTEMS.COM/PATENTS
SERIAL NO.	
DATE MANUF.	
CONTRACT NO.	
DO NO.	
MAXIMUM GROSS WEIGHT	
GROUND	16,783 KG 37,000 LB
AIR	16,783 KG 37,000 LB

(Sample) FPU Manufacturers Data Plate

APPROVED FOR TRANSPORT UNDER CUSTOMS SEAL		
USA/AB-104/07-01		
TYPE	MFG. No. OF CONTAINER	
FPU-20-3	AC002003-	
MANUFACTURER	APPROVED BY	PATENT HOLDER / PRIME CONTRACTOR
ADVANCED CONTAINMENT SYSTEMS INC. 8720 LAMBRIGHT HOUSTON, TX 77075 TEL. (713) 967-0356 FAX. (713) 967-0356	AMERICAN BUREAU OF SHIPPING ABN 104/07-01	BOH FPU SYSTEMS BOH ENVIRONMENTAL, LLC 148 TERRA BELLA BLVD COVINGTON, LA 70439 TEL. (985) 674-0725
CSC SAFETY APPROVAL		
USA/AB-104/07-01	DATE MANUFACTURED	INSPECTION SHALL BE BEFORE
IDENTIFICATION No.		
MAXIMUM OPERATING GROSS MASS	16,783 kg 37,000 lb	
ALLOWABLE STACKING LOAD FOR 1.8g	182,000 kg 403,200 lb	
TRANSVERSE RACKING TEST FORCE	151,000 newtons	

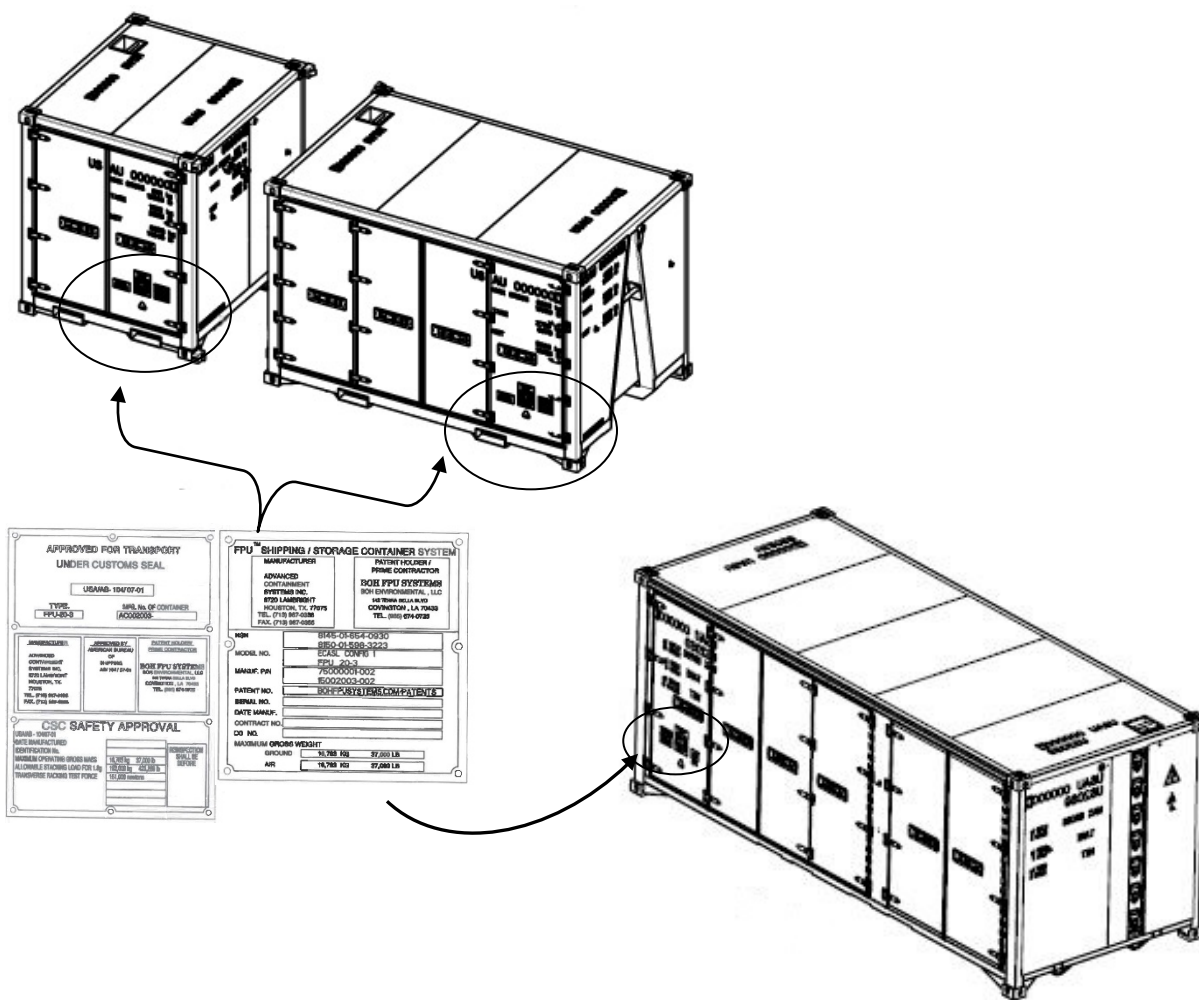
(Sample) SPECIAL REQUIREMENTS PLATE CSC APPROVAL PLATE

The BOH FPU-8-2/BOH-CARGO-12-1, BOH FPU-8-4/BOH-CARGO-12-3 FPU-20-1, FPU-20-3 & FPU-20-2 container systems are approved for transport as 20-foot ISO (Type 1C) containers. Also the BOH FPU-8-2 and the BOH-CARGO-12-1 are approved independently when they are disconnected from each other. The BOH FPU-8-2/BOH-CARGO-12-1 containers must be connected to transport by commercial and MSC container ships. For their approval to be valid, the following requirements must be met:

1. Certified/tagged FPUs must be matched only. See the CSC Approval Plate on a certified FPU USA/174-AB/03-01 series container.
2. Individual FPUs must have a current CSC certification (shown on the CSC Approval Plate).

These certifications do not supersede military policies by MTMC in the shipment of serialized containers of matched sets.

Location of Special Requirements CSC Approval and FPU Manufacturers Data Plates for FPU CARGO Containers



END OF WORK PACKAGE