Domaille Engineering LLC

FPM Model HDA-600 Optical Fiber Polishing Machine

User's Guide

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Welcome

Congratulations on selecting the FPM HDA-600, the premier in fiber optic connector polishing machines.

This User's Guide will assist you in the set up, operation and maintenance of the FPM HDA-600.

Overview

The FPM HDA-600 is designed to address the need to efficiently polish optical connectors at a low cost, while maintaining a consistent high level of quality.

Its compact design and lighter weight allows for easy transportation for onsite fiber optic cable installation and repair; or used for lower volume polishing requirements.

Features include start button, reset stop button, force adjustor, one digital countdown timer and an extremely robust design.

Getting Started

Unpacking & Setup

1. Remove all loose components from machine area in shipping case.
2. Remove the plastic bag from around the Overarm to provide access to the Overarm.
3. Use the Overarm as a lifting handle by grabbing the center of the Overarm.

   Lift the machine straight up while firmly holding the case down on the outside edges. If the machine is lifted at an angle, it will cause binding in the case.

   Gently place the machine on a suitable work surface so the operator has easy access to the controls and supply disconnection service.
4. Remove remaining plastic wrapping from the machine.
5. Inspect the machine for any damage that may have occurred in shipping.
6. Remove Cable Management Device located in side compartment of shipping case. Loosen the clamping screw on back of machine. Attach Cable Management Device by sliding the post into the hole provided on the back of the machine. Tighten the clamping screw to secure.
7. **In order to raise and lower the Overarm, you must press the button on the arm locking mechanism. Press the Overarm Release button located at the front of the Overarm and lift up. Releasing the Release button with the Overarm down will allow the Overarm to lock down in a fixed position.**

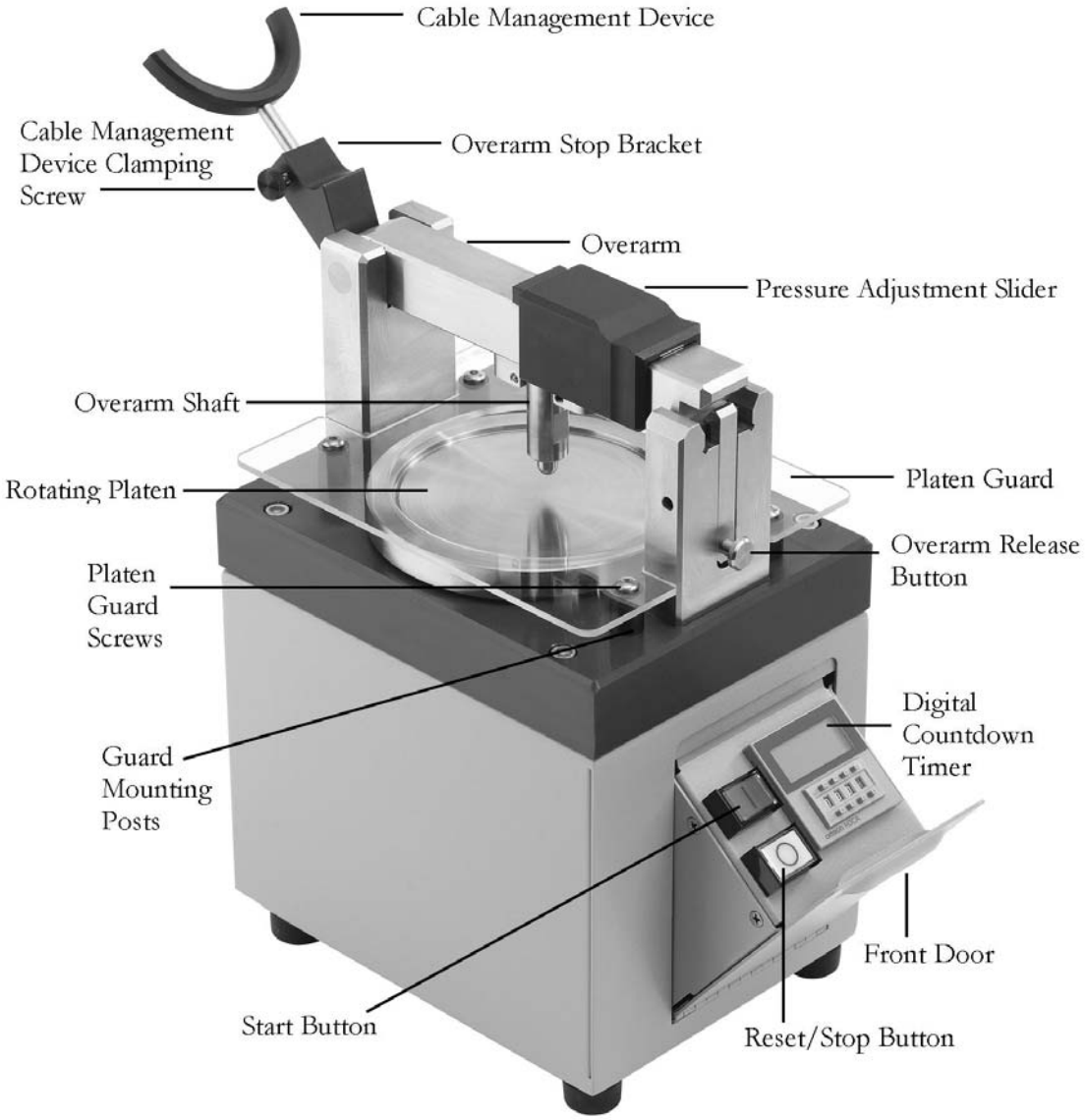
   Remove foam placed under Overarm shaft by raising the Overarm to the vertical position and resting the Overarm on the Overarm Stop Bracket .

Precautions

For safe, effective operation of the FPM HDA-600 Polishing Machine, please observe the following:

- Keep hands, jewelry, hair and loose clothing away from the rotating platen while the machine is in operation.
- **WARNING: Fingers could be crushed between the rotating Platen and structural members and/or guard mounting posts, when the Platen is rotating.**
- Keep all surfaces of the machine clean at all times. Confine water and slurry to platen area.
- **WARNING: Do not use an air hose on or around the Platen. This forces water and contaminants into the wear surfaces and mechanical drive unit, potentially causing machine failure. Damage caused by air hose use is not covered under warranty.**
- FPM is to be used in a normal dry environment.
- Do not attempt to repair or service any components inside the FPM HDA-600 machine. Contact Domaille Engineering, LLC if service is required.

FPM 600 Front View



FPM 600 Back View

Machine Operation

Observe all precautions listed in this operating manual before and during operation of the Field Polishing Machine.

Plug the power cord into the back of the machine and into a properly grounded outlet—230-240VAC 50Hz. If your power cord is equipped with a reset button, you MUST push the reset button on the front of the plug to supply power to the machine.

- To power up the Field Polishing Machine: Turn the power switch located on the rear of the machine to the ON position.
- Pull open front door of the polisher to access timer and other controls.

Polishing Fixture Installation

This procedure should not be performed when a cycle is running or the Platen is moving

To install a polishing fixture on the Overarm shaft, follow these steps:

1. Move the pressure adjustment slider to the "A" position.

   NOTE: *The pressure adjustment should be on "A" during loading and unloading the fixture and while lowing or raising the Overarm*

2. Raise the Overarm to the full vertical position, resting the Overarm on the Overarm Stop Bracket. (See Unpacking and Setup instructions, Step 7, for raising Overarm).
3. Load the connectors into the polishing fixture.
4. Ensure Overarm shaft and fixture bore are clean.
5. With Fixture Retaining Screw facing upward, slide the plate onto the alignment post aligning the keys on the Overarm with the slots in the plate. Loosen retaining screw, if necessary, to accomplish this.
6. Tighten Fixture Retaining Screw on the fixture. The screw allows the fixture to slide on the shaft without falling off.

Polishing Pad and Film Replacement

Polishing films must be placed on rubber pads, glass or ceramic plates. To place polishing film:

1. Raise Overarm (See Unpacking & Setup instructions, Step 7, for raising Overarm).
2. Place polishing pad or plate on the Platen, following the manufacturer's recommendations regarding adhesive backing to hold pad or plate in place.
3. Lower Overarm to the full horizontal position. (See section titled Polishing Fixute Installation, Step 5, for instructions on lowing Overarm).

Polishing Cycle

- **Time Setting:** Set the time to the desired run time using the Digital Countdown timer on the front of the machine. Seven different time unit options are available:

Unit	Description
0.1 s	1/10 of a Second
s	Second
0.1 m	1/10 of a Minute
m	Minute
0.1 h	1/10 of an Hour
h	Hour
10h	10 Hour

- To start the polishing cycle, press the green START [I] switch firmly. The Platen will begin to rotate. The polishing cycle will stop after the time set on the timer has elapsed.
- To begin another polishing cycle using the same timer settings, press the green START [I] switch once.
- To interrupt or stop a cycle at any time, press and release the white RESET/STOP [O] button.

Machine Shut Down

The following procedure should be used to shut down the FPM HDA-600.

To shutdown the machine:

1. Press RESET/STOP ⊡ if Platen is rotating.
2. Turn off the power located on the rear of the machine.

Machine and Polishing Fixture Maintenance

Proper care and handling of the polishing fixtures and FPM HDA-600 machine is critical to maintain polishing accuracy. If the machine or polishing fixtures are damaged in any way, contact Domaille Engineering for advice or repair.

There are no user serviceable parts inside the machine case. Do not remove sealed screws. Evidence of tampering will void warranty.

Daily or More Often as Required

Polishing Fixtures

Although polishing fixtures manufactured by Domaille Engineering are made of stainless steel, all traces of water and slurry should be removed after each step in the polishing process. This will ensure that the next step in the process is not contaminated by elements in the previous process.

WARNING: Do not use an air hose on or around the Platen. This forces water and contaminates into the wear surfaces and mechanical drive unit, potentially causing machine failure. Damage caused by air hose use is not covered under warranty.

Monthly

Disconnect the polishing machine from the power source before doing any maintenance work.

Polishing Machine Fan Filter

Inspect Fan Filter on back of machine. Vacuum to clean or remove and clean with compressed air.

Polishing Machine Platen

The Platen should be removed and greased at least once a month. If the machine is heavily used, more frequent greasing is required.

To maintain Platen:

1. Remove Platen guard by removing the 4 screws on top of the guard with a 1/8 inch hex wrench. With the arm in the up position, lift guard off the machine.
2. The platen can be removed by placing your fingers around the underside of the Platen. Gently break the seal between the Platen and the machine. Pull straight up.

   Do not use any tools (pry bars, screwdrivers, etc.) to remove Platen as the Platen and plastic wear ring under the Platen may be damaged.
3. Clean all of the old grease and contaminants from the bottom of the Platen and from the plastic wear ring. Clean both Platen and wear ring with alcohol and a clean, lint-free tissue or cloth to remove any trace of grease.

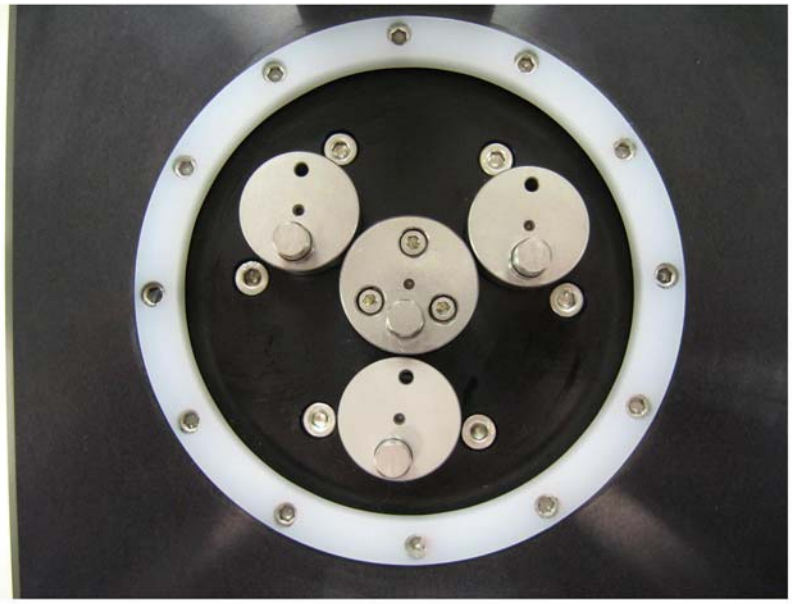
   Do not grease the Platen bearings. They are pre-lubricated and sealed; therefore, lubrication is not required.
4. Wipe any grit off the o-rings and apply a drop of light oil on each o-ring. This helps protect and lubricate the o-rings, making it easier to replace the Platen.
5. Fill holes in wear ring with grease. Put a small bead of grease on wear ring between holes. Use Super Lube grease from Synco Chemical Corporation, (800)-253-LUBE (5823) or www.super-lube.com.

6. Reinstall Platen by lining up the eccentric arms to point in the same direc tion as shown below. By moving to eye level with the Platen area of ma chine, place Platen on top of pins in eccentric arms.

7. Line up pins with holes in bearings in bottom of Platen. When pins are lined up, Platen will slide on pins about ½ way. Push straight down to seat Platen on wear ring. Verify that Platen is level before turning on machine. When fitted properly, no light will be visible between Platen and wear ring.

8. Replace Platen guard by placing the 4 guard mounting posts over the screw holes on the base. Place guard down on mounting posts, put screws back in the holes. Tighten the screws down with a 1/8 inch hex wrench.

WARNING: Platen guard must be in place for safety purposes. Injury could occur if it is not in place.



Transportation and Storage

- The Field Polishing Machine must be transported in its original shipping container.

Prior to storing the Field Polishing Machine, perform daily and monthly machine maintenance in accordance with this operating manual. Store the Field Polishing Machine in its original shipping container.

Service & Support

Technical Specifications

Machine Height:	14.00 inches (356 mm)
Machine Width:	6.00 inches (152 mm)
Machine Depth:	10.50 inches (267 mm)
Power Requirements:	5 amps; 230-240VAC; 50 Hz.
Machine Weight:	25 lbs (11.34 kg)
Shipping Weight:	50 lbs (22.68 kg)
Platen Speed:	130 - 138 rpm
Pressure Range	0-10 lbs. Force (0-4.54 kg); 6 fixed positions
Temperature Range	41°F - 104°F (5°C - 40°C)
Maximum Altitude	6000 feet above sea level (1828M)
Maximum Humidity	20-85% non-condensing
Noise Emission Level	Less than 70.0dBA

In the event of malfunction, or when other maintenance is required beyond the steps documented in this manual, the service must be done by a qualifed Domaille Engineering technician. There are no user serviceable parts inside the case. Do not remove sealed screws. Evidence of tampering will void warranty. For assistance, contact Domaille Engineering, LLC, USA.

European Standard power cords sets are available from Domaille Engineering, LLC. Please contact our office if an additional set is needed.

CE Notice (European Union)

Marking by the symbol CE indicates compliance of the FPM HDA-600 to the following directives of the European Union:

73/23/EEC	Low Voltage Directive
89/336/EEC	Electromagnetic Compatibility Directive
98/37/EC	Machine Directive

The requirements EN 61000-3-2:2000 + A2:2005, EN 61000-3-3:1995 + A1:2001 + A2:2005, EN 61000-6-5:1995 + A1:2001, and EN 61000-6-11:2004 as defined in EN 61000-6-1:2005 were used when evaluating for the 2004/108/EC Electromagnetic Compatibility Directive, 98/37/EC Machinery Directive and 2006/95/EC Low Voltage Directive. The safety test report is NI707350.

NI707350 Mechanical Safety

EN 1050:1996	Safety of machinery - Principles of Risk Assessment
EN 60204 - 1	Safety of electrical equipment
EN ISO 12100:1 and 12100:2	Safety of machinery - Basic concepts and general principles for design Parts 1 & 2

The following requirements and tests were used for the 2004/108/EC Electromagnetic Compatibility Directive.

NC707349.1 Generic Emission Requirements

EN61000-3-2:2000	Limits for harmonic current emissions
EN61000-3-3:1995	Limitation of voltage changes, fluctuations and flicker

NC707349 Generic Immunity Requirements

EN61000-4-5	Surge test
EN61000-4-11	Voltage dips, interruptions and variations

Company Information:

Domaille Engineering is an industry leader in providing high yield/high performance optical fiber and connector polishing. Optical products include Polishing Machines and connector specific Polishing Fixtures.

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LIMITED WARRANTY

Domaille Engineering, LLC ("Domaille") products are warranted by Domaille to be free from defects in workmanship and materials for a period of one-year from the original purchase date. This warranty covers defects in materials or workmanship only and does not include damage due to abuse, misuse, problems with electrical power, problems with compressed air supply, servicing not authorized by Domaille, failure to properly care for and maintain the products, or normal wear and tear. In addition, use of parts, components, or accessories not supplied or approved by Domaille will void this warranty.

Domaille's sole liability arising from any use of its products and this warranty is limited to repair or, at Domaille's sole discretion, replacement of defective products or defective component parts thereof. To request warranty service, you must contact Domaille at 7100 Dresser Dr. N.E., Rochester, MN 55906, USA. If warranty service is required, Domaille will issue a Return Material Authorization Number (RMA#). You must ship the products back to Domaille in their original or equivalent packaging, pre-pay shipping charges, and insure the shipment or accept the risk of loss or damage during shipment. Along with your RMA # include your name, telephone number, return address, proof of original purchase date, and a description of the claimed defect. If shipping the APM HDC-5000 for warranty repair, back up process data to the memory card, referring to User's Guide for process transfer instructions. Remove and retain memory card, as Domaille will not accept liability for lost data. If the defect is covered by this limited warranty, Domaille will repair or replace (at its option) the product or the defective component part(s) and ship them freight prepaid to an address in the continental U.S. Shipments to locations outside of the U.S. that are not the original shipped to location will be made freight collect or will be shipped to the original shipped to location, at the discretion of Domaille.

NO WARRANTY OTHER THAN THE ABOVE LIMITED WARRANTY IS MADE, EITHER EXPRESS OR IMPLIED. ALL EXPRESS AND IMPLIED WARRANTIES FOR THE PRODUCT, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE ONE YEAR LIMITED WARRANTY PERIOD. DOMAILLE SHALL HAVE NO LIABILITY FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES RELATING TO ITS PRODUCTS.

SOME STATES (OR JURISDICTIONS) DO NOT ALLOW LIMITATIONS ON THE DURATION OF IMPLIED WARRANTIES, OR EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR CERTAIN PURCHASERS, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU. THIS LIMITED WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE (OR JURISDICTION TO JURISDICTION).