

DJH Designs

Model H/E 188

Bench Mounted Paint Adhesion Test Machine



Instruction Manual

**DJH Designs 2366 Wycroft Road, D4
Oakville, Ontario, L6L 6M1**

In this book:

This manual is a combination set-up guide, task oriented operators manual, and reference manual. It contains full illustrated instruction for:

- Setting up the Paint Adhesion Tester
- Identifying the systems components
- Safely operating the system
- Locating customer support

Manual Conventions

To help find important information quickly, and to make instructions easier to understand, this manual uses the following conventions.

Italic refers to a document title or is used for emphasis

Bold refers to new terms or is used for emphasis

Note: Note contains important information set off from text.

Caution: Caution messages appear before procedures which , if not observed could result in inaccurate results or damage to the equipment.

Warning: Warning messages alert you to a specific procedure or practice which if not followed correctly could cause serious personal injury, or result in serious damage to the equipment.



refers to related Documentation's.

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Introduction

The DJH Designs Paint Adhesion Tester is a rugged and simple to operate bench mounted apparatus.

The machine is operated hydraulically by means of a remote electrically driven hydraulic power unit. Hydraulics are used to provide a means of applying a smooth and progressive load to the sample, thus insuring control and accurate results.

Specimens are inserted into the machine through the side window, the specimen is then clamped by turning the hand wheel clockwise. The standard machine comes equipped with dies and a forming tool suitable for testing specimens up to 1/16" thick. Additional dies are available for testing specimens up to 3/16" thick.

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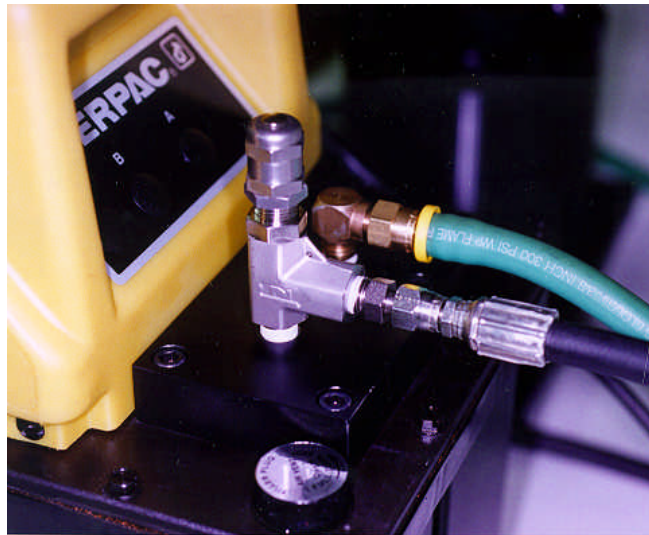
Installation

The machine is shipped in two boxes, the wooden box holds the tester and the cardboard box holds the hydraulic power pack.

Carefully unpack both boxes and bolt the tester on a suitable table and the power pack can be installed on the same surface or on a shelf close by 120VAC Power is required for the power pack.

Caution: DO NOT LEAVE THE HYDRAULIC POWER PACK RUNNING WHEN NOT NEEDED. TURN ON FOR THE TEST AND SWITCH THE UNIT OFF WHEN NOT IN USE.

Connect the small diameter HP hose to the smaller of the two fittings on the power pack, this is the fitting with the valve assembly on top, and the larger diameter LP hose to the other fitting.



High Pressure Hose

Low Pressure Hose

Caution: Protective plugs are used both on the hose ends and the manifold block on the power pack

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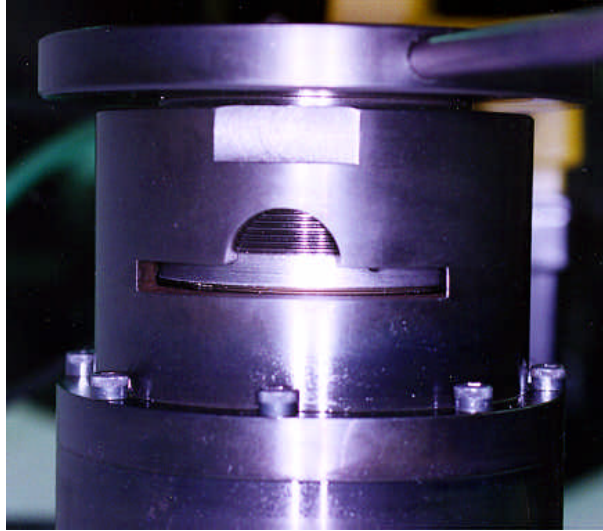
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Operating The Machine:

Standard Cup Test

1. Insert specimen strip approximate 3” wide through the windows and tighten the clamping spoked hub. Make sure you place the specimen centrally, this can be achieved by holding the specimen diagonally in the window and than tighten the clamping hub.




2. Open the control valve lever by turning it counter clockwise (C.C.W.) (This is the bypass position no action will occur). Open the hydraulic power pack filler/vent plug in the oil reservoir one full turn. Start the motor .


Note: Vent plug to be open at all times; to be closed in the event of moving the unit only.



The control valve lever of the tester, controls the speed and force of the indenter forming the cup. Turn the lever clockwise (C.W) fully, observe the specimen from the top, as soon as the indenter starts forming the cup, turn the lever C.C.W. to slow the travel and adjust the lever position to proceed at the pace you feel comfortable with. When the cup is formed and a crack appears in the sample the lever can be turned fully C.C.W. and the test is stopped. (Stop the indenter when the first signs of a crack appear in the sample) Turn off the power pack and unscrew the spoked hub to remove the specimen.

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Changing & Mounting Dies

These instructions apply to both the Square and Round deep draw dies:


1.0 To Remove


- 1.1 Remove the hold down screw clamp housing to expose the bottom die cartridge.
- 1.2 Fit the T- bar screw hold down bolts and just snug tighten them - caution- DO NOT over tighten the T-bars.
- 1.3 Fully loosen the 4 #8 socket head cap screws (SHCS) (T Handle Allen wrench supplied)



- 1.4 Lift out the cartridge assembly.
- 1.5 Place the hold down screw clamp housing face down to expose the top die.

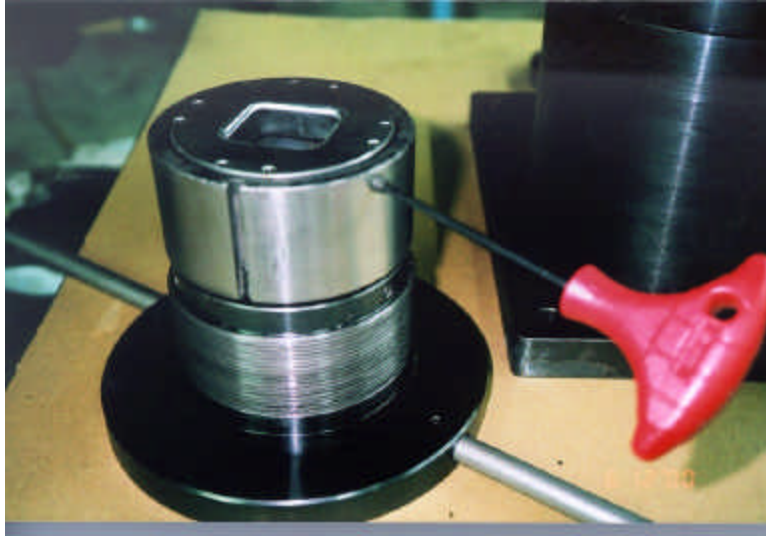
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1.6 Loosen and partly unscrew the 3 socket set screws and lift out the top die



2.0 To Replace

Follow the above procedure in reverse.


Please note the following:


2.1 The top die when placing in the hold down screw housing, make sure the locating pin lines up with the pin hole in the housing (see Fig.3) and do not over tighten the 3 Set screws, just snug them up.



2.2 The 4 die cartridge hold down socket head cap screw just snug them up do not over tighten them.

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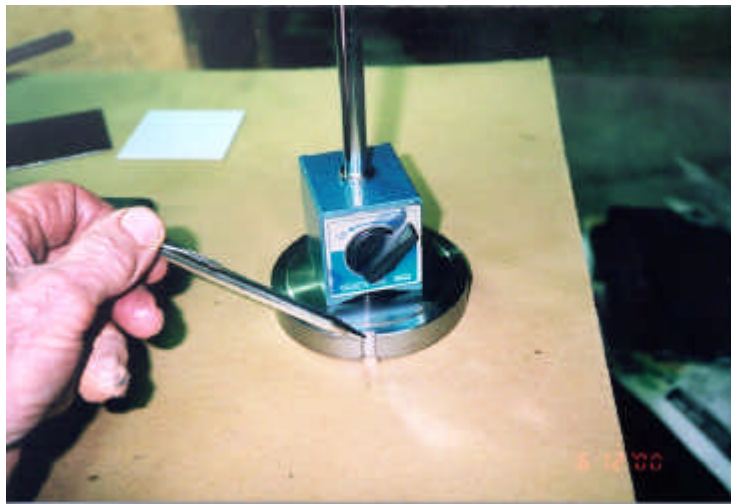
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- 2.3 When placing the hold down screw housing into the main housing, make sure the key way in the rotating member of the hold down screw housing lines up with the key inside the main housing. Note line scribed on housing lip



3.0 Mounting the Cup Tester or Hole Expansion Tester K.W.I.

- 3.1 Remove the deep draw dies as described above.
3.2 Start up the Hydraulic pump unit and raise the piston rod to its maximum height.
3.3 Drop in the cup tester punch or the K.W. I punch which ever is being used.
3.4 Lower the piston rod to its rest position and turn off the pump.
3.5 Hold the bottom die with the magnetic tool and lower the bottom die into its seat. Note, the cut out to allow the bottom die to clear the Key.



- 3.6 Turn off the magnetic field and remove Installation / Removal Tool.
3.7 Place the top die into its seat in the hold down screw housing and snug up the 3 socket head screws.
3.8 Replace the hold down screw housing as described in section 2.3

4.0 Test Coupon

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- 4.1 For deep draw test (Square of Round) cut coupon to 3" x 3" and remove any sharp edges.
- 4.2 Test coupon for cup or K.W.I. tests cut sample pieces 3" x 6" or longer and remove all sharp edges.
- 4.3 If you require to use long sample strips for the deep draw test, remove the locating pins on the bottom dies (use a pair of Vise-Grips to pull the pins out)

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KWI 25 TEST

Items Required:

Punch
Die
Drilling fixture with drill

To Change Punch:

1. Remove top clamping ring. Start pump and raise punch to its maximum travel, exposing punch approximately 1" above bottom Die.
2. Hold punch and pull up removing Die and punch.
3. Place Bottom Die over KWI 25 punch, hold from top and place assembly back into their seats. Make sure you place parts square into their respective seats.

To Change Top Die:

1. Loosen the two set screws that locate the Top Die and remove Top Die.
2. Place KWI 25 Die in the same place and secure the set screw just enough to allow Die to spin free.

CAUTION: Make sure set screw head is below surface of sleeve, so that the set screw does not damage the bottom housing threads!

Preparing Sample Part:

1. Cut panel 3" X 6" and place in drilling fixture.
2. Push panel up against the dowell pin and drill panel.
3. Carefully deburr the hole edges and place in **Stress Test Machine**, locating hole to punch tip.

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Maintenance

Lubricate the clamping hub threads sparingly and make sure the clamping surface is clean and oil free.

Maintain a coating of light oil on the parts of the machine that maybe subject to rusting.

If the indenter becomes worn, scratched, or shows signs of scoring, replace as required or the possibility of erratic test results can occur.

Check visually for any leaks and repair as required.

Check oil level of the hydraulic power pack and top up if required.

Use EnerPack Hydraulic Oil Part # HF-100 (One quart size)
or HF-101 (gallon size)

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