

# Wafer Peel Back Test Option Installation & Operating Guide

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## Overview

The following instructions are intended for use by qualified operator or maintenance personnel when installing the Wafer Peel Back Test Option (Part No. PBT-3000) on the GPD Global PBFT (Model PBFTVS.SPC98), which creates a WPBFT or Wafer Peel Back Force Tester. Please contact the GPD Global Service Department if you encounter any problems during this procedure.

### **IMPORTANT:**

*Installation of the Wafer Peel Back Test Option must be performed by qualified GPD Global personnel; failure to observe this restriction will void your warranty and may result in machine malfunction.*

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## Function

GPD Global's WPBFT (Wafer Peel Back Force Tester) accurately measures and records the peel-back force required to remove PVC tape from wafer chips used in the semiconductor industry. The WPBFT accommodates 100 mm long wafer chip with widths of 10 mm, 20 mm, and 30 mm. Test results are recorded for incoming or outgoing taped components.

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## Install Wafer Option on PBFT

To install the Wafer Option on the PBFT, you must first disassemble the PBFT, modify some existing PBFT parts, and then reassemble the PBFT with both the newly modified parts and the Wafer Option.

### Disassemble PBFT

All "Item" reference numbers used in the following procedure refer to parts shown on Drawing PBFT-3D2 in the *PBFT VS SPC 98 User Guide* (Part No. PBT-002C).

To disassemble the PBFT for purposes of Wafer Option installation:

1. Remove all power to the PBFT.
2. Remove the Draw Wheel Assembly (Item 9) by loosening the set screws in the Draw Wheel opposite the key way.

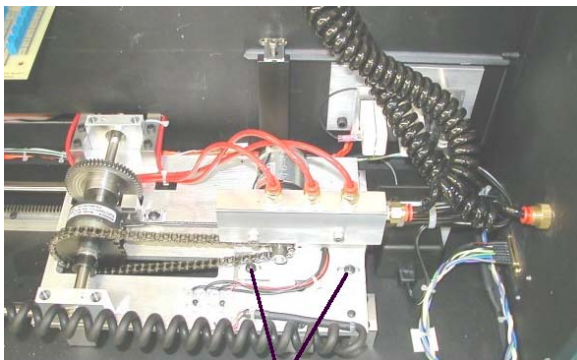
NOTE: Do not remove the Main Drive Shaft (Item 12); leave it in place.

3. Remove the Pressure Wheel and Tape Guide Assemblies:
  - a. Remove the bolts located below the Guide Mount (Item 20) to remove both the Pressure Wheel Assembly and the Tape Guide Assembly.
  - b. Then remove both Guide Mounts (Item 20) by removing the two bolts securing each to the inside of the PBFT cabinet.

4. Remove the Draw Wheel Assembly (Item 9) by loosening the set screws in the Draw Wheel opposite the key way.

NOTE: Do not remove the Main Drive Shaft (Item 12); leave it in place.

5. Remove the Pressure Wheel and Tape Guide Assemblies:
  - a. Remove the bolts located below the Guide Mount (Item 20) to remove both the Pressure Wheel Assembly and the Tape Guide Assembly.
  - b. Then remove both Guide Mounts (Item 20) by removing the two bolts securing each to the inside of the PBFT cabinet.
4. Remove the Strain Gauge:
  - a. Unplug both cables from the Strain Gauge (Item 74) - the Battery Charging Cable and the Data Output Cable.
  - b. Loosen the set screw in the Set Collar (Item 87) and then slide the Strain Gauge off of the Slide Shafts (Item 17).
  - c. Also remove the Knob and Adjustment Rod (Items 67 & 16), Tape Deflector Shield (Item 36), and Instrument Mount Bar (Item 18).
5. Remove the Drive Motor Mount (Item 6):
  - a. Remove the four motor wires from the terminal strip and the wire ties holding the wires in place.
  - b. Remove the two bolts holding the motor mount in place.
  - c. Slide the chain off of the sprocket.



Two bolts secure the motor mount in place.

**Figure A-A** Note that the Wafer Peel Back Option is shown here as already installed in this internal view of PBFT.

- d. Remove the bolts from the motor.

## Modify Existing PBFT Parts

All "Item" reference numbers used in the following procedure refer to parts shown on Drawing PBFT-3D2 in the *PBFT VS SPC 98 User Guide* (Part No. PBT-002C).

NOTE: GPD Global recommends removing the parts specified below from the PBFT and sending them to a machine shop for the required modifications.

1. Modify the Cover (Item 39) by cutting the slot and drilling the hole detailed on Drawing PBT-3012. Be careful to protect the painted surface of the cover from scratches during the modification process.
2. Modify the Base Plate (Item 44) by drilling and tapping the holes detailed on Drawing PBT-3011. Be careful to protect the painted surface of the cover from scratches during the modification process.

## Reassemble PBFT with Wafer Option

All "Item" reference numbers used in the following procedure refer to parts shown on Drawing PBFT-3D2 in the *PBFT VS SPC 98 User Guide* (Part No. PBT-002C).

1. Install the Vacuum Plate Assembly portion of the Wafer Option on the PBFT by bolting the Guide Mount (Part No. PBT-3001) to the Motor Mount Plate (Item 43).
2. Install the Strain Gauge:
  - a. Bolt the following items onto the Strain Gauge:
    - Pre-assembled Instrument Mount Bar (Part No. PBT-3027)
    - Tape Deflector (Item 36)
  - b. Screw the following items into the Strain Gauge:
    - Knob (Item 67)
    - Adjustment Rod (Items 16 & 67)
  - c. Slide the Strain Gauge assembly onto the Slide Shafts (Item 17).
  - d. Slide the Set Collar (Item 24) onto the end of the Adjustment Rod (Item 16) and tighten in place.
3. Mount the Scale Bracket inside the PBFT cabinet where the holes were drilled and tapped in the base plate. (These modifications are detailed on Drawing PBT-3011.)
4. Install the Drive Motor:
  - a. Install the Drive Motor (Item 52) on the new Motor Mount Bracket (Part No. PBT-3010) provided with the Wafer Option.
  - b. Install the Motor Mount Bracket on the Motor Mount Plate (Item 43). Slide the chain onto the sprocket before tightening the two bolts pointed out in Figure A-A.
  - c. Reconnect the four motor wires to the terminal block and tie them down using wire ties.
5. Using the Plumbing Diagram PBT-3028 as a guide, connect the Wafer Option hoses.

Installation and reassembly is complete.

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## **Set Up WPBFT**

To verify that the WPBFT (PBFT with Wafer Option) is working properly:

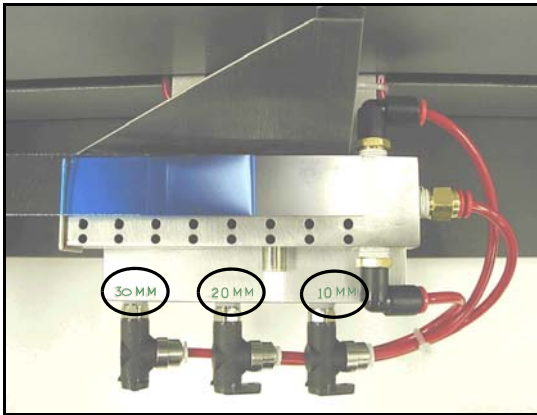
1. Verify that vacuum is a minimum of 21 in (Hg) to secure the wafer sample for testing.
  2. Recalibrate the strain gauge per the *Calibrate PBFT Strain Gauge* instructions in the *PBFT VS SPC 98 User Guide*.
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## Operate WPBFT

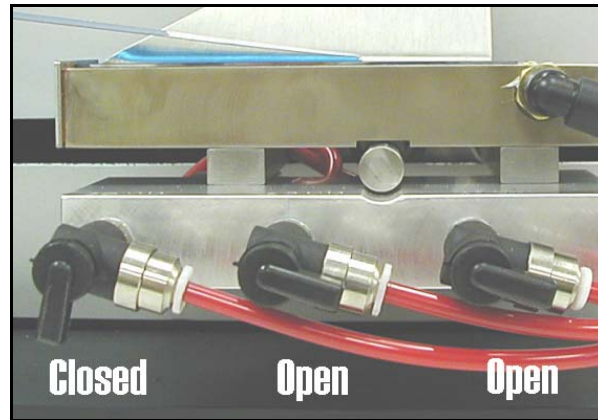
To operate the WPBFT (PBFT with Wafer Option):

1. Power on the WPBFT, computer, and printer per normal procedures.
2. Verify that the appropriate valve(s) on the Wafer Peel Back Option are open/closed according to the width of wafer strip to be tested:

	30 mm Valve		20 mm Valve		10 mm Valve	
	Open	Closed	Open	Closed	Open	Closed
<b>10 mm Strip</b>		X		X	X	
<b>20 mm Strip</b>		X	X		X	
<b>30 mm Strip</b>	X		X		X	



**Figure A-B** Top view of Wafer Option and valve size indicators; from left to right, the valves are designated as 30 mm, 20 mm, and 10 mm.



**Figure A-C** End view of Wafer Option indicating an example of “open” and “closed” valve positions; valve settings shown here are set for the 20 mm wafer strip.

3. Prepare a sample wafer strip: the strip must be 100 mm long with a 200 mm length of PVC tape — half should remain attached to the wafer and the other 100 mm length of tape should extend beyond the end of the wafer strip. Bend the unattached length of tape back on itself.
4. Load and align the sample wafer strip on the Vacuum Plate of the Wafer Peel Back Option.
5. Secure the bent end of the PVC tape in the Tape Clamp Clip.
6. As necessary, adjust the lateral position of the Strain Gauge so it is in-line and centered with the wafer strip tape.
7. Power on the Strain Gauge, then zero it out and verify the units setting.
8. Set up and initiate a test by performing normal SPC Software Package procedures: logging onto the SPC software, setting the speed selector to the desired testing speed, and activating a test run. Peel-back force will be displayed on the strain gauge liquid crystal display, and test results and speeds will be recorded by the SPC Software package.