10558A

BEAM BENDER

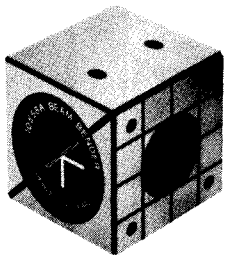
ACCESSORY FOR

5526A

LASER MEASUREMENT SYSTEM

Instruction Manual

Serial Prefix: 1208A



10558A

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INTRODUCTION

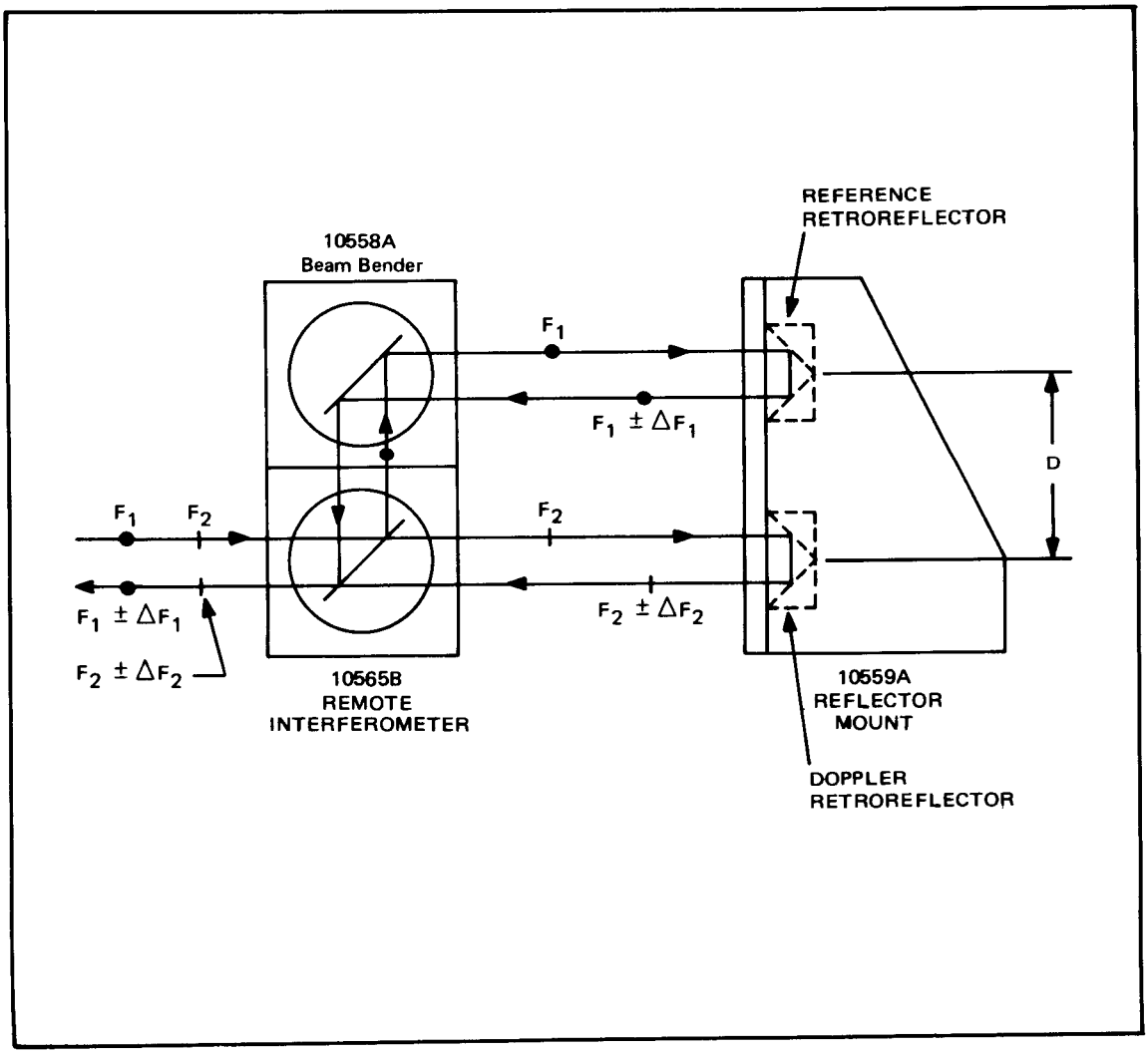
The Hewlett-Packard Model 10558A Beam Bender is an accessory for the 5526A Laser Measurement System. The 10558A Beam Bender is a stainless steel two inch cube with a front-surface mirror mounted inside the cube. The mirror is visible through two holes and is set at a 45° angle to the surfaces of the cube.

FUNCTION

The 10558A Beam Bender is designed to deflect the input laser beam by 90°. However, the Beam Bender must be mounted on a flat surface and the input laser beam must be parallel to that surface and perpendicular to the inlet port of the Beam Bender.

The Beam Bender is intended for mounting on the 10565B Remote Interferometer. In this configuration, the incident and reflected beams are parallel which enable the 5526A Laser Measurement System to measure angular pitch and yaw and surface plate flatness. The reference cube corner is mounted in a common holder (Model 10559A Reflector Mount) with the other cube corner as shown in Figure 1. Translation of the assembly will not be measured since both cube corners move in the same direction by an equal amount. However, if the assembly is rotated about an axis perpendicular to the plane of the figure, one cube corner will move relative to the other and this relative motion is measured.

Figure 1. Surface Plate Flatness Measurement



PRECISION MOUNTING OF BEAM BENDER AND REMOTE INTERFEROMETER

The 10558A Beam Bender and the 10565B Remote Interferometer must be fastened together for certain measurements. To maintain system accuracy, the two parts must be properly aligned. To fasten the Beam Bender and Remote Interferometer together perform the following steps:

1. Clean the precision surfaces of the 10558A and the 10565B.

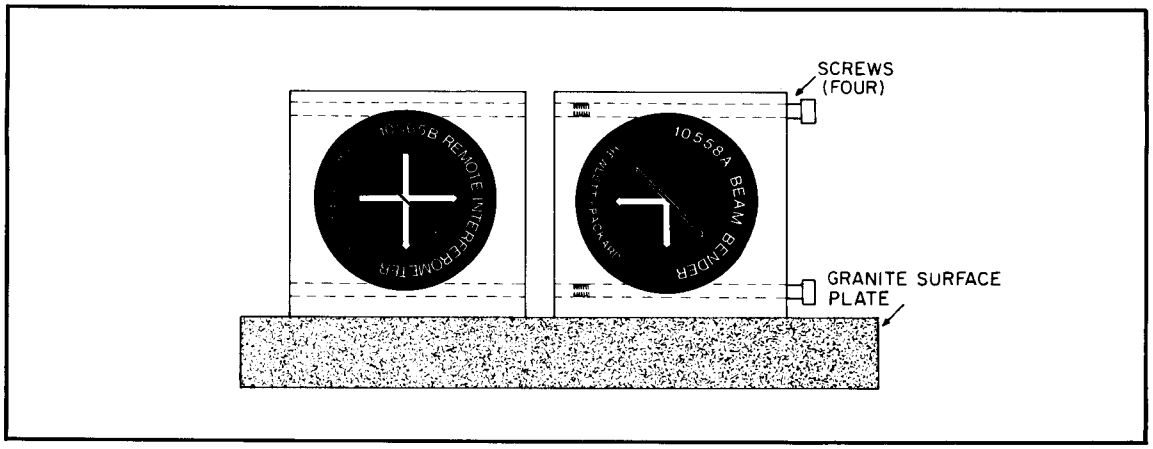
2. Lay the 10558A and 10565B down on a clean granite surface plate as shown in Figure 2. Labels on the 10565B and 10558A are shown in the correct position.

3. Wipe the two cubes around on the surface plate and then wipe them against each other until they tend to wring. Keep the cubes on the plate. Using the four screws supplied with the Beam Bender. connect the Beam Bender to the Remote Interferometer.

CAUTION

The Remote Interferometer and Beam Bender have precision ground and lapped external surfaces. DO NOT scratch, dent, or, in any way, damage these surfaces. Even small burrs can cause measurement errors. Keep these surfaces as clean as possible.

Figure 2. Beam Bender Mounting



5526A LASER MEASUREMENT SYSTEM AND ITS PUBLICATIONS

Each component of the 5526A system and each standard option are described in separate publications. A current listing of all publications about the 5526A Laser Measurement System is available from:

Hewlett-Packard Company
5301 Stevens Creek Boulevard
Santa Clara, California 95050
Attention: Laser Publications

INSTRUMENT IDENTIFICATION

Each Hewlett-Packard instrument has a ten-character serial number (e.g., 0000A00000). The four-digit serial prefix identifies a group of identical instruments, and the five-digit suffix is a serial number unique to each instrument. If the serial prefix on your instrument is not on the title page of this manual, your instrument is different from this manual. A Manual Change Sheet is included with this manual to describe the differences. If the Manual Change Sheet is missing, request one from the nearest Hewlett-Packard Sales and Service office listed at the back of this manual.

PACKING AND INSPECTION

Prior to shipment, this instrument was inspected and met all specifications. Inspect the shipping container; if it is damaged, inspect the Beam Bender for damage. If the Beam Bender is damaged, file a claim with the carrier and notify your Hewlett-Packard representative.

CLEANING

Use a soft camel-hair lens brush to remove dust and grit from the Beam Bender mirror surface. (A good camera lens brush with a rubber blower is recommended.) Dampen a few optical lens cleaning tissue with optical grade ethyl alcohol, shake off excess and wipe across mirror once. Use fresh tissue dampened with alcohol for each wipe. Allow alcohol to dry naturally.

NOTE

USE CAMERA OR BETTER GRADE LENS TISSUE.

DO NOT use any of the various impregnated eye glass tissue.

DO NOT use harsh solvents such as acetone or MEK.

DO NOT use excess amounts of alcohol.

DO NOT WIPE mirror if there is any abrasive dust or grit on the mirror, use lens brush first.

Figure 3. Beam Bender Dimensions