

Operating Instructions

Connector Gage Kit 3.5mm & 2.92mm Connectors

Model A034B1



	Page
• General Information	
– <i>Description</i>	1
– <i>Specifications</i>	3
• Operation	
– <i>Visual Inspection</i>	5
– <i>Cleaning</i>	5
– <i>Zero Setting</i>	5
– <i>Gaging 3.5mm & 2.92mm Connectors</i>	7
– <i>Gaging Female and Male Connectors</i>	7
• Maintenance and Calibration & Warranty	
– <i>Additional Information</i>	9
• Data Sheets	<i>located behind page 9</i>
– <i>2Y-051 Connector Gage Kits</i>	

General Information

Description

The Maury model A034B1 connector gage kit is designed to measure 3.5mm and 2.92mm (K) connectors with either female or male interfaces.

CAUTION: Use your A034B1 for 3.5mm and 2.92mm (K) connectors only. Do not use for SMA connectors.

The Maury models A034B1 female and male connector gage assemblies simulate actual mating conditions allowing high accuracy measurements. The connector gage assemblies are initially set to zero using master setting gage, A027T1, permitting subsequent measurements to be read directly on the dial indicator. All machined parts are made from non-magnetic stainless steel to assure long life and good stability. Gaging surfaces are lapped to ensure a high degree of accuracy. A parts list is shown in Table 1.

Item	Description	Maury Part Number	Quantity Per Assembly	Notes
1	Indicator Assembly, Female	A034S11	1	
2	Indicator Assembly, Male	A034S12	1	
3	Master Gage	A027T1	1	
4	Instrument Box	A027T3	1	

Table 1. Parts List

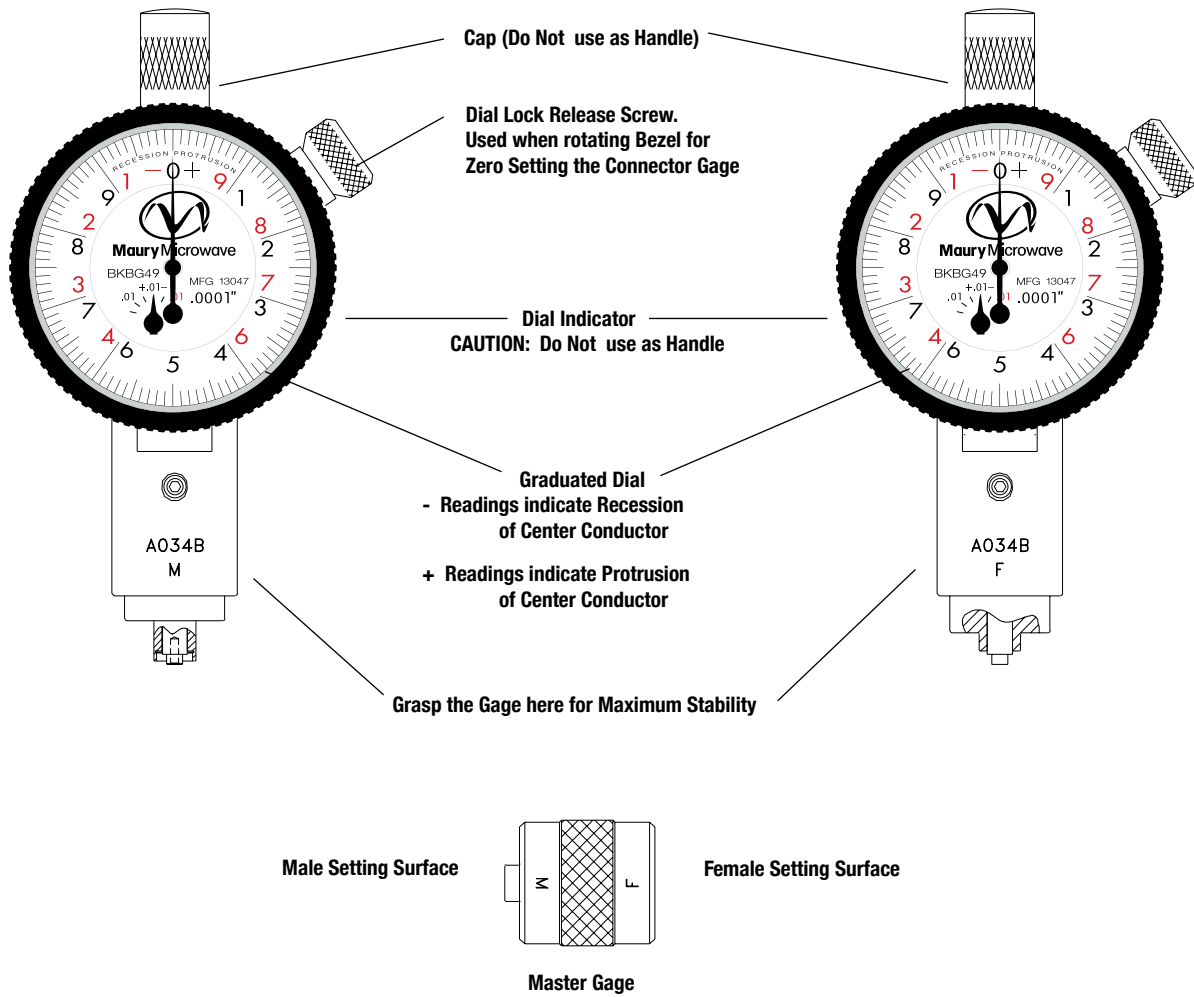


Figure 1. The A034B1 Connector Gage Kit

The specifications listed in **Table 2** are the performance standards based on factory measurements traceable to the U.S.A. National Institute of Standards and Technology (NIST).

To verify that your gage kit is performing to traceable specifications, periodically send the kit to Maury Microwave Corporation for calibration. The recommended calibration cycle is one year. The actual need may vary depending on usage.

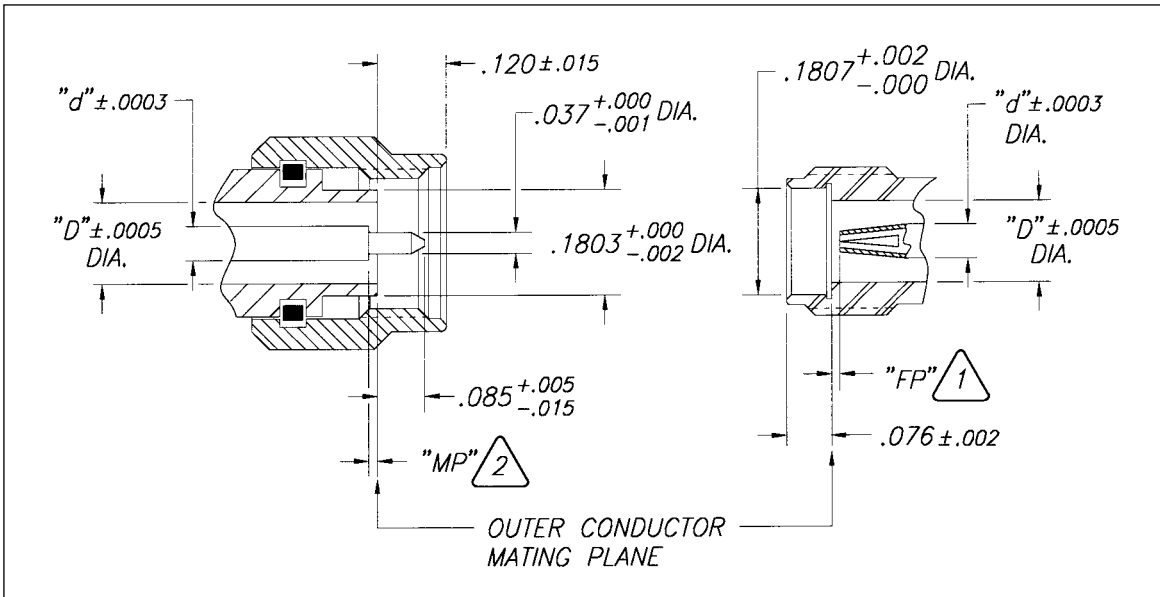
Connector Gage Specifications

Characteristics	Limits	Comments
Gage Resolution	± 0.000050	1/5 Least dial graduation ¹
Gage Calibration Accuracy ⁶	± 0.000375	1 Least dial graduation ² plus 0.000125 measurement guardband
Gage Repeatability ⁴	± 0.000050	1/5 Least dial graduation ²
Master Accuracy	± 0.000050	0.00010 Range ³
Total Uncertainty ^{5, 6}		
RSS	± 0.000385	Root sum of the squares.
Worst Case	± 0.000525	Add resolution, repeatability, gage and master accuracy limits.

Table 2

NOTES:

- ¹ Per ASME B89.1.10M-2001, C5.1.2.
- ² Per ASME B89.1.10M-2001, Table 2.
- ³ Per manufacturer's specification.
- ⁴ Operator skill has a great impact on repeatability. You can easily determine the repeatability of the connector gages by multiple engagements of the master gages following the procedure outlined under **Zero Setting** on page 5.
- ⁵ Performance standards are in compliance with ANSI/NCSL Z540-1, MIL-STD-45662A and ISO 10012-1.
- ⁶ Applies over the operating range for connector gaging +0.006/-0.003" from master gage zero setting.



Connector Type	d	D	"FP" $\triangle 3$	"MP" $\triangle 3$	Comment
APC3.5	.0598	.1378	$+.003$ $.000$ $-.000$	$+.003$ $.000$ $-.000$	Rated to 34 GHz
2.92mm (K)	.0500	.1150	$+.003$ $.000$ $-.000$	$+.003$ $.000$ $-.000$	Rated to 40 GHz

NOTES:

- $\triangle 1$ Female contact pin location.
- $\triangle 2$ Male contact pin location.
- $\triangle 3$ Tighter tolerances can be used at user's discretion.
- 4 In reference to the outline above, Plus (+) tolerances indicate a recessed condition from the outer conductor mating plane. Minus (-) tolerances indicate a protruding condition above the outer conductor mating plane.
- 5 Other dimensions shown in this figure are shown since they affect the mating of the Gage Assemblies' gaging mechanisms (bushing and pin). Deviation from these dimensions may cause measurement errors or improper fit between the gaging mechanisms and the connectors being measured. Consult our Customer Service Department on measuring connectors with interface dimensions other than specified above.

Figure 2. Critical Contact Pin Location Dimensions of 3.5mm and 2.92mm (K) Precision Connectors

Operation

Visual Inspection

Inspect all connectors carefully before each use. If a connector shows deep scratches, dents, uneven wear, or particles clinging to the mating plane surfaces, clean it and inspect again. Damaged connectors should be set aside for repair. Also, try to determine the cause of the damage before making further connections.

Cleaning

Use dry compressed air of a very low velocity first; then a solvent such as isopropyl alcohol. Clean the contacting surfaces using a lint free swab. Then re-inspect the connector to make sure that no fibers have been left around the contact and mating surface.

CAUTION: For optimum measurements, **never** rotate parts against each other since this will yield faulty readings and could damage the mating surfaces.

Verifying Zero Setting

The gage assemblies are pre-set at the factory for zero setting, however, the user should verify the zero setting prior to each use as follows.

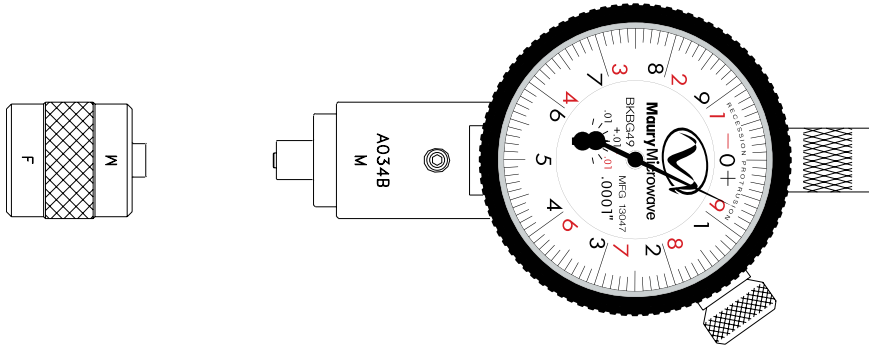
NOTE: The master setting gage is marked 'M' (male) and 'F' (female) to correspond to the 'M' and 'F' marked on the indicator assemblies.

Procedure: Refer to Figure 3

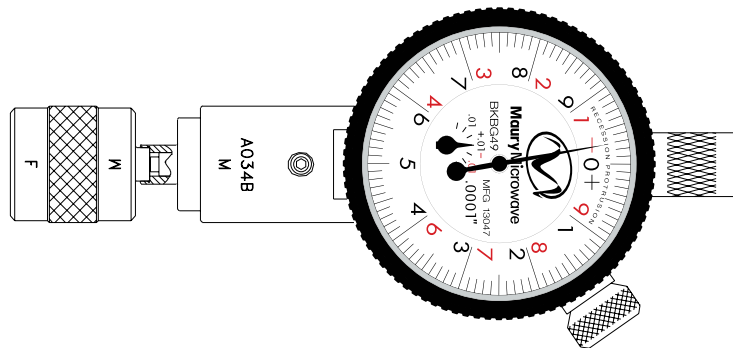
Example for Zeroing Male Connector Shown (Applies Equally to Female Connector Gage)

1. Visually inspect the mating surfaces of your connector gage and master setting gage.
2. Clean both mating surfaces using the cleaning procedure above.
3. Align the connector gage and master setting gage. Carefully engage the master gage with the dial indicator until the master gage seats securely. The dial hand should rotate clockwise and stop at zero after one or more revolutions.
4. If resetting zero is required, engage the master gage, then while holding the dial indicator and master gage in one hand, loosen the dial lock and rotate the bezel (outside rim on indicator) to the zero position indicated by the hands on the indicator. Re-tighten the dial lock.

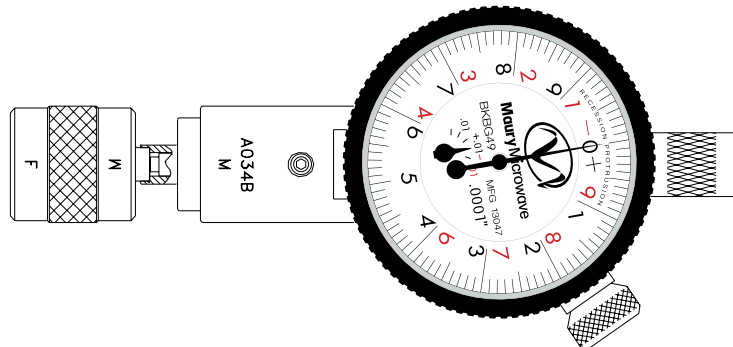
Align your Connector Gage and the Master Gage



Zero Set the Connector Gage using the Master Gage. If Dial Hand Does NOT Read Zero, Reset as Shown Below.



Adjust Outside Bezel for Proper Zero Reading.



Dial Lock

Figure 3. Zero Setting the Connector Gage

Gaging 3.5mm and 2.92mm (K) Connectors

The critical mechanical specification in precision 3.5mm and 2.92mm (K) connectors is the recession (setback) of the center conductor relative to the outer conductor mating plane. No protrusion of the center conductor in front of the outer conductor mating plane is allowable.

Gaging Female & Male Connectors

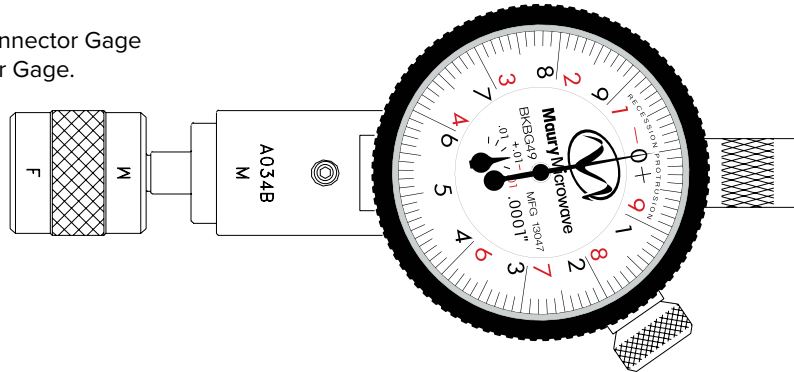
Contact Pin Location: *Dimension 1 & 2 , Figure 2.*

1. Using the gage assembly with corresponding 'F' (female) or 'M' (male) master setting gage end, check the zero setting of the connector.
2. For Female: Carefully engage the female connector to be gaged to the female gage assembly. The gage assembly bushing will slip into the connector and bottom on the outer conductor mating plane.

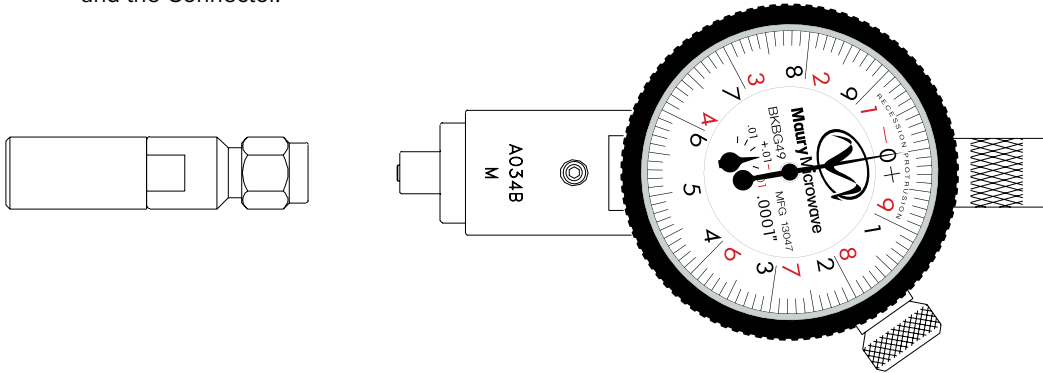
For Male: Carefully align the center contact pin of the male connector to be gaged so that it will enter the hole in the pin of the male gage assembly. Engage straight on until the gage bushing bottoms on the outer conductor mating plane of the male connector.

3. The pointer of the dial indicator will then indicate the deviation from zero. A minus (-) reading of the dial shows that the center contact is below the outer conductor mating plane and a plus (+) reading shows that the center contact is protruding past the outer conductor mating plane, which is not acceptable.

Zero Set the Connector Gage using the Master Gage.



Align your Connector Gage and the Connector.



Gently Connect the Device.

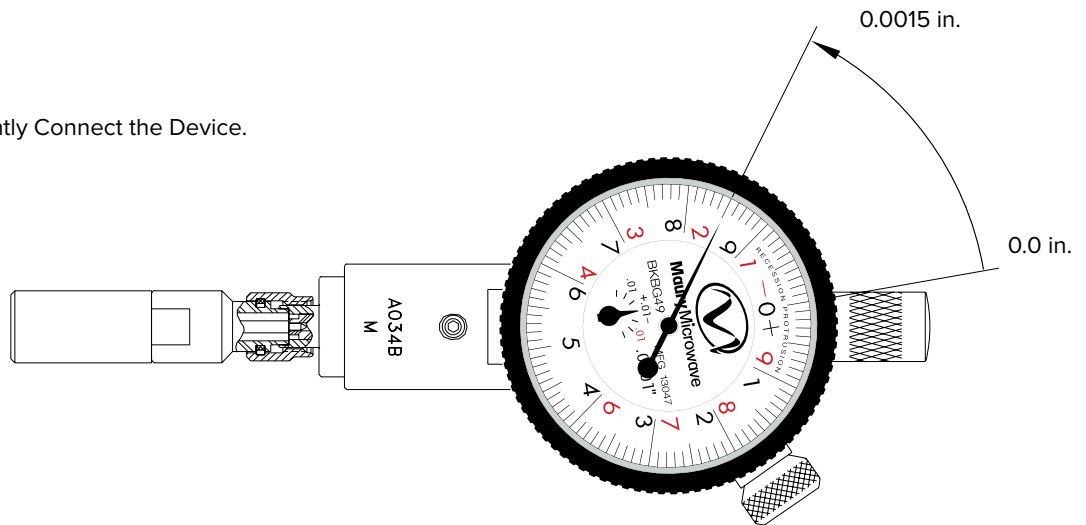


Figure 4. Example of Gaging the 3.5mm and 2.92mm (K) Connectors

Maintenance, Calibration & Warranty

Maintenance

These connector gage kits are relatively maintenance free if the components are handled with the same care that is appropriate to all precision equipment. As with any precision component, proper care should be taken to assure clean mating surfaces, proper alignment, and proper torquing. Repair and calibration should be referred to our Customer Service Department.

Calibration

To verify that your connector gage kit is performing to traceable specifications, periodically send it to Maury Microwave Corporation for calibration. The recommended calibration cycle is one year. The actual need may vary depending on usage.

Should Additional Information or Service be Required, Address Inquiries To:

Maury Microwave Corporation

Attention: Customer Service
2900 Inland Empire Boulevard
Ontario, California 91764-4804
USA

Phone: (909) 987-4715
E-mail: maury@maurymw.com

Facsimile: (909) 987-1112
Web site: <http://www.maurymw.com>

Please mention the model number and revision of the software and the date received in any correspondence.

Warranty

We warrant each instrument of our manufacture to be free from defects in material and workmanship. Our obligation under this warranty is limited to servicing or adjusting any instrument returned to our factory for that purpose, and to making good at our factory any part or parts thereof except fuses or batteries. This warranty period is limited to one year from date of shipment to the original purchaser, and to equipment which is returned to us with transportation charges prepaid and which, upon our examination, shall disclose to our satisfaction to have been defective. This warranty does not cover wear from normal usage nor subsequent damage after shipment.

We reserve the right to make changes in design at any time without incurring any obligation to install such changes on units previously sold by us.

This constitutes the only warranty extended by us, and is in lieu of any other obligations or liabilities on our part in connection with the sale of our equipment.