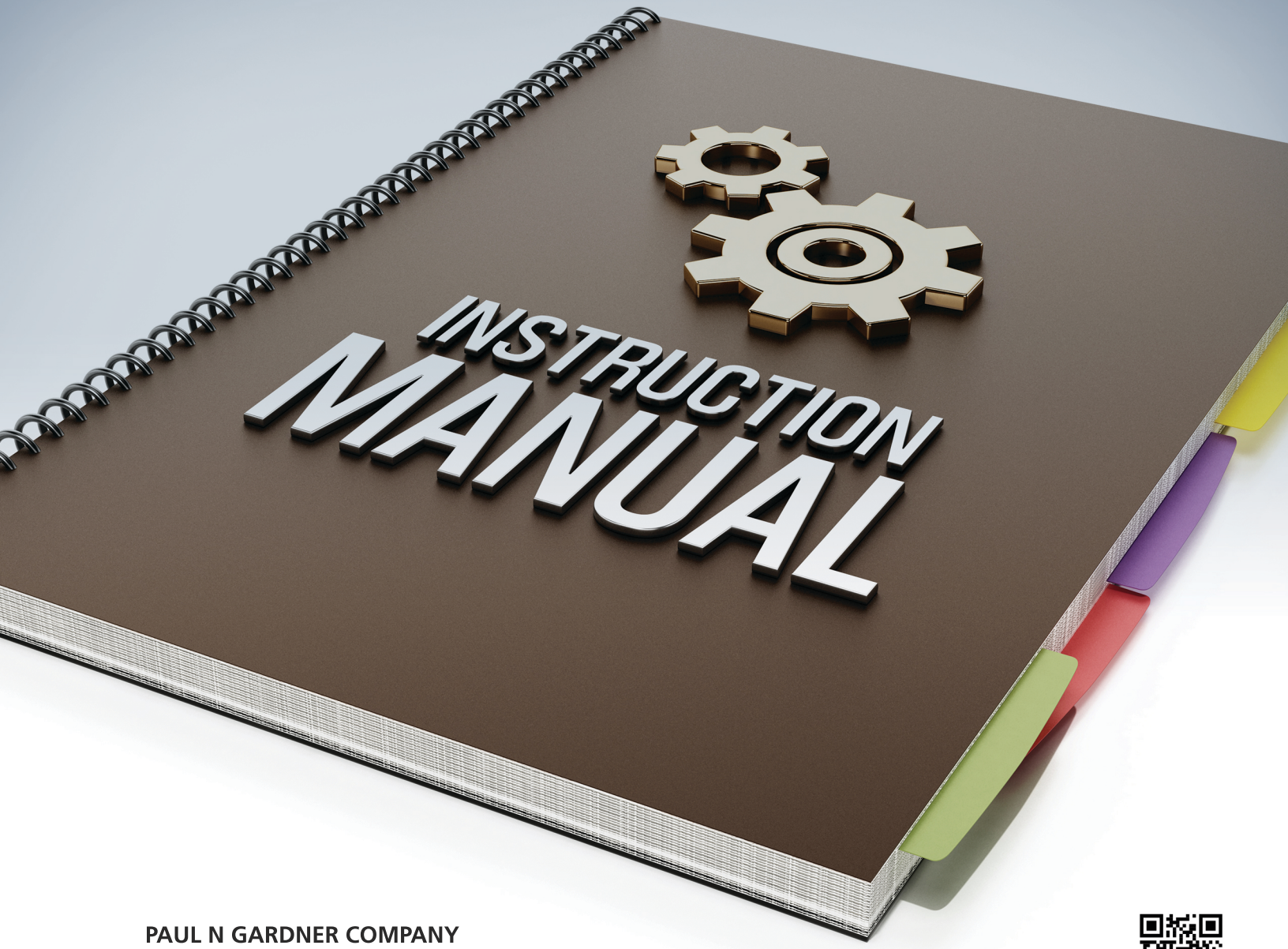

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INSTRUCTIONS

GARDCO DISTRIBUTED PRODUCTS

GARDCO®

MANUAL

P/N 8400K
DIGITAL OPTICAL MICROMETER KIT

NSN 6650-01-220-8942

SERIAL# _____

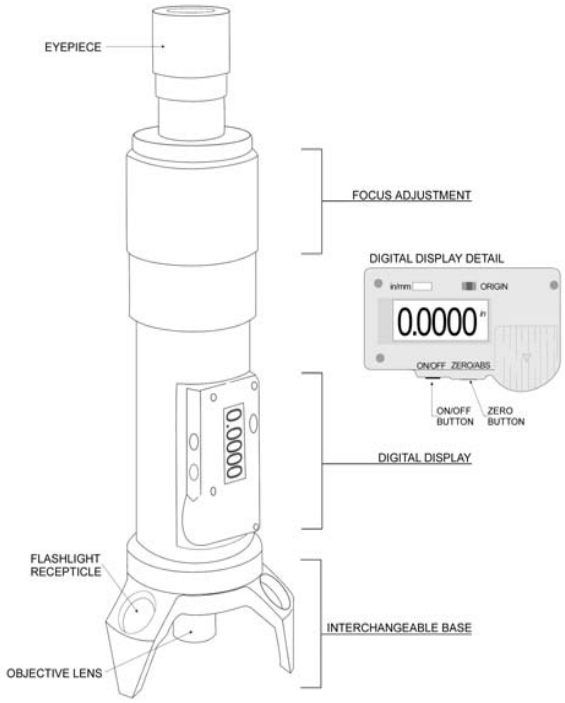
CONTENTS

Taking the guesswork out of visual inspection.

DIAGRAM AND PARTS LIST

Contains 12 pcs:

	RENE PART#	ITEM
8400K PARTS LIST	8400-0	Digital Optical Micrometer
	8400-17	4X Objective Lens
	8400-16	10X Objective Lens
	8400-15R	10X Reticle Eyepiece
	8400-14	20X Eyepiece
	8400-31	Allen Wrench
	8400-7	Base: 3 – Leg
	8400-8	Base: 4 – Leg
	8400-9	Base: Clear Plastic
	8400-25	Case
	8400-23	Flashlight
	8400-32	Scratch Sample Plate



SPECIFICATIONS

A DIMENSIONS & WEIGHT

1. 8400K KIT IN CASE
16” x 7” x 5” , 5 LBS

2. 8400-0 MICROMETER ONLY
9” HEIGHT
2” DIA STEM, 3” DIA BASE
1.5 LBS

B ACCURACY & RESOLUTION

In inches, the digital readout shows four places right of the decimal; “0.0000”. The far right (ten-thousandths) rounds-off and reads “0” or “5” (0.0000 or 0.0005).

In millimeters, the readout shows two places right of the decimal; “0.00”. The far right (hundredth-mm) place reads in 0.01 mm increments.

RESOLUTION 0.0005” / 0.01 mm
ACCURACY +/- 0.001” / 0.02mm

C RANGE

1. 10X OBJECTIVE LENS
Vertical range (or depth) 0.250” (6.4mm)
from surface to bottom of scratch.

A Width of 0.040” (0.02mm) can be measured with the reticle eyepiece and 10X objective lens.
Overall field width: 0.065”.

FOR WIDTH MEASUREMENTS USE THE 10X RETICLE EYEPICE AND THE 10X OBJECTIVE LENS ONLY.

1. 4X OBJECTIVE LENS
Vertical range (or depth) 1.250” (32mm)
from surface to bottom of scratch.

Overall field width: 0.150”

DO NOT USE 4X OBJECTIVE LENS WITH RETICLE EYEPIECE TO MEASURE WIDTH, READINGS WILL NOT BE ACCURATE.

D TEMPERATURES

OPERATING 0ºC to 40ºC / 32ºF to 140ºF
STORAGE -10ºC to 60ºC / 14ºF to 140ºF

NOTES

INSTRUCTIONS FOR USE

A. NON – TRANSPARENT MATERIALS

USE **10X OBJECTIVE LENS** AND **10X RETICLE EYEPIECE**.

NOTE: **10X OBJECTIVE LENS** FOCUSES APPROX. **0.250"** ABOVE THE TARGET.

DEPTH MEASUREMENT

1. Set the height of the OBJECTIVE LENS at approx. 0.250" over the target.
2. Shine the FLASHLIGHT down through the top of the EYEPIECE. A small light "spot" will appear beneath the OBJECTIVE lens, use this to locate or "spot" the target.
3. Insert the FLASHLIGHT into base.
4. Look through EYEPIECE and focus and position over target.
5. Hold the base of the micrometer for support while focusing to prevent it from moving.
6. Bring undamaged surface near scratch (*surfaceA in diagram on next page*) into sharp focus, and press the "ON/ZERO" button (display should now read "0.0000").
7. Focus into bottom of scratch (*surface B in diagram on next page*), without moving micrometer. DEPTH is shown on digital display.
8. Repeat steps 5.-6 for verification and record results.

WIDTH MEASUREMENT – 10X RETICLE EYEPIECE

USE 10X RETICLE EYEPIECE AND 10X OBJECTIVE LENS ONLY.
DO NOT USE 4X OBJECTIVE LENS WITH RETICLE EYEPIECE TO MEASURE WIDTH, READINGS WILL BE INACCURATE.
Depth and thickness measurements are fine with this combination.

1. Locate target per steps 1. – 4. above.
2. Focus on target.
3. Rotate EYEPIECE to align scale with target.
4. Observe and record width.

WIDTH RANGE: 0.000"-0.040" (0.00-1.00mm), increments of 0.001" (0.010"mm).

INSTRUCTIONS FOR USE

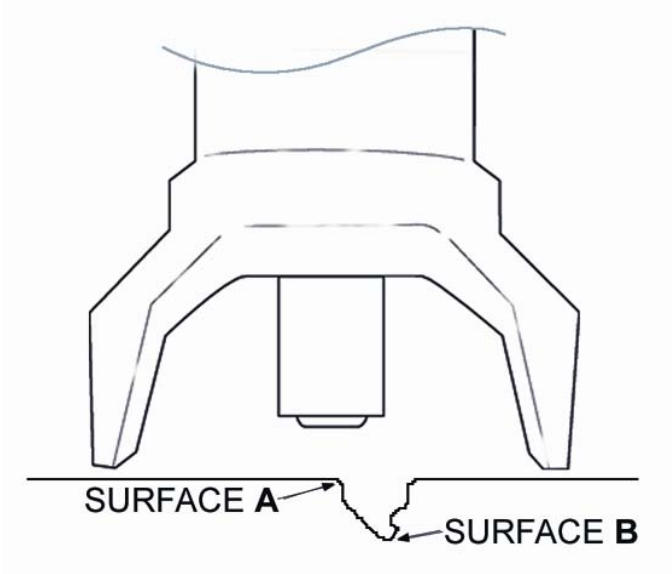
B. TRANSPARENT MATERIALS

USE **4X OBJECTIVE LENS** and **10X RETICLE EYEPIECE**.
NOTE: **4X OBJECTIVE LENS** FOCUSES APPROX. **1.30"** OVER THE TARGET.

THICKNESS MEASURMENT

1. Focus on nearside, set display to 0.0000"
2. Focus on far side and record depth.
3. Multiply result by 1.5 (index of refraction for most transparencies. Check index of subject material).

RANGE: UP TO APPROX. 1.8" THICK TRANSPARENCY.



CALIBRATION PROCEDURE

Calibration is recommended once per year to ensure proper function and accuracy of the 8400K.

Metrology labs can provide a NIST traceable certificate of calibration (with measurement data) using this procedure.

A. EQUIPMENT

One set of gage blocks, current and traceable to N.I.S.T.

B. INSTRUCTIONS

1. Slide one gage block lengthwise across the top of the other, creating a step at the end. (The blocks "ring" together with this method.)
2. Place micrometer over the “step” and focus on the top of the upper gage block. Position so approx. one-half of the viewing field is on upper block.
3. Set digital display to “0.0000”
4. Focus on lower gage block. Display should show thickness of upper block.

Suggested gage block sizes:

BOTTOM	0.1000”
TOP	0.0625” , 0.2000” , 0.5000” , 1.0000”.
	(Use 4X Objective for 0.2500” and above.)

CALIBRATION CERTIFICATE

Calibration is recommended once per year to ensure proper function and accuracy of the 8400K.

Metrology labs can provide a NIST traceable certificate of calibration (with measurement data).

SERIAL#	

TEST#		**TEST DATE**	
INSPECTOR:			
LOCATION:	☐ RENE CO. INSPECTION DEPARTMENT ☐ PRIMARY INSTRUMENTS INC. ☐ OTHER LAB/AGENT		
TEMP:	_____ ºF ºC	**HUMIDITY**	_____ %

Calibration Test: *In Tolerance*
Procedure: *G.A.C.T.**
Accuracy: *+/-0.001 IN.*
This instrument meets this standard.

Remarks
*Generally accepted calibration techniques.
Procedure: Observe gage block thickness through optical micrometer.
Calibration is provided at a 4:1 TEST UNCERTANTITY RATIO (TUR) unless otherwise stated. This certificate may not be reproduced, except in full.