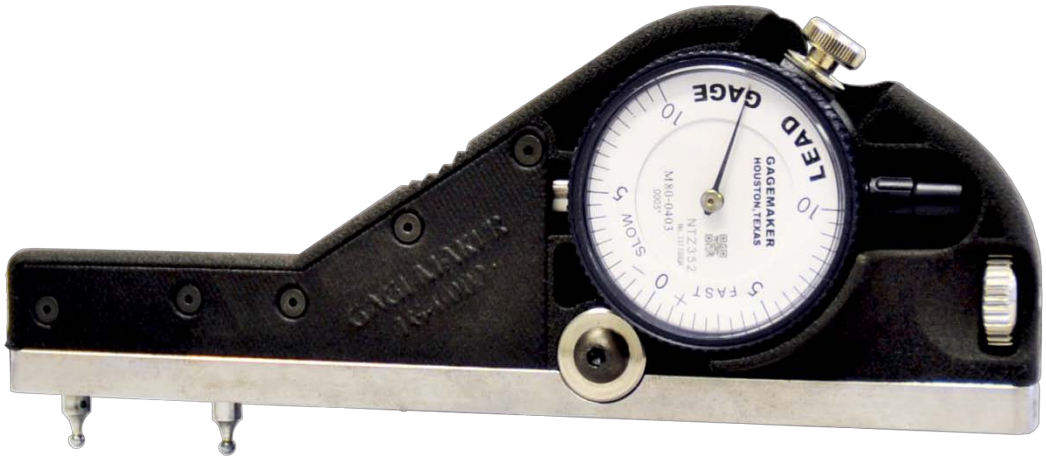
GAGEMAKER

LG-6002
Lead Gage
OPERATION MANUAL



OMLG60024-16

Contents

Congratulations! Your decision to purchase a Gagemaker product above all others on the market demonstrates your confidence in our quality and workmanship.

To ensure the high performance and operation of our product, we urge you to use the included reference materials. They contain important information for proper setup and use of the equipment. Also, we recommend that you follow the care and maintenance tips in this manual to keep the equipment working in top condition.

If your questions have not been addressed in our reference materials, contact your local representative or a customer service representative at 713-472-7360.

Introduction

The lead gage inspects both internal and external thread lead using contact points that seat in the threads of a part. Thread lead is the distance from a point on a thread to a corresponding point on the next thread turn, measured parallel to the thread axis. The pitch of the thread determines the diameter of the contact points required for taking measurements (refer to the tables for ACME, Stub ACME, UN and API Threads in the Setup Procedures section of this manual for contact point model numbers).

Gagemaker's lead gage, Model LG-6002, uses two contact points to inspect thread lead. One fixed contact point at the rear of the gage and one moveable contact point at the front of the gage provide complete stability when taking thread lead measurements.

Before inspecting parts, the lead gage must be preset to a nominal predetermined dimension, using a lead gage setting standard. These setting standards are manufactured according to ANSI and API specifications with grooves ground at precise increments. Lead standards are available for ACME, Stub ACME, UN and API threads (refer to the table in the procedure for Zeroing the Lead Gage in this manual for lead standard model numbers).

To inspect parts, seat the rear contact point of the gage into the thread of the part. Then, seat the moveable contact point at the front of the gage in the thread. Apply pressure to the nose of the gage with an index finger and sweep from side to side to get an indicator reading. It is recommended that the gage be zeroed periodically during use to maintain accurate readings.

Technical Support

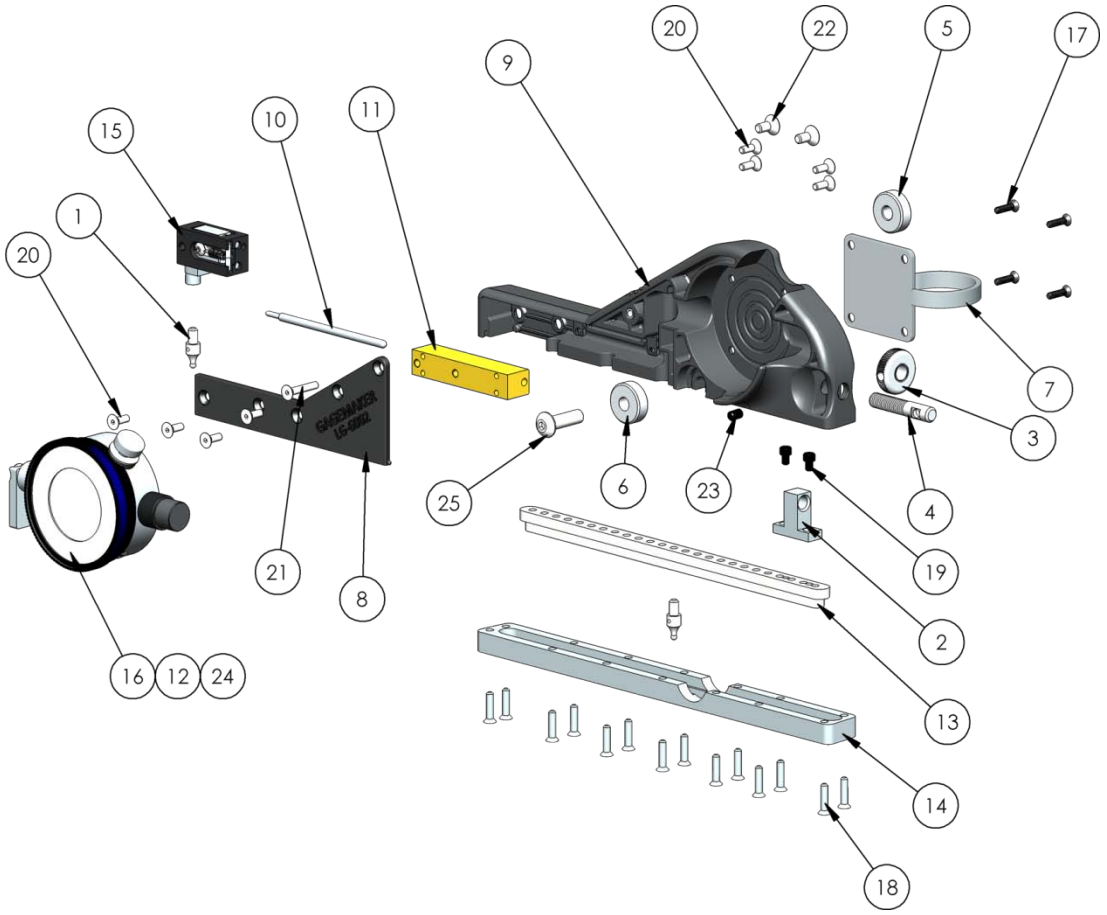
Phone: 713-472-7360
Hours: Monday – Friday 8AM – 5PM (CST)

Product Information and Updates

Visit our web site at: www.gagemaker.com

Parts List

Take some time to become familiar with all the parts that make up the lead gage by reviewing the labeled diagram below. The part names are important for understanding the operating instructions.



Item	Description	Part Number	Qty	Item	Description	Part Number	Qty
1	Contact Point (T072)*	4-1-315	2	14	Base Plate	4-3-056	1
2	Drive Nut	4-2-823	2	15	Bearing Pack	4-3-472	
3	Thumb Knob	4-2-824	1	16	Indicator (157SSGA)	8-0-270	1
4	Adjustment Screw	4-2-825	1	17	Flat Head Socket Screw	8-0-607	4
5	Back Brake Washer	4-2-826	1	18	#2 Plastite Screw	8-0--624	14
6	Front Brake Washer	4-2-827	1	19	SHCS #2-56 X ⅛”	12-0-045	2
7	Handle	4-2-829	1	20	SHCS #2-56 X ¼”	12-0-229	8
8	Side Cover	4-3-045	1	21	SHCS #2-56 X ½”	12-0-230	1
9	Body	4-3-046	1	22	SCHCS #4-40 X ¼”	12-0-215	2
10	Transfer Shaft	4-3-051	1	23	SSSCP #4-40 X 3/16”	12-0-145	1
11	Transfer Shaft Guide	4-3-054	1	24	SCHCS #4-48 X ¼”	---	1
12	Indicator Extension Plate	4-3-055	1	25	SBHCS #8-32 X 9/16”	12-0-203	1
13	Contact Point Holder Bar	4-3-056	1				

***T072 contact points are shipped standard, but other contact points are available.**

Setup Procedures

Setting Up the Lead Gage

Materials Needed:

- Lead gage
- Contact points (2)
- Calipers
- Paper clip

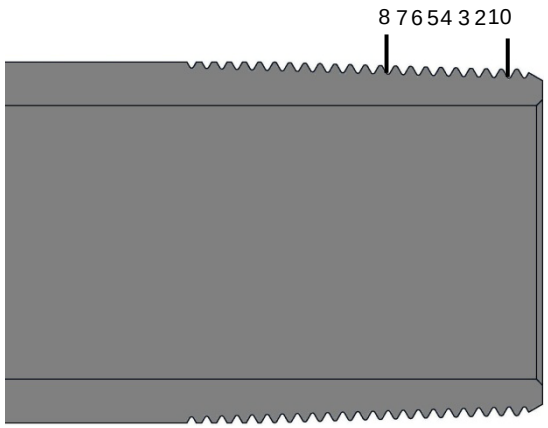
Setting up the lead gage, involves installing the proper size contact points for the application (refer to the table below for selecting the proper model contact point for ACME, Stub ACME, UN threads or API threads).

ACME or Stub ACME Threads		*UN Threads*	
Thread Pitch	**Contact Point Model No.**	**Thread Pitch**	**Contact Point Model No.**
1 pitch	T531T	1 pitch	T562
1.5 pitch	T344T	2 pitch	T288
2 pitch	T266T	3 pitch	T188
2.5 pitch	T219T	3.5 pitch	T188
3 pitch	T188T	4 pitch	T144
3.5 pitch	T144T	4.5 pitch	T128
4 pitch	T128T	5 pitch	T115
5 pitch	T105T	5.5 pitch	T105
6, 7 pitch	T090T	6 pitch	T096
8 pitch	T062T	8 pitch	T072
10 pitch	T050T	10 pitch	T057
12 pitch	T041T	12 pitch	T050
14 pitch	T041T	14 pitch	T041
16 pitch	T032T	16 pitch	T041
		18 pitch	T032

API Threads			
Connection Type	**Point Diameter**	**Thread Pitch**	**Contact Point Model Number**
Hughes Slim Line H-90	0.235”	3	T235
All Hughes H-90	0.200”	3 ½	T200
API Rotary Shouldered Connections	0.144”	4	T144
API Rotary Shouldered Connections	0.128”	4 ½	T128
API Rotary Shouldered Connections	0.115”	5	T115
Truncated for Extreme Line	0.105”	5 ½	T105T
API Rotary Shouldered Connections	0.096”	6	T096
API Tubing, Casing and Line Pipe	0.072”	8	T072
Buttress Casing - Lead	0.062”	5	T062
API Tubing and Line Pipe	0.057”	10	T057
API Line Pipe	0.050”	11 ½	T050
API Line Pipe	0.041”	14	T041
API Line Pipe	0.032”	18	T032
API Line Pipe	0.021”	27	T021

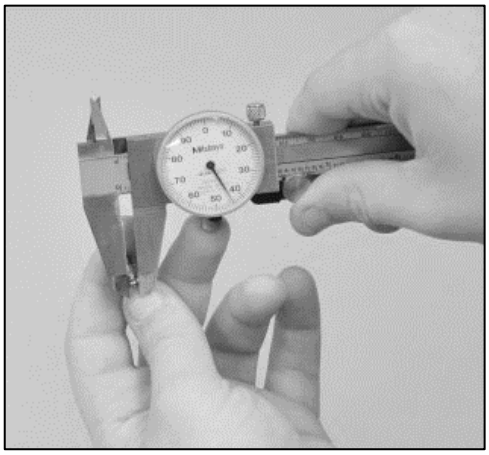
Setting Up the Lead Gage (continued)

1. Determine interval of measurement required for the inspection by counting thread roots.

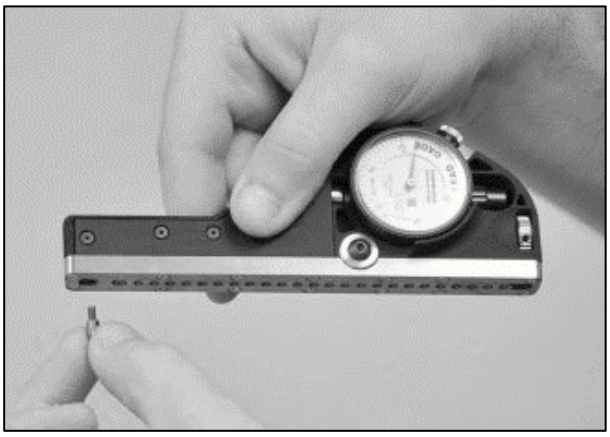


2. Select the correct contact points to install in the gage, based on the connection thread type and pitch size (refer to tables on the previous page).

3. Verify the diameter of the contact point ball using calipers or a micrometer.



4. Install a contact point into the moveable holder at the front of the gage.

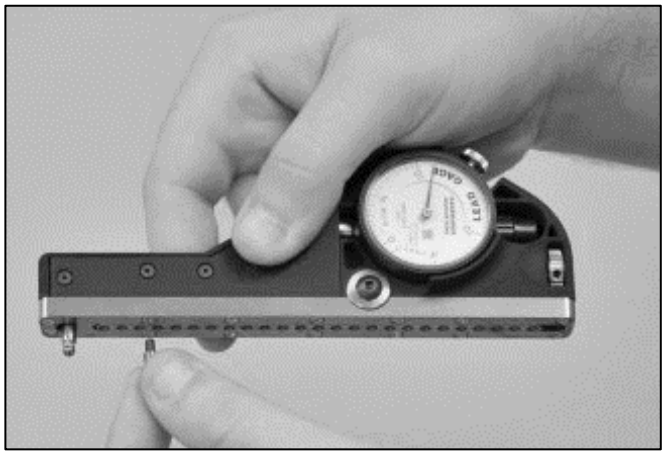


Setting Up the Lead Gage (continued)

5. Determine the location of the remaining contact point based on the interval required to measure the part (from Step 1).

6. Install the contact point into the fixed holder at the rear of the gage.

7. Once installed, insert a paper clip into the hole in each contact point and tighten.

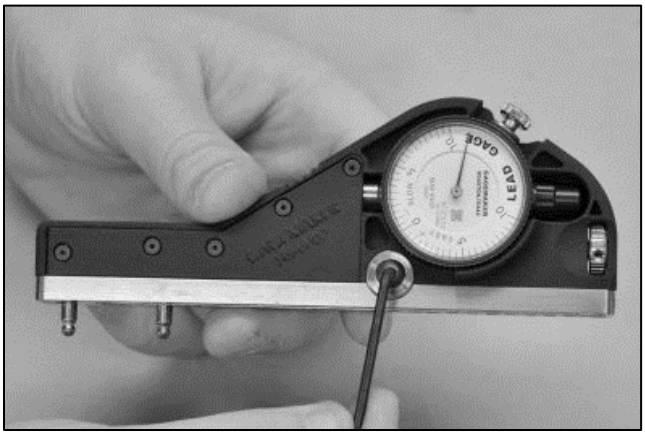


Adjusting the Lead Gage

Materials Needed:

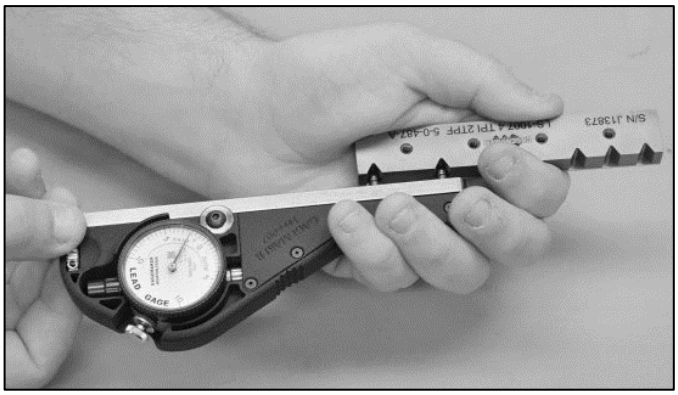
- Lead gage
- Lead gage standard
- Hex wrench
-

1. Unlock the screw at the front of the gage with a hex wrench to loosen the rear contact point.

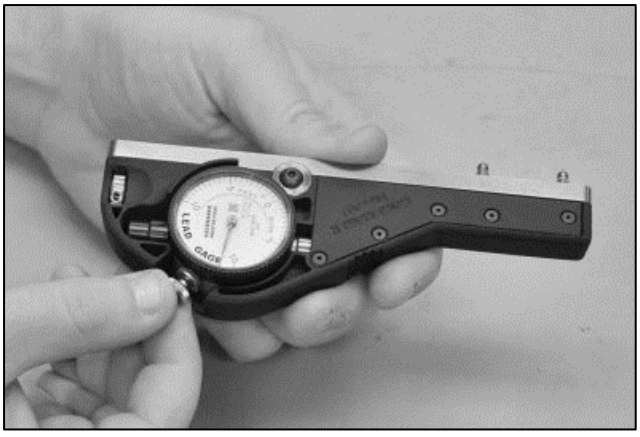


2. Place the gage on the standard and turn the adjustment knob at the rear of the gage until the rear contact point is aligned with the appropriate groove.

3. Continue rotating the adjustment knob until the indicator needle makes one full revolution of preload.

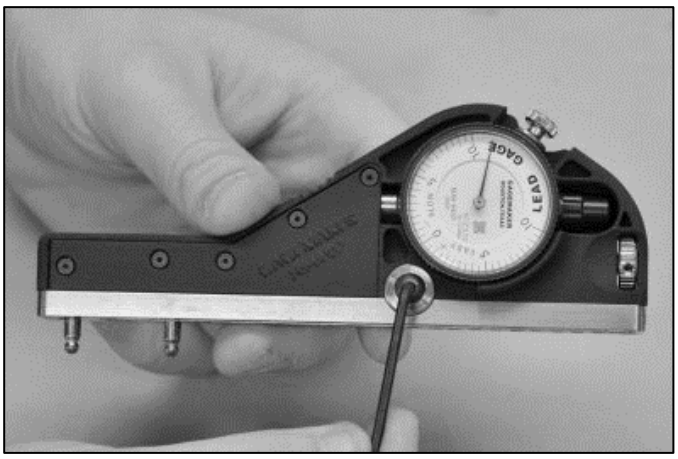


4. Lock the indicator knob.



Adjusting the Lead Gage (continued)

5. Tighten the screw on the front of the gage with a hex wrench.



Zeroing the Lead Gage

Materials Needed:

- Lead gage
- Lead gage standard

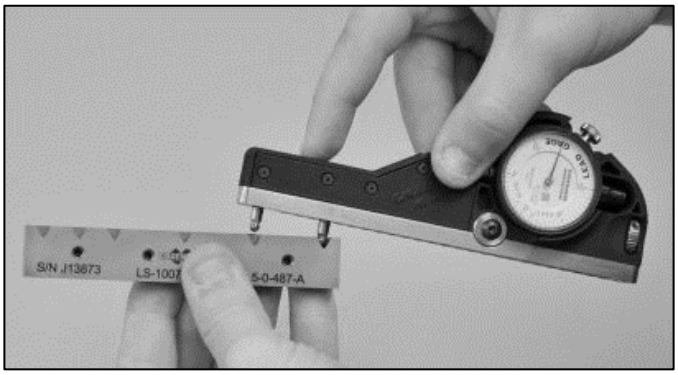
The lead gage performs a comparative inspection between a fixed standard and the threaded part. Before applying the gage to a part, you must zero the lead gage on the proper standard.

Based on the type of connection being inspected, locate the proper lead gage standard in the table below to ensure consistent and accurate readings. The lead gage should be zeroed on a standard once during each shift, at a minimum.

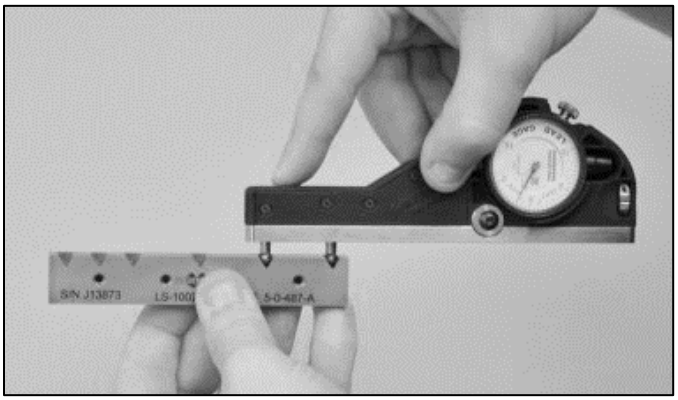
Connection Type	Taper (in/ft)	Threads per Inch	Lead Gage Standard Model Number
8 & 10 Round Tubing / Casing	¾	8 & 10	LS-1001
8 & 10 V Form Tubing (straight)	0	8 & 10	LS-1002
Line Pipe Tubing / Casing	¾	11½	LS-1003
Line Pipe (straight)	0	11½	LS-1004
13 ⅜" & smaller Buttress Casing	¾	5	LS-1005
16" & larger Buttress Casing	1	5	LS-1006
6 ⅝ API Reg 4", 5½" - 6 ⅝" FH 2 ⅜" - 5½" IF 2 ⅞" - 5" XH NC23 – NC50	2	4	LS-1007
5½" Reg 7 ⅝" - 8 ⅝" Reg NC56 – NC77	3	4	LS-1008
2 ⅜" - 4 ½" Reg 2 ⅞" - 3 ½", 4½" FH	3	5	LS-1009
2 ⅜" Open Hole	1½	4	LS-1010
3½" - 6 ⅝" H-90	2	3½	LS-1011
7" - 8 ⅝" H-90	3	3½	LS-1012
2 ⅜" - 3½" Slimline H-90	1¼	3	LS-1013

Zeroing the Lead Gage (continued)

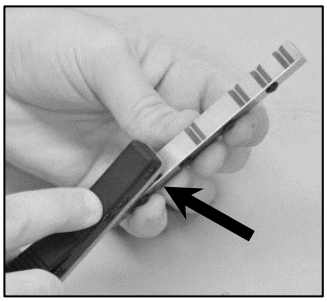
1. Loosen the indicator clamp and place fixed contact point in the second groove of standard.

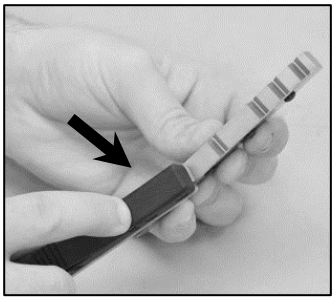


2. Place moveable contact point into the first groove of standard.



3. With the two contact points properly seated in the grooves of the standard, sweep the moveable contact point from side to side in order to obtain the smallest indicator reading (needle changes direction).





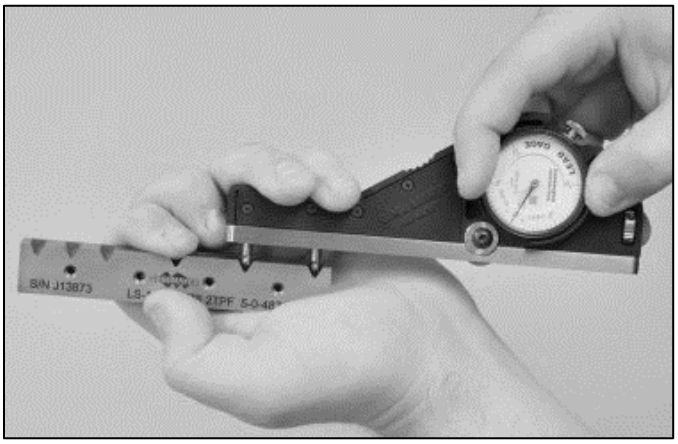
! For Non-V threads, pull the lead gage toward the load flank of the groove in the standard.

For V threads, be sure the contact points touch both flanks of the groove in the standard.

Zeroing the Lead Gage (continued)

4. Turn the indicator dial to align the needle with zero.

5. Tighten the indicator clamp.



Operating Procedures

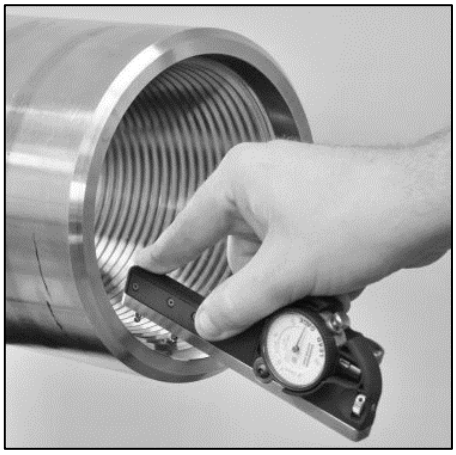
Inspecting Parts

Materials Needed:

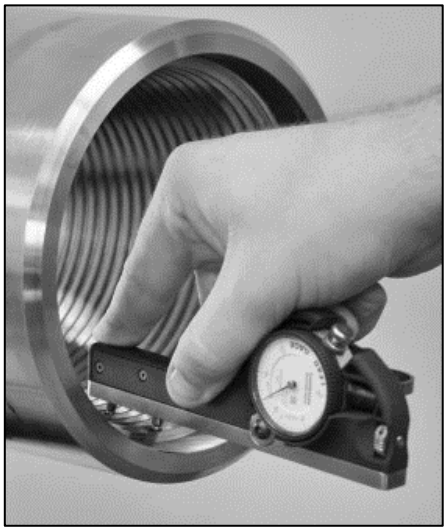
- Lead gage
- Part
- Inspection report

Inspecting parts using the lead gage involves placing the lead gage's contact points in the flanks of the thread to obtain an indicator reading. The two-point system on the lead gage provides accurate readings.

1. Place the fixed contact point into the thread next to the first scratch on the part (or first full thread).



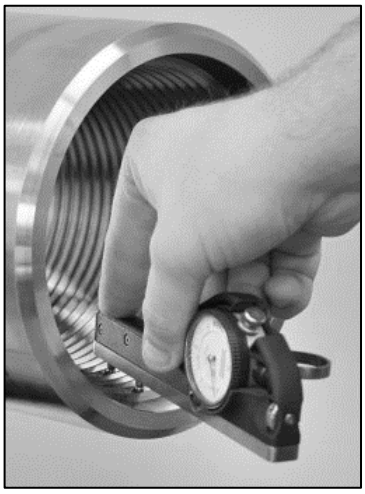
2. Rock the gage forward and seat the moveable contact point into the thread. Use your index finger to apply just enough pressure to maintain the gage's contact with the thread flanks.



Inspecting Parts (continued)

3. Using the fixed contact point as the pivot point, sweep the gage left and right to locate the smallest indicator reading. Take note of the indicator reading.

4. Move the gage to the next thread, repeat the sweeping action and note the indicator reading.

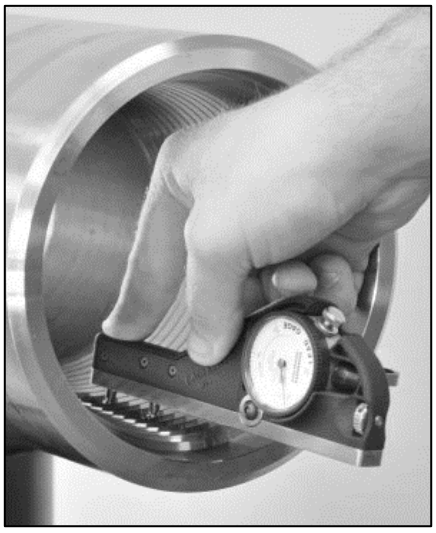


5. Move the gage to a thread at the rear of the part and seat the moveable contact point in the last full thread.

6. Sweep the gage from left to right in order to obtain an indicator reading. Take note of the reading.

7. Record the maximum lead error on an inspection report.

8. During the inspection process, periodically verify the gage's repeatability by placing it on the lead standard.



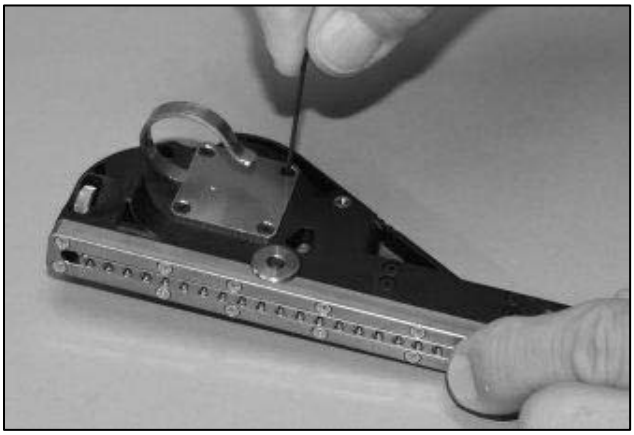
Care and Maintenance

Replacing the Indicator

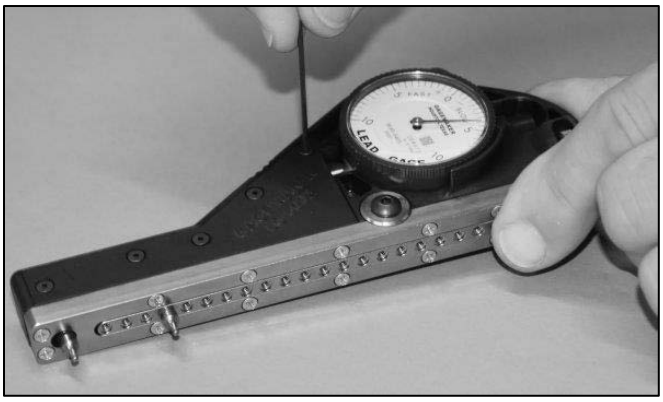
Materials Needed:

- Lead gage
- Indicator
- Hex wrench
- Phillip's head screwdriver

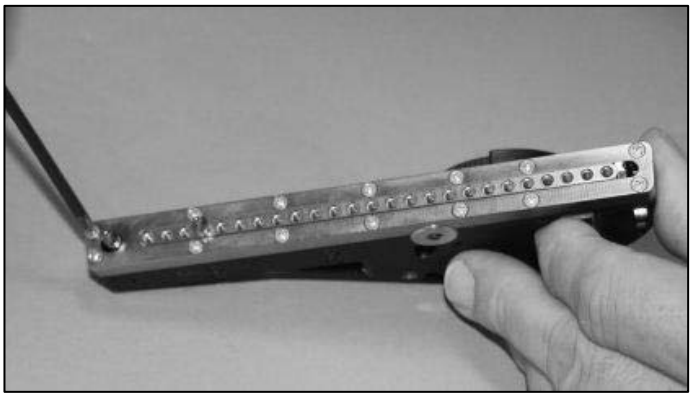
1. Using a hex wrench, remove the four screws from the back of the gage.
2. Remove the handle.



3. Remove the five screws on side cover.



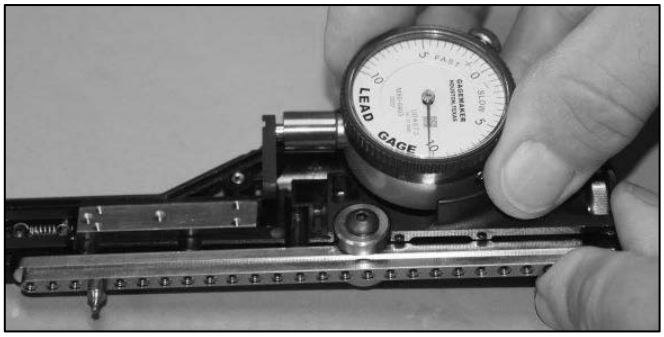
4. Remove the 14 screws on contact point holder bar.
5. Remove contact point holder bar from the gage body.



Replacing the Indicator (continued)

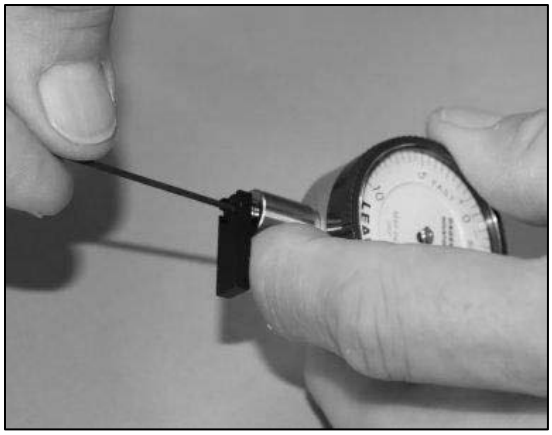
4. Remove the side cover.

5. Lift the indicator out of the gage body.



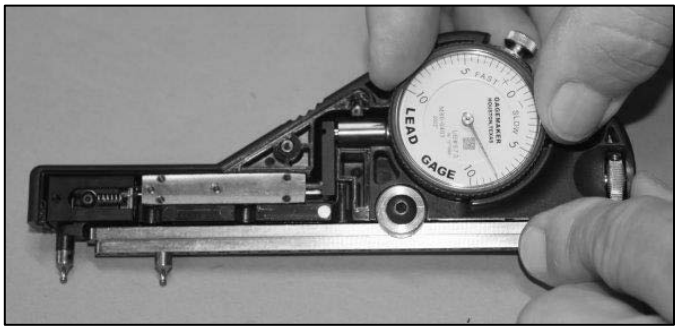
6. Replace the contact point in the new indicator with the contact point from the old indicator.

   Note: The contact point that comes installed in the new indicator will not work in the LG-6002 gage because it uses a special contact point.

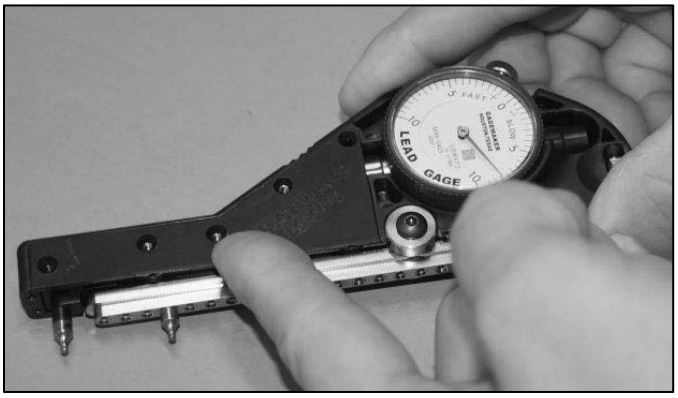


Replacing the Indicator (continued)

7. Place the new indicator assembly back into the body of the gage.

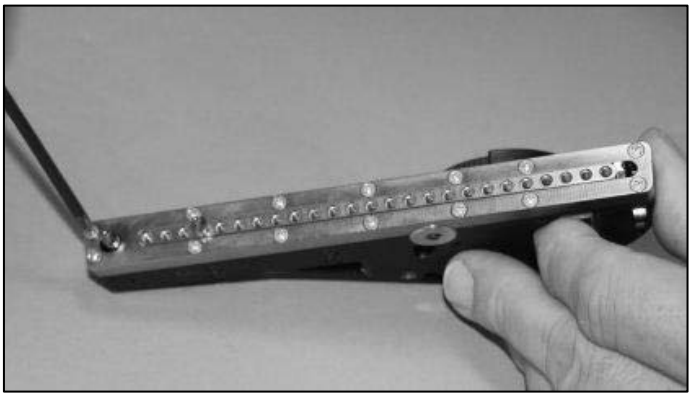


8. Replace the side cover.



9. Place the contact point holder bar onto the gage body.

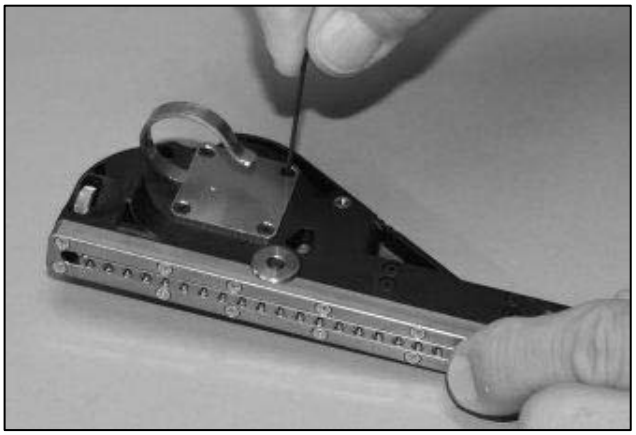
10. Replace the 14 screws into the contact point holder bar and tighten.



Replacing the Indicator (continued)

11. Place the handle on the back of the gage.

12. Insert the four screws into the handle and tighten.



Maintenance Tips

- Keep all unprotected metal surfaces coated with light oil.
- Avoid dropping the gage or subjecting it to any vibration or impact.
- Keep the gage dry and away from any machine coolant spray.
- Do not force the movement of any of the mechanical parts. The mechanics are designed to move freely.
- Keep the indicator face clean.

Warranty Information

Gagemaker warrants its products to be free from defects in material and workmanship under normal operating conditions for 12 months from the date of shipment. This warranty is limited to repairing, or at Gagemaker's option, replacing any product which is proven to have been defective at the time it was shipped and/or suffered damage during shipping; provided buyer has given Gagemaker written notice of any such claimed defect within 15 days of receipt. Any defective product must be properly packed and shipped to the Gagemaker factory in Pasadena, Texas USA. This warranty applies to all products when used in a normal industrial environment. Any unauthorized tampering, misuse or neglect will make this warranty null and void. Under no circumstances will Gagemaker or any affiliate have any liabilities for loss or for any indirect or consequential damages. The foregoing warranties are in lieu of all other warranties expressed or implied, including but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

Products Requiring Repair or Calibration Return Process

1. Prior to sending any products to Gagemaker, please call 713-472-7360 and request a Returned Material Authorization (RMA) number from Sales.

2. Include a Purchase Order or work instructions with the returned product.

3. Return to: Gagemaker LP
   712 East Southmore Ave.
   Pasadena, TX 77502-110

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Gagemaker, LP, P.O. Box 87709, Houston, Texas 77287-7709
712 East Southmore Ave., Pasadena, Texas 77502
Phone: 713-472-7360
Fax: 713-472-7241
Web site: www.gagemaker.com