



*"Your Thread Inspection Resource"*

**EXTERNAL ROLL TYPE THREAD  
COMPARATOR  
SERIES C-1 – BENCH TYPE**

<u>Models</u>	<u>Range</u>
3-C-1	.122 – 3.000" ( 3 – 75mm)
4-C-1	.250 - 1.500" (6.3 – 38mm)
5-C-1	.250 – 3.000" (6.3 – 75mm)

**Adjustable Diameter Size Application**  
(120° Contacting Interchangeable Gaging Rolls)

# Setting & Operating Instructions

THE JOHNSON GAGE COMPANY

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Gage Crib Worldwide Inc  
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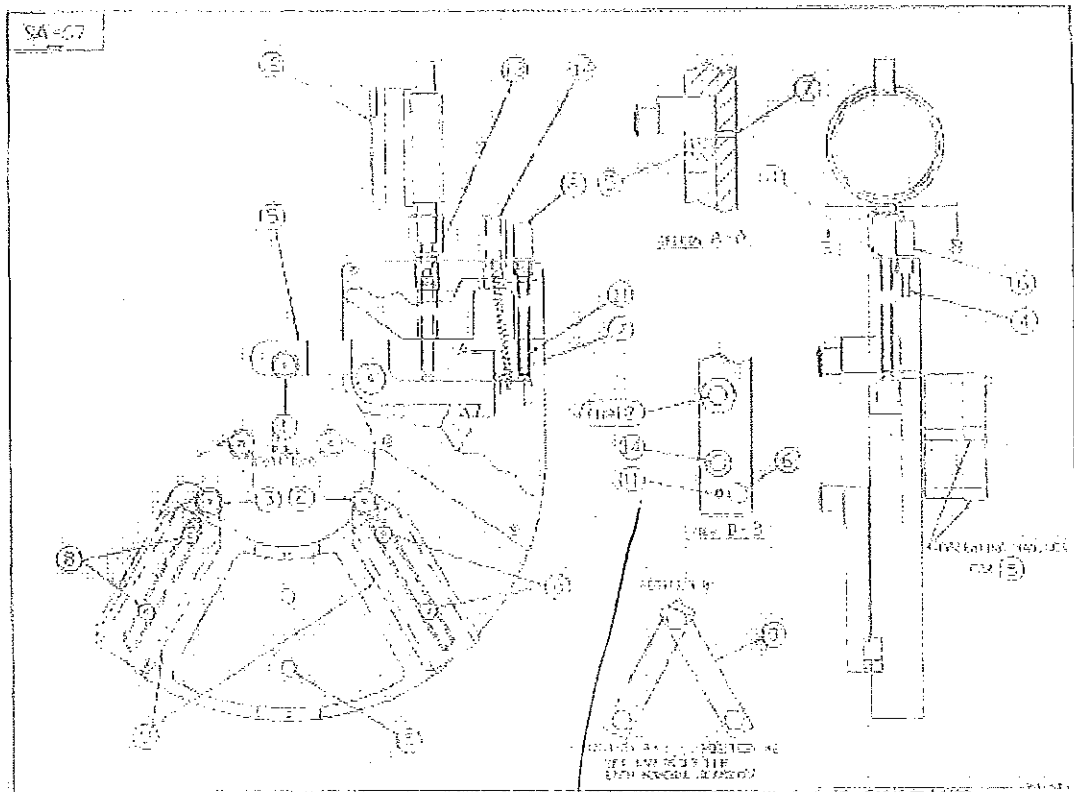
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# Components for

## *Johnson 120° Roll-Type Thread Comparator (Model C-1)*

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- |  |                                      |
|--|--------------------------------------|
| 1. Stud (Roll Position #1)                   | 9. Adjustment Arms                   |
| 2. Stud (Roll Position #2)                   | 10. Diameter Setting Bar - 180° Type |
| 3. Stud (Roll Position #3)                   | 11. Under-travel Restrictor Screw    |
| 4. Pivot Arm Positioning<br>Pin Storage Hole | 12. Indicator (Dial or DEI)          |
| 5. Pivot Arm                                 | 13. Indicator Locking Screw          |
| 6. Pivot Arm Positioning Pin                 | 14. Gaging Pressure - Adjusting Knob |
| 7. Pivot Arm Positioning Hole                | 15. Stand Mounting Hole              |
| 8. Adjustment Arm Locking Screws             |                                      |



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## Setting Instructions

### *120° Roll-Type Thread Comparator (Model C-1)*

1. Mount comparator on suitable mounting stand through stand mounting holes (15). Comparator should be set with back approximately 10° off vertical.
2. Remove all three Roll-Retaining Screws and/or Rolls: Positions 1-2-3.
3. Inspect and clean all gage component assembly surfaces of all foreign matter.
4. Select indicator as follows: (Normally furnished with Comparator.)

#### 4.1. Mechanical Dial Indicator:

<b>Size:</b>	AGD GROUP #2
<b>Graduation:</b>	x.00025" or .005mm (when product pitch diameter tolerance is .010" or less.)
<b>Balanced Dial:</b>	0-10-0 (inches) or 0-25-0 (mm) with x.00025" or 25 mm graduation.
<b>Range:</b>	.050" minimum
<b>Motion:</b>	Reverse Travel with Revolution Counter. (Dial hand turns counter-clockwise when indicator rack is actuated inward toward Dial from rest position.)
<b>Dial Hand:</b>	Set @ 9 o'clock in free state. (Pre-set at factory)
<b>Contact Point:</b>	Length: 1.750"

#### 4.2. Digital Electronic Indicator: (Any standard make)

*Note: Either indicator (4.1 or 4.2) must be assembled to the stemmount holder such that the indicator stem is engaged at maximum length and the split bushing split at 90° to the stemmount locking screw. Tighten the stemmount locking screw firmly then actuate the indicator to assure free motion.*

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Using 2-Hole 180° Setting Bar

- 1) Remove Pivot-Arm Positioning Pin (6) from Storage Hole (4), compress Pivot Arm (5) handles, and place Positioning Pin (6) into Pivot Arm Positioning Hole (7), slowly release Pivot-Arm Positioning Pin (6) until Pivot Arm (5) contact the Pivot Arm Positioning Pin (6). This establishes the datum point from which the Adjustment Arms are set.
- 2) Loosen Adjustment Arm-Locking Screws (8) so that Adjustment Arms (9) are free to move on mounting blocks.
- 3) Place 2-hole 180° Diameter Setting Bar (10) over studs (1) and (2) moving Adjusting Arm (9) as required.
- 4) Tighten Adjustment Arm-Locking Screws (8) making sure that the Arm is flat on the Mounting Block.
- 5) Place 2-hole 180° Diameter Setting Bar (10) over Studs (1) & (3) moving Adjustment Arm (9) as required.
- 6) Tighten Adjustment Arm-Locking Screws (8) making sure that the Arm is flat on mounting block.
- 7) Remove Diameter Setting Bar (10). Re-check positions 1-2, 1-3 with Set Bar.
- 8) Install Indicator (12) into hole provided.
  - a. Approximately 3/4<sup>th</sup> turn on Mechanical Dial Indicator to approximately 12 o'clock position,
  - b. Until +.150" contact (from .000) is made with the Digital Electronic Indicator.
- 9) Tighten Stemmount Locking Screw (13) against stemmount shank.
- 10) Advance Pivot-Arm Under-travel Restrictor Screw (11) until contact is made with Pivot Arm (5) allowing approximately +.001" movement on Indicator (12).
- 11) Remove Pivot-Arm Positioning Pin (6) from Hole (7) and store into Pivot-Arm Positioning Pin storage hole (4).
- 12) Using 3/32" hex wrench, adjust Pivot-Arm Under-travel Restrictor Screw (11) counter-clockwise until a movement of **minus .010"** is made on the Indicator (12).

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**SETTING & OPERATING INSTRUCTIONS**

- 13) Assemble rolls on studs as follows: (Check rolls for same pitch form, type, and 1-2-3.) (RIB END OUT ON P.D. TYPE ROLLS AND MARKING END OUT ON FUNCTIONAL ROLLS.) Assemble clockwise for RIGHT-HAND threads as follows:

RIGHT HAND THREADS:

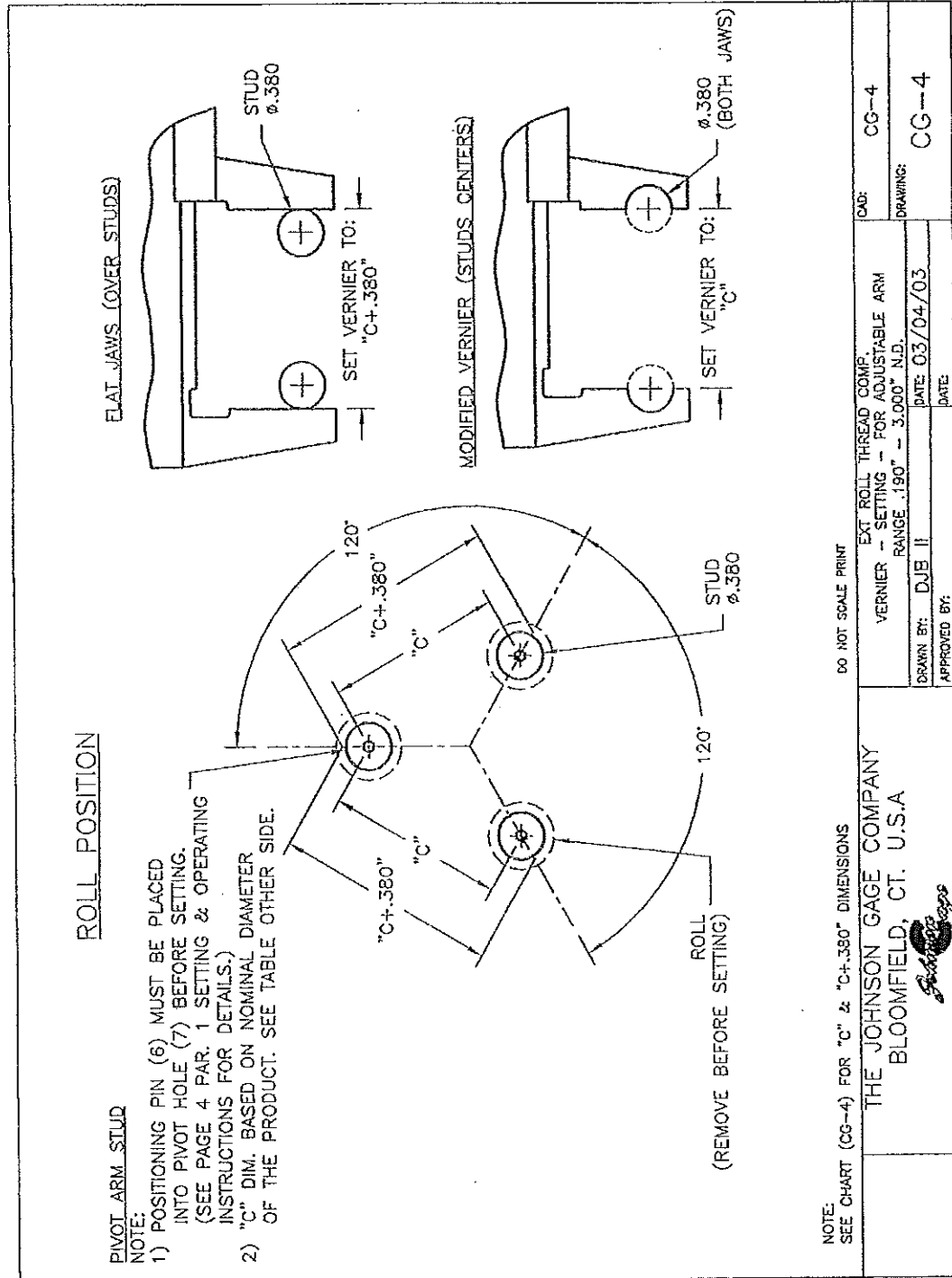
- |                                |              |
|--------------------------------|--------------|
| #1 Roll at 12 o'clock position | - Position 1 |
| #2 Roll at 4 o'clock position  | - Position 2 |
| #3 Roll at 8 o'clock position  | - Position 3 |

*Note: For LEFT HAND THREADS, REVERSE position of roll #2 & #3, counter-clockwise assembly.*

- 14) Install Roll Retaining Screws. Rolls must freely rotate on studs. FINGER TIGHT ONLY – DO NOT OVER TORQUE!
- 15) Place appropriate (GO) Master Threaded Setting Plug into comparator. (Note: Be sure plug is not cross-threaded.)
- 16) With “GO” Master Threaded Setting Plug engaged in Comparator,
- Reposition Mechanical Dial Indicator (12) so that “ZERO” and Indicator Hand are at the 12 o'clock position approximately  $\frac{3}{4}$  turn on Mechanical Dial Indicator,
  - Or, “0” Zero-out Digital Electronic Indicator with approximately +.150” actuation.
- 17) Remove the (GO) Master Threaded Setting Plug from the comparator.
- 18) Re-adjust the Pivot Arm Under-travel Restrictor Screw (11) until Indicator shows **minus .010”** under-travel movement.
- 19) Re-check Comparator setting by re-engaging Comparator and Master Threaded Setting Plug. Re-set indicator as may be required.
- 20) Re-setting Indicators: (If necessary)
- Set Mechanical Dial Indicator tolerance hands where “ZERO” equals Max Material other hand to Minus Tolerance according to Pitch Diameter Tolerance for product part.
  - Set Digital Electronic Indicator as required.

Note: Tolerance for Pitch Diameter and Functional Diameter are identical.

*Note: Gaging pressure is adjusted with knurled knob (14) clockwise to increase counter-clockwise to decrease. Always re-check Comparator setting after gaging pressure is changed.*







## Operating Instructions

### *Johnson Roll-Type Thread Comparator (Model C-1)*

1. Always load and unload product thread through the front of the Comparator.
2. Inspect first full thread and \* *rotate product thread* 120° to seat and check for out-of-round.
3. Remove product and insert product thread into gage at middle of thread. Rotate part 120° and check for out-of-round.
4. Repeat #3 and inspect thread at last full thread and check for out-of-round.
5. The difference of readings in the same plane between the first and last thread readings will indicate the degree of taper.
6. Do not screw product thread through Rolls.

*\* Rotation of part should be restricted dependent on type of plating.*

## Maintenance

### *Johnson Roll-Type Thread Comparator (Model C-1)*

1. Clean Rolls occasionally with a brush.
2. A light solvent, applied directly to the Rolls will keep them clean.
3. Check the setting of the Thread Comparator occasionally with the Master Setting Plug to insure that the setting of the Indicator has not changed.
4. Visually check Rolls to be certain that no burrs, nicks, chips, etc., are present in the Rolls.
5. Periodically check by hand indicator movement to detect any abnormalities.

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## Determining Wear Allowances

### *On Rolls*

It is suggested that the most practical means by which to determine wear on rolls is by an Optical Projection Check against a chart made to wear allowances at a minimum of 50x magnification.