Self-Leveling Rotary Laser

Models 40-6532, 40-6539, 40-6543 & 99-027K

Instruction Manual

Congratulations on your choice of this Self-Leveling Rotary Laser. We suggest you read this instruction manual thoroughly before using the instrument. Save this instruction manual for future use.

This tool emits one rotating laser beam plus one plumb beam and is ideal for laying out indoor and outdoor construction projects.

This is a Class IIIa laser tool and is manufactured to comply with CRF 21, parts 1040.10 and 1040.11 as well as international safety rule IEC 285.

Table of Contents

1. Kit Contents

Description for Model 40-6532 & 40-6539	**Qty.**
Self-Leveling Rotary Laser	1
NiMH Rechargeable Battery Pack	1
6.4V Battery Charger	1
Alkaline Battery Compartment (batteries not included)	1
Detector with Clamp and 9V Battery	1
Remote Control with 9V Battery	1
Tinted Glasses	1
Hard-Shell Carrying Case	1

Description for Model 99-027K	**Qty.**
Self-Leveling Rotary Laser	1
“C” Alkaline Batteries	4
Detector with Clamp and 9V Battery	1
Tripod	1
13’ Grade Rod	1
Magnetic Target	1
Tinted Glasses	1
Hard-Shell Carrying Case	1

Description for Model 40-6543	Qty.
Self-Leveling Rotary Laser with GreenBrite® Technology	1
NiMH Rechargeable Battery Pack	1
6.4V Battery Charger	1
Alkaline Battery Compartment (batteries not included)	1
Remote Control with 9V Battery	1
Wall/Ceiling Mount	1
Magnetic Target	1
Tinted Glasses	1
Hard-Shell Carrying Case	1

2. Features and Functions

- Green beam is 400% more visible than red beam (40-6543)
- Self-leveling in the horizontal plane
- Locking mechanism protects inner pendulum during transportation
- Manual-leveling in the vertical plane with 90º split beam
- Range-scan modes include dot and two adjustable line lengths
- Visual and audible alarms when beyond leveling range
- Dust and rain resistant

3. Safety Instructions

Please read and understand all of the following instructions, prior to using this tool. Failure to do so, may void the warranty.

DANGER!

Class IIIa Laser Product
Max. Power Output: ≤ 5mW
Wavelength: 625-645nm (40-6532, 40-6539, 99-027K)
Wavelength: 510-530nm (40-6543)

THIS TOOL EMITS LASER RADIATION.
DO NOT STARE INTO BEAM.
AVOID DIRECT EYE EXPOSURE.

ATTENTION

IMPORTANT

- Read all instructions prior to operating this laser tool. Do not remove any labels from tool.
- Do not stare directly at the laser beam.
- Do not project the laser beam directly into the eyes of others.
- Do not set up laser tool at eye level or operate the tool near a reflective surface as the laser beam could be projected into your eyes or into the eyes of others.
- Do not place the laser tool in a manner that may cause someone to unintentionally look into the laser beam. Serious eye injury may result.
- Do not operate the tool in explosive environments, i.e. in the presence of gases or flammable liquids.
- Keep the laser tool out of the reach of children and other untrained persons.
- Do not attempt to view the laser beam through optical tools such as telescopes as serious eye injury may result.
- Always turn the laser tool off when not in use or left unattended for a period of time.
- Remove the batteries when storing the tool for an extended time (more than 3 months) to avoid damage to the tool should the batteries deteriorate.
- Do not attempt to repair or disassemble the laser tool. If unqualified persons attempt to repair this tool, warranty will be void.
- Use only original Johnson® parts and accessories purchased from your Johnson® authorized dealer. Use of non-Johnson® parts and accessories will void warranty.

4. Location/Content of Warning Labels

5. Location of Parts/Components

6. Operating Instructions

IMPORTANT: It is the responsibility of the user to verify the calibration of the instrument before each use.

Battery Installation

Note: Always check to be sure that the on/off switch is in the off position before removing and replacing batteries.

Usage for Rechargeable Batteries & Alkaline Battery Cases

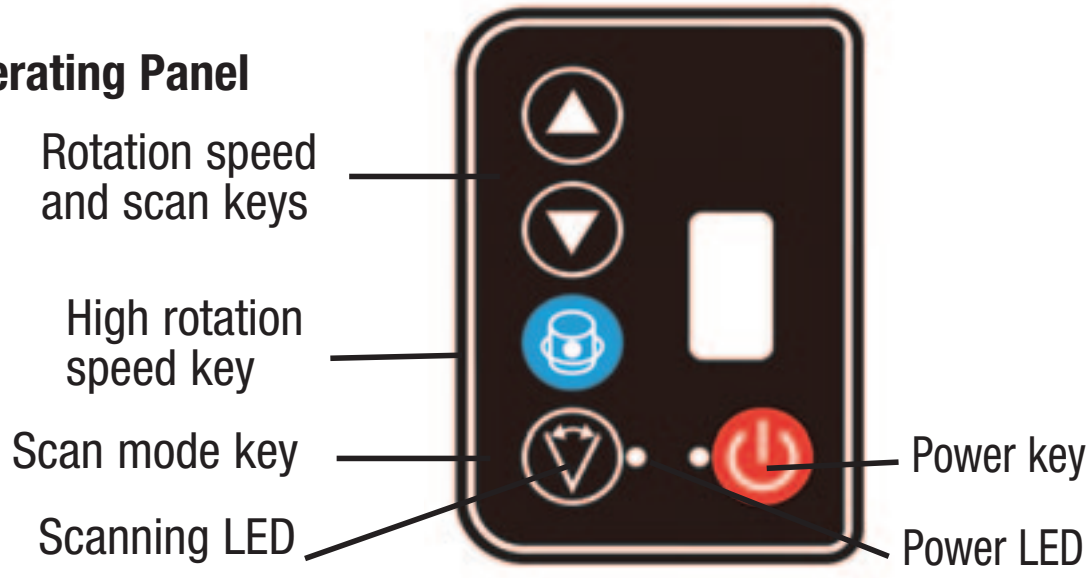
1. Put 4 “C” alkaline batteries into the battery case according to the polarity indication shown in the battery case.
2. Put the battery case on the instrument and tighten the locking screw.
3. If using the rechargeable battery pack, put the battery pack on the instrument and tighten the locking screw.

Note:

- For the first two charges of a new rechargeable battery pack, it is necessary to charge for 12-plus hours.
- The instrument will still work even if it is being charged with the charger.
- Do not charge alkaline batteries.
- Used (discharged) batteries are hazardous waste and should be disposed of properly.

7. Using the Product

Operating Panel



1. Power Key
   - Press this key to turn on and off the power 
2. Power LED
   - When the LED is lit the unit is connected to the power
   - When the LED is off the unit is not receiving power
   - When the LED is flashing the battery is low
3. Scanning LED
   - When the LED is lit the unit is in rotation mode
   - When the LED is flashing the unit is in scan mode
4. Scan mode key
   - With the first press of this button, the instrument emits a short laser line. 
   - With a second press of this button, the instrument emits a longer laser line.
   - With a third press of this button, the instrument emits a laser point.

5. High rotation speed key

Press this key, the instrument will rotate in its highest speed

6. Rotation speed and scan keys

In rotation mode

- Press the up arrow to increase rotation speed
- Press the down arrow to decrease rotation speed

In scan mode

- Press the up arrow to rotate the scan counterclockwise
- Press the down arrow to rotate the scan clockwise

Out of level alarm

Set the transportation locking knob to the unlocked/on position. Turn the power on and the instrument will self-level. During the process of self-leveling, if the instrument is tilted to exceed its self-leveling range, it will stop rotating and the unit will give a sound alarm.

Transportation lock knob operation

When the lock knob is turned to “ON”, the compensator is unlocked. When the lock knob is turned to “OFF”, the compensator is locked.

Use on a platform

Connected to a 5/8” x 11 tripod

Usage for Horizontal Applications

1. Install either the rechargeable pack, if equipped, or alkaline batteries.

2. Place the instrument on a platform or tripod, connect to the tripod using the 5/8" thread at the bottom of laser.

   Note: If instrument is inclined beyond its self-leveling range, it will deliver an audible alarm. Re-position the instrument until level.

3. Rotate the transportation locking knob counter-clockwise to “ON”, then turn power on. Press the keys on control panel or remote control (if equipped) to adjust to your desired working status.

4. After finishing operation or before moving the instrument, turn power off and return locking knob to the “OFF” position.

   Note: If transportation locking knob is not turned to the lock position it will deliver an audible alarm when the unit is returned to its case.

   It is important that the locking knob is turned to the locked position prior to returning the unit to its case.

Note: Remote control operating panel is similar to laser operating panel (40-6532, 40-6539 & 40-6543). Remote control cannot be used to power on the laser.

Usage for Vertical Applications

IMPORTANT: Keep the transportation "Locking Knob" in the "Locked/Off" position when operating in vertical mode.

1. Install either the rechargeable battery pack, if equipped, or alkaline batteries.
2. Set the laser down on its vertical bracket.
3. Turn on the power by pressing the Power Key. The vertical vial will now be backlit.
4. Turn the vertical "Adjusting Knob" until the vertical vial bubble is centered.
5. Select the work state that you need by pressing the buttons on the operating panel or remote control (40-6532, 40-6539 & 40-6543).
6. Power the instrument off when you finish work and keep the transportation lock in the locked/off position.

Use on a platform

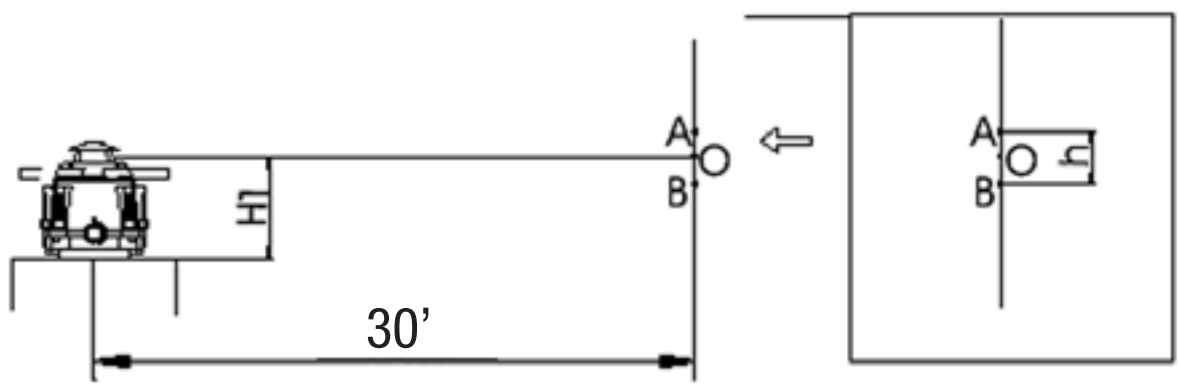
Connected to a 5/8" x 11 tripod

8. Checking Accuracy

IMPORTANT: It is the responsibility of the user to verify the calibration of the instrument before each use.

X & Y Direction Accuracy Check

1. Place the unit on a platform 30’ from a wall with the battery case facing the wall and power on the laser.
2. Draw a vertical line on the wall, and mark the intersection between the laser line and the vertical line as point Ax.
3. Turn the instrument 180 degrees, mark point Bx on the wall at the intersection of the laser beam and the vertical line.
4. Measure the vertical distance (Hx) from point Ax to point Bx.
5. Rotate the laser 90 degrees, and repeat steps 2-4 for the Y-Axis, marking points Ay, By, and measuring distance Hy.
6. If Hx and Hy are both less than 1/16", accuracy is within specification.
7. If Hx or Hy $>$ 1/16", the laser must be calibrated by Johnson or an authorized service center.



Accuracy Check for Plumb Beam

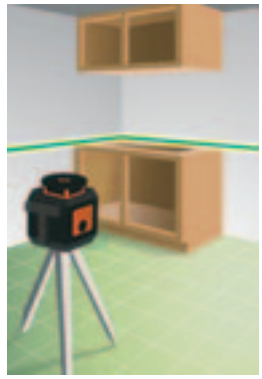
1. After completing the above steps to field adjust the rotary laser output, double check the plumb beam output. Because the optics for the plumb beam are shared with the optics for the rotary, if the rotary is in calibration, the plumb beam should also be in calibration, so this step is really a redundant check; no further adjustment to the plumb beam is possible.
2. Place the instrument horizontally on a rotating tripod head so that the plumb beam strikes the ceiling. The higher the ceiling, the more accurate the check will be. We recommend a minimum height of 10'; 25' is preferred.
3. Mark the point on the ceiling where the center of the plumb beam hits the ceiling. Pro tip: If you frequently check lasers in the same location, mounting a small angled mirror to the ceiling and reflecting the beam to the floor can speed up this process.
4. Rotate the laser 90 degrees and again mark the spot where the center of the plumb beam hits.
5. Repeat step 4 twice more, resulting in a total of 4 marks on the ceiling.
6. The four points should form a circle. Measure its diameter. If this diameter is less than 3/16” at 25’, the laser is in calibration. If the plumb beam is out of calibration, and the rotary beam is within calibration, the laser must be calibrated by Johnson or an authorized service center.

9. Technical Specifications

Laser Wavelength	635nm±10nm (40-6532, 40-6539, 99-027K) 520nm±10nm (40-6543)
Laser Classification	Class IIIa
Maximum Power Output	<5mW
Accuracy	±3/16"/100 ft.
Interior Range, diameter	Up to 200 ft. (40-6532, 40-6539, 99-027K) Up to 400 ft. (40-6543)
Exterior Range (diameter w/ detector)	Up to 2,000 ft. (40-6532, 40-6539, 99-027K) Up to 1,200 ft (40-6543, sold separately)
Remote Range, diameter	Up to 200 ft. (99-027K, sold separately)
Self-Leveling Range	±3.5°
Power Supply	NiMH battery pack and 6.4V charger (40-6532, 40-6539, & 40-6543 only) 4 “C” alkaline batteries (included in 99-027K)
Battery Life	18 hours NiMH / 15 hours alkaline (40-6532, 40-6539 & 40-6543 include NiMH)
Dimensions	7.087" x 6.378" x 7.953"
Weight	4.409lbs
Operating Temperature	14°F to 113°F
Tripod Thread	5/8" – 11
Scanning Modes	0º, 30º, 60º
Rotation Speed	150, 200, 250, 300 RPM
IP Rating	IP66

10. Application Demonstrations

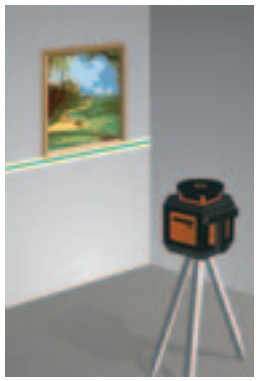
Level references for flooring and trim installation



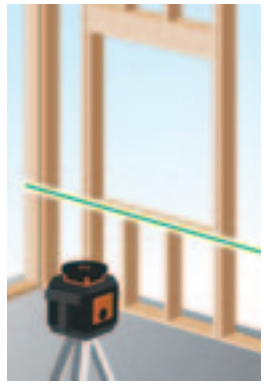
Reference for cabinets and shelving

Wainscoting and chair rail installation reference

Reference for drop ceilings



Reference for leveling pictures, shelving and finish work



Reference for framing windows, doors and more

11. Care and Handling

- This laser unit is a precision tool that must be handled with care.
- Avoid exposing unit to shock vibrations and extreme temperatures.
- Before moving or transporting the unit, make sure that the unit is turned off.
- Remove the batteries when storing the unit for an extended time (more than three months) to avoid damage to the unit should the batteries deteriorate.
- Always store the unit in its case when not in use.
- Avoid getting the unit wet.
- Keep the laser unit dry and clean, especially the laser output window. Remove any moisture or dirt with a soft, dry cloth.
- Do not use harsh chemicals, strong detergents or cleaning solvents to clean the laser unit.

12. Product Warranty

Johnson Level & Tool offers a three year limited warranty on each of its products. You can obtain a copy of the limited warranty for a Johnson Level & Tool product by contacting Johnson Level & Tool's Customer Service Department, as provided below, or by visiting our web site at www.johnsonlevel.com. The limited warranty for each product contains various limitations and exclusions.

Do not return this product to the store/retailer or place of purchase.
Non-warranty repairs and course calibration must be done by an authorized Johnson® service center or Johnson Level & Tool's limited warranty, if applicable, will be void and there will be NO WARRANTY. Contact one of our service centers for all non-warranty repairs. A list of service centers can be found on our web site at www.johnsonlevel.com or by calling our Customer Service Department. Contact our Customer Service Department for Return Material Authorization (RMA) for warranty repairs (manufacturing defects only). Proof of purchase is required.

NOTE: The user is responsible for the proper use and care of the product. It is the responsibility of the user to verify the calibration of the instrument before each use.

For further assistance, or if you experience problems with this product that are not addressed in this instruction manual, please contact our Customer Service Dept.

In the U.S., contact Johnson Level & Tool's Customer Service Department at 888-953-8357. In Canada, contact Johnson Level & Tool's Customer Service Department at 800-346-6682.

13. Warranty Registration

Please register within 30 days of purchase. Registering ensures we have your information on file for warranty service even if you lose your receipt, and lets us contact you if there is ever a product recall. We will never sell your information and only send you marketing information if you opt-in.

To register, go to www.johnsonlevel.com/register.

14. Accessories

Johnson® accessories are available for purchase through authorized Johnson® dealers. Use of non-Johnson® accessories will void any applicable limited warranty and there will be NO WARRANTY. If you need any assistance in locating any accessories, please contact our Customer Service Department.

In the U.S., contact Johnson Level & Tool's Customer Service Department at 888-953-8357. In Canada, contact Johnson Level & Tool's Customer Service Department at 800-346-6682.

15. Troubleshooting

Symptom	Possible Cause	Solution
Will not turn on	Horizontal position: Compensator locked	Unlock compensator fully for horizontal operation
	Vertical position: Compensator unlocked	Lock compensator for vertical operation
	Batteries missing or depleted	Change the batteries
		Charge the batteries (if equipped with rechargeable batteries)
	Polarity reversed	Check polarity
Turns off after a short time	Batteries depleted	Change or charge the batteries
	Battery pack required reconditioning (rechargeable batteries only)	Fully discharge batteries by operating tool. Fully charge batteries (12-14 hrs.) Repeat two more times.
	Rechargeable battery pack has exceeded its useful life	Replace rechargeable battery pack.

Symptom	Possible Cause	Solution
Laser will not spin	Batteries depleted	Change or charge the batteries
	Horizontal position: Compensator locked	Unlock compensator fully for horizontal operation
	Vertical position: Compensator unlocked	Lock compensator for vertical operation
Flashing or Beeping	Laser is beyond leveling range	Place on surface within 3.5º of level
	Laser is out of calibration	Perform calibration check and calibrate laser if needed
	Beeping during transport: Compensator unlocked	Lock compensator to transport laser
Laser is not accurately reading level	Laser is out of calibration LESS THAN 1/4" per 100'	Calibrate laser (procedure in the manual) or return to Johnson dealer for calibration
	Laser is out of calibration MORE THAN 1/4" per 100'	Return to Johnson dealer for service

Symptom	Possible Cause	Solution
Laser will not calibrate	Laser core parts may be misaligned beyond the limit of field calibration	Return to Johnson dealer for service
Laser light appears dim	Batteries are weak	Replace batteries
	Improper battery type	Ensure high quality Alkaline batteries are used
	Speed too high (indoor)	For indoor operation, operate on lowest speed to give the most visible beam
	Ambient temperature too high/low	Ensure temperature is within operating range listed under specifications
Beam is difficult to detect with laser detector	Speed too low	Increase rotation speed

Symptom	Possible Cause	Solution
Laser battery will not take a charge	Non-rechargeable batteries	Verify that the battery pack installed into the unit is the rechargeable battery pack.
	Power source or power charger failure	Ensure charging indicator LED comes on to RED. If not, contact a Johnson dealer for service.
	Battery pack requires reconditioning	Fully discharge batteries by operating tool. Fully charge batteries (12-14 hrs.) Repeat two more times.
	Rechargeable battery pack has exceeded its useful life	Replace rechargeable battery pack.