

B-RAD SELECT & OFFSET BATTERY SERIES

50 - 7.000 Nm



**User manual for B-RAD
SELECT & OFFSET:**

- B-RAD 275
- B-RAD 700
- B-RAD 1400
- B-RAD 1400-2
- B-RAD 2000
- B-RAD 2000-2
- B-RAD 4000
- B-RAD 4000-2
- B-RAD 7000

USER MANUAL



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1. General instructions



NOTE: Do not operate the tool before reading these instructions. If breakdown, malfunction or damage occurs, do not attempt to repair, please contact Radial Torque Tools B.V. immediately.

RAD battery torque wrenches are reversible, non-impacting, torque controlled tightening tools and must always be operated with the following:

- Fully charged battery.
- Impact sockets with locking pin and o-ring.
- Proper reaction arm with retaining ring.



NOTE: These torque wrenches contain metal components that can be dangerous in hazardous areas.

2. Assembly

1. Make sure the battery is fully charged.
2. Slide in the battery pack until it engages.
3. Fasten and secure the reaction arm on the jagged side of the gearbox with the retaining ring.



4. Spread the retaining ring open with a screwdriver and place the open side in the groove at the end of the gearbox.



5. Then gradually press the retaining ring until it is completely closed.



6. To remove the reaction arm, place a screwdriver at the beginning of the retaining ring and spread the retaining ring open. Then pull the retaining ring off and remove the reaction arm.

3. Safety

RAD tools are developed for tightening and loosening threaded fasteners using very high forces. For your safety and that of others, warning labels and attention labels are prominently attached to the torque wrench and its accessories.



NOTE: Make sure you observe the directions on the warning labels at all times.

RAD tools have been designed with safety in mind however, as with all tools you must observe all general workshop safety practices, and specifically the following:

- Before using your new tool, get familiar with all its accessories and how they work
- Always wear safety goggles when the tool is in operation
- Make sure the reaction arm is in contact with a solid contact point before you operate the tool
- Keep your body parts clear of the reaction arm and the contact point
- Make sure the reaction arm retaining ring is securely in place to hold the reaction arm or blank in place.

RAD tools are safe and reliable. Not following precautions and instructions outlined here can result in injury to you and your fellow workers. Radial Torque Tools B.V. is not responsible for any such injury.

4. Setting torque

4.1. Setting direction of rotation

Only operate the rotational direction switch and transportation switch when the motor is at standstill, see Figure 1.

Right setting	=	Tightening
Left setting	=	Loosening
Central setting	=	Transportation position

Figure 1



! **NOTE:** In case a higher accuracy, more precise torque settings and presets are required, we advise to select one of the Digital Battery Serie models.

When the tool is in operation the reaction arm rotates in the opposite direction to the output square drive and must be allowed to rest squarely against a solid object or surface adjacent to the bolt to be tightened.

4.2. Operating the torque wrench

1. Use only suitable and proper impact sockets.
2. The handle can be rotated.
3. Make sure that there is no movement between the tool and the reaction arm.
4. The reaction arm placed against a solid reaction point before the trigger is pulled.
This prevents movement of reaction arm.
5. The trigger should be pressed until the torque wrench stops automatically.

4.3. LED Display Module

The LED Display and the Buttons are the interface for the B-RAD SELECT (See Figure 2). The LED Display has 4 digits that display torque values and menu options. The (plus, increase) and (minus, decrease) buttons are used to modify numbers and navigate the various menus in the module. The interface is described in detail in Section 3 – Interface and Settings.

To turn on the LED Display, attach the RAD Li-Ion Battery to the B-RAD Select handle and press the Trigger Switch momentarily. The Display will light a small LED indicator near each button when a button is being pushed or held down. The Display will dim after 15 seconds of inactivity. Lightly pull the trigger or press a button to brighten the display.

The display will turn off after 30 seconds. To turn it back on, lightly pull the trigger.

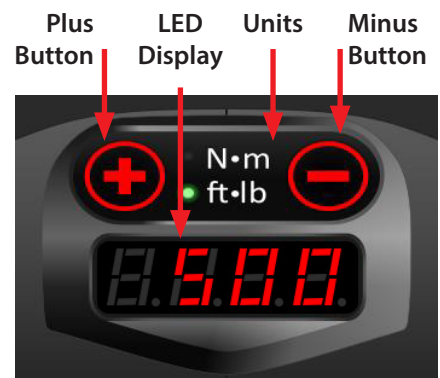


Figure 2: LED Display

! **CAUTION!** The LED Display Module may be damaged by mechanical shock, electrostatic discharge, excessive force, moisture, or extreme temperatures. Avoid such conditions and gently wipe clean or let dry before use.

4.4. Changing Torque

!

WARNING: Keep your hand and body parts clear of the reaction arm and barrel when the tool is in operation.

When the B-RAD SELECT is powered on, the LED Display will start in Torque Select Mode (Figure 3A). Note: If the tool has just been calibrated, the LED Display will show the tool's rated minimum torque. When N·m (metric) units are used, the "N·m" indicator will light on the keypad. When ft·lb (imperial) units are used, the "ft·lb" indicator will light. (Refer to Section 3.7 – Change the Torque Units)

Figure 3A



4.5. To change the torque value:

1. Press and hold a button until a digit starts blinking. The - (minus) button starts the left-most digit blinking. If you press and hold the - button again, the selected digit moves to the right. The opposite happens with the + (plus) button.
2. Press the + or - button quickly to change the digits by one unit at a time. Other digits may be selected (see Step 1) to fine-tune the torque setting.
3. The selected torque value will be saved and ready after 5 seconds. Alternatively, press and hold a button until the digit stops flashing. The display will blink, indicating that the value is saved. The torque value will be saved even when the battery is removed.

4.6. Information Menu

The Information Menu allows you to change torque units, view the battery voltage, change LED brightness, enter an unlock code, and view the program version. The menu items are described below.

To enter the Information Menu:

- While in Torque Select mode, press the + button - simultaneously.
- To move to the next item, hold the + button and press the - button. To go to a previous menu item, hold the - button and press the + button.
- To exit the menu, hold both buttons until the Torque Value is displayed. If an unlock code was entered, the locked or unlock mode will be displayed on the LEDs before the menu exits.

4.7. Change the Torque Units

Figures 3C



- Press a button to toggle between f (foot-pounds) and n (newtonmetres) as shown in Figures 3C and 3D
- To exit the Unit Select menu, press and hold both buttons.

Figures 3D



4.8. Table Mode:

The torque may be set in discrete levels from 1 to 50 over the calibrated range instead of using torque units. Setting 1 is the minimum calibrated torque, setting 50 is the maximum calibrated torque, and the points in between are evenly spaced over the tool's range. Contact Radial Torque Tools B.V. to activate this mode.

- The N·m indicator lights when N·m units are used (Figure 3E), and the ft·lb indicator lights when ft·lb units are used (Figure 3F).

Note: When the units are changed, the torque setting will be converted into the new units.

Figures 3E



Figures 3F



4.9. View the Battery Voltage

- Move to the next menu item: "batt." The battery voltage is shown (Figures 3G and 3H).
- When the battery voltage gets too low, the message "Lo-b" will flash on any screen to warn you that the battery needs charging.

Figures 3G



Figures 3H



4.10. Enter a Lock or Unlock Code

- Move to the next menu item: "Lock." The flashing line indicators on the screen keep track of the number of button presses used to enter a code (Figures 3I and 3J).

Figures 3I



Figures 3J



- Enter a code using the + and - buttons. The desired code will depend on which features are needed.
- Navigate forward or press and hold both buttons to accept the code and close the menu. The new Unlock level will scroll across the screen.

5. Battery

- Warning!** Before initial use, check that the voltage and frequency stated on the charger's rating plate match the figures for your own electrical supply.
- Warning!** Unplug charger immediately if the cable or charger is damaged. Unplug immediately if any sign of smoke or flames.
- Warning!** To reduce risk of injury, charge only rechargeable RAD batteries, other types of batteries may burst causing personal injury and damage.
- Warning!** Do not submit the casing to impact or drill into the casing. Do not throw battery packs or charger in fire or immerse in water. Keep battery packs dry. Do not use any damaged or deformed battery packs.
- Warning!** RAD chargers should only be operated between 0-49 degrees Celsius. Keep away from moisture.
- Warning!** Slightly acidic, flammable fluid may leak from defective Li-ion battery packs. If battery fluid leaks out and comes into contact with your skin, rinse immediately with plenty of water. If battery fluid leaks and comes into contact with your eyes, wash them with clean water and seek medical treatment immediately.

Lithium-ion battery chargers are to be used exclusively for charging RAD 18V Lithium-ion battery packs with the maximum capacity of 5.2AH.



Note: To prevent the battery from draining, always remove battery from tool before storage.

5.1. Battery pack faults

Warning indicator stays on

The battery pack is not being charged. The temperature is too high or too low. If the temperature of the battery pack is between 0 - 49 degrees Celsius, the charging process begins automatically.

Warning indicator flashes on

The battery pack is defective, remove from charger immediately.

The battery fails to charge, contacts may be dirty. Remove the battery pack, clean the contacts and replace the charger.



Note: In the case of prolonged activity of electromagnetic disturbances, the battery charger ends the charging process prematurely for safety reasons. Remove the plug and plug in again after 2 seconds.

Warning beep

In the case of overheating, the battery will give a loud beep tone. The Lithium-ion battery should be disconnected immediately to cool down. The Lithium-ion battery can be used again once it is cooled down.

6. Battery charger

Before initial use, check that the voltage and frequency stated on the rating plate match your own electrical supply and check that the ventilation slits are clear. Minimum clearance from other objects is 5 centimeters.

1. Connect to electrical supply, the red and green indicator lights up for approximately 1 second.
2. Once the self test is completed, the indicator lights are off.
3. Insert the battery pack into the charging shaft socket; push it to the back until it engages.
4. Charge the battery pack before use. Only once it has been charged and discharged five charging cycles does the battery pack reach its full charging capacity. You may store charged Lithium-ion battery packs and recharge them after an interval of no more than six months.

6.1. Removing and inserting the battery pack

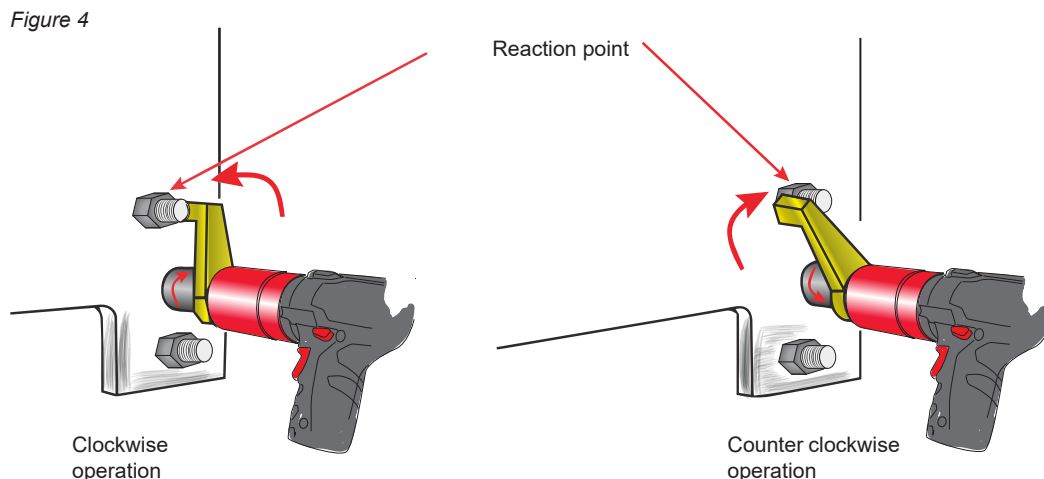
Removal: Press and hold the release button and remove the battery pack.

Inserting: Slide in the battery pack until it engages.

7. Movement of the reaction arm

7.1. Installing the reaction arm

Ensure the reaction arm and retaining ring are installed securely to hold the reaction arm in place. Make sure the reaction arm is in contact with a solid reaction point before you operate the tool. When the tool is in operation the reaction arm rotates in the opposite direction to the output square drive and must be allowed to rest squarely against a solid object or surface adjacent to the bolt to be tightened, see Figure 4.



WARNING: While in use, this tool must be supported at all times in order to prevent unexpected release in the event of a fastener or component failure!

7.2. Reaction arm height

Ensure the height of the socket is even with the height of the reaction arm as seen below in Figure 5A. The height of the socket cannot be shorter or higher than the height of the reaction arm as seen below in Figure 5B and Figure 5C.

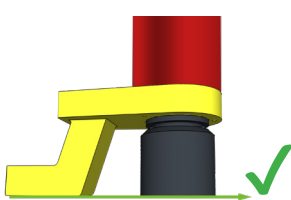


Figure 5A

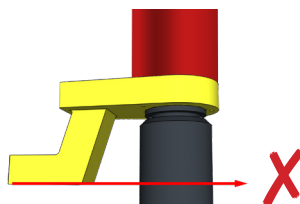


Figure 5B

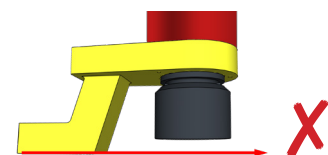


Figure 5C

! **NOTE:** Improper reaction will void warranty and can cause premature tool failure.

7.3. Reaction arm foot

Ensure the foot of the reaction arm aligns with the length of the nut as seen in Figure 6A. The length of the foot cannot be shorter or longer than the nut as seen in Figure 6B and Figure 6C.

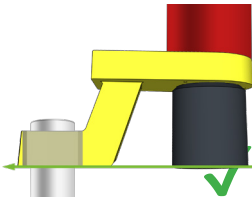


Figure 6A

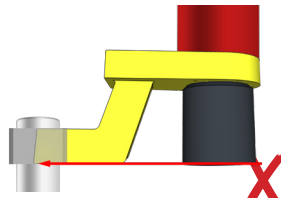


Figure 6B

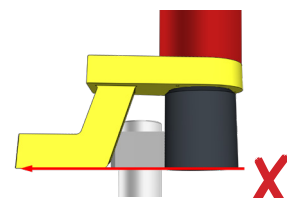


Figure 6C

7.4. Reaction point

Ensure the reaction arm reacts off the middle of the foot as seen in Figure 7A. Do not react off the heel of the reaction foot as seen in Figure 7B.

Please contact Radial Torque Tools B.V. or your local RAD authorized distributor for custom reaction arms.

! **WARNING:** Always keep your hand and body parts clear of the reaction arm and barrel when the tool is in operation, see Figure 7C.

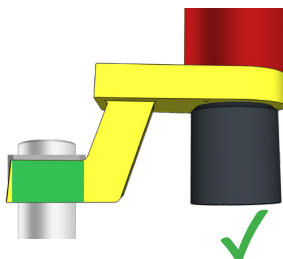


Figure 7A

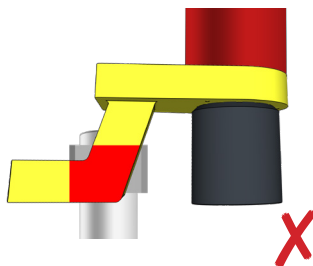


Figure 7B

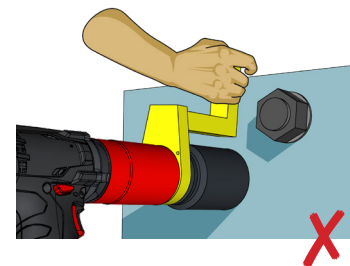


Figure 7C

! **Note:** FOR ADDED SAFETY, WE ADVISE TO ORDER THE OPTIONAL THE DOUBLE SAFETY TRIGGER WITH PART NO: 25949. THIS REDUCES FINGER PINCHING HAZARDS.



8. Warranty

8.1. New tool warranty:

1. Radial B.V. guarantees the proper performance of the goods delivered for a period of twelve (12) months after delivery to the final customer. And is limited to fifteen (15) months after the original Radial B.V. calibration date;
2. excluded from this warranty are electric components of RAD digital tools (e.g. MB-RAD, MV-RAD, E-RAD, SmartSocket™, RT and TV-RAD) which have a twelve (12) month warranty after date of delivery to the final customer. With a maximum of nine (9) months after the original RAD calibration date. Mechanical components of these tools fall under the terms of Article 1.

8.2. Repaired tool warranty:

1. Once a tool is beyond its new tool warranty, Radial B.V., for a period of three (3) months from the date of repair, will replace or repair for the original purchaser, free of charge, any part, or parts, found upon examination by Radial B.V., to be defective in material or workmanship or both. If any tool or part is replaced or repaired under the terms and conditions of this warranty, that tool or part will carry the remainder of the warranty from the date of original repair. To qualify for the above mentioned warranties, written notice to Radial B.V. must be given immediately upon discovery of such defect, at which time Radial B.V. will issue an authorization to return the tool. The defective tool must promptly be returned to Radial B.V., all freight charges prepaid. When returning a tool, the reaction arm(s) being used with the tool must also be returned.

8.3. Exceptions to warranty:

1. the defect, wholly or partly, is due to unusual, inappropriate, improper or careless use of a delivery;
2. the defect, wholly or partly, is due to normal wear and tear or lack of proper maintenance;
3. the defect, wholly or partly, is due to installation, assembly, modification and/or repair by the Customer or by third parties;
4. the delivery is altered, modified, used or processed;
5. the delivery is transferred to a third party;
6. Radial B.V. has obtained the tool, wholly or partly, from a third party, and Radial B.V. cannot claim compensation under warranty;
7. Radial B.V. in manufacturing of the tool, has used raw materials, and suchlike on the instructions of the Customer;
8. the tool has a small deviation in its quality, finishing, size, composition and suchlike, which is not unusual in the industry or if the defect was technically unavoidable;
9. the Customer has not promptly and correctly fulfilled all obligations under the agreement towards Radial B.V..

For an up-to-date version of our warranty see, radialtorque.eu/en/general-terms-and-conditions/

9. Contact

Radial Torque Tools B.V.

Zuidergracht 17
3763 LS Soest

Phone: +31(0) 35-5882450
Website: www.radialtorque.eu



**MASTER DISTRIBUTOR FOR EUROPE,
CENTRAL ASIA AND NORTH AFRICA:**

RADIAL Torque Tools B.V.

ZUIDERGRACHT 17

3763 LS SOEST

THE NETHERLANDS

Phone: +31 (0) 35 588 24 50

E-MAIL: SALES@RADIALTORQUE.EU

TECHSUPPORT@RADIALTORQUE.EU

WWW.RADIALTORQUE.EU