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CHRISTIE
TOTAL TORQUE SOLUTIONS

BATTERY TORQUE WRENCH (BC-RAD-X)

USER GUIDE



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INTRODUCTION

The BC-RAD-X Battery Torque Wrench is a handheld, battery driven reversible non-impacting torque delivery power tool intended to tighten and un-tighten nuts, bolts and threaded fasteners.

The BC-RAD-X Electrical torque wrench must always be used with the following:-

- Battery Pack Supplied
- Impact Quality Sockets
- Ring and pin fastener system (or similar)
- Reaction Arm
- 240V or 110V electrical battery charger (dependant on model purchased)

If the intended use is other than for nuts, bolts and threaded fasteners contact W. Christie (Industrial) LTD for guidance.

It is the responsibility of the user to consider associated site risks before introducing the equipment into the work-place.

TRAINING REQUIREMENTS

Training on the correct use of the BC-RAD-X Battery Torque Wrench is available. Please contact W. Christie (Industrial) LTD for more information.

GENERAL SAFETY

The improper use of the BC-RAD-X Battery Torque Wrench is unsafe and may result in personal injury. It is important that operators have read, understood and comply with all instructions in this user guide.

Operators must be equipped with the following personal protective equipment (PPE):

- Eye Protection (Safety Glasses / Goggles)
- Safety Footwear (Steel Toe Cap Boots)
- Heavy Gloves

Impact quality sockets must be secured to the tool square drive by means of a ring and pin combination.

Only use BC-RAD-X Wrenches with impact quality sockets. Do not use with extension bars or universal joints.

Do not use in the presence of explosive gases or liquids - fire/explosion hazard

Only use BC-RAD-X wrench battery charger with 240v or 110v electrical power supply (dependant on model purchased)

To prevent entanglement with rotating parts operators must not wear loose clothing, ties, jewellery etc... Long hair must be tied back.

Always keep hands, fingers and body parts clear of the reaction arm at all times. Trapping in this area can result in serious personal injury.

All equipment and ancillary products should be inspected for damage and irregularities prior to use. If in doubt **do not use**.

IMPORTANT:- BC-RAD-X WRENCHES RELY ON AN INTERNAL CLUTCH TO REGULATE TORQUE OUTPUT. AS THE CLUTCH WEARS, TORQUE OUTPUT MAY VARY. IT IS STRONGLY ADVISED THAT WHEN USING BC-RAD-X WRENCHES FOR ANY BOLTING WORK, TOOLING IS CHECKED FOR TORQUE ACCURACY ON SUITABLE TEST EQUIPMENT PRIOR TO USE. FOR APPLICATIONS OF A CRITICAL NATURE, BC-RAD-X WRENCHES MUST BE TORQUE CHECKED DAILY.

W. CHRISTIE (INDUSTRIAL) LTD OFFER A TORQUE CHECKING SYSTEM (RUN DOWN FIXTURE) FOR SALE OR HIRE TO MONITOR THE TORQUE OUTPUT OF ALL TORQUE TOOLS BETWEEN ANNUAL CALIBRATION DATES.

BATTERY PACK SAFETY

Do not attempt to charge a fully charged battery pack. Disconnect immediately if there is any sign of smoke or flames.

- Keep battery packs dry at all times.
- Do not store in direct sunlight.
- Do not expose to fire or immerse in water.
- Do not attempt to open or break into the battery pack.
- Do not touch contacts or terminals or attempt to short circuit them.
- Do not dispose of battery pack with domestic waste.

CAUTION: If battery fluid leaks out and comes into contact with skin, rinse immediately with cold water.

If battery fluid comes into contact with eyes, wash them immediately with clean water and seek immediate medical advice.

BC-RAD-X WRENCH MODELS COVERED BY MANUAL

| Model | Weight (Kg) | Speed (RPM) | | Torque Range (Nm) | | Square Drive |
|-------------|-------------|-------------|--------|-------------------|---------|--------------|
| | | Single | Auto 2 | Minimum | Maximum | |
| BC-RAD 1X | 3.8 | 40 | N/A | 40 | 95 | 3/4" |
| BC-RAD 7X | 3.7 | 4.7 | N/A | 300 | 675 | 3/4" |
| BC-RAD 7XA | 4.5 | N/A | 28.9 | 300 | 675 | 3/4" |
| BC-RAD 14X | 4.0 | 2.7 | N/A | 550 | 1,350 | 3/4" |
| BC-RAD 14XA | 4.9 | N/A | 11.5 | 550 | 1,350 | 3/4" |
| BC-RAD20X | 4.2 | 1.8 | N/A | 800 | 2,000 | 1" |
| BC-RAD20XA | 5.1 | N/A | 9.4 | 800 | 2,000 | 1" |

NOISE & VIBRATION LEVELS

NOISE: Equivalent continuous A weighted sound pressure level is less than 85 dB(A).

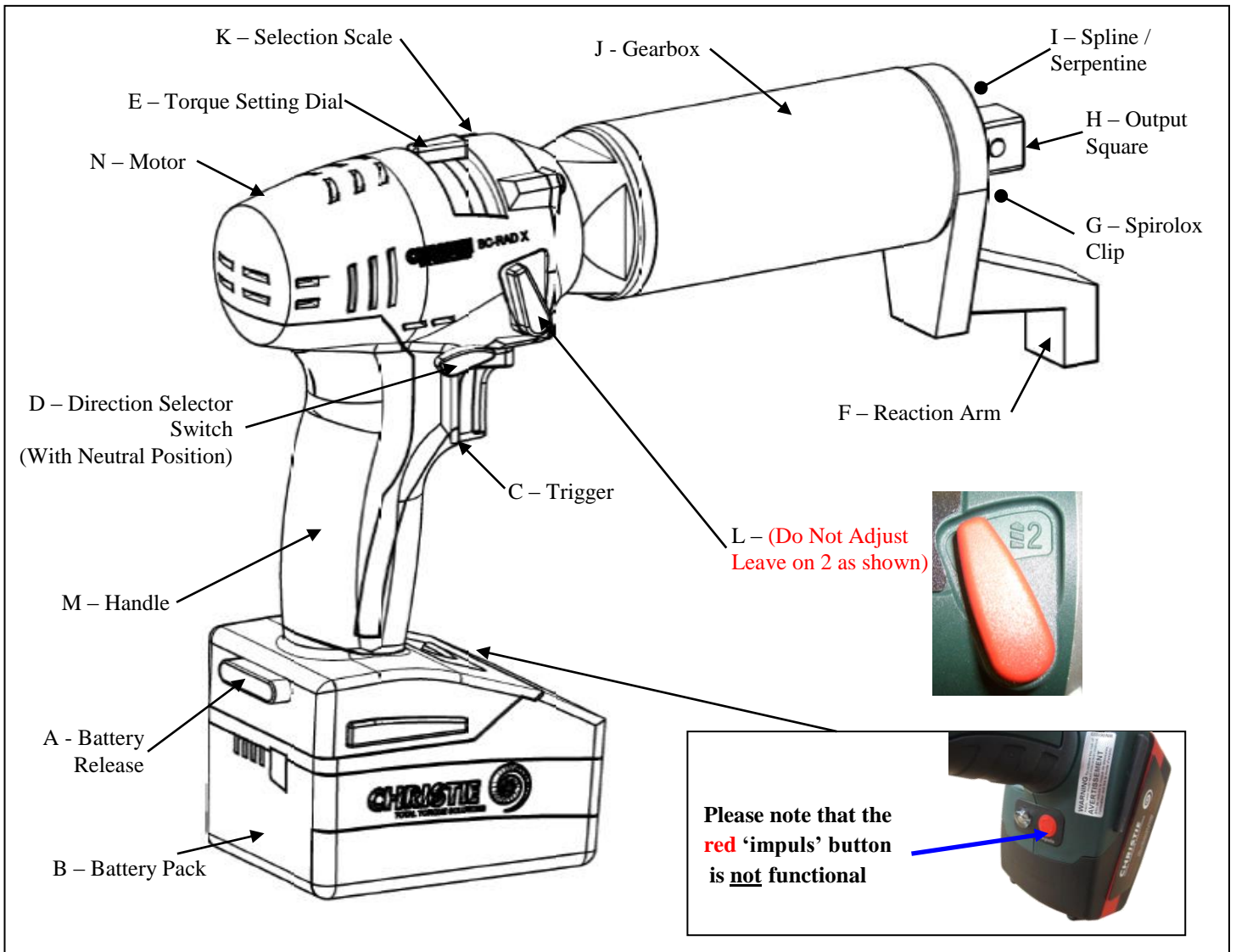
VIBRATION: Vibration level at handle does not exceed 2.5m/sec.

ACCESSORIES AVAILABLE TO BUY OR HIRE

The following accessories are available upon request and can be custom made to suit requirements. Please contact W. Christie (Industrial) LTD for more information:-

- Special Reactions.
- Nose Cone Extension.
- Offset Gearbox.
- Impact Quality Sockets.
- Torque Checking System (Run Down Fixture)

BC-RAD-X WRENCH FEATURES



TORQUE REACTION

When the Christie BC-RAD-X wrench 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 Below).

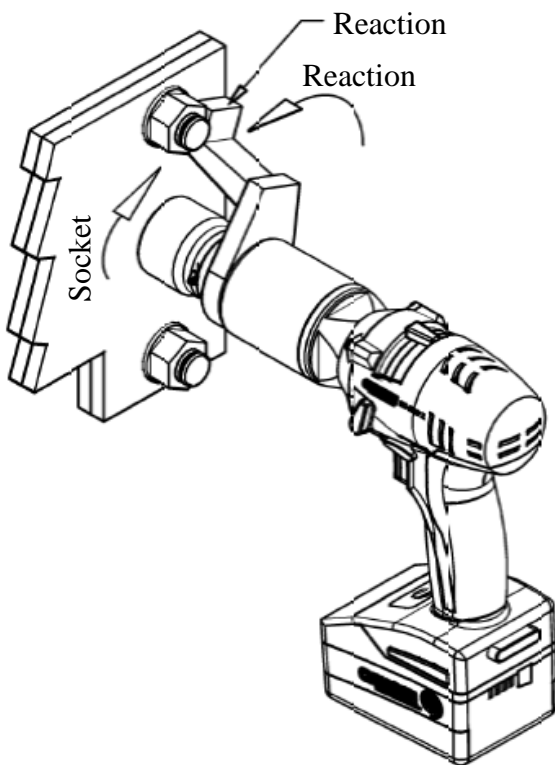
Ensure the Reaction Arm is NOT resting on a sloping or bevelled face.

SPECIAL NOTICE: TIGHT FASTENERS

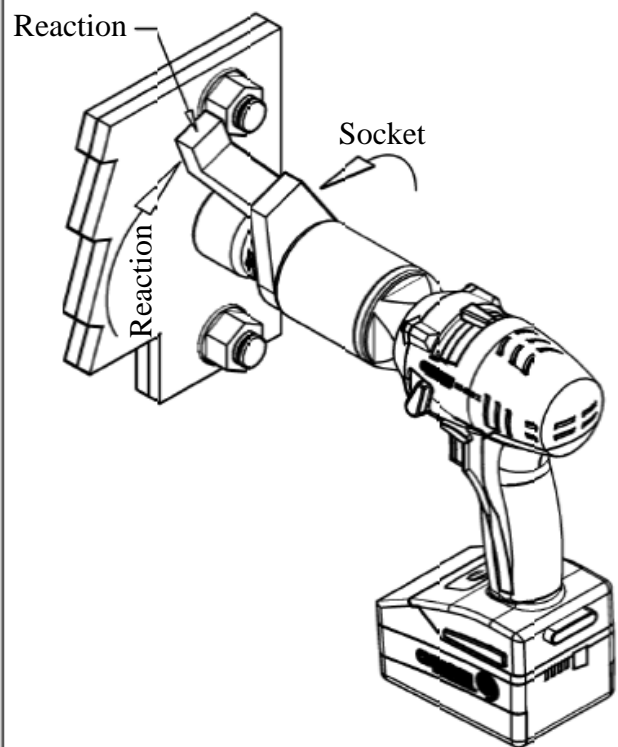
When tightening or releasing tight fasteners, the torque required to move the nut may be high enough to keep the reaction locked in one position. This can cause the reaction plate to bend or cause gearbox failure. To prevent failure, re-position the reaction plate after every two turns of the fastener, i.e operate the tool briefly in the opposite direction.

TRAPPING HAZARD:-

Always keep hands, fingers and body parts clear of the reaction arm when the tool is in use or trapping injury will result



Clockwise Operation

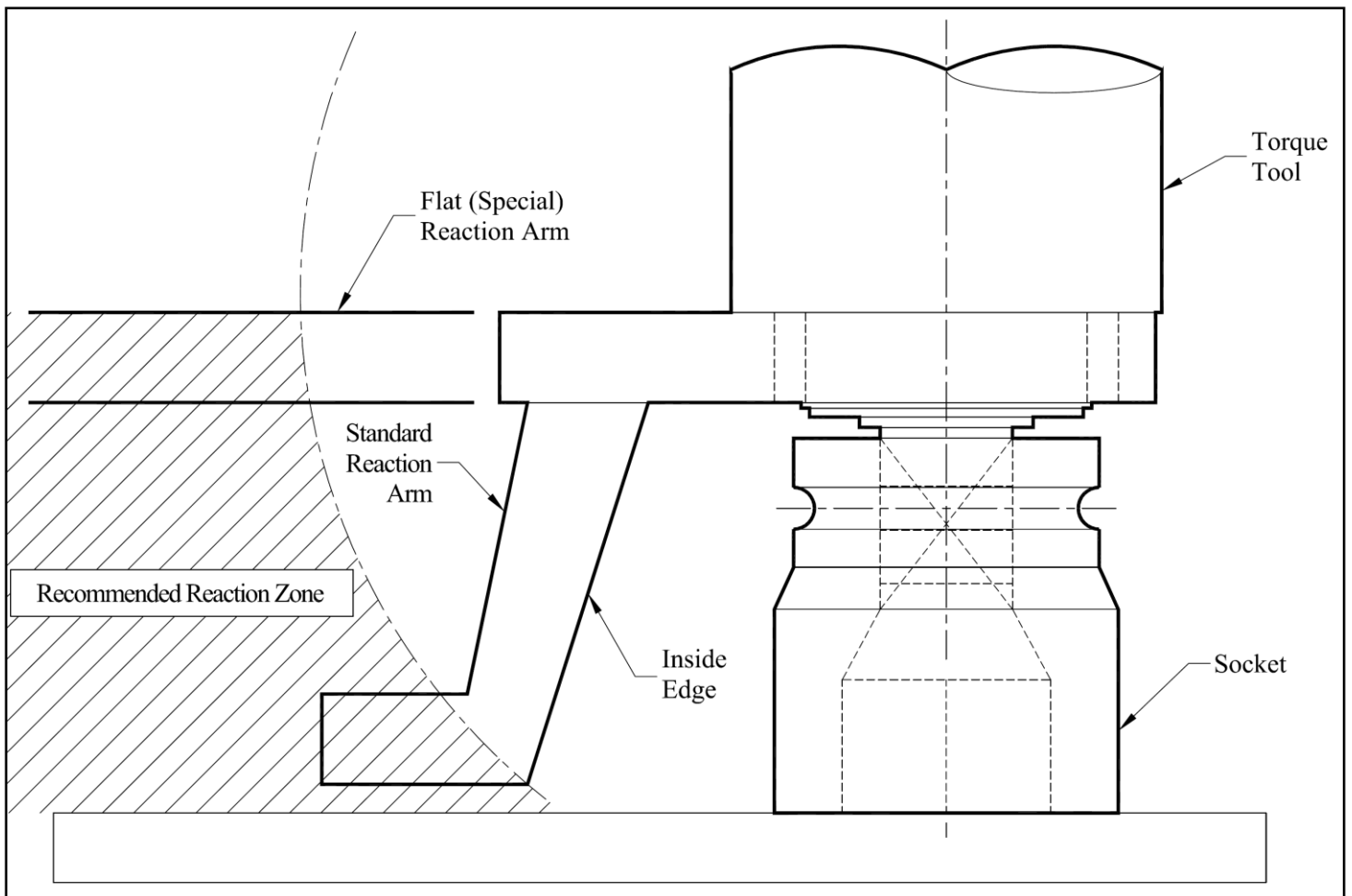


Counter Clockwise Operation

SAFE REACTION ZONE

Care must be taken to ensure that the reaction arm is only used within the limitations shown in the figure below. Failure to observe this instruction will result in premature wear or damage to the wrench. Do not react on the reaction arm vertical crank or inside edge. Extreme forces are created which may cause damage to the wrench. If the application does not allow the use of a standard reaction arm, non-standard reaction arms are available.

Customers must not modify reaction arms and are strongly advised to contact W. Christie (Industrial) LTD technical assistance.



SETTING TORQUE FOR BOLT TIGHTENING

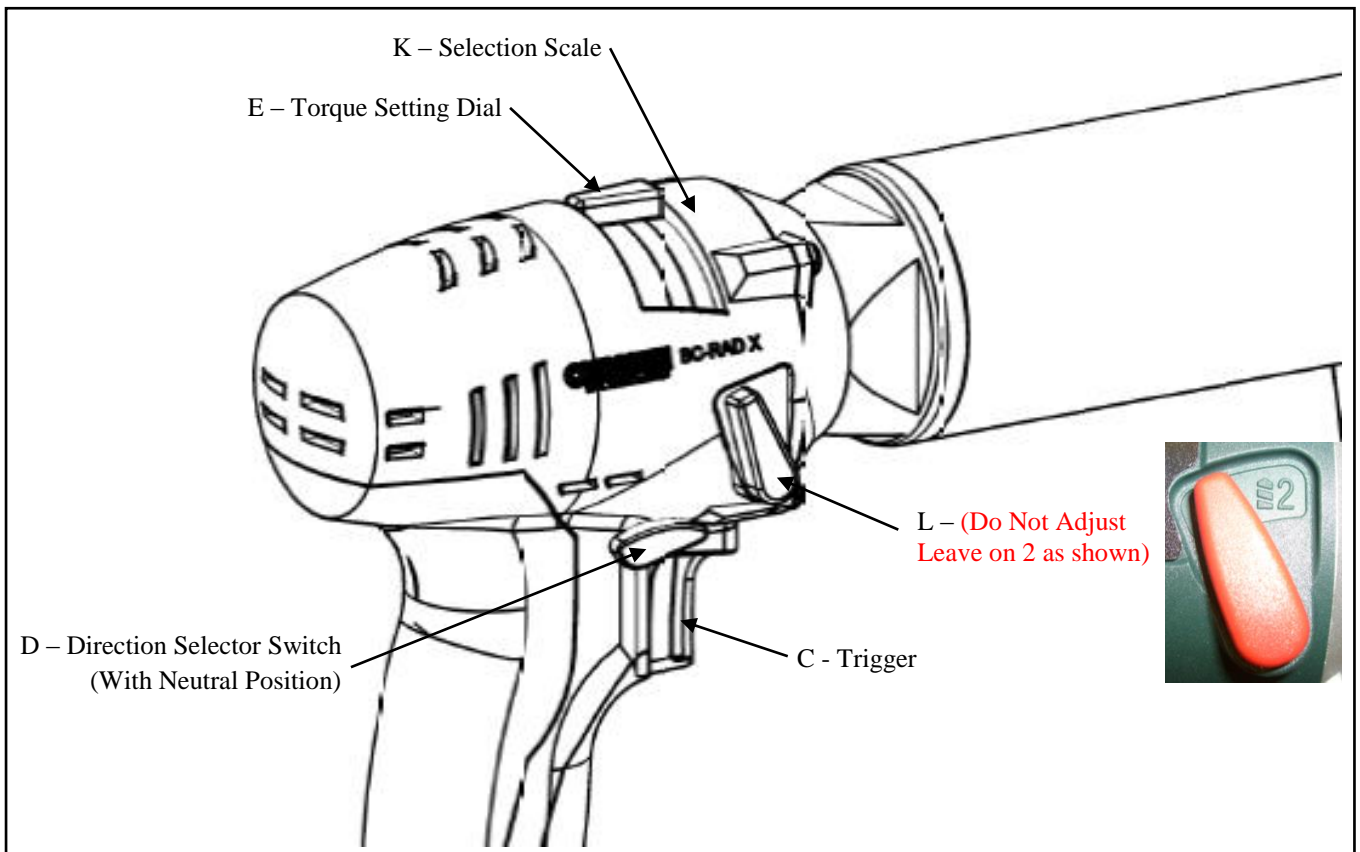
- 1) Ensure The battery pack and reserve battery are fully charged (see “Battery Charging” section)
- 2) Set the Direction Selector Switch (D) to forward.
- 3) Identify the torque required for the bolting application.
 - The BC-RAD Wrench comes with a torque calibration certificate. This document displays the settings that are selected using the Torque Setting Dial (E) and viewed on the Selection Scale (K)
 - For example on the “Sample BC-RAD-X Calibration Certificate shown right, to tighten to 316Nm move the Torque Setting Dial (E) until the number 4 is lined up on the Selection Scale (K)

| Setting | Torque |
|---------|--------|
| 1 | 135 |
| 2 | 195 |
| 3 | 256 |
| 4 | 316 |
| 5 | 377 |
| 6 | 438 |
| 7 | 500 |

CAUTION: Do Not Attempt to run the tool with settings that are not displayed on the torque calibration certificate. Failure to do so could cause the tool to fail and void your warranty

SETTING TORQUE FOR BOLT LOOSENING

- 1) Set the Direction Selector Switch (D) to reverse.
- 2) Set the torque to maximum.
 - For example on the “Sample BC-RAD-X Calibration Certificate shown top right, to tighten to maximum torque dial the Torque Setting Dial (E) until the number 7 is lined up on the Selection Scale (K)



OPERATING THE WRENCH

- 1) Fit the wrench with the correct size impact socket to suit the bolt to be tightened and retain with ring and pin system
- 2) Rotate the handle to convenient position relative to the reaction arm.
- 3) Fit the tool onto the bolt to be tightened / un-tightened with the reaction arm adjacent to the reaction point (See “Torque Reaction” Section)
- 4) Move the Direction Selector Switch (D) from the neutral position and into either forward or reverse as required.
- 5) Squeeze the Trigger (C) to bring the reaction arm into contact with the reaction point.
- 6) Fully press the Trigger (C) and keep pressed until the clutch slips producing a pronounced ratcheting sound. When this happens release the Trigger (C) **Immediately**. If the trigger is released before the wrench clutch slips, full torque will not be applied to the bolt. Once the clutch slips do not “blip” the trigger, or incorrect torque will be applied. Damage to tooling will result if the clutch is allowed to slip for extended periods of time.
- 7) In use this tool must be supported at all times in order to prevent unexpected release of a fastener or component failure.
- 8) If during the un-tightening process the fastener does not release, and the clutch slips continuously, a tool of greater torque capacity must be used. Damage to tooling will result if the clutch is allowed to slip for extended periods of time.
- 9) If during tightening or un-tightening the tool stops rotating, but no ratcheting sound is heard from the clutch, the torque has **Not** been achieved. Release the trigger and replace or recharge the battery and re-tighten the fastener(s).
- 10) Remove tool from bolt.

IMPORTANT: For applications of a critical nature, BC-RAD-X wrenches must be torque checked daily.

If breakdown, malfunction or damage occurs do not attempt to repair, contact w. Christie (Industrial) LTD immediately on +44 (0)1709 55 00 88

MAINTENANCE AND RECALIBRATION

To prevent premature failure and ensure confidence in torque supply, it is recommended that this equipment is serviced and calibrated at least on an annual basis, by W. Christie (Industrial) LTD.

There are no user serviceable parts. If any failures, breakdown, malfunction or damage occurs do not attempt to repair, contact W. Christie (Industrial) LTD immediately on +44 (0)1709 55 00 88

W. Christie (Industrial) LTD Offer a torque checking system (run down fixture) for sale or hire to monitor the torque output of all torque tools between annual calibration dates.

BATTERY CHARGING / CHANGING

- To remove the Battery Pack (B) from the BC-RAD-X wrench press the Battery Release button on the rear of the tool handle and pull the battery pack (B) from the Wrench.
- To install a new Battery Pack (B) to the BC-RAD-X wrench push the battery back into the wrench handle until it clicks in place.

NOTE: If the battery pack or charger appear damaged do not use

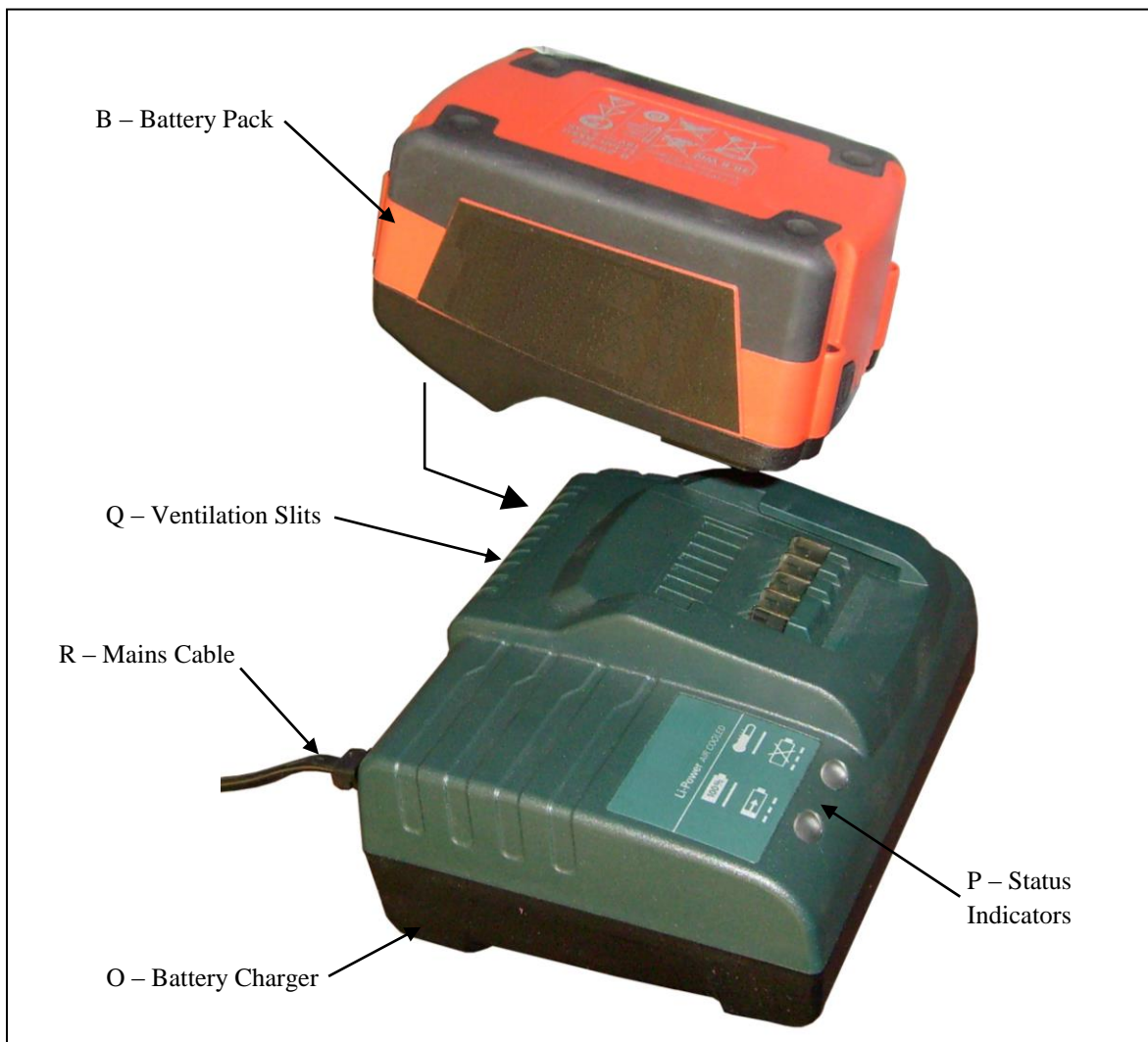
- Plug the Battery Charger (O) into an appropriate mains power supply (see charger base for voltage)
- Insert the Battery Pack (B) into the Battery Charger (O) (see figure below) ensure it is pushed fully home.

Temperature range for charging: 0°C - 50°C

Maximum charging cycles: 2,000

Charging Status Indicators (P) on the Battery Charger (O) show charging status

- Flashing green light – Battery is charging.
- Permanent green light – Battery is charged.
- Flashing red light – incorrect or defective battery.
- Permanent red light – battery too hot for charging.





E.C. DECLARATION OF CONFORMITY

MODELS COVERED: BC-RAD1X, BC-RAD7X, BC-RAD7XA,
BC-RAD14X, BC-RAD14XA,
BCRAD20X, BC-RAD20XA

DESCRIPTION: Battery Torque Wrench

We hereby declare that the following machinery complies with the essential health and safety requirements of the European Machinery Directive 2006/42/EC published on the 9th June 2006

W Christie (Industrial) Ltd, Meadowbank Road, Rotherham S61 2NF, United Kingdom.

This machinery has been designed and manufactured in accordance with the following transposed harmonised European Standard:-

BS EN ISO 12100-2:2003 Safety of Machinery – Technical Principles

BS EN 60745-1:2006 Hand-held Motor Operated Electric Tools – Safety – General Requirements

SIGNED:

A handwritten signature in black ink, appearing to read "R. G. Askham", is written over a horizontal line.

POSITION: Senior Applications Engineer

NAME:

R. G. Askham

On behalf of W Christie (Industrial) Ltd



Site Assessment



Tool Maintenance & Calibration



Bespoke Engineering



Sockets & Ancillaries



Training



Hand Held Torque Tools



Offset Gearboxes



Hydraulic Torque Tools



In-house CNC Facilities



Storage Trolleys & Boxes

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