Calibration Procedure

ControlTech™ Micro

ELECTRONIC TORQUE-ANGLE WRENCH

SAFETY INSTRUCTIONS

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IMPORTANT SAFETY INSTRUCTIONS

WARNING *Risk of flying particles.*

Over-torquing can cause breakage. Force against flex stops on flex head can cause head breakage. An out of calibration angle wrench can cause part or tool breakage. Broken hand tools, sockets or accessories can cause injury. Excess force can cause crowfoot or flare nut wrench slippage.

- ❑ **Read this manual completely** before using the ELECTRONIC WRENCH.
- ❑ To insure accuracy, work must not move in angle mode.
- ❑ For personal safety and to avoid wrench damage, follow good professional tool and fastener installation practices.
- ❑ Periodic recalibration is necessary to maintain accuracy.

- ❑ **Wear safety goggles, user and bystanders.**
- ❑ Be sure all components, including all adaptors, extensions, drivers and sockets are rated to match or exceed the torque being applied.
- ❑ Observe all equipment, system and manufacturer's warnings, cautions and procedures when using this wrench.
- ❑ Use the correct size socket for the fastener.
- ❑ Do not use sockets showing wear or cracks.
- ❑ Replace fasteners with rounded corners.
- ❑ **To avoid damaging the wrench:** Never use the wrench with the power off. Always turn ON the wrench so the applied torque is being measured.

- ❑ Do not press Power button while torque is applied or while the wrench is in motion.
- ❑ Never use this wrench to break fasteners loose.
- ❑ Do not use extensions, such as a pipe, on the handle of the wrench.
- ❑ Check that the wrench capacity matches or exceeds each application before proceeding.
- ❑ Verify calibration if dropped.
- ❑ Make sure the ratchet direction lever is fully engaged in the correct position.
- ❑ Verify the calibration of the wrench if you know or suspect its capacity has been exceeded.
- ❑ Do not force the head of flex head drives against stops.
- ❑ Always pull - do not push - on the wrench handle and adjust your stance to prevent a possible fall should something give.

WARNING *Electrical Shock Hazard.*

Electrical shock can cause injury. Metal handle is not insulated.

Do not use on live electrical circuits.

SAVE THESE INSTRUCTIONS

TORQUE CALIBRATION CHECK

In order to check the electronic torque wrench calibration, a horizontal bench top hand-crank loader must be used which has a minimum accuracy of ± 0.5%.

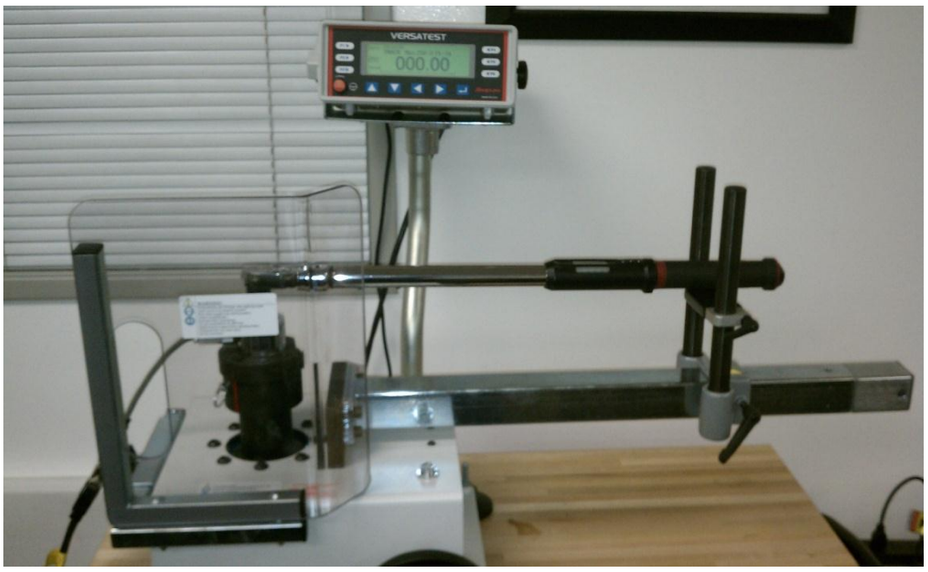


Figure 1 – Torque Calibration Stand

The calibration should be performed by an Authorized Snap-on Repair Center or Certified Calibration Laboratory.

- Make sure the torque tester is in the “PEAK MODE”.

1. From the main screen, press and hold the Enter key for three seconds. The User choices menu will be displayed.
2. Scroll to the CONFIGURE menu selection by pressing the Up key two times:

CONFIGURE
EXIT
SET HEAD LENGTH

3. Press the Enter key to display the Configure menu:

EXIT
MODE SETUP
PRESET LOCK

4. Scroll to the CALIBRATION menu selection using the Up/Down keys:

PRESET LOCK
JOB MODE
CALIBRATION

1. Press the Enter key to display the Password Entry screen:

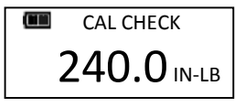
ENTER PASSWD
9 1 7 4 8

2. Enter the password: 91748 by pressing the Up or Down keys to increment/decrement the highlighted digit, followed by the Enter key after each digit is set.
3. Following the entry of the last password digit, the Calibration menu will be displayed:

EXIT
CAL TORQUE
CAL ANGLE

5. Use the Down key to highlight the CHECK TORQUE menu selection:

6. Press the Enter key to display the Cal Check screen:



7. Exercise the wrench 5 times to rated capacity in the CW direction
8. Remove the wrench from the tester and press the Power key on the wrench. Press the F1 key on the torque indicator to zero tare the transducer. Be sure the torque wrench is not on the loader during the zero tare process.
9. Apply clockwise torque until the wrench indicates exactly 20% of full scale.
10. Verify the torque tester reads ±2% of the 20% value.
11. Apply clockwise torque until the wrench indicates exactly 60% of full scale.
12. Verify the torque tester reads ±2% of the 60% value.
13. Apply clockwise torque until the wrench indicates exactly 100% of full scale.
14. Verify the torque tester reads ±2% of the 100% value.
15. Exercise the wrench 5 times to rated capacity in the CCW direction.
16. Remove the wrench from the tester and press the Power key on the wrench. Press the F1 key on the torque indicator to zero tare the transducer. Be sure the torque wrench is not on the loader during the zero tare process.
17. Apply counter-clockwise torque until the wrench indicates exactly 20% of full scale.
18. Verify the torque tester reads ±3% of the 20% value.
19. Apply counter-clockwise torque until the wrench indicates exactly 60% of full scale.
20. Verify the torque tester reads ±3% of the 60% value.
21. Apply counter-clockwise torque until the wrench indicates exactly 100% of full scale.
22. Verify the torque tester reads ±3% of the 100% value.
23. Press the Enter key to exit the CAL CHECK screen.

Note: If the wrench "As Found" condition is within specification, the calibration date can be updated by skipping to the SET CALIBRATION DATE section below. Otherwise, the calibration date will be updated by during the TORQUE CALIBRATION procedure.

TORQUE CALIBRATION

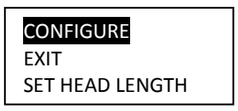
In order to calibrate the electronic torque wrench, a horizontal bench top hand-crank loader must be used which has a minimum accuracy of ± 0.5%.

The calibration should be performed by an Authorized Snap-on Repair Center or Certified Calibration Laboratory.

- Make sure the torque tester is in the "PEAK MODE".
- Note the ratchet head dimension if interchangeable.

1. From the main screen, press and hold the Enter key for three seconds. The User choices menu will be displayed.

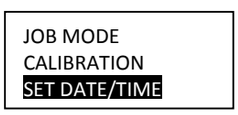
2. Scroll to the CONFIGURE menu selection by pressing the Up key two times:



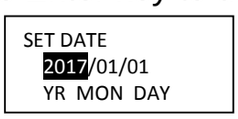
3. Press the Enter key to display the Configure menu:

Note: The Wrench real-time-clock Date is stored in non-volatile memory during torque calibration. The stored date is used to calculate the next calibration interval. If the clock has already been set, skip to step 12.

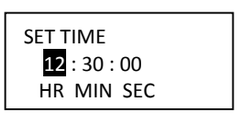
4. Scroll to the SET DATE/TIME menu selection using the Up/Down keys:



5. Press the Enter key to display the Set Date screen:

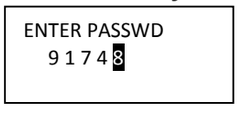


6. Set the year by incrementing or decrementing the value using the Up/Down keys then press the Enter key to accept the year and highlight the month value.
7. Set the month by incrementing or decrementing the value using the Up/Down keys then press the Enter key to accept the month and highlight the day value.
8. Set the day by incrementing or decrementing the value using the Up/Down keys then press the Enter key to accept the day and display the Set Time screen:



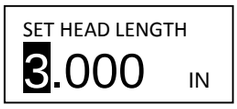
9. Set the hour by incrementing or decrementing the value using the Up/Down keys then press the Enter key to accept the hour and highlight the minutes value.
10. Set the minutes by incrementing or decrementing the value using the Up/Down keys then press the Enter key to accept the minutes and highlight the seconds value.
11. Set the seconds by incrementing or decrementing the value using the Up/Down keys then press the Enter key to accept the seconds and display the Configure screen.
12. Scroll to the CALIBRATION menu selection:

13. Press the Enter key to display the Password Entry screen:



14. Enter the password: 91748 by pressing the Up or Down keys to increment/decrement the highlighted digit, followed by the Enter key after each digit is set.
15. Following the entry of the last password digit, the Calibration menu will be displayed:

16. Press the Up key to scroll to the CAL TORQUE selection then press the Enter key.
17. If the wrench is an Interchangeable head type, the Set Head Length screen will be displayed: Otherwise skip to step 20.



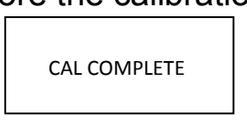
18. If the displayed length is the same for the head to be used, press the Enter key four times to use the default value and skip to step 20.
19. Set the length of the head used for calibration using the Up or Down keys to increment/decrement the highlighted digit. Press the Enter key to highlighted the next digit and press the Enter key again after setting the final digit. Note: the length of the head is the dimension from the center of the drive to the center of the head locking pin.
20. The Zero Tare screen will be displayed:

21. Place the wrench on the torque tester.
22. Set the torque tester to “PEAK MODE”.
23. Exercise the wrench 3 times to rated capacity in the CW direction. Focus your attention on the tester indicator box when exercising the torque wrench.
24. Remove the wrench from the tester and press the Enter key on the torque indicator to zero tare the transducer. Press the Enter key on the torque wrench. Be sure the torque wrench is not on the loader and no stress is applied to the head during the zero tare process.
25. The calibration measurement screen will be displayed:

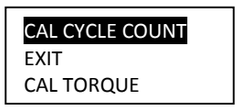
26. Place the wrench back on the torque tester and make sure the wrench is level.

Figure 2 - Wrench on Stand

27. Load the wrench to full scale torque within +/- 1% of the torque value shown on the indicator, then release the torque from the torque wrench (Note: indicator and wrench retain the peak readings).
28. Press the Up and Down keys on the wrench to adjust the wrench reading until the torque indicated by the wrench matches the torque indicated on the torque tester.
29. Once the two torque measurements match as close as possible, press the Enter key to store the calibration and a "CAL COMPLETE” message will be displayed:



30. Remove the torque load from the wrench and the Calibration menu will be displayed.
31. Use the UP key to scroll to the CAL CYCLE COUNT menu selection:



32. Press the Enter key to display the Cal Cycle Count screen:

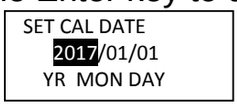
33. Use the Up key to highlight the CLEAR selection then press the Enter key.
34. Press the Enter key while the Exit selection is highlighted to return to the Calibration menu.
35. Repeat the CHECK TORQUE CALIBRATION section to verify the calibration.

SET CALIBRATION DATE

Note: If the wrench "As Found" condition is within specification, the Calibration date can be updated as follows:

1. Press the Up or Down key to scroll to the SET CAL DATE menu selection.

2. Press the Enter key to display the current date.



3. Set the year by incrementing or decrementing the value using the Up/Down keys then press the Enter key to accept the year and highlight the month value.
4. Set the month by incrementing or decrementing the value using the Up/Down keys then press the Enter key to accept the month and highlight the day value.
5. Set the day by incrementing or decrementing the value using the Up/Down keys then press the Enter key to accept the day and display the Calibration menu screen.

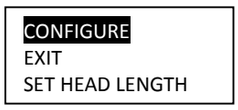
CHECK ANGLE CALIBRATION

Note: The wrench torque must be calibrated prior to angle calibration.

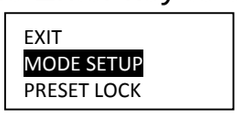
Note: This procedure requires an angle calibration fixture.

Figure 3 - Angle Calibration Fixture

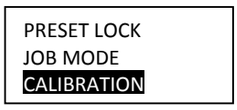
1. Tighten clutch pressure wheel to 10% of torque wrench rated capacity.
2. From the main screen, press and hold the ENTER key for three seconds. The User choices menu will be displayed.
3. Scroll to the CONFIGURE menu selection by pressing the Up key two times:



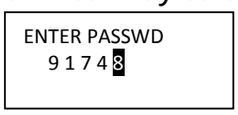
4. Press the Enter key to display the Configure menu:



5. Scroll to the CALIBRATION menu selection using the Up/Down keys:



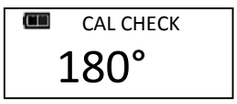
6. Press the Enter key to display the Password Entry screen:



7. Enter the password: 91748 by pressing the Up or Down keys to increment/decrement the highlighted digit, followed by the Enter key after each digit is set.
8. Following the entry of the last password digit, the Calibration menu will be displayed:

9. Use the Down key to highlight the CHECK ANGLE menu selection:

10. Press the Enter key to display the CAL CHECK screen:



11. Rotate the wrench 45 degrees in the clockwise direction and while maintaining torque on the wrench, verify the wrench reads within 42.5° to 47.5°.
12. Rotate the wrench another 45 degrees in the clockwise direction (90° total) and while maintaining torque on the wrench, verify the wrench reads within 87.1° to 92.9°.
13. Rotate the wrench another 45 degrees in the clockwise direction (135° total) and while maintaining torque on the wrench, verify the wrench reads within 131.6° to 138.3°.
14. Rotate the wrench another 45 degrees in the clockwise direction (180° total) and verify the wrench reads within 176.2° to 138.3°.
15. Release the torque on the wrench.
16. Rotate the wrench 45 degrees in the counter-clockwise direction and while maintaining torque on the wrench, verify the wrench reads within -42.5° to -47.5°.

17. Rotate the wrench another 45 degrees in the counter-clockwise direction (90° total) and while maintaining torque on the wrench, verify the wrench reads within -87.1° to -92.9°.
18. Rotate the wrench another 45 degrees in the counter-clockwise direction (135° total) and while maintaining torque on the wrench, verify the wrench reads within -131.6° to -138.3°.
19. Rotate the wrench another 45 degrees in the counter-clockwise direction (180° total) and verify the wrench reads within -176.2° to -138.3°.
20. Release the torque on the wrench.

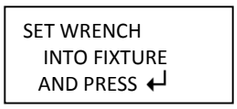
ANGLE CALIBRATION

Note: The wrench torque must be calibrated prior to angle calibration.

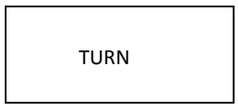
Note: This procedure requires an angle calibration fixture.

1. Highlight the CAL ANGLE menu selection by pressing the Down key:

2. Press the Enter key and the prepare tor angle calibration screen will be displayed:



3. Set the angle test fixture stops for 180 degree rotation.
4. Place the wrench in the angle test fixture.
5. Press the Enter key.
6. Hold the wrench steady while the angle re-zeros and verify the green LEDs turn on and the "TURN" prompt is displayed:



7. Release the index stop on the fixture and rotate the wrench 180 degrees in 6 seconds.

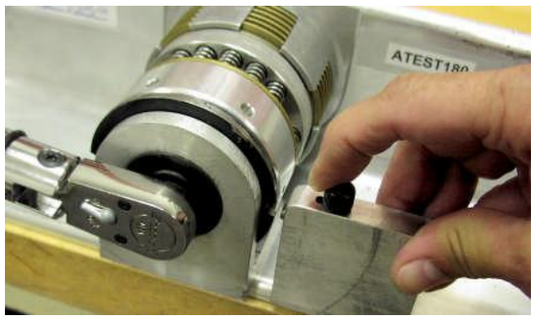


Figure 4 - Release index Stop

8. Press the Enter key and verify the green LEDs turn off and the "CAL COMPLETE" prompt is displayed:

9. Press the Enter key to return to the Calibration menu.
10. Repeat the CHECK ANGLE CALIBRATION section to verify the calibration.

MAINTENANCE / SERVICE

Contact your Snap-on sales representative for calibration or repair services.

CERTIFICATION

This torque-angle wrench was calibrated at the factory using angular displacement and torque measurement instruments that are traceable to the National Institute of Standards and Technology (N.I.S.T.). Torque parameters comply with ISO 6789-2003 and ASME B107.300-2010.
Note: No U.S. or International Standards exist for angle wrenches.

Clean the wrench by wiping with a damp cloth. Do NOT use solvents, thinners or carburetor cleaners. Do NOT immerse in anything. Service, repair and calibration are to be done by Snap-on Service Centers only. Contact your Snap-on Tools representative. Ratchet head repair can be done by Snap-on Representative or user.

NOTES

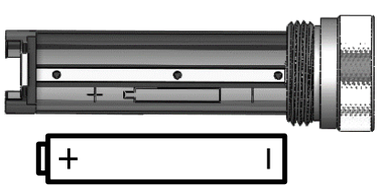
- DO NOT use the torque wrench when powered off.
- Make sure the ratchet adapter used with the torque wrench is engaged properly before using.
- Never force a ratchet adapter into the torque wrench Y-Shank receiver.
- If the display shows "ZEROTARE ERROR" at power on with no torque applied, the wrench is damaged and must be returned for repair.
- The wrench must be held still during angle mode reset. Motion is indicated by alternating segments of the display “- -”.
- Remove battery when stored for extended periods.

BATTERY REPLACEMENT

Note: When replacing batteries, real-time-clock will maintain date and time for 20 minutes.

Note: Turn End Cap counter-clockwise to unscrew.

Replace with Lithium "AA" cell only.



UNSCREW END CAP
INSERT NEW CELL
NEGATIVE (-) END
INTO END CAP

IMPORTANTES INSTRUCTIONS DE SECURITE

DANGER : *Risque de projection de particules.*

L'application d'un couple excessif peut entraîner une rupture. L'application d'une force sur les butées de la tête articulée peut entraîner une rupture de la tête. L'utilisation d'une clé mal étalonnée peut entraîner une rupture de la pièce ou de l'outil lui-même. Des outils, douilles ou accessoires endommagés peuvent provoquer des blessures. L'emploi d'une force excessive peut entraîner un glissement d'une clé « crowfoot » ou le glissement d'une clé d'écrou évasé.

- **Lire l'intégralité de ce manuel** avant d'utiliser la CLE ELECTRONIQUE.
- Lors du travail en mode d'angle, la pièce doit rester immobile afin de garantir la précision de l'outil.
- Afin de garantir votre sécurité personnelle, ainsi que pour éviter d'endommager la clé, suivre à la lettre les bonnes pratiques professionnelles de travail relatives à l'utilisation des outils et à l'installation de systèmes de fixation.
- Un ré-étalonnage périodique est nécessaire pour maintenir le niveau de précision.
- **L'utilisateur et les personnes situées à proximité doivent porter des lunettes de sécurité.**

- S'assurer que tous les composants, incluant tous les adaptateurs, prolongateurs, les douilles et les clés à douille supportent un couple égal ou supérieur au couple employé.
- Respecter scrupuleusement l'ensemble des avertissements, des recommandations de prudence ainsi que les procédures énoncées par le fabricant pour l'ensemble des équipements et des systèmes associés avant d'utiliser cette clé dynamométrique.
- Utilisez une douille de taille correcte pour le dispositif de fixation considéré.
- Ne pas utiliser de douilles qui présenteraient des signes d'usure ou des fissures.
- Remplacer les dispositifs de fixation si leurs angles sont arrondis.
- **Afin d'éviter d'endommager la clé :** ne jamais utiliser la clé lorsqu'elle est hors tension. Toujours METTRE LA CLE SOUS TENSION afin que le couple appliqué puisse être mesuré.

- Ne pas appuyer sur le bouton **« MARCHE/ARRET »** pendant une opération de serrage ou lorsque la clé est en mouvement.
- Ne jamais utiliser cette clé pour desserrer un système d'attache.
- Ne pas utiliser de prolongateur, tel que du tube creux, pour étendre la longueur du manche de la clé.
- Vérifier au cas par cas que la capacité de serrage de la clé est égale, ou dépasse, les besoins spécifiques à l'application considérée avant l'utilisation proprement dite.
- Vérifier l'étalonnage si l'outil fait une chute sur le sol.
- S'assurer que le levier de sélection de direction du cliquet est complètement engagé dans la bonne direction.
- Vérifier l'étalonnage de la clé si vous savez ou que vous suspectez qu'elle a été utilisée au-delà de ses spécifications.
- Ne pas forcer sur la tête ou forcer la tête pivotante contre les butées.
- Toujours tirer – ne jamais pousser – sur le manche de la clé et ajuster votre posture pour éviter une chute dans le cas d'une rupture.
- Ne jamais **tenter derecharger des piles alcalines**.
- Entreposer la clé dans un endroit sec.
- Retirer les piles avant d'entreposer la clé pour des périodes supérieures à 3 mois.

DANGER ***Risque de décharge électrique.***

Une décharge électrique peut entrainer des blessures. Le manche en plastique n'est pas isolé. Ne pas utiliser sur des circuits électriques sous tension.

CONSERVER CES INSTRUCTIONS

Dégagement de responsabilité

L'emploi de cette clé ControlTech™ n'est pas garanti à l'intérieur d'un état membre de l'Union Européenne si les instructions de fonctionnement ne sont pas dans la langue de l'état en question. Contacter Snap-on si vous avez besoin d'une traduction.

INSTRUCCIONES DE SEGURIDAD IMPORTANTES

ADVERTENCIA *Riesgo de partículas despedidas.*

El exceso de torsión puede provocar roturas. La fuerza ejercida contra los topes flexibles del cabezal flexible puede hacer que éste se rompa. Una llave acodada mal calibrada puede producir la rotura de la herramienta o de parte de ella. El uso de herramientas manuales, tubos o accesorios rotos pueden ocasionar lesiones. El exceso de fuerza puede causar que se suelten llaves crowfoot o para racores.

Lea **la totalidad de este manual** antes de utilizar la LLAVE ELECTRÓNICA.

- ❑ Para asegurar la precisión, el movimiento no debe realizarse en ángulo.
- ❑ Por motivos de seguridad personal y para evitar dañar la llave, siga las prácticas profesionales aceptadas para el uso de herramientas e instalación de piezas de fijación.
- ❑ Será necesario recalibrar la herramienta de forma periódica para asegurar su precisión.
- ❑ **Utilice gafas de seguridad, tanto para usted como para los observadores.**
- ❑ La capacidad nominal de todos los componentes, incluidos los adaptadores, las extensiones, los destornilladores y los tubos, deberá ser mayor o igual al par de torsión que se quiere aplicar.

- ❑ Cuando utilice la llave, respete todas las advertencias, precauciones y procedimientos del equipo, el sistema y el fabricante.
- ❑ Utilice un tubo del tamaño adecuado para la pieza de fijación.
- ❑ No use tubos desgastados o agrietados.
- ❑ Reemplace las piezas de fijación con esquinas redondeadas.
- ❑ **Para no dañar la llave:** nunca la use apagada. ENCIÉNDALA siempre para medir el par de torsión que se ejerce.

- ❑ No oprima el botón de **ENCENDIDO** mientras la llave aplica torsión o está en movimiento.
- ❑ No utilice la llave para extraer piezas de fijación atascadas.
- ❑ No utilice extensiones, como por ejemplo barras, en el mango de la llave.
- ❑ Antes de comenzar, compruebe que la capacidad nominal de la llave sea mayor o igual a la aplicación.
- ❑ Si se le cae la herramienta, verifique la calibración.
- ❑ Compruebe que la palanca de dirección del trinquete esté conectada en la posición correcta.
- ❑ Verifique la calibración si sabe o sospecha que se superó su capacidad.
- ❑ No fuerce el cuadradillo del cabezal flexible contra los topes.
- ❑ Tire (no empuje) del mango de la llave y ajuste la posición para no caerse si algo cede.
- ❑ No intente recargar las pilas alcalinas.
- ❑ Mantenga la llave en un lugar seco.
- ❑ Retire las baterías si no va a utilizar la llave por períodos superiores a 3 meses.

ADVERTENCIA *Riesgo de descarga eléctrica.*

Las descargas eléctricas pueden producir lesiones. El mango de plástico no está aislado. No utilizar en circuitos eléctricos activos.

CONSERVE ESTAS INSTRUCCIONES

Descargo de responsabilidad

El funcionamiento de la llave ControlTech™ no está garantizado en los países miembros de la UE si las instrucciones de funcionamiento no figuran en el idioma del país en cuestión. Póngase en contacto con Snap-on si necesita una traducción.

WICHTIGE SICHERHEITSHINWEISE

WARNUNG *Gefahr von herumfliegenden Partikeln.*

Ein Überdrehen kann zum Bruch führen. Gewalt gegen Flex-Stopper am Flex-Kopf kann zum Kopfbruch führen. Ein Drehwinkelschlüssel außerhalb der Kalibrierung kann zur Beschädigung des Werkstücks oder Werkzeugs führen. Defekte Hand-Werkzeuge, Stecknüsse oder Zubehörteile können zu Verletzungen führen. Übermäßige Kraftaufwendung kann zum Abrutschen des Hahnenfuß- oder Ringschlüssels führen.

- ❑ Vor dem Gebrauch des ELEKTRONISCHEN SCHLÜSSELS ist **diese Anleitung vollständig** durchzulesen.
- ❑ Um die Genauigkeit zu gewährleisten, darf sich das Werkstück im Winkelmodus nicht bewegen.
- ❑ Zur persönlichen Sicherheit und Vermeidung von Beschädigung des Schlüssels ist ein sorgfältiger Umgang mit Werkzeugen und Befestigungsmitteln erforderlich.
- ❑ Zur Erhaltung der Genauigkeit ist eine regelmäßige Kalibrierung notwendig.
- ❑ **Der Benutzer und umstehende Personen sollten Schutzbrillen tragen.**

- ❑ Sicherstellen, dass alle Komponenten einschließlich aller Adapter, Verlängerungen, Antriebsteile und Stecknüsse mindestens für die aufgewandten Drehmomente geeignet sind.
- ❑ Beim Gebrauch dieses Schraubenschlüssels sind alle Geräte-, System- und Hersteller-Warnhinweise, Vorsichtsmaßnahmen und Verfahren zu beachten.
- ❑ Eine Stecknuss der richtigen Größe für das Befestigungselement verwenden.
- ❑ Keine Stecknüsse mit Anzeichen von Verschleiß oder Rissen verwenden.
- ❑ Befestigungselemente mit abgerundeten Ecken ersetzen.
- ❑ **Zur Vermeidung von Schäden am Schlüssel:** Den Schlüssel keinesfalls im ausgeschalteten Zustand verwenden. Zuerst stets den Schlüssel einschalten, damit das aufgebrachte Drehmoment gemessen wird.

- ❑ Nicht die Taste **EIN/AUS** ⏻ betätigen, während ein Drehmoment aufgebracht wird oder der Schlüssel in Bewegung ist.
- ❑ Den Schlüssel keinesfalls zum Losbrechen von Befestigungselementen verwenden.
- ❑ Keine Verlängerungen, beispielsweise ein Rohr, am Griff des Schlüssels verwenden.
- ❑ Vor Gebrauch sicherstellen, dass die Kapazität des Schlüssels für den Anwendungsfall ausreichend ist.
- ❑ Wurde der Schlüssel fallen gelassen, muss die Kalibrierung überprüft werden.
- ❑ Sicherstellen, dass der Ratschenhebel vollständig in der richtigen Position (Richtung) arretiert ist.
- ❑ Die Kalibrierung des Schlüssels kontrollieren, falls seine Kapazität vermutlich überschritten wurde.
- ❑ Den Kopf von Flex-Kopfantriebsteilen nicht mit Gewalt gegen die Anschläge drehen.
- ❑ Stets am Schlüsselgriff ziehen – nicht drücken – und einen sicheren Stand einnehmen, um nicht zu stürzen, falls eine Komponente nicht standhält.
- ❑ Die Alkalibatterien nicht wiederaufzuladen versuchen.
- ❑ Den Schlüssel an einem trockenen Ort aufbewahren.
- ❑ Die Batterien entfernen, wenn der Schlüssel länger als 3 Monate gelagert werden soll.

WARNUNG *Gefahr eines elektrischen Schlags.*

Ein elektrischer Schlag kann zu Verletzungen führen. Der Kunststoffgriff ist nicht isoliert. Nicht an spannungsführenden Leitungen verwenden.

BEWAHREN SIE DIESE ANLEITUNG AUF

Haftungsausschluss

Es besteht keine Garantie für den Betrieb des ControlTech™ Schlüssels in einem EU-Mitgliedstaat, wenn die Betriebsanweisungen nicht in der betreffenden Landessprache abgefasst sind. Wenden Sie sich an Snap-on, wenn eine Übersetzung benötigt wird.

ISTRUZIONI CAUTELARI IMPORTANTI

AVVERTENZA *Pericolo di schegge vaganti.*

Un serraggio eccessivo può causare rotture. Forzando fermi flessibili contro teste duttili si corre il rischio di rompere le viti. Una chiave angolare calibrata erroneamente potrebbe provocare la rottura del pezzo in lavorazione o dell'utensile. Utensili manuali, bussole o accessori rotti possono provocare infortuni. Una forza eccessiva su dadi a croce o conici può causare lo slittamento della chiave.

- ❑ Leggere **attentamente questo manuale** prima di utilizzare la CHIAVE ELETTRONICA.
- ❑ Per garantire la precisione, il movimento di lavoro non deve essere angolare.
- ❑ Per la propria incolumità e per evitare di danneggiare la chiave, seguire le direttive di categoria per il serraggio delle viti e la meccanica professionale.
- ❑ Per mantenerne la precisione, è necessario ricalibrare l'utensile periodicamente.
- ❑ **È necessario che l'operatore e le persone circostanti indossino appositi occhiali di sicurezza.**
- ❑ Verificare sempre che tutti i componenti, compresi eventuali riduttori, prolunghe, alberini e bussole, siano omologati per una coppia uguale o superiore a quella applicata.

- ❑ Durante l'utilizzo di questo utensile, rispettare sempre tutte le indicazioni e istruzioni cautelari fornite dai rispettivi produttori di accessori e impianti.
- ❑ Per il serraggio, utilizzare sempre una bussola di dimensione adatta per quella vite.
- ❑ Non utilizzare bussole che presentino segni di usura o di rottura.
- ❑ Sostituire le viti con bordi smussati.
- ❑ **Per evitare di danneggiare la chiave:** non usare mai la chiave quando è spenta. Accenderla sempre per poter misurare la coppia di serraggio applicata a ogni uso.

- ❑ Non premere il tasto **ALIMENTAZIONE** quando la chiave è in tiro o in movimento.
- ❑ Non utilizzare mai questa chiave per allentare viti, dadi e bulloni.
- ❑ Non utilizzare prolunghe, come un tubo, sul manico della chiave.
- ❑ Prima di procedere, controllare che la portata della chiave corrisponda o superi quella richiesta per il lavoro.
- ❑ In caso di caduta accidentale, controllare la calibrazione.
- ❑ Controllare che la levetta di direzione del cricchetto sia ingranata nella posizione giusta.
- ❑ Controllare la calibrazione della chiave anche al solo sospetto che sia stata ecceduta la sua portata.
- ❑ Non forzare la testa di viti e bulloni duttili contro i fermi.
- ❑ Tirare sempre - e mai spingere - il manico della chiave e bilanciare la propria posizione in modo da rimanere sempre in equilibrio anche nell'eventualità di un cedimento.
- ❑ Non tentare di ricaricare le celle delle batterie alcaline.
- ❑ Conservare sempre la chiave in un luogo asciutto.
- ❑ Estrarre sempre le batterie quando si conserva una chiave per un periodo superiore a tre mesi.

AVVERTENZA *Rischio scosse elettriche.*

Le scosse elettriche possono causare infortuni. Il manico in plastica non è isolato.
Non utilizzare su circuiti elettrici sotto tensione.

CONSERVARE QUESTE ISTRUZIONI

ESONERO DI RESPONSABILITÀ:

Non si garantisce l'uso della chiave ControlTech™ nei Paesi membri della CEE dove le istruzioni per l'uso non sono in lingua locale. Contattare la Snap-on per l'eventuale traduzione.

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

WAARSCHUWING *Risico van wegvliegende fragmenten.*

Te ver aandraaien kan breuk veroorzaken. Forceren voorbij de flex-aanslagposities op de flex-kop kan leiden tot breuk van de kop. Een verkeerd gekalibreerde hoeksleutel kan breuk van onderdelen of gereedschappen veroorzaken. Defecte handgereedschappen, doppen en accessoires kunnen letsel veroorzaken. Bij gebruik van teveel kracht kan een steeksleutel of open ringsleutel slippen.

- ❑ Lees deze handleiding **helemaal** door voordat u de ELEKTRONISCHE SLEUTEL gebruikt.
- ❑ Voor een nauwkeurige prestatie mag het werkstuk in de hoekmodus niet bewegen.
- ❑ Volg voor uw persoonlijke veiligheid en om beschadiging van de sleutel te voorkomen altijd de juiste professionele methoden bij het gebruik van gereedschappen en de installatie van bevestigingsmateriaal.
- ❑ Voor het behoud van de nauwkeurigheid is regelmatige kalibratie vereist.
- ❑ **Draag een veiligheidsbril, dit geldt zowel voor gebruiker als omstanders.**
- ❑ Zorg dat alle componenten (inclusief verloopstukken, verlengstukken, schachten en doppen) ten minste zijn goedgekeurd voor het gebruikte koppel.

- ❑ Neem bij gebruik van deze sleutel alle waarschuwingen, aandachtspunten en procedures voor de apparatuur, voor het systeem en van de fabrikant in acht.
- ❑ Gebruik doppen van de juiste maat voor het bevestigingsmateriaal.
- ❑ Gebruik nooit doppen die versleten of gebarsten zijn.
- ❑ Vervang bevestigers waarvan de hoeken gestript zijn.
- ❑ **Voorkom beschadiging van de sleutel:** Gebruik de sleutel nooit terwijl hij is uitgeschakeld. Zet de sleutel altijd AAN zodat het uitgeoefende koppel wordt gemeten.

- ❑ Druk niet op **STROOM** ⏻ terwijl u iets aantrekt of terwijl de sleutel beweegt.
- ❑ Gebruik deze sleutel nooit om bevestigers met geweld los te halen.
- ❑ Gebruik geen verlengstukken (bijv. een stuk pijp) op de greep van de sleutel.
- ❑ Controleer of de capaciteit van de sleutel voldoende is voor het beoogde gebruik voordat u aan de slag gaat.
- ❑ Controleer de kalibratie als de sleutel is gevallen.
- ❑ Zorg dat de ratelrichtingspal goed in de juiste stand staat.
- ❑ Controleer de kalibratie van de sleutel als u weet of vermoedt dat de capaciteit ervan is overschreden.
- ❑ Druk de kop van sleutels met flexibele kop niet met kracht tegen aanslagen aan.
- ❑ Trek altijd aan de sleutelgreep (duw er niet tegen) en ga zo staan dat u niet kunt vallen als een onderdeel plotseling meegeeft.
- ❑ Probeer niet om de alkalicelbatterijen op te laden.
- ❑ Bewaar de sleutel op een droge plaats.
- ❑ Verwijder de batterijen als u de sleutel langer dan 3 maanden opbergt.

WAARSCHUWING *Gevaar van elektrische schokken.*

Elektrische schokken kunnen letsel veroorzaken. De kunststof greep is niet geïsoleerd.
Niet gebruiken op onder stroom staande circuits.

BEWAAR DEZE GEBRUIKSAANWIJZING

Disclaimer

Er geldt geen garantie voor het gebruik van de ControlTech™-sleutel in lidstaten van de EU als de gebruiksaanwijzing niet in de taal van het land in kwestie beschikbaar is. Neem contact op met Snap-on voor vertalingen.

INSTRUÇÕES DE SEGURANÇA IMPORTANTES

ATENÇÃO *Risco de projeção de partículas.*

O torque excessivo pode causar ruptura. Forçar os batentes flexíveis da cabeça flexível pode fazer com que esta se quebre. Uma chave de ângulo descalibrada pode quebrar peças ou ferramentas. Ferramentas manuais, soquetes ou acessórios quebrados podem causar ferimentos. A aplicação de força excessiva pode fazer com que chaves pé de galo ou chaves de porca aberta escorreguem.

- ❑ Leia **este manual completamente** antes de usar o TORQUÍMETRO ELETRÔNICO.
- ❑ Para garantir a precisão, não se deve movimentar o torquímetro no modo de ângulo.
- ❑ Para a segurança pessoal e para evitar danos ao torquímetro, siga as boas práticas profissionais para o uso de ferramentas e a instalação de peças de fixação.
- ❑ A recalibragem periódica é necessária para manter a precisão.
- ❑ **Use óculos de proteção, seja como usuário ou espectador.**
- ❑ Certifique-se de que todos os componentes, inclusive todos os adaptadores, extensões, chaves de fenda e soquetes, sejam regulados para aguentar o torque aplicado.

- ❑ Cumpra todos os avisos, cuidados e procedimentos de equipamentos, sistemas e fabricantes quando utilizar este torquímetro.
- ❑ Use um soquete de tamanho correto para a peça de fixação.
- ❑ Não utilize soquetes desgastados ou rachados.
- ❑ Substitua as peças de fixação com bordas arredondadass.
- ❑ **Para evitar danos ao torquímetro:** Nunca utilize o torquímetro desligado. Sempre LIGUE o torquímetro para que o torque aplicado seja medido.

- ❑ Não aperte o botão **LIGA/DESLIGA** ⏻ ao aplicar torque ou enquanto o torquímetro estiver em movimento.
- ❑ Nunca utilize o torquímetro para soltar peças de fixação.
- ❑ Não utilize extensões, como um cano, no punho do torquímetro.
- ❑ Verifique se o torquímetro é capaz de resistir a cada aplicação antes de prosseguir.
- ❑ Verifique a calibragem se a ferramenta cair.
- ❑ Certifique-se de que a alavanca de sentido da catraca esteja totalmente engatada na posição certa.
- ❑ Verifique a calibragem do torquímetro caso saiba ou suspeite que sua capacidade foi excedida.
- ❑ Não force o encaixe da cabeça flexível contra batentes.
- ❑ Sempre puxe (não empurre) o punho do torquímetro e ajuste sua postura para impedir uma possível queda caso algo ceda.
- ❑ Não tente recarregar as pilhas alcalinas.
- ❑ Guarde o torquímetro em local seco.
- ❑ Remova as pilhas quando for guardar o torquímetro por mais que 3 meses.

AVISO *Risco de choque elétrico.*

O choque elétrico pode causar ferimentos. O punho plástico não é isolante. Não utilize em circuitos elétricos energizados.

GUARDE ESTAS INSTRUÇÕES

Aviso de isenção de responsabilidade

A operação do torquímetro ControlTech™ não é permitida em nenhum Estado-membro da União Europeia se as instruções operacionais não estiverem no idioma do Estado em questão. Entre em contato com a Snap-on se uma tradução for necessária.

AUTHORIZED SNAP-ON REPAIR CENTERS

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Eastern Repair Center
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Phone: 815-479-6850
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Western Repair Center
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Carson City, NV 89706-0753
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IMPORTANT ENVIRONMENTAL NOTES:

1. THIS EQUIPMENT MAY CONTAIN HAZARDOUS MATERIALS WHICH CAN BE HARMFUL TO THE ENVIRONMENT.
2. DO NOT DISPOSE OF THIS EQUIPMENT AS MUNICIPAL WASTE. RETURN IT TO DISTRIBUTOR OR A DESIGNATED COLLECTION CENTER

THANK YOU FOR CARING ABOUT OUR ENVIRONMENT!

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