

# OPERATION AND MAINTENANCE MANUAL FOR MODELS EL0410B, EL0410BC, EL1007B, EL1007BC and EL0109B ELECTRIC SCREWDRIVERS

## NOTICE

Series EL Electric Screwdrivers are designed for installing threaded fasteners in light industrial and appliance manufacturing applications. Ingersoll-Rand is not responsible for customer modification of tools for applications on which Ingersoll-Rand was not consulted.

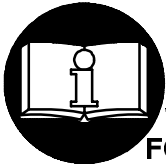
## ⚠ WARNING

### IMPORTANT SAFETY INFORMATION ENCLOSED.

READ ALL THESE INSTRUCTIONS BEFORE PLACING TOOL IN SERVICE OR OPERATING THIS TOOL AND SAVE THESE INSTRUCTIONS.

IT IS THE RESPONSIBILITY OF THE EMPLOYER TO PLACE THE INFORMATION IN THIS MANUAL INTO THE HANDS OF THE OPERATOR.

FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY. WHEN USING ELECTRIC TOOLS, BASIC SAFETY PRECAUTIONS SHOULD ALWAYS BE FOLLOWED TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK AND PERSONAL INJURY, INCLUDING THE FOLLOWING.



#### PLACING TOOL IN SERVICE

- Use only with EC24N Controllers.
- Always operate, inspect and maintain this tool in accordance with all regulations (local, state, federal and country), that may apply to hand held/hand operated electric tools.
- Inspect tool cords periodically and if damaged, have them repaired by an authorized service facility. Inspect extension cords periodically and replace if damaged.
- Do not remove any labels. Replace any damaged label.

#### USING THE TOOL

- Always wear eye protection when operating or performing maintenance on this tool.
- Power tools can vibrate in use. Vibration, repetitive motions, or uncomfortable positions may be harmful to your hands and arms. Stop using any tool if discomfort, tingling feeling or pain occurs. Seek medical advice before resuming use.
- **Guard Against Electric Shock.** Prevent body contact with earthed or grounded surfaces. For example; pipes, radiators, ranges, refrigerator enclosures.
- **Don't abuse Cord.** Never carry tool by cord or yank it to disconnect from receptacle. Keep cord from heat, oil, and sharp edges.

- Keep work area clean. Cluttered areas and benches invite injuries.
- Consider work area environment. Don't expose power tools and chargers to water. Keep work area well lighted. Do not use tool in explosive or flammable atmospheres.
- **Keep bystanders and children away.** Do not permit unauthorized personnel to operate this tool, or touch tool or cord.
- **Store idle tools.** When not in use, tools should be stored in a dry, high or locked up place, out of reach of children.
- **Don't force tool.** It will do the job better and more safely at the rate for which it was intended.
- **Use the right tool.** Do not force a small tool or attachment to do the job of a heavy-duty tool.
- **Do not use a tool for a purpose for which it is not intended.** Example: Do not use a screwdriver as a drill.
- **Dress properly.** Do not wear loose clothing or jewelry. They can be caught in moving parts. Rubber gloves and non-skid footwear are recommended when working outdoors. Wear protective hair covering to contain long hair.

## NOTICE

The use of other than genuine Ingersoll-Rand replacement parts may result in personal injury, decreased tool performance and increased maintenance, and may invalidate all warranties.

Ingersoll-Rand is not responsible for customer modification of tools for applications on which Ingersoll-Rand was not consulted.

Repairs should be made only by authorized, trained personnel. Consult your nearest Ingersoll-Rand Authorized Servicenter.

It is the responsibility of the employer to place the information in this manual into the hands of the operator.

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**PROFESSIONAL TOOLS**

**⚠ WARNING**

**FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.**

**USING THE TOOL (Continued)**

- **Secure work.** Use clamps or a vise to hold work. Operators often need both hands to perform job functions.
- **Don't overreach.** Keep proper footing, balance, and a firm grip on the tool at all times.
- **Maintain tools with care.** Keep tools clean for better and safer performance. Follow instructions for lubricating and changing accessories. Inspect tool cords periodically and if damaged, have them repaired by an authorized service facility. Inspect extension cords periodically and replace if damaged. Keep handles dry, clean, and free from oil and grease.
- **Remove adjusting keys and wrenches.** Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
- **Avoid unintentional starting.** Don't carry tool with finger on switch.
- **Do not drop or abuse the tool.**
- **Whenever a tool is not being used, position the Power Switch to the "OFF" position and unplug the power cord.**
- **Stay alert.** Watch what you are doing. Use common sense. Do not operate tool when you are tired.
- **Check damaged parts.** Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that

is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated elsewhere in this operation manual.

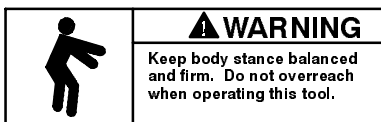
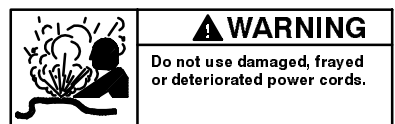
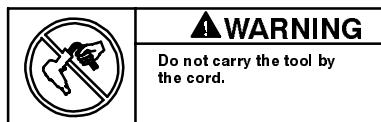
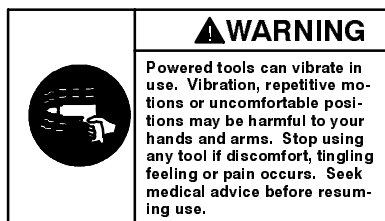
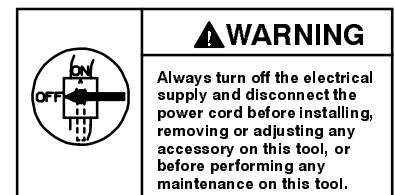
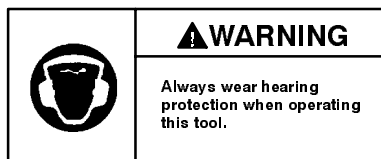
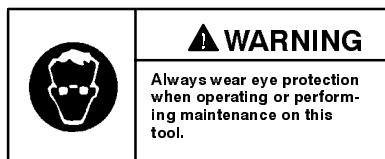
- **Have defective switches replaced by an authorized service center.**
- **Do not use the tool if the switch does not turn it on and off.**
- **Do not drop or abuse the screwdriver.**
- **Whenever changing a bit, make certain the Forward/Reverse Switch is in the "OFF" position and the tool is unplugged.**
- **Do not allow chemicals such as acetone, benzene, thinner, ketone, trichloroethylene or other similar chemicals to come in contact with the screwdriver housing as damage will result.**
- **Do not adjust the torque setting higher than 7 on the Torque Scale.**

**Duty cycle:**

MAX 0.5 sec. "ON"  
MIN 3.5 sec. "OFF"

- **Do not tighten more than 900 tapping screws (size: 2 mm, length: 4 mm) per hour.**
- **Do not operate the Forward/Reverse Switch when the motor is running.**
- **Whenever a tool is not being used, move the Forward/Reverse Switch to the "OFF" position and unplug the screwdriver.**
- **The use of any accessory or attachment other than recommended in this manual can present a risk of personal injury.**

**WARNING LABEL IDENTIFICATION**



## ADJUSTMENTS

### TORQUE ADJUSTMENT

To adjust the torque on these screwdrivers, proceed as follows:

1. Determine the torque output of the tool by checking a tightened fastener with a torque wrench.
2. Increase or decrease the torque output by rotating the Spring Adjusting Ring (4). Rotating the Ring **clockwise** to a higher number on the Torque Scale increases torque output while rotating the Ring **counterclockwise** to a lower number decreases the torque output.

#### NOTICE

**The numbers from one to seven on the Torque Scale are reference numbers only and are not an indication of actual torque output.**

3. Check the adjustment with a torque wrench. A number of factors will affect torque output from one job to another. Final torque adjustment should be made at the job through a series of gradual increases. Always start below the desired torque and work upward.

#### CAUTION

- **Do not drop or abuse the tool.**
- **Whenever a tool is not being used, position the Power Switch to the “OFF” position and unplug the power cord.**

#### DO NOT ATTEMPT TO REPAIR THIS TOOL.

All repairs and maintenance of this tool and its cord must be performed by an authorized service center. See Form 6647 for the service center nearest you.

#### NOTICE

**SAVE THESE INSTRUCTIONS. DO NOT DESTROY.**

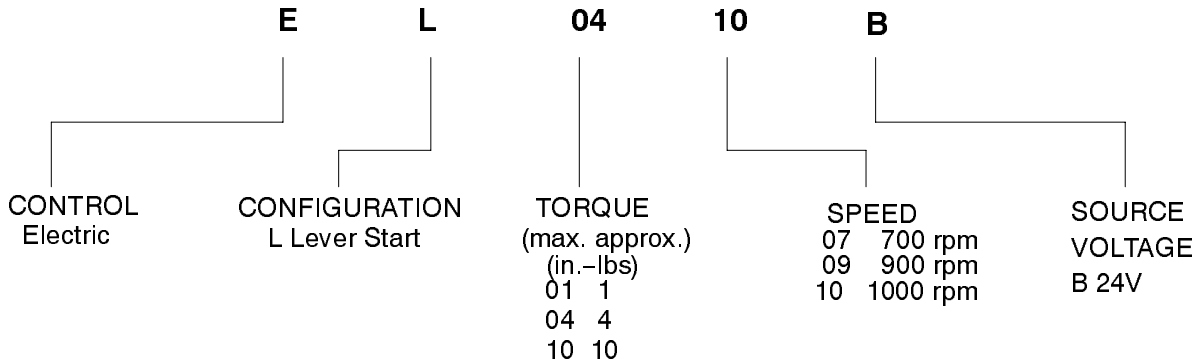
# MAINTENANCE SECTION

## MODEL IDENTIFICATION

Low Torque (Requires Controller)

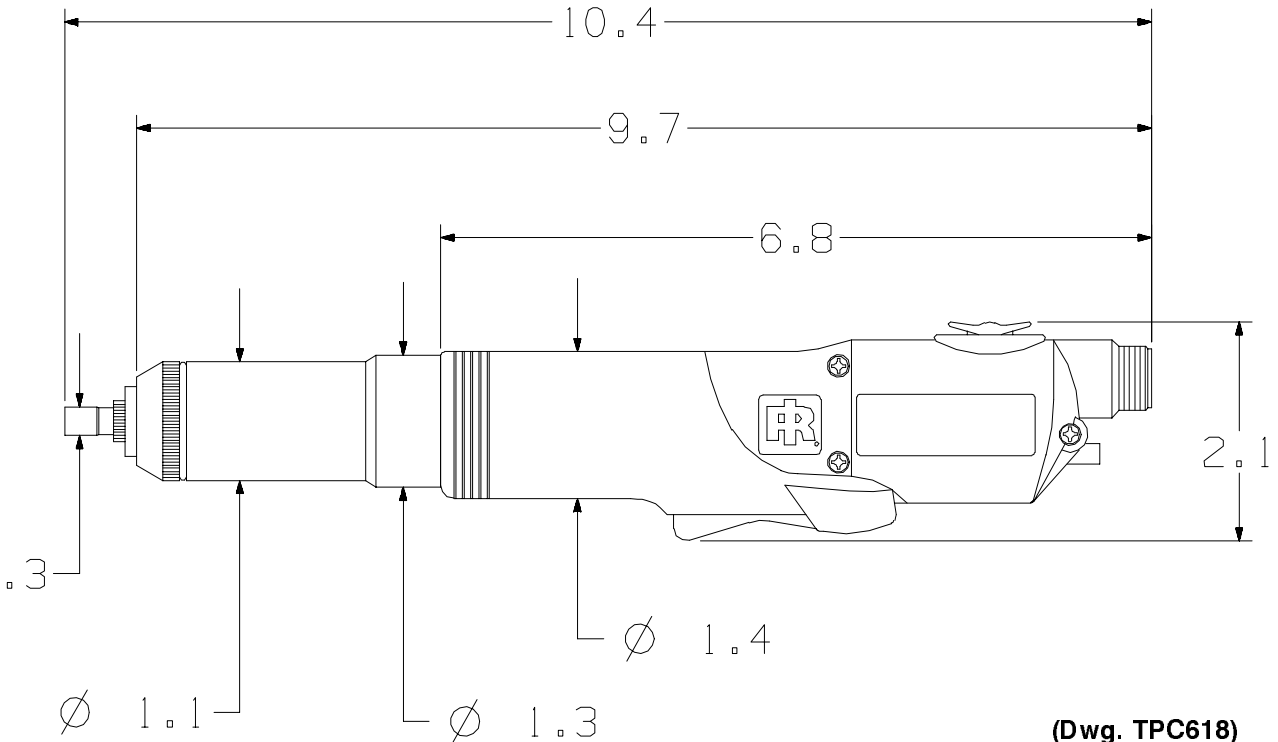


- \* Power: 24V DC from Controller
- \* Cable Length: 5 ft. Straight
- \* Sound: 65 dBa
- \* Reversible: Yes



(Dwg. TPD1824)

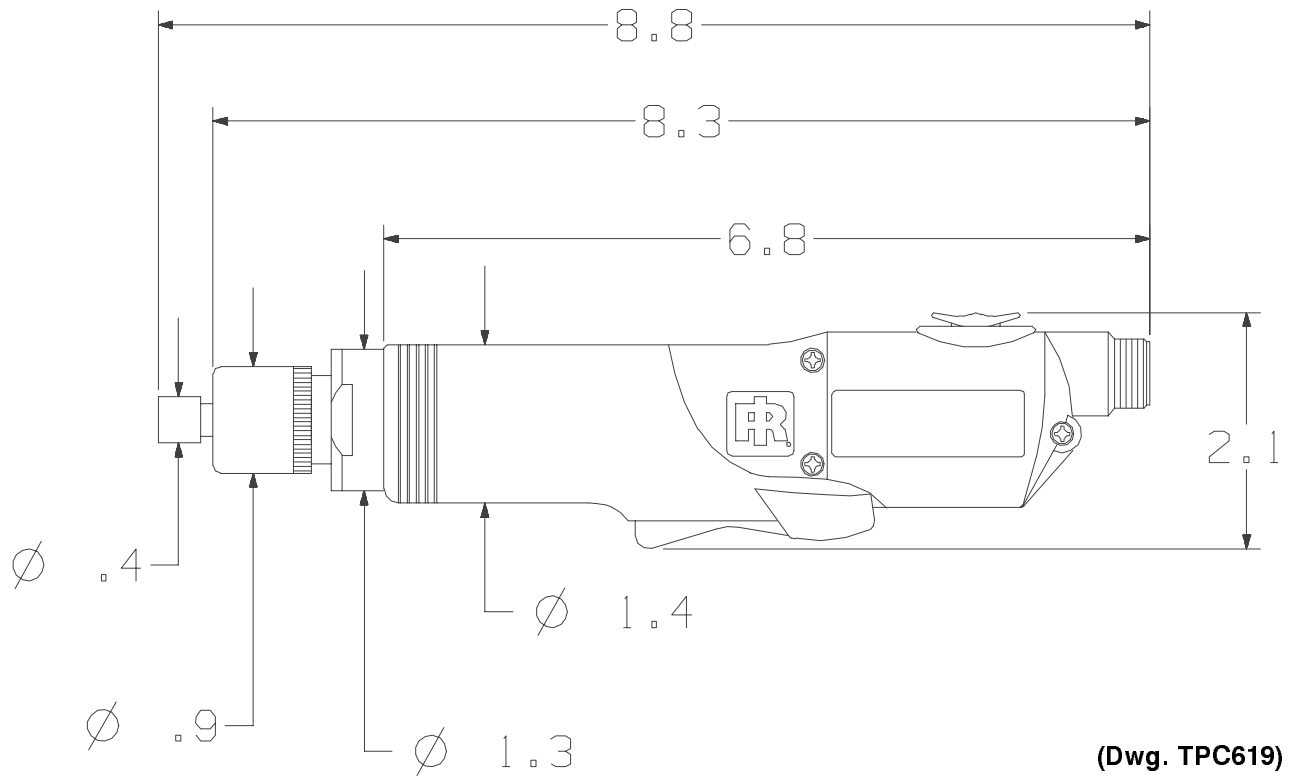
## Dimensions Models EL1007BC and EL0410BC Electric Screwdrivers (Trigger)



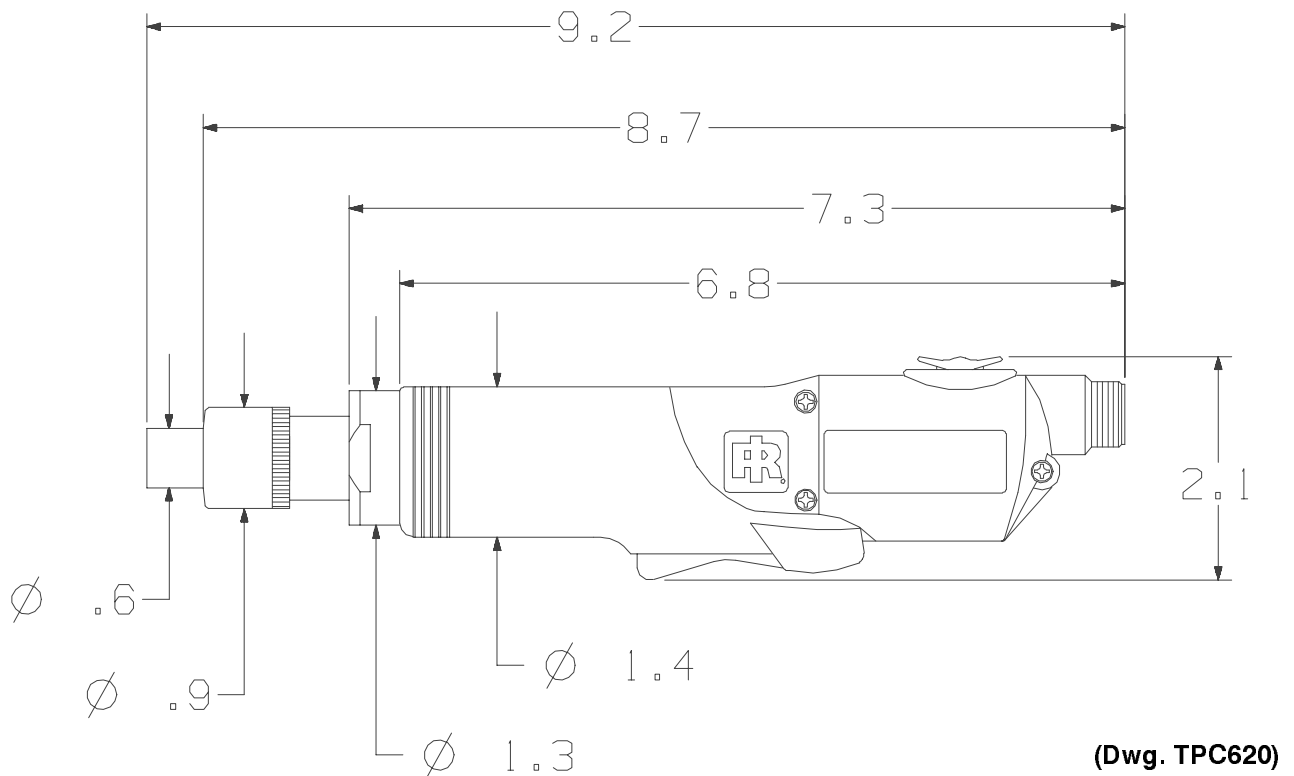
(Dwg. TPC618)

# MAINTENANCE SECTION

## Dimensions for Model EL0109B Electric Screwdriver (Trigger)



## Dimensions for Model EL0410B and EL1007B Electric Screwdriver (Trigger)



# MANUEL D'EXPLOITATION ET D'ENTRETIEN DES VISSEUSES ÉLECTRIQUES 24V SÉRIE EL

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## NOTICE

Les visseuses électriques de la Série EL sont destinées au montage des fixations filetées dans les applications de production industrielle légère et d'appareillage. Ingersoll-Rand ne peut être tenu responsable de la modification des outils par le client pour les adapter à des applications qui n'ont pas été approuvées par Ingersoll-Rand.

## ⚠ WARNING

D'IMPORTANTES INFORMATIONS DE SÉCURITÉ SONT JOINTES. VEUILLEZ LIRE TOUTES CES INSTRUCTIONS AVANT DE METTRE CET OUTIL EN SERVICE OU AVANT D'EXPLOITER CET OUTIL, ET CONSERVEZ CES INSTRUCTIONS.

L'EMPLOYEUR EST TENU DE COMMUNIQUER LES INFORMATIONS DE CE MANUEL AUX EMPLOYÉS UTILISANT CET OUTIL.

LE NON RESPECT DES AVERTISSEMENTS SUIVANTS PEUT CAUSER DES BLESSURES. PENDANT L'UTILISATION D'OUTILS ÉLECTRIQUES, PRENEZ TOUJOURS LES PRÉCAUTIONS DE SÉCURITÉ NÉCESSAIRES, Y COMPRIS CELLES DÉCRITES CI-DESSOUS, POUR RÉDUIRE LES RISQUES D'INCENDIE, DE CHOC ÉLECTRIQUE ET DE BLESSURE PERSONNELLE.

### MISE EN SERVICE DE L'OUTIL

- Utiliser seulement avec les contrôleurs EC24N.
- Exploiter, inspecter et entretenir toujours cet outil conformément aux réglementations (locales, départementales, fédérales et nationales) en vigueur pour les outils électriques tenus/commandés à la main.
- Inspecter périodiquement les cordons d'alimentation, et, en cas d'endommagement, les faire réparer par un centre d'entretien autorisé. Inspecter périodiquement les rallonges et les remplacer en cas d'endommagement.
- Ne retirer aucune étiquette. Remplacer toute étiquette endommagée.

### UTILISATION DE L'OUTIL

- Porter toujours des lunettes de protection pendant l'utilisation et l'entretien de cet outil.
- Les outils électriques peuvent vibrer pendant l'usage. Les vibrations, les mouvements répétitifs et les positions inconfortables peuvent causer des douleurs dans les mains et les bras. N'utiliser plus d'outils en cas d'inconfort, de picotements ou de douleurs. Consulter un médecin avant de recommencer à utiliser l'outil.
- Faire attention aux chocs électriques. Éviter tout contact du corps avec des surfaces mises à la masse. Par exemple : tuyauteries, radiateurs, fours, enceintes de réfrigérateurs.
- Ne pas maltraiter le cordon d'alimentation. Ne jamais transporter l'outil par son cordon, et ne jamais tirer sur le cordon pour le débrancher de sa prise. Tenir le cordon éloigné des sources de chaleur, de l'huile et des arêtes vives.

- **Maintenir le lieu de travail propre.** Les zones et les établis encombrés peuvent être cause de blessures.
- **Considérer l'environnement du lieu de travail.** Ne jamais exposer les outils électriques ou les chargeurs à l'eau. Assurer un éclairage adéquat de la zone de travail. Ne jamais utiliser l'outil dans des atmosphères explosives ou inflammables.
- **Tenir les personnes et les enfants éloignés.** Ne jamais laisser du personnel non autorisé se servir ou toucher l'outil ou le cordon.
- **Ranger les outils non utilisés.** Lorsqu'ils ne sont pas utilisés, les outils doivent être rangés dans un endroit sec et fermé hors de portée des enfants.
- **Ne pas forcer l'outil.** Il effectuera sa tâche plus efficacement et en toute sécurité s'il est utilisé à sa vitesse normale.
- **Utiliser l'outil correct.** Ne jamais forcer un petit outil ou accessoire à effectuer la tâche d'un outil à usage intensif.
- **Ne pas utiliser un outil pour une tâche autre que celle pour laquelle il a été conçu.** Par exemple, ne pas utiliser une visseuse comme une perceuse.
- **Porter les vêtements appropriés.** Ne pas porter de vêtements flous ou des bijoux. Ils peuvent être attrapés par les pièces en mouvement. Des gants en caoutchouc et des chaussures antidérapantes sont recommandés pour les travaux à l'extérieur. Porter un filet protecteur pour retenir les cheveux longs.

## NOTICE

L'utilisation de rechanges autres que les pièces d'origine Ingersoll-Rand peut causer des blessures personnelles, réduire les performances de l'outil et augmenter l'entretien, et peut annuler toutes les garanties.

Faites réparer votre outil par un personne compétente. Cet outil électrique est conforme aux exigences de sécurité applicables. Les réparations ne doivent être effectuées que par des personnes compétentes utilisant les rechanges d'origine, sous peine de danger considérable pour l'opérateur.

Les réparations ne doivent être effectuées que par des réparateurs qualifiés autorisés. Consultez votre Centre de Service Ingersoll-Rand le plus proche.

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## ⚠ WARNING

### LE NON RESPECT DES AVERTISSEMENTS SUIVANTS PEUT CAUSER DES BLESSURES.

#### UTILISATION DE L'OUTIL (suite)

- **Fixer les pièces.** Utiliser des brides ou un étau pour fixer les pièces. Les opérateurs ont souvent besoin de leurs deux mains pour effectuer leur travail.
- **Ne pas se pencher en avant.** Conserver une position stable et équilibrée, et tenir fermement l'outil à tout moment.
- **Entretenir les outils avec soin.** Pour obtenir des performances optimales et sûres, tenir les outils propres. Observer les instructions de lubrification et de changement d'accessoires. Inspecter périodiquement les cordons d'alimentation, et, en cas d'endommagement, les faire réparer par un centre d'entretien autorisé. Inspecter périodiquement les rallonges et les remplacer en cas d'endommagement. Tenir les poignées sèches, propres et exemptes d'huile et de graisse.
- **Retirer les clés de réglage.** Prendre l'habitude de vérifier que toutes les clés de réglage et de serrage sont enlevées de l'outil avant de le mettre en marche.
- **Éviter toute mise en marche accidentelle.** Ne pas transporter l'outil avec un doigt sur l'interrupteur.
- **Ne pas laisser tomber ou maltraiter l'outil.**
- **A chaque fois qu'un outil n'est pas utilisé, placer l'interrupteur d'alimentation à la position "ARRÊT" (OFF) et débrancher le cordon d'alimentation.**
- **Rester alerte.** Être attentif pendant le travail. Ne pas prendre de risque. Ne pas utiliser l'outil en cas de fatigue.
- **Vérifier les pièces endommagées.** Avant tout autre usage de l'outil, un carter de protection ou tout autre composant endommagé doit être vérifié pour s'assurer qu'il remplira correctement son rôle. Vérifier l'alignement des pièces mobiles, le grippage des pièces en mouvement, la cassure des pièces, leurs fixations et

toute autre condition qui pourrait affecter le fonctionnement de l'outil. Sauf indication contraire dans ce manuel, tout carter ou autre composant endommagé doit être réparé ou remplacé par un centre d'entretien autorisé.

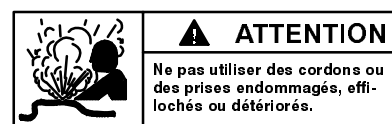
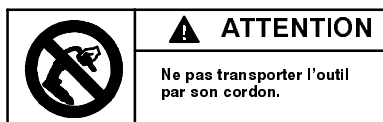
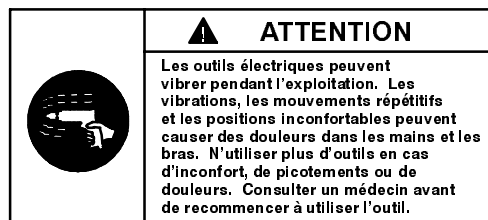
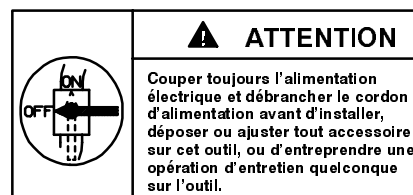
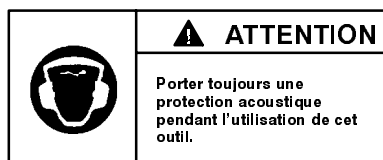
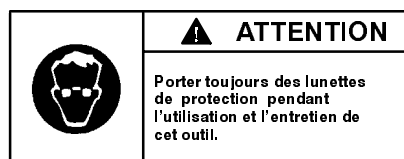
- **Faire remplacer les interrupteurs défectueux par un centre d'entretien autorisé.**
- **Ne pas utiliser l'outil si l'interrupteur n'assure pas correctement la mise en marche ou l'arrêt.**
- **Ne pas laisser tomber ou maltraiter la visseuse.**
- **A chaque fois qu'un embout est changé, vérifier que le commutateur de marche avant/marche arrière est à la position "ARRÊT" (OFF) et que l'outil est débranché.**
- **Ne jamais laisser des produits chimiques tels que l'acétone, le benzène, les diluants, la cétone, le trichloréthylène ou d'autres produits similaires, entrer en contact avec le corps de la visseuse sous peine d'endommagement.**
- **Ne pas ajuster le réglage du couple au-delà de la valeur 7 sur l'échelle de couple.**

#### Taux de service :

MAXIMUM 0,5 seconde en MARCHE (ON)  
MINIMUM 3,5 secondes à l'ARRÊT (OFF)

- **Ne pas visser plus de 900 vis auto-taraudeuses (Ø 2 mm, longueur 4 mm) par heure.**
- **Ne pas actionner l'interrupteur marche avant/marche arrière lorsque le moteur est en marche.**
- **Lorsqu'un outil n'est pas utilisé, placer l'interrupteur marche avant/marche arrière à la position "ARRÊT" (OFF) et débrancher la visseuse.**
- **L'utilisation d'accessoires ou d'équipements autres que ceux recommandés dans ce manuel peut présenter des risques de blessure personnelle.**

## SIGNIFICATION DES ETIQUETTES D'AVERTISSEMENT



# RÉGLAGES

## —— RÉGLAGE DU COUPLE ——

Pour régler le couple de ces visseuses, procéder comme suit :

1. Déterminer le couple produit par l'outil en vérifiant une fixation serrée à l'aide d'une clé dynamométrique.
2. Augmenter ou réduire le couple produit en tournant la bague de réglage du couple (4). La rotation de la bague **dans le sens des aiguilles d'une montre** à un chiffre supérieur de l'échelle de couple augmente le couple de serrage, tandis que la rotation de la bague **dans le sens inverse des aiguilles d'une montre** à un chiffre inférieur réduit le couple.

## NOTICE

**Les chiffres de 1 à 7 sur l'échelle de couple ne sont donnés qu'à titre indicatif et ne sont pas une indication de la valeur réelle du couple de serrage.**

3. Vérifier le réglage à l'aide d'une clé dynamométrique. Un certain nombre de facteurs affectera le couple d'un travail à un autre. Le réglage final du couple doit être effectué sur le travail par petites étapes successives. Commencer toujours en dessous du couple désiré et augmenter le couple progressivement.

**NE PAS ESSAYER DE RÉPARER CET OUTIL**

**Toutes les réparations et l'entretien de cet outil doivent être confiés à un centre d'entretien autorisé. Veuillez contacter le bureau de vente listé à la dernière page de cette publication.**



# INSTRUCCIONES PARA LOS ATORNILLADORES ELECTRICOS SERIE EL 24V

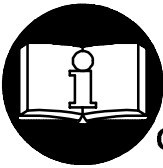
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## NOTICE

Los atornilladores eléctricos de la serie EL están diseñados para atornillar en aplicaciones industriales ligeras y de fabricación de aparatos electrodomésticos. Ingersoll-Rand no aceptará responsabilidad alguna por la modificación de las herramientas efectuada por el cliente para las aplicaciones que no hayan sido consultadas con Ingersoll-Rand.

## ⚠ WARNING

SE ADJUNTA INFORMACIÓN IMPORTANTE DE SEGURIDAD. LEA Y CONSERVE TODAS ESTAS INSTRUCCIONES ANTES DE PONER EN SERVICIO O USAR ESTA HERRAMIENTA. ES RESPONSABILIDAD DE LA EMPRESA ASEGURARSE DE QUE EL OPERARIO ESTÉ AL TANTO DE LA INFORMACIÓN QUE CONTIENE ESTE MANUAL. EL HACER CASO OMISO DE LOS AVISOS SIGUIENTES PODRÍA OCASIONAR LESIONES. CUANDO SE USAN HERRAMIENTAS ELECTRICAS ES PRECISO ADOPTAR SIEMPRE ENTRE OTRAS LAS SIGUIENTES PRECAUCIONES BASICAS PARA REDUCIR EL RIESGO DE INCENDIO, DESCARGAS ELECTRICAS Y LESIONES.



### PARA PONER LA HERRAMIENTA EN SERVICIO

- Usar solo con los controladores EC24N.
- Utilice, inspeccione y mantenga siempre esta herramienta de conformidad con toda reglamentación (local, provincial, regional y nacional) que sea de aplicación a herramientas eléctricas que se manejan y sostienen a mano.
- Examine periódicamente los cables de las herramientas y, si están estropeados, encargue su reparación a un centro de servicio autorizado. Examine periódicamente los cables de prolongación y cámbielos si están estropeados.
- No saque ninguna etiqueta. Sustituya toda etiqueta dañada.

### UTILIZACIÓN DE LA HERRAMIENTA

- Lleve siempre protección ocular cuando utilice esta herramienta o realice operaciones de mantenimiento en la misma.
- Las herramientas eléctricas pueden vibrar durante el uso. La vibración, los movimientos repetitivos o las posiciones incómodas pueden dañarle los brazos y manos. En caso de incomodidad, sensación de hormigueo o dolor, deje de usar la herramienta. Consulte con el médico antes de volver a utilizarla.
- Protéjase contra las descargas eléctricas. Evite el contacto del cuerpo con superficies puestas a tierra. Por ejemplo: tuberías, radiadores, cocinas o cámaras frigoríficas.

- No abuse del cable. No conviene llevar la herramienta cogida por el cable ni desenchufar el cable dándole un tirón. Proteja el cable del calor, aceite y cantos vivos.
- Conserve limpio el lugar de trabajo. Los espacios y bancos de trabajo llenos de estorbos acaban dando lugar a lesiones.
- Examine el entorno de trabajo. No exponga las herramientas eléctricas y aparatos cargadores al contacto con agua. Mantenga el lugar de trabajo bien iluminado. No use la herramienta en ambientes explosivos o inflamables.
- Mantenga apartados a curiosos y niños. No permita que personal no autorizado utilice ni toque esta herramienta ni el cable.
- Guarde las herramientas que no se usen. Cuando no se estén usando conviene guardar las herramientas en un lugar seco, alto o cerrado bajo llave, fuera del alcance de los niños.
- No fuerce la herramienta. Hará mejor el trabajo y de manera más segura utilizándola al régimen para el que ha sido proyectada.
- Use la herramienta conveniente. No fuerce una herramienta o accesorio pequeño a hacer el trabajo de una herramienta pesada.
- No conviene usar una herramienta para un fin distinto del previsto. Ejemplo: No debe usarse un destornillador como taladro.
- Use ropa adecuada. No use ropa suelta ni joyería, pues pueden ser atrapadas por piezas en movimiento. Se recomienda usar guantes de goma y calzado antideslizante cuando se trabaje al exterior. Si se lleva el pelo largo conviene contenerlo cubriéndose la cabeza.

## NOTICE

El uso de piezas de recambio que no sean auténticas de Ingersoll-Rand puede dar lugar a que se sufran lesiones, se reduzca el rendimiento de la herramienta y aumenten los cuidados de mantenimiento necesarios, así como la anulación de toda garantía.

Encargue las reparaciones a una persona capacitada. Esta herramienta eléctrica está construida de conformidad con los requisitos pertinentes en materia de seguridad. Las reparaciones sólo deben ser efectuadas por personal capacitado empleando repuestos de origen, pues de lo contrario el usuario queda expuesto a riesgos considerables.

Las reparaciones sólo se deben encomendar a personal debidamente cualificado y autorizado. Consulte con el centro de servicio autorizado Ingersoll-Rand más próximo.

## ! WARNING

### EL HACER CASO OMISO DE LOS AVISOS SIGUIENTES PODRÍA OCASIONAR LESIONES.

#### USO DE HERRAMIENTA (Continuación)

- **Sujete las piezas.** Use mordazas o un tornillo de banco para sostener la pieza. Los operarios a menudo necesitan las dos manos para ejecutar ciertos trabajos.
- **No se estire demasiado.** Mantenga una postura del cuerpo equilibrada y firme, y tenga bien agarrada la herramienta en todo momento.
- **Cuide de las herramientas con atención.** Conserve limpias las herramientas para mejorar su rendimiento y seguridad. Observe las instrucciones para lubricar y cambiar accesorios. Examine periódicamente los cables de las herramientas y, si están estropeados, encargue su reparación a un centro de servicio autorizado. Examine periódicamente los cables de prolongación y cámbielos si están estropeados. Mantenga las empuñaduras secas, limpias y exentas de aceite y grasa.
- **Quite siempre las llaves de ajuste.** Acostúmbrase a constatar que se han quitado de la herramienta las llaves manuales de ajuste antes de conectar la corriente.
- **Evite la puesta en marcha intempestiva.** No lleve la herramienta con el dedo en el interruptor.
- **No deje caer la herramienta ni abuse de ella.**
- **Siempre que no vaya a usar la herramienta, desconecte el interruptor de alimentación poniéndolo en "OFF" y desenchufe el cable.**
- **Manténgase alerta.** Vigile lo que está haciendo. Use el sentido común. No utilice la herramienta cuando esté cansado.
- **Compruebe si hay piezas estropeadas.** Antes de seguir usando la herramienta, una guarda u otra pieza que esté estropeada conviene comprobar con atención que funcionará debidamente y realizará su función prevista. Comprobar la alineación de las piezas móviles y constatar si hay agarrotamiento de elementos móviles, rotura de piezas, su montaje, y cualesquiera otras condiciones que puedan afectar a su

funcionamiento. Una guarda u otra pieza cualquiera que esté estropeada debe repararse debidamente o ser sustituida por un centro de servicio autorizado a no ser que se indique otra cosa en alguna parte de este manual.

- **Encarge a un centro de servicio autorizado que sustituya interruptores que estén defectuosos.**
- **No use la herramienta si el interruptor no conecta ni desconecta.**
- **No deje caer el atornillador ni abuse de él.**
- **Siempre que cambie un útil, asegúrese de que el conmutador de cambio del sentido de rotación está puesto en "OFF" y que la herramienta está desenchufada.**
- **No deje que entren en contacto con la carcasa del atornillador sustancias químicas como acetona, benceno, diluyentes, cetona, tricloroetileno ni otros productos químicos similares, pues se producirán daños.**
- **No ajuste el par a un valor más alto que el 7 de la escala.**


Ciclo de servicio:

MAX 0,5 seg. trabajando (ON)


MIN 3,5 seg. en reposo (OFF)


- **No apriete más de 900 tornillos autoroscantes (tamaño: 2 mm, longitud: 4 mm) por hora.**
- **No cambie el sentido de rotación mientras el motor esta funcionando.**
- **Siempre que no vaya a usar una herramienta, ponga en "OFF" el mando de inversión del sentido de rotación y desenchufe el atornillador.**
- **El uso de cualquier accesorio o aditamiento distinto de los recomendados en este manual conlleva el riesgo de sufrir lesiones.**


### ETIQUETAS DE AVISO

	<p><b>! ADVERTENCIA</b></p> <p>Usar siempre protección ocular al manejar o realizar operaciones de mantenimiento en esta herramienta.</p>
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	<p><b>! ADVERTENCIA</b></p> <p>Usar siempre protección para los oídos al manejar esta herramienta.</p>
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	<p><b>! ADVERTENCIA</b></p> <p>Cortar siempre la corriente y desenchufar el cable de la red antes de montar, desmontar o ajustar cualquier accesorio en esta herramienta, o antes de efectuar algún trabajo de mantenimiento en ella.</p>
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	<p><b>! ADVERTENCIA</b></p> <p>Las herramientas eléctricas pueden vibrar durante el uso. La vibración, los movimientos repetitivos o las posiciones incómodas podrían dañarle los brazos y las manos. En caso de incomodidad, sensación de hormigueo o dolor, dejar de usar la herramienta. Consultar al médico antes de volver a utilizarla.</p>
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	<p><b>! ADVERTENCIA</b></p> <p>No llevar la herramienta cogida por el cable.</p>
---	--

	<p><b>! ADVERTENCIA</b></p> <p>No usar cables que estén estropeados, rozados o deteriorados.</p>
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	<p><b>! ADVERTENCIA</b></p> <p>Mantener una postura del cuerpo equilibrada y firme. No estirar demasiado los brazos al manejar la herramienta.</p>
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## AJUSTES

### AJUSTE DE PAR

Para ajustar el par en estos atornilladores, proceder como sigue:

1. Constatar el par que desarrolla la herramienta comprobando un tornillo apretado con una llave dinamométrica.
2. Aumentar o reducir el par girando el anillo de ajuste del muelle (4). Girando el anillo **en sentido horario** a un número más alto de la escala aumenta el par, y girándolo **en sentido antihorario** a un número más bajo se reduce el par.

### NOTICE

**Los números del 1 - 7 de la escala de pares son sólo números de referencia y no una indicación del par realmente desarrollado.**

3. Comprobar el ajuste con una llave diamométrica. Hay una variedad de factores que pueden afectar al par al cambiar de un trabajo a otro. El ajuste definitivo debe hacerse sobre la marcha mediante una serie de incrementos graduales. Conviene empezar siempre con un par inferior al deseado y aumentarlo progresivamente.

### ABSTENERSE DE INTENTAR REPARAR ESTA HERRAMIENTA

**Todos los trabajos de reparación y mantenimiento de esta herramienta y su cable tienen que ser efectuados por un centro de servicio autorizado. Al final de esta publicación figura la lista de centros de venta.**

# MANUAL DE FUNCIONAMENTO E MANUTENÇÃO PARA AS APARAFUSADORAS ELÉCTRICAS SÉRIE EL DE 24V

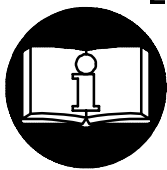
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## NOTICE

As Aparafusadoras Eléctricas Série EL são concebidas para instalar fixadores roscados em aplicações industriais ligeiras e de fabrico de aparelhos. A Ingersoll-Rand não pode ser responsabilizada pela modificação de ferramentas para aplicações para as quais não tenha sido consultada.

## ⚠ WARNING

**IMPORTANTES INFORMAÇÕES DE SEGURANÇA EM ANEXO.  
LEIA TODAS ESTAS INSTRUÇÕES ANTES DE PÔR A FERRAMENTA EM SERVIÇO OU DE OPERAR ESTA FERRAMENTA E GARDE ESTAS INSTRUÇÕES.  
É RESPONSABILIDADE DA ENTIDADE PATRONAL PÔR AS INFORMAÇÕES CONTIDAS NESTE MANUAL À DISPOSIÇÃO DOS UTILIZADORES.  
A NÃO OBEDENCIA ÀS ADVERTÊNCIAS SEGUINTE PODERÁ RESULTAR EM LESÕES PESSOAIS.**



**AO UTILIZAR FERRAMENTAS ELÉCTRICAS, DEVE-SE SEMPRE SEGUIR AS PRECAUÇÕES BÁSICAS DE SEGURANÇA PARA REDUZIR O RISCO DE INCÊNDIO, CHOQUE ELÉCTRICO E LESÕES PESSOAIS, INCLUINDO O SEGUINTE:**

### COLOCAÇÃO DA FERRAMENTA EM SERVIÇO

- Utilize apenas com os Controladores EC24N.
- Opere, inspeccione e faça manutenção nesta ferramenta sempre de acordo com todos os regulamentos (locais, estatais, federais e nacionais), que possam ser aplicáveis a ferramentas eléctricas de mão/funcionamento manual.
- Inspeccione os cabos da ferramenta periodicamente e, se estiverem danificados, mande-os reparar num centro de atendimento autorizado. Inspeccione periodicamente os cabos de extensão e substitua-os se estiverem danificados.
- Não retire nenhum rótulo. Substitua os rótulos danificados.

### UTILIZAÇÃO DA FERRAMENTA

- Use sempre protecção para os olhos ao operar ou fazer manutenção nesta ferramenta.
- As ferramentas eléctricas podem vibrar durante a utilização. Vibração, movimentos repetitivos ou posições desconfortáveis podem ser nocivos às suas mãos e braços. Pare de utilizar qualquer ferramenta se ocorrer desconforto, sensação de formigamento ou dor. Procure assistência médica antes de reiniciar a utilização.
- Protecção Contra Choque Eléctrico. Impeça contacto do corpo com superfícies ligadas à terra. Por exemplo: tubos, radiadores, fogões metálicos, frigoríficos.

- **Não Force o Cabo.** Nunca transporte a ferramenta pelo cabo ou puxe-o para desligar da tomada. Mantenha o cabo afastado do calor, óleo e arestas afiadas.
- **Mantenha a área de trabalho limpa.** Áreas e bancadas atravancadas constituem um convite a lesões.
- **Considere o ambiente da área de trabalho.** Não exponha ferramentas eléctricas e carregadores à água. Mantenha a área de trabalho bem iluminada. Não utilize a ferramenta em atmosferas explosivas ou inflamáveis.
- **Mantenha afastados os espectadores e as crianças.** Não permita que pessoal não autorizado opere esta ferramenta ou toque na ferramenta ou no cabo.
- **Guarde ferramentas inactivas.** Quando não estiverem em uso, as ferramentas devem ser guardadas num local seco, alto ou trancado, longe do alcance das crianças.
- **Não force a ferramenta.** Esta realizará o trabalho melhor e com mais segurança na potência para a qual foi concebida.
- **Utilize a ferramenta correcta.** Não force uma ferramenta ou acessório pequenos para realizar o trabalho de uma ferramenta para trabalho pesado.
- **Não utilize a ferramenta para uma finalidade para a qual não foi concebida.** Exemplo: Não use uma aparafusadora como um berbequim.
- **Vista-se adequadamente.** Não use roupas soltas ou jóias. Estas podem agarrar em peças móveis. Recomenda-se usar luvas de borracha e calçado antidescizamento ao trabalhar ao ar livre. Use um chapéu ou outra protecção para prender cabelos longos.

## NOTICE

A utilização de qualquer peça sobresselente que não seja Ingersoll-Rand genuína pode resultar em lesões pessoais, em desempenho reduzido da ferramenta e mais necessidade de manutenção, e pode invalidar todas as garantias.

Esta ferramenta deve ser consertada por uma pessoa qualificada. Esta ferramenta eléctrica está de acordo com os requisitos de segurança relevantes. As reparações só devem ser realizadas por pessoas qualificadas, utilizando peças sobresselentes genuínas, caso contrário, poderá resultar em perigo considerável para o utilizador.

As reparações só devem ser feitas por pessoal autorizado e com formação adequada. Consulte o Representante Autorizado Ingersoll-Rand mais próximo.

**INGERSOLL-RAND®**  
**PROFESSIONAL TOOLS**

## ⚠ WARNING

### A NÃO OBEDIÊNCIA ÀS ADVERTÊNCIAS SEGUINTES PODERÁ RESULTAR EM LESÕES PESSOAIS.

#### UTILIZAÇÃO DA FERRAMENTA (continua)

- **Fixe o trabalho.** Use braçadeiras ou um torno de bancada para segurar o trabalho. Frequentemente, os operadores precisam de ambas as mãos para executar as funções do trabalho.
- **Não estique o corpo.** Mantenha os pés numa posição equilibrada e firme e segure firmemente a ferramenta o tempo todo.
- **Mantenha cuidadosamente as ferramentas.** Mantenha as ferramentas limpas para desempenho melhor e mais seguro. Siga as instruções para lubrificação e troca de acessórios. Inspeccione os cabos da ferramenta periodicamente e, se estiverem danificados, mande-os reparar num centro de atendimento autorizado. Inspeccione periodicamente os cabos de extensão e substitua-os se estiverem danificados. Mantenha as pegas secas, limpas e isentas de óleo e gordura.
- **Retire as chaves de mandril e chaves inglesas de ajuste.** Habitue-se a verificar que as chaves de mandril e chaves inglesas de ajuste são retiradas da ferramenta antes de a ligar.
- **Evite arranques involuntários.** Não transporte a ferramenta com o dedo no interruptor.
- **Não deixe cair ou faça mau uso da ferramenta.**
- **Sempre que uma ferramenta não estiver em uso, ponha o Interruptor de Electricidade na posição “OFF” e desligue o cabo de electricidade.**
- **Fique alerta.** Preste atenção ao que está a fazer. Empregue o bom senso. Não opere a ferramenta quando estiver cansado.
- **Examine peças danificadas.** Antes de utilizar a ferramenta novamente, um resguardo ou outra peça que esteja danificada deve ser examinada cuidadosamente para confirmar que ela funcionará adequadamente e que executará a sua função pretendida. Verifique o alinhamento de peças móveis, adesão de peças móveis, quebra de peças, montagem e

quaisquer outras condições que possam afectar o funcionamento da ferramenta. Um resguardo ou outra peça que esteja danificada deve ser reparada adequadamente ou substituída num centro de atendimento autorizado, a menos que esteja indicado de forma diferente neste manual de funcionamento.

- **Mande substituir interruptores defeituosos num centro autorizado de atendimento.**
- **Não utilize a ferramenta se o interruptor não a ligar e desligar.**
- **Não deixe cair ou faça mau uso da aparafusadora.**
- **Sempre que for trocar uma ponta, certifique-se de que o Interruptor de Avanço/Reversão está na posição “OFF” e de que a ferramenta está desligada na tomada.**
- **Não permita que produtos químicos como acetona, benzina, solvente, cetona, tricloroetileno ou outros produtos semelhantes entrem em contacto com a carcaça da aparafusadora, pois poderá provocar avaria.**
- **Não ajuste o valor de binário acima de 7 na Escala de Binário.**

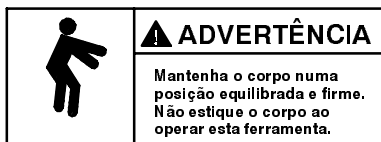
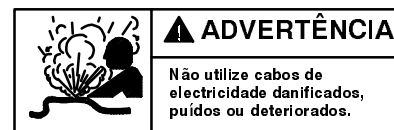
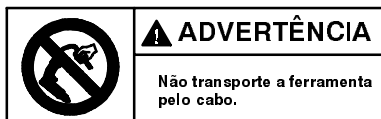
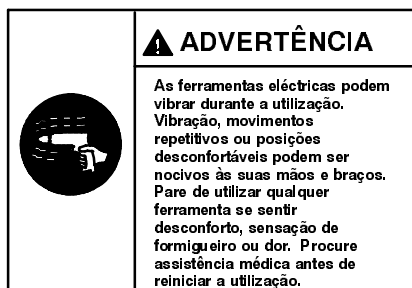
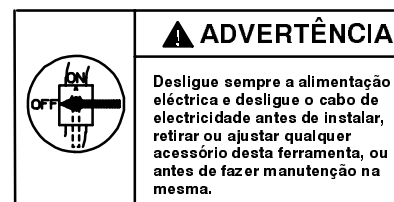
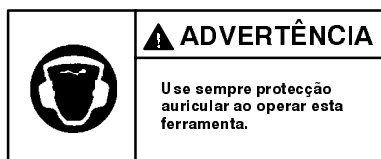
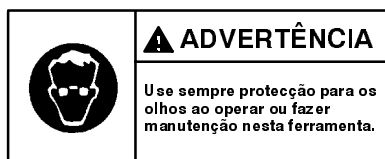
Ciclo de trabalho:

MÁX. 0,5 seg. “LIGADA” (“ON”)

MÍN. 3,5 seg. “DESLIGADA” (“OFF”)

- **Não aperte mais de 900 parafusos de abrir rosca (tamanho: 2mm, comprimento: 4mm) por hora.**
- **Não opere o Interruptor de Avanço/Reversão quando o motor estiver a funcionar.**
- **Sempre que uma ferramenta não estiver em uso, ponha o Interruptor de Avanço/Reversão na posição “OFF” e desligue a aparafusadora.**
- **A utilização de qualquer acessório que não esteja recomendado neste manual pode apresentar risco de lesões pessoais.**

### IDENTIFICAÇÃO DAS ETIQUETAS DE ADVERTÊNCIA



## AJUSTES

### REGULAÇÃO DE BINÁRIO

Para ajustar a potência de binário destas aparafusadoras, proceda como segue:

1. Determine a potência de binário da ferramenta verificando um fixador apertado com uma chave dinamométrica.
2. Aumente ou diminua a potência de binário rodando o Anel de Ajuste de Mola (4). Rodar o Anel para **a direita**, para um número mais alto na Escala de Binário, aumenta a potência de binário; enquanto rodar o Anel para **a esquerda**, para um número mais baixo, diminui a potência de binário.

### NOTICE

**Os números de um a sete na Escala de Binário são apenas números de referência e não uma indicação da potência de binário real.**

3. Verifique o ajuste com uma chave dinamométrica. Vários factores afectarão a potência de binário de uma tarefa para a outra. O ajuste final da potência de binário deve ser feito na tarefa através de uma série de aumentos graduais. Comece sempre abaixo da potência desejada e aumente gradualmente.

**NÃO TENTE REPARAR ESTA FERRAMENTA.**

**Todas as reparações e manutenção desta ferramenta e do seu cabo têm que ser efectuadas por um centro de atendimento autorizado. Contacte o escritório de vendas listado na última página deste manual.**



# EL0410B, EL0410BC, EL1007B AND EL1007BC ELECTRIC SCREWDRIVERS

PART NUMBER FOR ORDERING

PART NUMBER FOR ORDERING

	PART NUMBER FOR ORDERING		PART NUMBER FOR ORDERING
	Housing Package		Motor Assembly
	for EL0410B .....	EL0410B-A40	for EL0410B and EL0410BC .....
	for EL1007B .....	EL1007B-A40	for EL1007B and EL1007BC .....
	for EL0410BC .....	EL0410BC-A40	23 Rear End Plate .....
	for EL1007BC .....	EL1007BC-A40	24 Brush Assembly (2) .....
1	Housing .....	-----	25 Brush Spring .....
2	Housing Screw .....	-----	26 Brush Screw (2) .....
3	Nameplate		27 Motor Plate .....
	for EL0410B .....	EL0410B-301	28 Rear Armature Bearing .....
	for EL1007B .....	EL1007B-301	29 Shim (2) (.238" O.D. X .020" thick) .....
	for EL0410BC .....	EL0410BC-301	30 Shim (.375" O.D. X .015" thick) .....
	for EL1007BC .....	EL1007BC-301	31 Armature
4	Warning Label .....	EL0109B-99	for EL0410B and EL0410BC .....
5	Suspension Bail .....	EL0109B-365	for EL1007B and EL1007BC .....
6	Power Cord Assembly .....	EL0109B-239	32 Field .....
7	Housing Bushing .....	EL0109B-465	33 Front End Plate .....
8	Trigger Switch .....	EL0109B-222	34 Motor Assembly Spring (2) .....
9	Reverse Switch .....	EL0109B-329	35 Push Rod (1.403" long) .....
10	Switch Plate .....	EL0109B-221	36 Motor Clamp Spacer .....
11	Switch Plate Screw (2) .....	EL0109B-226	37 Gear Case
12	Switch Plate Screw Lock Washer (2) .....	EL0109B-227	for EL0410B and EL0410BC .....
13	Plunger .....	EL0109B-593	for EL1007B and EL1007BC .....
14	Plunger Spring .....	EL0109B-595	38 Gear Head Assembly
15	Brake Switch .....	EL0109B-223	for EL0410B and EL0410BC .....
16	Microswitch Screw (2) .....	EL0109B-224	for EL1007B and EL1007BC .....
17	Trigger .....	EL0109B-93	39 Gear Head Planet Gear (3)
18	Trigger Spring .....	EL0109B-274	for EL0410B and EL0410BC .....
19	Trigger Pin .....	EL0109B-275	for EL1007B and EL1007BC .....
20	Shield Plate (for EL0410BC and EL1007BC) .....	EL0410BC-42	40 Spindle Assembly .....
21	Vacuum Tube (for EL0410BC and EL1007BC) .....	EL0410BC-43	41 Spindle Planet Gear (3)
22	Vacuum Tube Nozzle (for EL0410BC and EL1007BC) .....	EL0410BC-44	for EL0410B and EL0410BC .....
			for EL1007B and EL1007BC .....



## EL0410B, EL0410BC, EL1007B AND EL1007BC ELECTRIC SCREWDRIVERS *(continued)*

PART NUMBER FOR ORDERING

PART NUMBER FOR ORDERING

42	Thrust Washer .....	EL0410B-109	59	Bit Retainer Sleeve Spring.....	EL0410B-931
43	Cam		60	Bit Retainer Retaining Ring (front).....	EP4007N-683
	for EL0410B and EL0410BC .....	EL0410B-581	61	Packing Ring (for EL0410BC	
	for EL1007B and EL1007BC .....	EL1007B-581		and EL1007BC) .....	EL0410BC-45
44	Cam Pin (2) (for EL1007B and EL1007BC).....	EL1007B-587	62	Nose Collar (for EL0410BC	
45	Cam Collar (for EL1007B			and EL1007BC) .....	EL0410BC-46
	and EL1007BC) .....	EL1007B-588	63	O-ring (for EL0410BC and EL1007BC).....	EL0410BC-47
46	Push Rod (1.650" long) .....	EL0109B-435	64	Filter (for EL0410BC and EL1007BC).....	EL0410BC-48
47	Cam Guide Sleeve .....	EL410B-408	65	Front Cap (for EL0410BC and EL1007BC) .....	EL0410BC-49
48	Bit Holder Assembly .....	EL1007B-586	66	Sleeve Holder (for EL0410BC and EL1007BC)...	EL0410BC-50
49	Cam Guide Ball (2) .....	EL1007B-933	67	Holder Spring (for EL0410BC and EL1007BC)...	EL0410BC-51
50	Bit Retaining Ball (2) (.094" dia.).....	R000B-263	68	Holder Retaining Ring (for EL0410BC	
51	Clutch Spring			and EL1007BC) .....	EL0410BC-52
	for EL0410B and EL0410BC .....	EL0410B-583	69	Vacuum Sleeve (for EL0410BC and EL1007BC)..	EL0410BC-53
	for EL1007B and EL1007BC .....	EL1007B-583	70	Vacuum Sleeve Lockout (for EL0410BC	
52	Clutch Spring Plate .....	EL0410B-623		and EL1007BC) .....	EL0410BC-54
53	Clutch Housing .....	EL0410B-580	71	Insulator .....	EL0109B-330
54	Clutch Adjusting Pin (3)		*	Switch Adjusting Gauge .....	EL0410B-SG
	for EL0410B and EL0410BC .....	EL0410B-416	*	Gear Case Fixture .....	EL0410B-J37
	for EL1007B and EL1007BC .....	EL1007B-416	*	Brush Package (10 pieces).....	EL0109B-BP
55	Bit Retainer Retaining Ring .....	EP4007N-584	*	Hardware Package (includes illustrated items	
56	Coupling .....	EL0109B-125		2[3], 11[2], 12[2], 13, 16[2], 18, 19, 25, 26[2],	
57	Clutch Adjusting Ring .....	EL0109B-582		34[2], and 60 .....	EL0109B-HP
58	Bit Retainer Sleeve .....	EL0410B-930			

\* Not illustrated.



## MODEL EL0109B ELECTRIC SCREWDRIVER

PART NUMBER FOR ORDERING

PART NUMBER FOR ORDERING

1	Clutch Adjusting Ring . . . . .	EL0109B-582	36	Push Rod (1.403" long) . . . . .	EL0109B-436
2	Bit Retainer Spring . . . . .	EL0109B-931	37	Plunger . . . . .	EL0109B-593
3	Bit Retainer Retaining Ring . . . . .	EP4007N-683	38	Plunger Spring . . . . .	EL0109B-595
4	Bit Retainer Sleeve . . . . .	EP4007N-930	39	Shutoff Switch Plate . . . . .	EL0109B-221
5	Bit Retainer Sleeve Spring . . . . .	EP4007N-931	40	Switch Plate Screw (2) . . . . .	-----
6	Coupling . . . . .	EL0109B-125	41	Switch Plate Screw Lock Washer (2) . . . . .	-----
7	Clutch Adjusting Pin (3) . . . . .	EP4007N-416	42	Brake Microswitch . . . . .	EL0109B-223
8	Clutch Housing . . . . .	EL0109B-580	43	Microswitch Screw (2) . . . . .	-----
9	Clutch Spring Plate . . . . .	EL0109B-623		Housing Package . . . . .	SLE01-9-A40
10	Clutch Spring . . . . .	EL0109B-583	44	Housing . . . . .	-----
11	Bit Retaining Ball (2mm dia.) . . . . .	EL0109M-932	45	Housing Screw (3) . . . . .	-----
12	Bit Holder Assembly (2) . . . . .	EL0109B-586	46	Warning Label . . . . .	EL0109B-99
13	Cam Guide . . . . .	EI0109B-681	47	Nameplate . . . . .	EL0109B-301
14	Cam Guide Ball (2) (3 mm dia.) . . . . .	EL0109B-933	48	Reverse Switch . . . . .	EL0109B-329
15	Cam Guide Sleeve Assembly . . . . .	EL0109B-408	49	Insulator . . . . .	EL0109B-330
16	Cam . . . . .	EL0109B-581	50	Trigger Switch . . . . .	EL0109B-222
17	Push Rod (1.650" long) . . . . .	EL0109B-435	51	Trigger . . . . .	EL0109B-93
18	Spindle Assembly . . . . .	EL0109B-108	52	Trigger Spring . . . . .	EL0109B-274
19	Spindle Planet Gear (3) . . . . .	EL0109B-9	53	Trigger Pin . . . . .	EL0109B-275
20	Gear Head Assembly . . . . .	EL0109B-216	54	Housing Bushing . . . . .	EL0109B-465
21	Gear Head Planet Gear (3) . . . . .	EL0109B-10	55	Power Cord Assembly . . . . .	EL0109B-239
22	Gear Case . . . . .	EL0109B-37	56	Suspension Bail . . . . .	EL0109B-365
23	Motor Clamp Spacer . . . . .	EL0109B-207	*	Switch Adjusting Gauge . . . . .	EL0410B-SG
	Motor Assembly . . . . .	EL0109B-A53	*	Gear Case Fixture . . . . .	EL0410B-J37
24	Front End Plate . . . . .	EL0109B-11	*	Hardware Package (includes parts 3, 11, 31[2], 34[2], 35, 37, 40[2], 41[2], 43[2], 45[3], 52, and 53 . . . . .	EL0109B-HP
25	Field . . . . .	EL0109B-54			
26	Armature . . . . .	EL0109B-53			
27	Shim (.375" O.D. X .015 thick) . . . . .	EL0109B-55			
28	Shim (.238" O.D. X .020 thick) . . . . .	EL0109B-56			
29	Rear Armature Bearing . . . . .	EL0109B-22			
30	Plate . . . . .	EL0109B-13			
31	Motor Assembly Spring (2) . . . . .	EL0109B-98			
32	Rear End Plate . . . . .	EL0109B-12			
	Brush Package . . . . .	EL0109B-BP			
33	Brush Assembly (2) (pkg. of 10) . . . . .	-----			
34	Brush Screw (2) . . . . .	-----			
35	Brush Spring . . . . .	EL0109B-16			

\* Not illustrated.

## MAINTENANCE SECTION

### DISASSEMBLY

#### WARNING

Always wear eye protection when operating or performing maintenance on this tool. Always turn off the electrical supply and disconnect the electrical cord before insalling, removing or adjusting any accessory on this tool, or before performing any maintenance on this tool.

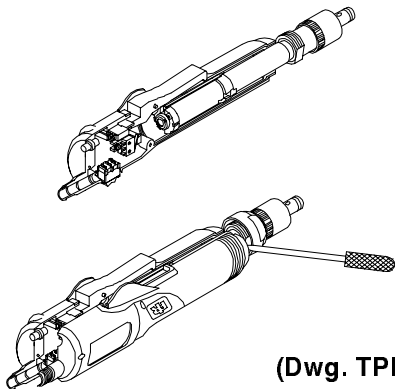
#### Disassembly of the Housing

1. To disassemble the Housing (1 or 44), begin by unscrewing the connection ring to remove the Power Cord (6 or 55).
2. Use a 29mm open end wrench to unscrew the Coupling (56 or 6).

#### NOTICE

**This is a left-hand thread.**

3. Using a #1 phillips screwdriver, remove the Housing Screws (2 or 45).
4. Separate the Housing by lifting the half with the three screw holes. If necessary, use a small screwdriver to pry the Housing apart. Refer to Dwg. TPD1816.



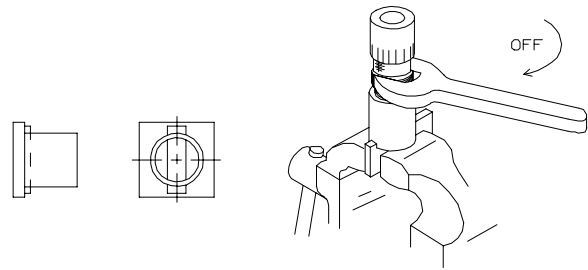
(Dwg. TPD1816)

5. Remove the Trigger (17 or 51), Trigger Spring (18 or 52) and the Trigger Pin (19 or 53).
6. Remove the Housing Bushing (7 or 54) from the back of the tool.

#### Disassembly of the Clutch Housing and Gear Case

1. Lift the Clutch Housing (53 or 8), Gear Case (37 or 22) and Motor Assembly from the Housing. While holding firmly, pull the Gear Case away.
2. Tap the end of the Gear Case on the work bench to remove the Motor Clamp Spacer (36 or 23) and the Gear Head Assembly (38 or 20).
3. Remove the Gear Head Planet Gears (39 or 21) from the Gear Head.
4. Remove the Push Rod (46 or 17) from the Gear Case. Fit the two notches at the rear end of the Gear Case

into the Gear Case Fixture part no. EL0410B-J37. Refer to Dwg. TPD1813.



(Dwg. TPD1813)

5. Using a slotted screwdriver, remove the Front Bit Retainer Retaining Ring (60 or 3) from the Bit Holder Assembly (48 or 12).
7. Remove the two Bit Retaining Balls (50) from the Bit Holder by tapping the Bit Holder on the work bench.
6. Remove the Bit Retainer Sleeve (58 or 4) and Bit Retainer Sleeve Spring (59 or 5).

#### NOTICE

**Model EL0109 has only one Bit Retaining Ball (11).**

8. Unscrew and remove the Clutch Adjusting Ring (57 or 1) from the Clutch Housing.  
**For Model EL0109B**, also remove the Bit Retainer Spring (2).
9. Remove the three Clutch Adjusting Pins (54 or 7) from the Clutch Housing and the Bit Retainer Sleeve Spring.
10. Remove the Bit Retainer Retaining Ring (55) using external snap ring pliers.
11. Using a 21mm open end wrench on the flats of the Clutch Housing Assembly, unscrew and remove the Clutch Housing.

#### NOTICE

**This is a left-hand thread.**

12. Remove the Clutch Spring Plate (52 or 9) and the Clutch Spring (51 or 10).
13. Lift the Bit Holder Assembly from the Gear Case.  
**For Model EL0109B**, remove the Cam Guide (13) and the two Cam Guide Balls (14) from the Bit Holder. **For Models EL1007 and EL0410**, remove the two Cam Guide Balls (49) and the Cam Guide Sleeve (47) from the Bit Holder Assembly (48).
14. Remove the Gear Case from the Gear Case Fixture. Turn it over and push the Spindle Assembly (40 or 18) from the Case.

## MAINTENANCE SECTION

15. Remove the Spindle Planet Gears (41 or 19) from the Spindle Assembly.
16. **For Model EL0109**, remove the Cam (16) and Cam Guide Sleeve Assembly (15) from the bearing.  
**For Model EL1007**, remove the Cam Collar (45), the Cam (43), two Cam Pins (44) and the Thrust Washer (42).

### Cleaning and Inspection of the Tool

1. Clean all mechanical parts you have disassembled in an approved safety solvent in a well-ventilated area. Inspect for damage or wear.
2. **For all Models**, inspect the Bit Holder Assembly. If the bearing does not rotate smoothly, replace the Bit Holder Assembly.
3. Inspect the Cam. If it is worn, replace it.
4. **For Model EL1007**, inspect the Cam Pins (44). If they are worn, replace them.
5. **For Model EL0109**, inspect the Cam Guide Sleeve. If the bearing of the Cam Guide Sleeve does not rotate smoothly, replace it.
6. Inspect all the Gear Head Planet Gears. If the teeth are worn or damaged, replace them.
7. Inspect the Gear Case. If the inner gear teeth are worn or damaged, replace them.
8. Inspect the Spindle Assembly. If the bearing does not rotate smoothly, replace the Spindle Assembly.

### Disassembly and Inspection of the Motor

1. Remove the Motor Assembly, the Plunger (13 or 37) and the Plunger Spring (14 or 38) from the Housing.
2. Using a thin slotted screwdriver, release the tension on the Brush Spring (25 or 35) and remove the two Brush Assemblies (24 or 33) from the Rear End Plate (23 or 32).
3. Carefully pull the copper wires to remove the Brush Assemblies from

#### NOTICE

#### Be careful not to damage the wires.

If the Brush Assemblies need to be replaced, desolder the blue and red Motor wires and remove the Brush Screws (26 or 34).

4. Using a thin blade screwdriver, remove the Motor Assembly Springs (34 or 31) by inserting the screwdriver between the Springs and the Rear End Plate and prying upward.
5. Remove the Front End Plate (33 or 24) from the Field (32 or 25).
6. Remove the Rear End Plate and the Motor Plate (27 or 30) by inserting a slotted screwdriver into the space between the Rear End Plate and the Field and prying upward.

7. While pushing the Rear Armature Bearing (28 or 29), pull the Armature (31 or 26) from the Field.

#### NOTICE

**Do not damage the commutator or windings on the Armature. Hold the Armature body, not the commutator, when removing.**

8. Remove the Push Rod (35 or 36) from the Armature.
9. Inspect the Push Rod. If it is worn, replace it.
10. Inspect the Rear Armature Bearing. If it does not rotate smoothly, replace it.
11. Inspect the gear teeth on the Armature. If they are worn or damaged, replace the Armature.
12. Inspect the front Armature Bearing. If it does not rotate smoothly, replace the Armature.
13. Inspect the commutator. If it is worn, replace the Armature.
14. Clean the Armature, Field, Motor Plate and the End Plates using a piece of fine cloth. For excess contamination, spray with contact cleaner and brush if necessary.

### Disassembly and Inspection of the Electronics

1. To remove the Trigger Switch (8 or 50), Reverse Switch (9 or 48) or Brake Switch (15 or 42), remove any screws and pull the Switch from the Housing. Desolder and remove the lead wires.
2. To remove the Insulator (71 or 49), desolder the lead wires.

## ASSEMBLY

### Assembly of the Electronics

#### NOTICE

**Before soldering any wire, slip a piece of heat shrinkable tubing over the wire.**

1. To assemble the Electronic Components, resolder all wires to the Insulator (71 or 49). Also resolder all wires to the Brake Switch (15 or 42) and the Trigger Switch (8 or 50).
2. Reattach the Brake Switch to the Switch Plate (10 or 39) and screw the Plate into the Housing (1 or 44).
3. Insert all electronic components into their proper locations. Refer to Dwg. TPD1817 on page 13.

#### NOTICE

**Be sure the notch in the Insulator fits with the tab in the Housing.**

## MAINTENANCE SECTION

### Assembly of the Motor

1. Carefully insert the gear end of the Armature (31 or 26) into the notched side of the Field (32 or 25).

#### NOTICE

**Be careful not to damage the commutator or windings.**

2. Install the Front End Plate (33 or 24) onto the Field.
3. Place the Motor Plate (27 or 30) onto the Rear End Plate (23 or 32).

#### NOTICE

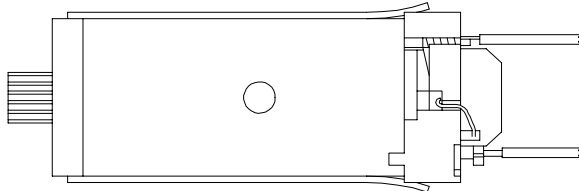
**Be sure to install the Motor Plate correctly. The edge of the Motor Plate must be parallel to the step in the Rear End Plate.**

4. Push the Rear End Plate into the notches of the Field.
5. Snap the Motor Assembly Springs (34 or 31) into the notches of the End Plates.
6. Insert the Brush Assembly (24 or 33) into the Rear End Plate. Be careful not to twist or damage the copper wire.

#### NOTICE

**Make sure the Brush Assembly is positioned correctly. The connection point of the copper wire on the Brush Assembly should be closer to the rear end than the front end of the Motor Assembly.**

7. Insert the Brush Spring (25 or 35) into the Rear End Plate. Using a small screwdriver to tension the Spring, insert the end of the Brush Spring into the notch on the End Plate.
8. Solder the blue and red Motor lead wires if the Brush Springs were replaced. Refer to Dwg. TPD1814.



(Dwg. TPD1814)

9. Apply grease to both ends of the Push Rod (35 or 36) and insert it into the center hole of the Motor Assembly.

### Assembly of the Gear Case and Clutch Housing

1. Place the three Spindle Planet Gears (41 or 19) onto the Spindle Assembly (40 or 18).
2. Place the three Gear Head Planet Gears (39 or 21) onto the Gear Head Assembly (38 or 20).
3. Grease the gears.
4. Place the Gear Head Assembly onto the Spindle Assembly.
5. Grease both sides of the Thrust Washer (42) and place it on the Spindle bearing.
6. Insert the Cam (43 or 16) into the Spindle Assembly.

7. While rotating the Gear Case (37 or 22) and holding the Cam, insert all parts into the Gear Case.
8. Grease the Gear Case side of the Motor Clamp Spacer (36 or 23) and insert the Motor Clamp Spacer into the Gear Case.
9. **For Model EL1007**, grease the notches on the Cam and place the two Cam Pins (44) into the notches.
10. Grease the inside of the Bit Holder Assembly (48 or 12).
11. Insert the Cam Guide Sleeve (47 or 15) into the Bit Holder.
12. Grease the ball bearings under the spring support on the Bit Holder Assembly.
13. Grease the holes on the Bit Holder and insert the two Cam Guide Balls (49 or 14).
14. **For Model EL1007**, grease the inside of the Cam Collar (45) and place it onto the Bit Holder.
15. **For Model EL0109**, grease the bottom end of the Bit Holder Assembly and place the Cam Guide (13) onto the Bit Holder. Grease the holes in the Cam Guide and insert the two Cam Guide Balls.
16. Fit the two notches at the rear of the Gear Case Assembly into the Gear Case Fixture part no. EL0410B-J37.
17. Place the Bit Holder Assembly into the Gear Case.
18. Place the Clutch Spring (51 or 10) and the Clutch Spring Plate (52 or 9) over the Bit Holder.
19. Place the Clutch Housing (53 or 8) partially into the Gear Case.

#### NOTICE

**This is a left-hand thread.**

At the middle of the Clutch Housing threads apply Loctite (R)\* Thread Locker 3 Bond 1406 to three of the threads. Screw the Clutch Housing all the way into the Gear Case.

20. Using an open end torque wrench, tighten the Clutch Housing to 20 Nm torque.
21. Install the Bit Retainer Retaining Ring (55 or 3) into the groove of the Bit Holder. Place the side with the sharp edge first.
22. Apply grease to the holes of the Bit Holder and insert the two Bit Retaining Balls (50 or 11) into the Bit Holder.

#### NOTICE

**Model EL0109 has only one Bit Retaining Ball.**

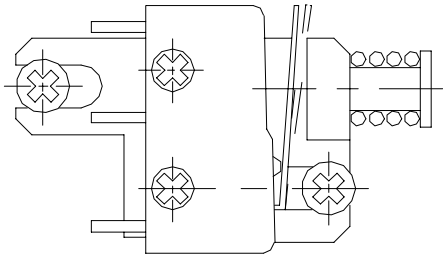
23. Apply grease to one end of each Clutch Adjusting Pin (54 or 7) and insert them into the Clutch Housing.
24. **For Model EL0109**, place the Clutch Adjusting Ring (1) and Bit Retainer Spring (2) onto the Clutch Housing.
25. Grease the inside lip of the Clutch Adjusting Ring and thread it onto the Clutch Housing.
26. Install the Bit Retainer Sleeve Spring (59 or 5). Grease the inside of the Bit Retainer Sleeve (58 or 4) and place it onto the Bit Holder.

## MAINTENANCE SECTION

27. Using a slotted screwdriver, install the Bit Retainer Retaining Ring into the groove of the Bit Holder.
28. Unclamp the Assembly Fixture from the vise and turn it over to remove the Clutch and Gear Case.
29. Grease both ends of the Push Rod (46 or 17) and insert it into the Gear Case.

### Adjustment of the Brake Switch Timing

1. If the Brake Switch needs adjusting, loosen the Switch Plate Screws (11 or 40). Refer to Dwg. TPD1815.



(Dwg. TPD1815)

2. Apply grease to the end of the Plunger (13 or 37) and insert it with the Plunger Spring (14 or 38) into the Switch Plate.
3. Insert a Switch Adjusting Gauge Rod part no. EL0410B-SG into the Motor Assembly.
4. Place the Gear Case and Motor together by aligning the Motor Assembly Springs with the notches in the Gear Case.
5. Place the Assembly into the Housing by aligning the hole in the Motor with the tab in the Housing.
6. Push the Brake Switch forward until the Switch clicks.
7. Tighten the Switch Plate Screws at this position to 1.6 KG-cm.

8. Remove the Switch Adjusting Gauge Rod. Grease and install the Push Rod (35 or 36) into the Motor Assembly and refit the hole in the Motor to the tab in the Housing.

### Assembly of the Housing

1. Install the Housing Bushing (7 or 54) in the groove of the Housing.
2. Install the Trigger (17 or 51) with the Trigger Pin (19 or 53) and Spring (18 or 52) into the Housing.
3. Install the second half of the Housing, while holding the Trigger in place.
4. Tighten the Housing Screws (2 or 45) to 1-1/2 inch pounds.

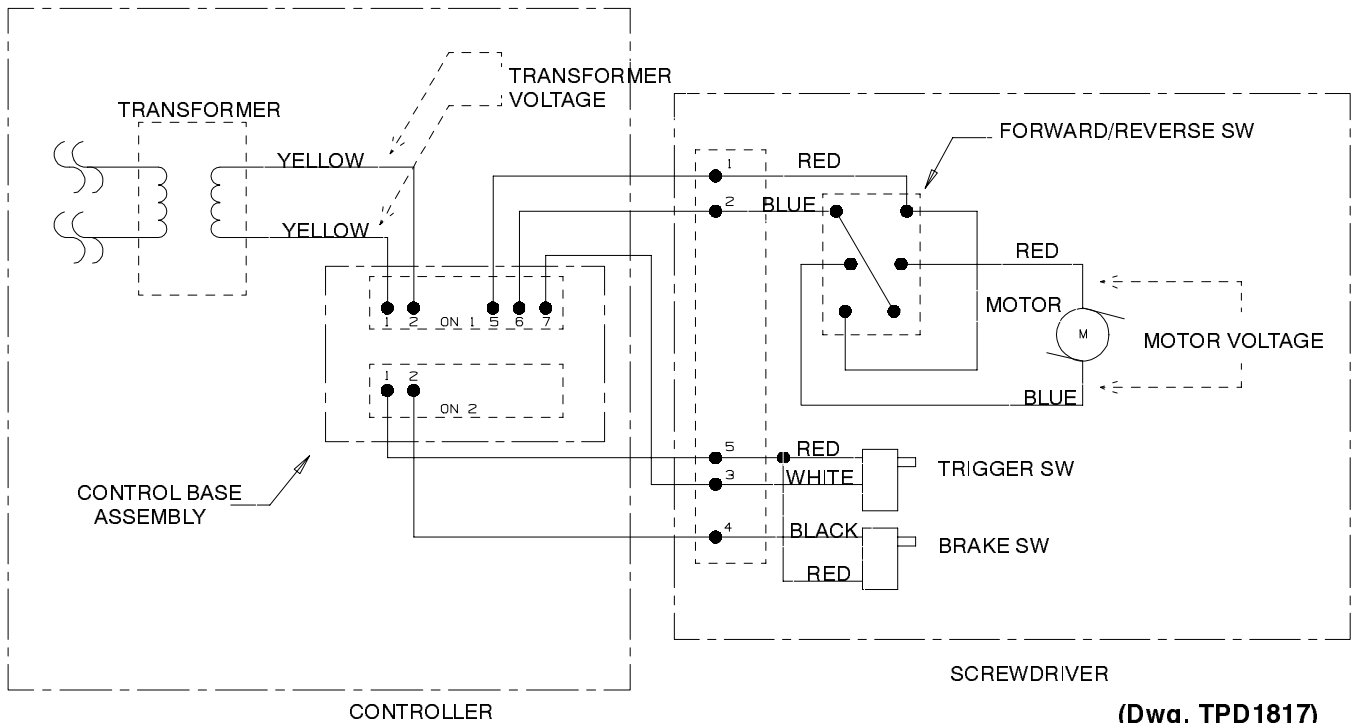
### NOTICE

**Do not overtighten the Housing Screws.**

5. Install the Coupling (56 or 6) with an open end torque wrench and tighten to 7 Nm torque.
6. Attach the Power Cord (6 or 55).
7. For repair and trouble shooting of the Controller, refer to the Operations and Maintenance Manual for Model EC24E and EC24N Screwdriver Controllers, Form No. P7196.

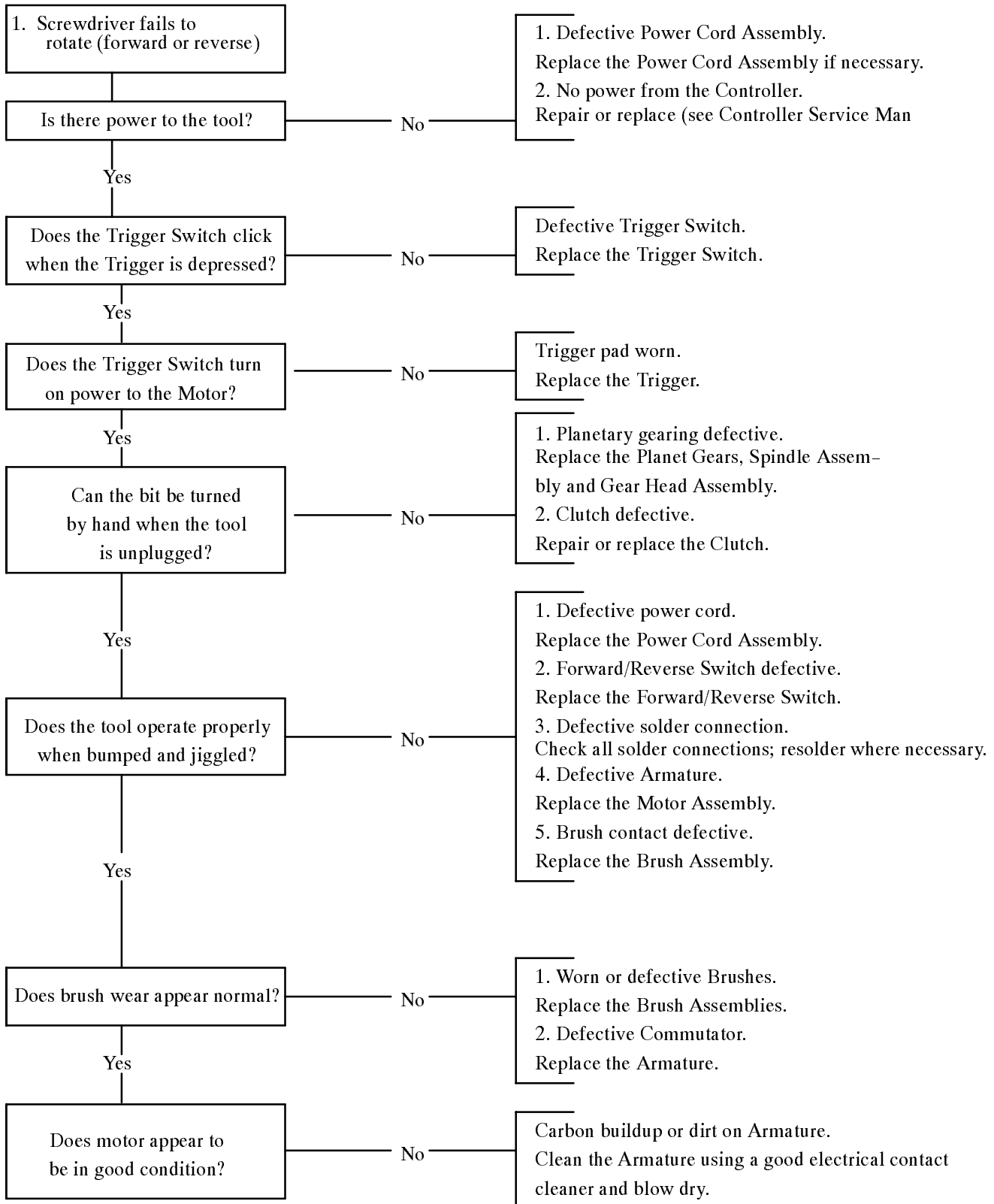
### Testing the Tool

1. Test forward and reverse operation of the tool by depressing the Trigger with the Reverse Switch (9 or 48) in each position.
2. Tighten the Clutch Adjusting Ring all the way, loosen it one turn and test for proper shut-off and maximum torque using an appropriate tester.
3. Reset the Clutch Adjusting Ring to mid-scale and check for torque repeatability by cycling the tool between 5-10 times.



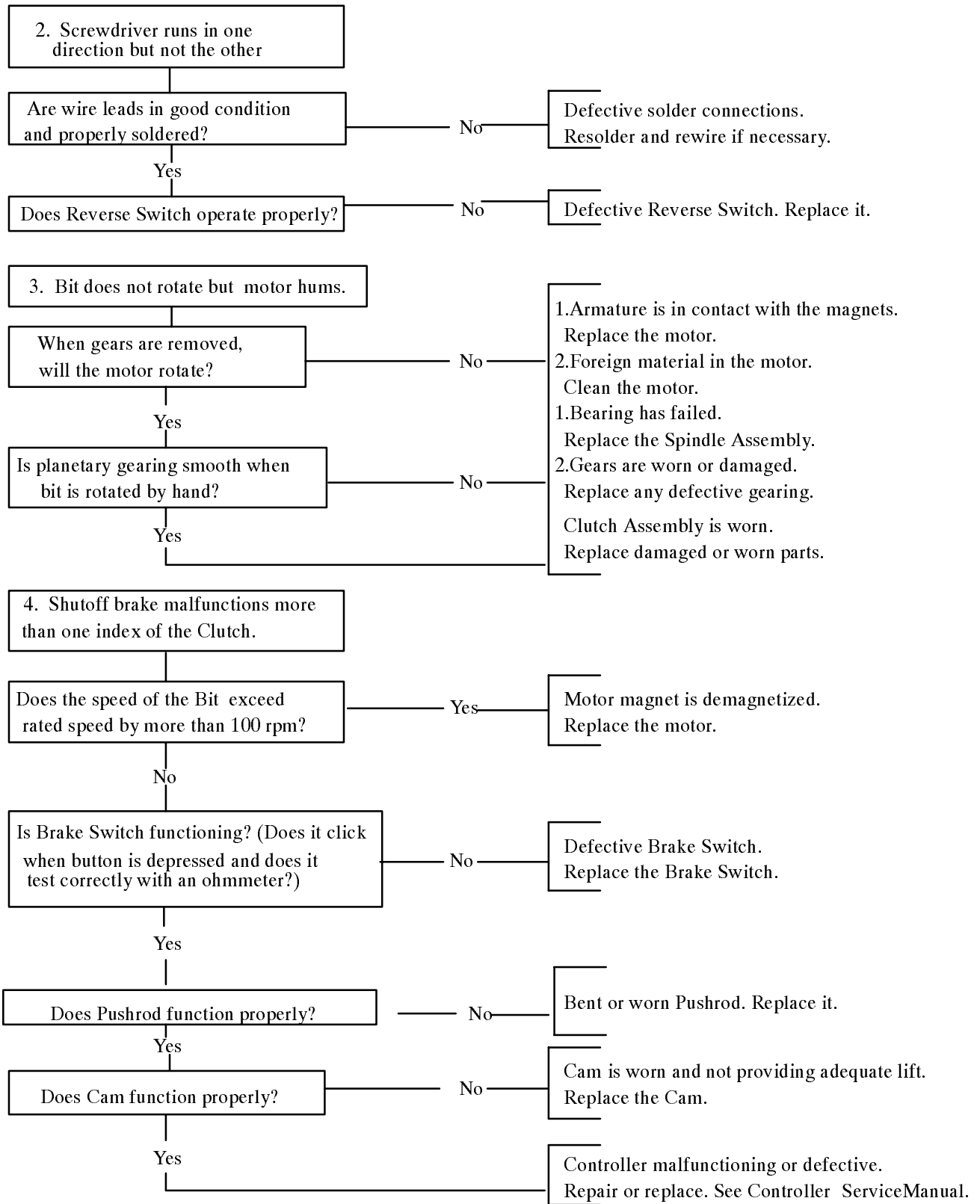
(Dwg. TPD1817)

## TROUBLESHOOTING GUIDE

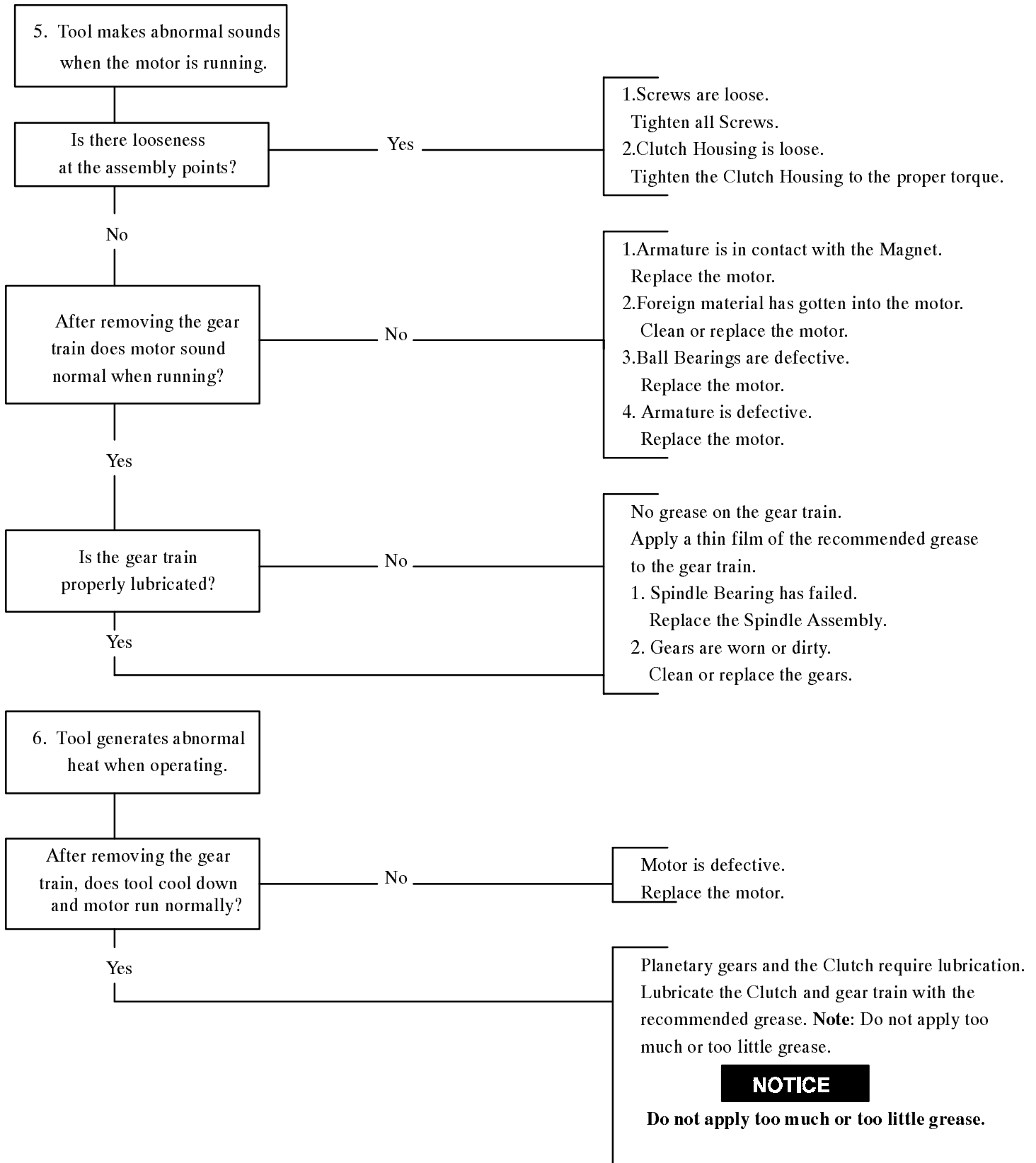




## TROUBLESHOOTING GUIDE (Continued)



## TROUBLESHOOTING GUIDE (Continued)



**NOTICE**

**Do not apply too much or too little grease.**

## TROUBLESHOOTING GUIDE (Continued)

