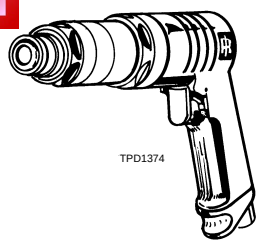

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Form P6411
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F E P

OPERATION AND MAINTENANCE MANUAL FOR SERIES 5 AIR SCREWDRIVERS

NOTICE

Series 5 Air Screwdrivers are designed for fastening applications in automotive and appliance assembly, the electronic and aerospace industries and for woodworking and furniture construction.

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 THIS MANUAL BEFORE OPERATING TOOL.
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.

PLACING TOOL IN SERVICE

- Always operate, inspect and maintain this tool in accordance with American National Standards Institute Safety Code for Portable Air Tools (ANSI B186.1).
- For safety, top performance, and maximum durability of parts, operate this tool at 90 psig (6.2 bar/620 kPa) maximum air pressure at the inlet with 1/4” (6 mm) inside diameter air supply hose.
- Always turn off the air supply and disconnect the air supply hose before installing, removing or adjusting any accessory on this tool, or before performing any maintenance on this tool.
- Do not use damaged, frayed or deteriorated air hoses and fittings.
- Be sure all hoses and fittings are the correct size and are tightly secured. See Dwg. TPD905–1 for a typical piping arrangement.
- Always use clean, dry air at 90 psig maximum air pressure. Dust, corrosive fumes and/or excessive moisture can ruin the motor of an air tool.
- Do not lubricate tools with flammable or volatile liquids such as kerosene, diesel or jet fuel.
- Do not remove any labels. Replace any damaged label.

USING THE TOOL

- Always wear eye protection when operating or performing maintenance on this tool.
- Always wear hearing protection when operating this tool.
- Keep hands, loose clothing and long hair away from rotating end of tool.
- Note the position of the reversing lever before operating the tool so as to be aware of the direction of rotation when operating the throttle.
- Anticipate and be alert for sudden changes in motion during start up and operation of any power tool.
- Keep body stance balanced and firm. Do not overreach when operating this tool. High reaction torques can occur at or below the recommended air pressure.
- Tool accessories may continue to rotate briefly after throttle is released.
- Air powered 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.
- Use accessories recommended by Ingersoll–Rand.
- The Throttle Valve Cap is under pressure from the Throttle Valve Spring. Use care when removing the Throttle Valve Cap. *(On tools where applicable.)*
- This tool is not designed for working in explosive atmospheres.
- This tool is not insulated against electric shock.

NOTICE

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

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

Refer All Communications to the Nearest Ingersoll–Rand Office or Distributor.

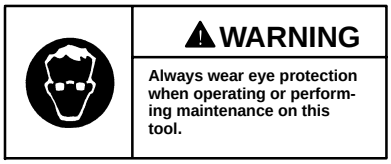
Printed in U.S.A.

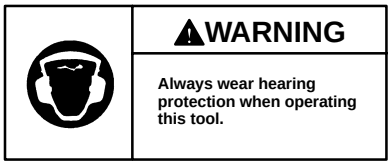
INGERSOLL-RAND®
PROFESSIONAL TOOLS

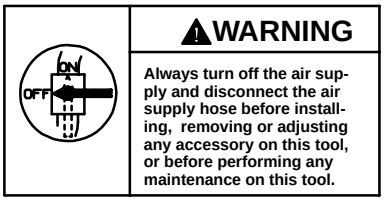
WARNING LABEL IDENTIFICATION

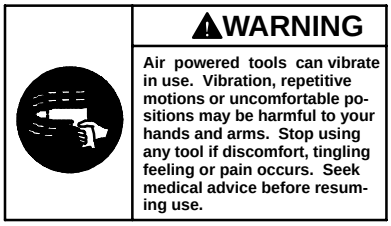
⚠ WARNING

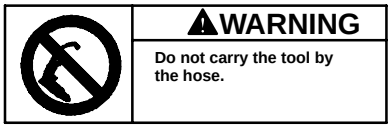
FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

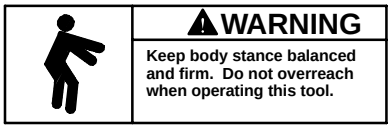


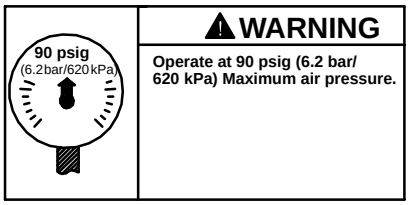












ADJUSTMENTS

CLUTCH ADJUSTMENT

No. 5C1 and 5C3 Attachments incorporate an adjustable clutch that can be externally adjusted within a certain range to ratchet when a predetermined torque has been delivered.
To increase the adjustable torque range, two Clutch Springs are offered.
The **Heavy Clutch Spring** (color–coded green for identification) is suitable for the majority of application since it will give precise adjustment from medium–light to the maximum torque of the Tool.
The **Light Clutch Spring** (color–coded black for identification) is for applications ranging from very light to medium–light torque.

⚠ WARNING

Disconnect the air supply from the Tool before proceeding.

To adjust the Clutch, proceed as follows:

1. Rotate the Adjusting Hose Cover on the Clutch Housing to expose the adjusting hole.
2. Insert a 1/4” hexagon steel (Allen Key) into the hexagon recess in the Bit Holder. Rotate the clutch mechanism until one of the radial holes in the Clutch Adjusting Nut is visible through the adjusting hole. Insert the end of the No. 5C1–416 Adjusting Key (a hardened steel pin or rod 3/32” [2 mm] diameter is also suitable) into the hole in the Adjusting Nut to sprag the Nut against rotation.
3. Grasp the Tool firmly in one hand and rotate the Bit Holder to shift the Nut along the Bit Holder. This is a left–hand thread; rotating the Bit Holder clockwise when facing the front increases the compression on the Clutch Spring and raises the torque at which the clutch will ratchet.

NOTICE

The most satisfactory adjustment is usually obtained by use of the Tool on the actual application, and increasing or decreasing the delivered torque until the desired setting is reached. In any event it is recommended that final adjustment be made by gradual progression. Observe also that the clutch, when equipped with the Heavy Spring, can be set beyond the torque capacity of the high speed, low–torque Tools, in which case the Tool will stall before the clutch ratchets.

PLACING TOOL IN SERVICE

LUBRICATION

Ingersoll–Rand No. 10

Ingersoll–Rand No. 28
Ingersoll–Rand No. 67

Always use an air line lubricator with these tools.
We recommend the following Filter–Lubricator–Regulator Unit:

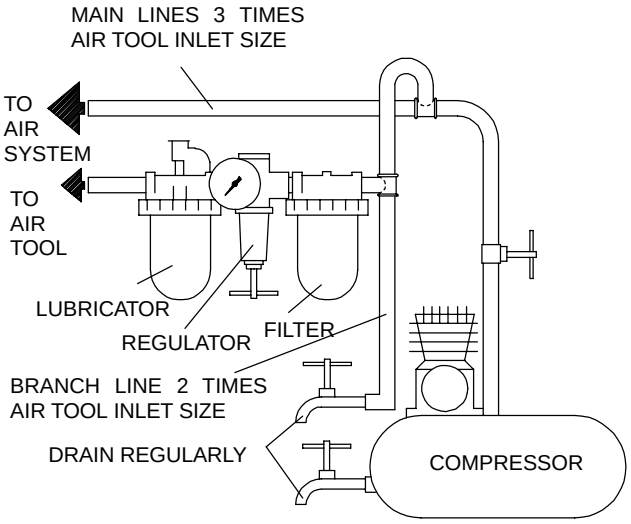
For USA – No. C18–03–FKG0–28

Before starting the tool and after eight hours of operation, unless the air line lubricator is used, place a few drops of Ingersoll–Rand No. 10 Oil into the air inlet.
After 50,000 cycles or each month, or as experience indicates, inject about 1.5 cc of Ingersoll–Rand No. 28 Grease into the Grease Fitting. Inject 2 cc for models with **J, K, and L** gearing and 4 cc for models with **N** gearing.

Adjustable Clutch

NOTICE

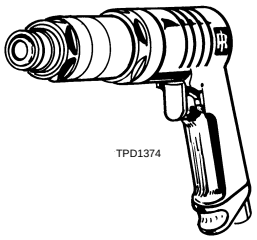
Rotate the Adjusting Hole Cover to expose the adjusting hole. Grasp the flats of the Nosepiece in a vise, being careful not to damage the flats. Insert a spanner wrench into the adjusting hole and unscrew the Housing from the Nosepiece. This is a left–hand thread. With a 1" open end wrench, grasp the flats of the Clutch Adjusting Nut. Insert a 1/4" Allen wrench into the Bit Holder and loosen until the holder touches the Bit Holder Stop. Grasp the Front Clutch Jaw lightly in the vise and with the Allen wrench in the Bit Holder, index the Holder until the Clutch Spring Seat rises to permit easy lubrication of the Clutch Balls. Inject one stroke (0.3 cc) of I–R No. 67 grease in three positions between the Jaw and Clutch Ball Spacer and three strokes in the balls of the Jaw. This should be done every 200 000 cycles or every four months, whichever occurs first.



(Dwg. TPD905–1)

REVERSIBLE PISTOL HANDLE with an ADJUSTABLE CUSHION CLUTCH		
	Torque Range (Soft Draw) 90 psi	
Model	in–lb	Nm
5RAKC1	14 – 25	1.6 – 2.8
5RALC1	13 – 35	1.5 – 4.0
5RALC3	13 – 35	1.5 – 4.0
5RANC1	13 – 70	1.5 – 8.0
5RANC3	13 – 70	1.5 – 8.0
REVERSIBLE LEVER THROTTLE with an ADJUSTABLE CUSHION CLUTCH		
5RLLC1	13 – 40	1.5 – 4.6
5RLLC3	13 – 40	1.5 – 4.6
5RLNC1	13 – 75	1.5 – 8.5
5RLNC3	13 – 75	1.5 – 8.5

REVERSIBLE PISTOL HANDLE with a POSITIVE JAW CLUTCH				
	Torque Range (Soft Draw) 50 psi		Torque Range (Soft Draw) 90 psi	
	in–lb	Nm	in–lb	Nm
5RAKP1	14	1.6	25	2.8
5RALP1	19	2.2	35	4.0
5RANP1	39	4.4	70	8.0
REVERSIBLE PISTOL HANDLE with DIRECT DRIVE				
5RAKD1	14	1.6	25	2.8
5RALD1	19	2.1	35	4.0
5RAND1	39	4.4	70	8.0



F

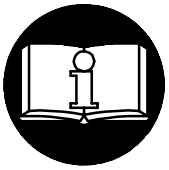
MANUEL D'EXPLOITATION ET D'ENTRETIEN DES TOURNEVIS PNEUMATIQUES DE LA SÉRIE 5

NOTE

Les tournevis pneumatiques de la série 5 sont destinés au serrage des fixations d'assemblage automobile et d'équipements ménagers, des industries électroniques et aérospatiales et pour le travail du bois et la construction des meubles.

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.

⚠ ATTENTION



D'IMPORTANTES INFORMATIONS DE SECURITÉ SONT JOINTES.
LIRE CE MANUEL AVANT D'UTILISER L'OUTIL.
L'EMPLOYEUR EST TENU À COMMUNIQUER LES INFORMATIONS DE CE MANUEL AUX EMPLOYÉS UTILISANT CET OUTIL.
LE NON RESPECT DES AVERTISSEMENTS SUIVANTS PEUT CAUSER DES BLESSURES

MISE EN SERVICE DE L'OUTIL

- **Toujours exploiter, inspecter et entretenir cet outil conformément au Code de sécurité des outils pneumatiques portatifs de l'American National Standards Institute (ANSI B186.1).**
- **Pour la sécurité, les performances optimales et la durabilité maximale des pièces, cet outil doit être connecté à une alimentation d'air comprimé de 6,2 bar (620kPa) maximum à l'entrée, avec un flexible de 6 mm de diamètre intérieur.**
- **Couper toujours l'alimentation d'air comprimé et débrancher le flexible d'alimentation avant d'installer, déposer ou ajuster tout accessoire sur cet outil, ou d'entreprendre une opération d'entretien quelconque sur l'outil.**
- **Ne pas utiliser des flexibles ou des raccords endommagés, effilochés ou détériorés.**
- **S'assurer que tous les flexibles et les raccords sont correctement dimensionnés et bien serrés. Voir Plan TPD905–1 pour un exemple type d'agencement des tuyauteries.**
- **Utiliser toujours de l'air sec et propre à une pression maximum de 6,2 bar. La poussière, les fumées corrosives et/ou une humidité excessive peuvent endommager le moteur d'un outil pneumatique.**
- **Ne jamais lubrifier les outils avec des liquides inflammables ou volatiles tels que le kérosène, le gasol ou le carburant d'aviation.**
- **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.**
- **Porter toujours une protection acoustique pendant l'utilisation de cet outil.**
- **Tenir les mains, les vêtements flous et les cheveux longs, éloignés de l'extrémité rotative de l'outil.**
- **Noter la position du levier d'inversion avant de mettre l'outil en marche de manière à savoir dans quel sens il va tourner lorsque la commande est actionnée.**
- **Prévoir, et ne pas oublier, que tout outil motorisé est susceptible d'à–coups brusques lors de sa mise en marche et pendant son utilisation.**
- **Garder une position équilibrée et ferme. Ne pas se pencher trop en avant pendant l'utilisation de cet outil. Des couples de réaction élevés peuvent se produire à, ou en dessous, de la pression d'air recommandée.**
- **La rotation des accessoires de l'outil peut continuer pendant un certain temps après le relâchement de la gâchette.**
- **Les outils pneumatiques peuvent vibrer pendant l'exploitation. 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.**
- **Utiliser les accessoires recommandés par Ingersoll-Rand.**
- **Le chapeau de la soupape de commande est soumis à la pression du ressort de soupape. Prendre les soins nécessaires lors de la dépose du chapeau de soupape de commande. *(Sur les outils concernés)*.**
- **Cet outil n'est pas conçu pour fonctionner dans des atmosphères explosives.**
- **Cet outil n'est pas isolé contre les chocs électriques.**

NOTE

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

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

Adressez toutes vos communications au Bureau Ingersoll–Rand ou distributeur le plus proche.

Imprimé aux É.U.

INGERSOLL-RAND®
PROFESSIONAL TOOLS

SIGNIFICATION DES ETIQUETTES D'AVERTISSEMENT

⚠ ATTENTION

LE NON RESPECT DES AVERTISSEMENTS SUIVANTS PEUT CAUSER DES BLESSURES

⚠ ATTENTION

Porter toujours des lunettes de protection pendant l'utilisation et l'entretien de cet outil.

⚠ ATTENTION

Porter toujours une protection acoustique pendant l'utilisation de cet outil.

⚠ ATTENTION

Couper toujours l'alimentation d'air comprimé et débrancher le flexible d'alimentation avant d'installer, déposer ou ajuster tout accessoire sur cet outil, ou d'entreprendre une opération d'entretien quelconque sur l'outil.

⚠ ATTENTION

Les outils pneumatiques peuvent vibrer pendant l'exploitation. 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.

⚠ ATTENTION

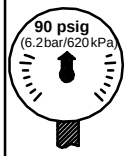
Ne pas transporter l'outil par son flexible.

⚠ ATTENTION

Ne pas utiliser des flexibles ou des raccords endommageés, effilochés ou détériorés.

⚠ ATTENTION

Garder une position équilibrée et ferme. Ne pas se pencher trop en avant pendant l'utilisation de cet outil.



⚠ ATTENTION

Utiliser de l'air comprimé à une pression maximum de 6,2 bar (620 kPa).

RÉGLAGES

REGLAGE DU LIMITEUR

Les accessoires No. 5C1 et 5C3 comportent un limiteur réglable qui peut être réglé extérieurement dans une certaine gamme de manière à débrayer lorsqu'un couple prédéterminé est atteint.

La gamme de réglage du couple est couverte par deux ressorts de limiteur.

Le ressort de limiteur type fort (identifié par un code couleur vert) convient à la majorité des applications et donne un réglage précis entre le couple moyen–léger et maximum de l'outil.

Le ressort de limiteur type léger (identifié par un code couleur noir) est destiné aux applications demandant un couple très léger à moyen–léger.

⚠ ATTENTION

Débrancher le flexible d'alimentation d'air comprimé de l'outil avant de continuer.

Pour régler le limiteur, procéder comme suit :

1. Tourner le capot du trou de réglage du corps de limiteur pour découvrir le trou de réglage.
2. Insérer une tige hexagonale en acier de 1/4" (clé Allen) dans le trou hexagonal du porte–embout. Tourner le mécanisme du limiteur jusqu'à ce que l'un des trous radiaux de l'écrou de réglage du limiteur soit visible à travers le trou de réglage. Insérer l'extrémité de la clé de réglage No. 5C1–416 (une goupille ou broche en acier trempé de 2 mm de diamètre peut également être utilisée) dans le trou de l'écrou de réglage pour l'empêcher de tourner.
3. Saisir fermement l'outil dans une main et tourner le porte–embout pour déplacer l'écrou le long du porte–embout. Ce filetage a un pas à gauche; la rotation du porte–embout dans le sens des aiguilles d'une montre, vu de l'avant, augmente la compression du ressort du limiteur et par conséquent le couple de débrayage du crabot.

NOTE

La meilleure façon d'effectuer le réglage est d'utiliser l'outil sur l'application réelle et d'augmenter ou de diminuer le couple fourni jusqu'à ce que la valeur recherchée soit obtenue. Dans tous les cas, il est recommandé d'arriver progressivement au réglage final. Il est aussi bon de noter que le limiteur équipé du ressort de type fort peut être réglé au–delà de la capacité des outils à grande vitesse et faible couple; dans ce cas, l'outil se calera avant le déclenchement du crabot du limiteur.

LUBRIFICATION

Ingersoll–Rand No. 10 **Ingersoll–Rand No. 28**
Ingersoll–Rand No. 67

Utiliser toujours un lubrificateur avec ces outils. Nous recommandons l'emploi du filtre–régulateur–lubrificateur suivant :

É.U. – . C18–03–FKG0–28

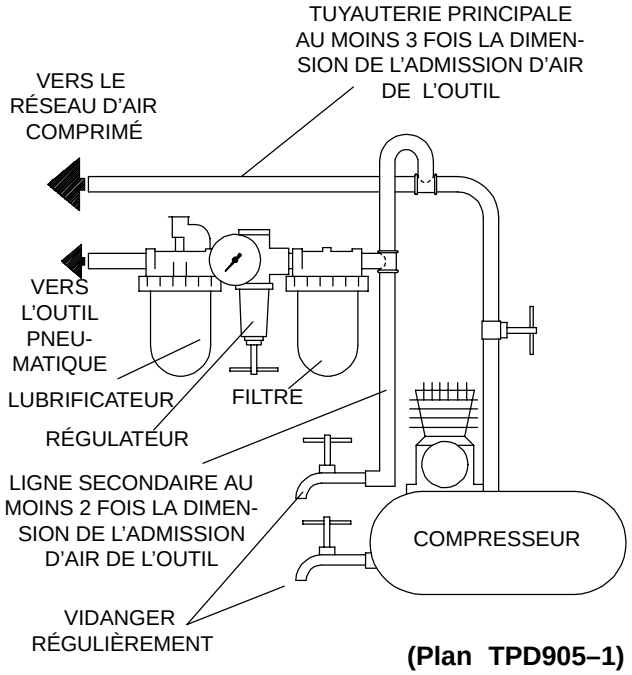
Avant de mettre l'outil en marche et toutes les huit heures de fonctionnement, si un lubrificateur de ligne n'est pas utilisé, injecter quelques gouttes d'huile dans le raccord d'admission.

Tous les 50.000 cycles ou tous les mois, ou en fonction de l'expérience, injecter environ 1,5 cm^3 de graisse Ingersoll–Rand No. 28 dans le raccord de graissage. Injecter 2 cm^3 dans les modèles dotés des rapports J, K ou L et 4 cm^3 dans les modèles dotés du rapport N.

Limiteur Réglable

NOTE

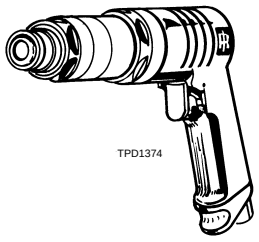
Tourner le capot du trou de réglage pour découvrir le trou de réglage. Serrer les plats du nez dans un étau, en prenant soin de ne pas endommager les plats. Insérer une clé à ergot dans le trou de réglage et dévisser le carter du nez. Ce filetage a un pas à gauche. Placer une clé ouverte de 1" sur les plats de l'écrou de réglage de limiteur. Insérer une clé Allen de 1/4" dans le porte–embout et le desserrer jusqu'à ce que le porte–embout touche la butée de porte–embout. Serrer légèrement le crabot de limiteur avant dans un étau et, avec la clé Allen dans le porte–embout, indexer le porte–embout jusqu'à ce que le siège du ressort de limiteur se soulève pour permettre la lubrification des billes de limiteur. Injecter un coup (0,3 cm^3) de graisse Ingersoll–Rand No. 67 en trois endroits entre le crabot et l'entretoise des billes du limiteur et trois coups dans les billes du crabot. Cette opération doit être effectué tous les 200 000 cycles ou tous les quatre mois au minimum.



(Plan TPD905–1)

SPÉCIFICATIONS

Modèle	Poignée	Limiteur/ Entraîneur	Gamme de couples recommandée
			pouces
5RAKC1	pistolet réversible	amortisseur réglable	14–25 (1,6–2,8)
5RALC1	pistolet réversible	amortisseur réglable	13–35 (1,5–4,0)
5RALC3	pistolet réversible	amortisseur réglable	13–35 (1,5–4,0)
5RANC1	pistolet réversible	amortisseur réglable	13–70 (1,5–8,0)
5RANC3	pistolet réversible	amortisseur réglable	13–70 (1,5–8,0)
5RLLC1	commande à levier réversible	amortisseur réglable	13–40 (1,5–4,6)
5RLLC3	commande à levier réversible	amortisseur réglable	13–40 (1,5–4,6)
5RLNC1	commande à levier réversible	amortisseur réglable	13–75 (1,5–8,5)
5RLNC3		amortisseur réglable	13–75 (1,5–8,5)
Modèle	**Poignée**	**Limiteur/ Entraîneur**	**Gamme de couples recommandée**
			pouces
5RAKP1	pistolet réversible	clabot	50 psi/14 (1,6) 90 psi/25 (2,8)
5RALP1	pistolet réversible	clabot	50 psi/19 (2,2) 90 psi/35 (4,0)
5RANP1	pistolet réversible	clabot	50 psi/39 (4,4) 90 psi/70 (8,0)
5RAKD1	pistolet réversible	entraînement direct	50 psi/14 (1,6) 90 psi/25 (2,8)
5RALD1	pistolet réversible	entraînement direct	50 psi/19 (2,2) 90 psi/35 (4,0)
5RAND1	pistolet réversible	entraînement direct	50 PSI/39 (4,4) 90 PSI/70 (8,0)



E

MANUAL DE USO Y MANTENIMIENTO PARA ATORNILLADORES NEUMÁTICOS MODELO 5

NOTA

Los Atornilladores Modelo 5 están diseñados para aplicaciones de montaje en la industria del automóvil y electrodomésticos, industrias electrónica y aeroespacial y para carpintería e industria del mueble.
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.

⚠ AVISO

**SE ADJUNTA INFORMACIÓN IMPORTANTE DE SEGURIDAD.
LEA ESTE MANUAL ANTES DE USAR LA 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.**

PARA PONER LA HERRAMIENTA EN SERVICIO

- **Utilice, examine y mantenga siempre esta herramienta conforme al código de seguridad para herramientas neumáticas portátiles de la American National Standards Institute (ANSI B186.1).**
- **Para seguridad, máximo rendimiento y vida de servicio de las piezas, use esta herramienta a una presión de aire máxima de 90 psig (6,2 bar/620 kPa) en la manguera de suministro de aire con diámetro interno de 6 mm.**
- **Corte siempre el suministro de aire y desconecte la manguera de suministro de aire antes de instalar, desmontar o ajustar cualquier accesorio de esta herramienta, o antes de realizar cualquier operación de mantenimiento de la misma.**
- **No utilice mangueras de aire y accesorios dañados, desgastados ni deteriorados.**
- **Asegúrese de que todas las mangueras y accesorios sean del tamaño correcto y estén bien apretados. Vea Esq. TPD905–1 para un típico arreglo de tuberías.**
- **Use siempre aire limpio y seco a una presión máxima de 90 psig. El polvo, los gases corrosivos y/o el exceso de humedad podrían estropear el motor de una herramienta neumática.**
- **No lubrique las herramientas con líquidos inflamables o volátiles tales como queroseno, gasoil o combustible para motores a reacción.**
- **No saque ninguna etiqueta. Sustituya toda etiqueta dañada.**

USO DE LA HERRAMIENTA

- **Use siempre protección ocular cuando utilice esta herramienta o realice operaciones de mantenimiento en la misma.**
- **Use siempre protección para los oídos cuando utilice esta herramienta.**
- **Mantenga las manos, la ropa suelta y el cabello largo alejados del extremo giratorio de la herramienta.**
- **Note la posición de la palanca de inversión antes de hacer funcionar la herramienta para ser consciente de su dirección giratoria cuando funcione el estrangulador.**
- **Anticipe y esté alerta sobre los cambios repentinos en el movimiento durante la puesta en marcha y el manejo de toda herramienta motorizada.**
- **Mantenga una postura de cuerpo equilibrada y firme. No estire demasiado los brazos al manejar la herramienta. Pueden ocurrir reacciones de alto par a, o a menos de, la recomendada presión de aire.**
- **Los accesorios de la herramienta podrían seguir girando brevemente después de haber soltado la palanca de estrangulación.**
- **Las herramientas neumáticas pueden vibrar durante el uso. La vibración, repetición o posiciones incómodas pueden dañarle los brazos y manos. En caso de incomodidad, sensación de hormigueo o dolor, deje de usar la herramienta. Consulte a un médico antes de volver a usarla otra vez.**
- **Utilice únicamente los accesorios Ingersoll–Rand recomendados.**
- **La Tapa de Válvula de Estrangulación está presionada por el Muelle de Válvula de Estrangulación. Tenga cuidado al sacar la Tapa de Válvula de Estrangulación. *(En las herramientas que la aplican).***
- **Esta herramienta no ha sido diseñada para trabajar en ambientes explosivos.**
- **Esta herramienta no está aislada contra descargas eléctricas.**

NOTA

El uso de piezas de recambio que no sean las auténticas piezas Ingersoll–Rand podría poner en peligro la seguridad, reducir el rendimiento de la herramienta y aumentar los cuidados de mantenimiento necesarios, así como invalidar toda garantía.

Las reparaciones sólo serán realizadas por personal cualificado y autorizado. Consulte con el centro de servicio Ingersoll–Rand autorizado más próximo.

Toda comunicación se deberá dirigir a la oficina o al distribuidor Ingersoll–Rand más próximo.

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ETIQUETAS DE AVISO

⚠ AVISO

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

⚠ ADVERTENCIA

Use siempre protección ocular cuando utilice esta herramienta o realice operaciones de mantenimiento en la misma.

⚠ ADVERTENCIA

Las herramientas neumáticas 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.

⚠ ADVERTENCIA

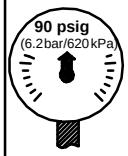
Mantener una postura del cuerpo equilibrada y firme. No estirar demasiado los brazos al manejar la herramienta.

⚠ ADVERTENCIA

Use siempre protección para los oídos cuando utilice esta herramienta.

⚠ ADVERTENCIA

No coger la herramienta por la manguera para levantarla.



⚠ ADVERTENCIA

Manejar la herramienta a una presión de aire máxima de 90 psig (6,2 bar/620 kPa).

⚠ ADVERTENCIA

Cortar siempre el suministro de aire y desconectar la manguera de suministro de aire antes de instalar, retirar o ajustar cualquier accesorio de esta herramienta, o antes de realizar cualquier operación de mantenimiento de la misma.

⚠ ADVERTENCIA

No utilizar mangueras de aire y accesorios dañados, desgastados ni deteriorados.

AJUSTES

AJUSTE DE EMBRAGUE

Los acoplamientos 5C1 y 5C3 incorporan un embrague ajustable que puede ser ajustado externamente para actuar dentro de cierta gama, cuando se haya logrado un par predeterminado.

Para incrementar la gama de par ajustable, hay disponibles dos Muelles de Embrague.

El **Muelle de Embrague Pesado** (codificado en verde para su identificación) vale para la mayoría de las aplicaciones porque ofrecerá ajuste preciso desde par medio–ligero a máximo par de la Herramienta.

El **Muelle de Embrague Ligero** (codificado en negro para su identificación) es para aplicaciones de par muy ligero a medio–ligero.

⚠ AVISO

Desconecte el suministro de aire comprimido de la herramienta antes de proceder.

Para ajustar el Embrague, proceda como sigue:

1. Gire la Tapa de Manguera de Ajuste en la Caracasa de Embrague para mostrar el orificio de ajuste.
2. Inserte una barrena hexagonal (Llave Allen o hexagonal) de 1/4 pulg. en el receso hexagonal de Portapuntas. Gire el mecanismo de embrague hasta que uno de los orificios radiales situados en la Tuerca de Ajuste de Embrague sea visible a través del orificio de ajuste. Inserte el extremo de la Llave de Ajuste Nº 5C1–416 (también se puede utilizar un pasador o varilla endurecida de 3/32 pulg. [2 mm] de diámetro) en el orificio de Tuerca de Ajuste para engalgar la Tuerca contra rotación.
3. Sujete la herramienta firmemente con un mano y gire el Portapuntas para mover la Tuerca a lo cargo de dicho Portapuntas. Ésta es de rosca hacia la izquierda. Girando el Portapuntas a la derecha cuando esté cara hacia adelante incrementa la compresión de Muelle de Embrague y aumenta el par en el que actuará el Embrague.

NOTA

Normalmente obtendrá el ajuste más satisfactorio usando la herramienta en aplicación real de trabajo e incrementando o disminuyendo el par hasta lograr la posición deseada. En cualquier caso, se recomienda hacer el ajuste final por progresión gradual. Observe también que el embrague, cuando esté equipado con el Muelle Pesado, podrá colocarse más allá de la capacidad de par en Herramientas de bajo par y alta velocidad, en cuyo caso la herramienta se calará antes de que actúe el embrague.

PARA PONER LA HERRAMIENTA EN SERVICIO

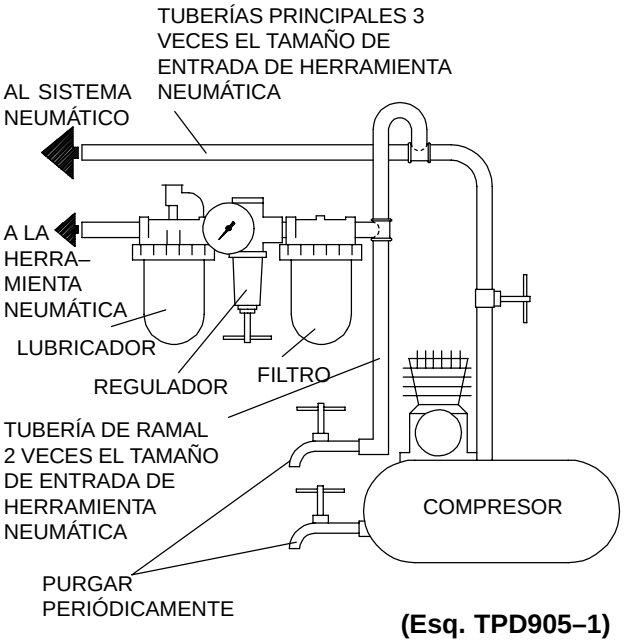
LUBRICACIÓN

Ingersoll–Rand Nº 10 **Ingersoll–Rand Nº 28**
Ingersoll–Rand Nº 67

Utilice siempre un lubricador de aire comprimido con estas herramientas. Recomendamos la siguiente unidad de Filtro–Lubricador–Regulador:

Para EE.UU. – Nº. C18–03–FKG0–28

Antes de comenzar a utilizar la Herramienta y después de cada ocho horas de uso, a menos que se use un lubricante de línea de aire, ponga unas cuantas gotas de Aceite Ingersoll–Rand Nº 10 en la admisión de aire.
Después de 50.000 ciclos, cada mes, o como indique la experiencia, inyecte alrededor de1,5 cc de Grasa Ingersoll–Rand Nº 28 en el Engrasador. Inyecte 2 cc en los modelos con engranajes **J, K, y L,** y 4 cc en los modelos con engranaje **N.**



(Esq. TPD905–1)

Embrague Ajustable

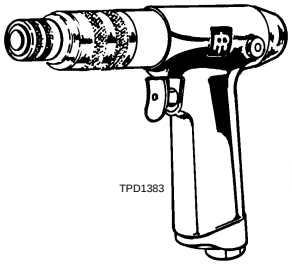
NOTA

Gire la Tapa de Orificio de Ajuste hasta ver el orificio de ajuste. Sujete los lados planos de la Pieza Extrema en un tornillo de banco con cuidado para no dañar dichos lados planos. Inserte una llave de tuercas en el orificio de ajuste y desenrosque la Carcasa de la Pieza Extrema. Ésta es de rosca hacia la izquierda. Con una llave de tuercas de extremo abierto de 1 pulg., sujete los lados planos de la Tuerca de Ajuste de Embrague. Inserte una llave Allen de 1/4 pulg. en el Portapuntas y aflójelo hasta que el Portador contacte el Tope de Portapuntas. Sujete ligeramente la Mordaza de Embrague Delantero en un tornillo de banco y con la llave Allen en el Portapuntas, gradúe dicho Portapuntas hasta que el Asiento de Muelle de Embrague se eleve y permita una fácil lubricación de Bolas de Embrague. Inyecte un disparo (0,3 cc) de grasa Ingersoll–Rand Nº 67 en tres puntos entre Mordaza y Distanciador de Bola de Embrague, y tres disparos en las bolas de Mordaza. Esto deberá hacerse cada 200 000 ciclos o cada cuatro meses, lo que ocurra primero.

PARA PONER LA HERRAMIENTA EN SERVICIO

ESPECIFICACIONES

Modelo	Empuñadura	Embrague/ Accionamiento	Gama de par recomendada
			in–lbs (Nm)
5RAKC1	pistola reversible	amortiguación ajustable	14–25 (1,6–2,8)
5RALC1	pistola reversible	amortiguación ajustable	13–35 (1,5–4,0)
5RALC3	pistola reversible	amortiguación ajustable	13–35 (1,5–4,0)
5RANC1	pistola reversible	amortiguación ajustable	13–70 (1,5–8,0)
5RANC3	pistola reversible	amortiguación justable	13–70 (1,5–8,0)
5RLLC1	mando por palanca reversible	amortiguación ajustable	13–40 (1,5–4,6)
5RLLC3	mando por palanca reversible	amortiguación ajustable	13–40 (1,5–4,6)
5RLNC1	mando por palanca reversible	amortiguación ajustable	13–75 (1,5–8,5)
5RLNC3	mando por palanca reversible	amortiguación ajustable	13–75 (1,5–8,5)
Modelo	**Empuñadura**	**Embrague/ Accionamiento**	**Gama de par recomendada**
			in–lbs (Nm)
5RAKP1	pistola reversible	mordaza positiva	50 psi/14 (1,5) 90 psi/25 (2,8)
5RALP1	pistola reversible	mordaza positiva	50 psi/19 (2,2) 90 psi/35 (4,0)
5RANP1	pistola reversible	mordaza positiva	50 psi/39 (4,4) 90 psi/70 (8,0)
5RAKD1	pistola reversible	accionamiento directo	50 psi/14 (1,6) 90 psi/25 (2,8)
5RALD1	pistola reversible	accionamiento directo	50 psi/19 (2,2) 90 psi/35 (4,0)
5RAND1	pistola reversible	accionamiento directo	50 psi/39 (4,4) 90 psi/70 (8,0)



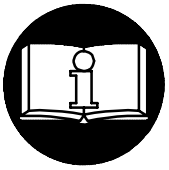
P

MANUAL DE FUNCIONAMENTO E MANUTENÇÃO PARA APARAFUSADORAS PNEUMÁTICAS SÉRIE 5

AVISO

As Aparafusadoras Pneumáticas Série 5 concebidas para aplicações de aperto em linhas de montagem, indústrias eletrónicas, aeroespaciais e de mobiliário.

A Ingersoll–Rand não é responsável por modificações, feitas pelo cliente em ferramentas, nas quais a Ingersoll–Rand não tenha sido consultada.



⚠ ADVERTÊNCIA

INFORMAÇÃO DE SEGURANÇA IMPORTANTE EM ANEXO
LEIA ESTE MANUAL ANTES DE OPERAR A FERRAMENTA.
É DA RESPONSABILIDADE DO EMPREGADOR COLOCAR A INFORMAÇÃO DESTE MANUAL NAS MÃOS DO OPERADOR.
O NÃO CUMPRIMENTO DAS SEGUINTES ADVERTÊNCIAS PODE RESULTAR EM FERIMENTOS.

COLOCANDO A FERRAMENTA EM FUNCIONAMENTO

- **Sempre opere, inspeccione e mantenha esta ferramenta de acordo com o Código de Segurança do Instituto Americano de Padrões Nacionais para Ferramentas Pneumáticas Portáteis (ANSI B186.1).**
- **Para segurança, máximo desempenho e máxima durabilidade das peças, opere esta ferramenta com uma pressão de ar máxima de 6,2 bar/620 kPa (90 psig) na entrada da mangueira de alimentação de ar com diâmetro interno de 6 mm (1/4").**
- **Desligue sempre a alimentação de ar e desconecte a mangueira de alimentação de ar antes de instalar, remover ou ajustar qualquer acessório nesta ferramenta, ou antes de executar qualquer serviço de manutenção nesta ferramenta.**
- **Não use mangueiras de ar ou adaptadores danificados, gastos ou deteriorados.**
- **Certifique–se de que todas as mangueiras e adaptadores sejam do tamanho correcto e estejam apertados com firmeza. Veja o Desenho TPD905–1 para um arranjo típico de tubagem.**
- **Use sempre ar seco e limpo com pressão máxima de 90 psig. Pó, fumos corrosivos e/ou humidade excessiva podem arruinar o motor de uma ferramenta pneumática.**
- **Não lubrifique as ferramentas com líquidos inflamáveis ou voláteis tais como querosene, diesel ou combustível de jactos.**
- **Não remova nenhum rótulo. Reponha qualquer rótulo danificado.**

USANDO A FERRAMENTA

- **Use sempre óculos de protecção quando estiver operando ou executando serviço de manutenção nesta ferramenta.**
- **Use sempre protecção contra ruído ao operar esta ferramenta.**
- **Mantenha as mãos, partes do vestuário soltas e cabelos compridos afastados da extremidade em rotação.**
- **Observe qual é a posição da alavanca que reverte o sentido de rotação antes de operar esta ferramenta de modo a estar atento ao sentido de rotação quando operar o regulador de pressão.**
- **Antecipe e esteja alerta a mudanças repentinas no movimento quando ligar e operar qualquer ferramenta motorizada.**
- **Mantenha a posição do corpo equilibrada e firme. Não exagere quando operar esta ferramenta. Torques de reacção elevados podem ocorrer na ou abaixo da pressão de ar recomendada.**
- **Os acessórios da ferramenta podem continuar a girar brevemente após a pressão ter sido aliviada.**
- **Ferramentas accionadas pneumáticamente podem vibrar em uso. Vibração, movimentos repetitivos ou posições desconfortáveis podem ser prejudiciais às mãos e aos braços. Pare de usar a ferramenta caso ocorra algum desconforto, sensação de formigueiro ou dor. Procure assistência médica antes de retornar ao trabalho.**
- **Use acessórios recomendados pela Ingersoll–Rand.**
- **O Tampo daVálvula Reguladora está montado sob pressão da Mola da Válvula. Tenha cuidado ao removê–lo. (*Em ferramentas onde aplicável.)***
- **Esta Ferramenta não foi concebida para trabalhos em atmosferas explosivas.**
- **Esta Ferramenta não está isolada contra choques eléctricos.**

AVISO

O uso de peças de substituição que não sejam genuinamente da Ingersoll–Rand podem resultar em riscos de segurança, diminuição do desempenho da ferramenta, aumento da necessidade de manutenção e pode invalidar todas as garantias.

As reparações devem ser feitas somente por pessoal treinado autorizado. Consulte o Centro de Serviços da Ingersoll–Rand mais próximo.

Envie Todos os Comunicados Para o Distribuidor ou Escritório da Ingersoll–Rand Mais Próximo.

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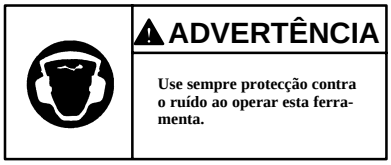
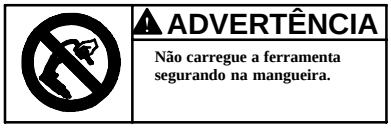
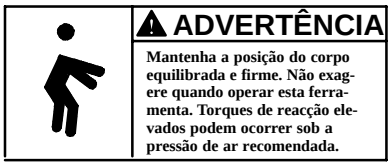
IDENTIFICAÇÃO DO RÓTULO DE ADVERTÊNCIA

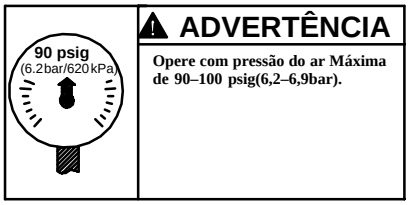
⚠ ADVERTÊNCIA

O NÃO CUMPRIMENTO DAS SEGUINTES ADVERTÊNCIAS PODE RESULTAR EM FERIMENTO.









AJUSTES

AJUSTE DA EMBRAIAGEM

Os acoplamentos incorporam uma embraiagem ajustável que pode ser externamente ajustada dentro de um certo intervalo para embraiar quando um torque pré–determinado for exercido. Duas Molas de Embraiagem são fornecidas, para aumentar o intervalo de torque.

A **Mola de Embraiagem Pesada** (código de cor verde para identificação) é apropriada para a maioria das aplicações já que ela fornecerá o ajuste preciso de médio – leve para o máximo torque da Ferramenta.

A **Mola de Embraiagem Leve** (código de cor preta para identificação) é para aplicações que variem de muito leve a médio– leve para o torque.

⚠ ADVERTÊNCIA

Desconecte a alimentação de ar da Ferramenta antes de prosseguir.

Para ajustar a Embraiagem, proceda da seguinte maneira :

1. Gire a Capa de Ajuste do Furo (102) no Corpo da Embraiagem para expor o furo de ajuste.
2. Insira um chave de 1/4” hex de aço (Chave Allen) no furo hexagonal no Suporte do Bite . Gire o mecanismo da embraiagem até que um dos furos radiais na Porca de Ajuste da Embraiagem esteja visível através do furo de ajuste. Insira a Chave de Ajuste No. 5C1–116 (uma cavilha de aço endurecido ou cilindro de 2mm (3/32”) de diâmetro também servem) no furo na Porca de Ajuste para impedir que a Porca rode.
3. Segure a Ferramenta com firmeza com uma mão e rode o Suporte do Bite para mover a Porca de Ajuste ao longo do Suporte do Bite. Esta é uma rosca à esquerda. Ao Girar o Suporte do Bite no sentido dos ponteiros do relógio, voltado para a frente da ferramenta, a compressão na Mola da Embraiagem aumentará e elevará o torque fazendo com que a embraiagem pare.

AVISO

O ajuste mais satisfatório é usualmente obtido ao utilizar a ferramenta na aplicação real e aumentando ou diminuindo o torque exercido até que o ajuste desejado seja atingido. Em qualquer caso, é recomendado que o ajuste final seja feito em progressivamente. Observe que também a embraiagem, quando equipada com uma Mola Pesada, pode ser ajustada além da capacidade de aperto da alta velocidade, ferramentas de baixo–aperto, nas quais a Ferramenta irá parar antes da embraiagem actuar.

COLOCANDO A FERRAMENTA EM FUNCIONAMENTO

LUBRIFICAÇÃO

Ingersoll–Rand No. 10 **Ingersoll–Rand No. 28**
Ingersoll–Rand No. 67

Use sempre um lubrificador de ar de linha com estas ferramentas. Nós recomendamos a seguinte Unidade Filtro–Lubrificador–Regulador :

Para E.U.A. – No. C18–03–FKG0–28

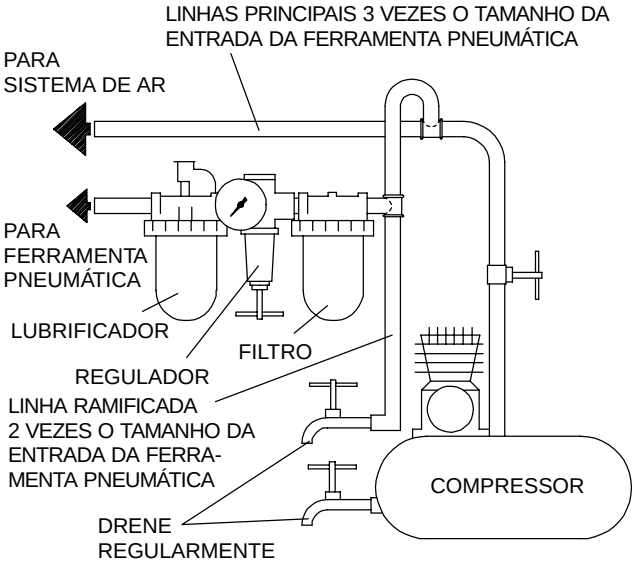
Antes de ligar a ferramenta e depois de oito horas de operação, a menos que esteja usando um lubrificador de ar de linha, coloque algumas gotas de Óleo Ingersoll–Rand No. 10 na entrada de ar.

Em cada 50 000 ciclos ou cada mês, o que ocorrer primeiro**,** ou conforme a experiência indicar, injecte aproximadamente 1,5 cc de Massa Lubrificadora Ingersoll–Rand No. 28 no Adaptador de Massa Lubrificadora. Injecte 2 cc para modelos com engrenagem **J, K e L** e 4cc para modelos com engrenagem **N**.

Embraiagem Ajustável

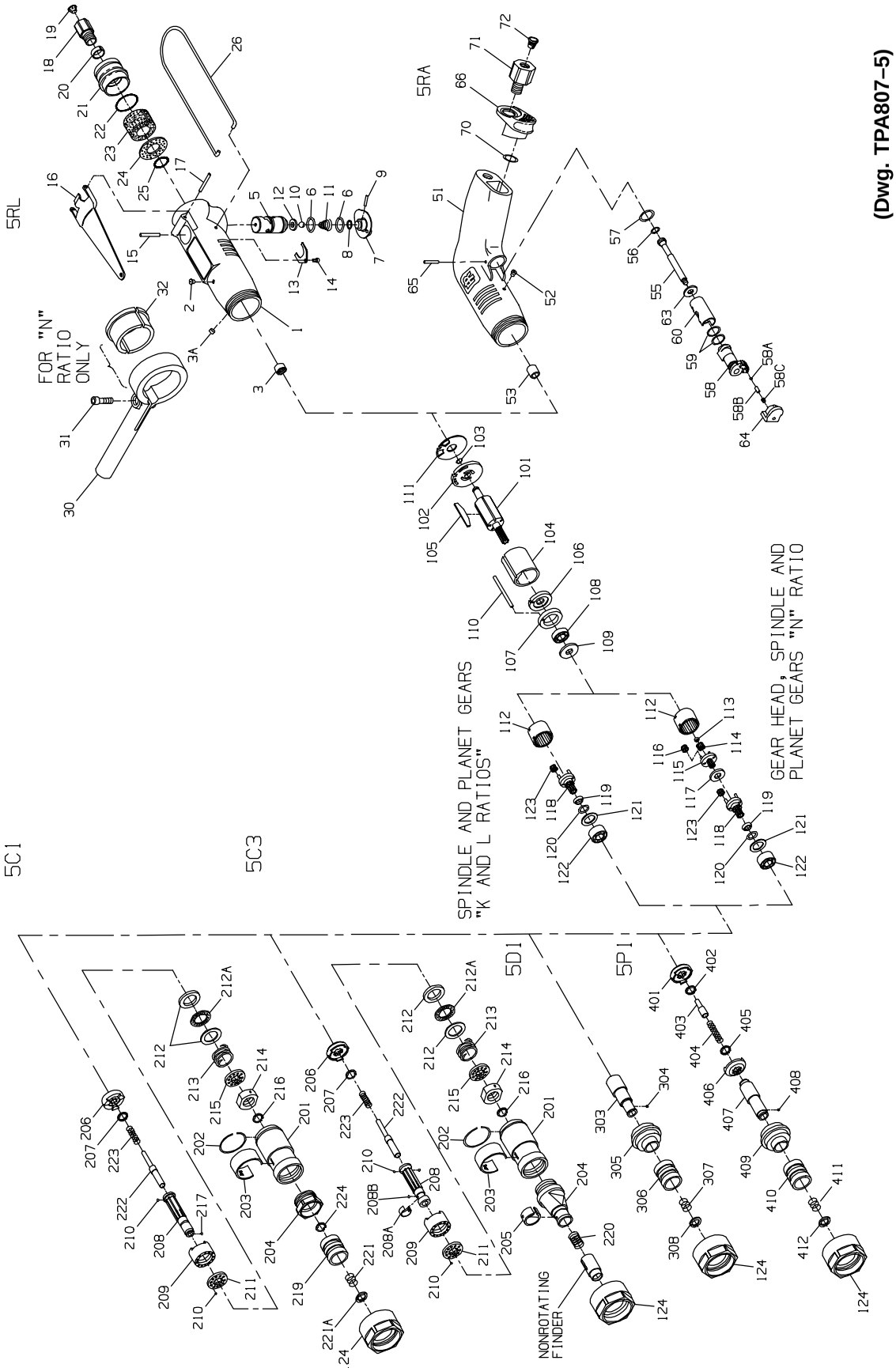
AVISO

Gire a Capa do Furo de Ajuste para expor o furo de ajuste. Segure as pás do Veio num torno, com cuidado para não danificar as pás. Insira uma chave dinamométrica no furo de ajuste e desaparafuse o Corpo do Veio. Esta é uma rosca esquerda. Com uma chave dinamométrica de extremidade aberta de 1" fixe as pás da Porca de Ajuste da Embraiagem. Insira uma chave Allen de 1/4" no Suporte do Bite e afrouxe até que suporte toque no Travão do Suporte do Bite. Agarre a Garra da Embraiagem Frontal levemente no torno e com uma Chave Allen no Suporte do Bite, ajuste o Suporte até que o Assento da Mola da Embraiagem erga–se para permitir a lubrificação das Esferas da Embraiagem. Injecte 0,3cc (1 curso) de massa lubrificadora I–R No. 67 nas três posições nas esferas da Garra. Isto deve ser feito a cada 200 000 ciclos ou cada quatro meses, o que ocorrer primeiro.



(Desenho TPD905–1)

Modelo	Punho	Embraiagem/Comando	Intervalo de Toque Recomendado
			Nm (pés–lbs)
5RAKC1	pistola reversível	mola ajustável	1,6–2,8 (14–25)
5RALC1	pistola reversível	mola ajustável	1,5–4,0 (13–35)
5RALC3	pistola reversível	mola ajustável	1,5–4,0 (13–35)
5RANC1	pistola reversível	mola ajustável	1,5–8,0 (13–70)
5RANC3	pistola reversível	mola ajustável	1,5–8,0 (13–70)
5RLLC1	alavanca reguladora de pressão reversível	mola ajustável	1,5–4,6 (13–40)
5RLLC3	alavanca reguladora de pressão reversível	mola ajustável	1,5–4,6 (13–40)
5RLNC1	alavanca reguladora de pressão reversível	mola ajustável	1,5–8,5 (13–75)
5RLNC3	alavanca reguladora de pressão reversível	mola ajustável	1,5–8,5 (13–75)
Modelo	**Punho**	**Embraiagem/Comando**	**Intervalo de Toque Recomendado**
			Nm (pés–lbs)
5RAKP1	pistola reversível	garra positiva	1,6 (50 psi/14) 2,8 (90 psi/25)
5RALP1	pistola reversível	garra positiva	2,2 (50 psi/19) 4,0 (90 psi/35)
5RANP1	pistola reversível	garra positiva	4,4 (50 psi/39) 8,0 (90 psi/70)
5RAKD1	pistola reversível	comando directo	1,6 (50 psi/14) 2,8 (90 psi/25)
5RALD1	pistola reversível	comando directo	2,2 (50 psi/19) 4,0 (90 psi/35)
5RAND1	pistola reversível	comando directo	4,4 (50 psi/39) 8,0 (90 psi/70)


5RL
5RA
5C1
5C3
5D1
5P1
FOR "N" RATIO ONLY
SPINDLE AND PLANET GEARS "K AND L RATIOS"
GEAR HEAD, SPINDLE AND PLANET GEARS "N" RATIO
NONROTATING FINDER

(Dwg. TPA807–5)

		PART NUMBER FOR ORDERING
	Motor Housing Assembly	
	L ratio	
	for 5RLL models ending	
	in C1 or C3	5RLK–A40
	for 5RLL models ending in –EU	5RLK–EU–A40
	N ratio	
	for 5RLN models ending	
	in C1 or C3	5RLN–A40
	for 5RLN models ending in –EU	5RLN–EU–A40
1	Motor Housing	
	L ratio	
	for 5RLL models ending	
	in C1 or C3	5RLK–B40
	for 5RLL models ending in –EU	5RLK–EU–B40
	N ratio	
	for 5RLN models ending	
	in C1 or C3	5RLN–B40
	for 5RLN models ending in –EU	5RLN–EU–B40
2	Grease Fitting	D0F9–879
3	Rear Rotor Bearing	5R–24
3A	Thread Locking Pellet	5R–41
	Throttle Assembly	5RL–A329
5	Throttle Valve Body	
	Assembly	5RL–B329
♦ • 6	Valve Seal (2)	85H–167
7	Valve Knob	5RL–658
♦ • 8	Valve Knob Seal	R1A–159
9	Valve Knob Retainer	R2N–152
10	Throttle Valve	G601–65
♦ 11	Throttle Valve Spring	5RL–51
♦ 12	Throttle Valve Seat	5L–323
13	Throttle Assembly Retainer	5RL–667
14	Retainer Screw	WWA100–77
15	Throttle Valve Plunger	5RL–302
16	Throttle Lever	5RL–273
17	Throttle Lever Pin	5RL–l20
18	Inlet Bushing Assembly	5RA–A565
• 19	Air Strainer Screen	5RA–61
20	Inlet Bushing Spacer	5RA–65
21	Exhaust Deflector	5RL–23
♦ 22	Exhaust Deflector Seal	R00A2–103
♦ 23	Muffler Element	5RL–31l
24	Exhaust Silencer	5RL–3l0
• 25	Silencer Seal Ring	R18LF–21
26	Suspension Bail	5RL–365
*	Warning Label	
	for 5RLL and 5RLN models	
	ending in C1 or C3	WARNING–7–99
	for 5RLL and 5RLN models	
	ending in EU	EU–99
	for other models ending in –EU	4RA–EU–301
	for all other models	4RA–301
*	Nameplate	
	for 5RLL and 5RLN models	
	ending in C1 or C3	5RA–301
	for 5RLL and 5RLN models	
	ending in EU	5RA–EU–301
	for all other models ending in –EU	4RA–EU–301
	for all other models	4RA–301
*	Nameplate Screw (2)	BN403–302
*	Piped–Away Exhaust Kit	5L–K184
30	Dead Handle Assembly	728N–A48
31	Pinch Bolt	510–638
32	Dead Handle Adapter (2)	5A–49
*	Tune–up Kit (includes illustrated parts:	
	6, 8, 11, 12, 22, 23, 53, 56, 57, 59, 62,	
	70, 72, 103, 105, 108, 111 and 120)	5RA/5RL–TK1
*	Vibra–Tite®+	
	0.6 cc	5R–VT06
	30.0 cc	5R–VT30
*	Rear Rotor Bearing Puller	5R–A799

* Not illustrated.

♦ Indicates Tune–up Kit part.

• To keep downtime to a minimum, it is desirable to have on hand certain repair parts. We recommend that you stock one (pair or set) of each part indicated by a bullet (•) for every four tools in service.

+ Registered trademark of ND Industries.

				PART NUMBER FOR ORDERING
			Motor Housing Assembly	
			K and L ratios	
			for 5RAK and 5RAL models ending in C1, C3, D1 and P1	5RAK–A40
			for 5RAK and 5RAL models ending in –EU	5RAK–EU–A40
			N ratio	
			for 5RAN models ending in C1, C3, D1 or P1	5RAN–A40
			for 5RAN models ending in –EU	5RAN–EU–A40
		51	Motor Housing	
			K and L ratios	
			for 5RAK and 5RAL models ending in C1, C3, D1 or P1	5RAK–B40
			for 5RAK and 5RAL models ending in –EU	5RAK–EU–B40
			N ratio	
			for 5RAN models ending in C1, C3, D1 or P1	5RAN–B40
			for 5RAN models ending in –EU	5RAN–EU–B40
		52	Grease Fitting	D0F9–879
♦		53	Rear Rotor Bearing	5R–24
			Throttle Assembly	5RA–A302
	#	55	Throttle Valve	5A–BT302
♦	•	56	Throttle Valve Face	401–159
♦		57	Throttle Bushing Seat	Rl8L–14
	#	58	Reverse Valve Assembly	5RA–A329
		58A	Reverse Valve Detent Ball	AV1–255
		58B	Reverse Valve Detent Spring	5RA–664
		58C	Reverse Valve Detent Adjusting Screw	5RA–665
♦	•	59	Reverse Valve Seal Ring (2)	PS3–67
	#	60	Reverse Valve Bushing	5RA–330
	#	61	Throttle Bushing	———
♦	•	62	Throttle Bushing Seal (2)	———
		63	Throttle Valve Seat	5RA–303
		64	Trigger	5RA–93
		65	Throttle Retaining Pin	R100B–120
		66	Muffler Assembly	5RA–A123A
♦	•	70	Seal Ring	R18LF–21
		71	Inlet Bushing Assembly	5RA–A565
♦		72	Air Strainer Screen	5RA–61
		*	Warning Label	
			for 5RAK, 5RAL and 5RAN models ending in C1, C3, D1 or P1	WARNING–7–99
			for 5RAK, 5RAL and 5RAN models ending in –EU	EU–99
		*	Hanger	7RA–A366
		*	Name Plate	
			for 5RAK, 5RAL and 5RAN models ending in C1, C3, D1 or P1	5RA–301
			for 5RAK, 5RAL and 5RAN models ending in –EU	5RA–EU–301
		*	Rear Rotor Bearing Puller	5R–A799

* Not illustrated.

♦ Indicates Tune–up Kit part.

\# When ordering any of these parts for replacement, also order a new Trigger (64).

• To keep downtime to a minimum, it is desirable to have on hand certain repair parts. We recommend that you stock one (pair or set) of each part indicated by a bullet (•) for every four tools in service.

			PART NUMBER FOR ORDERING				PART NUMBER FOR ORDERING
	101	Rotor		•	116	Gear Head Planet Gear	
		for K ratio (8 teeth) . . .	5RLK–53			for N ratio (3)	
		for all others (6 teeth) .	5RLL–53			(13 teeth)	5RAN–9
	102	Rear End Plate	5RLK–12		117	Bearing Retainer Washer	
♦	• 103	End Plate Retainer	5RLK–118			for N ratio	5R–80
	104	Cylinder	5RLK–3			Spindle Assembly	
♦	• 105	Vane Packet (set of 5 Vanes) . .	R1401–42–5			for K and L ratios	5RAK–A8
	106	Front End Plate	5RLK–11			for N ratio	5RAN–A8
	107	Front Rotor Bearing Housing .	5R–13	•	118	Spindle	
♦	• 108	Front Rotor Bearing	WWA100–97			for K and L ratios	5RAK–8
	109	Bearing Retainer Washer	5R–80			for N ratio	5RAN–8
	• 110	Cylinder Dowel	R0A1–98	•	119	Seal Support	
♦	• 111	Rear End Plate Gasket	5RLK–739			for K, L or N ratio	5RAK–5
	• 112	Ring Gear		♦	• 120	Seal	182A53–610
		for K ratio (40 teeth) . .	5RAK–406A		121	Grease Shield	5R–701
		for L ratio (42 teeth) . .	5RAL–406A		122	Spindle Bearing	R1–24A
		for N ratio (42 teeth) . .	5RAN–406B	•	123	Spindle Planet Gear (3)	
	• 113	Rotor Pinion Spacer				for K ratio (15 teeth) . .	5RAK–10A
		for N ratio	5RAN–18			for L ratio (17 teeth) . .	5RAL–10B
	• 114	Rotor Pinion				for N ratio (14 teeth) . .	5RAN–10A
		for N ratio (15 teeth) . .	5RAN–17		124	Clutch Coupling Nut	5R–27
	• 115	Gear Head Assembly			*	Grease Gun	R000A2–228
		for N ratio	5RAN–A216		*	Nose Piece Spanner Wrench . .	MR–453

* Not illustrated.

♦ Indicates Tune–up Kit part.

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PART NUMBER FOR ORDERING

			For Models Ending in C1	For Models Ending in C3
		Adjustable Clutch Attachment		
		with Light Clutch Spring	5C1L	5C3L
		with Heavy Clutch Spring	5C1	5C3
	201	Clutch Housing Assembly	5C1–A580	5C1–A580
	202	Coupling Nut Retainer	5C1–29	5C1–29
	203	Adjusting Hole Cover	5C1–415	5C1–415
	204	Housing Nose Cap Assembly	———	5C3–A400
	204	Nose Piece	5C1–400	———
	205	Finder Retaining Spring	———	102A60–628
•	206	Clutch Driver	5C1–581	5C1–581
•	207	Clutch Driver Retainer	12E–6	12E–6
		Bit Holder Assembly		
		with Light Clutch Spring	5C1–AL586	5C3–AL586
		with Heavy Clutch Spring	5C1–AH586	5C3–AH586
	208	Bit Holder	5C1–586	5C3–B586
	208A	Bit Retaining Spring	———	102A60–241
•	208B	Bit Retaining Ball	———	AV1–255
•	209	Front Clutch Jaw	5C1–589A	5C1–589A
•	210	Clutch Ball (24)	RX1–629	RX1–629
•	211	Clutch Ball Spacer	5C1–401A	5C1–401A
•	212	Clutch Spring Seat (2)	5C1–627	5C1–627
	212A	Spring Seat Bearing	5C1–105	5C1–105
	213	Clutch Spring		
		Heavy (Green)	5C1–H583	5C1–H583
		Light (Black)	5C1–L583	5C1–L583
	214	Clutch Adjusting Nut	5C1–582A	5C1–582A
	215	Adjusting Nut Lock	5C1–588	5C1–588
•	216	Bit Holder Stop	5C1–729	5C1–729
•	217	Bit Retaining Ball	RX1–629	———
•	219	Bit Retaining Sleeve	5C1–930–4	———
	220	Finder Spring	———	102A60–242

- To keep downtime to a minimum, it is desirable to have on hand certain repair parts. We recommend that you stock one (pair or set) of each part indicated by a bullet (•) for every four tools in service.

NOTICE

Ingersoll–Rand offers a complete line of Bits and Finders. Inquire at nearest Office or Distributor for types and prices or request Power Tool Catalog, Form 51075.

PART NUMBER FOR ORDERING

			For Models Ending in C1	For Models Ending in C3
•	221	Retaining Sleeve Spring	5C1–931–4	———
•	221A	Sleeve Spring Retainer	5C1–853	———
#	222	Disengaging Plunger	5C1–584A	5C1–584A
#	223	Plunger Spring	5C1–626A	5C1–626A
•	224	Bit Retaining Sleeve Stop	5C1–729	———
*		Clutch Adjusting Key	5C1–416	5C1–416
*		Bit Guide	———	5RA–69

* Not Illustrated.

• To keep downtime to a minimum, it is desirable to have on hand certain repair parts. We recommend that you stock one (pair or set) of each part indicated by a bullet (•) for every four tools in service.

\# Refer to **IMPROVED DISENGAGING PLUNGER AND SPRING** on Page 23.

PART NUMBER FOR ORDERING

PART NUMBER FOR ORDERING

		Direct Drive Attachment	5D1		403	Disengaging Plunger	5P1–584
	303	Bit Holder	5D1–786–4		404	Plunger Spring	5P1–626
•	304	Bit Retaining Ball	RX1–629	•	405	Front Jaw Retainer	N44–6
	305	Clutch Housing	5P1–580	•	406	Front Jaw (11 tooth spline)	5P1–587
	306	Bit Retaining Sleeve	5C1–930–4		407	Bit Holder	5P1–586
•	307	Retaining Sleeve Spring	5C1–931–4	•	408	Bit Retaining Ball	RX1–629
•	308	Sleeve Spring Retainer	5C1–853		409	Clutch Housing	5P1–580
		Positive Jaw Clutch Attachment	5P1		410	Bit Retaining Sleeve	5C1–930–4
•	401	Clutch Driver		•	411	Retaining Sleeve Spring	5C1–931–4
		(10 tooth spline)	5P1–581	•	412	Sleeve Spring Retainer	5C1–853
	402	Clutch Driver Retainer	12E–6				

• To keep downtime to a minimum, it is desirable to have on hand certain repair parts. We recommend that you stock one (pair or set) of each part indicated by a bullet (•) for every four tools in service.

IMPROVED DISENGAGING PLUNGER AND SPRING

The Adjustable Clutch Attachments have been revised to incorporate a new style Disengaging Plunger (222) and Plunger Spring (223). The new style parts in combination can be used to replace the old style. Parts are easily identified by the following descriptions.

PART	OLD STYLE	NEW STYLE
Spring	Length– 2" (50 mm) Coils– 20 Diameter of end coils smaller than others	Length– 1–5/l6" (33 mm) Coils– 15 Diameter end of coils larger than others
Plunger	Overall Length– 1–3/8" (35 mm)	Overall Length – 2–5/16" (59 mm)

Note that the position of the new style parts is transposed in comparison with the old. When assembling, insert the small diameter section of the Plunger through the bore of the Spring, then insert the Plunger, large end first, into the bore of the Bit Holder (208).

⚠ WARNING

Always wear eye protection when operating or performing maintenance on this tool.

Always turn off air supply and disconnect air supply hose before installing, removing or adjusting any accessory on this tool, or before performing any maintenance on this tool.

LUBRICATION

Each time the Series 5 Screwdrivers are disassembled for maintenance, repair or replacement of parts, lubricate the tool as follows:

1. Squirt a few drops of oil into each vane slot in the Rotor (101) after entering the Vanes (105) in the slots.
2. Work enough No. 28 grease into the Front Rotor Bearing (108) and Spindle Bearing (122) to coat the balls of the races; also heavily coat the hub on the rear of the Rotor and place as much grease as will adhere to it on the end of the hub before installing the motor assembly in the Motor Housing (1 or 51).
3. Apply a coat of No. 28 grease to the Planet Gears (116 and 123), the shafts on which they rotate, the bearing surfaces on the Spindle (118) and Gear Head (115) and the teeth of the Ring Gear (112). Do not pack the gear chamber; excess grease will cause loss of power and heating.
4. Apply No. 67 grease to the Clutch Jaws and for Adjustable Clutch Attachments coat the Clutch Balls (210) and Spring Seat Bearing (212A). Coat the bearing surface on the Disengaging Plunger (222 or 403) when entering it in the Bit Holder.

DISASSEMBLY

General Instructions

1. Do not disassemble the tool any further than necessary to replace or repair damaged parts.
2. Whenever grasping a tool or part in a vise, always use leather–covered or copper–covered vise jaws to protect the surface of the part and help prevent distortion. This is particularly true of threaded members and housings.
3. Do not remove any part which is a press fit in or on a subassembly unless the removal of that part is necessary for repairs or replacement.
4. Do not disassemble the tool unless you have a complete set of new gaskets and O–rings for replacement.

OPERATION

Periodically, unscrew the Inlet Bushing (18 or 71) from the Motor Housing (1 or 51). Wash the Bushing in a clean, suitable, cleaning solution to clean the Screen (19 or 72). Replace the Screen if it is damaged. Do not omit the Screen. Without the Screen, a large piece of foreign material could enter and jam the Throttle Valve in the open position. Tighten the Bushing between 25 to 30 ft–lb (33.9 to 40.7 Nm) torque. The Inlet Bushing must securely clamp the Exhaust Deflector (21) or Muffler Assembly (66).

Withdraw the Exhaust Deflector (21) or Muffler Assembly (66) from the Housing. Wash the Muffler Element (23) or Muffler Assembly in a clean, suitable, cleaning solution..

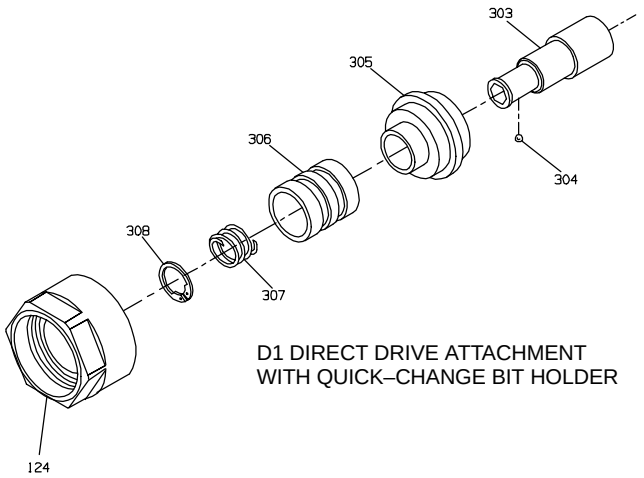
Disassembly of the Tool

To service these Screwdrivers, you will need Waldes Truarc®* Pliers No. 22, a stiff steel rod 3/32" (2.3 mm) diameter approximately 10" (254 mm) long, and a small probe, preferably with a hooked tip, in addition to the tools ordinarily found in a mechanic's tool box.
Disassemble a Screwdriver only as far as required for inspection and replacement of worn or damaged parts.
A single Clutch Coupling Nut (124) retains the motor and gearing within the Motor Housing as well as connecting the Attachment. However the adjustable clutch assembly of No. 5C1 or 5C3 Attachment can be removed or installed without removing the Coupling Nut. This is important because the proper squeeze on the motor is dependent on the correct tightness of the Coupling Nut. Thus being able to remove the clutch assembly without disturbing the Coupling Nut simplifies servicing the Adjustable Clutch Unit.

Disassembly of the Quick–Change Retainer

Using snap ring pliers, remove the Sleeve Spring Retainer (221A, 308 or 412). Using a small probe, work the first coil of the Retaining Sleeve Spring (221, 307 or 411) out of the groove in the Bit Holder (208, 303 or 407), and rotate the Spring on the Holder to work it free. Use care to avoid distorting the Spring. The Retaining Ball (217, 304 or 408) will drop from the Holder when the Retaining Sleeve (219, 306 or 410) is removed.

For No. 5C1 Attachment, remove the Bit Holder Stop (216) with Waldes Truarc No. 22 Pliers.



D1 DIRECT DRIVE ATTACHMENT
WITH QUICK–CHANGE BIT HOLDER

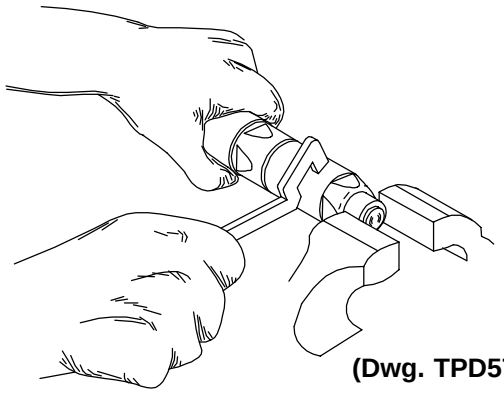
(Dwg. TPB608–1)

Disassembly of the Adjustable Clutch

1. Rotate the Adjusting Hole Cover (203) to expose the adjusting hole in the Clutch Housing (201).
2. Clamp the flats on the Nosepiece (204) in a vise as shown. Do not tighten the vise enough to distort the Nosepiece.

* Registered trademark of Waldes Truarc Company.

3. Enter the pin on the No. MR–453 Spanner Wrench in the adjusting hole and rotate the Clutch Housing (and Tool) clockwise when facing the rear of the Tool (this is a left–hand thread).

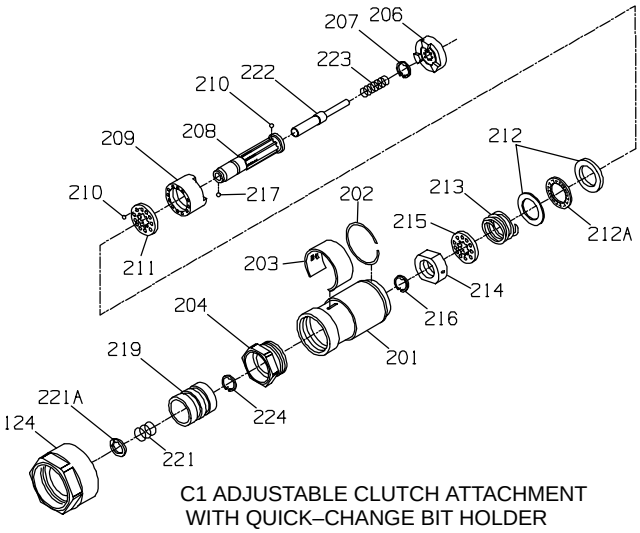


(Dwg. TPD579)

NOTICE

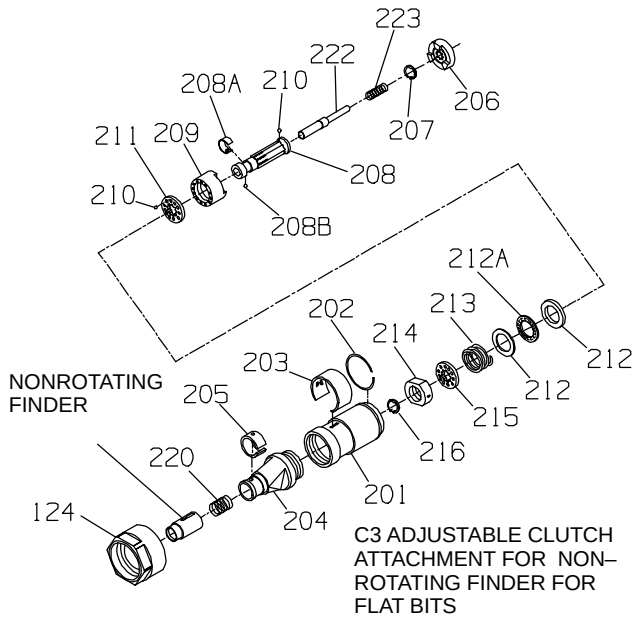
Be sure the pin on the Spanner Wrench is fully engaged with the Clutch Housing, otherwise the housing wall may be distorted or otherwise damaged.

When the Adjusting Nut (214) is positioned for very low torque, it may interfere with full engagement of the Spanner Wrench, in which case simply move the Nut as for a higher torque until the interference is eliminated.



C1 ADJUSTABLE CLUTCH ATTACHMENT
WITH QUICK–CHANGE BIT HOLDER

(Dwg. TPB606–2)



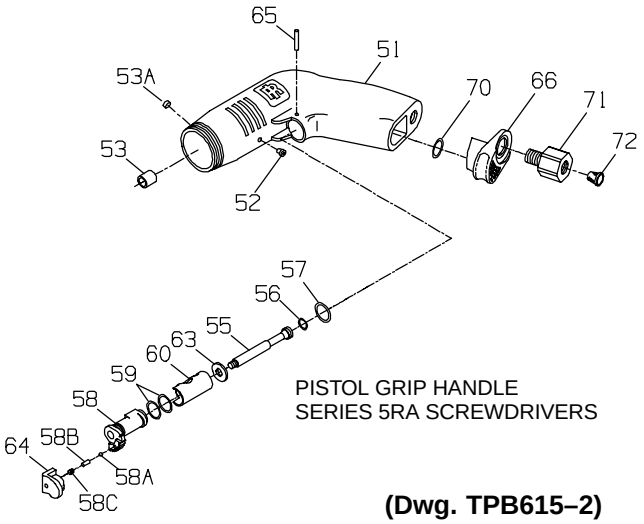
(Dwg. TPB607–1)

4. Remove the Bit Holder Stop (216) from the Bit Holder (208).
5. Clamp a 1/4" hex steel (an Allen Key is fine) horizontally in a vise and slide the Bit Holder onto it.

NOTICE

When the Nut is loosened enough to relieve the Spring pressure, hold the assembly over a container to catch the twenty–four Clutch Balls (210) that will be free to drop out and might otherwise be lost.

6. Insert a rod into one of the radial holes in the Adjusting Nut (214) or place a wrench on the flats and rotate the Nut clockwise to remove it from the Holder.



(Dwg. TPB615–2)

Disassembly of the Throttle

For Pistol Grip Models

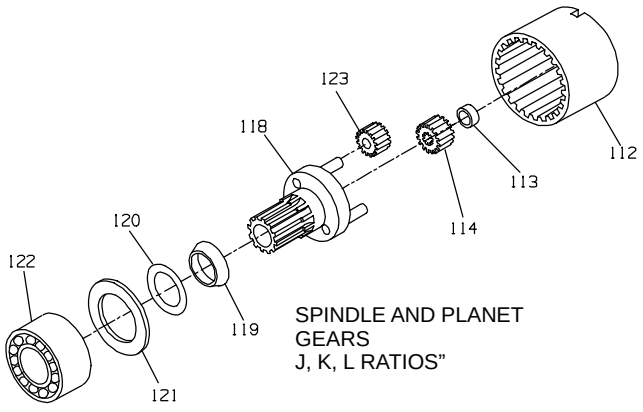
A leaking throttle is usually caused by a worn or damaged Throttle Valve Face (56), and can be corrected by replacing this small O–ring as follows: With a small pin punch, remove the Throttle Retaining Pin (65) from the Motor Housing (51), and withdraw the throttle mechanism. Carefully work the new Face over the end of the Valve (55) and into the groove. Align the notch in the Throttle Valve Bushing (61) or Reverse Valve Bushing (60) with the hole for the Retaining Pin and slide the throttle mechanism into position. Install the Retaining Pin.

For Lever Throttle Models

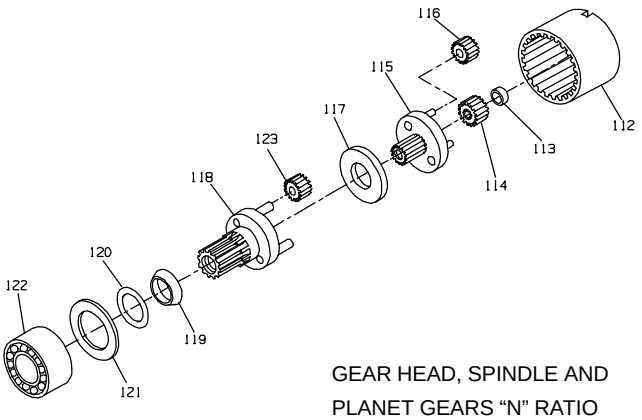
A leaking throttle is usually caused by a worn or damaged Throttle Valve Seat (12) and can be corrected by replacing this small washer type part. Unscrew the Retainer Screw (14) and withdraw the throttle mechanism from the Motor Housing (1).

NOTICE

Before proceeding, place an index mark on Valve Body and knob to assure their same relative position when reassembling. It is possible to change orientation 180° in which case performance will be adversely affected. Using a small pin punch, push the Valve Knob Retainer (9) from the Knob (7) and separate the Knob from the Throttle Valve Body(S), freeing the Spring (11) and ball type Throttle Valve (10). Withdraw the Seat and install the new one. Insert the Valve and Spring into the Valve Body, join the Body to the Knob and install the Retainer. Make certain the Retainer is installed flush with the outside of the Throttle Valve Body.



(Dwg. TPC398–2)



GEAR HEAD, SPINDLE AND
PLANET GEARS "N" RATIO

(Dwg. TPC399–1)

Disassembly of the Attachment, Gearing and Motor

1. Lightly clamp the Tool, front end up, in copper–covered vise jaws. For Pistol Grip Models, clamp the vise on the handle; for Lever Throttle Models, clamp the vise over the throttle area. In either case apply only enough pressure to keep the Housing from turning. Loosen the Coupling Nut (124) with a wrench applied to the flats on the Nut.
2. **For No. 5C1, 5C3 or SP1 Attachment**, remove the Clutch Driver Retainer (207 or 405) from the groove and slip the Driver (206 or 401) from the Spindle (118).
   For Screwdrivers with No. 5P1 Attachment, the Clutch Driver (401) and Front Jaw (406) are released by removal of the Jaw Retainer (402) and Driver Retainer (405).
3. Grasp the end of the Spindle and pull straight forward. If the gearing and motor cannot be removed with the fingers, protect the Housing thread by running on the Coupling Nut, then bump the open face on the workbench to jar the parts loose.
4. The Spindle Bearing (122) is a moderate press fit on the Spindle (1, 18) and should not be removed unless replacement is necessary. All other parts of the gear train are free fitting and will slide apart with ease.

⚠ WARNING

Wear eye protection when prying the Retainer from the rotor hub. It is tempered steel and may fly when free.

5. All parts of the motor assembly are free fitting and will slide apart, except the Rear End Plate (102) which must remain on the Rotor (101) until the End Plate Retainer (103) is removed.

ASSEMBLY

General Instructions

1. Always press on the **inner** ring of a ball–type bearing when installing the bearing on a shaft.
2. Always press on the **outer** ring of a ball–type bearing when pressing the bearing into a bearing recess.
3. Whenever grasping a tool or part in a vise, always use leather–covered or copper–covered vise jaws. Take extra care with threaded parts and housings.
4. Always clean every part and wipe every part with a thin film of oil before installation.
5. Apply a film of O–ring lubricant to all O–rings before final assembly.
6. Check every bearing for roughness. If an open bearing must be cleaned, wash it thoroughly in a suitable cleaning solution and dry with a clean cloth. **Sealed or shielded bearings should never be cleaned.** Work grease thoroughly into every open bearing before installation.

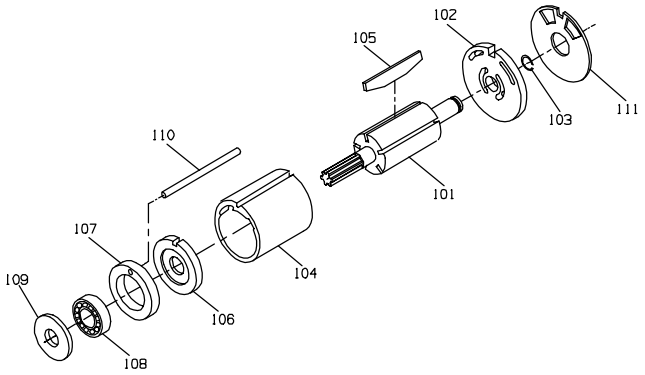
Assembly of the Quick–Change Retainer

This is a direct reversal of the disassembly procedure. When installing the Spring, slide it large end first onto the Holder and rotate it while applying pressure with the fingers until the end coil snaps into the groove. Apply a thin film of No. 67 Grease to the Bit Holder and Bit Holder Stop during assembly.

Assembly of the Adjustable Clutch

1. Slide the Front Clutch Jaw (209), jaw end first, over the hexagon recess end of the Bit Holder (208) and move it along over the splines to the groove in the Holder.
2. Coat the grooved end with grease and insert thirteen Clutch Balls (210) between the Jaw and Holder.
3. Stand the Holder, front end up, on the workbench and slide the Clutch Ball Spacer (211) over it.
4. Enter a Clutch Ball (210) into each of the eleven holes in the Spacer, and in the order named, slide the following over the Holder: one Clutch Spring Seat (212), the Spring Seat Bearing (212A), the second Clutch Spring Seat, the Clutch Spring (213) and the Adjusting Nut Lock (215).
5. Start the Adjusting Nut (214), indented side first, onto the Holder and run it finger tight against the compression of the Spring.
6. Install the Bit Holder Stop (216) in the groove.

Assembly of the Attachment, Gearing and Motor



(Dwg. TPC400)

1. Slip the Rear End Plate (102) on the rear hub of the Rotor (101) and install the Retainer (103) in the groove.
2. Hold the Rotor vertically and clamp the short hub in leather–covered or copper–covered vise jaws.
3. Insert a Vane (105) in each slot.
4. Place the Cylinder (104), front end up, over the Rotor and onto the Rear End Plate. To determine which end of the Cylinder is the front end, hold the Cylinder horizontally, facing one end. Position the external groove for the Dowel (110) at the top as shown in the motor illustration. If the air ports through the cylinder wall are in the bottom right quadrant, you are facing the front of the Cylinder. When assembling the motor, be sure to properly install the Cylinder. The motor will not operate properly if the Cylinder is inverted.
5. Slip the Front End Plate (106) over the rotor shaft. Press the Front Rotor Bearing (108) into the Bearing Housing (107), and slide the Bearing, followed by the Retaining Washer (109), onto the shaft.
6. Obtain a stiff steel rod 3/32" (2.3 mm) diameter and approximately 10" (254 mm) long to use as an assembly dowel.
7. Align the dowel groove in the Rear End Plate (102), Cylinder (104) and Front End Plate (106) with the dowel hole through the Rotor Bearing Housing (107) and insert the rod.
8. Enter the Rear End Plate Gasket (111) into the Motor Housing (1 or 51), positioning the Gasket smoothly on the back bore so that the dowel notch in the Gasket aligns with the dowel hole in the Housing.
9. Enter the end of the assembly dowel in the dowel hole and slide the motor assembly into the Housing. This is a sliding fit and if proper alignment is maintained, the assembly will enter under only slight finger pressure. Do not drive, or otherwise force the motor into position.
10. Replace the assembly dowel with the Cylinder Dowel (110). Make sure the Cylinder Dowel is entered into and remains in the dowel hole in the Housing. When in proper position, approximately 3/32" (2.3 mm) of the Dowel protrudes from the face of the Bearing Housing. If it is not in the hole, it will protrude approximately 7/32" (5.5 mm).
11. Work the Seal Support (119), large end first, over the spindle shaft and against the gear frame face. Follow with the Seal (120) and the Grease Shield (121).
12. Install the Spindle Bearing (122), sealed side first, over the spindle shaft. Firmly support the Spindle (118) and press, do not drive, the Bearing into position using an arbor that will contact only the inner ring of the Bearing.
13. Slide the Ring Gear (112) into the Motor Housing (1 or 51), making sure the Cylinder Dowel (110) enters one of the notches in the end of the gear.
14. **For N or J ratio**, slide the Rotor Pinion Spacer (113) followed by the Rotor Pinion (114) onto the spline shaft on the Rotor (101).
15. **For N ratio,** slide a Gear Head Planet Gear (116) (13 teeth) onto each of the three gear shafts on the Gear Head (115). Enter the assembly into the Ring Gear (112) and slide it into engagement with the Rotor Pinion. Slip the Bearing Retainer Washer (117) over the spline on the Gear Head.
16. **For all ratios**, slide a Spindle Planet Gear (123) onto each of the three gear shafts on the Spindle (118) and slide the assembly into the Ring Gear and into engagement with the Rotor Pinion or Gear Head.

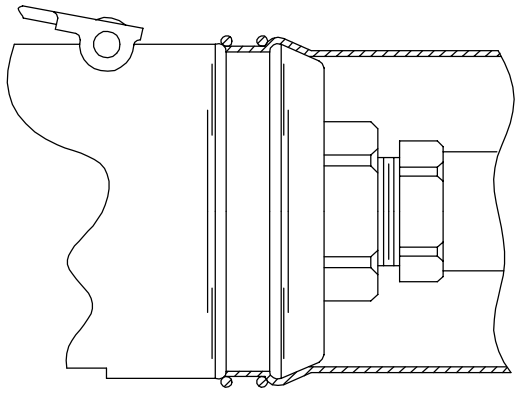
NOTICE

In N ratio, a Gear Head Planet Gear (116) has 13 teeth and a Spindle Planet Gear (123) has 14 teeth. Do not mix, mismatch or switch locations with these small gears when reassembling a Tool.

17. **For Screwdrivers with No. 5C1, 5C3 or 5P1 Attachment**, slide the Clutch Driver (206 or 401) onto the Spindle (118) and install the Retainer (207 or 402) in the groove.
    For Screwdrivers with No. 5P1, Attachment, slide the Front Jaw (406) onto the Bit Holder (407) and install the Front Jaw Retainer (405) on the Bit Holder.
18. **For Screwdrivers with 5C1 or 5C3 Attachments,** slip the Disengaging Plunger (222) and Plunger Spring (223) into the Bit Holder (208) making sure the Plunger slides freely.
    For Screwdrivers with 5P1 Attachments, slip the Plunger Spring (404) and Disengaging Plunger (403) into the Bit Holder (407) making sure the Plunger slides freely.
19. **For Screwdrivers with 5C1 or 5C3 Attachments,** enter the opposite end of the Spring into the spindle bore while entering the end of the Clutch Housing (201) into the Motor Housing (1 or 51).
    For Screwdrivers with 5P1 Attachments, enter the opposite end of the Plunger into the spindle bore while entering the end of the Clutch Plunger (409) into the Motor Housing (1 or 51).
    For Screwdrivers with 5D1 Attachments, slide the Bit Holder (303) onto the Spindle (118) while entering the end of the Clutch Housing (305) into the Motor Housing (1 or 51).
20. Using a wrench, snug the Coupling Nut onto the Motor Housing. Bump the back of the Motor Housing to seat the internal parts as the Coupling Nut is tightened.
21. When the Coupling Nut is snug, connect an air supply line to the Inlet Bushing (18 or 71) and check performance. If the Tool does not function properly, loosen the Nut and realign the components. If the Tool does function properly, tighten the Nut to a minimum of 25 ft–lb (33 Nm) torque.

PIPED–AWAY EXHAUST

A Piped–Away Exhaust Kit is available for Lever Throttle Models. To install it, slip the spring–type clamp over the length of lightweight flexible exhaust hose, then slide the exhaust hose over the hose whip and onto the rear of the Exhaust Deflector as shown in the illustration. Apply the clamp to the part of the hose over the annular groove in the Deflector. This is easily accomplished by standing the Tool upright on a solid support and starting with the bottom coil, work around the clamp with downward pressure until it is in position.



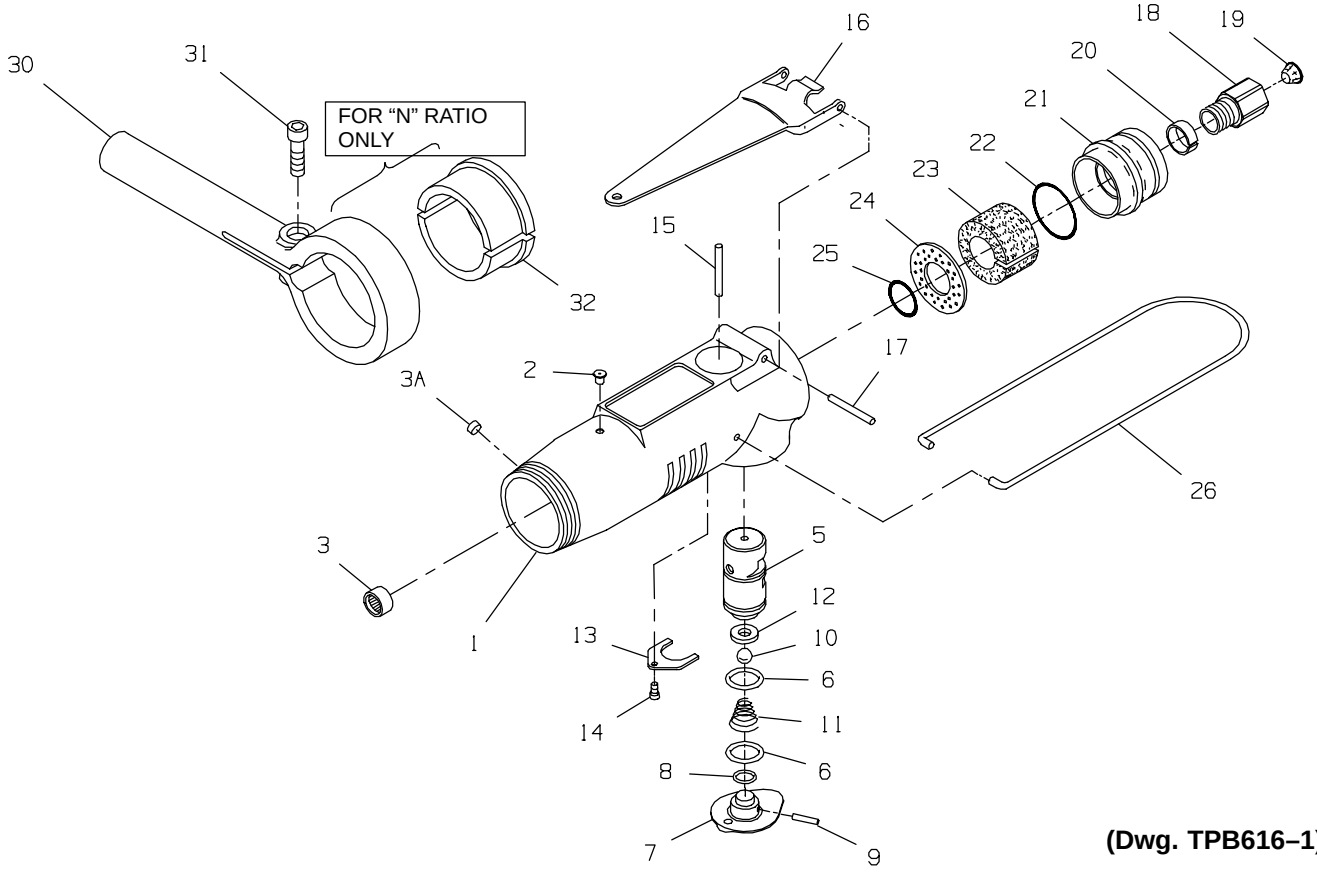
(Dwg. TPD569–1)

Piped–Away Exhaust for Series 5L and 5RL

DEAD HANDLE

A Dead Handle (30) is offered for N ratio Tools. Its use provides the operator ample leverage to easily resist the torque reaction of this gear ratio. It is particularly desirable on Lever Throttle Models and is almost an essential on Tools with No. 5Dl Direct Drive Attachment that are used on applications that require near full torque of the Tool.

Two Dead Handle Adapters (32) are required for attaching the Handle which is retained by a single Pinch Bolt (31). This arrangement allows 360° positioning and rapid, easy adjustment of the radial position.



(Dwg. TPB616–1)

Lever Throttle Handle

TROUBLESHOOTING GUIDE

Trouble	Probable Cause	Solution
Loss of Power	Low air pressure	Check air supply. For top performance, the air pressure must be 90 psig (6.2 bar/620 kPa) at the inlet.
	Plugged Air Strainer Screen Inlet Screen	Clean the Air Strainer or screen in a clean, suitable, cleaning solution. If the Screen cannot be cleaned, replace it.
	Clogged Muffler or Exhaust Silencer	Clean the Muffler Element in a clean, suitable, cleaning solution. If it cannot be cleaned, replace it.
	Worn or broken Vanes	Replace the **complete** set of Vanes.
	Damaged Rear End Plate Gasket	Install a new Rear End Plate Gasket.
	Worn or broken Cylinder	Replace the Cylinder if it is cracked or if the bore appears wavy or scored.
	Improper lubrication or dirt build−up	Clean the Motor Unit parts and lubricate as instructed.
Leaky Throttle Valve	Worn Throttle Valve and/or Throttle Valve Seat	Install a new Throttle Valve and/or a ThrottleValve Seat.
	Dirt accumulation on Throttle Valve and/or Throttle Valve Seat	Pour about 3 cc of a clean, suitable, cleaning solution in the air inlet and operate the tool Valve for about 30 seconds. **Immediately** pour 3 cc of the recommended oil in the air inlet and operate the tool for 30 seconds to lubricate all the cleaned parts.
Gear Case gets hot	Excessive grease	Clean and inspect the Gear Case and gearing parts and lubricate as instructed.
	Worn or damaged parts	Clean and inspect the Gear Case and gearing. Replace worn or broken components.
Inconsistent disengagement of Adjustable Clutch	Improper lubrication	Remove Adjustable Clutch mechanism and check. Lubricate as instructed.
	Worn or damaged parts	Remove Adjustable Clutch mechanism and examine parts. Replace worn or broken parts.
	Wrong Clutch Spring (using Heavy Clutch Spring Spring on light torque application)	Change to Medium or Light Clutch Spring.
Motor stalls before Adjustable Clutch ratchets	Improper Clutch adjustment or improper tool ratio for application	Check Clutch Adjustment and review tool performance vs. requirements.
	Low air pressure at the inlet	Check the air supply. For top performance, the air pressure must be 90 psig (6.2 psig/620 kPa) at the inlet.
	Insufficient Grease	Lubricate the Clutch as instructed.

NOTICE

SAVE THESE INSTRUCTIONS. DO NOT DESTROY.