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Skinsulate® Comfort Coating

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September, 1997

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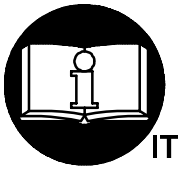
OPERATION AND MAINTENANCE MANUAL FOR SERIES 5 AND 5R AIR DRILLS

NOTICE

Series 5 and 5R Air Drills are designed for drilling applications in automotive and appliance assembly, the electronics 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 orperforming 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.
- 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.

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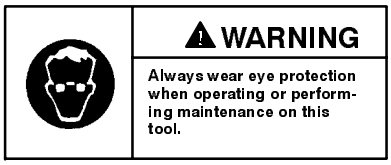
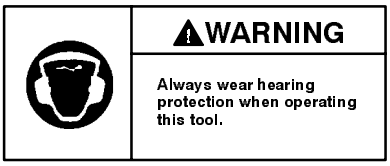
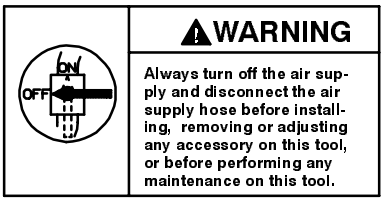
WARNING LABEL IDENTIFICATION

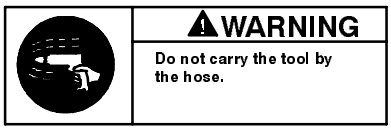
⚠ WARNING

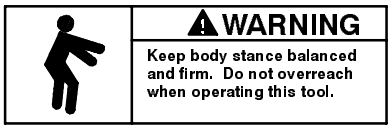
FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

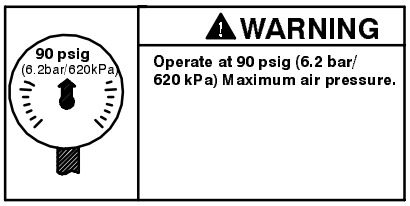












PLACING TOOL IN SERVICE

LUBRICATION

Ingersoll-Rand No. 10 **Ingersoll-Rand No. 23**

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

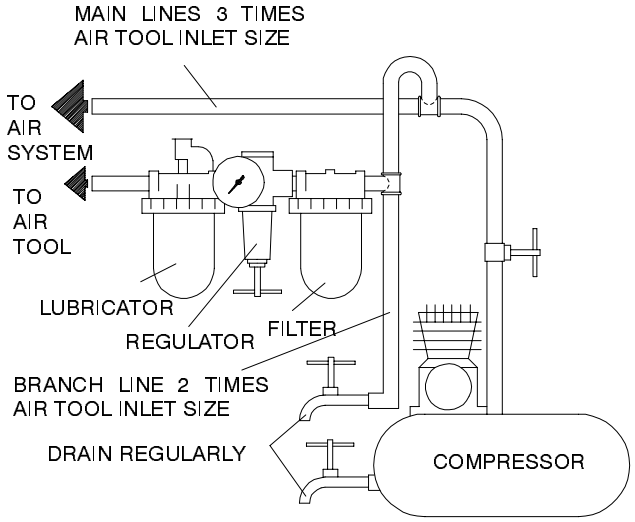
For USA – No. C05-02-G00

After each eight hours of operation, unless an air line lubricator is used, inject 1.5 cc of Ingersoll–Rand No. 10 Oil into the air inlet.

Whenever a tool is disassembled for maintenance or repair, coat the Bearings with Ingersoll–Rand No. 23 Grease and work 2 cc of grease into the **H, J, K or L** gear ratios and 4 cc of grease into the **N** gear ratios.

NOTICE

Do not pack the gear chamber with grease; excessive grease will cause a loss of power and overheating.



(Dwg. TPD905–1)

NONREVERSIBLE WITH PISTOL GRIP HANDLE			
	Free Speed	Chuck Capacity	
Model	rpm	in	mm
5AHST4	5 000	1/4	6
5AJST4	4 500	1/4	6
5AKST4	3 000	1/4	6
5ALST4	2 200	1/4	6
5ANST6	1 000	3/8	10
REVERSIBLE WITH PISTOL GRIP HANDLE			
5RALST6	2 000	3/8	10
5RANST6	900	3/8	10
5RANST8	900	1/2	13

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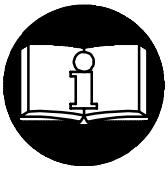
MANUEL D'EXPLOITATION ET D'ENTRETIEN DES PERCEUSES PNEUMATIQUES DES SÉRIES 5 ET 5R

NOTE

Les perceuses pneumatiques des Séries 5 et 5R sont destinées 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 SÉCURITÉ SONT JOINTES.
LIRE CE MANUEL AVANT D'UTILISER L'OUTIL.
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.**

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 (620 kPa) 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.
- 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 ÉTIQUETTES 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

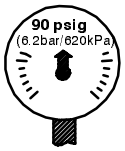
Ne pas transporter l'outil par son flexible.

⚠ ATTENTION

Ne pas utiliser des flexibles ou des raccords endommagés, 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).

MISE EN SERVICE DE L'OUTIL

LUBRIFICATION

Ingersoll-Rand No. 10 **Ingersoll-Rand No. 23**

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

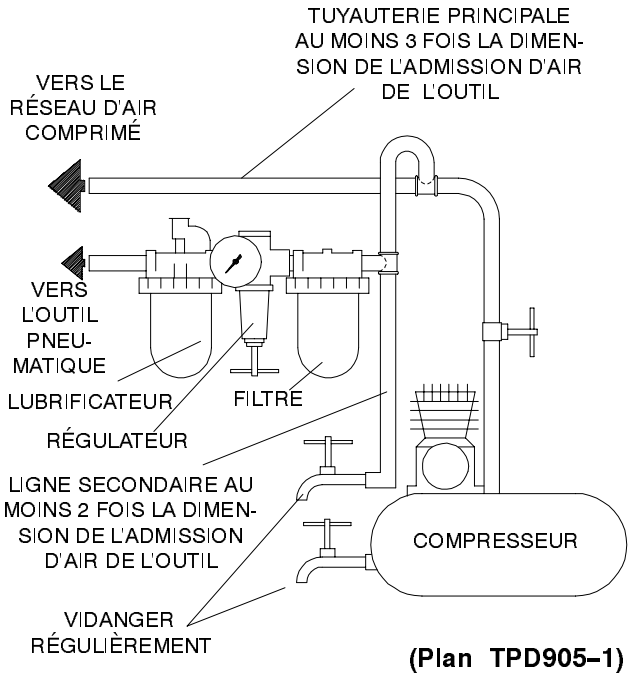
International - No. C01-C2-T29

Toutes les huit heures de fonctionnement, si un lubrificateur de ligne n'est pas utilisé, injecter 1,5 cm^3 d'huile Ingersoll–Rand No. 10 dans le raccord d'admission de l'outil.

A chaque fois que l'outil est démonté pour entretien ou réparation, appliquer une couche de graisse Ingersoll–Rand No. 23 sur les roulements et injecter 2 cm^3 de graisse dans les rapports **H, J, K ou L** et 4 cm^3 dans le rapport N.

NOTE

Ne pas bourrer la chambre de la pignonerie avec de la graisse; un excès de graisse causera une perte de puissance et un échauffement excessif.



(Plan TPD905–1)

SPÉCIFICATIONS

Modèle	Poignée à levier	Capacité du mandrin		Vitesse libre
		pouces	Nm	tr/mn
5AHST4	pistolet	1/4	6	5 000
5AJST4	pistolet	1/4	6	4 500
5AKST4	pistolet	1/4	6	3 000
5ALST4	pistolet	1/4	6	2 200
5ANST6	pistolet	3/8	10	1 000
5RALST6	pistolet	3/8	10	2 000
5RANST6	pistolet	3/8	10	900
5RANST8	pistolet	1/2	13	900

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E

MANUAL DE USO Y MANTENIMIENTO PARA TALADROS NEUMÁTICOS DE LAS SERIES 5 Y 5R

NOTA

Los taladros neumáticos de las series 5 y 5R están diseñados para aplicaciones de taladrado en el montaje de electrodomésticos y automóviles, las industrias electrónica y aeroespacial, y para carpintería y construcción de muebles.

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 UTILIZAR 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 mayor seguridad, rendimiento óptimo y larga vida útil de las piezas, utilice esta herramienta a una presión de aire máxima de 90 psig (6,2 bar/620 Pa) con una 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 racores dañados, desgastados o deteriorados.**
- **Asegúrese de que todos los racores y mangueras sean del tamaño correcto y estén bien apretados. El Esq. TPD905–1 muestra una disposición característica de las tuberías.**
- **Use siempre aire limpio y seco a una presiónmáxima de 90 psig (6,2 bar/620 kPa). El polvo, los gases corrosivos y el exceso de humedad pueden 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.**

UTILIZACIÓN DE LA HERRAMIENTA

- **Lleve siempre protección ocular cuando utilice esta herramienta o realice operaciones de mantenimiento en la misma.**
- **Lleve 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.**
- **Tome nota de la posición de la palanca de inversión antes de hacer funcionar la herramienta para tener en cuenta el sentido de rotación al accionar el estrangulador.**
- **Anticipe y esté atento a los cambios repentinos en el movimiento durante la puesta en marcha y utilización de toda herramienta motorizada.**
- **Mantenga una postura del cuerpo equilibrada y firme. No estire demasiado los brazos al manejar la herramienta. Pueden darse elevados pares de reacción a la presión de aire recomendada, e incluso a presiones inferiores.**
- **Los accesorios de la herramienta podrían seguir girando brevemente después de haberse soltado la palanca de mando.**
- **Las herramientas neumáticas 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.**
- **Utilice únicamente los accesorios Ingersoll–Rand recomendados.**
- **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 puede 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 se deben encomendar a personal debidamente cualificado y autorizado. Consulte con el centro de servicio autorizado Ingersoll–Rand más próximo.

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

Impreso en EE. UU.

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ETIQUETAS DE AVISO

⚠ AVISO

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

⚠ ADVERTENCIA

Usar siempre protección ocular al manejar o realizar operaciones de mantenimiento en esta herramienta.

⚠ 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

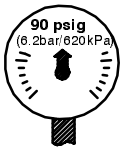
Mantener una postura del cuerpo equilibrada y firme. No estirar demasiado los brazos al manejar la herramienta.

⚠ ADVERTENCIA

Usar siempre protección para los oídos al manejar 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.

PARA PONER LA HERRAMIENTA EN SERVICIO

LUBRICACIÓN

Ingersoll-Rand Nº 10

Ingersoll-Rand Nº 23

Utilice siempre un lubricador de aire comprimido con estas herramientas. Recomendamos la siguiente unidad de filtro–lubricador–regulador:

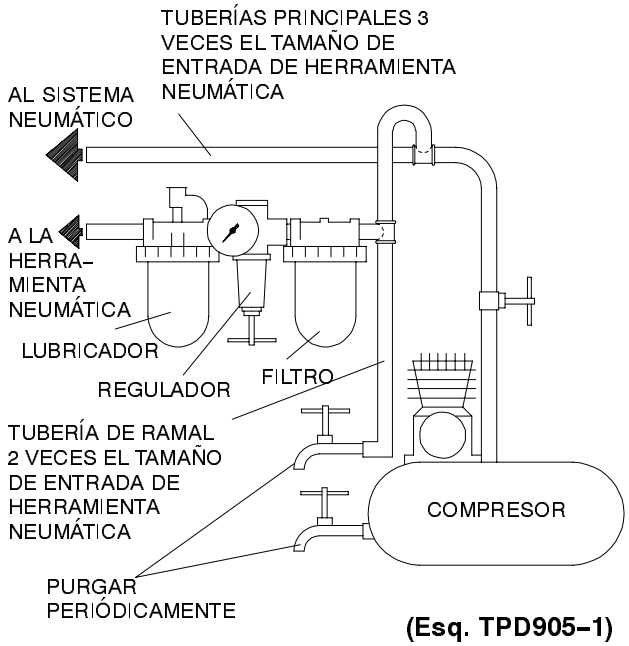
Internacional - Nº C01–C2–729

Después de cada ocho horas de funcionamiento, a menos que se use un lubricador de línea de aire, inyecte 1,5 cc de aceite Ingersoll–Rand Nº 10 en la admisión de aire.

Siempre que se desmonte una herramienta para proceder a operaciones de mantenimiento o reparación, cubra los rodamientos con grasa Ingersoll–Rand Nº 23 y ponga 2 cc de grasa en los engranajes **H, J, K o L** y 4 cc de grasa en los engranjes **N**.

NOTA

No llene de grasa la cánara de engranajes; un exceso de grasa podría causar pérdida de potencia y sobrecalentamiento.



(Esq. TPD905–1)

ESPECIFICACIONES

Modelo	Tipo de empuñadura	Capacidad del portapuntas		Velocidad en vacío
		pulg.	Nm	rpm
5AHST4	pistola	1/4	6	5000
5AJST4	pistola	1/4	6	4500
5AKST4	pistola	1/4	6	3000
5ALST4	pistola	1/4	6	2200
5ANST6	pistola	3/8	10	1000
5RALST6	pistola	3/8	10	2000
5RANST6	pistola	3/8	10	900
5RANST8	pistola	1/2	13	900

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MANUAL DE FUNCIONAMENTO E MANUTENÇÃO PARA OS BERBEQUINS PNEUMÁTICOS SÉRIES 5 E 5R

AVISO

Os berbequins pneumáticos séries 5 e 5R são concebidos para aplicações de perfuração em conjuntos automotivos, indústrias electrônica e aerospacial e construção de móveis e trabachos em madeira.
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 a posição da alavanca de reversão antes de operar a ferramenta de modo a estar atento ao sentido de rotação ao operar a válvula reguladora 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.
- O acessório da ferramenta pode 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.
- 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.

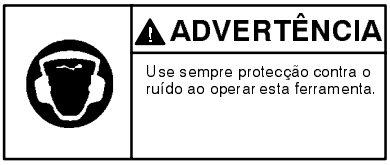
Impresso nos E.U.A.

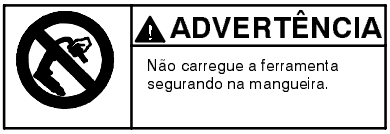
INGERSOLL-RAND®
PROFESSIONAL TOOLS

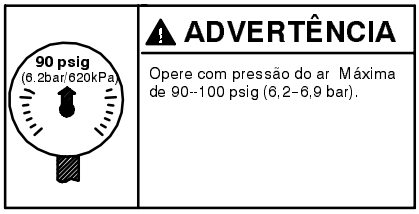
IDENTIFICAÇÃO DO RÓTULO DE ADVERTÊNCIA

⚠ ADVERTÊNCIA

O NÃO CUMPRIMENTO DAS SEGUINTES ADVERTÊNCIAS PODE RESULTAR EM FERIMENTOS.







COLOCANDO A FERRAMENTA EM FUNCIONAMENTO

LUBRIFICAÇÃO

Ingersoll–Rand No. 10 **Ingersoll–Rand No. 23**

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

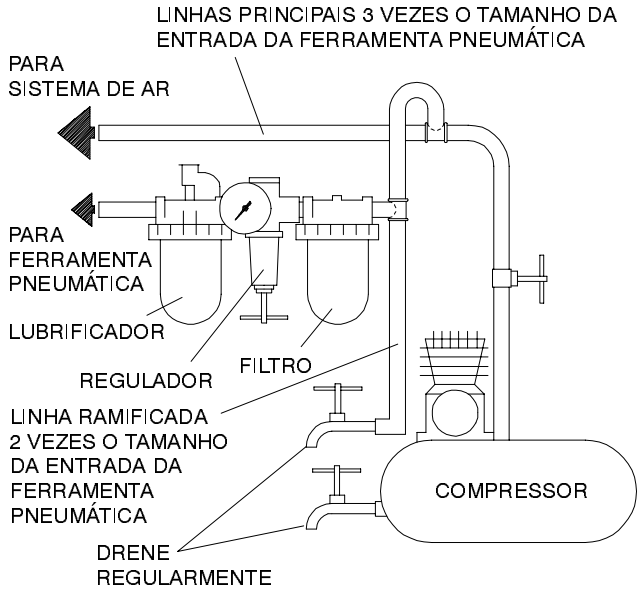
Para Internacional – No. C01–C2–T29

Depois de cada oito horas de operação, a menos que um lubrificador de ar de linha seja usado, injecte 1,5 cc de óleo Ingersoll–Rand No. 10 na entrada de ar.

Quando quer que for que uma ferramenta seja desmontada para manutenção ou reparo, faça um revestimento nos rolamentos com massa lubrificadora Ingersoll–Rand No. 23 e espache 2 cc de massa nas ferramentas com razãn de engranagem **H, J, K ou L** e 4 cc de massa nas ferramentas com razãn **N.**

AVISO

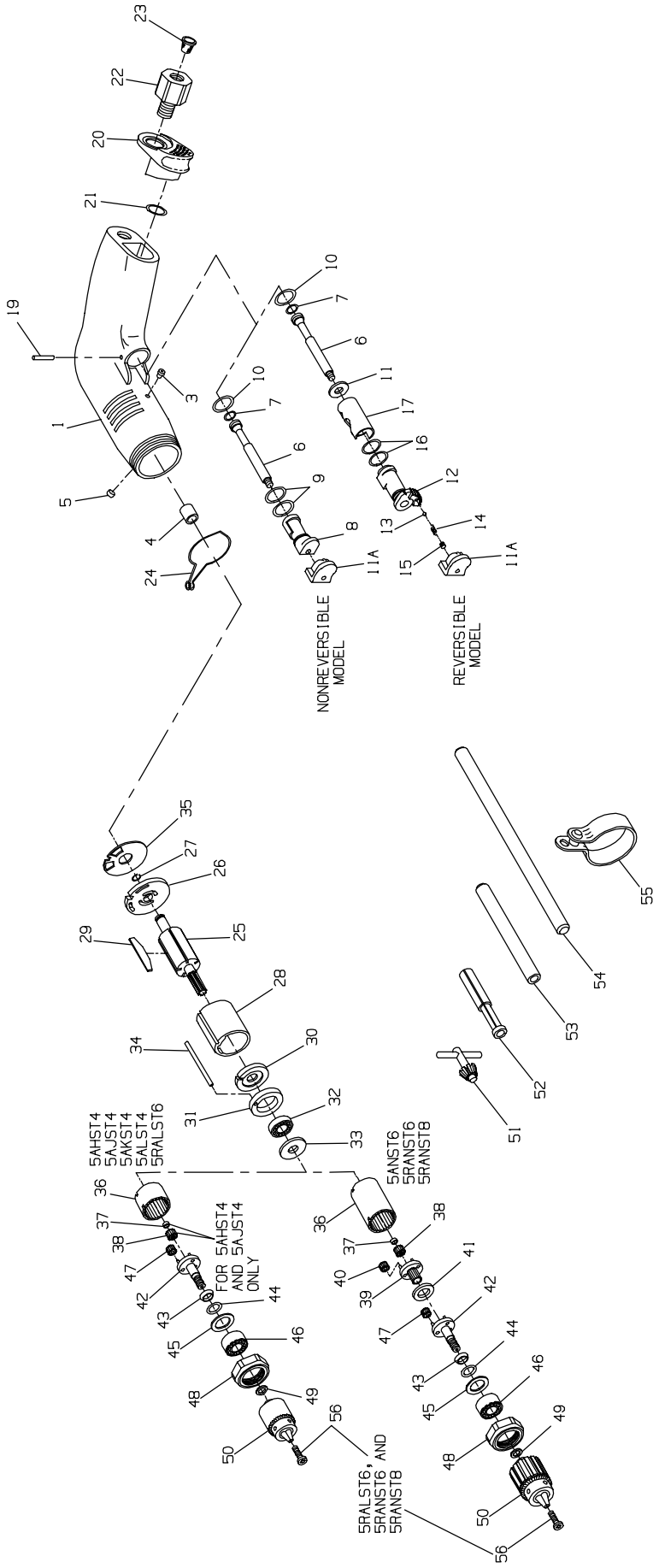
Não exagere na lubrificação com massa na caixa de engrenagem; massa em excesso irá causar perda de potência e super–aquecimento.



(Desenho TPD905–1)

ESPECIFICAÇÕES

Modelo	Tipo de Punho	Capacidade da Bucha		Velocidade Livre
		pol.	mm	rpm
5AHST4	pistola	1/4	6	5 000
5AJST4	pistola	1/4	6	4 500
5AKST4	pistola	1/4	6	3 000
5ALST4	pistola	1/4	6	2 200
5ANST6	pistola	3/8	10	1 000
5RALST6	pistola	3/8	10	2 000
5RANST6	pistola	3/8	10	900
5RANST8	pistola	1/2	13	900



(Dwg. TPA1364-2)

		PART NUMBER FOR ORDERING
	Motor Housing Assembly	
	for 5AHST4	5AH–ATST40
	for 5AHST4–EU	5AH–EU–ATST40
	for 5AJST4, 5AKST4 and 5ALST4	5AK–ATST40
	for 5AJST4–EU, 5AKST4–EU and 5ALST4–EU	5AK–EU–ATST40
	for 5ANST6	5AN–ATST40
	for 5ANST6–EU	5AN–EU–ATST40
	for 5RALST6	5RAK–AST40
	for 5RALST6–EU	5RAK–EU–AST40
	for 5RANST6 and 5RANST8	5RAN–AST40
	for 5RANST6–EU and 5RANST8–EU	5RAN–EU–AST40
1	Motor Housing	
	for 5AHST4, 5AJST4, 5AKST4, 5ALST4, and 5RALST6	5RAK–BST40
	for 5AHST4–EU, 5AJST4–EU, 5AKST4–EU, 5ALST4–EU, and 5RALST6–EU	5RAK–EU–BST40
	for 5ANST6, 5RANST6 and 5RANST8	5RAN–BST40
	for 5ANST6–EU, 5RANST6–EU and 5RANST8–EU	5RAN–EU–BST40
*	Warning Label	
	for models ending in –EU	EU–99
	for all other models	WARNING–7–99
3	Grease Fitting	D0F9–879
♦ 4	Rear Rotor Bearing	5R–24
5	Housing Pellet	5R–41
	Throttle Assembly	
	for 5AHST4	5AH–AT302
	for 5AJST4, 5AKST4, 5ALST4, 5ANST6, 5RALST6, 5RANST6 and 5RANST8	5A–AT302

		PART NUMBER FOR ORDERING
+ 6	Throttle Valve Assembly	5A–BT302
• 7	Throttle Valve Face	401–159
+ 8	Throttle Bushing Assembly	
	for 5AHST4	5AH–A503
	for 5AJST4, 5AKST4, 5ALST4 and 5ANST6	5A–A503
♦ 9	Throttle Bushing Seal (2)	410–283
10	Throttle Bushing Seat	R18L–14
11	Throttle Valve Seat (for 5RALST6, 5RANST6 and 5RANST8)	5RA–303
11A	Trigger	5RA–93
+ 12	Reverse Valve Assembly (for 5RALST6, 5RANST6 and 5RANST8)	5RA–A329
13	Reverse Valve Detent Ball	AV1–255
14	Reverse Valve Detent Spring	5RA–664
15	Reverse Valve Detent Adjusting Screw	5RA–665
• 16	Reverse Valve Seal Ring (2)	PS3–67
+ 17	Reverse Valve Bushing (for 5RALST6, 5RANST6 and 5RANST8	5RA–330
19	Throttle Retaining Pin	R100B–120
20	Muffler Assembly	
	for 5AHST4	5A–A123
	for 5AJST4, 5AKST4, 5ALST4, 5ANST6, 5RALST6, 5RANST6 and 5RANST8	5RA–A123A
• 21	Silencer Seal Ring	R18LF–21
22	Inlet Bushing Assembly	5RA–A565
• 23	Air Strainer Screen	5RA–61

* 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.

\+ When ordering any of these parts for replacement, also order a new Trigger (11A).

		PART NUMBER FOR ORDERING	
	24	Hanger	5RA–365
	*	Nameplate	4RA–301
	*	Nameplate Screw (2)	BN403–302
	25	Rotor	
		for K ratio (8 teeth)	5RLK–53
		for H, J, L or N ratio (6 teeth)	5RLL–53
	26	Rear End Plate	5RLK–12
♦ •	27	End Plate Retainer	5RLK–118
	28	Cylinder	
		for 5RALST6, 5RANST6 and 5RANST8	5RLK–3
		for all other models	5LK–3
♦ •	29	Vane Packet (set of 5)	R1401–42–5
	30	Front End Plate	5RLK–11
	31	Front Rotor Bearing Housing	5R–13
♦ •	32	Front Rotor Bearing	WWA100–97
	33	Bearing Retainer Washer	5R–80
•	34	Cylinder Dowel	R0A1–98
♦ •	35	Rear End Plate Gasket	5RLK–739
•	36	Ring Gear	
		for 5AKST4 (40 teeth)	5RAK–406A
		for 5AHST4, 5AJST4, 5ALST4 and 5RALST6 (42 teeth)	5RAL–406A
		for 5ANST6, 5RANST6 and 5RANST8 (42 teeth)	5RAN–406B

		PART NUMBER FOR ORDERING	
•	37	Rotor Pinion Spacer (for 5AHST4, 5AJST4, 5ANST6, 5RANST6 and 5RANST8)	5RAN–18
•	38	Rotor Pinion (for 5AHST4, 5AJST4, 5ANST4, 5RANST6 and 5RANST8	5RAN–17
•	39	Gear Head Assembly (for 5ANST6, 5RANST6 and 5RANST8)	5RAN–A216
•	40	Gear Head Planet Gear (3) (13 teeth) (for 5ANST6, 5RANST6 and 5RANST8	5RAN–9
	41	Gear Head Spacer (for 5ANST6, 5RANST6 and 5RANST8)	5R–80

* Not illustrated.

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		PART NUMBER FOR ORDERING
	Spindle Assembly	
	for 5AHST4	5AH–A8
	for 5AJST4	5A–A8
	for 5AKST4, and 5ALST4 and 5RALST6	5AK–A8
	for 5ANST6, 5RANST6 and 5RANST8	5AN–A8
42	Spindle	
	for 5AHST4 and 5AJST4	5AJ–8
	for 5AKST4, 5ALST4, and 5RALST6	5AK–8
	for 5ANST6, 5RANST6 and 5RANST8	5AN–8
• 43	Slinger Ring	5A–28
♦ • 44	Seal (for 5AJST4, 5AKST4, 5ALST4, 5ANST6, 5RALST6, 5RANST6 and 5RANST8	182A53–610
45	Grease Shield	5R–701
46	Spindle Bearing	5A–510
• 47	Spindle Planet Gear (3)	
	for 5AHST4 and 5AJ1 (13 teeth)	5RAN–9
	for 5AKST4 (15 teeth)	5RAK–10A
	for 5ALST4, and 5RALST6 (17 teeth)	5RAL–10B
	for 5ANST6, 5RANST6 and 5RANST8 (14 teeth)	5RAN–10A
48	Spindle Bearing Locknut	5A–27
49	Drill Chuck Spacer	5A–90
50	Drill Chuck	
	0 to 1/4" (0 to 6.4 mm) capacity (for H, J K or L ratio)	R0H–99
	0 to 3/8" (0 to 9.5 mm) capacity (for N ratio)	R1M–99
	0 to 1/2" (0 to 13 mm) capacity (for N ratio)	R0K–99
51	Drill Chuck Key	
	for No. R0H–99 Chuck	R1H–J253
	for No. R1M–99 Chuck	R1M–M253
	for No. R0K–99 Chuck	R1T–J253
*	Vibra–Tite®**	
	0.6 cc	5R–VT06
	30.0 cc	5R–VT30
	Rear Rotor Bearing Puller	5R–A799
52	Bearing Puller	5R–799
53	Puller Extension	5R–800
54	Puller Expanding Rod	5R–798
55	Horizontal Hanger	7RA–A366
56	Chuck Screw (for reversible models)	105485
*	Grease Gun	R000A2–228
*	Chuck Shield	5A–309
*	Tune–up Kit (includes illustrated parts 4, 9 [2], 27, 29, 32, 35 and 44	5A/5L–TK1
*	Dead handle Assembly (for models 5ANST6, 5RANST6 and 5RANST8)	R1A–A48
*	Cap Screw	510–638
*	Dead Handle Adapter Set (includes two adapters) (for models 5ANST6, 5RANST6 and 5RANST8)	5A–ST49

* 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.

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⚠ WARNING

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

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.

LUBRICATION

Each time a Series 5 or 5R Drill is disassembled for maintenance and repair or replacement of parts, lubricate the tool as follows:

1. Inject a few drops of Ingersoll–Rand No. 10 Oil into each vane slot in the Rotor bore before inserting the Vanes.
2. Work enough Ingersoll–Rand No. 23 Grease into the Front Rotor Bearing (32) and Spindle Bearing (46) to coat the balls and races; apply a heavy coat of the grease into the Rear Rotor Bearing (4) before installing the motor in the Motor Housing.
3. Apply a coat of Ingersoll–Rand No. 23 Grease to the Planet Gears (40 and 47). The planet gear shafts, the bearing surfaces on the Spindle (42) and Gear Head (39) and the teeth on the Ring Gear (36).

NOTICE

Do not pack the gear chamber with grease; excessive grease will cause a loss of power and overheating.

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. Thisis 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.

Disassembly of the Gearing

1. Lightly clamp the Motor Housing (1) in a vise with the spindle end up.

NOTICE

Take care not to distort the motor bore.

2. Remove the Spindle Bearing Locknut (48) from the Housing and withdraw the gearing. Except for the moderate press fit of the Spindle Bearing (46) on the Spindle (42), all gearing parts are free fitting and will easily slide apart.

Disassembly of the Motor

NOTICE

All motor parts are free fitting except for the Rear and Plate (26) which is retained by the End Plate Retainer (27).

1. Withdraw the motor assembly from the Housing.
2. Remove Rear End Plate Gasket (35) from the Housing.
3. Remove End Plate Retainer and Rear End Plate.
4. Remove Bearing Retaining Washer (33), Front Rotor Bearing (32), Front Rotor Bearing Housing (31), Cylinder Dowel (34), Cylinder (28), Rotor (25) and Vanes (29).

Disassembly of the Throttle Mechanism

1. Using a small punch, remove the Throttle Retaining Pin (19) from the Motor Housing and withdraw the throttle mechanism.
2. Remove the Throttle Valve Face (7) from the Throttle Valve (6).
3. Remove the Throttle Valve from the Throttle Bushing (8) and remove the Throttle Bushing Seals (9).
   For Reversible Models, remove the Throttle Valve Seat (11), Reverse Valve Bushing (17) and Reverse Valve Seal Rings (16).

NOTICE

If it is necessary to remove the Trigger (11A), a new Trigger must be installed.

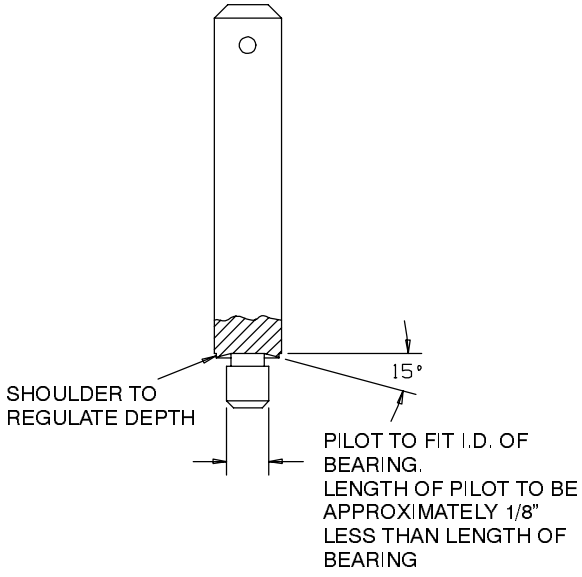
ASSEMBLY

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.
7. Unless otherwise noted, press on the **stamped end** of a needle bearing when installing the needle bearing in a recess. Use a bearing inserting tool similar to the one shown in Dwg. TPD786.

Needle Bearing Inserting Tool



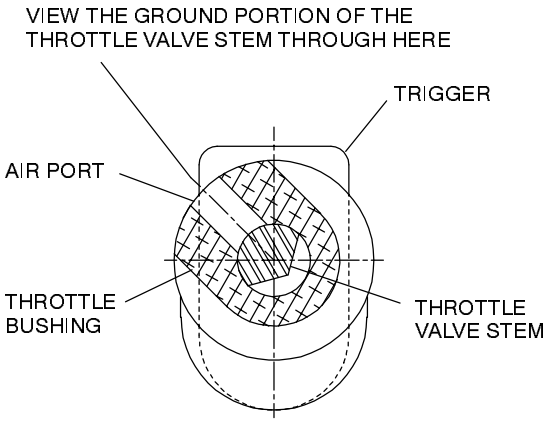
(Dwg. TPD786)

Assembly of the Throttle Mechanism

NOTICE

If it becomes necessary to remove the Trigger (11A), a new Trigger must be installed. The orientation of the Valve and Trigger is important for maintaining optimum performance.

1. Install the Throttle Bushing Seat (10) in the Housing (1).
2. Install the Throttle Valve Face (7) in the groove in the Throttle Valve (6) and apply a thin coat of O-ring lubricant.
3. **For Reversible Models**, install the Reverse Valve Detent Ball (13) and Reverse Valve Detent Spring (14) in the Reverse Valve (12) and secure with the Reverse Valve Detent Adjusting Screw (15).
4. Examine the Throttle Valve to identify a ground arc on the Valve shaft near the Throttle Valve Face. Two unground flat faces connect with the arc.
5. Slide the Throttle Valve, barbed end first, into the round end of the Throttle Bushing Assembly (8) or Reverse Valve Assembly (12) and locate the drilled hole in the outside diameter of the Bushing.
6. View the Throttle Valve stem through the drilled hole. Rotate the Throttle Valve until the ground arc fills the view through the drilled hole. Maintain this relative positioning and stand the partially assembled throttle on the workbench with the Throttle Valve Face down.
7. Align the flat on the top of the Trigger with the flat on the top of the Bushing, keeping the alignment as in Step 5 above, and press the Trigger onto the exposed barbed end of the Valve. Recheck the alignment of the Valve, Trigger and Bushing. When the parts are properly positioned, the flat on the Bushing and the flat on the top of the Trigger should align when the ground arc is seen through the port in the side of the Bushing. See Dwg. TPD602.



CROSS SECTION THROUGH THROTTLE VALVE BUSHING AND THROTTLE VALVE SHOWING RELATIVE POSITION OF AIR PORT AND VALVE STEM

(Dwg. TPD782)

8. When inserting the assembled Throttle into the Motor ousing, align the flat on the Trigger with the flat on the Bushing and insert the assembly into the throttle hole with the flats closest to the body of the Housing.
9. Retain the throttle mechanism in the Housing using the Throttle Retaining Pin (19).

Assembly of the Motor

1. Slip the Rear End Plate (26) on the rear hub of the Rotor (25) and install the End Plate Retainer (27) in the groove.
2. Hold the Rotor vertically and clamp the short hub in leather-covered or copper-covered vise jaws. Insert a Vane (29) in each slot.

NOTICE

When assembling the motor, be sure to properly install the Cylinder. The motor will not operate properly if the Cylinder is inverted. If the air ports through the cylinder wall are in the bottom right quadrant, you are facing the front of the Cylinder.

3. Place the Cylinder (28), 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 roove for the Dowel (34) at the top as shown in the illustration.
4. Slip the Front End Plate (30) over the rotor shaft. Press the Front Rotor Bearing (32) into the Bearing Housing (31) with the sealed face of the Bearing flush with one face of the Housing. Slide the Bearing and Housing, sealed side first, followed by the Retaining Washer (33), onto the shaft.
5. Enter the Rear End Plate Gasket (35) into the Motor Housing (1), positioning the Gasket smoothly on the backbore so that the dowel notch in the Gasket aligns with the dowel hole in the Housing.
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, Cylinder and Front End Plate with the dowel hole through the Rotor Bearing Housing and insert the rod.
8. 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.

NOTICE

Do not drive or otherwise force the motor into position.

9. Replace the assembly dowel with the Cylinder Dowel.

NOTICE

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).

Assembly of the Gearing

1. Work the Slinger Ring (43), large end first, over the spindle shaft and against the gear frame race. Follow with the Seal (44) and the Grease Shield (45).
2. Install the Spindle Bearing (46) over the spindle shaft. Firmly support the Spindle (42) and press, do not drive, the Bearing into position using an arbor that will contact only the inner ring of the Bearing.
3. Slide the Ring Gear (36) into the Motor Housing making sure the Cylinder Dowel (34) enters one of the notches in the end of the Gear. Check this engagement by trying to rotate the Gear by hand.
4. **For H, J or N ratio**, slide the Rotor Pinion Spacer (37) followed by the Rotor Pinion (38) onto the spline shaft on the Rotor (25).
5. **For N ratio**, slide a Gear Head Planet Gear (40) (13 teeth) onto each of the three gear shafts on the Gear Head (39). Enter the assembly into the Ring Gear (36) and slide it into engagement with the Rotor Pinion. Slip the Gear Head Spacer (41) over the spline on the Gear Head.

NOTICE

For N ratio, a Gear Head Planet Gear (40) has 13 teeth and a Spindle Planet Gear (47) has 14 teeth. Do not mix, mismatch or switch locations with these small gears when reassembling a Tool.

6. Slide a Spindle Planet Gear onto each of the three gear shafts on the Spindle (42) and slide the assembly into the Ring Gear and into engagement with the Rotor Pinion or Gear Head.
7. Install new Housing Pellet (5) in the Motor Housing. (See illustration on Page (4).
8. Clean the threads on the Spindle Bearing Locknut (48) and Motor Housing to remove all grease and oil.
9. With the Locknut hand tight, connect the air hose to the Inlet (22) and operate the Drill to check for smooth operation.
10. Clamp the Tool in a vise, taking care not to damage the Housing and tighten the Locknut a minimum torque of 25 ft–lb (33 Nm).
11. Install Drill Chuck Spacer (49) on the Spindle.
12. Thread Drill Chuck onto Spindle and tighten.
13. **For reversible models,** install the Chuck Screw (56) and tighten it securely.

TROUBLESHOOTING GUIDE

Trouble	Probable Cause	Solution
Loss of Power	Low air pressure	Check air supply at the Inlet. For top performance, the air pressure must be 90 psig (6.2 bar/620 kPa) at the inlet.
	Plugged Air Strainer Screen or 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 Throttle Valve 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 light 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.

NOTICE

SAVE THESE INSTRUCTIONS. DO NOT DESTROY.