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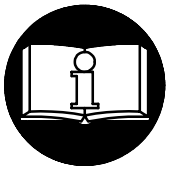
OPERATION AND MAINTENANCE MANUAL FOR SERIES QP AIR DRILLS

NOTICE

Series QP Drills are designed for drilling operations in the aerospace, automotive, appliance, electronic, machining and furniture industries.
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 (6.2 bar/620 kPa) 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.
- 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.

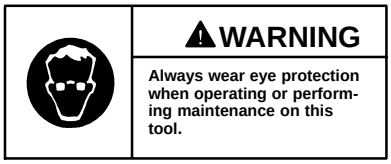
Printed in U.S.A.

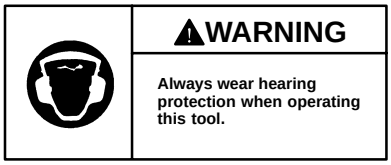
Ingersoll-Rand®

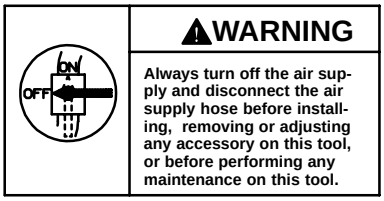
WARNING LABEL IDENTIFICATION

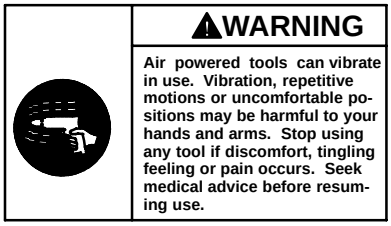
⚠ WARNING

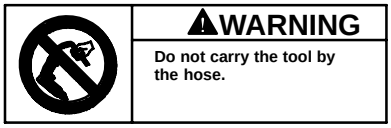
FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

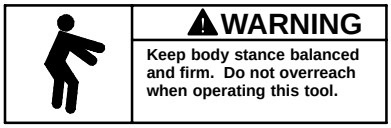


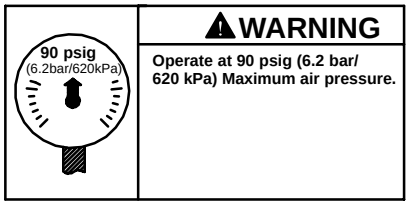












PLACING TOOL IN SERVICE

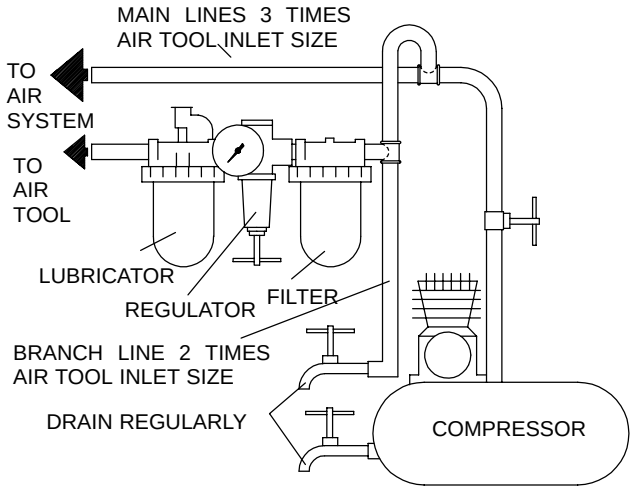
LUBRICATION

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

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

For USA – No. C08–02–FKG0–28

After each 40,000 cycles or each month, whichever occurs first, lubricate the gear train with Ingersoll–Rand No. 67 Grease.



(Dwg. TPD905–1)

SPECIFICATIONS

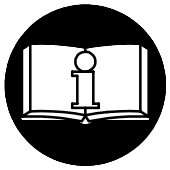
PISTOL GRIP HANDLE			
Model	**Free Speed rpm**	**Chuck Capacity in**	**mm**
QP511, QP511B, QP511BD, QP511D	5,100	1/4	6
QP381, QP381B, QP381BD, QP381D	3,800	1/4	6
QP301, QP301B, QP301BD, QP301D	3,000	1/4	6
QP201, QP201B, QP201BD, QP201D	2,000	1/4	6
QP202, QP202B, QP202BD, QP202D	2,000	3/8	10
QP151, QP151B, QP151BD, QP151D	1,500	1/4	6
QP152, QP152B, QP152BD, QP152D	1,500	3/8	10
QP091, QP091B, QP091BD, QP091D	900	1/4	6
QP092, QP092B, QP092BD, QP092D	900	3/8	10
QP051, QP051B, QP051BD, QP051D	500	1/4	6
QP052, QP052B, QP052BD, QP052D	500	3/8	10

F

MANUEL D'EXPLOITATION ET D'ENTRETIEN DES PERCEUSES PNEUMATIQUES DE LA SÉRIE QP

NOTE

Les perceuses de la Série QP sont destinées aux opérations de perçage dans les industries de l'aérospatiale, de l'automobile, des appareils ménagers, de l'électronique, de l'usinage et 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 (620 kPa). 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 gasoil 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.**
- **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®

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

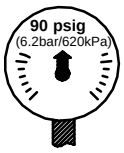
Ne pas transporter l'outil par son flexible.

⚠ 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

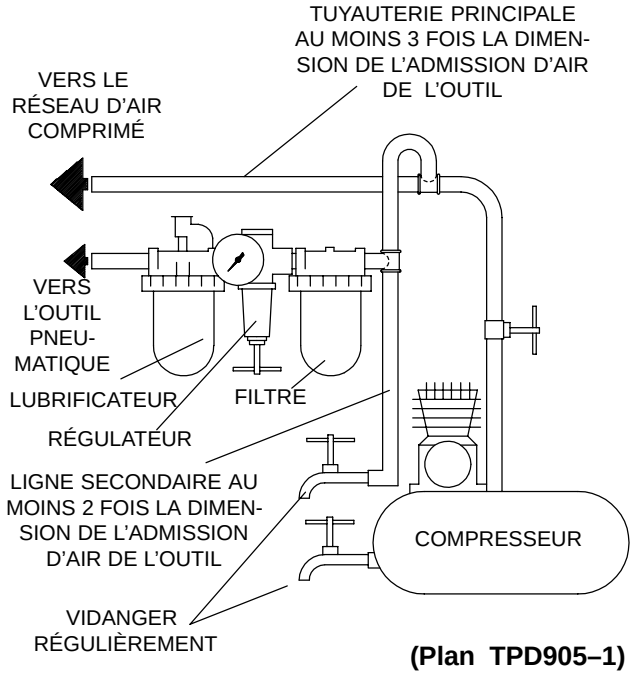
LUBRIFICATION

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

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

É.U. – No. C08–02–FKG0–28

Tous les 40.000 cycles ou au moins tous les mois, lubrifier le train d'engrenages avec de la graisse Ingersoll–Rand No. 67.



(Plan TPD905–1)

SPÉCIFICATIONS

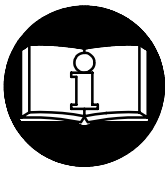
Modèle	Type de poignée	Vitesse à vide	Capacité du mandrin	
		tr/mn	pouces	mm
QP511, QP511B, QP511BD, QP511D	pistolet	5.100	1/4	6
QP381, QP381B, QP381BD, QP381D	pistolet	3.800	1/4	6
QP301, QP301B, QP301BD, QP301D	pistolet	3.000	1/4	6
QP201, QP201B, QP201BD, QP201D	pistolet	2.000	1/4	6
QP202, QP202B, QP202BD, QP202D	pistolet	2.000	3/8	10
QP151, QP151B, QP151BD, QP151D	pistolet	1.500	1/4	6
QP152, QP152B, QP152BD, QP152D	pistolet	1.500	3/8	10
QP091, QP091B, QP091BD, QP091D	pistolet	900	1/4	6
QP092, QP092B, QP092BD, QP092D	pistolet	900	3/8	10
QP051, QP051B, QP051BD, QP051D	pistolet	500	1/4	6
QP052, QP052B, QP052BD, QP052D	pistolet	500	3/8	10

E

MANUAL DE FUNCIONAMIENTO Y MANETNIMIENTO
TALADROS NEUMÁTICOS DE LA SERIE QP

NOTA

Los taladros de la serie QP están diseñados para las operaciones de taladrado en las industrias aeroespacial, del automóvil, de electrodomésticos, electrónica, mecánica y 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 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 kPa) 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 presión máxima 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

- **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.**
- **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.

Ingersoll-Rand®

ETIQUETAS DE AVISO

⚠ AVISO

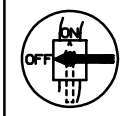
EL HACER CASO OMISO DE LOS AVISOS SIGUIENTES PODRÍA OCASIONAR LESIONES.

⚠ ADVERTENCIA

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

⚠ ADVERTENCIA

Use siempre protección para los oídos cuando utilice esta herramienta.



⚠ 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

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

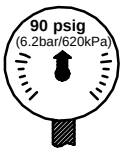
No coger la herramienta por la manguera para levantarla.

⚠ ADVERTENCIA

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

⚠ ADVERTENCIA

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



⚠ ADVERTENCIA

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

PARA PONER LA HERRAMIENTA EN SERVICIO

LUBRICACIÓN

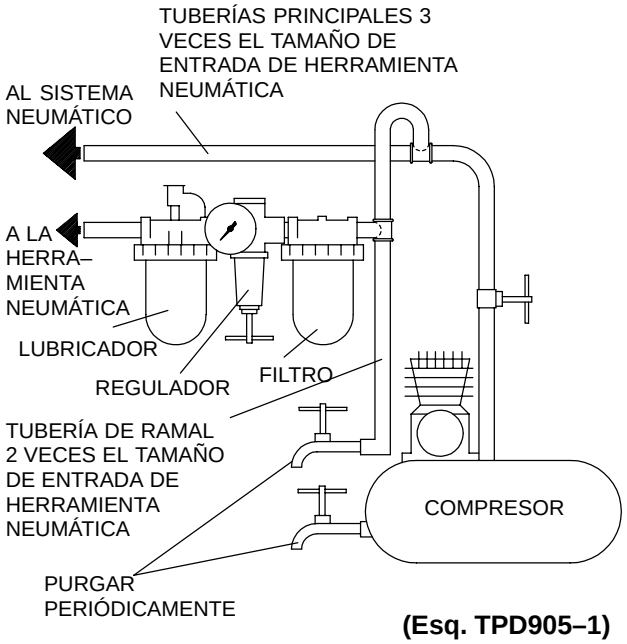
Ingersoll–Rand Nº 10

Ingersoll–Rand Nº 67

Utilice siempre un lubricador de aire comprimido con estas herramientas. Recomendamos utilizar el siguiente conjunto de filtro–lubricador–regulador:

Para EE.UU. – No. C08–02–FKG0–28

Después de cada 40.000 ciclos o mensualmente (lo que ocurra primero), lubrique el tren de engranajes con grasa Ingersoll–Rand Nº 67.



(Esq. TPD905–1)

PARA PONER LA HERRAMIENTA EN SERVICIO

ESPECIFICACIONES

Modelo	Tipo de empuñadura	Velocidad en vacío	Capacidad del portabrocas	
		rpm	mm	pulg.
QP511, QP511B, QP511BD, QP511D	pistola	5.100	6	1/4
QP381, QP381B, QP381BD, QP381D	pistola	3.800	6	1/4
QP301, QP301B, QP301BD, QP301D	pistola	3.000	6	1/4
QP201, QP201B, QP201BD, QP201D	pistola	2.000	6	1/4
QP202, QP202B, QP202BD, QP202D	pistola	2.000	10	3/8
QP151, QP151B, QP151BD, QP151D	pistola	1.500	6	1/4
QP152, QP152B, QP152BD, QP152D	pistola	1.500	10	3/8
QP091, QP091B, QP091BD, QP091D	pistola	900	6	1/4
QP092, QP092B, QP092BD, QP092D	pistola	900	10	3/8
QP051, QP051B, QP051BD, QP051D	pistola	500	6	1/4
QP052, QP052B, QP052BD, QP052D	pistola	500	10	3/8

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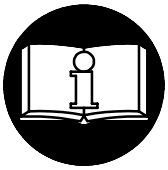
MANUAL DE FUNCIONAMENTO E MANUTENÇÃOPARA OS BERBEQUINS PNEUMÁTICOS SÉRIES QP

AVISO

Os Berbequins Séries QP são concebidos para aplicações de perfuração em indústrias aeroespacial, de automóveis, de equipamentos, electrónica, de maquinaria 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 com 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.**
- **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 emitir impactos 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®

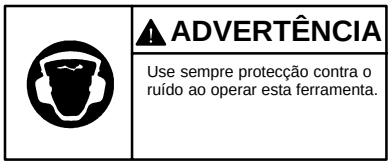
IDENTIFICAÇÃO DO RÓTULO DE ADVERTÊNCIA

⚠ ADVERTÊNCIA

O NÃO CUMPRIMENTO DAS SEGUINTES ADVERTÊNCIAS PODE RESULTAR EM FERIMENTOS.

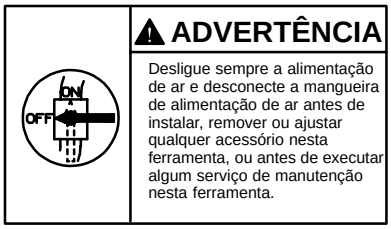
⚠ ADVERTÊNCIA

Use sempre óculos de protecção quando estiver operando ou executando algum serviço de manutenção nesta ferramenta.



⚠ ADVERTÊNCIA

Use sempre protecção contra o ruído ao operar esta ferramenta.

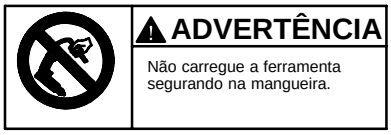


⚠ ADVERTÊNCIA

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 algum serviço de manutenção nesta ferramenta.

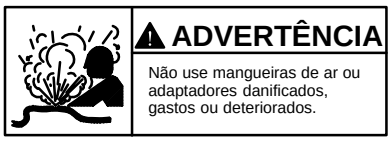
⚠ ADVERTÊNCIA

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.



⚠ ADVERTÊNCIA

Não carregue a ferramenta segurando na mangueira.

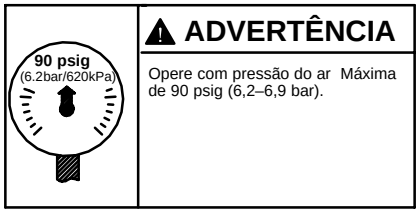


⚠ ADVERTÊNCIA

Não use mangueiras de ar ou adaptadores danificados, gastos ou deteriorados.

⚠ ADVERTÊNCIA

Mantenha a posição do corpo equilibrada e firme. Não exagere quando operar esta ferramenta. Torques de reacção elevados podem ocorrer sob a pressão de ar recomendada.



⚠ ADVERTÊNCIA

Opere com pressão do ar Máxima de 90 psig (6,2–6,9 bar).

COLOCANDO A FERRAMENTA EM FUNCIONAMENTO

LUBRIFICAÇÃO

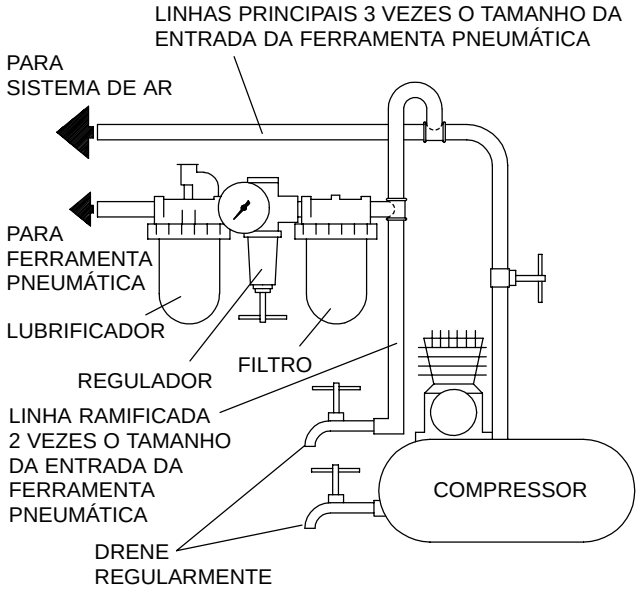
Ingersoll–Rand No. 10

Ingersoll–Rand No. 67

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

Para EUA – No. C08–02–FKG0–28

Depois de 40.000 ciclos ou cada mês, o que ocorrer primeiro, lubrifique o trem de engrenagem com Massa Ingersoll–Rand No. 67.

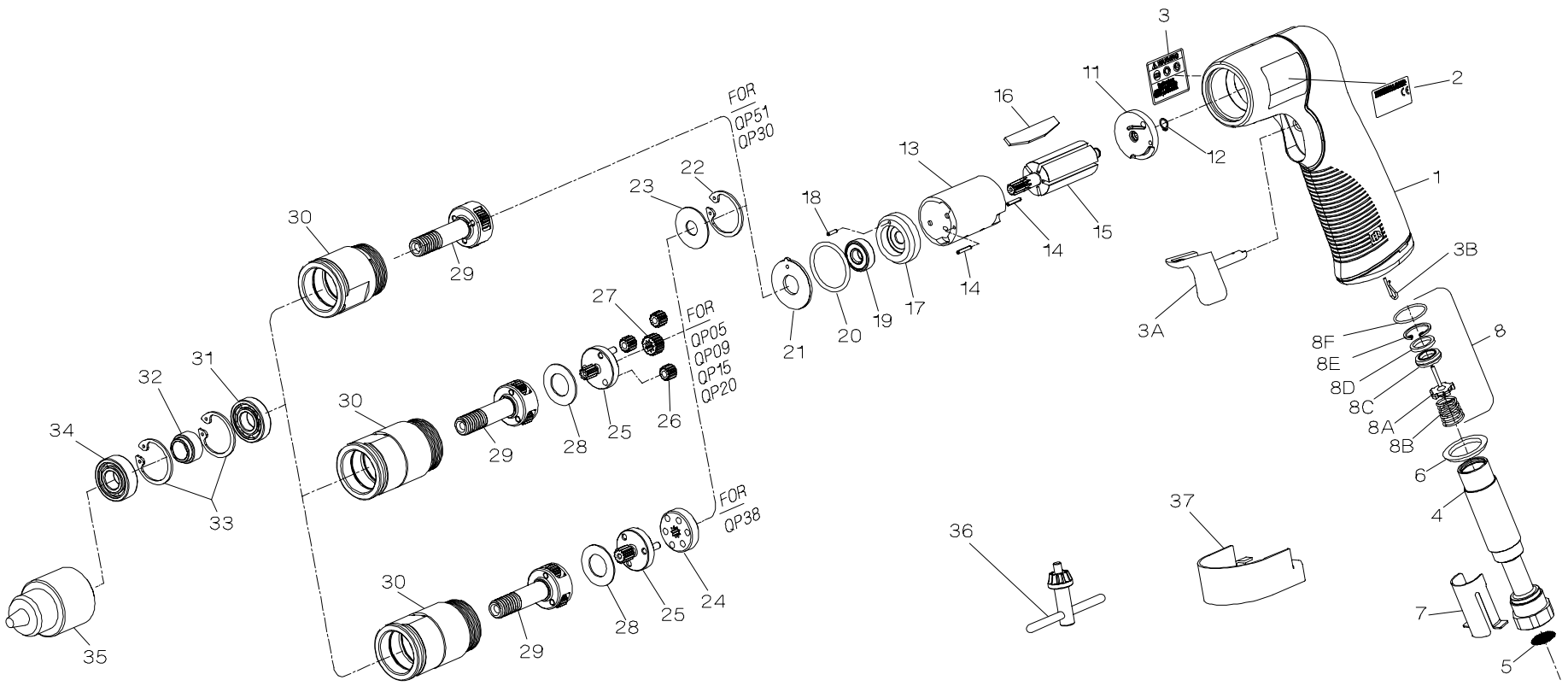


(Desenho TPD905–1)

ESPECIFICAÇÕES

Modelo	Tipo de Punho	Velocidade Livre	Capacidade do Encabadouro	
		rpm	mm	pol.
QP511, QP511B, QP511BD, QP511D	pistola	5.100	6	1/4
QP381, QP381B, QP381BD, QP381D	pistola	3.800	6	1/4
QP301, QP301B, QP301BD, QP301D	pistola	3.000	6	1/4
QP201, QP201B, QP201BD, QP201D	pistola	2.000	6	1/4
QP202, QP202B, QP202BD, QP202D	pistola	2.000	10	3/8
QP151, QP151B, QP151BD, QP151D	pistola	1.500	6	1/4
QP152, QP152B, QP152BD, QP152D	pistola	1.500	10	3/8
QP091, QP091B, QP091BD, QP091D	pistola	900	6	1/4
QP092, QP092B, QP092BD, QP092D	pistola	900	10	3/8
QP051, QP051B, QP051BD, QP051D	pistola	500	6	1/4
QP052, QP052B, QP052BD, QP052D	pistola	500	10	3/8

SERIES QP DRILLS



(Dwg. TPA1738–1)

		PART NUMBER FOR ORDERING
1	Motor Housing	
	for Models with memory chip	TRD–A40A
	for Models without memory chip	TRD–A40A–NC
2	Nameplate	TRH–301
3	Warning Label	TRH–99
3A	Trigger Assembly	TRD–A93
3B	Trigger Retainer	TRD–18
4	Inlet Bushing Assembly	
	for 1/4–18 NPT thread	TRD–A465
	for 1/4–19 BSPT thread	TRD–A465–B
5	Inlet Bushing Screen	TRH–61
6	Inlet Bushing Bezel	TRD–123
7	Inlet Bushing Retainer	TRD–57
8	Inlet Parts Kit	TRD–K303
8A	Throttle Valve	_____
8B	Throttle Valve Spring	_____
8C	Throttle Valve Seat	_____
8D	Valve Seat Support	_____
8E	Valve Seat Retainer	_____
8F	Inlet Bushing Seal	_____
11	Rear End Plate Assembly (includes rear rotor bearing)	TRD–A12
12	Rear End Plate Assembly Retainer	8SL–305
13	Cylinder Assembly	TRD–A3
14	Cylinder Alignment Pin (2)	TRH–98–1
15	Rotor	TRD–53
16	Vane Packet (Set of 5 Vanes)	TRH–42–5
17	Front End Plate Assembly	TRH–A11
18	End Plate Alignment Pin	TRH–98–2
19	Front Rotor Bearing	TRH–24
20	Motor Seal	TRH–211
21	Motor Clamp Washer	TRH–207
22	Gear Retainer (for Series QP05, QP09, QP15 QP20 and QP38)	TRH–28
23	Gear Head Spacer (for Series QP05, QP09, QP15 QP20 and QP38)	TRH–81

		PART NUMBER FOR ORDERING
24	Planet Gear Head Drive Plate (for Series QP38)	TRH–17
25	Planet Gear Head Assembly (includes gear shafts)	
	for Series QP05 and QP09	TRH–A2169–16
	for Series QP15	TRH–A2169–12
	for Series QP20	TRH–A2169–10
	for Series QP38	TRH–A216–12
26	Planet Gear (3 for each Gear Head)	
	for Series QP05 and QP09	TRH–10–16
	for Series QP15	TRH–10–12
	for Series QP20	TRH–10–10
27	Gear Head Pinion	
	for Series QP15	TRH–17–18
	for Series QP20	TRH–17–21
28	Planet Gear Head Spacer (for Series QP05, QP09, QP15, QP20 and QP38)	TRH–82
29	Spindle Assembly (includes all spindle gearing)	
	for Series QP05 and QP30)	TRD–A8–16
	for Series QP09, QP15 and QP51)	TRD–A8–12
	for Series QP20	TRD–A8–10
	for Series QP38	TRD–A8–15
30	Gear Case	
	for Series QP30 and QP51	TRH–37–S
	for all others	TRH–37
31	Spindle Bearing	R00H–97
32	Bearing Spacer	TRD–111
33	Bearing Stop (2)	TRH–28
34	Spindle Cap Bearing	TRH–510
35	Drill Chuck	
	for Models ending in 1 or 1D (1/4”)	R0H–99
	for Models ending in 2 or 2D (3/8”)	6A–99
36	Chuck Key	
	for R0H–99 (1/4”) Chuck	R1H–J253
	for 6A–99 (3/8”) Chuck	R0J–J253
37	Inlet Retainer Removal Tool	TRD–322

MAINTENANCE SECTION

⚠ 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 QP Drill is disassembled for maintenance and repair or replacement of parts, lubricate the tool as follows:

1. Coat all exposed gears with Ingersoll–Rand No. 67 Grease and work some of the Grease into the gearing of the Spindle Assembly (29).
2. Use Ingersoll–Rand No. 10 Oil to lubricate the motor. Inject approximately 1 to 2 cc of oil into the air inlet before attaching the air hose to the tool.

SPEED ADJUSTMENT

Series QP Drills are furnished with the ability to precisely control, within certain ranges, the optimum drilling speed for exotic materials. Setting the speed requires a tachometer and a jeweler's screwdriver. Therefore, the adjustment, although simple, should only be attempted by a competent technician using the proper equipment.

A small, round opening is located adjacent to the Inlet Bushing Assembly (4) in the molded exhaust vent A tiny screw at the bottom of that hole controls the location of the exhaust control plate. Take an initial reading of the tool speed by applying a tachometer to the end of the Chuck without a drill bit and with the trigger completely depressed. If the tachometer has a concave tip, close the chuck completely; if the tip is convex, open the chuck completely.

After determining the actual velocity, shut off the air supply and insert a small jeweler's screwdriver into the slot of the exhaust control plate screw and rotate the screw approximately fifteen degrees. Restore the air supply and check the velocity again. The control plate provides unrestricted exhaust for 90 degrees, completely restricted exhaust for 90 degrees and variable, adjustable exhaust for 180 degrees. Determine which direction you need to rotate the screw to obtain the desired speed and then move the screw accordingly. Best results are achieved by using gradual increments and frequent tachometer readings. Be sure to turn off the air supply when making adjustments to the screw.

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 vice 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 gaskets and o–rings for replacement.

Disassembly of the Tool

Each Series QP Drill is made up using three modules or units which include a housing and throttle unit, a motor unit and a combined gearing and spindle unit. The tool can be disassembled for repairs to each individual unit without disturbing the other units. To separate the modules, proceed as follows:

1. Remove the Chuck (35) using the following technique:
   a) Insert the short leg of a 1/4" hex wrench into the jaws of the Chuck and tighten the Chuck.
   b) Using a brass hammer, sharply rap the long leg of the wrench in a counterclockwise direction to loosen the Chuck.
   c) Unscrew and remove the Chuck from the spindle.
2. To separate the Gear Case (30) from the Housing (1), proceed as follows:
   a) Install a standard 1–1/16" open end wrench on the flats of the Gear Case.
   b) Grasp the handle portion of the Motor Housing and rotate the Housing counterclockwise to begin unscrewing it from the Gear Case.
   c) When the Housing begins to turn freely, remove the wrench from the Gear Case and with the spindle upward, finish unscrewing the Housing from the Gear Case.
   d) Set the assembled Gear Case on the workbench.
3. Remove the Motor Clamp Washer (21) and the Motor Seal (20) from the assembled motor in the Housing.
4. Grasp the shaft of the Rotor (15) and pull the assembled motor out of the Motor Housing.
5. To remove the throttle unit, grasp the hex of the Inlet Bushing Assembly (4) in vise jaws with the Motor Housing upward.

6. Using the Inlet Retainer Removal Tool (37), depress the two tabs on the Inlet Bushing Retainer (7), located 180 degrees apart, while pulling the Housing off the Inlet Bushing Assembly.
7. If the Inlet Bushing Seal (8F) remained in the Housing when the Inlet Bushing Assembly was removed, remove it from the Housing.

Disassembly of the Gearing

1. **For Series QP05, QP09, QP15, QP20 and QP38,** using snap ring pliers, remove the Gear Retainer (22) from inside the Gear Case (30) and remove the Gear Head Spacer (23).
2. **For Series QP38,** lightly rap the motor end of the Gear Case on a wooden work bench top to remove the Planet Gear Head Drive Plate (24), Planet Gear Head Assembly (25) and the Planet Gear Head Spacer (28).
   For Series QP05 and QP09, lightly rap the motor end of the Gear Case on a wooden work bench top to remove the three Planet Gears (26), the Planet Gear Head Assembly (25) and the Planet Gear Head Spacer (28).
   For Series QP15 and QP20, lightly rap the motor end of the Gear Case on a wooden work bench top to remove the three Planet Gears (26), the Rotor Pinion (27), the Planet Gear Head Assembly (25) and the Planet Gear Head Spacer (28).

NOTICE

If the Spindle Assembly is being removed or replaced, the Spindle Bearing and Spindle Cap Bearing may be damaged during the removal process. We recommend that new replacement bearings be available for installation when the tool is reassembled.

3. Stand the Gear Case on the table of an arbor press with the threaded end of the Spindle Assembly (29) upward. Using a rod slightly smaller than the spindle shaft, press the Spindle Assembly out of the Spindle Cap Bearing (34) and Spindle Bearing (31).
4. Insert a long, small drift through the central opening of the Spindle Bearing and push the Bearing Spacer (32) off to one side. Using a hammer with the drift, tap the inner ring of the Spindle Cap Bearing. Repeat the process at several points until the Bearing is free from the Gear Case. Remove the Bearing Spacer from the Gear Case.
5. Using snap ring pliers, remove the two Bearing Stops (33).
6. Stand the Gear Case on the table of an arbor press with the threaded end upward, and press the Spindle Bearing out of the Gear Case.

Disassembly of the Motor

1. Using snap ring pliers, remove the Rear End Plate Assembly Retainer (12) and slide the Rear End Plate Assembly (11) off the rear hub of the Rotor.
2. Use a piece of leather or other protective material to grasp the splined shaft of the Rotor and pull the assembled Rotor out of the Cylinder (13).
3. Remove the Vanes (16) from the Rotor.
4. Support the Front End Plate Assembly (17), as near the rotor body as possible, on the table of an arbor press and press the Rotor from the Front Rotor Bearing (19). Remove the Bearing from the Front End Plate.

Disassembly of the Throttle Mechanism

1. Grasp the hex of the Inlet Bushing Assembly (4) in leather–covered or copper–covered vise jaws with the end having the Inlet Bushing Screen (5) downward.
2. Remove the Inlet Bushing Seal (8F) from the Inlet Bushing Assembly.
3. Using snap ring pliers, remove the Valve Seat Retainer (8E) and the Valve Seat Support (8D) from the Bushing.
4. Using a hooked tool without sharp edges or points, remove the Throttle Valve Seat (8C) from inside the Bushing.
5. Remove the Throttle Valve (8A) and Throttle Valve Spring (8B) from the Bushing.
6. If the Inlet Bushing Screen is dirty, flush it clean using a clean, suitable, cleaning solution in a well ventilated area. Remove the Screen only if it is damaged or as a last resort and have a replacement Screen on hand whenever removal becomes necessary. Use the eraser end of a pencil to push it out the inlet end of the Bushing.
7. If the Inlet Bushing Bezel (6) needs replacement, slightly spread the Inlet Bushing Retainer (7) and push it off the side of the Bushing. Slide the Bezel off the Bushing.
8. To remove the Trigger Assembly (3A), insert a long probe with a small hook into the opening for the Inlet Bushing Assembly in the Motor Housing (1) and hooking the Trigger Retainer (3B), pull the Retainer out of the Housing. Pull the Trigger out of the Housing.

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 to protect the surface of the part and help prevent distortion. This is particularly true of threaded members and housings.
4. Except for bearings, always clean every part and wipe every part with a thin film of oil before installation.
5. Apply 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 clean, suitable cleaning solution and dry with a clean cloth. **Sealed or shielded bearings should never be cleaned.** Work grease into every open bearing before installation.

Assembly of the Throttle Mechanism

1. If the Trigger Assembly (3A) was removed, insert the shaft of the Trigger into the Motor Housing (1) and push it all the way into the trigger recess in the Housing until it stops.
2. Using long reach needle nose pliers to hold the Trigger Retainer (3B), insert the Retainer into the inlet bushing opening and install the straight leg of the Retainer in the hole through the shaft of the Trigger.
3. Install the Inlet Bushing Bezel (6), convex end leading, onto the Inlet Bushing Assembly (4). Bring the convex end into contact with the hex at the inlet end of the Bushing.
4. Spread the opening slightly on the Inlet Bushing Retainer (7) and install it around the Inlet Bushing with the tab end nearest to the bushing hex and against the Bezel.
5. Grasp the hex of the Inlet Bushing in leather–covered or copper–covered vise jaws with the throttle valve opening upward.
6. Insert the Throttle Valve Spring (8B), large end leading, followed by the Throttle Valve (8A), long stem end trailing, into the valve opening.
7. Place the Throttle Valve Seat (8C) followed by the Valve Seat Support (8D) in the opening against the Valve.
8. Using snap ring pliers while compressing the Throttle Valve Spring and moving the Seat and Support inward, capture the components by installing the Valve Seat Retainer (8E) in the Bushing internal groove.
9. Moisten the Inlet Bushing Seal (8F) with o–ring lubricant and install it on the exterior of the Inlet Bushing.
10. Remove the assembled Bushing from the vise jaws. If the Inlet Bushing Screen was removed, use a flat faced dowel slightly less than 1/2” in diameter to push the new Screen into the opening at the hex end of the Bushing.

Assembly of the Motor

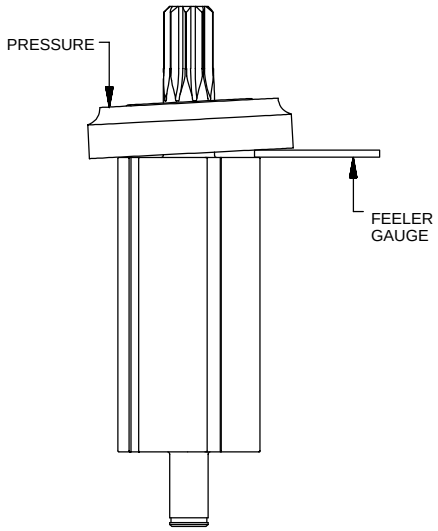
1. Place the Front End Plate (17) on the splined shaft of the Rotor (15) with the bearing recess away from the rotor body.
2. Place the Front Rotor Bearing (19) onto the shaft and using a sleeve or piece of tubing that contacts the inner race of the Bearing, press the Bearing onto the shaft until the Front End Plate nearly contacts the rotor body.

NOTICE

In the following step, the measurement must be made at the end corner of the large rotor body.

3. The clearance between the Front End Plate and Rotor is critical. While pressing down with your finger on the outer edge of the Front End Plate on the bearing side, insert a 0.004” (0.1 mm) feeler gauge between the face of the rotor body and the face of the End Plate at a point that is 180 degrees from where the pressure is applied. Refer to Dwg. TPA1740. To increase the gap, support the End Plate and lightly tap the rotor shaft with a plastic hammer; to decrease the gap, press the Bearing farther onto the rotor shaft.

Measurement of Front End Plate Clearance



(Dwg. TPA1740)

4. Wipe each Vane (16) with a light film of Ingersoll–Rand No. 10 Oil and place a Vane in each slot in the Rotor.
5. One end of the Cylinder Assembly (13) has a notch that breaks the outer wall and end face of the Cylinder. With that end trailing, install the Cylinder Assembly over the Rotor and Vanes against the Front End Plate. Make certain the Cylinder Alignment Pin (14) enters the hole in the Front End Plate.

6. Install the Rear End Plate Assembly (11), flat face leading, on the rear hub of the Rotor. Make certain the Cylinder Alignment Pin enters the hole in the Rear End Plate.
7. Using snap ring pliers, install the Rear End Plate Assembly Retainer (12) in the annular groove on the rear rotor hub to secure the assembly in position.
8. Set the assembled motor aside.

Assembly of the Gearing

1. Work some Ingersoll–Rand No. 67 Grease into the gearing of the Spindle Assembly (29).
2. Insert the threaded end of the Spindle Assembly into the threaded end of the Gear Case (30) while meshing the teeth of the gears with the spline inside the Gear Case.
3. Support the gear end of the Spindle Assembly on the table of an arbor press while leaving clearance for the Gear Case. Using a piece of tubing that will clear the shaft and contact the inner ring of the Spindle Bearing (31), press the Bearing onto the shaft of the Spindle Assembly until it contacts the gear hub.
4. Using snap ring pliers, install one of the Bearing Stops (33) in the internal groove nearest the Bearing.
5. Apply some Ingersoll–Rand No. 67 Grease to the Bearing Spacer (32) and slide it onto the shaft of the Spindle Assembly with the smaller end trailing.
6. Using snap ring pliers, install the second Bearing Stop in the internal gear case groove nearest the threaded spindle end.
7. Stand the assembled Gear Case on the table of an arbor press with the output Spindle upward. Install the Spindle Cap Bearing (34) over the output shaft, and using a piece of tubing that contacts the outer ring of the Bearing, press the Bearing into the Gear Case against the Bearing Stop.
8. **For Series QP05, QP09, QP15, QP20 and QP38,** insert the Planet Gear Head Spacer (28) and Planet Gear Head Assembly (25), spline hub leading, into the open end of the Gear Case.
9. **For Series QP05, QP09, QP15 and QP20,** apply Ingersoll–Rand No. 67 Grease to the three Planet Gears (26) and install them on the shafts of the Planet Gear Head Assembly.
10. **For Series QP15 and QP20,** apply Ingersoll–Rand No. 67 Grease to the Gear Head Pinion (27) and while meshing the gear teeth, insert it in the opening between the three Planet Gears.
11. **For Series QP38,** install the Planet Gear Head Drive Plate (24) on the shafts of the Planet Gear Head Assembly.
12. **For Series QP05, QP09, QP15, QP20 and QP38,** place the Gear Head Spacer (23) in the Gear Case and secure the assembly by using snap ring pliers to install the Gear Retainer (22) in the annular groove inside the Gear Case.

Assembly of the Tool

1. Grasp the hex of the Inlet Bushing Assembly (4) in vise jaws with the Throttle Valve (8A) upward. Pull the stem of the Valve fully outward to enable proper engagement with the trigger stem.
2. Hold the Motor Housing (1) above the Bushing and align the two cut out slots in the inlet end of the Motor Housing with the tabs on the Inlet Bushing Retainer (7).
3. Lower the Housing onto the Bushing until the bottom of the Housing contacts the retainer tabs. If necessary, squeeze the Retainer to start the tabs into the Housing. Push down on the Housing until the tabs engage the two slots in the Housing. Visually inspect the Housing to make certain that both tabs entered the slots in the Housing.
4. Remove the Housing from the vise jaws.
5. Grasp the spline of the Rotor (15) and align the assembled motor so that the End Plate Alignment Dowel (18) is positioned at twelve o'clock in the Housing. It must be aligned with the notch through the threads in the Motor Housing. Insert the assembled motor in the Housing. When the motor is seated properly, the groove below the housing threads for the Motor Seal (20) will be clearly visible.
6. Moisten the Motor Seal with o–ring lubricant and carefully work it into the Housing against the Front End Plate (17). Use a hex wrench, ball point pen or other non–damaging tool to make certain it is completely seated under the housing threads against the End Plate.
7. Align the tab on the Motor Clamp Washer (21) with the notch in the Housing and the hole in the Washer with the Alignment Dowel in the End Plate and insert the Washer into the Housing . Make certain the Dowel enters the hole in the Washer and the Washer is flat against the Motor Seal. Failure to have the Washer flat, will cause the motor to lock up.
8. While engaging the spline of the rotor shaft with the gearing in the assembled Gear Case (30), thread the two assemblies together hand tight.

9. To tighten the Gear Case on the Housing, proceed as follows:
   a) Install a standard 1–1/16" open end wrench on the flats of the Gear Case.
   b) Grasp the handle portion of the Motor Housing and rotate the Housing clockwise to tighten it on the Gear Case.
   c) Tighten the joint between 15 and 20 ft–lbs. (20.3 and 27.1 Nm) torque.
10. Remove the tool from the vise jaws and thread the Chuck (35) onto the Spindle (29).
11. Check the free speed of the tool using a tachometer and follow the instructions in the **SPEED ADJUSTMENT** section of this manual.

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 Inlet Bushing Screen	Clean the Inlet Bushing Screen using a clean, suitable cleaning solution. If the Screen cannot be cleaned, replace it.
	Worn or broken Vanes	Replace a **complete** set of Vanes.
	Worn or broken Cylinder	Replace the Cylinder if it is cracked or if the bore appears wavy or scored.
	Exhaust control restricted	Make certain the exhaust control plate in the Housing is in the fully open position.
Motor won't run	Motor Clamp Washer binding	Remove the Gear Case make certain the Washer is flat and the Motor Seal is properly positioned.
	Gears binding	Clean and inspect all gearing. Replace any worn or damaged gearing.
Leaky Throttle Valve	Worn Throttle Valve and/or Throttle Valve Seat	Install a new Inlet Parts Kit (Part No. TRD–K303).
	Dirt accumulation on Throttle Valve and/or Throttle Valve Seat	Remove the throttle unit from the Housing and disassemble, clean and reassemble the unit as instructed in the maintenance instructions. **CAUTION** **Never flush the throttle unit with a cleaning solution while it is in the Housing. Internal components will be damaged.**
Gear Case gets hot	Excessive grease	Clean and inspect 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.