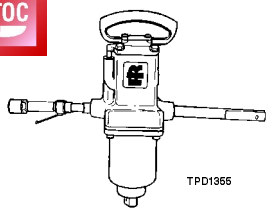

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Form P6604
Edition 6
June, 1998

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E
P

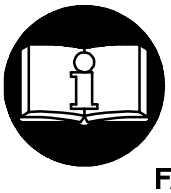
OPERATION AND MAINTENANCE MANUAL FOR SERIES 5980 AND 5982 SUPER DUTY IMPACTOOLS

NOTICE

Series 5980 and 5982 Impactools are designed for large machinery repair, railroad right of way and engine maintenance, power plant maintenance and other fastener applications requiring high torque.

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" (25 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.
- 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 shaft 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.
- Use only impact sockets and accessories. Do not use hand (chrome) sockets or accessories.
- Impact wrenches are not torque wrenches. Connections requiring specific torque must be checked with a torque meter after fitting with an impact wrench.
- This tool can exert strong forces on the operator. Use proper support to control these forces.
- This tool is designed to be operated by a minimum of two persons.
- This tool is not designed for working in explosive atmospheres.
- This tool is not insulated against electric shock.

NOTICE

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

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

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

Printed in U.S.A.

INGERSOLL-RAND®
PROFESSIONAL TOOLS

WARNING LABEL IDENTIFICATION

⚠ WARNING

FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

⚠ WARNING

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

⚠ WARNING

Always wear hearing protection when operating this tool.

⚠ WARNING

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.

⚠ WARNING

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.

⚠ WARNING

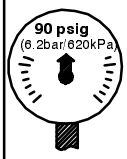
Do not carry the tool by the hose.

⚠ WARNING

Do not use damaged, frayed or deteriorated air hoses and fittings.

⚠ WARNING

Keep body stance balanced and firm. Do not overreach when operating this tool.



⚠ WARNING

Operate at 90 psig (6.2 bar/ 620 kPa) Maximum air pressure.

PLACING TOOL IN SERVICE

LUBRICATION

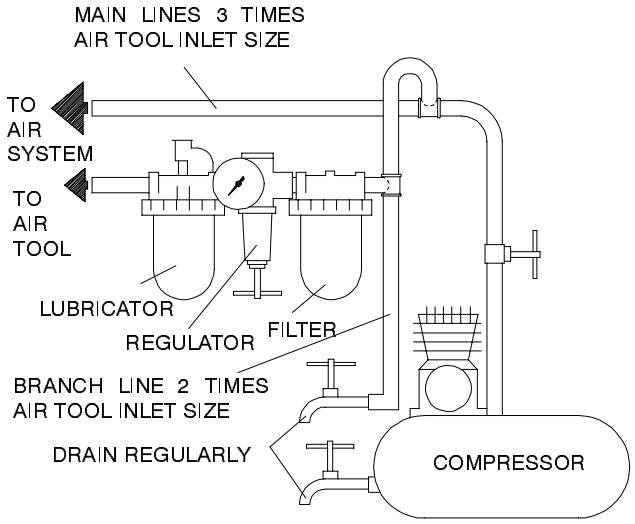
Ingersoll–Rand No. 50

Ingersoll–Rand No. 100

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

For USA – No. C31–06–G00

After each four hours of operation, or as experience indicates, inject about 45 cc of Ingersoll–Rand No. 100 grease into the Grease Fitting.



(Dwg. TPD905–1)

HOW TO ORDER AN IMPACTOOL

1–1/2" SQUARE DRIVE LEVER THROTTLE			
		Recommended Torque Range	
Model	Impacts/min.	ft–lb	Nm
5980A1	1 000	2 300 – 5 500	3 119 – 7 460
2–1/2" SQUARE DRIVE LEVER THROTTLE			
5982A1	850	4 000 – 10 000	5 424 – 13 560

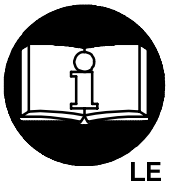
F

MANUEL D'EXPLOITATION ET D'ENTRETIEN DES CLÉS À CHOCS À HAUTE PERFORMANCE SÉRIES 5980 ET 5982

NOTE

Les clés à chocs Modèles 5980 et 5982 sont destinées aux réparations des grosses machines, à l'entretien des voies ferrées et des locomotives, à l'entretien des centrales électriques, au montage de machines, à l'entretien de pipeline et de plate–formes pétrolières et à toutes les fixations nécessitant un couple de serrage élevé.
Ingersoll–Rand ne peut être tenu responsable de la modification des outils par le client pour les adapter à des applications qui n'ont pas été approuvées par Ingersoll–Rand.

⚠ ATTENTION



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

MISE EN SERVICE DE L'OUTIL

- **Toujours exploiter, inspecter et entretenir cet outil conformément au Code de sécurité des outils pneumatiques portatifs de l'American National Standards Institute (ANSI B186.1).**
- **Pour la sécurité, les performances optimales et la durabilité maximale des pièces, cet outil doit être connecté à une alimentation d'air comprimé de 6,2 bar (6,2 kPa) maximum à l'entrée, avec un flexible de 25 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 (6,2 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 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.**
- **N'utiliser que les douilles et les accessoires pour clés à chocs. Ne pas utiliser les douilles et accessoires (chromés) de clés manuelles.**
- **Les clés à chocs ne sont pas des appareils dynamométriques. Les connexions nécessitant un couple de serrage spécifique doivent être vérifiées avec un mesureur de couple après avoir été assemblées avec un clé à chocs.**
- **Cet outil est conçu pour être actionné par deux personnes minimum.**
- **Cet outil peut exercer des forces importantes sur l'opérateur. Utiliser un support correct pour contrôler ces forces.**
- **Cet outil est conçu pour être actionné par deux personnes.**
- **Cet outil n'est pas conçu pour fonctionner dans des atmosphères explosives.**
- **Cet outil n'est pas isolé contre les chocs électriques.**

NOTE

L'utilisation de rechanges autres que les pièces d'origine Ingersoll–Rand peut causer des risques d'insécurité, réduire les performances de l'outil et augmenter l'entretien, et peut annuler toutes les garanties.
Les réparations ne doivent être effectuées que par des réparateurs qualifiés autorisés. Consultez votre Centre de Service Ingersoll–Rand le plus proche.

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

Imprimé aux É.U.

INGERSOLL-RAND®
PROFESSIONAL TOOLS

SIGNIFICATION DES ETIQUETTES D'AVERTISSEMENT

⚠ ATTENTION

LE NON RESPECT DES AVERTISSEMENTS SUIVANTS PEUT CAUSER DES BLESSURES

⚠ ATTENTION

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

⚠ ATTENTION

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

⚠ ATTENTION

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

⚠ ATTENTION

Les outils pneumatiques peuvent vibrer pendant l'exploitation. Les vibrations, les mouvements répétitifs et les positions inconfortables peuvent causer des douleurs dans les mains et les bras. N'utiliser plus d'outils en cas d'inconfort, de picotements ou de douleurs. Consulter un médecin avant de recommencer à utiliser l'outil.

⚠ ATTENTION

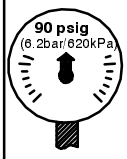
Ne pas transporter l'outil par son flexible.

⚠ ATTENTION

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

⚠ ATTENTION

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



⚠ ATTENTION

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

MISE EN SERVICE DE L'OUTIL

LUBRIFICATION

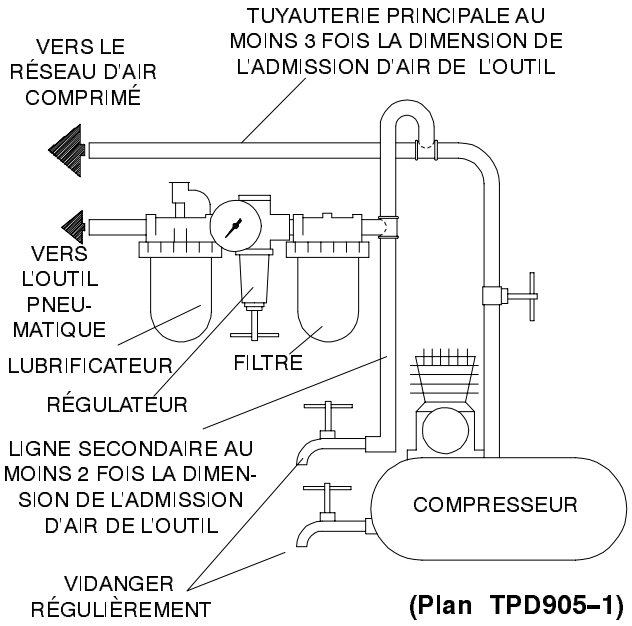
Ingersoll–Rand N°. 50

Ingersoll–Rand N°. 100

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

USA – No. C31–06–G00

Toutes les quatre heures de fonctionnement, ou en fonction de l'expérience, injecter environ 45 cm^3 de graisse Ingersoll–Rand No. 100 dans le raccord de graissage.



(Plan TPD905–1)

SPÉCIFICATIONS

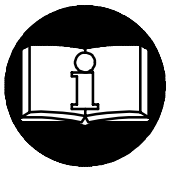
Modèle	Poignée à levier	Entraînement	Coups par minute	Gamme de couples recommandée
		in.		ft–lbs (Nm)
5980A1	commande à levier	1–1/2" carré	1000	2300–5500 (3119–7460)
5982A1	commande à levier	2–1/2" carré	850	4000–10000 (5424–13560)

E

MANUAL DE USO Y MANTENIMIENTO PARA LLAVES DE IMPACTO INDUSTRIALES MODELOS 5980 Y 5982

NOTA

La Llave de Impacto Modelo 5980 y 5982 está diseñada para usar en la reparación de máquinas grandes, mantenimiento de vía férreas y locomotoras, mantenimiento de centrales eléctricas, así como otras aplicaciones de fijación que exigen un elevado par de apriete.
Ingersoll–Rand no aceptará responsabilidad alguna por la modificación de las herramientas efectuada por el cliente para las aplicaciones que no hayan sido consultadas con Ingersoll–Rand.



⚠ AVISO

SE ADJUNTA INFORMACIÓN IMPORTANTE DE SEGURIDAD.
LEA ESTE MANUAL ANTES DE USAR LA HERRAMIENTA.
ES RESPONSABILIDAD DE LA EMPRESA ASEGURARSE DE QUE EL OPERARIO ESTÉ AL TANTO DE LA INFORMACIÓN QUE CONTIENE ESTE MANUAL.
EL HACER CASO OMISO DE LOS AVISOS SIGUIENTES PODRÍA OCASIONAR LESIONES.

PARA PONER LA HERRAMIENTA EN SERVICIO

- **Utilice, examine y mantenga siempre esta herramienta conforme al código de seguridad para herramientas neumáticas portátiles de la American National Standards Institute (ANSI B186.1).**
- **Para seguridad, máximo rendimiento y durabilidad de piezas, use esta herramienta a una presión de aire máxima de 90 psig (6,2 bar/620 kPa) en la manguera de suministro de aire con diámetro interno de 25 mm.**
- **Corte siempre el suministro de aire y desconecte la manguera de suministro de aire antes de instalar, desmontar o ajustar cualquier accesorio de esta herramienta, o antes de realizar cualquier operación de mantenimiento de la misma.**
- **No utilice mangueras de aire y accesorios dañados, desgastados ni deteriorados.**
- **Asegúrese de que todas las mangueras y accesorios sean del tamaño correcto y estén bien apretados. Vea Esq. TPD905–1 para un típico arreglo de tuberías.**
- **Use siempre aire limpio y seco a una presión máxima de 90 psig (6,2 bar/620 kPa). El polvo, los gases corrosivos y/o el exceso de humedad podrían estropear el motor de una herramienta neumática.**
- **No lubrique las herramientas con líquidos inflamables o volátiles tales como queroseno, gasoil o combustible para motores a reacción.**
- **No saque ninguna etiqueta. Sustituya toda etiqueta dañada.**

USO DE LA HERRAMIENTA

- **Use siempre protección ocular cuando maneje, o realice operaciones de mantenimiento en esta herramienta.**
- **Use siempre protección para los oídos cuando maneje esta herramienta.**
- **Mantenga las manos, la ropa suelta y el cabello largo alejados del extremo giratorio de la herramienta.**
- **Note la posición de la palanca de inversión antes de hacer funcionar la herramienta para ser consciente de su dirección giratoria cuando funcione el estrangulador.**
- **Anticipe y esté alerta sobre los cambios repentinos en el movimiento durante la puesta en marcha y el manejo de toda herramienta motorizada.**
- **Mantenga una postura de cuerpo equilibrada y firme. No estire demasiado los brazos al manejar la herramienta. Pueden ocurrir reacciones de alto par a, o a menos de, la recomendada presión de aire.**
- **El eje de la herramienta podría seguir girando brevemente después de haber soltado la palanca de estrangulación.**
- **Las herramientas neumáticas pueden vibrar durante el uso. La vibración, repetición o posiciones incómodas pueden dañarle los brazos y manos. En caso de incomodidad, sensación de hormigueo o dolor, deje de usar la herramienta. Consulte a un médico antes de volver a usarla otra vez.**
- **Utilice únicamente los accesorios Ingersoll–Rand recomendados.**
- **Utilice únicamente bocas y accesorios para llaves de impacto. No utilice bocas o accessorios manuales (cromados).**
- **Las llaves de impacto no son llaves de par. Las uniones que requieran pares específicos deberán ser comprobadas con un torsiómetro después de haberlas fijado con una llave de impacto.**
- **Esta herramienta puede ejercer mucha fuerza sobre el operario. Use un soporte apropiado para controlar esta fuerza.**
- **Esta herramienta está diseñada para ser usada por un mínimo de dos personas.**
- **Esta herramienta no ha sido diseñada para trabajar en ambientes explosivos.**
- **Esta herramienta no está aislada contra descargas eléctricas.**

NOTA

El uso de piezas de recambio que no sean las auténticas piezas Ingersoll–Rand podría poner en peligro la seguridad, reducir el rendimiento de la herramienta y aumentar los cuidados de mantenimiento necesarios, así como invalidar toda garantía. Las reparaciones sólo serán realizadas por personal cualificado y autorizado. Consulte con el centro de servicio Ingersoll–Rand autorizado más próximo.

Toda comunicación se deberá 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

Usar siempre protección para los oídos al manejar 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

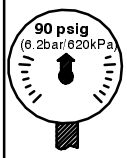
No coger la herramienta por la manguera para levantarla.

⚠ 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

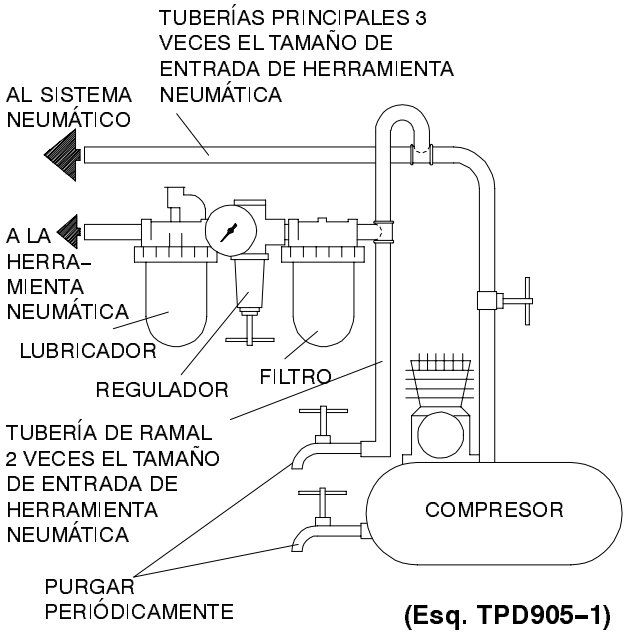
Ingersoll–Rand Nº 50

Ingersoll–Rand Nº 100

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

USA - Nº. C31–06–G00

Después de cada cuatro horas de funcionamiento, o según indique la experiencia, inyecte unos 45 cc de Grasa Ingersoll–Rand Nº 100 en el Engrasador.



(Esq. TPD905–1)

ESPECIFICACIONES

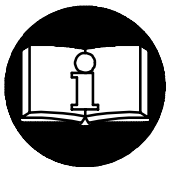
Modelo	Tipo de Empuñadura	Accionamiento	Impactos por minuto	Gama de par recomendada
		pulg.		ft–lbs (Nm)
5980A1	palanca de estrangulador	1,5" cuadradillo	1000	2300–5500 (3119–7460)
5982A1	palanca de estrangulador	2,5" cuadradillo	850	4000–10000 (5424–13560)

P

MANUAL DE FUNCIONAMENTO E MANUTENÇÃO PARA FERRAMENTAS DE IMPACTO PARA TRABALHOS SUPER, SÉRIES 5980 E 5982

AVISO

As Ferramentas de Impacto Séries 5980 e 5982 são concebidas para reparações de maquinaria pesada, manutenção de motores marítimos e carris ferroviários, manutenção de centrais térmicas e outras aplicações de aperto, quando for necessário um torque elevado.
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 25 mm (1 pol).**
- **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 6,2 bar/620 kPa (90 psig). Pó, fumos corrosivos e/ou humidade excessiva podem arruinar o motor de uma ferramenta pneumática.**
- **Não lubrifique as ferramentas com líquidos inflamáveis ou voláteis tais como querosene, diesel ou combustível de jactos.**
- **Não remova nenhum rótulo. Reponha qualquer rótulo danificado.**

USANDO A FERRAMENTA

- **Use sempre óculos de protecção quando estiver operando ou executando serviço de manutenção nesta ferramenta.**
- **Use sempre protecção contra ruído ao operar esta ferramenta.**
- **Mantenha as mãos, partes do vestuário soltas e cabelos compridos afastados da extremidade em rotação.**
- **Observe qual é a posição da alavanca que reverte o sentido de rotação antes de operar esta ferramenta de modo a estar atento ao sentido de rotação quando operar o regulador de pressão.**
- **Antecipe e esteja alerta a mudanças repentinas no movimento quando ligar e operar qualquer ferramenta motorizada.**
- **Mantenha a posição do corpo equilibrada e firme. Não exagere quando operar esta ferramenta. Torques de reacção elevados podem ocorrer na ou abaixo da pressão de ar recomendada.**
- **O eixo da ferramenta pode continuar a girar brevemente após a pressão tenha 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.**
- **Use somente soquetes e acessórios de impacto. Não use soquetes ou acessórios de mão (cromo).**
- **Ferramentas Pneumáticas de impacto não são chaves dinamométricas de torque. As conexões que requerem um torque específico devem ser verificadas com um torquímetro depois de adaptadas a uma chave dinamométrica de impacto.**
- **Esta ferramenta é concebida para ser operada no mínimo por duas pessoas.**
- **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.

⚠ ADVERTÊNCIA

Use sempre óculos de protecção quando estiver operando ou executando 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

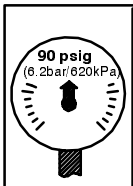
Mantenha a posição do corpo equilibrada e firme. Não exagere quando operar esta ferramenta. Torques de reacção elevados podem ocorrer sob a pressão de ar recomendada.

⚠ ADVERTÊNCIA

Use sempre protecção contra o ruído ao operar esta ferramenta.

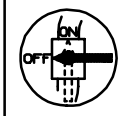
⚠ ADVERTÊNCIA

Não carregue a ferramenta segurando na mangueira.



⚠ ADVERTÊNCIA

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



⚠ ADVERTÊNCIA

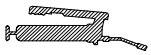
Desligue sempre a alimentação de ar e desconecte a mangueira de alimentação de ar antes de instalar, remover ou ajustar qualquer acessório nesta ferramenta, ou antes de executar algum serviço de manutenção nesta ferramenta.

⚠ ADVERTÊNCIA

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

COLOCANDO A FERRAMENTA EM FUNCIONAMENTO

LUBRIFICAÇÃO

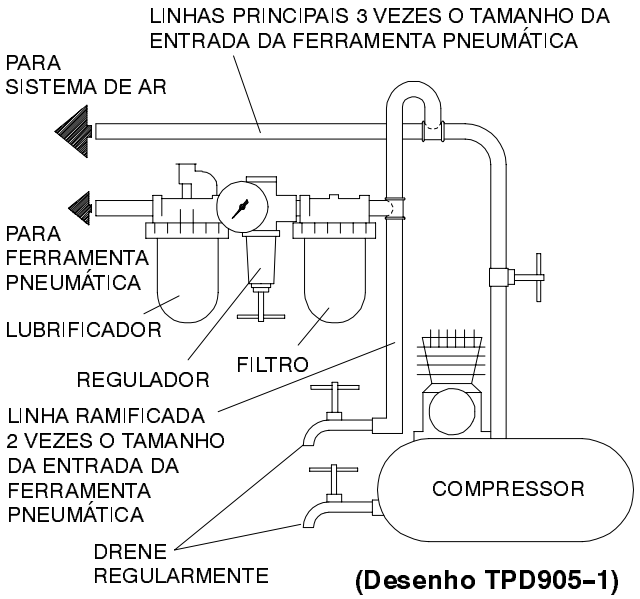


Ingersoll–Rand No. 50 **Ingersoll–Rand No. 100**

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

Para USA – No. C31–06–G00

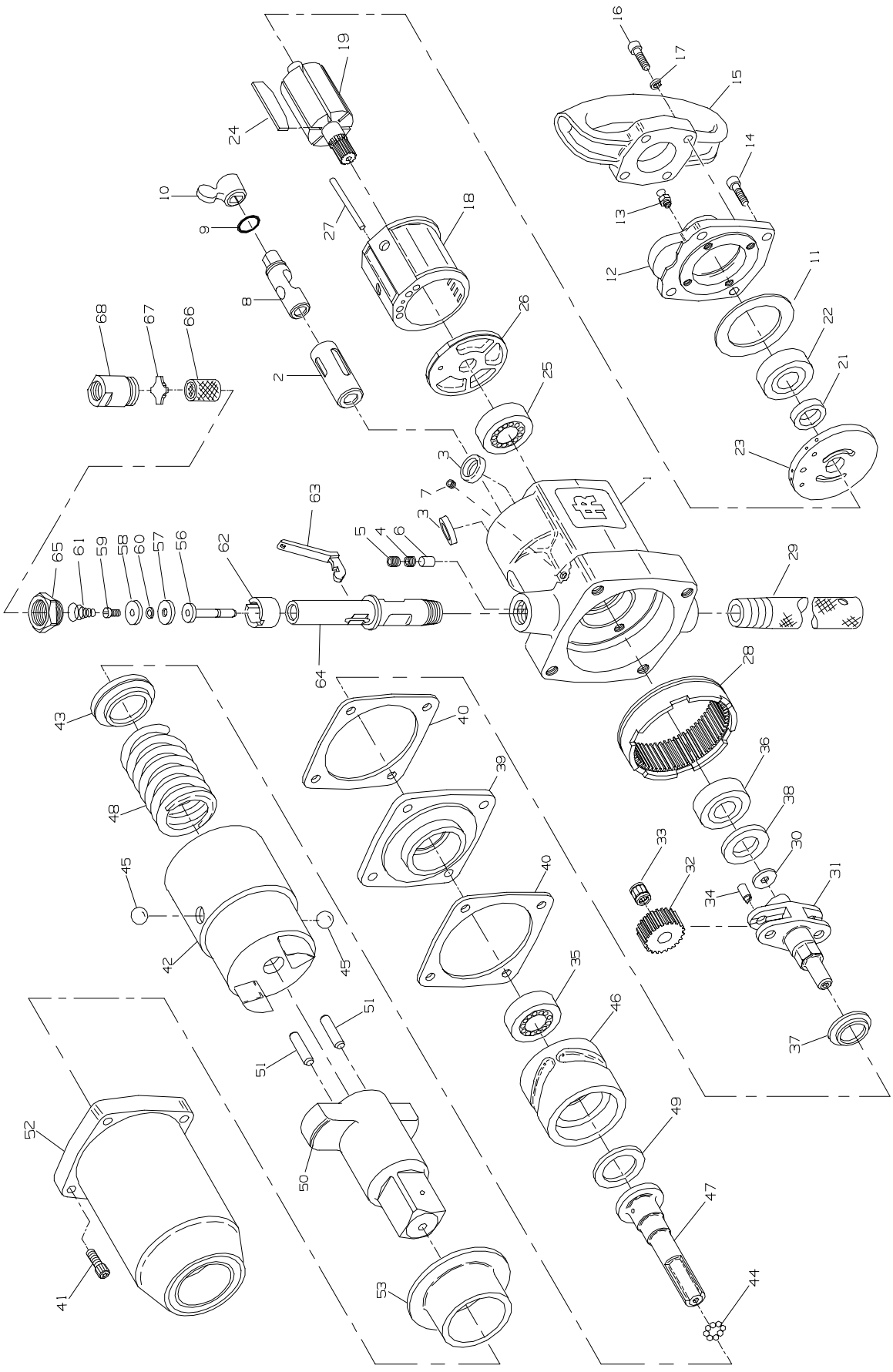
Depois de quatro horas de operação, ou quando a experiência, injecte cerca de 45 cc de Massa Lubrificadora Ingersoll–Rand No.100 no Adaptador.



(Desenho TPD905–1)

ESPECIFICAÇÕES

Modelo	Tipo de Punho	Encabadouro Quadrado	Impactos por min.	Intervalo de Torque Recomendado
		pol.		(pés–lbs) Nm
5980A1	Alavanca reguladora de pressão	1–1/2”	1 000	2 300–5 500 (3 119–7 460)
5982A1	Alavanca reguladora de pressão	2–1/2”	850	4 000–10 000 (5 424–13 560)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(Dwg. TPA895–1)

			PART NUMBER FOR ORDERING
#	1	Motor Housing Assembly	ILA582A1-A40
+	2	Reverse Valve Bushing	ILA582A1-330
•	3	Air Port Gasket (2)	R44H-210A
	4	Oiler Adjusting Screw	R2-71
	5	Adjusting Hole Plug	WF-109A
	6	Oiler Felt (2)	R2-75
	7	Oil Chamber Plug	R0H-377
	8	Reverse Valve Assembly	ILA582A1-A329
	9	Reverse Valve Seal	HU-730
	10	Reverse Lever	ILA582A1-658
•	11	End Plate Gasket	577-283
	12	Backhead Assembly	ILA582A1-A102
	13	Grease Fitting	23-188
	14	Backhead Cap Screw (4)	ILA582A1-68
	15	Grip Handle	ILA582A1-1
	16	Grip Handle Cap Screw (4)	ILA582A1-68
	17	Handle Cap Screw Lock Washer (4)	HRA20A-322
	18	Cylinder	588-3
	19	Rotor Assembly	577-53
	21	Rotor Bearing Spacer	R5H-65
•	22	Rear Rotor Bearing	R5H-22
•	23	Rear End Plate	577-12A

			PART NUMBER FOR ORDERING
•	24	Vane Packet (set of 5 Vanes)	R5H-42-5
•	25	Front Rotor Bearing	R5H-24
•	26	Front End Plate	R55H-11
	27	Cylinder Dowel	92R-98
	28	Internal Gear	ILA582A1-406
	29	Dead Handle	
		for 5980	ILA578A1-48
		for 5982	588-48
	30	Grease Guide	5780-72
	31	Planet Gear Frame	ILA582A1-8
	32	Planet Gear (2)	ILA582A1-10
	33	Planet Gear Bearing (2)	R4SM-501
	34	Planet Gear Shaft (2)	577-191
•	35	Gear Frame Front Bearing	215-63
•	36	Gear Frame Rear Bearing	D10-518
	37	Gear Frame Front Spacer	ILA582A1-331
	38	Gear Frame Rear Spacer	577-332
	39	Housing Cover	
		for 5980	ILA578A1-720
		for 5982	ILA582A1-720
•	40	Housing Cover Gasket (2)	ILA582A1-239

NOTICE

\# **Always specify the complete model symbol of the Tool when ordering a repair Motor Housing so the new Housing will be correctly stamped.**

\+ Should the Reverse Valve Bushing (2) ever require replacement, return the Motor Housing (1) to the factory for installation.

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

		PART NUMBER FOR ORDERING
41	Hammer Case Cap Screw (4)	ILA582A1–638
	Hammer Assembly	
	for 5980	5780–A724
	for 5982	5820–A724
42	Hammer	
	for 5980	5780–724
	for 5982	5820–724
43	Hammer Spring Thrust Bearing Race	
	for 5980	ILA578A1–695
	for 5982	ILA582A1–695
44	Hammer Spring Thrust Bearing Ball (17)	D04–280
45	Cam Ball (2)	577–714
46	Ball Cam	
	for 5980	5780–721
	for 5982	5820–721
47	Arbor	
	for 5980	ILA578A1–725
	for 5982	ILA582A1–725
48	Hammer Spring	
	for 5980	ILA578A1–728
	for 5982	ILA582A1–728
49	Friction Drive Washer	ILA582A1–729
50	Anvil	
	for 5980	ILA578A1–726
	for 5982	ILA582A1–726
51	Anvil Drive Pin (2)	HU–527
52	Hammer Case Assembly	
	for 5980 (aluminum)	ILA578A1–A727
	for 5980–EU (aluminum)	ILA578A1–EU–A727
	for 5982 (aluminum)	ILA582A1–A727
	for 5982–EU (aluminum)	ILA582A1–EU–A727

		PART NUMBER FOR ORDERING
53	Hammer Case Bushing	
	for 5980	ILA578A1–641
	for 5982	ILA582A1–641
*	Hammer Case Label	
	for 5980 and 5982	WARNING–2–99
	for 5980–EU and 5982–EU	EU–99
*	Oversize Hammer Case Bushing	
	for 5980 (.005" oversize)	ILA578A1–641–5
	for 5980 (.010" oversize)	ILA578A1–641–10
	for 5980 (.015" oversize)	ILA578A1–641–15
	for 5982 (.005" oversize)	ILA582A1–641–5
	for 5982 (.010" oversize)	ILA582A1–641–10
• *	Socket Pin (for 5982)	588–215
• *	Socket Pin Retainer (for 5982)	588–216
• *	Retaining Rib (for 5980)	RR10020S
	Throttle Assembly	577–AL40l
56	Throttle Valve Assembly	R4H–402
• 57	Throttle Valve Face	R4H–159
58	Throttle Valve Face Cap	R4H–157
59	Throttle Valve Face Retaining Screw	R4–158
60	Retaining Screw Lock Washer	H54U–352
• 61	Throttle Valve Spring	T01–308
62	Throttle Lever Spacer	R4H–270
63	Throttle Lever	R4H–273
64	Throttle Body	R4H–401
	Air Strainer Assembly	R5H–A565
65	Air Strainer Cap	R4H–566
• 66	Air Strainer Screen	R5H–61
67	Air Strainer Screen Support	R3H–567
68	Air Strainer Body	R5H–565

* Not illustrated.

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

		PART NUMBER FOR ORDERING			PART NUMBER FOR ORDERING
*	Nameplate		*	Wooden Storage/Shipping Case	5980–96
	for 5980	5980–301	*	Hose Nipple	J3–581
	for 5980–EU	5980–EU–301	*	Hose Nipple	R5H–46
	for 5982	5982A1–301	*	Exhaust Ell	DU–587
	for 5982–EU	5982–EU–301	*	Double Grip Handle	5980–48
*	Nameplate Screw (4)	C32–302	*	Horizontal Hanger Kit (for 5982A1 only)	
*	Eyebolt			(includes hanger, 2 bolts, 2 nuts	
	for vertical suspension	KU–888		and 2 lockwashers)	ILA582A1–D366
	for horizontal suspension	5780–4			
*	Grease Gun	P25–228			

* Not illustrated.

⚠ 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 5980 or 5982 Impactool is disassembled for maintenance and repair or replacement of parts, lubricate the tool as follows:

1. Work approximately 45 cc of Ingersoll–Rand No. 100 Grease into the impact mechanism. Coat the Anvil (50) lightly with grease around the Hammer Case Bushing (53). Inject approximately 4 cc of grease into the Grease Fitting (13).
2. Use Ingersoll–Rand No. 50 Oil for lubricating the motor. Inject approximately 3 to 4 cc of oil into the air inlet before attaching the air hose. Remove the Oil Chamber Plug (7) and fill the oil chamber.

DISASSEMBLY

General Instructions

1. Do not disassemble a tool any further than necessary to replace or repair damaged parts.
2. Whenever grasping a tool or part in a vise, always use leather–covered or copper–covered vise jaws to protect the surface of the part and help prevent distortion. This is particularly true of threaded members and housings.
3. Do not remove any part which is a press fit in or on an assembly unless the removal of that part is necessary for repair 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 Impactool

1. Grasp Dead Handle (29) horizontally in a vise so that square driver is upward.
2. Unscrew and remove Hammer Case Cap Screws (41).
3. Lift Anvil (50) and the two Anvil Drive Pins (51) from Arbor (47).
4. Grasp Hammer (42) and lift impact mechanism from Gear Frame (31).

Disassembly of the Impact Mechanism

1. Wash impact mechanism in a suitable solvent to clean as much grease as possible from it.
2. Place impact mechanism on an arbor press so it is supported on the hammer jaws and so Arbor is free to move downward.
3. Press on end of Ball Cam (46) until Cam Balls (45) drop out of holes in side of Hammer.
4. Ease up on the handle of the arbor press.
5. Lift Ball Cam from Hammer. Friction Drive Washer (49) may come off with the Ball Cam or it may stay on rear face of Arbor.
6. Grasp Hammer Spring Thrust Bearing Race (43), and being careful not to drop the seventeen Hammer Spring Thrust Bearing Balls (44), lift Arbor and Bearing Race from the bore of Hammer.
7. Lift Hammer Spring (48) from bore of Hammer.

Disassembly of the Motor

1. Grasp Dead Handle (29) horizontally in a vise so Grip Handle (15) is upward.
2. Unscrew Backhead Cap Screws (14) and lift off Backhead (12) and Grip Handle.
3. Withdraw Reverse Valve Lever (10) and Reverse Valve (8).
4. Carefully rotate Impactool about Dead Handle until motor is downward. Making certain not to drop motor, lightly tap Motor Housing (1) with a plastic hammer to jar the motor loose.
5. While grasping Cylinder (18) in one hand (never clamp Cylinder in a vise), insert a 5/16" (7 mm) rod about 6" (150 mm) long into bore of Rotor (19) and drive in the rod to remove Rear Rotor Bearing (22) from hub of Rotor.
6. Remove Rear End Plate (23), Cylinder and Vanes (24).
7. Support Front End Plate (26) as close to Rotor as possible and press rotor hub from bore of Front Rotor Bearing (25) and End Plate.

Disassembly of the Gearing

1. Remove impact mechanism as described in steps 1 through 4 of **"Disassembly of the Impact Mechanism".**
2. While tapping around edge of Housing Cover (39), pull on pilot end of Gear Frame (31) and withdraw assembled Gear Frame and Housing Cover from Motor Housing (1).
3. Do not remove Internal Gear (28) unless a new Internal Gear is to be installed. Use a gear puller to remove old Internal Gear.
4. Support Housing Cover as close to web of Gear Frame as possible and press Gear Frame from bore of Front Gear Frame Bearing (35).
5. Remove Front Gear Frame Spacer (37).
6. Support remainder of assembly on the exposed area of the Rear Gear Frame Spacer (38) and press Gear Frame from bore of Rear Gear Frame Bearing (36).
7. Press Planet Gear Shafts (34) from Gear Frame and remove Planet Gears (32).
8. Slide Planet Gear Bearings (33) from Planet Gears.

Disassembly of the Throttle

1. Unscrew Throttle Assembly from Motor Housing (1).
2. Grasp Throttle Body (64) in a vise and unscrew Air Strainer Body (68) from Air Strainer Cap (65). Remove Air Strainer Screen (66) and clean it thoroughly.
3. Unscrew Air Strainer Cap from Throttle Body. Withdraw Throttle Valve Spring (61) and Throttle Valve (56).
4. Slide Throttle Lever (63) from slot in Throttle Body and remove Throttle Lever Spacer (62).

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 in 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. 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.

Assembly of the Throttle

1. Grasp Throttle Body (64) in a vise so internal threaded end is upward.
2. Slide Throttle Lever Spacer (62), slotted end trailing, down over Throttle Body.
3. Insert notched foot of Throttle Lever through slotted side of Throttle Lever Spacer so end of foot hooks over top edge of Spacer.
4. Install a new Throttle Valve Face (57) on Throttle Valve (56).
5. Insert Throttle Valve, stem end first, into bore of Throttle Body so stem of Throttle Valve engages notch in foot of Throttle Lever.
6. Place Throttle Valve Spring (61), small end first, against the top of Throttle Valve.
7. Install Air Strainer Cap (65), making certain large end of Throttle Valve Spring enters counterbore in Air Strainer Cap.
8. Stand Air Strainer Screen (66) upright inside Air Strainer Cap and place Air Strainer Screen Support (67) on the upper end of Screen.
9. Place Air Strainer Body (68) down over Air Strainer Screen Support and Screen and thread it into Air Strainer Cap.

Assembly of the Gearing

1. If Internal Gear (28) was removed from Motor Housing (1), install a new Internal Gear as follows:
   a. Note that there are two notches on diametrically opposite sides of the Internal Gear.
   b. Engage the protruding lugs on the Housing Cover (39) with the notches on the Internal Gear and while aligning the bolt holes on the Housing Cover with the tapped holes in the Motor Housing, start the Internal Gear squarely into the Motor Housing.
   c. Remove the Housing Cover and press in the Internal Gear until it seats on the shoulder in the Motor Housing.
2. Install Grease Guide (30), flat side first, in large bore of Gear Frame (31).
3. Slide a Planet Gear Bearing (33) into each Planet Gear (32). Work a little grease into the bore and between the rollers of each Bearing.
4. Support Gear Frame on short hub end. Slide a Planet Gear between flanges on the Gear Frame, aligning bore of Planet Gear Bearing with shaft hole in flanges.
5. Press a Planet Gear Shaft (34), beveled end first, into shaft hole until the full diameter of Shaft is flush with front face of flange and so half–section of Shaft protrudes from flange. When pressing Shaft in, it must be positioned so the lug or half–section faces the tip end of flange.
6. Install second Planet Gear and Shaft.
7. Place Rear Gear Frame Spacer (38), flat side first, on short hub of Gear Frame.
8. Press Rear Gear Frame Bearing (36) onto short hub of Gear Frame until it contacts the Rear Gear Frame Spacer.
9. Place Front Gear Frame Spacer (37), large diameter first, over pilot end of the Gear Frame so it seats against flange of Gear Frame and between lugs on Planet Gear Shafts.
10. Press Front Gear Frame Bearing (35), shield side trailing, into bearing recess in the Housing Cover.
11. Press Housing Cover with assembled Bearing, lug side first, onto pilot end of the Gear Frame until Bearing seats against Front Gear Frame Spacer.

Assembly of the Motor

1. Place Front End Plate (26), crescent grooved side first, on splined end of the Rotor.
2. Press Front Rotor Bearing (25), shield side first, onto hub of Rotor until it contacts Front End Plate.

CAUTION

Do not press the Bearing on far enough to bind the End Plate against the face of the Rotor.

3. Grasp Rotor Pinion in a vise so Rotor is in a vertical position.
4. Wipe each Vane (24) with a light film of oil and place a Vane in each slot in the Rotor.
5. Place Cylinder (18) down over Rotor and against Front End Plate.

NOTICE

Make certain the Cylinder is properly installed. There are two 3/4" (19 mm) holes, one on each of two flats running lengthwise of the Cylinder. One of these holes is located midway on the Cylinder; the other hole is located relatively close to one end of the Cylinder. When you place the Cylinder down over the Rotor, the 3/4" (19 mm) hole nearest the end of the Cylinder must be at the trailing end.

6. Slide Rotor Bearing Spacer (2l), chamfered end first, on hub of Rotor.
7. Place Rear End Plate (23), bearing recess trailing, on hub of Rotor.
8. Press Rear Rotor Bearing (22), shield side first, on hub of Rotor until inner race seats against Rotor Bearing Spacer.

Assembly of the Impact Mechanism

1. Coat Friction Drive Washer (49) with a film of Ingersoll–Rand No. 100 Grease and install it in bottom of Ball Cam (46).
2. Work some Ingersoll–Rand No. 100 Grease into large bore of Arbor (47), onto ball race of Arbor and on face of flange on Arbor.
3. Coat ball race on Hammer Spring Thrust Bearing Race (43) with Ingersoll–Rand No. 100 Grease and slip Hammer Spring Thrust Bearing Race, ball race first, over shaft of the Arbor up to arbor flange.
4. Slip seventeen Hammer Spring Thrust Bearing Balls (44) into ball race between the face of arbor flange and Hammer Spring Thrust Bearing Race. Grease will help hold the balls in position.
5. Coat cam grooves on Ball Cam (46) with Ingersoll–Rand No. 100 Grease and set Ball Cam, open end upward, on workbench.
6. Place Arbor with its assembled Hammer Spring Thrust Bearing Race and Bearing Balls inside Ball Cam against the Friction Drive Washer.
7. Place Hammer Spring (48) down over Arbor and against Hammer Spring Thrust Bearing Race.
8. Coat cam grooves inside Hammer (42) with Ingersoll–Rand No. 100 Grease.
9. Align holes in side of Hammer with points of cam grooves on Ball Cam and seat the Hammer, open end first, down over Arbor, Hammer Spring and Ball Cam.
10. While holding these parts intact, place assembly on table of an arbor press so it is supported on hammer jaws and so the Arbor is free to move downward.
11. Press against rear face of Ball Cam until points in cam groove are aligned with the holes in side of Hammer. Place a Cam Ball (45) into each hole in side of Hammer until it enters cam groove on Ball Cam.
12. Slowly ease up on handle of arbor press. Impact mechanism will stay intact.

Assembly of the Impactool

1. Thread Dead Handle (29) into dead handle boss on side of Motor Housing (1).
2. Grasp Dead Handle in a vise so bore of Motor Housing is horizontal or nearly horizontal.
3. Install a new Reverse Valve Seal (9) on Reverse Valve (8).
4. Slip Reverse Lever (10) on hub of Reverse Valve so knob on Lever faces hole in side of Reverse Valve.
5. Insert Reverse Valve into bore of Reverse Valve Bushing (2) so knob on Reverse Lever faces outside of Motor Housing.
6. Be certain both Air Port Gaskets (3) are in good condition and are installed, large open end first, in the two air ports in bore of Motor Housing.
7. Install the assembled motor as follows:
   a. Align dowel hole in each End Plate (23 and 26) with dowel hole in Cylinder (18) and insert a 1/4" (6 mm) diameter rod about 12" (305 mm) long, allowing it to protrude about 6" (150 mm) from Front End Plate.
   b. Insert protruding end of the rod into dowel hole at bottom of motor housing bore and slide motor into Motor Housing.
   c. Place End Plate Gasket (11) on face of Rear End Plate.
   d. Install Backhead (12) on rear face of Motor Housing. Tighten Backhead Cap Screws (14) to 75 to 90 ft–lb (102 to 122 Nm) torque.
   e. Install Grip Handle (15) on rear face of Backhead. Tighten Grip Handle Cap Screws (16) to 75 to 90 ft–lb (102 to 122 Nm) torque.
8. Install assembled gearing as follows:
   a. Grasp Dead Handle (29) in a vise so gear end of Motor Housing is upward.
   b. Place a Housing Cover Gasket (40) on face of Motor Housing.
   c. Place assembled Planet Gear Frame (31) and Motor Housing Cover (39) on the face of the Motor Housing, making certain the Planet Gears (32) mesh with the Rotor Pinion (19) and Internal Gear (28). Manually, rotate Planet Gear Frame two or three revolutions to make certain there is no binding.

9. Install assembled impact mechanism as follows:
   a. With Impactool positioned as it was in Step 8 (a), place a Housing Cover Gasket on face of Motor Housing Cover (39).
   b. Place assembled impact mechanism on pilot of Gear Frame (31), making certain hexagon section on Gear Frame enters the hexagon bore of Ball Cam (46).
   c. Work some Ingersoll–Rand Impactool No. 100 Grease on protruding end of the Arbor (47) and place an Anvil Drive Pin (51) on each side of Arbor. The grease will hold the Pins in position.
   d. Grease jaws and shank of Anvil with Impactool Grease No. 100 and set Anvil down over end of Arbor so Anvil Drive Pins enter bore of Anvil.
   e. Place Hammer Case (52) over Anvil and against Motor Housing Cover. Install Hammer Case Cap Screws (41). Tighten Hammer Case Cap Screws to 150 to 175 ft–lb (203 to 237 Nm) torque.
10. Thread Throttle Assembly into side of Motor Housing.

TROUBLESHOOTING GUIDE

Trouble	Probable Cause	Solution
Low power	Dirty Inlet Bushing or Air Strainer Screen and/or Exhaust Silencer	Using a clean, suitable, cleaning solution, in a well ventilated area, clean Air Strainer Screen, Inlet Bushing and Exhaust Silencer.
	Worn or broken Vanes	Replace **complete** set of Vanes.
	Worn or broken Cylinder and/or scored End Plates	Examine Cylinder and replace it if it is worn or broken or if bore is scored or wavy. Replace End Plates if they are scored.
	Dirty motor parts	Disassemble tool and clean all parts with a clean, suitable, cleaning solution, in a well–ventilated area. Reassemble tool as instructed in this manual.
	Improper positioning of Reverse Valve	Make certain that Reverse Valve is **fully** engaged to the left or right.
Motor will not run	Incorrect assembly of motor	Disassemble motor and replace worn or broken parts and reassemble as instructed.
	Insufficient lubricant in the impact mechanism	Remove Hammer Case Assembly and lubricate impact mechanism.
Tool will not impact	Broken or worn impact mechanism parts	Remove Hammer Case and examine impact mechanism parts. Replace any worn or broken parts.
	Impact mechanism not assembled correctly	Refer to **Assembly of the Impact Mechanism.**

NOTICE

SAVE THESE INSTRUCTIONS. DO NOT DESTROY.

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