



OPERATION AND MAINTENANCE MANUAL FOR SERIES 41 AIR SCREWDRIVERS

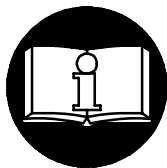


Pistol Grip, Auto Shut-Off, Push Start	Pistol Grip, Auto Shut-Off, Trigger Permit	Pistol Grip, Auto Shut-Off, Trigger Start	Straight Handle, Auto Shut-Off, Lever Permit
41PA8PSQ4	41PA8TPQ4	41PA8TSQ4	41SA8LPQ4
41PA10PSQ4	41PA10TPQ4	41PA10TSQ4	41SA10LPQ4
41PA16PSQ4	41PA16TPQ4	41PA16TSQ4	41SA17LPQ4
41PA24PSQ4	41PA24TPQ4	41PA24TSQ4	41SA25LPQ4

NOTICE

Series 41 Screwdrivers are designed for fastening applications in automotive and appliance assembly, the electronic and aerospace industries and for woodworking. 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 5/16" (8 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 accessories may continue to rotate briefly after throttle is released.
- Air powered tools can vibrate in use. Vibration, repetitive motions or uncomfortable positions may be harmful to your hands and arms. Stop using any tool if discomfort, tingling feeling or pain occurs. Seek medical advice before resuming use.
- Use accessories recommended by Ingersoll-Rand.
- The Throttle Valve Cap is under pressure from the Throttle Valve Spring. Use care when removing the Throttle Valve Cap. (*On tools where applicable.*)
- This tool is not designed for working in explosive atmospheres.
- This tool is not insulated against electric shock.

NOTICE

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

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

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

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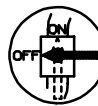
WARNING LABEL IDENTIFICATION

⚠ 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.

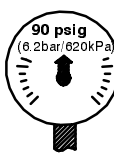
	⚠ WARNING
	Always turn off the air supply and disconnect the air supply hose before installing, removing or adjusting any accessory on this tool, or before performing any maintenance on this tool.

	⚠ 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.

ADJUSTMENTS

CLUTCH ADJUSTMENT

External

1. Rotate Sleeve until opening in Housing is visible.
2. Depress bit to engage clutch, then rotate until notch in Adjustment Washer or is visible.
3. Insert No. 1 Phillips screwdriver in notch to turn gear teeth on Nut.
4. Turning **clockwise** will decrease torque.
5. Turning **counterclockwise** will increase torque.

Internal

1. Remove Clutch Housing, Bit Holder and Clutch Assembly from tool.

NOTICE

Clutch housing has left-hand threads.

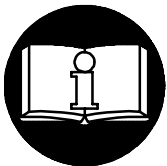
2. With bit in Bit Holder, clamp bit in vise.
3. Place Clutch Assembly on Bit Holder.
4. Engage jaws, hold Clutch Assembly from turning. Then rotate Adjustment Nut with 7/8" wrench.

MANUEL D'EXPLOITATION ET D'ENTRETIEN DES TOURNEVIS PNEUMATIQUES DE LA SÉRIE 41

NOTE

Les tournevis de la Série 41 sont destinés au serrage des fixations d'assemblage automobile et d'équipements ménagers, des industries électroniques et aérospatiales et pour le travail du bois. 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 8 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 volatils 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 fous et les cheveux longs, éloignés de l'extrémité rotative de l'outil.
- Noter la position du levier d'inversion avant de mettre l'outil en marche de manière à savoir dans quel sens il va tourner lorsque la commande est actionnée.
- Prévoir, et ne pas oublier, que tout outil motorisé est susceptible d'à-coups brusques lors de sa mise en marche et pendant son utilisation.
- Garder une position équilibrée et ferme. Ne pas se pencher trop en avant pendant l'utilisation de cet outil. Des couples de réaction élevés peuvent se produire à, ou en dessous, de la pression d'air recommandée.
- La rotation des accessoires de l'outil peut continuer pendant un certain temps après le relâchement de la gâchette.
- Les outils pneumatiques peuvent vibrer pendant l'exploitation. Les vibrations, les mouvements répétitifs et les positions inconfortables peuvent causer des douleurs dans les mains et les bras. N'utiliser plus d'outils en cas d'inconfort, de picotements ou de douleurs. Consulter un médecin avant de recommencer à utiliser l'outil.
- Utiliser les accessoires recommandés par Ingersoll-Rand.
- Le chapeau de la soupape de commande est soumis à la pression du ressort de soupape. Prendre les soins nécessaires lors de la dépose du chapeau de soupape de commande. (*Sur les outils concernés*).
- Cet outil n'est pas conçu pour fonctionner dans des atmosphères explosives.
- Cet outil n'est pas isolé contre les chocs électriques.

NOTE

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

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

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

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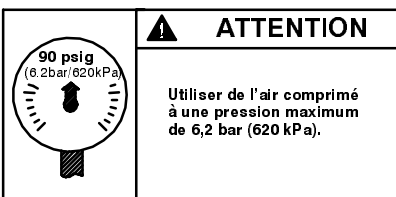
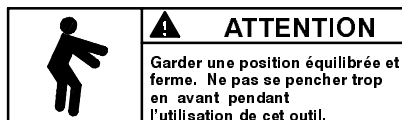
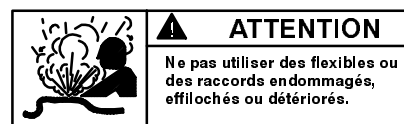
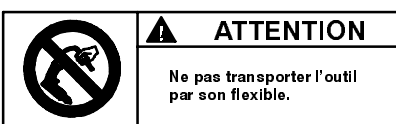
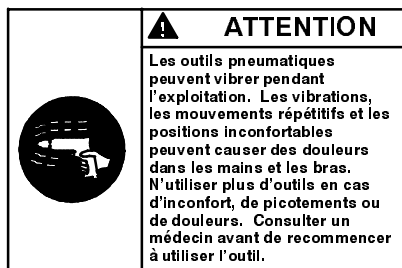
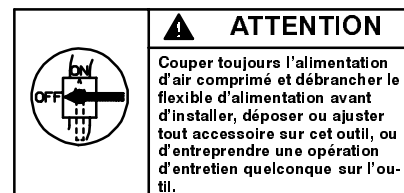
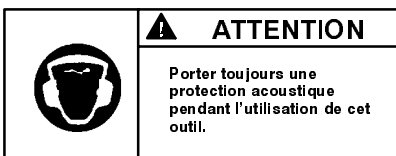
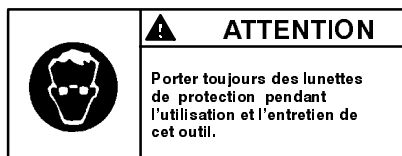
Imprimé aux É.U.

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SIGNIFICATION DES ETIQUETTES D'AVERTISSEMENT

⚠ ATTENTION

LE NON RESPECT DES AVERTISSEMENTS SUIVANTS PEUT CAUSER DES BLESSURES



RÉGLAGES

REGLAGE DU LIMITEUR

Intérieur

Extérieur

1. Tourner le manchon jusqu'à ce que l'ouverture du corps soit visible.
2. Appuyer sur l'embout pour engager le limiteur, puis le tourner jusqu'à ce que l'encoche de la rondelle de réglage soit visible.
3. Insérer un tournevis Phillips No. 1 dans l'encoche pour tourner la denture de pignon sur l'écrou.
4. La rotation **dans le sens des aiguilles d'une montre** réduit le couple.
5. La rotation **dans le sens inverse des aiguilles d'une montre** augmente le couple.

1. Enlever le corps du limiteur, le porte-embout et l'ensemble de limiteur de l'outil.

NOTE

Le corps du limiteur est fileté à gauche.

2. Un embout étant monté dans le porte-embout, serrer l'embout dans un étau.
3. Placer le limiteur sur le porte-embout.
4. Engager les clabots et empêcher la rotation de l'ensemble de limiteur. Tourner ensuite l'écrou de réglage avec une clé de 7/8".

MISE EN SERVICE DE L'OUTIL

LUBRIFICATION



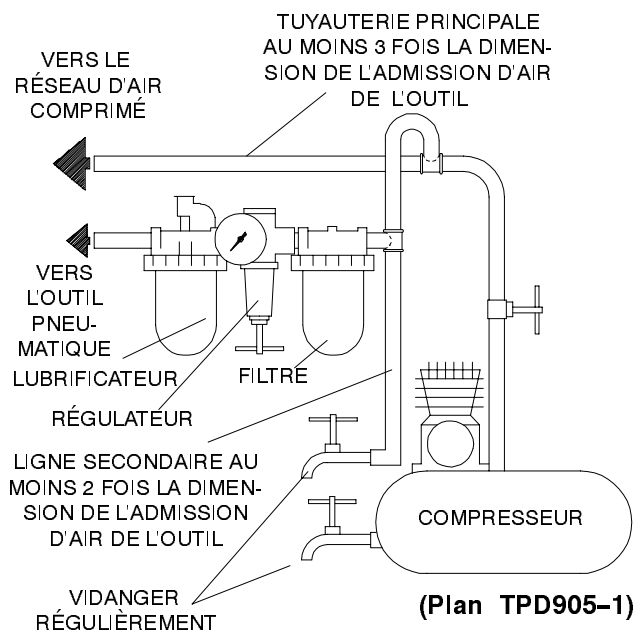
Ingersoll-Rand No. 10 **Ingersoll-Rand No. 105**
Ingersoll-Rand No. 115

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

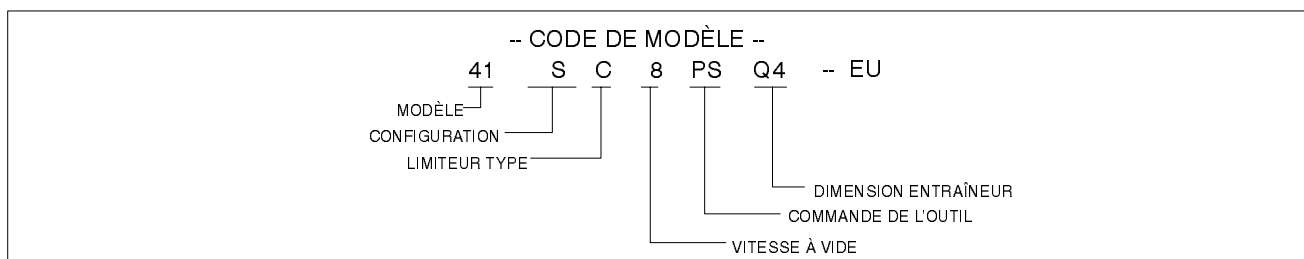
For USA - No. C05-02-G00

Tous les 40 000 cycles ou au moins tous les mois, lubrifier le train d'engrenage avec de la graisse Ingersoll-Rand No. 105.

Tous les 50 000 cycles ou au moins tous les mois, lubrifier l'ensemble de limiteur avec de la graisse Ingersoll-Rand No. 105 ou Ingersoll-Rand No. 115.



SPÉCIFICATIONS



CONFIGURATION
P=REVOLVER
S=DROITE

LIMITEUR
A= COUPURE D'AIR
C= LIMITEUR DE COUPLE
P= CLABOTS INCLINÉS
D= ENTRAÎNEMENT DIRECT

VITESSE À VIDE
25 = 2500 tr/mn
24 = 2400 tr/mn
17 = 1700 tr/mn
16 = 1600 tr/mn
10 = 1000 tr/mn
8 = 800 tr/mn

COMMANDE DE L'OUTIL
PS = COMMANDE PAR POUSSÉE
TS = COMMANDE PAR GÂCHETTE
LT = COMMANDE PAR LEVIER
LP = SECURITÉ DE LEVIER

DIMENSION ENTRAÎNEUR
Q4 = 1/4" rapide

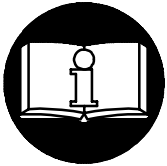
(Plan TPD1766-EU)

* Les numéros de modèle sont limités aux articles listés dans le catalogue.

MANUAL DE FUNCIONAMIENTO Y MANTENIMIENTO ATORNILLADORES NEUMÁTICOS MODELO 41

NOTA

Los Atornilladores Neumáticos Modelo 41 están diseñados para aplicaciones de montaje en la industria de electrodomésticos, del automóvil, electrónica, aeroespacial y transformadora de la madera. Ingersoll-Rand no aceptará responsabilidad alguna por la modificación de las herramientas efectuada por el cliente para las aplicaciones que no hayan sido consultadas con Ingersoll-Rand.



⚠ AVISO

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

**ES RESPONSABILIDAD DE LA EMPRESA ASEGURARSE DE QUE EL OPERARIO ESTÉ
AL TANTO DE LA INFORMACIÓN QUE CONTIENE ESTE MANUAL.**

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

PARA PONER LA HERRAMIENTA EN SERVICIO

- Utilice, examine y mantenga siempre esta herramienta conforme al código de seguridad para herramientas neumáticas portátiles de la American National Standards Institute (ANSI B186.1).
- Para seguridad, máximo rendimiento y vida de servicio de las piezas, use esta herramienta a una presión de aire máxima de 90 psig (6,2 bar/620 kPa) en la manguera de suministro de aire con diámetro interno de 8 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 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 presión de aire recomendada.
- 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.
- La Tapa de Válvula de Estrangulación está presionada por el Muelle de Válvula de Estrangulación. Tenga cuidado al sacar la Tapa de Válvula de Estrangulación. *(En las herramientas que la aplican.)*
- Esta herramienta no ha sido diseñada para trabajar en ambientes explosivos.
- Esta herramienta no está aislada contra descargas eléctricas.

NOTA

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

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

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

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ETIQUETAS DE AVISO


⚠ AVISO


EL HACER CASO OMISO DE LOS AVISOS SIGUIENTES PODRÍA OCASIONAR LESIONES


	<p>⚠ ADVERTENCIA</p> <p>Usar siempre protección ocular al manejar o realizar operaciones de mantenimiento en esta herramienta.</p>
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	<p>⚠ ADVERTENCIA</p> <p>Usar siempre protección para los oídos al manejar esta herramienta.</p>
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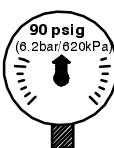
	<p>⚠ ADVERTENCIA</p> <p>Cortar siempre el suministro de aire y desconectar la manguera de suministro de aire antes de instalar, retirar o ajustar cualquier accesorio de esta herramienta, o antes de realizar cualquier operación de mantenimiento de la misma.</p>
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	<p>⚠ ADVERTENCIA</p> <p>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.</p>
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	<p>⚠ ADVERTENCIA</p> <p>No coger la herramienta por la manguera para levantarla.</p>
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	<p>⚠ ADVERTENCIA</p> <p>No utilizar mangueras de aire y accesorios dañados, desgastados ni deteriorados.</p>
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	<p>⚠ ADVERTENCIA</p> <p>Mantener una postura del cuerpo equilibrada y firme. No estirar demasiado los brazos al manejar la herramienta.</p>
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	<p>⚠ ADVERTENCIA</p> <p>Manejar la herramienta a una presión de aire máxima de 90 psi (6,2 bar/620 kPa).</p>
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AJUSTES

———— AJUSTE DE EMBRAGUE ————

Externo

1. Gire el manguito hasta que la apertura de la carcasa sea visible.
2. Deje de presionar la punta para fijar el embrague, y gírela hasta que la ranura de la arandela de ajuste sea visible.
3. Introduzca el atornillador Phillips N° 1 en la ranura para girar el diente de engranaje en la tuerca.
4. Si se gira **en sentido horario** se disminuirá el par.
5. Si se gira **en sentido horario** se aumentará el par.

Interno

1. Saque la carcasa de embrague, portapuntas y conjunto de embrague de la herramienta.

NOTA

La carcasa de embrague es de rosca a la izquierda.

2. Con la punta en el portapuntas, sujete dicha punta en el tornillo de banco.
3. Coloque el conjunto de embrague en el portapuntas.
4. Fije las mordazas del tornillo de banco para evitar que gire el conjunto de embrague. Gire la tuerca de ajuste con una llave de 7/8 pulg.

PARA PONER LA HERRAMIENTA EN SERVICIO

LUBRICACIÓN



Ingersoll-Rand N^o. 10



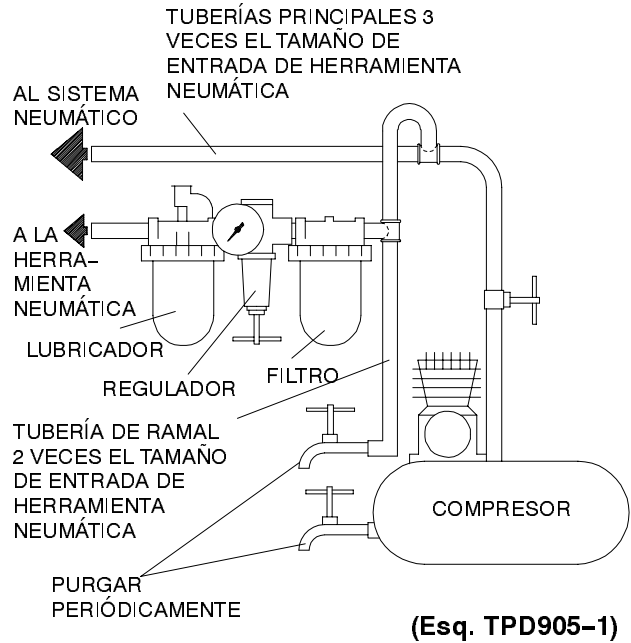
Ingersoll-Rand N^o. 105
Ingersoll-Rand N^o. 115

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

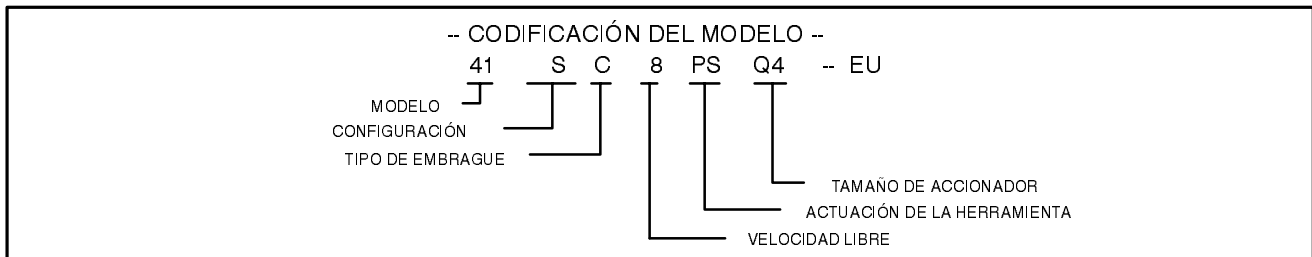
For USA - No. C05-02-G00

Después de cada 40 000 ciclos o mensualmente (lo que ocurra primero), lubrique el tren de engranajes con Grasa Ingersoll-Rand N^o. 105.

Después de cada 50 000 ciclos o mensualmente (lo que ocurra primero), lubrique el conjunto de embrague con Grasa Ingersoll-Rand N^o. 105 o Ingersoll-Rand N^o.115.



ESPECIFICACIONES



CONFIGURACIÓN	EMBRAGUE	VELOCIDAD LIBRE	ACTUACIÓN DE LA HERRAMIENTA	TAMAÑO DE ACCIONADOR
P = PISTOLA	A = PARADA AUTOMÁTICA	25 = 2500 RPM	PS = ARRANQUE POR EMPUJE	Q4 = 1/4 PULG. CAMBIO RÁPIDO
S = RECTO	C = AJUSTABLE	24 = 2400 RPM	TS = ARRANQUE POR GATILLO	
	P = POSITIVO	17 = 1700 RPM	LT = PALANCA DE ESTRANGULACIÓN	
	D = ACCIONAMIENTO DIRECTO	16 = 1600 RPM	LP = ACCIONAMIENTO CONTINUU POR PALANCA	
		10 = 1000 RPM		
		8 = 800 RPM		

* Los números de los modelos se limitan únicamente a los elementos que aparecen en el catálogo.

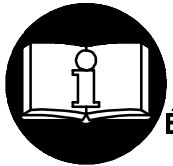
(Esq. TPD1766-EU)

MANUAL DE FUNCIONAMENTO E MANUTENÇÃO APARAFUSADORAS SÉRIE 41

AVISO

As Aparafusadoras Pneumáticas Série 41 são concebidas para aplicações de aperto em linhas de montagem, indústrias eletrónicas, aeroespaciais e de mobiliário. A Ingersoll-Rand não é responsável por modificações, feitas pelo cliente em ferramentas, nas quais a Ingersoll-Rand não tenha sido consultada.

⚠ ADVERTÊNCIA



**INFORMAÇÃO DE SEGURANÇA IMPORTANTE EM ANEXO.
LEIA ESTE MANUAL ANTES DE OPERAR A FERRAMENTA.
É DA RESPONSABILIDADE DO EMPREGADOR COLOCAR A INFORMAÇÃO
DESTE MANUAL NAS MÃOS DO OPERADOR.**

**O NÃO CUMPRIMENTO DAS SEGUINTES ADVERTÊNCIAS PODE RESULTAR EM FERIMENTOS.
COLOCANDO A FERRAMENTA
EM FUNCIONAMENTO**

- Sempre opere, inspecione 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 8mm (5/16”).
- 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.
- Os acessórios da ferramenta podem continuar a girar brevemente após a pressão ter sido aliviada.
- Ferramentas accionadas pneumáticamente podem vibrar em uso. Vibração, movimentos repetitivos ou posições desconfortáveis podem ser prejudiciais às mãos e aos braços. Pare de usar a ferramenta caso ocorra algum desconforto, sensação de formigueiro ou dor. Procure assistência médica antes de retornar ao trabalho.
- Use acessórios recomendados pela Ingersoll-Rand.
- O Tampo da Válvula Reguladora está montado sob pressão da Mola da Válvula. Tenha cuidado ao removê-lo. (*Em ferramentas onde aplicável*.)
- Esta Ferramenta não foi concebida para trabalhos em atmosferas explosivas.
- Esta Ferramenta não está isolada contra choques eléctricos.

AVISO

O uso de peças de substituição que não sejam genuinamente da Ingersoll-Rand podem resultar em riscos de segurança, diminuição do desempenho da ferramenta, aumento da necessidade de manutenção e pode invalidar todas as garantias. As reparações devem ser feitas somente por pessoal treinado autorizado. Consulte o Centro de Serviços da Ingersoll-Rand mais próximo.

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

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INGERSOLL-RAND[®]
PROFESSIONAL TOOLS

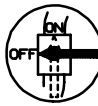
IDENTIFICAÇÃO DO RÓTULO DE ADVERTÊNCIA


⚠ ADVERTÊNCIA

O NÃO CUMPRIMENTO DAS SEGUINTE ADVERTÊNCIAS PODE RESULTAR EM FERIMENTOS.


	⚠ ADVERTÊNCIA Use sempre óculos de protecção quando estiver operando ou executando algum serviço de manutenção nesta ferramenta.
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	⚠ ADVERTÊNCIA Use sempre protecção contra o ruído ao operar esta ferramenta.
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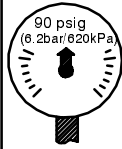
	⚠ ADVERTÊNCIA Desligue sempre a alimentação de ar e desconecte a mangueira de alimentação de ar antes de instalar, remover ou ajustar qualquer acessório nesta ferramenta, ou antes de executar algum serviço de manutenção nesta ferramenta.
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	⚠ ADVERTÊNCIA 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 formigamento ou dor. Procure assistência médica antes de retornar ao trabalho.
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	⚠ 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 90-100 psig (6,2-6,9 bar).
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AJUSTES

AJUSTE DA EMBRAIAGEM

Externa

1. Gire a Camisa até que a abertura no Corpo esteja Visível.
2. Aperte o bite para engatar a embraiagem, então gire até que a ranhura na Anilha de Ajuste seja visível.
3. Insira uma chave Phillips No. 1 na ranhura para girar os dentes da engrenagem na Porca.
4. Gire **no sentido horário** para diminuir o torque.
5. Gire **no sentido contrário ao dos ponteiros do relógio** para aumentar o torque.

Interna

1. Remova o Corpo da Embraiagem, Suporte do Bite e Conjunto da Embraiagem da ferramenta.

AVISO

O corpo da embraiagem tem roscas à esquerda.

2. Com o Bite no Suporte, fixado num torno de bancada.
3. Coloque o Conjunto da Embraiagem no Suporte do Bite.
4. Engate as garras, segure o Conjunto da Embraiagem para evitar que o mesmo gire. Então gire a Porca de Ajuste com uma chave 7/8".

COLOCANDO A FERRAMENTA EM FUNCIONAMENTO

LUBRIFICAÇÃO



Ingersoll-Rand No. 10



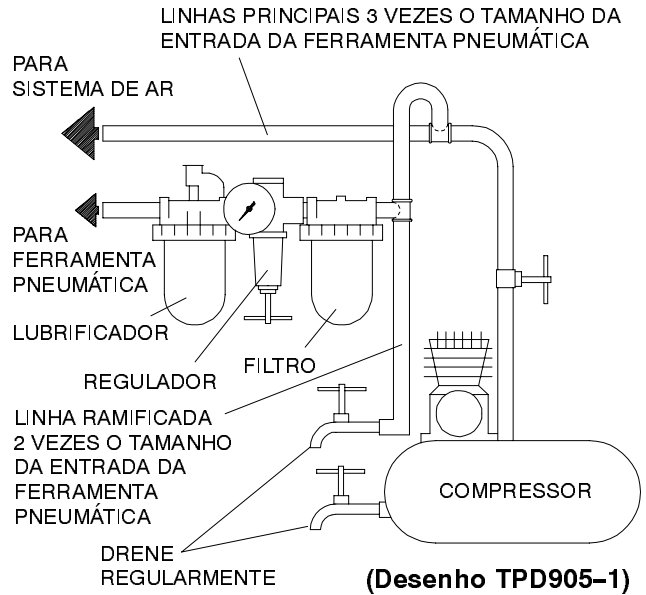
Ingersoll-Rand No. 105
Ingersoll-Rand No. 115

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

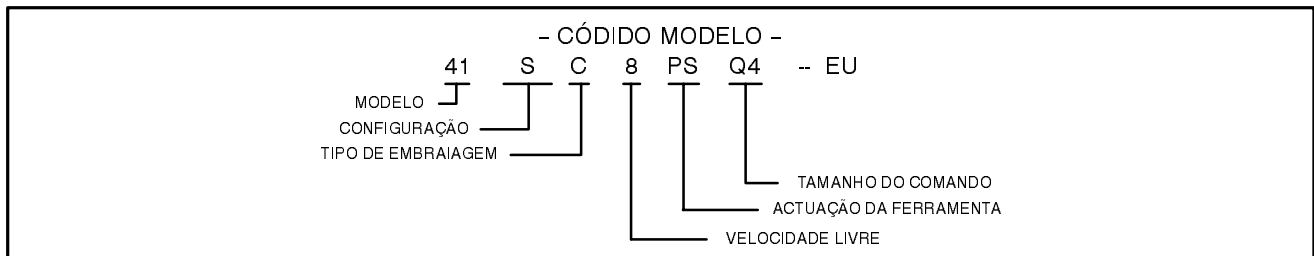
For USA - No. C05-02-G00

Depois de 40 000 ciclos ou cada mês, o que ocorrer primeiro, lubrifique o trem de engrenagens com Massa Lubrificadora de massa lubrificante Ingersoll-Rand No. 105.

Depois de 50 000 ciclos ou cada mês, o que ocorrer primeiro, lubrifique o conjunto da embraiagem com Massa Ingersoll-Rand No. 105 ou Ingersoll-Rand No. 115.



ESPECIFICAÇÕES

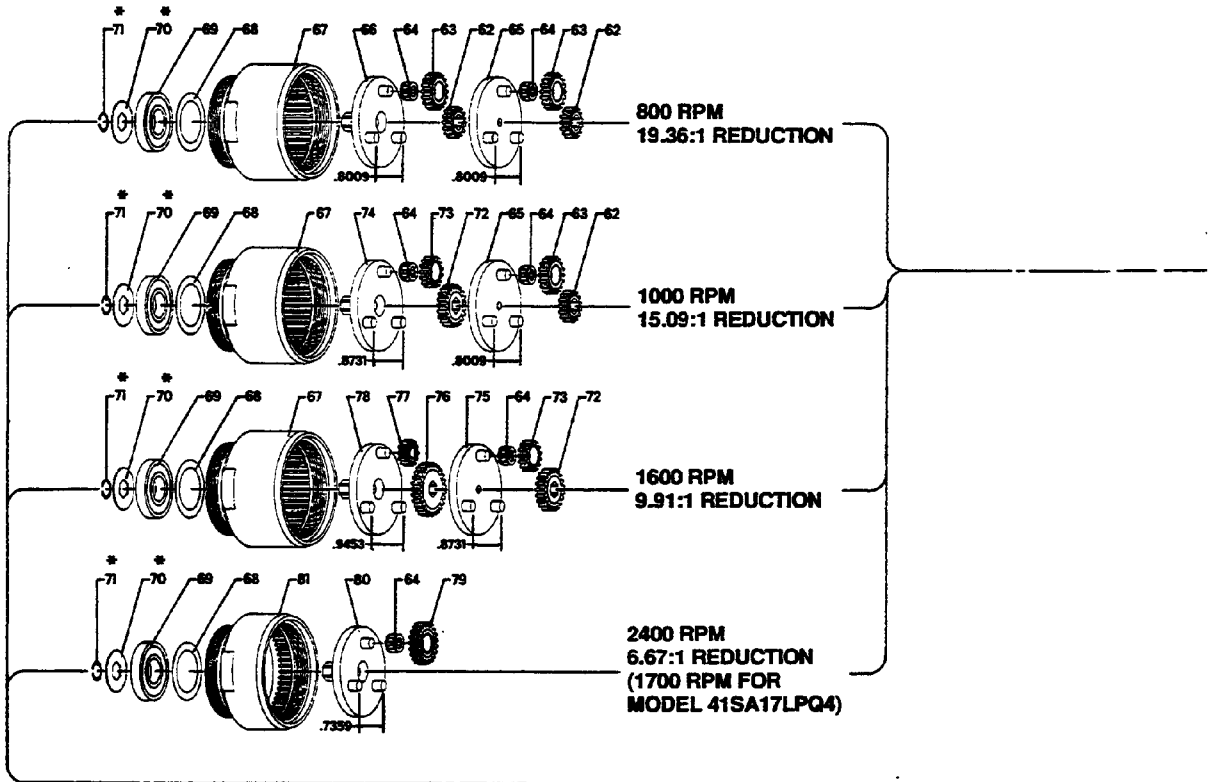


CONFIGURAÇÃO	EMBRAIAGEM	VELOCIDADE LIVRE	ATUAÇÃO DA FERRAMENTA	TAMANHO DO COMANDO
P = PISTOLA	A = DESLIGAMENTO AUTOMÁTICO	25 = 2 500 RPM	PS = PRESSIONE PARA LIGAR	Q4 = 1/4" Q.C.
S = DIRECTA	C = EMBRAIAGEM COXIM	24 = 2 400 RPM	TS = GATILHO DE ACCIONAMENTO	
	P = GARRA POSITIVA	17 = 1 700 RPM	LT = ALAVANCA REGULADORA DE PRESSÃO	
	D = COMANDO DIRECTO	16 = 1 600 RPM	LP = A LAVANCA DE ADISSÃO	
		10 = 1 000 RPM		
		8 = 800 RPM		

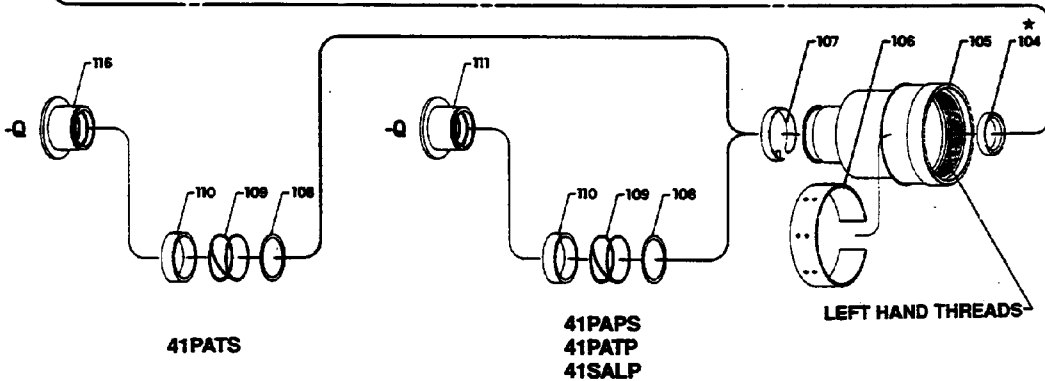
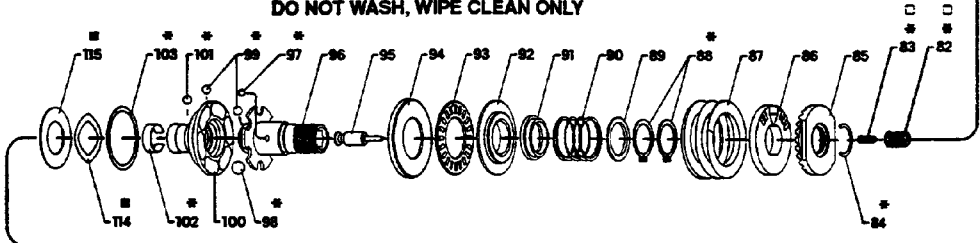
(Desenho TPD1766-EU)

* Os números do Modelos são limitados aos item em catálogo apenas.

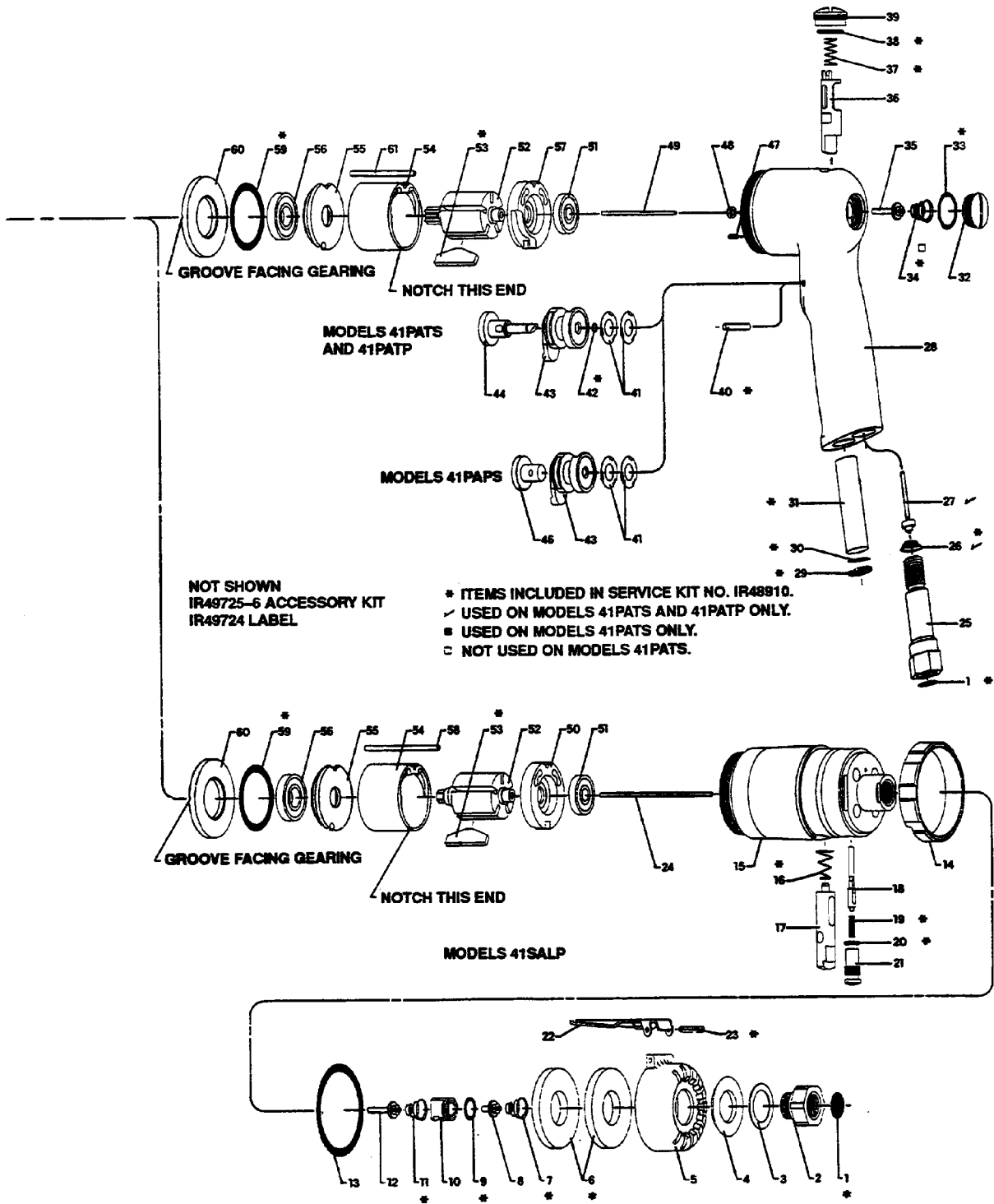
MAINTENANCE SECTION



★ OIL IMPREGNATED BRONZE BUSHING,
DO NOT WASH, WIPE CLEAN ONLY



MAINTENANCE SECTION



PART NUMBER FOR ORDERING



PART NUMBER FOR ORDERING



1	Screen	IR33911	27	Valve Rod Assembly	IR46354
2	Inlet Adapter	IR46377	28	Housing	
3	Spacer	IR47205		for model 41PA8PS	IR49712
4	Diffuser Washer	IR46449		for models 41PA8TS and	
5	Exhaust Cap	IR46448		41PA8TP	IR49713
6	Filler (2)	IR46452	29	Retaining Ring	IRY147-56
7	Spring	IR41654	30	Screen	IR48808-1
8	Valve Assembly	IR46354-2	31	Muffling	IR48443-1
9	O-ring	IRY325-11	32	End Cap	IR48146-1
10	Valve Block	IR48335-1	33	O-ring	IRY325-15
11	Spring	IR41654	34	Spring	IR41654
12	Valve Assembly	IR46354-1	35	Valve Rod Assembly	IR46354
13	O-ring	IR48347-1	36	Reverse Valve	IR48133-1
14	Reverse Sleeve	IR48337-2	37	Spring	IR48304-1
15	Head and Bushing Assembly	IR49720	38	O-ring	IRY325-12
16	Spring	IR41654	39	Top Cap	IR48145-1
17	Valve Body	IR48349-2	40	Pin (for 41PA models only)	IR49754
18	Valve Stem	IR48342-2	41	Spring (2)	IR48138-1
19	Spring	IR31058	42	O-ring	IR48139-1
20	O-ring	IRY325-10	43	Reverse Cam	IR48132-1
21	Cap	IR48338-2	44	Trigger	IR48148-1
22	Lever	IR48246-1	46	Button	IR48149-1
23	Roll Pin	IRY178-28	47	Roll Pin	IRY178-211
24	Throttle Rod (lever throttle models)		48	Bushing	IR48362-1
	for 800, 1000 and 1700 rpm models		49	Throttle Rod (pistol grip models) (800, 1000 and	
	(4.452" long)	IR46511-445		1600 rpm models) (3.942" long)	IR46511-394
	for 2500 rpm models			(2400 rpm models) (3.410" long)	IR46511-341
	(3.942" long)	IR46511-394			
25	Inlet Adapter	IR46385			
26	Spring	IR41654			

PART NUMBER FOR ORDERING

PART NUMBER FOR ORDERING

	Motor Assembly		58	Locating Pin (lever throttle models)	IR47723-2
	Lever Throttle models		59	O-ring	IRY325-214
	(includes items 50 through 56)		60	Spacer	IR46412
	for models 41SA8LP,		61	Locating Pin (pistol grip models)	IR47723-1
	41SA10LP and 41SA17LP	IR47726	62	Sun Gear (1 or 2) (4.4:1 ratio) (15 teeth)	IR46466
	for model 41SA25LP	IR47725	63	Planet Gear (3 or 6) (4.4:1 ratio) (18 teeth)	IR46900
	Pistol Grip models		64	Needle Bearing (3 or 6)	IR42315
	(includes items 51 through 57)		65	Carrier Assembly (4.4:1 ratio)	IR46522
	for models 41PA8PS,		66	Spindle Assembly (4.4:1 ratio)	IR47753
	41PA10PS, 41PA16PS,		67	Ring Gear (double reduction)	IR48904
	41PA8TS, 41PA10TS,		68	Spacer	IR46496
	41PA16TS, 41PA8TP,		69	Bearing	IRY65-13
	41PA10TP and 41PA16TP	IR48159-1	70	Washer	IR47694
	for models 41PA24PS,		71	Snap Ring	IRY142-2
	41PA24TS and 41PA24LP	IR48158-1	72	Sun Gear (3.43:1 ratio) (21 teeth)	IR46465
50	Rear End Plate	IR46312-1	73	Planet Gear (3) (3.43:1 ratio) (15 teeth)	IR46899
51	Bearing	IR47724	74	Spindle Assembly (3.43:1 ratio)	IR47752
52	Rotor		75	Carrier Assembly (3.43:1 ratio)	IR46521
	Lever Throttle models		76	Sun Gear (2.89:1 ratio) (27 teeth)	IR46464
	for 41SA25LP	IR46469	77	Planet Gear (3) (2.89:1 ratio) (12 teeth)	IR46460
	for all other lever		78	Spindle Assembly (2.89:1 ratio)	IR47751
	throttle models	IR46453	79	Planet Gear (3) (6.67:1 ratio) (21 teeth)	IR46901
	Pistol Grip models		80	Spindle Assembly (6.67:1 ratio)	IR47750
	for 41PA24P, 41PA24TS		81	Ring Gear (single reduction)	IR48905
	and 41PA24LP	IR46469	82	Spring	IR47709
	for all other pistol grip models	IR46453	83	Spring	IR48333-1
53	Vane (5)	IR46413-5			
54	Cylinder	IR46311			
55	Front End Plate	IR47722			
56	Bearing	IRY65-13			
57	Rear End Plate	IR48162-1			

PART NUMBER FOR ORDERING

PART NUMBER FOR ORDERING

	Auto Shut-Off Clutch Assembly for models 41PA8PS, 41PA8TP and 41SA25LP (includes items 82 and 83 and 84 thru 103)	IR48303-3	100	Bit Holder	IR48298-1
84	Snap Ring	IR48303-7	101	Ball	IRY16-204
85	Adjustment Nut	IRY110-105	102	Retaining Clip	IR47695
86	Adjustment Washer	IR46895	103	Retainer Ring	IR48300-1
87	Clutch Spring for models 41PA8PS, 41PA10PS, 41PA8TS, 41PA10TS, 41PA8TP, 41PA10TP, 41SA8LP and 41SA10LP	IR48093	104	Bushing	IR46360
	for models 41PA16PS, 41PA16TS, 41PA16TP and 41SA17LP	IR48047	105	Clutch Housing (includes items 104 and 106) for lever throttle models	IR48901
	for models 41PA24PS, 41PA24TS, 41PA24TP and 41SA25LP	IR48095		for pistol grip models	IR48901
88	Retaining Ring (2)	IR48096	106	External Adjustment Sleeve	IR46534
89	Guide	IRY145-18	107	Retaining Clip and Pin	IR47782
90	Spring	IR48295-1	108	Retaining Ring	IR47779
91	Ball Sleeve	IR47064	109	Spring	IR47778
92	Thrust Race	IR48294-1	110	Bushing	IR47775
93	Thrust Bearing	IR48094	111	Sleeve	IR47702
94	Thrust Race	IR38995	114	Wave Washer	IR45645
95	Plunger	IR48301-1	115	Thrust Bearing Race	IR42364
96	Spindle	IR48293-2	116	Sleeve	IR47702-1
97	Ball (6)	IR48299-1		Service Kit (includes items 1, 6 [2], 7, 9, 11, 16, 19, 20, 23, 26, 29, 30, 31, 33, 34, 37, 38, 40, 42, 53, 59, 70, 71, 82, 83, 84, 88, 97 [6], 98 [6], 99 [23], 101, 102 and 103	IR48910
98	Ball (6)	IRY16-203	*	Accessory Kit	IR49725-6
99	Ball (23)	IRY16-206	*	Clutch Spring	IR48095
			*	Clutch Spring	IR48047
			*	Clutch Spring	IR48096
			*	Clip Bail	IR48426-1
			*	Bag	IR49746
			*	Warning Label for all models ending in -EU	EU-99
				for all other models	WARNING-5-99
			*	CE Label	IR49882
			*	Rotation Label	IR49884
			*	Forward-Reverse Label	IR49931

MAINTENANCE SECTION

* Not illustrated.

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 41 Screwdriver is disassembled for maintenance and repair or replacement of parts, lubricate the tool as follows:

1. Lubricate the clutch with Ingersoll-Rand No. 105 or Ingersoll-Rand No. 115 Grease.
2. Lubricate the gearing with Ingersoll-Rand No. 105 Grease.
3. Use Ingersoll-Rand No. 10 Oil for lubricating the motor. Inject approximately 1 to 2 cc of oil into the air inlet before attaching the air hose.

DISASSEMBLY

General Instructions

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

Disassembly of the Clutch

NOTICE

The Clutch Housing (105) has left-hand threads.

1. Secure tool in vise with leather-covered or copper-covered jaws, clamping on Inlet Adapter (25). Using a strap type wrench, remove Clutch Housing.
2. Remove clutch assembly from tool.

NOTICE

Springs (82) and (83) are loose and may fall out.

3. Secure a 1/4" hex wrench in a vise. Then place Bit Holder (100) and clutch assembly on it.
4. Remove Snap Ring (84). Using a 7/8" wrench, remove Adjustment Nut (85).

5. Remove Adjustment Washer (86) and Clutch Spring (87).
6. Remove Retaining Rings (88).

NOTICE

Removal of Ball Sleeve (91) releases six Balls (97).

7. Slide off Guide (89), Spring (90), Ball Sleeve, Thrust Race (92) and Thrust Bearing (93).
8. Remove Thrust Race (94), releasing six Balls (98).
9. Remove Retaining Ring (103) and rotate Bit Holder (100) to remove twelve Balls (99).
10. Separate Bit Holder and Spindle (96), releasing eleven Balls (99).

Disassembly of the Gearing

1. Remove clutch from tool. Refer to section on Clutch Disassembly.
2. Using a wrench on flats, remove Ring Gear (67) or (81).
3. Remove Snap Ring (71) and Washer (70).

NOTICE

Keep gears grouped with mating spindle when disassembling double reduction gearing.

Do not remove Bearing (69) and Spacer (68) unless damage is evident.

4. Remove Spindle(s) and Gears from Ring Gear.
5. To remove Bearing and Spacer from ring gear, press on Spacer (68) from inside splined end of Ring Gear.

NOTICE

Do not remove Gears (62), (72) or (76) from Carrier Assembly (75) unless damage is evident. Gears are press fit on Carrier Assembly.

Disassembly of the Motor

1. Remove Clutch and Gearing from tool.
2. Remove Spacer (60) and O-ring (59).
3. Tap front edge of housing to remove motor assembly. Locating pin should also come out.
4. Tap drive end of Rotor (52) with a soft face hammer; motor will come apart.

NOTICE

Bearings are light press fit in End Plates (50) or (57). Bearing (51) is press fit on Rotor.

5. Remove End Plate and Bearing from Rotor.

Disassembly of the Motor Housing

Lever Throttle

1. Secure Air Inlet Adapter (2) in a vise with leather-covered or copper-covered jaws.
2. Using a strap type wrench, unthread Housing (15).

MAINTENANCE SECTION

3. Remove Spacer (3), Diffuser Washer (4), Exhaust Cap (5), Filler (6), Spring (7) and Valve Assembly (8).
4. Remove Cap (21) and Spring (19), releasing Valve Stem (18).
5. Remove Valve Block (10) and Spring (11), releasing Valve Assembly (12).

NOTICE

Do not remove or adjust rubber portion of Valve Assemblies (8) and (12), as they are preset at the factory.

6. Remove O-ring (13) and Reverse Sleeve (14), releasing Valve Body (17) and Spring (16).

Pistol Grip Housing

1. Remove End Cap (32) and O-ring (33), releasing Spring (34) and Valve Rod (35).
2. Remove Top Cap (39) and O-ring (38), releasing Spring (37) and Reverse Valve (36).

NOTICE

Do not remove Roll Pin (47) or Bushing (48) unless damage is evident.

3. To remove Roll Pin or Bushing, press thru to reverse valve cavity.
4. To remove Trigger (44) or Button (46), drive Pin (40) out of Housing, releasing Trigger or Button, Reverse Cam (43) and Springs (41).
5. **For Models 41TS and 41TP**, remove O-ring (42), releasing Trigger from Reverse Cam (43).
6. Remove Inlet Adapter (25) and Screen (1).
7. **For Models 41TS and 41TP**, remove Spring (26) and Valve Rod (27).
8. Remove Retaining Ring (29), releasing Screen (30) and Muffler (31).

ASSEMBLY

General Instructions

1. Always press on the **inner** ring of a ball-type bearing when installing the bearing on a shaft.
2. Always press on the **outer** ring of a ball-type bearing when pressing the bearing into a bearing recess.
3. Whenever grasping a tool or part in a vise, always use leather-covered or copper-covered vise jaws. Take extra care with threaded parts and housings.
4. Always clean every part and wipe every part with a thin film of oil before installation.
5. Apply a film of O-ring lubricant to all O-rings before final assembly.
6. Check every bearing for roughness. If an open bearing must be cleaned, wash it thoroughly in a suitable cleaning solution and dry with a clean cloth.

Sealed or shielded bearings should never be cleaned. Work grease thoroughly into every open bearing before installation.

Assembly of the Motor Housing

Lever Throttle

1. Install Spring (16) in Housing, securing with Valve Body (17).
2. Install Reverse Sleeve (14) and O-ring (13) in Housing, securing Valve Body.
3. Lubricate and install O-ring (9) in Valve Block (10).

NOTICE

Install Valve Block (10) with counterbore towards Cap (21).

4. Install Valve Assembly (12) and Spring (11) in Housing, securing with Valve Block (10).
5. Lubricate and install O-ring (20) in Cap (21).
6. Assemble Valve Stem (18) and Spring (19) to Housing, securing with Cap.

NOTICE

Assemble Valve Stem with slot turned to accept Valve Assembly (8).

7. Install Filler (6) and Exhaust Cap (5) in Housing, aligning lever with Valve Stem.
8. Install Valve Assembly (8) in Housing, being certain Valve Assembly seats in slot in Valve Stem.
9. Install Spring (7) in Housing, securing with Diffuser Washer (4), Spacer (3) and Inlet Adapter (2).
10. Clean and install Screen (1) in Inlet Adapter.

Pistol Grip Housing

1. Assemble Muffler (31) and Screen (30) into Housing, securing with Retaining Ring (29).
2. **For Models 41TS and 41TP**, coat Valve Rod (27) with the recommended oil and install Valve Rod and Spring (26) in Housing.
3. Install Inlet Adapter (25) in tool.
4. Clean and replace Screen (1) in Inlet Adapter.
5. Coat Trigger (44) or Button (46) with the recommended oil and install in Reverse Cam (43).
6. **For Models 41TS and 41TP**, lubricate and install O-ring (42) on Trigger (44).
7. Install Springs (41) on Reverse Cam, flat side away from Reverse Cam, and install Reverse Cam and components in Housing, aligning holes in Trigger and Housing.
8. Install Pin (40) in Housing, securing Reverse Cam and Trigger.
9. Install Bushing (48) in Housing, pressing flush with counterbore in bottom of motor cavity.
10. Install Roll Pin (47) in Housing, pressing flush with bottom of motor cavity.

MAINTENANCE SECTION

11. Coat Reverse Valve (36) with the recommended oil and install in Housing, aligning slot in Reverse Valve with Roll Pin (47).
12. Install Spring (37) in Housing.
13. Lubricate and install O-ring (38) in Top Cap (39) and install Cap in Housing, securing Spring (37) and Reverse Valve (36).
14. Coat Valve Rod (35) with the recommended oil and install in Housing.
15. Install Spring (34) in Housing, where applicable.
16. Lubricate and install O-ring (33) in End Cap (32) and install Cap in Housing, securing Valve Rod and Spring.

Assembly of the Motor

1. Lubricate Bearing (51) with the recommended grease and install on End Plate (50) or (57), pressing on outer race of Bearing.
2. Install End Plate on Rotor, pressing on inner race of Bearing.
3. Coat Vanes (53) with the recommended oil and install in rotor slots, straight side out. Coat inside of Cylinder (54) with the recommended oil and install over Rotor, aligning air inlet slots of Cylinder with air inlet slots in End Plate.
4. Install Bearing (56) on End Plate (55), pressing on outer race of Bearing. Install End Plate on Rotor, pressing on inner race of Bearing. Be sure Rotor turns without binding.
5. Insert Locating Pin (58) or (61) into .081" diameter blind hole at bottom of motor cavity in Housing.
6. Align notches of End Plates and Cylinder and install motor into Housing, aligning notches with Pin.
7. Lubricate and install O-ring (59) in End Plate.
8. Install Spacer (60) in motor.
9. Install Gearing and Clutch in tool.

Assembly of the Gearing

1. Assemble Spacer (68) into Ring Gear (67) or (81).

NOTICE

Press on outer race of Bearing (69) and press to shoulder of Ring Gear.

2. Press Bearing into Ring Gear.
3. Coat shafts of spindle with the recommended grease.
4. Assemble gears to shafts of mating spindle.
5. Assemble Carrier Assembly to Spindle Assembly of double reduction gearing. Install Spindle(s) and gearing into Ring Gear. Rotate Spindle and Gears to align gear teeth with splines of Ring Gear.

NOTICE

SAVE THESE INSTRUCTIONS. DO NOT DESTROY.

6. Thread Ring Gear to tool and tighten with a wrench on flats.
7. Install Clutch in tool.

Assembly of Clutch

1. Assemble Thrust Race (115) and Wave Washer (114) to Clutch Housing (105), where applicable.
2. Lubricate ball grooves of Clutch Spindle (96) using the recommended grease.
3. Install eleven Balls (99) into groove.
4. Slide Spindle (96) into Bit Holder (100), securing Balls.
5. Assemble twelve Balls (99) into Bit Holder and secure with Retaining Ring (103).
6. Lubricate ball pockets of bit holder using the recommended grease and install six Balls (98) into pockets, securing with Thrust Race (94).
7. Lubricate and assemble Thrust Bearing (93) and Thrust Race (92) to Spindle.
8. Coat Plunger (95) with the recommended oil and assemble to spindle, securing with Balls (97).

NOTICE

Assemble two balls per hole. Secure balls with Ball Sleeve (91).

9. Assemble Spring (90) and Guide (89) to Spindle, securing with Retaining Rings (88). Install Clutch Spring (87).
10. Lubricate face of Adjustment Washer (86) and install on Spindle.
11. Thread Adjustment Nut (85) onto Spindle, securing with Snap Ring (84).
12. Lubricate Ball (101) of Bit Holder, using the recommended lubricant.
13. Assemble Springs (82) and (83) into Spindle.

NOTICE

Assemble Spring (82) with large diameter into Spindle first.

14. Install Clutch Assembly in tool.

NOTICE

The Clutch Housing (105) has left-hand threads.

15. Install Clutch Housing on tool.
16. Refer to **Clutch Adjustment** on Page 3.