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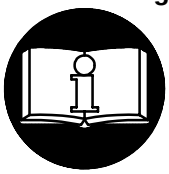
Skinsulate® Comfort Coating

OPERATION AND MAINTENANCE MANUAL FOR SERIES 41 AIR SCREWDRIVERS

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.

Printed in U.S.A.

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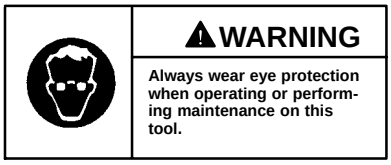
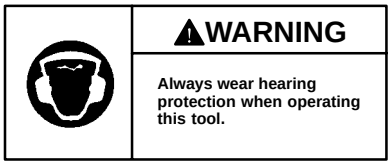
PROFESSIONAL TOOLS

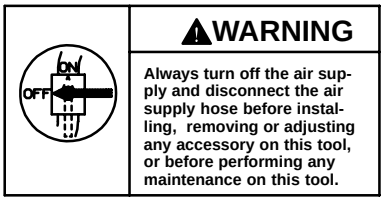
WARNING LABEL IDENTIFICATION

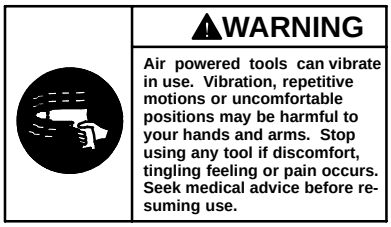
⚠ WARNING

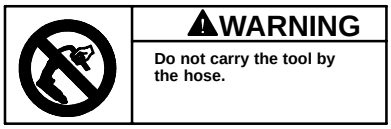
FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

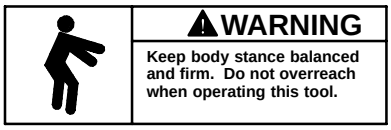


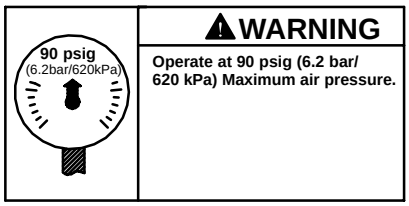












ADJUSTMENTS

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.

PLACING TOOL IN SERVICE

LUBRICATION

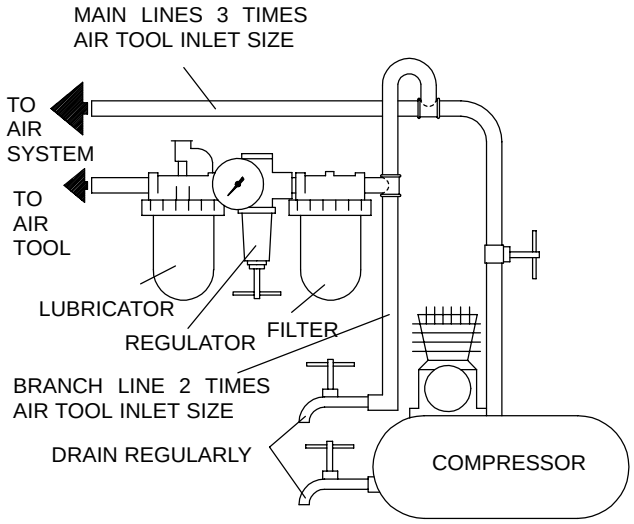
Ingersoll–Rand No. 10

Ingersoll–Rand No. 105
Ingersoll–Rand No. 115

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

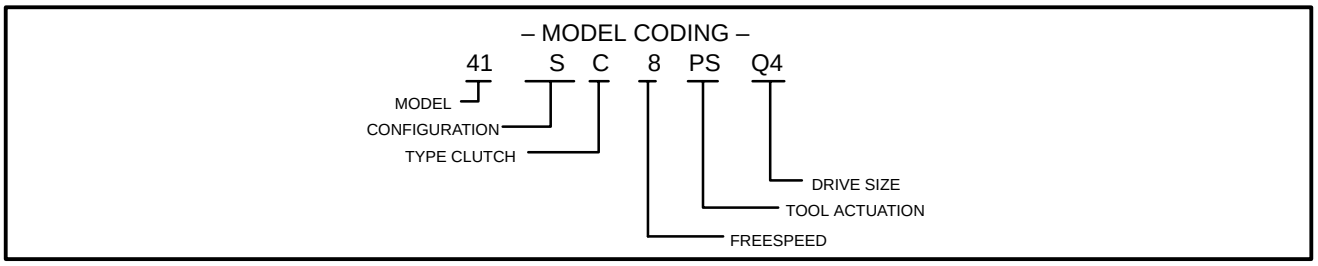
For USA –No. C05–02–G00

After each 40 000 cycles or each month, whichever occurs first, lubricate the gear train with Ingersoll–Rand No. 105 Grease.
After each 50 000 cycles or each month, whichever occurs first, lubricate the clutch assembly with Ingersoll–Rand No. 105 Grease or Ingersoll–Rand No. 115 Grease.



(Dwg. TPD905–1)

HOW TO ORDER A SCREWDRIVER



CONFIGURATION	CLUTCH	FREE SPEED	TOOL ACTUATION	DRIVE SIZE
P = PISTOL	A = AUTO SHUT OFF	25 = 2500 RPM	PS = PUSH TO START	Q4 = 1/4" Q.C.
S = STRAIGHT	C = CUSHTION CLUTCH	17 = 1700 RPM	TS = TRIGGER START	
	P = POSITIVE JAW	10 = 1000 RPM	LT = LEVER THROTTLE	
	D = DIRECT DRIVE	8 = 800 RPM		

(Dwg. TPD1500)

* Model numbers are limited to catalogued items only.

HOW TO ORDER A SCREWDRIVER

Model
Straight Handle, Cushion Clutch, Push Start
41SC10PSQ4
41SC25PSQ4
Straight Handle, Auto Shut–Off, Push Start
41SA8PSQ4
41SA10PSQ4
41SA17PSQ4
41SA25PSQ4
Pistol Grip, Cushion Clutch, Trigger Start
41PC8TSQ4
41PC10TSQ4
41PC17TSQ4
41PC25TSQ4
Straight Handle, Cushion Clutch, Lever Throttle
41SC10LTQ4
41SC17LTQ4
Straight Handle, Direct Drive, Lever Throttle
41SD10LTQ4
Pistol Grip, Direct Drive, Trigger Start
41PD8TSQ4
41PD10TSQ4
41PD17TSQ4
Pistol Grip, Positive Jaw, Trigger Start
41PP8TSQ4
41PP10TSQ4
41PP17TSQ4
41PP25TSQ4

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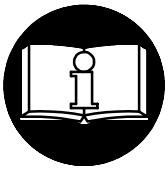
MODE D'EMPLOI DES TOURNEVIS PNEUMATIQUES DE LA SÉRIE 41

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 volatiles tels que le kérosène, le gasoil ou le carburant d'aviation.**
- **Ne retirer aucune étiquette. Remplacer toute étiquette endommagée.**

UTILISATION DE L'OUTIL

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

NOTE

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

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

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

Imprimé aux É.U.

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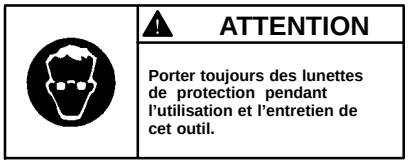
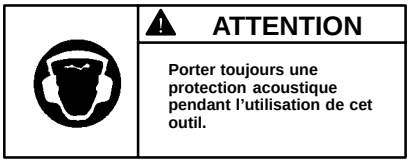
PROFESSIONAL TOOLS

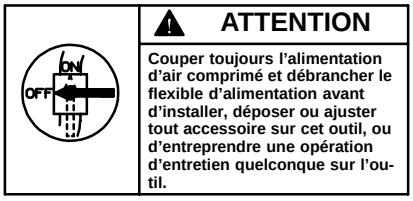
SIGNIFICATION DES ETIQUETTES D'AVERTISSEMENT

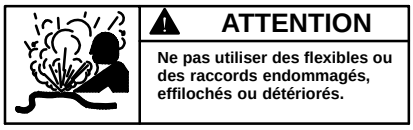
⚠ ATTENTION

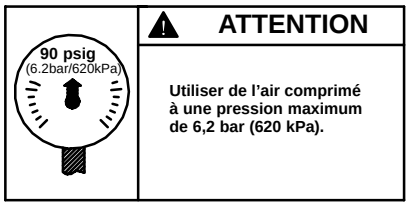
LE NON RESPECT DES AVERTISSEMENTS SUIVANTS PEUT CAUSER DES BLESSURES











RÉGLAGES

REGLAGE DU LIMITEUR

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.

Intérieur

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

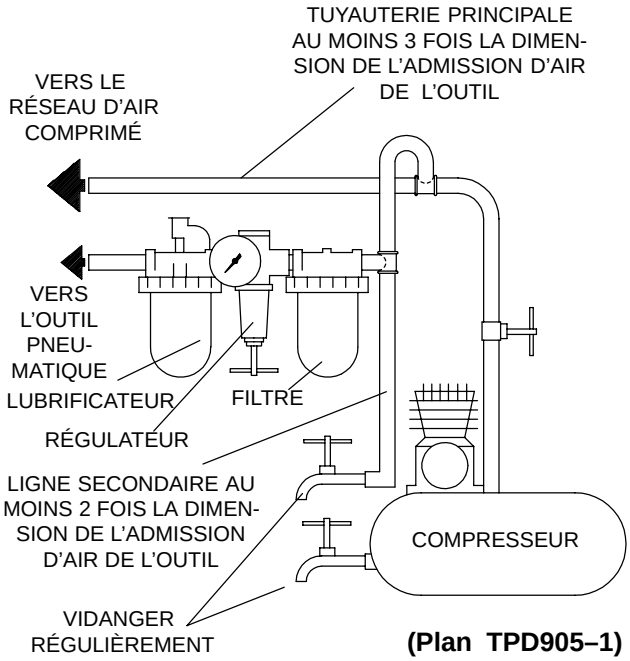
Ingersoll–Rand No. 105
Ingersoll–Rand No. 115

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

For USA – No. C05–02–G00

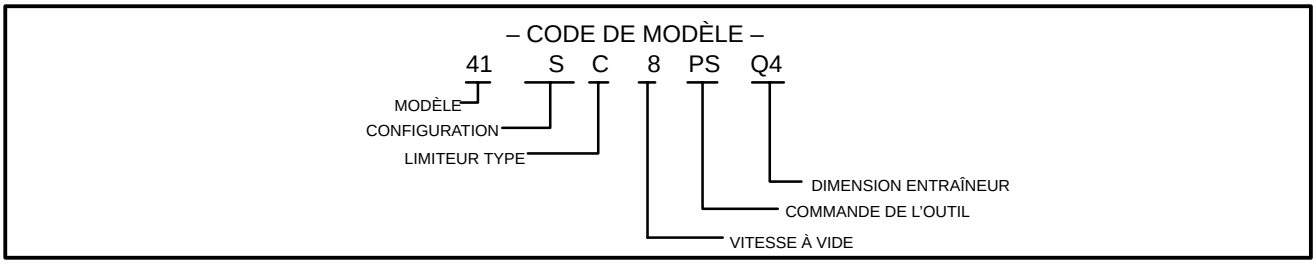
Tous les 40 000 cycles ou au moins tous les mois, lubrifier le train d'engrenage avec de la graisse Ingersoll–Rand No. 105.

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.



(Plan TPD905–1)

SPÉCIFICATIONS



CONFIGURATION	**LIMITEUR**	**VITESSE À VIDE**	**COMMANDE DE L'OUTIL**	**DIMENSION ENTRAÎNEUR**
P=REVOLVER	A= COUPURE D'AIR	25 = 2500 tr/mn	PS = COMMANDE PAR POUSSÉE	Q4 = 1/4" rapide
S =DROITE	C= LIMITEUR DE COUPLE	17 = 1700 tr/mn	TS = COMMANDE PAR GÂCHETTE	
	P= CLABOTS INCLINÉS	10 = 1000 tr/mn	LT = COMMANDE PAR LEVIER	
	D= ENTRAÎNEMENT DIRECT	8 = 800 tr/mn		

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

(Plan TPD1500)

SPÉCIFICATIONS

Modèle
Poignée droite, limiteur de couple, commande à poussoir
41SC10PSQ4
41SC25PSQ4
Poignée droite, arrêt automatique, commande à poussoir
41SA8PSQ4
41SA10PSQ4
41SA17PSQ4
41SA25PSQ4
Poignée pistolet, limiteur de couple, commande à gâchette
41PC8TSQ4
41PC10TSQ4
41PC17TSQ4
41PC25TSQ4
Poignée droite, limiteur de couple, commande à levier
41SC10LTQ4
41SC17LTQ4
Poignée droite, entraînement direct, commande à levier
41SD10LTQ4
Poignée pistolet, entraînement direct, commande à gâchette
41PD8TSQ4
41PD10TSQ4
41PD17TSQ4
Poignée pistolet, embrayage à clabots, commande à gâchette
41PP8TSQ4
41PP10TSQ4
41PP17TSQ4
41PP25TSQ4

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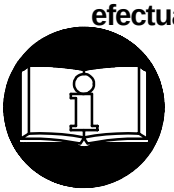
INSTRUCCIONES PARA ATORNILLADORES NEUMÁTICOS MODELO 41

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.

Impreso en EE. UU.

INGERSOLL-RAND®
PROFESSIONAL TOOLS

ETIQUETAS DE AVISO

⚠ AVISO

EL HACER CASO OMISO DE LOS AVISOS SIGUIENTES PODRÍA OCASIONAR LESIONES

⚠ ADVERTENCIA

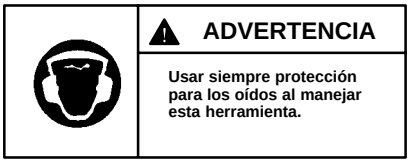
Usar siempre protección ocular al manejar o realizar operaciones de mantenimiento en esta herramienta.

⚠ ADVERTENCIA

Las herramientas neumáticas pueden vibrar durante el uso. La vibración, los movimientos repetitivos o las posiciones incómodas podrían dañarle los brazos y las manos. En caso de incomodidad, sensación de hormigueo o dolor, dejar de usar la herramienta. Consultar al médico antes de volver a utilizarla.

⚠ ADVERTENCIA

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

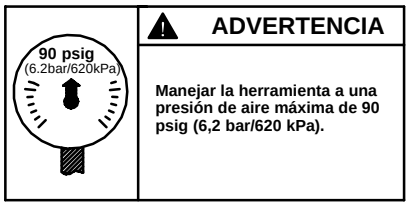


⚠ ADVERTENCIA

Usar siempre protección para los oídos al manejar esta herramienta.

⚠ ADVERTENCIA

No coger la herramienta por la manguera para levantarla.



⚠ ADVERTENCIA

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

⚠ ADVERTENCIA

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

⚠ ADVERTENCIA

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

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 Nº 1 en la ranura para girar el diente de engranaje en la tuerca.
4. Si se gira **en sentido horano** se disminuirá el par.
5. Si se gira **en sentido horano** 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

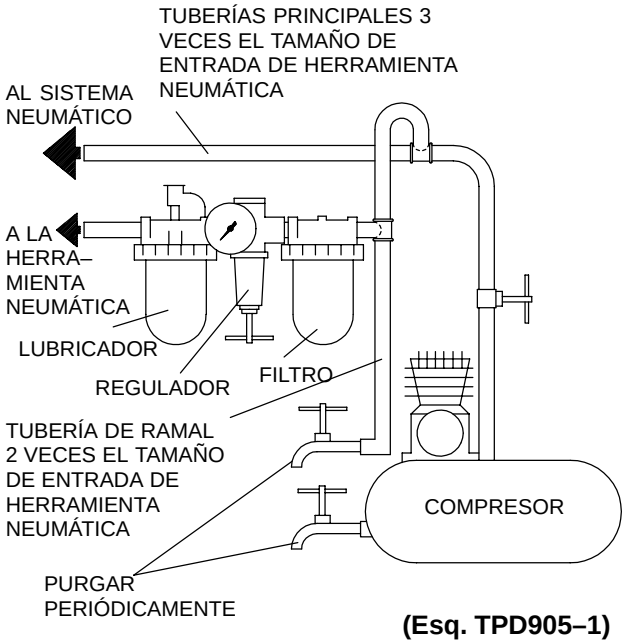
Ingersoll–Rand N°. 10

Ingersoll–Rand N°. 105
Ingersoll–Rand N°. 115

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

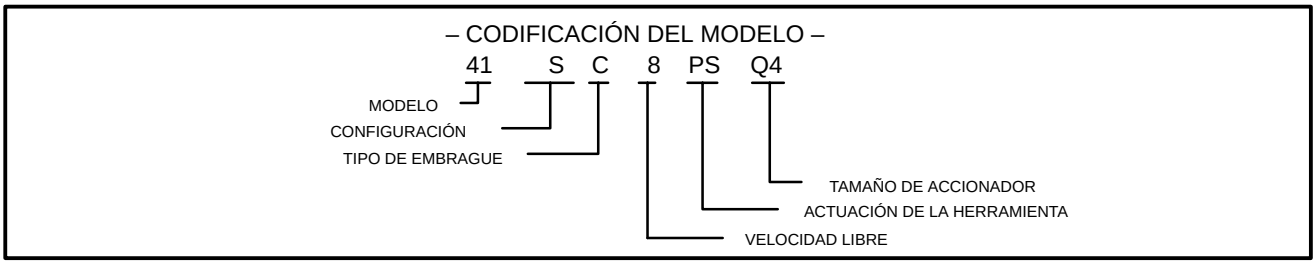
USA – C05–02–G00

Después de cada 40 000 ciclos o mensualmente (lo que ocurra primero), lubrique el tren de engranajes con Grasa Ingersoll–Rand No 105.
Después de cada 50 000 ciclos o mensualmente (lo que ocurra primero), lubrique el conjunto de embrague con Grasa Ingersoll–Rand No. 105 o Ingersoll–Rand No 115.



(Esq. TPD905–1)

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	17 = 1700 RPM	TS = ARRANQUE POR GATILLO	
	P = POSITIVO	10 = 1000 RPM	LT = PALANCA DE ESTRANGULACIÓN	
	D = ACCIONAMIENTO DIRECTO	8 = 800 RPM		

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

(Esq. TPD1500)

ESPECIFICACIONES

Modelo
Enpuñadura recta, embrague amortiguador, puesta en marcha por pulsador
41SC10PSQ4
41SC25PSQ4
Empuñadura recta, parada automática, puesta en marcha por pulsador
41SA8PSQ4
41SA10PSQ4
41SA17PSQ4
41SA25PSQ4
Empuñadura de pistola, embrague amortiguador, puesta en marcha por gatillo
41PC8TSQ4
41PC10TSQ4
41PC17TSQ4
41PC25TSQ4
Empuñadura recta, embrague amortiguador, mando por palanca
41SC10LTQ4
41SC17LTQ4
Empuñadura recta, accionamiento directo, mando por palanca
41SD10LTQ4
Empuñadura de pistola, accionamiento directo, puesta en marcha por gatillo
41PD8TSQ4
41PD10TSQ4
41PD17TSQ4
Empuñadura de pistola, mordaza positiva, puesta en marcha por gatillo
41PP8TSQ4
41PP10TSQ4
41PP17TSQ4
41PP25TSQ4

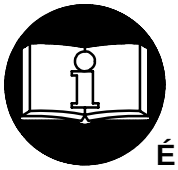
P

INSTRUÇÕES PARA APARAFUSADORAS PNEUMÁTICAS SÉRIES 41

Skinsulate™ Comfort Coating

AVISO

As Aparafusadoras Fenda Pneumáticas Séries 41 são concebidas para aperto em indústrias automotivas, de equipamentos, electrónicas, aeroespaciais e de mobiliário.
A Ingersoll–Rand não é responsável por modificações, feitas pelo cliente em ferramentas, nas quais a Ingersoll–Rand não tenha sido consultada.



⚠ ADVERTÊNCIA

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

COLOCANDO A FERRAMENTA EM FUNCIONAMENTO

- **Sempre opere, inspeccione e mantenha esta ferramenta de acordo com o Código de Segurança do Instituto Americano de Padrões Nacionais para Ferramentas Pneumáticas Portáteis (ANSI B186.1).**
- **Para segurança, máximo desempenho e máxima durabilidade das peças, opere esta ferramenta com uma pressão de ar máxima de 6,2 bar/620 kPa (90 psig) na entrada da mangueira de alimentação de ar com diâmetro interno de 8 mm (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 daVálvula Reguladora está montado sob pressão da Mola da Válvula. Tenha cuidado ao removê–lo. (*Em ferramentas onde aplicável.)***
- **Esta Ferramenta não foi concebida para trabalhos em atmosferas explosivas.**
- **Esta Ferramenta não está isolada contra choques eléctricos.**

AVISO

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

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

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

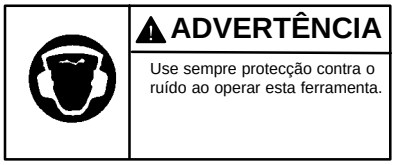
Impresso nos E.U.A.

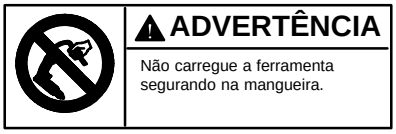
INGERSOLL-RAND®
PROFESSIONAL TOOLS

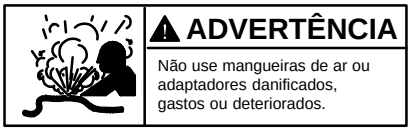
IDENTIFICAÇÃO DO RÓTULO DE ADVERTÊNCIA

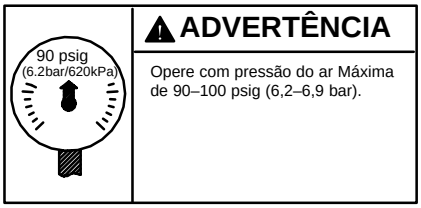
⚠ ADVERTÊNCIA

O NÃO CUMPRIMENTO DAS SEGUINTES ADVERTÊNCIAS PODE RESULTAR EM FERIMENTO.









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 aperto.

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

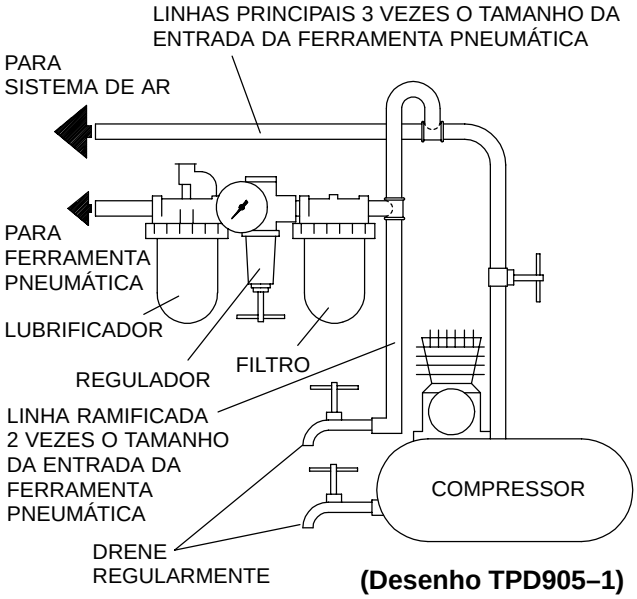
LUBRIFICAÇÃO

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:

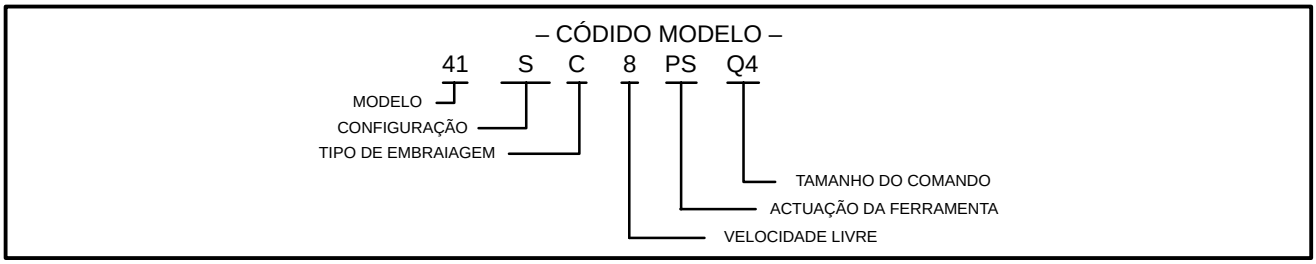
USA – C05–02–G00

Depois de 40 000 ciclos ou cada mês, o que ocorrer primeiro, lubrifique o trem de engrenagens com Massa lubrificadora Ingersoll–Rand No. 105.
Depois de 50 000 ciclos ou cada mês, o que ocorrer primeiro, lubrifique o conjunto da embraiagem com Massa lubrificadora Ingersoll–Rand No. 105 ou Ingersoll–Rand No. 115.



(Desenho TPD905–1)

ESPECIFICAÇÕES



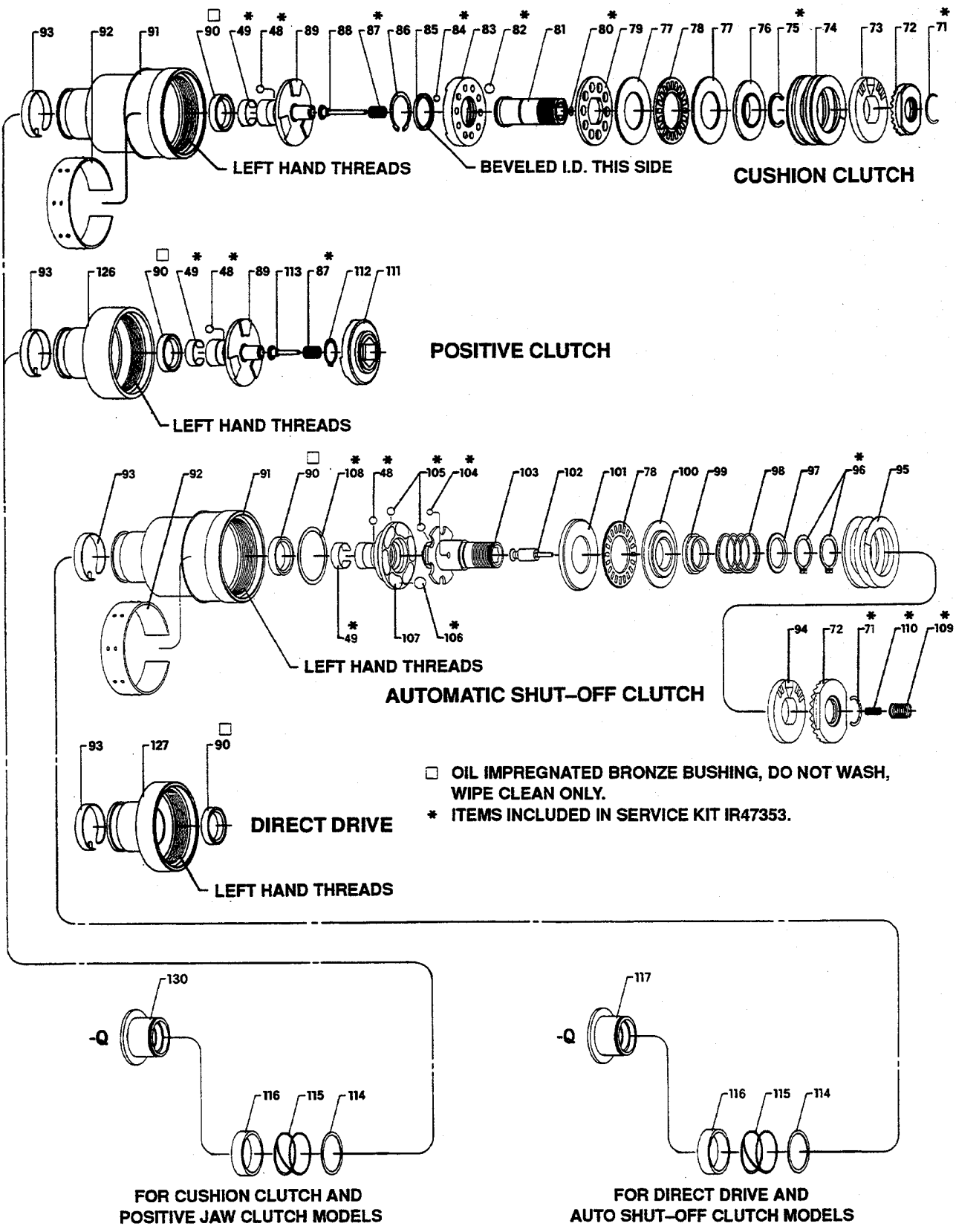
CONFIGURAÇÃO	EMBRAIAGEM	VELOCIDADE LIVRE	ATUAÇÃO DA FERRAMENTA	TAMANHO DO COMANDO
P = PISTOLA	A = DESLIGAMENTO AUTOMÁTICO	25 = 2 500 RPM	PS = PRESSIONE PARA LIGAR	Q4 = 1/4" Q.C.
S = DIRECTA	C = EMBRAIAGEM DE COXIM	17 = 1 700 RPM	TS = GATILHO DE ACCIONAMENTO	
	P = GARRA POSITIVA	10 = 1 000 RPM	LT = ALAVANCA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

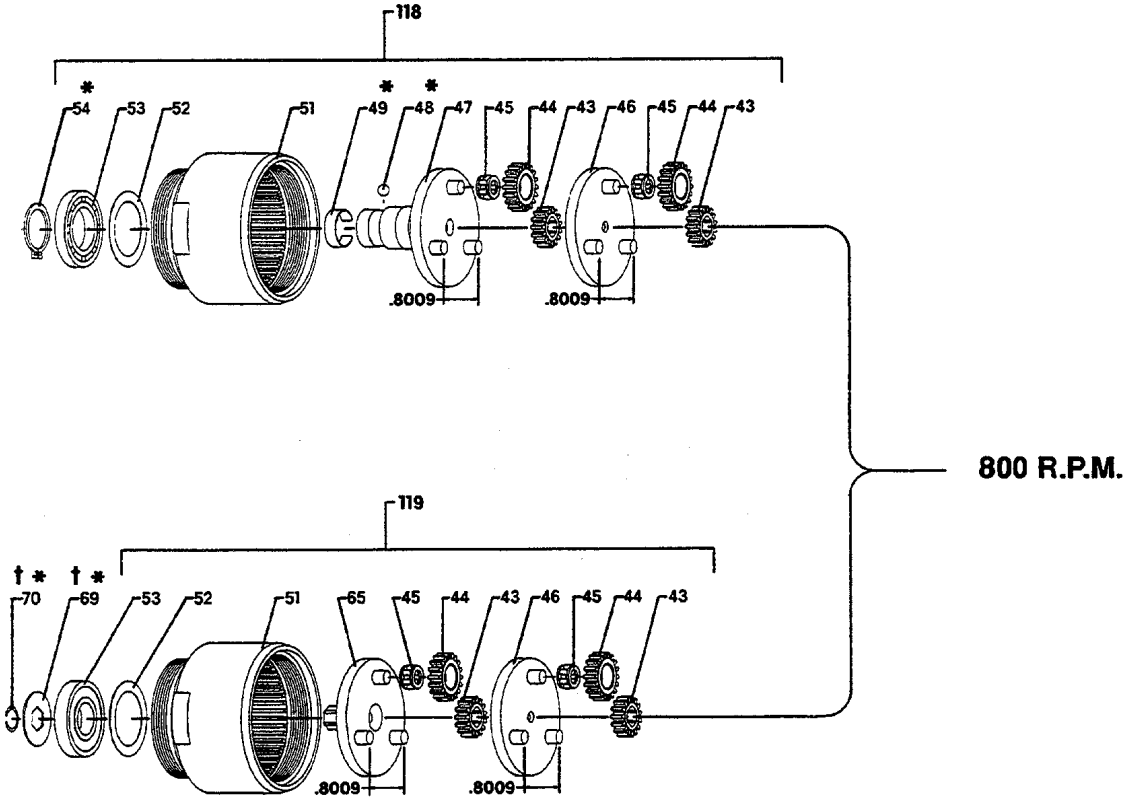
(Desenho TPD1500)

* Os números do Modelos são limitados aos itens em catálago apenas.

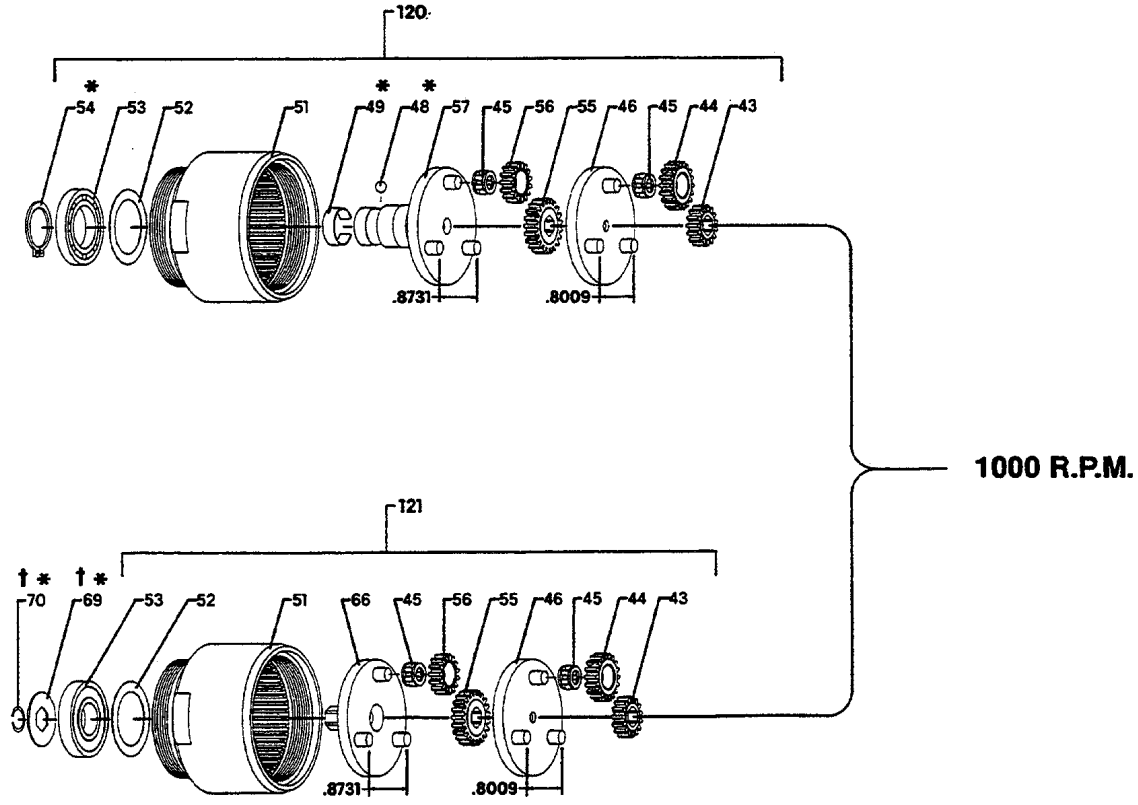
ESPECIFICACIONES

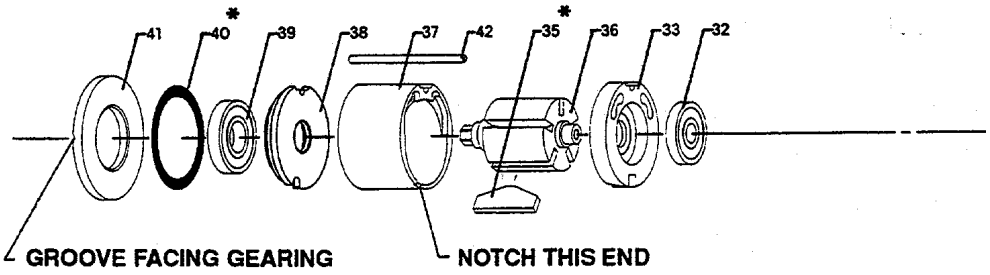
Modelo
Punho direito, Embraiagem Amortecedora, Arranque por Pressão
41SC10PSQ4
41SC25PSQ4
Punho direito, Paragem Automática, Arranque por Pressão
41SA8PSQ4
41SA10PSQ4
41SA17PSQ4
41SA25PSQ4
Punho tipo Pistola, Embraiagem Amorttecedora, Arraque por Gatilho
41PC8TSQ4
41PC10TSQ4
41PC17TSQ4
41PC25TSQ4
Punho direito, Embraiagem Amortecedora, Regulador de Alavanca
41SC10LTQ4
41SC17LTQ4
Punho direito, Accionamento Directo, Regulador de Alavanca
41SD10LTQ4
Punho tipo Pistola, Accionamento Directo, Aranque por Gatilho
41PD8TSQ4
41PD10TSQ4
41PD17TSQ4
Punho tipo Pistola, Garra Positiva Arranque por Gatilho
41PP8TSQ4
41PP10TSQ4
41PP17TSQ4
41PP25TSQ4


93 92 91 90 49 48 89 88 87 86 85 84 83 82 81 80 79 77 78 77 76 75 74 73 72 71
LEFT HAND THREADS
BEVELED I.D. THIS SIDE
CUSHION CLUTCH
93 126 90 49 48 89 113 87 112 111
POSITIVE CLUTCH
LEFT HAND THREADS
93 92 91 90 108 48 105 104 103 102 101 78 100 99 98 97 96 95
49 107 106
LEFT HAND THREADS
AUTOMATIC SHUT–OFF CLUTCH
94 72 71 110 109
93 127 90
DIRECT DRIVE
LEFT HAND THREADS
□ OIL IMPREGNATED BRONZE BUSHING, DO NOT WASH, WIPE CLEAN ONLY.
* ITEMS INCLUDED IN SERVICE KIT IR47353.
130
-Q
116 115 114
FOR CUSHION CLUTCH AND POSITIVE JAW CLUTCH MODELS
117
-Q
116 115 114
FOR DIRECT DRIVE AND AUTO SHUT–OFF CLUTCH MODELS



* ITEMS INCLUDED IN SERVICE KIT IR47353.
† USED ONLY WITH AUTO SHUT–OFF AND CUSHION CLUTCH MODELS.

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GROOVE FACING GEARING
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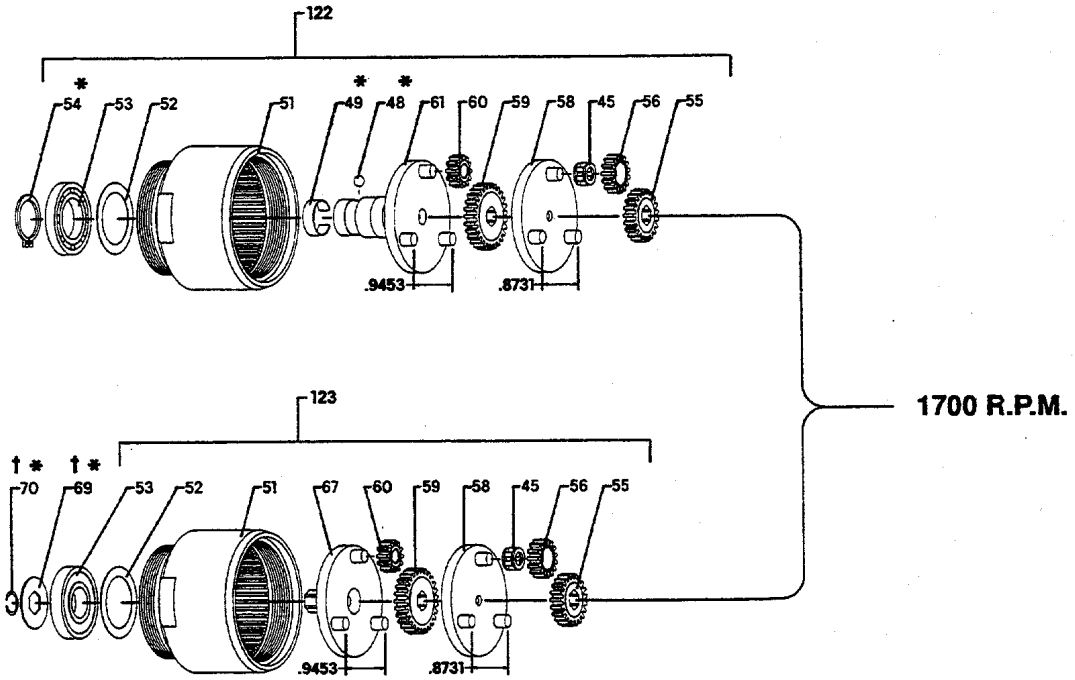
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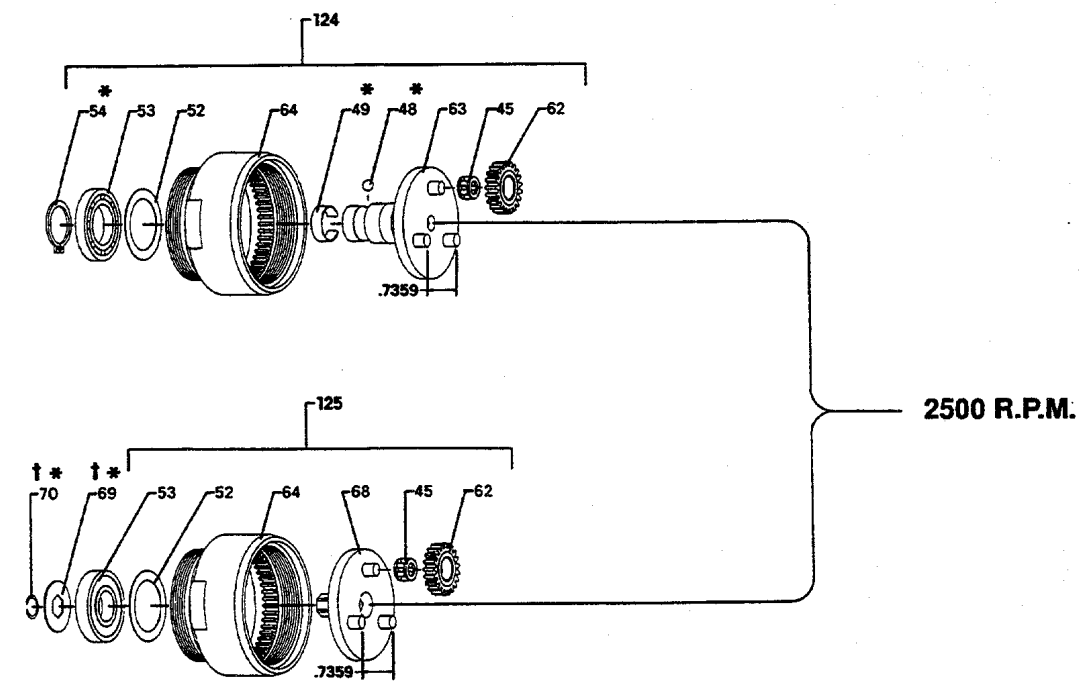
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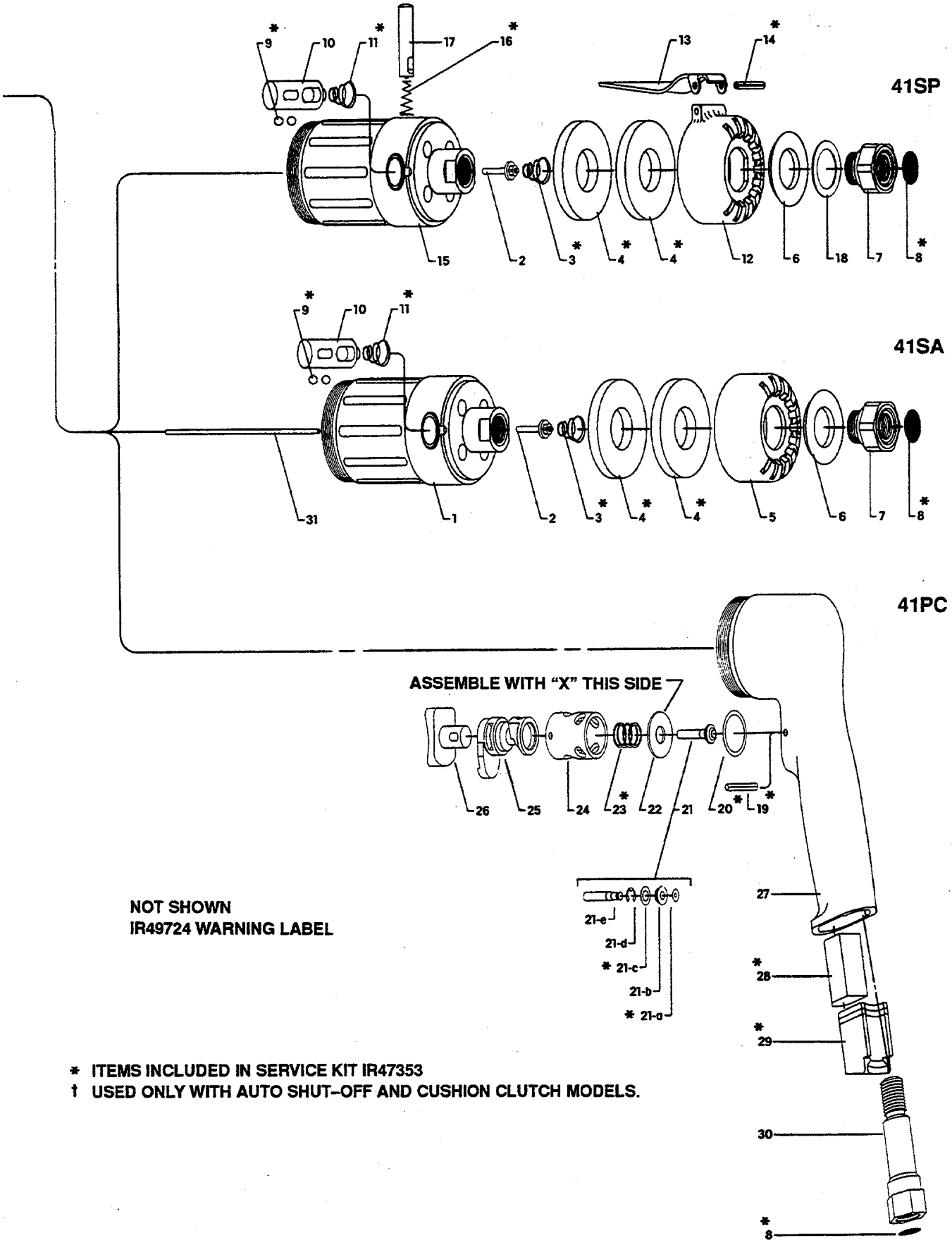
2500 R.P.M.



* ITEMS INCLUDED IN SERVICE KIT IR47353
† USED ONLY WITH AUTO SHUT–OFF AND CUSHION CLUTCH MODELS.

PART NUMBER FOR ORDERING

PART NUMBER FOR ORDERING

1	Head and Bushing Assembly (for push–start models)	49718	21–e	Valve Stem	46847–2
2	Valve Rod Assembly	46354	22	Washer	46379–1
3	Spring	41654	23	Spring	41100
4	Filler (2)	46452	24	Valve Bushing	46381
5	Exhaust Cap (for push–start models)	46447	25	Reverse Valve	46299
6	Diffuser Washer	46449	26	Trigger	46298
7	Inlet Adapter	46377	27	Pistol Grip Housing	49711
8	Screen	33911	28	Filler	46851
9	Ball (2)	Y16–204	29	Muffler Assembly	46857
10	Valve Body	46476	30	Inlet Adapter	46385
11	Spring	41654	31	Throttle Rod	
12	Exhaust Cap (for lever throttle models)	46448		for model 41SC25PS (4.180” long)	46511–3
13	Lever	46326		for models 41SC8PS, 41SC10PS and 41SC17PS (4.690” long)	46511–4
14	Roll Pin	Y178–28		for model 41SA25PS (4.235” long)	46511–423
15	Head and Bushing Assembly (for lever throttle models)	49719		for models 41SA8PS, 41SA10PS and 41SA17PS (4.740” long)	46511–474
16	Spring	46374		Motor Assembly (includes items 32 through 39)	
17	Throttle Pin	46296–2		Push Start models	
18	Spacer	47205		for 800, 1000 and 1700 rpm models	47726
19	Spiral Pin	46849		for 2500 rpm models	47725
20	O–ring	Y325–15		Lever and Pistol Grip models	
21	Valve Stem Assembly	46848–2		for 800, 1000 and 1700 rpm models	47728
21–a	O–ring	Y325–3		for 2500 rpm models using Direct Drive	47727
21–b	Valve	45473		using Positive Clutch	47725
21–c	O–ring	Y325–7	32	Ball Bearing	47724
21–d	Retaining Ring	Y180–13	33	Rear End Plate	46312–1

		PART NUMBER FOR ORDERING
35	Vane (5)	46413–5
36	Rotor	
	Push Start models	
	for 800, 1000 and 1700 rpm models	
	(thru hole) hex drive	46453
	for 2500 rpm models	
	(thru hole) spline drive	46469
	Straight and Pistol Grip models	
	for 800, 1000 and 1700	
	rpm models (hex drive)	46454
	for 2500 rpm models (spline drive)	
	using Direct Drive or Adjustable	
	Ball Clutch	46470
	using Positive Clutch (thru hole)	46469
37	Cylinder	46311
38	Front End Plate	47722
39	Ball Bearing	Y65–13
40	O–ring	Y325–214
41	Spacer	46412
42	Locating Pin	
	for Pistol Grip models	47723–1
	for Lever and Push Start models	47723–2
43	Sun Gear (1 or 2) (4.4:1 ratio) (15 teeth)	46466
44	Planet Gear (3 or 6) (4.4:1 ratio) (18 teeth)	
	(requires item 45)	46900
45	Needle Bearing (3 or 6)	42315
46	Carrier Assembly (4.4:1 ratio)	46522
47	Spindle Assembly (4.4:1 ratio) (direct drive)	47270
48	Ball (included with items 47,	
	57, 61, 63 and 89)	Y16–204

		PART NUMBER FOR ORDERING
49	Retaining Clip (included with items 47, 57, 61,	
	63 and 89)	47695
51	Ring Gear (double reduction)	
	for Straight models	48904
	for Pistol Grip models	48904
52	Spacer	46496
53	Ball Bearing	
	for Cushion and Auto Shut–Off	
	Clutch models	Y65–13
	for Direct Drive and	
	Positive Clutch models	46243
54	Retaining Ring	38339
55	Sun Gear (3.43:1 ratio) (21 teeth)	46465
56	Planet Gear (3) (3.43:1 ratio) (15 teeth)	
	(requires item 45)	46899
57	Spindle Assembly (3.43:1 ratio) (direct drive)	47269
58	Carrier Assembly (3.43:1 ratio)	46521
59	Sun Gear (2.89:1 ratio) (27 teeth)	46464
60	Planet Gear (3) (2.89:1 ratio) (12 teeth)	46460
61	Spindle Assembly (2.89:1 ratio) (direct drive)	47268
62	Planet Gear (3) (6.67:1 ratio)	
	(21 teeth) (requires item 45)	46901
63	Spindle Assembly (6.67:1 ratio) (direct drive)	47271
64	Ring Gear (single reduction)	
	for Straight models	48905
	for Pistol Grip models	48905
65	Spindle Assembly (4.4:1 ratio)	
	for Cushion and Auto	
	Shut–Off Clutch models	47753
	for Positive Jaw Clutch models	47799

		PART NUMBER FOR ORDERING
66	Spindle Assembly (3.43:1 ratio)	
	for Auto Shut–Off Clutch models	47752
	for Positive Jaw Clutch models	47798
67	Spindle Assembly (2.89:1 ratio)	
	for Cushion and Auto	
	Shut–Off Clutch models	47751
	for Positive Jaw Clutch models	47797
68	Spindle Assembly (6.67:1 ratio)	
	for Cushion and Auto	
	Shut–Off Clutch models	47750
	for Positive Clutch models	47800
69	Washer	47694
70	Snap Ring	Y142–2
	Cushion Clutch Assembly	
	(includes items 71 thru 88)	
	for 800, 1000 and 1700	
	rpm models (Blue Spring)	47254–1
	for 2500 rpm models (Yellow Spring)	47254–3
71	Snap Ring	Y110–105
72	Adjustment Nut	46895
73	Adjustment Washer	46896
74	Clutch Spring (Cushion Clutch)	
	for 800 and 1000 rpm	
	models (Blue) (15–80 in. lbs.)	46728
	for 1700 rpm models	
	(Blue) (15–60 in. lbs.)	46728
	for 2500 rpm models	
	(Yellow) (10–40 in. lbs.)	47066
	Clutch Spring (Gray) (45–100 in. lbs.)	46473

		PART NUMBER FOR ORDERING
75	Snap Ring	Y110–106
76	Thrust Pad	46516
77	Thrust Washer (2)	46892
78	Thrust Bearing	38995
79	Ball Carrier	46515
80	O–ring	Y325–1
81	Spindle	47255
82	Ball (10)	Y16–205
83	Driven Jaw	46441
84	Ball (16)	Y16–203
85	Ball Race	46502
86	Retaining Ring	46507
87	Spring	46854
88	Pin Assembly	46855
89	Bit Holder Assembly (includes items 48 and 49)	
	for Cushion Clutch models	47267
	for 20° Positive Clutch models	47272
90	Bushing	46360
91	Clutch Housing (includes items (90 and 92)	
	for Straight models with Q4 drive	
	(steel) (3–3/4” long)	47749
	for Pistol Grip models with Q4 drive	
	(aluminum) (3–3/4” long)	48901
92	External Adjustment Sleeve	46534
93	Retaining Clip and Pin	47782

		PART NUMBER FOR ORDERING
	Auto Shut–Off Clutch Assembly (includes items 48, 49, 71, 72, and 78, and 94 thru 110)	
	for 800 and 1000 rpm models with Yellow Spring	48303–1
	for 1700 rpm models with Brown Spring	48303–2
	for 2500 rpm models with Green Spring	48303–3
94	Adjustment Washer	48093
95	Clutch Spring (Auto Shut–Off Clutch)	
	for 800 rpm models (Yellow) (35–100 in. lbs.)	48047
	for 1000 rpm models (Yellow) (35–80 in. lbs.)	48047
	for 1700 rpm models (Brown) (25–60 in. lbs.)	48095
	for 2500 rpm models (Green, 15–40 in. lbs.)	48096
96	Retaining Ring (2)	Y145–18
97	Guide	48295–1
98	Spring	47064
99	Ball Sleeve	48294–1
100	Thrust Race	48094
101	Thrust Race	48301–1
102	Plunger	48293–2
103	Spindle	48299–1
104	Ball (6)	Y16–203
105	Ball (23)	Y16–204
106	Ball (6)	Y16–206
107	Bit Holder	48298–1
108	Retaining Ring	48300–1
109	Spring	47709
110	Spring	48333–1
111	Jaw for 20° Positive Jaw Clutch models	47176–1
112	Retaining Ring	Y145–3
113	Pin Assembly	47182
114	Retaining Ring	47779
115	Spring	47778
116	Bushing	47775
117	Sleeve	47702
118	Gearing Assembly (800 rpm) Direct Drive	47350–1
119	Gearing Assembly (800 rpm) for Positive Clutch models	47350–5
	for Cushion Clutch and Auto Shut–Off Clutch models	47350–9
120	Gearing Assembly (1000 rpm) Direct Drive	47350–2
121	Gearing Assembly (1000 rpm) for Positive Clutch models	47350–6
	for Cushion Clutch and Auto Shut–Off Clutch models	47350–10
122	Gearing Assembly (1700 rpm) Direct Drive	47350–3
123	Gearing Assembly (1700 rpm) for Positive Clutch models	47350–7
	for Cushion Clutch and Auto Shut–Off Clutch models	47350–11
124	Gearing Assembly (2500 rpm) Direct Drive	47350–4

		PART NUMBER FOR ORDERING			PART NUMBER FOR ORDERING
125	Gearing Assembly (2500 (rpm)		*	Service Kit (includes items 3, 4 [2], 8, 9 [2], 11, 14,	
	for Positive Clutch models	47350–8		16, 19, 20, 21–a, 21–c, 23, 28, 29, 35 [5], 40, 48,	
	for Cushion and Auto			49, 54, 69, 70, 71, 75, 80, 82 [10], 84 [16], 87, 96	
	Shut–Off Clutch models	47350–12		[2], 104 [6], 105 [23] 106 [6], 108, 109 and 110) . . .	47353
126	Positive Clutch Housing (includes item 90)	49253	*	Warning Label	
127	Direct Clutch Housing (includes item 90)	47788		for models ending in –EU	EU–99
	Guide Assembly (Direct Drive			for all other models	WARNING–5–99
	and Auto Shut–off Clutch models)		*	CE Label	49882
	Quick–Change Sleeve Assembly		*	Rotation Label	49884
	(includes items 114 thru 117)	46884	*	Forward–Reverse Label	49931
130	Sleeve	47702–1			
	Guide Assembly (Cushion and Positive Clutch models)				
	Quick–Change Sleeve Assembly				
	(includes items 114, 115, 116 and 130)	46884–1			

* 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 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

1. For Pistol grip models, clamp on handle. For Straight models, clamp on Inlet Adapter (7).
2. Remove Clutch Housing with strap type wrench.

NOTICE

The Clutch Housing has left–hand threads.

3. Remove Clutch Assembly from tool.

Cushion Clutch

1. Clamp 1/4” hex wrench in a vise, then place Bit Holder (89) and Clutch Assembly on it.
2. Remove Snap Ring (71).
3. Remove Adjustment Nut (72) using 7/8” wrench.
4. Remove Adjustment Washer (73) and Clutch Spring (74).
5. Remove Snap Ring (75).
6. Slide off Thrust Pad (76), two Thrust Washers (77) and Thrust Bearing (78).
7. Remove Ball Carrier (79) and ten Balls (82).
8. Remove Retaining Ring (86).
9. Slide Jaw back and remove Ball Race (85), sixteen Balls (84). Then remove Driven Jaw (83).
10. Remove O–ring (80) and Push Pin (88) out of Spindle (81).
11. Remove Spring (87).

Positive Jaw Clutch

1. Remove Pin Assembly (113) and Spring (87) from Jaw.
2. Remove Retaining Ring (112).

Auto Shut–Off Clutch

1. Clamp 1/4” hex wrench in a vise, then place Bit Holder (107) and Clutch Assembly on it.
2. Remove Snap Ring (71).
3. Remove Adjustment Nut (72) using 7/8” wrench.
4. Remove Adjustment Washer (94) and Clutch Spring (95).
5. Remove Retaining Rings (96).
6. Slide off Guide (97), Spring (98), Ball Sleeve (99) which will release six Balls (104), Thrust Race (100) and Thrust Bearing (78). Removal of Ball Sleeve releases six Balls (104).
7. Remove Thrust Race (101), Releasing Six Balls (106).
8. Remove Retaining Ring (108), then rotate Bit Holder to remove twelve Balls (105). Separate Bit Holder (107) and Spindle (103), releasing eleven Balls (105).

Disassembly of the Gearing

1. Remove clutch from tool (see Clutch Disassembly).
2. Remove Ring Gear (51) or (64) using wrench on flats.
3. For Direct Drive only, remove Retaining Ring (54) from spindle.
4. For Auto Shut–Off and Cushion Clutch models, remove Snap Ring (70) and Washer (69).
5. Remove spindle(s) and gears from Ring Gear (51) or (64).

NOTICE

Keep gears grouped with mating spindle when disassembling 800, 1000 and 1700 rpm gearing.

NOTICE

Do not remove Bearing (53) or Spacer (52) unless damage is evident.

6. To remove Bearing and Spacer from Ring Gear, press on Spacer inside Ring Gear from splined end.

NOTICE

Do not remove Sun Gears (43), (55) or (59) from Carrier Assembly unless damage is evident. Gears are press fit onto carrier assembly.

Disassembly of the Motor

1. Remove clutch and gearing from tool.
2. Remove Spacer (41) and O–ring (40).
3. For Push to Start models, remove Throttle Rod (31) or (142).
4. Tap front edge of Housing to remove motor assembly. Locating pin should also come out.
5. Tap drive end of Rotor (36) with a soft face hammer; motor will come apart.

NOTICE

Bearings are press fit on rotor.

6. Remove End Plate (33) and Bearing (32) from Rotor.

Disassembly of the Motor Housing

Pistol Grip

1. Drive out Pin (19) from Housing.
2. Remove Trigger (26), Reverse Valve (25), Valve Bushing (24), Spring (23), Washer (22), Valve Assembly (21) and O–ring (20).
3. Remove O–ring (21–a), Valve (21–b), O–ring (21–c) and Retaining Ring (21–d). Remove Inlet Adapter (30) and Screen (8).
4. Remove Muffler (29) and Filler (28).

Push to Start and Lever Throttle

1. Clamp Air Inlet Adapter (7) in leather–covered or copper–covered face vise.
2. Unthread Housing (1) or (15) with a strap type wrench.
3. Remove Diffuser Washer (6), Exhaust Cap (5) or (12), two Fillers (4), Spring (3) and Valve Rod (2).

CAUTION

Do not remove or adjust rubber portion of Valve Rod as it is preset at the factory.

4. Remove two Balls (9), Valve Body (10) and Spring (11).
5. Remove Screen (8) from Inlet Adapter.
6. **For Lever Throttle models,** remove Throttle Pin (17) and Spring (16).

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 clean, 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

Pistol Grip

1. Lubricate and install O–ring (20).
2. Install Retaining Ring to Valve Stem (21–e).
3. Lubricate and assemble O–ring to Valve.
4. Assemble Valve to Valve Stem, with smallest diameter of Valve going on Valve stem first.
5. Lubricate and assemble O–ring to Valve Stem.
6. Assemble Washer (22) and Spring over Valve Stem.

NOTICE

Assemble Washer with "X" facing O–ring (20).

7. Assemble Reverse Valve (25) into Valve Bushing (24).

NOTICE

Position the .102 diameter hole through the bushing so that it aligns with slot thru side of Reverse Valve.

8. Assemble Valve Stem and components through Reverse Valve and Bushing.
9. Install Valve Bushing with Valve components and Reverse Valve into Pistol Grip Housing (27), aligning .102 diameter holes in Housing and Bushing.
10. Assemble Trigger (26) to Reverse Valve.
11. Install Pin (19).
12. Install Filler (28), Muffler (29) and Inlet Adapter (30).
13. Clean and install Screen (8) in Inlet Adapter (30).

Push to start and Lever Throttle

1. Install Spring (11) and Valve Body (10) in Housing.

NOTICE

Align ball slot in Valve Body with slot in Housing.

2. For Lever Throttle models, install Spring (16) and Throttle Pin (17), aligning slot in Throttle Pin with air inlet holes in Housing.
3. Install Valve Rod Assembly (2) into Housing so it passes through open slot in Valve Body (10).

NOTICE

For Lever Throttle tools, the Throttle Pin (17) should not pull out when Valve Rod (2) is seated properly.

4. Assemble two Balls (9) into slots of housing and Valve Body (10).
5. Install two Fillers (4) to Exhaust Cap (5) or (12).
6. Install Exhaust cap to Housing, being certain Balls (9) remain properly positioned in Housing and Reverse Valve.
7. Assemble Diffuser Washer (6), Spacer (18) where applicable and Inlet Adapter (7).
8. Clean and install Screen (8) in Inlet Adapter.

Assembly of the Motor

1. Lubricate Bearing (32) with the recommended lubricant and assemble to End Plate (33), pressing on outer race of Bearing.
2. Assemble End Plate to Rotor, pressing on inner race of Bearing.
3. Coat five Rotor Blades (35) with Ingersoll–Rand No. 10 Oil and assemble in Rotor Slots, straight side out.
4. Coat inside diameter of Cylinder (37) with Ingersoll–Rand No. 10 Oil and assemble over Rotor.

NOTICE

Air inlet slots in end of Cylinder must be aligned with two air inlet slots in End Plate (33).

5. Assemble Bearing (39) to End Plate (38), pressing on outer race of Bearing.
6. Assemble End Plate to Rotor, pressing on inner race of Bearing.

NOTICE

Be sure Rotor turns without binding.

7. Insert Locating Pin (42) into .096 blind hole at bottom of motor cavity in Housing.
8. Align notches of End Plates and Cylinder and install motor into Housing, aligning notches with Pin (42).
9. Lubricate and assemble O–ring (40) to End Plate.
10. Assemble Spacer (41) to motor.
11. For Push Start models, Coat Throttle Rod (31) or (142) with Ingersoll–Rand No. 10 Oil and insert into Rotor.
12. Assemble Gearing and Clutch to tool.

Assembly of the Gearing

1. Assemble Spacer (52) into Ring Gear.
2. Press Bearing (53) into Ring Gear (51) or (64).

NOTICE

Press on outer race of Bearing and press to shoulder of ring gear.

3. Coat shafts of spindle with the recommended lubricant.
4. Assemble Gears to shafts of mating spindle.
5. Assemble Carrier Assembly to spindle assembly of 800, 1000 and 1700 rpm gearing.
6. Assemble spindle(s) and gearing into Ring Gear. Rotate spindle and gears to align gear teeth with splines of Ring Gear.
7. Thread Ring Gear to tool and tighten with wrench on flats.
8. Assemble clutch to tool.

Assembly of the Clutch

Cushion Clutch

1. Lubricate ball groove of Clutch Spindle (81) with the recommended lubricant.
2. Install sixteen Balls (84) in groove.
3. Slide Driven Jaw (83) on Spindle (81) from threaded end until it seats over Balls (84).
4. Assemble Ball Race (85), beveled i.d. towards Balls.
5. Assemble Retaining Ring (86).
6. Lubricate ball pockets of Driven Jaw and install Ball Carrier (79) and ten Balls (82).
7. Lubricate and assemble one Thrust Washer (77), Thrust Bearing (78), other Thrust Washer (77) and Thrust Pad (76).
8. Install Snap Ring (75).
9. Install Clutch Spring (74), Adjustment Washer (73) and Adjustment Nut (72).
10. Install Snap Ring (71).
11. Coat Pin (88) with the recommended lubricant then slide Spring (87) over Pin. Install Pin (88) and Spring (87) into Spindle.
12. Assemble O–ring (80) to Pin.
13. Lubricate Spindle, jaw face and Ball (48) of Bit Holder (89), then install on clutch assembly and assemble both to tool.

NOTICE

The Clutch Housing (126) has left–hand threads.

14. Assemble Clutch Housing (91) onto tool.
15. Refer to section on Clutch Adjustment.

Positive Jaw

1. Assemble Jaw (111) to gearing spindle and secure with Retaining Ring (112).
2. Coat Pin Assembly (113) with the recommended Oil and slide Spring (87) over Pin Assembly.
3. Install Pin Assembly and Spring (87) into spindle. Use the recommended lubricant to lubricate spindle, jaw face and Ball (48) of Bit Holder (89) and assemble to tool.

NOTICE

The Clutch Housing (126) has left–hand thread.

4. Assemble Clutch Housing onto tool.
5. Refer to section on Clutch Adjustment.

Auto Shut–Off

1. Lubricate ball grooves of Clutch Spindle (103) with the recommended lubricant.
2. Install eleven Balls (105) into groove.
3. Slide spindle into Bit Holder, securing Balls.
4. Assemble twelve Balls (105) into Bit Holder. Then with Retaining Ring (108).
5. Use the recommended lubricant to lubricate ball pockets of Bit Holder and install six Balls (106) into pockets, securing with Thrust Race (101).
6. Use the recommended lubricant to lubricate Thrust Bearing (78). Assemble Thrust Bearing and Thrust Race (100) to spindle.
7. Coat Plunger (102) with the recommended lubricant and assemble to spindle, securing with Balls (104).

NOTICE

Assemble two Balls per hole.

8. Secure Balls with Ball Sleeve (99).
9. Assemble Spring (98) and Guide (97) to spindle, securing with Retaining Rings (96).
10. Install Clutch Spring (95).
11. Lubricate face of Adjustment Washer (94) with the recommended lubricant and install on spindle.Thread Adjustment Nut (72) onto spindle, securing with Snap Ring (71).
12. Lubricate Ball (48) of Bit Holder with the recommended lubricant.
13. Assemble Springs (109) and (110) into spindle.

NOTICE

Assemble Spring (109) with large diameter into spindle first.

14. Assemble clutch assembly to tool.

NOTICE

The Clutch Housing (91) has left–hand threads.

15. Assemble Clutch Housing to tool.
16. Refer to section on Clutch Adjustment.

NOTICE

SAVE THESE INSTRUCTIONS. DO NOT DESTROY.

NOTES

NOTES