

OPERATION AND MAINTENANCE MANUAL FOR SERIES 41 AIR SCREWDRIVERS AND ANGLE WRENCHES

NOTICE

Series 41 Angle Screwdrivers and Angle Wrenches 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.
- Use only impact sockets and accessories. Do not use hand (chrome) sockets or accessories.
- 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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PROFESSIONAL TOOLS

WARNING LABEL IDENTIFICATION



FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

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

	⚠ WARNING
	Always wear hearing protection when operating this tool.

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

	⚠ WARNING
	Air powered tools can vibrate in use. Vibration, repetitive motions or uncomfortable positions may be harmful to your hands and arms. Stop using any tool if discomfort, tingling feeling or pain occurs. Seek medical advice before resuming use.

	⚠ WARNING
	Do not carry the tool by the hose.

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

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

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

PLACING TOOL IN SERVICE

LUBRICATION



Ingersoll-Rand No. 10



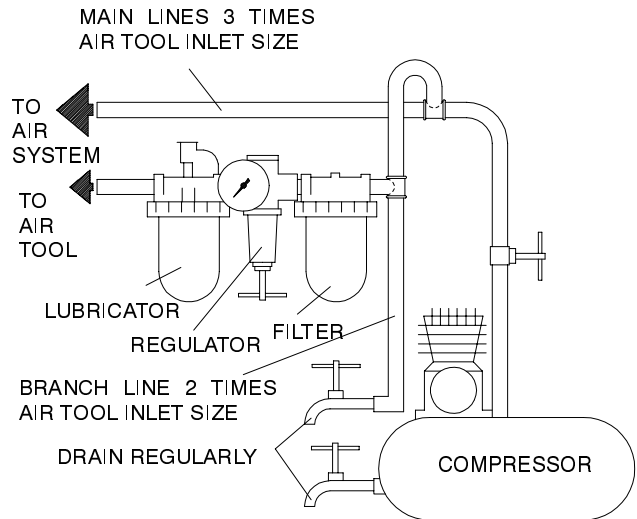
Ingersoll-Rand No. 105
Ingersoll-Rand No. 115

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)

ADJUSTMENTS

CLUTCH ADJUSTMENT

NOTICE

External

1. Rotate the External Adjustment Sleeve until opening in Housing is visible.
2. Rotate drive Spindle of Right Angle Housing until notch in Adjustment Washer is visible.
3. Insert No. 1 Phillips screwdriver in notch to turn gear teeth on Adjustment Nut.
4. Turning **clockwise** will decrease torque.
5. Turning **counterclockwise** will increase torque.

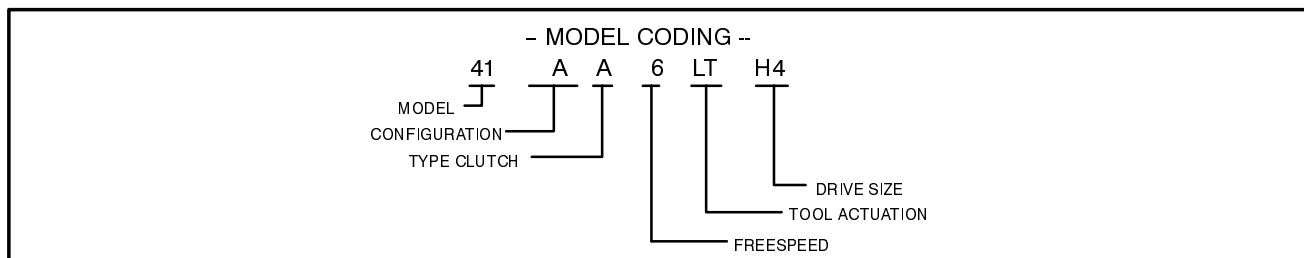
Clutch housing has left-hand threads.

2. With bit in Bit Holder, clamp bit in vise.
3. Clamp drive end of Driven Jaw in leather-covered or copper-covered vise jaws being careful not to damage Driven Jaw.
4. Hold Clutch Assembly from turning. Then rotate Adjustment Nut with 7/8" wrench.

Internal

1. Remove Clutch Housing and Clutch Assembly from tool.

HOW TO ORDER AN ANGLE SCREWDRIVER OR ANGLE WRENCH



CONFIGURATION
A=ANGLE

CLUTCH
A = AUTO SHUT OFF

FREE SPEED
6= 600 RPM
9= 900 RPM
16=1600 RPM
24=2400 RPM

TOOL ACTUATION
LT = LEVER THROTTLE

DRIVE SIZE
H4=1/4" HEX INSERT BIT HOLDER
S4=1/4" SQ. DR
S6=3/8" SQ. DR

* Model numbers are limited to catalogued items only.

(Dwg. TPD1525)

SPECIFICATIONS

Model
Angle, Auto Shut-Off, Lever Throttle, 1/4" Hex
41AA6LTH4
41AA9LTH4
41AA16LTH4
41AA24LTH4
Angle, Auto Shut-Off, Lever Throttle, Square Drive
41AA6LTS6
41AA9LTS6
41AA16LTS4
41AA24LTS4

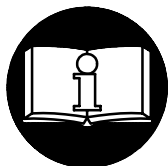
MANUEL D'EXPLOITATION ET D'ENTRETIEN CLÉS D'ANGLE PNEUMATIQUES DE LA SÉRIE 41

NOTE

Les tournevis de la Série 41 sont destinés au serrage des fixations d'assemblage automobile et d'équipements ménagers, des industries mécaniques, 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.
- N'utiliser que les douilles et les accessoires pour clés à chocs. Ne pas utiliser les douilles et accessoires (chromés) de clés manuelles.
- 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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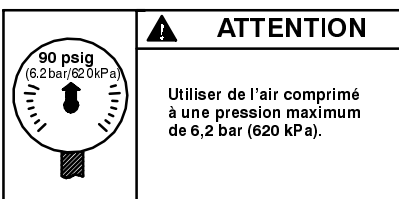
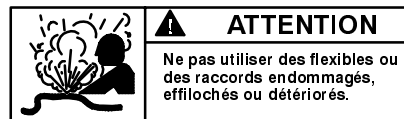
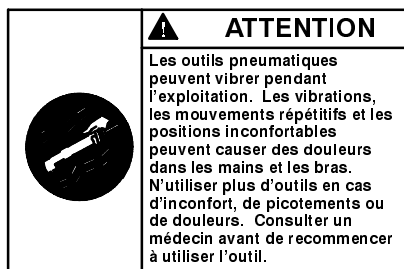
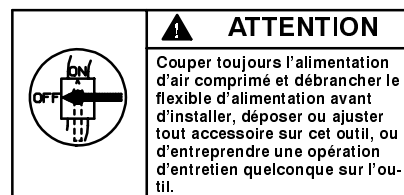
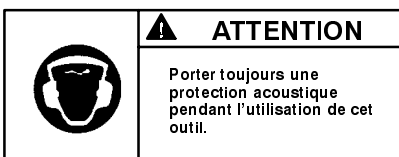
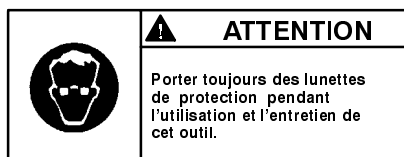
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PROFESSIONAL TOOLS

SIGNIFICATION DES ÉTIQUETTES D'AVERTISSEMENT

ATTENTION

LE NON RESPECT DES AVERTISSEMENTS SUIVANTS PEUT CAUSER DES BLESSURES.



MISE EN SERVICE DE L'OUTIL

LUBRIFICATION



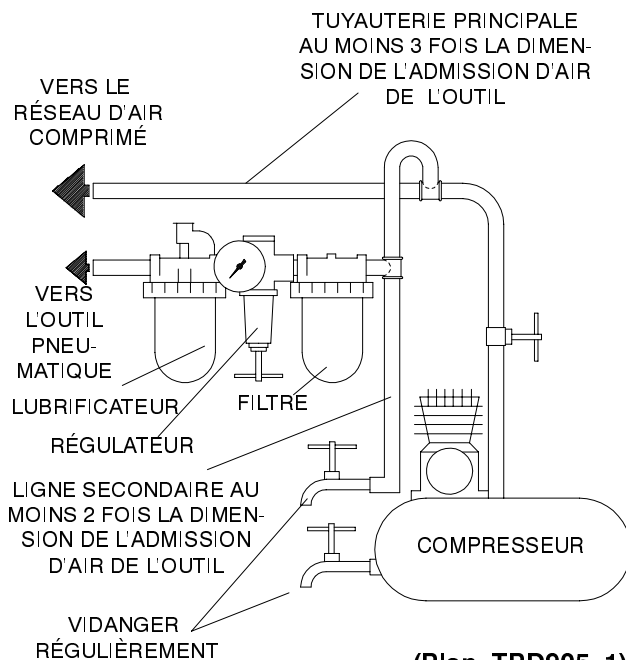
Ingersoll-Rand No. 10 Ingersoll-Rand No. 105
Ingersoll-Rand No. 115

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, selon le cas, lubrifier le train d'engrenages 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 No. 115.



(Plan TPD905-1)

RÉGLAGES

RÉGLAGE DU LIMITEUR

Extérieur

1. Tourner le manchon de réglage extérieur jusqu'à ce que l'ouverture du corps soit visible.
2. Tourner la broche d'entraînement du renvoi 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. Déposer le corps du limiteur et l'ensemble de limiteur de l'outil.

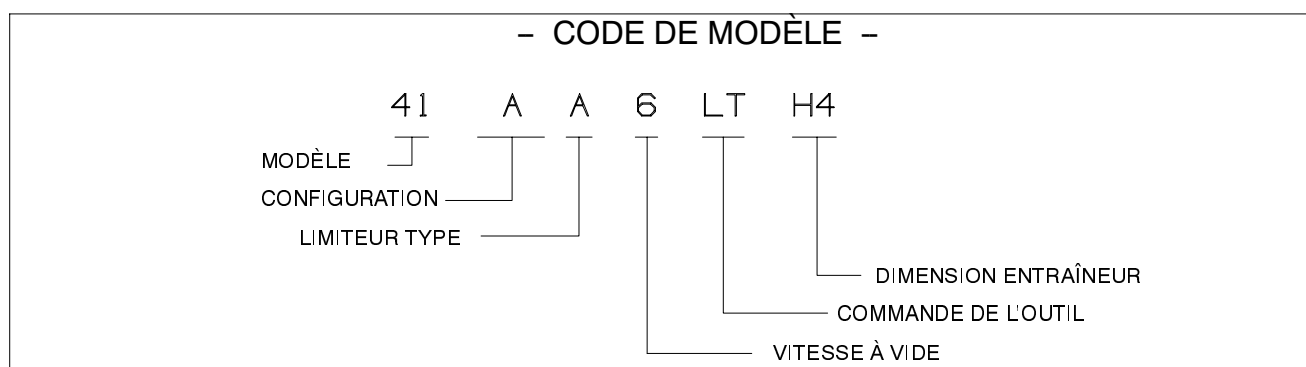
NOTE

Le corps du limiteur est fileté à gauche.

2. Un embout étant monté dans le porte-embout, serrer l'embout dans un étau.
3. Serrer le côté entraînement du crabot entraîné dans un étau équipé de mordaches en cuir ou en cuivre en prenant soin de ne pas endommager le crabot.
4. Empêcher la rotation de l'ensemble du limiteur. Tourner ensuite l'écrou de réglage avec une clé de 7/8".

SPÉCIFICATIONS

OUTIL



CONFIGURATION

A =
ANGLE

LIMITEUR

A =
COUPURE
D'AIR

VITESSE À VIDE

6 = 600 tr/mn
9 = 900 tr/mn
16 = 1600 tr/mn
24 = 2400 tr/mn

COMMANDE DE L'OUTIL

LT =
COMMANDE
PAR LEVIER

DIMENSION ENTRAÎNEUR

H4 = PORTE-EMBOUT
HEX. 1/4"
S4 = 1/4" ENTR. CARRÉ
S6 = 3/8" ENTR. CARRÉ

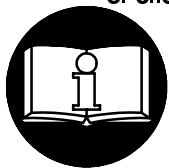
(Plan TPD1525)

D'angle, arrêt automatique, commande à levier, 1/4" Hex'	D'angle, arrêt automatique, commande à levier, entraîneur carré
41AA6LTH4	41AA6LTS6
41AA9LTH4	41AA9LTS6
41AA16LTH4	41AA16LTS4
41AA24LTH4	41AA24LTS4

MANUAL DE FUNCIONAMIENTO Y MANTENIMIENTO ATORNILLADORES NEUMÁTICOS DE LA SERIE 41

NOTA

Las llaves angulares y los atornilladores angulares de la serie 41 están diseñados para aplicaciones de montaje en la industria de los electrodomésticos, del automóvil, electrónica, aeroespacial y en carpintería. Ingersoll-Rand no aceptará responsabilidad alguna por la modificación de las herramientas efectuada por el cliente para las aplicaciones que no hayan sido consultadas con Ingersoll-Rand.



⚠ AVISO

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

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

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

PARA PONER LA HERRAMIENTA EN SERVICIO

- Utilice, examine y mantenga siempre esta herramienta conforme al código de seguridad para herramientas neumáticas portátiles de la American National Standards Institute (ANSI B186.1).
- Para mayor seguridad, rendimiento óptimo y larga vida útil de las piezas, utilice esta herramienta a una presión de aire máxima de 90 psig (6,2 bar/620 Pa) con una manguera de suministro de aire con diámetro interno de 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 racores dañados, desgastados o deteriorados.
- Asegúrese de que todos los racores y mangueras sean del tamaño correcto y estén bien apretados. El Esq. TPD905-1 muestra una disposición característica de las tuberías.
- Use siempre aire limpio y seco a una presión máxima de 90 psig (6,2 bar/620 kPa). El polvo, los gases corrosivos y el exceso de humedad pueden estropear el motor de una herramienta neumática.
- No lubrique las herramientas con líquidos inflamables o volátiles tales como queroseno, gasoil o combustible para motores a reacción.
- No saque ninguna etiqueta. Sustituya toda etiqueta dañada.

UTILIZACIÓN DE LA HERRAMIENTA

- Lleve siempre protección ocular cuando utilice esta herramienta o realice operaciones de mantenimiento en la misma.
- Lleve siempre protección para los oídos cuando utilice esta herramienta.

- Mantenga las manos, la ropa suelta y el cabello largo alejados del extremo giratorio de la herramienta.
- Tome nota de la posición de la palanca de inversión antes de hacer funcionar la herramienta para tener en cuenta el sentido de rotación al accionar el estrangulador.
- Anticipe y esté atento a los cambios repentinos en el movimiento durante la puesta en marcha y utilización de toda herramienta motorizada.
- Mantenga una postura del cuerpo equilibrada y firme. No estire demasiado los brazos al manejar la herramienta. Pueden darse elevados pares de reacción a la presión de aire recomendada, e incluso a presiones inferiores.
- Los accesorios de la herramienta podrían seguir girando brevemente después de haberse soltado la palanca de mando.
- Las herramientas neumáticas pueden vibrar durante el uso. La vibración, los movimientos repetitivos o las posiciones incómodas pueden dañarle los brazos y manos. En caso de incomodidad, sensación de hormigueo o dolor, deje de usar la herramienta. Consulte con el médico antes de volver a utilizarla.
- Utilice únicamente los accesorios Ingersoll-Rand recomendados.
- Utilice únicamente bocas y accesorios para llaves de impacto. No utilice bocas o accesorios manuales (cromados).
- El muelle de la válvula reguladora ejerce presión contra la tapa de dicha válvula. Tenga cuidado al sacar la tapa. (Si procede, según la herramienta).
- Esta herramienta no ha sido diseñada para trabajar en ambientes explosivos.
- Esta herramienta no está aislada contra descargas eléctricas.

NOTA

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

Las reparaciones sólo se deben encomendar a personal debidamente cualificado y autorizado. Consulte con el centro de servicio autorizado Ingersoll-Rand más próximo.

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

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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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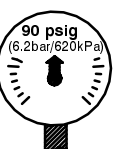
	<p>⚠ ADVERTENCIA</p> <p>Cortar siempre el suministro de aire y desconectar la manguera de suministro de aire antes de instalar, retirar o ajustar cualquier accesorio de esta herramienta, o antes de realizar cualquier operación de mantenimiento de la misma.</p>
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	<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 psig (6,2 bar/620 kPa).</p>
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PARA PONER LA HERRAMIENTA EN SERVICIO

LUBRICACIÓN



Ingersoll-Rand N^o. 10



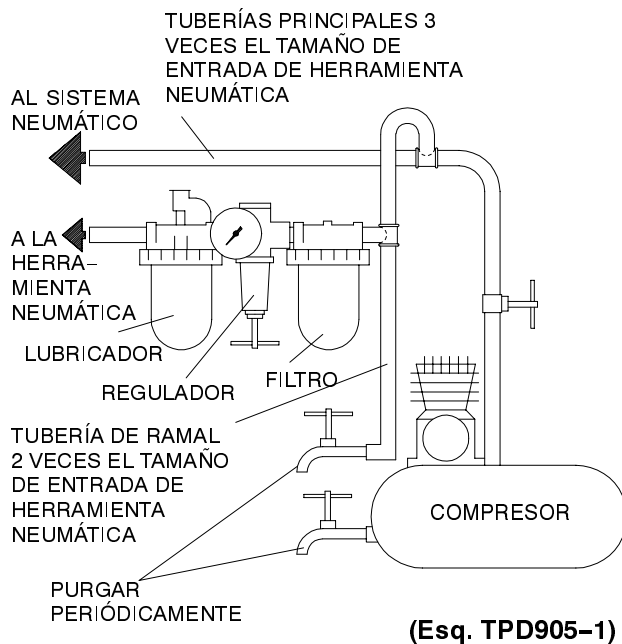
Ingersoll-Rand N^o. 105
Ingersoll-Rand N^o. 115

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 40000 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 del embrague con o grasa Ingersoll-Rand N^o 105 o Ingersoll-Rand N^o 115.



AJUSTES

AJUSTE DE EMBRAGUE

Exterior

1. Gire el manguito de ajuste exterior hasta que quede visible la abertura de la carcasa.
2. Gire el eje de accionamiento de la carcasa angular derecha hasta que sea visible la muesca situada en la arandela de ajuste.
3. Introduzca un destornillador Phillips en la muesca para girar el dentado del engranaje en la tuerca de ajuste.
4. Si se gira **hacia la derecha**, se disminuirá el par.
5. Si se gira hacia la izquierda, el par aumentará.

Interior

1. Saque la carcasa del embrague y el conjunto del hembrague de la herramienta.

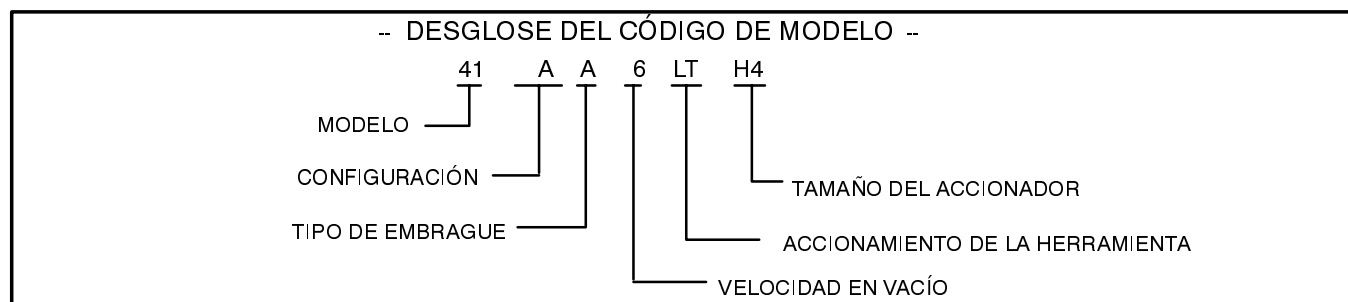
NOTA

La carcasa del embrague es de rosca hacia la izquierda.

2. Con la broca en el portapuntas, sujete dicha broca en el tornillo de banco.
3. Sujete el extremo de accionamiento de la mordaza accionada en un tornillo de banco con mordazas cubiertas de cobre o cuero, teniendo cuidado de no dañar la mordaza accionada.
4. Sujete el conjunto del embrague para que no gire. Gire la tuerca de ajuste con una llave de 7/8 pulg.

ESPECIFICACIONES

HERRAMIENTA



CONFIGURACIÓN	EMBRAGUE	VELOCIDAD EN VACÍO	ACCIONAMIENTO DE LA HERRAMIENTA	TAMAÑO DEL ACCIONADOR
A = ANGULAR	A = CORTE DE AIRE	6 = 600 rpm 9 = 900 rpm 16 = 1600 rpm 24 = 2400 rpm	LT = PALANCA DE MANDO	H4 = PORTAPUNTAS DE INSERCIÓN HEXAGONAL DE 1/4 PULG. S4 = 1/4 PULG. CUADRADILLO S6 = 3/8 PULG. CUADRADILLO

(Esq. TPD1525)

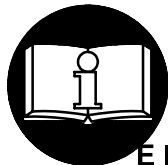
Angular, parada automática, mando por palanca, 1/4" hex	Angular, parada automática, mando por palanca, cuadradillo
41AA6LTH4	41AA6LTS6
41AA9LTH4	41AA9LTS6
41AA16LTH4	41AA16LTS4
41AA24LTH4	41AA24LTS4

INSTRUÇÕES PARA APARAFUSADORAS PNEUMÁTICAS SÉRIES 41

AVISO

As Aparafusadoras e Ferramentas Pneumáticas Angulares Séries 41 são concebidas para aplicações de aperto em linhas de montagem, indústrias 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.**

**E DA RESPONSABILIDADE DO EMPREGADOR COLOCAR A INFORMAÇÃO
DESTE MANUAL NAS MÃOS DO OPERADOR.**

**O NÃO CUMPRIMENTO DAS SEGUINTE 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.
- Use somente acessórios e soquetes de impacto. Não use acessórios ou soquetes manuais (de cromo).
- 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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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.




⚠ ADVERTÊNCIA
Use sempre protecção contra o ruído ao operar esta ferramenta.




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




⚠ ADVERTÊNCIA
Ferramentas accionadas pneumáticamente podem vibrar em uso. Vibração, movimentos repetitivos ou posições desconfortáveis podem ser prejudiciais às mãos e aos braços. Pare de usar a ferramenta caso ocorra algum desconforto, sensação de formiguesiro ou dor. Procure assistência médica antes de retornar ao trabalho.




⚠ ADVERTÊNCIA
Não carregue a ferramenta segurando na mangueira.



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



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



⚠ ADVERTÊNCIA
Opere com pressão do ar Máxima de 90-100 psig (6,2-6,9 bar).

COLOCANDO A FERRAMENTA EM FUNCIONAMENTO

LUBRIFICAÇÃO



Ingersoll-Rand No. 10

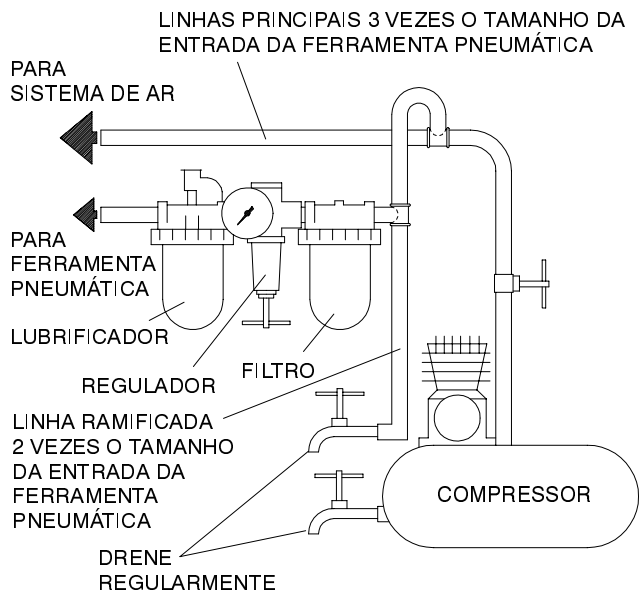
Ingersoll-Rand No. 105
Ingersoll-Rand No. 115

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

USA No. - 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)

AJUSTES

AJUSTE DA EMBRAIAGEM

Externa

1. Gire a Camisa até que a abertura no Corpo esteja Visível.
2. Gire o Veio do Corpo Angular Direito 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

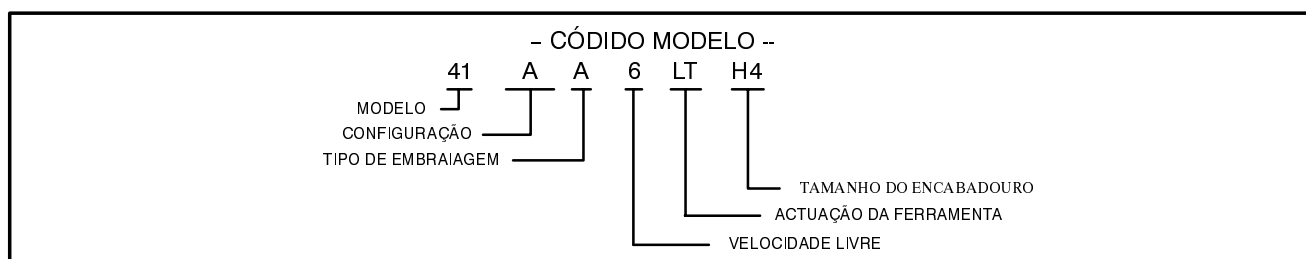
1. Remova o Corpo da Embraiagem, Suporte do Bite e Conjunto da Embraiagem da ferramenta.

AVISO

O corpo da embraiagem tem rosca à esquerda.

2. Com o Bite no Suporte, prenda-o num torno.
3. Prenda o Mordente do Encabadoiro num torno com os mordentes revestidos de cobre ou couro com cuidado.
4. Segure a Embraiagem para evitar que a mesma gire. Então gire a Porca de Ajuste com uma chave de boca de 7/8".

ESPECIFICAÇÕES

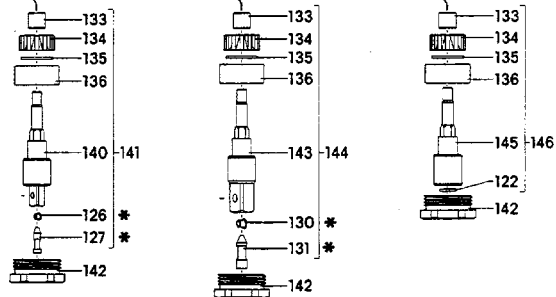
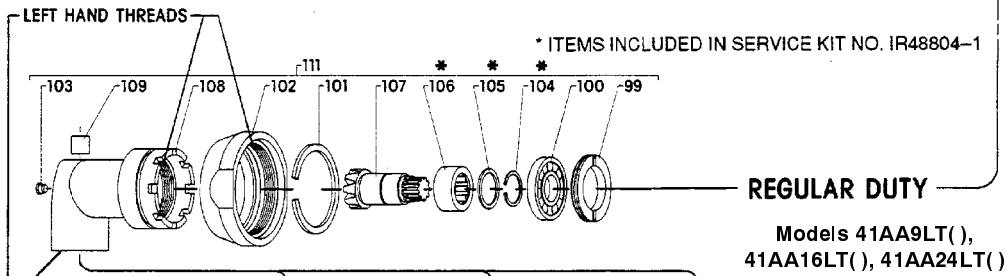
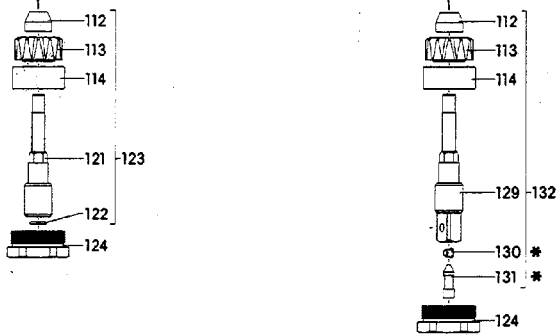
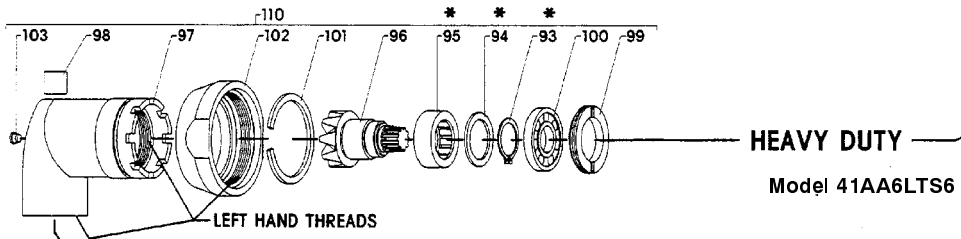
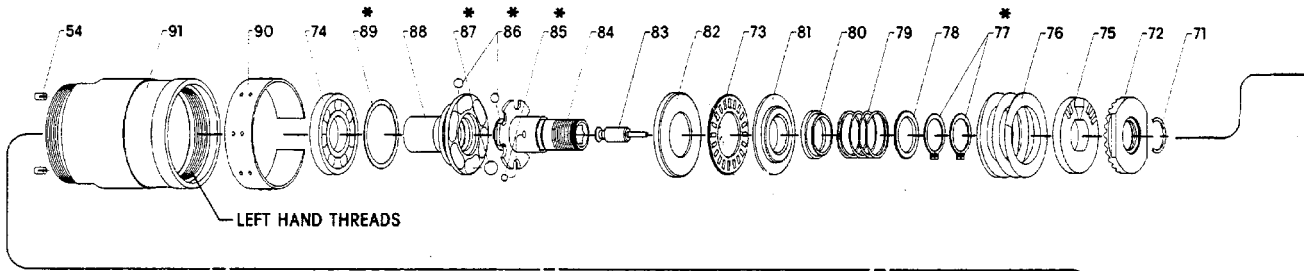


CONFIGURAÇÃO	EMBRAIAGEM	VELOCIDADE LIVRE	ATUAÇÃO DA FERRAMENTA	TAMANHO DO ENCABADOURO	MERCADO DE DESTINO
A = ANGULAR	A = CORTE AUTOMÁTICO	24 = 2 400 RPM	LT = ALAVANCA REGULADORA DE PRESSÃO	H4 = 1/4" HEXAGONAL COM PRENDEDOR DE BITE	EU = EUROPEU
		16 = 1 600 RPM		S4 = 1/4" ENCABADOURO QUADRADO	
		9 = 900 RPM		S6 = 3/8" ENCABADOURO QUADRADO	
		6 = 600 RPM			

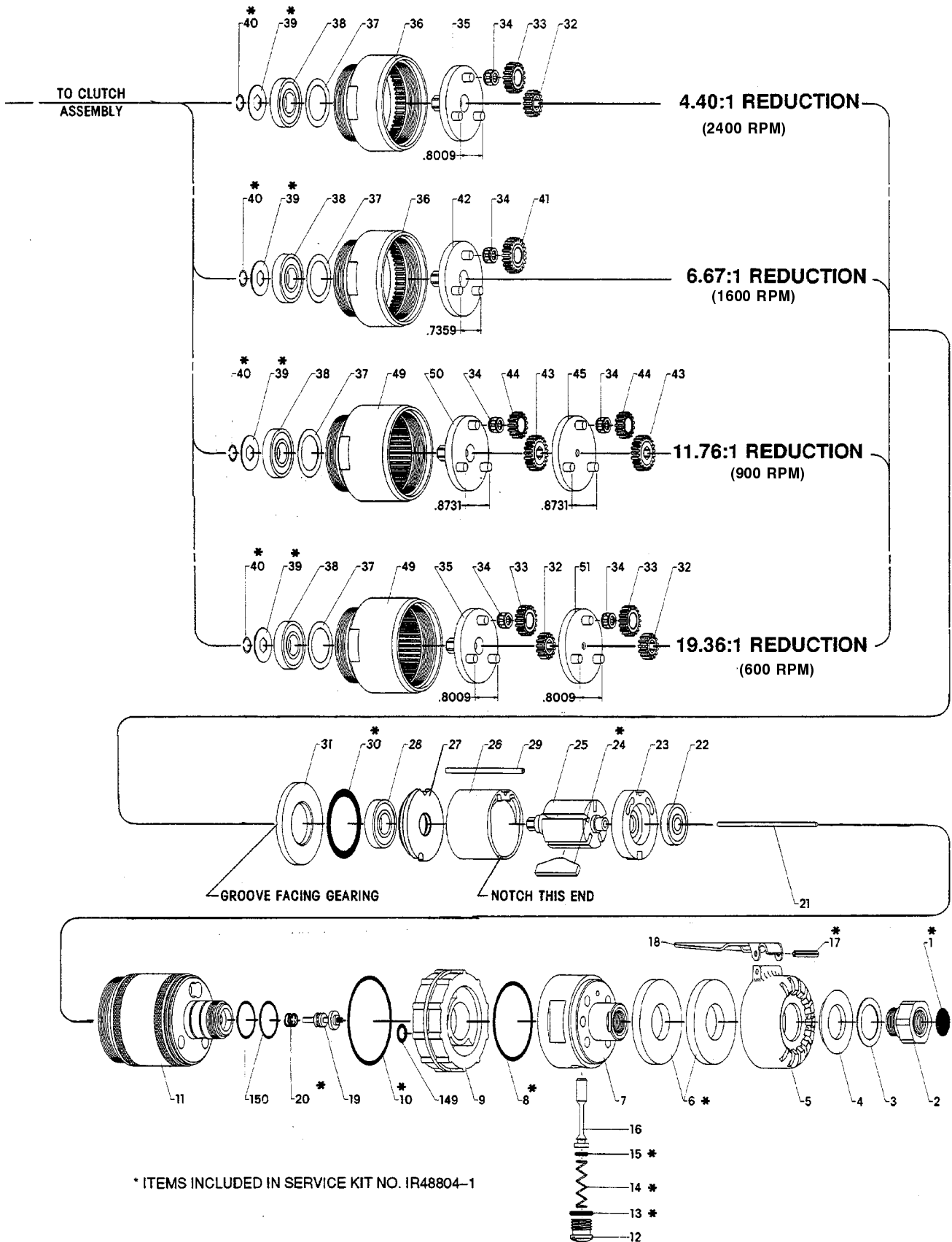
(Desenho TPD1525)

Ângulo, Corte Automático, Alavanca Reguladora, 1/4" Hexagonal	Ângulo, Corte Automático, Alavanca Reguladora, Encabadoiro Quadrado
41AA6LTH4	41AA6LTS6
41AA9LTH4	41AA9LTS6
41AA16LTH4	41AA6LTS6
41AA24LTH4	41AA9LTS6

MAINTENANCE SECTION



MAINTENANCE SECTION



PART NUMBER FOR ORDERING

PART NUMBER FOR ORDERING



1	Screen	33911		Motor Assembly	
2	Inlet Adapter	46377		for models 41AA6LT.	
3	Spacer	47139		41AA9LT and 41AA24LT	47726-1
4	Diffuser Washer	46449		for model 41AA16LT	47725-1
5	Exhaust Cap	46448	22	Ball Bearing	47724
6	Filler (2)	46452	23	Rear End Plate	46312-1
7	Head	48387-1	24	Vane (5)	46313-1
8	O-ring	Y325-27	25	Rotor	
9	Reverse Ring	48229-1		for models 41AA6LT, 41AA9LT	
10	O-ring	Y325-29		and 41AA24LT	46453
11	Motor Housing (includes Roll Pin Y178-19)	49722		for model 41AA16LT	46469
12	Screw	37776	26	Cylinder	46311
13	O-ring	Y325-13	27	Front End Plate	47722
14	Spring	47709	28	Ball Bearing	Y65-13
15	O-ring	Y325-7	29	Locating Pin	47723-1
16	Throttle Valve Stem	36602	30	O-ring	Y325-214
17	Roll Pin	Y178-28	31	Spacer	46412
18	Lever	48246-1	32	Sun Gear (1 of 2)(4.40:1 ratio)(15 teeth)	46466
19	Valve Assembly (includes O-ring Y325-6)	48411-1	33	Planet Gear (3 of 6)(4.40:1 ratio)(18 teeth)	46900
20	Spring	47587	34	Needle Bearing (3 or 6)	42315
21	Throttle Rod (lever throttle models)		35	Spindle Assembly (4.40:1 ratio)	47753
	for 600 and 900 rpm models		36	Ring Gear (single reduction)	48905
	(4.080" long)	46511-408	37	Spacer	46496
	for 1600 and 2400 rpm models		38	Ball Bearing	Y65-13
	(3.570" long)	46511-357	39	Washer	47694

PART NUMBER FOR ORDERING



PART NUMBER FOR ORDERING



40	Snap Ring	Y142-2	79	Spring	47064
41	Planet Gear (3) (6.67:1 ratio) (21 teeth)	46901	80	Ball Sleeve	48294-1
42	Spindle Assembly (6.67:1 ratio)	47750	81	Thrust Race	48094
43	Sun Gear (1 or 2) (3.43:1 ratio) (21 teeth)	46465	82	Thrust Race	48301-1
44	Planet Gear (3 or 6) (3.43:1 ratio) (15 teeth)	46899	83	Plunger	48293-2
45	Carrier Assembly (3.43:1 ratio)	46521	84	Spindle	48299-1
49	Ring Gear (double reduction)	48904	85	Ball (6)	Y16-203
50	Spindle Assembly (3.43:1 ratio)	47752	86	Ball (23)	Y16-204
51	Carrier Assembly (4.40:1 ratio)	46522	87	Ball (6)	Y16-206
54	Pin (2)	Y124-61	88	Driven Jaw	48386-1
	Auto Shut-Off Clutch Assembly		89	Retaining Ring	48300-1
	for model 41AA6LT	48407-3	90	External Adjustment Sleeve	46534
	for model 41AA9LT	48407-2	91	Housing Assembly (includes items 54 and 90)	48396-1
	for models 41AA16LT and 41AA24LT	48407-1	93	Retaining Ring	Y145-18
71	Snap Ring	Y110-105	94	Spacer	46748
72	Adjustment Nut	46895	95	Needle Bearing	46747
73	Thrust Bearing	38995	96	Pinion	46738
74	Ball Bearing	Y65-2-12	97	Right Angle Housing	48230-1
75	Adjustment Washer	48903	98	Needle Bearing	37110
76	Clutch Spring		99	Bearing Lock Nut	37105
	for 600 rpm models		100	Ball Bearing	32850
	(yellow, 35-130 in lbs)	48047	101	Snap Ring	Y110-11
	for 900 rpm models		102	Lock Nut	46745
	(brown, 25-90 in lbs)	48095	103	Grease Fitting	35967
	for 1600 rpm models		104	Snap Ring	Y110-5
	(green, 25-58 in lbs)	48096	105	Spacer	46742
	for 2400 rpm models		106	Needle Bearing	48202-1
	(green, 20-40 in lbs)	48096	107	Pinion	46733
77	Retaining Ring (2)	Y145-18	108	Right Angle Housing	48205-1
78	Guide	48295-1	109	Needle Bearing	46750

PART NUMBER FOR ORDERING



PART NUMBER FOR ORDERING



110	Right Angle Assembly (for 3/8" drive) (1.33:1 ratio) (includes item 147)	48399-1	141	Spindle Assembly (1/4" square drive)	48235-1
111	Right Angle Assembly (for 1/4" drive) (1.44:1 ratio) (includes item 148)	48212-1	142	Lock Nut	48187-1
112	Sleeve	47601	143	Spindle (3/8" square drive)	48233-1
113	Bevel Gear	46736	144	Spindle Assembly (3/8" square drive)	48234-1
114	Ball Bearing	31824	145	Spindle (1/4" hex drive)	48231-1
121	Spindle (1/4" hex drive)	48375-1	146	Spindle Assembly (1/4" hex drive)	48232-1
122	Retaining Ring	38790	*	Sleeve (not shown) (included in item 110)	48193-1
123	Spindle Assembly (1/4" hex drive)	48403-1	*	Sleeve (not shown) (included in item 111)	48194-1
124	Lock Nut	48378-1	149	O-Ring	Y325-9
129	Spindle (3/8" square drive)	48377-1	150	O-Ring (2)	48882
130	Pin	30889		Service Kit (includes items 1, 6, 8, 10, 13, 14, 15, 17, 20, 24, 30, 39, 40, 77, 85, 86, 87, 89, 93, 94, 95, 104, 105, 106, 126, 127, 130 and 131)	48804-1
131	Insert	30890	*	Warning Label for all models ending in -EU	EU-99
132	Spindle Assembly (3/8" square drive)	48405-1		for all other models	WARNING-5-99
133	Sleeve	47600	*	CE Label	49882
134	Bevel Gear	46735	*	Rotation Label	49884
135	Washer	47694	*	Forward-Reverse Label	49931
136	Ball Bearing	Y65-13			
140	Spindle (1/4" square drive)	48237-1			

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

1. Lubricate the clutch with Ingersoll-Rand No. 105 Grease 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.
5. Do not press any needle bearing from a part unless you have a new needle bearing on hand for installation. Needle bearings are always damaged during the removal process.

Disassembly of the Right-Angle

NOTICE

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

1. Using wrenches on flats of Clutch Housing or Ring Gear (36) or (49) and Lock Nut (102), loosen Nut completely and pull the Right Angle from tool.
2. Remove Lock Nut (124) or (142), releasing drive assembly.

NOTICE

The Right Angle Housing (97) has left-hand threads.

3. Remove Lock Nut (99) from Housing.

NOTICE

Do not disassemble further unless damage is evident.

4. To disassemble, pull Pinion (96) or (107) from Housing.
5. Remove Retaining Ring (93) or (104) and Spacer (94) or (105) to allow removal of Needle Bearing (95) or (106).

Disassembly of the Clutch

1. Remove Right Angle from tool.
2. Clamp tool in leather-covered or copper-covered vise jaws, clamping on Inlet Adapter (2).

NOTICE

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

3. Remove Clutch Housing using a strap type wrench.
4. Remove clutch assembly from tool.
5. Clamp drive end of Driven Jaw (88) in leather-covered or copper-covered vise jaws, being careful not to damage Driven jaw.
6. Remove snap ring (71).
7. Using a 7/8" wrench, remove Adjustment Nut (72), Adjustment Washer (75) and Clutch Spring (76).

NOTICE

Removal of Ball Sleeve (80) releases six Balls (85) and Plunger (83).

8. Remove Retaining Rings (77) and slide off Guide (78), Spring (79), Ball Sleeve, six Balls, Plunger, Thrust Race (81) and Thrust Bearing (73).

NOTICE

Removal of Thrust Race (82) releases six Balls (87).

9. Remove Thrust Race, releasing Six Balls.
10. Remove Retaining Ring (89) and then rotate Driven Jaw to remove twelve Balls (86). Separate driven jaw and spindle (84), releasing eleven Balls (86).

Disassembly of the Gearing

1. Remove Angle Head Assembly and Clutch Assembly from tool.
2. Remove Ring Gear (36) or (49) using a wrench on flats.
3. Remove Snap Ring (40) and Washer (39) where applicable.
4. Remove Spindle(s) and Gears from Ring Gear.

MAINTENANCE SECTION

NOTICE

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

NOTICE

Do not remove Bearing (38) or Spacer (37) unless damage is evident.

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

NOTICE

Do not remove Gear (32) or (43) from Carrier Assembly (51) unless damage is evident. Gears are press fit onto Carrier Assemblies.

Disassembly of the Motor.

1. Remove Right-Angle, Clutch Assembly and gearing from tool.
2. Remove Spacer (31) and throttle Rod (21).
3. Tap front edge of Housing to remove motor assembly. Locating Pin (29) should also come out.
4. Tap splined end of Rotor (25) with a soft faced hammer; motor will come apart.

NOTICE

Bearing (28) is light press fit on Rotor.

5. Remove End Plate (23) and Bearing (22) from Rotor.

Disassembly of the Housing

1. Clamp Air Inlet Adapter (2) in leather-covered or copper-covered vise jaws.
2. Unthread Head (7) using a wrench on flats.
3. Remove Spacer (3), Diffuser Washer (4), Exhaust Cap (5) and Fillers (6).
4. Remove Screen (1) from Inlet Adapter.
5. Remove Screw (12) and O-ring (13), releasing Spring (14) and Valve Stem (16).
6. Clamp Head in leather-covered or copper-covered vise jaws.
7. Using a strap type wrench, unthread and remove Housing (11) from Head.
8. Remove Reverse Ring (9) and O-ring (149). This will permit removal of O-ring (10) and O-rings (150).
9. Remove Valve Assembly (19) and Spring (20), where applicable.

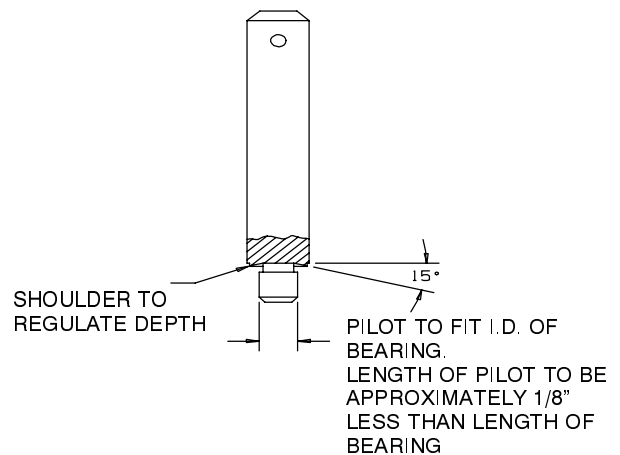
ASSEMBLY

General Instructions

1. Always press on the **inner** ring of a ball-type bearing when installing the bearing on a shaft.

2. Always press on the **outer** ring of a ball-type bearing when pressing the bearing into a bearing recess.
3. Whenever grasping a tool or part in a vise, always use leather-covered or copper-covered vise jaws. Take extra care with threaded parts and housings.
4. Always clean every part and wipe every part with a thin film of oil before installation.
5. Apply a film of O-ring lubricant to all O-rings before final assembly.
6. Check every bearing for roughness. If an open bearing must be cleaned, wash it thoroughly in a suitable cleaning solution and dry with a clean cloth. **Sealed or shielded bearings should never be cleaned.** Work grease thoroughly into every open bearing before installation.
7. Unless otherwise noted, always press on the stamped end of a needle bearing when installing a needle bearing into a recess. Use a bearing inserting tool similar to the one shown in Dwg. TPD786.

Needle Bearing Inserting Tool



(Dwg. TPD786)

Assembly of the Housing

1. Lubricate O-ring of Valve Assembly (19) and install Spring (20) and Valve Assembly to Housing (11), where applicable.
2. Lubricate and install O-rings (10) and (150) on Housing.
3. Lubricate and install O-ring (149) on Reverse Ring (9) and install Reverse Ring on Housing.
4. Lubricate and install O-ring (8) on Head.
5. Install Housing (11) on Head (7), tightening with a wrench on flats of Head and a strap wrench on Housing.
6. Lubricate and install O-ring (15) on Valve Stem (16).

MAINTENANCE SECTION

- Lubricate Valve Stem with Ingersoll–Rand No. 10 Oil and install in Head.
- Install Spring (14) in Head, securing with O–ring (13) and Screw (12).
- Install two Fillers (6) in Exhaust Cap (5).
- Install Exhaust Cap (5) in Head, aligning Lever with Valve Stem.
- Install Diffuser Washer (4) and Spacer (3) in Head, securing with Inlet Adapter (2).
- Using a suitable cleaning solution in a well–ventilated area, clean and install Screen (1) in Inlet Adapter.

Assembly of the Motor

- Lubricate Bearing (22) with the recommended lubricant.
- Assemble Bearing to End Plate (23), pressing on outer race of Bearing.
- Install End Plate (23) on Rotor, pressing on inner race of Bearing.
- Coat Vanes (24) with Ingersoll–Rand No. 10 Oil and install in rotor slots, straight side out.
- Coat inside of Cylinder (26) with Ingersoll–Rand No. 10 Oil and install over Rotor.

NOTICE

Air inlet slots in end of Cylinder must be aligned with two air inlet holes in End Plate (23).

- Assemble Bearing (28) on End Plate (27), pressing on outer race of Bearing.
- Assemble End Plate (27) on Rotor, pressing on inner race of Bearing.

NOTICE

Be sure Rotor turns without binding.

- Insert Pin (29) into .096” diameter blind hole at bottom of motor cavity in Housing.
- Align notches of End Plates and Cylinder and install motor into Housing, aligning notches with Pin.
- Lubricate O–ring (30) and install on End Plate.
- Install Spacer (31) on motor.

NOTICE

Assemble Spacer with groove facing gearing.

- Coat Throttle Rod (21) with Ingersoll–Rand No. 10 Oil and insert into Rotor.
- Assemble gearing, Clutch Assembly and Right–Angle Assembly on tool.

Assembly of the Gearing

- Assemble Spacer (37) and Bearing (38) into Ring Gear (36) or (49), pressing on **outer race** of Bearing.
- Coat shafts of Spindle with Ingersoll–Rand No. 105 Grease.

- Assemble Gears and Bearings (34) on shafts of mating Spindle.
- For Models 41AA6 and 41AA9**, install Carrier Assembly (51) on Spindle Assembly (35) or (50).
- Lubricate sets of Gears with Ingersoll–Rand No. 105 Grease.
- Assemble Spindle and Gearing into Ring Gear. Rotate Spindle and Gears to align gear teeth with splines of Ring Gear.
- Assemble Washer (39) and Snap Ring (40) on Spindle, where applicable.
- Thread Ring Gear on tool and tighten by using wrench on flats.
- Install Clutch Assembly and Right–Angle Assembly on tool.

Assembly of the Clutch

- Lubricate ball grooves of Spindle with the recommended lubricant (84) and install eleven Balls (86) into groove.
- Assemble Spindle into Driven Jaw (88), securing Balls.
- Assemble twelve Balls (86) into Driven Jaw and secure with Retaining Ring (89).
- Lubricate ball pockets of Driven Jaw with the recommended lubricant and install six Balls (87) into pockets, securing with Thrust Race (82).
- Lubricate Thrust Bearing (73) and Thrust Race (81) with the recommended lubricant and install on Spindle.
- Coat Plunger (83) with the recommended lubricant and install on Spindle, securing with Balls (85).

NOTICE

Assemble two Balls per hole.

- Secure Balls with Ball Sleeve (80).
- Assemble Spring (79) and Guide (78) on Spindle, securing with Retaining Rings (77).
- Install Clutch Spring (76).
- Lubricate face of Adjustment Washer (75) with Ingersoll–Rand No. 67 Grease and install on Spindle.
- Thread Adjustment Nut onto Spindle, securing with Snap Ring (71).
- Lubricate Bearing (74) with the recommended lubricant and install on Driven Jaw, pressing on **inner race** of bearing.
- Install clutch assembly in tool.

NOTICE

Clutch Housing (91) has left-hand threads.

- Assemble Clutch Housing on tool.

NOTICE

Right Angle Assembly has left–hand threads.

MAINTENANCE SECTION

15. Install Right-Angle Assembly on tool.
16. Adjust clutch. See Clutch Adjustment on page 3.

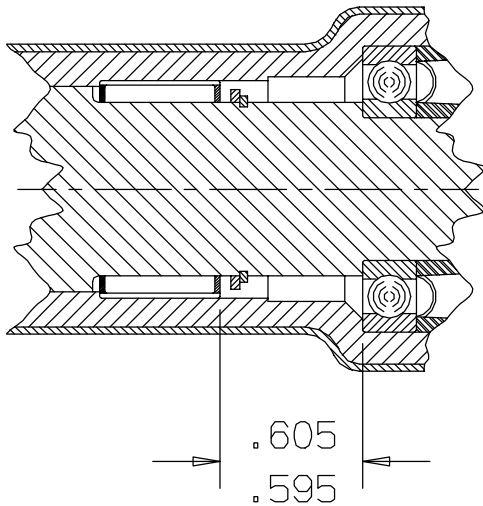
Assembly of the Right Angle

1. Lubricate Bearings with the recommended lubricant before assembly.
2. Install Needle Bearing (95) or (106) and Spacer (94) or (105) on Pinion, securing with Retaining Ring (93) or (104).

NOTICE

Bearing (106) is to be located .600" from shoulder on pinion. See Dwg. TPD1528.

Bearing Installation



(Dwg. TPD1528)

3. Install Bearing (100) on Pinion, pressing on inner race of Bearing.
4. Assemble Pinion and Components in Housing, pressing on outer race of Bearing.

NOTICE

Lock Nut (99) has left-hand threads.

5. Install Lock Nut on Housing, securing Pinion.
6. Apply approximately 3/32 oz. of the recommended lubricant to Right Angle gearing upon assembly.

NOTICE

The Right Angle Housing (97) has left-hand threads.

7. Assemble Drive assembly to Lock Nut (124) or (142) or Finder Housing (118) or (138) and assemble to Right-Angle Housing.
8. Assemble Lock Nut (102) to Housing, securing with Snap Ring (101).

NOTICE

The Right Angle Housing has left-hand threads.

9. Install Right-Angle Housing and components on tool, securing with Lock Nut (102).

NOTICE

SAVE THESE INSTRUCTIONS. DO NOT DESTROY.

NOTES

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