

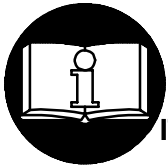
OPERATION AND MAINTENANCE MANUAL FOR MODELS 500PS3, 700PS3 AND 900PS4 TWIN BLADE SHUTOFF IMPULSE WRENCHES

NOTICE

Models 500PS3, 700PS3 and 900PS4 Impulse Wrenches are designed for assembly operations which require high speed rundown of fasteners with consistent torque delivery and reduced torque reaction.

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 3/8" (10 mm) inside diameter air supply hose.
- Always turn off the air supply and disconnect the air supply hose before installing, removing or adjusting any accessory on this tool, or before performing any maintenance on this tool.
- Do not use damaged, frayed or deteriorated air hoses and fittings.
- Be sure all hoses and fittings are the correct size and are tightly secured. See Dwg. TPD905–1 for a typical piping arrangement.
- Always use clean, dry air at 90 psig (6.2 bar/620 kPa) maximum air pressure. Dust, corrosive fumes and/or excessive moisture can ruin the motor of an air tool.
- Do not lubricate tools with flammable or volatile liquids such as kerosene, diesel or jet fuel.
- Do not remove any labels. Replace any damaged label.

USING THE TOOL

- Always wear eye protection when operating or performing maintenance on this tool.
- Always wear hearing protection when operating this tool.
- Keep hands, loose clothing and long hair away from rotating end of tool.
- Anticipate and be alert for sudden changes in motion during start up and operation of any power tool.
- Keep body stance balanced and firm. Do not overreach when operating this tool. High reaction torques can occur at or below the recommended air pressure.
- Tool shaft may continue to rotate briefly after throttle is released.
- Air powered tools can vibrate in use. Vibration, repetitive motions or uncomfortable positions may be harmful to your hands and arms. Stop using any tool if discomfort, tingling feeling or pain occurs. Seek medical advice before resuming use.
- Use accessories recommended by Ingersoll–Rand.
- Use only impact sockets and accessories. Do not use hand (chrome) sockets or accessories.
- 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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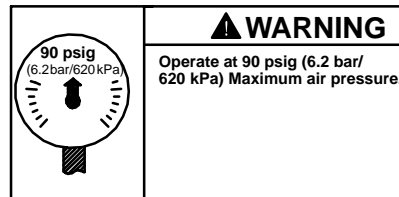
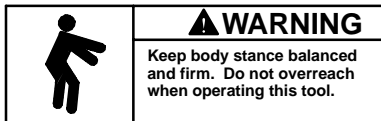
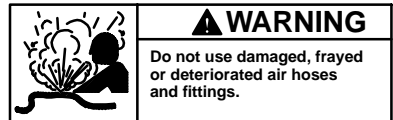
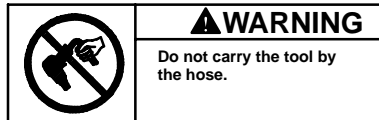
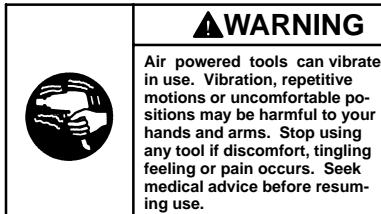
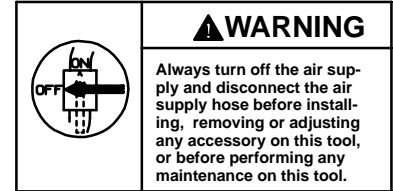
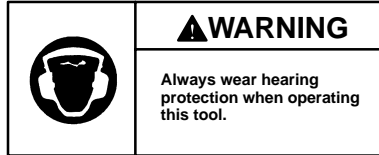
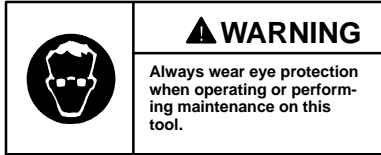
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INGERSOLL-RAND®
PROFESSIONAL TOOLS

WARNING LABEL IDENTIFICATION

⚠ WARNING

FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.



ADJUSTMENTS

TORQUE ADJUSTMENT

To adjust the torque on these Twin Blade Impulse Wrenches, proceed as follows:

1. Remove the Adjustment Hole Plug.
2. Rotate the Drive Shaft until the Torque Adjustment Screw is visible in the opening. There is no colored paint in the head of the Torque Adjustment Screw.
3. Using either a 2 mm or a 1.5 mm hex wrench, rotate the Adjustment Screw clockwise to increase the torque output and counterclockwise to decrease the torque output. Do not rotate the Oil Plug.

NOTICE

Make all final adjustments at the job.

4. Replace the Adjustment Hole Plug.

CHANGING THE MECHANISM FLUID

To change the Mechanism Fluid in the Impulse Mechanism, proceed as follows:

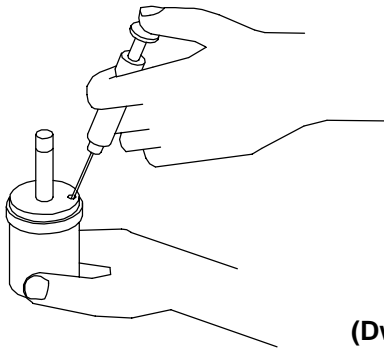
1. Using a hex wrench, remove the three Hammer Case Cap Screws and Lock Washers. Lift the Hammer Case off the Motor Housing over the Drive Shaft. Remove the Hammer Case Gasket.

2. Lift the assembled mechanism off the Rotor.
3. Using a 2.5 mm hex wrench, unscrew and remove the Oil Plug. Remove the Oil Plug Seal and Oil Plug Seal Support.
4. Using either the 1.5 mm or the 2 mm hex wrench furnished with the tool, rotate the Adjustment Screw without paint in the wrench hole, counterclockwise until it stops.
5. With the oil plug opening downward over a container, rotate the Drive Shaft to purge the fluid from the mechanism.
6. Using the syringe and fluid from the Fluid Replacement Kit (Part No. EQ106S-K400), fill the mechanism with the fluid furnished in the Kit until the fluid overflows the fill hole. Model 500PS3 will require 9 cc of fluid; Model 700PS3, 12 cc and Model 900PS4, 17 cc.
(Refer to Dwg. TPD1265.)

NOTICE

DO NOT SUBSTITUTE ANY OTHER FLUID. Failure to use the impulse mechanism fluid provided could damage the tool, increase maintenance and decrease performance. Use only clean fluid in these tools.

ADJUSTMENTS



(Dwg. TPD1265)

7. Submerge the mechanism in a reservoir containing mechanism fluid, and using a wrench, rotate the Drive Shaft clockwise and counterclockwise to purge any remaining air from the system.
8. Remove the mechanism from the fluid and rotate the Adjustment Screw clockwise until it stops.
9. Thread the Oil Plug with the Oil Plug Seal and Seal Support into the mechanism until it is snug.
10. Wipe the outside of the mechanism dry and clean and remove the Oil Chamber Plug. Using the syringe, withdraw 0.55 cc of fluid from 500PS3 models, 0.65 cc of fluid from 700PS3 models and 0.90 cc from 900PS4 models.
11. Install the Oil Chamber Plug and tighten it between 20 and 25 in-lb (2.3 and 2.8 Nm) torque.
12. Position a new Hammer Case Gasket on the Motor Housing and install the assembled mechanism on the rotor shaft.
13. Place the Hammer Case Cover over the Drive Shaft against the Housing and Gasket. Install the three

Hammer Case Cap Screws and Lock Washers. Tighten each Screw between 45 and 50 in-lb (5.1 and 5.6 Nm) torque.

14. Test the tool for torque at maximum, minimum and mid-range torque settings. If the tool does not perform satisfactorily, repeat the refill procedure and pay particular attention to removing unwanted air from the fluid system. Refer to the section **TORQUE ADJUSTMENT** for specific adjustment procedures.
15. If the torque is satisfactory but the tool fails to shut-off, only then, is it necessary to adjust the shut-off mechanism. If it should become necessary, proceed as follows:
 - a. Remove the Adjusting Hole Plug from the Hammer Case.
 - b. Using a pointed probe, pick the paint out of the wrench opening in the Adjustment Screw that is 180 degrees away from the Torque Adjustment Screw.
 - c. Rotate the Screw counterclockwise not more than ten degrees.

NOTICE

Before operating the tool, mark the shut-off Adjustment Screw with a permanent marker or paint so that it can be distinguished for future adjustments.

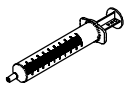
- d. Permanently mark the Screw for future identification and the retest the tool. Adjustments to the shut-off mechanism should only be made in five to ten degree increments.

PLACING TOOL IN SERVICE

LUBRICATION



Ingersoll-Rand No. 50



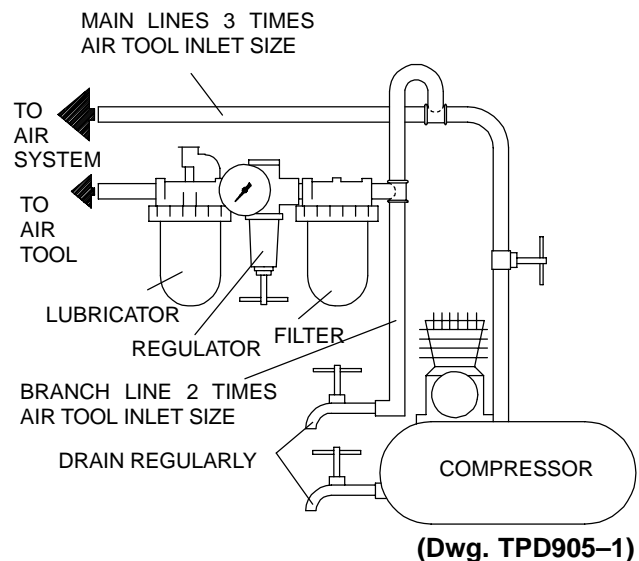
Ingersoll-Rand No. 67

Ingersoll-Rand Fluid Part No. EQ106S-400-1

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

For USA – No. C28-04-FKG0-28

After each 20 000 cycles, or as experience indicates, drain and refill the Impulse Unit Drive Assembly as instructed in this manual using the Fluid Replacement Kit (Part No. EQ106S-K400). Lubricate the hex drive and the output shaft before assembly.



————— **HOW TO ORDER AN IMPULSE WRENCH** —————

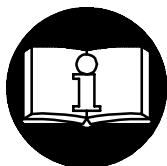
| Model | Type of Handle | Chuck/Drive | Free Speed | Recommended Torque Range | |
|--------------|-----------------------|--------------------|-------------------|---------------------------------|---------------------------------|
| | | | | in. | Soft Draw ft-lb (Nm) |
| 500PS3 | pistol | 3/8 sq. | 10,500 | 10-20 (14-27) | 20-40 (28-54) |
| 700PS3 | pistol | 3/8 sq. | 9,250 | 20-30 (27-41) | 35-60 (47-81) |
| 900PS4 | pistol | 1/2 sq. | 8,000 | 30-40 (41-54) | 55-70 (75-95) |

MANUEL D'EXPLOITATION ET D'ENTRETIEN DES CLÉS À IMPULSIONS ET COUPURE D'AIR À DOUBLE LAME MODÈLES 500PS3, 700PS3 ET 900PS4

NOTE

Les clés hydro-pneumatiques à double palette Modèles 500PS3, 700PS3 et 900PS4 sont destinées aux opérations d'assemblage nécessitant une grande vitesse de serrage avec une régularité du couple et un serrage virtuellement sans réaction.

Ingersoll-Rand ne peut être tenu responsable de la modification des outils par le client pour les adapter à des applications qui n'ont pas été approuvées par Ingersoll-Rand.



⚠ ATTENTION

**D'IMPORTANTES INFORMATIONS DE SECURITÉ SONT JOINTES.
LIRE CE MANUEL AVANT D'UTILISER L'OUTIL.
L'EMPLOYEUR EST TENU 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 10 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 gasol ou le carburant d'aviation.
- Ne retirer aucune étiquette. Remplacer toute étiquette endommagée.

UTILISATION DE L'OUTIL

- Porter toujours des lunettes de protection pendant l'utilisation et l'entretien de cet outil.
- Porter toujours une protection acoustique pendant l'utilisation de cet outil.
- Tenir les mains, les vêtements flous et les cheveux longs, éloignés de l'extrémité rotative de l'outil.
- 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.
- 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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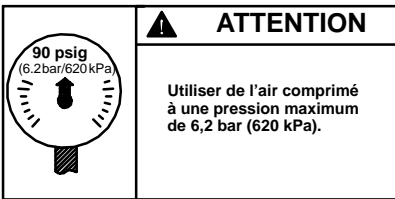
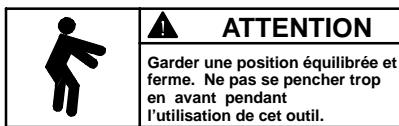
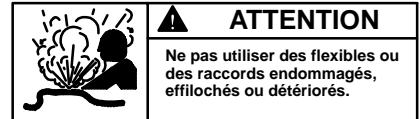
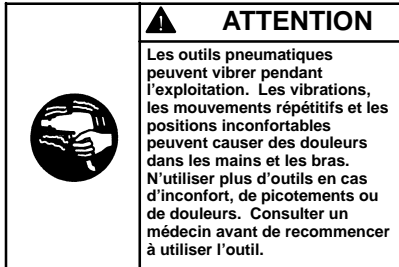
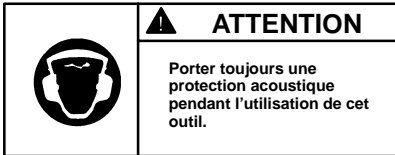
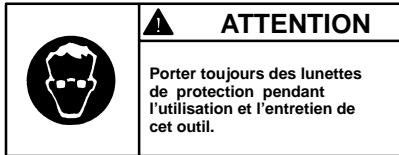
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INGERSOLL-RAND®
PROFESSIONAL TOOLS

SIGNIFICATION DES ETIQUETTES D'AVERTISSEMENT

ATTENTION

LE NON RESPECT DES AVERTISSEMENTS SUIVANTS PEUT CAUSER DES BLESSURES



RÉGLAGES

RÉGLAGE DU COUPLE

Pour ajuster le couple sur ces clés à impulsion bi-lame, procéder comme suit:

1. Retirer le bouchon du trou de réglage.
2. Tourner l'arbre d'entraînement jusqu'à ce que la vis de réglage de couple soit visible dans l'ouverture. Il n'y a pas de peinture couleur dans la tête de la vis de réglage de couple.
3. À l'aide d'une clé pour six pans creux de 2 mm ou de 1,5 mm, tourner la vis de réglage dans le sens des aiguilles d'une montre pour augmenter le couple, et dans le sens inverse des aiguilles d'une montre pour réduire le couple fourni. Ne pas tourner le bouchon d'huile.

NOTE

Effectuer tous les réglages finaux sur l'écrou à serrer.

4. Remonter le bouchon dans le trou de réglage.

CHANGEMENT DU FLUIDE DU MECANISME

Le fluide du mécanisme d'impulsion est changé de la façon suivante :

1. A l'aide d'une clé pour six pans creux, déposer les trois vis du carter de marteau et les rondelles frein. Soulever le carter de marteau du corps de moteur et de l'arbre d'entraînement. Déposer le joint du carter de marteau.
2. Retirer le mécanisme assemblé du rotor.
3. A l'aide d'une clé pour six pans creux de 2.5 mm, dévisser et déposer le bouchon d'huile. Déposer le joint du bouchon d'huile et le support de joint du bouchon d'huile.
4. A l'aide de la clé pour six pans creux de 2 mm ou de 1,5 mm, fournie avec l'outil, tourner la vis de réglage sans peinture dans le trou de la clé, dans le sens inverse des aiguilles d'une montre jusqu'à ce qu'elle vienne en butée.
5. Tout en tenant le trou du bouchon d'huile vers le bas au-dessus d'un récipient, tourner l'arbre d'entraînement pour purger le fluide contenu dans le mécanisme.

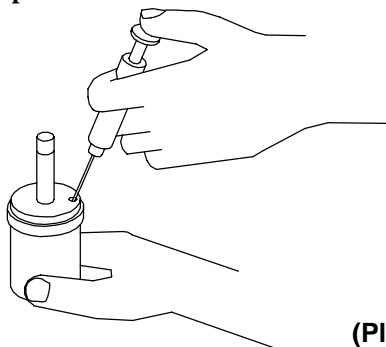
RÉGLAGES

6. A l'aide de la seringue et du fluide fourni dans le nécessaire de fluide de remplacement (Réf. No. EQ106S-K400), remplir le mécanisme avec le fluide fourni jusqu'à ce qu'il déborde du trou de remplissage. Le Modèle 500PS3 nécessite 9 cm^3 de fluide, Modèle 700PS3 nécessite 12 cm^3 et Modèle 900PS4 nécessite 17 cm^3 . (Voir TPD1265).

NOTE

NE PAS UTILISER D'AUTRE FLUIDE.

La non utilisation du fluide de mécanisme hydro-pneumatique fourni pourrait causer l'endommagement de l'outil, augmenter l'entretien et réduire les performances. N'utiliser que du fluide propre dans ces outils.



(Plan TPD1265)

7. Submerger le mécanisme dans un récipient contenant du fluide de mécanisme et, à l'aide d'une clé, tourner l'arbre d'entraînement dans le sens des aiguilles d'une montre et dans le sens inverse de manière à purger tout l'air qui pourrait être emprisonné dans le système.
8. Retirer le mécanisme du fluide et tourner la vis de réglage dans le sens des aiguilles d'une montre jusqu'à ce qu'elle vienne en butée.
9. Visser le bouchon, équipé du joint et de son support, dans le mécanisme et le serrer fermement.
10. Essuyer l'extérieur du mécanisme pour le sécher et déposer le bouchon de la chambre d'huile. A l'aide de la seringue, retirer $0,55 \text{ cm}^3$ de fluide sur le modèle 500PS3, $0,65 \text{ cm}^3$ sur le modèle 700PS3 et $0,9 \text{ cm}^3$ sur le modèle 900PS4.
11. Remonter le bouchon de la chambre d'huile et le serrer à un couple de 2,3 à 2,8 Nm.
12. Placer une nouvelle garniture de carter de marteau sur le corps de moteur et installer le mécanisme assemblé sur l'arbre du rotor.
13. Placer le couvercle de carter de marteau sur l'arbre d'entraînement et contre le corps et son joint. Monter les trois vis à six pans creux du carter de marteau et les rondelles frein. Serrer chaque vis à un couple de 5,1 à 5,6 Nm.
14. Tester le couple de l'outil aux positions de réglage de couple maximum, minimum et milieu de gamme. Si l'outil ne donne pas satisfaction, répéter la procédure de remplissage en vérifiant soigneusement que tout l'air est purgé du circuit. Voir section **RÉGLAGE DU COUPLE** pour la méthode précise de réglage.
15. Si le couple est satisfaisant, mais si l'outil ne s'arrête pas, et seulement dans ce cas, il sera nécessaire de régler le mécanisme d'arrêt. Si ce réglage est nécessaire, procéder comme suit :
 - a. Déposer le bouchon du trou de réglage du carter de marteau.
 - b. A l'aide d'une pointe à tracer, enlever la peinture de l'ouverture de la vis de réglage de la clé qui se trouve à 180° de la vis de réglage de couple.
 - c. Tourner la vis dans le sens inverse des aiguilles d'une montre d'une quantité ne dépassant pas dix degrés.

NOTE

Avant de mettre l'outil en marche, marquer la vis de réglage d'arrêt avec un marqueur permanent ou de la peinture de manière à ce qu'elle puisse facilement être identifiée pour les réglages futurs.

- d. Marquer la vis de façon permanente pour toute identification future et tester de nouveau l'outil. Les réglages du mécanisme d'arrêt ne doivent être effectués qu'en étapes de cinq à dix degrés.

MISE EN SERVICE DE L'OUTIL

LUBRIFICATION



Ingersoll-Rand No. 50



Ingersoll-Rand No. 67

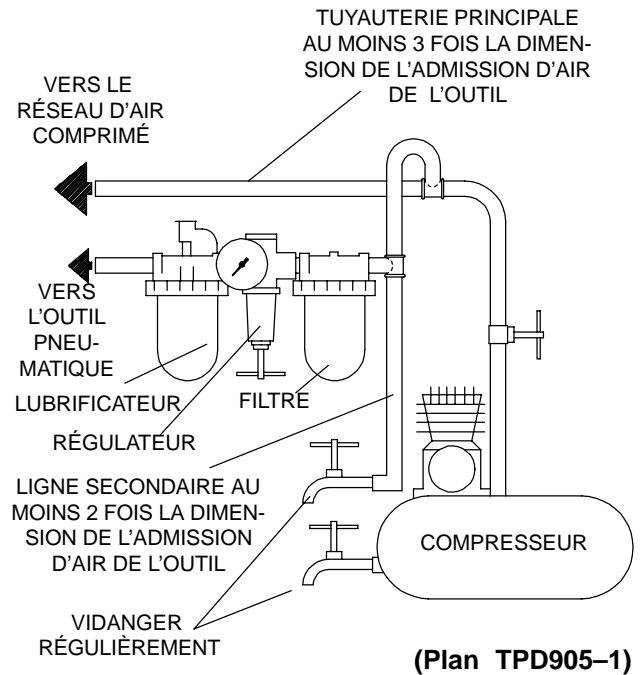


Fluide Ingersoll-Rand
Référence EQ106S-400-1

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

É.U. - N°. C28-04-FKG0-28

Tous les 20 000 cycles, ou en fonction de l'expérience, vider et remplir l'ensemble de mécanisme d'impulsion conformément aux instructions du manuel en utilisant le nécessaire de fluide de remplacement (Réf. No. EQ106S-K400). Lubrifier l'entraîneur hexagonal et l'arbre de sortie avant l'assemblage.



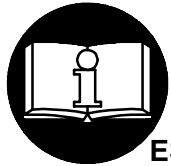
MANUAL DE INSTRUCCIONES DE MANEJO Y MANTENIMIENTO PARA LLAVES DE IMPULSOS DE DOBLE PALETA DE PARADA AUTOMÁTICA MODELOS 500PS3, 700PS3 Y 900PS4

E

NOTA

Las Llaves de Impulso Modelos 500PS3, 700PS3 y 900PS4 están diseñadas para operaciones de ensamblaje que requieren alta velocidad de fijación con par consistente y reducida reacción de par.

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 10 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 máxima presión 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 utilice esta herramienta o realice operaciones de mantenimiento en la misma.
- Use siempre protección para los oídos cuando utilice esta herramienta.
- Mantenga las manos, la ropa suelta y el cabello largo alejados del extremo giratorio de la herramienta.
- Anticipe y esté alerta sobre los cambios repentinos en el movimiento durante la puesta en marcha y el manejo de toda herramienta motorizada.
- Mantenga una postura de cuerpo equilibrada y firme. No estire demasiado los brazos al manejar la herramienta. Pueden ocurrir reacciones de alto par a, o a menos de, la recomendada presión de aire.
- El eje de la herramienta podría seguir girando brevemente después de haber soltado la palanca de estrangulación.
- Las herramientas neumáticas pueden vibrar durante el uso. La vibración, repetición o posiciones incómodas pueden dañarle los brazos y manos. En caso de incomodidad, sensación de hormigueo o dolor, deje de usar la herramienta. Consulte a un médico antes de volver a usarla otra vez.
- Utilice únicamente los accesorios Ingersoll–Rand recomendados.
- Utilice únicamente bocas y accesorios para llaves de impacto. No utilice bocas o accesorios manuales (cromados).
- Esta herramienta no ha sido diseñada para trabajar en ambientes explosivos.
- Esta herramienta no está aislada contra descargas eléctricas.

NOTA

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

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

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

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ETIQUETAS DE AVISO


⚠ AVISO


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


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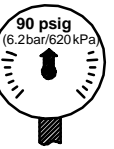
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|  | ⚠ ADVERTENCIA Cortar siempre el suministro de aire y desconectar la manguera de suministro de aire antes de instalar, retirar o ajustar cualquier accesorio de esta herramienta, o antes de realizar cualquier operación de mantenimiento de la misma.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

AJUSTES

AJUSTE DE PAR

Para ajustar el par de estas Llaves de Impulso de Doble Paleta, proceda como sigue:

1. Saque el Tapón de Orificio de Ajuste.
2. Gire el Eje de Accionamiento hasta que el Tornillo de Ajuste de Par sea visible a través de dicho orificio. El tornillo de ajuste de par no tiene pintura de color en el hueco de la cabeza.
3. Utilice una llave hexagonal de 2 mm o de 1,5 mm para girar el tornillo de ajuste hacia la derecha para aumentar la salida de par y hacia la izquierda para reducirlo. No gire el tapón del aceite.

NOTA

Haga todos los ajustes finales trabajando.

4. Vuelva a poner en su sitio el Tapón de Orificio de Ajuste.

CAMBIO DE FLUIDO DE MECANISMO

Para cambiar el líquido del mecanismo de impulso, proceda como sigue:

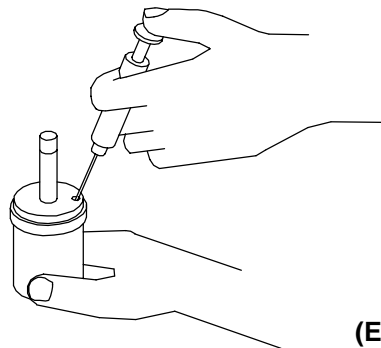
1. Utilice una llave hexagonal para quitar los tres tornillos y arandelas de la carcasa de la maza. Saque la carcasa de la maza de la carcasa del motor por encima del eje de accionamiento. Retire la junta de la carcasa de la maza.
2. Retire el mecanismo armado del rotor.
3. Utilice una llave hexagonal de 2,5 mm para desenroscar el tapón de aceite. Saque el retén del tapón y el soporte del retén.

4. Utilice una llave hexagonal de 2 mm o de 1,5 mm provista con la herramienta para girar en sentido antihorario hasta el tope el tornillo de ajuste que no tiene pintura en el hueco de la cabeza.
5. Con el orificio para el tapón de aceite hacia abajo sobre un recipiente, gire el eje de accionamiento para purgar el líquido del mecanismo.
6. Con la jeringuilla y el líquido del kit de cambio de líquido (pieza n° EQ106S-K400), llene de líquido el mecanismo hasta que rebose por el orificio de llenado. Para el modelo 500PS3 se necesitarán 9 cc de líquido, para el modelo 700PS3 se necesitarán 12 cc de líquido y para el modelo 900PS4, 17 cc. (véase el esquema TPD1265).

NOTA

NO SUSTITUYA NINGÚN OTRO LÍQUIDO.

Si no se usa el líquido suministrado, se podría dañar la herramienta, incrementar los cuidados de mantenimiento que requiere y reducir el rendimiento. Use solamente líquido limpio en estas herramientas.



(Esq. TPD1265)

AJUSTES

7. Sumerja el mecanismo en un recipiente que contenga líquido del mecanismo; utilice una llave para girar el eje de accionamiento hacia la derecha y la izquierda a fin de purgar del sistema todo el aire que pueda quedar.
8. Retire el mecanismo del líquido y gire el tornillo de ajuste hacia la derecha hasta el tope.
9. Enrosque el tapón de aceite, su retén y el soporte de éste en el mecanismo hasta que quede bien ajustado.
10. Seque la parte exterior del mecanismo; limpie el tapón de la cámara de aceite y retírelo. Utilizando la jeringuilla, saque 0,55 cc de fluido de los modelos 500PS3, 0,65 cc de fluido de los modelos 700PS3 y 0,90 cc de los modelos 900PS4.
11. Coloque el tapón de la cámara de aceite y apriételo a 2,3 – 2,8 Nm.
12. Coloque una nueva junta para la carcasa de la maza en la carcasa del motor e instale el mecanismo armado en el eje del rotor.
13. Ponga la carcasa de la maza encima del eje de accionamiento, contra la carcasa del motor y la junta. Coloque los tres tornillos y arandelas de la carcasa de la maza. Apriete cada tornillo a 5,1 – 5,6 Nm.
14. Pruebe el funcionamiento de la herramienta para verificar el par en los ajustes de par máximo, mínimo e intermedio. Si la herramienta no produce los resultados debidos, repita el procedimiento de llenado, prestando

especial atención a la purga de aire del circuito del líquido. Para los procedimientos de ajuste específicos, véase la sección **AJUSTE DEL PAR**.

15. Si el par es satisfactorio pero la herramienta no se detiene, habrá que ajustar el mecanismo de parada. En tal caso, proceda de la forma siguiente:
 - a. Quite el tapón del orificio de ajuste de la carcasa de la maza.
 - b. Saque (escarbando con un útil con punta) la pintura del hueco de la cabeza del tornillo de ajuste que queda a 180 grados del tornillo de ajuste del par.
 - c. Gire el tornillo hacia la izquierda no más de diez grados.

NOTA

Antes de accionar la herramienta, marque el tornillo de ajuste de detención con un marcador permanente o con pintura para poder distinguirlo para ajustes futuros.

- d. Marque de forma permanente el tornillo para fines de identificación y vuelva a probar la herramienta. Los ajustes del mecanismo de parada se deberán efectuar solamente en incrementos de cinco a diez grados a la vez.

PARA PONER LA HERRAMIENTA EN SERVICIO

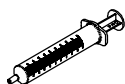
LUBRICACIÓN



Ingersoll-Rand N° 50



Ingersoll Rand No. 67

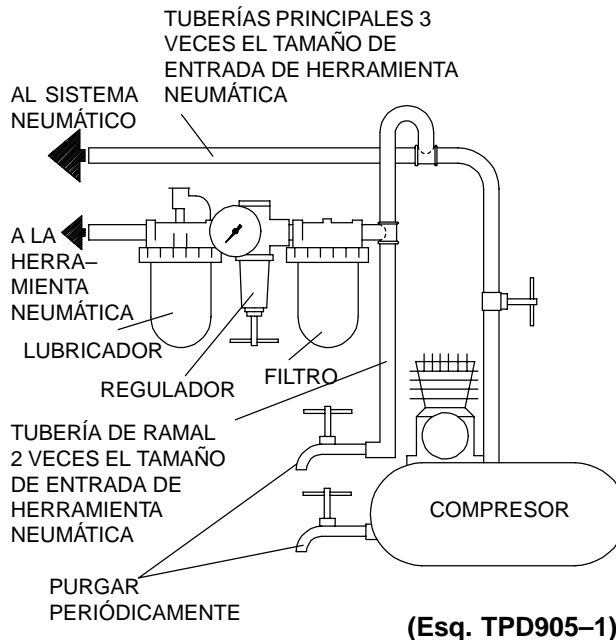


Fluido Ingersoll-Rand
Pieza N°. EQ106S-400-1

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

EE. UU. – N°. C28-04-FKG0-28

Después de cada 20 000 ciclos, o como indique la experiencia, drene y vuelva a llenar el Conjunto de Accionamiento de Unidad de Impulso tal y como se indica en este manual, usando el equipo de cambio de fluido (Pieza N°. EQ106S-K400). Lubrique el eje de salida y accionamiento hexagonal antes del montaje.

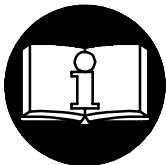


MANUAL DE FUNCIONAMENTO E MANUTENÇÃO PARA AS CHAVES DE IMPULSO DE DESLIGAMENTO AUTOMÁTICO COM DUAS PALHETAS MODELOS 500PS3, 700PS3 E 900PS4

AVISO

As Ferramentas Pneumáticas de Impulso Modelos 500PS3, 700PS3 e 900PS4 são concebidas para operações de montagem que exijam velocidade de aperto elevada com torque exercido consistente e reacção de torque reduzida.

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 SEGUINTE ADVERTÊNCIAS PODE RESULTAR EM FERIMENTOS.
COLOCANDO A FERRAMENTA
EM FUNCIONAMENTO**

- Sempre opere, inspecione e mantenha esta ferramenta de acordo com o Código de Segurança do Instituto Americano de Padrões Nacionais para Ferramentas Pneumáticas Portáteis (ANSI B186.1).
- Para segurança, máximo desempenho e máxima durabilidade das peças, opere esta ferramenta com uma pressão de ar máxima de 6,2 bar/620 kPa (90 psig) na entrada da mangueira de alimentação de ar com diâmetro interno de 10 mm (3/8”).
- Desligue sempre a alimentação de ar e desconecte a mangueira de alimentação de ar antes de instalar, remover ou ajustar qualquer acessório nesta ferramenta, ou antes de executar qualquer serviço de manutenção nesta ferramenta.
- Não use mangueiras de ar ou adaptadores danificados, gastos ou deteriorados.
- Certifique-se de que todas as mangueiras e adaptadores sejam do tamanho correcto e estejam apertados com firmeza. Veja o Desenho TPD905-1 para um arranjo típico de tubagem.
- Use sempre ar seco e limpo com pressão máxima de 90 psig. Pó, fumos corrosivos e/ou humidade excessiva podem arruinar o motor de uma ferramenta pneumática.
- Não lubrifique as ferramentas com líquidos inflamáveis ou voláteis tais como querosene, diesel ou combustível de jactos.
- Não remova nenhum rótulo. Reponha qualquer rótulo danificado.

USANDO A FERRAMENTA

- Use sempre óculos de protecção quando estiver operando ou executando serviço de manutenção nesta ferramenta.
- Use sempre protecção contra ruído ao operar esta ferramenta.
- Mantenha as mãos, partes do vestuário soltas e cabelos compridos afastados da extremidade em rotação.
- Antecipe e esteja alerta a mudanças repentinas no movimento quando ligar e operar qualquer ferramenta motorizada.
- Mantenha a posição do corpo equilibrada e firme. Não exagere quando operar esta ferramenta. Torques de reacção elevados podem ocorrer na ou abaixo da pressão de ar recomendada.
- O eixo da ferramenta pode continuar a girar brevemente após a pressão tenha sido aliviada.
- Ferramentas accionadas pneumáticamente podem vibrar em uso. Vibração, movimentos repetitivos ou posições desconfortáveis podem ser prejudiciais às mãos e aos braços. Pare de usar a ferramenta caso ocorra algum desconforto, sensação de formigueiro ou dor. Procure assistência médica antes de retornar ao trabalho.
- Use acessórios recomendados pela Ingersoll-Rand.
- Use somente soquetes e acessórios de impacto. Não use soquetes ou acessórios de mão (cromo).
- 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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IDENTIFICAÇÃO DO RÓTULO DE ADVERTÊNCIA

⚠ ADVERTÊNCIA


O NÃO CUMPRIMENTO DAS SEGUINTE ADVERTÊNCIAS
PODE RESULTAR EM FERIMENTOS.

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|  | ⚠ ADVERTÊNCIA Use sempre óculos de proteção quando estiver operando ou executando algum serviço de manutenção nesta ferramenta. |
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|  | ⚠ ADVERTÊNCIA Use sempre proteção contra o ruído ao operar esta ferramenta. |
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| | |
|---|---|
|  | ⚠ ADVERTÊNCIA Desligue sempre a alimentação de ar e desconecte a mangueira de alimentação de ar antes de instalar, remover ou ajustar qualquer acessório nesta ferramenta, ou antes de executar algum serviço de manutenção nesta ferramenta. |
|---|---|

| | |
|---|---|
|  | ⚠ ADVERTÊNCIA Ferramentas accionadas pneumáticamente podem vibrar em uso. Vibração, movimentos repetitivos ou posições desconfortáveis podem ser prejudiciais às mãos e aos braços. Pare de usar a ferramenta caso ocorra algum desconforto, sensação de formigamento ou dor. Procure assistência médica antes de retornar ao trabalho. |
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|  | ⚠ ADVERTÊNCIA Não carregue a ferramenta segurando na mangueira. |
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|  | ⚠ ADVERTÊNCIA Não use mangueiras de ar ou adaptadores danificados, gastos ou deteriorados. |
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|  | ⚠ 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. |
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|  | ⚠ ADVERTÊNCIA Opere com pressão do ar Máxima de 90 psig (6,2-6,9 bar). |
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AJUSTES

AJUSTE DE TORQUE

Para ajustar o torque nestas Chaves Dinamométricas de Impulsão de Lâminas Duplas, proceda da seguinte maneira:

1. Remova o Bujão do Furo de Ajuste.
2. Gire o Eixo de Comando até o Parafuso de Ajuste de Torque estar visível na abertura.
3. Com uma chave sextavada de 2 mm ou de 1,5 mm, rode o Parafuso de Ajuste para a direita para aumentar o valor de binário e para a esquerda para diminuir o valor de binário. Não gire o Bujão de Óleo.

AVISO

Faça todos os ajustes finais no serviço.

4. Reponha o Bujão do Furo de Ajuste.

COMO MUDAR O FLUIDO PARA MECANISMO

Para mudar o Fluido para Mecanismo do Mecanismo de Impulso, proceda como segue:

1. Com uma chave sextavada, retire os três Parafusos Allen da Caixa do Martelo e as Contraporcas. Retire a Caixa do Martelo da Carcaça do Motor sobre o Veio de Accionamento. Retire a Junta da Caixa do Martelo.

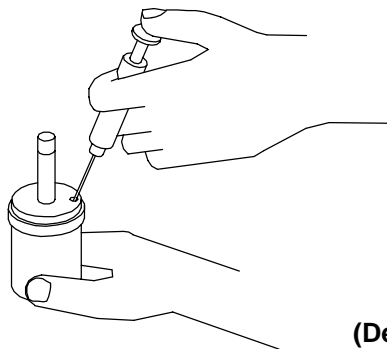
2. Retire do Rotor o mecanismo montado.
3. Com uma chave sextavada de 2,5 mm, desaparafuse e retire o Bujão do Óleo. Retire o Vedante do Bujão do Óleo e o Suporte do Vedante do Bujão do Óleo.
4. Com a chave sextavada de 2 mm fornecida com a ferramenta, rode o Parafuso de Ajuste sem pintura na abertura da chave para a esquerda até ele parar.
5. Com a abertura do bujão do óleo voltada para baixo sobre um recipiente, rode o Veio de Accionamento para remover o fluido do mecanismo.
6. Usando a seringa e o fluido do Kit de Substituição de Fluido (Peça N° EQ106S-K400), encha o mecanismo com o fluido fornecido no Kit até este transbordar o orifício de enchimento. O Modelo 500PS3 requererá 9 cc de fluido, o Modelo 700PS3 requererá 12 cc de fluido e o Modelo 900PS4, 17 cc. (Consulte o Des. TPD1265.)

AJUSTES

AVISO

NÃO SUBSTITUA POR NENHUM OUTRO FLUIDO.

Se o fluido para mecanismo de impulso fornecido não for usado, a ferramenta poderá ser danificada, poderá aumentar a necessidade de manutenção e diminuir o desempenho. Use apenas fluido limpo nestas ferramentas.



(Des. TPD1265)

7. Submerja o mecanismo num recipiente que contenha fluido para mecanismo e, com uma chave, rode o Eixo de Accionamento para a direita e para a esquerda para purgar qualquer ar restante no sistema.
8. Retire o mecanismo do fluido e rode o Parafuso de Ajuste para a direita até ele parar.
9. Aparafuse o Bujão do Óleo com o Vedante do Bujão do Óleo e o Suporte do Vedante no mecanismo até ficar seguro.
10. Seque o lado de fora do mecanismo, limpe e retire o Bujão da Câmara de Óleo. Com a seringa, retire 0,55 cc de fluido dos modelos 500PS3, 0,65 cc de fluido dos modelos 700PS3 e 0,90 cc dos modelos 900PS4.
11. Instale o Bujão da Câmara de Óleo e aperte-o com um valor de binário entre 2,3 e 2,8 Nm.
12. Posicione uma nova Junta da Caixa do Martelo sobre a Carcaça do Motor e instale o mecanismo montado sobre o veio do rotor.
13. Coloque a Tampa da Caixa do Martelo sobre o Veio de Accionamento contra a Carcaça e a Junta. Instale os três Parafusos Allen da Caixa do Martelo e as Contraporcas. Aperte cada parafuso com um valor de binário entre 5,1 e 5,6 Nm.
14. Teste a ferramenta quanto ao binário nos ajustes máximo, mínimo e médio de binário. Se a ferramenta não funcionar satisfatoriamente, repita o processo de enchimento e preste atenção especial à rehoção do ar indesejado do sistema de fluido. Consulte a secção **AJUSTE DE BINÁRIO** para o procedimento específico de ajuste.
15. Se o binário for satisfatório, mas a ferramenta não desligar, só então será necessário ajustar o mecanismo de desligamento. Se isto for necessário, proceda como segue:
 - a. Retire o Bujão do Orifício de Ajuste da Caixa do Martelo.
 - b. Com uma ferramenta pontiaguda, remova a tinta da abertura da chave no Parafuso de Ajuste que está a 180° do Parafuso de Ajuste de Binário.
 - c. Rode o Parafuso para a direita, no máximo 10 graus.

AVISO

Antes de operar a ferramenta, marque o Parafuso de Ajuste de desligamento com uma caneta de tinta permanente ou com tinta, de forma a poder ser distinguido para ajustes futuros.

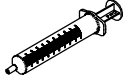
- d. Marque permanentemente o Parafuso para identificação futura e então volte a testar a ferramenta. Os ajustes ao mecanismo de desligamento só devem ser feitos em incrementos de cinco a dez graus.

COLOCANDO A FERRAMENTA EM FUNCIONAMENTO

LUBRIFICAÇÃO



Ingersoll-Rand No. 50



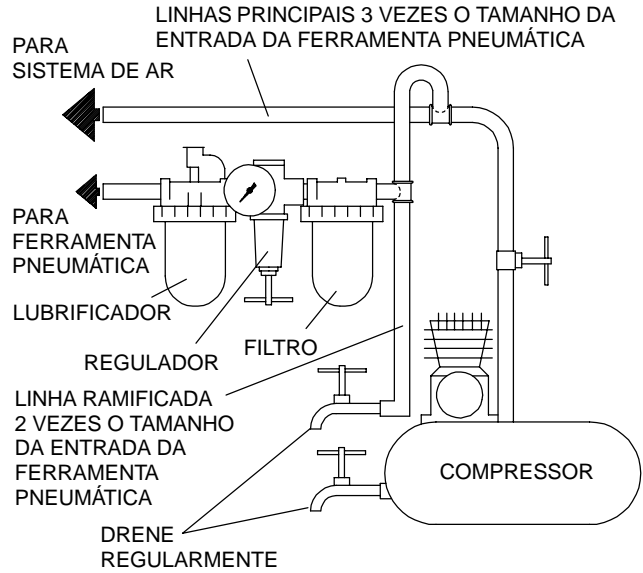
Ingersoll-Rand No. 67

Fluído Ingersoll-Rand
Número de Pedido
EQ106S-400-1

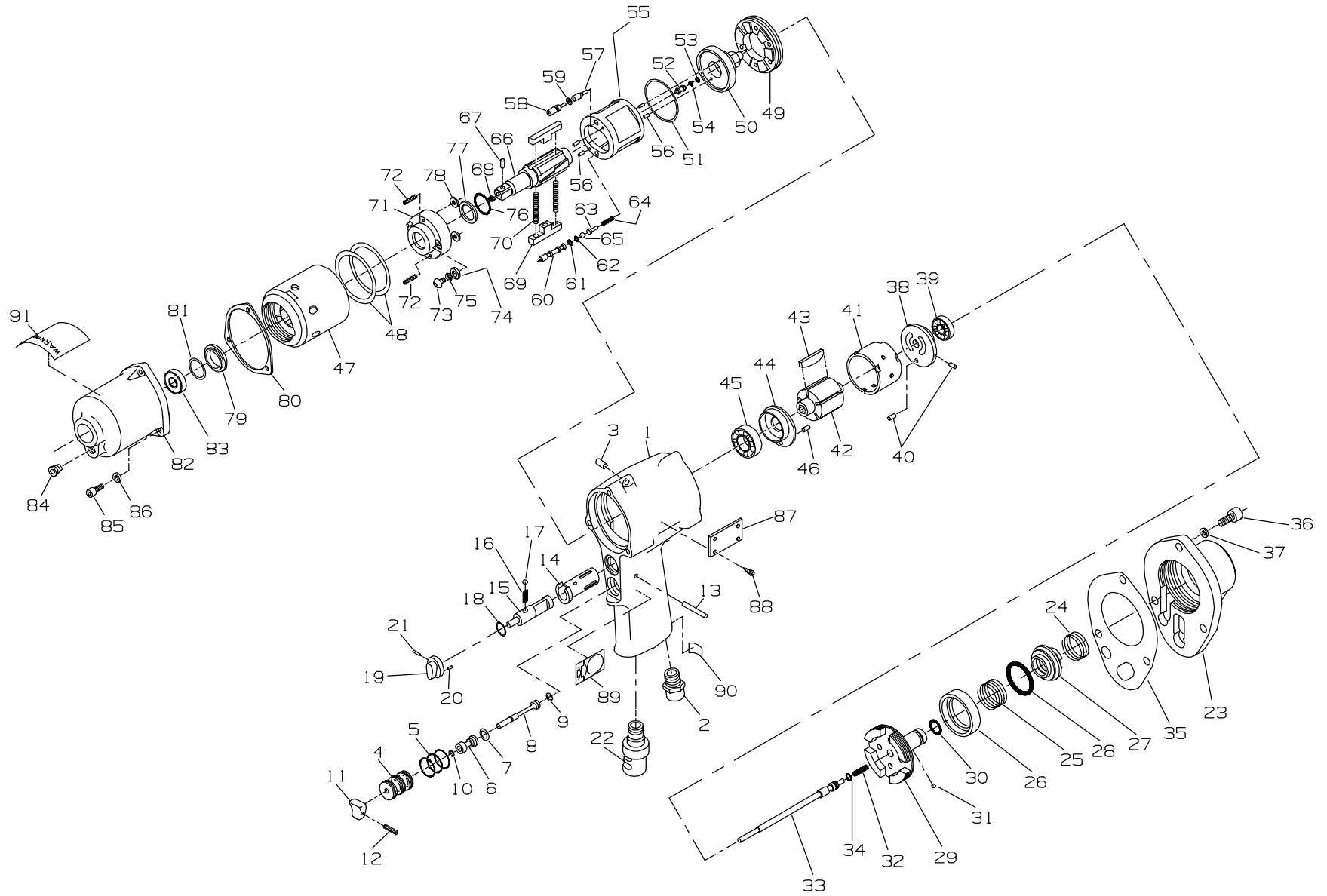
Use sempre um lubrificador de ar de linha com estas ferramentas. Nós recomendamos a seguinte Unidade Filtro-Lubrificador-Regulador:

E.U.A. – No. C28-04-FKG0-28

Depois de cada 20 000 ciclos, ou como a experiência indicar, drene e encha o Conjunto do Comando da Unidade de Impulso como instruído neste manual usando o Kit de Reposição de Fluido (Número de Pedido EQ106S-K400). Lubrifique o comando hexagonal e o eixo de saída antes de montar.



(Desenho TPD905-1)





PART NUMBER FOR ORDERING



| | | 500PS3 | 700PS3 | 900PS4 |
|----|--|---------------|---------------|---------------|
| | Motor Housing Assembly | 04351730 | 04354049 | 04354718 |
| 1 | Motor Housing | 04351748 | 04354056 | 04354726 |
| 2 | Inlet Bushing | EQ106S-565 | EQ106S-565 | EQ106S-565 |
| 3 | Suspension Hole Liner | EQ106P-366 | EQ106P-366 | EQ106P-366 |
| 4 | Throttle Bushing Assembly | 04351763 | 04351763 | 04351763 |
| 5 | Throttle Bushing Seal (3) | EQ106P-283 | EQ106P-283 | EQ106P-283 |
| 6 | Throttle Valve Assembly | 04532503 | 04532503 | 04532503 |
| 7 | Throttle Valve Seal | 100PQ-288 | 100PQ-288 | 100PQ-288 |
| 8 | Throttle Rod Assembly | EQ106P-A302 | EQ106P-A302 | EQ106P-A302 |
| 9 | Throttle Rod Seal | EQ106S-288 | EQ106S-288 | EQ106S-288 |
| 10 | Valve Retaining Ring | EQ106P-303 | EQ106P-303 | EQ106P-303 |
| 11 | Trigger | EQ106P-93 | EQ106P-93 | EQ106P-93 |
| 12 | Trigger Pin | EQ106P-265 | EQ106P-265 | EQ106P-265 |
| 13 | Throttle Retaining Pin | 180PQ-120 | 180PQ-120 | 180PQ-120 |
| 14 | Reverse Valve Bushing | 04351771 | 04351771 | 04351771 |
| 15 | Reverse Valve | 04351789 | 04351789 | 04351789 |
| 16 | Reverse Valve Detent Spring | 04351797 | 04351797 | 04351797 |
| 17 | Reverse Valve Detent Ball | EQ104S-929 | EQ104S-929 | EQ104S-929 |
| 18 | Reverse Valve Retainer | 500PQ-303 | 500PQ-303 | 500PQ-303 |
| 19 | Reverse Lever Assembly | 04351805 | 04351805 | 04351805 |
| 20 | Reverse Lever Alignment Pin | 04351813 | 04351813 | 04351813 |
| 21 | Reverse Lever Retaining Pin | 3000P-152 | 3000P-152 | 3000P-152 |
| 22 | Exhaust Deflector | EQ110P-23 | EQ110P-23 | EQ110P-23 |
| 22 | Backcap | 04354072 | 04354734 | 04354734 |
| 24 | Backcap Rear Spring (12 mm long) | 04351839 | 04351839 | 04351839 |
| 25 | Backcap Front Spring (15 mm long) | 04351847 | 04351847 | 04351847 |
| 26 | Control Plate | 04351854 | 04351854 | 04354742 |
| 27 | Control Valve Assembly | 04351862 | 04351862 | 04351862 |
| 28 | Control Valve Seal | 04351870 | 04351870 | 04351870 |
| 29 | Control Bushing Assembly | 04351888 | 04351888 | 04354759 |
| 30 | Control Bushing Seal | 180PQ-288 | 180PQ-288 | 180PQ-288 |
| 31 | Control Bushing Ball (3.5 mm dia.) (3) | 04351904 | 04351904 | 04351904 |

PART NUMBER FOR ORDERING



| | | 500PS3 | 700PS3 | 900PS4 |
|----|---|---------------|---------------|---------------|
| 32 | Control Shaft Spring | 04351912 | 04351912 | 04351912 |
| 33 | Control Shaft Assembly | 04351920 | 04354080 | 04354767 |
| 34 | Control Shaft Seal | EQ110P-288 | EQ110P-288 | EQ110P-288 |
| 35 | Backcap Gasket | 04351938 | 04354254 | 04354775 |
| 36 | Backcap Mounting Screw (3) | 04351946 | 04351946 | 1410P-638 |
| 37 | Backcap Mounting Screw Washer (3) | 900P-58 | 900P-58 | 900P-58 |
| | Rear End Plate Assembly | 04351953 | 04354098 | 04354783 |
| 38 | Rear End Plate | 04351961 | 04354106 | 04354791 |
| 39 | Rear Rotor Bearing | R0A2-22 | R0A2-22 | WFS182-22 |
| 40 | End Plate Alignment Dowel (2) | EQ106P-99 | EQ106P-99 | EQ106P-99 |
| 41 | Cylinder | EQ108P-3 | EQ110P-3 | EQ110P-3 |
| 42 | Rotor | 04354114 | 04354809 | 04354809 |
| 43 | Vane Packet (set of 6 Vanes) | EQ106P-42-6 | EQ108P-42-6 | EQ110P-42-6 |
| | Front End Plate Assembly | 04351987 | 04354122 | 04354817 |
| 44 | Front End Plate | 04351995 | 04354130 | 04354825 |
| 45 | Front Rotor Bearing | EQ106S-22 | EQ106S-22 | R38P-606 |
| 46 | End Plate Alignment Dowel | EQ106P-99 | EQ106P-99 | EQ106P-99 |
| 47 | Liner Housing | EQ208S-240 | EQ210S-240 | EQ112P-240 |
| 48 | Liner Housing Seal (2) | EQ208S-236 | EQ208S-236 | EQ212P-236 |
| 49 | Housing Cap | EQ106S-207 | EQ106S-207 | EQ110P-207 |
| 50 | Rear Liner Cover | 04352001 | 04352001 | 04354833 |
| 51 | Rear Liner Cover Seal | EQ208S-237 | EQ208S-237 | EQ212P-237 |
| 52 | Sensor Assembly | 04352019 | 04352019 | 04352019 |
| 53 | Sensor Seal | EQ104S-50 | EQ104S-50 | EQ104S-50 |
| 54 | Sensor Seal Back-up O-Ring | 04352035 | 04352035 | 04352035 |
| 55 | Liner Assembly | 04352043 | 04354148 | 04354841 |
| 56 | Liner Alignment Pin (4) | EQ208S-298 | EQ208S-298 | EQ212P-298 |
| 57 | Torque Valve Piston | EQ208S-222 | EQ210S-222 | EQ212P-222 |
| 58 | Piston Stop Assembly | 04352068 | 04354155 | 04354858 |
| 59 | Piston Stop Seal | EQ106P-288 | EQ106P-288 | EQ110P-288 |
| 60 | Check Valve Assembly | 04352084 | 04352084 | 04354866 |
| 61 | Check Valve Front Seal | EQ106P-288 | EQ106P-288 | EQ110P-288 |
| 62 | Check Valve Rear Seal | 180PQ-272 | 180PQ-272 | EQ106P-288 |

PART NUMBER FOR ORDERING



| | | 500PS3 | 700PS3 | 900PS4 |
|----|---|---------------|---------------|---------------|
| 63 | Check Valve Piston | 04352100 | 04354163 | 04354874 |
| 64 | Piston Spring | 04352118 | 04354171 | 04354882 |
| 65 | Check Valve Ball | 04351904 | 04351904 | 500P-333 |
| 66 | Drive Shaft Assembly | 04352134 | 04354189 | 04354890 |
| 67 | Socket Retaining Pin | 5020-716 | 5020-716 | 5020-716 |
| 68 | Retaining Pin Spring | 401-718 | 401-718 | 401-718 |
| 69 | Drive Shaft Blade (2) | EQ208S-220 | 700PS3-220 | EQ212P-220 |
| 70 | Blade Spring (2) | 04352142 | 04354205 | EQ212P-219 |
| 71 | Front Liner Cover Assembly | 04352159 | 04352159 | 04354908 |
| 72 | Adjustment Screw (2) | EQ208S-230 | EQ208S-230 | 1900P-230 |
| 73 | Oil Plug | EQ106S-277 | EQ106S-277 | EQ106S-277 |
| 74 | Oil Plug Seal Support | EQ106S-229 | EQ106S-229 | EQ106S-229 |
| 75 | Oil Plug Seal | EQ106S-228 | EQ106S-228 | EQ106S-228 |
| 76 | Drive Shaft O-ring | EQ208S-271 | EQ208S-271 | EQ110P-271 |
| 77 | Seal Back-Up Ring | EQ106S-272 | EQ106S-272 | EQ110P-272 |
| 78 | Front Liner Cover Piston Seal (2) | EQ208S-238 | EQ208S-238 | EQ212P-238 |
| 79 | Front Mechanism Spacer | — | — | 04354916 |
| 80 | Hammer Case Gasket | 04352175 | 04354213 | 04354924 |
| 81 | Drive Shaft Packing | | | |
| | 0.2 mm thick | 04352183 | 04352183 | 04354932 |
| | 0.3 mm thick | 04352191 | 04352191 | 04354940 |
| | 0.5 mm thick | 04352209 | 04352209 | 04354957 |
| | Hammer Case Assembly | 04352217 | 04354221 | 04354965 |
| 82 | Hammer Case | 04352225 | 04354239 | 04354973 |
| 83 | Hammer Case Bearing | 04352233 | 04352233 | 04354981 |
| 84 | Adjustment Hole Plug | 180PQ-95 | 180PQ-95 | 180PQ-95 |
| 85 | Hammer Case Cap Screw (3) | 500PQ-638 | 500PQ-638 | 1410P-638 |
| 86 | Cap Screw Lock Washer (3) | 500P-58 | 500P-58 | 900P-58 |

PART NUMBER FOR ORDERING



| | | 500PS3 | 700PS3 | 900PS4 |
|----|--|----------------|----------------|----------------|
| 87 | Nameplate | 04351755 | 04354247 | 04354999 |
| 88 | Nameplate Screw (4) | EQ106S-322 | EQ106S-322 | EQ106S-322 |
| 89 | Two Speed Trigger Label | 180PQ-68 | 180PQ-68 | 180PQ-68 |
| 90 | Oil Daily Label | 500P-69 | 500P-69 | 500P-69 |
| 91 | Warning Label | | | |
| | for all models ending in -EU | EU-99 | EU-99 | EU-99 |
| | for all other models | WARNING-2-99 | WARNING-2-99 | WARNING-2-99 |
| * | Hex Wrench | | | |
| | 1.5 mm | 55P3-900 | 55P3-900 | — |
| | 2.0 mm | — | — | 04355012 |
| | 5.0 mm | 04352258 | 04352258 | 04352258 |
| * | Repair Fixture | 04355178 | 04355178 | 04355178 |
| * | Fluid Replacement Kit | EQ106S-K400 | EQ106S-K400 | EQ106S-K400 |
| | Replacement Fluid (4 oz.) | EQ106S-400-1 | EQ106S-400-1 | EQ106S-400-1 |
| * | Replacement Fluid (1 gal.) | EQ106S-BF400-1 | EQ106S-BF400-1 | EQ106S-BF400-1 |
| * | Tool Kit (includes all the specialized tooling required to repair these tools and consists of a Spanner Plug, Threaded Tee Wrench, O-ring Installer and a pressing fixture that has a Disassembly Arbor and Pressing Sleeve) . | 700A-99 | 700A-99 | 700A-99 |

MAINTENANCE SECTION

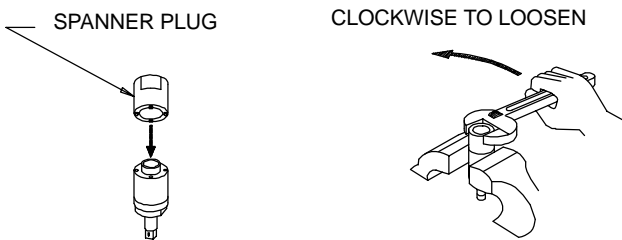
DISASSEMBLY

General Instructions

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

Disassembly of the Impulse Mechanism

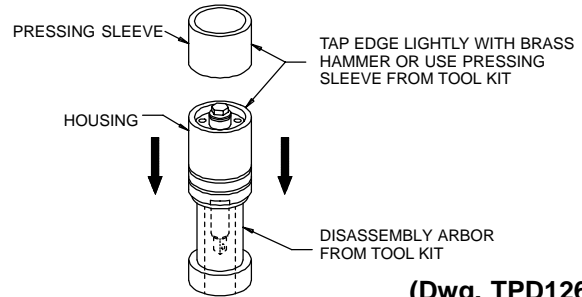
1. Use a hooked wire to pull the Retaining Pin Spring (68) out of the end of the Drive Shaft (66) and remove the Socket Retaining Pin (67).
2. Using a hex wrench, remove the three Hammer Case Cap Screws (85) and Lock Washers (86). Lift the Hammer Case (82) off the Motor Housing (1) over the Drive Shaft. Remove the Hammer Case Gasket (80).
3. Lift the assembled mechanism off the Rotor (42).
4. Grasp the flats of the Housing (47) in vise jaws with the output end of the Drive Shaft downward.
5. Insert the pins of the Spanner Plug from the No. 700A-99 Tool Kit into two holes in the Housing Cap (49). Using a wrench on the plug, unscrew and remove the Housing Cap from the Housing. (Refer to Dwg. TPD1267.)



(Dwg. TPD1267)

6. Stand the Disassembly Arbor from the Tool Kit, large end downward, on a workbench or the table of an arbor press. Insert the output end of the Drive Shaft

into the central opening and either tap the Housing downward off the components or use the Pressing Sleeve in the Kit to press the Housing downward off the components. (Refer to Dwg. TPD1268.)



NOTICE

In the following step, do not remove or turn the Shut-off Adjustment Screw (72) located in the Front Liner Cover (71). It is the Screw with the paint in the wrench opening.

7. Disassemble the components of the mechanism in the sequence shown in Drawing TPA1481 on Page 16.

Disassembly of the Motor

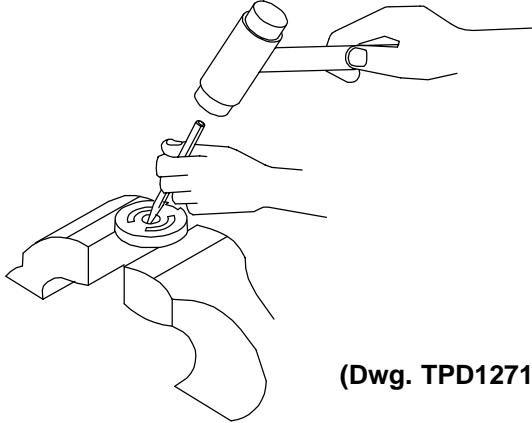
1. Grasp the Motor Housing (1) in vise jaws with the Backcap (23) upward.
2. Using a hex wrench, remove the three Backcap Screws (36) and Lock Washers (37).
3. Lifting straight upward, remove the Backcap and assembled shut-off mechanism from the Motor Housing and also the Backcap Gasket (35). Set the assembled Backcap aside.
4. Remove the Housing from the vise jaws and insert a rod into the central opening in the output end of the rotor shaft.
5. While holding the motor end of the Housing above a piece of cardboard on the workbench, lightly tap the rod to remove the Rear End Plate Assembly (38), Rotor (42) and Vanes (43).
6. On the table of an arbor press, support the Rear End Plate with blocks as close to the Rotor as possible and press the Rotor out of the Rear End Plate and Rear Rotor Bearing (39).

MAINTENANCE SECTION

NOTICE

In the following two steps, do not enlarge or damage the shaft hole in the End Plate.

7. To remove the Rear Rotor Bearing from the Rear End Plate, use a small drift or pin punch through the central opening of the Rear End Plate to tap the Bearing out of the End Plate. (Refer to Dwg. TPD1271.)



(Dwg. TPD1271)

8. Using a longer drift punch through the Cylinder (41), tap the Front Rotor Bearing (45) out of the Front End Plate Assembly (44) in the same manner.
9. The Cylinder and Front End Plate are a shrink fit in the Motor Housing and parts that can be damaged during the heating process must be removed before heating the Housing.
10. Press the Reverse Lever Retaining Pin (21) out of the Reverse Lever (19) and pull the lever off the shaft of the Reverse Valve (15).
11. Using snap ring pliers, remove the Reverse Valve Retainer (18).
12. Grasp the shaft of the Reverse Valve with pliers, and pull the Reverse Valve, Reverse Valve Detent Ball (17) and Detent Spring (16) out of the Reverse Valve Bushing (14). Be careful not to lose the Ball and Spring.
13. Using a pin punch, tap the Throttle Retaining Pin (13) out of the Handle.
14. Grasp the Trigger (11) and pull the assembled throttle out of the Motor Housing.
15. Using a pin punch and without damaging the Trigger, remove the Trigger Pin (12).
16. Slide the Throttle Bushing Assembly (4) off the shaft of the Throttle Rod Assembly (8).
17. Using a thin blade screwdriver, remove the Valve Retaining Ring (10) and slide the Throttle Valve Assembly (6) off the shaft of the Throttle Valve Rod.

18. Using an adjustable wrench, unscrew and remove the Inlet Bushing (2) and Exhaust Deflector Assembly (22).
19. Insert a threaded rod through the Cylinder and Front End Plate and install a nut and washer on the end plate end of the rod. Position the Rear End Plate on the threaded rod against the Cylinder and clamp the End Plates and Cylinder snug with another nut and washer. Do not tighten the assembly excessively.

CAUTION

In the following step, take all precautions necessary to prevent being burned by handling warm or hot parts.

20. Using a heat induction coil or an oven, heat the assembly and Housing until it is warm enough to pull the assembly out the rear of the Motor Housing. Do not apply enough heat to distort the Housing.
21. To disassemble the shut-off mechanism, grasp the Backcap in copper-covered vise jaws with the Control Shaft Assembly (33) upward.
22. Using a spanner wrench, unscrew the Control Bushing Assembly (29) and carefully separate the components. Be doubly careful not to lose the three Control Bushing Balls (31) from the shaft of the Control Bushing.

ASSEMBLY

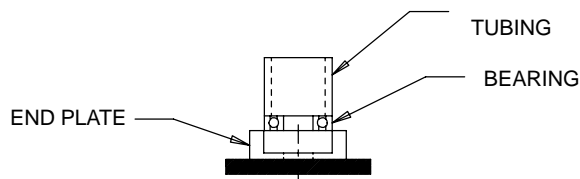
General Instructions

1. When 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.
2. Always press on the inner ring of a ball-type bearing when installing the bearing on a shaft.
3. Always press on the outer ring of a ball-type bearing when pressing the bearing into a bearing recess.
4. Except for bearings and mechanism parts, always clean every part and wipe every part with a thin film of oil before installation.
5. Wipe a thin film of mechanism fluid on all internal mechanism components before installing them in the mechanism.
6. Apply a film of O-ring lubricant to every O-ring before installation.

MAINTENANCE SECTION

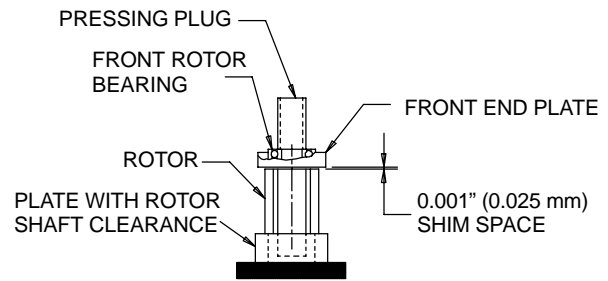
Assembly of the Motor

1. If the shut-off mechanism was disassembled, install the Control Shaft Seal (34) into the groove on the Control Shaft (33).
2. Insert the Control Shaft Spring (32) into the central opening at the large end of the Control Bushing (29) and insert the assembled Shaft, Seal end leading, into the opening. The end of the Shaft must be encircled by the Spring and the long groove must align with the three crossholes for the Control Bushing Balls (31).
3. Coat the Control Bushing Balls with Ingersoll-Rand No.28 Grease and insert them into the crosshole openings.
4. Install the Control Valve Seal (28) on the Control Valve (27) and place the Control Plate (26), large open end leading, over the shaft of the Control Bushing.
5. Install the Backcap Front Spring (25) and the Control Valve Assembly, seal end leading, over the shaft of the Control Bushing. Install the Control Bushing Seal in annular groove around the bushing shaft.
6. Fit the Backcap Rear Spring (24) against the Control Valve and thread the entire assembly, spring end leading, into the Backcap (23). Using a spanner wrench, tighten the Control Bushing in the Backcap.
7. Using an arbor press and a piece of tubing that contacts the outer ring of the bearings, press the Front Rotor Bearing (45) into the Front End Plate (44) and the Rear Rotor Bearing (39) into the Rear End Plate (38). (Refer to Dwg. TPD1274.)



(Dwg. TPD1274)

8. Stand the Rotor (42) on the table of an arbor press. It should be upright on a flat metal plate having a clearance hole for the shaft. The shaft with the hex must be upward.
9. Place a 0.001" (0.025 mm) shim on the upward surface of the large portion of the rotor body. Using a piece of tubing that contacts the inner ring of the bearing, press the Front Rotor Bearing and Front End Plate, End Plate leading, onto the shaft of the Rotor until the End Plate contacts the shim. Remove the shim. (Refer to Dwg. TPD1275.)



(Dwg. TPD1275)

10. Coat each Vane (43) with a thin film of oil and insert a Vane into each of the rotor vane slots with the straight edge of the Vane outward.
11. Install the Cylinder (41) over the Vanes and Rotor making certain the End Plate Alignment Dowel (46) enters the notch in the end face of the Cylinder.
12. Stand the assembly on an arbor press table so that the rotor shaft on the front end plate end contacts the table. Press the Rear End Plate Assembly, bearing end trailing, onto the rotor shaft against the Cylinder. Make certain the End Plate Alignment Dowel (40) enters the notch in the end face of the Cylinder.
13. Stand the assembly on a table with the Front End Plate Assembly upward.

CAUTION

In the following step, take all precautions necessary to prevent being burned by handling warm or hot parts.

14. Using an induction coil or oven, heat the Motor Housing (1) until the motor opening is large enough to be placed over the Cylinder. At that time, install the Housing over the Cylinder and Front End Plate making sure the radial End Plate Alignment Pin in the Rear End Plate enters the notch in the Motor Housing.
15. Allow the assembly to cool and install the Backcap Gasket (35) and the assembled Backcap (23).
16. Secure the Backcap to the Housing by installing the three Backcap Mounting Screws (36) and Lock Washers (37). Tighten each Screw between 45 and 50 in-lb (5.1 and 5.6 Nm) torque.
17. Install the Exhaust Deflector (22) in the bottom of the handle of the Motor Housing and tighten it between 20 and 25 ft-lb (27 and 34 Nm) torque.
18. Thread the Inlet Bushing (2) into the bottom of the handle of the Motor Housing (1) and tighten it between 30 and 35 ft-lb (40 and 47 Nm) torque.
19. Install the Throttle Rod Seal (9) in the groove on the large hub of the Throttle Rod (8).
20. Install the Throttle Valve Seal (7) in the groove on the large hub of the Throttle Valve (6).

MAINTENANCE SECTION

21. Slide the Throttle Valve, Valve Seal end first, onto the Throttle Valve Rod.
22. Secure the Throttle Valve Assembly by installing the Valve Retaining Ring (10) in the small groove on the Throttle Valve Rod.
23. Install the three Throttle Bushing Seals (5) in the grooves on the Throttle Bushing (4).
24. Slide the Throttle Bushing Assembly onto the shaft of the Throttle Valve Rod and position the Trigger (11) on the same shaft. Install the Trigger Pin (12).
25. Insert the assembled Trigger into the Housing. Make certain the widest end of the Trigger is nearest the motor bore and the narrowest portion of the Throttle Valve aligns with hole for the Throttle Retaining Pin (13). Install the Pin making certain it captures the Throttle Valve and secures the assembled Trigger.
26. Align the detent hole in the Reverse Valve (15) with the hole inside the Reverse Valve Bushing (14) and slide the Valve into the Bushing until almost reaching the detent hole. Insert the Reverse Valve Detent Spring (16) and Reverse Valve Detent Ball (17) into the hole and while compressing the Spring with the Ball, slide the Valve completely into the Bushing.
27. Using snap ring pliers, install the Reverse Valve Retainer (18).
28. Slide the Reverse Lever (19) onto the Reverse Valve, making certain the Reverse Lever Alignment Pin (21) enters the notch on the face of the Reverse Valve Bushing. Secure the Lever to the Valve by inserting the Reverse Lever Retaining Pin (20).
4. Thread the Threaded Tee Wrench furnished with the Tool Kit into the end of the Check Valve Assembly and using the Wrench to hold the Assembly, insert the Assembly into the opening against the Ball.
5. Unscrew the Wrench and screw it into the Piston Stop Assembly and using the Wrench to hold the Assembly, insert the Assembly into the opening against the Piston. Mark this opening with a felt marker to indicate that it contains the Torque Valve Piston.
6. Install the Sensor Seal Back-up O-ring (54) followed by the Sensor Seal (53) on one end of the Sensor (62) and insert the assembly, Seal end leading, into the central opening of the Rear Liner Cover (50). Make certain the assembly slides freely in the opening.
7. Install the Rear Liner Cover Seal (51) in the annular groove on the face of the Rear Liner Cover.
8. Install the two Front Liner Cover Piston Seals (78) in the openings on the face of the Front Liner Cover (71).
9. Install the Seal Back-Up Ring (77) followed by the Drive Shaft O-ring (76) in the central opening in the face of the Front Liner Cover.
10. Insert the short round hub of the Drive Shaft (66) into the central opening of the Rear Liner Cover.
11. Insert a Blade (69) into one slot in the Drive Shaft. Install the Blade Springs (70) through the Drive Shaft and into the holes in the Blade. Place the remaining Blade on the Springs making certain the Springs enter the holes in that Blade.
12. Using finger pressure, compress the Springs with the Blades until the outer edges of the Blades are flush with the drive shaft surface. Capture the Blades in this position by installing the Liner Assembly, piston stop end trailing, over the Drive Shaft and against the Rear Liner Cover.

Assembly of the Impulse Mechanism

1. Insert the long shaft of the Piston Stop (58) into the central opening of the O-ring Installer furnished with the Tool Kit (Part No. 700A-99). Place the Piston Stop Seal (59) on the tapered end of the Installer and roll the Seal up the taper and into the groove on the large body of the Piston Stop. Install the Check Valve Front Seal (61) and Check Valve Rear Seal (62) on the Check Valve (60).
2. When looking inside the central opening of the Liner Assembly (55), the internal wall has three holes on one side which do not extend through the wall. The opening on the end face of that wall is for the Torque Valve Piston (57). Install the Torque Valve Piston, large end trailing, into that opening.
3. Insert the Piston Spring (64) into hole in the end face of the opposite wall. Insert the Check Valve Piston (63), large end trailing, and the Check Valve Ball (65) into the same opening.
13. Insert the hex end of the Rear Liner Cover into the Disassembly Arbor from the Tool Kit and stand it on a workbench with the Drive Shaft upward.
14. Install the Front Liner Cover Assembly over the Drive Shaft and against the Liner. Make certain the Torque Adjustment Screw (72) aligns with the proper piston stop opening that was marked during assembly.

NOTICE

This installation can be accomplished more easily by aligning the compressed Blades with the webs at the narrowest portion of the opening. Keeping the Blades on the web allows them to slide the length of the Liner without interference.

MAINTENANCE SECTION

15. Install the two Liner Cover Seals (48) in the grooves inside the Liner Housing (47) near the end with the external wrench flats.
16. Place the Liner Housing, Seal end trailing, over the assembled Liner. Make certain the notch in the trailing end face of the Housing aligns with the Oil Plug (73) in the Front Liner Cover. Use the Pressing Sleeve from the Tool Kit to press the Housing over the Seals and into position. Do not Damage the Seals during installation.
17. Grasp the flats of the Liner Housing in vise jaws and using the Spanner Plug furnished with the Tool Kit and a torque wrench, install the Housing Cap, castellated end leading. This is a **left-hand thread**; rotate the wrench **counterclockwise** to tighten the Cap. Tighten the Cap on models 500PS3 and 700PS3 between 9.4 and 10.7 ft-lb (12.7 and 14.5 Nm) torque and on model 900PS4 between 10.7 and 12.1 ft-lb (12.7 and 16.4 Nm) torque.
18. Make certain the Drive Shaft rotates freely and then fill the mechanism with fluid and reassemble the tool as instructed in the section, **CHANGING THE MECHANISM FLUID**.