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Form P6546
Edition 5
October, 1996

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INSTRUCTIONS FOR MODEL 226 SUMP PUMPS

NOTICE

**Model 226 Sump Pump is designed for contractors and maintenance crews where lightweight, compactness, and low air consumption are prime factors.
Ingersoll–Rand is not responsible for customer modification of pumps for applications on which Ingersoll–Rand was not consulted.**

⚠ WARNING

**IMPORTANT SAFETY INFORMATION ENCLOSED.
READ THIS MANUAL BEFORE OPERATING PUMP.**

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 PUMPS IN SERVICE

- **Always operate, inspect and maintain this pump 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 pump at 90 psig (6.2 bar/620 kPa) maximum air pressure at the inlet with 1” (25 mm) inside diameter air supply hose.**
- **Always turn off the air supply and disconnect the air supply hose before installing, removing or adjusting any accessory on this pump, or before performing any maintenance on this pump.**
- **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 maximum air pressure. Dust, corrosive fumes and/or excessive moisture can ruin the motor of an air pump.**
- **Do not lubricate pumps with flammable or volatile liquids such as kerosene, diesel or jet fuel.**
- **Do not remove any labels. Replace any damaged label.**
- **This pump is not designed for working in explosive atmospheres.**
- **This pump is not insulated against electric shock.**

USING THE PUMP

- **Always wear eye protection when operating or performing maintenance on this pump.**
- **Always wear hearing protection when operating this pump.**
- **Use accessories recommended by Ingersoll–Rand.**
- **Do not start or operate this pump unless it is submerged.**

NOTICE

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

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

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

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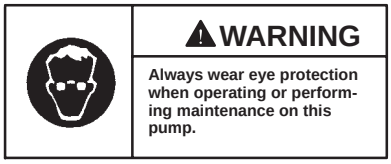
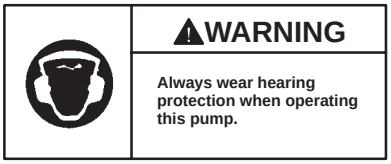
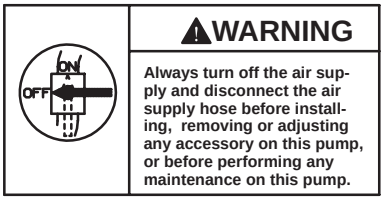
WARNING LABEL IDENTIFICATION

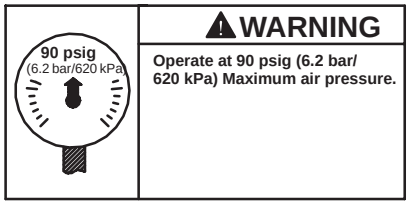
⚠ WARNING

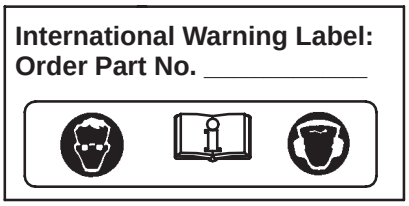
FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.











PLACING PUMP IN SERVICE

LUBRICATION

Ingersoll–Rand No. 50 **Ingersoll–Rand No. 80**

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

For USA – No. 8LUB12
For International – No. 8LUB12

Before starting the pump, fill the oil chamber in the Backhead (1) with Ingersoll–Rand No. 50 Oil and inject about 3 cc of oil into the air inlet before attaching the air hose.

Before starting the pump and after four hours of operation, unless the air line lubricator is used, detach the air hose and fill the oil chamber in the Backhead (1) with Ingersoll–Rand No. 50 Oil.

After each forty hours of operation, or as experience indicates, inject 5 – 10 cc of the Ingersoll–Rand No. 80 Grease into the Grease Fitting (15).

Never use ordinary cup grease as it emulsifies with water and will not lubricate in this condition. Automotive water pump grease is not satisfactory as it is made for use with hot water.

AIR STRAINER

Periodically, clean the Air Strainer Screen (9) as follows:

1. Shut off the air supply to the pump.
2. Unscrew the Air Strainer Plug (11).
3. If the Screen still appears clogged, unscrew the Air Strainer Cap (10) and withdraw the Screen. Clean the Screen in a suitable cleaning solution.

IMPELLER ADJUSTMENT

For the most efficient operation of the pump, particularly against high heads, it is necessary that the clearance between the Impeller (42) and the Impeller Cover (46) be limited. This clearance is set at 0.010" at the factory. When, due to wear, this clearance has increased to about 1/32", an adjustment can be made by removing enough of the Impeller Cover Shims (45) to obtain the original 0.010" clearance. This simple adjustment will prolong the life of the Impeller and maintain the high efficiency of the pump. The Impeller Cover Shims are different colors to identify the various thicknesses.

White is 0.025" Brown is 0.010"
Pink is 0.015" Blue is 0.005"

Impeller Shims (41) are used as required between the Impeller and the Impeller Spacer (40) to provide running clearance between the Impeller and the Housing (14). When assembling a pump, install only enough Impeller Shims to permit the Impeller to rotate without any drag.

OILER ADJUSTMENT

The Oiler is adjusted at the factory, but since flow rate varies somewhat with temperature, readjustment may be necessary. The rate of flow is regulated by an Oiler Adjusting Screw.

To regulate the Oiler:

Remove the Backhead and turn the Oiler Adjusting Screw. Turning the Screw clockwise **decreases** the flow; turning the Screw counterclockwise **increases** the flow. Under no circumstances should the Screw be backed out beyond the face of the Backhead.

PLACING PUMP IN SERVICE

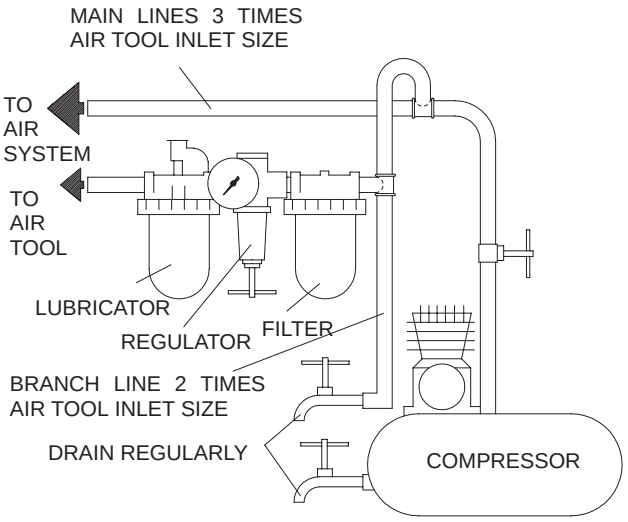
OPERATION

Always use an Exhaust Hose and be certain the free end of the Hose is kept well above the surface of the liquid.
Do not allow the pump to operate at free speed (not submerged) for long periods of time. The frictional heat generated will damage the composition sealing members.
Prevent dirt from entering the pump. When pumping from a ditch or natural sump, set the pump on a board or flat stone or suspend it a few inches from the bottom of the sump. Arranging a wire screen around the inlet or setting the pump in a wire basket is also recommended.
If the inlet becomes clogged, stop the motor and lift the pump from the liquid. Liquid flowing through the discharge line will usually flush the obstruction from the inlet.
If the pump is stopped while pumping dirty liquids, gravel washed back through the pump by the liquid in the discharge line may sprag the impeller and prevent the motor from starting when the air is turned on. If the gravel cannot be dislodged by jarring or striking the pump with a wooden block; make sure that the air is turned off, remove the air line from the pump, remove the Inlet and rotate the Impeller by hand.

INSTALLATION

Air Supply and Connections

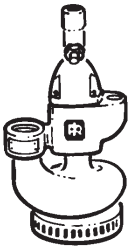
Always use clean dry air at 90 psig maximum air pressure. Dust, corrosive fumes and/or excessive moisture can ruin the motor of an air tool. An air line filter can greatly increase the life of an air tool. The filter removes dust and moisture. Be sure all hoses and fittings are the correct size and are tightly secured. See Dwg. TPD905–1 for a typical piping arrangement.



(Dwg. TPD905–1)

HOW TO ORDER A SUMP PUMP

Model	Size of Opening Pump will Pass Through in.	mm	Pump Housing Material
226A1	8–3/4 x 8–3/4	222 x 222	Iron
226A3	8–3/4 x 8–3/4	222 x 222	Iron



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MODE D'EMPLOI DES POMPES D'ÉPUISEMENT MODÈLE 226

NOTE

La pompe d'épuisement Modèle 226 est destinée aux entrepreneurs et aux équipes d'entretien pour lesquels la légèreté, les faibles dimensions et la faible consommation d'air sont des facteurs principaux.
Ingersoll–Rand ne peut être tenu responsable de la modification des pompes 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 LA POMPE.
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 DES POMPES

- **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, cette pompe doit être connectée à une alimentation d'air comprimé de 6,2 bars (620 kPa) maximum à l'entrée, avec un flexible de 25 mm de diamètre intérieur.**
- **Couper toujours l'alimentation d'air comprimé et débrancher le flexible d'alimentation avant d'installer, déposer ou ajuster toute accessoire sur cette pompe, ou d'entreprendre une opration d'entretien quelconque sur la pompe.**
- **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. La poussière, les fumées corrosives et/ou une humidité excessive peuvent endommager le moteur d'une pompe pneumatique.**
- **Ne jamais lubrifier les pompes avec des liquides inflammables ou volatiles tels que le kérosène, le gasoil ou le carburant d'aviation.**
- **Ne retirer aucune étiquette. Remplacer toute étiquette endommagée.**
- **Cette pompe n'est pas conçue pour fonctionner dans des atmosphères explosives.**
- **Cette pompe n'est pas isolée contre les chocs électriques.**

UTILISATION DE LA POMPE

- **Porter toujours des lunettes de protection pendant l'utilisation et l'entretien de cette pompe.**
- **Porter toujours une protection acoustique pendant l'utilisation de cette pompe.**
- **Utiliser les accessoires recommandés par Ingersoll–Rand.**
- **Ne pas exploiter cette pompe lorsqu'elle n'est pas submergée.**

NOTE

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

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

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

Imprimé aux É.U.

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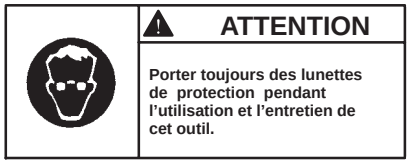
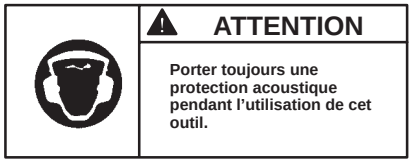
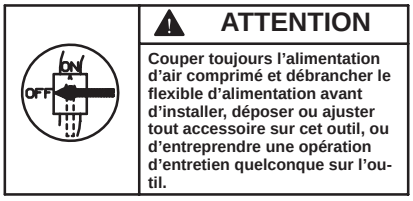
SIGNIFICATION DES ETIQUETTES D'AVERTISSEMENT

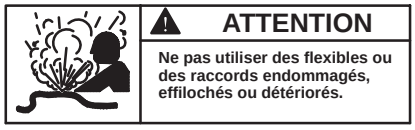
⚠ ATTENTION

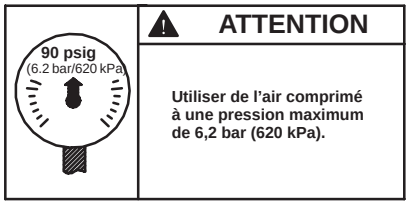
LE NON RESPECT DES AVERTISSEMENTS SUIVANTS PEUT CAUSER DES BLESSURES.

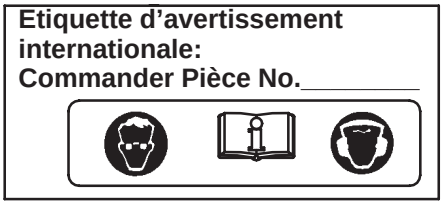












MISE EN SERVICE DES POMPES

LUBRIFICATION

Ingersoll–Rand No. 50

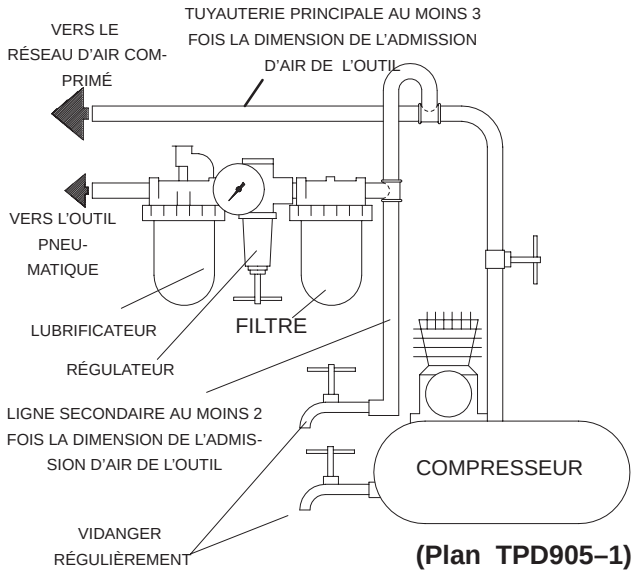
Ingersoll–Rand No. 80
La graisse de pompe à eau

Ne jamais utiliser de la graisse ordinaire car elle s'émulsionne dans l'eau. La graisse de pompe à eau automobile ne convient pas non plus car elle est destinée à être utilisée dans de l'eau chaude et est beaucoup trop dure dans l'eau froide.
Utiliser toujours un lubrificateur avec ces pompes. Nous recommandons le lubrificateur d'air comprimé portable suivant :

International – No. 8LUB12

Avant de mettre la pompe en marche, remplir la chambre d'huile de la tête arrière avec de l'huile Ingersoll–Rand No. 50 et injecter environ 3cm^3 d'huile dans le raccord d'admission avant de connecter le flexible d'alimentation. **Avant de mettre la pompe en marche et toutes les quatre heures de fonctionnement**, si un lubrificateur de ligne n'est pas utilisé, détacher le flexible d'alimentation et remplir la chambre d'huile de la tête arrière avec de l'huile Ingersoll–Rand No. 50.

Toutes les quarante heures de fonctionnement, ou en fonction de l'expérience, injecter environ 5 à 10 cm^3 de graisse Ingersoll–Rand No. 80 dans le raccord de graissage.



(Plan TPD905–1)

MISE EN SERVICE DES POMPES

FONCTIONNEMENT

Utiliser toujours un flexible d'échappement et s'assurer que son extrémité libre est maintenue au–dessus de la surface du liquide.
Ne pas laisser tourner la pompe à sa vitesse à vide (non submergée) pendant de longues périodes. La chaleur causée par le frottement endommagera les organes des joints composés.
Eviter l'entrée des saletés dans la pompe. Pour le pompage dans un caniveau ou dans un puisard naturel, poser la pompe sur une planche ou une pierre plate, ou la suspendre à quelques centimètres du fond du puisard. La mise en place d'un grillage de protection autour de l'admission ou l'installation de la pompe dans un panier est également recommandée.
Si l'admission se colmate, arrêter le moteur et sortir la pompe du liquide. Le liquide s'écoulant par le refoulement dégagera généralement l'obstruction de l'admission.
Si la pompe est arrêtée pendant le pompage de liquides sales, les graviers entraînés dans la pompe par le retour du liquide pourront bloquer l'impulseur et empêcher la rotation du moteur lorsque l'alimentation d'air comprimé est remise en service. Si les graviers ne peuvent pas être déplacés en secouant ou en frappant la pompe avec un bloc en bois s'assurer que l'alimentation d'air est bien mise hors service, déconnecter le flexible d'alimentation, déposer le raccord d'admission et tourner l'impulseur à la main.
S'assurer que la soupape de régulation coulisse librement dans son fourreau. Une soupape de régulation grippée est la cause la plus courante d'une vitesse irrégulière du moteur. Un ajustement libre causé par une soupape très usée produit le même effet.

SPÉCIFICATIONS

Modèle	**Dimensions de l'ouverture nécessaire au passage de la pompe.**		**Corps de pompe**
	pouces	**mm**	
226A1–EU	8–3/4 x 8–3/4	222 x 222	Fonte
226A3–EU	8–3/4 x 8–3/4	222 x 222	Fonte

E

INSTRUCCIONES PARA BOMBAS CENTRIFUGAS MODELO 226

NOTA

La Bomba Centrífuga Modelo 226 está diseñada para contratistas y plantillas de mantenimiento que requieran poco peso, compactibilidad y bajo consumo de aire comprimido.
Ingersoll–Rand no es responsable de las modificaciones de bomba hechas por el cliente sin consultar con Ingersoll–Rand.

⚠ AVISO

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

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

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

PONIENDO LA BOMBA EN SERVICIO

- **Utilice, examine y mantenga siempre esta herramienta conforme al código de seguridad para herramientas neumáticas portátiles de la American National Standards Institute (ANSI B186.1).**
- **Para seguridad, máximo rendimiento y durabilidad de piezas, use esta bomba a una máxima presión de aire comprimido de 90 psig (6,2 bar/620kPa) con manguera de diámetro interno de 25 mm.**
- **Desconecte siempre el suministro de aire y la manguera de suministro de aire antes de instalar, sacar, o ajustar cualquier accesorio de bomba, o antes de cualquier mantenimiento de bomba..**
- **No utilice mangueras de aire y accesorios dañados, desgastados ni deteriorados.**
- **Asegúrese que todas las mangueras y accesorios sean del tamaño correcto y estén seguros. Vea Esq. TPD905–1 para un típico arreglo de tuberías.**
- **Use siempre aire limpio y seco a una máxima presión de 90 psig. El polvo, los vapores corrosivos y/o el exceso de humedad podrían estropear el motor de una bomba neumática.**
- **No lubrique las bombas con líquidos inflamables o volátiles tales como queroseno, diesel o combustible para motores a reacción.**
- **No saque ninguna etiqueta. Sustituya toda etiqueta dañada.**
- **Esta bomba no ha sido diseñada para trabajar en ambientes explosivos.**
- **Esta bomba no está aislada contra descargas eléctricas.**

USO DE BOMBA

- **Use siempre protección ocular al manejar o realizar operaciones de mantenimiento en esta bomba.**
- **Use siempre protección para los oídos al manejar esta bomba.**
- **Utilice únicamente los accesorios Ingersoll–Rand recomendados.**
- **No arranque ni funcione la bomba si no está sumergida.**

NOTA

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

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

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

Impreso en EE. UU.

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ETIQUETAS DE AVISO

⚠ AVISO

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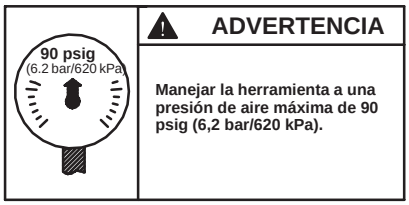
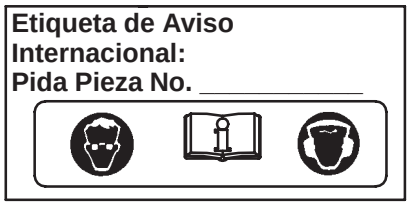




PONIENDO LA BOMBA EN SERVICIO

LUBRICACIÓN

Ingersoll–Rand Nº 50 **Ingersoll–Rand Nº 80 Grasa de Bomba de Agua**

No use nunca grasa ordinaria, se emulsifica en el agua. La grasa de bomba de agua para automoción no vale, porque es para agua caliente y no vale para usar en agua fría.

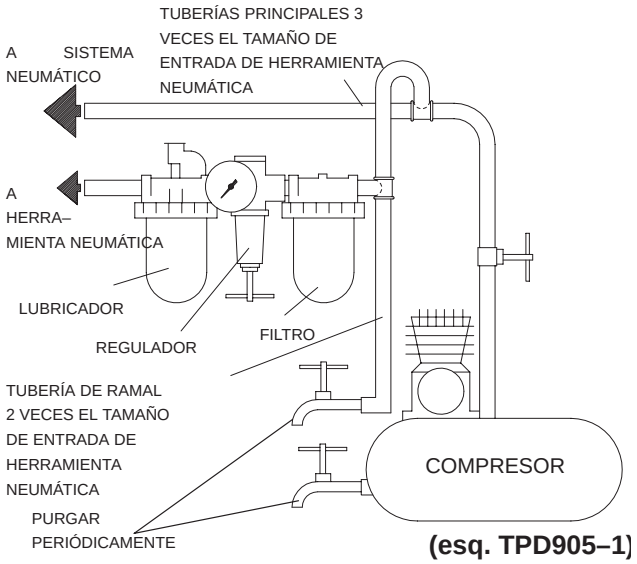
Use siempre un lubricante de aire comprimido con esta bomba. Recomendamos el siguiente Lubricador de Línea de Aire Comprimido Portátil

Internacional – Nº. 8LUB12

Antes de poner la herramienta en marcha, llene la cámara de aceite en la Cabeza Trasera con Aceite Ingersoll–Rand Nº 50 e inyecte 3 cc de aceite en la admisión de aire comprimido antes de conectar la manguera.

Antes de poner la herramienta en marcha y después de cada ocho horas de uso, a menos que se haya puesto lubricante de línea de aire comprimido, desconecte la manguera y llene la cámara de aceite en la CabezaTrasera con Aceite Ingersoll–Rand Nº 50.

Después de cada cuarenta y ocho horas de uso, o como indique la experiencia, inyecte de 5 – 10 cc de Grasa Ingersoll–Rand Nº 80 en el Engrasador.



(esq. TPD905–1)

PONIENDO LA BOMBA EN SERVICIO

FUNCIONAMIENTO

Use siempre una Manguera de Escape y asegúrese que el extremo abierto de Manguera esté arriba de la superficie del líquido.

No permita que la bomba marche a velocidad libre (sin sumergir) por largos períodos de tiempo. El calor de fricción generado dañará la composición de los elementos de junta.

Evite la entrada de suciedad en la bomba. Cuando bombee de una fosa o depósito natural, coloque la bomba sobre una tabla o piedra plana o suspéndala a unas pulgadas. Se recomienda también una malla metálica alrededor de la admisión o poner la bomba en una cesta de alambre.

Si se atasca la admisión, pare el motor y saque la bomba del líquido. El flujo de líquido a través de la línea de descarga normalmente limpiará la obstrucción de admisión.

Si se para la bomba cuando está bombeando líquido sucio, puede ser que el impulsor haya quedado atascado por arenilla retrocedida de la línea de descarga, evitando el arranque de motor cuando el aire esta conectado. Si las arenillas no salen agitando o golpeando la bomba con un bloque de madera; asegúrese que el aire esté desconectado, saque la línea de aire comprimido de bomba, saque la Admisión y mueva a mano el Impulsor.

ESPECIFICACIONES

Modelo	Tamaño de Apertura en la que puede entrar la bomba		Material de la Carcasa
	pulg.	mm	
226A1	8–3/4 x 8–3/4	222 x 222	Fundición
226A3	8–3/4 x 8–3/4	222 x 222	Fundición

P

INSTRUÇÕES PARA BOMBAS CENTRÍFUGAS MODELO 226

AVISO

As Bombas Centrífugas Modelo 226 são particularmente recomendadas para empresas contratadas e grupos de manutenção onde pesos leves, a compacidade e o baixo consumo de ar são factores primários.
A Ingersoll–Rand não é responsável por modificações, feitas pelo cliente em ferramentas, nas quais a Ingersoll–Rand não tenha sido consultada.

⚠ ADVERTÊNCIA

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

COLOCANDO AS BOMBAS EM FUNCIONAMENTO

- **Sempre opere, inspeccione e mantenha esta ferramenta de acordo com o Código de Segurança do Instituto Americano de Padrões Nacionais para Ferramentas Pneumáticas Portáteis (ANSI B186.1).**
- **Para segurança, máximo desempenho e máxima durabilidade das peças, opere esta ferramenta com uma pressão de ar máxima de 6.2 bar/620 kPa (90 psig) na entrada da mangueira de alimentação de ar com diâmetro interno de 25 mm (1”).**
- **Desligue sempre a alimentação de ar e desligue 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 todas as mangueiras e adaptadores são do tamanho correcto e estão seguramente apertados. Veja o Desenho TPD905–1 para a montagem normal da tubagem.**
- **Use sempre ar seco e limpo com uma pressão máxima de 90 psig. Pó, fumos corrosivos e/ou humidade excessiva podem arruinar o motor de uma bomba pneumática.**
- **Não lubrifique as bombas com líquidos inflamáveis ou voláteis tais como querosene, diesel ou combustível de jactos.**
- **Não remova nenhum rótulo. Substitua qualquer rótulo danificado.**

USANDO A FERRAMENTA

- **Use sempre óculos de proteção quando estiver operando ou executando algum serviço de manutenção nesta bomba.**
- **Use sempre protecção contra ruído quando operar esta bomba.**
- **Use acessórios recomendados pela Ingersoll–Rand.**
- **Não ligue ou opere esta bomba a não ser que ela esteja submersa.**
- **Esta Bomba não foi concebida para trabalhos em atmosferas explosivas.**
- **Esta Bomba 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

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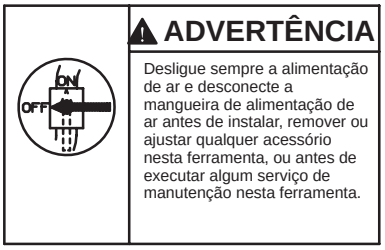
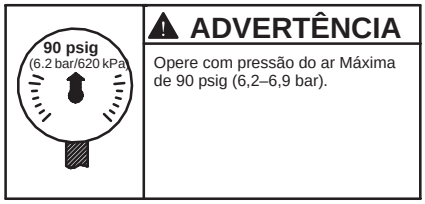
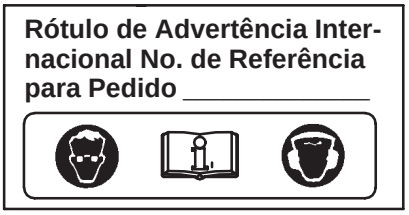






COLOCANDO A FERRAMENTA EM FUNCIONAMENTO

LUBRIFICAÇÃO

Ingersoll–Rand No. 50 **Ingersoll–Rand No. 80 Massa Lubrificadora de Bomba D'Água**

Nunca use Massa Lubrificadora de lata comum, quando ela emulsifica na água. Massa Lubrificadora de bomba de água automotiva não é satisfatória quando ela for feita para uso com água quente e for muito dura para usar em água fria.

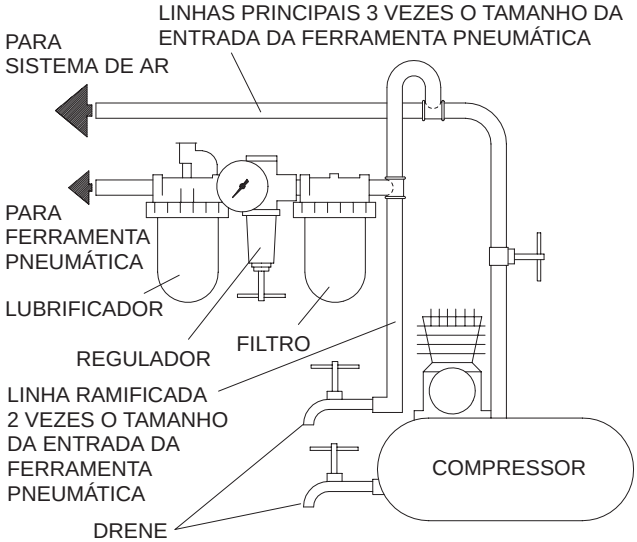
Sempre use um lubrificador de ar de linha com estas bombas. Nós recomendamos os seguintes Lubrificadores de Conduta de Ar Portáteis:

Para Internacional – No. 8LUB12

Antes de colocar a Bomba em serviço, ao menos que um lubrificador de ar de linha esteja a ser usado, desligue a mangueira de ar e coloque de 15 a 20 gotas de Óleo Ingersoll–Rand No. 50 na entrada de ar. Desaparafuse o Bujão da Câmara de Óleo e preencha a câmara de óleo.

Depois de oito horas de operação, ao menos que um lubrificador de ar de linha esteja a ser usado, preencha novamente a câmara na traseira com óleo.

Semanalmente, ou como a experiência indicar, injecte Massa Lubrificadora Graxa Ingersoll–Rand No. 80 no três Adaptadores. Injecte de 1 a 2 cc no Adaptador de Massa Lubrificadora localizado no Cabeçote Traseiro e no Adaptador mais próximo da descarga no Corpo da Máquina. O outro Adaptador de Massa Lubrificadora no Corpo da Máquina leva à câmara de massa lubrificadora no lubrificador automático. Bombeie a massa neste Adaptador até que esta comece a transbordar da Válvula de Nível de Massa Lubrificadora.



(Desenho TPD905–1)

COLOCANDO A FERRAMENTA EM FUNCIONAMENTO

OPERAÇÃO

Use sempre uma Mangueira de Exaustão e esteja certo de que a extremidade livre da Mangueira é mantida bem acima da superfície do líquido.

Não permita que esta bomba funcione com velocidade livre (não submersa) por períodos de tempos prolongados. O calor de fricção gerado danificará os membros da composição selante.

Evite que sujidade entre na bomba. Quando bombear de um furo ou açude, ajuste a Bomba numa plataforma ou rocha ou suspenda–a alguns centímetros acima do fundo do furo. Também se recomenda a colocação de uma tela de arame em redor da entrada ou a montagem da bomba num cesto de arame.

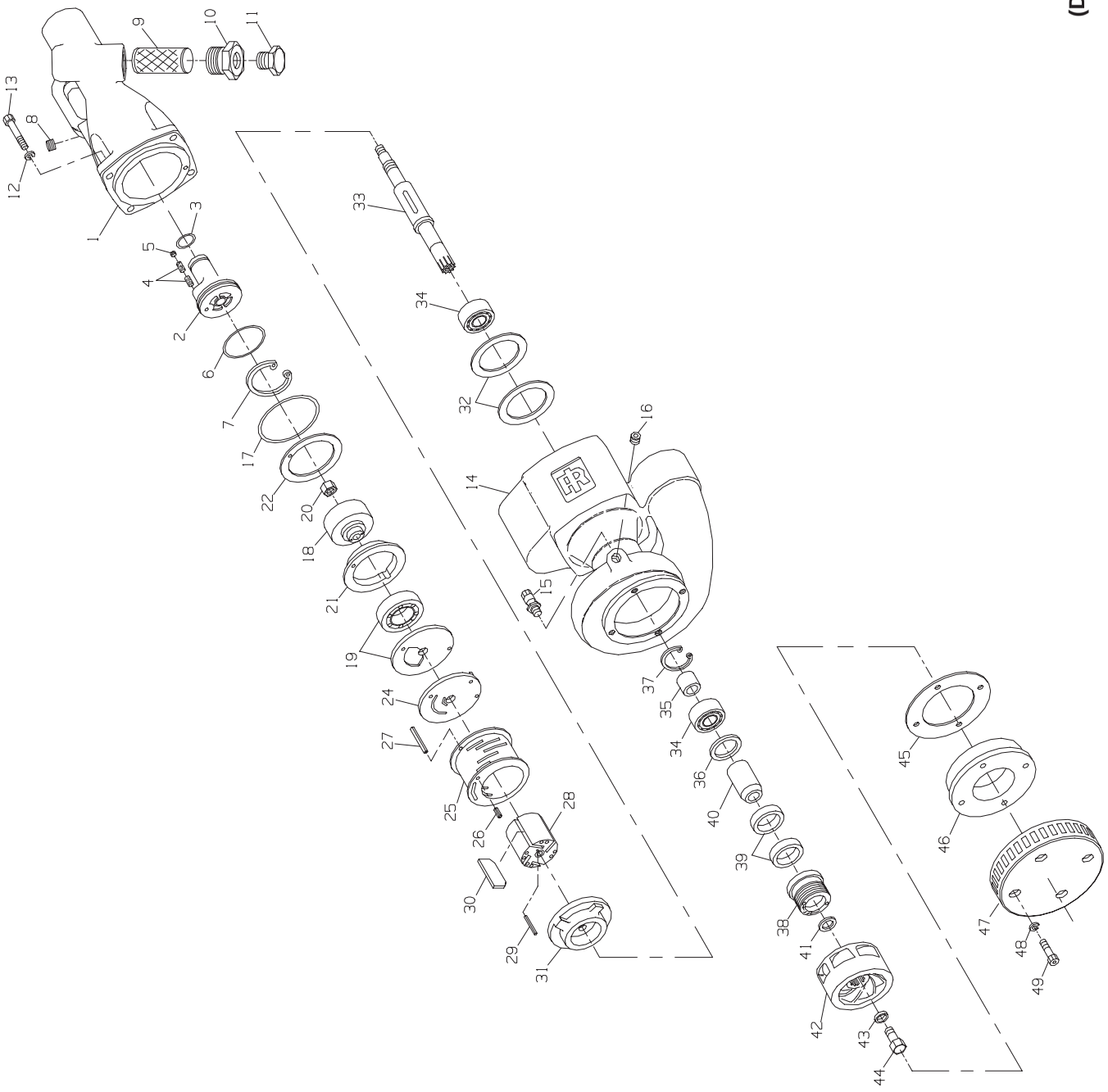
Se a Entrada ficar entupida, desligue o motor e desligue a mangueira de alimentação de ar e erga a Bomba da água. A passagem de água da parte traseira através da mangueira de descarga irá expelir naturalmente a sujidade da Entrada.

Se a bomba é desligada enquanto bombeando líquidos sujos, detritos que passem pela linha de descarga podem travar o impulsor e impedir que o motor funcione quando o ar for ligado. Se o cascalho não puder ser desalojado por vibração ou golpeando a bomba com um bloco de madeira, certifique–se de que o ar está desligado, remova a linha de ar da bomba, e a Entrada, e gire o Impulsor com a mão.

Esteja certo de que a Válvula Mestra desliza livremente no Rolamento. Uma Válvula Mestra pegajosa é a causa mais comum de uma velocidade de motor desafinado. Um ajuste frouxo ou mal feito resultante de uma Válvula ou Rolamento muito desgastados produz o mesmo efeito.

ESPECIFICAÇÕES

Modelo	**Atravacamento da Abertura na qual a Bomba irá passar**		**Material do corpo da Bomba**
	mm	**pol.**	
226A1–EU	222 x 222	8–3/4 x 8–3/4	Ferro
226A3–EU	222 x 222	8–3/4 x 8–3/4	Ferro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(Dwg. TPA813–1)

			PART NUMBER FOR ORDERING
	1	Backhead Assembly	P237–A102
	2	Oiler Body Assembly	88HL60–A198
♦•	3	Oiler Body O–ring (Small)	88HL60–103
♦	4	Oiler Felt (2)	R1–75
	5	Oiler Adjusting Screw	R1–71A
♦•	6	Oiler Body O–ring (Large)	WFS182–210
	7	Oiler Body Retainer	88HL60–298
	8	Oil Chamber Plug	R2–227
♦	9	Air Strainer Screen	P25–61A
	10	Air Strainer Cap	P25–268
	11	Air Strainer Plug	P25–536
	12	Backhead Lock Washer (4)	34U–58
	13	Backhead Cap Screw (4)	834–638
	14	Housing	
		with U.S. Standard 2” Pipe Tap Discharge	P226–A40A
		with British 2” Pipe Tap Discharge	P226–A240A
	15	Grease Fitting	23–188
	16	Housing Plug	R2–227
♦•	17	Housing Seal	P226–283A
	18	Controller Assembly	99V77–A524
	19	Rotor Bearing Seal Assembly	99V60–A28A
	20	Controller Retaining Nut	G8–120A
	21	Rotor Bearing Cage	99V60–107A
♦•	22	Rear End Plate Gasket	99V60–739
	24	Rear End Plate	99V60–A12

			PART NUMBER FOR ORDERING
	25	Cylinder Assembly	99V60–A3
	26	End Plate Dowel	5040–6
	27	Cylinder Dowel	502B–l20
	28	Rotor	99V60–53
♦	29	Rotor Key	R43F–70
♦•	30	Vane Packet (set of 4 Vanes)	99V60–42–4
	31	Front End Plate	99V60–11
	32	Motor Clamp Washer (2)	99V60–207
	33	Rotor Shaft	P226–204
	34	Shaft Bearing (2)	G57E–24
	35	Bearing Spacer	P226–265
	36	Seal Spacer	P226–l00
	37	Housing Snap Ring	S12–118
	38	Water Seal Cap Assembly	P226–A115
♦•	39	Water Seal (2)	P225–153
	40	Impeller Spacer	P225–152
	41	Impeller Shim (as required)	
		0.010” thick	P25–151–10
		0.025” thick (4)	P25–151–25
	42	Impeller	P225–143
	43	Impeller Retaining Washer	P225–157
	44	Impeller Retaining Screw	P225–156

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

♦ Indicates Tune–up Kit part.

			PART NUMBER FOR ORDERING				PART NUMBER FOR ORDERING
	45	Impeller Cover Shim (as required)		★	*	Fire Hose Adapter	
		0.003” thick (green)	P225–145–3			(for connecting Discharge Hose	
		0.005” thick (blue)	P225–145–5			with Expansion Ring Coupling to Pump)	P225–183
		0.010” thick (brown) (2)	P225–145–10	★	*	Air Inlet Hose Nipple	
		0.015” thick (pink)	P225–145–15			(3/4” hose to 3/4” male pipe)	J3–581
		0.025” thick (white) (4)	P225–145–25		*	Grease Gun	J25–228
	46	Impeller Cover	P225–144		*	Controller Wrench	99V60–950
	47	Inlet	P225–148		*	Seal Pressing Tool for Controller	99V60–951
	48	Impeller Cover Lock Washer (4)	P225–67		*	Bearing Clamp to release Controller	99V60–A952
	49	Impeller Cover Cap Screw (4)	P225–146		*	Kit (includes 99V60–950, 99V60–951 and	
	*	Nameplate				99V60–A952)	99V60–K950
		for models ending in –EU	P25–EU–99		*	Tune–up Kit (includes illustrated parts	
		for all other models	P25–99			3, 4 [2], 6, 9, 17, 22, 29, 30 and 39 [2])	226–TK1
	*	Nameplate Screw (4)	R4K–302		*	Warning Label (for models ending in –EU)	EU–99
	*	Perforated Bottom Plate	P225–147				
	*	Air Strainer Nipple	P25–200				
	*	Air Inlet Valve	C10–283				
	*	Muffler	R21–674				
★	*	Discharge Hose (50 feet of 2” Fire Hose					
		with Expansion Ring Coupling)	P225–181				

* Not illustrated.

★ For use with U.S. Pipi Tap.

⚠ WARNING

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

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

LUBRICATION

Each time the Model 226 Sump Pump is disassembled for maintenance, repair or replacement of parts, lubricate the pump as follows:

1. Inject 5 – 10 cc of Ingersoll–Rand No. 80 Grease into Grease Fitting (15).
2. Remove the Oil Chamber Plug (8) and fill the oil chamber in the Backhead (1) Ingersoll–Rand No. 50 Oil. Inject approximately 3 cc of oil into the air inlet before attaching the air hose.

DISASSEMBLY

General Instructions

1. Do not disassemble the pump 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 pump unless you have a complete set of new gaskets and O–rings for replacement.

Disassembly of the Pump

1. If the Air Strainer Screen (9) is to be cleaned or replaced, unscrew the Air Strainer Cap (10) and withdraw the Screen.
2. Unscrew and remove the Backhead Cap Screws (13). Lift off the Backhead Assembly (1).
3. If the oiler is to be disassembled, remove the Oiler Body Retainer (7) and withdraw the Oiler Body Assembly (2) from the Backhead.
4. Unscrew the Impeller Cover Cap Screws (49) and remove the Inlet (47) and Impeller Cover (46).
5. Secure the Impeller (42) against rotation by inserting a long screwdriver through one of the suction ports and into the discharge port in the Housing (14).
6. Unscrew the Impeller Retaining Screw (44) and remove the Impeller.
7. While grasping the Controller Assembly (18) in one hand, gently tap on the impeller end of the Rotor Shaft (33) with a plastic hammer and withdraw the motor from the Housing.
8. The upper Rotor Shaft Bearing (34) and Bearing Spacer (35) will usually come out with the motor. Slide them off the Rotor Shaft.
9. Grasp the Rotor Shaft vertically in leather–covered or copper–covered vise jaws, and unscrew the Controller Retaining Nut (20).

CAUTION

The Controller Assembly has left–hand threads; rotate clockwise to remove.

CAUTION

Use only the special No. 99V60–950 Controller Wrench for removing the Controller Assembly. Do not attempt to disassemble the Controller. It is available only as a unit and is guaranteed for the life of the tool if it is not abused.

10. Lift off the Rear End Plate (24) and Rotor Bearing Seal.

NOTICE

If the Controller Assembly (18) needs to be replaced, you must also replace the Rotor Bearing Seal Assembly (19) which consists of the Rear Rotor Bearing and Rotor Bearing Seal. If either the Rear Rotor Bearing or Rotor Bearing Seal needs to be replaced, both must be replaced with a new Bearing and Seal. Do not mix old and new parts.

11. Lift off the Cylinder Assembly (25).
12. Remove the Vanes (30).
13. Withdraw the Rotor (28) and lift out the Rotor Key (29).
14. Lift off the Front End Plate (31).
15. Remove the Motor Clamp Washers (32).

CAUTION

Do not remove the Water Seals (39) from within the Water Seal Cap Assembly (38) unless you have two new Seals on hand for installation. The Water Seals are always damaged during the removal process. Always check the Water Seals for wear or leakage.

NOTICE

The Water Seal Cap Assembly has left–hand threads.

16. Using a water seal cap spanner wrench, unscrew and remove the Water Seal Cap Assembly.
17. Withdraw the Seal Spacer (36).

18. The lower Shaft Bearing (34) can usually be pushed from the Housing with a wooden dowel. However, if the Water Seals were badly worn so that water got into and around the Bearing, it may be necessary to forcibly drive the Bearing from the Housing. If this is the case make certain you have a new Bearing on hand for installation.

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. Except for bearings, always clean every part and wipe every part with a thin film of oil before installation.
5. 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 bearing should never be cleaned.** Work grease thoroughly into every open bearing before installation.
6. Apply a film of O–ring lubricant to all O–rings before final assembly.

Assembly of the Pump

1. If the Water Seals (39) were removed from the Water Seal Cap Assembly (38) install new Seals as follows:
   a. Press the first Seal, **lip side first,** into the Water Seal Cap until it bottoms against the shoulder.
   b. Press the second Seal, **lip side trailing,** into the Water Seal Cap until the trailing edge of the Seal is flush with the face of the Water Seal Cap.
   c. Insert the Impeller Spacer (40), beveled end first, through both Seals until its beveled end is flush with the threaded end of the Water Seal Cap.
2. Install the lower Shaft Bearing (34) followed by the Seal Spacer (36) in the bottom of the Housing (14) until the Bearing seats against the Housing Snap Ring (37).
3. Using a water seal cap spanner wrench, install the Water Seal Cap Assembly (38). Tighten the Water Seal Cap to 20 to 25 ft–lb (27 to 34 Nm) torque.
4. Grasp the large diameter end of the Rotor Shaft (33) in leather–covered or copper–covered vise jaws so that the small diameter end is upward.
5. Slide the Front End Plate (31), bearing recess first, over the Rotor Shaft.
6. Place the Rotor Key (29) in the keyslot in the Rotor Shaft.
7. Slide the Rotor (28) over the Rotor Shaft, engaging the Rotor Key.
8. Place a Vane (30) in each vane slot.
9. Place the Cylinder Assembly (25), small dowel first, over the Rotor so that the small dowel engages the alignment hole in the Front End Plate.
10. Place the Rear End Plate (24) over the Rotor Shaft and against the Cylinder, so that it engages the Cylinder Dowel (27).
11. Check the outside diameter and large inside diameter of the rotor bearing seal for wear. If the outside diameter of the hub is worn to 1.764” (29.881 mm) or smaller, and/or the large inside diameter is worn to 0.910” (23.122 mm) or larger, install a new rotor bearing seal.

NOTICE

Take all measurements 90° to the left of the dowel hole when facing the hub side of the seal.

Install the rotor bearing seal, flat side first, so that the Cylinder Dowel engages the alignment hole in the Bearing Seal.

12. Press the rear rotor bearing onto the hub of the Controller Assembly (18).
13. Press the Controller Assembly into the hub side of the Rotor Bearing Cage (21) until it is within 1/8” (3 mm) of seating.

NOTICE

The Controller has left–hand threads.

⚠ WARNING

Tighten the Controller to 8 to 10 ft–lb (10.8 to 13.5 Nm) torque. Do not exceed 10 ft–lb (13.5 Nm) torque. The Controller may be damaged if this torque is exceeded.

14. Using the No. 99V60–950 Controller Wrench, install the assembled Controller, Bearing and Cage on the Rotor Shaft.

NOTICE

The Controller Retaining Nut (20) has right–hand threads.

15. Install the Controller Retaining Nut. Tighten the Nut to 6 to 9 in–lb (0.67 to 1.07 Nm) torque.
16. Remove the assembled motor from the vise.
17. Slide the upper Shaft Bearing (34) on the large diameter end of the Rotor Shaft until it seats against the shoulder on the Shaft.
18. Slide the Bearing Spacer (35) on the Rotor Shaft until it contacts the Bearing.
19. Stand the Housing (14) upright on the workbench.

20. Place the two Motor Clamp Washers (32) **concave side first** in the bottom of the housing bore, so that the outer rim of the leading Washer contacts the Housing.
21. Install the assembled motor, **shaft end first,** into the Housing until the Front End Plate seats against the Motor Clamp Washers.
22. Place the Rear End Plate Gasket (22) on the face of the Rotor Bearing Cage, aligning the dowel hole in the Gasket with the Cylinder Dowel.
23. If the Oiler Body Assembly (2) was disassembled, install two new Oiler Felts (4) in the Oiler Body, and retain them with the Oiler Adjusting Screw (5). Run the Screw in until its trailing face is flush with the face of the Oiler Body.
24. Install the Oiler Body O–rings (3 and 6) in their respective grooves on the Oiler Body.
25. Install the Oiler Body Assembly in the Backhead and retain it with the Oiler Body Retainer (7).
26. Place the Housing Seal (17) on the rim of the Housing.
27. Place the Backhead Assembly (1) on the Housing, making certain the Cylinder Dowel engages the dowel hole in the Backhead. Install the Backhead Cap Screws (13) and Lock Washers (12). Tighten them to 20 ft–lb (27 Nm) torque.
28. Lay the pump on its side and slide the Impeller (42), hub side first, on the splined end of the Rotor Shaft. Manually rotate the Impeller. If it rubs against the Housing, install an Impeller Shim (41) or Shims as required to provide running clearance between the Impeller and Housing.
29. Install the Impeller Retaining Washer (43) and Impeller Retaining Screw (44). Tighten the Screw to 12 to 15 ft–lb (16.2 to 20.3 Nm) torque.
30. For the most efficient operation of the pump, particularly against high heads, it is necessary that the clearance between the Impeller and Impeller Cover (46) be regulated at 0.010". Place the Impeller Cover on the base of the Housing, using the required Impeller Cover Shim (45) or Shims to obtain the desired clearance.
31. Place the Inlet (47) against the Impeller Cover, and install the Impeller Cover Cap Screws (49) and Lock Washers (48). Tighten the Cap Screws to 9 to 12 ft–lb (12.2 to 16.2 Nm) torque.
32. Inject 5 – 10 cc of Ingersoll–Rand No. 80 Grease into the Grease Fitting (15) on the Motor Housing (14).

TROUBLESHOOTING GUIDE

Trouble	Probable Cause	Solution
Low power or low free speed	Dirty Air Strainer Screen and/or Muffler	Using a clean, suitable, cleaning solution in a well–ventilated area, clean the Air Strainer Screen and/or Muffler. Allow to air dry.
	Worn or broken Vanes	Replace **complete** set of Vanes.
	Worn or broken Cylinder	Examine Cylinder and replace it if it is worn or broken or if bore is scored or wavy.
	Improper lubrication or dirt build–up in the motor	Lubricate the Pump as instructed in **LUBRICATION**. If lubrication does not result in satisfactory operation, disassemble the Pump, inspect and clean all parts.
Rough operation	Worn or broken Shaft Bearing or Rotor Bearing Seal Assembly	Examine each bearing. Replace if worn or damaged. Replace the Rotor Bearing Seal if the outside diameter of the hub is worn to 1.76” or smaller and/or the large inside diameter is worn to 0.910” or larger.
	Worn Rotor Key	Replace the Key. Check the Rotor Shaft and Rotor for keyslot wear and replace if necessary.
Scoring of End Plates and Cylinder	Improper assembly	Make certain that all motor parts are properly aligned prior to clamping the motor assembly.
	Rotor Bearing Seal Assembly misalignment	Remove the Backhead. Rotate the motor by hand to align the Seal.

NOTICE

SAVE THESE INSTRUCTIONS. DO NOT DESTROY.