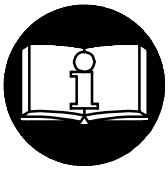
03529385
Form P6438
Edition 9
April, 1999

F
E
P

OPERATION AND MAINTENANCE MANUAL FOR 88S VERTICAL AIR SANDERS

NOTICE

Series 88S Vertical Air Sanders are designed for heavy duty sanding and polishing operations where space limitations are a factor.
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 3/4” (19 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 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.
- Check for excessive speed and vibration before operating.
- 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.
- 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.

© Ingersoll–Rand Company 1999

Printed in U.S.A.

INGERSOLL-RAND®
PROFESSIONAL TOOLS

WARNING LABEL IDENTIFICATION

⚠ WARNING

FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

⚠WARNING

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

⚠WARNING

Always wear hearing protection when operating this tool.

⚠WARNING

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

⚠WARNING

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

⚠WARNING

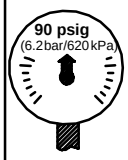
Do not carry the tool by the hose.

⚠WARNING

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

⚠WARNING

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



⚠WARNING

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

SANDER SPECIFIC WARNINGS

- **These Sanders will operate at the free speed specified on the nameplate if the air supply line furnishes 90 psig (6.2 bar/620 kPa) air pressure at the tool. Operation at higher air pressure will result in excessive speed.**
- **Use only a sanding pad, buffing wheel or polishing bonnet with these tools. Do not use any grinding wheel, bur or metal removing accessory with these tools. Never use an accessory having a maximum operating speed less than the free speed of the Sander in which it is being used.**
- **When using a pad having a shank, insert the shank to full depth in the collet. When using a pad on a threaded arbor, make certain the flange nut is tightened securely. Check the tightness of the collet nut or flange nut before operating a Sander to make certain it will not loosen during operation.**
- **Do not attempt to disassemble the Controller. The Controller is available only as a unit and is guaranteed for the life of the tool if it is not abused.**

PLACING TOOL IN SERVICE

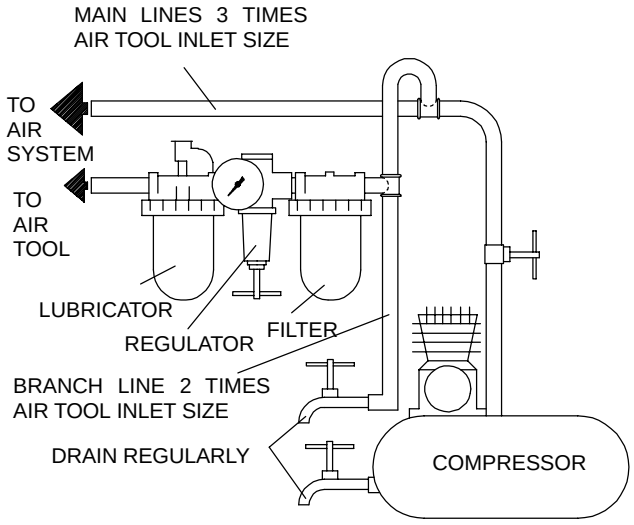
LUBRICATION

Ingersoll–Rand No. 50

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

For USA – No. C22–04–G00

Before starting the tool, unless the air line lubricator is used, detach the air hose and inject about 1.5 cc of oil into the air inlet.



(Dwg. TPD905–1)

HOW TO ORDER A SANDER

VERTICAL DISK WHEEL SANDER

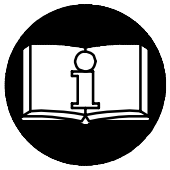
Model	Free Speed, rpm	Spindle and Back Up Pad
88S45W109	4,500	5/8–11, 9”
88S60W107	6,000	5/8–11, 7”

F

MANUEL D'EXPLOITATION ET D'ENTRETIEN DE LA SÉRIE 88S

NOTE

Les ponceuses verticales de la Série 88S sont destinées aux grosses opérations de ponçage et de polissage où l'espace disponible est limité.
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 19 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. La poussière, les fumées corrosives et/ou une humidité excessive peuvent endommager le moteur d'un outil pneumatique.**
- **Ne jamais lubrifier les outils avec des liquides inflammables ou volatiles tels que le kérosne, 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.**
- **Vérifier que la vitesse et les vibrations ne sont pas excessives avant d'utiliser l'outil.**
- **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 à utiliser l'outil.**
- **Utiliser les accessoires recommandés par Ingersoll–Rand.**
- **Esta herramienta no ha sido diseñada para trabajar en ambientes explosivos.**
- **Esta herramienta no está aislada contra descargas eléctricas.**

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.

© Ingersoll–Rand Company 1999

Imprimé aux É.U.

INGERSOLL-RAND®
PROFESSIONAL TOOLS

SIGNIFICATION DES ETIQUETTES D'AVERTISSEMENT

⚠ ATTENTION

LE NON RESPECT DES AVERTISSEMENTS SUIVANTS PEUT CAUSER DES BLESSURES

⚠ ATTENTION

Porter toujours des lunettes de protection pendant l'utilisation et l'entretien de cet outil.

⚠ ATTENTION

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.

⚠ ATTENTION

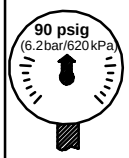
Garder une position équilibrée et ferme. Ne pas se pencher trop en avant pendant l'utilisation de cet outil.

⚠ ATTENTION

Porter toujours une protection acoustique pendant l'utilisation de cet outil.

⚠ ATTENTION

Ne pas transporter l'outil par son flexible.



⚠ ATTENTION

Utiliser de l'air comprimé à une pression maximum de 6,2 bar (620 kPa).

⚠ ATTENTION

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.

⚠ ATTENTION

Ne pas utiliser des flexibles ou des raccords endommagés, effilochés ou détériorés.

AVERTISSEMENTS SPÉCIFIQUES AUX PONCEUSES

- **Ces ponceuses tourneront à la vitesse à vide spécifiée sur la plaque signalétique lorsque le circuit d'alimentation fournit de l'air à une pression de 6,2 bar (620 kPa) à l'outil. L'exploitation à une pression supérieure produira une vitesse excessive.**
- **Utiliser seulement un plateau de ponçage, un disque de polissage ou une peau de mouton de polissage avec ces outils. Ne jamais utiliser de meule ou d'accessoire d'ébavurage ou d'enlèvement de métal sur ces outils. Ne jamais utiliser d'accessoire ayant une vitesse de fonctionnement maximum inférieure à la vitesse à vide de la ponceuse sur laquelle il est utilisé.**
- **Lorsqu'un plateau de ponçage à tige est utilisé, insérer la tige à fond dans la pince. Lorsqu'un plateau est utilisé sur un arbre fileté, vérifier que l'écrou de bride est fermement serré. Vérifier le serrage de l'écrou de pince ou de l'écrou d'arbre avant de mettre la ponceuse en marche, et vérifier qu'il ne se desserre pas pendant l'exploitation.**
- **Ne jamais essayer de démonter le contrôleur. Ce dernier est fourni seulement comme un ensemble et est garanti pendant toute la durée de vie de l'outil s'il est utilisé correctement.**

MISE EN SERVICE DE L'OUTIL

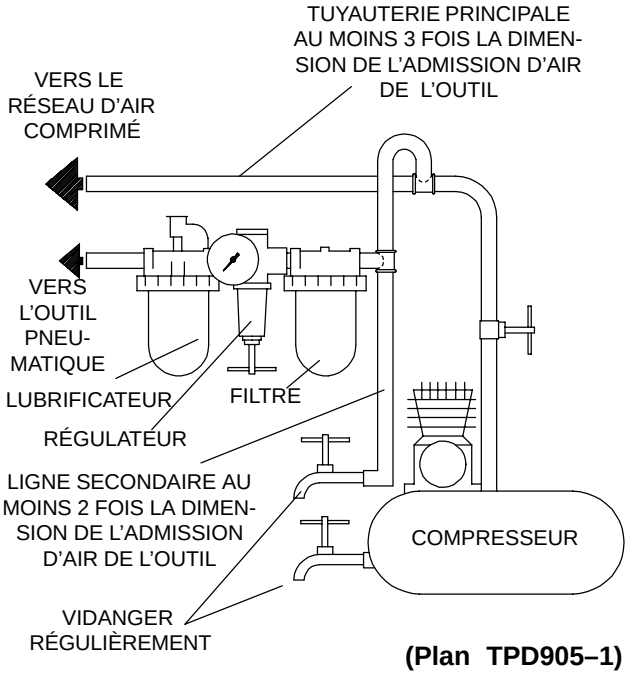
LUBRIFICATION

Ingersoll–Rand No. 50

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

For USA – No. C22–04–G00

Avant de mettre l'outil en marche, si un lubrificateur de ligne n'est pas utilisé, débrancher le flexible d'alimentation et verser environ 1,5 cm^3 d'huile dans le raccord d'admission de l'outil.



(Plan TPD905–1)

SPÉCIFICATIONS

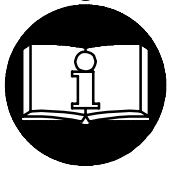
Modèle	Vitesse libre	Broche et plateau d'appui
	tr/mn	
88S45W109	4.500	5/8–11, 9"
88S60W107	6.000	5/8–11, 7"

E

MANUAL DE FUNCIONAMIENTO Y MANTENIMIENTO
LIJADORAS VERTICALES DE LA SERIE 88S

NOTA

Las lijadoras neúmaticas verticales de la serie 88S están diseñadas para trabajos de lijado y pulido de alto rendimiento en aquellas situaciones en que el espacio es reducido. Ingersoll–Rand no aceptará responsabilidad alguna por la modificación de las herramientas efectuada por el cliente para las aplicaciones que no hayan sido consultadas con Ingersoll–Rand.



⚠ AVISO

SE ADJUNTA INFORMACIÓN IMPORTANTE DE SEGURIDAD.
LEA ESTE MANUAL ANTES DE UTILIZAR LA HERRAMIENTA.
ES RESPONSABILIDAD DE LA EMPRESA ASEGURARSE DE QUE EL OPERARIO ESTÉ AL TANTO DE LA INFORMACIÓN QUE CONTIENE ESTE MANUAL.
EL HACER CASO OMISO DE LOS AVISOS SIGUIENTES PODRÍA OCASIONAR LESIONES.

PARA PONER LA HERRAMIENTA EN SERVICIO

- **Utilice, examine y mantenga siempre esta herramienta conforme al código de seguridad para herramientas neumáticas portátiles de la American National Standards Institute (ANSI B186.1).**
- **Para mayor seguridad, rendimiento óptimo y larga vida útil de las piezas, utilice esta herramienta a una presión de aire máxima de 90 psig (6,2 bar/620 kPa) con una manguera de suministro de aire con diámetro interno de 19 mm.**
- **Corte siempre el suministro de aire y desconecte la manguera de suministro de aire antes de instalar, desmontar o ajustar cualquier accesorio de esta herramienta, o antes de realizar cualquier operación de mantenimiento de la misma.**
- **No utilice mangueras de aire y racores dañados, desgastados o deteriorados.**
- **Asegúrese de que todos los racores y mangueras sean del tamaño correcto y estén bien apretados. El Esq. TPD905–1 muestra una disposición característica de las tuberías.**
- **Use siempre aire limpio y seco a una presión máxima de 90 psig (6,2 bar/620 kPa). El polvo, los gases corrosivos y/o el exceso de humedad pueden estropear el motor de una herramienta neumática.**
- **No lubrique las herramientas con líquidos inflamables o volátiles tales como queroseno, gasoil o combustible para motores a reacción.**
- **No saque ninguna etiqueta. Sustituya toda etiqueta dañada.**

UTILIZACIÓN DE LA HERRAMIENTA

- **Lleve siempre protección ocular cuando utilice esta herramienta o realice operaciones de mantenimiento en la misma.**
- **Lleve siempre protección para los oídos cuando utilice esta herramienta.**
- **Mantenga las manos, la ropa suelta y el cabello largo alejados del extremo giratorio de la herramienta.**
- **Anticipe y esté alerta a los cambios repentinos en el movimiento durante la puesta en marcha y utilización de toda herramienta motorizada.**
- **Mantenga una postura del cuerpo equilibrada y firme. No estire demasiado los brazos al manejar la herramienta. Pueden darse elevados pares de reacción a la presión de aire recomendada, e incluso a presiones inferiores.**
- **Compruebe que no haya exceso de velocidad o vibración de la herramienta antes de utilizarla.**
- **El eje de la herramienta puede seguir girando brevemente después de haberse soltado la palanca de mando.**
- **Las herramientas neumáticas pueden vibrar durante el uso. La vibración, los movimientos repetitivos o las posiciones incómodas pueden deñarle los brazos y manos. En caso de incomodidad, sensación de hormigueo o dolor, deje de usar la herramienta. Consulte al médico antes de volver a utilizarla.**
- **Utilice únicamente los accesorios recomendados por Ingersoll–Rand.**
- **Esta herramienta no ha sido diseñada para trabajar en ambientes explosivos.**
- **Esta herramienta no está aislada contra descargas eléctricas.**

NOTA

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

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

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

© Ingersoll–Rand Company 1999

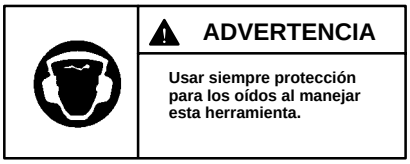
Impreso en EE. UU.

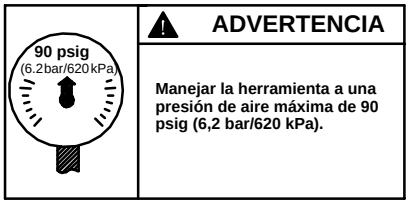
INGERSOLL-RAND®
PROFESSIONAL TOOLS

ETIQUETAS DE AVISO

⚠ AVISO

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





AVISOS ESPECÍFICOS SOBRE LAS LIJADORAS

- **Estas lijadoras funcionan a la velocidad en vacío que se indica en la placa de identificación si la red de aire comprimido suministra a la herramienta aire a una presión de 90 psig (6,2 bar/620 kPa). El manejo a una presión superior producirá un exceso de velocidad.**
- **Utilice solamente discos de lijar o de pulir con estas herramientas. No utilice muelas de rectificar, fresas ni accesorios de desbarbado de metal con estas herramientas. No utilice nunca un accesorio cuya velocidad máxima de funcionamiento sea inferior a la velocidad en vacío de la lijadora con la que se emplea.**
- **Al utilizar un disco con eje, introduzca el eje completamente en la pinza. Cuando utilice un disco en un eje roscado, asegúrese de que la tuerca de la brida quede bien apretada. Compruebe el apriete de la tuerca de la pinza o de la brida antes de accionar la lijadora para asegurarse de que no se afloje durante el funcionamiento.**
- **No intente desarmar el estrangulador. Éste está disponible únicamente como conjunto y está garantizado para toda la vida útil de la herramienta, siempre que se utilice como es debido.**

PARA PONER LA HERRAMIENTA EN SERVICIO

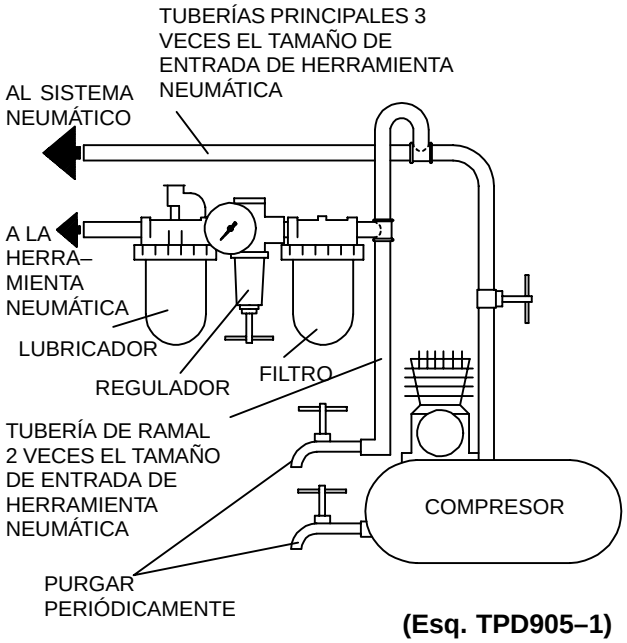
LUBRICACIÓN

Ingersoll–Rand Nº 50

Utilice siempre un lubricador de aire comprimido con estas herramientas. Recomendamos utilizar el siguiente conjunto de filtro–lubricador–regulador:

Para EE.UU. – Nº C22–04–G00

Antes de accionar la herramienta, salvo que se utilice un lubricador de aire comprimido, desconecte la manguera de aire e inyecte unos 1,5 cc de aceite en el conjunto de admisión.



(Esq. TPD905–1)

ESPECIFICACIONES

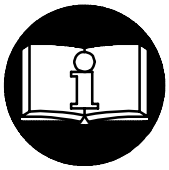
Modelo	Velocidad en vacío	Husillo y disco soporte
	rpm	
88S45W109	4.500	5/8–11, 9”
88S60W107	6.000	5/8–11, 7”

P

MANUAL DE FUNCIONAMENTO E MANUTENÇÃO
LIXADEIRAS PNEUMÁTICAS VERTICAIS SÉRIE 88S

AVISO

As Lixadeiras Pneumáticas Verticais Série 88S são concebidas para operações pesadas de lixar e polir, onde as limitações de espaço são um factor relevante.
A Ingersoll–Rand não pode ser responsabilizada pela modificação de ferramentas para aplicações para as quais não tenha sido consultada.



⚠ ADVERTÊNCIA

IMPORTANTES INFORMAÇÕES DE SEGURANÇA EM ANEXO.
LEIA ESTE MANUAL ANTES DE OPERAR A FERRAMENTA.

É RESPONSABILIDADE DA ENTIDADE PATRONAL PÔR AS INFORMAÇÕES CONTIDAS NESTE MANUAL À DISPOSIÇÃO DOS UTILIZADORES.

A NÃO OBEDIÊNCIA ÀS ADVERTÊNCIAS SEGUINTES PODERÁ RESULTAR EM LESÕES PESSOAIS.

COLOCAÇÃO DA FERRAMENTA EM SERVIÇO

- **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, desempenho superior e durabilidade máxima das peças, opere esta ferramenta a uma pressão de ar máxima de 90 psig (6,2 bar/620 kPa) na admissão com uma mangueira de alimentação de ar com diâmetro interno de 3/4 pol. (19 mm).**
- **Desligue sempre a alimentação de ar e a mangueira de alimentação de ar antes de instalar, retirar ou ajustar qualquer acessório desta ferramenta, ou antes de fazer manutenção na mesma.**
- **Não utilize mangueiras de ar e acessórios danificados, puídos ou deteriorados.**
- **Certifique–se de que todas as mangueiras e acessórios são da dimensão correcta e que estão seguros firmemente. Consulte o Des. TPD905–1 para uma disposição de tubos típica.**
- **Utilize sempre ar limpo e seco a uma pressão máxima de 90 psig. Poeira, fumos corrosivos e/ou humidade excessiva podem destruir o motor de uma ferramenta pneumática.**
- **Não lubrifique a ferramenta com líquidos inflamáveis ou voláteis como querosene, gasóleo ou combustível para jactos.**
- **Não retire nenhum rótulo. Substitua os rótulos danificados.**

UTILIZAÇÃO DA FERRAMENTA

- **Use sempre protecção para os olhos ao operar ou fazer manutenção nesta ferramenta.**
- **Use sempre protecção auricular ao operar esta ferramenta.**
- **Mantenha as mãos, roupas soltas e cabelos longos afastados da extremidade rotativa da ferramenta.**
- **Esteja preparado e alerta para mudanças súbitas no movimento durante o arranque e o funcionamento de qualquer ferramenta mecânica.**
- **Mantenha o corpo numa posição equilibrada e firme. Não estique o corpo ao operar esta ferramenta. Podem ocorrer binários de reacção elevados à ou abaixo da pressão do ar recomendada.**
- **Verifique a ferramenta quanto a velocidade ou vibração excessiva antes de a operar.**
- **O veio da ferramenta pode continuar a rodar por um curto período de tempo depois de soltar o regulador.**
- **A ferramentas pneumáticas podem vibrar durante a utilização. Vibração, movimentos repetitivos ou posições desconfortáveis podem ser nocivos às suas mãos e braços. Pare de utilizar qualquer ferramenta se ocorrer desconforto, sensação de formigueiro ou dor. Procure assistência médica antes de reiniciar a utilização.**
- **Use os acessórios recomendados pela Ingersoll–Rand.**
- **Esta ferramenta não é concebida para funcionar em atmosferas explosivas.**
- **Esta ferramenta não é isolada contra choque eléctrico.**

AVISO

A utilização de qualquer peça sobresselente que não seja Ingersoll–Rand genuína pode resultar em riscos para a segurança, em desempenho reduzido da ferramenta e mais necessidade de manutenção, e pode invalidar todas as garantias.

As reparações só devem ser feitas por pessoal autorizado e com formação adequada. Consulte o Representante Autorizado Ingersoll–Rand mais próximo.

Envie toda a correspondência ao Escritório ou Distribuidor Ingersoll–Rand mais próximo.

© Ingersoll–Rand Company 1999

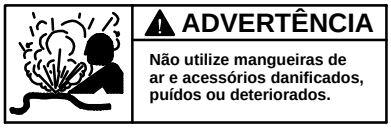
Impresso nos E.U.A.

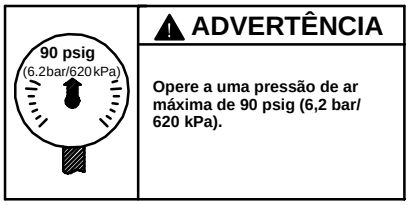
INGERSOLL-RAND®
PROFESSIONAL TOOLS

IDENTIFICAÇÃO DAS ETIQUETAS DE ADVERTÊNCIA

⚠ ADVERTÊNCIA

A NÃO OBEDIÊNCIA ÀS ADVERTÊNCIAS SEGUINTES PODERÁ RESULTAR EM LESÕES PESSOAIS.





ADVERTÊNCIAS ESPECIAIS PARA A LIXADEIRA

- **Estas Lixadeiras funcionarão à velocidade livre especificada na placa de identificação se a linha de ar fornecer pressão de ar a 90 psig (6,2 bar/620 kPa) na ferramenta. A operação a uma pressão mais elevada resultará em velocidade excessiva.**
- **Utilize apenas uma almofada de lixar, roda de polir ou boina de polir com estas ferramentas. Não utilize mó abrasiva, rebarbador ou acessório para remoção de metal com estas ferramentas. Nunca utilize um acessório que tenha uma velocidade máxima de funcionamento abaixo da velocidade livre da Lixadeira na qual o acessório está a ser utilizado.**
- **Ao utilizar uma almofada que tenha um veio, introduza–o totalmente no mandril. Ao utilizar uma almofada num veio roscado, certifique–se de que a porca de flange está apertada firmemente. Verifique o aperto da porca do mandril ou da porca de flange antes de operar a Lixadeira para assegurar que a porca não desapertará durante o funcionamento.**
- **Não tente desmontar o Controlador. O Controlador só está disponível como uma unidade e é garantido durante a vida útil da ferramenta, se não for maltratado.**

COLOCAÇÃO DA FERRAMENTA EM SERVIÇO

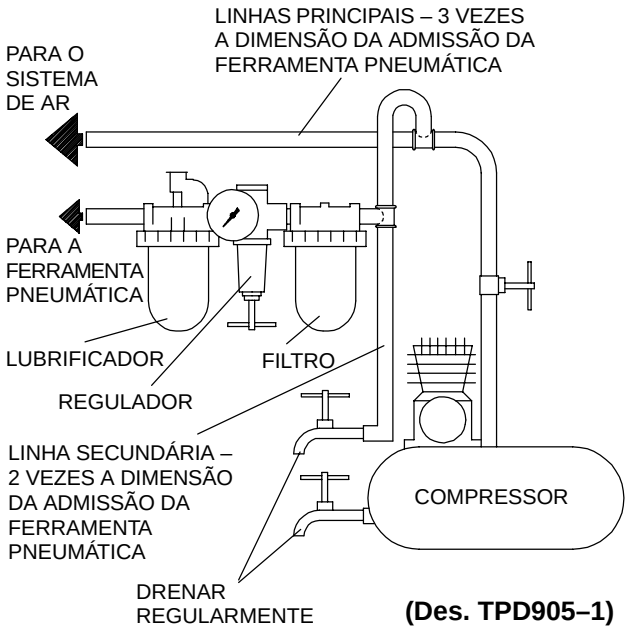
LUBRIFICAÇÃO

Ingersoll–Rand Nº 50

Utilize sempre um lubrificador de linha de ar com estas ferramentas.
Recomendamos a seguinte Unidade Filtro–Lubrificador–Regulador:

For USA – No. C22–04–G00

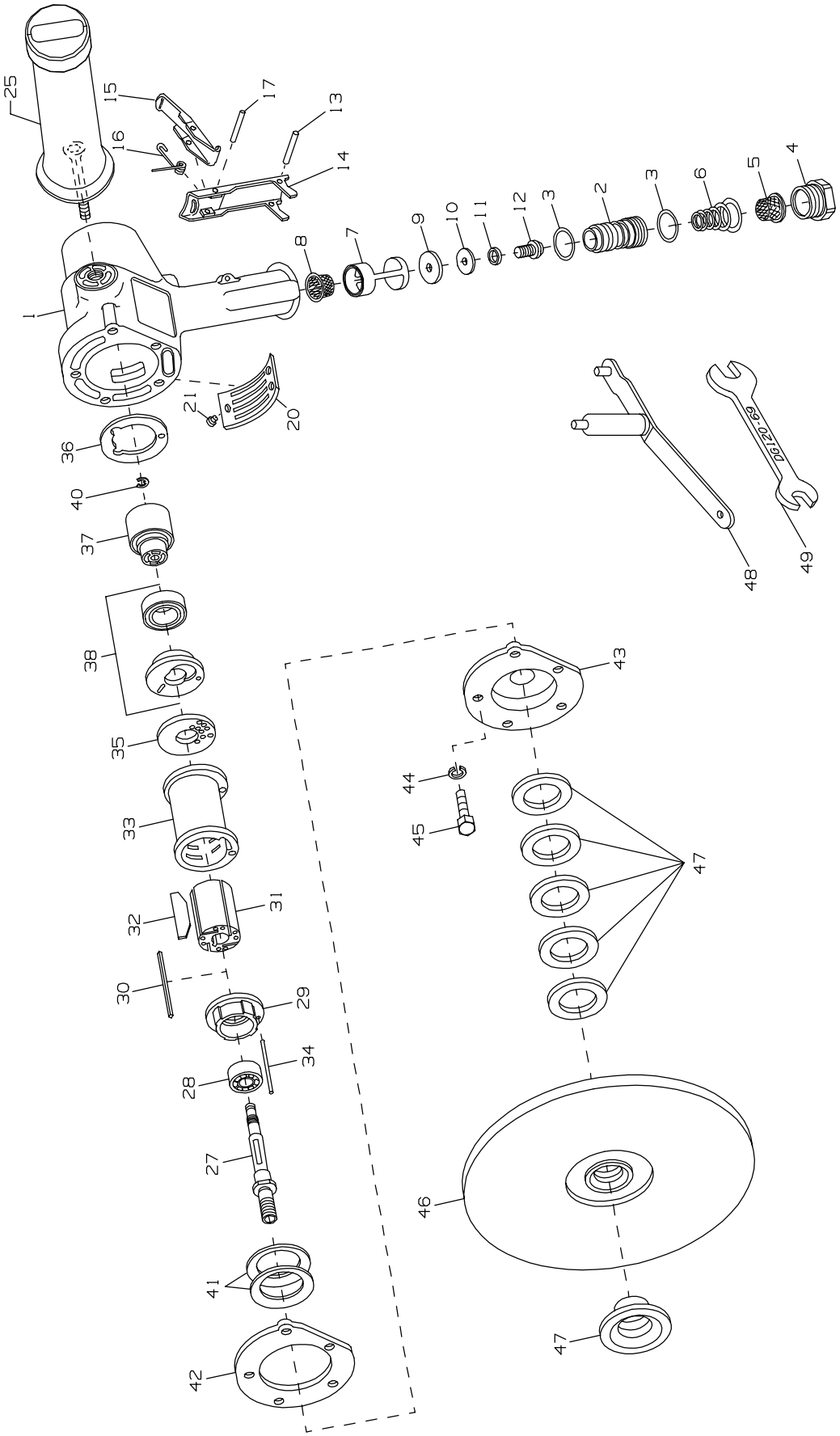
Antes de ligar a ferramenta, a menos que o lubrificador de linha de ar esteja a ser utilizado, desligue a mangueira de ar e injecte aproximadamente 1,5 cc de óleo na admissão de ar.



(Des. TPD905–1)

ESPECIFICAÇÕES

Modelo	Velocidade Livre	Haste e Almofada de Apoio
	rpm	mm (pol.)
88S45W109	4.500	5/8–11, 9”
88S60W107	6.000	5/8–11, 7”


25
15
17
13
16
14
4
5
6
3
2
3
12
11
10
9
8
7
1
21
20
36
40
37
38
35
33
32
31
30
29
34
28
27
41
42
43
44
45
47
46
47
48
49
DH120-69

			PART NUMBER FOR ORDERING
+	1	Cylinder Case Assembly	
		for all models ending in –EU	88V60–EU–A25
		for all other models	88V60–A25
	2	Throttle Valve Assembly	88V60–A302
♦ •	3	Seal (2)	C321–606
	4	Inlet Bushing	88V60–38
♦ •	5	Inlet Bushing Screen	834–61
♦ •	6	Throttle Valve Spring	99V60–262
	7	Throttle Valve Seat Support Assembly	88V60–A303
♦ •	8	Air Strainer Screen	834–61
♦ •	9	Valve Seat	R4–159A
	10	Valve Seat Washer	99V60–155
	11	Valve Screw Lock Washer	H54U–352
	12	Valve Seat Screw	PS3–83
•	13	Throttle Lever Pin	MR–100
	14	Locking Lever Assembly	88V60–A400
	15	Lever Lock	88V60–402
	16	Lever Lock Spring	88V60–405
	17	Lever Lock Pin	502B–120
	*	Nameplate (for 88V60–EU–A25)	88V–EU–K301
	*	Nameplate Screw (for 88V60–EU–A25) (4)	BN403–302
	*	Warning Label (for 88V60–EU–A25)	EU–99
	*	Nameplate Kit (for 88V60–A25)	88V–K301
		Nameplate Screw (4)	BN403–302
		Warning Label	WARNING–5–99
	20	Exhaust Deflector	99V60–23
	21	Exhaust Deflector Screw (3)	99V60–200

			PART NUMBER FOR ORDERING
	*	Nameplate	88S60–301
	*	Nameplate Screw (4)	BN403–302
	25	Dead Handle	ERG0–A48
	27	Arbor	
		for 88S45 (4500 rpm) (brown)	88S45–204–W10
		for 88S60 (6000 rpm) (blue)	88S60–204–W10
	28	Front Rotor Bearing	R380–105
	29	Front End Plate	88V60–11
•	30	Rotor Key	88V60–70
	31	Rotor	88V60–53
♦ •	32	Vane Packet (set of 4 Vanes)	88V60–42–4
	33	Cylinder	88V60–3
•	34	Cylinder Dowel	88V60–98
	35	Rear End Plate	88V60–12
♦ •	36	Rear End Plate Gasket	88V60–739
	37	Controller Assembly	
		for 88S45 (4500 rpm) (brown)	88S45–A424
		for 88S60 (6000 rpm) (blue)	88V60–A424
	38	Rotor Bearing Seal Assembly	88V60–A28
♦	40	Controller Retaining Ring	88V60–118
	41	Motor Clamp Belleville Washer (2)	88V60–207
♦ •	42	Cylinder Case Gasket	88V60–283
	43	Motor Retaining Plate	88S60–55
	44	Cylinder Case Screw Lock Washer (5)	10BM–67
	45	Cylinder Case Screw (5)	99V60–638

* Not illustrated.

♦ Indicates Tune–up Kit part.

• 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.

\+ Whenever a new Cylinder Case Assembly is installed, select the correct Nameplate from the Nameplate Kit and attach it to the Cylinder Case with the Nameplate Screws.

		PART NUMBER FOR ORDERING
46	Sanding Pad Assembly	
	with 5” Sanding Pad	77A–AM825–5
	with 7” Sanding Pad (medium)	77A–AM825–7
	with 7” Sanding Pad (firm)	77A–BM825–7
	with 9” Sanding Pad	77A–AM825–9
47	Pad Mounting Kit	77A–826
*	Piped–Away Exhaust Kit	88V60–K184
*	Exhaust Hose	99V60–184
*	Exhaust Hose Clamp	DG30–67
*	Exhaust Elbow	88V60–167
*	Exhaust Elbow Gasket	99V60–49
*	Exhaust Elbow Screw (3)	FEA100–112
*	Exhaust Hose Band Assembly	99V60–A927
*	Exhaust Hose Band (4)	99V60–927
*	Exhaust Hose Band Screw (4)	MT1–36–7/8
*	Screw (2)	JC3350–103
*	Exhaust Hose Band Nut (6)	G8–120A

		PART NUMBER FOR ORDERING
48	Wrench	AG230–26M
49	Wrench (double end 5/8” x 3/4”	DG120–69
*	Controller Wrench (for removing or installing the Controller Assembly)	88V60–950
*	Seal Pressing Tool (for pressing off the Controller Assembly from the Rear Rotor Bearing)	99V60–951
*	Bearing Clamp (for clamping the outer race of Rear Rotor Bearing to release the Controller)	99V60–A952
*	Controller Maintenance Kit (includes 88V60–950, 99V60–951 and 99V60–A952)	88V60–K950
*	Tune–up Kit (includes illustrated parts 3 [2], 5, 6, 8, 9, 32, 36, 40 and 42)	88V/88H–TK3

* Not illustrated.

MAINTENANCE SECTION

⚠ WARNING

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

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

LUBRICATION

Whenever a Series 88S Sander is disassembled for overhaul or replacement of parts, lubricate as follows:

1. Inject about 1.5 cc of Ingersoll–Rand No. 50 Oil into the Inlet Bushing (4) after assembly.
2. If the Sander is used in an extremely dirty environment, **once each week or after each forty hours of operation**, pour a liberal amount of a suitable cleaning solution into the slots in the handle. Work the throttle lever vigorously to wash the cleaning solution around, then pour the solution and accumulated dirt from the handle. Repeat this process until the cleaning solution is clean when it comes out of the handle. Immediately after flushing with the cleaning solution, inject a liberal amount of Ingersoll–Rand No. 50 Oil in the slots and, again, work the throttle lever vigorously to lubricate the cleaned parts.

DISASSEMBLY

General Instructions

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

Disassembly of the Motor and Throttle

1. Grasp the flats of the live air handle in leather–covered or copper–covered vise jaws with the Spindle upward.
2. Remove the Cylinder Case Screws (45), the Lock Washers (44), the Motor Retaining Plate (43), Cylinder Case Gasket (42) and the two Motor Clamp Washers (41).
3. Remove the Sander from the vise.
4. Grasp the Arbor (27) in leather–covered or copper–covered vise jaws. Lift off the Cylinder Case to expose the motor.

NOTICE

Use only the special No. 88V60–950 Controller Wrench for removing the Controller Assembly (39). 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.

5. Remove the Controller Retaining Ring (40) and unscrew the Controller Assembly which has a **left–hand thread** that requires a **clockwise rotation** for removal.
6. Lift off the Rotor Bearing Seal (37) and the Rear End Plate (35).
7. Lift off the Cylinder (33).
8. Remove the Vanes (32).
9. Withdraw the Rotor (31) and lift out the Rotor Key (30).
10. Remove the arbor and end plate assembly from the vise. Grasp the Front End Plate (29) in one hand and tap the small diameter end of the Arbor (27) with a soft hammer to remove the End Plate.

11. If the Front Rotor Bearing (28) is to be replaced, press it from the Arbor.
12. Insert the Controller into the No. 99V60–A952 Bearing Clamp and tighten the nut on the fixture. Insert the No. 99V60–951 Seal Pressing Tool in the center and press off the Controller. Release the clamp.
13. Place the Cylinder Case in leather–covered or copper–covered vise jaws to remove the Inlet Bushing (4), Inlet Bushing Screen (5) and the Throttle Valve Spring (6). The Bushing has an interference thread and is tightly fit.
14. Drive out the Throttle Lever Pin (13) to release the Lever Assembly (14).
15. Using a 3/32" hex wrench, reach inside the handle and remove the Valve Seat Screw (12) from the Throttle Valve Seat Support Assembly (7).
16. Thread a No. 8–32 screw about 5" (127 mm) long into the throttle valve seat support in place of the removed valve seat screw. A piece of 5/32" welding rod can be threaded on one end to serve the same purpose.
17. Grasp the protruding end of the screw in a vise, and while tapping lightly on the housing or handle with a plastic hammer, pull on the housing or handle to withdraw the throttle parts.
18. The Air Strainer Screen (8) can now be removed and cleaned.

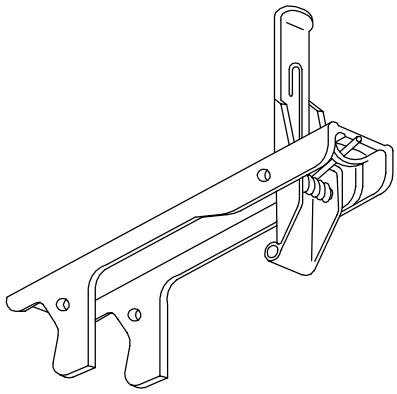
ASSEMBLY

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 not to damage threads or distort housings.
4. Always clean every part and wipe every part with a thin film of oil before installation.
5. Apply a film of O–ring lubricant to all O–rings before final assembly.
6. Check every bearing for roughness. If an open bearing must be cleaned, wash it thoroughly in a clean, suitable, cleaning solution and dry with a clean cloth. **Sealed or shielded bearing should never be cleaned.** Work grease thoroughly into every open bearing before installation.

Assembly of the Throttle and Inlet

1. Assemble the Valve Seat Support parts (7, 8, 9, 10, 11 and 12). Tighten the Valve Seat Screw to 12 in–lb (1.4 Nm) torque.
2. Insert the assembly into the handle, large diameter first. Position a punch against the flat of the screw head and tap it with a hammer until the assembly is firmly seated.
3. Apply O–ring lubricant to the Seals (3). Fit the seals to the Throttle Valve (2) and push the assembly, small diameter first, into the handle until it seats firmly.
4. Assemble the Locking Lever Assembly (14) as illustrated below:



Locking Lever Assembly
(Dwg. TPD563)

5. Align the holes in the Lever Assembly with the slots in the Cylinder Case. With a soft face hammer, tap the Throttle Lever Pin (13) through the Lever Assembly. File off any sharp edges. Operate the mechanism internally by hand to assure operation.
6. Insert the Throttle Valve Spring (6) small end first.
7. Clean the face of the Inlet Bushing and the Inlet Bushing Screen (5) with a suitable cleaning solution and allow to air dry. Insert the parts into the live air handle. Grasping the flats of the Cylinder Case with a wrench, tighten to 35 to 45 ft–lb (47 to 61 Nm) torque.

Assembly of the Motor

1. Using an arbor press against the inner race of the bearing, install the Front Rotor Bearing (28) onto the Arbor (27).
2. Inspect the Front End Plate (29) for nicks or burrs. If replacement is necessary, wipe the part with oil. Press the Front Rotor Bearing into the Front End Plate.

3. Hold the Arbor in leather–covered or copper–covered vise jaws. Insert the Rotor Key (30) into the slot of the Rotor (31). The Rotor has a staked keyway on one end. Place that end up, over the Arbor. Apply a light film of the recommended oil to each Vane (32) and insert one Vane, straight edge out, into each slot in the Rotor. If any new Vanes are required, replace the entire set.
4. Place the Cylinder over the Rotor aligning the Cylinder Dowel hole with the alignment hole in the Front End Plate (29), and with the kidney port to the right of the dowel hole.
5. Apply the Rear End Plate (35) with the kidney port to the right of the dowel hole.

NOTICE

Take all measurements 30 degrees to the left of the dowel hole when facing the hub side of the Seal. Install the Rotor Bearing Seal hub down.

NOTICE

If the Controller Assembly (37) needs to be replaced, you must also replace the Rotor Bearing Seal Assembly (38) which consists of a rear rotor bearing and a 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.

6. Check the outside diameter and large inside diameter of the Rotor Bearing Seal (38) for wear. If the outside diameter is worn to 1.176” (29.88 mm) or smaller, and/or the large inside diameter is worn to 0.910” (23.12 mm) or larger, install a new Rotor Bearing Seal.
7. Align the Rear End Plate (35), cavity and pin up, with the larger hole in the Rotor Bearing Seal.
8. Press the Rear Rotor Bearing Seal Assembly onto the hub of the Controller.

NOTICE

Use only the special 88V60–950 Controller Wrench for installing the Controller Assembly.

⚠ WARNING

Tighten the Controller between 14 and 16 ft–lb (19.0 and 21.7 Nm) torque. Do not exceed 16 ft–lb. The Controller may be damaged if this torque is exceeded. Always check the free speed of a Sander after it has been reassembled and before it is put back into service. Refer to the Test and Inspection Procedure.
Never use a Sander which runs in excess of the maximum speed listed in the Test and Inspection Procedure.

9. Thread the Controller Assembly onto the end of the Arbor. Rotate the Controller clockwise since this is a left–hand thread.
10. Install the Controller Retaining Ring (40) onto the Arbor with the concave face closest to the Controller.
11. Place the live air handle in leather–covered or copper–covered vise jaws, Cylinder Case Assembly up. Lightly dampen the Rear End Plate Gasket (36) with oil. Line the hole in the Gasket with the hole in the Cylinder Case, and align the notch in the Gasket with the notch in the motor seat.
12. With an assembly dowel, line up the motor in the Cylinder Case. Remove the assembly dowel and insert the Cylinder Dowel (34).
13. Install the two Motor Clamp Washers (41) concave or dish side **up**.
14. Apply the Cylinder Case Gasket (42), the Motor Retaining Plate (43), the Cylinder Case Screw Lock Washers (45) and the five Screws (46). Slightly tighten opposite screws, make sure the arbor is free, and tighten all screws to 14 ft–lb (19 Nm) torque.
15. Rotate the Arbor manually to make certain it is free.
16. The Dead Handle (25) may be adjusted to two positions. Insert a 5” (127 mm) long 3/16” hex wrench into the elongated slot in the end of the Dead Handle and loosen the screw securing the Handle to the Cylinder Case. Rotate the Handle 180° and tighten the screw to 18 ft–lb (24.4 Nm) torque.
17. Install the Exhaust Deflector (20) and Screws (21).

TEST AND INSPECTION PROCEDURE

⚠ WARNING

Disconnect the sander from the air supply hose or shut off air to the tool and bleed the air from the line before proceeding with the Test and Inspection Procedure.

Run the performance tests at 90 psig (6.2 bar/620 kPa) air pressure at the inlet of the tool with an eight foot length of 3/4” (19 mm) diameter air supply hose.

1. Without a sanding pad on the tool, operate the Sander with the Throttle Lever fully actuated and check the free speed by applying a hand–held tachometer to the spindle end. Record the Sander serial number, date of test and actual free speed in a permanent file. The minimum and maximum allowable free speeds are as follows:

Model	Stamped	Free Speed, rpm Min.	Max.
88S45	4500	4300	4550
88S60	6000	5650	6050

2. Attach the power test adapter to the spindle and test the 88S45 using a 4F Test Fan and test the 88S60 using an R3 Fan. The minimum allowable speed for 88S45 is 3 000 rpm; for 88S60, it is 4 700 rpm.
3. There must be no objectionable leaks in any non–exhaust area. The Throttle must not leak when it is closed.
4. There must be no leaks past the closed Throttle that will run the motor.
5. The Sander must start smoothly when the Throttle Lever is actuated and must shut off completely when the Throttle Lever is released.
6. The Sander must be equipped with a spring–loaded window style Lock (15). The Lock must return to the locked position when the Throttle Lever is released and must prevent operation of the Throttle.
7. The tool must run smoothly without noticeable vibration or unusual sound.
8. The Arbor (27) must turn freely with no evidence of brinnelled bearings.
9. The threads on the Arbor must be free of nicks and damage.
10. The Nameplate must be legible, in place and securely fastened. Make replacement if necessary.

TROUBLESHOOTING GUIDE

Trouble	Probable Cause	Solution
Low power or low free speed	Low air pressure at the Inlet	Check the air pressure at the Inlet. The pressure must not exceed 90 psig (6.2 bar/620 kPa).
	Plugged Inlet Bushing Screen	Clean the Screen in a clean, suitable, cleaning solution. If it cannot be cleaned, replace it. **⚠ WARNING** **Never operate a Sander without an Inlet Screen. Ingestion of dirt into the Sander can, in some cases, cause an unsafe condition.**
	Worn or broken Vanes	Replace a **complete** set of Vanes.
	Worn or broken Cylinder	Replace the Cylinder if it is worn or broken or if the bore is scored or wavy.
	Improper lubrication or dirt build–up in the motor	Lubricate the Sander as instructed in **LUBRICATION SPECIFICATION.** If lubrication does not result in satisfactory operation, disassemble the motor and inspect and clean all parts.
Rough operation	Worn or broken Rear Rotor Bearing or Front Rotor Bearing	Examine each Bearing. Replace the Rear Rotor Bearing Seal Assembly if worn or damaged or replace the Front Rotor Bearing.
	Worn Rotor Key	Replace the Key. Check the Arbor and Rotor for key slot wear and replace if necessary.
	Bent Arbor	Mount the Arbor on centers. Check the bearing diameter runout with an indicator. Replace the Arbor if runout exceeds 0.002” Total Indicator Reading.
Scoring	Improper assembly	Make certain that all motor parts are properly aligned prior to clamping the motor assembly.
	Rotor Bearing Seal misalignment	Losen the Cylinder Case Screws. Rotate the Spindle by hand to align the Seal. Retighten the Screws to 14 ft–lb (19 Nm) torque. The Spindle must rotate freely.
Air leaks	Worn Valve Seat or Valve Seat Washer	Replace worn parts.
	Worn Throttle Valve Seals	Replace both Seals.

NOTICE

SAVE THESE INSTRUCTIONS. DO NOT DESTROY.