

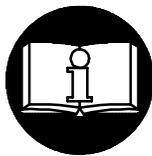


OPERATION AND MAINTENANCE MANUAL FOR MODELS 2131 AND 2131-2 AUTOMOTIVE ULTRA DUTY IMPACT WRENCHES

NOTICE

Models 2131 and 2131-2 Impact Wrenches are designed for use in general automotive repair, tire service and heavy duty fleet applications. 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 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.
- The use of a hose whip is recommended. A coupler connected directly to the air inlet increases tool bulk and decreases tool maneuverability.
- For maximum performance, the coupler on the wall should be the next size larger than the coupler used on the tool. The coupler closest to the tool should not be less than the proper air supply hose size.

USING THE TOOL

- Always wear eye protection when operating or performing maintenance on this tool.
- Always wear hearing protection when operating this tool.
- Keep hands, loose clothing and long hair away from rotating end of tool.
- Note the position of the reversing lever before operating the tool so as to be aware of the direction of rotation when operating the throttle.

- Anticipate and be alert for sudden changes in motion during start up and operation of any power tool.
- Keep body stance balanced and firm. Do not overreach when operating this tool. High reaction torques can occur at or below the recommended air pressure.
- Tool 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.
- Impact wrenches are not torque wrenches. Connections requiring specific torque must be checked with a torque meter after fitting with an impact wrench.
- This tool is not designed for working in explosive atmospheres.
- This tool is not insulated against electric shock.
- Prevent exposure and breathing of harmful dust and particles created by power tool use:

Some dust created by power sanding, sawing, grinding, drilling and other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- lead from lead based paints,
- crystalline silica from bricks and cement and other masonry products, and
- arsenic and chromium from chemically treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

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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WARNING LABEL IDENTIFICATION



FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

	<p>▲ WARNING</p> <p>Always wear eye protection when operating or performing maintenance on this tool.</p>
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	<p>▲ WARNING</p> <p>Always wear hearing protection when operating this tool.</p>
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	<p>▲ WARNING</p> <p>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.</p>
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	<p>▲ WARNING</p> <p>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.</p>
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	<p>▲ WARNING</p> <p>Do not carry the tool by the hose.</p>
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	<p>▲ WARNING</p> <p>Do not use damaged, frayed or deteriorated air hoses and fittings.</p>
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	<p>▲ WARNING</p> <p>Keep body stance balanced and firm. Do not overreach when operating this tool.</p>
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	<p>▲ WARNING</p> <p>Operate at 90 psig (6.2bar/620kPa) Maximum air pressure.</p>
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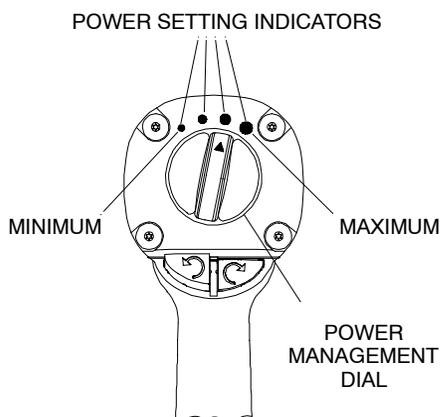
USING THE POWER MANAGEMENT SYSTEM



Air wrenches are not torque control devices. Fasteners with specific torque requirements must be checked with suitable torque measuring devices after installation with an air wrench.

Models 2131 and 2131-2 Impact Wrenches incorporate a Power Management System that allows the operator to select four power output settings. These settings range from minimum power output through maximum power output in the forward direction only. The Air Wrench will always operate at maximum power output in the reverse direction, no matter what power output level is selected.

MODEL 2131 AND 2131-2 POWER MANAGEMENT SYSTEM



The four power setting indicators of increasing size on the rear of the housing indicate increasing power output levels, are for reference only and DO NOT denote a specific power output. The smallest power setting indicator designates minimum power output, the two middle power setting indicators denote medium power outputs and the largest power setting indicator denotes maximum power output.

The power output can be further reduced in forward or reverse by using the variable throttle. Air supply systems which do not deliver adequate air pressure can affect power output at all settings.

PLACING TOOL IN SERVICE

LUBRICATION



Ingersoll-Rand No. 50



Ingersoll-Rand No. 115-1LB for routine external lubrication of the impact mechanism through the Hammer Case Grease Fitting.

Use **Ingersoll-Rand No. 105-1LB** or **Ingersoll-Rand 105-8LB** when disassembling and assembling the impact mechanism.

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

For International - C16-C3-A29
For USA - No. C11-03-G00

CAUTION

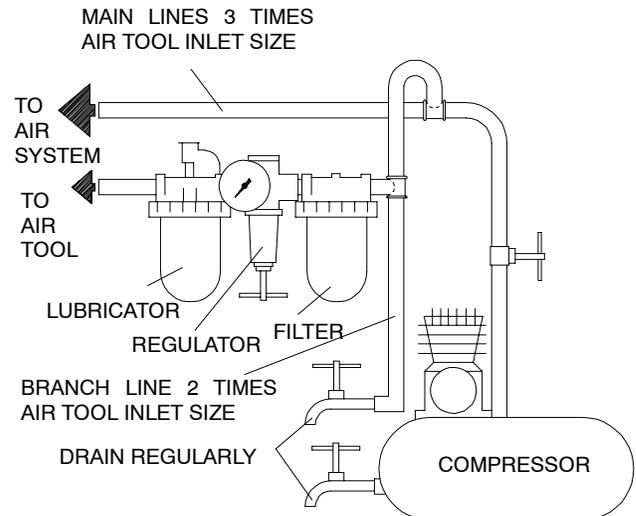
Do not mark any nonmetallic surface on this tool with customer identification codes. Such actions could affect tool performance.

INSTALLATION

Air Supply and Connections

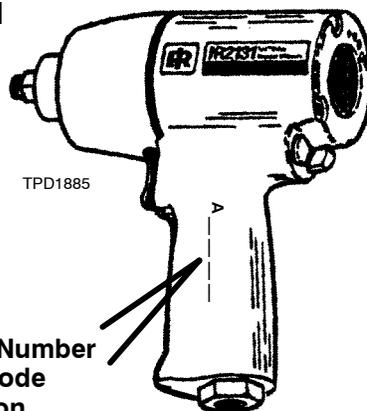
Always use clean dry air. Dust, corrosive fumes and/or excessive moisture can ruin the motor of an air tool. An air line filter can greatly increase the life of an air tool. The filter removes dust and moisture.

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)

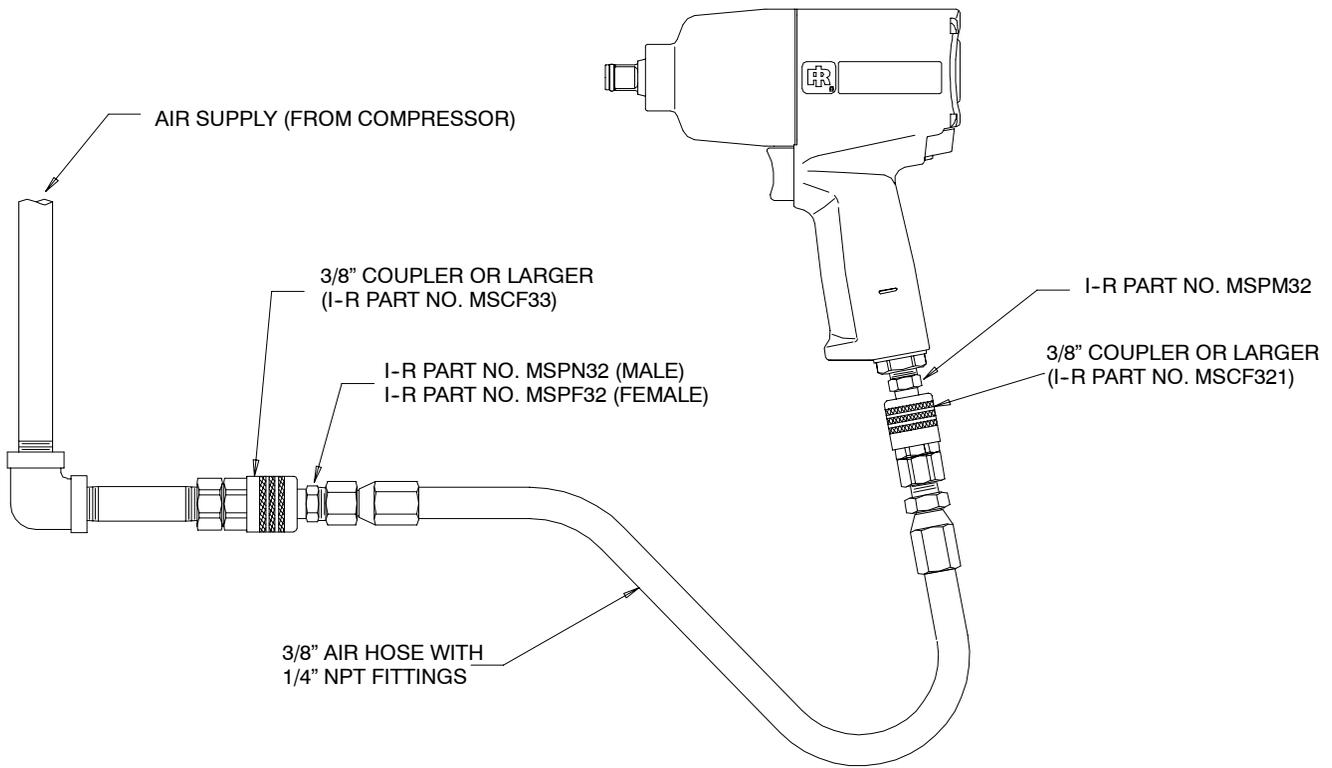
2131



TPD1885

Letter/Number
Date Code
Location
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PLACING TOOL IN SERVICE



(Dwg. TPD1674-1)

SPECIFICATIONS

Model	Impacts/min	Recommended Torque Range	
		ft-lb	Nm
PISTOL GRIP with 1/2" SQUARE DRIVE			
		Forward	
2131	1 250	50-400 (450 Max.)	68-542 (610 Max.)
		Reverse	
		550 (600 Max.)	746 (813 Max.)
PISTOL GRIP with 1/2" SQUARE DRIVE and 2" EXTENDED ANVIL			
		Forward	
2131-2	1 250	50 - 400 (450 Max.)	68 - 542 (610 Max.)
		Reverse	
		550 (600 Max.)	746 (813 Max.)

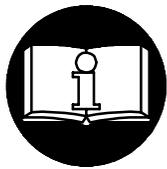
MANUEL D'EXPLOITATION ET D'ENTRETIEN DES CLÉS À CHOCS AUTOMOBILES SÉRIE EXTRA FORTE MODÈLES 2131 ET 2132-2

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NOTE

Les clés à chocs Modèles 2131 et 2131-2 sont destinées aux réparations automobiles générales, à l'entretien des pneus et aux applications de parc automobile nécessitant des couples élevés. Ingersoll-Rand ne peut être tenu responsable de la modification des outils par le client pour les adapter à des applications qui n'ont pas été approuvées par Ingersoll-Rand.

ATTENTION



**D'IMPORTANTES INFORMATIONS DE SÉCURITÉ SONT JOINTES.
LIRE CE MANUEL AVANT D'UTILISER L'OUTIL.
L'EMPLOYEUR EST TENU DE COMMUNIQUER LES INFORMATIONS
DE CE MANUEL AUX EMPLOYÉS UTILISANT CET OUTIL.**

LE NON RESPECT DES AVERTISSEMENTS SUIVANTS PEUT CAUSER DES BLESSURES.

MISE EN SERVICE DE L'OUTIL

- Toujours exploiter, inspecter et entretenir cet outil conformément au Code de sécurité des outils pneumatiques portatifs de l'American National Standards Institute (ANSI B186.1).
- Pour la sécurité, les performances optimales et la durabilité maximale des pièces, cet outil doit être connecté à une alimentation d'air comprimé de 6,2 bar (620 kPa) maximum à l'entrée, avec un flexible de 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. 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.
- L'utilisation d'un flexible suspendu est recommandée. Un raccord connecté directement au raccord d'admission augmente le poids de l'outil et réduit donc sa manoeuvrabilité.
- Pour obtenir les performances maximales, le raccord mural doit être d'un diamètre immédiatement supérieur à celui du raccord utilisé sur l'outil. Le raccord le plus proche de l'outil ne doit pas être inférieur au diamètre du flexible d'alimentation correct.

UTILISATION DE L'OUTIL

- Porter toujours des lunettes de protection pendant l'utilisation et l'entretien de cet outil.
- Porter toujours une protection acoustique pendant l'utilisation de cet outil.
- Tenir les mains, les vêtements fous et les cheveux longs, éloignés de l'extrémité rotative de l'outil.
- Noter la position du levier d'inversion avant de mettre l'outil en marche de manière à savoir dans quel sens il va tourner lorsque la commande est actionnée.

- Prévoir, et ne pas oublier, que tout outil motorisé est susceptible d'à-coups brusques lors de sa mise en marche et pendant son utilisation.
- Garder une position équilibrée et ferme. Ne pas se pencher trop en avant pendant l'utilisation de cet outil. Des couples de réaction élevés peuvent se produire à, ou en dessous, de la pression d'air recommandée.
- La rotation des accessoires de l'outil peut continuer pendant un certain temps après le relâchement de la gâchette.
- Les outils pneumatiques peuvent vibrer pendant l'exploitation. Les vibrations, les mouvements répétitifs et les positions inconfortables peuvent causer des douleurs dans les mains et les bras. N'utiliser plus d'outils en cas d'inconfort, de picotements ou de douleurs. Consulter un médecin avant de recommencer à utiliser l'outil.
- Utiliser les accessoires recommandés par Ingersoll-Rand.
- N'utiliser que les douilles et les accessoires pour clés à chocs. Ne pas utiliser les douilles et accessoires (chromés) de clés manuelles.
- Les clés à chocs ne sont pas des appareils dynamométriques. Les connexions nécessitant un couple de serrage spécifique doivent être vérifiées avec un mesureur de couple après avoir été assemblées avec un clé à chocs.
- Cet outil n'est pas conçu pour fonctionner dans des atmosphères explosives.
- Cet outil n'est pas isolé contre les chocs électriques.
- Evitez toute exposition et respiration des poussières et particules nocives créées par l'emploi de l'outil pneumatique:

Certaines poussières produites par les opérations de ponçage, sciage, meulage, perçage et autres activités de construction contiennent des produits chimiques qui sont reconnus comme pouvant causer le cancer, des infirmités de naissance ou d'autres risques à effets nocifs. Parmi ces produits chimiques on trouve:

- le plomb des peintures à base de plomb,
- les cristaux de silice contenus dans les briques, le ciment et d'autres produits de maçonnerie, et
- l'arsenic et le chrome des bois traités chimiquement.

Le risque présenté par l'exposition à ces poussières est fonction de la fréquence et du type de travail effectué. Pour réduire l'exposition à ces produits chimiques : travaillez dans une zone bien aérée, et utilisez les équipements de sécurité approuvés, tels que les masques à poussière qui sont spécialement conçus pour filtrer et arrêter les particules microscopiques.

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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 **Ingersoll-Rand**

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

	⚠ 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
	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
	Ne pas transporter l'outil par son flexible.

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

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

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

Étiquette d'avertissement internationale:
Commander Pièce No. _____





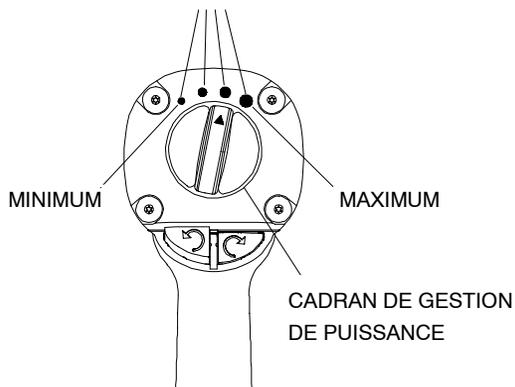
UTILISATION DU SYSTÈME DE GESTION DE PUISSANCE

⚠ ATTENTION

Les clés pneumatiques ne sont pas des dispositifs de contrôle de couple. Les fixations ayant des exigences spécifiques de couple doivent être contrôlées avec des dispositifs dynamométriques appropriés après avoir été assemblées avec une clé pneumatique.

SYSTÈME DE GESTION DE PUISSANCE MODÈLES 2131 ET 2131-2

INDICATEURS DE RÉGLAGE DE PUISSANCE



(Plan TPD1339)

Les clés à chocs Modèles 2131 et 2131-2 sont équipées d'un système de gestion de puissance qui permet à l'opérateur de sélectionner quatre réglages de puissance. Ces réglages vont de la puissance minimum à la puissance maximum en marche avant seulement. La clé pneumatique fonctionnera toujours à la puissance maximum en desserrage, quel que soit le niveau de puissance sélectionné.

⚠ ATTENTION

Les quatre indicateurs de réglage de puissance de taille croissante sur l'arrière du corps indiquent les niveaux croissants de puissance à titre de référence seulement, et NE DÉNOTE PAS une puissance spécifique. Le plus petit indicateur de puissance indique la puissance minimum, les deux indicateurs du centre indiquent des puissances moyennes, et le plus gros indicateur indique la puissance maximum. La puissance peut être encore plus réduite en serrage ou desserrage à l'aide de la commande variable de mise en marche. Les circuits d'air comprimé ne fournissant pas une pression d'air adéquate peuvent affecter la puissance fournie à toutes les positions de réglage.

MISE EN SERVICE DE L'OUTIL

LUBRIFICATION



Ingersoll-Rand No. 50



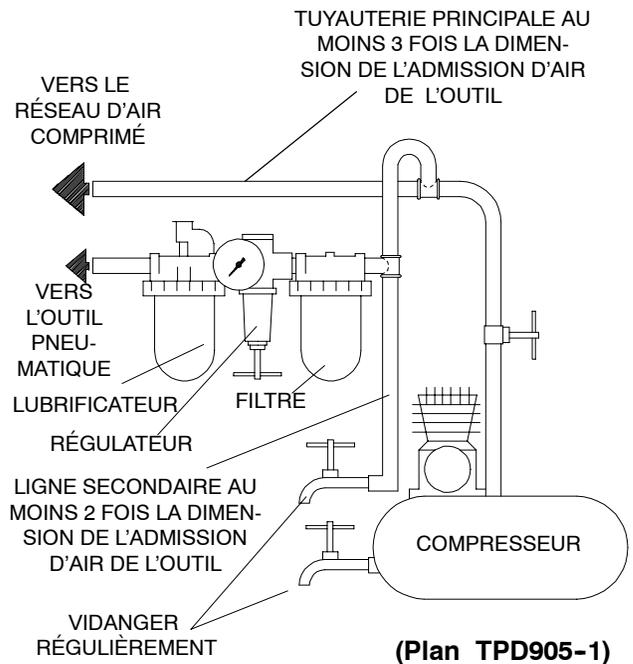
Ingersoll-Rand No. 115-1LB pour une lubrification extérieure normale du mécanisme de chocs par l'intermédiaire du raccord de graissage du carter de marteau.

Utiliser **Ingersoll-Rand No. 105-1LB** ou **Ingersoll-Rand 105-8LB** pour le démontage et l'assemblage du mécanisme de chocs.

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

International - No. C16-C3-A29

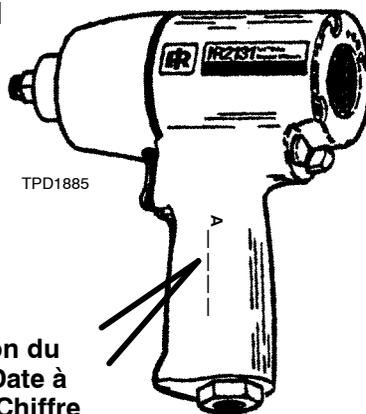
É.U. - No. C11-03-G00



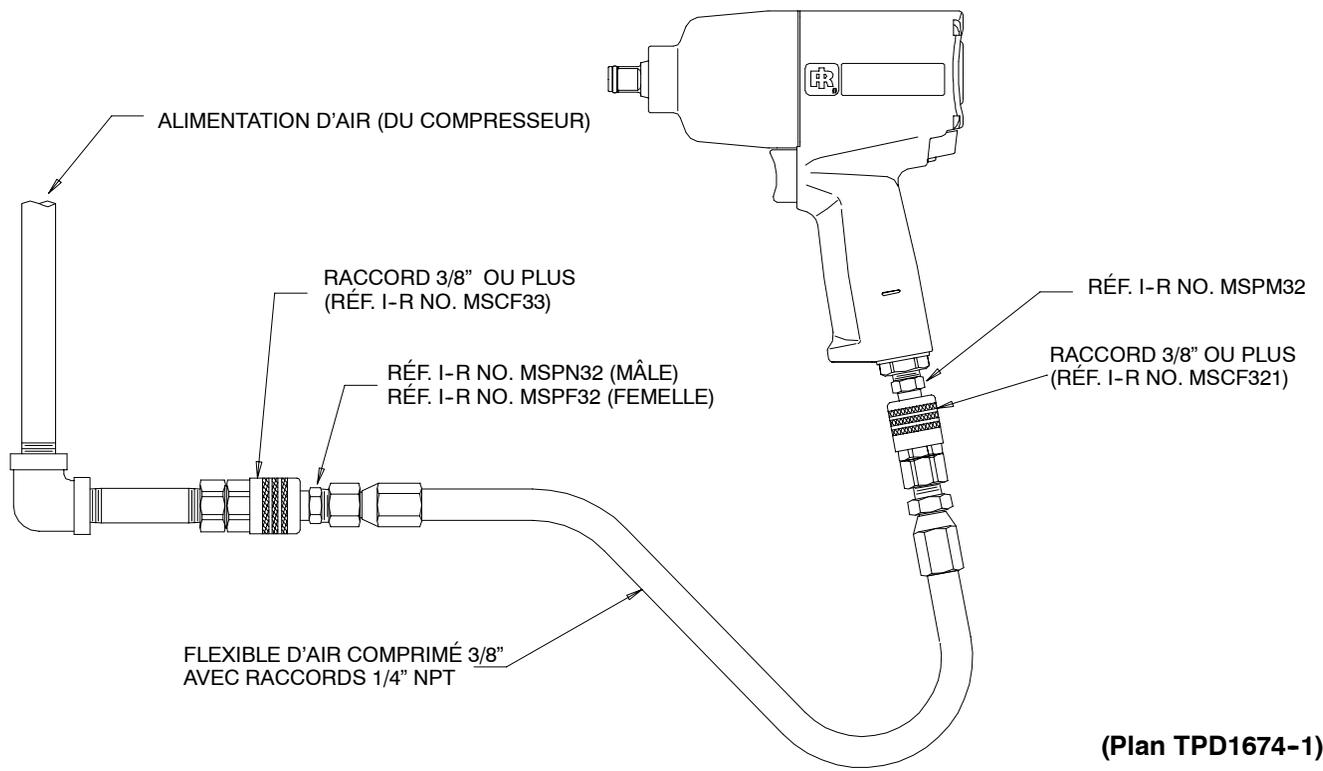
AVERTISSEMENT

Ne pas marquer les codes d'identification client sur les surfaces non métalliques de cet outil. De telles actions pourraient affecter les performances de l'outil.

2131



Position du Code Date à Lettre/Chiffre



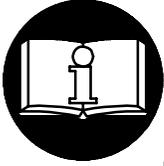
MANUAL DE USO Y MANTENIMIENTO PARA LLAVES DE IMPACTO DE SERVICIO ULTRA PESADO PARA AUTOMOCIÓN MODELOS 2131 AND 2131-2

E

NOTA

Las llaves de impacto modelos 2131 y 2131-2 están diseñadas para su utilización en reparaciones generales de automóviles, revisión de neumáticos y aplicaciones de servicio pesado en flotas de vehículos. 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 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 racores dañados, desgastados o deteriorados.
- Asegúrese de que todos los racores y mangueras sean del tamaño correcto y estén bien apretados. El Esq. TPD905-1 muestra una disposición característica de las tuberías.
- Use siempre aire limpio y seco a una presión máxima de 90 psig (6,2 bar/620 kPa). El polvo, los gases corrosivos y el exceso de humedad pueden estropear el motor de una herramienta neumática.
- No lubrique las herramientas con líquidos inflamables o volátiles tales como queroseno, gasoil o combustible para motores a reacción.
- No saque ninguna etiqueta. Sustituya toda etiqueta dañada. Se recomienda la utilización de una conexión flexible para manguera de aire. Si se conecta un acoplador directamente a la salida de aire, se aumentará el volumen de la herramienta y se disminuirá su maniobrabilidad.
- Para conseguir un rendimiento óptimo, el acoplador situado en la pared deberá ser más grande, del tamaño siguiente al del acoplador utilizado en la herramienta. El acoplador más cercano a la herramienta no debe ser menor que el tamaño de la manguera de suministro de aire apropiada.

UTILIZACIÓN DE LA HERRAMIENTA

- Lleve siempre protección ocular cuando utilice esta herramienta o realice operaciones de mantenimiento en la misma.
- Lleve siempre protección para los oídos cuando utilice esta herramienta.
- Mantenga las manos, la ropa suelta y el cabello largo alejados del extremo giratorio de la herramienta.
- Tome nota de la posición de la palanca de inversión antes de hacer funcionar la herramienta para tener en cuenta el sentido de rotación al accionar el estrangulador.

- Anticipe y esté atento a los cambios repentinos en el movimiento durante la puesta en marcha y utilización de toda herramienta motorizada.
- Mantenga una postura del cuerpo equilibrada y firme. No estire demasiado los brazos al manejar la herramienta. Pueden darse elevados pares de reacción a la presión de aire recomendada, e incluso a presiones inferiores.
- 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 dañarle los brazos y manos. En caso de incomodidad, sensación de hormigueo o dolor, deje de usar la herramienta. Consulte con el médico antes de volver a utilizarla.
- Utilice únicamente los accesorios Ingersoll-Rand recomendados.
- Utilice únicamente bocas y accesorios para llaves de impacto. No utilice bocas o accesorios manuales (cromados).
- Las llaves de impacto no son llaves de par. Las uniones que requieran pares específicos deberán ser comprobadas con un torsiómetro después de haberlas fijado con una llave de impacto.
- Esta herramienta no ha sido diseñada para trabajar en ambientes explosivos.
- Esta herramienta no está aislada contra descargas eléctricas.
- Evite respirar el polvo y partículas nocivos que se producen al utilizar la herramienta, así como exponerse a ellos:
Ciertos tipos de polvo que se producen al lijar, serruchar, rectificar o taladrar y durante otras actividades de la construcción contienen sustancias químicas que son conocidos como causantes de cáncer, defectos de nacimiento y otros daños reproductivos. Algunos ejemplos de estas sustancias químicas:
 - el plomo de las pinturas con base de plomo,
 - la sílice cristalina de ladrillos y hormigón y otros productos asociados con la albañilería, y
 - el arsénico y el cromo que produce la madera sometida a tratamientos químicos.El riesgo a la persona que presenta una exposición de este tipo varía en función de la frecuencia con que se realiza esta clase de trabajo. Para reducir la exposición a estas sustancias químicas: trabaje en una zona bien ventilada y utilice equipo de protección homologado, por ejemplo una mascarilla especialmente diseñada para filtrar partículas microscópicas.

NOTA

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

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

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

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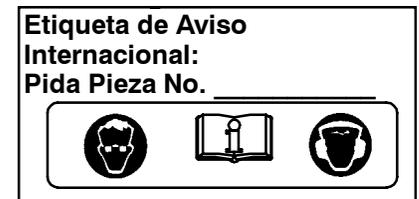
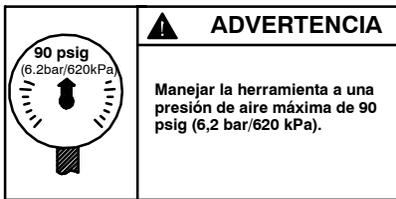
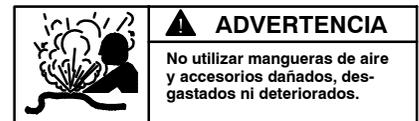
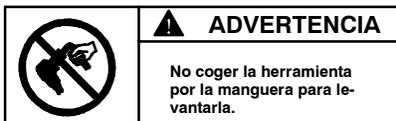
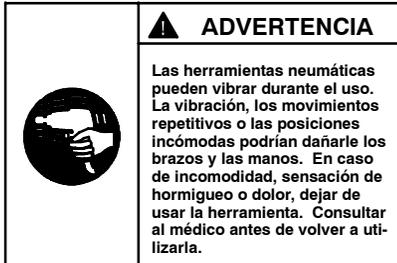
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ETIQUETAS DE AVISO

⚠ AVISO

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



USO DEL SISTEMA DE CONTROL DE POTENCIA

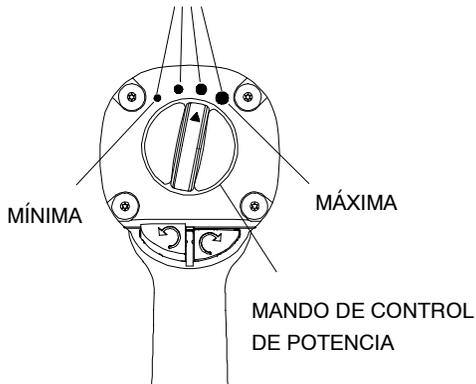
⚠ AVISO

Las llaves neumáticas no son dispositivos de control de par. Las fijaciones que exijan un par de apriete específico se deberán comprobar con un dispositivo apropiado de medición de par después de haberlas apretado con una llave neumática.

Las llaves de impacto modelos 2131 y 2131-2 tienen incorporado un sistema de control de potencia que permite al operario seleccionar entre cuatro ajustes de potencia. Estos ajustes van desde potencia mínima hasta potencia máxima en el sentido de giro a derechas solamente. La llave neumática siempre funcionará con la máxima potencia en el sentido inverso, cualquiera que sea el nivel de potencia seleccionado.

SISTEMA DE CONTROL DE POTENCIA MODELOS 2131 Y 2131-2

INDICADORES DE AJUSTE DE POTENCIA



(Esq. TPD1339)

⚠ AVISO

Los cuatro indicadores de potencia de creciente tamaño situados en la parte posterior de la carcasa indican niveles crecientes de potencia y sirven solamente de referencia; NO indican una potencia específica. El indicador de potencia más pequeño señala la potencia mínima, los dos indicadores de potencia intermedios señalan potencias intermedias y el indicador más grande representa la máxima potencia. La potencia puede reducirse aun más con accionamiento a derechas o a izquierdas mediante el gatillo de mando. Los sistemas de aire comprimido que no suministren aire a la presión apropiada pueden afectar la potencia en todos los ajustes.

PARA PONER LA HERRAMIENTA EN SERVICIO

LUBRICACIÓN



Ingersoll-Rand N°. 50



Ingersoll-Rand N°. 115-1LB para lubricación externa periódica del mecanismo impulsor a través del engrasador de la carcasa de mazas.

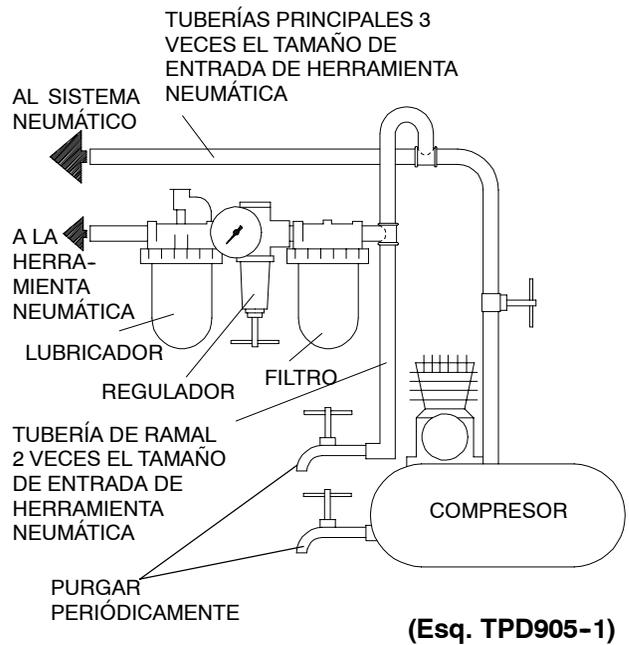
Utilice **Ingersoll-Rand N°. 105-1LB o Ingersoll-Rand 105-8LB** al montar y desmontar el mecanismo impulsor.

Utilice siempre un lubricante de aire comprimido con esta herramienta. Recomendamos utilizar el siguiente conjunto de filtro-lubricador-regulador:

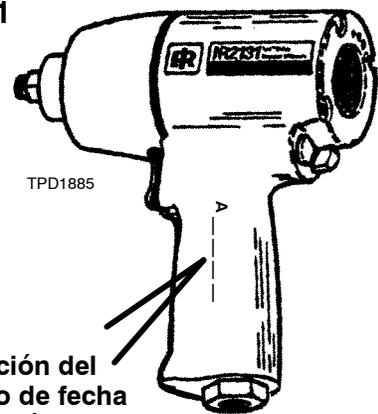
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Para EE.UU. - N°. C11-03-G00

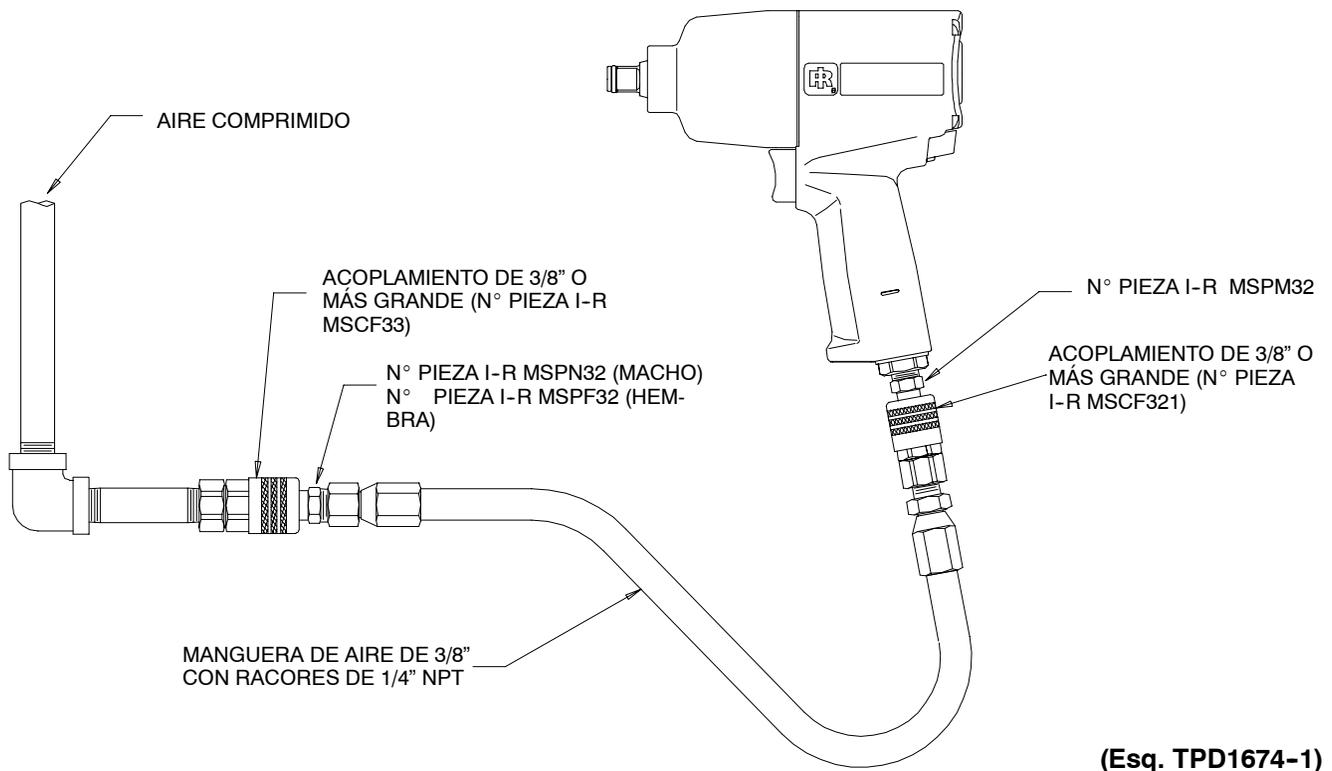
PRECAUCIÓN

No marque ninguna superficie no metálica de esta herramienta con los códigos de identificación del cliente. Tal acción podría afectar al rendimiento de la herramienta.



2131





MANUAL DE FUNCIONAMENTO E MANUTENÇÃO PARA CHAVES DE PERCUSSÃO PARA AUTOMÓVEIS PARA TRABALHO ULTRA PESADO MODELOS 2131 E 2131

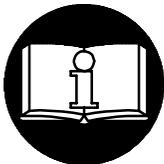
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AVISO

As Chaves de Percussão Para Automóveis Modelos 2131S e 2131S-2 são concebidas para utilização em reparações gerais de automóveis, manutenção de pneus e aplicações de trabalho pesado de frota de automóveis.

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 SEGUINTE PODERÁ RESULTAR EM
LESÕES PESSOAIS.**

COLOCAÇÃO DA FERRAMENTA EM SERVIÇO

- 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, 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 3/8 pol. (10 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.
- Recomenda-se utilizar um reforço de mangueira. Um acoplador ligado directamente à admissão do ar aumenta o volume da ferramenta e diminui a capacidade de manobra da mesma.
- Sempre opere esta ferramenta com uma mangueira de alimentação de ar com diâmetro interno de 3/8 pol. (10 mm). Para obter o desempenho máximo, o acoplador na parede deve ser um tamanho maior do que o acoplador utilizado na ferramenta. O acoplador mais próximo à ferramenta não deve ser menor do que o tamanho correcto da mangueira de alimentação de ar.

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.
- Note a posição da alavanca de inversão antes de operar a ferramenta de forma a estar ciente da direcção de rotação ao operar o regulador.

AVISO

A utilização de qualquer peça sobresselente que não seja Ingersoll-Rand genuína pode resultar em riscos à 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.

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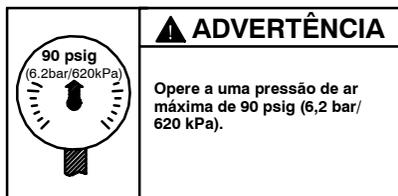
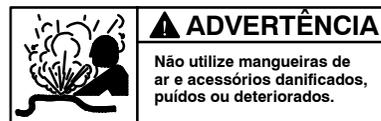
- Esteja preparado e alerta para mudanças súbitas no movimento durante o arranque e o funcionamento de qualquer ferramenta mecânica.
- Mantenha o corpo numa posição equilibrada e firme. Não estique o corpo ao operar esta ferramenta. Podem ocorrer binários de reacção elevados à ou abaixo da pressão do ar recomendada.
- O veio da ferramenta pode continuar a rodar por um curto período de tempo depois de soltar o regulador.
- As 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.
- Use apenas caixas e acessórios de percussão. Não use caixas e acessórios manuais (cromo).
- As chaves de percussão não são chaves dinamométricas. As ligações que precisem de um valor específico de binário devem ser verificadas com um dinamómetro após serem montadas com uma chave de percussão.
- Esta ferramenta não é concebida para funcionar em atmosferas explosivas.
- Esta ferramenta não é isolada contra choque eléctrico.
- Evite expor-se e respirar as poeiras e partículas nocivas criadas pela utilização de ferramentas motorizadas:
Algumas poeiras criadas por operações motorizadas de lixar, serrar, rectificar, perfurar e outras actividades de construção contêm produtos químicos conhecidos por causarem cancro, malformações congénitas e terem efeitos nocivos na reprodução. Alguns exemplos desses produtos químicos são:
 - chumbo de tintas à base de chumbo,
 - sílica cristalina de tijolos e cimento e outros produtos de alvenaria e
 - arsénico e crómio de madeira tratada quimicamenteOs riscos dessas exposições varia, dependendo de com que frequência faz esse tipo de trabalho. Para reduzir a sua exposição a esses produtos químicos: trabalhe numa área bem ventilada e com equipamento de segurança aprovado, como as máscaras contra a poeira que são especialmente projectadas para filtrar partículas microscópicas.

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IDENTIFICAÇÃO DAS ETIQUETAS DE ADVERTÊNCIA

⚠ ADVERTÊNCIA

A NÃO OEDIÊNCIA ÀS ADVERTÊNCIAS SEGUINTE PODERÁ RESULTAR EM LESÕES PESSOAIS.



UTILIZAÇÃO DO SISTEMA DE GESTÃO DE POTÊNCIA

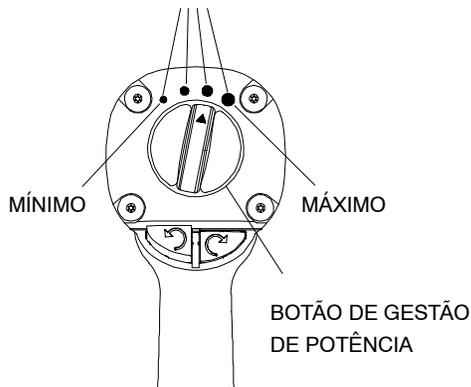
⚠ ADVERTÊNCIA

As chaves pneumáticas não são dispositivos de controlo de binário. Os fixadores com requisitos específicos de binário têm que ser verificados com dispositivos de medição de binário adequados após a instalação com uma chave pneumática.

As Chaves de Percussão Modelos 2131 e 2131-2 incorporam um Sistema de Gestão de Potência que permite ao operador seleccionar quatro ajustes de potência. Estes ajustes vão de potência mínima até potência máxima apenas na direcção de avanço. A Chave Pneumática funcionará sempre à potência máxima na direcção de inversão, independentemente do nível de potência seleccionado.

SISTEMA DE GESTÃO DE POTÊNCIA MODELO 2131 E 2131-2

INDICADORES DE AJUSTE DE POTÊNCIA



(Des. TPD1339)

⚠ ADVERTÊNCIA

Os quatro indicadores de ajuste de potência de tamanho crescente nas costas da carcaça indicam níveis crescentes de potência, são apenas para referência e NÃO indicam uma potência específica. O indicador de ajuste mais pequeno denota potência mínima, os dois indicadores de ajuste intermédios denotam potências médias e o maior indicador de ajuste de potência denota potência máxima. A potência pode ser reduzida ainda mais na direcção de avanço ou de inversão utilizando o regulador variável. Sistemas de alimentação de ar que não proporcionam pressão de ar adequada podem afectar a potência em todos os ajustes.

COLOCAÇÃO DA FERRAMENTA EM SERVIÇO

LUBRIFICAÇÃO



Ingersoll-Rand Nº 50



Ingersoll-Rand Nº 115-1LB para lubrificação externa rotineira do mecanismo de percussão através do Copo de Massa da Caixa do Martelo.

Ingersoll-Rand Nº 105-1LB ou **Ingersoll-Rand Nº 105-8LB** ao desmontar e montar o mecanismo de percussão.

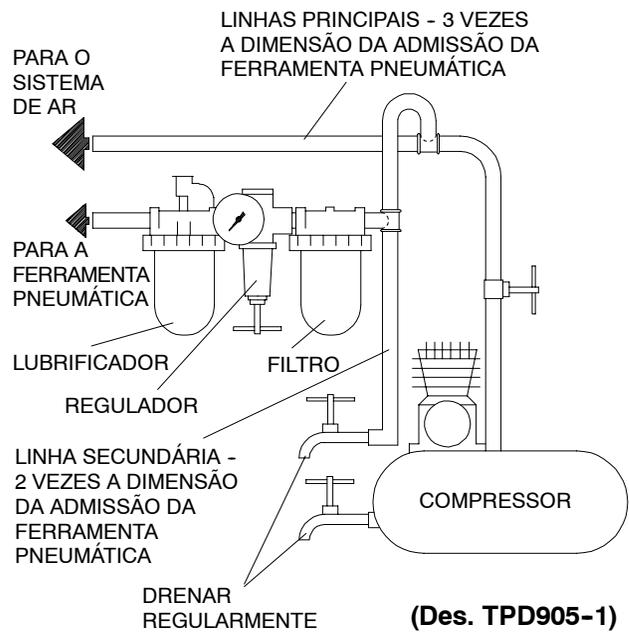
Utilize sempre um lubrificador de linha de ar com estas ferramentas. Recomendamos a seguinte Unidade Filtro-Lubrificador-Regulador:

Para EUA - Nº. C11-03-G00

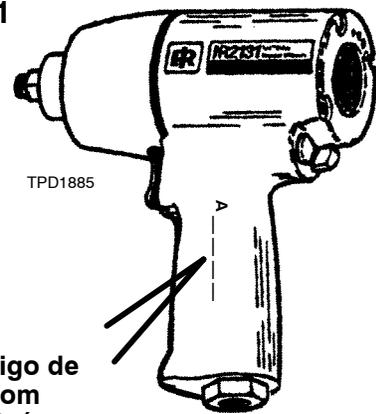
Para Internacional - Nº. C16-C3-A29

CUIDADO

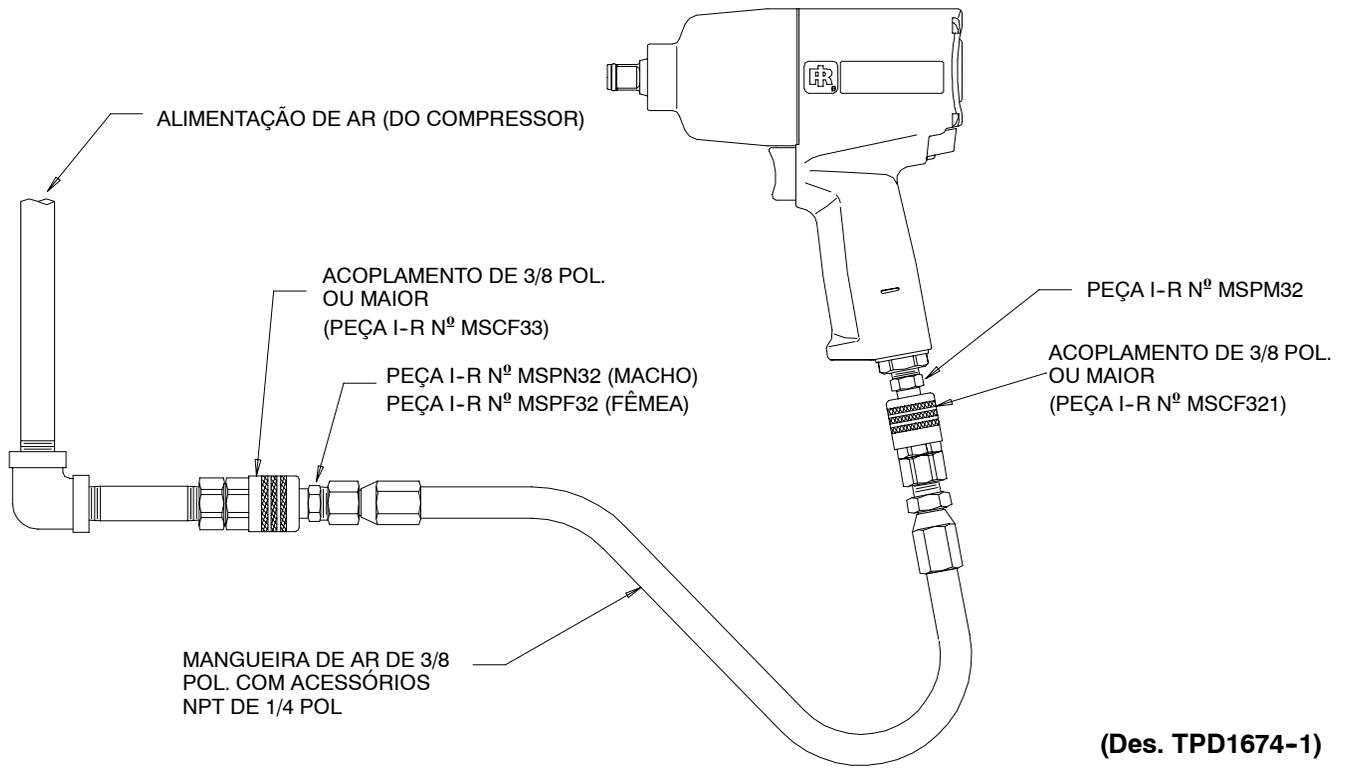
Não marque nenhuma superfície não metálica desta ferramenta com códigos de identificação do cliente. Isto poderia afectar o desempenho da ferramenta.



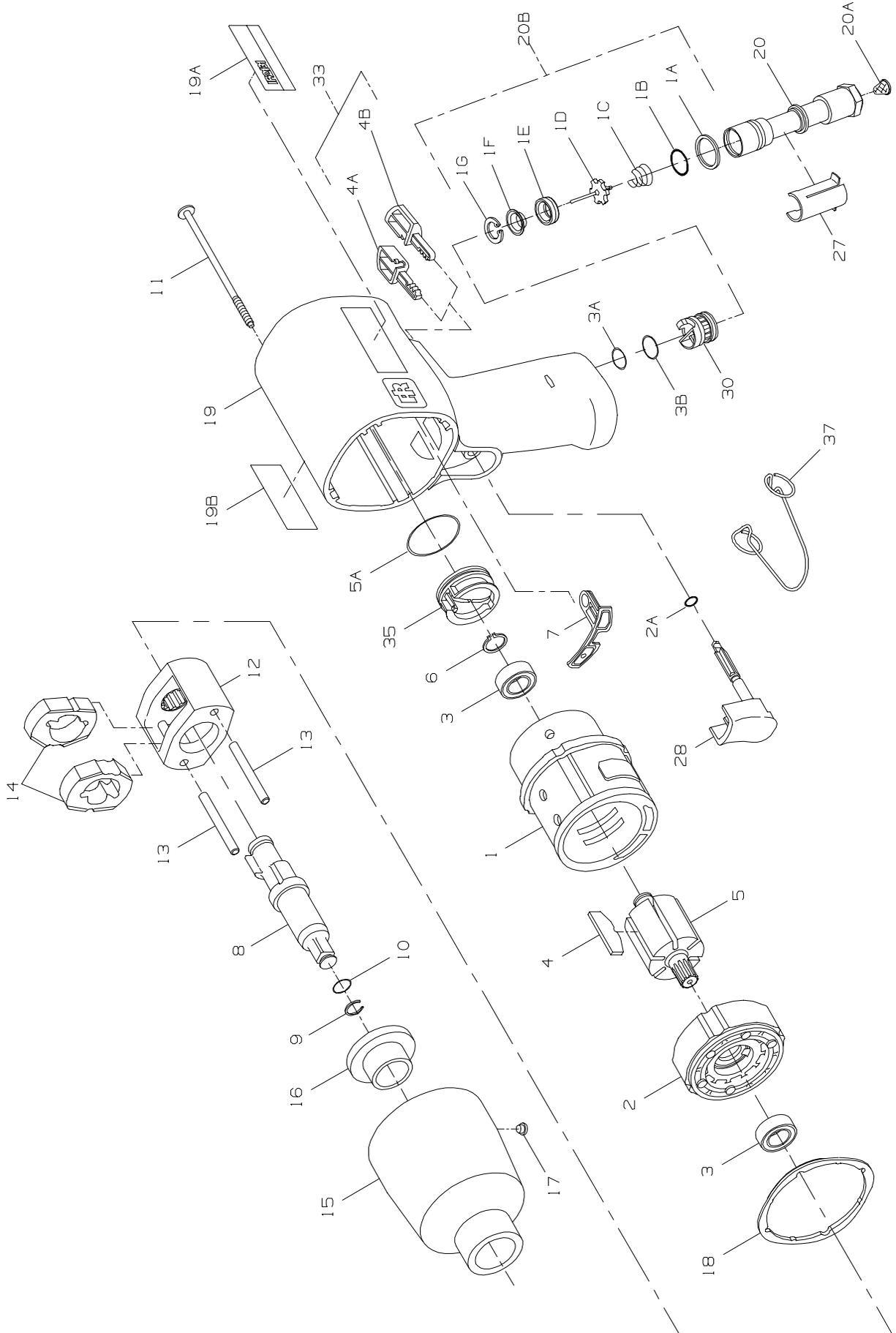
2131



O código de data com letras/números



MAINTENANCE SECTION



(Dwg. TPA1328-5)

MAINTENANCE SECTION

PART NUMBER FOR ORDERING

PART NUMBER FOR ORDERING

1	Cylinder	2131-3A			Inlet Bushing Assembly	2131-A565
2	Front End Plate	2131-11		20	Inlet Bushing	2131-565
◆	Rotor Bearing (2)	2131-97	◆	20A	Inlet Bushing Screen	5RA-61
◆	Vane Packet (set of 6 Vanes) (yellow)	2131-42A-6	◆	20B	Inlet Parts Kit	2131-K303
5	Rotor	2131-53		1A	Washer	----
6	Rear Rotor Bearing Retainer	2131-6		1B	Inlet Bushing Seal	----
◆	Motor Gasket	2131-283		1C	Tilt Valve Spring	----
◆◆	Anvil Assembly (1/2" square drive) for Model 2131 (standard length) ..	2131-A626		1D	Tilt Valve	----
+	for Model 2131-2 (2" extended length)	2131-A414-2		1E	Tilt Valve Seat	----
◆◆	Socket Retainer	231-425A		1F	Tilt Valve Seat Support	----
◆◆	Socket Retainer O-ring	R1A-159	•	1G	Tilt Valve Seat Retainer	----
+	Hammer Case Screw (4)	2131-638	◆	27	Inlet Retainer Clip	2131-57
	Hammer Frame Assembly	2131-A703		28	Trigger Assembly	2131-A93
	Hammer Frame	2131-703	◆	2A	Trigger O-ring	----
	Hammer Frame Pin (2)	2131-704	◆	30	Reverse Valve Assembly	2131-A329
	Hammer(2)	2131-724	◆	3A	Reverse Valve O-ring (top)	----
	Hammer Case Assembly	2131-A727		3B	Reverse Valve O-ring (bottom) (blue)	----
	Hammer Case Bushing	2131-941		33	Button Kit	2131-K75
	Hammer Case Grease Fitting	D0F9-879		4A	Forward Button	----
	Hammer Case Gasket	2131-36		4B	Reverse Button	----
◆◆◆+	Housing Assembly	2131-B40	◆	35	Power Management Assembly	2131-A249
	Nameplate	2131-301A		5A	Power Management Dial Seal	----
	Housing Label	2131-99A		37	Inlet Clip Removal Tool	2131-322

◆ Indicates Tune-up Kit part.

+ Indicates Hammer Kit part.

◆◆ Indicates Seal Kit part.

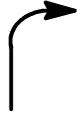
• To keep downtime to a minimum, it is desirable to have on hand certain repair parts. We recommend that you stock one (pair or set) of each part indicated by a bullet (•) for every four tools in service.

MAINTENANCE SECTION

PART NUMBER FOR ORDERING



PART NUMBER FOR ORDERING



*	Grease (1 lb) (for external lubrication of the impact mechanism)	115-1LB	*	Tune-up Kit (includes illustrated items 2A, 3A, 3B, 5A, 3 [2], 4 [6], 6, 7, 9, 10, 18, 20A and 20B)	2131-TK2
*	Grease (for lubrication when disassembling and assembling the impact mechanism) 1 lb	105-1LB	*	Hammer Kit (for 2131) (includes illustrated items 11 [4], 14 [2], 18, and Anvil Assembly part number 2131-A626)	2131-THK1
*	8 lb	105-8LB		Hammer Kit (for 2131-2)	
*	Protective Cover	2131-P32		(includes illustrated items 11 [4], 14 [2], 18 and Anvil Assembly part number 2131-A414-2)	2121-THK1-2
*	Grease Gun	R000A2-228			
*	Seal Kit (includes illustrated items 1B, 2A, 3A, 3B, 5A, 7 and 18)	2131-K36			

* Not illustrated.

MAINTENANCE SECTION

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 vise jaws to protect the surface of the part and help prevent distortion. This is particularly true of threaded members and housings.

NOTICE

Always use leather-covered vise jaws when clamping the handle in a vise. Leather will conform to the shape of the handle and allow the tool to be held securely. To prevent damage to the exhaust diffuser, never clamp only the bottom of the handle.

3. Do not remove any part which is a press fit in or on a subassembly unless the removal of that part is necessary for repairs or replacement.
4. Do not disassemble the tool unless you have a complete set of new gaskets and O-rings for replacement.

Disassembly of the Impact Wrench

1. Clamp the handle of the impact wrench in a vise with leather-covered jaws with the square driver positioned horizontally.

NOTICE

Avoid excessive clamping pressure which can damage the Housing and can cause difficulty when removing the parts.

2. Unscrew and remove the four Hammer Case Screws (11).
3. While lightly tapping on the end of the Anvil (8) with a plastic hammer, lift off the Hammer Case (15) and Hammer Case Gasket (18).

NOTICE

The Front End Plate (2) might come off during the removal of the Hammer Case. Make sure that it does not drop on the floor or strike a hard or metallic surface since it might be damaged.

4. Grasp the Hammer Frame (12) and carefully lift off the entire impact mechanism, making certain not to drop the two Hammer Pins (13).

Disassembly of the Impact Mechanism

1. Set the mechanism, driver end up, on the workbench.

NOTICE

Note the twin hammers within the Hammer Frame. These are identical, but must be placed in the Hammer Frame in a certain relationship. Using a felt-tipped pen, mark the top “T↑” hammer and the bottom hammer “B↑” with the arrows pointing upward. Mark both Hammers on the same end.

2. With the mechanism sitting upright on the workbench, slowly rotate the Anvil in a clockwise direction until it comes up solid.

NOTICE

If you continue to rotate the Anvil, it will cam the Hammers out of engagement. Don't do this; merely rotate the Anvil until it comes up solid.

3. Hold the Hammer Frame firmly and without disturbing the hammers, gently lift the Anvil while simultaneously rotating it clockwise about 1/8 of a turn, from the Hammer Frame.
4. With the Anvil removed, lift out the two Hammer Pins.

NOTICE

The twin hammers are now free to slide from the Hammer Frame. Be careful do not to drop them.

Disassembly of the Motor

NOTICE

When pulling, disassembling or assembling the motor, we recommend replacement of the Motor Gasket (7).

1. Remove the Motor Assembly from the Housing (19) by pushing on Power Management Dial (35) from the back of the Housing. Refer to Figure 1.

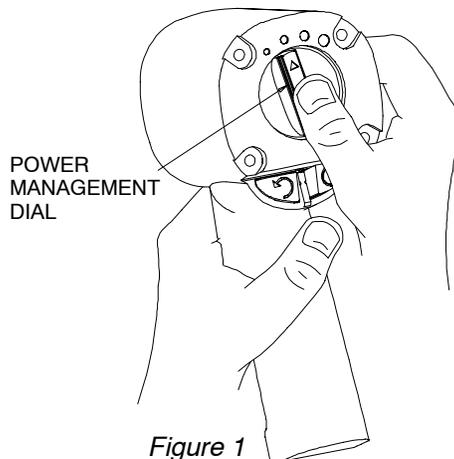


Figure 1

(Dwg. TPD1322)

MAINTENANCE SECTION

NOTICE

If the Motor Assembly cannot be removed from the Housing by pushing, tap the Power Management Dial lightly until the Motor Assembly is free.

2. Remove the Power Management Dial from the rear of the Cylinder (1). Remove the Power Management Dial Seal (5A) if it needs to be replaced.
3. Remove the Front End Plate (2) from the Cylinder by tapping the splined end of the Rotor (5) with a plastic hammer. If the Front End Plate does not come loose, secure a center punch in a vise with the point angled downward and outward from the vise. Grasp the Cylinder and Front End Plate in one hand and position the hole in the end of the Rotor against the punch.

NOTICE

Be careful not to drop the Cylinder since it can be damaged by hitting a hard surface.

Using the other hand, tap the punch with a hammer while pressing the Rotor against the punch. After a few taps, the Front End Plate will slide off of the Cylinder.

NOTICE

To prevent damage to the Cylinder, do not tap or strike Cylinder on a hard or metallic surface when removing the Rotor Bearings (3).

To remove the Front Rotor Bearing, hold the Front End Plate with Front Rotor Bearing, hold down and tap the Front End Plate on a flat, nonmetallic surface such as a work bench. This will loosen the Front Rotor Bearing so that it will drop out of the Front End Plate. Refer to Figure 2.

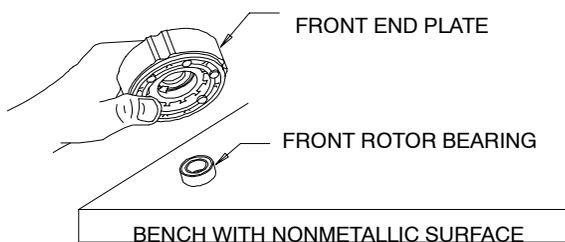


Figure 2

(Dwg. TPD1323)

4. Remove the Rear Rotor Bearing Retainer(6) from the rear of the Rotor (5). The Rotor can now be removed from the Cylinder. Remove the Vanes (4) from the Rotor if they need to be replaced.

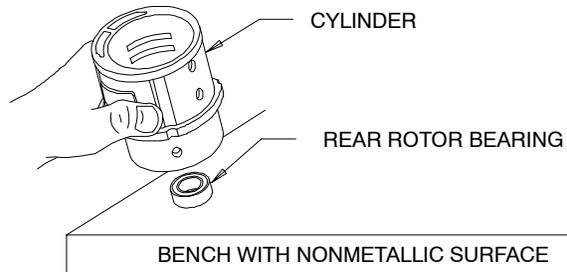


Figure 3

(Dwg. TPD1324)

5. To remove the Rear Rotor Bearing, hold the Cylinder with the Rear Rotor Bearing down and tap the Cylinder on a flat, nonmetallic surface such as a work bench. This will loosen the Rear Rotor Bearing so that it will drop out of the Cylinder. Refer to Figure 3.
6. Working from the rear of the Housing, push out the Motor Gasket (7).

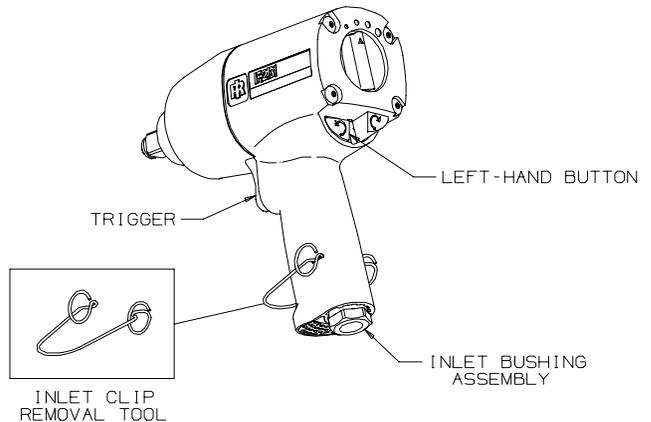
NOTICE

When removing the Motor Gasket, do not use a screwdriver or any other sharp object which could damage the Gasket and/or Housing.

Disassembly of the Throttle Mechanism

NOTICE

For ease of disassembly, we recommend using the Inlet Clip Removal Tool (37). See Dwg. TPD1681.

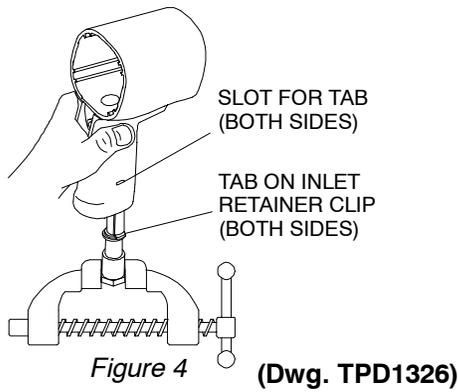


(Dwg. TPD1681)

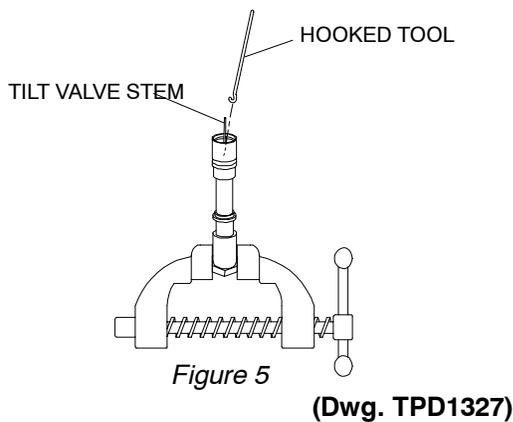
1. Secure the Inlet Bushing in a vise. Press in both tabs of the Inlet Retainer Clip (27) and pull upward on the Housing (19). This will allow the Inlet Bushing to come free from the Handle of the Housing. Refer to Figure 4.
2. Pull the Trigger (28) from the front of the Housing and remove the Trigger O-ring (2A).

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3. With the Inlet Bushing still in the vise, remove the Tilt Valve Seat Retainer (1G) and Tilt Valve Seat Support (1F). Use a hooked tool with no sharp edges to remove the Tilt Valve Seat (1E) from the Inlet Bushing. Refer to Figure 5.



4. Remove the Tilt Valve (1D) and Tilt Valve Spring (1C) if damaged.
5. Remove the Inlet Bushing Seal (1B) and Inlet Retainer Clip (27) if damaged. Remove Washer (1A).

NOTICE

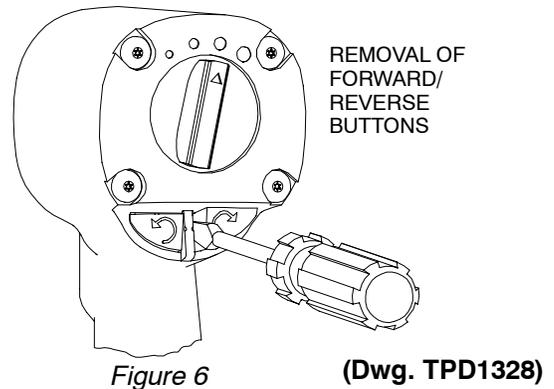
Do not remove the Inlet Bushing Screen (20A) from the Inlet Bushing unless it is damaged. Clean the Inlet Bushing Screen by using a suitable cleaning solution in a well ventilated area.

Disassembly of the Reverse Valve Mechanism

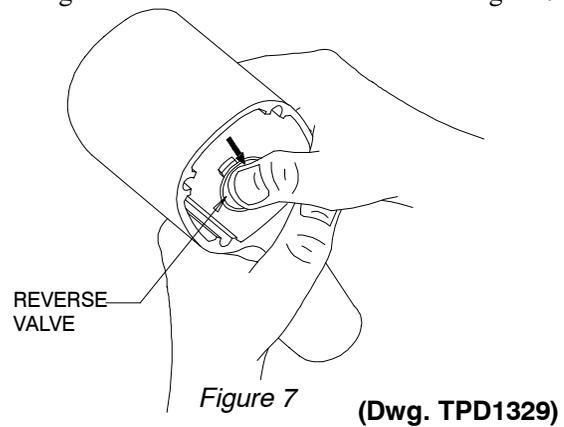
NOTICE

The Reverse Valve Assembly cannot be removed without first removing the Forward and Reverse Buttons (4A) and (4B). Therefore, it is important that the procedure below be followed exactly.

1. Notice the notches on either side of the partition. These notches indicate the correct location for insertion of a thin-bladed screwdriver used for removing the Forward and Reverse Buttons. Insert the screwdriver between the partition and the Button which is fully extended. **Gently** pry against the Button to disengage the detent so that the Button can be removed. After the Button is removed, reach inside the Housing and rotate the Reverse Valve to extend the remaining Button. Repeat the above procedure for the remaining Button. Refer to Figure 6.



2. Insert thumb into the front of the Housing and push **down** on the Reverse Valve so that it can be removed through the bottom of the handle. Refer to Figure 7.



NOTICE

Do not try to remove the Reverse Valve by pushing upward. It can only be removed by pushing it downward and out of the bottom of the handle. If the Reverse Valve does not come free, tap the bottom of the handle lightly with a rubber hammer until it drops out.

3. Remove the Top Reverse Valve O-ring (3A) and the Bottom Reverse Valve O-ring (3B) from the Reverse Valve.

MAINTENANCE SECTION

ASSEMBLY

General Instructions

1. Whenever grasping a tool or part in a vise, always use leather-covered vise jaws to protect the surface of the part and help prevent distortion. This is particularly true of threaded members and housings.

NOTICE

Always use leather-covered vise jaws when clamping the handle in a vise. Leather will conform to the shape of the handle and allow the tool to be held securely. To prevent damage to the exhaust diffuser, never clamp only the bottom of the handle.

2. Always clean every part and wipe every part with a thin film of oil before installation.

NOTICE

Do not remove grease from the impact mechanism or Hammer Case (15). If the impact mechanism has not been disassembled, inject Ingersoll-Rand No. 115-1LB Grease through the Hammer Case Grease Fitting (17).

When disassembling and assembling the impact mechanism, remove all grease from the impact mechanism and Hammer Case and lubricate the impact mechanism and Hammer Case Bushing (16) with Ingersoll-Rand No. 105-1LB Grease or Ingersoll-Rand No. 105-8LB Grease.

3. Apply a film of o-ring lubricant to all O-rings before final assembly.

Assembly of the Reverse Valve Mechanism

1. Install the Bottom Reverse Valve O-ring (3B) (color-coded blue) and the Top Reverse Valve bring (3A) on the Reverse Valve (30).
2. Insert the Reverse Valve in the bottom of the handle making sure that two ears on the Reverse Valve are facing downward. Refer to Figure 8.

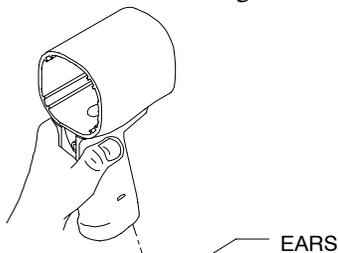


Figure 8 (Dwg. TPD1330)

Use a wooden dowel to push the Reverse Valve up through the handle **until the top of the Reverse**

Valve is flush with or slightly above the bottom of the motor bore in the Housing (19).

Refer to Figure 9.

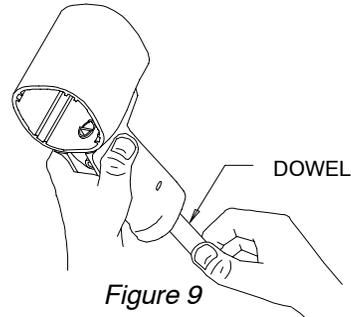


Figure 9

(Dwg. TPD1331)

NOTICE

If the Reverse Valve is pushed up too far and becomes wedged, it will have to be pushed back down through the the handle and re-inserted from the bottom of the handle. The Reverse Valve cannot be removed by pushing it up through the handle and into the motor bore. If the Reverse Valve must be removed and re-installed, make sure that the Top and Bottom Reverse Valve O-rings have not been rolled off and are in their proper positions on the Reverse Valve.

3. When the Reverse Valve has been installed, rotate the Reverse Valve so that the tab on the Reverse Valve is at the rear of the Housing. Refer to Figure 10.

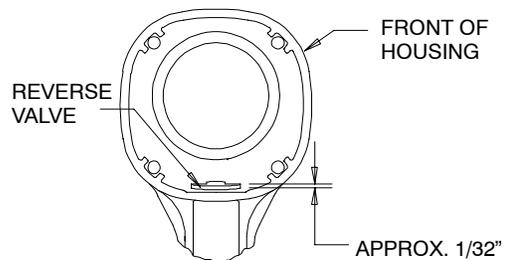


Figure 10

(Dwg. TPD1332)

NOTICE

If the orientation of the Reverse Valve is not correct (tab facing the the rear of the Housing), the Trigger (28) and the Forward and Reverse Buttons (4A) and (4B) cannot be installed.

4. Install the Trigger O-ring (2A) on the Trigger. Insert the Trigger Assembly in the front of the Housing.
5. Rotate the Reverse Valve in either direction until an ear comes up against the Trigger.

MAINTENANCE SECTION

6. Look through the Housing from the **rear**. If the tab on the Reverse Valve has been rotated to the **left**, install the **right** Button in the Housing. When one Button has been installed, push the Button in. This will rotate the Reverse Valve so that the other Button can be installed. Refer to Figure 11.

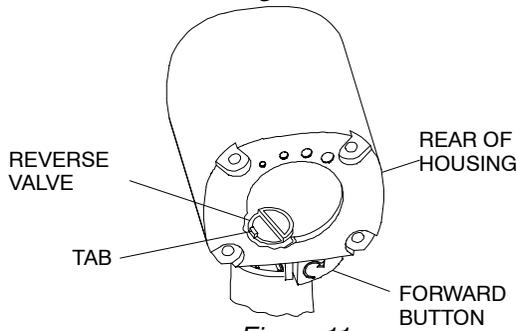


Figure 11 (Dwg. TPD1333)

If the tab on the reverse Valve has been rotated to the **right**, install the left Button. Refer to Figure 12.

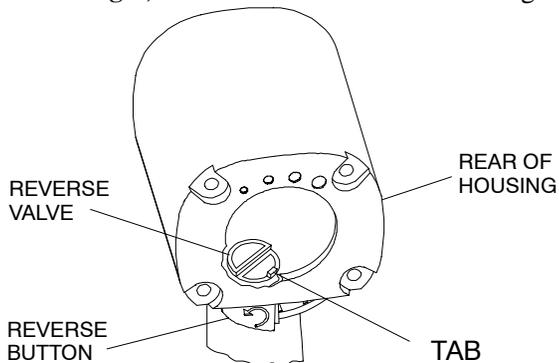


Figure 12 (Dwg. TPD1334)

NOTICE

If the Forward/Reverse Buttons will not install easily, move the Reverse Valve slightly higher in the handle to provide better alignment with the Buttons.

7. After the Forward/Reverse Buttons have been installed, remove the Trigger before proceeding with installation of the throttle mechanism.

Assembly of Throttle Mechanism

- Using an Inlet Bushing Screen Installation Tool, install the Inlet Bushing Screen (20A), screened end first, in the bottom (hex end) of the Inlet Bushing (20). Insert the rounded end of the tool in the cone formed by the screen and tap the end of the tool to secure the rim of the screen in the Bushing. Refer to Figure 13.

Inlet Bushing Screen Installation Tool

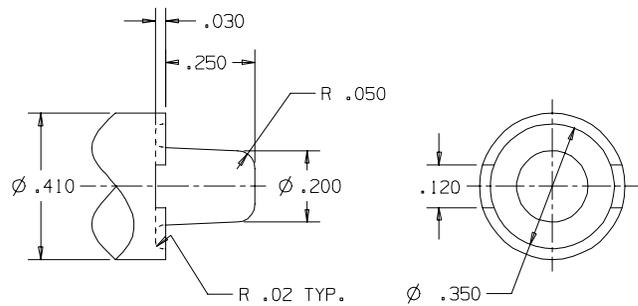


Figure 13

(Dwg. TPD1473)

- Install the Washer (1A), Inlet Retainer Clip (21), Inlet Bushing Seal (1B), Tilt Valve Spring (1C), Tilt Valve (1D) Tilt Valve Seat (1E) and Tilt Valve Seat Support (1F).

WARNING

The Tilt Valve Seat Retainer (1G) must be properly installed in the groove in the Inlet Bushing (20). To check for correct installation of the Retainer, insert a pin into one of the holes in the Retainer and rotate the Retainer. A correctly installed Retainer will rotate freely but with some resistance in the groove of the Inlet Bushing. An incorrectly installed Retainer will pop out of the Inlet Bushing when the Retainer is rotated.

WARNING

Do not use compressed air to check installation of the Tilt Valve Seat Retainer or Inlet Bushing Screen unless the entire Inlet Bushing Assembly is installed in the tool with the Hammer Case installed and properly secured to the Motor Housing. Failure to do so could result in injury. Install the Tilt Valve Seat Retainer.

NOTICE

When re-installing the Inlet Bushing Assembly (20), pull the Trigger (28) outward and make sure that the Reverse Button (4B) is depressed before snapping the Inlet Bushing Assembly back into the Housing.

- Install the Inlet Bushing Assembly by pushing it into the hole in the Housing until you see and hear the tabs on Inlet Retainer Clip snap into place through the slots in Housing handle.

MAINTENANCE SECTION

NOTICE

The Reverse Button (left) (4B) must be pushed in before the Trigger can be installed. Otherwise, the Trigger will be damaged during installation.

4. Install the Trigger by pushing it into the handle until a click is heard indicating that it is properly engaged.

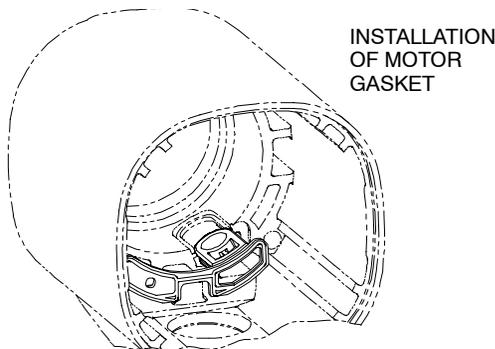


Figure 14 (Dwg. TPD1336)

Assembly of the Motor

NOTICE

When disassembling, assembling or pulling the Motor, we recommend replacement of the Motor Gasket (7).

1. Install the Motor Gasket in the Housing making sure that the grooves in the tab of the Motor Gasket fit around ridge in the Housing. Refer to Figure 14.
2. Install the Rear Rotor Bearing (3) into the rear of the Cylinder (1).
3. Install the Rotor in the Cylinder and secure with the Rear Rotor Bearing Retainer (6).
4. Install Vanes (4) in the slots in the Rotor (5).
5. Install the Front Rotor Bearing (3) into the Front End Plate (2). Install the Front End Plate on the Cylinder by pressing on the inner race of the front Rotor Bearing until the Bearing is seated on the Rotor Shaft.
6. Install the Power Management Dial Seal (5A) on the Power Management Dial (35) and install the Dial in the end of the Cylinder.

NOTICE

The Power Management Dial is properly installed by inserting the tab on the Power Management Dial into the open space between the three balls pressed into the power selection area of the rear of the Cylinder. When installed in this manner, the Dial can not be moved. If it is not properly installed, the Power Management Dial will not fit

into the rear of the Cylinder and/or can not be rotated.

7. Insert the Motor Assembly into the Housing (19), Power Management Dial end first.

Assembly of the Impact Mechanism

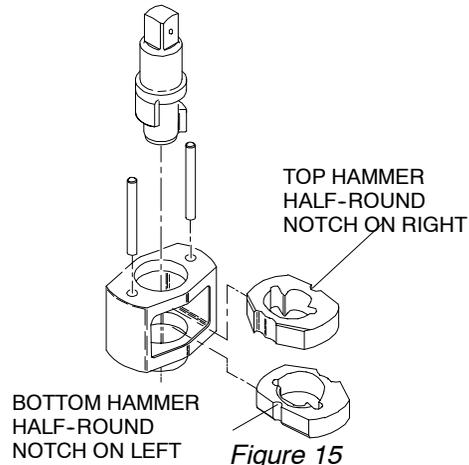


Figure 15 (Dwg. TPD1535)

1. Coat the Hammers (14) with a light film of No. Ingersoll-Rand 105-1LB Grease or Ingersoll-Rand No. 105-8LB Grease.
2. Heavily coat the jaws of the Anvil (8) with Ingersoll-Rand No. 105-1LB Grease or Ingersoll-Rand No. 105-8LB Grease.
3. Replace the Hammers in the Hammer Frame (12) exactly as they were when you marked them prior to disassembly.

NOTICE

If you are installing new Hammers or want to change the location of the existing Hammers to utilize both impacting surfaces, slide the Hammers in the Hammer Frame so that the half-round notch on one Hammer is located on one side of the Frame and the half-round notch on the other Hammer is located on the other side of the Frame.

4. Replace the Hammer Pins (13).
5. Examine the base of the Anvil (8) and note its contour. While looking down through the Hammer Frame, swing the top Hammer to its full extreme one way or another until you can match the contour of the Anvil. Enter the Anvil into the Hammer Frame and through the first Hammer. Swing the bottom Hammer in the opposite direction from the top Hammer and maneuver the Anvil slightly until it drops into the bottom Hammer. Refer to Figure 15.

MAINTENANCE SECTION

Assembly of the Air Wrench

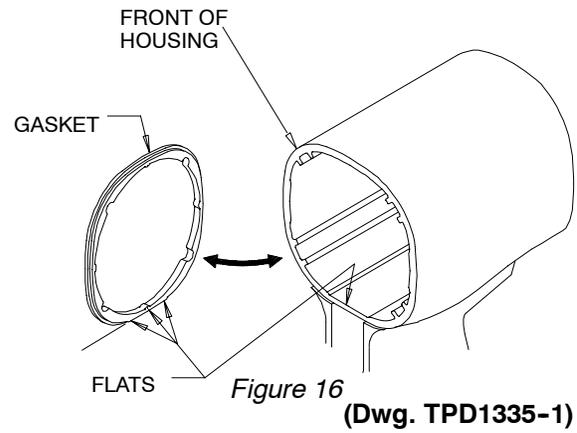
1. Position the Motor Housing (19) in leather-covered vise jaws with the splined shaft of the Rotor in a horizontal position.
2. Place the assembled impact mechanism down onto the splined hub of the Rotor.
3. Position the Hammer Case Gasket (18) against the face of the Motor Housing.

NOTICE

Be sure that the flat on the bottom of the Hammer Case Gasket is installed in the corresponding flat in the Housing. If the Hammer Case Gasket is not installed correctly, the Air Wrench will not function properly.

Refer to Figure 16.

4. Apply a thin film of Ingersoll-Rand No. 105-1LB Grease or Ingersoll-Rand 105-8LB Grease on inside surface of the Hammer Case Bushing (16), and place the Hammer Case (15) down over the Anvil and against the Motor Housing.



5. Install the Hammer Case Screws (11) and tighten them to 25 in-lb (2.8 Nm) torque.

MAINTENANCE SECTION

TROUBLESHOOTING GUIDE		
Trouble	Probable Cause	Solution
Low power	Dry Motor	Daily , inject 3 cc of Ingersoll-Rand No. 50 Oil into the inlet and run the tool to lubricate the motor.
	Inadequate air supply	Install proper air supply and connection. Refer to Dwg. TPD905-1 and Dwg. TPD1674-1 on pages 3 and 4.
	Dirty Inlet bushing Screen	Using a clean, suitable, cleaning solution in a well ventilated area, clean the Inlet Bushing Screen.
	Worn or broken Vanes	Replace a complete set of Vanes
	Worn or broken Cylinder and/or scored End Plates	Examine Cylinder. Check outside and ends for wear or damage and inside for scored or wavy bore. Replace Cylinder if any of these conditions exist. Replace End Plates if they are scored.
	Dirty motor parts.	Disassemble the Tool and clean in a clean, suitable, cleaning solution in a well ventilated area. Assemble the Tool and inject 3 cc of the recommended oil into Inlet and run Tool to lubricate internal parts.
	Damaged Reverse Valve	Replace Reverse Valve. Refer to Installation of Reverse Valve.
Motor will not run	Incorrect assembly of motor	Disassemble motor and replace worn or broken parts and reassemble. Refer to Assembly of the Motor.
	Insufficient lubricant in impact mechanism.	Lubricate impact mechanism through Hammer Case Grease Fitting using the recommended grease.
Tool will not impact	Broken or worn impact mechanism parts	Remove Hammer Case Assembly and examine impact mechanism parts. Replace any worn or broken parts.
	Impact mechanism not assembled correctly.	Refer to Assembly of Impact Mechanism.

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NOTICE

SAVE THESE INSTRUCTIONS. DO NOT DESTROY.