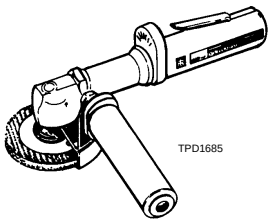

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Form P6935
Edition 10
March, 2000

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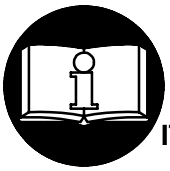
E
P

OPERATION AND MAINTENANCE MANUAL FOR SERIES TA AND TXA ANGLE GRINDERS

NOTICE

Series TA and TXA Angle Grinders are designed for close–quarter work in the metal fabricating industry, shipyards, pipe fabrication and limited space applications. They are particularly good where conduits, pipes, ducts, etc. pass through bulkheads or frames. These small Angle Grinders are very efficient for grinding weld bead and leaving a fine finish.

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.**

USING THE TOOL

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

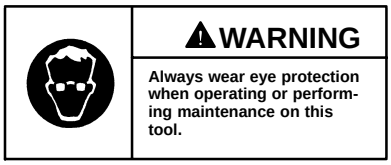
Printed in U.S.A.

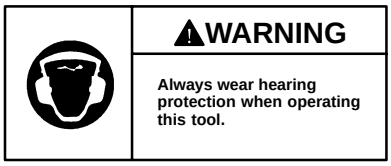
INGERSOLL-RAND®
PROFESSIONAL TOOLS

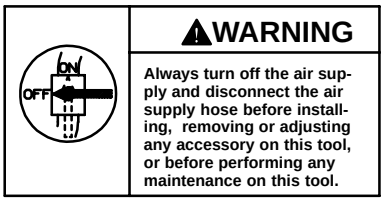
WARNING LABEL IDENTIFICATION

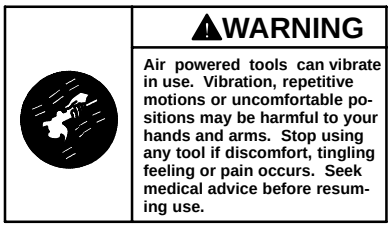
⚠ WARNING

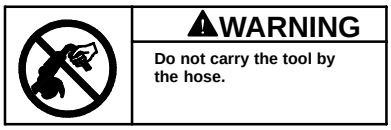
FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

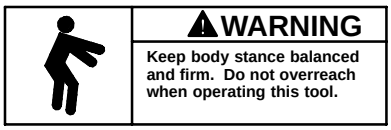


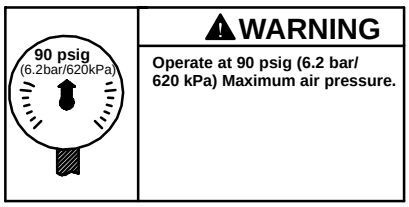












GRINDER SPECIFIC WARNINGS

⚠ WARNING

FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

- **Do not use this tool if actual free speed exceeds the nameplate rpm.**
- **Before mounting a wheel, after any tool repair or whenever a Grinder is issued for use, check free speed of Grinder with a tachometer to make certain its actual speed at 90 psig (6.2 bar/620 kPa) does not exceed rpm stamped or printed on the nameplate. Grinders in use on the job must be similarly checked at least once each shift.**
- **Always use the recommended Ingersoll–Rand Wheel Guard furnished with the Grinder.**
- **Do not use any grinding wheel, bur or other accessory having a maximum operating speed less than the free speed of the Grinder in which it is being used. Always conform to maximum rpm on grinding wheel blotters.**
- **Inspect all grinding wheels for chips or cracks prior to mounting. Do not use a wheel that is chipped or cracked or otherwise damaged. Do not use a wheel that has been soaked in water or any other liquid.**
- **Make certain grinding wheel properly fits the arbor. Do not use reducing bushings to adapt a wheel to any arbor unless such bushings are supplied by and recommended by the wheel manufacturer.**
- **After mounting a new wheel, hold the Grinder under a steel workbench or inside a casting and run it for at least 60 seconds. Make certain no one is within the operating plane of the grinding wheel. If a wheel is defective, improperly mounted or the wrong size and speed, this is the time it will usually fail.**
- **When starting with a cold wheel, apply it to the work slowly until the wheel gradually warms up. Make smooth contact with the work and avoid any bumping action or excessive pressure.**
- **Always replace a damaged, bent or severely worn wheel guard. Do not use a wheel guard that has been subjected to a wheel failure.**
- **Make certain wheel flanges are at least 1/3 the diameter of grinding wheel, free of nicks, burrs and sharp edges. Always use wheel flanges furnished by the manufacturer; never use a makeshift flange or a plain washer. Tighten Flange Nut securely.**
- **Guard opening must face away from operator. Bottom of wheel must not project beyond guard.**
- **Series TA90 Angle Grinders have a free speed of 9 000 rpm; Series TA120 Angle Grinders have a free speed of 12 000 rpm; Series TA180 Angle Grinders have a free speed of 18 000 rpm and Series TXA135 Angle Grinders have a free speed of 13 500 rpm, when operated at 90 psig (6.2 bar/620 kPa) air pressure. Operation at higher air pressure will result in excessive speed.** *(continued)*

GRINDER SPECIFIC WARNINGS

- **Always match collet size with accessory shank size.**
- **Always insert tool shank no less than 10 mm in the collet. Tighten Collet Nut securely to prevent accessory from working out during operation of the Grinder. Check tightness of Collet Nut before operating the Grinder. Pay particular attention to the fact that allowed speed of a mounted point is lowered when the length of the shaft is increased between end of collet and mounted point (overhang).**

WARNING: Incorrect combinations of grinding wheel, wheel guard and tool speed could result in injury. Correct combinations are specified below:

Guard Part Number	Wheel Type	Wheel Diameter in. (mm)	Maximum Wheel Thickness in. (mm)	Maximum Speed rpm
AG121–106–4	27	4 (100)	1/4 (6.4)	15,000
AG20–106–3	27	3 (76)	1/4 (6.4)	26,250

PLACING TOOL IN SERVICE

LUBRICATION

Ingersoll–Rand No. 10
Ingersoll–Rand No. 50
Ingersoll–Rand No. 63
Ingersoll–Rand No. 67
Ingersoll–Rand No. 68
Ingersoll–Rand No. 77

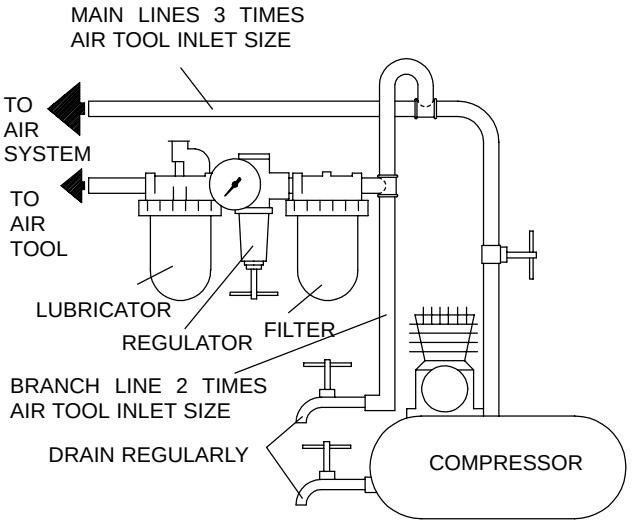
Always use an air line lubricator with these tools.
We recommend the following Filter–Lubricator–Regulator Unit:

For USA – No. C18–03–FKG0–28
For International – No. C18–C3–FKG0

After each two hours of operation, if an air line lubricator is not used, inject 1/2 to 1 cc of Ingersoll–Rand No. 10 Oil into the Air Inlet.
After each eight hours of operation, inject approximately 3cc for (TX Models) and 2 cc (for TXA Models) of Ingersoll–Rand No. 67 or Ingersoll–Rand No. 77 Grease into the Angle Grease Fitting.
Excessive lubrication will cause grease to work out around the Arbor.

CAUTION

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



(Dwg. TPD905–1)

HOW TO ORDER CYCLONE GRINDERS

ANGLE GRINDERS with 1/4" COLLET	
Model	**Speed/rpm**
TA180RG4 (Rear Exhaust)	18,000
TXA135RG4 (Rear Exhaust)	13,500
TA120RG4 (Rear Exhaust)	12,000
ANGLE GRINDERS with 3" WHEEL GUARD	
TA180RP63 (Rear Exhaust)	18,000
ANGLE GRINDERS with 4" WHEEL GUARD	
TXA160RH64 (Rear Exhaust)	16,000
TXA140RH64 (Rear Exhaust)	14,000
TXA135RP64 (Rear Exhaust)	13,500
TA180RH64 (Rear Exhaust)	18,000
TA150RH64 (Rear Exhaust)	15,000
TA120RP64 (Rear Exhaust)	12,000
TA90RP64 (Rear Exhaust)	9,000

The following equipment is available at an extra price and must be ordered separately:

Ergo Handle . . . . . Part No. LG2–A48

NOTICE

All the models listed above can be changed to front exhaust tools by reversing the Flow Ring and aligning the the indicator marks with the letter "F" on the Housing. To order a front exhaust tool from the factory, substitute the letter "F" for the letter "R" in the above models. Example: TA120RG4 Rear Exhaust Model becomes TA120FG4 Front Exhaust Model.

HOW TO ORDER CUSTOM MODELS

1. To order a tool with a Locking Lever, select the desired model and add an "L" to the end of the existing number.
   Example: TA120RG4**L**

NOTICE

Anytime a tool is ordered with a Low–Profile Concentric Flange, it will come equipped with a Locking Lever from the factory.

PLACING TOOL IN SERVICE

NEW GRINDER TO ACCESSORY COLOR MATCHING GUIDE

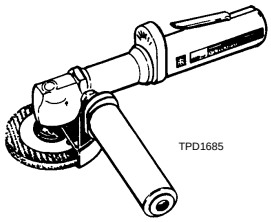
Ingersoll–Rand has pioneered a new color code system designed to:

1. Simplify the identification of rated tool speed via a unique corresponding color match.
2. Easily communicate the appropriate backing pads and accessories for each tool through a matching color code system on the backing pads and/or other corresponding Grinder accessories.
3. The chart below demonstrates the color code system between the Grinder and the accessory.

(READ FROM LEFT TO RIGHT)

SPEED COLOR ON NAMEPLATE	RATED TOOL SPEED	SAFE RANGE ACCESSORY (MAXIMUM OPERATING SPEED)							
		35,000	30,000	25,000	20,000	18,000	15,000	12,000	9,000
RED	35,000	RED							
ORANGE	30,000		ORANGE						
YELLOW	25,000			YELLOW					
GREEN	20,000				GREEN				
BLUE	18,000					BLUE			
GREY	15,000						GREY		
TAN	12,000							TAN	
VIOLET	9,000								VIOLET

(Dwg. TPD1146–1)



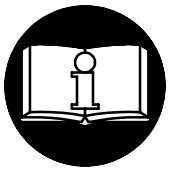
F

MANUEL D'EXPLOITATION ET D'ENTRETIEN DES MEULEUSES D'ANGLE DE LA SÉRIE TA ET TXA

NOTE

Les meuleuses d'angle des Séries TA et TXA sont destinées aux travaux dans des espaces restreints dans l'industrie de fabrication, les chantiers navals, la fabrication de tuyauteries et les applications à espace limités. En particulier, elles sont idéales dans les endroits où les tubes, tuyauteries, gaines, etc. passent à travers des cloisons ou des châssis. Ces petites meuleuses sont très efficaces pour le meulage des cordons de soudure lorsqu'une bonne finition est requise.
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 volatiles tels que le kérosène, le gasol ou le carburant d'aviation.**
- **Ne retirer aucune étiquette. Remplacer toute étiquette endommagée.**

UTILISATION DE L'OUTIL

- **Porter toujours des lunettes de protection pendant l'utilisation et l'entretien de cet outil.**
- **Porter toujours une protection acoustique pendant l'utilisation de cet outil.**
- **Tenir les mains, les vêtements flous et les cheveux longs, éloignés de l'extrémité rotative de l'outil.**
- **Prévoir, et ne pas oublier, que tout outil motorisé est susceptible d'à–coups brusques lors de sa mise en marche et pendant son utilisation.**
- **Garder une position équilibrée et ferme. Ne pas se pencher trop en avant pendant l'utilisation de cet outil. Des couples de réaction élevés peuvent se produire à, ou en dessous, de la pression d'air recommandée.**
- **La rotation des accessoires de l'outil peut continuer pendant un certain temps après le relâchement de la gâchette.**
- **Les outils pneumatiques peuvent vibrer pendant l'exploitation. Les vibrations, les mouvements répétitifs et les positions inconfortables peuvent causer des douleurs dans les mains et les bras. N'utiliser plus d'outils en cas d'inconfort, de picotements ou de douleurs. Consulter un médecin avant de recommencer à utiliser l'outil.**
- **Utiliser les accessoires recommandés par Ingersoll-Rand.**
- **Cet outil n'est pas conçu pour fonctionner dans des atmosphères explosives,**
- **Cet outil n'est pas isolé contre les chocs électriques,**

NOTE

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

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

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

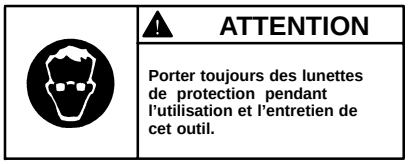
Imprimé aux É.U.

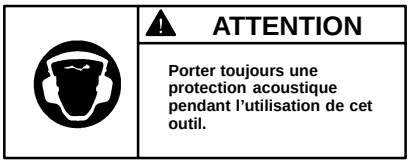
INGERSOLL-RAND®
PROFESSIONAL TOOLS

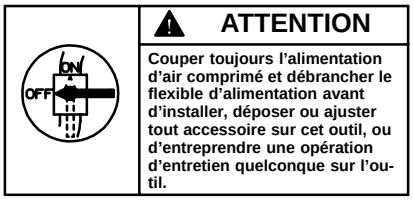
SIGNIFICATION DES ÉTIQUETTES D'AVERTISSEMENT

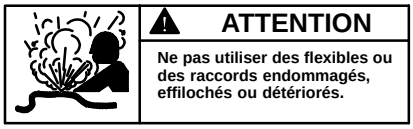
⚠ ATTENTION

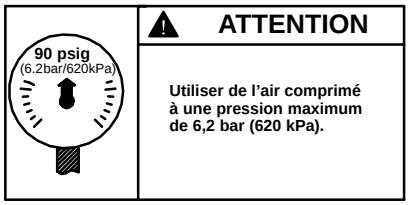
LE NON RESPECT DES AVERTISSEMENTS SUIVANTS PEUT CAUSER DES BLESSURES











AVERTISSEMENTS SPÉCIFIQUES AUX MEULEUSES

⚠ ATTENTION

LE NON RESPECT DES AVERTISSEMENTS SUIVANTS PEUT CAUSER DES BLESSURES.

- **Ne pas utiliser cet outil si la vitesse à vide réelle dépasse celle indiquée sur la plaque signalétique.**
- **Avant de monter une meule, après toute réparation de l'outil ou avant de fournir une meuleuse pour utilisation, vérifier la vitesse à vide de la meuleuse avec un tachymètre pour s'assurer que la vitesse réelle à 6,2 bar (620 kPa) ne dépasse pas celle poinçonnée ou imprimée sur la plaque signalétique. Les meuleuses sorties sur chantier doivent être vérifiées de la même façon au moins une fois par poste.**
- **Utiliser toujours le protège–meule Ingersoll–Rand fourni avec la meuleuse.**
- **Ne jamais utiliser une meule, une fraise ou tout autre accessoire ayant une vitesse de service inférieure à la vitesse à vide de la meuleuse sur laquelle il est monté. Respecter toujours la vitesse maximum inscrite sur les disques en papier de la meule.**
- **Inspecter toutes les meules avant de les monter pour vérifier qu'elles ne présentent pas d'éclats ou de fissures. Ne jamais utiliser une meule écaillée, fissurée ou ayant un endommagement quelconque. Ne jamais utiliser une meule qui a été trempée dans l'eau ou tout autre liquide.**
- **S'assurer que la meule se monte correctement sur l'arbre. Ne pas utiliser de bagues réductrices, à moins que ces bagues soient recommandées et fournies par le fabricant de la meule.**
- **Après avoir monté une nouvelle meule, tenir la meuleuse sous un établi en acier ou dans une pièce coulée et la faire tourner pendant au moins 60 secondes. S'assurer que personne ne se tient dans le plan de rotation de la meule. Toute meule défectueuse, mal montée ou de dimension et vitesse incorrectes se cassera généralement à ce moment là.**
- **Pour commencer le travail avec une meule froide, l'appliquer lentement contre la pièce jusqu'à ce que la meule s'échauffe progressivement. Mettre la meule en contact avec la pièce en douceur en évitant tout choc ou pression excessive.**
- **Remplacer toujours un protège–meule endommagé, tordu ou très usé. Ne pas utiliser un protège–meule qui a été soumis à la rupture d'une meule.**
- **S'assurer que les flasques de meule couvrent au moins 1/3 du diamètre de la meule, et qu'ils sont exempts d'entailles, de bavures et d'arêtes vives. Utiliser toujours les flasques fournis par le fabricant; ne jamais utiliser de flasque de provenance douteuse ou de rondelle plate. Serrer fermement l'écrou du flasque.**
- **L'ouverture du protège–meule doit être orientée côté opposé à l'opérateur. Le bas de la meule ne doit pas dépasser le protège–meule.**
- **Les meuleuses d'angle de la série TA90 ont une vitesse à vide de 9 000 tr/min; Les meuleuses d'angle de la série TA120 ont une vitesse à vide de 12 000 tr/min; les meuleuses d'angle Modèles TA180 ont une vitesse à vide de 18 000 tr/mn et les meuleuses d'angle TXA135 ont une vitesse à vide de 13 500 tr/mn quand elles sont exploitées à une pression d'air de 6,2 bar (620 kPa). L'exploitation à une pression supérieure produira une vitesse excessive.**

AVERTISSEMENTS SPECIFIQUES AUX MEULEUSES

- **Toujours choisir une pince adaptée à la dimension de la queue de l'accessoire.**
- **La queue de l'outil doit toujours être insérée dans la pince sur au moins 10 mm. Serrer fermement l'écrou de pince pour éviter tout desserrage de l'accessoire pendant l'emploi de la meuleuse. Vérifier le serrage de l'écrou de pince avant de mettre la meuleuse en marche. Ne jamais oublier que la vitesse admissible d'une meule sur tige doit être réduite lorsque la longueur de la tige entre le bout de la pince et la meule (porte–à–faux) est augmentée.**

ATTENTION: Une mauvaise combinaison de roue d'affûtage, de protection de roue et de vitesse de l'outil peut provoquer un accident corporel. Les combinaisons correctes sont spécifiées ci–dessous:

Référence de la protection	Type de roue	Diamètre de roue mm (po.)	Epaisseru maximale de roue mm (po.)	Vitesse maximale (t/min)
AG121–106–4	27	4 (100)	1/4 (6,4)	15.000
AG20–106–3	27	3 (76)	1/4 (6,4)	26.250

MISE EN SERVICE DE L'OUTIL

LUBRIFICATION


Ingersoll–Rand No. 10 **Ingersoll–Rand No. 67**
Ingersoll–Rand No. 50 **Ingersoll–Rand No. 68**
Ingersoll–Rand No. 63 **Ingersoll–Rand No. 77**

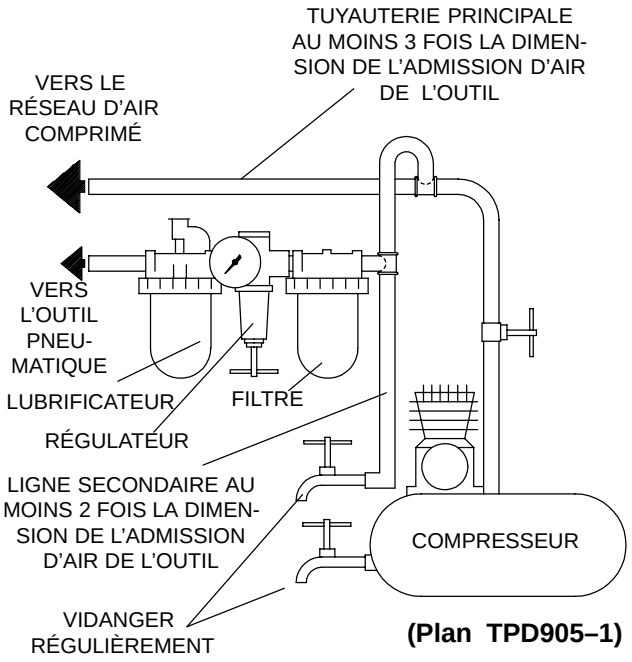
Utiliser toujours un lubrificateur avec ces outils. Nous recommandons l'emploi du filtre–régulateur–lubrificateur suivant :

É.U. – Nº. C18–03–FKG0–28

Toutes les deux heures de fonctionnement, si un lubrificateur de ligne n'est pas utilisé, injecter 1/2 à 1 cm^3 d'huile Ingersoll–Rand No. 10 dans le raccord d'admission. **Toutes les huit heures de fonctionnement,** injecter environ 3 cm^3 (pour les modèles TX) et 2 cm^3 (pour les modèles TXA) de graisse Ingersoll–Rand No. 67 ou No. 77 dans le raccord de graissage du renvoi d'angle.
Tout graissage excessif causera l'extrusion de la graisse autour de l'arbre.

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.



(Plan TPD905–1)

MISE EN SERVICE DE L'OUTIL

NOUVEAU GUIDE DE CORRESPONDANCE MEULEUSE/ACCESSOIRE À CODE COULEUR

Ingersoll–Rand a lancé un nouveau système de code couleur destiné à:

1. Simplifier l'identification des vitesses nominales des outils grâce à un code couleur de correspondance unique.
2. Faire correspondre facilement les plateaux–supports et les accessoires à chaque outil grâce à l'introduction d'un code couleur d'identification sur les plateaux et/ou les accessoires des meuleuses.
3. Le tableau ci–dessous illustre le système d'identification couleur pour les meuleuses et les accessoires.

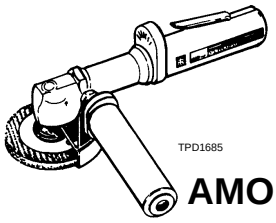
(A LIRE DE GAUCHE A DROITE)

COULEUR DE VITESSE SUR PLAQUE SIGNALETIQUE	VITESSE NOMINALE DE L'OUTIL	GAMME SURE DES ACCESSOIRES (VITESSE MAXIMALE DE FONCTIONNMENT)							
		35 000	30 000	25 000	20 000	18 000	15 000	12 000	9 000
ROUGE	35,000	ROUGE							
ORANGE	30,000		ORANGE						
JAUNE	25,000			JAUNE					
VERT	20,000				VERT				
BLEU	18,000					BLEU			
GRIS	15,000						GRIS		
OCRE	12,000							OCRE	
VIOLET	9,000								VIOLET

(Plan TPD1146–1)

SPÉCIFICATIONS

Modèle	Vitesse d'exploitation maximum
1/4" PINCE	
TA180RG4	18.000
TXA135RG4	13.500
TA120RG4	12.000
3" PROTÈGE–MEULE	
TA180RP63	18.000
4" PROTÈGE–MEULE	
TXA160RH64	16.000
TXA140RH64	14.000
TXA135RP64	13.500
TA180RH64	18.000
TA150RH64	15.000
TA120RP64	12.000
TA90RP64	9.000



E

MANUAL DE USO Y MANTENIMIENTO PARA AMOLADORAS ANGULARES DE LAS SERIES TA Y TXA

NOTA

Las amoladoras angulares de las series TA y TXA están diseñadas para uso en trabajos realizados de cerca en la industria de fabricación de metal, astilleros, fabricación de tubos y aplicaciones en las que el espacio de trabajo es reducido. Resultan especialmente prácticas para aquellas situaciones en las que los conductos, tuberías, etc. atraviesan tabiques o bastidores. Estas pequeñas amoladoras angulares son muy eficaces para rectificar cordones de soldadura y dejar un acabado fino.
Ingersoll–Rand no aceptará responsabilidad alguna por la modificación de las herramientas efectuada por el cliente para las aplicaciones que no hayan sido consultadas con Ingersoll–Rand.

⚠ AVISO

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

PARA PONER LA HERRAMIENTA EN SERVICIO

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

UTILIZACIÓN DE LA HERRAMIENTA

- **Use siempre protección ocular cuando utilice esta herramienta o realice operaciones de mantenimiento en la misma.**
- **Use siempre protección para los oídos cuando utilice esta herramienta.**
- **Mantenga las manos, la ropa suelta y el cabello largo alejados del extremo giratorio de la herramienta.**
- **Anticipe y esté 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 ocurrir elevados pares de reacción a la presión recomendada de aire, e incluso a presiones inferiores.**
- **Los accesorios de la herramienta pueden seguir girando brevemente después de haberse soltado el mando.**
- **Las herramientas neumáticas pueden vibrar durante el uso. La vibración, los movimientos repetitivos y 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 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 cualificado y autorizado. Consulte con el centro de servicio autorizado Ingersoll–Rand más próximo.

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

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ETIQUETAS DE AVISO

⚠ AVISO

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

⚠ ADVERTENCIA

Use siempre protección ocular cuando utilice esta herramienta o realice operaciones de mantenimiento en la misma.

⚠ ADVERTENCIA

Las herramientas neumáticas pueden vibrar durante el uso. La vibración, los movimientos repetitivos o las posiciones incómodas podrían dañarle los brazos y las manos. En caso de incomodidad, sensación de hormigueo o dolor, dejar de usar la herramienta. Consultar al médico antes de volver a utilizarla.

⚠ ADVERTENCIA

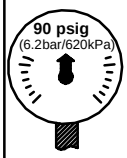
Mantener una postura del cuerpo equilibrada y firme. No estirar demasiado los brazos al manejar la herramienta.

⚠ ADVERTENCIA

Use siempre protección para los oídos cuando utilice esta herramienta.

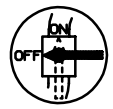
⚠ ADVERTENCIA

No coger la herramienta por la manguera para levantarla.



⚠ ADVERTENCIA

Manejar la herramienta a una presión de aire máxima de 90 psig (6,2 bar/620 kPa).



⚠ ADVERTENCIA

Cortar siempre el suministro de aire y desconectar la manguera de suministro de aire antes de instalar, retirar o ajustar cualquier accesorio de esta herramienta, o antes de realizar cualquier operación de mantenimiento de la misma.

⚠ ADVERTENCIA

No utilizar mangueras de aire y accesorios dañados, desgastados ni deteriorados.

AVISOS ESPECÍFICOS SOBRE LAS AMOLADORAS

⚠ AVISO

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

- **No utilice esta herramienta si la velocidad en vacío real supera la velocidad que indica la placa de identificación.**
- **Antes de montar una muela, después de haberse reparado la herramienta o cuando se proporciona una amoladora para su uso, compruebe la velocidad en vacío de la amoladora con un tacómetro para asegurarse de que su velocidad real a 90 psig (6,2 bar/620 kPa) no exceda de la velocidad estampada o impresa en la placa de identificación. Las amoladoras que ya están en uso también se deben examinar como mínimo una vez en cada turno de trabajo.**
- **Utilice siempre el cubremuela Ingersoll–Rand recomendado y suministrado con la amoladora.**
- **No utilice nunca una muela abrasiva, fresa u otro accesorio cuya velocidad máxima de funcionamiento sea inferior a la velocidad en vacío de la amoladora en la que se va a utilizar. Observe siempre la velocidad máxima indicada en la arandela de sujeción de la muela.**
- **Inspeccione todas las muelas antes de montarlas para comprobar que no tengan muescas ni grietas. No utilice una muela que presente muescas, grietas o daño alguno. No utilice una muela que haya estado en remojo en agua o en cualquier otro líquido.**
- **Asegúrese de que la muela quede bien ajustada en el eje. No utilice casquillos reductores para adaptar una muela al eje, salvo que éstos hayan sido suministrados y recomendados por el fabricante de la muela.**
- **Después de haber montado una muela nueva, sujete la amoladora debajo de un banco de acero o dentro de una pieza de fundición y hágala girar durante 60 segundos como mínimo. Asegúrese que no haya nadie en el entorno de operación de la muela. Si la muela es defectuosa, está mal montada o es del tamaño y velocidad incorrectas, normalmente fallará en este momento.**
- **Cuando ponga en marcha una muela en frío, aplíquela lentamente al trabajo para que se caliente gradualmente. Haga contacto suavemente con la pieza a trabajar y evite los rebotes o el exceso de presión.**
- **Cambie siempre un cubremuela dañado, torcido o muy desgastado. No utilice un cubremuela que haya estado en uso al romperse una muela.** *(continúa)*
- **Asegúrese de que las bridas de la muela tengan un diámetro de al menos 1/3 del diámetro de la muela y que no tengan cortes, rebabas ni bordes afilados. Utilice siempre las bridas de muela suministradas por el fabricante; no use nunca una brida casera o arandela normal. Apriete bien la tuerca de la brida.**
- **La abertura del cubremuela debe estar orientada en sentido contrario al operario. La parte inferior de la muela no debe sobresalir del cubremuela.**
- **Las amoladoras angulares de la serie TA90 tienen una velocidad en vacío de 9000 rpm; las amoladoras angulares de la serie TA120 tienen una velocidad en vacío de 12000 rpm; las amoladoras angulares de la serie TA180 tienen una velocidad en vacío de 18000 rpm y las amoladoras angulares de la serie TXA135 tienen una velocidad en vacío de 13500 rpm, cuando se utilizan a una presión de aire de 90 psig (6,2 bar/620 kPa). Si se utiliza la herramienta a una presión superior, se producirá un exceso de velocidad.**

AVISOS ESPECÍFICOS SOBRE LAS AMOLADORAS

- **Utilice siempre la pinza cuyo tamaño corresponda con el tamaño del eje del accesorio.**
- **Introduzca siempre el eje de la herramienta en la pinza un mínimo de 10 mm. Apriete bien la tuerca de la pinza para evitar que se salga el accesorio durante el funcionamiento de la amoladora. Compruebe el apriete de la tuerca de la pinza antes de accionar la amoladora. Preste especial atención al hecho de que la velocidad permitida de un accesorio montado disminuye cuando se incrementa la longitud del eje entre el extremo de la pinza y el accesorio.**

AVISO: Combinaciones incorrectas de rueda de rectificación, protector de rueda y velocidad de herramienta puedan resultar en lesionamientos. Las combinaciones correctas se especifican a continuación:

Número de Pieza del Protector	Tipo de Rueda	Diámetro de Rueda mm (in.)	Grosor Máximo de Rueda mm (in.)	Velocidad Máxima (rpm)
AG121–106–4	27	4 (100)	1/4 (6,4)	15.000
AG20–106–3	27	3 (76)	1/4 (6,4)	26.250

PARA PONER LA HERRAMIENTA EN SERVICIO

LUBRICACIÓN

Ingersoll–Rand N°. 10 **Ingersoll–Rand N°. 67**
Ingersoll–Rand N°. 50 **Ingersoll–Rand N°. 68**
Ingersoll–Rand N°. 63 **Ingersoll–Rand N°. 77**

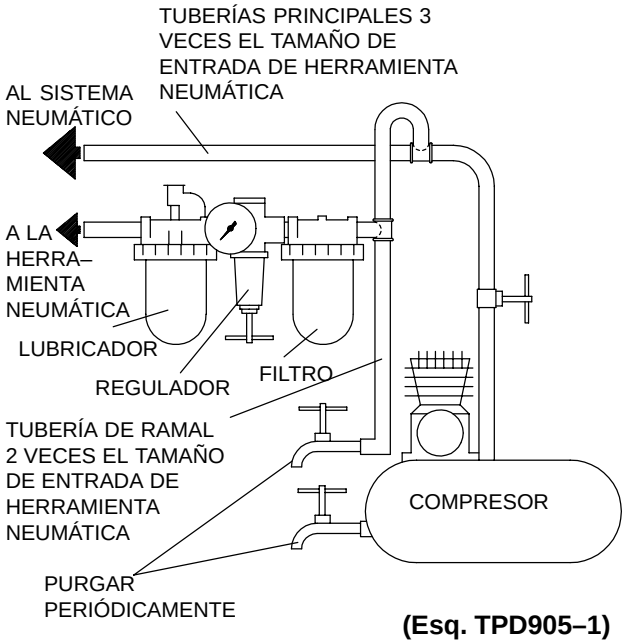
Utilice siempre un lubricador de aire comprimido con estas herramientas. Recomendamos el siguiente conjunto de filtro–lubricador–regulador:

EE. UU. – N°. C18–03–FKG0–28

Después de cada dos horas de funcionamiento, si no se usa un lubricador de aire comprimido, inyecte 0,5–1 cc de acite Ingersoll–Rand N°.10 en la admisión de aire.
Después de cada ocho horas de funcionamiento, inyecte unos 3 cc (modelos TX) o 2 cc (modelos TXA) de grasa Ingersoll–Rand N°. 67 o N°. 77 en el engrasador de la cabeza angular. **El exceso de lubricación hará que salga grasa alrededor del eje.**

PRECAUCIÓN

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



(Esq. TPD905–1)

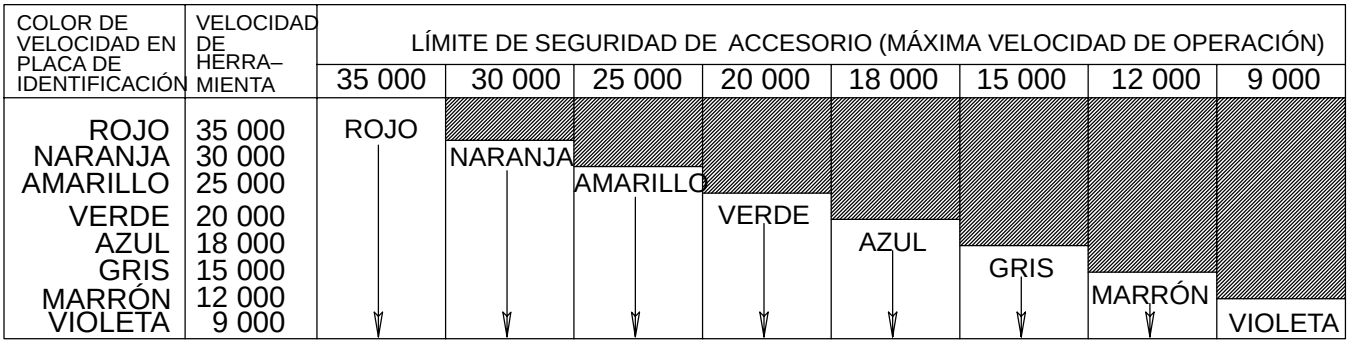
PARA PONER LA HERRAMIENTA EN SERVICIO

NUEVO SISTEMA DE CÓDIGO DE COLORES

Ingersoll–Rand ha introducido un nuevo sistema de codificación de colores diseñado para:

1. Simplificar la identificación de la velocidad nominal de la herramienta mediante una correspondencia única de colores.
2. Comunicar fácilmente los accesorios y discos de soporte correspondientes a cada herramienta gracias a un sistema de codificación de colores en los discos de soporte y demás accesorios de amoladora.
3. El cuadro que aparece a continuación ilustra el sistema de codificación de colores entre amoladora y accesorio.

(LEA DE IZQUIERDA A DERECHA)



(esq. TPD1146–1)

ESPECIFICACIONES

Modelo	Velocidad en vacio, rpm
1/4” PINZA	
TA180RG4	18.000
TXA135RG4	13.500
TA120RG4	12.000
3” CUBREMUELA	
TA180RP63	18.000
4” CUBREMUELA	
TXA160RH64	16.000
TXA140RH64	14.000
TXA135RP64	13.500
TA180RH64	18.000
TA150RH64	15.000
TA120RP64	12.000
TA90RP64	9.000

P

MANUAL DE FUNCIONAMENTO E MANUTENÇÃO PARA ESMERILADORAS ANGULARES SÉRIES TA E TXA

AVISO

As séries de Esmeriladoras Angulares TA e TXA são concebidas para trabalho em indústria de metais, de tubos, estaleiros, indústrias espaciais limitadas. Elas são particularmente boas onde condutas, tubos, canais, etc. passem através de quadros principais ou estruturas. As Esmeriladoras são muito eficientes no esmerilamento de cordão de solda, deixando um acabamento fino.
A Ingersoll–Rand não é responsável por modificações, feitas pelo cliente em ferramentas, nas quais a Ingersoll–Rand não tenha sido consultada.

⚠ ADVERTÊNCIA

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

COLOCANDO A FERRAMENTA EM FUNCIONAMENTO

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

USANDO A FERRAMENTA

- **Use sempre óculos de protecção quando estiver operando ou executando serviço de manutenção nesta ferramenta.**
- **Use sempre protecção contra ruído ao operar esta ferramenta.**
- **Mantenha as mãos, partes do vestuário soltas e cabelos compridos afastados da extremidade em rotação.**
- **Antecipe e esteja alerta a mudanças repentinas no movimento quando ligar e operar qualquer ferramenta motorizada.**
- **Mantenha a posição do corpo equilibrada e firme. Não exagere quando operar esta ferramenta. Torques de reacção elevados podem ocorrer na ou abaixo da pressão de ar recomendada.**
- **Os acessórios da ferramenta podem continuar a girar brevemente após a pressão ter sido aliviada.**
- **Ferramentas accionadas pneumáticamente podem vibrar em uso. Vibração, movimentos repetitivos ou posições desconfortáveis podem ser prejudiciais às mãos e aos braços. Pare de usar a ferramenta caso ocorra algum desconforto, sensação de formigueiro ou dor. Procure assistência médica antes de retornar ao trabalho.**
- **Use acessórios recomendados pela Ingersoll–Rand.**
- **Esta Ferramenta não foi concebida para trabalhos em atmosferas explosivas.**
- **Esta Ferramenta não está isolada contra choques eléctricos.**

AVISO

O uso de peças de substituição que não sejam genuinamente da Ingersoll–Rand podem resultar em riscos de segurança, diminuição do desempenho da ferramenta, aumento da necessidade de manutenção e pode invalidar todas as garantias.
As reparações devem ser feitas somente por pessoal treinado autorizado. Consulte o Centro de Serviços da Ingersoll–Rand mais próximo.

Envie Todos os Comunicados Para o Distribuidor ou Escritório da Ingersoll–Rand Mais Próximo.

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IDENTIFICAÇÃO DO RÓTULO DE ADVERTÊNCIA

⚠ ADVERTÊNCIA

O NÃO CUMPRIMENTO DAS SEGUINTES ADVERTÊNCIAS PODE RESULTAR EM FERIMENTO.

⚠ ADVERTÊNCIA

Use sempre óculos de protecção quando estiver operando ou executando algum serviço de manutenção nesta ferramenta.

⚠ ADVERTÊNCIA

Use sempre protecção contra o ruído ao operar esta ferramenta.

⚠ ADVERTÊNCIA

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

⚠ ADVERTÊNCIA

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

⚠ ADVERTÊNCIA

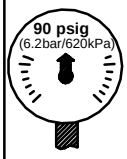
Não carregue a ferramenta segurando na mangueira.

⚠ ADVERTÊNCIA

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

⚠ ADVERTÊNCIA

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



⚠ ADVERTÊNCIA

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

ADVERTÊNCIAS ESPECÍFICAS SOBRE A ESMERILADORA

⚠ ADVERTÊNCIA

O NÃO CUMPRIMENTO DAS SEGUINTES ADVERTÊNCIAS PODE RESULTAR EM FERIMENTO.

- **Não use esta ferramenta se a velocidade livre total exceder a rpm indicada na placa de identificação.**
- **Antes de montar o disco, depois de qualquer reparação de ferramenta ou quando se pretende que uma Esmeriladora seja colocada em funcionamento, verifique a velocidade livre da Esmeriladora com um tacometro para se certificar de que a sua velocidade real a 6,2 bar/620kPa (90 psig) não exceda a rpm selada ou impressa na placa de identificação. As Esmeriladoras em funcionamento devem ser similarmente verificadas pelo menos uma vez em cada turno**.
- **Use sempre o Protector do Disco da Ingersoll–Rand fornecido com a Esmeriladora.**
- **Não use qualquer disco de esmerilamento, broca ou outro acessório que possua uma velocidade máxima de operação menor do que a velocidade livre da Esmeriladora que esteja a ser usada. Respeite sempre a máxima rpm nos adaptadores de disco de esmerilamento.**
- **Verifique todas os discos de esmerilamento para ver se há lascas ou rachaduras antes da montagem. Não use um disco que esteja lascado ou rachado ou de alguma maneira danificado. Não use um disco que tenha sido encharcado com água ou qualquer outro líquido.**
- **Verifique se o disco de esmerilamento se encaixa na árvore de montagem. Não use rolamentos redutores para adaptar um disco na árvore de montagem a não ser que tais rolamentos tenham sido fornecidos ou recomendados pelo fabricante do disco**.
- **Depois de montar um novo disco, segure a Esmeriladora sob uma bancada de aço ou dentro de uma moldagem e coloque–a em funcionamento por 60 segundos. Verifique se não há ninguém dentro do plano de operação. Se o disco estiver com algum defeito, inadequadamente montado ou se for do tamanho errado ou tiver velocidade incorrecta, este é o momento em que ele normalmente falhará.**
- **Quando iniciar um trabalho com um disco frio, ponha–o a trabalhar lentamente até que o disco aqueça gradualmente Faça um contacto suave com o local a ser trabalhado e evite de executar qualquer ação de batimento ou pressão excessiva**.
- **Reponha um protector do disco sempre que estiver danificado, torto ou severamente gasto. Não use um protector do disco que tenha sido sujeito a uma falha do disco.**
- **Certifique–se de que as flanges da roda sejam pelo menos 1/3 do diâmetro do disco de esmerilamento, livre de cortes, arestas e extremidades afiadas. Use sempre flanges do disco fornecidas pelo fabricante. Nunca use uma flange provisória ou uma anilha plana. Aperte bem a Porca da Flange.**
- **A abertura do protector deve estar afastada do operador. O fundo do disco não deve se extender para fora do protector.**

(continua)

ADVERTÊNCIAS ESPECÍFICAS SOBRE A ESMERILADORA

- **A Esmeriladoras Série TA90 possuem uma velocidade livre de 9 000 rpm ; as Esmeriladoras Série TA120 possuem uma velocidade livre de 12 000 rpm; e as Esmeriladoras Série TA180 possuem uma velocidade livre de 18 000 rpm e Esmeriladoras Série TXA135 possuem uma velocidade livre de 13 500 rpm, quando operadas com uma pressão de ar de 6,2 bar/620 kPa (90 psig). Operações com pressões mais elevadas resultarão em velocidades excessivas.**
- **Use sempre uma pinça cuja dimensão seja igual ao encabadouro acessório.**
- **Insira sempre o encabadouro da ferramenta com comprimento que não seja inferior a 10 mm no colete. Aperte a Porca do Pinça seguramente para evitar que o acessório se desajuste durante a operação da esmeriladora. Verifique o aperto da Porca do Pinça antes de operar a esmeriladora. Preste particular atenção ao facto de que a velocidade permitida de um ponto montado é diminuída quando o comprimento do eixo é aumentado entre a extremidade da pinça e o ponto montado. (pendurado)**

ADVERTÊNCIA: Combinações incorrectas de disco de esmerilamento, protectordo disco e velocidade da ferramenta pode resultar em ferimento.
As combinações correctas estaõ especificadas abaixo:

Número de Peça do Protector	Tipo do Disco	Diâmetro do Disco	Espessura Máxima do Disco	Velocidade Máxima
		mm (pol.)	mm (pol.)	rpm
AG121–106–4	27	100 (4)	6,4 (1/4)	15.000
AG20–106–3	27	76 (3)	6,4 (1/4)	26.250

COLOCANDO A FERRAMENTA EM FUNCIONAMENTO

LUBRIFICAÇÃO

Ingersoll–Rand No. 10 **Ingersoll–Rand No. 67**
Ingersoll–Rand No. 50 **Ingersoll–Rand No. 68**
Ingersoll–Rand No. 63 **Ingersoll–Rand No. 77**

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

E.U.A. – No. C18–03–FKG0–28

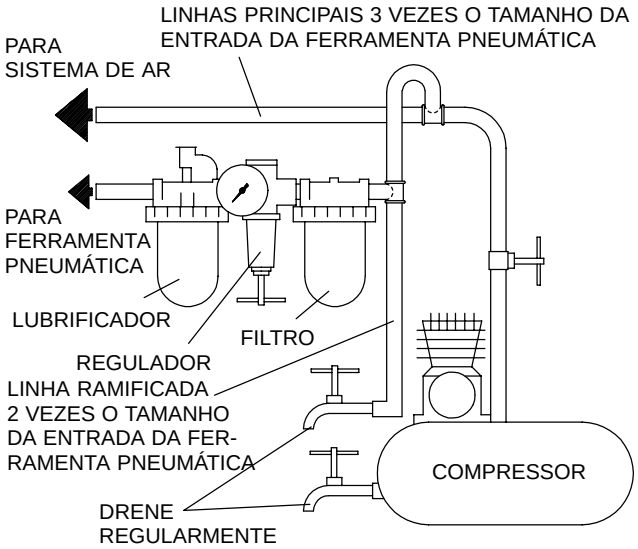
Depois de cada duas horas de operação, se estiver usando um lubrificador de ar de linha, injecte 1/2 a 1 cc de Óleo Ingersoll–Rand No. 10 na Entrada de Ar.

Depois de oito horas de operação, injecte cerca de 3cc (para os Modelos TX) e 2cc (para os Modelos TXA) de Massa Lubrificadora Ingersoll–Rand No. 67 ou Ingersoll–Rand No. 77 no Adaptador de Ângulo.

Lubrificação Excessiva poderá causar derramamento de massa lubrificadora em torno da árvore.

CUIDADO

Não marque as superfícies não metálicas desta ferramenta com códigos de identificação do cliente. Tais acções podem afectar o desempenho da ferramenta.



(Desenho TPD905–1)

COLOCANDO A FERRAMENTA EM FUNCIONAMENTO

NOVO GUIA DE COMBINAÇÃO DE CORES ENTRE A ESMERILADORA E O ACESSÓRIO

A Ingersoll–Rand é pioneira no desenho de um novo sistema de código de cores para:

1. Simplificar a identificação da velocidade aferida de uma ferramenta através de uma única combinação de cores correspondentes.
2. Comunicam facilmente os painéis traseiros e acessórios apropriados para cada ferramenta através de um sistema de códigos de combinação de cores nos paineis traseiros e/ou acessórios correspondentes à Esmeriladora.
3. A tabela abaixo demonstra o sistema de códigos de cores correspondentes à Esmeriladora e ao Acessório.

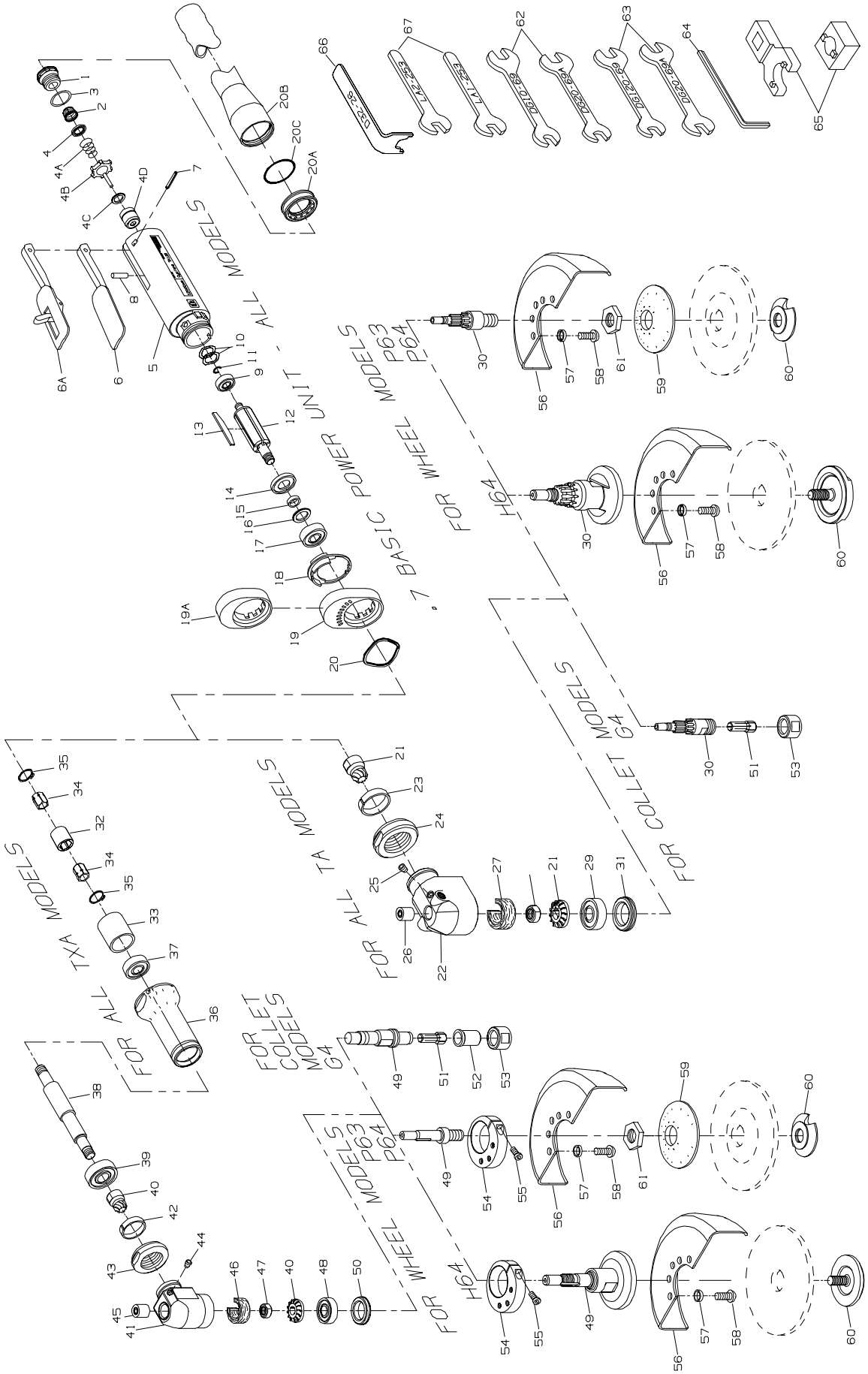
(LEIA DA ESQUERDA PARA A DIREITA)

COR DA VELOCIDADE NA PLACA DE IDENTIFICAÇÃO	VELOCIDADE AFERIDA DA FERRAMENTA	ACESSÓRIO DE INTERVALO SEGURO (MÁXIMA VELOCIDADE DE OPERAÇÃO)							
		35 000	30 000	25 000	20 000	18 000	15 000	12 000	9 000
VERMELHA	35 000	VERMELHA							
LARANJA	30 000		LARANJA						
AMARELA	25 000			AMARELA					
VERDE	20 000				VERDE				
AZUL	18 000					AZUL			
CINZA	15 000						CINZA		
MARRON CLARO	12 000							MARRON CLARO	
VIOLETA	9 000								VIOLETA

(Desenho TPD1146–1)

ESPECIFICAÇÕES

Modelo	Velocidad Livre
1/4” PINÇA	
TA180RG4	18.000
TXA135RG4	13.500
TA120RG4	12.000
3” RESGUARDO DO DISCO	
TA180RP63	18.000
4” RESGUARDO DO DISCO	
TXA160RH64	16.000
TXA140RH64	14.000
TXA135RP64	13.500
TA180RH64	18.000
TA150RH64	15.000
TA120RP64	12.000
TA90RP64	9.000



(Dwg. TPA1292–9)

PART NUMBER FOR ORDERING

	Common parts for ALL TA and TXA Grinders	
1	Inlet Assembly	LG2–A465
• 2	Inlet Screen	R1602–61
• 3	Inlet Seal	R18LF–21
4	Throttle Valve Spring Seat	LG3–592
4A	Throttle Valve Spring	7L–51
4B	Throttle Valve	LG2–302
4C	Throttle Valve Seat	LG2–303
4D	Cartridge Case	LG2–300A
5	Motor Housing	LG2–40
6	Throttle Lever	LG2–273
6A	Locking Throttle Lever Assembly (for Models ending in L or C)	LG2–A400
*	Lever Lock	LG1–402
*	Lock Spring	LG1–405
*	Lock Pin	5UT–757
7	Throttle Lever Pin	61H–120
8	Throttle Valve Plunger	LG2–191
• 9	Rear Rotor Bearing	R120–127
• 10	Rear Rotor Bearing Spacer(2)	400–25–191
• 11	Rear Rotor Bearing Retainer	LG1–118
12	Rotor	LG2–53–4
• 13	Vane Packet (set of 4 Vanes)	DG21–42–4
14	Front End Plate	LG2–11
15	Front End Plate Spacer	LG2–65
• 16	Front Seal Cup Assembly	61H–A32
• 17	Front Rotor Bearing	LG2–24
18	Flow Ring	
	for TA90 (brown)	LG2–103–1
	for TXA135 (khaki)	LG2–103–2
	for TA120 and TA150 TA180 and TXA160 (red)	LG2–103–3
	for TXA140 (green)	LG2–103–4

PART NUMBER FOR ORDERING

• 19	High Profile Flange	LG2–23
# 19A	Low Profile Concentric Flange (for all models ending in C)	LG3R–23
20	Flange Clamp	LG2–29
♦ 20A	Exhaust Hose Adapter	LG2–184
♦ 20B	Exhaust Hose	3RL–284
♦ 20C	Exhaust Hose Retainer	6WT–203
*	Warning Label	
	for models ending in P63–EU	EU–63–99
	for models ending in P64–EU	EU–64–99
	for all other models ening in –EU	EU–99
	for all other models	LG2–99
*	Nameplate	
	for TA90 models	LA209–301
	for TA120 models ending in –EU	LA212–EU–301
	for all other TA120 models	LA212–301
	for TA180 models ending in –EU	LA218–EU–301
	for all other TA180 models	LA218–301
	for TXA135 models ending in –EU	LA2135–EU–301
	for all other TXA135 models	LA2135–301
	for TXA140 models	LA214–301
	for TXA160 models	LA216–301
	for TA150 models	LA215–301
	Additional parts for all TA models	
21	Bevel Pinion and Bevel Gear (sold only as a matched set)	
	for TA90 and TA120	LA2–A552–1.9
	for TA180	LA2–A552–1.3
	for TA150	LA2–A552–1.7

* Not illustrated.

• 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

♦ Standard equipment on models ending in **M, MC** or **ML** and **ALL** Front Exhaust models; optional equipment on all other models.

WARNING

Always install a Locking Throttle Lever Assembly (6A) on a tool with a Low Profile Concentric Flange (19A). Do not equip a tool with a standard non–locking Throttle Lever (6) and Low Profile Concentric Flange. This can allow the tool to continue to run if dropped or set down.

		PART NUMBER FOR ORDERING
+ 22	Angle Housing Assembly	LA2–A550S
23	Clamp Spacer	LA2–46
24	Clamp Nut	LG2–27
25	Grease Fitting	D0F9–879
• 26	Upper Arbor Bearing	AG210–693
• 27	Wick	
	for TA90 and TA120	LA2–560
	for TA180	LA2–561
28	Bevel Gear Nut	LA2–578
• 29	Lower Arbor Bearing	LA2–593
30	Arbor	
	for models ending in H64	LA2–104–1
	for models ending in G4, G4C or G4L	AG220–4–G4
	for models ending in P63, P63C, P63L, P64, P64C or P64L	AG220–4
31	Arbor Bearing Cap	AG20–531
	Additional parts for all TXA models	
• 32	Arbor Coupling	LE2–304
33	Clamp Sleeve	LE2–176
34	Spindle Bearing Nut (2)	LE2–85
35	Coupling Retaining Ring (2)	RX3–729
36	Extension Housing Assembly	LA2–A20
• 37	Rear Spindle Bearing	LE2–24
38	Spindle	LA2–4
39	Front Spindle Bearing	LG1–24
40	Bevel Pinion and Bevel Gear	
	for models ending in G4, G4C or G4L	LA1–A552–1.5
	for models ending in H64, H64C H64L, H64M H64MC or H64ML	LA1–A552–1.5A

		PART NUMBER FOR ORDERING
+ 41	Angle Housing Assembly	LA1–A550S
42	Clamp Spacer	LA1–46
43	Clamp Nut	LG1–27
44	Grease Fitting	D0F9–879
• 45	Upper Arbor Bearing	AG210–693
• 46	Wick	LA1–561
47	Bevel Gear Nut	AG210–578A
• 48	Lower Arbor Bearing	AG210–24
49	Arbor	
	for models ending in G4, G4C or G4L	AG210–4–G4
	for models ending in P64, P64C or P64L	LA1–6
	for models ending in H64, H64C H64L, H64M, H64MC or H64ML	LA1–104–1
50	Arbor Bearing Cap	AG210–531
	Additional parts for all collet models	
51	Collet	
	for TA120 and TA180	G160HD–700–1/4
	for TA120–EU and TA180–EU	G160HD–700–6mm
	for TXA135	DG110–700–G4
	for TXA135–EU	DG110–700–6mm
52	Nosepiece (for TXA135 only)	AG210–698A
53	Collet Nut	
	for TA120 and TA180	DG120–699A
	for TXA135	AG210–699A
	Additional parts for all wheel models	
54	Wheel Guard Adapter Assembly (for TXA135 only)	LA1–A710
55	Wheel Guard Adapter Screw	804–634

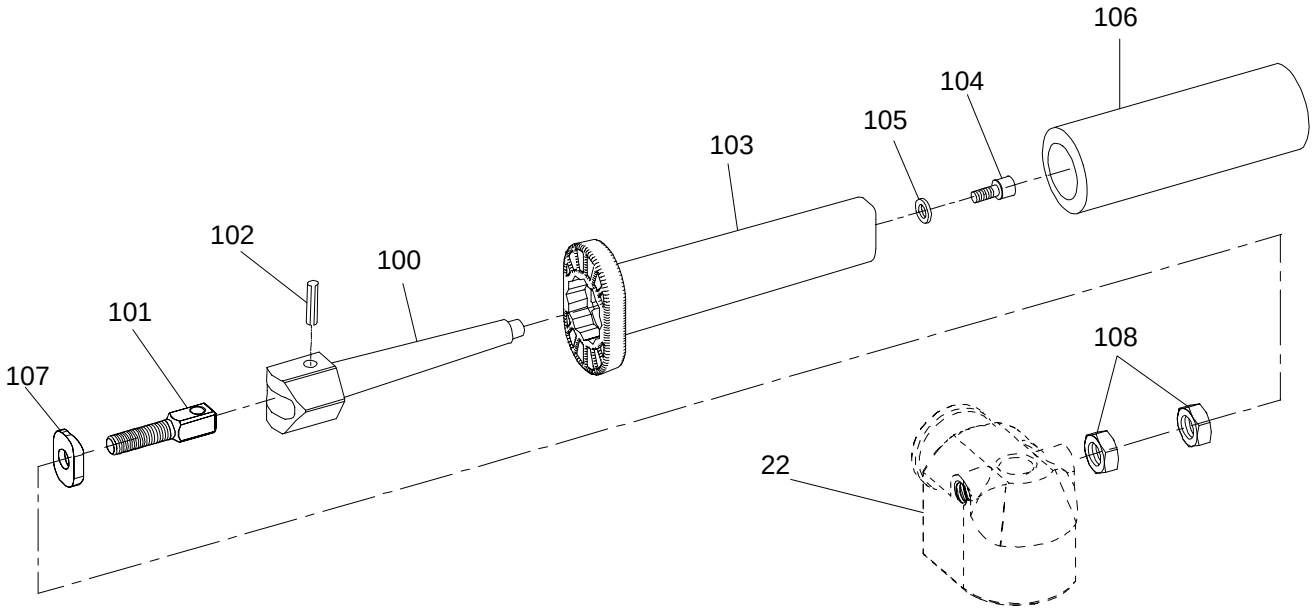
• To keep downtime to a minimum, it is desirable to have on hand certain repair parts. We recommend that you stock one (pair or set) of each part indicated by a bullet (•) for every four tools in service.

+ The LA2–A550S Angle Housing Assembly is furnished with three Wicks. Use Wick (LA2–560) **without** the notch on TA120 models and Wick (LA2–561) **with one notch** on TA180 models. The LA1–A550S Angle Housing Assembly is furnished with two Wicks. Use Wick (LA1–561) **with** the notch on TXA135 models.

		PART NUMBER FOR ORDERING
56	Wheel Guard	
	for ending in P64 and H64 (4")	AG121–106–4
	for models ending in P63	AG20–106–3
57	Guard Lock Washer (3)	R2–320
58	Guard Mounting Screw (3)	
	for TA90, TA120, TA150 and TA180	AG31–667
	for TXA models	LA1–667
59	Wheel Flange	
	for models ending in P63M, P63MC or P63ML	AG21–337A–3
	for models ending in P64M, P64MC or P64ML	AG31–337–4
	for all others	R0A2D61–337
60	Flange Nut	
	for models ending in P64M, P64MC or P64ML	AG31–338–4
	for models ending in H64, H64M, H64ML, H64MC, H64L or H64C	LA2–388
	for all others	AG21–337A–3
61	Flange Spacer (for 1/8" wheels only)	LA2–111
	Accessories for all models	
62	Collet Body Wrench or Flange Spacer Wrench (included with all models ending in G4, G4C or G4L and all TA90 models)	
	for TA90, TA120 and TA180 (double–end 1/2" x 9/16")	DG10–69
	for TXA135 (double–end 7/16" x 11/16")	DG20–69A
63	Collet Nut Wrench (included with all models ending in G4, G4C or G4L)	
	for TA120 and TA180 (double–end 5/8" x 3/4")	DG120–69
	for TXA (7/16" x 11/16")	DG20–69A
64	Arbor Wrench (3/16" hex wrench) (included with all models using Type 27 Wheels)	AG220–340
65	Arbor Bearing Cap Wrench	
	for TXA models ending in G4, P63 and P64	AG210–29
	for TXA models ending in H64	LA1–29
	for TA models ending H64	LAS2–29
66	Flange Nut Wrench (L–shaped) (included with all models using Type 27 Wheels)	D32–26
67	Clamp Nut Wrench (included with all models)	LA2–253
*	I–R No. 10 Oil (4 oz. bottle)	10Z4
*	I–R No. 63 Oil (4 oz. bottle)	63Z4
*	I–R No. 67 Grease (1 lb. can)	67–1LB
*	I–R No. 77 Grease (1 lb. can)	77–1LB

* Not illustrated.

LG2–A48 ERGO HANDLE ASSEMBLY



(Dwg. TPD1989)

PART NUMBER FOR ORDERING

	Ergo Handle Assembly	LG2–A48A
100	Handle Arbor	LG2–48Y
101	Position Anchor Bolt	LG2–373
102	Anchor Roll Pin	R00A2–120
103	Handle	LG2–48X
104	Handle Lock Screw	AL–638
105	Lock Screw Washer	MF–37
106	Handle Grip	LG2–48W
107	Anchor Bolt Clamp	LG2–58
108	Alignment Nut (2)	LG2–428

The Handle can be mounted for right or left hand operation and the angle between the Handle and the tool can be adjusted by loosening the Alignment Nut (108) closest to the Dead Handle and sliding the Handle toward the Housing or away from the Housing. The Handle can be rotated to the most comfortable position by loosening the Alignment Nut (108) next to the Angle Head and turning the Handle to any of the six available positions.

MAINTENANCE SECTION

⚠ WARNING

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

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

LUBRICATION

Whenever one of these Grinders is disassembled for overhaul or replacement of parts, lubricate the tool as follows:

1. Always wipe the Vanes (13) with a light film of oil before inserting them into the vane slots.
2. Inject 0.5 to 1.0 cc of Ingersoll–Rand No. 10 Oil into the air Inlet Assembly (1) after assembly.
3. Whenever a new Wick (27 or 46) is installed, soak the Wick in approximately 1–1/2 cc of Ingersoll–Rand No. 63 Oil. **Do not substitute any other oil.**
4. Whenever the motor is disassembled, remove the old grease and refill the cavity behind the Rear Rotor Bearing (9) with 3/4 cc of Ingersoll–Rand No. 68 Grease.

DISASSEMBLY

General Instructions

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

Disassembly of all Collet Model Angle Heads

1. **For TA120 and TA180 models,** grasp the tool in copper–covered or leather–covered vise jaws with the Collet (51) upward. Using the Collet Body Wrench (62) on the flats of the Collet Arbor (30) and the Collet Nut Wrench (63) on the Collet Nut (53), unscrew the Collet Nut and remove the Collet.
   For TXA135 and TXA140 models, grasp the tool in copper–covered or leather–covered vise jaws with the Collet (51) upward. Using the Collet Body Wrench (62) on the flats of of the Collet Arbor (49) and the Collet Nut Wrench (63) on the Collet Nut (53), unscrew the Collet Nut and remove the Nosepiece (52) and Collet.
2. **For TA120 and TA180 models,** using a spanner wrench, unscrew and remove the Arbor Bearing Cap (31). This is a **left–hand thread.** Rotate the Cap Wrench **clockwise** to remove the Cap.
   For TXA135 models, using the Arbor Bearing Cap Wrench (65), unscrew and remove the Arbor Bearing Cap (50). This is a **left–hand thread.** Rotate the Cap Wrench **clockwise** to remove the Cap.

NOTICE

In the following step, do not allow the Angle Head to rotate when separating it from the Motor. Components may fall from the Angle Head.

3. **For TA120 and TA180 models,** using the Clamp Nut Wrench (67), loosen the Clamp Nut (24) and pull the Angle Housing Assembly (22) away from the Motor Housing (5). This is a **left–hand thread**. Rotate the Nut Wrench **clockwise** to loosen the Nut.
   For TXA135 and TXA140 models, using the Clamp Nut Wrench (67), loosen the Clamp Nut (43) and pull the Angle Housing Assembly (41) away from the Extension Housing (36). This is a **left–hand thread**. Rotate the Nut Wrench **clockwise** to loosen the Nut.
4. Grasp the Collet Arbor and pull the assembled Arbor out of the Angle Head. If the Wick (27 or 46) needs replacement, pull it out of the Angle Housing.
5. If the Upper Arbor Bearing (26 or 45) needs replacement, support the Angle Head on the table of an arbor press, bearing end down, and press the Bearing out of the Angle Head.
6. Grasp the Collet Arbor in copper–covered or leather–covered vise jaws with the collet end downward. Using an adjustable wrench, unscrew and remove the Bevel Gear Nut (28 or 47) and lift the Bevel Gear off the Arbor.
7. If the Lower Arbor Bearing (29 or 48) must be replaced, use a piece of tubing to support the Bearing on the table of an arbor press and press the Arbor from the Bearing.

⚠ WARNING

When removing the Clamp Nut in the following procedure, take all precautions necessary to prevent the Spacer from being forcefully ejected in a manner or direction that is hazardous.

8. If the Clamp Nut (24 or 43) must be removed from the Angle Housing, insert the blades of two screwdrivers, approximately 180 degrees apart, under the Clamp Spacer (23 or 42) and pry the Spacer off the Housing.

Disassembly of all Wheel Model Angle Heads

1. Grasp the tool in copper–covered or leather–covered vise jaws with the Flange Nut (60) upward. Use the Arbor Wrench (64) to hold the Arbor (30 or 49) and using the Flange Nut Wrench (66), unscrew and remove the Flange Nut. Remove the wheel, Wheel Flange (59) and Flange Spacer (61) from the Arbor. Use the Flange Spacer Wrench (62) to remove the Flange Spacer from TA90 models.
2. **For TXA135 models,** using a 9/64" hex wrench, loosen the Wheel Guard Adapter Screw (55) and remove the Wheel Guard Adapter Assembly (54) from the Angle Housing Assembly (41).
3. Using a 1/8" hex wrench, unscrew and remove the three Guard Mounting Screws (58), Guard Lock Washers (57) and Wheel Guard.
4. **For TA90, TA120 and TA180 models,** using a spanner wrench, unscrew and remove the Arbor Bearing Cap (31). This is a **left–hand thread.** Rotate the Cap Wrench **clockwise** to remove the Cap. **For TXA135 models,** using the Arbor Bearing Cap Wrench (65), unscrew and remove the Arbor Bearing Cap (50). This is a **left–hand thread.** Rotate the Cap Wrench **clockwise** to remove the Cap.

NOTICE

In the following step, do not allow the Angle Head to rotate when separating it from the Motor. Components may fall from the Angle Head.

5. **For TA90, TA120 and TA180 models,** using the Clamp Nut Wrench (67), loosen the Clamp Nut (24) and pull the Angle Housing Assembly (22) away from the Motor Housing (5). This is a **left–hand thread**. Rotate the Nut Wrench **clockwise** to loosen the Nut. **For TXA135 and TXA140 models,** using the Clamp Nut Wrench (67), loosen the Clamp Nut (43) and pull the Angle Housing Assembly (41) away from the Extension Housing (36). This is a **left–hand thread**. Rotate the Nut Wrench **clockwise** to loosen the Nut.
6. Grasp the Arbor and pull the assembled Arbor out of the Angle Head. If the Wick (27 or 46) needs replacement, pull it out of the Angle Housing.
7. If the Upper Arbor Bearing (26 or 45) needs replacement, support the Angle Head on the table of an arbor press, bearing end down, and press the Bearing out of the Angle Head.
8. Grasp the Arbor in copper–covered or leather–covered vise jaws with the wheel end downward. Using an adjustable wrench, unscrew and remove the Bevel Gear Nut (28 or 47) and lift the Bevel Gear off the Arbor.
9. If the Lower Arbor Bearing (29 or 48) must be replaced, use a piece of tubing to support the Bearing on the table of an arbor press and press the Arbor from the Bearing.

Disassembly of Extension Assembly on TXA135 and TXA140 Models

1. Being careful not to distort the Housing, grasp the tool in copper–covered or leather–covered vise jaws with the Spindle (38) upward. Using a 1–1/2" wrench on the flats of the Extension Housing (36), unscrew and remove the assembled Housing. Remove the Arbor Coupling (32) and Clamp Sleeve (33).
2. Using snap ring pliers, remove the Coupling Retaining Ring (35) from the Spindle Bearing Nut (34) in the large end of the Extension Housing.
3. After removing the Retaining Ring, push on the Nut end of the Spindle until the assembled Spindle exits the angle head end of the Extension Housing. The Rear Spindle Bearing (37) will remain in the Housing and the Nut will pass through the Bearing.
4. If the Front Spindle Bearing (39) must be replaced, use a 1/2" wrench on the flats of the Bevel Pinion and the Spindle Bearing Nut to unscrew and remove either the Pinion or Nut. Using an adjustable wrench on the flats of the Spindle, remove whichever component remained threaded onto the Spindle. Press the Bearing from the Spindle.
5. If the Rear Spindle Bearing must be replaced, press the Bearing out the large end of the Extension Housing.

Disassembly of the Motor

1. Pull the Flange (19) and Flow Ring (18) off the front of the Motor Housing (5).
2. Grasp the Bevel Pinion (21) or Spindle Bearing Nut (34) and pull the assembled motor out of the Motor Housing. Remove the two Rear Rotor Bearing Spacers (10) from the bottom of the Housing.
3. Remove the Vanes (13) from the Rotor (12).
4. Remove the two Rear Rotor Bearing Spacers (10) from the bottom of the Motor Housing.

5. Grasp the Rotor in copper–covered or leather–covered vise jaws with the Bevel Pinion or Spindle Bearing Nut upward. Using a 1/2" wrench for the Nut or a 9/16" wrench for the Pinion, unscrew and remove the Pinion or Nut.
6. If the Front Rotor Bearing (17) must be replaced, support the Front End Plate (14) between two blocks on the table of an arbor press. Place the blocks as close to the body of the Rotor as possible and press the Rotor from the Bearing and End Plate. Remove the Front End Plate Spacer (15) and Front Seal Cup Assembly (16) from the hub of the Rotor.
7. If the Rear Rotor Bearing (9) must be replaced, use snap ring pliers to remove the Rear Rotor Bearing Retainer (11).
8. Using a bearing puller, pull the Rear Rotor Bearing off the hub of the Rotor.

Disassembly of the Inlet and Throttle

1. Using a 15/16" wrench or six point socket, unscrew and remove the Inlet Assembly (1).
2. Remove the Inlet Seal (3) and Inlet Screen (2) from the Inlet.
3. Remove the Throttle Valve Spring Seat (4), Throttle Valve Spring (4A) and Throttle Valve (4B) from the Motor Housing (5).
4. If the Throttle Valve Seat (4C) must be replaced, insert a hooked tool through the central opening of the Seat and, catching the underside of the Seat, pull it from the Housing.
5. If the Cartridge Case (4D) must be replaced, insert two hooked tools through the central opening of the Case approximately 180 degrees apart and, catching the underside of the Case, pull it from the Housing,
6. Press the Throttle Lever Pin (7) from the Housing and remove the Throttle Lever (6). Remove the Throttle Valve Plunger (8).

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. Except for bearings, always clean every part and wipe every part with a thin film of oil before installation.
5. Check every bearing for roughness. If an open bearing must be cleaned, wash it thoroughly in **clean** solvent and dry with a clean cloth. Sealed or shielded bearings should not be cleaned. Work grease into every open bearing before installation.
6. Apply a film of O–ring lubricant to every O–ring before installation.
7. Unless otherwise noted, always press on the stamped end of a needle bearing when installing a needle bearing into a recess.

Assembly of the Throttle and Inlet

1 .Insert the Throttle Valve Plunger (8) into the Motor Housing (5).
2. Position the Throttle Lever (6) on the Motor Housing and using an arbor press, press the Throttle Lever Pin (7) into the Housing and Lever. The Lever will retain the Plunger in the Housing.
3. If the Cartridge Case (4D) was removed, lubricate the outside and the throttle stem end of the Case with the O–ring lubricant. Using a wooden dowel, push the Case, open end trailing, into the Motor
4. If the Throttle Valve Seat (4C) was removed, use a 5/8" wooden dowel with a flat end to push the Seat into the Motor Housing.
5. Push the small end of the Throttle Valve Spring (4A) onto the end of the Throttle Valve (4B) with the short stem until the Spring snaps into position around the hub and remains there. Install the dish end of the Throttle Valve Spring Seat (4) onto the large end of the Throttle Valve Spring.
6. Holding the Housing with the Lever downward, make sure the Plunger is out of the way and insert the assembled Throttle Valve, long stem end leading, into the housing recess.
7. Push the Inlet Screen (2), closed end leading, into the bushing of the Inlet Assembly (1). After moistening the Inlet Seal (3) with o–ring lubricant and being careful not to nick the Seal on the threads of the Inlet, install the Seal on the Inlet.
8. Thread the Inlet Assembly into the Housing and tighten it between 20 to 25 ft–lb (27.1 to 33.9 Nm) torque.

Assembly of the Motor

1. If the Rear Rotor Bearing (9) was removed, stand the Rotor (12) upright on the table of an arbor press with the threaded end downward. Place the threaded rotor hub into a hole drilled into a flat, smooth block so that the Rotor rests against the large rotor body. Press the Rear Rotor Bearing onto the hub of the Rotor.
2. Install the Rear Rotor Bearing Retainer (11) in the groove on the hub of the Rotor.
3. Install the Front End Plate (14), counterbored end trailing, onto the threaded hub of the Rotor. Using finger pressure, press the Front Seal Cup Assembly (16), felt end trailing, onto the end of theFront End Plate Spacer (15) that is opposite the large internal bevel. Continue pressing until the felt end is flush with the end of the Spacer. Saturate the felt with Ingersoll–Rand No. 50 Oil. Place the assembled Spacer, Seal Assembly trailing, onto the threaded hub of the Rotor. Make sure the Seal Assembly enters the recess in the Front End Plate.

NOTICE

Before performing the next step, be aware that the Front Rotor Bearing is a flush ground bearing and must be installed in a specific manner. The end of the Bearing with a black stain or hash marks must be away from the Spacer.

4. Stand the small hub of the Rotor on the table of an arbor press with the threaded end upward and press the Front Rotor Bearing (17) onto the hub of the Rotor.
5. Grasp the assembled Rotor in copper–covered or leather–covered vise jaws with the threaded rotor hub upward.
6. Thread the Bevel Pinion (21) or Spindle Bearing Nut (34) onto the Rotor and using a torque wrench, tighten the Pinion or Nut between 14 and 19 ft–lb (19.0 and 25.8 Nm) torque.
7. Inject approximately 0.7 cc of Ingersoll–Rand No. 68 Grease into the small recess at the bottom of the motor housing bore. Drop the two Rear Rotor Bearing Spacers (10) into the bottom of the motor housing bore.
8. Wipe each Vane (13) with a light film of oil and insert a Vane into each vane slot in the Rotor.
9. Grasp the Bevel Pinion or Spindle Bearing Nut and insert the assembled Rotor into the Motor Housing (5).
10. Assemble the Flow Ring (18) with the Flange (19) before installing the Flange on the Housing. Mate the Flow Ring to the end of the Flange without perforations. The positioning of the Flow Ring is dictated by the desired exhaust. To set the tool exhaust, proceed as follows:
    a. **For front exhaust tools,** align the notched projection on the edge of the Flow Ring with the letter “F” on the Housing.
    b. **For rear exhaust tools,** align the notched projection on the edge of the Flow Ring with the letter “R” on the Housing.
11. Carefully install the assembled Flange, Flow Ring leading, onto the front of the Motor Housing. Make certain the Ring properly engages the Housing.

Assembly of the Extension Housing on TXA Models

1. If the Rear Spindle Bearing (37) was replaced, proceed as follows:
    a. Stand the Extension Housing (36) on the table of an arbor press with the small end downward.
    b. Press the Bearing into the Housing until the trailing end of the Bearing is 1.408” to 1.418” (35.7mm to 36.0 mm) below the face of the large end of the Extension Housing.
2. If the Front Spindle Bearing (39) was replaced, stand the Spindle (38) on the table of an arbor press, small threaded end upward. Being careful not to damage the threads on the large end of the Spindle, press the Bearing, stained or marked end trailing, onto the Spindle until it seats against the shoulder of the shaft.
3. Using an adjustable wrench on the flats of the Spindle and a 9/16” wrench on the Bevel Pinion (40), thread the Pinion onto the Spindle against the Bearing and tighten it between 14 and 19 ft–lb (19.0 and 25.8 Nm) torque.
4. Using an adjustable wrench on the Spindle and a 1/2” wrench on one of the Spindle Bearing Nuts (34), thread Nut without the Coupling Retaining Ring (35), counterbored end leading, onto the Spindle. Tighten the Nut between 14 and 19 ft–lb (19.0 and 25.8 Nm) torque.
5. Insert the assembled Spindle, Nut end leading, into the small end of the Extension Housing. Push the assembly into the Housing until the Front Spindle Bearing bottoms on the housing shoulder.
6. Using snap ring pliers, install the Coupling Retaining Ring on the Spindle Bearing Nut protruding into the large end of the Extension Housing.
7. Grasp the assembled motor in copper–covered or leather–covered vise jaws with the Spindle Bearing Nut (34) upward. Coat the inside of the Arbor Coupling (32) with approximately 1 cc of Ingersoll–Rand No. 68 Grease and install the Coupling over the Bearing Nut. Position the Clamp Sleeve (33) over the Coupling in the Motor Housing.
8. Insert the Spindle Bearing Nut in the assembled Extension Housing into the Arbor Coupling and thread the Extension Housing onto the Motor Housing. This is a **left–hand thread;** rotate the Extension Housing counterclockwise to tighten it. Tighten the Housing between 20 to 25 ft–lb (27.1 to 33.9 Nm) torque.

Assembly of the Angle Head

1. If the Upper Arbor Bearing (26 or 45) was removed and a new Bearing must be installed, proceed as follows:
    a. Support the machined face of the Angle Head (22 or 45) on the table of an arbor press with the upper arbor bearing bore upward.

NOTICE

When installing the Bearing in the next step, always press on the stamped or closed end of the Bearing.

NOTICE

Do not press the Upper Arbor Bearing flush with the top of the Angle Housing. Press the Bearing to the dimensions given in the following step:

b. To insure proper clearance between the Upper Arbor Bearing and the Arbor (35 or 55), press a new Upper Arbor Bearing into the bore of the Angle Housing to a dimension of 1.002 in. – .997 in. (24.4 mm – 25.3 mm).

2. If the Lower Arbor Bearing (29 or 48) is being installed, it is necessary to note the identification marks on the Lower Arbor Bearing. One side of the Bearing has black stains or black hash marks across the inner and outer races. Using a sleeve that contacts the inner ring of the Lower Arbor Bearing, press the Bearing, **black stain or hash mark side leading,** onto the Arbor (30 or 49).

NOTICE

The Bevel Gear and Bevel Pinion in the next step are specially matched sets. Some sets are color coded for manufacturing purposes only. Only the Gear and Pinion set furnished as a replacement part or the same Gear and Pinion set removed from one tool is a matched set. A Bevel Gear from one tool and a Bevel Pinion from another tool with the same color code IS NOT A MATCHED SET. Replace these parts only as a matched set. Failure to do so will result in unsatisfactory tool performance and damage to the Bevel Gear and Bevel Pinion.

3. Slide the Bevel Gear (21 or 40), geared face trailing, onto the small threaded end of the Arbor, aligning the integral keys or spline of the Gear with the slotted keyways or spline in the Arbor.
4. Thoroughly clean the small threads on the Arbor above the Bevel Gear and the threads in the Bevel Gear Nut (28 or 47).
5. Apply a thin coat of Loctite 271 w/t Primer®* (M. I. Hernon Grade 427) to the threads of the Bevel Gear Nut and the Nut threads on the Arbor. Thread the Bevel Gear Nut onto the Arbor to retain the Bevel Gear and tighten the Nut to 8 to 9 ft–lb (10.8 to 12.2 Nm) torque.
6. **For TA90, TA120 and TA180 models,** form the Wick (27) into a horseshoe shape and fully insert it into the U–shaped cavity in the Angle Head. Make certain the Wick is positioned behind the staking points in the Angle Head. If installing one of the Wicks having a notch on one side, make certain the notch enters the Housing first. Saturate the Wick with approximately 1.5 cc of Ingersoll–Rand No. 63 Oil. **Do not substitute any other oil.**
   For TXA135 and TXA140 models, form the Wick (46) into a horseshoe shape and fully insert it into the U–shaped cavity in the Angle Head. If installing one of the Wicks having a notch on one side, make certain the notch enters the Housing first. Saturate the Wick with approximately 1.5 cc of Ingersoll–Rand No. 63 Oil. **Do no substitute any other oil.**
7. Inject 3 cc of Ingersoll–Rand No. 67 or Ingersoll–Rand No. 77 Grease into the Upper Arbor Bearing and Wick cavity in the Angle Head. **Do not substitute any other grease.**
8. Carefully grasp the assembled motor in copper–covered or leather–covered vise jaws with the Throttle Lever **downward**.
9. Install the motor Clamp Nut (24 or 43), threaded end trailing, onto the motor end of the Angle Head. Spread the Clamp Spacer (23 or 42) and install it, beveled end trailing, onto the motor end of the Angle Head against the Clamp Nut.
10. Position the output end of the Angle Head upward and 180 degrees opposite to the Throttle Lever and thread the Clamp Nut onto the Motor Housing or Extension Housing. Using the Clamp Nut Wrench (67), tighten the Nut to 20 to 25 ft–lb (27 to 34 Nm) torque. This is a **left–hand thread**, turn **counterclockwise** to tighten.
11. Thoroughly clean the internal threads of the Angle Head and the threads on the Arbor Bearing Cap (31 or 50).
12. Insert the assembled Arbor into the Angle Head, bevel gear end first, making sure the teeth on the Bevel Gear and Pinion mesh. Rotate the Arbor manually to determine they are rotating smoothly.
13. Carefully apply a uniform coat of Vibra–Tite VC3 No. 205® ** to both sets of threads and allow the compound to cure for 12 to 15 minutes.

* Product of National Starch & Chemical Corporation

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14. **For TA90, TA120 and TA180 models,** using a spanner wrench, install the Arbor Bearing Cap and tighten to 12 to 15 ft–lb (16.2 to 20.3 Nm) torque. The Bearing Cap has a **left–hand thread**: turn **counterclockwise** to install.
    For TXA135 and TXA140 models, using the Arbor Bearing Cap Wrench (65), install the Arbor Bearing Cap and tighten to 12 to 15 ft–lb (16.2 to 20.3 Nm) torque. The Bearing Cap has a **left–hand thread**: turn **counterclockwise** to install.

Assembly Instructions for All Collet Models

1. Install the Collet (51) into the end of the Arbor.
2. **For TA120 and TA180 models,** using the Collet Body Wrench (62) to hold the Arbor, thread the Collet Nut (53) onto the Arbor.
   For TXA135 and TXA140 models, slip the Nosepiece (52) over the end of the Arbor and using the Collet Body Wrench (62) to hold the Arbor, install the Collet Nut (53) over the Nosepiece and onto the Arbor.

Assembly Instructions for All Wheel Models

1. Position the Wheel Guard (56) against the face of the Angle Housing or the dished face of the Adapter Assembly and using a 1/8" hex wrench, install the three Guard Mounting Screws (58) and Lock Washers (57). Tighten the Screws to 2.5 to 3.0 ft–lb (3.4 to 4.1 Nm) torque.
2. **For TXA135 and TXA140 models,** position the Wheel Guard Adapter Assembly (54), flat surface leading, on the hub at the spindle end of the Angle Head and using a 9/64" hex wrench, tighten the Wheel Guard Adapter Screw (55) to 3.5 to 4.0 ft–lb (4.7 to 5.4 Nm) torque.
3. Thread the Flange Spacer (61) onto the Arbor and using the Arbor Wrench (64) to hold the Arbor, tighten the Spacer with the Flange Spacer Wrench (62).
4. Install the Wheel Flange (59), wheel and Flange Nut (60) on the Arbor. Use the Arbor Wrench to hold the Arbor while tightening the Flange Nut with the Flange Nut Wrench (66).

Assembly Instructions for Ergo Handle

Assemble Ergo Handle (103) into the Angle Housing (22) and secure it with the Alignment Nuts (108).

TROUBLESHOOTING GUIDE

Trouble	Probable Cause	Solution
Low power or low free speed	Insufficient air pressure	Check air line pressure at the Inlet of the tool. It must be 90 psig (6.2 bar/620 kPa).
	Clogged muffler elements	Disassemble the tool and agitate bare Motor Housing and Flange in a clean, suitable, cleaning solution. If elements cannot be cleaned, replace the Motor Housing and/or the Flange.
	Plugged Inlet Screen	Clean the Inlet Screen in a clean, suitable, cleaning solution or replace the Screen.
	Worn or broken Vanes	Install a **complete** set of new Vanes.
	Loose Clamp Nut or Arbor Housing	Tighten the Nut or Housing between 20 and 25 ft–lb (27 and 34 Nm) torque.
	Worn or broken Motor Housing	Replace the Motor Housing.
	Internal air leakage in the Motor Housing indicated by high air consumption/low speed or air leaking out the front and rear exhaust simultaneously	Replace the Motor Housing.
	Grit buildup under the Throttle Lever restricting full Throttle Valve Plunger movement	Remove the Throttle Lever and clean the groove in the Motor Housing.
	Bent stem on Throttle Valve	Replace the Throttle Valve.
	Front Seal Cup Assembly dragging against the shield of the Front Rotor Bearing	Reposition the Front Seal Cup Assembly.
Excessive runout	Bent Arbor	Replace the Arbor.
	Loose Collet Nut	Tighten the Collet Nut until snug.
	Worn or damaged Collet, Collet Nut or Nosepiece	Replace the damaged component and retest.
	Worn or damaged Upper Arbor Bearing or Lower Arbor Bearing	Replace the worn or damaged Bearing.
Scoring of End Plate	Worn Front End Plate Spacer or Front End Plate	Install a new Front End Plate Spacer and Front End Plate.
	Worn Front Rotor Bearing	Install a new Front Rotor Bearing.
Leaky Throttle Valve	Dirt accumulation on Throttle Valve or Throttle Valve Seat	Disassemble, inspect and clean parts.
	Worn Throttle Valve or Throttle Valve Seat	Replace the Throttle Valve and/or Throttle Valve Seat.
	Excessive dirt build–up beneath the Throttle Lever	Clean out the slot area.
	Bent Throttle Valve Plunger	Replace the Plunger.
Exhausts at wrong direction	Incorrect orientation of the Flow Ring	Reverse the face of the Flow Ring against the Motor Housing.

TROUBLESHOOTING GUIDE

Trouble	Probable Cause	Solution
Front Rotor Bearing runs hot	Incorrect installation of the Front Seal Cup Assembly	Reposition the Front Seal Cup Assembly flush with the face of the Front End Plate Spacer.
	Front End Plate Spacer rubbing the bore of the Front End Plate	Replace the Front End Plate and Front End Plate Spacer combination.
	Incorrect Front Rotor Bearing installation orientation	If a black stain or black hashmarks are not visible on the face of the Bearing when it is assembled with the End Plate and Rotor, the Bearing is installed backwards. If possible, remove the Bearing and install it correctly or replace the Bearing.
Slow tool idle	Bent or leaky Throttle Valve	Replace the Throttle Valve.
Air leakage around Flow Ring	Damaged, mutilated or missing Flange Clamp	Replace the Flange Clamp.
	Damaged Flow Ring	Replace the Flow Ring.
Rough operation/vibration	Improper lubrication or dirt buildup	Disassemble the Tool and clean in a suitable cleaning solution. Assemble the Tool and inject 3 cc of the recommended oil into the Inlet and run the Grinder long enough to coat the internal parts with the oil.
	Worn or broken Rear Rotor Bearing or Front Rotor Bearing	Replace the worn or broken Bearings. Examine the Front End Plate, Front End Plate Spacer Front Seal Cup Assembly and Rear Rotor Bearing Spacers and replace any damaged parts. If the rear end plate is damaged, replace the Rotor.
	Worn or broken Upper Arbor Bearing or Lower Arbor Bearing	Replace the worn or broken Bearing.
	Worn or broken Bevel Gear or Bevel Pinion	Examine the Bevel Gear and Bevel Pinion. If either is worn or damaged, replace both the Gear and the Pinion because they are a matched set and must not be used separately.

NOTICE

SAVE THESE INSTRUCTIONS. DO NOT DESTROY.