03524410
Form P5944
Edition 10
May, 1999

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OPERATION AND MAINTENANCE MANUAL FOR MODELS 551SMA and 551S0A REVERSIBLE DRILLS and MODELS 551SM51 AND 551S051 REVERSIBLE BASE–MOUNTED MOTORS

NOTICE

Models 551SMA and 551S0A Reversible Drills are designed for heavy drilling and reaming in shipbuilding, railroad car shops, fabricated metal and construction applications.
Model 551 Base Mounted Motors are designed for heavy–duty applications requiring air power in the 5 horse power range.
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 1” (25 mm) inside diameter air supply hose.
- Always turn off the air supply and disconnect the air supply hose before installing, removing or adjusting any accessory on this tool, or before performing any maintenance on this tool.
- Do not use damaged, frayed or deteriorated air hoses and fittings.
- Be sure all hoses and fittings are the correct size and are tightly secured. See Dwg. TPD905–1 for a typical piping arrangement.
- Always use clean, dry air at 90 psig (6.2 bar/620 kPa) maximum air pressure. Dust, corrosive fumes and/or excessive moisture can ruin the motor of an air tool.
- Do not lubricate tools with flammable or volatile liquids such as kerosene, diesel or jet fuel.
- Do not remove any labels. Replace any damaged label.

USING THE TOOL

- Always wear eye protection when operating or performing maintenance on this tool.
- Always wear hearing protection when operating this tool.
- Keep hands, loose clothing and long hair away from rotating end of tool.
- 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 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.
- This tool is designed to be operated by two persons.

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.

⚠ WARNING

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

⚠ WARNING

Always wear hearing protection when operating this tool.

⚠ WARNING

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

⚠ WARNING

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

⚠ WARNING

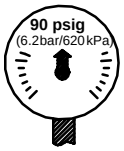
Do not carry the tool by the hose.

⚠ WARNING

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

⚠ WARNING

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



⚠ WARNING

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

ADJUSTMENTS

OILER ADJUSTMENT

To adjust oiler, remove the Backhead and turn the Oiler Adjusting Screws. Turning the Screws in (clockwise) decreases the oil flow. Backing the Screws out (counterclockwise) increases the oil flow.

NOTICE

After adjustment, be sure the screw is at least 1/32" (0.8 mm) below the Backhead face; otherwise, it will prevent the proper seating of the Backhead on the Rear End Plate.

— FORWARD/REVERSE OPERATION —

Models 551SMA and 551S0A Drills are capable of operating in a Forward/Reverse or Forward Only mode of operation. Make the mode selection prior to starting the tool. Look at the arrows on the Throttle Sleeve. These arrows indicate the direction in which the Throttle Sleeve must be rotated to activate either **forward** or **reverse** rotation of the Drill.

PLACING TOOL IN SERVICE

LUBRICATION

Ingersoll–Rand No. 50

Ingersoll–Rand No. 28

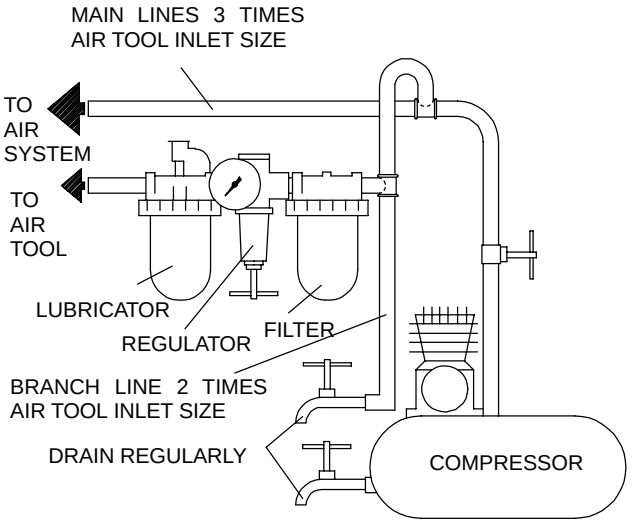
Always use an air line lubricator with this tool.
We recommend the following Filter–Lubricator–Regulator Unit:

For USA No. C31–08–G00

After each four hours of operation, unscrew the Oil Chamber Plug and fill the Backhead with Ingersoll–Rand No. 50 Oil.

Occasionally, squirt 2 or 3 drops of Ingersoll–Rand No. 50 Oil into the hole in the Throttle Sleeve.

Weekly, or as experience indicates, inject 2 or 3 strokes (1 to 2 cc) of Ingersoll–Rand No. 28 Grease from the No. P25–228 Grease Gun into each of the Grease Fittings.



(Dwg. TPD905–1)

HOW TO ORDER A LARGE DRILL

REVERSIBLE ROLL THROTTLE

Model	Free Speed, rpm	Capacity in Steel				Morse Taper Socket	Length of Feed	
		Drilling		Reaming				
		in.	mm	in.	mm		in.	mm
551SMA	120	3	76	2 1/2	64	No. 5	5	127
551S0A	77	Heavy				No. 5	5	127

HOW TO ORDER A MOTOR

REVERSIBLE, ROUND KEYED SHAFT, GOVERNED, GEAR DRIVE, BASE MOUNTED

Model	Max. Power		Starting Torque		Stall Torque	
	hp	kw	ft–lb	Nm	ft–lb	Nm
551SM51–W/RC	5.6	4.18	5.6	400	545	739
551S051–W/RC	5.6	4.18	5.6	600	885	1 200

MANUEL D'EXPLOITATION ET D'ENTRETIEN DES PERCEUSES REVERSIBLES MODELES 551SMA ET 551S0A

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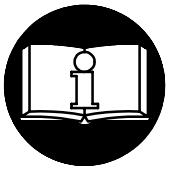
NOTE

Des perceuses Reversibles Modeles 551SMA et 551S0A est destinée aux grosses opérations de perçage et d'alésage dans les constructions navales, les ateliers de chemin de fer, la mécanosoudure et les fabrications mécaniques.
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 25 mm de diamètre intérieur.**
- **Couper toujours l'alimentation d'air comprimé et débrancher le flexible d'alimentation avant d'installer, déposer ou ajuster tout accessoire sur cet outil, ou d'entreprendre une opération d'entretien quelconque sur l'outil.**
- **Ne pas utiliser des flexibles ou des raccords endommagés, effilochés ou détériorés.**
- **S'assurer que tous les flexibles et les raccords sont correctement dimensionnés et bien serrés. Voir Plan TPD905–1 pour un exemple type d'agencement des tuyauteries.**
- **Utiliser toujours de l'air sec et propre à une pression maximum de 6,2 bar (620 kPa). La poussière, les fumées corrosives et/ou une humidité excessive peuvent endommager le moteur d'un outil pneumatique.**
- **Ne jamais lubrifier les outils avec des liquides inflammables ou volatiles tels que le kérosène, le gasoil 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.**
- **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.**
- **Cet outil n'est pas conçu pour fonctionner dans des atmosphères explosives.**
- **Cet outil n'est pas isolé contre les chocs électriques.**
- **Cet outil est conçu pour être actionné par deux personnes.**

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.

⚠ ATTENTION

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

⚠ ATTENTION

Les outils pneumatiques peuvent vibrer pendant l'exploitation. Les vibrations, les mouvements répétitifs et les positions inconfortables peuvent causer des douleurs dans les mains et les bras. N'utiliser plus d'outils en cas d'inconfort, de picotements ou de douleurs. Consulter un médecin avant de recommencer à utiliser l'outil.

⚠ ATTENTION

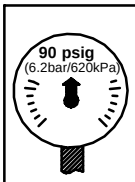
Garder une position équilibrée et ferme. Ne pas se pencher trop en avant pendant l'utilisation de cet outil.

⚠ ATTENTION

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

⚠ ATTENTION

Ne pas transporter l'outil par son flexible.



⚠ ATTENTION

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

⚠ ATTENTION

Couper toujours l'alimentation d'air comprimé et débrancher le flexible d'alimentation avant d'installer, déposer ou ajuster tout accessoire sur cet outil, ou d'entreprendre une opération d'entretien quelconque sur l'outil.

⚠ ATTENTION

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

RÉGLAGES

RÉGLAGE DE L'HUILEUR

Pour régler l'huileur, déposer la tête arrière et tourner les vis de réglage. Le débit d'huile diminue lorsque les vis sont vissées (sens des aiguilles d'une montre) et il augmente lorsque'elles sont dévissées (sens inverse des aiguilles d'une montre). Le dévissage (sens inverse des aiguilles d'une montre) augmente le débit.

NOTE

Après le réglage, s'assurer que la vis est au moins à 0,8 mm en dessous de la face de la tête arrière, sinon elle empêchera l'assise correcte de la tête arrière sur le flasque arrière.

— MARCHE AVANT/MARCHE ARRIERE —

Les perceuses Modèles 551SMA et 551S0A peut fonctionner dans le mode Marche avant/Marche arrière ou Marche avant seulement. Le mode de fonctionnement doit être sélectionné avant de mettre l'outil en marche. Observez les flèches sur le manchon de commande. Ces flèches indiquent la direction dans laquelle le manchon de commande doit être tourné pour activer la rotation de la perceuse **en marche avan**t et **en marche arrière**.

Tenir la perceuse en position normale d'utilisation, le manchon de commande étant dirigé vers la main droite de l'opérateur. Tenir le manchon de commande dans la main droite et pivoter le levier d'arrêt de marche arrière pour l'éloigner de l'opérateur. Lorsque le levier d'arrêt de marche arrière est dans cette position, la perceuse peut être actionnée dans le mode de rotation de **marche avan**t (sens des aiguilles d'une montre) ou de **marche arrière** (sens inverse des aiguilles d'une montre).

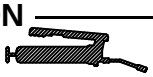
⚠ ATTENTION

Tout mouvement par inadvertance du manchon de commande peut causer un changement soudain du sens de rotation de la perceuse.

Le pivotement du levier d'arrêt de marche arrière vers l'opérateur empêche **la marche arrière** de la perceuse et cette dernière ne peut être exploitée que dans le mode de **marche avant**.

LUBRIFICATION

Ingersoll–Rand No. 50



Ingersoll–Rand No. 28

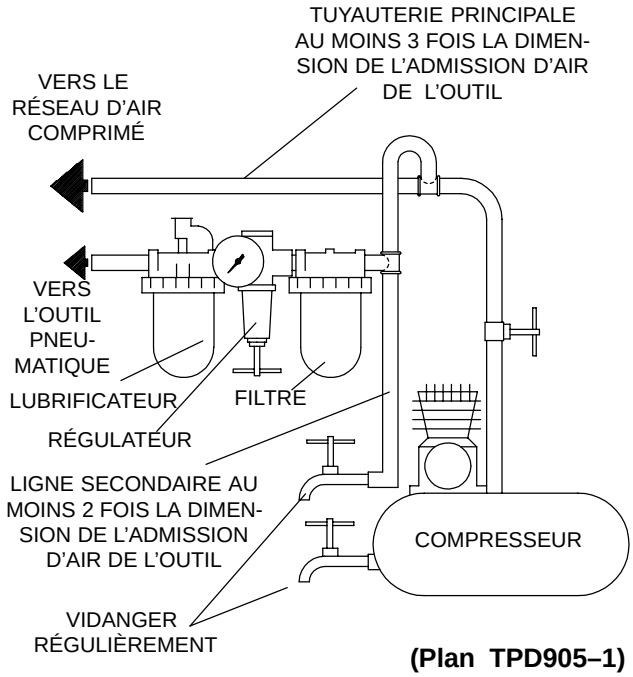
Utiliser toujours un lubrificateur avec cet outil. Nous recommandons l'emploi du filtre–régulateur–lubrificateur suivant :

USA Nº. C31–08–G00

Toutes les quatre heures de fonctionnement dévisser le bouchon de la chambre d'huile et remplir la tête arrière avec de l'huile Ingersoll–Rand No. 50.

De temps à autre, verser 2 à 3 gouttes d'huile Ingersoll–Rand No. 50 dans le trou du fourreau de commande.

Une fois par semaine, ou en fonction de l'expérience, injecter environ 1 à 2 cm^3 de graisse Ingersoll–Rand No. 28 à l'aide du pistolet à graisse P25–228 dans les raccords de graissage.



(Plan TPD905–1)

SPÉCIFICATIONS

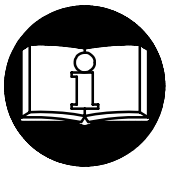
Modèle	Vitesse à vide	Capacité dans l'acier Perçage		Alésage		Douille à Cône Morse
	tr/mn	pouces	mm	pouces	mm	
551SMA	120	3	76	2–1/2	64	Cône morse No. 5
551S0A	77	forte				Cône morse No. 5

MANUAL DE FUNCIONAMIENTO Y MANTENIMIENTO PARA TALADROS REVERSIBLES MODELOS 551SMA Y 551S0A

E

NOTA

El taladros reversibiles modelos 551SMA y 551S0A está diseñado para taladrado pesado y escariado en astilleros, talleres de vagones de ferrocarril, y aplicaciones en metales soldados y en construcción.
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 25 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.**

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.**
- **Los accesorios de la herramienta podrían 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.**
- **Esta herramienta no ha sido diseñada para trabajar en ambientes explosivos.**
- **Esta herramienta no está aislada contra descargas eléctricas.**

NOTA

El uso de piezas de recambio que no sean las auténticas piezas Ingersoll–Rand puede poner en peligro la seguridad, reducir el rendimiento de la herramienta y aumentar los cuidados de mantenimiento necesarios, así como invalidar toda garantía. Las reparaciones sólo se deben encomendar a personal debidamente cualificado y autorizado. Consulte con el centro de servicio autorizado Ingersoll–Rand más próximo.

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

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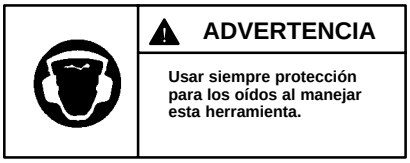
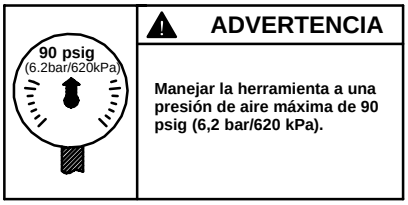
ETIQUETAS DE AVISO

⚠ AVISO

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





AJUSTES

AJUSTE DE LUBRICADOR

Para ajustar el lubricador, saque la Cabeza Trasera y gire los Tornillos de Ajuste de Lubricador. Si se enroscan los Tornillos (girándolos en el sentido de las agujas del reloj) se reduce el flujo de aceite. Si se desenroscan los Tornillos (en sentido contrario al de las agujas del reloj) se incrementa el flujo de aceite.

NOTA

Después de realizar el ajuste, asegúrese de que el tornillo esté como mínimo 1/32 pulg. (0,8 mm) por debajo de la de superficie de Cabeza Trasera; si no fuera así, evitará la colocación adecuada de la Cabeza Trasera en la Placa Trasera.

FUNCIONAMIENTO HACIA DELANTE/INVERSO

El taladros reversibles modelos 551SMA y 551S0A es capaz de funcionar en dos modalidades: funcionamiento hacia delante/inverso o solamente hacia delante. Seleccione la modalidad de funcionamiento antes de arrancar la herramienta.

Mire las flechas situadas en el manguito del estrangulador. Estas flechas indican la dirección en la que se debe girar el manguito del estrangulador para activar la rotación del taladro **hacia delante** o a la **inversa**.

Mantenga el taladro en la posición normal de funcionamiento con el manguito del estrangulador apuntando hacia la mano derecha del operario. Con el manguito del estrangulador en la mano derecha del operario, haga pivotar la palanca de parada de inversión en dirección opuesta al operario. Con la palanca de parada de inversión en esta posición, se puede utilizar el taladro en la modalidad de rotación **hacia delante** (hacia la derecha) o en la de rotación hacia la dirección **inversa** (hacia la izquierda).

⚠ AVISO

El movimiento involuntrario del manguito del estrangulador podría causar un cambio repentino en la dirección de rotación del taladro.

Al hacer pivotar la palanca de parada de inversión hacia el operario, se evita que el taladro gire en la dirección **inversa**, y permite que se utilice el taladro en la modalidad de rotación únicamente **hacia delante**.

PARA PONER LA HERRAMIENTA EN SERVICIO

LUBRICACIÓN

Ingersoll–Rand Nº 50

Ingersoll–Rand Nº 28

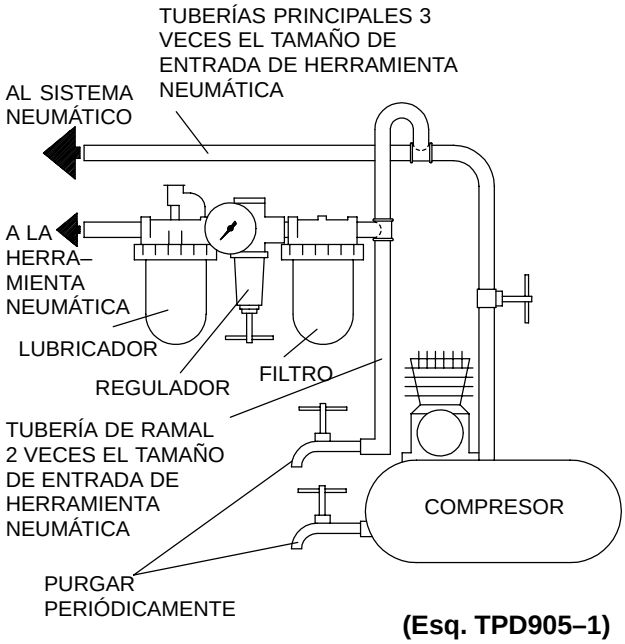
Use siempre un lubricante de aire con esta herramienta. Recomendamos la siguiente unidad de Filtro–Lubricador–Regulador:

USA N° C31–08–G00

Después de cada cuatro horas de funcionamiento, desatornille el tapón de la cámara de aceite y llene la cubierta trasera de aceite Ingersoll–Rand Nº 50.

De vez en cuando, inyecte 2 o 3 gotas de aceite Ingersoll–Rand Nº 50 en el orificio situado en el manguito del estrangulador.

Cada semana, o según indique la experiencia, inyecte 2 o 3 disparos (1 a 2 cc) de grasa Ingersoll–Rand Nº 28 en el engrasador con. la pistola de grasa P25–228.

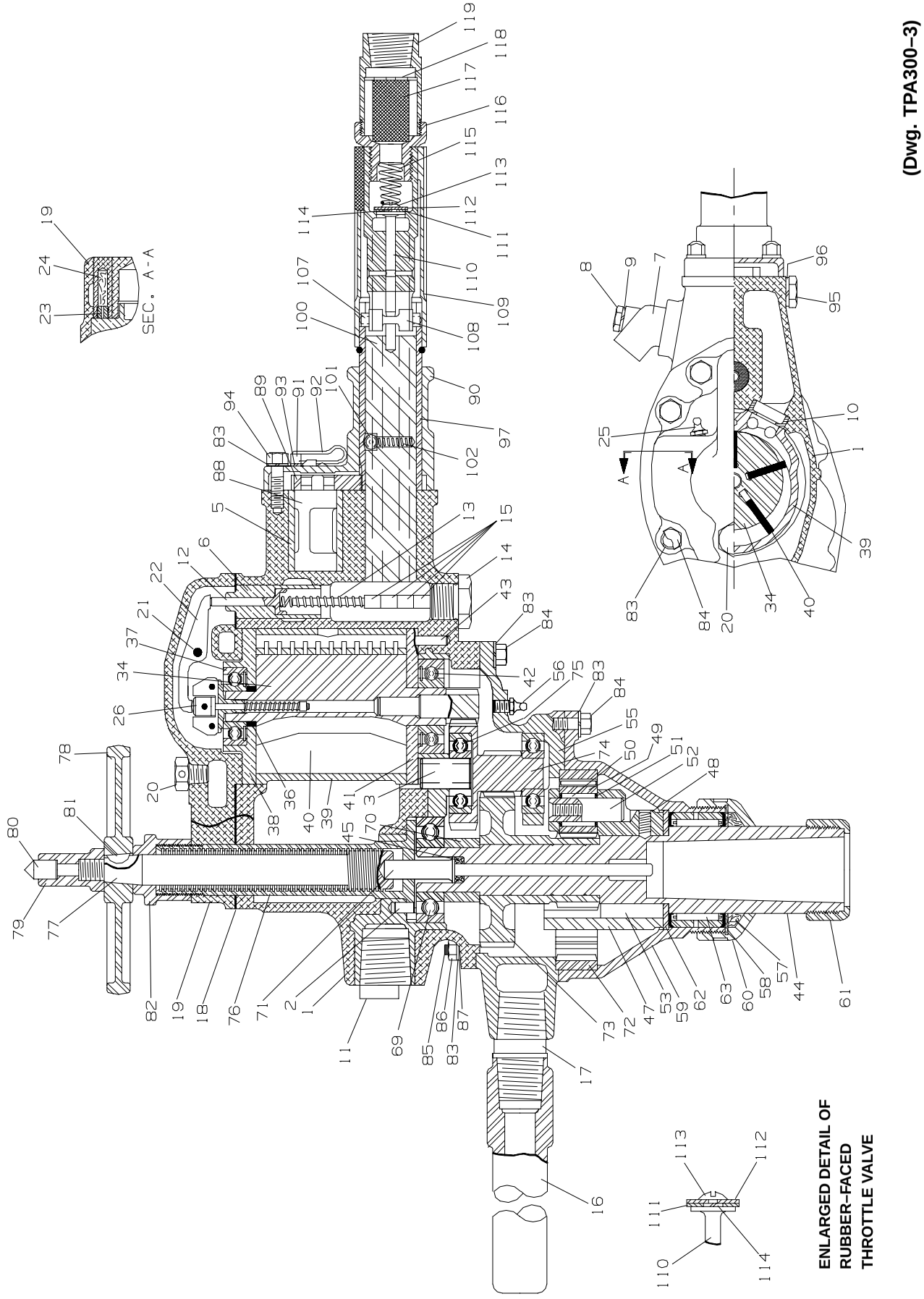


(Esq. TPD905–1)

ESPECIFICACIONES

Modelo	Velocidad en vacío	Capacidad en acero Taladrado		Escariado		Boca cónica Morse
	rpm	pulg.	mm	pulg.	mm	
551SMA	120	3	76	2–1/2	64	cono Morse Nº. 5
551S0A	77	espesor				cono Morse Nº. 5

MAINTENANCE SECTION



(Dwg. TPA300–3)

		PART NUMBER FOR ORDERING			PART NUMBER FOR ORDERING
	1	Motor Housing		24	Oiler Felt (4) JA4–75
		for models ending in –EU	R551H–EU–40	25	Grease Fitting 23–188
		for all other models	R551H–40	26	Governor Assembly R5H–A424B
	*	Warning Label		34	Rotor and Pinion
		for models ending in –EU	EU–99		for Model 551SMA (10 teeth) 9BM–K53
		for all other models	WARNING–8–99		for Model 551S0A (9 teeth) R55L–53
	2	Feed Screw Dowel	R3H–527	36	Rotor Bearing Spacer R5H–65
	3	Intermediate Gear Bearing Stud	R5H–502	37	Rear Rotor Bearing R5H–22
	5	Reverse Valve Bushing	R551H–330	38	Rear End Plate R55H–12
	6	Governor Valve Bushing	R551H–429	39	Cylinder
	7	Exhaust Deflector	R55H–23		for maximum power in the forward
	*	Muffler Screen	R551H–311		direction of rotation (standard for
	8	Exhaust Deflector Screw	R55H–312B		Drills; optional for Motors) R551H–3
	9	Deflector Screw Lock Washer	T11–58		for equal power in the forward
	10	Air Port Gasket (2)	R44H–210A		direction of rotation (standard for
	11	1” Pipe Plug	TA–464		Motors; optional for Drills) 588–3
	12	Governor Valve	R551H–425		for maximum power in reverse
	13	Governor Valve Spring	K4U–863		direction of rotation (optional for
	14	Governor Valve Cap	R4H–433		Drills or Motors) R55H–203
	15	Governor Valve Spring Spacer (4)	R5H–435	•	40 Vane Packet (set of 5 Vanes) R5H–42–5
	16	Dead Handle	TAAC–48	•	41 Front End Plate R55H–11
	17	Dead Handle Stud	T1SE–364	•	42 Front Rotor Bearing R5H–24
•	18	Backhead Gasket	R5H–283		43 Cylinder Dowel R5H–98
	19	Backhead	R5H–102		Spindle Assembly R55M–B108
	20	Oil Chamber Plug	P25–227		44 Spindle R55M–108
	21	Governor Lever Pin	N00–15		
	22	Governor Lever	R5H–436		
	23	Oiler Adjusting Screw (2)	JA4–71		

* 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.

		PART NUMBER FOR ORDERING
45	Ejecting Pin Packing	R5SM–408
	Planet Gear Frame Assembly	R5SM–A367
47	Planet Gear Frame	R5SM–367
48	Planet Gear Frame Setscrew (3)	R4SM–574
*	Planet Gear Shaft Setscrew (3)	551AMP56–561
49	Planet Gear (3)	R5SM–10
50	Planet Gear Roller (69)	R5SM–152
51	Roller Retaining Plate (6)	R5SM–468
52	Planet Gear Shaft (3)	R5SM–191
53	Planet Gear Frame Key	R5SM–410
55	Gear Case	R5SM–37
56	Grease Fitting	23–188
57	Spindle Packing (1 for 551H, 551J, 551K or 551L; 2 for others)	R5SM–14
58	Spindle Packing Ring	R5SM–202
59	Gear Case Cover	R5SM–378
60	Spindle Packing Nut	R5SM–15
61	Protection Nut	T1SE–43
62	Spindle Thrust Plate	R5SM–80
• 63	Spindle Bearing	R5SM–510
• 69	Spindle Thrust Bearing	TA–105
70	Spindle Thrust Bearing Spacer	R5SM–100
71	Drill Ejecting Pin	R5SM–114
72	Internal Gear	R5SM–406
73	Spindle Gear	
	for Model 551SM	R5SM–9
	for Model 551S0	R5S0–9

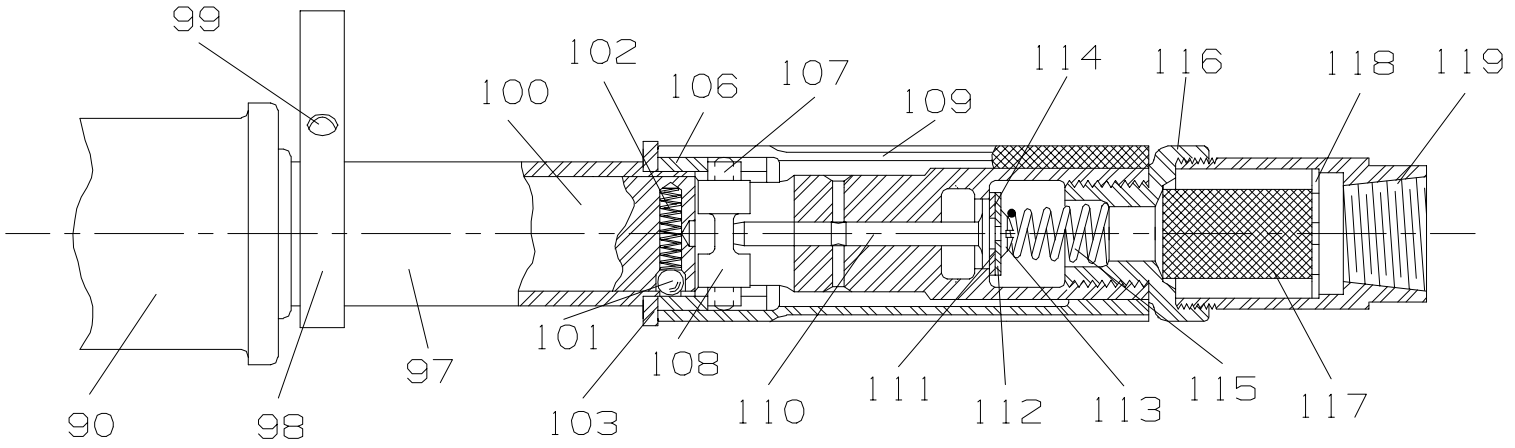
		PART NUMBER FOR ORDERING
74	Intermediate Gear	
	for Model 551SM	R5SM–82
	for Model 551S0	R5S0–82
75	Intermediate Gear Bearing (2)	D04–366
76	Outer Feed Screw	R5H–290
	Feed Screw Assembly	TA–A291
77	Inner Feed Screw	TA–291
78	Feed Handle	TB–2
79	Feed Handle Locknut	TB–388A
80	Feed Screw Center	TB–244
81	Feed Handle Key	TC–18
82	Feed Screw Cap	TA–392
83	Lock Washer (18)	T11–58
84	Backhead Cap Screw (9)	B8–240
85	Gear Case Bolt	
	Short (3)	R5SM–103A
	Long	R551P58–103
86	Gear Case Bolt Nut (1 for each Bolt)	D02–428
87	Gear Case Bolt Seal Washer (copper) (8)	D01–504
88	Reverse Valve	R551H–329
89	Reverse Valve Sector	R55H–488
90	Sector Cover	R55H–1489
91	Reverse Stop	R44H–568A
92	Reverse Stop Lever	R44H–569
93	Reverse Stop Washer	R44H–572A
94	Sector Cover Screw (5)	R44H–490A
95	Throttle Body Setscrew	R551H–593
96	Throttle Body Setscrew Lock Washer	D02–537

* 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.

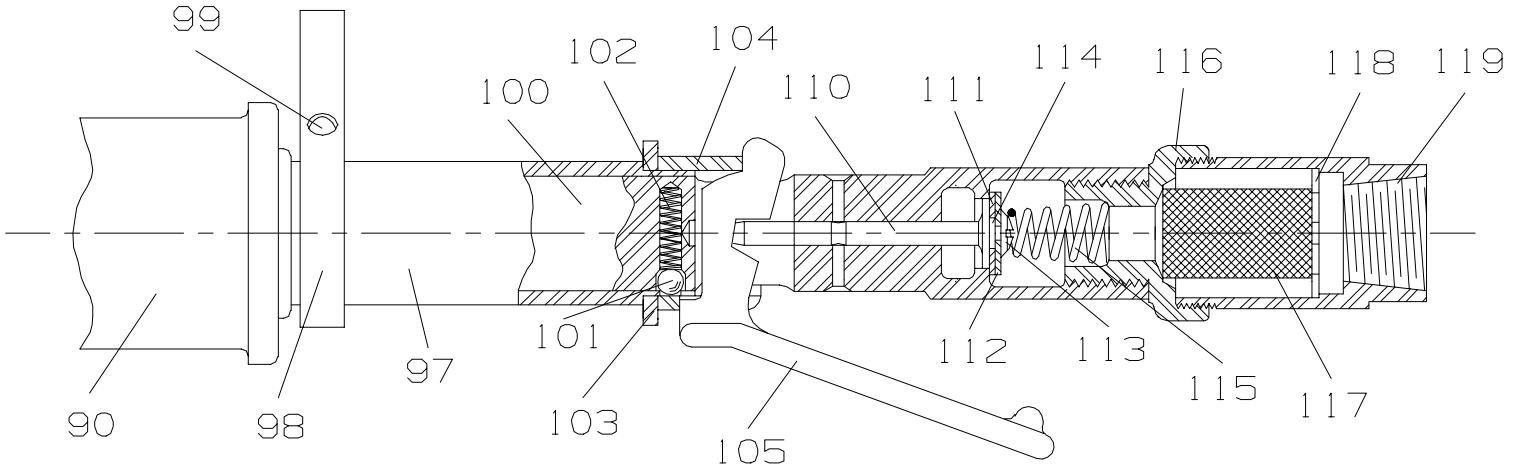
ROLL THROTTLE

Manual–Closing or Self–Closing with Independent Reverse



LEVER THROTTLE

With Independent Reverse



(Dwg. TPB145–2)

PART NUMBERS FOR ORDERING

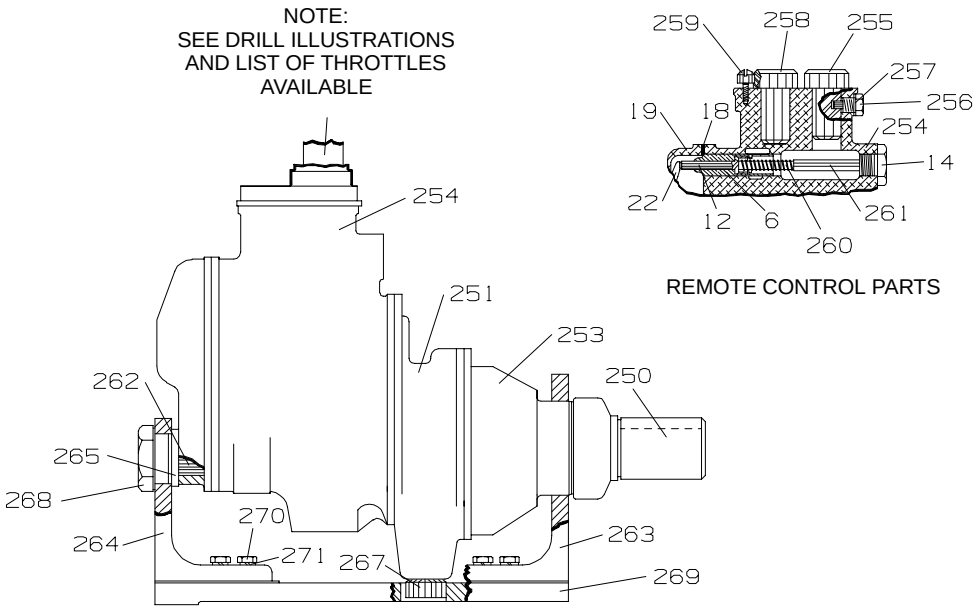
		Roll Throttle				Lever Throttle with Independent Reverse
		★Manual–Closing	Self–Closing	★Manual–Closing with Independent Reverse	Self–Closing with Independent Reverse	
	Throttle Assembly	★R551H–A419	R551H–A319	★R551H–B419–2	R551H–B319	R551H–BL419–2
97	Throttle Sector	★R551H–587	R551H–597	★R55H–1487	R55H–1487	R55H–1487
98	Independent Reverse Lever	—	—	R55H–314	R55H–314	R55H–314
99	Reverse Lever Setscrew (2)	—	—	R2J–561	R2J–561	R2J–561
100	Throttle Body	★R551H–419	R551H–319	R55H–409–2	R55H–409–2	R55H–409–2
101	Stop Ball	G601–65	—	G601–65	G601–65	G601–65
102	Stop Ball Spring	R55H–492	—	R55H–492	R55H–492	R55H–492
103	Throttle Sleeve Spacer	—	—	R55H–310	R55H–310	R55H–310
104	Throttle Lever Spacer	—	—	—	—	R4H–270
105	Throttle Lever	—	—	—	—	R55H–273
106	Throttle Cam	—	—	R4H–307	R4H–317	—
107	Lift Pin Roller (2)	TAA–426	TAA–426	TAA–426	TAA–426	—
108	Throttle Valve Lift Pin	R551H–606	R551H–606	R4H–306	R4H–306	—
109	Throttle Sleeve	R551H–460	R551H–460	R4H–305	R4H–305	—
110	Rubber–Faced Throttle Valve	R551H–602	R551H–602	R4H–402	R4H–402	R4H–402
• 111	Throttle Valve Face	R551H–259	R551H–259	R4H–159	R4H–159	R4H–159
112	Throttle Valve Face Cap	R551H–257	R551H–257	R4H–157	R4H–157	R4H–157
113	Throttle Valve Face Retaining Screw	R4–158	R4–158	R4–158	R4–158	R4–158
114	Retaining Screw Lock Washer	H54U–352	H54U–352	H54U–352	H54U–352	H54U–352
115	Throttle Valve Spring	R7–931–7	R551H–618	T01–308	TAA–418	T01–308
	Air Strainer Assembly	R551H–A665	R551H–A665	R551H–A465	R551H–A465	R551H–A465
116	Air Strainer Cap	R551H–666	R551H–666	R4H–566	R4H–566	R4H–566
117	Air Strainer Screen	R551H–261	R551H–261	R5H–61	R5H–61	R5H–61
118	Air Strainer Screen Support	R551H–667	R551H–667	R3H–567	R3H–567	R3H–567
119	Air Strainer Body	R551H–665	R551H–665	R551H–465	R551H–465	R551H–465

★ In compliance with the Williams–Steiger Occupational Safety and Health Act, Manual–Closing Throttle Assemblies and parts used exclusively for Manual–Closing Throttles will be furnished only on international orders.

• 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

MODELS 551SM51 AND 551S051 BASE–MOUNTED MOTORS



REMOTE CONTROL PARTS

MULTI–VANE BASE–MOUNTED MOTOR
SIZE 55SM51 OR 55S051

(Dwg. TPB140–1)

PART NUMBER FOR ORDERING

		Models 551SM51 and 551S051 with Integral Throttle	Models 551SM51 and 551S051 with Remote Control
250	Spindle	R5SM51–8	R5SM51–8
251	Gear Case	R5SM–37	R5SM–37
253	Gear Case Cover	R5SM51–378	R5SM51–378
254	Motor Housing	R551H51–40	R551H51–RC40
255	Forward Inlet Stud	—	R55H–471
256	Forward Inlet Stud Lock Screw	—	R551H–593
257	7/16” Lock Washer	—	D02–537
258	Reverse Inlet Stud	—	R551H–472
259	Reverse Inlet Stud Lock Screw	—	R55H–473
*	Exhaust Bushing	R44H51–439	R44H51–439
	(The Motor Housing also includes illustrated parts 2, 3, 6, 10 [2], and 11 for all motors; and illustrated part 5 for all motors with Integral Throttle.)		
260	Governor Valve Spring	R4H–431	K4U–863
261	Governor Valve Spring (3 for remote control; 1 for others)	R5H–435	R5H–435
262	Motor Mounting Stud (for Base–Mounted Motors)	R55H52–790	R55H52–790
262	Backhead Clamp Stud (for Flange Mounted Motors)	R55H52–790	R55H52–790
263	Front Motor Mounting Bracket (for Base–Mounted motors)	R5SM51–303	R5SM51–303
264	Rear Motor Mounting Bracket (for Base–Mounted Motors)	R5SM51–304	R5SM51–304

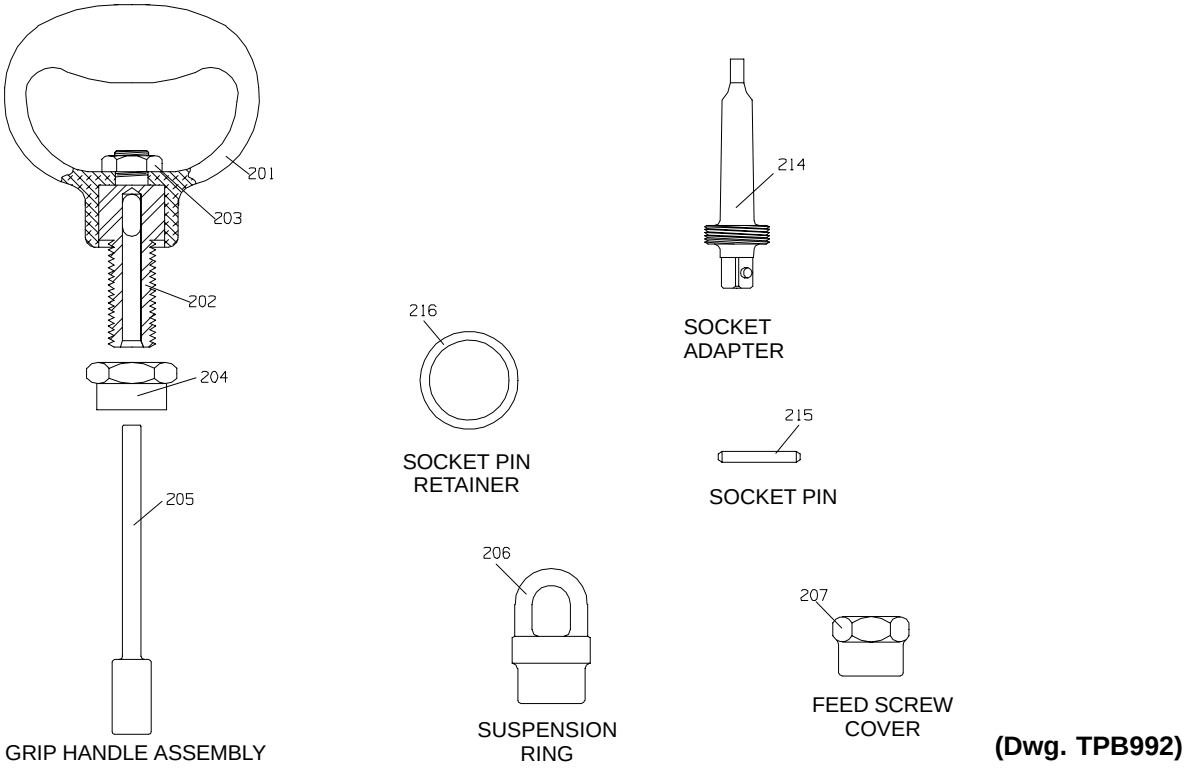
* Not illustrated.

PART NUMBER FOR ORDERING

		Models 551SM51 and 551S051 with Integral Throttle	Models 551SM51 and 551S051 with Remote Control
265	Rear Motor Mounting Bracket Spacer (for Base–Mounted Motors) .	R5H51–277	R5H51–277
267	Gear Case Anchor (for Base–Mounted Motors)	R5SM51–364	R5SM51–364
268	Motor Mounting Stud Cap (for Base–Mounted Motors)	R5H51–461	R5H51–461
268	Clamp Stud Cap (for Flange Mounted Motors)	TA–461	TA–461
269	Motor Mounting Base (for Base–Mounted Motors)	R55SM51–564	R55SM51–564
270	Base Cap Screw (8) (for Base–Mounted Motors)	215–148	215–148
271	Base Cap Screw Lock Washer (8) (for Base–Mounted Motors)	D10–322	D10–322
*	Spindle Key	R5SM51–768	R5SM51–768
*	Male Hose Nipple (1” hose to 3/4” male pipe)	——	R5H–46

* Not illustrated.

SPECIAL EQUIPMENT FOR MODEL 551 DRILLS



(Dwg. TPB992)

PART NUMBER FOR ORDERING

200	Grip Handle Assembly	TA–A41
201	Grip Handle	TA–41
202	Grip Handle Stud	TC–448
203	Grip Handle Stud Nut	B12–249
204	Grip Handle Nut	TA–447
205	Grip Handle Ejecting Pin	TA–50A
206	Suspension Ring	TA–365
207	Feed Screw Cover	TA–461
208	Interchangeable Reamer Chuck Assembly	T1SE–A45A–1 1/8
214	Socket Adapter (1” square drive)	R5SM–214
215	Socket Pin	34U–215A
216	Socket Pin Retainer	34U–216
217	Chuck Nut	T1SE–347
*	Male Hose Nipple (1” hose to 1” male pipe)	P35–46

* Not illustrated.

MAINTENANCE SECTION

⚠ WARNING

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

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

LUBRICATION

Before attaching the air hose, squirt several drops of Ingersoll–Rand No. 50 Oil into the air inlet.

Before starting the Motor and after each four hours of operation, unless an Air Line Lubricator is used, unscrew the Oil Chamber Plug (20) and fill the chamber in the Backhead (19) with Ingersoll–Rand No. 50 Oil.

Always use an air line lubricator with this tool.

We recommend Ingersoll–Rand No. 16LUB16C Portable Air Line Lubricator. Its use eliminates the need for filling the oil chamber in the Backhead. Because of the high capacity of the Portable Air Line Lubricator, it requires little attention, and thereby reduces the possibility of neglect. Although the Portable Air Line Lubricator automatically oils the Throttle Valve (110), Governor Valve (12), Reverse Valve (88), and the Vanes (40) in the motor, it does not eliminate the necessity of periodically adding grease to the gear chamber and governor chamber.

Weekly, or as experience indicates, insert a small quantity of the recommended grease into the Grease Fittings (25 and 56). Two or three strokes of a small grease gun are sufficient for the Fitting (25) in the Backhead (19); six or eight strokes for the Fitting (56) in the Gear Case (55 or 251).

⚠ WARNING

Notice the arrows on Throttle Sleeve (109). These arrows indicate the direction in which the Throttle Sleeve must be turned to activate either FORWARD or REVERSE rotation of the Drill.

Hold the Drill in the normal operating position with the Throttle Sleeve pointing to operator's right and with the Throttle Sleeve in his right hand. Pivot the Reverse Stop Lever (92) away from the operator. With the Reverse Stop Lever in this position, the Drill can be operated in either the FORWARD rotation or REVERSE rotation. Therefore, inadvertent movement of the Throttle Sleeve could cause a sudden change in the direction of rotation of the Drill.

Pivoting the Reverse Stop Lever toward the operator prevents the REVERSE rotation of the Drill and permits the Drill to be operated in the FORWARD rotation only.

OILER ADJUSTMENT

The built–in lubricator is properly regulated at the factory, and further adjustment is seldom, if ever, required. However, if adjustment is necessary, regulate the oil flow as follows:

Remove the Backhead (19) from the Motor Housing (1). Hold the Backhead so that the two brass Oiler Adjusting Screws (23) are near the top and turn the Screw at the right. **Turn it in to decrease the oil flow; turn it out to increase the oil flow.** Never back the Screw out so far that its face is less than 1/32" (.8 mm) below the finished face of the Backhead or it will prevent the Backhead from seating properly. If the oil flow remains insufficient when the Screw is backed out to this limit, install new Oiler Felts (24) under both Screws.

HOSE AND HOSE FITTINGS

Use 1" (25 mm) hose for connecting the Tool to the air supply. Unless the Tool is equipped for remote control, use the No. P35–46 Male Hose Nipple (1" hose to 1" male pipe) for attaching the hose to the throttle. For Tools equipped with remote control, use the No. R5H–46 Male Hose Nipple (1" hose to 3/4" male pipe) for attaching the hoses to the Inlet Studs.

DISASSEMBLY

General Instructions

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

Air Strainer

Periodically, as experience indicates, unscrew the Air Strainer Body (119) from the Air Strainer Cap (116) and wash the Air Strainer Screen (117) in a clean, suitable cleaning solution. Enter the prongs on the Screen Support (118) into one end of the Screen and insert the Screen, support end first, into the Body when assembling the Strainer.

Feed Screw Cap

NOTICE

The external thread on the Outer Feed Screw (76), Motor Housing Stud (262) or Backhead Clamp Stud (262) is left–hand; rotate the Feed Screw Cap (82), Motor Mounting Stud Cap (268) or Clamp Stud Cap (268) clockwise to remove.

Disassembly of the Motor

1. Remove the Backhead Cap Screws (84).

NOTICE

Do not pry the Backhead (19) from the Motor Housing (1 or 254).

2. Grasp the Oil Chamber Plug (20) in a leather–covered or copper–covered vise and pull on the Housing if the Backhead cannot be lifted off with the fingers.

NOTICE

The Rotor (34) is tapped left–hand: rotate the Governor Assembly clockwise to remove.

NOTICE

Never clamp the Cylinder (39) in a vise.

3. Grasp the Cylinder in one hand. Insert a small rod into the rotor bore and drive the hub of the Rotor (34) out of the Rear Rotor Bearing (37). Support the Front End Plate (41) and press the front hub of the Rotor out of the Front Rotor Bearing (42).

Disassembly of the Throttle

1. Remove the Throttle Body Setscrew (95) from the Motor Housing before withdrawing the Throttle Body (100).

Disassembly of the Gearing

1. Unscrew the three Planet Gear Frame Setscrews (48) from the Planet Gear Frame (47) before attempting to press the Spindle (44 or 250) out of the Planet Gear Frame.

ASSEMBLY

General Instructions

1. Always press on the **inner** ring of a ball–type bearing when installing the bearing on a shaft.
2. Always press on the **outer** ring of a ball–type bearing when pressing the bearing into a bearing recess.
3. Whenever grasping a tool or part in a vise, always use leather–covered or copper–covered vise jaws. Take extra care with threaded parts and housings.
4. Always clean every part and wipe every part with a thin film of oil before installation.
5. Apply a film of o–ring lubricant to all O–rings before final assembly.
6. Check every bearing for roughness. If an open bearing must be cleaned, wash it thoroughly in a clean, suitable, cleaning solution and dry with a clean cloth. **Sealed or shielded bearing should never be cleaned.** Work grease thoroughly into every open bearing before installation.

Assembly of the Motor

1. Press the Rear Rotor Bearing (37), shielded side first, into the recess in the Rear End Plate (38), with an arbor that will contact only the outer ring of the Bearing.

NOTICE

Press on the inner ring of the Bearing when installing this assembly on the rear hub of the Rotor (34).

2. Press the Front Rotor Bearing (42), shielded side first, onto the front hub of the Rotor (34) with a sleeve that will clear the Rotor Pinion (35) and contact only the inner ring of the Bearing.
3. Install the End Plate (38 or 41) on the Rotor (34), and insert a Vane (40) into each vane slot in the Rotor.
4. Place the Cylinder (39) over the Rotor and against the installed End Plate.

NOTICE

Make certain the Cylinder is installed properly before proceeding. Check as follows:
There is a 3/4” (19 mm) dia. hole in each of the two cylinder flats. One hole is located about midway between the ends of the Cylinder, and the other is located relatively close to one end. When the Cylinder is properly installed, the hole nearer the end is farthest from the Rotor Pinion (35).

5. When installing the motor assembly, align the dowel holes through both End Plates (38 and 41) with the dowel hole through the Cylinder (39) and insert a 3/16” (5 mm) dia. rod at least 10” (254 mm) long through the aligned holes, allowing it to protrude from the pinion end of the motor assembly. Enter the protruding end of the rod into the dowel hole in the bottom of the motor housing bore, and slide the motor assembly squarely into the Housing.
6. Draw the Backhead (19) evenly against the Backhead Gasket (18) on the face of the Motor Housing (1 or 254) by turning each Backhead Cap Screw (84) a little at a time until all are tight.

Assembly of the Throttle

1. Install the Throttle Sector (97) onto the Throttle Body, and press the Body into the Motor Housing until the Throttle Body Setscrew holes are aligned.
2. Align the tooth of the Throttle Sector marked with an arrow with the tooth space of the Reverse Valve Sector (89) marked “X” and mesh the two Sectors.

Assembly of the Gearing

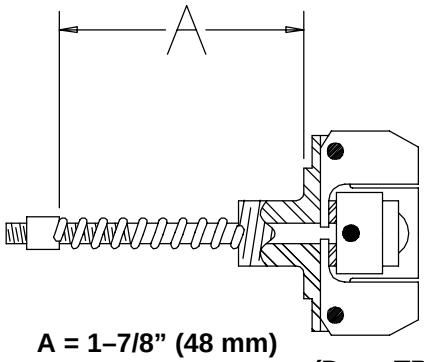
1. Tighten the Screws after assembling the Gear Frame on the Spindle.
2. Note the stamping “THRUST HERE” on one side of the Spindle Thrust Bearing (69). Install the Bearing, stamped side first, in the bearing recess in the Motor Housing (1 or 254).
3. Install an Intermediate Gear Bearing (75) at each end of the Intermediate Gear (74). Mesh the large gear on the compound Intermediate Gear with the Rotor Pinion (35) and install the Bearing in this end of the Intermediate Gear Bearing Stud (3) in the Motor Housing (1 or 254).
4. Apply the Gear Case (55) to the Motor Housing.
5. Coat one face of the Spindle Thrust Bearing Spacer (70) with grease and center it on the Spindle Thrust Bearing (69) in the Motor Housing. The grease will hold it in position on the Bearing during assembly.
6. Place the Spindle Gear (73), large end first, in the Gear Case, meshing the large gear with the small gear of the compound Intermediate Gear, and centering it on the Bearing Spacer.
7. Coat the spiral–grooved portion of the Spindle (44 or 250) with grease and insert it through the Spindle Gear, Spindle Bearing Spacer and into the Spindle Thrust Bearing, meshing the Planet Gear (49) contained in the Planet Gear Frame (47) on the Spindle with the small gear on the compound Spindle Gear.
8. Mesh the Internal Gear (72) contained in the Gear Case Cover (59 or 253) with the Planet Gears and apply the Gear Case Cover to the Gear Case.

GOVERNOR ADJUSTMENT

NOTICE

The Governor has a left–hand thread. Turn clockwise to remove from Rotor and counterclockwise to install in Rotor.

When installing a new Governor, screw the governor adjusting nut onto the governor stem until dimension “A” equals 1–7/8” (48 mm). This will usually result in the proper governed free speed. However, this is only an approximate setting. Further adjustment may be necessary. Screw the Nut further onto the Stem to increase the speed; back it off to decrease the speed. The correct governed free speed of the various sizes at the Spindle is:



A = 1–7/8” (48 mm)

(Dwg. TPD497)

Model	RPM at 90 psig (6.2 bar/620 kPa)
551SM, 551SM51	120
551S0, 551S051	77

Before starting a reassembled tool, refer to the Lubrication Instructions on page 18.

MAINTENANCE TOOLS

TOOL NAME	OPERATION	TOOL NUMBER FOR ORDERING
Spindle Packing Nut Spanner Wrench	Removing or installing the Spindle Packing Nut (60) on the Gear Case Cover (59) of Models 551SM, 551SM51, 551S0 and 551S051.	R4–122
Grease Gun	Lubrication.	P25–228

TROUBLESHOOTING GUIDE

Trouble	Probable Cause	Solution
Loss of power or low free speed	Dirty Inlet Bushing or Air Strainer Screen	Using a clean, suitable, cleaning solution in a well–ventilated area, clean the Air Strainer Screen. Allow to air dry.
	Worn or broken Vanes	Replace the **complete** set of Vanes.
	Worn or broken Cylinder and/or scored End Plates	Examine Cylinder and replace it if it is worn or broken or if bore is scored or wavy. Replace End Plates if they are Low power scored.
	Dirty motor parts	Disassemble the tool and clean all parts with a clean, suitable, cleaning solution, in a well–ventilated area. Reassemble the tool as instructed in this manual.
Motor will not run	Incorrect assembly of motor	Disassemble motor, replace worn or broken parts and reassemble as instructed.
Rough Operation	Worn or broken Rear Rotor Bearing or Front Rotor Bearing	Examine each bearing. Replace if worn or damaged.
	Worn or broken Gear teeth	Check for a worn or broken gearing or if a replacement is necessary.
Air leaks	Worn Throttle Valve Face or Throttle Valve Face Cap	Replace worn parts.
	Oil Chamber Plug worn or not tight	Tighten the Plug. If the problem persists, replace the Plug.

NOTICE