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# LB Boiler Beveler

User's Manual

Product Obsoleted July 2012

E.H. Wachs Part No. 72-MAN-01
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**LB Boiler Beveler User's Manual**

**NOTE: This product was obsoleted effective July, 2012.**

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## SECTION I SDB 103/3 INTRODUCTION

Wachs **SDB 103/3**, a hand held beveling machine that delivers maximum power and performance for fast, accurate weld preps on pipe and tube from 1.16" I.D. thru 4.5" O.D. (28 mm to 114.3 mm)
Face, bevel and counterbore simultaneously on carbon, stainless and high alloy steels.Benefit from the SDB's versatility. Machine boiler tube, heavy wall pipe, thin wall tube, prep elbows and face flanges using only one machine.

**FAST OPERATION**

- Lightweight for easy handling. Set up and operate from storage case to pipe in 5 minutes.
- Bevels 2" Schedule 80 Stainless Steel pipe in less than one minute.
- Simple operation: Convenient on/off motor valve, adjustable hand grip speed control andin-feed hand wheel with indices for precise measurement.
- One adjustment, universal three leg chuck automatically centers the machine into pipe I.D.
- "Quick Easy Release" chuck retracts smoothly for fast machine removal from pipe.

Standard equipment:

- Air motor with speed control.
- Large diameter tool head.
- Standard mandrel.
- Operating tool kit.
- Plastic storage case.
- Operating manual.

Optional equipment:

- Small mandrel.
- Collet mandrel for pipe and tube.
- Independent fitting mandrel
- Single point/flange facing module
- Electric drive
- Small diameter rotating tool head.

# SMALL DIAMETER BEVELER

## SECTION I LB INTRODUCTION


Introducing Wachs new “LB” Boiler Tube beveling machine designed for boiler environments.

The LB delivers maximum power while offering reduced size and weight.

Weld prepare boiler tubes from 1.16” I.D. to 4.5” O.D. (29.4mm to 114.3mm) up to .500” (12.2mm) wall quickly and accurately.

## Features

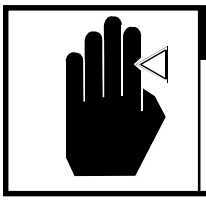
- Permanently attached feed and and clamp ratchets
- Captivated clamp leg sets
- Self centering Mandrel
- Wedge style “tool locking” system
- 4 tool rotating head
- Torque free operation
- 6’ hose whip with swivel standard

## SECTION II SAFETY INSTRUCTIONS

The E. H. Wachs Company takes great pride in manufacturing safe, quality products with user safety a priority.

The E.H. Wachs Company recommends that all users comply with the following safety rules and instructions when operating our equipment.

**Read the Following thoroughly before proceeding.**



**CAUTION**

Keep clear of rotating parts during operation. Hands and arms should be kept a minimum of 2' away from moving parts exept during starting and stopping.

1. READ THE OPERATING MANUAL!! Reading the setup and operating instructions prior to beginning the setup procedures can save valuable time and help prevent injury to operators or damage to machines.

2. INSPECT MACHINE & ACCESSORIES! Prior to machine setup physically inspect the machine and it's accessories. Look for worn tool slides, loose bolts or nuts, lubricant leakage, excessive rust, etc. A properly maintained machine can greatly decrease the chances for injury.

3. ALWAYS READ PLACARDS & LABELS! All placards, labels and stickers must be clearly legible and in good condition. Replacement labels can be purchased from the manufacturer.

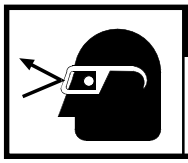
4. KEEP CLEAR OF ROTATING PARTS! Keep hands, arms and fingers clear of all rotating or moving parts. Always turn machine off before attempting any adjustments requiring contact with the machine or it's accessories.

5. SECURE LOOSE CLOTHING & JEWELRY! Loose fitting clothing, jewelry; long, unbound hair can get caught in the rotating parts on machines. By keeping these things secure or removing them you can greatly reduce the chance for injury.

6. KEEP WORK AREA CLEAR! Be sure to keep the work area free of clutter and nonessential materials. Only allow those personnel directly associated with the work being performed to have access to the area if possible.

For your safety and the safety of others, read and understand these safety recommendations and operating instructions before operating.

ALWAYS WEAR PROTECTIVE EQUIPMENT:



**WARNING**

Impact resistant eye protection must be worn while operating or working near this tool.

For additional information on eye and face protection, refer to federal OSHA regulations, 29 Code of Federal Regulations, Section 1910.133., Eye and Face Protection and American National Standards Institute, ANSI Z87.1, Occupational and Educational Eye and Face Protection. Z87.1 is available from the American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.

**CAUTION**

Personal hearing protection is recommended when operating or working near this tool.

Hearing protectors are required in high noise areas, 85 dBA or greater. The operation of other tools and equipment in the area, reflective surfaces, process noises and resonant structures can substantially contribute to and increase the noise level in the area. For additional information on hearing protection, refer to federal OSHA regulations, 29 Code of Federal Regulations, Section 1910.95, Occupational Noise Exposure and ANSI S12.6 Hearing Protectors.

**CAUTION**

Some individuals are susceptible to disorders of the hands and arms when exposed to tasks which involve highly repetitive motions and/or vibration. Disorders such as Carpal tunnel syndrome and tendonitis can be caused or aggravated by repetitious, forceful exertions of the hands and arms.

- Use minimum hand grip force.
- Keep wrists straight.
- Avoid prolonged, continuous vibration exposure.
- Avoid repeated bending of wrists and hands.
- Keep hands and arms warm and dry.

**CAUTION**

Gloves are not a form of protection and should not be worn while operating machinery. Chips and debris which are generated during operation should be disposed of in a safe manner. This should be done with the use of a dust pan and broom to avoid exposure to hands.

# SICHERHEITSVORSCHRIFTEN D

Seit 1883 hat EH Wachs seinen Ruf für Qualität und Zufriedenstellung seiner Kunden aufgebaut. Wachs übernimmt demgemäß die zusätzliche Verantwortung, sein Bestes zu tun, einen möglichst sicheren Umgang mit seiner Ausrüstung zu gewährleisten, und hat daher eine Liste von Sicherheits-Gedächtnisstützen zusammengestellt, die den Kunden in der Erschaffung einer möglichst sicheren Arbeitsumgebung zu unterstützen. Wir empfehlen, die aufgeführten Vorsichtsmaßnahmen genau zu beachten.

BITTE NACHFOLGENDES SORGFÄLTIG VOR DEM FORTFAHREN DURCHLESEN!

1. DIE BETRIEBSANLEITUNG LESEN!
Bedienungsmänner können wertvolle Zeit einsparen und Verletzungen und Beschädigungen der Maschine vermeiden, wenn Sie die Aufbau- und Betriebsanleitungen vor dem Aufbau durchlesen.

2. MASCHINE UND ZUSATZGERÄTE ÜBERPRÜFEN!
Vor dem Aufbau der Maschine sollte diese und die Zusatzgeräte physisch überprüft werden. Prüfen Sie, ob abgenutzte Werkzeugschlitten, lockere Bolzen und Schraubenmütter, Schmiermittelabgänge, übermäßiger Rost, usw. bestehen. Mit einer ordnungsgemäß gewarteten Maschine kann die Wahrscheinlichkeit eines Unfall stark verringert werden.

3. IMMER INFORMATIONEN UND ETIKETTEN LESEN!
Alle Informationen, Etiketten und Aufkleber müssen gut lesbar und in gutem Zustand sein. Vom Hersteller können Ersatzetiketten angefordert werden.

4. BLEIBEN SIE ROTIERENDEN TEILEN FERN!
Die Hände, Arme und Finger sollten von allen sich drehenden Teilen ferngehalten werden. Vor der Durchführung von Nachstellungen, die Sie in Berührung mit der Maschine oder deren Zusatzgeräte bringen, die Maschine stets abschalten!

5. WEITE KLEIDUNG UND SCHMUCK BEFESTIGEN!
Weite Kleidung, Schmuck und lange, nicht gelöstes Haar können in den rotierenden Teilen der Maschine hängenbleiben. Die Wahrscheinlichkeit einer Verletzung kann stark herabgesetzt werden, wenn Sie diese Dinge befestigen bzw. abnehmen.

6. ARBEITSBEREICH FREIHALTEN!
Stets darauf achten, daß sich keine unnötigen Materialien, usw. im Arbeitsbereich befinden. Nur dem direkt mit der zu leistenden Arbeit in Zusammenhang stehenden Personal Zugang zum Arbeitsbereich gestatten!

STETS SCHUTZAUSRÜSTUNG TRAGEN!

**WARNUNG!**
Schlagbiegefeste Augenschut-zbrillen müssen stets bei Betrieb dieses Werkzeugs oder in der Nähe dieses Werkzeugs getragen werden.

**ACHTUNG!**
Ein Ohrenschutz muß stets bei Betrieb dieses Werkzeugs oder in der Nähe dieses Werkzeugs getragen werden.

**ACHTUNG!**
Manche Personen leiden an Funktionsstören der Hände und Arme, wenn sie sich dauernd wiederholende Aufgaben auszu-führen haben, die andauernde Bewegungen und/oder Schwingungen mit sich führen. Funktion-sstörungen, wie beispielsweise Handwurzel- und Sehnenentzündungen, können durch eine sich wiederholende und mit viel Kraft ausgeübter Anwendung der Hände und Arme entweder hervorgerufen oder verschlimmert werden.

**ACHTUNG!**
Während des Betriebs von allen rotierenden Teilen Abstand halten. Außer während des An-und Absehaltens sollten Hinde und Arme nicht näher als 60 cm an die sich bewegenden Teile herankommen.

**ACHTUNG!**
Handschuhe stellen keinen Sehutz dar und sollten nicht während des Betriebs der Maschinen getragen werden. Alle während des Betriebs entstandenen Splitter und Überreste sollten auf sichere Art und Weise entsorgt werden. Venvenden Sie dazu eine Kehrschaufel und vermeiden Sie den direkten Kontakt mit den Händen.

# CONSIGNES DE SÉCURITÉ F

Depuis 1883, la société EH Wachs a bâti sa réputation sur la qualité de ses produits et son engagement à satisfaire la clientèle. Conformément à ces principes, Wachs se doit également d'être aussi responsable pour faire de son mieux afin d'assurer l'utilisation la plus sûre de son matériel. Nous avons réuni une liste de rappels de sécurité pour aider à créer un cadre de travail aussi sûr que possible. Nous vous recommandons d'observer scrupuleusement les véfications préalables indiquées ci-dessous.

Lisez ce qui suit avant d'aller plus avant

1. LIRE LE MANUEL D'UTILISATION !!
En lisant les instructions de réglage et de fonctionnement avant de commencer les procédures de réglage, vous pourrez économiser un temps précieux et vous éviterez aux machinistes de se blesser et d'abîmer les machines.

2. INSPECTER LA MACHINE ET LES ACCESSOIRES !
Avant de régler la machine, inspectez-la à l'oeil nu ainsi que ses accessoires. Recherchez les outils coulissants usagés, les boulons ou les écrous desserrés, les fuites de lubrifiant, les dépôts de rouille excessifs, etc. Avec une maintenance adéquate, vous diminuerez sensiblement les risques d'accidents.

3. LIRE SYSTÉMATIQUEMENT LES AFFICHES ET ÉTIQUETTES !
Toutes les affiches, étiquettes et autocollants doivent être parfaitement lisibles et en bon état. Vous pouvez acheter de nouvelles étiquettes auprès du fabricant.

4. SE TENIR À DISTANCE DES PIÈCES ROTATIVES !
Tenez vos mains, bras et doigts éloignés de toutes pièces rotatives ou mobiles. Arrêtez toujours la machine avant de tenter de procéder au moindre réglage nécessitant un contact avec la machine ou ses accessoires.

5. PRENDRE GARDE AUX VÊTEMENTS AMPLES ET AUX BIJOUX !
Les vêtements amples, les bijoux, et les cheveux longs qui ne sont pas attachés peuvent être pris dans les pièces rotatives des machines. Enlevez ou attachez ce qui gêne de façon à réduire au maximum les risques d'accident.

6. CONSERVER UNE AIRE DE TRAVAIL DÉGAGÉE !
Ayez bien soin d'enlever les débris et les matériaux qui ne sont pas indispensables. N'autorisez que la présence des employés chargés du travail en cours d'exécution pour dégager au mieux l'aire de travail.

PORTER TOUJOURS UN ÉQUIPEMENT DE PROTECTION

**AVERTISSEMENT**
Protégez vos yeux avec des lunettes de sécurité antichoc lorsque cet outil est en marche ou si vous travaillez à proximité.

**ATTENTION**
Il est absolument indispen-sable de vous protéger con-stamment les oreilles lorsque cet outil est en marche ou si vous travaillez à proximité.

**ATTENTION**
Certaines personnes sont particulièrement sujettes aux troubles articulatoires des mains et des bras lorsqu'elles sont soumises à des tâches néces-sitant des gestes très répétitifs ou/ et lorsqu'elles sont exposées à des vibrations. Le syndrome du canal carpien et les tendinites peuvent résulter ou être aggravés par des efforts rigoureux des bras et des mains.

**ATTENTION**
Tenez-vous à distance des pièces rotatives pendant le fonctionnement. Êloignez vos mains et vos bras d'au moins 60 cm de toute les pièces en mouvement, sauf au dèmarrage et à l'arrêt.

**ATTENTION**
Les gants ne constituent pas une forme de protection et ne doivent pas être portés pour faire fonctionner la machinerie. Les éclats et débris qui sont produits pendant l'opération doivent être déblayés avec précaution. Pour cela, il convient d'utiliser un balai et une pelle pour éviter de les toucher à mains nues.

# INSTRUCCIONES DE SEGURIDAD E

Desde 1883, EH Wachs ha ido forjando una reputación de calidad y compromiso hacia la satisfacción del cliente. De acuerdo con esto, Wachs debe aceptar la responsabilidad adicional de hacer todo lo posible para asegurar el uso seguro de nuestros equipos.Hemos reunido una lista de recordatorios de seguridad para ayudarle a crear el ambiente de trabajo más seguro posible. Recomendamos se observen cuidadosamente los pasos de precaución enumerados en la misma.

Lea lo siguiente detenidamente antes de proceder

1. ¡¡ LEA EL MANUAL DE OPERACIONES!!
La lectura de las instrucciones de instalación y operación antes de comenzar los procedimientos de instalación puede ahorrarle tiempo valioso y ayudarle a evitar daños a operarios o daño a las máquinas.

2. ¡ INSPECCIONE LA MAQUINA Y LOS ACCESORIOS!
Antes de la instalación de la máquina inspeccione físicamente la máquina y sus accesorios. Busque muescas de herramientas usadas, pernos o tuercas flojos, fugas de lubricante, excesiva corrosión, etc. Una máquina mantenida adecuadamente puede disminuir grandemente las ocasiones de daños.

3. ¡ LEA SIEMPRE LOS LETREROS Y ETIQUETAS!
Todos los letreros, etiquetas y adhesivos deben ser claramente legibles y estar en buenas condiciones. Pueden comprarse etiquetas de repuesto del fabricante.

4. ¡MANTENGASE ALEJADO DE PIEZAS GIRATORIAS!
Mantenga las manos, brazos y dedos alejados de todas las piezas rotatorias o en movimiento. Desconecte siempre la máquina antes de intentar ningún ajuste que requiera entrar en contacto con la máquina o sus accesorios.

5. ¡ ASEGURE LA ROPA SUELTA Y JOYERIA!
La ropa suelta, joyería; pelo largo y sin atar pueden engancharse en las partes rotatorias de las máquinas. Usted puede reducir grandemente las oportunidades de un accidente asegurando estas cosas o despojándose de ellas.

6. ¡ MANTENGA LIMPIA EL AREA DE TRABAJO!
Asegúrese de mantener el área de trabajo libre de obstáculos y materiales no esenciales. Si es posible permita solamente el acceso al área a aquellas personas directamente asociadas con el trabajo que se está realizando.

USE SIEMPRE EQUIPO PROTECTOR:

**AVISO**
Debe usarse protección ocular resistente al impacto mientras se opere o trabaje cerca de esta herramienta.

**PRECAUCION**
e requiere en todo mom-ento protección auditiva personal cuando opere o trabaje cerca de esta herramienta.

**PRECAUCION**
Algunos individuos son susceptibles a desórdenes de brazos y manos cuando son sometidos a tareas que llevan consigo movimientos alta-mente repetitivos y/o vib-ración. Desórdenes tales como el síndrome del túnel carpiano y ten-donitis pueden ser causados o agravados por esfuerzos repetitivos y enérgicos de las manos y brazos.

**PRECAUCION**
Manténgase alejado de las partes giratorias durante la operación. Las manos y los brazos deben mantenerse a una distancia mínima de 60 cm (2') de las partes móviles, excepto al empezar y al detener la operación.

**PRECAUCION**
Los guantes no son un medio de protección y no deben usarse al operar la maquinaria. Se deben desechar los fragmentos y escombros generados durante la operación, tomando en cuenta la seguridad de las personas. Esto debe hacerse con una pala para recoger basura y una escoba para evitar el contacto con las manos.

# INDICAZIONI PER LA SICUREZZA D'USO I

Fin dal 1883, la EH Wachs si è guadagnata una reputazione per quanto riguarda qualità e impegno nella soddisfazione dei clienti. In questa ottica, alla Wachs dobbiamo anche assumerci la responsabilità di fare del nostro meglio per garantire la massima sicurezza d'uso dei nostri apparecchi. Abbiamo preparato un elenco di avvisi di sicurezza come ausilio nel creare il più sicuro ambiente di lavoro possibile. Raccomandiamo di seguire attentamente le precauzioni elencate.

Leggere attentamente quanto segue prima di proseguire.

1. LEGGERE IL MANUALE D'USO!!
Leggere le istruzioni per la messa a punto e l'uso prima di iniziare la messa a punto per risparmiare tempo prezioso e prevenire lesioni e danni al macchinario.

2. CONTROLLARE LA MACCHINA E GLI ACCESSORI!
Prima di mettere a punto la macchina, controllare sia la macchina che gli accessori. Verificare che le slitte portautensili non siano consumate, che i bulloni e i dadi non siano allentati, che non vi siano perdite di lubrificante, ruggine eccessiva, ecc. Una macchina ben mantenuta può ridurre notevolmente le possibilità di danni.

3. LEGGERE SEMPRE TARGHETTE ED ETICHETTE!
Tutte le targhette, le etichette e gli adesivi devono essere chiaramente leggibili e in buone condizioni. Si possono acquistare etichette di ricambio presso il produttore.

4. NON AVVICINARSI A PARTI IN MOVIMENTO!
Tenere mani, braccia e dita ben lontane da tutte le parti in movimento. Spegnere sempre la macchina prima di effettuare regolazioni che richiedono il contatto con la macchina o i suoi accessori.

5. FISSARE INDUMENTI E GIOIELLERIA!
Indumenti larghi, gioielli pendenti o lunghi; capelli lunghi sciolti possono rimanere incastrati nelle parti ruotanti sulle macchine. Fissandoli o rimuovendoli si può ridurre notevolmente il rischio di lesioni.

6. MANTENERE L'AREA DI LAVORO SGOMBRA!
Mantenere l'area di lavoro sgombra da materiale non essenziale. Se possibile, consentire l'accesso solamente al personale direttamente interessato nel lavoro svolto.

INDOSSARE SEMPRE INDUMENTI PROTETTIVI:

**ATTENZIONE**
Indossare occhiali di sicurezza resistenti all'urto durante l'uso di questo strumento o quando si lavora in sua prossimità.

**AVVERTENZA**
Indossare sempre protezione auricolare durante l'uso di questo strumento o quando si lavora in sua prossimità.

**AVVERTENZA**
Alcuni individui possono soffrire disturbi alle mani e alle braccia nell'esecuzione di mansioni che comportino movimenti alta-mente ripetitivi e/o vibrazione. Disturbi quali la sindrome del tunnel carpale e tendiniti possono essere causati o aggravati da sforzi ripetuti delle mani e delle braccia.

**ATTENZIONE**
Stare lontani da parti rotanti durante l'uso. Tencre mani e alle braccia ad almeno 60 centimetri di distanza da parti in movimento tranne durante l'avvio e l'arresto.

**ATTENZIONE**
I guanti non costituiscono una forma di protezione e non dovrebbero essere indossati durante l'uso delle macchine. Schegge e detriti generati durante l'uso devono essere smaltiti in modo sicuro, usando una paletta e una scopa per evitare di toccarli con le mani.

# VEILIGHEIDSRICHTLIJNEN N

Sinds 1883 heeft de firma E.H.Wachs een reputatie opgebouwd voor kwaliteit en heeft zich geëngageerd om voldoening te schenken aan de verbruiker. Dienovereenkomstig heeft E.H.Wachs de bijkomende verantwoordelijkheid op zich genomen het uiterste te betrachten om het gebruik van onze apparatuur onder de meest veilige omstandigheden te verzekeren.

We hebben een lijst samengesteld van veiligheidsaanmaningen teneinde de meest veilige werkomgeving te scheppen.

**We raden aan de hieronder vermelde voorzorgsmaatregelen stipt na te leven. Lees het volgende aandachtig vooraleer verder te gaan.**

1. LEES HET BEDIENINGSHANDBOEK!
Lees de opstel- en bedieningsrichtlijnen vooraleer met de opstelwerkzaamheden te beginnen om kostbare tijd te besparen en om persoonlijke letsels en schade aan de machines te voorkomen.

2. INSPECTEER DE MACHINE EN TOEBEHOREN
Vooraleer de machine op te stellen, inspecteer de machine en haar toebehoren. Kijk uit voor versleten gereedschapssleden, losse bouten en moeren, olie lekken, overmatige roest, enz.. Een goed onderhouden machine kan de kans voor kwetsuren aanzienlijk verminderen.

3. LEES ALTIJD DE PLAKKAATEN EN ETIKETTEN
Alle plakkaaten, etiketten en zelfklevers moeten duidelijk leesbaar zijn en in goede staat. Vervangingsetiketten kunnen bij de fabrikant gekocht worden.

4. HOUD AFSTAND VAN DRAAIENDE ONDERDELEN

Houd handen, armen en vingers weg van alle draaiende of bewegende onderdelen. Schakel de machine uit vooraleer afregelingen te verrichten die contact vereisen met de machine of haar toebehoren.

5. VERMIJD LOSSE KLEDING EN SIERADEN
Los zittende kleding, sieraden, en lang los haar kunnen door draaiende machineonderdelen gegrepen worden. Door ze vast te maken of ze te verwijderen kunt U de kans op verwondingen aanzienlijk verkleinen.

6. HOUD DE WERKRUIMTE VRIJ
Zorg ervoor dat de werkruimte vrij is van rommel en onnodige materialen. Toegang tot de werkruimte moet indien mogelijk enkel verleend worden aan personen die direkt betrokken zijn bij het uit te voeren werk.

DRAAG ALTIJD BESCHERMENDE UITRUSTING

**WAARSCHUWING**
Een veiligheidsbril moet gedra-gen worden bij het bedienen van dit gereedschap of bij het werken in de buurt van dit gereedschap.

**VOORZICHTIG**
Persoonlijke gehoorbescher-ming is aangeraden bij het bedienen van dit gereed-schap of bij het werken in de buurt van dit gereedschap.

**VOORZICHTIG**
Sommige personen zijn vatbaar voor hand-en arm-letsels wanneer zij bloot-gesteld zijn aan trillingen of handelingen die hoogst rep-etitieve bewe-gingen ver-gen. Letsels zoals Carpal tunnel syn-droom en tendinitis kunnen veroor-zaakt worden of verergeren door rep-etitieve krachtinspanningen van handen en armen.

**VOORZICHTIG**
Blijf tijdens het bedrijf op veilige afstand van draaiende onderdelen. Houd handen en armen minstens 5 cm weg van bewegende onderdelen, behalve tijdens het starten en stoppen.

**VOORZICHTIG**
Handschoenen zijn geen vorm van bescherming en mogen niet worden gedragen terwiji u de machines bedient. Deeltjes en rommel die tijdens het bedrijf ontstaan, moeten op een veilige manier worden opgeruimd. Dit dient te worden gedaan met een bezem en blik om blootstelling van de handen te voorkomen.

# SÄKERHETSANVISNINGAR S

EH Wachs har sedan 1883 etablerat ett gott anseende när det gäller kvalitet och kundtillfredsställelse. Wachs känner sig därför förpliktigat att göra sitt yttersta för att garantera säkrast möjliga användning av Wachs-utrustning.

Vi har ställt samman en lista av säkerhetsanvisningar som ett led i vår strävan att skapa säkrast möjliga arbetsmiljö. Vi rekommenderar att de försiktighetsåtgärder som förtecknats följs noggrant.

**Läs igenom nedanstående ordentligt innan du fortsätter.**

1. LÄS IGENOM BRUKSANVISNINGEN!
Genomläsning av anvisningarna för klargöring och drift innan klargöringen påbörjas kan medföra en värdefull tidsbesparing och bidra till att person- och maskinskador undviks.

2. KONTROLLERA MASKINEN OCH DESS TILLBEHÖR!
Kontrollera maskinen och besiktiga dess tillbehör. Se efter om verktygshållare är slitna, skruvar och muttrar lösa, smörjmedel läcker, kraftig rost förekommer o d. En korrekt underhållen maskin medför kraftigt minskad risk för personskador.

3. LÄS ALLTID SKYLTAR OCH ETIKETTER!
Alla skyltar och etiketter måste vara helt läsliga och i gott skick. Utbytesetiketter kan inköpas från tillverkaren.

4. HÅLL DIG BORTA FRÅN ROTERANDE DELAR!
Håll händer, armar och fingrar borta från roterande eller rörliga delar. Slå alltid av maskinen innan justering som kräver kontakt med maskinen eller dess tillbehör utförs.

5. STOPPA IN LÖST SITTANDE KLÄDER OCH SMYCKEN!
Löst sittande kläder och smycken samt långt, hängande hår kan fastna i maskinens roterande delar. Genom att säkra dessa eller avlägsna kläder och smycken kan du minska risken för skador avsevärt.

6. HÅLL ARBETSSTÄLLET RENT!
Var noga med att hålla arbetsstället fritt från skräp och ej behövligt material. Ge om möjligt tillgång till arbetsstället endast till personal som är direkt inbegripen i det arbete som utförs.

ANVÄND ALLTID SKYDDSUTRUSTNING:

**VARNING!**
Stötsäkra skyddsglasögon måste bäras vid användning av eller arbete nära detta redskap.

**OBS!**
Hörselskydd krävs alltid vid användning av eller arbete nära detta redskap.

**OBS!**
Vissa personer är känsliga för de effekter som kan uppstå i händer och armar när de utför rörelser som är i hög grad repetitiva och/eller utsätts för vibrationer. Tillstånd såsom karpal tunnel syndrom och seninflammation kan orsakas eller förvärras om händer och armar används för att utföra repetitivt och ansträngande arbete

**VARNING!**
Undvik roterande delar under drift. Händer och armar bör hållas på minst 0,6 m avstånd från rörliga delar utom när maskinen startas eller slås från

**VARNING!**
Handskar skyddar inte och bör ej användas medan maskinen körs. Fusor och andra restprodukter som skapas under drift bör kasseras på ett säkert satt. Använd kvast och sopskyffel för att undvika kontakt med händer.

# INSTRUÇÕES DE SEGURANÇA P

Já desde 1883 que a EH Wachs tem vindo a criar uma reputação de qualidade e um compromisso de satisfação dos consumidores. Nesta linha de conduta, a Wachs tem que assumir a acrescida responsabilidade de fazer o seu melhor para garantir a máxima segurança na utilização dos nossos equipamentos.

Acabámos de compilar uma lista de lembretes de segurança destinados a ajudar na criação de um ambiente de trabalho o mais seguro possível. Aconselhamos que sejam observadas com todo o cuidado as várias fases precaucionárias descritas a seguir.

Ante de continuar, leia com o máximo cuidado o que vai a seguir

1. Leia o Manual de Operações!
A leitura das instruções de montagem e de funcionamento antes de iniciar os procedimentos de montagem poderá poupar um tempo precioso e prevenir ferimentos no operador ou danos nas máquinas.

2. Inspeccione a máquina e respectivos acessórios!
Antes de efectuar a sua montagem, faça uma inspecção física da máquina e seus acessórios. Dirija a sua busca para peças deslizantes já usadas, parafusos e porcas soltos, derrame de lubrificantes, ferrugem excessiva, etc. A manutenção adequada do maquinismo diminuirá os riscos de ferimentos.

3. Leia sempre os cartazes e as etiquetas!
Todos os cartazes, etiquetas e autocolantes deverão ser claramente legíveis e estar em perfeitas condições. Etiquetas acessórias de substituição poderão ser encomendadas directamente do fabricante.

4. Mantenha-se fora do alcance de peças rotatórias!
Mantenha as mãos, braços e dedos fora do alcance de todas as peças rotatórias ou em movimento. Desligue, primeiro, a máquina sempre que tiver de proceder a ajustamentos que requeiram contacto com a máquina ou com as suas peças.

5. Aperte bem a roupa folgada e peças de joalharia!
Roupas folgadas, joalharia e cabelo solto e comprido poderão ser apanhados pelas peças rotatórias das máquinas. Manter estes artigos amarrados ou desfazer-se deles será a melhor maneira de reduzir a possibilidade de ferimentos.

6. Mantenha livre a área de trabalho !
Procure manter a área de trabalho livre de ajuntamentos e de materiais não essenciais. O acesso a essa área só deverá ser permitido ao pessoal directamente envolvido no trabalho que estiver a ser executado, tanto quanto possível.

USE SEMPRE EQUIPAMENTO DE PROTECÇÃO:

**AVISO!**
Sempre que trabalhar com esta ferramenta ou perto dela deverá usar uma protecção para a vista, à prova de choque.

**CUIDADO!**
É obrigatório usar protecção individual para os ouvidos durante todo o tempo que trabalhar com esta ferramenta ou perto dela.

**CUIDADO!**
Há pessoas que são propensas a sofrer certos sintomas nas mãos ou nos braços quando expostos a tarefas que envol-vam movimentos altamente repetitivos, acompanhados ou não de vibrações. Sintomas como, por exemplo, o síndrome do túnel cárpeo e a tendonite poderão ser causados ou agravados elo uso esforçado e repetitivo das mãos e dos braços.

**ATENÇÃO!**
Mantenha distância das partes giratórias durante a operação. Braços e mãos devem ser mantidos a no mínimo 2 pés (60cm) das partes móveis, exceto durante a partida e parada.

**ATENÇÃO!**
Luvas não são uma forma de protecção e não devem ser utilizadas durante a operação do equipamento. Deve-se desfazer adequadamente das lascas e aparas praduzidas durante a uso. Isto deve ser feito corn a usa de pá de lixo e vassoura para evitar a cantata com as mãos.

# TURVALLISUUSOHJEET FIN

EH Wachs on tunnettu korkeasta laadusta ja tyytyväisistä asiakkaistaan jo vuodesta 1883. Wachs huolehtii myös siitä, että laitteiden käyttö on mahdollisimman turvallista.

Olemme koonneet tähän turvallisuutta koskevan muistilistan, jota noudattamalla työympäristöstä saadaan mahdollisimman turvallinen. Kehotamme noudattamaan tässä esitettyjä varotoimenpiteitä huolellisesti.

Lue seuraavat kohdat huolellisesti, ennen kuin jatkat.

1. LUE KÄYTTÖOHJEKIRJA!
Asennus- ja käyttöohjeisiin perehtyminen ennen asennuksen aloittamista säästää aikaa ja auttaa vähentämään tapaturmavaaraa ja koneiden vaurioitumisriskiä.

2. TARKASTA KONE JA LISÄLAITTEET!
Ennen kuin aloitat asennuksen, tarkasta kone ja lisälaitteet. Varmista, että teräkelkat eivät ole kuluneet, pultteja ja muttereita ei ole löysällä, voiteluainetta ei vuoda, konessa ei ole liikaa ruostetta jne. Hyvässä kunnossa pidetty kone voi vähentää tapaturmavaaraa huomattavasti.

3. LUE KAIKKI KILVET JA MERKINNÄT!
Kaikkien kilpien, merkintöjen ja tarrojen on oltava selkeästi luettavissa ja hyvässä kunnossa. Vaihtotarroja voit ostaa valmistajalta.

4. PYSYTTELE ETÄÄLLÄ PYÖRIVISTÄ OSISTA!
Pidä kädet, käsivarret ja sormet loitolla kaikista pyörivistä tai liikkuvista osista. Kytke kone aina pois päältä ennen kuin suoritat säätöjä, joissa joudut koskemaan koneeseen tai sen lisälaitteisiin.

5. SIDO LÖYSÄT VAATTEET JA HIUKSET KIINNI!
Löysät vaatteet, korut ja pitkät hiukset voivat takertua koneen pyöriviin osiin. Vähennät tapaturmavaaraa huomattavasti, kun poistat tai sidot kiinni löysät vaatteet ja korut ja sidot hiukset kiinni.

6. PIDÄ TYÖSKENTELYALUE SIISTINÄ!
Varmista, että työskentelyalueella ei ole roskia eikä tarpeetonta materiaalia. Päästä työskentelyalueelle vain käsillä olevaan työhön osallistuvia henkilöitä, mikäli mahdollista.

KÄYTÄ AINA SUOJAVÄLINEITÄ:

**VAROITUS**
Käytä iskunkestäviä suojalaseja, kun käytät tätä työkalua tai työskentelet sen lähellä.

**HUOMAA**
Kuulosuojainten käyttöä vaaditaan aina, kun käytät tätä työkalua tai työskentelet sen lähellä.

**HUOMAA**
Pitkään jatkuva altistuminen toistuvalle liikkeelle ja/tai tärinälle voi aiheuttaa käsien ja käsivarsien sairauksia joillekin henkilöille. Käsiin ja käsivarsiin kohdistuva toi-stuva ja voimakas liike voi aiheuttaa tai pahentaa sairauksia kuten rannekanavaoirey-htymä ja jännetulehdus.

**VAROITUS**
Pysyttele loitolla pyörivistä osista käytön aikana. Kädet ja käsivarret tulee pitää vähinään 60 cm:n päässä liikkuvista osista paitsi käynnistyksen ja pysäytyksen aikana.

**VAROITUS**
Käsineet eivät toimi suojavarusteina, eikä niita tule käyttää konetta käytettäessä. Käytön Aikana syntyvät lastut ja jäte tulee hävittää turvallisella tavalla. Tämä tulee tehdä. Rikkalapiota ja harjaa käyttäen käsien altistumisen välttämiseksi.

# ANVISNING I SIKKERHED DK

Siden 1883 har EH Wachs haft ry for deres kvalitet og varetagelse af kundtilfredshed og vil også gøre vort bedste for at sikre, at vore maskiner benyttes på en sikker og forsvarlig måde.

Vi har lavet en liste over påmindelser, der skal bidrage til at skabe det sikrest mulige arbejdsmiljø. Vi anbefaler, at sikkerhedsforanstaltningerne på listen omhyggeligt overholdes.

**Læs følgende grundigt, inden der foretages andet**

**1. LÆS BRUGSANVISNINGEN!!**
Hvis man læser anvisningerne i klargøring og drift, inden man begynder at gøre maskinen klar, kan man spare tid og forhindre person- og maskinskade.

**2. INSPICÉR MASKINE OG UDSTYR!**
Inden maskinen gøres klar, skal man inspicere maskinen og udstyret. Se efter slidte fittings, løse bolte og møtrikker, olielækager, rust osv. Når maskinen holdes i god stand, er der langt mindre risiko for personskade.

**3. LÆS ALTID SKILTE OG ETIKETTER!**
Alle skilte og etiketter skal være letlæselige og i god stand. Nye skilte og etiketter fås hos forhandleren.

**4. HOLD AFSTAND TIL BEVÆGELIGE DELE!**
Hold hænder, arme og fingre væk fra alle roterende og bevægelige dele. Man skal altid slukke for maskinen, inden man påbegynder justering, hvor man kommer i kontakt med maskinen eller udstyret.

**5. BRUG IKKE LØSTHÆNGENDE TØJ OG SMYKKER!**
Løsthængende tøj, smykker og langt, løsthængende hår kan blive fanget i maskinens bevægelige dele. Man kan i høj grad nedsætte risikoen for personskade ved ikke at bruge løsthængende tøj og smykker og ved at samle langt hår oppe på hovedet.

**6. HOLD ARBEJDSSTEDET RYDDET!**
Arbejdsstedet skal holdes ryddeligt og fri for materialer, der ikke hører til. Uvedkommende personer bør ikke have adgang til arbejdsstedet, hvis det er muligt.

BRUG ALTID BESKYTTELSESUDSTYR:

**ADVARSEL**
Man skal bruge slag-resistente sikkerhedsbriller, når man arbejder med eller i nærheden af denne maskine.

**FORSIGTIG**
Man skal altid bruge høreværn, når man arbejder med eller i nærheden af denne maskine.

**FORSIGTIG**
Nogle mennesker er dis-poneret for lidelser i hænder og arme, når de udsættes for opgaver, der involverer stærkt repetitiv bevægelse og/eller vibration. Sygdomme, såsom karpal-tunnelsyndrom og ten-dinitis, kan forårsages eller forværres af repetitiv, kraftig brug af hænder og arme.

**FORSIGTIG**
Hold dig på afstand at roterende dele under drift. Hold hænder og arme mindst 60 cm væk fra bevægelige dele, undtagen ved start og stands fling.

**FORSIGTIG**
Handsker er ikke en form for beskyttelse. Gå ikke med handsker, mens maskinen betjenes. Spåner og findelt materiale, som udvikies under drift, skal bortskaffes på forsvarlig måde. Dette skal gæres ved brug at en fejebakke og en kost, for at undgåpåvirkning at hænderne.

# ΟΔΗΓΙΕΣ ΑΣΦΑΛΕΙΑΣ GR

Από το 1883, η EH Wachs έχει δημιουργήσει μια φήμη ποιότητας και δέσμευσης στην ικανοποίηση του πελάτη. Συνεπώς, η Wachs πρέπει να αναλάβει την πρόσθετη υποχρέωση να κάνουμε το καλύτερο για να εξασφαλίσουμε την ασφαλέστερη χρήση του εξοπλισμού μας.

Έχουμε καταρτίσει έναν κατάλογο υπομνήσεων ασφαλείας που βοηθούν στη δημιουργία του ασφαλέστερου δυνατού χώρου εργασίας. Συνιστούμε την πιστή εφαρμογή των προληπτικών μέτρων που αναγράφονται παρακάτω.

**Πριν προχωρήσετε διαβάστε όλες τις παρακάτω υποδείξεις**

**1. ΔΙΑΒΑΣΤΕ ΤΟ ΒΙΒΛΙΟ ΟΔΗΓΙΩΝ !**
Η ανάγνωση των οδηγιών εγκατάστασης και χειρισμού πριν αρχίσετε τις διαδικασίες εγκατάστασης μπορούν να σας εξοικονομήσουν πολύτιμο χρόνο και να βοηθήσουν στην αποτροπή τραυματισμού των χειριστών ή βλάβης των μηχανών.

**2. ΕΠΙΘΕΩΡΗΣΤΕ ΤΗ ΜΗΧΑΝΗ ΑΙ ΤΑ ΕΞΑΡΤΗΜΑΤΑ!**
Πριν από την εγκατάσταση της μηχανής επιθεωρήστε τη φυσική κατάσταση της μηχανής και των εξαρτημάτων. οιτάξτε για τυχόν φθορά στις γλίστρες των εργαλείων, λασκαρισμένα μπουλόνια ή παξιμάδια, διαρροή λιπαντικού, υπερβολική σκουριά κτλ. Η μηχανή που συντηρείται κανονικά μπορεί να μειώσει σημαντικά τις πιθανότητες τραυματισμού.

**3. ΠΑΝΤΑ ΔΙΑΒΑΖΕΤΕ ΤΙΣ ΠΙΝΑ ΙΔΕΣ & ΤΙΣ ΕΤΙ ΕΤΕΣ!**
Όλες οι πινακίδες, ετικέτες και αυτοκόλλητα πρέπει να διαβάζονται καθαρά και να βρίσκονται σε καλή κατάσταση. Εφεδρικές ετικέτες μπορείτε να αγοράσετε από τον κατασκευαστή.

**4. ΑΠΟΜΑ ΡΥΝΘΕΙΤΕ ΑΠΟ ΤΑ ΠΕΡΙΣΤΡΕΦΟΜΕΝΑ ΕΞΑΡΤΗΜΑΤΑ!**
ρατήστε χέρια, βραχίονες, και δάχτυλα μακριά από όλα τα περιστρεφόμενα ή κινούμενα εξαρτήματα. Πάντοτε σβήνετε τη μηχανή πριν επιχειρήσετε οποιαδήποτε ρύθμιση που απαιτεί επαφή με τη μηχανή ή τα εξαρτήματά της.

**5. ΜΑΖΕΨΤΕ ΤΑ ΛΥΤΑ ΡΟΥΧΑ & ΟΣΜΗΜΑΤΑ!**
Τα ρούχα που δεν έχουν καλή εφαρμογή, τα κοσμήματα, τα μακριά, λυτά μαλλιά μπορεί να πιαστούν στα περιστρεφόμενα εξαρτήματα της μηχανής. Στερεώνοντας ή βγάζοντάς τα μπορείτε να μειώσετε σημαντικά την πιθανότητα τραυματισμού.

**6. ΔΙΑΤΗΡΕΙΤΕ ΕΛΕΥΘΕΡΟ ΤΟ ΧΩΡΟ ΕΡΓΑΣΙΑΣ!**
Φροντίστε να διατηρείτε το χώρο εργασίας ελεύθερο από ακαταστασία και εποσιώδη υλικά. Επιτρέπετε την είσοδο μόνο στους έχοντας άμεση σχέση με την εκτελούμενη εργασία αν είναι δυνατό.

ΝΑ ΦΟΡΑΤΕ ΠΑΝΤΟΤΕ ΠΡΟΣΤΑΤΕΥΤΙ Α ΕΙΔΗ:

**ΠΡΟΕΙΔΟΠΟΙΗΣΗ**
Να φοράτε είδη προστασίας των ματιών κατά της πρόσκρουσης όταν χειρίζεστε ή εργάζεστε κοντά στο εργαλείο αυτό.

**ΠΡΟΣΟΧΗ**
Χρειάζεται πάντοτε ατομική προστασία των αυτιών όταν χειρίζεστε ή εργάζεστε κοντά στο εργαλείο αυτο.

**ΠΡΟΣΟΧΗ**
Μερικά άτομα είναι ευαίσθητα στις διαταραχές των χεριών και των βραχιόνων όταν εκθέτονται σε εργασίες που συνεπάγονται εξαιρετικά επαναληπτικές κινήσεις καιή κραδασμούς. Οι διαταραχές όπως το σύνδρομο καρπικής σήρραγας και η τενοντίτιδα μπορεί να προκληθούν ή να επιδεινωθούν από τις επαναληπτικές, ισχυρές εκτάσεις των χεριών και των βραχιόνων.

# SMALL DIAMETER BEVELER

## SECTION II EC DECLARATION OF CONFORMITY

Name and address of manufacturer (if different)

E.H. Wachs Company
100 Shepard St.
Wheeling, Il. 60090 USA

Distributed in the EC by:
Business address:

We declare that the machine described below conforms with the EHSR of the machinery directive 89/392/EEC and amendments 91/368/EEC, 93/44/EEC and 93/68/EEC

Machine Title: Small Diameter Beveler & Flange Facers

Model Number: 16-000-01, 56-000-01, 66-000-01

Machine Description: Portable machinery to end prep pipe and face flanges.

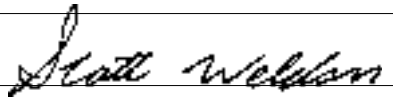
Serial Number:

Harmonized Standards Used: EN 292, EN 292-2, EN 294, EN 349
PR: EN 982, PR: EN 983, 10/95

Other Safety Standards Used: PR: EN 792-1, PR: EN 983, 1050

Name of person authorized to sign on behalf of the E.H. Wachs Companies: Scott Weldon

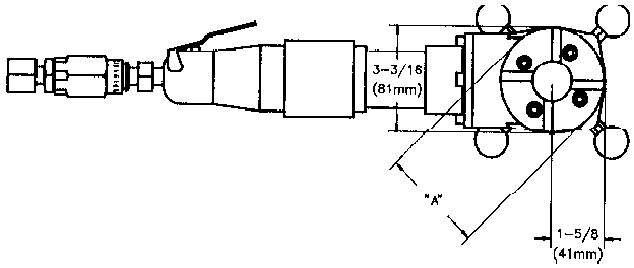
Position: Vice President / CFO

Signature: 

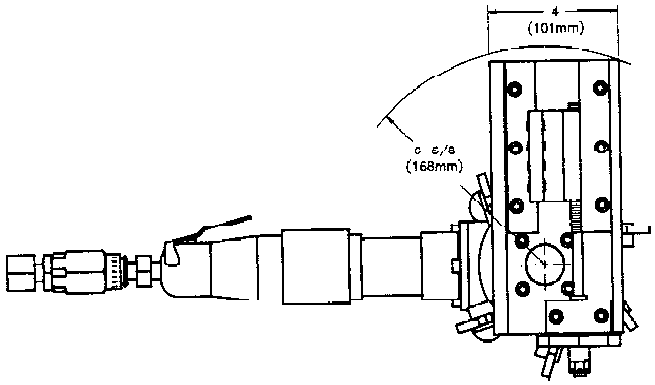
Date: April 1, 1999

## SECTION III MACHINE SPECIFICATIONS 103/3

Machining Functions: Portable pipe prepping machine will face, bevel, compound bevel, J-prep and counterbore simultaneously. Finish options include flange face, record groove, or RMS 125 finish. Single point capability.

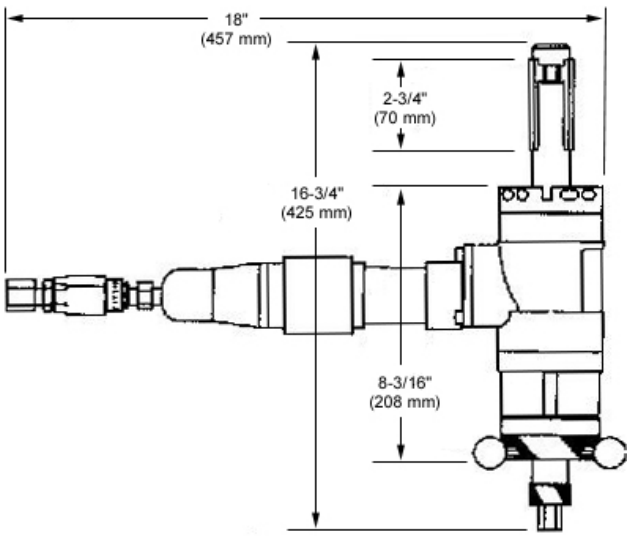



| | |
|---|---|
| Capacity: | Machine all pipe and tube sizes 7/8" I.D. through 4.5" O.D. (22.2 to 114.3mm). Flange Face 2.0" through 6.0" O.D. (50.8 to 152.4mm) |
| Feed: | Manual feed handle assembly with calibrated feed dial. 2.5 " maximum feed, .0625" per revolution. |
| Drive: | Pneumatic or electric. |
| Air Requirements: | 35 cfm @ 90 psi (0.98 cu. m @ 6.3 Bar) |
| Air Motor: | 160 RPM free speed. |
| ElectricRequirements: | 110 volts, 6.4A max, .8 HP through gear box |
| Tooling: | Ground and coated Wachs high speed T-15 steel form tools to face, bevel and counterbore. Carbide and custom configuration Wachs tooling available. |




Mandrels:

| | |
|---|---|
| Standard Mandrel: | 1.16"-4.18" I.D.(29.4-106.1 mm) |
| Small Mandrel: | .875"-1.250" I.D.(22.2-31.7 mm) |
| Ind. fitting mandrel: | 1.95"-4.11" I.D. (49.5-104.3 mm) |
| Collet mandrel pipe: | 1.375"-4.378" I.D. (34.9-111.1 mm) |
| Installation: | 5 minute set up. Less than 30 second changeover from pipe to pipe. |
| Weight: | SDB 103/3 with large diameter tool holder and standard mandrel: 20 lbs (9.08 kg) |
| Controls: | Positive on/off valve speed control (air model), manual tool in-feed (standard) |
| Finish: | Red polyurethane paint. |

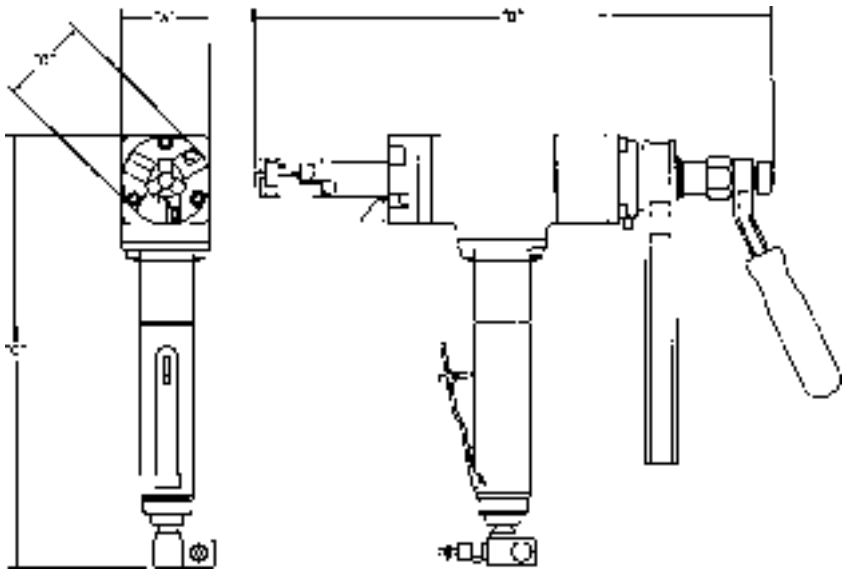


# SMALL DIAMETER BEVELER

## LB BOILER TUBE BEVELER MACHINE SPECIFICATIONS

| | |
|---|---|
| Machining Functions: | Boiler tube weld preparation |
| Capacity: | Machine 3.5" O.D. (88mm) Standard up to .500 (12.2mm) wall max.<br>Machine 4.5" O.D. (114.3mm) with extended range option up to .500" (12.2mm) wall max. |
| Feed: | Manual ratcheting |
| Drive: | Pneumatic |
| Air Requirements: | 35 cfm @ 90 psi max. |
| Air motor: | 1.0 HP |
| Tooling: | High speed steel form tools |
| I.D. Chucking Range: | 1.16" to 3.0" I.D. (29.4mm to 76.2mm) Standard<br>3.0" to 4.2" I.D. (76.2 to 106.6mm) with extended range option |
| Installation: | 5 minute set up. Less than 30 seconds change over from tube to tube |
| Weight: | 20 lbs. (9.1kg) |
| Controls: | Manual ratcheting tool in-feed. On/Off hand grip with safety |
| Standard Equipment: | Basic LB machine, air motor, 6' hose whip w/swivel, cutting head, standard mandrel with leg set, installation tools, storage case and operating manual. |
| Optional Equipment: | Extended range option includes 3 leg sets and tool head |

| | |
|---|---|
| "A" Dimension: | 3.19" |
| "B" Dimension: | 16.9" |
| "C" Dimension: | 14.5" |
| "D" Dimension: | 3.25" |
| "D" Dimension w/ optional Tool Head | 4.25" |



SECTION IV

# SET UP & OPERATING PROCEDURES

## SECTION IV SET-UP AND OPERATION 103/3

### A. Mandrel Placement

1. Inspect the bore of the rotating head for dirt and metal chips. Clean the bore with compressed air or solvent as necessary. Wipe the mandrel clean and apply a light coating of oil.
2. Remove the collar nut (16-019-00) and draw bar nut (16-018-00) (Figure 1).

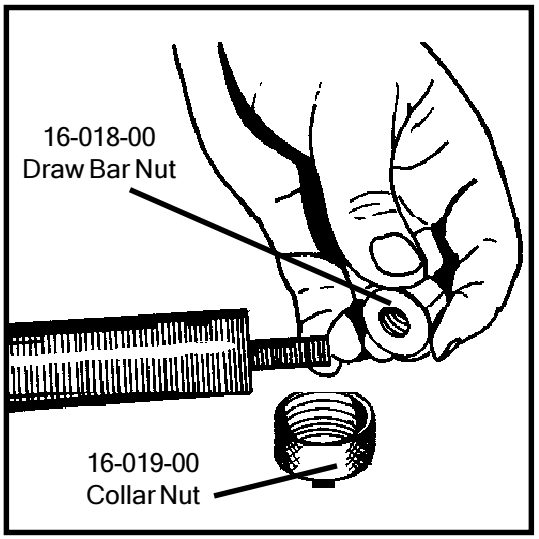



Figure 1

3. insert the threaded end of the mandrel through the front of the rotating head, be careful not to damage the head bushing. Visually align the keyway slots of the mandrel with thw internal keys of the beveling head (figure 2).

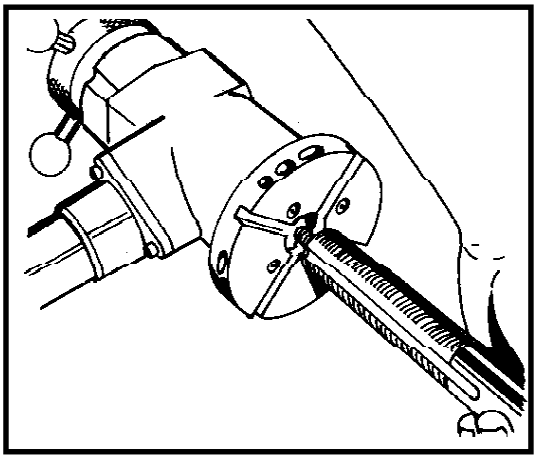


Figure 2

4. Once the keys of the internal feed nut engage the mandrel, rotate the feed handle assembly clockwise until the mandrel shaft is approximately 3/4" (19 mm) beyond the end cap (figure 3).

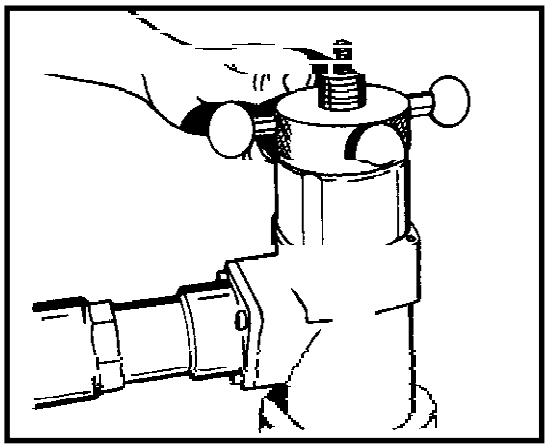


Figure 3

5. Install the draw bar nut followed by the collar nut. Once the collar nut is installed, the draw bar nut is capivated and can be rotated to expand and contract the mandrel legs (figure 4).

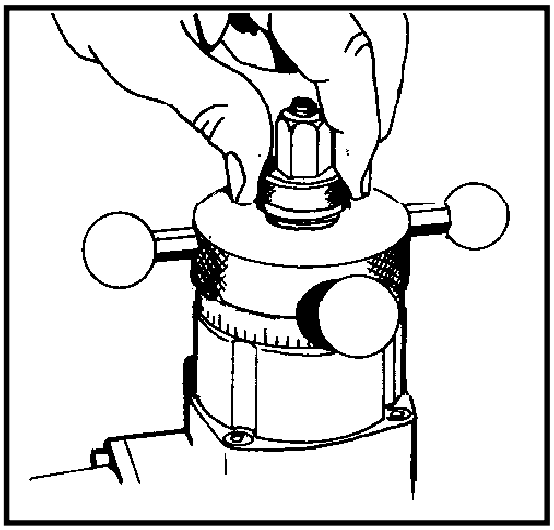


Figure 4

NOTE: Draw Bar Nut and Collar Nut must be removed to remove mandrel from machine body.

**SECTION IV** **SET-UP AND OPERATION 103/3 (cont.)**

## B. Extension Leg Installation

Standard Mandrel
1.16 through 4.18 I.D. *(29.4 Through 106.1 mm)*

1. The SDB 103/3 uses one mandrel assembly with the addition of seven leg extension sets to cover its entire operating range.

2. The mandrel itself has three pemanently mounted chuck legswhich expand and/or contract to fit and chuck to the inside wall of the pipe, with or without extension legs, when the draw bar nut is rotated.

3. To determine which extension leg set is required, mea sure the work piece pipe I.D. (refer to the Extension Leg Chart). The pipe I.D. range is also stamped on each extension leg.

4. Select the required exension leg set. The extension legs have two captivated fasteners in each leg which screw into the permanently mounted chuck legs (figure 5).

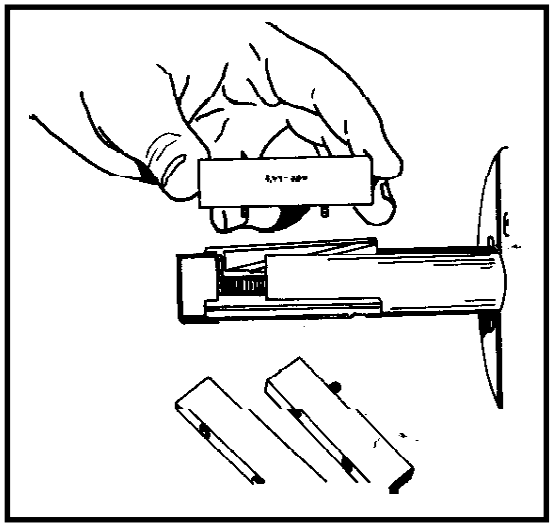


Figure 5

5. Place the extensions on the mandrel legs. Engage and tighten the captivated screws with the provieded hex key set (Figure 6).

## C. SDB 103/3 Conversion

(for use with Small I.D. Mandrel)

1. Remove existing Mandrel (if applicable).

2. Remove existing rotating head (16-005-00) by unscrew-ing the four 1/4-20 x3/4" SHCS that secure it to the machine body.

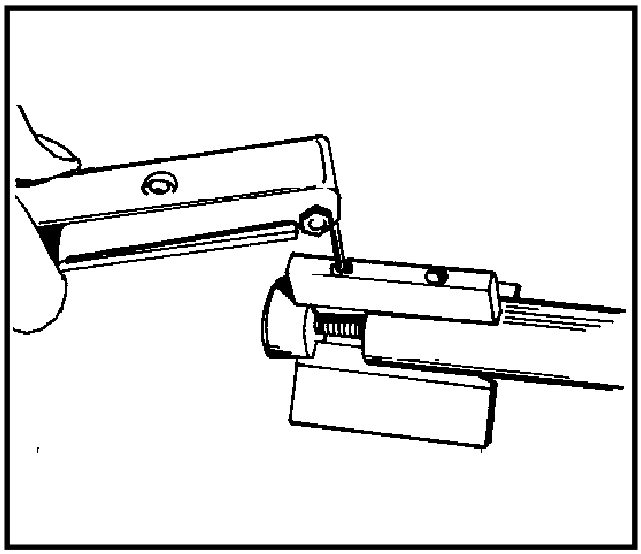


Figure 6

3. Insert the small I.D. mandrel (PN: 16-063-00) into machine body.

NOTE: Small I.D. Mandrel must be broken down; remove draw bar, draw bar nut and legs prior to to inserting the mandrel into the machine body.

4. Place the rotating head (PN 16-062-00) on machine and secure using 4-1/4-20x1-1/4 SHCS.

NOTE: When returning legs to their proper position in the mandrel assembly, be certain that the "O" ring that secures them is in the correct position prior to re-installing the Draw Bar Assembly into the mandrel. The "O" ring will not slip over the end of the draw bar once it has been installed.

5 Re-insert Draw Bar Nut and Legs into Mandrel, and secure with Draw Bar Nut

6. For further instructions on converting, refer to Section D "SDB 103/3 MOUNTING".

## SECTION IV SET-UP AND OPERATION 103/3 (cont.)

D. SDB 103/3 Mounting

1. Insert the Mandrel Chucking Head into the pipe. For best results, keep the end of the chuck legs as close to the pipe edge as possible. The maximum depth of penetration into the pipe should be 3/4" (19 mm) from the rear of the Mandrel legs to the pipe edge. This will allow for a normal prep and still keep the machine body and rotating head rigid (Figure 7).

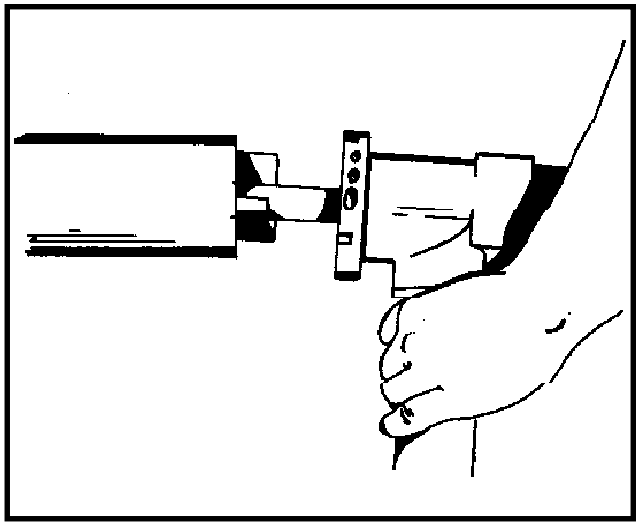


Figure 7

2. With one hand, hold the machine concentric to the pipe. Place the supplied box end socket wrench on the Draw Bar Nut, rotating to expand the mandrel legs into the I.D. of the pipe. Move the machine back and forth and up and down slightly to make sure the chuck legs completely contact the pipe wall. The chuck legs will automatically center the machine to the pipe (Figure 8).

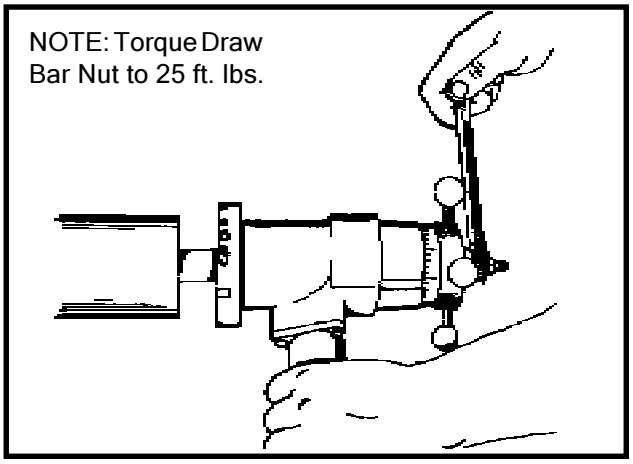



Figure 8

3. Select and install tooling (see Tooling Selection Chart and Form Tool Installation procedure).

4. Connect a clean, dry 90 PSI maximum air supply to machine. It is recommended to use an ATM* (Air treat ment module) in the air line to filter the air and lubricate the air motor.

*IMPORTANT: E.H. Wachs Company recommends the use of an ATM "Air Treatment Module" (PN 26-407-00). Air motor warranty will be voided if an ATM is not used to filter air and lubricate the motor.

NOTE: Use 90 PSI maximum air pressure. Higher air pressure increases the loads and stresses on the machine components and fasteners and may result in breakage. Higher air pressure also increases the sound level of the tool.

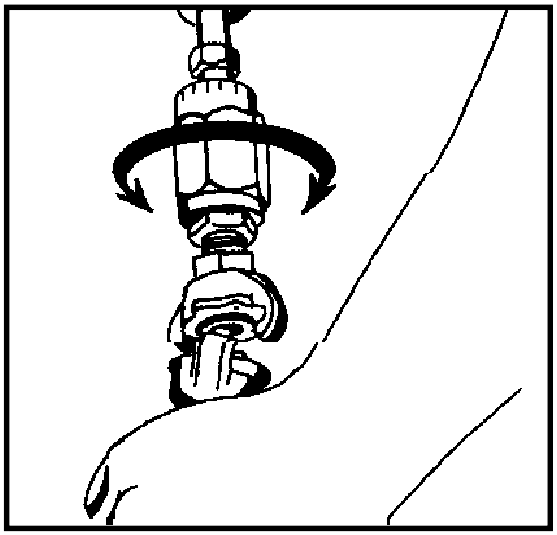


Figure 9

5. The SDB 103/3 is equipped with a throttle control to meter the air flow to the motor. Rotating the throttle counter clockwise will close the valve. Clockwise rotation will open the valve (Figure 9).

NOTE: Adjust the cutting head RPM with throttle control for material being machined. A good rule of thumb is the harder the material, the slower the speed.

## SECTION IV SET-UP AND OPERATION 103/3 (cont.)

E. FORM TOOL INSTALLATION AND OPERATION

1. Refer to Tool Selection Chart. Install the Facing Tool in the rotating head slot. All tool bits must be installed so the cutting edge will contact the pipe when rotating in a clockwise rotation as seen from the rear of the machine. The tool bits are locked into place with the provided hex key set (Figure 10).

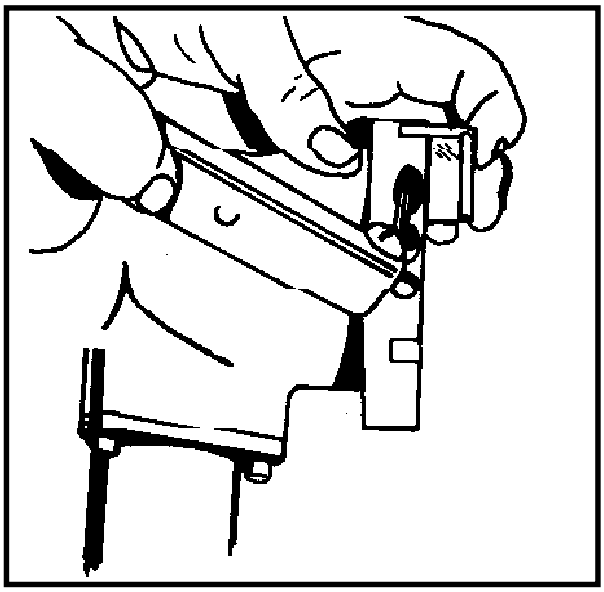


Figure 10

CAUTION: DO NOT allow tool to come in contact with mandrel or damage could result.

2. Start machine and turn handles in until cutting tool contacts the pipe. Continue facing until pipe has a clean finish. Retract the tool head and insert O.D. beveling tool.

3. Start machine and feed beveling tool into the pipe until facing tool touches again. Adjust O.D. beveling tool in or out radially depending on the land thickness.

4. The last tool bit to install is the I.D. de-burring tool. It should be placed in the slot opposite the beveling tool. It may also require adjustment, in or out, to produce the desired I.D. size and depth.

NOTE: If only two tools are to be used, place them in opposite slots to offset cutting load.
NOTE: Be certain that there is adequate clearance between the mandrel legs and the I.D. tooling.

5. Once the cutting tools are in place, the machine can be moved from one pipe to another of the same size without resetting the tool bits. The same land, bevel and I.D. bore will be achieved (Fig. 11).

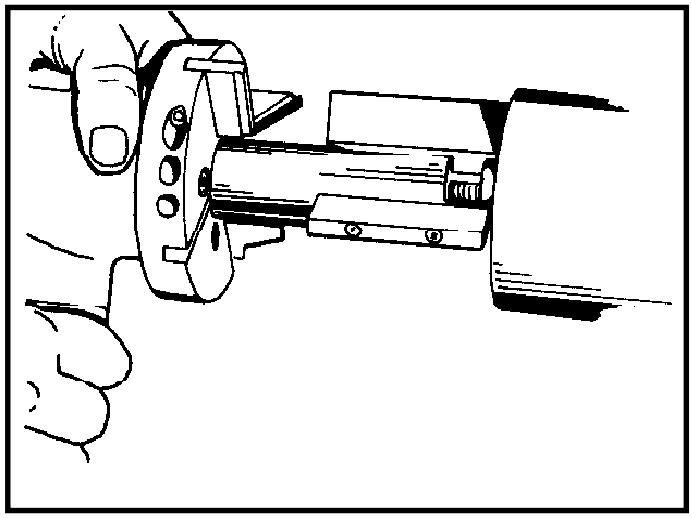


Figure 11

F. TIPS FOR A GOOD FINISH:

1. Always place mandrel as close to pipe end as possible. Keep in mind to leave room to complete prep.

2. Whenever possible, a good grade of cutting oil or coolant should be used. For most applications, using carbon steel in non-nuclear work, a standard high-sulfur cutting oil can be used. For nuclear applications, we recommend either the use of halogen-free cutting fluid or cutting dry. Using a cutting oil or coolant will increase cutter life.

3. Turn the machine on and slowly feed the tool into the work piece by rotating the feed handle clockwise. It is recommended to move the feed handle in small increments so tool touch off can occur without damage. Once the tool has contacted the pipe a full 360 degrees, then regulate the speed and feed for best cutting performance. NOTE: different materials will not all machine with the same feeds and speeds.

4. Adjust cutting head RPM for material. A good rule of thumb is the harder the material, the slower the speed.

5. Always keep pressure on the feed handles and pull out of cut quickly when prep is finished, by promptly reversing handles of rotation direction.

6. Utilize the calibrated feed dial for precise measurements.

## SECTION IV SET-UP AND OPERATION 103/3 (cont.)

G. SINGLE POINT-FLANGE FACING MODULE 2.0-6.0"(50.8-152.4 mm) FLANGE DIAMETER
*Operation Procedures*

1. Remove the Collar Nut (PN 16-019-00) and Drawbar Nut (PN 16-018-00) from the end of the Mandrel Shaft (Figure12).

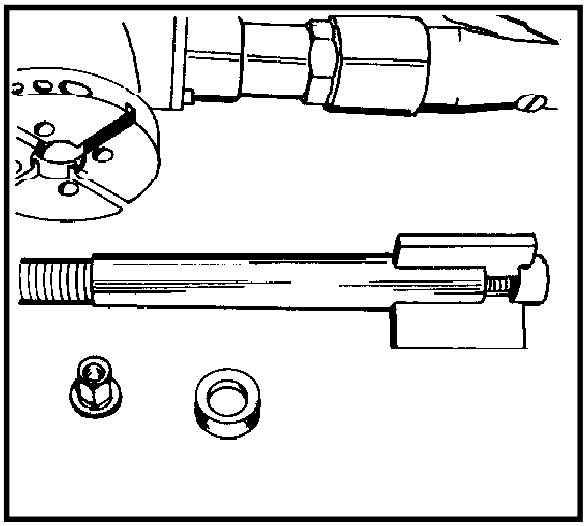


Figure12

2. If the Mandrel is in the machine body, remove the mandrel, rotate the feed handleassembly counter-clock wise until the Mandrel Shaft disengages from the Beveling Head Feed Nut. Pull the mandrel shaft through the front of the Rotating Tool Head.

3. Remove the Rotating Head with the provided hex key set. Remove the four Socket Head Screws retaining the Rotating Tool Head (Figure 13).

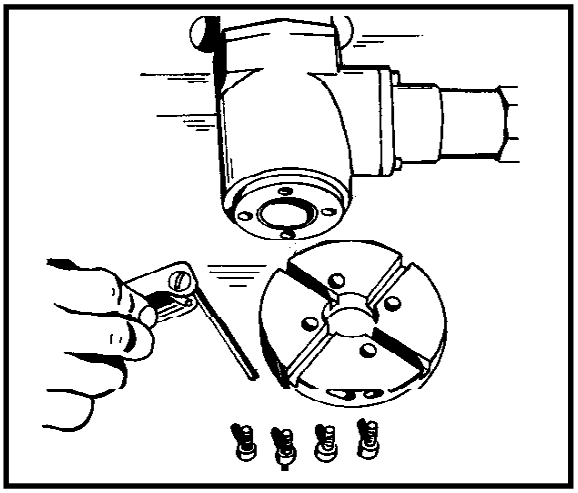


Figure 13

4. Install the Trip Collar Assembly, making sure the locking screw is located close to the Motor Housing. Tighten with the provided hex key set. Installation at this position will insure access to each trip (Figure 14)

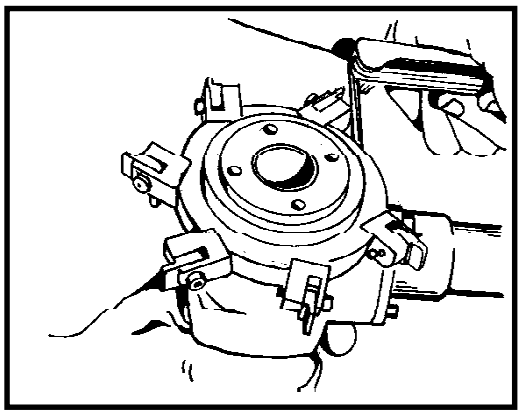


Figure 14

5. Install the Flange Facing Module. Make certain the felt washer (PN16-025-00) is installed in the rear of the module. Place it over the machine housing face and and align the mounting holes. Tighten the four mounting Socket Head Screws with provided hex key set (Figure 15).

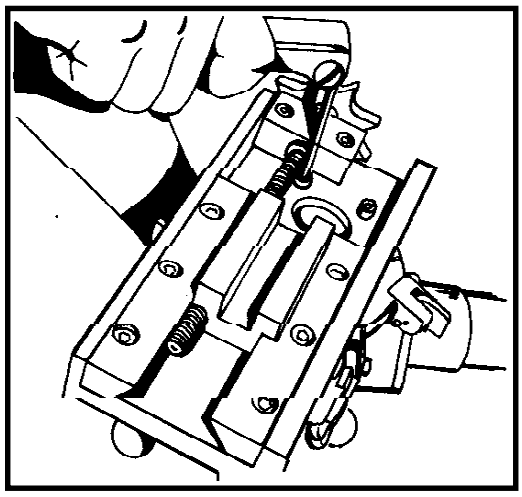


Figure 15

NOTE: The two Sockert Head Flange Facing Module mounting screws under the feed screw are not intended to be removed.

6. Insert Mandrel Assembly (Figure 16). (For further details, please refer to Page 9 Section A, "Placing Mandrel Into Machine Body")

## SECTION IV SET-UP AND OPERATION 103/3 (cont.)

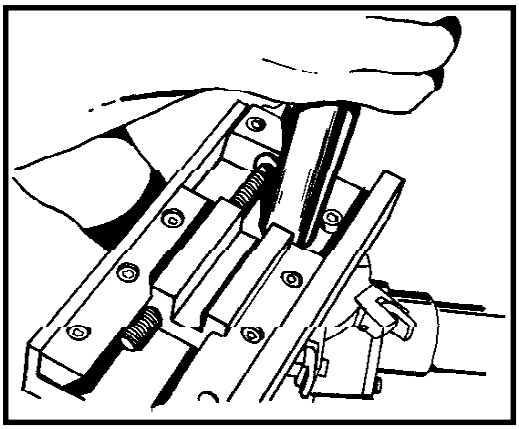


Figure 16

7. Select proper leg extension and install machine in pipe (Figure 17) (For further details, see Extension Leg Installation Chart on page 10).

NOTE:For optimum centering and squaring, the independent fitting mandrel with alignment fixture (PN 16-414-00) is recommended (for further details, please refer to section Independent Mandrel Flange Facing Set Up Procedure on page 15)

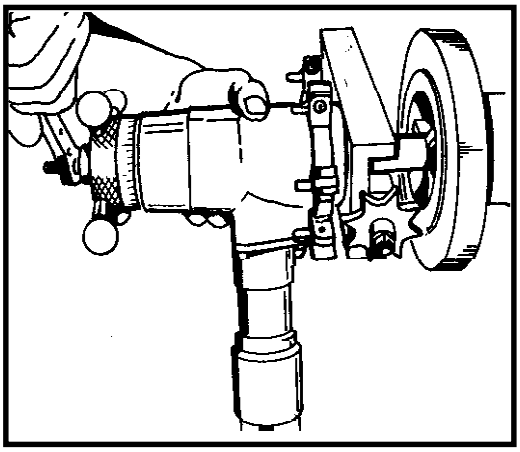


Figure 17

H. FLANGE FACING OPERATING PROCEDURES

1. Rotate the star wheel and retract the male tool slide out until the tool holder slot is beyond flange or desired cut area.

2. Install the single point tool holder and cutting insert (see Single Point Flange Facing Tool Chart). Lock in place with the tool positioning set screws (Figure 18).

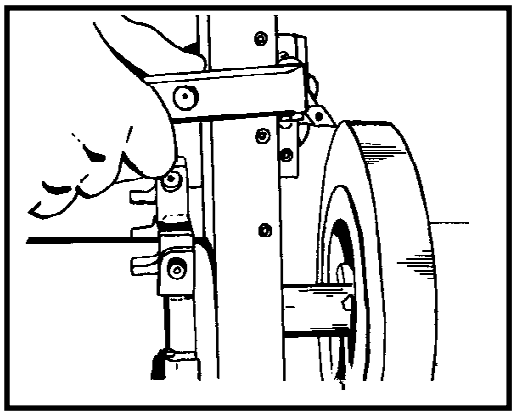


Figure 18

NOTE: The SDB rotates clockwise as viewed from the rear of the machine. Cutting edge of tooling must face right when installed.

3. Set the tool bit to 1/16" above the O.D. of the work piece by rotating the Starwheel nut. Rotate machine slowly to verify tool bit clearance (Figure 18).

4. Time the Starwheel by engaging the desired number of trips. By hand, rotate the Starwheel past an engaged trip (Figure 19). This will ensure that the Starwheel is in the proper location to advance the tool slide as each engaging trip is passed.

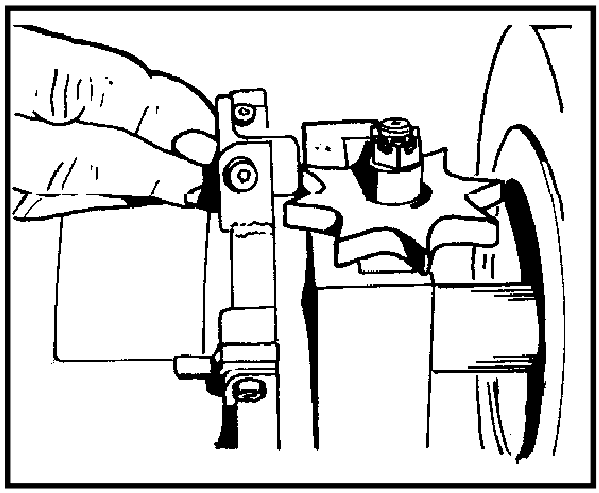


Figure 19

5. Set the tool bit depth by rotating the machine in or out axially via the calibrated feed handle assembly.

6. Gently snug the four (4) 3/8-16 set screws located on the back of the feed nut to prevent the feed nut from turning during operation.

NOTE: To obtain a record groove finish, engage all six (6) trips on the trip collar assembly. To obtain a 125 RMS finish, engage only one trip.

I. INDEPENDENT FITTING MANDREL FLANGE
*FACING SETUP PROCEDURE*

1. Measure pipe I.D. , select extension leg set required (for further details, see Independent Fitting Mandrel Leg Extension Chart later in this manual).

2. Insert legs in mandrel head (Figure 20).

NOTE: Leg adjustment screw must be completely tightened against leg face.

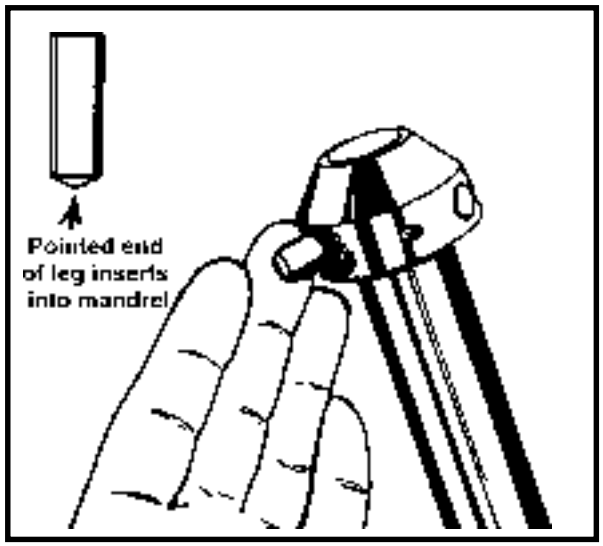


Figure 20

3. Insert the threaded end of the mandrel through the front of the single point/ Flange Facing Module.

4. Align the Keyway Slots of the Mandrel with the internal keys of the Beveling Head. Once they engage, rotate the feed handle assembly clockwise until the draw bar nut is beyond end cap of the machine.

NOTE: Independent fitting mandrel draw bar nut can remain on mandrel when installing or

5. Place alignment fixture over Mandrel Shaft (Figure 21). Slide it forward to rest against the back of the Mandrel and tighten the two 1/4-20x3/4" brass tipped set screws to lock it in place.

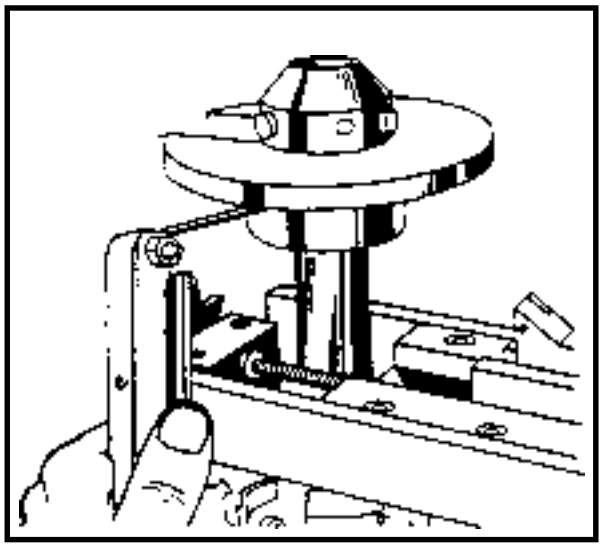


Figure 21

6. Insert the machine and Mandrel in flange face. Support ing the machine, press the alignment fixture tightly against the Flange Face Tighten the draw bar nut with the supplied hex wrench (Figure 22).

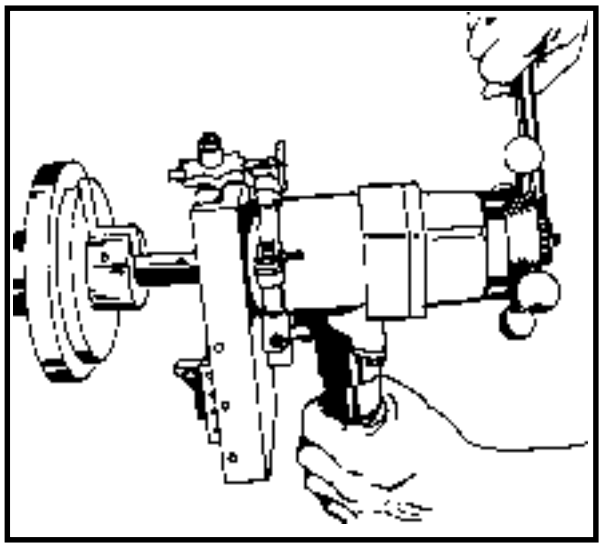


Figure 22

7. Remove the alignment fixture. The Mandrel and machine are now square to the Flange Face.

8. To check mandrel centering, (if necessary) see section J, Centering on Elbows and Bends.

9. Refer to single point/Flange Facing module Section G page 20.

## SECTION IV SET-UP AND OPERATION 103/3 (cont.)

J. INDEPENDENT FITTING MANDREL
*Centering on Elbows and Bends*

1. Measure the pipe I.D. select the extension leg set required.

NOTE: Set up the independent fitting mandrel with machine body removed.

2. Insert the legs into the mandrel head.

NOTE: Adjustable leg adjustment screw must be completely tightened against leg face.

3. Place the mandrel assembly into the pipe. Position the adjustable leg at the "short radius bend" portion of pipe (Figure 23) and snug the draw bar nut.

NOTE: Legs should be kept as close as possible to pipe edge, yet far enough to perform the desired operation.

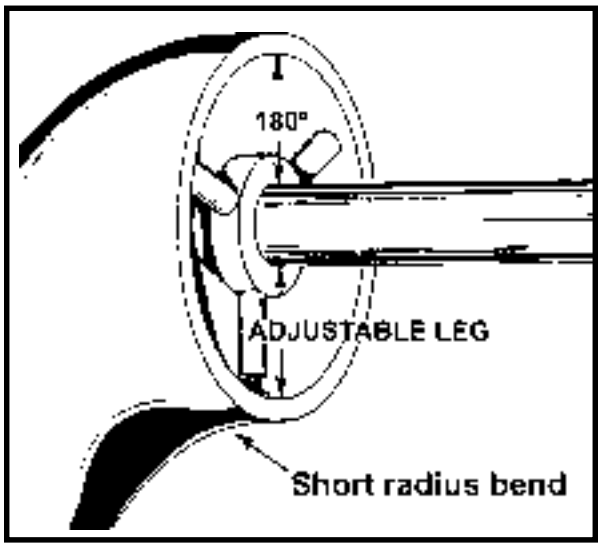



Figure 23

4. Measure the distance over the adjustable leg from the pipe I.D. to the mandrel shaft. Measure the same distance 180º from the adjustable leg. When the mandrel is centered , these two measurements will be approximately equal (Figure 23).

NOTE:If additional centering is required and mandrel removal is necessary, utilize the alignment fixture to insure returning the legs to the original setup location. Place the alignment fixture on the mandrel shaft, push it forward to meet the pipe face and snug the fixture in place. Remove the mandrel and make the leg adjustment needed. Re-insert the mandrel and alignment fixture. Make sure the adjustabler leg is located at the short radius bend. Push the assembly tight against the pipe face and tighten the mandrel. The legs should be at the original set up location. If the pipe end is square, the alignment fixture will square the mandrel shaft to the pipe.

5. If additional centering is required, loosen the mandrel adjustment leg.

NOTE: One complete revolution of the adjustment screw is equal to 0.035 thousanths (0.8mm) of travel.

**EXAMPLE:** If the distance over the adjustable leg, between the mandrel shaft and pipe I.D. is one inch (1") and the distance 180º from the adjustable leg, between the shaft and the pipe I.D. is 1-1/8", divide the difference in half.

1/8"(.125)/2=.0625 (1/16")

Rotate the adjustable leg out approximately two (2) turns.

6. Re-insert the mandrel after making the centering adjustments, measure for centering again. Repeat if necessary.

7. If the elbow or bend has a square end, utilize the alignment fixture to square the mandrel shaft. Place the fixture on the mandrel shaft and push it forward to meet the pipe face; snug the fixture in place. Loosen the mandrel assembly slightly, push the fixture forward until it rests firmly against the pipe face; retighten the mandrel.

8. If the elbow or bend has been cut and is not square, a reference point for squaring should be established.

## SECTION IV SET-UP AND OPERATION 103/3 (cont.)

**MANUAL BEVEL GENERATION**
*Using Single Point Module*

A bevel can be generated by feeding the cutting tool into the work radially and axially simultaneously. As the radial feed advances the tool automatically, the operator must withdraw the tool by rotating the axial feed handle counter-clockwise. The correct amount of axial feed per machine revolution is offered in the following chart:

| Trips | Axial feed rate required per machine revolution | | | |
|---|---|---|---|---|
| Engaged | 10º | 20º | 30º | 37.5º |
| 6 | .006“ | .011” | .018” | .024” |
| 4 | .004” | .008” | .012” | .016” |
| 2 | .002” | .004” | .006” | .008” |
| 1 | .001” | .002” | .003” | .004” |

For example, to generate a 30º bevel with 6 trips engaged (the fastest tool feed setting), the operator must withdraw the cutting tool .018” each time the cutting tool completes a revolution. This distance is represented by .018 (18 thousandths) increments on the calibrated feed dial located on the the feed handle assembly.

**TIPS FOR A GOOD FINISH**
*Single Point FF Beveling Module*

1. Always place mandrel as close to pipe end as possible.

2. Use a cutting coolant generously. This will ease cutting process and extend tool life.

3. Adjust cutter head RPM for material. The harder the material, the slower the speed.

4. Take small cuts; a superior surface finish can be achieved by reducing the finish pass.

5. If cut is not square, re-adjust mandrel to bring tool slide in square with flange or pipe end.

6. Use the 16-414-00 independent fitting mandrel for optimum centering and squaring.

7. The feed rate for each trip is .005 per revolution.

8. To obtain a record finish, engage all six trips on the trip collar assembly.

9. CHATTER: Tool chatter occurs when the tool begins to vibrate during a cut. Exccessive tool chatter can cause poor quality surface finishes. Chatter can be caused by any of a number of variables inherent in a portable machine of this type.

Check tooling:
- Worn or improper carbide inserts. Many harder alloys require a radius nose on tooling inserts.
- Inadequate end clearance on the insert or an excessive lead angle on the insert.
- Too high of an operating speed or too great of a radial feed rate on the material being machined.

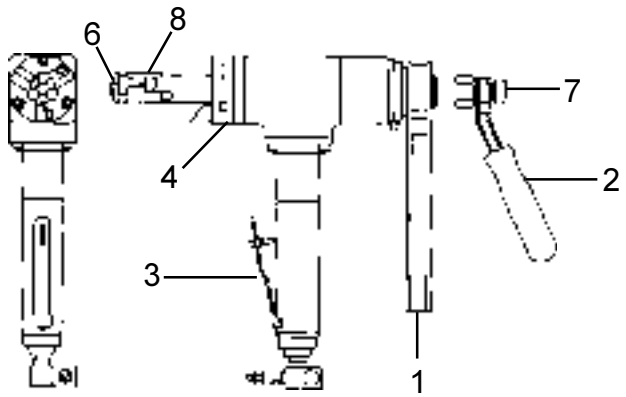
**FLANGE SURFACE TRIP CHART**

| TRIP ENGAGEMENT | RMS FINISH |
|---|---|
| 1 TRIP | 63 RMS |
| 2 TRIP | 125 RMS |
| 4 TRIP | 250 RMS |
| 6 TRIP | 500 RMS |

# SMALL DIAMETER BEVELER

## SECTION V LB BEVELER SET UP AND OPERATION

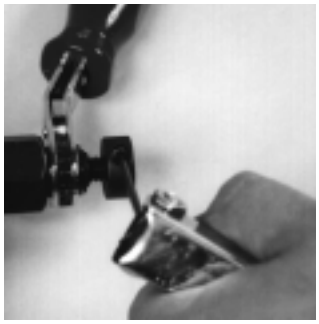
1. Feed Ratchet
2. Clamp Ratchet
3. Air Motor Trigger
4. Tool Bit Disk
5. Clamp Leg Set
6. Draw Bar
7. Draw Bar Retainer
8. Mandrel Shaft




## LEG INSTALLATION PROCEDURE

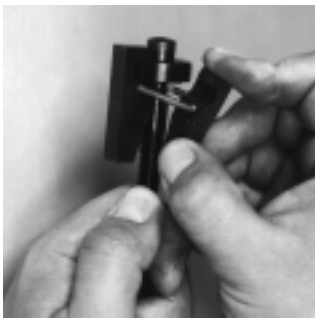
### MODELS SB & MB

**NOTE:** To determine which leg set is required, measure the work piece pipe I.D. Refer to the Leg Chart. Each leg set is stamped with a reference number which corresponds to the pipe I.D. range which the leg set will accommodate.

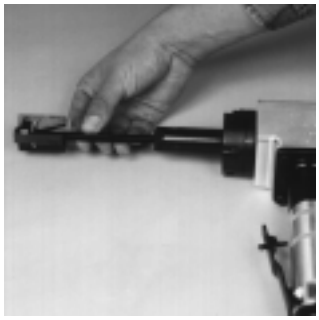


1. Remove draw bar retainer.

2. Remove draw bar using the clamp ratchet.



3. Slide the clamp leg set up the draw bar and slip leg set over draw bar head slot .



4. Reinstall draw bar and retainer.

## TOOL BIT INSTALLATION

1. Loosen tool bit wedge screw with the provided hex key. Slide tool bit into desired position and snug the tool bit wedge screw.

## OPERATION

Insert the clamp leg end of the mandrel into the workpiece. Tension the clamp legs by turning the clamp ratchet on the rear of the tool clockwise. **CAUTION:** *Over tightening of the clamp leg draw bar can result in draw bar breakage and of parts in the tube.* Connect air supply to tool. Be sure to use an in-line oiler/ regulator/ filter and verify the maximum 90 psi. Squeeze air motor trigger and turn the feed ratchet clockwise. Always attempt continuous pressure and feed until desired bevel is achieved. While tool is still rotating, turn feed ratchet counterclockwise to relieve tool pressure. Release air motor trigger; disconnect power source and release clamp legs by turning clamp ratchet counterclockwise.

## SECTION VI MAINTENANCE-MACHINE ADJUSTMENTS

1. The bevel gear sets and roller bearing should be inspected every 100 hours of operation and lubricated as needed.

2. The bore of the Cutting Head, Feed Nut and Mandrel must be kept cleaned and oiled.

3. After the first 10 hours of operation, the main shaft bearings (PN 16-028-00 & 16-029-00) pre-load must be checked. Remove air motor; the four 1/4-20 x 3/4" SHCS and Feed Nut Housing (Ref. 2). See Machine Exploded View Drawing.

Insert and tighten an old tool bit in one slot of the Cutting Head. Clamp tool bit in a bench vise. Using a spanner wrench, tighten Lock Nut (PN 16-031-00) securly while rotating main housing (PN 16-001-00) until a slight drag is felt. Back off Lock Nut 1/4 turn. Replace Feed Nut Housing and fasteners, do not tighten.Replace and secure air motor.

Remove machine from vise and remove tool bit from Cutting Head. Insert Mandrel into machine engaging the feed nut screw through feed nut housing. This will ensure proper Feed Nut Housing alignment with Mandrel. Tighten housing fasteners.Your SDB 103/3 is now ready for operation.

4. Fill ATM with motor oil (PN 02-402-00) or anti freeze motor oil (PN 02-403-00 recommended for most applications).

5. After every 10 hours of operation, inspect the front bushing (PN 16-030-00) for wear. Replace as necessary. (See machine exploded view drawing).

NOTE: Excessive chatter may indicate a worn front bushing.

6. After 40 hours of operation, flush the air motor with a solution of three parts cleaning solvent and one part air motor oil. After flushing, add 1 oz. (33 cc) of air motor oil into air line and run air motor for 1 minute. It is very important that the components of the Mandrel assembly remain clean and free from corrosion. The legs and machine surfaces should be cleaned and oiled on a daily basis.

7. For air motor preventative maintenance before storing machine for extended periods of time, pour 1 oz. (30 cc) of air motor oil in motor to prevent rusting or seizing. Run motor for a few seconds to disperse oil throuout system,

BUSHING REPLACEMENT PROCEDURES

1. Remove old bushing. Insert 1.25 dia. Drift Pin from rear of main shaft to drive out bushing.

SECTION VII

# CHARTS AND GRAPHS

**SECTION VII** **CHARTS AND GRAPHS**

# APPLICATION AND PERFORMANCE CHARTS

| NOMINAL PIPE SIZE | ASA PIPE SCHEDULE CARBON STEEL | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 ** | 10 ** | 40 | 60 | 80 | 120 | 160 |
| ¾"* | | | | | | | |
| 1"* | | | | | | | |
| 1-¼" | | | | | | | |
| 1-½" | | | | | | | |
| 2" | | | | | | | |
| 2-½" | | | | | | | |
| 3" | | | | | | | |
| 3-½" | | | | | | | |
| 4" | | | | | | | |

| NOMINAL PIPE SIZE | ASA PIPE SCHEDULE STAINLESS STEEL | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 ** | 10 ** | 40 | 60 | 80 | 120 | 160 |
| ¾"* | | | | | | | |
| 1"* | | | | | | | |
| 1-¼" | | | | | | | |
| 1-½" | | | | | | | |
| 2" | | | | | | | |
| 2-½" | | | | | | | |
| 3" | | | | | | | |
| 3-½" | | | | | | | |
| 4" | | | | | | | |

=EFFECTIVE PREPPING RANGE

* =LIMITED BY MANDREL I.D.

** =COLLET MANDREL REQUIRED

NOTE: These charts are the result of extensive product testing. Tests were performed on carbon steel and stainless steel as well as on exotic materials such as HK40 and incolloys.

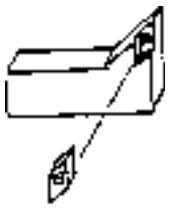
## SECTION VII CHARTS AND GRAPHS

# TOOLING REFERENCE CHARTS 103/3

STANDARD TOOLING CHART

| TOOL BIT | | | TOOLING COMPOSITION | | |
|---|---|---|---|---|---|
| | TYPE | PART# | T-15 Number | COATED HSS | CARBIDE TIPPED |
| Facing | | 26-410-02 | X | X | |
| | | 26-410-03 | X | X | |
| | | 26-410-04 | | | X |
| Beveling 37.5º | | 26-411-01 | X | X | |
| | | 26-411-02 | X | X | |
| | | 26-411-03 | X | X | |
| | | 26-411-04 | | | X |
| 10º Deburring | | 26-412-01 | X | X | |
| | | 26-412-02 | X | X | |
| | | 26-412-03 | X | X | |
| | | 26-412-04 | | | X |
| | Bevel & Face 37.5º | 26-413-01 | X | X | |
| | Bevel & Face 37.5º | 26-413-02 | X | X | |
| | 20º J Bevel | 26-713-00 | X | X | |
| | C-bore & Face | 26-426-00 | X | X | |

# FF 206 FLANGE FACER TOOLING

| TOOL BIT | | | TOOLING COMPOSITION | | | DESCRIPTION | |
|---|---|---|---|---|---|---|---|
|  | TYPE | PART# | T-15 HSS | COATED | CARBIDE TIPPED | TO BE USED WITH FLANGE FACER ATTACHMENT 2"-6" (50.8-152.4mm) CUTTING RANGE. | MAXIMUM WALL |
| | INSERT HOLDER | 16-701--00 | N/A | N/A | N/A | | N/A |
| | INSERT TOOL | 60-702-00 | N/A | N/A | X | | N/A |

# SMALL DIAMETER BEVELER

## SDB 103/3 STANDARD MANDREL EXTENSION LEG CHART

| LEG SET | LENGTH | ID RANGE |
|---|---|---|
| NONE | N/A | 1.16 - 1.57 27.8 - 39.8mm |
| 16-021-01 | .218 5.5mm | 1.53 - 1.94 38.8 - 49.2mm |
| 16-021-02 | .405 10.2mm | 1.90 - 2.32 48.2 - 58.9mm |
| 16-021-03 | .592 15.0mm | 2.27 - 2.69 57.6 - 68.7mm |
| 16-021-04 | .780 19.8mm | 2.64 - 3.06 67.0 - 77.7mm |
| 16-021-05 | .968 24.5mm | 3.02 - 3.43 76.7 - 87.1mm |
| 16-021-06 | 1.155 29.3mm | 3.39 - 3.81 86.1 - 96.7mm |
| 16-021-07 | 1.343 34.1mm | 3.76 - 4.18 95.5 - 106.1mm |

## SDB 103/3 INDEPENDENT FITTING MANDREL EXTENSION LEG CHART

| ASSEMBLY # | SOLID LEG ( 2 PCS ) | | ADJ. LEG ( 1 PC ) | | CHUCKING RANGE / LEG SET | |
|---|---|---|---|---|---|---|
| | PART # | LENGTH | PART # | LENGTH | MIN. DIA | MAX. DIA |
| 16-414-00 ( SDB 103 ELBOW MANDREL ) 3/8" DIA. LEGS | 16-053-01 | 0.794 20.1mm | USE 3 SOLID LEGS | ---- | 1.95 49.5mm | 2.31 58.6mm |
| | 16-053-02 | 0.944 23.9mm | 16-054-02 | .824 20.9mm | 2.25 57.1mm | 2.61 66.2mm |
| | 16-053-03 | 1.094 27.7mm | 16-054-03 | .974 24.7mm | 2.55 64.7mm | 2.91 73.9mm |
| | 16-053-04 | 1.244 31.5mm | 16-054-04 | 1.124 28.5mm | 2.85 72.3mm | 3.21 81.5mm |
| | 16-053-05 | 1.394 35.4mm | 16-054-05 | 1.274 32.3mm | 3.15 80.0mm | 3.51 89.1mm |
| | 16-053-06 | 1.544 39.2mm | 16-054-06 | 1.424 36.1mm | 3.45 87.6mm | 3.81 96.7mm |
| | 16-053-07 | 1.694 43.0mm | 16-054-07 | 1.574 39.9mm | 3.75 95.2mm | 4.11 104.3mm |

## SDB 103/3 COLLET MANDREL TUBE & PIPE COLLET CHART

| PART # | APPLICATION | PART # | APPLICATION |
|---|---|---|---|
| 26-113-01 | 1-1/2" TUBE 38.1mm | 26-113-07 | 2-1/2" PIPE 63.5mm |
| 26-113-02 | 1-1/4" PIPE 31.7mm | 26-113-08 | 3" TUBE 76.2mm |
| 26-113-03 | 1-1/2" PIPE 38.1mm | 26-113-09 | 3" & 3-1/2" TUBE 76.2mm- 88.9mm |
| 26-113-04 | 2" TUBE 50.8mm | 26-113-10 | 3-1/2" & 4" TUBE 88.9mm- 101.6mm |
| 26-113-05 | 2" PIPE 50.8mm | 26-113-11 | 4" PIPE 101.6mm |
| 26-113-06 | 2-1/2" TUBE 63.5mm | | |

# LB Spring Retained

## Leg Set Chart

| PN | Range |
|---|---|
| 72-400-01 | 1.25-1.71 |
| 72-400-02 | 1.61-2.08 |
| 72-400-03 | 1.97-2.45 |
| 72-400-04 | 2.34-2.82 |
| 72-400-05 | 2.71-3.19 |

***Leg Set Includes 3 Legs & 1 Spring**

| LB Extended Range Leg Set | |
|---|---|
| **PN** | **Range** |
| 72-400-06 | 3.09-3.56 |
| 72-400-07 | 3.46-3.93 |
| 72-400-08 | 3.83-4.31 |

***REQUIRES EXTEND RANGE TOOL HEAD ASSEMBLY PART NO. 72-404-00**

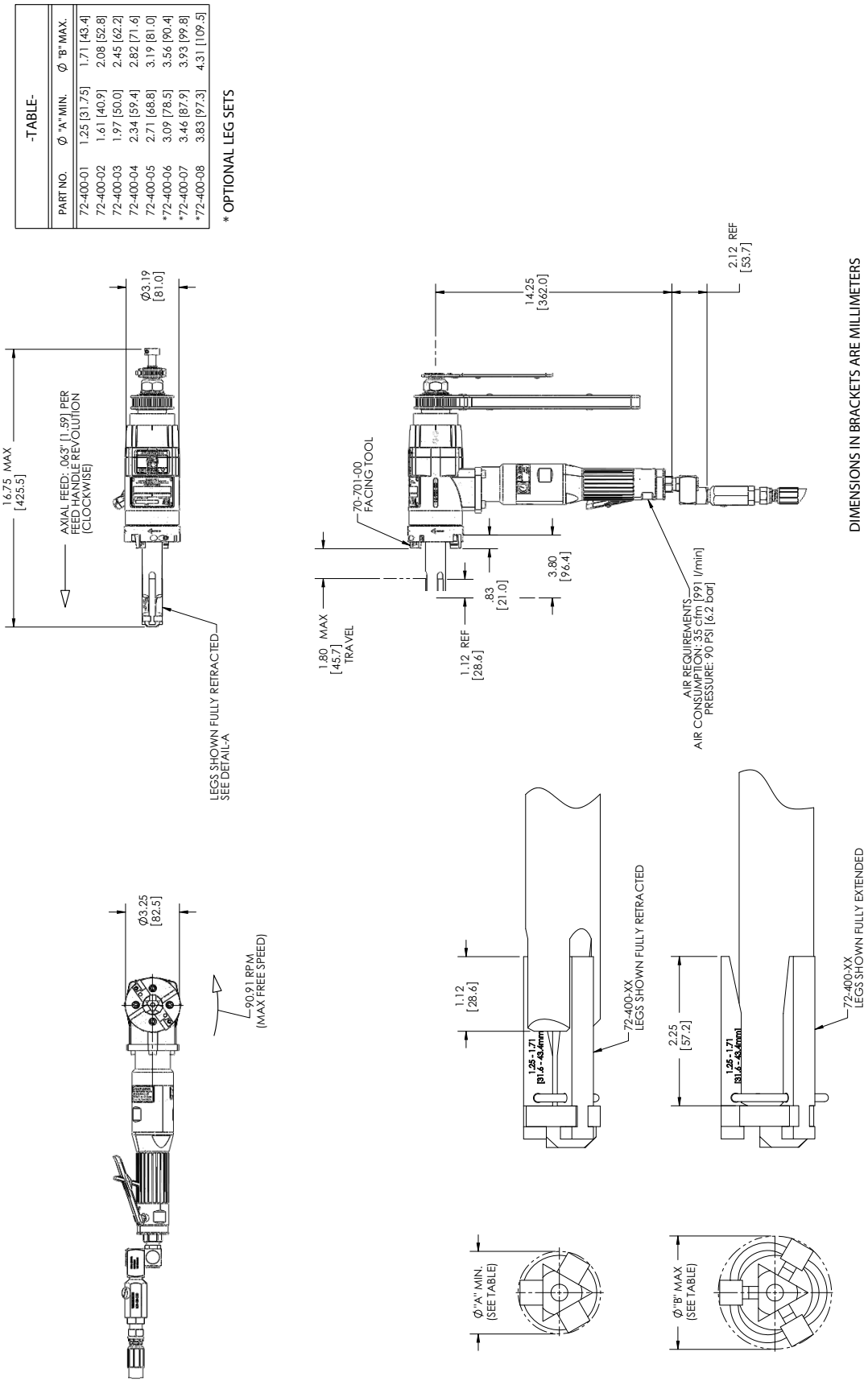
| LB Tooling Chart | |
|---|---|
| **Description** | **Part number** |
| 37 1/2 Degree Bevel<br>Facing Tool | Tool Bit 70-700-00<br>Tool Bit 70-701-01 |

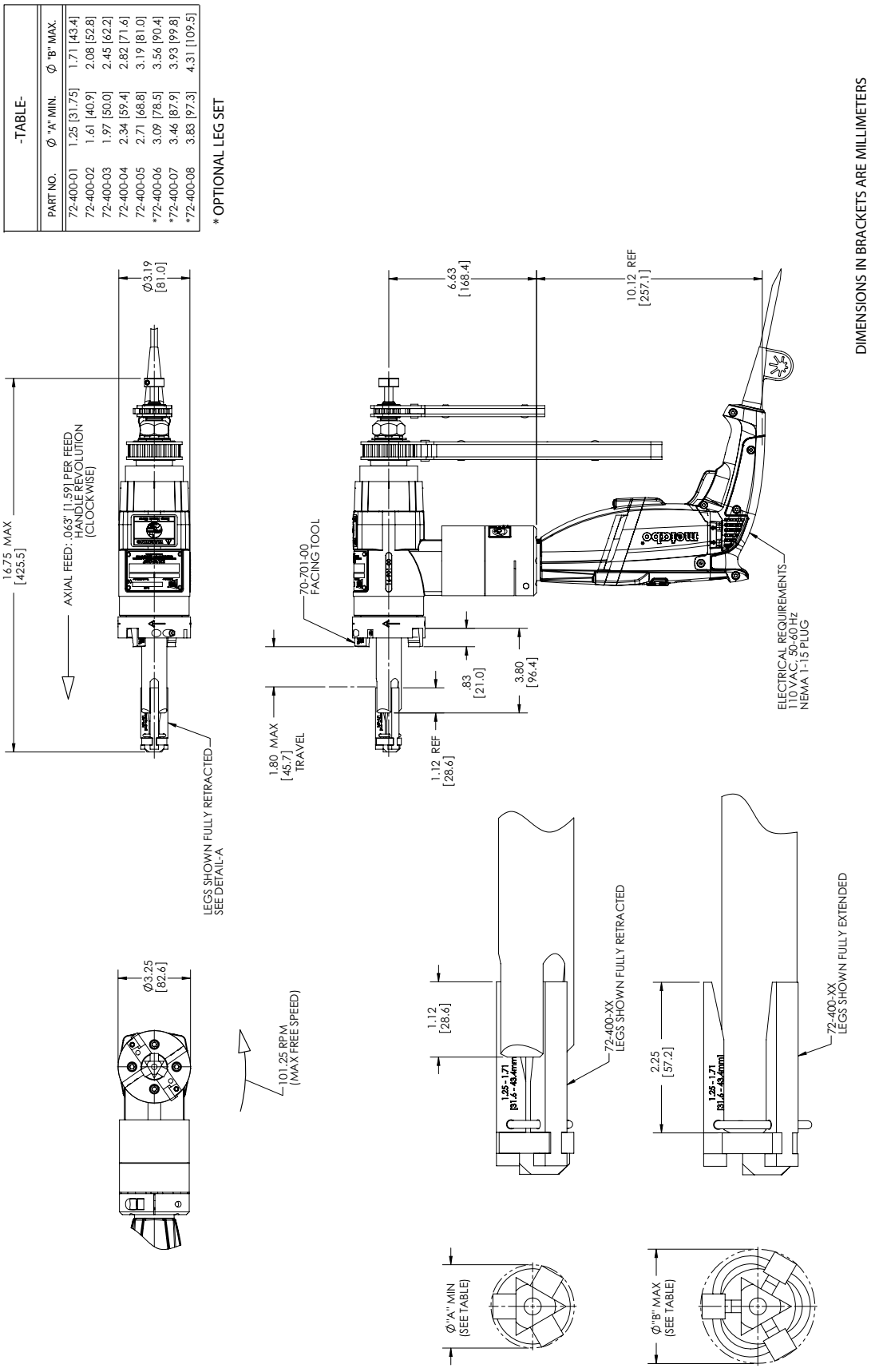
| Old Style (OBSOLETE) LB Leg<br>LB (Screw In) Leg Chart | |
|---|---|
| Leg Set # | I.D. Range |
| None Required | 1.16”-1.57” |
| 16-021-01 | 1.53”-1.94” |
| 16-021-02 | 1.90”-2.32” |
| 16-021-03 | 2.27”-2.96” |
| 16-021-04 | 2.64”-3.06” |
| -------- | ---------- |
| | Optional |
| 16-021-06 | 3.02”-3.43” |
| 16-021-07 | 3.39”-3.81” |
| **OBSOLETE 10/01** | |

## FLANGE SURFACE TRIP CHART

| TRIP ENGAGEMENT | RMS FINISH |
|---|---|
| 1 TRIP | 63 RMS |
| 2 TRIP | 125 RMS |
| 4 TRIP | 250 RMS |
| 6 TRIP | 500 RMS |

# OPERATING ENVELOPE




-TABLE-
PART NO. | Ø "A" MIN. | Ø "B" MAX.
72-400-01 | 1.25 [31.75] | 1.71 [43.4]
72-400-02 | 1.61 [40.9] | 2.08 [52.8]
72-400-03 | 1.97 [50.0] | 2.45 [62.2]
72-400-04 | 2.34 [59.4] | 2.82 [71.6]
72-400-05 | 2.71 [68.8] | 3.19 [81.0]
*72-400-06 | 3.09 [78.5] | 3.56 [90.4]
*72-400-07 | 3.46 [87.9] | 3.93 [99.8]
*72-400-08 | 3.83 [97.3] | 4.31 [109.5]
*OPTIONAL LEG SET
DIMENSIONS IN BRACKETS ARE MILLIMETERS
16.75 MAX [425.5]
AXIAL FEED: .063" [1.59] PER FEED HANDLE REVOLUTION (CLOCKWISE)
Ø3.19 [81.0]
LEGS SHOWN FULLY RETRACTED SEE DETAIL-A
Ø3.25 [82.6]
101.25 RPM (MAX FREE SPEED)
70-701-00 FACING TOOL
6.63 [168.4]
10.12 REF [257.1]
1.80 MAX [45.7] TRAVEL
1.12 REF [28.6]
83 [21.0]
3.80 [96.4]
ELECTRICAL REQUIREMENTS 110 VAC, 50-60 Hz NEMA 1-15 PLUG
1.12 [28.6]
72-400-XX LEGS SHOWN FULLY RETRACTED
2.25 [57.2]
72-400-XX LEGS SHOWN FULLY EXTENDED
Ø "A" MIN (SEE TABLE)
Ø "B" MAX (SEE TABLE)

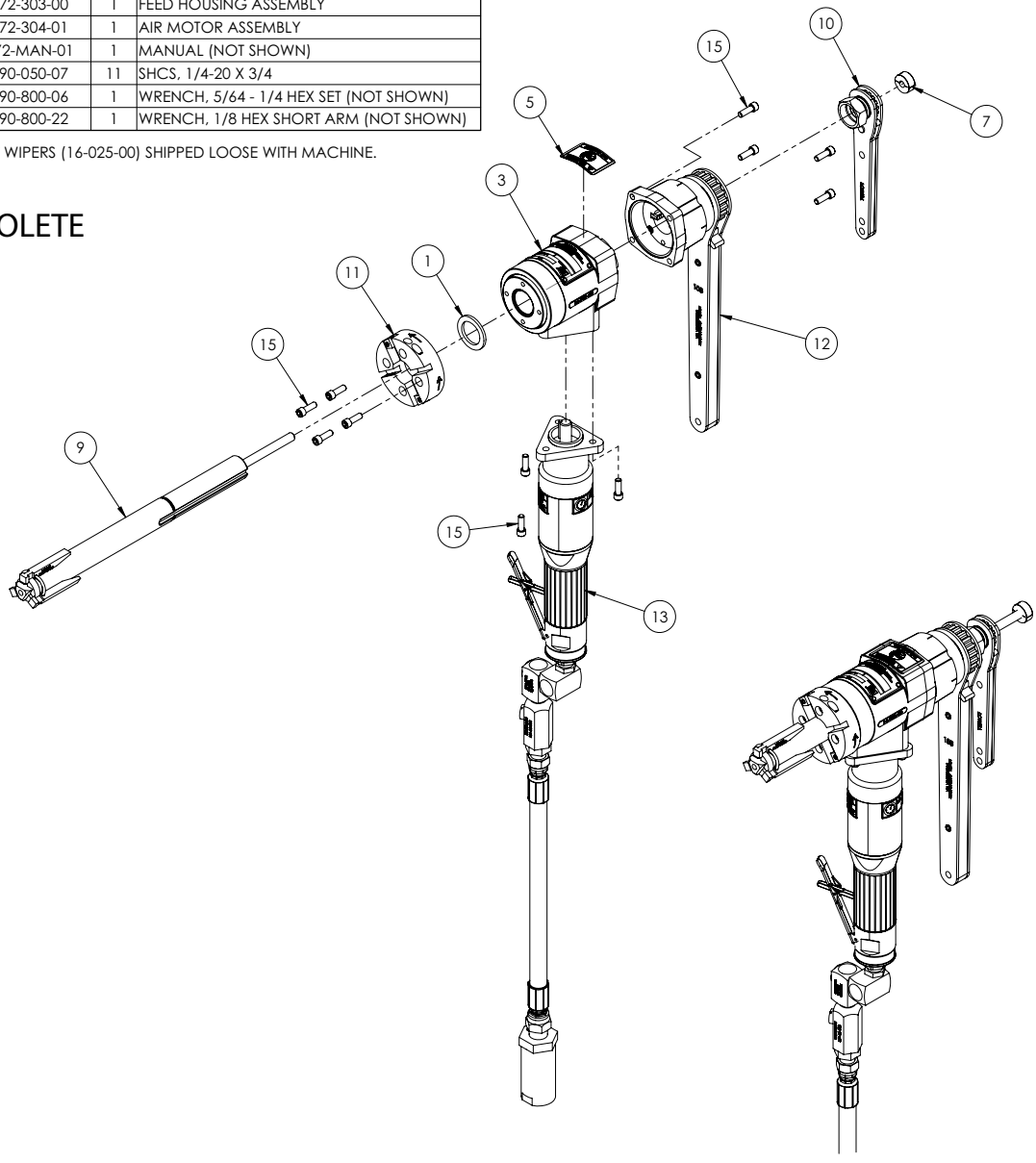
# PARTS LISTS AND DRAWINGS

LB Pneumatic Drive, 72-000-01

| ITEM | PART NUMBER | QTY. | DESCRIPTION |
|---|---|---|---|
| 1 | 16-025-00 | 3 | WIPER, FELT |
| 2 | 16-082-00 | 1 | CASE (NOT SHOWN) |
| 3 | 16-304-00 | 1 | BEARING HOUSING ASSEMBLY |
| 4 | 56-099-00 | 1 | LABEL (NOT SHOWN) |
| 5 | 66-147-00 | 1 | LABEL, WARNING |
| 6 | 70-MAN-01 | 1 | SB/MB/LB SETUP SHEET (NOT SHOWN) |
| 7 | 71-039-00 | 1 | 3/8-16, COLLAR |
| 8 | 72-044-01 | 1 | INSERT, CASE (NOT SHOWN) |
| 9 | 72-300-00 | 1 | "LB" MANDREL ASSEMBLY |
| 10 | 72-301-00 | 1 | "LB" DRAWBAR RATCHET ASSEMBLY |
| 11 | 72-302-00 | 1 | WEDGE LOCK HEAD ASSEMBLY |
| 12 | 72-303-00 | 1 | FEED HOUSING ASSEMBLY |
| 13 | 72-304-01 | 1 | AIR MOTOR ASSEMBLY |
| 14 | 72-MAN-01 | 1 | MANUAL (NOT SHOWN) |
| 15 | 90-050-07 | 11 | SHCS, 1/4-20 X 3/4 |
| 16 | 90-800-06 | 1 | WRENCH, 5/64 - 1/4 HEX SET (NOT SHOWN) |
| 17 | 90-800-22 | 1 | WRENCH, 1/8 HEX SHORT ARM (NOT SHOWN) |

TWO FELT WIPERS (16-025-00) SHIPPED LOOSE WITH MACHINE.

OBSOLETE



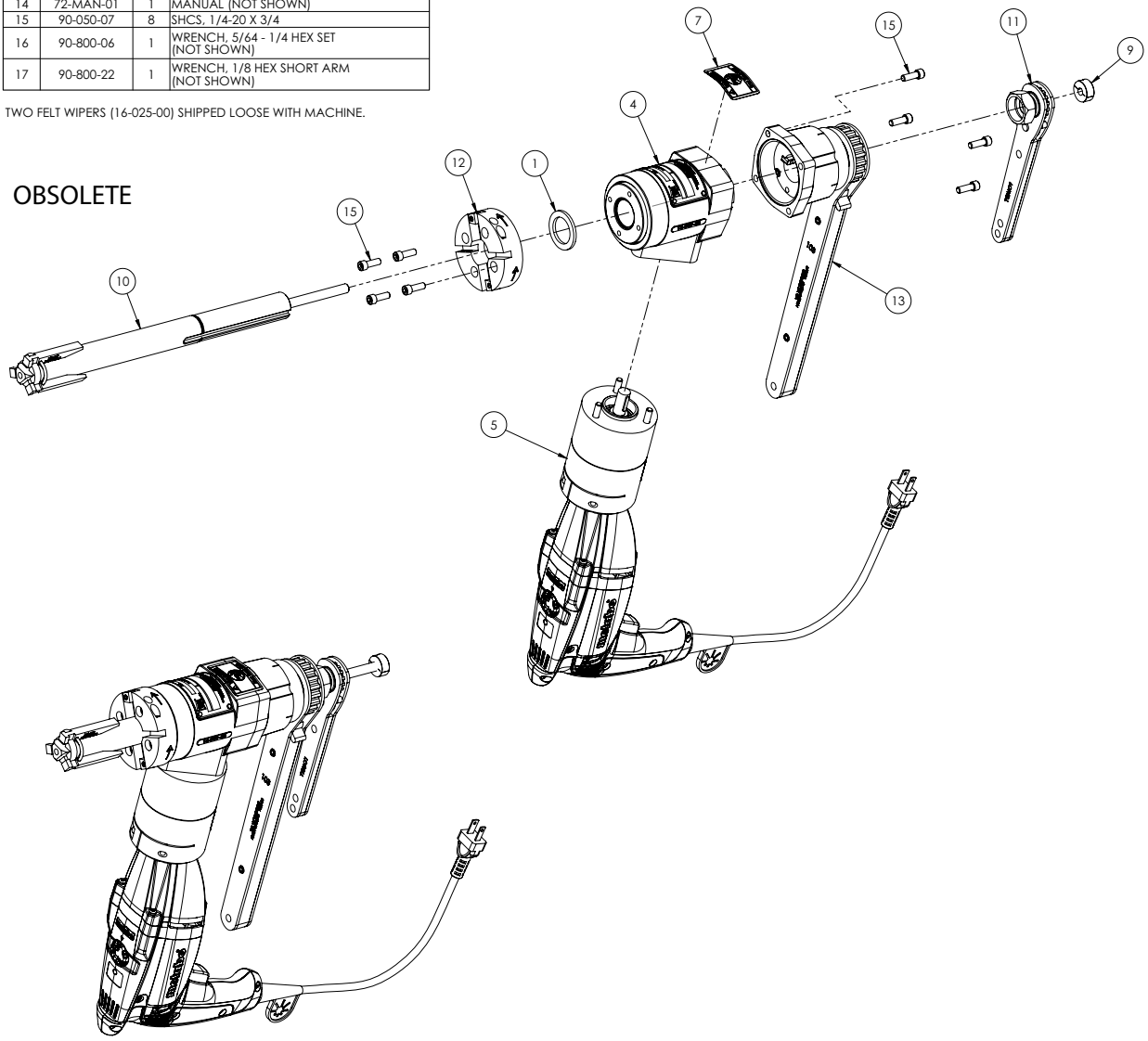
# LB Electric Drive, 72-000-02/72-000-03

| ITEM | PART NUMBER | QTY. | DESCRIPTION |
|---|---|---|---|
| 1 | 16-025-00 | 3 | WIPER, FELT |
| 2 | 16-082-00 | 1 | CASE (NOT SHOWN) |
| 3 | 16-087-00 | 1 | INSERT, FOAM (NOT SHOWN) |
| 4 | 16-304-00 | 1 | BEARING HOUSING ASSEMBLY |
| 5 | SEE TABLE | 1 | SDB 103/3 ELECT. DRIVE ASSEMBLY |
| 6 | 56-099-00 | 1 | LABEL (NOT SHOWN) |
| 7 | 66-147-00 | 1 | LABEL, WARNING |
| 8 | 70-MAN-01 | 1 | SB/MB/LB SETUP SHEET (NOT SHOWN) |
| 9 | 71-039-00 | 1 | 3/8-16, COLLAR |
| 10 | 72-300-00 | 1 | "LB" MANDREL ASSEMBLY |
| 11 | 72-301-00 | 1 | "LB" DRAWBAR RATCHET ASSEMBLY |
| 12 | 72-302-00 | 1 | WEDGE LOCK HEAD ASSEMBLY |
| 13 | 72-303-00 | 1 | FEED HOUSING ASSEMBLY |
| 14 | 72-MAN-01 | 1 | MANUAL (NOT SHOWN) |
| 15 | 90-050-07 | 8 | SHCS, 1/4-20 X 3/4 |
| 16 | 90-800-06 | 1 | WRENCH, 5/64 - 1/4 HEX SET (NOT SHOWN) |
| 17 | 90-800-22 | 1 | WRENCH, 1/8 HEX SHORT ARM (NOT SHOWN) |

TWO FELT WIPERS (16-025-00) SHIPPED LOOSE WITH MACHINE.

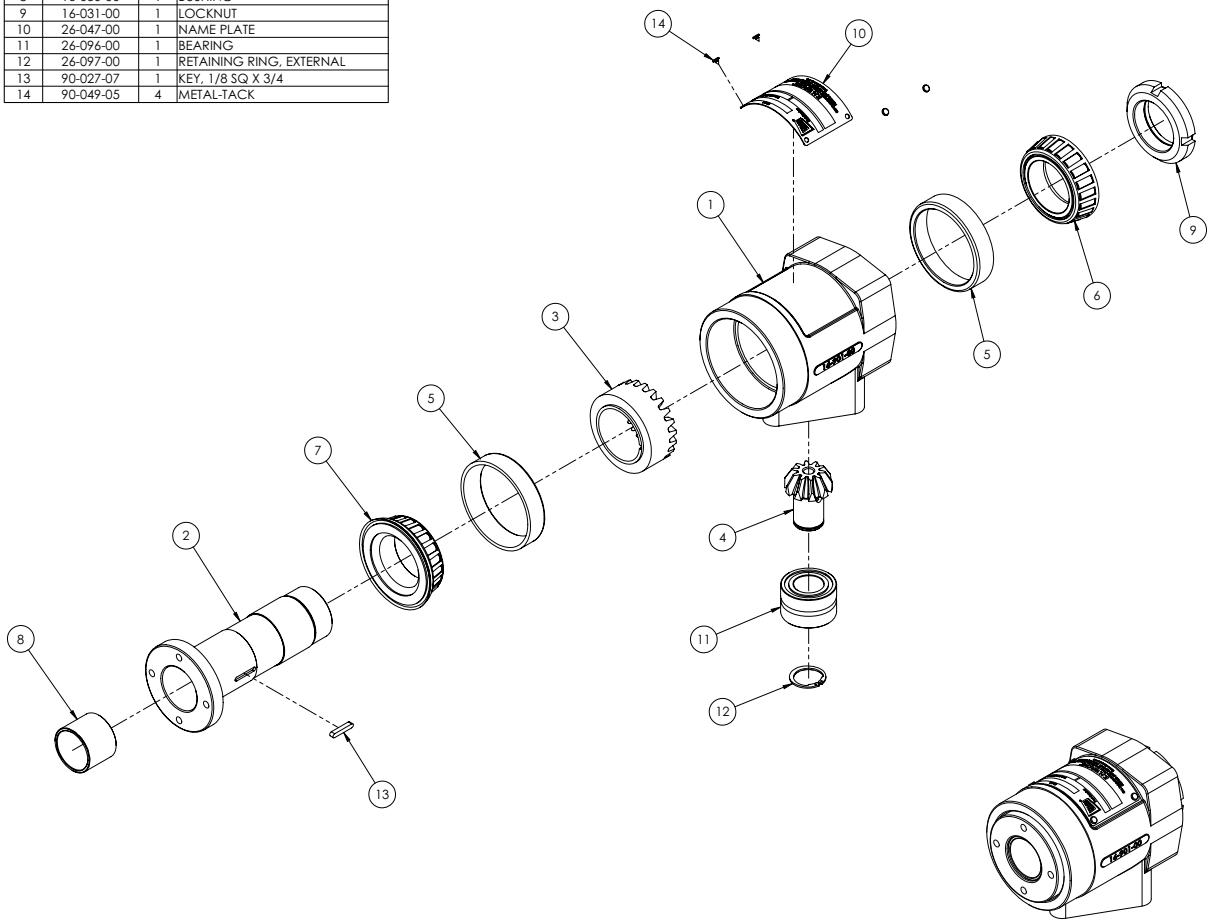
| TABLE | | |
|---|---|---|
| LB MODEL NO. | DRIVE ASSEMBLY | DESCRIPTION |
| 72-000-02 | 16-416-00 | 110 V ELECTRIC |
| 72-000-03 | 16-416-01 | 220 V ELECTRIC |

OBSOLETE



# Bearing Housing Assembly, 16-304-00

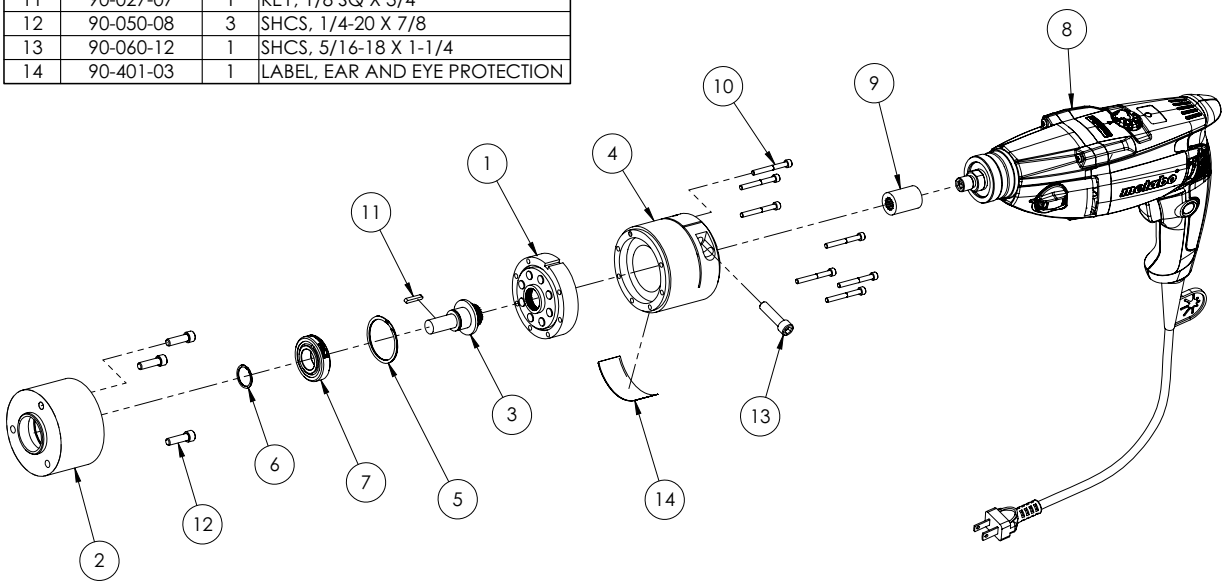
| ITEM | PART NUMBER | QTY. | DESCRIPTION |
|---|---|---|---|
| 1 | 16-001-00 | 1 | HOUSING, BEARING |
| 2 | 16-003-00 | 1 | SHAFT, MAIN |
| 3 | 16-006-00 | 1 | GEAR, RING |
| 4 | 16-007-00 | 1 | GEAR, PINION |
| 5 | 16-027-00 | 2 | CUP, BEARING |
| 6 | 16-028-00 | 1 | CONE, BEARING |
| 7 | 16-029-00 | 1 | CONE W/SEAL, BEARING |
| 8 | 16-030-00 | 1 | BUSHING |
| 9 | 16-031-00 | 1 | LOCKNUT |
| 10 | 26-047-00 | 1 | NAME PLATE |
| 11 | 26-096-00 | 1 | BEARING |
| 12 | 26-097-00 | 1 | RETAINING RING, EXTERNAL |
| 13 | 90-027-07 | 1 | KEY, 1/8 SQ X 3/4 |
| 14 | 90-049-05 | 4 | METAL-TACK |

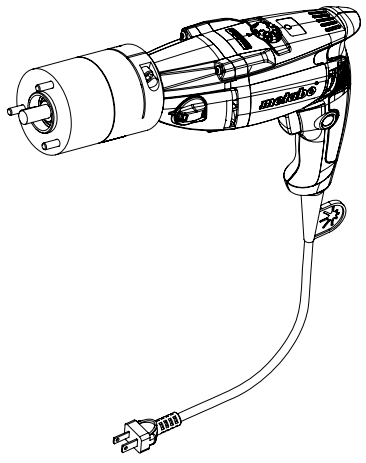


# Electric Drive Assembly, 16-416-00/01

| ITEM | PART NUMBER | QTY. | DESCRIPTION |
|---|---|---|---|
| 1 | 11-103-00 | 1 | GEARBOX, PLANETARY OUTPUT |
| 2 | 16-073-00 | 1 | HOUSING, GEAR |
| 3 | 16-074-00 | 1 | SHAFT, OUTPUT |
| 4 | 16-075-00 | 1 | HOUSING, REAR |
| 5 | 16-076-00 | 1 | RING, RETAINING |
| 6 | 16-077-00 | 1 | RING, RETAINING |
| 7 | 16-078-00 | 1 | BEARING |
| 8 | SEE TABLE | 1 | MOTOR, METABO |
| 9 | 26-126-02 | 1 | COUPLING, INPUT |
| 10 | 90-020-15 | 7 | SHCS #8-32 x 1.375 |
| 11 | 90-027-07 | 1 | KEY, 1/8 SQ X 3/4 |
| 12 | 90-050-08 | 3 | SHCS, 1/4-20 X 7/8 |
| 13 | 90-060-12 | 1 | SHCS, 5/16-18 X 1-1/4 |
| 14 | 90-401-03 | 1 | LABEL, EAR AND EYE PROTECTION |

| TABLE | | |
|---|---|---|
| DRIVE ASS'Y NO. | MOTOR | DESCRIPTION |
| 16-416-01 | 20-031-01 | 110 V METABO |
| 16-416-02 | 30-031-02 | 220 V METABO |

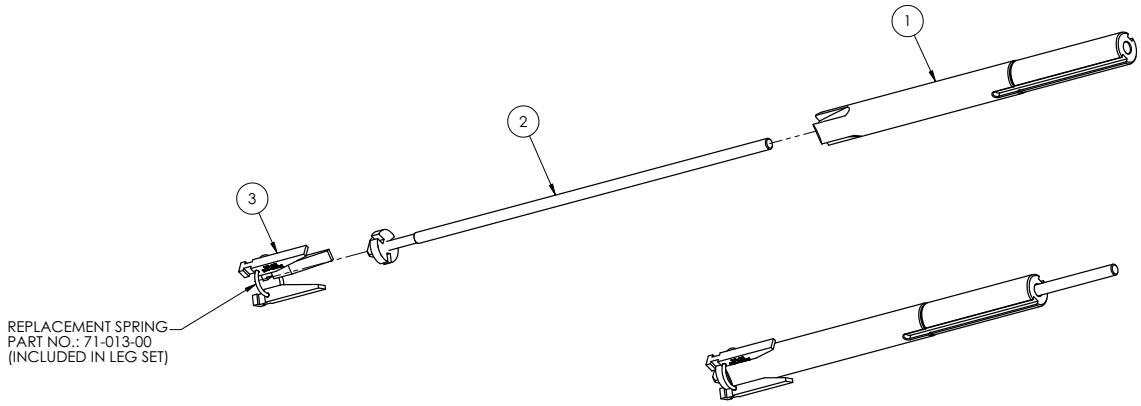


## Mandrel Assembly, 72-300-00

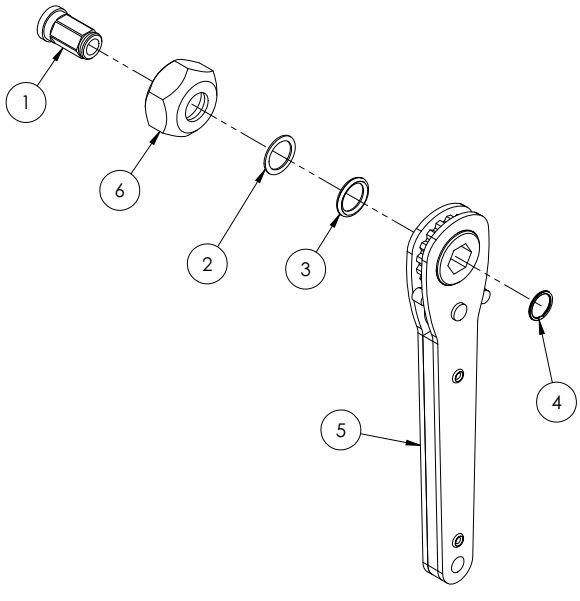
| ITEM | PART NUMBER | QTY. | DESCRIPTION |
|---|---|---|---|
| 1 | 72-014-00 | 1 | MANDREL |
| 2 | 72-015-00 | 1 | DRAW BAR, WELDMENT |
| 3 | WHERE USED | 1 | AS NOTED |

| -WHERE USED- | | |
|---|---|---|
| ITEM | PART NO. | DESCRIPTION |
| 3 | 72-400-01 | LEG SET ASSEMBLY 1.25-1.71 [31.8-43.4mm] |
| | 72-400-02 | LEG SET ASSEMBLY 1.61-2.08 [40.9-52.8mm] |
| | 72-400-03 | LEG SET ASSEMBLY 1.97-2.45 [50.0-62.2mm] |
| | 72-400-04 | LEG SET ASSEMBLY 2.34-2.82 [59.4-71.6mm] |
| | 72-400-05 | LEG SET ASSEMBLY 2.71-3.19 [68.8-81.0mm] |



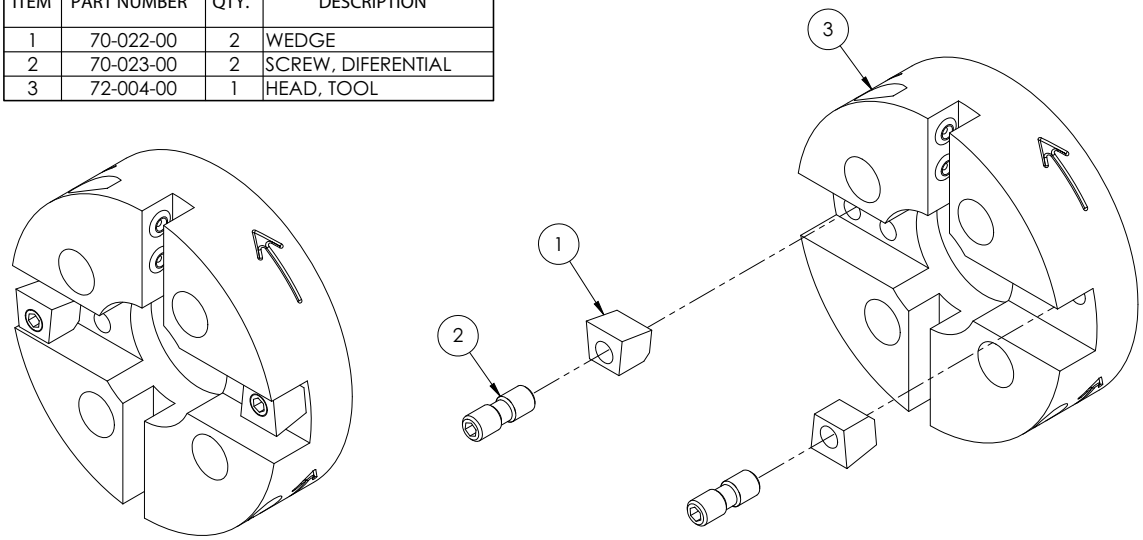

## Drawbar Ratchet Assembly, 72-301-00

| ITEM | PART NUMBER | QTY. | DESCRIPTION |
|---|---|---|---|
| 1 | 71-018-01 | 1 | NUT, DRAWBAR |
| 2 | 71-031-00 | 1 | WASHER |
| 3 | 71-033-01 | 1 | O-RING (-113) |
| 4 | 71-036-01 | 1 | RING, SPIRAL RETAINING |
| 5 | 71-038-01 | 1 | RATCHET, DRAWBAR |
| 6 | 72-019-01 | 1 | COLLAR, NUT |



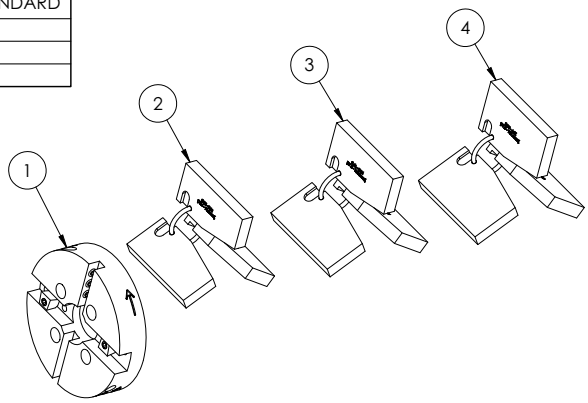
## Wedgelock Head Assembly, 72-302-00

| ITEM | PART NUMBER | QTY. | DESCRIPTION |
|---|---|---|---|
| 1 | 70-022-00 | 2 | WEDGE |
| 2 | 70-023-00 | 2 | SCREW, DIFERENTIAL |
| 3 | 72-004-00 | 1 | HEAD, TOOL |



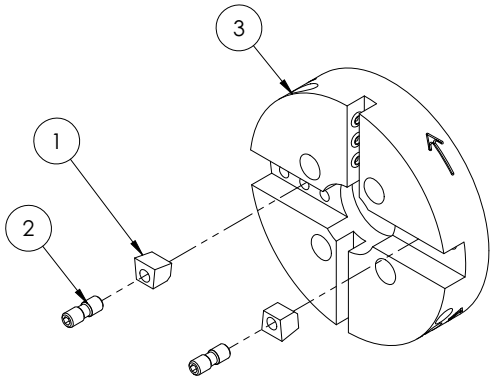

## Extender Kit, 72-404-00

| ITEM | PART NUMBER | QTY. | DESCRIPTION |
|---|---|---|---|
| 1 | 72-405-00 | 1 | ASSEMBLY, WEDGELOCK HEAD-STANDARD |
| 2 | 72-400-06 | 1 | AS NOTED |
| 3 | 72-400-07 | 1 | AS NOTED |
| 4 | 72-400-08 | 1 | AS NOTED |



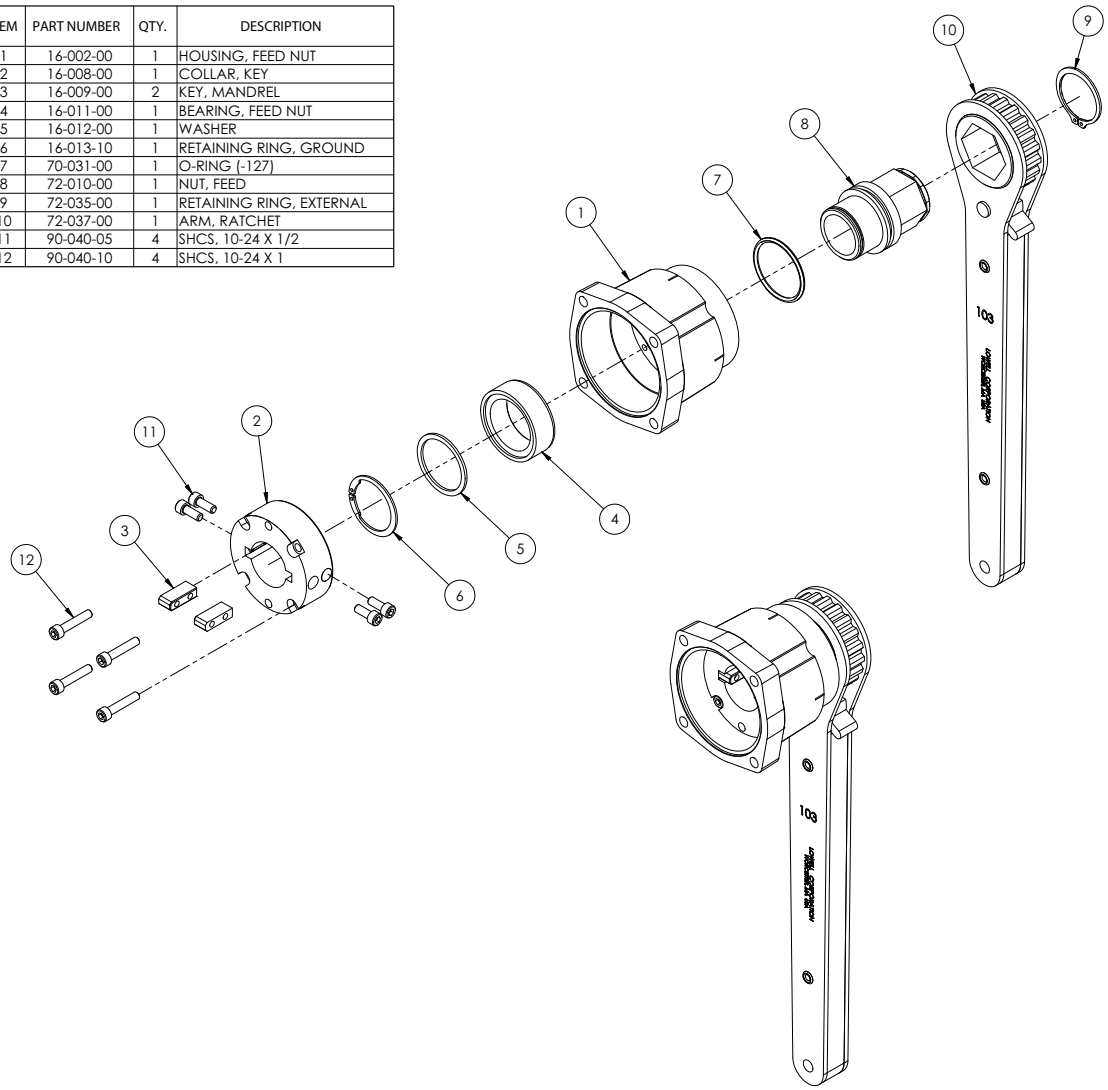

## Wedgelock Ext. Head Assembly, 72-405-00

| ITEM | PART NUMBER | QTY. | DESCRIPTION |
|---|---|---|---|
| 1 | 70-022-00 | 2 | WEDGE |
| 2 | 70-023-00 | 2 | SCREW, DIFERENTIAL |
| 3 | 72-005-00 | 1 | HEAD, TOOL LARGE |



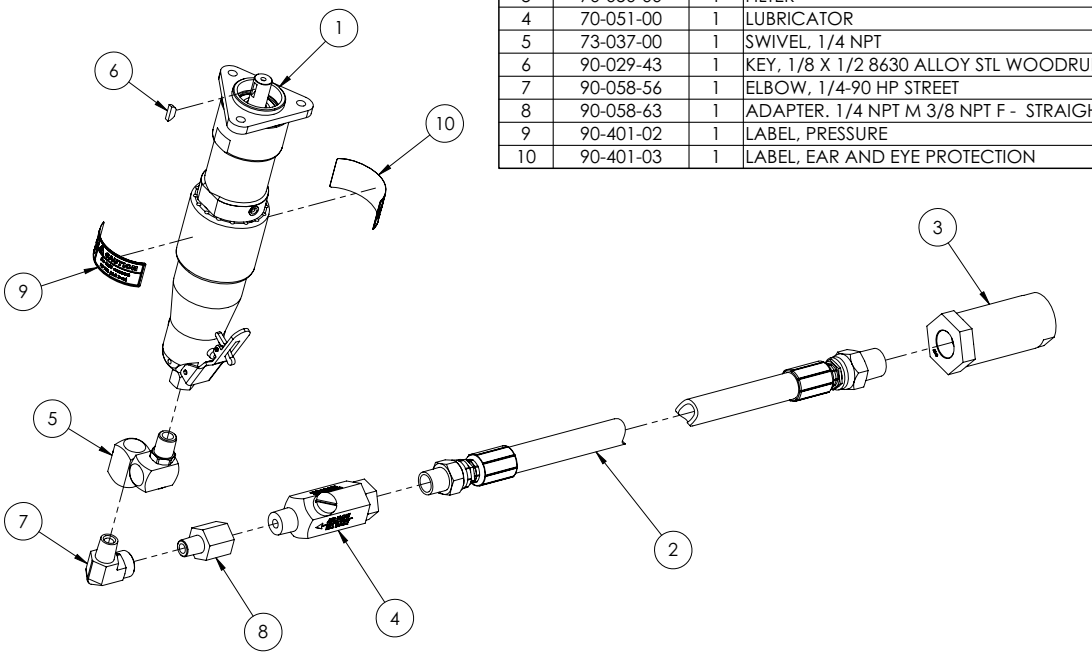
# Feed Housing Assembly, 72-303-00

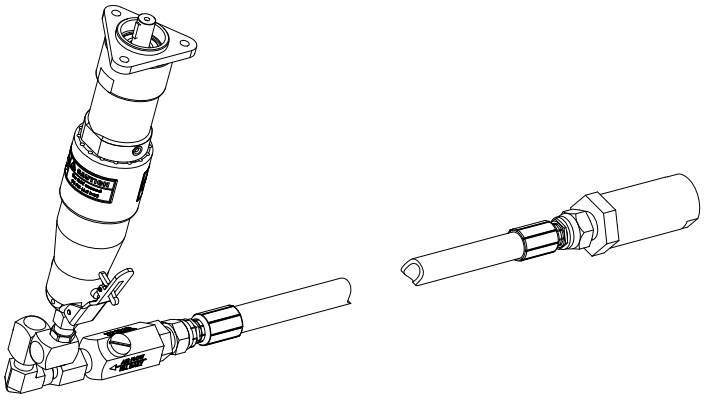
| ITEM | PART NUMBER | QTY. | DESCRIPTION |
|---|---|---|---|
| 1 | 16-002-00 | 1 | HOUSING, FEED NUT |
| 2 | 16-008-00 | 1 | COLLAR, KEY |
| 3 | 16-009-00 | 2 | KEY, MANDREL |
| 4 | 16-011-00 | 1 | BEARING, FEED NUT |
| 5 | 16-012-00 | 1 | WASHER |
| 6 | 16-013-10 | 1 | RETAINING RING, GROUND |
| 7 | 70-031-00 | 1 | O-RING (-127) |
| 8 | 72-010-00 | 1 | NUT, FEED |
| 9 | 72-035-00 | 1 | RETAINING RING, EXTERNAL |
| 10 | 72-037-00 | 1 | ARM, RATCHET |
| 11 | 90-040-05 | 4 | SHCS, 10-24 X 1/2 |
| 12 | 90-040-10 | 4 | SHCS, 10-24 X 1 |



# LB Pneumatic Drive (Obsolete), 72-304-00

| ITEM | PART NUMBER | QTY. | DESCRIPTION |
|---|---|---|---|
| 1 | 16-026-00 | 1 | MOTOR, AIR |
| 2 | 70-040-00 | 1 | AIR HOSE ASSEMBLY, 3/8" X 6' |
| 3 | 70-050-00 | 1 | FILTER |
| 4 | 70-051-00 | 1 | LUBRICATOR |
| 5 | 73-037-00 | 1 | SWIVEL, 1/4 NPT |
| 6 | 90-029-43 | 1 | KEY, 1/8 X 1/2 8630 ALLOY STL WOODRUFF |
| 7 | 90-058-56 | 1 | ELBOW, 1/4-90 HP STREET |
| 8 | 90-058-63 | 1 | ADAPTER. 1/4 NPT M 3/8 NPT F - STRAIGHT |
| 9 | 90-401-02 | 1 | LABEL, PRESSURE |
| 10 | 90-401-03 | 1 | LABEL, EAR AND EYE PROTECTION |



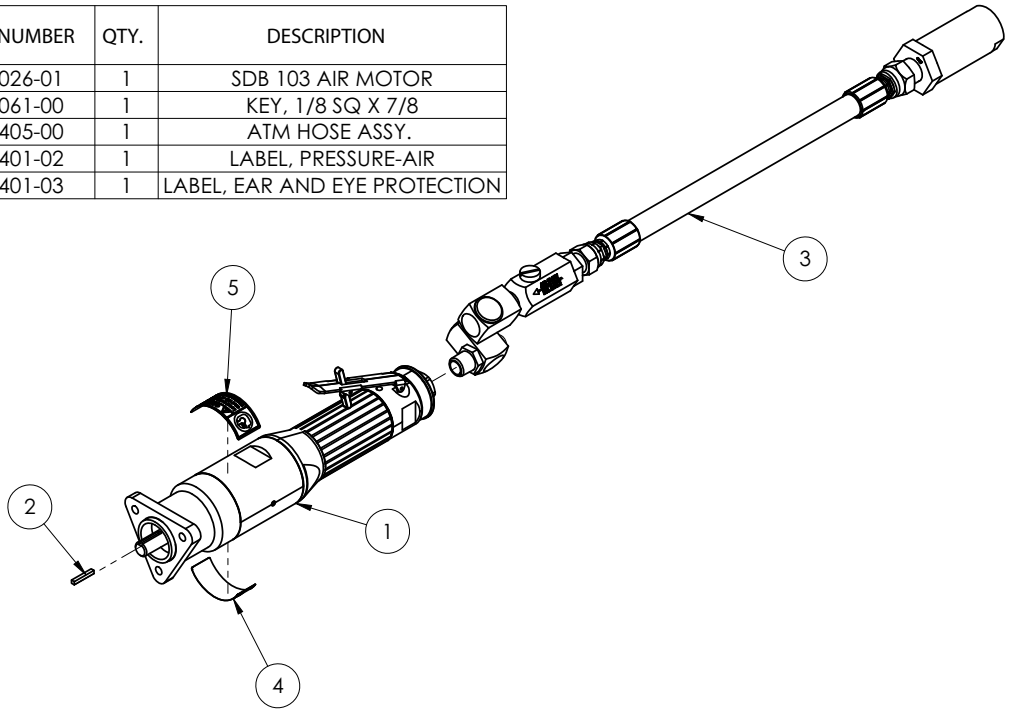



OBSOLETE

REPLACED BY: 72-304-01

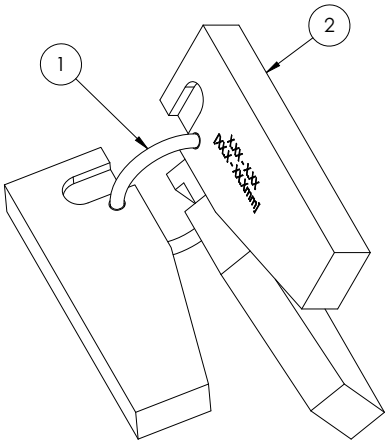
## LB Pneumatic Drive, 72-304-01

| ITEM | PART NUMBER | QTY. | DESCRIPTION |
|---|---|---|---|
| 1 | 16-026-01 | 1 | SDB 103 AIR MOTOR |
| 2 | 71-061-00 | 1 | KEY, 1/8 SQ X 7/8 |
| 3 | 71-405-00 | 1 | ATM HOSE ASSY. |
| 4 | 90-401-02 | 1 | LABEL, PRESSURE-AIR |
| 5 | 90-401-03 | 1 | LABEL, EAR AND EYE PROTECTION |




## Chuck Leg Assemblies, 72-400-XX

| ITEM | PART NUMBER | QTY. | DESCRIPTION | ASSEMBLY NUMBER |
|---|---|---|---|---|
| 1 | 71-013-00 | 1 | SPRING, RETAINING | 72-400-01 |
| 2 | 72-020-01 | 3 | LEG, CHUCK 1.25-1.71 | |
| 1 | 71-013-00 | 1 | SPRING, RETAINING | 72-400-02 |
| 2 | 72-020-02 | 3 | LEG, CHUCK 1.61-2.08 | |
| 1 | 71-013-00 | 1 | SPRING, RETAINING | 72-400-03 |
| 2 | 72-020-03 | 3 | LEG, CHUCK 1.97-2.45 | |
| 1 | 71-013-00 | 1 | SPRING, RETAINING | 72-400-04 |
| 2 | 72-020-04 | 3 | LEG, CHUCK 2.34-2.82 | |
| 1 | 71-013-00 | 1 | SPRING, RETAINING | 72-400-05 |
| 2 | 72-020-05 | 3 | LEG, CHUCK 2.71-3.19 | |
| 1 | 71-013-00 | 1 | SPRING, RETAINING | 72-400-06 |
| 2 | 72-020-06 | 3 | LEG, CHUCK 3.09-3.56 | |
| 1 | 71-013-00 | 1 | SPRING, RETAINING | 72-400-07 |
| 2 | 72-020-07 | 3 | LEG, CHUCK 3.46-3.93 | |
| 1 | 71-013-00 | 1 | SPRING, RETAINING | 72-400-08 |
| 2 | 72-020-08 | 3 | LEG, CHUCK 3.83-4.31 | |



# Ordering Information

**In This Chapter**



To place an order, request service, or get more detailed information on any E.H. Wachs products, call us at one of the following numbers:

| | |
|---|---|
| U.S. | 800-323-8185 |
| International: | 847-537-8800 |

You can also visit our Web site at:

www.ehwachs.com

## ORDERING REPLACEMENT PARTS

When ordering parts, refer to the drawings and parts lists in Chapter 8. Please provide the part description and part number for all parts you are ordering.

## REPAIR INFORMATION

Please call us for an authorization number before returning any equipment for repair or factory service. We will advise you of shipping and handling. When you send the equipment, please include the following information:

- Your name/company name
- Your address
- Your phone number
- A description of the problem or the work to be done.

Before we perform any repair, we will estimate the work and inform you of the cost and the time to complete it.

## WARRANTY INFORMATION

Enclosed with the manual is a warranty card. Please fill out the registration card and return to E.H. Wachs. Retain the owner's registration record and warranty card for your information.

## RETURN GOODS ADDRESS

Return equipment for repair to the following address.

E.H. Wachs
600 Knightsbridge Parkway
Lincolnshire, Illinois 60069 USA


600 Knightsbridge Parkway • Lincolnshire, IL 60069
847-537-8800 • www.ehwachs.com