



49999-308
Edition 2
March 2009
CCN: 04664280

SUPER PAR-A-MATIC® Self-Feed Drills

With Dual Spindle Drilling Head

Model 8268-A ()

Operation and Maintenance Information



Save These Instructions

 **Ingersoll Rand**

Product Safety Information

Intended Use:

These Air Drills are designed for drilling, honing, reaming and hole sawing.

For Additional information refer to Air Drills Product Safety Information Manual Form 04580353.

Manuals can be downloaded from www.irttools.com.

Model Identification

1-1/2" Stroke					
Model Number	R.P.M.	Auxiliary Gearing	Drive Gearing	Motor Assembly	Total Reduction
8268-A3-1()	350	40826	46065	41522	55.2:1
8268-A6-1()	650	40825	46065	41522	29.7:1
8268-A12-1()	1,200	40825	46064	41522	16:1
8268-A25-1()	2,500	--	46065	41522	7.43:1
8268-A46-1()	4,600	--	46064	41522	4:1

3" Stroke					
Model Number	R.P.M.	Auxiliary Gearing	Drive Gearing	Motor Assembly	Total Reduction
8268-A3-3()	350	40826	45065	41522	55.2:1
8268-A6-3()	650	40825	46065	41522	29.7:1
8268-A12-3()	1,200	40825	46064	41522	16:1
8268-A25-3()	2,500	--	46065	41522	7.43:1
8268-A46-3()	4,600	--	46064	41522	4:1

Models with -EU suffix are "EC" compliant models.

General Description and Operation

Safe and efficient operation of your Self-Feed drill can best be attained by observing proper operating and maintenance procedures. Keep hands and clothing away from rotating end of tool and all other moving parts. Eye protection should be worn at all times while operating power tools. Disconnect air supply line to tool or shut off air supply line to tool and exhaust (drain) air line of compressed air BEFORE removing or installing a bit, reamer or other such device or otherwise performing service or maintenance to the tool.

The Models 8268-A () Dual Spindle Drills are designed to automatically feed to a pre-set depth, trip and return.

The following is a brief description of the various sections and their function.

Gearing

The gearing for these models is available in single or double reduction planetary gearing assemblies to provide five (5) final spindle speeds.

Air Motor

The vane type air motor develops a minimum of 0.7 horse power. The motor will start within the first 1/4 inch of stroke and remain running thru the forward and retract stroke, automatically shutting off upon completion of the cycle.

Air Piston

The air piston is of the double acting type, providing the forward and retract stroke movement. The piston has an area of 2.8 square inches and develops approximately 250 pounds of thrust with 90 p.s.i.g, at the piston inlet.

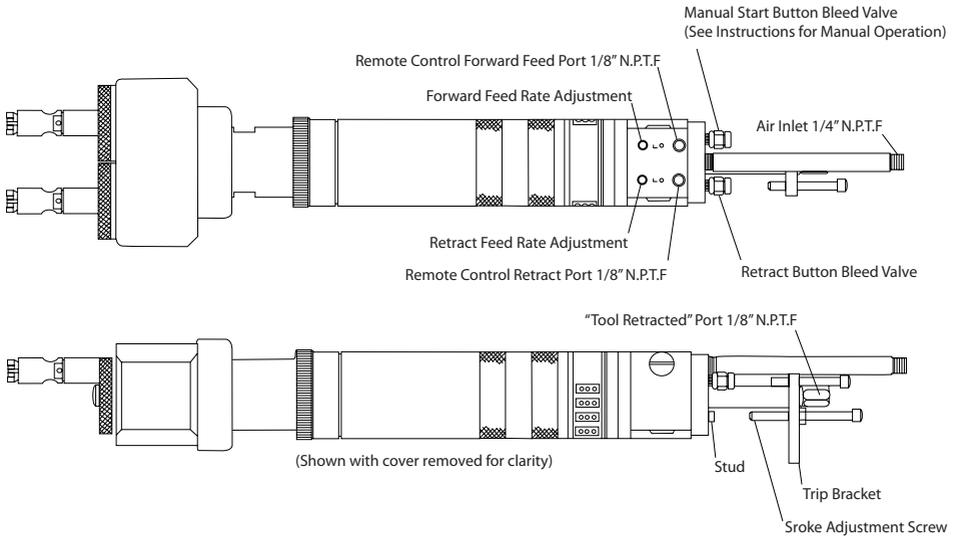
Valve Section

The valve section houses the SPOOL VALVE, BUTTON BLEED VALVES and the FEED CONTROL VALVES. The SPOOL VALVE is a 4-way bleed type valve used to port air to the piston for the forward and retract stroke. Positioning of the spool valve is accomplished by actuating the "F" or "R" Button Bleed Valves, located at the rear of the head.

The BUTTON BLEED VALVES exhaust air from the ends of the spool valve, causing it to shift to the forward and retract positions. Depressing the Button Bleed Valve marked "F" shifts the spool valve to the forward feed position. When the drill reaches the preset depth, the Stroke Adjustment Screw will depress the Button Bleed Valve marked "R", this shifts the spool valve to the retract position and retracts the piston completing the cycle.

The needle type FEED CONTROL VALVES regulate the flow of air from the piston thus regulating the forward and retract rate of feed of the piston. The Feed Control Valve marked "F" regulates the forward feed rate of the piston and the Feed Control Valve marked "R" regulates the retract feed rate of the piston.

TOOL RETRACTED SIGNAL PORT - this port is located in rear end of Piston Rod. The port is pressurized when the motor starts and remains pressurized during the drilling cycle until the motor shuts off when the unit is fully retracted.



Air and Lube Requirements

AIR PRESSURE of 90 p.s.i.g. (6 bar) at air inlet of tool is required for maximum motor efficiency. An air regulator should be installed to maintain this pressure when tool is in operation.

FILTERED AND OILED AIR will allow the tool to operate more efficiently and yield a longer life to operating parts and mechanisms. A line filter capable of filtering particles larger than 50 micron should be used with a line oiler.

FILTER-REGULATOR-LUBRICATOR (F.R.L.) assembly model C28231-810 is recommended for use with this air tool. The capacity of the individual Filter-Lubricator is adequate to provide clean (40 micron) oiled and regulated air for the tool. See recommended air inlet system, page 7.

Recommended Lubrication:

Gearing should be grease lubricated every 160 hours of operation. Inject grease, (33153) or equivalent, 1 to 2 strokes thru grease fitting in gear housing.

NOTE: Spindle must be extended from outer sleeve sufficiently to expose grease fitting in gear housing.

DUAL SPINDLE ATTACHMENT can be lubricated thru either socket head set screw located on opposite sides of dual spindle housing. The felt type oil reservoirs contained in the housing should be saturated with a good multigrade 10W/30 oil at approximately every 160 hours of operation.

MOTOR is lubricated thru air inlet of unit by use of a lubricator installed in air line. Spindle Oil 29665, 1 qt. (.9 litre) container or equivalent type 1 light spindle oil is recommended for motor lubrication. Consult manufacturer of air line lubricator being used to insure oil used is compatible with construction of lubricator bowl.

BEARINGS, GEARS, ETC: grease 33153, 5 lb. (2.3 kg) can, or equivalent grade.

O-RINGS: Lubricant 36460, 4 oz. (113 g) tube for lubrication and installation of O-Rings.

CAUTION

An excessive amount of lubricant in a tool will affect the speed and power. Each set of planetary gearing should contain approximately 1/4 oz. (7 g) of grease.

RECOMMENDED HOSE SIZE - 3/8" (10 mm) nominal inside diameter.



Where Used
Air Motor
O-Rings & Lip Seals
Gears and Bearings

Ingersoll Rand Part #
29665
36460
33153



Description
1 qt. Spindle Oil
4 oz. Stringy Lubricant
5 lb. "EP" - NLGI # 1 Grease

Manual Operation

The models 8268-A() are shipped from the factory with the MANUAL BLEED VALVE (24130) installed in the "F" port at the rear of the Valve Housing. If the unit is to be operated manually; loosen the two (2) Screws (Y211-102) securing Cover (40582-) to the Valve Housing and remove the cover. Remove the Button Bleed Valve from the "F" port at the rear of the Valve Housing and remove the Pipe Plug (Y227-2-L) from the "F" port at the top of the Valve Housing. Install the Button Bleed Valve (24130) in the "F" port at the top of the Valve Housing and seal off the "F" port at the rear of the Valve Housing using the Pipe Plug (Y227-2-L). Replace the Cover (40582-) and tighten Screws (Y211-102) securing Cover to Valve Housing.

Remote Control Operation

The Models 8268-A() can be used as a single unit application or in a multiple unit application. REMOTE START is accomplished by use of a Pressure Bleed Valve (9600) installed in either the "F" port at the rear of the Valve Housing or the "F" port in the top of the Valve Housing. This pressure bleed valve is then connected, by means of 1/8" i.d. tubing, to a remote operated valve which, when actuated, feeds air pressure to the Pressure Bleed Valve (9600). The Pressure Bleed Valve then opens, bleeding air from "F" port of Valve Housing, causing Spool Valve to shift to the Forward Feed position thus starting the advancing (forward) mode of the unit.

Each time the BUTTON BLEED VALVE marked "F" is depressed the unit will start in the advancing (forward) mode. The unit will continue to advance until the BUTTON BLEED VALVE marked "R" has been depressed sufficiently to retract the unit. See SET-UP PROCEDURE, Page 4. Should an EMERGENCY RETRACT be desired, install an additional Button Bleed Valve in the "R" port at the top Valve Housing. The Emergency Button Bleed Valve can be used to immediately retract the unit in the event of a misaligned part or similar situation.

REMOTE RETRACT is accomplished by use of a Pressure Bleed Valve (9600) installed in the "R" port located at the top of the Valve Housing. This pressure bleed valve is then connected to a remote MANUALLY operated valve in the same manner as the Remote Start circuit. This valve is used as an emergency Retract In the event of a part misalignment or similar situation only as the unit, when properly set-up and applied, will automatically retract and return to the start position after reaching a pre-set depth or stroke. See Set-Up Procedure page 4 and illustration on page 8.

SPECIAL NOTE: The air inlet and remote ports of this tool have tapered pipe threads and should not require thread sealants, such as sealant tapes or pipe joint compound. Thread sealants used improperly can cause valve or tool malfunction.

Mounting

The nose end of the Outer Sleeve is provided with a 2-1/2"-16 L.H. thread (remove thread guard for use) and a 2-1/2" x 1-1/4" long pilot diameter for fixtured mounting. A groove is also provided in the Outer Sleeve for a Retaining Ring which is supplied with the foot and flange type mounting brackets. The foot and flange type mounting brackets are available for tool mounting-see Accessories Section. The tool can be mounted in any position desired without impairing the function of the tool.

Set-up Procedure

NOTE: For set-up purposes; loosen the two (2) Screws (Y211-102) securing Cover (40582-) to the Valve Housing and remove the Cover. After the set-up has been completed, replace the cover and tighten the two (2) Screws (Y211-102) securing Cover to Valve Housing.

CAUTION

Adjust with care. Keep fingers clear from between Adjustment Screws and Valves or Housing. Keep clear of rotating end of unit with hands and/or clothing.

A minimum distance of 1/4 inch must be maintained between the work piece and the drill point with the drilling unit in its fully retracted position when setting-up the unit for operation. This will allow the Air Motor to start and reach free speed before the drill point touches the work piece.

Stroke Adjustment

Determine the Total Stroke Length the drill must travel to perform the drilling operation (see figure below). Adjust the length of the stroke by rotating the Stroke Adjustment Screw "A" so the distance between the leading edge of the screw and the Stud equals the Total Stroke Length. Secure Screw with Jam Nut.

After adjusting Adjustment Screw "A" to equal the total stroke length, rotate Adjustment Screw "B" so the distance between the leading edge of the screw and the Button Bleed valve (24130) is slightly greater than the Total Stroke Length. Start the unit and let the unit advance until Adjustment Screw "A" contacts Stud then rotate Adjustment Screw "B" until screw depresses Button Bleed Valve (24130) sufficiently to retract the unit.

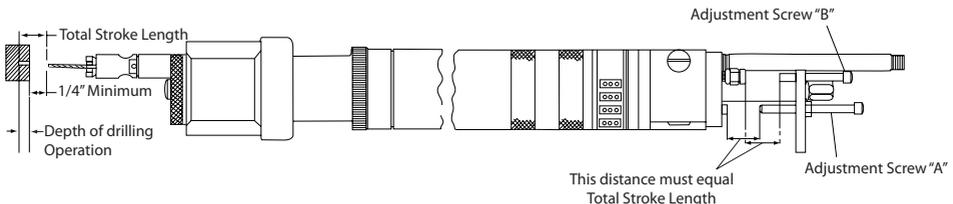
Feed Rate Control Valves

The retract Feed Rate Control Valve marked "R" located at the top of the Valve Housing, regulates the rate of return of the piston. Open this Valve approximately 1-1/2 turns (counter-clockwise) from the closed position for setting-up of unit. Close the Feed Rate Control Valve marked "F" by turning it in (clockwise).

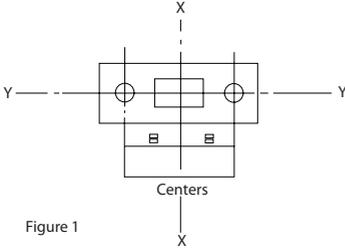
Start the unit by depressing the Button Bleed Valve (24130) marked "F" then, slowly turn the Valve counter-clockwise opening the Valve until the desired rate of forward feed is attained.

A final adjustment of the rate of return (retraction) can be made with the Feed Rate Control Valve marked "R".

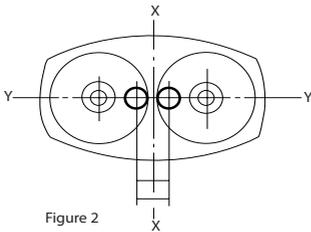
See Set-Up Instructions for optional Hydraulic Check unit for controlling thrust during drilling and/or at break-through.



Spindle Adjustment

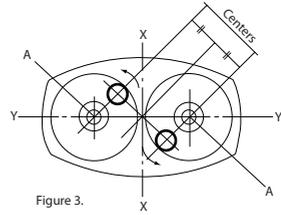


For simple spindle adjustment the "X" "X" and "Y" "Y" axis of The component shown in figure 1 Should coincide with the "X" "X" and "Y" "Y" axis of the drill head and drilling unit as shown in figure 2. The spindles should then be adjusted in the manner shown in figures 3 and 4.



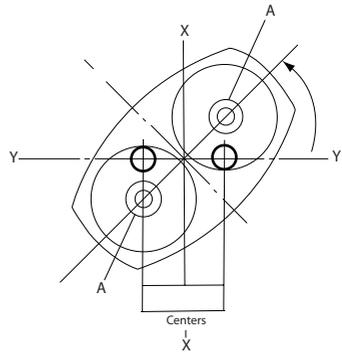
Important if the procedure is not followed and both spindles are moved out to one side of the head. Any subsequent spindle adjustment will result in the necessity of having to re-adjust the relationship between the drilling unit and the component.

Figure 2 shows the twin spindle head with the spindles set to the minimum centres.



To adjust the spindles as shown in figure 3 loosen both screws "A" and rotate both turrets in the direction indicated by the arrows to the approximate centers that are required.

Rotate the complete drill head assembly to bring both spindles to the required "Y" "Y" axis as shown in fig 4. Finally adjust Spindle centers on axis "Y" "Y" to suit gauge or drill Bushings and tighten screws "A" securely.



Set-up Procedure for Optional Hydraulic Check

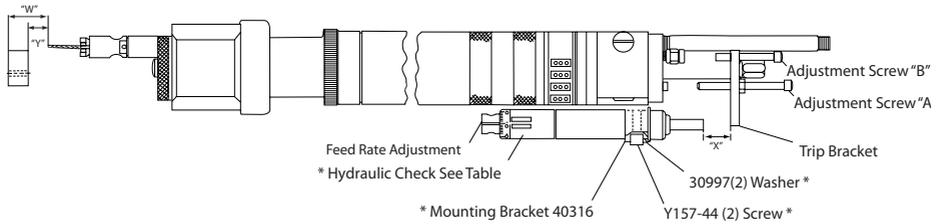
The Hydraulic Check unit is an accessory item used with the Models 8268-A() when controlled thrust is required during drilling and/or at break-through. The Hydraulic Check is a sealed unit with a low friction diaphragm. The hydraulic fluid need not be replenished. The Hydraulic Check is available in 1, 2 and 3 inch stroke lengths.

Mounting Instructions

Assemble Mounting Bracket (40316) with Hydraulic Check (38922-) to the Valve Housing with two (2) Screws (Y157-44) and Washers (30997).

Set-up Instructions to Control Rate of Feed:

- Measure distance from Drill Point to Work Piece (DISTANCE "Y").
- DISTANCE "X" between the Hydraulic Check (38922) and the Trip Bracket (41713-) must be less than DISTANCE "Y" to prevent damage to the Drill Point when it approaches the Work Piece. This can be adjusted by loosening the Screws (Y157-44) in the Mounting Bracket (40316) and sliding the Hydraulic Check to the desired position. Retighten Screws (Y157-44) before operating unit.
- Increase the air flow thru the Feed Control Valve by opening two (2) turns from closed. This will allow the Drill to advance rapidly until the Trip Bracket contacts the plunger of the Hydraulic Check.
- The Hydraulic Feed Rate Adjustment is located at the name plate end of the Hydraulic Check. Rotate extended spindle until the slot on spindle is located midway between the highest and the lowest settings.
- Start Tool and the Drill will advance at a rapid rate, until the Trip Bracket contacts the plunger of the Hydraulic Check.
- Slowly rotate the Hydraulic Feed Rate counter clockwise for faster feed rate or clockwise for slower feed rate.



* Included in 40591-() Hydraulic Check Assembly.
See Page 19 for Hydraulic Check Dimensional Data

Stroke Length	Hydraulic Check Assembly	Hydraulic Check No.
1 Inch	40591-3	38922
2 Inch	40591-4	38922-1
3 Inch	40591-5	38922-2

To Control Breakthrough

- When controlled breakthrough is required, the Hydraulic Check must be set-up so the distance between the Plunger and the Trip Bracket (41713) (DISTANCE "X") is less than the distance from the Drill Point to the opposite side of the Work Piece (DISTANCE "W").
- Set-up procedure for the PAR-A-MATIC SELF-FEED DRILL will be the same as explained in Set-Up Procedure, page 4.

Maintenance

DISCONNECT AIR SUPPLY from tool or shut off air supply line to tool and exhaust (drain) air line to tool of compressed air BEFORE performing service or maintenance to tool.

AIR TOOLS are made of precision parts and should be handled with reasonable care when servicing. Excessive pressure exerted by a holding device may cause distortion of a part. Apply pressure evenly when disassembling (or assembling) parts which have a press fit. When removing or installing bearings, apply pressure to the bearing race that will be the press fit to the mating part; if this is not practiced, Brinelling of the bearing races may occur making replacement necessary. It is important that the correct tools and fixtures are used when servicing this Air Tool.

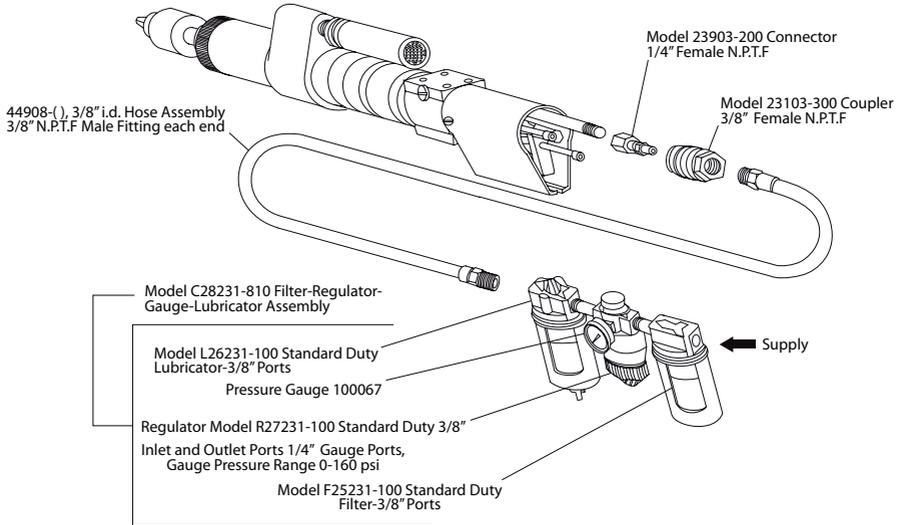
DISASSEMBLY should be done on a clean work bench with a clean cloth spread to prevent the loss of small parts. After disassembly is completed; all parts should be thoroughly washed in a clean solvent, blown dry with air and inspected for wear levels, abuse and contamination.

Double sealed or shielded bearings should never be placed in solvent unless a good method of re-lubricating the bearing is available. Open bearings may be washed but should not be allowed to spin while being blown dry. When REPLACEMENT PARTS are necessary, consult drawing containing the part for identification.

BEFORE REASSEMBLING, lubricate parts where required. Use 33153 Grease, or equivalent, in bearings. Use 36460 Lubricant for O-Ring Assembly. When assembling O-Rings, care must be exercised to prevent damage to the rubber sealing surfaces. A small amount of grease will usually hold steel balls and other small parts in place while assembling.

When ordering parts, be sure to list part number, part name, model number and serial number of tool. Use only genuine **Ingersoll rand** replacement parts.

Recommended Power Air Inlet System

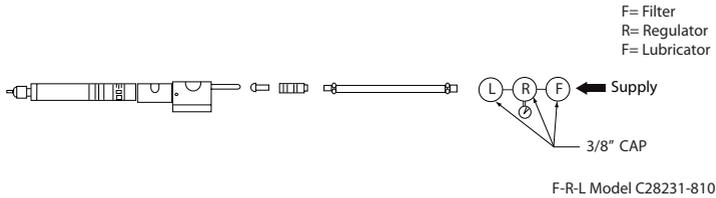


Your Sell-Feed Tool is designed to deliver specific horsepower and thrust to achieve high rates of work. To assure the unit will develop this power, care must be taken that the power air Inlet system is correctly sized to permit the proper rate of air flow. Shown above is a system for a single tool that will supply correct delivery.

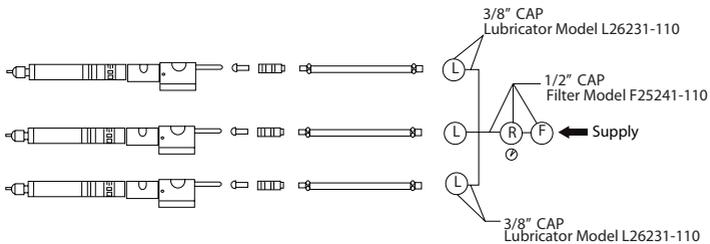
IMPORTANT - the tool is power rated when 90 p.s.i is present AT THE TOOL DURING OPERATION.

Shown Below is the same system in schematic form.

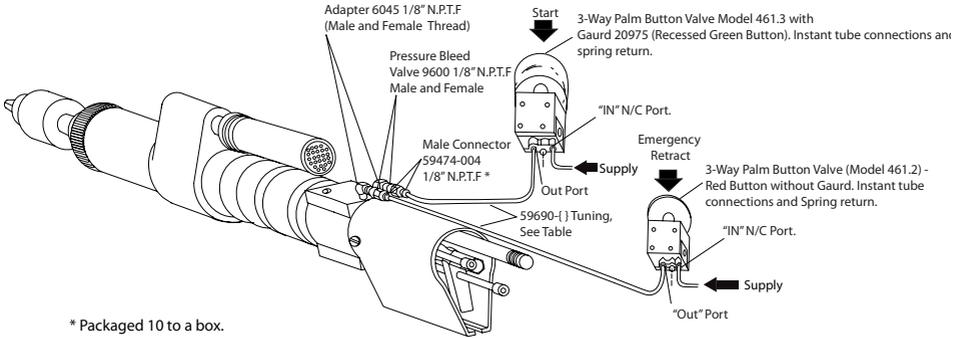
See Page 4 For Special Notes



If two or three units are to be installed, each unit should be supplied with a system as shown below or use system as shown above for each tool.



Basic Remote Control for Start and Emergency Retract Functions



Remote operation

Remote operation of the unit may be achieved by connecting a 3-way valve to the remote start and/or remote retract ports, as shown above.

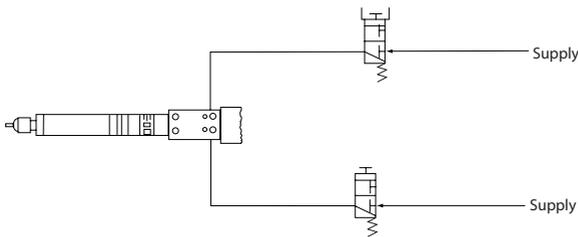
TO START -depress the remote button momentarily. The unit will advance the drill to a pre-set depth and automatically retract to the initial position whereupon the unit will stop.

EMERGENCY RETRACT - depress the emergency button momentarily. This signal to the unit will shift the built-in pressure operated valve, commanding the unit to retract immediately to the initial position whereupon the unit will stop.

NOTE: MANUAL START and EMERGENCY RETRACT buttons on the tool are fully operational even when remote control is used. The manually operated buttons can be used when set-up is required.

Shown below is the same system in schematic form.

See Page 4 For Special Notes



Ingersoll Rand Instant Tubing - 100 Ft. Rolls					
Model No.	Color	Size	Model No.	Color	Size
59690-004	White	5/32	59690-404	Blue	5/32
59690-104	Black	5/32	59690-504	Yellow	5/32
59690-204	Green	5/32	59690-604	Gray	5/32
59690-304	Red	5/32	59690-704	Orange	5/32

Disassembly and Assembly of Tools

DISCONNECT AIR SUPPLY from tool or shut off air supply and exhaust (drain) line of compressed air BEFORE performing maintenance or service to tool.

To minimize the possibility of parts damage and for convenience, the steps for disassembly or reassembly listed on the following pages are recommended.

Listed here are the three basic sections of the tool and instructions for removing them from tool. To further disassemble, refer to the appropriate section outlined in the following pages.

Secure tool in a suitable holding device clamping on the Valve Housing.



Do not clamp on the outer sleeve of the piston and motor section as it may cause distortion of the piston air cylinder (40579-) impairing the function of the tool.

Dual Spindle Attachment

Remove Cover (40582-) from tool. Thread Adjustment screw (40292-) all the way back and push Piston Rod forward to expose flats on gear housing. Using wrenches on flats of gear housing and flats of Adapter (46060), unthread Adapter from gearing and remove Dual Spindle Attachment from tool. See page 10 for complete disassembly of Dual Spindle Attachment.

Gearing Section

Remove Dual Spindle Attachment as outlined above. Thread Adjustment Screws (40292-) all the way back and push Piston Rod all the way forward exposing flats of Motor Housing out of the Outer Sleeve. Using wrenches on flats of gear housing and motor housing, unthread and remove Gearing Section from motor housing - R.H. threads. If tool has both Drive and Auxiliary Gearing, remove Drive Gearing from Auxiliary Gearing using wrenches on flats of each gear housing. R.H. threads. See page 12 for complete disassembly of gearing.

Motor And Piston Section

Remove Gearing from tool as outlined in the Gearing Section. The Motor Assembly along with Spacers (33699) and (33711) can be removed from Motor Housing after removal of the Gearing Section. See page 13 for complete motor disassembly. To remove PISTON SECTION, remove cover (40582-), Adapter (44883), Washer (Y14-616) and Trip Bracket (41713-) from end of Piston Rod. Place Valve Housing in a suitable holding device with Outer Sleeve in an upright position. Using a strap type wrench on Outer Sleeve unthread and remove Outer Sleeve from Valve Housing - LEFT HAND THREADS.

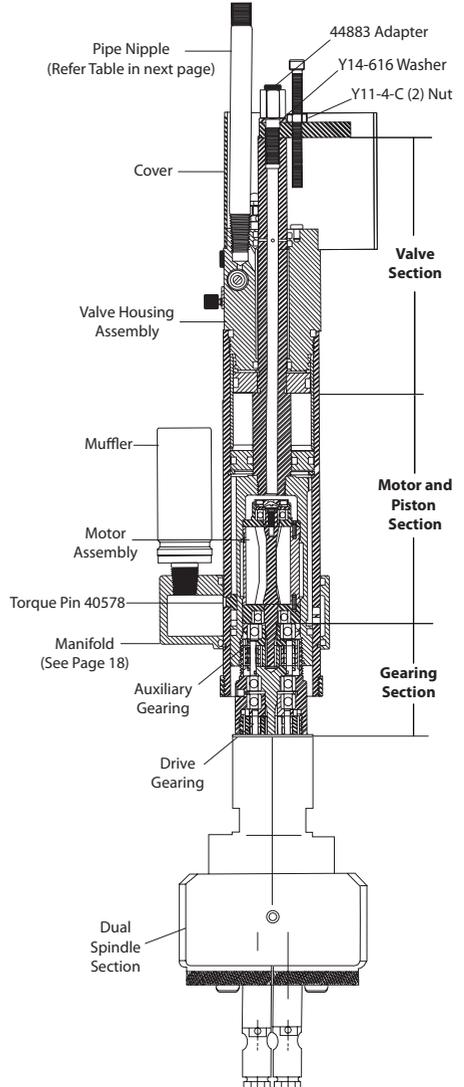
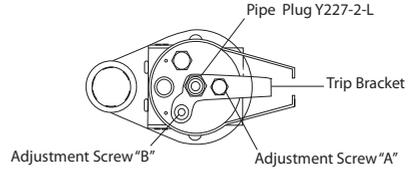
NOTE: Motor Housing, Piston Rod, Piston and components will remain inside Outer Sleeve when Outer Sleeve is removed from Valve Housing.



Remove Outer Sleeve with care. Pull Outer Sleeve straight up and away from Valve Housing so as not to bend the Air Cylinder (40579-), damaging the inside diameter. The Air Cylinder may remain attached to the Valve Housing when Outer Sleeve is removed. If this is the case, pull the Air Cylinder straight off the Valve Housing exercising caution so as not to damage the inside diameter of Cylinder. If Cylinder remains inside outer Sleeve refer to page 14 for removal procedure.

Valve Section

The Spool Valve, Feed Control Valves and Button Bleed Valves can be serviced without removing the Valve Housing from the tool. If the O-Rings (Y325-15) contained inside the Valve Housing should need to be replaced follow the disassembly procedure for the removal of the Piston Section. The Gearing Section need not be removed from tool to remove only the Valve Section. See page 15 for disassembly of Valve Section.



Model	Valve Housing Assembly	Cover	Adjustment screw		Trip Bracket	Pipe Nipple
			"A"	"B"		
8268-A ()-1	40815	40582-1	40292-2	40292-1	41713-3	40857-6-2
8268-A ()-3		40582	40292-3	40292-2		40857-7-2

Disassembly of Dual Spindle Section

The Dual Spindle Attachment can be serviced without removing the complete assembly from tool. Using 5 mm hex wrench supplied with unit, loosen both adjusting screws (46036).

IMPORTANT: Alternately unthread Adjusting Screws approximately 1/2 turn at a time or unthread screws simultaneously to prevent damaging the unit.

After the Body and components have been removed from Adapter, Driving Spindle (46061) and components can be removed from Adapter. To remove Bearing (46038) and/or Gear (46025); remove Retaining Ring (37285), press Bearing back on Spindle to expose Needle Roller (46029) and remove Roller to remove Gear. Remove Bearing from Spindle.

Push back on head of Adjusting Screw (46063) to compress Spring Washer (46035) and expose "E" Ring (Y180-31) out of counterbore of Body and remove "E" Ring. Rotate Spindle Turret and at the same time pull back slightly on Turret to locate alignment of Spindle with notch in Body (46039) and remove Spindle Assembly from Body. To remove Gear (46030) from Body, remove Oil Reservoir (46035) and Nylon Washer (46031) - bend washer slightly to remove. Needle Cage (46037), Spacer (46034) and Washer (46032) are loose parts and will drop out. DO NOT disassemble Spindle (46062)- If necessary to replace a part, replace as complete Spindle Assembly (46062).

Recommended Method for Holding Drills in Spindles

To properly hold drill bit in collet and reduce the chance of slippage, a flat must be ground on the shank end of the bit. The flat should be approximately 5/16" (8mm) long and the depth should be 1/3 of the bit diameter.

NOTE: If bit is too large to fit into locking insert (smaller capacity Dual Spindles do not have insert), a square must be ground onto the shank end of the bit.

Assembly of Dual Spindle Section

Pack bearings and coat gears with a good grade of bearing Grease when assembling. Saturate Oil Reservoirs with a good multi-grade 10W/30 oil.

Insert a dummy Adjusting Screw (46036) (or a shaft of same dia.) thru Adapter side of Body to maintain alignment of parts to be assembled into Body and assemble Nylon Washer (46032) to dummy screw. Assemble one Needle Cage (46037), Spacer (46034), Needle Cage (46037) into Gear (46030) and assemble Gear to the dummy screw. Assemble Nylon Washer (46031) into Body - Bend Washer slightly to insert into Body and assemble Oil Reservoir (46053) into Body.

Assemble Spring Washer (46035) and Nylon Washer (46032) to Adjusting Screw (46036) and assemble Adjusting Screw to Spindle Assembly (46062) and assemble another Nylon Washer (46032) to Adjusting Screw. Assemble the Spindle Assembly into Body while holding Adjusting Screw in alignment with dummy screw to maintain parts alignment and using Adjusting screw to push the dummy screw out of Body.

NOTE: Align Spindle Assembly with notch in Body to assemble. After assembling Spindle to Body, depress head of Adjusting Screw and assemble "E" Ring to Screw securing Screw to Body.

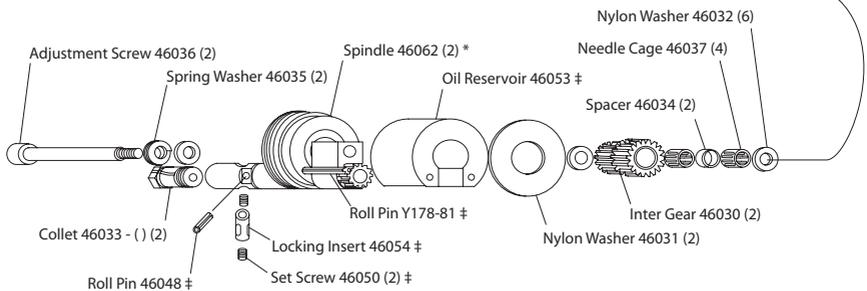
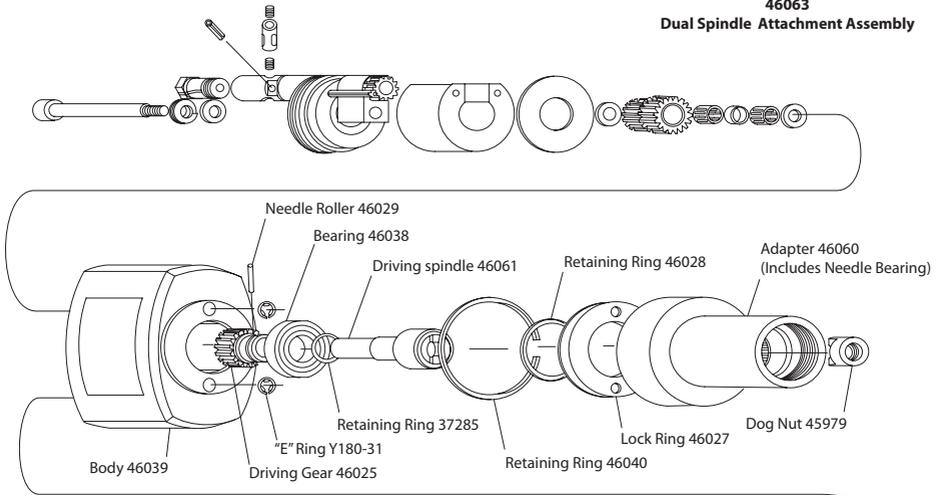
Reassemble Driving Spindle (46061) and components and the Body (46039) with Spindle Assemblies (46062) to Adapter (46060) in the reverse manner of disassembly.

Insert bit into spindle and into locking insert (where applicable) insuring that one of the set screws locates squarely on the flat of the bit. Tighten collet firmly, then tighten set screws.

NOTE: DO NOT over tighten collet.

NOTE: Intent of set screws is only to keep bit from turning in collet.

**46063
Dual Spindle Attachment Assembly**



‡ Included with Spindle 46062

* Spindle and Spindle components (except parts as noted) are sold only as complete assembly.

PARTS NOT SHOWN:

Set Screw (45984) (2), Wrench (15 mm Open End) 46056 Wrench (5 mm HEX) 46057, Wrench (3 mm HEX) 46058 and Wrench (15 mm Box End) 46059.

Note: Collets are not furnished with models collets must be ordered separately see page 16 for collet listing.

Disassembly of Drive Gearing

Remove gearing from tool as outlined on page 9. Remove Spacer (33697-1). Grasp Ring Gear in one hand and tap threaded end of Spindle with a soft face hammer; Spindle and components will loosen from Ring Gear.

NOTE: Further disassembly should be done only if it should be necessary to replace a part, as Brinelling of the bearing races may occur, making replacement necessary. To disassemble completely, remove Bearing (33706). Turn Snap Ring on Spindle so the open portion of the ring will allow the removal of Shaft. Remove Shaft, releasing Gear. Repeat for removal of opposite Shaft and Gear.

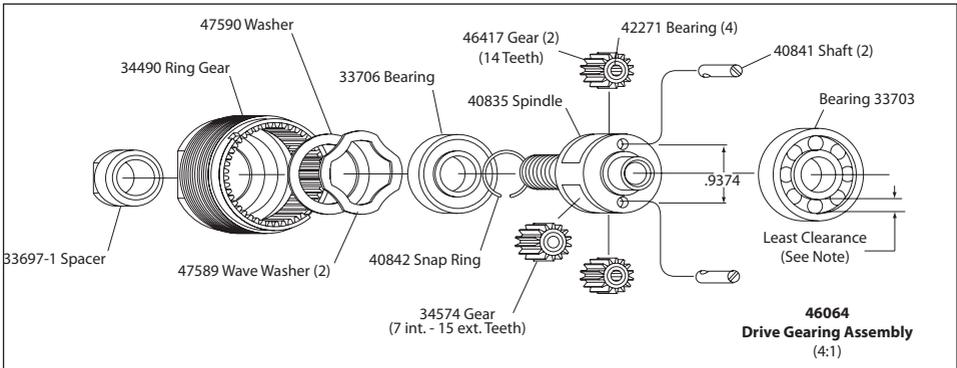
Assembly of Drive Gearing

NOTE: Pack Bearings and Lubricate Gears and Shafts with grease 33153, or equivalent, upon assembly. Gearing assembly should contain approximately 1/4 oz. (7 g) of grease.

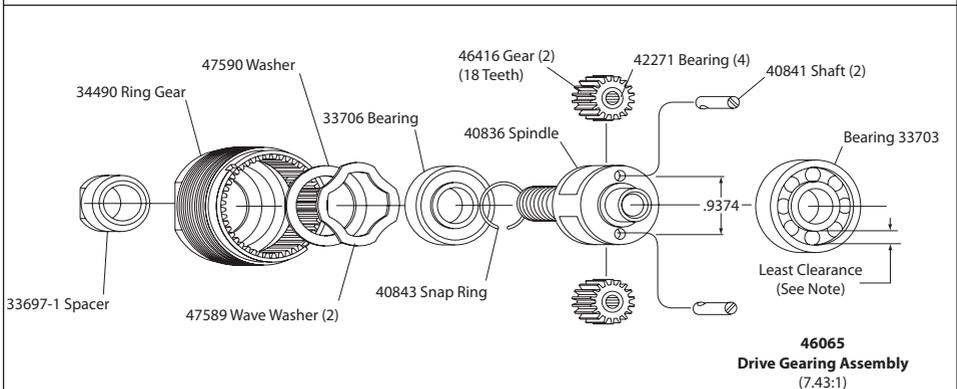
Assemble Snap Ring to Spindle. Rotate Snap Ring allowing installation of Shafts. After both Gears and Shafts have been assembled to Spindle, rotate Snap Ring locking Shafts in place. Assemble Bearing (33706) to Spindle and assemble into Ring Gear (34490) with Washer (47590) and Wave Washer (47589). Assemble Seal, Nose Housing and Spacer (33697-1) to gearing.

NOTE: Bearing (33703) is an angular contact type Bearing and should be installed as shown.

NOTE: Check side play of Spindle with tool retracted. If side play exceeds .010 TIR, add sufficient number of Wavy Washers (47589) to reduce side play to less than .010 TIR. Do not use less than one or more than three Wavy Washers.



NOTE: Bearing 33703 is Angular contact. Install with face having the least clearance between Inner and Outer Race away from spindle.



NOTE: Bearing 33703 is Angular contact. Install with face having the least clearance between Inner and Outer Race away from spindle.

Disassembly of Auxiliary Gearing

Remove gearing from tool as outlined on page 9. Grasp Ring Gear in one hand and tap drive end of Spindle with a non-metallic hammer; Spindle and components will loosen from ring gear.

Gearing should not be disassembled further unless it is necessary to replace a part as Brinelling of the bearing races may occur making replacement necessary.

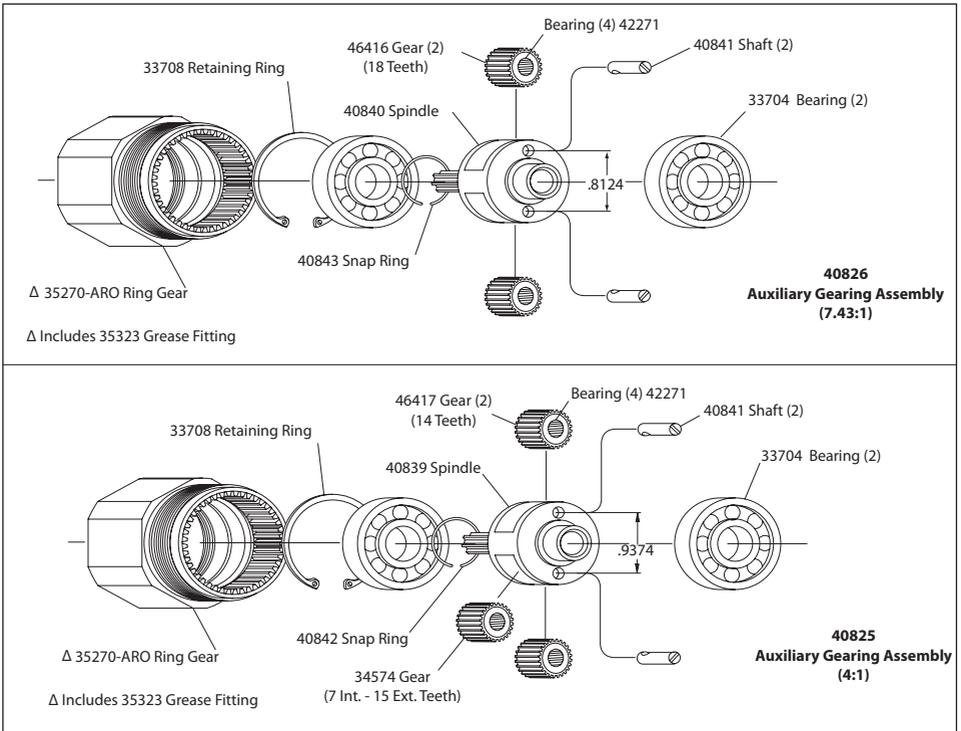
To further disassemble - remove Bearing (33704), rotate Snap Ring, so the open portion of the ring will allow the removal of Shaft, remove Shaft releasing Gear. Repeat for removal of opposite Shaft and Gear.

Assembly of Auxiliary Gearing

Pack Bearings and lubricate gears with grease (33153) upon assembling. Gearing Assembly should contain approximately 1/4 oz. (7 g) of grease.

To reassemble Gears and Bearings to Spindle, reverse the procedure of disassembly.

NOTE: after assembling Gears and Shafts to Spindle rotate Snap Ring securing both Shafts in place. Assemble Spindle and components to Ring Gear.



Disassembly of Motor

Remove motor assembly from housing as outlined on page 9. Using a spanner type wrench, remove nut (33694) and sems fastener (33700). Grasp cylinder in one hand and tap splined end of rotor with a soft face hammer; motor will come apart.

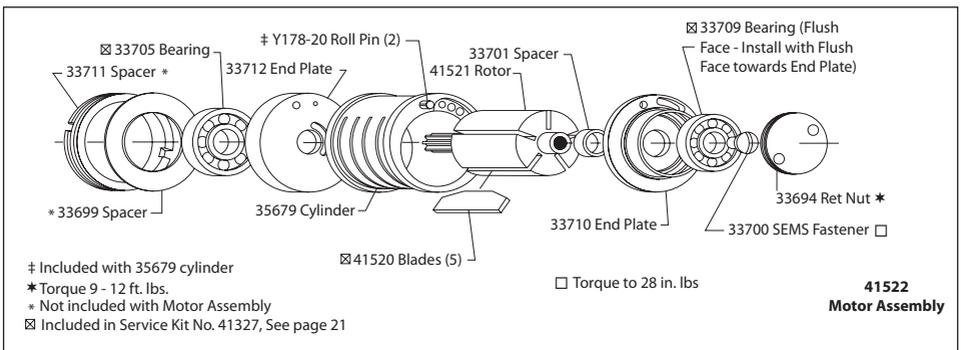
Assembly of Motor

NOTE: Pack bearings with 33153 grease, or equivalent, and coat i.d. of cylinder with 29665 spindle oil upon assembly.

Assemble bearings into end plates.

NOTE: Assemble bearing (33709) into end plate with identification markings on the bearing facing "out". Assemble end plate (33710) to rotor and secure with sems fastener (33700).

NOTE: Torque to 28 in. lbs. Assemble cylinder over rotor, aligning air inlets and roll pin of cylinder with air inlets and hole in end plate for roll pin. Assemble blades to rotor. Assemble end plate (33712) to rotor. Assemble nut (33694) to end plate and torque to 9-12 ft lbs. Insure rotor does not bind (if rotor binds, lightly tap splined end of rotor with a soft face hammer to loosen) and assemble to tool.



Disassembly of Air Piston

Remove motor and Piston Section from tool as outlined on page 9. If the Air Cylinder has remained inside the Outer Sleeve, push the Piston Rod forward then pull it rearward to remove the Air Cylinder.



Handle the Air Cylinder carefully so as not to damage the inside diameter.

Remove Retaining Ring (Y145-23) from the Piston Rod. Push the Piston Rod and Motor Housing out thru gear end of the Outer Sleeve and remove from Outer Sleeve. Piston (40576) will drop out of Outer Sleeve when Piston Rod is removed. Using a suitable rod, insert rod thru gear end of Outer Sleeve and Push Cap (40577) out thru valve end of Outer Sleeve. Piston Rod and Motor Housing are locked together with a hard drying thread adhesive at assembly. If it should become necessary to disassemble these parts, heat threaded area lightly to facilitate removal-R.H. thread.

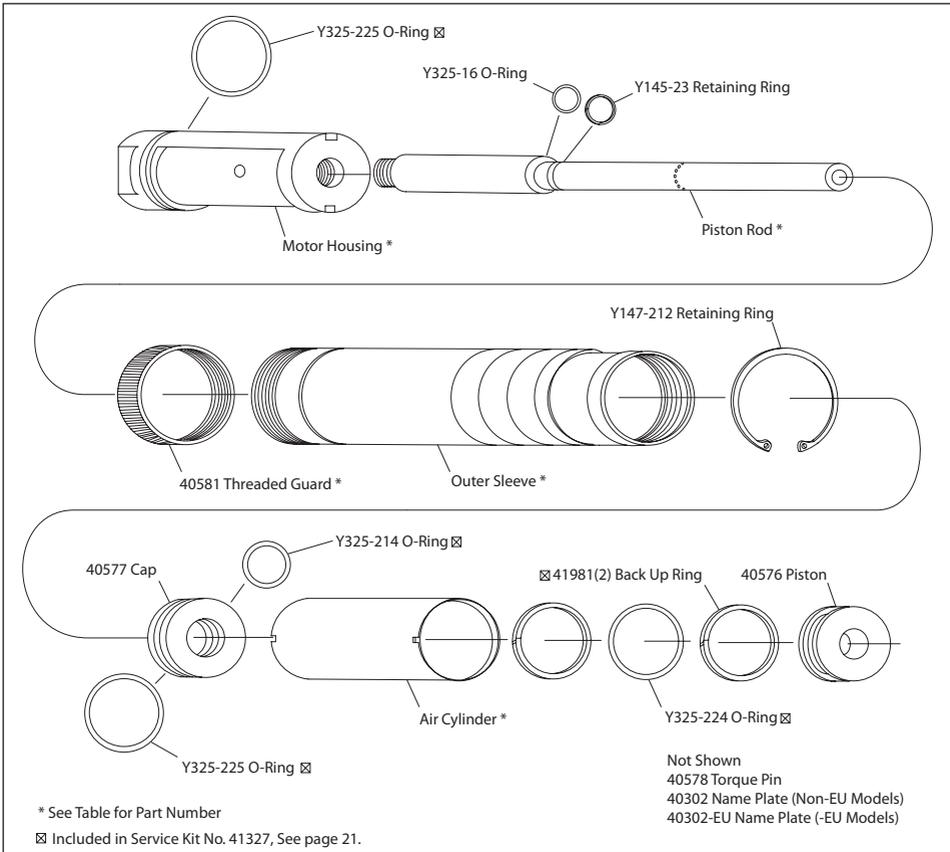
Assembly of Air Piston

NOTE: Whenever a part containing O-Rings has been removed from tool it is recommended that the O-Rings be replaced with new ones when reassembling port to tool. Lubricate all O-Rings with O-Ring lubricant when assembling.

Assemble Retaining Ring (Y147-212) into Sleeve, if removed.

Assemble O-Rings (Y325-214) and (Y325-225) to Cap (40577) and assemble Cap into Sleeve thru valve end. Apply a small amount of grease to Torque Pin to retain pin in place and assemble into Outer Sleeve in hole provided. Assemble O-Ring (Y325-16) to groove in Piston Rod and assemble O-Ring (Y325-225) to groove in Motor Housing. Assemble Piston Rod and Motor Housing into Outer Sleeve from gear end, exercising care so as not to damage O-Ring (Y325-214) when inserting Piston Rod thru cap already assembled into Sleeve. Slot in Motor Housing must be aligned with Torque Pin. Assemble O-Ring (Y325-224) and Back-up Rings (41981) to Piston (40576) and assemble Piston over Piston Rod. Secure with Retaining Ring (Y145-23).

Clamp Valve Housing in a suitable holding device with sleeve end upright. Assuming O-Rings have been assembled to Valve Housing; coat i.d. of Air Cylinder (40579) with O-Ring lubricant and place Air Cylinder on Valve Housing over O-Ring (Y325-32). Assemble Motor and Piston section with Outer Sleeve to Valve Housing and over Air Cylinder, exercising care to maintain proper alignment so as not to damage i.d. of Air Cylinder and thread Outer Sleeve to Valve Housing. Tighten securely using a strap type wrench. Assemble Motor, Gearing and Trip Bracket to tool.



* See Table for Part Number

⊠ Included in Service Kit No. 41327, See page 21.

Not Shown
40578 Torque Pin
40302 Name Plate (Non-EU Models)
40302-EU Name Plate (-EU Models)

Models	Piston Rod	Air Cylinder	Motor Housing	Outer Sleeve
8268-A()-1	40596	40579-1	40574	40595
8268-A()-3	40575	40579		40573

Disassembly of Valve Section

Spool Valve

Remove two (2) caps (46697) with O-Rings (Y325-14). Spool Valve can now be pushed out thru housing. Handle Spool Valve with reasonable care so as not to damage outside diameter of valve.

Feed Control Valves

Remove screws (Y211-1) and plate (48440-1) Unthread valves from housing to remove.

Check Valves (39587)

Valve Housing must be removed from tool to service check valves. Unthread and remove Screw Plugs to gain access to Check Valves and components.

Button Bleed Valves

Need not be removed except for replacement only.

Assembly of Valve Section

NOTE: Whenever a part containing O-Rings has been removed from tool it is recommended that the O-Rings be replaced with new ones when reassembling part to tool. Lubricate all O-Rings with O-Rings lubricant when assembling.

Spool Valve

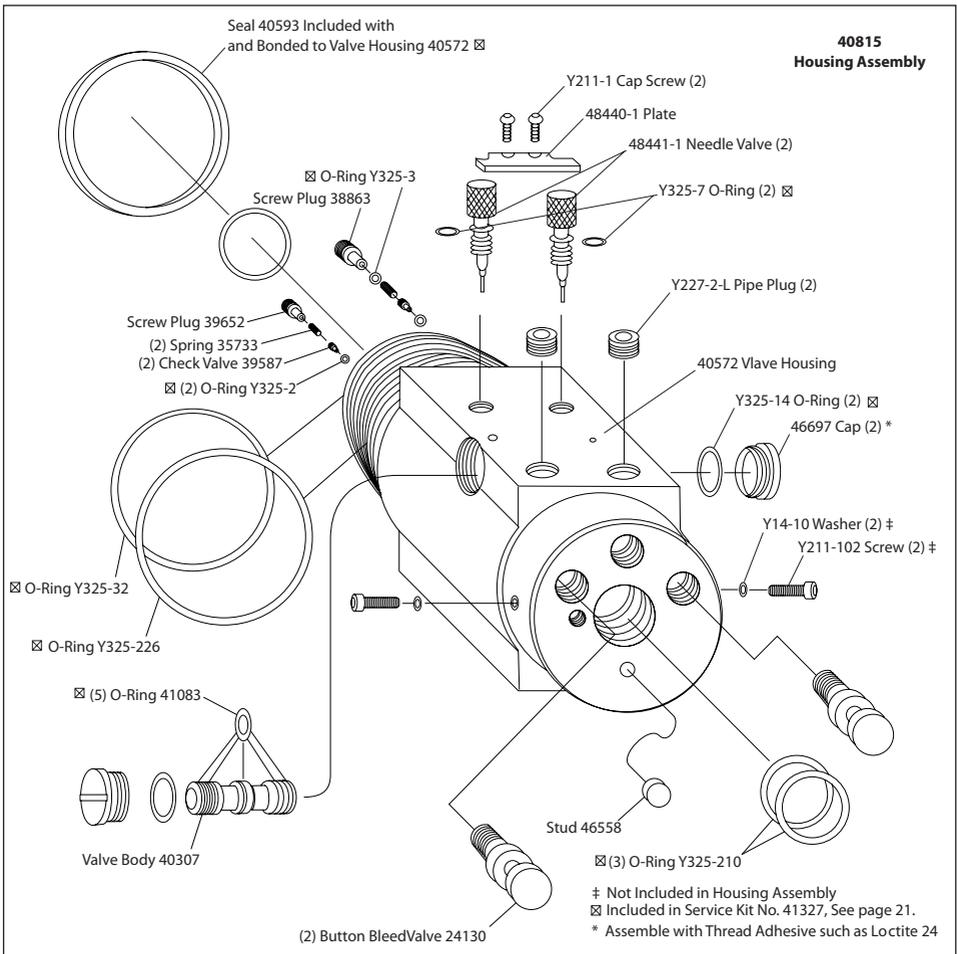
Assemble five (5) O-Rings (41083) to Valve Body (40307) and assemble Valve Body into housing. Assemble O-Rings (Y325-14) to Caps and assemble Caps to housing.

Feed Control Valves

Assemble O-Ring (Y325-7) to needle valve (48441-1) and assemble needle valve to housing. Assemble plate (48440-1) to housing, securing with screws (Y211-1).

Check Valves

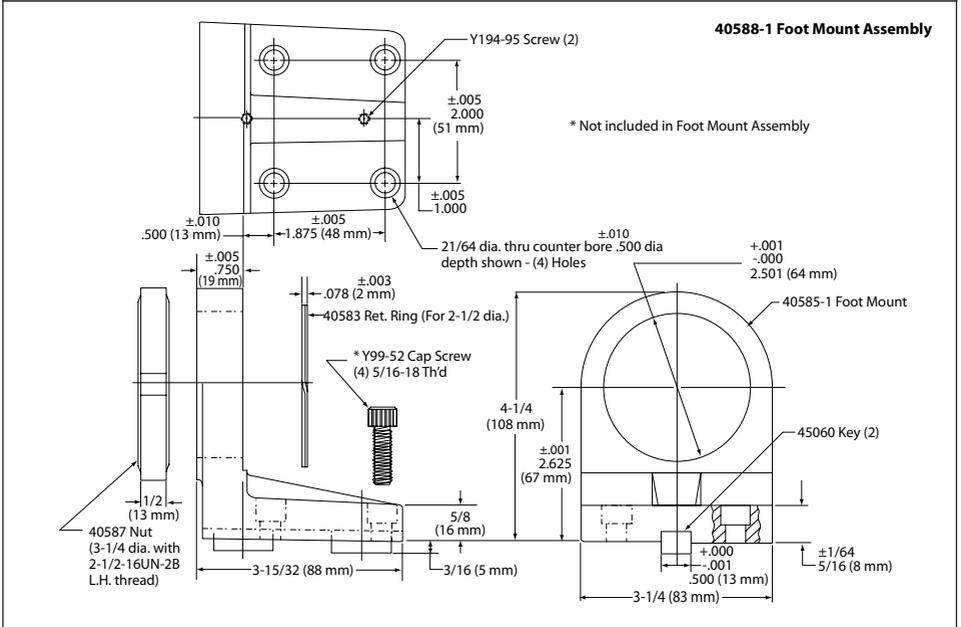
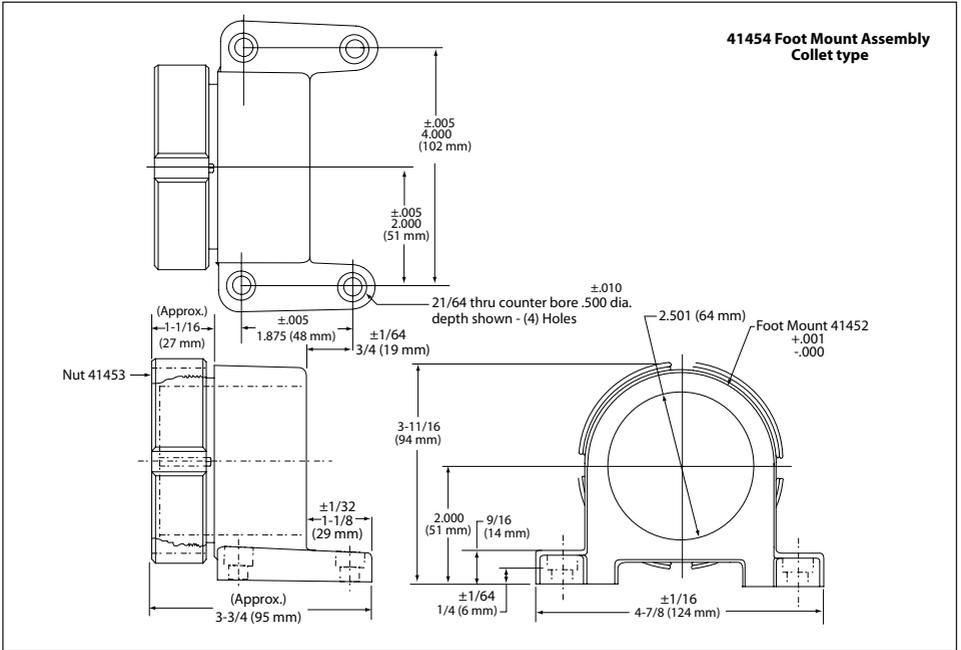
Assemble O-Ring (Y325-2) to Check Valve and assemble Check Valve and Spring (35733) to housing. Secure the one Check Valve and Spring with Screw Plug (39652) - see illustration for correct one. Assemble O-Ring (Y325-3) to Screw Plug (38863) and assemble to housing securing Check Valve and Spring - see illustration.



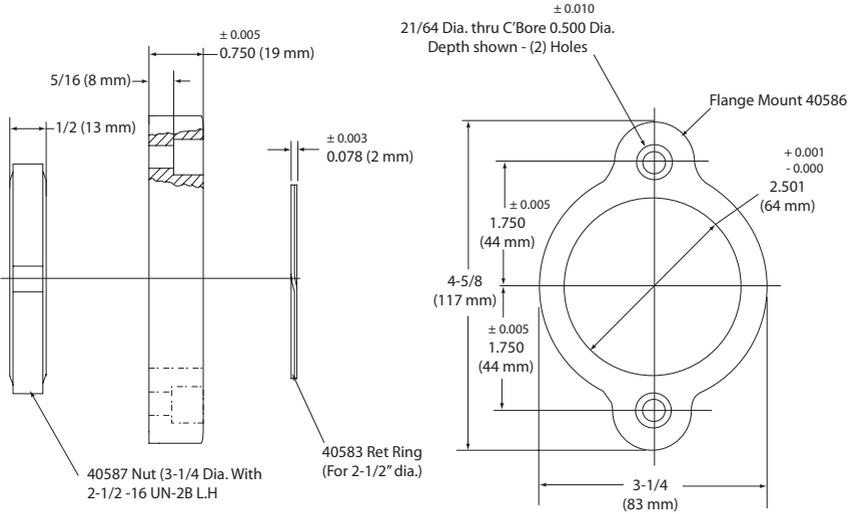
Optional Collets

Part No.	Bore Dia. (Ref.)	Inch	Accepts Drill Sizes No.	mm	Part No.	Bore Dia. (Ref.)	Inch	Accepts Drill Sizes No.	mm
46033-1	.079	5/64	47	2.0	46033-39	.228	7/32	1	5.8
46033-2	.083		45	2.1	46033-40	.232		-	5.9
46033-3	0.87		44	2.2	46033-41	.236	15/64	A	6.0
46033-4	.091		43	2.3	46033-42	.240		B	6.1
46033-5	.094	3/32	42	2.4	46033-43	.244	1/4	C	6.2
46033-6	.098		40	2.5	46033-44	.248		D	6.3
46033-7	.102		38	2.6	46033-45	.252		E	6.4
46033-8	.106	7/64	36	2.7	46033-46	.256	17/64	F	6.5
46033-9	.110		35	2.8	46033-47	.260		G	6.6
46033-10	.114		33	2.9	46033-48	.264		-	6.7
46033-11	.118		32	3.0	46033-49	.268		H	6.8
46033-12	.122	1/8	31	3.1	46033-50	.272	9/32	I	6.9
46033-13	.126		-	3.2	46033-51	.276		J	7.0
46033-14	.130		30	3.3	46033-52	.280		K	7.1
46033-15	.134		29	3.4	46033-53	.283		-	7.2
46033-16	.138	9/16	-	3.5	46033-54	.287	19/64	-	7.3
46033-17	.142		28	3.6	46033-55	.291		L	7.4
46033-18	.146		26	3.7	46033-56	.295		M	7.5
46033-19	.150		25	3.8	46033-57	.299		-	7.6
46033-20	.154	5/32	23	3.9	46033-58	.303	5/16	N	7.7
46033-21	.157		22	4.0	46033-59	.307		-	7.8
46033-22	.161		20	4.1	46033-60	.311		-	7.9
46033-23	.165		19	4.2	46033-61	.315		O	8.0
46033-24	.169	11/64	18	4.3	46033-62	.319	21/64	-	8.1
46033-25	.173		17	4.4	46033-63	.323		P	8.2
46033-26	.177		16	4.5	46033-64	.327		-	8.3
46033-27	.181		14	4.6	46033-65	.331		Q	8.4
46033-28	.185	3/64	13	4.7	46033-66	.335	11/32	-	8.5
46033-29	.189		12	4.8	46033-67	.339		R	8.6
46033-30	.193		10	4.9	46033-68	.342		-	8.7
46033-31	.197	13/64	9	5.0	46033-69	.346	23/64	-	8.8
46033-32	.201		7	5.1	46033-70	.350		S	8.9
46033-33	.205		5	5.2	46033-71	.354		-	9.0
46033-34	.209		4	5.3	46033-72	.358		T	9.1
46033-35	.213	7/32	3	5.4	46033-73	.362	3/8	-	9.2
46033-36	.216		-	5.5	46033-74	.366		-	9.3
46033-37	.220		2	5.6	46033-75	.370		U	9.4
46033-38	.224		-	5.7	46033-76	.375		-	9.5

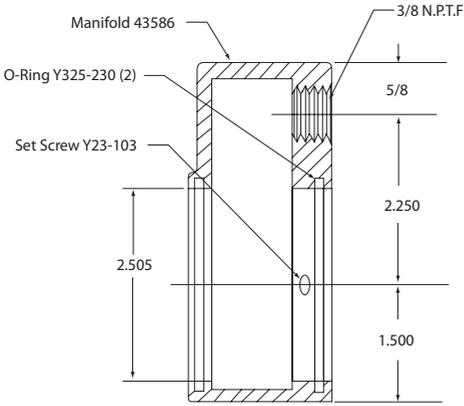
Accessories



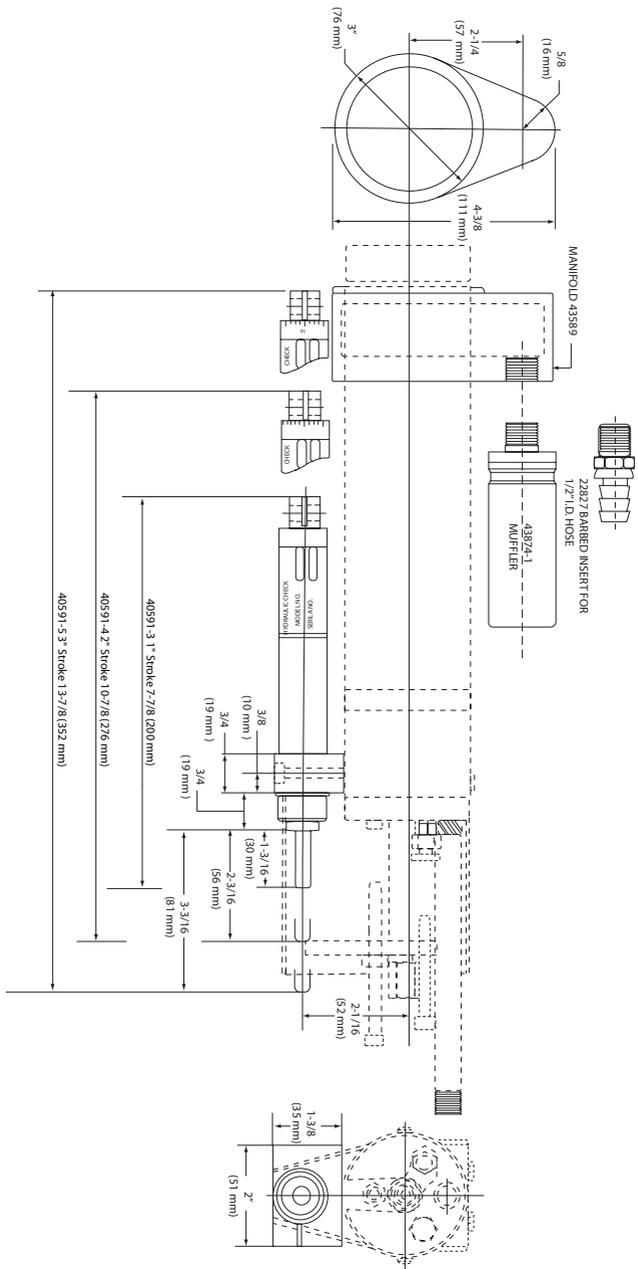
40589 Flange Mount Assembly



43589 Exhaust Manifold Assembly



Includes Manifold 43586, O-Ring (2) Y325-230 and Set Screw Y23-103.
 For External muffling use with Muffler (43874-1).
 For Closed exhaust system use with Hose Adapter (22827) for 1/2" i.d. exhaust hose.



To Assemble to Tool:

Remove Thread Guard (40581) from nose end of Outer Sleeve and slip Manifold (43586-) with O-Rings (Y325-230)- over Outer Sleeve and position over exhaust holes in sleeve. Outlet for muffler can be positioned either to the front or the rear as desired. Tighten Set Screw (Y23-103) securing manifold to Outer Sleeve.



Do not over-tighten Set Screw (Y23-103) as it may cause distortion of the Outer Sleeve and thus cause damage to the Air Cylinder (40579-) contained inside the Outer Sleeve impairing the function of the tool.

**Service Kit No. 41327
For Servicing Models 8268-()**

Part Description	Part Number	Part Description	Part Number
Bearing	33705	O-Ring (2)	Y325-2
Bearing	33709	O-Ring	Y325-3
Spring (2)	35733	O-Ring (2)	Y325-7
Grease Seal	37774	O-Ring (2)	Y325-14
Gasket (2)	40309	O-Ring	Y325-16
Ring Seal	40593	O-Ring	Y325-32
O-Ring (5)	41083	O-Ring (3)	Y325-210
Blade (5)	41520	O-Ring	Y325-214
Motor Oil	41795	O-Ring	Y325-224
Gear Lube	41799	O-Ring (2)	Y325-225
O-Ring Lube	41954	O-Ring	Y325-226
Back Up Ring (2)	41981		

Troubleshooting

Listed below are some of the most common causes for the self-feed drill to malfunction. Malfunctions beyond the scope of this manual should be brought to the attention of your **Ingersoll Rand** representative or return the tool to factory for repair.

Conditions	Possible Cause	Corrective Action
Failure to feed or irregular or erratic feed.	Inadequate air supply.	Check air supply for correct regulator adjustment (90 p.s.i.g. max. when tool is operating).
	Feed control valves improperly adjusted.	Refer to set-up procedure, page 1.
	Air leak around cap 46697.	Check for damage to O-Ring. Check and insure caps are properly tightened.
	Dirt or damaged O-Rings on spool valve 40307.	Refer to valve section, page 4, and remove spool valve. Inspect, clean and replace O-Rings.
	Clogged air passage in valve housing.	Remove valve housing from tool. Disassemble and blow all air passages clear of debris.
Low speed or motor fails to operate.	Inadequate air supply.	Check air supply for correct regulator adjustment.
	Clogged air passage in valve housing.	Remove valve housing from tool. Disassemble and blow air passages clear of debris.
Motor continues to run after retraction.	Piston not fully retracted.	Insure piston is not obstructed and is returned all the way back.
	Damaged O-Ring Y325-210 inside valve housing.	Remove valve housing from tool. Replace O-Rings.
Failure to retract.	Improper adjustment or alignment between adjustment screw and button bleed valve.	Refer to set-up procedure, page 1.
	Feed control valves 48441-1 improperly adjusted or dirty.	Check adjustment, refer to page 2. Remove, inspect and clean.
	Air leak around cap 46697.	Check for damage to O-Ring. Check and insure caps are properly tightened.
	Damaged O-Rings in Muffler cap, Valve housing or Spool valve or Seals on Piston.	Disassemble, inspect and replace O-Ring and/or seals.
	Clogged air passages in valve housing.	Remove valve housing from tool. Disassemble and blow air passages clear of debris.

Notes:

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