ARO
Tool Products

OPERATOR'S MANUAL

INCLUDING: OPERATION, INSTALLATION & MAINTENANCE

PAR–A–MATIC® SELF–FEED DRILLS (WITH OFFSET DRILLING HEAD)

Models 8266–A( )–( ) AND 8267–A( )–( )

SECTION M103
MANUAL 26
Released: 12/79
Revised: 12–12–94
Form: 1633–2

IMPORTANT: READ THIS MANUAL CAREFULLY BEFORE INSTALLING, OPERATING OR SERVICING THIS EQUIPMENT.

FEATURES:
OFFSET TYPE DRILLING HEAD
MODELS 8266–A( ) HAVE A BUILT–IN 4–WAY VALVE
MANUAL OR REMOTE OPERATION (MODELS 8266–A)
ADJUSTABLE STROKE LENGTHS
ADJUSTABLE FEED RATES
SPEED RANGES FROM 700 TO 2,300 R.P.M. AVAILABLE
3/8" – 24 SPINDLE THREAD
3/8" CAPACITY CHUCK
1/4" MALE N.P.T.F. AIR INLET TO MOTOR
1/8" FEMALE N.P.T.F. REMOTE CONTROL PORTS

INDEX

For parts and service information, contact your local ARO distributor, or the Customer Service Dept. of the Ingersoll–Rand Distribution Center, White House, TN at PH: (615) 672–0321, FAX: (615) 672–0601.

ARO Tool Products
Ingersoll–Rand Company
1725 U.S. No. 1 North • P.O. Box 8000 • Southern Pines, NC 28388–8000

INGERSOLL-RAND®
PROFESSIONAL TOOLS

MODEL IDENTIFICATION

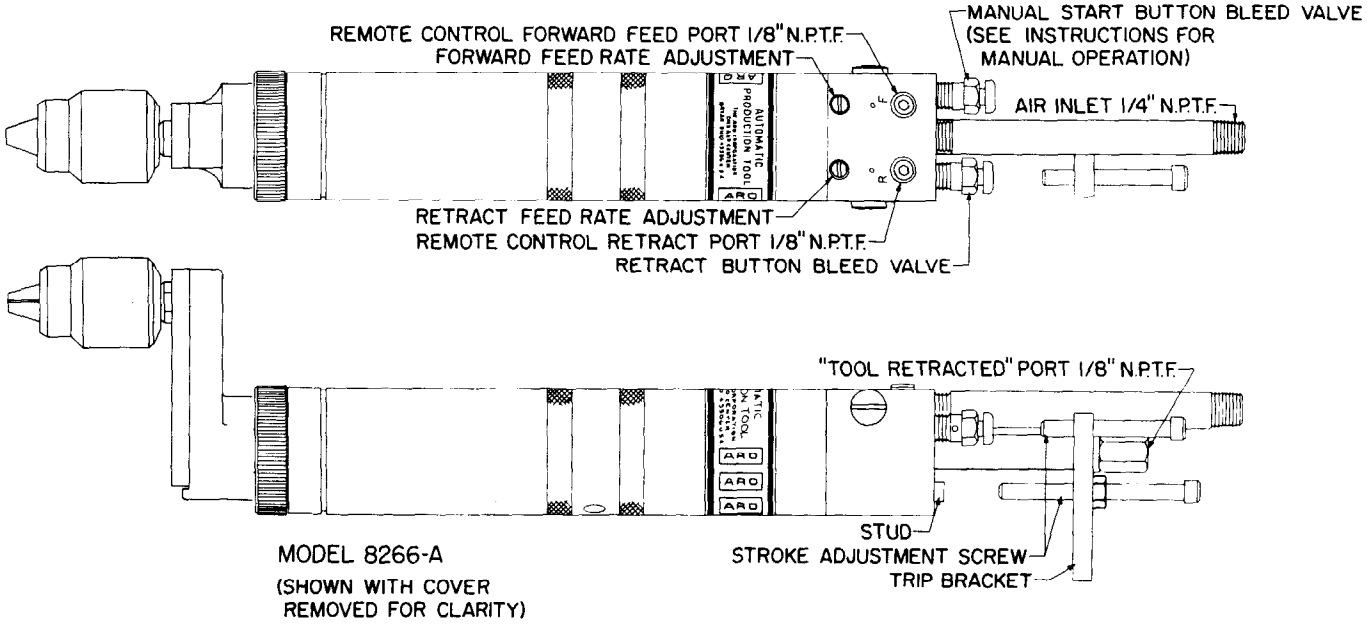
1–1/4" STROKE						
MODEL NUMBER	CANCELLED	R.P.M.	AUXILIARY GEARING	DRIVE GEARING	MOTOR ASSEMBLY	TOTAL REDUCTION
8266–A7–1	8267–A7–1	700	33837	33835	37959–1	22.7:1
8266–A12–1( )	8267–A12–1	1,200	33853	33835	37959–1	13.9:1
8266–A17–1	8267–A17–1	1,750	39852	33808	37960–1	8.2:1
8266–A23–1( )	8267–A23–1	2,300	33837	33808	37959–1	6.7:1

2" STROKE						
MODEL NUMBER	CANCELLED	R.P.M.	AUXILIARY GEARING	DRIVE GEARING	MOTOR ASSEMBLY	TOTAL REDUCTION
8266–A7–2	8267–A7–2	700	33837	33835	37959–1	22.7:1
8266–A12–2	8267–A12–2	1,200	33853	33835	37959–1	13.9:1
8266–A17–2	8267–A17–2	1,750	39852	33808	37960–1	8.2:1
8266–A23–2	8267–A23–2	2,300	33837	33808	37959–1	6.7:1

MODELS WITH –EU SUFFIX ARE "EC" COMPLIANT MODELS.

GENERAL DESCRIPTION AND OPERATION

Safe and efficient operation of your ARO 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 8266-A-( ) and 8267-A-( ) drills are fitted with an offset type drilling head. Such a design feature allows several tools to be fixtured so as to produce holes with very close centerline distances.

The Models 8266-A-( ) drills have built-in valving and are designed to automatically feed to a pre-set depth, trip and return.

The Models 8267-A-( ) are "thru-head" type and are designed to operate in the forward and retract strokes with the use of external valving.

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

GEARING: The double reduction planetary gearing assemblies provide four (4) final spindle speeds.

AIR MOTOR: The vane type air motor develops a minimum of .4 horsepower. 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 2.0 square inches and develops approximately 170 pounds of thrust with 90 p.s.i.g. at the piston inlet.

VALVE SECTION — Models 8266-A( ): 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 retact 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 pre-set 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.

VALVE SECTION — MODELS 8267-A( ): The valve section houses the needle type FEED CONTROL VALVE marked "SLOW FEED" located at top of the valve housing and regulates the forward 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.

MANUAL OPERATION OF MODELS 8266-A( )

The Models 8266-A( ) are shipped from 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 (Y154-19) securing Cover (40313-) 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 (40313-) and tighten Screws (Y154-19) securing Cover to Valve Housing.

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 CONTROL OPERATION MODELS 8266-A( )

The Models 8266-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 (part no. 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.

REMOTE RETRACT is accomplished by use of a Pressure Bleed Valve (part no. 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.

REMOTE CONTROL OPERATION MODELS 8267-A( )

The Model 8267-A( ) can be used as a single unit application or in a multiple unit application. REMOTE START is accomplished by connecting, by use of proper fittings and 1/8" I.D. tubing, the "F" port at either the top or rear of the Valve Housing to a 4-way type valve which, when actuated, feeds air pressure to the unit starting the advancing (forward) mode of the unit.

REMOTE RETRACT is accomplished by connecting, by use of proper fittings and 1/8" I.D. tubing, the "R" port at either the top or rear of the Valve Housing to the same 4-way valve the Remote Start is connected. The 4-way valve is actuated once for the forward mode and actuated a second time to retract the unit. The valve can be actuated at any time after the unit has started the advancing (forward) mode to retract the unit in the event of a part misalignment or similar situation. See illustration on page 9.

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 2" — 16 L.H. threads (remove thread guard for use) and a 2" x 1-1/8" long pilot diameter for fixture mounting. A groove is also provided in the Outer Sleeve for a retaining ring which is supplied with the foot and flange type brackets. 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 (Y154-19) securing Cover (40313-) to the Valve Housing and remove Cover (40313-). After the set-up has been completed, replace the cover and tighten the two (2) Screws (Y154-19) 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.

MODELS 8266-A( ) ONLY — 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.

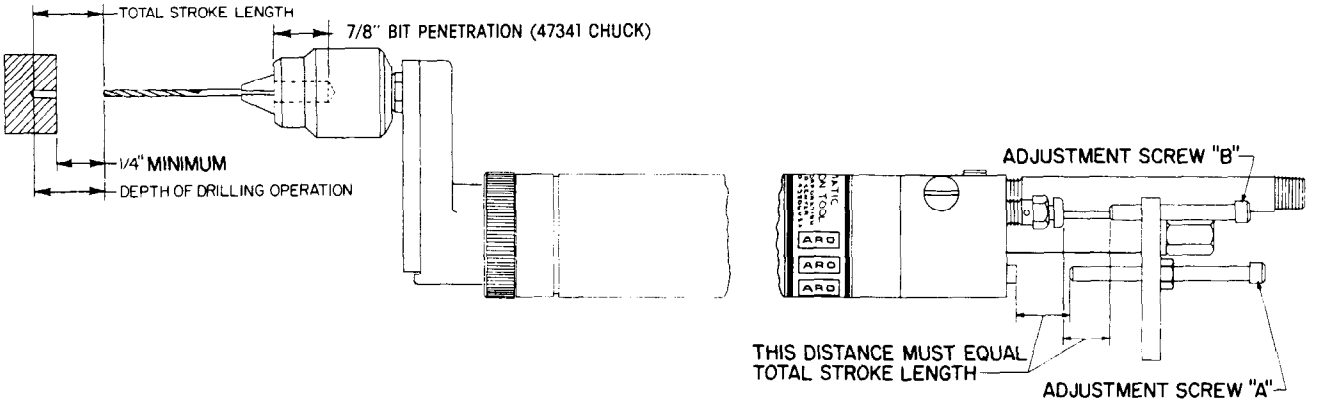
FEED RATE CONTROL VALVES, MODELS 8266-A: The retract Feed Rate Control Valve marked "R". located at the top of the Valve Housing, regulates the rate of return of the piston. Open this Valve approximately 1-1/2 turns (counter-clockwise) from the closed position for setting-up of unit. Close the Feed Rate 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".

FEED RATE CONTROL VALVE, MODELS 8267-A: The Feed Rate Control Valve marked "slow feed" at the top of the Valve Housing regulates the forward rate of feed. Open this Valve approximately two (2) full turns (counter-clockwise) from the closed position for setting-up purposes. Start the unit in the forward mode and rotate slow-feed valve until desired rate of feed is attained.

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



SET-UP PROCEDURE FOR OPTIONAL HYDRAULIC CHECK

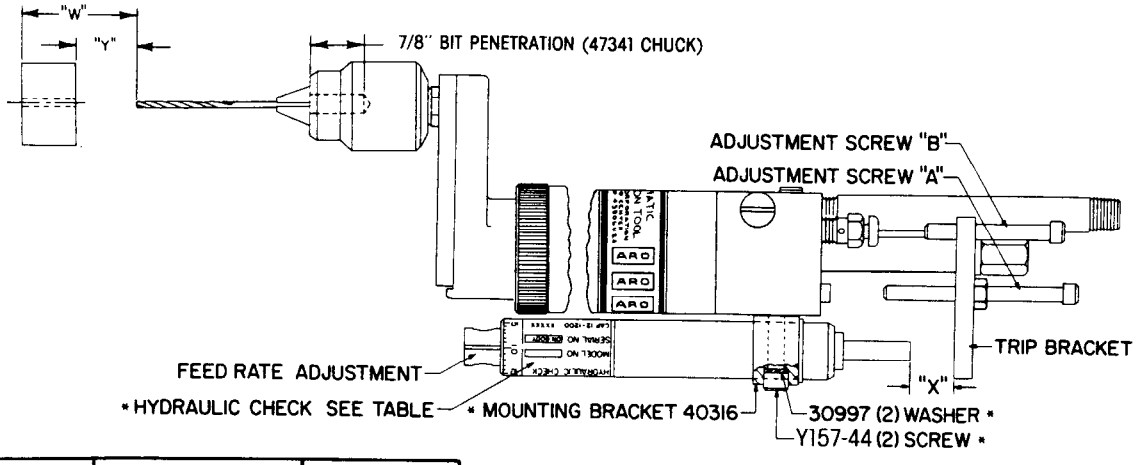
The Hydraulic Check unit is an accessory item used with the Models 8266-A( ) and 8267-A( ) when controlled thrust is required during drilling and/or at break-through. The Hydraulic Check is a sealed unit with a low friction diaphragm. The hydraulic fluid need not be replenished. The Hydraulic Check is 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:

1. Measure distance from Drill Point to Work Piece (DISTANCE "Y").
2. 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.
3. 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.
4. The Hydraulic Feed Rate Adjustment is located at the name plate end of the Hydraulic Check. Rotate extended spindle until slot on spindle is located midway between the highest and the lowest settings.
5. Start Tool and the Drill will advance at a rapid rate, until the Trip Bracket contacts the plunger of the Hydraulic Check.
6. Slowly rotate the Hydraulic Feed Rate counterclockwise for faster feed rate or clockwise for slower feed rate.



STROKE LENGTH	HYDRAULIC CHECK ASS'Y.	HYDRAULIC CHECK NO.
1 INCH	40591-3	38922
2 INCH	40591-4	38922-1
3 INCH	40951-5	38922-2

PARTS INDICATED BY ASTERISK (*) ARE INCLUDED IN 40591-( ) HYDRAULIC CHECK ASSEMBLY.

SEE PAGE 18 FOR HYDRAULIC CHECK DIMENSIONAL DATA.

TO CONTROL BREAKTHROUGH

1. 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").
2. Set-up procedure for the PAR-A-MATIC SELF-FEED DRILL will be the same as explained in Set-Up Procedure, page 4.

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 microns should be used with a line oiler.

Filter–Regulator–Lubricator (F.R.L.) assembly model C28221–810 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.

OFFSET DRILL ATTACHMENT should be grease lubricated every 160 hours of operation. Inject grease (33153), or equivalent, 1 to 2 strokes, thru grease fitting in cover plate.

MOTOR is lubricated thru air inlet of unit by use of a lubricator installed in air line. Spindle Oil 29665, 1 qt. (.9 liter) 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 1/8 oz. (3.5 g) of grease.

RECOMMENDED HOSE SIZE — 5/16" (8 mm) nominal inside diameter.

PART NO.	WHERE USED	DESCRIPTION OF LUBRICANT
29665	AIR MOTOR	A HIGH QUALITY LIGHT TURBINE OR SPINDLE OIL, RUST INHIBITED, WITH A VISCOSITY OF 100-150 S.U.S. AT 100°F. OIL IS COMPATIBLE WITH POLYCARBONATE TYPE AIR LINE LUBRICATOR BOWLS.
33153	GEARS & BEARINGS	A HIGH QUALITY "EP" EXTREME PRESSURE ANTI-FRICTION BEARING AND GEAR GREASE, NLGI NO. 1, FREE OF CORROSIVE MATTER AND FILLERS, WITH A VISCOSITY OF APPROX. 750 S.U.S. AT 100°F.
36460	O-RINGS & LIP TYPE SEALS	A STRINGY LUBRICANT FOR RUBBER SEALS, WITH GOOD ADHESIVE QUALITIES.

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.

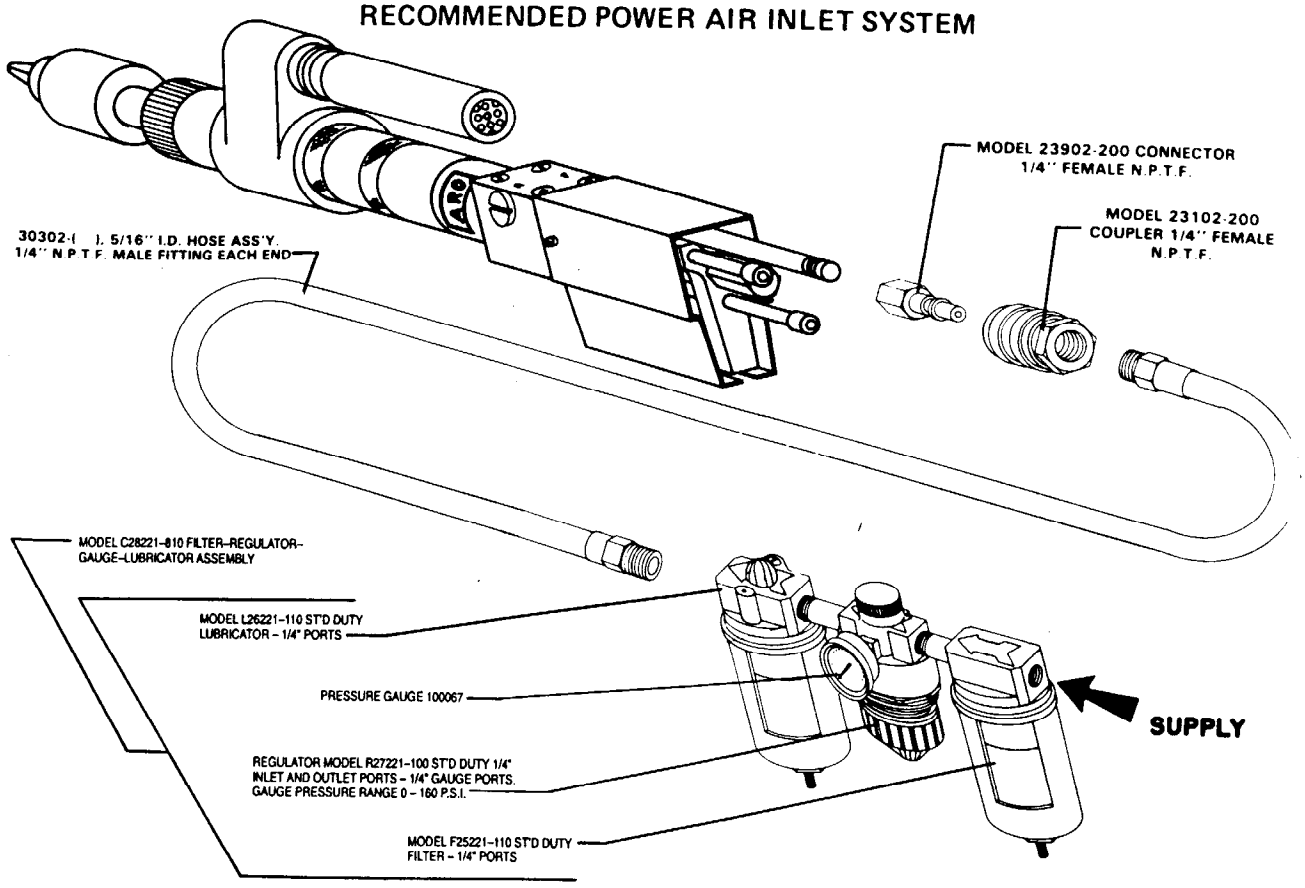
Double sealed or shielded bearings should never be placed in solvent unless a good method of re-lubricating the bearing is available. Open bearings may be washed but should not be allowed to spin while being blown dry. When REPLACEMENT PARTS are necessary, consult drawing containing the part for identification.

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 ARO REPLACEMENT PARTS.

For additional Maintenance information, the manual "Tips on Air Tools", Form 5948 (English) or Form 2158-2X (Spanish) are available at $5.00 each. Send request to: The ARO Corporation, One Aro Center, Bryan, Ohio 43506, Attn: "Sales Training".

RECOMMENDED POWER AIR INLET SYSTEM

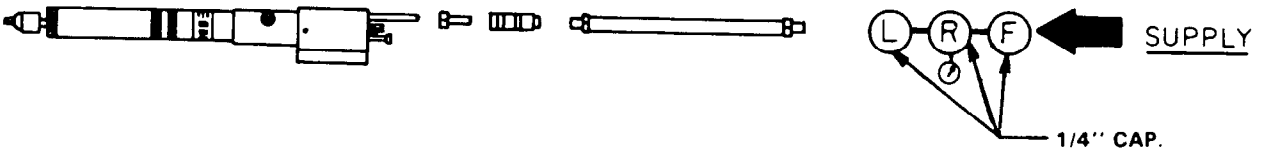


Your ARO Self-Feed tool is designed to deliver specific horsepower and thrust to achieve high rates of work. To assure the unit will develop this power, care must be taken that the power air inlet system is correctly sized to permit the proper rate of air flow. Shown above is a system for a single tool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

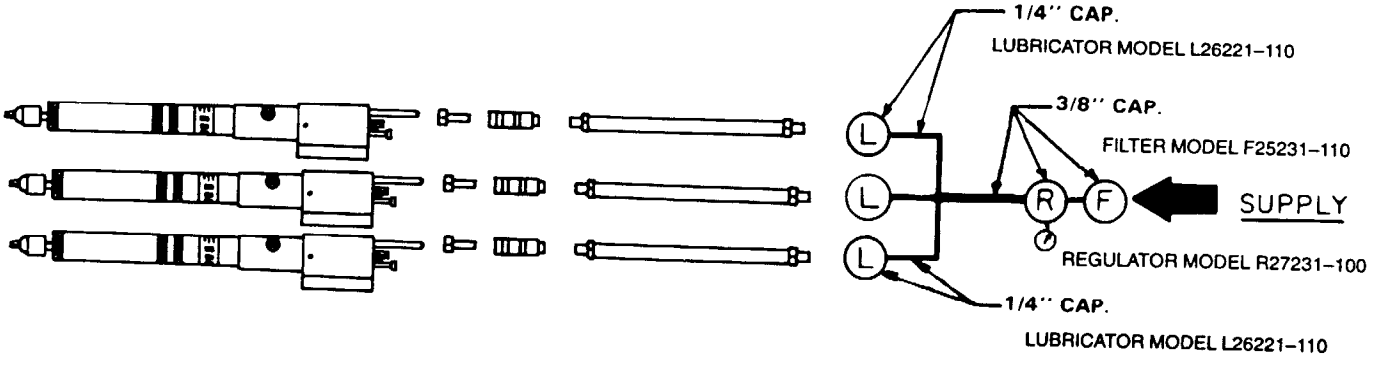
SEE SPECIAL NOTE — PAGE 3

F = FILTER
R = REGULATOR
L = LUBRICATOR



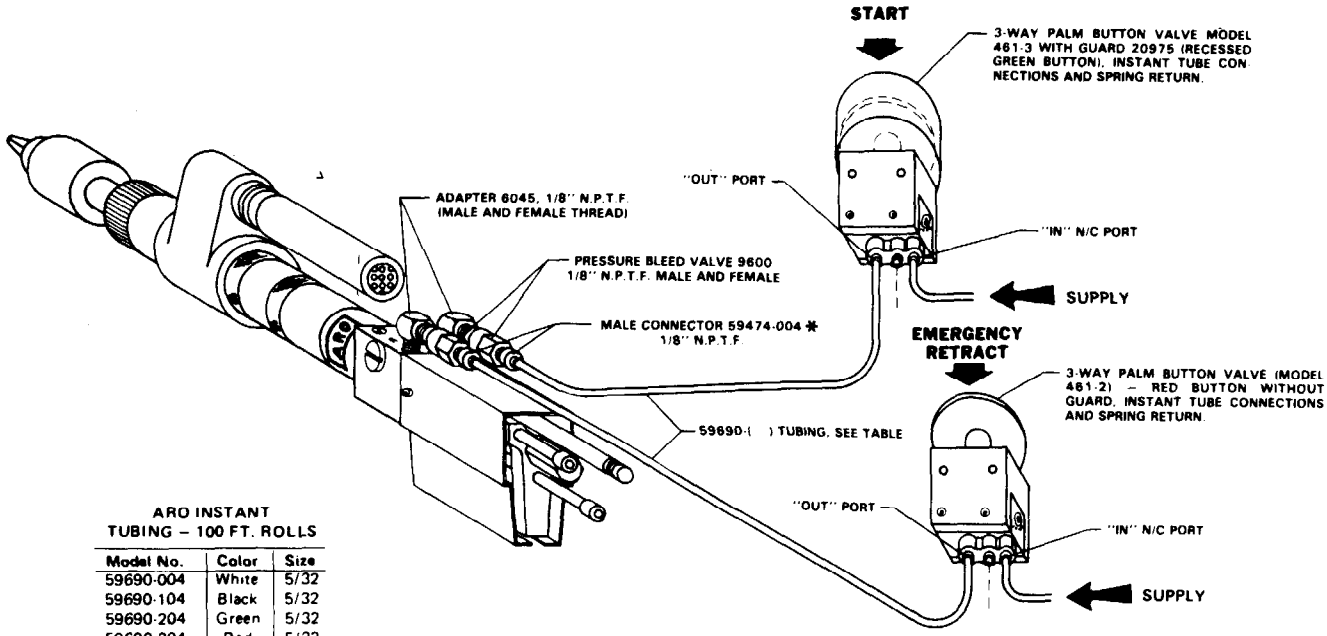
F-R-L- MODEL C28221-810

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



BASIC REMOTE CONTROL FOR START AND EMERGENCY RETRACT FUNCTIONS

MODEL 8266-A( )



ARO INSTANT TUBING – 100 FT. ROLLS

Model No.	Color	Size
59690-004	White	5/32
59690-104	Black	5/32
59690-204	Green	5/32
59690-304	Red	5/32
59690-404	Blue	5/32
59690-504	Yellow	5/32
59690-604	Gray	5/32
59690-704	Orange	5/32

*packaged 10 to a box

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.

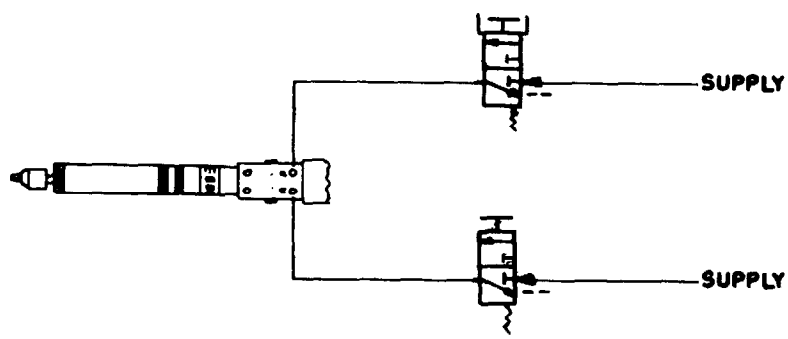
TO START — depress the remote button momentarily. The unit will advance the drill to a pre-set depth and automatically retract to the initial position whereupon the unit will stop.

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.

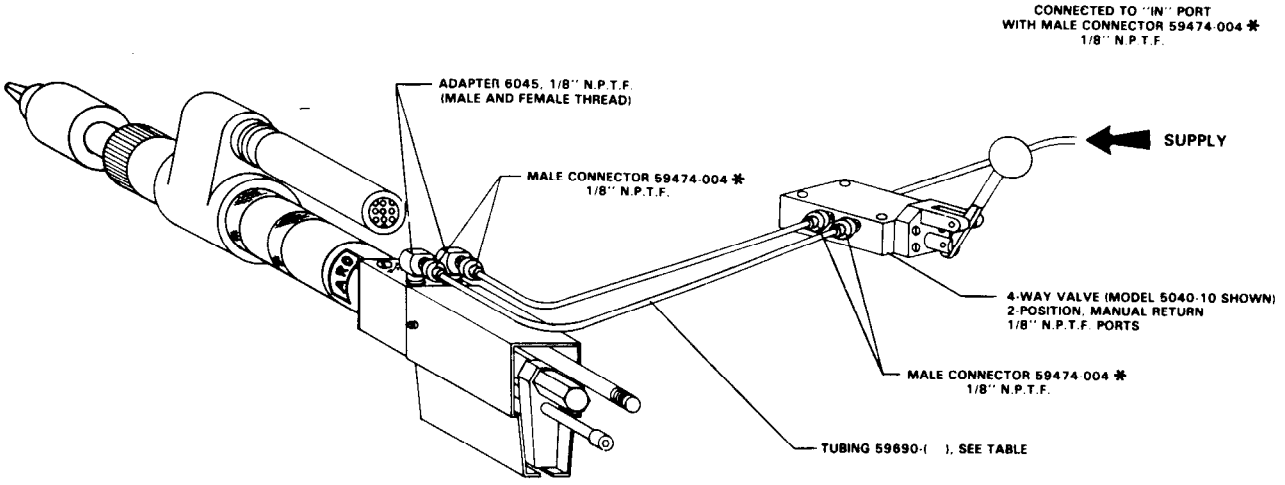
Shown below is the same system in schematic form.

SEE SPECIAL NOTE – PAGE 3



BASIC REMOTE CONTROL FOR START AND EMERGENCY RETRACT FUNCTIONS

MODEL 8267-A( )



ARO INSTANT
TUBING – 100 FT. ROLLS

Model No.	Color	Size
59690-004	White	5/32
59690-104	Black	5/32
59690-204	Green	5/32
59690-304	Red	5/32
59690-404	Blue	5/32
59690-504	Yellow	5/32
59690-604	Gray	5/32
59690-704	Orange	5/32

*packaged 10 to a box.

REMOTE OPERATION

Remote operation is achieved by connecting a 4-way valve to the remote start and retract ports as shown above. This valve supplies power directly to the feed piston in the tool.

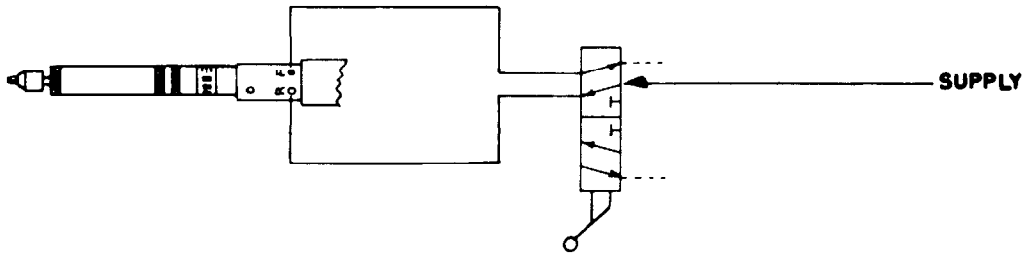
TO START — move lever forward. The unit will advance to a pre-set depth (adjustment screw contacts stud on valve housing).

TO RETRACT — move lever rearward (back). The unit will retract to the initial position.

EMERGENCY RETRACT — the unit will retract at any time the lever is moved to the rearward (back) position. The motor runs continuously as long as air pressure is present at the air inlet to the tool. A shut-off valve should be installed in the air inlet line to completely shut the tool off in case of an emergency.

Shown below is the same system in schematic form.

SEE SPECIAL NOTE — PAGE 3



DISASSEMBLY AND REASSEMBLY OF TOOLS

MODEL	VALVE HOUSING ASS'Y	COVER	ADJUSTMENT SCREW "A"	ADJUSTMENT SCREW "B"	TRIP BRACKET	PIPE NIPPLE
8266-A( )-1	40814-1	40313-1	40292-2	40292-1	41713-3	40857-5-2
8266-A( )-2		40313		40292-2		40857-6-2
8267-A( )-1	41302-1	40313-1		—	41713-1	40857-5-2
8267-A( )-2		40313		—		40857-6-2

CANCELLED

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. CAUTION: DO NOT CLAMP on the OUTER SLEEVE of the Piston and Motor Section as it may cause distortion of the piston Air Cylinder (38866-) impairing the function of the tool.

OFFSET DRILL ATTACHMENT

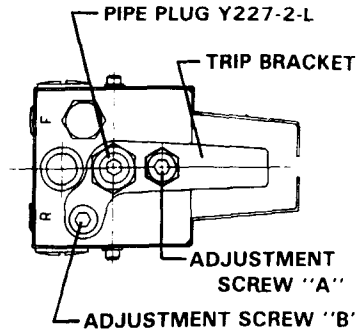
Using a wrench of flats of Spacer (30756-2), place chuck key on chuck and strike key a sharp hammer blow to loosen chuck from spindle — R.H. threads. Remove Chuck from spindle. Unthread and remove Offset Drill attachment from gearing — R.H. threads. NOTE: If drive gearing assembly loosens with the Offset Drill Attachment; place the Ring Gear (32935) in a suitable holding device using brass blocks to protect Ring Gear housing and unthread Drill Attachment from Ring Gear. Use reasonable CAUTION when clamping on Ring Gear so as not to cause distortion of the part. After removing Drill Attachment from gearing, Spacer (30756-2), Spacer(s) (32310) and Gear (38719) can be removed. See page 11 for complete disassembly of Offset Drill Attachment.

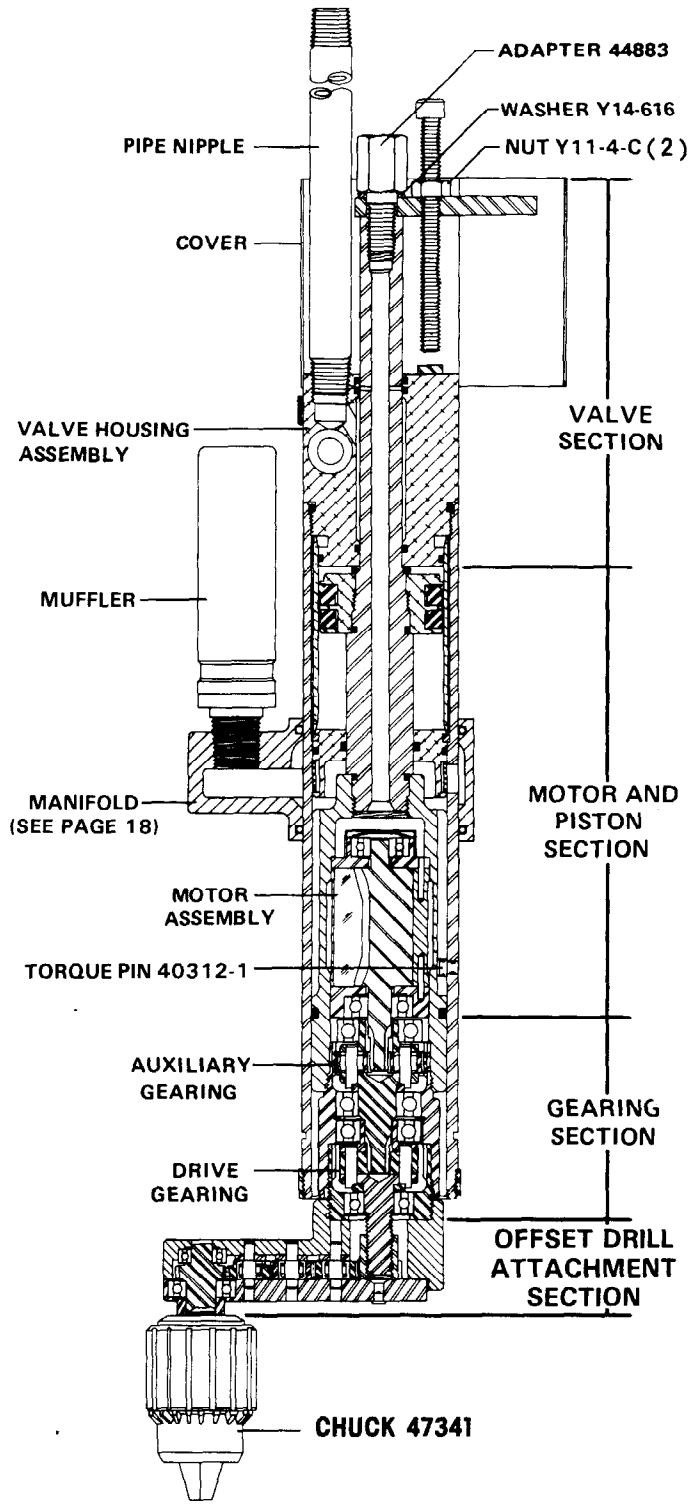
GEARING SECTION

Remove Offset Drill Attachment as outlined above. Unthread 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 gearing housing and motor housing, unthread and remove Gearing Section from Motor Housing — R.H. threads. Remove Drive Gearing from Auxiliary Gearing using wrenches on flats of each gear housing. See page 11 for complete disassembly of gearing.

MOTOR AND PISTON SECTION

Remove Gearing from tool as outlined in the Gearing Section. The Motor Assembly along with Spacer (32310) can be removed from Motor Housing after the removal of the Gearing Section. See page 13 for complete Motor disassembly. To remove PISTON SECTION; remove Cover (40313-), 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. CAUTION: Remove Outer Sleeve with care. Pull Outer Sleeve straight up and away from Valve Housing so as not to bend the Air Cylinder (38866-), 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.





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 (34796) 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.

OFFSET DRILL ATTACHMENT

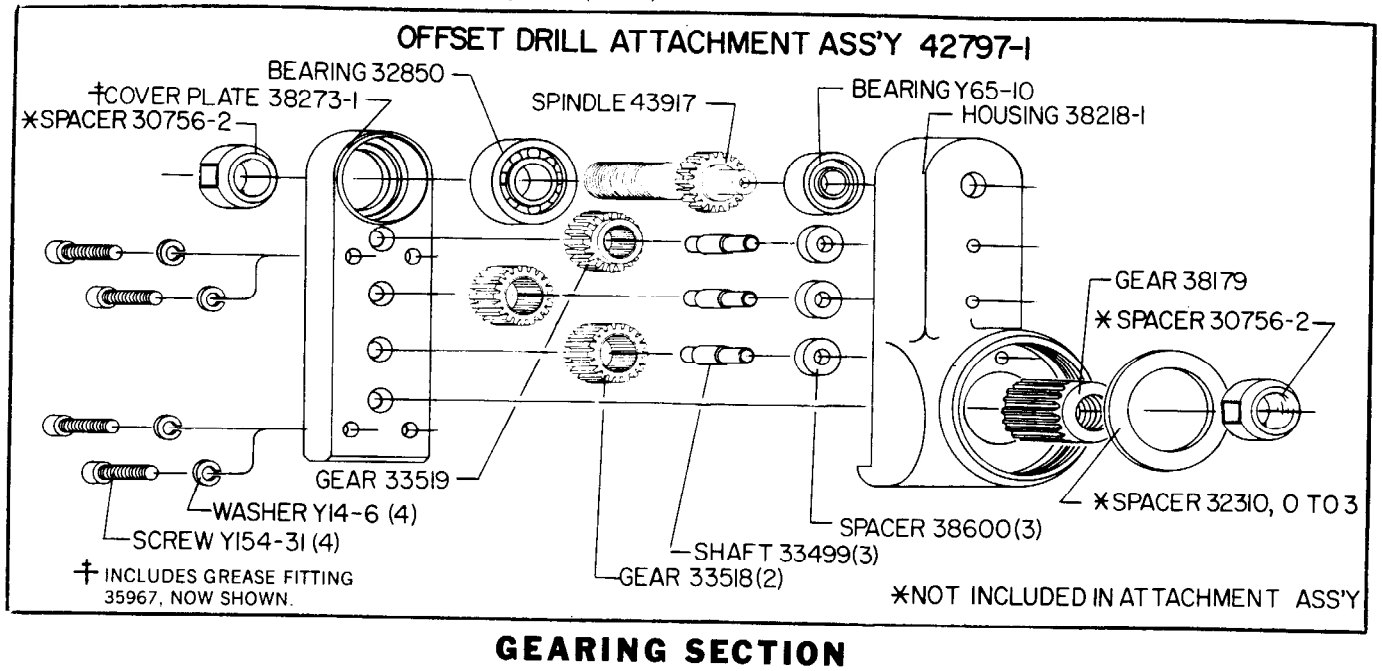
DISASSEMBLY

Remove Drill Attachment from tool as outlined on page 10. Remove Spacers (30756-2), Spacer(s) (32310) and Gear (38179). Remove four (4) Screws (Y154-31) and Washers (Y14-6) and remove Cover Plate (38273-1). Spindle, Gears and Components can now be removed from housing.

REASSEMBLY

Pack Bearing and lubricate Gears and Shafts liberally with grease (33153), or equivalent, during assembly. Drill Attachment should contain approximately 1/4 oz. (7 g) grease.

Assemble Bearings (32850) and (Y65-10) to Spindle (43917) and assemble Spindle to Housing. Assemble Shafts (33499) and Spacers (38600) to Gears (33518) & (33519) and assemble Gears to housing. Assemble Cover Plate (38273-1) to housing over Gears and Spindle and secure with Washers (Y14-6) and Screws (Y154-31). Tighten Screws securely. Assemble one Spacer (30756-2) and Gear (38179) to spindle of drive gearing and assemble Drill Attachment to tool using Spacers (32310) to position attachment to tool as desired. Tighten Attachment securely. Assemble other Spacer (30756-2) to Spindle (43917) and assemble chuck to Spindle.



GEARING SECTION

DISASSEMBLY

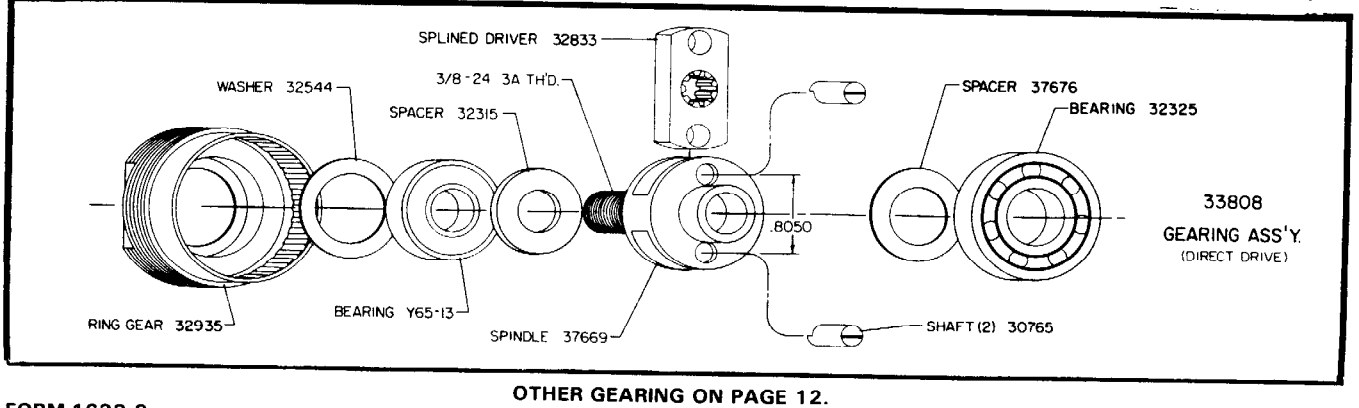
Remove Gearing from tool as outlined on page 10 and remove gear (38179) and Spacer (30756-2) from Spindle. Grasp Ring Gear in one hand and tap threaded end of Spindle with a non-metallic hammer; Spindle and components will loosen from Ring Gear. Further disasembly should be done only if it should be necessary to replace a part as brinelling of the bearing races may occur making replacement necessary. To completely disassemble; remove Bearing and Spacer from threaded end of Spindle. Remove Shafts to remove Gears or Splined Driver. To remove Bearing (32325) from opposite end of Spindle, insert Shafts in Spindle and alternately tap ends of Shafts loosening bearing.

DRIVE GEARING

REASSEMBLY

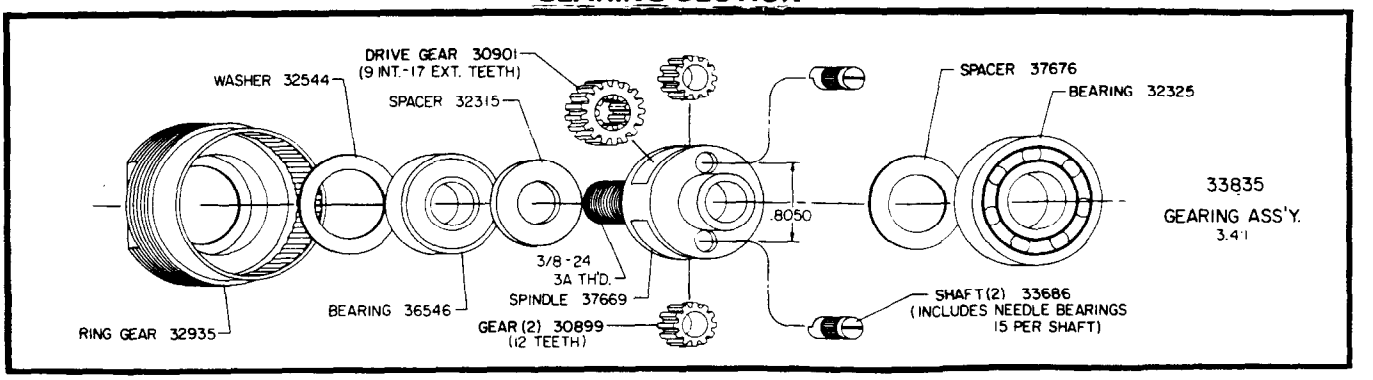
Pack Bearings and lubricate Gears and Shafts liberally with grease (33153), or equivalent, during assembly. Gearing assembly should contain approximately 1/8 oz. (3.5 g) of grease.

Assemble Spacer over threaded end of Spindle with the large flat of Spacer going on spindle first. Assemble Gears or Splined Driver to Spindle and secure with Shafts. Align notch in ends of Shafts with Spacer. Insure each Shaft (33686) contains 15 needle bearings. Assemble Spacer (37676) and Bearings to Spindle. Assemble Washer (32544) to Ring Gear with large diameter facing Bearing on Spindle and assemble Spindle to Ring Gear. Assemble Gearing to tool and tighten securely.



OTHER GEARING ON PAGE 12.

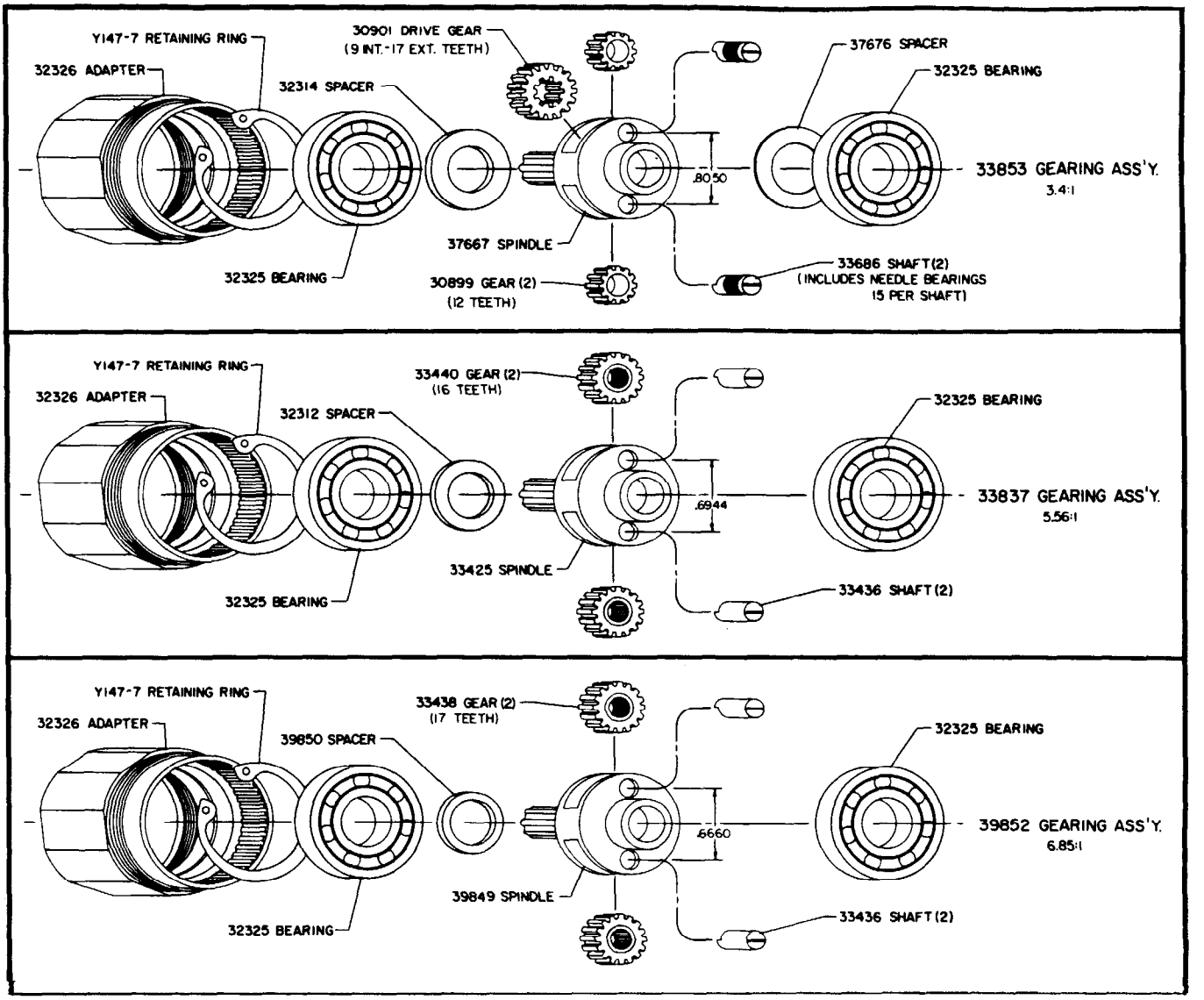
GEARING SECTION



AUXILIARY GEARING

Disassembly and Reassembly of the Auxiliary Gearing is similar to that of the Drive Gearing. Gearing should only be disassembled if it is necessary to replace a part as brinelling of the bearing races may occur making replacement necessary.

Remove Bearing (32325) and Spacer from drive end of Spindle. Then, remove other Bearing and Gears from Spindle as outlined for Drive Gearing. Pack bearings and lubricate gears liberally upon assembly as per Drive Gearing.



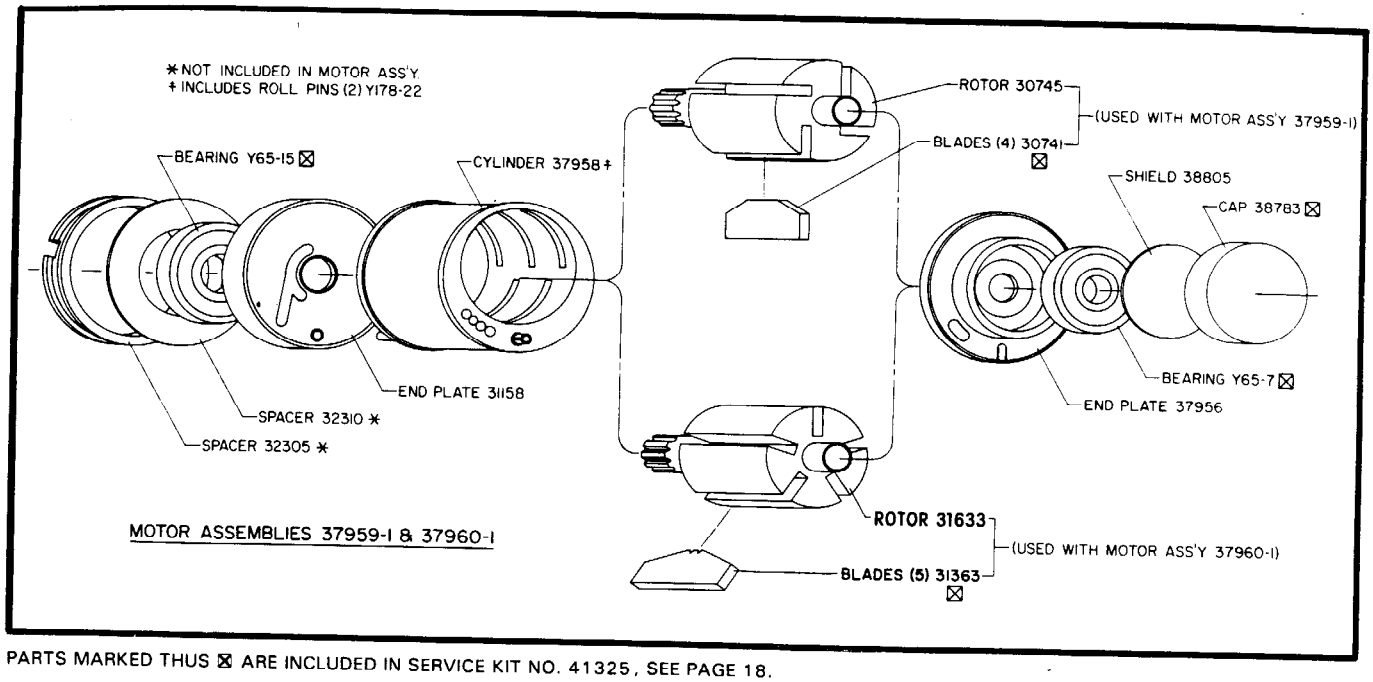
AIR MOTOR

DISASSEMBLY

Remove Motor Assembly from tool as outlined on page 10. Grasp Cylinder in one hand and tap splined end of Rotor with a non-metallic hammer; motor will come apart. Remove Cap (38783) and Shield (38805) to remove Bearing (Y65-7) from End Plate.

REASSEMBLY

Assemble Bearings into End Plates and assemble End Plate (37956) to Rotor. When assembling bearing to rotor insure pressure is applied squarely to the inside race of bearing. Coat I.D. of Cylinder with Spindle Oil and assemble Cylinder over Rotor aligning air inlets and Roll Pin of Cylinder with air inlet and hole in End Plate for Roll Pin. Assemble Blades to Rotor and assemble End Plate (31158), with bearing, to Rotor aligning Roll Pin and hole in End Plate. Apply pressure to inside bearing race when assembling to Rotor. Assemble Shield (38805) and Cap (38783) to End Plate (37956). Insure motor does not bind (if rotor binds, tap splined end lightly to loosen) and assemble Motor with Spacer (32310) to Motor Housing and assemble gearing to tool.



PARTS MARKED THUS ⊠ ARE INCLUDED IN SERVICE KIT NO. 41325, SEE PAGE 18.

AIR PISTON

DISASSEMBLY

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. CAUTION: handle the Air Cylinder carefully so as not to damage the inside diameter. Remove "O" Ring (41535) from the Piston Rod and remove Retaining Ring (Y145-23). Push Piston Rod and Motor Housing out thru gear end of Outer Sleeve and remove from Outer Sleeve. Piston (38867-1) 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 Muffler Cap (38865) 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. threads.

REASSEMBLY

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" Ring lubricant when assembling.

Assemble Retaining Ring (35619), "O" rings (Y325-20) and (Y325-30) and Screen (38886) to Muffler Cap (38865). Assemble Muffler Cap into Outer Sleeve from end of sleeve with internal threads with screen end of cap positioned to enter sleeve first.

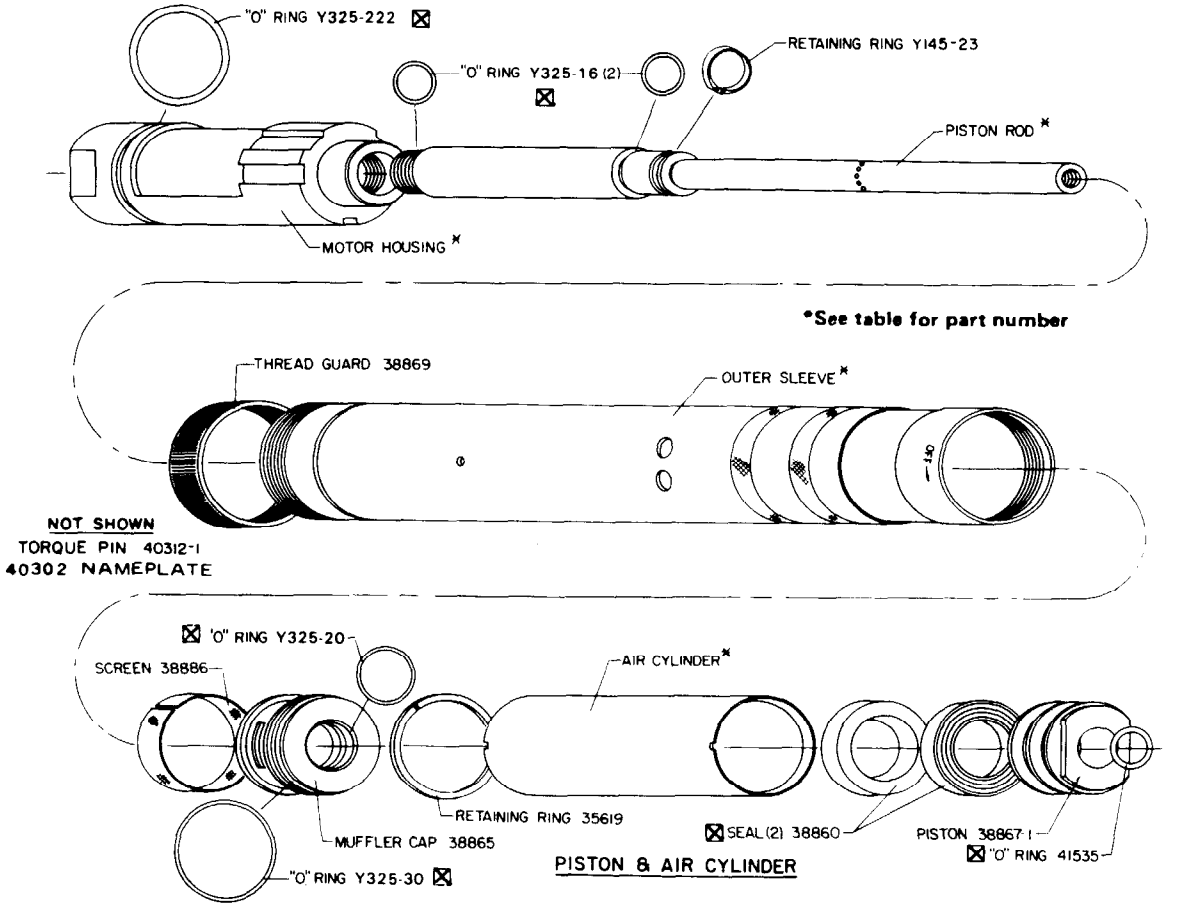
Push Muffler Cap down into sleeve until it bottoms against offset in sleeve. Coat Torque Pin (40312-1) with grease to retain pin in place and assemble into Outer Sleeve in hole provided. Assemble "O" Ring (Y325-16) to groove in Piston Rod and assemble "O" Ring (Y325-222) to groove around Motor Housing. Assemble Piston Rod and Motor Housing into Outer Sleeve from end of sleeve with external threads, exercising care so as not to damange "O" Ring (Y325-20) when inserting Piston Rod thru Muffler Cap already assembled into Sleeve. Slot in Motor Housing must be aligned with Torque Pin (40312-1). Assemble Seals (38860) to Piston (38867-1) with lips of seal facing away from each other and assemble Piston over Piston Rod and push Piston down over Rod until it seats against step on Rod. Secure with Retaining Ring (Y145-23). Assemble "O" Ring (41535) over Piston Rod and push it down over Rod until it seats against step on rod.

Clamp Valve Housing in a suitable holding device with the sleeve end upright. Assuming "O" Rings have been assembled to Valve Housing; coat I.D. of Air Cylinder (38866-) with "O" Ring lubricant and place Air Cylinder on Valve Housing over "O" Ring (Y325-29). 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. Replace Cover (40313-).

*SERVICE KIT NO.	PISTON ROD
45863	40754-1
45863-1	40310-1

MODELS	PISTON ROD	AIR CYLINDER	MOTOR HOUSING	OUTER SLEEVE
8266-A( )-1 [illegible]	40754-1	38866-1	40319	40753
8266-A( )-2 [illegible]	40310-1	38866		40318-1

***SERVICE KIT INCLUDES PISTON ROD, PISTON, SEAL (2), RETAINING RING Y145-23, "O" RING Y325-16, AND "O" RING 41535**



PISTON & AIR CYLINDER

PARTS MARKED THUS ⊠ ARE INCLUDED IN SERVICE KIT NO. 41325, SEE PAGE 18.

DISASSEMBLY

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 – R.H. thread.

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.

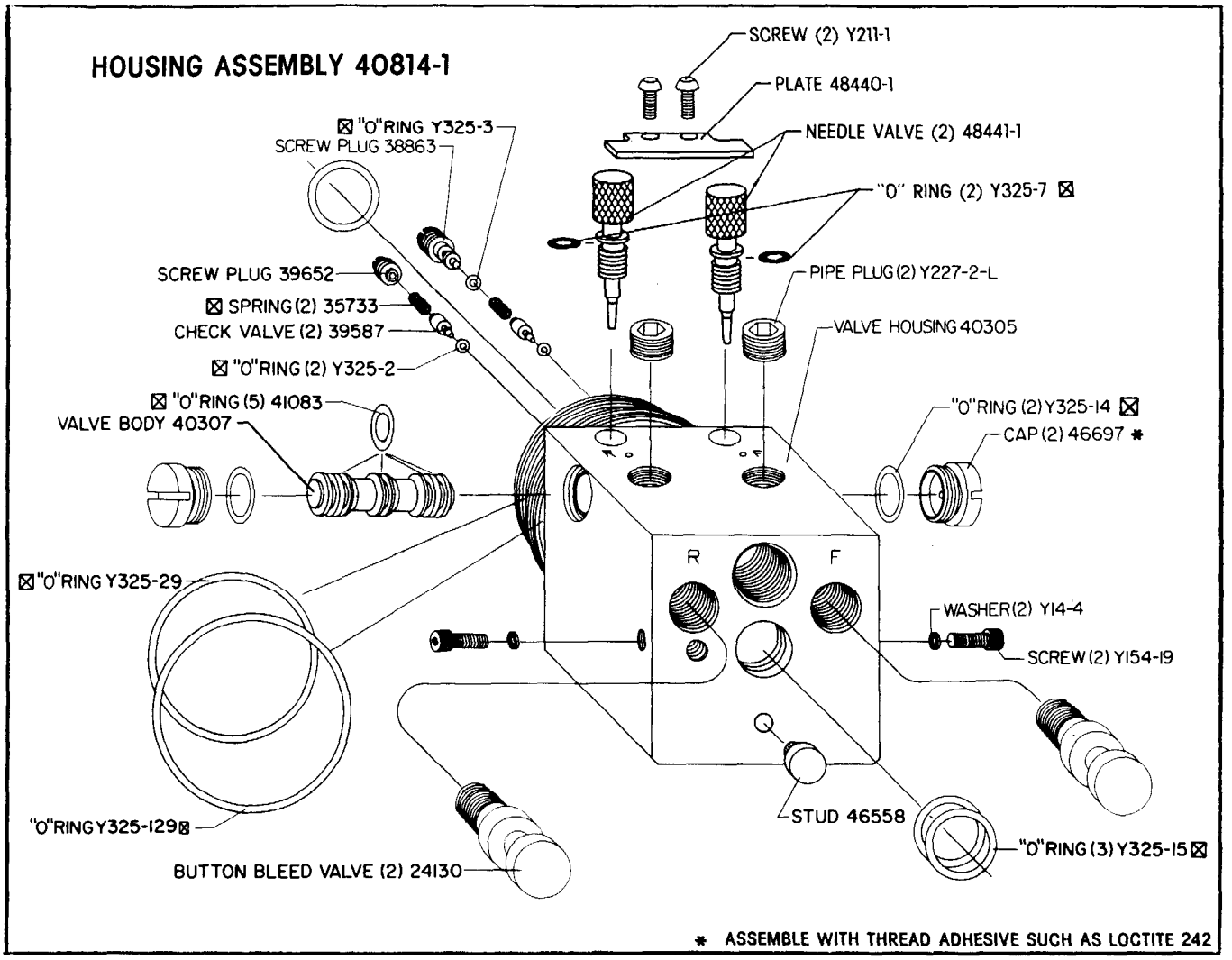
REASSEMBLY

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" Ring 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, securing with plate (48440-1) and screws (Y211-1).

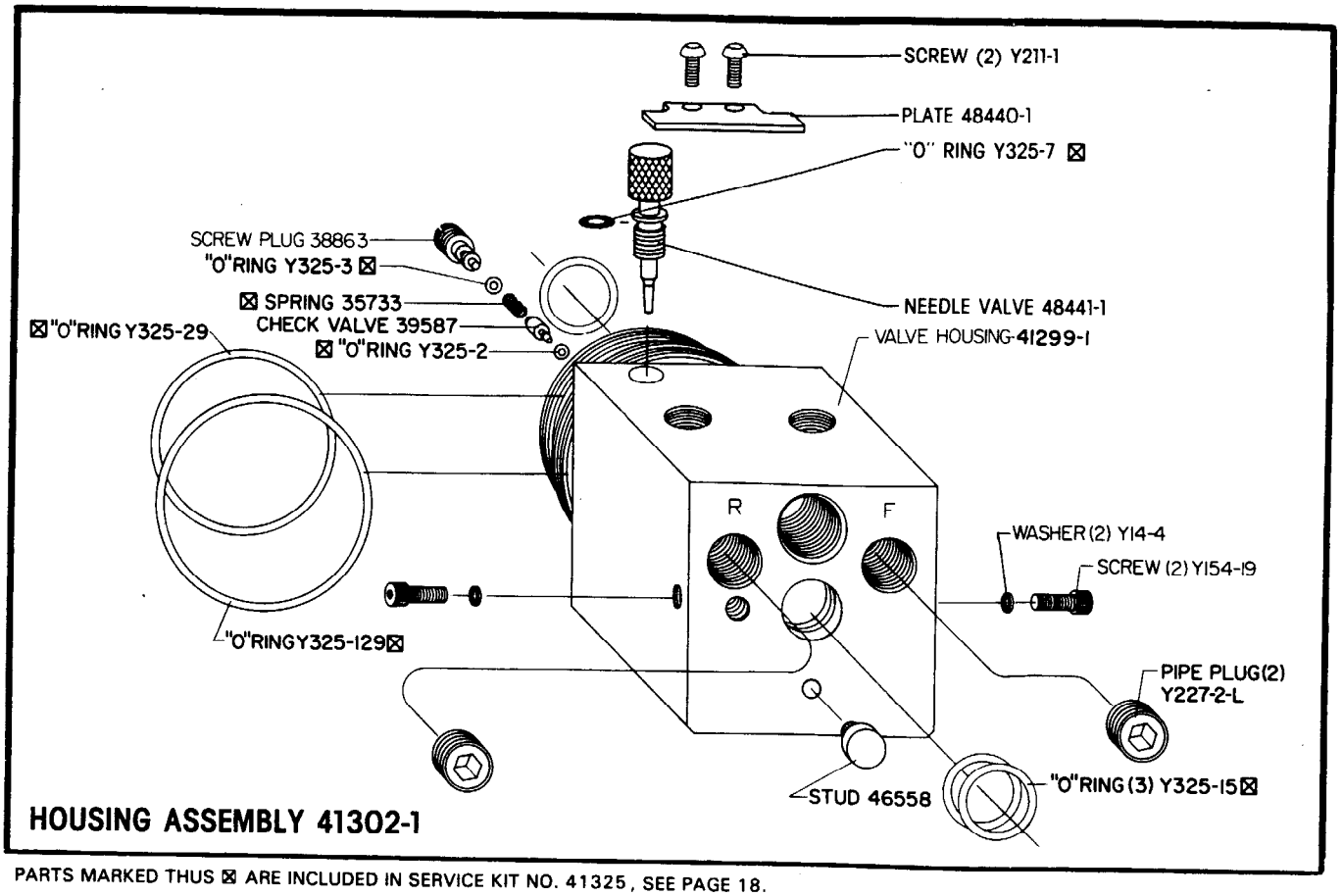
CHECK VALVES: Assemble "O" Ring(Y325-2) to Check Valve and assemble Check Valve and Spring (35733) to housing. Secure the one Check Valve and Spring with Screw Plug (39652) — see illustration for correct one. Assemble "O" Ring (Y325-3) to Screw Plug (38863) and assemble to housing securing Check Valve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



PARTS MARKED THUS ⊠ ARE INCLUDED IN SERVICE KIT NO. 41325, SEE PAGE 18.

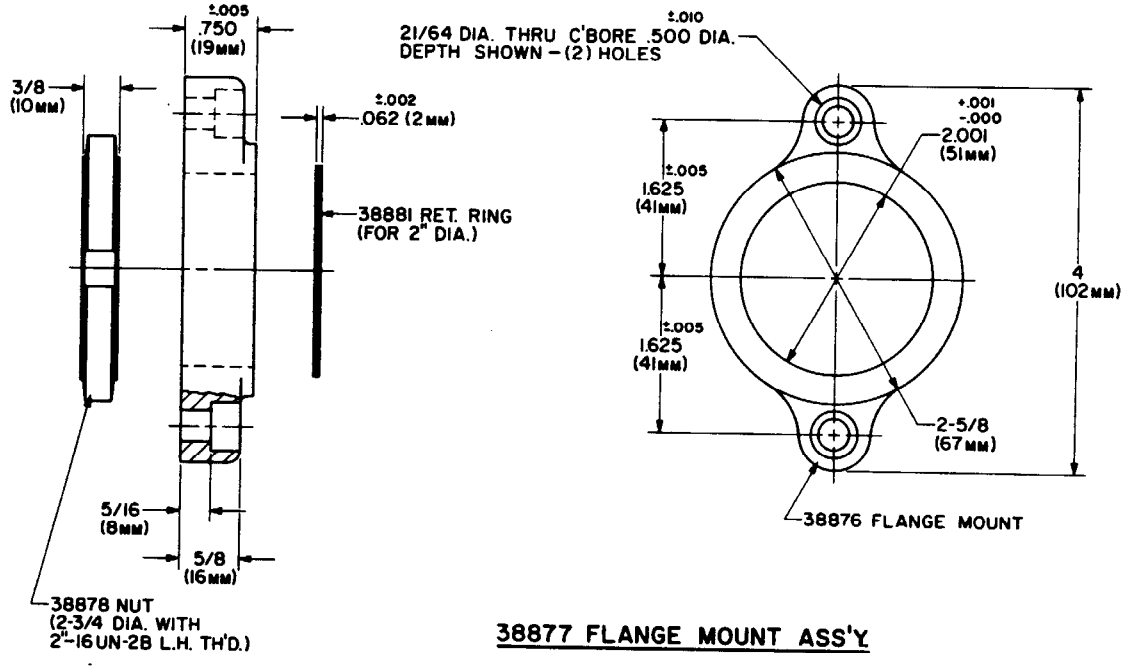
VALVE SECTION
(8267-A)

Disassembly and Reassembly procedure will be similar to that for Models 8266-A, see page 15.



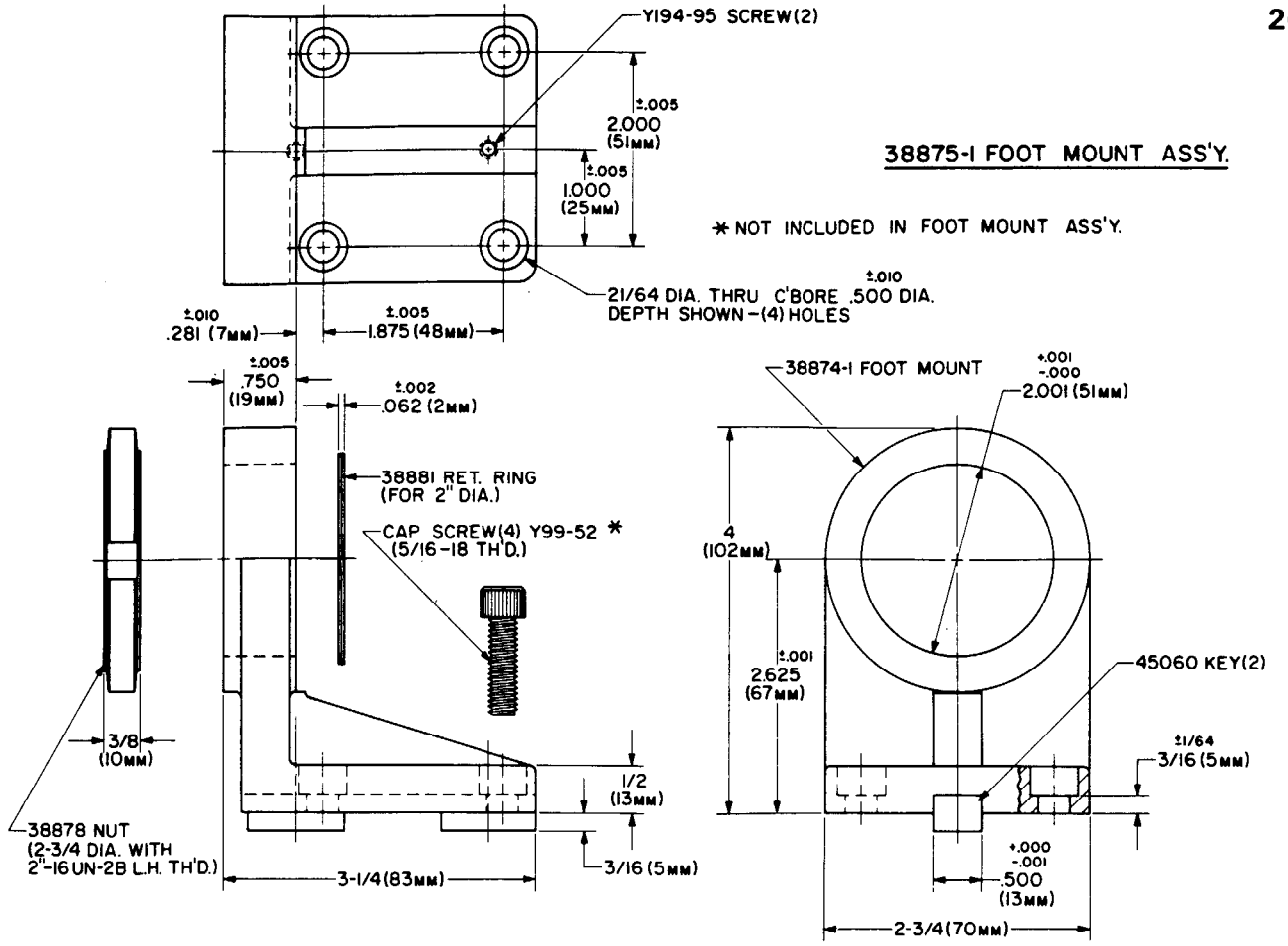
PARTS MARKED THUS ⊠ ARE INCLUDED IN SERVICE KIT NO. 41325, SEE PAGE 18.

ACCESSORIES

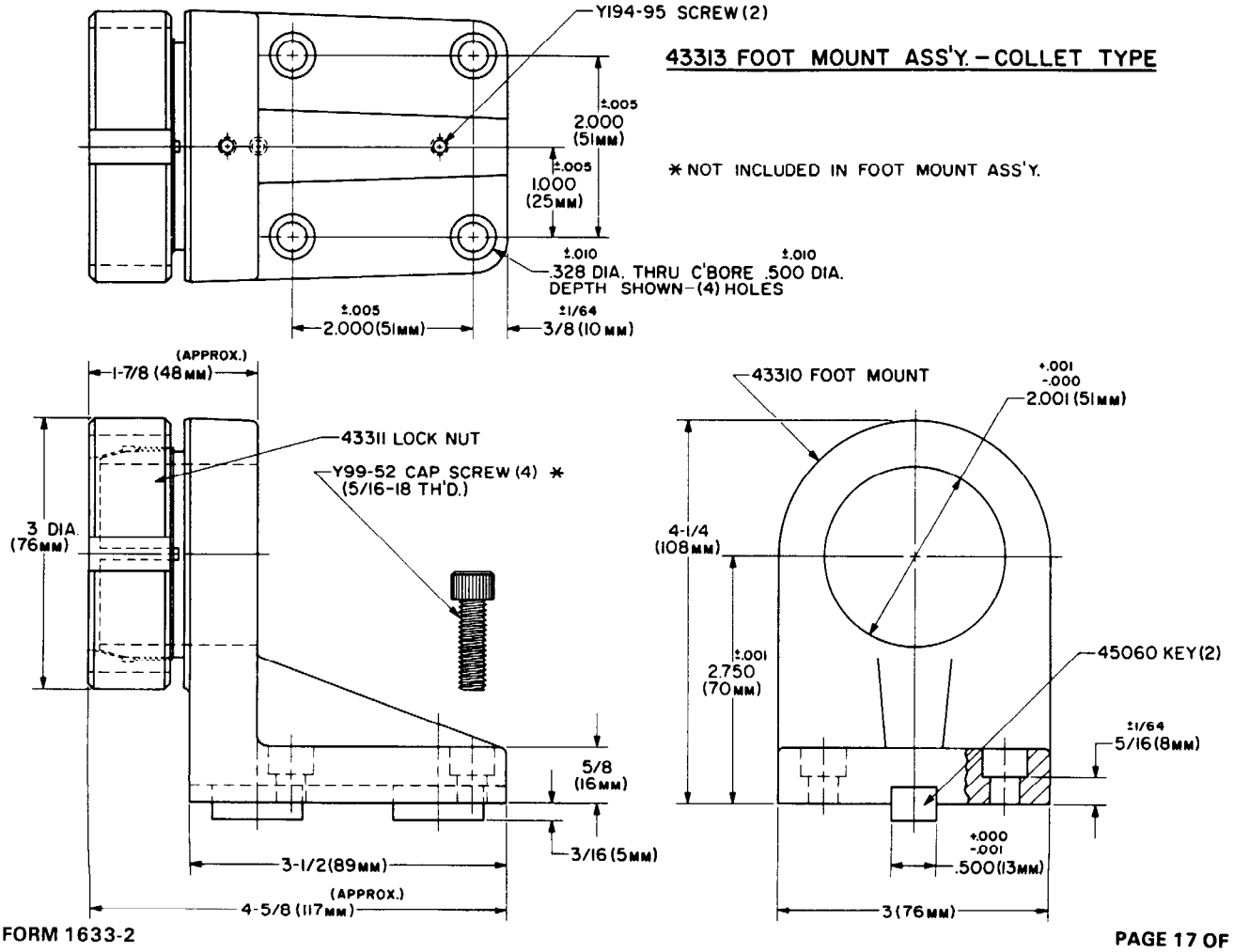


38877 FLANGE MOUNT ASS'Y

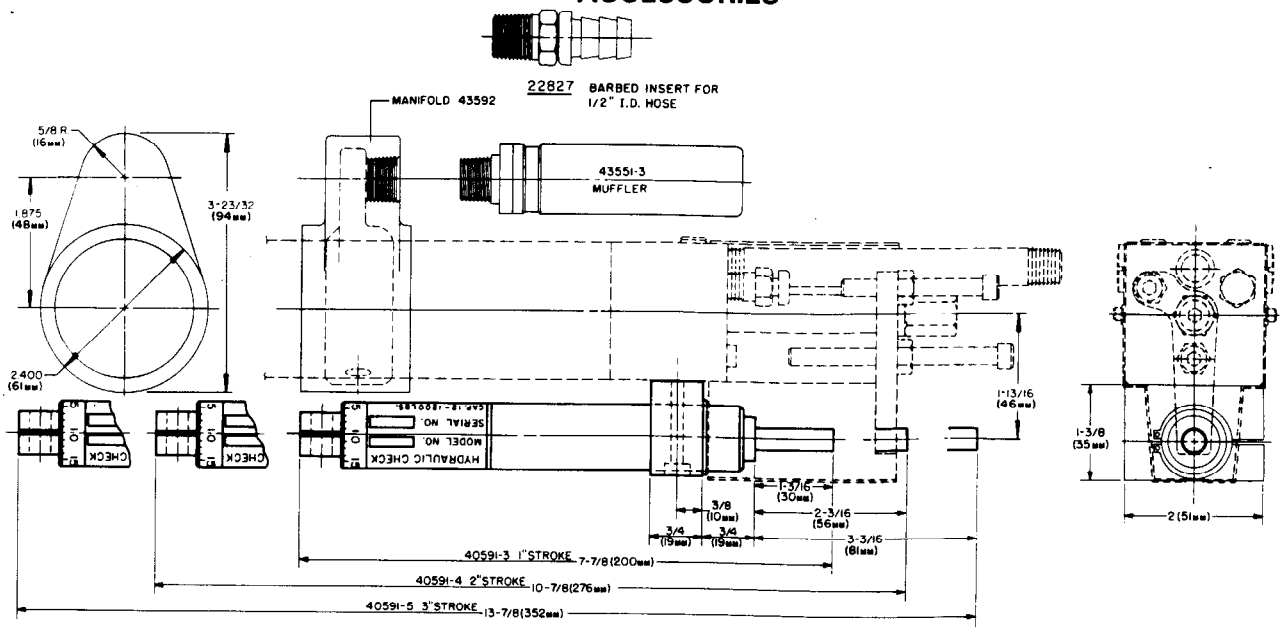
38875-1 FOOT MOUNT ASS'Y.

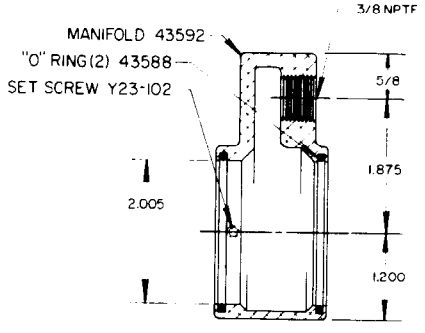


43313 FOOT MOUNT ASS'Y. - COLLET TYPE



ACCESSORIES





43590 EXHAUST MANIFOLD ASSEMBLY

INCLUDES: MANIFOLD 43592, "O" RING (2) 43588 and Set Screw Y23-102.

For external muffling use with Muffler (43551-3).
For closed exhaust system use with Hose Adapter (22827) for 1/2" I.D. exhaust hose.

TO ASSEMBLE TO TOOL: Remove Thread Guard (38869) from nose end of Outer Sleeve and slip Manifold (43592) — with "O" Rings (43588) — 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 (Y23-102) securing manifold to Outer Sleeve. CAUTION: DO NOT OVER-TIGHTEN Set Screw (Y23-102) as it may cause distortion of the Outer Sleeve and thus cause damage to the Air Cylinder (38866-) contained inside the Outer Sleeve impairing the function of the tool.

SERVICE KIT NO. 41325

FOR SERVICING MODELS 8266-( ) AND 8267-( )

CONSISTING OF:

QTY	PART NO.	DESCRIPTION
4	30741	Blades
1	Y65-7	Bearing
1	Y325-222	O-Ring
2	Y325-16	O-Ring
1	Y325-20	O-Ring
1	41535	O-Ring
2	38860	Seal
1	Y325-30	O-Ring
1	Y325-3	O-Ring
2	Y325-7	O-Ring
2	40309	Gasket
3	Y325-15	O-Ring
1	Y65-15	Bearing

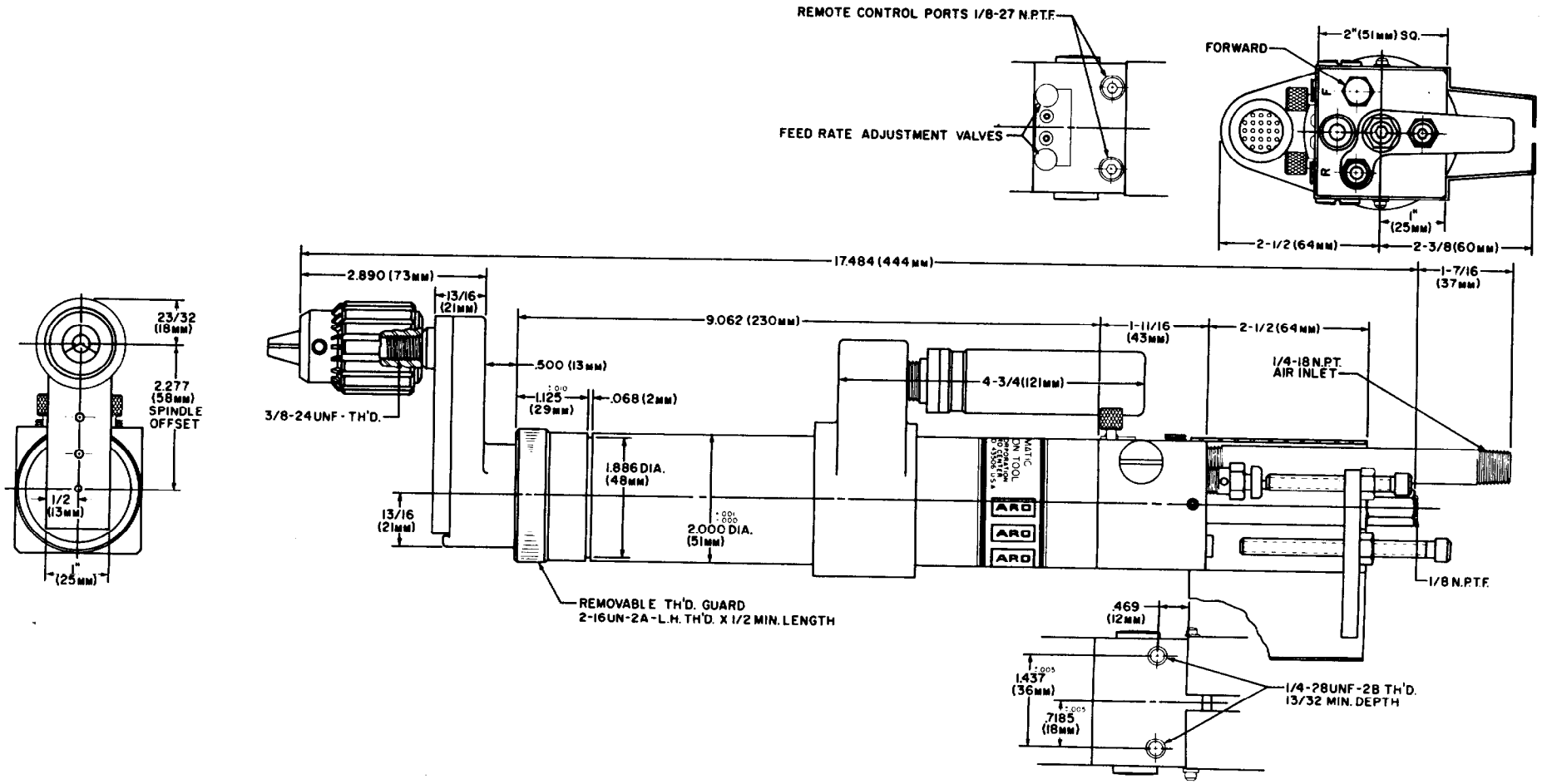
QTY	PART NO.	DESCRIPTION
5	31363	Blades
2	35733	Spring
2	Y325-2	O-Ring
5	41083	O-Ring
1	Y325-29	O-Ring
1	Y325-129	O-Ring
1	38783	Cap
1	41795	Motor Oil
1	41799	Gear Lube
1	41954	O-Ring Lube
2	Y325-14	O-Ring

TROUBLE SHOOTING

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 ARO REPRESENTATIVE OR RETURN THE TOOL TO FACTORY FOR REPAIR.

CONDITION	POSSIBLE CAUSE	CORRECTIVE ACTION
FAILURE TO FEED OR IRREGULAR OR ERRATIC FEED.	1. INADEQUATE AIR SUPPLY.	1. CHECK AIR SUPPLY FOR CORRECT REGULATOR ADJUSTMENT (90 P.S.I.G. MAX. WHEN TOOL IS OPERATING).
	2. FEED CONTROL VALVES IMPROPERLY ADJUSTED.	2. REFER TO SET-UP PROCEDURE PAGE 4.
	3. AIR LEAK AROUND CAP 46697	3. CHECK FOR DAMAGE TO "O" RING. CHECK AND INSURE CAPS ARE PROPERLY TIGHTENED.
	4. DIRT OR DAMAGED "O" RINGS ON SPOOL VALVE 40307	4. REFER TO VALVE SECTION PAGE 15 AND REMOVE SPOOL VALVE. INSPECT, CLEAN, REPLACE "O" RINGS.
	5. CLOGGED AIR PASSAGE IN VALVE HOUSING.	5. REMOVE VALVE HOUSING FROM TOOL. DISASSEMBLE, BLOW ALL AIR PASSAGES CLEAR OF DEBRIS.
LOW SPEED OR MOTOR FAILS TO OPERATE.	1. INADEQUATE AIR SUPPLY.	1. CHECK AIR SUPPLY FOR CORRECT REGULATOR ADJUSTMENT.
	2. CLOGGED AIR PASSAGE IN VALVE HOUSING.	2. REMOVE VALVE HOUSING FROM TOOL. DISASSEMBLE, BLOW AIR PASSAGES CLEAR OF DEBRIS.
MOTOR CONTINUES TO RUN AFTER RETRACTION.	1. PISTON NOT FULLY RETRACTED.	1. INSURE PISTON IS NOT OBSTRUCTED AND IS RETURNED ALL THE WAY BACK.
	2. DAMAGED "O" RING Y325-15 INSIDE VALVE HOUSING.	2. REMOVE VALVE HOUSING FROM TOOL. REPLACE "O" RINGS.
FAILURE TO RETRACT.	1. IMPROPER ADJUSTMENT OR ALIGNMENT BETWEEN ADJUSTMENT SCREW AND BUTTON BLEED VALVE.	1. REFER TO SET-UP PROCEDURE PAGE 4.
	2. FEED CONTROL VALVES 48441-1 IMPROPERLY ADJUSTED OR DIRTY.	2. CHECK ADJUSTMENT, REFER TO PAGE 4. REMOVE, INSPECT, CLEAN.
	3. AIR LEAK AROUND CAP 46697	3. CHECK FOR DAMAGE TO "O" RING. CHECK AND INSURE CAPS ARE PROPERLY TIGHTENED.
	4. DAMAGED "O" RINGS IN MUFFLER CAP, VALVE HOUSING OR SPOOL VALVE OR SEALS ON PISTON.	4. DISASSEMBLE, INSPECT, REPLACE "O" RINGS AND/OR SEALS.
	5. CLOGGED AIR PASSAGE IN VALVE HOUSING.	5. REMOVE VALVE HOUSING FROM TOOL. DISASSEMBLE, BLOW AIR PASSAGES CLEAR OF DEBRIS.

DIMENSIONAL DATA



8266-A( )-1 AND 8267-A( )-1 1-1/4" STROKE (32 MM)

A	B	C	D	E
17-9/16	3-7/16	9-1/16	1-1/2	1/2
446	87	230	38	13

8266-A( )-2 AND 8267-A( )-2 2" STROKE (51 MM)

19-1/16	3-11/16	9-5/8	1-3/4	3/4
484	94	244	44	19