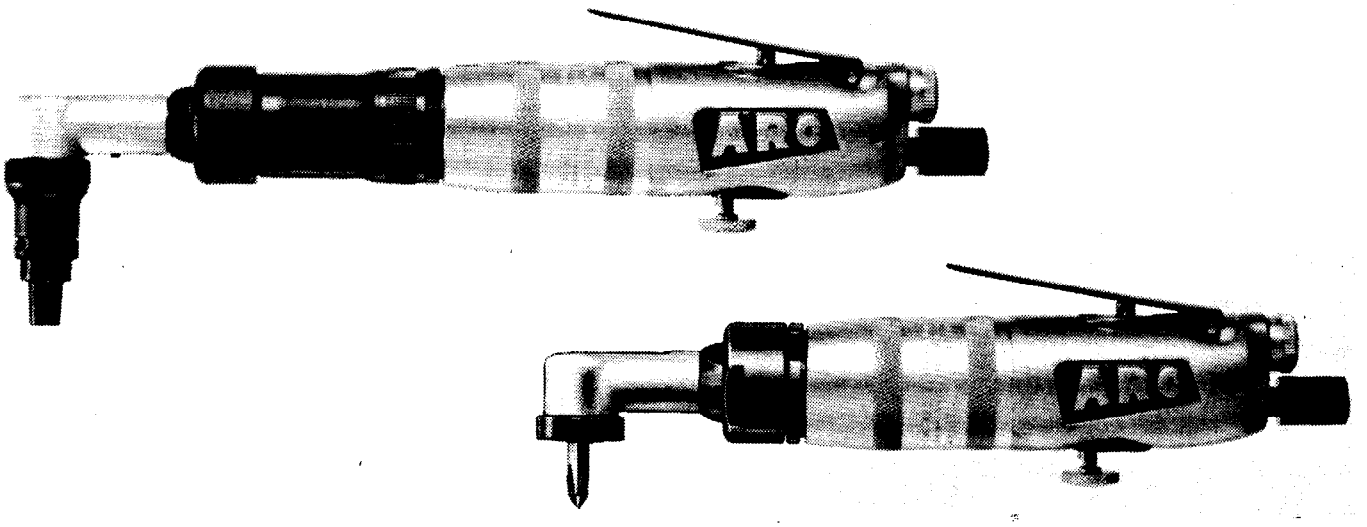
OPERATOR'S MANUAL

INCLUDING:
OPERATION, INSTALLATION, & MAINTENANCE

MODELS: 8299-( )

SECTION M 32
MANUAL 31
RELEASED:
REVISED: 10-81
FORM: 172-2

"0"-SERIES RIGHT-ANGLE SCREWDRIVER/NUTSETTER



FEATURES:
LEVER TYPE THROTTLE
FLUSH TYPE FITTINGS FOR LUBRICATION
1/4" FEMALE AIR INLET ADAPTER
QUIET-EXHAUST AIR SYSTEM
BUILT-IN SPEED REGULATOR
SUSPENSION BAIL
WITH OR WITHOUT CLUTCH
REVERSIBLE ROTATION

INDEX PAGE

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

THE ARO CORPORATION
ONE ARO CENTER, BRYAN, OHIO 43506
PHONE – 419-636-4242
PRINTED IN USA

MODEL IDENTIFICATION

MODEL NO.	TYPE	R.P.M.	HEAD ASSEMBLY	GEARING (DRIVE)	CLUTCH ASS'Y.	ANGLE ASS'Y.	MOTOR ASS'Y.	DRIVE ASS'Y.
7934-32	SCREWDRIVER	1,800	36604 SINGLE DIRECTION	CANCELLED 36324	36310	41760	33807	40454
7934-34	NUTSETTER							40457
7934-36	SCREWDRIVER							40455
7934-37	NUTSETTER							40449
7934-40	NUTSETTER							40457
8299-31	NUTSETTER	1,300	39210 REVERSIBLE	36324	36310	41760	33816	40449
8299-32	SCREWDRIVER							40454
8299-34	NUTSETTER							40457
8299-36	SCREWDRIVER							40455
8299-37	NUTSETTER							40449
8299-38	SCREWDRIVER							40454
8299-40	NUTSETTER							40457
8299-42	SCREWDRIVER							40455

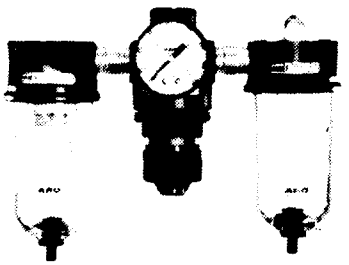
ANGLE ASS'Y. (A)	DRIVE ASS'Y. (B)	RIGHT-ANGLE ASSEMBLY INCLUDES ANGLE (A) AND DRIVE ASS'Y. (B)
41760	40449	43683-2
41760	40454	43683-7
41760	40457	43683-10
41760	40455	43683-8

AIR AND LUBE REQUIREMENTS

AIR PRESSURE of 90 p.s.i.g. (6 bar) at the air inlet of the tool is required for maximum motor efficiency. If necessary, 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 128231-300 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.



MODEL 128231-300 FILTER-REGULATOR-GAUGE-LUBRICATOR.

FLUSH TOOL with a solution of three parts cleaning solvent and one part light oil after each 40 hours of operation. After flushing, apply a small amount of Spindle Oil in air inlet and run free for one minute to insure proper lubrication.

GEARING should be grease lubricated a minimum of once a month.

CAUTION: An excessive amount of lubricant in a tool will effect 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.

RECOMMENDED LUBRICANTS: Spindle Oil 29665, 1 qt. (.9 liter) container for oiler and air inlet; Grease 33153, 5 lb. (2.3 kg) can for gears and bearings, "O" Ring Lubricant 36460, 4 oz. (113 g) tube for lubrication and installation of "O" Rings.

Grease 40036-1, 1 lb. can (.45 kg) for clutches.

PART NO.	WHERE USED	DESCRIPTION
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.
40036-1	CLUTCHES	A HIGH QUALITY "EP" EXTREME PRESSURE MOLYBDENUM GREASE SUITABLE FOR CLUTCH APPLICTIONS. NLGI NO. 1, FREE OF CORROSIVE MATTER AND FILLERS, WITH A VISCOSITY OF 500-700 S.U.S. AT 100°F.

MAINTENANCE

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

DISASSEMBLY AND REASSEMBLY 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.

Before starting to disassemble or reassemble this tool (any part or completely) be sure to read Maintenance Section.

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

The basic sections and instructions for removing them from tool are as follows:

RIGHT-ANGLE SECTION

Using wrenches on flats of Housing (37098) and Housing Nut (37103), loosen nut completely—L.H. threads-and pull right-angle section from gearing or clutch. See page 6 for complete disassembly.

CLUTCH SECTION

Remove Right-Angle Section. Using wrench on flats of gearing and a strap wrench on clutch housing; unscrew and remove housing —L.H. threads. Grasp clutch assembly and pull from gearing. See page 7 for complete disassembly.

GEARING SECTION

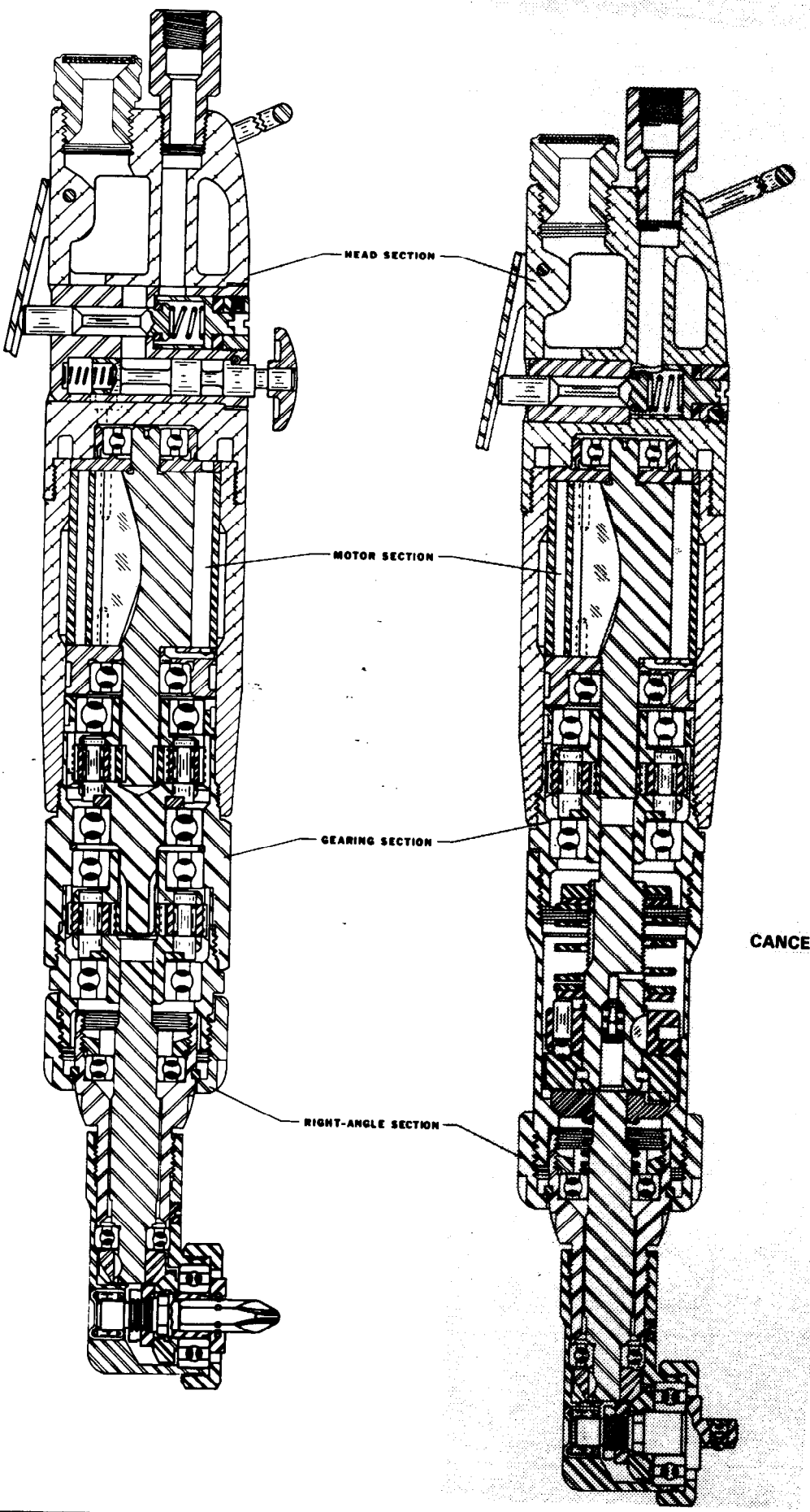
Remove Right-angle and Clutch Sections. Hold motor housing with a strap wrench and remove gearing using a wrench on flats of gearing. See page 8 for complete disassembly.

MOTOR SECTION

Remove Gearing Section. Place head of tool in a suitable holding device and using a strap wrench on motor housing, unscrew and remove. See page 9 for complete disassembly.

HEAD SECTION

Throttle components can be serviced without removing Head Section from tool. See page 10 for disassembly.



CANCELLED MODEL

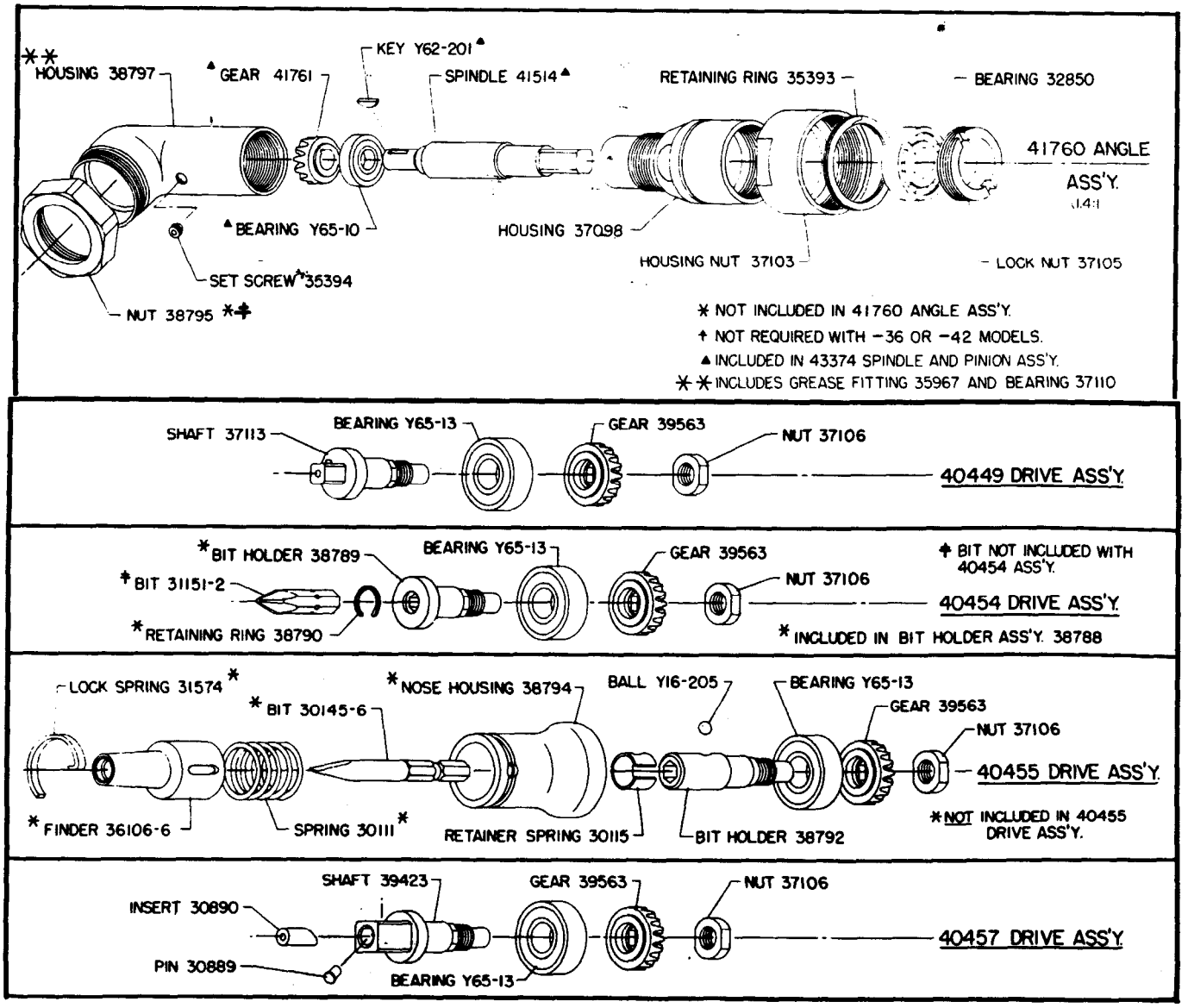
RIGHT-ANGLE SECTION

DISASSEMBLY

a. Remove Right-Angle from tool as outlined on page 4. Remove Nut (38795) and pull Drive Assemble from Right-Angle Housing. NOTE: on models with Drive Assembly (40455), remove Nose Housing (38794).
b. To remove Gear (39563) and Bearing (Y65-13) from Shaft or Bit Holder, remove Nut (37106).
c. Loosen Set Screw (35394) and remove Housing (37098) from Housing (38797) — L.H. threads.
d. Remove Spindle and Pinion Assembly from housing. NOTE: Gear (41761) and Bearing (Y65-10) are press-fit on Spindle (41514) and should not be removed unless necessary to replace a part. If Gear or Bearing are removed the Bearing should be replaced.
e. To remove Bearing (32850) from Housing, remove Lock Nut (37105).
f. To remove Finder (36106-6) and Spring (30111) from Nose Housing (38794), remove Lock Spring (31574).

REASSEMBLY

a. Pack bearings and lubricate gears liberally with grease 33153, or equivalent, upon assembly. Right-Angle should contain approx. 1/8 oz. grease.
b. Assemble Bearing (Y65-10), Key (Y62-201) and Gear (41761) to Spindle (41514) and assemble to Housing (37098).
c. Assemble Bearing (32850) to Spindle (41514) and Housing (37098) and secure with Lock Nut (37105).
d. Assemble Housing (37098), with Retaining Ring (35393) and Housing Nut (37103) attached to Housing (38797) —L.H. threads. Secure with Set Screw (35394). NOTE: Use adhesive on threads of Set Screw to prevent screw from loosening when tool is in operation.
e. Assemble Bearing (Y65-13) and Gear (39563) to drive Shaft or Bit Holder and secure with Nut (37106). NOTE: Use adhesive on threads of Nut (37106) to insure nut does not work loose when tool is operated.
f. Assemble other components to Drive Shaft or Bit Holder and assemble to right-angle housing. Secure with Nut (38795) to Housing (38794).



CLUTCH ADJUSTMENT (36310); Remove Clutch assembly (36310) from tool. Place pin in hole of Jaw (36318) or wrench on square end of Spindle (36311) to adjust Nut (36313). To adjust properly, release Nut to least tension. Tighten Nut one or two positions — each click one position. Assemble Clutch to tool and test torque on fastener to be tightened. Repeat until desired torque is obtained.

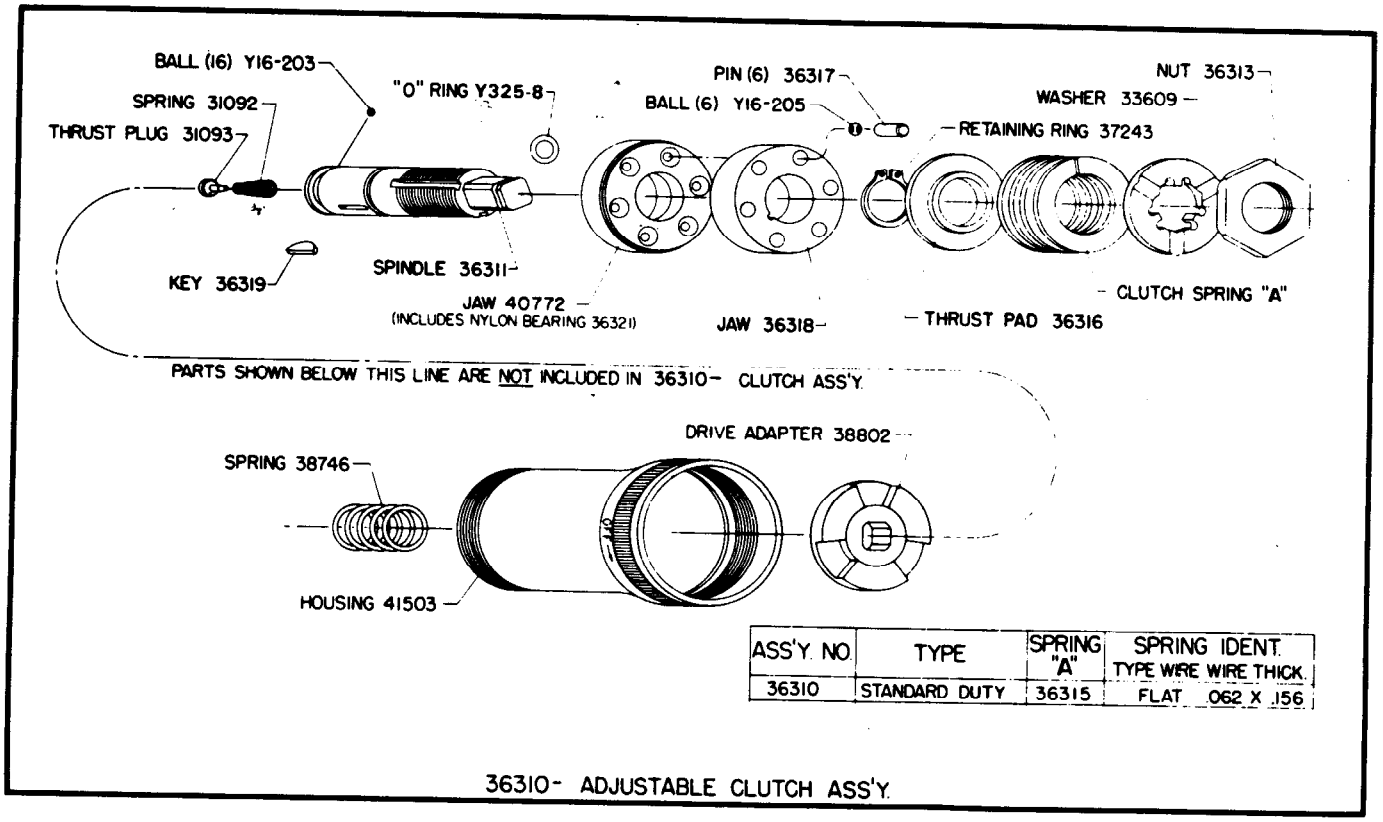
DISASSEMBLY

a. Remove Clutch Ass'y. from tool as outlined on page 4.
b. Remove Nut (36313), releasing Washer (33609), Spring, Thrust Pad (36316), Pins (36317) and Steel Balls (Y16-205).
c. Remove Retaining Ring (37243), releasing Jaw (36318), Key (36319), Jaw (40772) and Steel Balls (Y16-203).

REASSEMBLY

NOTE: Lubricate Balls, Jaw faces, Bit Holder Shaft, Pins and Thrust pad, when assembling Clutch, using grease 40036-1 or equivalent. Clutch assembly should contain approximately 1/8 oz. grease.

a. Assemble Jaw (40772) with Nylon Bearing (36321) to Spindle (36311) and align face of Jaw with center of bearing groove in spindle. Assemble Steel Balls (Y16-203) into groove and slide jaw ahead to secure steel balls in place.
b. Assemble Key (36319) and Jaw (36318) to spindle and secure with Retaining Ring (37243). NOTE: Assemble Jaw (36318) to spindle with small hole in face of Jaw towards Jaw (40772).
c. Assemble Steel Balls (Y16-205), Pins (36317), Pad (36316), Spring (36315), Washer (33609) and Nut (36313). Adjust Nut to desired tension — see Clutch Adjustment.
d. Assemble Spring (38746) over end of Spindle (41514) of right-angle assemble and assemble Clutch Housing (41503) to right-angle. Secure with Nut (37103), hand tighten only.
e. Assemble Drive Adapter (38802) thru clutch housing to square end of Spindle (41514) and assemble Clutch Assembly (36310) into housing. Assemble Clutch Section to gearing on tool. Adjust position of right-angle and tighten nut (37103) securely.



ASS'Y. NO.	TYPE	SPRING "A"	SPRING IDENT. TYPE WIRE WIRE THICK.
36310	STANDARD DUTY	36315	FLAT .062 X .156

36310- ADJUSTABLE CLUTCH ASS'Y.

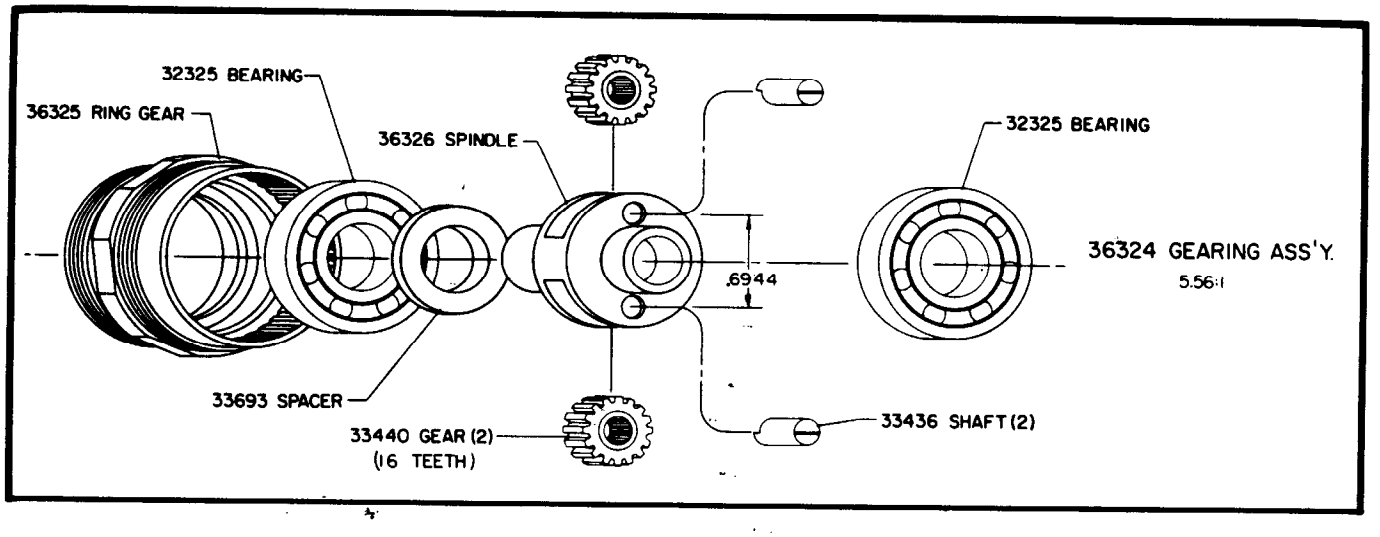
DISASSEMBLY

a. Remove gearing from tool as outlined on page 4. 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.
b. Further disassembly of gearing should be done only if it is necessary to replace a part, as Brinelling of the bearing races may occur making replacement necessary. To further disassemble; remove Bearing from either end of Spindle.
c. Alternately tap ends of Shafts to remove Bearing from opposite end of Spindle. Remove Shafts releasing Gears.

REASSEMBLY

NOTE: Pack bearings and lubricate gears liberally with 33153 grease or equivalent upon assembly. Gearing assembly should contain approx. 1/8 oz. grease.

a. Assemble Spacer to drive end of Spindle.
b. Assemble Gears to Spindle and secure with Shafts. Align notch in Shafts with Spacer.
c. Assemble bearings to Spindle.
d. Assemble Spindle and components to Ring Gear.



DISASSEMBLY

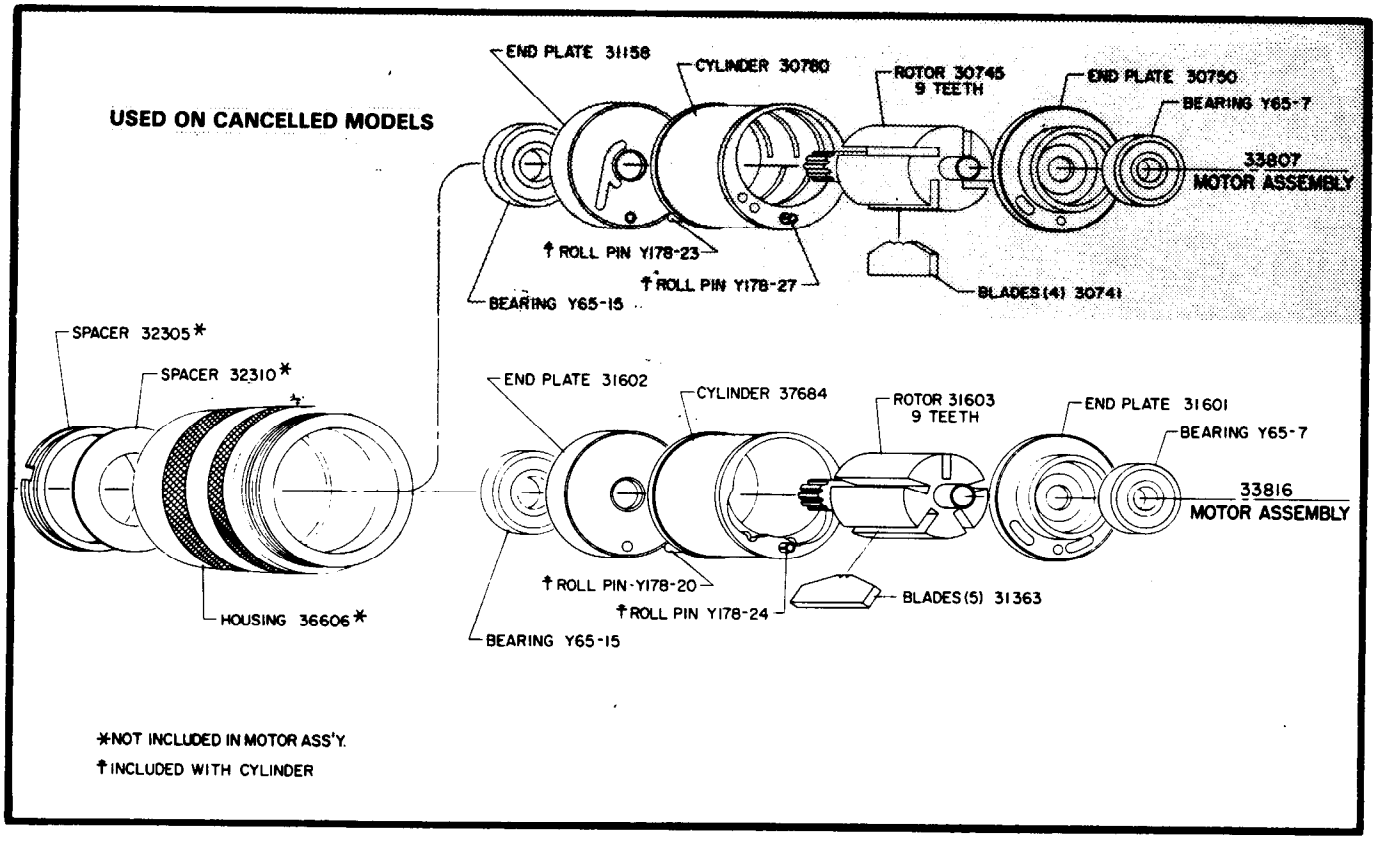
a. Remove motor assembly from tool as outlined on page 4.
b. Grasp Cylinder in one hand and tap splined end of Rotor with a non-metallic hammer; motor will come apart.

REASSEMBLY

Pack bearings with grease 33153, or equivalent, and coat I.D. of Cylinder with spindle oil upon assembly.

a. Assemble Bearings into End Plates and assemble End Plate (30750 or 31601) to Rotor.
b. Assemble Cylinder over Rotor to End Plate aligning Roll Pin in Cylinder with hole in End Plate.
c. Assemble Blades to Rotor and assemble End Plate (31158 or 31602) to Rotor and Cylinder aligning Roll Pin in Cylinder with hole in End Plate. Insure motor does not bind and assemble to tool. If Rotor binds, tap splined end lightly with a non-metallic hammer to loosen.

TO ASSEMBLE MOTOR TO TOOL: with Motor Housing removed from Head; place Head of tool in a suitable holding device with the motor end in an upright position. Place motor assembly on head aligning Roll Pin in motor with .106 dia. blind hole in head. Slip Motor Housing over motor and secure to Head. Assemble Spacers (32310), (32305) and gearing to tool.



DISASSEMBLY

a. Remove Nut (36609) and Valve components may be removed from head.

b. On reversible models, remove Roll Pin (Y178-7) to remove Reverse Valve (39207) and Spring (30032).

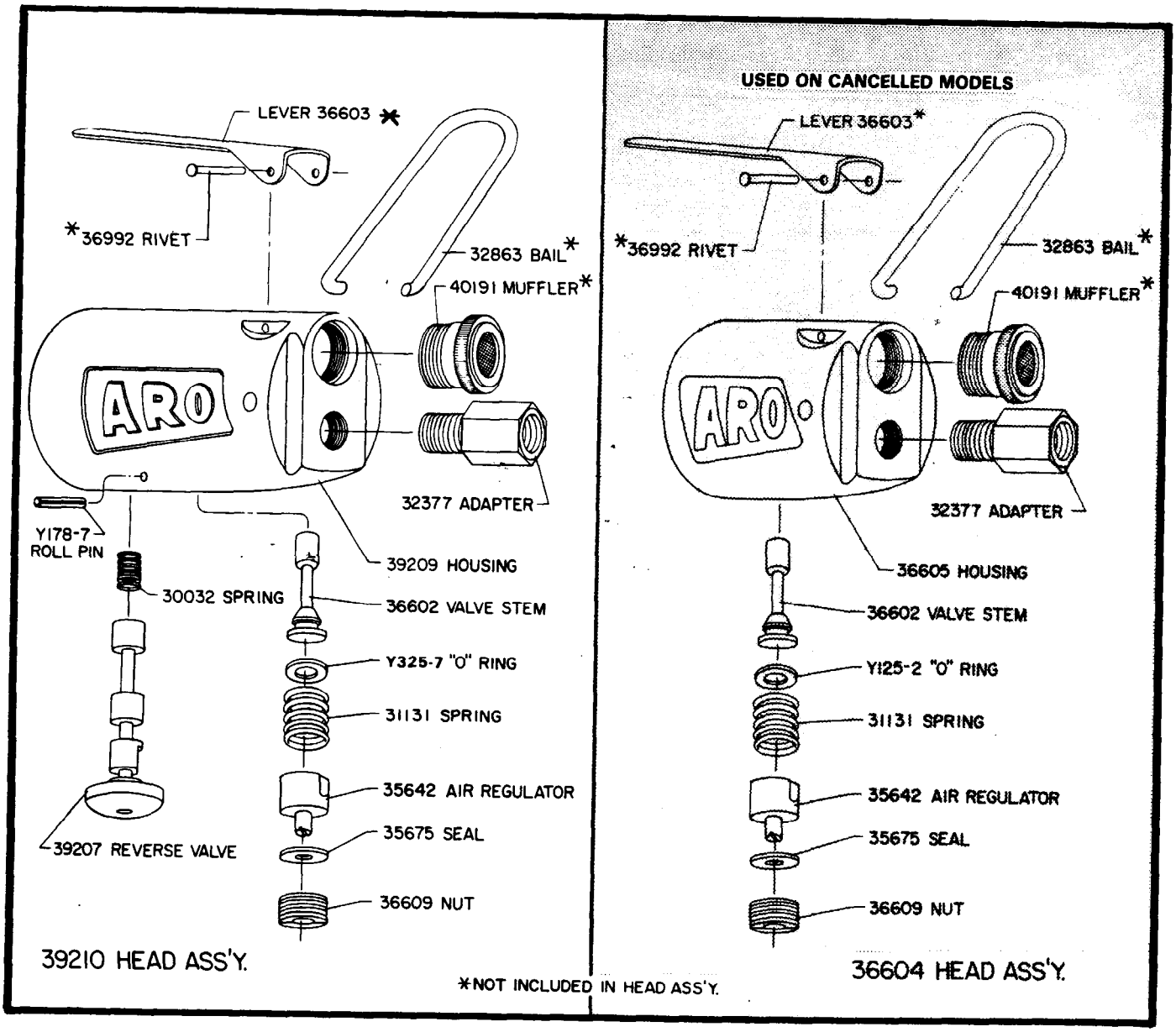
REASSEMBLY

a. Assemble "O" Ring (Y325-7) and Spring (31131) to Valve Stem (36602) and assemble to housing.

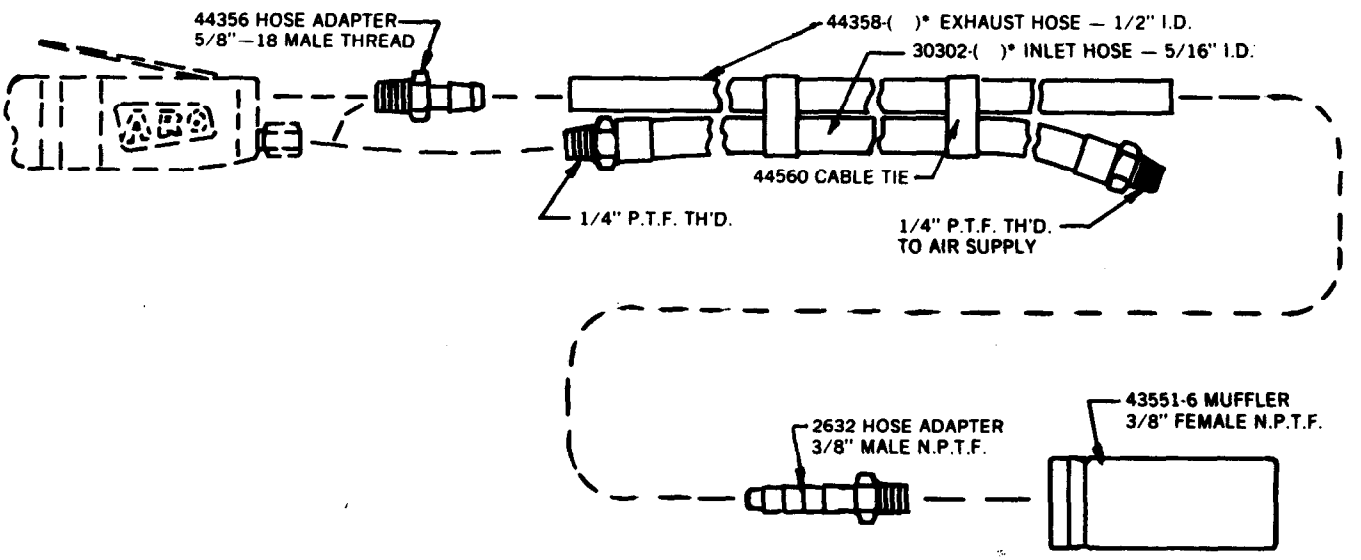
b. Assemble Regulator (35642) and Seal (35675) to housing and secure with Nut (36609). Align notch in Regulator with air inlet of housing when assembling.

c. Assemble Spring (30032) and Reverse Valve (39207) to housing and secure with Roll Pin (Y178-7) — reversible models only.

NOTE: See "Motor Section" for assembly of motor and head sections to tool.



PIPED EXHAUST SYSTEM



44360-( )* PIPED EXHAUST SYSTEM ASSEMBLY

PIPED EXHAUST ASSEMBLY CONSISTS OF 5/16" I.D. AIR INLET HOSE WITH 1/4" MALE FITTING AT EACH END, 1/2" I.D. EXHAUST HOSE, 44356 EXHAUST HOSE ADAPTER WITH 5/8"—18 MALE THREAD AND 2632 BARBED INSERT WITH 3/8" MALE THREAD.

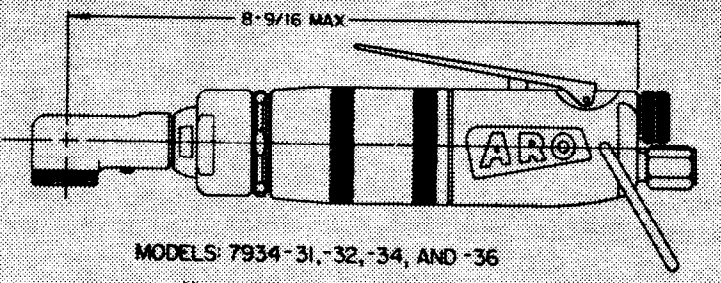
*TO ORDER PIPE EXHAUST SYSTEM ASSEMBLY: ADD DASH NUMBER TO PART NUMBER TO INDICATE DESIRED LENGTH OF HOSE IN FEET. EXAMPLE 44360-20, THE -20 INDICATES 20 FEET OF HOSE. ORDER LENGTH DESIRED UP TO 30 FT. MAX.

TO ASSEMBLE TO TOOL: REMOVE EXHAUST MUFFLER AND REPLACE WITH ADAPTER 44356. THREAD INLET HOSE TO INLET ADAPTER AND TIGHTEN SO EXHAUST HOSE ALIGNS WITH ADAPTER 44356 AND SLIP EXHAUST OVER ADAPTER. NO CLAMP IS NEEDED TO SECURE HOSE TO ADAPTER SINCE EXHAUST PRESSURE IS VERY LOW.

TROUBLE SHOOTING

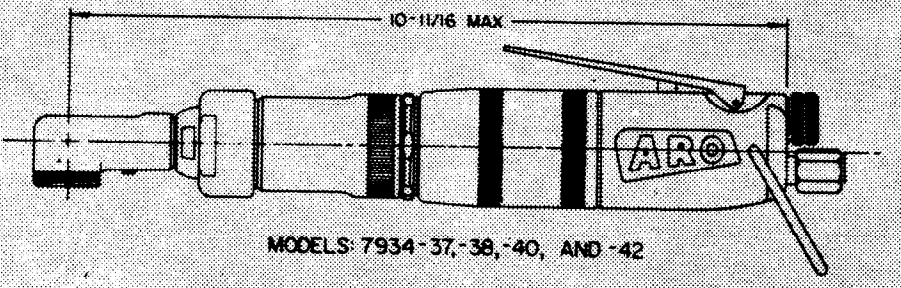
LISTED BELOW ARE THE MOST COMMON CAUSES FOR SCREWDRIVER/NUTSETTER MALFUNCTION. MALFUNCTIONS BEYOND THE SCOPE OF THIS MANUAL SHOULD BE BROUGHT TO THE ATTENTION OF YOUR ARO REPRESENTATIVE OR RETURNED TO FACTORY FOR REPAIR.

CONDITION	POSSIBLE CAUSE	CORRECTIVE ACTION
LOW SPEED AND POWER OR TOOL WILL NOT RUN.	1. INADEQUATE AIR SUPPLY.	1. CHECK AIR SUPPLY FOR CORRECT REGULATOR ADJUSTMENT (90 PSIG WHEN TOOL IS OPERATING).
	2. BUILT-IN AIR REGULATOR 35642 IMPROPERLY ADJUSTED.	2. CHECK REGULATOR ADJUSTMENT TO INSURE MAX. AIR FLOW FOR SPEED OF TOOL.
	3. AIR INLET OR EXHAUST SCREEN PLUGGED.	3. INSPECT, WASH CLEAN OR REPLACE EXHAUST MUFFLER.
	4. OBSTRUCTION IN THROTTLE VALVE OR VALVE NOT OPENING PROPERLY.	4. DISASSEMBLE THROTTLE. CLEAN, INSPECT FOR OBSTRUCTION OR DAMAGED PARTS.
	5. IMPROPER LURICATION OF UNIT (MOTOR, GEARING, RIGHT-ANGLE SECTION).	5. INSURE LUBRICATOR IS FULL OF OIL. DISASSEMBLE, CLEAN, INSPECT, LUBRICATE.
	6. ROTOR BLADES IN MOTOR STICKING, BADLY WORN; OR BROKEN. BADLY WORN BEARINGS IN MOTOR.	6. DISASSEMBLE, CLEAN, INSPECT. REPLACE ANY WORN OR DAMAGED PARTS. LUBRICATE.
	7. BADLY WORN GEARS AND/OR BEARINGS IN GEARING ASSEMBLY OR RIGHT-ANGLE ASSEMBLY.	7. DISASSEMBLE, CLEAN, INSPECT. REPLACE BADLY WORN OR DAMAGED PARTS. LUBRICATE.
RATCHETING OF CLUTCH OR FAILURE OF CLUTCH TO DISENGAGE – CLUTCH MODELS ONLY.	1. IMPROPER CLUTCH ADJUSTMENT.	1. CHECK CLUTCH ADJUSTMENT, REFER TO PAGE 7
	2. BADLY WORN OR DAMAGED CLUTCH COMPONENTS.	2. DISASSEMBLE, CLEAN, INSPECT, REPLACE BADLY WORN OR DAMAGED PARTS. LUBRICATE.

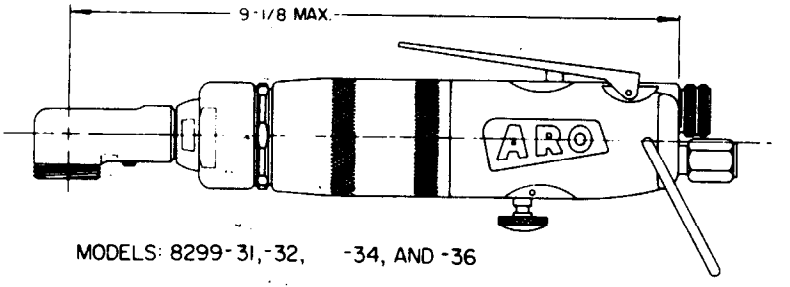


MODELS: 7934-31,-32,-34, AND -36

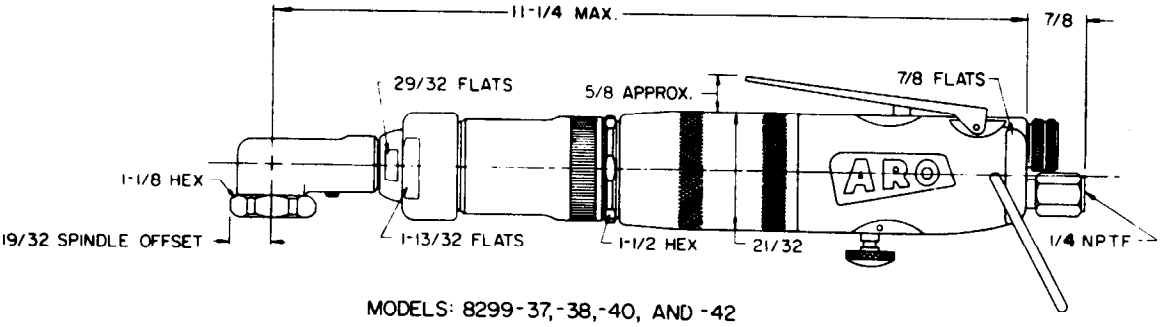
CANCELLED MODELS



MODELS: 7934-37,-38,-40, AND -42

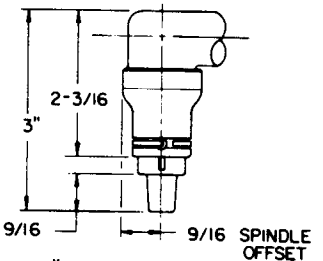


MODELS: 8299-31,-32, -34, AND -36

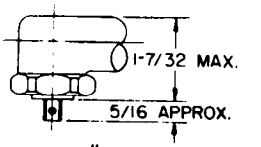


MODELS: 8299-37,-38,-40, AND -42

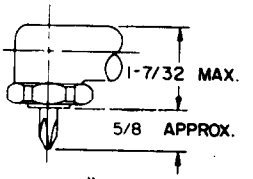
DIMENSIONS SHOWN (EXCEPT OVERALL DIM.) ARE TYPICAL OF ALL MODELS



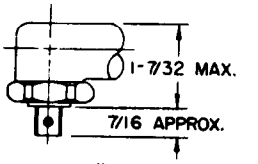
1/4" HEX BLADE BIT
(40455)



1/4" SQUARE DRIVE
(40449)



1/4" HEX INSERT BIT
(40454)



3/8" SQUARE DRIVE
(40457)