OPERATOR'S MANUAL

M110
7

INCLUDING: INSTALLATION & MAINTENANCE

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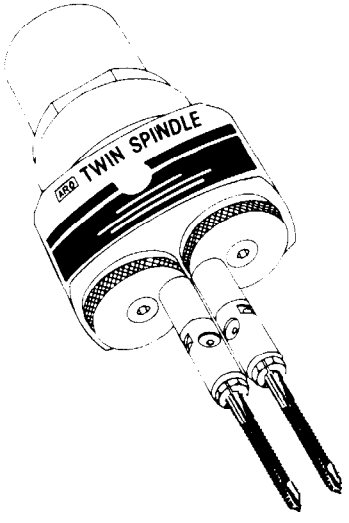
Form: 3211-2

DUAL SPINDLE ATTACHMENT MODEL 48054

FOR USE WITH ARO® LEAD SCREW TAPPER

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



CENTER DISTANCES:
1/2" TO 2-1/2"
(12.7 TO 63.5 mm)

TAP CAPACITY UP TO:
1/4" (6.5 mm)

TO ATTACH TO TOOL

THE BEARING AND SLEEVE ASSEMBLY 41263 MUST BE EXTENDED FROM THE SPINDLE HOUSING OF THE LEAD SCREW TAPPER 3/4" TO ALLOW CLAMPING THE ADAPTER TO THE SLEEVE. TO ACCOMPLISH THIS, ROTATE CHUCK UNTIL THERE IS AT LEAST 3/4" STICKOUT OF SLEEVE AND SET THE STOP TAB AT 3/4" INDICATED ON THE SCALE — SEE FIGURE 2, PAGE 4 OF THE OPERATOR'S MANUAL. MOUNTING THE DUAL SPINDLE ATTACHMENT TO THE LEAD SCREW TAPPER REDUCES THE EFFECTIVE STROKE LENGTH FROM 2" to 1-1/4".
REMOVE THE CHUCK AND ARBOR ASSEMBLY, NUT 40514-1 AND WASHER 41259 FROM SLEEVE ASSEMBLY. AFTER REMOVING WASHER 41259, THREAD AND TIGHTEN NUT 40514-1 BACK ON SPINDLE. ASSEMBLE ARBOR 47757-296 TO SPINDLE. ASSEMBLE ADAPTER AND CLAMP TO SPINDLE ALIGNING ARBOR WITH DRIVING SPINDLE AND TIGHTEN CAP SCREW SECURING ADAPTER ASSEMBLY TO SLEEVE. INSURE STOP TAB IS CORRECTLY POSITIONED TO PREVENT CLAMP AND ADAPTER FROM HITTING THE SPINDLE HOUSING ON THE RETRACT STROKE OF THE CYCLE.

ASSEMBLE DUAL SPINDLE ATTACHMENT 47980 TO ADAPTER ASSEMBLY 47981. IMPORTANT — ALTERNATELY TIGHTEN ADJUSTMENT SCREWS 45992 APPROXIMATELY 1/2 TURN AT A TIME TO PREVENT DAMAGING THE UNIT.

RECOMMENDED METHOD FOR HOLDING TAPS IN SPINDLES

TO PROPERLY HOLD TAP BIT IN COLLET AND REDUCE THE CHANCE OF SLIPPAGE, INSERT BIT INTO SPINDLE WITH SQUARE END OF TAP SHANK INTO LOCKING INSERT (WHERE APPLICABLE — SMALLER CAPACITY DUAL SPINDLES DO NOT HAVE AN INSERT, ONLY SET SCREWS). TIGHTEN COLLET FIRMLY, THEN TIGHTEN SET SCREWS. NOTE: DO NOT OVERTIGHTEN COLLET. INTENT OF SET SCREWS IS ONLY TO KEEP BIT FROM TURNING COLLETS.

LUBRICATION

OIL RESERVOIRS CAN BE REPLENISHED THRU EITHER SOCKET HEAD SET SCREW (45984) LOCATED ON OPPOSITE SIDES OF THE BODY. THE FELT TYPE OIL RESERVOIRS (46009) SHOULD BE SATURATED WITH A GOOD MULTIGRADE 10W/30 OIL AT APPROXIMATELY EVERY 160 HOURS OF USE. USE ONLY MULTIGRADE 10W/30. DO NOT USE GREASE.

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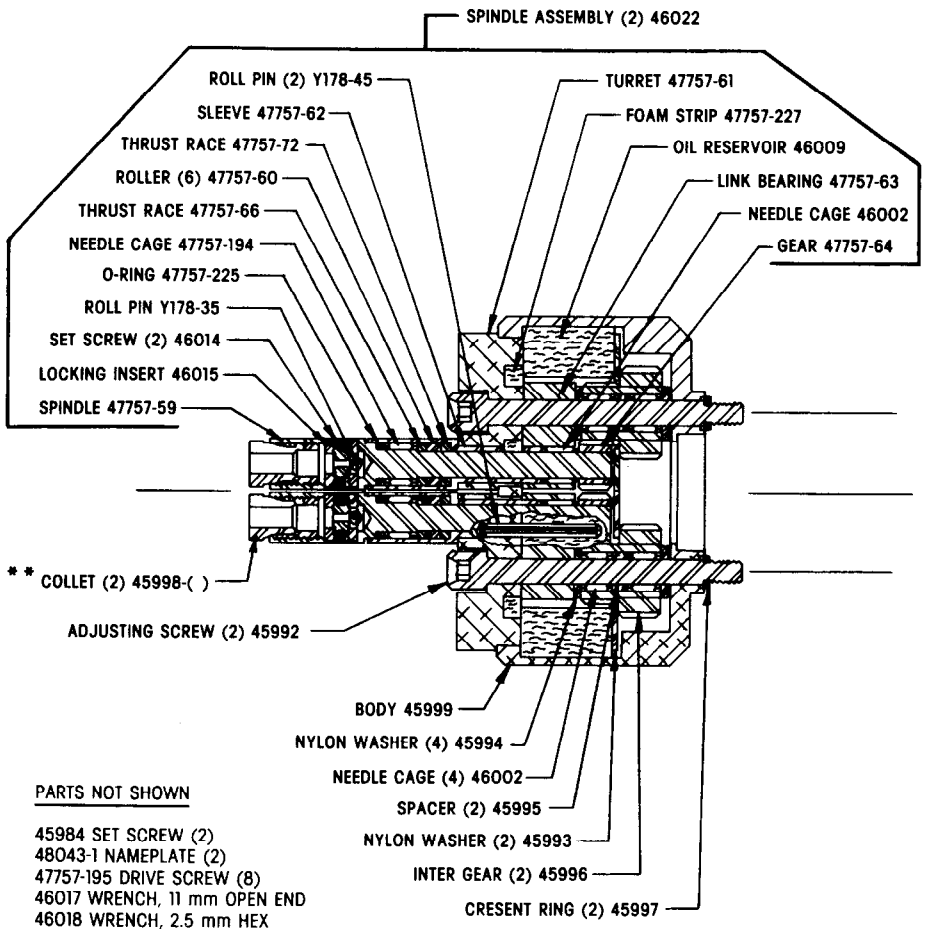
DUAL SPINDLE ATTACHMENT
MODEL 48054

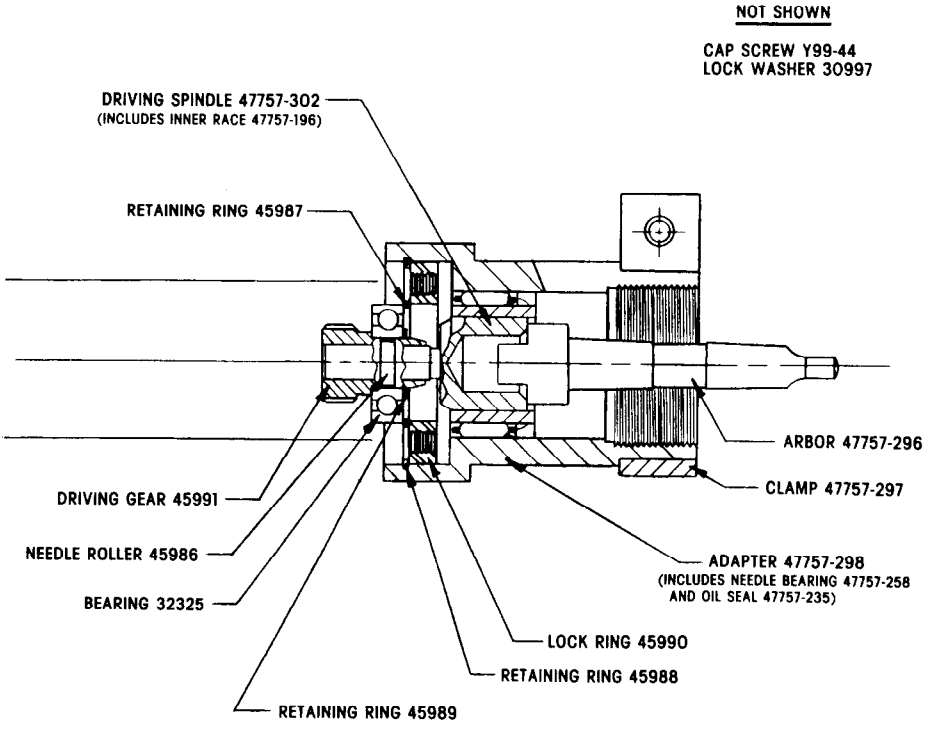


PARTS NOT SHOWN

45984 SET SCREW (2)
48043-1 NAMEPLATE (2)
47757-195 DRIVE SCREW (8)
46017 WRENCH, 11 mm OPEN END
46018 WRENCH, 2.5 mm HEX
46019 WRENCH, 11 mm BOX END
Y106-4 WRENCH, 4 mm HEX

PARTS ON THIS SIDE OF HEAVY LINE ARE INCLUDED IN TWIN SPINDLE HEAD ASSEMBLY 47980.

** NOTE: COLLETS ARE NOT FURNISHED WITH DUAL SPINDLE ATTACHMENT
– – COLLETS MUST BE ORDERED SEPARATELY.



PARTS ON THIS SIDE OF HEAVY LINE ARE INCLUDED IN ADAPTER ASSEMBLY 47981.

DUAL SPINDLE ATTACHMENT
MODEL 48054

DISASSEMBLY

The Dual Spindle Attachment can be serviced without removing the complete assembly from tool. Using 4 mm hex wrench supplied with unit, loosen both Adjusting Screws (45992)—IMPORTANT: Alternately unthread Adjusting Screws approximately 1/2 turn at a time or unthread screws simultaneously to prevent damaging the unit and remove dual spindle unit from tool.

Remove Cresent Ring (45997). Rotate Spindle Turret and at the same time pull back slightly on Turret to locate alignment of Spindle with notch in Body (45999) and remove Spindle Assembly from Body. To remove Gear (45996) from Body, remove Oil Reservoir (46009) and Nylon Washer (45993)—bend washer slightly to remove. Needle Cage (46002), Spacer (45995) and Washer (45994) are loose parts and will drop out. DO NOT disassemble Spindle (46022) unless it is necessary to replace a part.

To disassemble Spindle Assembly (46022): Using a flat bottom type punch or similar tool and an arbor press, remove Gear (47757-64) from Spindle (47757-59). Remove Spindle from the Sleeve carefully because the six (6) Rollers (47757-60) are loose parts and will drop out. NOTE: Thrust Race (47757-66) is press fit on Spindle. Cut off O-Ring (47757-225) and using a "C" type washer that properly fits spindle, press Thrust Race and Needle Cage off Spindle. If Link Bearing (47757-63) and Sleeve (47757-62) are removed from Turret, it will be necessary to remove the Foam Strip (47757-227) first. Lift one end of Foam Strip and pull so it slides through notch under Link Bearing. Using a proper size punch and arbor press, remove Link Bearing. Press Sleeve through remaining distance in Turret.

After the Dual Spindle Head Assembly has been removed from the Adapter, the Driving Spindle (47757-302) and components can be removed from the Adapter (47757-298). To remove Bearing (32325) and/or Gear (45991), remove Driving Spindle from Adapter then remove Retaining Ring (45989). Press Bearing back on Spindle to expose Needle Roller (45986) and remove Roller and Gear from Spindle (47757-302). Remove Bearing (32325).

REASSEMBLY

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

Assembling Spindle (46022): Press Sleeve (47757-62) into Turret. IMPORTANT — SLOT IN THE SLEEVE MUST BE ALIGNED WITH THE NOTCH IN THE BACK FACE OF TURRET. Push the Foam Strip (47757-227) into the notch in Turret with the widest side across the notch. The center of the strip should be under the sleeve and the two ends should meet at the point opposite the sleeve. Press the Link Bearing on Sleeve keeping the 10 mm hole in the Link Bearing in accurate alignment with the 10 mm hole in the Turret. Slide O-Ring (47757-225) and Needle Cage (47757-194) on Spindle. Slide Thrust Race (47757-66) on Spindle and press to location diameter up to shoulder adjacent to Bearing (47757-194). Be certain Thrust Race is pressed on and squarely seated or premature failure of the bearing may occur. Assemble Thrust Race (47757-72) and slide Spindle into Sleeve leaving approximately a 1/2" gap between end of Sleeve and Thrust Race and assemble the six (6) Rollers to Spindle. Be certain there are six rollers. Lubricate Rollers and bearings using a good grade of bearing grease and slide Spindle on into Sleeve. Assemble Needle Cage (46002) to Spindle and press Gear (47757-64) on Spindle leaving an end play of .001/.002".

Insert a dummy Adjusting Screw (45992) (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 (45994) to dummy screw. Assemble one Needle Cage (46002), Spacer (45995) and Needle Cage (46002) into Gear (45996) and assemble Gear to the dummy screw. Assemble Nylon Washer (45993) into Body — Bend Washer slightly to insert into Body and assemble Oil Reservoir (46009) into Body.

Assemble Adjusting Screw (45992) to Spindle Assembly (46022) and assemble Nylon Washer (45994) 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, assemble Cresent Ring (45997) to Adjusting Screw securing Screw to Body.

NOTE: When assembling Dual Spindle Attachment to Adapter assembly, alternately thread Adjusting Screws (45992) approximately 1/2 turn at a time to prevent damaging the unit.

Reassembly of the Driving Spindle and components to the Adapter (47757-298) will be the reverse of the disassembly procedure.

SPINDLE ADJUSTMENT

FOR SIMPLE SPINDLE ADJUSTMENT THE "X" "X" AND "Y" "Y" AXIS OF THE COMPONENT SHOWN IN FIG. 1 SHOULD COINCIDE WITH THE "X" "X" AND "Y" "Y" AXIS OF THE DRILL HEAD AND DRILLING UNIT AS SHOWN IN FIG. 2. THE SPINDLES SHOULD THEN BE ADJUSTED IN THE MANNER SHOWN IN FIGS. 3 AND 4.

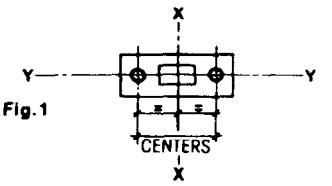


Fig.1

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.

FIG. 2 SHOWS THE TWIN SPINDLE HEAD WITH THE SPINDLES SET TO THE MINIMUM CENTERS.

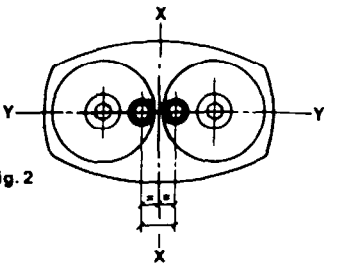


Fig.2

TO ADJUST THE SPINDLES AS SHOWN IN FIG. 3 LOOSEN BOTH SCREWS "A" AND ROTATE BOTH TURRETS IN THE DIRECTION INDICATED BY THE ARROWS TO THE APPROXIMATE CENTERS THAT ARE REQUIRED.

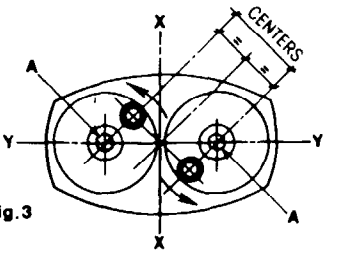


Fig.3

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.

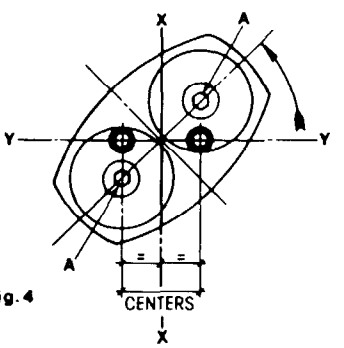


Fig.4

TAP CHART 45988-( ) COLLETS

PART NO.	TAP RANGE (METRIC)	
45998-27	No. 0 – No. 6	(M 1.6 – M 3.5)
45998-34	No. 8	(M 4)
45998-41	No. 10	(M 4.5 – M 5)
45998-47	No. 12	—
45998-56	1/4"	(M 6)

PART NO.	BORE DIA. (REF.)	ACCEPTS DRILL SIZES INCH	NO.	mm
45998-1	.039		61	1.0
45998-2	.043		57	1.1
45998-3	.047	3/64	56	1.2
45998-4	.052		55	1.3
45998-5	.055		54	1.4
45998-6	.059		53	1.5
45998-7	.063	1/16	52	1.6
45998-8	.067		51	1.7
45998-9	.071		50	1.8
45998-10	.075		48	1.9
45998-11	.079	5/64	47	2.0
45998-12	.083		45	2.1
45998-13	.087		44	2.2
45998-14	.091		43	2.3
45998-15	.094	3/32	42	2.4
45998-16	.098		40	2.5
45998-17	.102		38	2.6
45998-18	.106		36	2.7
45998-19	.110	7/64	35	2.8
45998-20	.114		33	2.9
45998-21	.118		32	3.0
45998-22	.122		31	3.1
45998-23	.126	1/8	–	3.2
45998-24	.130		30	3.3
45998-25	.134		29	3.4
45998-26	.138		–	3.5
45998-27	.142	9/64	28	3.6
45998-28	.146		26	3.7
45998-29	.150		25	3.8
45998-30	.154		23	3.9
45998-31	.157	5/32	22	4.0
45998-32	.161		20	4.1
45998-33	.165		19	4.2
45998-34	.169		18	4.3
45998-35	.173	11/64	17	4.4
45998-36	.177		16	4.5
45998-37	.181		14	4.6
45998-38	.185		13	4.7
45998-39	.189	3/16	12	4.8
45998-40	.193		10	4.9
45998-41	.197		9	5.0
45998-42	.201		7	5.1
45998-43	.205	13/64	5	5.2
45998-44	.209		4	5.3
45998-45	.213		3	5.4
45998-46	.216		–	5.5
45998-47	.220	7/32	2	5.6
45998-48	.224		–	5.7
45998-49	.228		1	5.8
45998-50	.232		–	5.9
45998-51	.236	15/64	A	6.0
45998-52	.240		B	6.1
45998-53	.244		C	6.2
45998-54	.248		D	6.3
45998-55	.252	1/4	E	6.4
45998-56	.256		F	6.5