30X, 50X, 70X, 90X Safety And Operation Instructions

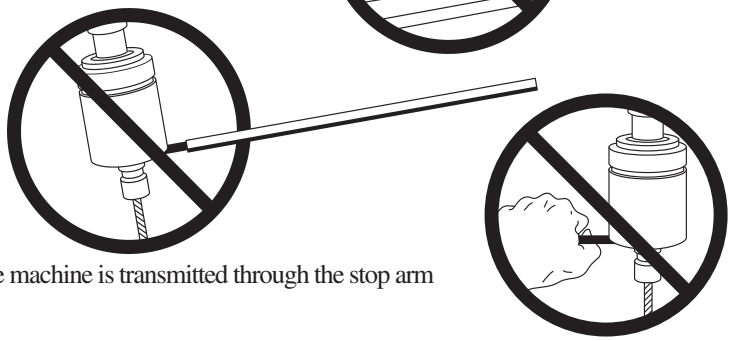
WARNING **To Avoid Serious Injury And Ensure Best Results For Your Tapping Operation, Please Read Carefully *All* Operator And Safety Instructions Provided For This Tapping Unit** as well as all other safety intstructions that are applicable, especially those for your machine tool.

1. Proper Clothing: The rotating spindle of a machine tool can snag loose fitting clothing, jewelry or long hair. **Never** wear jewelry, long sleeves, neckties, gloves or anything else that could become caught when operating a machine tool. Long hair **must** be restrained or netted to prevent it from becoming entangled in rotating spindle.

2. Proper Eye Protection: Always wear safety glasses with side shields to protect your eyes from flying particles.

3. Proper Work Piece Fixturing: Never hold the work piece or the vise it is held in, by hand. The work piece **must** be clamped firmly to the table of the machine so that it cannot move, rotate or lift.

4. Proper Stop Arm / Torque Bar Installation For Self-Reversing Attachments On Conventional Machines:

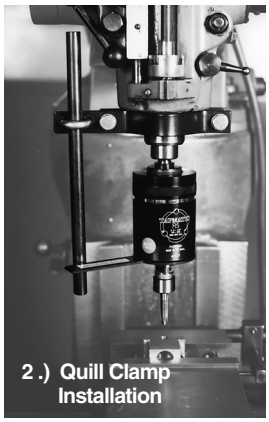


Never extend the length of the standard stop arm supplied with your tapping attachment. A lengthened stop arm could break free, hitting the operator and causing serious injury.

Never hold the stop arm by hand. On reversal, full power of the machine is transmitted through the stop arm and the operator could be seriously injured.

Always mount a torque bar to hold the tapping attachment's stop arm from rotating. The torque bar **must** be mounted securely to the table or quill of your machine. The torque bar installation **must b**e stronger than the largest tap in the capacity range of your tapping attachment. Order Tapmatic Torque Bars shown.

1.) Torque Bar Attached To Table



2.) Quill Clamp Installation

Quill Clamp Capacity	Order No.	Max Tap Size	Torque Bar Assembly	Order No.	Max Tap Size
1 1/2"-2 3/8"	29099	1/2"	Table Mount	29097	3/4"
2 3/8" - 4 1/2"	290991	3/4"	Heavy Duty Table Mount	29096	1 3/4"

5. To Install Collets In Rubber-Flex Collet Chucks:
Some collets vary slightly in outside diameter. This does not affect capacity or performance. To install, put collet into the end of the drive spindle and push the tap chuck nut over it until thethreads are engaged. Screw nut down completely. This will seat collet properly. Then back off nut to install tap. Collets must be ordered separately.

6. Inserting Tap In Rubber-Flex Collet Chucks:
Follow instructions to avoid excessive wear on back jaws when using tapping heads with collet chucks. Insert the tap into the tap chuck of the attachment so that the back jaws will engage the square of the tap. Hand tighten the chuck nut first, then tighten the back jaw on those units with adjustable back jaws. Then using the wrenches provided tighten the chuck nut firmly. When tightened correctly, the rubber flex collet should absorb most torque pressure, preventing the back jaws from being damaged by excessive torque. If the tap you are using has a male center at the square end, you must remove the point to assure maximum engagement in the back jaws.

Rubber-Flex Collet

For Use With Tapping Attachments With Rubber-Flex Collet Spindles.

Collet Series	Catalog No.	Collet Range Tap Size	Collet Range Shank Size
#21000 Series For **30X** attachments with capacities (#0-1/4")	21600 ★	#0-#8 Standard	.098-.177
	21700 ★	#10-1/4" Standard	.177-.256
	21500		.040-.098
	21200		.094-.146
#22000 Series For **50X** attachments with capacities (#6-1/2")	22100 ★	#0-1/4" Standard	.139-.257
	22200 ★	1/4"-1/2" Standard	.253-.383
	22300		.090-.180
	22000		.194-.318
#24000 Series For **70X** attachments with capacities (#10-5/8")	24100 ★	#10-1/2" Standard	.176-.383
	24000 ★	5/16"-5/8"	.280-.500
	24300		.110-.280
#26000 Series For **90X** attachments with capacities (1/2"-1-1/8")	26100	1/2"-3/4"	.360-.630
	26200	7/8"-1-1/8"	.630-.900

30X, 50X, 70X, 90X Safety And Operation Instructions

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7. Continuous High Production Manual Tapping: Models for use on conventional drill press or milling machines. Speed is a critical factor in tapping. Please always refer to recommended tapping speed chart. Tapmatic Torque Control Reversing Tapping Attachments employ a planetary gear reversing mechanism that increases speed by a 1.75 x 1 ratio. This means that a machine speed of 2,000 RPM results in a reversing speed of 3,500 RPM. It is strongly recommended that you consider the **AVERAGE TAPPING SPEED** rather than machine speed when calculating your cycle time. For example, if machine speed is 1,500 RPM, reverse speed is 2,625 RPM, making your **AVERAGE TAPPING SPEED 2,062 RPM.** You must not exceed the maximum allowable speed marked on your tapping attachment.

8. Always Be Aware Of The Potential Hazards Of A Machining Operation: Sometimes working with your machine can seem routine. You may find that you are no longer concentrating on the operation. A feeling of false security can lead to serious injury. **Always** be alert to the dangers of the machines with which you work. **Always** keep hands, body parts, clothing, jewelry and hair out of the areas of operation, when the machine spindle is rotating. Areas of operation include the immediate point of machining and all transmission components including the tapping attachment. **Never** bring your hand, other body parts or anything attached to your body into any of these areas until the machine spindle is completely stopped.

9. Be aware of any other applicable safety instructions / requirements.

10. The tapping attachment housing, drive spindle and tap itself can become hot to the touch after operation. Use caution when removing the attachment from the machine or handling.

Check List For Good Tapping

- ❑ 1. **Never** use this unit before reading all safety instructions for this attachment as well as the machine it is to be used on.
- ❑ 2. Is tap sharp and of correct design for current job?
- ❑ 3. Is tap in proper alignment with drilled hole?
- ❑ 4. Is machine speed correct?
- ❑ 5. Is machine feed correct?
- ❑ 5. Is machine stop set properly so tap releases in neutral rather than bottoming in work piece or fixture?
- ❑ 6. Is work piece held rigidly against rotation and upward movement?
- ❑ 7. Is drilled hole the correct size?
- ❑ 8. Is clearance between the drilled hole and tap sufficient at start position to allow the tap to clear the hole upon retraction?
- ❑ 9. Is the stop arm of the tapping attachment held rigidly against rotation by the torque bar extending from the machine quill or table? Machine torque bar must be stronger than the largest tap to be used.
- ❑ 10. Is the proper cutting fluid or coolant being used for lubricating the tap?
- ❑ 11. If a bottom hole is being tapped is there sufficient chip clearance?
- ❑ 12. Is the correct Tapmatic model for the specific job requirement being used? (Capacity should be reduced 25% for roll form taps.)
- ❑ 13. If a torque control attachment is being used, is the torque set correctly so tap will not break if accidentally bottomed?
- ❑ 14. If depth control feature is employed, is it set correctly to cooperate with the machine stop, provide the total thread depth required and prevent engagement with bottom?
- ❑ 15. Is machine retraction correct for tapping attachment being used?

References for this Safety Information include but are not limited to:

American National Standards Instutitute
ANSI B11.8-1983 (Adopted May 31, 1983 by Department of Defense)

Coastal Video Communications Corporation
Machine Guarding Copy Right 1994

Society Of Manufacturing Engineers
Tool and Manufacturing Engineers Handbook Volume 1 Machining
(Library of Congress Catalog No. 82-060312

30X, 50X, 70X, 90X Safety And Operation Instructions

This tapping attachment can be used on all types of manually operated machines with rotating non-reversing spindles. It can also be used in many applications that are automated or semi-automated, such as air feed drill units. It should not be used on machines which reverse the spindle on the back stroke or on machines which are automated and have no controlled back stroke.

MOUNTING THE STOP ARM:

This attachment incorporates in its design a planetary gear reverse which has a 1.75 to 1 reverse ratio. To assure the best performance of this reversing mechanism, it is extremely important that a short stop arm (as furnished with the unit) be employed. A truarc ring (#40X) is provided to hold the stop arm (#32X) in place. Extend strong torque bar from machine quill or machine table to engage short stop arm. DO NOT LENGTHEN STOP ARM. Also, clamp part to be tapped securely as full power of the machine is transmitted in reverse. **DO NOT HOLD PART BY HAND. DO NOT HOLD STOP ARM BY HAND.**

INSTALLING THE ARBOR IN TAPER MOUNT UNITS:

Make sure that the taper mount of the unit and the arbor itself are clean and free of oil or grease. Then with a twisting motion, insert the arbor into the tapping attachment. The twisting motion allows the air entrapped in the taper to be released. When the arbor is inserted completely, several sharp blows should be made on the tang with a lead hammer to make sure the arbor is seated firmly. It is important that this procedure be followed, as the taper may be damaged if slippage occurs. Occasionally, for large units, it may be necessary for the attachment to be pinned to the arbor. This may be done with a #4 Taper Pin.

INSERTING THE TAP:

Rubber flex Collet Spindle: If the tap you are using has a male center as in Figure 1, the point should be ground off so that the tap square will be engaged by the back jaws as shown in Figure 2.

After removing the point, insert the tap into the tap chuck of the attachment so that the back jaws will engage the square of the tap. Hand tighten the chuck nut first. Then tighten back jaws with hex key. Then using wrenches provided, tighten chuck nut. This procedure will assure true running of the tap. Note: Reduce capacity 25% for roll form taps.

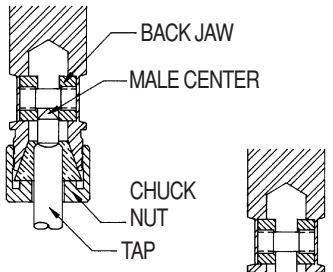


FIG. 1

FIG. 2

TAPPING SPEEDS: The Tapping Attachment has been designed to operate properly at recommended tapping speeds. Please refer to chart for the recommendations for specific tap sizes. **Do not exceed the maximum speed shown on the tapping attachment.**

SETTING THE PRE-SELECTED TORQUE CONTROL:

The attachment has a spring loaded friction clutch. Driving adjustments are made by tightening or loosening the knurled torque cap (#2) at the upper end of the attachment.

To begin the tapping operations, set the clutch adjustment cap (#2) at a setting less than the final setting, then progressively tighten until the unit will drive a sharp tap to the desired depth. When the desired torque has been determined, the knurled cap may be friction locked in place by a set screw (#5). If later during the operation the clutch slips, it is evident that the tap is dull and should be immediately exchanged for a sharp tap, but the clutch should not be tightened further.

The graduations on the housing are simply reference points, they do not refer to specific tap sizes. When the proper torque is determined for a specific job, this reference point may be noted to save set up time in the future.

THROUGH HOLE TAPPING: Tapping with this attachment does not require that the operator apply any lead pressure on the tap during the tapping operation. The free axial float in the attachment will automatically permit the tap to follow its own lead. The operator merely moves the machine's spindle behind the lead of the tap until the desired depth is reached. To reduce wear within the tapper it is recommended that a short, quick, upward movement of the machine spindle be made during transition from drive to reverse. The tap will return to a forward rotation as soon as it rotates out of the hole.

BOTTOM HOLE TAPPING: For accurate and efficient bottom hole tapping, a machine feed stop should be used to allow the attachment's spindle to disengage in neutral before the tap bottoms in the hole. To achieve this, set the machine stop so that the machine feed plus the attachment's self-feed will equal the desired thread depth. This greatly simplifies the tapping operation, and affords maximum tap protection.

The amount of self-feed built into each of the tappers is as follows: M6 or 1/4" capacity is .140, M12 or 1/2" capacity is .250, M16 or 5/8" capacity is 3/8", M28 or 1 1/8" capacity is 1/2".

If the clutch should slip before the tap reaches the thread depth, check to see that the hole is the correct size, not packed with chips, and that the tap is sharp and undamaged. The torque control is designed as a safety device to prevent tap breakage in case the tap accidently engages bottom. We do not recommend using the clutch for repetitive bottom hole tapping unless absolutely necessary.

LUBRICATION: This unit is pre-packed at the factory and only needs periodic additions of grease to maintain proper lubrication. Approximately every 600 hours, partially disassemble the unit, per disassembly instructions #1 through #11, and clean removed parts in solvent. Add a small amount (from 1/4 to 3/4 ounce) of #2 multipurpose lithium grease to reversing gears and reassemble. Do not over-lubricate- excess grease will create internal friction and overheating.

LUBRICATION: To insure maximum tap life, the proper lubricant should be used. We recommend Dry-Cut from MQL Systems A Division of Tapmatic. Call For FREE Sample.

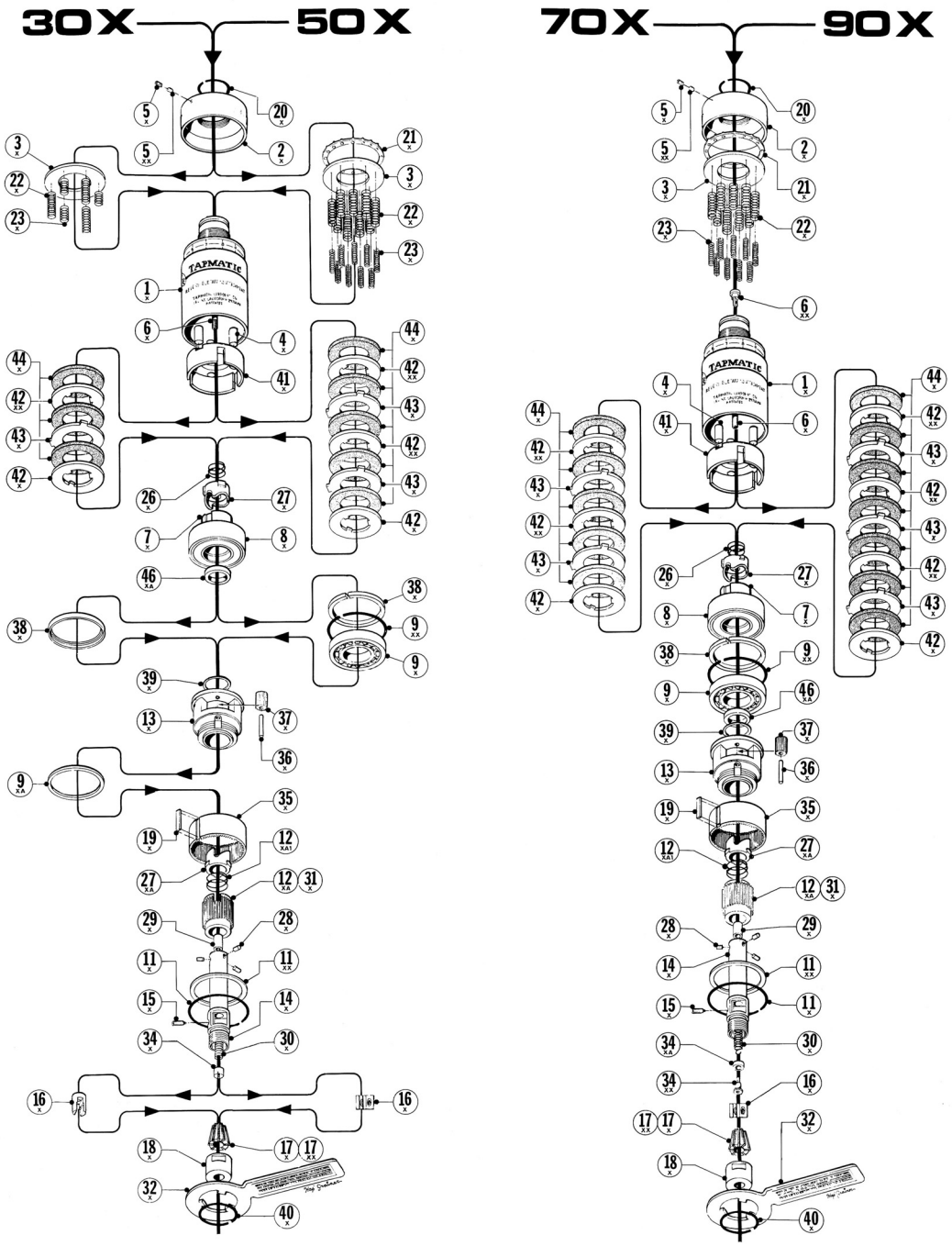
REMOVAL OF TAPERED ARBORS: Removal of the arbor from the Jacobs taper in a tapping attachment will generally require striking the arbor with a soft metal rod. Hold the tapping attachment, with the arbor pointed away, in one hand and strike the arbor sideways on tang or in relief area, with a brass rod grasped in the other hand. Numerous blows may be required. **DO NOT STRIKE THE TAPPING ATTACHMENT.** Stuborn arbors and arbors installed with Loctite will require the application of heat. Using a soft flame propane torch, evenly heat the interface area where the arbor enters the attachment. (300% F will be required to break down the Loctite.) After applying heat, resume striking the arbor with the soft metal rod until the arbor loosens. Always use caution when handling heated parts.

MAXIMUM TAPMATIC TAPPING SPEEDS**

Size		Cast Iron and Bronze	Plastics and Aluminum	Steel	Stainless Steel	Brass	Copper	Size		Cast Iron and Bronze	Plastics and Aluminum	Steel	Stainless Steel	Brass	Copper
0	-80	2000	2000	2000	1900	2000	2000	1/4	-20	1000	1200	750	400	1200	1200
1	-64	2000	2000	2000	1600	2000	2000	1/4	-28	1200	1200	850	400	1300	1200
1	-72	2000	2000	2000	1600	2000	2000	5/16	-18	850	1100	650	300	1200	1100
2	-56	1900	2000	1800	1300	2000	2000	5/16	-24	900	1200	700	350	1300	1200
2	-64	2000	2000	1900	1300	2000	2000	3/8	-16	700	900	550	250	1200	900
3	-48	1800	1900	1700	1000	1900	1900	3/8	-24	750	1000	600	300	1200	1000
3	-56	1900	2000	1800	1100	2000	2000	7/16	-14	600	800	450	200	950	800
4	-40	1700	1800	1500	900	1900	1800	7/16	-20	650	850	475	225	1000	850
4	-48	1800	1900	1600	1000	2000	1900	1/2	-13	500	650	400	200	850	650
5	-40	1650	1700	1600	800	1800	1700	1/2-	-20	575	750	425	200	1000	750
5	-44	1750	1800	1700	900	1900	1800	9/16	-12	450	600	350	175	800	600
6	-32	1500	1600	1500	700	1700	1600	9/16	-18	500	675	375	175	900	675
6	-40	1650	1700	1600	800	1800	1700	5/8	-11	375	500	300	150	700	500
8	-32	1400	1400	1200	600	1400	1400	5/8	-18	450	600	325	150	800	600
8	-36	1500	1500	1300	700	1500	1500	3/4	-10	325	400	250	125	575	400
10	-24	1300	1400	1100	500	1500	1400	3/4	-16	375	475	275	125	650	450
10	-32	1400	1500	1200	600	1500	1400	7/8	-9	275	350	200	90	500	350
12	-24	1300	1400	900	400	1500	1400	7/8	-14	300	400	250	100	550	400
12	-28	1400	1500	1000	500	1500	1400	1	-8	250	300	175	75	425	300
								1	-14	275	350	200	100	475	350

**These maximum tapping speeds are for optimum tapping conditions for the tap size, tap pitch and material involved. Optimum conditions are (1) a through hole or blind hole with generous chip clearance; (2) thread depth is one times a tap diameter or less; (3) free machining material; (4) tap drill diameter for 60% thread; (5) use of LPS Tapmatic Cutting Fluid or Coolant; and (6) proper designed tap. Reduce speed accordingly for each non-optimum condition.

30X, 50X, 70X, 90X Parts Listing



30X Wrench Set		
Qty.	Order No.	Description
1	50332	332X Stop Arm
1	50340	340X Stop Arm Ring
1	27078	5/64" Hex Key
1	28050	1/2" Wrench
1	28062	5/8" Wrench
1	29030	30 Series Spanner Wrench (Thread Mounts Only)

50X Wrench Set		
Qty.	Order No.	Description
1	56532	5032XB Stop Arm
1	56540	5040XB Stop Arm Ring
1	28075	3/4" Wrench
1	28097	31/32" Wrench
1	27125	1/8" Hex Key
1	27078	5/64" Hex Key
1	29050	50 Series Spanner Wrench (Thread Mounts Only)

70X Wrench Set		
Qty.	Order No.	Description
1	50732	732X Stop Arm
1	50740	740X Stop Arm Ring
1	27078	5/64" Hex Key
1	27156	5/32" Hex Key
1	28097	31/32" Wrench
1	28131	1 5/16" Wrench
1	29085	#5 Hook
1	29090	Spring Puller
1	29070	70 Series Spanner Wrench (Thread Mounts Only)

90X Wrench Set		
Qty.	Order No.	Description
1	50932	932X Stop Arm
1	50940	940X Stop Arm Ring
1	27078	5/64" Hex Key
1	27093	3/32" Hex Key
1	27218	7/32" Hex Key
1	28156	1 9/16" Wrench
1	28200	2" Wrench
1	29081	#1 Hook
1	29090	Spring Puller

30X, 50X, 70X, 90X Parts Listing

IDENT	PART NAME	30X	50X	70X	90X
1X (#6JT)	Housing	50301B (1)	50501B (1)	-	-
1X (DINB16)	Housing	50301G (1)	50501G (1)	-	-
1X (#33JT)	Housing	50301E (1)	50501E (1)	-	-
1X (DINB12)	Housing	50301F (1)	-	-	-
1X (5/16"-24)	Housing	50301H (1)	-	-	-
1X (3/8"-24)	Housing	50301I (1)	50501I (1)	-	-
1X (1/2"-20)	Housing	50301J (1)	50501J (1)	50701J (1)	-
1X (5/8"-16)	Housing	50301K (1)	50501K (1)	50701K (1)	-
1X (3/4"-16)	Housing	50301L (1)	50501L (1)	50701L (1)	-
1X (7/8"-20)	Housing	-	-	50701M (1)	-
1X (#3JT)	Housing	-	-	50701C (1)	-
1X (#4JT)	Housing	-	-	-	50901D (1)
1X(1 1/2"-18)	Housing	-	-	-	50901N (1)
2X	Clutch Adjustment Cap	50302A (2)	56502A (2)	50702A (2)	50902A (2)
3X	Spring Plate	50303	56503	50703	50903
4X	Driver Pins	50304 (3 set)	50704 (3 set)	50704 (3 set)	50904 (3 set)
5X	Lock Set Screw	50305A (3)	50305A (3)	50305A (3)	50905A (3)
5XX	Lock Set Screw Plug	503051	503051	503051	509051
6X	Guide Spindle	503061	56506	51720	51920
6XX	Upper Spring Hanger	-	-	60334	50706
7X	Clutch Sleeve	50307	50507	50707	50907
8X	Clutch Bearing	50308	56508	50708	50908
9X	Gear Carrier Bearing (Ball)	-	50509	50709	50909
9XA	Gear Carrier Bearing (Nylon)	503091	-		- -
9XX	Truarc Ring	-	505091	507091	509091
11X	Retaining Ring	50311	50511	50711	50911
11XX	Gear Washer	503111	505111	507111	509111
12XA	Reversing Sleeve	503121 (4)	505121 (4)	507121 (4)	509121 (4)
12XA1	*Reversing Driver Spring	51312	505122	507122	509122
13X	Gear Carier	503131	50513	50713	50913
14X	Drive Spindle	503141A (5)	56514A (5)	50714A (5)	50914A (5)
15X	Back Jaw Retainer Screw	50315 (2 req'd)	50315	50715	50915
16X	*Back Jaws or Tap Jaws	503161	56516	50716	50916
17X	Rubber Flex Collet (Small)	21600	22100	24100	26100
17XX	Rubber Flex Collet (Large)	21700	22200	24000	26200
18X	Tap Chuck Nut	50318	56518	50718	50918
19X	Key	50319	50319	50719	50919
20X	Stop Ring	50320	56520	50720	50920
21X	Adjustment Thrust Bearing	-	56521	50721	50921
22X	Clutch Spring (Large)	50322 (3 set)	50522 (9 set)	50722 (9 set)	50922 (9 set)
23X	Clutch Spring (Small)	50323 (3set)	50723 (9set)	50723 (9set)	50923 (9 set)
26X	*Cushion Spring	50326	565261	50726	50926
27X	*Spring Cup Driver	503271	505271	507271	50927
27XA	*Reversing Driver	503272	505272	507272	509271
28X	Drive Pins	50328 (3set)	56528 (3 set)	50728 (3 set0	50928 (3 set)
29X	Guide Spindle Bearing	50329	56529	50729	51908
30X	*Return Spring	51328	51528	507301	50930
31X	Drive Spindle Bearing	503311 (4)	- (4)	- (4)	509311 (4)
32X	*Stop Arm	50332	56532	50732	50932
33X	Guie Spindle Washer	50333	-	-	-
34X	Guide Spindle Nut	503341	56534	-	-
34XA	Spring Bearing	-	-	50734	50934
34XX	Spring Bearing Hanger	-	-	50706	50706
35X	Ring Gear	50335	50535	50735	50935
36X	Gear Pins	50336 (3 set)	50536 (3 set)	50736 (3 set)	50936 (3 set)
37X	Planet Gears	50337 (3 set)	50537 (3 set)	50737 (3 set)	50937 (3 set)
38X	Spacer	50338	50538	50738	50938
39X	Thrust Washer	50339	50539	50739	50939
40X	Truarc Ring	50340	56540	50740	50940
41X	Clutch Driver	50341	56541	50741	50941
42X	Primary Internal Clutch Plate	50342	56542	50742	50942
42XX	Internal Clutch Plate	503421	565421 (2 set)	507421 (2 set)	509421 (3set)
43X	External Clutch Plate	50343	56543 (2 set)	50743 (2 set)	50943 (3 set)
44X	*Clutch Discs	50344 (3 set)	56544 (5 set)	50744 (5 set)	50944 (7 set)
46XA	Reversing Sleeve Bushing	503461	505461	507461	509461

*These items are considered normal wear replacement parts and are not covered under warranty.

(1) Housing only available as an assembly with Ident. #4X and #6X.
(2) Clutch Adjustment Cap only available as an assembly with Ident #5X and #5XX.
(3) Lock Set Screw comes with Ident. #5XX.
(4) Reversing Sleeve and Drive Spindle Bearing available only as an assembly.
(5) Drive Spindle only available as an assembly with Ident. #29X.

INSTRUCTIONS FOR DISASSEMBLY

1. Remove stop ring (#20X) and unscrew clutch adjustment cap (#2X).
2. Hold unit in vertical position and remove adjustment thrust bearing (#21X). (50X, 70X & 90X only).
3. Lift off spring plate (#3X).
4. Carefully invert unit over a clean receptacle. Clutch springs (#22X & 23X) will drop out.
5. Remove tap chuck nut (#18X) and collet (#17X).
6. Remove back jaw retainer screw (#15X).
7. Remove back jaw (#16X).

8a. Remove return spring (#30X) by threading spring puller (supplied with unit) into tapped hole in part (#34XX), and pulling out to expose spring for removal with spring hook (also supplied with unit). (Models 70X and 90X only).

8b. Unscrew guide spindle nut (#34X) and remove return spring (#30X). (Models 30X & 50X).

9. Remove truarc ring (#40X) and stop arm (#32X).
10. Remove truarc ring (#11X) and gear washer (#11XX).
11. Lift out drive spindle (#14X) and reversing sleeve (#12XA) sub assembly from unit.
12. Lift out spacers (#46XA) and (#38X).
13. Lift out clutch sleeve (#7X), clutch driver (#41X), clutch plates (#42X, 42XX, 43X) and clutch discs (#44X).
14. Lift out cushion spring (#26X) and spring cup driver (#27X).
15. Remove driver pins (#28X) from drive spindle (#14X).
16. Press drive spindle (#14X) out of reversing sleeve (#12XA) subassembly.
17. Do not disassemble planetary gear reversing subassembly (#13X).

INSTRUCTIONS FOR ASSEMBLY

1. Clean and lubricate all parts requiring lubrication thoroughly. Do not get clutch parts wet or oily.
2. Place internal clutch plate (#42X) on clutch sleeve (#7X), then clutch disc (#44X), then external clutch plate (#42X), then another clutch disc (#44X), then internal clutch plate (#42XX), and so forth, until you have all plates and discs on clutch sleeve, then line up external dogs so that you can slip clutch driver (#41X) over complete subassembly.
3. Place cushion spring (#26X) and spring cup driver (#27X) in clutch sleeve (#7X).
4. Insert clutch sleeve (#7X) and clutch driver (#41X) subassembly into housing (#1X), making sure that 3 holes in clutch driver mate with 3 pins in housing (#1X).
5. Insert spacers (#46XA) and (#38X) into housing (#1X).
6. Press drive spindle (#14X) into reversing sleeve (#12XA) subassembly and insert drive pins (#28X).
7. Insert complete subassembly into housing (#1X) utilizing key (#19X).
8. Insert gear washer (#11XX) and snap in truarc ring (#11X).
9. Hook return spring (#30X) to spring hanger (#6X) and insert this subassembly into neck end of housing (#1X) making certain spring hanger is seated properly. (Models 70X and 90X only).
10. Use spring hook (supplied with unit) to expose return spring (#30X) and attach spring bearing hanger (#34XX) with bearing (#34XA) mounted. (Models 70X and 90X).

11a. Thread spring puller (supplied with unit) into tapped hole in spring hanger (#34XX) and carefully lower assembly into drive spindle (#14X) until bearing (#34XA) seats itself, then unscrew spring puller. (Models 70X and 90X).

11b Insert return spring (#30X) into drive spindle (#14X) and screw guide spindle nut on to guide spindle (#6X). (Models 30X and 50X).

12. Place back jaws (#16X) in drive spindle (#14X) and install back jaw retainer screw (#15X).
13. Insert collet (#17X) into tap chuck nut (#18X) and screw tap chuck nut (#18X) on to drive spindle (#14X).
14. Insert clutch springs (#22X & 23X) into unit.
15. Place spring plate (#3X) on springs.
16. Place adjustment thrust bearing (#21X) on spring plate (#3X). Models 50X, 70X and 90X).
17. Screw on clutch adjustment cap (#2X).
18. Install stop ring (#20X).
19. Install stop arm (#32X) and snap on truarc ring (#40X).

30X, 50X, 70X, 90X Repair Service

Repair Service is available at... **Attention:** **Repair Department**
Tapmatic Corporation
802 Clearwater Loop
Post Falls, ID 83854

To Expedite Repair: Return tool direct to Tapmatic Corporation, by United Parcel Service and enclose the following statement with your purchase order: **"Authorization given to repair and return tool without notification if total repair cost does not exceed 40% of the cost of a new tool."** Tapmatic will repair the tool and call to request your credit card # for invoicing.

IMPORTANT: Be sure to return the tool complete with the tap chuck nut, back jaw and if the tool is a reversing unit, include stop arm. Otherwise, we will add these missing parts to every non-warranty repair.

Cost Notification: Tapmatic will FAX a cost notification to you, soliciting your approval before repairs are completed.

If it is determined that a tapping attachment cannot be repaired, at the customer's request, Tapmatic will return the disassembled parts. We are not able to reassemble tapping attachments using damaged or worn out parts.

Optional Return Procedure: Tools may also be returned for repair through your local Tapmatic Distributor. They will ship the tool to us and include instructions for the repair and return. You may already have an open account with them which facilitates the handling of invoicing.

Priority Service: Tapmatic services tapping attachments returned for repair in the order in which they are received. All tools will be evaluated and repaired within three weeks from the date they arrive subject to receiving the customer's approval to proceed with the repair.

Priority is given to the tools shipped to us by overnight or second day.

If a repair is sent to us by UPS ground or similar service it can also be given priority. Just call and let us know you need priority service and advise if you would like the tool returned to you by overnight or second day. In the interest of fairness, to all our customers, we ask that you approve return shipment by overnight or second day before we agree to upgrade your repair order to priority service. Typical turnaround, not including shipping time, for priority repairs is 3 days subject to receiving the customer's approval to proceed with the repair.

If we can answer any questions, please call our toll free number: 800 395-8231.

TAPMATIC®
The Tapping Specialists
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I·D·A Industrial Distribution Association

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