

OPERATIONS MANUAL

PARTNER 1H

MILLTRONICS MANUFACTURING COMPANY

**1400 Mill Lane □
Waconia, MN 55387 □
952-442-1410**

All axis thrust bearings BG-01 x 2

All axis radial bearings BG-02

Spindle:

Old short 5HP

Lower thrust BG-22

Upper radial BG-05

Newer 5HP

Lower thrust BG-22

Upper radial BG-05

Top bearing cup BG-12

Newer 7.5 HP

Lower thrust BG-22 and BG-44

Upper thrust BG-45 x 2

Top bearing cup BG-12

MECHANICAL AND ASSEMBLY DRAWINGS
PARTNER 1H

1. Machine Lifting Instructions
2. BT Flange Retention Knob
3. V Flange Retention Knob
4. Power Drawbar Assembly and Instructions (1-2)
5. Overall Dimensions and Axis Travels
6. Overall Dimensions with Chip Pan
7. Lubrication Instructions and Drawing (1-3)
8. Basic Machine Assembly
9. Column Assembly
10. Base Assembly
11. Milling Head Assembly
12. 12- $\frac{1}{2}$ HP Spindle Motor Head Assembly
13. Standard Table and Saddle Assembly
14. Table & Saddle Assembly - 30 in. Travel
15. Table & Saddle Assembly - 34 in. Travel
16. Table & Saddle Assembly - 45 in. Travel
17. Spindle Orient and Rigid Tapping Assembly
18. 52 in. Chip Pan Doors
19. 12 Pocket Tool Changer
20. 20 Pocket Tool Changer
21. 5 HP Spindle Assembly
22. 7- $\frac{1}{2}$ HP Spindle Assembly
23. Cog Belt Assembly

MACHINE LIFTING INSTRUCTIONS

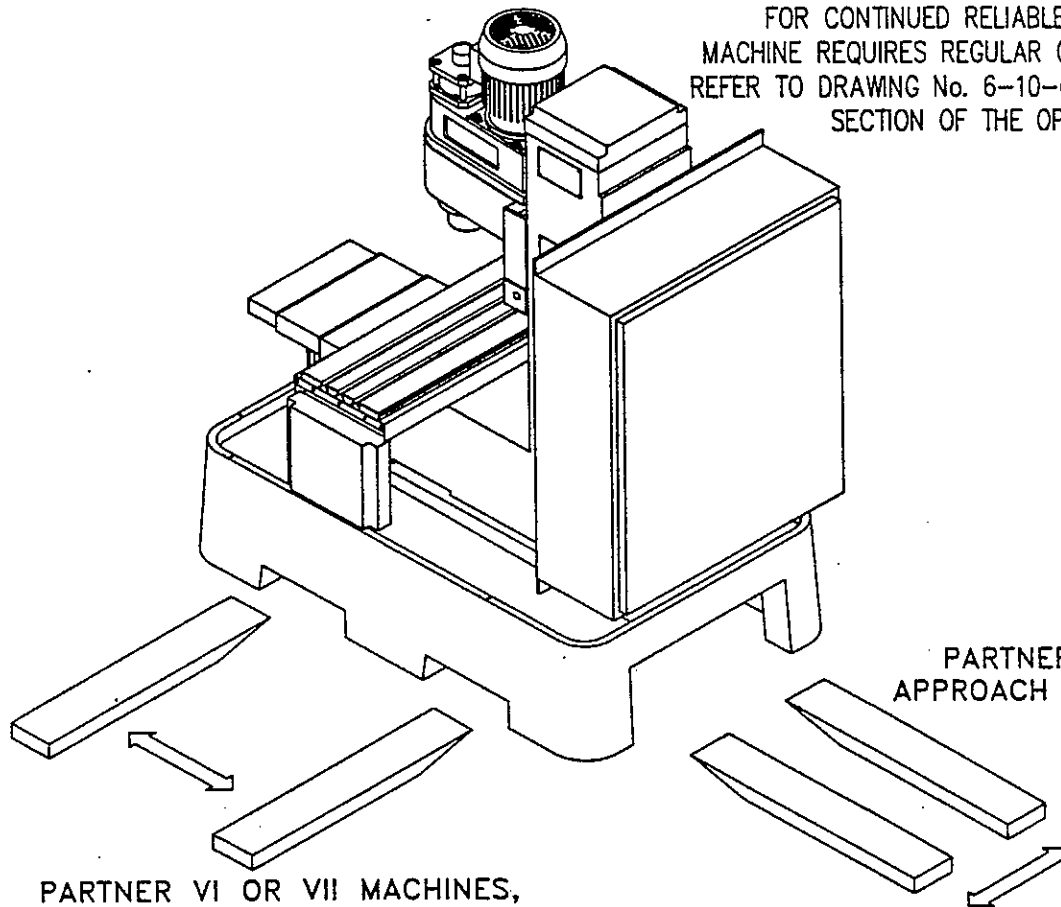
APPROACH MACHINE AS DESCRIBED BELOW.

SPREAD LIFT FORKS AS FAR APART AS POSSIBLE TO FIT UNDER THE MACHINE.
BE AWARE OF CABLES, WIRES OR HARDWARE THAT MAY BE UNDER THE MACHINE.

RAISE THE MACHINE ONLY AS FAR AS NEEDED TO MOVE.

— IMPORTANT —

FOR CONTINUED RELIABLE SERVICE, THIS MILLING
MACHINE REQUIRES REGULAR CLEANING AND LUBRICATION.
REFER TO DRAWING No. 6-10-008-008 IN THE MECHANICAL
SECTION OF THE OPERATIONS MANUAL

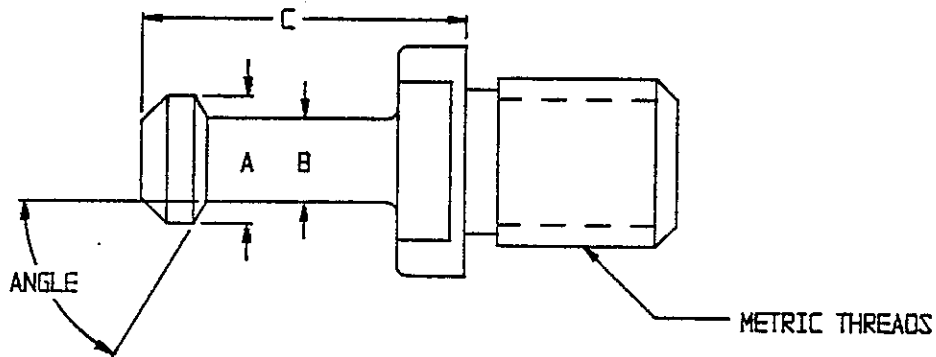


PARTNER I MACHINES,
APPROACH FROM THE REAR

PARTNER VI OR VII MACHINES,
APPROACH FROM THE RIGHT SIDE

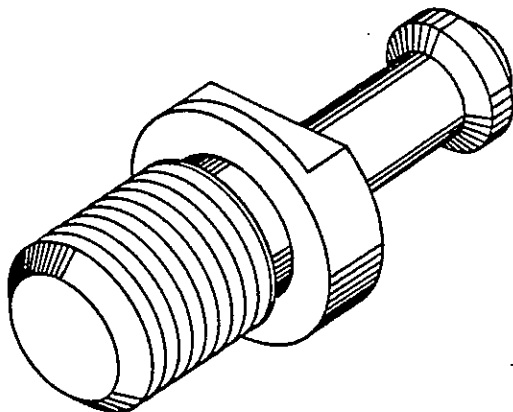
**RETENTION KNOBS
STYLE BT-FLANGE**

BT-FLANGE TAPER	DIMENSIONS				MILLTRONICS MACHINE	COMMAND PART No.	KENNAMETAL PART No.	VALENITE PART No.
	A	B	C	ANGLE				
40	.59	.39	1.38	45°	PARTNER VII & VIII	RB4M-0001		
				60°	PARTNER I, IV, V & VI	RB4M-0002		
45	.75	.55	1.57	45°	PARTNER VII	RB5M-0001		



Notes...

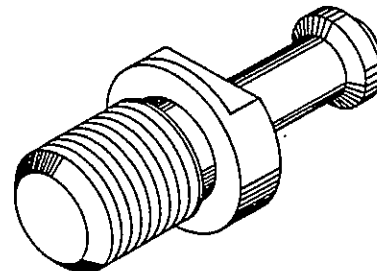
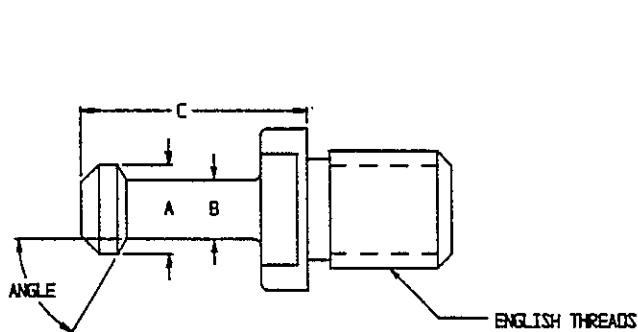
COMMAND CORPORATION
TEL: 1.800.328.2197
FAX: 1.612.755.1116



B	DRAWING CORRECTIONS	1780	11/11	3/94
A	ADD PARTNER 6 & 8	1410	N.M.	7/93
REV.	DESCRIPTION	E.C.D. NO.	APP'D BY	DATE
MATERIAL/FINISH				
STOCK/ASSY No.		MILLTRONICS MANUFACTURING 7870 PARK DRIVE (612) 474-8100 CHANHASSEN, MN 55317		
TOLERANCE UNLESS SPECIFIED		TITLE BT-FLANGE RETENTION KNOB		
X.XXX	+/- .005	APPLICATION GENERAL PRODUCTS		
X.XX	+/- .010	SCALE 1:1 DWG No. 6-00-018-030 SIZE B		
X.X	+/- .030	DATE 1 FEB 89 DRAWN BY REUTER SHEET NO. 1 OF 1		
ANGLE	+/- 1.0°			

**RETENTION KNOBS
STYLE V-FLANGE**

V-FLANGE TAPER	DIMENSIONS				MILLTRONICS MACHINE	COMMAND PART No.	KENNMETAL PART No.	VALENITE PART No.
	A	B	C	ANGLE				
40	.59	.39	1.27	45°	PARTNER VII & VIII-D	RB4E-0001		
				60°	PARTNER I, IV, V, VI, VII & X	RB4E-0002	RK31114A	PT-532-60
30	DWG. No. 6-01-018-010				PARTNER III B	MA-129		



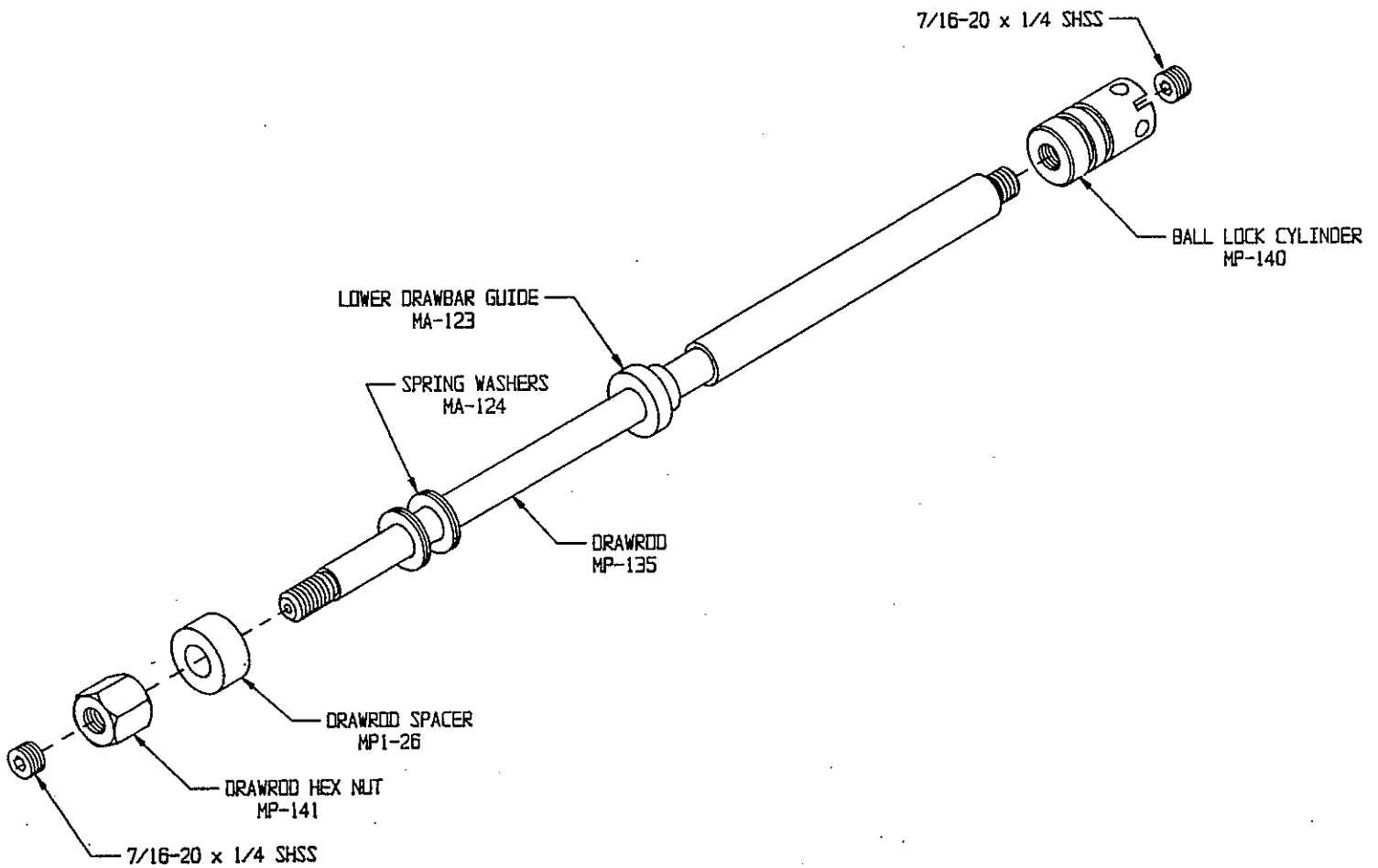
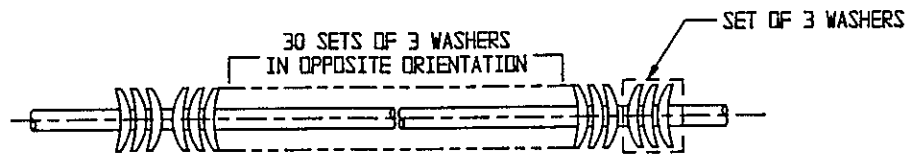
Notes...

1. COMMAND CORPORATION CORRESPONDENCE NUMBERS,
TEL - 1.800.328.2197
FAX - 1.612.755.1116.
2. 30-TAPER RETENTION KNOB IS A PRODUCT
OF MILLTRONICS MANUFACTURING COMPANY,
REORDER PART No. MA-129.

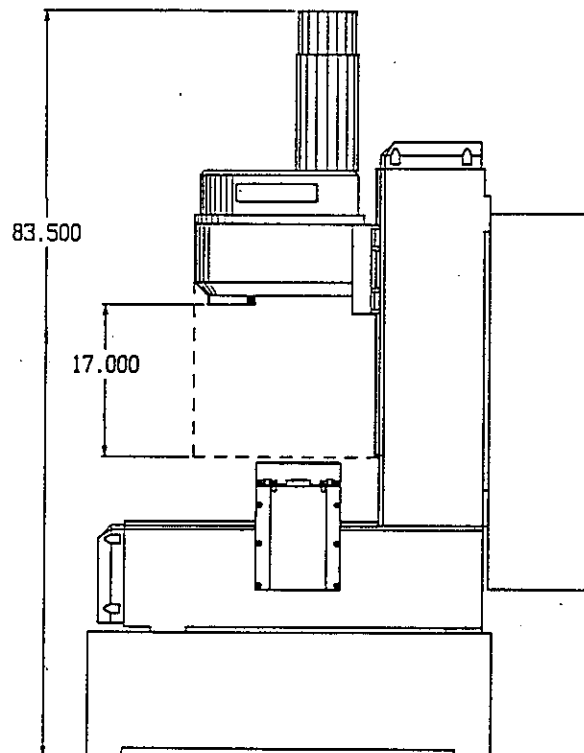
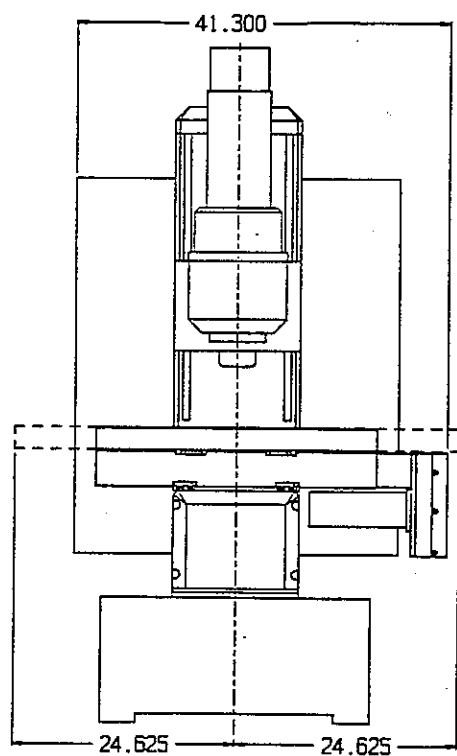
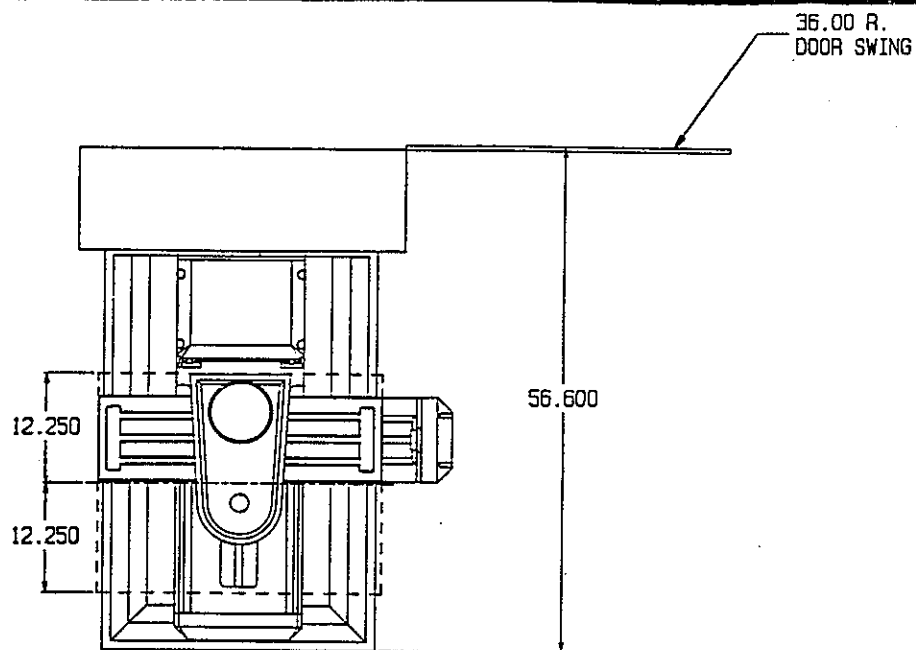
D	DRAWING UPDATE	2095	M	1/95
C	DRAWING CORRECTIONS	1781	M.F.	3/94
B	ADD PARTNER VI & VIII	1409	M.F.	7/93
A	ADD PART No.		M.F.	8/89
REV.	DESCRIPTION	E.C.D. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (612) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No.		TITLE V-FLANGE RETENTION KNOB		
TOLERANCE UNLESS SPECIFIED		APPLICATION GENERAL PRODUCTS		
X.XXX	+/- .005	SCALE 1:1 DWG No. 6-00-018-031 SIZE B		
X.XX	+/- .010	DATE 1 FEB 89		
X.X	+/- .030	DRAWN BY REUTER		
ANGLE	+/- 1.0°	SHEET NO. 1 OF 1		

INSTRUCTIONS FOR ASSEMBLY

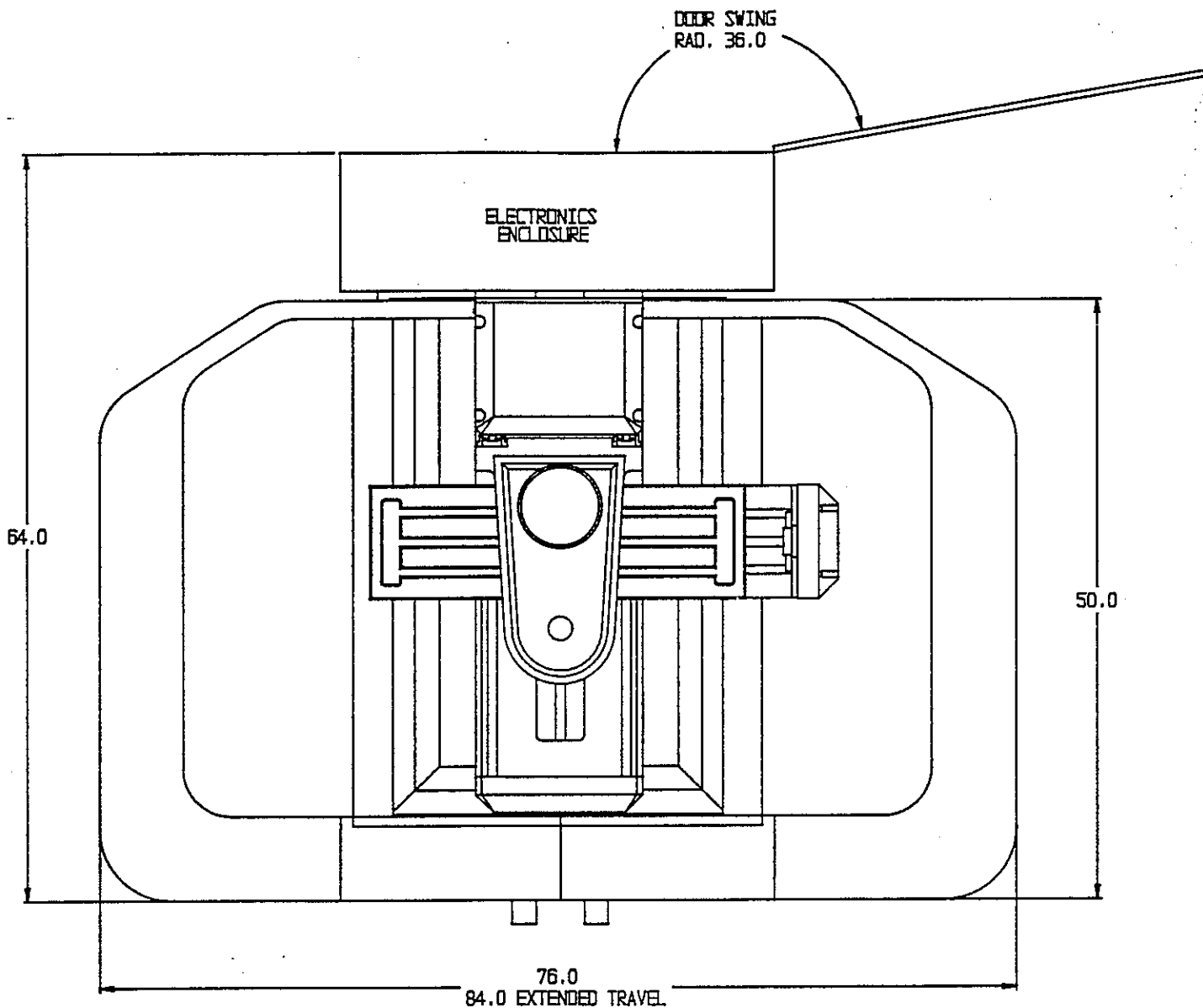
1. Each spindle varies slightly in the size of the drawbar bore I.D. The lower guide, (MA-123) and the drawrod spacer, (MP1-26) must fit in the spindle bore with a tolerance of $-.0005/-0.0010$ to ensure that operation of the drawbar is maintained.
2. Slide the lower drawbar guide, (MA-123) and spring washers, (MA-124), on the drawrod, (MP-135), as shown in the illustration. Observe the orientation of the spring washers closely. Slide the drawrod spacer, (MP1-26), onto the drawrod, then thread the drawrod nut, (MP-141) two full turns onto the end of the drawrod and lock it in place with a 7/16-20 set screw.
3. Prepare the ball lock cylinder, (MP-140) for installation. Insert the four balls into the pockets on the ball lock cylinder. Be sure that they move freely in the pockets. Lubricate all of the balls and fill the grooves with high pressure bearing grease.
4. Lower the assembled portion of the drawbar down into the spindle bore.
5. Insert a $1/8 \times 7/8 \times 6$ piece of bar stock into the slot on the end of the ball lock cylinder and push it up into the spindle. Then tighten the ball lock cylinder until it lands on the shoulder of the draw rod. Lock it in place with a 7/16-20 set screw. Aluminum stock is recommended for this procedure to avoid possible damage to the spindle.
6. While holding the drawrod nut in place, remove its set screw. Hold the ball lock cylinder with the bar stock or with a long "T-handle" inserted into the set screw at the ball lock cylinder, then tighten the drawrod nut by hand until all free play has been taken out of the spring washers. This condition is known as "free height".
7. Once free height has been established, tighten the drawrod nut an additional $4\frac{1}{2}$ to 5 turns and replace the set screw in the drawrod nut. This will set the preload to the drawbar assembly.
8. Install the air cylinder unit on top of the spindle belt housing. The drawbar should be flush or below the top of the belt housing. Adjust the stroke on the cylinder so that the tool is being pushed out of the taper .030 and lock adjusting nut in place.
9. To test the drawbar for proper function, measure the height of the drawbar with a tool holder in the spindle taper, and again without a tool holder in the spindle taper. The difference between the two measurements must be approximately .02 inches.



REV.	DESCRIPTION	E.C.O. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (612) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No.				
TOLERANCE UNLESS SPECIFIED		TITLE DRAWBAR W/BLOWOUT ASSEMBLY		
X.XXX ± .005		APPLICATION PARTNER I		
X.XX ± .010		SCALE 2:1 DWG No. 6-10-008-028 SIZE B		
X.X ± .030		DATE 13 OCT 94 DRAWN BY THOMPSON SHEET NO. 1 OF 1		
ANGLE ± 1.0°				



REV.	DESCRIPTION	E.C.O. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (612) 474-8100 CHANHASSEN, MN 55317		
STOCK NO.				
TOLERANCE UNLESS SPECIFIED		TITLE PARTNER I MILL		
X.XXX	±	APPLICATION PARTNER I		
X.XX	±	SCALE 9:1 DWS NO. 6-10-008-001 SIZE D		
X.X	±	DATE 13 FEB 90 DRAWN BY THOMPSON SHEET NO. 1 OF 1		
ANGLE	±			



B	ADD DIMENSION	1249	J/17	4/93
A	CHANGE CHIP PAN	833	M.F.	6/92
REV.	DESCRIPTION	E.C.O. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (612) 474-8100 CHANDHASSEN, MN 55317		
STOCK No.		TITLE D/A DIMENSIONS W/CHIP PAN		
TOLERANCE UNLESS SPECIFIED		APPLICATION PARTNER I		
X.XXX	± .005	SCALE 12:1	DWG NO. 6-10-008-013	SIZE B
X.XX	± .010	DATE 5 FEB 91	DRAWN BY REUTER	SHEET NO. 1 OF 1
X.X	± .030			
ANGLE	±			

LUBRICATION OF PARTNER 1

Parts Required: Qty 4 WX-113 3/4" hole plug

It is recommended by the manufacturer that you grease the machine every 500 hours of operation. The manufacturer recommends Mobil HSC PM or Universal Synthetic Grease, or a similar grease compatible with a lithium-type soap base grease #2. Use grade NLGI-1 or something compatible with this grade.

Enclosed is a drawing which shows the location of 12 grease fittings on the Partner 1. There will be four fittings on each axis, one for each of the four bearings.

Y AXIS GREASING

On the Y axis of all machines it will be necessary to lift up the folding way cover in the front and roller shade in the back. Doing this will expose the four fittings for the Y axis.

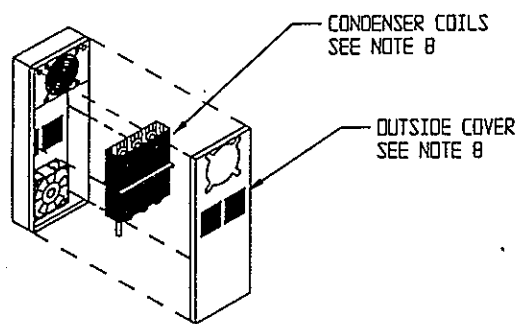
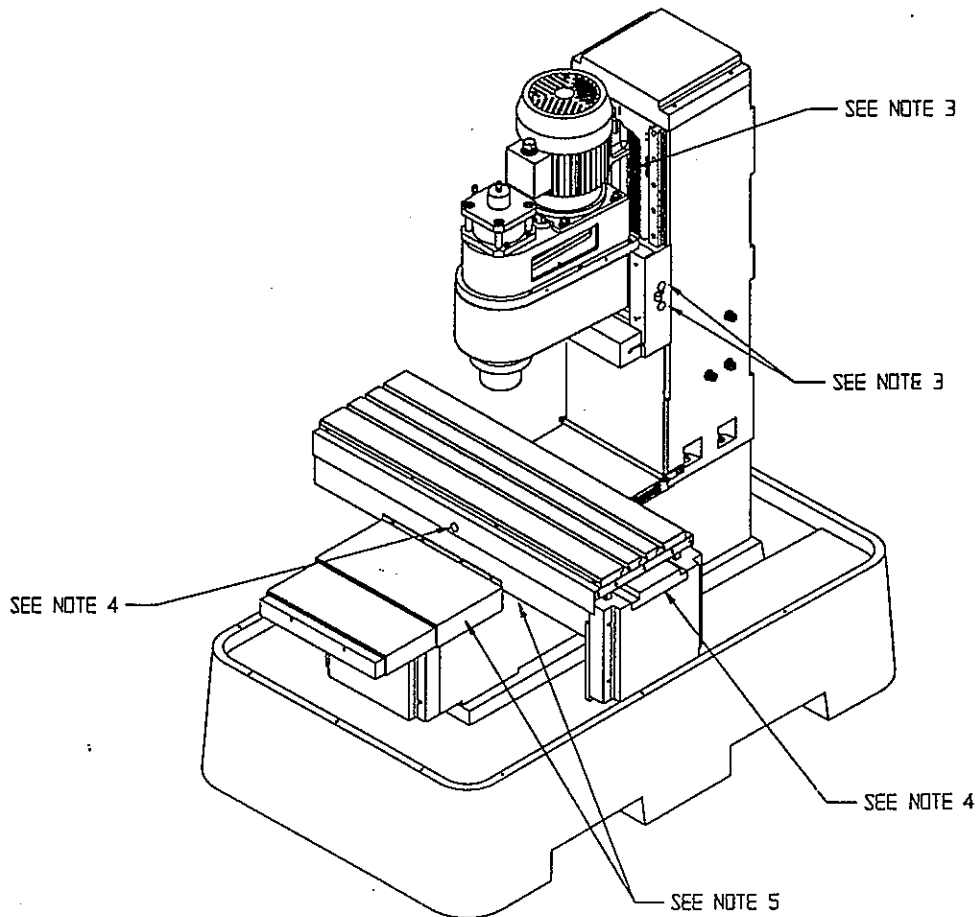
X AXIS GREASING

To grease the X axis on machines manufactured prior to 4-1-91 it will be necessary to jog the Z axis to the full negative software limit. Once the software limit is reached, E-stop the machine. Lift up the rubber cover and turn the ball screw by hand until it reaches a hard stop. This will expose the grease fittings on the left side, front and back. After greasing the left side it will be necessary to turn the ball screw by hand to a point that is within the mechanical limit switches. Once this is complete, reset the machine and jog to the positive software limit and repeat the procedure for the right side, front and back grease fittings.

On machines manufactured after 4-1-91 it will be necessary to remove the front and rear covers from the table. These covers are 2" wide and run the length of the table. They are attached to the table with four or five 8-32 screws depending on the size of your table. Remove these covers to expose the four grease fittings for the X axis. After greasing re-install both covers.

Z AXIS GREASING

The Z axis on the earlier models will have an opening on the roller shade housing at the top and bottom for easy access to the grease fittings with some minor shifting of the rail covers. On later and most recent machines it will be necessary to remove the roller shade housing. This is the sheet metal guard the roller shade and the folding rail covers are mounted to. To remove this housing, you will have to remove the roller shade. Then remove the #2 screws that are holding the upper rail cover on. After this is completed, remove the six screws holding the housing on the head. Once the housing is off, access to the four grease



0	UPDATE DRAWING	2298	11/11	6/95
C	ADD NOTES	1876	N.M.	6/94
B	ADD NOTES	623	M.F.	10/91
A	REDRAW FILE	341	J.F.	1/91
REV.	DESCRIPTION	E.C.O. NO.	APP'D BY	DATE
MATERIAL/FINISH				
 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (612) 474-8100 CHANHASSEN, MN 56317				
STOCK/ASSY No.				
TITLE LUBRICATION DRAWING				
APPLICATION PARTNER I				
TOLERANCE UNLESS SPECIFIED		SCALE 12:1	DWG No. 6-10-008-008	SIZE B
X.XXX	± .005	DATE 8 JAN 91	DRAWN BY REUTER	SHEET NO. 1 OF 2
X.XX	± .010			
X.X	± .030			
ANGLE	± 1.0°			

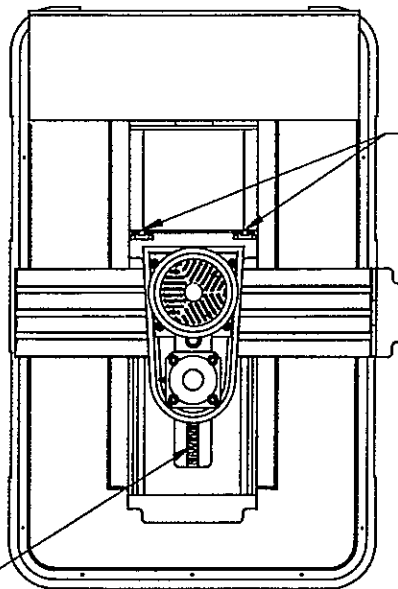
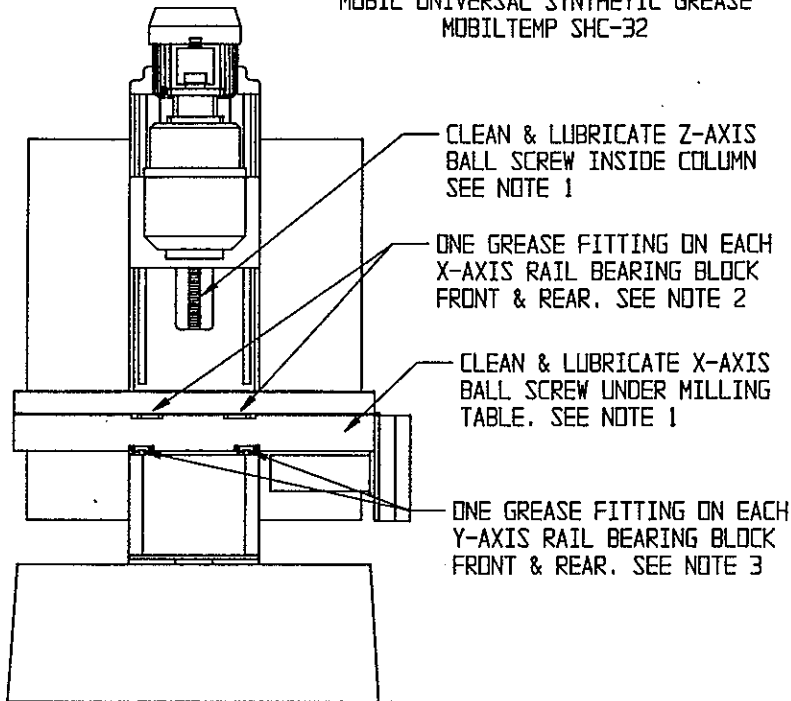
1. BE SURE TO CLEAN THE ENTIRE MACHINE BEFORE LUBRICATION TO ENSURE CONTAMINANTS WILL NOT GET INTO THE RAIL BLOCKS AND BALL SCREWS. USE MOBIL 1 SYNTHETIC UNIVERSAL GREASE OR OTHER EQUIVALENT FOR ALL LUBE POINTS.
2. USE THE 12" GREASE GUN EXTENSION TUBE SUPPLIED WITH THE MACHINE TO MAKE THE TASK MUCH EASIER. IT IS ALSO NECESSARY ON THE SAME GREASE GUN TO BEVEL THE EDGE OF THE NOZZLE TO GAIN MORE CLEARANCE BETWEEN THE RAIL BLOCK AND GREASE FITTING.
3. REMOVE HOLE PLUGS (WX-113) FROM THE ROLLER SHADE HOUSING, LEFT AND RIGHT SIDE. THIS WILL ALLOW ACCESS TO THE GREASE FITTINGS ON THE Z RAIL BLOCKS. REPLACE HOLE PLUGS IN THE HOUSING AFTER COMPLETION. TO GREASE Z-AXIS BALL SCREW MOVE THE HEAD DOWN TO THE EXTREME LIMIT AND EMERGENCY STOP THE MACHINE. PUT A GENEROUS AMOUNT OF GREASE IN YOUR HAND AND REACH IN FROM THE FRONT OF THE COLUMN THROUGH THE ACCESS HOLE AND APPLY TO THE BALL SCREW. WHEN COMPLETED CYCLE Z-AXIS FULL TRAVEL FIVE TIMES TO ENSURE THE BALL SCREW IS PROPERLY GREASED TRAVELING NO FASTER THAN 50 ipm.
4. MOVE Y-AXIS TO THE HOME POSITION AND CENTER THE TABLE ON X-AXIS. ON 25" TRAVEL MACHINES REMOVE THE HOLE PLUGS (WX-113) IN THE X-AXIS TABLE AND SADDLE COVER, FRONT AND REAR, FOR ACCESS TO THE GREASE FITTINGS ON X-AXIS RAIL BLOCKS. ON 30", 34", & 45" TRAVEL MACHINES USE THE NOTCHES IN THE FRONT AND REAR TABLE PLATES FOR ACCESS. ALIGN THE HOLE OR NOTCH TO THE GREASE FITTING ON THE LEFT FRONT X-AXIS RAIL BLOCK. INSERT GREASE GUN TIP THROUGH THE HOLE OR NOTCH AND GREASE RAIL BLOCK. BEFORE MOVING THE TABLE GREASE THE LEFT REAR RAIL BLOCK IN THE SAME MANNER. REPEAT PROCEDURE FOR THE RIGHT SIDE RAIL BLOCKS. TO GREASE THE X-AXIS BALL SCREW REMOVE RUBBER WIPER FLAPS MOUNTED ON THE ENDS OF THE TABLE. WITH THE TABLE STILL IN THE CENTER OF TRAVEL PULL THE RIGHT X-AXIS WAY COVER OUT ABOUT 2 INCHES AND PLACE A 2 x 2 x 2 SPACER BETWEEN THE WAYCOVER AND THE BELT & PULLEY COVER. MOVE X-AXIS TO THE HOME POSITION AND EMERGENCY STOP THE MACHINE. THROUGH THE GAP BETWEEN THE X-AXIS WAYCOVER AND THE TABLE APPLY GREASE TO THE BALL SCREW. MOVE X-AXIS BACK TO THE CENTER OF THE TRAVEL AND MOVE THE SPACER FROM THE RIGHT SIDE TO THE LEFT SIDE AND REPEAT PROCESS EXCEPT FOR MOVING THE TABLE TO THE EXTREME RIGHT. WHEN COMPLETED CENTER THE TABLE THEN REMOVE THE SPACER AND CYCLE X-AXIS FULL TRAVEL FIVE TIMES TO ENSURE THE BALL SCREW IS PROPERLY GREASED TRAVELING NO FASTER THAN 50 ipm.
5. MOVE Y-AXIS TO THE CENTER OF THE TRAVEL TO GREASE ALL Y-AXIS RAIL BLOCKS. ACCESS TO THE GREASE FITTINGS ON THE RAIL BLOCKS IS GAINED FROM UNDER THE SADDLE AND IN BETWEEN THE RAIL BLOCKS. TO GREASE THE Y-AXIS BALL SCREW MOVE Y-AXIS INTO THE EXTREME LIMIT OF THE TRAVEL AND EMERGENCY STOP THE MACHINE. REMOVE THE FOUR SCREWS HOLDING THE FRONT Y-AXIS WAY COVER TO THE SADDLE AND SLIDE THE WAY COVER BACK TOWARDS THE CHIP PAN PUT A GENEROUS AMOUNT OF GREASE IN YOUR HAND AND REACH IN FROM THE TOP OF THE BASE THROUGH THE ACCESS HOLE AND APPLY TO THE BALL SCREW. AFTER GREASING MOVE Y-AXIS TO HOME POSITION AND RE-INSTALL THE FRONT Y-AXIS WAY COVER AND CYCLE Y-AXIS FULL TRAVEL FIVE TIMES TO ENSURE THE BALL SCREW IS PROPERLY GREASED TRAVELING NO FASTER THAN 50 ipm.
6. BALL SCREWS NEED ONLY BE GREASED 2 TIMES PER YEAR, RAIL BLOCKS SHOULD BE GREASED EVERY 500 HOURS OR 3 MONTHS WHICHEVER COMES FIRST.
7. CLEAN AND FILL AIR FILTER / REGULATOR / OILER EVERY WEEK FOR PROPER OPERATION OF ALL PNEUMATIC PARTS. FILL WITH MARVEL No. 085, MOBIL ALMO 525 OR OTHER EQUIVALENT QUALITY AIR TOOL OIL.
8. CLEAN THE HEAT EXCHANGER EVERY MONTH BY REMOVING THE MOUNTING HARDWARE ON THE BOTTOM AND REMOVE THE OUTSIDE COVER. REMOVE THE CONDENSER COILS AND CLEAN IT WITH AN AIR NOZZLE AND REASSEMBLE.

D	UPDATE DRAWING	2298	JH	10/95
C	ADD NOTES	1876	N.M.	6/94
B	ADD NOTES	623	M.F.	10/91
A	REDRAW FILE	341	J.F.	1/91
REV.	DESCRIPTION	E.C.O. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (612) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No.				
TOLERANCE UNLESS SPECIFIED		TITLE LUBRICATION DRAWING		
X.XXX	± .005	APPLICATION PARTNER I		
X.XX	± .010	SCALE 20:1	ENG No. 6-10-008-008	SIZE B
X.X	± .030	DATE 5 JUN 95	DRAWN BY THOMPSON	SHEET NO. 2 OF 2
ANGLE	± 1.0°			

MILL REQUIRES LUBRICATION EVERY 500 HRS.

USE GRADE NLGI-1 GREASE FOR ALL LUBE POINTS

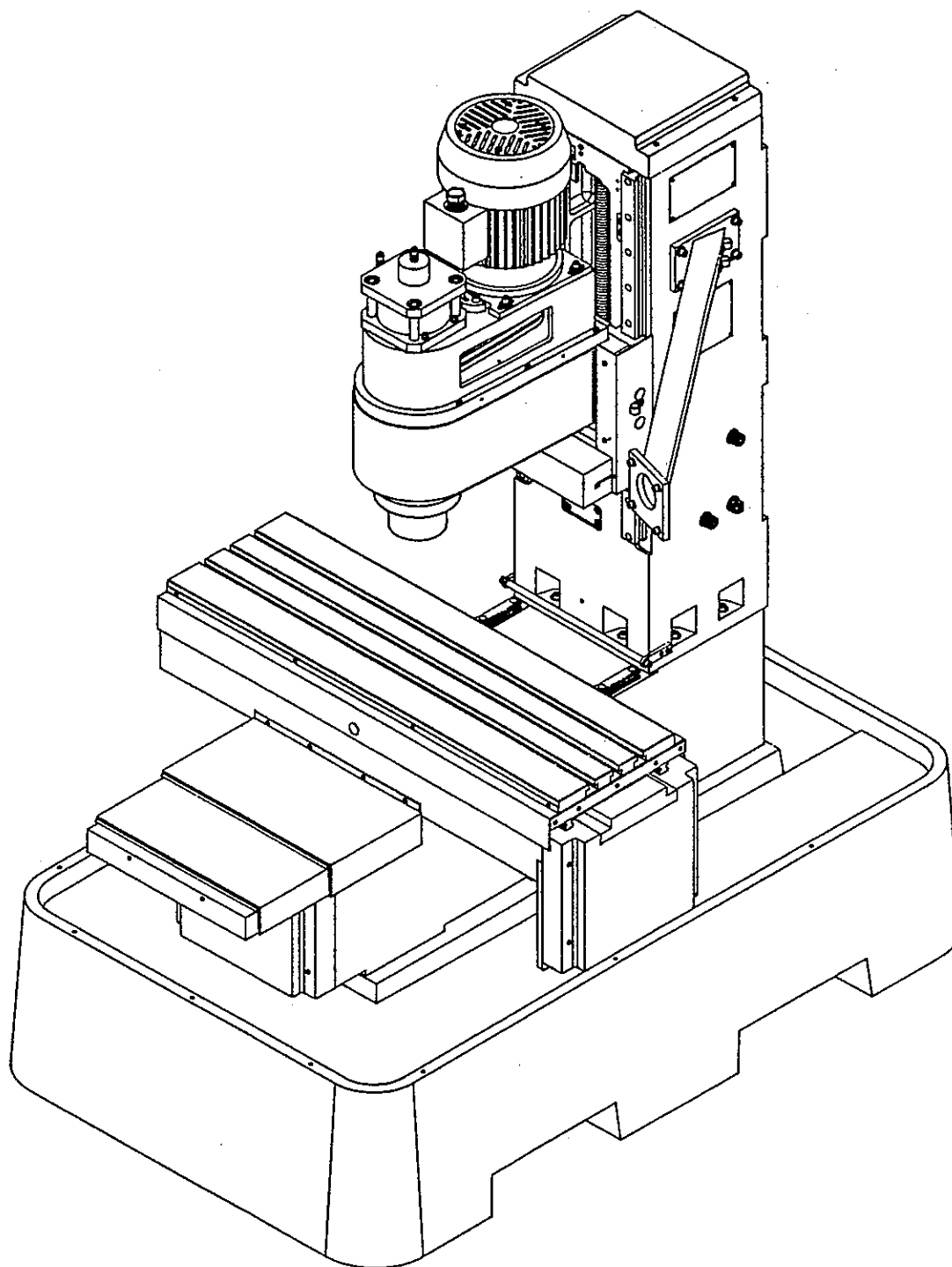
MANUFACTURER RECOMMENDS
MOBIL UNIVERSAL SYNTHETIC GREASE
MOBILTEMP SHC-32



NOTES:

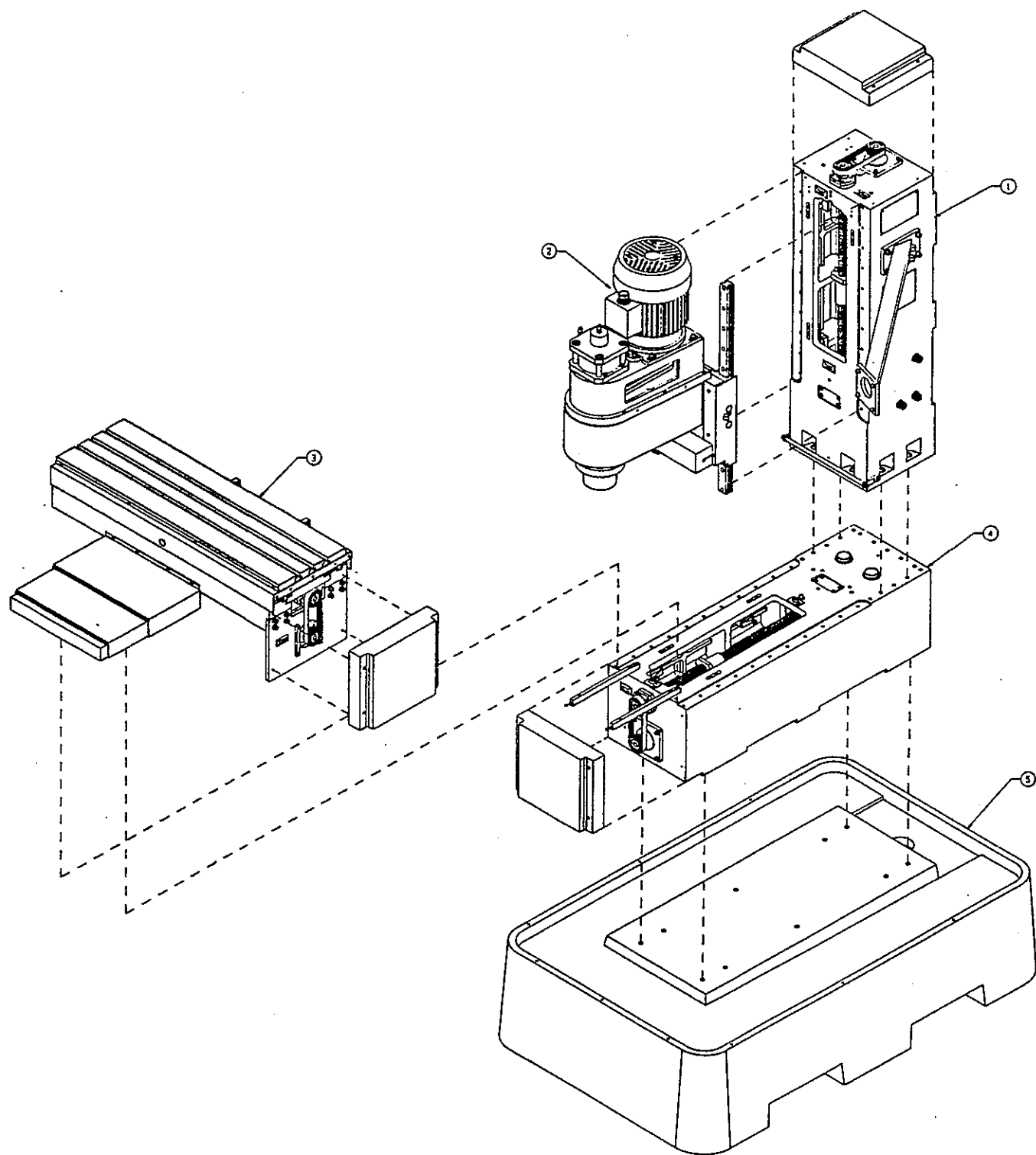
1. LIFT WAY COVERS TO GREASE X & Y AXIS BALL SCREWS.
2. HOLE PLUGS MAY HAVE TO BE REMOVED TO ACCESS RAIL BLOCKS.
3. A 12 IN. RIGID EXTENSION TUBE FOR YOUR GREASE GUN IS REQUIRED TO REACH THE Y-AXIS RAIL BLOCKS. EXAMPLE :
McMASTER-CARR No. - 1115K12.

C	ADD NOTES		1876	MW	6/94
REV.	DESCRIPTION		E.C.O. NO.	APP'D BY	DATE
MATERIAL/FINISH			 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (612) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No.			TITLE LUBRICATION DRAWING		
TOLERANCE UNLESS SPECIFIED			APPLICATION PARTNER I		
X.XXX ± .005			SCALE 15:1		
X.XX ± .010			DWG No. 6-10-008-008		
X.X ± .030			SIZE B		
ANGLE ± 1.0°			DATE 8 JAN 91		
			DRAWN BY REUTER		SHEET NO. 1 OF 1

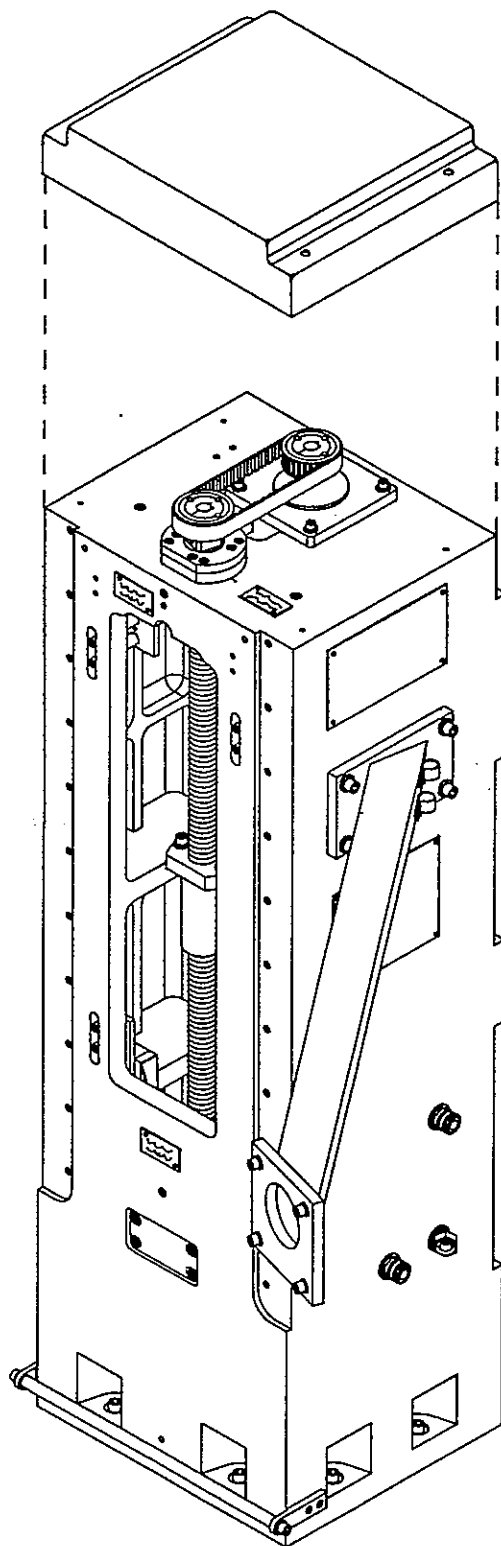


PARTS LIST		
No.	DRAWING No.	DESCRIPTION
1	6-10-008-020	COLUMN ASSEMBLY - 44" CASTING
2	6-10-008-005	HEAD ASSEMBLY - 44" CASTING
3	6-10-008-021	TABLE & SADDLE ASSEMBLY - 44" CASTING
4	6-10-008-019	BASE ASSEMBLY - 44" CASTING
5	6-01-008-046	MACHINE PEDESTAL - MPI-164

REV. A	UPDATE DRAWING TO P1-G	1952	1/14	8/94
DESCRIPTION	E.C.O. NO.	APP'D BY	DATE	
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (812) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No.				
TOLERANCE UNLESS SPECIFIED				
X.XXX ± .005 X.XX ± .010 X.X ± .030 ANGLE ± 1.0°				
TITLE		MACHINE ASSEMBLY - 44" CASTING		
APPLICATION		PARTNER I		
SCALE	8:1	DWG No.	6-10-008-022	SIZE D
DATE	31 JAN 94	DRAWN BY	THOMPSON	SHEET NO. 1 OF 1



A	UPDATE DRAWING TO P1-G	1952	1/14	8/94
REV.	DESCRIPTION	E.C.D. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (612) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No.				
TOLERANCE UNLESS SPECIFIED				
X.XXX ± .005 X.XX ± .010 X.X ± .030 ANGLE ± 1.0°				
TITLE		MACHINE ASSEMBLY - 44" CASTING		
APPLICATION		PARTNER I		
SCALE		8:1		Dwg No 6-10-008-022 SIZE 0
DATE		31 JAN 94		DRAWN BY THOMPSON SHEET NO. 1 OF 1



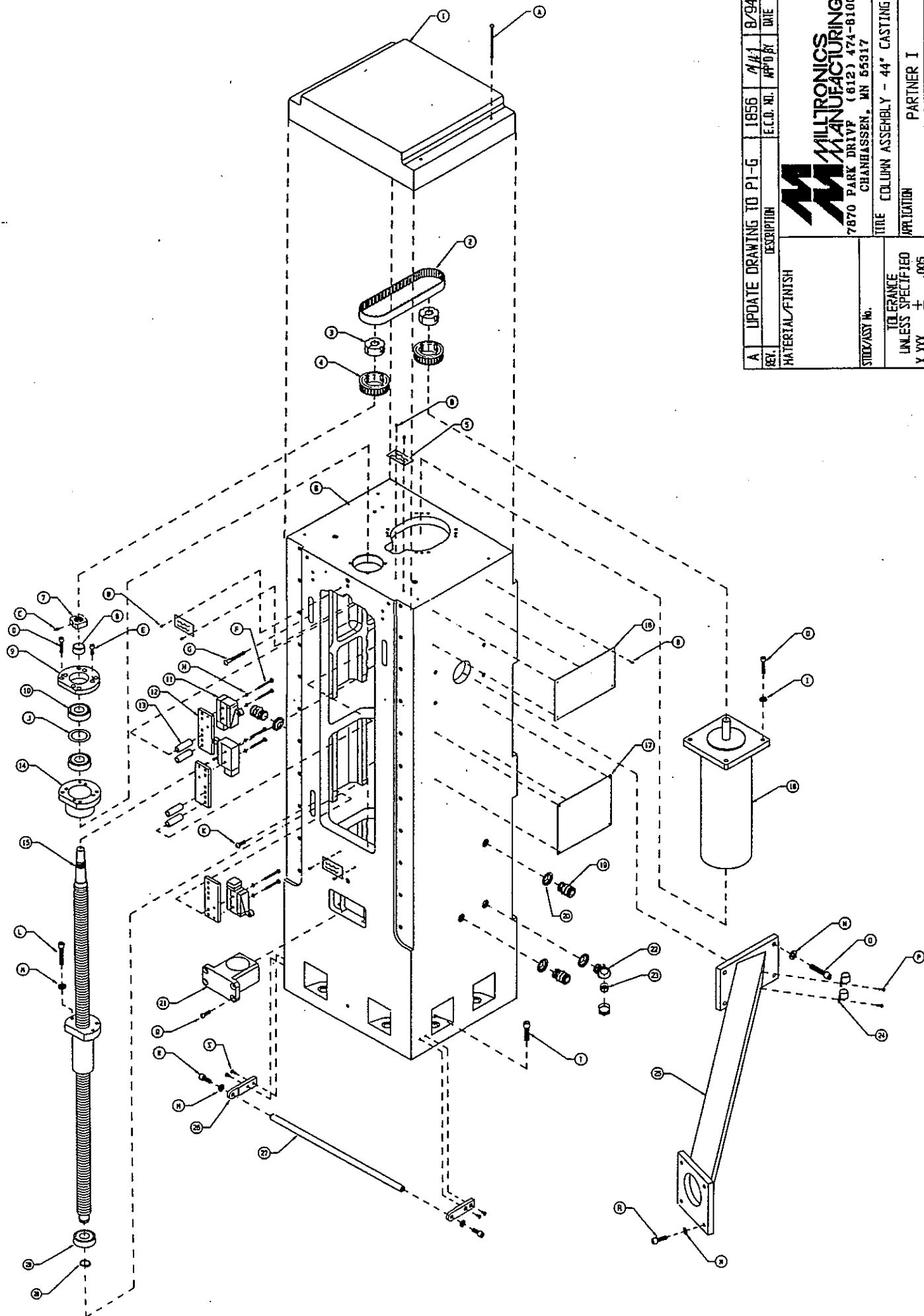
PARTS LIST

NO.	QTY	STOCK NO.	DESCRIPTION
1	1	VMI-08	MOTOR PULLEY COVER Y & Z AXIS
2	1	BT-09	187L075 TIMING BELT
3	2	PY-34	1008 5/8 I.D. BUSHING
4	2	PY-61	T818L075 PULLEY
5	3	LB-27	PULLEY MOTOR WARNING LABEL
6	1	MX1-35	35 mm. COLUMN - MACHINED
7	1	MP1-94	BALL SCREW LOCK NUT
8	1	MP1-107	BEARING LOCK NUT SPACER
9	1	MP1-88	BALL SCREW BEARING CAP
10	2	BG-01	BEARING NSK 7204BYG
11	3	SW-149	AZ71419 LIMIT SWITCH
12	3	MP1-77	Y/Z AXIS DTL/GRID SWITCH PLATE
13	4	SP-83	Z-AXIS LIMIT GRID SPACER
14	1	MP1-89	BALL SCREW BEARING BLOCK
15	1	MP1-145	12476 4 TURN BALL SCREW
16	1	LB-33	MACHINE SERIAL PLATE LABEL
17	1	LB-34	ROCK BASE LIFTING INSTRUCTIONS
18	1	MO-52	MT30M4-38 26" LB. W/BRAKE
19	3	WX-23	CORD GRIP 1/2"
20	4	WX-38	"O" RING 1/2"
21	1	MX1-28	Y&Z RADIAL BALL SCREW SUPPORT-MACH.
22	1	WX-21	SEALTITE FITTING 1/2" 45 R/A
23	1	WX-27	FERRULE GRNDNG 053-71814-122
24	2	WX-163	CCH62-S1J-C CABLE LAMP
25	1	MM-47	CONTROL BOX MOUNTING ARM 44"
26	2	MP1-73	Y/Z COVER ROLLER BAR MOUNT
27	1	MP1-74	Y/Z WAY COVER ROLLER BAR
28	1	BG-02	BEARING SKF6204
29	1	MP1-108	98541A123 BALL SCREW SNAPPING

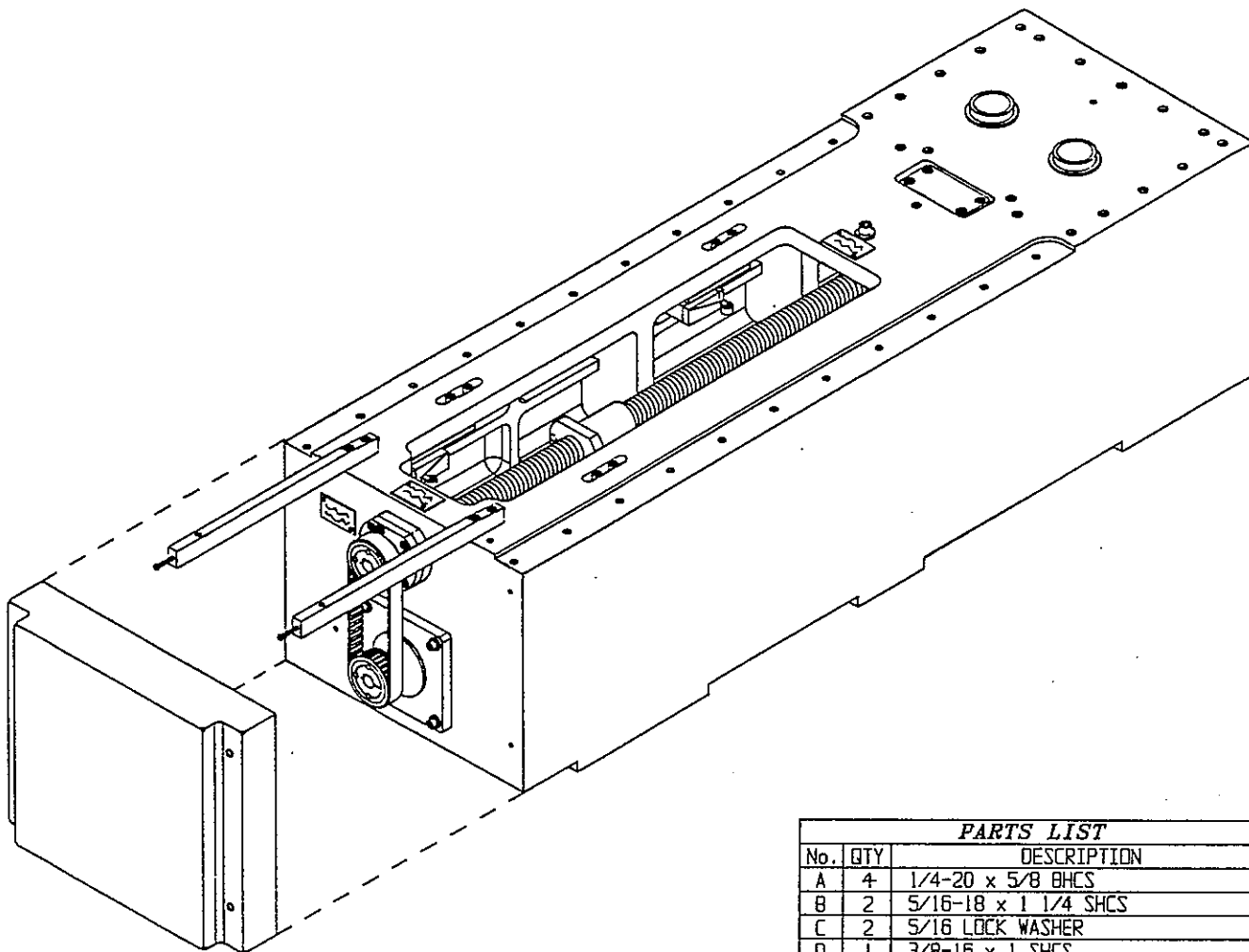
HARDWARE LIST

NO.	QTY	DESCRIPTION
A	4	10-32 x 2 1/4 BHCS
B	14	3/8 DRIVE RIVET
C	1	10-32 x 3/16 BRASS TIPPED SHSS
D	8	1/4-20 x 1 SHCS
E	4	1/4-20 x 5/8 SHCS
F	6	8-32 x 1 BHCS
G	4	1/4-20 x 2 1/4 BHCS
H	6	# 8 LOCK WASHER
I	4	1/4 LOCK WASHER
J	1	1 3/4 x 1 1/4 x .002 ROUND SHIM
K	2	1/4-20 x 3/4 BHCS
L	2	5/16-18 x 1 1/4 SHCS
M	8	5/16 LOCK WASHER
N	4	3/8 LOCK WASHER
O	4	3/8-16 x 1 1/4 SHCS
P	2	8-32 x 3/8 BHCS
Q	4	1/4-20 x 5/8 BHCS
R	6	5/16-18 x 3/4 SHCS
S	4	10-24 x 3/4 FHMS
T	9	1/2-13 x 2 SHCS

REV.	A	UPDATE DRAWING TO P1-G	1856	M/L	8/94
		DESCRIPTION	E.C.D. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (812) 474-8100 CHANHASSEN, MN 55317			
STOCK/ASSY No.					
TOLERANCE UNLESS SPECIFIED		TITLE COLUMN ASSEMBLY - 44" CASTING			
X.XXX ± .005		APPLICATION PARTNER I			
X.XX ± .010		SCALE 4:1			
X.X ± .030		DATE 7 SEP 93			
ANGLE ± 1.0°		DRAWN BY THOMPSON			
		SHEET NO. 1 OF 1			



A	UPDATE DRAWING TO P1-G	1856	M/H	8/94
	REV.	DESCRIPTION	E.C.D. NO.	APP'D BY DATE
MATERIAL/FINISH				
STYL/ASSY No.				
TOLERANCE UNLESS SPECIFIED				
X.XXX ± .005				
X.XX ± .010				
X.X ± .030				
ANGLE ± 1.0°				
MILLITRONICS MANUFACTURING				
7870 PARK DRIVE (612) 474-8100				
CHANDLER, MN 55317				
TITLE COLUMN ASSEMBLY - 44" CASTING				
APPLICATION PARTNER I				
SCALE 4:1 (MC No 6-10-008-020) SIZE D				
DATE 7 SEP 93				
DRAWN BY THOMPSON				
SHEET NO. 1 OF 1				



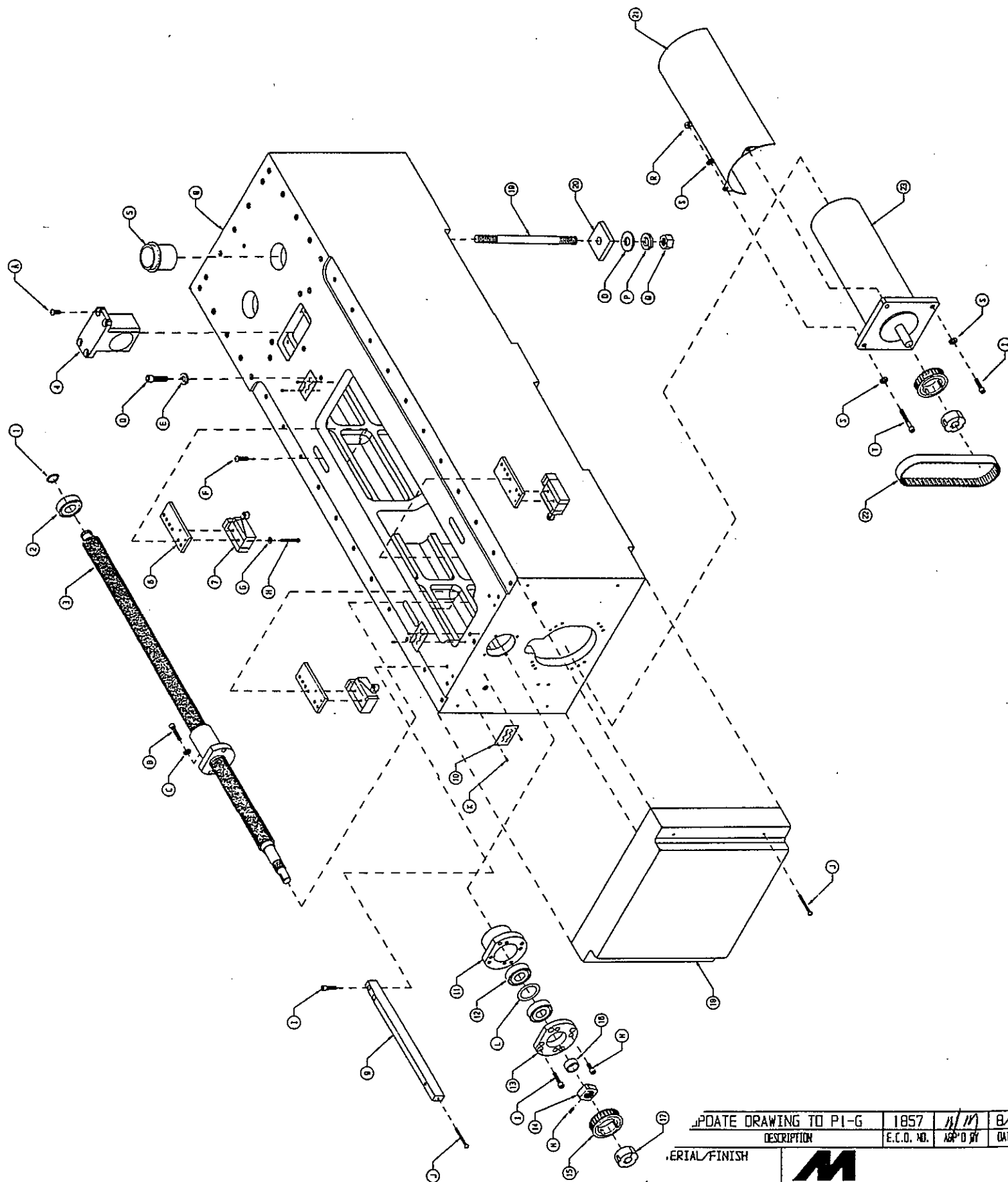
PARTS LIST

No.	QTY	STOCK No.	DESCRIPTION
1	1	MP1-108	98541A123 BALL SCREW SNAP RING
2	1	BG-02	BEARING SKF6204
3	1	MP1-145	12476 4 TURN BALL SCREW
4	1	MX1-28	Y&Z BALL SCREW RADIAL SUPPORT-MACHINED-44" CASTING
5	2	MP-56	PVC COUPLING
6	3	MP1-77	Y/Z AXIS DTL/GRID SWITCH PLATE
7	3	SW-149	AZ71419 LIMIT SWITCH
8	1	MX1-34	35 mm. BASE - MACHINED - 44" CASTING
9	2	MP6-91	Y-AXIS WAY COVER BRACKET
10	3	LB-27	MOTOR PULLEY WARNING LABEL
11	1	MP1-89	BALL SCREW BEARING BLOCK
12	2	BG-01	BEARING NSK 7204BYG
13	1	MP1-88	BALL SCREW BEARING CAP
14	1	MP1-94	BALL SCREW LOCK NUT
15	2	PY-61	T818LD75 BALL SCREW PULLEY
16	1	MP1-107	BEARING LOCK NUT SPACER
17	2	PY-34	1008 5/8 BORE BUSHING
18	1	VM1-08	MOTOR PULLEY COVER Y&Z AXIS
19	10	HD-28	1/2 - 13 x 9" LONG THREADED ROD
20	10	MP-138	PEDESTAL REINFORCING PLATE
21	1	MM-16	MOTOR DRIP COVER
22	1	BT-09	187LD75 BELT TIMING
23	1	MD-02	MT30M4-38 26" LB.

PARTS LIST

No.	QTY	DESCRIPTION
A	4	1/4-20 x 5/8 BHCS
B	2	5/16-18 x 1 1/4 SHCS
C	2	5/16 LOCK WASHER
D	1	3/8-16 x 1 SHCS
E	1	3/8 LOCK WASHER
F	6	1/4-20 x 3/4 BHCS
G	6	# 8 LOCK WASHER
H	6	8-32 x 1 BHCS
I	10	1/4-20 x 1 SHCS
J	6	10-32 x 2 1/4 BHCS
K	6	1/4 DRIVE RIVET
L	1	1 3/4 x 1 1/4 x .002 ROUND SHIM
M	1	10-32 x 3/16 BRASS TIPPED SHCS
N	4	1/4-20 x 5/8 SHCS
O	10	1/2 FLAT WASHER
P	10	1/2 LOCK WASHER
Q	10	1/2-13 NUT
R	2	1/4-20 NUT
S	6	1/4 LOCK WASHER
T	2	1/4-20 x 1 3/4 SHCS

A	UPDATE DRAWING TO P1-G	1857	11/11	8/94
REV.	DESCRIPTION	E.C.O. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (612) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No.		TITLE BASE ASSEMBLY - 44" CASTING		
TOLERANCE UNLESS SPECIFIED		APPLICATION PARTNER I		
X.XXX	± .005	SCALE 4:1		
X.XX	± .010	DWG No 6-10-008-019		
X.X	± .030	SIZE 0		
ANGLE	± 1.0°	DATE 12 JAN 94		
		DRAWN BY THOMPSON		
		SHEET NO. 1 OF 1		



UPDATE DRAWING TO PI-G 1857 11/11 8/94
 DESCRIPTION E.C.D. NO. APP'D BY DATE

SERIAL/FINISH

STOCK/ASSY No.

TOLERANCE
 UNLESS SPECIFIED
 X.XXX ± .005
 X.XX ± .010
 X.X ± .030
 ANGLE ± 1.0°

MILLTRONICS MANUFACTURING
 7870 PARK DRIVE (812) 474-8100
 CHANHASSEN, MN 55317

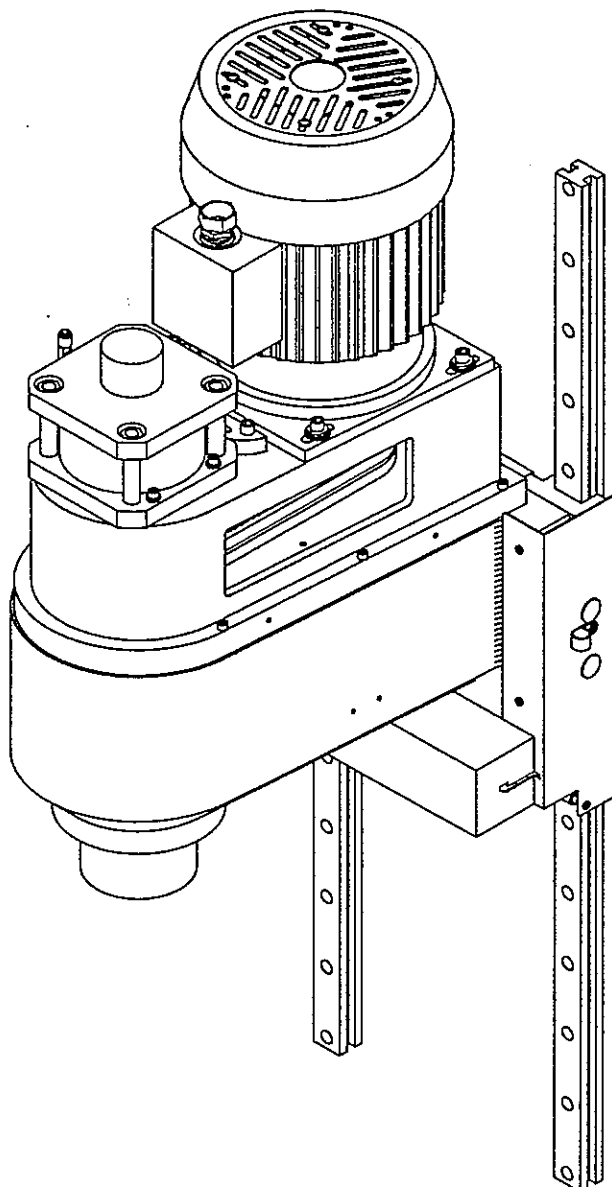
TITLE BASE ASSEMBLY - 44" CASTING

APPLICATION PARTNER I

SCALE 4:1 DWG No 6-10-008-019 SIZE D

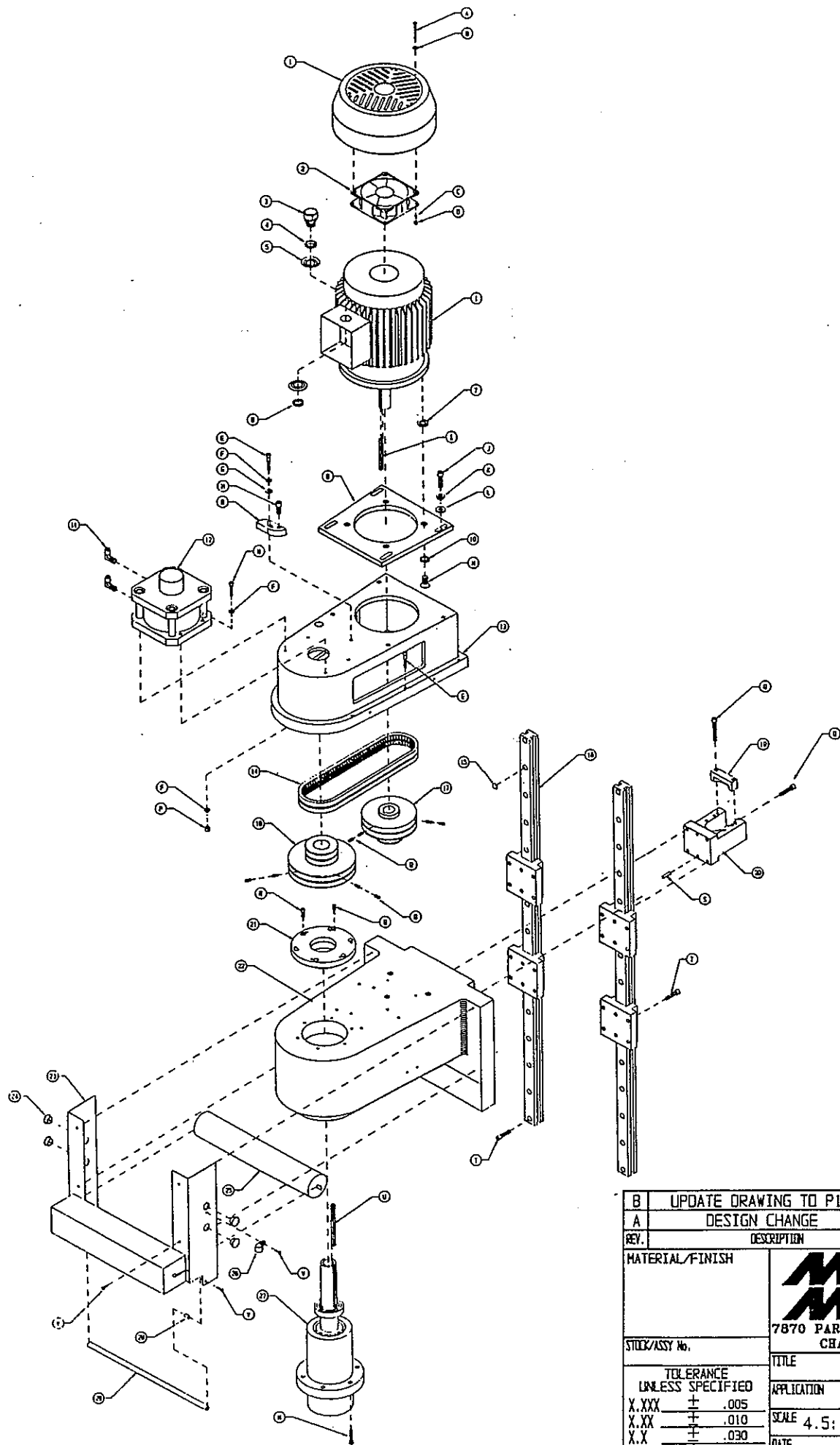
DATE 12 JAN 94 DRAWN BY THOMPSON SHEET NO. 1 OF 1

HARDWARE LIST		
NO.	QTY	DESCRIPTION
A	4	6-32 x 2 RHMS
B	4	#6 FLAT WASHER
C	4	#6 LOCK WASHER
D	4	6-32 NUT
E	7	1/4-20 x 1 1/2 SHCS
F	6	1/4 LOCK WASHER
G	1	1/4 FLAT WASHER
H	1	3/8-16 x 1/2 SHCS
I	1	1/4 x 1/4 x 3 1/2 KEY STOCK
J	4	3/8-16 x 1 1/4 SHCS
K	4	3/8 LOCK WASHER
L	4	3/8 FLAT WASHER
M	10	1/4-20 x 1 1/4 SHCS
N	4	1/2-13 x 1 FHCS
O	6	5/16-18 x 1 1/2 SHCS
P	1	1/4-20 NUT
Q	14	1/4-20 x 1/4 SHSS
R	6	1/4-20 x 5/8 SHCS
S	2	1/4 x 1 DOWEL PIN
T	46	M8-1.25 x 30 nn. SHCS
U	1	1/4 x 1/4 x 4 3/4 KEY STOCK
V	7	8-32 x 1/2 BHCS

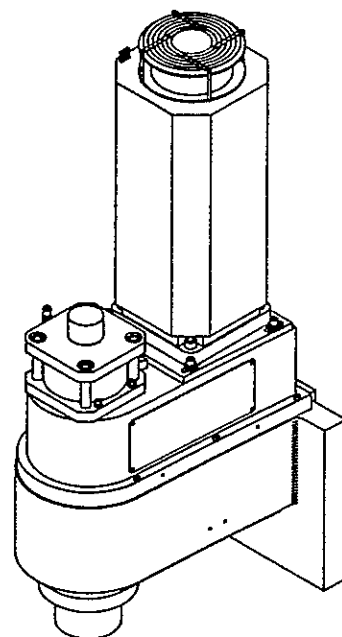


PARTS LIST			
NO.	QTY	STOCK NO.	DESCRIPTION
1	1	MD-69	184TC C-FACE TOSHIBA MOTOR 5 1/2 H.P.
2	1	FA-01	A47815A15T3 110 VAC FAN
3	1	WX-22	SEALTITE FITTING 1/2" STRAIGHT
4	1	WX-38	"O" RING 1/2"
5	2	HD-17	1"-1/2" REDUCING WASHER
6	1	WX-96	LOCKING NUT
7	4	WX-162	HOSE WASHER
8	1	MP1-28	SPINDLE MOTOR MOUNT
9	1	MP1-168	SPINDLE BELT TENSION CAM
10	4	WX-161	R00625-156-708NB O RING
11	2	NU-33	ELBOW 1/4 PIPE 1/4 TUBE 90°
12	1	NU-60	R6 x 5/8" TUBE CYLINDER
13	1	MX1-05	BELT & PULLEY HOUSING - MACHINED
14	1	BT-29	AX30 MATCHED BELTS
15	22	MP6-13	HSR35 RAIL PLUGS C-8
16	2	MP1-69	HST25TB2SSCDB20L-II RAIL
17	1	PY-54	MOTOR PULLEY 7 1/2 H.P.
18	1	PY-55	SPINDLE PULLEY 7 1/2 H.P.
19	1	MP-109	Z BALL SCREW SAFETY CATCH
20	1	MX1-11	Z-AXIS CARRIER - MACHINED
21	1	MP6-09	TOP SPINDLE CARTRIDGE
22	1	MX1-36	35 nn. HEAD - MACHINED
23	1	MP1-181	Z-AXIS ROLLER SHADE HOUSING - 35 nn.
24	4	WX-113	3/4" HOLE PLUG DP750
25	1	MP1-174	14 x 61 ROLLER SHADE
26	1	WX-163	CCH62-S10-C CABLE CLAMP
27	1	9206	40 SPINDLE ASSEMBLY
28	2	SP-84	8-32 x 1/2 RD THREADED STANDOFF
29	1	MP1-180	Z-AXIS ROLLER BAR 35 nn.

B	UPDATE DRAWING TO P1-G	1852	H/W	8/94
A	DESIGN CHANGE	1532	N.M.	10/93
REV.	DESCRIPTION	E.C.D. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (812) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No.				
TOLERANCE UNLESS SPECIFIED		TITLE HEAD ASSEMBLY		
X.XXX ± .005		APPLICATION PARTNER I		
X.XX ± .010		SCALE 4.5:1		ENG No. 6-10-008-005
X.X ± .030		DATE 7 FEB 90		SIZE D
ANGLE ± 1.0°		DRAWN BY THOMPSON		SHEET NO. 1 OF 1



B	UPDATE DRAWING TO P1-G	1852	H/M	8/94
A	DESIGN CHANGE	1532	N.M.	10/93
REV.	DESCRIPTION	E.C.O. NO.	APP'D BY	DATE
MATERIAL/FINISH				
 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (812) 474-8100 CHANHASSEN, MN 55317				
STOCK/ASSY No.		TITLE HEAD ASSEMBLY		
TOLERANCE UNLESS SPECIFIED		APPLICATION PARTNER I		
X.XXX	± .005	SCALE 4.5:1		DWG No 6-10-008-005 SIZE D
X.XX	± .010	DATE 7 FEB 90		DRAWN BY THOMPSON SHEET NO. 1 OF 1
X.X	± .030			
ANGLE	± 1.0°			

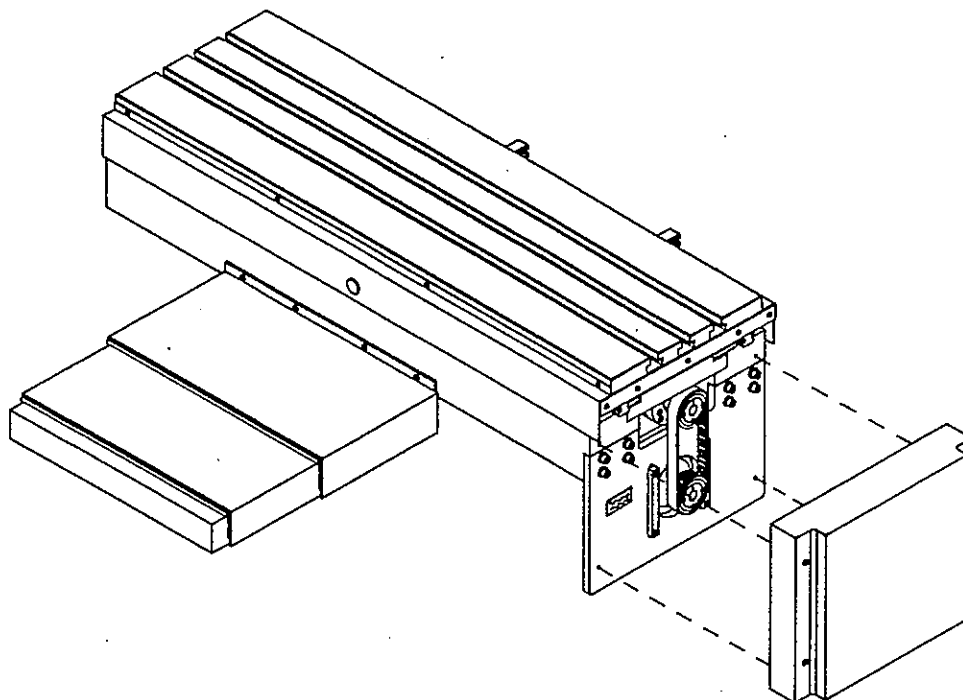


ITEM	DESCRIPTION	QTY
A	1/2-13 x 1-1/4 SHCS	4
B	1/2 LOCK WASHER	4
C	3/8-16 x 1-1/4 SHCS	4
D	3/8 LOCK WASHER	4
E	3/8 FLAT WASHER	4
F	8/32 x 3/8 BHCS	8
G	1/4-20 x 3/8 SHSS	2
H	1/4 LOCK WASHER	6
I	1/4-20 x 2 SHCS	6

ITEM	STOCK No.	DESCRIPTION	QTY.
1	HP-60	12-1/2 HP SPINDLE MOTOR N81902FRH-445	1
2	HP-111	12-1/2 HP SPINDLE MOTOR PULLEY KEY	1
3	HP-110	12-1/2 HP SPINDLE MOTOR MOUNT	1
4	MX1-05	BELT & PULLEY HOUSING - MACHINED	1
5	HP-113	12HP SPINDLE BELT COVER	2
6	HP-112	12 HP SPINDLE PULLEY KEY	1
7	BT-31	TIMING BELT 330H150	1
8	PY-63	TIMING PULLEY 30H150 SD	1
9	PY-62	TIMING PULLEY 24H150 SD	1
10	PY-64	1-1/2 ID SD BUSHING	1

1. THIS ARRANGEMENT IS FOR LOW SPEED RANGE. INTERCHANGE ITEMS 8 & 9 FOR HIGH SPEED OPERATION.

REV.	DESCRIPTION	E.C.O. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (612) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No.		TITLE 12-1/2 HP SPINDLE HEAD ASSY.		
TOLERANCE UNLESS SPECIFIED		APPLICATION GENERAL PRODUCTS		
X.XXX	+/- .005	SCALE 8:1 DWG No 6-10-018-015 SIZE B		
X.XX	+/- .010	DATE 19 JUN 84		
X.X	+/- .030	DRAWN BY REUTER		
ANGLE	+/- 1.0°	SHEET NO. 1 OF 1		



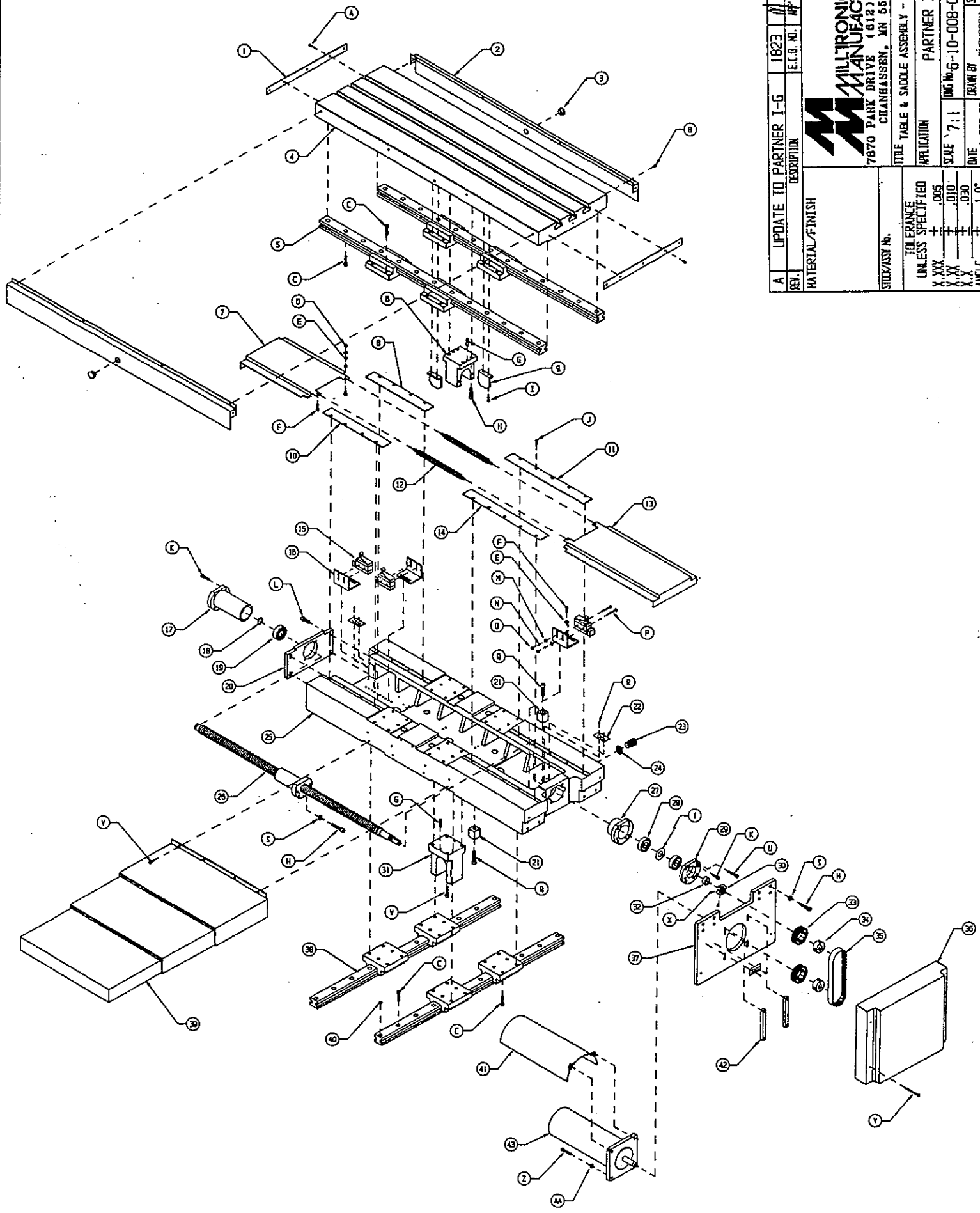
PARTS LIST

No.	QTY	STOCK No.	DESCRIPTION
1	2	MP1-161	X-AXIS WAY COVER BRACKET
2	2	MP1-159	X-AXIS TABLE & SADDLE COVER
3	2	WX-113	3/4" HOLE PLUG OP-750
4	1	MX1-33	12 x 40 TABLE - MACHINED 35 mm.
5	2	MP6-06	HSR35CB2SSC01000L-II RAILS
6	1	MX6-16	X-AXIS BALL CARRIER HSR35CB
7	1	MP6-39	X-AXIS WAY COVER LEFT
8	1	MP6-65	X-AXIS WAY COVER BRACKET LEFT REAR
9	2	MP6-45	EXTENDED TRAVEL X-AXIS DOG
10	1	MP6-36	X-AXIS WAY COVER BRACKET LEFT FRONT
11	1	MP6-37	X-AXIS WAY COVER BRACKET RIGHT REAR
12	2	HO-33	X AXIS WAY COVER SPRING
13	1	MP6-38	X AXIS WAY COVER RIGHT
14	1	MP6-66	X-AXIS WAY COVER BRACKET RIGHT FRONT
15	3	SW-149	AZ71419 LIMIT SWITCH
16	3	MP1-96	LIMIT SWITCH MOUNTING BRACKET
17	1	MP6-43	X-AXIS RADIAL SUPPORT
18	1	MP1-108	98541A123 BALL SCREW SNAPPING
19	1	BG-02	BEARING SKF6204
20	1	MP6-40	X-AXIS RADIAL SUPPORT BRACKET
21	2	MP1-76	X-AXIS HARD STOP
22	3	LB-27	PULLEY MOTOR WARNING LABEL
23	1	WX-23	CORD GRIP 1/2" DB-3
24	1	WX-38	"O" RING 1/2" STG50
25	1	MX6-15	MACHINE SADDLE 35 mm. - MACHINED
26	1	MP1-145	12476 4 TURN BALL SCREW
27	1	MP1-89	BALL SCREW BEARING BLOCK
28	2	BG-01	BEARING NSK 7204BYG
29	1	MP1-88	BALL SCREW BEARING CAP
30	1	MP1-94	BALL SCREW LOCK NUT
31	1	MX1-11	Z-AXIS BALL SCREW CARRIER - MACHINED
32	1	MP1-107	BEARING LOCK NUT SPACER
33	2	PY-61	TB18LQ75 PULLEY
34	2	PY-34	1008 5/8 BORE BUSHING
35	1	BT-09	187LQ75 TIMING BELT
36	1	VM1-08	MOTOR COVERS Y&Z
37	1	MP6-35	X-AXIS MOTOR MOUNT PLATE
38	2	MP1-171	HSR35CB2SSC0820L-II RAILS
39	1	MP1-167	Y-AXIS WAY COVER
40	22	MP6-13	HSR35 RAIL PLUG C-8
41	1	MM-16	MOTOR DRIP COVER
42	2	MP-68	MOTOR MOUNT BRACKETS
43	1	MO-02	MT30M4-38 26" LB. MOTOR

HARDWARE LIST

No.	QTY	DESCRIPTION
A	10	8-32 x 1/2 BHCS
B	8	8-32 x 3/8 BHCS
C	96	M8-1.25 x 30 mm SHCS
D	8	10-32 NUT
E	14	# 10 FLAT WASHER.
F	10	10-32 x 5/8 SHCS
G	4	1/4 x 1 ODWEL PIN
H	14	5/16-18 x 1 1/4 SHCS
I	4	6-32 x 3/8 FHMS
J	18	8-32 x 1/4 FHMS
K	8	1/4-20 x 5/8 SHCS
L	4	5/16-18 x 3/4 SHCS
M	6	# 8 FLAT WASHER
N	6	# 8 LOCK WASHER
O	6	# 8 NUT
P	6	8-32 x 1 1/4 BHCS
Q	2	3/8-16 x 1 1/4 SHCS
R	6	1/4" DRIVE RIVET
S	10	5/16 LOCK WASHER
T	1	1 3/4 x 1 1/4 x .002 ROUND SHIM
U	4	1/4-20 x 1 SHCS
V	4	10-24 x 1/2 BHCS
W	4	5/16-18 x 1 1/2 SHCS
X	2	10-32 x 3/16 BRASS TIPPED SHSS
Y	4	10-32 x 2 1/4 BHCS
Z	4	1/4-20 x 1 1/2 SHCS
AA	4	1/4 LOCK WASHER

A	UPDATE TO PARTNER I-G	1823	11/1	8/94
REV.	DESCRIPTION	E.C.O. NO.	AP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (812) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No.		TITLE TABLE & SADDLE ASSEMBLY - 44" CASTING		
TOLERANCE UNLESS SPECIFIED		APPLICATION PARTNER I		
X.XXX	± .005	SCALE 7:1	DMG No. 6-10-008-021	SIZE D
X.XX	± .010	DATE 1 OCT 93	DRAWN BY THOMPSON	SHEET NO. 1 OF 1
X.X	± .030			
ANGLE	± 1.0°			

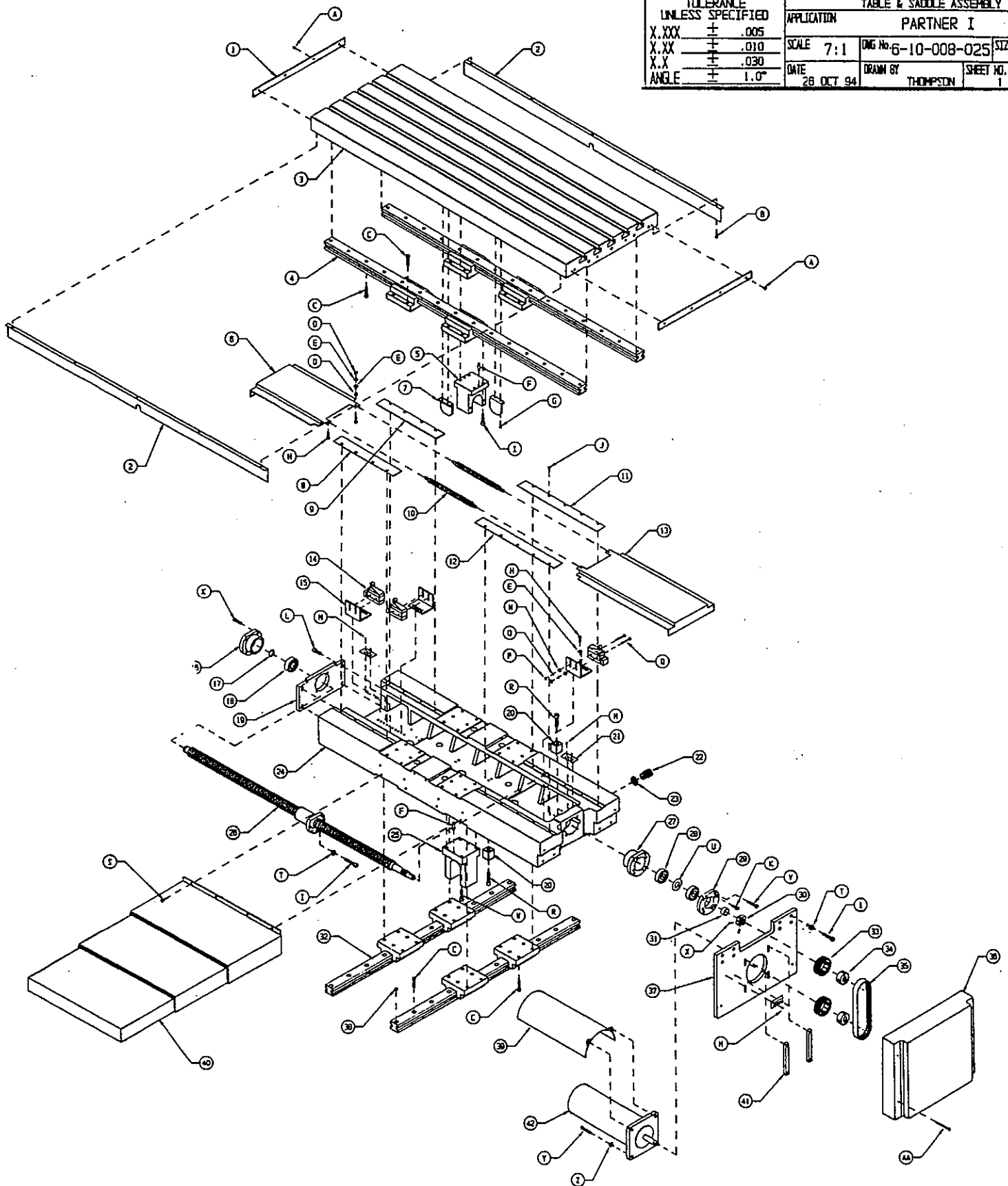


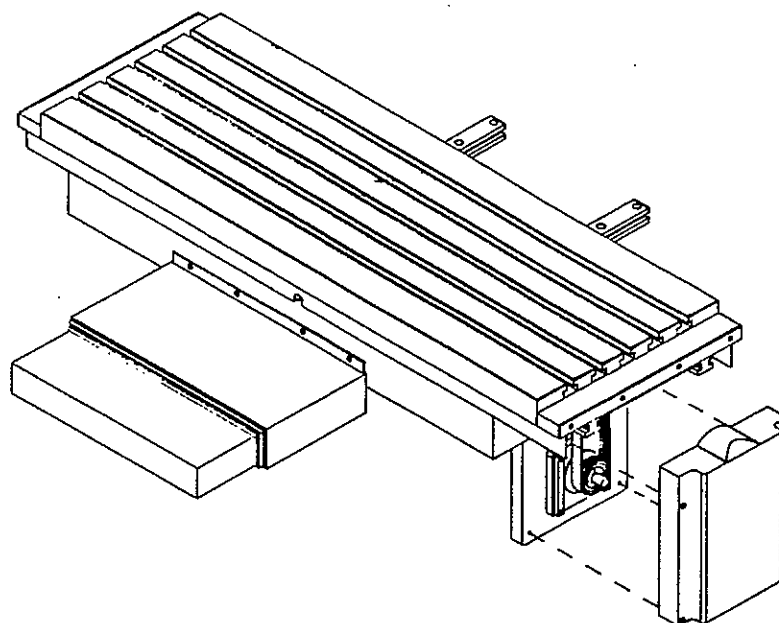
A	UPDATE TO PARTNER I-G	1823	11/14	8/94
REV.	DESCRIPTION	E.C.D. NO.	APP'D BY	DATE
MATERIAL/FINISH				
STUD/ASY No.				
TOLERANCE UNLESS SPECIFIED				
X.XXX		± .005		
X.XX		± .010		
X.X		± .030		
ANGLE		± 1.0°		
TITLE		TABLE & SADDLE ASSEMBLY - 44" CASTING		
APPLICATION		PARTNER I		
SCALE		1/4" = 6'-10-008-021		
DATE		1 OCT 93		
DRAWN BY		TIMPSON		
SHEET NO.		1 OF 1		



MILLITRONICS
MANUFACTURING
7870 PARK DRIVE (812) 474-8100
CHANDLER, MN 55317

REV.	DESCRIPTION	E.C.O. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (612) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No. 9295		TITLE 30" TRAVEL OPTION		
TOLERANCE UNLESS SPECIFIED		APPLICATION PARTNER I		
X.XXX	± .005	SCALE 7:1	DRG No. 6-10-008-025	SIZE D
X.XX	± .010	DATE 28 OCT 94	DRAWN BY THOMPSON	SHEET NO. 1 OF 1
X.X	± .030			
ANGLE	± 1.0°			





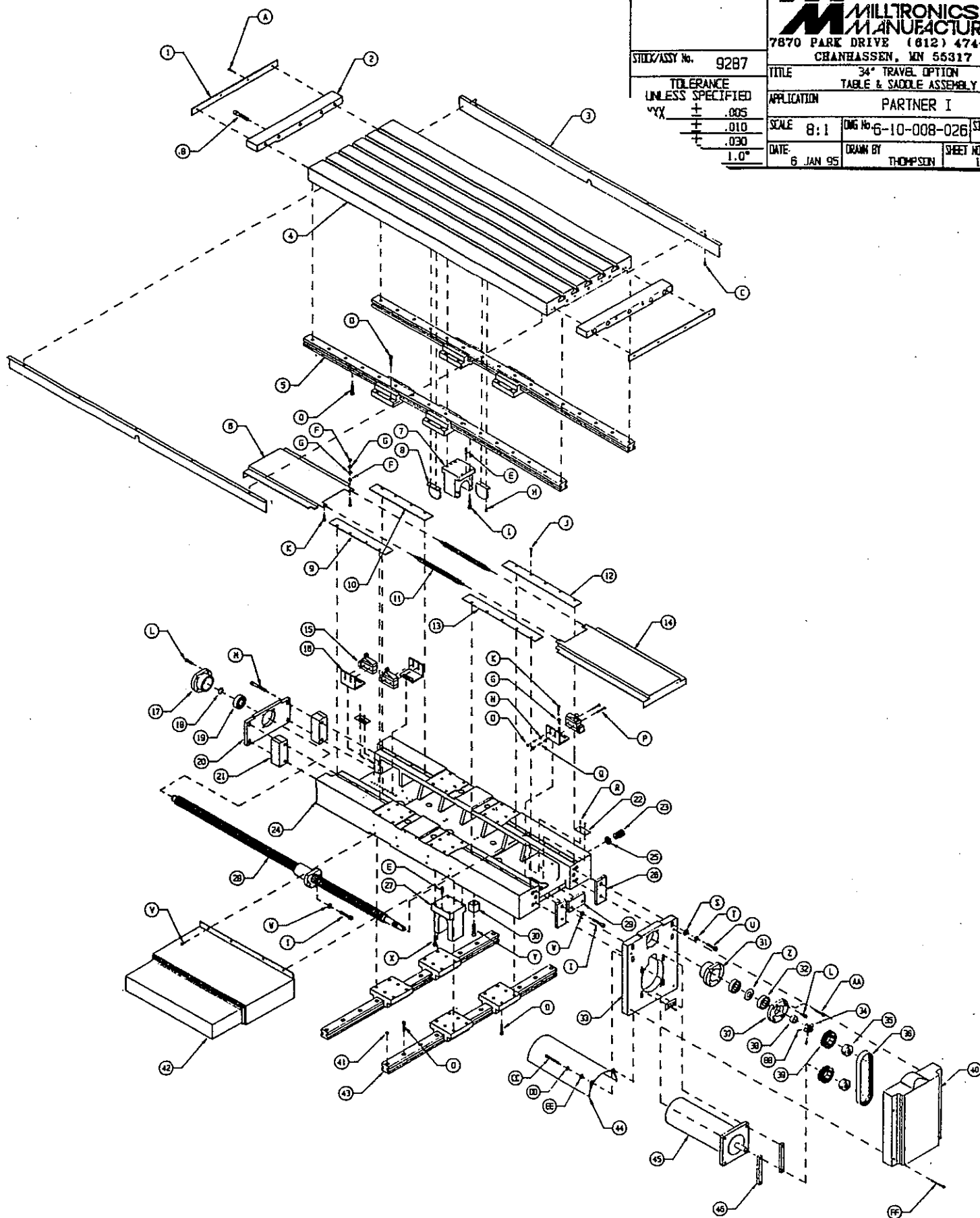
PARTS LIST

No.	QTY	STOCK No.	DESCRIPTION
1	2	MP6-11	X-AXIS WAY COVER UPPER MOUNT
2	2	MP6-87	34" EXTENSIONS 45 x 16
3	2	MP6-90	34" TRAVEL TABLE PLATE
4	1	MX6-13	45 x 16 TABLE - MACHINED
5	2	MP6-41	HSR35CB2SSCD1240L-II RAILS
6	1	MP6-95	34" X-AXIS WAY COVER - LEFT
7	1	MX6-16	X-AXIS BALL SCREW CARRIER HSR35CB
8	2	MP6-45	EXTENDED TRAVEL X-AXIS DOG
9	1	MP6-36	X WAY COVER BRACKET LEFT FRONT
10	1	MP6-65	X WAY COVER BRACKET LEFT REAR
11	2	HO-33	X-AXIS WAY COVER SPRING
12	1	MP6-37	X WAY COVER BRACKET RIGHT REAR
13	1	MP6-66	X WAY COVER BRACKET RIGHT FRONT
14	1	MP6-94	34" X-AXIS WAY COVER RIGHT
15	3	SW-149	AZ71419 LIMIT SWITCH
16	3	MP1-96	LIMIT SWITCH MOUNTING BRACKET
17	1	MP6-42	30" TRAVEL RADIAL SUPPORT
18	1	MP1-108	98541A123 BALL SCREW SNAPPING
19	1	BG-02	BEARING SKF6204
20	1	MP6-40	X-AXIS RADIAL SUPPORT BRACKET
21	2	MP6-85	RADIAL SUPPORT BRACKET SPACER 34"
22	3	LB-27	PULLEY MOTOR WARNING LABEL
23	1	WX-23	CORD GRIP 1/2" DB-3
24	1	MX6-20	45" TRAVEL SADDLE - MACHINED
25	1	WX-38	"O" RING 1/2" STG50
26	2	MP6-86	X-AXIS MOTOR MOUNT SPACER
27	1	MX1-11	Z-AXIS BALL SCREW CARRIER - MACHINED
28	1	MP1-155	X-AXIS BALL SCREW 34" TRAVEL
29	1	MP-72	500 IPM HARD STOP
30	1	MP1-76	X-AXIS HARD STOP
31	1	MP1-89	BALL SCREW BEARING BLOCK
32	2	BG-01	BEARING NSK 7204BYG
33	1	MP6-60	X-AXIS MOTOR MOUNT PLATE
34	1	MP1-94	BALL SCREW LOCK NUT
35	2	PY-34	1008 5/8 BORE BUSHING
36	1	BT-09	187L075 TIMING BELT
37	1	MP1-88	BALL SCREW BEARING CAP
38	1	MP1-107	BEARING LOCK NUT SPACER
39	2	PY-61	TB18L075 PULLEY
40	1	VM1-06	MOTOR COVER
41	22	MP6-13	HSR35 RAIL PLUGS C-8
42	1	MP1-167	Y-AXIS WAY COVER TELEFLEX
43	2	MP1-171	HSR35CB2SSCD820L-II RAILS
44	1	MM-16	MOTOR DRIP COVER
45	1	MD-02	MT30M4-38 26" LB.
46	2	MP-68	MOTOR MOUNT BRACKETS

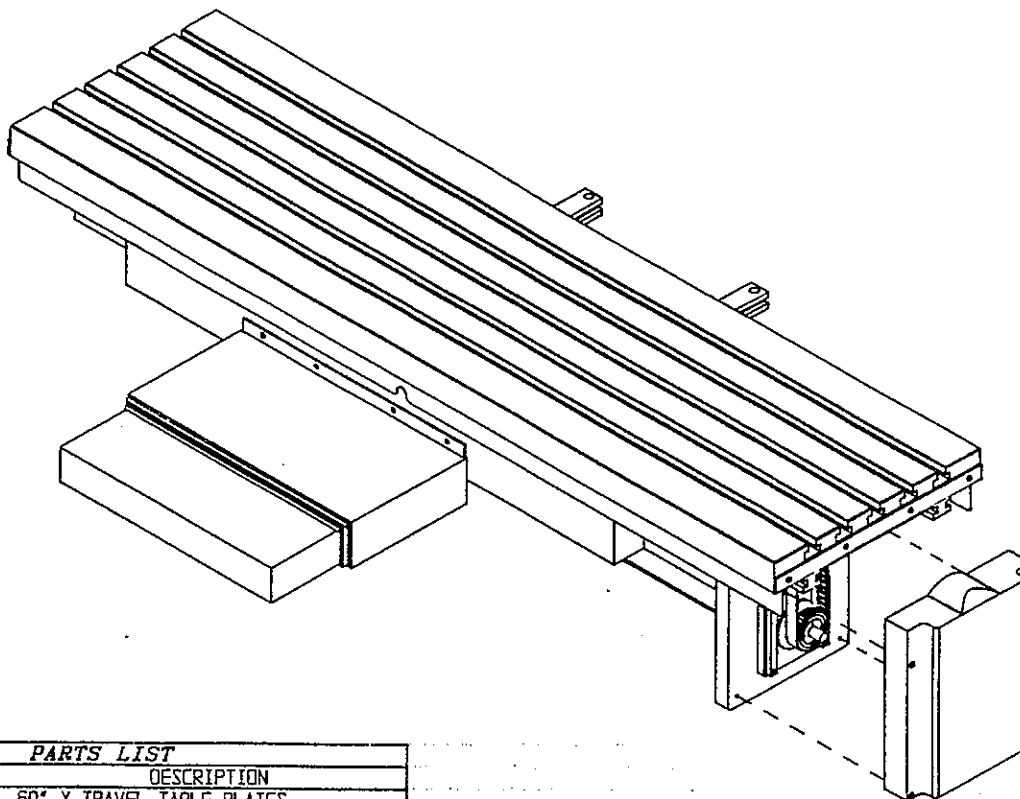
HARDWARE LIST

No.	QTY	DESCRIPTION
A	8	8-32 x 1/2 BHCS
B	10	3/8-16 x 2 SHCS
C	10	8-32 x 1/4 BHCS
D	102	M8-1.25 x 30 mm. SHCS
E	4	1/4 x 1 DOWEL PIN
F	8	10-32 NUT
G	14	# 10 FLAT WASHER
H	4	6-32 x 3/8 FHMS
I	8	5/16-18 x 1 1/4 SHCS
J	18	8-32 x 1/4 FHMS
K	10	10-32 x 5/8 SHCS
L	8	1/4-20 x 5/8 SHCS
M	4	5/16-18 x 2 1/4 SHCS
N	6	# 8 FLAT WASHER
O	6	8-32 NUT
P	6	8-32 x 1 1/4 BHCS
Q	6	# 8 LOCK WASHER
R	6	1/4" DRIVE RIVET
S	4	3/8 FLAT WASHER
T	4	3/8 LOCK WASHER
U	4	3/8-16 x 2 SHCS
V	4	10-24 x 1/2 BHCS
W	4	5/16 LOCK WASHER
X	4	5/16-18 x 1 1/2 SHCS
Y	1	3/8-16 x 1 1/4 SHCS
Z	1	1 3/4 x 1 1/4 x .002 ROUND SHIM
AA	4	1/4-20 x 1 SHCS
BB	2	10-32 x 3/16 BRASS TIPPED SHSS
CC	4	1/4-20 x 2 1/4 SHCS
DD	4	1/4 LOCK WASHER
EE	4	1/4 FLAT WASHER
FF	4	10-32 x 2 1/4 BHCS

REV.	DESCRIPTION	E.C.D. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (812) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No. 9287		TITLE 34" TRAVEL OPTION TABLE & SADDLE ASSEMBLY		
TOLERANCE UNLESS SPECIFIED		APPLICATION PARTNER I		
X.XXX	± .005	SCALE 8:1	DWG No. 6-10-008-026	SIZE D
X.XX	± .010	DATE 6 JAN 95	DRAWN BY THOMPSON	SHEET NO. 1 OF 1
X.X	± .030			
ANGLE	± 1.0°			



REV.	DESCRIPTION	E.C.D. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (812) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No. 9287		TITLE 34" TRAVEL OPTION TABLE & SADDLE ASSEMBLY		
TOLERANCE UNLESS SPECIFIED		APPLICATION PARTNER I		
XX		SCALE 8:1		
+ .005		DWG No 6-10-008-026		
+ .010		SIZE D		
+ .030		DATE 6 JAN 95		
1.0"		DRAWN BY THOMPSON		
		SHEET NO. 1 OF 1		



PARTS LIST

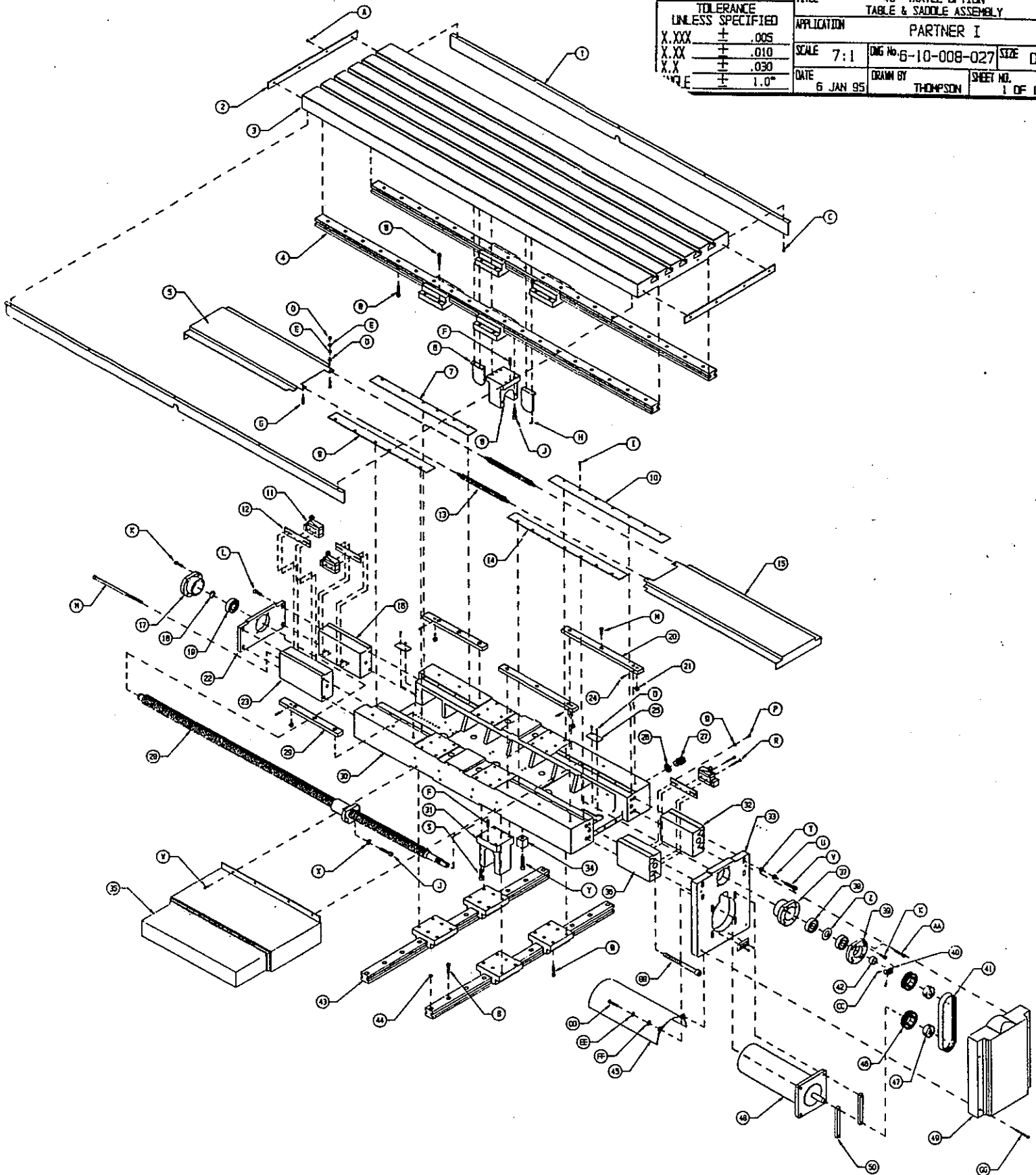
No.	QTY	STOCK No.	DESCRIPTION
1	2	MP6-54	60" X TRAVEL TABLE PLATES
2	2	MP6-11	X-AXIS WAY COVER UPPER MOUNT
3	1	MX6-21	60 x 16 TABLE - MACHINED
4	2	MP6-73	HSR35CB2SSC01640-II RAILS
5	1	MP6-96	45" X-AXIS WAY COVER LEFT
6	2	MP6-102	45" TRAVEL X-AXIS DOG
7	1	MP6-112	WAY COVER BRACKET LEFT REAR
8	1	MX6-16	X-AXIS BALL SCREW CARRIER HSR35CB
9	1	MP6-113	WAY COVER BRACKET LEFT FRONT
10	1	MP6-110	WAY COVER BRACKET RIGHT REAR
11	3	SW-149	AZ71419 LIMIT SWITCH
12	3	MP6-78	45" X-AXIS SWITCH BRACKET
13	2	HO-33	X-AXIS WAY COVER SPRING
14	1	MP6-111	WAY COVER BRACKET RIGHT FRONT
15	1	MP6-97	45" X-AXIS WAY COVER RIGHT
16	1	MP6-56	REAR RADIAL SUPPORT BRACKET SPACER
17	1	MP6-42	30" TRAVEL RADIAL SUPPORT
18	1	MP1-108	98541A123 BALL SCREW SNAPPING
19	1	BG-02	BEARING SKF6204 2Z
20	2	MP6-101	RAIL BEARING SUPPORT - RIGHT
21	4	BG-46	624 ZZ BEARING
22	1	MP6-40	X-AXIS RADIAL SUPPORT BRACKET
23	1	MP6-57	FRONT RADIAL SUPPORT BRACKET SPACER
24	4	HO-36	4 mm. x 20 mm. DOWEL PIN
25	3	LB-27	PULLEY MOTOR WARNING LABEL
26	1	WX-38	"O" RING 1/2" STG50
27	1	WX-23	CORD GRIP 1/2" OB-3
28	1	MP6-59	X-AXIS BALL SCREW 45" TRAVEL
29	2	MP6-100	RAIL BEARING SUPPORT - LEFT
30	1	MX6-20	45" TRAVEL SADDLE - MACHINED
31	1	MX1-11	Z-AXIS CARRIER - MACHINED
32	1	MP6-58	REAR X-AXIS MOTOR MOUNT SPACER
33	1	MP6-60	X-AXIS MOTOR MOUNT PLATE
34	1	MP1-76	X-AXIS HARD STOP
35	1	MP1-167	Y-AXIS WAY COVER TELEFLEX
36	1	MP6-55	FRONT X-AXIS MOTOR MOUNT SPACER
37	1	MP1-89	BALL SCREW BEARING BLOCK
38	2	BG-01	BEARING NSK 7204BYG
39	1	MP1-88	BALL SCREW BEARING CAP
40	1	MP1-94	BALL SCREW LOCK NUT
41	1	BT-09	187L075 TIMING BELT
42	1	MP1-107	BEARING LOCK NUT SPACER
43	2	MP1-171	HSR35CB2SSC0820L-II RAILS
44	22	MP6-13	HSR35 RAIL PLUGS C-B
45	1	MM-16	MOTOR DRIP COVER
46	2	PY-51	TB18L075 PULLEY
47	2	PY-34	1008 5/8 BORE BUSHING
48	1	MO-02	MT30M4-38 26" LB. MOTOR
49	1	VM1-06	X MOTOR PULLEY COVER
50	2	MP-68	MOTOR MOUNT BRACKETS

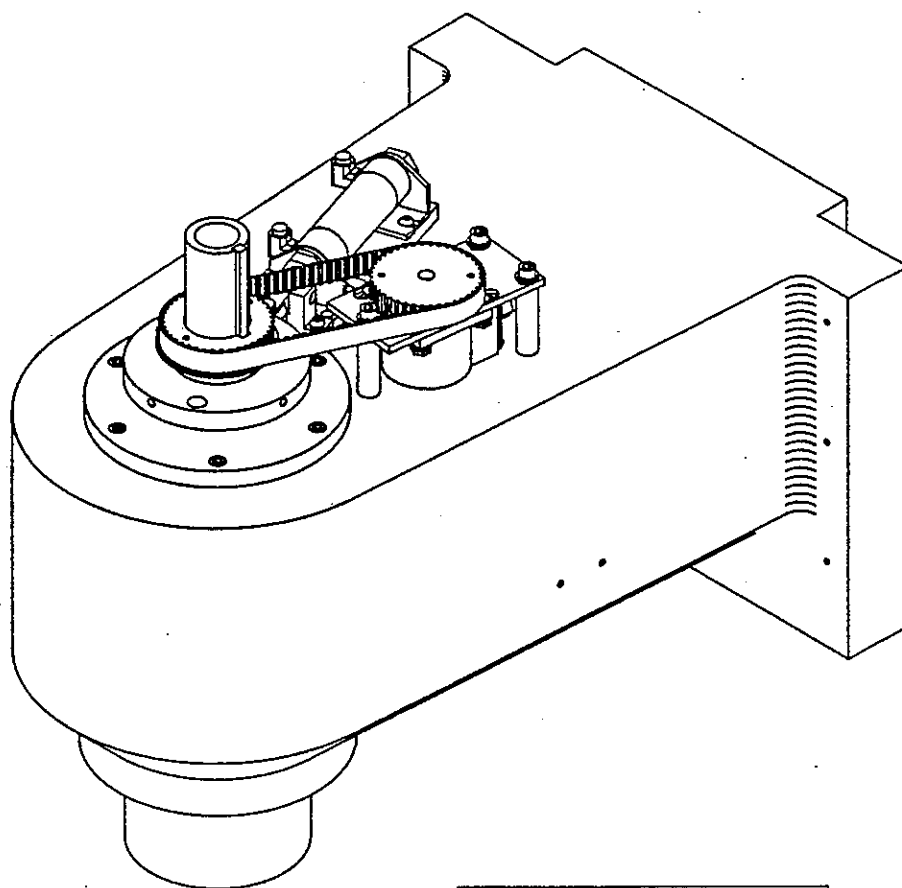
HARDWARE LIST

No.	QTY	DESCRIPTION
A	8	8-32 x 1/2 BHCS
B	106	M8-1.25 x 25 mm SHCS
C	10	8-32 x 1/4 BHCS
D	8	10-32 HEX NUT
E	8	# 10 FLAT WASHER
F	4	1/4 x 1 DOWEL PIN
G	4	10-32 x 5/8 SHCS
H	4	6-32 x 3/8 FHMS
I	26	8-32 x 1/4 FHMS
J	6	5/16-18 x 1 1/4 SHCS
K	8	1/4-20 x 5/8 SHCS
L	4	5/16-18 x 3/4 SHCS
M	6	5/16-18 x 8 SHCS
N	12	1/4-20 x 3/4 FHCS
O	6	1/4" DRIVE RIVET
P	12	8-32 x 3/8 BHCS
Q	12	# 8 FLAT WASHER
R	6	8-32 x 1 BHCS
S	4	5/16-18 x 1 1/2 SHCS
T	4	3/8 FLAT WASHER
U	4	3/8 LOCK WASHER
V	4	3/8-16 x 1 3/4 SHCS
W	4	10-24 x 1/2 BHCS
X	2	5/16 LOCK WASHER
Y	1	3/8-16 x 1 1/4 SHCS
Z	1	1 3/4 x 1 1/4 x .002 ROUND SHIM
AA	4	1/4-20 x 1 SHCS
BB	6	1/2-13 x 5 1/2 SHCS
CC	2	10-32 x 3/16 BRASSED TIPPED SHSS
DD	4	1/4-20 x 2 1/4 SHCS
EE	4	1/4 LOCK WASHER
FF	4	1/4 FLAT WASHER
GG	4	10-32 x 2 1/4 BHCS

REV.	DESCRIPTION	E.C.O. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (612) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No. 9280				
TOLERANCE UNLESS SPECIFIED		TITLE 45" TRAVEL OPTION TABLE & SADDLE ASSEMBLY		
X.XXX ± .005		APPLICATION PARTNER I		
X.XX ± .010		SCALE 7:1	DNQ No. 6-10-008-027	SIZE D
X.X ± .030		DATE 6 JAN 95	DRAWN BY THOMPSON	SHEET NO. 1 OF 1
ANGLE ± 1.0°				

REV.	DESCRIPTION	E.C.D. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (612) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No. 9280		TITLE 45° TRAVEL OPTION TABLE & SADDLE ASSEMBLY		
TOLERANCE UNLESS SPECIFIED		APPLICATION PARTNER I		
X.XXX	± .005	SCALE 7:1	DWG No. 6-10-008-027	SIZE D
X.XX	± .010	DATE 6 JAN 95	DRAWN BY THOMPSON	SHEET NO. 1 OF 1
X.X	± .030			
INCH	± 1.0"			





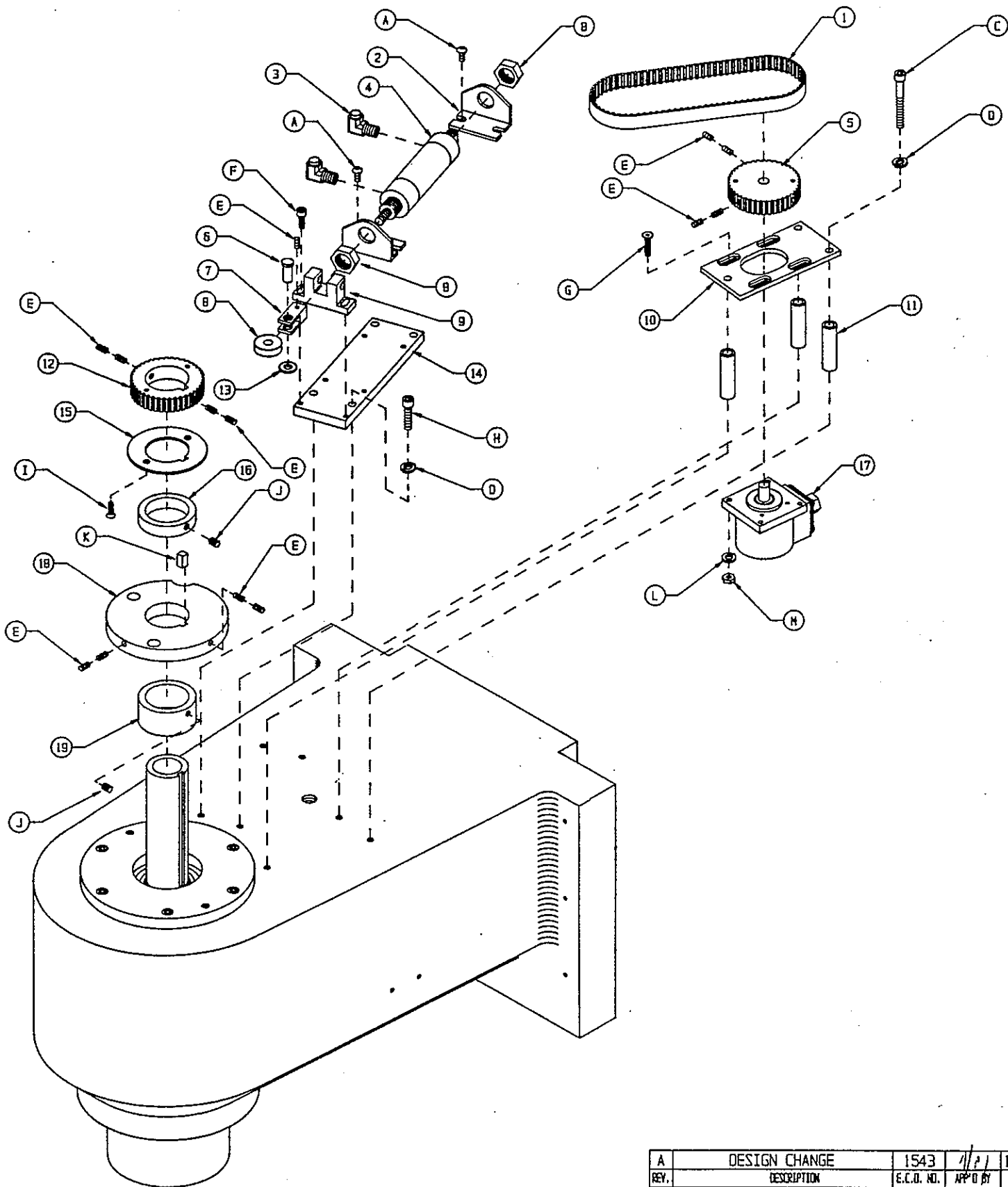
PARTS LIST

No.	QTY	STOCK No.	DESCRIPTION
1	1	BT-25	180XL037 BELT
2	2	BR-07	F-11 HUMPHREY CYL BRACKET
3	2	NU-16	1/8 NPT 1/4 O.D. MALE ELBOW C
4	1	NU-02	CYLINDER 6-OP-1
5	1	PY-47	40XL8037 (ALUM) PULLEY
6	1	HO-13	SPINDLE ORIENT CLEVIS PIN
7	1	HO-15	MACHINED CLEVIS
8	1	BG-37	SKF60827 TL CHNGE POT BEARING
9	1	MP1-90	SPINDLE ORIENT PLUNGER GUIDE
10	1	MP1-84	SPINDLE ENCODER MOUNTING PLATE
11	3	SP-79	RIGID TAP SPACER
12	1	PY-58	RIGID TAP PULLEY
13	1	HO-14	94807A-030 PUSH NUT
14	1	MP1-138	ORIENT MOUNTING PLATE
15	1	PY-45	RIGID TAP PULLEY BELT GUIDE
16	1	MP1-110	SPINDLE ORIENT SPACER
17	1	EO-29	HO2F1AE1B6SC500 ENCODER
18	1	MP1-93	SPINDLE ORIENT DISC
19	1	MP1-136	ORIENT DISC SPACER

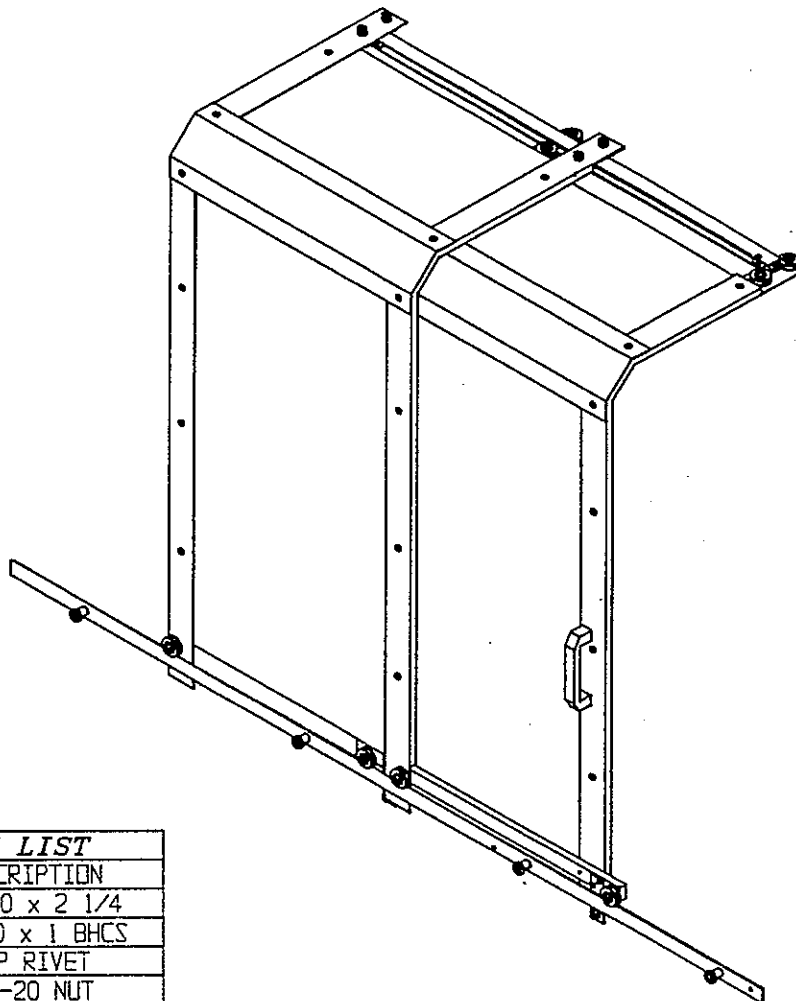
HARDWARE LIST

No.	QTY	DESCRIPTION
A	4	10-24 x 3/8 BHCS
B	2	5/8-18 NUT
C	3	1/4-20 x 2 3/4 SHCS
D	7	1/4 LOCK WASHER
E	13	10-32 x 3/16 SHSS
F	2	10-24 x 1/2 SHCS
G	4	10-24 x 5/8 FHCS
H	4	1/4-20 x 1 SHCS
I	2	6-32 x 1/4 FHMS
J	2	1/4-20 x 1/4 SHSS
K	1	1/4 x 1/4 x 1/2 KEY
L	4	# 10 LOCK WASHER
M	4	10-24 NUT

A	DESIGN CHANGE	1543	1/1/93	10/93
REV.	DESCRIPTION	E.C.D. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (612) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No.		TITLE SPINDLE ORIENT, RIGID TAPPING ASSEMBLY		
TOLERANCE UNLESS SPECIFIED		APPLICATION PARTNER I		
X.XXX	± .005	SCALE 3:1	DWG No 6-10-008-015	SIZE C
X.XX	± .010	DATE 31 JUL 91	DRAWN BY THOMPSON	SHEET NO. 1 OF 1
X.X	± .030			
ANGLE	± 1.0°			



A	DESIGN CHANGE	1543	1/1/91	10/93
REV.	DESCRIPTION	E.C.O. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (812) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No.		TITLE SPINDLE ORIENT, RIGID TAPPING ASSEMBLY APPLICATION PARTNER I SCALE 3:1 DMG No. 6-10-008-015 SIZE C DATE 31 JUL 91 DRAWN BY THOMPSON SHEET NO. 1 OF 1		
TOLERANCE UNLESS SPECIFIED X.XXX ± .005 X.XX ± .010 X.X ± .030 ANGLE ± 1.0°				



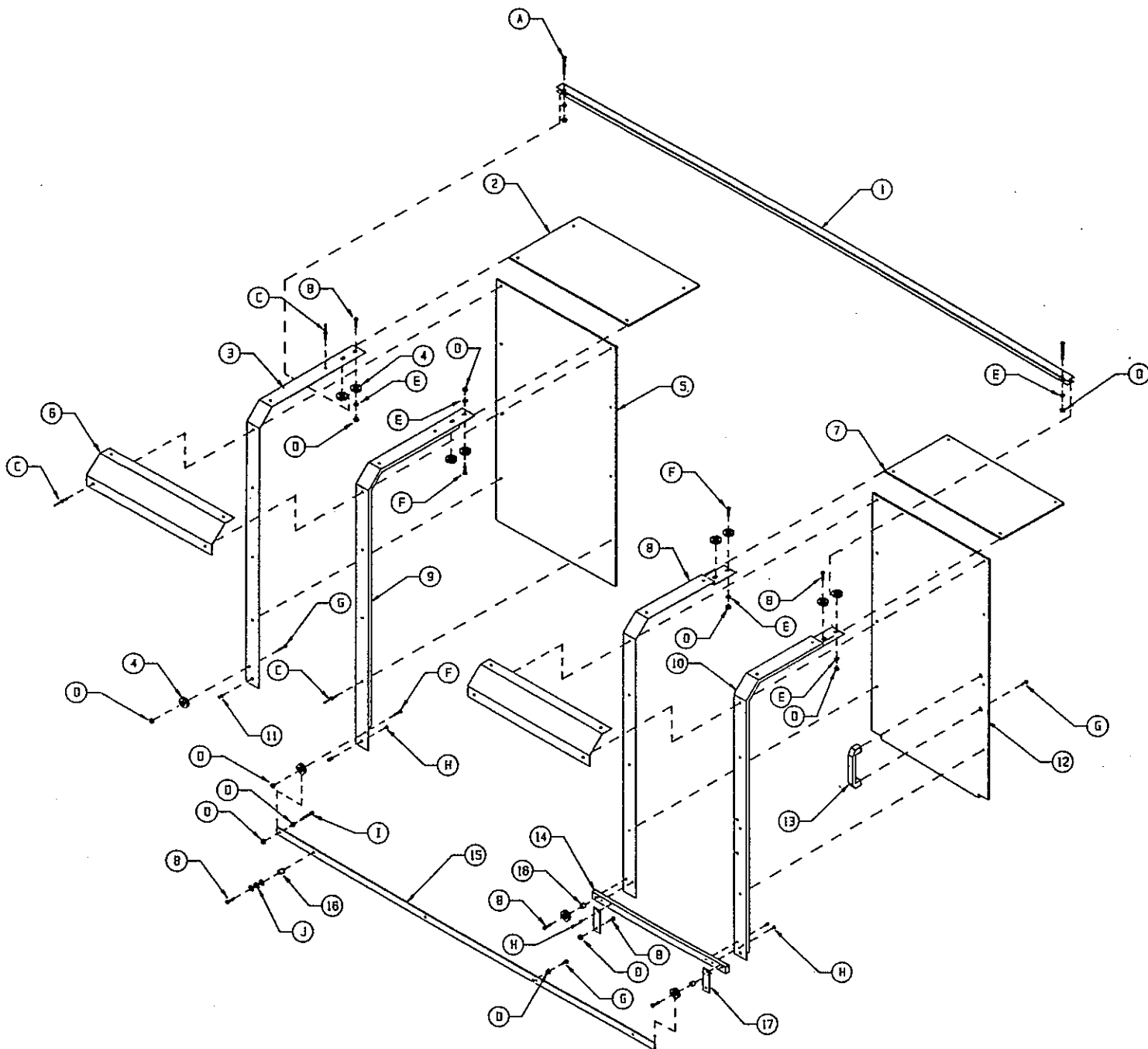
HARDWARE LIST

No.	QTY	DESCRIPTION
A	2	1/4-20 x 2 1/4
B	12	1/4-20 x 1 BHCS
C	24	PDP RIVET
D	17	1/4-20 NUT
E	10	1/4 LOCK WASHER
F	5	1/4-20 x 1 FHCS
G	3	1/4-20 x 3/4 BHCS
H	10	8-32 x 3/8 BHCS
I	1	1/4-20 x 1 1/2
J	12	5/16 FLAT WASHER

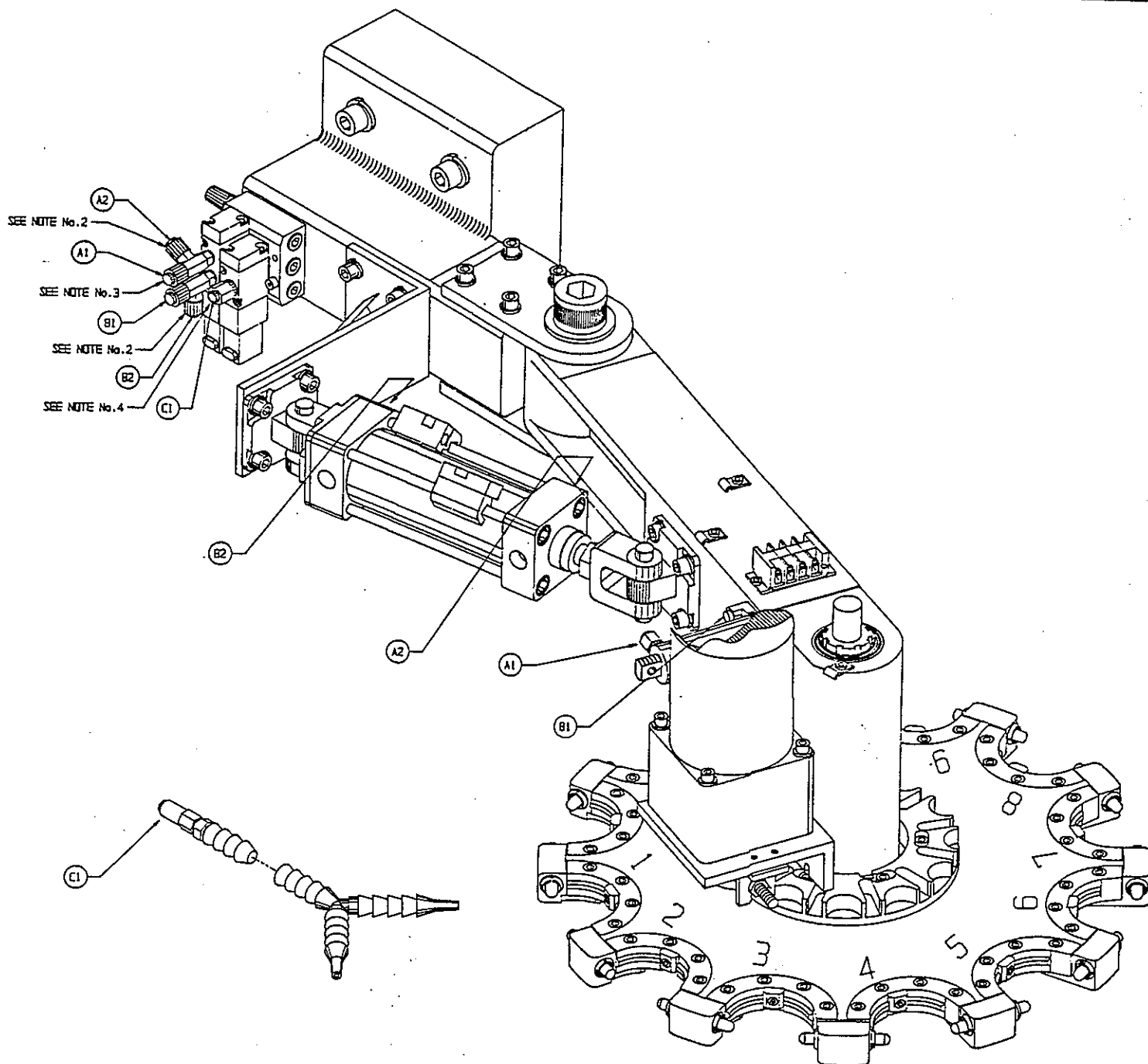
PARTS LIST

No.	QTY	STOCK No.	DESCRIPTION
1	1	MP-155	I-BEAM
2	1	MP-157	OUTSIDE TOP LEXAN DOOR
3	1	MP-166	OUTSIDE DOOR FRAME - LEFT
4	12	8G-56	3434T23 STEEL ROLLER
5	1	MP-158	LOWER OUTSIDE LEXAN DOOR
6	2	MP-162	DOOR STIFFENER
7	1	MP-156	INSIDE TOP LEXAN DOOR
8	1	MP-164	INSIDE DOOR FRAME - LEFT
9	1	MP-165	OUTSIDE DOOR FRAME - RIGHT
10	1	MP-163	INSIDE DOOR FRAME - RIGHT
11	2	SP-84	8-32x1/2 RD. THRD STAND-OFF
12	1	MP-159	LOWER INSIDE LEXAN DOOR
13	1	WX-142	4580-B HANDLE
14	1	MP-160	INSIDE DOOR LOWER WHEEL BAR
15	1	MP-161	LOWER DOOR RUNNER
16	6	MP-88	DOOR RUNNER MOUNTING BRACKET
17	2	MP-206	LOWER WHEEL BAR BRACKET

REV.	DESCRIPTION	E.C.D. NO.	M.P.	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (612) 474-8100 CHANDHASSEN, MN 55317		
STOCK/ASSY No.		TITLE 52" CHIP PAN DOORS		
TOLERANCE UNLESS SPECIFIED		APPLICATION GENERAL PRODUCTS		
X.XXX	± .005	SCALE 10:1	DWG No 6-10-018-017	SIZE C
X.XX	± .010	DATE 11 JAN 95	DRAWN BY THOMPSON	SHEET NO. 1 OF 1
X.X	± .030			
ANGLE	± 1.0°			



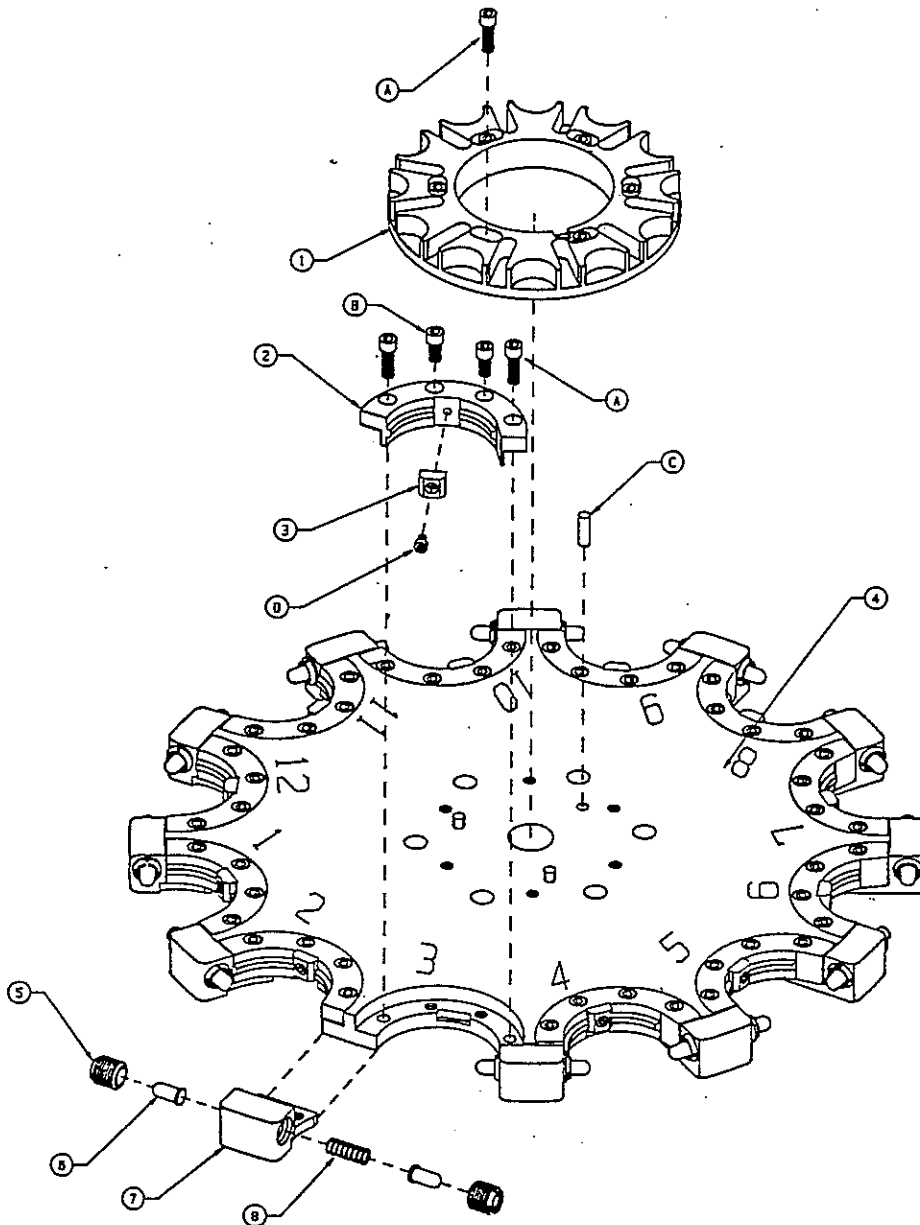
REV.	DESCRIPTION	E.C.D. NO.	M.P.	DATE
			APP'D BY	
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (612) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No.				
TOLERANCE UNLESS SPECIFIED		TITLE 52" CHIP PAN DOORS		
X.XXX	± .005	APPLICATION GENERAL PRODUCTS		
X.XX	± .010	SCALE 10:1		
X.X	± .030	DATE 11 JAN 95		
ANGLE	± 1.0°	DRAWN BY THOMPSON		
		SHEET NO. 1 OF 1		



NOTES:

1. ALL LABELS WITH SAME No. WILL HAVE 1/4 AIR TUBING (NU-25) RUNNING BETWEEN THEM.
2. PNEUMATIC RESTRICTOR 1-FC-1 (NU-07), WITH A NU-17 FITTING INSTALLED AT BOTH ENDS, IS CONNECTED BETWEEN A2-A2 AND B2-B2, THE FREE FLOW ARROW POINTS TOWARDS THE SOLENOID (USRS40R-N11R4) NU-46.
3. PNEUMATIC RESTRICTOR 1-FC-1 (NU-07), WITH A NU-17 FITTING INSTALLED AT BOTH ENDS, IS CONNECTED BETWEEN A1-A1, THE FREE FLOW ARROW POINTS TOWARD THE CYLINDER 6-DP-1 (NU-02).
4. PNEUMATIC RESTRICTOR 1-FC-1 (NU-07) WITH A NU-17 FITTING INSTALLED AT BOTH ENDS CONNECT BETWEEN C1 & C1, FREE FLOW ARROW POINTS TOWARD THE SOLENOID.

REV.	DESCRIPTION	E.C.O. NO.	APPROVED BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (812) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No.				
TOLERANCE UNLESS SPECIFIED		TITLE 12 POCKET ROTARY ATC ASSY.		
X.XXX ± .005		APPLICATION PARTNER I		
X.XX ± .010		SCALE 1.75:1		
X.X ± .030		DATE 9 DEC 92		
ANGLE ± 1.0°		DRAWN BY THOMPSON		
		SHEET NO. 1 OF 5		



CAROUSEL ASSEMBLY

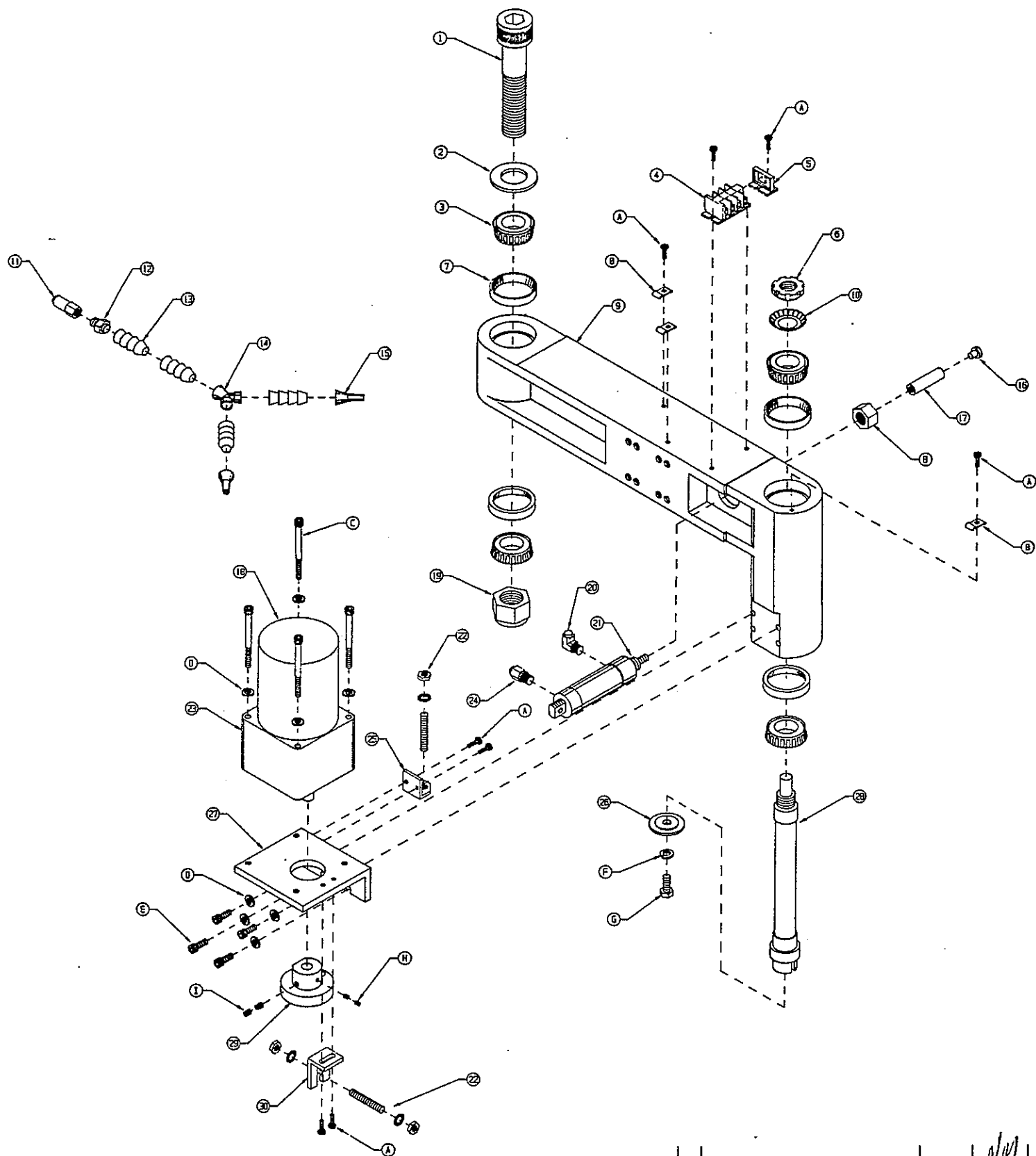
PARTS LIST

No.	QTY.	STOCK No.	DESCRIPTION
1	1	MP1-115	GENEVA WHEEL
2	12	MP1-42	V-FLANGE TOOL HOLDER INSERT
3	12	MP1-45	TOOL CHANGE KEY INSERT
4	1	MP1-130	12 POCKET CAROUSEL DISC
5	24	MP1-140	PUSH PIN GUIDE
6	24	MP1-144	PUSH PIN
7	12	MP1-132	12 POCKET LOCKING PIN BLOCK
8	12	MP1-141	COIL SPRING

HARDWARE LIST

No.	QTY.	DESCRIPTION
A	30	1/4-20 x 3/4 SHCS
B	24	1/4-20 x 1/2 SHCS
C	3	1/4 x 3/4 DOWEL PIN
D	12	8-32 x 1/4 SHCS

REV.	DESCRIPTION	E.C.O. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (612) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No.				
TOLERANCE UNLESS SPECIFIED		TITLE 12 POCKET ROTARY ATC ASSY.		
X.XXX ± .005		APPLICATION PARTNER I		
X.XX ± .010		SCALE 2:1		
X.X ± .030		DATE 8 DEC 92		
ANGLE ± 1.0°		DRAWN BY THOMPSON		
			SHEET NO.	2 OF 5



FRONT ARM ASSEMBLY

REV.	DESCRIPTION	E.C.D. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (812) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No.				
TOLERANCE UNLESS SPECIFIED		TITLE 12 POCKET ROTARY ATC ASSY.		
X.XXX ± .005		APPLICATION PARTNER I		
X.XX ± .010		SCALE 2.75:1	DWG No. 6-10-008-018	SIZE D
X.X ± .030		DATE 8 DEC 92	DRAWN BY THOMPSON	SHEET NO. 3 OF 5
ANGLE ± 1.0°				

PARTS LIST

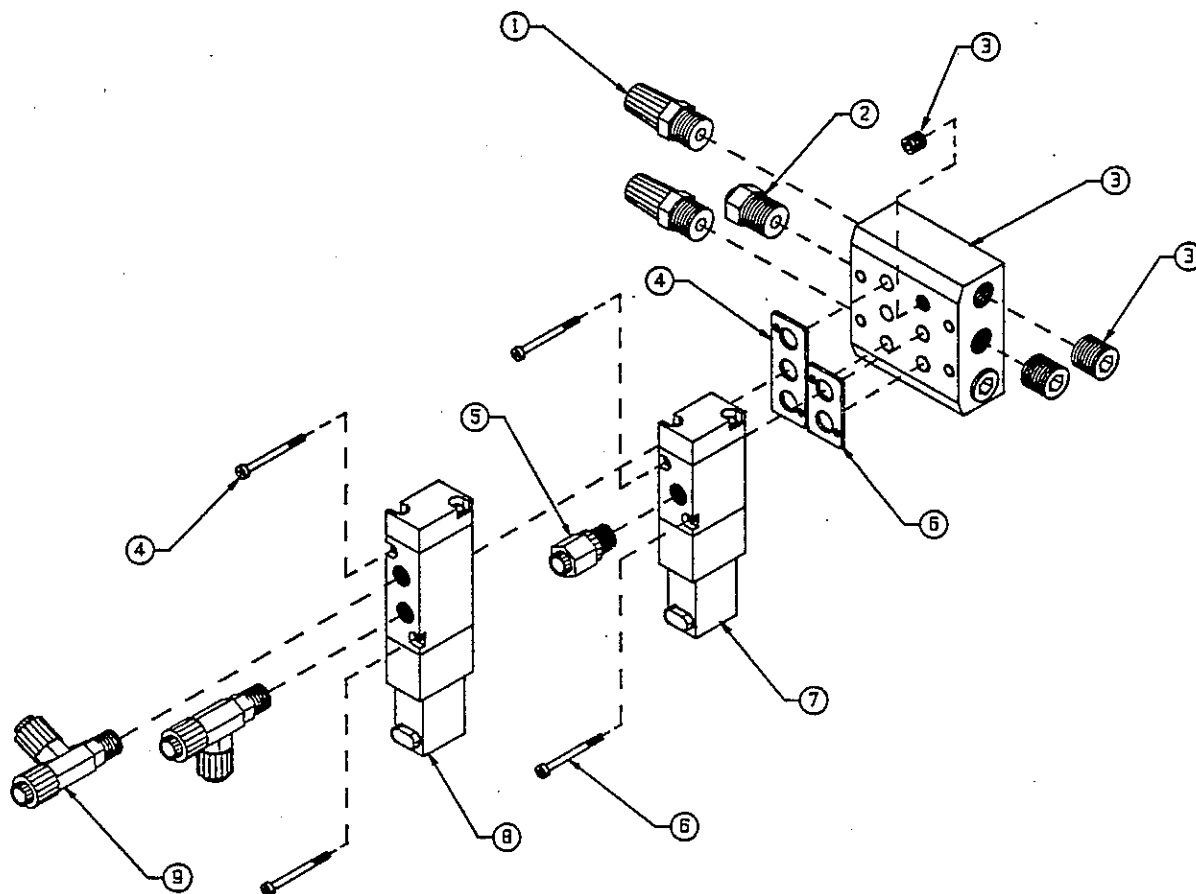
No.	QTY.	STOCK No.	DESCRIPTION
1	1	HD-09	1" - 8 x 5 1/2 UNC SHCS
2	1	HD-10	1" HARDENED SERIES N WASHER
3	4	BG-33	07100 CONE TAPERED BEARING
4	4	TB-01	TERMINAL BLOCK # 625
5	1	TB-02	TERMINAL BLOCK # 630
6	1	BG-35	NO4 BEARING LOCKNUT
7	4	BG-34	07196 CUP TAPERED BEARING
8	3	NU-36	CLAMP 5/32 OILER
9	1	MX1-03	FRONT ARM SUPPORT SECTION-MACHINED
10	1	BG-36	W04 BEARING LOCK WASHER
11	1	NU-116	1/8 NPT 1/4 O.D. FEM. CONNECTOR
12	1	NU-111	41405 1/4 LOCKLINK 1/8 NPT
13	52	MA-22	LOCKLINK HOSE 48501
14	1	MA-20	48503 1/4 Y FITTING
15	2	MA-21	1/8 NOZZLE 49423
16	1	WX-159	RUBBER BUMPER TIP
17	1	MP	ATC PUSH OFF BAR - 12 POCKET
18	1	MD-72	SRK40GN-C MOTOR
19	1	HD-07	1"-8 UNC NYLOCK NUT
20	1	NU-16	1/8 NPT 1/4 O.D. MALE ELBOW
21	1	NU-02	CYLINDER 6-OP-1
22	2	PR-19	SWITCH PROX E57MB8T110 NPN-NCB
23	1	MD-71	5GN35K GEAR BOX
24	1	NU-17	1/8 NPT 1/4 O.D. M.S. 56842
25	1	MP1-120	ATC HOME PROX BRACKET
26	1	HD-11	CARDUSEL HARDENED WASHER
27	1	MP1-53	MOTOR MOUNT BRACKET
28	1	MP1-41	CARDUSEL ROTATION SHAFT
29	1	MX1-02	GENEVA WHEEL DRIVE CAM-MACHINED
30	1	MP1-118	GENEVA WHEEL PROX MOUNT

HARDWARE LIST

No.	QTY.	DESCRIPTION
A	9	8-32 x 3/8 BHCS
B	1	5/8-18 HEX NUT
C	4	1/4-20 x 3 SHCS
D	8	1/4 LOCK WASHER
E	4	1/4-20 x 3/4 SHCS
F	1	5/16 LOCKWASHER
G	1	5/16-18 x 3/4 HHMS
H	2	8-32 x 1/4 SHSS
I	2	1/4-20 x 1/4 SHSS

FRONT ARM ASSEMBLY

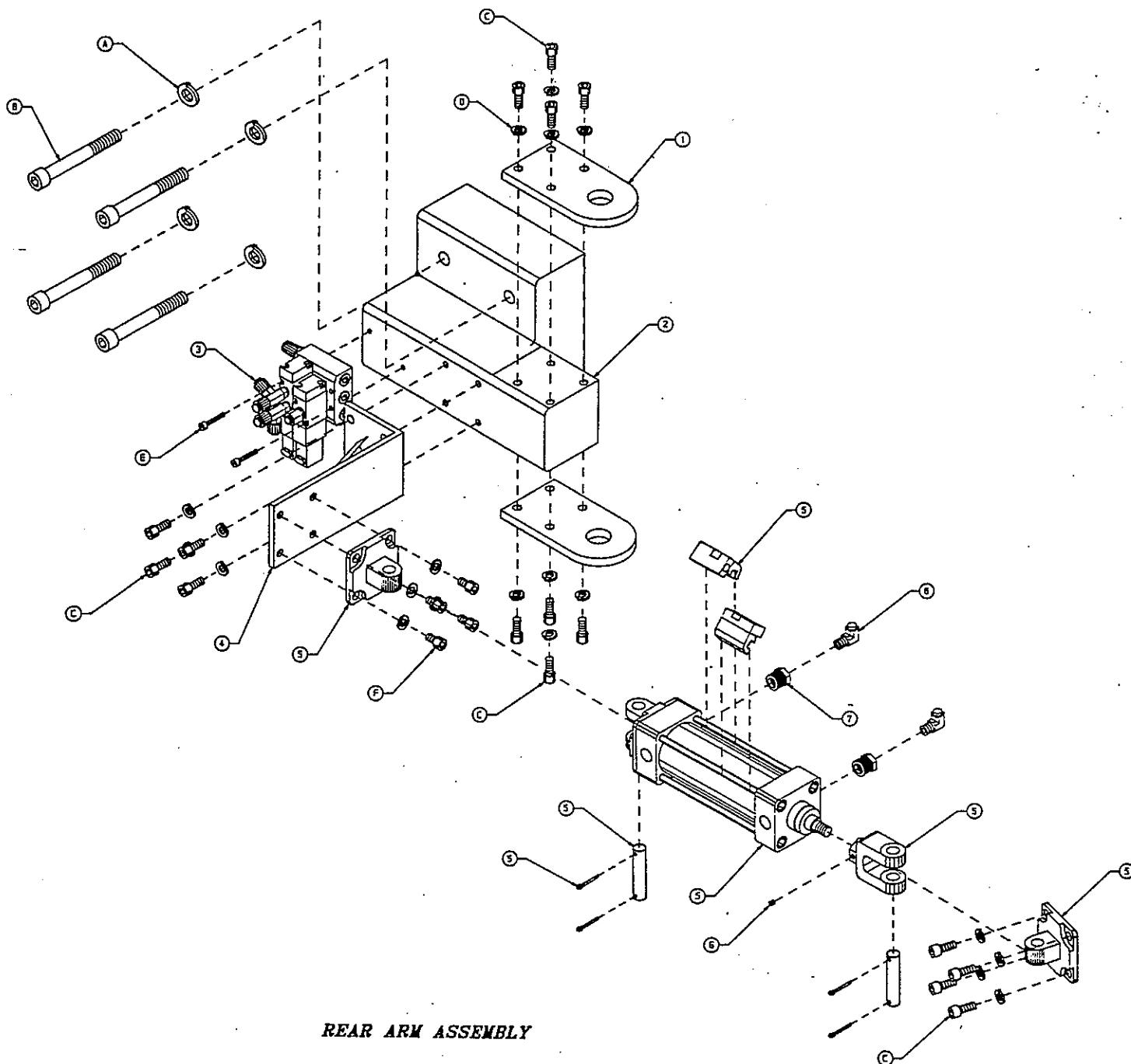
REV.	DESCRIPTION	E.C.D. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (612) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No.				
TOLERANCE UNLESS SPECIFIED				
X.XXX ± .005 X.XX ± .010 X.X ± .030 ANGLE ± 1.0°				
TITLE		12 POCKET ROTARY ATC ASSY.		
APPLICATION		PARTNER I		
SCALE		2.75:1		SIZE D
DATE		8 DEC 92		DRAWN BY THOMPSON
SHEET NO.		3 OF 5		



PARTS LIST

No.	QTY	STOCK No.	DESCRIPTION
1	2	NU-79	ASCO HUFFLER 4604-0004
2	1	NU-32	PLASTIC TUBE 1/4 NPT-1/4 STRAIGHT
3	1	NU-89	UMF540-E-2 2 MANIFOLD
4	1	NU-92	UMF540-GS 4 WAY GASKET
5	1	NU-17	1/8" NPT 1/4" O.D. M/S 55842
6	1	NU-91	UMF540-GS 3 WAY GASKET
7	1	NU-10	USR340-NN1
8	1	NU-46	USR540R-N11R4
9	2	NU-106	57142 MALE SWIVEL RUN TEE

REV.	DESCRIPTION	E.C.O. NO.	AP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (612) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No.				
TOLERANCE UNLESS SPECIFIED		TITLE 12 POCKET ROTARY ATC ASSY.		
X.XXX ± .005		APPLICATION PARTNER I		
X.XX ± .010		SCALE 2:1 DWS No. 6-10-008-018 SIZE 8		
X.X ± .030		DATE 8 DEC 92 DRAWN BY THOMPSON SHEET NO. 4 OF 5		
ANGLE ± 1.0°				



REAR ARM ASSEMBLY

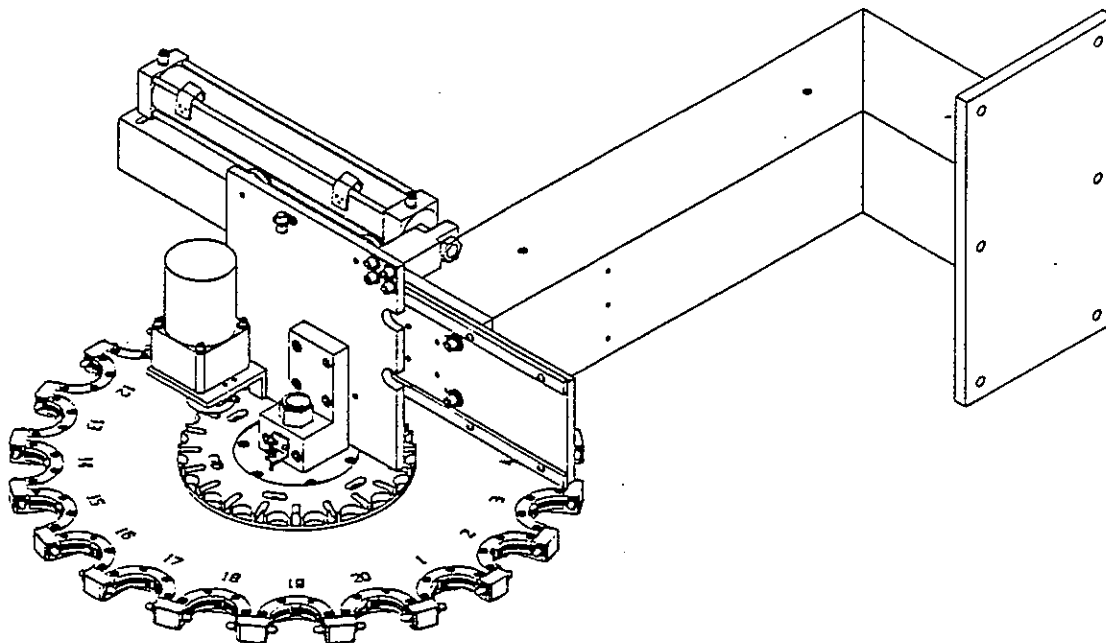
PARTS LIST

No.	QTY	STOCK No.	DESCRIPTION
1.	2	MP1-34	ARM PIVOT CLEVIS
2	1	HX1-04	REAR ARM SUPPORT SECTION-MACHINED
3	1	—	MANIFOLD ASSEMBLY
4	1	MP1-56	FRONT AIR CYLINDER MOUNT PLATE
5	1	NU-104	2\"/>

HARDWARE LIST

No.	QTY	DESCRIPTION
A	4	1/2 LOCKWASHERS
B	4	1/2-13 x 4 UNC SHCS
C	16	5/16-18 x 3/4 UNC SHCS
D	20	5/16 LOCKWASHERS
E	2	8-32 x 1 1/4 UNC SHCS
F	4	5/16-18 x 1/2 UNC SHCS
G	1	10-32 x 3/16 UNF BRASS TIPPED SHSS

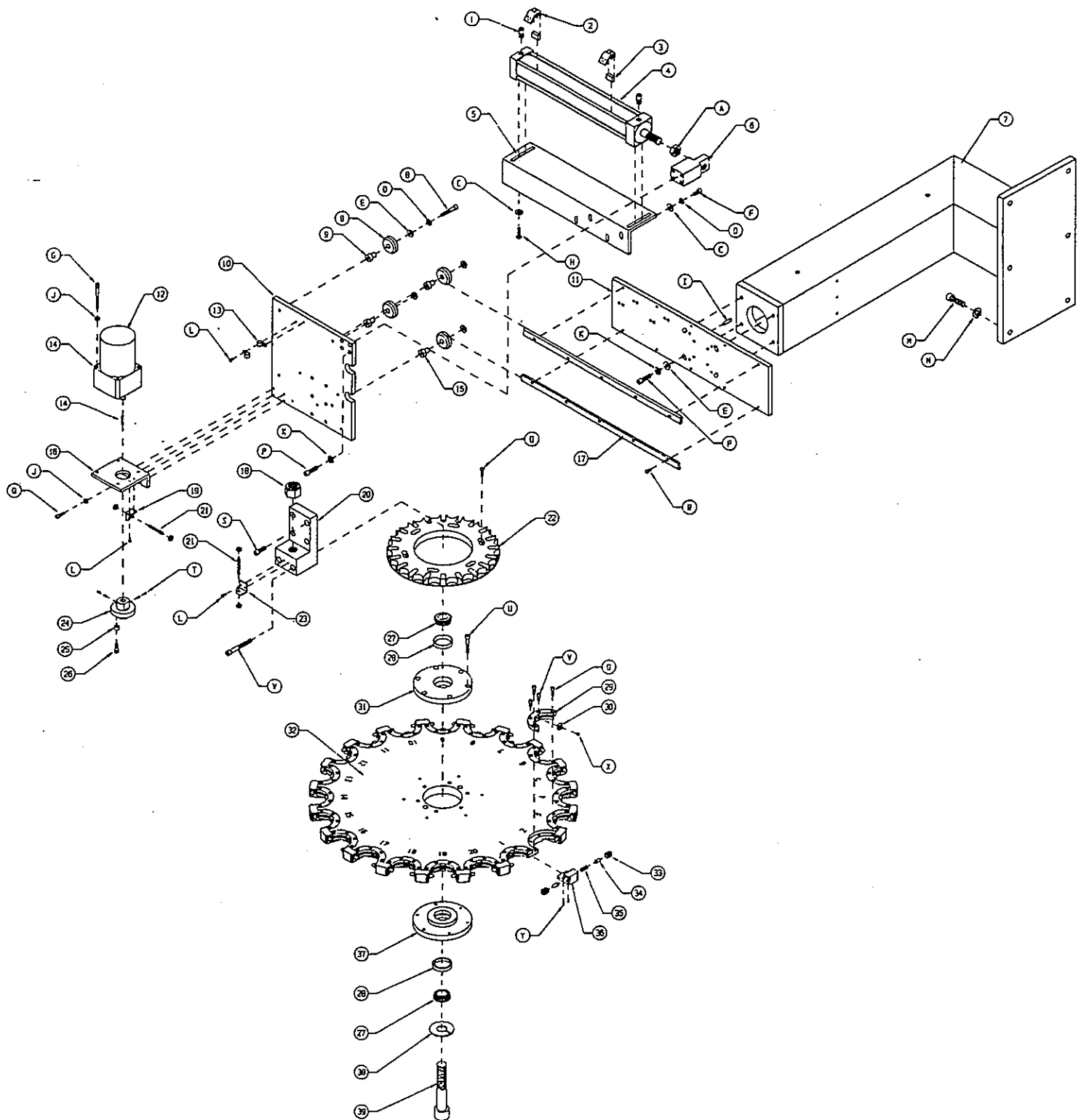
REV.	DESCRIPTION	E.C.O. NO.	APPROVED	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (812) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No.				
TOLERANCE UNLESS SPECIFIED		TITLE 12 POCKET ROTARY ATC ASSY.		
X.XXX ± .005		APPLICATION PARTNER I		
X.XX ± .010		SCALE 2.5:1		
X.X ± .030		DATE 8 DEC 92		
ANGLE ± 1.0°		DRAWN BY THOMPSON		
		SHEET NO. 5 OF 5		



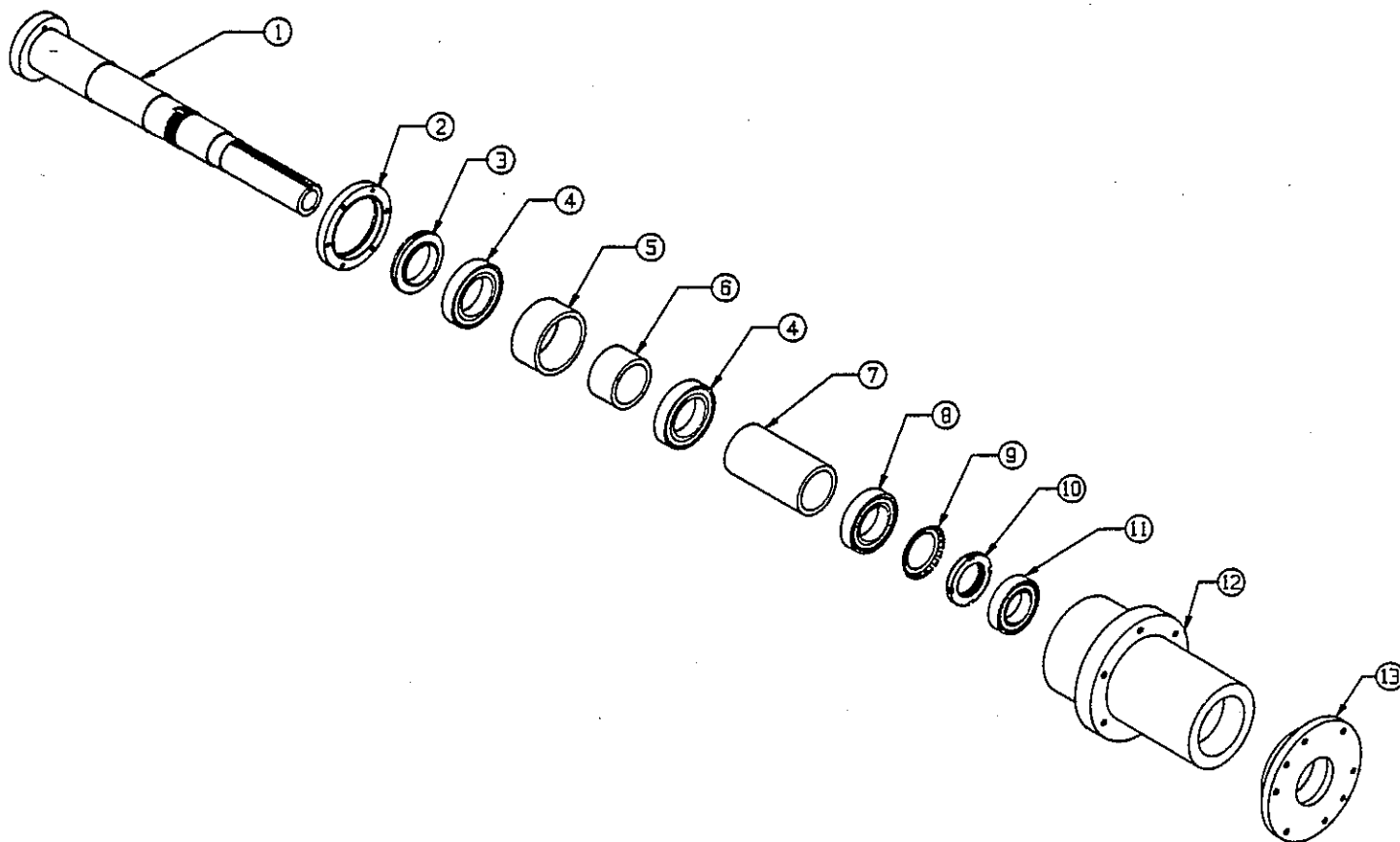
PARTS LIST			
No.	QTY	STOCK No.	DESCRIPTION
1	2	NU-32	1/4 NPT - 1/4 TUBE 90°
2	2	BR-73	PHD 17000-51-0 2" AIR CYLINDER BRACKET
3	2	SW-158	PHP 17503-1-06 SWITCH
4	1	NU-123	1200 x 12C-M 2" AIR CYLINDER
5	1	MP-117	20 POCKET AIR CYLINDER MOUNTING BRACKET
6	1	MP-118	20 POCKET AIR CYLINDER CLEVIS
7	1	MP-122	20 POCKET ATC ARM
8	4	MP-143	V-RAIL GUIDE WHEEL A 7C16-3
9	2	MP-145	STATIONARY BUSHING A 7C16-3F
10	1	MP-123	20 POCKET CAROUSEL SLIDING PLATE
11	1	MP-142	V-RAIL PLATE
12	1	MD-72	SRK40GN-C MOTOR
13	2	WX-82	WIRING TIE DOWN
14	1	MD-71	5GN25K GEAR 30X
15	2	MP-144	ADJUSTABLE BUSHING A 7C16-3A
16	1	MP-117	GENEVA WHEEL MOTOR MOUNT
17	2	MX-12	20 POCKET LINEAR V-RAIL MODS.
18	1	HD-07	1" - 8 UNC NYLOCK NUT
19	1	MP-118	GENEVA WHEEL PROX MOUNT
20	1	MP-124	20 POCKET CAROUSEL MOUNTING BRACKET
21	2	PR-19	SWITCH PROX XS-1 NO8NC410
22	1	MP-120	20 POSITION GENEVA WHEEL
23	1	MP-120	ATC HOME PROX BRACKET
24	1	MX-10	20 ATC DRIVE CAM - MACHINED
25	1	HD-39	1/2 x 5/16 DRILL BUSHING
26	1	HD-38	5/16 x 3/8 SHOULDER BOLT
27	2	3G-33	07100 CONE TAPERED BEARING
28	2	3G-34	07196 CUP TAPERED BEARING
29	20	MX-11	20 POCKET V-FLANGE INSERT - MACHINED
30	20	MP-145	TOOL CHANGE KEY INSERT
31	1	MP-116	UPPER CAROUSEL BEARING CUP
32	1	MP-119	20 ATC CAROUSEL DISK
33	40	MP-140	PUSH PIN GUIDE
34	40	MP-144	PUSH PIN
35	20	MP-141	COIL SPRING
36	20	MP-121	20 ATC LOCKING PIN BLOCK
37	1	MP-115	LOWER CAROUSEL BEARING CUP
38	1	HD-10	1" HARDENED SERIES N WASHER
39	1	HD-09	1 - 8 x 5 1/2 UNC SHCS BOLT

HARDWARE LIST		
No.	QTY	DESCRIPTION
A	1	3/4-10 NUT
B	4	5/16-18 x 1 5/8 SHCS
C	8	5/16 FLAT WASHER
D	8	5/16 LOCK WASHER
E	8	5/16 HARDENED FLAT WASHER
F	4	5/16-18 x 1 SHCS
G	4	1/4-20 x 3 SHCS
H	4	5/16-24 x 3/4 BHCS
I	4	1/4 x 1 DOWEL PIN
J	8	1/4 LOCK WASHER
K	8	3/8 LOCK WASHER
L	6	8-32 x 1/2 BHCS
M	6	1/2-13 x 2 SHCS
N	6	1/2 LOCK WASHER
O	6	1/4-20 x 3/4 BHCS
P	8	3/8-16 x 1 1/4 SHCS
Q	44	1/4-20 x 3/4 SHCS
R	10	1/4-20 x 5/8 BHCS
S	4	3/8-16 x 1 SHCS
T	4	1/4-20 x 1/4 SHSS
U	6	5/16-18 x 1 3/4 SHCS
V	40	1/4-20 x 1/2 SHCS
W	2	3/8-16 x 3 SHCS
X	20	8-32 x 1/4 SHCS
Y	40	10-32 x 3/16 BRASS TIPPED SHSS

A	UPDATE DRAWING	2068	J/M	12/94
REV.	DESCRIPTION	E.C.D. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (812) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No.				
TOLERANCE UNLESS SPECIFIED		TITLE 20 POCKET ATC		
X.XXX ± .005		APPLICATION GENERAL PRODUCTS		
X.XX ± .010		SCALE 6:1 DWG No. 6-10-018-014 SIZE D		
X.X ± .030		DATE 18 AUG 94		
ANGLE ± 1.0°		DRAWN BY THOMPSON SHEET NO. 1 OF 1		



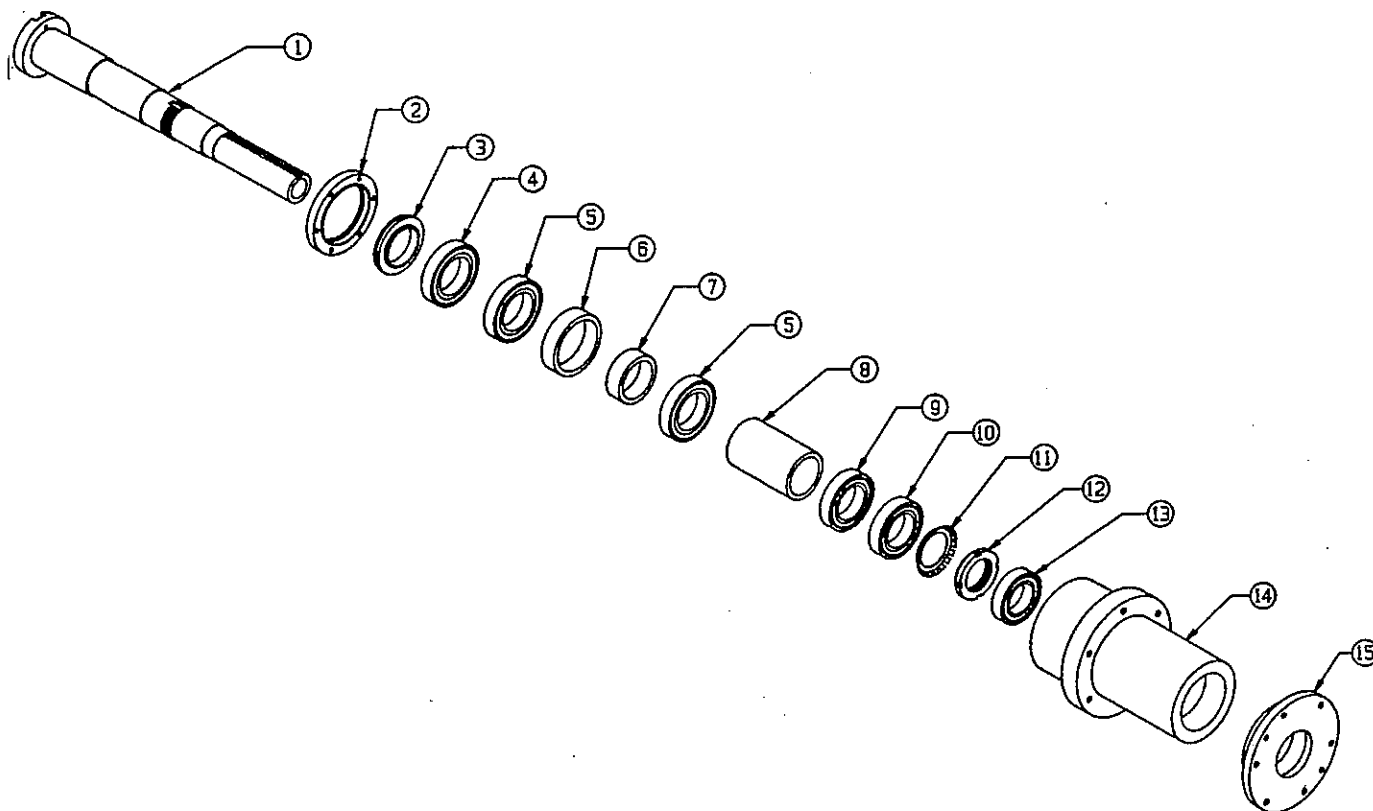
A	UPDATE DRAWING	2068	11/1	12/94
REV.	DESCRIPTION	E.C.O. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (612) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No.				
TOLERANCE UNLESS SPECIFIED		TITLE 20 POCKET ATC		
X.XXX ± .005		APPLICATION GENERAL PRODUCTS		
X.XX ± .010		SCALE 6:1	DWG No. 6-10-018-014	SIZE D
X.X ± .030		DATE 18 AUG 94	DRAWN BY THOMPSON	SHEET NO. 1 OF 1
ANGLE ± 1.0°				



- COMPONENTS OF ASSEMBLY -

ITEM	DRAWING No.	STOCK No.	DESCRIPTION
1	6-01-027-015	MP6-04	40 TAPER EXTENDED SPINDLE
2	6-01-027-069	MP6-50	BEARING RETAINER
3	6-01-027-070	MP6-51	INSIDE BEARING RETAINER
4	PURCHASED PART	BG-22	7010 CLASS 7 SPINDLE BEARINGS
5	6-01-018-095	MP-81	SPINDLE BEARING SPACER, LARGE
6	6-01-018-095	MP-81	SPINDLE BEARING SPACER, SMALL
7	6-01-018-095	MP-81	SPINDLE BEARING SPACER, LONG
8	PURCHASED PART	BG-05	6009ZZ RADIAL BEARING
9	PURCHASED PART	BG-41	BEARING LOCK WASHER, W-09
10	PURCHASED PART	BG-40	BEARING LOCK NUT, N-09
11	PURCHASED PART	BG-12	6008ZZ RADIAL BEARING
12	6-01-027-068	MP6-49	40 TAPER SPINDLE CARTRIDGE
13	6-01-027-021	MP6-09	TOP SPINDLE CARTRIDGE

REV. 1	DESCRIPTION	E.C.O. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (812) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No.		TITLE 5 HP SPINDLE ASSEMBLY		
TOLERANCE UNLESS SPECIFIED		APPLICATION PARTNER VI		
X.XXX +/- .005		SCALE 6.5:1	DWG No 6-10-027-005	SIZE 8
X.XX +/- .010		DATE 15 APR 93	DRAWN BY REUTER	SHEET NO. 1 OF 1
X.X +/- .030				
ANGLE +/- 1.0°				



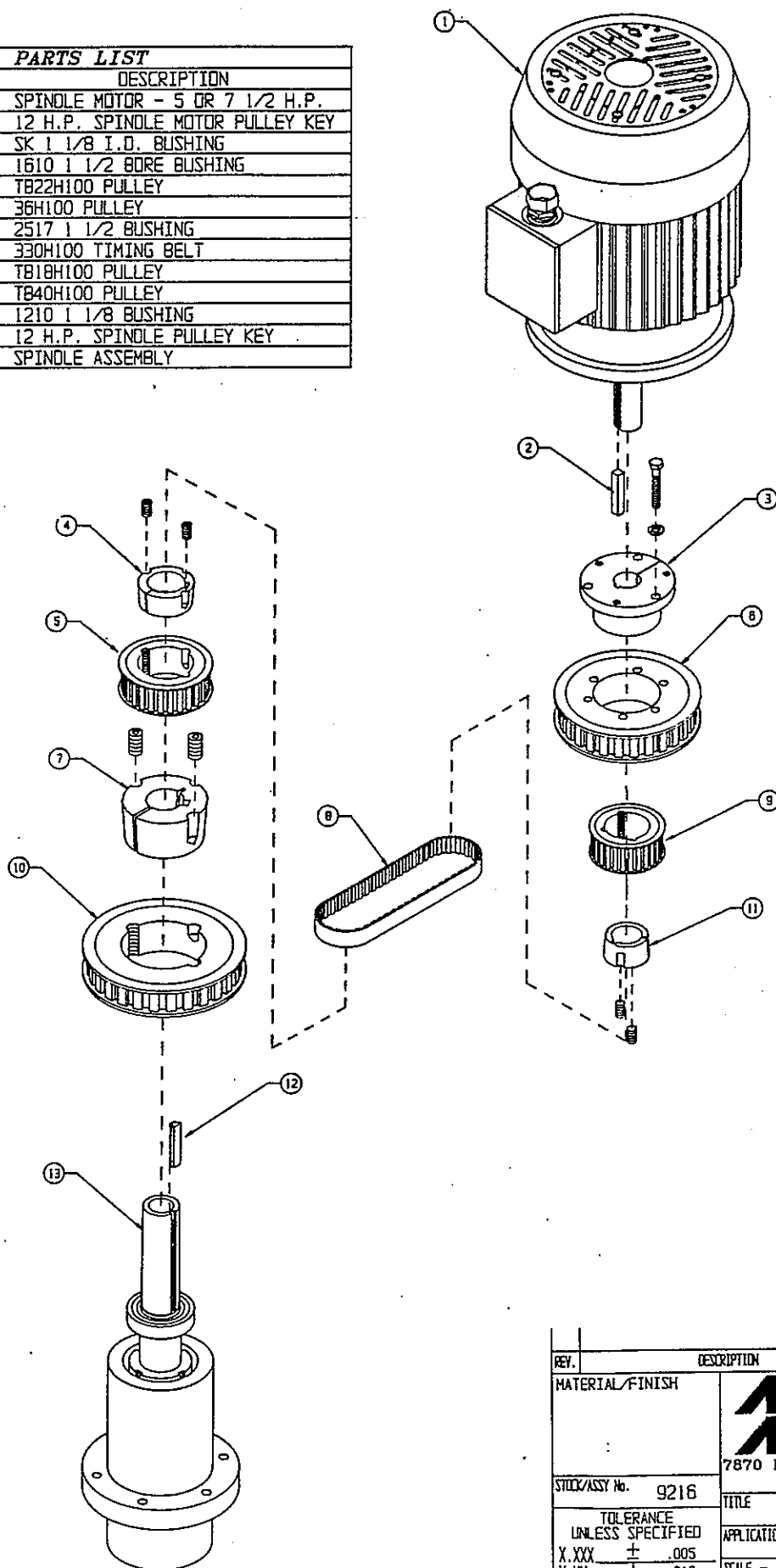
- COMPONENTS OF ASSEMBLY -

ITEM DRAWING No. STOCK No. DESCRIPTION

1	6-01-027-015	MP6-04	40 TAPER EXTENDED SPINDLE
2	6-01-027-069	MP6-50	BEARING RETAINER
3	6-01-027-070	MP6-51	INSIDE BEARING RETAINER
4	PURCHASED PART	BG-44	7010 CLASS 7 SPINDLE BEARING
5	PURCHASED PART	BG-22	7010 CLASS 7 SPINDLE BEARINGS (SET)
6	6-01-018-085	MP-71	7-1/2 HP SPINDLE BEARING SPACER, LARGE
7	6-01-018-085	MP-71	7-1/2 HP SPINDLE BEARING SPACER, SMALL
8	6-01-018-085	MP-71	7-1/2 HP SPINDLE BEARING SPACER, LONG
9	PURCHASED PART	BG-45	7009 SPINDLE BEARING
10	PURCHASED PART	BG-45	7009 SPINDLE BEARING
11	PURCHASED PART	BG-41	BEARING LOCK WASHER, W-09
12	PURCHASED PART	BG-40	BEARING LOCK NUT, N-09
13	PURCHASED PART	BG-12	6008 ZZ RADIAL BEARING
14	6-01-027-068	MP6-49	SPINDLE CARTRIDGE
15	6-01-027-021	MP6-09	TOP SPINDLE CARTRIDGE

REV.	DESCRIPTION	E.C.O. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (612) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No.		TITLE 7-1/2 HP SPINDLE ASSEMBLY		
TOLERANCE UNLESS SPECIFIED		APPLICATION PARTNER VI		
X.XXX	+/- .005	SCALE 6.5:1	ENG No 6-10-027-006	SHEET 8
X.XX	+/- .010	DATE 15 APR 93	DRAWN BY REUTER	SHEET 1 OF 1
X.X	+/- .030			
ANGLE	+/- 1.0°			

PARTS LIST			
No.	QTY	STOCK No.	DESCRIPTION
1	1	---	SPINDLE MOTOR - 5 OR 7 1/2 H.P.
2	1	MP-111	12 H.P. SPINDLE MOTOR PULLEY KEY
3	1	PY-53	SK 1 1/8 I.D. BUSHING
4	1	PY-27	1610 1 1/2 BORE BUSHING
5	1	PY-68	T822H100 PULLEY
6	1	PY-67	36H100 PULLEY
7	1	PY-65	2517 1 1/2 BUSHING
8	1	BT-32	330H100 TIMING BELT
9	1	PY-69	T818H100 PULLEY
10	1	PY-70	T840H100 PULLEY
11	1	PY-66	1210 1 1/8 BUSHING
12	1	MP-112	12 H.P. SPINDLE PULLEY KEY
13	1	---	SPINDLE ASSEMBLY



REV.	DESCRIPTION	E.C.O. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS MANUFACTURING 7870 PARK DRIVE (612) 474-8100 CHANHASSEN, MN 55317		
STOCK/ASSY No. 9216		TITLE COG BELT ASSEMBLY		
TOLERANCE UNLESS SPECIFIED		APPLICATION GENERAL PRODUCTS		
X.XXX	± .005	SCALE 3.5:1	ONG No. 6-10-018-016	SIZE C
X.XX	± .010	DATE 13 JUL 64	DRAWN BY THOMPSON	SHEET NO. 1 OF 1
X.X	± .030			
ANGLE	± 1.0°			

