



MILLTRONICS
C N C M A C H I N E S

BR50,60,80-IL C Mechanical

11-13-2012
Rev 2

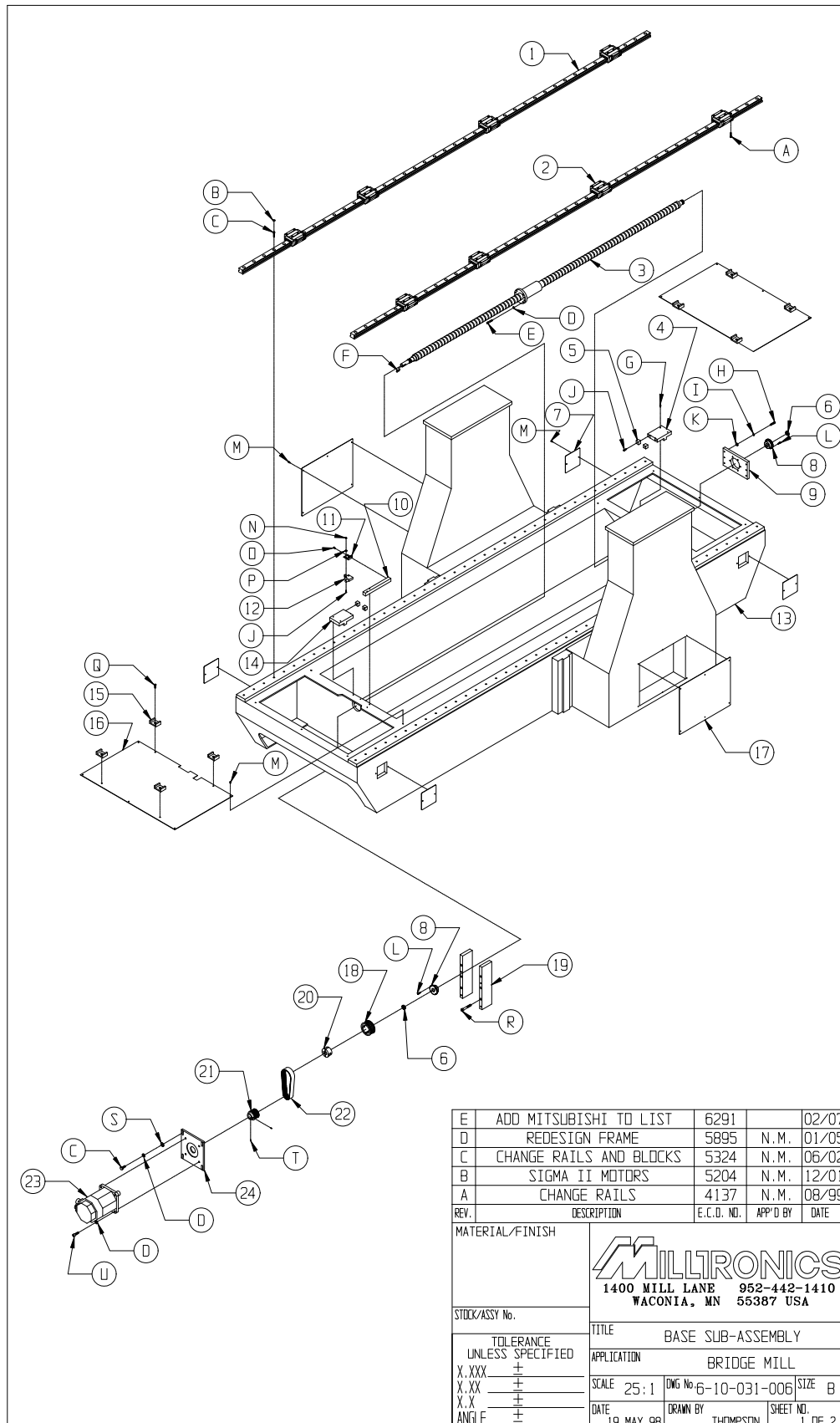
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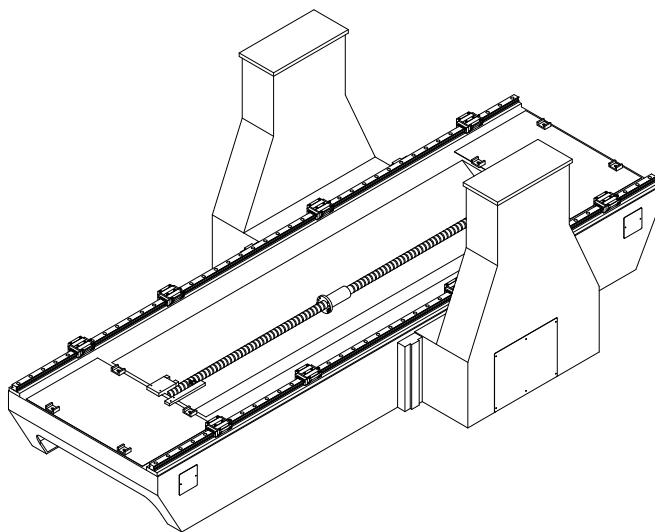
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Manual Discrepancy Sheet

1.

Base Assembly




PARTS LIST

No.	QTY	STOCK No.	DESCRIPTION
1	2	SEE TABLE	X-AXIS RAILS
2	8	SEE TABLE	45 mm RAIL BLOCK
3	1	SEE TABLE	X-AXIS BALL SCREW
4	1	SEE TABLE	X-AXIS HARD STOP BLOCK
5	4	MP-718	PDM HARD STOP BUMPER
6	2	SEE TABLE	BEARING LOCK NUT
7	4		SMALL SIDE COVER
8	2	SEE TABLE	BEARING CUP ASSEMBLY
9	1		X-AXIS RADIAL SUPPORT PLATE
10	1	BR-154	X-AXIS SWITCH MOUNTING BAR
11	1	MP1-387	X-AXIS SWITCH BRACKET
12	1	SW-193	SWITCH
13	1		MACHINE BASE
14	1	SEE TABLE	X-AXIS HARD STOP BLOCK
15	8		X-AXIS COVER BAR SUPPORT
16	2		MOTOR ASSEMBLY COVER
17	1		COLUMN ACCESS COVER
18	1	PY-231	X-AXIS PULLEY
19	2		X-AXIS MOTOR SPACER PLATE
20	1	PY-232	X-AXIS BUSHING
21	1	SEE TABLE	MOTOR PULLEY
22	1	BT-102	720-8M-30 BELT
23	1	SEE TABLE	AXIS MOTOR
24	1		X-AXIS MOTOR PLATE

HARDWARE LIST

No.	QTY	DESCRIPTION
A	32	3/8-16 x 1 1/2 SHCS
B	82	RAIL PLUG (100")
	134	RAIL PLUG (150")
C	86	1/2-13 x 1 1/2 SHCS (100")
	138	1/2-13 x 1 1/2 SHCS (150")
D	16	1/2 LOCK WASHER
E	8	1/2-13 x 1 3/4 SHCS
F	1	10mm x 10mm x 30mm KEY
G	4	5/16-18 x 1 1/2 SHCS
H	6	3/8-16 x 1 1/4 SHCS
I	6	3/8 LOCK WASHER
J	6	M5-.8 x 20mm SHCS
K	6	3/8 FLAT WASHER
L	12	5/16-18 x 2 SHCS
M	30	1/4-20 x 1/2 BHCS
N	2	M5-.8 HEX NUT
O	2	M5-.8 x 12mm BHCS
P	2	M5 FLAT WASHER
Q	8	1/4-20 x 3/4 FHCS
R	4	1/2-13 x 3 3/4 SHCS
S	4	1/2 FLAT WASHER
T	2	1/4-20 x 1/4 SHSS
U	4	1/2-13 x 1 1/4 SHCS

MOTOR & PULLEY TABLE

No.	YASKAWA	FANUC	SIEMENS	MITSUBISHI
21	PY-233	PY-233	PY-240	PY-233
23	MD-144 (2Kw)	30Nm A06B-0253-B200	18Nm 1FK7100-5AF71	MD-185 (3.5Kw)
	MD-146 (3Kw)		27Nm 1FK7101-5AF71	MD-187 (5Kw)
	MD-129 (4.4Kw)			

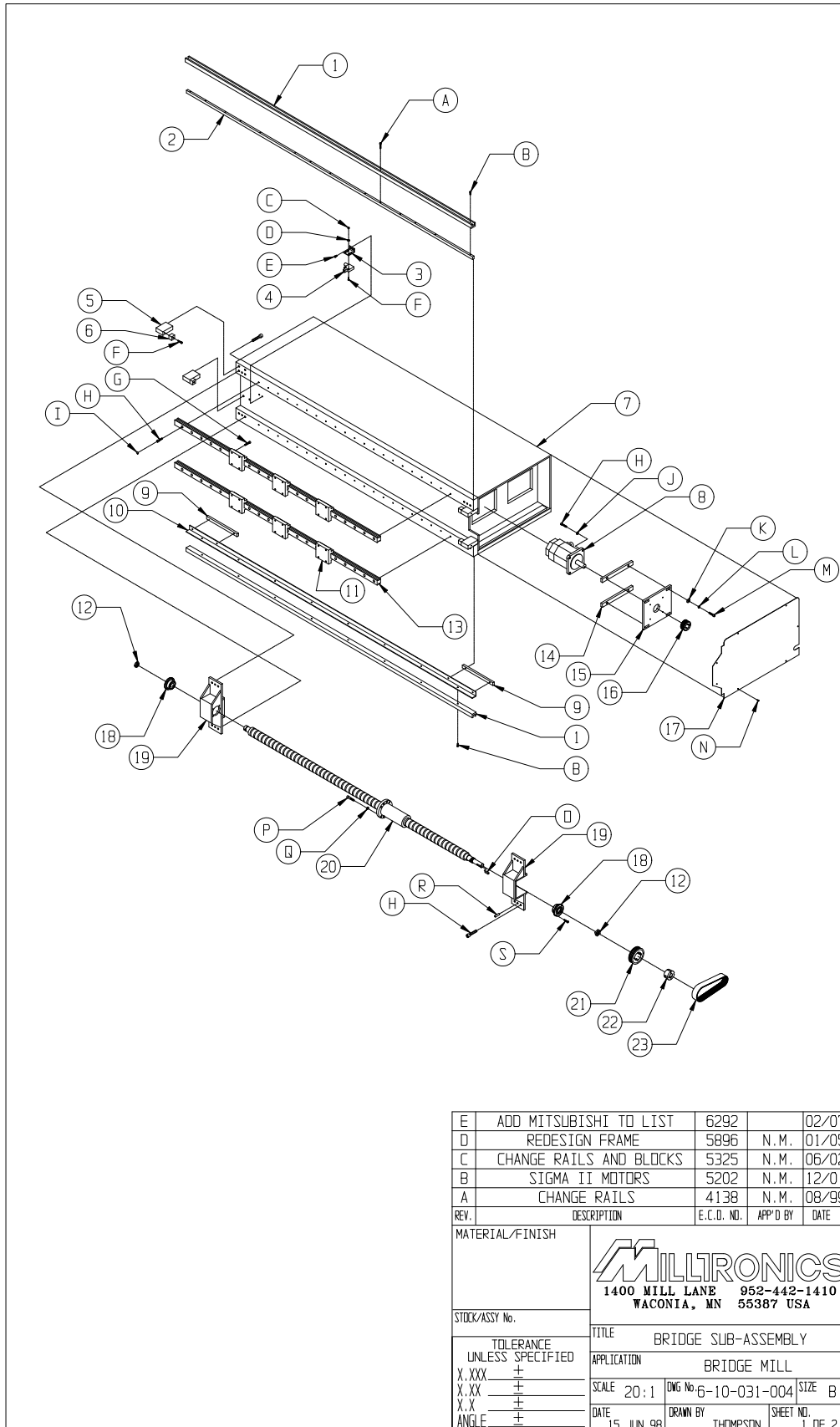
TRAVEL TABLE

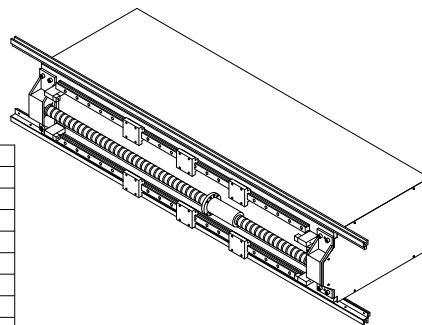
No.	DESCRIPTION	100"	150"
1	BALL RAIL	MPB-62	MPB-63
	ROLLER RAIL	N/A	N/A
2	BALL RAIL BLOCK	MP-728	MP-728
	ROLLER RAIL BLOCK	N/A	N/A
3	BALL SCREW	MPB-65	MPB-66
4	HARD STOP BLOCK	BR-155	BR-157
6	BEARING LOCKNUT	BG-119	MPB-56
8	BEARING CUP ASSEMBLY	BG-118	BG-95
14	HARD STOP BLOCK	BR-155	BR-156

* 100" REQUIRES 8 FOR X-AXIS
 150" REQUIRES 14 FOR X-AXIS

E	ADD MITSUBISHI TO LIST	6291		02/07
D	REDESIGN FRAME	5895	N.M.	01/05
C	CHANGE RAILS AND BLOCKS	5324	N.M.	06/02
B	SIGMA II MOTORS	5204	N.M.	12/01
A	CHANGE RAILS	4137	N.M.	08/99
REV.	DESCRIPTION	E.C.D. NO.	APP'D BY	DATE
MATERIAL/FINISH		 1400 MILL LANE 952-442-1410 WACONIA, MN 55387 USA		
STOCK/ASSY No.				
TOLERANCE UNLESS SPECIFIED		TITLE BASE SUB-ASSEMBLY		
X.XXX ±		APPLICATION BRIDGE MILL		
X.XX ±		SCALE 25:1	DWG No. 6-10-031-006	SIZE B
X.X ±		DATE 19 MAY 98	DRAWN BY THOMPSON	SHEET NO. 2 OF 2
ANGLE ±				

Bridge Assembly





PARTS LIST			
No.	QTY	STOCK No.	DESCRIPTION
1	2		Y WAY COVER RIDER
2	1		Y WAY COVER RIDER SPACER BAR
3	1	MP1-387	Y SWITCH BRACKET
4	1	SW-193	LIMIT SWITCH
5	4		HARDSTOP BLOCK
6	4	MP-718	PDM HARD STOP BUMPER
7	1		BRIDGE ASSEMBLY
8	1	SEE TABLE	AXIS MOTOR
9	2		Y WAY COVER RIDER SPACER - LOWER
10	1		Y WAY COVER RIDER BRACKET - LOWER
11	6	SEE TABLE	45mm RAIL BLOCK
12	2	MP-439	BEARING LOCKNUT
13	2	SEE TABLE	Y-AXIS RAIL
14	2		Y MOTOR PLATE SPACER
15	1		Y MOTOR PLATE
16	1	SEE TABLE	MOTOR PULLEY
17	1		Y BELT & PULLEY COVER
18	2	BG-96	BALL SCREW SUPPORT
19	2		Y BEARING HOUSING
20	1	SEE TABLE	Y BALL SCREW
21	1	PY-234	TL48-8m-30 PULLEY 2012
22	1	PY-235	19mm I.D. 2012 BUSHING
23	1	BT-102	720-8M-30

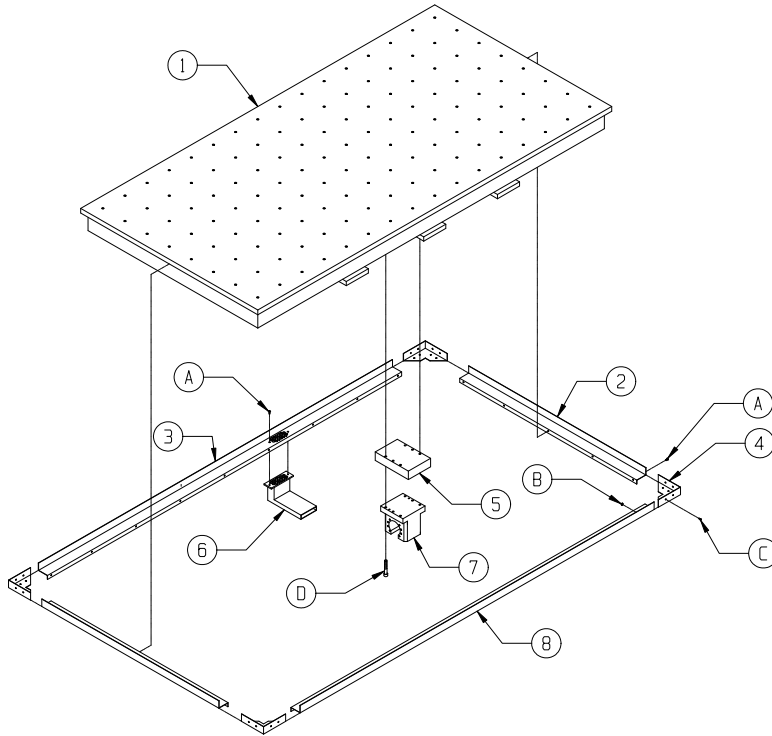
MOTOR & PULLEY TABLE				
No.	YASKAWA	FANUC	SIEMENS	MITSUBISHI
8	MD-144 (2kw)	22Nm A06B-0247-B200	18Nm 1FK7100-5AF71	MD-185 (3.5kw)
	MD-146 (3kw)			
	MD-129 (4.4kw)			MD-187 (5kw)
16	PY-233	PY-233	PY-240	PY-233

RAIL, BLOCK AND BALL SCREW TABLE				
ITEM	DESCRIPTION	50"	60"	80"
11	BALL RAIL BLOCK	MP-728	MP-728	MP-728
	ROLLER RAIL BLOCK	MP-819	MP-819	MP-819
13	BALL RAIL	MPB-59	MPB-60	MPB-61
	ROLLER RAIL	MPB-72	MPB-73	MPB-74
20	BALL SCREW	MPB-67	MPB-68	MPB-69

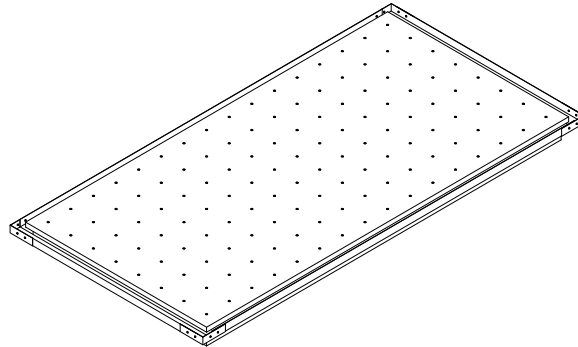
HARDWARE LIST		
No.	QTY	DESCRIPTION
A	4	1/4-20 x 3/4 SHCS
B	18	1/4-20 x 1 1/2 FHCS
C	2	M5-.8 HEX NUT
D	2	M5 FLAT WASHER
E	2	M4-.7 x 12mm BHCS
F	6	M5-.8 x 16mm SHCS
G	28	3/8-16 x 1 1/4 SHCS
H	38	1/2-13 x 1 1/2 SHCS (50") MPB-59
	44	1/2-13 x 1 1/2 SHCS (60") MPB-60
	52	1/2-13 x 1 1/2 SHCS (80") MPB-61
	70	1/2-13 x 1 1/2 SHCS (50") MPB-72
	82	1/2-13 x 1 1/2 SHCS (60") MPB-73
	98	1/2-13 x 1 1/2 SHCS (80") MPB-74
I	34	RAIL PLUG (50") MPB-59
	40	RAIL PLUG (60") MPB-60
	48	RAIL PLUG (80") MPB-61
	66	RAIL PLUG (50") MPB-72
	78	RAIL PLUG (60") MPB-73
	94	RAIL PLUG (80") MPB-74
J	4	1/2 LOCK WASHER
K	4	3/8 FLAT WASHER
L	4	3/8 LOCK WASHER
M	4	3/8-16 x 1 1/2 SHCS
N	7	10-32 x 3/8 BHCS
O	1	5mm x 5mm x 20mm KEY
P	8	5/16-18 x 1 1/4 SHCS
Q	8	5/16 LOCK WASHER
R	4	3/8 x 1 1/2 DOWEL PIN
S	8	1/4-20 x 1 SHCS

E	ADD MITSUBISHI TO LIST	6292		02/07
D	REDESIGN FRAME	5896	N.M.	01/05
C	CHANGE RAILS AND BLOCKS	5325	N.M.	06/02
B	SIGMA II MOTORS	5202	N.M.	12/01
A	CHANGE RAILS	4138	N.M.	08/99
REV.	DESCRIPTION	E.C.D. NO.	APP'D BY	DATE
MATERIAL/FINISH		 1400 MILL LANE 952-442-1410 WACONIA, MN 55387 USA		
STOCK/ASSY No.				
TOLERANCE UNLESS SPECIFIED		TITLE BRIDGE SUB-ASSEMBLY		
X.XXX ±		APPLICATION BRIDGE MILL		
X.XX ±		SCALE 20:1 DWG No 6-10-031-004 SIZE B		
X.X ±		DATE 15 JUN 98 DRAWN BY THOMPSON SHEET NO. 2 OF 2		
ANGLE ±				

Table Assembly



A	REDESIGN FRAME	5897		02/05
REV.	DESCRIPTION	E.C.D. NO.	APP'D BY	DATE
MATERIAL/FINISH		 1400 MILL LANE 952-442-1410 WACONIA, MN 55387 USA		
STOCK/ASSY No.				
TOLERANCE UNLESS SPECIFIED		TITLE TABLE SUB-ASSEMBLY		
X.XXX ±		APPLICATION BRIDGE MILL		
X.XX ±		SCALE 20:1 DWG No. 6-10-031-005 SIZE B		
X.X ±		DATE 05 JUN 98 DRAWN BY THOMPSON SHEET NO. 1 OF 2		
ANGLE ±				

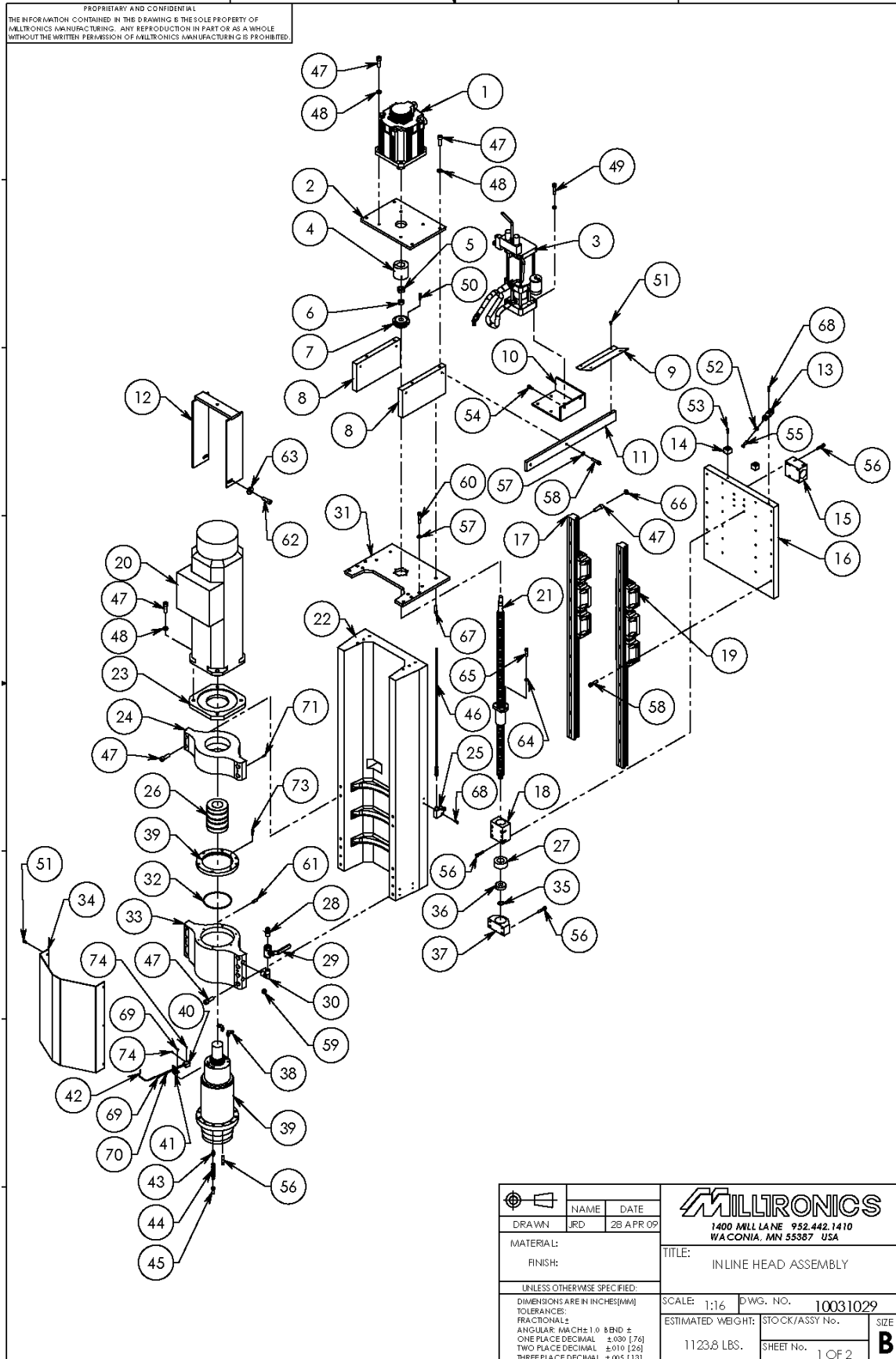


PARTS LIST			
No.	QTY	STOCK No.	DESCRIPTION
1	1		MACHINE TABLE
2	2		TABLE TROUGH - END
3	1		TABLE TROUGH - WITH DRAIN
4	4		TABLE TROUGH - CORNER
5	1		X-AXIS CARRIER SPACER
6	1		TABLE DRAIN CHUTE
7	1		X-AXIS CARRIER - MACHINED
8	1		TABLE TROUGH - WITHOUT DRAIN

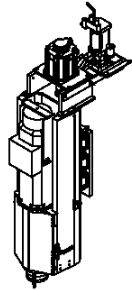
HARDWARE LIST			
No.	QTY	DESCRIPTION	
A	47	1/4-20 x 3/8 BHCS	
B	32	10-32 NUT	
C	32	10-32 3/8 BHCS	
D	6	3/8-16 x 4 SHCS	

A	REDESIGN FRAME	5897		02/05
REV.	DESCRIPTION	E.C.D. NO.	APP'D BY	DATE
MATERIAL/FINISH		 1400 MILL LANE 952-442-1410 WACONIA, MN 55387 USA		
STOCK/ASSY No.		TITLE TABLE SUB-ASSEMBLY		
TOLERANCE UNLESS SPECIFIED		APPLICATION BRIDGE MILL		
X .XXX	±	SCALE 20:1	DWG No. 6-10-031-005	SIZE B
X .XX	±	DATE 05 JUN 98	DRAWN BY THOMPSON	SHEET NO. 2 OF 2
X .X	±			
ANGLE	±			

Head and Z-Axis Assembly



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#18 MPB-254

MOTOR LIFT			
MITSUBISHI MOTORS			
ITEM No.	MOTOR		ITEM No.
12	MO00166	MPB0201	MO00167
62	M10-1.5 x 20mm SHCS	MT2-1.75 x 20mm SHCS	MPB0216
63	M10 FLAT WASHER	MT2 FLAT WASHER	

MOTOR COUPLER TABLE			
ITEM No.	MOTOR-END	SPINDLE-END	
	HUB 1 DIA. (mm)	HUB 2 DIA. (mm)	
26	24	50	
	28	50	
	32	50	
	38	50	
	40	50	
	42	50	
	48	50	
	50	50	
	55	50	
	55	50	

RAIL & BLOCK LIST		
ITEM No.	DESCRIPTION	PART No.
17	BALL RAIL	MPB0058
	ROLLER RAIL	MPB0071
19	BALL RAIL BLOCK	MP00728
	ROLLER RAIL BLOCK	MP00819

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	SEE TABLE	Z MOTOR
2	1		Z AXIS MOTOR PLATE
3	1	10018108	AIR/OIL AMPLIFIER SYSTEM
4	1	SEE TABLE	MOTOR COUPLER
5	1	MP10094	BALLSCREW LOCKNUT
6	1	MP10107	BEARING LOCK NUT SPACER
7	1	BG00094	BALL SCREW SUPPORT BEARING
8	2	-	MOTOR PLATE SPACERS
9	1	-	CABLE TRACK BRACKET
10	1	MP1128	AIR/OIL INTENSIFIER (NU-388) MOUNT
11	1	-	CABLE TRACK SUPPORT
12	1	SEE TABLE	MOTOR LIFT
13	1	MP10072	ML15 X-AXIS SWITCH DOG
14	2	MP00718	POM HARDSTOP BLOCK
15	1	-	Y-AXIS BALLSCREW CARRIER
16	1	-	Y/Z RAIL MOUNTING PLATE
17	2	SEE TABLE	45mm INA RAIL
18	1	-	Z-AXIS BALLSCREW CARRIER
19	6	SEE TABLE	45mm RAIL BLOCK
20	1	SEE TABLE	SPINDLE MOTOR
21	1	MP00569	1.25 x 10mm x 39.72L BALLSCREW
22	1	-	BR Z HEAD
23	1	-	INLINE MOTOR PLATE
24	1	-	SPINDLE LOWER MOUNT - NARROW
25	1	SW00193	LIMIT SWITCH
26	1	SEE TABLE	SPINDLE COUPLER
27	1	-	POM HARD STOP RING
28	1	NU00066	FITTING 1/2" NPT - 3/4" BARB
29	1	NU00064	1/2" NPT BALL VALVE
30	1	NU00140	ELBOW
31	1	-	Z-AXIS BEARING MOUNT
32	1	WX00270	SPINDLE RING SEAL
33	1	-	SPINDLE LOWER MOUNT
34	1	MPB0190	INLINE BRIDGE HEAD COVER
35	1	MP10108	RETAINING RING EXTERNAL
36	1	BG00002	BEARING NACHI
37	1	-	Z-AXIS RADIAL SUPPORT
38	2	NU00171	ELBOW - M/S 1/4 TUBE x 1/4NPT
39	1	SEE TABLE	INLINE SPINDLE
40	1	BR00159	INLINE DRAWBAR SWITCH HOLDER
41	1	BR00158	INLINE DRAWBAR SWITCH BRACKET
42	1	PR00050	PROX SWITCH
43	6	NU00111	LOC-LINE THREADED INSERT 1/4
44	24	MA00022	LOC-LINE LINKS 1/4
45	6	MA00216	LOC-LINE NOZZLE 1/4
46	1	SW00238	YELLOW CABLE
47	48	SHCS 1/2-13 x 1 1/2	1/2-13 x 1 1/2 SHCS
48	12	WASHER LOCK 1/2	1/2 LOCK WASHER
49	4	SHCS M10-1.5 x 45	M10-1.5 X 45mm SHCS
50	6	SHCS 1/4-20 x 1	1/4-20 x 1 SHCS
51	8	BHCS M6-1.0 x 12	M6-1.0 x 12mm BHCS
52	1	NUT HEX M8-1.25	M8-1.25 HEX NUT
53	2	SHCS M5-0.8 x 16	M5-0.8 x 16mm SHCS
54	4	SHCS M8-1.25 x 20	M8-1.25 x 20mm SHCS
55	1	BHCS M8-1.25 x 40	M8-1.25 x 40mm BHCS
56	18	SHCS 5/16-18 x 1 1/2	5/16-18 x 1 1/2 SHCS
57	8	WASHER LOCK 3/8	3/8 LOCK WASHER
58	26	SHCS 3/8-16 x 1 1/2	3/8-16 x 1 1/2 SHCS
59	1	PLUG 1/2 NPT	1/2 NPT PLUG
60	6	SHCS 3/8-16 x 1 3/4	3/8-16 x 1 3/4 SHCS
61	2	DOWEL PIN 3/8 x 1	3/8 x 1 DOWEL PIN
62	2	SEE TABLE	SHCS
63	2	SEE TABLE	FLAT WASHER
64	2	WASHER LOCK 5/16	5/16 LOCK WASHER
65	2	SHCS 5/16-18 x 1 1/4	5/16-18 x 1 1/4 SHCS
66	24	RAIL PLUG	RAIL PLUG
67	6	SHCS 3/8-16 x 1 1/4	3/8-16 x 1 1/4 SHCS
68	4	SHCS M5-0.8 x 20	M5-0.8 x 20mm SHCS
69	4	BHCS M4-0.7 x 8	M4-0.7 x 8mm BHCS
70	2	WASHER FLAT M4	M4 WASHER FLAT
71	2	DOWEL PIN 3/16	3/16 DOWEL PIN
72	4	WASHER LOCK M10	M10 LOCK WASHER
73	6	SHCS M6-1.0 x 20	M6-1.0 x 20mm SHCS
74	2	SHSS 10-32 x 1/4	10-32 x 1/4 SHSS

* ROLLER RAILS USE AN ADDITIONAL 22 RAIL PLUGS & 1/2-13 x 1 1/2 SHCS.

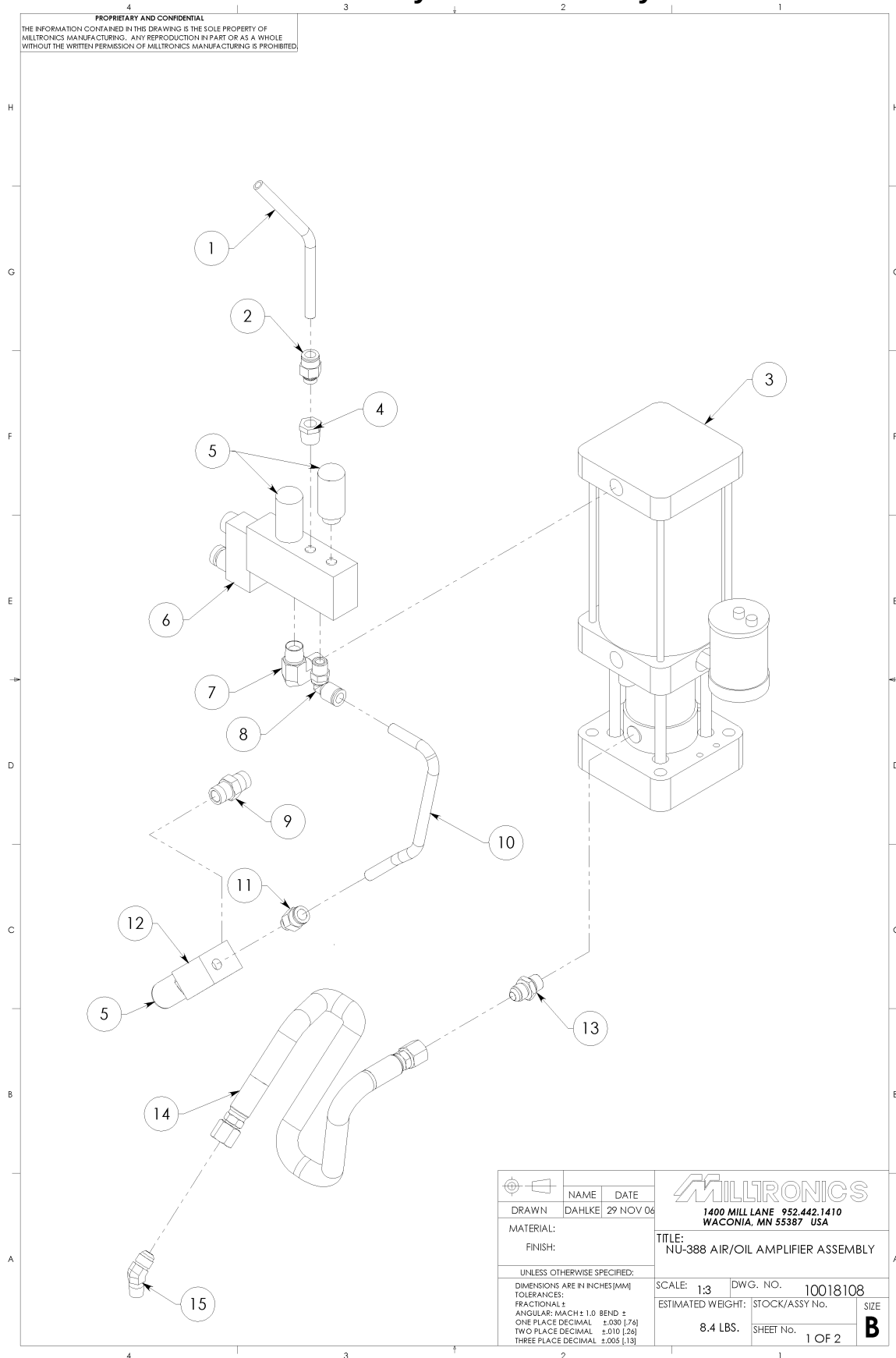
MOTOR & COUPLER TABLE				
ITEM No.	YASKAWA	FANUC	SIEMENS	MITSUBISHI
1	MO00138 (3kW)	22Nm A068-0247-B500	16Nm 1FK7083-5AF71-1EB0	MO00186 (3.5 kW)
4	MA00248	MA00248	MA00261	MO00188 (5 kW)
				MA00248

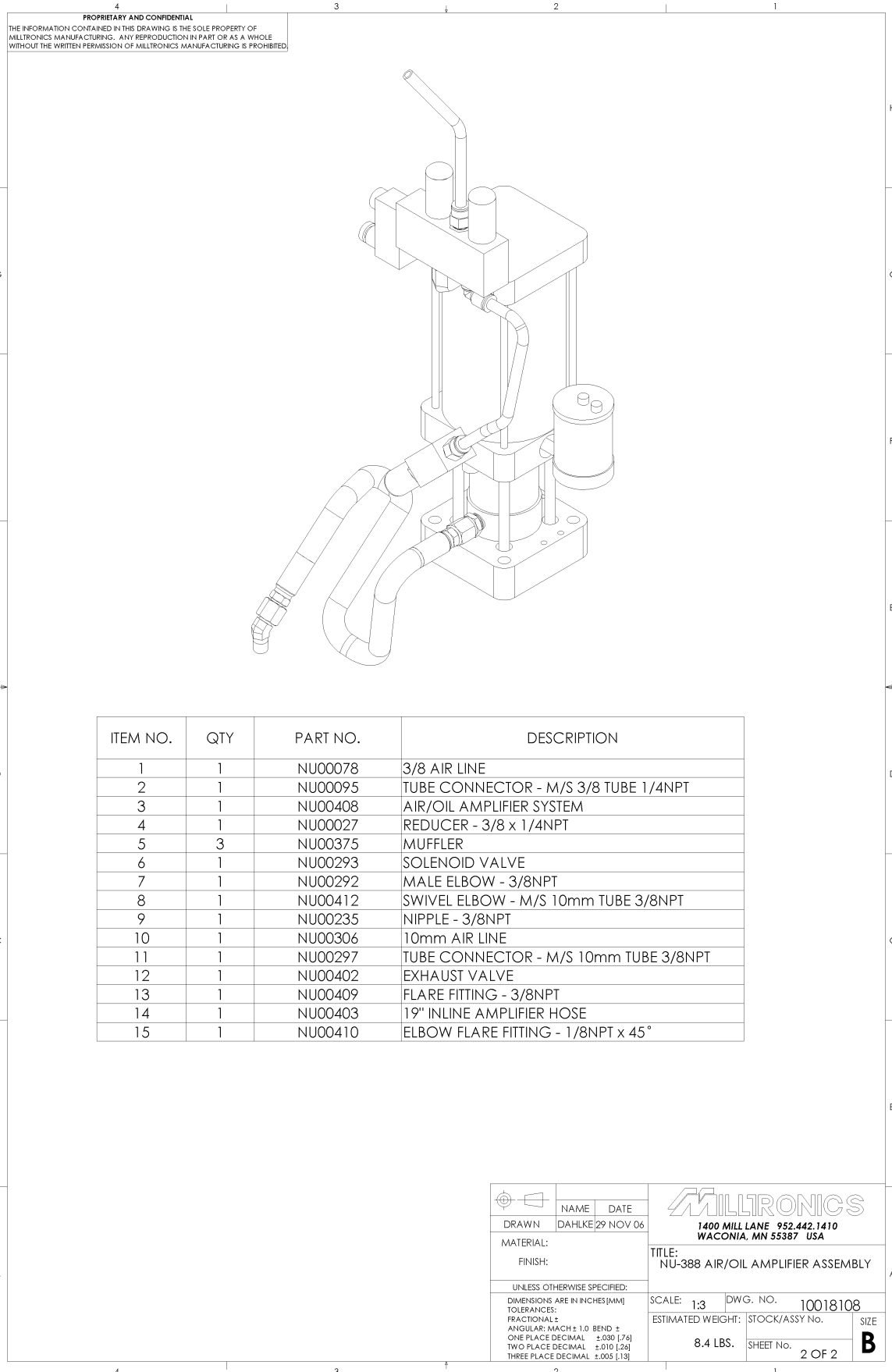
SPINDLE MOTOR		
ITEM No.	STOCK No.	DESCRIPTION
20	A068-1477-B133#0121	FANUC
	A068-1479-B133#0221	FANUC
	MO00166	MITSUBISHI
	MO00167	MITSUBISHI
	1PM6137	SIEMENS
	1PM6105	SIEMENS
	1PM6133	SIEMENS

INLINE SPINDLE		
ITEM No.	STOCK No.	DESCRIPTION
39	MP00864	10K RPM
	MP00865	15K RPM

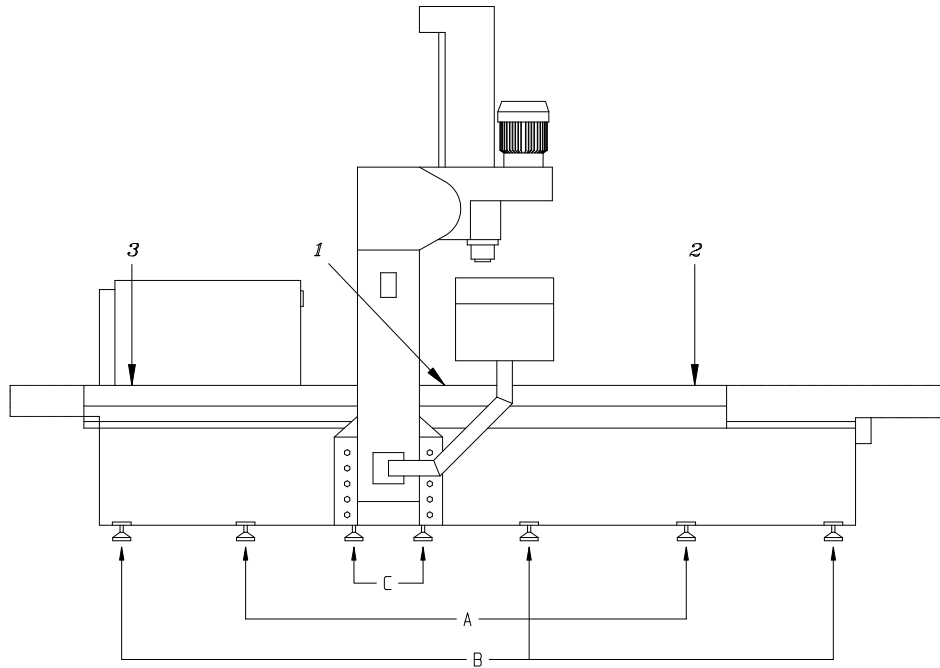
 DRAWN: JRD DATE: 28 APR 09	NAME: _____ DATE: _____	 1400 MILL LANE 952.442.1410 WACONIA, MN 55387 USA
	MATERIAL: _____ FINISH: _____ UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES(MM) TOLERANCES: FRACTIONAL ± ANGULAR: MACH ±1.0 & BND ± ONE PLACE DECIMAL ±.030 (76) TWO PLACE DECIMAL ±.010 (26) THREE PLACE DECIMAL ±.005 (13)	
TITLE: INLINE HEAD ASSEMBLY		SCALE: 1:30 DWG. NO. 10031029 ESTIMATED WEIGHT: 1123.8 LBS. STOCK/ASSY No. _____ SHEET No. 2 OF 2

Drawbar Cylinder Assembly





Leveling Instructions For BR 50



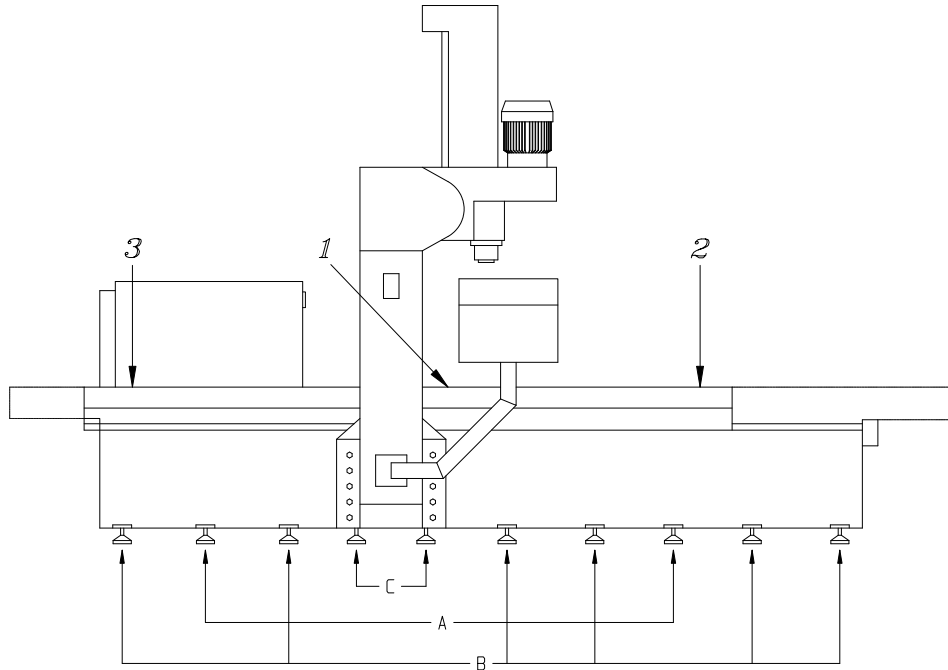
REV.	DESCRIPTION	E.C.O. NO.	APP'D BY	DATE
	MATERIAL/FINISH			
	STOCK/ASSY No.			
	TOLERANCE UNLESS SPECIFIED			
	X.XXX	±		
	X.XX	±		
	X.X	±		
	ANGLE	±		
	 1400 MILL LANE (612) 442-1410 WACONIA, MN 55387			
	TITLE BR50 LEVELING INSTRUCTIONS			
	APPLICATION BRIDGE MILL			
	SCALE 20:1	DWG No 6-10-031-018	SIZE B	
	DATE 15 JUN 98	DRAWN BY THOMPSON	SHEET NO. 1 OF 2	

NOTES:

1. Center the table in the travel of the X axis.
2. Raise the 4 leveling pads directly under the columns pads "C" most of the way in so they are NOT touching the floor.
3. With the level located in the center of the table (position 1) use pads "A" to level the machine in both X and Y.
4. With the level located at the ends of the table (position 2 and 3) level each end with pads "B" in both X and Y.
5. Double-check the level at all locations.
6. The remaining pads should be threaded approximately 2/3 to 3/4 of the way in and touching the floor. Even pressure should be applied to each of these pads.
7. Lower the 4 leveling pads directly below the columns until they are resting on the floor with even pressure.
8. Spin the locknut for each pad up then secure them in place.
9. Using a magnetic base with a dial indicator sweep the table to check tran. The tran should sweep acceptably (typically .001" over a 10" diameter sweep) if the table surface has been machined at the factory. Adjust the 4 leveling pads below the column to adjust the tran if necessary. At this stage it is more important to be level to tran and NOT level to the precision level.

REV.	DESCRIPTION	E.C.D. NO.	APP'D BY	DATE
MATERIAL/FINISH		 1400 MILL LANE (612) 442-1410 WACONIA, MN 55387		
STOCK/ASSY No.				
TOLERANCE UNLESS SPECIFIED		TITLE BR50 LEVELING INSTRUCTIONS		
X .XXX	±	APPLICATION BRIDGE MILL		
X .XX	±	SCALE 20:1	DWG No 6-10-031-018	SIZE B
X .X	±	DATE 15 JUN 98	DRAWN BY THOMPSON	SHEET NO. 2 OF 2
ANGLE	±			

Leveling Instructions For BR 60 & 80



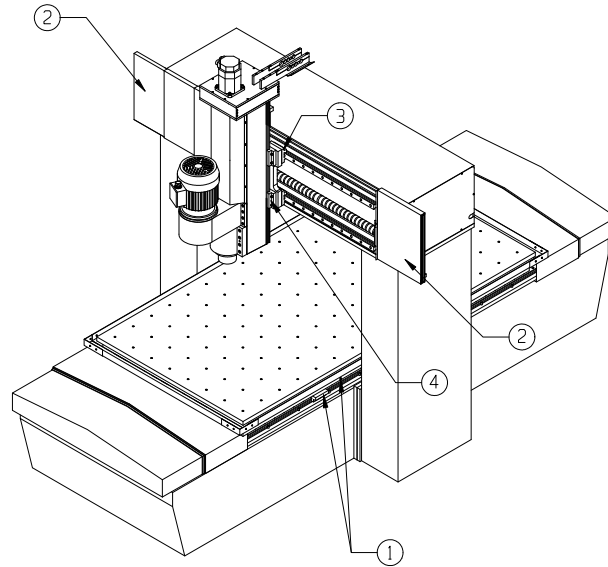
REV.	DESCRIPTION	E.C.O. NO.	APP'D BY	DATE
MATERIAL/FINISH		 1400 MILL LANE (612) 442-1410 WACONIA, MN 55387		
STOCK/ASSY No.				
TOLERANCE UNLESS SPECIFIED		TITLE BR60 & 80 LEVELING INSTRUCTIONS		
X.XXX ±		APPLICATION BRIDGE MILL		
X.XX ±		SCALE 20:1 DWG No 6-10-031-019 SIZE B		
X.X ±		DATE 15 JUN 98 DRAWN BY THOMPSON SHEET NO. 1 OF 2		
ANGLE ±				

NOTES:

1. Center the table in the travel of the X axis.
2. Raise the 4 leveling pads directly under the columns pads "C" most of the way in so they are NOT touching the floor.
3. With the level located in the center of the table (position 1) use pads "A" to level the machine in both X and Y.
4. With the level located at the ends of the table (position 2 and 3) level each end with pads "B" in both X and Y.
5. Double-check the level at all locations.
6. The remaining pads should be threaded approximately 2/3 to 3/4 of the way in and touching the floor. Even pressure should be applied to each of these pads.
7. Lower the 4 leveling pads directly below the columns until they are resting on the floor with even pressure.
8. Spin the locknut for each pad up then secure them in place.
9. Using a magnetic base with a dial indicator sweep the table to check tran. The tran should sweep acceptably (typically .001" over a 10" diameter sweep) if the table surface has been machined at the factory. Adjust the 4 leveling pads below the column to adjust the tran if necessary. At this stage it is more important to be level to tran and NOT level to the precision level.

REV.	DESCRIPTION	E.C.D. NO.	APP'D BY	DATE
MATERIAL/FINISH		 1400 MILL LANE (612) 442-1410 WACONIA, MN 55387		
STOCK/ASSY No.				
TOLERANCE UNLESS SPECIFIED		TITLE BR60 & 80 LEVELING INSTRUCTIONS		
X .XXX ±		APPLICATION BRIDGE MILL		
X .XX ±		SCALE 20:1	DWG No 6-10-031-019	SIZE B
X .X ±		DATE 15 JUN 98	DRAWN BY THOMPSON	SHEET NO. 2 OF 2
ANGLE ±				

Machine Lubrication Instructions



GREASE EVERY 500 HOURS OR SIX MONTHS

1. GREASE THE X-AXIS BEARING BLOCKS, 3 OR 4 ON EACH SIDE, AND THE X-AXIS BALLSCREW 2 PUMPS PER BLOCK.
2. SLIDE THE Y-AXIS WAY COVERS OUT TO ACCESS THE BEARING BLOCKS AND BALLSCREW.
3. GREASE THE 6 BEARING BLOCKS, 3 ON EACH SIDE, AND THE Y-AXIS BALLSCREW 2 PUMPS PER BLOCK AND BALLSCREW.
4. GREASE THE 6 BEARING BLOCKS, 3 ON EACH SIDE, AND THE Z-AXIS BALLSCREW 2 PUMPS PER BLOCK AND BALLSCREW.
5. INSTALL ALL WAY COVERS AND CYCLE MACHINE THE FULL TRAVELS AT 10 IPM MAX. TO FULLY LUBRICATE THE ENTIRE LENGTH OF THE RAILS AND BALLSCREWS.

REV.	DESCRIPTION OF CHANGE	E.C.O. No.	APP'D BY	DATE
MATERIAL/FINISH		 1400 MILL LANE 952-442-1410 WACONIA, MN 55387 USA		
STOCK/ASSY No.				
TOLERANCE UNLESS SPECIFIED		TITLE BRIDGE MILL GREASE INSTRUCTIONS		
X .XXX +/-		APPLICATION BRIDGE MILL		
X .XX +/-		SCALE 24:1	DWG No. 6-11-031-001	
X .X +/-		DATE 01 FEB 01	DRAWN BY NEW	SHEET No. 1 OF 2
ANGLE +/-				

MOBILITH AW SERIES, MULTIPURPOSE EP GREASE

PRODUCT NUMBER	64352-8
NLGI GRADE	1
COLOR	GREEN
STRUCTURE	SMOOTH/TACKY
SOAP TYPE	LITHIUM COMPLEX
MINERAL OIL VISCOSITY	
cST AT 40°C	150
cST AT 100°C	13
SUS AT 100°F	750
SUS AT 210°F	70
ISO VISCOSITY GRADE	150
PENETRATION AT 23°C (77°F), WORKED	325
DROPPING POINT, ASTM D 2265, °F	475
TIMKEN OK LOAD, ASTM D 2509, lb	40
FOUR-BALL EP TEST, ASTM D 2596,	
WELD LOAD, kg	250
LOAD WEAR INDEX	40
FOUR-BALL WEAR TEST, ASTM D 2266,	
SCAR DIAMETER, mm, MAX	0.5
CORROSION PREVENTION, ASTM D 1743	PASS
WHEEL BEARING TEST, ASTM D 4290	
MODIFIED, LEAKAGE, GRAM	5

MOBIL VELOCITE OIL No. 10

PRODUCT NUMBER	60068-4
GRAVITY, API	32.0
POUR, °C (°F), max.	-4 (25)
FLASH, °C (°F), min.	182 (360)
VISCOSITY	
cST AT 40° C	22.0
cST AT 100° C	4.0
SUS AT 100° F	115
SUS AT 210° F	40
ISO VG	22
VISCOSITY INDEX	95
COLOR, ASTM D 1500	2.0
RUST PROTECTION, ASTM D 665	PASS
CINCINNATI MILACRON SPECIFICATION	P-45

MOBIL VACTRA OIL No. 2

PRODUCT NUMBER	60049-4
SPECIFIC GRAVITY, 60/60F	0.88
POUR POINT, °C (°F), max.	-9 (16)
FLASH POINT, °C (°F), min.	244 (472)
VISCOSITY	
cST AT 40°C	68
cST AT 100°C	8.6
SUS AT 100°F	356
SUS AT 210°F	55
VISCOSITY INDEX	97
ISO VG	68
COLOR, ASTM D 1500	4
FZG, PASS STAGES	11
4 BALL WELD, kg, ASTM D 2783	160
4 BALL WEAR, mm, ASTM D 4172	0.22
COPPER CORROSION, ASTM D 130	1B
RUST, D665A	PASS
VICKERS V-104C, mg D 2882 (MOD)	-
CMCD, P-SPEC, APPROVAL	P-47
BIJUR PT 37-1 APPROVAL	PASS
OKUMA APPROVAL	PASS

MOBIL DTE 24

PRODUCT NUMBER	60262-3
98 CMCS CODE (DRUM)	98020E
SPECIFIC GRAVITY	0.871
POUR POINT, °C (°F), max	-18 (0)
FLASH POINT, °C (°F), min	200 (392)
VISCOSITY	
cST AT 40°C	32
cST AT 100°C	5.3
SUS AT 100°F	165
SUS AT 210°F	44
ISO VISCOSITY GRADE	32
VISCOSITY INDEX	95
RUST PROTECTION,	
ASTM D 665, A & B	PASS
COLOR, ASTM D1500, max	3.5
FZG GEAR TEST STAGES	12
PASSED DIN 51534	

REV.	DESCRIPTION OF CHANGE	E.C.D. No.	APP'D BY	DATE
	MATERIAL/FINISH			
	STOCK/ASSY No.			
	TOLERANCE UNLESS SPECIFIED			
	X.XXX +/-			
	X.XX +/-			
	X.X +/-			
	ANGLE +/-			


1400 MILL LANE 952-442-1410
WACONIA, MN 55387 USA

TITLE BRIDGE MILL GREASE INSTRUCTIONS	
APPLICATION BRIDGE MILL	
SCALE 24:1	DWG No. 6-11-031-001 SIZE B
DATE 01 FEB 01	DRAWN BY NEW SHEET No. 2 OF 2

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Waylube Pump MA00458

The on time and off time can be adjusted using MISC control parameters “Way Lube ON time (sec)”, and “Way Lube OFF time (min)”.

Oiler Comparison

	Old style	New style
Model #	CESD	CEN01
Part #	MA00219	MA00458
Timer function ON/OFF	Built-in controls	Via CNC #66
Audible alarm	YES	NO
Oil pressure gauge	NO	YES
Manual override button	YES	YES

Software & control

All 8200 versions have the functionality. 7200 version 77401 or higher is required to have the functionality.

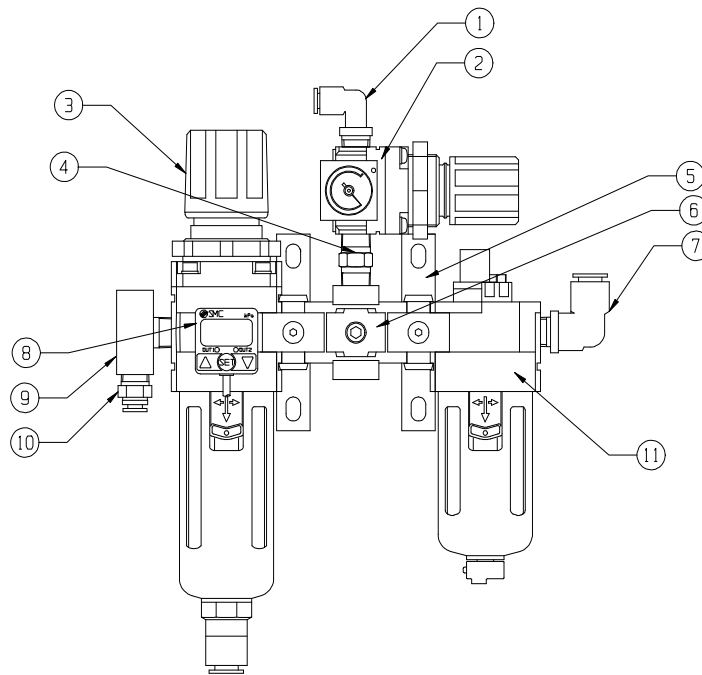
The oiler timer is functional only when the “Grease Cycle Time” parameter is set to Zero, and the Way Lube ON and OFF time parameters are non-zero.

Pictures of MA00458



Air Filter / Regulator / Lubricator Assembly

PARTS LIST			
ITEM	QTY	STOCK No.	DESCRIPTION
1	1	NU-199	1/4 NPT 3/8 TUBE SWIVEL ELBOW
2	1	NU-262	LOW PRESSURE REGULATOR W/GAGE
3	1	NU-212	LARGE FILTER/HIGH PRESSURE REGULATOR
4	1	NU-30	1/4 NPT PIPE NIPPLE
5	2	NU-210	LARGE MOUNTING SPACER
6	1	NU-211	LARGE MANIFOLD SPACER
7	1	NU-199	1/4 NPT 3/8 TUBE SWIVEL ELBOW
8	1	NU-430	DIGITAL AIR GAUGE WITH PRESSURE SWITCH
9	1	NU-219	1/4 NPT BRANCH TEE
10	1	NU-32	1/4 NPT 1/4 TUBE MALE STRAIGHT
11	1	NU-209	LARGE LUBRICATOR



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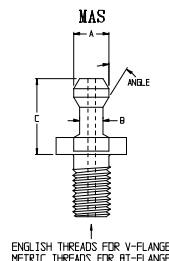
REV.	DESCRIPTION	E.C.D. NO.	APP'D BY	DATE
MATERIAL/FINISH		 MILLTRONICS 1400 MILL LANE 952-442-1410 WACONIA, MN 55387 USA		
STOCK/ASSY No.				
TOLERANCE UNLESS SPECIFIED		TITLE NU-417 FRL ASSEMBLY		
X.XXX +/-		APPLICATION GENERAL PRODUCTS		
X.XX +/-		SCALE 3:1	DWG No. 6-10-018-112	SIZE B
X.X +/-		DATE 14 APR 08	DRAWN BY DAHLKE	SHEET NO. 1:1
ANGLE +/-				

Retention Knob Chart

NOTE: STANDARD RETENTION KNOBS FOR 40 TAPER SPINDLES

NAS RETENTION KNOBS STYLE CT-FLANGE 40 TAPER													
DIMENSIONS				MILLITRONICS MACHINE						COMMAND PART No.	KENNA METAL PART No.	VALENTE PART No.	LYNDE PART No.
A	B	C	ANGLE	60mm SPINDLE						70mm SPINDLE			
.59	.39	1.27	60°	BR50, BR60, BR80, MM18, RH20, RH30, RH33, RH35, RM15, VM15, VM16, VM20, VM22, VM25, VM30, VM21B, VM15C, VM16C, VM22C, VM25C, VM30C,	BR50, BR60, BR80, MM18, RH20, RH30, RH33, RH35, TT24, TT40, TT60, TT80, VM16, VM20, VM22, VM25, VM30, VM21B, VM15C, TT24C, TT40C, TT60C, TT80C, VM16C, VM20C, VM22C, VM25C, VM30C,	RB4E-0002		RK31114A	PT-532-60	C40-6000			

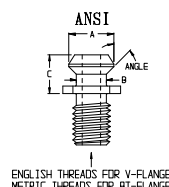
NAS RETENTION KNOBS STYLE BT-FLANGE 40 TAPER									
DIMENSIONS				MILL/TURNING MACHINE				CMM PART NO.	
A	B	C	ANGLE	60mm SPINDLE		70mm SPINDLE		KENNA METAL PART NO.	LYNDEX PART NO.
59	39	1.38	60°	BR50, BR60, BR80, MM18, RH20, RH30, RH33, RH35, RN15, VM15, VM16, VM20, VM22, VM25, VM30, VM216, VM15, VM16, VM20, VM22, VM25, VM30, VM230, VM232, VM233, VM234, VM235, VM236, VM237, VM238, VM239, VM240, VM241, VM242, VM243, VM244, VM245, VM246, VM247, VM248, VM249, VM250, VM251, VM252, VM253, VM254, VM255, VM256, VM257, VM258, VM259, VM260, VM261, VM262, VM263, VM264, VM265, VM266, VM267, VM268, VM269, VM270, VM271, VM272, VM273, VM274, VM275, VM276, VM277, VM278, VM279, VM280, VM281, VM282, VM283, VM284, VM285, VM286, VM287, VM288, VM289, VM290, VM291, VM292, VM293, VM294, VM295, VM296, VM297, VM298, VM299, VM300, VM301, VM302, VM303, VM304, VM305, VM306, VM307, VM308, VM309, VM310, VM311, VM312, VM313, VM314, VM315, VM316, VM317, VM318, VM319, VM320, VM321, VM322, VM323, VM324, VM325, VM326, VM327, VM328, VM329, VM330, VM331, VM332, VM333, VM334, VM335, VM336, VM337, VM338, VM339, VM340, VM341, VM342, VM343, VM344, VM345, VM346, VM347, VM348, VM349, VM350, VM351, 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NOTE: STANDARD RETENTION KNOBS FOR 50 TAPER SPINDLES

ANSI RETENTION KNOBS STYLE CT-FLANGE 50 TAPER								
DIMENSIONS				MILLITRONICS MACHINE	COMMAND PART No.	KENNAMETAL PART No.	VALENITE PART No.	LYNDEX PART No.
A	B	C	ANGLE					
1.14	.83	1.00	45°	HBM10, RH33XP, RH35XP, TT40XP, VN22XP, VN25XP, VM30XP, TT40XP, VM22XP, VM25XP, VM30XP,	RCBE-0001	DWG RK11144	N/A	C50-STO

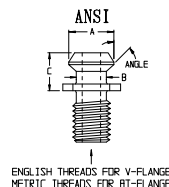
ANSI RETENTION KNOBS STYLE BT-FLANGE 50 TAPER								
DIMENSIONS				MILLITRONICS MACHINE	COMMAND PART No.	KENNAMETAL PART No.	VALENITE PART No.	LYNDEX PART No.
A	B	C	ANGLE					
1.14	.83	1.00	45°	HBH110, RH33XP, RH55XP, TT40XP, VM22XP, VM25XP, VM30XP, TT40XP, VM22XP, VM25XP, VM30XP,	R58N-0105	DNB RK11144A	N/A	N/A



NOTE: OPTIONAL RETENTION KNOBS FOR 40 TAPER SPINDLES

ANSI RETENTION KNOBS STYLE CT-FLANGE 40 TAPER										
DIMENSIONS				MILLITRONICS MACHINE			COMMAND PART No.	KENNAMETAL PART No.	VALENITE PART No.	LYNDEX PART No.
A	B	C	ANGLE	50mm SPINDLE	70mm SPINDLE					
.74	.49	.64	45°	SELECTION NOT AVAILABLE	BR50, BR60, BR80, HM20, HG35, RH20, RH30, RH43, RH35, TT24, TT40, TT60, TT80, VM16, VM20, VM22, VM25, VM30, VM32A, VM22A, VM24, VM35, TT24, TT40, TT60, TT80, VM16, VM20, VM22, VM25, VM30.	RL4E-0001	RK11122	PT-475C	C40-STD	

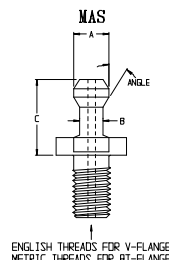
ANSI RETENTION KNOBS STYLE BT-FLANGE 40 TAPER										
DIMENSIONS			MILLITRONICS MACHINE				COMMAND PART			
A	B	ANGLE	60mm SPINDLE		70mm SPINDLE		KENNA	VALENTIN	LYNDEX	
			SELECTION		SELECTION		PART No.	PART No.	PART No.	
.74	.49	.75	45°		BR50, BR60, BR80, HX20, HX35, RH20, RH30, RH33, RH35, TT24, TT40, TT60, TT80, VM16, VM20, VM22, VM25, VM30, VM32A, VM42A, VM20, HX35, TT24, TT40, TT60, TT80, VM16, VM20, VM22, VM25, VM30.		RS4M-0115	RK11126A	N/A	840-FADAL



ENGLISH THREADS FOR V-FLANGE
METRIC THREADS FOR RT-FLANGE

NAS RETENTION KNOBS STYLE CT-FLANGE 40 TAPER											
DIMENSIONS				MILLITRONICS MACHINE				COMMAND	KENNA	VALENTE	LYNDEE
A	B	C	ANGLE	60mm SPINDLE		70mm SPINDLE		PART No.	PART No.	PART No.	PART No.
.59	.39	1.27	45°	SELECTION NOT AVAILABLE				RB4E-0001	RC31114	PT-532-45	C40-4500
				BR50, BR60, BR80, HK20, HK35, RH20, RH30, RH33, RH35, TT24, TT40, TT60, TT80, WM16, WM20, WM22, WM25, WM30, WM32M, WM22M, WM20, WM35, TT24, TT40, TT60, TT80, VM16, VM20, VM22, VM25, VM30, VM30.							

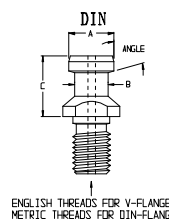
NAS RETENTION KNOBS STYLE BT-PLANGE 40 TAPER												
DIMENSIONS				MILLITRONICS MACHINE				COMMAND PART No.	KENNAMETAL PART No.	VALENTE PART No.	LYNDEE PART No.	
A	B	C	ANGLE	60mm SPINDLE		70mm SPINDLE						
.59	.39	1.38	45°	SELECTION NOT AVAILABLE				RB4M-0001	RK31113	PT-444-45	B4-4500	
				BR50, BR60, BR80, HX20, HX35, RH20, RH30, RH33, RH35, T124, T140, T160, T180, VM16, VM20, VM22, VM25, VM50, VM324, VM424, VM420, HX35, T124, T140, T160, T180, VM16, VM20, VM22, VM25, VM30, VM30.								



ENGLISH THREADS FOR V-FLANGE
METRIC THREADS FOR RT-FLANGE

DIN 69872 RETENTION KNOBS STYLE CT-FLANGE 40 TAPER										
DIMENSIONS			MILLITRONICS MACHINE				COMMAND			
A	B	ANGLE	60mm SPINDLE	70mm SPINDLE			PART No.	KENAMETAL PART No.	VALENTE PART No.	LYNDEX PART No.
.75	.55	1.02 75°	SELECTION NOT AVAILABLE	BR50, BR60, BR80, HM20, HM35, RH20, RH30, RH35, RH35, T124, T140, T160, T180, VM16, VM20, VM32, VM25, VM30, VM32A, VM42A, VM40, VM35, T124, T140, T160, T180, VM16, VM16, VM20, VM32, VM32, VM35, VM38.			R54E-0114-C	DWG R671125	N/A	C40-1500

DIN 89872 RETENTION KNOBS STYLE DIN-FLANGE 40 TAPER																							
DIMENSIONS				MILLITRONICS MACHINE						COMMAND PART No.		KENNAMETAL PART No.		VALENTE PART No.		LYNDE PART No.							
A	B	C	ANGLE	60mm SPINDLE						70mm SPINDLE													
.75	.55	1.02	75°	SELECTION NOT AVAILABLE						BR30, BR60, BR80, HNC20, HNC35, RH20, RH30, RH35, RH45, TT24, TT40, TT60, TT80, VW16, VW20, VW22, VW25, VW30, VW32A, VW42A, VW48, VW50, TT24, TT40, TT60, TT80, VW16, VW20, VW22, VW25, VW30.						R54M-0114-C		DWG RK71124		N/A		B40-1500	



ENGLISH THREADS FOR V-FLANGE
METRIC THREADS FOR DIN-FLANGE

NOTES:

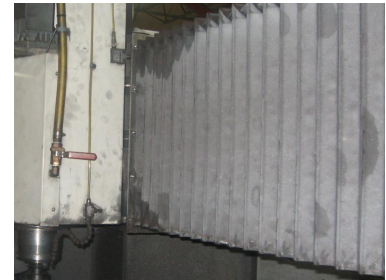
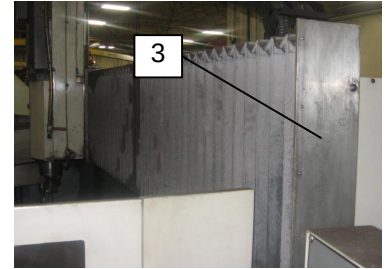
1. FOR SPINDLES OF 8000 RPM AND GREATER YOU MUST USE BALANCED TOOLING TO A G2.5 SPEC. OR IT WILL VOID THE SPINDLE WARRANTY.
2. IN-LINE SPINDLES, IN THEIR RESPECTIVE FRAME SIZE, USE THE SAME RETENTION KNOB AS THE NON IN-LINE SPINDLES

I	ADD VM2016, VM3224, VM4224, TT60, TT80, TT40XP, TTC24, TTC40, TTC40XP, HBMI10	7573	N.M.	07/12
H	ADD VM22XP, RH33XP FRAMES TO 50 TAPER	6715	N.M.	01/09
G	ADD MM18 AND MOVE HMC70 FRAMES TO 50 TAPER	6193	N.M.	10/06
F	ADD VMC, TT, AND HMC FRAMES	6175	N.M.	09/06
E	UPDATE CHART	5992	N.M.	08/05
D	ADD RH/RW12 & RH19	5146	N.M.	09/01
C	ADD RETENTION KNOBS TO CHART	4859	N.M.	12/00
B	CHANGE 70nm BT-FLANGE CHART	4730	N.M.	10/00
A	ADD LYNDEX CORP. IN CHART	4351	N.M.	1/00
REV.	DESCRIPTION	E.C.D. NO.	APP'D BY	DATE
 MILLITRONICS 5400 DELL LANE 952-442-4410 PACONIA, NY 13825		TITLE RETENTION KNOB CHART		
APPLICATION		GENERAL PRODUCTS	DATE 30 APR 99	DRAWN BY DAH KF
		SCALE 1 : 75:1	DWG NO 6-11-018-054	SHEET NO 1 OF 1

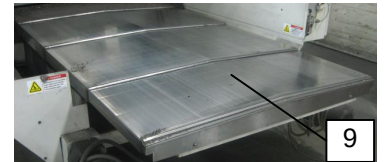
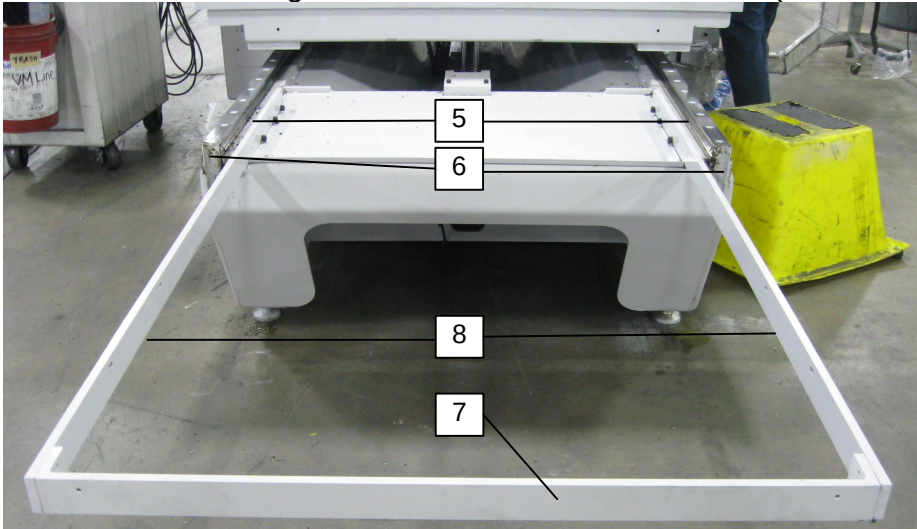
BR Series Way Cover Types

For BR Machine Versions A-K

Milltronics/A&A design Y axis, BR Series Versions I-K (Estimated)



Milltronics/A&A design X axis, BR Series Versions I-K (Estimated)



Item	Part #	Qty	Description
1	MPB-175	4	Y-axis Way cover mount extension – roller rails
	MPB-183		Y-axis Way cover mount extension – ball rails
2	MPB-177	2	Y-axis Way cover mounting bracket – Bellows – left/right
3	MPB-142	2	Y-axis Way cover mounting plate – outside – bellows – left/right
4	MPB-112	2	Y-axis Bellows way cover – Standard BR50 models
	MPB-141		Y-axis Bellows way cover – Standard BR60–80 models
	MPB-245		Y-axis Bellows way cover – BR80 MTS special
	MPB-249		Y-axis Bellows way cover – BR100
5	MPB-179	2	X-axis Spacer for mounting bar
6	MPB-180	2	X-axis Bracket, rail guide
7	MPB-181	1	X-axis Way cover mounting bracket – center
8	MPB-182	2	X-axis Way cover mounting bar – left/right
9	MPB-135	1	X-axis Way cover – 100"
	MPB-136		X-axis Way cover – 150"

Original design Y axis, BR Series Versions A-H (Estimated)



Original design X axis, BR Series Versions A-H (Estimated)



Item	Part #	Qty	Description
1	MPB-27	1	BR50 Left y-axis cover
	MPB-30		BR80 Left y-axis cover
	MPB-28	1	BR50 Right y-axis cover
	MPB-31		BR80 Right y-axis cover
2	JD	2	Y-axis rider brackets and spacers
3	JD	2	X-axis Way cover bar
4	JD	8	X-axis Way cover bar support
5	MPB-29	2	X-axis telescoping cover, BR50 standard travel
	MPB-26		X-axis telescoping cover, BR60/80
	MPB-136		X-axis telescoping cover, BR50-150 extended travel

