



MILLTRONICS USA®
LET'S INVENT

TT24 C Mechanical

8-5-2015
11-24-2015
Rev 3

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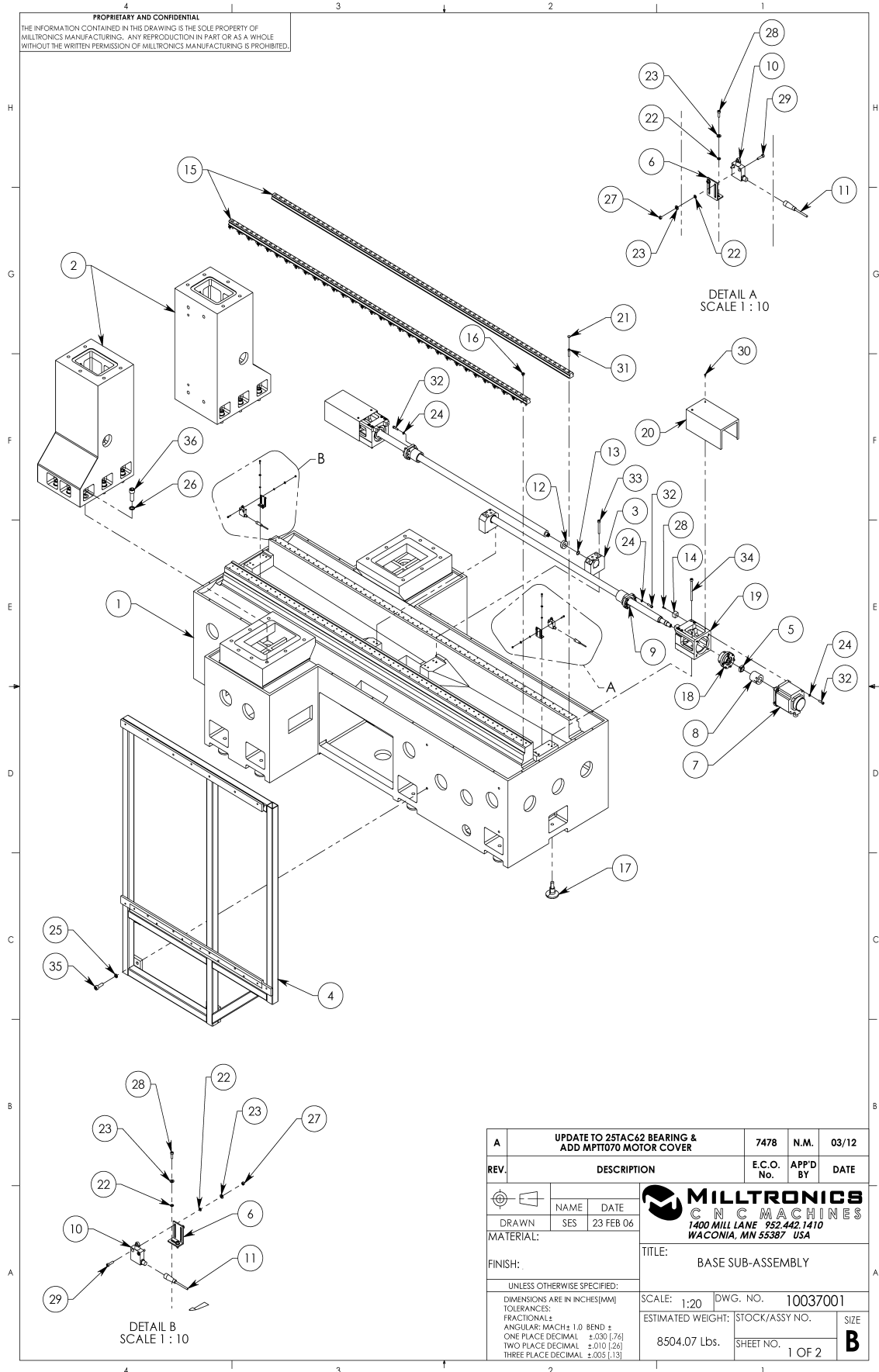
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Manual Discrepancy Sheet

1. On page 5, Items #2, #5, & #23 reference drawings called out in part number column. #46 is 30mm long.
2. On page 3 #33 bolt length changed from 80 to 60mm.

Base Assembly





ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	MXTT013	MACHINE BASE
2	2	MXTT019	COLUMN
3	2	MPTT013	LEAD SCREW END SUPPORT BLOCK X/Y AXIS
4	1	MPTT044	TT24 MAG BOX MOUNT
5	2	MP00439	7305 BALL SCREW LOCK NUT
6	2	MP10387	X & Z LIMIT SWITCH MOUNTING BRACKET
7	2	SEE TABLE	SERVO MOTOR
8	2	SEE TABLE	COUPLER
9	2	MP00805	X-AXIS BALL SCREW ASSEMBLY
10	2	SW00193	LIMIT SWITCH
11	2	SW00191	CORD WITH COVERED END
12	2	BG00002	BEARING NACHI 6204ZZ
13	2	MP10108	RETAINING RING EXTERNAL
14	4	MP00718	POM HARDSTOP BLOCK
15	2	SEE TABLE	X - AXIS RAIL
16	64	HD00090	MITEEBITE CLAMP
17	12	MP10029	LEVELING PAD
18	2	10018117	25TAC62 BEARING CUP ASSEMBLY
19	2	01037276	X AXIS DRIVE HOUSING MACHINED W/25TAC62 BEARINGS
20	2	MPTT070	TT24 X - AXIS MOTOR COVER
21	64	RAIL PLUG	35mm RAIL PLUG
	126	RAIL PLUG	RAIL PLUG - MPTT001 ROLLER RAIL
22	8	WASHER FLAT M5	M5 FLAT WASHER
23	8	WASHER LOCK M5	M5 LOCK WASHER
24	24	WASHER LOCK M8	M8 LOCK WASHER
25	4	WASHER LOCK M14	M14 LOCK WASHER
26	16	WASHER LOCK M20	M20 LOCK WASHER
27	4	NUT HEX M5-0.8	M5-0.8 NUT HEX
28	8	SHCS M5-0.8 x 16	M5-0.8 x 16mm SHCS
29	4	SHCS M5-0.8 x 20	M5-0.8 x 20mm SHCS
30	4	BHCS M6-1.0 x 10	M6-1.0 x 10 BHCS
31	64	SHCS M8-1.25 x 30	M8-1.25 x 30mm SHCS - MPB0050 BALL RAIL
	126	SHCS M8-1.25 x 35	M8-1.25 x 35mm SHCS - MPTT001 ROLLER RAIL
32	24	SHCS M8-1.25 x 60	M8-1.25 x 60mm SHCS
33	8	SHCS M10-1.5 x 80	M10-1.5 x 80mm SHCS
34	8	SHCS M10-1.5 x 140	M10-1.5 x 140mm SHCS
35	4	SHCS M14-2.0 x 45	M14-2.0 x 45mm SHCS
36	16	SHCS M20-2.5 x 60	M20-2.5 x 60mm SHCS

ITEM No.	MITSUBISHI	FANUC	SIEMENS
7	MO00184	A06B-0227-B200	IFK7063
8	MA00262	MA00239	MA00262

ITEM No.	BALL RAIL	ROLLER RAIL
15	MPB0050	MPTT001

UPDATE TO 25TAC62 BEARING & ADD MPTT070 MOTOR COVER

7478 N.M. 03/12

REV. DESCRIPTION E.C.O. No. APP'D BY DATE

DRAWN SES 23 FEB 06

MATERIAL:

FINISH:

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES[MM]

TOLERANCES:

FRACTIONAL: ±

ANGULAR: MACH ± 1.0 BEND ±

ONE PLACE DECIMAL ±.030 [1.76]

TWO PLACE DECIMAL ±.010 [1.26]

THREE PLACE DECIMAL ±.005 [1.13]

SCALE: 1:32 DWG. NO. 10037001

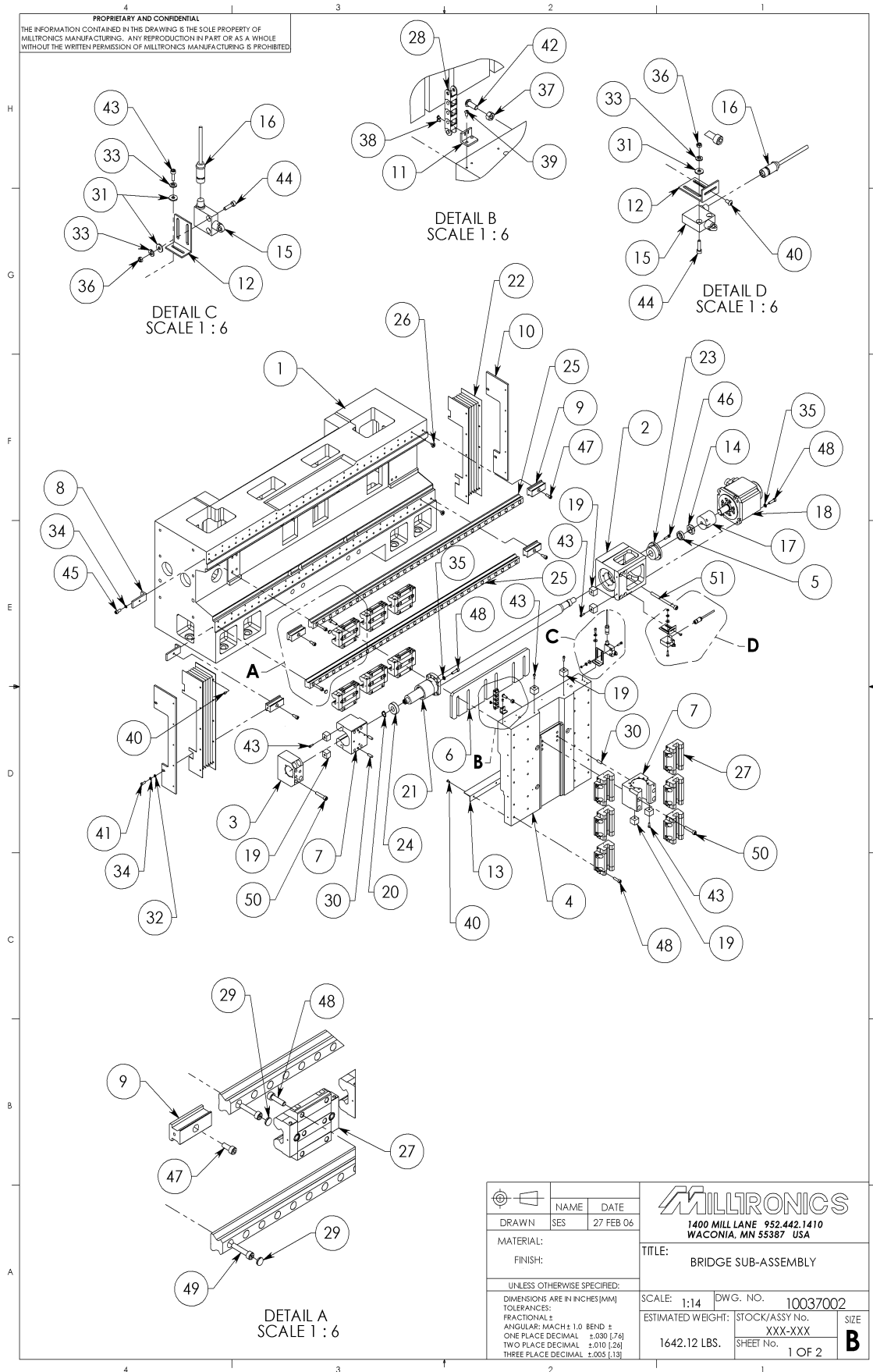
ESTIMATED WEIGHT: 8504.07 Lbs. STOCK/ASSY NO. SHEET NO. 2 OF 2

MILLTRONICS
CNC MACHINES
1400 MILL LANE 952.442.1410
WACONIA, MN 55387 USA

BASE SUB-ASSEMBLY

B

Bridge Assembly



4

1

3

1

2

1

PROPRIETARY AND CONFIDENTIAL

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MOTOR AND COUPLER TABLE

ITEM No.	MITSUBISHI	FANUC	SIEMENS
17	MA00262	MA00239	MA00262
18	MO00184	A06B-0227-B-200	1FK7063

ITEM NO.	EXPLODE/QTY.	PART NO.	DESCRIPTION
1	1	MXTT017	BRIDGE
2	1	01037276	REAR MOTOR MOUNT Y-AXIS
3	1	MPTT013	LEAD SCREW END SUPPORT BLOCK X/Y AXIS
4	1	MXTT016	Y-SLIDE
5	1	01018827	DRIVE END BEARING LOCK SPACER
6	1	MPTT037	Y-SLIDE RAIL BLOCK SPACER
7	2	MXTT010	X,Y & Z AXES NUT HOUSING
8	2	MPTT073	TT24 Y-AXIS COVER BRACKET
9	4	SEE TABLE	Y-AXIS WAY COVER BAR
10	2	MPTT072	TT24 Y-AXIS WAY COVER PLATE
11	1	BR00105	X OIL CARRIER BRACKET
12	2	MP10387	LIMIT SWITCH BRACKET
13	1	MPTT065	TT24 BRIDGE CHIP GUARD
14	1	MP00439	7305 BALL SCREW LOCK NUT
15	2	SW00193	LIMIT SWITCH
16	2	SW00238	CORD WITH COVERED END
17	1	SEE TABLE	COUPLER EKL60
18	1	SEE TABLE	SERVO MOTOR
19	8	MP00718	HARD STOP
20	1	MP10108	RETAINING RING EXTERNAL
21	1	MP00804	Y-AXIS BALL SCREW 40mm
22	2	MPTT041	WAY COVERS
23	1	10018117	AXES BEARING X-Y-Z BG
24	1	BG00002	BEARING NACHI 6204Z7
25	2	SEE TABLE	Y-AXIS RAIL
26	34	HD00090	MITEEBIT CLAMP
27	12	SEE TABLE	RAIL BLOCK
28	1	MP00844	OIL TRACK ASSEMBLY
29	** 32	RAIL PLUG	RAIL PLUG
30	4	DOWEL PIN M8 x 26	M8 X 26mm DOWEL PIN
31	6	WASHER FLAT M5	M5 FLAT WASHER
32	4	WASHER FLAT M6	M6 FLAT WASHER
33	6	WASHER LOCK M5	M5 LOCK WASHER
34	6	WASHER LOCK M6	M6 LOCK WASHER
35	12	WASHER LOCK M8	M8 LOCK WASHER
36	4	NUT HEX M5-0.8	M5 - 0.8 HEX NUT
37	1	NUT HEX M8-1.25	M8 - 1.25 HEX NUT
38	2	BHCS M3-0.5 x 5	M3-0.5 x 5 BHCS
39	2	BHCS M4-0.7 x 8	M4-0.7 x 8 BHCS
40	26	BHCS M5-0.8 x 10	M5-0.8 x 10 BHCS
41	4	BHCS M6-1.0 x 20	M6 - 1.0 x 20 BHCS
42	1	BHCS M8-1.25 x 20	M8-1.25 x 20 BHCS
43	10	SHCS M5-0.8 x 16	M5 - 0.8 x 16mm SHCS
44	4	SHCS M5-0.8 x 20	M5-0.8 X 20mm SHCS
45	2	SHCS M6-1.0 x 20	M6-1.0 x 20 SHCS
46	4	SHCS M6-1.0 x 30	M6-1.0 X 30mm SHCS
47	4	SHCS M8-1.25 x 20	M8-1.25 x 20 SHCS
48	60	SHCS M8-1.25 x 30	M8-1.25 x 30mm SHCS
49	** 32	SHCS M8-1.25 x 40	M8 - 1.25 x 40mm SHCS
50	12	SHCS M10-1.5 x 50	M10-1.5 X 50mm SHCS
51	4	SHCS M10-1.5 x 140	M10-1.5 X 140mm SHCS

** ROLLER RAILS USES AN ADDITIONAL 30 RAIL PLUGS & 30 M8-1.25 X 40mm SHCS

RAIL TABLE

ITEM No.	BALL RAIL	ROLLER RAIL
9	MPTT088	MPTT074
25	MP00642	MP00829
27	MP00641	MP00815

NAME

DATE

DRAWN

SES

27 FEB 06

MATERIAL:

FINISH:

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES (MM)

TOLERANCES:

FRACTIONAL: ±

ANGULAR: MACH ± 1.0 BEND ±

ONE PLACE DECIMAL ±.030 (.76)

TWO PLACE DECIMAL ±.010 (.26)

THREE PLACE DECIMAL ±.005 (.13)

1400 MILL LANE 952.442.1410

WACONIA, MN 55387 USA

TITLE:

BRIDGE SUB-ASSEMBLY

SCALE: 1:16

DWG. NO. 10037002

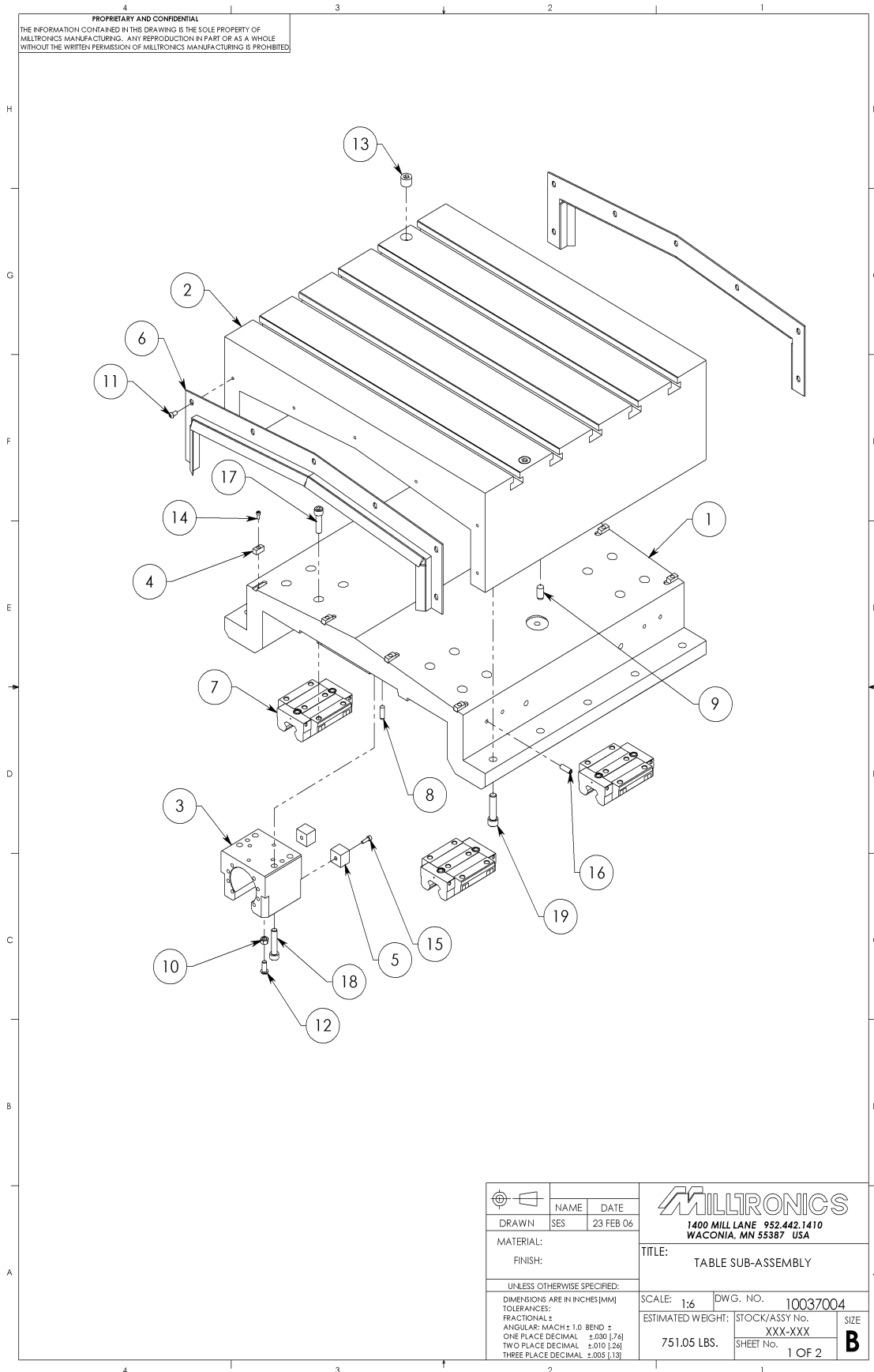
ESTIMATED WEIGHT: 1642.12 LBS.

STOCK/ASSY No. XXX-XXX

SHEET No. 2 OF 2

SIZE B

Table Assembly



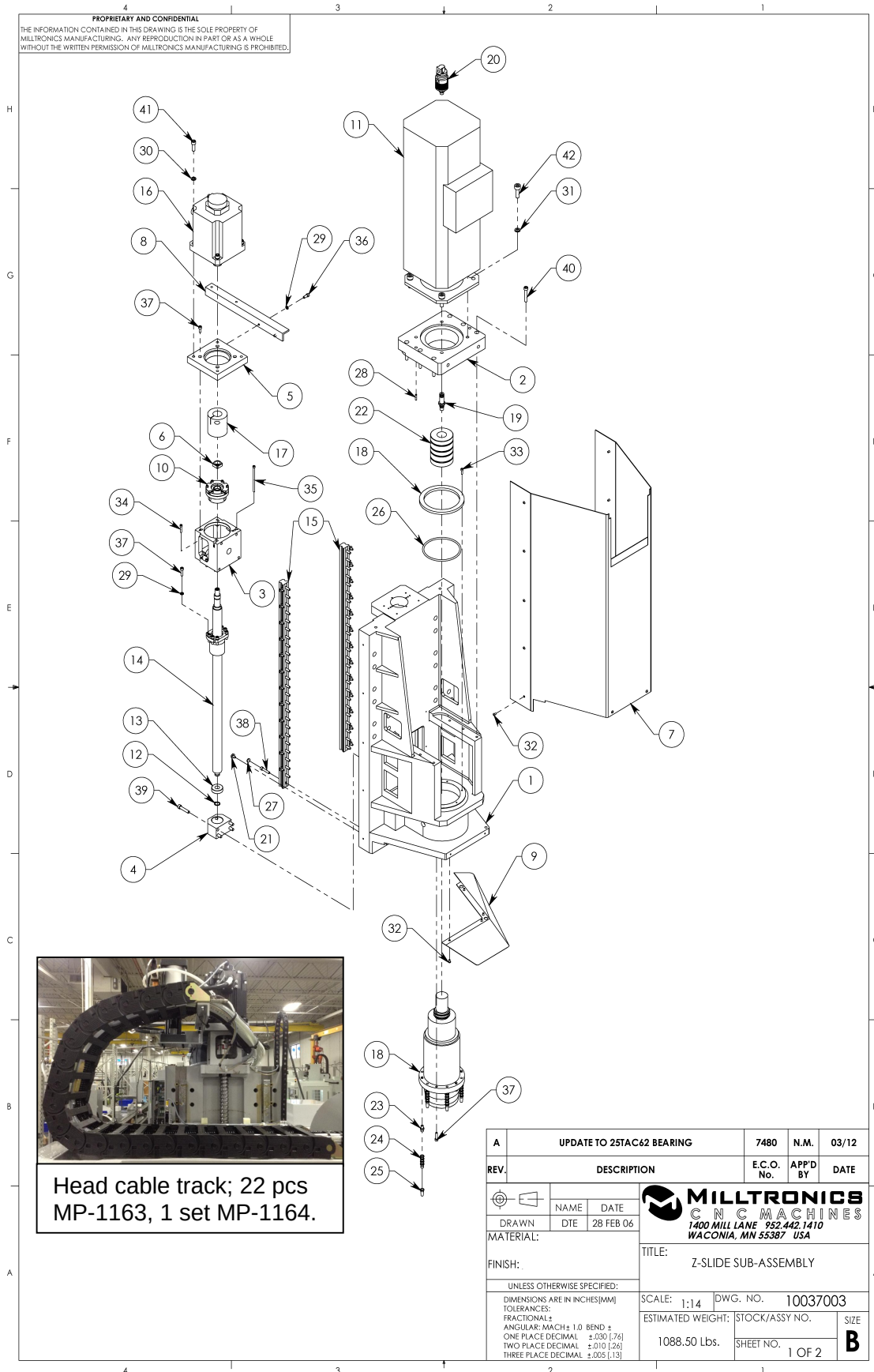
ITEM NO.	EXPLODE/QTY.	PART NO.	DESCRIPTION
1	2	MXTT015	X-SLIDE
2	2	MXTT004	X SLIDE TOP
3	2	MXTT010	X,Y & Z AXES NUT HOUSING
4	16	MPTT043	TT24 X-AXIS WAY COVER NYLON RIDER
5	4	MP00718	HARD STOP
6	4	MPTT039	TT24 X-AXIS COVER WIPER PLATE
7	8	SEE TABLE	RAIL BLOCK
8	4	DOWEL PIN M8 x 26	M8 X 26mm DOWEL PIN
9	4	DOWEL PIN M12 x 26	M12 X 26mm DOWEL PIN
10	2	NUT HEX M8-1.25	M8 - 1.25 HEX NUT
11	28	BHCS M6-1.0 x 12	M6 - 1.0 x 12 BHCS
12	2	BHCS M8-1.25 x 20	M8-1.25 x 20 BHCS
13	4	SHPP .50-14 NPT	1/2-14 NPT SHPP
14	16	SHCS M4-0.7 x 10	M4-0.7 x 10 SHCS
15	4	SHCS M5-0.8 x 16	M5 - 0.8 x 16mm SHCS
16	8	SHSS M8-1.25 x 25	M8 - 1.25 x 25 SHSS
17	32	SHCS M10-1.5 x 40	M10-1.5 X 40mm SHCS
18	8	SHCS M10-1.5 x 50	M10-1.5 X 50mm SHCS
19	20	SHCS M12-1.75 x 50	M12-1.75 x 50 SHCS

RAIL BLOCK TABLE		
ITEM No.	BALL RAIL	ROLLER RAIL
7	MP00641	MP00815

	NAME	DATE
	DRAWN	SES
MATERIAL:		TITLE:
FINISH:		
UNLESS OTHERWISE SPECIFIED:		SCALE: 1:12
DIMENSIONS ARE IN INCHES (MM) TOLERANCES: FRACTIONAL ± ANGULAR: MACH ± 1.0 BEND ± ONE PLACE DECIMAL ±.030 (.76) TWO PLACE DECIMAL ±.010 (.26) THREE PLACE DECIMAL ±.005 (.13)		DWG. NO. 10037004 ESTIMATED WEIGHT: 751.05 LBS STOCK/ASSY No. XXX-XXX SHEET No. 2 OF 2

1400 MILL LANE 952.442.1410
 WACONIA, MN 55387 USA
 SIZE **B**

Head Assembly



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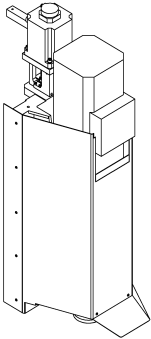
MOTOR & COUPLER TABLE

ITEM No.	MITSUBISHI	FANUC	SEIMENS
2	MPTT036(7.5kW)	MPTT036(7.5kW)	SMN0061(7.5kW)
	MPTT045(11.0kW)	MPTT045(11.0kW)	SMN0062(11.0kW)
5	MP10453	MP10453	SMN0009
11	MO00166(7.5kW)	A06B-1477-B133#0121(7.5kW)	1PM6105(7.5kW)
	MO00167(11.0kW)	A06B-1479-B133#0221(11.0kW)	1PM6133(11.0kW)
16	MO00186(3.5kW)	A06B-0247-B500(22Nm)	1FK7100(18Nm)
	MO00188(5.0kW)		1FK7101(27Nm)
17	MA00249	MA00249	MA00288

MOTOR COUPLER TABLE

ITEM No.	MOTOR END	SPINDLE END
	HUB 1 DIA. (MM)	HUB 2 DIA. (MM)
22	24	50
	28	50
	32	50
	38	50
	40	50
	42	50
	48	50
	50	50
55	50	

#22 38mm Coupler MA-369



ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	01037267	Z - SLIDE
2	1	SEE TABLE	SPINDLE MOTOR MOUNTING PLATE
3	1	MX10059	REAR MOTOR MOUNT Y - AXIS
4	1	MPTT038	LEAD SCREW END SUPPORT BLOCK
5	1	SEE TABLE	Z - AXIS MOTOR PLATE
6	1	MP00439	7305 BALL SCREW LOCK NUT
7	1	MPTT066	TT24 HEAD COVER
8	1	MPTT075	TT24 Y/Z CABLE TRACK BRACKET
9	1	MPTT086	TT24 HEAD SPLASH GUARD
10	1	10018117	25TAC62 BEARING CUP ASSEMBLY
11	1	SEE TABLE	SPINDLE MOTOR
12	1	MP10108	RETAINING RING EXTERNAL
13	1	BG00002	BEARING NACHI 6204ZZ
14	1	MP00803	BALL SCREW ASSEMBLY
15	2	SEE TABLE	Z-AXIS RAIL
16	1	SEE TABLE	MOTOR
17	1	SEE TABLE	COUPLER
18	1	SEE TABLE	SPINDLE
19	1	MP00958	CTS SPINDLE MOTOR CONNECTING TUBE (CTS OPTION)
20	1	NU00226	DEUBLIN COOLANT UNION
21	26	HD00090	MITEEBITE CLAMP
22	1	SEE TABLE	MOTOR COUPLER
23	6	NU00111	LOC-LINE THREADED INSERT 1/4
24	24	MA00022	LOC-LINE LINKS 1/4
25	6	MA00216	LOC-LINE NOZZLE 1/4
26	1	WX00270	70mm REAR CARTRIDGE SEAL O-RING
** 27	26	RAIL PLUG 35mm	35mm RAIL PLUG
28	2	DOWEL PIN .25 x 1.0	.25 x 1.0 DOWEL PIN
29	10	WASHER LOCK M8	M8 LOCK WASHER
30	4	WASHER LOCK M12	M12 LOCK WASHER
31	4	WASHER LOCK M14	M14 LOCK WASHER
32	16	BHCS M6-1.0 x 10	M6-1.0 x 10mm BHCS
33	6	SHCS M6-1.0 x 20	M6-1.0 x 20mm SHCS
34	4	SHCS M6-1.0 x 30	M6-1.0 x 30mm SHCS
35	2	SHCS M6-1.0 x 120	M6 - 1.0 x 120mm SHCS
36	2	SHCS M8-1.25 x 20	M8-1.25 x 20mm SHCS
37	18	SHCS M8-1.25 x 30	M8-1.25 x 30mm SHCS
* 38	26	SHCS M8-1.25 x 30	M8-1.25 x 30mm SHCS
39	4	SHCS M10-1.5 x 50	M10-1.5 x 50mm SHCS
40	6	SHCS M10-1.5 x 60	M10-1.5 x 60mm SHCS
41	4	SHCS M12-1.75 x 35	M12-1.75 x 35mm SHCS
42	4	SHCS M14-2.0 x 45	M14-2.0 x 45mm SHCS

* ROLLER RAILS USE (50) M8-1.25 x 35mm SHCS

** ROLLER RAILS USE: AN ADDITIONAL (24) RAIL PLUGS

SPINDLE TABLE

ITEM No.	QTY	PART No.	DESCRIPTION
18	1	MP001028	10000 RPM SPINDLE
	1	MP001029	15000 RPM SPINDLE

RAIL TABLE

ITEM No.	QTY	BALL RAIL	ROLLER RAIL
15	2	MPB0047	MP00810

A

UPDATE TO 25TAC62 BEARING

7480

N.M.

03/12

REV.

DESCRIPTION

E.C.O. No.

APP'D BY

DATE

NAME

DATE

DRAWN

DTE

28 FEB 06

MATERIAL:

FINISH:

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES(MM)

TOLERANCES:

FRACTIONAL: ± 1/16 BEND ± .030 (.76)

ONE PLACE DECIMAL ± .010 (.26)

TWO PLACE DECIMAL ± .005 (.13)

THREE PLACE DECIMAL ± .001 (.025)

CNC MACHINES

1400 MILL LANE 952.442.1410

WACONIA, MN 55387 USA

TITLE:

Z-SLIDE SUB-ASSEMBLY

SCALE: 1:12

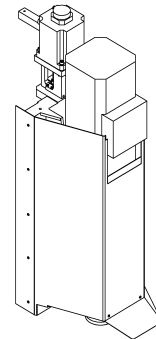
DWG. NO. 10037003

ESTIMATED WEIGHT: 1041.12 Lbs.

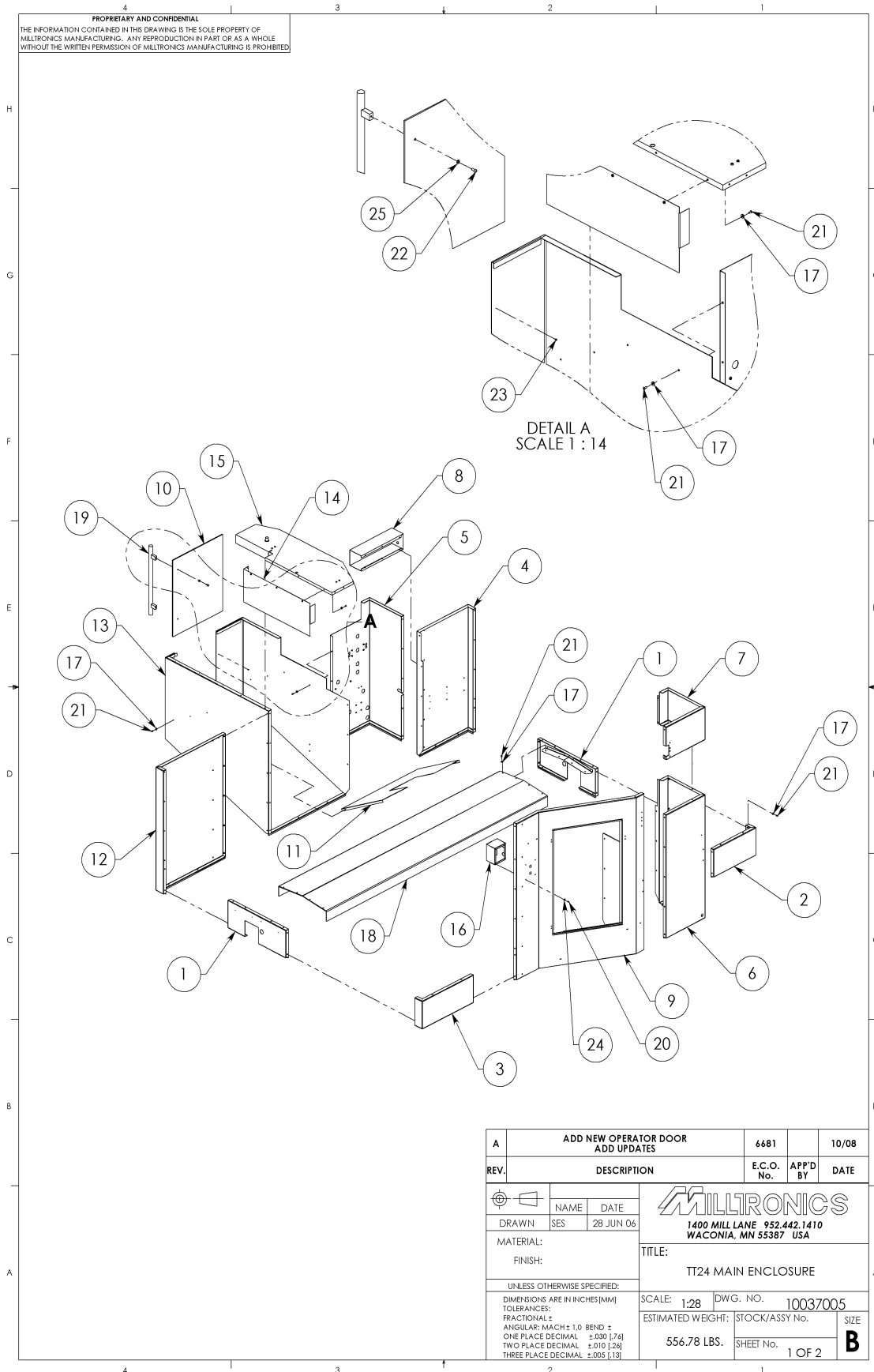
STOCK/ASSY NO.

SHEET NO. 2 OF 2

SIZE B



Main Enclosure Assembly





ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	2	MPTT047	BASE WAY COVER MOUNT ASSEMBLY
2	1	MPTT049	BASE SIDE PANEL-RIGHT
3	1	MPTT046	BASE SIDE PANEL-LEFT
4	1	MPTT050	REAR SIDE PANEL-RIGHT
5	1	MPTT051	COLUMN PANEL-REAR
6	1	MPTT052	COLUMN PANEL - FRONT
7	1	MPTT080	FRONT PANEL COLUMN-TOP
8	1	MPTT078	TABLE READY E-STOP COVER BOX
9	1	MPTT150	OPERATOR DOOR ASSEMBLY
10	1	MPTT054	TOOL CHANGER COVER DOOR - LEXAN
11	1	MPTT112	CHIP DEFLECTOR TT24 ATC COVER
12	1	MPTT048	REAR SIDE PANEL-LEFT
13	1	MPTT055	TOOL CHANGER COVER ASSEMBLY
14	1	MPTT126	AUTO DOOR ACTUATOR SPLASH PANEL
15	1	MPTT090	TT24 CHIP PAN TOP ASSY
16	1	MPH0075	REMOTE SWITCH BOX
17	105	HD00012	M6 RUBBERIZED WASHER
18	1	MPTT040	X-AXIS WAY COVER
19	1	WX00297	HANDLE
20	4	BHCS M5-0.8 x 12	M5-0.8 X 12mm BHCS
21	105	BHCS M6-1.0 x 12	M6-1.0 x 12mm BHCS
22	2	BHCS M8-1.25 x 16	M8 - 1.25 x 16 BHCS
23	2	RHMS 6-32 x .25 NYLON	6-32 X .25 NYLON RHMS
24	4	WASHER FLAT M5	M5 FLAT WASHER
25	2	WASHER FLAT M8	M8 FLAT WASHER

REV.	DESCRIPTION	E.C.O. No.	APP'D BY	DATE
A	ADD NEW OPERATOR DOOR ADD UPDATES	6681		10/08

DRAWN	NAME	DATE
SES		28 JUN 06

MATERIAL:	FINISH:	TITLE:
		TT24 MAIN ENCLOSURE

UNLESS OTHERWISE SPECIFIED:	SCALE:	DWG. NO.
DIMENSIONS ARE IN INCHES(MM) TOLERANCES: FRACTIONAL ± ANGULAR: MACH ± 1.0 BEND ± ONE PLACE DECIMAL ±.030 (.76) TWO PLACE DECIMAL ±.010 (.26) THREE PLACE DECIMAL ±.005 (.13)	1:24	10037005

ESTIMATED WEIGHT:	STOCK/ASSY No.	SIZE
556.78 LBS.		B

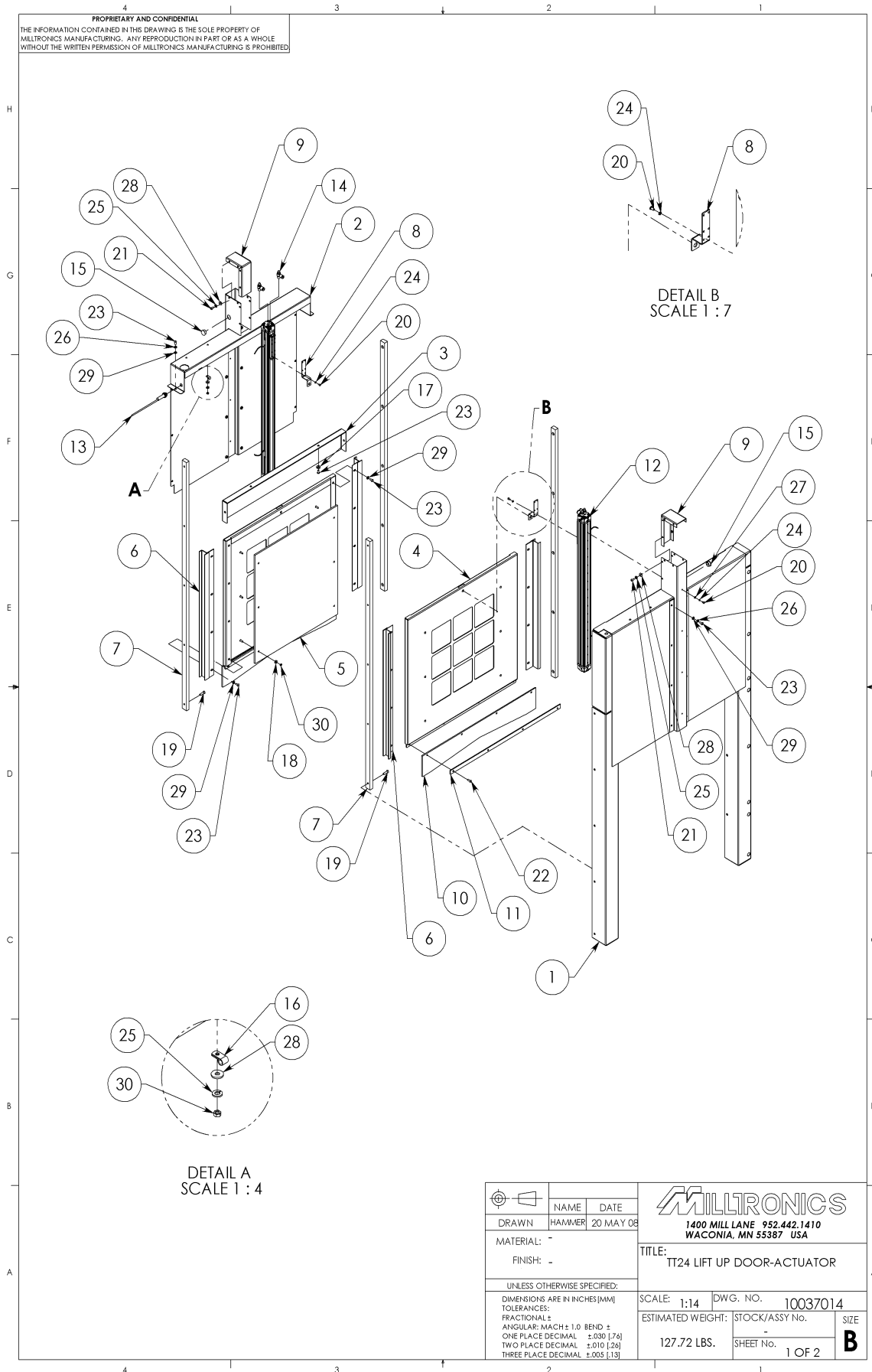
SHEET No.
2 OF 2



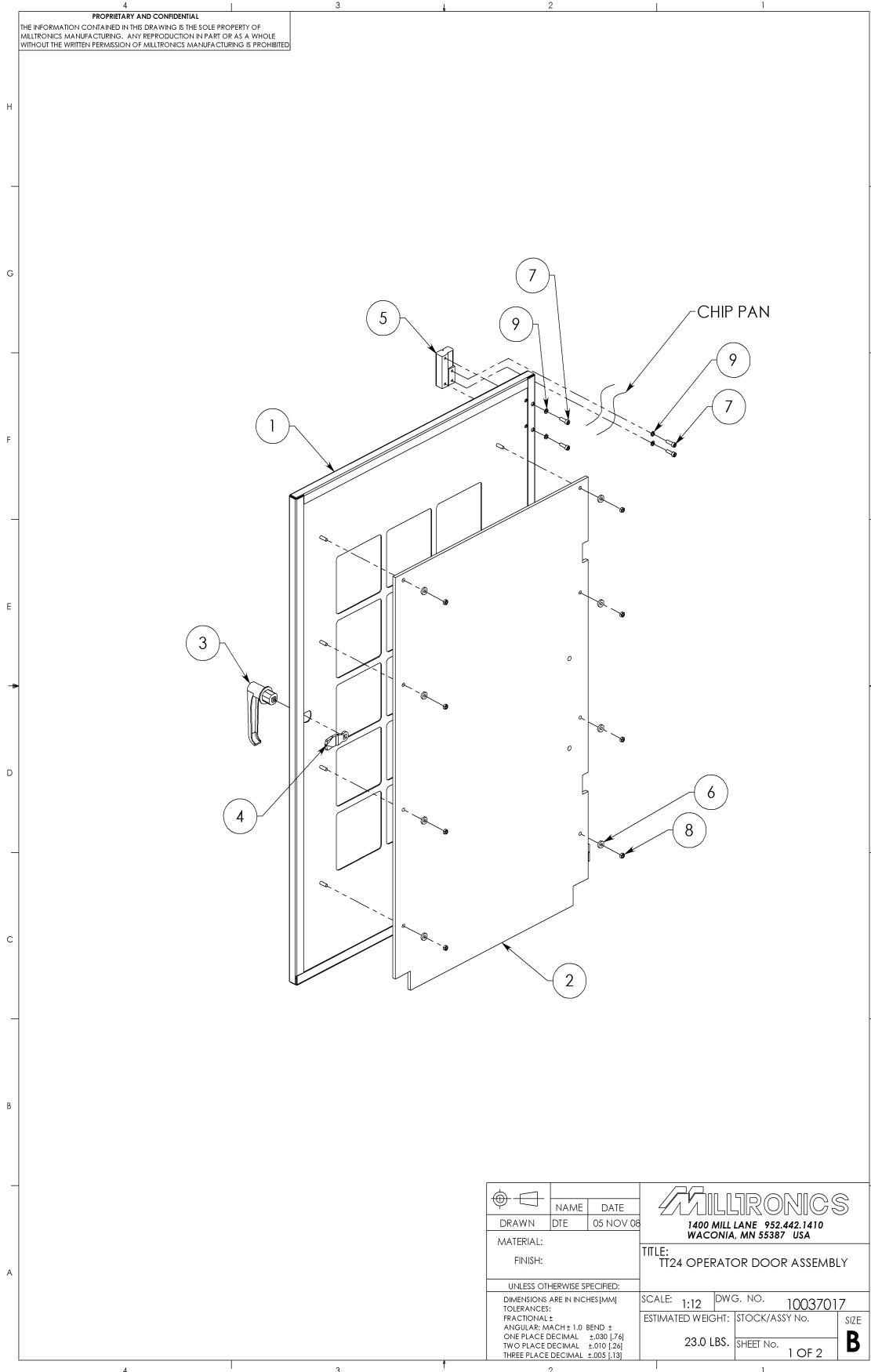
Lift Up Door Assembly

ITEM NO.	TABLE DOORS ASSEMBLY/QTY.	PART NUMBER	DESCRIPTION
1	1	MPTT123	LIFT UP DOOR SUPPORT ASSY
2	1	MPTT122	AUTO DOOR COVER
3	1	MPTT056	BRIDGE FILLER PLATE
4	2	MPTT061	AUTO SIDE DOOR
5	2	MPTT062	AUTO SIDE DOOR - LEXAN
6	4	MPTT060	AUTO SIDE DOOR RAIL BRACKET
7	4	MPTT059	SPACER
8	2	MPTT125	AUTO DOOR ACTUATOR BRACKET
9	2	MPTT124	AUTO DOOR-ACTUATOR COVER-TOP
10	2	MPTT081	RUBBER FLAP
11	2	MPTT083	SIDE DOOR RUBBER PLATE
12	2	10037015	NU00450 ACTUATOR ASSEMBLY
13	2	PR00047	ACTIVE HIGH ATC POCKET PROX SWITCH
14	4	NU00416	FLOW CONTROL
15	2	WX00219	PLUG .75" HOLE
16	4	HOSE CLAMP .25 INCH	1/4" HOSE CLAMP
17	20	HD00012	M6 RUBBERISED WASHER
18	12	HD00058	M5 RUBBERISED WASHER
19	20	FHCS M6-1.0 X 25	M6-1.0 x 25mm FHCS
20	20	BHCS M4-0.7 x 8	M4-0.7 x 8 BHCS
21	16	BHCS M5-0.8 x 12	M5-0.8 X 12mm BHCS
22	8	BHCS M5-0.8 x 16	M5-0.8 x 16 BHCS
23	36	BHCS M6-1.0 x 12	M6 - 1.0 x 12 BHCS
24	20	WASHER LOCK M4	M4 LOCK WASHER
25	20	WASHER LOCK M5	M5 LOCK WASHER
26	36	WASHER LOCK M6	M6 LOCK WASHER
27	20	WASHER FLAT M4	WASHER FLAT M4
28	20	WASHER FLAT M5	M5 FLAT WASHER
29	36	WASHER FLAT M6	M6 FLAT WASHER
30	16	NUT HEX M5-0.8	M5 - 0.8 HEX NUT

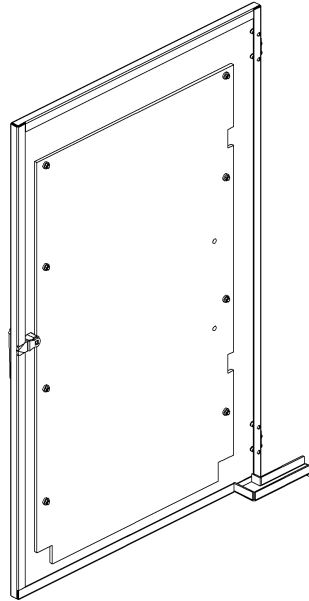
	NAME	DATE
	DRAWN	HAMMER 20 MAY 08
MATERIAL: -		TITLE: TT24 LIFT UP DOOR-ACTUATOR
FINISH: -		
UNLESS OTHERWISE SPECIFIED:		
DIMENSIONS ARE IN INCHES (MM)		SCALE: 1:16
TOLERANCES:		DWG. NO. 10037014
FRACTIONAL: ±		ESTIMATED WEIGHT: STOCK/ASSY NO.
ANGULAR: MACH ± 1.0 BEND ±		127.72 LBS.
ONE PLACE DECIMAL ±.030 (.76)		SHEET No. 2 OF 2
TWO PLACE DECIMAL ±.010 (.26)		SIZE B
THREE PLACE DECIMAL ±.005 (.13)		



Operator Door Assembly



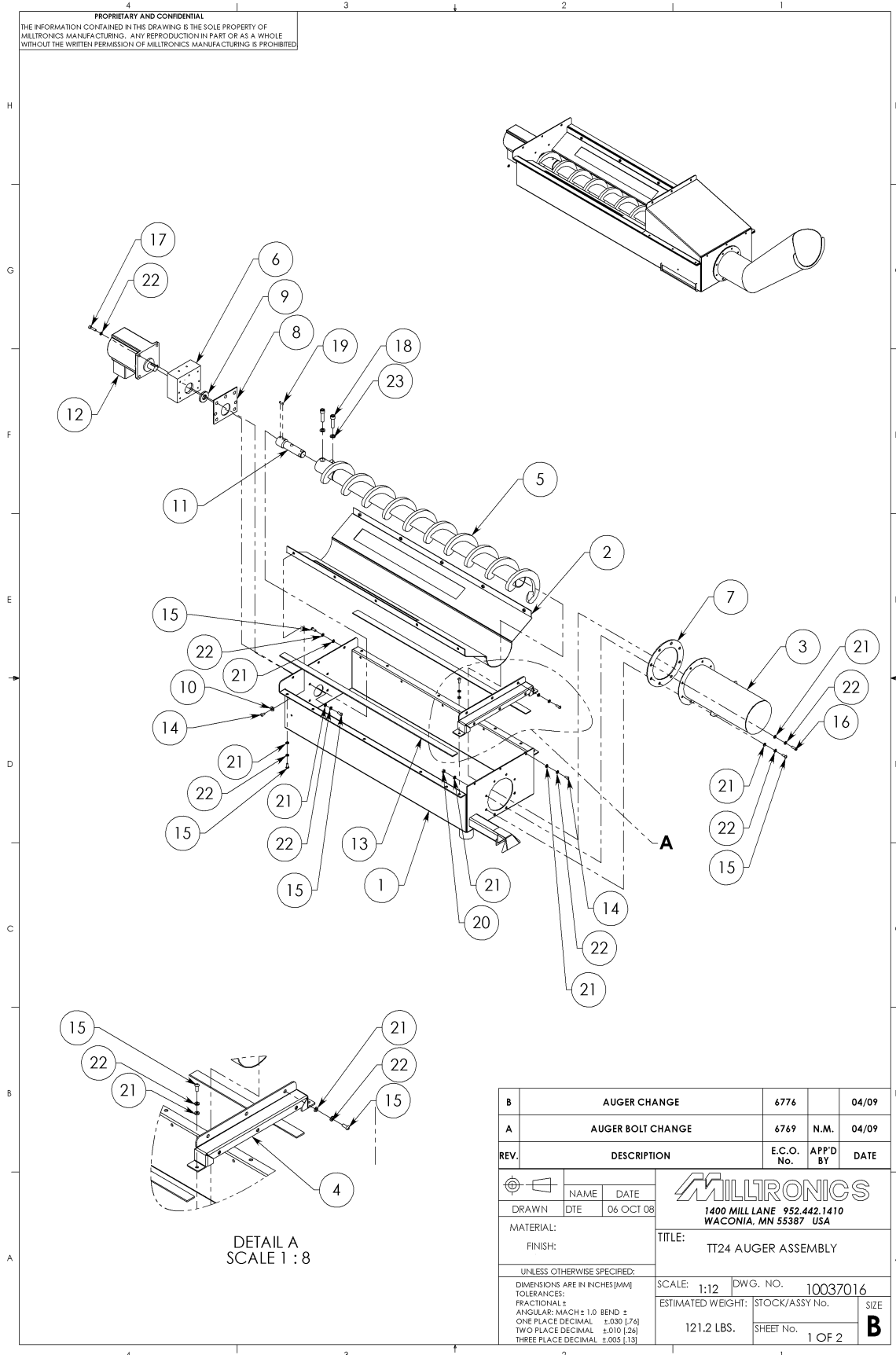
PROPRIETARY AND CONFIDENTIAL
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WITHOUT THE WRITTEN PERMISSION OF MILLTRONICS MANUFACTURING IS PROHIBITED.



ITEM NO.	OPERATOR DOOR/QTY.	PART NUMBER	DESCRIPTION
1	1	MPTT140	TT24 SWING OPERATOR DOOR
2	1	MP00239	OPERATOR DOOR - LEXAN
3	1	WX00348	NON LOCKING HANDLE
4	1	WX00349	1/4 TURN CAM LATCH
5	2	WX00354	OFFSET HINGE TYPE A
6	8	HD00058	M5 RUBBERISED WASHER
7	8	SHCS 10-32 x .625	10-32 x .625 SHCS
8	8	WASHER LOCK M8	M8 LOCK WASHER
9	8	WASHER LOCK #10	WASHER LOCK #10

	NAME	DATE	MILLTRONICS 1400 MILL LANE 952.442.1410 WACONIA, MN 55387 USA
	DRAWN	DTE	
MATERIAL:			TITLE: TT24 OPERATOR DOOR ASSEMBLY
FINISH:			
UNLESS OTHERWISE SPECIFIED:			SCALE: 1:12 DWG. NO. 10037017
DIMENSIONS ARE IN INCHES (MM)			ESTIMATED WEIGHT: 23.0 LBS.
TOLERANCES:			STOCK/ASSY No.
FRACTIONAL ±			SHEET No. 2 OF 2
ANGULAR: MACH ± 1.0 BEND ±			SIZE B
ONE PLACE DECIMAL ±.030 [.76]			
TWO PLACE DECIMAL ±.010 [.26]			
THREE PLACE DECIMAL ±.005 [.13]			

Auger Assembly

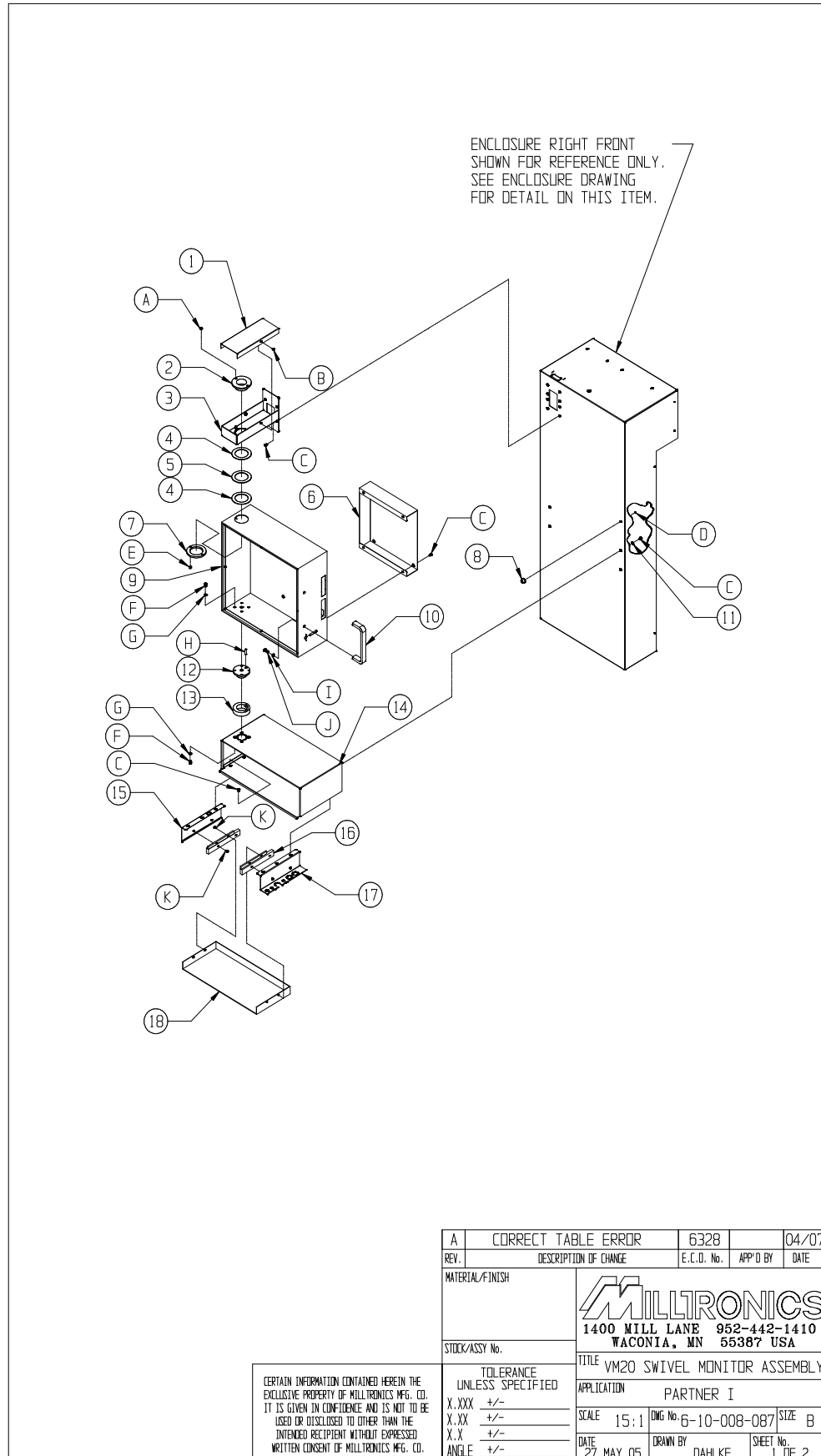


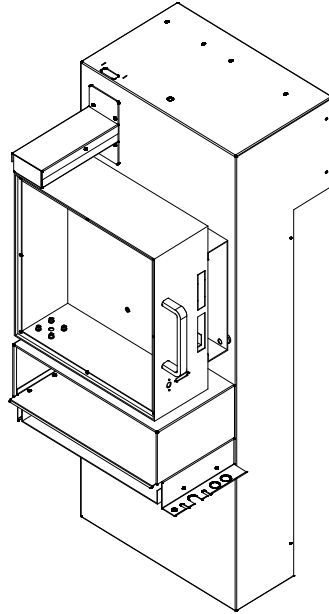
ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	1	SEE TABLE	TT24 AUGER CATCH PAN
2	1	SEE TABLE	TT24 AUGER TROUGH - WITH CONVEYOR
3	1	SEE TABLE	AUGER OUT CHUTE
4	1	SEE TABLE	TT24 CATCH PAN COVER - WITH CONVEYOR
5	1	SEE TABLE	AUGER ASSEMBLY
6	1	MP00440	BROTHER AUGER MOTOR MOUNTING BRACKET
7	1	WX00355	ROUND AUGER GASKET
8	1	WX00313	AUGER MOTOR PLATE GASKET
9	1	BG00069	BEARING CUP OIL SEAL
10	10	HD00012	M6 RUBBERIZED WASHER
11	1	MP00441	BROTHER AUGER DRIVE SHAFT
12	1	MO00120	AUGER MOTOR
13	2	WX00276	GASKET (2 @ 34")
14	13	BHCS M6-1.0 x 12	M6 - 1.0 x 12mm BHCS
15	SEE TABLE	BHCS M6-1.0 x 16	M6 - 1.0 x 16mm BHCS
16	4	BHCS M6-1.0 x 20	M6-1.0 x 20mm BHCS
17	4	SHCS M6-1.0 x 25	M6-1.0 x 25mm SHCS
18	2	SHCS M10-1.5 x 40	M10-1.5 X 40mm SHCS
19	2	SHSS 10-32 x .25	10-32 x .25 SHSS
20	4	NUT HEX NYLOCK M6-1.0	M6-1.0 NYLOCK HEX NUT
21	SEE TABLE	WASHER FLAT M6	M6 FLAT WASHER
22	SEE TABLE	WASHER LOCK M6	M6 LOCK WASHER
23	2	WASHER LOCK M10	M10 LOCK WASHER

ITEM NO.	CONVEYOR	CHUTE
1	MPTT133	MPTT138
2	MPTT135	MPTT136
3	MPTT131	MPTT132
4	MPTT134	MPTT137
5	MPTT139 (42.5")	MPTT139 (53")
15	QTY - 26	QTY - 30
21	QTY - 37	QTY - 41
22	QTY - 37	QTY - 41

REV.	DESCRIPTION	E.C.O. No.	APP'D BY	DATE
B	AUGER CHANGE	6776		04/09
A	AUGER BOLT CHANGE	6769	N.M.	04/09

DRAWN		DATE		MATERIAL:		FINISH:		TITLE:	
DTE	06 OCT 08							TT24 AUGER ASSEMBLY	
UNLESS OTHERWISE SPECIFIED:				SCALE: 1:16		DWG. NO. 10037016		ESTIMATED WEIGHT: 121.2 LBS.	
DIMENSIONS ARE IN INCHES (MM)				TOLERANCES:		STOCK/ASSY No.		SHEET No. 2 OF 2	
FRACTIONAL ±				ANGULAR: MACH ± 1.0 BEND ±				SIZE B	
ONE PLACE DECIMAL ±.030 [1.76]				TWO PLACE DECIMAL ±.010 [1.26]					
THREE PLACE DECIMAL ±.005 [1.3]									





Not Shown		
Qty	Part #	Description
1	MA-495	Cycle light
1	MA-494	LED work light

PARTS LIST			
No.	QTY	STOCK No.	DESCRIPTION
1	1	MP1-494	COVER SWIVEL MONITOR UPPER SUPPORT ARM
2	1	MP-663	FLANGED BUSHING - SWIVEL MONITOR
3	1	MP1-491	UPPER SUPPORT ARM - SWIVEL MONITOR
4	2	WX-295	WASHER - SWIVEL MONITOR
5	1	MP3D-12	WAVE WASHER
6	1	MP-653	3-RING BINDER POCKET - SWIVEL MONITOR
7	1	MP-647	COLLAR - SWIVEL MONITOR
8	1	WX-156	BLACK BUMPER
9	1	SEE TABLE	SWIVEL MONITOR BOX
10	1	WX-230	HANDLE
11	4	HD-12	RUBBERIZED WASHER
12	1	MP-648	SWIVEL PIVOT BUSHING
13	1	MP-649	SWIVEL PIVOT BASE
14	1	MP1-492	SWIVEL MONITOR BASE
15	1	MP1-498	BRACKET - SWIVEL MONITOR DRAWER OPTION
16	1	MP-654	8" FULL EXTENSION ACCURIDE SLIDE
17	1	MP1-497	UTILITY TRAY - SWIVEL MONITOR
18	1	MP-626	TRAY - KEYBOARD PULL-OUT

PARTS LIST		
No.	QTY	DESCRIPTION
A	2	M6-1 NYLOCK NUT
B	2	M5-.8 x 10mm BHCS
C	18	M6-1 x 10mm BHCS
D	1	8-32 NYLOCK NUT
E	2	M5-.8 NYLOCK NUT
F	8	M6-1 x 10mm SHCS
G	8	M6 LOCK WASHER
H	1	1/4 x .5 DOWEL PIN
I	2	M8 FLAT WASHER
J	2	M8-1.25 x 20mm BHCS
K	8	M3-.5 x 10mm BHCS

SWIVEL BOX TABLE		
No.	CENT.	INT. CONTROL
9	MM-80	MPIC-03

A	CORRECT TABLE ERROR	6328		04/07
REV.	DESCRIPTION OF CHANGE	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 VM20 SWIVEL MONITOR ASSEMBLY		
X.XXX +/-		APPLICATION PARTNER I		
X.XX +/-		SCALE 10:1 DWG No. 6-10-008-087 SIZE B		
X.X +/-		DATE 27 MAY 05 DRAWN BY DAHLKE SHEET No. 2 OF 2		
ANGLE +/-				

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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

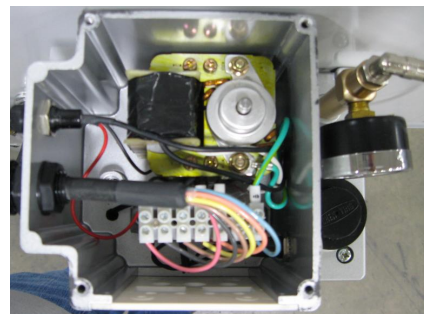
	Old style	New style
Model #	CESD	CEN01
Part #	MA00219	MA00458
Timer function ON/OFF	Built-in controls	Via CNC #66
Audible alarm	YES	NO
Oil pressure gauge	NO	YES
Manual override button	YES	YES

Software & control

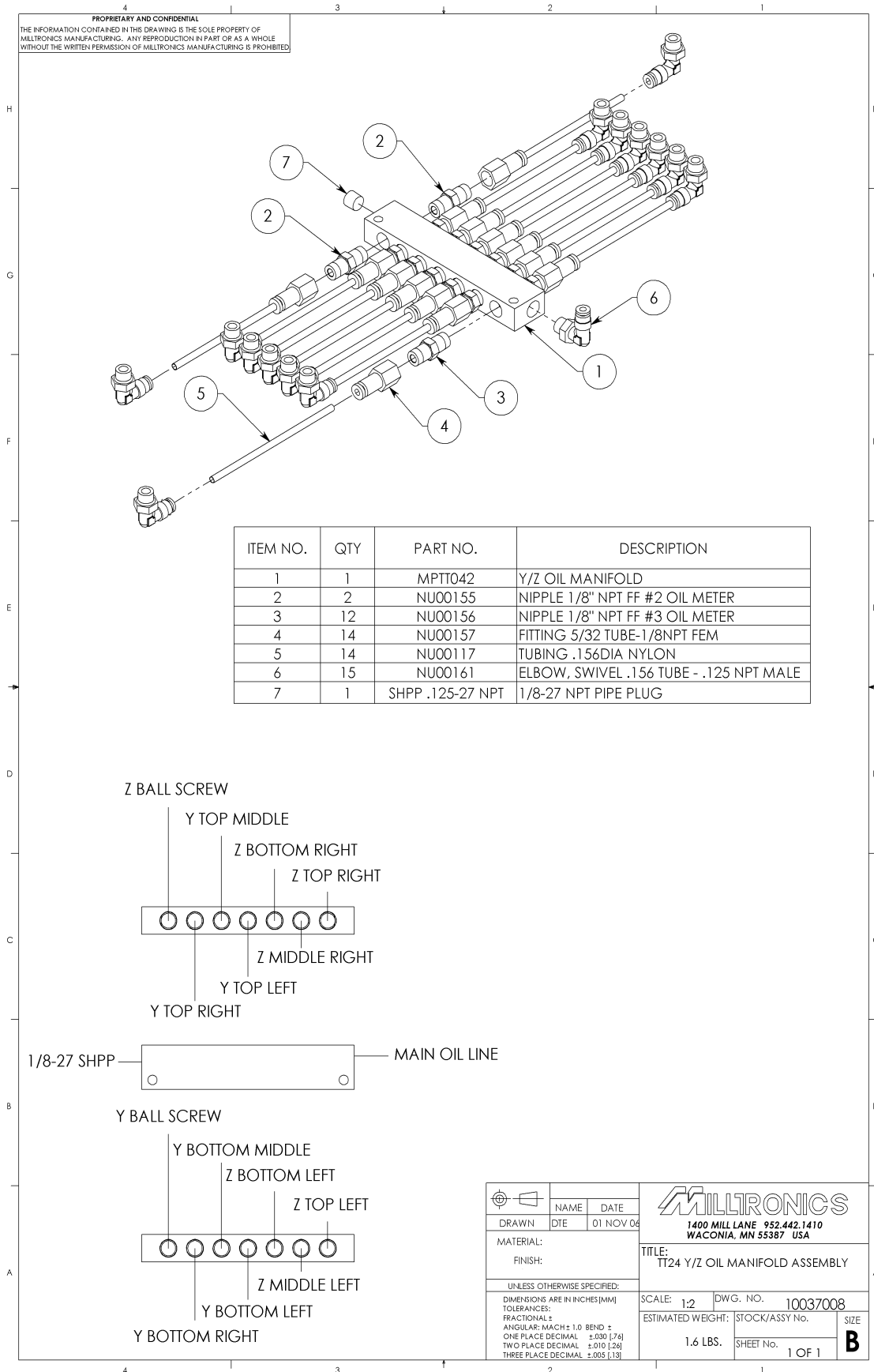
All 8200 versions have the functionality. 7200 version 77401 or higher is required to have the functionality.

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



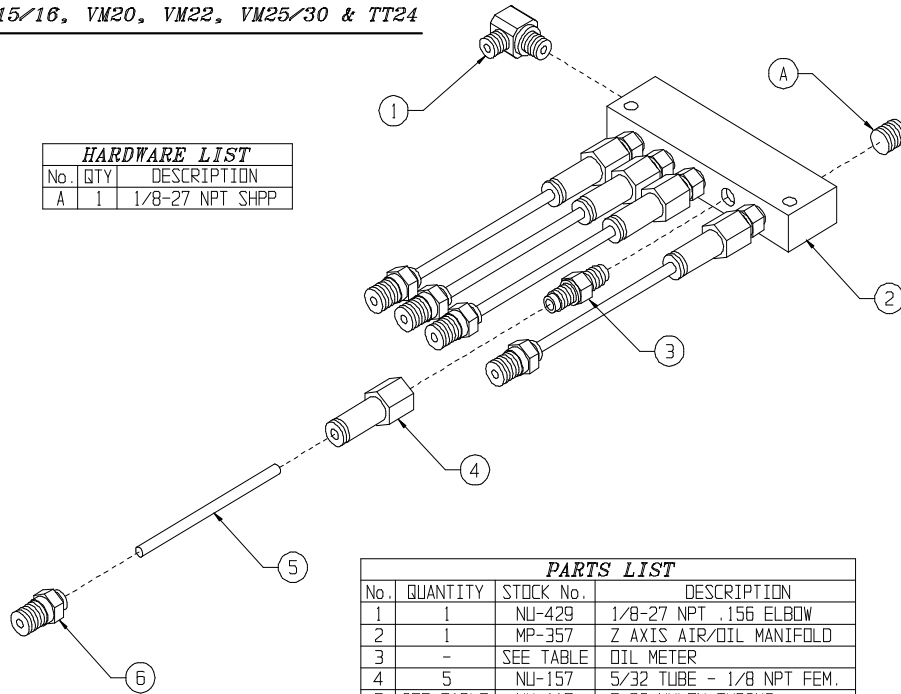
Autolube Manifold Assembly for Y and Z Axes



Autolube Manifold Assembly for X-Axis

THIS ASSEMBLY USED ON
VM15/16, VM20, VM22, VM25/30 & TT24

HARDWARE LIST		
No.	QTY	DESCRIPTION
A	1	1/8-27 NPT SHPP



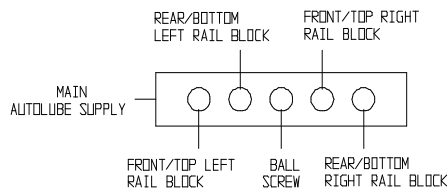
PARTS LIST			
No.	QUANTITY	STOCK No.	DESCRIPTION
1	1	NU-429	1/8-27 NPT .156 ELBOW
2	1	MP-357	Z AXIS AIR/OIL MANIFOLD
3	-	SEE TABLE	OIL METER
4	5	NU-157	5/32 TUBE - 1/8 NPT FEM.
5	SEE TABLE	NU-117	5/32 NYLON TUBING
6	5	SEE TABLE	5/32 TUBE-1/8 NPT M/S

NU-117 TUBING LENGTH						OIL METER
CONNECTION	VM15/16	VM20	VM22	VM25/30	TT24	
FRONT/TOP LEFT RAIL BLOCK	18	20	30	30	10	No.3 (NU-156)
REAR/BOTTOM LEFT RAIL BLOCK	35	14	42	42	20	No.3 (NU-156)
BALL SCREW	24	15	30	30	8	No.2 (NU-155)
REAR/BOTTOM RIGHT RAIL BLOCK	35	8	42	42	20	No.3 (NU-156)
FRONT/TOP RIGHT RAIL BLOCK	18	11	30	30	10	No.3 (NU-156)

ALL MEASUREMENTS ARE IN INCHES

No.	DESCRIPTION	VM15/16	VM20	VM22	VM25/30	TT24
6	ROLLER RAIL	NU-315	NU-315	NU-315	NU-315	NU-315
	BALL RAIL	NU-315 NU-154	NU-315	NU-315	NU-315	NU-315

AUTOLUBE LINE DESTINATIONS



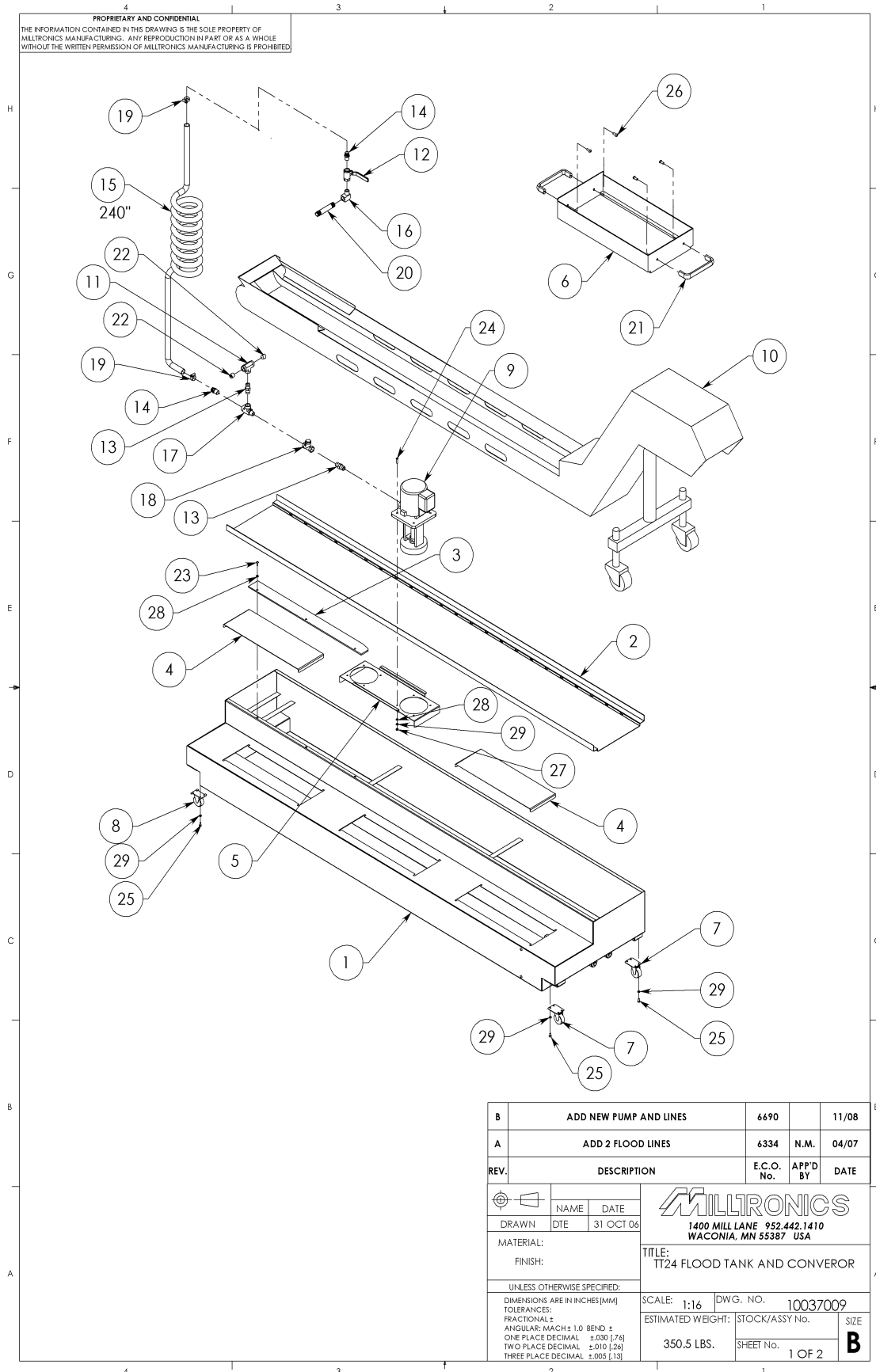
NOTES:

1. USED ON ASSEMBLY No.

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B	ADD TT24	6750		03/09		
A	ADD FRAMES TO CHART	6001	N. M.	08/05		
REV.	DESCRIPTION	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 5 PORT AUTOLUBE MANIFOLD ASSEMBLY	
X. XXX ± X. XX ± X. X ± ANGLE ±					APPLICATION GENERAL PRODUCTS	
		SCALE 1.5:1	DWG No. 6-10-018-050	SIZE B		
		DATE 20 AUG 97	DRAWN BY THOMPSON	SHEET NO. 1 OF 1		

Coolant Trough Assembly

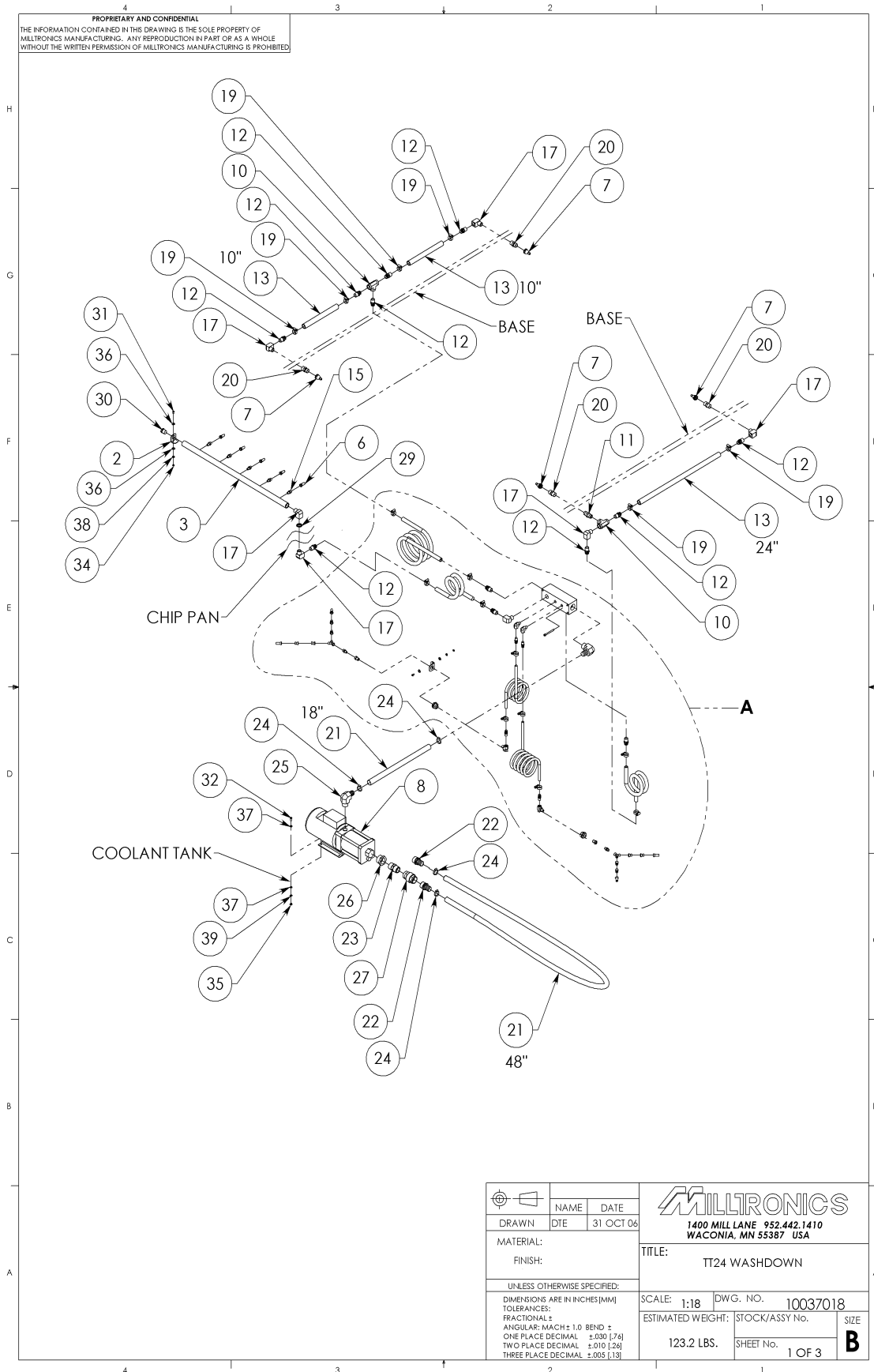


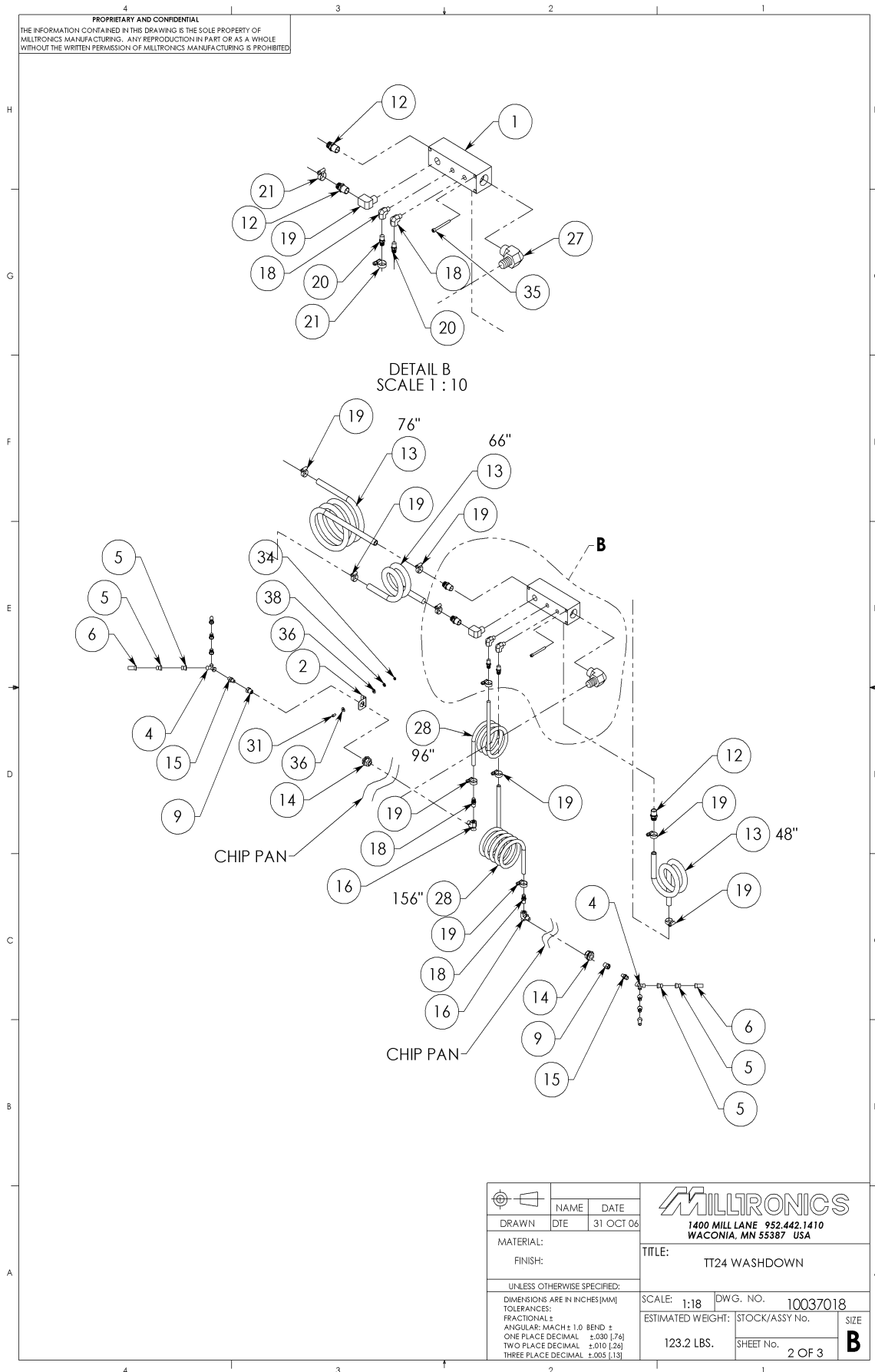
ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	MPTT145	TT24 COOLANT TANK - 98"
2	1	MPTT146	TT24 98" CONVEYOR SCREEN
3	1	MPTT084	TT24 COOLANT TANK CONVEYOR GUIDE PLATE
4	2	MPTT091	PUMP PLATE FILLER SCREEN
5	1	MP00755	PUMP PLATE
6	1	MP00751	CHIP DRAWER
7	2	EL00088	WHEEL CASTER
8	2	EL00098	STRAIGHT CASTER
9	1	MA00162	FLOOD PUMP MOTOR
10	1	MP00762	VM20 CONVEYOR
11	1	NU00061	1/2" FEMALE T
12	1	NU00064	1/2"NPT BALL VALVE
13	2	NU00065	1/2-14 NPT MALE/MALE NIPPLE
14	2	NU00066	FITTING 1/2NPT - 3/4 BARB
15	1	NU00069	NYLABRAID 3/4" 4511-0751
16	1	NU00125	1/2" STREET ELBOW
17	1	NU00127	TEE 1/2"NPT STREET 2225P-8
18	1	NU00128	1/2" SWING CHECK VALVE
19	2	NU00141	1" HOSE CLAMP
20	1	NU00393	PIPE NIPPLE 4" X 1/2" NPT
21	2	WX00230	HANDLE
22	2	SHPP .50-14 NPT	1/2-14 NPT SHPP
23	3	BHCS M6-1.0 x 16	M6 - 1.0 x 16 BHCS
24	4	M6-1.0 X 25mm BHCS	M6-1.0 X 25mm BHCS
25	8	SHCS M6-1.0 x 12	M6-1.0 x 12 SHCS
26	4	BHCS M8-1.25 x 16	M8 - 1.25 x 16 BHCS
27	4	NUT HEX M6-1	M6-1 HEX NUT
28	7	WASHER FLAT M6	M6 FLAT WASHER
29	12	WASHER LOCK M6	M6 LOCK WASHER

B	ADD NEW PUMP AND LINES	6690		11/08
A	ADD 2 FLOOD LINES	6334	N.M.	04/07
REV.	DESCRIPTION	E.C.O. No.	APP'D BY	DATE
DRAWN: [] NAME: [] DATE: 31 OCT 06		1400 MILL LANE 952.442.1410 WACONIA, MN 55387 USA		
MATERIAL: FINISH:		TITLE: TT24 FLOOD TANK AND CONVEYOR		
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES (MM) TOLERANCES: FRACTIONAL ± ANGULAR: MACH ± 1.0 BEND ± ONE PLACE DECIMAL ±.030 [.76] TWO PLACE DECIMAL ±.010 [.26] THREE PLACE DECIMAL ±.005 [.13]		SCALE: 1:64 ESTIMATED WEIGHT: 350.5 LBS.	DWG. NO. 10037009 STOCK/ASSY No. SHEET No. 2 OF 2	SIZE B



Washdown Assembly





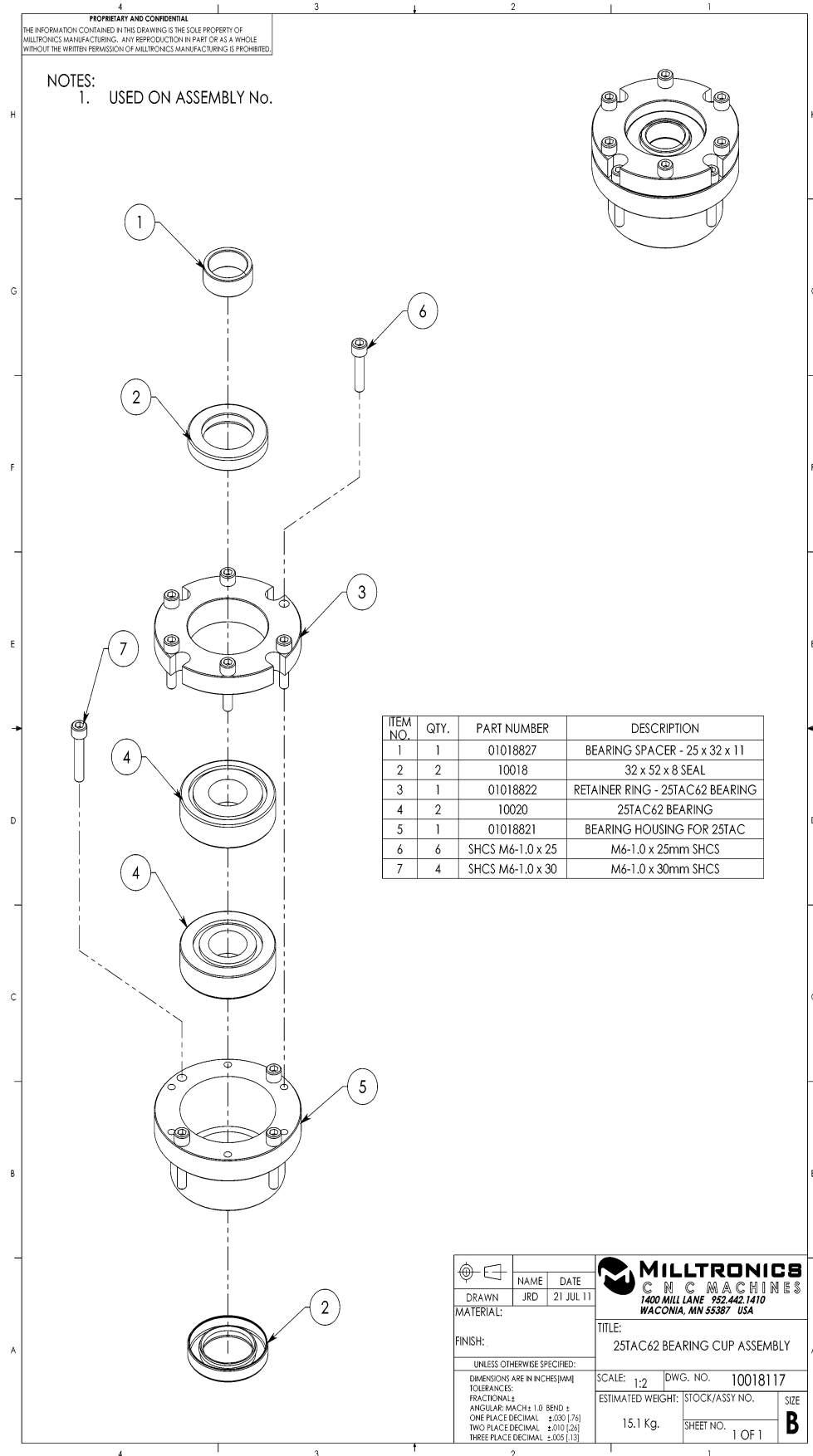


ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	1	MPTT149	WASHDOWN MANIFOLD
2	2	BR00074	BULK HEAD MOUNTING BRACKET
3	1	MPTT148	WASH DOWN PIPE
4	2	MA00020	SNAP LOC 1/4" Y
5	8	MA00022	LOC-LINE LINKS 1/4
6	9	MA00216	LOC-LINE NOZZLE 1/4
7	4	MA00404	NOZZEL - 1/2" FITTING W/1/4" END
8	1	MA00405	WALRUS PUMP
9	2	NU00034	REDUCER 1/4 NPT TO 1/8 NPT
10	2	NU00061	1/2" FEMALE T
11	1	NU00065	1/2-14 NPT MALE/MALE NIPPLE
12	12	NU00066	FITTING 1/2NPT - 3/4 BARB
13	6	NU00069	NYLABRAID 3/4" 4511-0751
14	2	NU00094	COUPLING 1/4" NPT ANCHOR
15	7	NU00111	LOC-LINE THREADED INSERT 1/4
16	4	NU00114	1/4" NPT STREET ELBOW
17	7	NU00125	1/2" STREET ELBOW
18	4	NU00139	FITTING 1/4NPT-1/2 BARB
19	16	NU00141	1" HOSE CLAMP
20	4	NU00176	1/2" CONNECTOR
21	2	NU00237	NYLABRAID 1"
22	2	NU00267	1"NPT TO 1" HOSE FITTING
23	1	NU00268	1"NPT MALE HEX NIPPLE
24	4	NU00273	CLAMP 1.5 HOSE
25	2	NU00352	ELBOW 1"
26	1	NU00457	REDUCER 1.25NPT TO 1.0NPT
27	1	NU00468	1" CHECK VALVE
28	2	NU00496	1/2" DIA COOLANT HOSE
29	1	WX00038	O-RING .5"
30	1	PIPE PLUG .50 NPT HEX HEAD	1/2" HEX HEAD PIPE PLUG
31	4	BHCS M5-0.8 x 12	M5-0.8 X 12mm BHCS
32	4	BHCS M6-1.0 x 16	M6 - 1.0 x 16 BHCS
33	3	SHCS M6-1.0 X 65	M6-1.0 X 65 SHCS
34	4	WASHER LOCK M8	M5 - 0.8 NYLOCK HEX NUT
35	4	NUT HEX M6-1	M6-1 HEX NUT
36	8	WASHER FLAT M5	M5 FLAT WASHER
37	8	WASHER FLAT M6	M6 FLAT WASHER
38	4	WASHER LOCK M5	M5 LOCK WASHER
39	4	WASHER LOCK M6	M6 LOCK WASHER

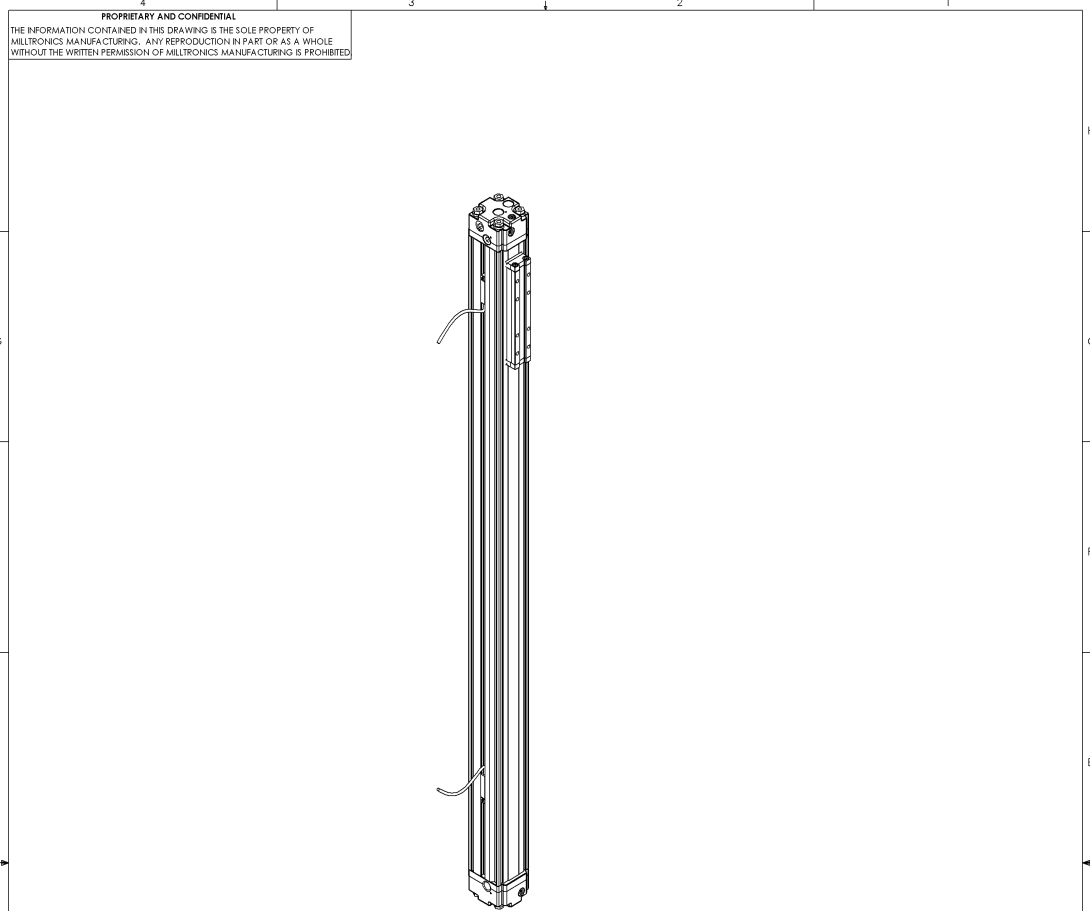
	NAME	DATE
DRAWN	DTE	31 OCT 06
MATERIAL:		
FINISH:		
UNLESS OTHERWISE SPECIFIED:		
DIMENSIONS ARE IN INCHES (MM)		
TOLERANCES:		
FRACTIONAL ±		
ANGULAR: MACH ± 1.0 BEND ±		
ONE PLACE DECIMAL ±.030 (.76)		
TWO PLACE DECIMAL ±.010 (.26)		
THREE PLACE DECIMAL ±.005 (.13)		

1400 MILL LANE 952.442.1410 WACONIA, MN 55387 USA	
TITLE: TT24 WASHDOWN	
SCALE: 1:64	DWG. NO. 10037018
ESTIMATED WEIGHT: 123.2 LBS.	STOCK/ASSY No.
SHEET NO. 3 OF 3	SIZE B

Thrust Bearing Cup Assembly (25TAC62)

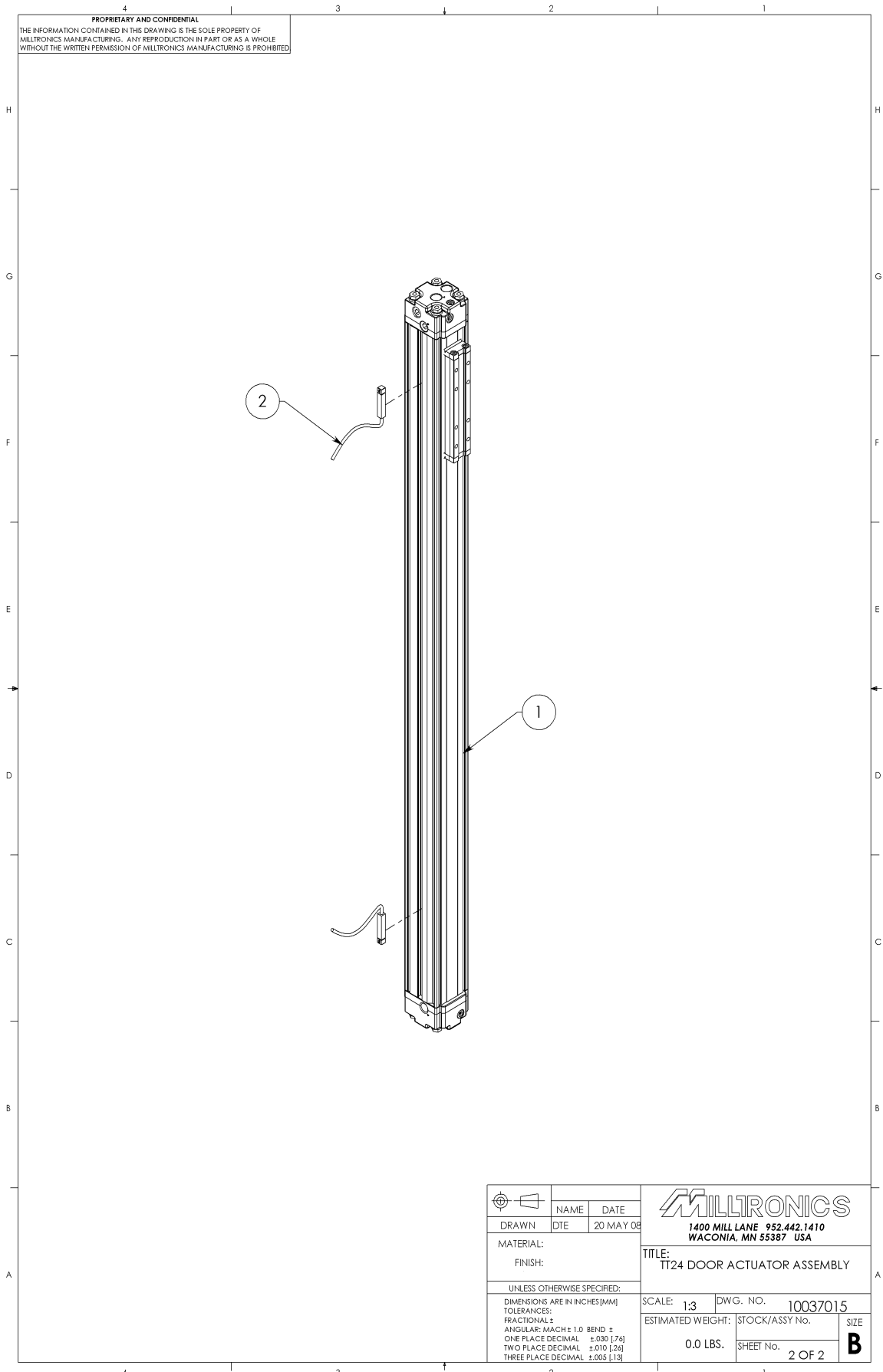


Auto Door Cylinder Assembly

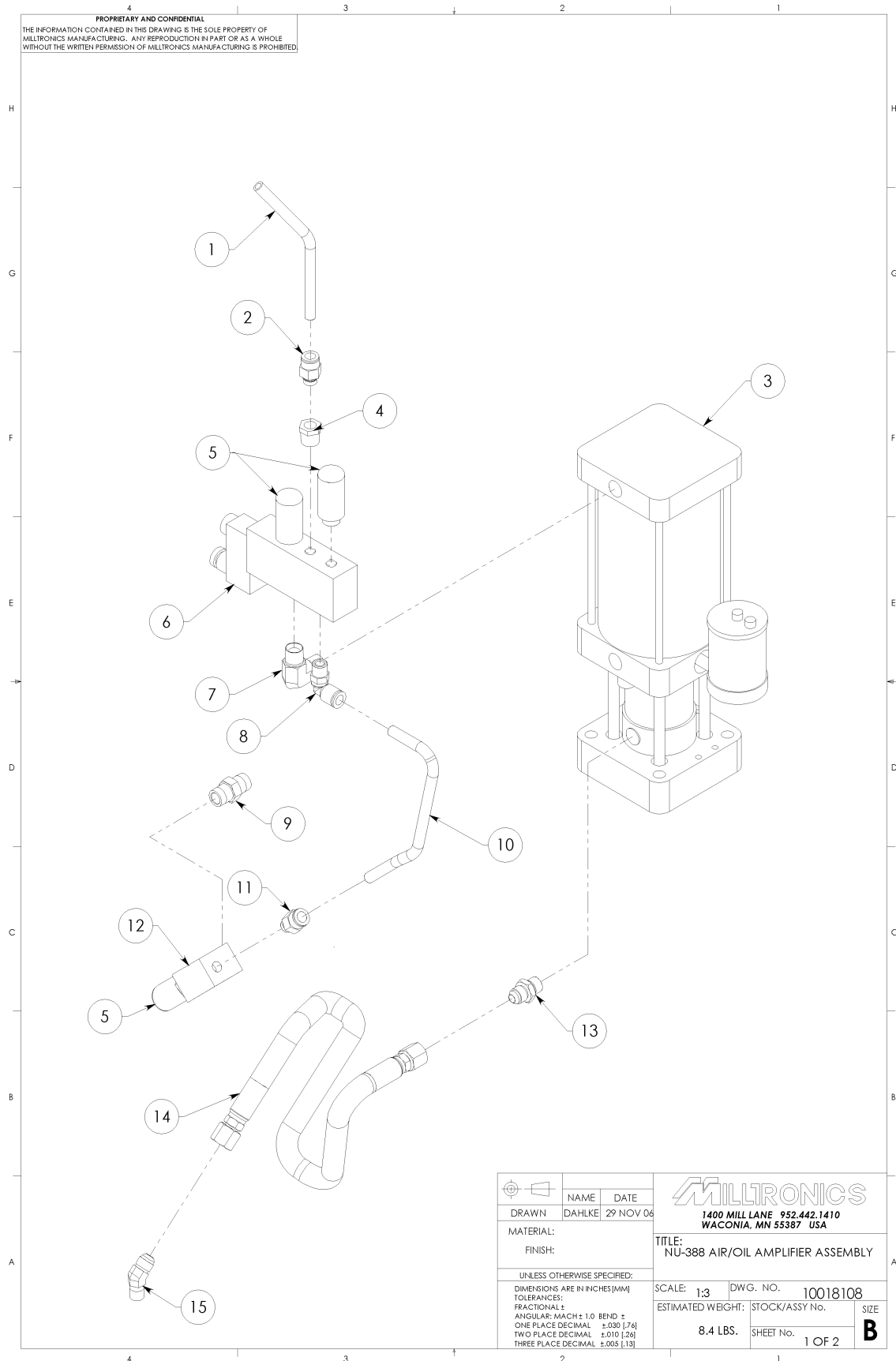


ITEM NO.	Default/QTY.	PART NUMBER	DESCRIPTION
1	1	NU00450	TT24 DOOR ACTUATOR
2	2	PR00062	REED SWITCH

	NAME		DATE	
	DRAWN	DTE	20 MAY 08	
MATERIAL:		MILLTRONICS 1400 MILL LANE 952.442.1410 WACONIA, MN 55387 USA		
FINISH:				
UNLESS OTHERWISE SPECIFIED:		TITLE: TT24 DOOR ACTUATOR ASSEMBLY		
DIMENSIONS ARE IN INCHES (MM) TOLERANCES: FRACTIONAL ± ANGULAR: MACH ± 1.0 BEND ± ONE PLACE DECIMAL ±.030 (.76) TWO PLACE DECIMAL ±.010 (.26) THREE PLACE DECIMAL ±.005 (.13)		SCALE: 1:4	DWG. NO. 10037015	SIZE B
		ESTIMATED WEIGHT: 0.0 LBS.	STOCK/ASSY NO.	
		SHEET No. 1 OF 2		



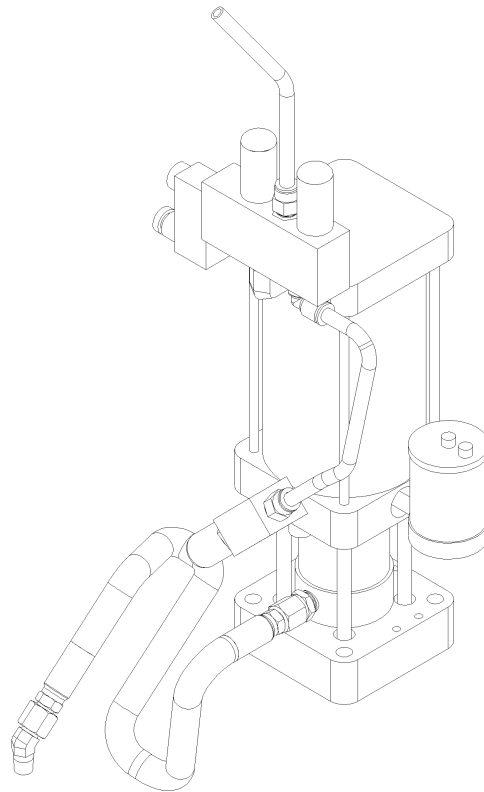
Air/Oil Drawbar Assembly





4 3 2 1

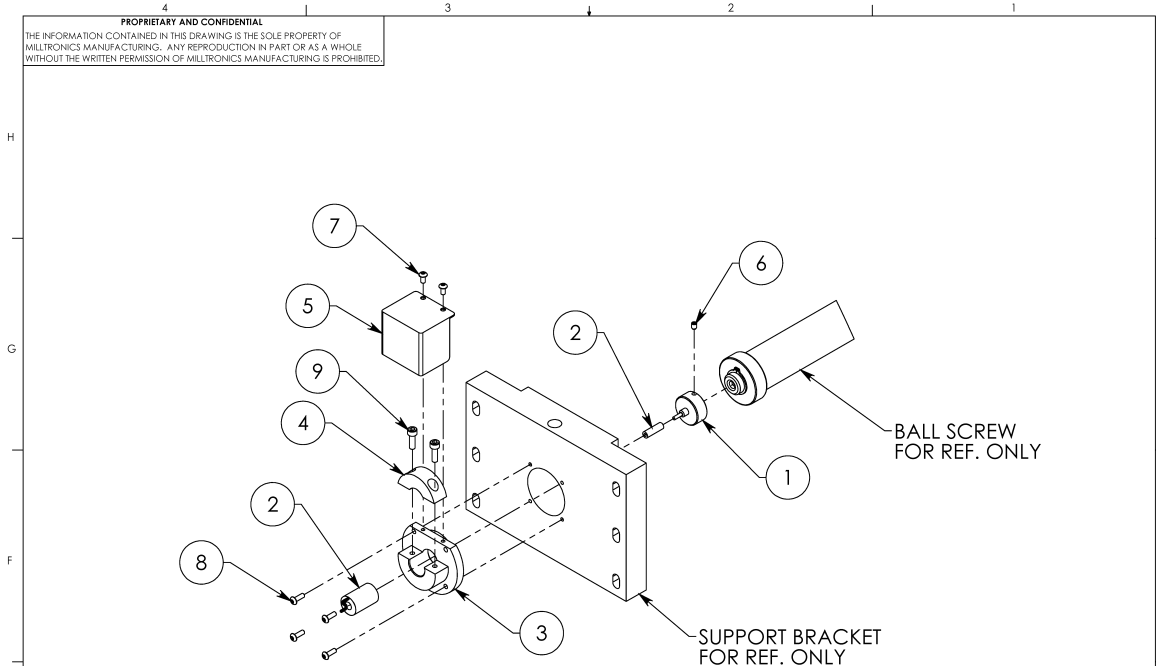
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ITEM NO.	QTY	PART NO.	DESCRIPTION
1	1	NU00078	3/8 AIR LINE
2	1	NU00095	TUBE CONNECTOR - M/S 3/8 TUBE 1/4NPT
3	1	NU00408	AIR/OIL AMPLIFIER SYSTEM
4	1	NU00027	REDUCER - 3/8 x 1/4NPT
5	3	NU00375	MUFFLER
6	1	NU00293	SOLENOID VALVE
7	1	NU00292	MALE ELBOW - 3/8NPT
8	1	NU00412	SWIVEL ELBOW - M/S 10mm TUBE 3/8NPT
9	1	NU00235	NIPPLE - 3/8NPT
10	1	NU00306	10mm AIR LINE
11	1	NU00297	TUBE CONNECTOR - M/S 10mm TUBE 3/8NPT
12	1	NU00402	EXHAUST VALVE
13	1	NU00409	FLARE FITTING - 3/8NPT
14	1	NU00403	19" INLINE AMPLIFIER HOSE
15	1	NU00410	ELBOW FLARE FITTING - 1/8NPT x 45°

	NAME	DATE	
	DRAWN	DAHLKE	
MATERIAL:		TITLE:	
FINISH:		NU-388 AIR/OIL AMPLIFIER ASSEMBLY	
UNLESS OTHERWISE SPECIFIED:		SCALE: 1:3	DWG. NO. 10018108
DIMENSIONS ARE IN INCHES (MM)		ESTIMATED WEIGHT: 8.4 LBS.	STOCK/ASSY No.
TOLERANCES:		SHEET No. 2 OF 2	
FRACTIONAL ±		SIZE B	
ANGULAR: MACH ± 1.0 BEND ±			
ONE PLACE DECIMAL ±.030 [.76]			
TWO PLACE DECIMAL ±.010 [.26]			
THREE PLACE DECIMAL ±.005 [.13]			

Thermal Compensation Sensor Assembly



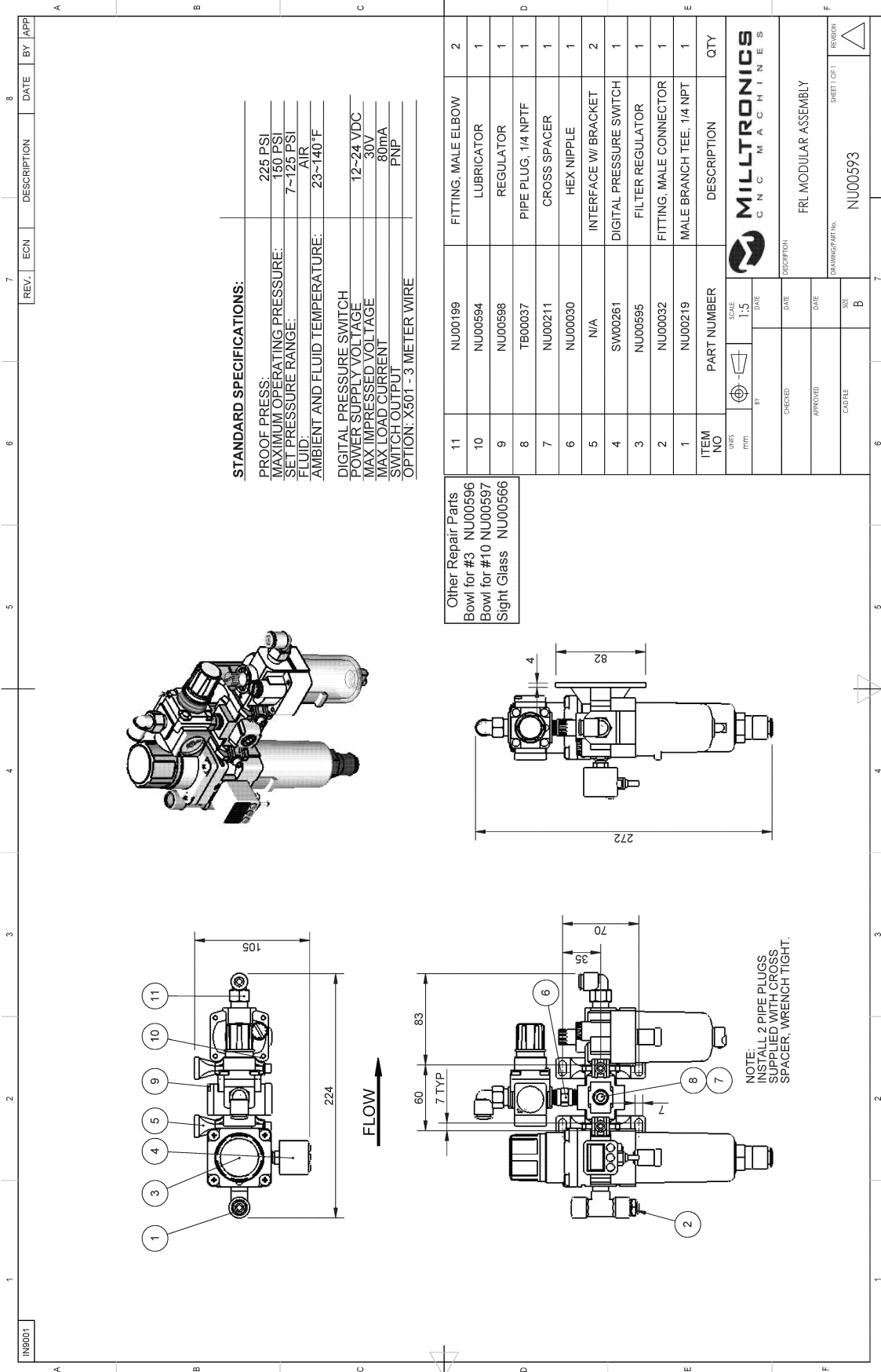
ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	1	MP00858	THERMAL BALL SCREW CAP
2	1	PR00043	THERMAL COMP SENSOR
3	1	MP00848	THERMAL SENSOR RING
4	1	MP00849	THERMAL SENSOR - CLAMP
5	1	MP00886	X AXIS THERMAL COVER
6	1	SHSSBT 10-32 x .188	10/32 x 3/16 BRASS TIPPED SHSS
7	2	BHCS M4-0.7 x 8	M4-0.7 x 8mm BHCS
8	4	BHCS M4-0.7 x 12	M4-0.7 x 12mm BHCS
9	2	SHCS M5-0.8 x 16	M5-0.8 x 16mm SHCS

NOTES:

1. ITEMS 3 & 4 ARE REVERSED ON SOME AXES
2. ITEMS 5 & 7 ARE NOT USED ON SOME AXES

	NAME	DATE
	DRAWN JRD	24 JAN 07
MATERIAL:		 MILLTRONICS CNC MACHINES 1400 MILL LANE 952.442.1410 WACONIA, MN 55387 USA
FINISH:		
UNLESS OTHERWISE SPECIFIED:		TITLE: THERMAL COMP ASSEMBLY
DIMENSIONS ARE IN INCHES[MM] TOLERANCES: FRACTIONAL ± ANGULAR: MACH ± 1.0 BEND ± ONE PLACE DECIMAL ±.030 [.76] TWO PLACE DECIMAL ±.010 [.26] THREE PLACE DECIMAL ±.005 [.13]		SCALE: 1:4 DWG. NO. 10018111 ESTIMATED WEIGHT: 16.0 Lbs. STOCK/ASSY NO. SHEET NO. 1 OF 1
		SIZE B

Air Filter / Regulator / Lubricator Assembly



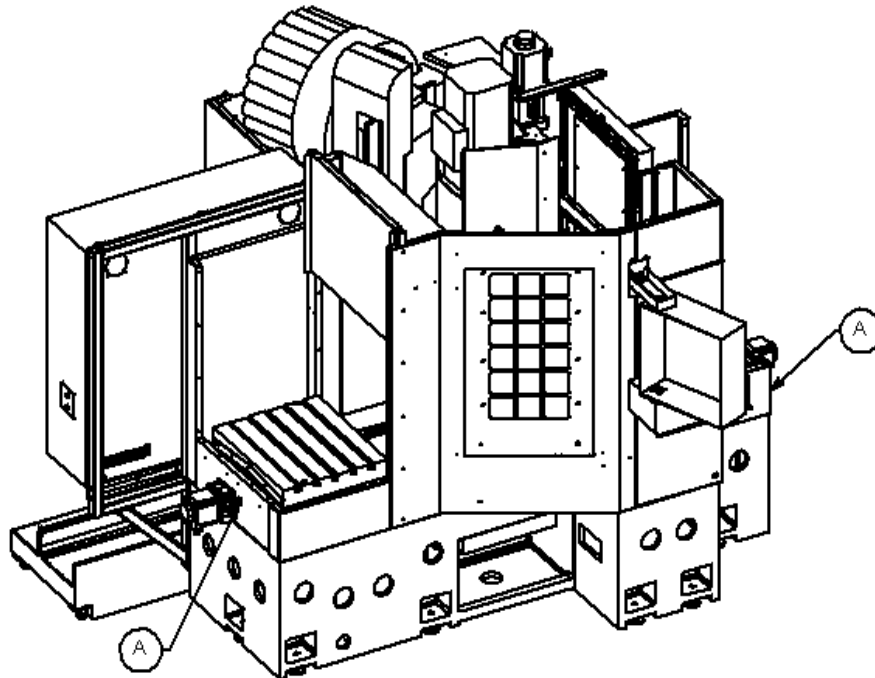


Machine Lubrication Instructions

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NOTES:

1. USE MOBILITH AW SERIES MULTIPURPOSE EP GREASE OR OTHER EQUIVALENT FOR ALL LUBE POINTS. MACHINE SHOULD BE SERVICED ONCE A MONTH FOR PROPER OPERATION AND ACCURACY OF MACHINE. SEE PAGE TWO FOR SPECIFICATIONS.
2. CLEAN AND FILL AIR FILTER / REGULATOR / OILER EVERY WEEK FOR PROPER OPERATION OF ALL PNEUMATIC PARTS. FILL WITH MOBIL VELOCITE No. 10, MARVEL No. 085 OR OTHER EQUIVALENT QUALITY AIR TOOL OIL. SEE PAGE TWO FOR SPECIFICATIONS.
3. MACHINES WITH AUTOLUBE OPTION USE MOBIL OIL VACTRA 2, AMOCO WAYTAC No. 68, SUNOCO SUNWAY LUBE No. 1180, OR EQUIVALENT QUALITY WAY OIL. SEE PAGE TWO FOR SPECIFICATIONS.
4. INSPECT AIR/OIL DRAW BAR AIR CYLINDER WEEKLY. BE SURE THE OIL RESERVOIR IS FILLED WITH MOBIL DTE24 OR EQUIVALENT QUALITY OIL. SEE PAGE TWO FOR SPECIFICATIONS.



- (A) X - AXIS GREASE MANIFOLD ACCESS. REMOVE PLUGS AND ADD A FEW PUMPS OF GREASE PER GREASE ZERK. (SEE NOTE 1. FOR SERVICE FREQUENCY) THEN REPLACE PLUGS

		MILLTRONICS	
DRAWN: []		7400 MILL LANE 952.442.7470 WACONIA, MN 55387 USA	
DATE: 13 JUN 07		TITLE: TWIN TABLE LUBRICATION DRAWING	
MATERIAL: []		SCALE: 1:1	
FINISH: []		DWG. NO. 11037001	
UNITS: OTHERWISE SPECIFIED		ESTIMATED WEIGHT: []	
DIMENSIONS ARE IN INCHES (MM)		SHEET NO. 1 OF 2	
TOLERANCES:		SEE B	
FRACTIONAL B		LBS.	
ANGULAR: MAX 510 8740 5			
ONE PLACE DECIMAL 0.010 174			
TWO PLACE DECIMAL 0.010 124			
THREE PLACE DECIMAL 0.001 111			



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The grease detailed below has been superseded by:
Mobilgrease XHP221, Product Code 642454-00

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 DIA METER, 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

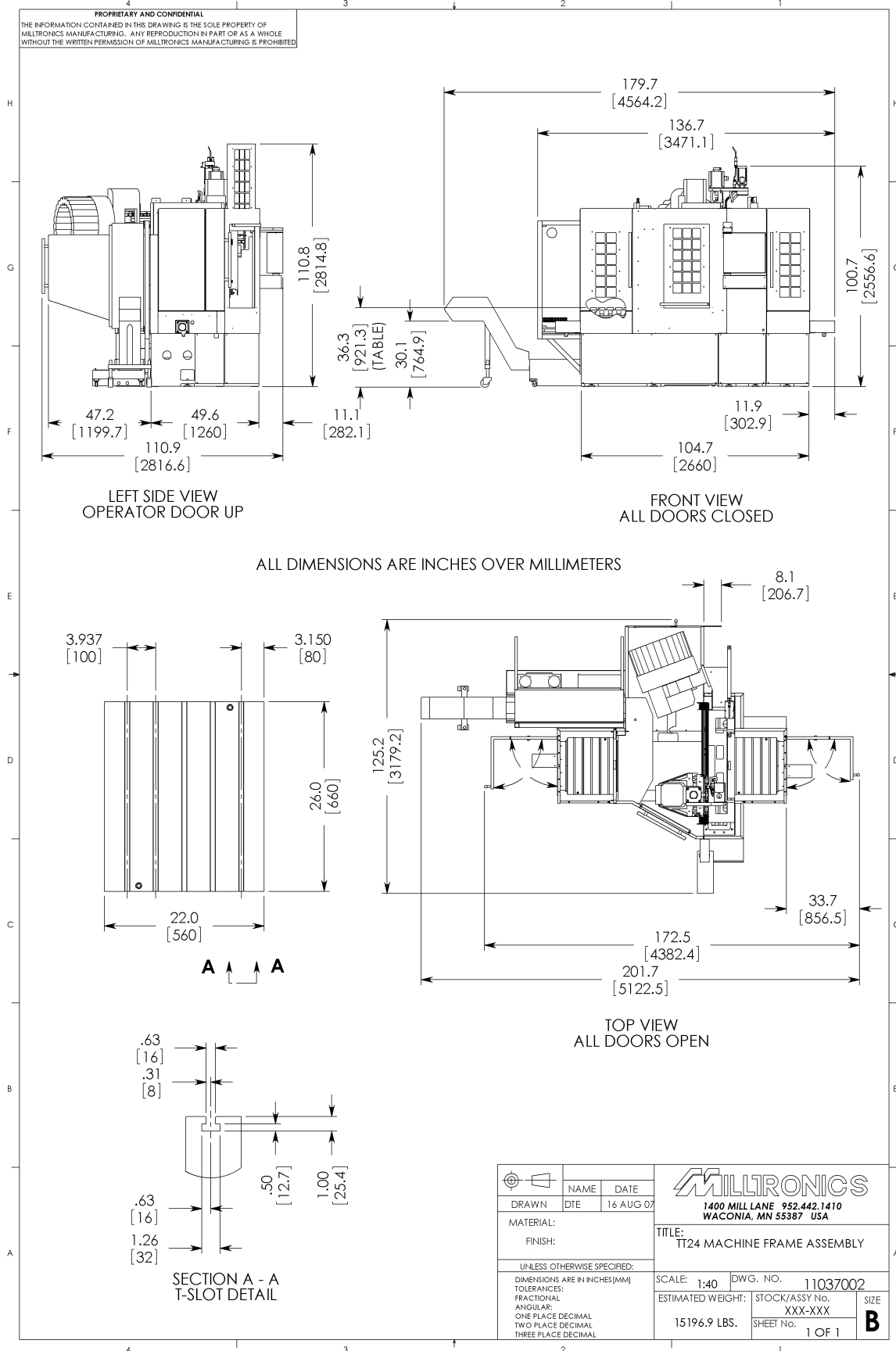
PRODUCT NUMBER	60049-4
SPECIFIC GRAVITY, 60/60F	0.88
POUR POINT, °C (°F), max	-9 (16)
FLASH POINT, °C (°F), min	244 (472)
VISCOSITY	
cST AT 40 °C	68
cST AT 100 °C	8.6
SUS AT 100 °F	356
SUS AT 210 °F	55
VISCOSITY INDEX	97
ISO VG	68
COLOR, ASTM D 1500	4
FZG, PASS STAGES	11
4 BALL WELD, kg, ASTM D 2783	160
4 BALL WEAR, mm, ASTM D 4172	0.22
COPPER CORROSION, ASTM D 130	1B
RUST, D 665A	PASS
VICKERS V-104C, mg D 2882 (MOD)	-
CMOC, 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 D 1500, max	3.5
FZG GEAR TEST STAGES PASSED DIN 51534	12

	NAME	DATE
	DRAWN	DIE
MATERIAL:		
FINISH:		
UNLESS OTHERWISE SPECIFIED:		
DIMENSIONS ARE IN INCHES (MM)		
FRACTIONS		
DECIMALS		
ANGULAR: MAXIMUM 10 DEGREES		
HOLE PLACEMENT: 0.00 (1%)		
Fillet PLACEMENT: 0.00 (1%)		
Fillet PLACEMENT: 0.00 (1%)		
SCALE: 1:48	DWG. NO. 11037001	SHEET NO. 2 OF 2
ESTIMATED WEIGHT: LBS.	STOCK/CLASSY No.	

Machine Layout Drawing



	NAME	DATE	 1400 MILL LANE 952.442.1410 WACONIA, MN 55387 USA	
	DRAWN	DTE		
MATERIAL:			TITLE:	
FINISH:			TT24 MACHINE FRAME ASSEMBLY	
UNLESS OTHERWISE SPECIFIED:			SCALE: 1:40	DWG. NO. 11037002
DIMENSIONS ARE IN INCHES(MM)			ESTIMATED WEIGHT: 15196.9 LBS.	STOCK/ASSY No. XXX-XXX
TOLERANCES:				SIZE
FRACTIONAL				
ANGULAR:				
ONE PLACE DECIMAL				
TWO PLACE DECIMAL				
THREE PLACE DECIMAL				
			SHEET No. 1 OF 1	B

Retention Knob Chart

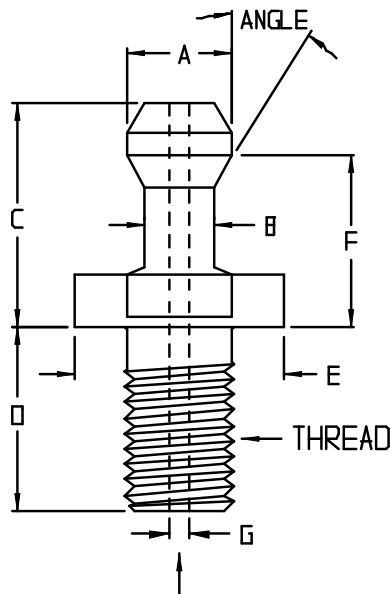
40 Taper Tooling

		Dimension								
Standard	Flange	A	B	C	D	E	F	G	Angle	Thread
MAS 60°	CT	.59	.39	1.27	.86	.90	.99	.19	60°	5/8"-11
	BT	.59	.39	1.38	.99	.90	1.10	.16	60°	M16-2
Optional										
ANSI 45°	CT	.74	.49	.64	.86	.93	.44	.27	45°	5/8"-11
	BT	.74	.49	.75	.86	.90	.55	.28	45°	M16-2
MAS 45°	CT	.59	.39	1.27	.86	.90	.99	.19	45°	5/8"-11
	BT	.59	.39	1.38	.99	.90	1.10	.16	45°	M16-2
DIN 69872	CT	.75	.55	1.02	.86	.90	.79	.24	75°	5/8"-11
	BT	.75	.55	1.02	.99	.90	.79	.28	75°	M16-2

50 Taper Tooling

		Dimension								
Standard	Flange	A	B	C	D	E	F	G	Angle	Thread
ANSI 45°	CT	1.14	.83	1.00	1.32	1.42	.70	.45	45°	1"-8
	BT	1.14	.83	1.00	1.32	1.42	.70	.45	45°	M24-3

MAS - ANSI - DIN Dimension Diagram



English threads for CT-Flange
 Metric threads for BT-Flange

Notes:

1. Balanced tooling (G2.5 Spec) is required for spindle speeds in excess of 8000 RPM. Spindle warranty will be void if balanced tooling is not used.
2. Always tighten retention knobs to the manufacturers recommended torque specification.
3. Inline spindles, in their respective frame sizes, use the same retention knobs as belted models.
4. All dimensions above are in inches.

