



MILLTRONICS USA®
LET'S INVENT

SL6H Rev5 Mechanical Parts Manual
3-3-2016



Manual Discrepancy Sheet

1.

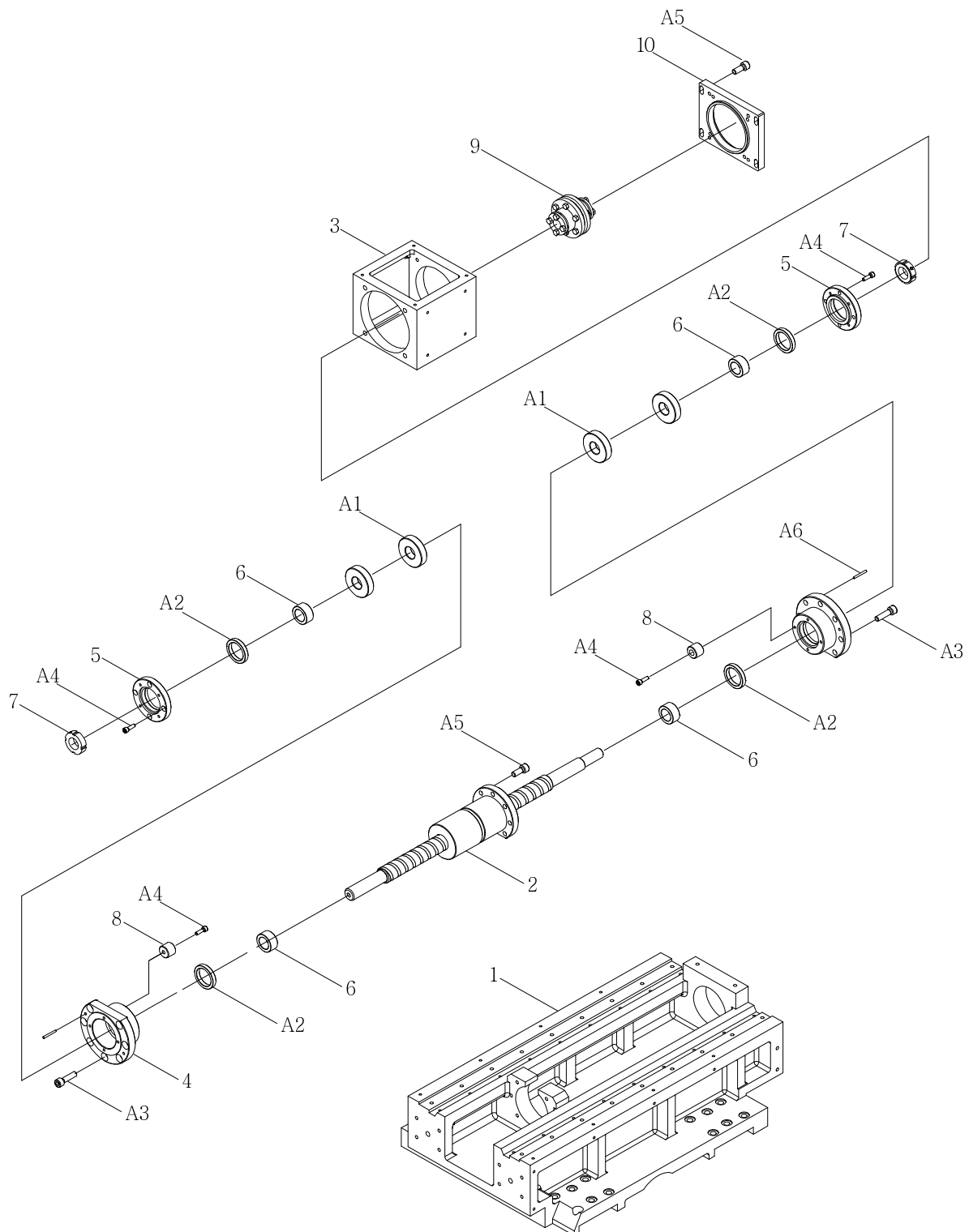
Manual History

G1 Sigma5 Axis motors and SD spindle drive.
H1 8200 Rev B control.
H2 September 2014 specifications.
H3 RL-177 safety relay
H4 Special machine
H5 MA-495 cycle light

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X-axis



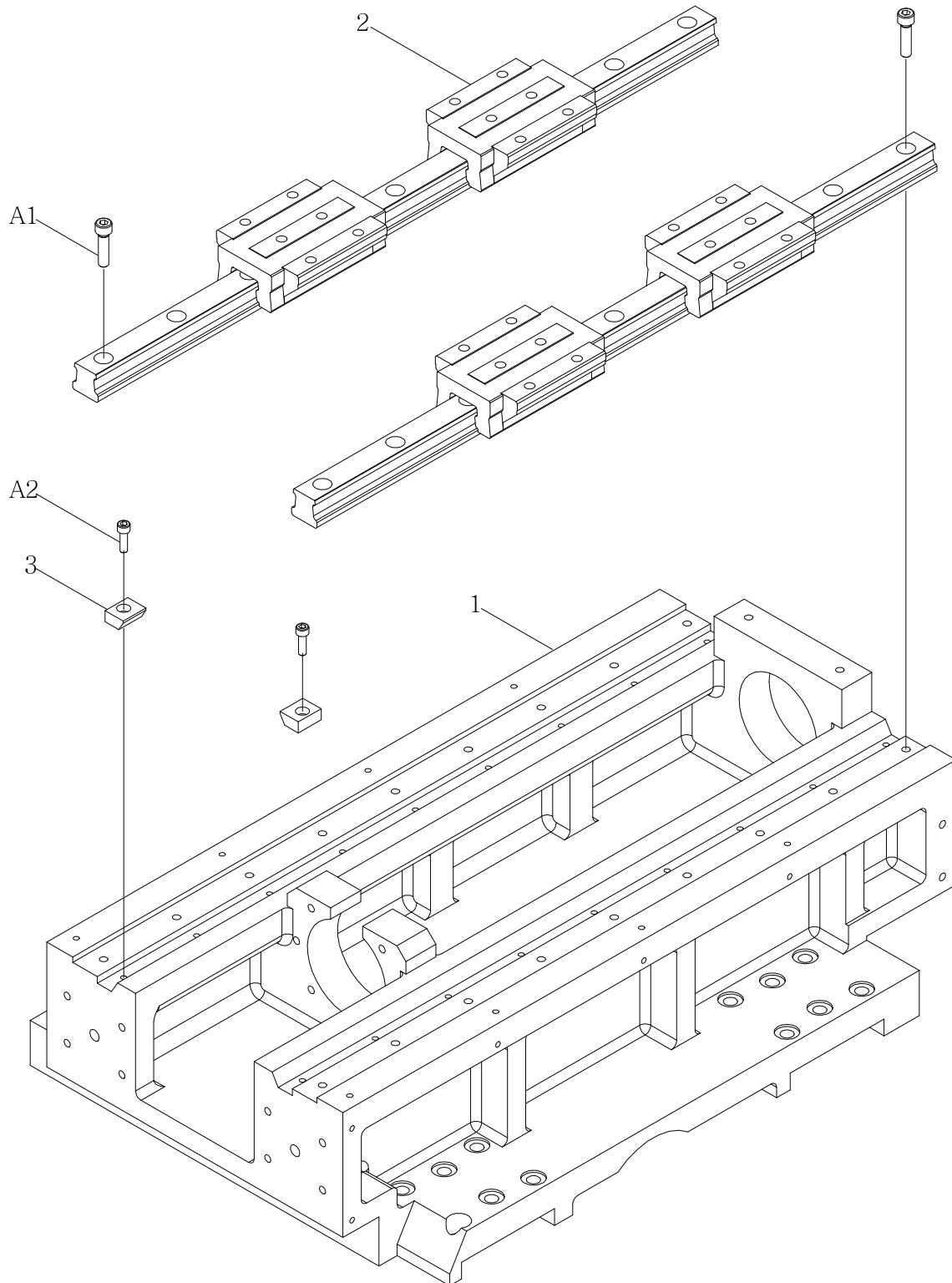
Parts List for X-axis

Item	Part no.	Description	Qty	Remark	Milltronics #
1	42042-20001	Carriage	1		
2	42042-51001	Ball Screw & Nut	1	32*669	
3	42042-51002	Motor Seat	1		
4	42042-51008	Bearing Seat	2		
5	43130-52004	Cover	2		MPH-138
6	42042-51005	Collar	4	38*18	
7	42042-51007	Lock Nut	2	YSF M25*P1.5*18	
8	43061-51006	Stopper	4		MPS-386
9		Coupling	1	YASKAWA	MA-316
10		Motor Flange	1	YASKAWA	
A1		Bearing	4	NSK 25TAC62B	BG-89
A2		Oil Seal	4	38*50*8	MPH-135
A3		Socket Screw	14	M10*1.5*30L	
A4		Socket Screw	12	M6*1*20L	
A5		Socket Screw	11	M8*1.25*25L	
A6		Taper Pin	4	#5	

No shown on drawing

		X axis motor cable			9846-105
		X axis way cover		SL6	MPL-495
		X axis way cover		SL6/10	MPL-505
		X axis way cover		(live tooling)	MPL-555
		X axis home/limit switch			SW-203
	SL6 Wiper	X axis wiper			MPL-741
		X axis motor		.9kw	MO-245
		X axis servo drive		1kw	AM-90

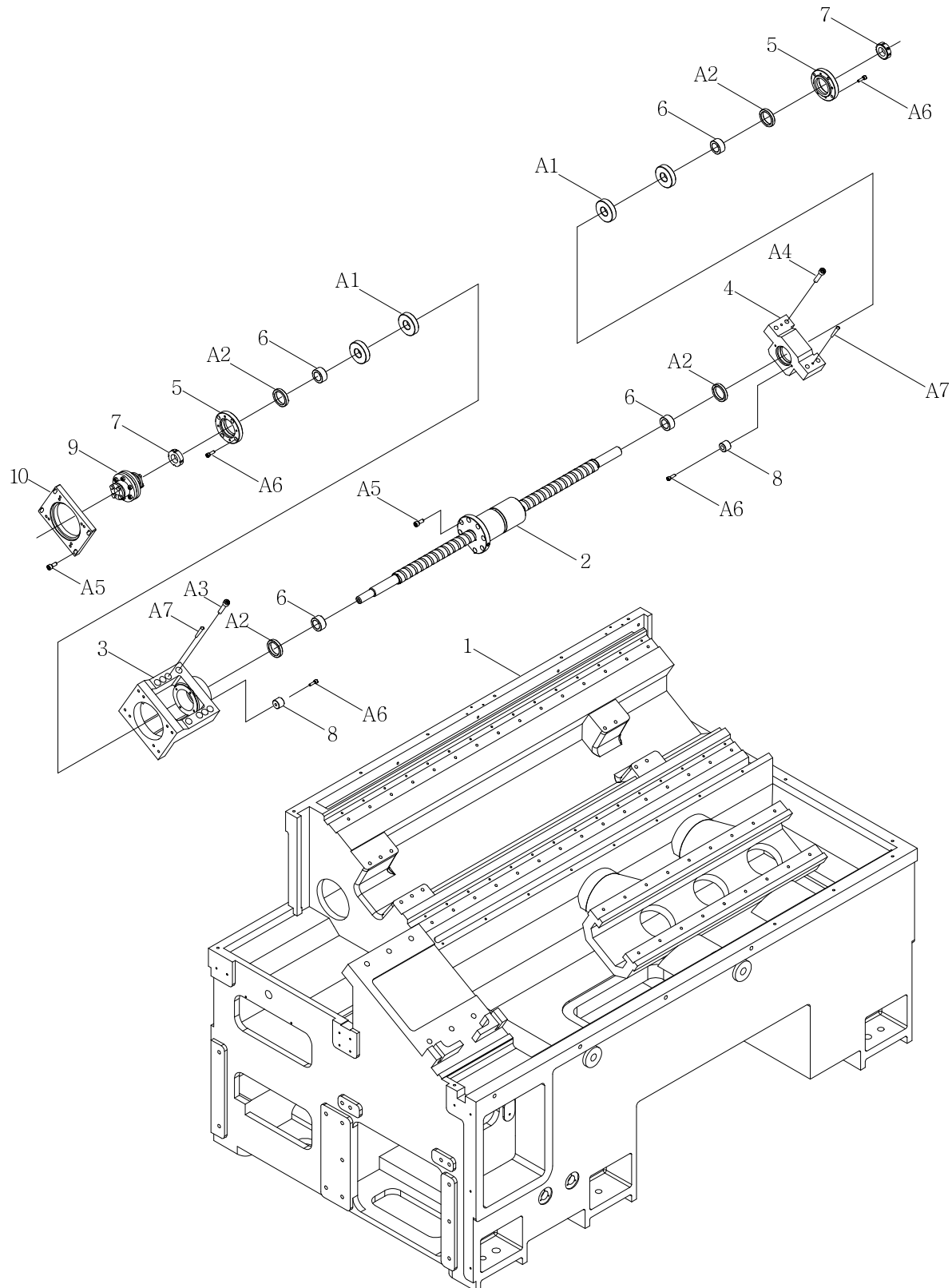
X-axis Linear Guide way



Parts list for X-axis Linear Guide way

Item	Part no.	Description	Qty	Remark
1	42042-20001	Carriage	1	
2	42042-51011	Linear Guide way	2	H30LEAB2T3-680
3	42042-51012	Block	14	T2
A1		Socket Screw	14	M8*1.25*30L
A2		Socket Screw	14	M6*1*20L

Z-Axis



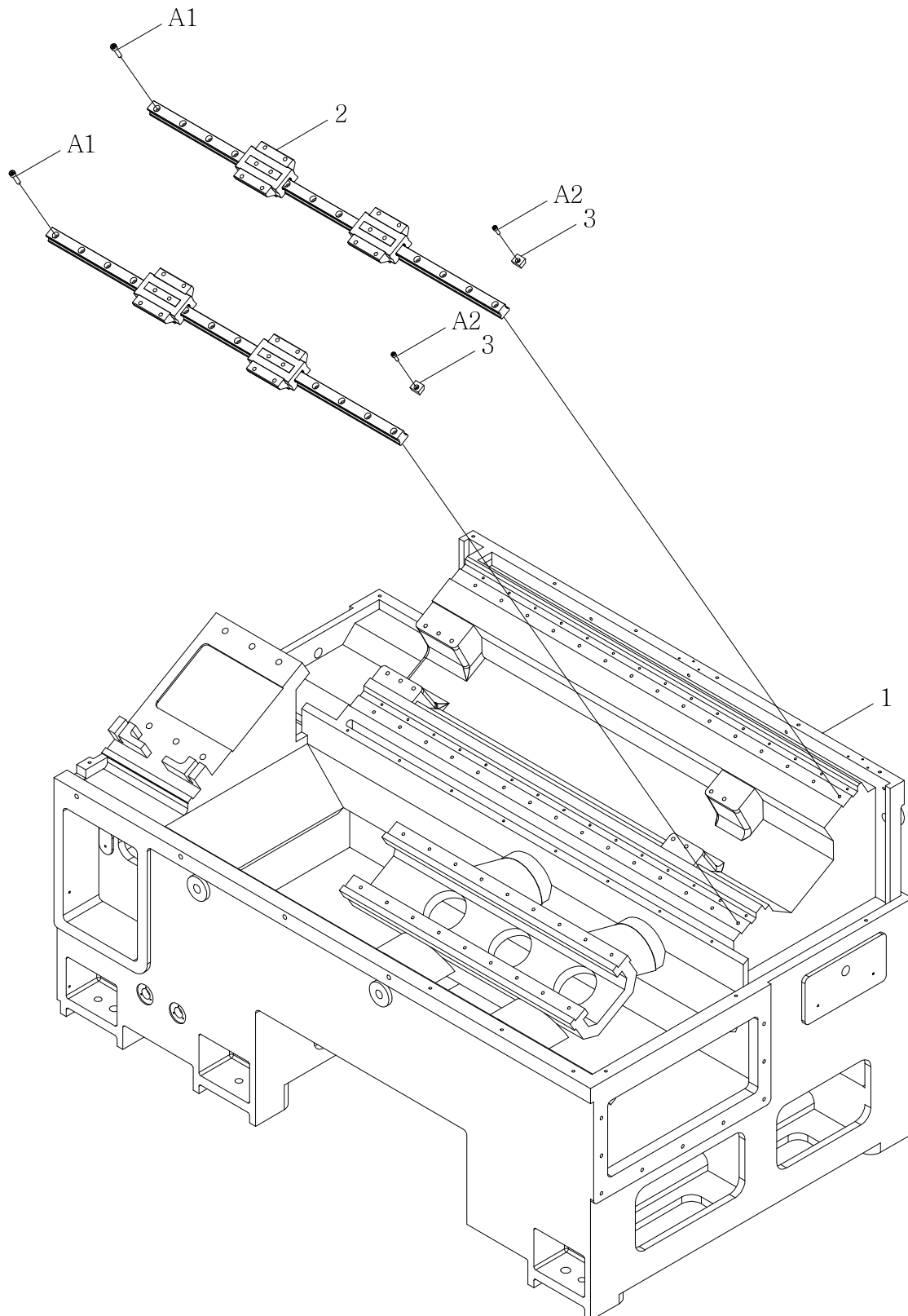
Parts list for Z-Axis

Item	Part no.	Description	Qty	Remark	Milltronics #
1	42042-40001	Base	1		
2	42042-53001	Ball Screw & Nut	1	32*974	MPL-724
3	42042-53002	Motor Seat	1		
4	42042-53003	Bearing Seat	1		
5	43130-52004	Cover	2		MPH-138
6	42042-51005	Collar	4	38*18	
7	42042-51007	Lock Nut	2	YEF M25*P1.5*18	
8	43061-51006	Stopper	4		MPS-368
9		Coupling	1	YASKAWA	MA-317
10		Motor Flange	1	YASKAWA	
A1		Bearing	4	NSK 25TAC62B	BG-89
A2		Oil Seal	4	38*50*8	MPH-135
A3		Socket Screw	6	M10*1.5*45L	
A4		Socket Screw	4	M10*1.5*55L	
A5		Socket Screw	11	M8*1.25*25L	
A6		Socket Screw	12	M6*1*20L	
A7		Taper Pin	4	#5	

No shown

		Z axis way cover		(live tooling)	MPL-554
		Z axis way cover wiper		(w/press plate)	MPL-683
		Switch – Z axis		(home?)	SW-274
		Switch, Z axis limit			SW-203
		Z axis motor		1.3kw	MO-246
		Z axis drive amplifier		1.5kw	AM-91

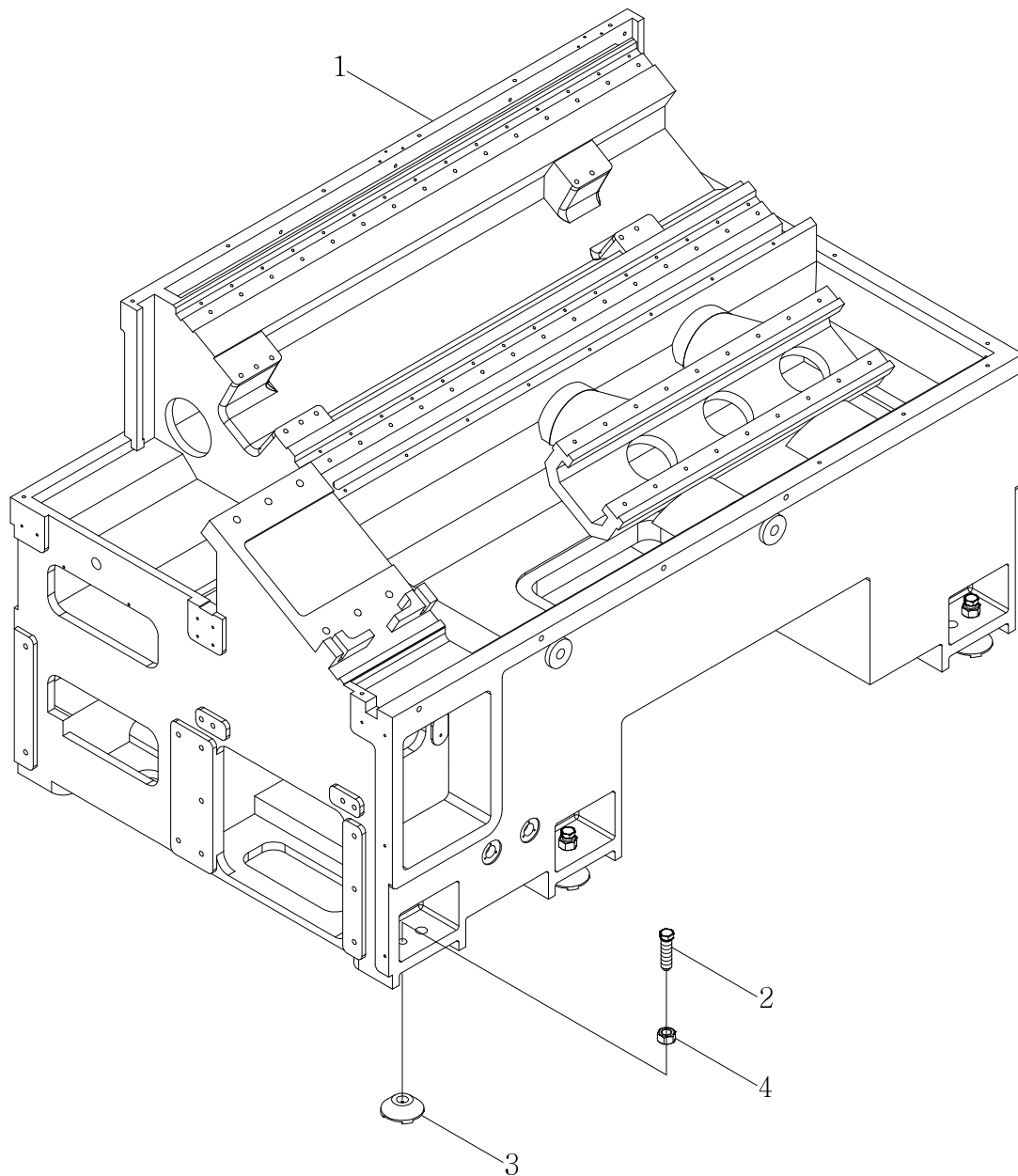
Z-axis Linear Guide way



Parts list for Z-Axis Linear Guide way

Item	Part no.	Description	Qty	Remark
1	42042-40001	Base	1	
2	42042-53011	Linear Guide way	2	H35LEAB2T3-1080
3	42042-51012	Block	28	T2
A1	MPL-867	Socket Screw	28	M8*1.25*35L
A2		Socket Screw	28	M6*1*20L

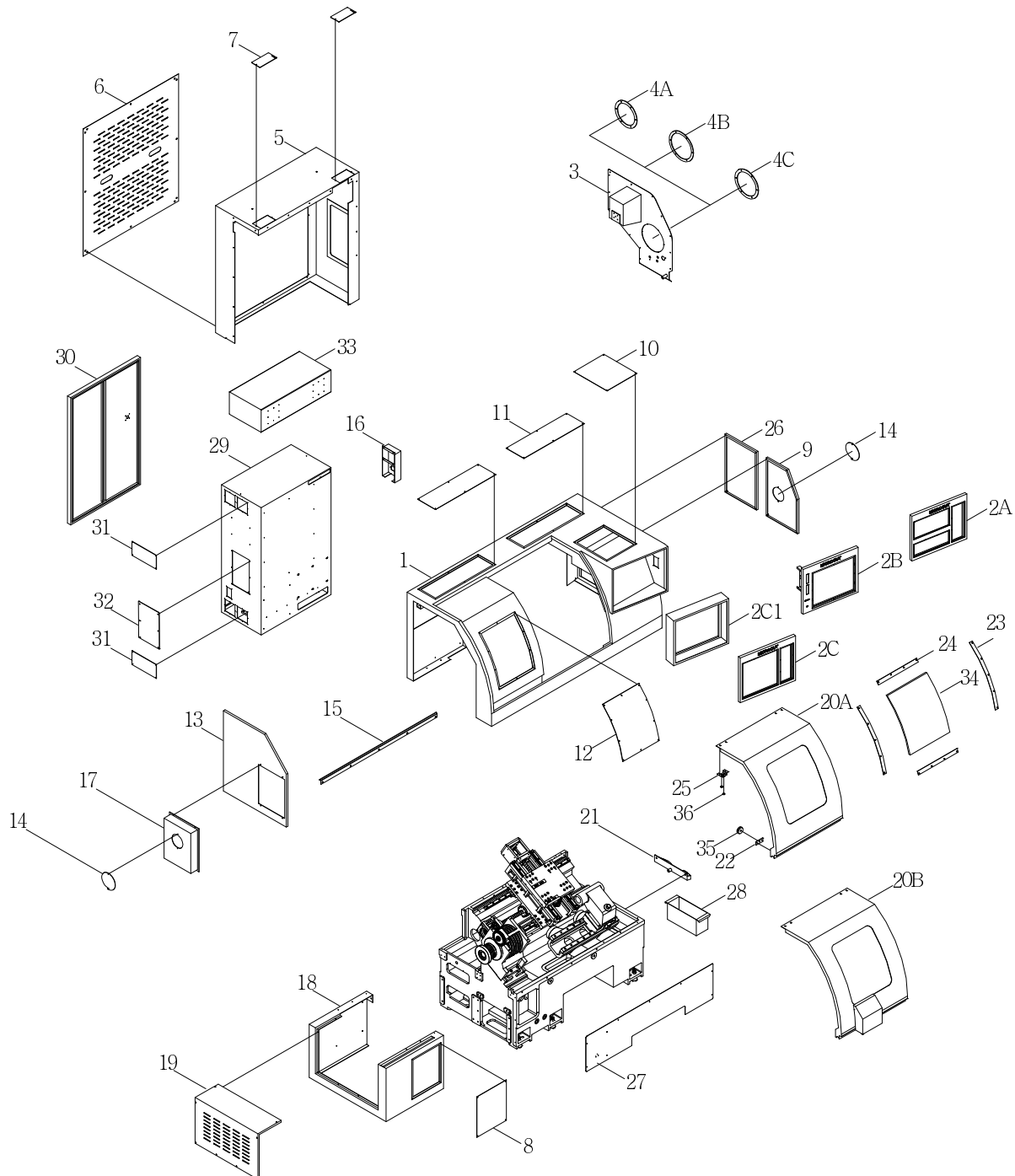
Base



Parts list for Base

Item	Part no.	Description	Qty	Remark	Milltronics #
1	42042-40001	Base	1		
2	43061-40002	Leveling Bolt	6	M20*P1.5	MPS-458
3	43061-40003	Leveling Block	6	80*27	MP-82
4	43061-40007	Nut	6	M20*P1.5	MPS-458

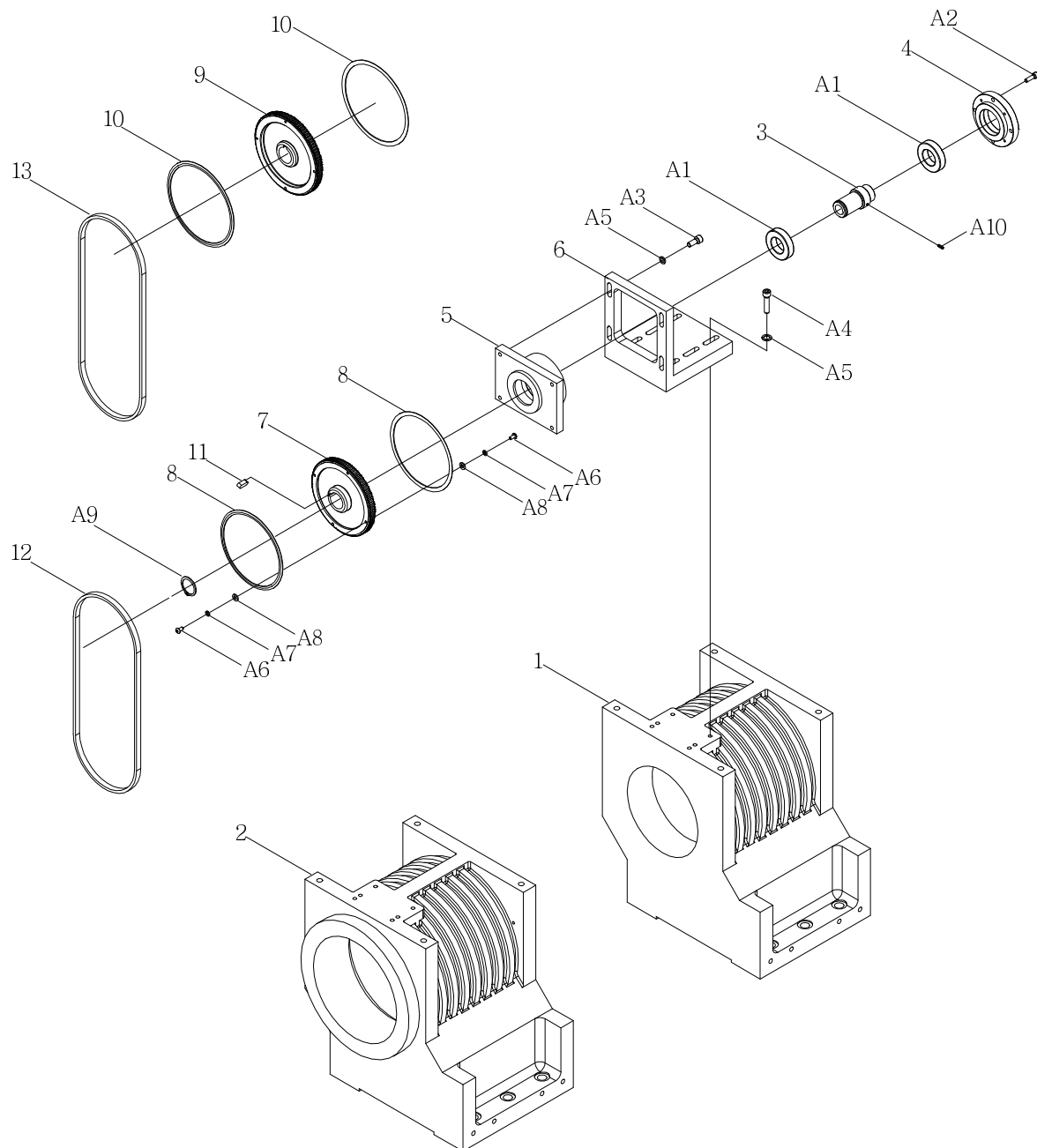
Full Splash Guard



Parts list for Full Splash Guard

Item	Part no.	Description	Q'ty	Remark	Milltronics #
1	42042-70001	Full Guard	1		
2A	42042-70005	Control Panel	1	FANUC	
2B	42042-70008	Control Panel	1	For Milltronics	
3	42042-70003	Side Guard-Right	1		
4A	42042-70012	Clamp Plate	1	SL6	
4C	42042-70036	Clamp Plate	1	SL10	
5	42042-70010	Rear Guard	1		
6	42042-70011	Rear Cover	1		
7	42042-70014	Cover	2		
8	42042-70017	Cover	1		
9	42042-70018	Cover	1		
10	42042-70019	Cover	1		
11	42042-70020	Cover	2		
12	42042-70021	Front Cover	1		
13	42042-70022	Left Cover	1		
14	42042-70023	Cover-Spindle Bore	2		
15	42042-70024	Slide	1		
16	42042-70028	Transfer Box	1		
17	42042-70029	Side Cover	1		
18	42042-70037	Guard-Base	1		
19	42042-70038	Cover	1		
20A	42042-70040	Sliding Door	1		
20B	42042-70070	Sliding Door	1	For Parts catcher	
21	42042-70041	Oil Collector	1		
22	42042-70046	Clamper-Wheel	2		
23	42042-70047	Clamp Plate	2		
24	42042-70048	Clamp Plate	2		
25	42042-70055	Roller Bracket	2		
26	42042-70058	Right Cover	1		
27	42042-70067	Front Cover	1		
28	42042-70073	Oil Reservoir	1		
29	42042-71001	Electric Box	1		
30	42042-71002	Electric Door	1		MPL-835
31	42042-71011	Fan Cover	2		
32	42042-71012	Heat Exchanger Cover	1		
33	42042-71014	Brake Resistor Cover	1		
34	E-ARAK-70024-01	Window	1	535X620mm	MPL-705 or (MLE-159)
35		Roller Wheel	2		
36		Bearing	4	608ZZ	BG-37

Encoder



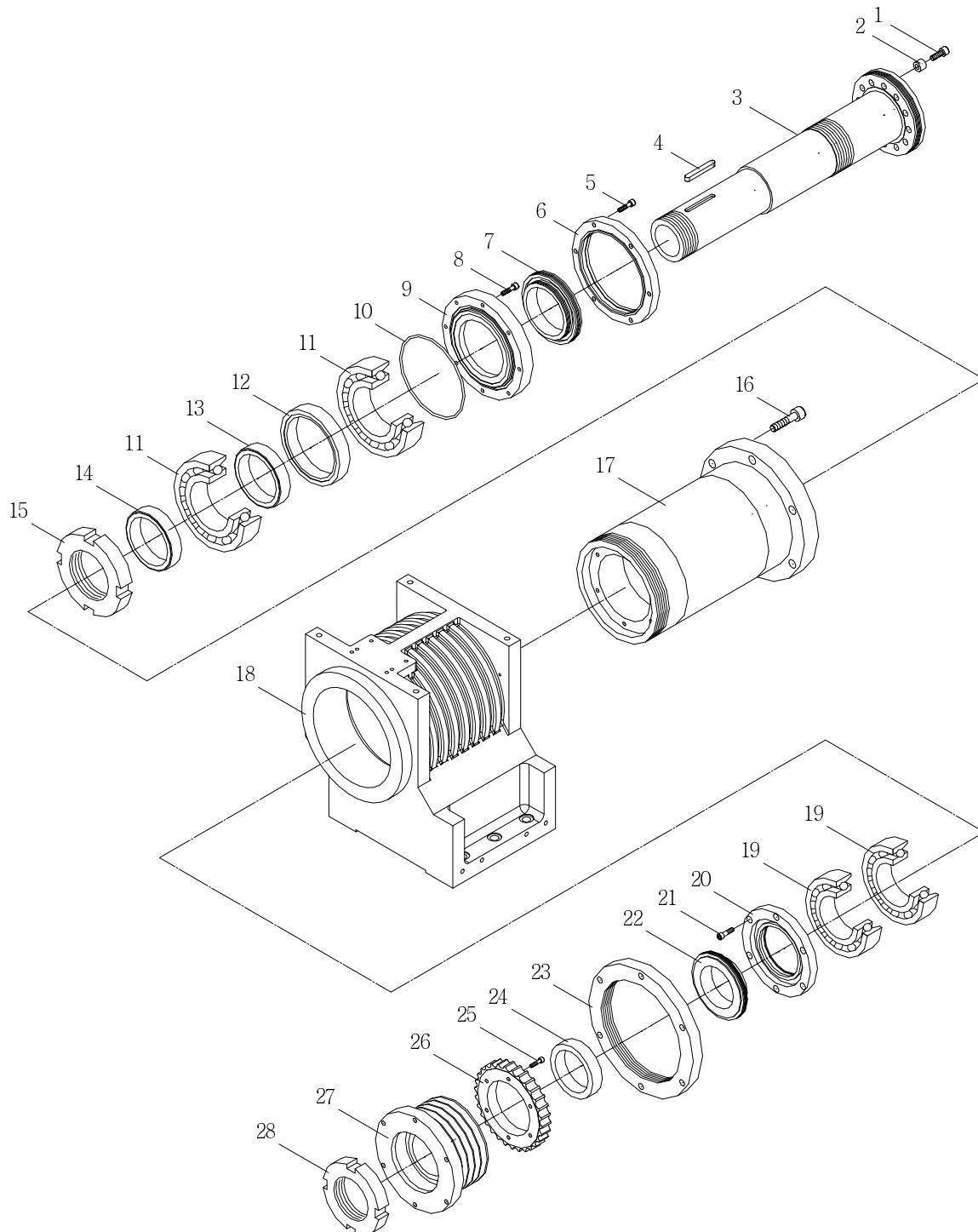
Parts list for Encoder

Item	Part no.	Description	Q'ty	Remark	Milltronics #
1	42042-00001	Head Stock	1	SL6	
2	42042-00051	Head Stock	1	SL10	
3	42042-01001	Shaft	1		MPL-542
4	42042-01002	Adapter	1		
5	42042-01013	Encoder Housing	1		
6	42042-01014	Mounting Bracket	1		
7	42042-01005	Pulley	1	SL6	
8	42042-01006	Belt Guide	2	SL6	
9	42042-01010	Pulley	1	SL10	
10	42042-01011	Belt Guide	2	SL10	
11	42042-01007	Key	1		MP-154
12		Belt(935-5GT10)	1	SL6	BT-142
13		Belt(1000-5GT10)	1	SL10	BT-143
A1		Bearing	2	30*50*13	
A2		Socket Screw	4	M6*1*20L	
A3		Socket Screw	4	M8*1.25*35L	MPL-867
A4		Socket Screw	4	M8*1.25*40L	
A5		Washer	4	M8	
A6		Cap Screw	8	M5*0.8*10L	
A7		Spring Washer	8	M5	
A8		Washer	8	M5	
A9		Clip	1	30(STW)	
A10		Socket Screw	1	M5*0.8*12L	

No shown

		Encoder coupler			EO-39
		Encoder bracket			MPL-436
		Encoder bearing			BG-162
		Encoder w/cable			9653

Headstock (SL6)

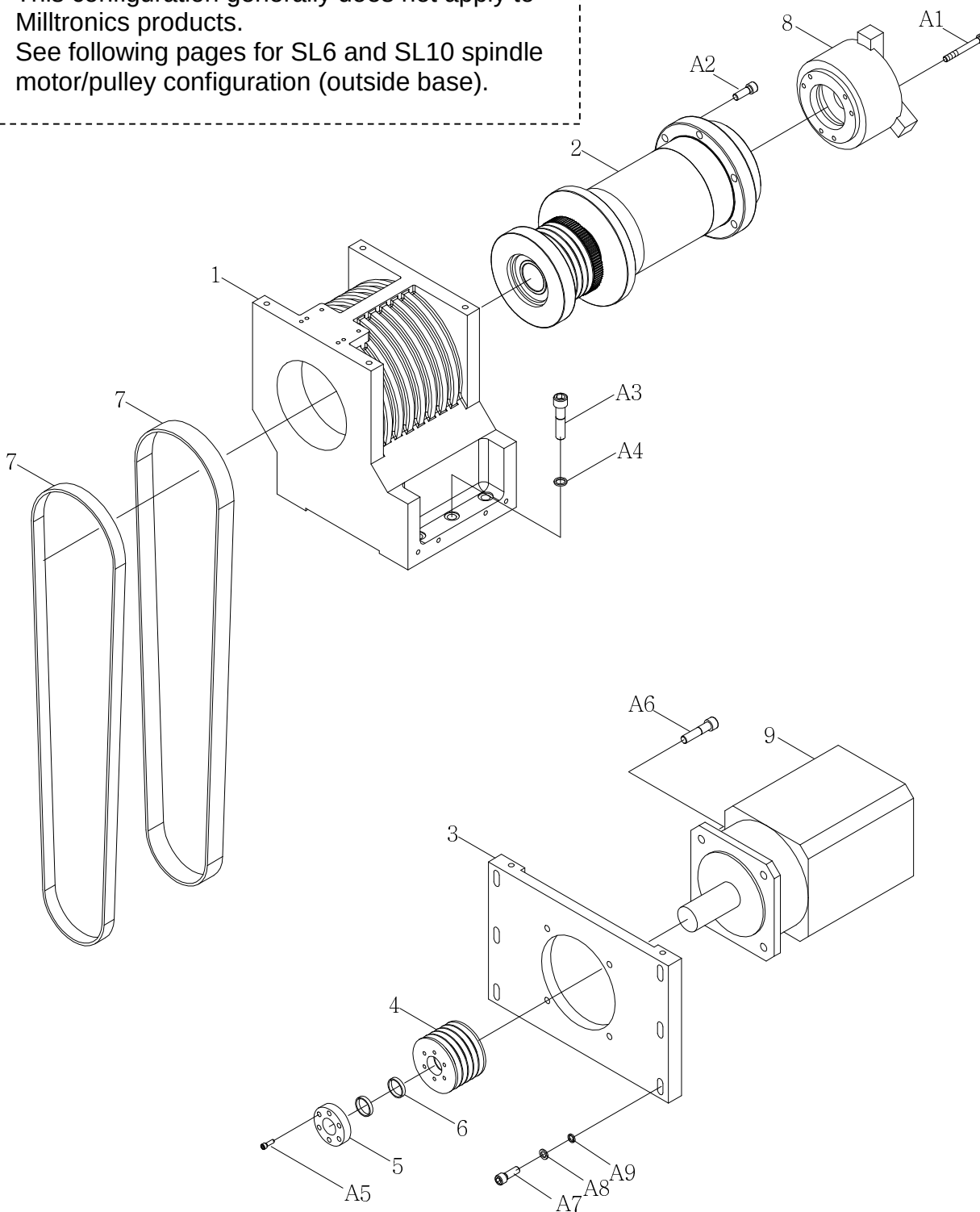


Headstock (SL6)

Item	Part no.	Description	Q'ty	Remark	Milltronics #
1		Socket Screw	1	M6XP1.0X16L	MPL-719
2		Drive Key	1		
3		Spindle	1		
4		Key	1	8X7X60	
5		Socket Screw	6	M6XP1.0X20L	
6		Cover	1		
7		Seal Ring	1		
8		Socket Screw	8	M6XP1.0X30L	
9		Cover	1		
10		O Ring	1	G130	
11		Bearing	2	7016	BG-210
12		Spacer	1		
13		Spacer	1		
14		Spacer	1		
15		Nut	1	YSRM80XP2.0	
16		Socket Screw	6	M12XP1.75X45L	
17		Sleeve	1		
18	42042-00001	Headstock	1		
19		Bearing	2	7014	BG-135 / BG-163
20		Cover	1		
21		Socket Screw	6	M6XP1.0X20L	
22		Seal Ring	1		
23		Cover	1		
24		Spacer	1		
25		Socket Screw	6	M5XP0.8X25L	
26		Timing Belt Pulley	1		
27		Pulley	1		
28		Nut	1	YSAM70XP2.0	

Spindle Motor Pulley- Inside base housing (SL6/10)

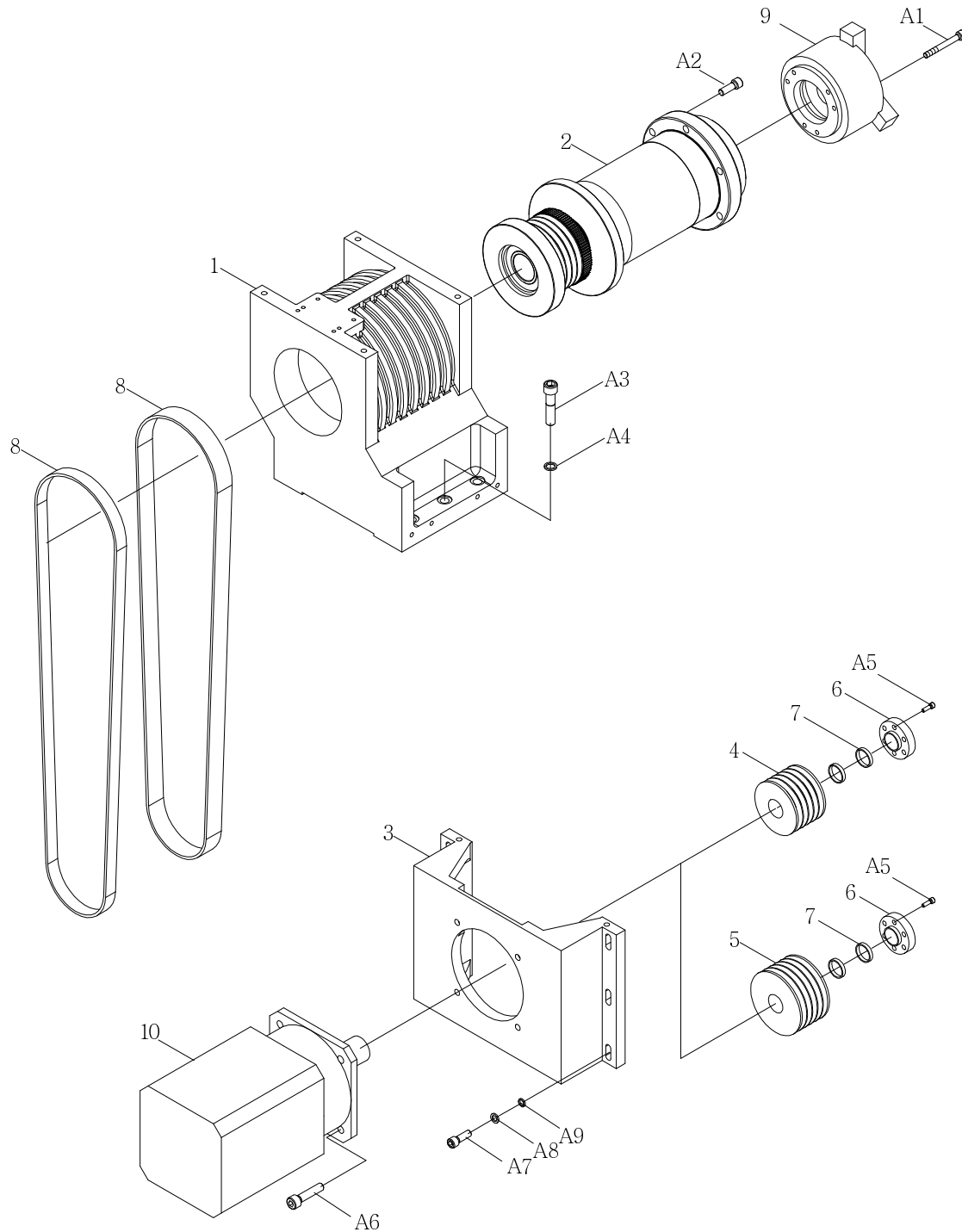
This configuration generally does not apply to Milltronics products.
See following pages for SL6 and SL10 spindle motor/pulley configuration (outside base).



Spindle Motor Pulley- Inside base housing (SL6/10)

Item	Part no.	Description	Q'ty	Remark	Milltronics #
1	42042-00001	Headstock	1	SL6	
	42042-00051	Headstock	1	SL10	
2	42042-03001	Spindle	1	SL6	
	42042-03101	Spindle	1	SL10	
3	42042-05003	Spindle Motor Mounting Bracket	1		
4	42042-05007	Spindle Motor Pulley	1	SL6	
	42042-05010	Spindle Motor Pulley	1	SL10	
5	43210-552014	Clamp Ring	1	SL6	
	42042-05011	Clamp Ring	1	SL10	
6	43210-520019	Clamp Ring	2	SL6	
	43130-05004	Clamp Ring	2	SL10	
7		V-Belt (LT-42)	1	4R11M2000(2+2)	BT-145
		V-Belt (LT-65)	1	4R11M2120(2+3)	BT-144
8		3-Jaw Chuck (SL6)	1	6"	
		3-Jaw Chuck (SL10)	1	8" (10")	
9		Spindle Motor	1	See outside base	
A1		Socket Screw (SL6)	6	M10XP1.5X100L	
		Socket Screw (SL10)	6	M12XP1.75X100L	
A2		Socket Screw	6	M12XP1.75X40L	
A3		Socket Screw	6	M16XP2.0X65L	
A4		Spring Washer	6	M16	
A5		Socket Screw	6	M8XP1.25X30L	
A6		Hex. Head Screw	4	M14XP2.0X35L	
A7		Socket Screw	6	M12XP1.75X60L	
A8		Spring Washer	6	M12	
A9		Flat Washer	6	M12	
		Jaws for SL6(6")			MPL-463

Spindle Motor Pulley- Outside base housing (SL6)



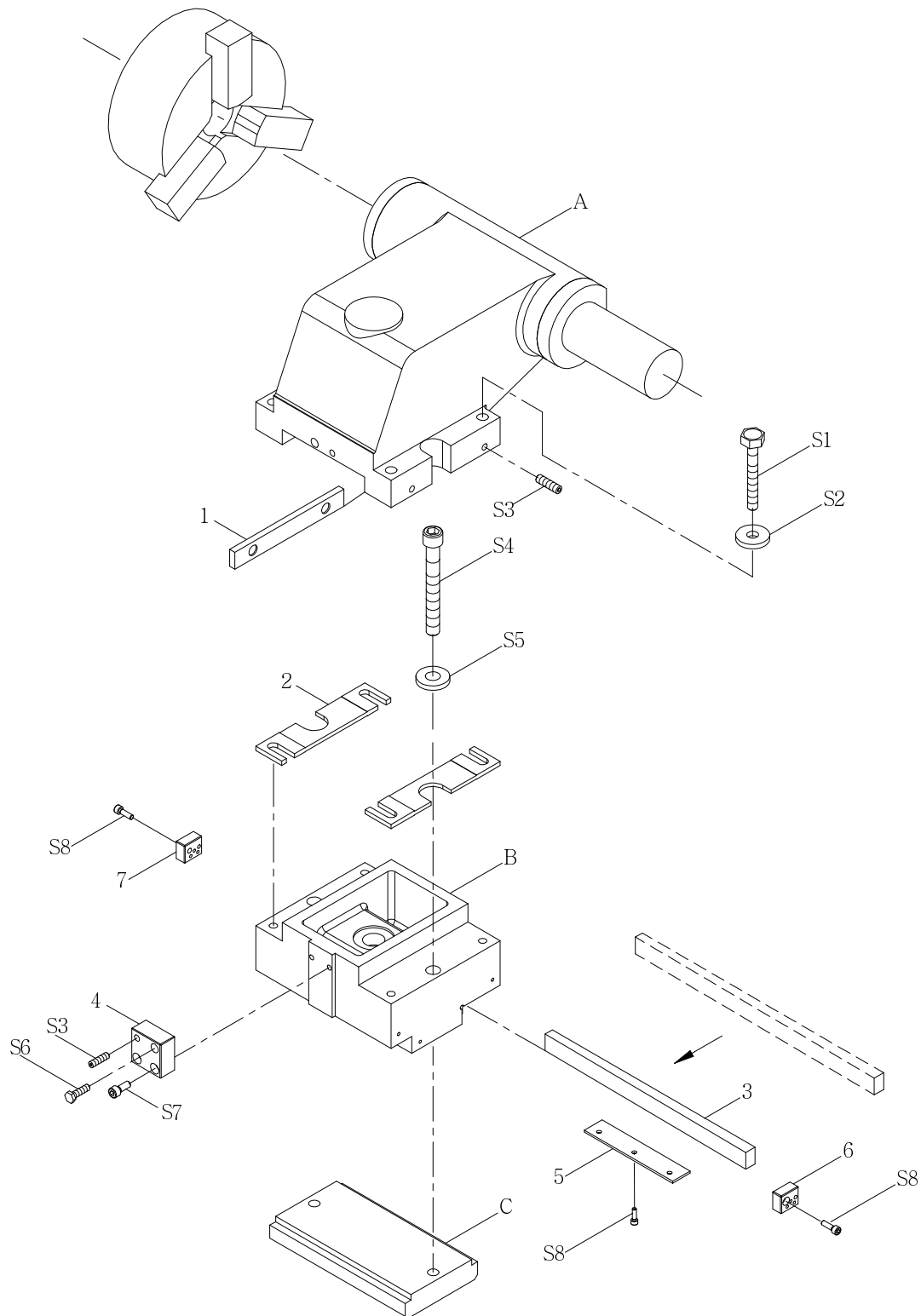
Spindle Motor Pulley- Outside base housing (SL6)

Item	Part no.	Description	Q'ty	Remark	Milltronics #
1	42042-00001	Headstock	1		
2	42042-03001	Spindle	1		
3	42042-05005	Spindle Motor Mounting Bracket	1		
4	42042-05007	Spindle Motor Pulley (Fagor)	1		
5	42042-05008	Spindle Motor Pulley (Fanuc)	1		
6	43210-552014	Clamp Ring	1		
7	43210-520019	Clamp Ring	2		
8		V-Belt (SL6)	1	4R11M2000(2+2)	BT-145
9		3-Jaw Chuck (SL6)	1	6"	
10		Spindle Motor	1	7.5kw single speed	10151
A1		Socket Screw (SL6)	6	M10XP1.5X100L	
A2		Socket Screw	6	M12XP1.75X40L	
A3		Socket Screw	6	M16XP2.0X65L	
A4		Spring Washer	6	M16	
A5		Socket Screw	6	M8XP1.25X30L	
A6		Hex. Head Screw	4	M14XP2.0X35L	
A7		Socket Screw	6	M12XP1.75X60L	
A8		Spring Washer	6	M12	
A9		Flat Washer	6	M12	

Misc

	Spindle motor casting spacer		MPL-545
	Chuck clamp pressure switch		SW-299

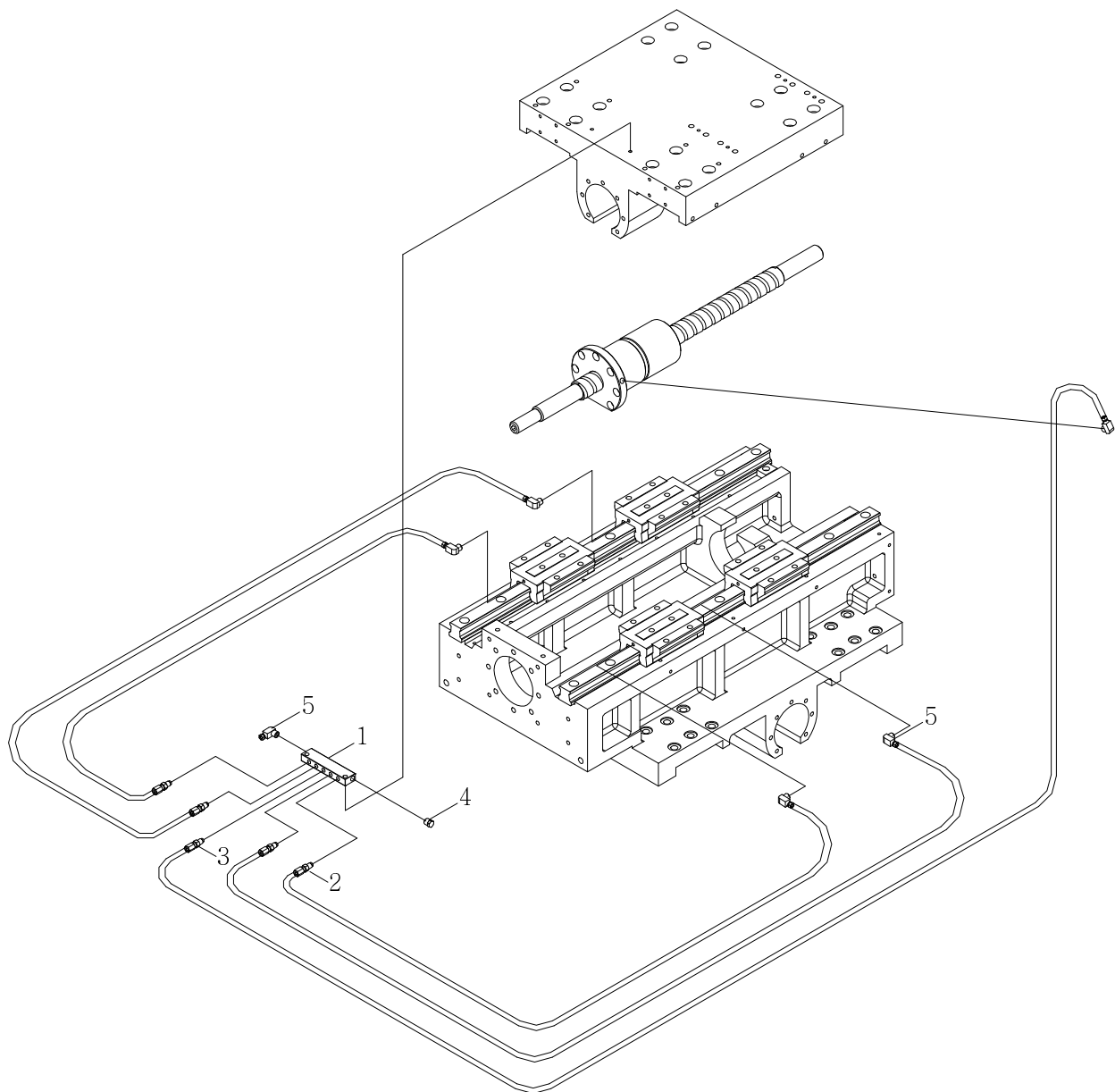
Tailstock Body



Tailstock Body

Item	Part no.	Description	Q'ty	Remark	Milltronics #
A	42042-86001	Tailstock Body	1		
B	42042-86002	Tailstock Base	1		
C	42042-86010	Clamp Pad	1		
1	42042-86004	Clamp Plate	1		
2	42042-86003	Riser	2		
3	42042-86007	Gib	1		
4	42042-86005	Adjusting Block	1		
5	42042-86006	Clamp Plate	1		
6	42042-86008	Adjusting Block	1		
7	42042-86009	Adjusting Block	1		
S1		Hex. Head Screw	4	M12X75L	
S2		Flat Washer	4	M12	
S3		Screw	3	M8X30L	
S4		Socket Screw	2	M16X150L	
S5		Flat Washer	2	M16	
S6		Hex. Head Screw	1	M10X30L	
S7		Socket Screw	2	M8X25L	
S8		Socket Screw	5	M6X12L	
		Seal kit			MPL-838
		Hydraulic TS Assy			MPL-874

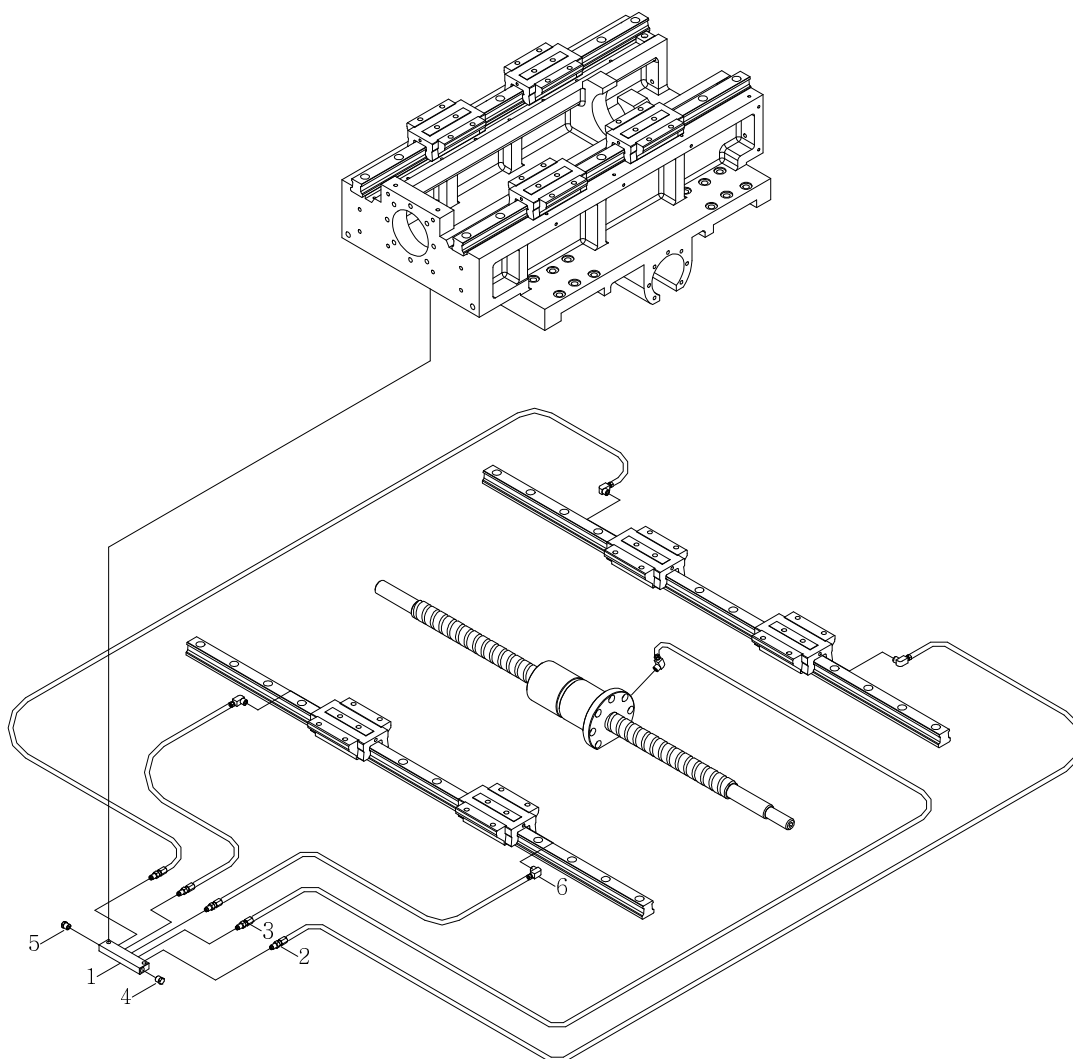
X-axis Lubrication System



X-axis Lubrication

Item	Part no.	Description	Q'ty	Remark
1		Distributor	1	
2	NU-337	Meter Valve	4	#3
3	NU-75	Meter Valve	1	#4
4		Plug	1	
5		Fitting	6	

Z-axis Lubrication System

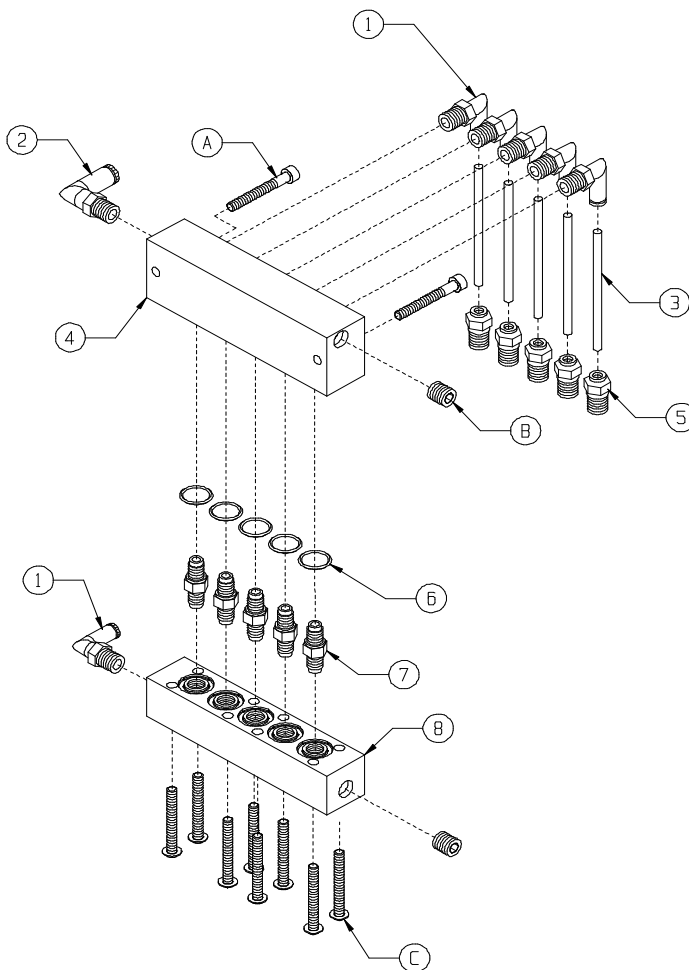


Z-axis Lubrication

Item	Part no.	Description	Q'ty	Remark	Milltronics #
1		Distributor	1		
2		Meter Valve	4	#3	NU-337
3		Meter Valve	1	#4	NU-75
4		Plug	1		
5		Plug	1		
6		Fitting	5		

Air/Oil (option) Lubrication Manifold Assembly

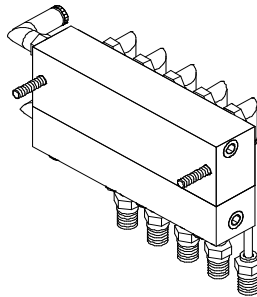
Air/oil assembly used on both Z and X axes



AIR/OIL LINE DESTINATIONS	
No.	RAIL BLOCK/BALL SCREW
1	Z RIGHT UPPER RAIL BLOCK
2	Z RIGHT LOWER RAIL BLOCK
3	Z BALL SCREW
4	Z LEFT LOWER RAIL BLOCK
5	Z LEFT UPPER RAIL BLOCK

D	CHANGE TO ALL FRAMES	6002		11/05
C	REMOVED VMG24	4987	N.M.	2/01
B	ADD VMG24 NOTE	4338	N.M.	1/00
A	UPDATED TUBE LENGTHS	4077	N.M.	7/99
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 Z AXIS AIR/OIL MANIFOLD ASSEMBLY		
X.XXX +/- .005		APPLICATION PARTNER I		
X.XX +/- .010		SCALE 2:1 DMG No. 6-10-008-059 SIZE B		
X.X +/- .030		DATE 11 JUN 99 DRAWN BY HERME SHEET No. 1 OF 2		
ANGLE +/- 1.0°				

Air/oil assembly used on both Z and X axes



PARTS LIST

No.	QUANTITY	STOCK No.	DESCRIPTION
1	6	NU-161	ELBOW-SWIVEL 5/32 TUBE 1/8 NPT
2	1	NU-171	ELBOW - SWIVEL 1/4 TUBE 1/8 NPT
3	SEE TABLE	NU-117	5/32 NYLON TUBING
4	1	MP1-301	Z AIR/OIL MANIFOLD - AIR
5	5	NU-154	5/32 TUBE 1/8 NPT M/S
6	5	WX-24B	O-RING Buna 1/2 ID x 5/8 OD
7	-	SEE TABLE	OIL METER
8	1	MP-660	Z AIR/OIL MANIFOLD - OIL

NU-117 TUBING LENGTH

CONNECTION	ALL FRAMES	OIL METER
Z LEFT UPPER RAIL BLOCK	37	#3 (NU-156)
Z LEFT LOWER RAIL BLOCK	31	#3 (NU-156)
Z RIGHT UPPER RAIL BLOCK	29	#3 (NU-156)
Z RIGHT LOWER RAIL BLOCK	23	#3 (NU-156)
Z BALL SCREW	26	#2 (NU-155)

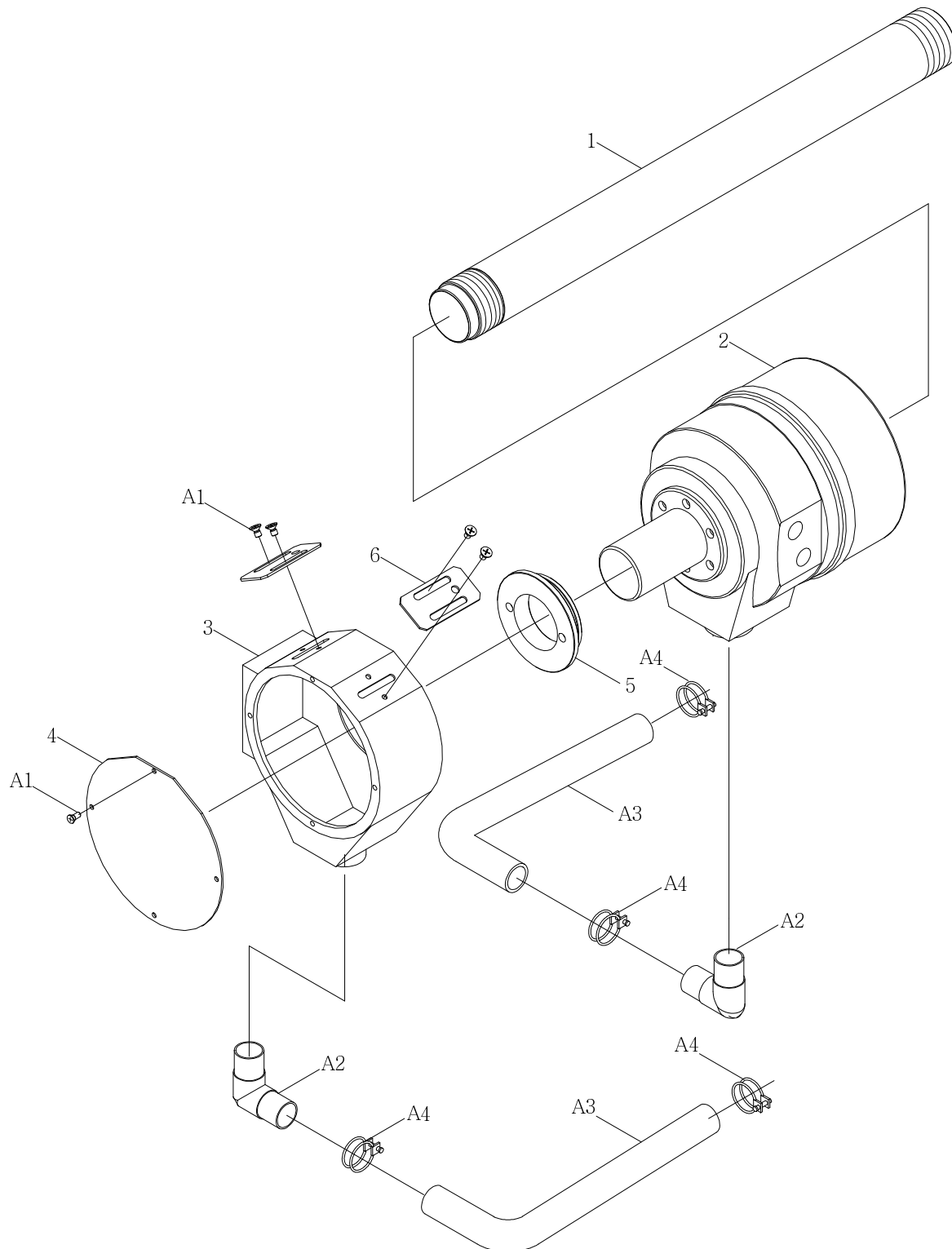
ALL MEASUREMENTS ARE IN INCHES

HARDWARE LIST

No.	QTY	DESCRIPTION
A	2	10-32 x 1 1/2 SHCS
B	2	1/8-27 NPT SHPP
C	8	10-32 x 1 1/2 BHCS

D	CHANGE TO ALL FRAMES	6002		11/05
C	REMOVED VMG24	4987	N.M.	2/01
B	ADD VMG24 NOTE	4338	N.M.	1/00
A	UPDATED TUBE LENGTHS	4077	N.M.	7/99
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 Z AXIS AIR/OIL MANIFOLD ASSEMBLY		
X.XXX +/- .005		APPLICATION PARTNER I		
X.XX +/- .010		SCALE 2:1	DWG No. 6-10-008-059	SIZE B
X.X +/- .030		DATE 11 JUN 99	DRAWN BY HERME	SHEET No. 2 OF 2
ANGLE +/- 1.0°				

Hydraulic Cylinder



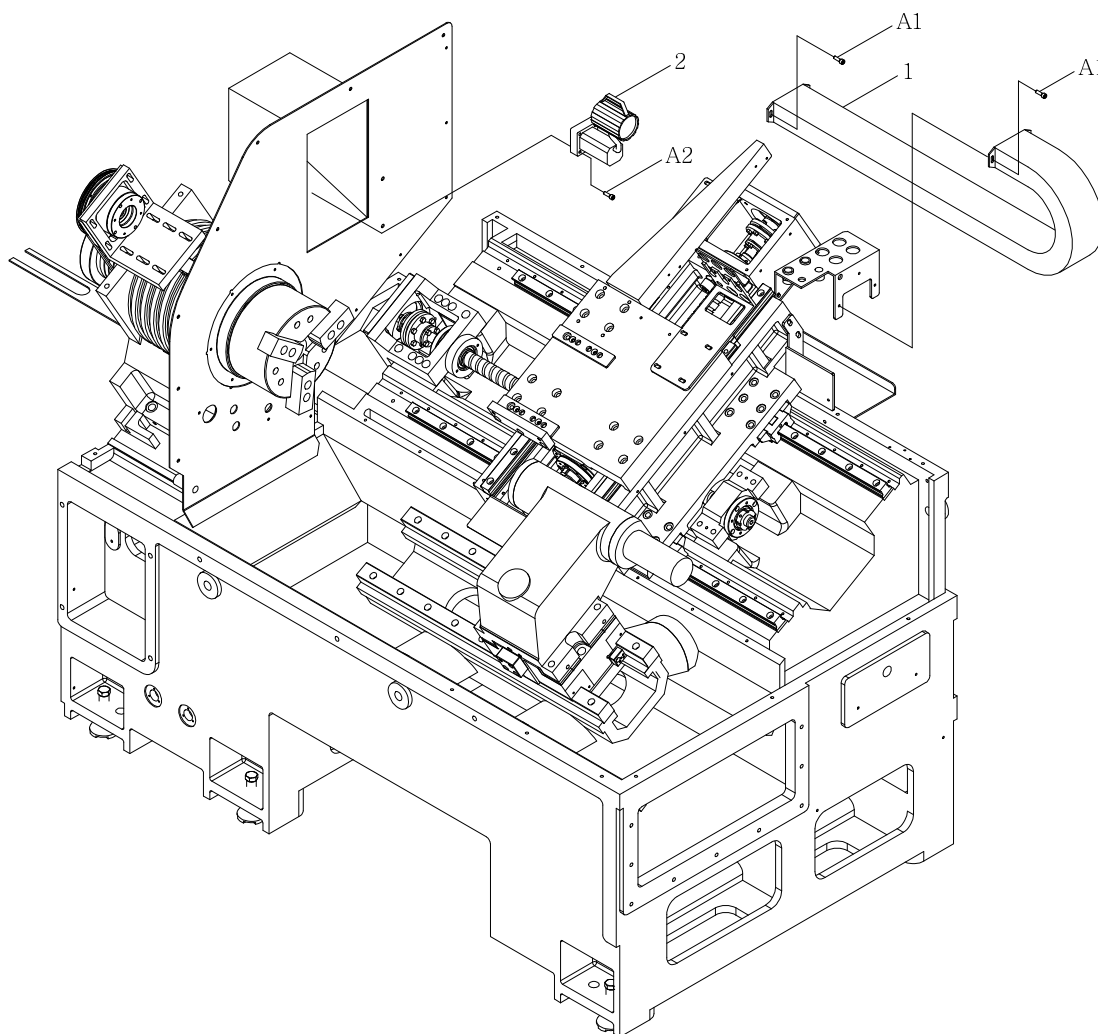
Hydraulic Cylinder

Item	Part no.	Description	Q'ty	Remark	Milltronics #
1	42042-04002	Draw tube	1		MPL-785
	42042-04052	Draw tube	1		
	42042-04102	Draw tube	1		
2	42042-04003	Cylinder actuator	1	6"	MPL-489
	42042-04053	Cylinder	1	8"	
	42042-04103	Cylinder	1	10"	MPL-546
3	42042-04004	Coolant Collector	1	6"	6" #3-6 assy MPL-307
	42042-04054	Coolant Collector	1		
	42042-04104	Coolant Collector	1		
4		Cover	1		
5	42042-04007	Nut	1	6"	
	42042-04057	Nut	1	8"	
	42042-04107	Nut	1	10"	
6		Adjusting Plate	2		
A1		Screw	8	M5X10L	
A2		Fitting	2	1"PTX1"L	
A3		Hyd. Hose	2	3/8R1X2800-90°	
A4		Clamper	4		

Not shown

	Hydraulic pump solenoid			MPL-814
	Hydraulic pump fan			MPL-616
	Hydraulic pump & motor			MO-213
	Flood pump			MPL-506
	Pressure switch			SW-313
	O-ring seal kit			MPL-845

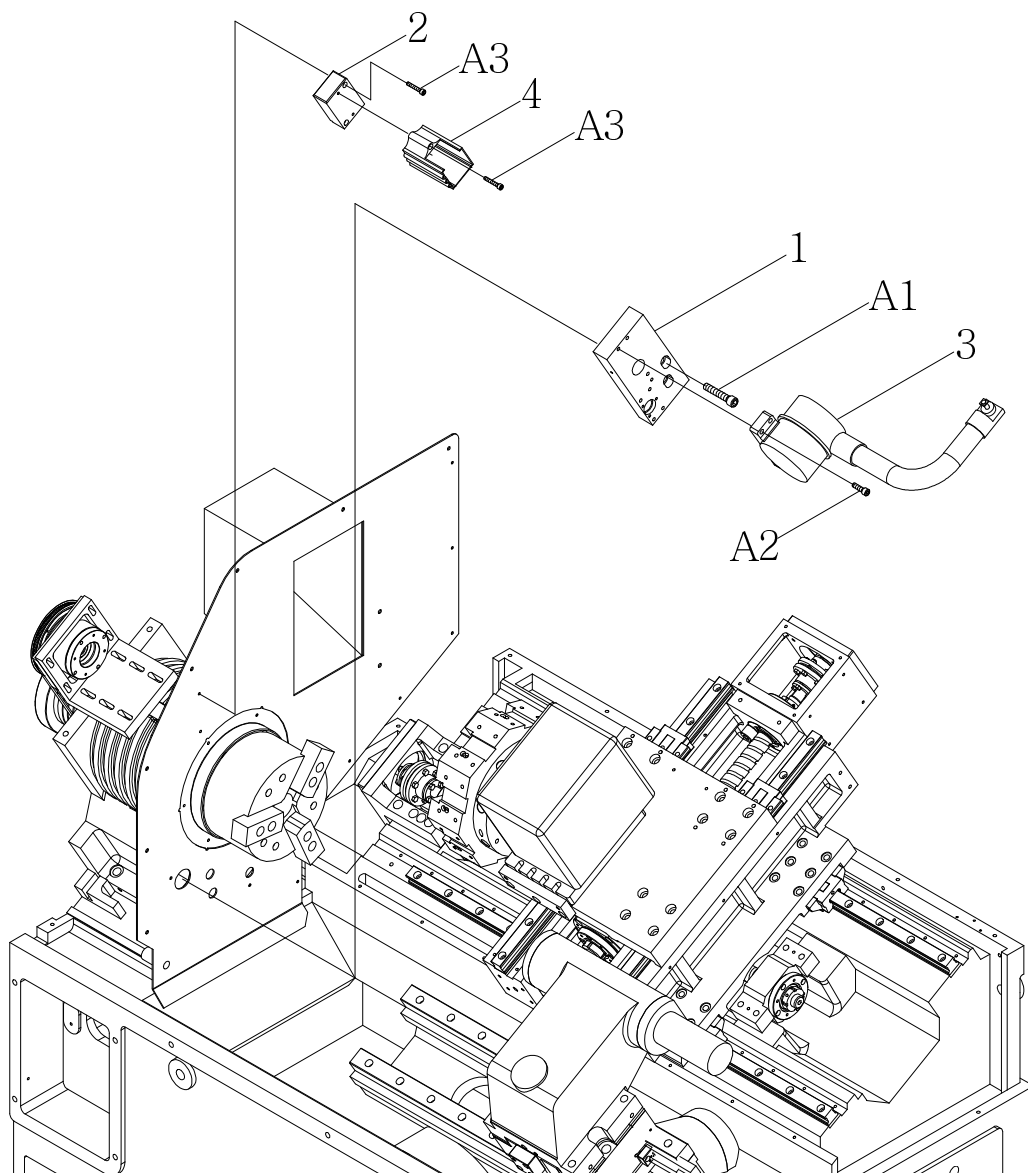
Cable Track & Work Light



Cable Track & Work Light

Item	Part no.	Description	Q'ty	Remark	Milltronics #
1		Cable Track	1	74X39XKR100	
2		Work Light	1		MA-215
A1		Socket Screw	4	M6X12L	
A2		Socket Screw	4	M6X40L	
NS		Cycle light			MA-495

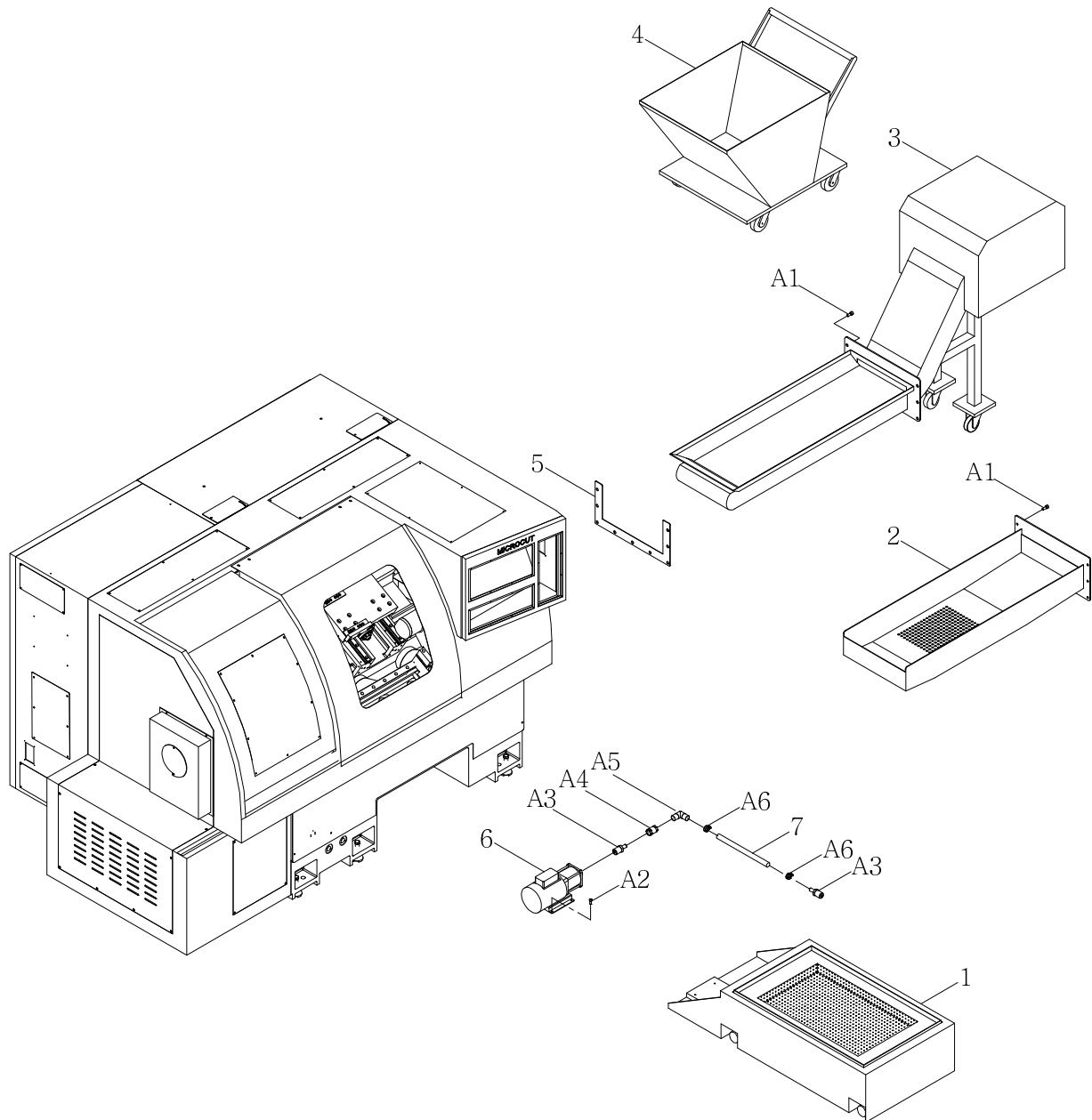
Tool Setter



Tool Setter

Item	Part no.	Description	Q'ty	Remark	Milltronics #
1	42042-85010	Seat	1		
2	42042-04052	Block	1		
3		Tool Setter	1		MPL-389
4		Tool Setter Seat	1		
A1		Socket Screw	1	M12X35L	
A2		Socket Screw	1	M8XP1.25X35L	MPL-867
A3		Socket Screw	1	M6XP1X50L	

Chip Conveyor & Coolant Tank



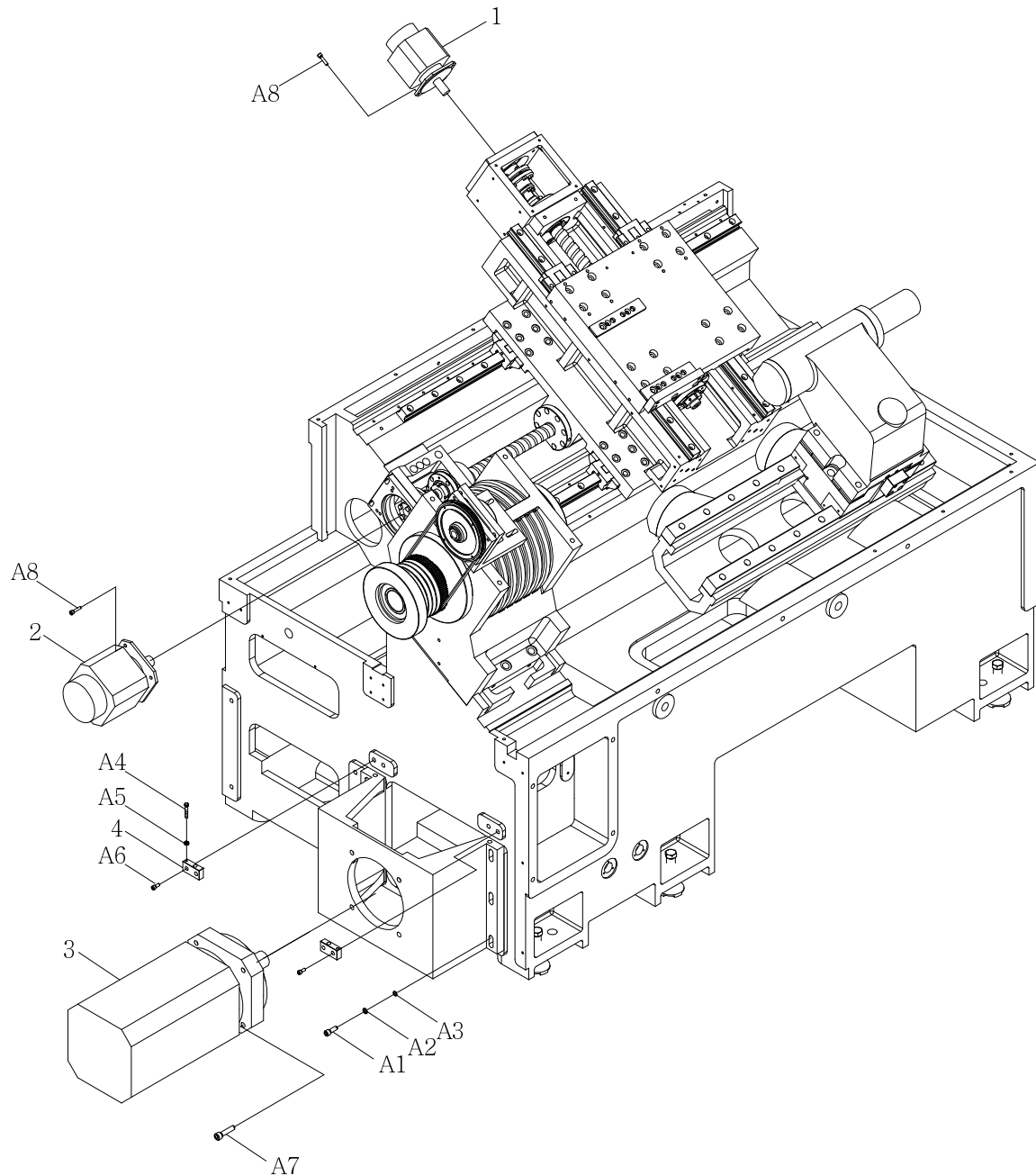
Chip Conveyor & Coolant Tank

Item	Part no.	Description	Q'ty	Remark	Milltronics #
1	42042-41001	Coolant Tank	1		
2	42042-41010	Chip Tank	1		
3	42042-41015	Chip Conveyor	1		MPL-369
		Conveyor motor	1		MO-189
4		Bucket	1		MPL-498
5		Spacer	1		
6	42042-41050	Coolant Pump	1		MPL-506
7		Pipe	1		
A1		Socket Screw	9	M10X30L	
A2		Socket Screw	4	M80X30L	
A3		Fitting	2	1"PTX3/8"H	
A4		Check Valve	1	3/4"PT	
A5		Fitting	1	3/4"PT	
A6		Clamper	2		

Other Miscellaneous Parts

Air regulator for Collet Closer option		NU-214
Conveyor wheels		MPL-523
Drawer system with pump assy		MPL-953
Cycle light		MA-495

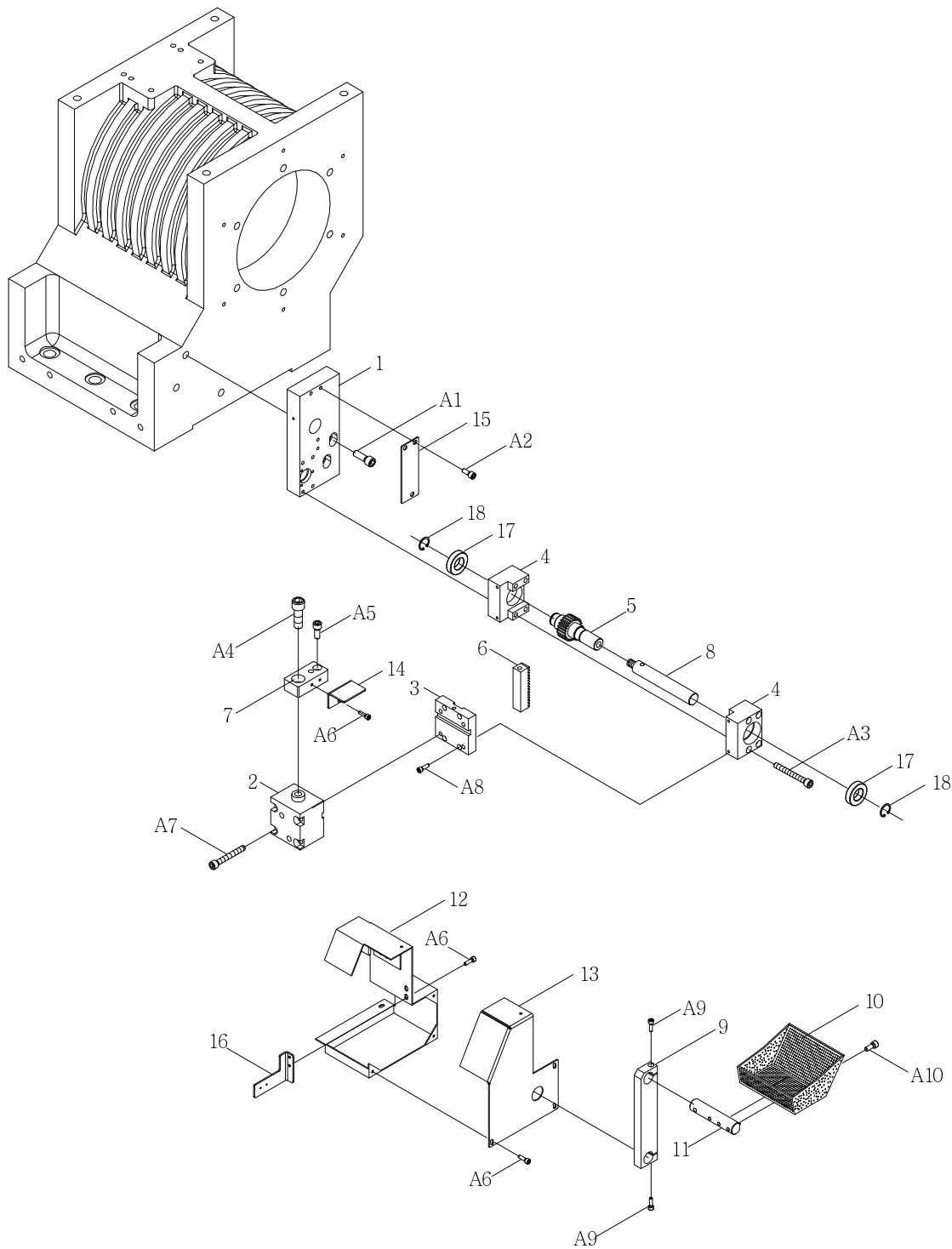
Motors



Motor

Item	Part no.	Description	Q'ty	Remark	Milltronics #
1		X-motor	1	.9kw w/brake	MO-245
2		Z-motor	1	1.3kw	MO-246
3		Spindle-motor	1	SL6	10151
				SL10 std 1-speed	MO-150
				SL10 opt 2-speed	MO-132
4	42042-05004	Adjusting Block	2		
A1		Socket Screw	6	M12X60L	
A2		Spring Washer	6	M12	
A3		Flat Washer	6	M12	
A4		Hex. Head Screw	2	M8X60L	
A5		Nut	2	M8	
A6		Socket Screw	4	M8X35L	
A7		Hex. Head Screw	4	M14X35L	
A8		Socket Screw	8	M8X40L	
		Spindle motor mount casting			MPL-545

Parts Catcher



Parts Catcher

Item	Part no.	Description	Q'ty	Remark	Milltronics #
1	42042-85010	Block	1		
2	42042-85012	Cylinder	1		
3	42042-85013	Cover	1		
4	42042-85014	Base	2		
5	42042-85015	Gear	1		
6	42042-85016	Rack	1		
7	42042-85017	Block	1		
8	42042-85018	Rod	1		MPL-717
9	42042-85019	Arm	1		MPL-718
10	42042-85020	Catcher	1		MPL-699 MPL-719
11	42042-85021	Rod	1		MPL-720
12	42042-85022	Chip Cover	1		
13	42042-85023	Cover	1		
14	42042-85024	Dog	1		
15	42042-85026	Plate	1		
16	42042-85031	Dog	1		
17		Bearing	2	6005ZZ	BG-06
18		C-ring	2	STW-25	
A1		Socket Screw	2	M12X35L	
A2		Socket Screw	3	M8XP1.25X12L	
A3		Socket Screw	4	M8XP1.25X100L	
A4		Socket Screw	1	M16XP2.0X25L	
A5		Socket Screw	1		
A6		Screw	8	M6XP1.0X10L	
A7		Socket Screw	4	M10XP1.5X70L	
A8		Socket Screw	2	M8XP1.25X16L	
A9		Socket Screw	2	M8XP1.25X16L	

