

AUTOBRAKE 2000

MODEL: AB1016

PARTS MANUAL

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CINCINNATI PRECISION MACHINERY 513-860-4133

AB1016

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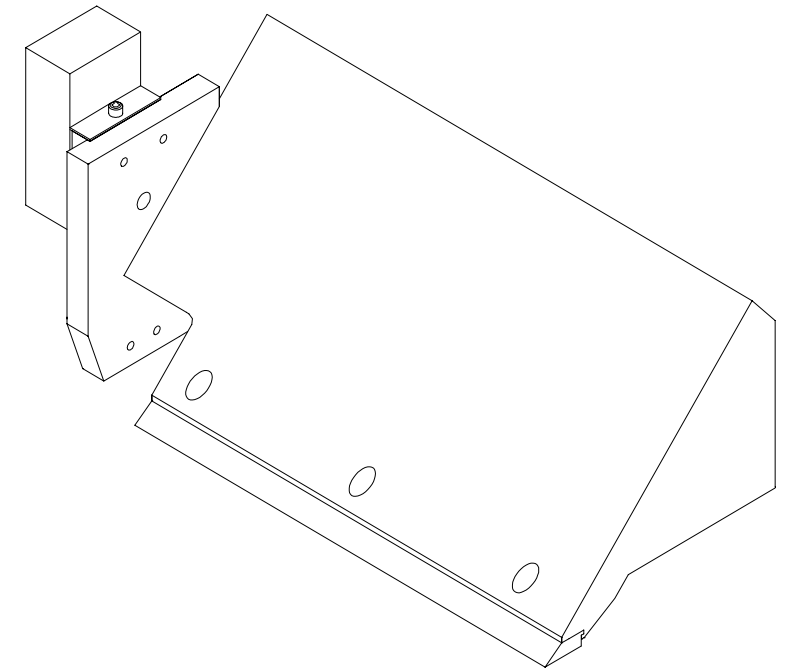
CINCINNATI PRECISION MACHINERY 513-860-4133

SECTION 1:

BASIC MECHANICAL

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STRAIGHT BEAM
{LEFT-HAND END SHOWN}



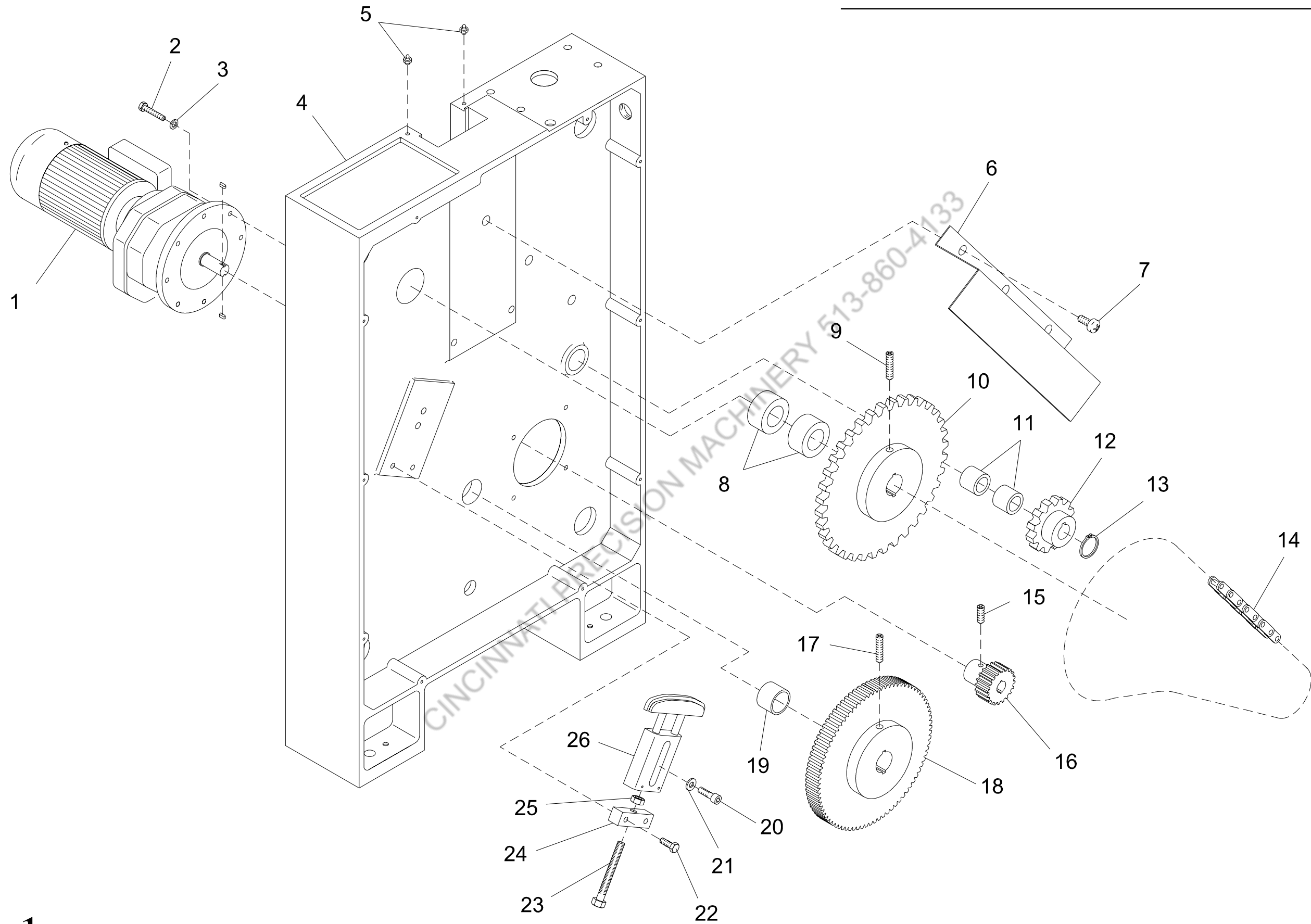


FIG. 1

R.H. LEG - OUTSIDE VIEW

ITEM	QTY	RW PART #	RW PART DESCRIPTION	ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	1	660011239	GEAR BRAKE MOTOR, CLAMPING	12	1	689710492	SMALL BENDING SPROCKET
-- 1a	1	660011249	COMPLETE BRAKE ASSEMBLY	13	1	686164339	SNAP RING (SGA-32)
-- 1b	1	660000496	BRAKE DISC PAD	14	1	686000617	CHAIN, BENDING DRIVE - 61 LINKS
-- 1c	1	660000461	BRAKE COIL	15	1	686012820	8 X 12 mm SOC HD SET SCREW
-- 1d	1	660000494	SMALL PLASTIC FAN	16	1	689380493	SMALL PINION CLAMPING GEAR
-- 1e	1	660011117	RECTIFIER	17	2	686012821	10 X 20 mm SOC HD SET SCREW
2	4	686012819	10 X 25 mm SHC SCREW	18	1	689380494	LARGE PINION CLAMPING GEAR
3	4	695033190	10 mm LOCK WASHER	19	1	686194708	BEARING (455030)
4	1	689140490	R.H. LEG	20	2	686012714	12 X 60 mm SHC SCREW
5	2	689000537	LUBRICANT NIPPLE (LUB-6)	21	2	686033182	13 mm FLAT WASHER, THICK
6	1	786440379	CHAIN GAURD	22	2	695012773	10 X 50 mm HEX HD SCREW
7	3	686012701	5 X 8 mm PHILLIPS HD PAN SCREW	23	1	686012822	12 X 100 mm HEX HD SCREW, FULL THREAD
8	2	686194711	BEARING (455050)	24	1	689000539	BRACKET, CHAIN TENSIONER
9	2	686012740	12 X 30 mm SOC HD SET SCREW	25	1	686023061	12 mm HEX NUT
10	1	689710491	LARGE BENDING SPROCKET	26	1	689000538	CHAIN TENSIONER
11	2	686194777	BEARING (455040)				

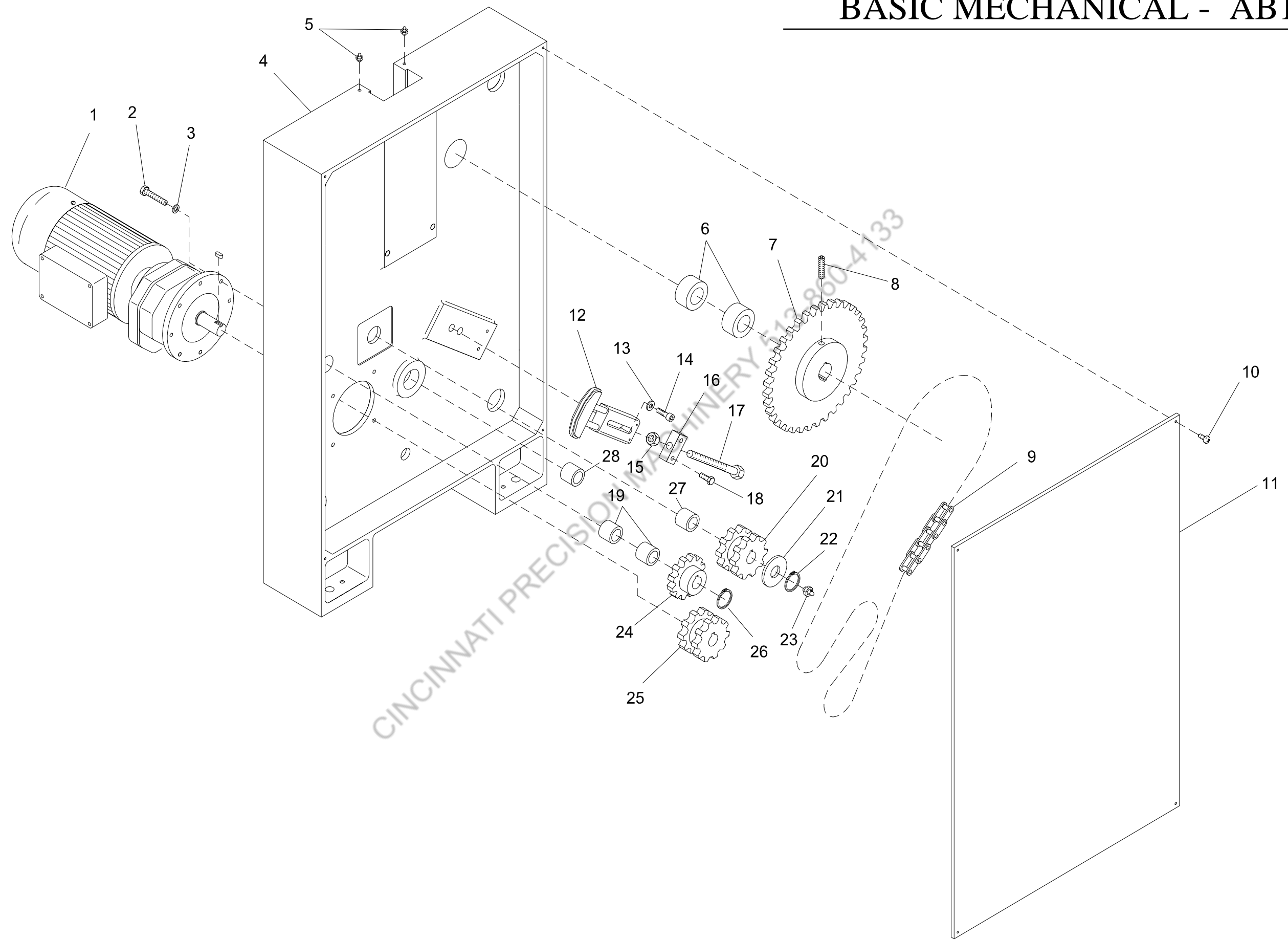


FIG. 2

L.H. LEG - OUTSIDE VIEW

ITEM	QTY	RW PART #	RW PART DESCRIPTION	ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	1	660011144	GEAR BRAKE MOTOR, BENDING	13	2	686033182	13 mm FLAT WASHER, THICK
-- 1a	1	660011195	COMPLETE BRAKE ASSEMBLY	14	2	686012714	12 X 60 mm SHC SCREW
-- 1b	1	660011231	BRAKE DISC PAD	15	1	686023061	12 mm HEX NUT
-- 1c	1	660000495	BRAKE COIL	16	1	689000539	BRACKET, CHAIN TENSIONER
-- 1d	1	660000311	CAST IRON FAN	17	1	689012822	12 X 100 HEX HD SCREW, FULL THREAD
-- 1e	1	660011117	RECTIFIER	18	2	695012773	10 X 50 HEX HD SCREW
2	4	686012819	10 X 25 mm SHC SCREW	19	2	686194777	BEARING (455040)
3	4	695033190	10 mm LOCK WASHER	20	1	689710498	SPROCKET BENDING MIDDLE
4	1	689140495	L.H. LEG	21	1	689830540	WASHER
5	2	689000537	LUBRICANT NIPPLE (LUB-6)	22	1	686164340	SNAP RING (SGA-35)
6	2	686194711	BEARING (455050)	23	1	689000541	LUBRICANT NIPPLE (R-1/8")
7	1	689710496	LARGE BENDING SPROCKET	24	1	689710499	SMALL BENDING SPROCKET
8	2	686012740	12 X 30 mm SOC HD SET SCREW	25	1	689710500	DRIVE BENDING SPROCKET
9	1	686000617	BENDING CHAIN DRIVE - 61 LINKS	26	1	686164339	SNAP RING (SGA-32)
10	4	686012715	6 X 25 mm SOC HD BUTTON	27	2	686194778	OIL BRONZE BEARING (777 35/41 X 25)
11	1	689220497	L.H. OUTSIDE LEG COVER	28	1	686194708	BEARING (455030)
12	1	689000538	CHAIN TENSIONER				

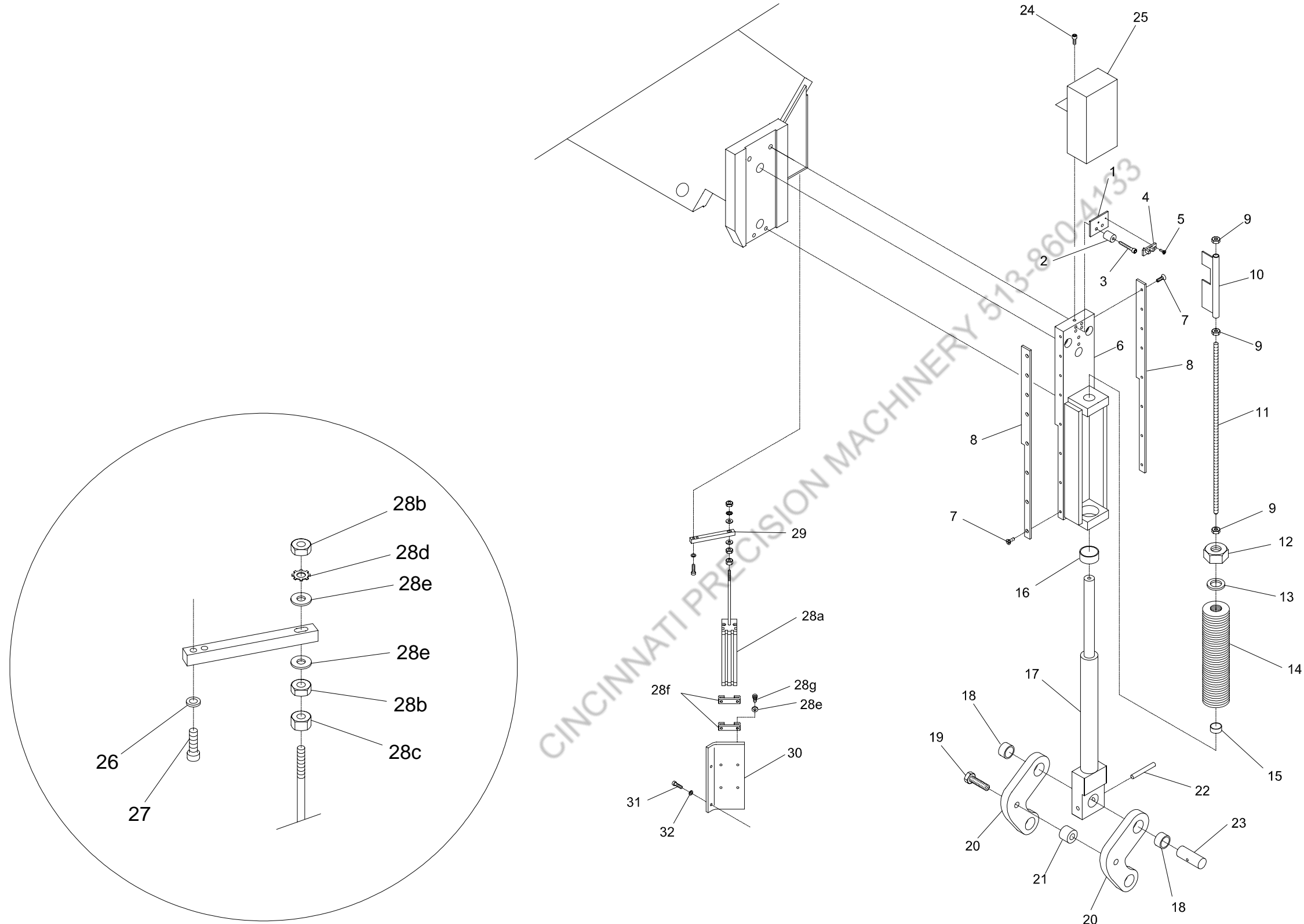


FIG. 3

R.H. PULLDOWN ASSEMBLY

ITEM	QTY	RW PART #	RW PART DESCRIPTION	ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	1	689180542	BRACKET, PRESSURE SWITCH MOUNTING	20	1 SET	689000517	C-LINK SET
2	2	686000573	PLASTIC CYLINDER GUIDE	-- 20a	1	689000503	R.H. C-LINK
3	2	686012721	6 X 30 mm SHC SCREW	-- 20b	1	689000504	L.H. C-LINK
4	1	660152673	OPTICAL SENSOR	21	1	689630544	SPACER, C-LINK
5	1	686012742	4 X 16 SLOTTED HD SCREW	22	1	686012762	6 X 16 SOC HD SET SCREW
6	1	786000539	PULLDOWN WELDMENT	23	1	689160545	PIN, PULLDOWN DRIVE
7	16	686012823	5 X 12 mm SOC HD FLAT SCREW	24	1	686012732	6 X 10 mm PHILLIPS HD SCREW
8	1 SET	689080516	PULLDOWN GIB SET	25	1	689220569	COVER, R.H. CLAMPING SPRING
-- 8a	1	689080505	R.H. PULLDOWN GIB	26	2	686033178	5 mm FLAT WASHER
-- 8b	1	689080506	L.H. PULLDOWN GIB	27	2	686012707	5 X 8 mm SHC SCREW
9	3	686023064	6 mm HEX NUT	28	1	660000385	LINEAR ENCODER KIT (ORION CONTROL ONLY)
10	1	786000500	SENSOR FLAG	-- 28a	1	660000479	ENCODER, LINEAR (without kit)
11	1	786000499	6 X 100 mm THREADED ROD	-- 28b	2	686023069	6mm HEX JAM NUT
12	1	689560543	NUT, DISC SPRING LOCK DOWN	-- 28c	1	686023064	6mm HEX FULL NUT
13	1	686033182	13 mm FLAT WASHER, THICK	-- 28d	1	686033188	6mm STAR LOCK NUT
14	36	689790501	CLAMP DISC SPRING	-- 28e	6	686033173	6mm FLAT WASHER
15	1	686194713	BEARING (202315)	-- 28f	2	686000587	BRACKET, ENCODER MOUNTING
16	1	686194712	BEARING (353920)	-- 28g	4	686012732	6 X 10 mm PHILLIPS HD SCREW
17	1	689680502	PULLDOWN ROD ASSY	29	1	786200509	BRACKET, ENCODER -- RAM MOUNT (ORION CONTROL ONLY)
18	2	686194712	BEARING (353920)	30	1	786200510	BRACKET, ENCODER -- LEG MOUNT (ORION CONTROL ONLY)
19	1	686012824	10 X 65 HEX HD SCREW	31	2	686012732	6 X 10 mm SCREW (ORION CONTROL ONLY)
				32	2	686033173	6 mm FLAT WASHER (ORION CONTROL ONLY)

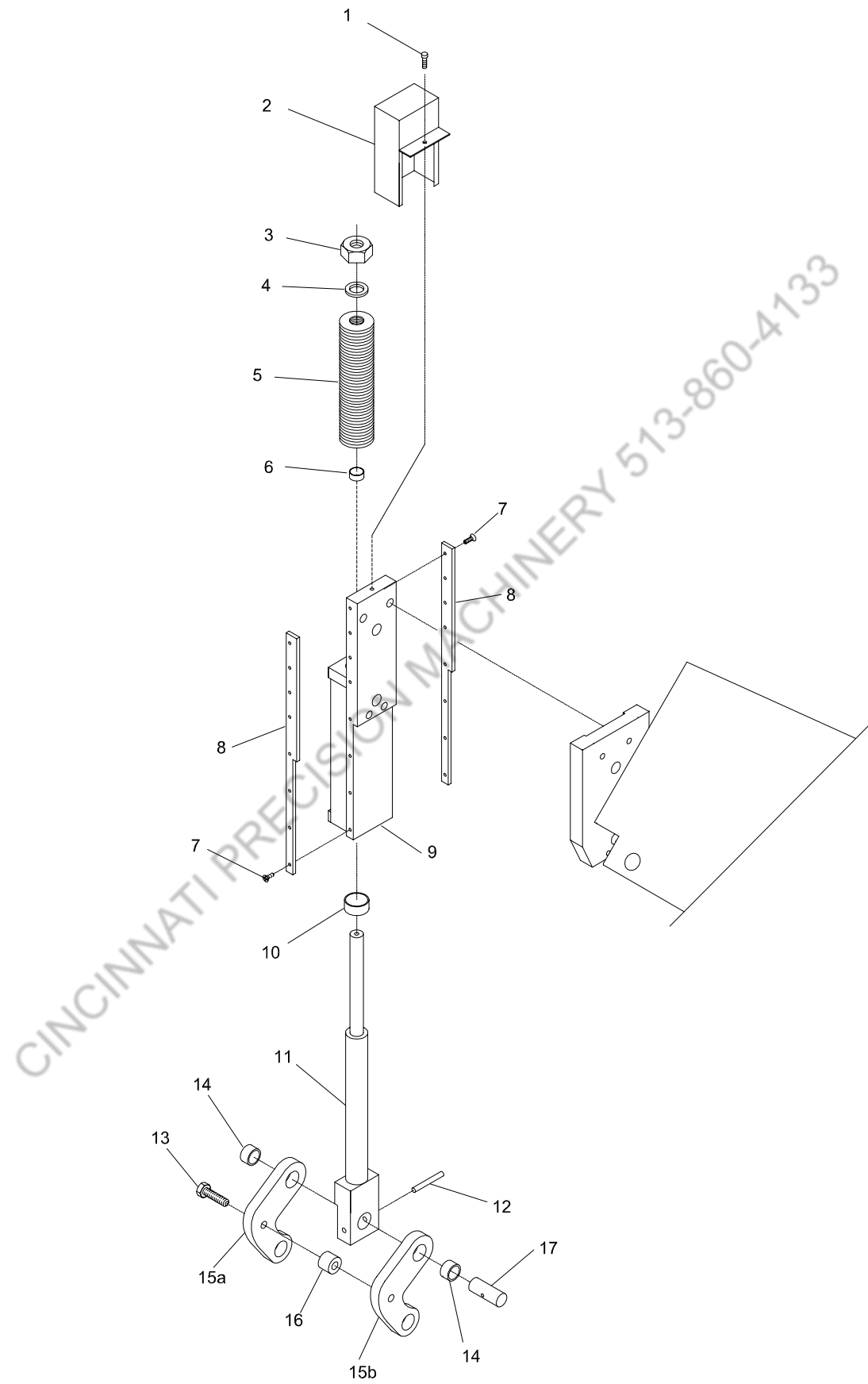


FIG. 4

L.H. PULLDOWN ASSEMBLY

ITEM	QTY	RW PART #	RW PART DESCRIPTION	ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	1	656012732	6 X 10 mm PHILLIPS HD SCREW	10	1	686194712	BEARING (353920)
2	1	689220570	COVER, L.H. CLAMPING SPRING	11	1	689680502	PULLDOWN ROD ASSY
3	1	689560543	NUT, DISC SPRING LOCK DOWN	12	1	686012762	6 X 16 SOC HD SET SCREW
4	1	686033182	13 mm FLAT WASHER, THICK	13	1	686012824	10 X 65 HEX HD SCREW
5	36	689790501	CLAMP DISC SPRING	14	2	686194712	BEARING (353920)
6	1	686194713	BEARING (202315)	15	1 SET	689000517	C-LINK SET
7	16	686012823	5 X 12 mm SOC HD FLAT SCREW	-- 15a	1	689000503	R.H. C-LINK
8	1 SET	689080516	PULLDOWN GIB SET	-- 15b	1	689000504	L.H. C-LINK
-- 8a	1	689080505	R.H. PULLDOWN GIB	16	1	689630544	SPACER, C-LINK
-- 8b	1	689080506	L.H. PULLDOWN GIB	17	1	689160545	PIN, PULLDOWN DRIVE
9	1	786000539	PULLDOWN WELDMENT				

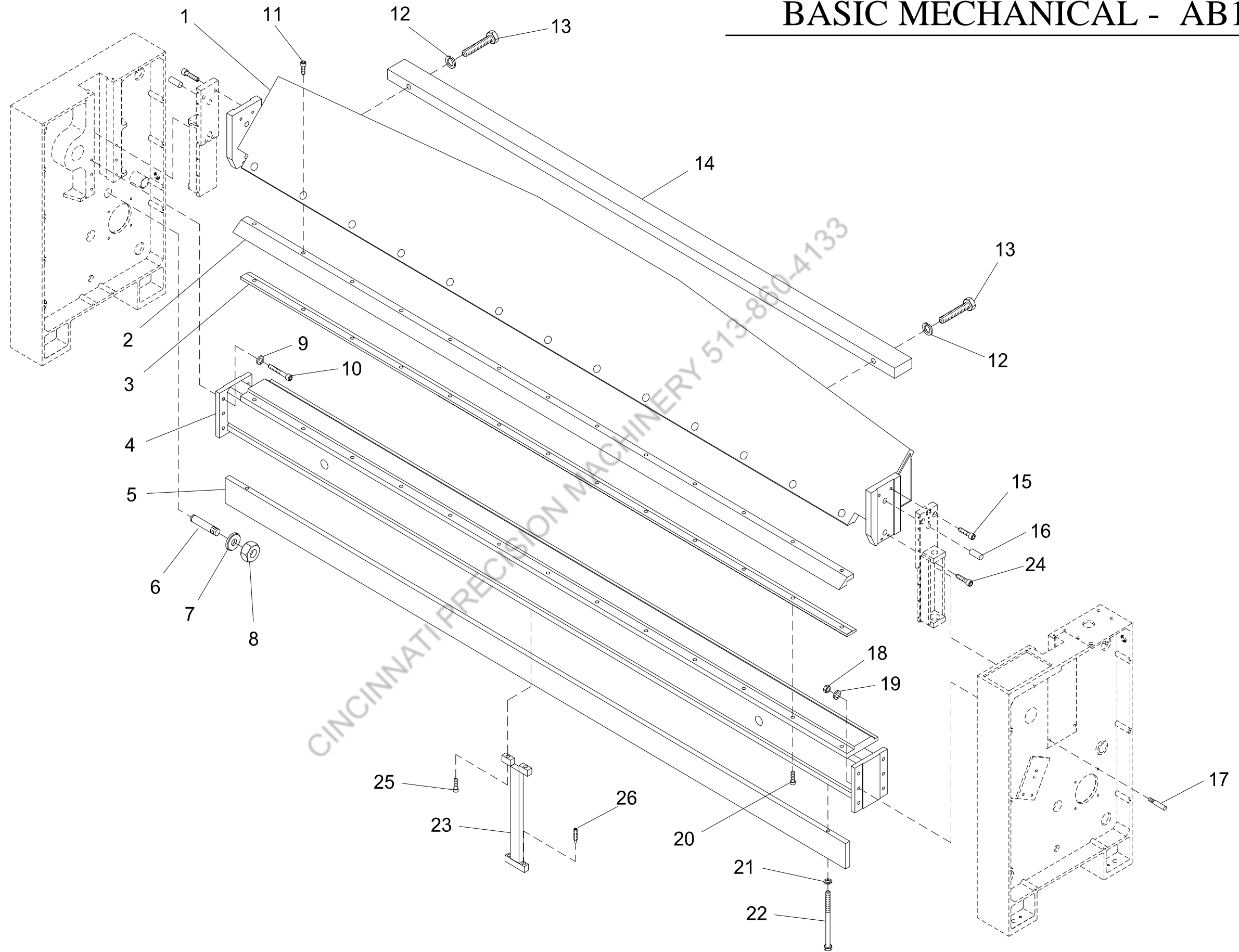


FIG. 5

UPPER AND LOWER BEAM ASSEMBLIES

ITEM	QTY	RW PART #	RW PART DESCRIPTION	ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	1	689020507	STRAIGHT BEAM	14	1	689180481	STRAIGHT BEAM BRACE
2	1	689020385	UPPER JAW	15	4	686012676	12 X 35 mm SHC SCREW
3	1	689020407	LOWER JAW	16	2	686053400	20 X 45 DOWEL PIN
3a	1	689020480	NO CROWN LOWER JAW	17	4	689160548	ALIGNMENT PIN (4-1636)
4	1	689020508	LOWER BEAM	18	4	686023061	12 mm HEX NUT
5	1	689180481	LOWER BEAM BRACE	19	4	686033185	12 mm LOCK WASHER
6	1	689680546	SHAFT, SPROCKET MOUNTING	20	13	686012676	12 X 35 mm SHC SCREW
7	1	689830547	WASHER	21	2	686033183	16 mm LOCK WASHER
8	1	686023081	30 mm HEX NUT	22	2	686012826	16 X 180 mm HEX HD SCREW
9	8	686033183	16 mm LOCK WASHER	23	1	689180481	LOWER BEAM BRACE --- OPTIONAL
10	8	686012739	16 X 40 mm SHC SCREW	24	4	686012746	10 X 30 mm SHC SCREW
11	13	686012672	12 X 20 mm SHC LOW HD SCREW	25	2	686012827	12 X 25 mm SHC SCREW
12	2	686033206	16 mm FLAT WASHER	26	2	686012671	10 X 25 mm SOC HD SET SCREW
13	2	686012825	16 X 130 mm HEX HD SCREW				

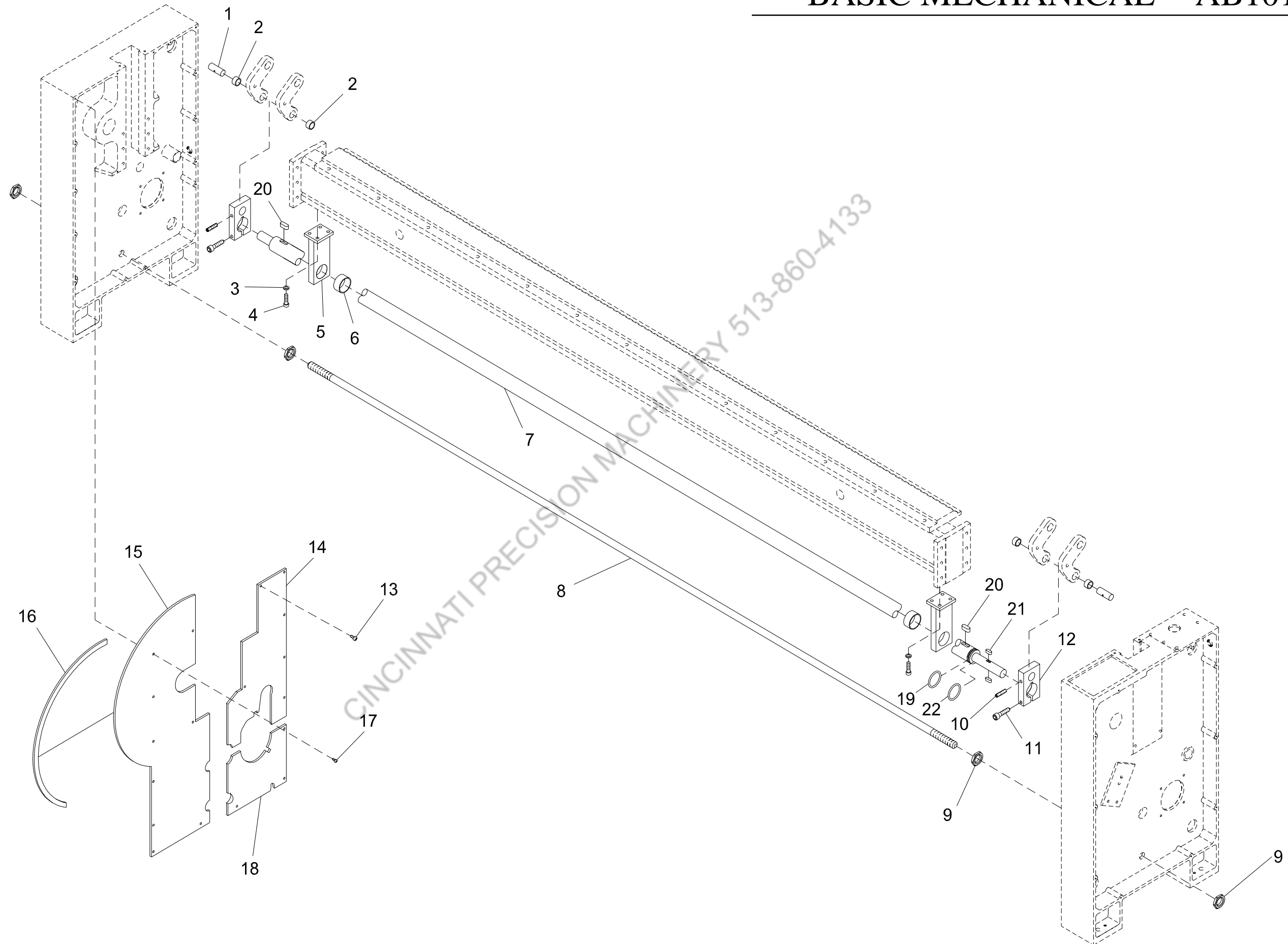


FIG. 6

CLAMPING SHAFT ASSEMBLY

ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	2	689160545	PIN, PULLDOWN DRIVE
2	4	686194712	BEARING (353920)
3	8	686033175	8 mm FLAT WASHER
4	8	686012828	8 X 30 mm SHC SCREW
5	2	786180540	CLAMP SHAFT SUPPORT
6	2	686194708	BEARING (455030)
7	1	689680509	CLAMPING DRIVE SHAFT
8	1	689820549	PIPE COLUMN
9	4	686023082	HEX NUT (R 1 1/4")
10	2	689012762	6 X 16 mm SOC HD SET SCREW
11	2	686012829	8 X 45 mm SHC SCREW
12	2	689000510	CLAMPING DRIVE LINK
13	16	686012701	5 X 8 mm PHILLIPS HD PAN SCREW
14	1	689220518	COVER, L.H. INSIDE REAR TOP LEG
15	1	689220394	COVER, L.H. INSIDE FRONT LEG
16	1	689000119	EDGE TRIM
17	3	686012699	5 X 10 mm PHILLIPS HD FLAT SCREW
18	1	689220519	COVER, L.H. INSIDE REAR BOTTOM LEG
19	1	686164341	SNAP RING (SGA-45)
20	2	689530550	KEY, ECCENTRIC LINK DRIVE (41mm)
21	2	689530551	KEY, GEAR LARGE (50mm)
22	1	689830552	WASHER

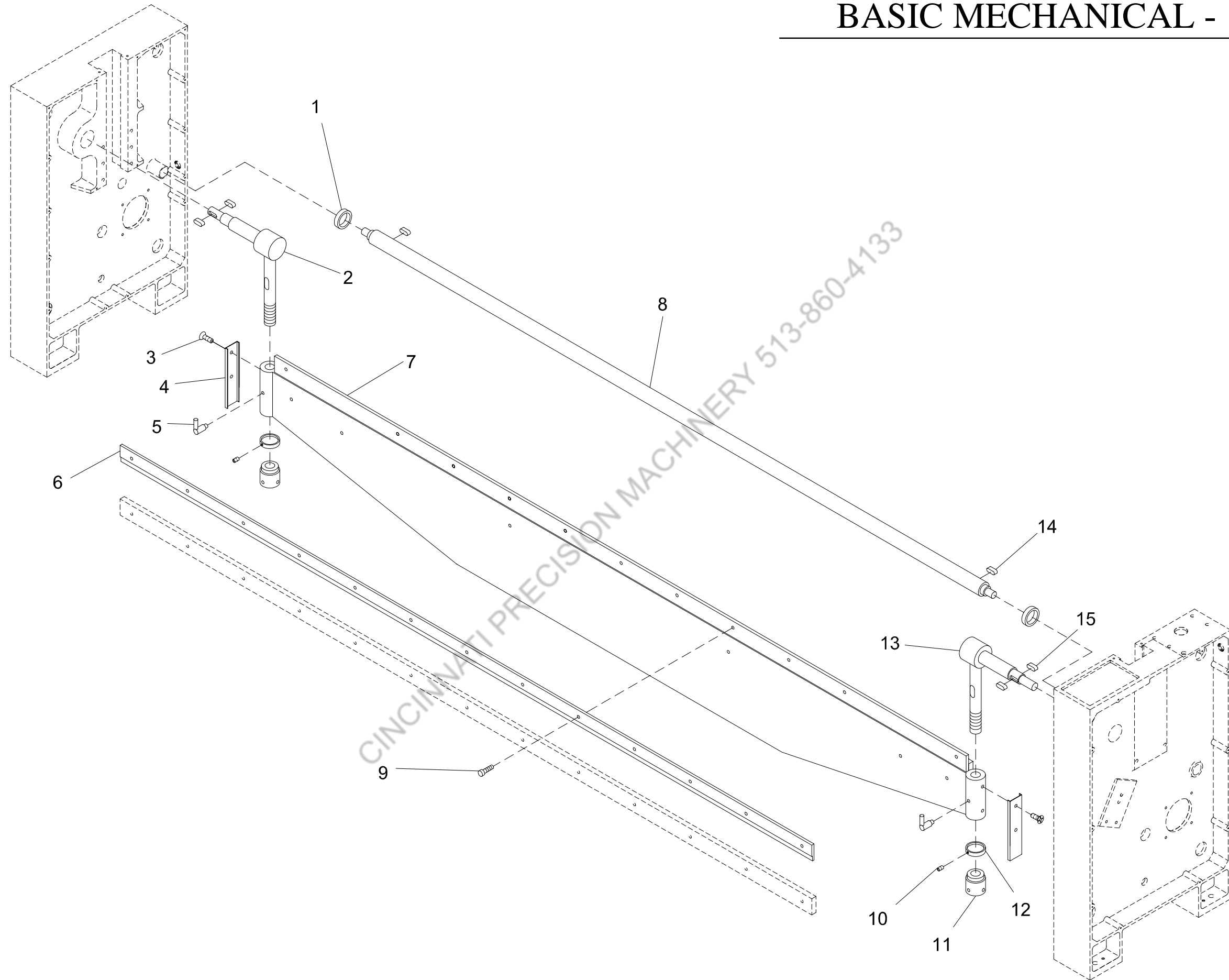


FIG. 7

APRON (BENDING BEAM) ASSEMBLY

ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	2	689260554	COLLAR, LOCKING (45mm)
2	2	689500216	L.H. BENDING BEAM HINGE
3	4	686012735	5 X 8 mm SOC HD FLAT SCREW
4	2	786220403	ADJUSTING NUT SHIELD
5	2	689460116	APRON LOCKING HANDLE
6a	1	689120152	THIN BENDING BAR, 7mm/10mm
6b	1	689120151	THICK BENDING BAR, 20mm
7	1	689020512	BENDING BEAM
8	1	689680513	SHAFT, BENDING BEAM DRIVE
9	13	686012673	12 X 30 mm SOC HD BUTTON
10	2	686012730	5 X 5 mm SOC HD SET SCREW
11	2	689560514	ADJUSTING NUT
12	2	689300515	RING SCALE
13	1	689500484	R.H. BENDING BEAM HINGE
14	2	689530555	KEY, SHAFT BENDING BEAM (32mm)
15	4	689530556	KEY, HINGE

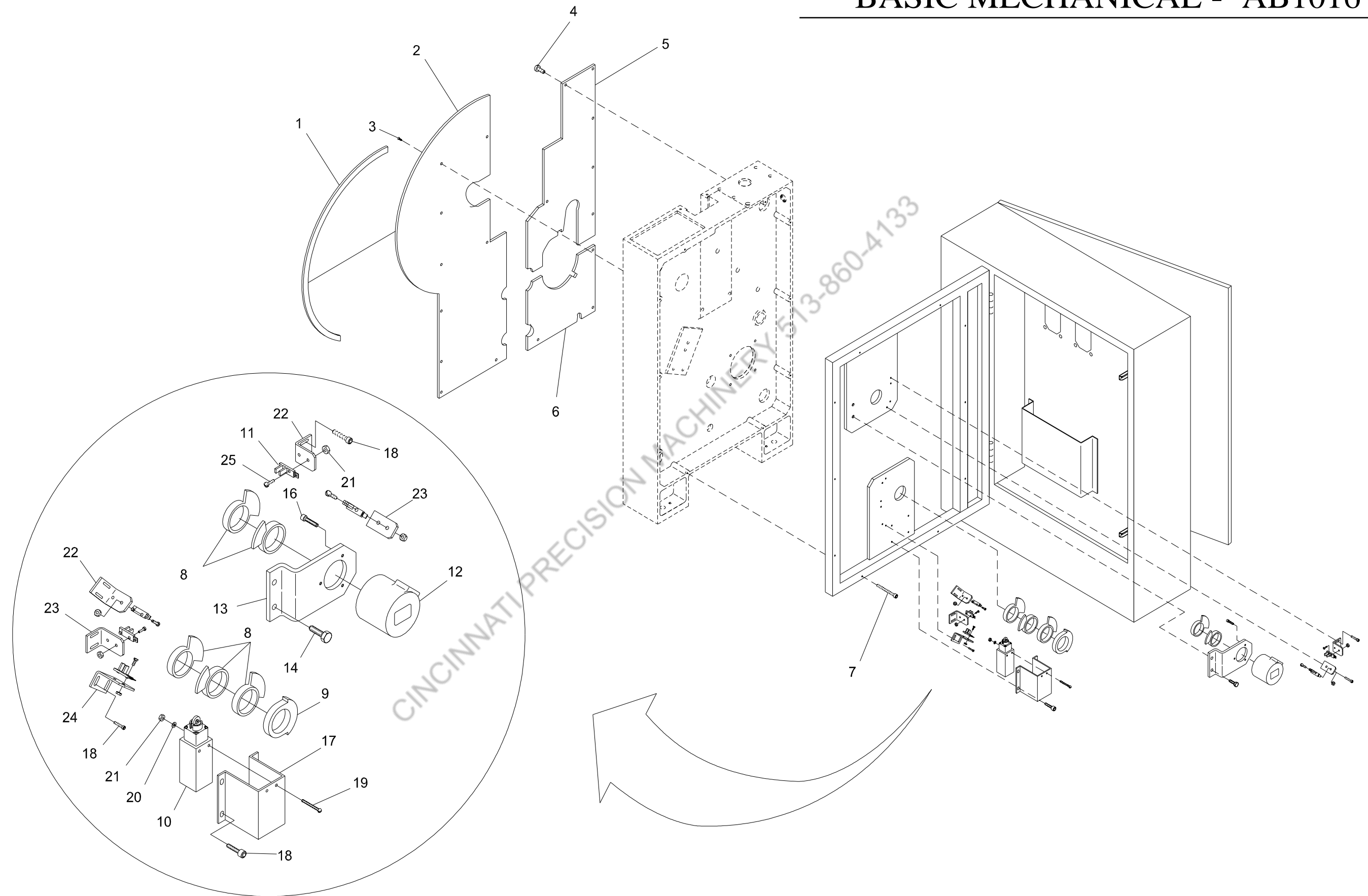


FIG. 8

LIMIT SWITCHES AND SENSOR CAMS ASSEMBLIES

ITEM	QTY	RW PART #	RW PART DESCRIPTION	ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	1	689000119	EDGE TRIM	13	1	786200512	BRACKET, ENCODER MOUNTING
2	1	689220393	R.H. INSIDE FRONT LEG COVER	14	2	686012734	6 X 8 HEX HD SCREW
3	3	686012699	5 X 10 mm PHILLIPS HD FLAT SCREW	15	2	686033173	6 mm FLAT WASHER
4	16	686012700	5 X 8 mm PAN HD SCREW	16	3	686012744	3 X 8 mm SHC SCREW
5	1	689220520	R.H. INSIDE REAR TOP LEG COVER	17	1	786200533	BRACKET, 6mm SWITCH
6	1	689220521	R.H. INSIDE REAR BOTTOM LEG COVER	18	14	686012710	4 X 10 mm SHC SCREW
7	10	686012702	6 X 16 mm SHC SCREW	19	2	686012706	4 X 30 mm SLOTTED HD SCREW
8	5	786210513	FLAG -- OPTICAL SWITCHES	20	2	686033177	4 mm FLAT WASHER
9	1	689000164	CAM -- 6mm SAFETY STOP	21	7	686023065	4 mm NYLOCK NUT
10	1	660152657	SWITCH, LIMIT -- CLICKER STYLE 6mm SAFETY STOP	22	2	786200514	BRACKET, SWITCH SMALL
11	5	660152673	OPTICAL SWITCH	23	2	786200515	BRACKET, SWITCH MEDIUM
12	1	660000404	ENCODER, INC BENDING GI355.A60C331 3600 PULSE	24	1	786200516	BRACKET, SWITCH LARGE

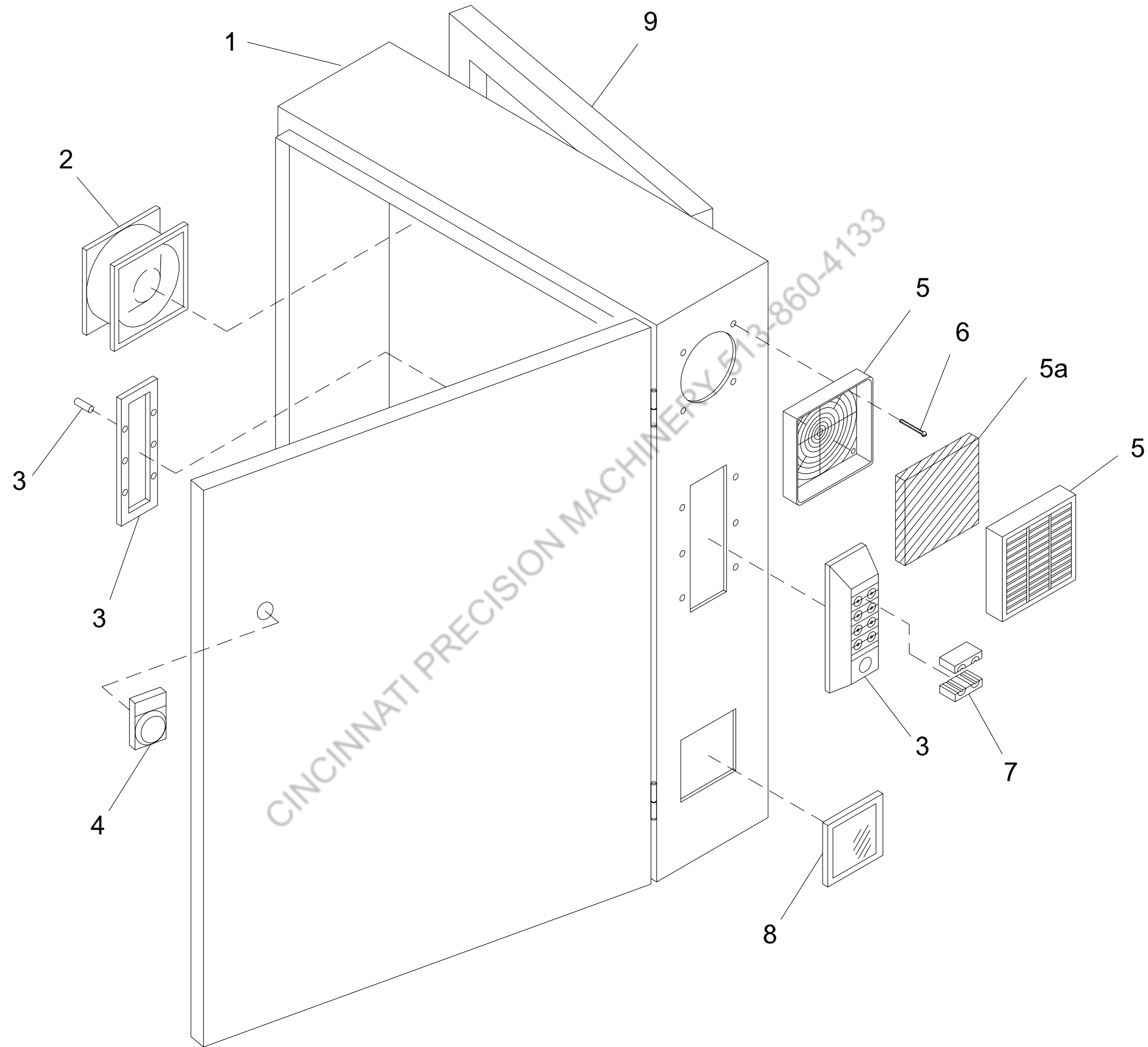


FIG. 9

MAIN ELECTRICAL BOX

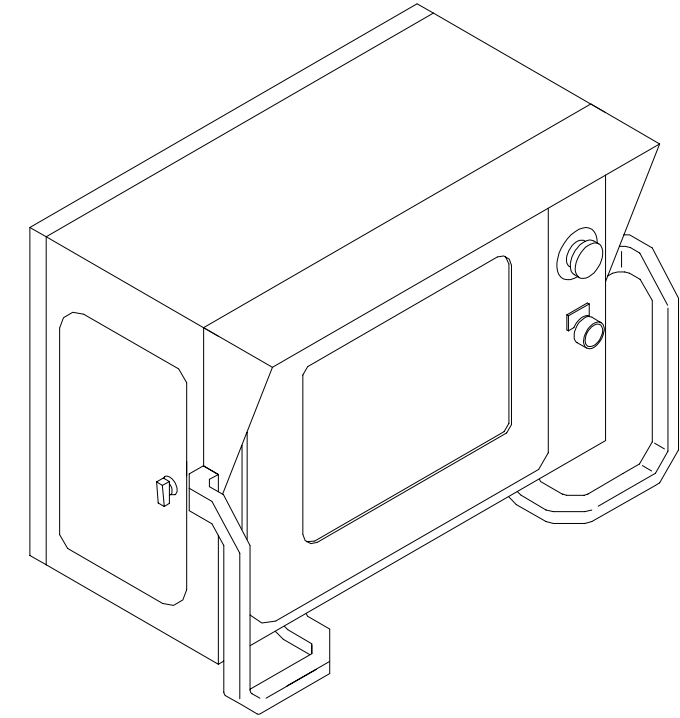
ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	1	260009655	CABINET, ELECTRICAL CONTROL ORION
2	1	660000442	FAN, COOLING 230V PABST 4656N
-- 2a	1	660000455	CORD, ELECTRICAL FAN
3	1	660000451	CORD GRIP FRAME AND MOUNT CS FRAME 8
4	1	660031326	DISCONNECT, MAIN POWER COMPLETE WITH (2) 31mm EXTENSIONS
5	1	660000441	PLASTIC CASE AND FILTER ELEMENT
-- 5a	1	686000514	FILTER ELEMENT ONLY
6	4	686012742	4 X 16 mm SLOTTED HD SCREW
7	8	660000481	MULTI DIA (2) HOLE CABLE GRIP CS 20W40 (4) SETS OF 2
8	1	N/A	MESH SCREEN ASSEMBLY
9	1	786200410	MOUNT, CONTROL CABINET

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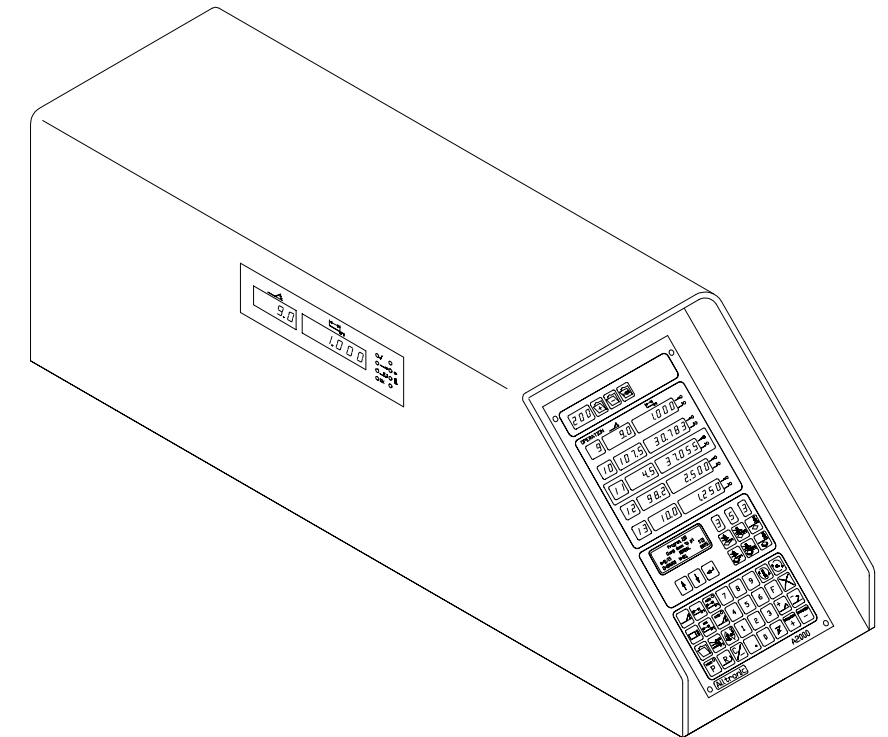
SECTION 2:

ELECTRICAL AND CONTROLS

ORION CONTROL
{TOUCH SCREEN}



A2000 CONTROL
{5 RED LED DISPLAYS}



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ELECTRICAL AND CONTROLS - AB1016

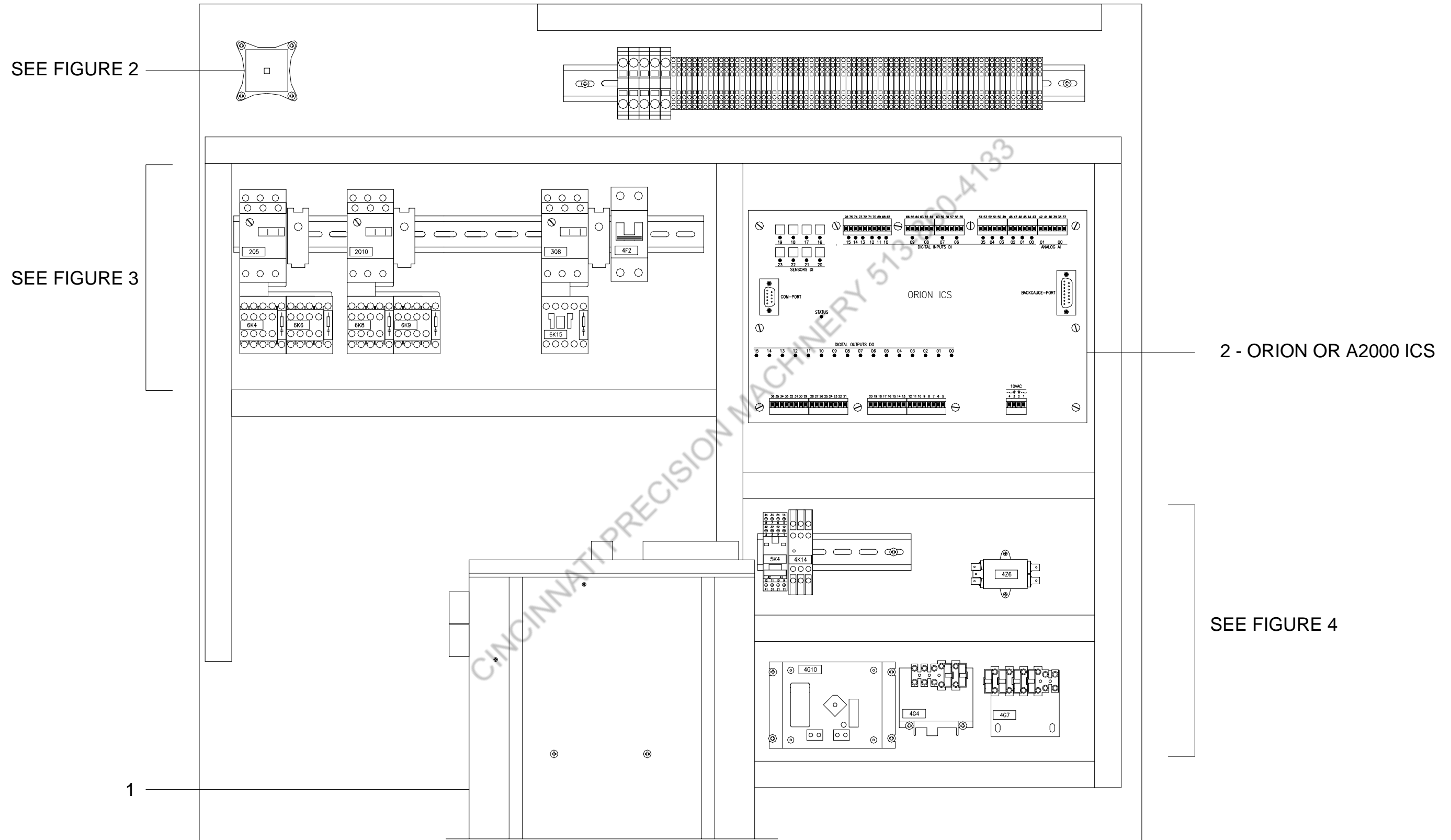


FIG. 1

ELECTRICAL PANEL TABLE 1

ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	1	660011230	BACKGAUGE SERVO DRIVE

ICS FOR ORION AND A2000 MACHINES

ITEM	QTY	RW PART #	RW PART DESCRIPTION
2 - ORION CONTROL	1	660233464	ORION ICS
2 - A2000 CONTROL	1	660233455	A2000 ICS

NOT PICTURED — CABLES CONNECTING TO BACKGAUGE SERVO DRIVE

ITEM	QTY	RW PART #	RW PART DESCRIPTION
N/A	1	660000471	POWER CABLE
N/A	1	660000450	RESOLVER CABLE

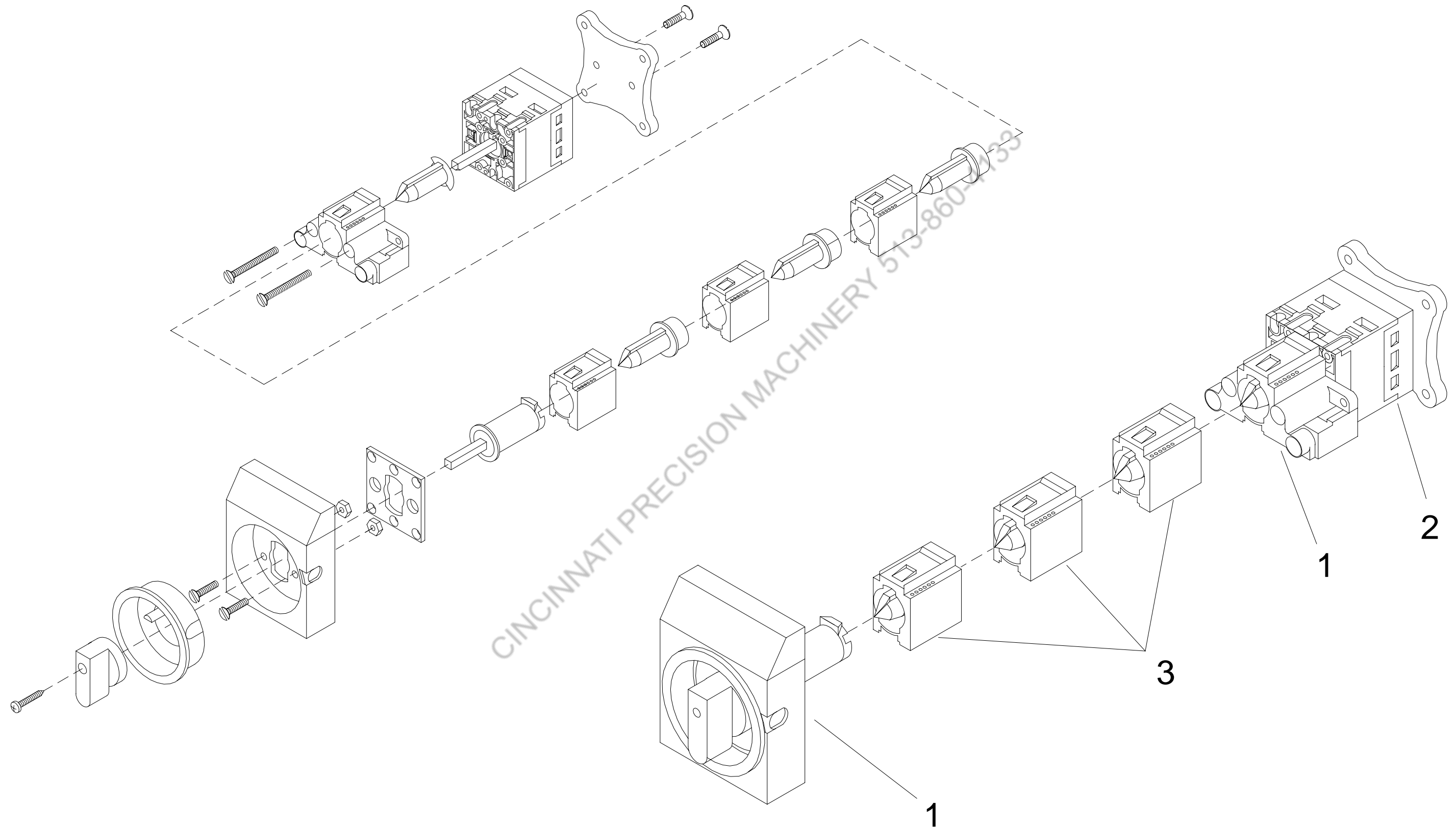


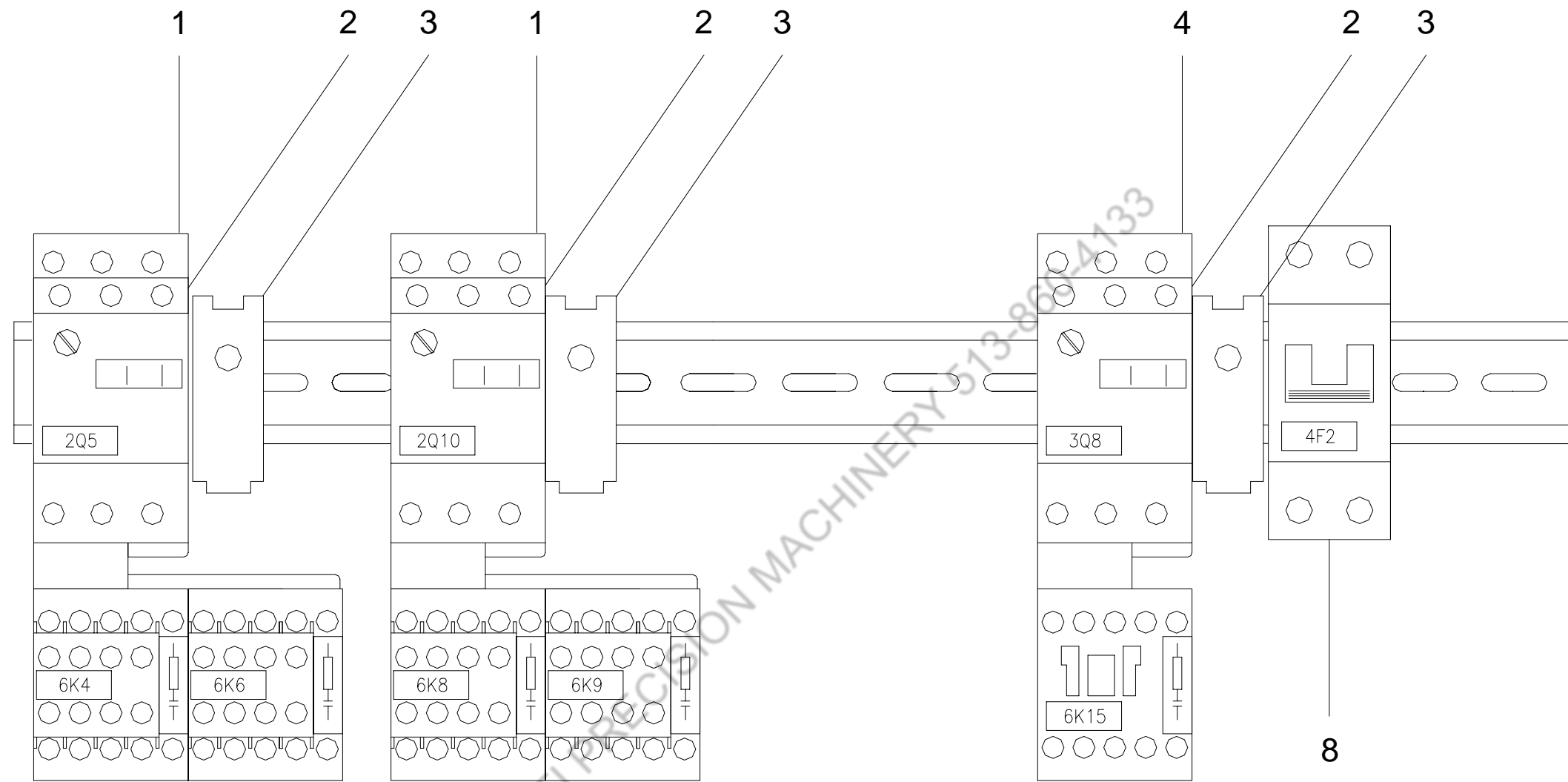
FIG. 2

ELECTRICAL PANEL TABLE 2

660031326 — COMPLETE SWITCH

ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	1	660031334	FRONT FACE KIT
2	1	660031331	SWITCH WITH BASE
3	3	660031337	31mm EXTENSION

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5,6,7
TYPICAL 4

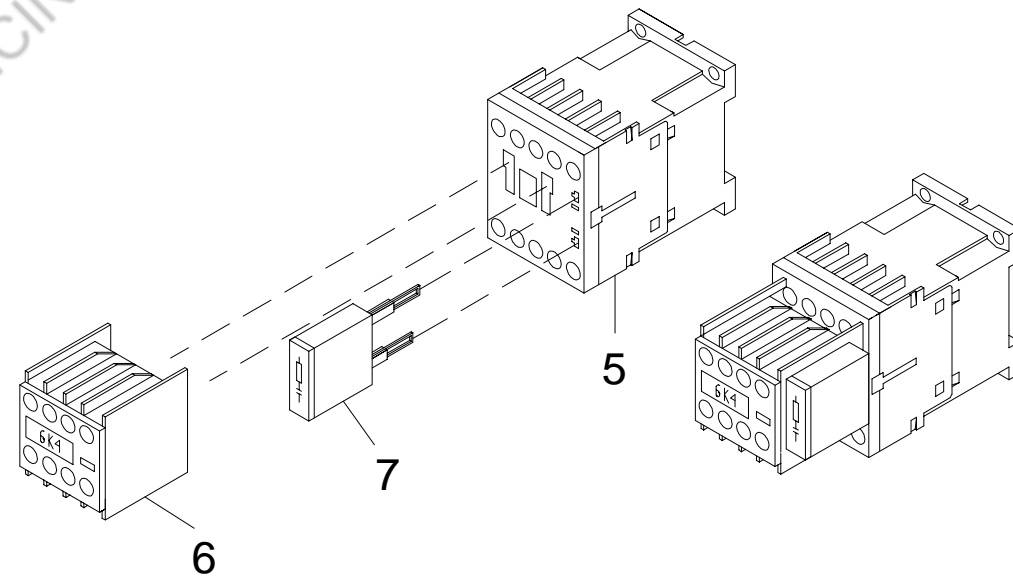
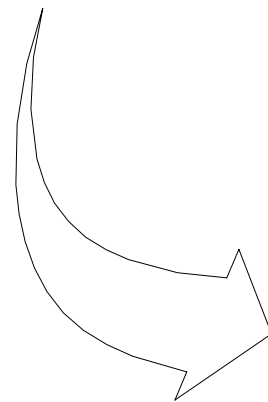


FIG. 3

ELECTRICAL PANEL TABLE 3

ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	2	660041568	OVERLOAD -- 5.5-8 AMP
2	3	660021342	AUXILIARY CONTACT 1 NO/ 1 NC
3	3	660000478	RC FILTER
4	1	660041577	OVERLOAD 1.1-1.6 AMP
5	5	660021310	CONTACTOR
6	4	660021345	AUXILLARY CONTACT 1 NO/ 1 NC
7	5	660000429	RC SUPPRESSOR
8	1	660041590	CIRCUIT BREAKER, 10 AMP 2 POLE

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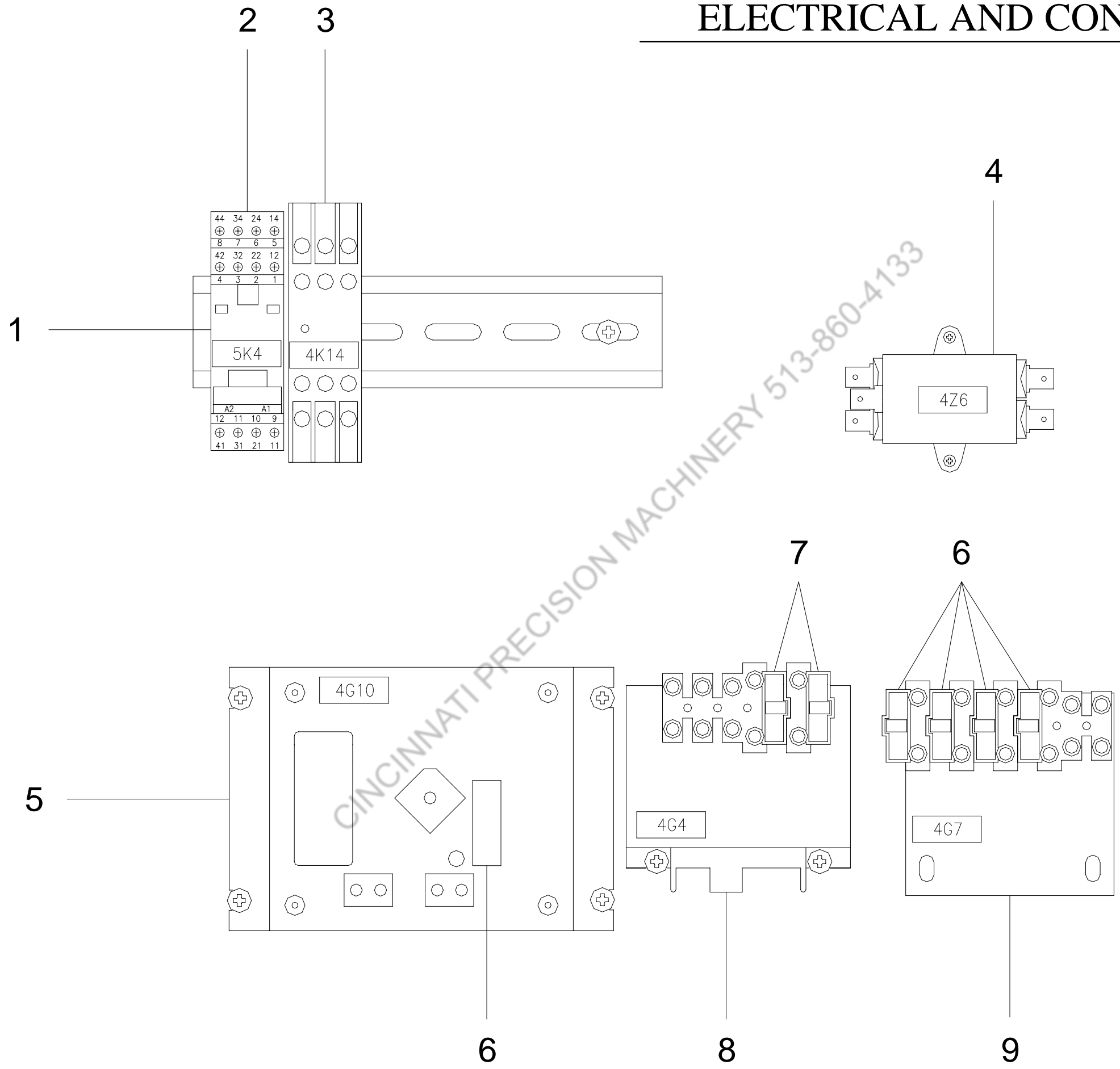


FIG. 4

ELECTRICAL PANEL TABLE 4

ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	1	660142602	RELAY - 4DPT 24VDC
2	1	660142616	RELAY SOCKET
3	1	660142604	SAFETY RELAY
4	1	660000396	FILTER
5	1	660132486	POWER SUPPLY 24VDC
6	5	660051764	FUSE 2.5A
7	2	660051765	FUSE 3.15A
8	1	660132492	TRANSFORMER - 230V PRI/24V SEC
9	1	660132493	TRANSFORMER - 230V PRI/10.5V SEC

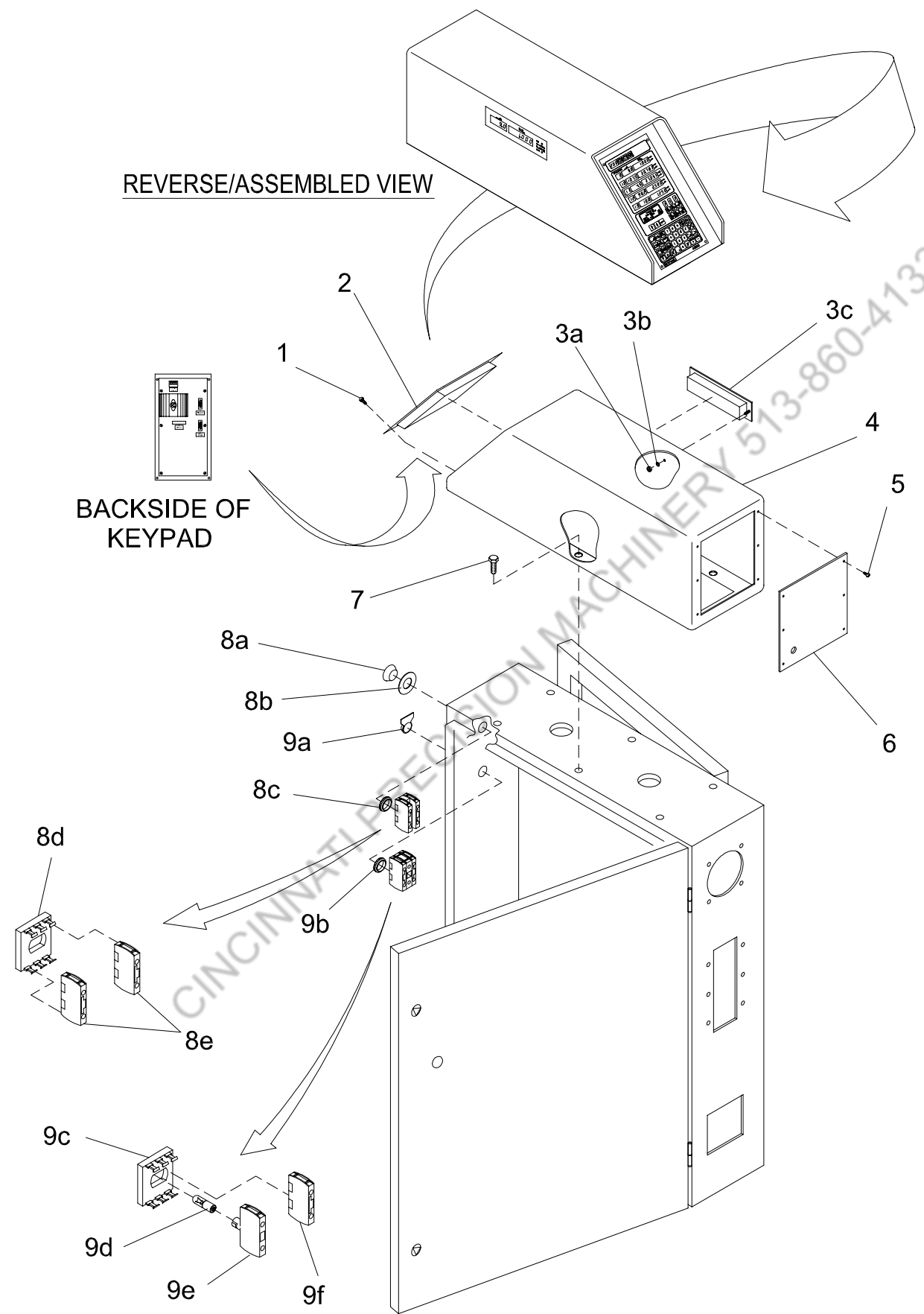


FIG. 5

A2000 CONTROL

ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	4	686012771	5 X 10mm BUTTON HD STRAIGHT SLOT SCREW
2	1	660233456	KEYPAD
3	1	660233457	SIDE DISPLAY - COMPLETE
- 3a	2	686023070	4mm HEX NUT
- 3b	2	686033177	4mm FLAT WASHER
- 3c	1	N/A	SIDE DISPLAY
4	1	689000463	TOP ENCLOSURE
5	6	686012754	4 X 6mm BUTTON HEAD PHILLIPS SCREW
6	1	689000464	REAR PLATE
7	6	686012703	6 X 10mm HEX HD SCREW
8	1	660082141	EMERGENCY STOP BUTTON - COMPLETE
- 8a	1	N/A	SWITCH KNOB
- 8b	1	N/A	EMERGENCY STOP LABEL
- 8c	1	N/A	LOCKING NUT
- 8d	1	N/A	CONTACT BLOCK HOLDER
- 8e	2	660082142	CONTACT BLOCK NORMALLY CLOSED
9	1	660082143	POWER BUTTON - COMPLETE
- 9a	1	N/A	SWITCH W/ NAMEPLATE
- 9b	1	N/A	LOCKING NUT
- 9c	1	N/A	CONTACT BLOCK HOLDER
- 9d	1	660082063	130 V LAMP
- 9e	1	660082144	LAMP HOLDER
- 9f	2	660082163	CONTACT BLOCK NORMALLY OPEN

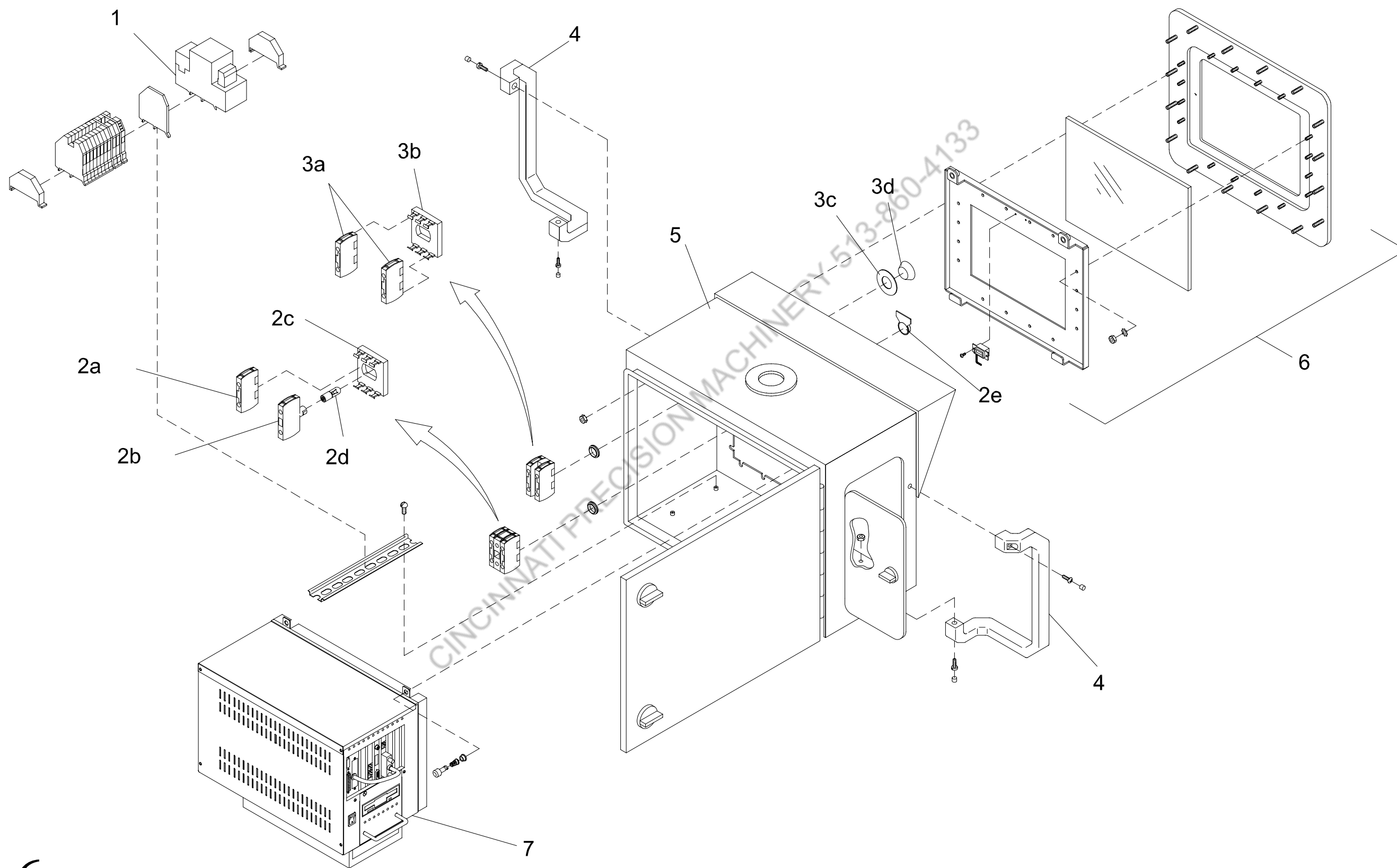


FIG. 6

ORION CONTROL

660233476 - ENCLOSURE COMPLETE

ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	1	N/A	SURGE SUPPRESSOR
2	1	660082143	POWER BUTTON - COMPLETE
- 2a	1	660082163	CONTACT BLOCK NORMALLY OPEN
- 2b	1	660082144	LAMP HOLDER
- 2c	1	N/A	CONTACT BLOCK HOLDER
- 2d	1	660082063	130 V LAMP
- 2e	1	N/A	SWITCH W/ NAMEPLATE
3	1	660082141	EMERGENCY STOP BUTTON - COMPLETE
- 3a	2	660082142	CONTACT BLOCK NORMALLY CLOSED
- 3b	1	N/A	CONTACT BLOCK HOLDER
- 3c	1	N/A	EMERGENCY STOP LABEL
- 3d	1	N/A	SWITCH KNOB
4	1	660182983	HANDLE SET
5	1	N/A	ENCLOSURE
6	1	660233480	BEZEL

660233477 - COMPUTER

ITEM	QTY	RW PART #	RW PART DESCRIPTION
7	1	660233477	COMPUTER

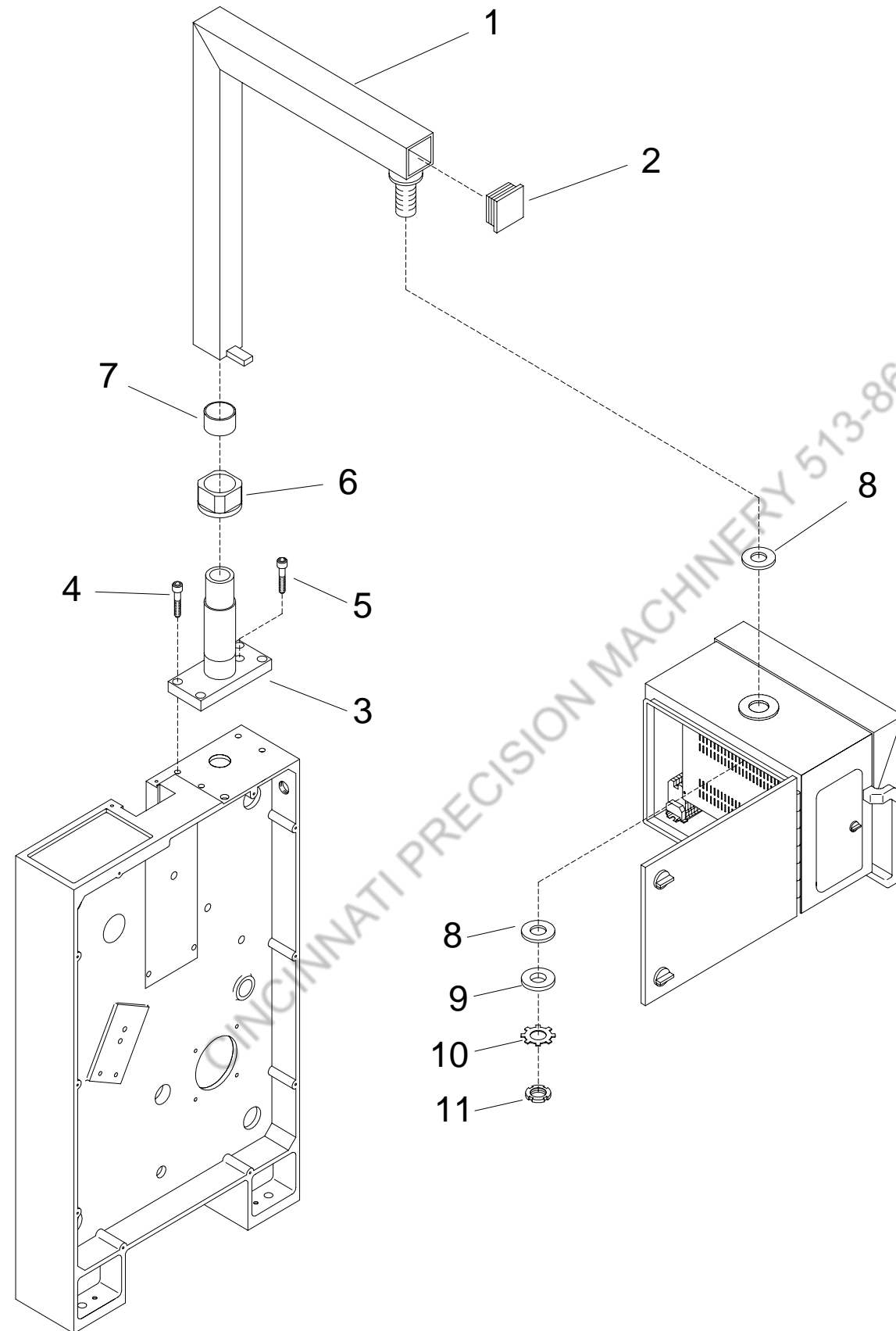


FIG. 7

ORION PENDANT ARM ASSEMBLY

ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	1	689030314	PENDANT ARM WELDMENT
2	1	689220413	CAP, BLACK PLASTIC SQUARE
3	1	689060315	MOUNT, PENDANT ARM SWIVEL
4	4	686012746	10 X 30 mm SHC SCREW
5	1	686012747	12 X 20 mm SHC SCREW
6	1	689190465	PENDANT ARM LOWER BASE BUSHING
7	1	686194747	PENDANT ARM UPPER BEARING (PG505540A)
8	2	689000307	NYLON WASHER
9	1	689000308	STEEL WASHER
10	1	689000309	STAR WASHER
11	1	689000310	SPANNER NUT

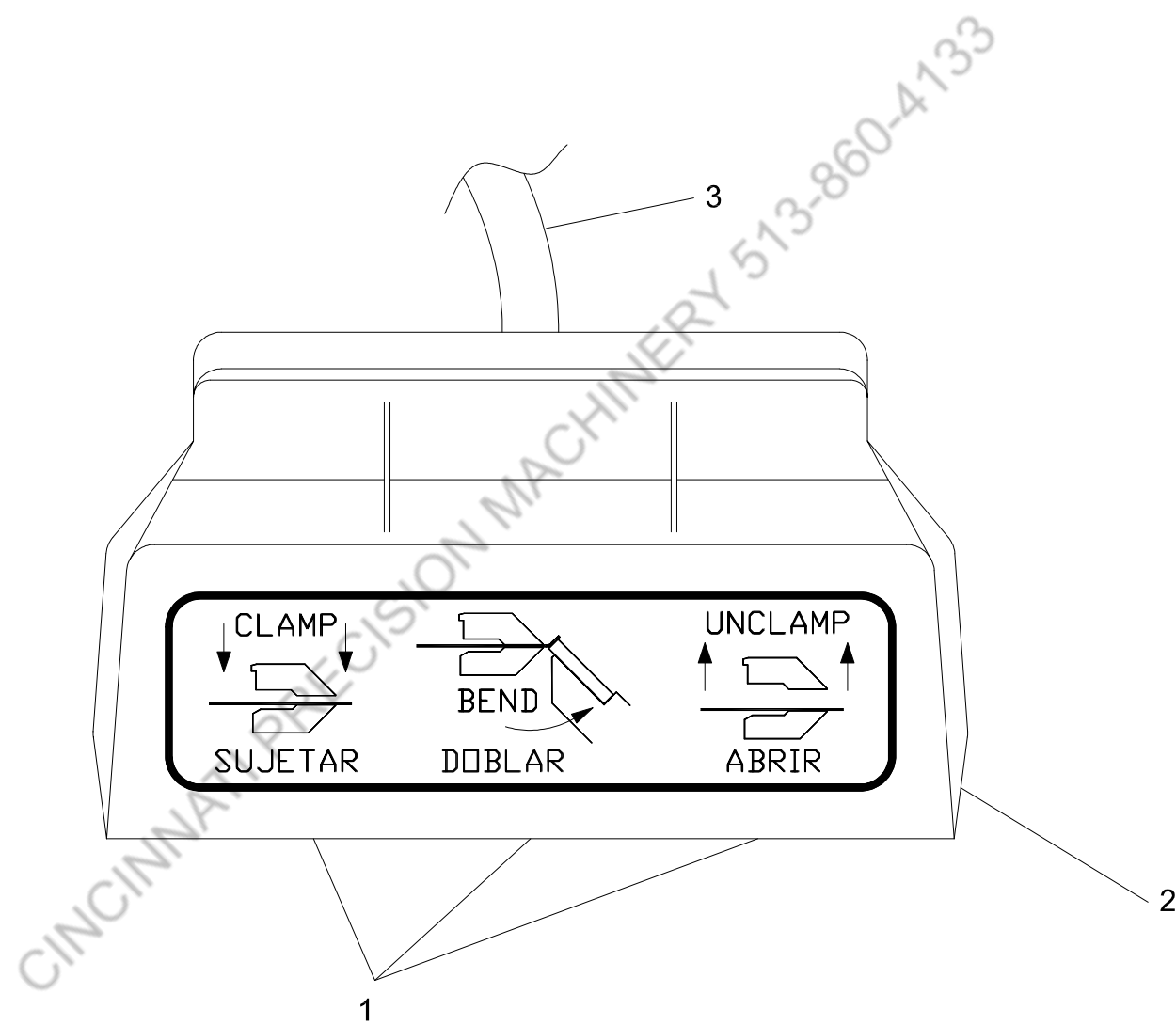


FIG. 8

3-PEDAL FOOT SWITCH

P/N: 660092109

ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	3	660092110	REPLACEMENT SWITCH
2	1	660092117	REPLACEMENT TOP SHROUD
	1	660000376	FOOT SWITCH CABLE
3	NOTE: ALWAYS MACHINE LENGTH PLUS 4 FT.		

CINCINNATI PRECISION MACHINERY 513-860-4133

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SECTION 3:

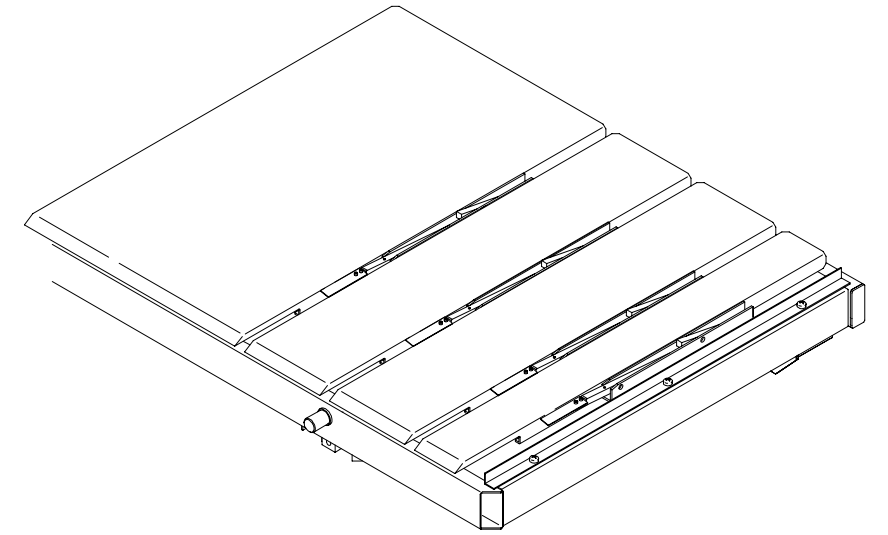
BACKGAUGE

DIVISIONS:

39" AIR

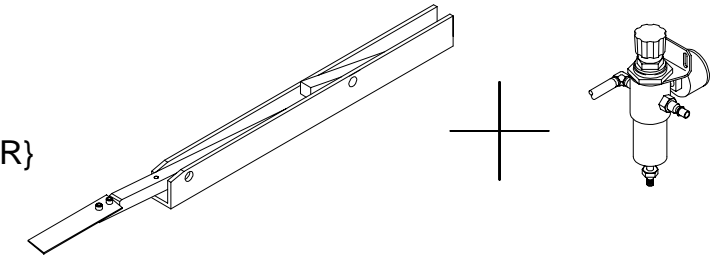
61" AIR

61" W/O AIR



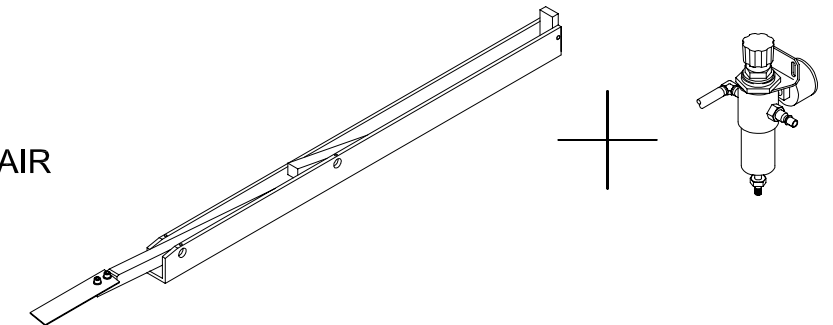
40" AIR-OPERATED

{2 FINGERS ONLY + AIR REGULATOR}



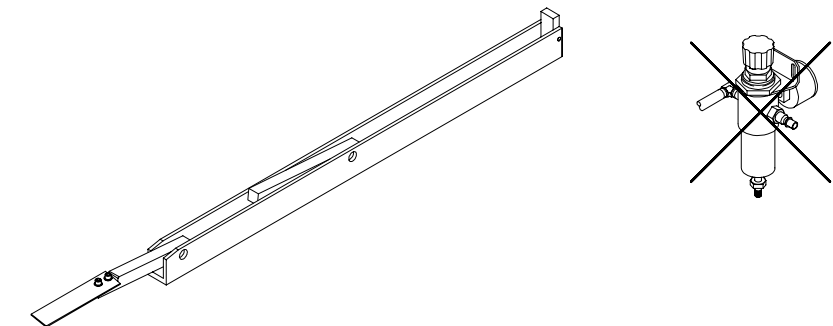
61" AIR-OPERATED

{2 FINGERS + FIXED STOP + AIR REGULATOR}



61" ELECTRIC OPERATED

{2 FINGERS + FIXED STOP WITHOUT AIR REGULATOR}



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39" AIR BACKGAUGE - AB1016

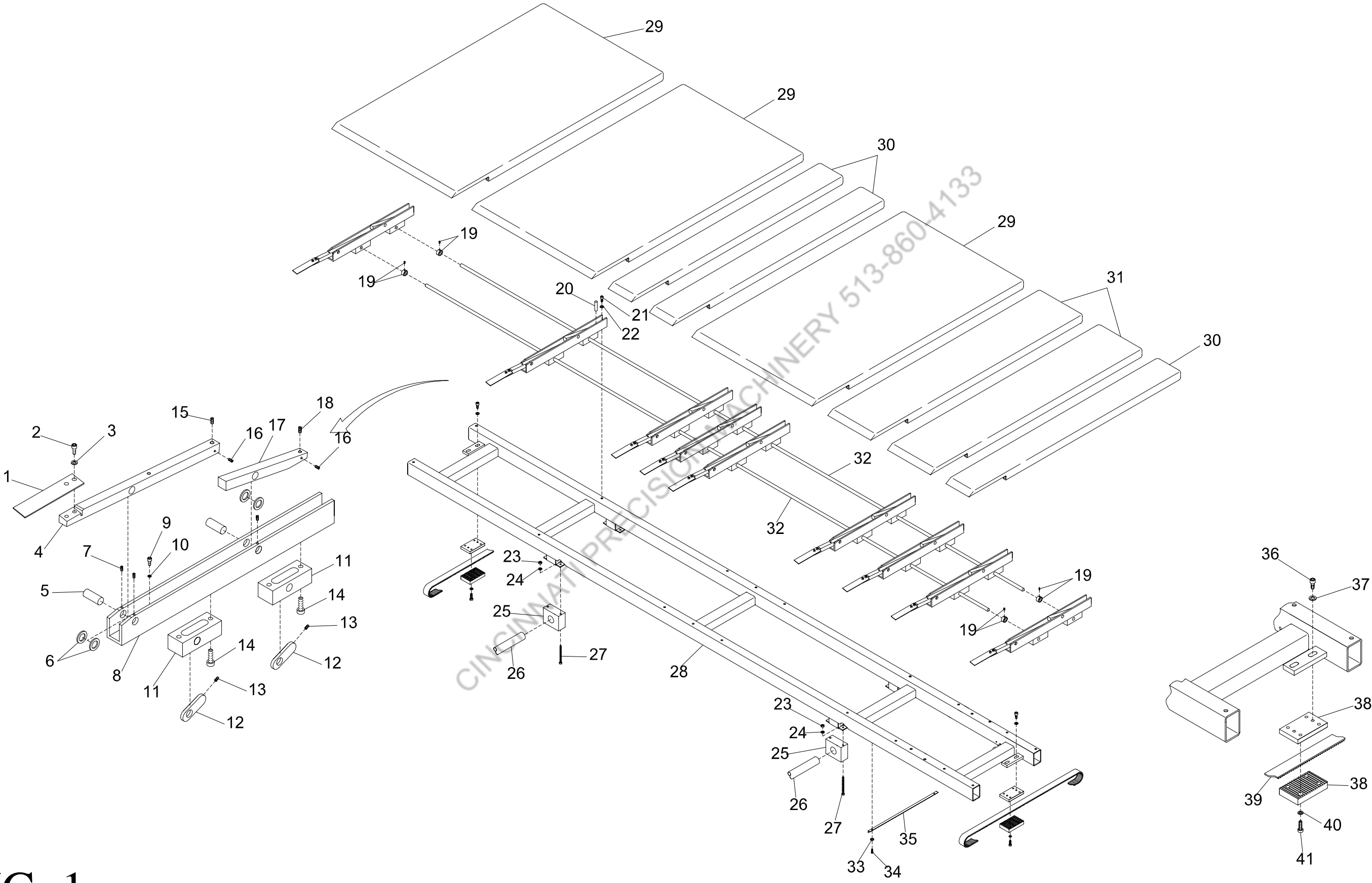


FIG. 1

TOP CARRIAGE ASSEMBLY

ITEM	QTY	RW PART #	RW PART DESCRIPTION	ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	9	689120126	FINGER, BACKGAUGE SPRING STEEL	22	9	686033175	8mm FLAT WASHER
2	18	686012675	6 X 10mm SHC LOW HD SCREW	23	8	686023071	6mm NYLOCK HEX NUT
3	18	686033173	6mm FLAT WASHER	24	8	686033173	6mm FLAT WASHER
4	9	689360297	FRONT FINGER HOLDER	25	4	689030427	GUIDE ROD BLOCK
5	18	689160429	FINGER PIN	26	2	689030426	30mm GUIDE ROD
6	36	689830298	BLACK PLASTIC WASHER	27	8	686012763	6 X 80mm SOC HD CAP SCREW
7	27	686012759	3 X 4mm SOC SET SCREW	28	1	689040444	UPPER CARRIAGE WELDMENT
8	9	689010428	ALUMINUM FINGER GUIDE/HOLDER	29	3	689220263	LARGE COVER
9	9	686012760	8 X 12mm SHC LOW HD SCREW	30	3	689220432	SMALL COVER
10	9	686033175	8mm FLAT WASHER	31	2	689220433	MEDIUM COVER
11	18	689130430	NYLON FINGER MOUNT BLOCK	32	2	689030425	12mm B.G. FINGER GUIDE ROD
12	18	689210431	CAM	33	2	686033178	5mm FLAT WASHER
13	18	686012705	6 X 12mm SET SCREW	34	2	686012711	5 X 10mm SOC HD CAP SCREW
14	36	686012725	6 X 25mm SOC HD CAP SCREW	35	1	689450434	B.G. HOME SWITCH RAIL
15	9	686012762	6 X 16mm SET SCREW	36	4	686012764	8 X 20mm SOC HD CAP SCREW
16	18	686012759	3 X 4mm SET SCREW	37	4	686033175	8mm FLAT WASHER
17	9	689360445	SOLID FINGER	38	2	689010446	BELT CLAMP, TOP AND BOTTOM SET
18	9	686012705	6 X 12mm SET SCREW	39	2	689100424	BELT
19	4	686000598	COLLAR WITH SET SCREW	40	8	686033175	8mm WASHER
20	9	686063506	5 X 15mm ROLL PIN	41	8	686012713	8 X 25mm SOC HD CAP SCREW
21	9	686012760	8 X 12mm SHC LOW HD SCREW				

39" AIR BACKGAUGE - AB1016

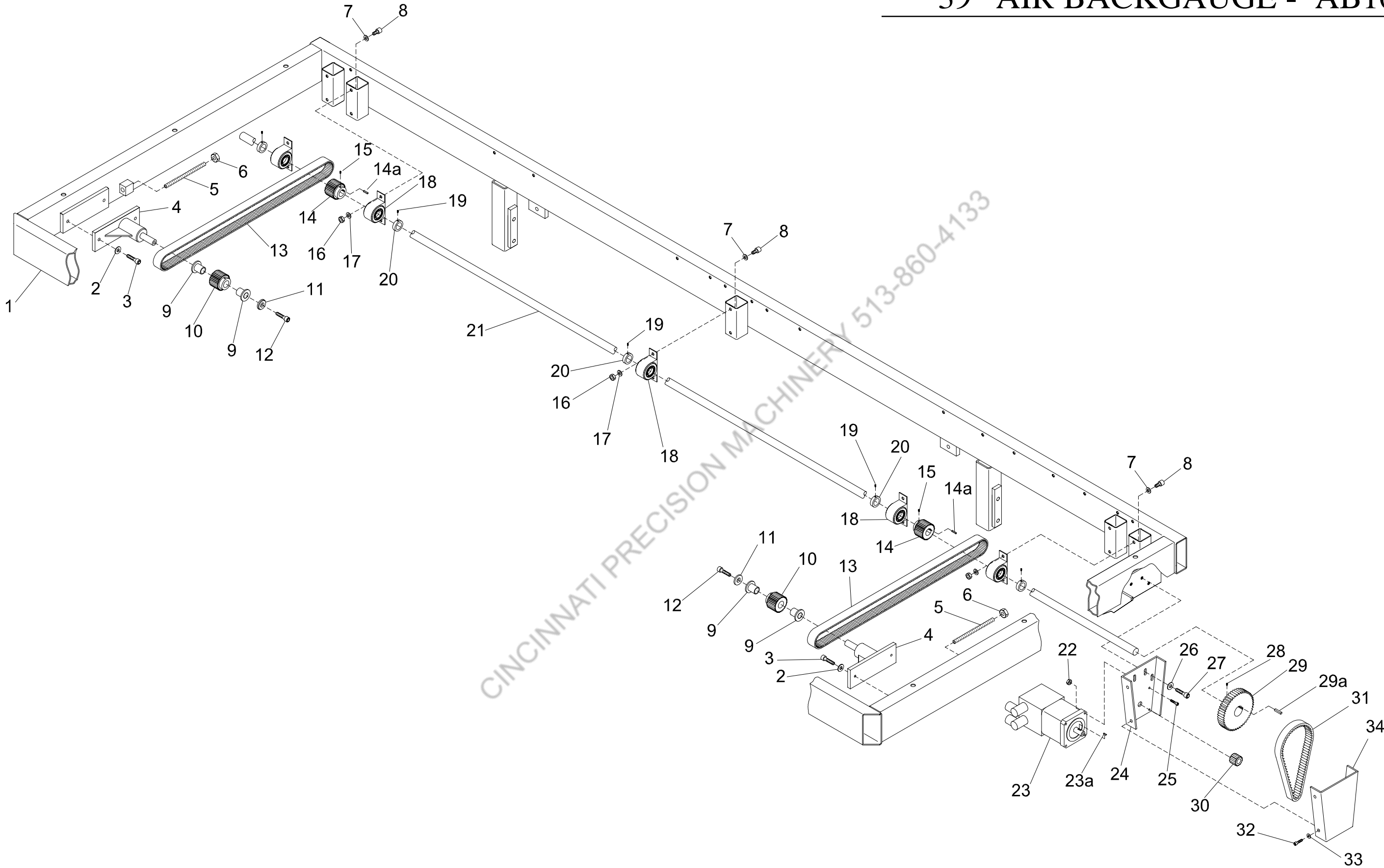


FIG. 2

BELT DRIVE SYSTEM ASSEMBLY

ITEM	QTY	RW PART #	RW PART DESCRIPTION	ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	1	689140435	BACKGAUGE FRAME - MAIN WELDMENT	18	5	686204472	BEARING SKF P-47-20-FJ
2	2	686033175	8mm FLAT WASHER	19	5	686012705	6 X 12mm SOC SET SCREW
3	2	686012764	8 X 20mm SOC HD CAP SCREW	20	5	686000599	STOP COLLAR
4	2	689180440	IDLER DRIVE MOUNT	21	1	689680441	DRIVESHAFT
5	2	689030461	5 X 50mm THREADED ROD	22	4	686023074	5mm HEX NUT
6	2	686020073	5mm JAM HEX NUT	23	1	660011197	SERVO MOTOR
7	3	686033175	8mm FLAT WASHER	24	1	689200442	MOTOR MOUNTING BRACKET
8	3	686012765	8 X 16mm SOC HD CAP SCREW	25	4	686012719	5 X 20mm SOC HD CAP SCREW
9	4	686194745	FLANGE BUSHING	26	3	686033175	8mm FLAT WASHER
10	2	689710448	IDLER SPROCKET	27	3	686012765	8 X 16mm SOC HD CAP SCREW
11	2	686033189	5mm THICK WASHER, 26mm O.D. , 9mm I.D.	28	1	686012748	5 X 10mm SOC SET SCREW
12	2	686012765	8 X 16mm SOC HD CAP SCREW	29	1	689710390	UPPER SPROCKET, 72 TOOTH
13	2	689100424	WHITE NYLON BELT	30	1	689710389	SMALL MOTOR SPROCKET, 18 TOOTH
14	2	689710447	DRIVE SPROCKET	31	1	689100343	BLACK DRIVE BELT, GOODYEAR 5m 565 4mm WIDE
15	2	686012730	5 X 5mm SET SCREW	32	3	686012711	5 X 10mm SOC HD CAP SCREW
16	5	686023075	8mm HEX NUT	33	3	686033178	5mm FLAT WASHER
17	5	686033175	8mm FLAT WASHER	34	1	689220443	DRIVE BELT COVER

39" AIR BACKGAUGE - AB1016

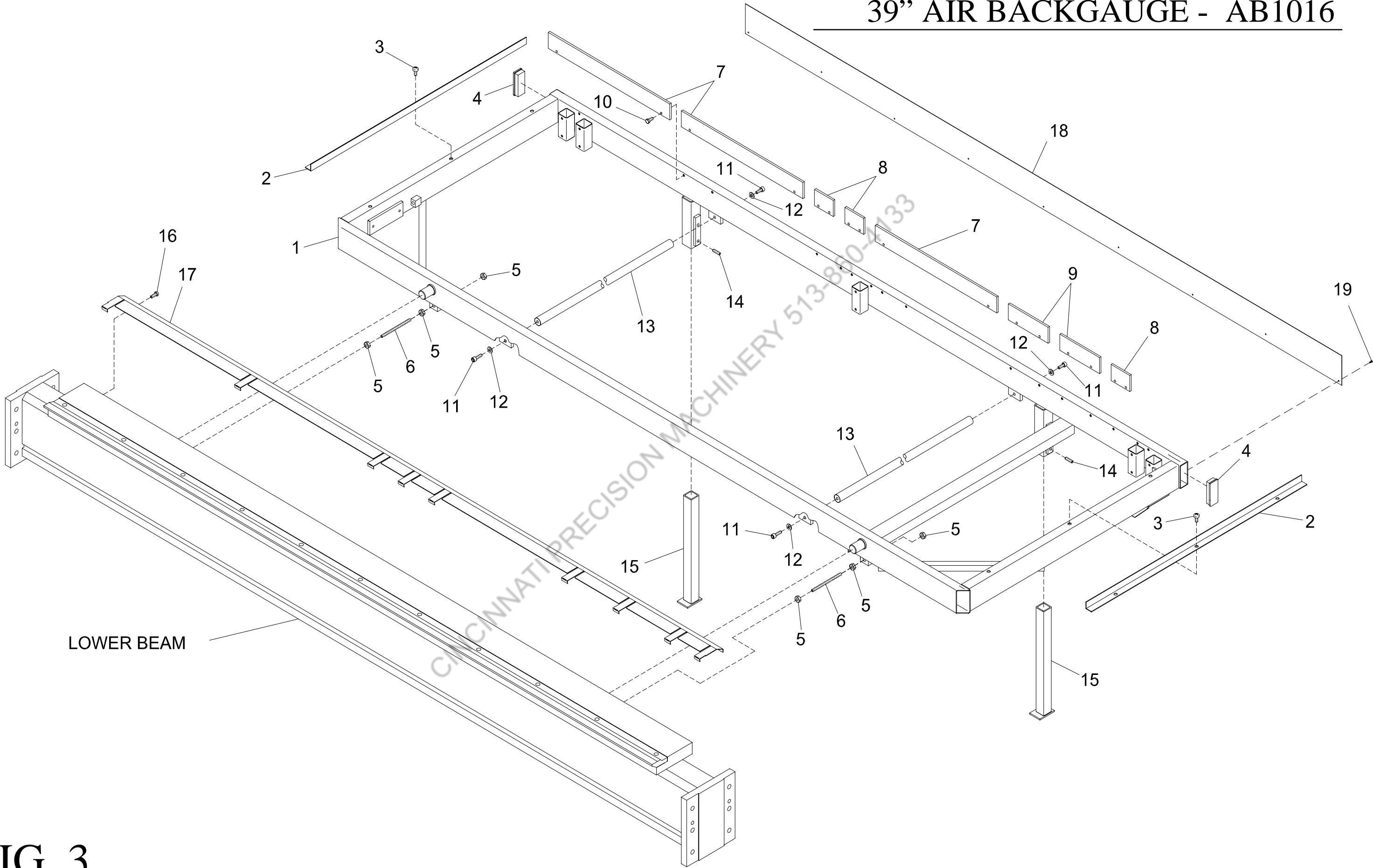


FIG. 3

FIXED BACK GAUGE TABLE ASSEMBLY

ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	1	689140435	BACKGAUGE FRAME - MAIN WELDMENT
2	2	689450436	RAIL
3	6	686012701	5 X 8mm BUTTON HD PHILLIPS SCREW
4	2	686000545	PLASTIC END CAP
5	6	686022072	12mm JAM NUT
6	2	689030462	5" LONG X 12mm THREADED ROD
7	3	689200437	REAR SUPPORT, LONG
8	3	689200439	REAR SUPPORT, SMALL
9	2	689200438	REAR SUPPORT, MEDIUM
10	16	686012703	6 X 10mm HEX HD SCREW
11	4	686012676	12 X 35mm SOC HD CAP SCREW
12	4	686033182	13mm FLAT WASHER
13	2	689030426	BACKGAUGE GUIDE SHAFT
14	4	686012727	12 X 20mm SOC SET SCREW
15	2	786140428	ADJUSTABLE SUPPORT LEG
16	7	686012701	5 X 8mm BUTTON HD PHILLIPS SCREW
17	1	783440000	BACKGAUGE FINGER RAMP
18	1	689220536	REAR COVER
19	9	686012703	6 X 10mm HEX HEAD SCREW

39" AIR BACKGAUGE - AB1016

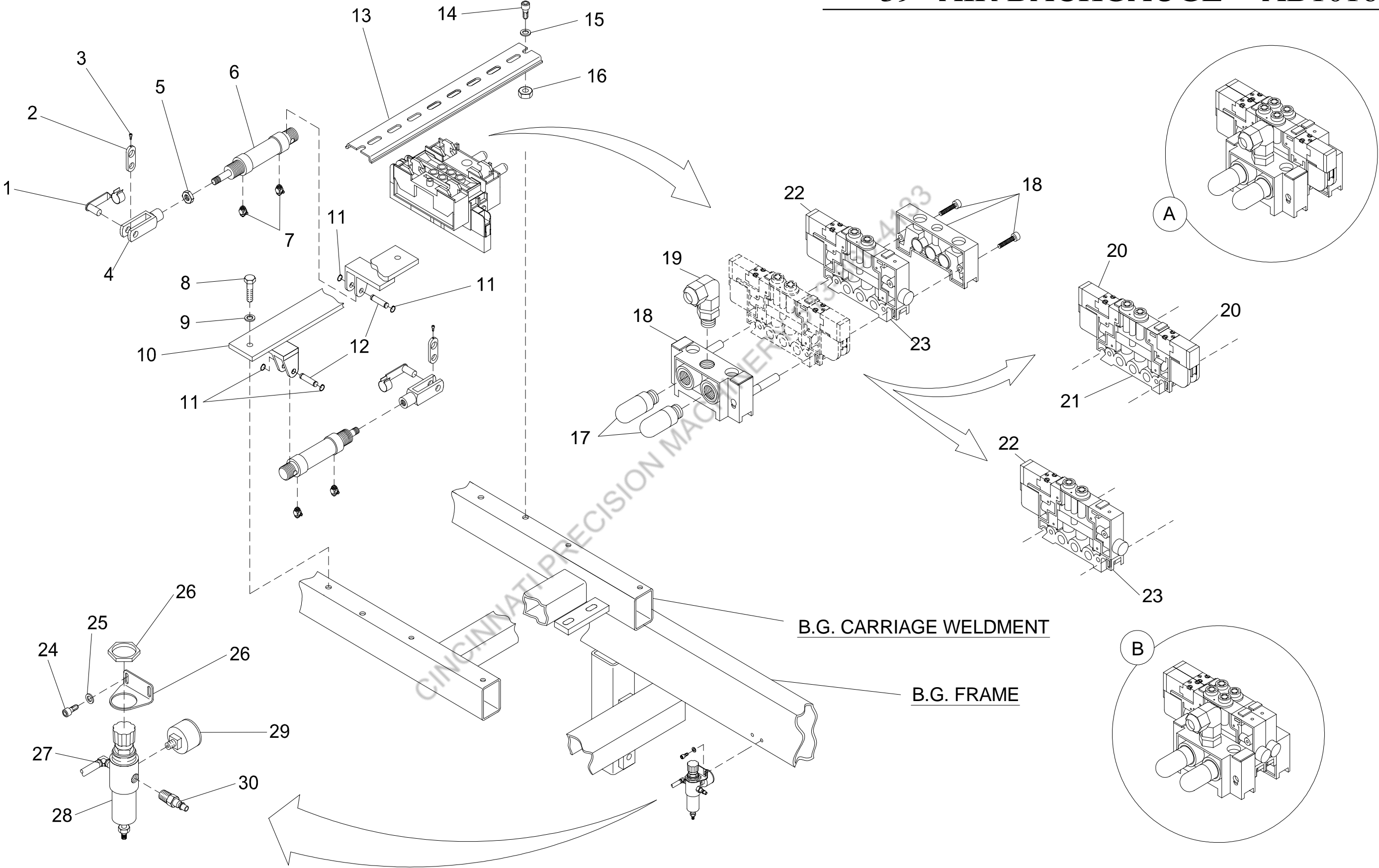


FIG. 4

AIR COMPONENTS ASSEMBLY

ITEM	QTY	RW PART #	RW PART DESCRIPTION	ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	2	669203816	CLEVIS CLAMP/HOLDER	16	2	686023074	5mm HEX NUT
2	2	689210458	CAM	17	2	669203817	MUFFLER
3	2	686012752	6 X 6mm SOC SET SCREW	18	1	669203811	MANIFOLD BLOCK HEAD/TAIL SET
4	2	669203815	CLEVIS	19	1	669224130	90° ELBOW FITTING 1/8"-8
5	1	N/A	HEX NUT	20	2	669284001	SOLENOID, NON-LOCKING 24VDC
6	2	669214008	CYLINDER	21	1	669274816	4 WAY 2 POSITION SINGLE VALVE
7	4	669224129	90° ELBOW WITH FLOW CONTROL	22	1	669284000	SOLENOID, LOCKING 24VDC
8	2	686012770	8 X 20mm HEX HD SCREW	23	1	669274815	4 WAY 2 POSITION
9	2	686033175	8mm FLAT WASHER	24	2	686012701	5 X 8mm BUTTON HD PHILLIPS
10	1	689200459	CYLINDER MOUNTING BRACKET	25	2	686033178	5mm FLAT WASHER
11	4	686164337	RETAINING RING	26	1	669203812	AIR REGULATOR MOUNTING BRACKET WITH HEX NUT
12	2	669203814	CYLINDER MOUNTING PIN	27	1	669224132	90° ELBOW FITTING 1/4" - 8
13	1	N/A	DIN RAIL	28	1	669234409	AIR REGULATOR
14	2	686012805	5 X 16mm SOC HD CAP SCREW	29	1	669254605	PRESSURE GAUGE 0-10 BAR
15	2	686033178	5mm FLAT WASHER	30	1	669224117	AIR LINE CONNECTOR

NOT PICTURED

ITEM	QTY	RW PART #	RW PART DESCRIPTION
N/A	1	669244509	8mm COILED TUBING
N/A	50"	669244508	4mm TUBING

61" AIR BACKGAUGE - AB1016

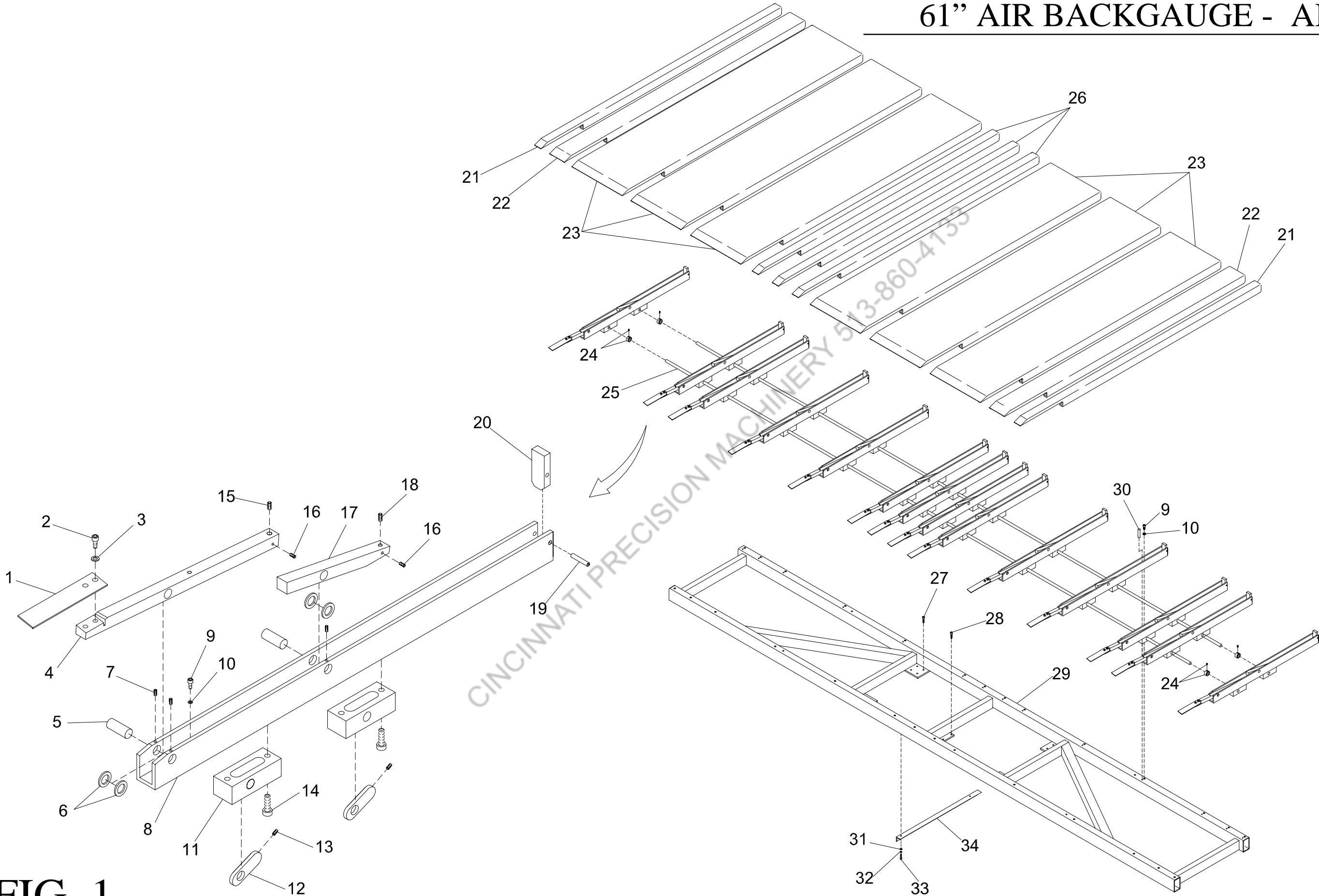


FIG. 1

TOP CARRIAGE ASSEMBLY

ITEM	QTY	RW PART #	RW PART DESCRIPTION	ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	14	689120126	FINGER, BACKGAUGE SPRING STEEL	18	14	686012761	6 X 12mm SET SCREW
2	28	686012675	6 X 10mm SHC LOW HD SCREW	19	14	686063507	5 X 30mm ROLL PIN
3	28	686033173	6mm FLAT WASHER	20	14	689130460	REAR FIXED FINGER
4	14	689360297	FRONT FINGER HOLDER	21	2	689220470	COVER PLATE, NARROW BG END -- 65mm
5	28	689160429	FINGER PIN	22	2	689220468	COVER PLATE, MEDIUM BG -- 120mm
6	56	689830298	BLACK PLASTIC WASHER	23	6	689220467	COVER PLATE, WIDE BG -- 325mm
7	42	686012759	3 X 4mm SOC SET SCREW	24	4	686000598	COLLAR WITH SET SCREW
8	14	689010428	ALUMINUM FINGER GUIDE/HOLDER	25	2	689030425	12mm B.G. FINGER GUIDE ROD
9	28	686012760	8 X 12mm SHC LOW HD SCREW	26	3	689220469	COVER PLATE, NARROW BG -- 85mm
10	28	686033175	8mm FLAT WASHER	27	16	686012702	6 X 16mm SHC SCREW
11	28	689130430	NYLON FINGER MOUNT BLOCK	28	4	686012702	6 X 16mm SHC SCREW
12	28	689210431	CAM	29	1	689090471	CARRIAGE WELDMENT
13	28	686012761	6 X 12mm SET SCREW	30	14	686063506	5 X 15mm ROLL PIN
14	56	686012725	6 X 25mm SOC HD CAP SCREW	31	2	686033178	5mm FLAT WASHER
15	14	686012762	6 X 16mm SET SCREW	32	2	686033180	5mm LOCK WASHER
16	28	686012759	3 X 4mm SET SCREW	33	2	686012711	5 X 10mm SHC SCREW
17	14	689360445	SOLID FINGER	34	1	786130419	FLAG, BG HOME SWITCH

FIXED TABLE WITH BALL SCREW DRIVE ASSEMBLY

ITEM	QTY	RW PART #	RW PART DESCRIPTION	ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	4	686012719	5 X 20mm SHC SCREW	23	40	686012725	6 X 25mm SHC SCREW
2	1	786260426	BEARING RETAINER	24	40	686000596	PLUG
3	1	686194734	BEARING	25	4	686012727	12 X 20mm SOC SET SCREW
4	1	786200425	FRONT BALL SCREW MOUNT	26	1	689440457	REAR B.G. GAURD
5	1	N/A	BALL SCREW	27	9	686012703	6 X 10mm HEX HD SCREW
6	1	N/A	BALL SCREW NUT	28	2	686000597	SMALL TUBE END CAP
7	5	686012721	6 X 30mm SHC SCREW	29	1	660152673	BACKGAUGE HOMING SENSOR
8	1	786200423	BACKGAUGE DRIVE BRACKET	30	1	686012724	4 X 12mm SLOTTED HD SCREW
9	4	686012720	12 X 90mm SHC SCREW	31	1	686033177	4mm FLAT WASHER
10	1	786200422	SERVO MOTOR MOUNT	32	2	686012723	6 X 16mm HEX HD SCREW
11	2	686012769	3 X 12mm SHC SCREW	33	2	686033173	6mm FLAT WASHER
12	1	689260452	COUPLER	34	1	786200430	UPPER HOMING SWITCH BRACKET
13	4	686012719	5 X 20mm SHC SCREW	35	2	686012722	5 X 12mm SLOTTED HD SCREW
14	1	660011197	SERVO MOTOR	36	2	686033178	5mm FLAT WASHER
15	4	686000545	LARGE TUBE END CAP	37	1	786200431	LOWER HOMING SWITCH BRACKET
16	2	786220429	CARRIAGE SHIELD	38	2	786140428	ADJUSTABLE SUPPORT LEG
17	6	686012701	5 X 8mm BUTTON HEAD PHILLIPS SCREW	39	1	689140472	BACKGAUGE FRAME WELDMENT
18	2	689160453	B.G. ALIGNMENT PIN	40	2	689180455	FRONT BACKGAUGE COVER SUPPORT
19	2	689830454	B.G. ALIGNMENT PIN WASHER	41	1	689180456	REAR BACKGAUGE COVER SUPPORT
20	2	686012767	8 X 16mm FLAT HEAD SOCKET SCREW	42	6	686023072	12mm JAM NUT
21	4	689080286	LINEAR WAY SLIDE	43	2	689030462	5" LONG X 12mm THREADED ROD
22	2	689450285	LINEAR WAY				

BALLSCREW ASSEMBLIES

ITEM	RW PART #	RW PART DESCRIPTION
1-8	689650451	COMPLETE BALLSCREW ASSEMBLY
5-6	689390355	BALL SCREW AND NUT ONLY ASSEMBLY

61" AIR BACKGAUGE - AB1016

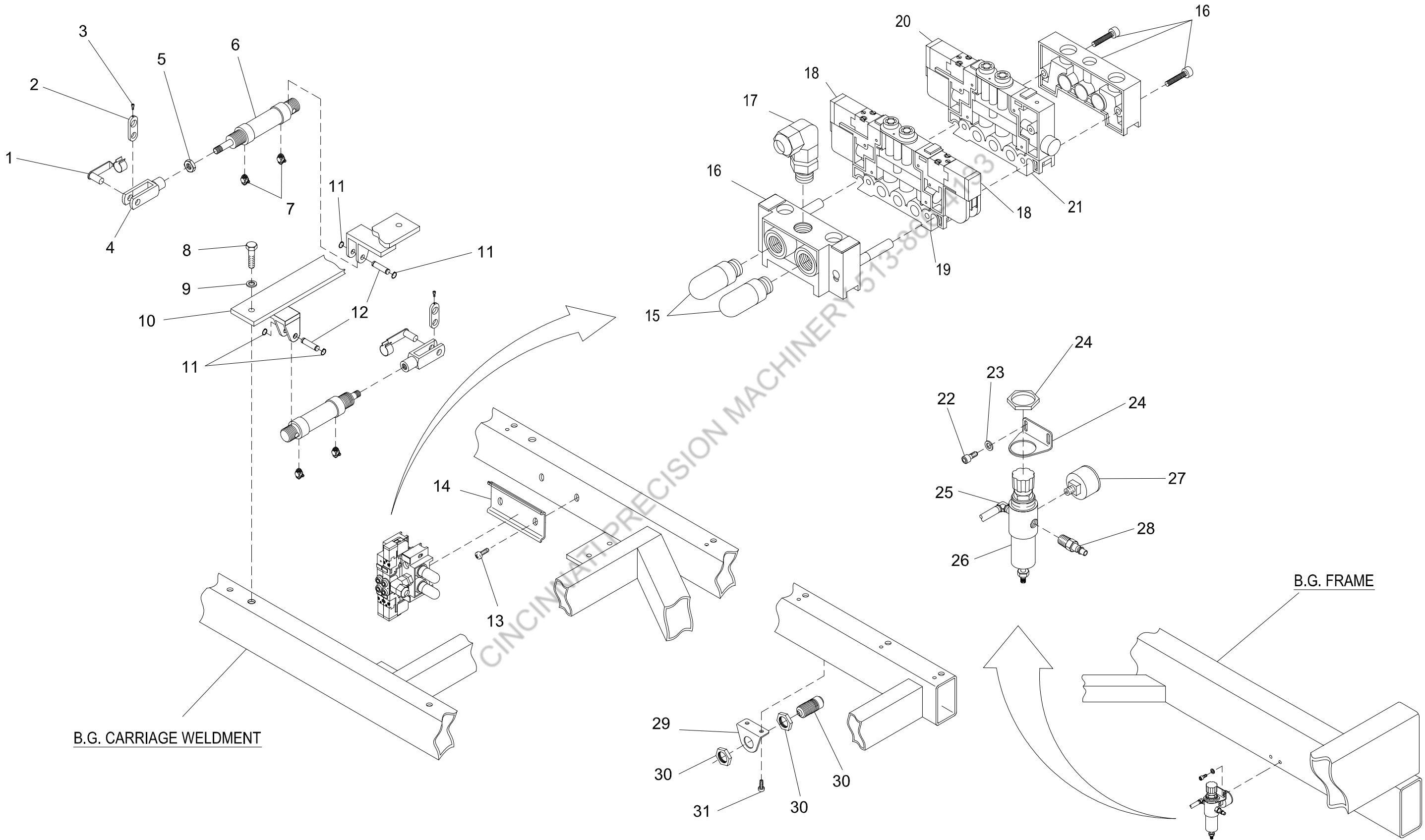


FIG. 3

AIR COMPONENTS ASSEMBLY

ITEM	QTY	RW PART #	RW PART DESCRIPTION	ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	2	669203816	CLEVIS CLAMP/HOLDER	17	1	669224130	90° ELBOW FITTING 1/8"-8
2	2	689210458	CAM	18	2	669284001	SOLENOID, NON-LOCKING 24VDC
3	2	686012752	6 X 6mm SOC SET SCREW	19	1	669274816	4 WAY 2 POSITION SINGLE VALVE
4	2	669203815	CLEVIS	20	1	669284000	SOLENOID, LOCKING 24VDC
5	1	N/A	HEX NUT	21	1	669274815	4 WAY 2 POSITION
6	2	669214008	CYLINDER	22	2	686012701	5 X 8mm BUTTON HD PHILLIPS
7	4	669224129	90° ELBOW ELBOW WITH FLOW CONTROL	23	2	686033178	5mm FLAT WASHER
8	2	686012770	8 X 20mm HEX HD SCREW	24	1	669203812	AIR REGULATOR MOUNTING BRACKET WITH HEX NUT
9	2	686033175	8mm FLAT WASHER	25	1	669224132	90° ELBOW
10	1	689200459	CYLINDER MOUNTING BRACKET	26	1	669234409	AIR REGULATOR
11	4	686164337	RETAINING RING	27	1	669254605	PRESSURE GAUGE 0-10 BAR
12	2	669203814	CYLINDER MOUNTING PIN	28	1	669224117	AIR LINE CONNECTOR
13	2	686012701	5 X 8mm BUTTON HEAD PHILLIPS SCREW	29	1	669203813	STR COUPLER MOUNTING BRACKET
14	1	N/A	DIN RAIL	30	2	669224131	BULKHEAD COUPLING WITH (2) HEX NUTS
15	2	669203817	MUFFLER	31	2	686012701	BUTTON HEAD PHILLIPS SCREW
16	1	669203811	MANIFOLD BLOCK HEAD/TAI SET				

NOT PICTURED

ITEM	QTY	RW PART #	RW PART DESCRIPTION
N/A	1	669244509	COILED TUBING, 8mm
N/A	50"	669244508	4mm TUBING
N/A	44"	669244510	8mm TUBING

61" BACKGAUGE W/O AIR- AB1016

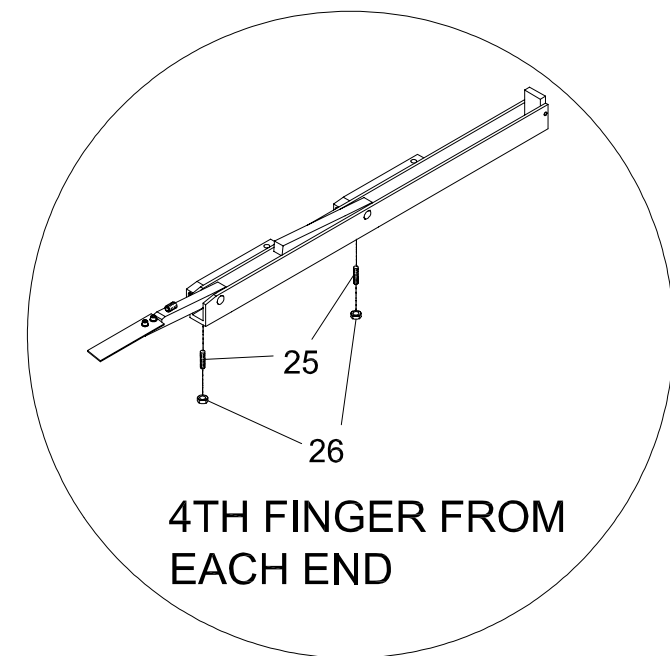
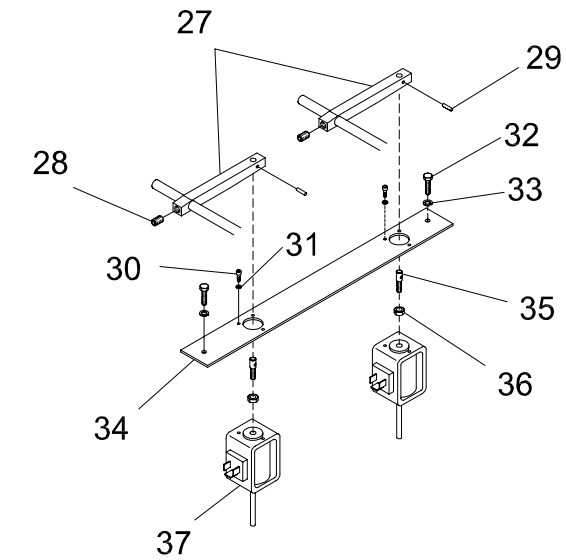
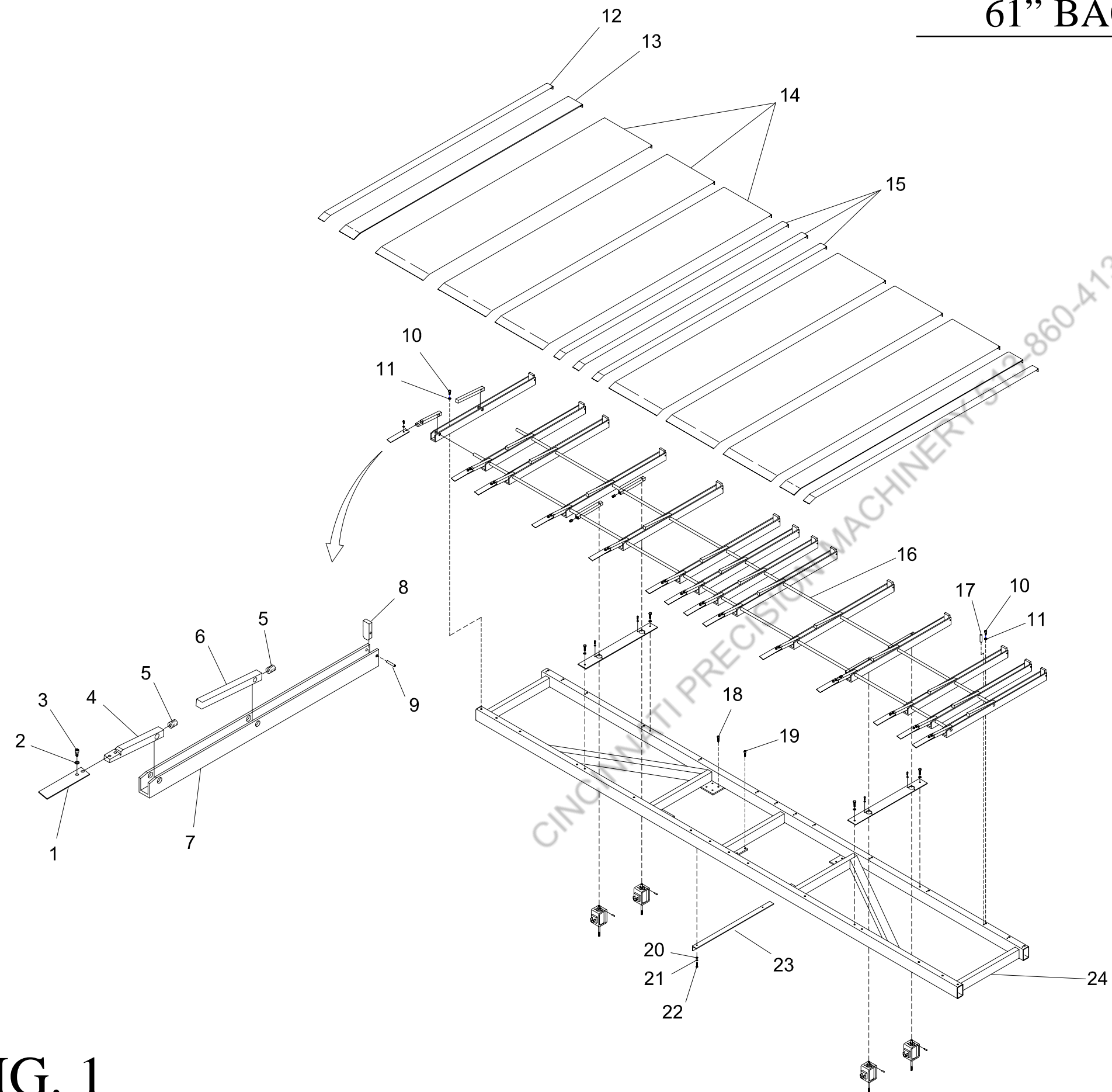
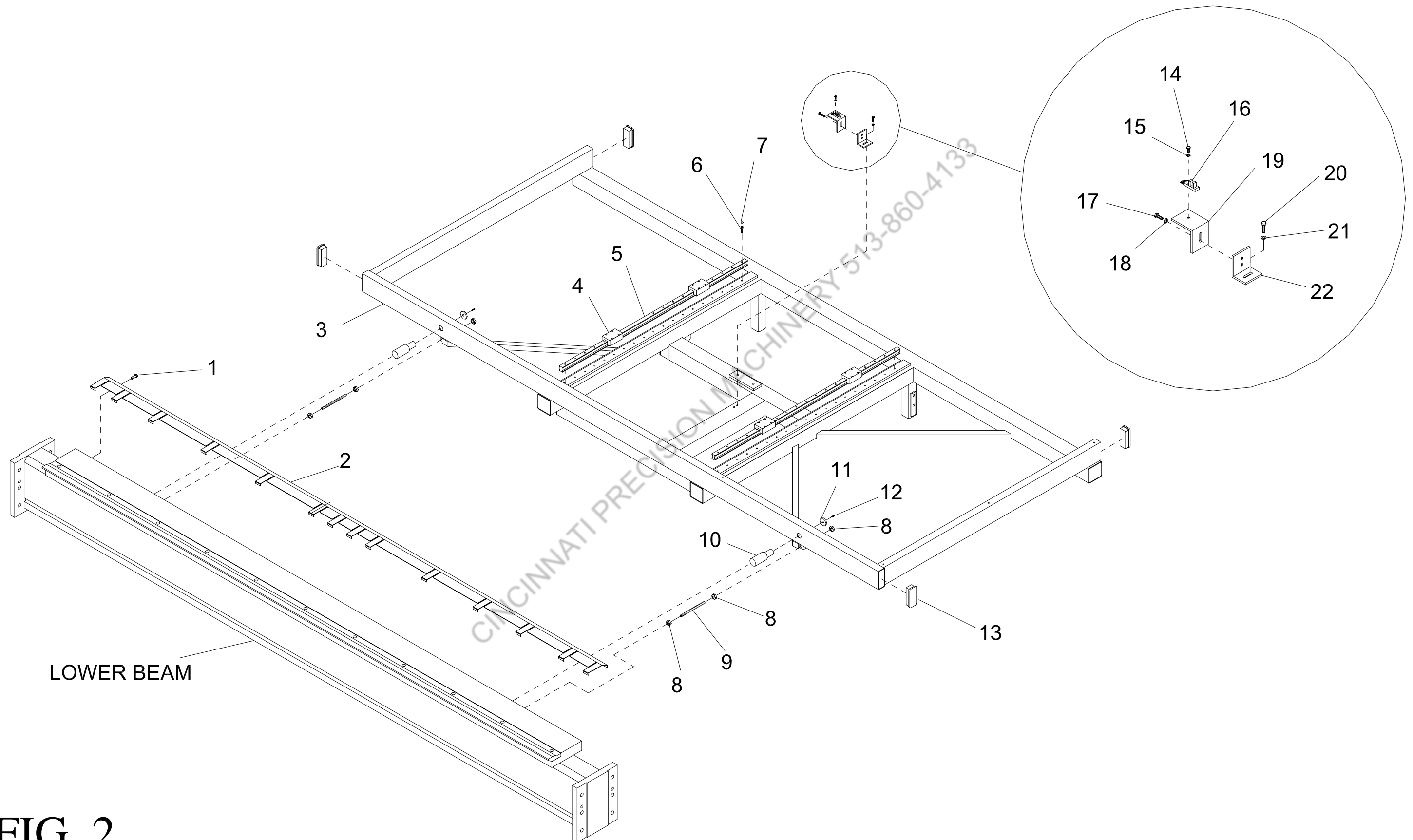


FIG. 1

TOP CARRIAGE ASSEMBLY

ITEM	QTY	RW PART #	RW PART DESCRIPTION	ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	14	689120126	FINGER, BACKGAUGE SPRING STEEL	20	2	686033178	5mm FLAT WASHER
2	28	686033173	6mm FLAT WASHER	21	2	686033180	5mm LOCK WASHER
3	28	686012675	6 X 10mm SHC LOW HD SCREW	22	2	686012711	5 X 10mm SHC SCREW
4	14	786010412	FRONT FINGER HOLDER	23	1	786130419	FLAG, BG HOME SWITCH
5	28	686012708	10mm X 16mm SOC SET SCREW	24	1	689090471	CARRIAGE WELDMENT
6	14	689360375	SOLID FINGER	25	4	686012817	8 X 35mm DOG POINT SET SCREW
7	14	689010428	ALUMINUM FINGER GUIDE/HOLDER	26	4	695023079	8mm JAM NUT
8	14	689130460	REAR FIXED FINGER	27	4	786030414	FINGER LIFT ARM
9	14	686063507	5 X 30mm ROLL PIN	28	4	686012708	10 X 15mm SOC HD SET SCREW
10	28	686012760	8 X 12mm SHC LOW HD SCREW	29	4	686063509	4 X 20mm ROLL PIN
11	28	686033175	8mm FLAT WASHER	30	12	686012710	4 X 10mm SHC SCREW
12	2	689220275	B.G. COVER, 2 5/8" WIDE	31	12	686033177	4mm FLAT WASHER
13	2	689220273	B.G. COVER, 4 3/4" WIDE	32	4	686012709	8 X 12mm HEX HEAD CAP SCREW
14	6	689220272	B.G. COVER, 12 3/4" WIDE	33	4	686033175	8mm FLAT WASHER
15	3	689220274	B.G. COVER, 3 3/8" WIDE	34	2	786060420	SOLENOID MOUNT PLATE
16	2	689030425	12mm B.G. FINGER GUIDE ROD	35	4	786000538	MOUNTING STUD
17	14	686063506	5 X 15mm ROLL PIN	36	4	695023079	8mm JAM NUT
18	16	686012702	6 X 16mm SHC SCREW	37	4	660112230	SOLENOID, FINGER LIFT
19	4	686012702	6 X 16mm SHC SCREW	-- 37a	4	660172796	SOLENOID ELECTRICAL PLUG

61" BACKGAUGE W/O AIR- AB1016



FIXED BACK GAUGE TABLE ASSEMBLY

ITEM	QTY	RW PART #	RW PART DESCRIPTION	ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	7	686012701	5 X 8mm PHILLIPS BUTTON HEAD SCREW	12	2	686012767	8 X 16mm FLAT HEAD SOCKET SCREW
2	1	689450366	FINGER RAMP	13	4	686000545	LARGE TUBE END CAP
3	1	689140472	BACKGAUGE FRAME WELDMENT	14	1	686012724	4 X 12mm SLOTTED HD SCREW
4	4	689080286	LINEAR WAY SLIDE	15	1	686033177	4mm FLAT WASHER
5	2	689450285	LINEAR WAY	16	1	660152673	BACKGAUGE HOMING SENSOR
6	40	686012725	6 X 25mm SHC SCREW	17	2	686012723	6 X 16mm HEX HD SCREW
7	40	686000596	PLUG	18	2	686033173	6mm FLAT WASHER
8	6	686023072	12mm JAM NUT	19	1	786200430	UPPER HOMING SWITCH BRACKET
9	2	686012768	12 X 80mm FULL DOG POINT SET SCREW	20	2	686012722	5 X 12mm SLOTTED HD SCREW
10	2	689160453	B.G. ALIGNMENT PIN	21	2	686033178	5mm FLAT WASHER
11	2	689830454	B.G. ALIGNMENT PIN WASHER	22	1	786200431	LOWER HOMING SWITCH BRACKET

61" BACKGAUGE W/O AIR- AB1016

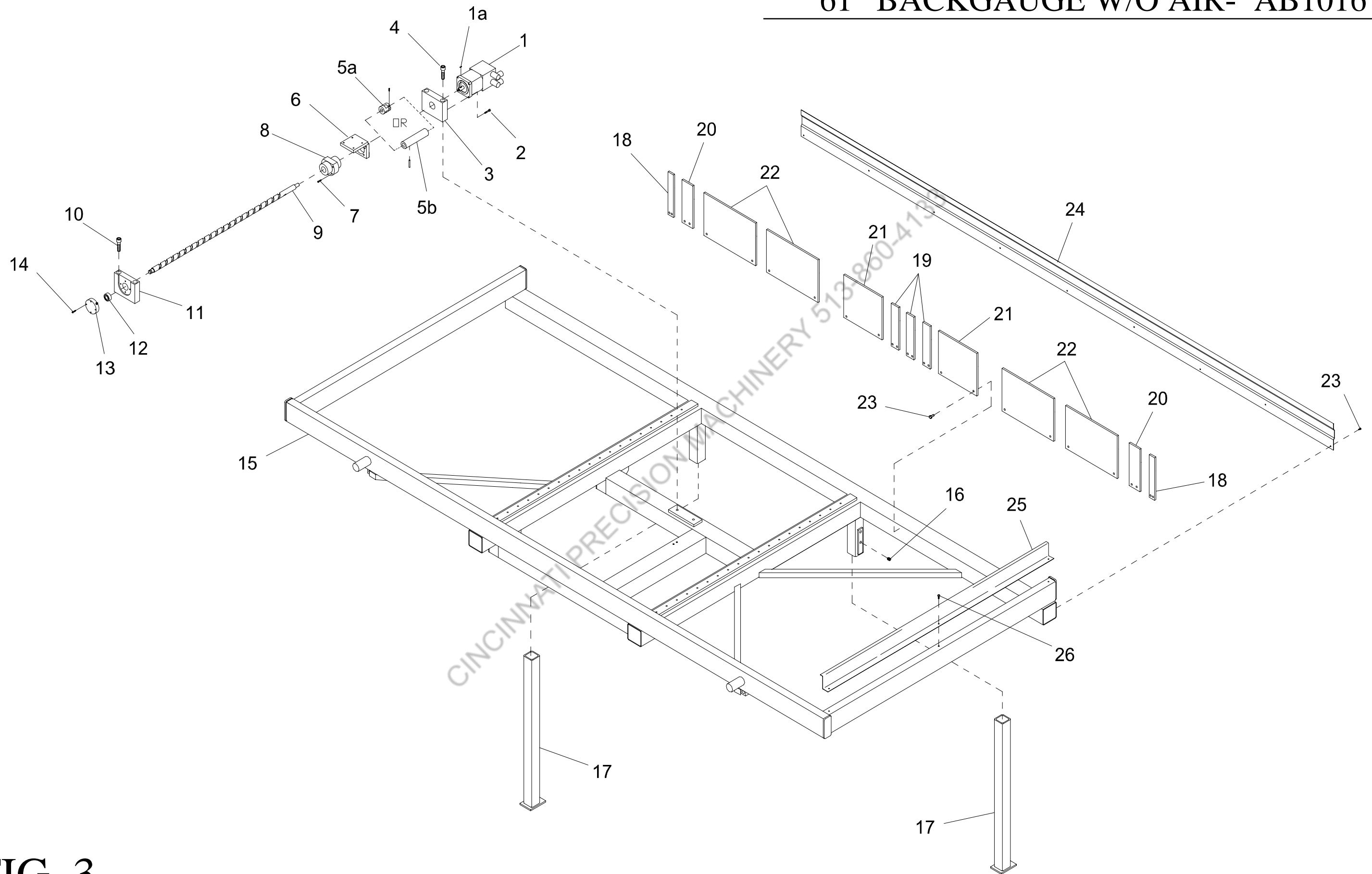


FIG. 3

FIXED TABLE WITH BALL SCREW DRIVE ASSEMBLY

ITEM	QTY	RW PART #	RW PART DESCRIPTION	ITEM	QTY	RW PART #	RW PART DESCRIPTION
1	1	660011197	SERVO MOTOR	14	4	686012719	5 X 20mm SHC SCREW
2	4	686012719	5 X 20mm SHC SCREW	15	1	689140472	FRAME WELDMENT
3	1	786200422	BACKGAUGE DRIVE BRACKET	16	4	686012727	12 X 20mm SOC SET SCREW
4	2	686012720	12 X 90mm SHC SCREW	17	2	786140428	ADJUSTABLE SUPPORT LEG
5a	1	689260452	COUPLER - NEW STYLE	18	2	689200473	30mm B.G. COVER SUPPORT
5b	1	----	COUPLER - OLD STYLE	19	3	689200474	50mm B.G. COVER SUPPORT
6	1	786200423	BRACKET, BALL SCREW MTG	20	2	689200475	85mm B.G. COVER SUPPORT
7	4	686012721	6 X 30mm SHC SCREW	21	2	689200476	215mm B.G. COVER SUPPORT
8	1	686000546	BALL SCREW NUT	22	4	689200477	290mm B.G. COVER SUPPORT
9	1	689650449	BALL SCREW	23	35	686012703	6 X 10mm HEX HEAD SCREW
10	2	686012720	12 X 90mm SHC SCREW	24	1	689440279	REAR B.G. GUARD
11	1	786200425	FRONT BALL SCREW MOUNT	25	2	786220429	CARRIAGE SHIELD
12	1	686194734	BEARING	26	6	686012701	5 X 8mm BUTTON HEAD PHILLIPS SCREW
13	1	786260426	BEARING RETAINER				

COMPLETE BALLSCREW ASSEMBLIES

ITEM	RW PART #	RW PART DESCRIPTION
8-9	689390355	BALL SCREW AND NUT ONLY ASSEMBLY
6-14	689650451	COMPLETE BALLSCREW ASSEMBLY