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* Some components for 30 Tool ATC shown



Fadal Engineering
844-323-2526
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This reference covers the following Fadal machine models:

VMC 4020B-II

VMC 4020

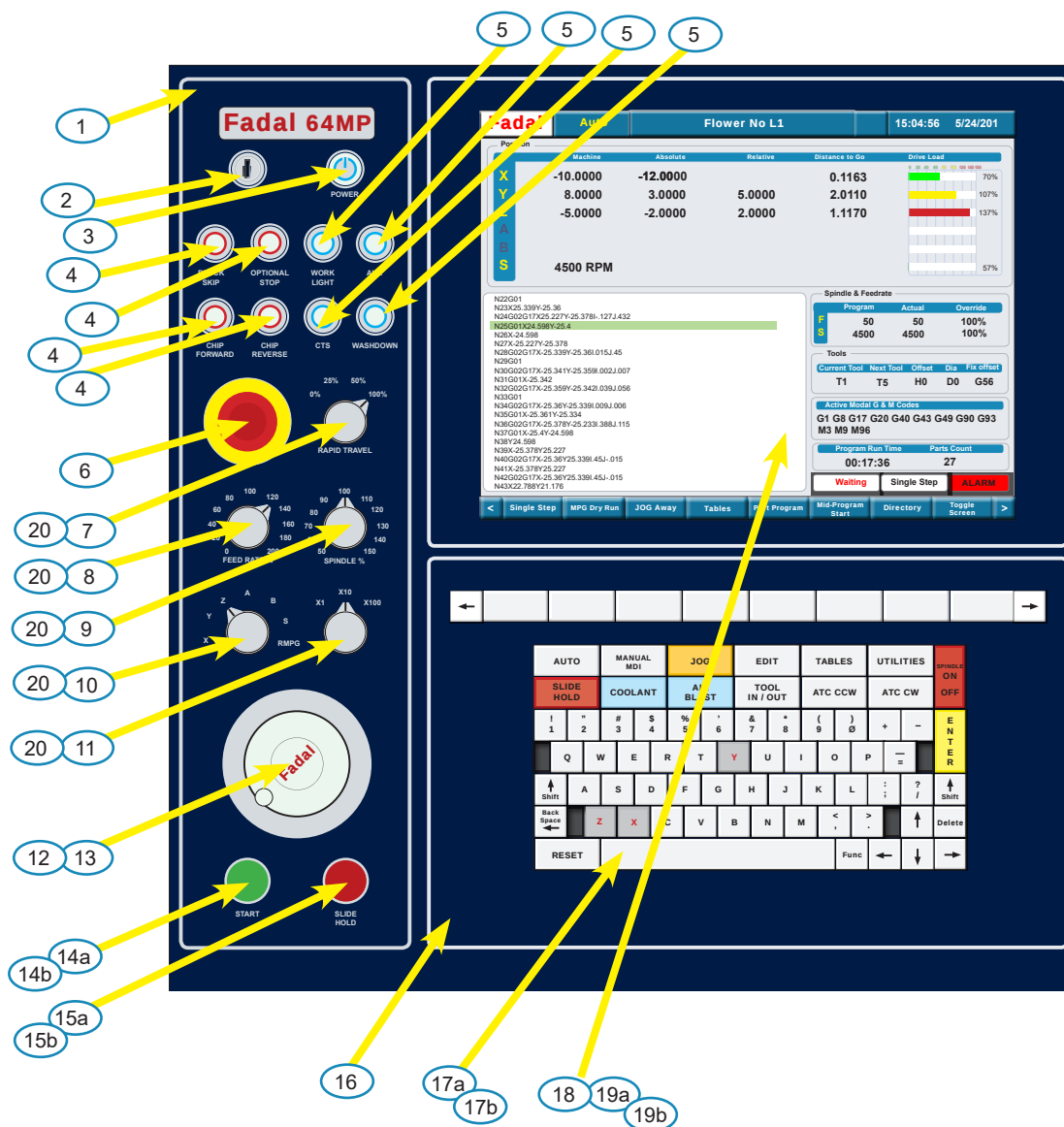
West Coast Tech. Center..... (844) 323-2526
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www.fadal.com
3100 E. Cedar St., Ste-7, Ontario, CA. 91761 USA

The content of this manual has been reviewed for accuracy and is applicable to current Fadal hardware and software products as described herein. Differences may exist and we cannot guarantee that they are completely covered in this document. The information in this document is reviewed regularly and any necessary changes will be incorporated in the next revision. We welcome any suggestions for improvement.

Material is subject to change without notice.

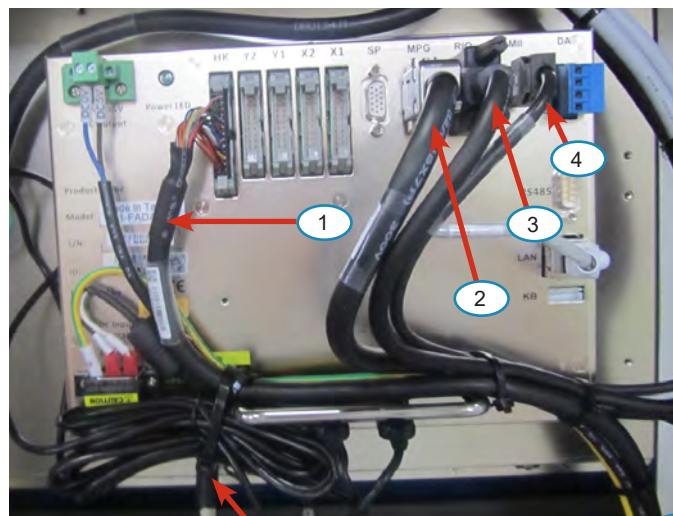
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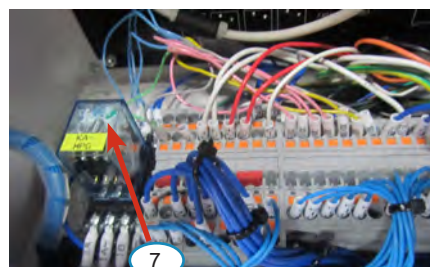


Item	Part Number	Description
1	CTR-02005	PANEL,64MP [NO SWITCHES]
2	SWT-00014	KEYLOCK SWITCH;64MP PENDANT
3	SWT-00006	SWITCH;POWER ON/OFF;PENDANT
4	SWT-00015	PUSH-BUTTON SWITCH;RED LED;SPDT
5	SWT-00016	PUSH-BUTTON SWITCH;BLUE LED;SPDT
6	SWT-00048	E-STOP KNOB/RELEASE,[NO SWITCHES] 64MP
6	SWT-00049	E-STOP SWITCHES,[NO KNOB] 64MP
7	SWT-00018	SELECTOR SWITCH;RAPID TRAVEL;4 POSITION
8	SWT-00019	SELECTOR SWITCH,FEEDRATE%;16 POSITION
9	SWT-00020	SELECTOR SWITCH;SPINDLE RPM;21 POSITION
10	SWT-00021	SELECTOR SWITCH;AXIS - XYZABSR;7 POSITION
11	SWT-00022	SELECTOR SWITCH;JOG RATE;3 POSITION
12	MPG-02002	MPG UNIT;24VDC;64MP PENDANT
13	MPG-02003	KNOB;MPG UNIT;64MP PENDANT NLA, USE MPG-02002
14a	SWT-00023	PUSH BUTTON,START;GREEN [NO SWITCHES]
14b	SWT-00050	START SWITCHES, 64MP [NO BUTTON]
15a	SWT-00024	PUSH BUTTON,SLIDE HOLD;RED [NO SWITCHES]
15b	SWT-00051	SLIDE HOLD SWITCHES,64MP [NO BUTTON]
16	CTR-02006	PANEL,64MP;KEYBOARD/MONITOR
17a	KBD-00001	KEYBOARD,64MP;VMC2015-VMC8030B-II/50T
17b	KBD-00003	KEYBOARD KEYS; SET, 64MP, [KEYS ONLY]
18	CTR-02008	MONITOR,15 INCH VGA;64MP PENDANT
19a	CTR-02000	CONTROL UNIT/MONITOR;64MP 4-AXIS W/SFTW
19b	CTR-02001	CONTROL UNIT/MONITOR;64MP 5-AXIS NO SFTW
20	SWT-00037	KNOB,SELECTOR SWITCHES

64MP PENDANT - Front Panel

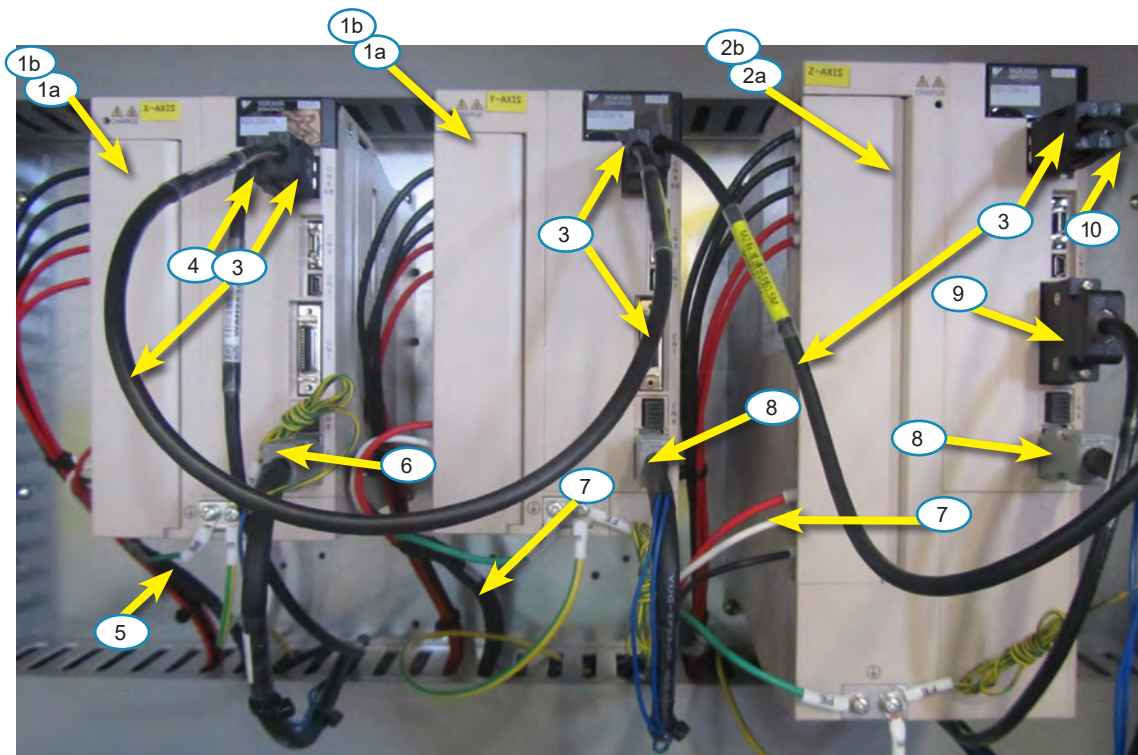


Item	Part Number	Description
1	WIR-02153	CABLE,CTR TO SWITCH PANEL;26P IDC 18 IN
2	WIR-02152	CABLE,CNTR TO MPG;15P DSUB;[VGA] 18 IN
3	WIR-02111	CABLE,RIO INPUT/OUTPUT;9PIN DSUB
4	WIR-02051	AMP TO CONTROL,MECHATROLINK;USB 11 FT
5	PCB-02008	PCB,INTERFACE;PENDANT SWITCH PANEL
6	ELE-04007	PORT,USB/AC OUTLET [PENDANT]
7	RLY-00046	RELAY,ICECUBE;24VDC OMRON [MPG]
8	CTR-02011	HANDLE,PENDANT CABINET
9	PWR-00002	POWER SUPPLY; 24VDC
10	SEL-00068	EDGE PROTECTOR,PENDANT POCKET;PER FT
11	WIR-02181	CABLE,KEYBOARD TO CONTROL;64MP;5-COND

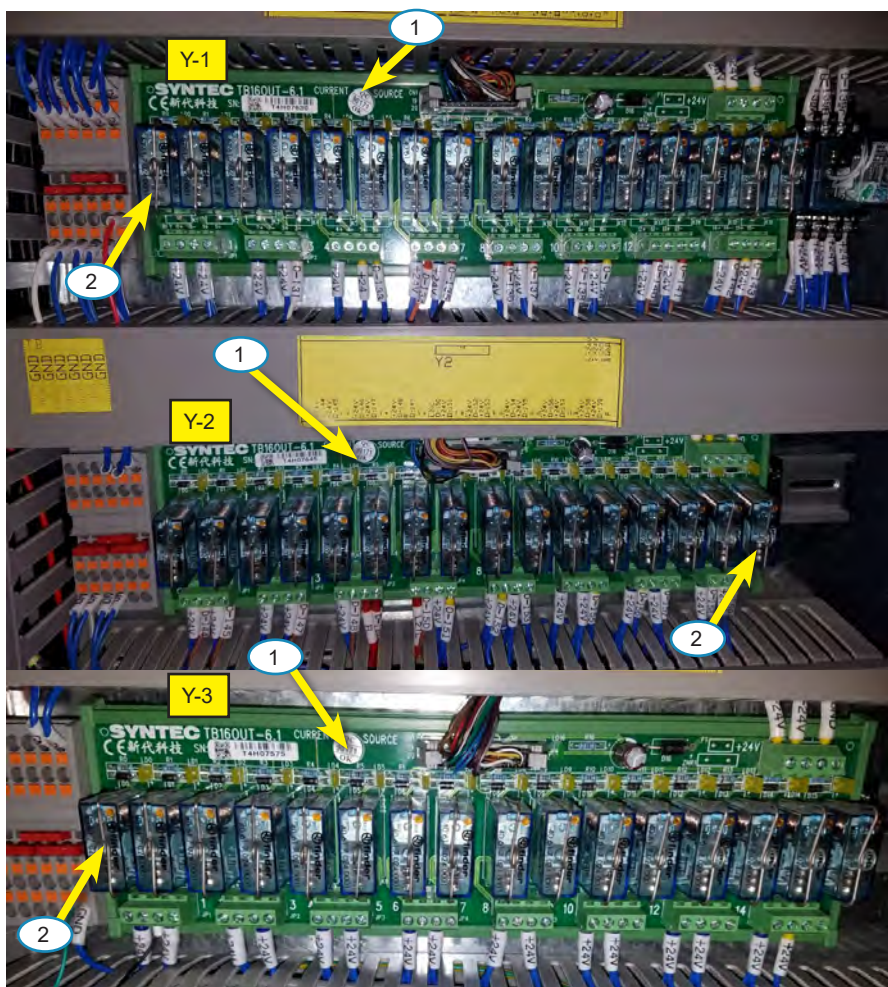


64MP PENDANT - FRONT & INTERIOR

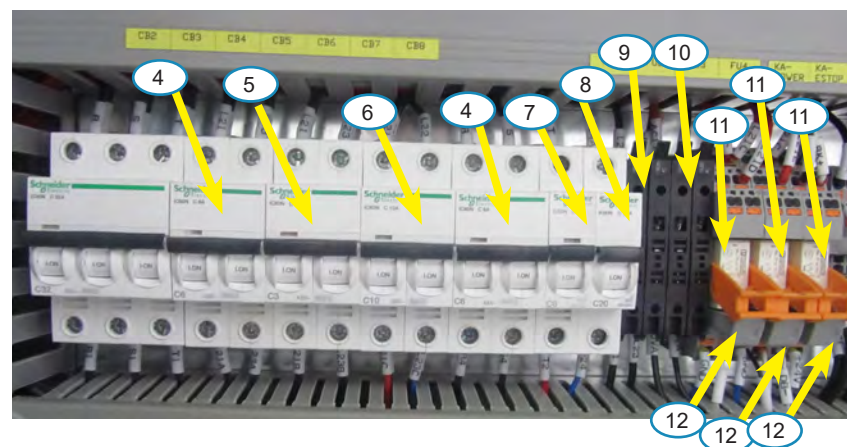
Item	Part Number	Description
1a	AMP-02003	AMPLIFIER, YASKAWA 200A, S5
1b	AMP-02015	AMPLIFIER, YASKAWA 200A, S7
2a	AMP-02004	AMPLIFIER, YASKAWA 330A, S5
2b	AMP-02016	AMPLIFIER, YASKAWA 330A, S7
3	WIR-02050	CABLE, USB-USB; MECHATROLINK; 18 IN AMP-AMP
4	WIR-02051	CABLE, USB-USB; MECHATROLINK; 11 FT CTR-AMP
5	WIR-02141	CABLE, MOTOR; PWR; 5.8M/90 X AXIS; 2520-4020B-II
6	WIR-02139	CABLE, MOTOR; ENC; 10M/90 X AXIS; 2520-4020B-II
7	WIR-02142	CABLE, MOTOR; PWR; 3M/90 Y,Z AXIS; 2520-4020B-II
8	WIR-02140	CABLE, MOTOR; ENC; 5M/90 Y,Z AXIS; 2520-4020B-II
9	WIR-02137	CABLE, Z-BRAKE; AMP TO E-STOP; 2520-4020B-II
10	WIR-02175	PULLUP RESISTOR, MECHATROLINK NETWORK



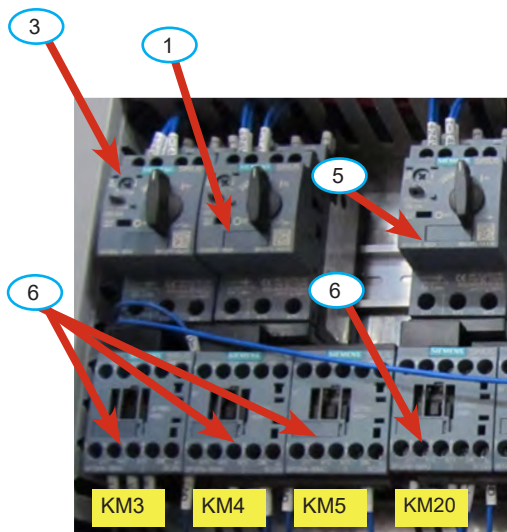
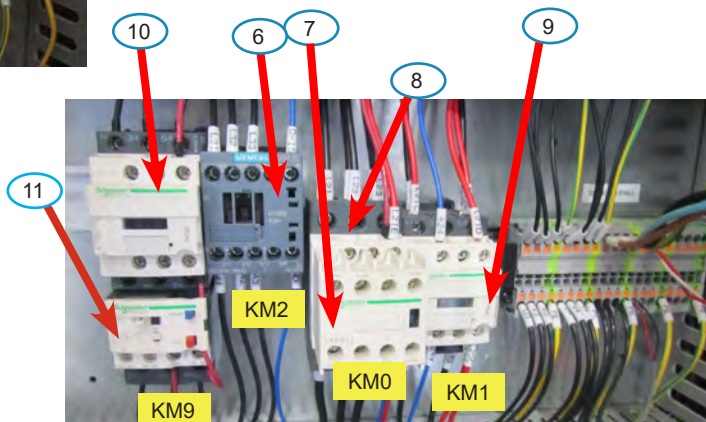
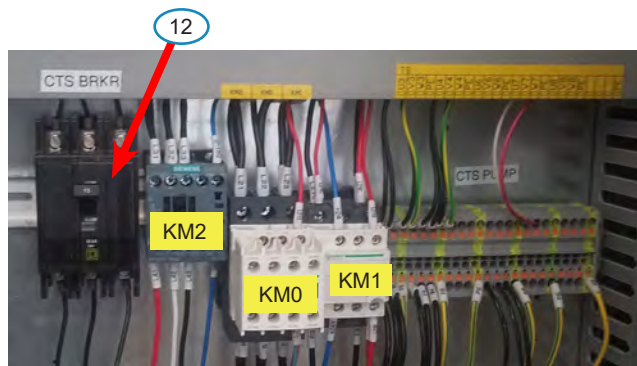
ELECTRICAL CABINET - AMPS



Item	Part Number	Description
1	PCB-02010	PCB,OUTPUT BOARD;Y1,Y2,Y3
2	RLY-00023	RELAY,MINI-ICECUBE;FINDER SPST
3	CBR-00032	CIRCUIT BREAKER,3-POLE;400V 32A SCHNEIDER
4	CBR-00033	CIRCUIT BREAKER,2-POLE;400V 6A SCHNEIDER
5	CBR-00034	CIRCUIT BREAKER,2-POLE;400V 3A SCHNEIDER
6	CBR-00035	CIRCUIT BREAKER,2-POLE;400V 10A SCHNEIDER
7	CBR-00036	CIRCUIT BREAKER,1-POLE;400V 6A SCHNEIDER
8	CBR-00037	CIRCUIT BREAKER,1-POLE;400V 20A SCHNEIDER
9	CBR-00019	FUSE,6X30MM 7A AGC-7 [FU-1, FU-2]
10	CBR-00020	FUSE,6X30MM 2A AGC-2 [FU-3, FU-4]
11	RLY-00040	RELAY,ESTOP;24VDC 2PDT 8A
12	RLY-00040-S	RELAY SOCKET BASE



ELECTRICAL CABINET - OUTPUTS



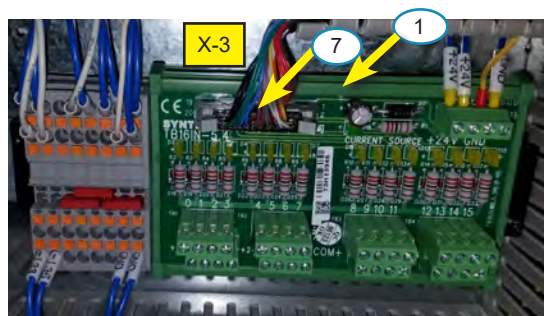
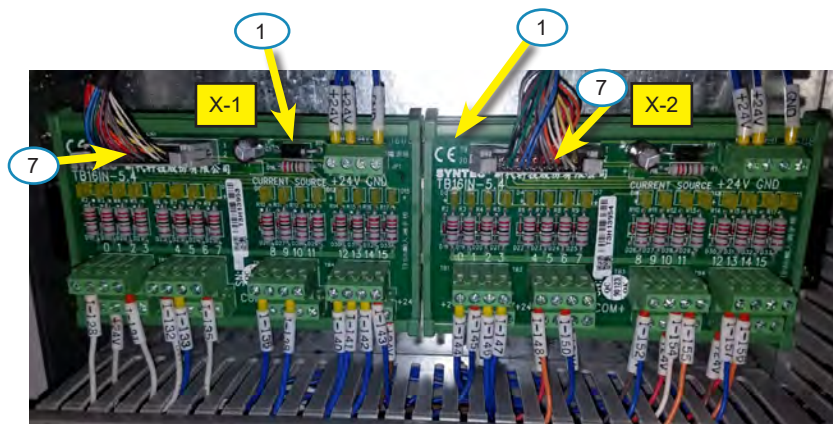
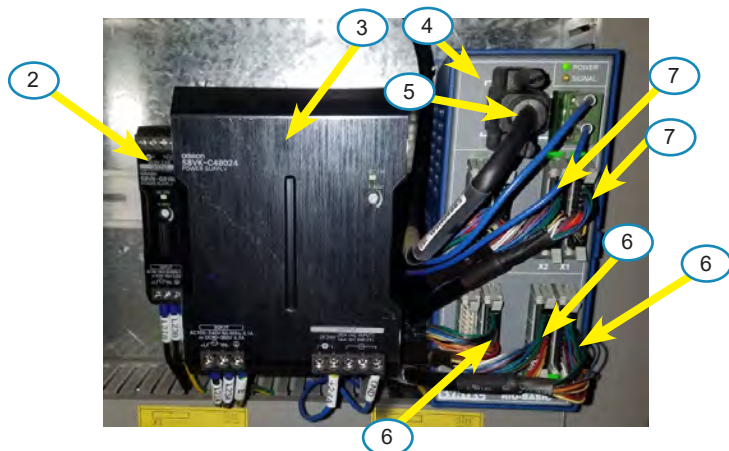
Item	Part Number	Description
1	RLY-00034	OVERLOAD, CONTACTOR; 1.1-1.6A; SMNS
2	RLY-00038	OVERLOAD, CONTACTOR; 1.8-2.5A SMNS
3	RLY-00035	OVERLOAD, CONTACTOR; 2.8-4.0A SMNS
4	RLY-00039	OVERLOAD, CONTACTOR; 4.5-6.3A SMNS
5	RLY-00031	OVERLOAD, CONTACTOR; 7.0-10A SMNS
6	RLY-00030	CONTACTOR, SIEMENS; 1BB42
7	RLY-00024	CONTACTOR, 3-POLE; 220V COIL
8	RLY-00033	CONTACT BLOCK; [FITS RLY-00024]
9	RLY-00037	CONTACTOR, 12A; SCHNEIDER
10	RLY-00003	*CONTACTOR, AC240VAC 3-PH COIL
11	RLY-00032	*OVERLOAD, 9.0 TO 13.0A; FITS RLY-00003
12	CBR-00040	**CIRCUIT BREAKER; 200VA 15A, 3-POLE

*ChipBlaster Unit
**PolarJet Unit

KM0	E-Stop Power Interrupt: Items 7,
KM1	E-Stop Servo Interrupt: Item 9
KM2	Chiller unit: Item 6
KM3	Coolant Pump: Items 3, 6
KM4, KM5*	Conveyor: Items 1, 6, 6
KM20* **	Washdown Pump(s): Items 5, 6
KM9*	Coolant-Thru Spindle: Items 10, 11

* Many items shown are Optional, and not standard equipment
** Individual Contactor & Overload required for each of the Rear and Side washdown pumps

ELECTRICAL CABINET - OUTPUTS



Item	Part Number	Description
1	PCB-02009	PCB,INPUT INTERFACE;TB16IN;X1,X2,X3 SERIES II
2	PWR-00012	POWER SUPPLY,OMRON;5VDC
3	PWR-00011	POWER SUPPLY,OMRON;24VDC
4	CTR-02004	CONTROLLER,I/O SYNTEC RIO
5	WIR-02111	CABLE,RIO INPUT/OUTPUT 9-PIN DSUB 5.5M
6	WIR-02112	CABLE,RIO OUTPUT;20P IDC 3.5M Y1-Y4
7	WIR-02113	CABLE,RIO INPUT;20P IDC 0.6M X1-X4

ELECTRICAL CABINET - INPUTS

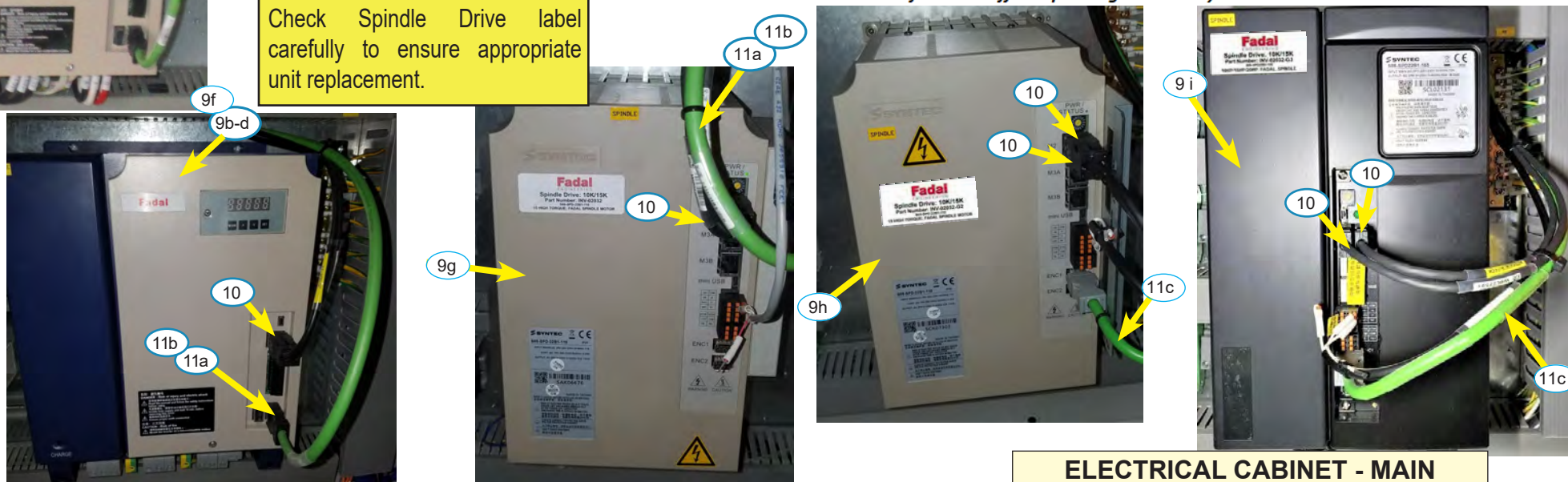


Check Spindle Drive label carefully to ensure appropriate unit replacement.

Item	Part Number	Description
1	ELE-04003	PORT, ETHERNET; RJ45
2	ELE-04008	BATTERY BOX, 3 D-CELL; ENCODER BACKUP
3a	CBR-00039	MAIN POWER DISCONNECT SWITCH / BREAKER ASSY.
3b	CBR-00039B	MAIN POWER DISCONNECT SWITCH ROTARY EXTENSION
4	TRN-00004	TRANSFORMER; 230V TO 120V; 2520-4020B-II
5	ATC-02067	BRAKING CONTROL, DATC ARM MOTOR; 2520-4020B-II
6	CBR-00031	CIRCUIT BREAKER; CHILLER / SPINDLE DRIVE
7	WIR-02035	TERMINAL BLOCK, DIN RAIL; 3-POLE
8	FAN-02007	CABINET COOLER; HEAT EXCHANGER; 2520-4020
9a	INV-02021	SPINDLE DRIVE. 10HP; FADAL MOTOR, 10K
9b	INV-02022* **	SPINDLE DRIVE,15HT; FADAL MOTOR, 10K/15K USE INV-2032-G3
9c	INV-02023* **	USE INV-02032-G3
9d	INV-02024* **	SPINDLE DRIVE, 20VHT; FADAL MOTOR, 10K USE INV-02032-G3
9e	INV-02001	SPINDLE DRIVE,10 HP; BALDOR MOTOR, 10K
9f	INV-02002* **	SPINDLE DRIVE,15HT; BALDOR MTR, 10K/15K USE INV-02032-G3
9g	INV-02032-G1	SPINDLE DRV,15HT; FADAL MTR,10K/15K [GEN 1] NLA: USE INV-02032-G3
9h	INV-02032-G2	SPINDLE DRV,15HT; FADAL MTR,10K/15K [GEN 2] NLA: USE INV-02032-G3
9i	INV-02032-G3*	SPINDLE DRIVE,15HT / 20 V H T ;FADAL MTR,10K/15K [GEN 3]
10	WIR-02057	CABLE, USB-USB; MECHATROLINK; 6 FT INV-AMP
11a	WIR-02039	CABLE, ENCODER; BALDOR SPINDLE MTR TO DRV
11b	WIR-02150/10	CABLE,ENCODER; FADAL MOTOR TO DRIVE [10 PIN CONNECTOR @ DRIVE]
11c	WIR-02150/6	CABLE,ENCODER ;FADAL MOTOR TO DRIVE, [6 PIN CONNETOR @ DRIVE]
12	DOR-02018	CABINET DOOR LATCH
13	WIR-02049	CABLE; 18 AWG, 2-COND., PER FOOT [ORIENTATION SIGNAL]

*Specify if spindle motor is Baldor or Fadal, Standard(10hp), HT(15hp), or optional VHT (20HP) type. Provide machine serial number for proper settings.

**Re-manufactured offered pending availability

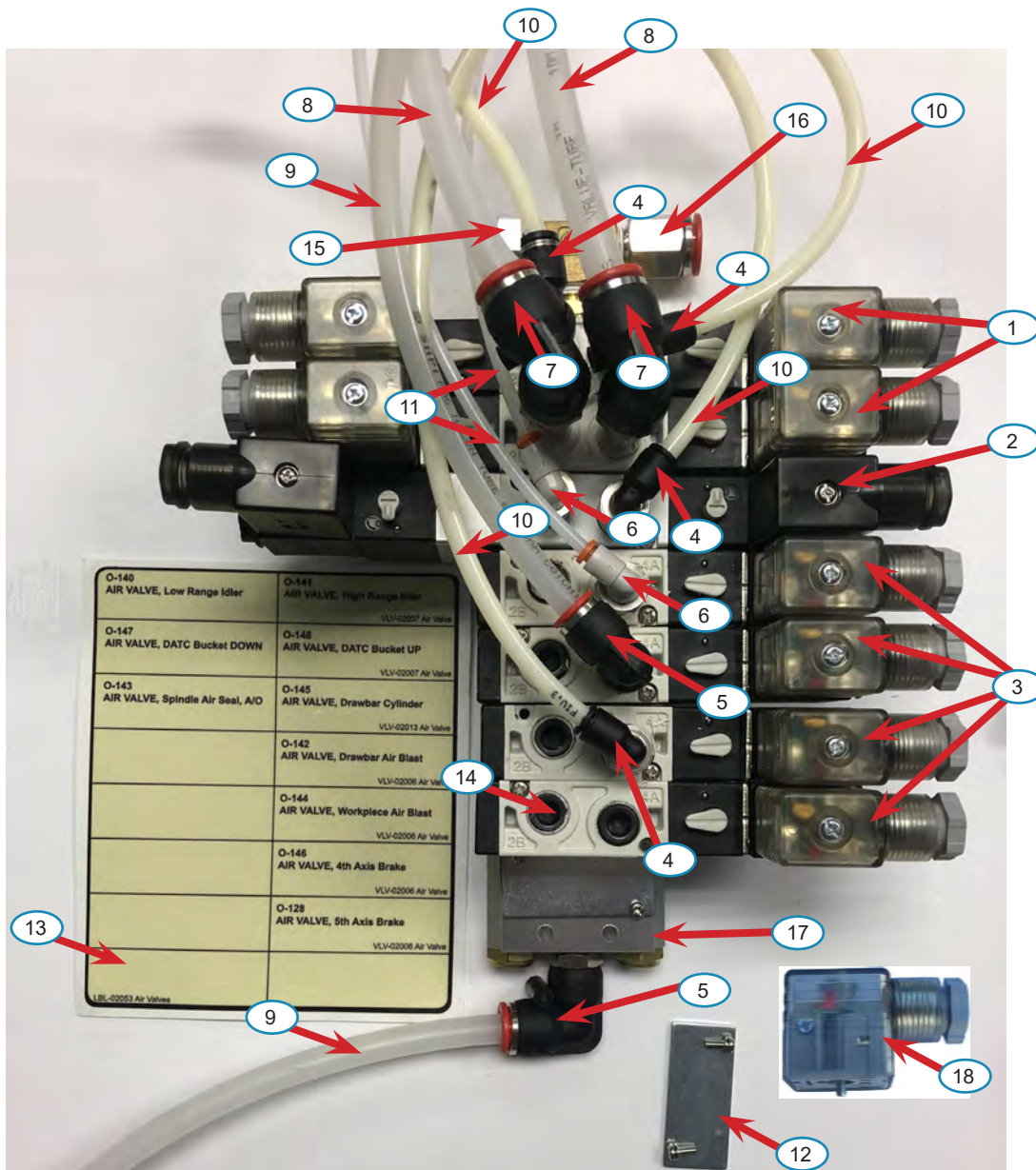


ELECTRICAL CABINET - MAIN



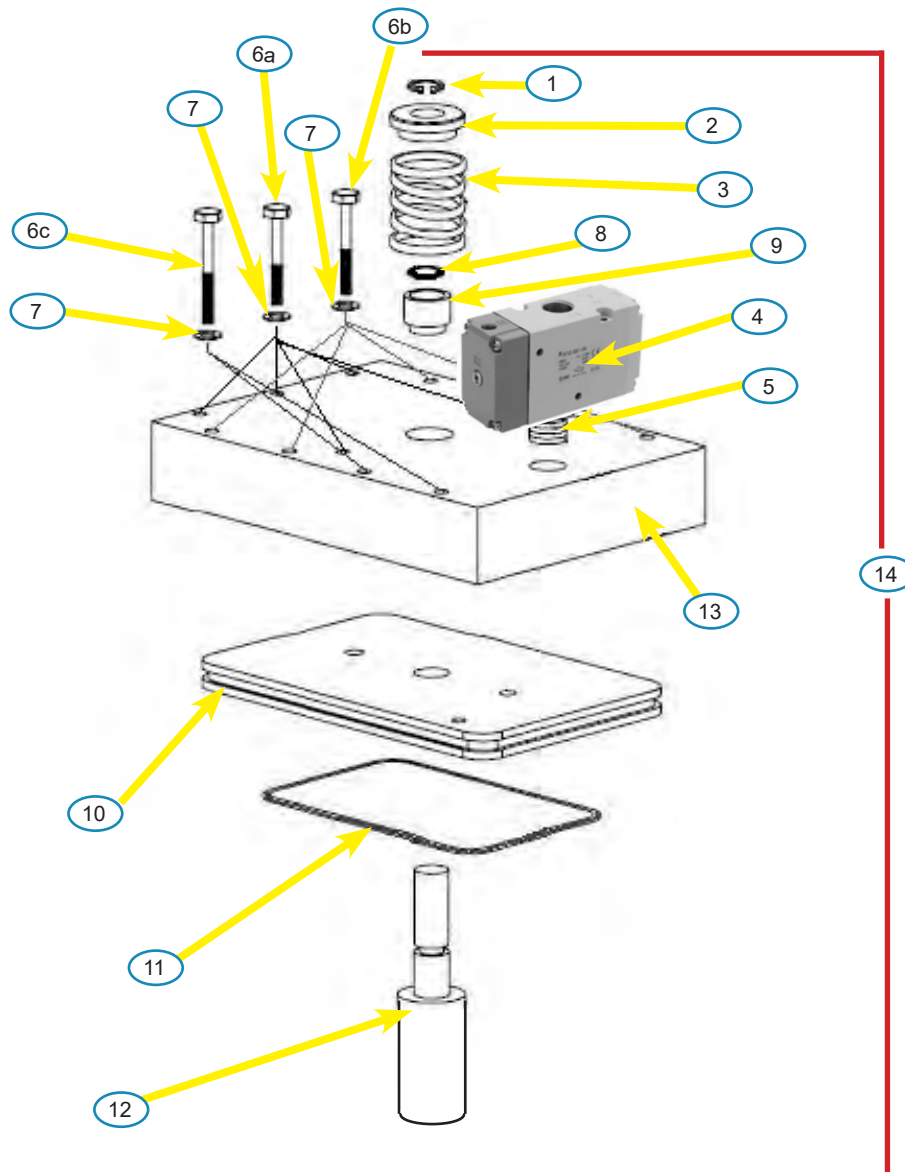
Item	Part Number	Description
1	ELE-04002	HABOR CHILLER UNIT,220V
2	PCB-02015	PCB,CONTROL;HABOR CHILLER
3	HDW-02114	FILTER-SCREEN,HABOR CHILLER
4	HDW-02115	CAP,OIL RESERVOIR;HABOR CHILLER
5	PCB-02016	PCB,RELAY;HABOR CHILLER
6	RLY-00004	OVERLOAD,1.0 TO 1.6A; FITS RLY-00003
7	RLY-00005	OVERLOAD,1.6 TO 2.5A; FITS RLY-00003
8	RLY-00003	CONTACTOR,240VAC 3PH-AC220V COIL
9	FAN-02012	FAN BLADE,HABOR CHILLER
10	PMP-02033	CHILLER PUMP/FAN MOTOR,HABOR CHILLER
11	PLM-02117	AIR GUN,COILED HOSE 1/4
12	PLM-02119	BRACKET, AIR HOSE/WASHDOWN HOSE
13	PLM-02118	SPRAY NOZZLE; OPERATOR WASHDOWN
14	PLM-02176	COILED HOSE, OPERATOR WASHDOWN
15	HDW-02066	AIR TANK,RESERVE
16	ELE-04011	WORKLIGHT,CAN;4 INCH ARM;24VDC 70W
17	ELE-04006	BULB,24VDC 70W
18	DOR-02044	LATCH,CAGE DOOR
19	ELE-04031	WORKLIGHT,LED CAN;LONG ARM-18 INCH;24VDC
20	ELE-04032	LED MODULE, [FITS ELE-04031]
21a	REG-02012	REGULATOR,WATER SEPARATOR; MM
21b	REG-02012-B	REGULATOR,FILTER,WATER SEPARATOR; BOWL
22	SWT-00067	PRESSURE SWITCH,REGULATOR;DANFOSS
23	PLM-02084	TUBING,10MM WHITE 250PSI NYLON;PER METER
24	REG-02013	GAUGE,AIR PRESSURE; 0-150PSI 1/8
25	REG-02014	OILER,AIR LUBE MM
26a	REG-02015	FILTER; MM
26b	REG-02015-B	FILTER; BOWL
27	REG-02008	REGULATOR, MAIN AIR PRESSURE; COMPLETE ASSY.
28	PLM-02195	TUBING; 12MM
29	PLM-02196	FITTING; 12MM QD X 3/8 MIPT, STRAIGHT
30	PLM-02194	FITTING; 3/8 MIPT X 3/8 MIPT, ELBOW
31	PLM-02197	FITTING; 12MM QD X 3/8 MIPT, ELBOW
32	VLV-02040	CHECK VALVE; 3/8 FIPT
33	PLM-02105	BALL VALVE; 1/4 FIPT X 1/4 MIPT
34	PLM-02198	FITTING; 8MM QD X 1/4 MIPT, ELBOW
35	PLM-02200	COILED HOSE; OPERATOR WASHDOWN
36	PLM-02201	SPRAY NOZZLE; OPERATOR WASHDOWN
37	PLM-02171	FITTING; 10MM QD X 1/2 MIPT, ELBOW

CHILLER CAGE - MISC



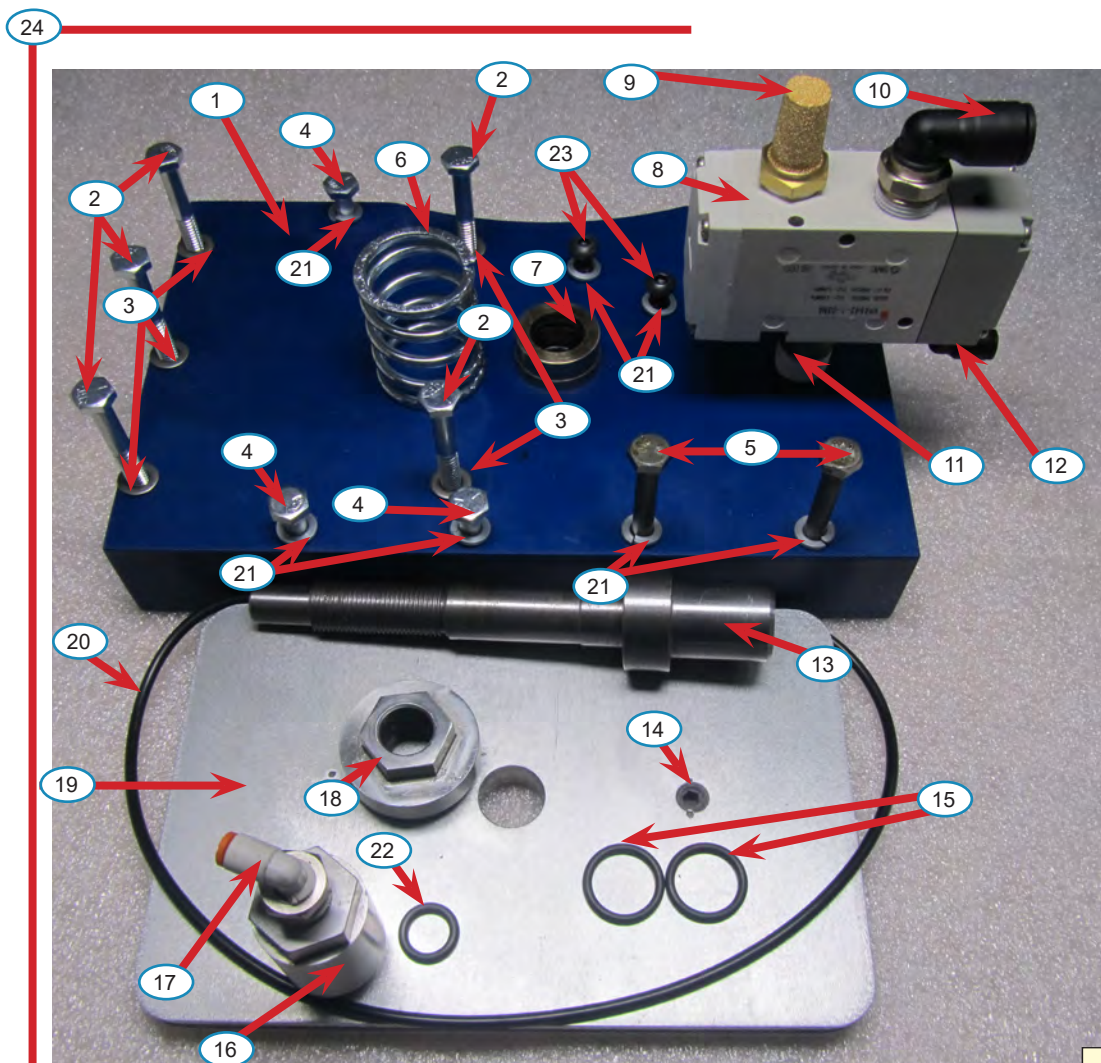
Item	Part Number	Description
1	VLV-02007	AIR VALVE,24VDC 5-WAY; DUAL
2	VLV-02013	VALVE,DUAL;CTR EXH;AIR SEAL/DBCYL;24VDC
3	VLV-02006	AIR VALVE,24VDC 5-WAY; SINGLE
4	PLM-02092	FITTING,6MM QD X 1/4MPT ELL
5	PLM-02176	FITTING,8MM QD X 1/4 MIPT ELL
6	PLM-02010	FITTING,5/32QD/4MMQD X 1/4MIPT ELL
7	PLM-02098	FITTING,10MM QD X 1/4NPT MALE ELL
8	PLM-02084	TUBING,10MM WHITE 250PSI NYLON;PER METER
9	PLM-02143	TUBING,8MM BLACK;PER FT
10	PLM-02083	TUBING,6MM WHITE 250PSI NYLON;PER METER
11	PLM-02082	TUBING,4MM WHITE 250PSI NYLON;PER METER
12	VLV-02014	COVER PLATE/GASKET;VALVE MANIFOLD
13	LBL-02053	LABEL,AIR VALVE PACK;5 X 6
14	PLM-02017	PLUG,1/4 MIPT HEXDRIVE
15	PLM-02104	FITTING; 10MM QD X 1/4 MIPT, STR
16	PLM-02199	FITTING; 12MM QD X 1/4 MIPT, STR
17	VLV-02041	AIR MANIFOLD; 8-WAY
18	VLV-02042	AIR VALVE COIL CONNECTOR

AIR VALVES



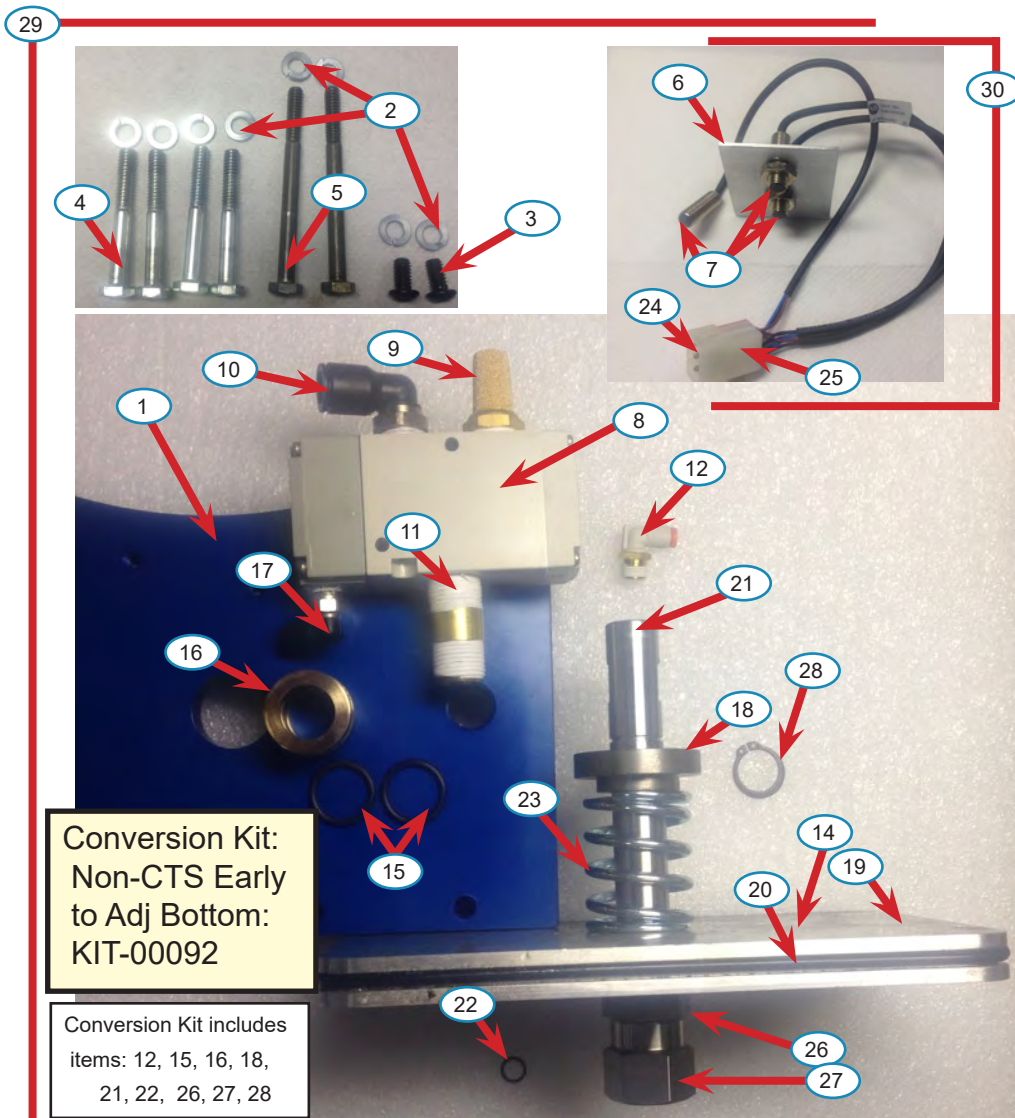
Item	Part Number	Description
1	HDW-02015	RETAINING CLIP; DRAWBAR PISTON
2	DRB-02007	SPRING CAP SERIES II NON-CTS
3	HDW-02006	SPRING,DB CYLINDER RETURN
4	VLV-02000	AIR VALVE,DB CYLINDER
5	PLM-02019	PIPE NIPPLE,3/8 MIPT X 1 INCH
6a	SCR-00015	SCREW,1/4-20 X 1.75 HEXCAP [5 REQD]
6b	SCR-00016	SCREW,1/4-20 X 2 HEXCAP [4 REQD]
6c	SCR-00017	SCREW,1/4-20 X 3 HEXCAP [2 REQD]
7	SCR-00003	LOCKWASHER,1/4 [11 REQD]
8	SEL-00007	O'RING,-115; VITON .687 ID X 3/32 [2 REQD]
9	DRB-02056	BUSHING; DRAWBAR PISTON SHAFT
10	DRB-02006	PISTON PLATE,SERIES II [NO MAGNET]
11	SEL-00017	O'RING,DBCYL 7.25ID X 3/32
12	DRB-02003	SHAFT,DB CYLINDER SERIES II NON-CTS
13	DRB-02002	HOUSING,DRAWBAR CYLINDER;WIDE
14	DRB-02000	DRAWBAR CYLINDER ASSY [USE DRB-02051]

DRAWBAR CYLINDER [Early]



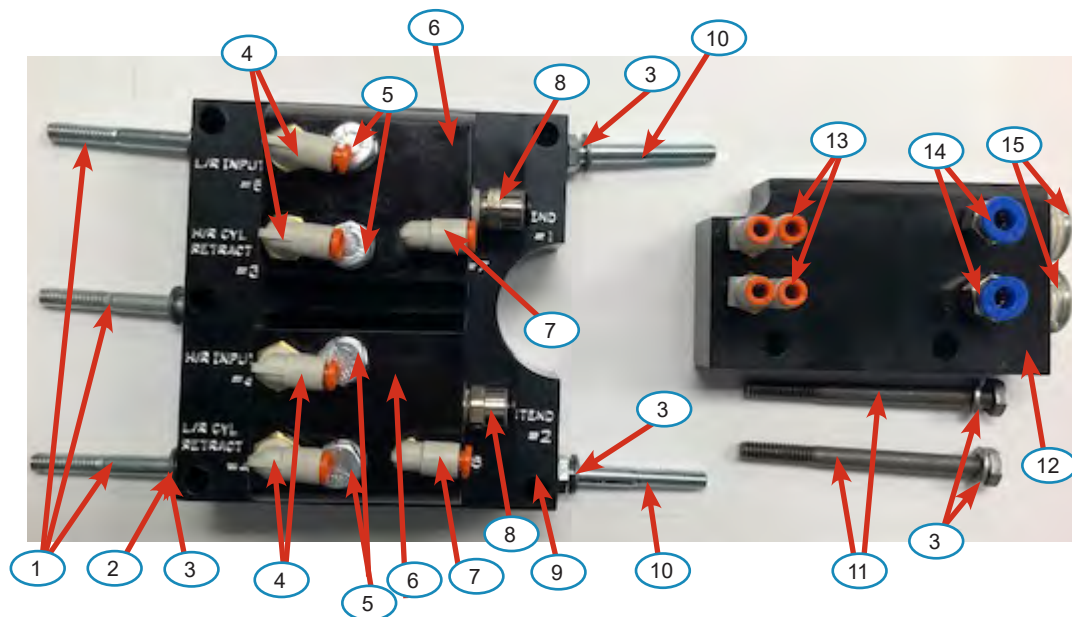
Item	Part Number	Description
1	DRB-02002	HOUSING,DRAWBAR CYL;WIDE [BLUE]
2	SCR-00015	SCREW,1/4-20 X 1.75 HEXCAP [5 REQD]
3	SCR-00271	WASHER,1/4 [OD 0.500] 0.060 THICK-SS [5 REQD]
4	SCR-00016	SCREW,1/4-20 X 2 HEXCAP [4 REQD]
5	SCR-00017	SCREW,1/4-20 X 3 HEXCAP [2 REQD]
6	HDW-02006	SPRING,DB CYLINDER RETURN
7	DRB-02056	DRAWBAR PISTON BUSHING; 9.5" CYLINDER
8	VLV-02000	AIR VALVE,DB CYLINDER
9	PLM-02050	MUFFLER,3/8 MIPT
10	PLM-02087	FITTING,10MM QD X 3/8NPT MALE ELL
11	PLM-02049	PIPE NIPPLE,3/8 MIPT X 1.5 INCH
12	PLM-02091	FITTING,6mm QD X 1/8MIPT ELL
13	DRB-02035	[USE KIT-00092]
14	PLM-02028	PLUG,1/8 MIPT HEXDRIVE
15	SEL-00007	O'RING,-115; VITON .687 ID X 3/32
16	DRB-02034	[USE KIT-00092]
17	PLM-02010	FITTING,5/32QD/4MMQD X 1/4MIPT ELL
18	DRB-02033	[USE KIT-00092]
19	DRB-02006	PISTON PLATE, NO MAGNET;40T [NON-CTS/CTS]
20	SEL-00017	O'RING,DBCYL 7.25ID X 3/32
21	SCR-00003	LOCKWASHER,1/4 [8 REQD]
22	SEL-00026	O'RING,-111 VITON;0.437 X 3/32
23	SCR-00165	SCREW,BUTTONHEAD;1/4-20 X 1/2
24	DRB-02000	DRAWBAR CYLINDER ASSY [USE DRB-02051]

DRAWBAR CYLINDER - UPPER THREADED PISTON

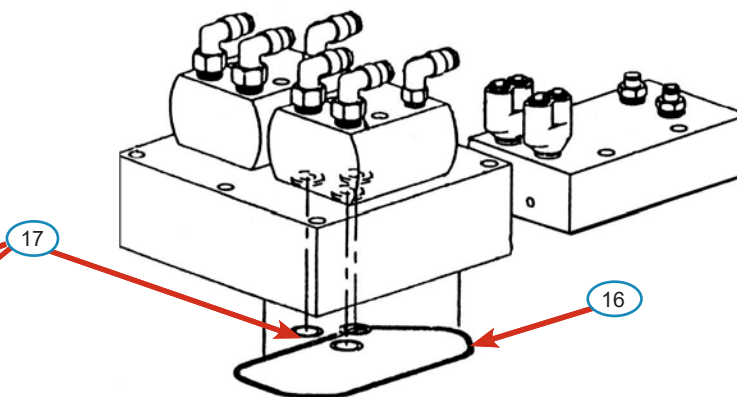
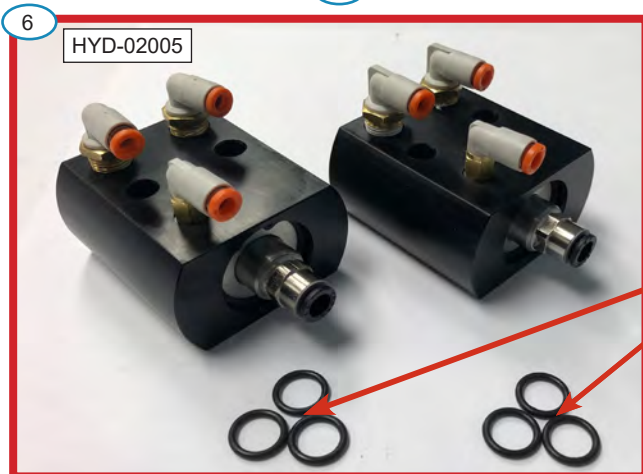


Item	Part Number	Description
1	DRB-02002	HOUSING, DRAWBAR CYL; WIDE [BLUE]
2	SCR-00003	LOCKWASHER, 1/4 [8 REQD]
3	SCR-00165	SCREW, BUTTONHEAD; 1/4-20 X 1/2
4	SCR-00016	SCREW, 1/4-20 X 2 HEXCAP [4 REQD]
5	SCR-00017	SCREW, 1/4-20 X 3 HEXCAP [2 REQD]
6	SMT-00226	BRACKET, DRAWBAR DOWN/UP SENSOR
7	SWT-00001	PROXIMITY SWITCH, W/LED; 8MM 3-WIRE
8	VLV-02000	AIR VALVE, DB CYLINDER
9	PLM-02050	MUFFLER, 3/8 MIPT
10	PLM-02087	FITTING, 10MM QD X 3/8NPT MALE ELL
11	PLM-02049	PIPE NIPPLE, 3/8 MIPT X 1.5 INCH
12	PLM-02012	FITTING, 4MM QD X 1/8 MIPT ELL
14	PLM-02028	PLUG, 1/8 MIPT HEXDRIVE
15	SEL-00007	O-RING, -115; VITON .687 ID X 3/32
16	DRB-02056	DRAWBAR PISTON BUSHING; 9.5" CYLINDER
17	PLM-02091	FITTING, 6MM QD X 1/8 MIPT ELL
18	DRB-02036	SPRING PAD, DBCYL SHAFT; NON-CTS/CTS
19	DRB-02006	PISTON PLATE, SERIES II [NO MAGNET]
20	SEL-00017	O-RING, DBCYL 7.25 ID X 3/32
21	DRB-02046	SHAFT, DRAWBAR CYLINDER; NON-CTS/CTS THD'D
22	SEL-00130	O-RING, DBCYL SHAFT; 1.2MM X 7.0MM ID
23	HDW-02006	SPRING, DB CYLINDER RETURN
24	CNX-00007	PIN, MALE AWG16 MOLEX
25	CNX-00006	PLUG, 6-PIN MOLEX F
26	DRB-02048	LOCKNUT, DBCYL SHAFT; NON-CTS/CTS
27	DRB-02047	ENDCAP, BOTTOM; DBCYL SHAFT; NON-CTS
28	HDW-02015	RETAINING CLIP; DRAWBAR CYLINDER SHAFT
29	DRB-02051	DRAWBAR CYLINDER ASSEMBLY [NON-CTS]
30	SWT-00083	DBCYL PROXIMITY SWITCH ASSEMBLY [3]

DRAWBAR CYLINDER - LOWER THREADED PISTON

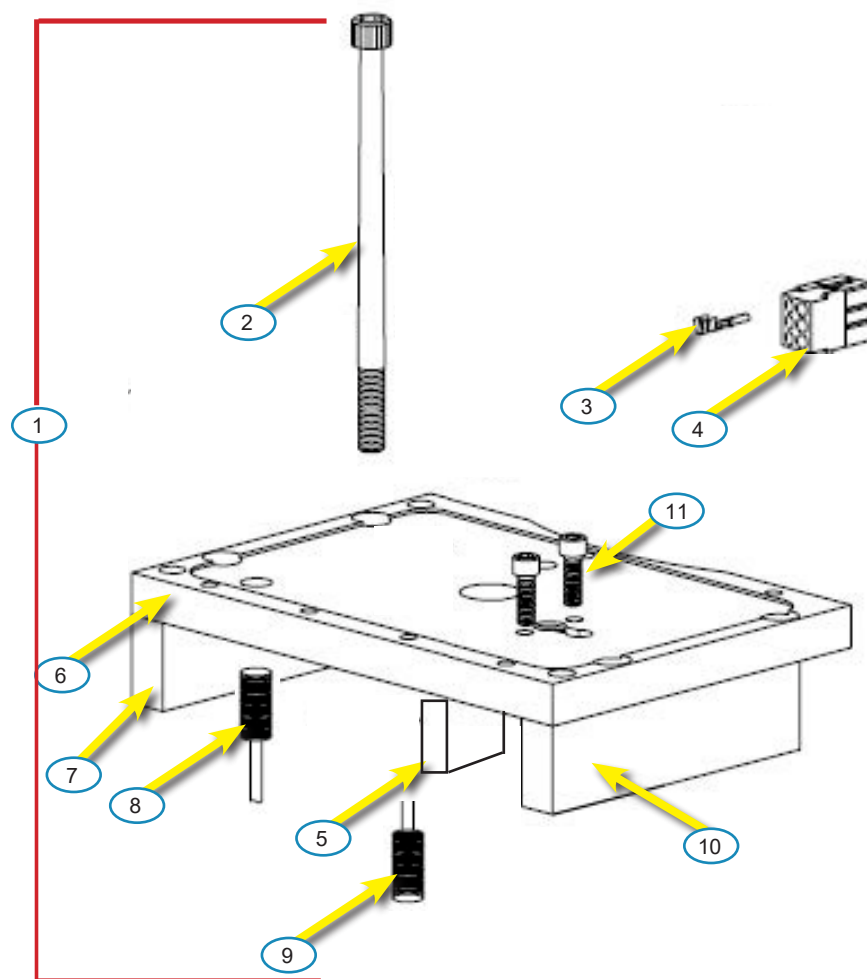


Item	Part Number	Description	
1	SCR-00016	SCREW, 1/4-20 X 2 HEXCAP	[4 REQ'D]
2	SCR-00098	FLATWASHER, 1/4 ZINC	[3 REQ'D]
3	SCR-00003	LOCKWASHER, 1/4	[10 REQ'D]
4	PLM-02012	FITTING, 5/32QD/4MMQD X 1/8NPT ELL	[4 REQ'D]
5	SCR-00014	SCREW, 1/4-20 X 1.5 HEXCAP	[4 REQ'D]
6	HYD-02005	HYDRAULIC ACTUATOR ASSEMBLY	[PK/2]
7	PLM-02015	FITTING, 5/32QD/4MMQD X 10-32 ELL	[2 REQ'D]
8	PLM-02093	FITTING, 6MMQD X 1/8NPT STR	[2 REQ'D]
9	HYD-02000	RESERVOIR, HYDRAULIC ACTUATORS	
10	SCR-00015	SCREW, 1/4-20 X 1.75 HEXCAP	[5 REQ'D]
11	SCR-00017	SCREW, 1/4-20 X 3 HEXCAP	[2 REQ'D]
12	HYD-02004	SEPARATOR BLOCK, HYDRAULIC ACTUATORS	
13	PLM-02014	FITTING, 5/32QD/4MMQD X 1/8NPT WYE	[2 REQ'D]
14	PLM-02093	FITTING, 6MMQD X 1/8MIPT STR	[2 REQ'D]
15	PLM-02024	PLUG, 1/2 MIPT; HEXDRIVE	[2 REQ'D]
16	SEL-00010	O'RING, -151 VITON; 3.0 ID X 3/32	[2 REQ'D]
17	SEL-00021	O'RING, -012 VITON; 3/8 ID X 1/16	[6 REQ'D]



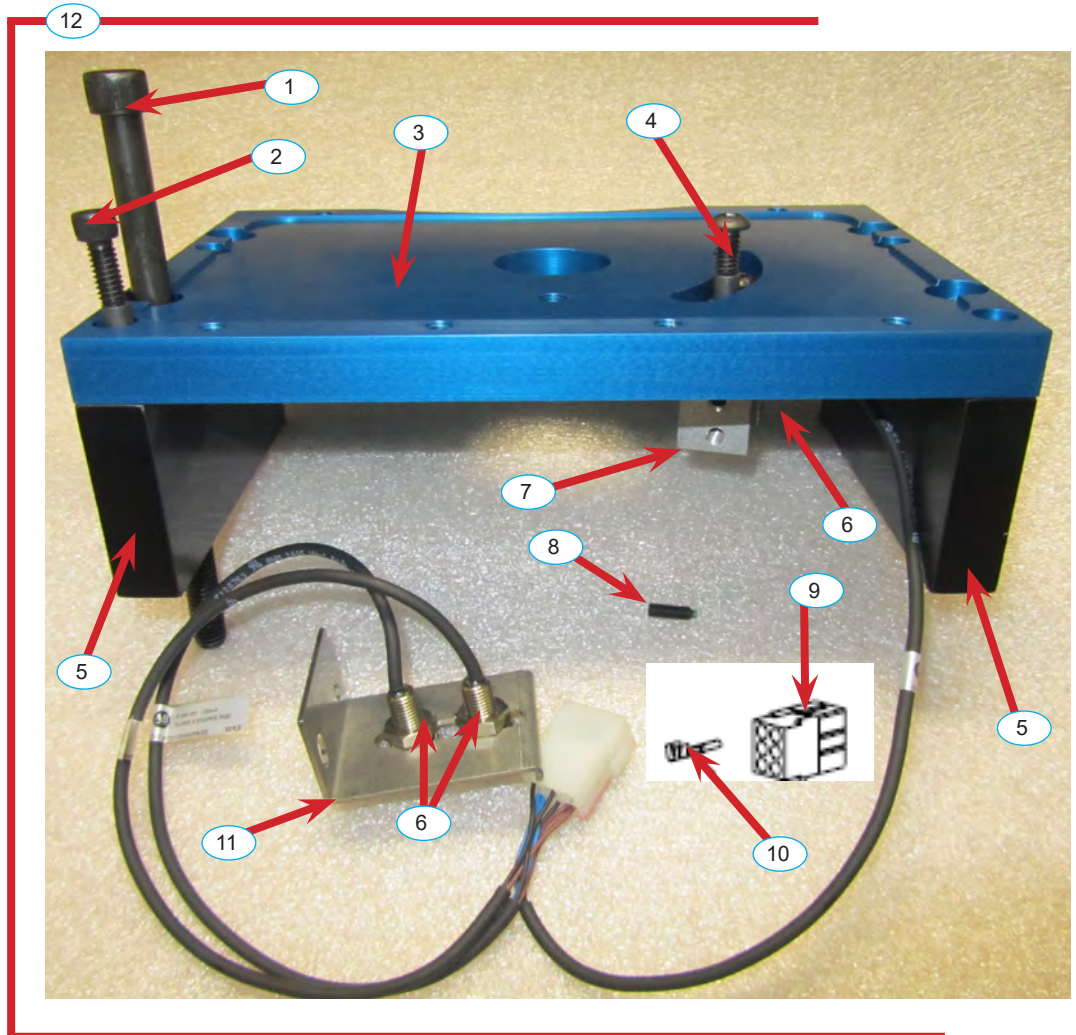
HYDRAULIC ACTUATORS

Item	Part Number	Description
1	ORB-02000	ORIENTATION BRIDGE ASY, NON-CTS 40T
2	SCR-00024	SCREW, 3/8-16 X 6 SHCS [4 REQ]
3	CNX-00007	PIN, MALE; AWG16
4	CNX-00006	PLUG, 6-PIN MOLEX F
5	ORB-02003	BLOCK, ORIENTATION SWITCH MOUNT, 8MM
6	ORB-02001	ORIENT BRIDGE PLATE
7	ORB-02002	LEG, OBRIDGE; LEFT
8	SWT-00002	SENSOR, REED; 12MM
9	SWT-00001	SENSOR, PROX; 8MM
10	ORB-02006	LEG, RIGHT; SENSOR PORTHOLE
11	SCR-00043	SCREW, 1/4-20 X 3/4 SHCS [6 REQ]



Early ORIENT BRIDGE

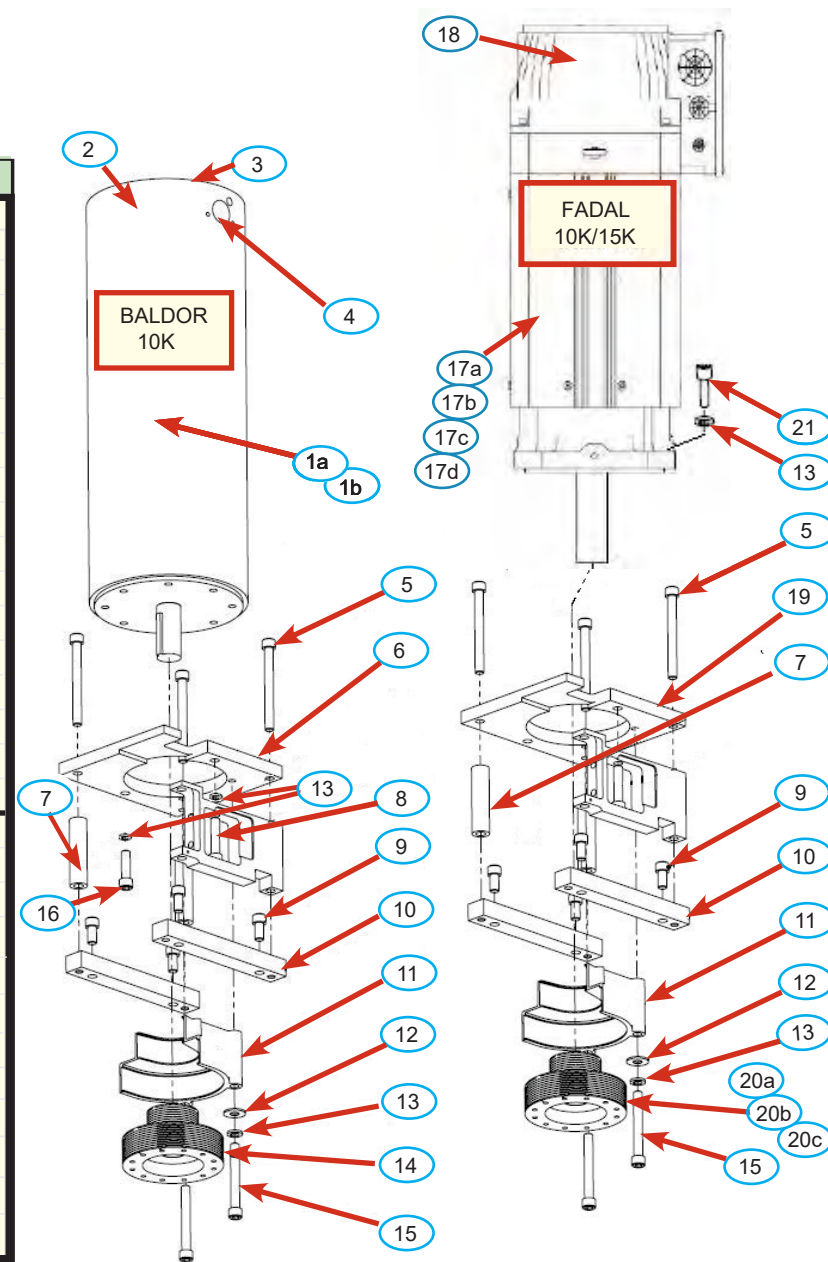
Item	Part Number	Description
1	SCR-00024	SCREW,3/8-16 X 6 SHCS [4 REQ]
2	SCR-00043	SCREW,1/4-20 X 3/4 SHCS [4 REQ]
3	ORB-02007	ORIENT BRIDGE PLATE [BLUE]
4	SCR-00219	SCREW,1/4-20 X 5/8 BUTTONHEAD [2 REQ]
5	ORB-02002	LEG, OBRIDGE;LEFT/RIGHT
6	SWT-00001	SENSOR,PROX;8MM [3 REQ]
7	ORB-02003	BLOCK,ORIENT SWITCH MOUNT 8MM
8	SCR-00162	SETSCREW,NYLON TIP;10-32 X 1/2
9	CNX-00006	PLUG,6-PIN MOLEX F
10	CNX-00007	PIN,MALE;AWG16
11	SMT-00164	BRACKET,DUAL SENSOR;DBCYL
12	ORB-02000	ORIENTATION BRIDGE ASSY, [SRS II NON-CTS]



ORIENTATION BRIDGE

Item	Part Number	Description
BALDOR MOTOR		
1a	MTR-02001	*SPINDLE MOTOR,10HP w/ENCODER [NO PLY]
1b	MTR-02002	*SPINDLE MOTOR,15HT w/ENCODER [NO PLY]
2	ENC-02001	ENCODER,ACCUCODER 1000L [BALDOR]
3	FAN-02001	FAN MOTOR,6X6 BALDOR MOTOR
4	MTR-02003	BLOCK,JUNCTION BOX MOUNT
5	SCR-00051	SCREW,1/2-13 X 5 SHCS
6	MTR-02004	PLATE,MOTOR;10HP/15HT BALDOR
7	MTR-02005	STAND-OFF TUBE;4.0 10K/15K [2 REQD]
8	SCR-00011	SCREW,1/2-13 X 2.25 HEXCAP
9	SCR-00030	SCREW,1/2-13 X 1 SHCS [4 REQD]
10	MTR-02006	MOUNT BAR,NON-VULCANIZED
11	BEL-02001	BELT GUIDE,SPINDLE MOTOR
12	SCR-00001	HARDWASHER,1/2 ID [3/4 OD-125 THK] [DISCONTINUED]
13	SCR-00002	LOCKWASHER, 1/2
14	PUL-02001	PULLEY,SPINDLE MOTOR;BALDOR 10K
15	SCR-00013	SCREW,1/2-13 X 4 SHCS
16	SCR-00010	SCREW,1/2-13 X 1.75 HEXCAP
FADAL MOTOR		
17a	MTR-02034	*SPINDLE MOTOR,FADAL 10HP [NO PULLEY]
17b	MTR-02035-G1	*SPINDLE MOTOR,FADAL 10K/15K 15HT [GEN. 1] [NO PULLEY]
17c	MTR-02035-G2	*SPINDLE MOTOR,FADAL 10K/15K 15HT,W/WOODRUFF KEY,SYN. ENC. [GEN. 2] [NO PULLEY]
17d	MTR-02036	*SPINDLE MOTOR,FADAL 10K/15K 15HT, 48 MM SHAFT, SYN. ENC. [NO PULLEY]
18	FAN-02013	FADAL SPINDLE MOTOR COOLING FAN
19	MTR-02010	PLATE, MOTOR; FADAL 10HP, 15HT [10K/15K]
20a	PUL-02005	PULLEY,FADAL MOTOR;10K/15K W/KEY
20b	PUL-02005-M	PULLEY,FADAL MOTOR;10K/15K W/METRIC KEY (STEPPED)
20c	PUL-02005-WKY	PULLEY,FADAL MOTOR;10K/15K W/WOODRUFF KEY
20d	PUL-02015M/48	PULLEY,FADAL MOTOR, 48 MM; 10K/15K [FITS MTR-02036]
21	SCR-00221	SCREW,1/2-13 X 1.25 HEXCAP, GR5

* SPINDLE MOTOR CAN BE ORDERED WITH PULLEY AND BALANCED FOR AN ADDITIONAL CHARGE

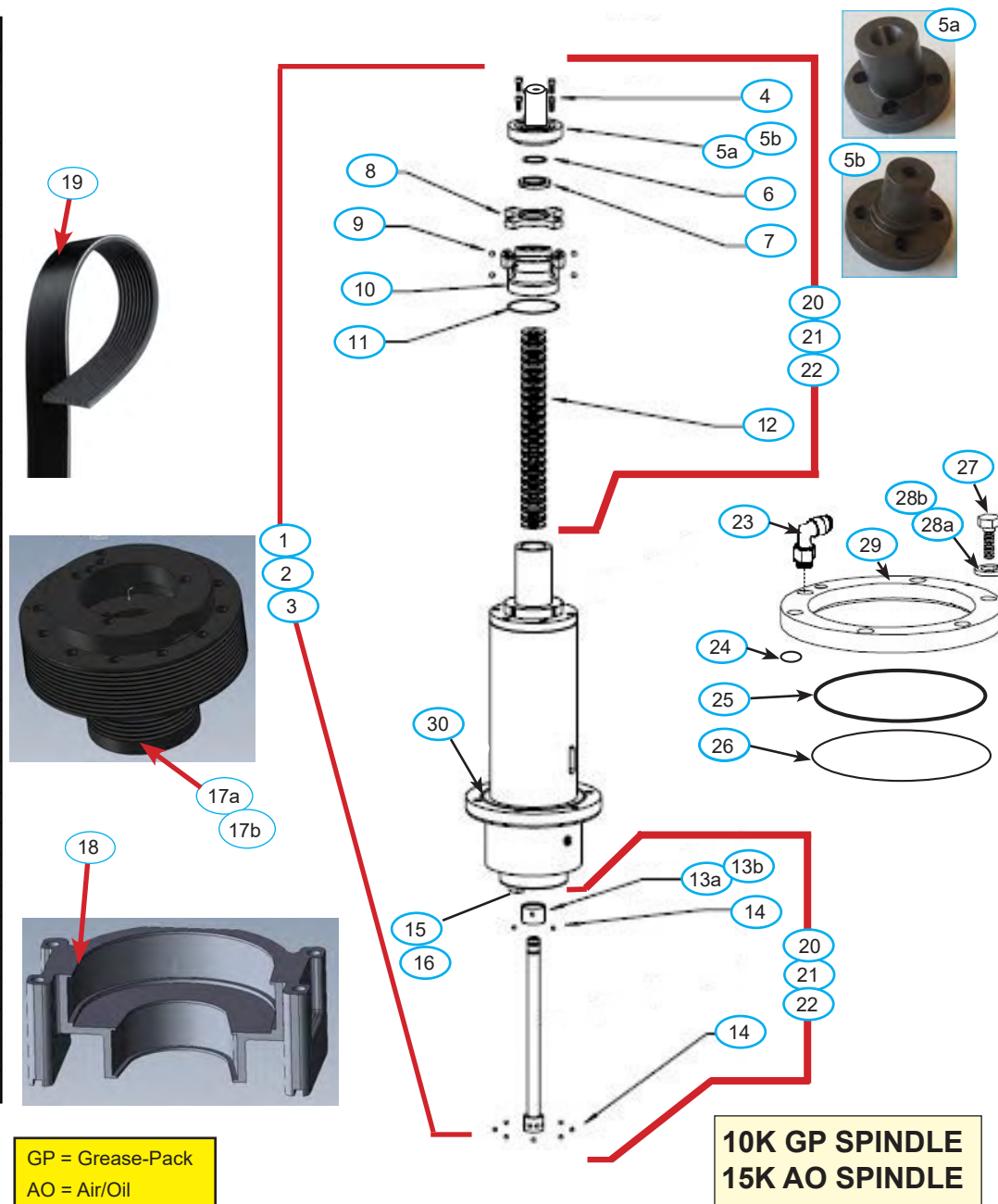


SPINDLE MOTOR

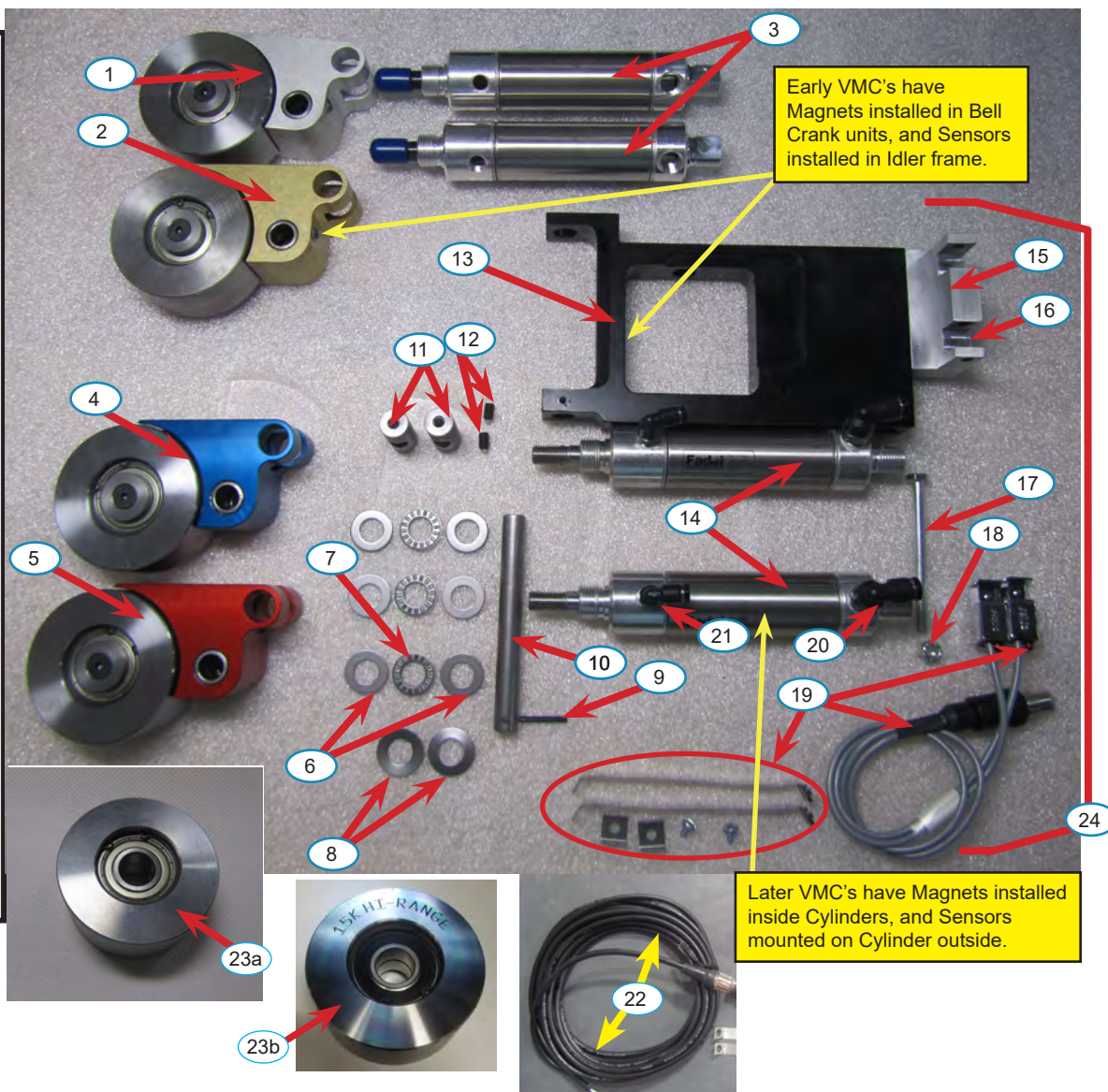
Item	Part Number	Description
1	SPN-02022	SPINDLE ASSEMBLY, 10K, GREASE PACK, DUAL RANGE
2	SPN-02004*	SPINDLE ASSEMBLY, 15K, AIR/OIL, DUAL RANGE
3	SPN-02005*	SPINDLE ASSEMBLY, 15K, GREASE PACK, DUAL RANGE
4	SCR-00167	SCREW, M4-0.7 X 14MM SHCS
5a	DRB-02004	KNOCKOUT CAP; 10K/15K, NON-CTS, 40 TAPER
5b	DRB-02015	KNOCKOUT CAP; 10K/15K, CTS, 40 TAPER
6	SEL-00029	O-RING, VITON, 16MM ID X 2MM
7	DRB-02012	RETAINER CLIP, LDB, 40 TAPER [PK/2]
8	DRB-02011	SPIDER, LDB, 40 TAPER
9	BRG-02013	BALL, 1/4 HARDENED [4 REQUIRED]
10	DRB-02026	SPRING PILOT, SERIES ii [TALL]
11	SEL-00009	O-RING, VITON; 1.125 ID X 3/32
12	DRB-02017	BELLEVILLE SPRING WASHERS, DRAWBAR [PK/44]
13a	DRB-02008	FLOATER, 40T, LONG [26MM]
13b	DRB-02043	FLOATER, 40T, SHORT [21MM]
14	BRG-02012	BALL, 3/16 HARDENED [10 REQUIRED]
15	SPN-02026	SPINDLE NOSE KEY, SHORT
16	SPN-02027	SPINDLE NOSE KEY, LONG
17a	PUL-02002	PULLEY, SPINDLE; 10K/15K W/ PIN
17b	PUL-02006	PULLEY, SPINDLE; 10K/15K NO PIN
18	BEL-02002	BELT GUIDE; SPINDLE
19	BEL-02000	BELT; POZI-DRIVE; 10K/15K
20	DRB-02023	DRAWBAR KIT, 40T, 10K, SERIES II; NON-COOLANT-THRU [16.8]
21	DRB-02027/10K	DRAWBAR KIT, 40T, 10K; NON-CTS/CTS COMPATIBLE [ITEMS 4-14]
22	DRB-02027/15K	DRAWBAR KIT, 40T, 15K; NON-CTS/CTS COMPATIBLE [ITEMS 4-14]
23	PLM-02097	FITTING, 10MM QD X 1/8NPT ELL**
24	SEL-00021	O-RING, VITON; 3/8 ID X 1/16
25	SEL-00012	O-RING, VITON; 4.50 ID X 1/8
26	SEL-00004	O-RING, VITON; 4.75 X 1/16
27	SCR-00061	SCREW, 3/8-16 X 1.25 GR8 SHCS
28a	SCR-00118	WASHER, BRONZE ; 3/8 ID [USE W/ ALUMINUM RING]
28b	SCR-00004	LOCK WASHER; 3/8 ID [USE W/ STEEL RING]
29	SPN-02002	RETAINING RING, ADAPTER; SPINDLE
30	SEL-00011	O-RING, 160; VITON, 5.25 ID X 3/32

* OPTIONAL

****NOTE:** Relocated to right side of headstock casting on some 2018 & all later year models [See Pg. 20]



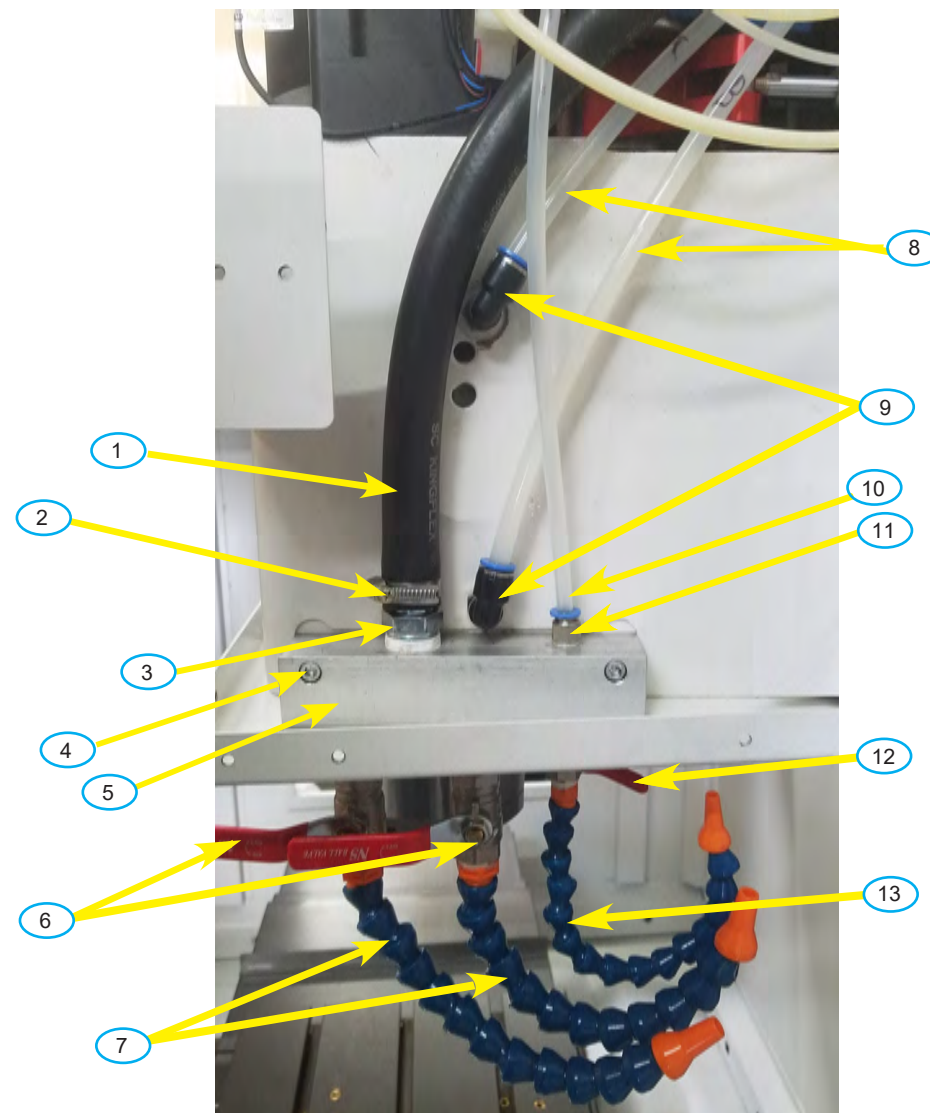
Item	Part Number	Description
For early VMC models with IDL-02000 assembly:		
1	IDL-02011	IDLER BELL CRANK/ROLLER ASSY;SILVER-UPPER
2	IDL-02010	IDLER BELL CRANK/ROLLER ASSY;GOLD-LOWER
3	CYL-02005	CYLINDER,HYD;[NO MAGNET] <i>NLA: USE CYL-02007</i>
For later VMC models with IDL-02013 assembly:		
4	IDL-02016	IDLER BELL CRANK/ROLLER ASSY; BLUE-UPPER
5	IDL-02017	IDLER BELL CRANK/ROLLER ASSY; RED-LOWER
6	BRG-02002	THRUST WASHER,IDLER PIVOT [6 REQ'D]
7	BRG-02001	THRUST BEARING,IDLER PIVOT [3 REQ'D]
8	HDW-02003	BELLEVILLE SPRING
9	HDW-02002	PIN,ROLL; 1/8 DIA X 1
10	IDL-02003	SHAFT,PIVOT;IDLERS
11	IDL-02007	ROD END,CYLINDER PIVOT
12	SCR-00039	SETSCREW,1/4-20 X 3/8 NYLON TIP
13	IDL-02015	FRAME,IDLER ASSY [10HP, 15HT OR 20VHT]
14	CYL-02007	CYLINDER,HYD;2-PORT [w/MAGNET]
15	IDL-02005	MOUNT BRACKET,CYLINDERS
16	SCR-00043	SCREW, 1/4-20 X 3/4 SHCS
17	SCR-00018	SCREW,1/4-20 X 3.25 HEXCAP
18	SCR-00036	NUT,1/4-20 NYLOCK
19	SWT-00031	SENSORS/HARNESS,MAGNETIC IDLER CYL
20	PLM-02092	FITTING,6MM QD X 1/4MPT ELL
21	PLM-02012	FITTING,5/32QD/4MMQD X 1/8MIPT ELL
22	WIR-02160	CABLE/CONNECTOR,IDLER CYLINDERS;5M
23a	IDL-02012	IDLER ROLLER W/BEARINGS [HI OR LOW]
23b	IDL-02012-15K	IDLER ROLLER W/BEARINGS [15K HI RANGE]
24	IDL-02013	COMPLETE IDLER ASSY [INCL. ITEMS #4-#21]



IDLER ASSEMBLY

Item	Part Number	Description
1	PLM-02071	HOSE, 3/4", BRAIDED
2	HDW-02011	HOSE CLAMP; WORM, 1"
3	PLM-02182	FITTING; 3/4" BARB X 3/4" MIPT
4	SCR-00188	SCREW, M6-1.0 X 40MM SHCS [2 REQ]
5	CNT-02031	COOLANT MANIFOLD BLOCK
6	PLM-02165	BALL VALVE, 1/2 X 1/2NPT, LEVER HANDLE
7	PLM-02146	1/2 PT FLEXLINE [12 LINKS]
8	PLM-02084	10MM TUBING
9	PLM-02087	FITTING, 10MM QD X 3/8NPT ELL *
10	PLM-02143	TUBING, 8MM
11	PLM-02184	FITTING, 8MMQD X 1/4MIPT STR
12	PLM-02183	1/4FIPT X 1/4FIPT, LEVER HANDLE
13	PLM-02134	1/4 PT FLEXLINE [15 LINKS]

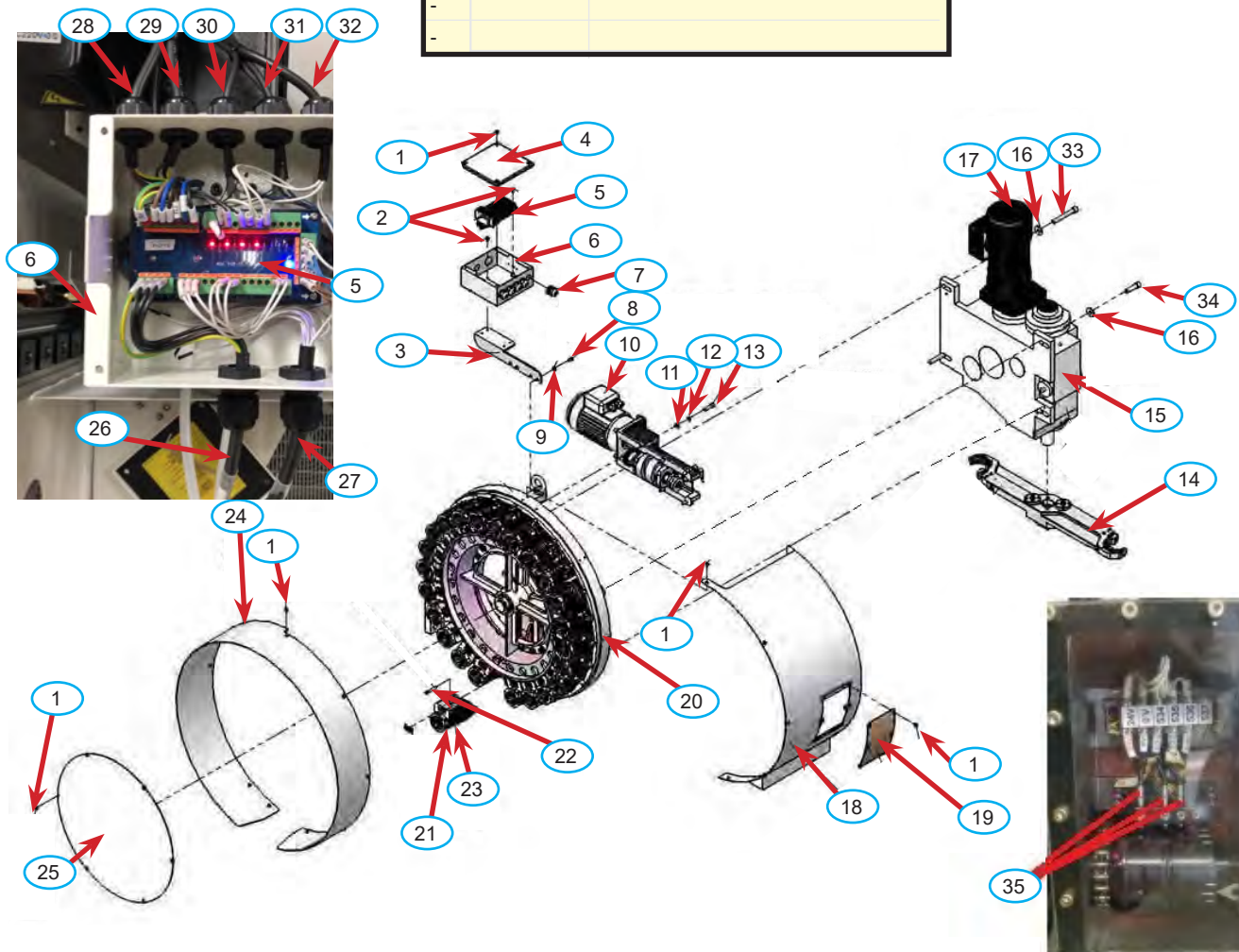
**NOTE: Upper fitting relocated from upper spindle retaining ring on some 2018 & all later year models [See pg. 18]*



HEAD PLUMBING

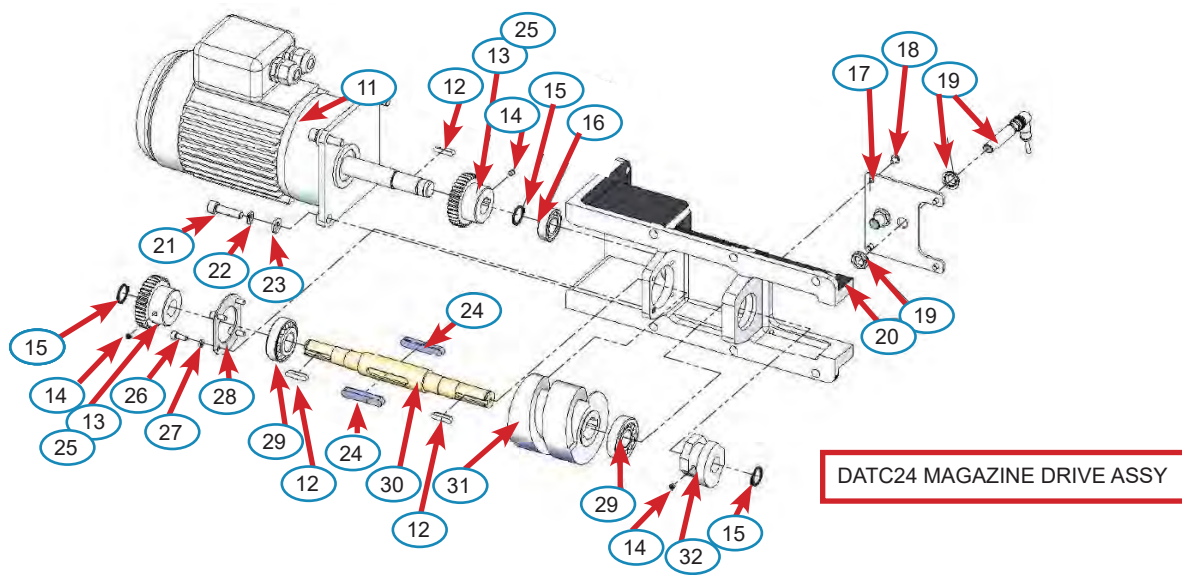
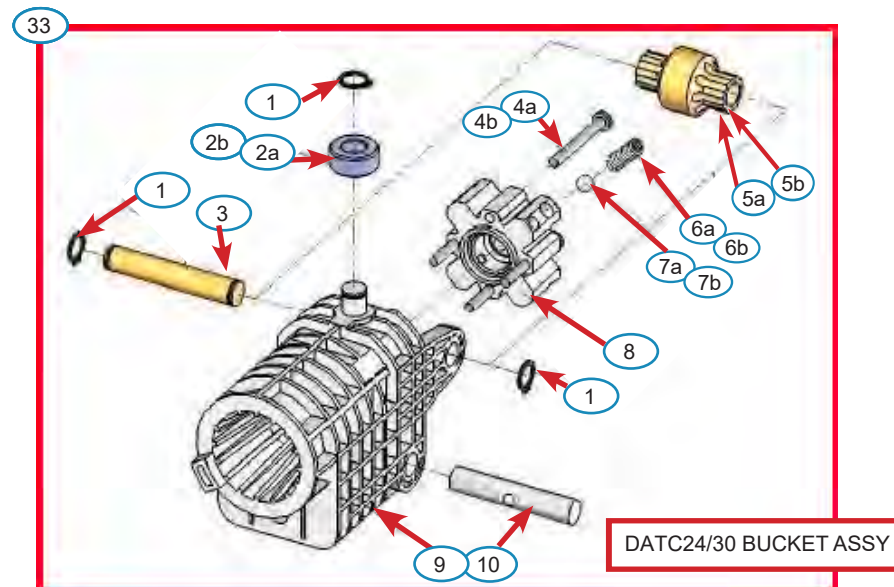
Item	Part Number	Description
1	SCR-00171	SCREW,M5-0.8 X 8MM PANHDCS
2	SCR-00152	SCREW,M5-0.8 X 10MM SHCS
3	ATC-02079	SUPPORT,JUNCTION BOX
4	CVR-02112	COVER,JUNCTION B
5	PCB-02011	INTERFACE BOARD,DATC
6	ELE-04030	JUNCTION BOX,ELECTRICAL
7	CNX-00043	CABLE STRAIN RELIEF
8	SCR-00067	SCREW,M6-1.0 X 10MM SHCS
9	SCR-00140	FLATWASHER,M6
10	[SEE PG. 22]	MAGAZINE DRIVE ASSEMBLY
11	SCR-00141	FLATWASHER,M8
12	SCR-00139	LOCKWASHER,M8
13	SCR-00060	SCREW,M8-1.25 X 30MM SHCS
14	[SEE PG. 24]	TOOL ARM ASSEMBLY
15	ATC-02080	TRANSMISSION ASSEMBLY
16	SCR-00147	WASHER,THICK;M12
17	MTR-02061	ARM MOTOR,DATC24
18	ATC-02081	FRONT COVER,MAGAZINE DATC24
19	ATC-02082	SENSOR WINDOW, DATC24
20	[SEE PG. 23]	MAGAZINE ASSEMBLY
21	[SEE PG. 22]	TOOL BUCKET ASSEMBLY
22	SCR-00188	SCREW, M6-1.0 X 40MM SHCS
23	LBL-02076	BUCKET NUMBERS [SET/24]
24	ATC-02083	COVER EXTENSION, DATC24
25	ATC-02084	MAGAZINE WINDOW, DATC24
26	WIR-02200	CABLE,3-PH PWR; CNTRL TO ATC
27	WIR-02201	CABLE, ATC SENSORS TO CNTRL
28	WIR-02202	CABLE, PWR TO MAGAZINE MTR
29	WIR-02203	CABLE, PWR TO DATC ARM MTR
30	WIR-02204	CABLE,BUCKET UP/DOWN SENSR
31	WIR-02205	CABLE,INDEX/ORIGIN SENSOR
32	WIR-02206	CABLE, ROTATION SENSOR
33	SCR-00302	SCREW, M12-1.75X90L [2 REQ'D]

Item	Part Number	Description
34	SCR-00247	SCREW,M12-1.75X45L [2 REQ'D]
35	SWT-00025	SENSOR; ATC 24/30, ARM POS.
-		
-		



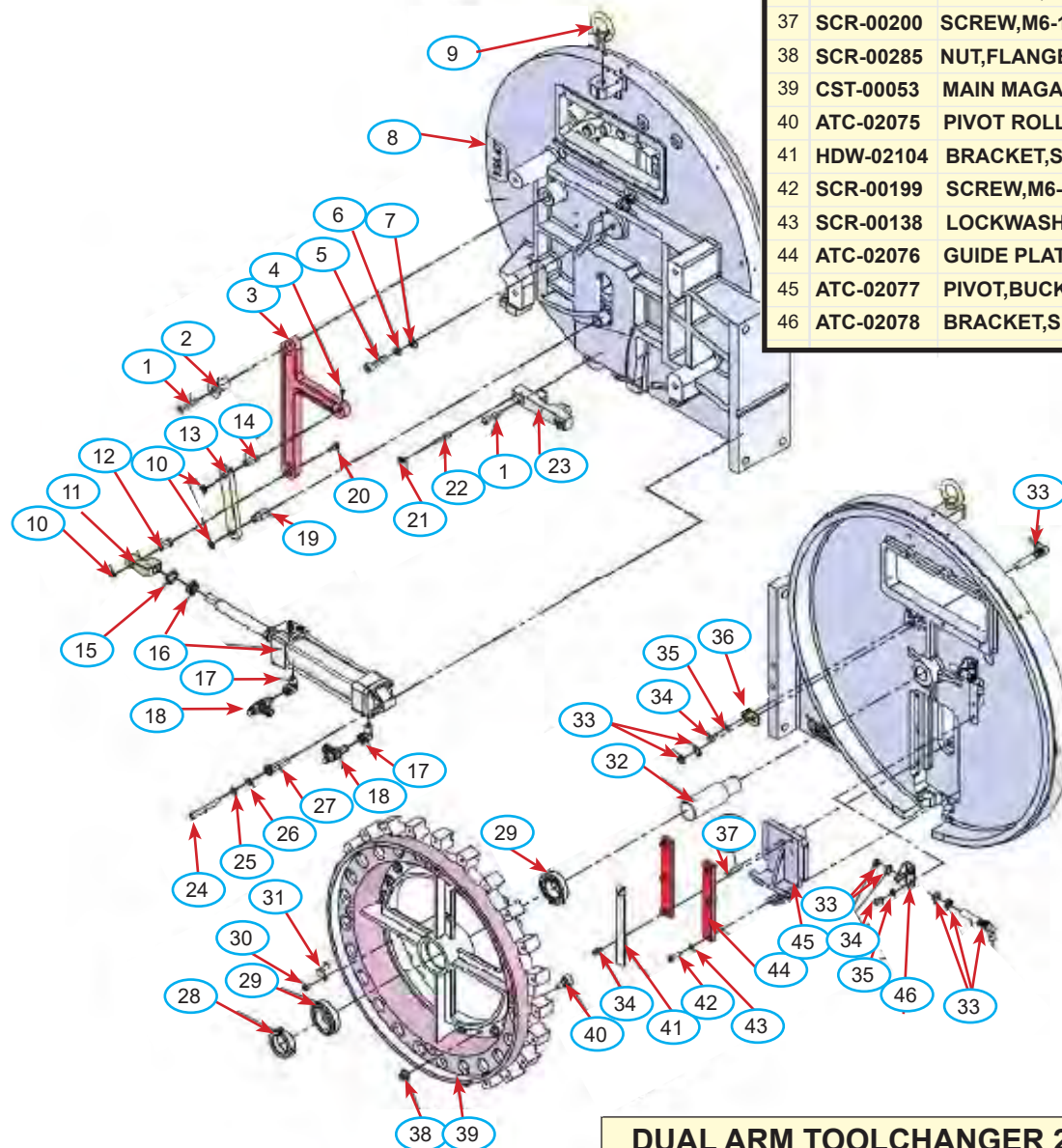
DUAL ARM TOOLCHANGER 24/30

Item	Part Number	Description
1	HDW-02055	RETAINING RING, M12
2a	ATC-02022-24	ROLLER, GUIDE;DATC24 BUCKET
2b	ATC-02022-30	ROLLER, GUIDE;DATC30 BUCKET
3	ATC-02023	PIN, BUCKET DRIVE; MAGAZINE ASSY
4a	SCR-00319	SCREW, M5-0.8 X 45MM, PHILLIPS [24T]
4b	SCR-00318	SCREW, M4-0.7 X 8MM, PHILLIPS [30T]
5a	ATC-02024-24	ROLLER, DRIVE; ATC BUCKET PIVOT-24T ATC
5b	ATC-02024-30	ROLLER, DRIVE; ATC BUCKET PIVOT-30T ATC
6a	HDW-02056-BT	SPRING, TOOL RETENTION; BT ATC
6b	HDW-02056-CT	SPRING, TOOL RETENTION; CT ATC
7a	ATC-02050	BALL, STEEL; TOOL RETENTION; ATC24/30, CT
7b	HDW-02057	BALL, STEEL; TOOL RETENTION; ATC24/30, BT
8	ATC-02003	ENDSOCKET, TOOL BUCKET, DATC24
9	ATC-02010	TOOL BUCKET, DATC24/30; CAT/BT
10	ATC-02026	PIN, TOOL BUCKET; DATC24
11	MTR-02060	MOTOR, MAGAZINE; DATC24
12	HDW-02047	KEY, DRIVE GEAR; MAGAZINE MOTOR
13	HDW-02059	GEAR, MAGAZINE MOTOR/DRIVE SHAFT [24T]
14	SCR-00174	SETSCREW, M5-0.8 X 5MM
15	HDW-02060	RETAINING RING, M18
16	BRG-02047	BEARING, MAGAZINE DRIVE; DATC24
17	HDW-02061	BRACKET, SENSOR; MAGAZINE INDEX
18	SCR-00171	SCREW, M5-0.8 X 8MM PANHEAD SHCS
19	SWT-00007	SENSOR, DATC; 12MM 24VDC
20	ATC-02027	MOTOR MOUNT, MAGAZINE DRIVE; DATC24
21	SCR-00175	SCREW, M8-1.25 X 30MM SHCS
22	SCR-00139	LOCKWASHER, M8
23	SCR-00141	FLATWASHER, M8
24	HDW-02067	KEY, DRIVE; 8MM X 7MM X 50MM
25	HDW-02068	GEAR, MAGAZINE MOTOR/DRIVE SHAFT [30T]
26	SCR-00179	SCREW, M5-0.8 X 12MM SHCS
27	SCR-00180	LOCKWASHER, M5
28	BRG-02048	BEARING COVER, DATC MAGAZINE DRIVE
29	BRG-02049	BEARING, MAGAZINE DRIVE
30	ATC-02030	SHAFT, CAM DRIVE; DATC24 SERIES I / II
31	ATC-02012	WORM DRIVEGEAR, DATC MAGAZINE [24T]
32	ATC-02032	CAM INDEXER, MAG. SENSOR; SRS I / II [24T]
33	ATC-02174	TOOL BUCKET ASSEMBLY



DUAL ARM TOOLCHANGER 24/30

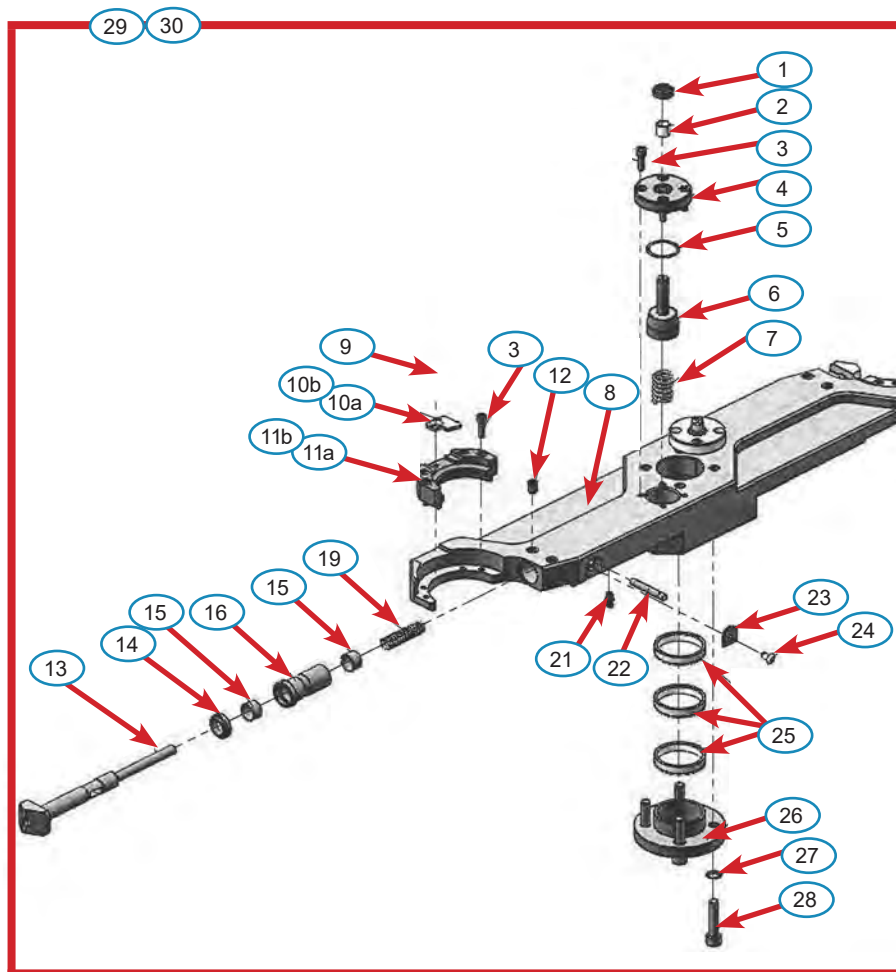
Item	Part Number	Description
1	SCR-00087	SCREW,M8-1.5 X 35MM SOCAP
2	HDW-02098	PIVOT BEARING,LEVER
3	ATC-02071	LEVER,AIR CYLINDER;DATC
4	SCR-00149	SETSCREW,M6-1.0 X 6MM
5	SCR-00117	SCREW,M10-1.5 X 40MM SOCAP
6	SCR-00187	LOCKWASHER,M10
7	SCR-00205	FLATWASHER,M10
8	CST-00052	CASTING,BACK PLATE;DATC24
9	HDW-02099	EYEHOOK,M12
10	HDW-02100	RETAINING RING,12MM
11	CYL-02034	ENDCAP,AIR CYLINDER;DATC24
12	CYL-02035	PIVOT SHAFT,AIR CYLINDER
13	ATC-02072	LEVER,BUCKET DOWN;DATC24
14	HDW-02101	PIN,BUCKET DOWN LEVER
15	HDW-02102	BELLEVILLE WASHER,M16
16	CYL-02036	CYLINDER,BUCKET UP/DWN DATC
17	PLM-02164	FITTING,STREET ELL,1/4 PT
18	VLV-02033	VALVE,FLOW CONTROL, 8MM QD
19	HDW-02103	PIVOT PIN,BUCKET DN LEVER
20	SCR-00064	SCREW,M6-1.0 X 16MM SOCAP
21	SCR-00284	NUT,FLANGED;M8-1.25
22	SCR-00233	SETSCREW,M8-1.25 X 40MM
23	ATC-02073	CLAMP,TOOL BUCKET POSITION
24	SCR-00239	SCREW,M8-1.25 X 70MM SOCAP
25	SCR-00139	LOCKWASHER,M8
26	SCR-00141	FLATWASHER,M8
27	CYL-02037	PIVOT PIN,AIR CYLINDER;DATC
28	BLS-02030	NUT,M40-1.5
29	BRG-02108	BEARING,MAGAZINE SPINDLE
30	SCR-00067	SCREW,M6-1.0 X 10MM SOCAP
31	SWT-00068	BRACKET,SENSOR
32	ATC-02074	SHAFT,MAGAZINE SPINDLE
33	SWT-00069	SENSOR,M12 24VDC



Item	Part Number	Description
34	SCR-00136	SCREW,M6-1.0 X 12MM SOCAP
35	SCR-00140	FLATWASHER,M6
36	SWT-00070	BRACKET,SENSOR
37	SCR-00200	SCREW,M6-1.0 X 35MM SOCAP
38	SCR-00285	NUT,FLANGED;M10-1.25
39	CST-00053	MAIN MAGAZINE
40	ATC-02075	PIVOT ROLLER,MAGAZINE;DATC
41	HDW-02104	BRACKET,SENSOR;TOOL DOWN
42	SCR-00199	SCREW,M6-1.0 X 20MM SOCAP
43	SCR-00138	LOCKWASHER,M6
44	ATC-02076	GUIDE PLATE,PIVOT;BUCKET DN
45	ATC-02077	PIVOT,BUCKET DOWN
46	ATC-02078	BRACKET,SENSOR;TOOL

DUAL ARM TOOLCHANGER 24

Item	Part Number	Description
1	SEL-00031	LIP SEAL,18MM OD X 10MM ID X 7MM L
2	BRG-02045	BEARING,12MM OD X 10MM ID X 10MM L
3	SCR-00168	SCREW,M5-0.8 X 16L SHCS
4	ATC-02013	PLUNGER COVER
5	SEL-00033	O'RING
6	ATC-02014	PLUNGER,DATC ARM
7	HDW-02049	SPRING,DATC ARM PLUNGER
8	ATC-02028	ARM CASTING, 24/30 2520~4020B-II 530MM
9	SCR-00128	SCREW,M5-0.8 X 8MM FLATHEAD SHCS
10a	ATC-02006	KEY,TOOL;ATC24/30 CT[2520-4020B-II] 1 EA
10b	ATC-02007	KEY,TOOL;ATC24/30 BT [2520-4020B-II] 1 EA
11a	ATC-02001	GRIPPER,DATC;CAT40 [1 EA] 2520/4020B-II
11b	ATC-02002	GRIPPER,DATC;BT40 [1 EA] 2520-4020B-II
12	SCR-00170	SETSCREW,M8-1.25 X 10MM CUP POINT
13	ATC-02029	LATCH ROD,DATC ARM;2520R~4020B-II
14	SEL-00032	LIP SEAL,22MM OD X 14MM ID X 7MM L
15	BRG-02046	BEARING,14MM OD X 16MM ID X 10MM L
16	ATC-02017	TUBE,BEARING HOLDER DATC ARM
19	HDW-02051	SPRING,LATCH ROD;DATC 2520R-8030B-II
21	HDW-02053	ZERK FITTING,DATC ARM;GREASE
22	HDW-02054	PIN,DATC LATCH ROD;2520-4020B-II
23	ATC-02018	COVER,LATCH ROD PIN
24	SCR-00171	SCREW,M5-0.8 X 8MM PANHEAD SHCS
25	ATC-02019	TAPERLOCK RINGS,DATC24/30
26	ATC-02020	TAPERLOCK HOUSING,DATC24/30
27	HDW-02050	M8 SPRING WASHER
28	SCR-00172	SCREW,M8-1.25 X 35MM SHCS
29	ATC-02057	ARM ASSY; DATC24/30 [NO GRIPPERS]
30	ATC-02059	ARM ASSY; DATC40 [NO GRIPPERS]
-	-	-



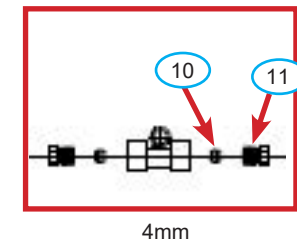
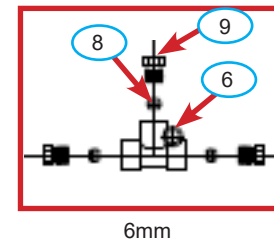
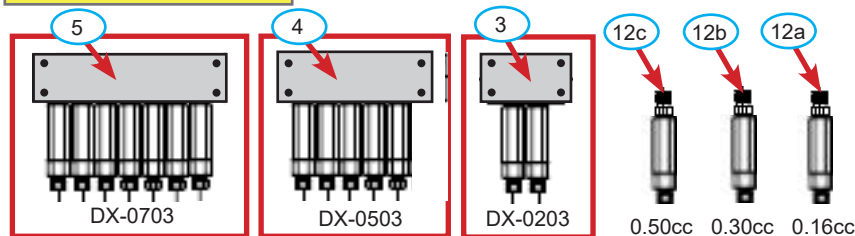
DUAL ARM TOOLCHANGER 24/30/40

Item	Part Number	Description
1	LUB-02031	WAYLUBE PUMP
2	LUB-02030	PRESSURE GAUGE; 0-500 PSI
3	LUB-02034-2	MANIFOLD; DX, 2-PORT [NO INJECTORS]
4	LUB-02034-5	MANIFOLD; DX, 5-PORT [NO INJECTORS]
5	LUB-02034-7	MANIFOLD; DX, 7-PORT [NO INJECTORS]
6	LUB-02047	COMPRESSION TEE; 6MM
7	LUB-02048	OIL LINE, COPPER; 6MM X 6' [NOT SHOWN]
8	LUB-02049	FERRULE; 6MM
9	LUB-02050	COMPRESSION NUT; 6MM
10	LUB-02054	FERRULE; 4MM (5/32)
11	LUB-02055	COMPRESSION NUT; 4MM (5/32)
12a	LUB-02035-16	LUBE INJECTOR, DX TYPE; 0.16 CC
12b	LUB-02035-30	LUBE INJECTOR, DX TYPE; 0.30 CC
12c	LUB-02035-50	LUBE INJECTOR, DX TYPE; 0.50 CC



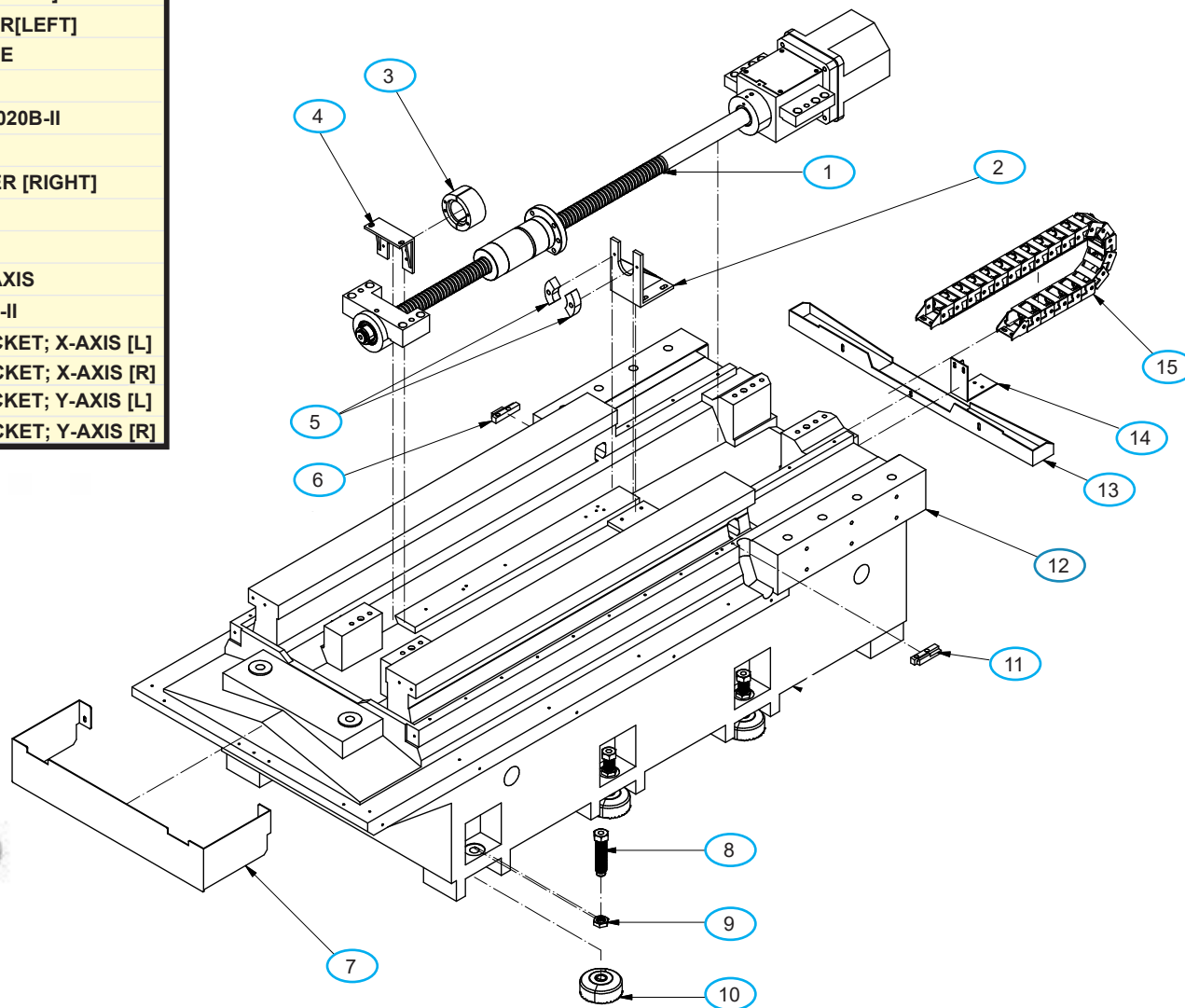
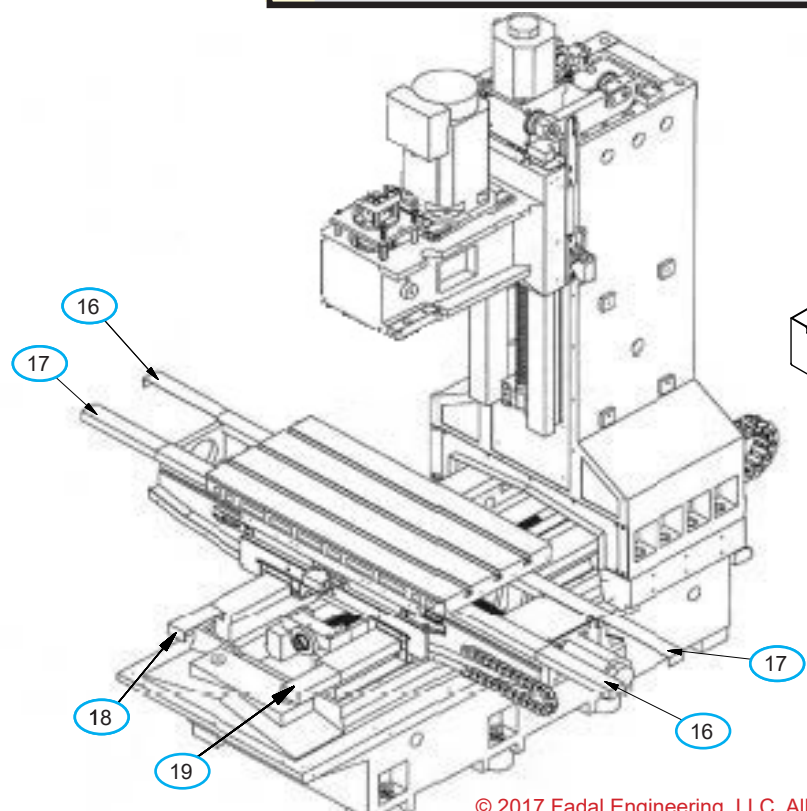
2520R-II DX Series Configuration
DX-0703 (2), DX-0503 (3), DX-0203 (2)

DX Series - 0.3cc per Port

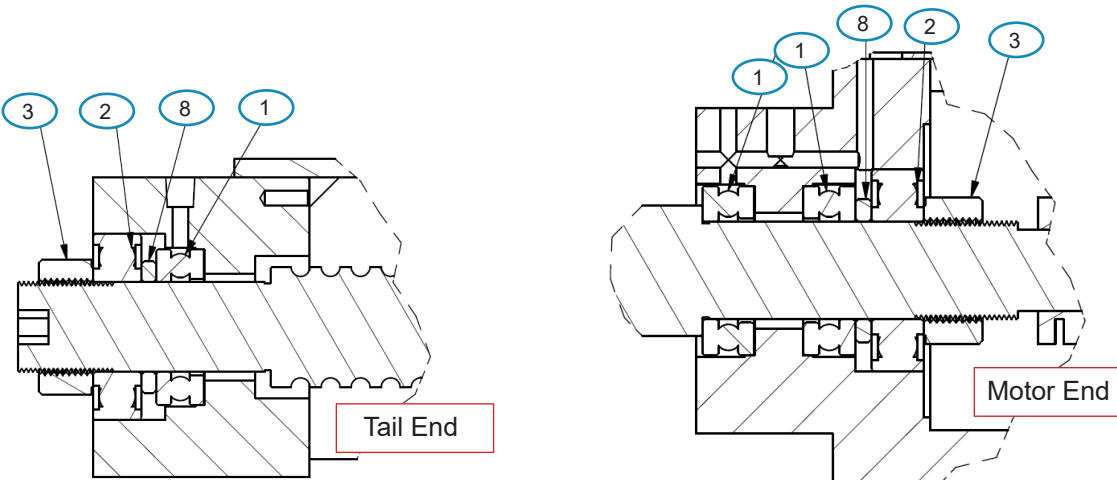
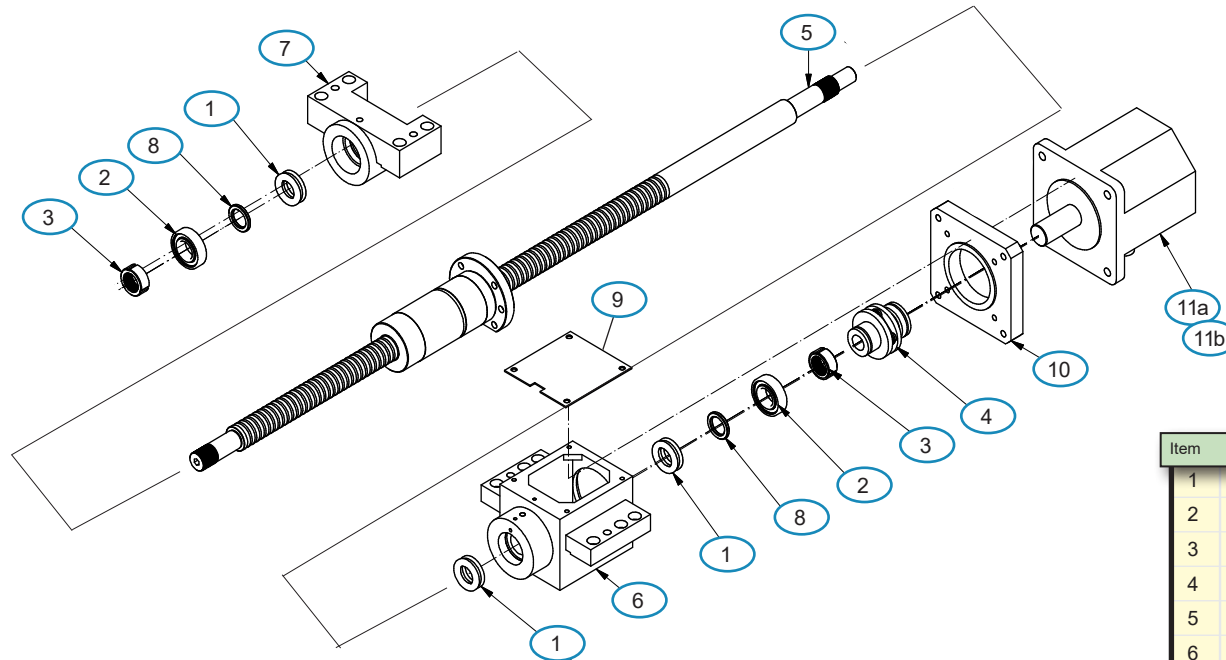


LUBRICATION SYSTEM

Item	Part Number	Description
1	[See Pg. 27]	BALLSCREW ASSY,Y-AXIS; 4020B-II
2	BLS-02042	BRACKET,Y-AXIS HARD STOP[REAR]
3	BLS-02041	HARD STOP PAD,Y-AXIS;4020B-II
4	BLS-02039	BRACKET,Y-AXIS HARD STOP[FRONT]
5	BLS-02040	PAD,Y-AXIS HARD STOP;[REAR 1 EA]
6	CVR-02063	GUIDE,Y-AXIS REAR WAYCOVER[LEFT]
7	SMT-00110	SHIELD,2520R-II ~ 4020B-II BASE
8	HDW-02031	LEVELING SCREW;4020B-II
9	HDW-02032	LOCKNUT,LEVELING SCREW 4020B-II
10	HDW-02033	FOOTPAD,LEVELING 4020B-II
11	CVR-02067	GUIDE,Y-AXIS REAR WAYCOVER [RIGHT]
12	CST-00007	BASE CASTING,4020B-II
13	SMT-00111	DRIP GUTTER,REAR;4020B-II
14	CVR-02064	BRACKET,CABLE CARRIER Y-AXIS
15	CVR-02065	CABLE CARRIER,Y-AXIS;4020B-II
16	CVR-02136	WAY COVER EXTENSION BRACKET; X-AXIS [L]
17	CVR-02137	WAY COVER EXTENSION BRACKET; X-AXIS [R]
18	CVR-02138	WAY COVER EXTENSION BRACKET; Y-AXIS [L]
19	CVR-02139	WAY COVER EXTENSION BRACKET; Y-AXIS [R]



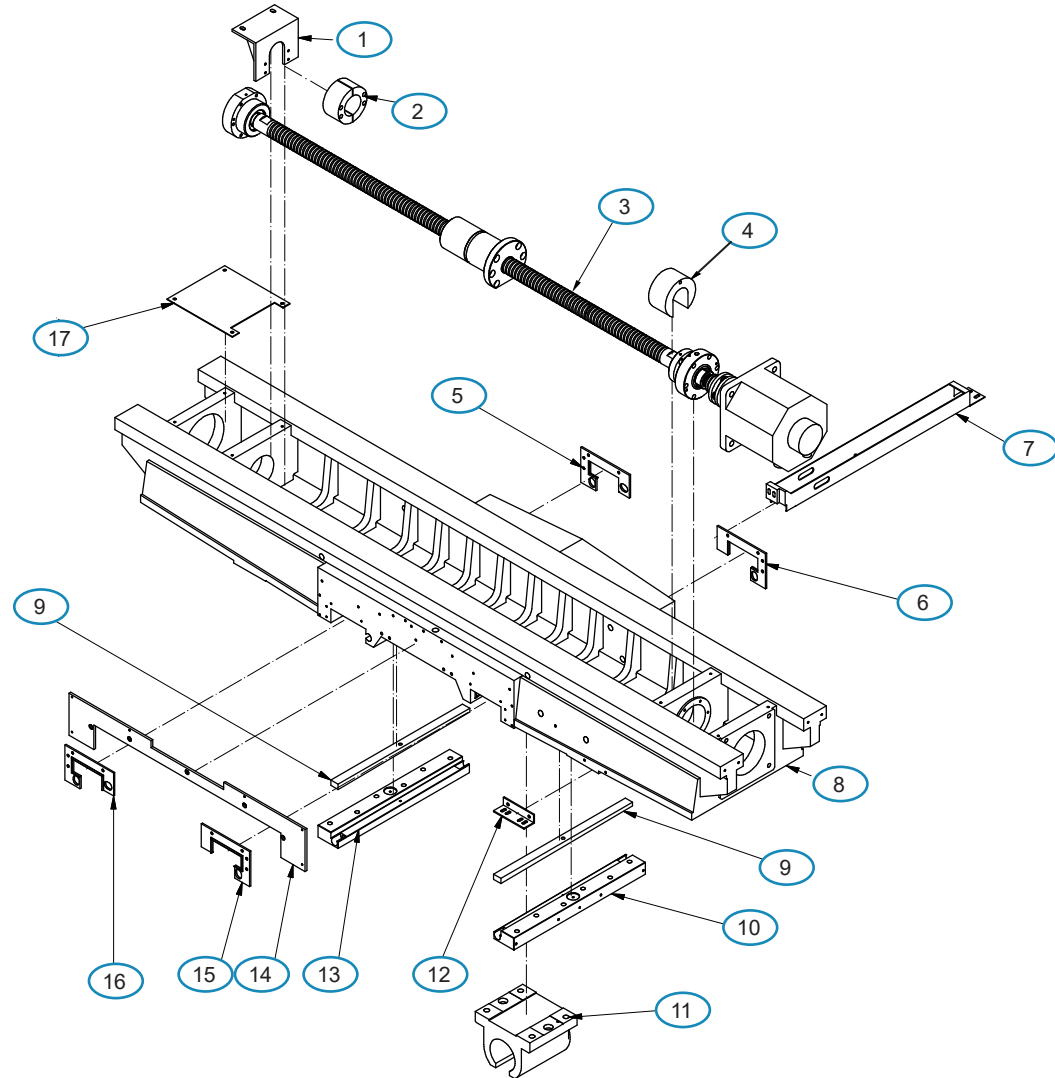
BASE CASTING



Item	Part Number	Description
1	BRG-02032	3 PC BEARING,XYZ AXIS;[3 REQ'D]
2	BRG-02033	BALL BEARING,XYZ AXIS;[2 REQ'D]
3	BLS-02050	JAM NUT,BALLSCREW [M30 - 1.5]
4	CPL-00005	MOTOR COUPLER,25M/35MX87L 4020B-II
5	BLS-02017	BALLSCREW,Y-AXIS; 4020B-II
6	BLS-02051	BLOCK,BEARING MNT;Y-AXIS;4020B-II
7	BLS-02052	BLOCK,TAIL BRG MNT;Y-AXIS;4020B-II
8	BLS-02053	BRG SPACER,XY-AXIS;4020B-II
9	CVR-02070	COVER PLATE,Y-AXIS BRG MNT;4020B-II
10	MTR-02064	MOUNT PLATE,AXIS MOTOR
11a	MTR-02052	MOTOR,YASKAWA 30A3, [SIG. 5]
11b	MTR-02118	MOTOR,YASKAWA 30A7, [SIG. 7]

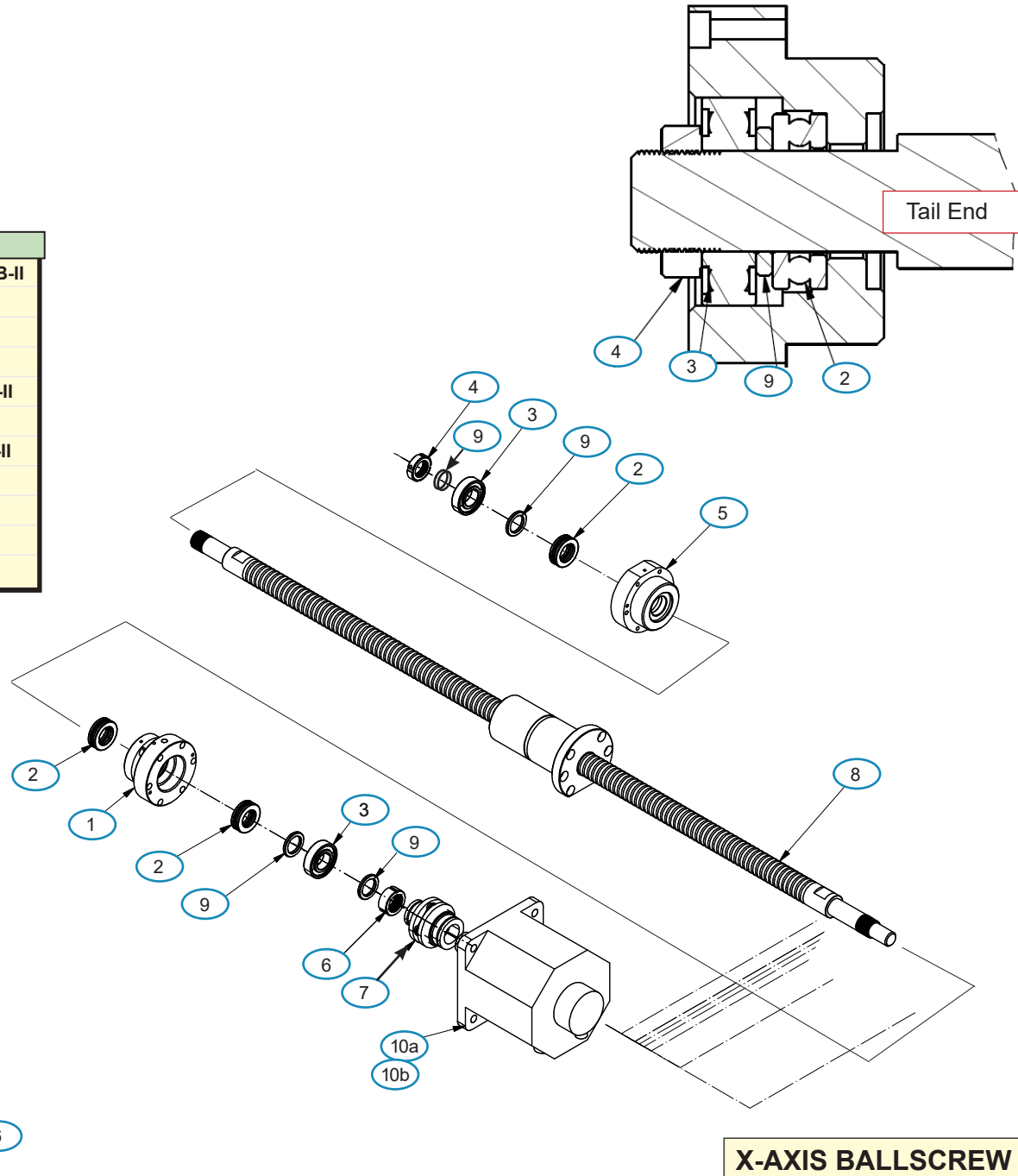
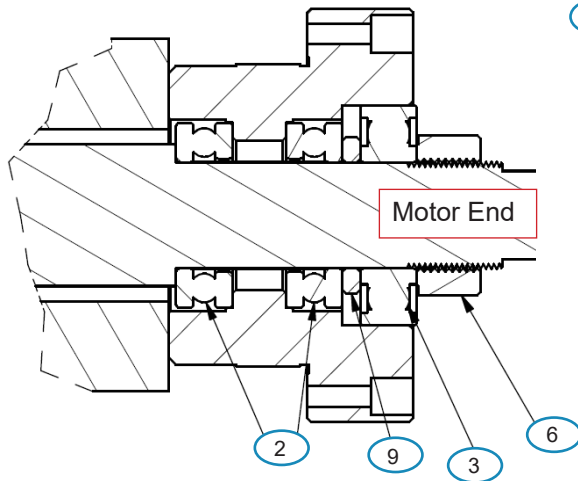
Y-AXIS BALLSCREW

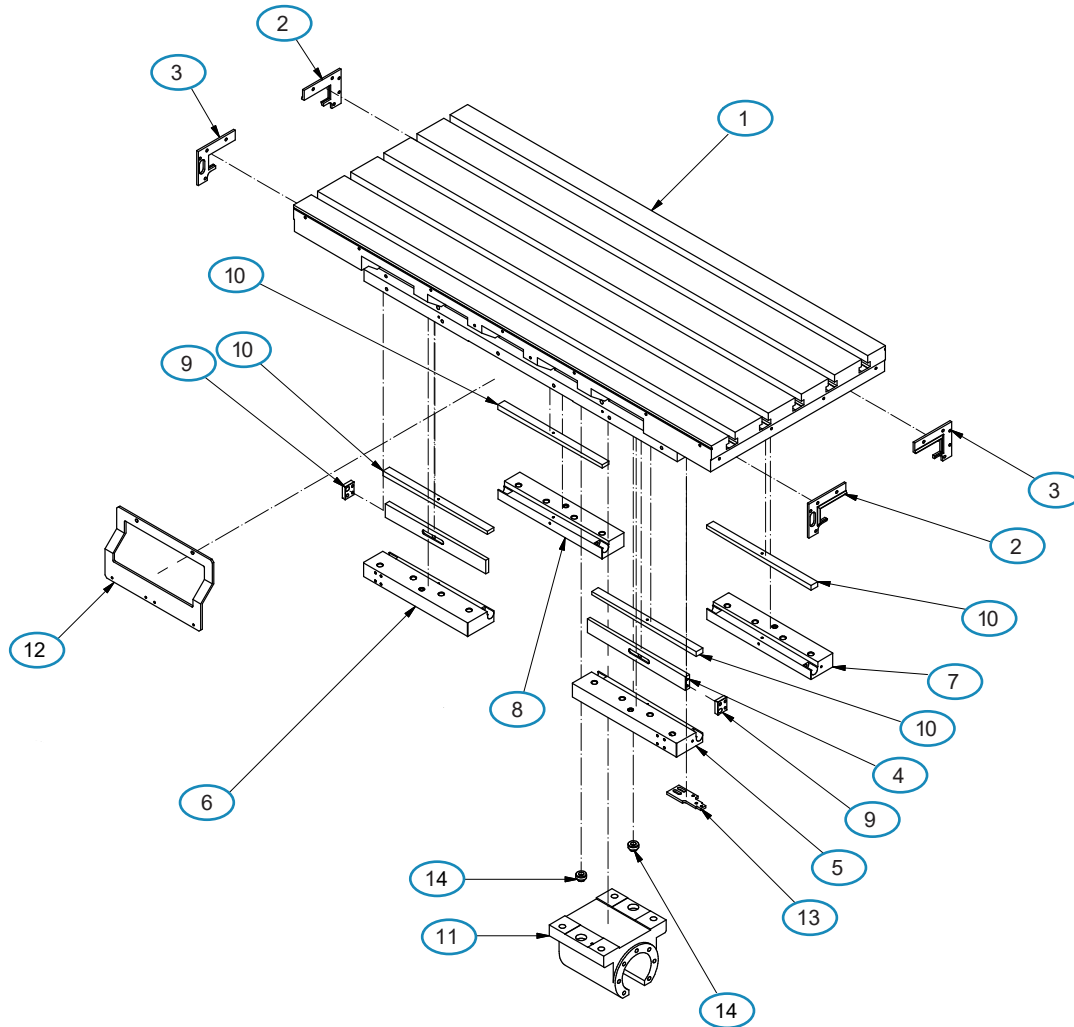
Item	Part Number	Description
1	BLS-02045	BRACKET,HARDSTOP;4020B-II X-AXIS
2	BLS-02046	PAD,HARD STOP;X-AXIS TAIL END 4020B-II
3	[See Pg. 29]	BALLSCREW ASSEMBLY,X-AXIS 4020B-II
4	BLS-02043	PAD,HARD STOP;X-AXIS MOTOR
5	SEL-00047	WAYWIPER,'C'SHAPE;LEFT REAR Y-AXIS
6	SEL-00048	WAYWIPER,'C'SHAPE;RT REAR Y-AXIS
7	SMT-00112	CABLE TROUGH,Y-AXIS 4020B-II
8	CST-00009	SADDLE CASTING,4020B-II
9	GIB-02034	SADDLE GIB,Y-AXIS;4020B-II
10	GIB-02035	GIB STRAP,Y-AXIS [RIGHT];4020B-II
11	BLS-02044	BALLSCREW BLOCK,MOUNT
12	SMT-00113	BRACKET,ANGLE
13	GIB-02036	GIB STRAP,Y-AXIS [LEFT];4020B-II
14	SMT-00114	GUARD, WAYCOVER FRONT;4020B-II
15	SEL-00049	WIPER,Y-AXIS [RIGHT FRONT];4020B-II
16	SEL-00050	WIPER,Y-AXIS [LEFT FRONT];4020B-II
17	CVR-02068	COVER,X-AXIS BEARINGS;4020B-II



SADDLE CASTING

Item	Part Number	Description
1	BLS-02055	BEARING BLOCK, THRUST; X-AXIS; 4020B-II
2	BRG-02032	3 PC BEARING, XYZ AXIS; [3 REQ'D]
3	BRG-02033	BALL BEARING, XYZ AXIS; [2 REQ'D]
4	BLS-02054	JAM NUT, BALLSCREW; [M30-1.5]
5	BLS-02056	BEARING HOUSING, TAIL; X-AXIS; 4020B-II
6	BLS-02050	JAM NUT, BALLSCREW; [M30-1.5]
7	CPL-00005	MOTOR COUPLER, 25M/35MX87L 4020B-II
8	BLS-02016	BALLSCREW, X-AXIS; 4020B-II
9	BLS-02053	SPACER, BEARING; XY-AXIS; 4020B-II
10a	MTR-02052	MOTOR, YASKAWA; 30A3 [SIG.5]
10b	MTR-02118	MOTOR, YASKAWA; 30A7 [SIG.7]

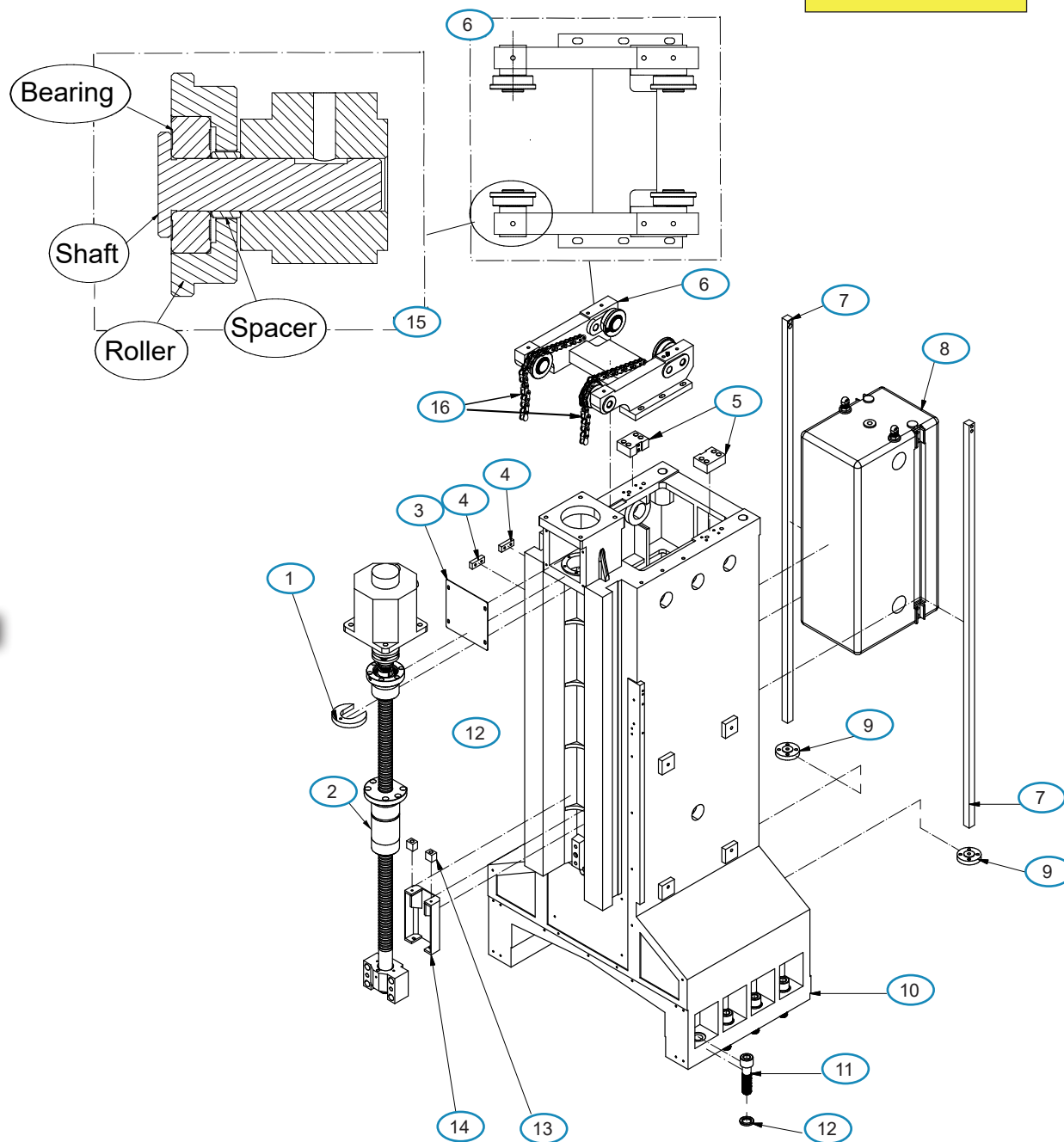




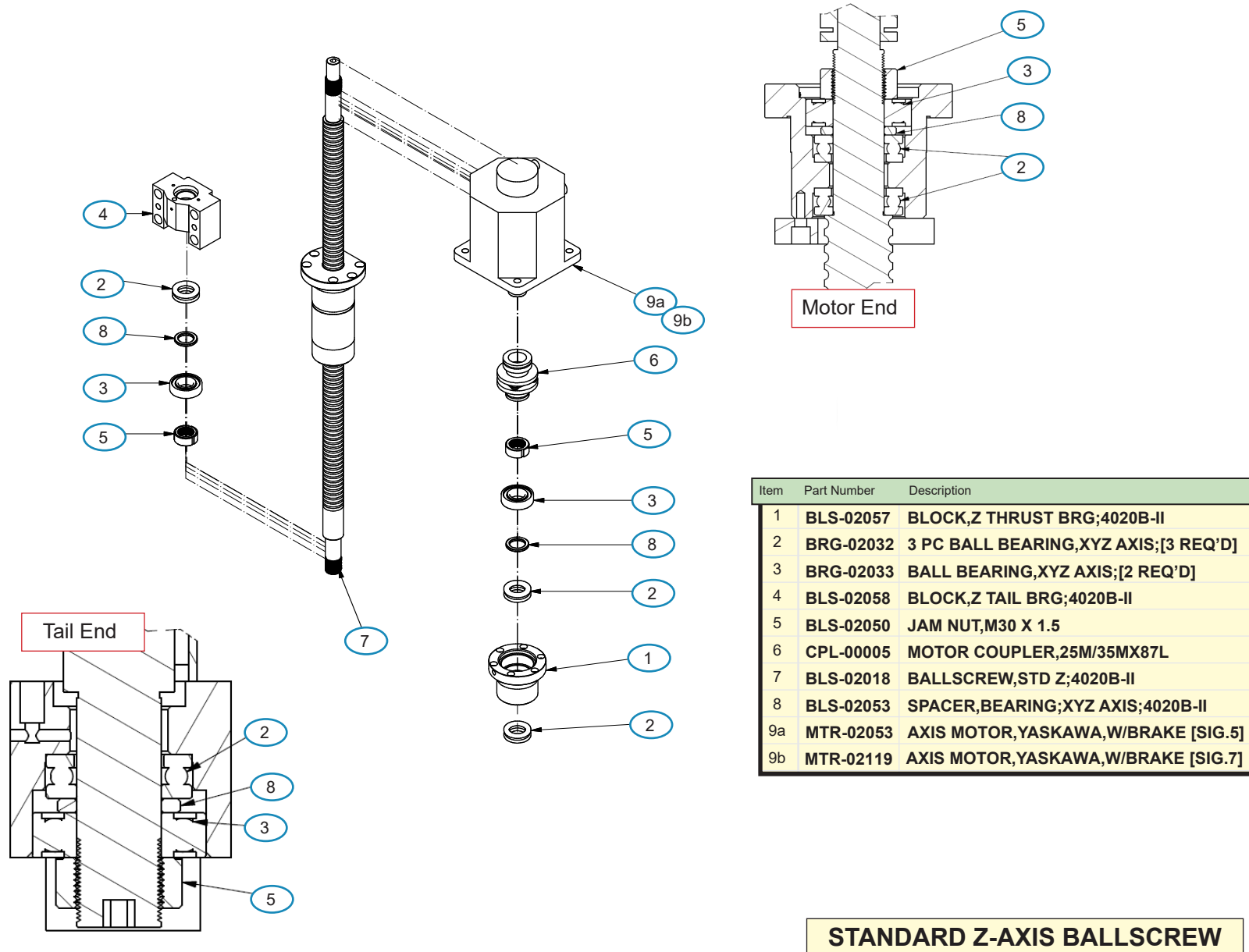
Item	Part Number	Description
1	CST-00010	TABLE CASTING,4020B-II
2	SEL-00051	WAY WIPER,X-AXIS 4020B-II;[LEFT]
3	SEL-00052	WAY WIPER,X-AXIS 4020B-II;[RIGHT]
4	GIB-02037	GIB,TABLE;[LT/RT] 4020B-II
5	GIB-02038	GIBSTRAP,TABLE [FRONT-RIGHT] 4020B-II
6	GIB-02039	GIBSTRAP,TABLE [FRONT-LEFT] 4020B-II
7	GIB-02040	GIBSTRAP,TABLE [REAR-RIGHT] 4020B-II
8	GIB-02041	GIBSTRAP,TABLE [REAR-LEFT] 4020B-II
9	GIB-02042	GIB ENDCAP,VERTICAL;4020B-II
10	GIB-02043	GIB,TABLE STRAP;R/L,F/R;4020B-II
11	BLS-02044	BALLNUT MOUNT BLOCK;X-AXIS 4020B-II
12	LUB-02058	BRACKET,LUBE MANIFOLDS
13	HDW-02072	BRACKET
14	HDW-02073	LOCATING PIN,BALLNUT MOUNT BLOCK

TABLE / GIBS / WIPERS

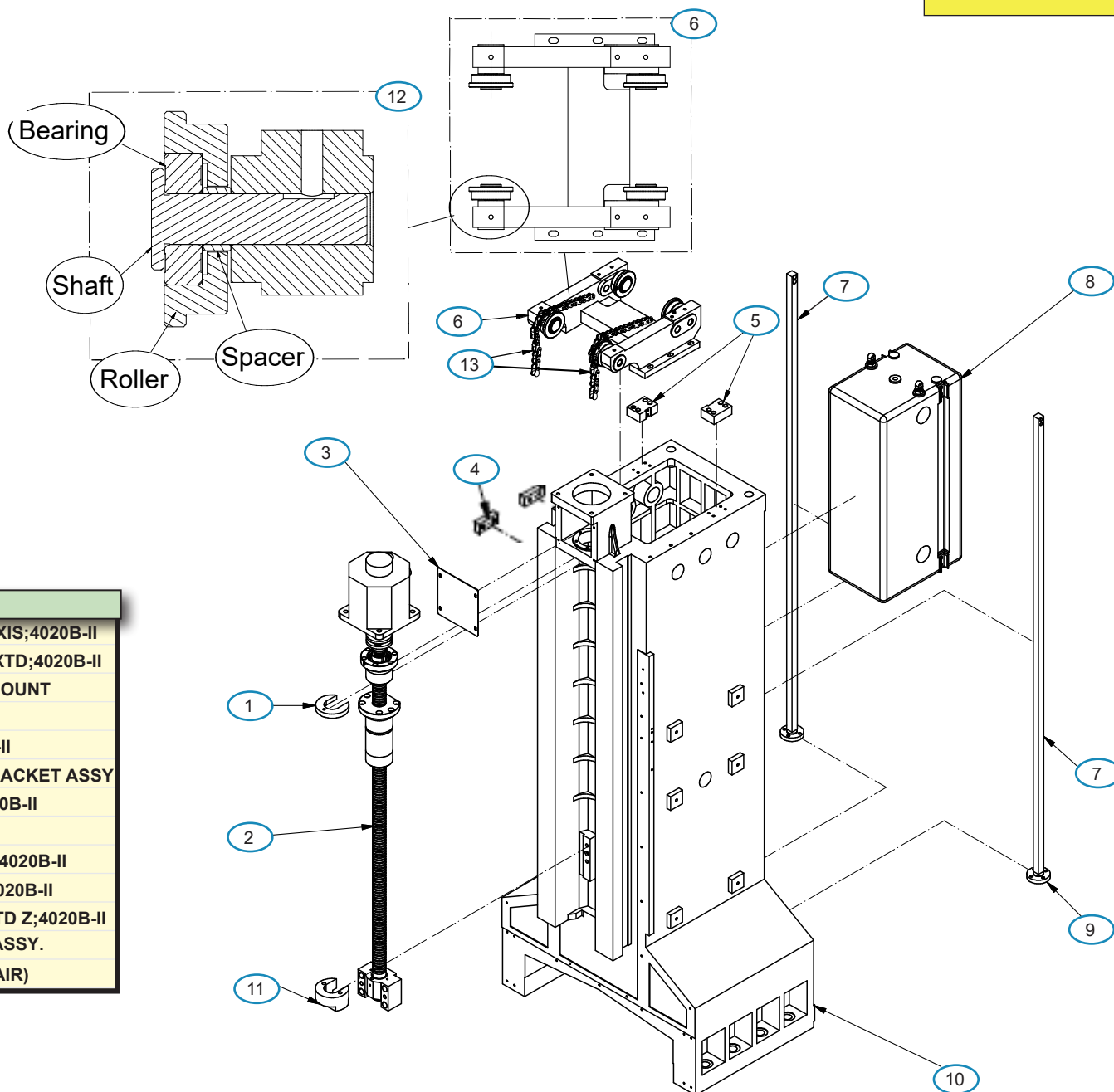
Item	Part Number	Description
1	BLS-02047	HARD STOP PAD,UPPER;Z-AXIS;4020B-II
2	[See Pg. 32]	BALLSCREW ASSY,Z-AXIS STD;4020B-II
3	CVR-02069	COVER PLATE,Z-AXIS BRG MOUNT
4	ATC-02033	MOUNT KEYS,DATC;4020B-II
5	CWT-00013	MOUNT BLOCKS,CWT;4020B-II
6	CWT-00014	COMPLETE CWT ROLLER BRACKET ASSY
7	CWT-00015	CWT GUIDE ROD,STD;4020B-II
8	CWT-00016	COUNTERWEIGHT,4020B-II
9	CWT-00017	SUPPORT PADS,GUIDE ROD;4020B-II
10	CST-00011	COLUMN CASTING,STD Z;4020B-II
11	SCR-00181	SCREW,M26
12	SCR-00182	WASHER,26MM X 40MM X 5MM
13	BLS-02048	HARD STOP PAD,LOWER Z-AXIS;4020B-II
14	BLS-02049	MOUNT,HARDSTOP;Z-AXIS;4020B-II
15	CWT-00019	COUNTERWEIGHT ROLLER ASSY.
16	CWT-00021	COUNTERWEIGHT CHAIN (PAIR)



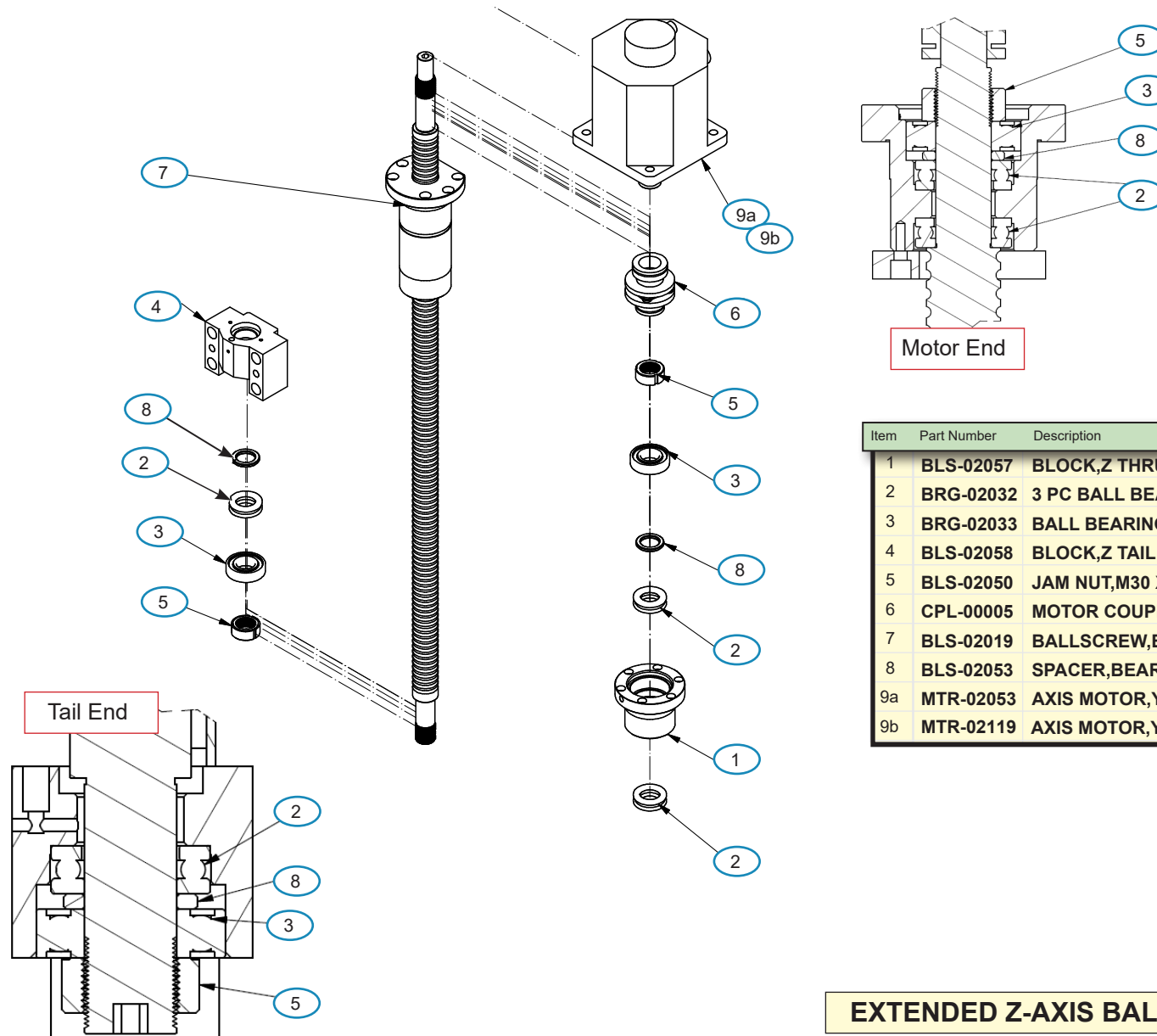
COLUMN AND COUNTERWEIGHT - STANDARD Z



Item	Part Number	Description
1	BLS-02047	HARD STOP PAD,UPPER;Z-AXIS;4020B-II
2	[SEE Pg. 34]	BALLSCREW ASSY,Z-AXIS EXTD;4020B-II
3	CVR-02069	COVER PLATE,Z-AXIS BRG MOUNT
4	ATC-02033	MOUNT KEYS,DATC;4020B-II
5	CWT-00013	MOUNT BLOCKS,CWT;4020B-II
6	CWT-00014	COMPLETE CWT ROLLER BRACKET ASSY
7	CWT-00018	CWT GUIDE ROD,Z-EXTD;4020B-II
8	CWT-00016	COUNTERWEIGHT,4020B-II
9	CWT-00017	SUPPORT PADS,GUIDE ROD;4020B-II
10	CST-00012	COLUMN CASTING,EXTD Z;4020B-II
11	BLS-02059	HARD STOP PAD,LOWER EXTD Z;4020B-II
12	CWT-00019	COUNTERWEIGHT ROLLER ASSY.
13	CWT-00021	COUNTERWEIGHT CHAIN (PAIR)

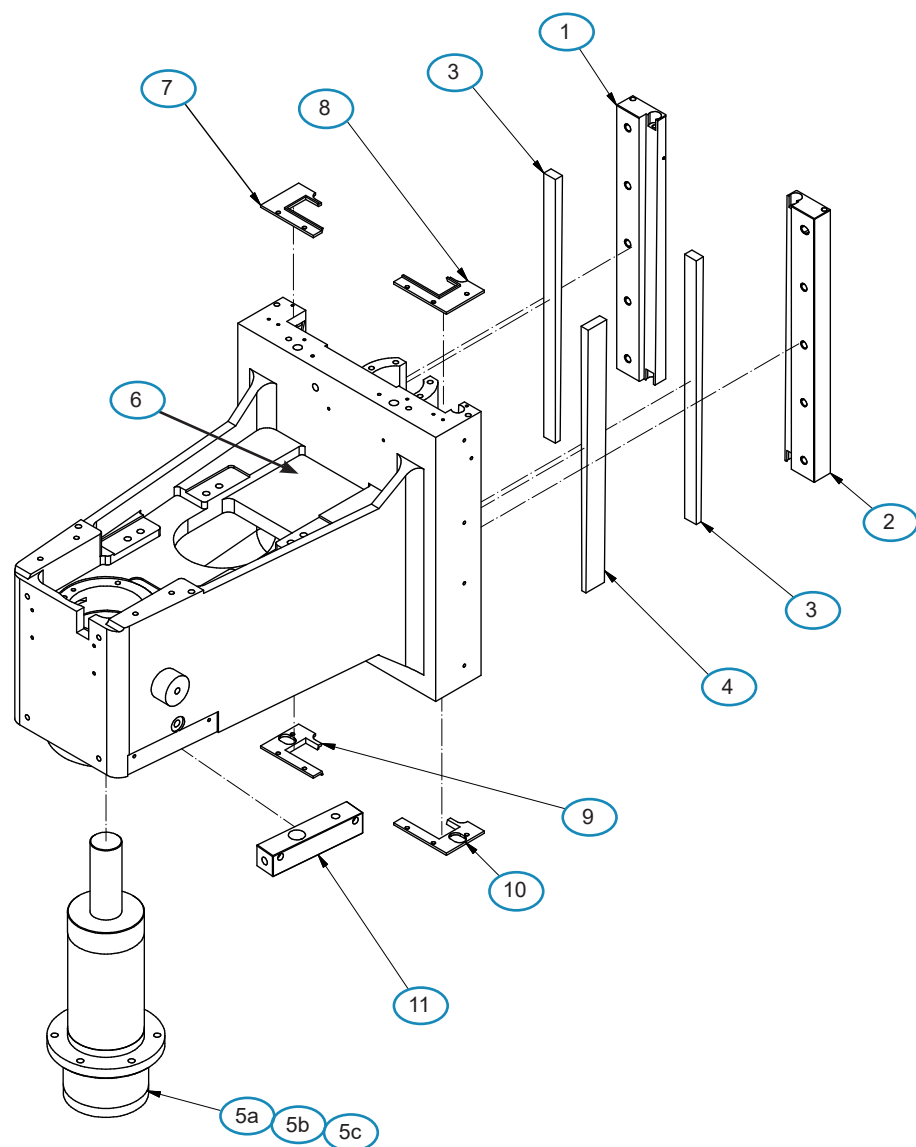


COLUMN AND COUNTERWEIGHT - EXTENDED Z



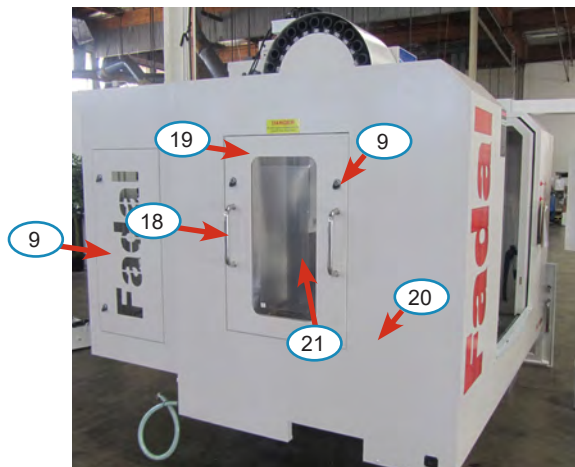
Item	Part Number	Description
1	BLS-02057	BLOCK,Z THRUST BRG;4020B-II
2	BRG-02032	3 PC BALL BEARING,XYZ AXIS;[3 REQ'D]
3	BRG-02033	BALL BEARING,XYZ AXIS;[2 REQ'D]
4	BLS-02058	BLOCK,Z TAIL BRG;4020B-II
5	BLS-02050	JAM NUT,M30 X 1.5
6	CPL-00005	MOTOR COUPLER,25M/35MX87L
7	BLS-02019	BALLSCREW,EXTD Z;4020B-II
8	BLS-02053	SPACER,BEARING;XYZ AXIS;4020B-II
9a	MTR-02053	AXIS MOTOR,YASKAWA,W/BRAKE [SIG.5]
9b	MTR-02119	AXIS MOTOR,YASKAWA,W/BRAKE [SIG.7]

EXTENDED Z-AXIS BALLSCREW

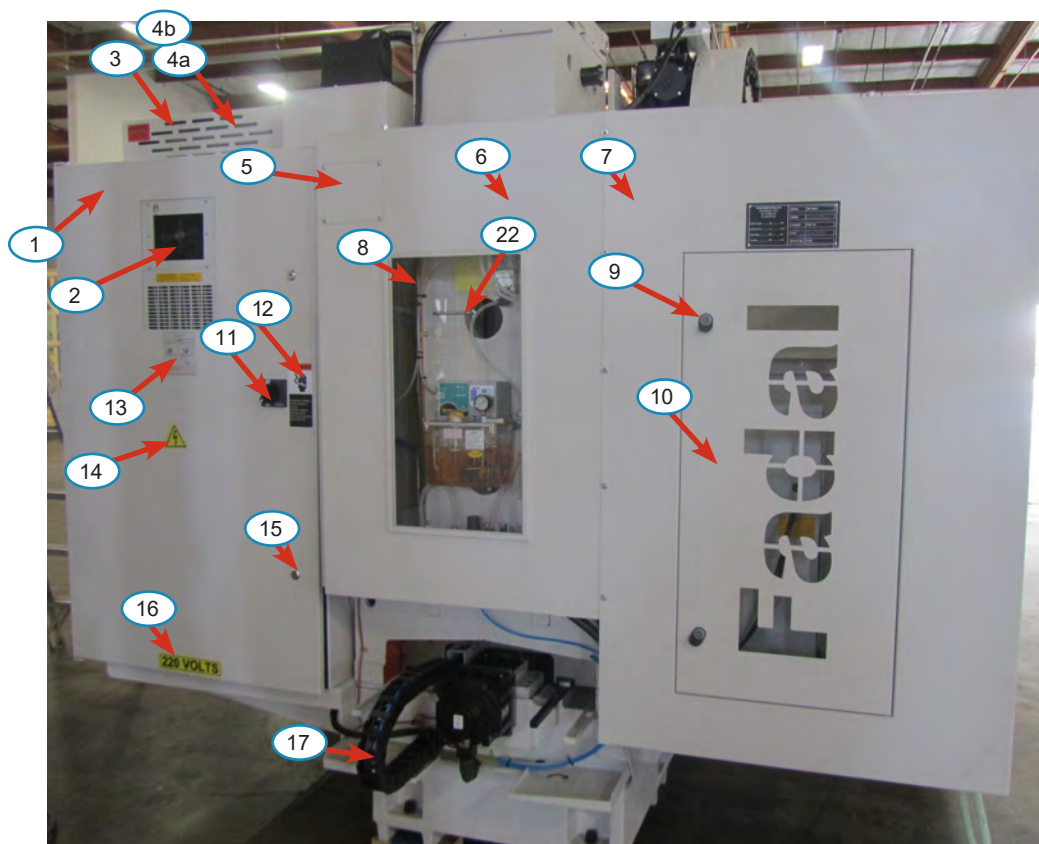


Item	Part Number	Description
1	GIB-02044	GIB STRAP,LEFT;4020B-II Z-AXIS
2	GIB-02045	GIB STRAP,RIGHT;4020B-II Z-AXIS
3	GIB-02046	GIB,HEADSTRAP;L/R;4020B-II Z-AXIS
4	GIB-02047	GIB,SIDE;4020B-II Z-AXIS
5a	SPN-02022	SPINDLE ASSY,40T 10K GREASE-PACK DUAL RANGE
5b	SPN-02004	SPINDLE ASSY,40T 15K AIR-OIL DUAL RANGE
5c	SPN-02005	SPINDLE ASSY,40T 15K GREASE-PACK DUAL RANGE
6	CST-00013	HEAD CASTING,4020B-II 40T
7	SEL-00055	WAY WIPER,LEFT UPPER;4020B-II
8	SEL-00056	WAY WIPER,RIGHT UPPER;4020B-II
9	SEL-00057	WAY WIPER,LEFT LOWER;4020B-II
10	SEL-00058	WAY WIPER,RIGHT LOWER;4020B-II
11	CNT-02031	BLOCK,COOLANT MANIFOLD;HEAD

HEADSTOCK / GIBS / WIPERS



Item	Part Number	Description
1	DOR-02049	DOOR,ELECTRICAL CABINET;3320/4020B-II
2	FAN-02004	HOUSING,CABINET COOLER;
3	INV-02016	CAGE,REGEN RESISTOR;22 x 10 X 6
4a	INV-02009	REGEN RESISTOR,XYZ;400W 12.5 OHM
4b	INV-02010	REGEN RESISTOR,SPINDLE;1500W 10 OHM
5	SMT-00140	ACCESS PANEL,7 X 6
6	SMT-00139	LUBRICATION CABINET,3320/4020B-II
7	SMT-00141	CHILLER CAGE,3320/4020B-II
8	DOR-02050	DOOR,LUBRICATION CABINET;28 X 15
9	DOR-02044	LATCH,CAGE DOOR
10	DOR-02051	DOOR,CHILLER CAGE 19.5 X 41 'FADAL'
11	DOR-02042	TWISTKNOB,MAIN POWER DISCONNECT
12	LBL-02003	LABEL,SIDE PANEL;"WARNING" 7 X 3
13	LBL-02008	LABEL;"HEAT EXCHANGER"
14	LBL-02006	LABEL,ELECT BOX;"ELECTRIC SYMBOL"
15	DOR-02043	CABINET LATCH,DOOR
16	LBL-02007	LABEL,BACK PANEL;"220 VOLTS" 10 X 2
17	CVR-02065	CABLE CONDUIT,Y-AXIS;3320/4020B-II
18	DOR-02010	HANDLE,SIDE DOOR;2520R/3320R/4020B-II
19	DOR-02052	SIDE DOOR PANEL,3320/4020B-II
20	SMT-00142	CABT ENCLOSURE,LEFT FRONT/SIDE;4020
21	DOR-02006	WINDOW, SIDE/FRONT DOOR
22	DOR-02059	HANDLE; LUBRICATION ACCESS DOOR



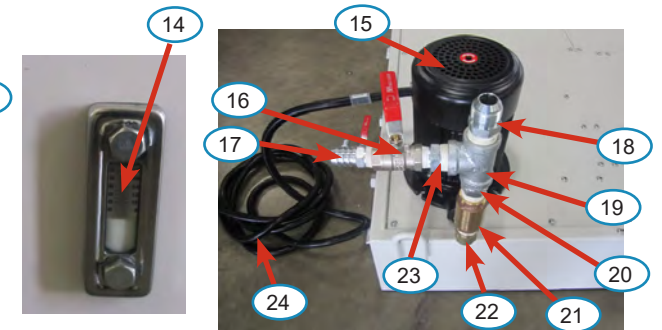
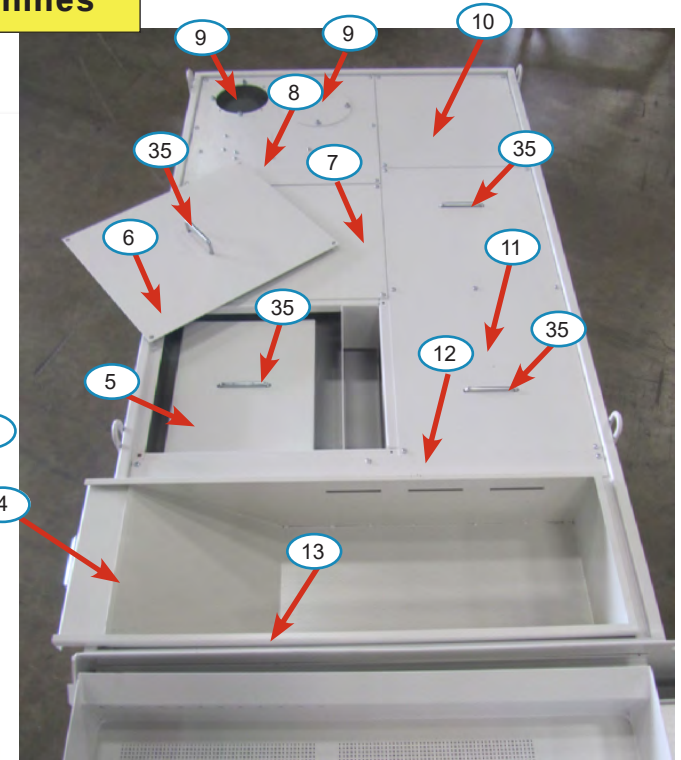
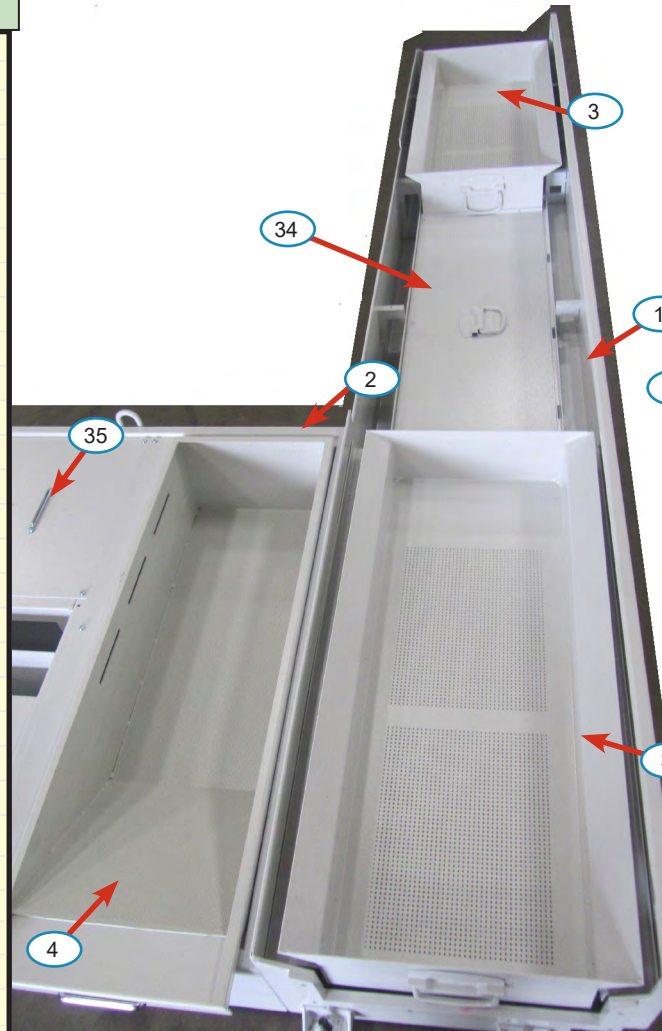
ENCLOSURE - REAR / LEFT SIDE



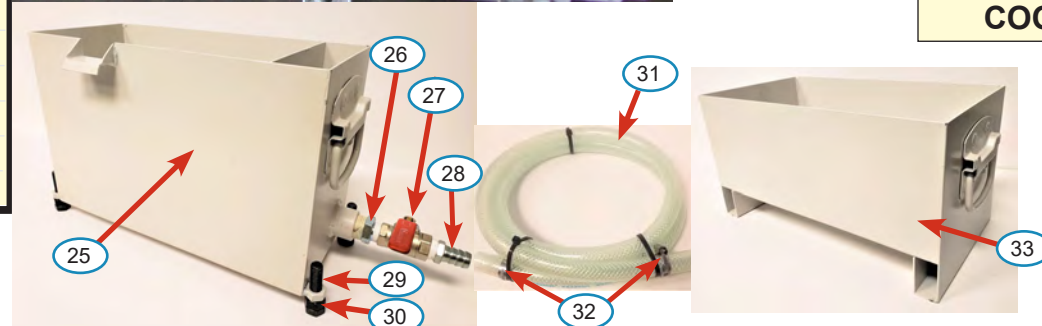
Item	Part Number	Description
1	SMT-00142	CABT ENCLOSURE,LEFT FRONT/SIDE;3320/4020B-II
2	DOR-02053	FRONT DOOR PANEL, LEFT;3320/4020B-II
3	LBL-02014	LABEL,HEAD;"FADAL" 22 X 6
4	LBL-02011	HEAD STRIPES,DIAG;6.5 X 13
5	CVR-02022	E-CHAIN,CABT TO HEAD;4020B-II;W/BOTH BRKTS
6	SMT-00144	HEADCOVER,FRONT;2520/3320/4020B-II
7	DOR-02054	FRONT DOOR PANEL, RIGHT;3320/4020B-II
8	ELE-04009	STACKLITE,RYG 24V 10W
9	SMT-00143	CABT ENCLOSURE,RIGHT FRONT/SIDE;3320/4020B-II
10	LBL-02015	LABEL,FRONT;"FADAL" 48 X 13
11	SMT-00145	BOOM SUPPORT,PENDANT;2520/3320/4020B-II
12	DOR-02013	HANDLE,FRONT DOOR;2520R/3320R/4020B-II [1 EA]
13	LBL-02022	LABEL;"LOAD TOOLS" 3 X 4
14	SWT-00005	SWITCH,TOOL RELEASE [HEAD]
15	LBL-02026	"VMC4020BII" 2 X 16 RED
16	DOR-02052	SIDE DOOR PANEL,3320/4020B-II
17	LBL-02001	LABEL;"DANGER"-"DO NOT OPERATE" 9 X 3
18	DOR-02044	LATCH,CAGE DOOR
19	DOR-02010	HANDLE,SIDE DOOR;2520R/3320R/4020B-II
20	DOR-02055	DOOR LEDGE,BOTTOM,SS;3320/4020B-II
21	DOR-02006	WINDOW, SIDE/FRONT DOOR
22	SEL-00068	EDGING,SIDE DOOR WINDOW;PER FT;3320/4020B-II
23	ELE-04024	DOOR LATCHING INTERLOCK, FRONT DOORS, 24VDC
24	WIR-02018	CABLE; FRONT DOOR INTERLOCK

ENCLOSURE - FRONT / RIGHT SIDE

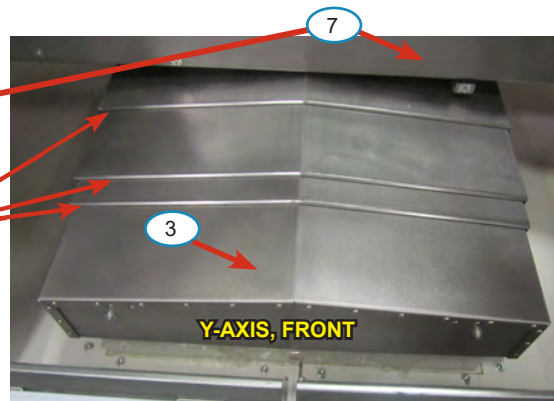
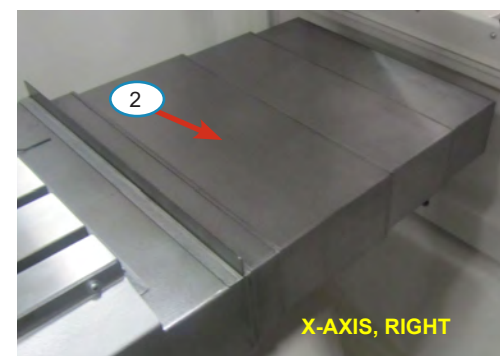
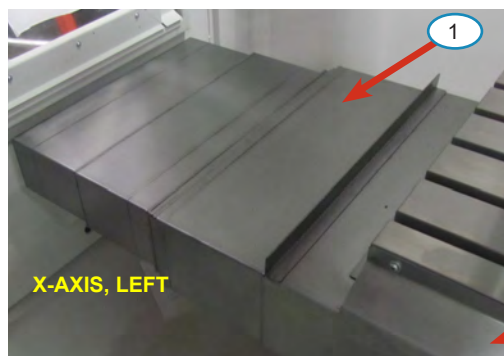
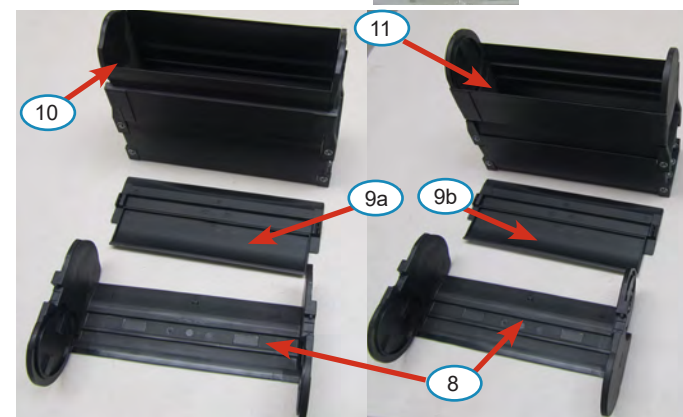
Item	Part Number	Description
1	CNT-02041	COOLANT TANK,FRONT;3320/4020B-II
2	CNT-02051	COOLANT TANK,REAR;3320/4020B-II
3	CNT-02042	CHIP DRAWER,FRONT;R/L 3320/4020B-II
4	CNT-02043	CHIP DRAWER,SIDE;3320/4020B-II
5	CNT-02044	BASKET/COVER,FINE CHIPS;3320/4020BII
6	CNT-02045	COVER,19.5 X 19;3320/4020B-II
7	CNT-02046	COVER,15.5 X 19;3320/4020B-II
8	CNT-02047	COVER,19.5 X 19;3320/4020B-II
9	CNT-02032	COVER PLATE,7 INCH;COOLANT PUMPS
10	CNT-02048	COVER,17 X 15;3320/4020B-II
11	CNT-02049	COVER,34 X 15;3320/4020B-II
12	CNT-02050	COVER,34 X 2;3320/4020B-II
13	SEL-00030	GASKET,COOLANT TANK;4020B [2 REQD]
14	CNT-02034	SIGHT GLASS,COOLANT LEVEL;TANK
15	PMP-02017	PUMP,FLOOD;2520R/3320R/4020B-II
16	PLM-02165	BALL VALVE,1/2 MIPT X 1/2 FIPT;LEVER
17	PLM-02168	ADAPTER, 3/4 BARB X 1/2 MIPT
18	PLM-02167	ADAPTER, 3/4 MIPT X 3/4 JIC MALE
19	PLM-02150	TEE,3/4 FIPT
20	PLM-02151	NIPPLE, 3/4 MIPT
21	PLM-02128	CHECK VALVE;3/4FIPT X 3/4FIPT
22	PLM-02129	FITTING,3/4MIPT X 3/4MIPT ELBOW
23	PLM-02166	ADAPTER, 3/4 MIPT X 1/2 FIPT STR
24	WIR-02198	CABLE,FLOOD PUMP;W/CONNECTOR
25	CNT-02080	OIL SEPARATOR TANK W/ SPILLWAY
26	PLM-02187	BUSHING,PIPE; 3/4MIPT X 1/2MIPT
27	PLM-02165	BALL VALVE; 1/2FIPT X 1/2FIPT
28	PLM-02188	BARB FITTING; 1/2MIPT X 5/8" BARB
29	SCR-00329	SCREW; M12-1.75 X 50MM, HEX
30	SCR-00298	HEX NUT; M12-1.75
31	PLM-02189	HOSE; 5/8" ID
32	HDW-02011	HOSE CLAMP; 1"
33	CNT-02081	OIL SEPARATOR DISCHARGE TANK
34	CNT-02083	CENTER COVER/CHIP DRAWER STOP
35	CNT-02084	HANDLE; COOLANT TANK COVER



COOLANT TANKS



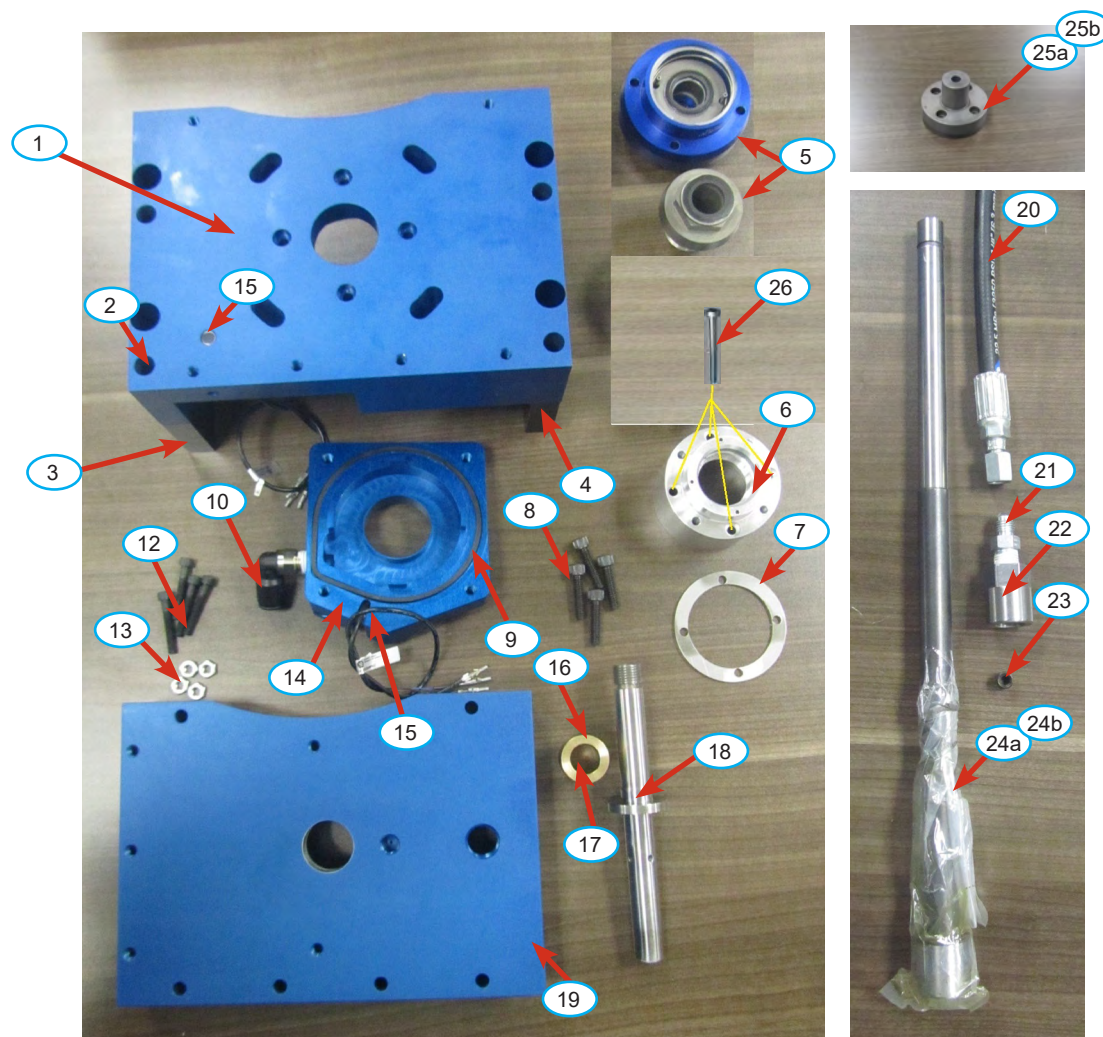
Item	Part Number	Description
1	CVR-02048	WAYCOVER,X-AXIS 4020B-II;[LEFT]
2	CVR-02049	WAYCOVER,X-AXIS 4020B-II;[RIGHT]
3	CVR-02050	WAYCOVER,Y-AXIS 4020B-II;[FRONT]
4	CVR-02051	WAYCOVER,Y-AXIS 4020B-II;[REAR]
5	CVR-02052	WAYCOVER,Z-AXIS 4020B-II
6	CVR-02053	WAYCOVER,Z-AXIS 4020B-II;[EXTENDED]
7	CVR-02087	FACE, TABLE FRONT;4020B-II
8	CVR-02025	E-CHAIN KIT; LINK BODY 1 EA
9a	CVR-02027	E-CHAIN LINK COVER; OUTSIDE 1 EA
9b	CVR-02132	E-CHAIN LINK COVER; INSIDE 1 EA
10	CVR-02024	E-CHAIN KIT;HEAD END BRACKET
11	CVR-02023	E-CHAIN KIT;CABT END BRACKET
12	CVR-02022	E-CHAIN,CABT TO HEAD;W/BOTH BRKTS
13	CVR-02129	FACE, TABLE REAR;4020B-II
14	CVR-02110	WAYCOVER WIPER [PR. FT.]



WAY COVERS

OPTIONS

<i>Option</i>	<i>Page No.</i>
COOLANT-THRU-SPINDLE HEAD ASSEMBLY, EARLY	41
COOLANT-THRU- SPINDLE HEAD ASSEMBLY, ADJUSTABLE PISTON	42-43
COOLANT-THRU-SPINDLE PUMP UNIT: CHIPBLASTER	44
COOLANT-THRU-SPINDLE PUMP UNIT: POLARJET	45
15K AIR/OIL SPINDLE & LUBRICATION SYSTEM	46
TOUCH PROBE/TOOL PRESETTER [WIRELESS]	47
WASHDOWN PUMP & INTERFACE; SIDE/REAR	48
CHIP CONVEYOR	49-50
30 TOOL ATC	51
40 TOOL ATC	52-55
REMOTE MANUAL PULSE GENERATOR (RMPG)	56
6 INCH HIGH SPEED ROTARY	57
8 INCH STANDARD ROTARY	58
10 INCH STANDARD ROTARY	59
8 INCH TILTING ROTARY; FTR-8D	60
VERY HIGH TORQUE (VHT) SPINDLE MOTOR	61



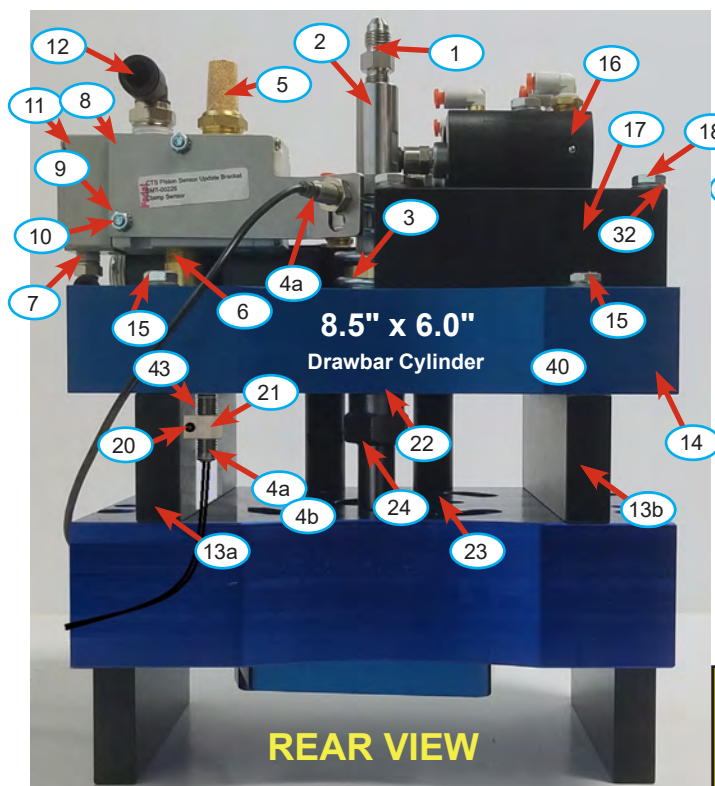
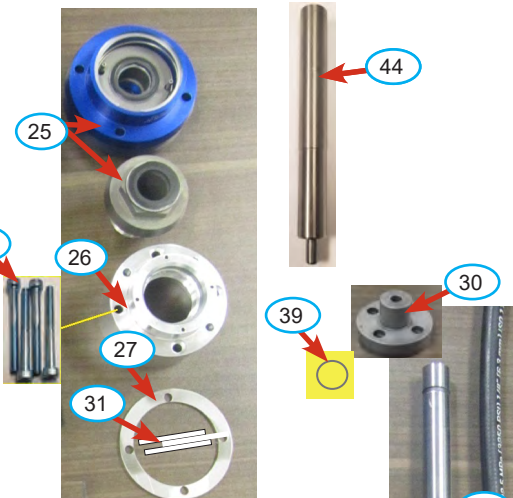
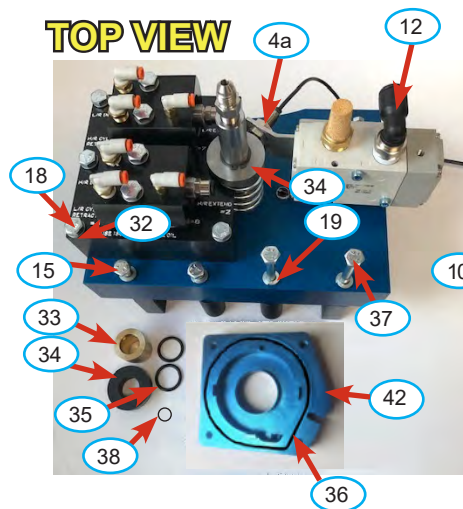
Item	Part Number	Description
1	ORB-02004	ORIENTATION BRIDGE PLATE; CB COOLANT-THRU-SPINDLE
2	SCR-00043	SCREW; 1/4-20 X 3/4 SHCS
3	ORB-02002	LEG. ORIENTATION BRIDGE; LFT/RT
4	ORB-02006	LEG. ORIENTATION BRIDGE; RT [DISCONTINUED USE ORB-02002]
5	CTS-00007	ROTARY UNION; CB COOLANT-THRU-SPINDLE
6	CTS-00009	SEAL BASE, CB COOLANT-THRU-SPINDLE
7	CTS-00010	JACKING PLATE, CB COOLANT-THRU-SPINDLE
8	SCR-00044	SCREW; 1/4-20 X 1 SHCS
9	SEL-00015	SQUARE O-RING, 3/32 X 3.5 DIA
10	PLM-02098	FITTING; 10MM QD X 1/4NPT ELL
11	PLM-02084	TUBING; BLACK, NYLON, 10MM [NOT SHOWN]
12	SCR-00076	SCREW; 10-32 X 1.25 SHCS
13	SCR-00008	NUT; 10-32 BRITE
14	CTS-00008	DRAIN TRAP; CB COOLANT-THRU-SPINDLE
15	SWT-00001	PROXIMITY SWITCH; 8MM, 3 WIRE
16	DRB-02055	BUSHING; DRAWBAR PISTON
17	SEL-00016	O-RING
18	DRB-02014	DISCONTINUED - USE KIT-00095 [SEE PAGE 42]
19	DRB-02013	HOUSING; DRAWBAR CYLINDER, COOLANT-THRU-SPINDLE
20	HYD-00008	HYDRAULIC HOSE; 3000PSI 1/4 JIC, 25 FT.
21	PLM-02076	FITTING; HYDRAULIC, 1/4 JIC A 1/4 NPT
22	CTS-00006	DISCONTINUED - USE KIT-00095 [SEE PAGE 42]
23	PLM-02028	PLUG; 1/8 MPT, HEXDRIVE
24a	DRB-02027/10K	DRAWBARR ASSEMBLY; 16.5, 10K [USE W/ DRB-02015] *
24b	DRB-02022	DRAWBARR ASSEMBLY; [USE W/ DRB-02015-2] *
25a	DRB-02015	KNOCK-OUT CAP;CTS, W/ O-RING [USE W/ DRB-02027]
25b	DRB-02015-2	KNOCK-OUT CAP;CTS, NO O-RING [USE W/ DRB-02022]
26	SCR-00288	SCREW, M4-.7 X 40MM, SHCS [4 REQUIRED]

* Provide spindle information from spindle mounting flange

COOLANT THRU SPINDLE - Early
(Prior to 2017)

STANDARD DRAWBAR CYLINDER

TOP VIEW



REAR VIEW

KIT-00095 Update Kit

Includes Items: 1, 2, 4a, 8, 9, 13a, 15,
19-24, 33-35, 37-41, 44

For CTS Machines w/ 8.5" x 6" DBCYL [#14]

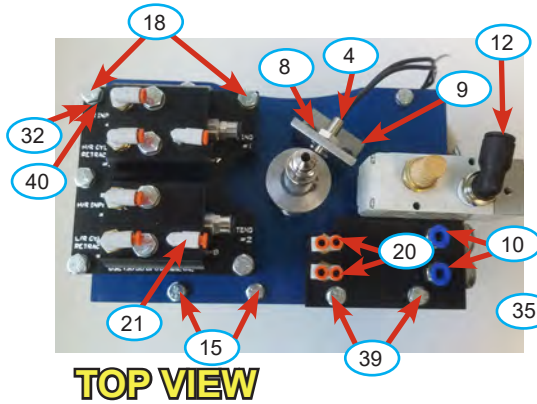
Requires Software Version 3.0 or Later

Item	Part Number	Description
1	PLM-02161	FITTING, HYDRAULIC; 1/4 JIC X 1/8 NPT
2	DRB-02046-12	SHAFT; CTS/NON-CTS THREADED
3	HDW-02006	SPRING, DRAWBAR CYL RETURN
4a	SWT-00001	PROXIMITY SWITCH, 8MM; 3 WIRE
4b	SWT-00002	HALL EFFECT SWITCH, 12MM; 2 WIRE
5	PLM-02050	MUFFLER, 3/8 MIPT
6	PLM-02049	PIPE NIPPLE, 3/8 MIPT X 1.5 INCH
7	PLM-02091	FITTING, 6MM QD X 1/8 MIPT ELL
8	SMT-00226	BRACKET, DRAWBAR UP SENSOR
9	SCR-00124	KEPSNUT, M4-0.7 [2 REQUIRED]
10	SCR-00288	SCREW, M4-0.7 X 40MM SHCS [2 REQD]
11	VLV-02000	AIR VALVE, DRAWBAR CYLINDER
12	PLM-02091	FITTING, 10MM QD X 3/8NPT ELL
13a	ORB-02010-L	STOP/SPACER, DRB CYL PLATE, LEFT
13b	ORB-02010	STOP/SPACER, DRB CYL PLATE
14	DRB-02013	HOUSING, DRAWBAR CYL, CTS [6 x 8.5]
15	SCR-00289	SCREW, 1/4-20 X 3.75; HEXCAP [5 REQD]
16	HYD-02005	HYDRAULIC ACTUATOR ASSY [SET OF 2]
17	HYD-02000	RESERVOIR, HYDRAULIC ACTUATORS
18	SCR-00015	SCREW, 1/4-20 X 1.75 HEXCAP
19	SCR-00006	LOCKWASHER, 1/4 [10 REQUIRED]
20	SCR-00055	SCREW; 1/4-20 X 5/8, SHCS
21	SWT-00085	CLAMP; DOWN SENSOR
22	DRB-02048-12	LOCKNUT, DBCYL SHAFT; CTS/NON-CTS
23	ORB-02011	SPACER TUBE, DRB-OBRIIDGE [2 REQD]
24	DRB-02049-12	ENDSHAFT, BOTTOM; DBCYL; CTS ONLY
25	CTS-00007	ROTARY UNION, CB COOLANT-THRU
26	CTS-00009	SEAL BASE, CB COOLANT-THRU
27	CTS-00010	JACKING PLATE, CB COOLANT-THRU
28	DRB-02027/10K	DRAWBAR KIT; 40T, 10K, CTS/NON-CTS COMPATIBLE, 16.5 [DRB-02015]
29	DRB-02027/15K	DRAWBAR KIT; 40T, 15K, CTS/NON-CTS COMPATIBLE, 16.5 [DRB-02015]
30	DRB-02015	KNOCK-OUT CAP; COOLANT-THRU
31	SCR-00126	SETSCREW, 10-32 X 1.25 CUP PT [4 REQ]
32	SCR-00098	FLATWASHER, 1/4 ZIN
33	DRB-02055	BUSHING; DRAWBAR PISTON SHAFT
34	DRB-02007	SPRING PAD, DBCYL SHAFT; CTS-EARLY
35	SEL-00007	O'RING, -115; VITON .687 ID X 3/32 [2 REQ]
36	SEL-00015	SQUARE O'RING, 3/32 X 3.50 DIA
37	SCR-00290	SCREW, 1/4-20 X 5; HEXCAP [2 REQD]
38	SEL-00130	O'RING, VITON; 7MM ID X 1.2MM THICK
39	SEL-00029	O'RING, VITON; 16MM ID X 2MM [KO CAP]
40	DRB-02006	PISTON PLATE, NO MAG; CTS [Ref Pg. 13]
41	HDW-02015	CLIP, RETAINING; DB CYL SHAFT
42	CTS-00008*	DRAIN TRAP, COOLANT-THRU
43	SWT-00003	SLEEVE, ADAPTER, 8MM TO 12MM
44	TOL-02040	ALIGNMENT TOOL; CTS INSTALLATION

*Confirm version

COOLANT THRU SPINDLE: GEN 1
Update Kit KIT-00095

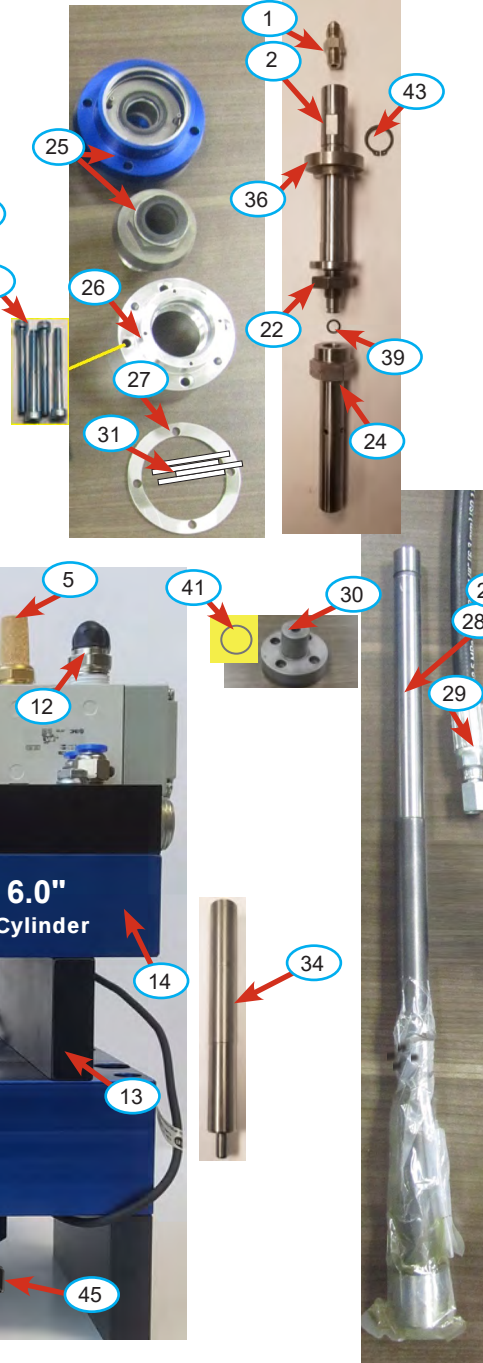
WIDE DRAWBAR CYLINDER VERSION



KIT-00094 Update Kit

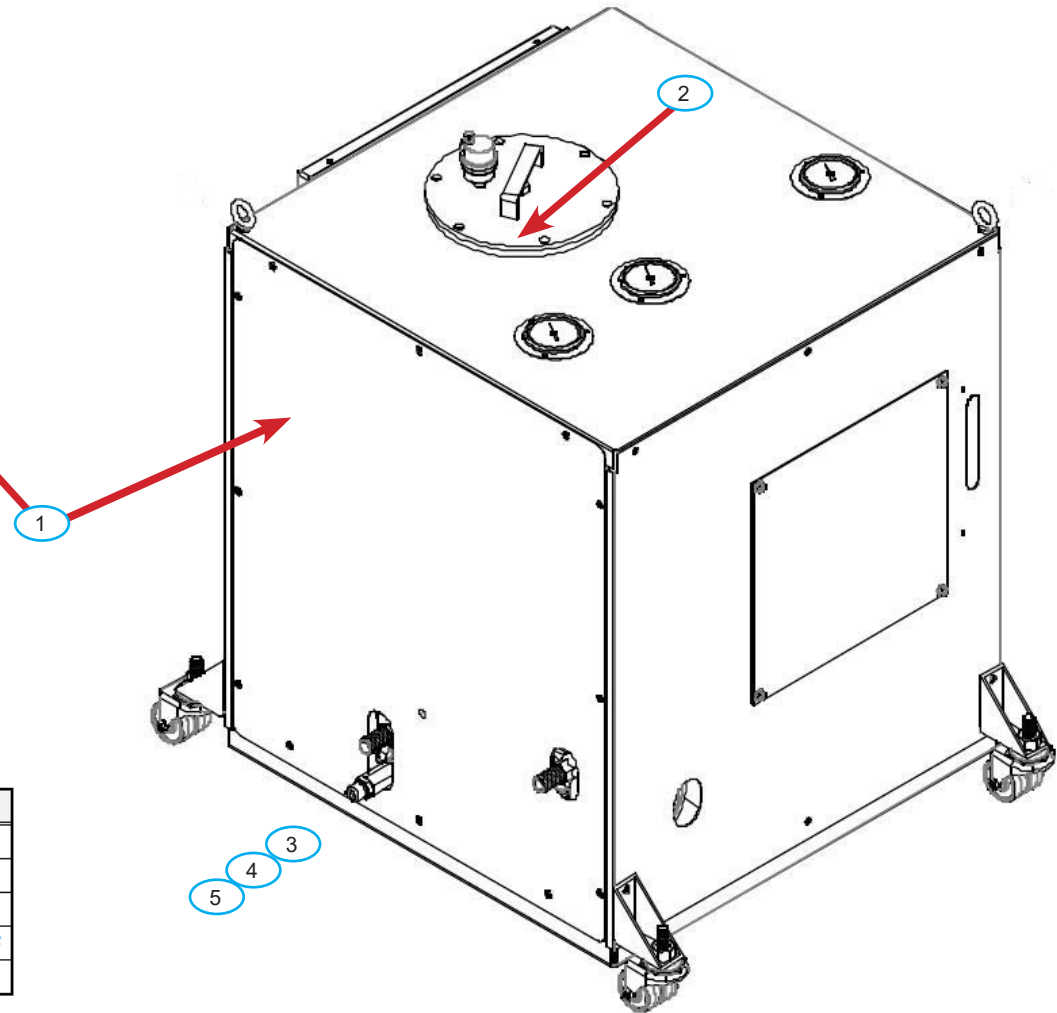
Includes Items: 1, 2, 4, 8, 9, 13, 15, 19,
22-24, 33, 34, 36, 37, 39-41, 43
For CTS Machines w/ 9.5" x 6" DBCYL [#14]

Requires Software Update 3.0 or Later



Item	Part Number	Description
1	PLM-02161	FITTING, HYDRAULIC; 1/4 JIC X 1/8 NPT
2	DRB-02046-12	SHAFT; CTS/NON-CTS THREADED
3	HDW-02006	SPRING, DRAWBAR CYL RETURN
4	SWT-00001	PROXIMITY SWITCH, 8MM; 3 WIRE
5	PLM-02050	MUFFLER, 3/8 MIPT
6	PLM-02049	PIPE NIPPLE, 3/8 MIPT X 1.5 INCH
7	PLM-02012	FITTING, 4MM QD X 1/8 MIPT ELL
8	SCR-00165	SCREW, BUTTONHD; 1/4-20 X 1/2 [2 REQ]
9	SMT-00226	BRACKET; DRAWBAR DOWN/UP SENSOR
10	PLM-02093	FITTING, 6MM QD X 1/8 MIPT STR
11	VLV-02000	AIR VALVE, DRAWBAR CYLINDER
12	PLM-02087	FITTING, 10MM QD X 3/8 NPT ELL
13	ORB-02010	STOP/SPACER, DRAWBAR CYLINDER PLATE
14	DRB-02002	HOUSING, DRAWBAR CYLINDER, CTS-WIDE [6 x 9.5]
15	SCR-00289	SCREW, 1/4-20 X 3.75; HEXCAP [5 REQUIRED]
16	HYD-02005	HYDRAULIC ACTUATOR ASSY [SET OF 2]
17	HYD-02000	RESERVOIR, HYDRAULIC ACTUATORS
18	SCR-00015	SCREW, 1/4-20 X 1.75 HEXCAP
19	SCR-00006	LOCKWASHER, 1/4 [10 REQUIRED]
20	PLM-02014	FITTING, 5/32 QD/4MM QD X 1/8 NPT WYE
21	PLM-02015	FITTING; 5/32 QD/4MM QD X 10-32 ELL
22	DRB-02048-12	LOCKNUT, DBCYL SHAFT; CTS/NON-CTS
23	ORB-02011	SPACER TUBE, DRB-OBRIDGE [2 REQD]
24	DRB-02049-12	ENDSHAFT, BOTTOM; DBCYL; CTS ONLY
25	CTS-00007	ROTARY UNION, CB COOLANT-THRU
26	CTS-00009	SEAL BASE, CB COOLANT-THRU
27	CTS-00010	JACKING PLATE, CB COOLANT-THRU
28a	DRB-02027/10K	DRAWBAR KIT; 40T, 10K, CTS/NON-CTS COMPATIBLE, 16.5 [DRB-02015]
28b	DRB-02027/15K	DRAWBAR KIT; 40T, 15K, CTS/NON-CTS COMPATIBLE, 16.5 [DRB-02015]
29	HYD-00008	HYDRAULIC HOSE; 3000PSI 1/4-JIC25FT
30	DRB-02015	KNOCK-OUT CAP; COOLANT-THRU
31	SCR-00126	SETSCREW; 10-32 X 1.25 CUP PT [4 REQUIRED]
32	SCR-00098	FLATWASHER, 1/4 ZINC [5 REQUIRED]
33	DRB-02056	BUSHING; DRAWBAR PISTON SHAFT
34	TOL-02040	ALIGNMENT TOOL; COOLANT-THRU
35	SCR-00288	SCREW; M4-.7X40MM, SHCS [Ref Pg. 41]
36	DRB-02036	SPRING PAD, DBCYL SHAFT; CTS
37	SEL-00007	O'RING, -115; VITON .687 ID X 3/32 [2 REQUIRED]
38	SEL-00015	SQUARE O'RING, 3/32 X 3.50 DIA
39	SCR-00290	SCREW, 1/4-20 X 5; HEXCAP [2 REQUIRED]
40	SEL-00130	O'RING, VITON; 7MM ID X 1.2MM THICK
41	SEL-00029	O'RING, VITON; 16MM ID X 2MM [KO CAP]
42	DRB-02006	PISTON PLATE, NO MAGNET, CTS [Ref Pg. 13]
43	HDW-02015	RETAINING CLIP; DRAWBAR CYLINDER SHAFT
44	CTS-00008	DRAIN TRAP, COOLANT-THRU
45	SCR-00162	SET SCREW, NYLON TIP, 10-32 X 1/2

COOLANT THRU SPINDLE: GEN 2
Update Kit KIT-00094

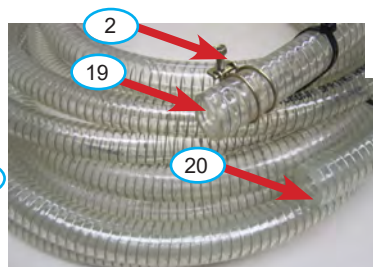
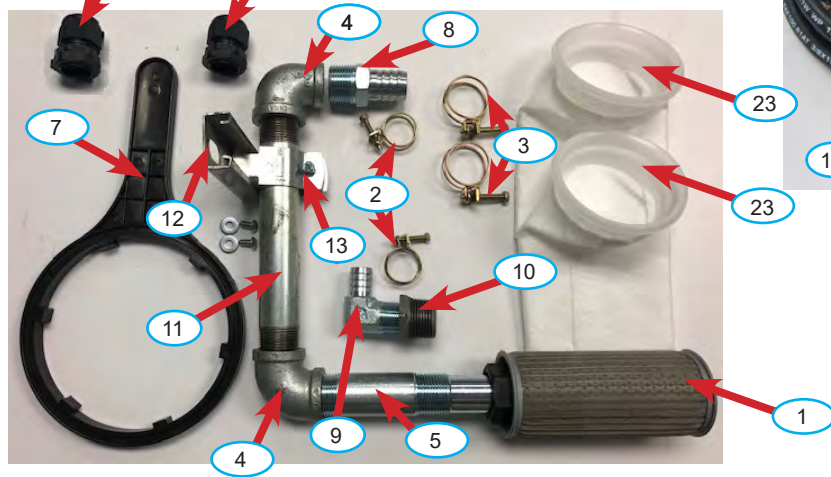
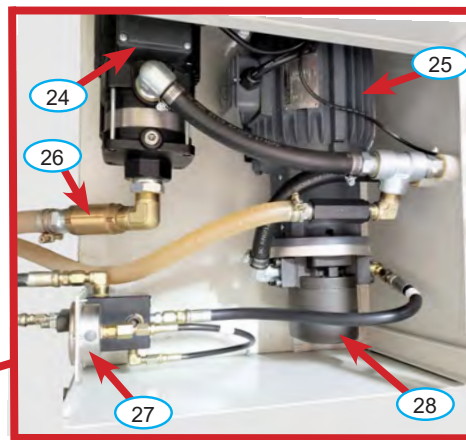
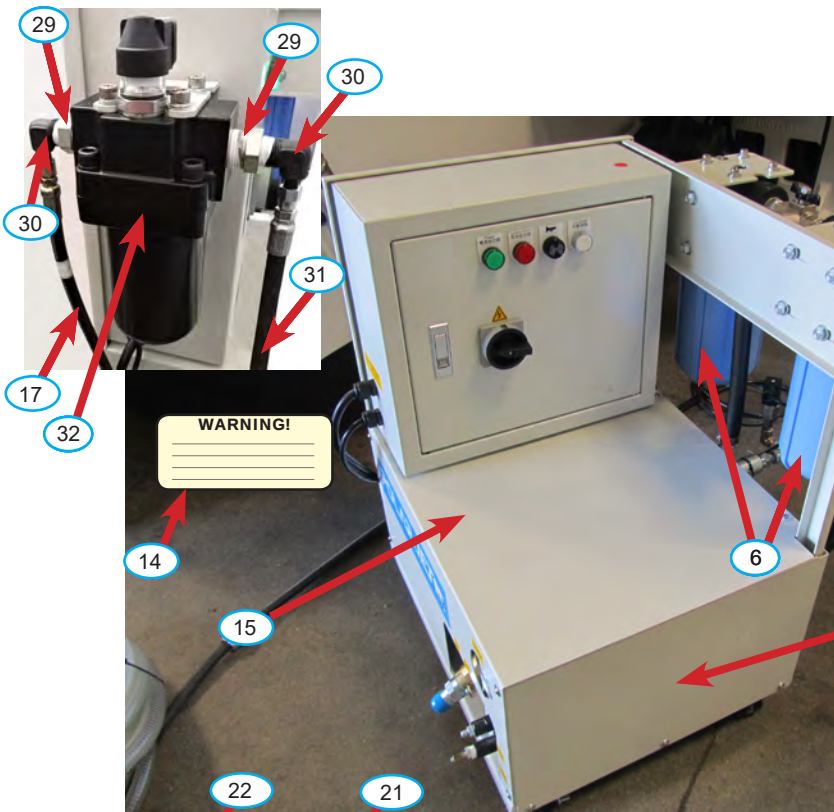


Item	Part Number	Description
1	PMP-02020	CHIPBLASTER CTS PUMP SYSTEM
2	PMP-02021	CHIPBLASTER FILTER KIT [2 PACK]
3	PLM-02077	FITTING, BUSHING: BRASS 1/2 M X 1/4 F
4	PLM-02076	FITTING, HYDRAULIC; 1/4 FLARE JIC X 1/4 F
5	HYD-02008	HYDRAULIC HOSE, CTS; 1/4 JIC X 7.6 M

WARNING!

LBL-02077

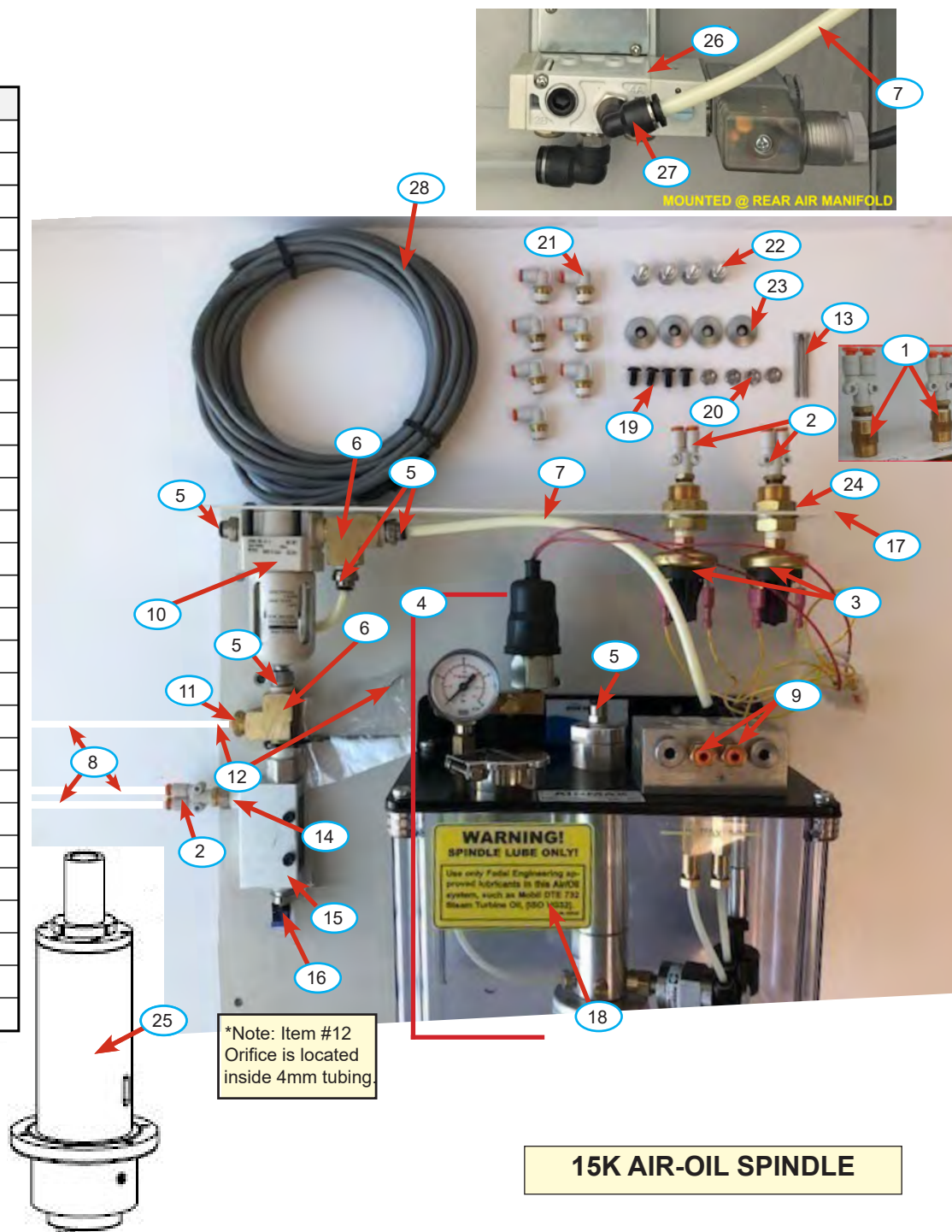
COOLANT-THRU-SPINDLE
CHIPBLASTER SYSTEM



Item	Part Number	Description
1	CTS-00013	FILTER CARTRIDGE; MF-08
2	HDW-02011	HOSE CLAMP, WORM 1"
3	HDW-02012	HOSE CLAMP, WORM 1 1/2"
4	PLM-02052	ELBOW; 1" FIPT
5	PLM-02163	PICKUP TUBE/FILTER SUPPORT
6	CTS-00014	FILTER CANNISTER ASSEMBLY
7	TOL-02063	TOOL; FILTER CARTRIDGE
8	PLM-02021	ADAPTER; 1" BARB X 1" MIPT
9	PLM-02182	ADAPTER; 3/4" BARB X 3/4" MIPT ELL
10	PLM-02179	BUSHING; 1" MIPT X 3/4" MIPT ELL
11	PLM-02177	PIPE NIPPLE; 1" X 8"
12	PLM-02079-1	PIPE STRUT [1.5" CHANNEL] X 4"
13	PLM-02079-2	STRUT CLAMP; 1" OD
14	LBL-02077	LABEL "WARNING" - WARRANTY
15	CNT-02060	COOLANT PUMP SYSTEM; POLARJET
16	PLM-02162	FITTING; 3/8 JIC BULKHEAD ELL W/ NUT
17	HYD-02038	HOSE, HYDRAULIC; 3/8 JIC X 3500 MM, STR
18	HYD-02008	HOSE, HYDRAULIC; 1/4 JIC X 7.6 M
19	PLM-02071	SPRING HOSE; 3/4" [PR/FT]
20	PLM-02022	SPRING HOSE; 1" [PR/FT]
21	WIR-02169	CABLE STRAIN RELIEF, 10 MM
22	WIR-02196	CABLE STRAIN RELIEF, 18 MM
23	CTS-00015	FILTER BAG (2 PACK)
24	PMP-02034	TRANSFER PUMP
25	MTR-02126	MOTOR; HIGH PRESSURE COOLANT PUMP
26	PLM-02169	CHECK VALVE
27	CTS-00018	PRESSURE GAUGE; 1000 PSI / 70 KG/CM ²
28	PMP-02035	HIGH PRESSURE PUMP
29	PLM-02202	REDUCER; 3/4" X 1/2"
30	PLM-02203	ELBOW; 1/2 NPT X 7/16 JIC
31	HYD-02073	HOSE; 32 INCHES
32	CTS-00017	OUTLET FILTER ASSEMBLY

**COOLANT-THRU-SPINDLE
POLARJET SYSTEM**

Item	Part Number	Description
1	PLM-02095	BRASS COUPLER, 1/8 FPT
2	PLM-02014	FITTING, 5/32 QD/4MM QD X 1/8 MIPT WYE
3	SWT-00009	PRESSURE SWITCH, 25 PSI AIR/OIL
4	LUB-02011	LUBRICATION PUMP, AIR/OIL SPINDLE
5	PLM-02094	FITTING, 6MM QD X 1/4 MIPT STR
6	PLM-02090	RIGHT ANGLE TEE; 1/4 MIPT X 1/4 FIPT
7	PLM-02083	TUBING, 6MM, 250PSI NYLON
8	PLM-02000	TUBING, 4MM [5/32] 250PSI NYLON
9	PLM-02013	FITTING, 5/32 QD/4MM QD X 1/8 MIPT STR
10	REG-02003	COALESCING FILTER, AIR/OIL SMC
11	PLM-02011	FITTING, 5/32 QD/4MM QD X 1/4 MIPT STR
12	SPN-02001	ORIFICE, 5/32 INSERT; AIR SEAL *
13	SCR-00327	SCREW, M3 X 37.5 W/ LOCK WASHER, PHILLIPS
14	PLM-02041	BUSHING, 1/4 FIPT TO 1/8 MIPT
15	PMP-02018	VACUUM PUMP, AIR OIL
16	PLM-02104	FITTING, 10MM QD X 1/4 MIPT STR
17	SMT-00055	MOUNTING PLATE, AIR-OIL PUMP/SWTS
18	LBL-02040	LABEL, SPINDLE LUBE; AIR-OIL
19	SCR-00041	SCREW, 10-32 X 3/8 BUTTONHEAD SHCS
20	SCR-00008	NUT, 10-32 BRITE
21	PLM-02012	FITTING, 5/32 QD/4MM QD X 1/8 MIPT ELL
22	SEL-00069	CUP WASHER, SEALING; 0.75 OD X 0.25 ID
23	HDW-02045	STANDOFF, MALE/FEM; 10-32 X 1/2 LONG;
24	PLM-02170	BULKHEAD FITTING, BRASS; 1/8 FIPT
25	SPN-02004	SPINDLE ASSY, 15K AIR-OIL DUAL RANGE
26	VLV-02006	AIR VALVE, 24VDC, 5 WAY, SINGLE
27	PLM-02092	FITTING, 6MM QD X 1/4 MPT, ELL
28	WIR-02063	CABLE; 6 COND., 22 AWG, SHIELDED [PER/ FT]



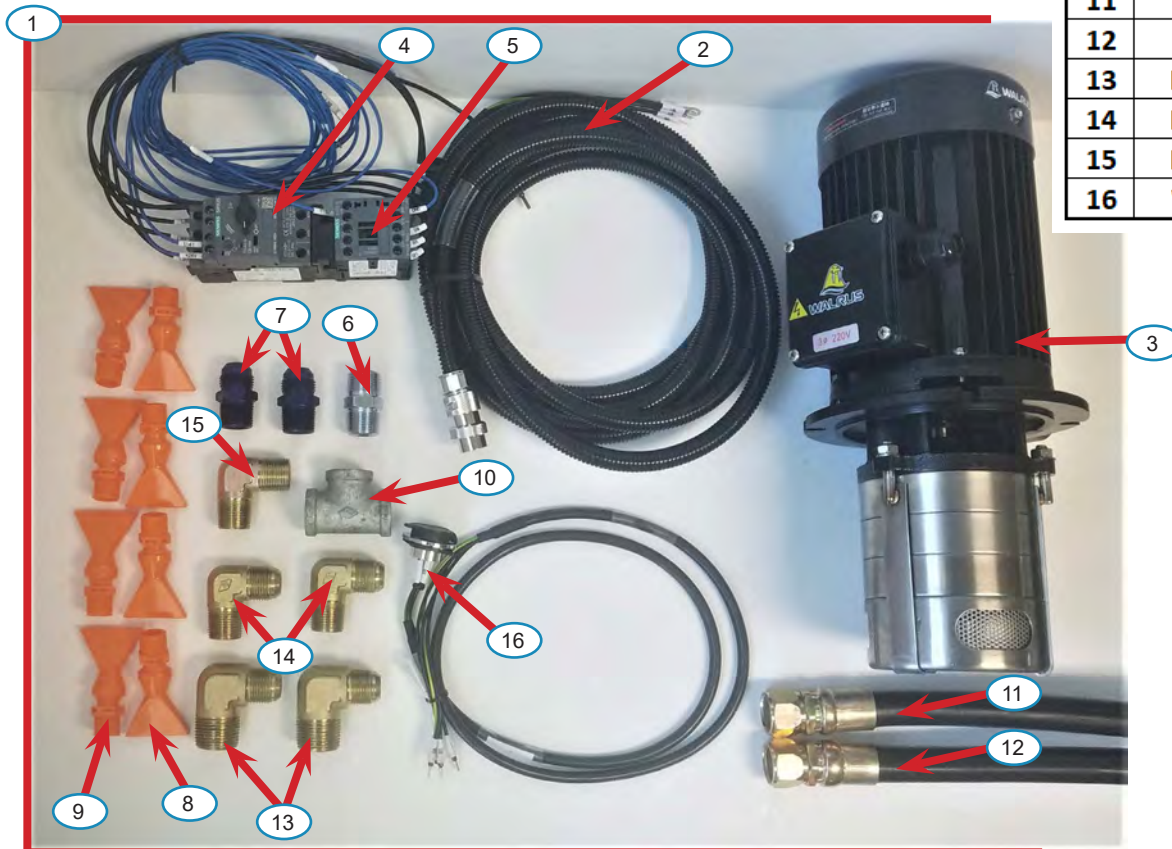


Item	Part Number	Description
1	PRB-02000	TOOLSETTER, WIRELESS; NO TIP VOTS90
2	PRB-02001	CONTACT DISK, TOOL PRESETTER
3	PRB-02002	PROBE, SPINDLE; NO STUD/TIP;VOP40
4	PRB-02003	PROBE STYLUS, SS
5	PRB-02004	RECEIVER KIT, 24V TOOL PRESETTER/PROBE
6	PRB-02005	CABLE; RECEIVER W/GUARD
7	PRB-02006	CRASHPIN, VOTS TOOL PRESETTER
8	PRB-02015	PROBE STYLUS, CERAMIC W/ RUBY TIP
9	PRB-02008	ACCESSORY PKG, [INSTALLATION]
10	PRB-02009	ADAPTER, VOP40 TO BT-30
11	PRB-02010	ADAPTER, VOP40 TO BT-40
12	PRB-02011	ADAPTER, VOP40 TO CT-40
13	PRB-02017	REMOTE CONTROL [ONLY]
14	PRB-02013	BATTERY CAP
15	ELE-04012	BATTERY, 1/2AA; 3.6V [2 REQ]
16	ELE-04013	BATTERY, CR123A; 3.6V [EARLY]
17	PRB-02016	CRASHPIN, VOP40 TOUCH PROBE
18	PRB-02010	BT SHANK ASSEMBLY

PROBE/PRESETTER

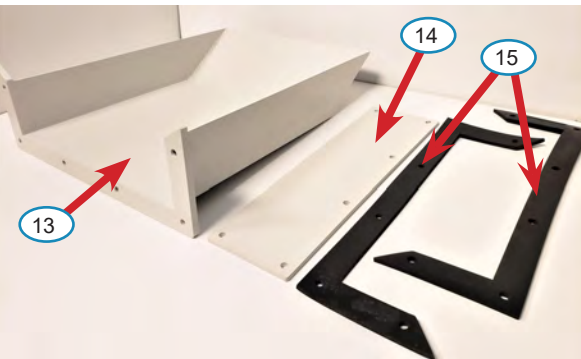
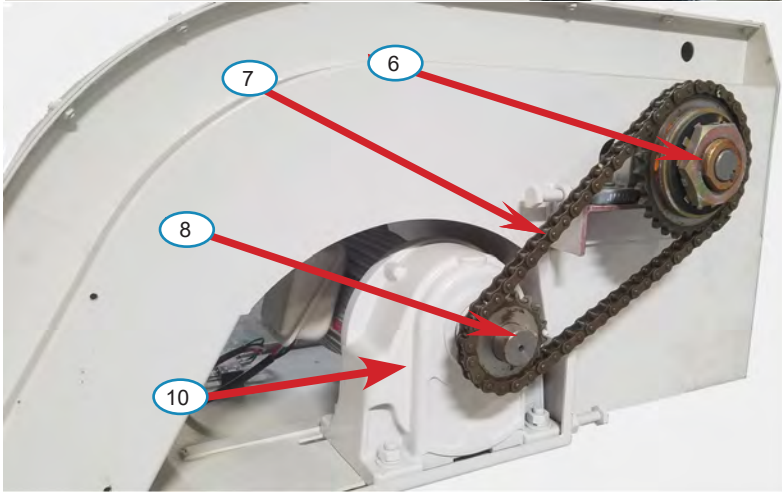
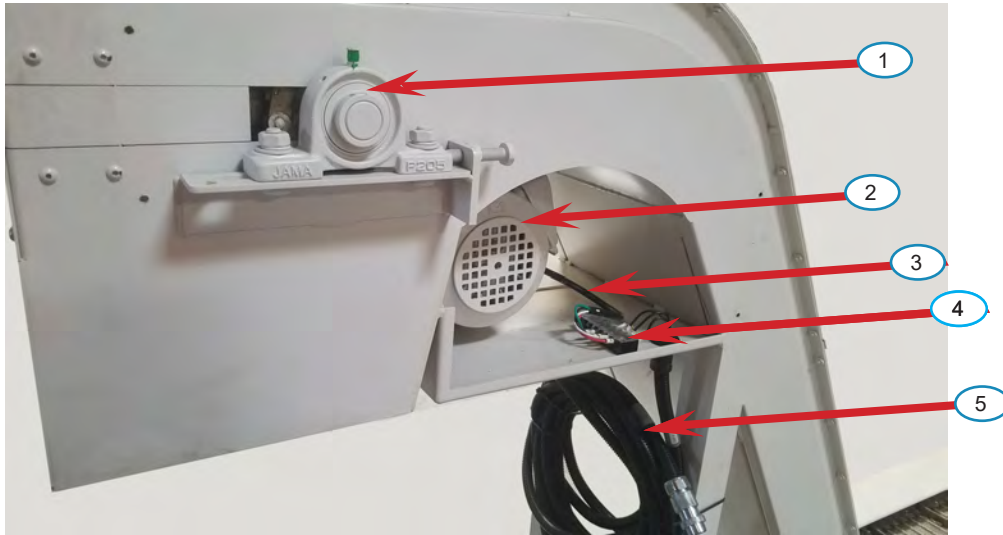
Item	Part Number	Description
1	KIT-00093	KIT; WASHDOWN, SIDE/REAR
2	WIR-02108	CABLE; PUMP TO CABINET
3	PMP-02011	PUMP; 230VAC, 3PH, VERT.
4	RLY-00031	OVERLOAD; 7-10A [SIEMENS]
5	RLY-00030	CONTACTOR; SIEMENS, SRS II *
6	PLM-02151	FITTING; 3/4 MIPT NIPPLE
7	PLM-02167	FITTING; 3/4 MIPT X 3/4 JIC STRAIGHT [2 REQ]
8	PLM-02137	FLARE NOZZLE; 1 1/4 X 3/8 BALL [EACH]
9	PLM-02138	ADAPTER, FLARE NOZZLE; 1/2 PT X 3/8 BALL [EACH]
10	PLM-02020	PIPE TEE; 3/4 FIPT X 3/4 FIPT X 3/4 FIPT
11	HYD-02073	HYDRAULIC HOSE; 3/4 JIC X 137" LENGTH
12	HYD-02072	HYDRAULIC HOSE; 3/4 JIC X 52" LENGTH
13	PLM-02205	FITTING; 1" NPT X 3/4 JIC, ELL
14	PLM-02206	FITTING; 3/4 NPT X 3/4 JIC, ELL
15	PLM-02184	FITTING; 3/4 MIPT X 3/4 MIPT ELL
16	WIR-02109	CABLE, POWER; RELAY TO RECEPTACLE PUMP]

* See also Page 6



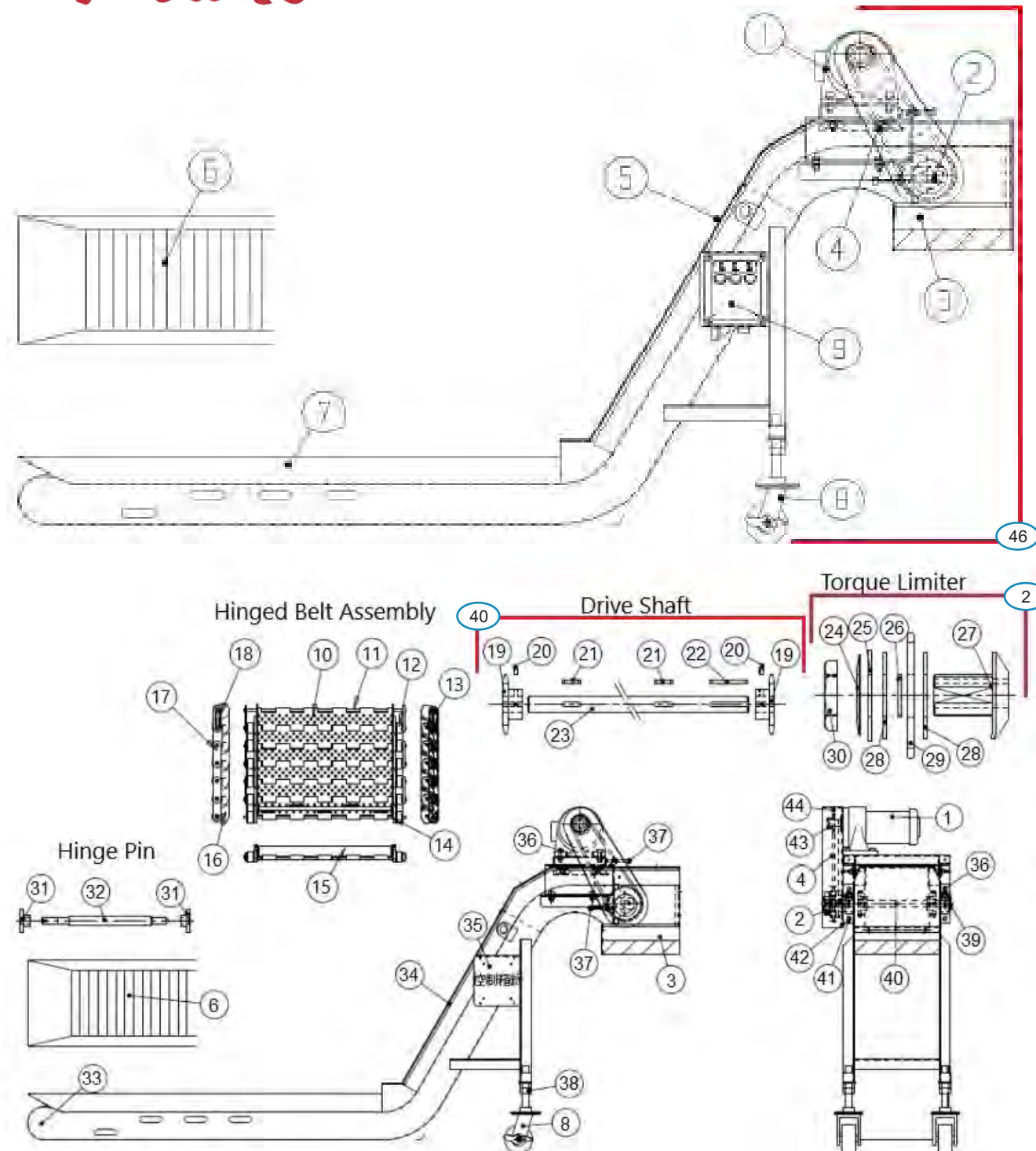
KIT-00093 WASHDOWN PUMP

****NOTE:** Rear & Side Washdowns each require an individual kit.



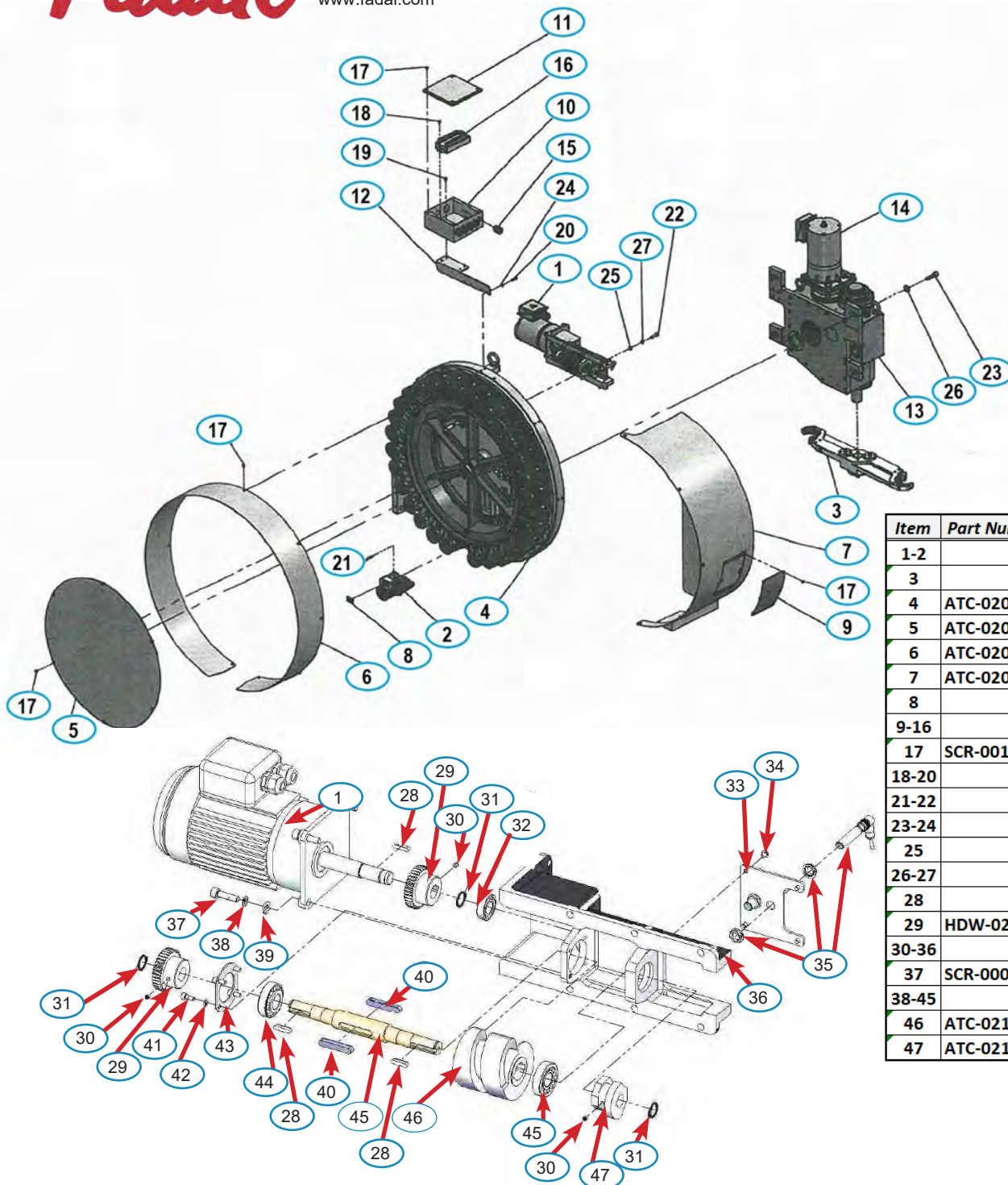
Item	Part Number	Description
1	CNV-02014	SUPPORT BEARING ASSEMBLY
2	MTR-02029	DRIVE MOTOR
3	WIR-02211	CABLE (TERMINAL BLOCK TO MOTOR)
4	WIR-02212	TERMINAL BLOCK
5	WIR-02213	POWER CABLE [W/ CONNECTOR]
6	CNV-02015	TORQUE LIMITER [CLUTCH]
7	HDW-02116	DRIVE CHAIN
8	CNV-02016	SPROCKET
9	CNV-02013	CASTER
10	CNV-02017	GEAR REDUCER
11	CNV-02018	CHAIN COVER
12	CNV-02010	CHIP CONVEYOR - COMPLETE
13	CNV-02019	FRONT COOLANT TANK EXTENSION
14	CNV-02020	FRONT COOLANT TANK END CAP
15	CNV-02021	GASKET; END CAP, EXTENSION

CHIP CONVEYOR

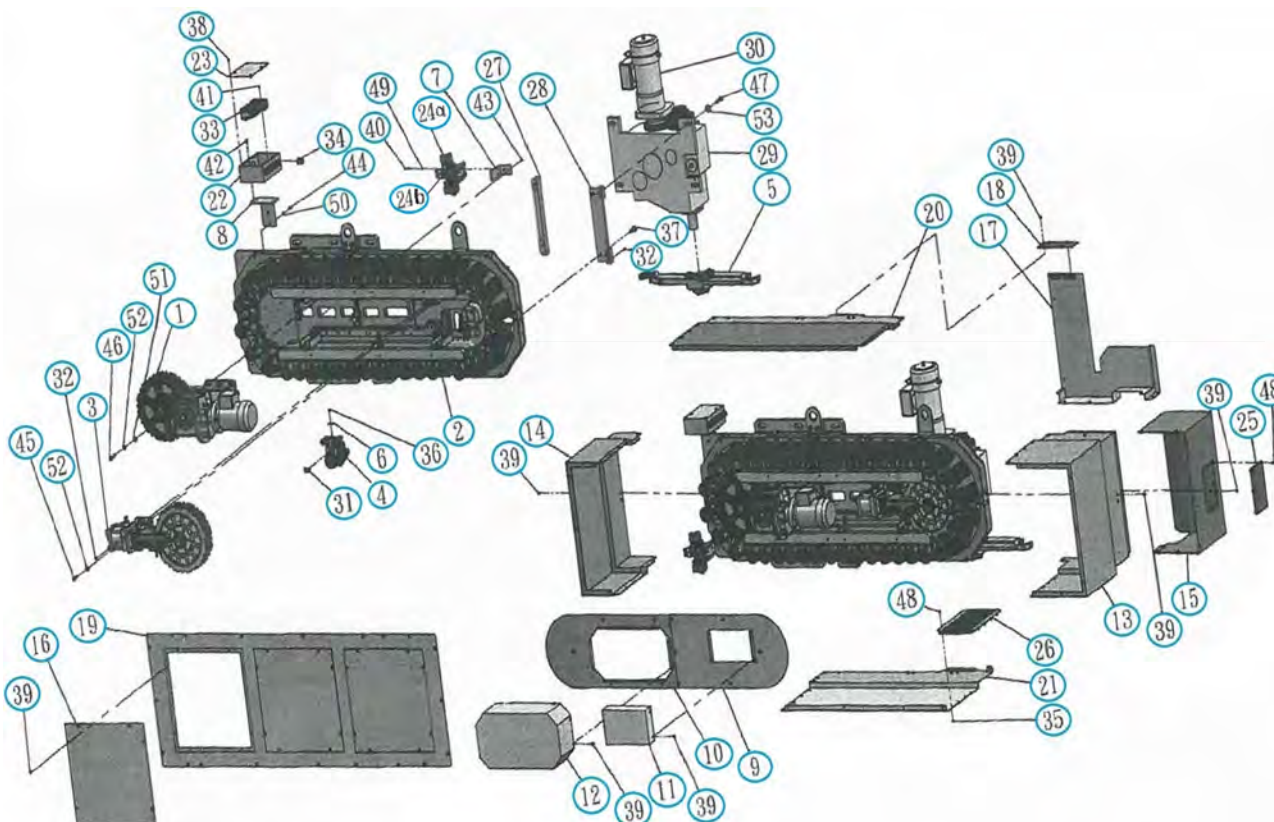


Item	Part Number	Description
1	CNV-02023	MOTOR
2	CNV-02024	TORQUE LIMITER
3	CNV-02025	SEAL PLATE
4	CNV-02026	DRIVE CHAIN
5	CNV-02027	COVER
6	CNV-02028	HINGED BELT ASSEMBLY
7	CNV-02029	CHIP TROUGH
8	CNV-02030	CASTER
9	CNV-02031	ELECTRICAL BOX
10	CNV-02032	LINK PLATE
11	CNV-02033	LINK PIN
12	CNV-02034	INNER DRIVE CHAIN
13	CNV-02035	CHAIN GUIDE (R)
14	CNV-02036	CHAIN LINK - OUTER (3 PC)
15	CNV-02037	PLATE
16	CNV-02038	CHAIN GUIDE (L)
17	CNV-02039	OUTER DRIVE CHAIN
18	CNV-02040	SPRING BUCKLE
19	CNV-02041	SPROCKET
20	SCR-00332	SET SCREW (M6X10L)
21	HDW-02120	KEY (W8XH7X30L)
22	HDW-02122	KEY (W8XH7X60L)
23	CNV-02042	DRIVE SHAFT
24	SEE ITEM #2	SPRING WASHER
25	SEE ITEM #2	WASHER
26	SEE ITEM #2	COPPER BUSHING
27	SEE ITEM #2	TORQUE LIMITER BODY
28	CNV-02043	CLUTCH PLATE
29	CNV-02044	DRIVE SPROCKET
30	SEE ITEM #2	LOCK NUT (M50X1.0)
31	CNV-02045	SPROCKET
32	CNV-02046	SUPPORT SHAFT
33	CNV-02047	SUPPORT SHAFT ASSEMBLY
34	CNV-02048	COVER
35	CNV-02049	MOUNTING PLATE; ELECTRICAL BOX
36	SCR-00333	HEX BOLT (M10X30L)
37	SCR-00314	HEX CAP SCREW (M10X50L)
38	SCR-00334	NUT (M24-P3)
39	CNV-02050	BEARING COVER
40	CNV-02051	DRIVE SHAFT ASSEMBLY
41	CNV-02052	SHROUD
42	CNV-02053	DRIVE BASE
43	CNV-02054	MOTOR SPROCKET
44	CNV-02055	CHAIN GUARD
45	CNV-02022	COMPLETE CHIP CONVEYOR ASSEMBLY

CHIP CONVEYOR - KEYARROW

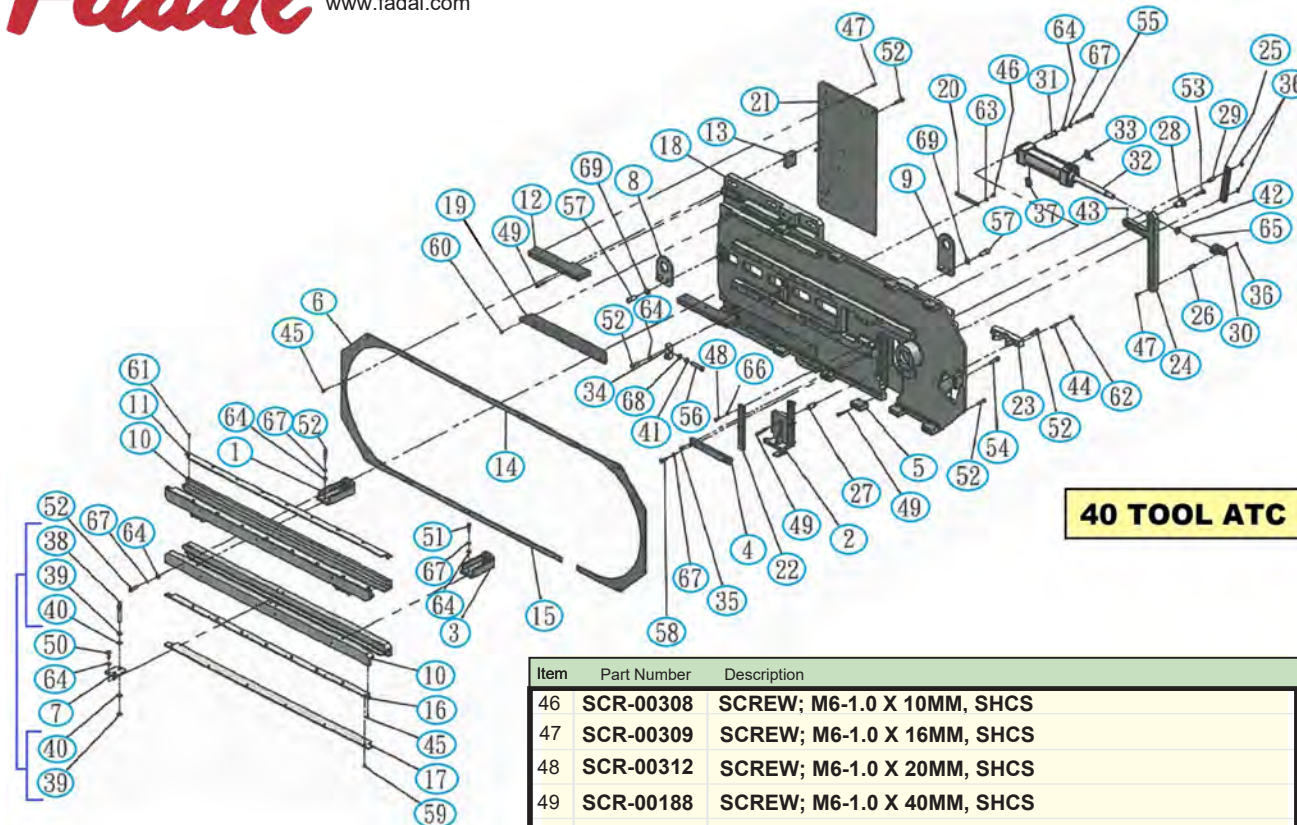


Item	Part Number	Description
1-2		SEE PAGE 22
3		SEE PAGE 24
4	ATC-02087	MAGAZINE ASSEMBLY
5	ATC-02088	MAGAZINE COVER
6	ATC-02089	MAGAZINE SHROUD
7	ATC-02090	FRONT MAGAZINE COVER
8		SEE PAGE 22
9-16		SEE PAGE 21
17	SCR-00171	SCREW; M5-0.8 X 8MM, PANHDCS
18-20		SEE PAGE 21
21-22		SEE PAGE 22
23-24		SEE PAGE 21
25		SEE PAGE 22
26-27		SEE PAGE 21
28		SEE PAGE 22
29	HDW-02068	GEAR; MAGAZINE MOTOR/DRIVE SHAFT
30-36		SEE PAGE 22
37	SCR-00060	SCREW; M8-1.25 X 30MM, SHCS
38-45		SEE PAGE 22
46	ATC-02171	WORM DRIVE GEAR (CAM), DATC MAGAZINE [30T]
47	ATC-02172	CAM INDEXER, MAGAZINE SENSOR [30T]



Item	Part Number	Description
39	SCR-00137	SCREW, M6-1.0 X 10MM BUTTONHEAD SHCS
40	SCR-00304	SCREW, M4-.7 X 35MM, SHCS
41	SCR-00305	SCREW, M5-.8 X 8MM, SHCS
42	SCR-00306	SCREW, M5-.8 X 10MM, SHCS
43	SCR-00308	SCREW, M6-1.0 X 10MM, SHCS
44	SCR-00309	SCREW, M6-1.0 X 16MM, SHCS
45	SCR-00243	SCREW, M10-1.5 X 30MM, SHCS
46	SCR-00208	SCREW, M10-1.5 X 35MM, SHCS
47	SCR-00117	SCREW, M10-1.5 X 40MM, SHCS
48	SCR-00137	SCREW, M6-1.0 X 10MM, BUTTONHEAD SHCS
49	SCR-00155	WASHER, M4
50	SCR-00140	WASHER, M6
51	SCR-00205	WASHER, M10
52	SCR-00187	LOCK WASHER, M10
53	SCR-00307	THICK WASHER, M12 x 30MM x 6MM

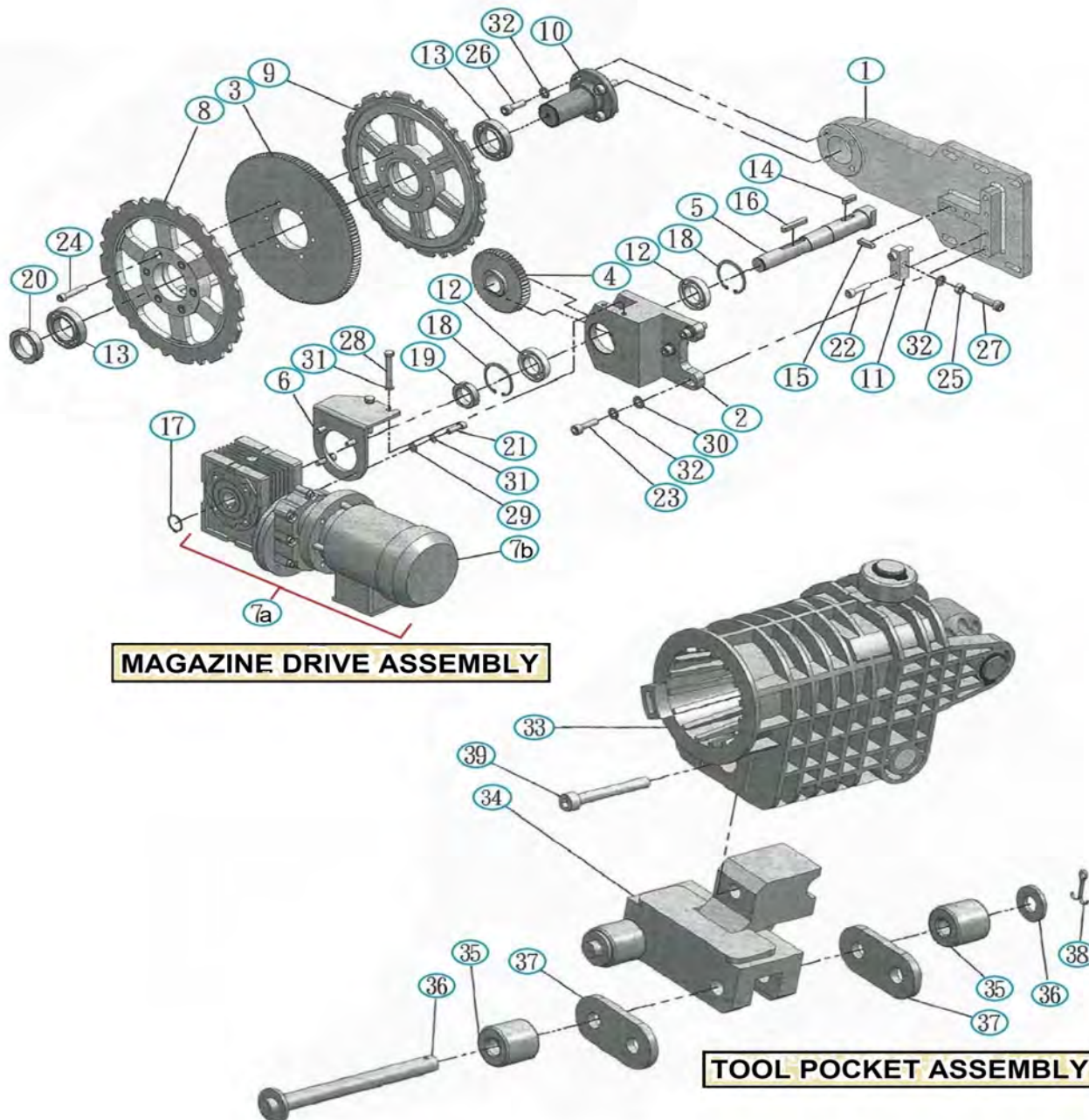
Item	Part Number	Description
1		MAGAZINE DRIVE ASSEMBLY [SEE PAGE 54]
2		40T MAGAZINE ASSEMBLY [SEE PAGE 53]
3		MAGAZINE POSITIONING ASSEMBLY [SEE PAGE 55]
4		TOOL POCKET ASSEMBLY [SEE PAGE 54]
5	ATC-02059	DATC ARM ASSY, CT/BT [NO GRIPPERS]
6	ATC-02091	MAGAZINE HOME (REFERENCE) DOG
7	ATC-02092	SOLENOID VALVE MOUNTING BRACKET
8	ATC-02093	ELECTRICAL BOX MOUNTING BRACKET
9	ATC-02094	INNER MAGAZINE COVER
10	ATC-02095	COVER
11	ATC-02096	SENSOR COVER
12	ATC-02097	MOTOR COVER
13	ATC-02098	MAGAZINE FRONT COVER
14	ATC-02099	MAGAZINE REAR COVER
15	ATC-02100	DATC ARM CAM (GEARBOX) COVER
16	ATC-02101	TRANSPARENT COVER
17	ATC-02102	INNER BASE COVER
18	ATC-02103	AIR CYLINDER COVER
19	ATC-02104	MAGAZINE COVER
20	ATC-02105	UPPER MAGAZINE COVER
21	ATC-02106	LOWER MAGAZINE COVER
22	ATC-02107	ELECTRICAL BOX
23	ATC-02108	ELECTRICAL BOX COVER
24a	VLV-02037	AIR SOLENOID VALVE - POCKET UP/DOWN
24b	VLV-02038	AIR SOLENOID VALVE - MAGAZINE POSITION
25	ATC-02110	TRANSPARENT COVER
26	ATC-02111	BRUSH
27	ATC-02112	CAM (GEARBOX) SPACER-REAR
28	ATC-02113	CAM (GEARBOX) SPACER-FRONT
29	ATC-02080	CAM (GEARBOX) ASSEMBLY
30	MTR-02117	DATC ARM DRIVE MOTOR
31	ATC-02115	POCKET NUMBER PLATE
32	ATC-02116	PIN
33	WIR-02210	TERMINAL BLOCK
34	CNX-00043	CABLE STRAIN RELIEF
35	SCR-00092	NUT; M6 X 1.0
36	SCR-00302	SCREW, M5-.8 X 10MM, FLATHEAD
37	SCR-00303	SCREW, M12-1.75 X 40MM, FLATHEAD
38	SCR-00152	SCREW, M6-1.0 X 10MM BUTTONHEAD SHCS



40 TOOL ATC

Item	Part Number	Description
46	SCR-00308	SCREW; M6-1.0 X 10MM, SHCS
47	SCR-00309	SCREW; M6-1.0 X 16MM, SHCS
48	SCR-00312	SCREW; M6-1.0 X 20MM, SHCS
49	SCR-00188	SCREW; M6-1.0 X 40MM, SHCS
50	SCR-00313	SCREW; M8-1.25 X 20MM, SHCS
51	SCR-00091	SCREW; M8-1.25 X 25MM, SHCS
52	SCR-00207	SCREW; M8-1.25 X 30MM, SHCS
53	SCR-00260	SCREW; M8-1.25 X 35MM, SHCS
54	SCR-00241	SCREW; M8-1.25 X 40MM, SHCS
55	SCR-00239	SCREW; M8-1.25 X 70MM, SHCS
56	SCR-00314	SCREW; M10-1.5 X 50MM, SHCS
57	SCR-00315	SCREW; M12-1.75 X 30MM, SHCS
58	SCR-00254	SCREW; M8-1.25 X 25MM, HEXCAP
59	SCR-00169	SCREW; M5-0.8 X 8MM, BUTTONHEAD
60	SCR-00316	SCREW; M6-1.0 X 8MM, BUTTONHEAD
61	SCR-00317	SCREW; M6-1.0 X 16MM, BUTTONHEAD
62	SCR-00284	NUT; M8-1.25, FLANGED
63	SCR-00140	WASHER; M6
64	SCR-00141	WASHER; M8
65	HDW-02108	SPRING WASHER; M16, CONICAL
66	SCR-00138	LOCK WASHER; M6
67	SCR-00139	LOCK WASHER; M8
68	SCR-00187	LOCK WASHER; M10
69	SCR-00193	LOCK WASHER; M12

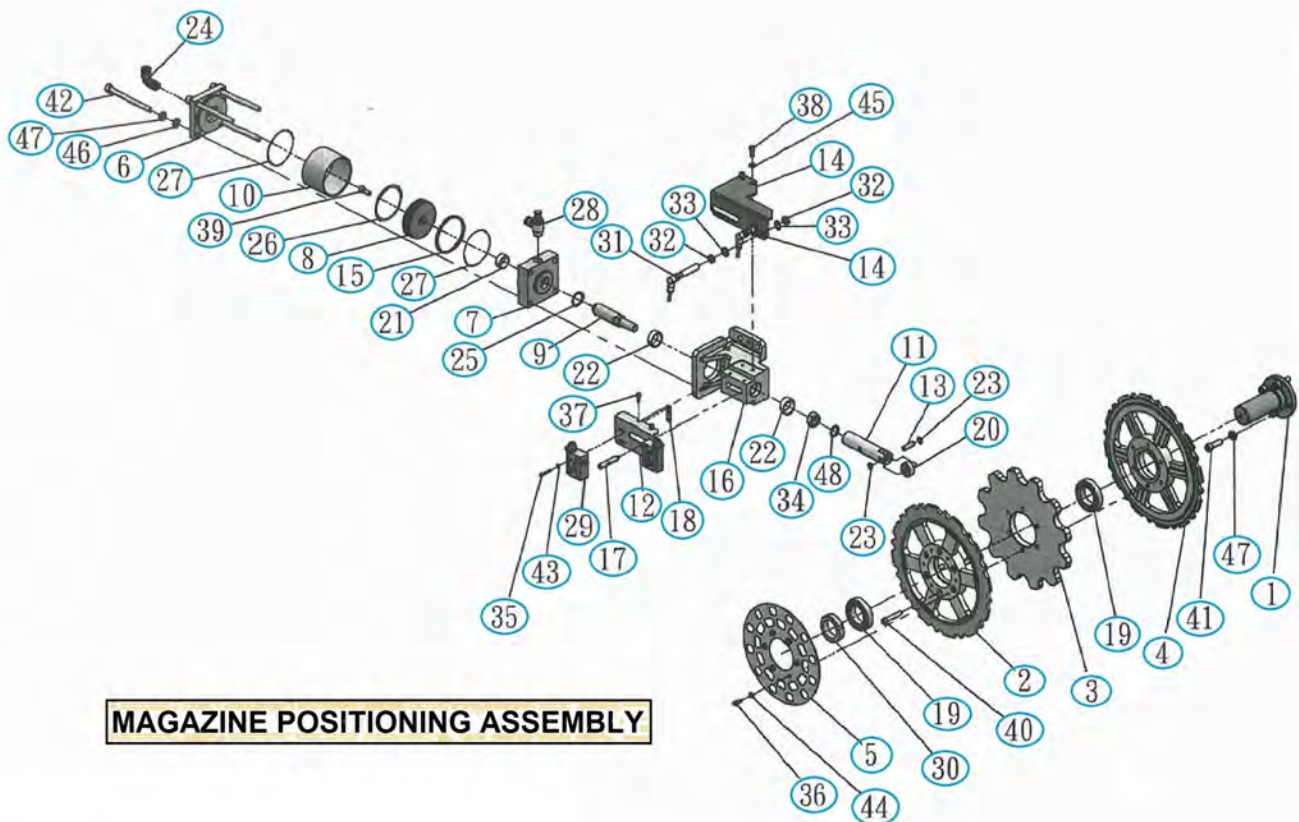
Item	Part Number	Description
1	ATC-02117	GUIDE RAIL BRACKET [A]
2	ATC-02118	TOOL POCKET UP/DOWN PUSHER
3	ATC-02119	GUIDE RAIL BRACKET [B]
4	ATC-02120	CONNECTING PLATE
5	ATC-02121	TOOL POT CAROUSEL ASSEMBLY SUPPORT BLOCK-A
6	ATC-02122	SUPPORT FRAME- FRONT & REAR
7	ATC-02123	ORIGIN SENSOR PLATE
8	ATC-02124	LIFTING RING-A
9	ATC-02125	LIFTING RING-B
10	ATC-02126	GUIDE RAIL
11	ATC-02127	CHAIN BAR - UPPER
12	ATC-02128	TOOL POT CAROUSEL ASSEMBLY SUPPORT BLOCK-B
13	ATC-02129	TOOL POT CAROUSEL ASSEMBLY SUPPORT BLOCK-C
14	ATC-02130	SUPPORT FRAME-A, UPPER
15	ATC-02131	SUPPORT FRAME-B, LOWER
16	ATC-02132	CHAIN BAR-B, LOWER
17	ATC-02133	CHAIN BAR COVER
18	ATC-02134	MAIN CAST BODY
19	ATC-02135	MAIN BODY WIRE HOUSING
20	ATC-02136	MAIN BODY WIRE HOUSING-B
21	ATC-02137	COVER PLATE
22	ATC-02076	TOOL UP/DOWN GUIDE PLATE
23	ATC-02073	TOOL POCKET POSITION SEAT
24	ATC-02071	LEVER, AIR CYLINDER
25	ATC-02072	TOOL POT DOWN, CONNECTING SHAFT
26	CYL-02035	AIR CYLINDER SHAFT CONNECTING PIN
27	HDW-02103	UP/DOWN PUSHER CONNECTING PIN
28	ATC-02138	PIVOT SHAFT CONNECTING PIN
29	HDW-02101	CONNECTING PIN
30	CYL-02034	AIR CYLINDER SHAFT LINK
31	CYL-02037	AIR CYLINDER FIXED MOUNTING PIN
32	CYL-02042	AIR CYLINDER
33	SWT-00083	REED SWITCH
34	ATC-02139	ADJUSTMENT BLOCK
35	HDW-02117	PIN, 8MM X 18L
36	HDW-02055	RETAINING RING; Ø12
37	PLM-02098	FITTING; ELBOW, 10MM X 1/4" NPT
38	SWT-00069	ORIGIN SENSOR, M12 [INCLUDES ITEMS #39 & #40]
39	SEE #38	SENSOR NUT [INCLUDED W/ SWT-00069]
40	SEE #38	SENSOR WASHER [INCLUDED W/ SWT-00069]
41	SCR-00095	NUT; M10 X 1.5
42	SCR-00311	NUT; M16 X 1.5
43	SCR-00149	SET SCREW; M6-1.0 X 6MM
44	SCR-00310	SET SCREW; M8-1.25 X 40MM
45	SCR-00190	SCREW; M6-1.0 X 12MM, FLATHEAD



MAGAZINE DRIVE ASSEMBLY

TOOL POCKET ASSEMBLY

Item	Part Number	Description
1	ATC-02140	MAGAZINE DRIVE ASSEMBLY PLATE
2	ATC-02141	GEAR HOUSING
3	ATC-02142	GEAR-130T
4	ATC-02143	GEAR-52T
5	ATC-02144	TRANSMISSION SHAFT
6	ATC-02145	REDUCER MOUNTING BRACKET
7a	MTR-02030	MOTOR
7b	ATC-02146	MOTOR/DRIVE ASSEMBLY
8	ATC-02147	MAGAZINE ROTATION WHEEL-A [12T]
9	ATC-02148	MAGAZINE ROTATION WHEEL-B [12T]
10	ATC-02149	MAGAZINE WHEEL MOUNT SHAFT
11	ATC-02150	MAGAZINE ADJUSTMENT BLOCK
12	BRG-02125	BEARING
13	BRG-02126	BEARING
14	HDW-02058	KEY, W8x7Tx25L
15	HDW-02120	KEY, W8x7Tx30L
16	HDW-02067	KEY, W8x7Tx50L
17	HDW-02118	RETAINING RING, M25
18	HDW-02119	RETAINING RING, M55
19	SCR-00320	RETAINING LOCKNUT, M30-1.5 [YSR]
20	SCR-00321	RETAINING LOCKNUT, M40-1.5 [YSR]
21	SCR-00091	SCREW, M8-1.25 X 25MM, SHCS
22	SCR-00087	SCREW, M8-1.25 X 35MM, SHCS
23	SCR-00208	SCREW, M10-1.5 X 35MM, SHCS
24	SCR-00199	SCREW, M8-1.25 X 45MM, SHCS
25	SCR-00332	SCREW, M10-1.5 X 8MM, SHCS
26	SCR-00243	SCREW, M10-1.5 X 30MM, SHCS
27	SCR-00204	SCREW, M10-1.5 X 45MM, SHCS
28	SCR-00060	SCREW, M8-1.25 X 30MM, SHCS
29	SCR-00153	WASHER, M8
30	SCR-00205	WASHER, M10
31	HDW-02062	LOCK WASHER, M8
32	SCR-00187	LOCK WASHER, M10
33	ATC-02151	TOOL POT, 40T ATC, BT/CT
34	ATC-02152	TOOL POT SEAT
35	ATC-02153	CHAIN LINK ROLLER
36	ATC-02154	CHAIN LINK PIN
37	ATC-02155	CHAIN LINK
38	HDW-02121	COTTER PIN
39	SCR-00323	SCREW; M5-0.8 X 40MM, SHCS



MAGAZINE POSITIONING ASSEMBLY

Item	Part Number	Description
39	SCR-00313	SCREW, M8-1.25 X 20MM, SHCS
40	SCR-00199	SCREW, M8-1.25 X 45MM, SHCS
41	SCR-00243	SCREW, M10-1.5 X 30MM, SHCS
42	SCR-00326	SCREW, M10-1.5 X 120MM, SHCS
43	SCR-00155	WASHER, M4
44	SCR-00158	WASHER, M5
45	SCR-00140	WASHER, M6
46	SCR-00205	WASHER, M10
47	SCR-00187	LOCK WASHER, M10
48	SCR-00235	LOCK WASHER, M16

Item	Part Number	Description
1	ATC-02149	MAGAZINE WHEEL MOUNT SHAFT
2	ATC-02142	MAGAZINE ROTATION WHEEL-A
3	ATC-02156	MAGAZINE POSITIONING WHEEL
4	ATC-02148	MAGAZINE ROTATION WHEEL-B
5	ATC-02157	SENSOR WHEEL PLATE
6	ATC-02158	CYLINDER UPPER COVER
7	ATC-02159	CYLINDER LOWER COVER
8	ATC-02160	CYLINDER PISTON
9	ATC-02161	CYLINDER PISTON ROD
10	ATC-02162	CYLINDER SLEEVE
11	ATC-02163	ROLLER PISTON ROD
12	ATC-02164	SWITCH SEAT
13	ATC-02165	CONNECTING PIN
14	ATC-02166	SENSOR SWITCH BRACKET
15	ATC-02167	WEAR RESISTANT RING
16	ATC-02168	AIR CYLINDER BASE
17	ATC-02169	PIN
18	ATC-02170	SLOTTED PLATE
19	BRG-02126	BEARING
20	BRG-02127	ROLLER
21	BRG-02128	SELF LUBRICATING SLEEVE, 25x28x12L
22	BRG-02129	SELF LUBRICATING SLEEVE, 28x32x12L
23	HDW-02080	RETAINING RING, M10
24	PLM-02087	FITTING, 10MM QD x 3/8 NPT, ELL
25	SEL-00144	O'RING, P25
26	SEL-00094	O'RING, P70
27	SEL-00145	O'RING, S75
28	PLM-02185	FITTING: FLOW ADJUST, 10MM QD x 3/8 NPT, ELL
29	SWT-00084	MICRO SWITCH
30	SCR-00321	RETAINING LOCK NUT, M40-1.5 [YSR]
31	SWT-00069	SENSOR, M12 24VDC
32	SEE #38	SENSOR NUT [INCLUDED W/ SWT-00069]
33	SEE #38	SENSOR WASHER [INCLUDED W/ SWT-00069]
34	SCR-00324	NUT, M16-2.0
35	SCR-00325	SCREW, M4-0.7 X 25MM, SHCS
36	SCR-00179	SCREW, M5-0.8 X 12MM, SHCS
37	SCR-00136	SCREW, M6-1.0 X 12MM, SHCS
38	SCR-00309	SCREW, M6-1.0 X 16MM, SHCS

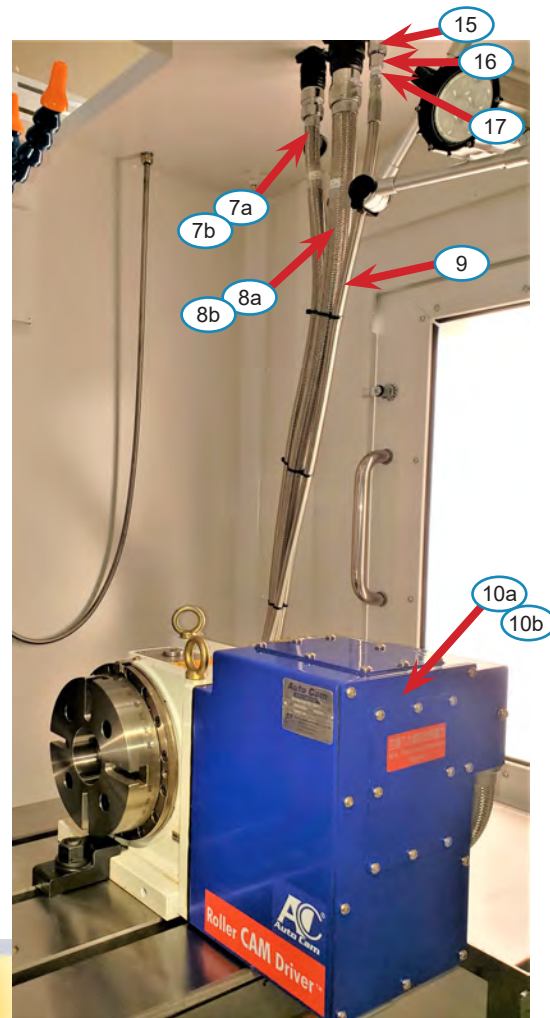
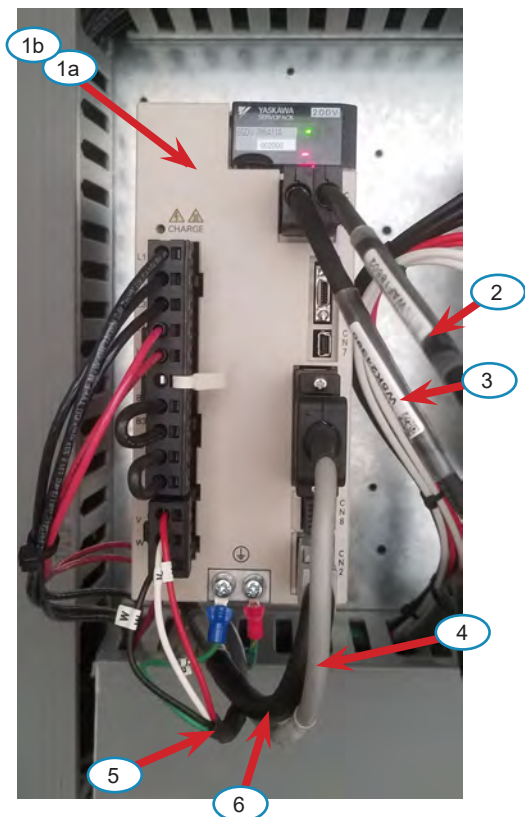
40 TOOL ATC



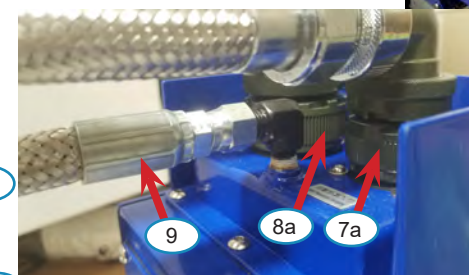
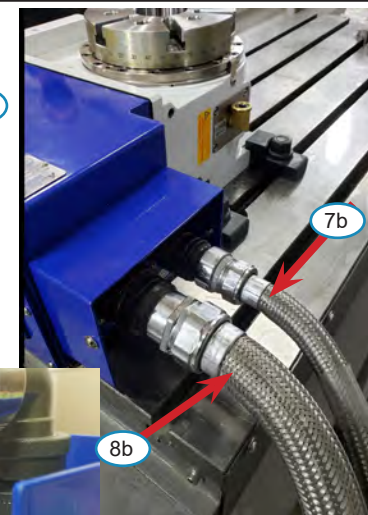
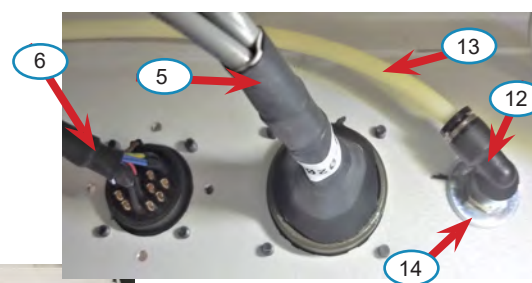
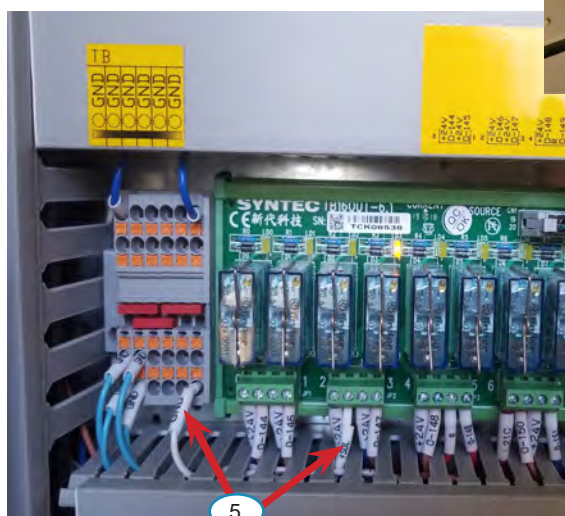
Item	Part Number	Description
1	MPG-02001	REMOTE MPG W/ CABLE, CONNECTOR & BRACKET

1

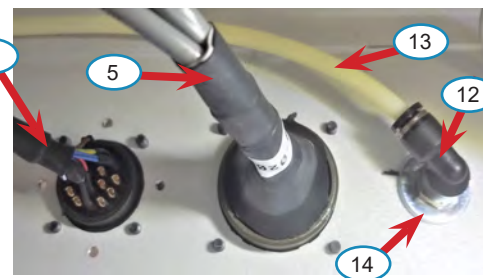
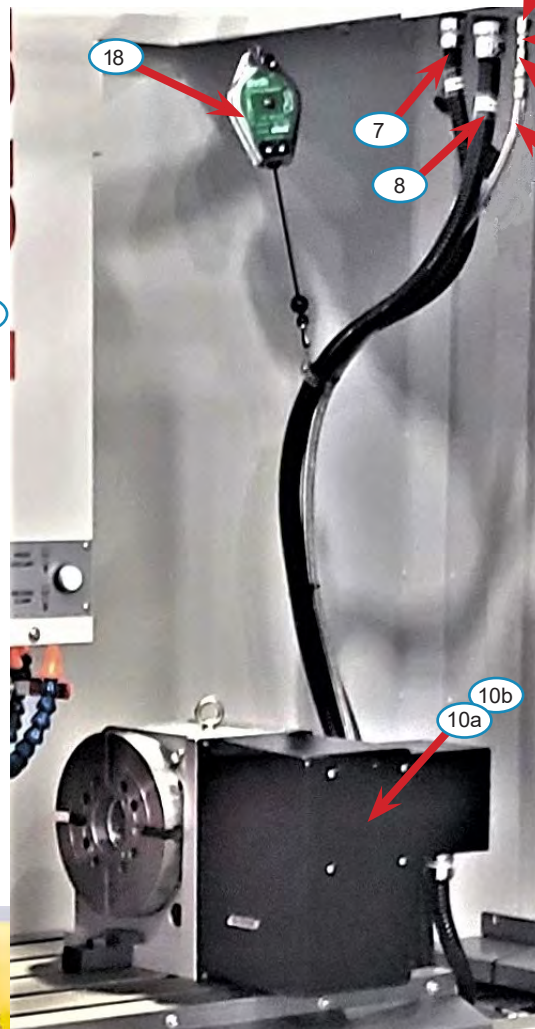
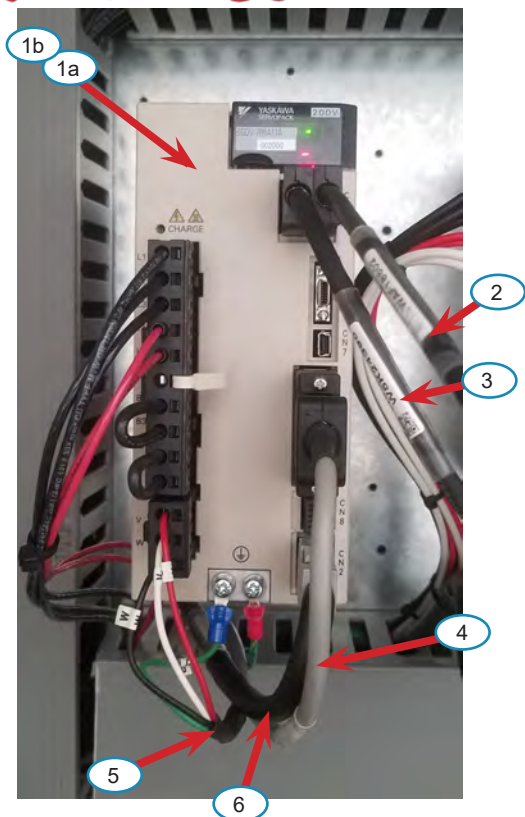
REMOTE MPG



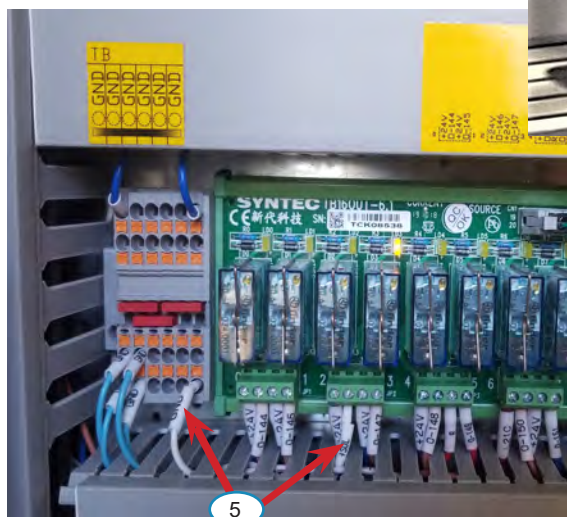
Item	Part Number	Description
1a	AMP-02001	AMPLIFIER, YASKAWA, 1000W [SIG. 5]
1b	AMP-02013	AMPLIFIER, YASKAWA, 1000W [SIG. 7]
2	WIR-02050	CABLE,USB-USB;MECHATROLINK;18 IN AMP-AMP
3	WIR-02051	CABLE,USB-USB;MECHATROLINK;11 FT CTR-AMP
4	WIR-02020	CABLE, AMP-TERMINAL BLOCK, BATTERY BKP
5	WIR-02119	HARNESS, A-AXIS POWER, AMP TO BULKHEAD
6	WIR-02010	HARNESS, A-AXIS ENCODER, AMP TO BULKHEAD
7a	WIR-02012	CABLE; A-AXIS ENCODER, BULKHEAD TO ROTARY
7b	WIR-02012-STR	CABLE; A-AXIS ENCODER,BULKHEAD TO ROTARY [STRAIGHT]
8a	WIR-02013	CABLE; A-AXIS POWER, BULKHEAD TO ROTARY
8b	WIR-02013-STR	CABLE; A-AXIS POWER, BULKHEAD TO ROTARY [STRAIGHT]
9	PLM-02191	AIR HOSE; 1/4JIC, STEEL BRAIDED
10a	ROT-02092	ROTARY TABLE: FR-6A,HIGH SPEED [W/OUT MOTOR]
10b	ROT-02092/MTR	ROTARY TABLE: FR-6A,HIGH SPEED [W/ MOTOR]
11	PLM-02186	REDUCER; 3/8"NPT - 1/4" NPT
12	PLM-02092	FITTING; 6MM QD X 1/4MPT ELL
13	PLM-02083	TUBING; NYLON, 6MM
14	SCR-00328	WASHER; 25MM X 14MM X 2.5MM
15	PLM-02192	FITTING; PUSH CONNECT SOCKET HOSE COUPLING
16	PLM-02193	FITTING; QUICK DISCONNECT HOSE COUPLING
17	PLM-02190	FITTING; 1/4 JIC - 1/4 FIPT



FR-6A - HIGH SPEED



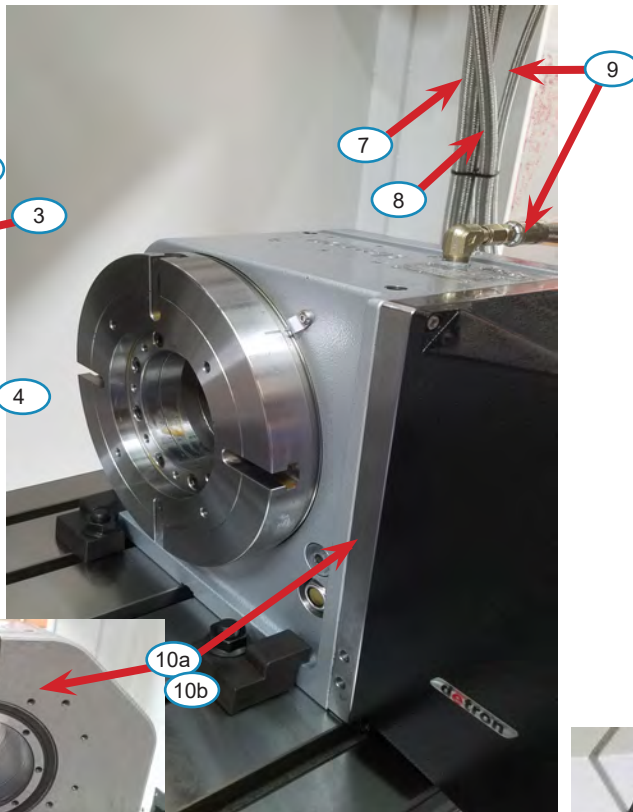
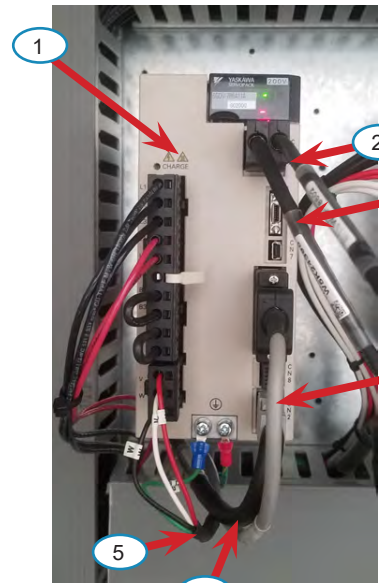
Item	Part Number	Description
1	AMP-02001	AMPLIFIER,YASKAWA, 1.5KW [SIG. 7]
2	WIR-02013	CABLE, USB-USB; MECHATROLINK 18" AMP-AMP
3	WIR-02050	CABLE, USB-USB; MECHATROLINK 11' CTR-AMP
4	WIR-02020	CABLE ,AMP TO TERMINAL BLOCK; BATTERY BKP
5	WIR-02119	HARNESS, A-AXIS POWER; AMP TO BULKHEAD
6	WIR-02010	HARNESS, A-AXIS ENCODER; AMP TO BULKHEAD
7	WIR-02012	CABLE; A-AXIS ENCODER, BULKHEAD TO ROTARY
8	WIR-02013	CABLE, A-AXIS POWER; BULKHEAD TO ROTARY
9	PLM-02191	HOSE; 1/4 JIC, STEEL BRAIDED
10a	ROT-02056	ROTARY TABLE; FR-8D [W/OUT MTR]
10b	ROT-02056/MTR	ROTARY TABLE; FR-8D [W/ MTR]
11	PLM-02186	REDUCER; 3/8 NPT - 1/4 NPT
12	PLM-02092	FITTING; 6MM QD X 1/4 MPT ELL
13	PLM-02083	TUBING; NYLON, 6MM
14	SCR-00328	WASHER; 25MM X 14MM X 2.5MM
15	PLM-02192	FITTING; PUSH CONNECT SOCKET HOSE COUPLING
16	PLM-02193	FITTING; QUICK DISCONNECT HOSE COUPLING
17	PLM-02190	FITTING; 1/4 JIC - 1/4 FIPT
18	WIR-02216	SUSPENDED CABLE TENSIONER, ADJUSTABLE



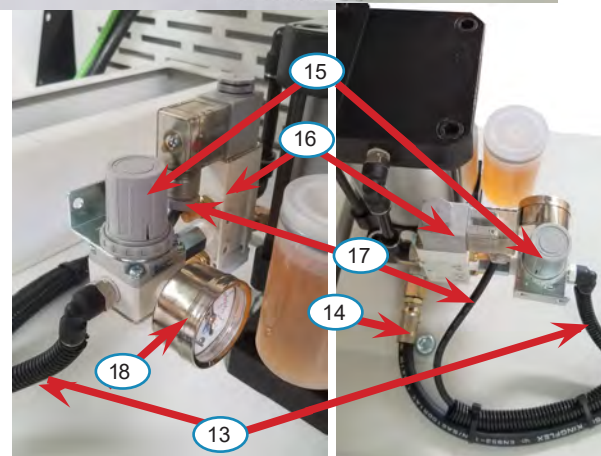
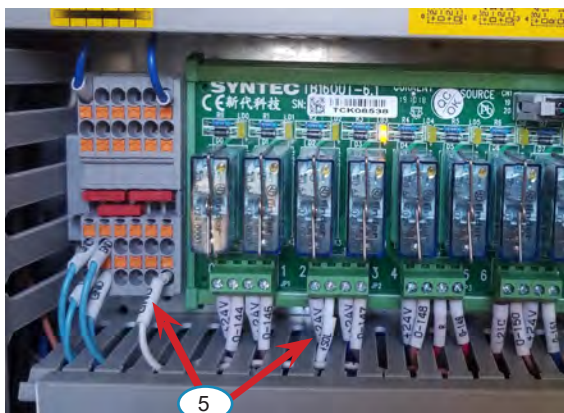
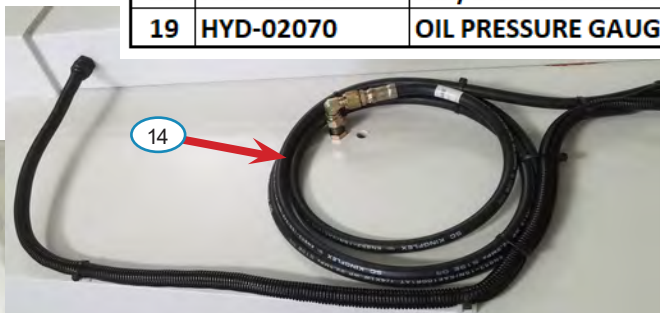
8" ROTARY

PARTS MANUAL VMC 4020

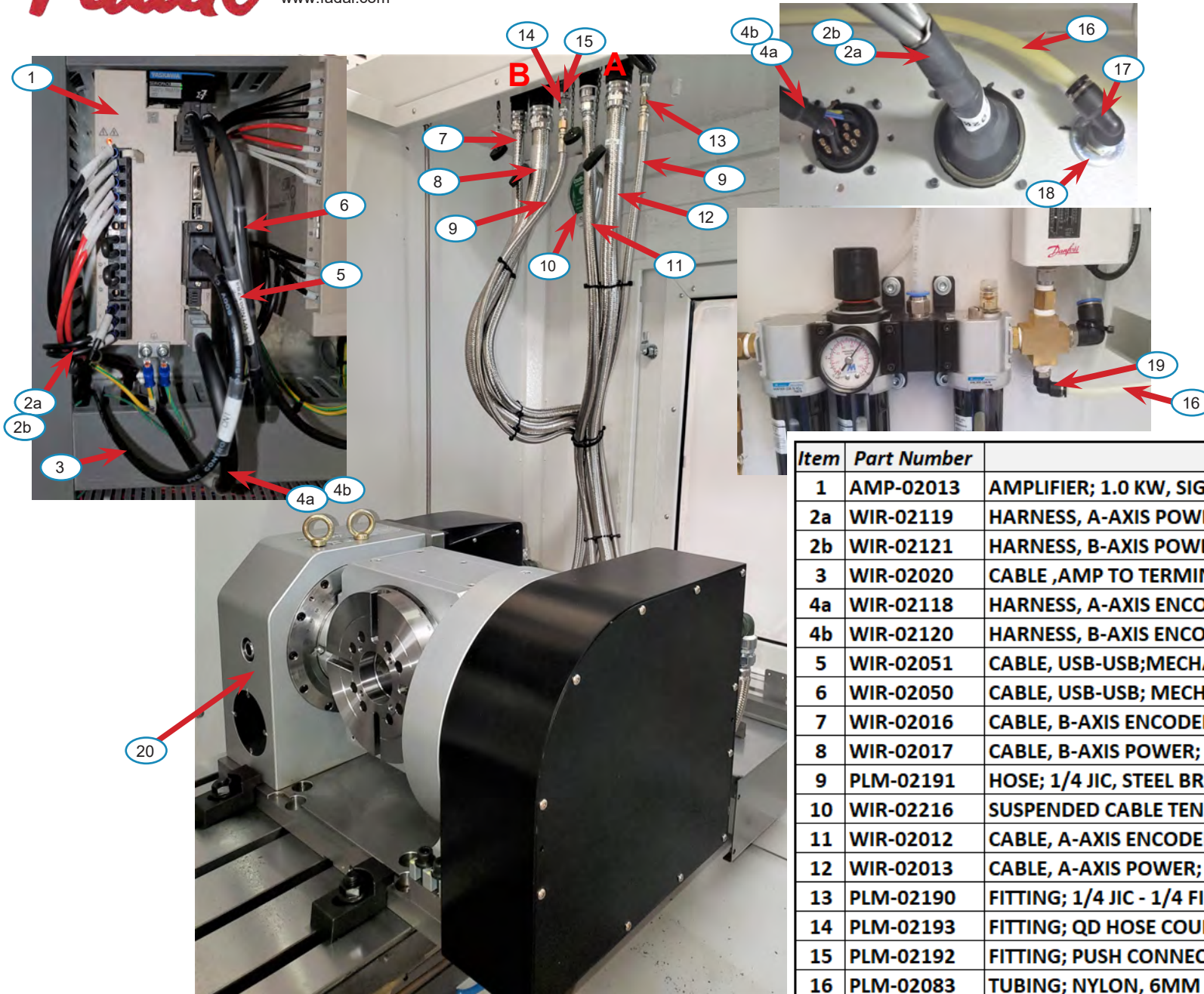
Item	Part Number	Description
1	AMP-02017	AMPLIFIER, YASKAWA, 1.5KW [SIG. 7]
2	WIR-02050	CABLE, USB-USB; MECHATROLINK 18" AMP-AMP
3	WIR-02051	CABLE, USB-USB; MECHATROLINK 11' CTR-AMP
4	WIR-02020	CABLE, AMP TO TERMINAL BLOCK; BATTERY BKP
5	WIR-02119	HARNESS, A-AXIS POWER; AMP TO BULKHEAD
6	WIR-02010	HARNESS, A-AXIS ENCODER; AMP TO BULKHEAD
7	WIR-02012	CABLE; A-AXIS ENCODER, BULKHEAD TO ROTARY
8	WIR-02013	CABLE, A-AXIS POWER; BULKHEAD TO ROTARY
9	PLM-02191	HOSE; 1/4 JIC, STEEL BRAIDED
10a	ROT-02073	ROTARY TABLE, 4TH; FR-10D; [NO MOTOR]
10b	ROT-02073/MTR	ROTARY TABLE, 4TH; FR-10D; [W/ MOTOR]
11	PLM-02186	REDUCER; 3/8 NPT - 1/4 NPT
12	PLM-02092	FITTING; 6MM QD X 1/4 MPT ELL
13	PLM-02083	TUBING; NYLON, 6MM
14	HYD-02021	HOSE; HYDRAULIC, 1/4 JIC X 1M
15	REG-02016	AIR REGULATOR
16	VLV-02011	AIR SOLENOID VALVE
17	WIR-02049	CABLE; 2-COND., AWG18 X 10'
18	REG-02013	AIR PRESSURE GAUGE; 0-150 PSI, 1/8
18	HYD-02072	AIR/OIL BOOSTER CYLINDER
19	HYD-02070	OIL PRESSURE GAUGE; 0-1000 PSI



OPTIONS



10" ROTARY

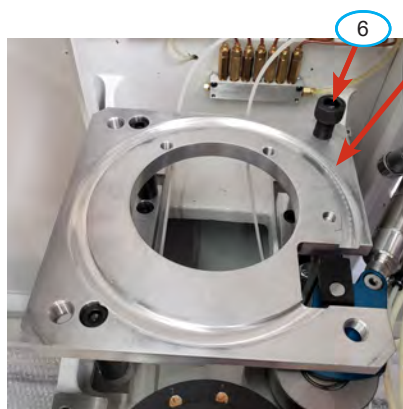
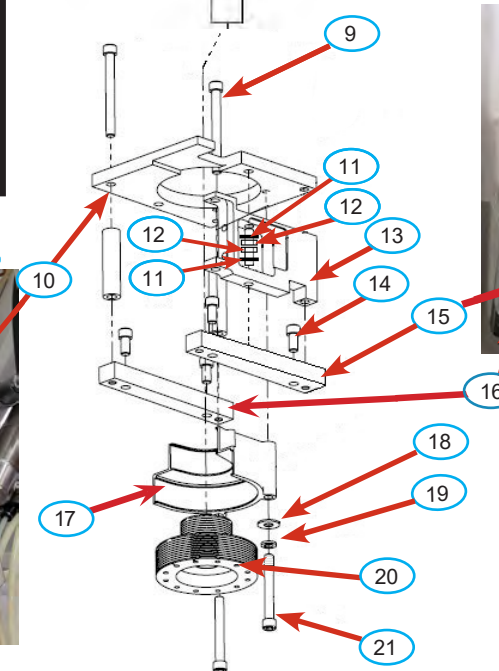
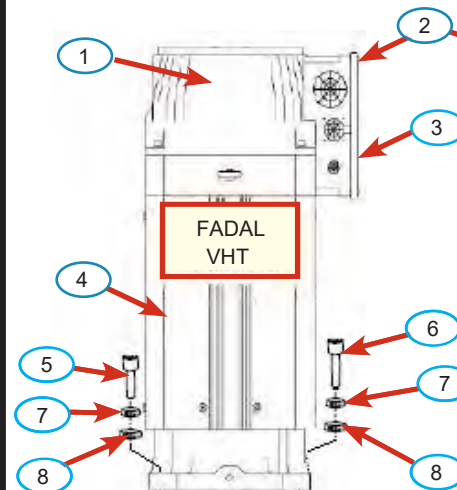


8" TILTING ROTARY

Item	Part Number	Description
1	AMP-02013	AMPLIFIER; 1.0 KW, SIG. 7
2a	WIR-02119	HARNESS, A-AXIS POWER; AMP TO BULKHEAD
2b	WIR-02121	HARNESS, B-AXIS POWER; AMP TO BULKHEAD
3	WIR-02020	CABLE ,AMP TO TERMINAL BLOCK; BATTERY BKP
4a	WIR-02118	HARNESS, A-AXIS ENCODER ;AMP TO BULKHEAD
4b	WIR-02120	HARNESS, B-AXIS ENCODER; AMP TO BULKHEAD
5	WIR-02051	CABLE, USB-USB;MECHATROLINK 11', CTR-AMP
6	WIR-02050	CABLE, USB-USB; MECHATROLINK 18" AMP-AMP
7	WIR-02016	CABLE, B-AXIS ENCODER; BULKHEAD TO ROTARY
8	WIR-02017	CABLE, B-AXIS POWER; BULKHEAD TO ROTARY
9	PLM-02191	HOSE; 1/4 JIC, STEEL BRAIDED
10	WIR-02216	SUSPENDED CABLE TENSIONER, ADJUSTABLE
11	WIR-02012	CABLE, A-AXIS ENCODER; BULKHEAD TO ROTARY
12	WIR-02013	CABLE, A-AXIS POWER; BULKHEAD TO ROTARY
13	PLM-02190	FITTING; 1/4 JIC - 1/4 FIPT
14	PLM-02193	FITTING; QD HOSE COUPLING
15	PLM-02192	FITTING; PUSH CONNECT SOCKET HOSE COUPLING
16	PLM-02083	TUBING; NYLON, 6MM
17	PLM-02092	FITTING; 6MM QD X 1/4MPT ELL
18	SCR-00328	WASHER; 25MM X 14MM X 2.5MM
19	PLM-02172	FITTING, 6MM QD X 3/8 MALE NPT, ELL
20	ROT-02061	TILTING ROTARY TABLE, 4/5TH;[FTR-8D];[W/ CABLES/MTRS

Item	Part Number	Description
FADAL VHT MOTOR		
1	FAN-02014	COOLING FAN; VHT SPINDLE MOTOR
2	SCR-00090	SCREW; M6-1.0 X 8MM, FLATHEAD SCS
3	MTR-02011	COVER PLATE; VHT SPINDLE MOTOR ELECTRICAL BOX
4	MTR-02078	VHT SPINDLE MOTOR *
5	SCR-00330	SCREW, M18-2.5 X 18MM SHCS [3 REQD]
6	SCR-00331	SCREW, M18-2.5 X 34MM SHCS [1 REQD]
7	SCR-00273	LOCKWASHER; M18
8	SCR-00274	FLATWASHER; M18
9	SCR-00051	SCREW; 1/2-13 X 5, SHCS
10	MTR-02099	MOTOR MOUNTING PLATE; FADAL, 20VHT
11	SCR-00129	LOCKWASHER; M12 [2 REQD]
12	SCR-00292	SCREW; M12-1.25 X 30MM, HEXCAP [2 REQD]
13	IDL-02015	IDLER FRAME [SEE ALSO PG. 19]
14	SCR-00030	SCREW; 1/2-13 X 1, SHCS
15	MTR-02101	MOTOR MOUNT BAR; VHT- RT. SIDE [1 REQD]
16	MTR-02006	MOTOR MOUNT BAR; STANDARD [1 REQD]
17	BEL-02004	BELT GUIDE, SPINDLE MOTOR
18	SCR-00001	HARDWASHER; 1/2 ID [3/4 OD X .125 THK]
19	SCR-00002	LOCKWASHER; 1/2
20	PUL-02005	PULLEY, SPINDLE MOTOR
21	SCR-00013	SCREW; 1/2-13 X 4, SHCS

* SPINDLE MOTOR CAN BE ORDERED WITH PULLEY AND BALANCED FOR AN ADDITIONAL CHARGE



VHT SPINDLE MOTOR