

# Ruwac USA Industrial Vacuums

WNS & WS Series

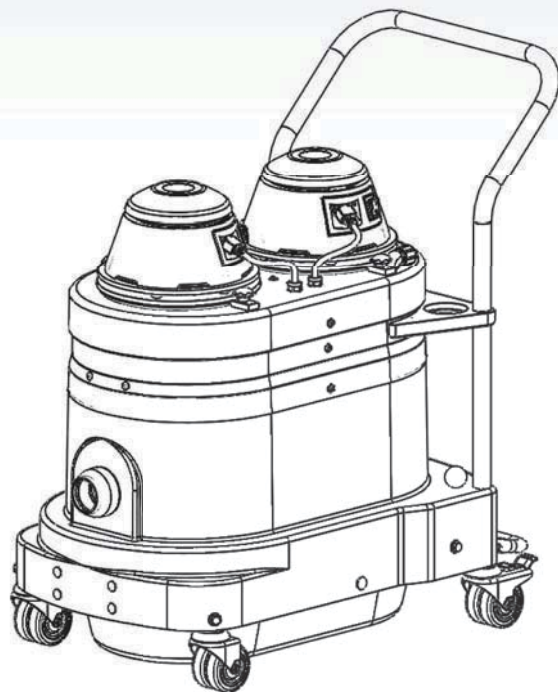
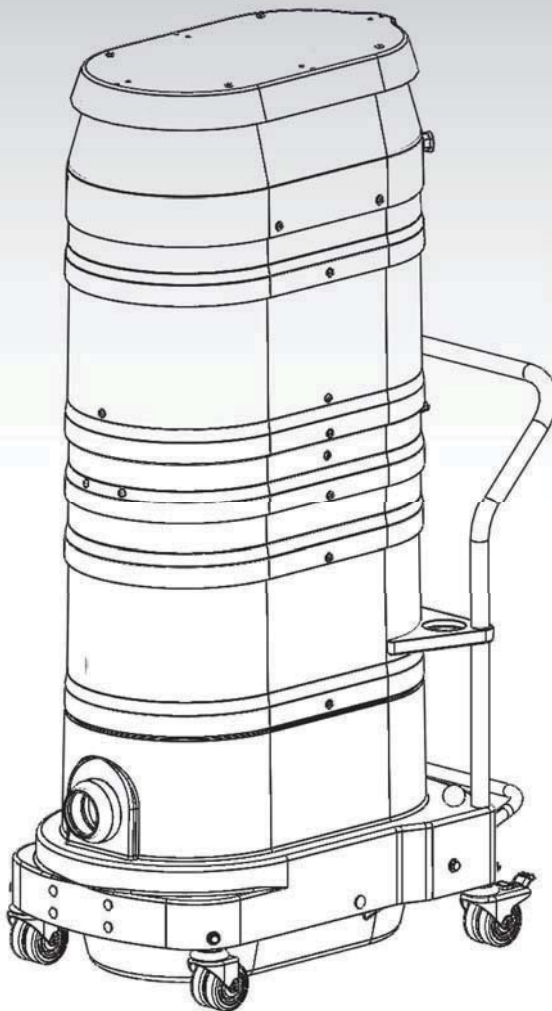
Parts Manual

Model No.

Serial No.

Filter No.

Start-Up Date



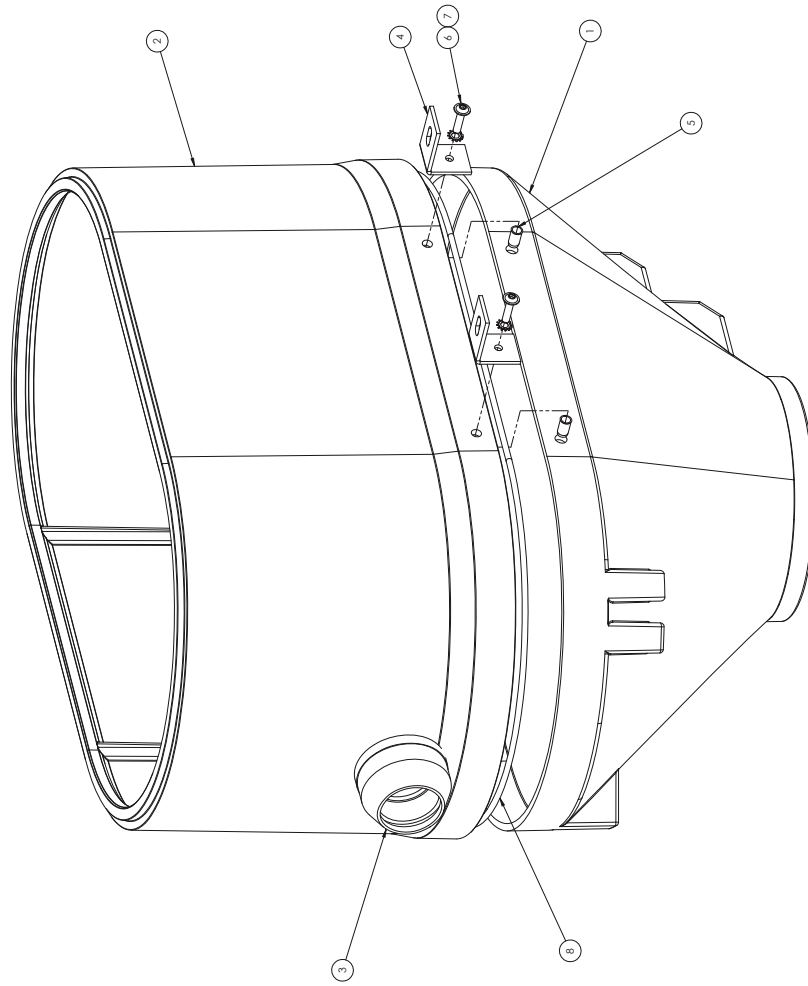
Version: 3.2 12/16/19







REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	NOBICO RELEASE A1 A	6/23/2017	DIE

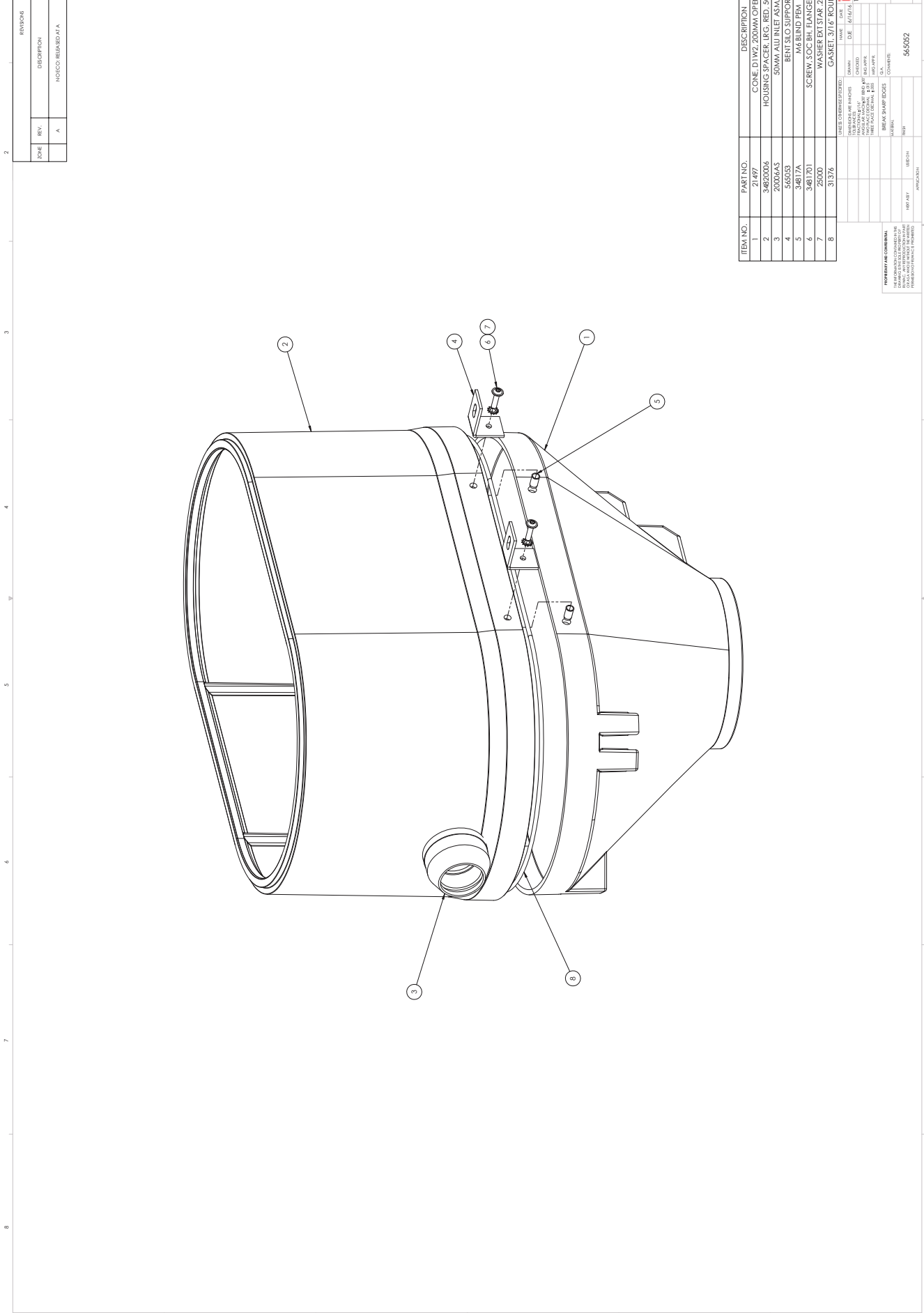


ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	21497	CONE DIW2, 200MM OPENING, RED	1
2	34620006	HOUSING SPACER, IRG, RED, 50MM INLET, DB	1
3	20026AS	50MM ALL INLET ASM, SILO	1
4	355533	BENT SILO SUPPORT	4
5	34817A	30 BEND TUBES	4
6	34817B	SCREEN SUPPORT, IRG, RED, M4-25	4
7	35020	WASHER EX1 STAR, ZENI	4
8	31376	GASKET 314E ROUND	4

DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE

DRAWING NO. 545052  
 TITLE DIRECT BAGGER SILO ASM  
 SIZE DWG. NO. 000-E-0338 US  
 SCALE 1:2 WEGE: A  
 SHEET 1 OF 1

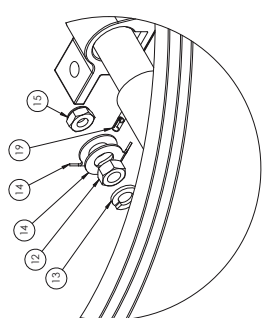
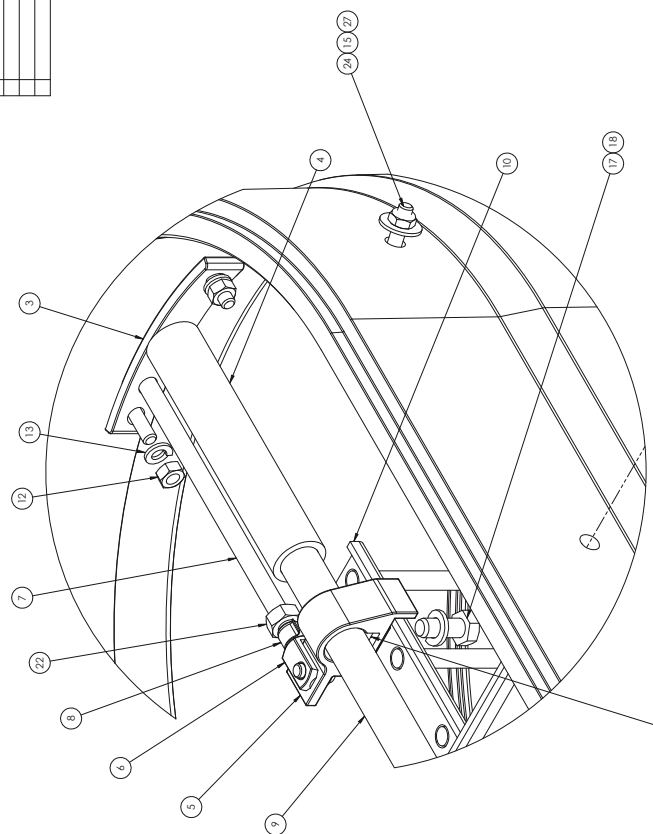
INFORMATION ON COMMENTS  
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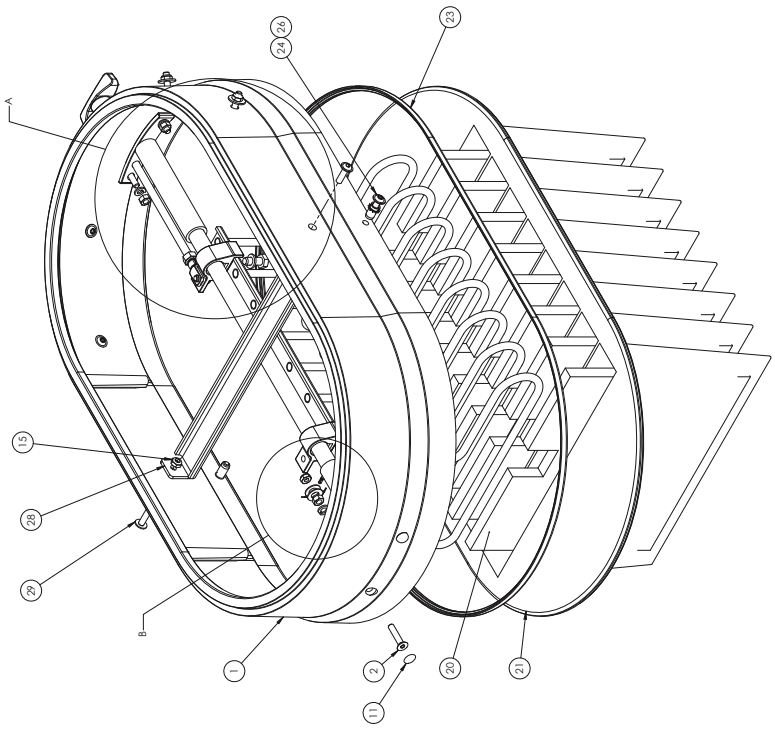


REV	DESCRIPTION	DATE	BY
L	ADDED HOLES AND HARDWARE FOR PLASTIC SUPPORTS PER ECO-175	7/23/14	DE



DETAIL B  
SCALE 1:1

DETAIL A  
SCALE 1:1



ITEM NO.	PART NO.	DESCRIPTION	DRAWING NO.	QTY.
1	34823002	HOUSING SPACER, DI. PORT, SMALL, RED		1
2	34815	SCREW, SOC PH M6 X 30		4
3	34806	SHAKER ROD MOUNTING SUPPORT		2
4	34805	CLEAR HOSE, 3/4" ID		2
5	34802	FILTER SLIDE GUIDE, PLASTIC		2
6	25697	CLEVIS, 6M12, M8 RHT		1
7	22565	SHAKER BAR W/ SWIVEL HANDLE		1
8	34879	SPRING CLIP 6 X 12		1
9	34804	MANUAL SHAKER BAR		1
10	25036	FILTER SUPPORT WELDMENT 1.2M		1
11	34871	PLASTIC PLUG, 4.5/13		4
12	20040	NUT HEX M6		4
13	20039	WASHER LOCK M6		4
14	34998	GROUND CONNECTOR		2
15	34874	M6 LOCK NUT		7
16	20045	NUT SQUARE M8		2
17	25038	BOIT HEX M8 X 20		2
18	20050	WASHER SPIT LOCK M8		2
19	34868	GROUND WIRE, FILTER TO DEFLECTOR		1
20	20091F	FILTER INSERT		8
21	20091	1.2M FILTER		1
22	20044	HEX NUT M8 ZINC		1
23	313786	GASSET NINRIE SPONGE		1
24	3481701	SCREW, SOC BH FLANGED, M6-25		6
25	34817A	M6 BIND PEN		2
26	25000	WASHER EXT 3/8K 1/4"		2
27	34819	WASHER FRODER M6		4
28	34879	WASHER FRODER M6		4
29	34817	SCREWS SOC LUD, M6 X 20		2

REV	DESCRIPTION	DATE	BY
L	ADDED HOLES AND HARDWARE FOR PLASTIC SUPPORTS PER ECO-175	7/23/14	DE

SA WINTER ST.  
 HOYOPE, AOS, 01040  
**1.2M FILTER ASSEMBLY, MANUAL SHAKER, RED, PORT**  
 D 000 E 0041 US L  
 SCALE: 1/8" W/8" CHG. SHEET 1 OF 1

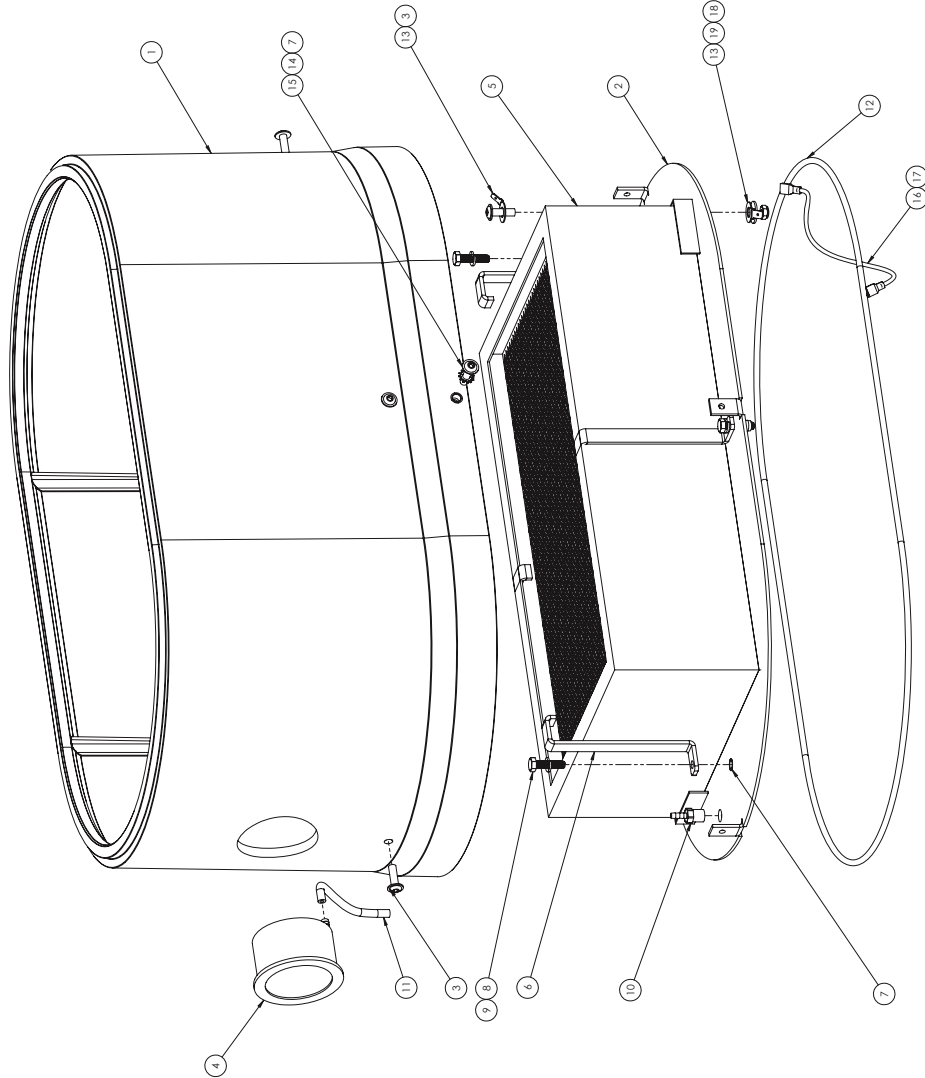
20091 A  
 20091 A

1.2M FILTER ASSEMBLY, MANUAL SHAKER, RED, PORT  
 D 000 E 0041 US L  
 SCALE: 1/8" W/8" CHG. SHEET 1 OF 1





REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	H	ECO 1188	3/9/14	DJE
	I	ECO 1302 CHANGED GROUNDING HARDWARE	4/10/2017	DJE



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	34820002	LRG HOUSING SPACER, D1-W5, HEPA, RED	1
2	34947	HEPA ADAPTER PLATE, D31	1
3	34817	SCREW ULS SOC HD M6 X 20	5
4	25143	MINIHELIC, WITH WING BKLT, 10' WC	1
5	35211	HEPA FILTER 40 SQ FOOT, W5, D31	1
6	34949	HEPA HOLD DOWN BRACKET, W5	4
7	34817A	M6 BLIND FEM	6
8	34854	BOLT, HEX, M6-25	4
9	20039	WASHER LOCK M6	4
10	31632	HOSE BARB, 1/25 NPTX, 25 BARB	1
11	34800	HOSE, CLEAR, 1/8" DIA	1FT
12	31376	GASKET, 3/16" ROUND	575FT
13	34998	GROUND CONNECTOR	2
14	25000	WASHER EXT 3 STAR, 25IN	2
15	3481701	SCREW, SOC BR, FLANGED, M6-25	2
16	34993	WIRE, 16 GAUGE, GREEN	8IN
17	31713	TERMINAL, 1/8" GA., PUSHION, BLUE/WHITE	2
18	348176	M6 LOCK NUT	1
19	348177	WASHER FENDER M6	1

DATE	BY	CHKD	APP'D	TITLE
11/27/14	J.P.			HEPA FILTER MODULE, RED

HEPA FILTER MODULE, RED  
 SIZE DWG. NO. 000-E 0096 US  
 SCALE: 1:2, WEGE  
 35192

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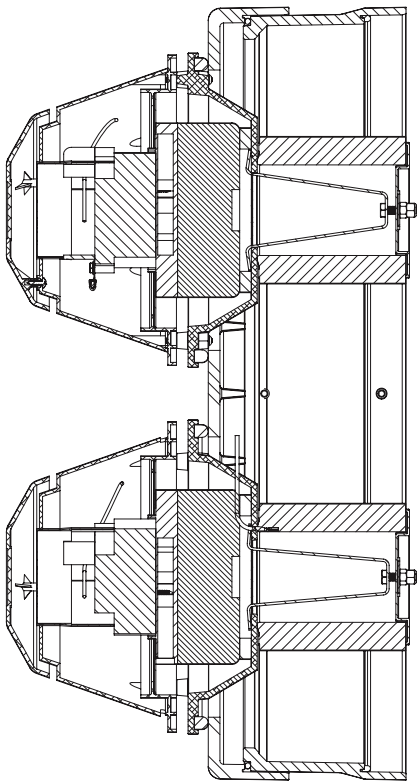
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 ECO 1302 CHANGED GROUNDING HARDWARE

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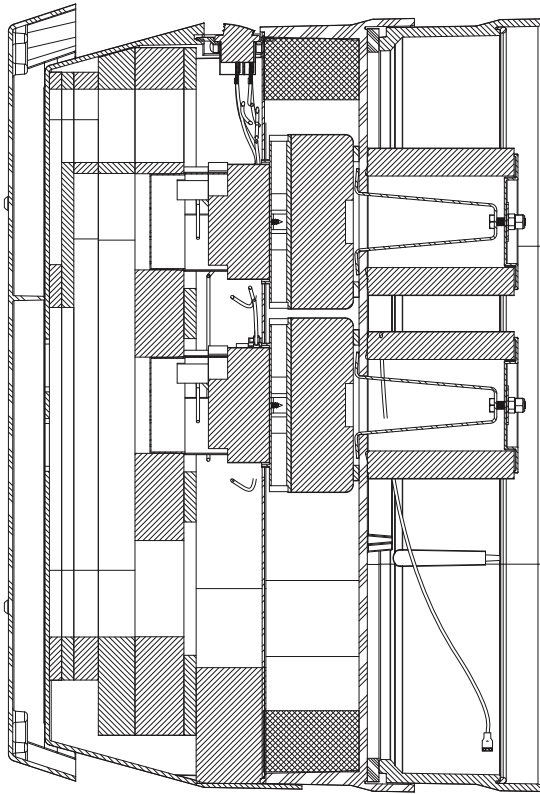
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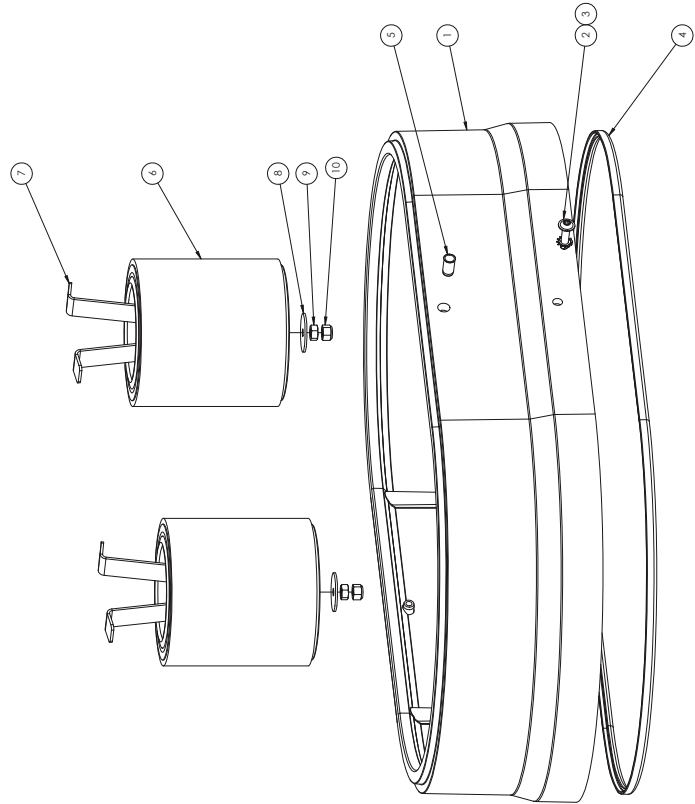
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INSTALLED ON A WINS2220



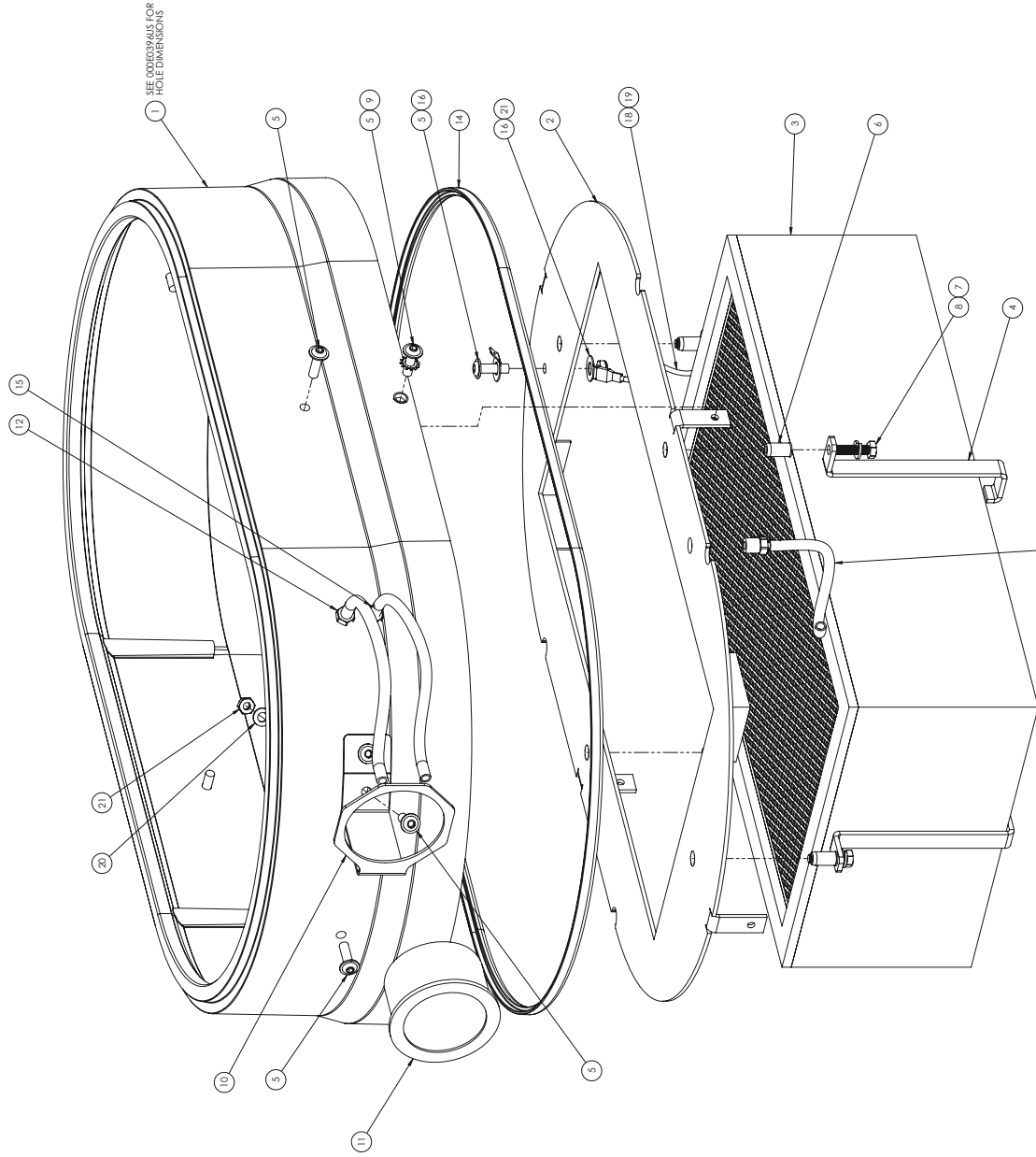
INSTALLED ON A WS2220



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	34823004	SMALL SPACER RING, HEPA 2.0	1
2	3481701	SCREW, SOC. RH, FLANGED, M6-25	2
3	25000	WASHER EXT. STAR-25IN.	2
4	3137766	GASKET, NITRILE SPONGE	1
5	348177A	M6 BLIND PEA	2
6	35211CON	FILTER, HEPA, 4.375 DO, END CAP	2
7	HEPA 2.0	HEPA 2.0 MODULE	1
8	20031	WASHER, FENDER, 1/4 X 1 1/4	2
9	20031	NUT, 25-20, ZINC	2
10	250025	NUT, LOCK, 25-20, ZINC	2

LEVEL	DESCRIPTION	DATE	BY
1	DESIGNED BY: J.F. 10/17/17		
2	DRAWN BY: J.F. 10/17/17		
3	CHECKED BY: J.F. 10/17/17		
4	APPROVED BY: J.F. 10/17/17		
5	REVISIONS		
6	REVISIONS		
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8	REVISIONS		
9	REVISIONS		
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TITLE: HEPA 2.0 MODULE  
 PROJECT: HEPA 2.0 MODULE  
 DRAWING NO.: 3519201 CON  
 SCALE: 1:1  
 SHEET 1 OF 1

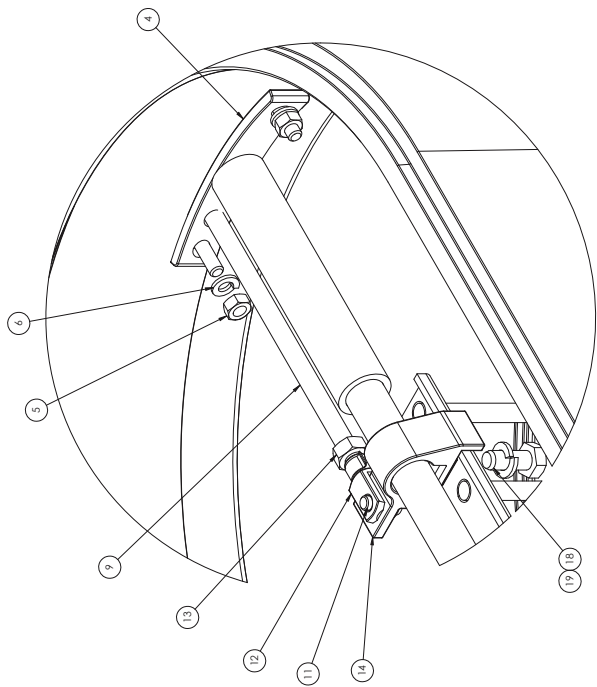


ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	34823005	HOUSING SPACER, SHORT HEPA, D1	1
2	3494701	SHORT HEPA ADAPTER PLATE, D1	1
3	35211	HEPA FILTER 40 SQ FOOT, WS, DS1	1
4	34949	HEPA HOLD DOWN BRACKET, WS	4
5	34817	SCREW ULS SOC HD M6 X 20	9
6	34817A	M6 BLIND FEEL	6
7	20039	WASHER LOCK M6	4
8	34854	BOLT, HEX, M6-25	4
9	25000	WASHER EXT STAR, .25IN	2
10	2514311	MINIHELIC MOUNT, EXTERNAL	1
11	25143	MINIHELIC, WITH WING BKT 1/8 WC	1
12	200628	BULGHAD UNION, .24IN BARB, .3125-24 THREAD, BRASS	1
13	34800	MINIHELIC HOSE, .6IN	2
14	3137764	GASKET, NITRILE SPONGE	1
15	31632	HOSE BARB, 1/25 NPT X .25 BARB	2
16	34998	GROUND CONNECTOR	2
17	34800	MINIHELIC CONNECTION HOSE, 6.25IN	1
18	34993	WIRE, 1/8 GAUGE, GREEN, BIN	1
19	31713	TERMINAL, 1/8 GA., PUSHON, BLUE/WHITE	2
20	25067	WASHER FLAT M6	2
21	34876	M6 LOCK WASHERS	2

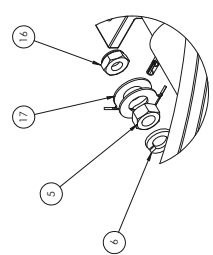
TITLE: HEPA FILTER MODULE ASM, RED, SMALL RING  
 DATE: 4/25/2011  
 DRAWN BY: [Redacted]  
 CHECKED BY: [Redacted]  
 DESIGNED BY: [Redacted]  
 PART NO.: 351925  
 COMMENTS: BREAK SHARP EDGES  
 SCALE: 2:1 W/EDGE  
 SHEET 1 OF 1

SEE DIMENSIONS FOR HOLE DIMENSIONS  
 SEE DRAWING FOR COMMENTS  
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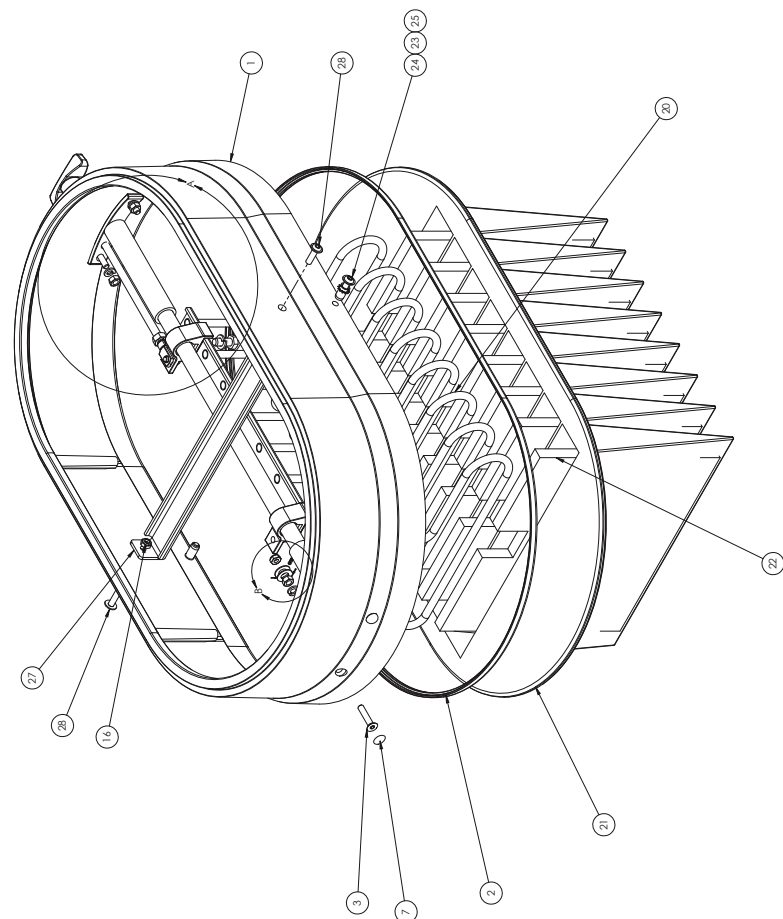
REV	DESCRIPTION	DATE	NAME



DETAIL A  
SCALE 1:1



DETAIL B  
SCALE 1:1



ITEM NO.	PART NO.	DESCRIPTION	DRAWING NO.	QTY.
1	34823002	HOUSING SPACER, DI. PORT. SMALL RED		1
2	3137766	GASKET, NITRILE SPONGE		1
3	34815	SCREW, SOC FH M6 X 30		4
4	34806	SHAKER ROD MOUNTING SUPPORT		2
5	20040	NUT, HEX M6		4
6	20039	WASHER LOCK, M6		4
7	34871	PLASTIC PLUG, 4.5/13		4
8	34805	CLEAR HOSE, 3/4" ID		2
9	22565	SHAKER BAR W/ SWIVEL HANDLE		1
10	34804	MANUAL SHAKER BAR		1
11	34879	SPRING CLIP 6 X 12		1
12	25047	CLEVIS, AX12, M8 RHT		1
13	20044	HEX NUT M8, ZINC		1
14	34802	FILTER SLIDE GUIDE, PLASTIC		2
15	20045	NUT, SQUARE, M8		2
16	34876	M6 LOCK NUT		3
17	34998	GROUND CONNECTOR		2
18	25038	BOLT, HEX M8 X 20		2
19	20050	WASHER SPLIT LOCK M8		2
20	25056	FILTER SUPPORT WELDMENT 1.2M		1
21	20091	1.2M FILTER		1
22	20091F	FILTER INSERT		8
23	34817A	M6 BLIND PEN		2
24	34817A1	SCREW, SOC RH FLANGED, M6-25		2
25	25000	WASHER LOCK STAR 1/4"		2
26	34808	GROUND FILTER BAR REFLECTOR		1
27	30995	FILTER BAR SUPPORT		1
28	34817	SCREW US SOC UD M6 X 20		2

DRAWING NO. 20091 A01  
 REV L  
 SCALE: 12.5%  
 SA WINTER ST.  
 HOUSTON, TEXAS 77040

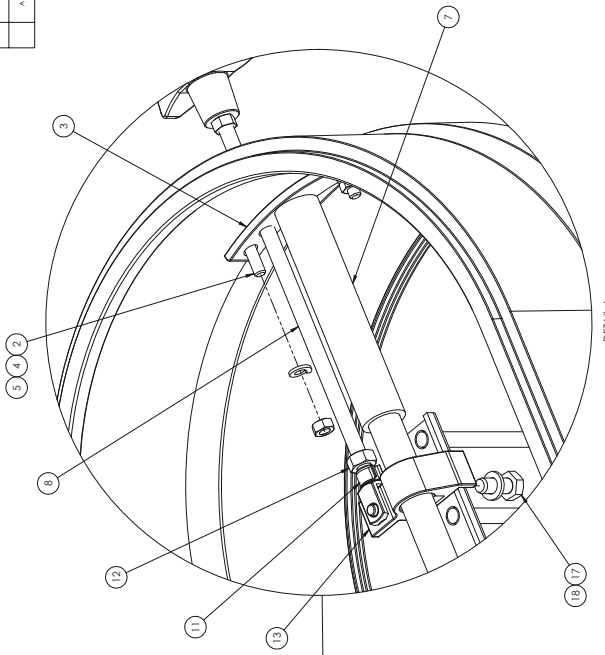
**IMPORTANT COMMENTS:**  
 ALL DIMENSIONS SHOWN ARE UNLESS OTHERWISE SPECIFIED.  
 DIMENSIONS ARE IN INCHES.  
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 DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

TITLE: 1.2M FILTER ASSEMBLY, MANUAL SHAKER, RED, SILO  
 DATE: 5/23/12  
 DRAWN BY: [Blank]  
 CHECKED BY: [Blank]  
 APPROVED BY: [Blank]

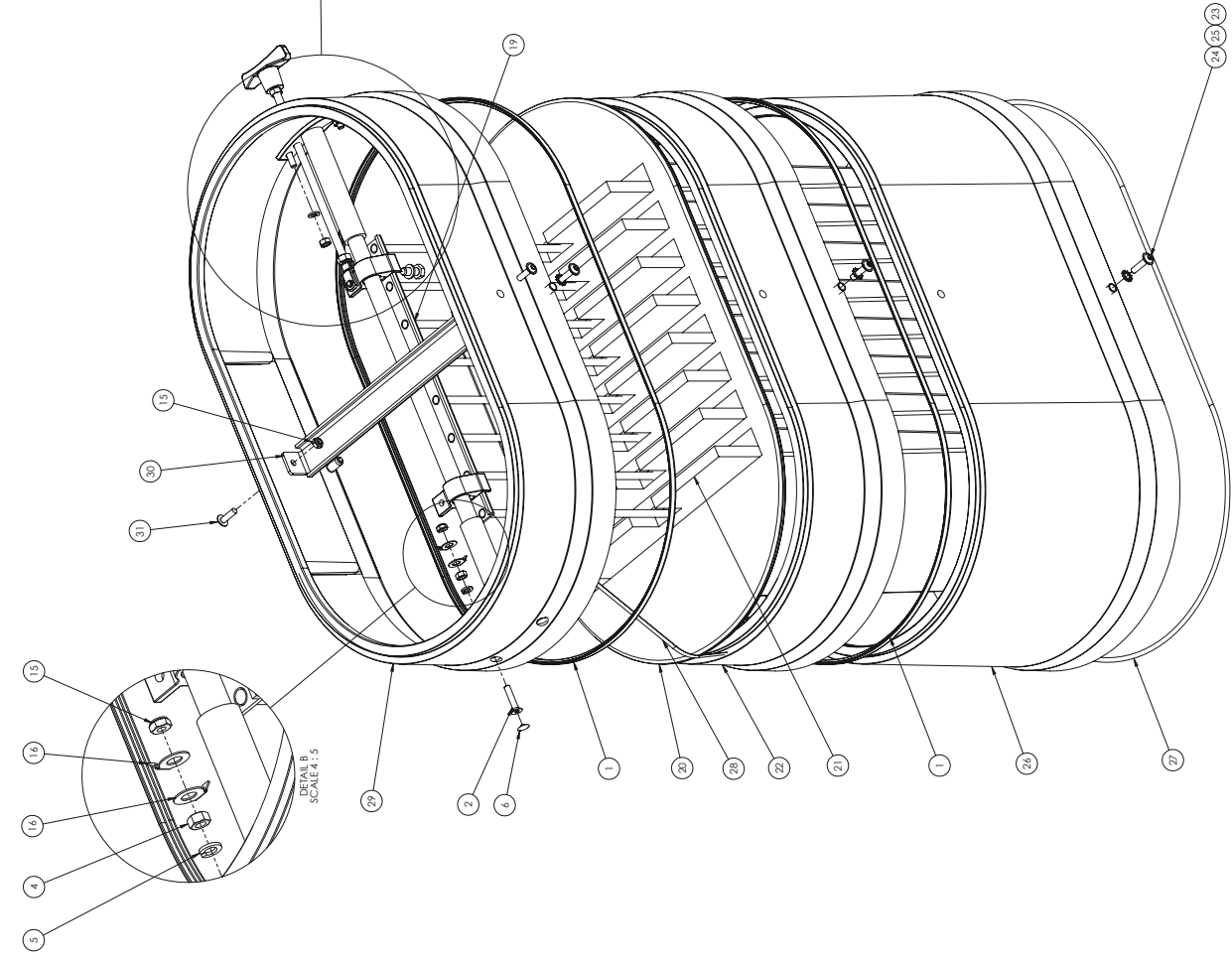
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 COMMENTS: [Blank]

APPR: [Blank]  
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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	INITIAL RELEASE	3/23/17	DJE



DETAIL A  
SCALE 1:3



DETAIL B  
SCALE 4:5

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	313776	GASKET NITRILE SPONGE	2
2	34815	SCREW SOC FL M6 X 30	4
3	34804	SHAKER ROD MOUNTING SUPPORT	2
4	20040	NUT HEX M6	4
5	20039	WASHER LOCK M6	4
6	34871	PLASTIC PLUG 4.5/13	4
7	34805	CLEAR HOSE 3/4ID	2
8	34879	SHAKER BAR W/ SWIVEL HANDLE	1
9	34804	MANUAL SHAKER BAR	1
10	34879	SPRING CLIP FOR CLEVIS YOKE 6MM X 12MM	1
11	25047	CLEVIS 6X12 M8RHT	1
12	20044	HEX NUT M8, ZINC	1
13	34802	FILTER SLIDE GUIDE, PLASTIC	2
14	20045	NUT, SQUARE, M8	2
15	34876	M6 LOCK NUT	3
16	34998	GROUND CONNECTOR	2
17	25038	BOLT HEX M8 X 20	2
18	20050	WASHER SPLIT LOCK M8	2
19	34807	FILTER SUPPORT WELDMENT 2.6M	1
20	30091	FILTER, 2.6M	1
21	30091F	FILTER INSERT, 2.6M	8
22	34825001	HOUSING SPACER, D1, SMALL RED	1
23	34817A	M6 BLIND FEM	6
24	3481701	SCREW, SOC BH, FLANGED, M6-25	6
25	25000	WASHER EXT'S TAR, 25IN	6
26	34820001	HOUSING SPACER, D1, REG, RED, STD HOLES	1
27	31376002	GASKET NEOPRENE, 188, 5.4FT LG	1
28	34869	GROUND, 2.6M FILTER, 10 DEFLECTOR	1
29	34825003	HOUSING SPACER, D1, TORI, SMALL, RED	1
30	34877	FILTER SUPPORT WELDMENT 2.6M	1
31	34817	SCREW, SOC, STD, M6 X 20	2

DATE	REV.	DESCRIPTION
3/23/17	A	INITIAL RELEASE

30091 A01  
 000 E 0385 US  
 SCALE: 1:8 (MECH)

30091 A01  
 000 E 0385 US  
 SCALE: 1:8 (MECH)

30091 A01  
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 SCALE: 1:8 (MECH)

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 SCALE: 1:8 (MECH)

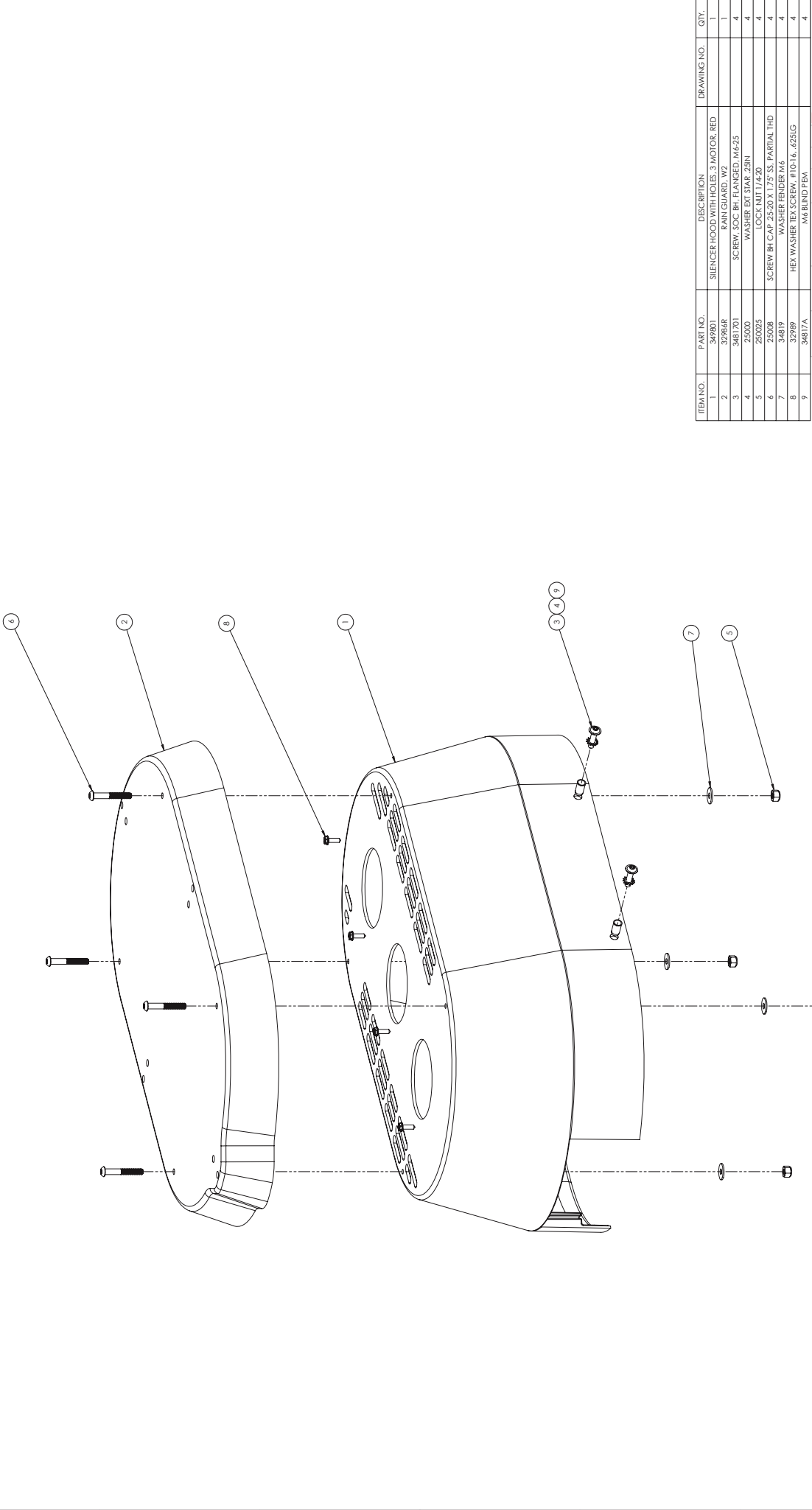
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 SCALE: 1:8 (MECH)

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 SCALE: 1:8 (MECH)

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 SCALE: 1:8 (MECH)

30091 A01  
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 SCALE: 1:8 (MECH)

REVISIONS			
ZONE	REV.	DESCRIPTION	DATE
	A	ECO 128	5/27/2016
			APPROVED
			D/E



ITEM NO.	PART NO.	DESCRIPTION	DRAWING NO.	QTY.
1	349801	SILENCER HOOD WITH HOLES, 3 MOTOR, RED		1
2	32966R	RAIN GUARD, W/2		1
3	3481701	SCREW, SOC BH, FLANGED, M6-25		4
4	25000	WASHER BT STAK, 25N		4
5	25025	LOCK NUT 1/4-20		4
6	25008	SCREW BH CAT, 25-20X 1/5 ST, PARTIAL THD		4
7	34989	WASHER BT STAK, 25N		4
8	34988	HEX WASHER BT STAK, 25N		4
9	34837A	BLIND PIN		4

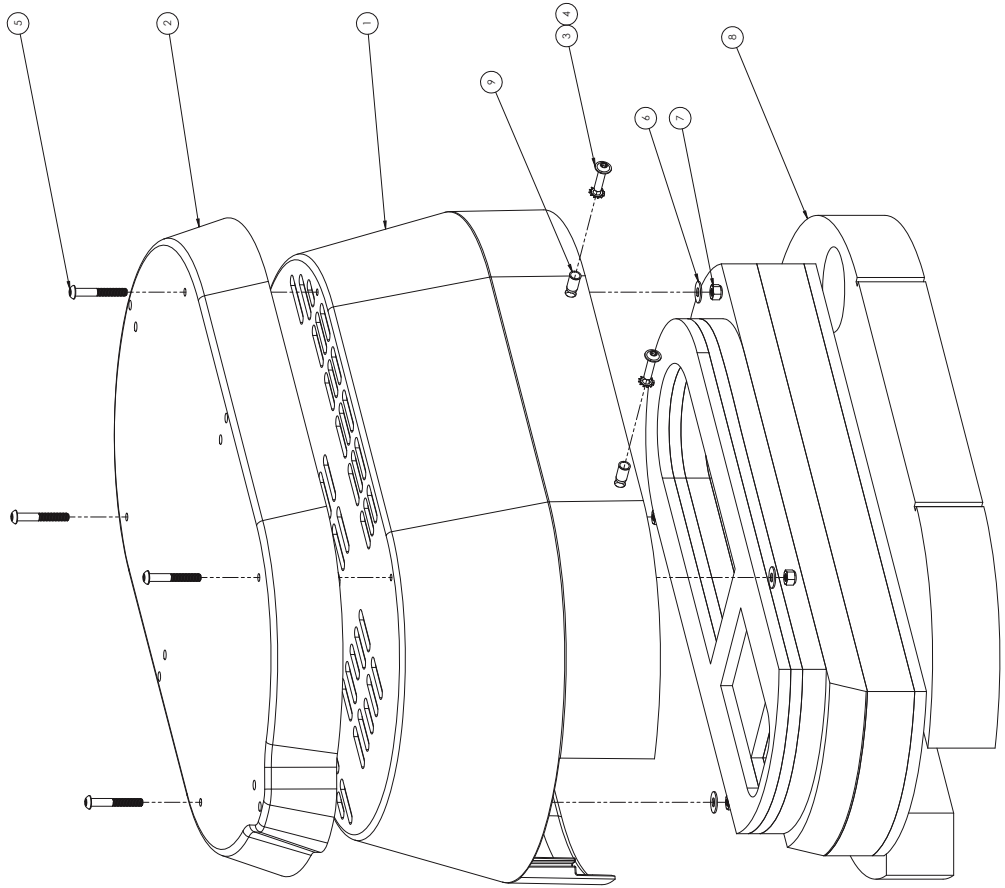
DATE	BY	CHKD	APPV	REV
5/27/16				1

TITLE: WS SILENCER 3 MOTOR ASSY, HIGH LIFT MOTOR  
 SIB# DWG. NO.: PH4980A5  
 000-E 0273 US  
 SCALE: 1:8 WEGE: 1  
 SHEET 1 OF 1

IMPORTANT COMMENTS:  
 SEE REMARKS COMMENTED IN THE DRAWING FOR THE PARTS TO BE ORDERED FOR THE MOTOR ASSEMBLY.  
 THE PARTS TO BE ORDERED FOR THE MOTOR ASSEMBLY ARE LISTED IN THE PARTS LIST.  
 THE PARTS TO BE ORDERED FOR THE MOTOR ASSEMBLY ARE LISTED IN THE PARTS LIST.

MATERIALS COMMENTS:  
 ALL PARTS MUST BE MADE OF THE FOLLOWING MATERIALS:  
 1. STEEL: A304  
 2. ALUMINUM: 6061-T6  
 3. COPPER: C11000  
 4. BRASS: C36000  
 5. BRASS: C37700  
 6. BRASS: C38500  
 7. BRASS: C39000  
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 541. BRASS: C121800  
 542. BRASS: C121900  
 543. BRASS: C122000  
 544. BRASS: C122100  
 545. BRASS: C122200  
 546. BRASS: C122300  
 547. BRASS: C122400  
 548. BRASS: C122500  
 549. BRASS: C122600  
 550. BRASS: C122700  
 551. BRASS: C122800  
 552. BRASS: C122900  
 553. BRASS: C123000  
 554. BRASS: C123100  
 555. BRASS: C123200  
 556. BRASS: C123300  
 557. BRASS: C123400  
 558. BRASS: C123500  
 559. BRASS: C123600  
 560. BRASS: C123700  
 561. BRASS: C123800  
 562. BRASS: C123900  
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 566. BRASS: C124300  
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 572. BRASS: C124900  
 573. BRASS: C125000  
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 575. BRASS: C125200  
 576. BRASS: C125300  
 577. BRASS: C125400  
 578. BRASS: C125500  
 579. BRASS: C125600  
 580. BRASS: C125700  
 581. BRASS: C125800  
 582. BRASS: C125900  
 583. BRASS: C126000  
 584. BRASS: C126100  
 585. BRASS: C126200  
 586. BRASS: C126300  
 587. BRASS: C126400  
 588. BRASS: C126500  
 589. BRASS: C126600  
 590. BRASS: C126700  
 591. BRASS: C126800  
 592. BRASS: C126900  
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 595. BRASS: C127200  
 596. BRASS: C127300  
 597. BRASS: C127400  
 598. BRASS: C127500  
 599. BRASS: C127600  
 600. BRASS: C127700  
 601. BRASS: C127800  
 602. BRASS: C127900  
 603. BRASS: C128000  
 604. BRASS

REVISIONS			
ZONE	REV.	DESCRIPTION	DATE
	F	ECO 1001 UPDATED ASSEMBLY	4/4/2016
			D/E



ITEM NO.	PART NO.	DESCRIPTION	DRAWING NO.	QTY.
1	349602	SIENCER HOOD WITH HOLES, 2 MOTOR, RED		1
2	329668	RAIN GUARD, WZ		1
3	3481701	SCREW, SOC-BH, FLANGED, 106-25		4
4	25000	WASHER EXT STAR, 23IN		4
5	200180	SCREW BH CAP, 25-27 X 1.75, PARTIAL THD		4
6	200180	WASHER FLAT, 25.1 (6860)135		4
7	200180	WASHER FLAT, 25.1 (6860)135		4
8	349632	SIENCER LOCK, WZ UPPER		4
9	348171A	SCREW, SOC-BH, 106-25		1

DATE	BY	CHKD	APPV	TITLE
22/12/14	J.F.			WS SIENCER ASM

DATE	BY	CHKD	APPV	TITLE
				WS SIENCER ASM

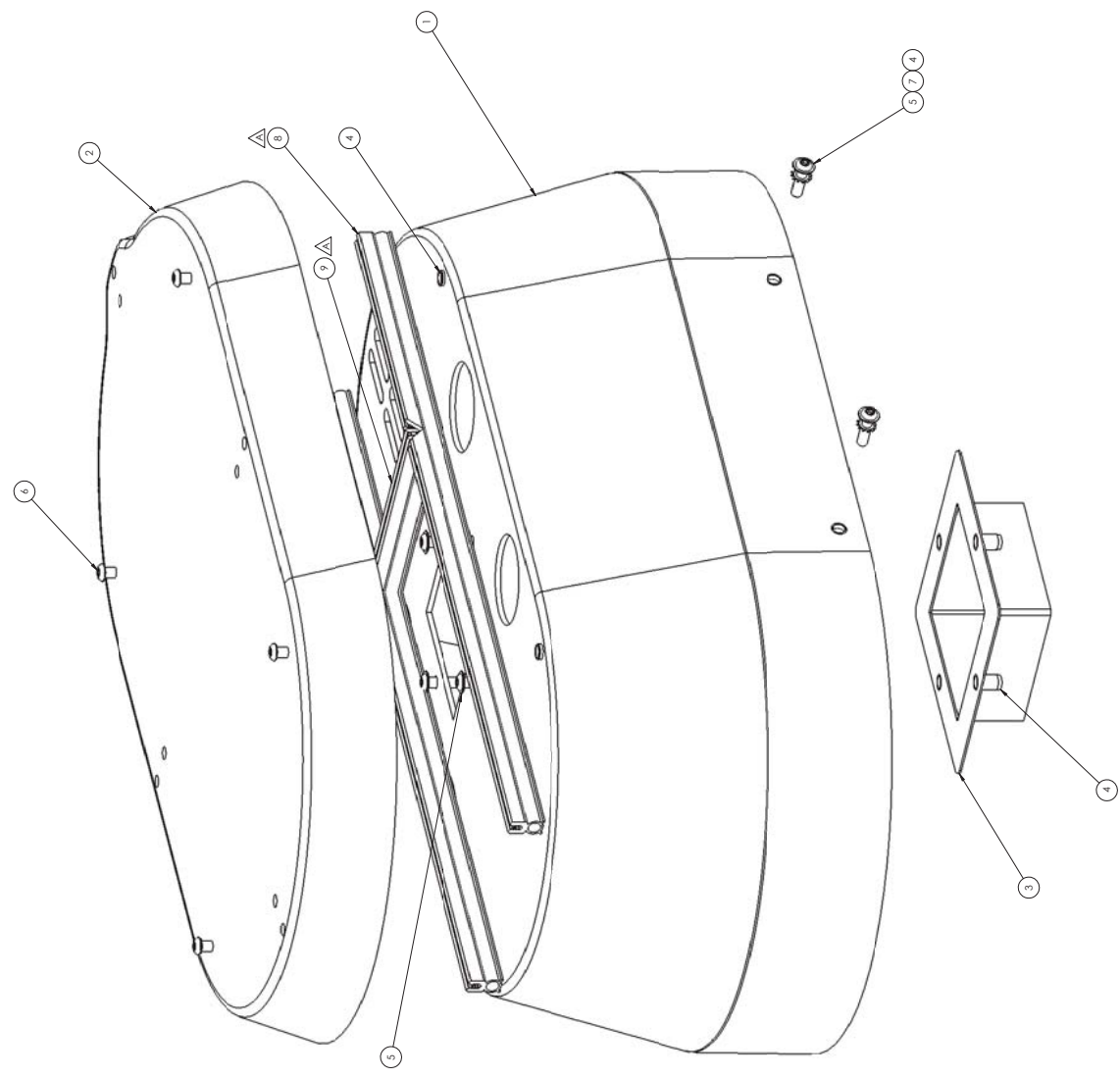
  

DATE	BY	CHKD	APPV	TITLE
				WS SIENCER ASM

DRAWING NO. **PHS4980ARG**  
 SCALE: 1:8 WEGE  
 SHEET 1 OF 1



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
CL	A	ECCO HASI - ADDED CHASIS TO INCREASE OF RAIN GUARD	9/17/2019	DB



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	349803	SILENCER HOOD, RED, COOL AIR INTAKE	1
2	32984R	RAIN GUARD, W2	1
3	349665	COOLING MANIFOLD, UPPER	1
4	34817A	TMG BUND PEM	12
5	3481701	SCREW, SOC BT, FLANGED, M6.25	8
6	32965	SCREW, TMG X 30, BUTT/ROUND	4
7	32003	WASHER EXT STAR, Z8N	4
8	313310	GASKET, 22.5, SELF-CURING	2
9	313310	GASKET, 22.5, SELF-CURING	1

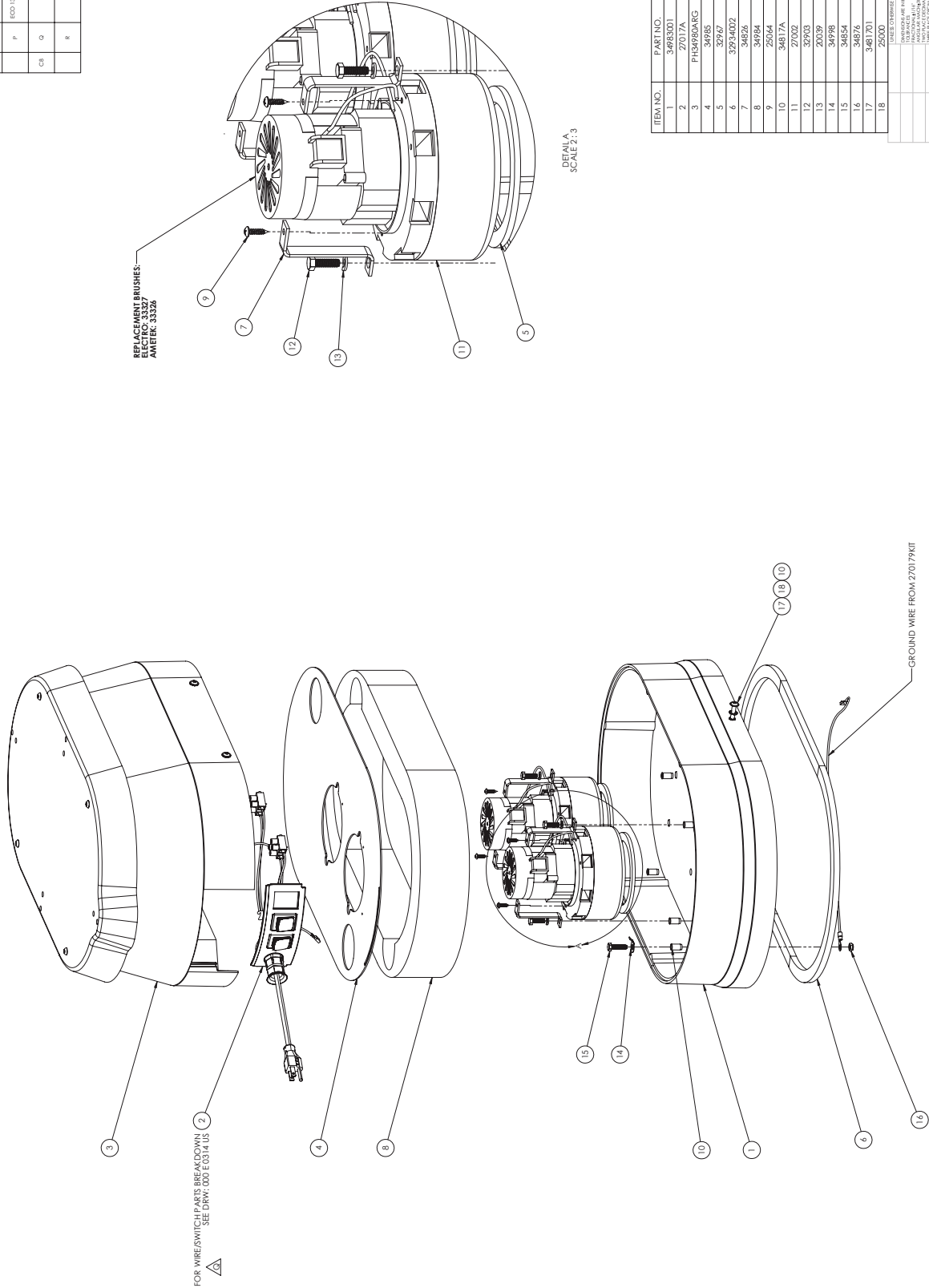
DATE: 09/17/2019	TIME: 10:00 AM	SCALE: 2:1 (MESH)
DESIGNED BY: [Redacted]	CHECKED BY: [Redacted]	DATE: 09/17/2019
DRAWN BY: [Redacted]	DATE: 09/17/2019	TIME: 10:00 AM
APPROVED BY: [Redacted]	DATE: 09/17/2019	TIME: 10:00 AM
DATE: 09/17/2019	TIME: 10:00 AM	SCALE: 2:1 (MESH)

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3498033A  
SILENCER HOOD ASM, COOL AIR INTAKE  
REV. A  
0001E 0456 US

SCALE: 2:1 (MESH)  
SHEET 1 OF 1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	H	ECO 1000 UPDATED ASSEMBLY	4/4/2016	DJE
	P	ECO 1395 CHANGE/REPLACE/REMOVED REPLACEMENT MOTOR W/2.0 MOTOR	7/20/2017	DJE
	Q	NO ECO ADDED/NOTE	10/26/2017	DJE
	R	ECO 1443 CHANGE/ADD/REMOVE	12/11/2017	DJE



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	34953001	WS MOTOR DECK, 2 HOLES, GROOVE, RED	1
2	27017A	WS 2 MOTOR SWITCH ASM, 120V	1
3	PH14990ARG	WS SILENCER ASM	1
4	34955	WS DIFFUSER PLATE, 2 MOTOR	1
5	32967	MOTOR HEAD GASKET	2
6	32934002	GASKET, .375IN X .75IN, .63IN LG	1
7	34626	MOTOR HOLD DOWN BRACKET	4
8	34964	SILENCER FOAM, W2, LOWER	1
9	25064	SCREW PHIL PH X.5/8" ZINC	4
10	34817A	M4 BLIND PEM	7
11	27002	MOTOR, 2 STAGE, PD 1000W, 120V	2
12	32903	BOLT HEX M4X25, ZINC	4
13	20639	WASHER LOCK M6	4
14	34976	GROUND CONNECTOR	1
15	34654	BOLT HEX M6X25	1
16	34817	M4 LOCK NUT	1
17	34811	SCREW SERRATED, M4X25	2
18	35020	WASHER LOCK M4X25	2

DATE	BY	CHKD	APP'D	REV
04/17/16	SA	SA	SA	1
04/17/16	SA	SA	SA	2
04/17/16	SA	SA	SA	3
04/17/16	SA	SA	SA	4
04/17/16	SA	SA	SA	5
04/17/16	SA	SA	SA	6
04/17/16	SA	SA	SA	7
04/17/16	SA	SA	SA	8
04/17/16	SA	SA	SA	9
04/17/16	SA	SA	SA	10
04/17/16	SA	SA	SA	11
04/17/16	SA	SA	SA	12
04/17/16	SA	SA	SA	13
04/17/16	SA	SA	SA	14
04/17/16	SA	SA	SA	15
04/17/16	SA	SA	SA	16
04/17/16	SA	SA	SA	17
04/17/16	SA	SA	SA	18
04/17/16	SA	SA	SA	19
04/17/16	SA	SA	SA	20

DATE	BY	CHKD	APP'D	REV
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04/17/16	SA	SA	SA	2
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04/17/16	SA	SA	SA	9
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04/17/16	SA	SA	SA	11
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04/17/16	SA	SA	SA	14
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04/17/16	SA	SA	SA	16
04/17/16	SA	SA	SA	17
04/17/16	SA	SA	SA	18
04/17/16	SA	SA	SA	19
04/17/16	SA	SA	SA	20

DATE	BY	CHKD	APP'D	REV
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04/17/16	SA	SA	SA	3
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04/17/16	SA	SA	SA	20

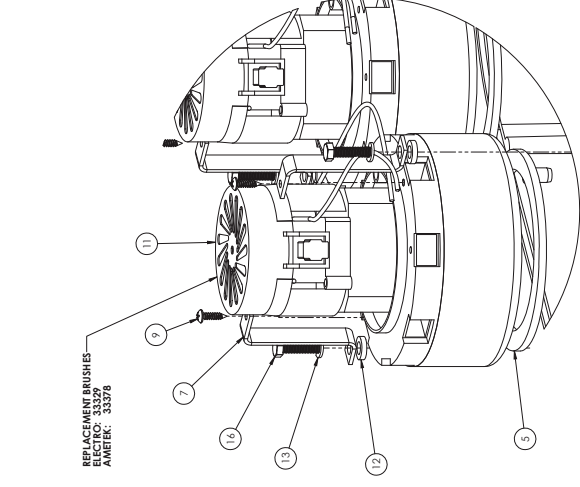
DATE	BY	CHKD	APP'D	REV
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04/17/16	SA	SA	SA	5
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04/17/16	SA	SA	SA	18
04/17/16	SA	SA	SA	19
04/17/16	SA	SA	SA	20

DATE	BY	CHKD	APP'D	REV
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04/17/16	SA	SA	SA	16
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04/17/16	SA	SA	SA	19
04/17/16	SA	SA	SA	20

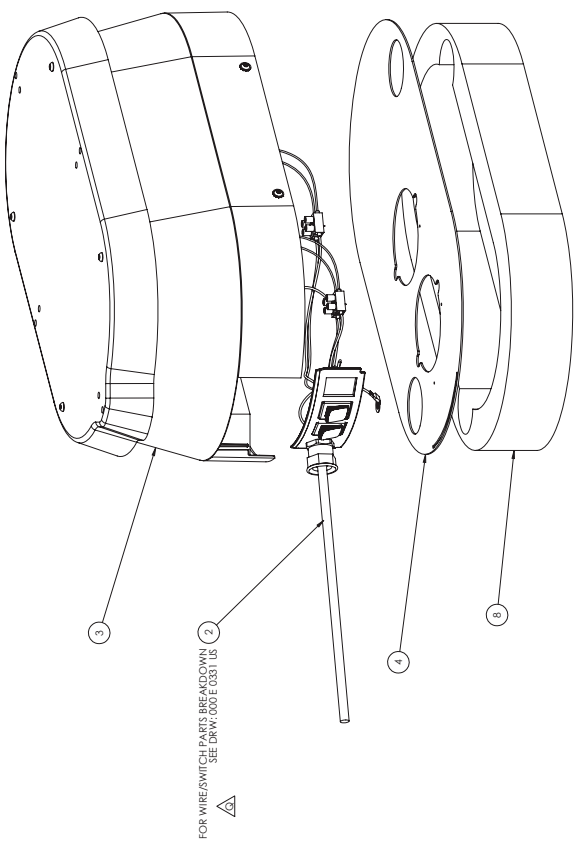


ZONE	REV.	DESCRIPTION	DATE	APPROVED
P	ECO	1955 AXIODE REPLACEMENT BRUSH NOTES CHANGED CABINET TO 2039462	9/19/2017	DJE
Q	NO ECO	AXIODE PART	10/26/2017	DJE
R	ECO	1443 CHANGED MOTOR DRIVS	12/12/2017	DJE

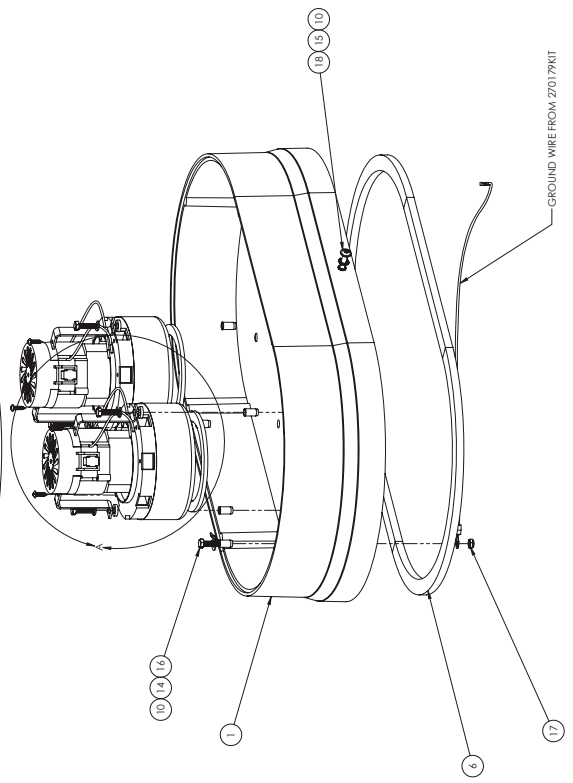
REPLACEMENT BRUSHES  
 ECO 1955 AXIODE  
 AMEFK: 33378



DETAIL A  
 SCALE: 2:3



FOR WIRE/SWITCH PARTS BREAKDOWN  
 SEE DRW: 000 E 0331 US



GROUND WIRE FROM Z70179K1T

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	34983001	WS MOTOR DECK, 2 HOLES, GROOVE, RED	1
2	PH2707A	WS 2 MOTOR SWICH ASM, 240V	1
3	PH349820ARG	WS SILENCER ASM	1
4	34985	WS DIFFUSER PLATE, 2 MOTOR	1
5	329267	MOTOR HEAD GASKET	2
6	32934002	GASKET, .375IN X .75IN, 68IN LG	1
7	34826	MOTOR HOLD DOWN BRACKET	4
8	34984	SILENCER FOAM, W2, LOWER	1
9	25064	SCREW PHIL PH #6 X 5/8" ZINC	4
10	34817A	M6 BLIND FEM	7
11	116549-13	MOTOR, 23 STAGE, 1200W, 240V	2
12	200632	NTLON WASHBR/SPACER	4
13	20039	WASHER LOCK WAS	4
14	34978	GROUND CONNECTOR	1
15	25000	WASHER BR STAK, Z8IN	2
16	34854	BOLT, HEX, M6X25	5
17	34854	BOLT, HEX, M6X25	5
18	3481701	SCREW, LCP, M6, TUNGED, M4, 25	2

DATE	BY	CHKD	APP'D	TITLE
9/24/17				116533A

REV	DATE	DESCRIPTION
1		WS2220, 2 MOTOR ASM, 240
2		000 E 0332 US

REV	DATE	DESCRIPTION
1		116533A

REV	DATE	DESCRIPTION
1		116533A

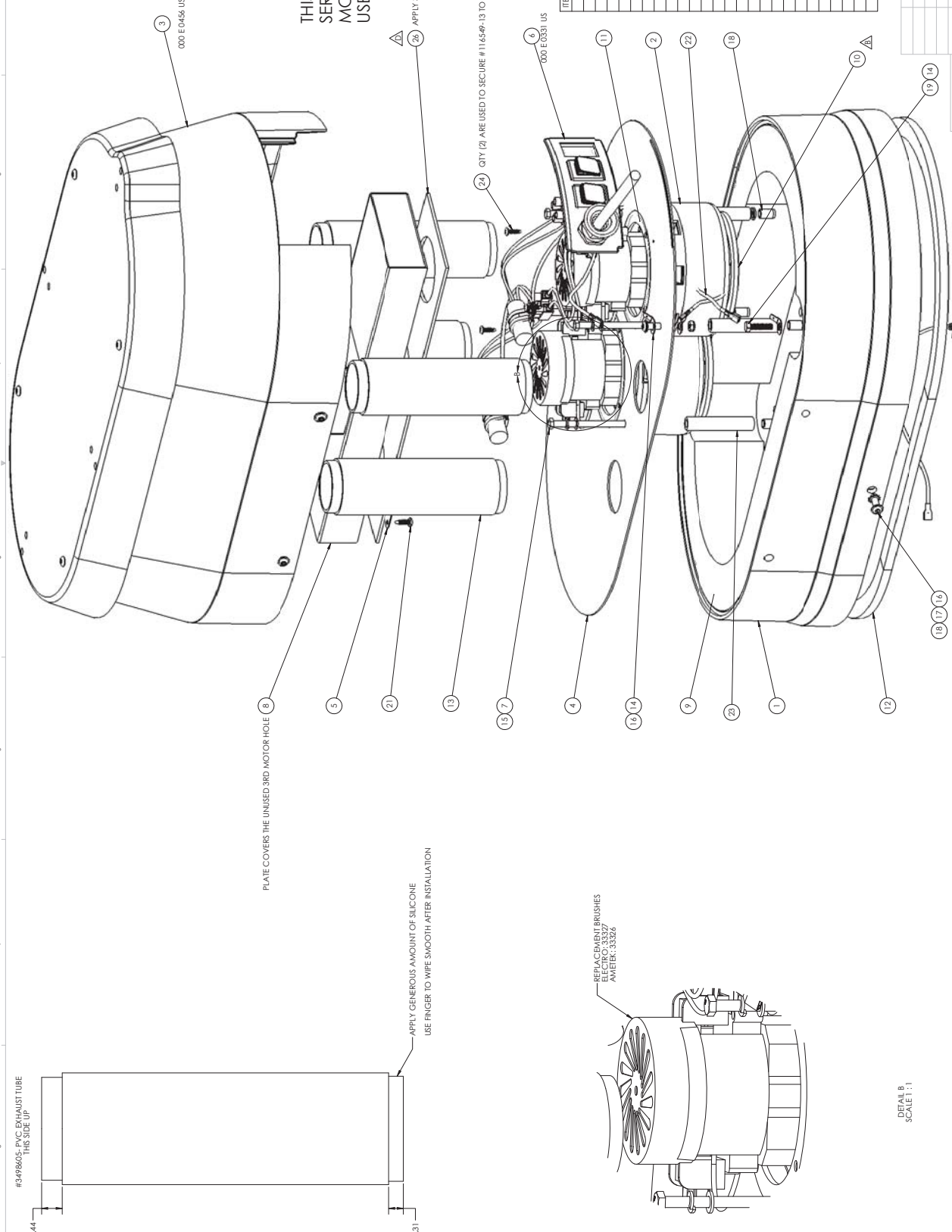
REV	DATE	DESCRIPTION
1		116533A

REV	DATE	DESCRIPTION
1		116533A

REV	DATE	DESCRIPTION
1		116533A

REV	DATE	DESCRIPTION
1		116533A

REVISIONS					
ZONE	REV.	DESCRIPTION	DATE	APPROVED	
A	ECO 156	ADDED ASSEMBLY ZONES 118 AND 120 AND PART NUMBER FOR MOTOR HOOD GASKET	11/27/2016	DB	
A2	B	ECO 153	REPLACED GASKET 2608118 WITH 32047	12/18/2016	JPF
C		NOTE ADDED FOR MOTOR REPLACEMENT BRUSHES	1/6/2017	DB	
C2	D	ECO 165	REPLACED M6 X 20 GASKET	7/23/2017	DB



THIS MOTORDECK BEGAN SHIPPING WITH SERIAL NO. 18111920. ALL WS2220 240V MOTORDECKS BUILT AFTERWARDS WILL USE THIS SAME CONSTRUCTION.

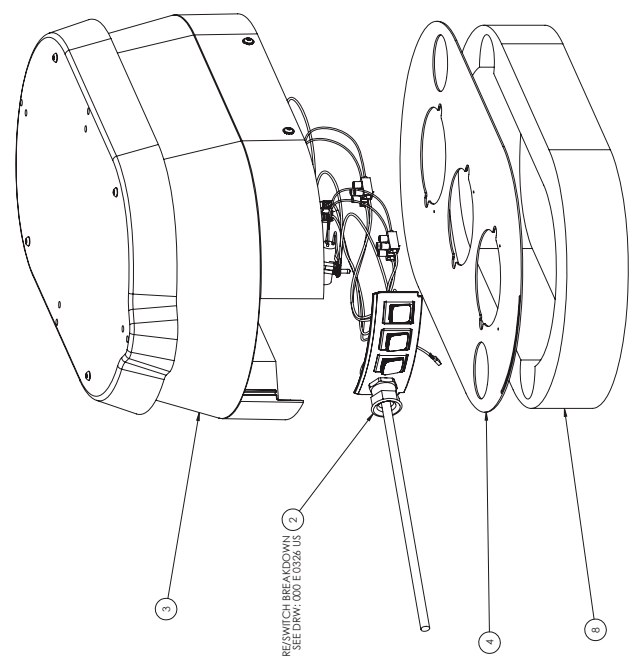
ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	34983001	WS MOTOR DECK, 2 HOLES, GROOVE, RED	1
2	116549-13	MOTOR, 2 STAGE, 120V, 240V	1
3	3498033A	SILENCER HOOD ASMA, COOL AIR INTAKE	2
4	349862	AIR CHANNEL, PLATE, 2 MOTOR, TOP EXHAUST	1
5	349868	ALUMINUM PLUG PLATE	1
6	PH27017A	WS 2 MOTOR SWITCH ASMA, 240V	1
7	32909	M6 X 100, PARTIAL THREAD, ZINC	4
8	349864	COOLING MANIFOLD, BOTTOM WELDMENT	1
9	34984	SILENCER FOAM, W2, LOWER	1
10	32967	MOTOR HEAD GASKET	2
11	34918	GASKET, 100MM INLET	2
12	3294002	GASKET, .375IN X .75IN, .63IN LG	1
13	3498605	PVC EXHAUST	3
14	34989	GROUND CONNECTOR	3
15	25687	WASHER FLAT M6	4
16	34817	SCREW US SOC-HD M6 X 20	8
17	25000	WASHER EXT STAR 25IN	2
18	34817A	M6 BLIND NUT	7
19	34854	BOLT, HEK, M6-25	1
20	34876	M6 LOCK NUT	2
21	27026	SCREW PH. PHIL. #10 X .625 ZINC	2
22	GW0016	GROUND CONNECTION: PIGTAIL TERMINALS	1
23	3498607	SPACER, PVC, WS2200HD, LOWER	4
24	20384	SCREW PHIL PH #8 X .38 ZINC	4
25	20339	WASHER LOCK W6	4
26	349870	GASKET FOR 349866 MANIFOLD	1

DATE	DATE	DATE
12/27/16	12/27/16	12/27/16

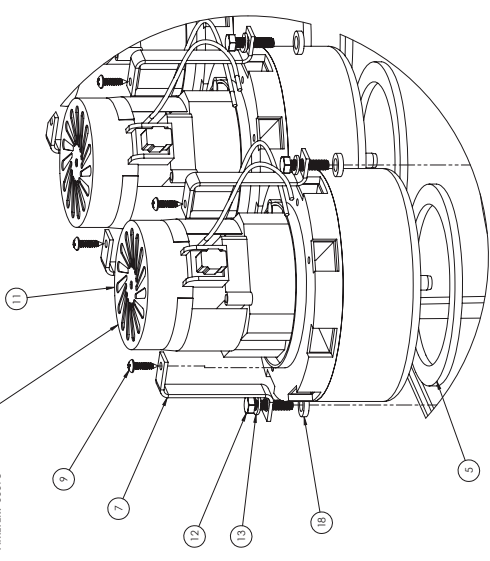
DRAWN BY: JPF  
 CHECKED BY: JPF  
 PART NUMBER: 116549-13  
 TITLE: WS2220 MOTORDECK ASMA, 240V, COOL AIR INTAKE  
 SCALE: 1:1  
 SHEET 1 OF 1

REF: PART OF 270170 KIT  
 SCALE: 1:1  
 SHEET 1 OF 1

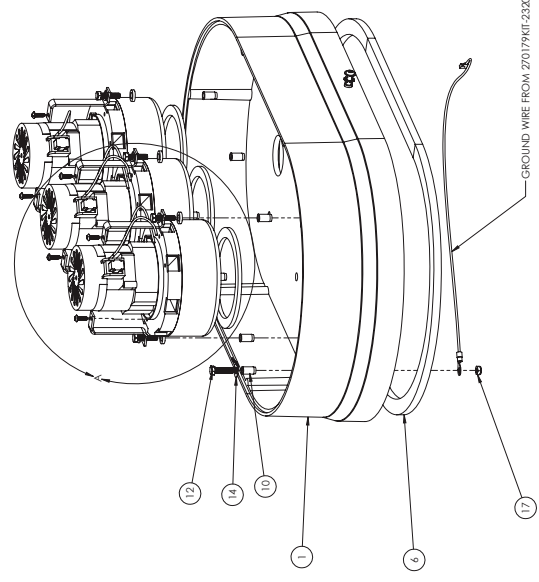
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
B	8	ECO 185 ADDED MOTOR BRUSHES CHANGED GASKET TO 32934002	9/19/2017	DJE
C	7	NO ECO ADDED NOTE	10/26/2017	DJE
D	6	ECO 1443 CHANGED MOTOR COVER	12/12/2017	DJE



REPLACEMENT BRUSHES  
 PART NO. 32934002  
 PART NAME: BRUSH  
 PART NUMBER: 33378



DETAIL A  
 SCALE: 2:3



GROUND WIRE FROM 270179KIT-2320

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	34953002	WS MOTOR DECK, 3 HOLES, RED	1
2	PH2707LA3	WS 3 MOTOR SWITCH ASM, 220V	1
3	PH349RDARG	WS SILENCER ASM	1
4	349586	AIR CHANNEL PLATE, 3 MOTOR, METAL	1
5	32934002	MOTOR HEAD GASKET	3
6	34826	GASKET, .375IN X .75IN, 63IN LG	1
7	34984	MOTOR HOLD DOWN BRACKET	6
8	34984	SILENCER FOAM, W2, LOWER	1
9	25064	SCREW PHIL PH #6 X 5/8" ZINC	6
10	34817A	M6 BIND PEM	9
11	116599-13	MOTOR, 23 STAGE, 1200W, 240V	3
12	34854	BOLT, HEX, M6x25	7
13	20039	WASHER LOCK W6	6
14	34978	GROUND CONNECTOR	1
15	3481701	SCREW, SOC BKT, FLANGED, M6-25	2
16	25000	WASHER EX STAK, Z6IN	2
17	34978	GROUND CONNECTOR	1
18	20039	WASHER LOCK W6	6

DATE	5/10/16	REV	1
DESIGNED BY	DAVID L. WOOD	REV	2
DRAWN BY	DAVID L. WOOD	REV	3
CHECKED BY	DAVID L. WOOD	REV	4
APPROVED BY	DAVID L. WOOD	REV	5
DATE	5/10/16	REV	6
DESIGNED BY	DAVID L. WOOD	REV	7
DRAWN BY	DAVID L. WOOD	REV	8
CHECKED BY	DAVID L. WOOD	REV	9
APPROVED BY	DAVID L. WOOD	REV	10

FOR PARTS AND COMMENTS  
 SEE PARTS MANUAL COVERED BY  
 PATENT 7,812,411  
 SEE DRW. 000 E0326-US  
 FOR INFORMATION ON HOW TO  
 ORDER PARTS, VISIT  
 WWW.HOYOBP.COM

116549A  
 000-E-0327-US  
 SCALE: 18" W/EGRE

SIZE DWG. NO.  
 116549A  
 000-E-0327-US  
 SCALE: 18" W/EGRE

REV  
 D  
 SHEET 1 OF 1

REV  
 D  
 SHEET 1 OF 1

REV  
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 SHEET 1 OF 1

REV  
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 SHEET 1 OF 1

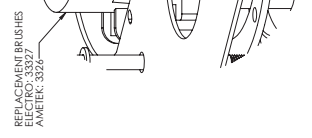
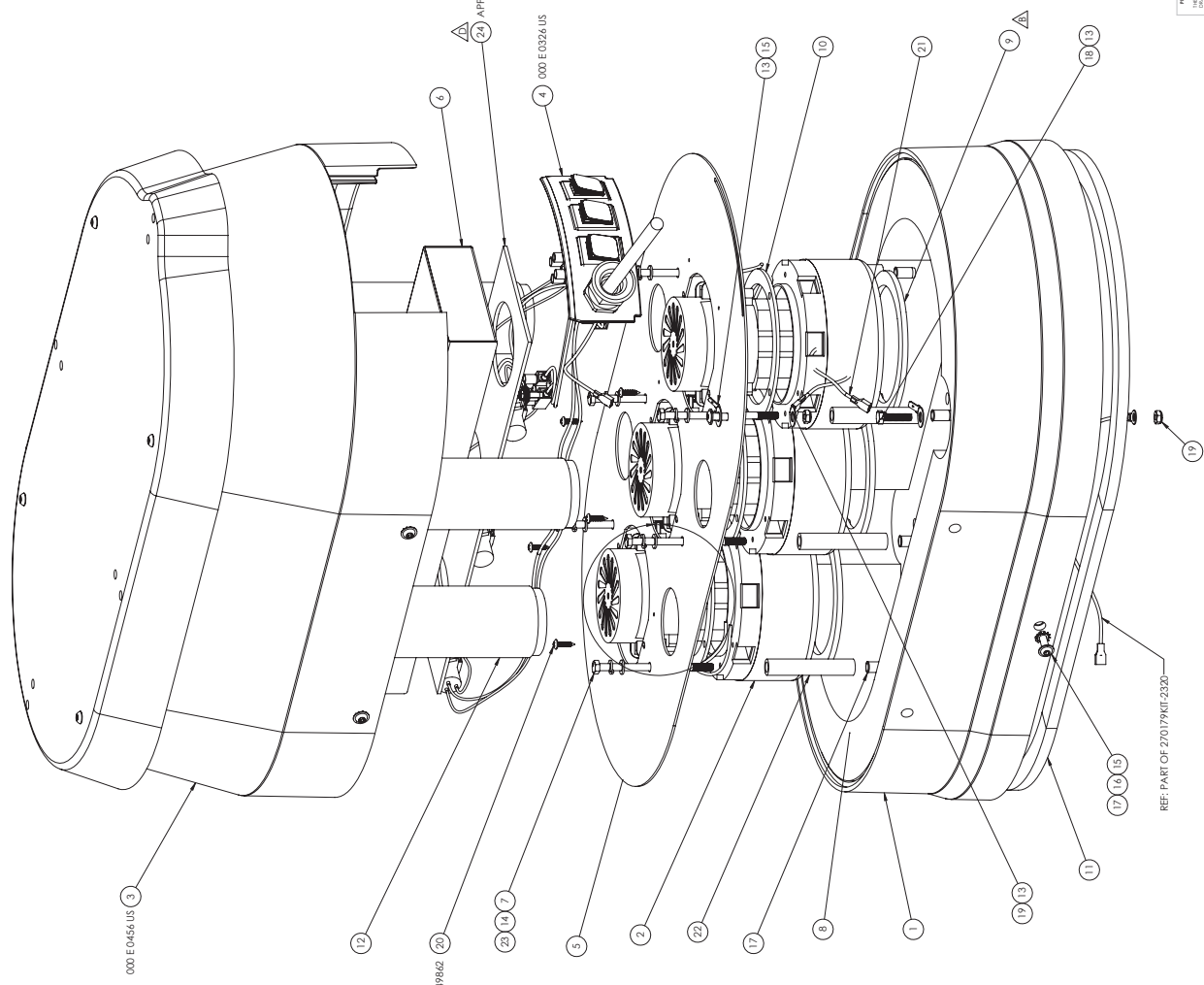
REV  
 D  
 SHEET 1 OF 1

#3498605 PVC EXHAUST TUBE  
INSIDE UP

ZONE	REV.	DESCRIPTION	DATE	APPROVED
A	ECO 1545 ADDED ASSEMBLY 2200118 AND UPWARD PARTITION FOR MOTOR HOOD ASSEMBLY	11/27/2018	DB	
A.3	ECO 1545 CHANGED GASKET 2200118 FOR 32447	12/19/2018	JFF	
C	NOTE ADDED FOR MOTOR REPLACEMENT BRUSHES	1/6/2019	DB	
C.3	ECO 1645 REPLACED MAF ECO GASKET	7/25/2019	DB	

APPLY GENEROUS AMOUNT OF SILICONE  
USE FINGER TO WIPE SMOOTH AFTER INSTALLATION

QTY (2) ARE USED TO SECURE #116549 TO #349862



DETAIL A  
SCALE 1:1

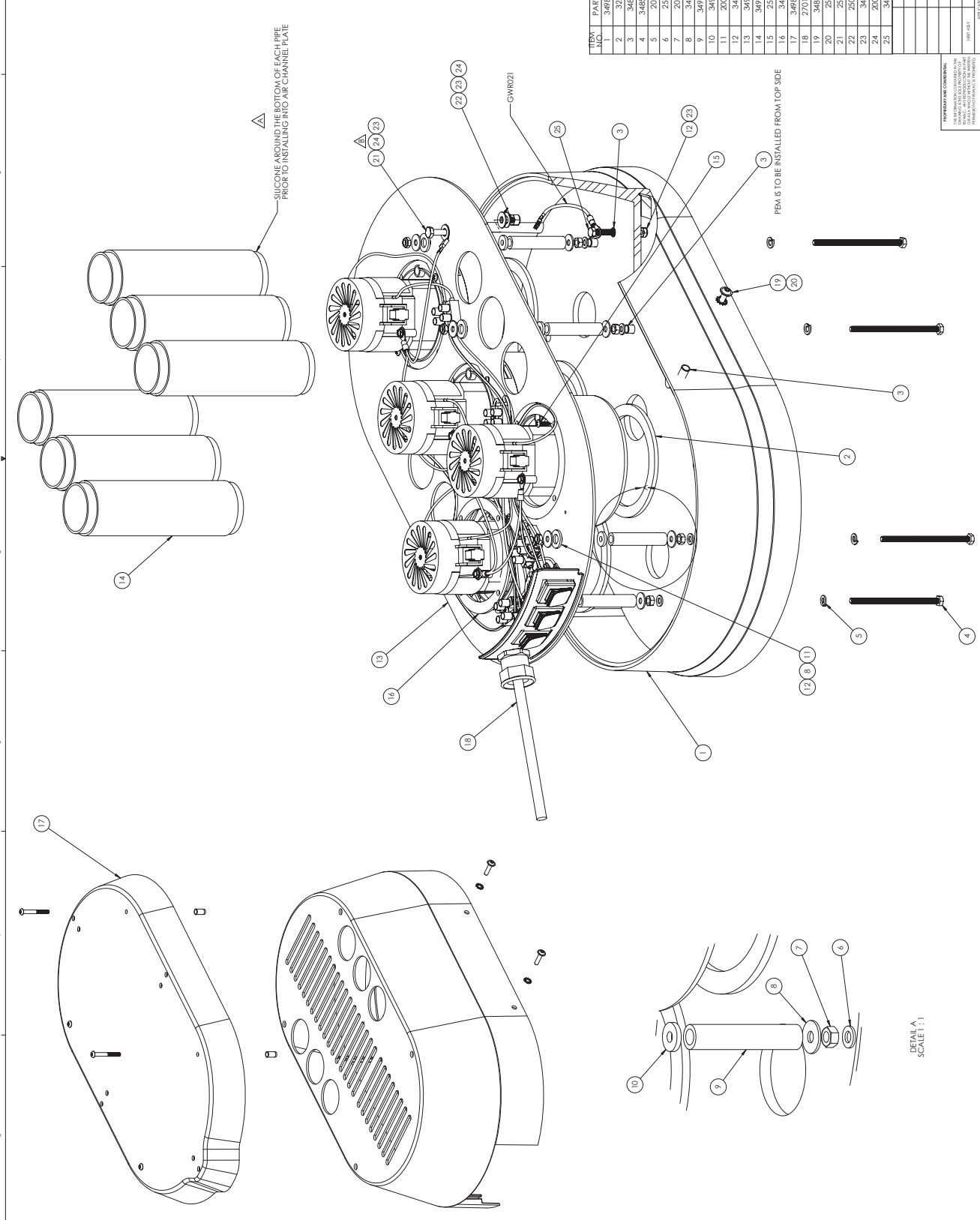
REF: PART OF 27017KCI-2320

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	34983002	WS MOTOR DECK, 3 HOLES, RED	1
2	116549-13	MOTOR, 23 STAGE, 1200W, 240V	3
3	3498333A	SILENCER HOOD ASM, COOL AIR INTAKE	1
4	PH27017LA3	WS 3 MOTOR SWICH ASM, 220V	1
5	349863	AIR CHANNEL PLATE, 3 MOTOR, TOP EXHAUST	1
6	349866	COOLING MANIFOLD, BOTTOM WELDMENT	1
7	329209	MAX 100 PARTIAL THREAD, ZINC	6
8	349884	SILENCER FOAM, WZ, LOWER	1
9	329267	MOTOR HEAD GASKET	3
10	349118	GASKET, 100MM INLET	1
11	32934002	GASKET, .375IN X .75IN, 63IN LG	3
12	3498605	PVC EXHAUST	4
13	349798	GROUND CONNECTOR	3
14	25067	WASHER FLAT M6	6
15	34617	SCREW US SOC HD M6 X 20	3
16	25000	WASHER EXT STAR 25IN	2
17	34817A	M6 BLIND FEM	9
18	34654	BOLT, HEX, M6-25	1
19	34676	MS LOCK NUT	2
20	23064	SCREW FILE PH #8 X 5/8 ZINC	6
21	GW6016	GROUND CONNECTION, FIGHT TERMINALS	1
22	3498607	SPACER, PVC, WS2320RD, LOWER	6
23	329320	SPACER, PVC, WS2320RD, UPPER	6
24	349870	GASKET FOR 3498605 MANIFOLD	1

DATE	BY	CHKD	APP'D	REV
11/27/18	J.F.			1
12/19/18	J.F.			2
1/6/19	J.F.			3
7/25/19	J.F.			4

DRAWN BY: J.F. DATE: 11/27/18  
 CHECKED BY: J.F. DATE: 12/19/18  
 APPROVED BY: J.F. DATE: 1/6/19  
 TITLE: WS2320 MOTORDECK, ASM, 240V, COOL AIR INTAKE  
 116549A01  
 SIZE: DWG. NO. 000 E 0467 US  
 SCALE: 1:2 (MECH)  
 SHEET 1 OF 1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
C3	A	ECO (BA) - SEE REV. SYMBOL	5/24/2019	DB
C3	B	ECO (M) - ADDING BLINDS FOR NEW STYLE OF MOTOR GROUNDING	7/1/2019	DB



ITEM NO.	PART NO.	DESCRIPTION	QTY.	DRAWING NO.
1	3498307	WS MOTOR DECK, 4 HOLES, RED	1	4
2	32947	MOTOR HEAD GASKET	4	11
3	34817A	M4 BLIND PEM	11	6
4	34854315	BOLT/HEX/M6.10MM/SS FULLY THREADED	6	6
5	20039	WASHER LOCK M6	6	6
6	25047	WASHER FLAT M6	6	6
7	20040	NUT HEX M6	6	12
8	34819	WASHER FENDER M6	12	6
9	3498408	SPACER, PVC, LOWER, PATRIOT	6	6
10	349791	WASHER, RUBBER, 50L0D X, 23ID X, .09	6	6
11	200187	WASHER, FLAT, 3/8, SS	6	6
12	34876	M6 LOCK NUT	7	6
13	349844	AIR CHANNEL PLATE, 4 MOTOR, TOP EXHAUST	000 R 0498 US	1
14	3498605	PVC EXHAUST	6	8
15	25044	SCREW PHL #8 X 5/8 ZINC	8	4
16	34918	GASKET, 100MM INLET	4	1
17	34980338	SILENCER HOOD ASM, PATRIOT	1	2
18	2701744	PATRIOT SWITCH ASM	1	2
19	3481701	SCREW, SOG BH, FLANGED, M6-25	2	2
20	25000	WASHER EXT STAR, ZSN	2	1
21	25005	HEX BOLT 1/4-20 X 3/4"	1	1
22	250025	NUT LOCK, ZS-20, ZINC	1	3
23	34996	GROUND CONNECTOR	3	2
24	20180	WASHER FLAT, Z31680DU SS	2	2
25	34854	WASHER FLAT, HEX, M6, ZS	1	1

116549801  
 000 E 0485 US  
 SCALE: 1:4 (REGIO)  
 SHEET 1 OF 1

TITLE: PATRIOT MOTOR DECK ASM, 4 MOTORS, 220V  
 DRAWN: [blank]  
 CHECKED: [blank]  
 DESIGNED: [blank]  
 PART NO. 116549801  
 DATE: [blank]

116549801  
 000 E 0485 US  
 SCALE: 1:4 (REGIO)  
 SHEET 1 OF 1

116549801  
 000 E 0485 US  
 SCALE: 1:4 (REGIO)  
 SHEET 1 OF 1

116549801  
 000 E 0485 US  
 SCALE: 1:4 (REGIO)  
 SHEET 1 OF 1

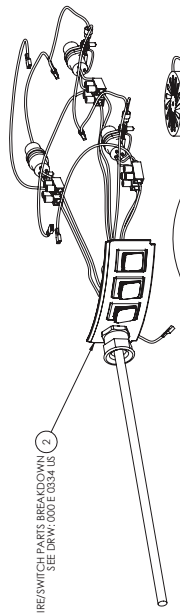
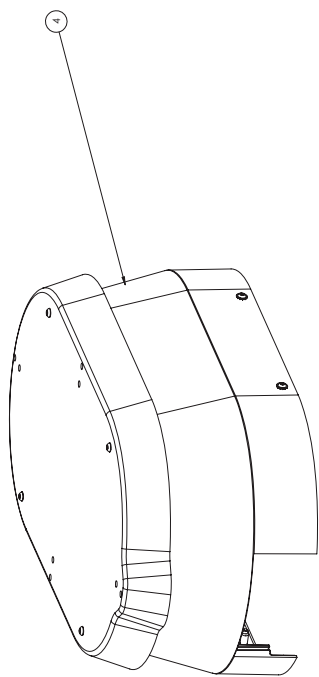
116549801  
 000 E 0485 US  
 SCALE: 1:4 (REGIO)  
 SHEET 1 OF 1

116549801  
 000 E 0485 US  
 SCALE: 1:4 (REGIO)  
 SHEET 1 OF 1

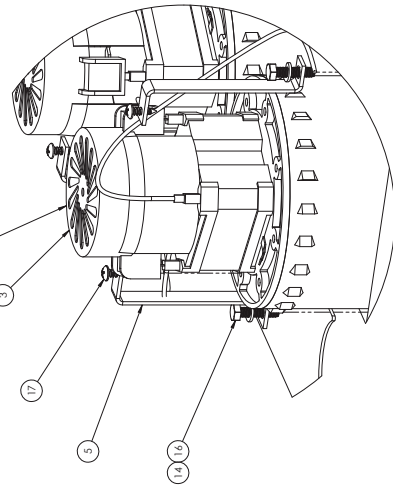
116549801  
 000 E 0485 US  
 SCALE: 1:4 (REGIO)  
 SHEET 1 OF 1



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A		ECCO HAS CHANGED GASKET TO 304SS, ADDED MOTOR BRUSH REPAIR BRUSHES	9/19/2017	DJE
CB	B	NO ECCO ADDRESS NOTE	11/26/2017	DJE
C		ECCO HAS CHANGED MOTOR HOLD DOWN SCREW	12/12/2017	DJE



⚠ FOR WIRE/SWITCH PARTS BREAKDOWN (2) SEE DRW. 000 E 0334 US



DETAIL A  
SCALE 2:3

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	34983002	WS MOTOR DECK, 3 HOLES, RED	1
2	27017L4	WS2320 SWITCH ASM, 240V, HIGH LIFT	1
3	116550	MOTOR, 220V, 100CFM, 150N H20	3
4	PH4980A5	WS SILENCER 3 MOTOR ASSY, HIGH LIFT MOTOR	1
5	348261	220V MOTOR HOLD DOWN	6
6	3498601	AIR CHANNEL PLATE, HD, 3 MOTOR, METAL	1
7	34984	SILENCER FOAM, W2, LOWER	1
8	32934002	GASKET, .375IN X .75IN, 45N LG	1
9	25982501	GASKET 5IN OD X 2.75IN ID X .1875IN THK	3
10	34998	GROUND CONNECTOR	1
11	34817A	M6 BLIND PDM	9
12	3481701	SCREW, SOC-BH FLANGED, M6-25	2
13	25000	WASHER EXT STAR, .25IN	2
14	20039	WASHER LOCK, M6	6
15	34876	W6 LOCK NUT	6
16	34876	BOLT, HEX, 1/2 X .75	7
17	24954	SCREW, PH, 1/2 X .825 ZINC	6

DATE	ISSUED	BY	CHKD	APPV	COMMENTS
08/02/2016	08/11/2016	08/11/2016	08/11/2016	08/11/2016	08/11/2016

TITLE: WS2320 MOTOR DECK, 240V, HIGH LIFT  
 DRAWN: DJE  
 DATE: 5/27/12  
 CHECKED: DJE  
 DATE: 11/26/17  
 DESIGNED: DJE  
 DATE: 11/26/17  
 PARTS LISTED: DJE  
 UNIT PRICE: DJE  
 UNIT WEIGHT: DJE  
 UNIT VOLUME: DJE  
 UNIT AREA: DJE

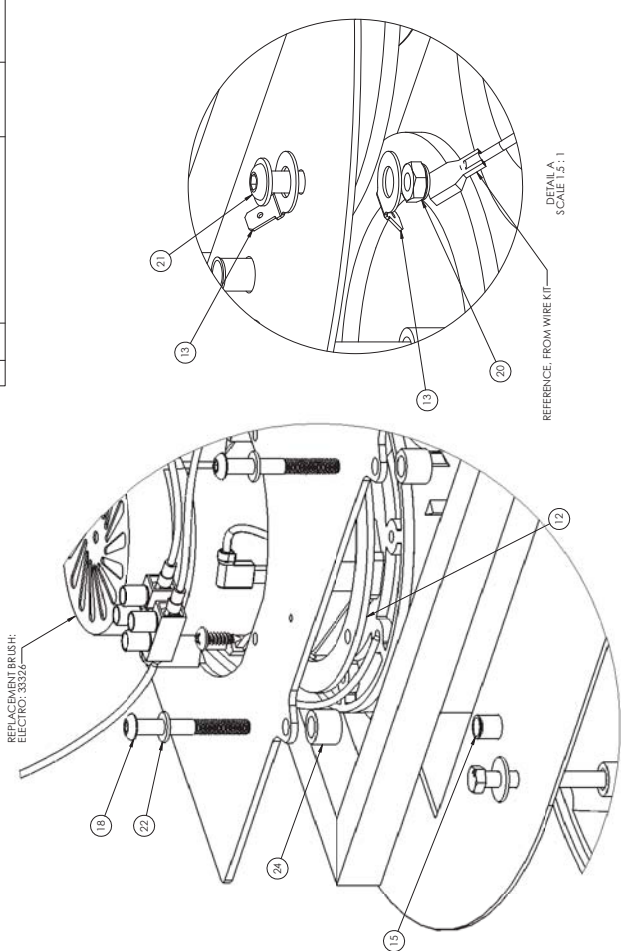
MATERIAL: 304  
 FINISH: BREAK SHARP EDGES  
 COMMENTS: 116550A4

SIZE (DWG. NO.): WS2320 MOTOR DECK, 240V, HIGH LIFT  
 REV: 000 E 0335 US  
 SCALE: 1:8 W/EGRE: C  
 SHEET 1 OF 1

APPROVED: [Signature]  
 DATE: 11/26/17  
 TITLE: 116550A4  
 SCALE: 1:8 W/EGRE: C  
 SHEET 1 OF 1

REVISES

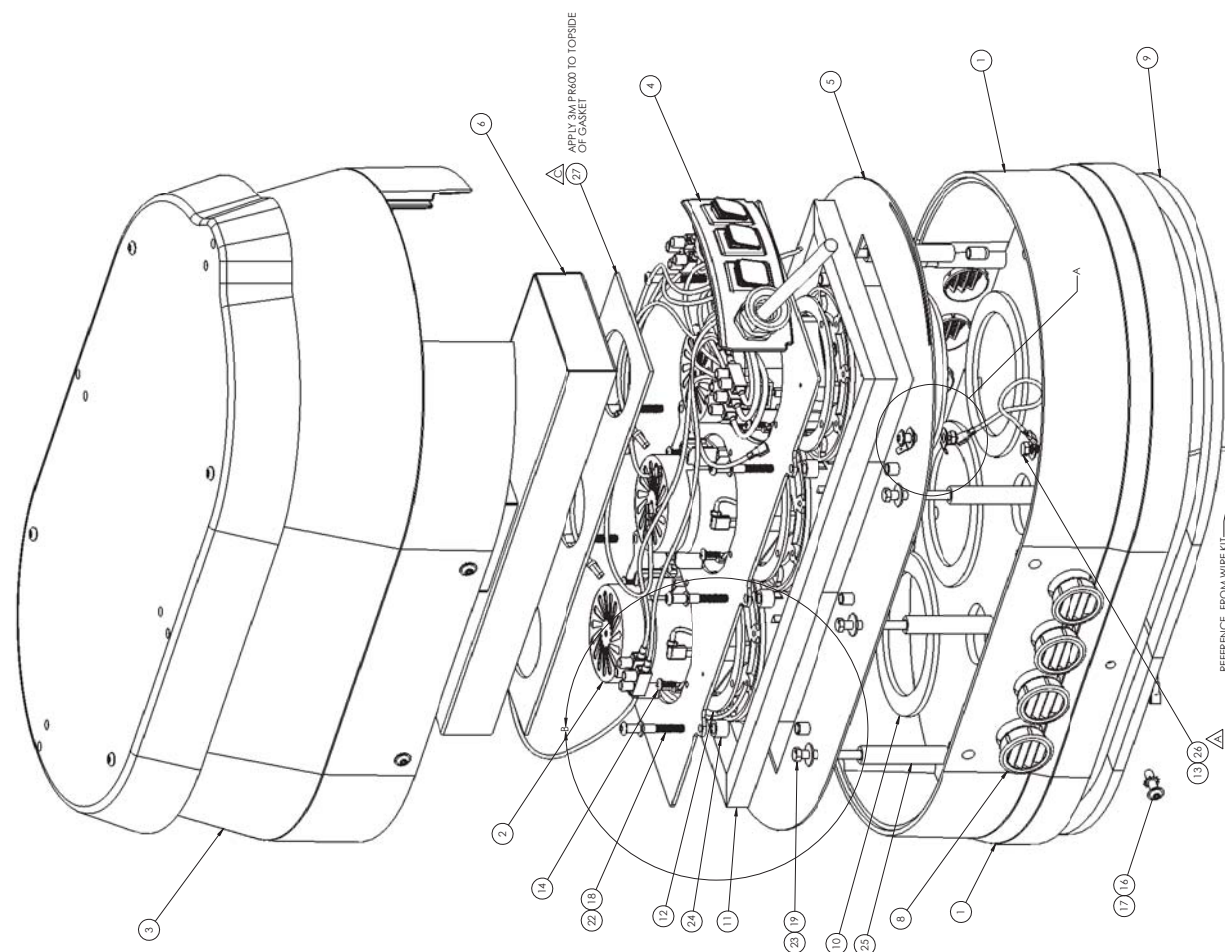
ZONE	REV.	DESCRIPTION	DATE	APPROVED
A7	A	ECO 184 GROUNDING BOLT CHANGE	7/13/2018	JIF
B	B	NOTE: ADD TO MOTOR REPLACEMENT BMSH.	1/8/2019	DB
C5	C	ECO 165-REPLACED MAIN OIL GASKET	9/16/2019	DB



DETAIL B  
SCALE: 1:1

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	34983005	WS MOTORDECK, 3AIR, SIDE VENTS, HIGH LIFT	1
2	116550	MOTOR, 220V, 100CFM, 1.50N/H20	3
3	3498033A	SILENCER HOOD ASM, COOL AIR INTAKE	1
4	27017LA5	WIRE ASM, HIGH LIFT, COOLING	1
5	3498604	AIR CHANNEL PLATE, HD, 3 MOTOR, COOLING	1
6	3498864	COOLING MANIFOLD, BOTTOM WELDMENT	1
7	3498603	AIR SEPARATION PLATE, HIGH LIFT	1
8	972084	VENT CAP, 1.5IN	8
9	32934002	GASKET, .375IN X .75IN, 63IN LG	1
10	2509828	MOTOR HEAD GASKET	3
11	3294201	GASKET, .75 X .75, EPDM, .54 IN	1
12	34918	GASKET, 1.00MM INLET	3
13	34998	GROUND CONNECTOR	3
14	27006	SCREW, PH, PHIL, #10 X .65 ZINC	6
15	34817A	M6 BIND PRM	14
16	3481701	SCREW, SOC BH, FLANGED, M6-25	2
17	25000	WASHER EXT STAK, .25IN	2
18	32905	SCREW, M6 X .50, BUITION HEAD	6
19	32909	M6 X 100, PARTIAL THREAD, ZINC	6
20	34876	M6 LOCK NUT	2
21	34817	SCREW, US3 SOC HD M6 X 20	1
22	25067	WASHER PLATE	6
23	34819	WASHER FENDER W6	6
24	3498606	SPACER PVC, WS3330HD, UPPER	6
25	34867	SPACER PVC, WS3330HD, LOWER	6
26	34854	EOL FOR M6 X 25	1
27	349870	GASKET FOR 3498603 MANIFOLD	1

THIS MOTORDECK BEGAN SHIPPING WITH SERIAL # 18071175. ALL HD MDECKS SHIPPED AFTER USE THIS CONSTRUCTION.



REFERENCE, FROM WIRE KIT

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	116550	WS MOTORDECK, 3AIR, SIDE VENTS, HIGH LIFT	1
2	116550	MOTOR, 220V, 100CFM, 1.50N/H20	3
3	3498033A	SILENCER HOOD ASM, COOL AIR INTAKE	1
4	27017LA5	WIRE ASM, HIGH LIFT, COOLING	1
5	3498604	AIR CHANNEL PLATE, HD, 3 MOTOR, COOLING	1
6	3498864	COOLING MANIFOLD, BOTTOM WELDMENT	1
7	3498603	AIR SEPARATION PLATE, HIGH LIFT	1
8	972084	VENT CAP, 1.5IN	8
9	32934002	GASKET, .375IN X .75IN, 63IN LG	1
10	2509828	MOTOR HEAD GASKET	3
11	3294201	GASKET, .75 X .75, EPDM, .54 IN	1
12	34918	GASKET, 1.00MM INLET	3
13	34998	GROUND CONNECTOR	3
14	27006	SCREW, PH, PHIL, #10 X .65 ZINC	6
15	34817A	M6 BIND PRM	14
16	3481701	SCREW, SOC BH, FLANGED, M6-25	2
17	25000	WASHER EXT STAK, .25IN	2
18	32905	SCREW, M6 X .50, BUITION HEAD	6
19	32909	M6 X 100, PARTIAL THREAD, ZINC	6
20	34876	M6 LOCK NUT	2
21	34817	SCREW, US3 SOC HD M6 X 20	1
22	25067	WASHER PLATE	6
23	34819	WASHER FENDER W6	6
24	3498606	SPACER PVC, WS3330HD, UPPER	6
25	34867	SPACER PVC, WS3330HD, LOWER	6
26	34854	EOL FOR M6 X 25	1
27	349870	GASKET FOR 3498603 MANIFOLD	1

116550/AC  
D 000 E 0454 US  
SCALE: 1:2 (MECH)

WS2200 MOTOR DECK, 240V, HIGH LIFT, COOLING SYSTEM  
REV. C  
000 E 0454 US  
SCALE: 1:2 (MECH)

116550/AC  
D 000 E 0454 US  
SCALE: 1:2 (MECH)

116550/AC  
D 000 E 0454 US  
SCALE: 1:2 (MECH)

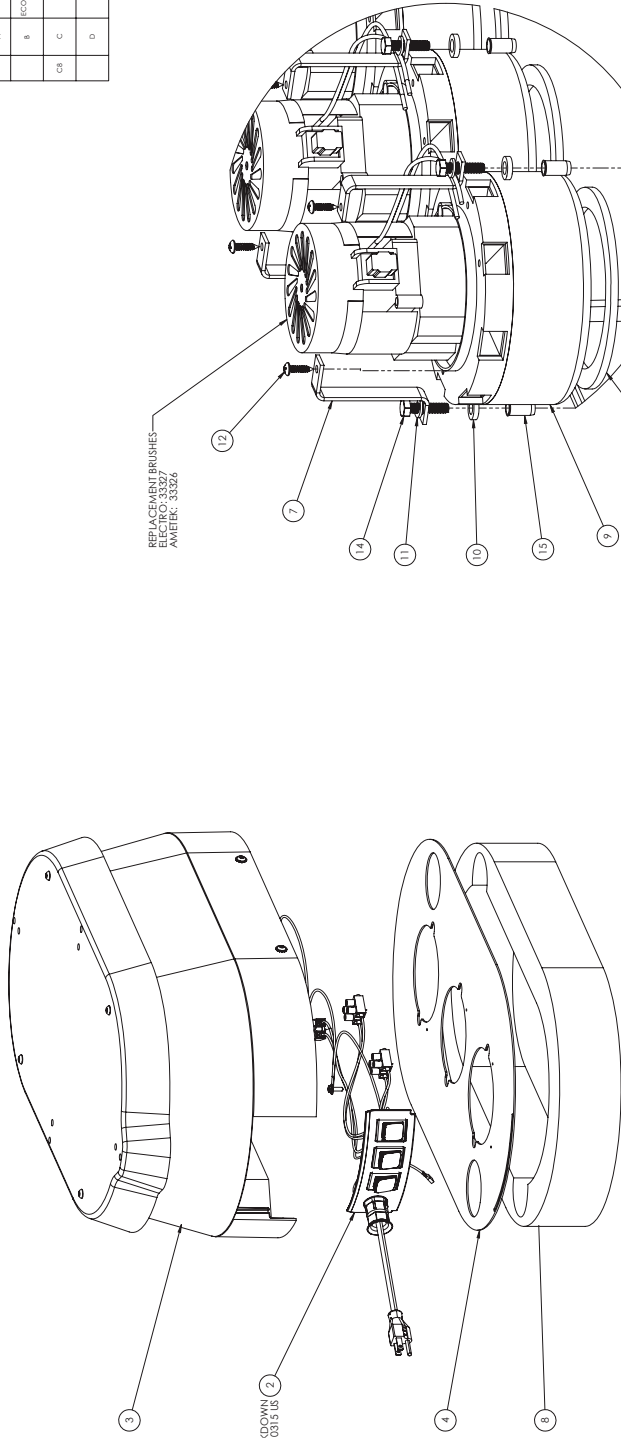
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D 000 E 0454 US  
SCALE: 1:2 (MECH)

116550/AC  
D 000 E 0454 US  
SCALE: 1:2 (MECH)

116550/AC  
D 000 E 0454 US  
SCALE: 1:2 (MECH)

116550/AC  
D 000 E 0454 US  
SCALE: 1:2 (MECH)

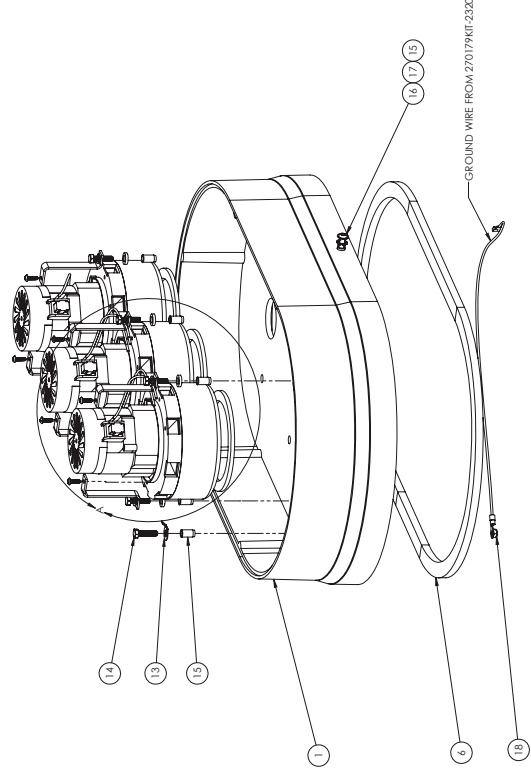
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	ECO 1005-RELEASED REV A	4/14/2016	DJE
	B	ECO 1005-ADDED MOTOR BRUSH MORE CONTACTS	9/19/2017	DJE
	C	NO ECO ADDED MORE	10/26/2017	DJE
	D	ECO 1445-CHANGED MOTOR CORES	12/12/2017	DJE



REPLACEMENT BRUSHES  
 AMETEK: 33326

FOR WIRE SWITCH BREAK DOWN  
 SEE DRAWING 0015 US

DETAIL A  
 SCALE 2:1.3



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	34958002	WS MOTOR DECK, 3 HOLES, RED	1
2	27017A3	WS 3 MOTOR SWITCH ASM, 120V	1
3	PH349580ARG	WS SILENCER ASM	1
4	349586	AIR CHANNEL PLATE, 3 MOTOR, METAL	1
5	329267	MOTOR HEAD GASKET	3
6	329346002	GASKET, .375IN X .75IN, 63IN LG	1
7	34826	MOTOR HOLD DOWN BRACKET	6
8	349584	SILENCER FOAM, W2, LOWER	1
9	119514	MOTOR, 231AGE, PD 800W, 120V	3
10	200432	INTON WASHER/SPACER	6
11	20039	WASHER LOCK W/6	6
12	20064	SCREW PHIL #8 X 3/8 ZINC	6
13	34928	GROUND CONNECTOR	1
14	34854	BOLT, HEX, M6X25	7
15	34817A	M6 BUND FEEL	9
16	3481701	SCREW, SOC BOLT LONGER, M6-25	2
17	34820	WASHER LOCK W/2IN	2
18	34820	WASHER LOCK W/2IN	1

DATE	BY	CHKD	APP'D	REV
4/14/16				D
9/19/17				D
10/26/17				D
12/12/17				D

119514A  
 WS2320 MOTOR DECK ASM,  
 3MTR, RED  
 SCALE: 1:8 WEGE

44 WIPAC ST  
 1510/065, M6, 01040

REVISIONS

REVISIONS

REVISIONS

REVISIONS

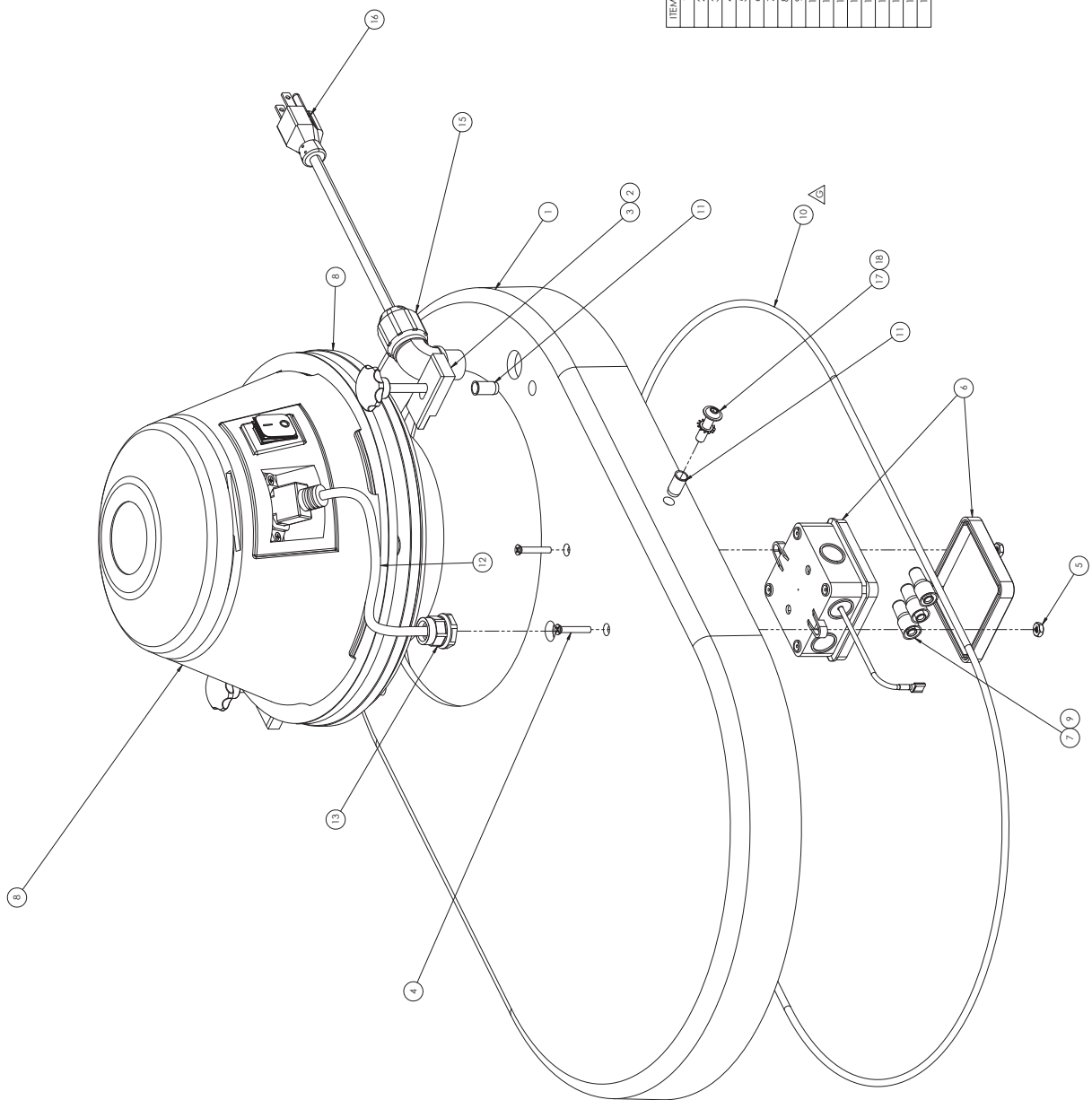
REVISIONS

REVISIONS



DATE	DESCRIPTION	DATE	APPROVED
7/25/14	ECO 1240 MOUNTING HW	7/25/14	DJE
5/12/08B	ECO 1475 GASKET CALLOUT	5/12/08B	JIF
7/25/07F	ECO 1423 ADDING NOISE	7/25/07F	JIF

⚠ BEGINNING WITH SERIAL NO. 19071027  
 ALL WNS1000 (33120/33120DB) UNITS WILL  
 NO LONGER BE USING THIS MOTORDECK ASM.  
 PLEASE SEE MDECK ASM 90223WNS-1B.



ITEM NO.	PART NO.	DESCRIPTION	DRAWING NO.	QTY.
1	90223WNS-1	MOTOR DECK, RED WNS, 1 MOTOR		1
2	24603	M6 MOTOR HOLD DOWN NUT		2
3	20280	MOTOR HOLD DOWN BRACKET		2
4	20501	SCREW, PHENOLIC, #2-32, 1IN LG		2
5	20549	WIRE NUT, 1/2IN		2
6	32992	INSTRUCTION BOOK, GREY		1
7	21092	WIRE NUT, GAS EX, CRIMP ON		3
8	27000A	MOTOR HEAD ASM, 120V		1
9	21092-1	INSULATOR, GAS EX BRASS, CRIMP ON		3
10	31374002	GASKET, NEOPRENE, 188", 5.4FT LG		1
11	34817A	M6 BIND FEM		4
12	25210	FEMALE IEC PLUG		1
13	34760	PG 09 CABLE GRIP, POLY		1
14	27017KIT-WNS	GROUND, PART OF WIRE KIT FOR WNS		1
15	34761	STRAIN RELIEF, 90°, 5IN, BLACK		1
16	2005531	POWER CORD, 12/3 SJO, MOLDED PLUG		1
17	3481701	SCREW, SOC BH, FLANGED, M6-25		2
18	25000	WASHER EXT STAR, 25IN		2

**IMPORTANT USE COMMENTS:**  
 SEE PARTS MANUAL FOR THE  
 IDENTIFICATION OF THE  
 PARTS AND THE LOCATION OF  
 THE PARTS IN THE UNIT.

**REVISIONS:**  
 DATE: 6/20/12  
 BY: [Signature]  
 TITLE: WNS 1000 MOTOR DECK ASM

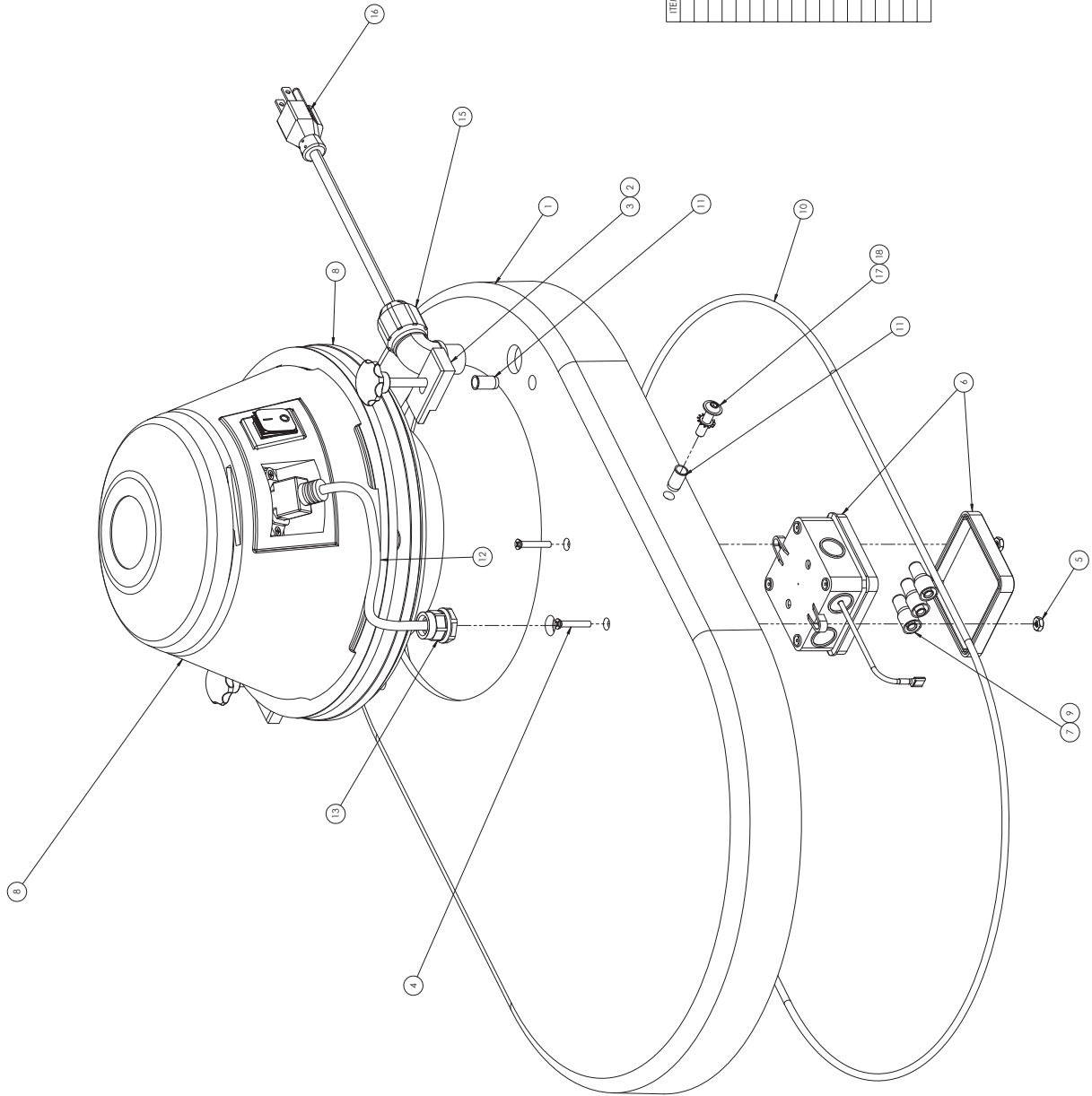
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**SIZE:** DWG. NO. 90223WNS-1 A  
 D 000 E 0 136 US  
 H

**SCALE:** 2:3 (MAGNIFIED)

**SCALE:** 2:3 (MAGNIFIED)

BEGINNING WITH SERIAL NO. 19071027  
 ALL WNS1000 (33120/33120DB) UNITS WILL  
 BE USING THIS MOTORDECK ASM.



ITEM NO.	PART NO.	DESCRIPTION	DRAWING NO.	QTY.
1	90223WNS-1	MOTOR DECK, RED WNS, 1 MOTOR		1
2	24603	M6 MOTOR HOLD DOWN KNOB		2
3	20280	MOTOR HOLD DOWN BRACKET		2
4	20281	SCREW, PHENOLIC, #2-32, 1/8" LG		2
5	20282	WASHER, 1/8" DIA, 1/8" THK		2
6	32992	WIRE NUT, 1/2" DIA, 1/2" LG		1
7	21092	WIRE NUT, GAS EX, CRIMP ON		3
8	20200B	MOTOR HEAD ASM, 120V		1
9	21092-1	INSULATOR, GAS EX BRASS, CRIMP ON		3
10	31374002	GASKET, NEOPRENE, 1.88", 5.4FT LG		1
11	34817A	M6 BIND FEM		4
12	25210	FEMALE IEC PLUG		1
13	34760	PG 09 CABLE GRIP, POLY		1
14	27017KIT-WNS	GROUND PART OF WIRE KIT FOR WNS		1
15	34761	STRAIN RELIEF, 90°, 5IN, BLACK		1
16	2005531	POWER CORD, 12/3 SJO, MOLDED PLUG		1
17	3481701	SCREW, SOC BH, FLANGED, M6-25		2
18	25000	WASHER EXT STAR, 25IN		2

**REVISIONS**

NO.	DATE	DESCRIPTION
1	07/07/21	ISSUED FOR PRODUCTION
2	07/07/21	ISSUED FOR PRODUCTION

**PRODUCTION COMMENTS**  
 SEE PARTS MANAGER FOR THE LATEST REVISIONS TO THIS DRAWING. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.  
 DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.  
 DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.  
 DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

**APPROVALS**

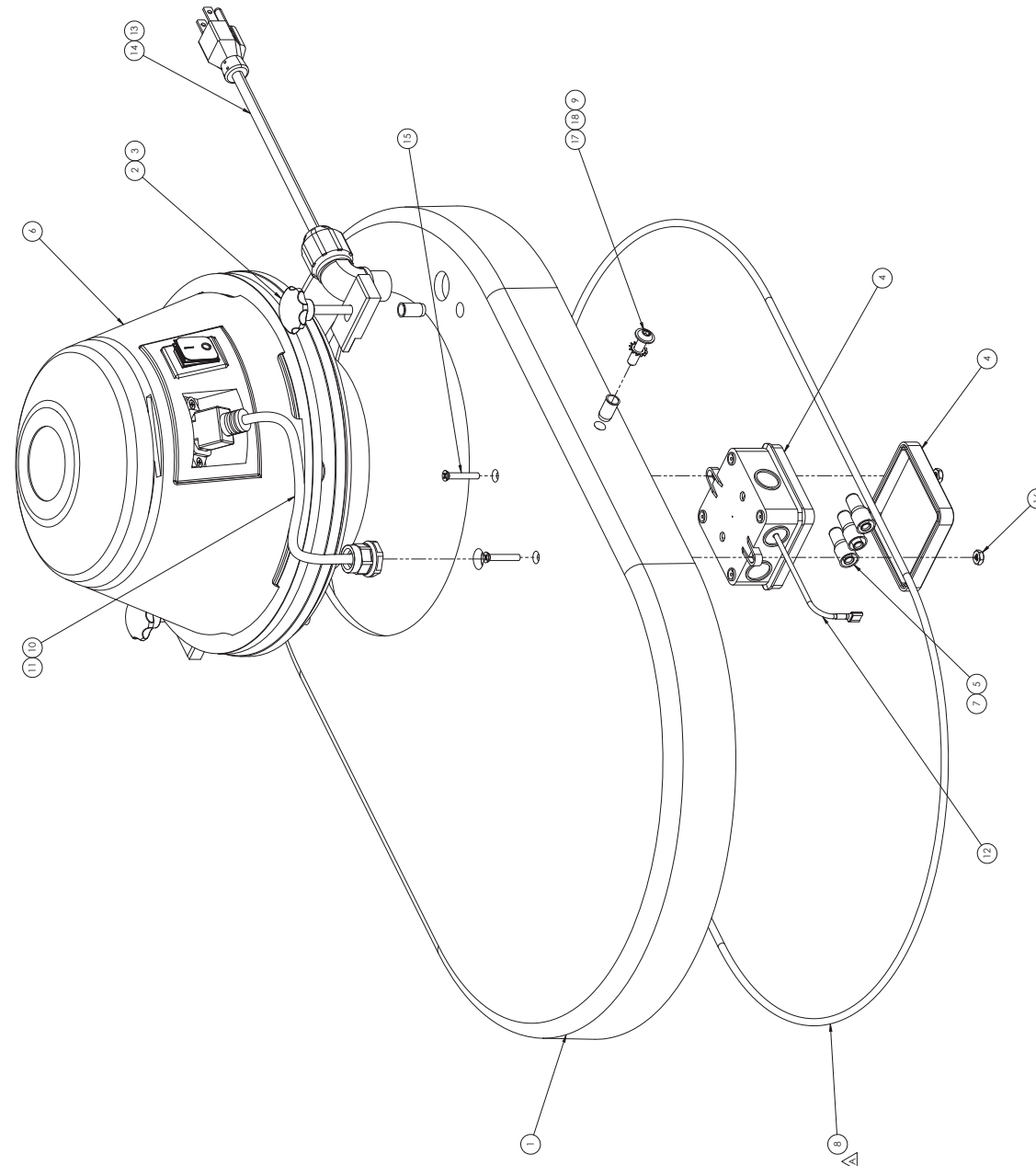
NAME	DATE	TITLE

**SAWYER ST. 54 WINTER ST. HOLYOKE, MASS. 01040**

**WNS 1000 MOTOR DECK ASM**

SIZE: DWG. NO. **D** 000-E 0527 US  
 SCALE: 2:3 (REG. CHG.)  
 SHEET 1 OF 1

REVISIONS			
ZONE	REV.	DESCRIPTION	DATE
A7	A	ECO 14.5-UPDATED GASKET CALLOUT	5/5/2018
			JIF



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	9022WNS-1	MOTOR DECK, RED, WNS, 1 MOTOR	1
2	26603	M4 MOTOR HOLD DOWN KNOB	2
3	20020	MOTOR HOLD DOWN BRACKET	2
4	32999	JUNCTION BOX, GREY	1
5	21092	WIRE NUT, GAS EX, CRIMP ON	3
6	27000A240	220V MOTOR HEAD ASM	1
7	21092-1	INSULATOR, GAS EX, BRASS	3
8	31376002	GASKET, NEOPRENE, 188", 5.4FT LG	1
9	34817A	M4 BLIND FEM	4
10	29210	FEMALE EC PLUG	1
11	34960	PG19 CABLE GRIP, POLY	1
12	270179KIT-WNS	GROUND, PART OF WIRE KIT FOR WNS	1
13	34961	STRAIN RELIEF, 90, 3IN, BLACK	1
14	200531	POWER CORD, 17/32 SJO, MOULDED PLUG	1
15	23061	SCREW, PHNS, 1/8" HEAD, 1/8" SZ, 1IN LG	2
16	34817	SCREW, ECX, 1/8" HEAD, 1/8" SZ, 1IN LG	2
17	3481701	SCREW, ECX, 1/8" HEAD, 1/8" SZ, 1IN LG	2
18	25020	WASHER, EX, STAR, 25IN	2

UNLESS OTHERWISE SPECIFIED:	UNITS: INCHES	DATE: 6/9/17	SA: Winifred St.
DESIGN: 2018-01-11	DATE: 6/9/17	REV: 0001	Holyoke, MA 01040
PROJECT: 14.5-ECO	PROJECT: 14.5-ECO	REV: 0001	
DESCRIPTION: 14.5-ECO	DESCRIPTION: 14.5-ECO	REV: 0001	
DATE: 5/5/2018	DATE: 5/5/2018	REV: 0001	
SCALE: 2:1	SCALE: 2:1	REV: 0001	
SCALE: 2:1	SCALE: 2:1	REV: 0001	

FOR PARTS AND COMMENTS  
SEE REMARKS COLUMN IN THE  
REVISIONS SECTION OF THE  
DRAWING. ALL DIMENSIONS ARE  
UNLESS OTHERWISE SPECIFIED.  
RESERVED RIGHTS RESERVED

WNS 1000 MOTOR DECK ASM,  
Z20V

9022WNS-240

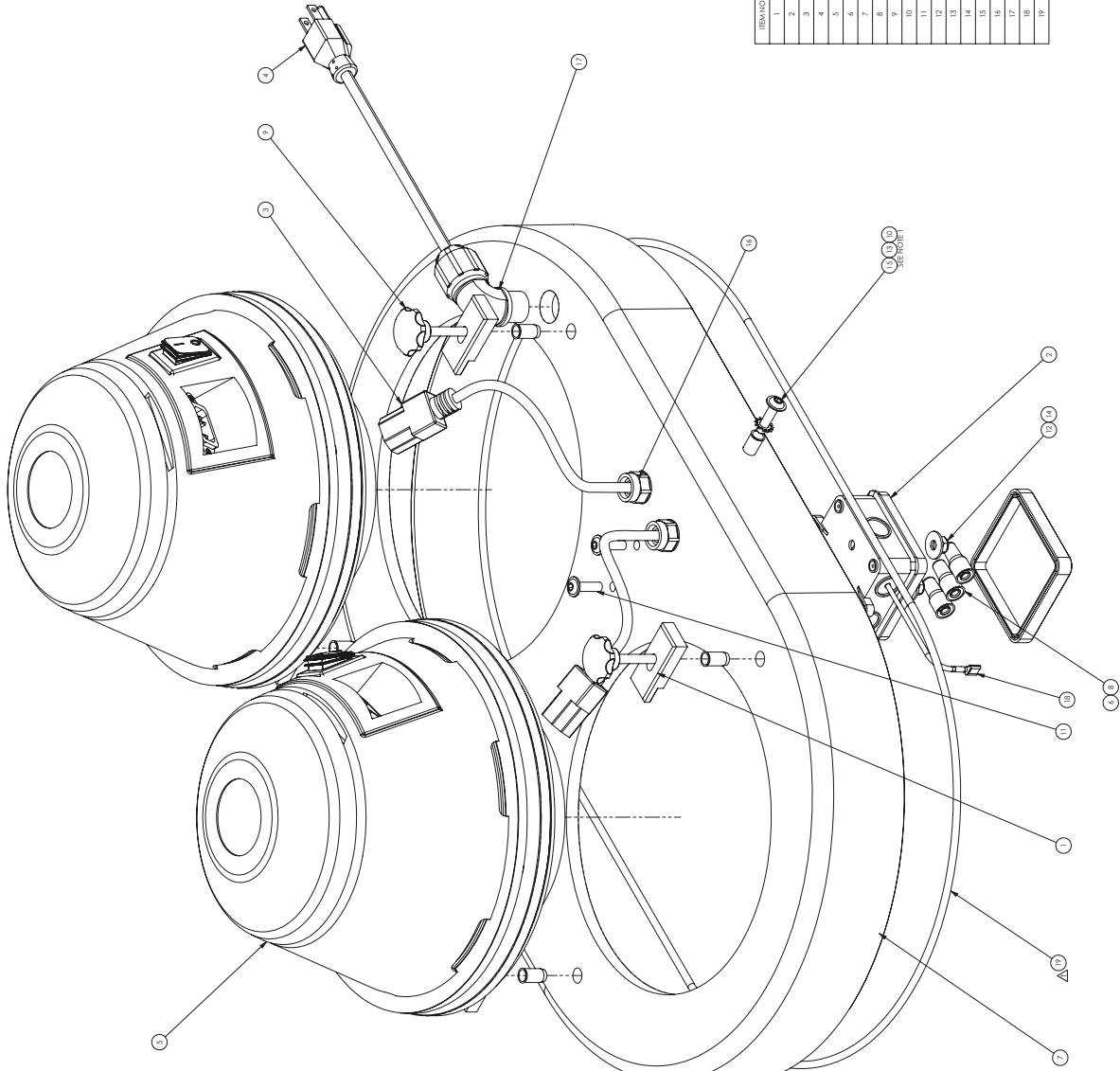
SIZE DWG. NO. D 0001 E 0414 US

SCALE: 2:1 WEGE

REV A

SHEET 1 OF 1

NOTES:  
 1. REAMINATION INSTRUCTIONS  
 2. DRILL HOLE WITH HOB BIT  
 3. INSERT FRONT LOWER HOUSING W/FRONT BIT  
 4. INSERT FRONT LOWER HOUSING W/FRONT BIT



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	5	ECO 1277	10/04/16	DLIS
AJ	1	ECO 1475	5/12/08B	JJP

ITEM NO.	PART NO.	DESCRIPTION	DRAWING NO.	QTY.
1	20201	MOTOR HOLD DOWN BRACKET		4
2	50999	JUNCTION BOX, GREY		1
3	20210	FEMALE EC PLUG		2
4	2005311	POWER CORD, 120 V, 3.0, UNCLE DUG PLUG		1
5	20010A	MOTOR HEAD ASSEMBLY, 110V, 1000 WATT		2
6	2109211	INSULATOR, GALV. BRASS		3
7	90229NS	DS1 MOTOR DECK		1
8	21092	WIRE NUT, GALV. CRIMP ON		3
9	20603	NS MOTOR HOLD DOWN PIN		4
10	34617A	NS BIND PIN		6
11	34617	SCREW, USS, #2, PHEN A, 20		2
12	4809	APR 09		2
13	20009	WASHER, ST, 1/4"		2
14	44019	WASHER, ST, 1/4"		2
15	3461701	SCREW, USS, #1, PHEN A, 25		2
16	34660	PCB CR CABLE CRIP POLY		2
17	34661	STRAP, REBEL, 90, 3/4" BLACK		1
18	20119K11NS	GROUND, PART OF WIRE KIT FOR WNS		1
19	3119A002	GASMET, NS09RBL, 1.87, 5/8" LG		1

DATE	DATE	DATE	DATE	DATE
10/04/16	10/04/16	10/04/16	10/04/16	10/04/16

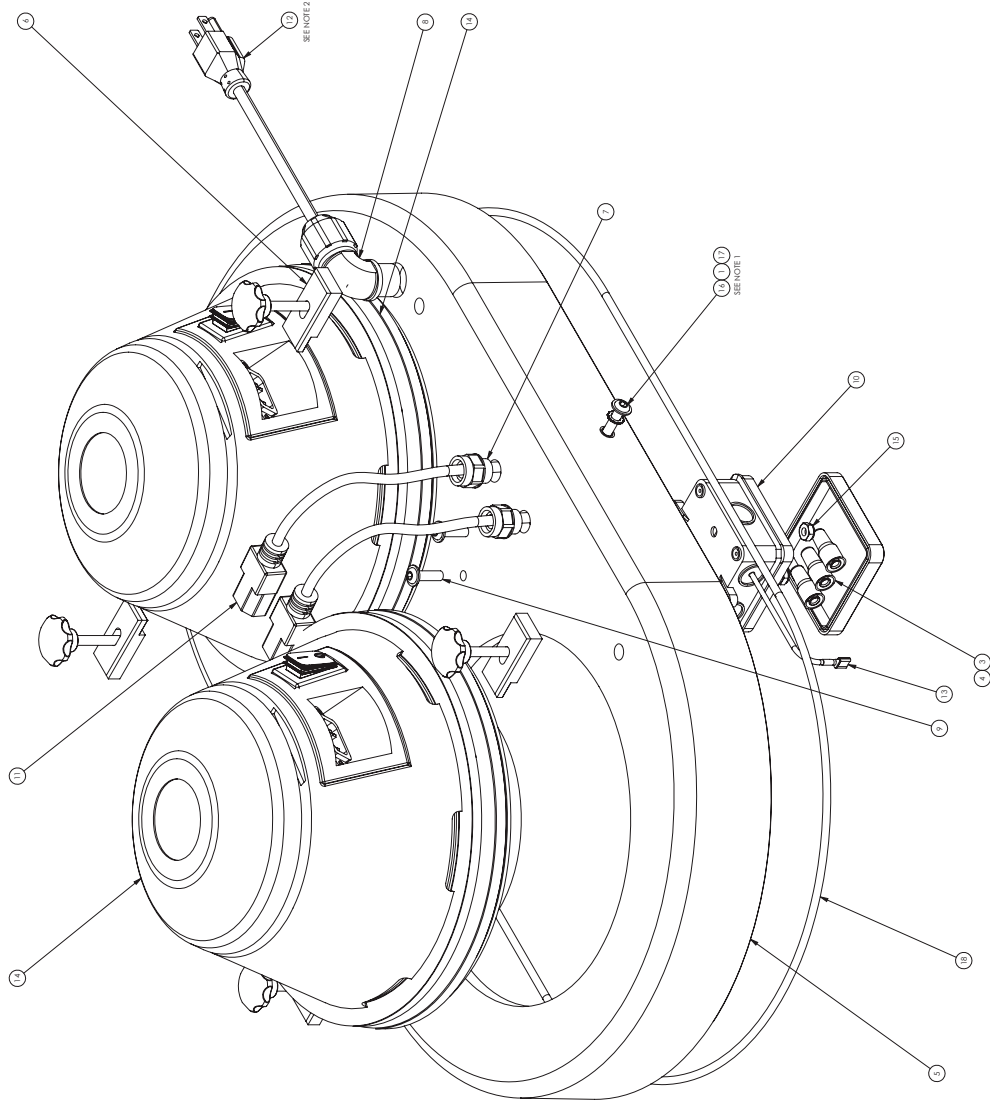
SA Walter St.  
 Höyke, No. 01040  
**WNS2220 MOTOR DECK**  
 ASM, 110V  
 SIZE DWG. NO. 90229NSA  
 000 E 0310 US  
 SCALE: 1:3 WEGE: T  
 SHEET 1 OF 1

LEVEL	DESCRIPTION	DATE	DATE
1	DESIGNED BY		
2	DESIGNED BY		
3	DESIGNED BY		
4	DESIGNED BY		
5	DESIGNED BY		

COMMENTS:  
 1. SEE PARTS LIST FOR MATERIALS  
 2. SEE PARTS LIST FOR MATERIALS  
 3. SEE PARTS LIST FOR MATERIALS  
 4. SEE PARTS LIST FOR MATERIALS  
 5. SEE PARTS LIST FOR MATERIALS



- NOTES:  
 REINSTALLATION INSTRUCTIONS  
 1. DRILL INTO LOWER HOUSING W/ WARM BIT  
 2. INSERT FIBER INTO LOWER HOUSING W/ WARM BIT  
 3. REMOVE PLUG FOR 220V



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	5	ECO 1277	10/04/16	DHS
	1	ECO 1425-UPDATED GABINET CALLOUT	5/12/2016	JJP

TRFNO.	PARTNO.	DESCRIPTION	QTY.
1	34817A	M-BLIND PWA	2
2	24603	MA MOTOR HOLD DOWN KNOB	4
3	21092	WRENCH GAS EX. CRAMP ON	3
4	21092-1	INSULATOR GAS EX. BRASS	3
5	9022WNS	DS1 MOTOR DECK	1
6	20020	MOTOR HOLD DOWN BRACKET	4
7	34900	PG W Cable Clip Polymer	2
8	34901	Stop Retain. 90220. 1/2" Block	1
9	34817	MA02 Allen Head Screw	2
10	32999	Junction Box, Grey	1
11	25210	Femaldec REC Plug	2
12	2003531	Power Cord. 12/3 S/D. M-Subcl Plug (Removed by 220V)	1
13	2001901WNS	Ground Part of Web Kit for WNS	1
14	210024240	220V MOTOR HEAD ASM	2
15	3481701	MA Lock Nut, Zinc	2
16	3481701	MA02 Allen Head Screw	2
17	25000	1/4" External Size Washer	2
18	3130002	Cable Kit, Round, 3/16 Dia	1

DATE	BY	DESCRIPTION
10/04/16	DHS	ECO 1277
5/12/2016	JJP	ECO 1425-UPDATED GABINET CALLOUT

90223WNSA-220  
 MOTORDECK, 220V

SIZE: DWS, NO. REV  
 D 000 E 0029 US T  
 SCALE: 1:3 WEGEHE

90223WNSA-220  
 MOTORDECK, 220V

SIZE: DWS, NO. REV  
 D 000 E 0029 US T  
 SCALE: 1:3 WEGEHE

90223WNSA-220  
 MOTORDECK, 220V

SIZE: DWS, NO. REV  
 D 000 E 0029 US T  
 SCALE: 1:3 WEGEHE

90223WNSA-220  
 MOTORDECK, 220V

SIZE: DWS, NO. REV  
 D 000 E 0029 US T  
 SCALE: 1:3 WEGEHE

90223WNSA-220  
 MOTORDECK, 220V

SIZE: DWS, NO. REV  
 D 000 E 0029 US T  
 SCALE: 1:3 WEGEHE

90223WNSA-220  
 MOTORDECK, 220V

SIZE: DWS, NO. REV  
 D 000 E 0029 US T  
 SCALE: 1:3 WEGEHE

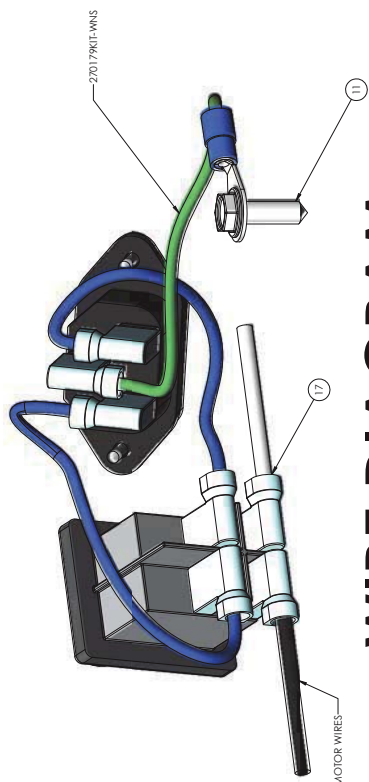
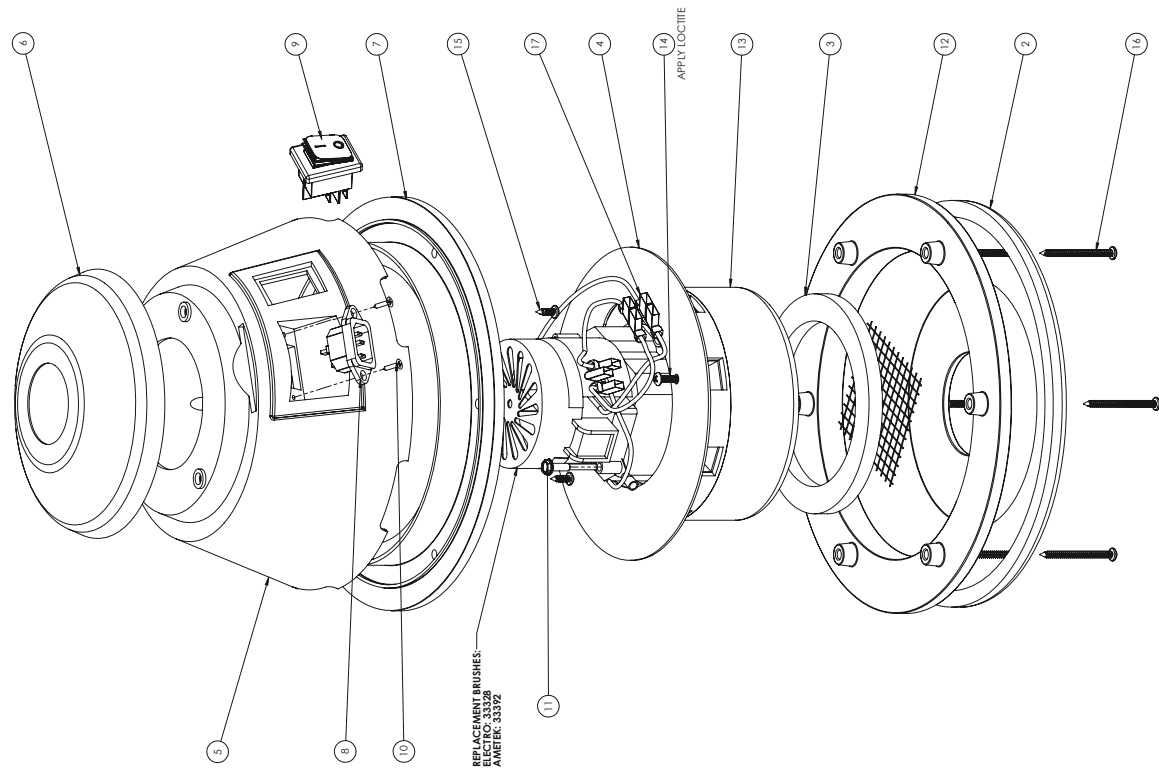
90223WNSA-220  
 MOTORDECK, 220V

SIZE: DWS, NO. REV  
 D 000 E 0029 US T  
 SCALE: 1:3 WEGEHE

90223WNSA-220  
 MOTORDECK, 220V

SIZE: DWS, NO. REV  
 D 000 E 0029 US T  
 SCALE: 1:3 WEGEHE

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
C		NO ECCO ADDD REPLACEMENT BRUSH NOTIS	1/20/2017	DJE



REF: 27000 MOTOR WIRES

# WIRE DIAGRAM

ITEM NO.	PART NO.	DESCRIPTION	DRAWING NO.	QTY.
1	8021	PROTECTION SCREEN, MOTOR HEAD		1
2	27004	MOTOR HEAD GASKET, WNS		1
3	2599811R	MOTOR HEAD GASKET		1
4	27007	SEPARATOR PLATE, WNS MOTOR HEAD		1
5	27014	MOTOR HOUSING, SINGLE MOTOR		1
6	27015	HOUSING COVER, SINGLE MOTOR		1
7	8004	SUPPORT RING, SINGLE MOTOR		1
8	25211	MALE IEC FLUG		1
9	27017	ROCKER SWITCH, 1000/200W		1
10	27011	SCREW #6 X 0.5		2
11	32989	HEX WASHER/TEX SCREW #10-16, .625LG		1
12	27001	MOTOR HEAD, ALUMINUM		1
13	27000	MOTOR, 2 STAGE, PD, 1200W, 120V		1
14	23064	SCREW PHIL #8 X .5/8 ZINC		2
15	27012	SCREW PHIL #8 X .5/8 ZINC		3
16	27003	TERMINAL RING, 16 GAUGE BLUE		6
17	31213	TERMINAL RING, 16 GAUGE BLUE		2
18	31565	TERMINAL, 3/16 RINGS, 16/14 GA, BLUE VINYL		1

DATE	DATE	DATE	DATE	DATE
D.J.E.	6/20/15			

SA Winter St.  
Hollywood, Mo. 64040

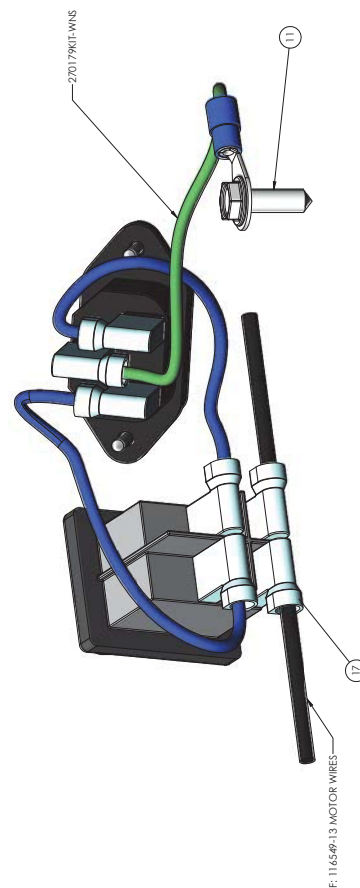
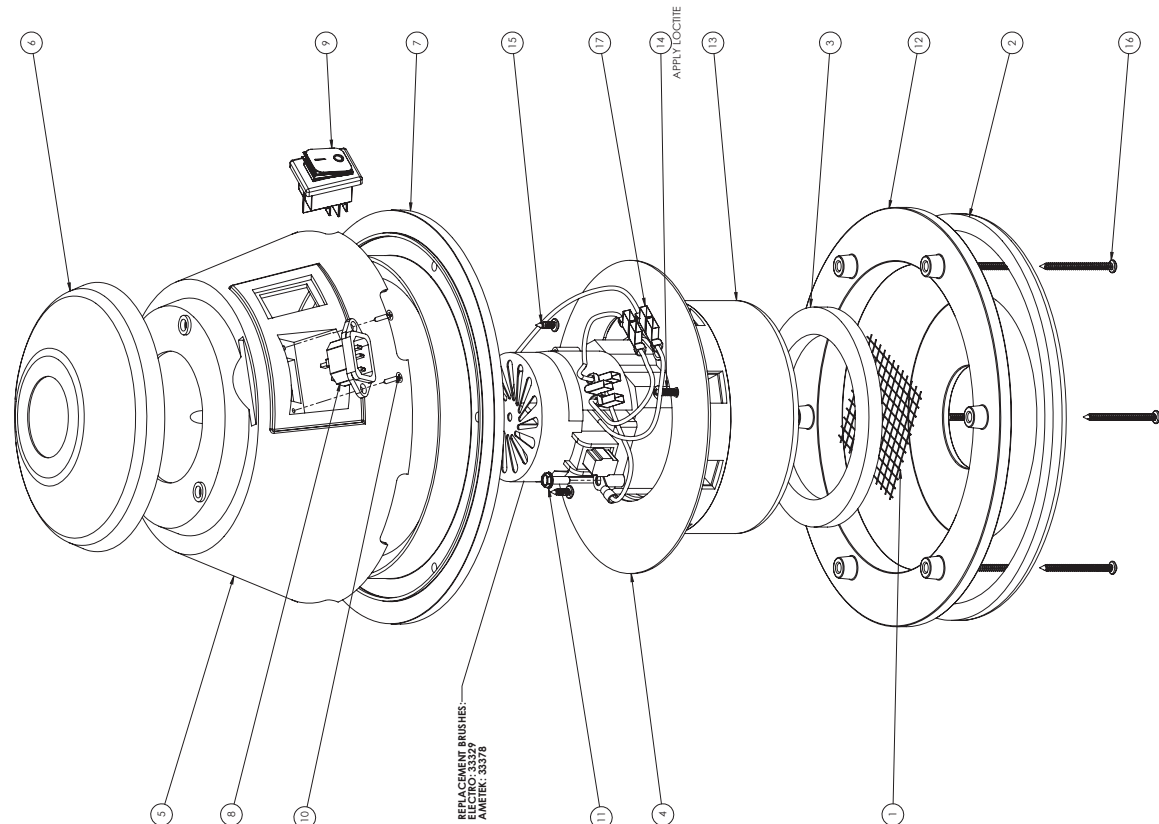
DATE: 1/20/2017  
SCALE: 2:3 W/GECH

REV: 27000A  
MOTOR HEAD ASM, 120V  
000-E-0223 US  
SHEET 1 OF 1

REVISIONS



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
C		NO ECCO ADDD HOIE ABOUT REI ACZAMENT BUSIPES	19/03/17	DJE



# WIRING DIAGRAM

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	8021	PROTECTION SCREEN, MOTOR HEAD	1
2	27004	MOTOR HEAD GASKET, WMS	1
3	2509811R	MOTOR HEAD GASKET	1
4	27007	SEPARATOR PLATE, WMS MOTOR HEAD	1
5	27014	MOTOR HOUSING, SINGLE MOTOR	1
6	27015	HOUSING COVER, SINGLE MOTOR	1
7	8004	SUPPORTING, SINGLE MOTOR	1
8	25211	MALE IEC PLUG	1
9	27017	ROCKER SWITCH, 1000V/200W	1
10	27011	SCREW, #6 X 0.5	2
11	32989	HEX WASHER TEX SCREW, #10 X 1.6, .625IG	1
12	27001	MOTOR HEAD, ALUMINIUM	1
13	116849-13	MOTOR STAGE, 200VX, 240V	1
14	27005	SCREW PLATE, #6 X .25, ZNC	2
15	27009	SCREW PLATE, #8 X .25, ZNC	2
16	27003	SCREW PLATE, #8 X .25, ZNC	2
17	31715	TERMINAL, 90 DEGREE, 1/4 X 1/4 GAUGE BLUE	2

DATE	DATE	DATE	DATE	DATE
19/03/17				

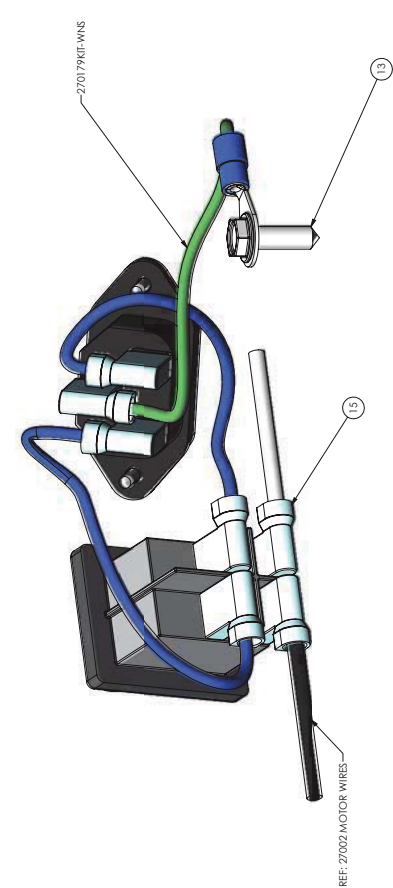
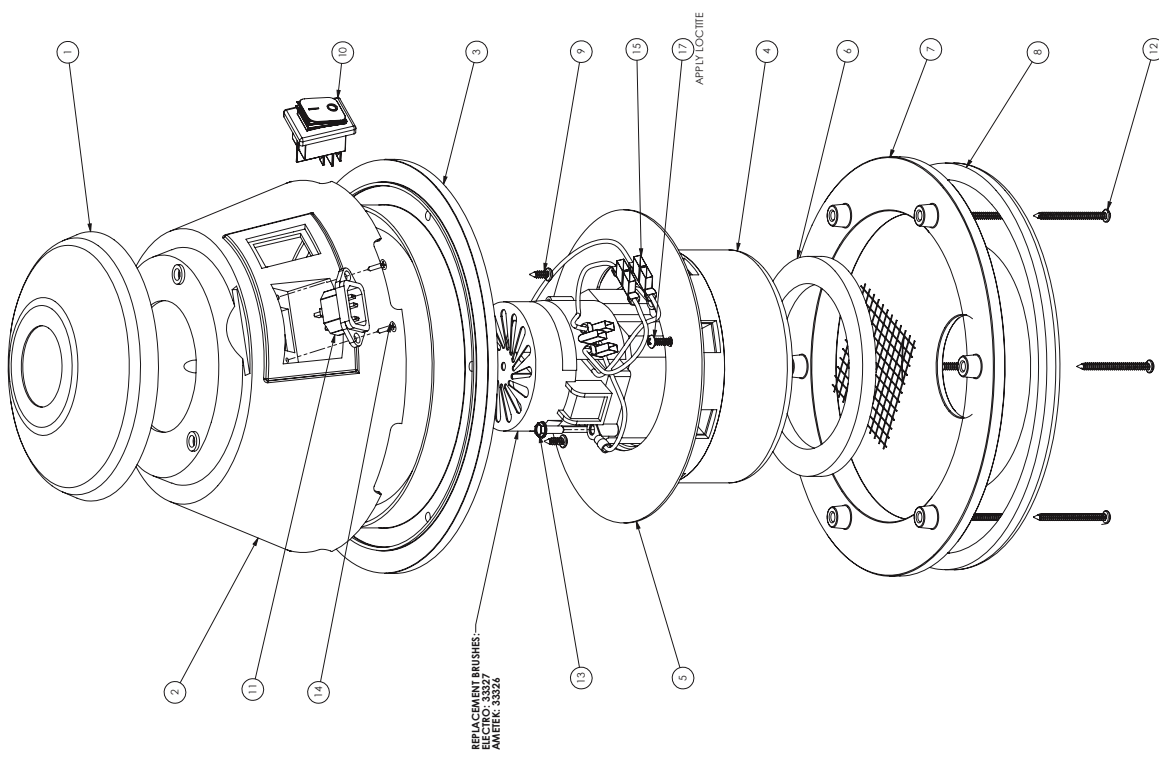
ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	8021	PROTECTION SCREEN, MOTOR HEAD	1
2	27004	MOTOR HEAD GASKET, WMS	1
3	2509811R	MOTOR HEAD GASKET	1
4	27007	SEPARATOR PLATE, WMS MOTOR HEAD	1
5	27014	MOTOR HOUSING, SINGLE MOTOR	1
6	27015	HOUSING COVER, SINGLE MOTOR	1
7	8004	SUPPORTING, SINGLE MOTOR	1
8	25211	MALE IEC PLUG	1
9	27017	ROCKER SWITCH, 1000V/200W	1
10	27011	SCREW, #6 X 0.5	2
11	32989	HEX WASHER TEX SCREW, #10 X 1.6, .625IG	1
12	27001	MOTOR HEAD, ALUMINIUM	1
13	116849-13	MOTOR STAGE, 200VX, 240V	1
14	27005	SCREW PLATE, #6 X .25, ZNC	2
15	27009	SCREW PLATE, #8 X .25, ZNC	2
16	27003	SCREW PLATE, #8 X .25, ZNC	2
17	31715	TERMINAL, 90 DEGREE, 1/4 X 1/4 GAUGE BLUE	2

DATE	DATE	DATE	DATE	DATE
19/03/17				

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	8021	PROTECTION SCREEN, MOTOR HEAD	1
2	27004	MOTOR HEAD GASKET, WMS	1
3	2509811R	MOTOR HEAD GASKET	1
4	27007	SEPARATOR PLATE, WMS MOTOR HEAD	1
5	27014	MOTOR HOUSING, SINGLE MOTOR	1
6	27015	HOUSING COVER, SINGLE MOTOR	1
7	8004	SUPPORTING, SINGLE MOTOR	1
8	25211	MALE IEC PLUG	1
9	27017	ROCKER SWITCH, 1000V/200W	1
10	27011	SCREW, #6 X 0.5	2
11	32989	HEX WASHER TEX SCREW, #10 X 1.6, .625IG	1
12	27001	MOTOR HEAD, ALUMINIUM	1
13	116849-13	MOTOR STAGE, 200VX, 240V	1
14	27005	SCREW PLATE, #6 X .25, ZNC	2
15	27009	SCREW PLATE, #8 X .25, ZNC	2
16	27003	SCREW PLATE, #8 X .25, ZNC	2
17	31715	TERMINAL, 90 DEGREE, 1/4 X 1/4 GAUGE BLUE	2

DATE	DATE	DATE	DATE	DATE
19/03/17				

REVISIONS				
ION	REV.	DESCRIPTION	DATE	APPROVED
E	C	NO ECCO-ADDI HOIE ABOUT REV. ACZABERT BMS/SPS	19/02/17	DIE



# WIRE DIAGRAM

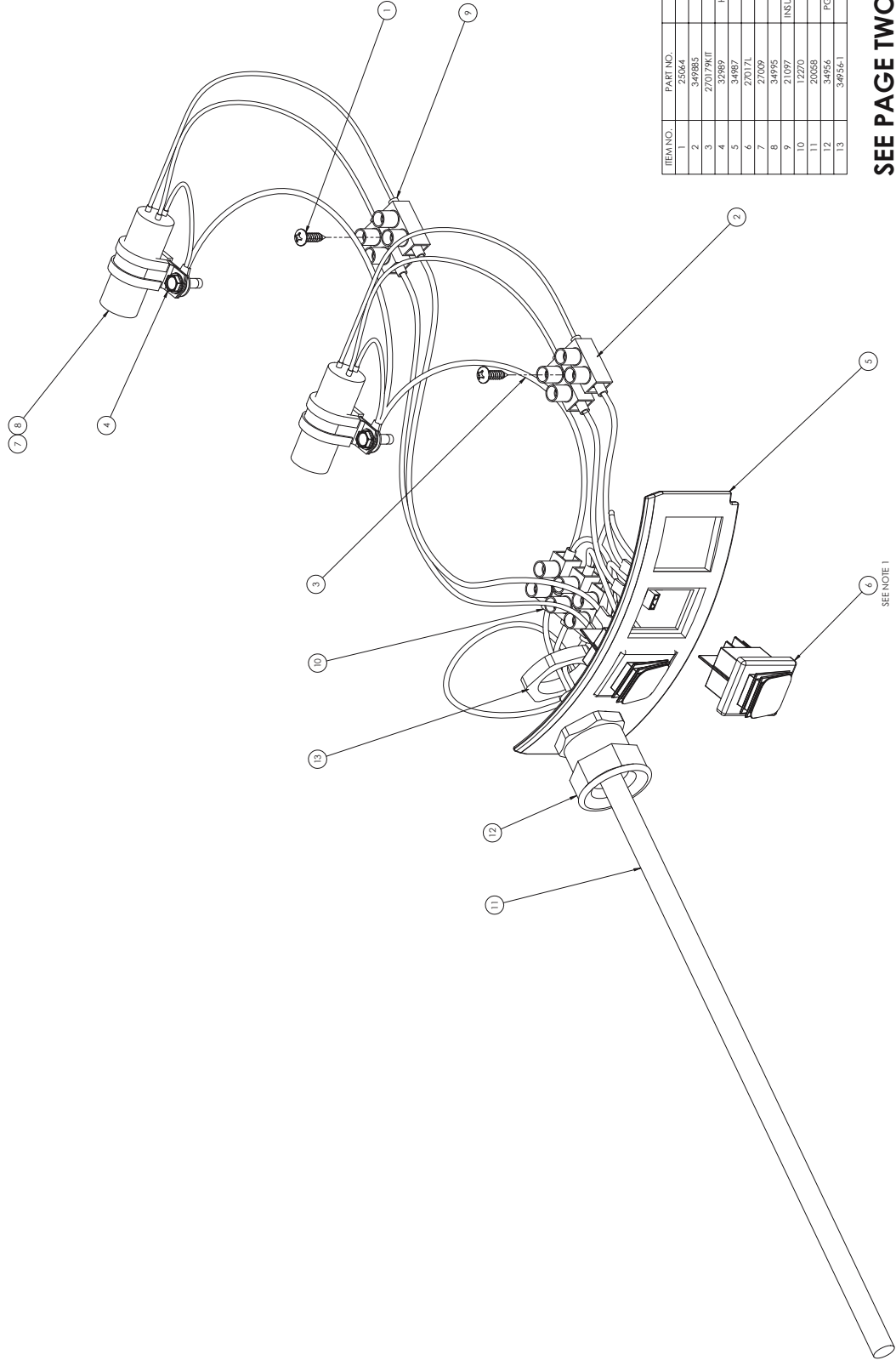
ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	27015	HOUSING COVER, SINGLE MOTOR	1
2	27014	MOTOR HOUSING, SINGLE MOTOR	1
3	8004	SUPPORT RING, SINGLE MOTOR	1
4	27002	MOTOR, 2 STAGE, PD, 1000W, 120V	1
5	27007	SEPARATOR PLATE, WMS MOTOR HEAD	1
6	2509811R	MOTOR HEAD GASKET	1
7	27001	MOTOR HEAD, ALUMINIUM	1
8	27004	MOTOR HEAD GASKET, WMS	1
9	27012	SCREW PH #8 X .50 ZINC	3
10	27017	ROCKER SWITCH, 1000V/200W	1
11	25211	MALE REC PLUG	1
12	27003	SCREW PH #10 X 2 ZINC	6
13	32989	HEX WASHER TBX SCREW, F1016, .625LG	2
14	27011	SCREW #6 X .5	2
15	3075	TERMINAL, TORX SCREW, 16 GAUGE BLUE	2
16	2627	PROTECTIVE COVER FOR MOTOR HEAD	2
17	25054	SCREW PH #8 X .50 ZINC	2

DATE	ISSUE	BY	CHKD	REV
01.11.17	327707	W. G. S.		

DRAWING NO. 327707  
 TITLE MOTOR HEAD ASSEMBLY  
 SCALE: 1:3 WEGE  
 SIZE DWG. NO. 000.E.0221 US  
 27001 A  
 REV C  
 SHEET 1 OF 1

IMPORTANT: ALWAYS WEAR YOUR SAFETY GOGGLES AND PROTECTIVE GEAR WHEN USING THIS TOOL. ALWAYS USE THE CORRECT TOOL FOR THE JOB. ALWAYS USE THE CORRECT TECHNIQUE TO AVOID INJURY. ALWAYS USE THE CORRECT SAFETY PROCEDURES. ALWAYS USE THE CORRECT SAFETY PROCEDURES.

REVISIONS		
DATE	DESCRIPTION	APPROVED
1/19/2017	ECO 301: UPGRADE POWER CORD TO 240V	DJE



ITEM NO.	PART NO.	DESCRIPTION	DRAWING NO.	QTY.
1	25044	SCREW PHIL PH #8 X 5/8" ZINC		3
2	34985	TERMINAL BLOCK, 6-18 WIRE RANGE		2
3	27017KIT	WS WIRE ASSEMBLY KIT		1
4	32989	HEX WASHER TEX SCREW, #10-16, 425LG		4
5	34987	SWITCH MOUNT		1
6	27017L	SWITCH, WS		2
7	27009	CLAMP, 5/8", METAL, W/CUSHION		2
8	34995	CAPACITOR WITH WIRE		2
9	21097	INSULATED FERRULE, GREY, 2.2MM I.D., 1.4MM LG		4
10	12270	INSULATED FERRULE, ORANGE, 4MM		3
11	20058	POWER CABLE, 12.3 SOOOW		30FT
12	34956	PG-21, CABLE GRIP WITH WIRE CLAMP, POLY		1
13	34954-1	PG-21, POLY CABLE GRIP NUT		1

**SEE PAGE TWO FOR WIRING SCHEMATIC**

DATE	SCALE	TITLE	DATE	SCALE	TITLE
1/19/2017	1:1	WS 2 MOTOR SWICH ASM.	1/19/2017	1:1	WS 2 MOTOR SWICH ASM.

DATE	SCALE	TITLE	DATE	SCALE	TITLE
1/19/2017	1:1	PH27017A	1/19/2017	1:1	PH27017A

DATE	SCALE	TITLE	DATE	SCALE	TITLE
1/19/2017	1:1	PH27017A	1/19/2017	1:1	PH27017A

DATE	SCALE	TITLE	DATE	SCALE	TITLE
1/19/2017	1:1	PH27017A	1/19/2017	1:1	PH27017A

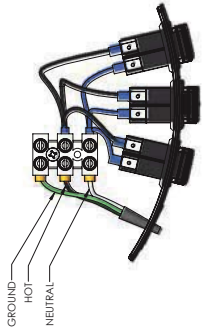
NOTES:  
1. INSERT SWITCH WITH 'OFF' POSITION ON BOTTOM



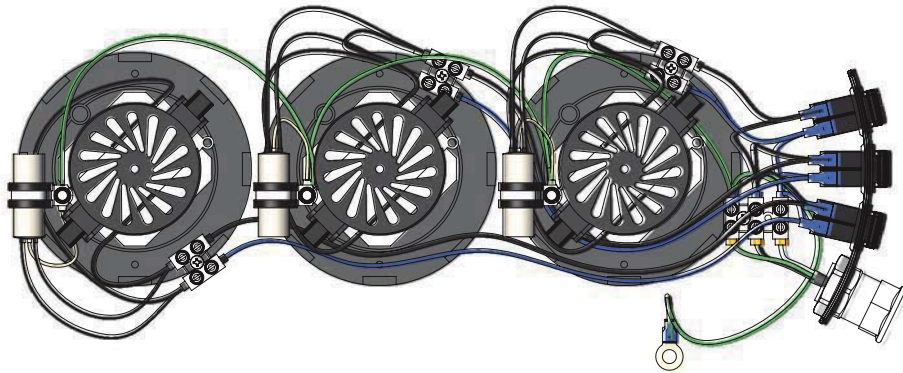




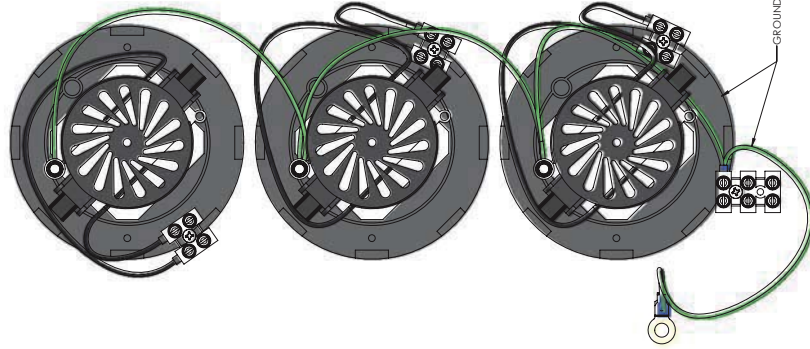
HOT- - - - -BLACK  
 NEUTRAL- - - - -WHITE/BLUE  
 GROUND- - - - -GREEN



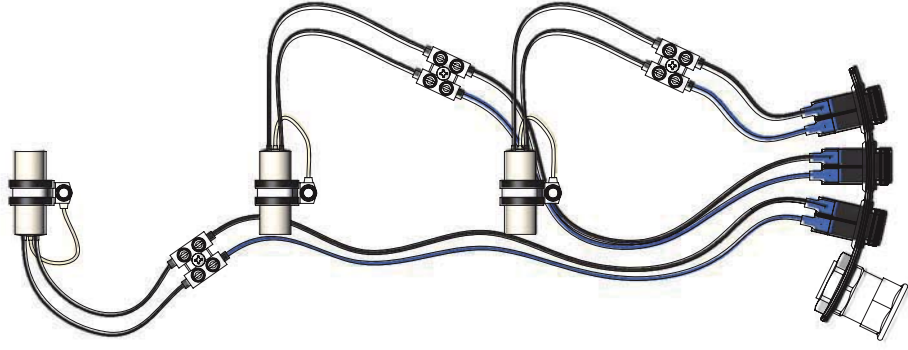
**POWER TO SWITCHES**



**COMPLETED ASSEMBLY**



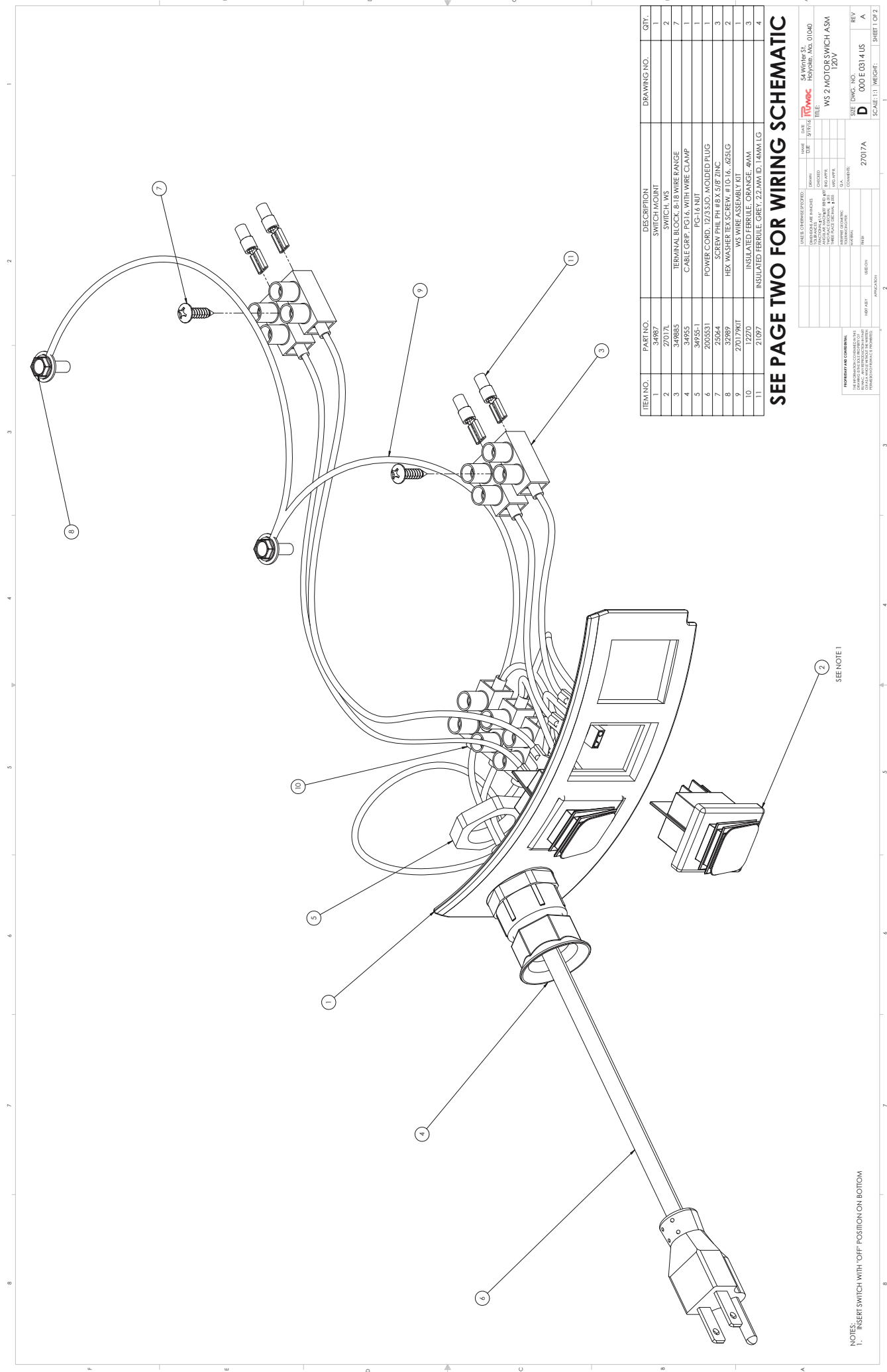
**GROUND AND MOTOR**



**TERMINALS AND CAPACITORS**

LEVEL	DESCRIPTION	DATE	BY
1	DESIGNED BY	5/9/12	SA Winter St.
2	DESIGNED BY		SA Winter St.
3	DESIGNED BY		SA Winter St.
4	DESIGNED BY		SA Winter St.
5	DESIGNED BY		SA Winter St.
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72	DESIGNED BY		SA Winter St.
73	DESIGNED BY		SA Winter St.
74	DESIGNED BY		SA Winter St.
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94	DESIGNED BY		SA Winter St.
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96	DESIGNED BY		SA Winter St.
97	DESIGNED BY		SA Winter St.
98	DESIGNED BY		SA Winter St.
99	DESIGNED BY		SA Winter St.
100	DESIGNED BY		SA Winter St.

SA Winter St.  
 Holyoke, MA 01040  
 TITLE: WS 3 MOTOR SWITCH ASM.  
 Z20V  
 SIZE DWG. NO. PHZ017LA3  
 D 000 E 0326 US  
 SCALE: 1:1 WEICHER  
 REV. A  
 SHEET 2 OF 2



ITEM NO.	PART NO.	DESCRIPTION	DRAWING NO.	QTY.
1	54897	SWITCH, 2-POS		2
2	270171	SWITCH, 2-POS		2
3	34985	TERMINAL BLOCK, 6-16 WIRE RANGE		7
4	34985	CABLE GRP, PCL16, WITH WIRE CLAMP		1
5	34955-1	PCL16 NUT		1
6	203551	POWER CORD, 12/3 SLS, MOULDED PLUG		1
7	25644	SCREW PHIL #8X 5/8" ZINC		3
8	32889	HEX WASHER TEX SCREW, #10-16, .625LG		2
9	270179KIT	WS WIRE ASSEMBLY KIT		1
10	12270	INSULATED FERRULE, ORANGE, 4MM		3
11	21897	INSULATED FERRULE, GREY, 2.2MM ID, 1.4MM LG		4

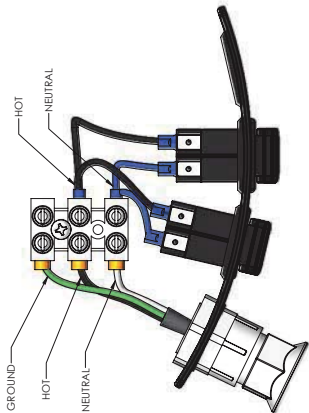
**SEE PAGE TWO FOR WIRING SCHEMATIC**

LEVEL	DESCRIPTION	DATE	BY
1	DESIGNED AND DRAWN	5/19/16	SA Winter, ST
2	CHECKED		Hollydale, Asst. 01040
3	APPROVED FOR FABRICATION		
4	APPROVED FOR PURCHASE		
5	APPROVED FOR SHIPMENT		
6	APPROVED FOR STORAGE		
7	APPROVED FOR REWORK		
8	APPROVED FOR DISCONTINUED		
9	APPROVED FOR PHASE OUT		
10	APPROVED FOR REVISION		
11	APPROVED FOR PHASE OUT		

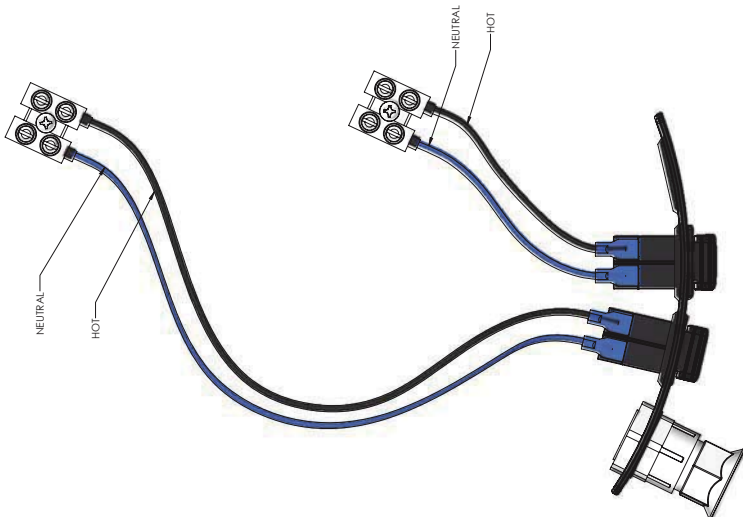
TITLE: WS 2 MOTOR SWITCH ASM  
 SIZE: DWG. NO. 27017A  
 REV: 000 E 031 4 US  
 SCALE: 1:1 WEIGHT: SHEET 1 OF 2

NOTES:  
 1. INSERT SWITCH WITH 'OFF' POSITION ON BOTTOM  
 2. SEE NOTE 1

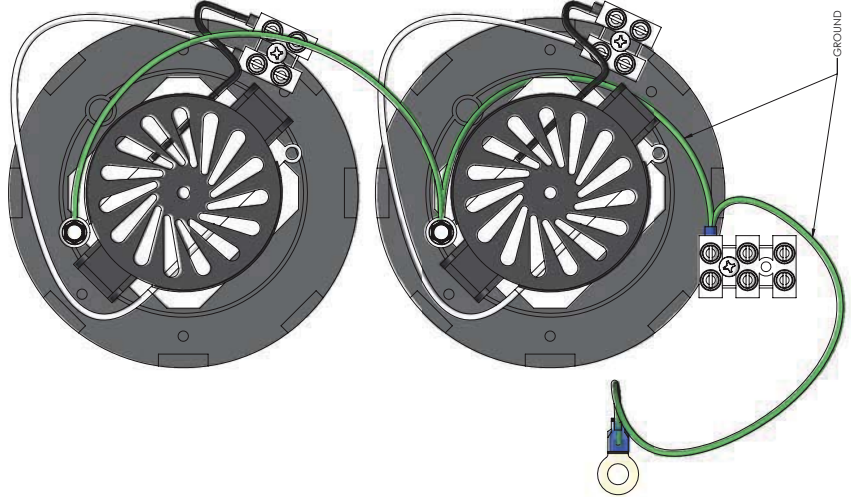
**HOT**-----BLACK  
**NEUTRAL**-----WHITE/BLUE  
**GROUND**-----GREEN



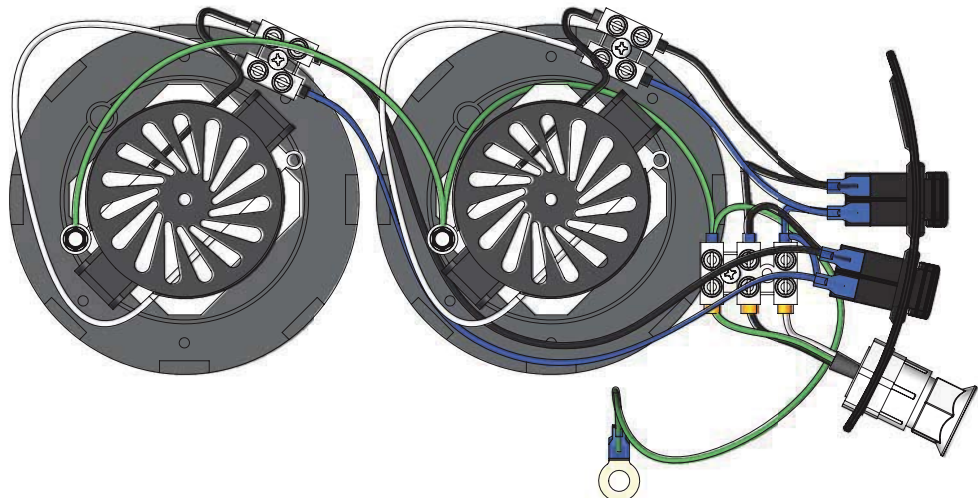
### POWER TO SWITCHES



### SWITCHES TO TERMINAL BLOCKS



### GROUND AND MOTOR

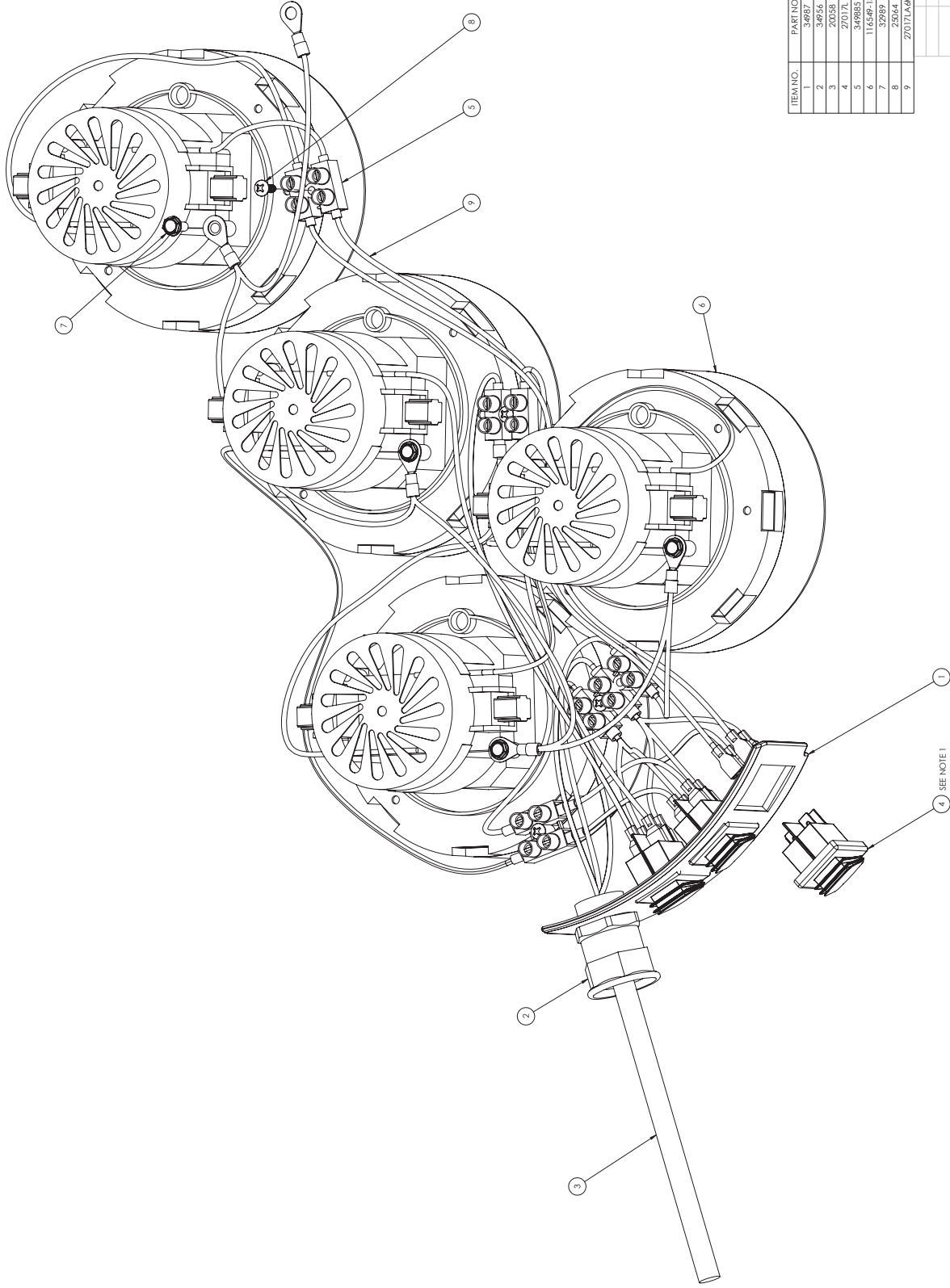


### COMPLETED ASSEMBLY

LEVEL	DESCRIPTION	DATE	BY
1	DESIGN	03/19/16	SA Winther, S1
2	REVISION		
3	REVISION		
4	REVISION		
5	REVISION		
6	REVISION		
7	REVISION		
8	REVISION		
9	REVISION		
10	REVISION		
11	REVISION		
12	REVISION		
13	REVISION		
14	REVISION		
15	REVISION		
16	REVISION		
17	REVISION		
18	REVISION		
19	REVISION		
20	REVISION		

SA Winther, S1  
 Title: WS 2 MOTOR SWITCH ASM  
 SIZE: DWG. NO. 000-E-0314-US  
 SCALE: 1:1 WEGE: SHEET 2 OF 2

NOTES:  
 1. INSERT SWITCH WITH "OFF" POSITION ON BOTTOM



ITEM NO.	PART NO.	DESCRIPTION	DRAWING NO.	QTY.
1	34987	SWITCH MOUNT		1
2	34956	FG 21, CABLE GRIP WITH WIRE CLAMP, POLY		1
3	20058	POWER CABLE, 12 3300W		3FT
4	2707L	SWITCH, WS		3
5	34985S	TERMINAL BLOCK, 8-18 WIRE RANGE		4
6	116589-13	MOTOR, 2 STAGE, 1200W, 28KV		4
7	32989	HEX HEAD TIE SCREW, FLANGED, #10-16, .625LG		4
8	32984	SCREW PH #8 X 3/8 ZINC		4
9	2707LAKM1	WIRE ASSEMBLY KIT		4

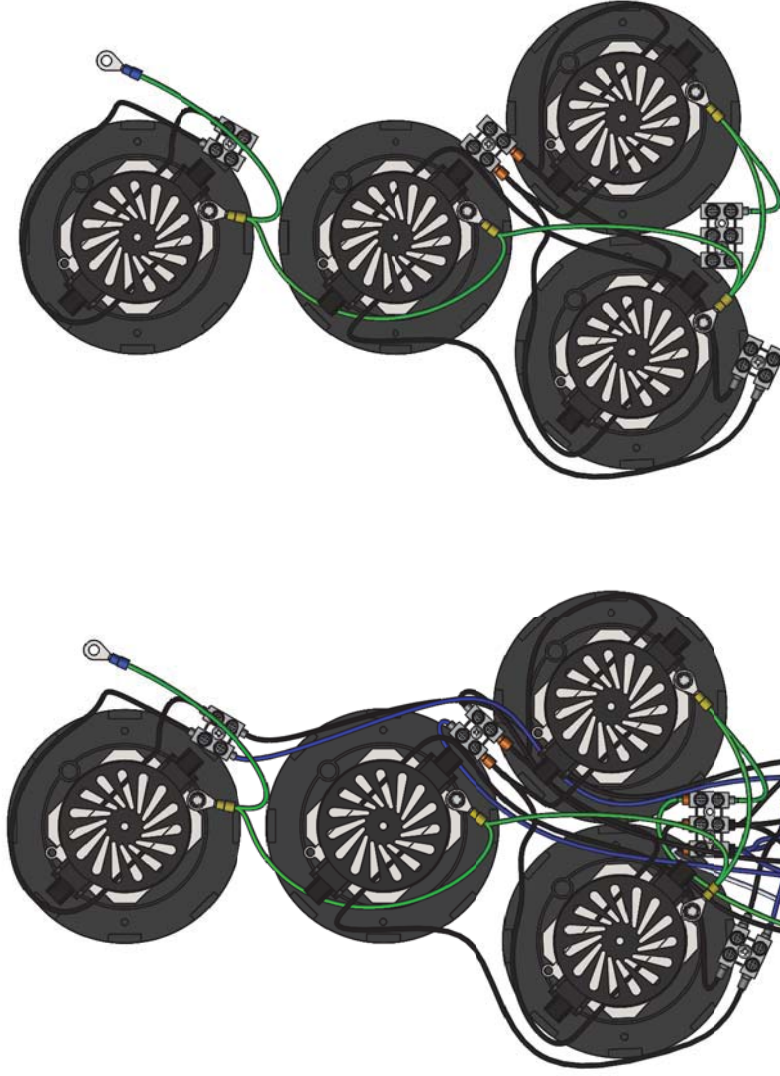
REVISION	DATE	BY	CHKD	APP'D	DESCRIPTION

DRAWING TITLE: PATRIOT SWITCH ASM  
 SIZE: DWG. NO. 000E 0495 US  
 SCALE: 1:2, WGECH: 1  
 SHEET 1 OF 2

ITEM NO.	PART NO.	DESCRIPTION	DRAWING NO.	QTY.
1	34987	SWITCH MOUNT		1
2	34956	FG 21, CABLE GRIP WITH WIRE CLAMP, POLY		1
3	20058	POWER CABLE, 12 3300W		3FT
4	2707L	SWITCH, WS		3
5	34985S	TERMINAL BLOCK, 8-18 WIRE RANGE		4
6	116589-13	MOTOR, 2 STAGE, 1200W, 28KV		4
7	32989	HEX HEAD TIE SCREW, FLANGED, #10-16, .625LG		4
8	32984	SCREW PH #8 X 3/8 ZINC		4
9	2707LAKM1	WIRE ASSEMBLY KIT		4

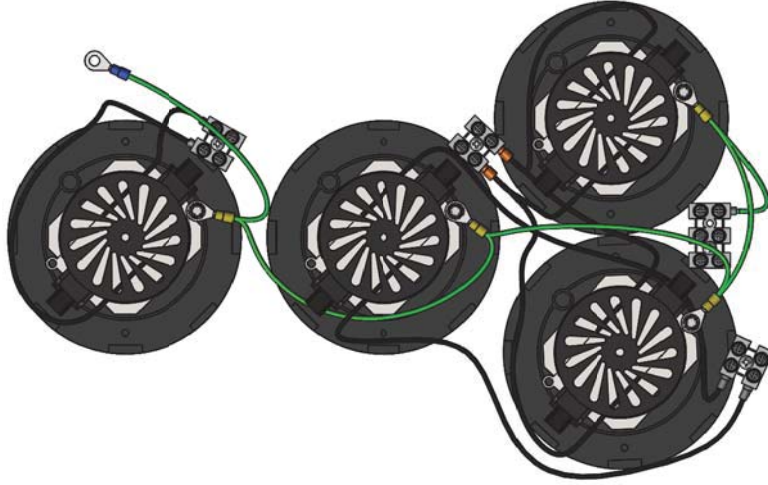
DRAWING TITLE: PATRIOT SWITCH ASM  
 SIZE: DWG. NO. 000E 0495 US  
 SCALE: 1:2, WGECH: 1  
 SHEET 1 OF 2

HOT---BLACK  
NEUTRAL---WHITE/BLUE  
GROUND---GREEN

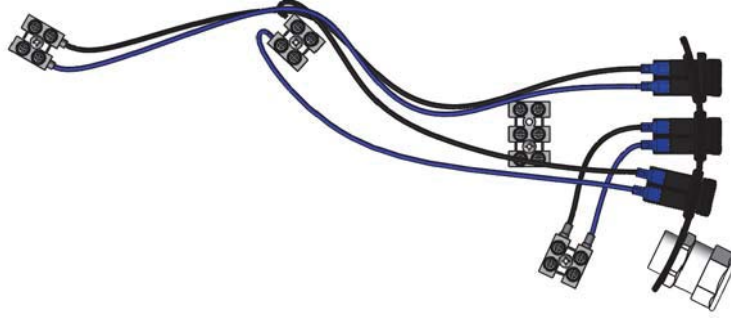


### COMPLETED ASSEMBLY

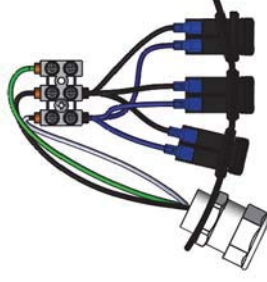
### GROUND AND MOTOR



### SWITCHES TO TERMINAL BLOCKS



### POWER TO SWITCHES



LEVEL 5 (COMPLETED)		NAME		DATE		SA	
DESIGNED BY	DAVID	DR	DAVID	SA	DAVID		
DESIGNED DATE		DR	DAVID	DATE	DAVID		
DESIGNED BY	DAVID	DR	DAVID	DATE	DAVID		
DESIGNED DATE		DR	DAVID	DATE	DAVID		
DESIGNED BY	DAVID	DR	DAVID	DATE	DAVID		
DESIGNED DATE		DR	DAVID	DATE	DAVID		
DESIGNED BY	DAVID	DR	DAVID	DATE	DAVID		
DESIGNED DATE		DR	DAVID	DATE	DAVID		
DESIGNED BY	DAVID	DR	DAVID	DATE	DAVID		
DESIGNED DATE		DR	DAVID	DATE	DAVID		
DESIGNED BY	DAVID	DR	DAVID	DATE	DAVID		
DESIGNED DATE		DR	DAVID	DATE	DAVID		

APPROVED BY: [Signature]

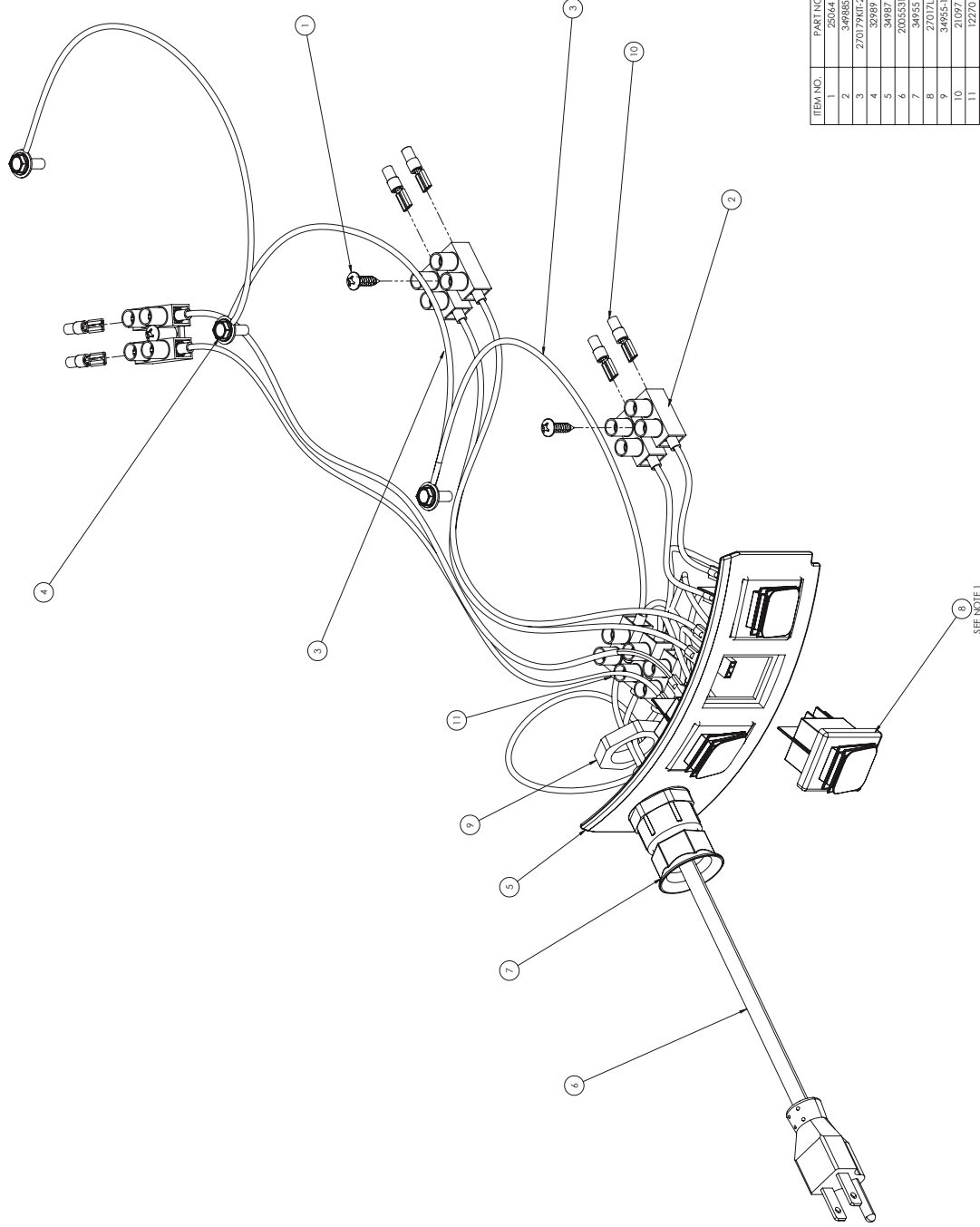
DATE: 27/07/20

SCALE: 1:1

REV: 1

REV	DESCRIPTION	DATE
D	000 E 0495 US	

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	B	NO. E.C.O. ADDED (AG. FOR ITEM C)	10/22/2017	D.E.



ITEM NO.	PART NO.	DESCRIPTION	DRAWING NO.	QTY.
1	25064	SCREW PHL PH #8 X 5/8" ZINC		4
2	349680	TERMINAL BLOCK, 6-18 WIRE RANGE		9
3	270179KIT-2000	WS 2320 WIRE ASSEMBLY KIT		1
4	32989	HEX WASHER TEX SCREW # 10-16 .625LG		3
5	34987	SWITCH MOUNT		1
6	2005301	POWER CORD 12/3 SJO. MOLDED PLUG		1
7	34955	CABLE GRIP, 1/8" I.D. WITH WIRE CLAMP		1
8	27017L	SWITCH- WS		3
9	34955-1	CS-16 NUT		1
10	21097	INSULATED FERRULE GREY 22 AWG (D) 1.4MM LG		6
11	12270	INSULATED FERRULE, ORANGE 4MM		3

## SEE PAGE TWO FOR WIRING SCHEMATIC

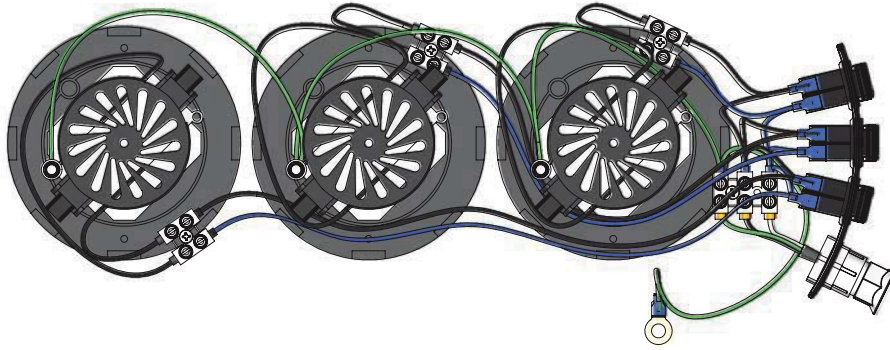
LEVEL	DATE	DESCRIPTION
DESIGNED BY		
DRAWN BY		
CHECKED BY		
APPROVED BY		
DATE		

TITLE: WS 3 MOTOR SWITCH ASSEMBLY  
 DRAWING NO.: 27017L-A3  
 SCALE: 1:1  
 WEIGHT:

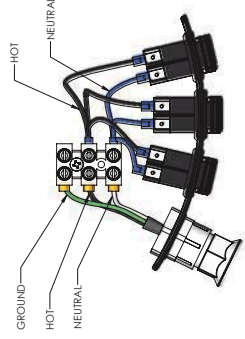
REV	DATE	DESCRIPTION
B		

NOTES:  
 1. INSERT SWITCH WITH 'OFF' POSITION ON BOTTOM

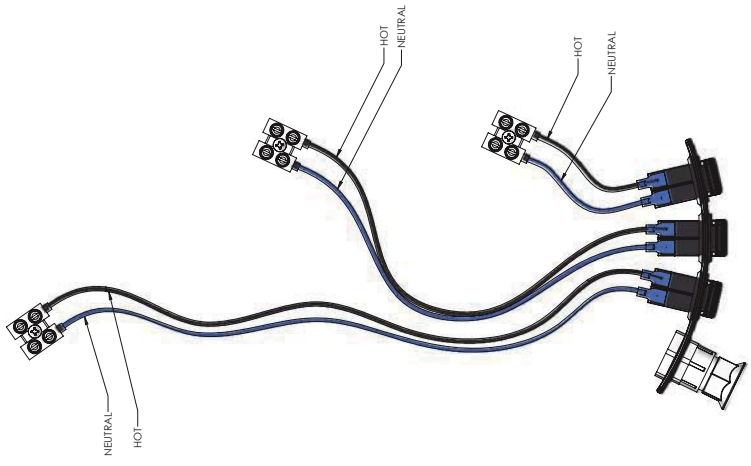
HOT- - - - -BLACK  
 NEUTRAL- - - - -WHITE/BLUE  
 GROUND- - - - -GREEN



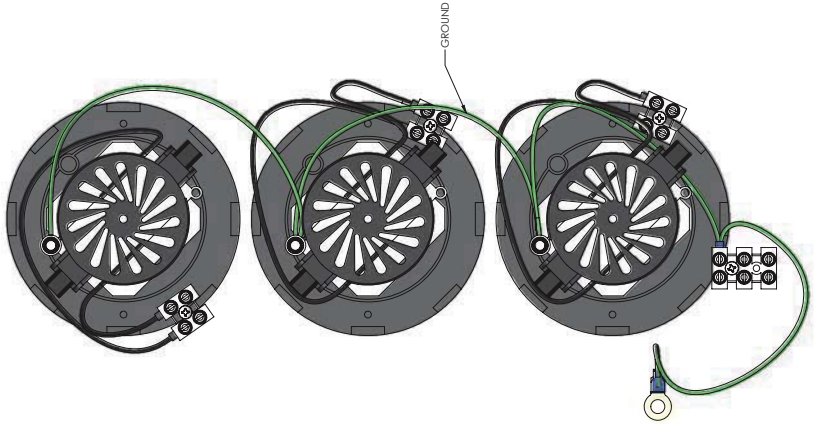
COMPLETED ASSEMBLY



POWER TO SWITCHES



SWITCHES TO TERMINAL BLOCKS



GROUND AND MOTOR

REV	DESCRIPTION	DATE	NAME

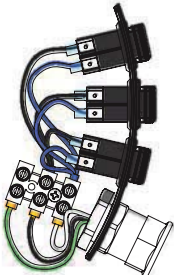
LEVEL	DESCRIPTION	DATE	NAME

SA Winter '91  
**Towmac**  
 Holyoke, Mass. 01040  
 TITLE: W3.3 MOTOR SWITCH ASM.  
 SIZE: DWG. NO. 000-E-0315 US  
 D 120V  
 SCALE: 1:1 WEIGHT: 270.71 LBS  
 REV. B  
 SHEET 2 OF 2

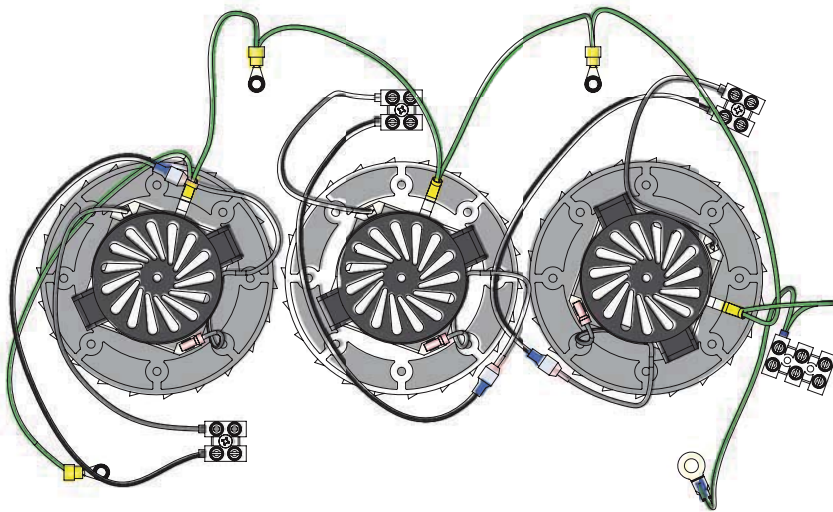




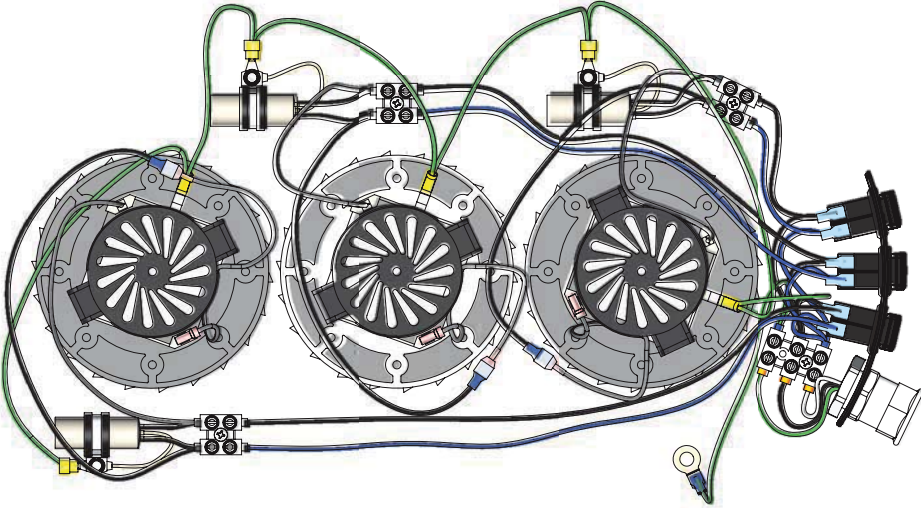
HOT- . . . . . - BLACK  
 NEUTRAL- . . . . . WHITE/BLUE  
 GROUND- . . . . . GREEN



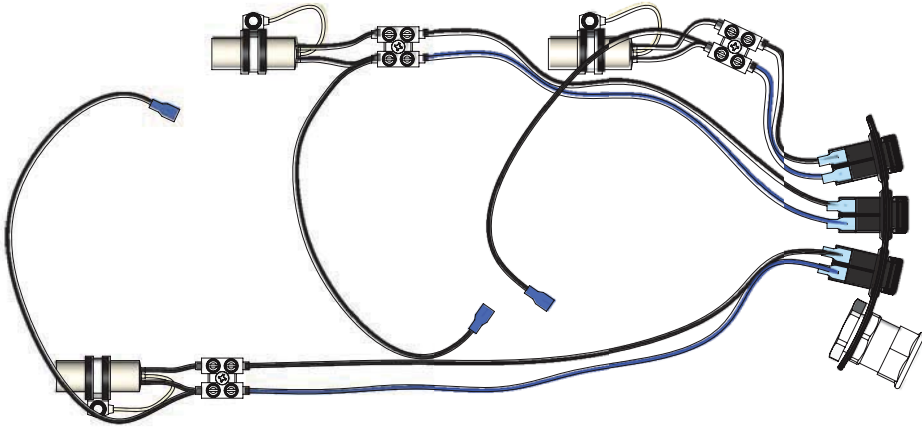
**POWER TO SWITCHES**



**GROUND AND MOTOR**



**COMPLETED ASSEMBLY**



**TERMINALS AND CAPACITORS**

LEVEL 1 COMPONENTS LIST		DATE	SCALE
DRUM	527174	04/01/04	1:1
DESIGNER	W.D.	DATE	
CHECKED		DATE	
APPROVED		DATE	
REV		DATE	
REVISIONS			
NO.	DESCRIPTION	DATE	BY
1	ISSUE 1		
2	ISSUE 2		
3	ISSUE 3		
4	ISSUE 4		
5	ISSUE 5		
6	ISSUE 6		
7	ISSUE 7		
8	ISSUE 8		
9	ISSUE 9		
10	ISSUE 10		

PROJECT NAME	SA Werber St. Hochschule, AOs. 01040
DATE	11/20/03
SCALE	D
REV	A
NO.	
DESCRIPTION	270174A
REVISION	
BY	
DATE	
APPROVED	

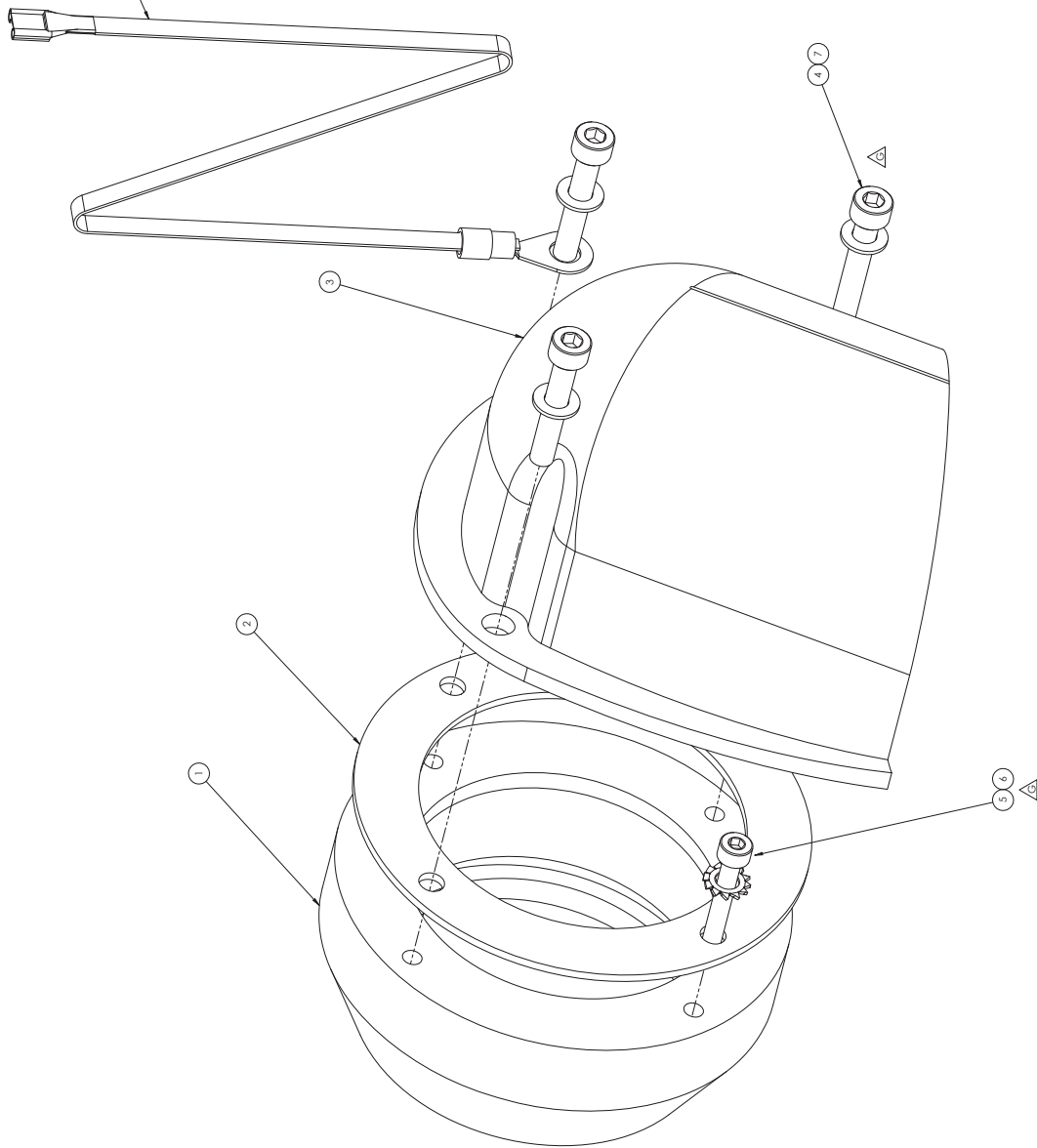
  

TITLE	W52320 SWITCH ASM, 240V, HIGH LIFT
DATE	
SCALE	D
REV	A
NO.	
DESCRIPTION	000-E-0334 US
REVISION	
BY	
DATE	
APPROVED	

1. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN INCHES.  
 2. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN MILLIMETERS.  
 3. UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE TO THE CENTER OF THE HOLE.  
 4. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE TO THE OUTSIDE UNLESS INDICATED OTHERWISE.  
 5. DIMENSIONS TO SURFACE UNLESS INDICATED OTHERWISE.  
 6. DIMENSIONS TO CENTER UNLESS INDICATED OTHERWISE.  
 7. DIMENSIONS TO SURFACE UNLESS INDICATED OTHERWISE.  
 8. DIMENSIONS TO CENTER UNLESS INDICATED OTHERWISE.  
 9. DIMENSIONS TO SURFACE UNLESS INDICATED OTHERWISE.  
 10. DIMENSIONS TO CENTER UNLESS INDICATED OTHERWISE.

REVISED				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	D	ECO 317	12/22/2009	DJS
	E	ECO 1129	6/20/2015	DJS
	F	ECO DWP ADDED GROUND WIRE UPWARD HARDWARE	7/20/2016	DBE
	M-A-J	ECO 041 HW CHANGE	12/08/17	JJP

REF: GROUND WIRE TO FILTER  
34868- FOR 1.2M FILTER  
34869- FOR 2.8M FILTER



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	30007	INLET 70MM ALUMINUM	1
2	34821	70MM INLET GASKET	1
3	32958	DEFLECTOR 70MM ALU DUST W/S	1
4	32866	SCREW SOC HD M5X30 BLACK CONDE	3
5	32861	BOLTS X 23 SOC HD BLK ZX	1
6	32862	WASHER PLAIN ANGLE ZINC	1
7	32863	WASHER PLAIN SS 304	3

SCALE	DATE	BY	CHKD	APP'D	TITLE
1:1	12/22/09	JJP	JJP	JJP	70MM INLET ASM, ALU DEFLECTOR, D1

FORM AND CONTENTS  
SEE DRAWING COMMENTS FOR  
REVISIONS AND INSTRUCTIONS FOR  
PREPARATION OF WORK  
FOR FABRICATION

30007A  
D  
000 E 0109 US  
SCALE: 2:1 WEGE

REV G  
REV C

30007A  
D  
000 E 0109 US  
SCALE: 2:1 WEGE

REV G  
REV C

30007A  
D  
000 E 0109 US  
SCALE: 2:1 WEGE

REV G  
REV C

30007A  
D  
000 E 0109 US  
SCALE: 2:1 WEGE

REV G  
REV C

30007A  
D  
000 E 0109 US  
SCALE: 2:1 WEGE

REV G  
REV C

30007A  
D  
000 E 0109 US  
SCALE: 2:1 WEGE

REV G  
REV C

30007A  
D  
000 E 0109 US  
SCALE: 2:1 WEGE

REV G  
REV C

30007A  
D  
000 E 0109 US  
SCALE: 2:1 WEGE

REV G  
REV C

30007A  
D  
000 E 0109 US  
SCALE: 2:1 WEGE

REV G  
REV C

30007A  
D  
000 E 0109 US  
SCALE: 2:1 WEGE

REV G  
REV C

30007A  
D  
000 E 0109 US  
SCALE: 2:1 WEGE

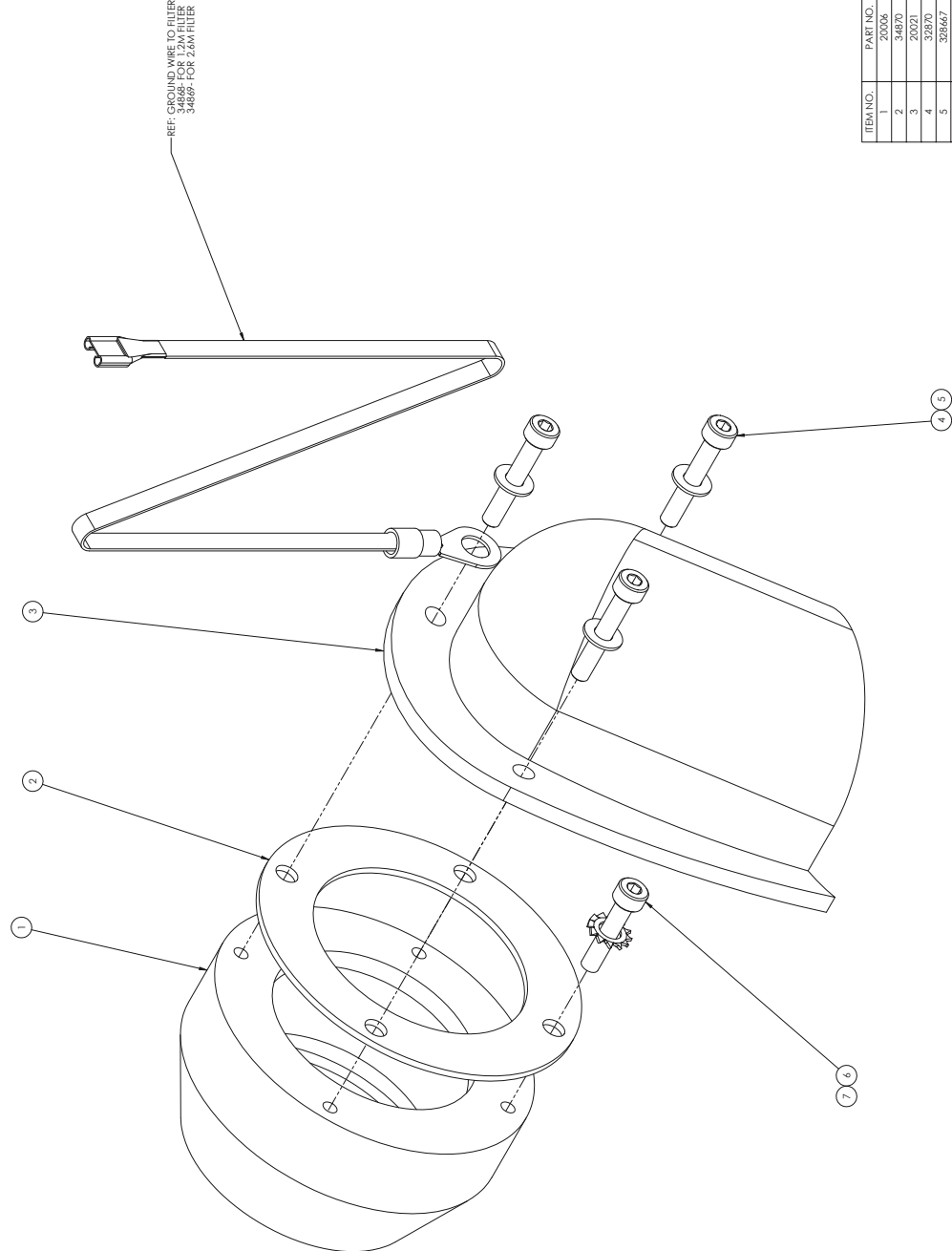
REV G  
REV C

30007A  
D  
000 E 0109 US  
SCALE: 2:1 WEGE

REV G  
REV C

REV	DATE	BY	CHKD
A	3/10/03	DJS	
B	1/28/16	JJF	
C	2/26/16	JJF	
D	11/4/16	DJE	

REV	DESCRIPTION
A	CHANGED ASM PART NUMBER
B	ECO 1169- UPDATED HW
C	ECO 1178- UPDATED HW AND GASKET
D	ADDED GROUNDING WIRE FOR REF. NO ECO

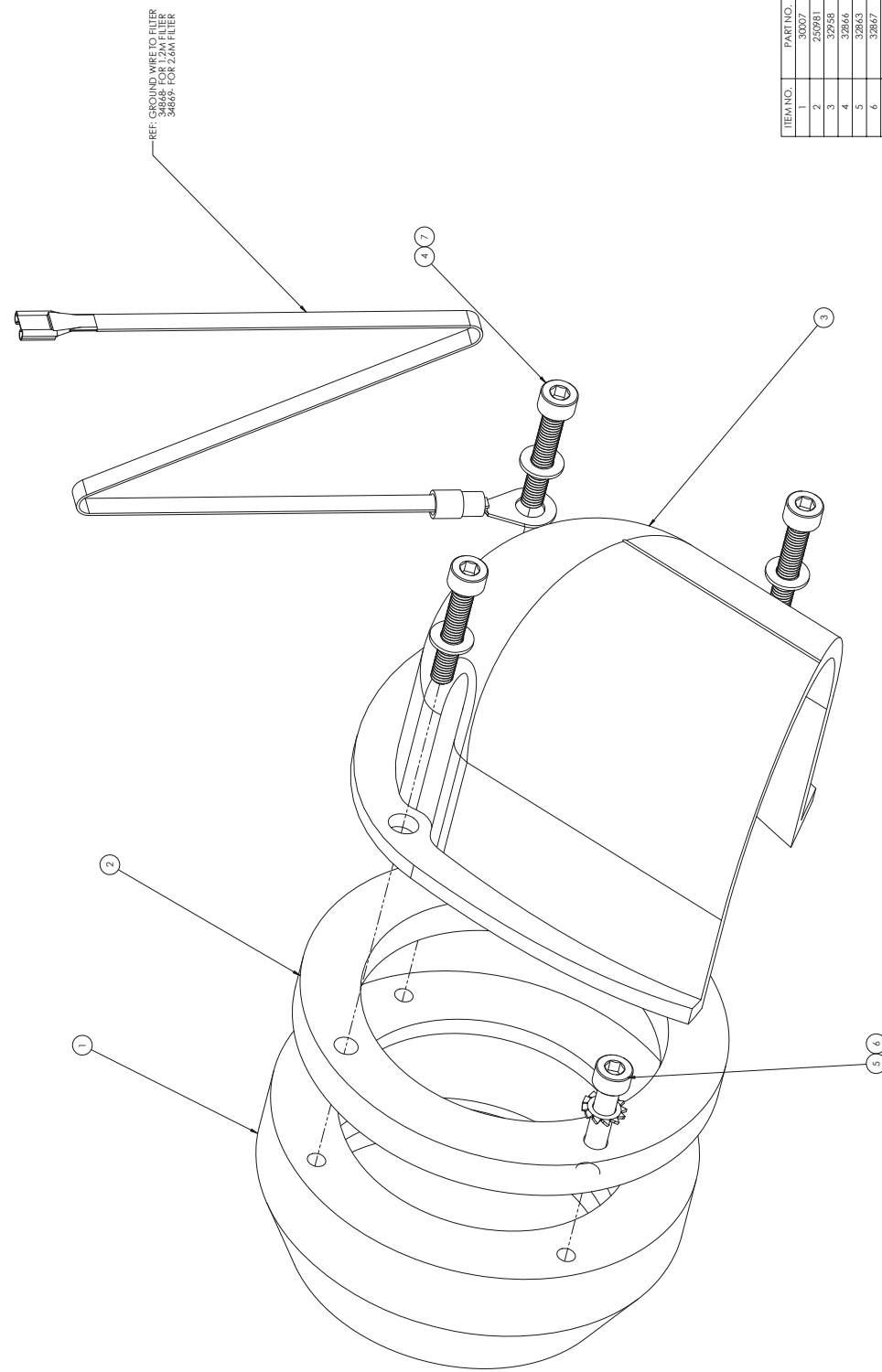


ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	20006	INLET 50MM ALUMINUM	1
2	34870	50MM INLET GASKET BLK FOAM	1
3	20021	50MM DETECTOR ALU	1
4	20870	SCREW .50C HD CAP PH X .25 ZINC	3
5	20867	WASHER FLAT 1/4 X .25 ZINC	3
6	20867	SCREW LOCK W/ WING NUT 1/4 X .25 ZINC	1
7	32867	WASHER EXT STAR 1/4 X .25 ZINC	1

DATE	BY	CHKD	APPV	COMMENTS

PROPERTY AND COMMENTS	SIZE	DWG. NO.	REV
SEE PARTS LIST FOR MATERIAL SPECIFICATIONS AND DIMENSIONS. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.		20006A	D
BRK SHARP EDGES			
FINISH			
APPV			
DATE			
<b>3M</b> 54 WINTER ST. HOLYOKE, MASS. 01040			
SCALE: 2:1 WEIGHT: SHEET 1 OF 1			

REV	DESCRIPTION	DATE	BY
B	E.C.O. #106	5/1/2003	DJS
C	E.C.O. #263	10/28/04	DJS
D	ADDED REF GROUND WIRE PER ECO 1269	9/21/16	DJE



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	30007	INLET 70MM ALUMINUM	1
2	25981	70MM INLET GASKET	1
3	32958	DEFLECTOR 70MM ALU D117MS	1
4	32866	SCREW 3.0C HD MS-30 BLACK OXIDE	3
5	32863	SCREW 3.0C HD MS-20 BLACK OX	1
6	32827	WASHER 1.61X3.18 MS	1
7	30007AS	ASSEMBLY INLET 70MM ALU	3

DATE	BY	DESCRIPTION
08/02/2016	10/03/16	30007AS

70MM INLET ASM, ALU  
 DEFLECTOR, D1 310  
 SIZE DWG. NO. 000E 0114 US  
 D  
 SCALE: 2:1 WEGE:

30007AS  
 70MM INLET ASM, ALU  
 DEFLECTOR, D1 310  
 SCALE: 2:1 WEGE:

30007AS  
 70MM INLET ASM, ALU  
 DEFLECTOR, D1 310  
 SCALE: 2:1 WEGE:

30007AS  
 70MM INLET ASM, ALU  
 DEFLECTOR, D1 310  
 SCALE: 2:1 WEGE:

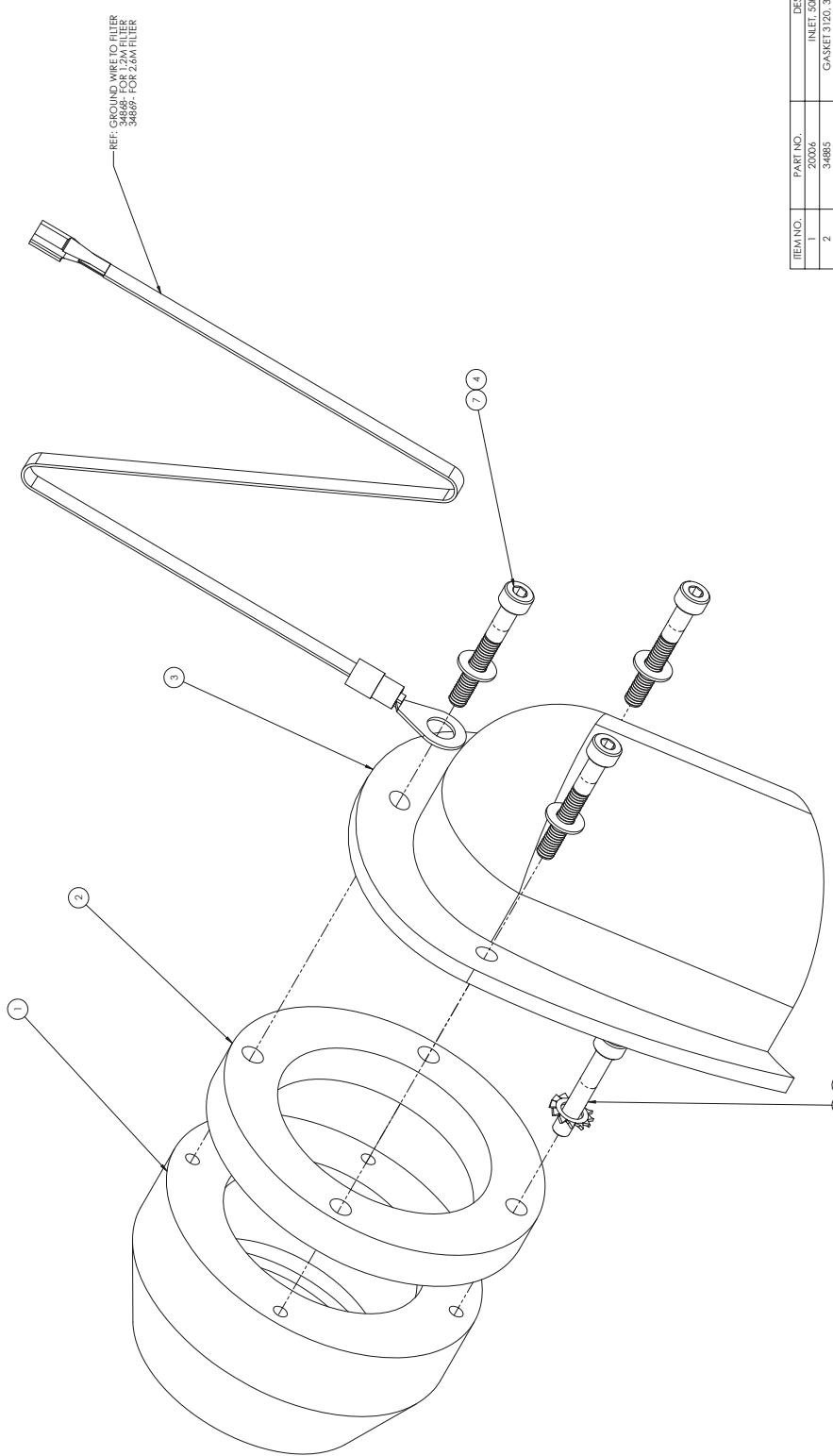
30007AS  
 70MM INLET ASM, ALU  
 DEFLECTOR, D1 310  
 SCALE: 2:1 WEGE:

30007AS  
 70MM INLET ASM, ALU  
 DEFLECTOR, D1 310  
 SCALE: 2:1 WEGE:

30007AS  
 70MM INLET ASM, ALU  
 DEFLECTOR, D1 310  
 SCALE: 2:1 WEGE:

30007AS  
 70MM INLET ASM, ALU  
 DEFLECTOR, D1 310  
 SCALE: 2:1 WEGE:

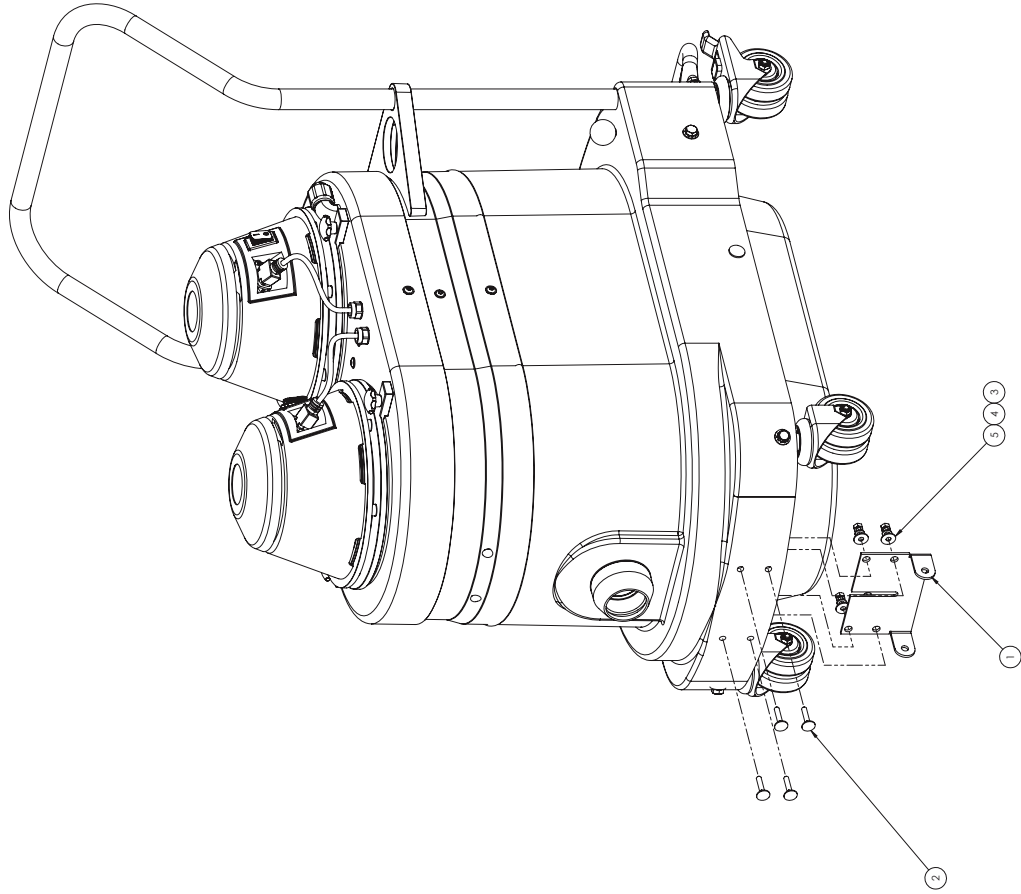
REV	DESCRIPTION	DATE	BY
A	CHANGED ASM PART NUMBER	3/10/03	DJS
B	#20025 CHANGED FROM 3 TO 1	4/03/03	DJS
C	ECO 1189-HW UPDATED	02/03/16	JJF
D	ECO 1178-HW UPDATED	02/26/16	JJF
E	ECO 1239-HW UPDATED	07/01/16	DJE



ITEM NO.	PART NO.	DESCRIPTION	DRAWING NO.	QTY.
1	20006	INLET, 50MM ALUMINIUM		1
2	34865	GASKET 3120, 3/8" THICK, 50MM INLET		1
3	20021	DEFLECTOR, 50MM ALU		1
4	32867	WASHER FLAT 304		3
5	32867	WASHER EXT SPRING STAINL		1
6	32869	SCREW LOCK WING 304		1
7	32869	SCREW LOCK CAP 304 3/8" ST		3

50MM ALU INLET ASM, SILO SCALE: 2:1 WEICHT 20006AS 000 E 0110 US 3		54 Welter St. Hohenheim, Azo. 01040
DRAWING NO. 20006AS REV E	DWG. NO. 000 E 0110 US REV E	SHEET 1 OF 1

DATE	REV.	DESCRIPTION	DATE	APPROVED
	A	PRINT REVISED	21/11/2003	DJS
	B	PRINT REWASSED	12/21/2004	DAE
	C	ECO 304 PLATE AND BRACKET ASSEMBLY OF FLOOR MOUNTING	21/11/2017	DAE



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	9703	FLOOR TOOL BRACKET	1
2	3401B	BOLT CARTRIDGE M8 X 30	4
3	0000	WASHER	4
4	2002B	WASHER	4
5	3401B	WASHER FENDER M6	4

DATE	REV.	DESCRIPTION	DATE	APPROVED
	A	ISSUE FOR MANUFACTURE	12/21/04	
	B	REVISIONS		
	C	REVISIONS		

DRAWN: SA WINTER ST  
 D.E.: 12/21/04  
 CHECKED: SA WINTER ST  
 DATE: 12/21/04  
 TITLE: MOUNTING BRACKET FLOOR TOOL  
 SCALE: 1:3 WEGE

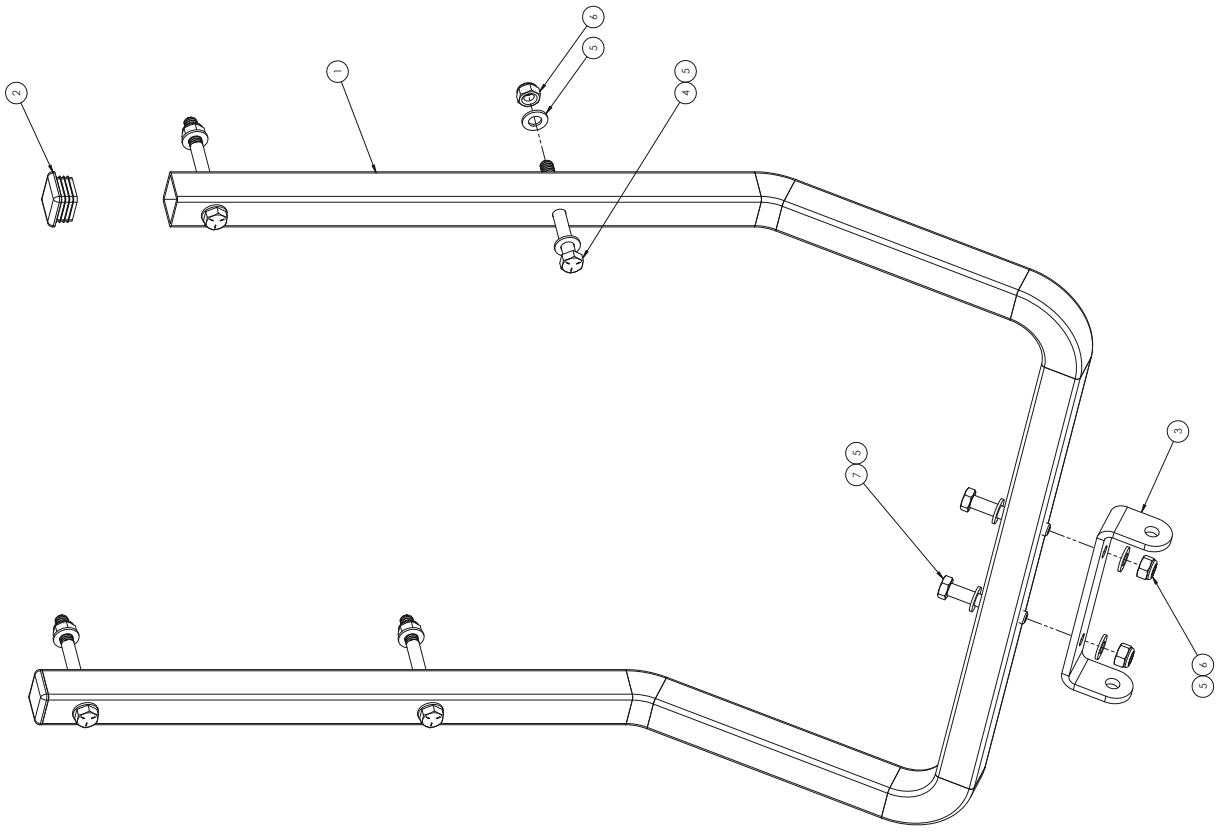
THE INFORMATION CONTAINED HEREIN IS PROPRIETARY AND UNCLASSIFIED. IT IS TO BE CONTAINED AND TRANSMITTED AS UNCLASSIFIED INFORMATION UNLESS INDICATED OTHERWISE.

MATERIAL: BRASS  
 COMMENTS: BREAK SHARP EDGES

SIZE: DWSG. NO. 9703KIT  
 REV: 0001E 0086 US  
 SCALE: 1:3 WEGE

APPROVALS:  
 APPR'D BY: \_\_\_\_\_  
 DESIGNED BY: \_\_\_\_\_

SHEET 1 OF 1



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	565304	SQUARE HANDLE BAR, DB FRAME	1
2	8010	END CAP, PLASTIC PLUG, 1/16 X .0931, SERRATED	2
3	97029	H-BRACKET MOUNT	1
4	31255	BOLT, HEX HEAD, 3/16 X 1.8, 3.25LG, ZINC	4
5	25061	WASHER, 1/8 DIA	12
6	31202	BOLT, HEX, 5/16 X 1.8 X 2"	6
7	31202	BOLT, HEX, 5/16 X 1.8 X 2"	2

DRAWN BY: [blank]  
 CHECKED BY: [blank]  
 DATE: 5/8/2017  
 TITLE: FLOOR SWEEP MOUNT, DB  
 565304A  
 SIZE: DWG. NO. 000-E-0393 US  
 SCALE: 2:3 WGECH  
 SHEET 1 OF 1

COMMENTS:  
 BREAK SHARP EDGES  
 FINISH: [blank]

PREPARED BY: [blank]  
 CHECKED BY: [blank]  
 DATE: [blank]  
 TITLE: [blank]

COMMENTS:  
 BREAK SHARP EDGES  
 FINISH: [blank]

COMMENTS:  
 BREAK SHARP EDGES  
 FINISH: [blank]

COMMENTS:  
 BREAK SHARP EDGES  
 FINISH: [blank]

COMMENTS:  
 BREAK SHARP EDGES  
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COMMENTS:  
 BREAK SHARP EDGES  
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 BREAK SHARP EDGES  
 FINISH: [blank]