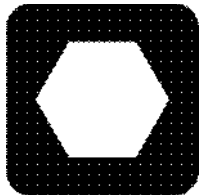


FM50

Parts Manual



Ditch Witch®


FM50

ISSUE NO. 06PL-05/11

For Replacement Copy Order **P/N 053-093**

This manual contains information concerning the following models:
FM50

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ID0135305

FOREWORD

This manual contains illustrated parts lists to help you select quality ProTech[®] Replacement parts for your Ditch Witch[®] equipment. Using other replacement parts will lessen the productivity of your equipment.

- ◆ Part numbers enclosed in a box are no longer available from The Charles Machine Works, Inc. Your local Ditch Witch dealer may be able to locate the part for you.
- ◆ Footnotes provide more information to help you identify parts shown in the manual.
- ◆ Assembly instructions and Tech Bits articles referenced in footnotes are available through your local Ditch Witch dealer.
- ◆ Description and specifications in this book were current at publication. However, The Charles Machine Works, Inc. reserves the right to improve equipment, so this manual might not reflect the most current improvements.
- ◆ Instructions on recommended equipment use and maintenance are in the Operator's Manual that was shipped with your equipment.

Keep the following in mind when ordering ProTech replacement parts:

- ◆ Specify parts you need by part number and description, not by illustration reference numbers.
- ◆ Have equipment model and serial number on hand to help ensure you get the right parts for your machine whether it's old or new.

Thank you for buying and using Ditch Witch equipment and ProTech replacement parts.

WARRANTY

DW WARRANTY Policy
July, 2005

POLICY 1: DITCH WITCH® EQUIPMENT AND REPLACEMENT PARTS LIMITED WARRANTY POLICY

Subject to the limitation and exclusions herein, free replacement parts will be provided at any authorized Ditch Witch dealership for any Ditch Witch equipment or parts manufactured by The Charles Machine Works, Inc. (CMW) that fail due to a defect in material or workmanship within one (1) year of first commercial use (Exception: 2 years for all SK500 Attachments). Free labor will be provided at any authorized Ditch Witch dealership for installation of parts under this warranty during the first year following "initial commercial" use of the serial numbered Ditch Witch equipment on which it is installed. The customer is responsible for transporting their equipment to an authorized Ditch Witch dealership for all warranty work.

EXCLUSIONS FROM PRODUCT WARRANTY

- All incidental or consequential damages.
- All defects, damages, or injuries caused by misuse, abuse, improper installation, alteration, neglect, or uses other than those for which products were intended.
- All defects, damages, or injuries caused by improper training, operation, or servicing of products in a manner inconsistent with manufacturer's recommendations.
- All engines and engine accessories (these are covered by original manufacturer's warranty).
- Tires, belts, and other parts which are subject to another manufacturer's warranty. (Such warranty will be available to purchaser.)
- ALL IMPLIED WARRANTIES NOT EXPRESSLY STATED HEREIN, INCLUDING ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY.

IF THE PRODUCTS ARE PURCHASED FOR COMMERCIAL PURPOSES, AS DEFINED BY THE UNIFORM COMMERCIAL CODE, THEN THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE FACE HEREOF AND THERE ARE NO IMPLIED WARRANTIES OF ANY KIND WHICH EXTEND TO A COMMERCIAL BUYER. ALL OTHER PROVISIONS OF THIS LIMITED WARRANTY APPLY INCLUDING THE DUTIES IMPOSED.

Ditch Witch products have been tested to deliver acceptable performance in most conditions. This does not imply they will deliver acceptable performance in all conditions. Therefore, to assure suitability, products should be operated under anticipated working conditions prior to purchase.

Defects will be determined by an inspection within thirty (30) days of the date of failure of the product or part by CMW or its authorized dealer. CMW will provide the location of its inspection facilities or its nearest authorized dealer upon inquiry. CMW reserves the right to supply remanufactured replacement parts under this warranty as it deems appropriate.

Extended warranties are available upon request from your local Ditch Witch dealer or CMW.

Some states do not allow exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply. Further, some states do not allow exclusion of or limitation of how long an implied warranty lasts, so the above limitation may not apply. This limited warranty gives product owner specific legal rights and the product owner may also have other rights which vary from state to state.

For information regarding this limited warranty, contact CMW's Product Support Department, P.O. Box 66, Perry, OK 73077-0066, or contact your local Ditch Witch dealer.

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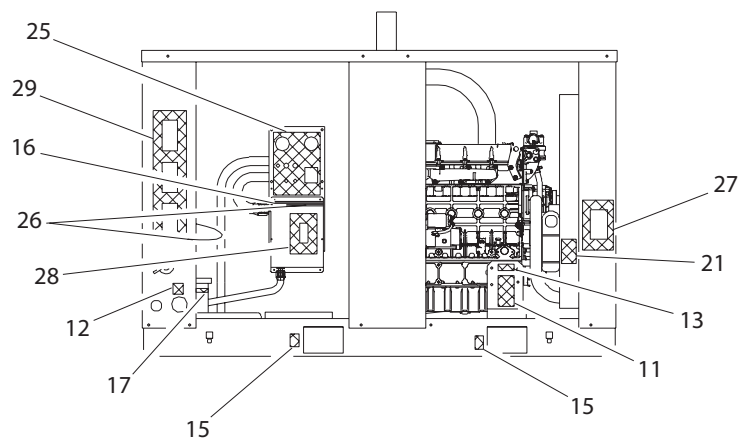
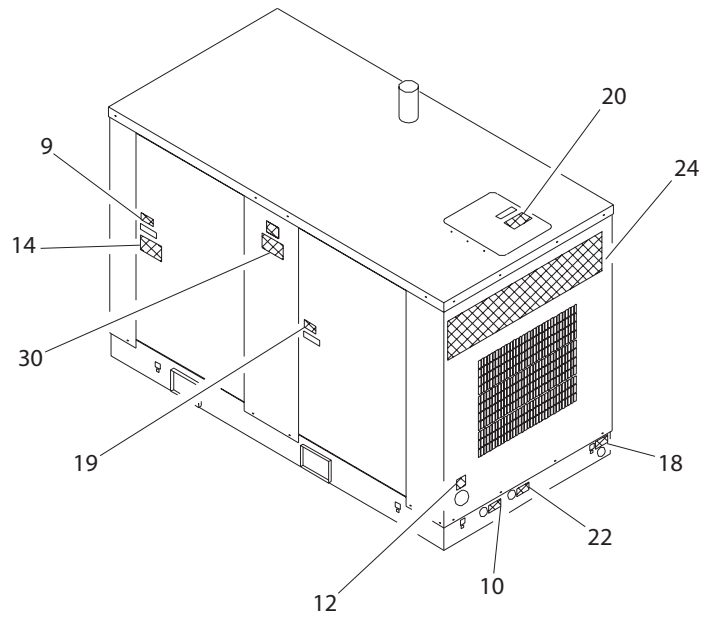
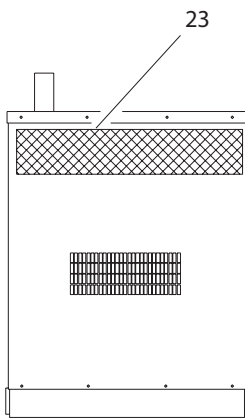
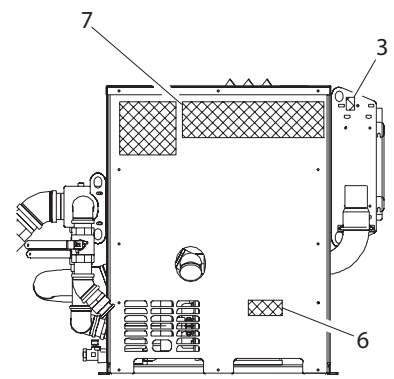
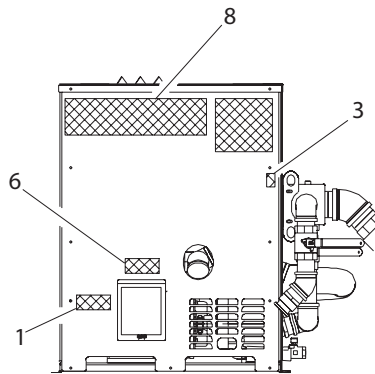
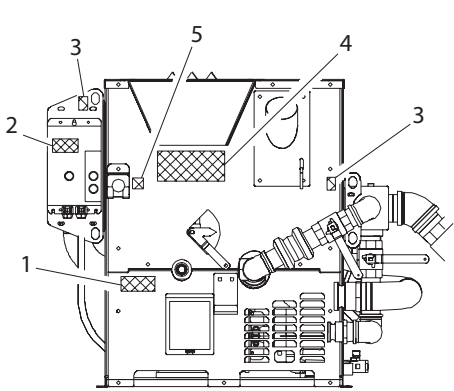
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DECALS

DECAL LOCATION FM50



DECAL LOCATION

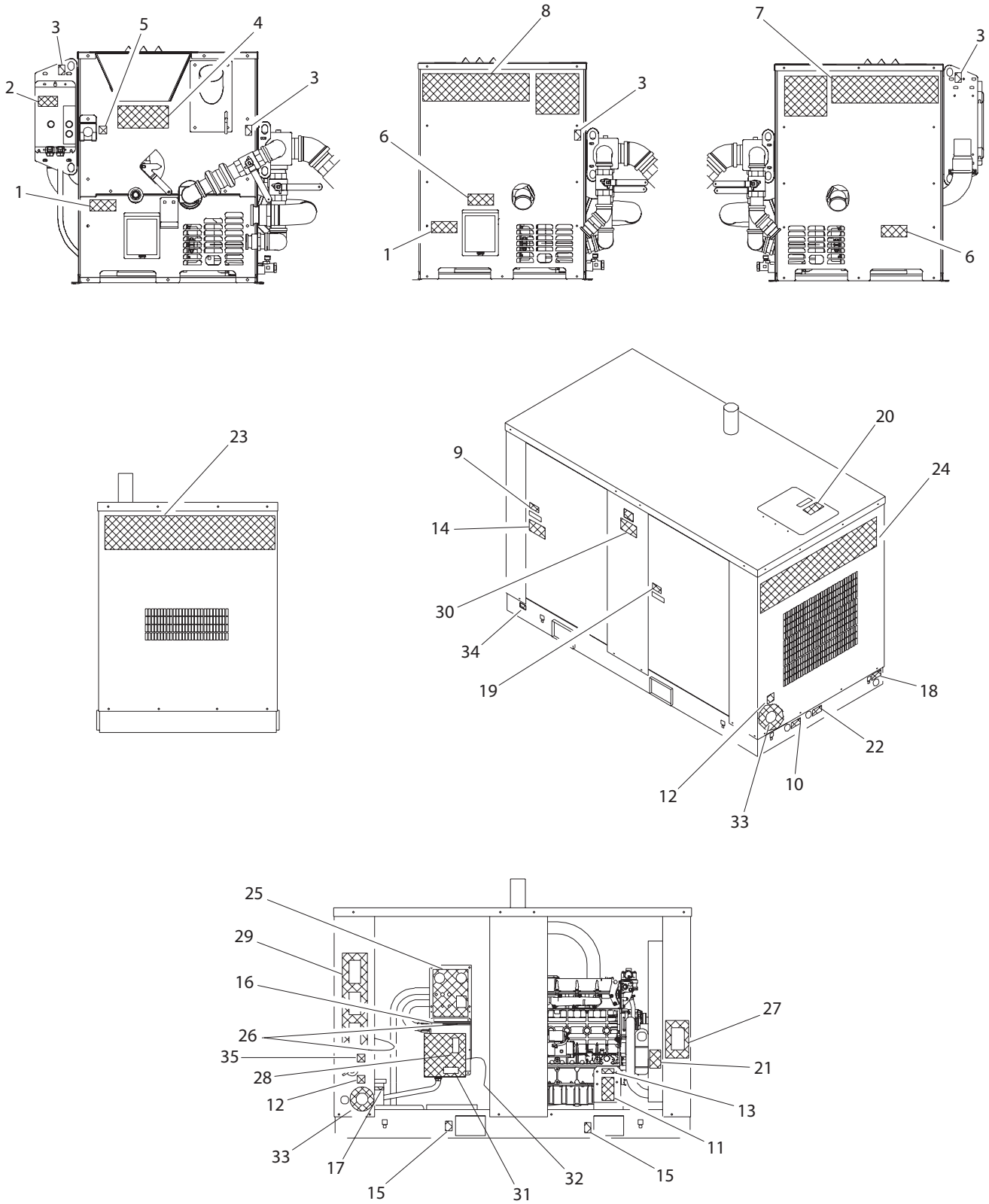
FM50

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	275-875		DECAL KIT - FM50	
	HOPPERS			
1	273-254	2	DANGER ELECTRIC SHOCK	
2	273-264	2	NOTICE SUPPLY VOLTAGE	
3	274-442	8	LIFT LOCATION	
4	273-253	1	VALVE LOCATION	
5	275-222	1	ENGINE STOP	
6	273-265	2	DANGER LINE LOCATION	
7	273-259	1	FM50 HOPPER GRAPHIC RIGHT	
8	273-260	1	FM50 HOPPER GRAPHIC LEFT	
	GENERATOR			
9	275-203	1	BATTERY	
10	273-199	1	COOLANT DRAIN	
11	275-184	1	WARNING MOVING PARTS	
12	275-222	2	ENGINE STOP	
13	275-400	1	NOTICE OIL LEVEL	
14	275-048	1	IMPORTANT SAFETY RULES	
15	274-442	4	LIFT LOCATION	
16	273-264	1	NOTICE SUPPLY VOLTAGE	
17	275-148	1	FUEL TANK (DIESEL)	
18	273-206	2	BASE DRAIN PLUG	
19	275-149	1	COOLANT	
20	273-146	1	NOTICE ADD COOLANT	
21	273-261	1	NOTICE DITCH WITCH COOLANT	
22	275-497	1	OIL DRAIN-ID	
23	273-286	1	FM50 W/ STRIPE LT	
	273-258	1	FM50 MODEL IDENTIFIER (LEFT)	OLD STYLE. NOT PART OF KIT.
24	273-285	1	FM50 W/ STRIPE RT	
	273-257	1	FM50 MODEL IDENTIFIER (RIGHT)	OLD STYLE. NOT PART OF KIT.
25	273-256	1	FM50 CONTROL PANEL	
26	273-254	2	DANGER ELECTRIC SHOCK	
27	700-054	1	60HZ/50HZ	
28	273-255	1	CIRCUIT BREAKER	
29	700-053	1	OUTLETS	
30	274-291	1	OUND POWER 10	SEE FOOTNOTE I

FOOTNOTES

I. NOT PART OF 275-875 DECAL KIT. SOUND POWER IS 100 dBA.

DECAL LOCATION FM50



DECAL LOCATION

FM50

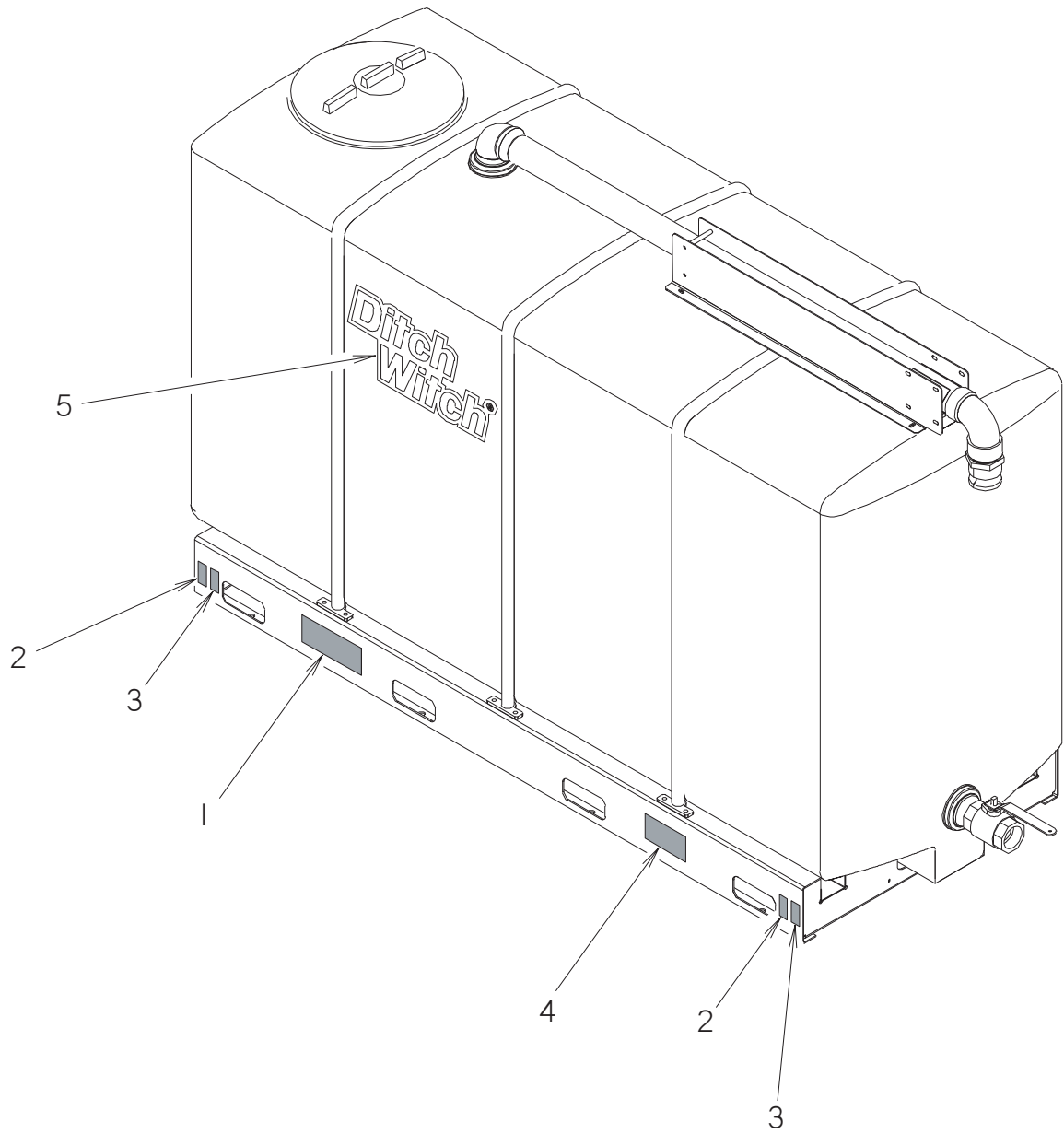
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	275-875		DECAL KIT - FM50	
	HOPPERS			
1	273-254	2	DANGER ELECTRIC SHOCK	
2	273-264	2	NOTICE SUPPLY VOLTAGE	
3	274-442	8	LIFT LOCATION	
4	273-253	1	VALVE LOCATION	
5	275-222	1	ENGINE STOP	
6	273-265	2	DANGER LINE LOCATIONS	
7	273-259	1	FM50 HOPPER GRAPHIC RIGHT	
8	273-260	1	FM50 HOPPER GRAPHIC LEFT	
	GENERATOR			
9	275-203	1	BATTERY	
10	273-199	1	COOLANT DRAIN	
11	275-184	1	WARNING MOVING PARTS	
12	275-222	2	ENGINE STOP	
13	275-400	1	NOTICE OIL LEVEL	
14	275-048	1	IMPORTANT SAFETY RULES	
15	274-442	4	LIFT LOCATION	
16	273-264	1	NOTICE SUPPLY VOLTAGE	
17	275-148	1	FUEL TANK (DIESEL)	
18	273-206	2	BASE DRAIN PLUG	
19	275-149	1	COOLANT	
20	273-146	1	NOTICE ADD COOLANT	
21	273-261	1	NOTICE DITCH WITCH COOLANT	
22	275-497	1	OIL DRAIN-ID	
23	273-286	1	FM50 W/ STRIPE LT	
24	273-285	1	FM50 W/ STRIPE RT	
25	700-083	1	CONTROL PANEL	
26	273-254	2	DANGER ELECTRIC SHOCK	
27	700-054	1	60HZ/50HZ	
28	273-368	1	BREAKERS	
29	700-084	1	OUTLETS	NORTH AMERICAN. NOT PART OF KIT.
	700-082	-	IEC OUTLETS	EUROPEAN. NOT PART OF KIT.
30	274-291	1	SOUND POWER IO	SEE FOOTNOTE I
31	700-080	1	ELECTRICAL HAZARD	
32	700-078	1	ELECTRICAL GROUND	
33	700-079	2	SHUT OFF / YELLOW	
34	700-081	1	PE / GROUND	
35	700-046	1	BATTERY DISCONNECT	

FOOTNOTES

I. NOT PART OF 275-875 DECAL KIT. SOUND POWER IS 100 dBA.

DECAL LOCATION

FM13v FM50 FM25 1000g



DECAL LOCATION

FM13v FM50 FM25 1000g

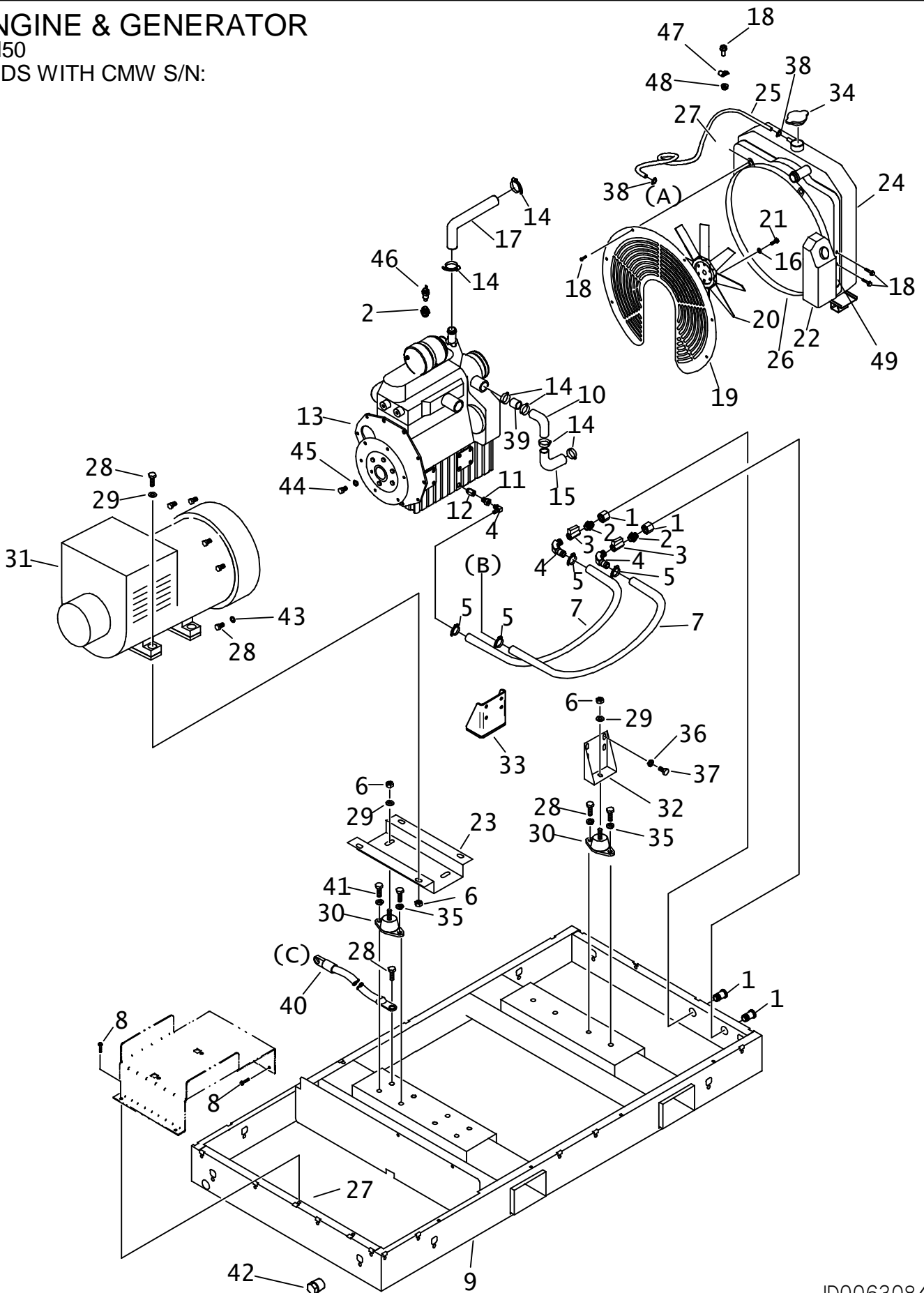
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	275-876		DECAL KIT - FM50 TANK	
1	274-049	2	DANGER ELECTROCUTION	
2	274-318	4	TIE DOWN LOCATION	
3	274-442	4	LIFT LOCATION	
4	274-817	2	NOTICE DO NOT LIFT	WITH FLUID
5	700-230	2	18" STACKED DITCH WITCH	

FOOTNOTES

GENERATOR

ENGINE & GENERATOR

FM50
ENDS WITH CMW S/N:



ENGINE & GENERATOR

FM50

ENDS WITH CMW S/N:

REF	PART				REMARKS
NO.	NUMBER	QTY	DESCRIPTION		
1.	153-693	2	BK CONNECTOR (08NF-08NF BK)		
2.	115-156	3	REDUCER (08N-06NF)		
3.	153-701	2	SHUT-OFF (06NF-06NF)		
4.	153-871	4	S/O COUPLER (06N-06H90, BRS)		
5.	110-217	4	WORM CLAMP (7/16" TO 1")		
6.	105-834	8	FLG LOCKNUT (3/8-NC)		
7.	116-881	AR	BULK HOSE (3/8", SOLD PER 1')		USE 2 @ 18"
8.	105-820	4	FLG LK BOLT (1/4-NC X 3/4")		
9.	315-676	-	BASE		
10.	499-407	1	TUBE, COOLANT RETURN		
11.	115-156	1	REDUCER (08N-06NF)		
12.	153-840	1	ADAPTER (M220 X -8NF, SPECIAL)		
13.	499-348	1	ENGINE (KUBOTA)		OBSOLETE, ENDS WITH S/N_____
	194-676	1	ENGINE-KUBOTA V3300EBG-2		OBSOLETE, BEGINS WITH S/N_____ ENDS WITH S/N_____
	195-1441	1	ENGINE, KUBOTA V330-E3BG T4i		BEGINS WITH S/N_____
	499-340	-	KUBOTA V3300 PARTS MANUAL		
	053-1385	-	KUBOTA V3300 PARTS MANUAL (T4i)		
	499-341	-	KUBOTA OPERATORS MANUAL		
	053-1388	-	KUBOTA V3300 OPERATORS MANUAL (T4i)		
	499-342	-	FAN BELT		
	499-343	-	GLOW PLUG		
	499-344	-	WATER PUMP		
	217-856	-	LAMPTIMER 12V		
	153-831	-	WATER PUMP GASKET		
	499-345	-	FUEL LIFT PUMP		
	153-832	-	LIFT PUMP GASKET		
	499-346	-	STOP SOLENOID		
	499-347	-	ALTERNATOR		
	194-275	-	STARTER		
	499-339	-	THERMOSTAT		
	153-830	-	THERMOSTAT GASKET		
	153-829	-	FUEL FILTER		
	217-952	-	OIL PRESSURE SWITCH		
	499-363	-	THROTTLE SOLENOID		
	499-352	-	THROTTLE SOLENOID BRACKET		
	194-268	-	OIL FILTER ELEMENT		
14.	110-134	6	WORM CLAMP (2-1/16" TO 2-3/4")		
15.	499-372	1	BOTTOM RADIATOR HOSE		
16.	106-395	4	WASHER (M8, HARDENED)		
17.	499-371	1	TOP RADIATOR HOSE		

NOT SHOWN:

FOOTNOTES:

NOTE:

ENGINE & GENERATOR

FM50

ENDS WITH CMW S/N:

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
18.	105-823	8	FLG LK BOLT (5/16-NC X 3/4")	
19.	499-355	1	FAN GUARD	
20.	499-350	1	COOLING FAN	
21.	106-083	4	SCREW (M8-1.25 X 20MM)	LOCTITE 242
22.	364-529	1	COOLANT OVERFLOW RESEVOIR	
23.	499-370	1	GENERATOR HAT CHANNEL	
24.	499-353	1	RADIATOR	
25.	116-108	1	BULK HOSE (5/16", SOLD PER 1")	USE 1 @ 49.7"
26.	499-354	1	FAN SHROUD	
27.	107-754	10	CLIP NUT (1/4", CVR .125" THK)	
28.	105-826	13	BOLT (3/8-NC X 1")	
29.	105-071	8	WASHER (1/2")	
30.	499-349	4	40D ISOLATOR	
31.	499-364	1	GENERATOR	
32.	323-276	1	RIGHT ENGINE MOUNT	
33.	324-830	1	LEFT ENGINE MOUNT	
34.	110-898	1	RADIATOR CAP (14PSI)	
35.	105-070	8	LOCK WASHER (1/2")	
36.	106-030	8	LOCK WASHER (M12)	
37.	107-757	8	SCREW (M12-1.25 X 25MM)	
38.	110-249	2	WORM CLAMP (1/4" TO 5/8")	
39.	499-397	1	RADIATOR HOSE	
40.	499-386	1	BAT CABLE (2/0 GA X 15", BLK)	
41.	105-825	4	BOLT (3/8-NC X 4")	
42.	115-110	2	PLUG (16N,SQ)	
43.	106-090	6	LOCK WASHER (M10)	
44.	105-032	6	BOLT (3/8-NC X 3/4")	
45.	105-072	6	LOCK WASHER (3/8)	
46.	215-242	1	TEMPERATURE SWITCH	
47.	110-259	4	BOLT-ON CLAMP (.625")	
48.	105-003	4	FLG LOCKNUT (5/16-NC)	
49.	318-817	1	WATER BOTTLE BRACKET	

NOT SHOWN:

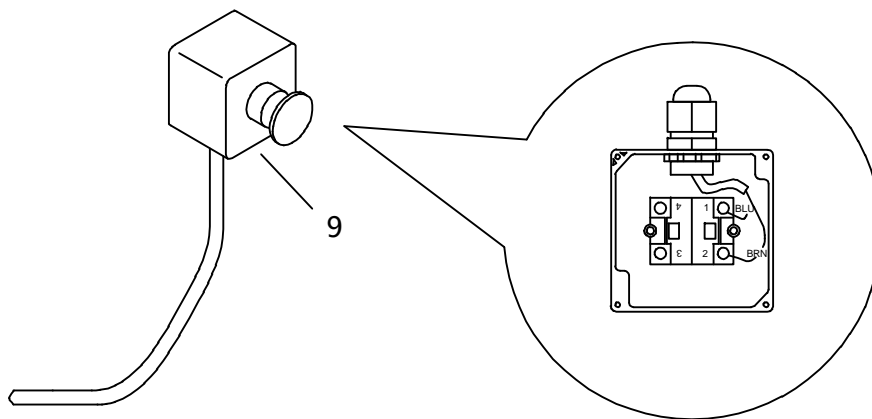
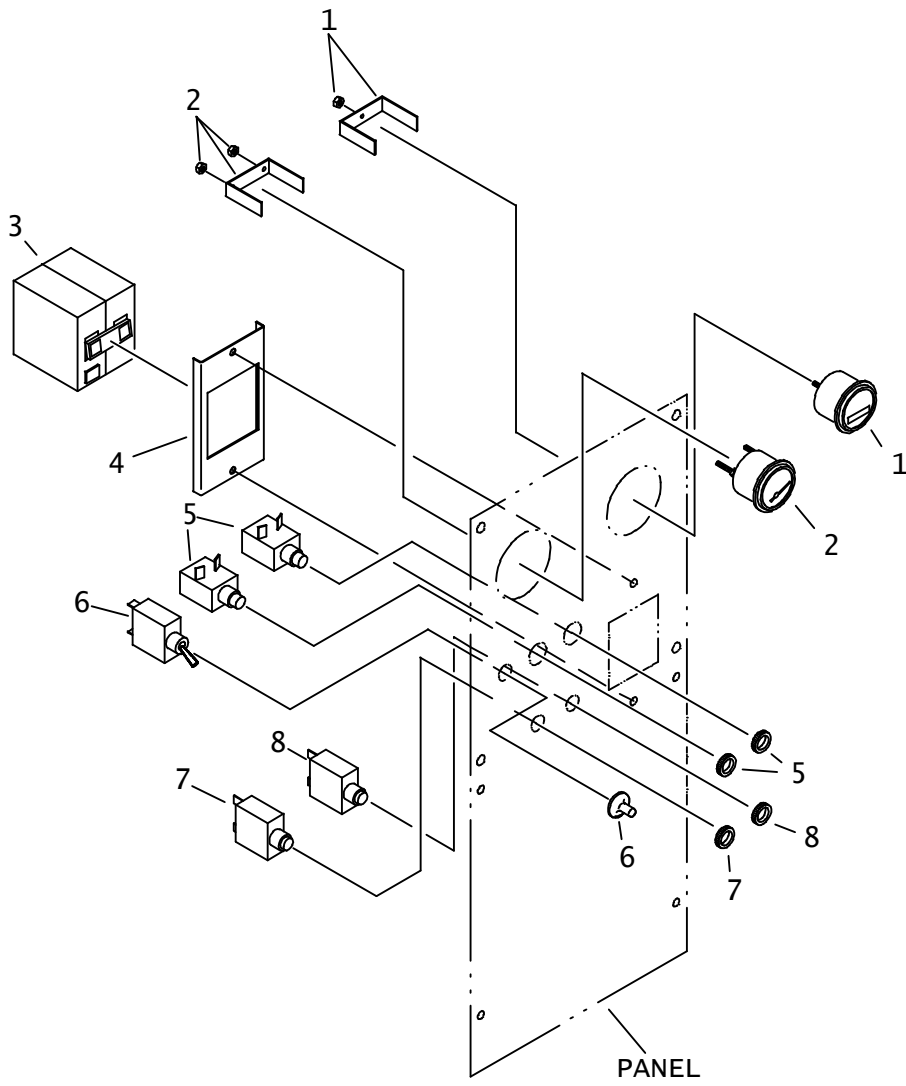
FOOTNOTES:

- (A) CONNECTS TO COOLANT OVERFLOW BOTTLE
- (B) CONNECTS TO DRAIN PORT ON RADIATOR
- (C) USES EXSISTING HARDWARE TO BOLT TO THE GENERATOR

NOTE:

ENGINE AND GENERATOR CONTROLS

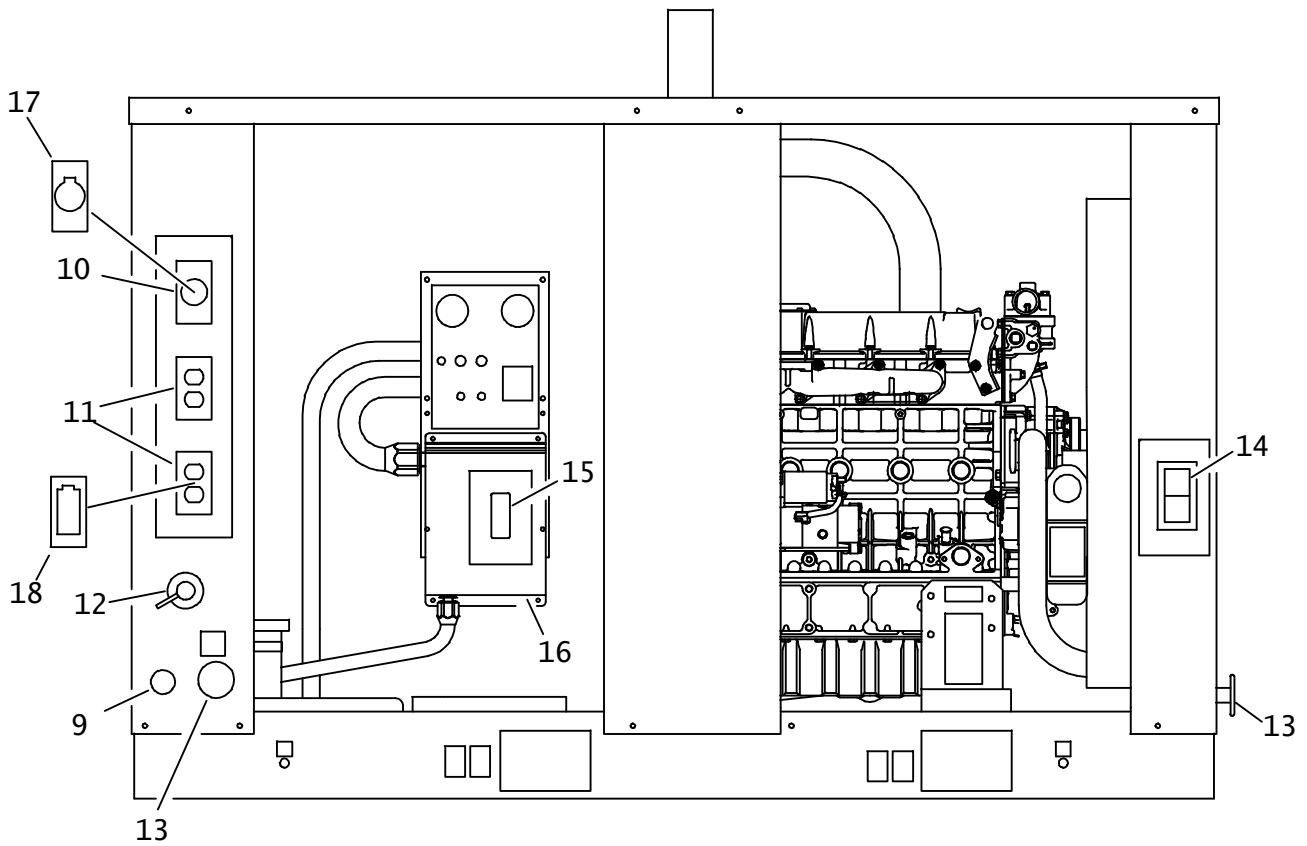
FM50
ENDS WITH S/N _____



ENGINE AND GENERATOR CONTROLS

FM50

ENDS WITH S/N _____



ENGINE AND GENERATOR CONTROLS

FM50

ENDS WITH S/N _____

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	215-128	1	HOUR METER	
2.	215-133	1	FUEL GAUGE	
3.	499-368	1	20 AMP BREAKER	
4.	499-384	1	20 AMP BREAKER MNT PLATE	
5.	499-366	2	MOMENTARY PUSH BUTTON	
6.	499-367	1	TOGGLE SWITCH	
7.	214-821	1	30 AMP BREAKER	
8.	214-822	1	15 AMP BREAKER	
9.	499-365	1	REMOTE E STOP	SEE FOOTNOTE 1
	214-941	1	EMERGENCY STOP STATION	SEE FOOTNOTE 2
	214-942	-	CONTACTS (NC)	
	214-848	1	TURCK CABLE	
	106-176	1	CONDUIT LOCKNUT (08N)	
	215-691	1	STRAIN GRIP (08N)	
10.	499-389	1	TWIST-LOCK RECEPTACLE	
11.	499-369	2	DUPLEX RECEPTACLE	
12.	214-847	1	BATTERY DISCONNECT SWITCH	
13.	214-846	2	E-STOP BUTTON	
14.	217-762	1	ROCKER SWITCH (SPDT)	
15.	499-383	1	45 AMP SHUNT TRIP BREAKER	
16.	499-385	1	NEMA BOX	
17.	499-390	1	COVER, TWIST LOCK RECEPTACLE	
18.	499-391	2	COVER, DUPLEX RECEPTACLE	

NOT SHOWN:

FOOTNOTES:

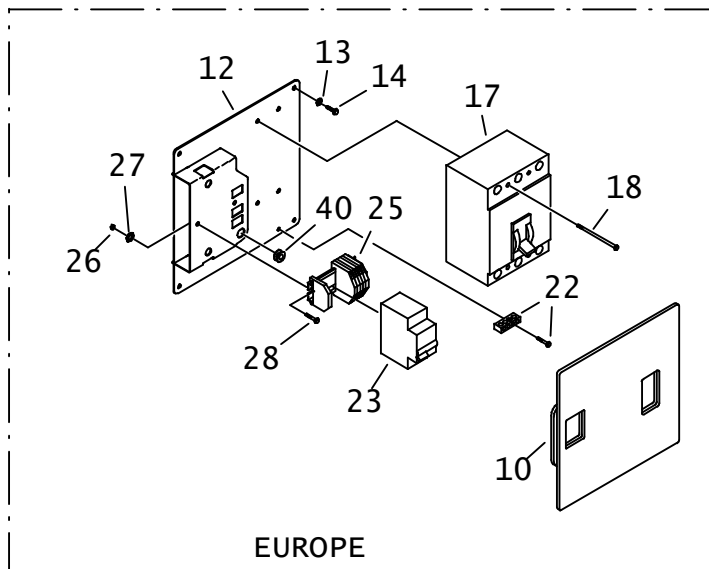
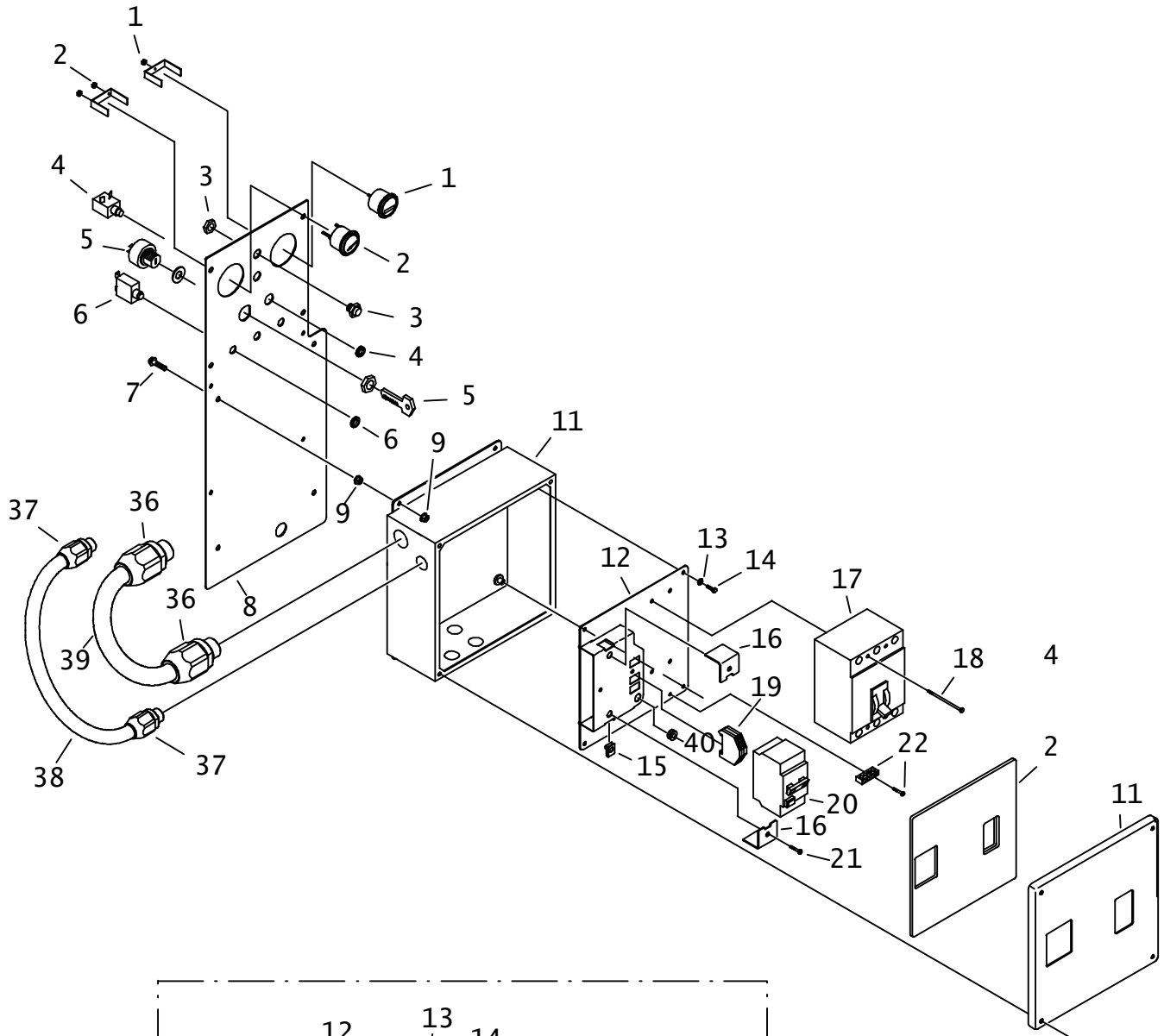
1. 499-365 NO LONGER AVAILABLE AS AN ASSEMBLY. ORDER INDIVIDUAL PARTS BELOW.
2. INCLUDES 214-942 CONTACTS INC)

NOTE:

ENGINE & GENERATOR CONTROLS

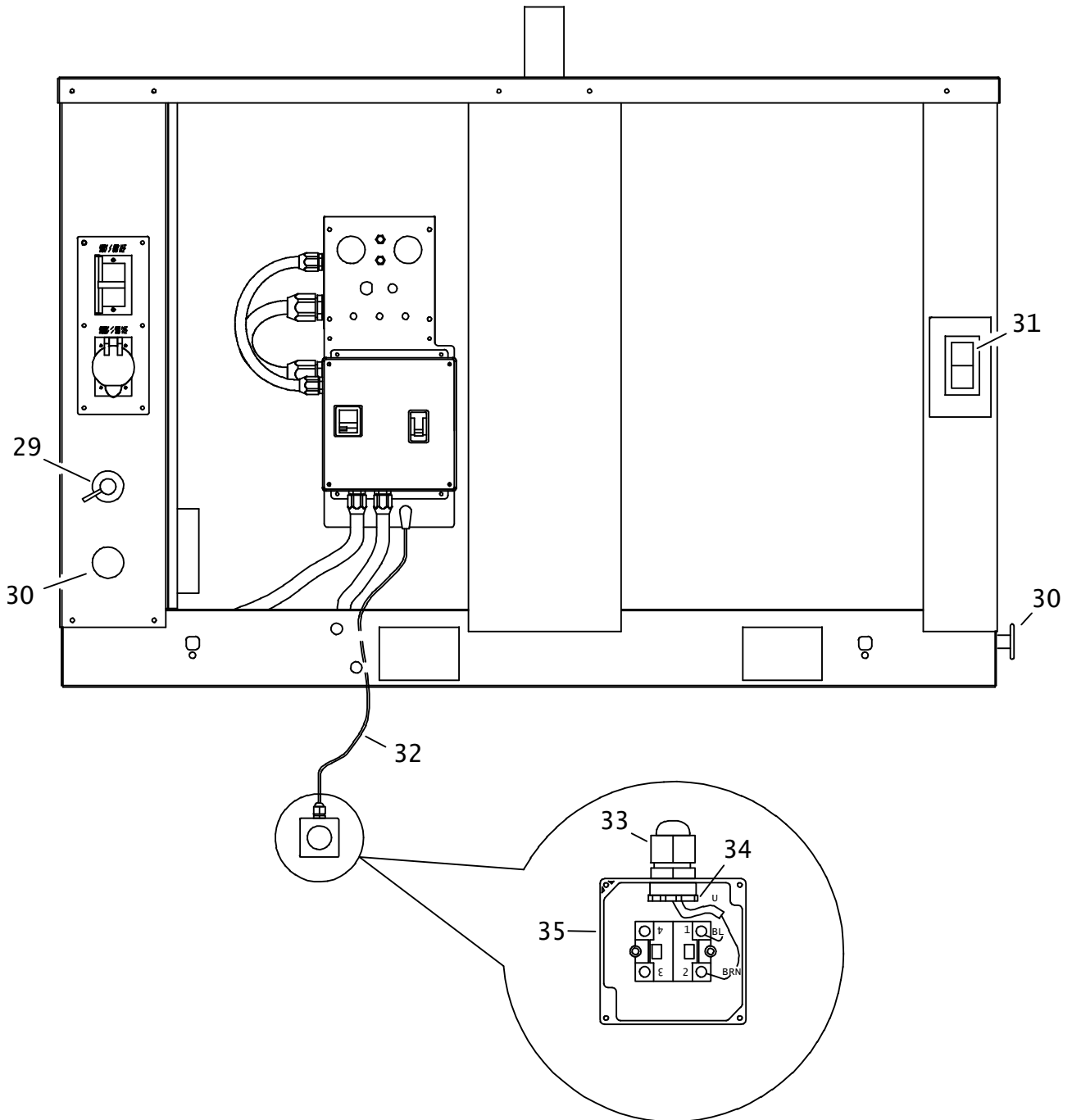
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BEGINS WITH S/N _____.



ENGINE & GENERATOR CONTROLS

FM50
BEGINS WITH S/N _____.



ENGINE & GENERATOR CONTROLS

FM50

BEGINS WITH S/N_____.

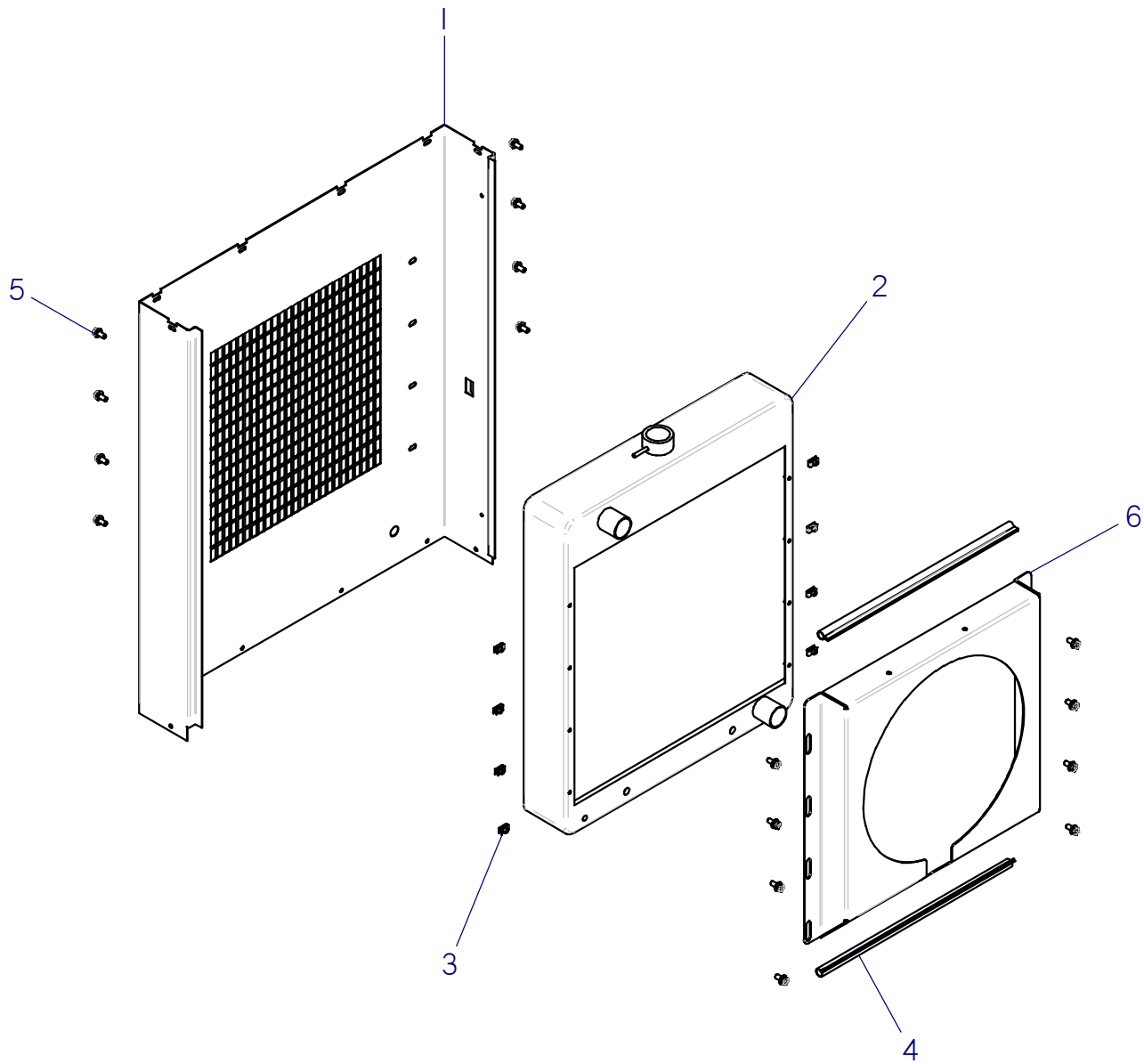
REF PART NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	215-128	1	HOUR METER	
2.	215-133	1	FUEL GAUGE	
3.	214-563	2	RED LED 12V	
4.	499-366	1	MOMENTARY PUSH BUTTON	
5.	214-852	1	IGNITION SWITCH	
	214-961	-	KEY, PAIR	
	214-962	-	SWITCH MOUNTING NUT	
6.	214-822	1	15 AMP BREAKER	
	214-821	1	30 AMP BREAKER	
	214-821	1	30 AMP BREAKER	
7.	105-819	4	FLG LK BOLT (1/4-NC X 1")	
8.	318-936	1	CONTROL PANEL	
9.	105-832	8	FLG LOCKNUT (1/4-NC)	
10.	318-978	1	COVER GASKET	
11.	194-368	1	SCREW COVER BOX	
12.	318-937	1	BREAKER PANEL	
13.	106-056	3	EXT STAR WASHER (#10)	
14.	105-154	4	BOLT (#10-32 X 5/16 ", PAN SLT)	
15.	107-754	2	CLIP NUT (1/4", CVR .125" THK)	
16.	318-918	2	MOUNTING CLAMP	
17.	499-383	1	45 AMP SHUNT TRIP BREAKER	
18.	107-824	4	SCREW #10-24 X 3", RD SLT, ZP	
19.	211-266	1	TERMINAL BLOCK KIT	
20.	499-368	1	20 AMP BREAKER	
21.	106-265	2	BOLT (1/4-NC X 3/4 ", BUT TORX)	
22.	194-367	1	GROUNDING BAR	
23.	211-265	1	16 AMP IEC CIRCUIT BREAKER	
24.	318-979	1	COVER GASKET	
25.	211-264	1	DIN RAIL TERMINAL BLOCK KIT	
26.	105-811	2	LOCKNUT (#10-24)	
27.	106-056	2	EXT STAR WASHER (#10)	
28.	106-049	2	BOLT (#10-24 X 3/4 ", PLPS)	
29.	214-847	1	BATTERY DISCONNECT SWITCH	
30.	214-846	1	E-STOP BUTTON	
31.	217-762	1	ROCKER SWITCH (SPDT)	
32.	214-848	1	TURCK CABLE	
33.	215-691	1	STRAIN GRIP (08N)	
34.	106-176	1	CONDUIT LOCKNUT (08N)	
35.	214-941	1	EMERGENCY STOP STATION	
	214-942	1	CONTACTS (NC)	
36.	107-827	2	CONDUIT FITTING (12N)	
37.	107-826	2	CONDUIT FITTING (08N)	
38.	117-904	AR	BLK CONDUIT 1/2 " (SOLD / 1")	USE 1 @ 18"
39.	117-905	AR	BLK CONDUIT 3/4 " (SOLD / 1")	USE 1 @ 15"
40.	116-296	1	GROMMET (11/32")	

NOT SHOWN:

FOOTNOTES:

NOTE:

FM50 RADIATOR



FM50 RADIATOR

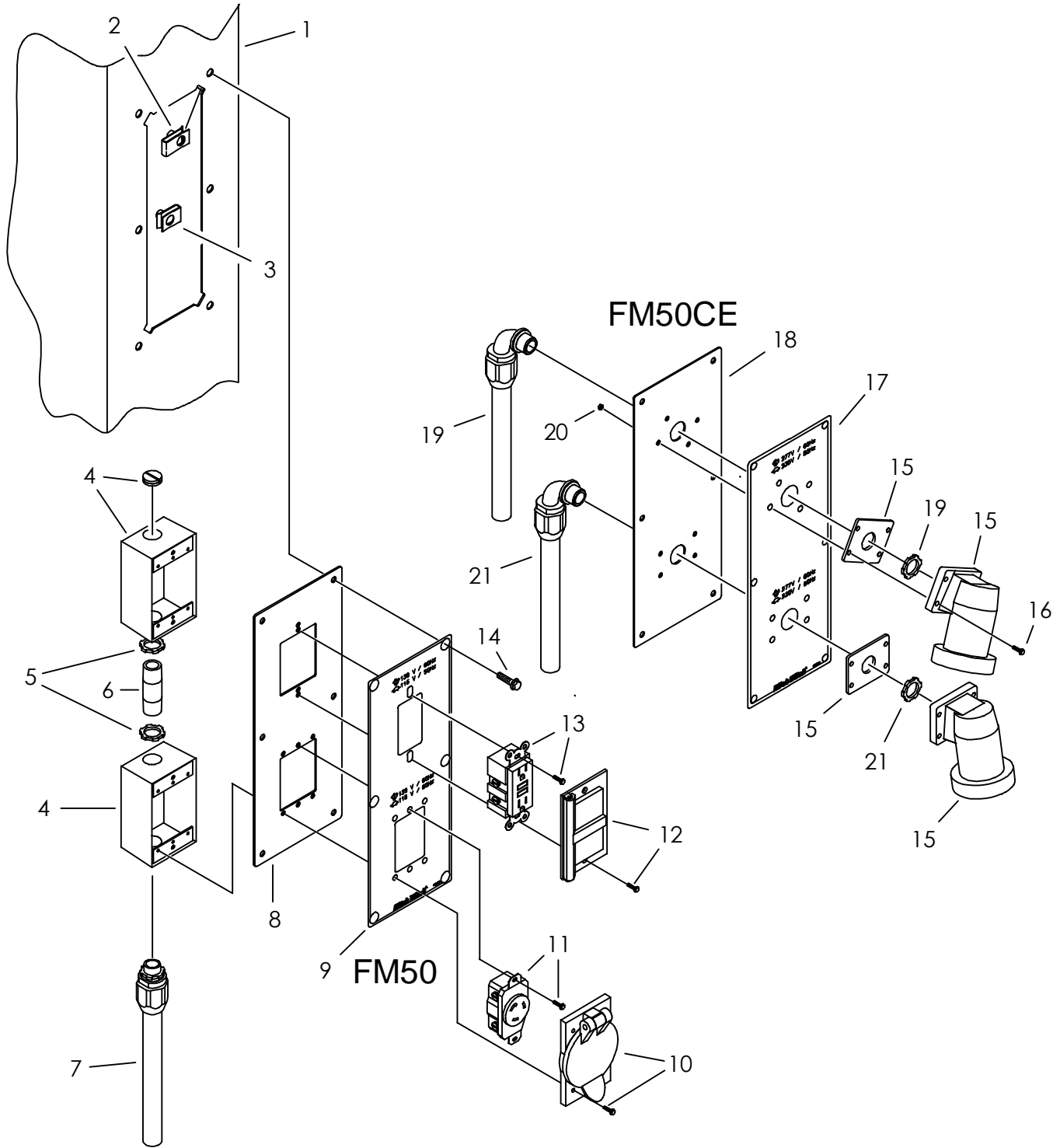
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	315-679	1	FRONT PANEL	
2	499-353	1	RADIATOR	
3	105-260	8	CLIP NUT (3/8-NC)	
4	116-421	2	BULK EDGE (1/8", SOLD PER FT)	
5	105-825	16	FLG LK BOLT (3/8-NC X 3/4)	
6	324-922	1	FAN SHROUD PANEL	

NOT SHOWN:

FOOTNOTES:

NOTE:

AUXILIARY OUTLETS BEGINS WITH S/N



AUXILIARY OUTLETS

BEGINS WITH S/N

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-649	-	GENERATOR	
2.	107-866	4	CLIP NUT (1/4-NC, LONG)	
3.	107-754	2	CLIP NUT (1/4", CVR .125" THK)	
4.	194-366	2	DEVICE BOX	
5.	106-176	2	CONDUIT LOCKNUT (08N)	
6.	157-391	1	NIPPLE (08N-2.5")	
7.	214-951	-	HARNESS, UL OUTLETS	
8.	318-897	1	PANEL, UL	
9.	700-084	1	OUTLETS	
10.	499-390	1	COVER, TWIST LOCK RECEPTACLE	
11.	499-389	1	TWIST LOCK RECEPTACLE	
12.	499-391	1	COVER, DUPLEX RECEPTACLE	
13.	499-369	1	DUPLEX RECEPTACLE	
14.	105-819	6	FLG LK BOLT (1/4-NC X 1")	
15.	211-263	2	RECEPTACLE, IEC, 16A	
16.	106-049	8	BOLT (#10-24 X 3/4", PLPS)	
17.	700-082	1	IEC OUTLETS	
18.	318-896	1	PANEL, IEC	
19.	214-952	-	HARNESS, IEC OUTLET	
	106-176	-	CONDUIT LOCKNUT (08N)	
20.	106-048	8	LOCKNUT (#10-24)	
21.	214-953	-	HARNESS, IEC OUTLET	
	106-176	-	CONDUIT LOCKNUT (08N)	

NOT SHOWN:

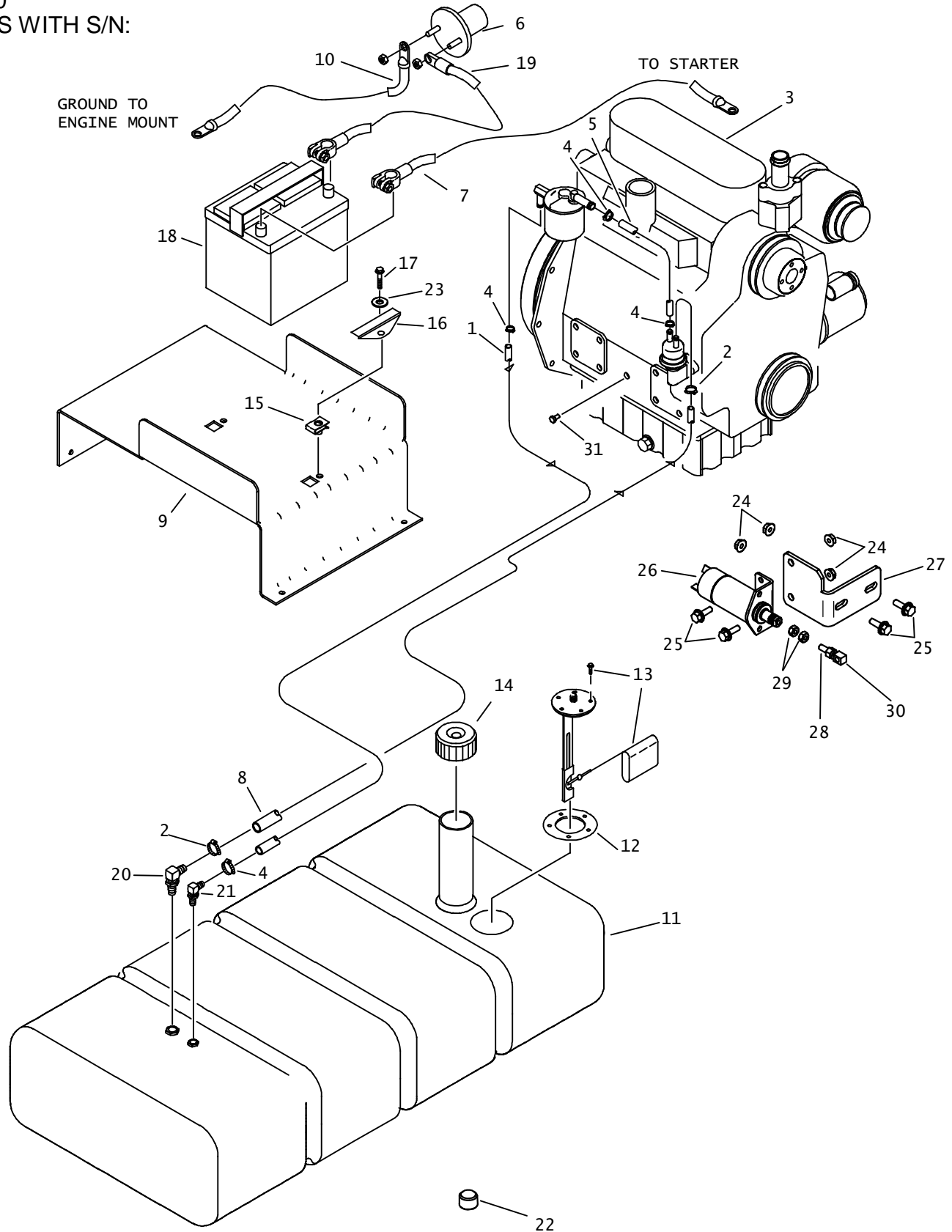
FOOTNOTES:

NOTE:

FUEL TANK & BATTERY

FM50

ENDS WITH S/N:



FUEL TANK & BATTERY

FM50

ENDS WITH S/N:

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	115-381 AR		BULK HOSE (1/4", SOLD PER 1')	USE 1 @ 74"
2.	110-249	2	WORM CLAMP (1/4" TO 5/8")	
3.	499-348	1	ENGINE (KUBOTA)	OBSOLETE, ENDS WITH S/N_____
	194-676	1	ENGINE, KUBOTA V330-E2BG	OBSOLETE, BEGINS WITH S/N_____ END WITH S/N_____
	195-1441	1	ENGINE, KUBOTA V330-E3BG T4i	BEGINS WITH S/N_____
4.	110-249	4	WORM CLAMP (1/4" TO 5/8")	
5.	115-381 AR		BULK HOSE (1/4", SOLD PER 1')	
6.	217-819	1	BATTERY DISCONNECT SWITCH	
7.	215-321	1	BAT CABLE (1 GA X 60", RED)	
8.	116-881 AR		BULK HOSE (3/8", SOLD PER 1')	USE 1 @ 77"
9.	309-567	1	BATTERY TRAY	
10.	215-359	1	BAT CABLE (2/0 GA X 70", BLK)	
11.	364-546	1	FUEL TANK	INCL REF NO 20, SEE NOT SHOWN
12.	165-704	1	GASKET	
13.	214-844	1	FUEL SENDER	
14.	153-717	1	FUEL CAP	
15.	107-754	2	CLIP NUT (1/4", CVR .125" THK)	
16.	107-554	2	BATTERY HOLD DOWN	
17.	105-821	2	FLG LK BLT (1/4-NC X 1-3/4")	
18.	215-244	1	BATTERY	
19.	215-318	1	BAT CABLE (2/0 GA X 33", BLK)	
20.	153-871	-	S/O COUPLER (06N-06H90, BRS)	
21.	153-872	1	S/O COUPLER (06N-04H90, BRS)	
22.	114-002	1	PLUG (06N,SOC)	
23.	105-095	2	WASHER (1/4")	
24.	105-832	4	FLG LOCKNUT (1/4-NC)	
25.	105-820	4	FLG LK BOLT (1/4-NC X 3/4")	
26.	499-363	1	THROTTLE SOLENOID	
27.	499-352	1	THROTTLE SOLENOID BRACKET	
28.	105-1067	1	1/4-28 X 1.25 SET SCREW	
29.	105-1068	2	1/4-28 JAM NUT	
30.	110-774	1	BALL JOINT (1/4-NF)	
31.	106-958	1	SCREW (M10-1.25 X 20MM)	

NOT SHOWN:

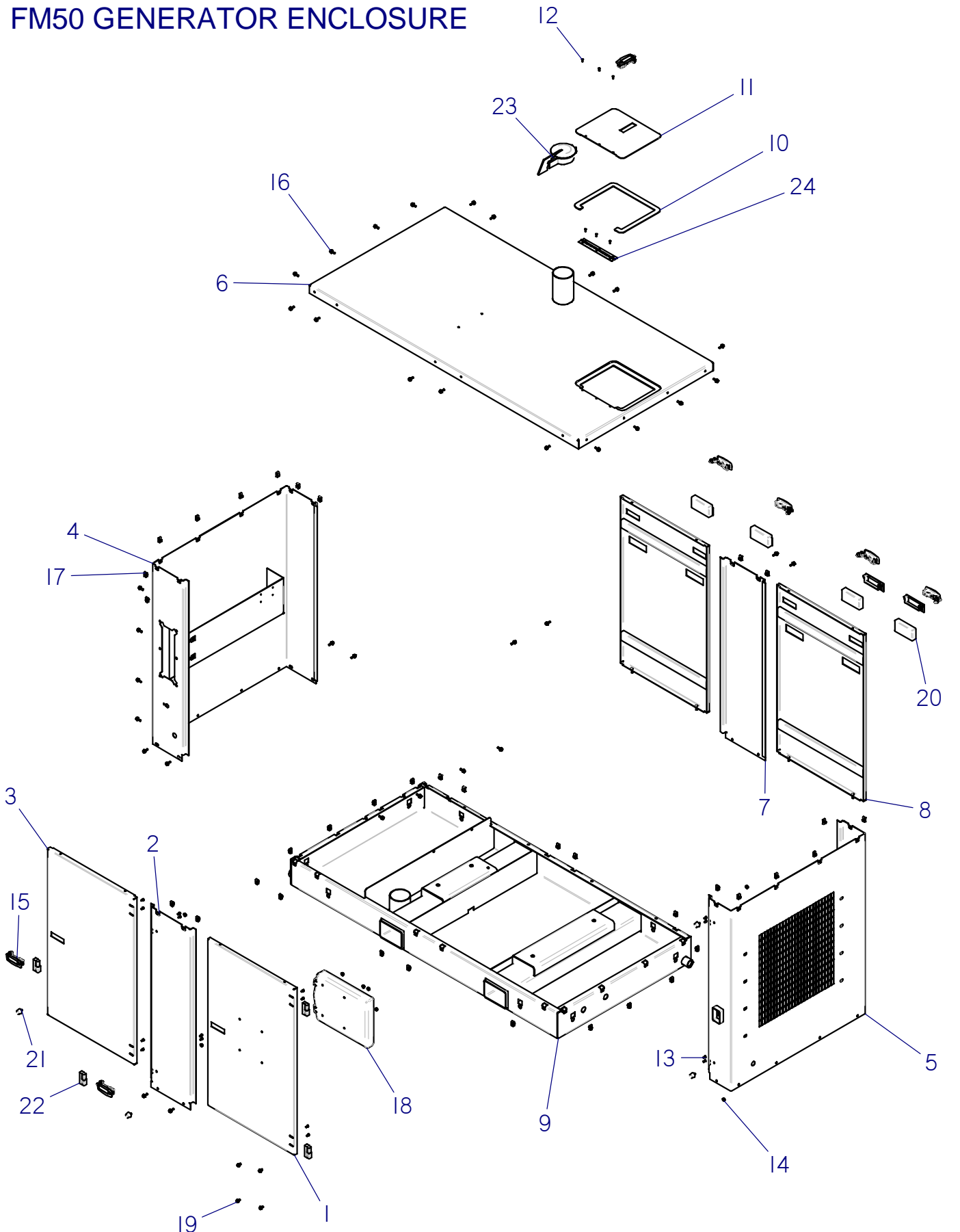
117-888 AR BULK STRIP (1/2". SOLD PER INCH) USE 1 @ 102"

FOOTNOTES:

NOTE:

REFER TO ENGINE AND GENERATOR PAGE FOR SERVICE PARTS.

FM50 GENERATOR ENCLOSURE



FM50 GENERATOR ENCLOSURE

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	315-672	1	FRONT ACCESS DOOR	
2	315-678	1	Front Door Stop	
3	315-673	1	Front Access Door (Gen. Side)	
4	318-898	1	REAR PANEL	
5	315-679	1	FRONT PANEL	
6	315-671	1	TOP PANEL	
7	315-677	1	Front Door Stop	
8	315-674	2	Rear Access Door (Gen. Side)	
9	315-676	1	Base	
10	309-374	1	DOOR SEAL	
11	318-704	1	TOP ACCESS DOOR	
12	110-253	6	3/16-1/2 Pop Rivet	
13	106-428	16	SCREWM5-0.80X14MM,SOC)	
14	105-832	8	FLG LOCKNUT (1/4-NC)	
15	117-558	7	LATCH, ADJUST LEVER (LOCKING)	
16	105-820	36	FLG LK BOLT (1/4-NC X 3/4")	
17	107-754	36	CLIP NUT (1/4", CVR .125" THK)	
18	318-588	1	MANUAL COMPARTMENT	
19	105-836	4	FLG LK BOLT (1/4-NC X 1/2")	
20	110-989	4	POCKET PULL HANDLE	SEE NOT SHOWN
21	117-533	4	RUBBER BUMPER	
22	105-617	4	LIFT-OFF HINGE (OFF-SET)	
23	157-864	1	RAIN CAP (4")	
24	315-720	1	9" Continuous Pin	

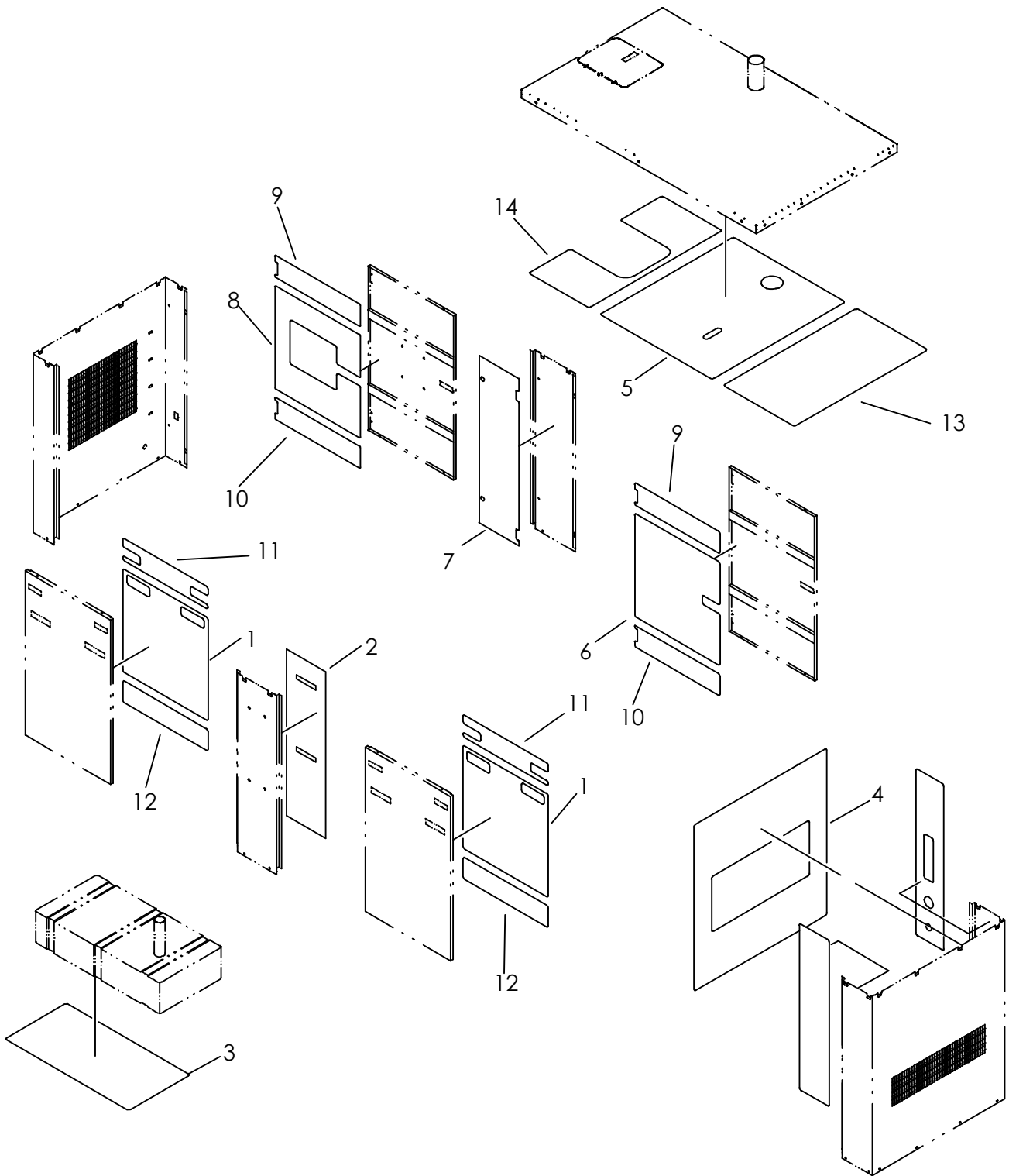
NOT SHOWN:

214-961 KEY, PAIR (BASE CONE)
217-309 LOCK PLUG 4/LATCH (BASE CODE)

FOOTNOTES:

NOTE:

FM50 GENERATOR INSULATION



FM50 GENERATOR INSULATION

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	117-585	2	REAR ACCESS DOOR INSULATION	
2.	117-588	1	REAR DOOR STOP INSULATION	SEE FOOT NOTE 1
3.	117-582	1	FUEL TANK ISOLATOR	
4.	117-587	1	REAR PANEL INSULATION	ENDS WITH S/N
	117-903	1	REAR PANEL INSULATION	BEGINS WITH S/N
5.	117-586	1	TOP PANEL INSULATION	
6.	117-584	1	FRNT ACCESS DOOR INSUL (GEN)	
7.	117-589	1	FRONT DOOR STOP INSULATION	SEE FOOT NOTE 1
8.	117-583	1	FRNT ACCESS DOOR INSUL (ENG)	
9.	117-1003	1	INSULATION	
10.	117-1004	1	INSULATION	
11.	117-1005	1	INSULATION	
12.	117-1006	1	INSULATION	
13.	117-1007	1	TOP PANEL INSULATION	
14.	117-1008	1	TOP PANEL INSULATION	

NOT SHOWN:

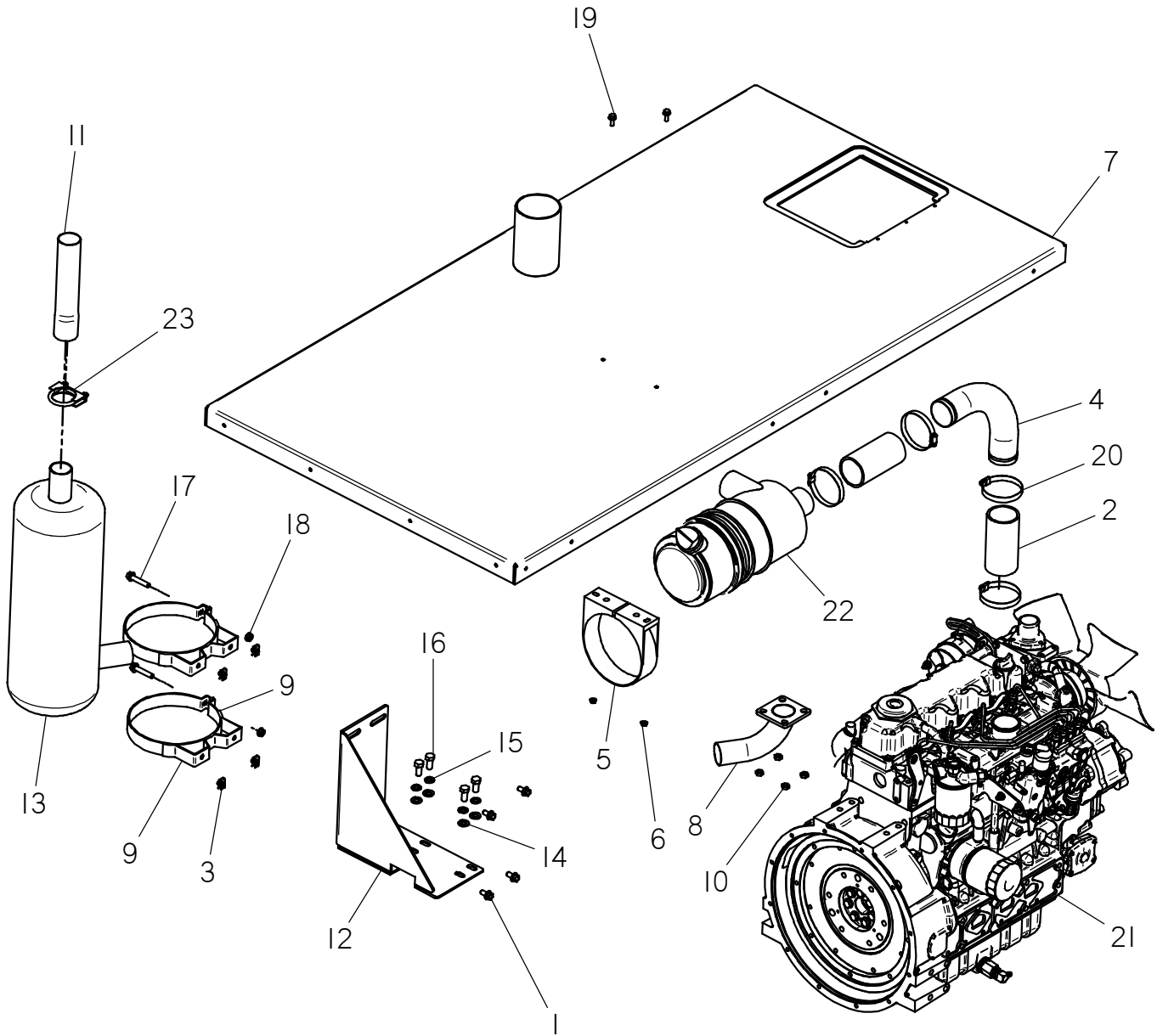
FOOTNOTES:

USE (3) 107-950 INSULATOR STUDS TO ATTACH INSULATION

NOTE:

INTAKE AND EXHAUST COMPONENTS

FM50
ENDS WITH S/N:



INTAKE AND EXHAUST COMPONENTS

FM50

ENDS WITH S/N:

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1	105-825	4	FLG LK BOLT (3/8-NC X 3/4)	
2	118-339	2	AIR INTAKE HOSE 2.5 ID X 5.5 L	
3	105-260	4	CLIP NUT (3/8-NC)	
4	194-656	1	BREATHER ELBOW	
5	149-165	1	MOUNTING CLAMP (6.79")	
6	105-832	2	FLG LOCKNUT (1/4-NC)	
7	315-671	1	TOP PANEL	
8	499-380	1	EXHAUST MANIFOLD ADAPTER	SEE NOT SHOWN
9	314-481	2	MUFFLER BRACKET	
10	108-209	4	JAM NUT (M10-1.25)	
11	499-382	1	2" EXHAUST EXTENSION	
12	323-272	1	Muffler Bracket	
13	499-376	1	MUFFLER	SEE NOT SHOWN
14	106-391	4	WASHER (M12)	
15	106-030	4	LOCK WASHER (M12)	
16	107-757	4	SCREW (M12-1.25 X 25MM)	
17	105-883	2	FLG LK BOLT (3/8-NC X 2")	
18	105-834	2	FLG LOCKNUT (3/8-NC)	
19	105-819	2	FLG LK BOLT (1/4-NC X 1")	
20	110-169	4	WORM CLAMP (2.812" TO 3.750")	
21	499-348	1	110 Series Engine	OBSOLETE, ENDS WITH S/N_----- SEE FOOTNOTE 1.
22	194-602	1	AIR FILTER PARTS ASSY	
23	196-008	1	U-BOLT CLAMP (2" TO 2-1/16")	

NOT SHOWN:

115-834 (AR) EXHAUST WRAP (2', SOLD PER 2 FT)
 194-758 1 ELEMENT (SAFETY)
 194-789 1 PRE-CLEANER 'BOWL'

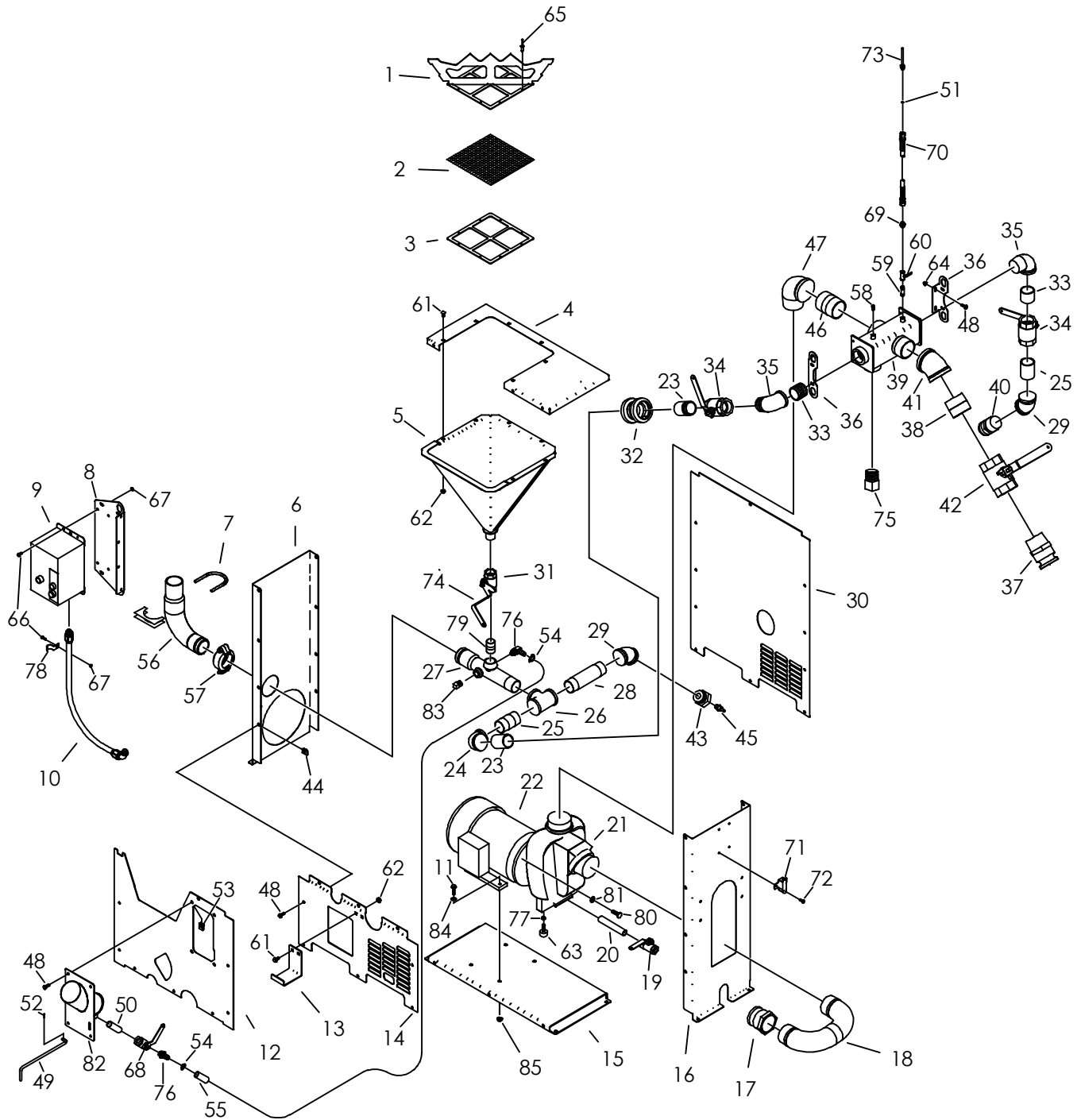
FOOTNOTES:

1. 194-676 TIER 2 BEGINS WITH S/N CMWFM50XT60000011 ENDS WITH S/N CMWFM50XJV0000041, OBSOLETE

NOTE:

HOPPERS

FM50 MIXING HOPPER (RH)



FM50 MIXING HOPPER (RH)

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	310-363		MIXING HOPPER RH	
1.	314-376	1	BAG CUTTER	
2.	305-621	1	SCREEN	
3.	309-355	1	SCREEN FRAME	
4.	310-318	1	TOP PANEL, RH	
5.	310-314	1	HOPPER	
6.	310-309	1	END PANEL	
7.	195-993	1	U-BOLT CLAMP (3.5")	
8.	310-317	1	BRACKET	
9.	194-627	1	STARTER, ELECTRIC MOTOR	
	499-941	-	STARTER MODULE	
	499-942	-	START STOP KIT	
	499-943	-	OVERLOAD RELAY	
10.	214-838	1	ELEC CABLE (10/4 X 36")	
11.	107-111	4	FLG SCREW (M10-1.50 X 35MM)	
12.	310-320	1	UPPER SIDE PANEL, RH	
13.	310-315	1	HOSE BRACKET	
14.	310-316	1	SIDE PANEL	
15.	310-308	1	BASE	
16.	315-137	1	END PANEL	
17.	149-955	1	FHC CONNECTOR (56-48NF)	
18.	313-862	1	SUCTION ELBOW (48N-48N, 180)	
19.	120-073	1	SHUT-OFF (12NF-12NF)	
	499-398	-	LEVER	
20.	153-430	1	NIPPLE (12N-6")	
21.	149-540	1	CENTRIFUGAL PUMP	
22.	211-028	1	MOTOR (10 HP)	
23.	313-260	2	NIPPLE 32N X 3.25" THD ONE END	
24.	115-293	1	ELBOW (32NF-32NF90)	
25.	115-296	2	NIPPLE (32N-4")	
26.	154-484	1	TEE (32NF-32NF-32NF)	
27.	310-327	1	MIXING VENTURI	
28.	150-1139	1	NIPPLE (32N-8")	
29.	115-297	2	CONNECTOR (32NF-32NF45)	
30.	310-303	1	BACK PANEL	
31.	149-786	1	SHUT-OFF (20NF)	SEE FOOTNOTE 1 USE BEFORE S/N: CMWFM50XE70000023
	159-789	1	SHUT-OFF (20NF)	USE AFTER S/N: CMWFM50XE70000024
32.	166-367	1	FLEX COUPLING (32-32)	
33.	115-295	2	ALL THREAD (32N-2")	
34.	120-059	2	SHUT-OFF (32NF-32NF)	
	499-399	-	LEVER	
35.	114-004	2	STREET ELBOW (32N-32NF90)	
36.	310-373	2	MANIFOLD BRACKET	
37.	155-263	1	FHC ADAPTER (56-48N)	
38.	115-299	1	NIPPLE (48N-3")	
39.	310-325	1	MANIFOLD	
40.	159-181	1	FHC ADAPTER (40-32N)	
41.	154-486	1	ELBOW (48NF-48NF45)	

NOT SHOWN:

FOOTNOTES:

NOTE:

FM50 MIXING HOPPER (RH)

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
42.	120-060	1	SHUT-OFF (48NF-48NF)	
	499-400	-	LEVER	
43.	153-756	1	REDUCER (32N-08NF)	
44.	106-551	28	CLIP NUT (M8-1.25)	
45.	110-964	1	DRAIN (08N)	
46.	115-300	1	NIPPLE (48N-4")	
47.	114-017	1	STREET ELBOW (48N-48NF90)	
48.	106-162	44	FLG SCREW (M8-1.25 X 20MM)	
49.	178-645	1	CONTROL ROD	
50.	114-021	1	NIPPLE (12N-3-1/2")	
51.	157-037	1	O-RING (011 D90)	
52.	105-509	1	COTTER PIN (1/8" X 1")	
53.	107-135	4	CLIP NUT M8-1.25	
54.	110-026	2	WORM CLAMP (1/2" TO 1-1/4")	
55.	116-636	AR	BULK HOSE (3/4", SOLD PER 1')	USE 1 @ 16"
56.	310-326	1	RISER	
57.	166-357	1	GROOVED COUPLING (40-40)	
58.	115-153	1	PLUG (04N, SQ)	
59.	115-166	1	NIPPLE (04N-1.5")	
60.	120-090	1	SHUT-OFF(04NF-04NF, NONVENTED)	
61.	107-700	8	CARRIAGE BOLT (M10-1.50X20MM)	
62.	106-387	8	FLG LOCKNUT (M10-1.50)	
63.	116-525	2	BUMPER	
64.	106-386	12	FLG LOCKNUT (M8-1.25)	
65.	110-348	8	POP RIVET (3/16" X .664")	
66.	106-712	4	FLG SCREW (M6-1.00 X 16MM)	
67.	106-385	4	FLG LOCKNUT (M6-1.00)	
68.	120-121	1	BALL VALVE (12NF-12NF)	
69.	154-339	1	CONNECTOR (04N-040)	
70.	154-911	1	HOSE (040FX-36"-3000AR)	
71.	315-537	1	BRACKET	
72.	105-836	2	FLG LOCK BOLT (1/4-NC X 1/2")	
73.	153-779	1	HYD LINE (-04)	
74.	309-136	1	VALVE HANDLE	SEE FOOTNOTE 1 USE BEFORE S/N: CMWFM50XE70000023
	300-5106	1	VALVE HANDLE	USE AFTER S/N: CMWFM50XE70000024
75.	114-008	1	PLUG (32N, SQ, GALV)	
76.	153-151	2	S/O COUPLER (12N-12H90)	
77.	105-003	2	FLG LOCKNUT (5/16-NC)	
78.	110-057	1	CLAMP (1/2")	INCLUDED WITH 214-838
79.	115-207	1	NIPPLE (20N-2")	USE BEFORE S/N: CMWFM50XE70000023
	150-1896	1	NIPPLE (20N-2")	USE AFTER S/N: CMWFM50XE70000024
80.	105-208	4	BOLT (1/2-NC X 1-1/4")	INCLUDED WITH 211-028
81.	105-070	4	LOCK WASHER (1/2")	INCLUDED WITH 211-028
82.	310-358	1	LIQUID HOPPER	INCLUDED WITH 211-028
83.	115-167	1	PLUG (12N, SQ)	
84.	105-118	8	WASHER (3/8")	
85.	105-894	4	LOCKNUT (M10-1.50, PRV TRQ, 10.9)	

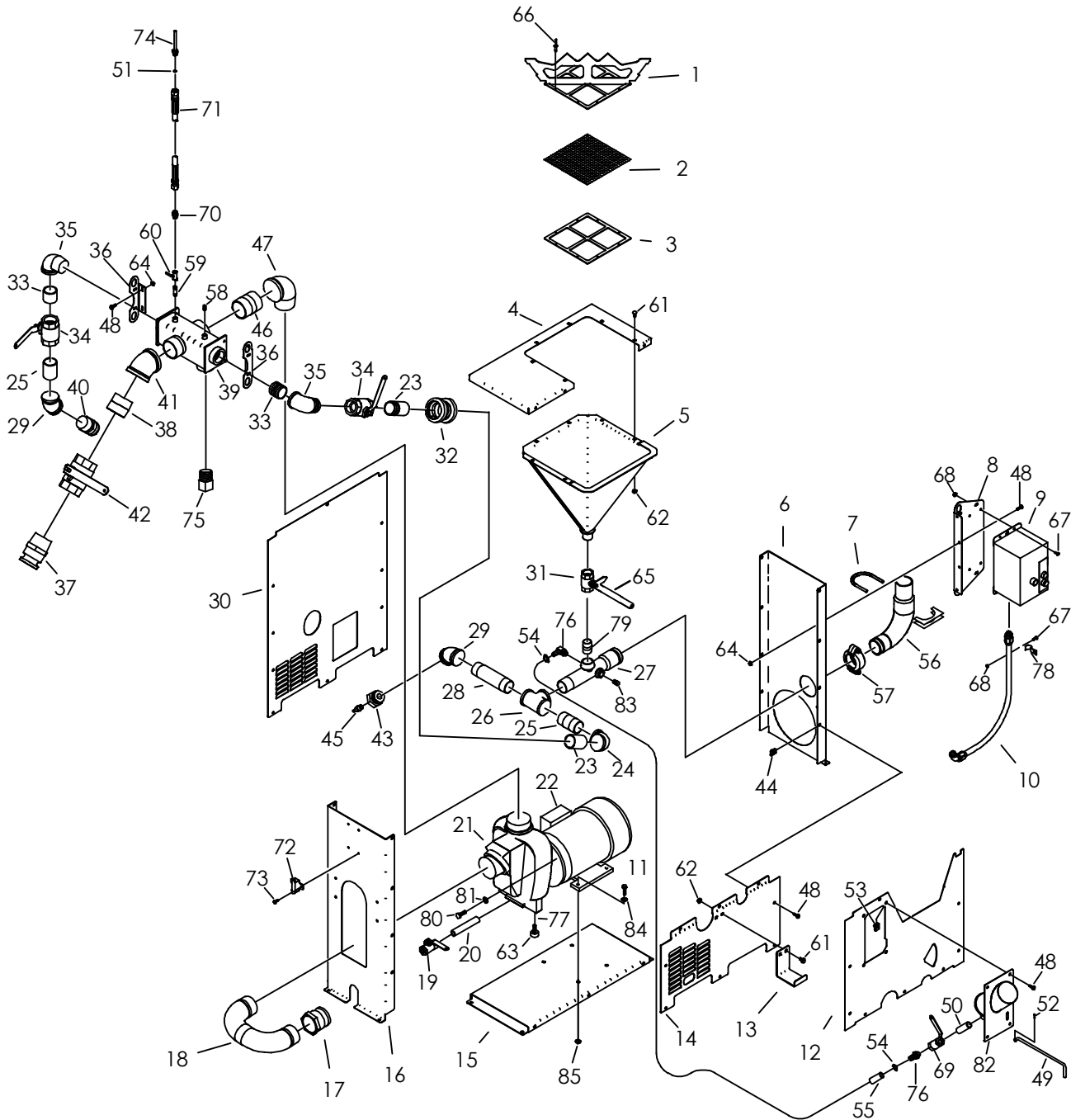
NOT SHOWN:

1. HANDLE ON REF NO. 31 MUST BE REMOVED AND REPLACED WITH REF NO. 74

FOOTNOTES:

NOTE:

FM50 MIXING HOPPER (LH)



FM50 MIXING HOPPER (LH)

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	310-364		MIXING HOPPER LH	
1.	314-376	1	BAG CUTTER	
2.	305-621	1	SCREEN	
3.	309-355	1	SCREEN FRAME	
4.	310-319	1	TOP PANEL, LH	
5.	310-314	1	HOPPER	
6.	310-331	1	END PANEL	
7.	195-993	1	U-BOLT CLAMP (3.5")	
8.	310-317	1	BRACKET	
9.	211-030	1	STARTER, ELECTRIC MOTOR	
	499-356	-	STARTER MODULE	SEE FOOTNOTE 2
	499-357	-	START STOP KIT	SEE FOOTNOTE 2
	499-358	-	OVERLOAD RELAY	SEE FOOTNOTE 2
	499-941	-	STARTER MODULE	SEE FOOTNOTE 3
	499-942	-	START STOP KIT	SEE FOOTNOTE 3
	499-943	-	OVERLOAD RELAY	SEE FOOTNOTE 3
10.	214-838	1	ELEC CABLE (10/4 X 36")	
11.	107-111	4	FLG SCREW (M10-1.50 X 35MM)	
12.	310-334	1	UPPER PANEL	
13.	310-315	1	HOSE BRACKET	
14.	310-332	1	LOWER PANEL	
15.	310-308	1	BASE	
16.	315-137	1	END PANEL	
17.	149-955	1	FHC CONNECTOR (56-48NF)	
18.	313-862	1	SUCTION ELBOW (48N-48N, 180)	
19.	120-073	1	SHUT-OFF (12NF-12NF)	
	499-398	-	LEVER	
20.	153-430	1	NIPPLE (12N-6")	
21.	149-540	1	CENTRIFUGAL PUMP	
22.	211-028	1	MOTOR (10 HP)	
23.	313-260	2	NIPPLE 32N X 3.25" THD ONE END	
24.	115-293	1	ELBOW (32NF-32NF90)	
25.	115-296	2	NIPPLE (32N-4")	
26.	154-484	1	TEE (32NF-32NF-32NF)	
27.	310-327	1	MIXING VENTURI	
28.	150-1139	1	NIPPLE (32N-8")	
29.	115-297	2	CONNECTOR (32NF-32NF45)	
30.	310-333	1	SIDE PANEL	
31.	149-786	1	SHUT-OFF (20NF)	SEE FOOTNOTE 1 USE BEFORE S/N: CMWFM50XE70000023
	159-789	1	SHUT-OFF (20NF)	USE AFTER S/N: CMWFM50XE70000024
32.	166-367	1	FLEX COUPLING (32-32)	
33.	115-295	2	ALL THREAD (32N-2")	
34.	120-059	2	SHUT-OFF (32NF-32NF)	
	499-399	-	LEVER	
35.	114-004	2	STREET ELBOW (32N-32NF90)	
36.	310-373	2	MANIFOLD BRACKET	
37.	155-263	1	FHC ADAPTER (56-48N)	
38.	115-299	1	NIPPLE (48N-3")	
39.	310-325	1	MANIFOLD	
40.	159-181	1	FHC ADAPTER (40-32N)	
41.	154-486	1	ELBOW (48NF-48NF45)	

NOT SHOWN:

FOOTNOTES:

NOTE:

FM50 MIXING HOPPER (LH)

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
42.	120-060	1	SHUT-OFF (48NF-48NF)	
	499-400	-	LEVER	
43.	153-756	1	REDUCER (32N-08NF)	
44.	106-551	28	CLIP NUT (M8-1.25)	
45.	110-964	1	DRAIN (08N)	
46.	115-300	1	NIPPLE (48N-4")	
47.	114-017	1	STREET ELBOW (48N-48NF90)	
48.	106-162	44	FLG SCREW (M8-1.25 X 20MM)	
49.	178-645	1	CONTROL ROD	
50.	114-021	1	NIPPLE (12N-3-1/2")	
51.	157-037	1	O-RING (011 D90)	
52.	105-509	1	COTTER PIN (1/8" X 1")	
53.	107-135	4	CLIP NUT M8-1.25	
54.	110-026	2	WORM CLAMP (1/2" TO 1-1/4")	
55.	116-636	AR	BULK HOSE (3/4", SOLD PER 1')	USE 1 @ 16"
56.	310-326	1	RISER	
57.	166-357	1	GROOVED COUPLING (40-40)	
58.	115-153	1	PLUG (04N, SQ)	
59.	115-166	1	NIPPLE (04N-1.5")	
60.	120-090	1	SHUT-OFF(04NF-04NF, NONVENTED)	
61.	107-700	8	CARRIAGE BOLT (M10-1.50X20MM)	
62.	106-387	8	FLG LOCKNUT (M10-1.50)	
63.	116-525	2	BUMPER	
64.	106-386	12	FLG LOCKNUT (M8-1.25)	
65.	309-136	1	VALVE HANDLE	SEE FOOTNOTE 1 USE BEFORE S/N: CMWFM50XE70000023
	300-5106	1	VALVE HANDLE	USE AFTER S/N: CMWFM50XE70000024
66.	110-348	8	POP RIVET (3/16" X .664")	
67.	106-712	4	FLG SCREW (M6-1.00 X 16MM)	
68.	106-385	4	FLG LOCKNUT (M6-1.00)	
69.	120-121	1	BALL VALVE (12NF-12NF)	
70.	154-339	1	CONNECTOR (04N-040)	
71.	154-911	1	HOSE (040FX-36"-3000AR)	
72.	315-537	1	BRACKET	
73.	105-836	2	FLG LOCK BOLT (1/4-NC X 1/2")	
74.	153-779	1	HYD LINE (-04)	
75.	114-008	1	PLUG (32N, SQ, GALV)	
76.	153-151	2	S/O COUPLER (12N-12H90)	
77.	105-003	2	FLG LOCKNUT (5/16-NC)	
78.	110-057	1	CLAMP (1/2")	INCLUDED WITH 214-838
79.	115-207	1	NIPPLE (20N-2")	USE BEFORE S/N: CMWFM50XE70000023
	150-1896	1	NIPPLE (20N-2")	USE AFTER S/N: CMWFM50XE70000024
80.	105-208	4	BOLT (1/2-NC X 1-1/4")	
81.	105-070	4	LOCK WASHER (1/2")	INCLUDED WITH 211-028
82.	310-358	1	LIQUID HOPPER	INCLUDED WITH 211-028
83.	115-167	1	PLUG (12N, SQ)	
84.	105-118	8	WASHER (3/8")	
85.	105-894	4	LOCKNUT (M10-1.50, PRV TRQ, 10.9)	

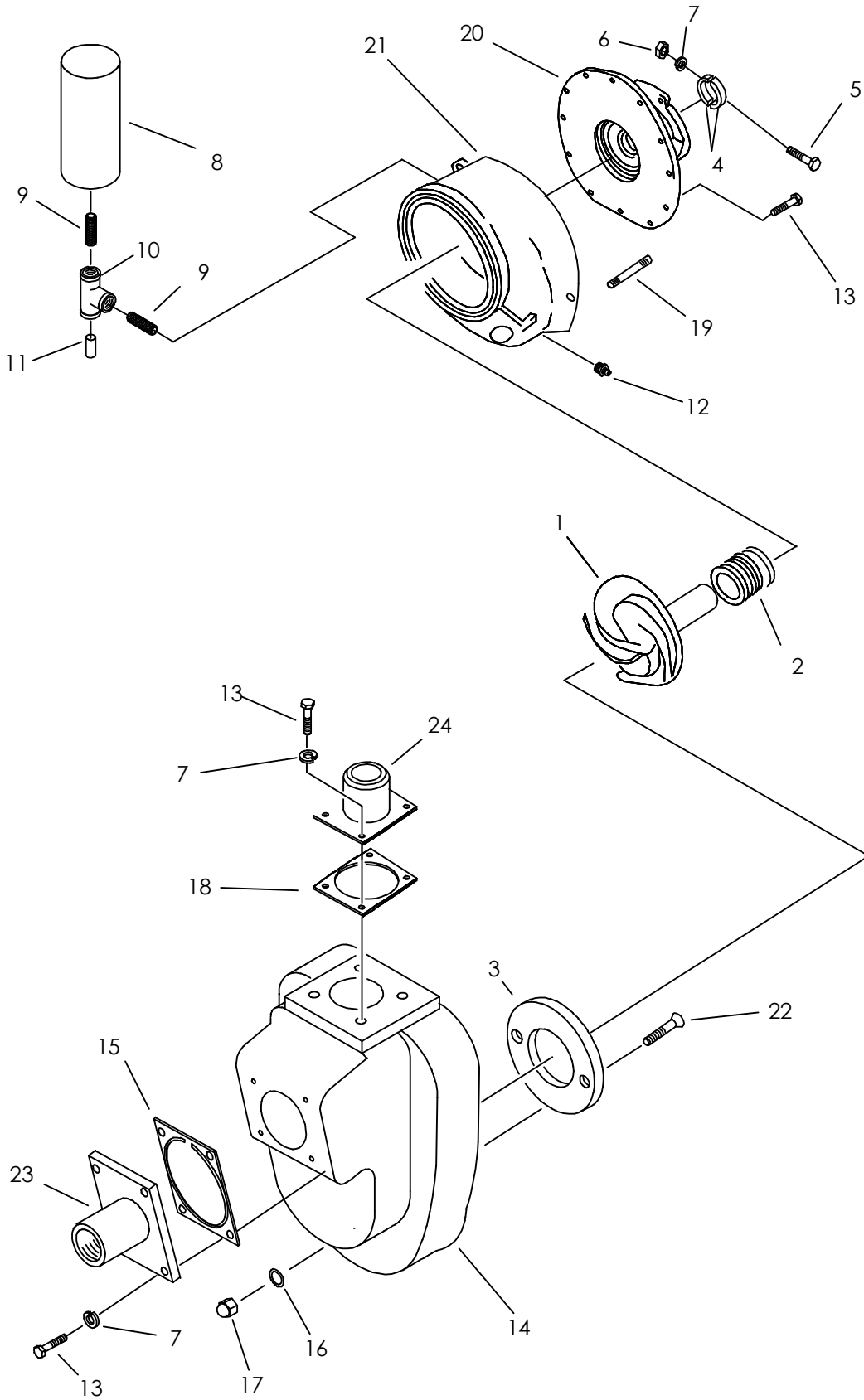
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FOOTNOTES:

- HANDLE ON REF ON. 31 MUST BE REMOVED AND REPLACED WITH REF NO. 65
- USE BEFORE S/N: 2Y0783
- USE AFTER S/N: 2Y0784

NOTE:

CENTRIFUGAL PUMP FM50



CENTRIFUGAL PUMP FM50

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	149-540		CENTRIFUGAL PUMP	INCLUDES: SEAL, HOUSING GASKETS AND SHIM.
1.	315-574	1	IMPELLER 5.75	
2.	191-110	1	SEAL KIT	
3.	310-745	1	WEAR PLATE	
4.	310-742	1	SHAFT CLAMP	INCLUDES REF NO'S 5-7
5.	105-162	2	BOLT (3/8NC X 2 1/4 ")	
6.	105-053	2	NUT (3/8NC)	
7.	105-072	16	LOCK WASHER (3/8")	
8.	364-555	1	GREASE RESERVIOR	
9.	115-129	2	ALL THREAD (04NI SCH 80	
10.	115-130	1	TEE (04NF-04NF-04NF)	
11.	153-423	1	RELIEF VALVE	125 PSI
12.	115-012	1	ZERK (04NI)	
13.	106-136	8	BOLT (3/8-NC X 1")	
14.	164-022	1	PUMP CASE	
15.	117-506	1	FLAPPER	
16.	153-558	2	ANNULAR GASKET	
17.	107-730	2	ACORN NUT (3/8-NC)	
18.	153-802	1	GASKET	
19.	107-749	6	STUD BOLT (3/8-NC X 3", SSI	
20.	164-023	1	ADAPTER HOUSING	
21.	164-024	1	SEAL HOUSING	
22.	107-750	2	BOLT (3/8-NC X 1.25", CSK SLT)	
23.	499-395	1	INLET FLANGE	
24.	499-396	1	DISCHARGE FLANGE	

NOT SHOWN:

255-1018 AR PUMP SEAL GREASE

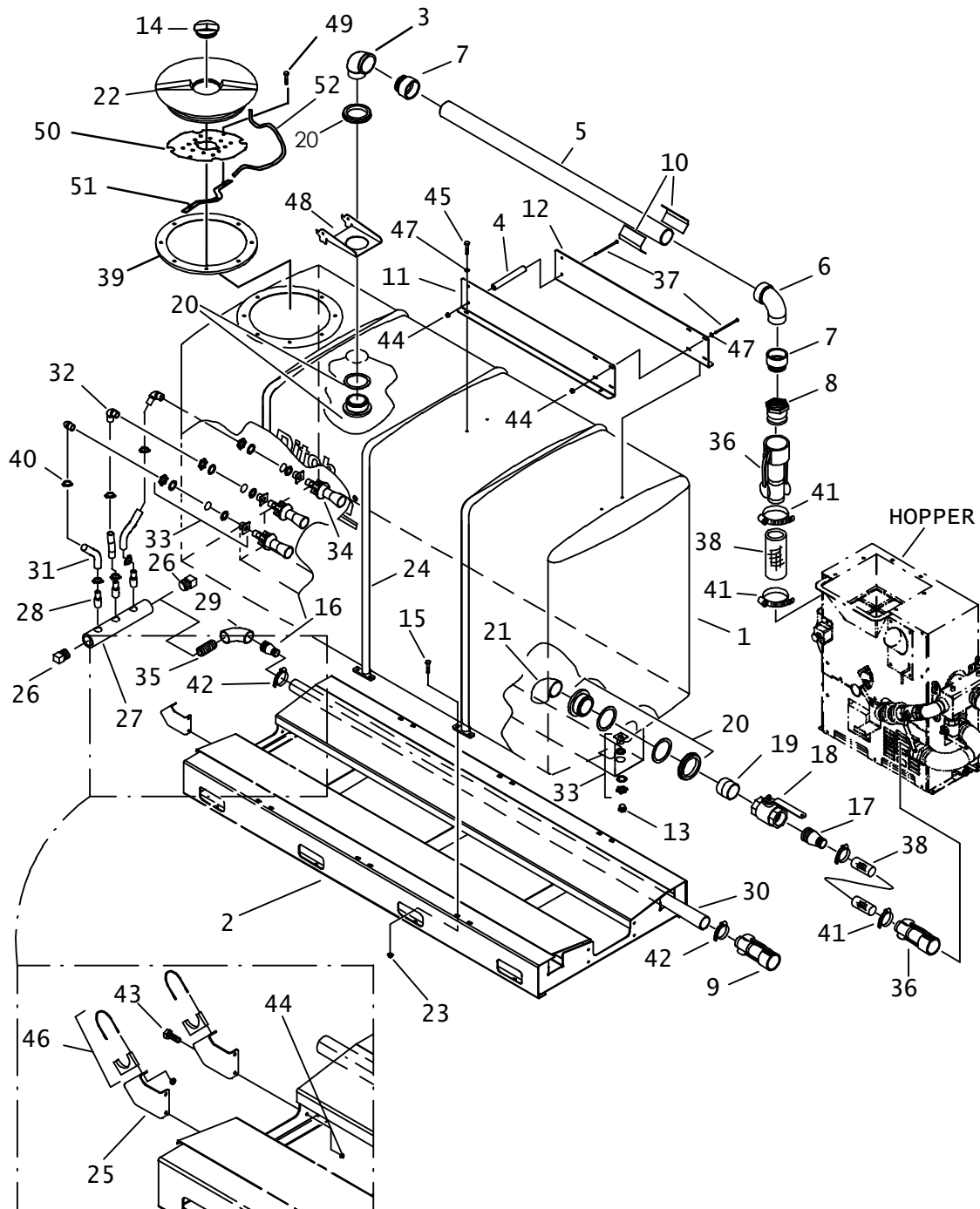
FOOTNOTES:

NOTE:

TANKS

1000 GALLON TANK PLUMBING

FM50



1000 GALLON TANK PLUMBING

FM50

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	305-805	1	TANK (POLYETHYLENE, 1000 GAL)	
	190-053		POLY-PATCH TANK REPAIR KIT	
2.	305-875	1	TANK BASE	
3.	514-210	1	ST ELBOW, POLY (48NM-48NF90)	
4.	178-858	6	3/8" SPACER BUSHING	
5.	314-381	1	PIPE (-48 X 73.75", ABS)	
6.	153-635	1	ST ELBOW, (48W-48WF90, ABS)	
7.	153-596	2	ADAPTER (48N-48W, ABS)	
8.	149-955	1	FHC CONNECTOR (56-48NF)	
9.	159-180	1	FHC BODY (40-32H)	
	116-735		SQUARE RING GASKET (32)	
10.	309-608	2	BRACKET, PIPE SUPPORT	
11.	313-262	1	VENTURI MOUNT, LH	
12.	313-265	1	VENTURI MOUNT, RH	
13.	153-721	1	PLUG (16N POLY)	
14.	357-263	1	TANK CAP (4")	
15.	106-333	12	SCREW (M12-1.75 X 40MM, 8.8)	
16.	514-089	1	S/O COUPLER (32N-32H)	
17.	514-168	1	S/O ADAPTER (48N-48H)	
18.	120-060	1	SHUT OFF (48NF-48NF)	
	499-400	-	LEVER	
19.	115-299	1	NIPPLE (48N-3")	
20.	153-549	2	BK CONNECTOR (48NF-48NF, NYL)	
21.	313-259	1	SUCTION ELBOW	
22.	364-434	1	TANK CAP (16", VENTED)	
23.	106-709	12	FLG LK NUT (M12-1.75)	
24.	305-868	3	TANK STRAP	
25.	308-751	2	MOUNTING BRACKET	
26.	114-008	2	PLUG (32N,SQ,GALV)	
27.	149-971	1	MANIFOLD	
28.	514-311	3	S/O COUPLER (16N-16H)	
29.	115-293	1	ELBOW (32NF-32NF90)	
30.	116-505	AR	BULK HOSE (2", SOLD PER 1')	USE 1 @ 180.0"

NOT SHOWN:

FOOTNOTES:

1. INCLUDES U-BOLT, CLAMP, AND NUT

NOTE:

TANK SHIP KIT INCLUDES REF #'S 9, 16-19, 29, 30, 35, 36, 38, 41, AND 42.

1000 GALLON TANK PLUMBING

FM50

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
31.	116-094	AR	BULK HOSE (1", SOLD PER 1')	USE 2 @ 9.0" & 1 @ 7.0"
32.	514-215	3	S/O COUPLER (16N-16H90)	
33.	149-562	4	BK CONNECTOR (16NF-16NFBK NYL)	OBSOLETE
	157-490	4	BK CONNECTOR (16NF, POLY)	SEE FOOTNOTE 2
34.	369-810	3	MIXING JET (16N,ORF, .500",NY)	
35.	115-050	1	NIPPLE (32N-6")	
36.	155-264	2	FHC BODY (56-48H)	
	116-736		SQUARE RING (___ D70)	
37.	107-420	6	SCREW (M10-1.50 X 140MM)	
38.	116-506	AR	BULK HOSE (3", SOLD PER 1')	USE 1 @ 72.0"
39.	357-261	1	FILLWELL (16")	
40.	110-353	6	WORM CLAMP (.750" TO 1.500")	
41.	110-367	4	WORM CLAMP (3.250" TO 4.125")	
42.	110-134	2	WORM CLAMP (2.062" TO 2.750")	
43.	105-274	4	SCREW (M10-1.50 X 20MM)	
44.	106-387	10	FLG LOCKNUT (M10-1.50)	
45.	106-654	4	SCREW (M10-1.50 X 16MM)	
46.	196-010	2	U-BOLT CLAMP (3")	SEE FOOTNOTE 1
47.	106-390	6	WASHER (M10)	
48.	310-602	1	MOUNTING BRACKET	
49.	107-240	2	LK BOLT (5/16-NC X 1", NLK)	
50.	323-114	1	BAFFLE	
51.	323-152	1	RETAINER	
52.	323-752	1	LID RETAINER ROPE	
	599-307	1	TANK BAFFLE KIT	SEE FOOTNOTE 3

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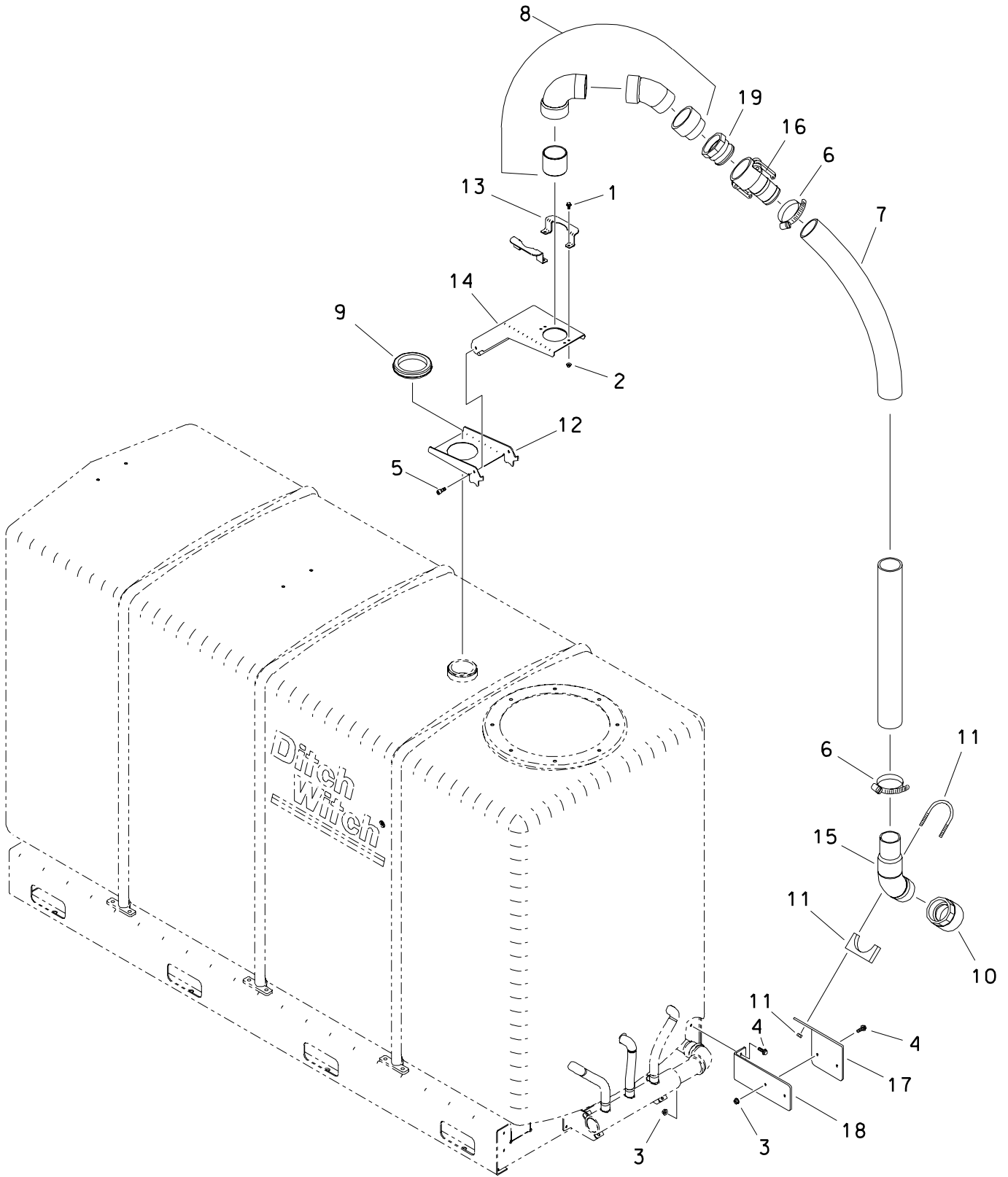
FOOTNOTES:

1. INCLUDES U-BOLT, CLAMP, AND NUT
2. HOLES MAY REQUIRE MODIFICATION FOR NEW FITTINGS.
3. INCLUDES ITEMS 49,50,51, AND 52

NOTE:

TANK SHIP KIT INCLUDES REF #'S 9, 16-19, 29, 30, 35, 36, 38, 41, AND 42.

FM50 TANK FILL PLUMBING

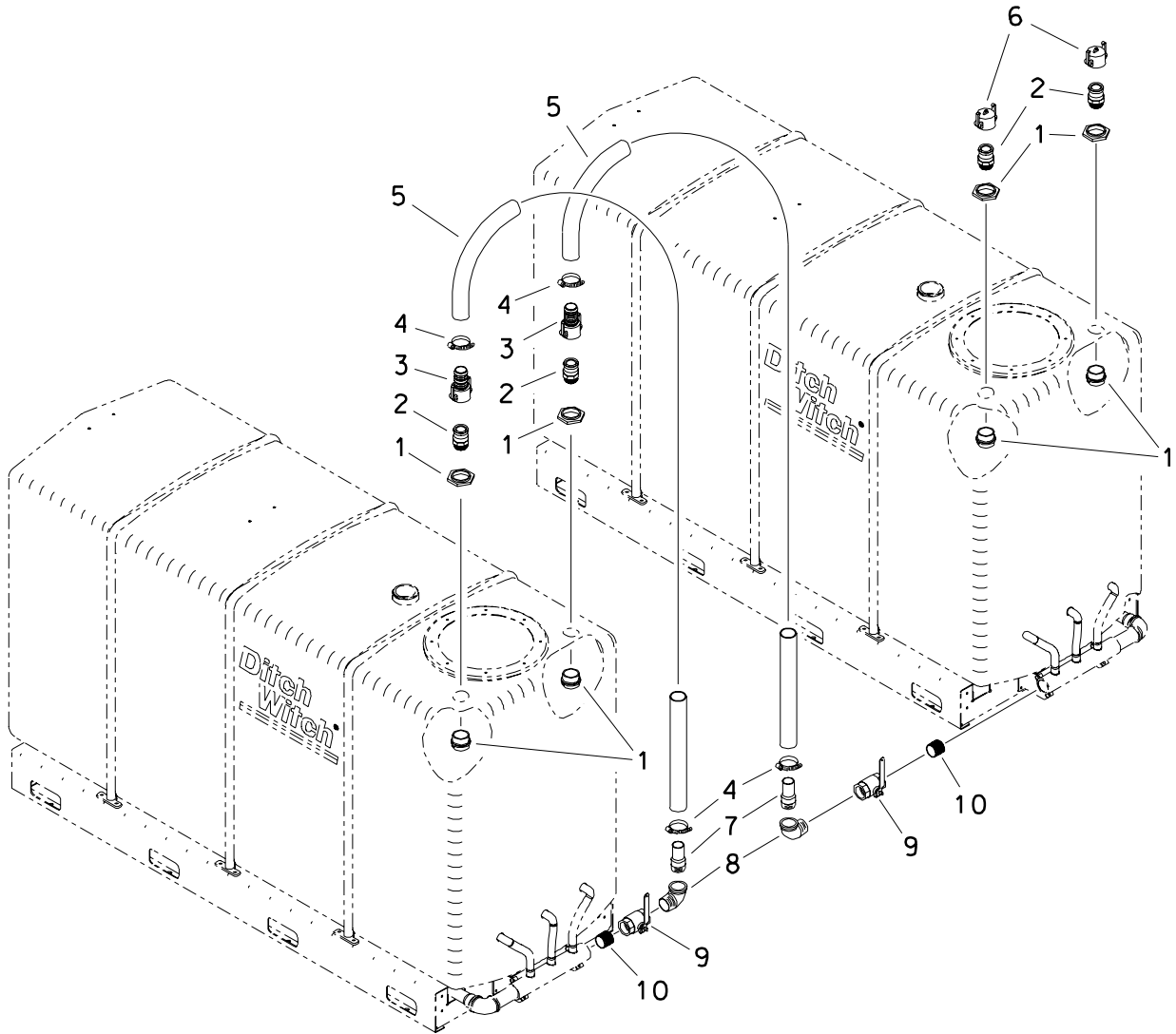


FM50 TANK FILL PLUMBING

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	101-093		TANK FILL KIT	
1.	106-380	4	FLG LK SCREW (M8-1.25 X 16MM)	
2.	106-386	4	FLG LOCKNUT (M8-1.25)	
3.	106-387	4	FLG LOCKNUT (M10-1.50)	
4.	106-724	4	FLG SCREW (M10-1.50 X 25MM)	
5.	107-746	2	SHLD BLT (M10 X 12MM, M8-1.25)	
6.	110-367	2	WORM CLAMP (3-1/4" TO 4-1/8")	
7.	116-506	AR	BULK HOSE (3", SOLD PER 1')	USE 1 @ 55.0"
8.	315-754	1	TANK FILL ELBOW	
	153-635	-	ST ELBOW, (48W-48WF90, ABS)	
	153-707	-	ST ELBOW, (48W-48WF45, ABS)	
	315-489	-	PIPE (-48 X 3.00", ABS)	
	153-596	-	ADAPTER (48N-48W, ABS)	
9.	153-549	-	BK CONNECTOR (48NF-48NF, NYL)	
10.	153-368	1	FHC BODY (3-1/2" FHC X 3"NPTF)	
	116-736	-	SQUARE RING GASKET (48)	
11.	195-993	1	U-BOLT CLAMP (3.5")	
12.	310-602	-	MOUNTING BRACKET	
13.	310-927	2	RETAINER BRACKET	
14.	315-438	1	MOUNTING BRACKET	
15.	315-488	1	ELBOW	
16.	155-264	1	FHC BODY (56-48H)	
	116-736	-	SQUARE RING GASKET (48)	
17.	315-490	1	BRACKET	
18.	315-491	1	BRACKET	
19.	149-955	1	FHC CONNECTOR (56-48NF)	

FOOTNOTES

FM50 TRANSFER/BYPASS PLUMBING



FM50 TRANSFER/BYPASS PLUMBING

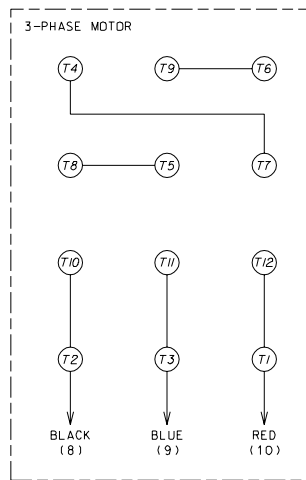
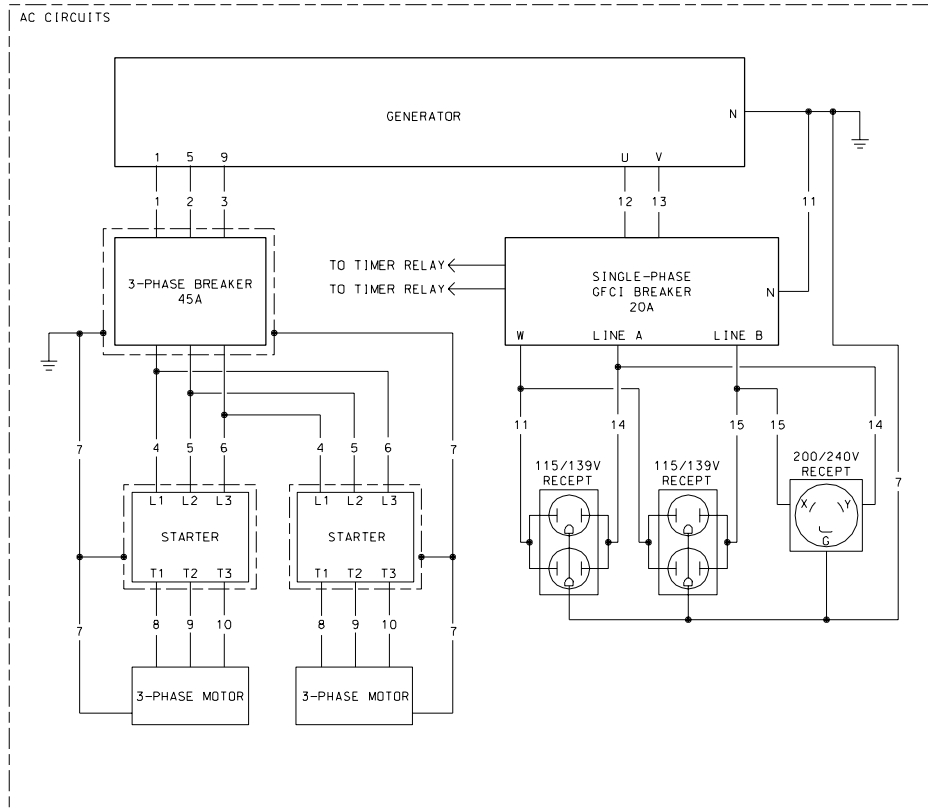
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	101-092		TRANSFER/BYPASS KIT	
1.	155-261	4	BK CONNECTOR (32NF-32NF NYL)	
2.	159-181	4	FHC ADAPTER (40-32N)	
3.	159-180	2	FHC BODY (40-32H)	
	116-735		SQUARE RING GASKET (32)	
4.	110-134	4	WORM CLAMP (2-1/16" TO 2-3/4")	
5.	116-505	AR	BULK HOSE (2", SOLD PER 1')	USE 2 @ 102"
6.	159-486	2	FHC CAP (32)	
	116-735		SQUARE RING GASKET (32)	
7.	514-089	2	S/O COUPLER (32N-32H)	
8.	114-004	2	STREET ELBOW (32N-32NF90)	
9.	120-059	2	SHUT-OFF (32NF-32NF)	
	499-399		LEVER	
10.	115-295	2	ALL THREAD (32N-2")	

FOOTNOTES

ELECTRICAL

ELECTRICAL SCHEMATIC - AC

FM50
ENDS WITH S/N -----



ELECTRICAL SCHEMATIC - AC

FM50

ENDS WITH S/N -----

CKT NO.	WIRE COLOR	FUNCTION	REMARKS
1.	BLK/RED	GENERATOR TO 3-PHASE BREAKER	
2.	BLK/WHT	GENERATOR TO 3-PHASE BREAKER	
3.	BLK/BLU	GENERATOR TO 3-PHASE BREAKER	
4.	BLK	3-PHASE BREAKER TO MOTOR STARTER	
5.	WHT/BLU	3-PHASE BREAKER TO MOTOR STARTER	
6.	RED	3-PHASE BREAKER TO MOTOR STARTER	
7.	GRN	SYSTEM GROUND	
8.	BLK	MOTOR STARTER TO 10 HP MOTOR	
9.	BLU	MOTOR STARTER TO 10 HP MOTOR	
10.	RED	MOTOR STARTER TO 10 HP MOTOR	
11.	WHT	SYSTEM NEUTRAL	
12.	BLK/RED	GENERATOR TO 1-PHASE GFCI BREAKER	
13.	BLK/BLU	GENERATOR TO 1-PHASE GFCI BREAKER	
14.	BLK	1-PHASE GFCI BREAKER TO RECEPTACLE	
15.	BLK	1-PHASE GFCI BREAKER TO RECEPTACLE	

ELECTRICAL SCHEMATIC - AC

FM50, BEGINS WITH S/N -----

1000--GENERATOR(EUROPE)

REF.	DESCRIPTION	WIRE DESCRIPTION	NOTES
1001	GENERATOR	1 BLK, 2 BLK/BRN, 3 BLK/RED, 4 LT BLU/WHT, 5 RED, 6 BLK, 7 BLK	

2000--BREAKER BOX(EUROPE)

REF.	DESCRIPTION	WIRE DESCRIPTION	NOTES
2001	1 PHASE GFCI BREAKER	4 LT BLU/WHT, 5 RED	
2002	TERMINAL BLOCK	8 LT BLU/WHT, 9 RED, 10 BLK, 11 YEL, 12 BLK, 13 BLK, 14 GRN/YEL, 15 LT BLU, 16 BLK	
2003	3 PHASE BREAKER	1 BLK, 2 BLK/BRN, 3 BLK/RED, 12 BLK, 13 BLK, 17 BLK(1), 18 WHT/BRN(2), 19 RED(3)	(#) INDICATES IDENTIFICATION NUMBER LOCATED ON WIRE
2004	TO GENERATOR	6 BLK	FOR NORTH AMERICAN USE ONLY
2005	TO GENERATOR	7 BLK	FOR NORTH AMERICAN USE ONLY
2006	TO TIMER RELAY	10 BLK/RED	
2007	TO TIMER RELAY	11 YEL/BLK	
2008	TO MOTOR STARTER	17 BLK(1)	
2009	TO MOTOR STARTER	18 WHT/BRN(2)	
2010	TO MOTOR STARTER	19 RED(3)	

3000--ACC OUTLETS(EUROPE)

REF.	DESCRIPTION	WIRE DESCRIPTION	NOTES
3001	ACC OUTLET #1	14 GRN/YEL, 15 LT BLU, 16 BLK	
3002	ACC OUTLET #2	14 GRN/YEL, 15 LT BLU, 16 BLK	

4000--GENERATOR

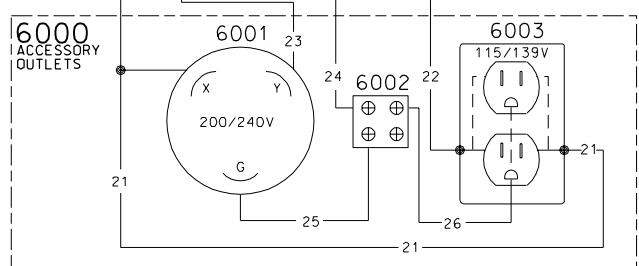
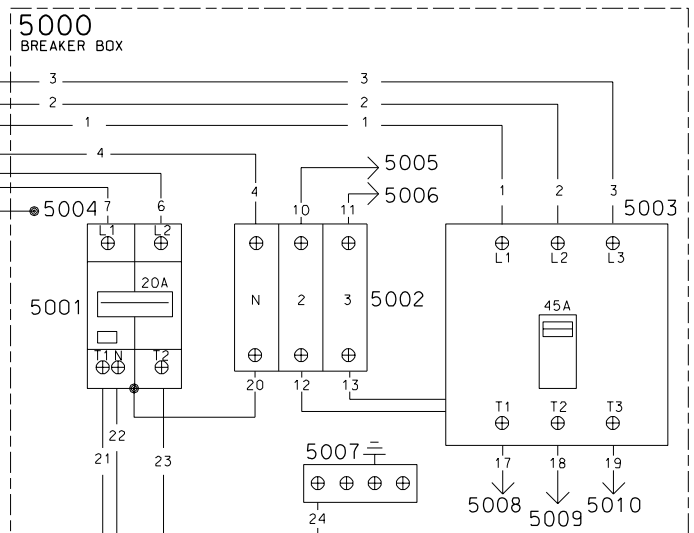
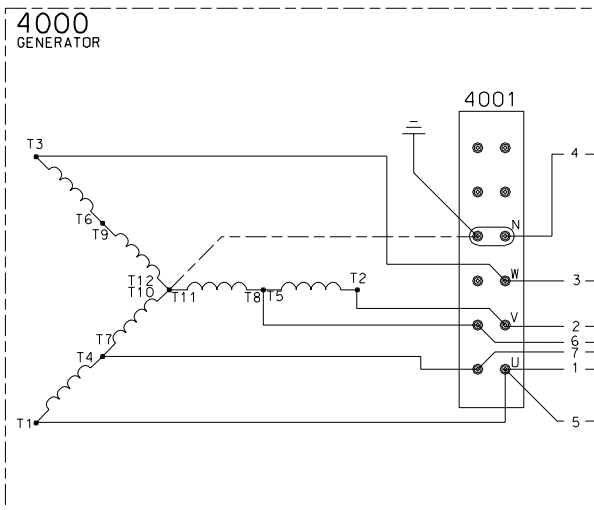
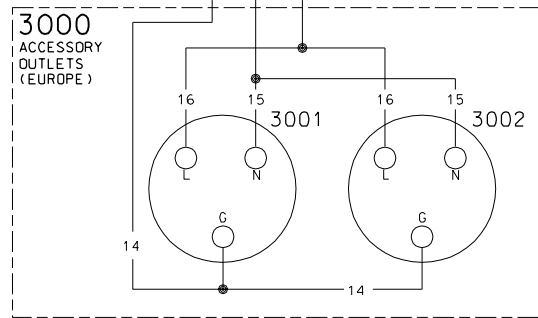
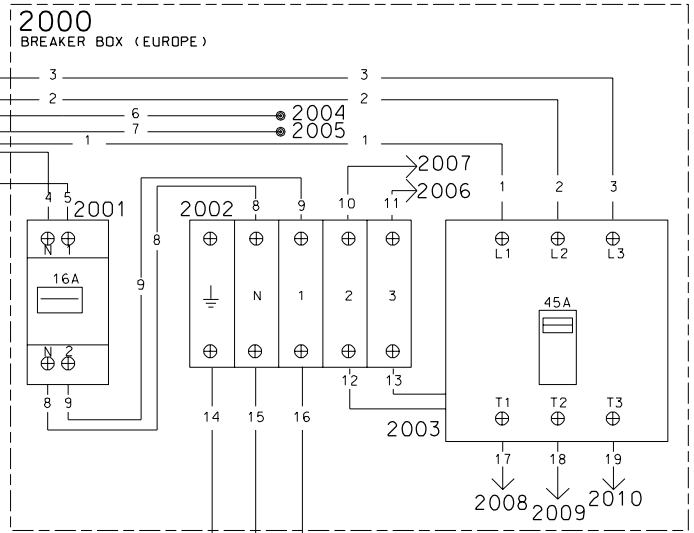
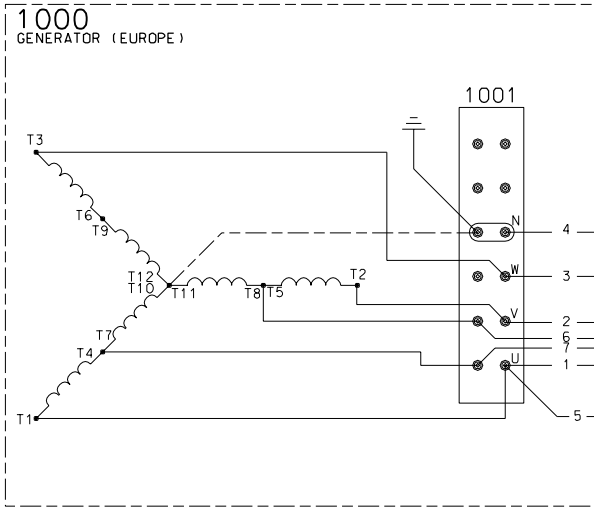
REF.	DESCRIPTION	WIRE DESCRIPTION	NOTES
4001	GENERATOR	1 BLK, 2 BLK/BRN, 3 BLK/RED, 4 LT BLU/WHT, 5 RED, 6 BLK, 7 BLK	

5000--BREAKER BOX

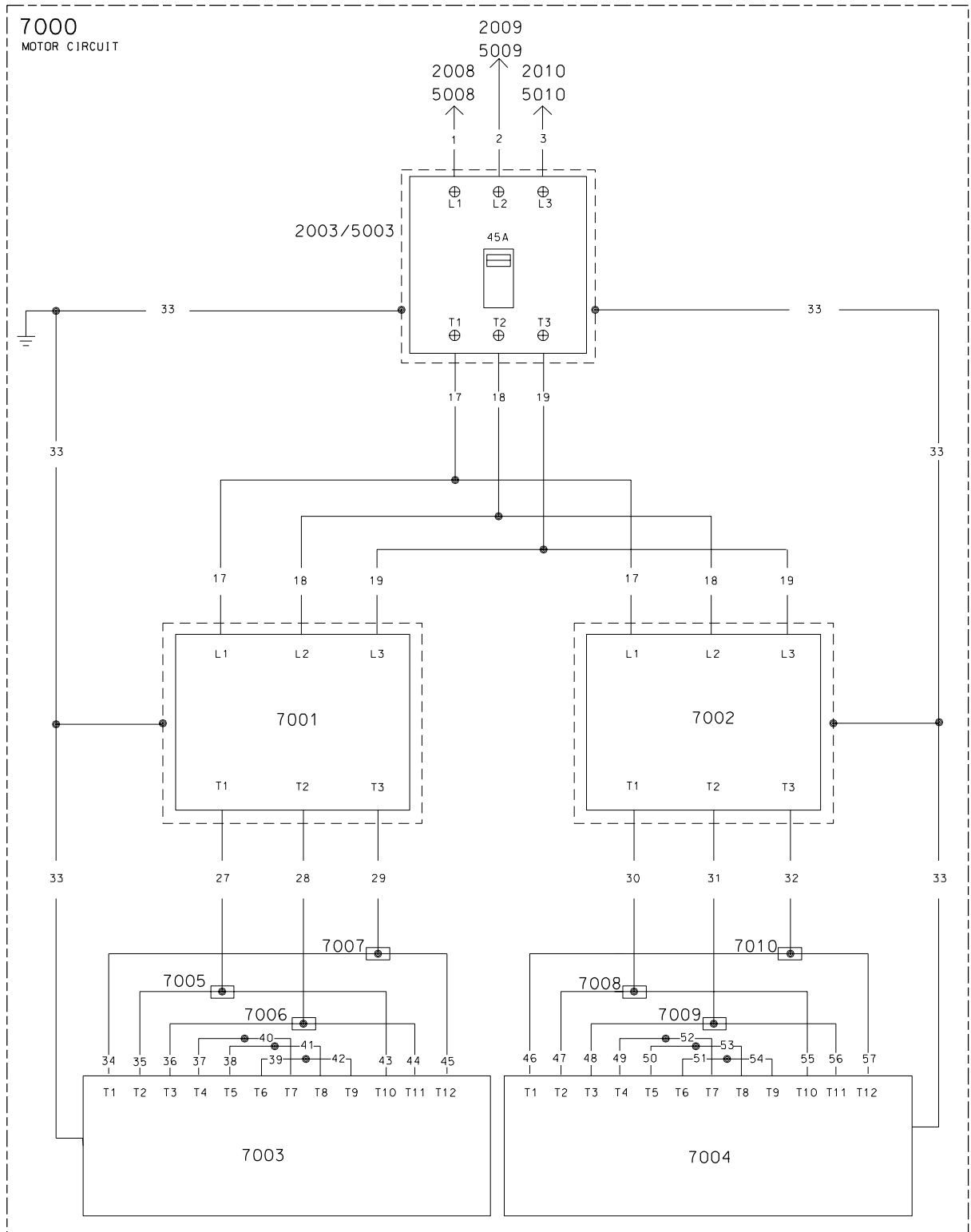
REF.	DESCRIPTION	WIRE DESCRIPTION	NOTES
5001	1 PHASE GFCI BREAKER	6 BLK, 7 BLK, 20 WHT, 21 BLK	
5002	TERMINAL BLOCK	22 WHT, 23 RED 4 LT BLU, 10 BLK, 11 YEL, 12 BLK 13 BLK, 20 WHT	
5003	3 PHASE BREAKER	1 BLK, 2 BLK/BRN, 3 BLK/RED, 12 BLK, 13 BLK, 17 BLK(1), 18 WHT/BRN(2), 19 RED(3)	(#) INDICATES IDENTIFICATION NUMBER LOCATED ON WIRE
5004	TO GENERATOR	5 RED	FOR EUROPEAN USE ONLY
5005	TO TIMER RELAY	10 BLK	
5006	TO TIMER RELAY	11 YEL	
5007	PE TERMINAL BLOCK	24 GRN/YEL	
5008	TO MOTOR STARTER	17 BLK(1)	
5009	TO MOTOR STARTER	18 WHT/BRN(2)	
5010	TO MOTOR STARTER	19 RED(3)	

ELECTRICAL SCHEMATIC - AC

FM50, BEGINS WITH S/N -----



ELECTRICAL SCHEMATIC - AC
 FM50, BEGINS WITH S/N -----



ELECTRICAL SCHEMATIC - AC

FM50, BEGINS WITH S/N -----

6000--ACC OUTLETS

REF.	DESCRIPTION	WIRE DESCRIPTION	NOTES
6001	200/240V OUTLET	21 BLK, 23 RED, 25 GRN/YEL	
6002	GROUND TERMINAL BLOCK	24 GRN/YEL, 25 GRN/YEL, 26 GRN/YEL	
6003	115/139V OUTLET	21 BLK, 22 WHT, 26 GRN/YEL	

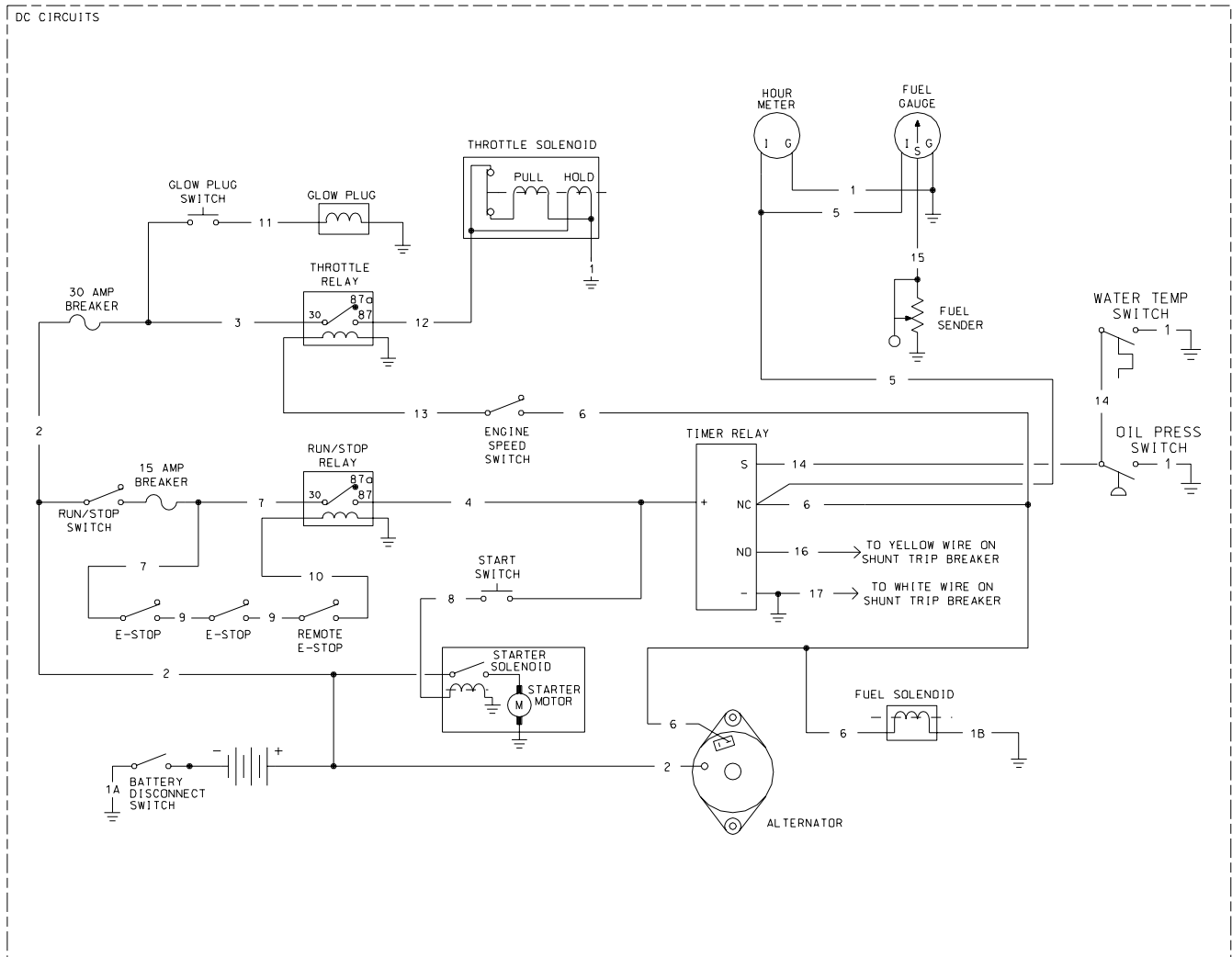
7000--MOTOR CIRCUIT

REF.	DESCRIPTION	WIRE DESCRIPTION	NOTES
7001	MOTOR STARTER	17 BLK(1), 18 WHT/BRN(2), 19 RED(3), 27 BLK (1), 28 BRN(2), 29 RED(3), 33 GRN/YEL(4)	(#) INDICATES IDENTIFICATION NUMBER LOCATED ON WIRE
7002	MOTOR STARTER	17 BLK(1), 18 WHT/BRN(2), 19 RED(3), 30 BLK (1), 31 BRN(2), 32 RED(3), 33 GRN/YEL(4)	
7003	10 HP MOTOR	33 GRN/YEL, 34 BLK, 35 BLK, 36 BLK, 37 BLK, 38 BLK, 39 BLK, 40 BLK, 41 BLK, 42 BLK, 43 BLK, 44 BLK, 45 BLK	CIRCUITS 34-45 ARE LEADED CONNECTIONS FROM THE MOTOR
7004	10 HP MOTOR	33 GRN/YEL, 46 BLK, 47 BLK, 48 BLK, 49 BLK, 50 BLK, 51 BLK, 52 BLK, 53 BLK, 54 BLK, 55 BLK, 56 BLK, 57 BLK	CIRCUITS 46-57 ARE LEADED CONNECTIONS FROM THE MOTOR
7005	MOTOR CONNECTION	27 BLK(1), 35 BLK, 43 BLK	CIRCUITS 35,43 ARE LEADED CONNECTIONS FROM THE MOTOR
7006	MOTOR CONNECTION	28 BRN(2), 36 BLK, 44 BLK	CIRCUITS 36,44 ARE LEADED CONNECTIONS FROM THE MOTOR
7007	MOTOR CONNECTION	29 RED(3), 34 BLK, 45 BLK	CIRCUITS 34,45 ARE LEADED CONNECTIONS FROM THE MOTOR
7008	MOTOR CONNECTION	30 BLK(1), 47 BLK, 55 BLK	CIRCUITS 47,55 ARE LEADED CONNECTIONS FROM THE MOTOR
7009	MOTOR CONNECTION	31 BRN(2), 48 BLK, 56 BLK	CIRCUITS 48,56 ARE LEADED CONNECTIONS FROM THE MOTOR
7010	MOTOR CONNECTION	32 RED(3), 46 BLK, 57 BLK	CIRCUITS 46,57 ARE LEADED CONNECTIONS FROM THE MOTOR

ELECTRICAL SCHEMATIC - DC

FM50

ENDS WITH S/N -----

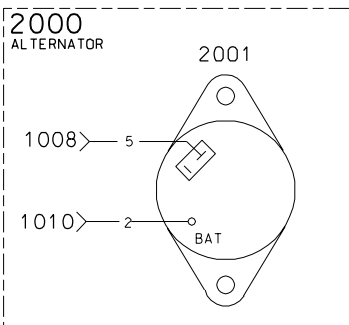
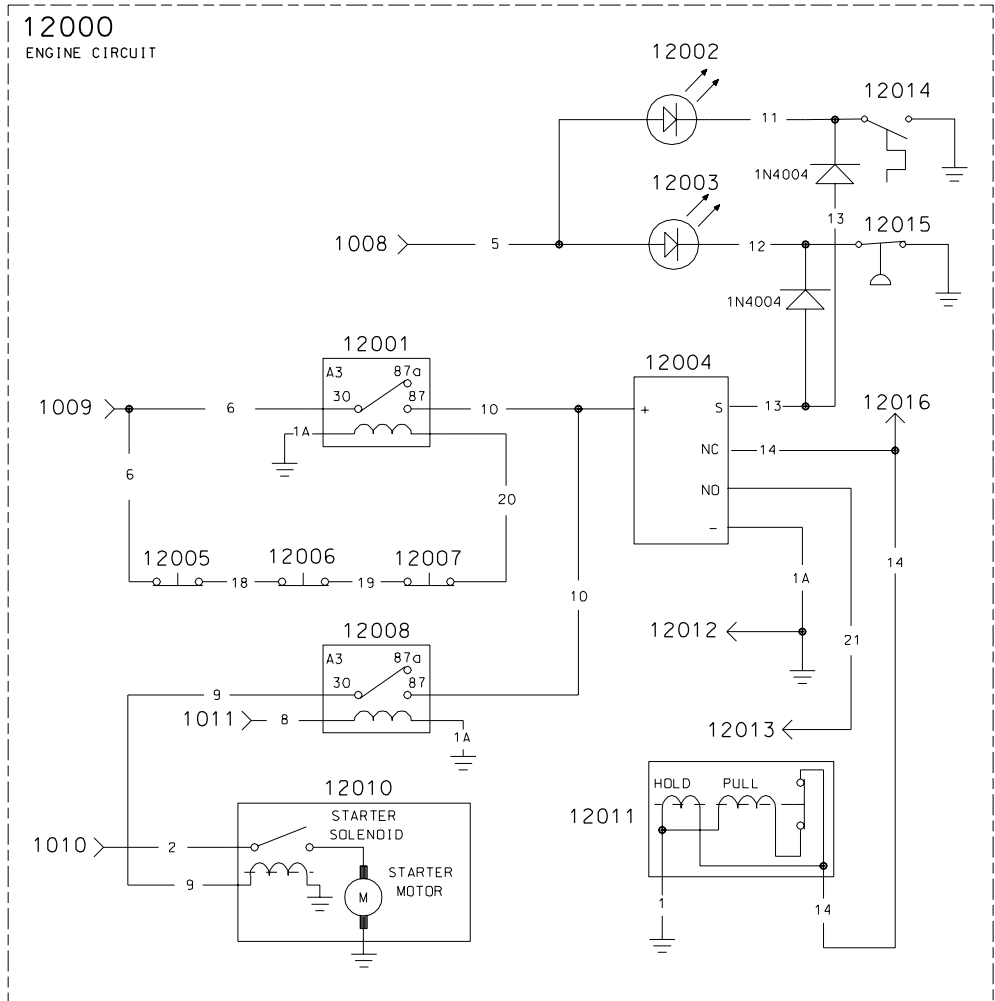
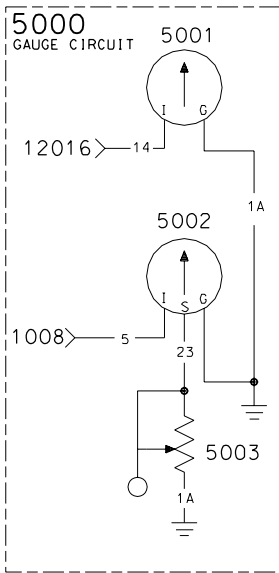
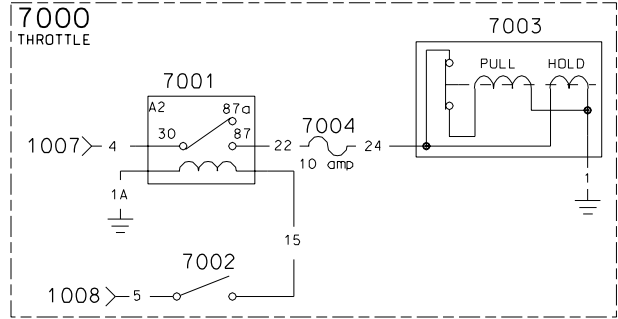
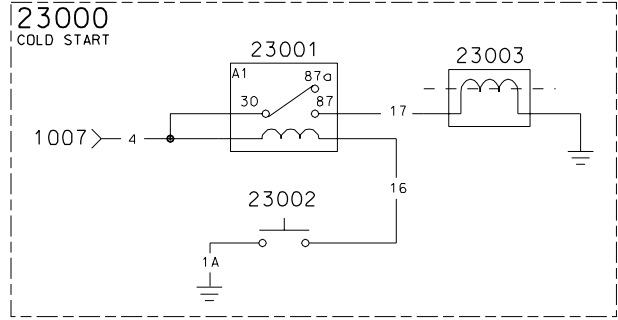
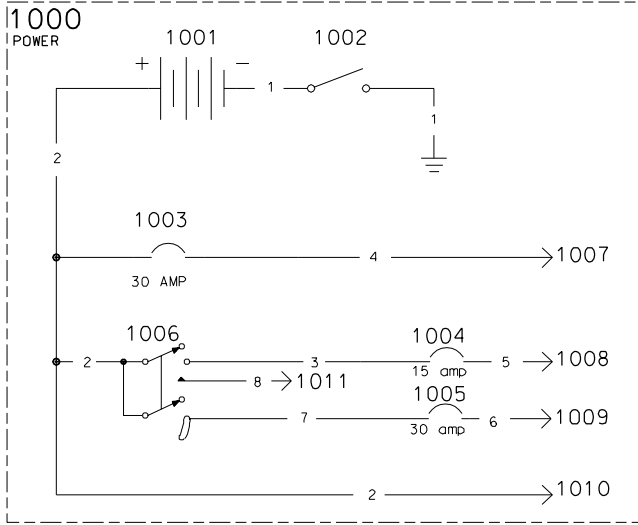


ELECTRICAL SCHEMATIC - DC

FM50
 ENDS WITH S/N -----

CKT NO.	WIRE COLOR	FUNCTION	REMARKS
1.	BLK	SYSTEM GROUND	
1A.	BLK	BATTERY GROUND TO DISCONNECT SWITCH	
1B.	BRN	FUEL SOLENOID GROUND	
2.	RED	BATTERY CIRCUIT	
3.	RED	FUSED BATTERY CIRCUIT	
4.	RED	RUN/STOP RELAY TO TIMER RELAY "+" AND START SWITCH	
5.	RED	HOURLMETER AND FUEL GAUGE TO TIMER RELAY "NC"	
6.	BLU	TIMER RELAY "NC" TO ALTERNATOR, FUEL SOLENOID, & ENGINE SPEED SWITCH	
7.	PUR	RUN/STOP BREAKER {15 AMP} TO RUN/STOP RELAY AND E-STOP SWITCH	
8.	BRN	START SWITCH TO STARTER SOLENOID	
9.	WHT	E-STOP 1 TO E-STOP 2 TO REMOTE E-STOP	
10.	RED/BLK	RUN/STOP RELAY TO REMOTE E-STOP	
11.	BLK/WHT	GLOW PLUG SWITCH TO GLOW PLUGS	
12.	BLU/WHT	THROTTLE RELAY TO THROTTLE SOLENOID	
13.	BLU/RED	ENGINE SPEED SWITCH TO THROTTLE RELAY	
14.	GRN	WATER TEMP SWITCH AND OIL PRESSURE SWITCH TO TIMER RELAY "S"	
15.	YEL/RED	FUEL SENDER TO FUEL GAUGE	
16.	RED	TIMER RELAY "NO" TO YEL WIRE ON SHUNT TRIP BREAKER	
17.	BLK	TIMER RELAY "-" TO WHT WIRE ON SHUNT TRIP BREAKER	

ELECTRICAL SCHEMATIC - DC FM50 SERIES, BEGINS WITH S/N -----



ELECTRICAL SCHEMATIC - DC

FM50 SERIES, BEGINS WITH S/N -----

1000--POWER

REF.	DESCRIPTION	WIRE DESCRIPTION	NOTES
1001	BATTERY	1 BLK, 2 RED	
1002	BATTERY DISCONNECT SWITCH	1 BLK	
1003	30 AMP CIRCUIT BREAKER	2 RED, 4 RED/BLK	REPLACEMENT BREAKER 214-821
1004	15 AMP CIRCUIT BREAKER	3 RED/GRN, 5 ORG	REPLACEMENT BREAKER 214-822
1005	30 AMP CIRCUIT BREAKER	3 RED/GRN, 6 ORG/GRN	REPLACEMENT BREAKER 214-821
1006	IGNITION SWITCH	2 RED, 3 RED/GRN, 7 ORG/WHT, 8 WHT/BLK	
1007	FUSED BATTERY CIRCUIT	4 RED/BLK	
1008	FUSED ACC CIRCUIT	5 ORG	
1009	FUSED IGNITION CIRCUIT	6 ORG/GRN	
1010	BATTERY	2 RED	
1011	START CIRCUIT	8 WHT/BLK	

2000--ALTERNATOR

REF.	DESCRIPTION	WIRE DESCRIPTION	NOTES
2001	ALTERNATOR	2 RED, 5 ORG	

5000--GAUGE CIRCUIT

REF.	DESCRIPTION	WIRE DESCRIPTION	NOTES
5001	HOURLMETER	14 ORG/BLK, 1A BLK/RED	
5002	FUEL GAUGE	1A BLK/RED, 5 ORG, 23 BRN	
5003	FUEL SENDER	1A BLK/RED, 23 BRN	

7000--THROTTLE

REF.	DESCRIPTION	WIRE DESCRIPTION	NOTES
7001	THROTTLE RELAY	1A BLK/RED, 4 RED/BLK, 22 PUR/ORG, 15 BLU/ORG	CMW P/N: 217-826
7002	THROTTLE SWITCH	5 ORG, 15 BLU/ORG	
7003	THROTTLE SOLENOID	1 BLK, 22 PUR/ORG	
7004	THROTTLE FUSE	22 PUR/ORG, 24 ORG	CMW P/N: XXX-XXX

12000--ENGINE

REF.	DESCRIPTION	WIRE DESCRIPTION	NOTES
12001	RUN/STOP RELAY	1A BLK/RED, 6 ORG/GRN, 10 ORG/BLU, 20 WHT/RED	CMW P/N: 217-826
12002	HIGH TEMPERATURE INDICATOR	5 ORG, 11 GRN	
12003	ENGINE OIL PRESSURE INDICATOR	5 ORG, 12 BLU	
12004	TIMER RELAY	1A BLK/RED, 10 ORG/BLU, 13 GRN/BLK, 14 ORG/BLK, 21 YEL	
12005	EMERGENCY STOP SWITCH #1	6 ORG/GRN, 18 WHT	
12006	EMERGENCY STOP SWITCH #2	18 WHT, 19 WHT	
12007	REMOTE EMERGENCY STOP SWITCH	19 WHT, 20 WHT/RED	
12008	START RELAY	1A BLK/RED, 8 WHT/BLK, 9 PUR, 10 ORG/BLU	
12010	STARTER	2 RED, 9 PUR	
12011	FUEL SOLENOID	1 BLK, 14 ORG/BLK	
12012	TO SHUNT TRIP BREAKER- WHITE WIRE	1A BLK/RED	
12013	TO SHUNT TRIP BREAKER- YELLOW WIRE	21 YEL/BLK	
12014	WATER TEMPERATURE SWITCH	11 GRN	
12015	ENGINE OIL PRESSURE SWITCH	12 BLU	
12016	TO HOURLMETER	14 ORG/BLK	

A

808-386

ELECTRICAL SCHEMATIC - DC
FM50 SERIES BEGINS WITH S/N -----

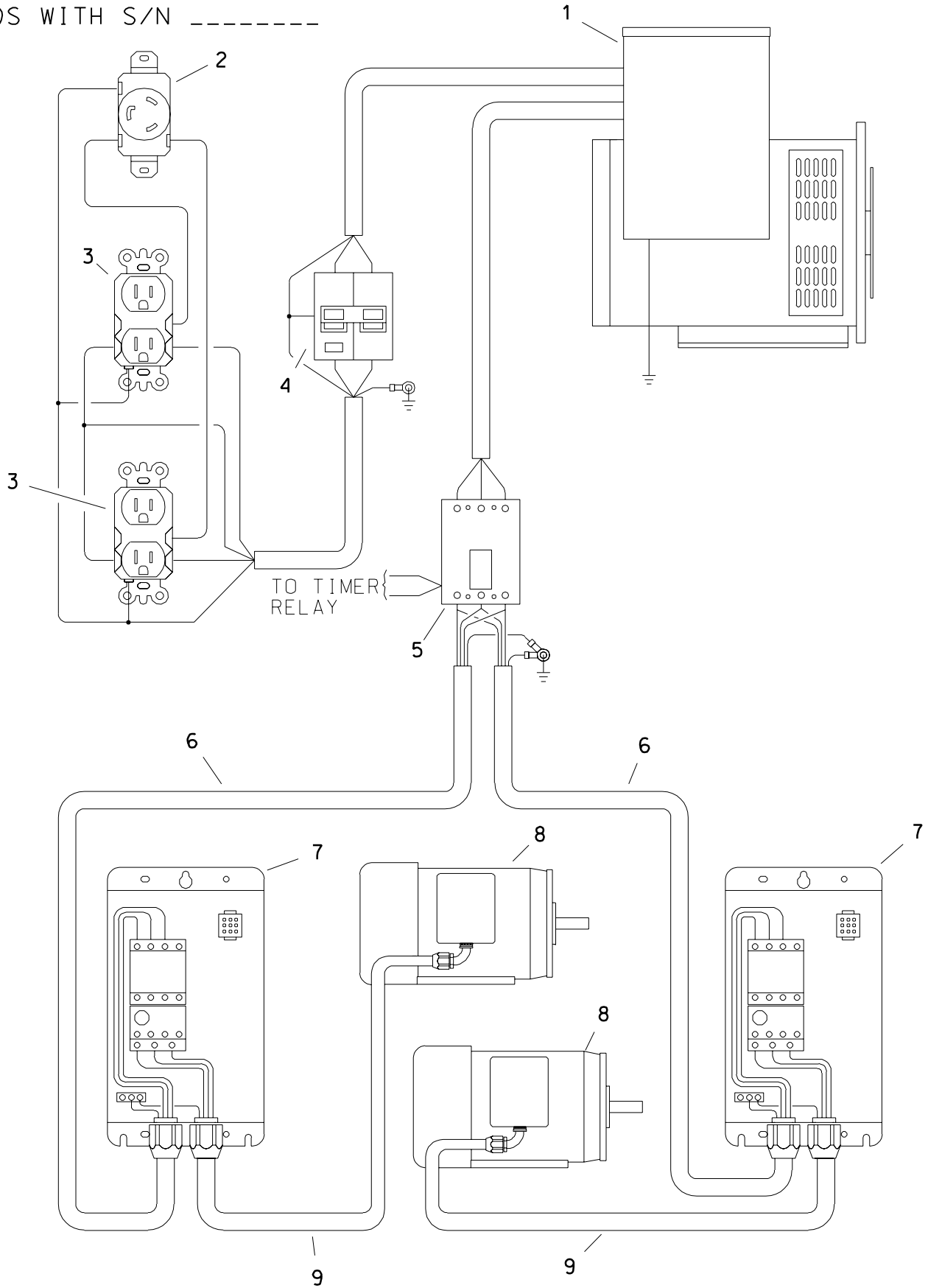
23000--COLD START

REF.	DESCRIPTION	WIRE DESCRIPTION	NOTES
23001	GLOW PLUG RELAY	4 RED/BLK, 16 GRA/BLK, 17 GRA	CMW P/N: 217-826
23002	GLOW PLUG SWITCH	1A_BLK/RED, 16 GRA/BLK	
23003	GLOW PLUG	17 GRA	

ELECTRICAL DIAGRAM - AC

FM50

ENDS WITH S/N -----



ELECTRICAL DIAGRAM - AC

FM50

ENDS WITH S/N -----

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-649	1	GENERATOR	
2.	499-389	1	TWIST LOCK RECEPTACLE	
3.	499-369	2	DUPLEX RECEPTACLE	
4.	499-368	1	20 AMP BREAKER	
5.	499-383	1	45 AMP SHUNT TRIP BREAKER	
6.	214-839	2	ELEC CABLE (10/4 X 300")	
7.	211-030	2	STARTER, ELECTRIC MOTOR	
	499-356	-	STARTER MODULE	
	499-357	-	START STOP KIT	
8.	211-028	2	MOTOR (10 HP)	
9.	214-838	2	ELEC CABLE (10/4 X 36")	

FOOTNOTES

ELECTRICAL DIAGRAM - DC

FM50

ENDS WITH S/N -----

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	215-242	1	TEMPERATURE SWITCH	
2.	214-847	1	BATTERY DISCONNECT SWITCH	
3.	217-952	1	OIL PRESSURE SWITCH	
4.	215-244	1	BATTERY	
5.	194-275	1	STARTER	
6.	214-846	2	E-STOP BUTTON	
7.	217-762	1	ROCKER SWITCH (SPDT)	
8.	499-346	1	STOP SOLENOID	
9.	499-343	1	GLOW PLUG	
10.	499-363	1	THROTTLE SOLENOID	
11.	214-844	1	FUEL SENDER	
12.	499-365	1	REMOTE E STOP	SEE FOOTNOTE 1
	214-941	1	EMERGENCY STOP STATION	SEE FOOTNOTE 2
	214-942	-	CONTACTS (NC)	
	214-848	1	TURCK CABLE	
	106-176	1	CONDUIT LOCKNUT (08N)	
	215-691	1	STRAIN GRIP (08N)	
13.	499-347	1	ALTERNATOR	
14.	499-366	2	MOMENTARY PUSH BUTTON	
15.	214-821	1	30 AMP BREAKER	
16.	499-367	1	TOGGLE SWITCH	
17.	214-822	1	15 AMP BREAKER	
18.	217-826	2	MINI RELAY (SPDT)	
19.	214-823	1	SHUT DOWN RELAY	
20.	215-128	1	HOUR METER	
21.	215-133	1	FUEL GAUGE	
22.	499-403	1	ENGINE HARNESS	
23.	499-408	1	HARNESS, CONTROL	

FOOTNOTES

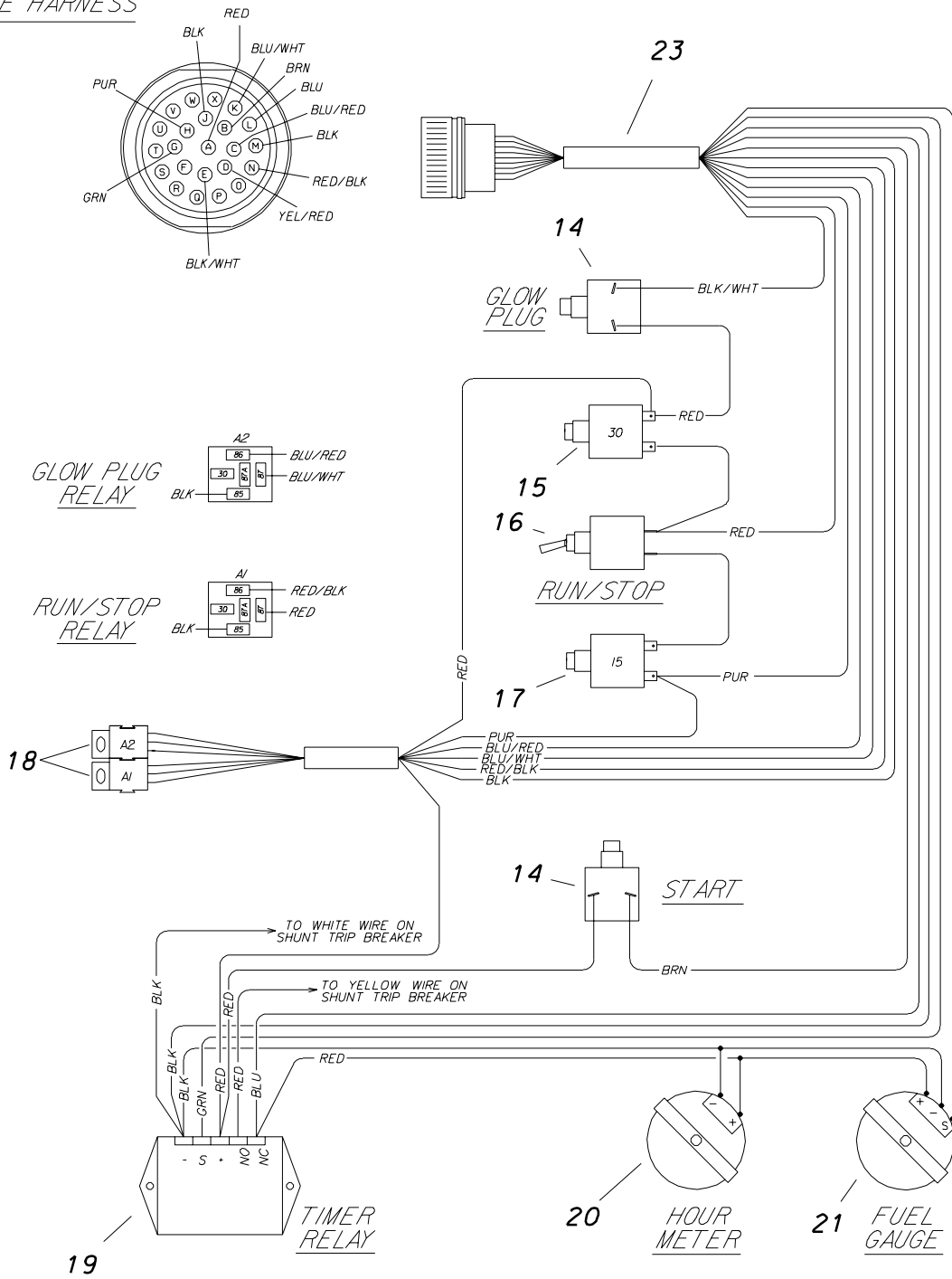
1. 499-365 IS NO LONGER AVAILABLE AS AN ASSEMBLY. ORDER INDIVIDUAL PARTS LISTED BELOW.
 2. INCLUDES 214-942 CONTACTS (NC)

ELECTRICAL DIAGRAM - DC

FM50

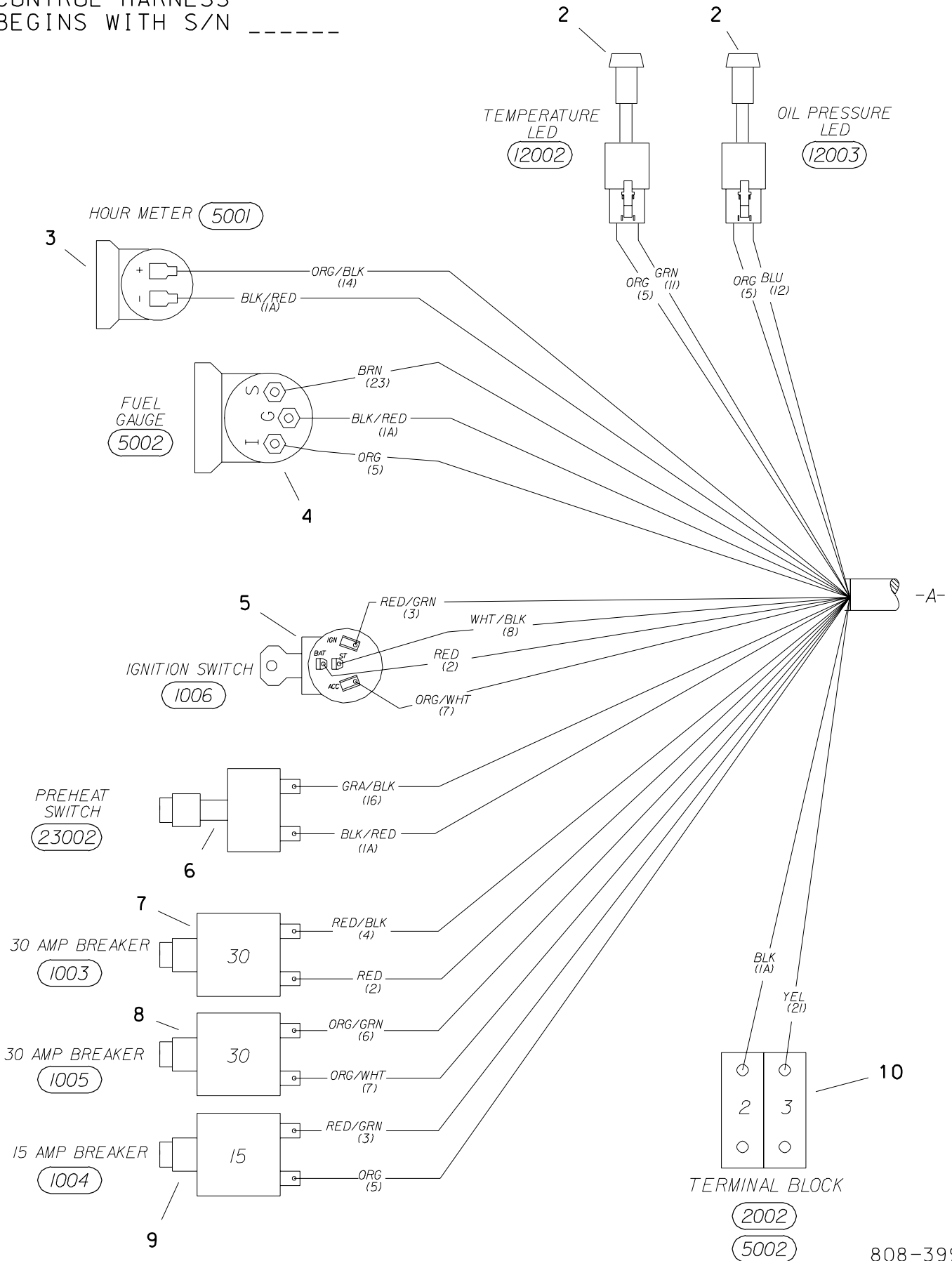
ENDS WITH S/N -----

TO ENGINE HARNESS



ELECTRICAL DIAGRAM

CONTROL HARNESS
BEGINS WITH S/N -----



ELECTRICAL DIAGRAM

CONTROL HARNESS

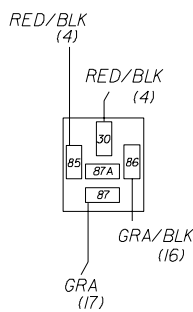
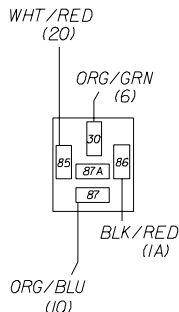
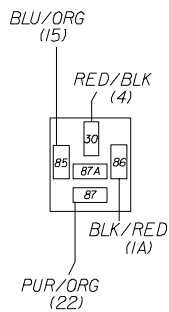
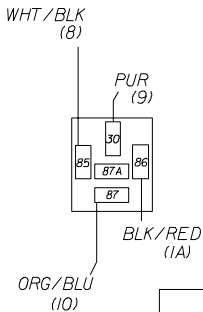
BEGINS WITH S/N -----

START RELAY
(12008)

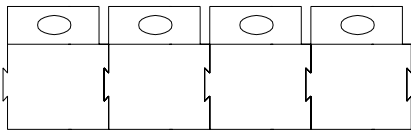
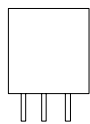
THROTTLE RELAY
(7001)

E-STOP RELAY
(12001)

COLD START RELAY
(23001)

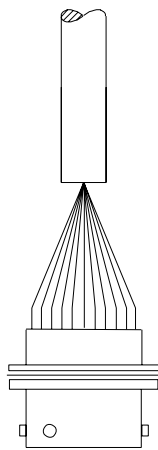


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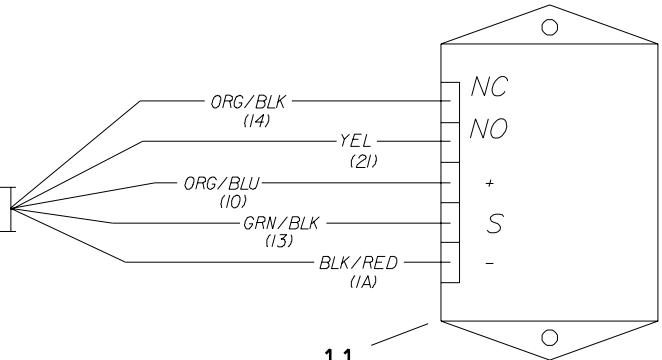
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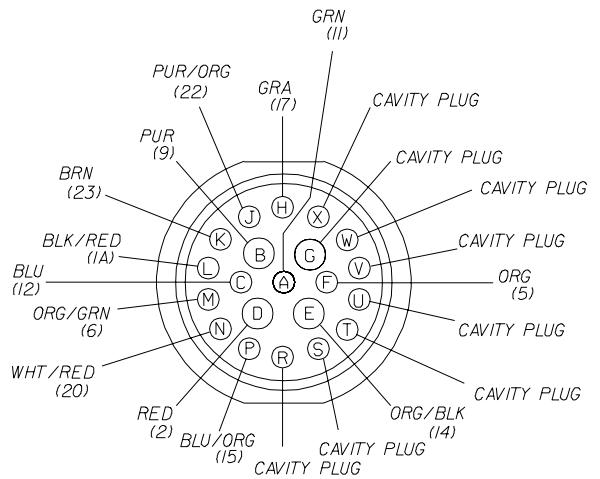


TO ENGINE HARNESS

(12004) TIMER RELAY



11



ELECTRICAL DIAGRAM

CONTROL HARNESS

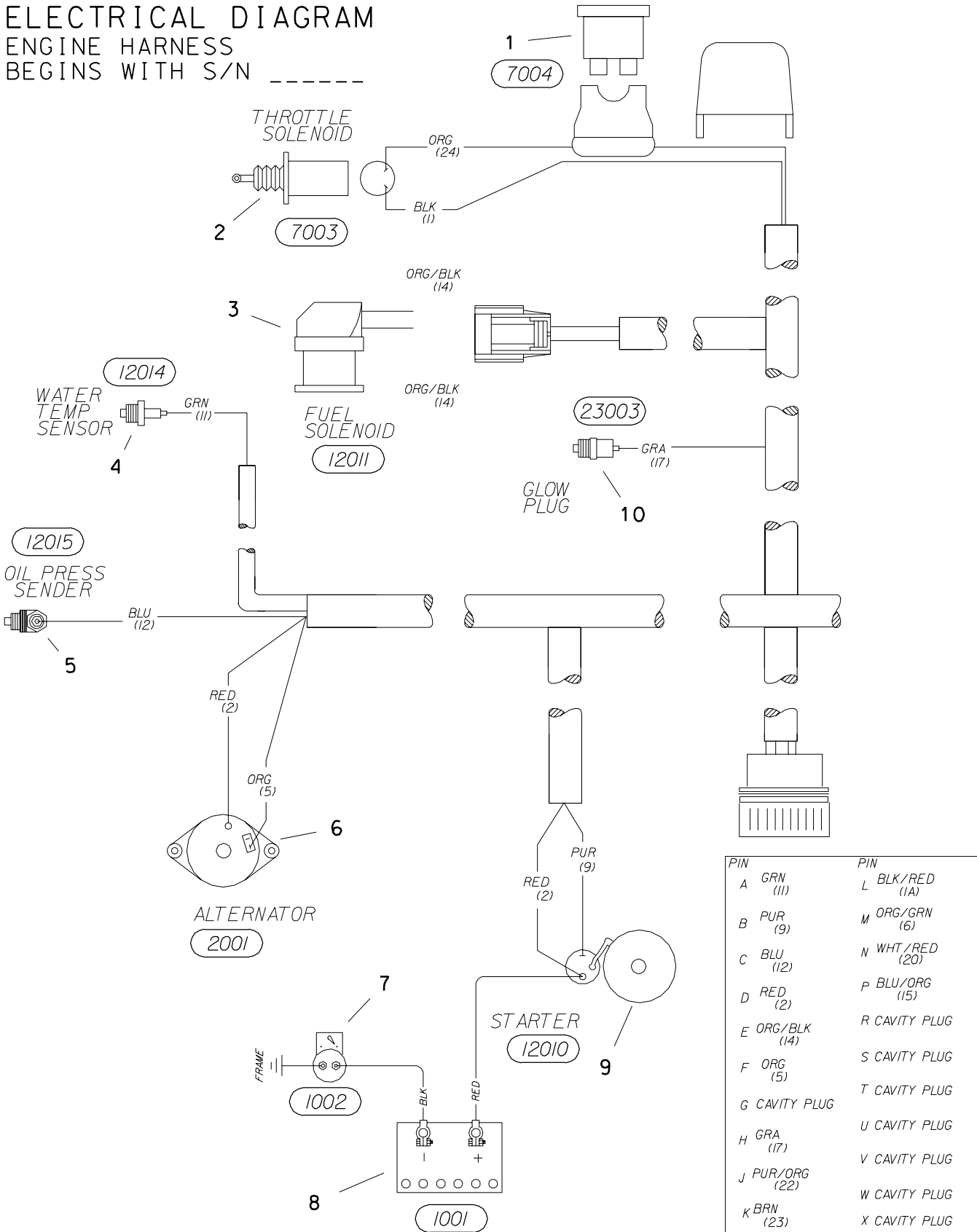
BEGINS WITH S/N -----

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-949	1	CONTROL HARNESS	
2.	214-563	-	RED LED 12V	
3.	215-128	-	HOUR METER	
4.	215-133	-	FUEL GAUGE	
5.	214-852	-	IGNITION SWITCH	
6.	499-366	-	MOMENTARY PUSH BUTTON	
7.	214-821	-	30 AMP BREAKER	
8.	214-821	-	30 AMP BREAKER	
9.	214-822	-	15 AMP BREAKER	
10.	211-264	-	DIN RAIL TERMINAL BLOCK KIT	
11.	214-823	-	SHUT DOWN RELAY	
12.	217-826	-	MINI RELAY (SPDT)	

FOOTNOTES

ELECTRICAL DIAGRAM

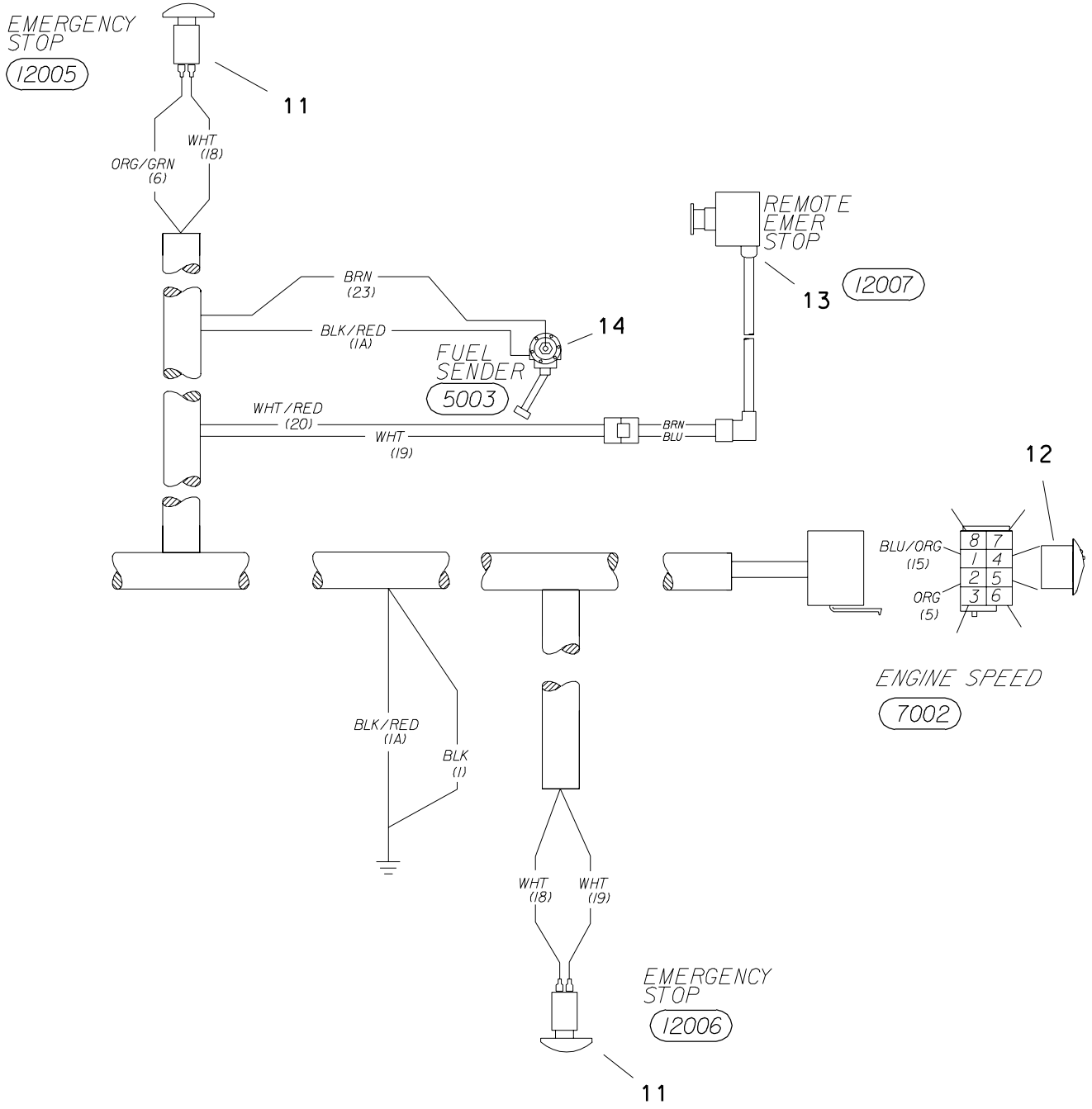
ENGINE HARNESS
 BEGINS WITH S/N -----



PIN	PIN
A GRN (11)	L BLK/RED (1A)
B PUR (9)	M ORG/GRN (6)
C BLU (12)	N WHT/RED (20)
D RED (2)	P BLU/ORG (15)
E ORG/BLK (14)	R CAVITY PLUG
F ORG (5)	S CAVITY PLUG
G CAVITY PLUG	T CAVITY PLUG
H GRA (17)	U CAVITY PLUG
J PUR/ORG (22)	V CAVITY PLUG
K BRN (23)	W CAVITY PLUG
	X CAVITY PLUG

ELECTRICAL DIAGRAM

ENGINE HARNESS
BEGINS WITH S/N -----



ELECTRICAL DIAGRAM

ENGINE HARNESS

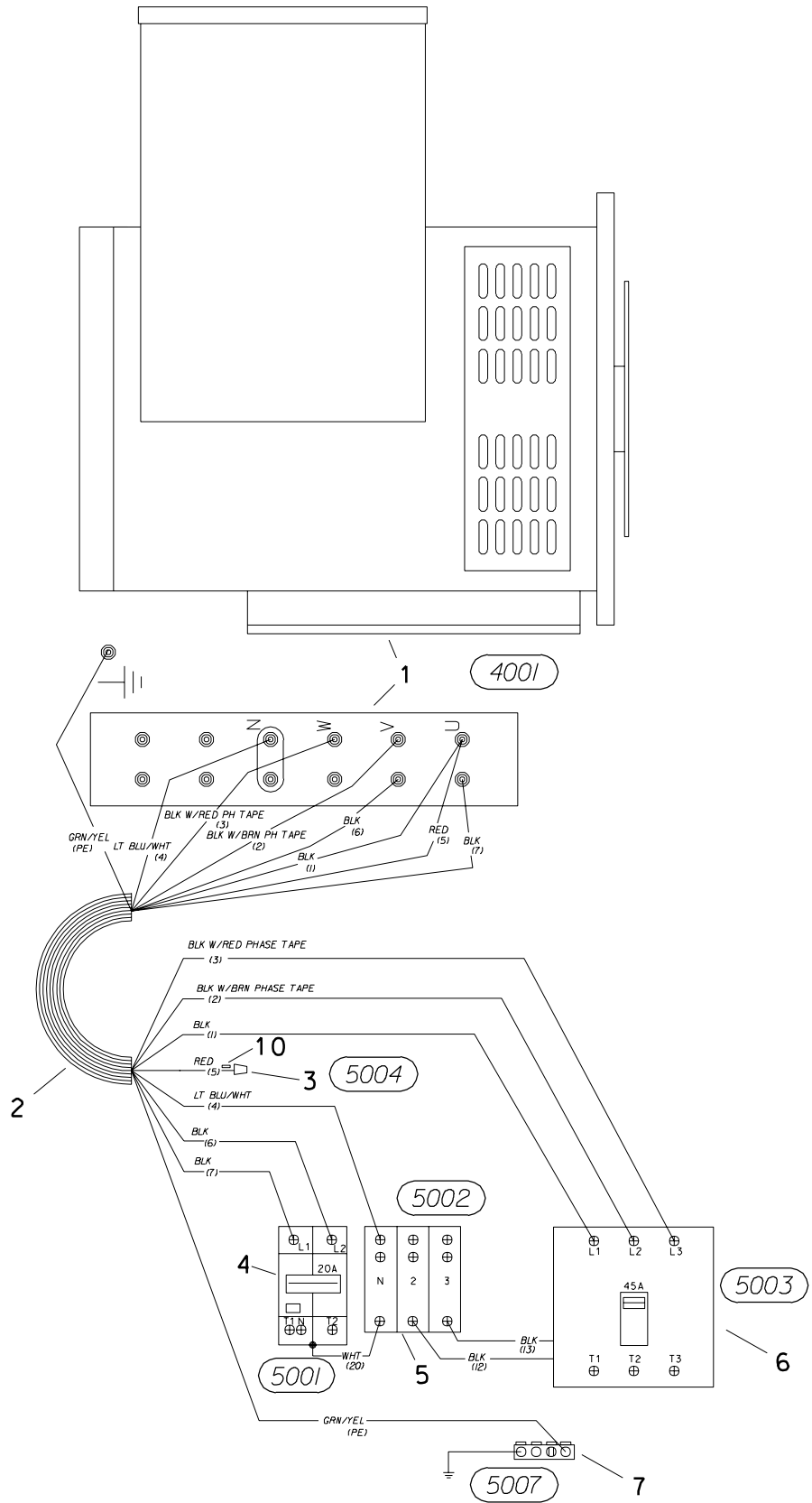
BEGINS WITH S/N _____

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	217-810	1	FUSE (ATC, 10 AMP)	
2.	499-363	-	THROTTLE SOLENOID	
3.	499-346	-	STDP SOLENOID	
4.	215-242	-	TEMPERATURE SWITCH	
5.	217-952	-	OIL PRESSURE SWITCH	
6.	499-347	-	ALTERNATOR	
7.	217-819	-	BATTERY DISCONNECT SWITCH	
8.	215-244	-	BATTERY	
9.	194-275	-	STARTER	
10.	499-343	-	GLOW PLUG	
11.	214-846	-	E-STOP BUTTON	
12.	217-762	-	ROCKER SWITCH (SPDT)	
13.	499-365	-	REMOTE E STOP	
14.	353-420	-	FUEL SENDER	

FOOTNOTES

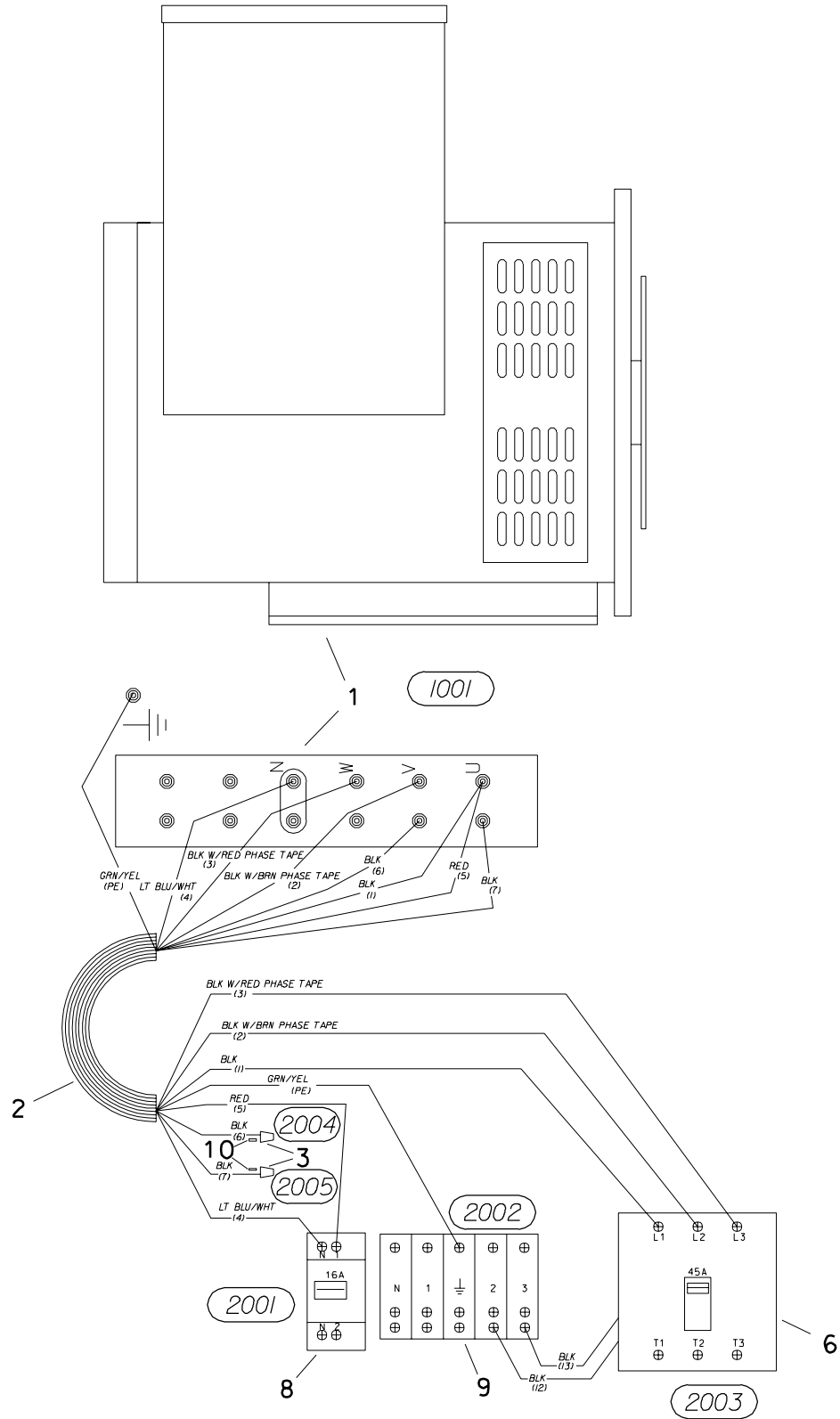
ELECTRICAL DIAGRAM

GENERATOR HARNESS
BEGINS WITH S/N -----



ELECTRICAL DIAGRAM

GENERATOR HARNESS, EUROPE
BEGINS WITH S/N -----



ELECTRICAL DIAGRAM
 GENERATOR HARNESS
 BEGINS WITH S/N -----

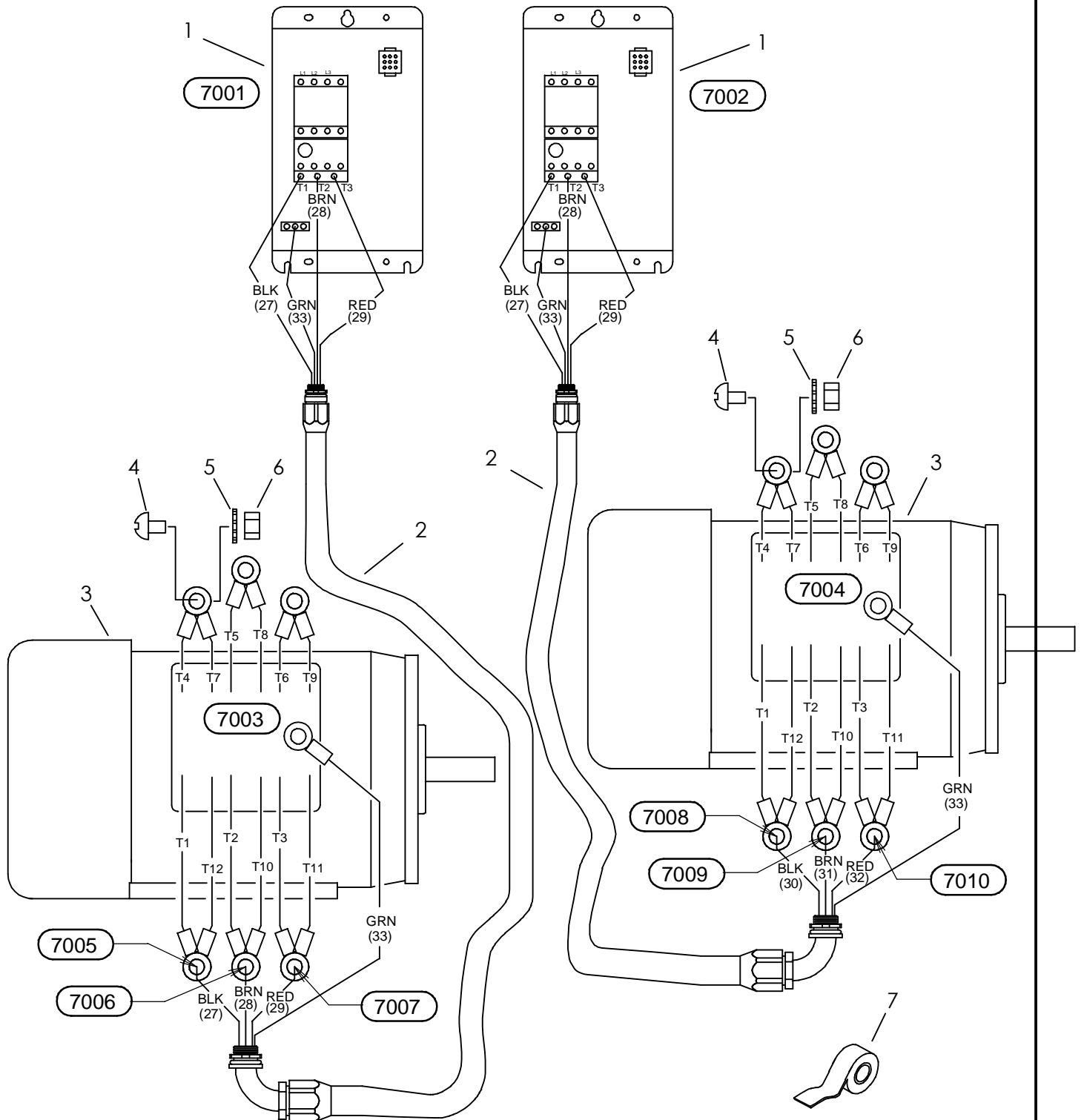
REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	214-649	-	GENERATOR	
2.	214-950	1	GENERATOR HARNESS	
3.	214-944	AR	PUSH-ON TERM, 2 CON, 12-16 AWG	
4.	499-368	-	20 AMP BREAKER	
5.	211-266	-	TERMINAL BLOCK KIT	
6.	499-383	-	45 AMP SHUNT TRIP BREAKER	
7.	194-367	-	GROUNDING BAR	
8.	211-265	-	16 AMP IEC CIRCUIT BREAKER	
9.	211-264	-	DIN RAIL TERMINAL BLOCK KIT	
10.	214-958	AR	CAVITY PLUG - DEUTSCH, 20 GA	

FOOTNOTES

ELECTRICAL DIAGRAM

MOTOR HARNESS

BEGINS WITH S/N _____.



ELECTRICAL DIAGRAM

MOTOR HARNESS

BEGINS WITH S/N_____.

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	211-030	-	STARTER, ELECTRIC MOTOR	
	499-356	-	STARTER MODULE	
	499-357	-	START STOP KIT	
2.	214-838	-	ELEC CABLE (10/4 X 36")	
3.	211-028	-	MOTOR (10 HP)	
4.	105-154	12	BOLT (#10-32 X 5/16", PAN SLT)	
5.	106-056	12	EXT STAR WASHER (#10)	
6.	506-021	12	NUT (#10-32)	
7.	117-880	AR	RUBBER SPLICING TAPE	SEE NOTE 1

NOT SHOWN:

FOOTNOTES:

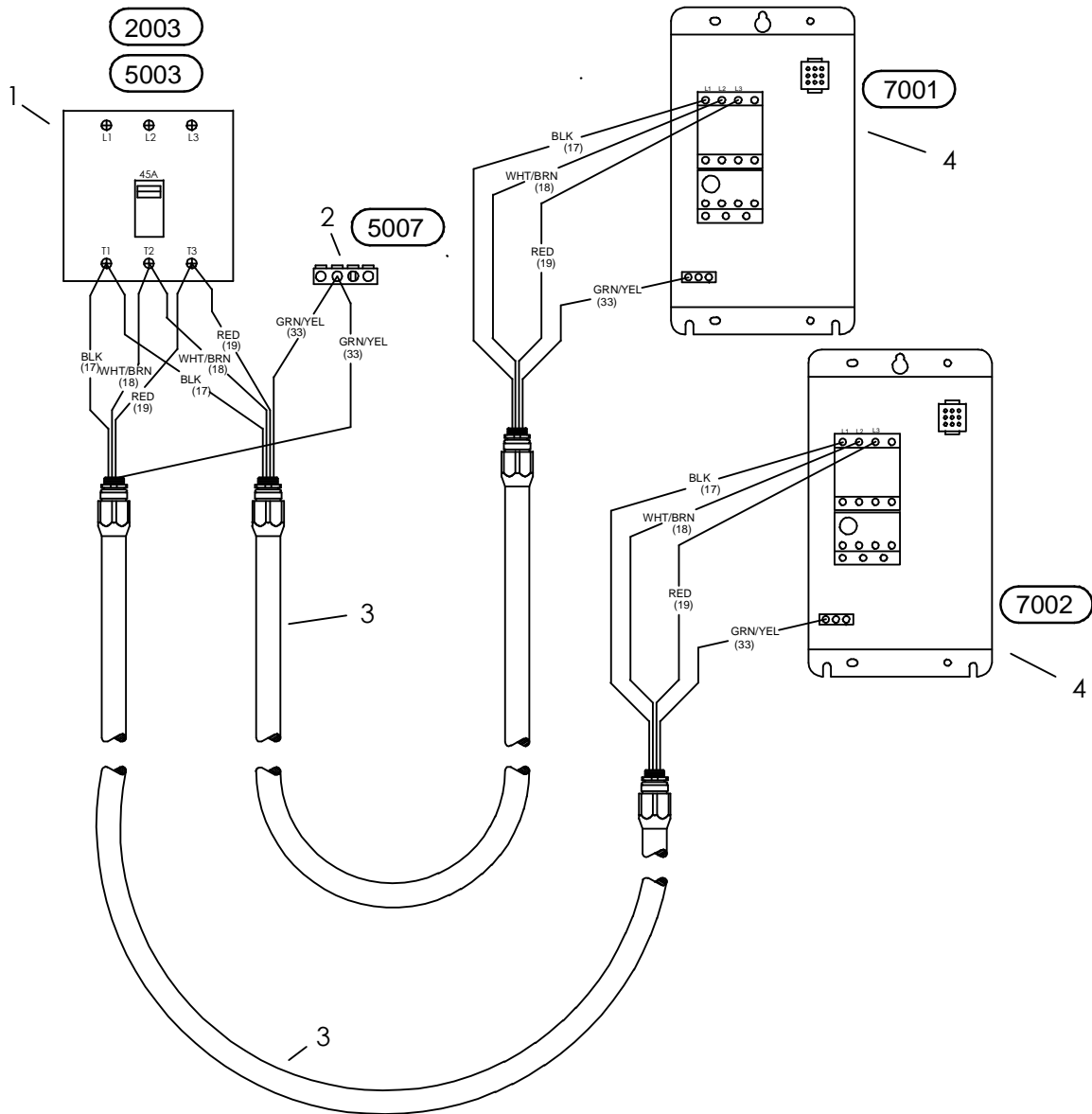
1. AFTER TIGHTENING REF 4 AND REF 6 TO MAKE CONNECTION, WRAP JOINT SO THAT CONNECTION IS COMPLETELY COVERED WITH ONE LAYER OR MORE OF 117-880 RUBBER SPLICING TAPE, THEN SECURE WITH A WRAP OF STANDARD VINYL ELECTRICAL TAPE.

NOTE:

ELECTRICAL DIAGRAM

MOTOR STARTER HARNESS

BEGINS WITH S/N 2Y0784



ELECTRICAL DIAGRAM

MOTOR STARTER HARNESS

BEGINS WITH S/N 2Y0784

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	499-383	-	45 AMP SHUNT TRIP BREAKER	
2.	194-367	-	GROUNDING BAR	
3.	214-839	2	ELEC CABLE (10/4 X 300")	
4.	194-627	-	STARTER, ELECTRIC MOTOR	
	499-356	-	STARTER MODULE	SEE FOOTNOTE 2
	499-357	-	START STOP KIT	SEE FOOTNOTE 2
	499-358	-	OVERLOAD RELAY	SEE FOOTNOTE 2
	499-941	-	STARTER MODULE	SEE FOOTNOTE 1
	499-942	-	START STOP KIT	SEE FOOTNOTE 1
	499-943	-	OVERLOAD RELAY	SEE FOOTNOTE 1

NOT SHOWN:

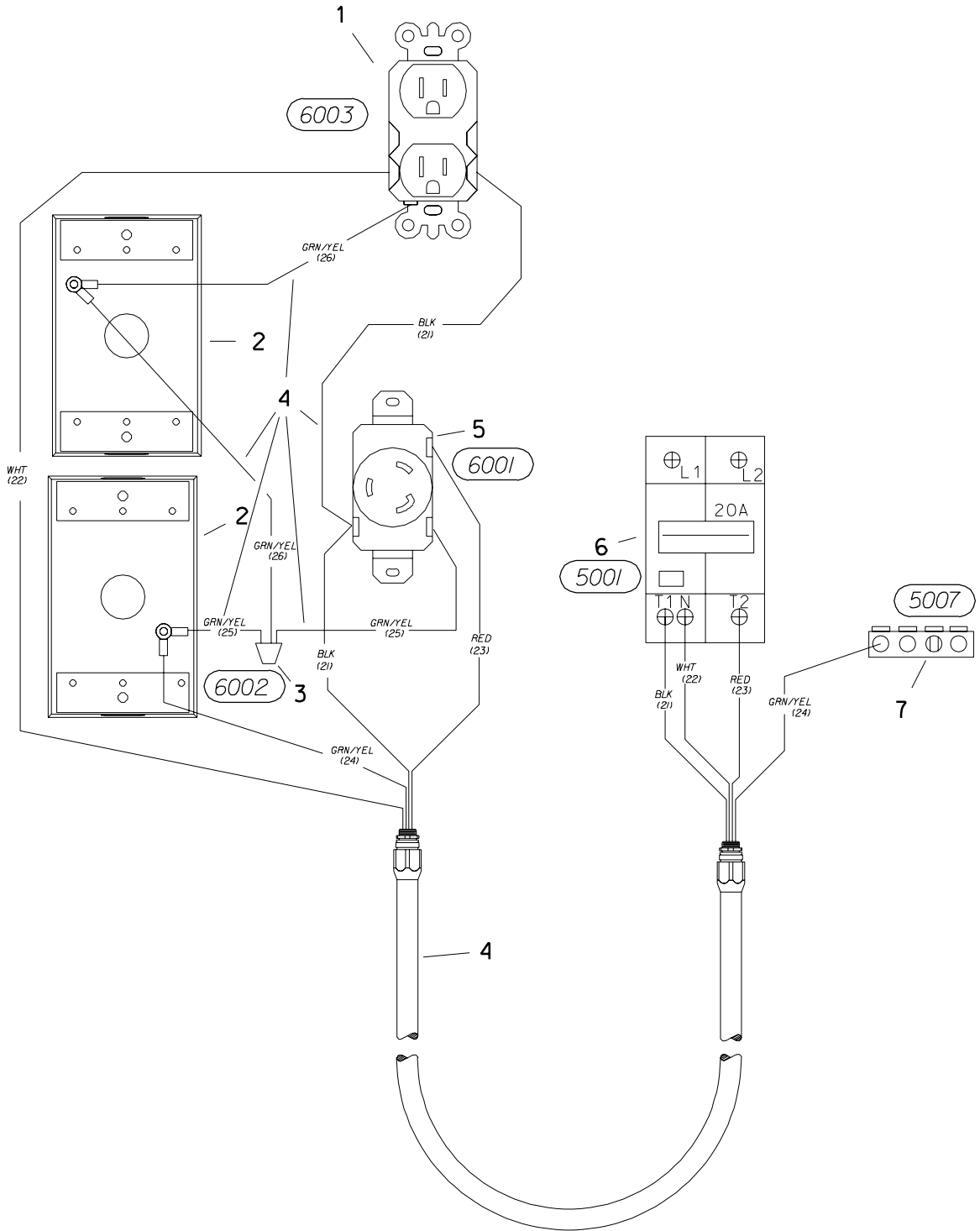
FOOTNOTES:

1. SERVICE PARTS FOR 211-030 USE BEFORE S/N 2Y0783
2. SERVICE PARTS FOR 211-030 USE AFTER S/N 2Y0784

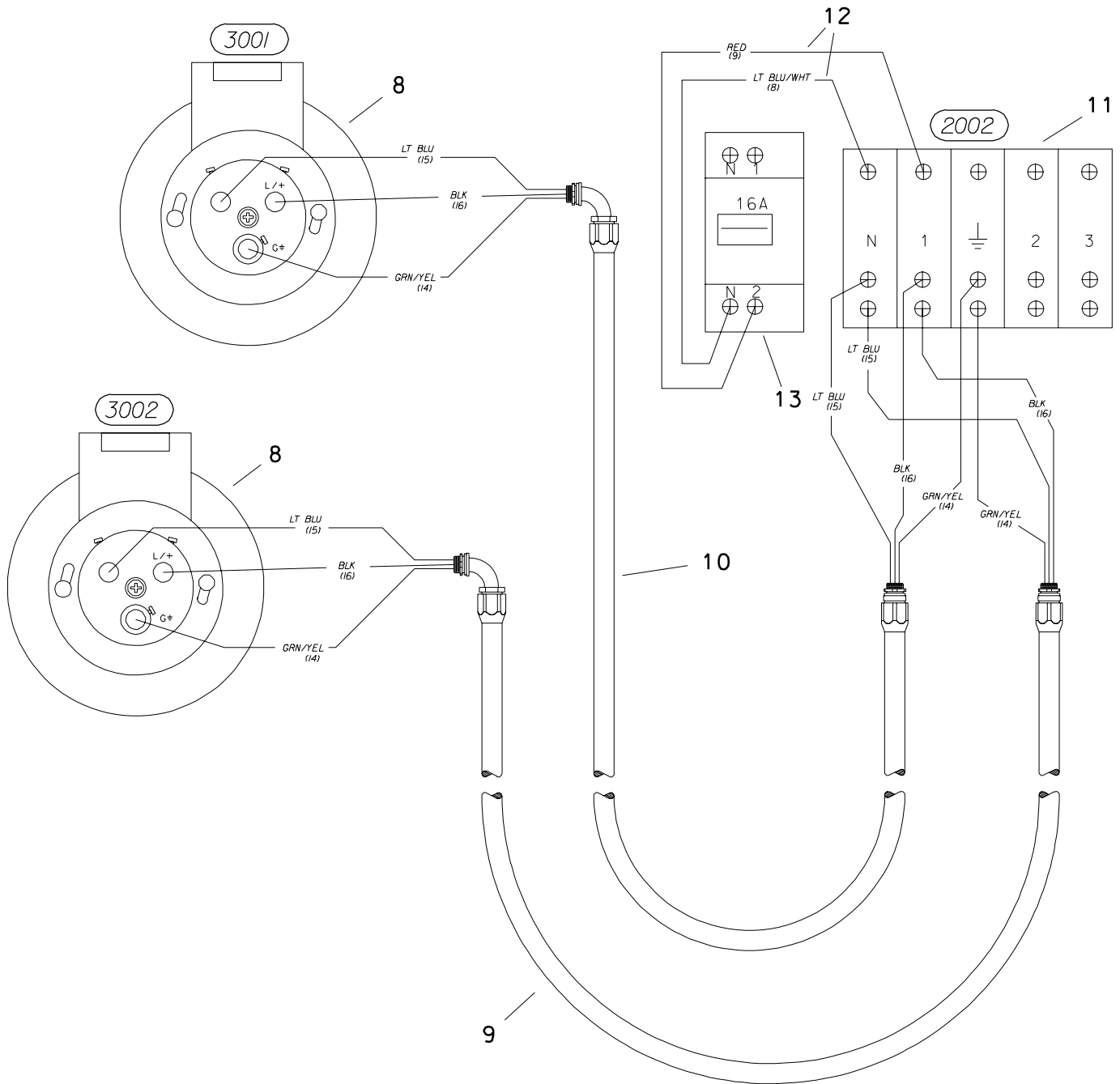
NOTE:

ELECTRICAL DIAGRAM

OUTLET HARNESS
BEGINS WITH S/N -----



ELECTRICAL DIAGRAM
OUTLET HARNESS, EUROPE
BEGINS WITH S/N -----



ELECTRICAL DIAGRAM

OUTLET HARNESS

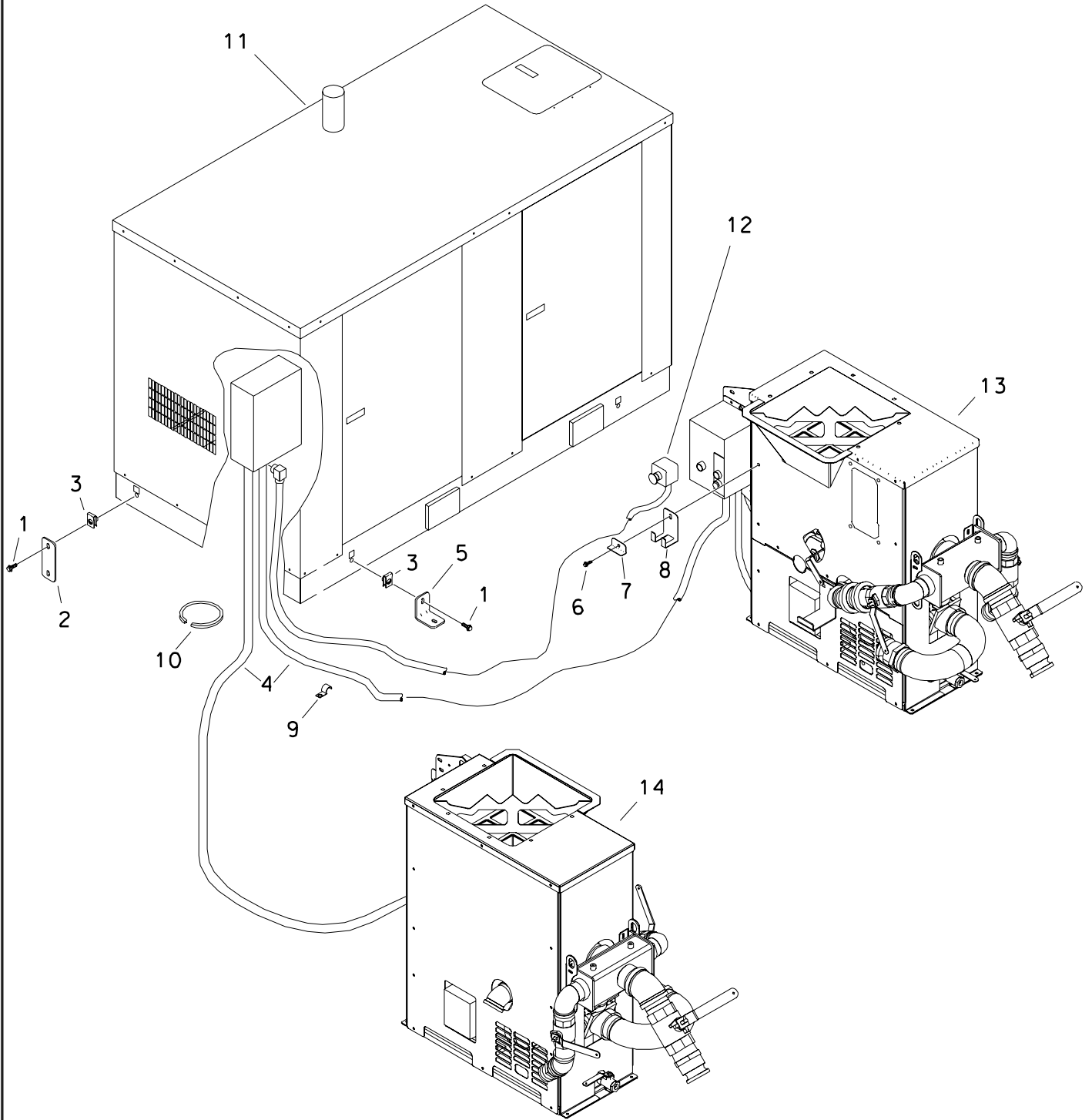
BEGINS WITH S/N -----

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	499-369	1	DUPLEX RECEPTACLE	
2.	194-366	2	DEVICE BOX	
3.	214-945	1	PUSH-ON TERM, 4 CON, 12-16 AWG	
4.	214-951	1	HARNESS, UL OUTLETS	
5.	499-389	1	TWIST LOCK RECEPTACLE	
6.	499-368	1	20 AMP BREAKER	
7.	194-367	1	GROUNDING BAR	
8.	211-263	2	RECEPTACLE, IEC, 16A	
9.	214-953	1	HARNESS, IEC OUTLET	
10.	214-952	1	HARNESS, IEC OUTLET	
11.	211-264	1	DIN RAIL TERMINAL BLOCK KIT	
12.	214-957	1	CIRCUIT BREAKER HARNESS	
13.	211-265	1	16 AMP IEC CIRCUIT BREAKER	

FOOTNOTES

ACCESSORIES

FM50 INSTALLATION COMPONENTS



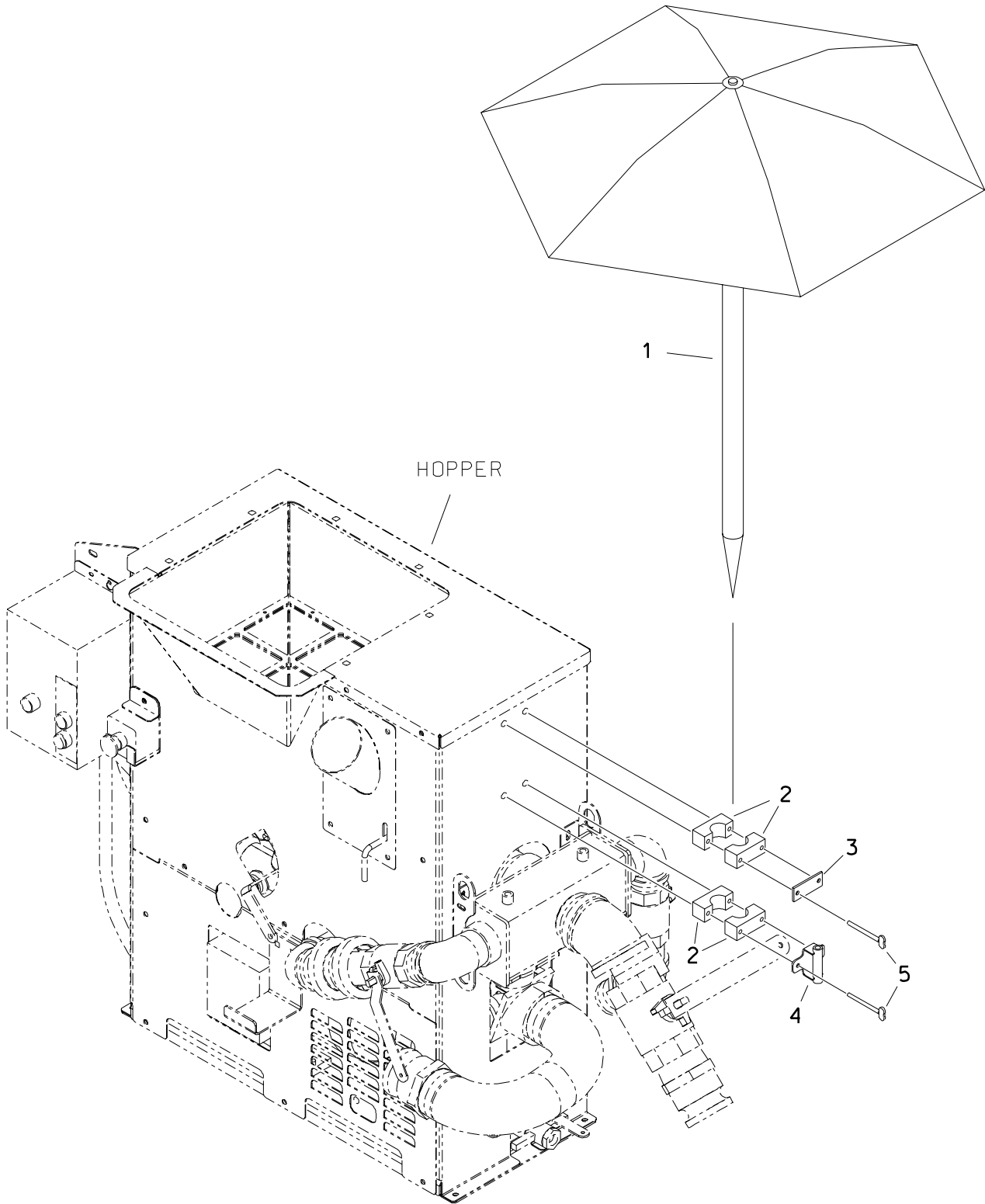
FM50 INSTALLATION COMPONENTS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	106-724	AR	FLG SCREW (M10-1.50 X 25MM)	
2.	315-116	AR	MOUNTING BRACKET	SEE FOOTNOTE 1
3.	106-558	AR	CLIP NUT (M10-1.50)	
4.	214-839	1	ELEC CABLE (10/4 X 300")	
5.	314-881	AR	MOUNTING BRACKET	SEE FOOTNOTE 1
6.	106-162	-	FLG SCREW (M8-1.25 X 20MM)	
7.	314-736	1	SWITCH RETAINER	
8.	314-735	1	SWITCH BRACKET	
9.	110-057	AR	CLAMP (1/2")	SEE FOOTNOTE 2
10.	115-686	AR	BULK EDGE (5/32", SOLD PER 1")	USE 1 @ 12"
11.	214-649	-	GENERATOR	INCLUDES REF NO. 12
12.	499-365	-	REMOTE E STOP	SEE FOOTNOTE 3
	214-941	1	EMERGENCY STOP STATION	SEE FOOTNOTE 4
	214-942	-	CONTACTS (NC)	
	214-848	1	TURCK CABLE	
	106-176	1	CONDUIT LOCKNUT (Ø8N)	
	215-691	1	STRAIN GRIP (Ø8N)	
13.	310-363	-	MIXING HOPPER RH	
14.	310-364	-	MIXING HOPPER LH	

FOOTNOTES

1. USE AT LEAST 4 BRACKETS, 1 AT EACH CORNER
2. USE AS NEEDED TO SUPPORT CABLE, INCLUDED WITH 214-839
3. 499-365 IS NO LONGER AVAILABLE AS AN ASSEMBLY. ORDER INDIVIDUAL PARTS LISTED BELOW.
4. INCLUDES 214-942 CONTACTS (NC)

FM50 UMBRELLA MOUNT

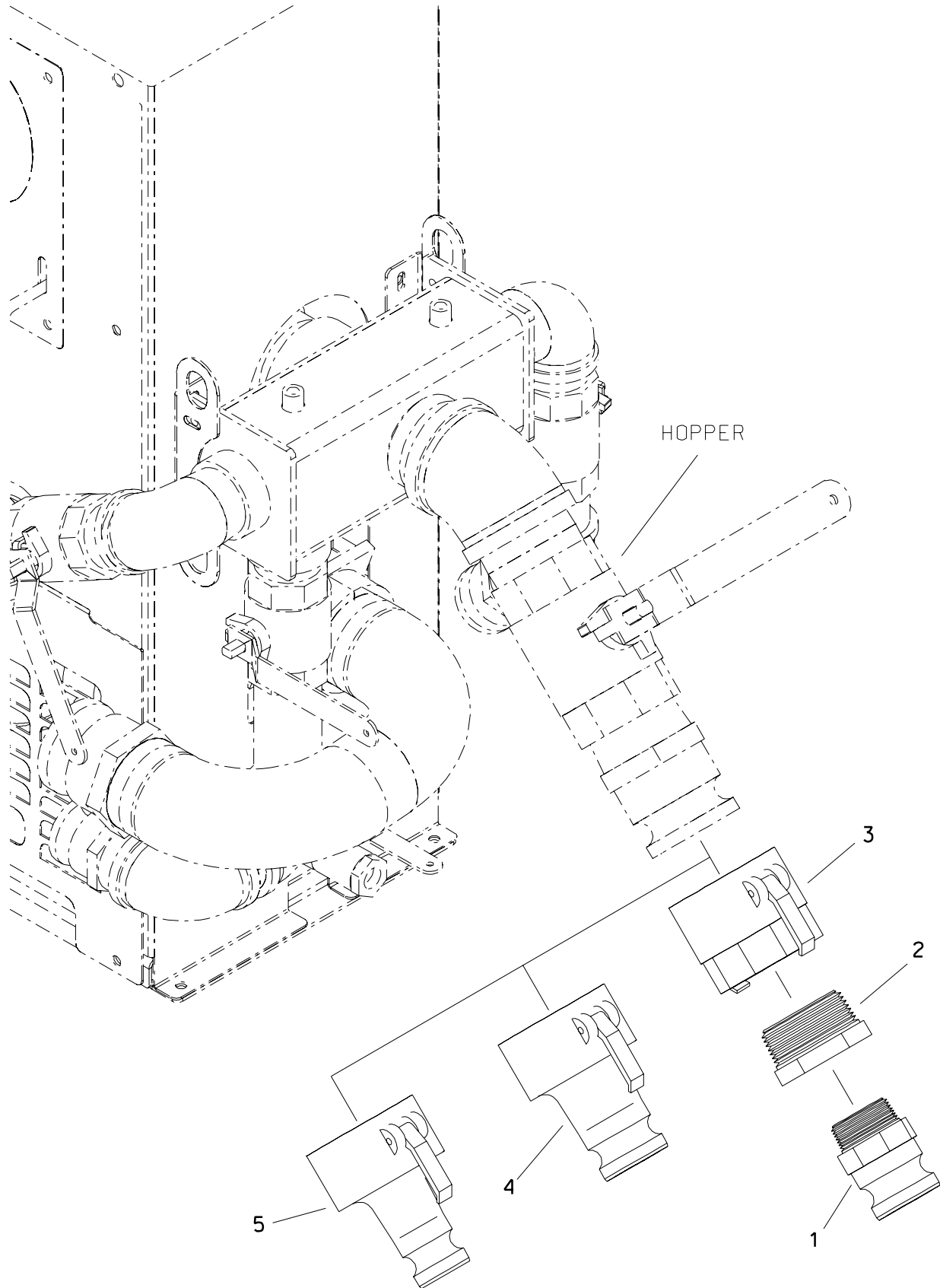


FM50 UMBRELLA MOUNT

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	101-096		UMBRELLA ACCESSORY KIT	
1.	344-700	1	UMBRELLA (6.5')	
	308-652	-	UMBRELLA POLE	
2.	111-026	2	BOLT-ON CLAMP (1-1/4", PAIR)	
3.	322-362	1	BACKUP SPACER	
4.	315-537	-	BRACKET	NOT INCLUDED IN KIT.
5.	105-621	4	WING BOLT (1/4-NC X 3")	

FOOTNOTES

FM50 HOSE ADAPTERS



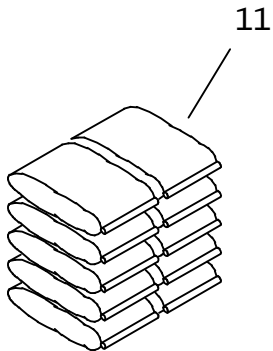
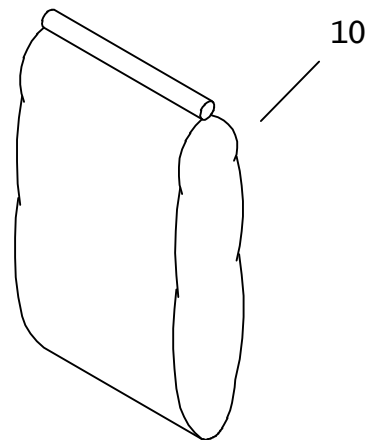
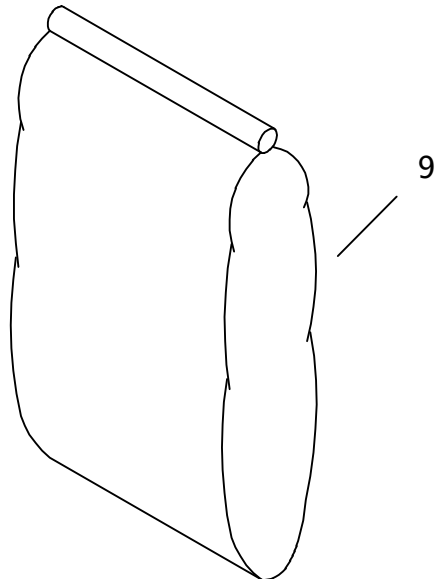
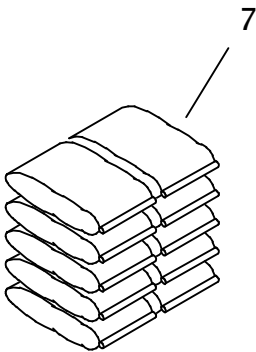
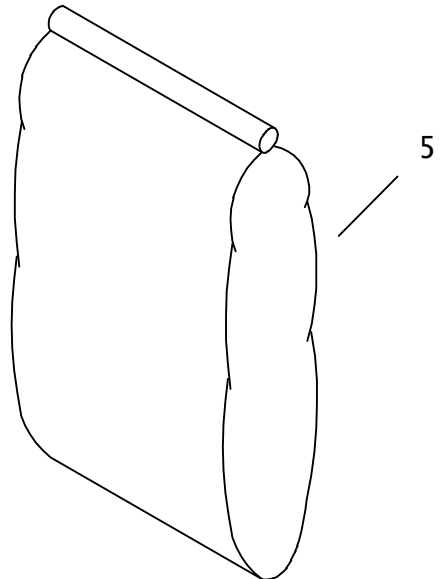
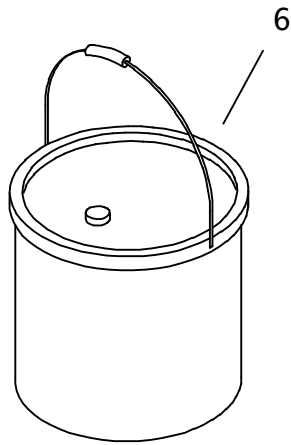
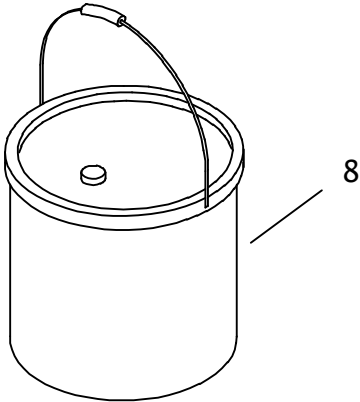
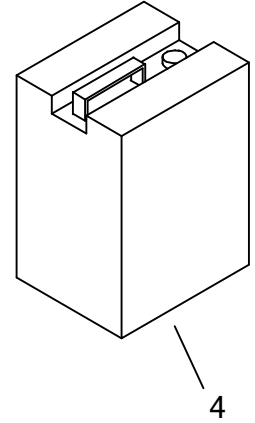
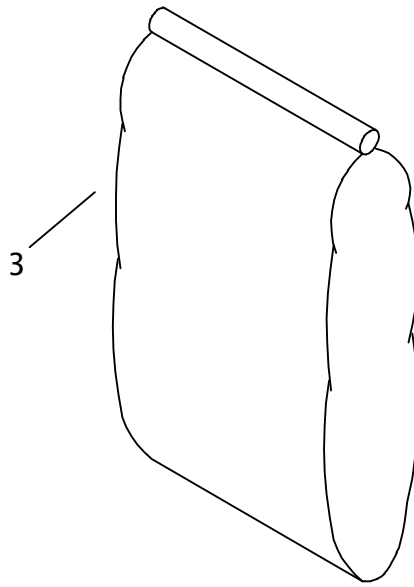
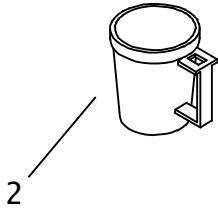
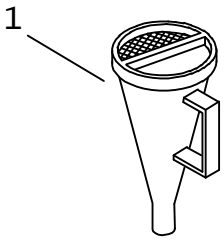
FM50 HOSE ADAPTERS

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	159-181	1	FHC ADAPTER (40-32N)	SEE FOOTNOTE 1
2.	155-265	1	REDUCER (48N-32NF)	SEE FOOTNOTE 1
3.	153-368	1	FHC BODY (3-1/2" FHC X 3"NPTF)	SEE FOOTNOTE 1
	116-736	-	SQUARE RING GASKET (48)	
4.	157-792	1	FHC CPLR X ADPTR (48-32)	
	116-736	-	SQUARE RING GASKET (48)	
5.	157-793	1	FHC CPLR X ADPTR (48-24)	
	116-736	-	SQUARE RING GASKET (48)	

FOOTNOTES

1. 100-544 FM50 2" ADAPTER KIT CONSISTS OF REF 1, 2, & 3.

FLUID MIXING ACCESSORIES



FLUID MIXING ACCESSORIES

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	259-195	1	VISCOSITY FUNNEL	
2.	259-196	1	VISCOSITY CUP	
3.	259-804	AR	BENTONITE, QUIK-GEL (50 LB)	
4.	259-805	AR	LIQUID POLYMER, EZ-MUD (5 GAL)	
5.	259-807	AR	BENTONITE, BORE-GEL (50 LB)	
6.	259-808	AR	VISCOSIFIER, LIQUI-TROL (5 GAL)	
7.	259-809	AR	POWDER POLYMER, QUIK-TROL (20 LB)	
8.	259-810	AR	WET AGENT, CON-DET (5 GAL)	
9.	259-821	AR	'PAC-R' FILTRATION CONTROL	
10.	259-822	AR	'BARAZAN D+' VISCOSIFIER	
11.	259-832	AR	'NO SAG' (20# BOX/10-2#BAGS)	

NOT SHOWN:

191-158	1	DRILLING FLUID TEST KIT
259-487	1	SHEAROMETER

FOOTNOTES:

NOTE:

MISCELLANEOUS

SAE Bolt and Nut Torque Value Chart

Grade 5: UNC or UNF Thread

Size	Hex nut, or bolt tapped into hex nut, or d&t hole		Hex top deformed locknut		Flange nut, locknut, or bolt tapped into flange nut or d&t* hole	
	ft•lb	N•m	ft•lb	N•m	ft•lb	N•m
1/4	12	16	8	11	20	27
5/16	25	34	15	20	45	60
3/8	40	54	25	34	75	100
7/16	65	90	40	55	125	170
1/2	100	135	60	80	190	260
9/16	150	200	90	125	270	370
5/8	200	270	120	165	370	500
3/4	350	475	210	285	650	880
7/8	560	760	340	460	1250	1425
1	840	1140	500	680	1580	2145
1-1/8	1030	1400	320	840	1950	3645
1-1/4	1460	1980	880	1195	2760	3475

Grade 8: UNC or UNF Thread

Size	Hex nut, or bolt tapped into hex nut, or d&t hole		Hex top deformed locknut		Flange nut, locknut, or bolt tapped into flange nut or d&t* hole	
	ft•lb	N•m	ft•lb	N•m	ft•lb	N•m
1/4	14	19	10	14	24	33
5/16	30	40	18	25	50	70
3/8	55	73	35	50	90	125
7/16	85	115	50	70	140	190
1/2	130	175	80	110	220	300
9/16	190	260	110	150	310	420
5/8	260	355	160	245	430	585
3/4	450	610	270	365	750	1015
7/8	730	990	440	600	1210	1640
1	1090	1480	650	880	1320	2465
1-1/8	1550	2100	930	1260	2580	3500
1-1/4	2180	2955	1310	1780	3640	4935

*drilled and tapped

Metric Bolt and Cap Screw Torque Values

Size	Class 4.8				Class 8.8 and 9.8				Class 10.9				Class 12.9			
	Lubricated		Dry		Lubricated		Dry		Lubricated		Dry		Lubricated		Dry	
	N•m	ft•lb	N•m	ft•lb	N•m	ft•lb	N•m	ft•lb	N•m	ft•lb	N•m	ft•lb	N•m	ft•lb	N•m	ft•lb
M6	4.8	3.5	6	4.5	9	6.5	11	8.5	13	9.5	17	12	15	11.5	19	14.5
M8	12	8.5	15	11	22	16	28	20	32	24	40	30	37	28	47	35
M10	23	17	29	21	43	32	55	40	63	47	80	60	75	55	95	70
M12	40	29	50	37	75	55	95	70	110	80	140	105	130	95	165	120
M14	63	47	80	60	120	88	150	110	175	130	225	165	205	150	260	190
M16	100	73	125	92	190	140	240	175	275	200	350	225	320	240	400	300
M18	135	100	175	125	260	195	330	250	375	275	475	350	440	325	560	410
M20	190	140	240	180	375	275	475	350	530	400	675	500	625	460	800	580
M22	260	190	330	250	510	375	650	475	725	540	925	675	850	625	1075	800
M24	330	250	425	310	650	475	825	600	925	675	1150	850	1075	800	1350	1000
M27	490	360	625	450	950	700	1200	875	1350	1000	1700	1250	1600	1150	2000	1500
M30	675	490	850	625	1600	950	1650	1200	1850	1350	2300	1700	2150	1600	2700	2000
M33	900	675	1150	850	1750	1300	2200	1650	2500	1850	3150	2350	2900	2150	3700	2750
M36	1150	850	1450	1075	2250	1650	2850	2100	3200	2350	4050	3000	3750	2750	4750	3500

Do not use these values if a different torque value or tightening procedure is given for specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical property class fasteners.

Fasteners should be replaced with the same or higher property class. If higher property class fasteners are used, these should only be tightened to strength of original.

Make sure fastener threads are clean and that the threads are properly started. This will prevent them from cross threading or galling when tightened.

Tighten plastic insert or crimped type steel locknuts to approximately 50% of dry torque indicated on chart. Apply torque to the nut - not the bolt head. Tighten toothed or serrated type locknuts to full torque value.

LUBRICATED means coated with lubricant. DRY means plain or zinc plated without any type of lubricant.

Hydraulic Cylinder Bolt Torque Chart

Bolt Size (inch)	Bolt Part No.	Cylinder Repair Kit Part No.	Torque (ft•lb)	Torque (N•m)
1/2	106-096	190-165	90-100	120-135
5/8	106-097	190-166 & 190-169	180-200	245-270
3/4	106-098	190-167 & 190-170	290-325	395-440
7/8	106-122	190-172 & 190-174	410-640	550-625
1	106-145	190-175 & 190-189	630-700	855-950
1-1/8	106-146	190-177	770-850	1045-1170

As a general rule:

- 1/2-inch bolts are used in cylinders with 1-inch rods
- 5/8-inch bolts are used in cylinders with 1 1/4-inch rods
- 3/4-inch bolts are used in cylinders with 1 1/2-inch rods
- 7/8-inch bolts are used in cylinders with 1 3/4-inch rods
- 1-inch bolts are used in cylinders with 2-inch rods (one with 1 3/4-inch)
- 1-1/8-inch bolts are used in cylinders with 2-1/4-inch rods

IMPORTANT: Do not reuse cylinder piston bolts when rebuilding a hydraulic cylinder. Each cylinder repair kit contains a new bolt. Use it. Lubricate lightly and torque to value shown on chart.

SAE & ORS Hydraulic Fitting Replacement O-Ring Chart

Fraction Size	Dash Size	SAE (Port Seal O-Ring)		ORS (Face Seal O-Ring)	
		Thread Size	O-Ring P/N	Thread Size	O-Ring P/N
1/16	1	NA	NA	NA	NA
1/8	2	5/16 - 24	NA	NA	NA
3/16	3	3/8 - 24	NA	NA	NA
1/4	4	7/16 - 20	155-760	9/16 - 18	157-037
5/16	5	1/2 - 20	NA	NA	NA
3/8	6	9/16 - 18	155-705	11/16 - 16	157-038
1/2	8	3/4 - 16	155-706	13/16 - 16	157-039
5/8	10	7/8 - 14	155-707	1 - 14	157-040
3/4	12	1-1/16 - 12	155-709	1-3/16 - 12	157-017
7/8	14	1-3/16 - 12	155-747	NA	NA
1	16	1-5/16 - 12	155-748	1-7/16 - 12	155-714
1-1/4	20	1-5/8 - 12	155-702	1-11/16 - 12	NA
1-1/2	24	1-7/8 - 12	157-001	2 - 12	NA
2	32	2-1/2 - 12	NA	NA	NA
2-1/2	40	3 - 12	NA	NA	NA
3	48	3-1/2 - 12	NA	NA	NA

Thread size indicates the diameter of the threaded area in fractions of an inch and number of threads per inch.

NA = not a current CMW part numbered o-ring, or dash size does not occur in current CMW applications

SAE = straight thread fitting that seals by sandwiching a hard o-ring between a shoulder on the male part and an angular surface at the mouth of the female port.

ORS = o-ring face seal; a type of fitting that seals by compressing a hard, captive o-ring between two flat parallel faces, one grooved for the o-ring and the other plain to act as the sealing surface

FM50

Related Publications

Component	Ass'y	P/N
Model:		
FM50	Parts Manual	053-093
FM50	Operators Manual	054-076
FM50	Repair Guide (Service Manual)	N/A
FM50	Supplementary Maint Guide - Trailer	055-484
FM50	Supplementary Maint Guide - Trenchless	055-485
FM50	Special Tools Guide	052-901
Engine:		
Kubota	Parts Manual – V3300EBG	499-348, 194-676..... 499-340
Kubota	Parts Manual – V3300EBG (T4i)	195-1441..... 053-1385
Kubota	Operators Manual – V3300EBG	499-348, 194-676..... 499-341
Kubota	Operators Manual – V3300EBG (T4i)	195-1441..... 053-1388
Kubota	Service (Shop) Manual – V3300EBG	N/A

Filters

Engine:		
Air Filter Parts Ass'y – (V3300EBG)		194-602
Element (primary) – (V3300EBG)		194-758
Element (secondary) – (V3300EBG)		194-759
Oil Filter Element - Kubota – (V3300EBG)		194-268
Fuel Filter - Kubota – (V3300EBG)		153-829

Optional Kits

O-ring Repair Kit - FLG, ORS & SAE (15 different O-rings)	190-051
O-ring Repair Kit - Field Service (46 different O-rings)	190-052



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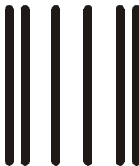
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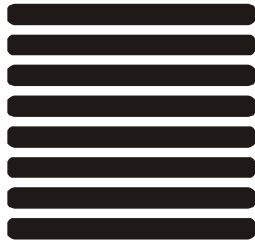
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