

Service Parts

Residential/Commercial Generator Sets



Models:

17RES

17RESL

17RESNT

18RES

18RESL

18RESNT

18TRES

KOHLER[®]
POWER SYSTEMS

ISO 9001
KOHLER
POWER SYSTEMS
NATIONALLY REGISTERED

TP-6518 3/12d

Common Replacement Parts

Figure 1 identifies 2000-hour common replacement parts for your generator set. Refer to the groups on the following pages for a complete list of maintenance and service parts.

Description	Part Number	Quantity
Sensor, oil temperature	GM28823	1
Filter, oil	52 050 02-S	8
Switch, oil pressure	52 099 08-S	1
Spark plug	62 132 04-S	2
Kit, starter solenoid	25 435 06-S	1
Element, air filter	62 083 01-S	1
Fuse, 20 A, 250 V	292937	5
Fuse, 10 A, 250 V	223316	5
Bushing, linkage retaining	25 158 08-S	4
Coupling, stepper motor	358358	4

Figure 1 2000-Hour Replacement Parts

Figure 2 identifies paint available from the factory.

Color Description	Touch-up Bottle	Part Number	
		Spray Can	Gallon
Cream Beige	N/A	GM71383	GM71387
Sage Green	GM50484	N/A	N/A
Textured KCB (Cream Beige)	GM83001	GM82834	GM82835
Textured Black	GM83002	GM82836	N/A
Textured Cashmere	GM84772	GM84771	N/A

Figure 2 Factory-Available Paint

Table of Contents

Introduction	4
Numbering System Significance	4
Illustrations	4
How to Find Part Numbers	4
Hardware References	5
Specification Number Index	6
Group 1: Crankshaft	7
Group 2: Crankcase	8
Group 3: Oil Pan/Lubrication	9
Group 4: Cylinder Head/Valve/Breather	10
Group 5: Ignition/Electrical	11
Group 6: Blower Housing and Baffles	12
Group 7: Starter	13
Group 8: Carburetor	14
Group 9: Engine Controls	15
Group 10: Air Intake/Filtration	16
Group 11: Exhaust	17
Group 12: Engine Decals	17
Group 13: Gasket Set	17
Group 103: Fuel System	18
Group 105: Engine	19
Group 107: Nameplate and Decals	20
Group 109: Skid and Plant Mounting	21
Group 201: Generator and Mounting	22
Group 301: Control and Harness	24
Group 501: Housing	30
Group 701: Literature	34
Kit Parts List	35
Appendix A. Abbreviations	37
Appendix B. Common Hardware Application Guidelines	39
Appendix C. General Torque Specifications	40
Appendix D. Common Hardware Identification	41
Appendix E. Common Hardware List	42

Introduction

This manual lists service replacement parts for 17 and 18RES, RESL, RESNT, and 18TRES generator sets.

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This manual includes the following main sections:

Table of Contents. Lists the sections of the manual.

Introduction (and other information sections). Contains introductory material about part numbers, illustrations, and hardware.

Specification Number Index. Lists the generator set specs and groups.

Group Parts Lists. List the part numbers of parts in the groups.

Kit Sections. List modules and accessories and their parts.

Appendices. Include Abbreviations, Common Hardware Application Guidelines, General Torque Specifications, Common Hardware Identification, and Common Hardware List.

Numbering System Significance

This manual uses the following numbering systems:

Specification Number. The product identification number located on the generator set nameplate. Specification numbers break down into groups.

Group Number. A unique number representing a parts group needed to assemble a generator set function. For example, Group 101 is the Air Intake group.

Variation or Module Number. A group might have several variations. Each variation performs the same function with different parts lists. For example, a 50 Hz generator alternator and a 60 Hz generator alternator both perform the same function; however, with different parts. Each difference requires a group variation or module number.

Part Number. The part number identifies an individual assembly, subassembly, component, or accessory kit.

Illustrations

Illustrations (or exploded-view drawings) best representing the widest range of variations accompany most groups in this manual. Illustrations do not depict all details and may not show all parts. Do not use illustrations for assembly or disassembly.

How to Find Part Numbers

Use the following steps to locate a service replacement part.

1. Locate the generator set nameplate to **identify the generator set spec number**.
2. Locate a second generator set nameplate listing accessories to **identify installed modules**. On some models the accessory nameplate is mounted inside the generator junction box.
3. **Turn to the Specification Number Index.** The first column lists the generator set spec numbers. The headings identify the groups of parts that make up the generator set.
4. **Identify the group** most likely to include the service part number.
5. **Find the group variation number** at the intersection of the spec number row and the group column. Note the variation number.
6. **Page forward to locate the group** identified in step 4 or find the appropriate page in the Table of Contents.
7. **Find the part on the illustration** and note the item number of the part or **find the part description in the parts list**.
8. Select **the part number that corresponds to your group variation**. The first column lists the illustration item number. Find the variation identified in the Specification Number Index or the module number found on the generator set nameplate in the appropriate column on the right side of the parts list table. Find the quantity used at the intersection of the item number row and the variation column. A blank space at the intersection means the variation/module does not use that part number.

Hardware References

Many common hardware items do not appear in parts manuals or will appear as common hardware entries. A common hardware entry lists the size of the hardware. For example, an item that appears as “Hardware, 3/8-16” in the text means that the piece is 3/8-16 size. Obtain common hardware locally or, if contacting the factory, use the Common Hardware List in the appendix to identify the common hardware part number and specifications. See Common Hardware Application Guidelines in the appendix for mating hardware instructions.

Some hardware items require a specific size or some other characteristic. In that case, use the part number listed in the text.

When replacing hardware, do not substitute inferior grade hardware. Replacement hardware grade should be equal to or better than the grade of the manufacturer's original hardware. Use the Common Hardware List in the appendix to identify the common hardware hardness.

Specification Number Index

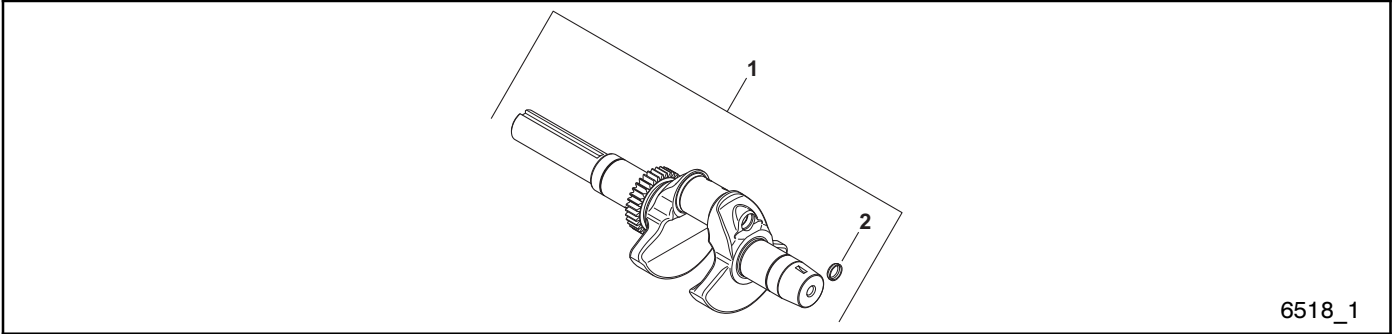
Group Title													
	<i>Crankshaft</i>	<i>Crankcase</i>	<i>Oil Pan/Lubrication</i>	<i>Cylinder Head/Valve/Breather</i>	<i>Ignition/Electrical</i>	<i>Blower Housing & Baffles</i>	<i>Starting System</i>	<i>Carburetor</i>	<i>Engine Controls</i>	<i>Air Intake/Filtration</i>	<i>Exhaust</i>	<i>Engine Decals</i>	
Group No.	1	2	3	4	5	6	7	8	9	10	11	12	
Spec No.	Variation Number												

17RES/18RES												
GM51561-GA1	8	5	9	4	12	5	1	5	43	5	2	7
GM51561-GA4	8	5	9	4	12	5	1	5	43	5	2	7
GM51561-GA9	8	5	9	4	12	5	1	5	43	5	2	7
GM51561-GA14	8	5	9	4	12	5	1	5	43	5	2	7
GM51561-GA16-CAS	8	5	9	4	12	5	1	5	43	5	2	7
GM51561-GA20-CAS	8	5	9	4	12	5	1	5	43	5	2	7
17RESL/18RESL												
GM51561-GA2 (SA1, SA2)	8	5	9	4	12	5	1	5	43	5	2	7
GM51561-GA10 (SA3, SA4)	8	5	9	4	12	5	1	5	43	5	2	7
GM51561-GA18-CAS	8	5	9	4	12	5	1	5	43	5	2	7
18TRES												
GM51561-GA8	8	5	9	4	12	5	1	5	43	5	2	7
GM51561-GA15-CAS	8	5	9	4	12	5	1	5	43	5	2	7

Group Title												
	<i>Fuel System</i>	<i>Engine</i>	<i>Nameplate and Decals</i>	<i>Skid and Plant Mounting</i>	<i>Generator and Mounting</i>	<i>Control and Harness</i>	<i>Housing and Mounting</i>	<i>Literature</i>				
Group No.	103	105	107	109	201	301	501	701				
Spec No.	Variation Number											

17RES/18RES										
GM51561-GA1	1	1	1	1	1	1	1	17		
GM51561-GA4	1	1	1	1	1	4	1	17		
GM51561-GA9	1	1	1	1	1	5	1	55		
GM51561-GA14	1	1	1	1	1	4	1	55		
GM51561-GA16-CAS	1	1	1	1	1	5	4	55		
GM51561-GA20-CAS	1	1	1	1	1	4	4	55		
17RESL/18RESL										
GM51561-GA2 (SA1, SA2)	1	1	1	1	1	2	2	19		
GM51561-GA10 (SA3, SA4)	1	1	1	1	1	6	2	56		
GM51561-GA18-CAS	1	1	1	1	1	6	4	56		
18TRES										
GM51561-GA8	1	1	2	1	2	7	3	57		
GM51561-GA15-CAS	1	1	2	1	2	7	5	57		

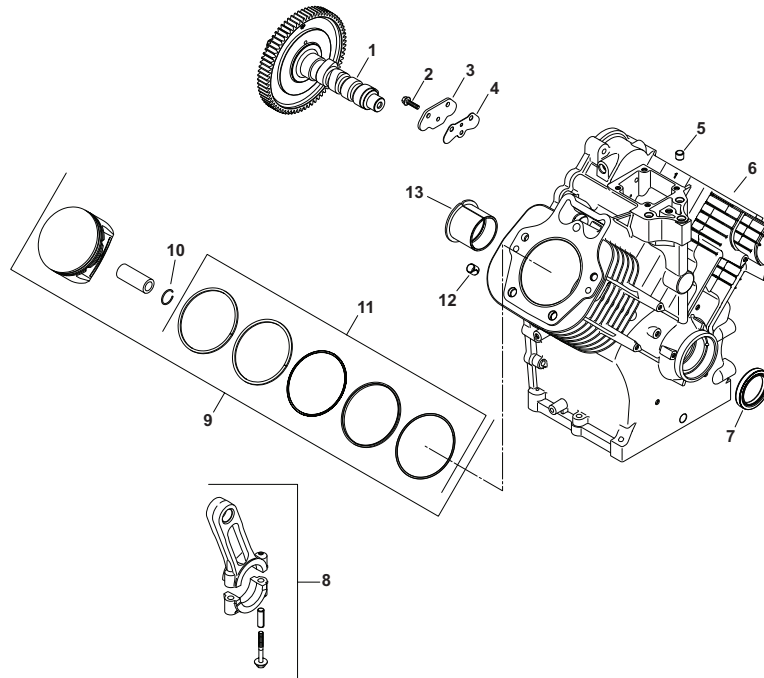
Group 1: Crankshaft



6518_1

Item	Part Number	Description	Quantity
			Variation
1	62 014 40-S	Crankshaft assembly (includes item 2)	8
2	25 139 27-S	Plug, cup	1

Group 2: Crankcase

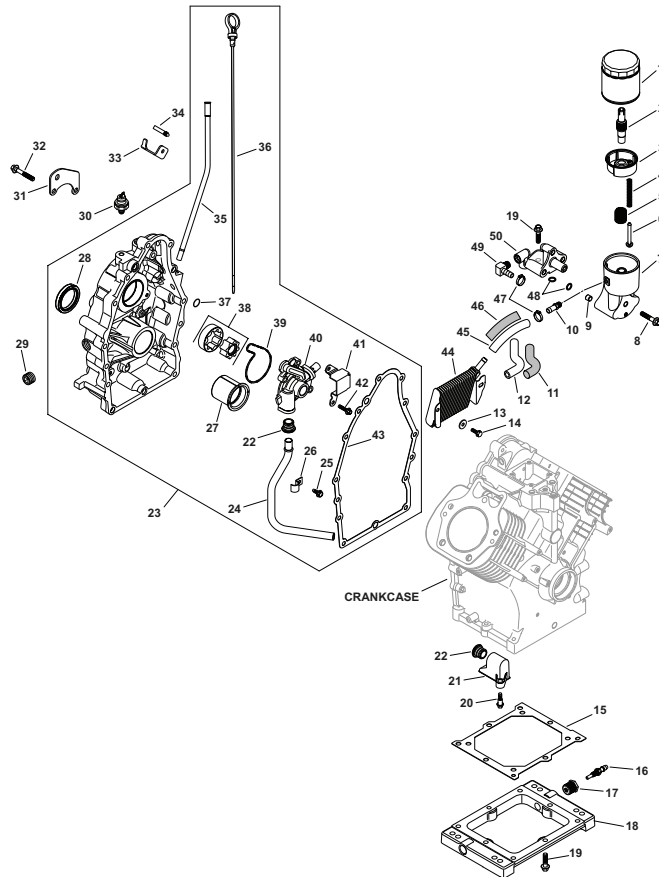


Illustrated parts without item reference numbers
(the piston, for example) are not sold separately.

6518_2

Item	Part Number	Description	Quantity
			Variation
1	62 010 05-S	Kit, camshaft (includes 25 357 14-S)	1
2	M-551020-S	Screw, hvy flg M5 x 0.8 x 20	3
3	62 096 29-S	Cover, lifter feed	1
4	62 041 24-S	Gasket, lifter feed cover	1
5	15 380 01-S	Pin	3
6	—	Crankcase (use short block)	1
7	62 032 16-S	Seal, oil	1
8	62 067 06-S	Rod, connecting assembly, standard	2
8	62 067 08-S	Rod, connecting assembly, 0.25	2
9	62 874 05-S	Kit, piston assembly, standard, (includes items 11,12)	2
9	62 874 06-S	Kit, piston assembly, 0.25	2
9	62 874 07-S	Kit, piston assembly, 0.50	2
10	62 018 04-S	Retainer, piston pin	4
11	62 108 04-S	Ring set, standard	1
11	62 108 05-S	Ring set, 0.25	1
11	62 108 06-S	Ring set, 0.50	1
12	24 380 16-S	Pin, locating	6
13	62 030 03-S	Bearing, crankshaft (flywheel)	1
—	25 357 14-S	Lubricant, camshaft (not shown)	1

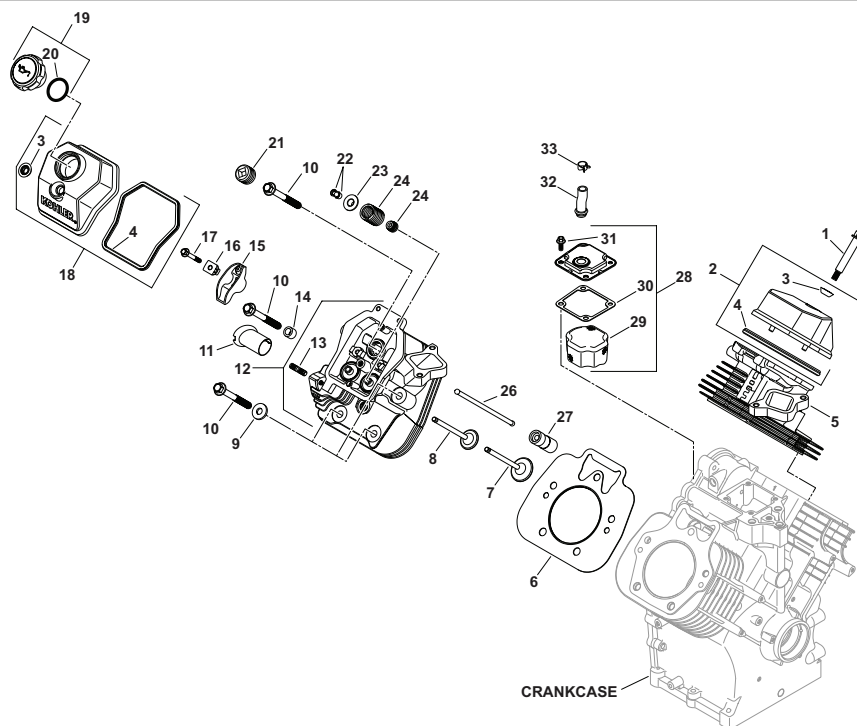
Group 3: Oil Pan/Lubrication



6518_3

Item	Part Number	Description	Qty. Var. 9	Item	Part Number	Description	Qty. Var. 9
1	52 050 02-S	Filter, oil	1	26	62 237 02-S	Clamp	1
2	62 136 01-S	Nipple, oil filter	1	27	62 030 04-S	Bearing, crankshaft (PTO)	1
3	62 109 01-S	Cup, oil filter	1	28	62 032 16-S	Seal, oil	1
4	62 089 11-S	Spring, oil filter valve	1	29	25 139 74-S	Plug, pipe, 1/2 NPTF sq ctsk	1
5	62 089 12-S	Spring, oil filter cup	1	30	52 099 08-S	Switch, oil pressure	1
6	62 462 02-S	Valve, oil filter	1	31	62 445 04-S	Strap, lifting	1
7	62 081 11-S	Housing, horizontal oil filter	1	32	62 086 07-S	Screw, flg, M8 x 1.25 x 50	14
8	M-851040-S	Screw, flg M8 x 1.25 x 40	1	33	62 126 13-S	Bracket, dipstick tube	1
9	15 380 01-S	Pin	3	34	25 237 14-S	Clamp, spring hose, 1/2 in.	1
10	12 294 04-S	Fitting, hose to pipe	1	35	62 123 15-S	Kit, dipstick tube (includes 25 597 05-S)	1
11	25 431 11-S	Sleeve, anti abrasion	1	36	62 038 04-S	Dipstick	1
12	62 326 06-S	Hose, oil supply	1	37	24 153 08-S	O-ring	1
13	X-25-52-S	Washer, flat 1/4 in.	2	38	62 393 01-S	Pump assembly, oil/gerotor	1
14	24 086 12-S	Screw, tap M6 x 1.7 x 18	2	39	62 153 04-S	O-ring, oil pump housing	1
15	62 041 22-S	Gasket, oil reservoir	1	40	62 081 08-S	Housing assembly, oil pump	1
16	GM28823	Sensor, temperature	1	41	62 063 14-S	Baffle, relief valve	1
17	25 158 19-S	Bushing, reducer 1/2-1/8 in. NPT, steel	1	42	M-639025-S	Screw, flg, M6 x 1.0 x 25	3
18	62 199 02-S	Kit, oil reservoir	1	43	62 041 21-S	Gasket, oil pan	1
19	M-851030-S	Screw, flg M8 x 1.25 x 30	9	44	62 594 02-S	Cooler, oil assembly	1
20	32 086 01-S	Screw, shd thd frm, M6 x 1.0 x 26.5	1	45	62 326 10-S	Hose, oil return	1
21	62 081 06-S	Housing assembly, oil pickup	1	46	25 431 16-S	Sleeve, anti abrasion	1
22	62 032 19-S	Seal, oil pick-up tube	2	47	25 237 02-S	Clamp	4
23	62 009 12-S	Kit, closure plate	1	48	24 153 01-S	O-ring, oil pick-up	6
24	62 123 05-S	Tube, oil pickup	1	49	24 294 12-S	Fitting, 90 deg. barbed	1
25	M-645016-S	Screw, flg thd frm, M6 x 1.0 x 16	1	50	62 029 04-S	Adapter, horizontal oil filter	1
				—	25 597 05-S	Sealant, Loctite (not shown)	1

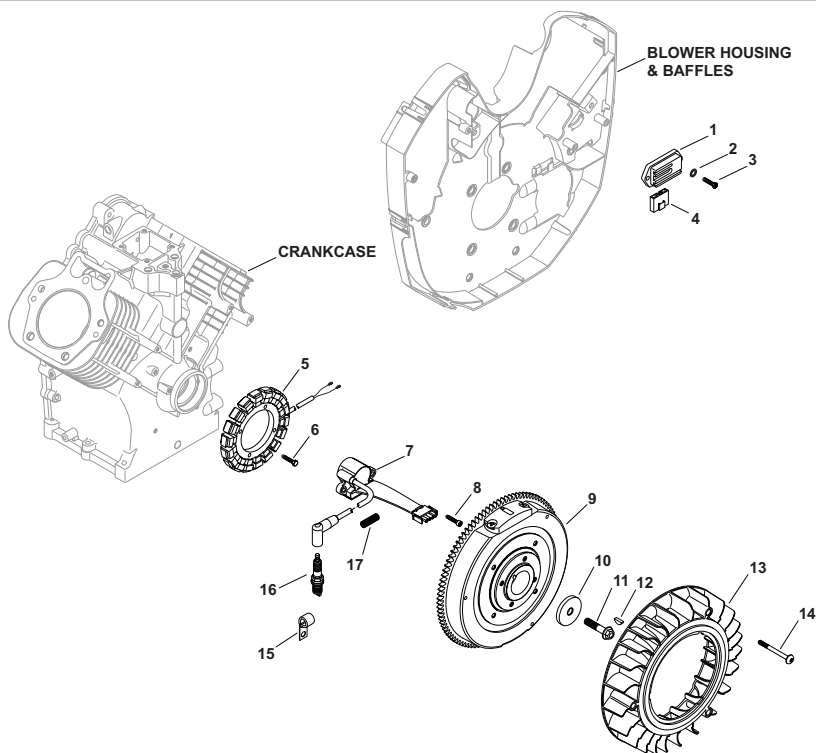
Group 4: Cylinder Head/Valve/Breather



6518_4

Item	Part Number	Description	Quantity
			Variation 4
1	62 086 06-S	Screw, shoulder	2
2	62 096 26-S	Kit, cover, valve (includes items 3, 4)	1
3	62 313 04-S	Grommet, valve cover screw	2
4	62 032 15-S	Seal, valve cover	2
5	62 318 12-S	Kit, cylinder head #1 (includes item 13 [qty2])	1
6	62 841 01-S	Kit, cylinder head gasket (includes 62 041 14-S, 62 041 13-S)	2
7	62 017 01-S	Valve, intake	2
8	62 016 02-S	Valve, exhaust	2
9	12 468 05-S	Washer, flat, 13/32 in.	6
10	62 086 08-S	Screw, flg, M10 x 1.5 x 90	10
11	62 605 05-S	Liner, exhaust port	2
12	62 318 13-S	Kit, cylinder head #2 (includes item 13 [qty2])	1
13	25 072 04-S	Stud, M8 x 1.25 x 33	4
14	62 112 03-S	Spacer	2
15	25 186 01-S	Arm, rocker	4
16	24 599 02-S	Pivot, rocker arm	4
17	32 086 04-S	Screw, flg, M6 x 1.0 x 45	4
18	62 096 27-S	Kit, cover, valve (includes items 3, 4)	1
19	62 173 02-S	Cap, oil fill assembly (includes item 20)	1
20	62 153 10-S	O-ring	1
21	25 139 66-S	Plug, pipe, 3/4 NPTF sq ctsk	2
22	12 755 03-S	Kit, retainer	4
23	12 173 01-S	Cap, valve spring	4
24	24 089 02-S	Spring, valve	4
25	66 032 05-S	Seal, valve stem	4
26	12 411 04-S	Rod, push	4
27	25 351 04-S	Kit, hydraulic valve lifter (includes 25 357 14-S)	4
28	62 033 06-S	Kit, breather assembly (includes items 29-31)	1
29	62 050 08-S	Filter, breather	1
30	62 041 27-S	Gasket, breather	1
31	M-651016-S	Screw, flg, M6 x 1.0 x 16	4
32	62 326 15-S	Hose, breather horizontal generator	1
33	25 237 08-S	Clamp, band spring hose	1
—	62 755 03-S	Kit, cylinder head hardware (services 1 head. Quantities listed are for both heads) (includes items 7, 8, 15-17, 22-26)	2
—	25 357 14-S	Lubricant, camshaft (not shown)	1
—	62 041 14-S	Gasket, exhaust (not shown)	2
—	62 041 13-S	Gasket, intake manifold (not shown)	2

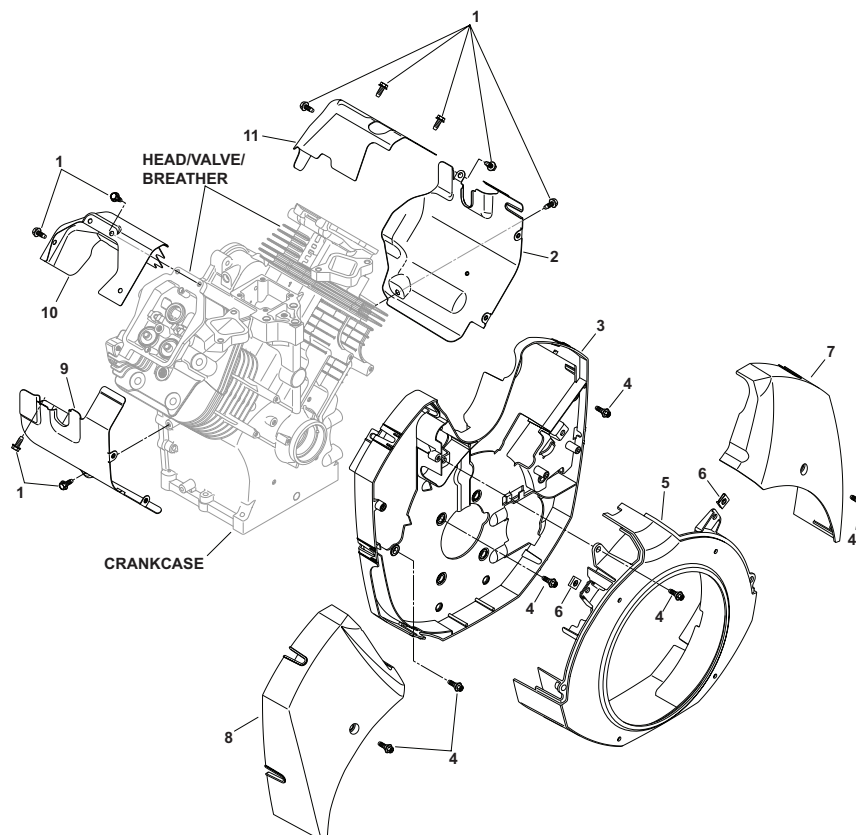
Group 5: Ignition/Electrical



6518_5

Item	Part Number	Description	Quantity
			Variation 12
1	41 403 09-S	Rectifier-regulator	1
2	X-22-11-S	Washer, int tooth lock, 1/4 in.	2
3	24 086 18-S	Screw, phl hd #11-16 x 7/8 in.	2
4	236602-S	Connector (3 contact)	1
5	237878-S	Kit, 15 amp stator (includes 25 452 01-S)	1
6	M-548025-S	Screw, thd frm, M5 x 0.8 x 25	2
7	62 584 08-S	Module, spark advance (DSA) assembly	2
8	M-561025-S	Screw, skt thd frm, M5 x 0.8 x 25	4
9	62 025 05-S	Flywheel assembly	1
10	62 468 01-S	Washer, flat 13/32 in.	1
11	12 086 14-S	Screw, flg, M10 x 1.5 x 45	1
12	X-42-15-S	Key, 3/16 in. x 5/8 in.	1
13	62 157 02-S	Fan, front drive adapter hole	1
14	25 086 132-S	Screw, trs hd, M6 x 1.0 x 65	3
15	25 154 04-S	Clip, cable	1
16	62 132 04-S	Plug, spark	2
17	62 431 02-S	Sleeve, corrugated	2
—	12 454 03-S	Tie, cable (not shown)	1
—	24 518 12-S	Lead (not shown)	1
—	25 452 01-S	Terminal (not shown)	1
—	25 454 07-S	Tie (not shown)	2
—	62 176 08-S	Harness, wiring (not shown)	1
—	62 518 01-S	Lead, B+ to starter solenoid (not shown)	1

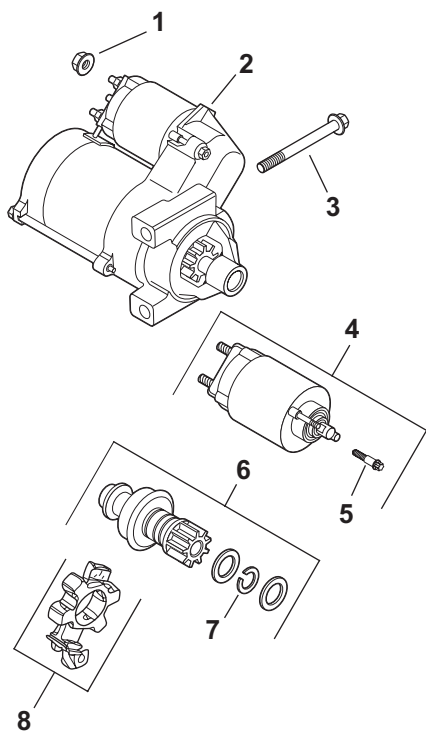
Group 6: Blower Housing and Baffles



6518_6

Item	Part Number	Description	Quantity
			Variation
1	M-645016-S	Screw, flg thd frm, M6 x 1.0 x 16	5
2	62 063 03-S	Baffle, cyl barrel #1 side	10
3	62 424 07-S	Shroud, backing	1
4	62 086 10-S	Screw, shd thd frm	1
5	62 027 03-S	Kit, blower housing assembly (includes 41 037 10-S)	18
6	25 154 02-S	Clip, mounting	1
7	62 424 08-S	Shroud, #1 cylinder	12
8	62 424 09-S	Shroud, #2 cylinder	1
9	62 063 04-S	Baffle, cyl barrel #2 side	1
10	62 063 10-S	Baffle, valley #2 side	1
11	62 063 07-S	Baffle, valley #1 side	1
—	41 037 10-S	Nameplate, service (not shown)	1

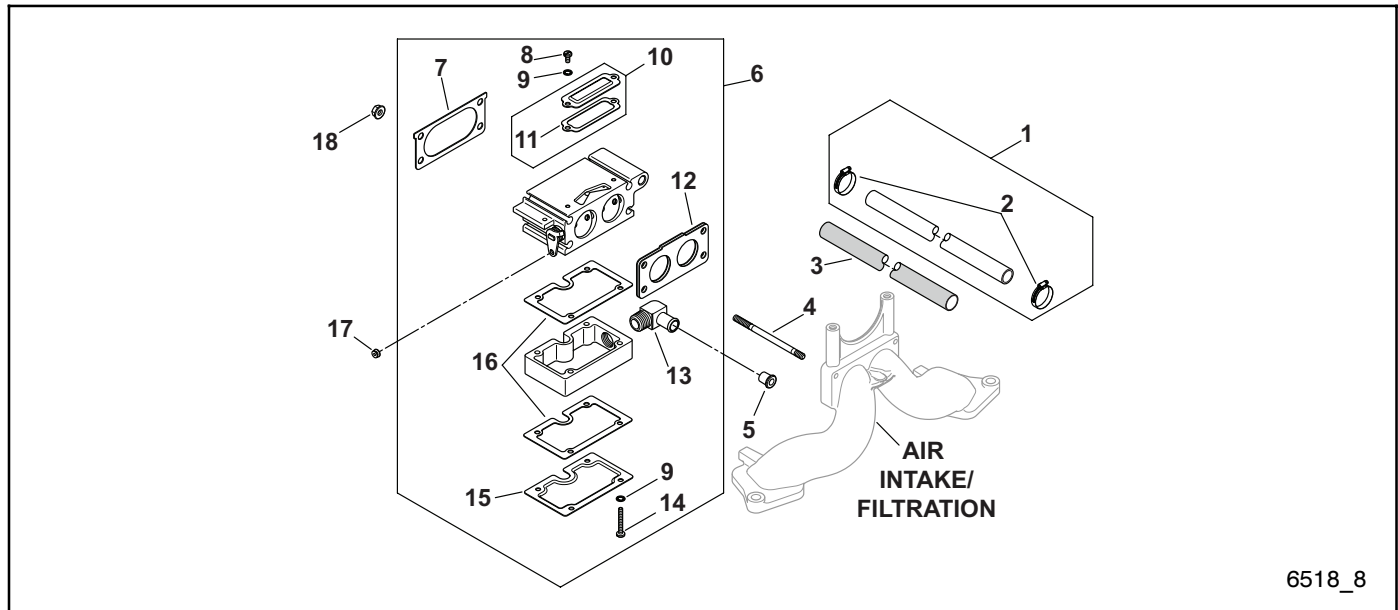
Group 7: Starter



6518_7

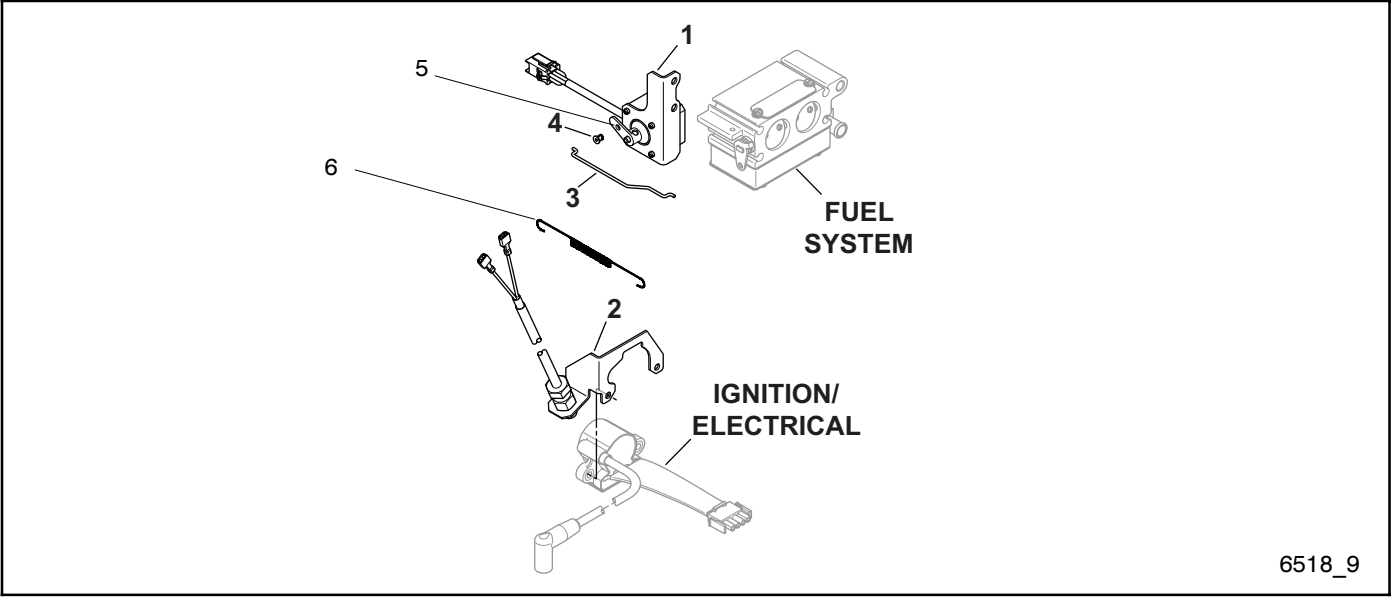
Item	Part Number	Description	Quantity
			Variation
1	M-841080-S	Nut, flg, M8 x 1.25	1
2	25 098 09-S	Starter assembly, solenoid shift (includes items 4-8)	1
3	M-839080-S	Screw, flg, M8 x 1.25 x 80	2
4	25 435 06-S	Kit, solenoid (includes item 5)	1
5	25 086 113-S	Screw, external torx head	3
6	25 755 33-S	Kit, starter pinion (includes item 7)	1
7	25 141 05-S	Ring, retaining	1
8	25 221 01-S	Kit, brush holder	1

Group 8: Carburetor



Item	Part Number	Description	Quantity
			Variation
1	24 353 37-S	Kit, LP fuel line (includes item 2)	1
2	25 237 12-S	Clamp, hose	2
3	25 431 17-S	Sleeve, anti-abrasion	1
4	M-629095-S	Stud, M6 x 1.0 x 96	4
5	-	Fitting, restrictor (See Group 103)	1
6	62 853 17-S	Carburetor, w/gaskets (includes items 7-13)	1
7	62 041 29-S	Gasket, air cleaner elbow	1
8	25 086 133-S	Screw, slotted pan, M4 x 0.7 x 8	2
9	X-22-7-S	Washer, int tooth lock #8	6
10	62 096 30-S	Cover, idle circuit	1
11	62 041 30-S	Gasket, idle circuit plate	1
12	24 041 60-S	Gasket, carburetor	1
13	25 294 17-S	Fitting, 90 deg.	1
14	25 086 134-S	Screw, slotted pan, M4 x 0.7 x 30	4
15	62 096 31-S	Cover, plenum	1
16	62 041 31-S	Gasket, plenum-carburetor	2
17	45 158 03-S	Bushing	1
18	14 100 09	Nut, hex flange lock (M6)	4

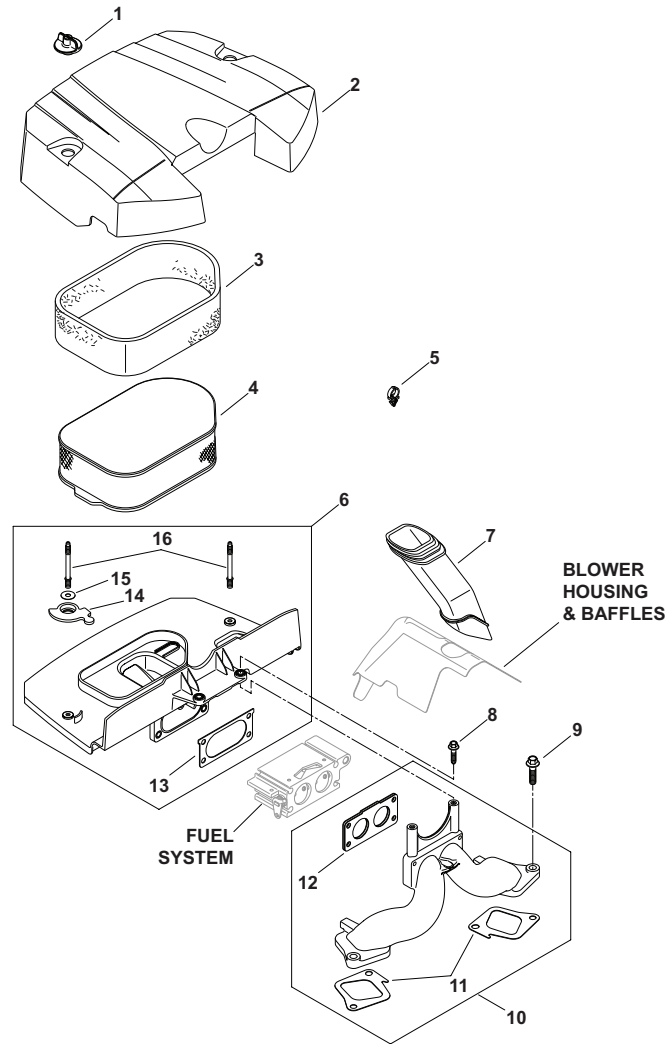
Group 9: Engine Controls



6518_9

Item	Part Number	Description	Quantity
			Variation
1	GM81265	Governor assembly (electronic)	43
2	62 418 04	Sensor assembly, speed	1
3	62 079 16-S	Linkage, throttle	1
4	25 158 08-S	Bushing, linkage retaining	1
5	358358	Coupling, stepper motor	1
6	62 089 45-S	Spring, linkage	1

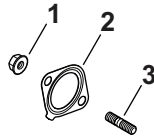
Group 10: Air Intake/Filtration



6518_10

Item	Part Number	Description	Quantity
			Variation
1	25 341 04-S	Knob, cover	2
2	62 096 17-S	Cover, air cleaner	1
3	—	Not used	
4	62 083 01-S	Element, air filter	1
5	62 154 05-S	Clip, fuel line	1
6	62 094 07-S	Base, air cleaner assembly (includes items 13-16)	1
7	62 123 10-S	Tube, air intake	1
8	25 086 124-S	Screw, flg, M6 x 1.0 x 25	2
9	M-851030-S	Screw, flg, M8 x 1.25 x 30	4
10	62 164 06-S	Kit, intake manifold (includes items 11, 12)	1
11	62 041 13-S	Gasket, intake manifold	2
12	24 041 60-S	Gasket, carburetor	1
13	62 041 29-S	Gasket, air cleaner elbow	1
14	62 344 01-S	Latch, filter element	1
15	M-631005-S	Washer, flat, 6 mm	1
16	20 072 04-S	Stud, air cleaner base	2

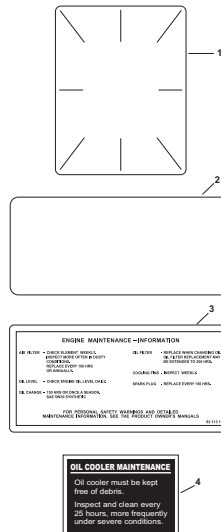
Group 11: Exhaust



6518_11

Item	Part Number	Description	Quantity
			Variation
			2
1	M-841080-S	Nut, flg, M8 x 1.25	4
2	62 041 14-S	Gasket, exhaust	2
3	25 072 04-S	Stud, M8 x 1.25 x 33	4

Group 12: Engine Decals



6518_12

Artwork is representative.
Actual labels may differ depending on model and specification number.

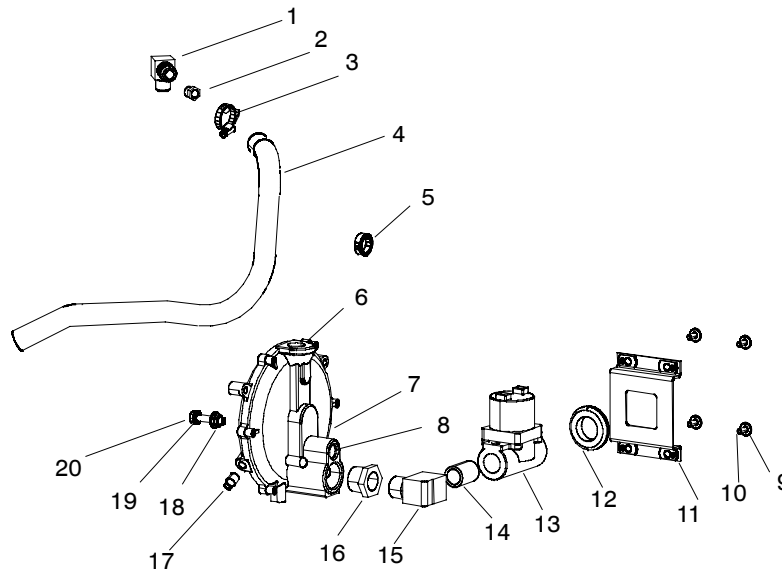
Item	Part Number	Description	Quantity
			Variation
			7
1	25 113 39-S	Decal, clear laminate	1
2	25 113 47-S	Decal, powered by Kohler white on clear	1
3	62 113 14-S	Decal, air cleaner	1
4	24 113 25-S	Decal, oil cooler	1

Group 13: Gasket Set

Gasket set not illustrated.

Item	Part Number	Description	Quantity
			Variation
			1
1	62 755 02-S	Gasket set	1

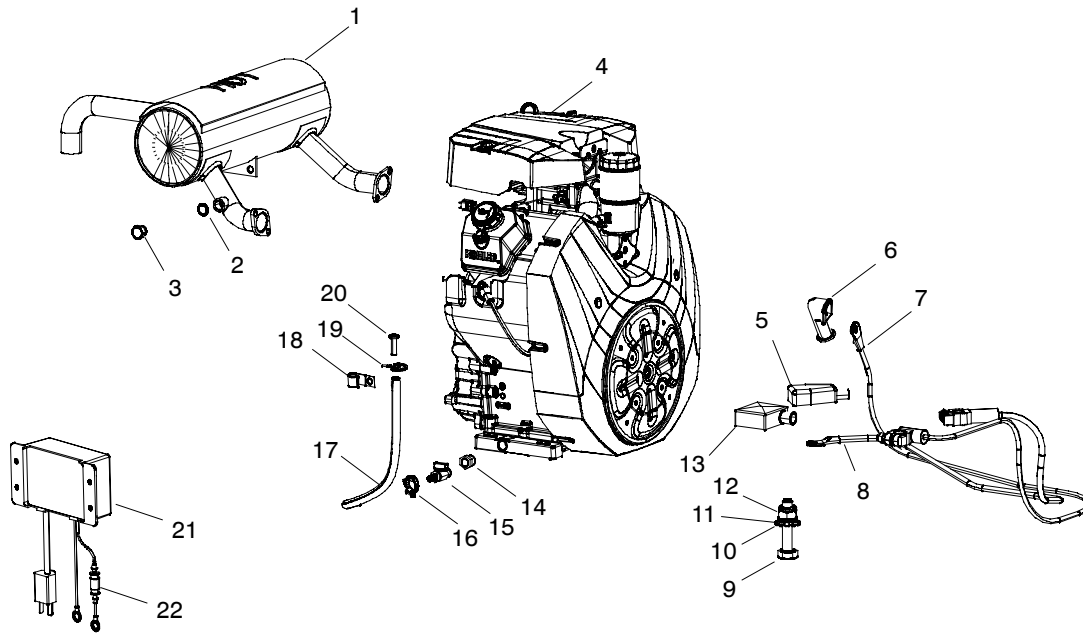
Group 103: Fuel System



6518_103

Item	Part Number	Description	Quantity
			Variation
1	25 294 19	Fitting, 90 deg.elbow	1
2	62 294 02-S	Fitting, restrictor	1
3	X-426-12	Clamp, hose, 0.69/1.25 in.	1
4	—	Fuel line (see Group 8)	1
5	X-634-28	Bushing	1
6	A-227531	Regulator, gas	1
7	X-391-1	Connector, 90 deg., 1/4 in. ID hose	1
8	X-75-51	Plug, pipe, 1/4 in. NPTF	1
9	X-50-15	Screw, machine	4
10	X-25-36	Washer, plain, 0.219 ID x 0.5 in. OD	4
11	GM31888	Plate, gas solenoid retainer	1
12	X-284-3	Grommet, round	1
13	GM39554	Valve, gas shutoff	1
14	X-209-2	Pipe, 1/2 in. NPT x 1.19 in.	1
15	X-211-3	Elbow, street, 90 deg. x 1/2 in. NPTF	1
16	X-202-41	Bushing, reducing, 1/2 x 3/4 in. NPT	1
17	X-75-4	Plug, pipe, 1/8 in. NPTF	1
18	M6923-06-80	Nut, hex, 6mm	2
19	M125A-06-80	Washer, plain	2
20	M933-06025-60	Screw, hex cap	2

Group 105: Engine



6518_105

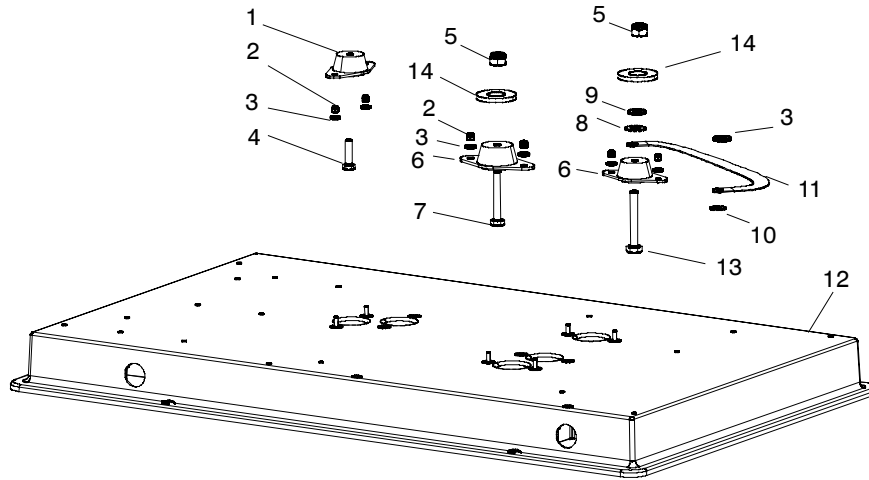
Item	Part Number	Description	Quantity
			Variation
1	GM51737	Silencer, exhaust SISO	1
2	358306	Gasket	1
3	358224	Plug, water	1
4	GM81390	Engine assembly, KOHLER CH980-2020	1
5	GM33146	Boot, battery lug	1
6	238915	Boot	1
7	X-545-134	Cable, battery (No. 4 x 44 in.) red+	1
8	X-545-172	Cable, battery	1
9	M931-08050-60	Screw, hex cap	1
10	X-22-16	Washer, lock, .326 ID x .883 in. OD	2
11	M125A-08-80	Washer, plain, 8.4 ID x 16.0 OD	1
12	M6923-08-80	Nut, hex 8mm	1
13	GM20748	Boot, battery lug	1
14	X-202-28	Bushing, reducing, 3/8 x 1/2 in. NPT	1
15	359653	Valve, oil drain, 3/8-18 NPT	1
16	X-426-9	Clamp, hose, 0.25/0.70 in.	1
17	X-612-27	Hose, rubber, straight, 0.375 in. ID	1
18	X-6084-1	Clip, J	1
19	X-309-17	Clamp, spring hose, 0.583/0.668 in.	1
20	GM20547	Plug, hose, 3/8	1
21	GM28341	Charger, battery, 12V-6A float equal.	1
22	223316	Fuse, 10 A, 250 V	1

Group 107: Nameplate and Decals

Nameplate and decals are not illustrated.

Item	Part Number	Description	Quantity	
			Variation	
			1	2
1	224233	Decal, 1-800 number	1	1
2	239789	Decal, notice, neutral bonded to frame	1	1
3	249808	Decal, warning rotating parts	1	1
4	249809	Decal, caution hot engine	3	3
5	255882	Decal, caution stdby svc connect	1	1
6	257438	Decal, danger moving rotor	1	1
7	GM12070	Nameplate, Kohler	1	
8	GM15299	Decal, rainproof enclosure	1	1
9	GM20172	Decal, unbalanced load	1	
10	GM29924	Decal, notice, fuel connection	1	1
11	GM20577	Decal, fuel type	1	1
12	GM59781	Decal, fuel type	1	1
13	X-6348-8	Decal, Kohler Power Systems	1	1
14	GM60175	Decal, Warning Non GFCI Outlet	1	

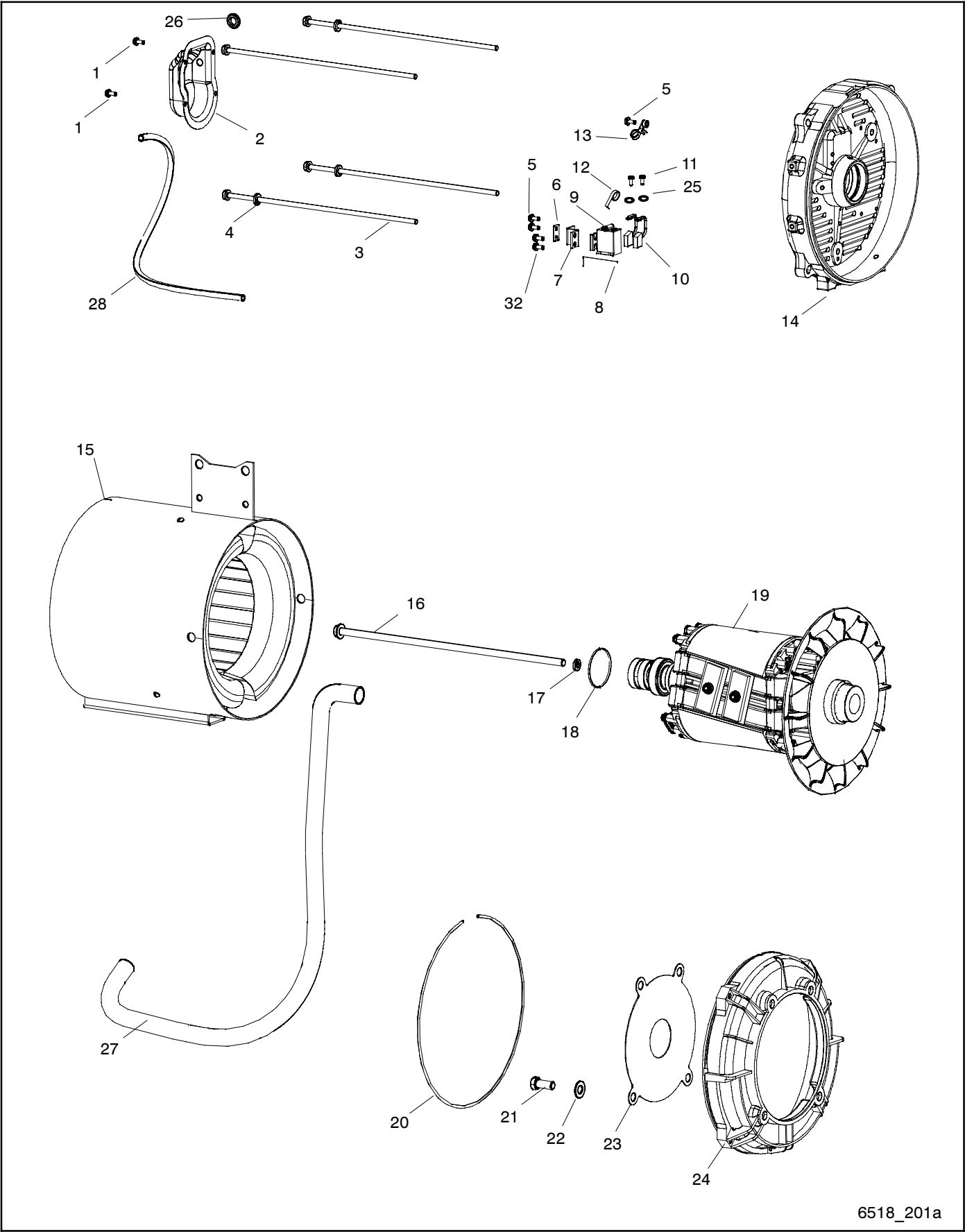
Group 109: Skid and Plant Mounting



6518_109

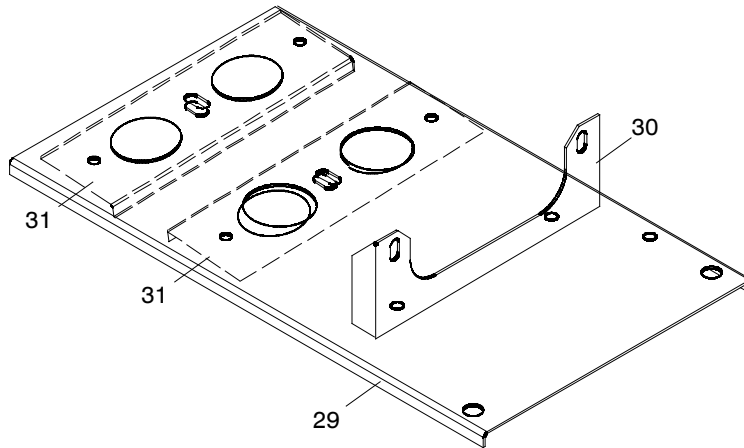
Item	Part Number	Description	Quantity
			Variation 1
1	276309	Vibromount	1
2	M6923-06-80	Nut, hex, 6mm	6
3	X-25-40	Washer, plain, 0.281 ID x 0.625 in. OD	7
4	M931-10040-60	Screw, hex cap	1
5	M982-10-80	Nut, hex elastic stop	2
6	225124	Vibromount	2
7	M931-10080-60	Screw, hex cap	2
8	X-22-14	Washer, lock, 0.391 ID x 0.975 in. OD	1
9	M125A-10-80	Washer, plain, 10.5 ID x 20.0 OD	1
10	X-22-12	Washer, lock, 0.262 ID x 0.743 in. OD	1
11	GM50449	Strap, ground	1
12	GM51562	Base, generator set, 17RES	1
13	M931-10080-60	Screw, hex cap	2
14	X-25-96	Washer, plain, 0.406 ID x 2 in. OD	2

Group 201: Generator and Mounting



6518_201a

Group 201: Generator and Mounting



Item	Part Number	Description	Quantity	
			Variation	
			1	2
1	X-67-133	Screw, hex washer, thread-forming	2	2
2	278877	Cover, brush holder	1	1
3	GM51560	Bolt, over	4	4
4	X-25-68	Washer, plain, .281 ID x .625 in. OD	4	4
5	X-67-64	Screw, self-tapping	5	5
6	238248	Shim, brush holder	2	2
7	229335	Bracket, brush holder	1	1
8	238247	Retainer, wire	1	1
9	239247	Holder, brush	1	1
10	239282	Brush	2	2
11	X-49-1	Screw, machine	2	2
12	GM60538	Spring	2	2
13	X-468-3	Cable tie, nylon	3	3
14	GM38291	Bracket, end	1	1
15	GC51547	Stator assembly	1	
15	GC65808	Stator assembly		1
16	GM51559	Bolt, armature thru	1	1
17	X-801-3	Washer, hardened, 0.406 ID x 0.812 in. OD	1	1
18	256466	O-ring, 2.050 in. ID	1	1
19	GM54737	Rotor assembly	1	1
20	238214	Guard, generator fan	1	1
21	X-6024-2	Bolt, hex cap	4	4
22	X-25-34	Washer, plain, 0.469 ID x 0.922 in. OD	4	4
23	358067	Guard, alternator adapter	1	1
24	GM59226	Adapter, generator	1	1
25	X-22-6	Washer, lock, 0.146 ID x 0.285 in. OD	2	2
26	X-284-39	Grommet, round	1	1
27	X-6003-32	Conduit, convoluted	1	1
28	X-6003-63	Conduit, convoluted	1	1
29	-	Plate, mounting (Order kit GM64053. See note below)	1	
30	-	Plate, front mounting (Order kit GM64053. See note below)	1	
31	-	Plate, rear mounting (Order kit GM64053. See note below)	2	
32	X-67-133	Screw, hex washer, thread-forming	2	2

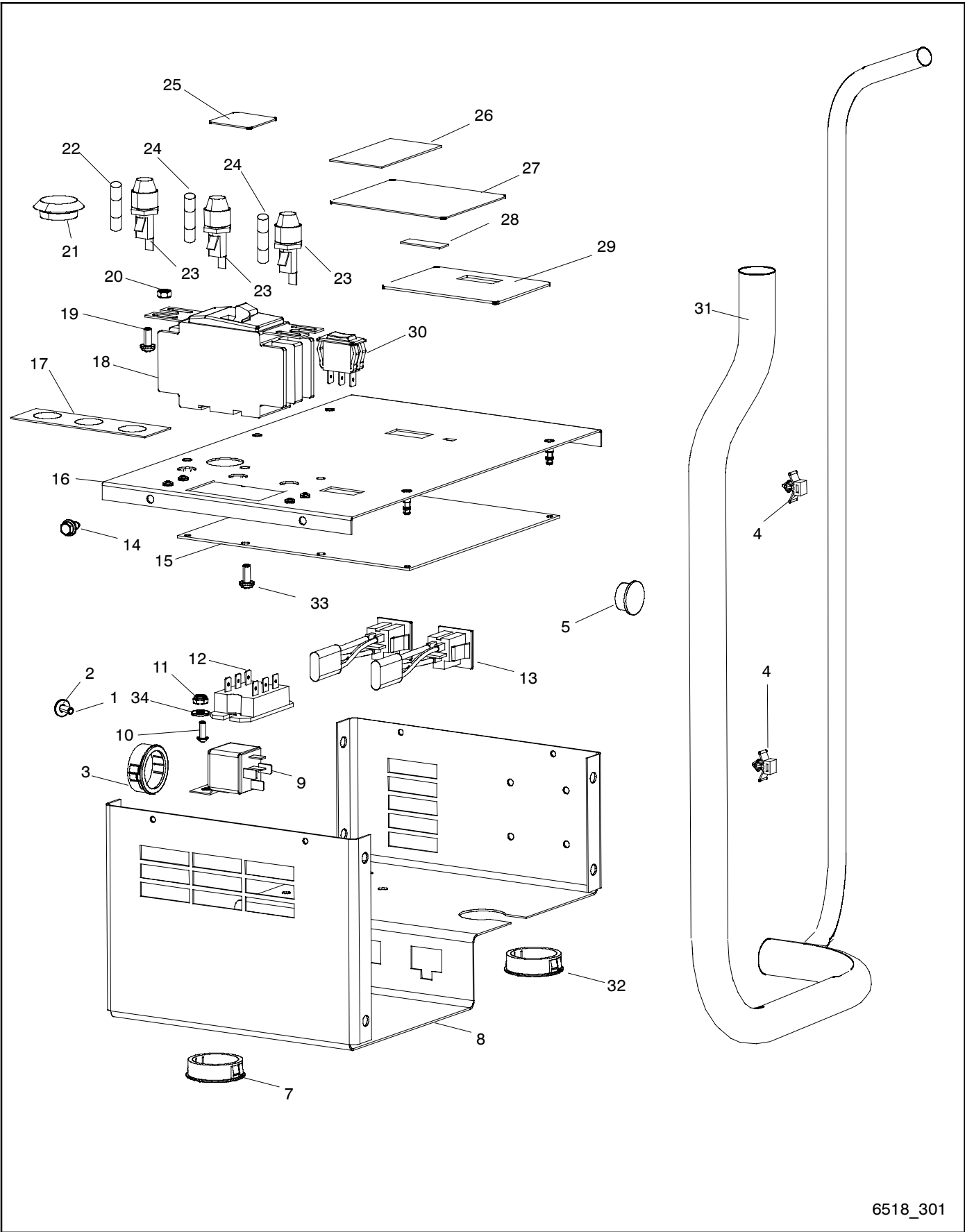
Note:

Items 29, 30, and 31 are discontinued. Service with Alternator Stiffening Plate Kit GM64053. The kit includes strengthened alternator adapter GM59226 (item 24); eliminating the need for the plates.

Alternator Stiffening Plate Service Kit GM64053

GM59226	Adapter, generator	1
M125A-08-80	Washer, plain 8.4 Id x 16.0 OD	2
M6923-08-80	Nut, hex 8mm	1
M931-08050-60	Screw, hex cap	1
X-22-16	Washer, lock, .326 ID x .883 in. OD	2
X-25-96	Washer, plain, .406 Id x 2 in. OD	1

Group 301: Control and Harness

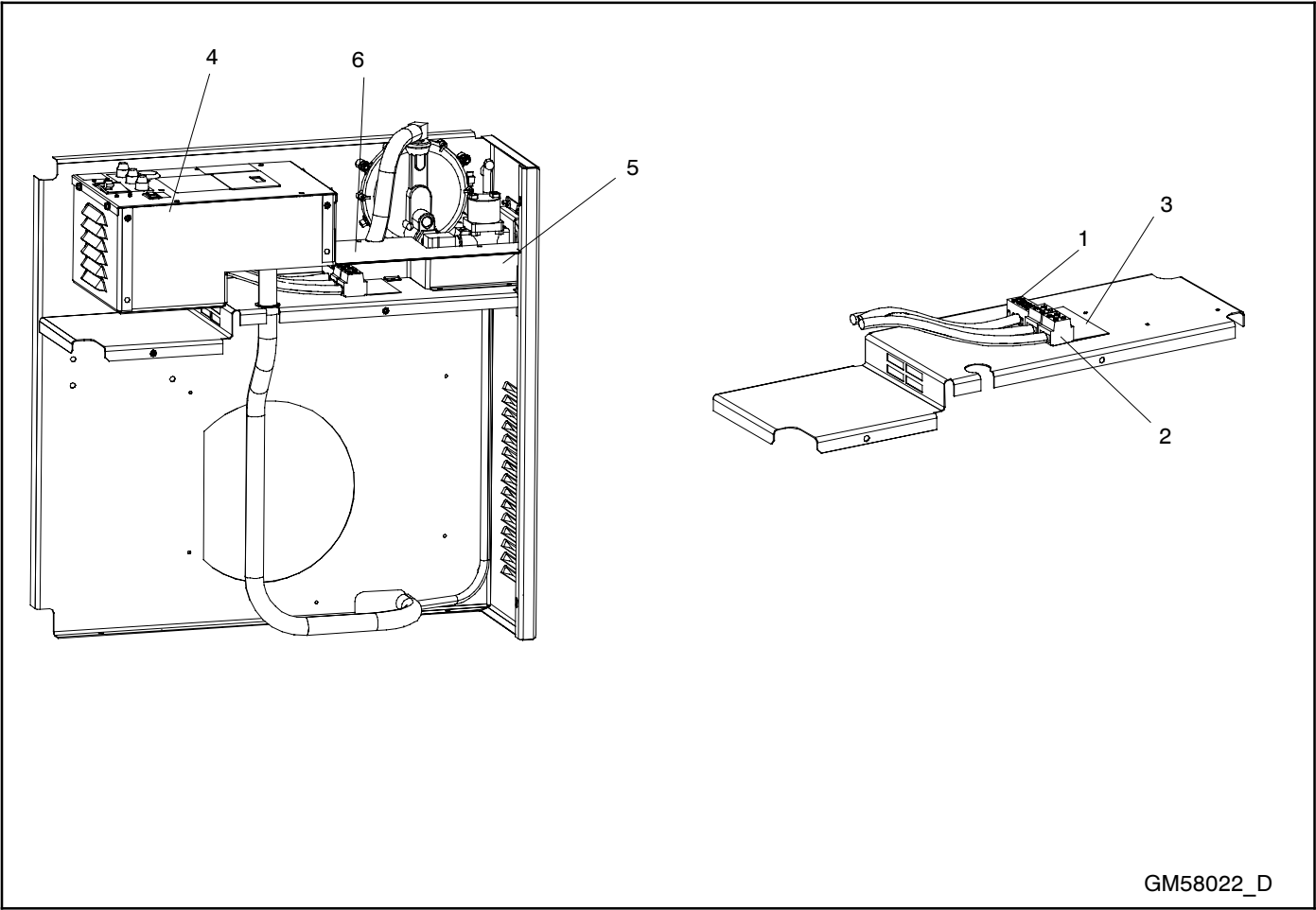


6518_301

Group 301: Control and Harness

Item	Part Number	Description	Quantity				
			Variation				
			1	2	4	5	6
1	X-50-15	Screw, machine	4	4	4	4	4
2	X-25-30	Washer, plain, 0.562 ID x 1.25 in. OD	4	4	4	4	4
3	X-634-27	Bushing	2	2	2	2	2
4	361567	Base, tie wrap snap-in	3	3	3	3	3
5	X-301-35	Plug, button	1	1	1	1	1
6	GM57962	Controller assembly (includes items 7-34)	1				
6	GM57963	Controller assembly (includes items 7-34)		1			
6	GM63634	Controller assembly (includes items 7-34)			1		
6	GM69281	Controller assembly (includes items 7-34)				1	
6	GM69282	Controller assembly (includes items 7-34)					1
7	X-634-28	Bushing	1	1	1	1	1
8	GM51772	Panel, lower controller	1	1	1	1	1
9	GM49746	Relay, 12 VDC	1	1	1	1	1
10	X-51-5	Screw, machine	2	2	2	2	2
11	X-101-11	Nut, hex elastic stop, 8-32	2	2	2	2	2
12	GM28483	SCR module	1	1	1	1	1
13	GM48108	Harness, pigtail customer connection	2	2	2	2	2
14	X-6216-1	Screw, Phillips hex crimpite	4	4	4	4	4
15	GM49103	PCB assembly, advanced digital control	1	1	1	1	1
16	GM51766	Panel, controller mounting	1	1	1		
16	GM69280	Panel, controller mounting				1	1
17	GM53080	Decal, fuse panel	1	1	1	1	1
18	GM28743	Breaker, circuit	1	1			
18	GM28742	Breaker, circuit			1		
18	GM24462	Breaker, circuit 80 A, 2 pole				1	1
19	X-67-143	Screw, cross recess, sheet metal	4	4	4	4	4
20	239332	Clip, speed	4	4	4	4	4
21	X-301-43	Plug, button	1	1	1	1	1
22	292937	Fuse, 20 A, 250 V	1	1	1	1	1
23	238426	Fuse holder, 0.25 x 1.25 in.	3	3	3	3	3
24	223316	Fuse, 10 A, 250 V	2	2	2	2	2
25	GM53084	Decal, power breaker	1	1	1	1	1
26	294520	Decal, danger, high voltage	1	1	1	1	1
27	GM53082	Decal, ROC fault codes	1		1	1	
27	GM53083	Decal, ROC fault codes		1			1
28	GM53081	Decal, rocker switch	1	1	1	1	1
29	GM52275	Switch, membrane overlay, 3-button	1		1	1	
29	GM52276	Switch, membrane overlay		1			1
30	GM46103	Switch, rocker on-off-on	1	1	1	1	1
31	GM51927	Harness, engine 17kW RES	1	1	1	1	1
32	X-634-27	Bushing	1	1	1	1	1
33	X-49-25	Screw, machine	7	7	7	7	7
34	X-25-115	Washer, plain, 0.203 ID x 0.438 in. OD	2	2	2	2	2

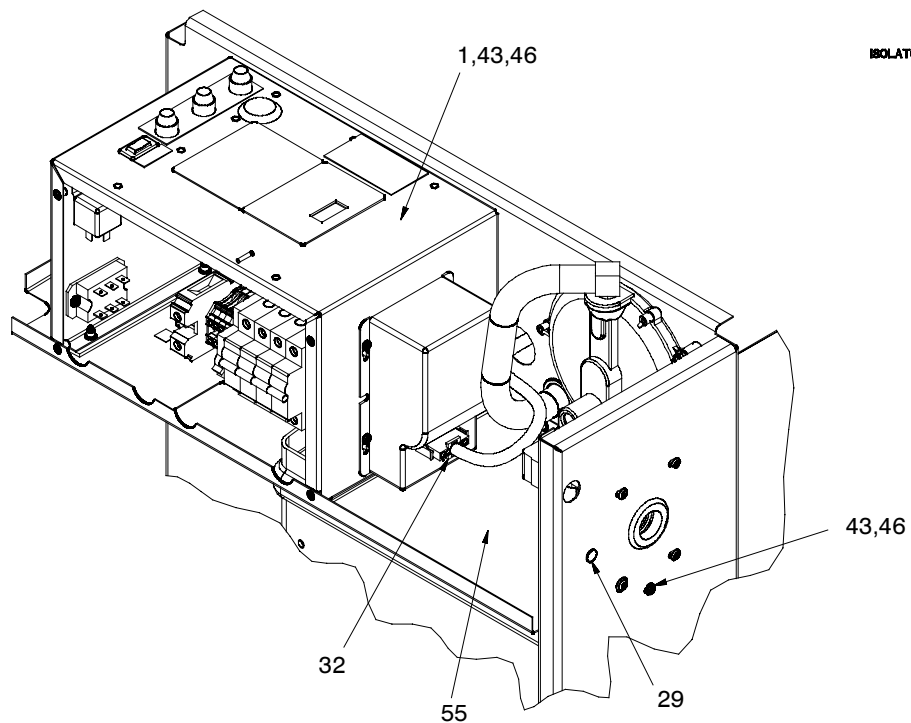
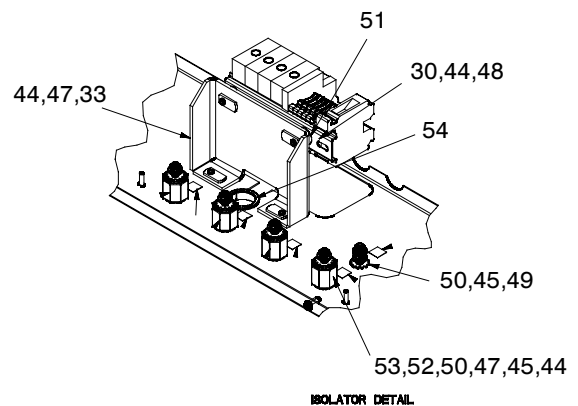
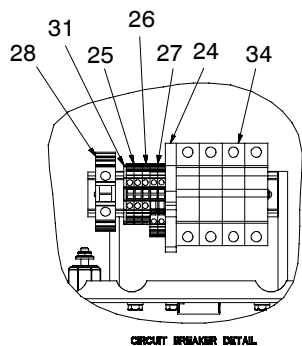
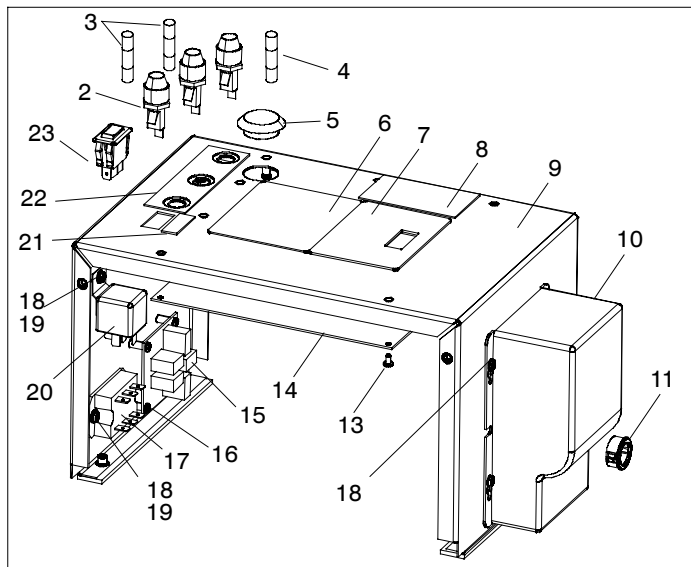
Group 301: Control and Harness, continued



Group 301: Control and Harness, continued

Item	Part Number	Description	Quantity
			Module GM58022-KA3
1	GM60297	Harness, Terminal Block	1
2	GM62608	Harness, Terminal Block	1
3	GM71374	Decal, Terminal Block RES	1
4	GM78379	Cover, Controller	1
5	GM78380	Panel, Divider	1
6	GM78381	Cover, Load Leads	1

Group 301: Control and Harness, continued



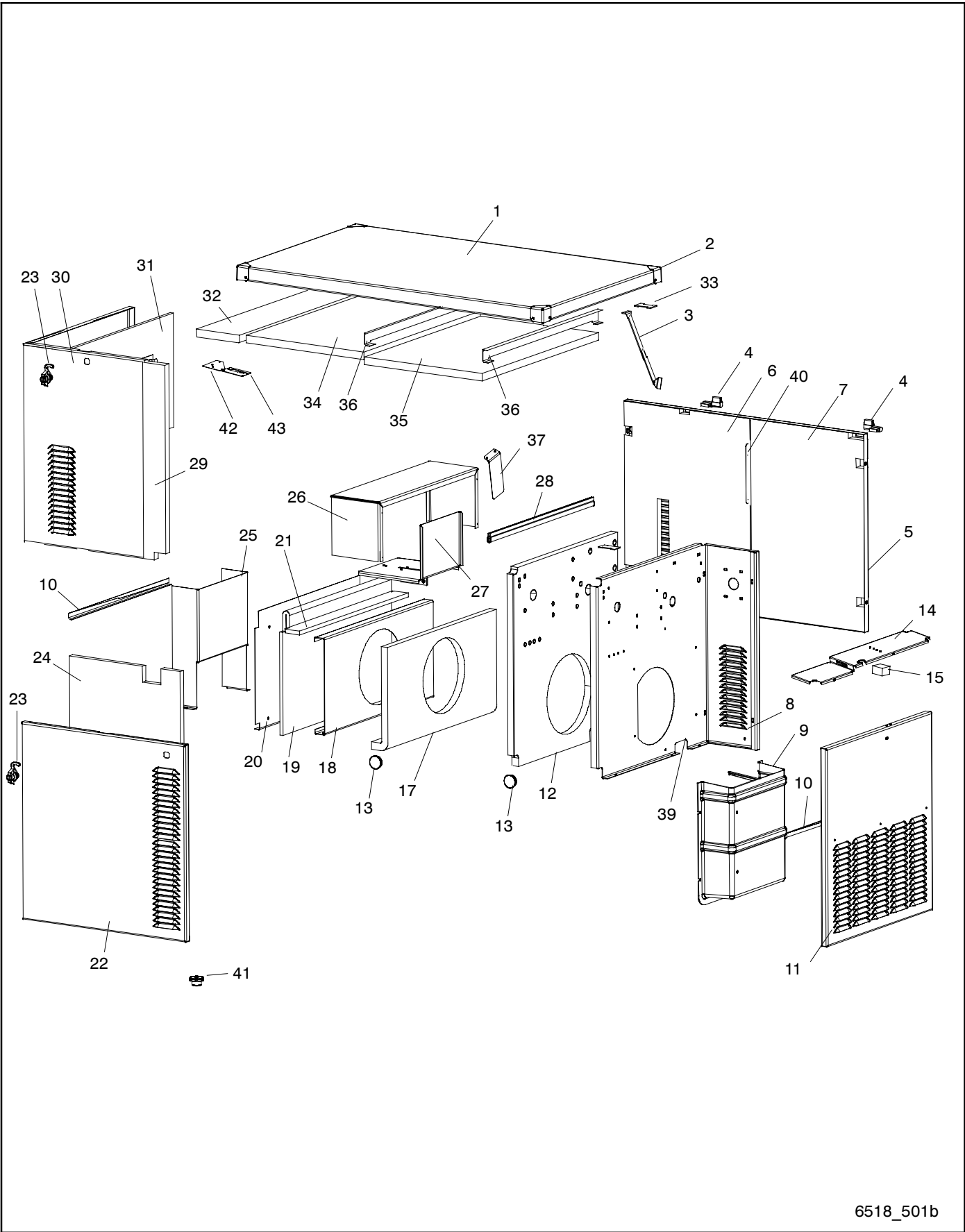
Items not shown: 35, 36, 37, 38, 39, 40, 41, 42, 56

GM60044_B

Group 301: Control and Harness, continued

Item	Part Number	Description	Quantity
			Variation 7
1	GM66364	Controller assembly	1
2	238426	Fuse holder, .25 x 1.25 in.	3
3	223316	Fuse, 10 A, 250 V	2
4	292937	Fuse, 20 A, 250 V	1
5	X-301-43	Plug, button, 1.37 (hole dia. 1.01)	1
6	GM53082	Decal, ROC fault codes	1
7	GM52275	Switch, membrane overlay 3 button	1
8	294520	Decal, danger, high voltage	1
9	GM64471	Panel, controller mtg.	1
10	GB31613430001	Charger, battery	1
11	X-634-25	Bushing, .672 x .875 in. NPT	1
13	X-49-25	Screw, machine	7
14	GM49103	PCB assy., advanced digital control	1
15	GM69852	PCB assy., CE filter	1
16	X-49-25	Screw, machine	4
17	GM28483	SCR module	1
18	M7985A-04016-20	Screw, pan head machine	7
19	M125A-04-80	Washer, plain	7
20	GM49746	Relay, 12 VDC	1
21	GM53081	Decal, rocker switch	1
22	GM53080	Decal, fuse panel	1
23	GM46103	Switch, rocker on-off-on	1
24	GB31613075201	Contact, auxiliary	1
25	GB31613529701	Block, terminal	2
26	GB31613529703	Block, terminal	1
27	GB31613529704	Block, terminal	2
28	GB31613529803	Block, terminal	1
29	GM15505	Plug, plastic	1
30	GM47488	Rail, din	1
31	GM62786	Cover, terminal block	1
32	GM65657	Heater, carburetor	1
33	GM66002	Support, din rail	1
34	GM66028	Breaker, circuit 4 pole	1
35	GM66800	Harness, Engine (not shown)	1
36	GM66801	Lead, L1 (not shown)	1
37	GM66802	Lead, L2 (not shown)	1
38	GM66803	Lead, L3 (not shown)	1
39	GM69624	Suppressor, EMI (not shown)	1
40	GM69625	Lead (not shown)	1
41	GM69626	Lead (not shown)	1
42	GM69706	Lead (not shown)	1
43	M125A-04-80	Washer, plain	9
44	M125A-06-80	Washer, plain	8
45	M6923-06-80	Nut, hex 6mm	6
46	M7985A-04016-20	Screw, pan head machine	9
47	M933-06010-60	Screw, hex cap	6
48	M933-06020-60	Screw, hex cap	2
49	M933-06025-60	Screw, hex cap	1
50	X-22-12	Washer, lock .262 ID x .743 in. OD	10
51	X-400-41	Spacer, .344 ID x .75 OD x .375 in.	2
52	X-6054-23	Stud (metric)	4
53	X-6128-35	Isolator, standoff	4
54	X-634-27	Bushing	1
55	GM63501	Baffle, rain	1
56	GM22387	Decal, caution hot carburetor heater	1

Group 501: Housing



6518_501b

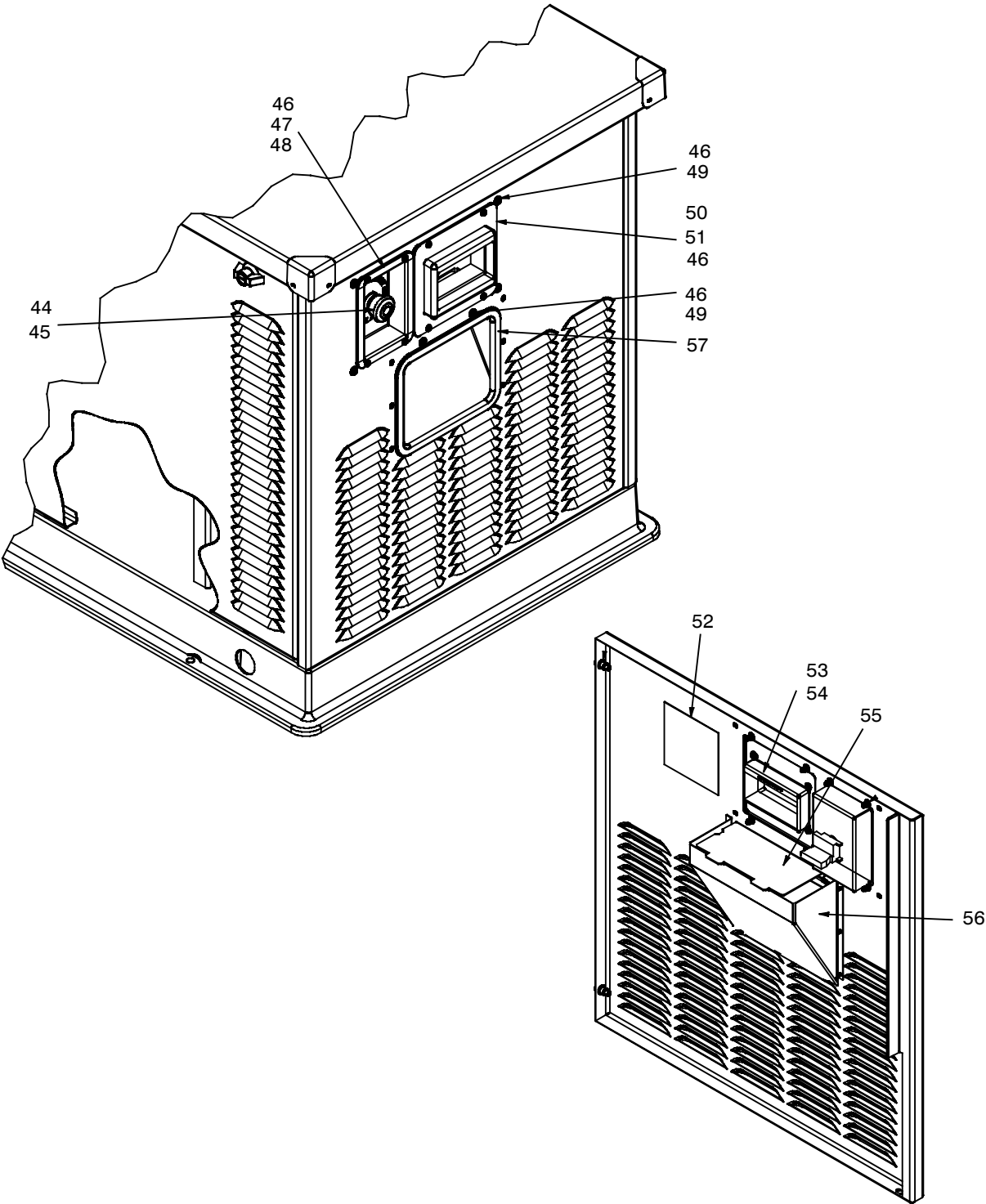
Group 501: Housing

Item	Part Number	Description	Quantity				
			Variation				
			1	2	3	4	5
1	GM51569-S	Roof assy., housing (includes items 2-4, 28, 32-36, 42, 43)	1		1		
1	GM51879-S	Roof,assy., housing (includes items 2-4, 28, 32-36, 42, 43)		1			
1	GM84076**	Roof				1	1
2	GM42840	Corner, sound shield (KCB)	4		4		
2	GM47251	Corner, sound shield		4			
3	GM51973	Stay, cover, right hand	1	1	1	1	1
4	GM51899	Hinge, snap in	2	2	2	2	2
5	GM51570	Panel, housing, left	1		1		
5	GM51877	Panel, housing, left		1			
5	GM84074**	Panel, housing, left				1	1
6	GM51581	Insulation	1	1	1	1	1
7	GM57970	Insulation	1	1	1	1	1
8	GM51566	Duct, housing air intake	1		1		
8	GM51878	Duct, housing air intake		1			
8	GM84075**	Duct, housing air intake				1	1
9	GM38809	Duct, engine air intake	1	1	1	1	1
10	GM58719	Support, side	2	2	2	2	2
11	GM51567	Panel, front housing	1				
11	GM51876	Panel, front housing		1			
11	GM84073**	Panel, front housing				1	
11	GM84077	Panel, front housing			1		1
12	GM51578	Insulation	1	1	1	1	1
13	X-301-24	Plug, button, 0.75 in. hole diameter	4	4	4	4	4
13	X-301-45	Plug, button, 1.5 in. hole diameter	4	4	4	4	4
14	GM58961	Baffle, rain	1	1		1	1
15	GM59163	Insulation	1	1	1	1	1
17	GM51575	Insulation	1	1	1	1	1
18	GM51572	Duct, alternator air inlet	1	1	1	1	1
19	GM51574	Insulation	1	1	1	1	1
20	GM39505	Duct, alternator air wall	1	1	1		
20	GM84087	Duct, alternator air wall				1	1
21	GM51576	Insulation	1	1	1	1	1
22	GM51836	Door, housing, right	1		1		
22	GM51875	Door, housing, right		1			
22	GM84072**	Door, housing, right				1	1
23	GM51573	Latch, locking	2	2	2	2	2
24	GM51582	Insulation	1	1	1	1	1
25	GM29357	Shield, exhaust	1	1	1	1	1
26	GM57974	Duct, exhaust	1	1	1	1	1
27	GM29983	Shield, heat	1	1	1	1	1
28	X-6422-19	Seal, push-on trim	1	1	1	1	1
29	GM51579	Insulation	1	1	1	1	1
30	GM51568	Panel, rear housing	1		1		
30	GM51874	Panel, rear housing		1			
30	GM84071**	Panel, rear housing				1	1
31	GM51580	Insulation	1	1	1	1	1
32	GM59162	Insulation	1	1	1	1	1
33	GM58721	Bracket, roof	1	1	1	1	1
34	GM51719	Insulation	1	1	1	1	1
35	GM51719	Insulation	1	1	1	1	1
36	GM57975	Support, roof	2	2	2	2	2
37	GM59365	Shield, heat	1	1	1	1	1
39	X-6033-8	Grommet, U-channel	1	1	1	1	1
40	GM58718	Support, side	1	1	1	1	1
41	GM31074-1	Bushing, molded	2	2	2	2	2
42	GM65693	Plate, corner	4	4	4	4	4
43	GM65694	Plate, latch	2	2	2	2	2

** Add a suffix to this color dependent part number before ordering.
See Specification Number Index and chart below to identify the color suffix.

Specification No. Suffix	Color Dependent Parts	
	Part Number Suffix	Part Number Example (item 5)
-CAS	-CAS	GM84074-CAS

Group 501: Housing, continued



Group 501: Housing, continued

Item	Part Number	Description	Quantity				
			Variation				
			1	2	3	4	5
44	GB31311173101	Decal, emergency stop			1		1
45	GB31613392201	Switch, emergency stop			1		1
46	M7985A-04016-20	Screw, pan head machine			14		14
47	GM65464-1	Gasket, emergency stop			1		1
48	GM64282	Panel, E-stop mounting			1		1
49	X-6278-1	Washer, nylon, .201 ID x .46 in. OD			6		6
50	GM69619	Panel, breaker mounting			1		1
51	GM65464-2	Gasket, circuit breaker			1		1
52	229883	Decal, 12 wire reconnection			1		1
53	GM66609	Window, enclosure			1		1
54	X-67-59	Screw, hex washer, thread-forming			4		4
55	GM64513	Cover, wire inlet			1		1
56	GM64491	Duct, electrical inlet			1		1
57	X-6047-55	Channel, U			1		1

Group 701: Literature

Item	Part Number	Description	Quantity							
			Variation							
			17	19	35	36	41	55	56	57
1	TP-2580	CH940-980 Service Manual	1	1	1	1	1	1	1	1
2	TP-6479	Warranty, 5-Year, Standby	1		1	1	1	1	1	1
2	TP-6766	Warranty, Residential/Light Commercial			1	1				
2	TP-6463	Warranty, 5-Year, RESL		1						
3	TP-6514	I/M 8.5/12/17/18RES, Res/Coml	1		1		1	1		1
3	TP-6516	I/M 17/18RESL, Res/Coml		1		1			1	
4	TP-6515	O/M 8.5/12/17/18RES, Res/Coml	1		1		1	1		1
4	TP-6517	O/M 17/18RESL, Res/Coml		1		1			1	
5	TP-6518	P/C 17/18RES, Res/Coml	1	1	1	1	1	1	1	1
6	TP-6519	S/M 17/18RES, Res/Coml	1	1	1	1	1	1	1	1
7	TP-6535	Warranty, Emission Control, 17/18RES	1	1	1	1	1			
7	TP-6782	Warranty, 2011 Emissions, Residential						1	1	1
8	K-625	Form, Startup Notification	1	1	1	1	1	1	1	1

Kit Parts List

Qty.	Description	Part No.
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Fuel System Kit

Gas Strainer		PA-290275
1	Strainer, gas	292485
Flexible Fuel Line		GM31054-KA1
1	Fuel line, flexible, 0.50 in. ID x 12 in.	X-504-1

Electrical System Kits

Battery		GM48808-KP1
1	Battery, wet	GM48784
Battery Heater		GM89022-KP1 and PA-358225
1	Heater, battery wrap	336814
1	Heater, battery pad	336825
1	TT Battery Heater, 8.5-30kW Ind/Res/Coml	TT-1221
Run/Common Fault Relay, 12 V		GM53102-KP1
4	Standoff, circuit board	360459
1	PCB assembly, relay interface board	GM51403
1	Harness, wiring relay board	GM52639
1	TT Run/Common Fault Relay, ADC-RES	TT-1481
Harness, 25', Remote Panel		GM32333-KP2
1	Harness, Extension	GM32323
Harness, 100' Remote Panel		GM32333-KP4
1	Harness, Extension	GM47391

Qty.	Description	Part No.
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Miscellaneous Kits

Carburetor Heater, 40W, 120 V		GM57969-KP1-QS
1	Decal, caution hot carburetor	GM22387
1	Heater, carburetor	GM57968
1	Bushing, 1.000 x 1.375 in. NPT	X-634-15
1	Bushing, 1.312 x 1.50 in. NPT	X-634-16
Software, OnCue		GM62630-KP1
1	Assy, J1939/ModBus/Ethernet Converter	GM58703
1	Harness, Y-Connector 8.5-17KW	GM62626
1	Harness	GM62627
1	Software, OnCue	GM62628
1	Diagram, Wiring Network Communications	GM62629
2	Screw, Pan Head Machined	M7985A-04010-20
2	Nut, Hex 4mm	M934-04-50
1	O/M OnCue Software, Res/Coml	TP-6616
1	TT Network Connection, OnCue, Res/Coml	TT-1486
2	Washer, nylon, .194 ID x .625 in. OD	X-6278-8
1	Bushing	X-634-28
Paint		
1	Paint, Kohler Cream Beige, 12 oz. spray can	GM71383
1	Paint, Kohler Cream Beige, gallon can	GM71387
Terminal Block		GM58022-KA1
2	Harness, pigtail customer connection	GM48108
1	Decal, terminal block	GM54820
1	Harness, terminal block	
	(includes 4-position terminal block)	GM54821
1	Harness, terminal block	
	(includes 6-position terminal block)	GM60297
Terminal Block		GM58022-KA2
2	Harness, pigtail customer connection	GM48108
1	Decal, terminal block	GM71374
1	Harness, terminal block	
	(includes (2) 2-position terminal blocks)	GM62608
1	Harness, terminal block	
	(includes 6-position terminal block)	GM60297
Terminal Block		GM58022-KA3
See Group 301: Control and Harness		
Maintenance Service Kits		
(includes oil, oil filter, air filter, spark plugs, and instructions (TT-1445))		
1	Kit, Residential Maint (17/18RES)	GM62347

Notes

Appendix A Abbreviations

The following list contains abbreviations that may appear in this publication.

A, amp	ampere	cfm	cubic feet per minute	ext.	external
ABDC	after bottom dead center	CG	center of gravity	F	Fahrenheit, female
AC	alternating current	CID	cubic inch displacement	fglass.	fiberglass
A/D	analog to digital	CL	centerline	FHM	flat head machine (screw)
ADC	advanced digital control; analog to digital converter	cm	centimeter	fl. oz.	fluid ounce
adj.	adjust, adjustment	CMOS	complementary metal oxide substrate (semiconductor)	flex.	flexible
ADV	advertising dimensional drawing	cogen.	cogeneration	freq.	frequency
Ah	amp-hour	com	communications (port)	FS	full scale
AHWT	anticipatory high water temperature	coml	commercial	ft.	foot, feet
AISI	American Iron and Steel Institute	Coml/Rec	Commercial/Recreational	ft. lb.	foot pounds (torque)
ALOP	anticipatory low oil pressure	conn.	connection	ft./min.	feet per minute
alt.	alternator	cont.	continued	ftp	file transfer protocol
Al	aluminum	CPVC	chlorinated polyvinyl chloride	g	gram
ANSI	American National Standards Institute (formerly American Standards Association, ASA)	crit.	critical	ga.	gauge (meters, wire size)
AO	anticipatory only	CRT	cathode ray tube	gal.	gallon
APDC	Air Pollution Control District	CSA	Canadian Standards Association	gen.	generator
API	American Petroleum Institute	CT	current transformer	genset	generator set
approx.	approximate, approximately	Cu	copper	GFI	ground fault interrupter
AQMD	Air Quality Management District	cUL	Canadian Underwriter's Laboratories	GND, ⚡	ground
AR	as required, as requested	CUL	Canadian Underwriter's Laboratories	gov.	governor
AS	as supplied, as stated, as suggested	cu. in.	cubic inch	gph	gallons per hour
ASE	American Society of Engineers	cw.	clockwise	gpm	gallons per minute
ASME	American Society of Mechanical Engineers	CWC	city water-cooled	gr.	grade, gross
assy.	assembly	cyl.	cylinder	GRD	equipment ground
ASTM	American Society for Testing Materials	D/A	digital to analog	gr. wt.	gross weight
ATDC	after top dead center	DAC	digital to analog converter	H x W x D	height by width by depth
ATS	automatic transfer switch	dB	decibel	HC	hex cap
auto.	automatic	dept.	department	HCHT	high cylinder head temperature
aux.	auxiliary	DFMEA	Design Failure Mode and Effects Analysis	HD	heavy duty
avg.	average	dia.	diameter	HET	high exhaust temp., high engine temp.
AVR	automatic voltage regulator	DI/EO	dual inlet/end outlet	hex	hexagon
AWG	American Wire Gauge	DIN	Deutsches Institut für Normung e. V. (also Deutsche Industrie Normenausschuss)	Hg	mercury (element)
AWM	appliance wiring material	DIP	dual inline package	HH	hex head
bat.	battery	DPDT	double-pole, double-throw	HHC	hex head cap
BBDC	before bottom dead center	DPST	double-pole, single-throw	HP	horsepower
BC	battery charger, battery charging	DS	disconnect switch	hr.	hour
BCA	battery charging alternator	DVR	digital voltage regulator	HS	heat shrink
BCI	Battery Council International	E, emer.	emergency (power source)	hsg.	housing
BDC	before dead center	ECM	electronic control module, engine control module	HVAC	heating, ventilation, and air conditioning
BHP	brake horsepower	EDI	electronic data interchange	HWT	high water temperature
blk.	black (paint color), block (engine)	EFR	emergency frequency relay	Hz	hertz (cycles per second)
blk. htr.	block heater	e.g.	for example (<i>exempli gratia</i>)	IC	integrated circuit
BMEP	brake mean effective pressure	EG	electronic governor	ID	inside diameter, identification
bps	bits per second	EGSA	Electrical Generating Systems Association	IEC	International Electrotechnical Commission
br.	brass	EIA	Electronic Industries Association	IEEE	Institute of Electrical and Electronics Engineers
BTDC	before top dead center	EI/EO	end inlet/end outlet	IMS	improved motor starting
Btu	British thermal unit	EMI	electromagnetic interference	in.	inch
Btu/min.	British thermal units per minute	emiss.	emission	in. H ₂ O	inches of water
C	Celsius, centigrade	eng.	engine	in. Hg	inches of mercury
cal.	calorie	EPA	Environmental Protection Agency	in. lb.	inch pounds
CAN	controller area network	EPS	emergency power system	Inc.	incorporated
CARB	California Air Resources Board	ER	emergency relay	ind.	industrial
CB	circuit breaker	ES	engineering special, engineered special	int.	internal
cc	cubic centimeter	ESD	electrostatic discharge	int./ext.	internal/external
CCA	cold cranking amps	est.	estimated	I/O	input/output
ccw.	counterclockwise	E-Stop	emergency stop	IP	iron pipe
CEC	Canadian Electrical Code	etc.	et cetera (and so forth)	ISO	International Organization for Standardization
cert.	certificate, certification, certified	exh.	exhaust	J	joule
cfh	cubic feet per hour			JIS	Japanese Industry Standard
				k	kilo (1000)
				K	kelvin
				kA	kiloampere
				KB	kilobyte (2 ¹⁰ bytes)

KBus	Kohler communication protocol	MW	megawatt	rnd.	round
kg	kilogram	mW	milliwatt	ROM	read only memory
kg/cm ²	kilograms per square centimeter	μF	microfarad	rot.	rotate, rotating
kgm	kilogram-meter	N, norm.	normal (power source)	rpm	revolutions per minute
kg/m ³	kilograms per cubic meter	NA	not available, not applicable	RS	right side
kHz	kilohertz	nat. gas	natural gas	RTU	remote terminal unit
kJ	kilojoule	NBS	National Bureau of Standards	RTV	room temperature vulcanization
km	kilometer	NC	normally closed	RW	read/write
kOhm, kΩ	kilo-ohm	NEC	National Electrical Code	SAE	Society of Automotive Engineers
kPa	kilopascal	NEMA	National Electrical Manufacturers Association	scfm	standard cubic feet per minute
kph	kilometers per hour	NFPA	National Fire Protection Association	SCR	silicon controlled rectifier
kV	kilovolt	Nm	newton meter	s, sec.	second
kVA	kilovolt ampere	NO	normally open	SI	<i>Système international d'unités</i> , International System of Units
kVAR	kilovolt ampere reactive	no., nos.	number, numbers	SI/EO	side in/end out
kW	kilowatt	NPS	National Pipe, Straight	sil.	silencer
kWh	kilowatt-hour	NPSC	National Pipe, Straight-coupling	SN	serial number
kWm	kilowatt mechanical	NPT	National Standard taper pipe thread per general use	SNMP	simple network management protocol
kWth	kilowatt-thermal	NPTF	National Pipe, Taper-Fine	SPDT	single-pole, double-throw
L	liter	NR	not required, normal relay	SPST	single-pole, single-throw
LAN	local area network	ns	nanosecond	spec	specification
L x W x H	length by width by height	OC	overcrank	specs	specification(s)
lb.	pound, pounds	OD	outside diameter	sq.	square
lbm/ft ³	pounds mass per cubic feet	OEM	original equipment manufacturer	sq. cm	square centimeter
LCB	line circuit breaker	OF	overfrequency	sq. in.	square inch
LCD	liquid crystal display	opt.	option, optional	SS	stainless steel
ld. shd.	load shed	OS	oversize, overspeed	std.	standard
LED	light emitting diode	OSHA	Occupational Safety and Health Administration	stl.	steel
Lph	liters per hour	OV	overvoltage	tach.	tachometer
Lpm	liters per minute	oz.	ounce	TD	time delay
LOP	low oil pressure	p., pp.	page, pages	TDC	top dead center
LP	liquefied petroleum	PC	personal computer	TDEC	time delay engine cooldown
LPG	liquefied petroleum gas	PCB	printed circuit board	TDEN	time delay emergency to normal
LS	left side	pF	picofarad	TDES	time delay engine start
L _{wa}	sound power level, A weighted	PF	power factor	TDNE	time delay normal to emergency
LWL	low water level	ph., ∅	phase	TDOE	time delay off to emergency
LWT	low water temperature	PHC	Phillips® head CrimpTite® (screw)	TDON	time delay off to normal
m	meter, milli (1/1000)	PHH	Phillips® hex head (screw)	temp.	temperature
M	mega (10 ⁶ when used with SI units), male	PHM	pan head machine (screw)	term.	terminal
m ³	cubic meter	PLC	programmable logic control	THD	total harmonic distortion
m ³ /hr.	cubic meters per hour	PMG	permanent magnet generator	TIF	telephone influence factor
m ³ /min.	cubic meters per minute	pot	potentiometer, potential	TIR	total indicator reading
mA	milliampere	ppm	parts per million	tol.	tolerance
man.	manual	PROM	programmable read-only memory	turbo.	turbocharger
max.	maximum	psi	pounds per square inch	typ.	typical (same in multiple locations)
MB	megabyte (2 ²⁰ bytes)	psig	pounds per square inch gauge	UF	underfrequency
MCCB	molded-case circuit breaker	pt.	pint	UHF	ultrahigh frequency
MCM	one thousand circular mils	PTC	positive temperature coefficient	UL	Underwriter's Laboratories, Inc.
meggar	megohmmeter	PTO	power takeoff	UNC	unified coarse thread (was NC)
MHz	megahertz	PVC	polyvinyl chloride	UNF	unified fine thread (was NF)
mi.	mile	qt.	quart, quarts	univ.	universal
mil	one one-thousandth of an inch	qty.	quantity	US	undersize, underspeed
min.	minimum, minute	R	replacement (emergency) power source	UV	ultraviolet, undervoltage
misc.	miscellaneous	rad.	radiator, radius	V	volt
MJ	megajoule	RAM	random access memory	VAC	volts alternating current
mJ	millijoule	RDO	relay driver output	VAR	voltampere reactive
mm	millimeter	ref.	reference	VDC	volts direct current
mOhm, mΩ	milliohm	rem.	remote	VFD	vacuum fluorescent display
MOhm, MΩ	megohm	Res/Coml	Residential/Commercial	VGA	video graphics adapter
MOV	metal oxide varistor	RFI	radio frequency interference	VHF	very high frequency
MPa	megapascal	RH	round head	W	watt
mpg	miles per gallon	RHM	round head machine (screw)	WCR	withstand and closing rating
mph	miles per hour	rly.	relay	w/	with
MS	military standard	rms	root mean square	w/o	without
ms	millisecond			wt.	weight
m/sec.	meters per second			xfmr	transformer
MTBF	mean time between failure				
MTBO	mean time between overhauls				
mtg.	mounting				
MTU	Motoren-und Turbinen-Union				

Appendix B Common Hardware Application Guidelines

Use the information below and on the following pages to identify proper fastening techniques when no specific reference for reassembly is made.

Bolt/Screw Length: When bolt/screw length is not given, use Figure 1 as a guide. As a general rule, a minimum length of one thread beyond the nut and a maximum length of 1/2 the bolt/screw diameter beyond the nut is the preferred method.

Washers and Nuts: Use split lock washers as a bolt locking device where specified. Use SAE flat washers with whiz nuts, spirallock nuts, or standard nuts and preloading (torque) of the bolt in all other applications.

See Appendix C, General Torque Specifications, and other torque specifications in the service literature.

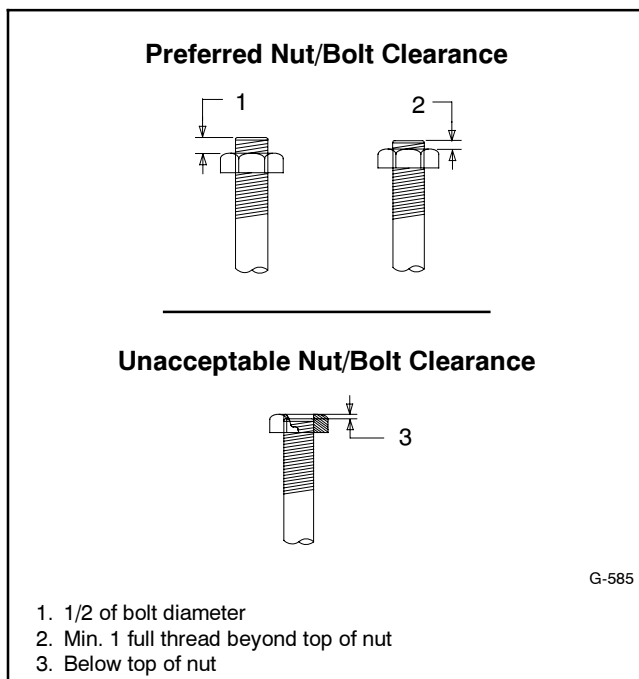


Figure 1 Acceptable Bolt Lengths

Steps for common hardware application:

1. Determine entry hole type: round or slotted.
2. Determine exit hole type: fixed female thread (weld nut), round, or slotted.

For round and slotted exit holes, determine if hardware is greater than 1/2 inch in diameter, or 1/2 inch in diameter or less. Hardware that is *greater than 1/2 inch* in diameter takes a standard nut and SAE washer. Hardware *1/2 inch or less* in diameter can take a properly torqued whiz nut or spirallock nut. See Figure 2.

3. Follow these SAE washer rules after determining exit hole type:
 - a. Always use a washer between hardware and a slot.
 - b. Always use a washer under a nut (see 2 above for exception).
 - c. Use a washer under a bolt when the female thread is fixed (weld nut).
4. Refer to Figure 2, which depicts the preceding hardware configuration possibilities.

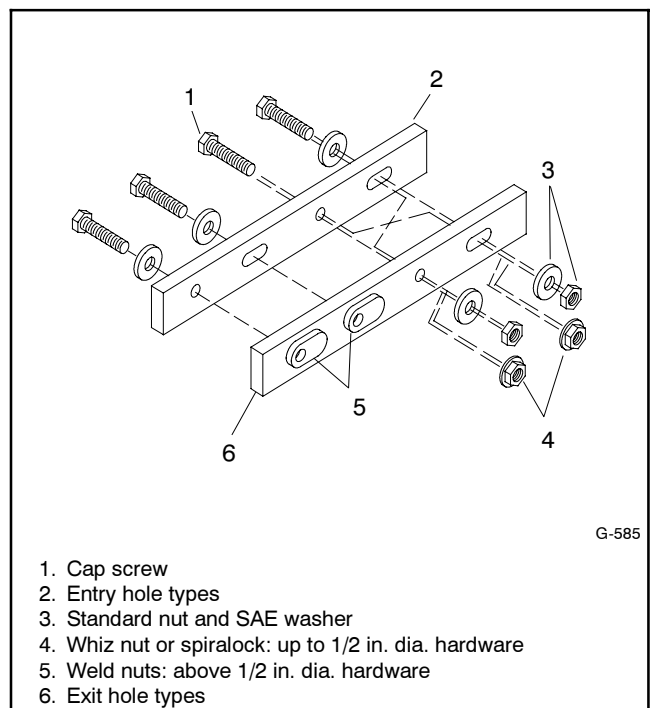


Figure 2 Acceptable Hardware Combinations

Appendix C General Torque Specifications

American Standard Fasteners Torque Specifications					
Size	Torque Measurement	Assembled into Cast Iron or Steel			Assembled into Aluminum Grade 2 or 5
		Grade 2	Grade 5	Grade 8	
8-32	Nm (in. lb.)	1.8 (16)	2.3 (20)	—	See Note 3
10-24	Nm (in. lb.)	2.9 (26)	3.6 (32)	—	
10-32	Nm (in. lb.)	2.9 (26)	3.6 (32)	—	
1/4-20	Nm (in. lb.)	6.8 (60)	10.8 (96)	14.9 (132)	
1/4-28	Nm (in. lb.)	8.1 (72)	12.2 (108)	16.3 (144)	
5/16-18	Nm (in. lb.)	13.6 (120)	21.7 (192)	29.8 (264)	
5/16-24	Nm (in. lb.)	14.9 (132)	23.1 (204)	32.5 (288)	
3/8-16	Nm (ft. lb.)	24.0 (18)	38.0 (28)	53.0 (39)	
3/8-24	Nm (ft. lb.)	27.0 (20)	42.0 (31)	60.0 (44)	
7/16-14	Nm (ft. lb.)	39.0 (29)	60.0 (44)	85.0 (63)	
7/16-20	Nm (ft. lb.)	43.0 (32)	68.0 (50)	95.0 (70)	
1/2-13	Nm (ft. lb.)	60.0 (44)	92.0 (68)	130.0 (96)	
1/2-20	Nm (ft. lb.)	66.0 (49)	103.0 (76)	146.0 (108)	
9/16-12	Nm (ft. lb.)	81.0 (60)	133.0 (98)	187.0 (138)	
9/16-18	Nm (ft. lb.)	91.0 (67)	148.0 (109)	209.0 (154)	
5/8-11	Nm (ft. lb.)	113.0 (83)	183.0 (135)	259.0 (191)	
5/8-18	Nm (ft. lb.)	128.0 (94)	208.0 (153)	293.0 (216)	
3/4-10	Nm (ft. lb.)	199.0 (147)	325.0 (240)	458.0 (338)	
3/4-16	Nm (ft. lb.)	222.0 (164)	363.0 (268)	513.0 (378)	
1-8	Nm (ft. lb.)	259.0 (191)	721.0 (532)	1109.0 (818)	
1-12	Nm (ft. lb.)	283.0 (209)	789.0 (582)	1214.0 (895)	

Metric Fasteners Torque Specifications, Measured in Nm (ft. lb.)				
Size (mm)	Assembled into Cast Iron or Steel			Assembled into Aluminum Grade 5.8 or 8.8
	Grade 5.8	Grade 8.8	Grade 10.9	
M6 x 1.00	6.2 (4.6)	9.5 (7)	13.6 (10)	See Note 3
M8 x 1.25	15.0 (11)	23.0 (17)	33.0 (24)	
M8 x 1.00	16.0 (11)	24.0 (18)	34.0 (25)	
M10 x 1.50	30.0 (22)	45.0 (34)	65.0 (48)	
M10 x 1.25	31.0 (23)	47.0 (35)	68.0 (50)	
M12 x 1.75	53.0 (39)	80.0 (59)	115.0 (85)	
M12 x 1.50	56.0 (41)	85.0 (63)	122.0 (90)	
M14 x 2.00	83.0 (61)	126.0 (93)	180.0 (133)	
M14 x 1.50	87.0 (64)	133.0 (98)	190.0 (140)	
M16 x 2.00	127.0 (94)	194.0 (143)	278.0 (205)	
M16 x 1.50	132.0 (97)	201.0 (148)	287.0 (212)	
M18 x 2.50	179.0 (132)	273.0 (201)	390.0 (288)	
M18 x 1.50	189.0 (140)	289.0 (213)	413.0 (305)	

Notes:

1. The torque values above are general guidelines. Always use the torque values specified in the service manuals and/or assembly drawings when they differ from the above torque values.
2. The torque values above are based on new plated threads. Increase torque values by 15% if non-plated threads are used.
3. Hardware threaded into aluminum must have either two diameters of thread engagement or a 30% or more reduction in the torque to prevent stripped threads.
4. Torque values are calculated as equivalent stress loading on American hardware with an approximate preload of 90% of the yield strength and a friction coefficient of 0.125.

Appendix D Common Hardware Identification

Screw/Bolts/Studs	
Head Styles	
Hex Head or Machine Head	
Hex Head or Machine Head with Washer	
Flat Head (FHM)	
Round Head (RHM)	
Pan Head	
Hex Socket Head Cap or Allen™ Head Cap	
Hex Socket Head or Allen™ Head Shoulder Bolt	
Sheet Metal Screw	
Stud	
Drive Styles	
Hex	
Hex and Slotted	
Phillips®	
Slotted	
Hex Socket	

Nuts	
Nut Styles	
Hex Head	
Lock or Elastic	
Square	
Cap or Acorn	
Wing	
Washers	
Washer Styles	
Plain	
Split Lock or Spring	
Spring or Wave	
External Tooth Lock	
Internal Tooth Lock	
Internal-External Tooth Lock	

Hardness Grades	
American Standard	
Grade 2	
Grade 5	
Grade 8	
Grade 8/9 (Hex Socket Head)	
Metric	
Number stamped on hardware; 5.8 shown	

Allen™ head screw is a trademark of Holo-Krome Co.

Phillips® screw is a registered trademark of Phillips Screw Company.

Sample Dimensions

American Standard (Screws, Bolts, Studs, and Nuts)

1/4-20 x 1
 — Length In Inches (Screws and Bolts)
 — Threads Per Inch
 — Major Thread Diameter In Fractional Inches Or Screw Number Size

Metric (Screws, Bolts, Studs, and Nuts)

M8-1.25 x 20
 — Length In Millimeters (Screws and Bolts)
 — Distance Between Threads In Millimeters
 — Major Thread Diameter In Millimeters

Plain Washers

9/32 x 5/8 x 1/16
 — Thickness
 — External Dimension
 — Internal Dimension

Lock Washers

5/8
 — Internal Dimension

Appendix E Common Hardware List

The Common Hardware List lists part numbers and dimensions for common hardware items.

American Standard

Part No.	Dimensions	Part No.	Dimensions	Part No.	Dimensions	Type	
Hex Head Bolts (Grade 5)		Hex Head Bolts, cont.		Hex Nuts			
X-465-17	1/4-20 x .38	X-6238-14	3/8-24 x .75	X-6009-1	1-8	Standard	
X-465-6	1/4-20 x .50	X-6238-16	3/8-24 x 1.25				
X-465-2	1/4-20 x .62	X-6238-21	3/8-24 x 4.00				
X-465-16	1/4-20 x .75	X-6238-22	3/8-24 x 4.50				
X-465-18	1/4-20 x .88				X-6210-3	6-32	Whiz
X-465-7	1/4-20 x 1.00	X-6024-5	7/16-14 x .75		X-6210-4	8-32	Whiz
X-465-8	1/4-20 x 1.25	X-6024-2	7/16-14 x 1.00		X-6210-5	10-24	Whiz
X-465-9	1/4-20 x 1.50	X-6024-8	7/16-14 x 1.25		X-6210-1	10-32	Whiz
X-465-10	1/4-20 x 1.75	X-6024-3	7/16-14 x 1.50				
X-465-11	1/4-20 x 2.00	X-6024-4	7/16-14 x 2.00		X-6210-2	1/4-20	Spiralock
X-465-12	1/4-20 x 2.25	X-6024-11	7/16-14 x 2.75		X-6210-6	1/4-28	Spiralock
X-465-14	1/4-20 x 2.75	X-6024-12	7/16-14 x 6.50		X-6210-7	5/16-18	Spiralock
X-465-21	1/4-20 x 5.00				X-6210-8	5/16-24	Spiralock
X-465-25	1/4-28 x .38	X-129-15	1/2-13 x .75		X-6210-9	3/8-16	Spiralock
X-465-20	1/4-28 x 1.00	X-129-17	1/2-13 x 1.00	X-6210-10	3/8-24	Spiralock	
		X-129-18	1/2-13 x 1.25	X-6210-11	7/16-14	Spiralock	
		X-129-19	1/2-13 x 1.50	X-6210-12	1/2-13	Spiralock	
X-125-33	5/16-18 x .50	X-129-20	1/2-13 x 1.75	X-6210-15	7/16-20	Spiralock	
X-125-23	5/16-18 x .62	X-129-21	1/2-13 x 2.00	X-6210-14	1/2-20	Spiralock	
X-125-3	5/16-18 x .75	X-129-22	1/2-13 x 2.25				
X-125-31	5/16-18 x .88	X-129-23	1/2-13 x 2.50	X-85-3	5/8-11	Standard	
X-125-5	5/16-18 x 1.00	X-129-24	1/2-13 x 2.75	X-88-12	3/4-10	Standard	
X-125-24	5/16-18 x 1.25	X-129-25	1/2-13 x 3.00	X-89-2	1/2-20	Standard	
X-125-34	5/16-18 x 1.50	X-129-27	1/2-13 x 3.50				
X-125-25	5/16-18 x 1.75	X-129-29	1/2-13 x 4.00				
X-125-26	5/16-18 x 2.00	X-129-30	1/2-13 x 4.50				
230578	5/16-18 x 2.25	X-463-9	1/2-13 x 5.50				
X-125-29	5/16-18 x 2.50	X-129-44	1/2-13 x 6.00				
X-125-27	5/16-18 x 2.75						
X-125-28	5/16-18 x 3.00	X-129-51	1/2-20 x .75				
X-125-22	5/16-18 x 4.50	X-129-45	1/2-20 x 1.25				
X-125-32	5/16-18 x 5.00	X-129-52	1/2-20 x 1.50				
X-125-35	5/16-18 x 5.50						
X-125-36	5/16-18 x 6.00	X-6021-3	5/8-11 x 1.00				
X-125-40	5/16-18 x 6.50	X-6021-4	5/8-11 x 1.25				
		X-6021-2	5/8-11 x 1.50				
X-125-43	5/16-24 x 1.75	X-6021-1	5/8-11 x 1.75				
X-125-44	5/16-24 x 2.50	273049	5/8-11 x 2.00				
X-125-30	5/16-24 x .75	X-6021-5	5/8-11 x 2.25				
X-125-39	5/16-24 x 2.00	X-6021-6	5/8-11 x 2.50				
X-125-38	5/16-24 x 2.75	X-6021-7	5/8-11 x 2.75				
		X-6021-12	5/8-11 x 3.75				
X-6238-2	3/8-16 x .62	X-6021-11	5/8-11 x 4.50				
X-6238-10	3/8-16 x .75	X-6021-10	5/8-11 x 6.00				
X-6238-3	3/8-16 x .88						
X-6238-11	3/8-16 x 1.00	X-6021-9	5/8-18 x 2.50				
X-6238-4	3/8-16 x 1.25						
X-6238-5	3/8-16 x 1.50	X-6239-1	3/4-10 x 1.00				
X-6238-1	3/8-16 x 1.75	X-6239-8	3/4-10 x 1.25				
X-6238-6	3/8-16 x 2.00	X-6239-2	3/4-10 x 1.50				
X-6238-17	3/8-16 x 2.25	X-6239-3	3/4-10 x 2.00				
X-6238-7	3/8-16 x 2.50	X-6239-4	3/4-10 x 2.50				
X-6238-8	3/8-16 x 2.75	X-6239-5	3/4-10 x 3.00				
X-6238-9	3/8-16 x 3.00	X-6239-6	3/4-10 x 3.50				
X-6238-19	3/8-16 x 3.25						
X-6238-12	3/8-16 x 3.50	X-792-1	1-8 x 2.25				
X-6238-20	3/8-16 x 3.75	X-792-5	1-8 x 3.00				
X-6238-13	3/8-16 x 4.50	X-792-8	1-8 x 5.00				
X-6238-18	3/8-16 x 5.50						
X-6238-25	3/8-16 x 6.50						

Metric

Hex head bolts are hardness grade 8.8 unless noted.

Part No. Dimensions Hex Head Bolts (Partial Thread)

M931-05055-60	M5-0.80 x 55
M931-06040-60	M6-1.00 x 40
M931-06055-60	M6-1.00 x 55
M931-06060-60	M6-1.00 x 60
M931-06060-SS	M6-1.00 x 60
M931-06070-60	M6-1.00 x 70
M931-06070-SS	M6-1.00 x 70
M931-06075-60	M6-1.00 x 75
M931-06090-60	M6-1.00 x 90
M931-06145-60	M6-1.00 x 145
M931-06150-60	M6-1.00 x 150
M931-08035-60	M8-1.25 x 35
M931-08040-60	M8-1.25 x 40
M931-08045-60	M8-1.25 x 45
M931-08050-60	M8-1.25 x 50
M931-08055-60	M8-1.25 x 55
M931-08055-82	M8-1.25 x 55*
M931-08060-60	M8-1.25 x 60
M931-08070-60	M8-1.25 x 70
M931-08070-82	M8-1.25 x 70*
M931-08075-60	M8-1.25 x 75
M931-08080-60	M8-1.25 x 80
M931-08090-60	M8-1.25 x 90
M931-08095-60	M8-1.25 x 95
M931-08100-60	M8-1.25 x 100
M931-08110-60	M8-1.25 x 110
M931-08120-60	M8-1.25 x 120
M931-08130-60	M8-1.25 x 130
M931-08140-60	M8-1.25 x 140
M931-08150-60	M8-1.25 x 150
M931-08200-60	M8-1.25 x 200
M931-10040-82	M10-1.25 x 40*
M931-10040-60	M10-1.50 x 40
M931-10045-60	M10-1.50 x 45
M931-10050-60	M10-1.50 x 50
M931-10050-82	M10-1.25 x 50*
M931-10055-60	M10-1.50 x 55
M931-10060-60	M10-1.50 x 60
M931-10065-60	M10-1.50 x 65
M931-10070-60	M10-1.50 x 70
M931-10080-60	M10-1.50 x 80
M931-10080-82	M10-1.25 x 80*
M931-10090-60	M10-1.50 x 90
M931-10090-82	M10-1.50 x 90*
M931-10100-60	M10-1.50 x 100
M931-10110-60	M10-1.50 x 110
M931-10120-60	M10-1.50 x 120
M931-10130-60	M10-1.50 x 130
M931-10140-60	M10-1.50 x 140
M931-10180-60	M10-1.50 x 180
M931-10235-60	M10-1.50 x 235
M931-10260-60	M10-1.50 x 260
M960-10330-60	M10-1.25 x 330
M931-12045-60	M12-1.75 x 45
M960-12050-60	M12-1.25 x 50
M960-12050-82	M12-1.25 x 50*
M931-12050-60	M12-1.75 x 50
M931-12050-82	M12-1.75 x 50*
M931-12055-60	M12-1.75 x 55
M931-12060-60	M12-1.75 x 60
M931-12060-82	M12-1.75 x 60*
M931-12065-60	M12-1.75 x 65
M931-12075-60	M12-1.75 x 75
M931-12080-60	M12-1.75 x 80
M931-12090-60	M12-1.75 x 90
M931-12100-60	M12-1.75 x 100
M931-12110-60	M12-1.75 x 110

Part No. Dimensions Hex Head Bolts (Partial Thread), continued

M960-16090-60	M16-1.50 x 90
M931-16090-60	M16-2.00 x 90
M931-16100-60	M16-2.00 x 100
M931-16100-82	M16-2.00 x 100*
M931-16120-60	M16-2.00 x 120
M931-16150-60	M16-2.00 x 150
M931-20065-60	M20-2.50 x 65
M931-20090-60	M20-2.50 x 90
M931-20100-60	M20-2.50 x 100
M931-20120-60	M20-2.50 x 120
M931-20140-60	M20-2.50 x 140
M931-20160-60	M20-2.50 x 160
M931-22090-60	M22-2.50 x 90
M931-22120-60	M22-2.50 x 120
M931-22160-60	M22-2.50 x 160
M931-24090-60	M24-3.00 x 90
M931-24120-60	M24-3.00 x 120
M931-24160-60	M24-3.00 x 160
M931-24200-60	M24-3.00 x 200

Hex Head Bolts (Full Thread)

M933-04006-60	M4-0.70 x 6
M933-05030-60	M5-0.80 x 30
M933-05035-60	M5-0.80 x 35
M933-05050-60	M5-0.80 x 50
M933-06010-60	M6-1.00 x 10
M933-06012-60	M6-1.00 x 12
M933-06014-60	M6-1.00 x 14
M933-06016-60	M6-1.00 x 16
M933-06020-60	M6-1.00 x 20
M933-06025-60	M6-1.00 x 25
M933-06030-60	M6-1.00 x 30
M933-06040-60	M6-1.00 x 40
M933-06050-60	M6-1.00 x 50
M933-07025-60	M7-1.00 x 25
M933-08010-60	M8-1.25 x 10
M933-08012-60	M8-1.25 x 12
M933-08016-60	M8-1.25 x 16
M933-08020-60	M8-1.25 x 20
M933-08025-60	M8-1.25 x 25
M933-08030-60	M8-1.25 x 30
M933-08030-82	M8-1.25 x 30*
M933-10012-60	M10-1.50 x 12
M961-10020-60	M10-1.25 x 20
M933-10020-60	M10-1.50 x 20
M933-10025-60	M10-1.50 x 25
M961-10025-60	M10-1.25 x 25
M933-10025-82	M10-1.50 x 25*
M961-10030-60	M10-1.25 x 30
M933-10030-60	M10-1.50 x 30
M933-10030-82	M10-1.50 x 30*
M961-10035-60	M10-1.25 x 35
M933-10035-60	M10-1.50 x 35
M933-10035-82	M10-1.50 x 35*
M961-10040-60	M10-1.25 x 40

Part No. Dimensions Hex Head Bolts (Full Thread), continued

M933-12016-60	M12-1.75 x 16
M933-12020-60	M12-1.75 x 20
M961-12020-60F	M12-1.50 x 20
M933-12025-60	M12-1.75 x 25
M933-12025-82	M12-1.75 x 25*
M961-12030-60	M12-1.25 x 30
M933-12030-82	M12-1.75 x 30*
M961-12030-82F	M12-1.50 x 30*
M933-12030-60	M12-1.75 x 30
M933-12035-60	M12-1.75 x 35
M961-12040-82	M12-1.25 x 40*
M933-12040-60	M12-1.75 x 40
M933-12040-82	M12-1.75 x 40*
M961-14025-60	M14-1.50 x 25
M933-14025-60	M14-2.00 x 25
M961-14050-82	M14-1.50 x 50*
M961-16025-60	M16-1.50 x 25
M933-16025-60	M16-2.00 x 25
M961-16030-82	M16-1.50 x 30*
M933-16030-82	M16-2.00 x 30*
M933-16035-60	M16-2.00 x 35
M961-16040-60	M16-1.50 x 40
M933-16040-60	M16-2.00 x 40
M961-16045-82	M16-1.50 x 45*
M933-16045-82	M16-2.00 x 45*
M933-16050-60	M16-2.00 x 50
M933-16050-82	M16-2.00 x 50*
M933-16060-60	M16-2.00 x 60
M933-16070-60	M16-2.00 x 70
M933-18035-60	M18-2.50 x 35
M933-18050-60	M18-2.50 x 50
M933-18060-60	M18-2.50 x 60
M933-20050-60	M20-2.50 x 50
M933-20055-60	M20-2.50 x 55
M933-24060-60	M24-3.00 x 60
M933-24065-60	M24-3.00 x 65
M933-24070-60	M24-3.00 x 70

Pan Head Machine Screws

M7985A-03010-20	M3-0.50 x 10
M7985A-03012-20	M3-0.50 x 12
M7985A-04010-20	M4-0.70 x 10
M7985A-04016-20	M4-0.70 x 16
M7985A-04020-20	M4-0.70 x 20
M7985A-04050-20	M4-0.70 x 50
M7985A-04100-20	M4-0.70 x 100
M7985A-05010-20	M5-0.80 x 10
M7985A-05012-20	M5-0.80 x 12
M7985A-05016-20	M5-0.80 x 16
M7985A-05020-20	M5-0.80 x 20
M7985A-05025-20	M5-0.80 x 25
M7985A-05030-20	M5-0.80 x 30
M7985A-05080-20	M5-0.80 x 80
M7985A-05100-20	M5-0.80 x 100
M7985A-06100-20	M6-1.00 x 100

Flat Head Machine Screws

M965A-04012-SS	M4-0.70 x 12
M965A-05012-SS	M5-0.80 x 12
M965A-05016-20	M5-0.80 x 16
M965A-06012-20	M6-1.00 x 12

* This metric hex bolt's hardness is grade 10.9.

Metric, continued

Part No.	Dimensions	Type
Hex Nuts		
M934-03-50	M3-0.50	Standard
M934-04-50	M4-0.70	Standard
M934-04-B	M4-0.70	Brass
M934-05-50	M5-0.80	Standard
M934-06-60	M6-1.00	Standard
M934-06-64	M6-1.00	Std. (green)
M6923-06-80	M6-1.00	Spiralock
M982-06-80	M6-1.00	Elastic Stop
M934-08-60	M8-1.25	Standard
M6923-08-80	M8-1.25	Spiralock
M982-08-80	M8-1.25	Elastic Stop
M934-10-60	M10-1.50	Standard
M934-10-60F	M10-1.25	Standard
M6923-10-80	M10-1.50	Spiralock
M6923-10-62	M10-1.50	Spiralock†
M982-10-80	M10-1.50	Elastic Stop
M934-12-60	M12-1.75	Standard
M934-12-60F	M12-1.25	Standard
M6923-12-80	M12-1.75	Spiralock
M982-12-80	M12-1.75	Elastic Stop
M982-14-60	M14-2.00	Elastic Stop
M6923-16-80	M16-2.00	Spiralock
M982-16-80	M16-2.00	Elastic Stop
M934-18-80	M18-2.5	Standard
M982-18-60	M18-2.50	Elastic Stop
M934-20-80	M20-2.50	Standard
M982-20-80	M20-2.50	Elastic Stop
M934-22-60	M22-2.50	Standard
M934-24-80	M24-3.00	Standard
M982-24-60	M24-3.00	Elastic Stop
M934-30-80	M30-3.50	Standard

Washers

Part No.	ID	OD	Thick.	Bolt/ Screw
M125A-03-80	3.2	7.0	0.5	M3
M125A-04-80	4.3	9.0	0.8	M4
M125A-05-80	5.3	10.0	1.0	M5
M125A-06-80	6.4	12.0	1.6	M6
M125A-08-80	8.4	16.0	1.6	M8
M125A-10-80	10.5	20.0	2.0	M10
M125A-12-80	13.0	24.0	2.5	M12
M125A-14-80	15.0	28.0	2.5	M14
M125A-16-80	17.0	30.0	3.0	M16
M125A-18-80	19.0	34.0	3.0	M18
M125A-20-80	21.0	37.0	3.0	M20
M125A-24-80	25.0	44.0	4.0	M24

† This metric hex nut's hardness is grade 8.

TP-6518 3/12d

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