



Parts Manual

Mfg. No: 040608-00
12,000 Watt Standby Generator (B&S
Fortress)

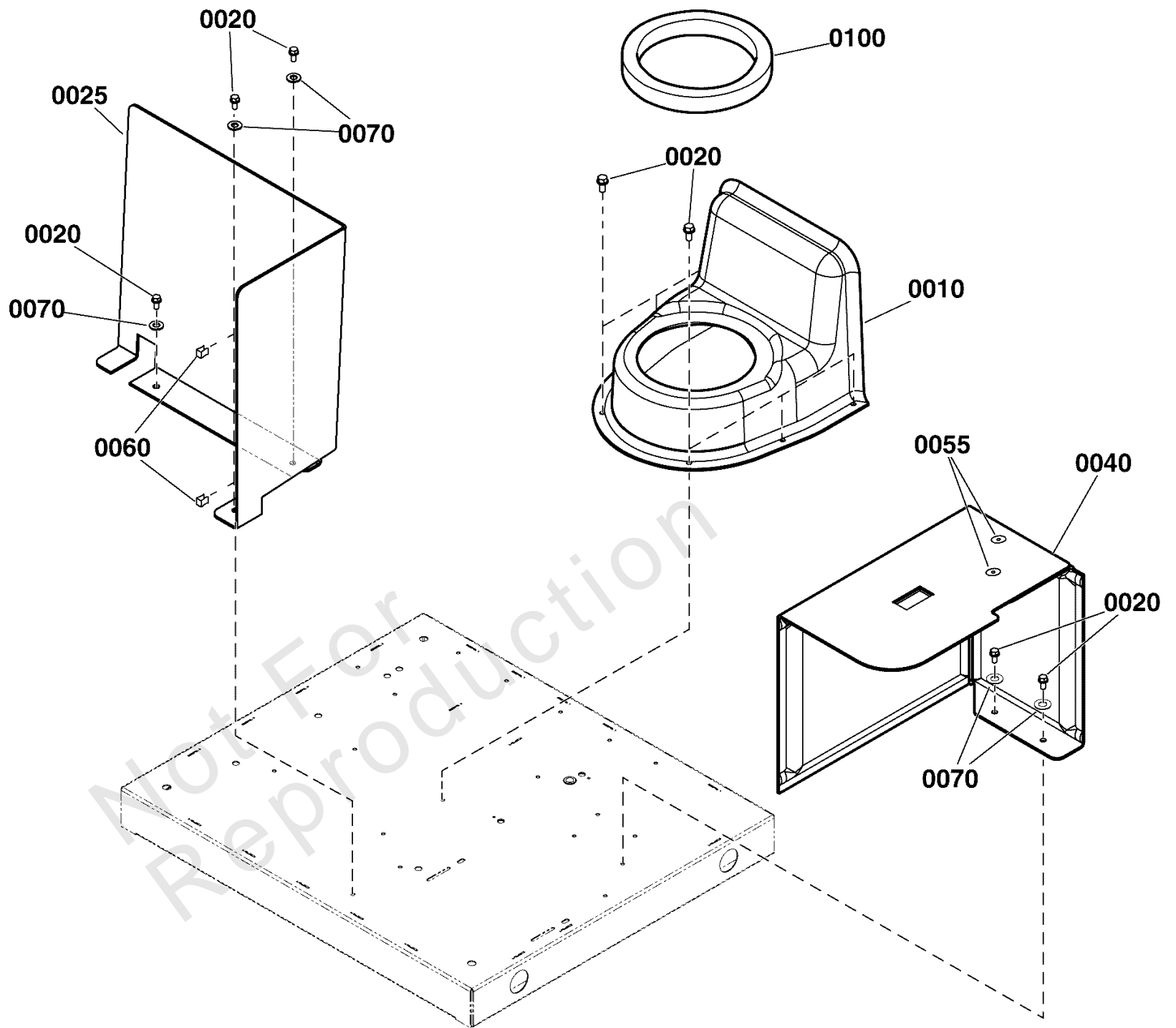
Model Components	Page
Air Handling Group.....	4
Control Panel.....	6
Decals Group.....	8
Enclosure Group.....	10
Manuals & Accessories.....	12
Power Group.....	14
Torque Specification Chart.....	16

Not For
Reproduction

Air Handling Group

Note: Unless noted otherwise, use the standard torque specifications

Mfg. No: 040608-00



Air Handling Group

REF NO	PART NO	QTY	DESCRIPTION
0010	706925	1	DUCT
0020	770545	9	SCREW, 1/4-20 x 1/2
0025	704966	1	DUCT-EXHAUST
0040	316844GS	1	PANEL
0055	-----	2	WASHER, Flat, #10, Fender -(*See footnote)
0060	314661GS	2	CLIP
0070	22145GS	5	WASHER
0100	706927	1	SEAL

Not For
Reproduction

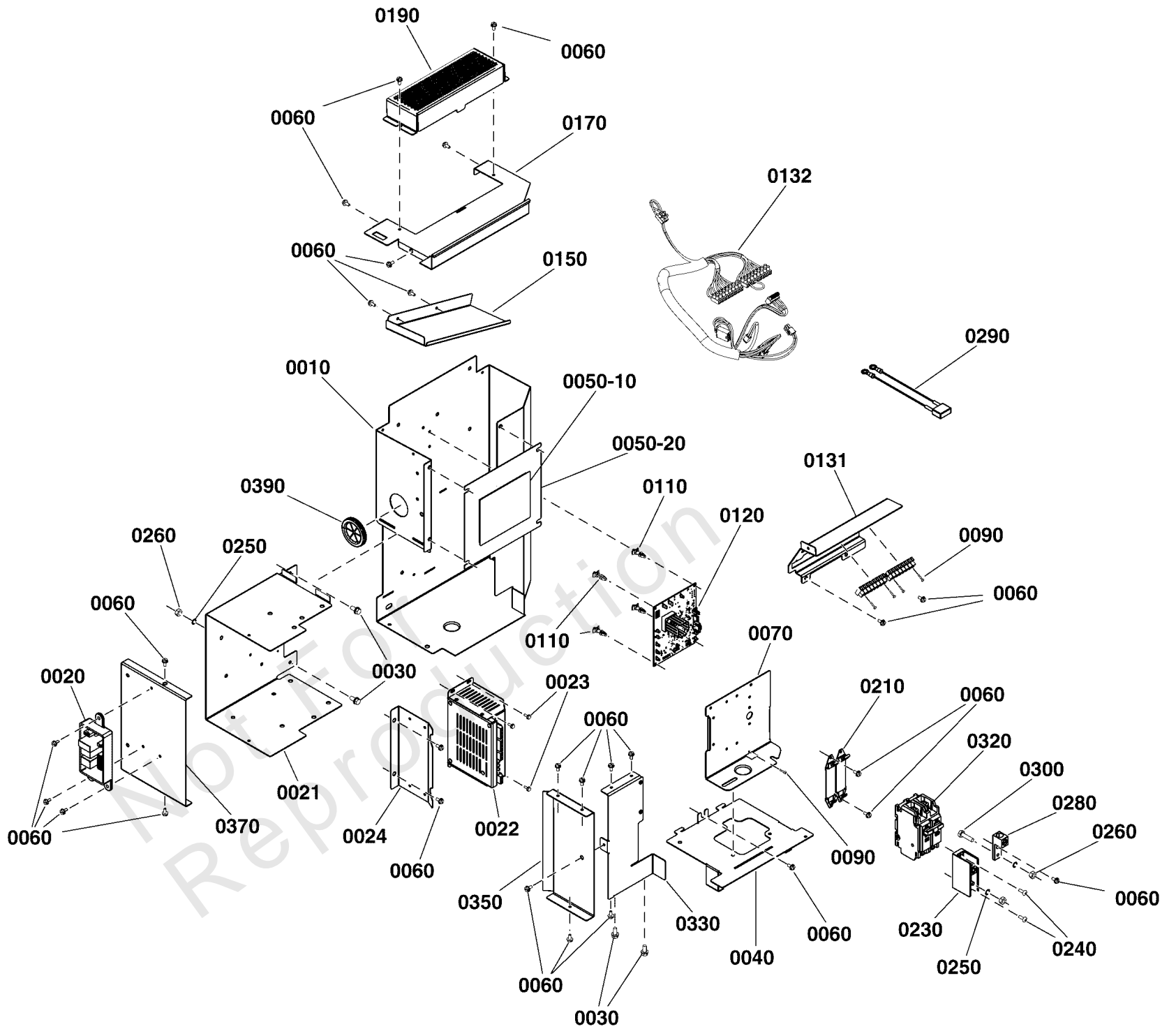
Footnotes:

Note:* Items without part numbers are common fasteners and are available at your local hardware store.

Control Panel

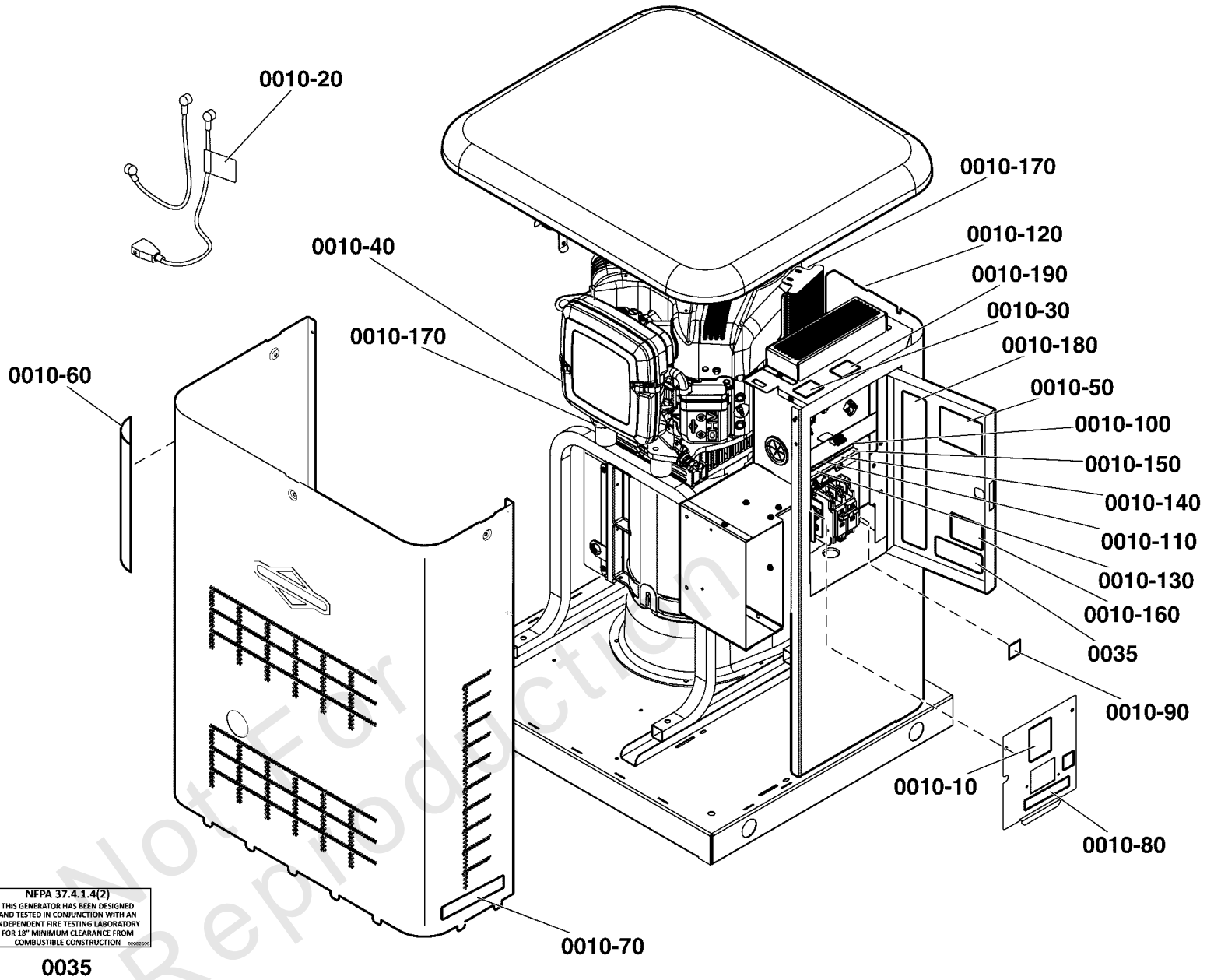
Note: Unless noted otherwise, use the standard torque specifications

Mfg. No: 040608-00



Control Panel

REF NO	PART NO	QTY	DESCRIPTION
0010	772335	1	BOX, Control
0020	772336	1	ASSEMBLY, Relay
0021	772362	1	BOX, Control, Air Duct
0022	772376	1	CHARGER, Battery
0023	192730GS	3	SCREW, Hex Head, Trilobular, #6-32 x 3/8
0024	772365	1	DEFLECTOR, Control, Air Duct
0030	704130	4	SCREW, Hex Head, 1/4-20 X 1/2
0040	772351	1	BRACKET, Vent, Control Box
0050-10	772373	1	CONTROLLER
0050-20	772367	1	PANEL, Control Panel Cover
0060	194561GS	26	HHS, Trilobular, #10-32 x 3/8
0070	772358	1	BRACKET, Circuit Breaker
0090	314691GS	5	SCREW, Taptite, M2.5-.45 X 12
0110	772379	4	SUPPORT, Circuit Board
0120	772378	1	ASSEMBLY, Smart AVR
0131	772371	1	BRACKET, Terminal Block
0132	772377	1	HARNESS, Field Connection
0150	772360	1	DEFLECTOR, Control Box
0170	772359	1	PANEL, Control Box Top
0190	772368	1	PANEL, Control Box Top, Perforated
0210	192770GS	2	BRACKET, Mounting / Breaker
0230	208365GS	1	BLOCK, Terminal
0240	205947GS	2	SCREW, Trilobular, #10-32 x 3/4
0250	26850GS	3	WASHER, Ext. M6 - 1/4" Shakeproof
0260	22127GS	3	NUT, Hex, 1/4-20
0280	199011GS	1	LUG, Ground Connect
0290	84003257	1	ASSEMBLY, Neutral Drain Capacitor
0300	22413GS	1	HHCS, 1/4 - 20 x 1.00 Lg
0320	311316GS	1	CIRCUIT BREAKER, 60A
0330	772361	1	PANEL, Control Box Front
0350	772364	1	DEFLECTOR, Control Air Duct
0370	772363	1	BOX, Control Air Duct, End
0390	84001695	1	GROMMET



NFPA 37.4.1.4(2)
THIS GENERATOR HAS BEEN DESIGNED AND TESTED IN CONFORMANCE WITH AN INDEPENDENT FIRE TESTING LABORATORY FOR 18" MINIMUM CLEARANCE FROM COMBUSTIBLE CONSTRUCTION

0010-10

WARNING AVERTISSEMENT ADVERTENCIA

Risk of electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel. **Risque de décharge électrique. Ne pas retirer le couvercle. Aucune pièce à entretenir par l'utilisateur à l'intérieur. Confié l'entretien à du personnel de service qualifié.**

0010-20

WARNING AVERTISSEMENT ADVERTENCIA

Explosion of battery gases could result in death or serious injury. Keep all sources of ignition away from battery. Battery contains acid which could result in blindness or severe burns. Avoid contact with acid. **L'explosion des gaz de la batterie peut provoquer des blessures graves, voire la mort. Tenez toutes les sources d'allumage éloignées de la batterie. La batterie contient de l'acide pouvant causer la cécité ou de graves brûlures. Évitez le contact avec l'acide.**

0010-30

WARNING AVERTISSEMENT ADVERTENCIA

To reduce the risk of fire, replace only with same type and rating of fuse. **Pour réduire le risque d'incendie, remplacez avec un fusible de même type et classification.**

0010-40

WARNING AVERTISSEMENT ADVERTENCIA

Hot surface could result in serious injury. Do not touch. La surface chaude pourrait entraîner des blessures graves. Ne touchez pas.

0010-50

WARNING AVERTISSEMENT ADVERTENCIA

Failure to read & follow Operator and Installation manuals could result in death or serious injury. **No se lea y seguir las indicaciones de los manuales de operación e instalación podría causar la muerte o lesiones serias.**

0010-60

CAUTION MISE EN GARDE PRECAUCION

Connect output of generator to suitably rated transfer switch in accordance with the Canadian Electrical Code, Part 1. **Branchez la sortie de la génératrice à un commutateur convertisseur de classification convenable selon le Code canadien de l'électricité, partie 1.**

0010-70

RAINPROOF ENCLOSURE	ÉTANCHE À LA PLUIE ENCEINTE	GABINETE A PRUEBA DE LLUVIA
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0010-70

GENERATOR SERVICE DISCONNECT	GENÉRATRICE ENTRETIEN DÉBRANCHER	DESCONECTOR DE SERVICIO DEL GENERADOR
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0010-80

9 +12V	W	1 +12V
10 (B)	F	2 GND
11 (A)	I	3 Xfer
12 GND		4 2-WIRE START
13 +12V	C	5
14 (B)	E	6 E-STOP
15 (A)	L	7
16 GND	U	8

0010-90

WARNING AVERTISSEMENT ADVERTENCIA

Cancer and Reproductive Harm www.P65Warnings.ca.gov
Cancer et Troubles de l'Appareil Reproducteur www.P65Warnings.ca.gov
Cáncer y Problemas Reproductivos www.P65Warnings.ca.gov

0010-100

WARNING AVERTISSEMENT ADVERTENCIA

Engine exhaust contains carbon monoxide, a poisonous gas that could kill you in minutes. You cannot smell it or see it. Install outdoors only. Install carbon monoxide alarms in home. Hot surface could result in serious injury. Do not touch. **L'engine exhaust contient du monoxyde de carbone, un gaz toxique pouvant tuer en quelques minutes. Vous ne pouvez ni le sentir ni le voir. Installez à l'extérieur seulement. Installez les alarmes de monoxyde de carbone dans la maison. La surface chaude pourrait entraîner des blessures graves. Ne touchez pas.**

0010-110

WARNING AVERTISSEMENT ADVERTENCIA

Hot surface could result in serious injury. Do not touch. La surface chaude pourrait entraîner des blessures graves. Ne touchez pas.

0010-120

WARNING AVERTISSEMENT ADVERTENCIA

Engine exhaust could ignite combustibles resulting in death or serious injury. Exhaust side of weatherproof enclosure shall have 5 ft. (1.5M) min clearance from any structures, shrubs, trees or any vegetation. This equipment may create sparks that could start fires around city vegetation. A spark arrester may be required. Contact local fire agencies for regulations relating to fire prevention requirements. **L'échappement du moteur contient du monoxyde de carbone, un gaz toxique pouvant tuer en quelques minutes. Le côté de l'enclosure étanche doit avoir un dégagement d'au moins 1.5 m (5 pi) de toutes structures, buissons, arbres ou autres végétaux. Cet équipement peut produire des étincelles pouvant déclencher des incendies autour de la végétation sèche. Un pare-étincelles pourrait être nécessaire. Contactez les responsables locaux des incendies pour connaître les exigences réglementaires liées à la prévention des incendies. Les gaz de l'échappement du moteur contiennent du monoxyde de carbone, un gaz venimeux qui pourrait causer la mort ou des blessures graves. Ne touchez pas. La surface chaude pourrait causer des blessures graves. Ne touchez pas. Les gaz de l'échappement du moteur pourraient incendier des matériaux combustibles, ce qui pourrait causer la mort ou des blessures graves. Le côté de l'enclosure imperméable doit avoir un dégagement de 5 pi (1,5 m) de distance de toutes structures, arbustes, arbres ou toute autre végétation. Ce matériel peut causer des étincelles qui pourraient déclencher des incendies autour de la végétation sèche. Un pare-étincelles peut être requis. Contactez les agences locales de lutte contre les incendies pour consulter les règlements relatifs à la prévention des incendies.**

0010-130

WARNING AVERTISSEMENT ADVERTENCIA

Generator starts automatically which could result in serious injury. Place switch in "off" and disconnect battery prior to servicing. La génératrice démarre automatiquement, ce qui pourrait entraîner des blessures graves. Placez le commutateur en position arrêt et débranchez la batterie avant d'effectuer un entretien. El generador arranca automáticamente, lo que podría causar lesiones serias. Coloque el interruptor en apagado y desconecte la batería antes de realizar algún servicio.

0010-140

WARNING AVERTISSEMENT ADVERTENCIA

Generator starts automatically which could result in serious injury. Place switch in "off" and disconnect battery prior to servicing. La génératrice démarre automatiquement, ce qui pourrait entraîner des blessures graves. Placez le commutateur en position arrêt et débranchez la batterie avant d'effectuer un entretien. El generador arranca automáticamente, lo que podría causar lesiones serias. Coloque el interruptor en apagado y desconecte la batería antes de realizar algún servicio.

0010-150

WARNING AVERTISSEMENT ADVERTENCIA

Generator starts automatically which could result in serious injury. Place switch in "off" and disconnect battery prior to servicing. La génératrice démarre automatiquement, ce qui pourrait entraîner des blessures graves. Placez le commutateur en position arrêt et débranchez la batterie avant d'effectuer un entretien. El generador arranca automáticamente, lo que podría causar lesiones serias. Coloque el interruptor en apagado y desconecte la batería antes de realizar algún servicio.

0010-160

WARNING AVERTISSEMENT ADVERTENCIA

Generator starts automatically which could result in serious injury. Place switch in "off" and disconnect battery prior to servicing. La génératrice démarre automatiquement, ce qui pourrait entraîner des blessures graves. Placez le commutateur en position arrêt et débranchez la batterie avant d'effectuer un entretien. El generador arranca automáticamente, lo que podría causar lesiones serias. Coloque el interruptor en apagado y desconecte la batería antes de realizar algún servicio.

0010-170

WARNING AVERTISSEMENT ADVERTENCIA

Generator starts automatically which could result in serious injury. Place switch in "off" and disconnect battery prior to servicing. La génératrice démarre automatiquement, ce qui pourrait entraîner des blessures graves. Placez le commutateur en position arrêt et débranchez la batterie avant d'effectuer un entretien. El generador arranca automáticamente, lo que podría causar lesiones serias. Coloque el interruptor en apagado y desconecte la batería antes de realizar algún servicio.

0010-180

WARNING AVERTISSEMENT ADVERTENCIA

Generator starts automatically which could result in serious injury. Place switch in "off" and disconnect battery prior to servicing. La génératrice démarre automatiquement, ce qui pourrait entraîner des blessures graves. Placez le commutateur en position arrêt et débranchez la batterie avant d'effectuer un entretien. El generador arranca automáticamente, lo que podría causar lesiones serias. Coloque el interruptor en apagado y desconecte la batería antes de realizar algún servicio.

0010-190

WARNING AVERTISSEMENT ADVERTENCIA

Generator starts automatically which could result in serious injury. Place switch in "off" and disconnect battery prior to servicing. La génératrice démarre automatiquement, ce qui pourrait entraîner des blessures graves. Placez le commutateur en position arrêt et débranchez la batterie avant d'effectuer un entretien. El generador arranca automáticamente, lo que podría causar lesiones serias. Coloque el interruptor en apagado y desconecte la batería antes de realizar algún servicio.

0035

NOTICE AVIS AVISO

FUEL REQUIREMENTS
Estimated generator fuel supply requirements for both natural gas and LP vapor:

Natural Gas Gas Naturel	LP Vapor Propane gazoux	
	BTU/H	m ³ /h
8KW	121,000	3.43
10KW	169,000	4.79
12KW	172,000	4.86
17KW	248,000	7.02
20KW	260,000	7.36

Fuel inlet pressure requirements at full load are:

Natural Gas	LP Vapor
Gas naturel	Propane gazoux
Gas LP	Gas LP
3.5-7	89-178
11-14	279-356

Les exigences de pression d'admission du carburant à plein rendement sont:

Natural Gas	LP Vapor
Gas naturel	Propane gazoux
Gas LP	Gas LP
3.5-7	89-178
11-14	279-356

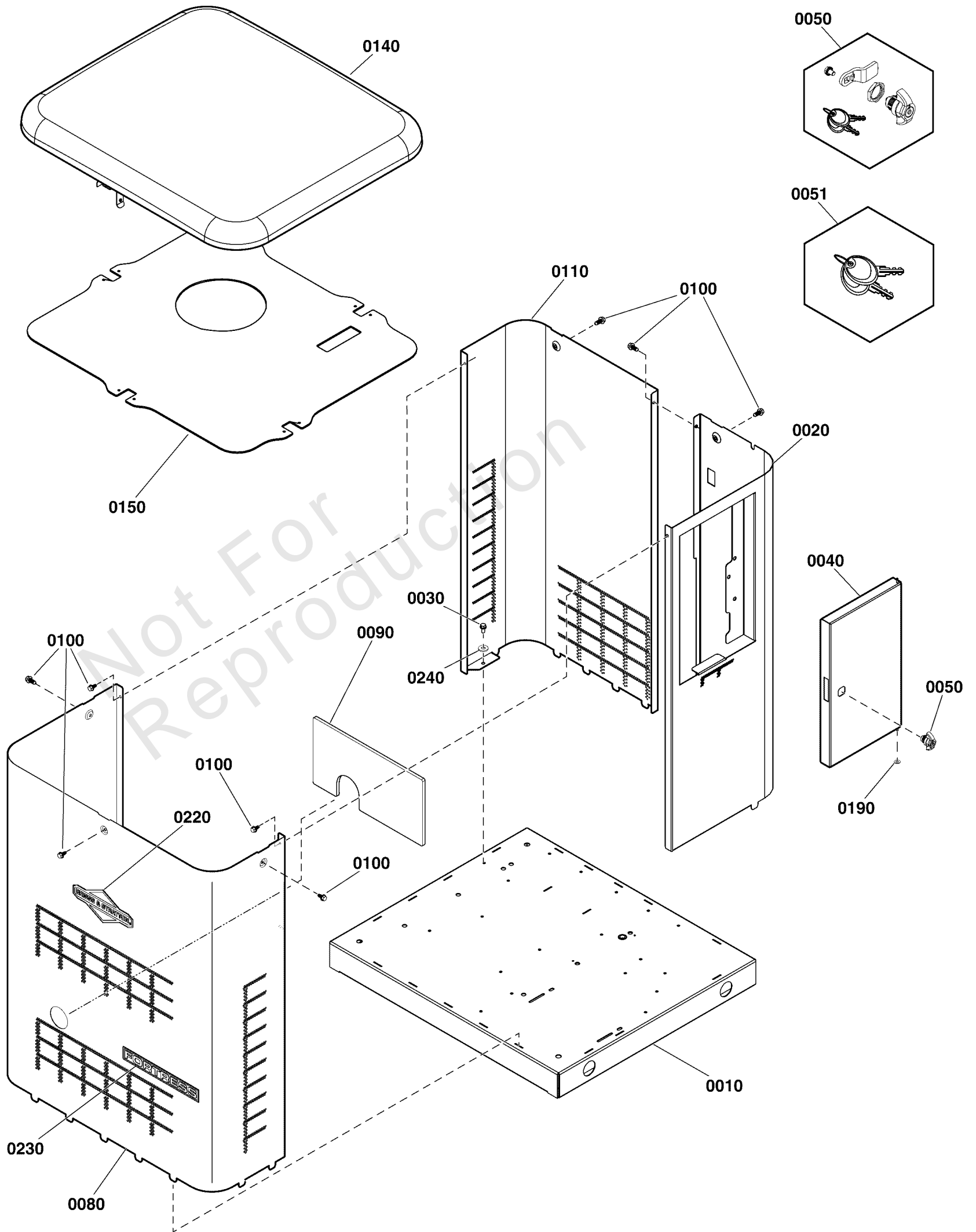
Decals Group

REF NO	PART NO	QTY	DESCRIPTION
0010	84002195	1	DECAL SHEET - WARNINGS -(Includes items 0010-0010 thru 0010-0190)
0010-10	-----	1	DECAL-WARNING, SHOCK
0010-20	-----	1	DECAL, Warning, Battery
0010-30	-----	1	DECAL-WARNING, FUSE
0010-40	-----	1	DECAL-WARNING, HOT SURFACE
0010-50	-----	1	DECAL, Warning, Manual
0010-60	-----	1	DECAL-WARNING, EXHAUST
0010-70	-----	1	DECAL-RAINPROOF ENCLOSURE
0010-80	-----	1	DECAL-DISCONNECT
0010-90	-----	1	DECAL-TERMINAL, 25/26
0010-100	-----	1	DECAL, Terminal Strip
0010-110	-----	1	DECAL, Terminal Strip
0010-120	-----	1	DECAL, External Power Switch
0010-130	-----	1	DECAL, Neutral
0010-140	-----	1	DECAL, L1/L2
0010-150	-----	1	DECAL, Ground
0010-160	-----	1	DECAL, Warning -(The installation of this decal is required for units manufactured after 08/30/2018 and sold in the state of California.)
0010-170	-----	2	DECAL, 240 VAC
0010-180	-----	1	DECAL, Notice Fuel Requirements
0010-190	-----	1	DECAL, Warning
0035	-----	1	DECAL, Clearance From Combustible Construction

Enclosure Group

Note: Unless noted otherwise, use the standard torque specifications

Mfg. No: 040608-00

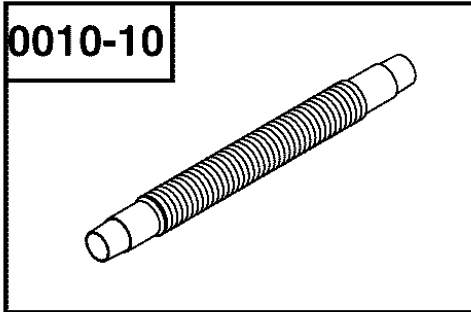


Enclosure Group

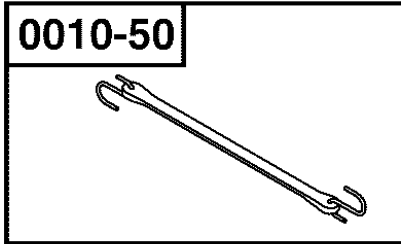
REF NO	PART NO	QTY	DESCRIPTION
0010	772343	1	BASE, Enclosure
0020	772344	1	PANEL, Right Back
0030	-----	3	SCREW, 1/4-20 X .500, Hex Washer SL HD, ZC/CL
0040	772345	1	DOOR, Enclosure
0050	195998GS	1	KIT, Door Latch
0051	207652GS	1	SET, Latch Key, Plain
0070	706937	1	PLUG -(Not Illustrated)
0080	772346	1	PANEL, Front
0090	706938	1	PANEL, Muffler Guard
0100	703884	8	SCREW
0110	772347	1	PANEL, Left Back
0140	84001897	1	ROOF, Enclosure
0150	772349	1	PANEL, Roof Divider
0190	703929	1	WASHER-FLAT, NYLON
0220	770011	1	DECAL
0230	770458	1	BADGE, Fortress
0240	22473GS	16	FLAT WASHER, M6 - 1/4"
0250	316193GS	1	PLUG, Roof -(Not Illustrated)

0010

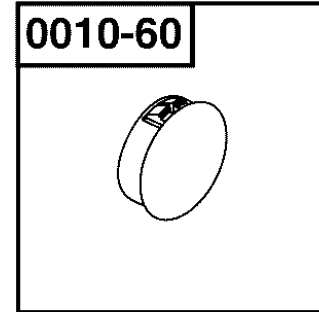
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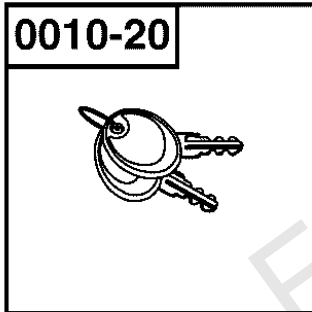
0010-50



0010-60



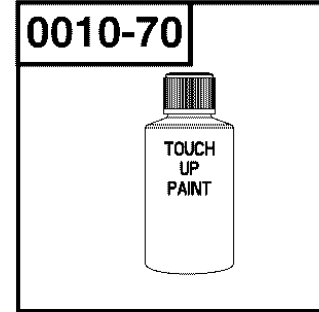
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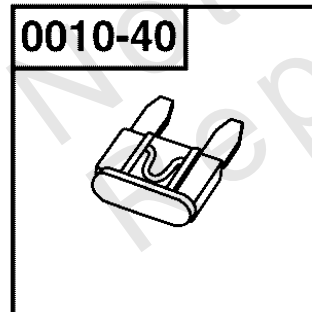
0010-80

<p>● ATTENTION ● This building is equipped with a Standby Generator.</p> <p>FUEL TYPE:</p> <ul style="list-style-type: none"> ● Natural Gas ● LP Gas <p>LOCATION:</p> <ul style="list-style-type: none"> ● NORTH ● EAST ● SOUTH ● WEST <p>ATENCIÓN Este edificio está equipado con un generador de respaldo.</p> <p>TIPO DE COMBUSTIBLE:</p> <ul style="list-style-type: none"> ● Gas natural ● Gas LP <p>UBICACIÓN:</p> <ul style="list-style-type: none"> ● NORTE ● ESTE ● SUR ● OESTE 	<p>DO NOT REMOVE THIS TAG</p> <p>NE RETIREZ PAS CETTE ÉTIQUETTE</p> <p>DO NOT REMOVE THIS TAG</p> <p>NE RETIREZ PAS CETTE ÉTIQUETTE</p>	<p>● ATTENTION ● Cet édifice est équipé d'une génératrice de secours.</p> <p>TYPE DE CARBURANT :</p> <ul style="list-style-type: none"> ● Gaz naturel ● GPL <p>EMPLACEMENT :</p> <ul style="list-style-type: none"> ● EST ● NORD ● OUEST ● SUD <p>ATTENTION This building is equipped with a Standby Generator.</p> <p>FUEL TYPE:</p> <ul style="list-style-type: none"> ● Natural Gas ● LP Gas <p>LOCATION:</p> <ul style="list-style-type: none"> ● EAST ● NORTH ● WEST ● SOUTH
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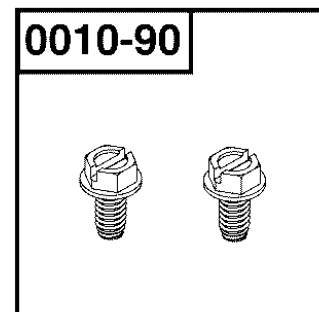
0010-70



0010-40



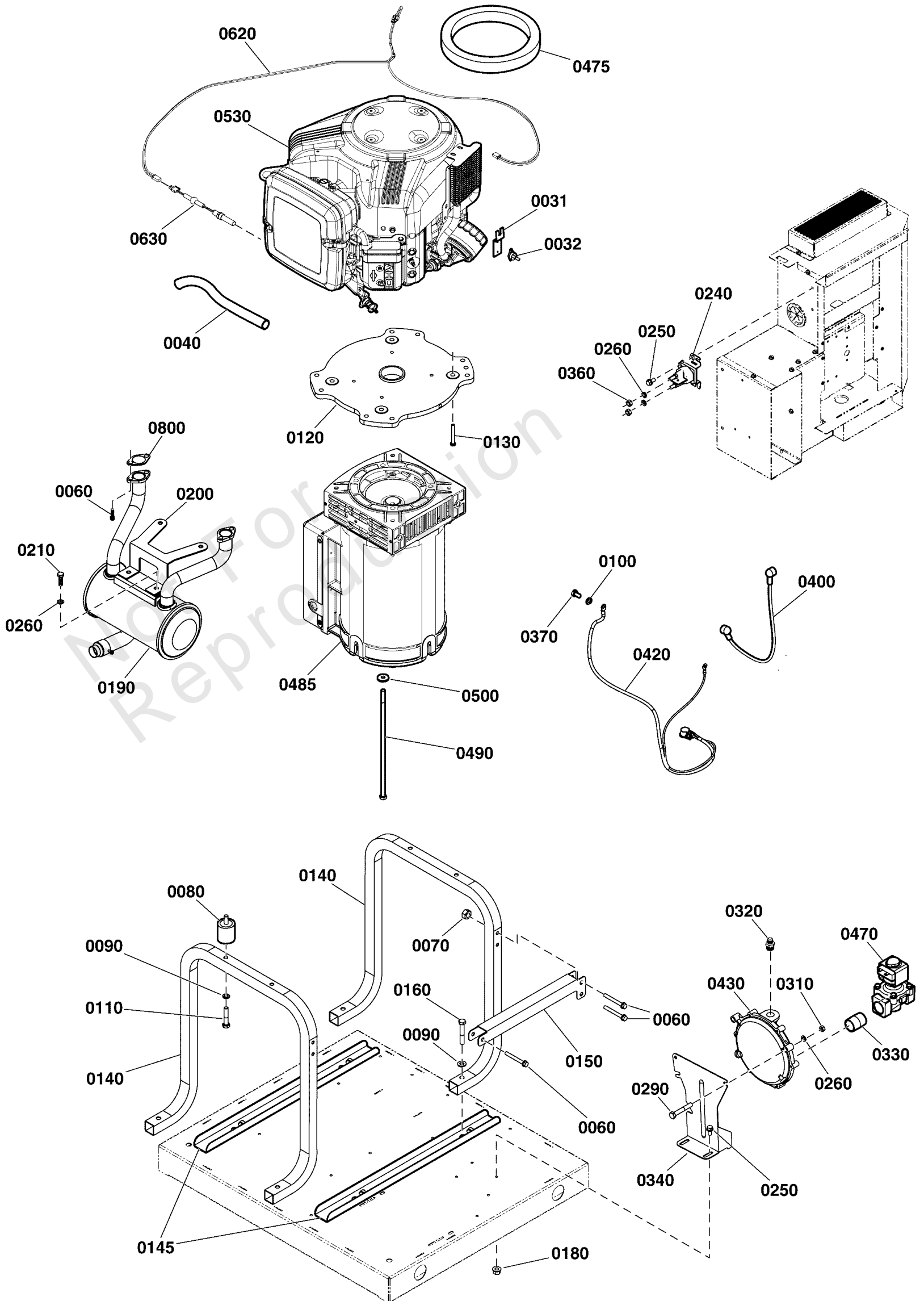
0010-90



Manuals & Accessories

REF NO	PART NO	QTY	DESCRIPTION
0010	772391	1	KIT, Accessory -(Incl. Ref. Nos. 0010-10, 0010-20, 0010-40, 0010-50, 0010-60, 0010-70, 0010-80, 0010-90)
0010-10	202295GS	1	HOSE, Flex, NG / LPG
0010-20	207652GS	1	SET, Latch Key, Plain
0010-40	198573GS	2	FUSE, Auto Type, 15 Amp
0010-50	316869GS	1	STRAP-BATTERY TIEDOWN
0010-60	198460GS	4	PLUG, Dome
0010-70	772357	1	PAINT, Touch Up, Stone Gray, Texture
0010-80	706988	1	HANG TAG-ATTN. STANDBY EQUIPMENT
0010-90	770545	2	SCREW, 1/4-20 x 1/2

Not For Reproduction



Power Group

REF NO	PART NO	QTY	DESCRIPTION
0031	195124GS	1	PLATE, Temp Switch
0032	204426GS	1	SWITCH, Temperature
0040	5048681SM	1	HOSE, OIL DRAIN
0060	94220	4	SCREW
0070	80003921	4	NUT,1/4-20,KEPS,CONICAL WSHR,ZC/CL
0080	189108GS	4	MOUNT, Vibration
0090	22145GS	8	WASHER, Flat, 5/16 - M8
0100	22129GS	10	WASHER, Lock
0110	57821GS	4	CAPSCREW, Hex Head, M8-1.25 x 40
0120	319353GS	1	ADAPTER-ENGINE
0130	80005605	4	SCREW 3/8-16X1.500 HEX WSHR HD TT ZC/CL
0140	BF319470GS	2	CRADLE
0145	706923	2	PLATE, CRADLE SUPPORT
0150	319471GS	1	BRACKET
0160	-----	4	SCREW, 5/16-18 X 2
0180	189160GS	3	NUT, 5/16 - 18, Flange Serrated
0190	706924	1	MUFFLER
0200	704682	1	BRACKET, Muffler
0210	47411GS	2	SCREW
0240	772333	1	SOLENOID, Starter
0250	704130	2	SCREW, Hex Head, 1/4-20 X 1/2
0260	22097GS	6	WASHER, Lock, Split, 1/4"
0290	38750GS	2	HHCS, M6 - 1.0 x 30
0310	49813GS	2	NUT, Hex, M6 - 1.0
0320	202382GS	1	FITTING, 1/2 Flare 3/8 - 18 NPT
0330	206976GS	1	FITTING
0340	706379	1	BRACKET
0360	-----	1	NUT, Hex, 1/4-20
0370	-----	1	SCREW, M8-1.25 X 12 -(*See footnote)
0400	316814GS	1	WIRE, Starter Solenoid
0420	316817GS	1	WIRE, Battery, Negative
0430	706992	1	REGULATOR-FUEL
0470	318880GS	1	SOLENOID, Fuel
0475	316881GS	1	SEAL
0485	772334	1	ALTERNATOR
0490	706941	1	BOLT
0500	96796GS	1	WASHER, Flat M8.4 x 22.2 x 3
0530	-----	1	** ENGINE -(**See footnote)
0620	84003363	1	HARNESS, Cold Weather Kit
0630	84003361	1	HEATER, Oil, 55W 240V
0800	691613	2	GASKET, Exhaust

Footnotes:

** To verify your specific engine model, please reference the ID Tag located on your engine. See your local Briggs & Stratton distributor for parts and service.

* Items without part numbers are common fasteners and are available at your local hardware store.

Hardware Identification & Torque Specifications

Torque Specification Chart								
FOR STANDARD METRIC MACHINE HARDWARE (Tolerance ± 20%)								
Property Class	5.6		8.8		10.9		12.9	
	Class 5.6		Class 8.8		Class 10.9		Class 12.9	
Size Of Hardware	in/lbs	Nm.	in/lbs	Nm.	in/lbs	Nm.	in/lbs	Nm.
	ft/lbs		ft/lbs		ft/lbs		ft/lbs	
M3	5.88	.56	13.44	1.28	19.2	1.80	22.92	2.15
M4	13.44	1.28	30.72	2.90	43.44	4.10	52.56	4.95
M5	26.4	2.50	60.96	5.75	5.97	8.10	7.15	9.7
M6	44.64	4.3	7.3	9.9	10.3	14	12.1	16.5
M7	5.2	7.1	12.1	16.5	16.9	23	19.9	27
M8	7.7	10.5	17.7	24	25	34	29	40
M10	15	21	35	48	50	67	59	81
M12	26	36	61	83	86.2	117	103	140
M14	42	58	101	132	136	185	162	220
M16	64	88	147	200	210	285	250	340
M18	89	121	202	275	287	390	346	470
M20	126	171	290	390	405	550	486	660
M22	169	230	390	530	559	745	656	890
M24	217	295	497	375	708	960	840	1140
M27	320	435	733	995	1032	1400	1239	1680
M30	435	590	995	1350	1401	1900	1681	2280
M33	590	800	1349	1830	1902	2580	2278	3090
M36	759	1030	1740	2360	2441	3310	2935	3980
M39	988	1340	2249	3050	3163	4290	3798	5150

Torque Specification Chart						
FOR STANDARD MACHINE HARDWARE (Tolerance ± 20%)						
Hardware Grade	No Marks		SAE Grade 5		SAE Grade 8	
	SAE Grade 2		SAE Grade 5		SAE Grade 8	
Size Of Hardware	in/lbs	Nm.	in/lbs	Nm.	in/lbs	Nm.
	ft/lbs		ft/lbs		ft/lbs	
8-32	19	2.1	30	3.4	41	4.6
8-36	20	2.3	31	3.5	43	4.9
10-24	27	3.1	43	4.9	60	6.8
10-32	31	3.5	49	5.5	68	7.7
1/4-20	66	7.6	8	10.9	12	16.3
1/4-28	76	8.6	10	13.6	14	19.0
5/16-18	11	15.0	17	23.1	25	34.0
5/16-24	12	16.3	19	25.8	29	34.0
3/8-16	20	27.2	30	40.8	45	61.2
3/8-24	23	31.3	35	47.6	50	68.0
7/16-14	30	40.8	50	68.0	70	95.2
7/16-20	35	47.6	55	74.8	80	108.8
1/2-13	50	68.0	75	102.0	110	149.6
1/2-20	55	74.8	90	122.4	120	163.2
9/16-12	65	88.4	110	149.6	150	204.0
9/16-18	75	102.0	120	163.2	170	231.2
5/8-11	90	122.4	150	204.0	220	299.2
5/8-18	100	136	180	244.8	240	326.4
3/4-10	160	217.6	260	353.6	386	525.0
3/4-16	180	244.8	300	408.0	420	571.2
7/8-9	140	190.4	400	544.0	600	816.0
7/8-14	155	210.8	440	598.4	660	897.6
1-8	220	299.2	580	788.8	900	1,244.0
1-12	240	326.4	640	870.4	1,000	1,360.0

The guides and ruler furnished below are designed to help you select the appropriate hardware.



Nut, M8

Thread Diameter (mm)

Inside Diameter (in) Threads per inch

Nut, 1/2-16



Screw, M8- 1.25 x 25

Thread Diameter (mm) Distance between threads (mm) Body Length (mm)

Body Diameter Threads per inch Body Length (in)

Screw, 1/2- 16 x 2



Standard Hardware Sizing

When a washer or nut is identified as 1/2" (M8), this is the *Nominal size*, meaning the *inside diameter* is 1/2 inch (8mm metric thread diameter); if a second number is present it represents the *threads per inch* (distance between threads).

When bolt or capscrew is identified as 1/2 - 16 x 2" (M8 - 1.25 x 50), this means the *Nominal size*, or body diameter is 1/2 inch (8mm metric thread diameter), the second number, 16, represents the *threads per inch*, (*distance between threads*). The final number is the body length of the bolt or screw, 2 inches (50mm).

NOTES

- These torque values are to be used for all hardware excluding: locknuts, self-tapping screws, thread forming screws, sheet metal screws and socket head setscrews.
- Recommended seating torque values for locknuts:
 - for prevailing torque locknuts - use 65% of grade 5 torques.
 - for flange whizlock nuts and screws - use 135% of grade 5 torques.
- Unless otherwise noted on assembly drawings, all torque values must meet this specification.

Common Hardware Types

Hex Head Capscrew



Washer



Carriage Bolt



Hex Nut

Wrench & Fastener Size Guide

1/4" Bolt or Nut Wrench—7/16"	5/16" Bolt or Nut Wrench—1/2"	3/8" Bolt or Nut Wrench—9/16"	7/16" Bolt or Nut Wrench (Bolt)—5/8" Wrench (Nut)—11/16"	1/2" Bolt or Nut Wrench—3/4"
M6 Bolt or Nut Wrench—10mm	M8 Bolt or Nut Wrench—13mm	M10 Bolt or Nut Wrench—17mm	M12 Bolt or Nut Wrench—19mm	M14 Bolt or Nut Wrench—22mm

