



# Parts Manual

Mfg. No: 5902184  
X3002, Hurricane Series Stand-On  
Debris Blower (X3002, 4500, V23, NA)



5109061 - Tire, Debris Blower, Pavement Tire 20.5 X 8.0-10. ....

Not For  
Reproduction

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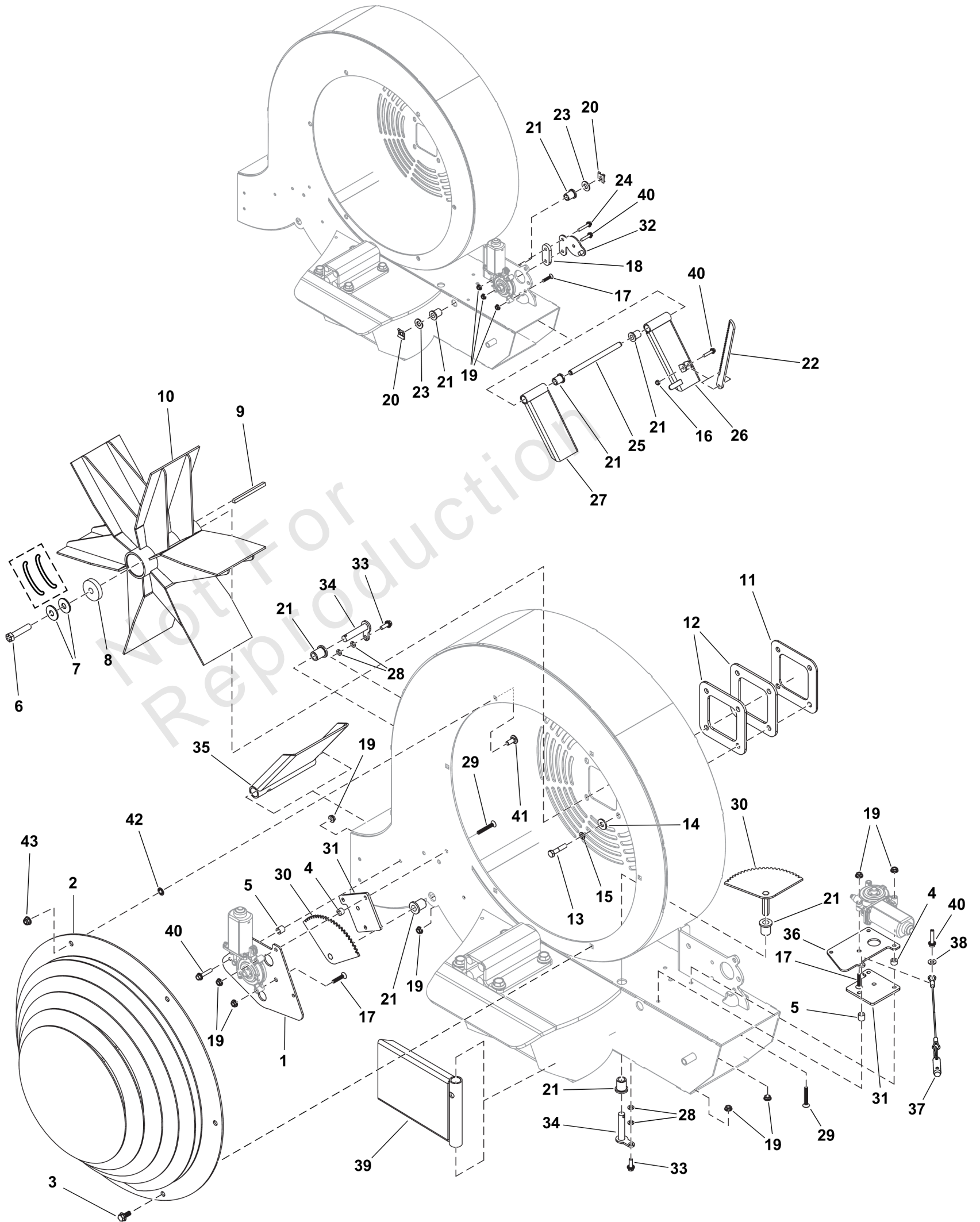
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# Blower Group

Note: Unless noted otherwise, use the standard torque specifications

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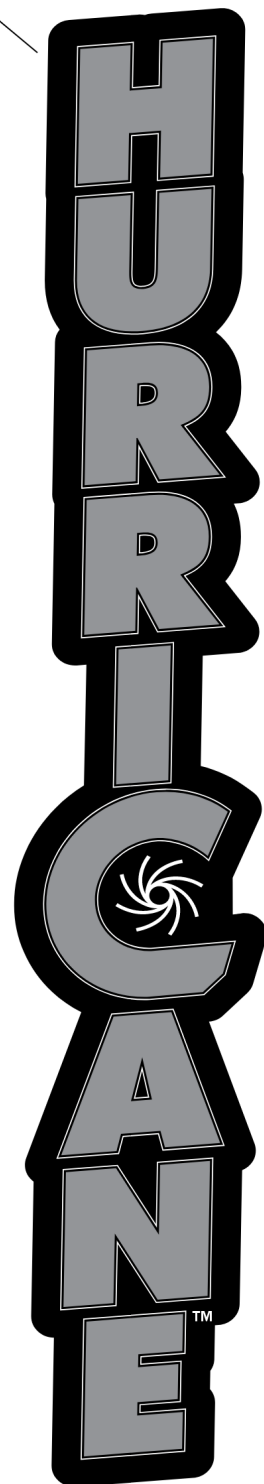
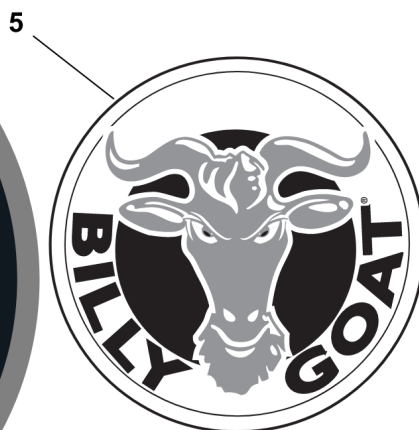
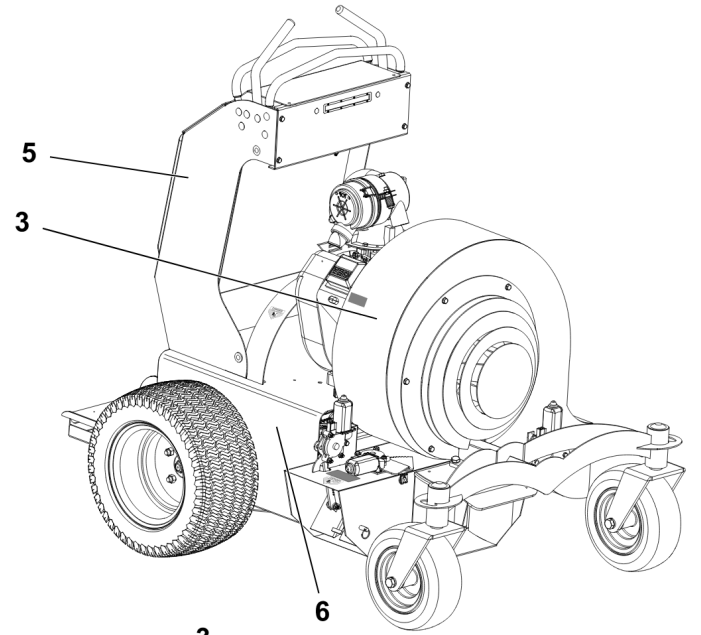
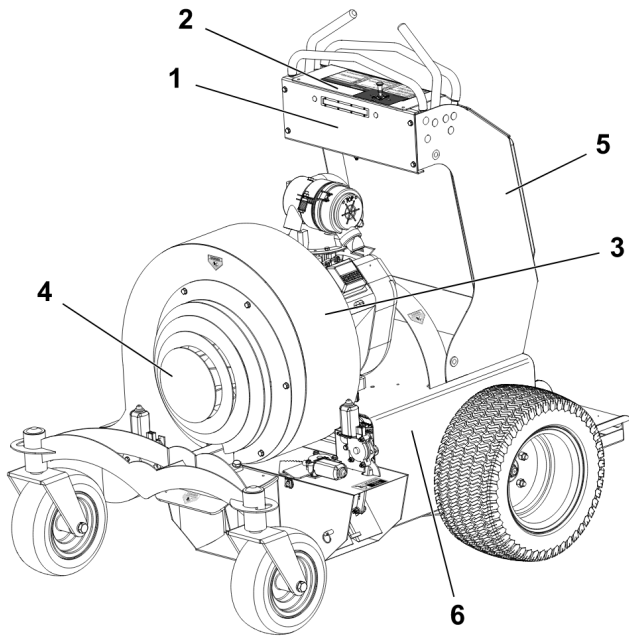
## Blower Group

REF NO	PART NO	QTY	DESCRIPTION
1	5107338AFS	1	PLATE -(Plate only, motor shown for reference only.)
2	5418562AFS	1	COVER
3	703354	6	SCREW, 5/16-18 -(S/N: 4002469623 and below)
4	5107396FS	4	SPACER
5	5106902FS	3	SPACER
6	5025016X16FS	1	BOLT -(Torque impeller mounting bolt to 65 ft-lbs (88 Nm))
7	5025585YP	2	BELLEVILLE WASHER
8	5106924FS	1	WASHER
9	5106925FS	1	KEY
10	5419589FS	1	IMPELLER
11	5107364FS	1	PLATE, SPACER
12	5107363FS	2	PLATE, SPACER
13	5025025X12YP	4	BOLT
14	5025337FS	5	WASHER
15	5025170SM	4	WASHER, 5/16" LOCK
16	5025095SM	1	NUT, 1/4-20 HEX NYLON
17	5106874FS	4	SCREW
18	5107334AAFS	1	PLATE, Spacer
19	5025126FS	15	NUT
20	5106951FS	2	CLIP
21	5106943FS	8	BUSHING
22	5107335FS	1	PLATE
23	5025158SM	2	WASHER, 1/2" SAE
24	5106873FS	1	BOLT
25	5107336FS	1	ROD, Support
26	5107773FS	1	DEFLECTOR
27	5107771FS	1	DEFLECTOR
28	5025169FS	4	WASHER
29	5106903FS	4	SCREW
30	5107339AAFS	2	DEFLECTOR
31	5107332AAFS	1	PLATE, SPACER
32	5107333FS	1	KEEPER
33	5106872FS	2	BOLT
34	5107337FS	2	PIN
35	5107493FS	1	DEFLECTOR
36	5107329AFS	1	PLATE
37	5107886FS	1	PIN
38	703332	1	WASHER
39	5107467FS	1	DEFLECTOR
40	5106919FS	5	BOLT
41	703185	6	BOLT, Round Head, Short Square Neck -(S/N: 4002469624 and Above)
42	703297	6	RETAINER, GR5, 5/16 -(S/N: 4002469624 and Above)
43	703115	6	NUT -(S/N: 4002469624 and Above)

# Decal Group - Brand and Model

Note: Unless noted otherwise, use the standard torque specifications

Mfg. No: 5902184



## *Decal Group - Brand and Model*

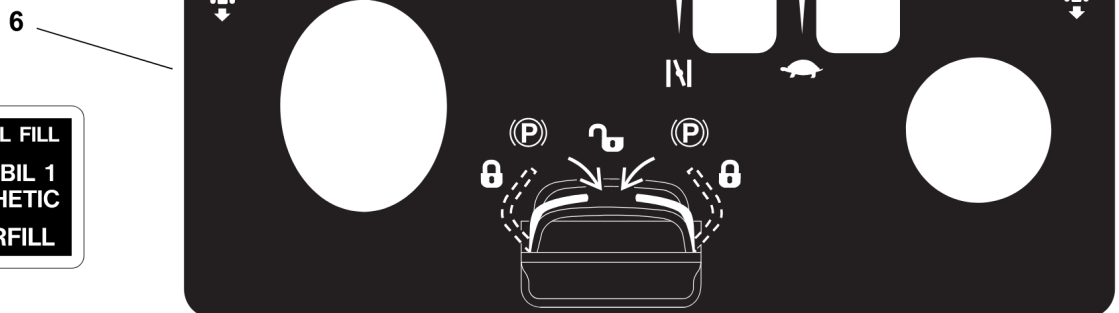
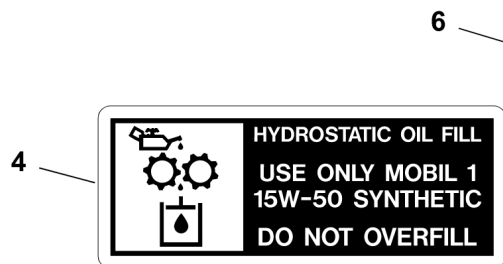
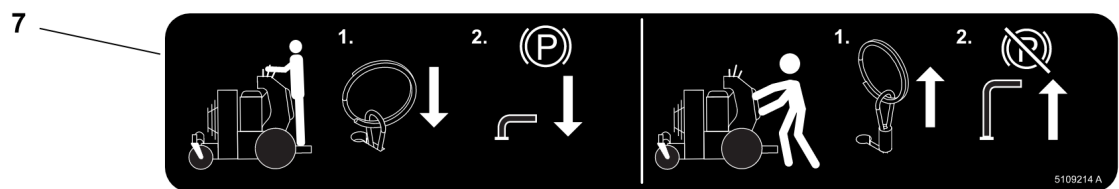
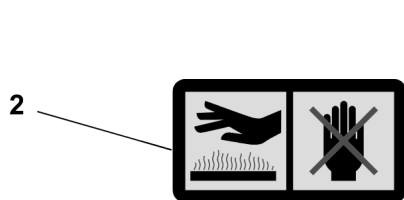
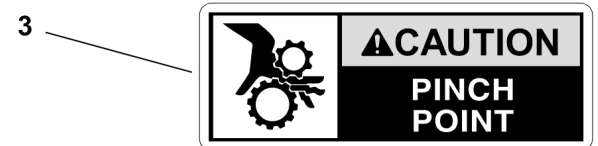
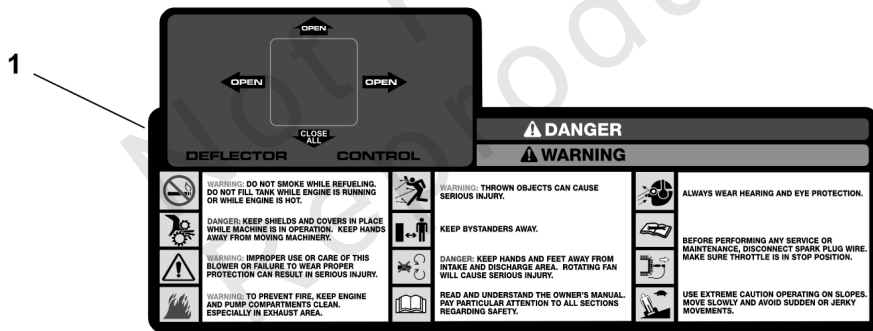
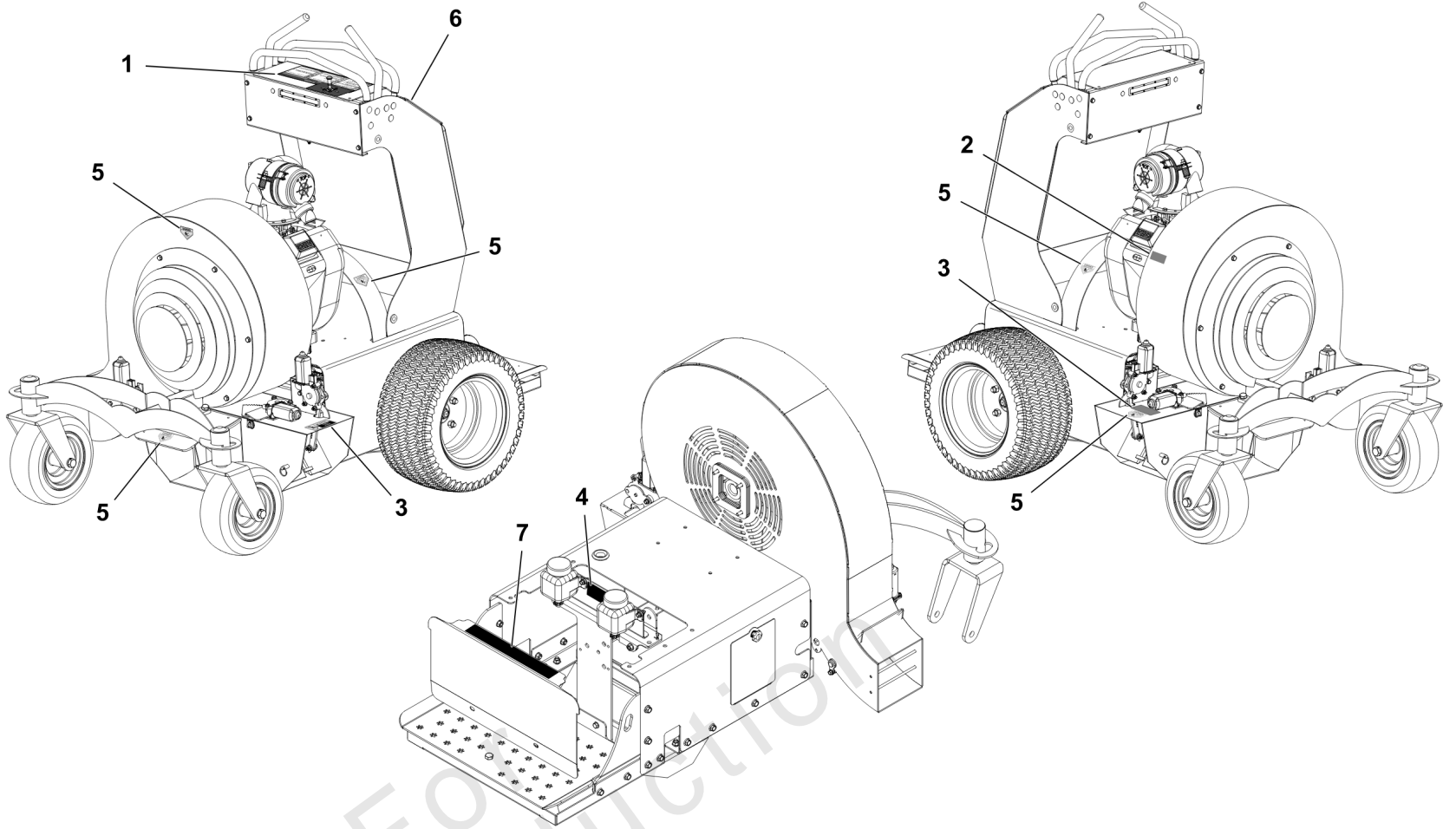
REF NO	PART NO	QTY	DESCRIPTION
1	5111558	1	DECAL, X3002, BADGE
2	5111789	1	DECAL, X3002, TOP PANEL, V606
3	5110340	2	DECAL, X3000 HURRICANE_VERT, RH
4	5110337	1	DECAL, X3000 FRONT LOGO
5	5107557	2	LABEL, PRODUCT DECAL LG CIRCLE
6	80082701FS	2	DECAL, BRAND

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# Decal Group - Safety and Operation

Note: Unless noted otherwise, use the standard torque specifications

Mfg. No: 5902184



## ***Decal Group - Safety and Operation***

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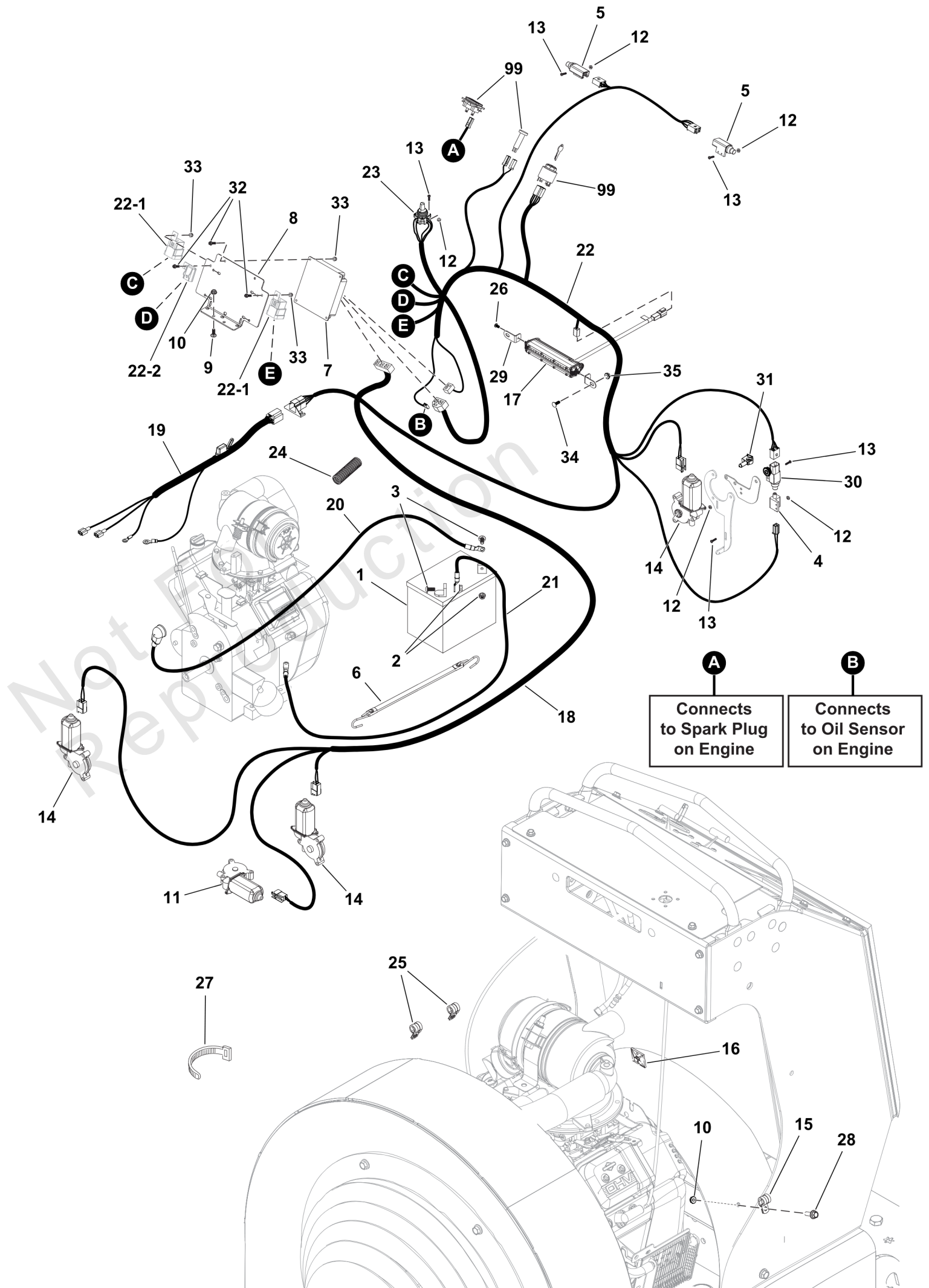
<b>REF NO</b>	<b>PART NO</b>	<b>QTY</b>	<b>DESCRIPTION</b>
1	5107509FS	1	DECAL, CONTROLS
2	5106771FS	1	DECAL, WARNING, HOT SURFACE
3	5106773FS	2	DECAL, Warning/Safety
4	5106774FS	1	DECAL
5	5106775FS	5	DECAL
6	84008754	1	DECAL, Controls
7	5109214FS	1	DECAL, BRAKE, PARK

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# Electrical Group

Note: Unless noted otherwise, use the standard torque specifications

Mfg. No: 5902184



## Electrical Group

REF NO	PART NO	QTY	DESCRIPTION
1	-----	1	BATTERY, 11U1L, 350 CCA
2	5025127SM	2	NUT, 5/16-18 HEX SERR
3	5025145X6SM	2	BOLT, 5/16-18 X 3/4",
4	5021769SM	1	SWITCH, PLUNGER, N.C.
5	5106950FS	2	SWITCH
6	5106918FS	1	STRAP, Battery
7	84012544	1	RELAY, CONTROL MODULE
8	84012537	1	BRACKET, RELAY MOUNT-BLK
9	703575	2	BOLT, 1/4-20X.750, SQ
10	5025126FS	4	NUT
11	5106953FS	1	MOTOR
12	1928919SM	12	NUT-HEX & WASHER ASMY
13	5106875FS	12	SCREW (#10-32 X 3/4, ALLEN, SS) -(Torque joystick mounting screws to 4-5 in-lbs.)
14	5106952FS	3	DEFLECTOR, Motor
15	5107053	1	CLAMP, VINYL INSULATED, .50
16	5107270FS	2	MOUNT
17	84008629	1	HEADLIGHT ASSEMBLY -(Includes items #26 and #29.)
18	84012540	1	HARNESS, DEFLECTOR, DEBRIS BLOWER
19	5107272FS	1	HARNESS, WIRING
20	5107244FS	1	CABLE, BATTERY, RED
21	5107245FS	1	CABLE, BATTERY, BLACK
22	84012538	1	HARNESS, MAIN, DEBRIS BLOWER 5 PIN ENG -(Includes items # 22-1 and 22-2.)
22-1	-----	1	RELAY (Sealed, 12V, 50A)
22-2	-----	1	FUSE, MINI 10 AMP 0297010
23	84012541	1	JOYSTICK ASSEMBLY, DEBRIS BLOWER
24	5050927X17P5	1	WIRE LOOM, 3/8 ID X 17.5 IN
25	5107987FS	2	CLAMP
26	84008299	2	SCREW, Button Head, M5
27	5021029SM	10	TIE, Cable 11" Long
28	5106872FS	2	BOLT
29	-----	2	BRACKET, HEADLIGHT UNIVERSAL - BLACK
30	84008626	1	SWITCH, Sealed
31	5104736FS	1	CLIP
32	5025629FS	6	SCREW
33	5025339YP	6	NUT
34	703575	2	BOLT, 1/4-20X.750, SQ
35	5025126FS	2	NUT
99	-----	0	Refer to: Instrument Control Panel Group

# Electrical Schematic

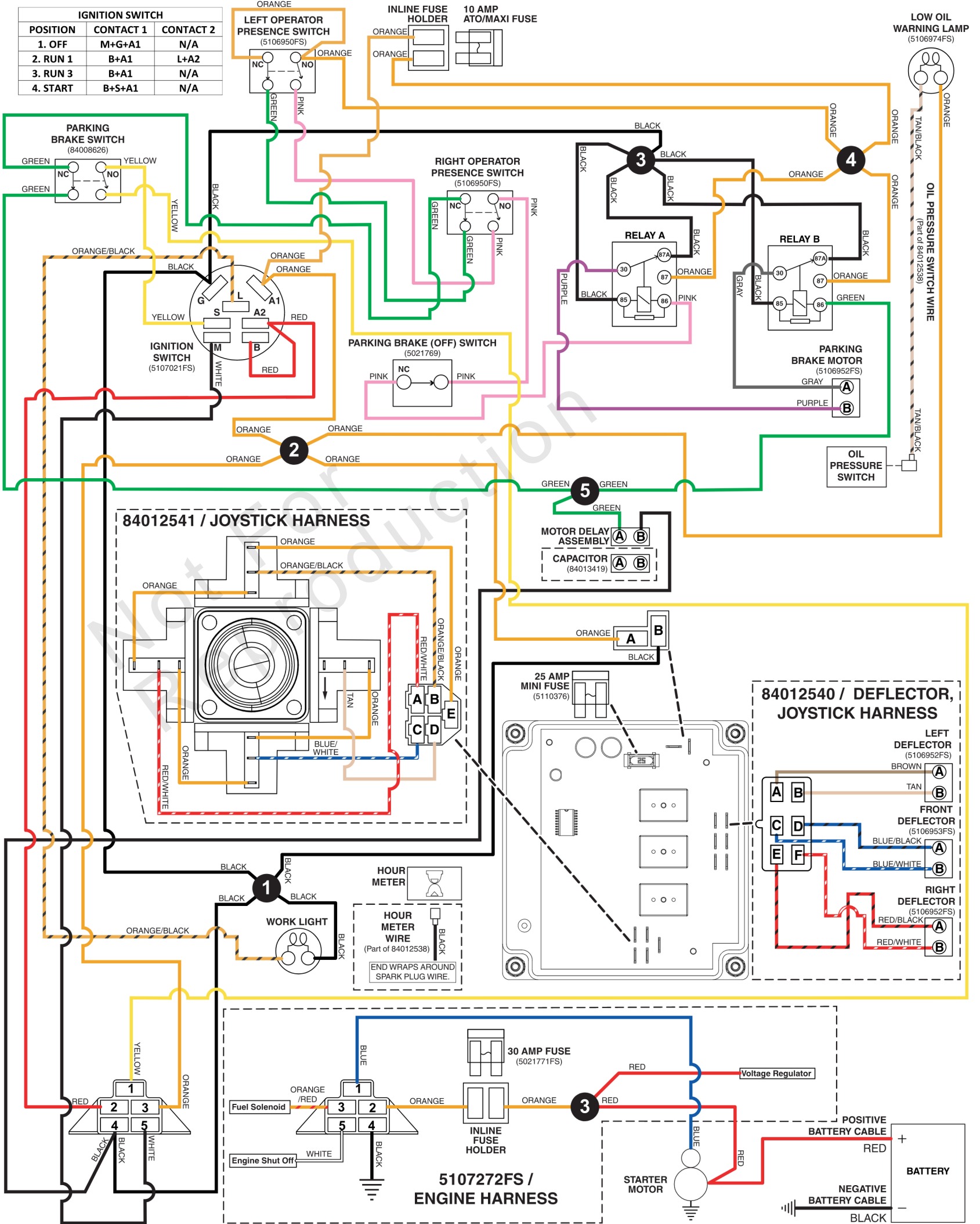
Note: Unless noted otherwise, use the standard torque specifications

Mfg. No: 5902184

## 84012538 / MAIN WIRE HARNESS - BRIGGS & STRATTON 386447 ENGINES

5111444A

(If internal schematic of the switch is not shown, the image of the switch represents the back view of the connector as it is connected to the switch.)



## ***Electrical Schematic***

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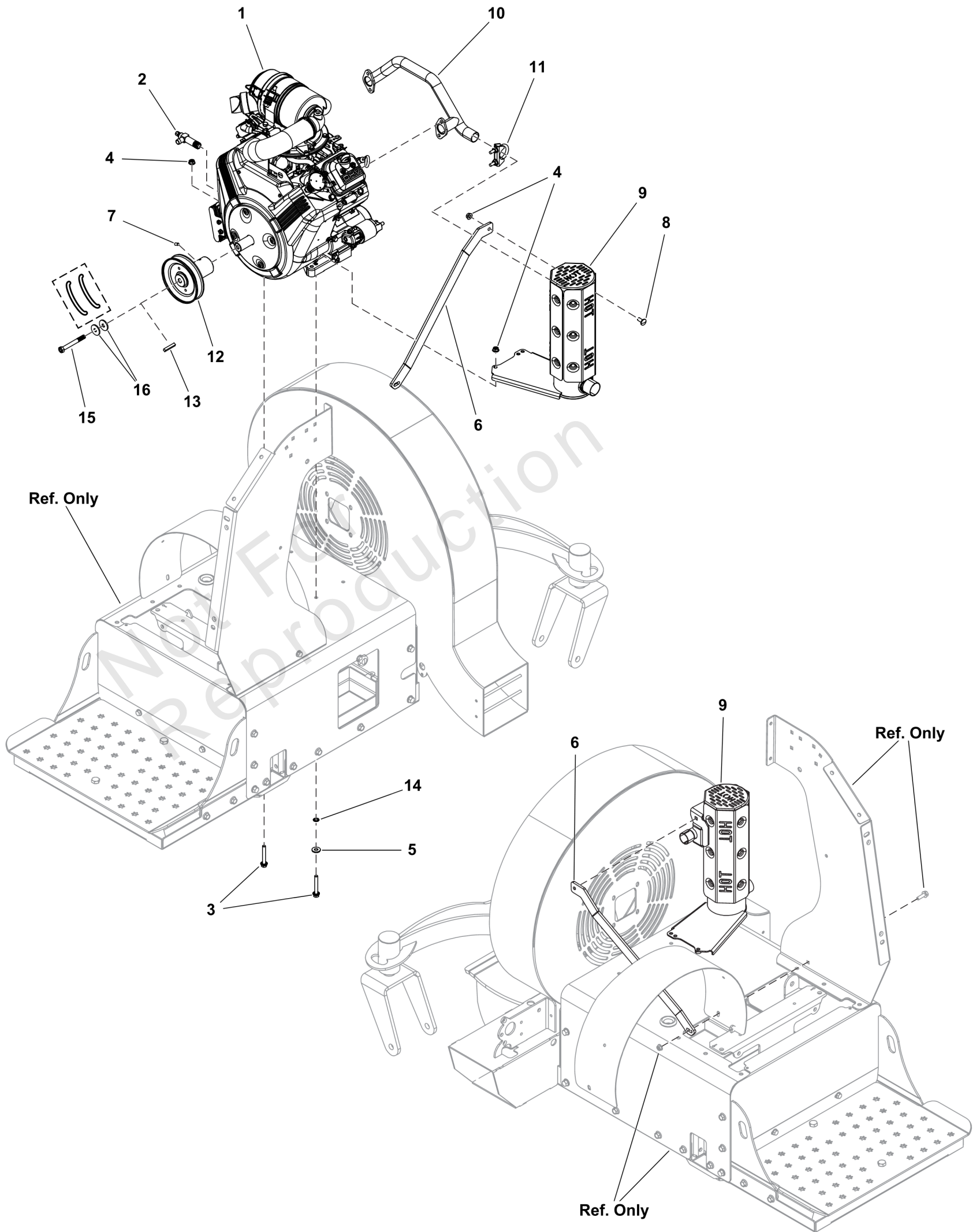
<b>REF NO</b>	<b>PART NO</b>	<b>QTY</b>	<b>DESCRIPTION</b>
84012538	84012538	1	HARNESS, MAIN, DEBRIS BLOWER 5 PIN ENG
84012541	84012541	1	JOYSTICK ASSEMBLY, DEBRIS BLOWER
84012540	84012540	1	HARNESS, DEFLECTOR, DEBRIS BLOWER
5107272FS	5107272FS	1	HARNESS, WIRING
84013419	-----	1	CAPACITOR

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# Engine Group

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## Engine Group

REF NO	PART NO	QTY	DESCRIPTION
1	-----	1	ENGINE, HORIZONTAL SHAFT, Briggs & Stratton, 386447 -(Refer to Note: *)
2	5107284FS	1	VALVE, OIL DRAIN SHUT OFF
3	5107304FS	4	BOLT
4	5025127SM	5	NUT, 5/16-18 HEX SERR
5	5025337FS	1	WASHER
6	-----	1	PLATE, MUFFLER BRACKET, FB2000/X3000-BLK -(Included with item #9.)
7	5107269FS	2	SET SCREW
8	703185	1	BOLT, Round Head, Short Square Neck
9	84011463	1	KIT, Muffler -(Includes item #6.)
10	5109325FS	1	MANIFOLD
11	5107405FS	1	CLAMP, MUFFLER
12	84008751	1	PULLEY
13	5022726YP	1	KEY 1/4 SQ X 1 1/2
14	5025188SM	1	WASHER, 5/16" INT. TO
15	01X144MA	1	BOLT, 3/8-24 NF x 3-1/4" Hex Head, GR 8
16	5025693FS	1	WASHER, Beveled

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**Footnotes:**

Note: \*See engine identification tag for specific model-type-trim number).



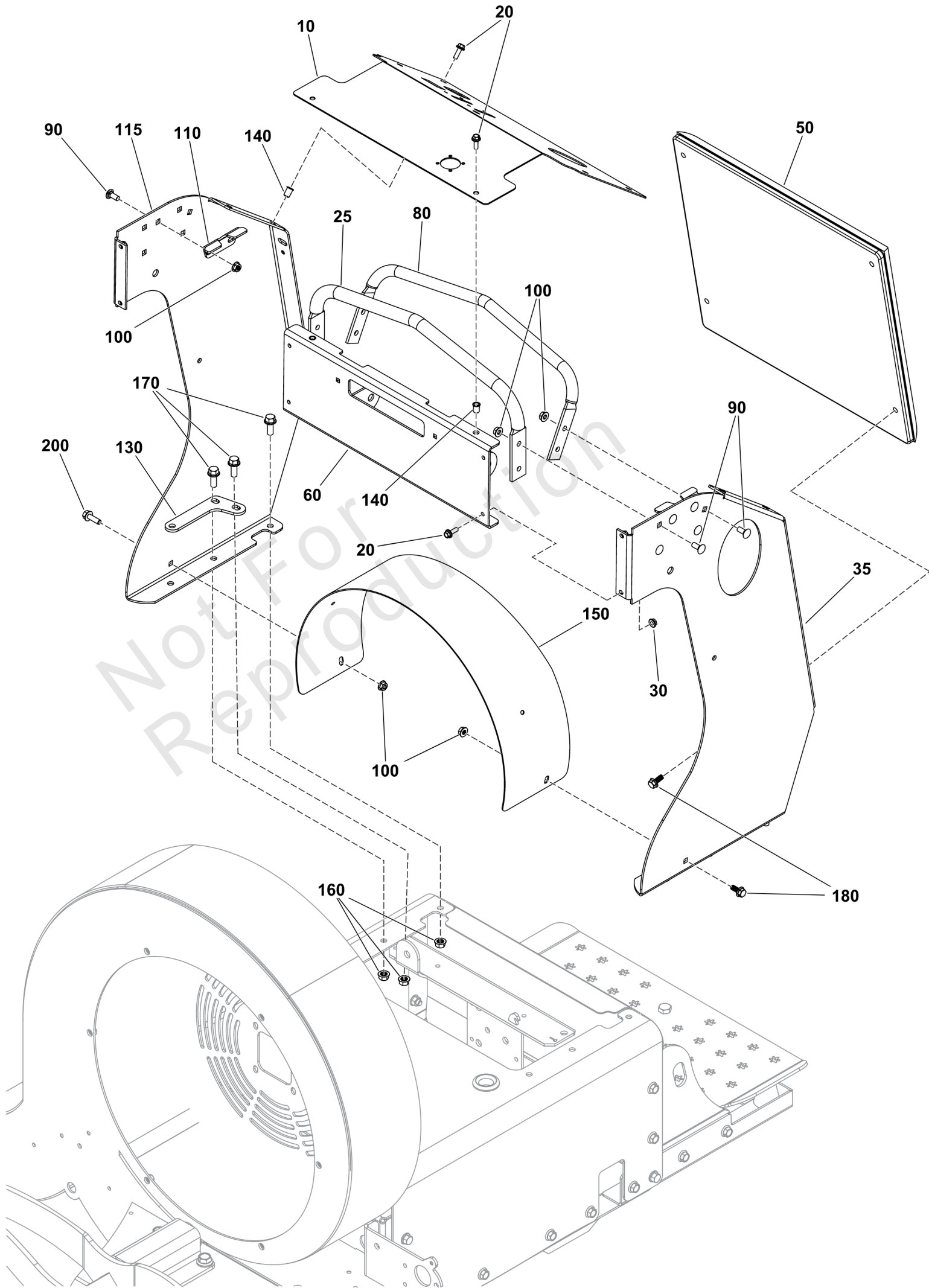
## Fuel Tank and Hose Group

REF NO	PART NO	QTY	DESCRIPTION
1	84008753	1	CAP, Fuel Tank
2	84008756	1	TANK, Fuel
3	5106863FS	4	SCREW
4	691038	4	CLAMP, Hose
5	5025126FS	4	NUT
6	5107072FS	1	VALVE, Fuel Shut Off
7	5107073FS	1	EXTENSION, FUEL TRANSFER TUBE
8	5106956FS	1	FITTING
9	5106955FS	1	VALVE, Check
10	84001895	1	FILTER, Fuel
11	5050831X6YP	2	HOSE, 1/4" FUEL, 6.00
12	5021030SM	1	TIE WRAP, 5-1/2" LONG
13	770046	1	REMOTE VENT ASSEMBLY
14	799624	1	GROMMET
15	84008752	1	GAUGE, Fuel -(Includes item # 15-1).
15-1	-----	1	RUBBER SEAL
16	7700552X2P5FS	2	HOSE, VAPOR
17	7700552X14FS	1	HOSE, Vapor -(Cut to length)
18	7700552X6YP	1	HOSE-VAPOR

# Handle Bar Group

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Mfg. No: 5902184



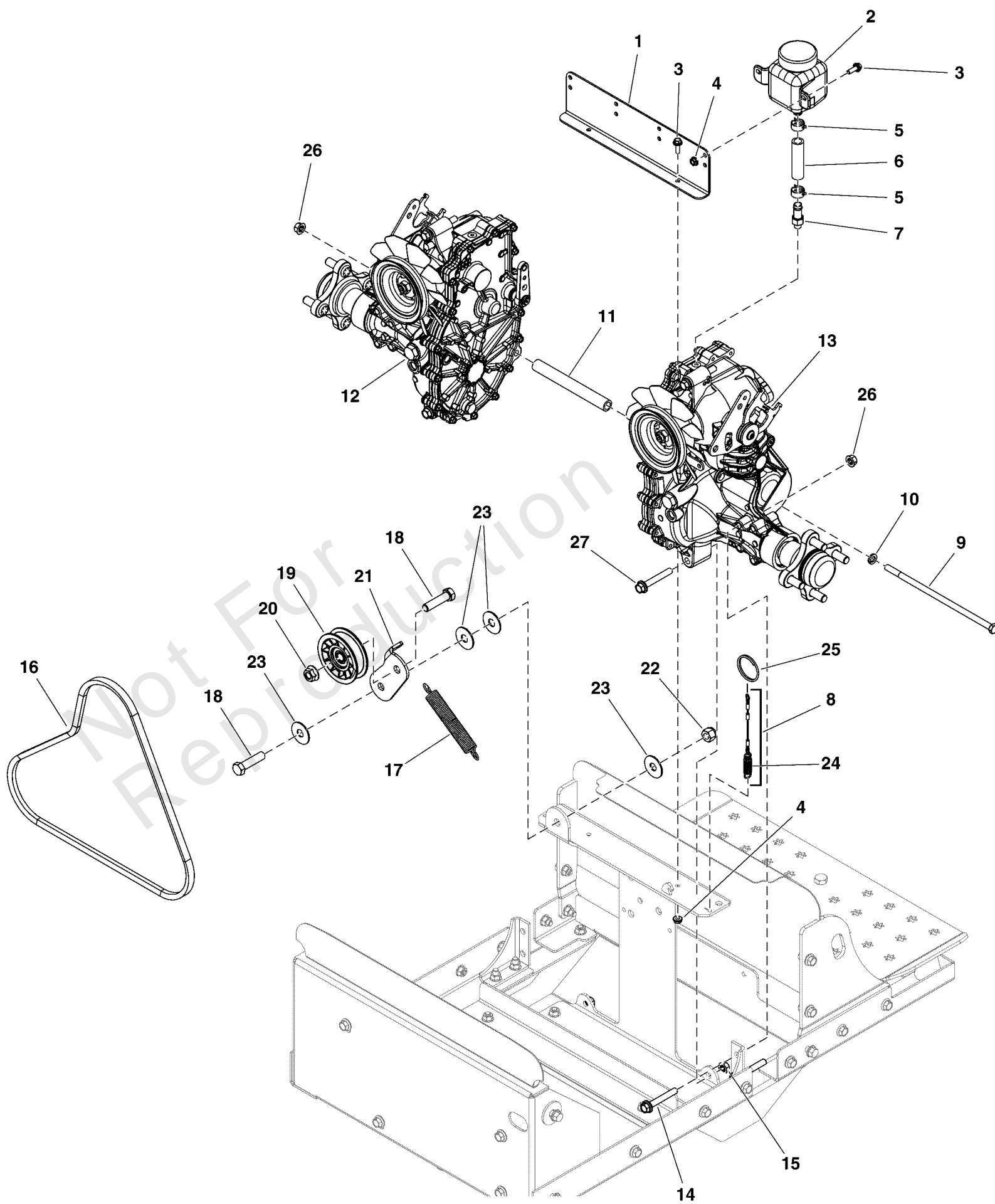
## Handle Bar Group

REF NO	PART NO	QTY	DESCRIPTION
10	-----	1	PLATE, DASH PANEL, NEW THROTTLE - BLK
20	5106872FS	10	BOLT
25	5107044AFS	1	HANDLE, FRONT
30	5025126FS	4	NUT
35	5424011AD	1	CONTROL TOWER X3, LH - ORG
50	5107538FS	1	PAD, KNEE
60	5424016AD	1	WELD, DASH FRONT PANEL - ORG
80	5107045AFS	1	HANDLE, REAR
90	5025145X6SM	12	BOLT, 5/16-18 X 3/4",
100	5025127SM	14	NUT, 5/16-18 HEX SERR
110	-----	2	BRACKET, NEUTRAL CENTERING, CZ
115	5424012AD	1	CONTROL TOWER X3, RH - ORG
130	5107437AFS	2	PLATE
140	5106833FS	6	NUT
150	5423468AD	1	PLATE, BELT GUARD COVER X3 - TX ORG
160	5025666FS	8	NUT
170	704038	8	SCREW
180	703354	5	SCREW, 5/16-18
200	703410	1	BOLT,5/16-18X1

# Hydraulic Group

Note: Unless noted otherwise, use the standard torque specifications

Mfg. No: 5902184



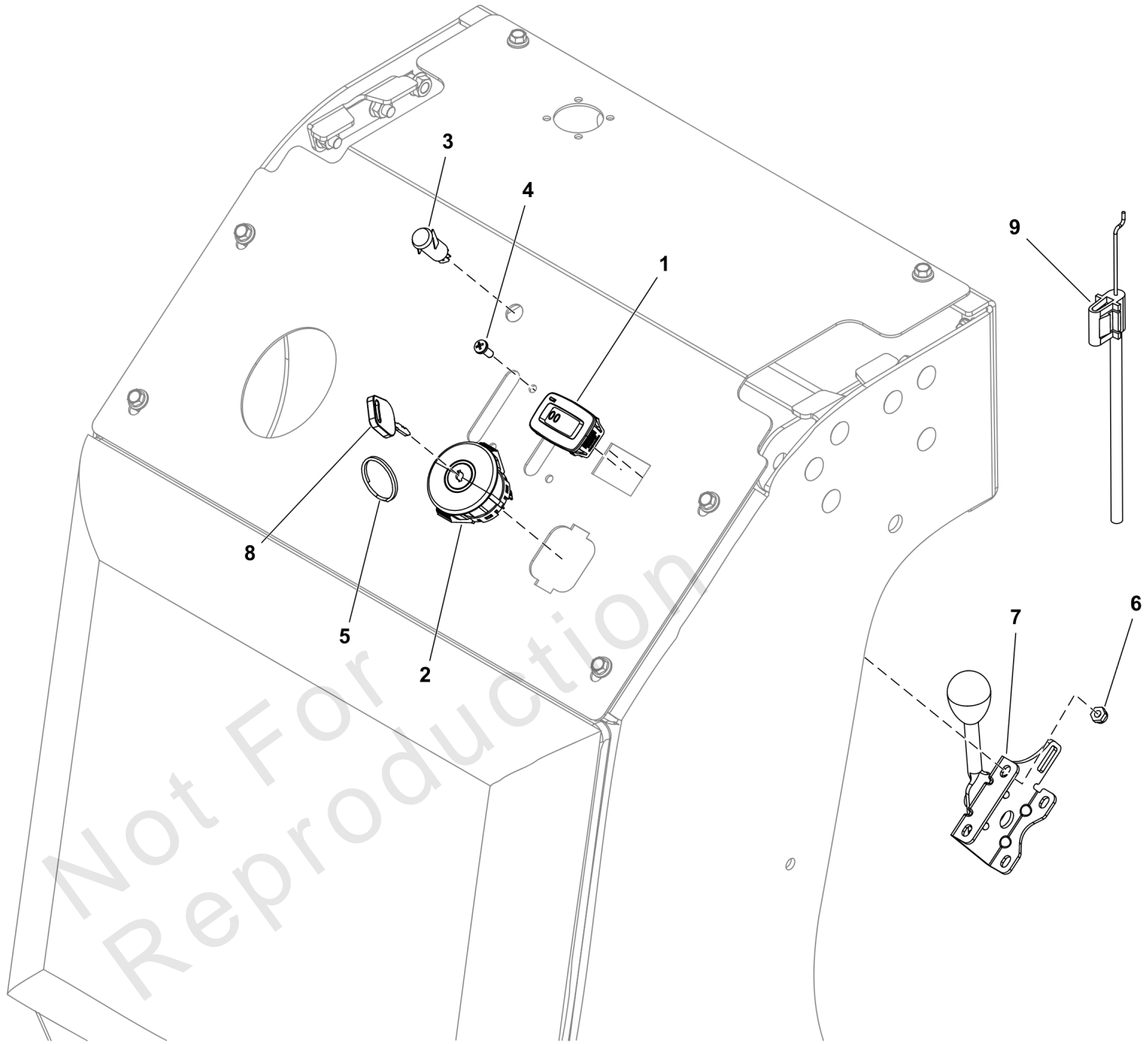
## Hydraulic Group

REF NO	PART NO	QTY	DESCRIPTION
1	5107366AAFS	1	MOUNT, TANK
2	5100473SM	2	RESERVOIR
3	5106872FS	6	BOLT
4	5025126FS	6	NUT
5	5025474SM	4	CLAMP - HOSE
6	5050857X1P75	2	HOSE, 1/2" PUSH-ON, 1.75"
7	5107224FS	2	FITTING
8	5107235FS	2	CABLE, HYDRAULIC CONTROL -(Includes item #24)
9	5025667FS	1	BOLT
10	5025156FS	1	WASHER
11	5107370FS	1	SPACER
12	5107188FS	1	TRANSAXLE -(S/N: 40015467047 and below)
12	84006968	1	TRANSAXLE -(S/N: 40015467048 and above)
13	5107186	1	TRANSAXLE, ZT3100, LH, ZJ-HCRP-3A7B-19XX -(S/N: 40015467047 and below)
13	84006969	1	TRANSAXLE -(S/N: 40015467048 and above)
14	84013010	4	KIT, Hardware -(Includes ref #14 - Qty (4) and ref #15 - Qty (4)).
15	5025666FS	4	NUT
16	5106813FS	1	BELT
17	5106923FS	1	SPRING
18	5025017X16YP	2	BOLT, 1/2-13 X 2 GD5
19	5107103FS	1	PULLEY, IDLER
20	770225	1	NUT
21	5107365AAFS	1	ARM, IDLER
22	5025056FS	1	NUT
23	5107348FS	4	WASHER
24	5106888FS	2	SPRING, EXTENSION
25	5108012FS	2	KEY
26	5025394SM	5	NUT, 3/8-16 HEX NYLOCK
27	5106859FS	4	BOLT

# Instrument Control Panel Group

Note: Unless noted otherwise, use the standard torque specifications

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## ***Instrument Control Panel Group***

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<b>REF NO</b>	<b>PART NO</b>	<b>QTY</b>	<b>DESCRIPTION</b>
1	5106789FS	1	METER, HOUR
2	5107021FS	1	SWITCH, Ignition
3	5106974FS	1	LIGHT, INDICATOR
4	5025179X4SM	4	SCREW, #10-24 X 1/2" ROUND PHILLIPS
5	5108012FS	1	KEY
6	5025271FS	4	NUT
7	5107399FS	2	LEVER, THROTTLE CONTROL
8	1714054SM	2	KEY-IGNITIOM W/PLASTI
9	5101890	2	CABLE, THROTTLE, 31"

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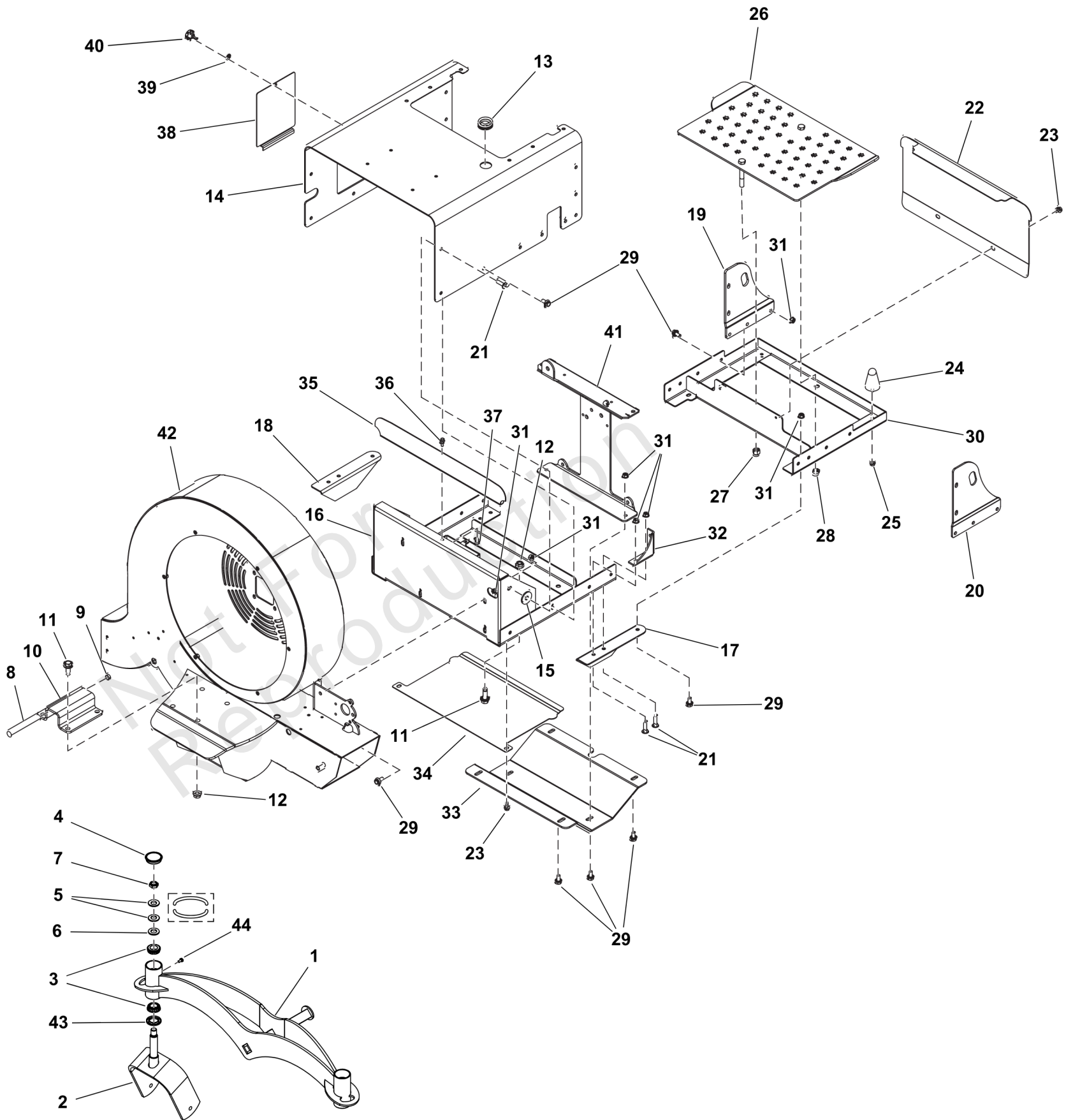
**Footnotes:**

(Key Ring for ignition keys)

# Main Frame Group

Note: Unless noted otherwise, use the standard torque specifications

Mfg. No: 5902184

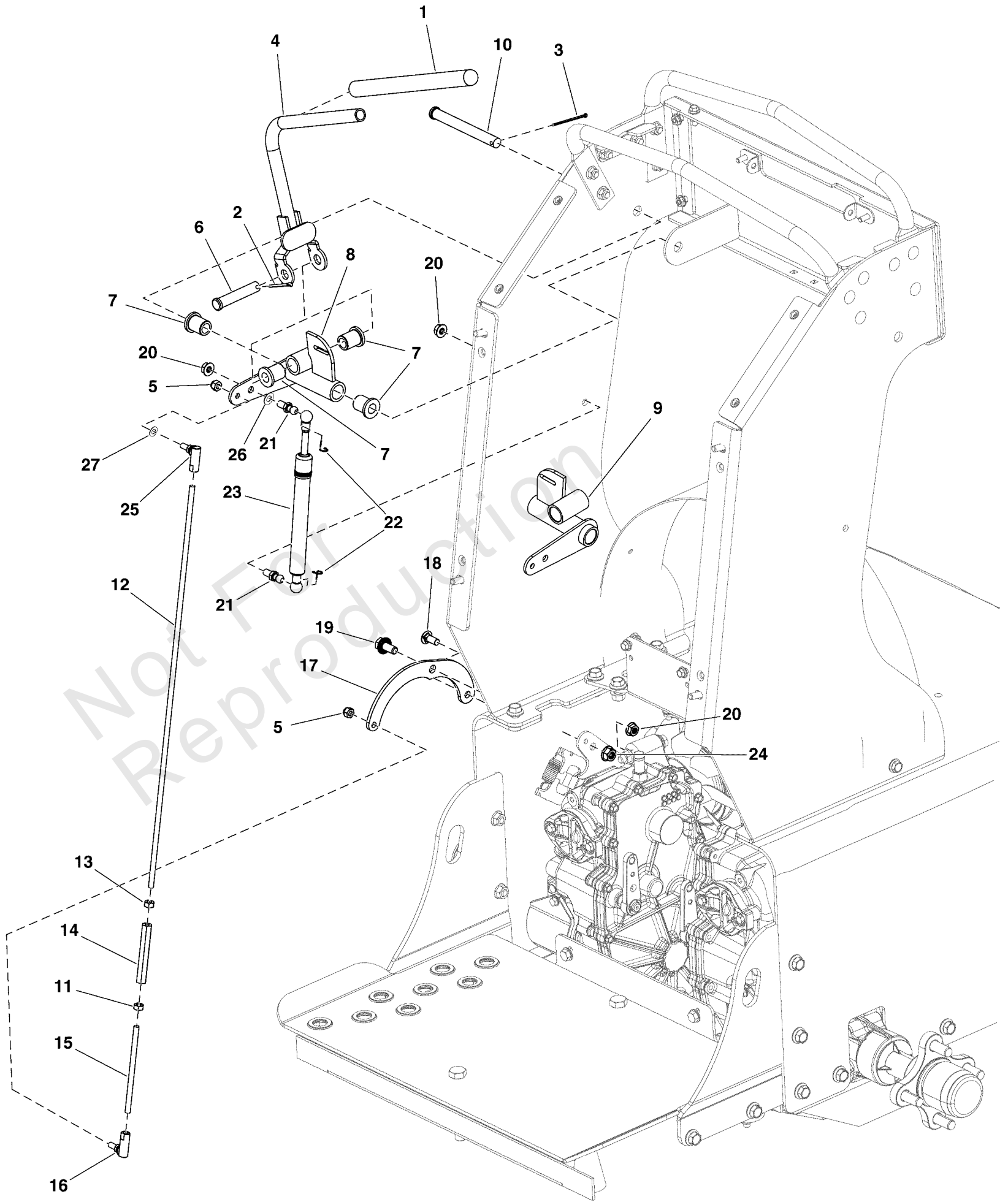


## Main Frame Group

REF NO	PART NO	QTY	DESCRIPTION
1	5423406A	1	WELD, FRONT END PIVOT, X3 - BLK
2	84008480	2	YOKE, CASTER
3	5020884SM	4	BEARING, TAPERED ROLL
4	5109845FS	2	CAP
5	5025449SM	4	WASHER, BELLEVILLE
6	5025160SM	2	WASHER, 3/4" SAE
7	5025448SM	2	NUT - 3/4-16 HEX JAM
8	5107356FS	4	CORD
9	-----	2	RUBBER BAND -(Not a serviceable part.)
10	5419091ADFS	1	PLATE
11	5106786FS	6	BOLT
12	5106787FS	6	NUT
13	5106788FS	1	GROMMET, RUBBER -(Refer to Note:*)
14	5418509AFS	1	BOX, MOTOR
15	5107390FS	2	SPACER
16	5107435AFS	1	BOX, FRAME
17	5107383AFS	1	BRACKET
18	5107382AFS	1	BRACKET
19	5418520A	1	PLATE, TIE DOWN RH - BLK
20	5418521A	1	PLATE TIE DOWN LH - BLK
21	5025390X10FS	10	BOLT
22	5419300A	1	PLATE, TOE KICK, FB2000 - BLK
23	5106898FS	4	SCREW
24	5107206FS	4	BUMPER
25	5025127SM	4	NUT, 5/16-18 HEX SERR
26	5418525AFS	1	PLATFORM
27	5025056FS	1	NUT
28	5025646FS	1	NUT
29	5106881FS	28	BOLT
30	84008760	1	FRAME, Rear
31	5025666FS	38	NUT
32	5107387AFS	2	SUPPORT, Transaxle
33	5107384AFS	1	PLATE
34	5107385AFS	1	GUARD
35	5107386AFS	1	GUARD
36	5106872FS	2	BOLT
37	5025126FS	2	NUT
38	5419192AFS	1	PLATE
39	5107350FS	1	WASHER
40	5106913FS	1	CAPSCREW
41	5107388AFS	1	TRANS, I-BEAM
42	80141027	1	BLOWER HSG W/ DECALS, X3000
43	5021072SM	2	SEAL, GREASE
44	5025457SM	2	BOLT - 1/4-28 X 1/2

### Footnotes:

Note: \*This grommet is also included with the unit's wiring harness.



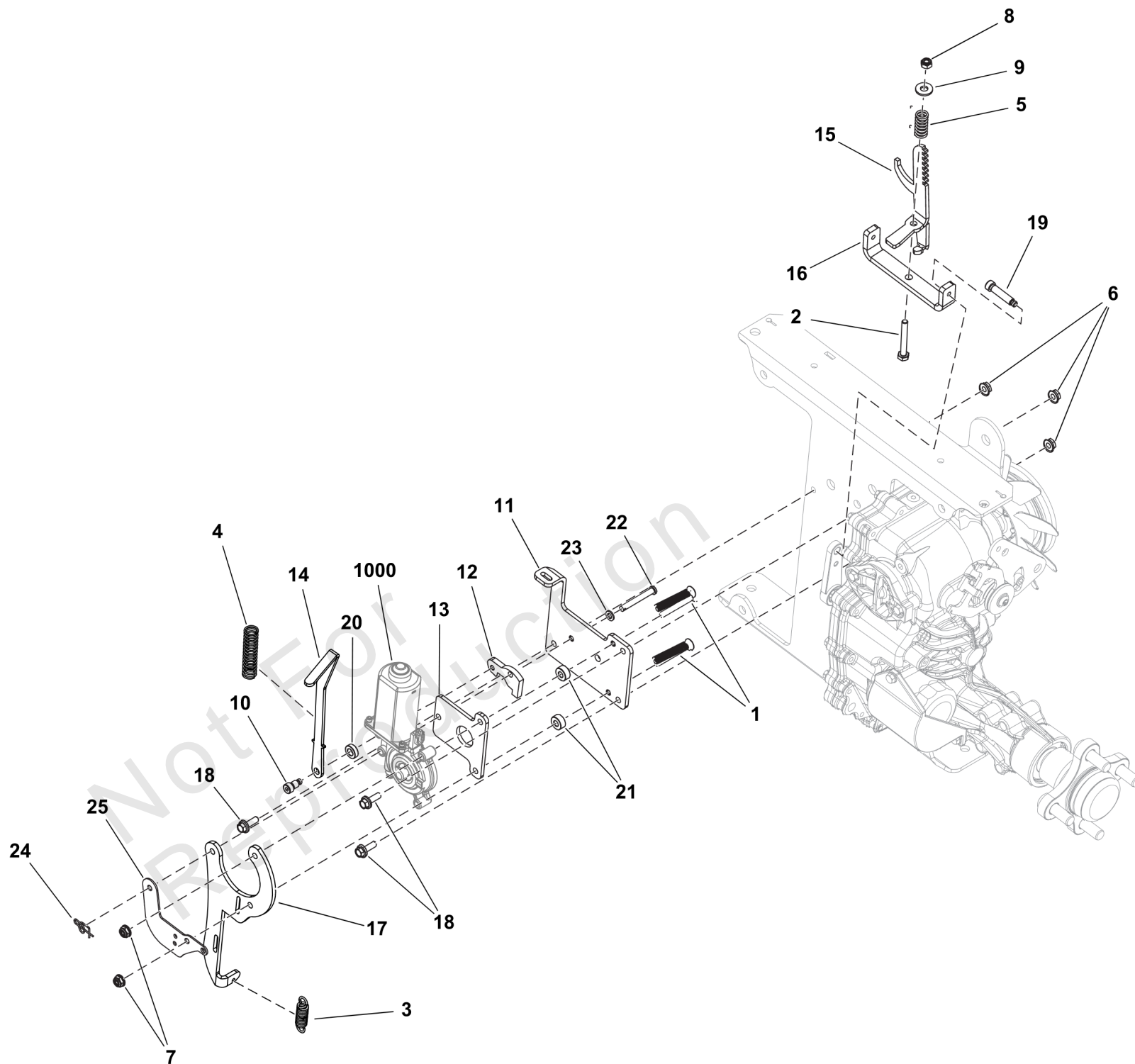
## Motion Control Group

REF NO	PART NO	QTY	DESCRIPTION
1	5106940FS	2	GRIP
2	5025203X12	2	PIN, COTTER, 1/8 X 1 1/2, CZ
3	5107351FS	2	PIN, COTTER
4	5107368FS	2	CONTROL, HANDLE
5	5106892FS	4	NUT
6	5022044SM	2	PIN, CLEVIS, 1/2 X 2-
7	5106943FS	8	BUSHING
8	5107369FS	1	BRACKET, Control
9	5107367FS	1	BRACKET
10	5025456FS	2	PIN, CLEVIS
11	7090095FS	2	NUT, 1/4
12	5107108FS	2	ROD
13	5106858FS	2	NUT
14	5106971FS	2	TUBE, CONNECTING
15	5107303FS	2	ROD
16	5106802FS	2	JOINT, BALL
17	5107241AAFS	2	ARM, Control
18	5025145X6SM	2	BOLT, 5/16-18 X 3/4",
19	5106881FS	2	BOLT
20	5025127SM	6	NUT, 5/16-18 HEX SERR
21	5100941SM	4	BALL STUD
22	5106969FS	4	CLIP
23	5107193FS	2	DAMPENER
24	5025666FS	2	NUT
25	5106803FS	2	JOINT, BALL
26	703350	2	WASHER
27	703332	2	WASHER

# Parking Brake Group S/N: 4002219159 and above

Note: Unless noted otherwise, use the standard torque specifications

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**Parking Brake Group S/N: 4002219159 and above**

REF NO	PART NO	QTY	DESCRIPTION
1	5106908FS	2	SCREW
2	5025010X16FS	1	BOLT
3	5106888FS	1	SPRING, EXTENSION
4	5106910FS	1	SPRING, Compression
5	5106911FS	1	SPRING, COMPRESSION
6	5025126FS	3	NUT
7	5025391FS	2	NUT
8	5025095SM	1	NUT, 1/4-20 HEX NYLON
9	5106815FS	1	WASHER
10	5106912FS	1	BOLT
11	5107321FS	1	PLATE
12	5107322FS	1	PLATE
13	5107324FS	1	PLATE
14	5107328FS	1	PLATE
15	5107325FS	1	BRACKET, BRAKE
16	5110201FS	1	ARM, Lever
17	5107327FS	1	PLATE, SWITCH
18	5106872FS	3	BOLT
19	5106941FS	2	BOLT
20	84008621	1	SPACER
21	84008622	2	SPACER
22	84008623	1	PIN, Clevis
23	84008624	1	WASHER, Flat
24	703355	1	COTTER PIN, 3/8
25	84008625	1	PLATE, Switch
1000	----	0	Refer to: Electrical Group

# Transaxle SERVICE Parts - 84006968 and 84006969

Note: Unless noted otherwise, use the standard torque specifications

Mfg. No: 5902184

## Service Parts Schematic for Hydro-Gear® Transaxles:

ZJ-LCRP-SB7C-19XX (84006968)

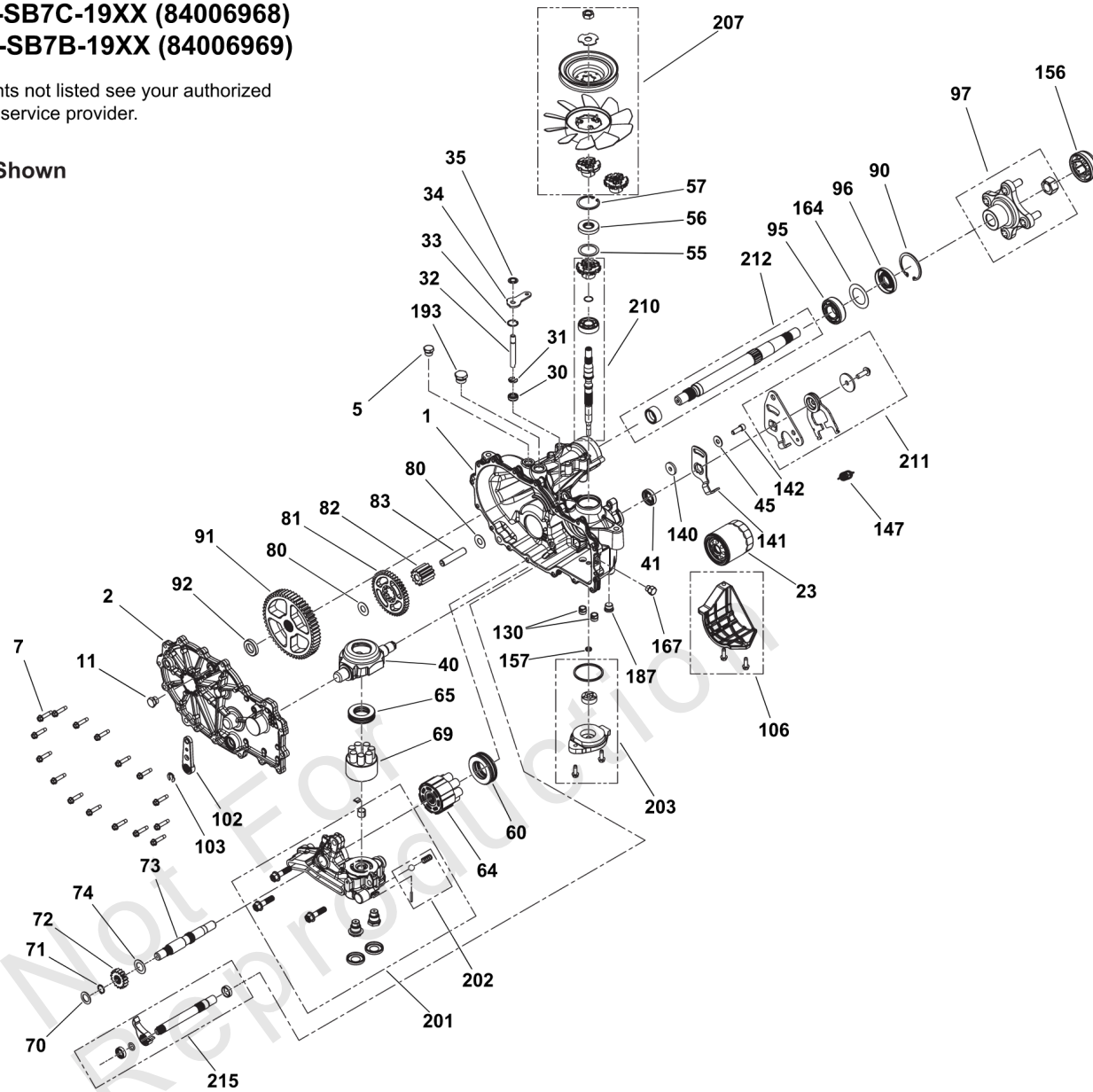
ZJ-HCRP-SB7B-19XX (84006969)

For components not listed see your authorized Hydro-Gear® service provider.

### Items Not Shown

13 - Sealant

200 - Seal Kit



**Transaxle SERVICE Parts - 84006968 and 84006969**

REF NO	PART NO	QTY	DESCRIPTION
1	----	1	KIT, HOUSING, MAIN, LH, CHRG, CNTL
2	----	1	KIT, SIDE COVER, LH
5	----	1	PLUG EXTERNAL HEX VENT 9/16-18
7	----	16	SCREW, HEX WASHER
11	----	1	PLUG EXTERNAL HEX VENT 9/16-18
13	----	1	TUBE, SEALANT
23	5101026X1SM	1	FILTER, OIL,
30	----	1	SEAL, LIP .375 X .75 X .25
31	----	1	BYPASS RETAINING RING 1
32	----	1	ROD, BYPASS .375 X 2.88
33	----	1	BYPASS RETAINING RING 2
34	----	1	ARM, BYPASS
35	----	1	RING, RETAINING .375 EXTERNAL
40	----	1	SWASHPLATE, TRUNNION
41	5101026X2SM	1	SEAL, LIP
45	----	1	WASHER, .34X.88X.06
55	1730272SM	1	SPACER
56	5023414SM	1	Lip Seal 17 x 40 x 7 PTC
57	5023415SM	1	Spacer
60	----	1	BEARING, THRUST 35 x 62 x 18
64	----	1	KIT, 16cc CYLINDER BLOCK ASSEMBLY STEAM TREAT
65	----	1	BEARING, THRUST 30 x 52 x 13
69	----	1	KIT, BLOCK 7 PISTON
70	----	1	WASHER, .63 X 1.00 X .05 FLAT
71	1706130SM	1	SNAP RING
72	----	1	GEAR, 16T (STEEL)
73	----	1	SHAFT, MOTOR
74	----	1	WASHER, .71 X 1.16 X .04 FLAT
80	----	2	WASHER, .51 X 1.00 X .03 FLAT
81	----	1	GEAR, 43T
82	----	1	GEAR, 11T (STEEL)
83	----	1	PIN, JACKSHAFT
90	----	1	RING, RETAINING 2.25 INTERNAL
91	----	1	GEAR, 54T
92	----	1	SPACER, .750 X 1.320 X .257
95	5101026X5	1	BEARING BALL, 1.0 X 52 X 15 OPEN 6205M
96	5101026X16	1	SEAL, LIP, AXLE, #53699
97	5103589X8	1	ASSM, HUB
102	5103750	1	BRAKE ARM, ZT3400
103	5104055	1	E-CLIP, BRAKE ARM, ZT3100 & ZT3400
106	----	1	KIT, FILTER GUARD
130	----	2	TUBE, CHARGE TRIPLE O-RING
140	----	1	SPACER, .320X1.005X.179
141	----	1	ARM, NEUTRAL, LH
142	----	1	SHCS, 5/16-24 X .875 (PATCH)
147	1735483	1	SPRING, Extension (Used on Hydro-Gear P/N ZC-AHBB-2A7B-1DPX and ZC-AHBB-2A7B-1DPX)
156	5103589X7	1	AXLE CAP,
157	----	1	KIT, GEROTOR SEAL
164	----	1	WASHER, 1.355 x 2.035 x .021 FLAT
167	----	1	PLUG 7/16 HEX

# Transaxle SERVICE Parts - 84006968 and 84006969

Note: Unless noted otherwise, use the standard torque specifications

Mfg. No: 5902184

## Service Parts Schematic for Hydro-Gear® Transaxles:

ZJ-LCRP-SB7C-19XX (84006968)

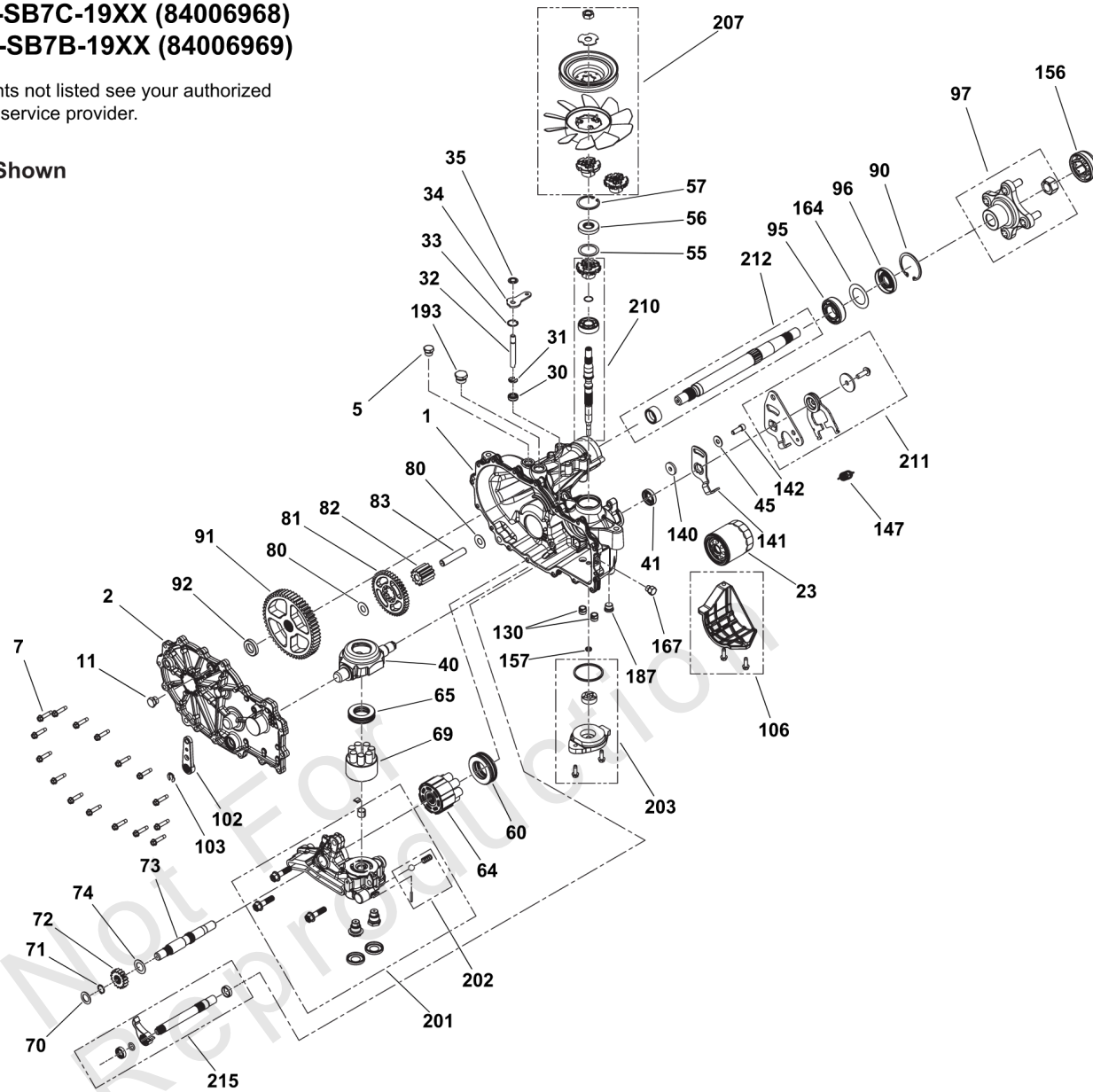
ZJ-HCRP-SB7B-19XX (84006969)

For components not listed see your authorized Hydro-Gear® service provider.

### Items Not Shown

13 - Sealant

200 - Seal Kit



## Transaxle SERVICE Parts - 84006968 and 84006969

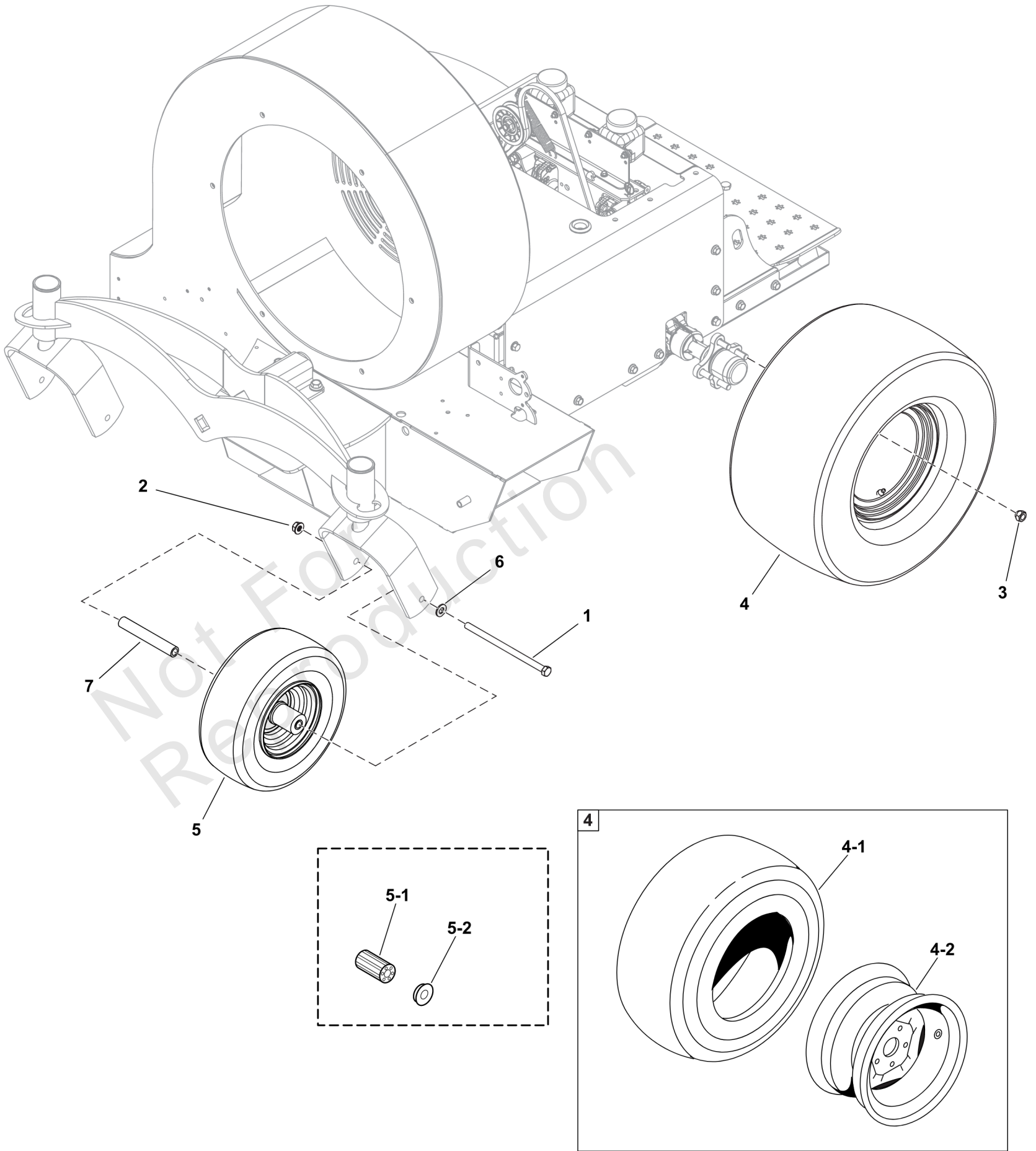
REF NO	PART NO	QTY	DESCRIPTION
187	-----	1	PLUG, 9/16-18 STR THREAD SOCKET HEAD
193	-----	1	PLUG, 3/4-16
200	5101026X8	1	KIT SEAL
201	-----	1	KIT, CENTER SECTION, LH CHARGE
202	-----	1	KIT, CHARGE RELIEF
203	5105085X1	1	KIT, CHARGE, H-G #72274
207	-----	1	KIT, FAN / PULLEY
209	-----	1	KIT, HUB PULLER
210	-----	1	KIT, INPUT SHAFT
211	1735490	1	KIT, L.H. Control Arm
212	HG71569	1	KIT, SHAFT AXLE
215	-----	1	KIT, INBOARD, RH ROT B / LH ROT A

Not For Reproduction

# Wheel and Tire Group

Note: Unless noted otherwise, use the standard torque specifications

Mfg. No: 5902184



## Wheel and Tire Group

REF NO	PART NO	QTY	DESCRIPTION
1	5025017X56YP	2	BOLT, 1/2-13 X 7 GD5
2	770225	2	NUT
3	5020601SM	8	NUT, 1/2-20, FOR WHEEL BOLT SILVER
4	5107874FS	2	TIRE ASSEMBLY
4-1	5107874X1	2	TIRE, 20-8 x 8 4PLY (TIRE ONLY) -(One per tire)
4-2	-----	2	WHEEL, 8 X 6.125 BW, 4 ON 4BC, RIM ONLY -(Not available for sale. Refer to Complete Tire Assembly)
5	5100715YP	2	TIRE ASSM
5-1	5101418X1	4	BEARING, CASTER WHEEL, 11 X 4.0 - 5 BEAD LOCK (SV) -(2 per tire)
5-2	5021043	4	RETAINER, BEARING (TWO PER TIRE)(SV) -(2 per tire)
6	5025158SM	2	WASHER, 1/2" SAE
7	5045996SM	2	CASTER AXLE DDSH

Not For Reproduction

# 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.

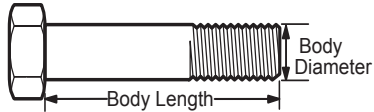


Nut, M8

Thread Diameter (mm)

Inside Diameter (in)      Threads per inch

Nut, 1/2-16

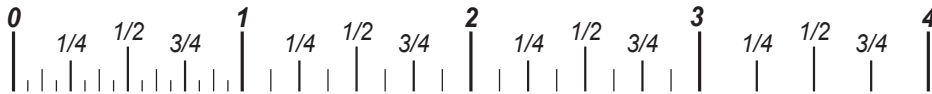


Screw, M8- 1.25 x 25

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).

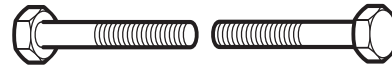
When bolt or capscrew is identified as 1/2 - 16 x 2" (M8 - 1.25 x 50), this means the *Nominal size*, or body diameter is 1/2 inch (8mm metric thread diameter), the second number, 16, represents the *threads per inch*, (*distance between threads*). The final number is the body length of the bolt or screw,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

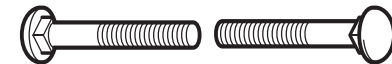
Hex Head Capscrew



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

